# 8 Message functional definitions and contents

## 8.1 Overview

This clause defines the structure of the messages of the Layer 3 (L3) protocols defined in the present document. These are standard L3 messages as defined in 3GPP TS 24.007 [12].

Each definition given in the present clause includes:

a) a brief description of the message direction and use, including whether the message has:

1. Local significance, i.e. relevant only on the originating or terminating access;

2. Access significance, i.e. relevant in the originating and terminating access, but not in the network;

3. Dual significance, i.e. relevant in either the originating or terminating access and in the network; or

4. Global significance, i.e. relevant in the originating and terminating access and in the network.

b) a table listing the Information Elements (IE) known in the message and the order of their appearance in the message. All IEs that may be repeated are explicitly indicated (The V, LV and LV-E formatted IEs, which compose the imperative part of the message, occur before the T, TV, TLV and TLV-E formatted IEs which compose the non-imperative part of the message, see 3GPP TS 24.007 [12]). In a (maximal) sequence of consecutive IEs with half octet length, the first IE with half octet length occupies bits 1 to 4 of octet N, the second IE bits 5 to 8 of octet N, the third IE bits 1 to 4 of octet N+1 etc. Such a sequence always has an even number of elements.

For each information element the table indicates:

1. The Information Element Identifier (IEI), in hexadecimal notation, if the IE has format T, TV, TLV or TLV‑E. If the IEI has half octet length, it is specified by a notation representing the IEI as a hexadecimal digit followed by a "-" (example: B-).

NOTE: The same IEI can be used for different information element types in different messages of the same protocol.

2. The name of the information element (which may give an idea of the semantics of the element). The name of the information element followed by "IE" or "information element" is used in this technical report as reference to the information element within a message.

3. The name of the type of the information element (which indicates the coding of the value part of the IE), and generally, the referenced subclause of clause 9 of the present document describing the value part of the information element.

4. The presence requirement indication (M, C, or O) for the IE as defined in 3GPP TS 24.007 [12].

5. The format of the information element (T, V, TV, LV, TLV, LV-E or TLV-E) as defined in 3GPP TS 24.007 [12].

6. The length of the information element (or permissible range of lengths), in octets, in the message, where "?" means that the maximum length of the IE is only constrained by link layer protocol. This indication is non-normative.

c) subclauses specifying, where appropriate, conditions for IEs with presence requirement C or O in the relevant message which together with other conditions specified in the present document define when the information elements shall be included or not, what non-presence of such IEs means, and – for IEs with presence requirement C – the static conditions for presence or non-presence of the IEs or for both cases (see 3GPP TS 24.007 [12]).

## 8.2 EPS mobility management messages

### 8.2.1 Attach accept

#### 8.2.1.1 Message definition

This message is sent by the network to the UE to indicate that the corresponding attach request has been accepted. See table 8.2.1.1.

Message type: ATTACH ACCEPT

Significance: dual

Direction: network to UE

Table 8.2.1.1: ATTACH ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Attach accept message identity | Message type  9.8 | M | V | 1 |
|  | EPS attach result | EPS attach result  9.9.3.10 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.9.2.9 | M | V | 1/2 |
|  | T3412 value | GPRS timer  9.9.3.16 | M | V | 1 |
|  | TAI list | Tracking area identity list  9.9.3.33 | M | LV | 7-97 |
|  | ESM message container | ESM message container  9.9.3.15 | M | LV-E | 5-n |
| 50 | GUTI | EPS mobile identity  9.9.3.12 | O | TLV | 13 |
| 13 | Location area identification | Location area identification  9.9.2.2 | O | TV | 6 |
| 23 | MS identity | Mobile identity  9.9.2.3 | O | TLV | 7-10 |
| 53 | EMM cause | EMM cause  9.9.3.9 | O | TV | 2 |
| 17 | T3402 value | GPRS timer  9.9.3.16 | O | TV | 2 |
| 59 | T3423 value | GPRS timer  9.9.3.16 | O | TV | 2 |
| 4A | Equivalent PLMNs | PLMN list  9.9.2.8 | O | TLV | 5-47 |
| 34 | Emergency number list | Emergency number list  9.9.3.37 | O | TLV | 5-50 |
| 64 | EPS network feature support | EPS network feature support  9.9.3.12A | O | TLV | 3-4 |
| F- | Additional update result | Additional update result  9.9.3.0A | O | TV | 1 |
| 5E | T3412 extended value | GPRS timer 3  9.9.3.16B | O | TLV | 3 |
| 6A | T3324 value | GPRS timer 2  9.9.3.16A | O | TLV | 3 |
| 6E | Extended DRX parameters | Extended DRX parameters  9.9.3.46 | O | TLV | 3 |
| 65 | DCN-ID | DCN-ID  9.9.3.48 | O | TLV | 4 |
| E- | SMS services status | SMS services status  9.9.3.4B | O | TV | 1 |
| D- | Non-3GPP NW provided policies | Non-3GPP NW provided policies  9.9.3.49 | O | TV | 1 |
| 6B | T3448 value | GPRS timer 2  9.9.3.16A | O | TLV | 3 |
| C- | Network policy | Network policy  9.9.3.52 | O | TV | 1 |
| 6C | T3447 value | GPRS timer 3  9.9.3.16B | O | TLV | 3 |
| 7A | Extended emergency number list | Extended emergency number list  9.9.3.37A | O | TLV-E | 7-65538 |
| 7C | Ciphering key data | Ciphering key data  9.9.3.56 | O | TLV-E | 35-2291 |
| 66 | UE radio capability ID | UE radio capability ID  9.9.3.60 | O | TLV | 3-n |
| B- | UE radio capability ID deletion indication | UE radio capability ID deletion indication  9.9.3.61 | O | TV | 1 |

#### 8.2.1.2 GUTI

This IE may be included to assign a GUTI to the UE during attach or combined EPS/IMSI attach.

#### 8.2.1.3 Location area identification

This IE may be included to assign a new location area identification to a UE during a combined attach.

#### 8.2.1.4 MS identity

This IE may be included to assign or unassign a new TMSI to a UE during a combined attach.

#### 8.2.1.5 EMM cause

This IE shall be included when IMSI attach for non-EPS services is not successful during a combined EPS/IMSI attach procedure.

#### 8.2.1.6 T3402 value

This IE may be included to indicate a value for timer T3402.

#### 8.2.1.7 T3423 value

This IE may be included to indicate a value for timer T3423.

If this IE is not included, the UE shall use the default value.

#### 8.2.1.8 Equivalent PLMNs

This IE may be included in order to assign a new equivalent PLMNs list to a UE.

#### 8.2.1.9 Emergency number list

This IE may be sent by the network. If this IE is sent, the contents of this IE indicates a list of emergency numbers valid within the same country as in the PLMN from which this IE is received.

#### 8.2.1.9A Extended emergency number list

This IE may be sent by the network. If this IE is sent, the contents of this IE indicates a list of emergency numbers (with URN information) valid within the same country as in the PLMN from which this IE is received or valid only in the PLMN from which this IE is received.

#### 8.2.1.10 EPS network feature support

The network may include this IE to inform the UE of the support of certain features. If this IE is not included then the UE shall interpret this as a receipt of an information element with all bits of the value part coded as zero, except for the S1-u data transfer (S1-U data) (octet 4, bit 2).

NOTE: In this exceptional case, the UE deems that the network supports S1-u data transfer.

#### 8.2.1.11 Additional update result

The network may include this IE to provide the UE with additional information about the result of:

- a combined attach procedure if the procedure was successful for EPS services and non-EPS services, or for EPS services and "SMS only"; or

- an attach procedure requested for CIoT EPS optimizations if the procedure was successful for EPS services and "SMS only".

#### 8.2.1.12 T3412 extended value

The network may include this IE to provide the UE with longer periodic tracking area update timer.

#### 8.2.1.13 T3324 value

The network shall include the T3324 value IE if:

- the UE included the T3324 value IE in the ATTACH REQUEST message; and

- the network supports PSM and accepts the use of PSM.

#### 8.2.1.14 Extended DRX parameters

The network shall include the Extended DRX parameters IE if:

- the UE included the Extended DRX parameters IE in the ATTACH REQUEST message; and

- the network supports eDRX and accepts the use of eDRX.

#### 8.2.1.15 DCN-ID

This IE is included in the message when the network wishes to provide a DCN-ID to the UE.

#### 8.2.1.16 SMS services status

This IE may be included when a normal attach procedure for EPS services and "SMS only" was successful for EPS services only.

#### 8.2.1.17 Non-3GPP NW provided policies

This IE is included if the network needs to indicate whether emergency numbers provided via non-3GPP access can be used to initiate UE detected emergency calls (see 3GPP TS 24.302 [48]). If this IE is not included then the UE shall interpret this as a receipt of an information element with all bits of the value part coded as zero.

#### 8.2.1.18 T3448 value

The network may include this IE if the congestion control for transport of user data via the control plane is active and the UE supports timer T3448.

#### 8.2.1.19 Network policy

This IE is included if the network needs to indicate network policy information to the UE, If this IE is not included then the UE shall interpret this as a receipt of an information element with all bits of the value part coded as zero.

#### 8.2.1.20 T3447 value

The network may include T3447 value IE if:

- the UE has indicated support for service gap control in the ATTACH REQUEST message; and

- the EMM context contains a service gap time value.

#### 8.2.1.21 Ciphering key data

This IE is included if the network needs to send ciphering key data to the UE for ciphered broadcast assistance data.

#### 8.2.1.22 UE radio capability ID

This IE may be included in WB-S1 mode if both the UE and the network supports RACS and the network needs to assign a network-assigned UE radio capability ID to the UE.

#### 8.2.1.23 UE radio capability ID deletion indication

This IE may be included in WB-S1 mode if both the UE and the network supports RACS and the network needs to trigger the UE to delete all network-assigned UE radio capability IDs stored at the UE for the serving PLMN.

#### 8.2.1.24 Negotiated WUS assistance information

The network shall include the Negotiated WUS assistance information IE if:

- the UE supports WUS assistance; and

- the MME supports and accepts the use of WUS assistance.

### 8.2.2 Attach complete

This message is sent by the UE to the network in response to an ATTACH ACCEPT message. See table 8.2.2.1.

Message type: ATTACH COMPLETE

Significance: dual

Direction: UE to network

Table 8.2.2.1: ATTACH COMPLETE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Attach complete message identity | Message type  9.8 | M | V | 1 |
|  | ESM message container | ESM message container  9.9.3.15 | M | LV-E | 5-n |

### 8.2.3 Attach reject

#### 8.2.3.1 Message definition

This message is sent by the network to the UE to indicate that the corresponding attach request has been rejected. See table 8.2.3.1.

Message type: ATTACH REJECT

Significance: dual

Direction: network to UE

Table 8.2.3.1: ATTACH REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Attach reject message identity | Message type  9.8 | M | V | 1 |
|  | EMM cause | EMM cause  9.9.3.9 | M | V | 1 |
| 78 | ESM message container | ESM message container  9.9.3.15 | O | TLV-E | 6-n |
| 5F | T3346 value | GPRS timer 2  9.9.3.16A | O | TLV | 3 |
| 16 | T3402 value | GPRS timer 2  9.9.3.16A | O | TLV | 3 |
| A- | Extended EMM cause | Extended EMM cause  9.9.3.26A | O | TV | 1 |

#### 8.2.3.2 ESM message container

This IE is included to carry a single ESM message.

#### 8.2.3.3 T3346 value

The MME may include this IE when the NAS level mobility management congestion control is active.

#### 8.2.3.4 T3402 value

This IE may be included to indicate a value for timer T3402.

#### 8.2.3.5 Extended EMM cause

This IE may be included by the network to indicate additional information associated with the EMM cause.

### 8.2.4 Attach request

#### 8.2.4.1 Message definition

This message is sent by the UE to the network in order to perform an attach procedure. See table 8.2.4.1.

Message type: ATTACH REQUEST

Significance: dual

Direction: UE to network

Table 8.2.4.1: ATTACH REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Attach request message identity | Message type  9.8 | M | V | 1 |
|  | EPS attach type | EPS attach type  9.9.3.11 | M | V | 1/2 |
|  | NAS key set identifier | NAS key set identifier  9.9.3.21 | M | V | 1/2 |
|  | EPS mobile identity | EPS mobile identity  9.9.3.12 | M | LV | 5-12 |
|  | UE network capability | UE network capability  9.9.3.34 | M | LV | 3-14 |
|  | ESM message container | ESM message container  9.9.3.15 | M | LV-E | 5-n |
| 19 | Old P-TMSI signature | P-TMSI signature  9.9.3.26 | O | TV | 4 |
| 50 | Additional GUTI | EPS mobile identity  9.9.3.12 | O | TLV | 13 |
| 52 | Last visited registered TAI | Tracking area identity  9.9.3.32 | O | TV | 6 |
| 5C | DRX parameter | DRX parameter  9.9.3.8 | O | TV | 3 |
| 31 | MS network capability | MS network capability  9.9.3.20 | O | TLV | 4-10 |
| 13 | Old location area identification | Location area identification  9.9.2.2 | O | TV | 6 |
| 9- | TMSI status | TMSI status  9.9.3.31 | O | TV | 1 |
| 11 | Mobile station classmark 2 | Mobile station classmark 2  9.9.2.4 | O | TLV | 5 |
| 20 | Mobile station classmark 3 | Mobile station classmark 3  9.9.2.5 | O | TLV | 2-34 |
| 40 | Supported Codecs | Supported Codec List  9.9.2.10 | O | TLV | 5-n |
| F- | Additional update type | Additional update type 9.9.3.0B | O | TV | 1 |
| 5D | Voice domain preference and UE's usage setting | Voice domain preference and UE's usage setting  9.9.3.44 | O | TLV | 3 |
| D- | Device properties | Device properties  9.9.2.0A | O | TV | 1 |
| E- | Old GUTI type | GUTI type  9.9.3.45 | O | TV | 1 |
| C- | MS network feature support | MS network feature support  9.9.3.20A | O | TV | 1 |
| 10 | TMSI based NRI container | Network resource identifier container  9.9.3.24A | O | TLV | 4 |
| 6A | T3324 value | GPRS timer 2  9.9.3.16A | O | TLV | 3 |
| 5E | T3412 extended value | GPRS timer 3  9.9.3.16B | O | TLV | 3 |
| 6E | Extended DRX parameters | Extended DRX parameters  9.9.3.46 | O | TLV | 3 |
| 6F | UE additional security capability | UE additional security capability  9.9.3.53 | O | TLV | 6 |
| 6D | UE status | UE status  9.9.3.54 | O | TLV | 3 |
| 17 | Additional information requested | Additional information requested  9.9.3.55 | O | TV | 2 |
| 32 | N1 UE network capability | N1 UE network capability  9.9.3.57 | O | TLV | 3-15 |

#### 8.2.4.2 Old P-TMSI signature

The UE shall include this IE if the UE holds a valid P-TMSI signature, P-TMSI and RAI, and the TIN either indicates "P-TMSI" or is deleted. If the UE is configured for "AttachWithIMSI" as specified in 3GPP TS 24.368 [15A] or 3GPP TS 31.102 [17] and is attaching in a new PLMN that is neither the registered PLMN nor in the list of equivalent PLMNs, the UE shall not include this IE.

#### 8.2.4.3 Additional GUTI

The UE shall include this IE if the TIN indicates "P-TMSI" and the UE holds a valid GUTI, P-TMSI and RAI. If the UE is configured for "AttachWithIMSI" as specified in 3GPP TS 24.368 [15A] or 3GPP TS 31.102 [17] and is attaching in a new PLMN that is neither the registered PLMN nor in the list of equivalent PLMNs, the UE shall not include this IE.

#### 8.2.4.4 Last visited registered TAI

This IE shall be included if the UE holds a valid last visited registered TAI.

#### 8.2.4.5 DRX parameter

This IE is included if UE supports A/Gb mode or Iu mode or if the UE wants to indicate its UE specific DRX parameters to the network.

#### 8.2.4.6 MS network capability

A UE supporting A/Gb mode or Iu mode shall include this IE to indicate its capabilities to the network.

#### 8.2.4.7 Old location area identification

The UE shall include this IE during a combined attach procedure if it has a valid location area identification.

#### 8.2.4.8 TMSI status

The UE shall include this IE during combined attach procedure if it has no valid TMSI available.

#### 8.2.4.9 Mobile station classmark 2

This IE shall be included if the UE supports SRVCC to GERAN or UTRAN or supports vSRVCC to UTRAN (see 3GPP TS 23.216 [8]), or if the UE is performing a combined attach procedure.

#### 8.2.4.10 Mobile station classmark 3

This IE shall be included if the UE supports SRVCC to GERAN.

#### 8.2.4.11 Supported Codecs

This IE shall be included if the UE supports SRVCC to GERAN or UTRAN or supports vSRVCC to UTRAN to indicate its supported speech codecs for CS speech calls.

#### 8.2.4.12 Additional update type

The UE shall include this IE if the UE requests "SMS only" or CIoT EPS optimizations.

#### 8.2.4.13 Voice domain preference and UE's usage setting

This IE shall be included in WB-S1 mode if the UE supports:

- CS fallback and SMS over SGs; or

- if the UE is configured to support IMS voice, but does not support 1xCS fallback.

#### 8.2.4.14 Device properties

This IE shall be included if the UE is configured for NAS signalling low priority.

#### 8.2.4.15 Old GUTI type

The UE shall include this IE if the type of identity in the EPS mobile identity IE is set to "GUTI".

#### 8.2.4.16 MS network feature support

This IE shall be included if the UE supports extended periodic timer T3412.

#### 8.2.4.17 TMSI based NRI container

The UE shall include this IE during a combined attach procedure if it has a valid TMSI.

#### 8.2.4.18 T3324 value

The UE may include this IE to request the use of PSM.

#### 8.2.4.19 T3412 extended value

The UE may include this IE to request a particular T3412 value if the T3324 value IE is included.

#### 8.2.4.20 Extended DRX parameters

The UE may include this IE to request the use of eDRX.

#### 8.2.4.21 UE additional security capability

The UE shall include this IE if the UE supports dual connectivity with NR or if the UE supports N1 mode.

#### 8.2.4.22 UE status

This IE shall be included if the UE wants to provide the network with information concerning aspects of the current UE registration status which is used for interworking with 5GS.

#### 8.2.4.23 Additional information requested

The UE shall include this IE if the UE supports ciphered broadcast assistance data and the UE needs to obtain new ciphering keys for ciphered broadcast assistance data.

#### 8.2.4.24 N1 UE network capability

The UE shall include this IE if the UE supports N1 mode and needs to indicate the supported CIoT network behaviour for 5GCN.

#### 8.2.4.25 UE radio capability ID availability IE

The UE shall include this IE in WB-S1 mode if the UE supports RACS and the UE has an applicable UE radio capability ID for the current UE radio configuration in the selected PLMN.

#### 8.2.4.26 Requested WUS assistance information

The UE may include this IE if it supports WUS assistance.

### 8.2.5 Authentication failure

#### 8.2.5.1 Message definition

This message is sent by the UE to the network to indicate that authentication of the network has failed. See table 8.2.5.1.

Message type: AUTHENTICATION FAILURE

Significance: dual

Direction: UE to network

Table 8.2.5.1: AUTHENTICATION FAILURE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Authentication failure  message type | Message type  9.8 | M | V | 1 |
|  | EMM cause | EMM cause  9.9.3.9 | M | V | 1 |
| 30 | Authentication failure parameter | Authentication failure parameter  9.9.3.1 | O | TLV | 16 |

#### 8.2.5.2 Authentication failure parameter

This IE shall be sent if and only if the EMM cause was #21 "synch failure". It shall include the response to the authentication challenge from the USIM, which is made up of the AUTS parameter (see 3GPP TS 33.102 [18]).

### 8.2.6 Authentication reject

This message is sent by the network to the UE to indicate that the authentication procedure has failed and that the UE shall abort all activities. See table 8.2.6.1.

Message type: AUTHENTICATION REJECT

Significance: dual

Direction: network to UE

Table 8.2.6.1: AUTHENTICATION REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Authentication reject message type | Message type  9.8 | M | V | 1 |

### 8.2.7 Authentication request

This message is sent by the network to the UE to initiate authentication of the UE identity. See table 8.2.7.1.

Message type: AUTHENTICATION REQUEST

Significance: dual

Direction: network to UE

Table 8.2.7.1: AUTHENTICATION REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Authentication request message type | Message type  9.8 | M | V | 1 |
|  | NAS key set identifierASME | NAS key set identifier  9.9.3.21 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.9.2.9 | M | V | 1/2 |
|  | Authentication parameter RAND (EPS challenge) | Authentication parameter RAND  9.9.3.3 | M | V | 16 |
|  | Authentication parameter AUTN (EPS challenge) | Authentication parameter AUTN  9.9.3.2 | M | LV | 17 |

### 8.2.8 Authentication response

This message is sent by the UE to the network to deliver a calculated authentication response to the network. See table 8.2.8.1.

Message type: AUTHENTICATION RESPONSE

Significance: dual

Direction: UE to network

Table 8.2.8.1: AUTHENTICATION RESPONSE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Authentication response message type | Message type  9.8 | M | V | 1 |
|  | Authentication response parameter | Authentication response parameter  9.9.3.4 | M | LV | 5-17 |

### 8.2.9 CS service notification

#### 8.2.9.1 Message definition

This message is sent by the network when a paging request with CS call indicator was received via SGs for a UE, and a NAS signalling connection is already established for the UE. See table 8.2.9.1.

Message type: CS SERVICE NOTIFICATION

Significance: dual

Direction: network to UE

Table 8.2.9.1: CS SERVICE NOTIFICATION message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | CS service notification message identity | Message type  9.8 | M | V | 1 |
|  | Paging identity | Paging identity  9.9.3.25A | M | V | 1 |
| 60 | CLI | CLI  9.9.3.38 | O | TLV | 3-14 |
| 61 | SS Code | SS Code  9.9.3.39 | O | TV | 2 |
| 62 | LCS indicator | LCS indicator  9.9.3.40 | O | TV | 2 |
| 63 | LCS client identity | LCS client identity  9.9.3.41 | O | TLV | 3-257 |

#### 8.2.9.2 CLI

The network shall send this IE if it was received via SGs. It contains the identification of the calling line for the mobile terminating call in the CS domain, which triggered the paging via SGs.

#### 8.2.9.3 SS Code

The network shall send this IE if it was received via SGs. It contains information on the supplementary service transaction in the CS domain, which triggered the paging via SGs.

#### 8.2.9.4 LCS indicator

The network shall send this IE if it was received via SGs. It indicates that the paging was triggered by a terminating LCS request in the CS domain.

#### 8.2.9.5 LCS client identity

The network shall send this IE if received via SGs. It contains information related to the requestor of the terminating LCS request in the CS domain.

### 8.2.10 Detach accept

#### 8.2.10.1 Detach accept (UE originating detach)

This message is sent by the network to indicate that the detach procedure has been completed. See table 8.2.10.1.1.

Message type: DETACH ACCEPT

Significance: dual

Direction: network to UE

Table 8.2.10.1.1: DETACH ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Detach accept message identity | Message type  9.8 | M | V | 1 |

#### 8.2.10.2 Detach accept (UE terminated detach)

This message is sent by the UE to indicate that the detach procedure has been completed. See table 8.2.10.2.1.

Message type: DETACH ACCEPT

Significance: dual

Direction: UE to network

Table 8.2.10.2.1: DETACH ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Detach accept message identity | Message type  9.8 | M | V | 1 |

### 8.2.11 Detach request

#### 8.2.11.1 Detach request (UE originating detach)

This message is sent by the UE to request the release of an EMM context. See table 8.2.11.1.1.

Message type: DETACH REQUEST

Significance: dual

Direction: UE to network

Table 8.2.11.1.1: DETACH REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Detach request message identity | Message type  9.8 | M | V | 1 |
|  | Detach type | Detach type  9.9.3.7 | M | V | 1/2 |
|  | NAS key set identifier | NAS key set identifier  9.9.3.21 | M | V | 1/2 |
|  | EPS mobile identity | EPS mobile identity  9.9.3.12 | M | LV | 5-12 |

#### 8.2.11.2 Detach request (UE terminated detach)

##### 8.2.11.2.1 Message definition

This message is sent by the network to request the release of an EMM context. See table 8.2.11.2.1.

Message type: DETACH REQUEST

Significance: dual

Direction: network to UE

Table 8.2.11.2.1: DETACH REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Detach request message identity | Message type  9.8 | M | V | 1 |
|  | Detach type | Detach type  9.9.3.7 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.9.2.9 | M | V | 1/2 |
| 53 | EMM cause | EMM cause  9.9.3.9 | O | TV | 2 |

##### 8.2.11.2.2 EMM cause

This information element is included if an EMM cause is provided.

### 8.2.12 Downlink NAS Transport

This message is sent by the network to the UE in order to carry an SMS message in encapsulated format. See table 8.2.12.1.

Message type: DOWNLINK NAS TRANSPORT

Significance: dual

Direction: network to UE

Table 8.2.12.1: DOWNLINK NAS TRANSPORT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Downlink NAS transport message identity | Message type  9.8 | M | V | 1 |
|  | NAS message container | NAS message container  9.9.3.22 | M | LV | 3-252 |

### 8.2.13 EMM information

#### 8.2.13.1 Message definition

This message is sent by the network at any time during EMM context is established to send certain information to the UE. See table 8.2.13.1.

Message type: EMM INFORMATION

Significance: local

Direction: network to UE

Table 8.2.13.1: EMM INFORMATION message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | EMM information message identity | Message type  9.8 | M | V | 1 |
| 43 | Full name for network | Network name  9.9.3.24 | O | TLV | 3-n |
| 45 | Short name for network | Network name  9.9.3.24 | O | TLV | 3-n |
| 46 | Local time zone | Time zone  9.9.3.29 | O | TV | 2 |
| 47 | Universal time and local time zone | Time zone and time  9.9.3.30 | O | TV | 8 |
| 49 | Network daylight saving time | Daylight saving time  9.9.3.6 | O | TLV | 3 |

#### 8.2.13.2 Full name for network

This IE may be sent by the network. If this IE is sent, the contents of this IE indicate the "full length name of the network" that the network wishes the UE to associate with the MCC and MNC contained in the last visited tracking area identification.

#### 8.2.13.3 Short name for network

This IE may be sent by the network. If this IE is sent, the contents of this IE indicate the "abbreviated name of the network" that the network wishes the UE to associate with the MCC and MNC contained in the last visited tracking area identification.

#### 8.2.13.4 Local time zone

This IE may be sent by the network. The UE should assume that this time zone applies to the tracking area of the current cell, and also applies to the tracking area list if available in the UE.

NOTE: The time information can be inaccurate, especially when the TAI list includes tracking areas belonging to different time zones.

If the local time zone has been adjusted for daylight saving time, the network shall indicate this by including the Network daylight saving time IE.

#### 8.2.13.5 Universal time and local time zone

This IE may be sent by the network. The UE should assume that this time zone applies to the tracking area the UE is currently in, and also applies to the tracking area list if available in the UE. The UE shall not assume that the time information is accurate.

NOTE: The time information can be inaccurate, especially when the TAI list includes tracking areas belonging to different time zones.

If the local time zone has been adjusted for daylight saving time, the network shall indicate this by including the Network daylight saving time IE.

#### 8.2.13.6 Network daylight saving time

This IE may be sent by the network. If this IE is sent, the contents of this IE indicates the value that has been used to adjust the local time zone.

### 8.2.14 EMM status

This message is sent by the UE or by the network at any time to report certain error conditions listed in clause 7. See table 8.2.14.1.

Message type: EMM STATUS

Significance: local

Direction: both

Table 8.2.14.1: EMM STATUS message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | EMM status message identity | Message type  9.8 | M | V | 1 |
|  | EMM cause | EMM cause  9.9.3.9 | M | V | 1 |

### 8.2.15 Extended service request

#### 8.2.15.1 Message definition

This message is sent by the UE to the network

- to initiate a CS fallback or 1xCS fallback call or respond to a mobile terminated CS fallback or 1xCS fallback request from the network; or

- to request the establishment of a NAS signalling connection and of the radio and S1 bearers for packet services, if the UE needs to provide additional information that cannot be provided via a SERVICE REQUEST message.

See table 8.2.15.1.

Message type: EXTENDED SERVICE REQUEST

Significance: dual

Direction: UE to network

Table 8.2.15.1: EXTENDED SERVICE REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Extended service request message identity | Message type  9.8 | M | V | 1 |
|  | Service type | Service type  9.9.3.27 | M | V | 1/2 |
|  | NAS key set identifier | NAS key set identifier  9.9.3.21 | M | V | 1/2 |
|  | M-TMSI | Mobile identity  9.9.2.3 | M | LV | 6 |
| B- | CSFB response | CSFB response  9.9.3.5 | O | TV | 1 |
| 57 | EPS bearer context status | EPS bearer context status  9.9.2.1 | O | TLV | 4 |
| D- | Device properties | Device properties  9.9.2.0A | O | TV | 1 |

#### 8.2.15.2 CSFB response

The UE shall include this IE only if the Service type information element indicates "mobile terminating CS fallback or 1xCS fallback".

NOTE: The UE does not include this IE for mobile terminating 1xCS fallback.

#### 8.2.15.3 EPS bearer context status

This IE shall be included if the UE wants to indicate the EPS bearer contexts that are active within the UE.

#### 8.2.15.4 Device properties

The UE shall include this IE if the UE is configured for NAS signalling low priority.

### 8.2.16 GUTI reallocation command

#### 8.2.16.1 Message definition

This message is sent by the network to the UE to reallocate a GUTI and optionally to provide a new TAI list or a new DCN-ID or both. See table 8.2.16.1.

Message type: GUTI REALLOCATION COMMAND

Significance: dual

Direction: network to UE

Table 8.2.16.1: GUTI REALLOCATION COMMAND message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | GUTI reallocation command message identity | Message type  9.8 | M | V | 1 |
|  | GUTI | EPS mobile identity  9.9.3.12 | M | LV | 12 |
| 54 | TAI list | Tracking area identity list  9.9.3.33 | O | TLV | 8-98 |
| 65 | DCN-ID | DCN-ID  9.9.3.48 | O | TLV | 4 |
| 66 | UE radio capability ID | UE radio capability ID  9.9.3.60 | O | TLV | 3-n |
| B- | UE radio capability ID deletion indication | UE radio capability ID deletion indication  9.9.3.61 | O | TV | 1 |

#### 8.2.16.2 TAI list

This IE may be included to assign a TAI list to the UE.

#### 8.2.16.3 DCN-ID

This IE may be included to assign a new DCN-ID to the UE.

#### 8.2.16.4 UE radio capability ID

This IE may be included in WB-S1 mode if both the UE and the network support RACS and the network needs to assign a network-assigned UE radio capability ID to the UE. If this IE is included, the UE radio capability ID deletion indication IE shall not be included.

#### 8.2.16.5 UE radio capability ID deletion indication

This IE may be included in WB-S1 mode if both the UE and the network support RACS and the network needs to trigger the UE to delete all network-assigned UE radio capability IDs stored at the UE for the serving PLMN. If this IE is included, the UE radio capability ID IE shall not be included.

### 8.2.17 GUTI reallocation complete

This message is sent by the UE to the network to indicate that reallocation of a GUTI has taken place. See table 8.2.17.1.

Message type: GUTI REALLOCATION COMPLETE

Significance: dual

Direction: UE to network

Table 8.2.17.1: GUTI REALLOCATION COMPLETE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | GUTI reallocation complete message identity | Message type  9.8 | M | V | 1 |

### 8.2.18 Identity request

This message is sent by the network to the UE to request the UE to provide the specified identity. See table 8.2.18.1.

Message type: IDENTITY REQUEST

Significance: dual

Direction: network to UE

Table 8.2.18.1: IDENTITY REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Identity request message identity | Message type  9.8 | M | V | 1 |
|  | Identity type | Identity type 2  9.9.3.17 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.9.2.9 | M | V | 1/2 |

### 8.2.19 Identity response

This message is sent by the UE to the network in response to an IDENTITY REQUEST message and provides the requested identity. See table 8.2.19.1.

Message type: IDENTITY RESPONSE

Significance: dual

Direction: UE to network

Table 8.2.19.1: IDENTITY RESPONSE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Identity response message | Message type  9.8 | M | V | 1 |
|  | Mobile identity | Mobile identity  9.9.2.3 | M | LV | 4-10 |

### 8.2.20 Security mode command

#### 8.2.20.1 Message definition

This message is sent by the network to the UE to establish NAS signalling security. See table 8.2.20.1.

Message type: SECURITY MODE COMMAND

Significance: dual

Direction: network to UE

Table 8.2.20.1: SECURITY MODE COMMAND message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Security mode command message identity | Message type  9.8 | M | V | 1 |
|  | Selected NAS security algorithms | NAS security algorithms  9.9.3.23 | M | V | 1 |
|  | NAS key set identifier | NAS key set identifier  9.9.3.21 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.9.2.9 | M | V | 1/2 |
|  | Replayed UE security capabilities | UE security capability  9.9.3.36 | M | LV | 3-6 |
| C- | IMEISV request | IMEISV request  9.9.3.18 | O | TV | 1 |
| 55 | Replayed nonceUE | Nonce  9.9.3.25 | O | TV | 5 |
| 56 | NonceMME | Nonce  9.9.3.25 | O | TV | 5 |
| 4F | HashMME | HashMME  9.9.3.50 | O | TLV | 10 |
| 6F | Replayed UE additional security capability | UE additional security capability  9.9.3.53 | O | TLV | 6 |
| D- | UE radio capability ID request | UE radio capability ID request  9.9.3.59 | O | TV | 1 |

#### 8.2.20.2 IMEISV request

The MME may include this information element to request the UE to send its IMEISV with the corresponding SECURITY MODE COMPLETE message.

#### 8.2.20.3 Replayed nonceUE

The MME may include this information element to indicate to the UE to use the replayed nonceUE.

#### 8.2.20.4 NonceMME

The MME may include this information element to indicate to the UE to use the nonceMME.

#### 8.2.20.5 HashMME

The MME shall include this information element when the MME is initiating a SECURITY MODE COMMAND during an attach or tracking area updating procedure and the ATTACH REQUEST or TRACKING AREA UPDATE REQUEST message was received without integrity protection or did not successfully pass the integrity check at the MME.

#### 8.2.20.6 Replayed UE additional security capability

The MME shall include this IE if the MME supports handling of UE additional security capabilities, the MME is initiating a SECURITY MODE COMMAND during an attach or tracking area updating procedure and the ATTACH REQUEST or TRACKING AREA UPDATE REQUEST message included a UE additional security capability IE.

#### 8.2.20.7 UE radio capability ID request

The MME may include this information element in WB-S1 mode to request the UE to send its UE radio capability ID with the corresponding SECURITY MODE COMPLETE message.

### 8.2.21 Security mode complete

#### 8.2.21.1 Message definition

This message is sent by the UE to the network in response to a SECURITY MODE COMMAND message. See table 8.2.21.1.

Message type: SECURITY MODE COMPLETE

Significance: dual

Direction: UE to network

Table 8.2.21.1: SECURITY MODE COMPLETE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Security mode complete message identity | Message type  9.8 | M | V | 1 |
| 23 | IMEISV | Mobile identity  9.9.2.3 | O | TLV | 11 |
| 79 | Replayed NAS message container | Replayed NAS message container  9.9.3.51 | O | TLV-E | 3-n |
| 66 | UE radio capability ID | UE radio capability ID  9.9.3.60 | O | TLV | 3-n |

#### 8.2.21.2 IMEISV

The UE shall include this information element, if the IMEISV was requested within the corresponding SECURITY MODE COMMAND message.

#### 8.2.21.3 Replayed NAS message container

The UE shall include this information element, if during an ongoing attach or tracking area updating procedure, the MME included HASHMME in the SECURITY MODE COMMAND message and HASHMME has a different value from the hash value locally calculated at the UE as described in 3GPP TS 33.401 [19].

#### 8.2.21.4 UE radio capability ID

The UE shall include this information element in WB-S1 mode if the UE radio capability ID was requested within the corresponding SECURITY MODE COMMAND message.

### 8.2.22 Security mode reject

This message is sent by the UE to the network to indicate that the corresponding security mode command has been rejected. See table 8.2.22.1.

Message type: SECURITY MODE REJECT

Significance: dual

Direction: UE to network

Table 8.2.22.1: SECURITY MODE REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Security mode reject message identity | Message type  9.8 | M | V | 1 |
|  | EMM cause | EMM cause  9.9.3.9 | M | V | 1 |

### 8.2.23 Security protected NAS message

This message is sent by the UE or the network to transfer a NAS message together with the sequence number and the message authentication code protecting the message. See table 8.2.23.1.

Message type: SECURITY PROTECTED NAS MESSAGE

Significance: dual

Direction: both

Table 8.2.23.1: SECURITY PROTECTED NAS MESSAGE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Message authentication code | Message authentication code  9.5 | M | V | 4 |
|  | Sequence number | Sequence number  9.6 | M | V | 1 |
|  | NAS message | NAS message  9.7 | M | V | 1-n |

### 8.2.24 Service reject

#### 8.2.24.1 Message definition

This message is sent by the network to the UE in order to reject the service request procedure. See table 8.2.24.1.

Message type: SERVICE REJECT

Significance: dual

Direction: network to UE

Table 8.2.24.1: SERVICE REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Service reject message identity | Message type  9.8 | M | V | 1 |
|  | EMM cause | EMM cause  9.9.3.9 | M | V | 1 |
| 5B | T3442 value | GPRS timer  9.9.3.16 | C | TV | 2 |
| 5F | T3346 value | GPRS timer 2  9.9.3.16A | O | TLV | 3 |
| 6B | T3448 value | GPRS timer 2  9.9.3.16A | O | TLV | 3 |

#### 8.2.24.2 T3442 value

The MME shall include this IE when the EMM cause value is #39 "CS service temporarily not available".

#### 8.2.24.3 T3346 value

The MME may include this IE when the general NAS level mobility management congestion control is active.

#### 8.2.24.4 T3448 value

The network may include this IE if the congestion control for transport of user data via the control plane is active and the UE supports timer T3448.

### 8.2.25 Service request

This message is sent by the UE to the network to request the establishment of a NAS signalling connection and of the radio and S1 bearers. Its structure does not follow the structure of a standard layer 3 message. See table 8.2.25.1.

Message type: SERVICE REQUEST

Significance: dual

Direction: UE to network

Table 8.2.25.1: SERVICE REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | KSI and sequence number | KSI and sequence number  9.9.3.19 | M | V | 1 |
|  | Message authentication code (short) | Short MAC  9.9.3.28 | M | V | 2 |

### 8.2.26 Tracking area update accept

#### 8.2.26.1 Message definition

This message is sent by the network to the UE to provide the UE with EPS mobility management related data in response to a tracking area update request message. See table 8.2.26.1.

Message type: TRACKING AREA UPDATE ACCEPT

Significance: dual

Direction: network to UE

Table 8.2.26.1: TRACKING AREA UPDATE ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Tracking area update accept message identity | Message type  9.8 | M | V | 1 |
|  | EPS update result | EPS update result  9.9.3.13 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.9.2.9 | M | V | 1/2 |
| 5A | T3412 value | GPRS timer  9.9.3.16 | O | TV | 2 |
| 50 | GUTI | EPS mobile identity  9.9.3.12 | O | TLV | 13 |
| 54 | TAI list | Tracking area identity list  9.9.3.33 | O | TLV | 8-98 |
| 57 | EPS bearer context status | EPS bearer context status  9.9.2.1 | O | TLV | 4 |
| 13 | Location area identification | Location area identification  9.9.2.2 | O | TV | 6 |
| 23 | MS identity | Mobile identity  9.9.2.3 | O | TLV | 7-10 |
| 53 | EMM cause | EMM cause  9.9.3.9 | O | TV | 2 |
| 17 | T3402 value | GPRS timer  9.9.3.16 | O | TV | 2 |
| 59 | T3423 value | GPRS timer  9.9.3.16 | O | TV | 2 |
| 4A | Equivalent PLMNs | PLMN list  9.9.2.8 | O | TLV | 5-47 |
| 34 | Emergency number list | Emergency number list  9.9.3.37 | O | TLV | 5-50 |
| 64 | EPS network feature support | EPS network feature support  9.9.3.12A | O | TLV | 3-4 |
| F- | Additional update result | Additional update result 9.9.3.0A | O | TV | 1 |
| 5E | T3412 extended value | GPRS timer 3  9.9.3.16B | O | TLV | 3 |
| 6A | T3324 value | GPRS timer 2  9.9.3.16A | O | TLV | 3 |
| 6E | Extended DRX parameters | Extended DRX parameters  9.9.3.46 | O | TLV | 3 |
| 68 | Header compression configuration status | Header compression configuration status  9.9.4.27 | O | TLV | 4 |
| 65 | DCN-ID | DCN-ID  9.9.3.48 | O | TLV | 4 |
| E- | SMS services status | SMS services status  9.9.3.4B | O | TV | 1 |
| D- | Non-3GPP NW policies | Non-3GPP NW provided policies  9.9.3.49 | O | TV | 1 |
| 6B | T3448 value | GPRS timer 2  9.9.3.16A | O | TLV | 3 |
| C- | Network policy | Network policy  9.9.3.52 | O | TV | 1 |
| 6C | T3447 value | GPRS timer 3  9.9.3.16B | O | TLV | 3 |
| 7A | Extended emergency number list | Extended emergency number list  9.9.3.37A | O | TLV-E | 7-65538 |
| 7C | Ciphering key data | Ciphering key data  9.9.3.56 | O | TLV-E | 35-2291 |
| 66 | UE radio capability ID | UE radio capability ID  9.9.3.60 | O | TLV | 3-n |
| B- | UE radio capability ID deletion indication | UE radio capability ID deletion indication  9.9.3.61 | O | TV | 1 |

#### 8.2.26.2 T3412 value

The MME shall include this IE during normal and combined tracking area updating procedure, and may include this IE during periodic tracking area updating procedure.

The MME shall include this IE if it includes the T3412 extended value IE.

#### 8.2.26.3 GUTI

This IE may be included to assign a GUTI to a UE.

#### 8.2.26.4 TAI list

This IE may be included to assign a TAI list to a UE.

#### 8.2.26.5 EPS bearer context status

This IE shall be included if the network wants to indicate the EPS bearer contexts that are active for the UE in the network.

#### 8.2.26.6 Location area identification

This IE may be included to assign a new location area identification to a UE during a combined TA/LA update.

#### 8.2.26.7 MS identity

This IE may be included to assign or unassign a new TMSI to a UE during a combined TA/LA update.

#### 8.2.26.8 EMM cause

This IE shall be included if the combined tracking area updating procedure was successful for EPS services only.

#### 8.2.26.9 T3402 value

This IE may be included to indicate a value for timer T3402.

#### 8.2.26.10 T3423 value

This IE may be included to indicate a value for timer T3423.

If this IE is not included, the UE shall use the default value.

#### 8.2.26.11 Equivalent PLMNs

This IE may be included in order to assign a new equivalent PLMNs list to a UE.

#### 8.2.26.12 Emergency number list

This IE may be sent by the network. If this IE is sent, the contents of this IE indicates a list of emergency numbers valid within the same country as in the PLMN from which this IE is received.

#### 8.2.26.12A Extended emergency number list

This IE may be sent by the network. If this IE is sent, the contents of this IE indicates a list of emergency numbers (with URN information) valid within the same country as in the PLMN from which this IE is received or valid only in the PLMN from which this IE is received.

#### 8.2.26.13 EPS network feature support

The network may include this IE to inform the UE of the support of certain features. If this IE is not included then the UE shall interpret this as a receipt of an information element with all bits of the value part coded as zero, except for the S1-u data transfer (S1-U data) (octet 4, bit 2).

NOTE: In this exceptional case, the UE deems that the network supports S1-u data transfer.

#### 8.2.26.14 Additional update result

The network may include this IE to provide the UE with additional information about the result of:

- a combined tracking area updating procedure if the procedure was successful for EPS services and non-EPS services, or for EPS services and "SMS only"; or

- a normal tracking area updating procedure requested for CIoT EPS optimizations if the procedure was successful for EPS services and "SMS only".

#### 8.2.26.15 T3412 extended value

The network may include this IE to provide the UE with a longer periodic tracking area update timer.

#### 8.2.26.16 T3324 value

The network shall include the T3324 value IE if:

- the UE included the T3324 value IE in the TRACKING AREA UPDATE REQUEST message; and

- the network supports PSM and accepts the use of PSM.

#### 8.2.26.17 Extended DRX parameters

The network shall include the Extended DRX parameters IE if:

- the UE included the Extended DRX parameters IE in the TRACKING AREA UPDATE REQUEST message; and

- the network supports eDRX and accepts the use of eDRX.

#### 8.2.26.18 DCN-ID

This IE is included in the message when the network wishes to provide a DCN-ID to the UE.

#### 8.2.26.19 SMS services status

This IE may be included when a normal tracking area updating procedure for EPS services and "SMS only" was successful for EPS services only.

#### 8.2.26.20 Non-3GPP NW provided policies

This IE is included if the network needs to indicate whether emergency numbers provided via non-3GPP access can be used to initiate UE detected emergency calls (see 3GPP TS 24.302 [48]). If this IE is not included then the UE shall interpret this as a receipt of an information element with all bits of the value part coded as zero.

#### 8.2.26.21 T3448 value

The network may include this IE if the congestion control for transport of user data via the control plane is active and the UE supports timer T3448.

#### 8.2.26.22 Network policy

This IE is included if the network needs to indicate network policy information to the UE, If this IE is not included then the UE shall interpret this as a receipt of an information element with all bits of the value part coded as zero.

#### 8.2.26.23 T3447 value

The network may include T3447 value IE if:

- the UE has indicated support for service gap control in the TRACKING AREA UPDATE REQUEST messages; and

- the EMM context contains a service gap time value.

#### 8.2.26.24 Ciphering key data

This IE is included if the network needs to send ciphering key data to the UE for ciphered broadcast assistance data.

#### 8.2.26.25 UE radio capability ID

This IE may be included in WB-S1 mode if both the UE and the network supports RACS and the network needs to assign a network-assigned UE radio capability ID to the UE.

#### 8.2.26.26 UE radio capability ID deletion indication

This IE may be included in WB-S1 mode if both the UE and the network supports RACS and the network needs to trigger the UE to delete all network-assigned UE radio capability IDs stored at the UE for the serving PLMN.

#### 8.2.26.27 Negotiated WUS assistance information

The network shall include the Negotiated WUS assistance information IE if:

- the UE supports WUS assistance; and

- the MME supports and accepts the use of WUS assistance.

### 8.2.27 Tracking area update complete

This message shall be sent by the UE to the network in response to a tracking area update accept message if a GUTI has been changed or a new TMSI has been assigned. See table 8.2.27.1.

Message type: TRACKING AREA UPDATE COMPLETE

Significance: dual

Direction: UE to network

Table 8.2.27.1: TRACKING AREA UPDATE COMPLETE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Tracking area update complete message identity | Message type  9.8 | M | V | 1 |

### 8.2.28 Tracking area update reject

#### 8.2.28.1 Message definition

This message is sent by the network to the UE in order to reject the tracking area updating procedure. See table 8.2.28.1.

Message type: TRACKING AREA UPDATE REJECT

Significance: dual

Direction: network to UE

Table 8.2.28.1: TRACKING AREA UPDATE REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Tracking area update reject  message identity | Message type  9.8 | M | V | 1 |
|  | EMM cause | EMM cause  9.9.3.9 | M | V | 1 |
| 5F | T3346 value | GPRS timer 2  9.9.3.16A | O | TLV | 3 |
| A- | Extended EMM cause | Extended EMM cause  9.9.3.26A | O | TV | 1 |

#### 8.2.28.2 T3346 value

The MME may include this IE when the general NAS level mobility management congestion control is active.

#### 8.2.28.3 Extended EMM cause

This IE may be included by the network to indicate additional information associated with the EMM cause.

### 8.2.29 Tracking area update request

#### 8.2.29.1 Message definition

The purposes of sending the tracking area update request by the UE to the network are described in subclause 5.5.3.1. See table 8.2.29.1.

Message type: TRACKING AREA UPDATE REQUEST

Significance: dual

Direction: UE to network

Table 8.2.29.1: TRACKING AREA UPDATE REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Tracking area update request message identity | Message type  9.8 | M | V | 1 |
|  | EPS update type | EPS update type  9.9.3.14 | M | V | 1/2 |
|  | NAS key set identifier | NAS key set identifier  9.9.3.21 | M | V | 1/2 |
|  | Old GUTI | EPS mobile identity  9.9.3.12 | M | LV | 12 |
| B- | Non-current native NAS key set identifier | NAS key set identifier  9.9.3.21 | O | TV | 1 |
| 8- | GPRS ciphering key sequence number | Ciphering key sequence number  9.9.3.4a | O | TV | 1 |
| 19 | Old P-TMSI signature | P-TMSI signature  9.9.3.26 | O | TV | 4 |
| 50 | Additional GUTI | EPS mobile identity  9.9.3.12 | O | TLV | 13 |
| 55 | NonceUE | Nonce  9.9.3.25 | O | TV | 5 |
| 58 | UE network capability | UE network capability  9.9.3.34 | O | TLV | 4-15 |
| 52 | Last visited registered TAI | Tracking area identity  9.9.3.32 | O | TV | 6 |
| 5C | DRX parameter | DRX parameter  9.9.3.8 | O | TV | 3 |
| A- | UE radio capability information update needed | UE radio capability information update needed  9.9.3.35 | O | TV | 1 |
| 57 | EPS bearer context status | EPS bearer context status  9.9.2.1 | O | TLV | 4 |
| 31 | MS network capability | MS network capability  9.9.3.20 | O | TLV | 4-10 |
| 13 | Old location area identification | Location area identification  9.9.2.2 | O | TV | 6 |
| 9- | TMSI status | TMSI status  9.9.3.31 | O | TV | 1 |
| 11 | Mobile station classmark 2 | Mobile station classmark 2  9.9.2.4 | O | TLV | 5 |
| 20 | Mobile station classmark 3 | Mobile station classmark 3  9.9.2.5 | O | TLV | 2-34 |
| 40 | Supported Codecs | Supported Codec List  9.9.2.10 | O | TLV | 5-n |
| F- | Additional update type | Additional update type 9.9.3.0B | O | TV | 1 |
| 5D | Voice domain preference and UE's usage setting | Voice domain preference and UE's usage setting  9.9.3.44 | O | TLV | 3 |
| E- | Old GUTI type | GUTI type  9.9.3.45 | O | TV | 1 |
| D- | Device properties | Device properties  9.9.2.0A | O | TV | 1 |
| C- | MS network feature support | MS network feature support  9.9.3.20A | O | TV | 1 |
| 10 | TMSI based NRI container | Network resource identifier container  9.9.3.24A | O | TLV | 4 |
| 6A | T3324 value | GPRS timer 2  9.9.3.16 | O | TLV | 3 |
| 5E | T3412 extended value | GPRS timer 3  9.9.3.16B | O | TLV | 3 |
| 6E | Extended DRX parameters | Extended DRX parameters  9.9.3.46 | O | TLV | 3 |
| 6F | UE additional security capability | UE additional security capability  9.9.3.53 | O | TLV | 6 |
| 6D | UE status | UE status  9.9.3.54 | O | TLV | 3 |
| 17 | Additional information requested | Additional information requested  9.9.3.55 | O | TV | 2 |
| 32 | N1 UE network capability | N1 UE network capability  9.9.3.57 | O | TLV | 3-15 |

#### 8.2.29.2 Non-current native NAS key set identifier

The UE shall include this IE if the UE has a valid non-current native EPS security context when the UE performs an A/Gb mode or Iu mode or N1 mode to S1 mode inter-system change in EMM-CONNECTED mode and the UE uses a mapped EPS security context to protect the TRACKING AREA UPDATE REQUEST message.

#### 8.2.29.3 GPRS ciphering key sequence number

The UE shall include this IE if the UE performs an A/Gb mode or Iu mode to S1 mode inter-system change in EMM-IDLE mode and the TIN indicates "P-TMSI".

#### 8.2.29.4 Old P-TMSI signature

The UE shall include this IE if the TIN indicates "P-TMSI" and the UE holds a valid P-TMSI signature, P-TMSI and RAI.

#### 8.2.29.5 Additional GUTI

The UE shall include this IE if the TIN indicates "P-TMSI" and the UE holds a valid GUTI, P-TMSI and RAI.

#### 8.2.29.6 NonceUE

This IE is included if the UE performs an A/Gb mode or Iu mode to S1 mode inter-system change in idle mode and the TIN is set to "P-TMSI".

#### 8.2.29.7 UE network capability

The UE shall include this IE, unless the UE performs a periodic tracking area updating procedure.

#### 8.2.29.8 Last visited registered TAI

This IE shall be included if the UE holds a valid last visited registered TAI.

#### 8.2.29.9 DRX parameter

This IE is included by the UE to indicate a change of UE specific DRX parameters to the network.

#### 8.2.29.10 UE radio capability information update needed

The UE shall include this IE if the UE radio capability information in the network needs to be updated.

#### 8.2.29.11 EPS bearer context status

This IE shall be included if the UE wants to indicate the EPS bearer contexts that are active within the UE.

#### 8.2.29.12 MS network capability

A UE supporting A/Gb mode or Iu mode shall include this IE, unless the UE performs a periodic tracking area updating procedure.

#### 8.2.29.13 Old location area identification

The UE shall include this IE during a combined tracking area updating procedure if it has a valid location area identification.

#### 8.2.29.14 TMSI status

The UE shall include this IE during a combined tracking area updating procedure if it has no valid TMSI available.

#### 8.2.29.15 Mobile station classmark 2

This IE shall be included if the UE supports SRVCC to GERAN or UTRAN or supports vSRVCC to UTRAN (see 3GPP TS 23.216 [8]), or if the UE is performing a combined tracking area updating procedure.

#### 8.2.29.16 Mobile station classmark 3

This IE shall be included if the UE supports SRVCC to GERAN.

#### 8.2.29.17 Supported Codecs

This IE shall be included if the UE supports SRVCC to GERAN or UTRAN or supports vSRVCC to UTRAN to indicate its supported speech codecs for CS speech calls.

#### 8.2.29.18 Additional update type

The UE shall include this IE if the UE requests "SMS only" or CIoT EPS optimizations, unless the UE performs a periodic tracking area updating procedure.

#### 8.2.29.19 Voice domain preference and UE's usage setting

This IE shall be included in WB-S1 mode if the UE supports:

- CS fallback and SMS over SGs; or

- if the UE is configured to support IMS voice, but does not support 1xCS fallback.

#### 8.2.29.20 Old GUTI type

The UE shall include this IE.

#### 8.2.29.21 Device properties

This IE shall be included if the UE is configured for NAS signalling low priority.

#### 8.2.29.22 MS network feature support

This IE shall be included if the UE supports extended periodic timer T3412.

#### 8.2.29.23 TMSI based NRI container

The UE shall include this IE if it has a valid TMSI.

#### 8.2.29.24 T3324 value

The UE may include this IE to request the use of PSM.

#### 8.2.29.25 T3412 extended value

The UE may include this IE to request a particular T3412 value if the T3324 value IE is included.

#### 8.2.29.26 Extended DRX parameters

The UE may include this IE to request the use of eDRX.

#### 8.2.29.27 UE additional security capability

The UE shall include this IE if the UE supports dual connectivity with NR or if the UE supports N1 mode.

#### 8.2.29.28 UE status

This IE shall be included if the UE wants to provide the network with information concerning aspects of the current UE registration status which is used for interworking with 5GS.

#### 8.2.29.29 Additional information requested

The UE shall include this IE if the UE supports ciphered broadcast assistance data and the UE needs to obtain new ciphering keys for ciphered broadcast assistance data.

#### 8.2.29.30 N1 UE network capability

The UE shall include this IE if the UE supports N1 mode and needs to indicate the supported CIoT network behaviour for 5GCN, unless the UE performs a periodic tracking area updating procedure.

#### 8.2.29.31 UE radio capability ID availability IE

The UE may include this IE in WB-S1 mode if the UE supports RACS and the UE has an applicable UE radio capability ID for the current UE radio configuration in the selected PLMN.

### 8.2.30 Uplink NAS Transport

This message is sent by the UE to the network in order to carry an SMS message in encapsulated format. See table 8.2.30.1.

Message type: UPLINK NAS TRANSPORT

Significance: dual

Direction: UE to network

Table 8.2.30.1: UPLINK NAS TRANSPORT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Uplink NAS transport message identity | Message type  9.8 | M | V | 1 |
|  | NAS message container | NAS message container  9.9.3.22 | M | LV | 3-252 |

### 8.2.31 Downlink generic NAS transport

#### 8.2.31.1 Message definition

This message is sent by the network to the UE in order to carry an application message in encapsulated format. See table 8.2.31.1.

Message type: DOWNLINK GENERIC NAS TRANSPORT

Significance: dual

Direction: network to UE

Table 8.2.31.1: DOWNLINK GENERIC NAS TRANSPORT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Downlink generic NAS transport message identity | Message type  9.8 | M | V | 1 |
|  | Generic message container type | Generic message container type  9.9.3.42 | M | V | 1 |
|  | Generic message container | Generic message container  9.9.3.43 | M | LV-E | 3-n |
| 65 | Additional information | Additional information  9.9.2.0 | O | TLV | 3-n |

#### 8.2.31.2 Additional information

The MME may include this information element if the application wants to send any additional information.

### 8.2.32 Uplink generic NAS transport

#### 8.2.32.1 Message definition

This message is sent by the UE to the network in order to carry an application protocol message in encapsulated format. See table 8.2.32.1.

Message type: UPLINK GENERIC NAS TRANSPORT

Significance: dual

Direction: UE to network

Table 8.2.32.1: UPLINK GENERIC NAS TRANSPORT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Uplink generic NAS transport message identity | Message type  9.8 | M | V | 1 |
|  | Generic message container type | Generic message container type  9.9.3.42 | M | V | 1 |
|  | Generic message container | Generic message container  9.9.3.43 | M | LV-E | 3-n |
| 65 | Additional information | Additional information  9.9.2.0 | O | TLV | 3-n |

#### 8.2.32.2 Additional information

The UE may include this information element if the application wants to send any additional information.

### 8.2.33 CONTROL PLANE SERVICE REQUEST

#### 8.2.33.1 Message definition

This message is sent by the UE to the network when the UE is using EPS services with control plane CIoT EPS optimization. See table 8.2.33.1.

Message type: CONTROL PLANE SERVICE REQUEST

Significance: dual

Direction: UE to network

Table 8.2.33.1: CONTROL PLANE SERVICE REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Control plane service request message identity | Message type  9.8 | M | V | 1 |
|  | Control plane service type | Control plane service type  9.9.3.47 | M | V | 1/2 |
|  | NAS key set identifier | NAS key set identifier  9.9.3.21 | M | V | 1/2 |
| 78 | ESM message container | ESM message container  9.9.3.15 | O | TLV-E | 3-n |
| 67 | NAS message container | NAS message container  9.9.3.22 | O | TLV | 4-253 |
| 57 | EPS bearer context status | EPS bearer context status  9.9.2.1 | O | TLV | 4 |
| D- | Device properties | Device properties  9.9.2.0A | O | TV | 1 |

#### 8.2.33.2 ESM message container

The UE shall include this IE, if it wants to send an ESM message to the network.

#### 8.2.33.3 NAS message container

The UE shall include this IE, if it is in EMM-IDLE mode and has pending SMS messages to be sent.

#### 8.2.33.4 EPS bearer context status

The UE shall include this IE, if it wants to indicate the EPS bearer contexts that are active within the UE.

#### 8.2.33.5 Device properties

The UE shall include this IE if the UE is configured for NAS signalling low priority.

### 8.2.34 Service Accept

#### 8.2.34.1 Message definition

This message is sent by the network in response to the SERVICE REQUEST message, the EXTENDED SERVICE REQUEST message or the CONTROL PLANE SERVICE REQUEST message. See table 8.2.34.1.

Message type: SERVICE ACCEPT

Significance: dual

Direction: network to UE

Table 8.2.34.1: SERVICE ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | Security header type | Security header type  9.3.1 | M | V | 1/2 |
|  | Service accept message identity | Message type  9.8 | M | V | 1 |
| 57 | EPS bearer context status | EPS bearer context status  9.9.2.1 | O | TLV | 4 |
| 6B | T3448 value | GPRS timer 2  9.9.3.16A | O | TLV | 3 |

#### 8.2.34.2 EPS bearer context status

This IE shall be included if the network wants to indicate the EPS bearer contexts that are active for the UE in the network.

#### 8.2.34.3 T3448 value

The network may include this IE if the congestion control for transport of user data via the control plane is active and the UE supports timer T3448.

## 8.3 EPS session management messages

### 8.3.1 Activate dedicated EPS bearer context accept

#### 8.3.1.1 Message definition

This message is sent by the UE to the network to acknowledge activation of a dedicated EPS bearer context associated with the same PDN address(es) and APN as an already active EPS bearer context. See table 8.3.1.1.

Message type: ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT

Significance: dual

Direction: UE to network

Table 8.3.1.1: ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Activate dedicated EPS bearer context accept message identity | Message type  9.8 | M | V | 1 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| 33 | NBIFOM container | NBIFOM container  9.9.4.19 | O | TLV | 3-257 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |

#### 8.3.1.2 Protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.1.3 NBIFOM container

This information element is used to transfer information associated with network-based IP flow mobility, see 3GPP TS 24.161 [36].

#### 8.3.1.4 Extended protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

### 8.3.2 Activate dedicated EPS bearer context reject

#### 8.3.2.1 Message definition

This message is sent by UE to the network to reject activation of a dedicated EPS bearer context. See table 8.3.2.1.

Message type: ACTIVATE DEDICATED EPS BEARER CONTEXT REJECT

Significance: dual

Direction: UE to network

Table 8.3.2.1: ACTIVATE DEDICATED EPS BEARER CONTEXT REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Activate dedicated EPS bearer context reject message identity | Message type  9.8 | M | V | 1 |
|  | ESM cause | ESM cause  9.9.4.4 | M | V | 1 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| 33 | NBIFOM container | NBIFOM container  9.9.4.19 | O | TLV | 3-257 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |

#### 8.3.2.2 Protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.2.3 NBIFOM container

This information element is used to transfer information associated with network-based IP flow mobility, see 3GPP TS 24.161 [36].

#### 8.3.2.4 Extended protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

### 8.3.3 Activate dedicated EPS bearer context request

#### 8.3.3.1 Message definition

This message is sent by the network to the UE to request activation of a dedicated EPS bearer context associated with the same PDN address(es) and APN as an already active default EPS bearer context. See table 8.3.3.1.

Message type: ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST

Significance: dual

Direction: network to UE

Table 8.3.3.1: ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Activate dedicated EPS bearer context request message identity | Message type  9.8 | M | V | 1 |
|  | Linked EPS bearer identity | Linked EPS bearer identity  9.9.4.6 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.9.2.9 | M | V | 1/2 |
|  | EPS QoS | EPS quality of service  9.9.4.3 | M | LV | 2-14 |
|  | TFT | Traffic flow template  9.9.4.16 | M | LV | 2-256 |
| 5D | Transaction identifier | Transaction identifier  9.9.4.17 | O | TLV | 3-4 |
| 30 | Negotiated QoS | Quality of service  9.9.4.12 | O | TLV | 14-22 |
| 32 | Negotiated LLC SAPI | LLC service access point identifier  9.9.4.7 | O | TV | 2 |
| 8- | Radio priority | Radio priority  9.9.4.13 | O | TV | 1 |
| 34 | Packet flow Identifier | Packet flow Identifier  9.9.4.8 | O | TLV | 3 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| C- | WLAN offload indication | WLAN offload acceptability  9.9.4.18 | O | TV | 1 |
| 33 | NBIFOM container | NBIFOM container  9.9.4.19 | O | TLV | 3-257 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |
| 5C | Extended EPS QoS | Extended quality of service  9.9.4.30 | O | TLV | 12 |

#### 8.3.3.2 Transaction identifier

If the UE supports A/Gb mode or Iu mode or both, a network supporting mobility from S1 mode to A/Gb mode or Iu mode or both shall include this IE

#### 8.3.3.3 Negotiated QoS

If the UE supports A/Gb mode or Iu mode or both, a network supporting mobility from S1 mode to A/Gb mode or Iu mode or both shall include the corresponding R99 QoS parameter values of a PDP context.

#### 8.3.3.4 Negotiated LLC SAPI

If the UE supports A/Gb mode, a network supporting mobility from S1 mode to A/Gb mode shall include this IE.

#### 8.3.3.5 Radio priority

If the UE supports A/Gb mode, a network supporting mobility from S1 mode to A/Gb mode shall include this IE.

#### 8.3.3.6 Packet flow identifier

If the UE supports A/Gb mode and BSS packet flow procedures, a network supporting mobility from S1 mode to A/Gb mode shall include this IE.

#### 8.3.3.7 Protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.3.8 WLAN offload indication

This IE shall be included in the message when the network wishes to indicate if the UE is allowed to offload the traffic of the associated PDN connection to WLAN(s), as specified in subclause 9.9.4.18.

#### 8.3.3.9 NBIFOM container

This information element is used to transfer information associated with network-based IP flow mobility, see 3GPP TS 24.161 [36].

#### 8.3.3.10 Extended protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.3.11 Extended EPS QoS

This IE shall be included in the message only if the network wishes to transmit the maximum and guaranteed bit rate values to the UE and at least one of the values to be transmitted exceeds the maximum value specified in the EPS quality of service information element in subclause 9.9.4.3.

### 8.3.4 Activate default EPS bearer context accept

#### 8.3.4.1 Message definition

This message is sent by the UE to the network to acknowledge activation of a default EPS bearer context. See table 8.3.4.1.

Message type: ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT

Significance: dual

Direction: UE to network

Table 8.3.4.1: ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Activate default EPS bearer context accept message identity | Message type  9.8 | M | V | 1 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |

#### 8.3.4.2 Protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.4.3 Extended protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

### 8.3.5 Activate default EPS bearer context reject

#### 8.3.5.1 Message definition

This message is sent by UE to the network to reject activation of a default EPS bearer context. See table 8.3.5.1.

Message type: ACTIVATE DEFAULT EPS BEARER CONTEXT REJECT

Significance: dual

Direction: UE to network

Table 8.3.5.1: ACTIVATE DEFAULT EPS BEARER CONTEXT REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Activate default EPS bearer context reject message identity | Message type  9.8 | M | V | 1 |
|  | ESM cause | ESM cause  9.9.4.4 | M | V | 1 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |

#### 8.3.5.2 Protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.5.3 Extended protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

### 8.3.6 Activate default EPS bearer context request

#### 8.3.6.1 Message definition

This message is sent by the network to the UE to request activation of a default EPS bearer context. See table 8.3.6.1.

Message type: ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST

Significance: dual

Direction: network to UE

Table 8.3.6.1: ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Activate default EPS bearer context request message identity | Message type  9.8 | M | V | 1 |
|  | EPS QoS | EPS quality of service  9.9.4.3 | M | LV | 2-14 |
|  | Access point name | Access point name  9.9.4.1 | M | LV | 2-101 |
|  | PDN address | PDN address  9.9.4.9 | M | LV | 6-14 |
| 5D | Transaction identifier | Transaction identifier  9.9.4.17 | O | TLV | 3-4 |
| 30 | Negotiated QoS | Quality of service  9.9.4.12 | O | TLV | 14-22 |
| 32 | Negotiated LLC SAPI | LLC service access point identifier  9.9.4.7 | O | TV | 2 |
| 8- | Radio priority | Radio priority  9.9.4.13 | O | TV | 1 |
| 34 | Packet flow Identifier | Packet flow Identifier  9.9.4.8 | O | TLV | 3 |
| 5E | APN-AMBR | APN aggregate maximum bit rate  9.9.4.2 | O | TLV | 4-8 |
| 58 | ESM cause | ESM cause  9.9.4.4 | O | TV | 2 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| B- | Connectivity type | Connectivity type  9.9.4.2A | O | TV | 1 |
| C- | WLAN offload indication | WLAN offload acceptability  9.9.4.18 | O | TV | 1 |
| 33 | NBIFOM container | NBIFOM container  9.9.4.19 | O | TLV | 3-257 |
| 66 | Header compression configuration | Header compression configuration  9.9.4.22 | O | TLV | 5-257 |
| 9- | Control plane only indication | Control plane only indication  9.9.4.23 | O | TV | 1 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |
| 6E | Serving PLMN rate control | Serving PLMN rate control  9.9.4.28 | O | TLV | 4 |
| 5F | Extended APN-AMBR | Extended APN aggregate maximum bit rate  9.9.4.29 | O | TLV | 8 |

#### 8.3.6.2 Transaction identifier

If the UE supports A/Gb mode or Iu mode or both, a network supporting mobility from S1 mode to A/Gb mode or Iu mode or both shall include this IE.

#### 8.3.6.3 Negotiated QoS

If the UE supports A/Gb mode or Iu mode or both, a network supporting mobility from S1 mode to A/Gb mode or Iu mode or both shall include the corresponding R99 QoS parameter values of a PDP context.

#### 8.3.6.4 Negotiated LLC SAPI

If the UE supports A/Gb mode, a network supporting mobility from S1 mode to A/Gb mode shall include this IE.

#### 8.3.6.5 Radio priority

If the UE supports A/Gb mode, a network supporting mobility from S1 mode to A/Gb mode shall include this IE.

#### 8.3.6.6 Packet flow identifier

If the UE supports A/Gb mode and BSS packet flow procedures, a network supporting mobility from S1 mode to A/Gb mode shall include this IE.

#### 8.3.6.7 APN-AMBR

This IE is included in the message when the network wishes to transmit the APN-AMBR to the UE for possible uplink policy enforcement.

#### 8.3.6.8 ESM cause

The network shall include this IE, if the network allocated a PDN address of a PDN type which is different from the PDN type requested by the UE.

#### 8.3.6.9 Protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

This IE shall be included if the network supports Local IP address in the traffic flow aggregate description and TFT filter, the PDN Type is different from Non-IP and Ethernet, and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.6.10 Connectivity type

The network shall include the Connectivity type IE if:

- the network is configured to indicate when a PDN connection is a LIPA PDN connection; and

- the present PDN connection is a LIPA PDN connection.

#### 8.3.6.11 WLAN offload indication

This IE shall be included in the message when the network wishes to indicate if the UE is allowed to offload the traffic of the associated PDN connection to WLAN(s), as specified in subclause 9.9.4.18.

#### 8.3.6.12 NBIFOM container

This information element is used to transfer information associated with network-based IP flow mobility, see 3GPP TS 24.161 [36].

#### 8.3.6.13 Header compression configuration

The network may include the Header compression configuration IE if:

- the network accepts an IP PDN type; and

- control plane CIoT EPS optimization is selected.

#### 8.3.6.14 Control plane only indication

The network shall include the Control plane only indication IE if the associated PDN connection is only for control plane CIoT EPS optimization.

#### 8.3.6.15 Extended protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

This IE shall be included if the network supports Local IP address in the traffic flow aggregate description and TFT filter, the PDN Type is different from Non-IP and Ethernet, and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.6.16 Serving PLMN rate control

This IE shall be included when the network wishes to indicate the maximum number of uplink ESM DATA TRANSPORT messages including User data container IEs the UE is allowed to send per 6 minute interval.

#### 8.3.6.17 Extended APN aggregate maximum bit rate

This IE shall be included in the message only if the network wishes to transmit the APN-AMBR values to the UE for possible uplink policy enforcement and at least one of the values to be transmitted exceeds the maximum value specified in the APN aggregate maximum bit rate information element in subclause 9.9.4.2.

### 8.3.7 Bearer resource allocation reject

#### 8.3.7.1 Message definition

This message is sent by the network to the UE to reject the allocation of a dedicated bearer resource. See table 8.3.7.1.

Message type: BEARER RESOURCE ALLOCATION REJECT

Significance: dual

Direction: network to UE

Table 8.3.7.1: BEARER RESOURCE ALLOCATION REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Bearer resource allocation reject message identity | Message type  9.8 | M | V | 1 |
|  | ESM cause | ESM cause  9.9.4.4 | M | V | 1 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| 37 | Back-off timer value | GPRS timer 3  9.9.3.16B | O | TLV | 3 |
| 6B | Re-attempt indicator | Re-attempt indicator  9.9.4.13A | O | TLV | 3 |
| 33 | NBIFOM container | NBIFOM container  9.9.4.19 | O | TLV | 3-257 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |

#### 8.3.7.2 Protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.7.3 Back-off timer value

The network may include this IE if the ESM cause is not #65 "maximum number of EPS bearers reached", to request a minimum time interval before procedure retry is allowed.

#### 8.3.7.4 Re-attempt indicator

The network may include this IE only if it includes the Back-off timer value IE and the ESM cause value is not #26 "insufficient resources".

#### 8.3.7.5 NBIFOM container

This information element is used to transfer information associated with network-based IP flow mobility, see 3GPP TS 24.161 [36].

#### 8.3.7.6 Extended protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

### 8.3.8 Bearer resource allocation request

#### 8.3.8.1 Message definition

This message is sent by the UE to the network to request the allocation of a dedicated bearer resource. See table 8.3.8.1.

Message type: BEARER RESOURCE ALLOCATION REQUEST

Significance: dual

Direction: UE to network

Table 8.3.8.1: BEARER RESOURCE ALLOCATION REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Bearer resource allocation request message identity | Message type  9.8 | M | V | 1 |
|  | Linked EPS bearer identity | Linked EPS bearer identity  9.9.4.6 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.9.2.9 | M | V | 1/2 |
|  | Traffic flow aggregate | Traffic flow aggregate description  9.9.4.15 | M | LV | 2-256 |
|  | Required traffic flow QoS | EPS quality of service  9.9.4.3 | M | LV | 2-14 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| C- | Device properties | Device properties  9.9.2.0A | O | TV | 1 |
| 33 | NBIFOM container | NBIFOM container  9.9.4.19 | O | TLV | 3-257 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |
| 5C | Extended EPS QoS | Extended quality of service  9.9.4.30 | O | TLV | 12 |

#### 8.3.8.2 Protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.8.3 Device properties

The UE shall include this IE if the UE is configured for NAS signalling low priority.

#### 8.3.8.4 NBIFOM container

This information element is used to transfer information associated with network-based IP flow mobility, see 3GPP TS 24.161 [36].

#### 8.3.8.5 Extended protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.8.6 Extended EPS QoS

This IE shall be included in the message only if the UE wishes to transmit the maximum and guaranteed bit rate values to the network and at least one of the values to be transmitted exceeds the maximum value specified in the EPS quality of service information element in subclause 9.9.4.3.

### 8.3.9 Bearer resource modification reject

#### 8.3.9.1 Message definition

This message is sent by the network to the UE to reject the modification of a dedicated bearer resource. See table 8.3.9.1.

Message type: BEARER RESOURCE MODIFICATION REJECT

Significance: dual

Direction: network to UE

Table 8.3.9.1: BEARER RESOURCE MODIFICATION REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Bearer resource modification reject message identity | Message type  9.8 | M | V | 1 |
|  | ESM cause | ESM cause  9.9.4.4 | M | V | 1 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| 37 | Back-off timer value | GPRS timer 3  9.9.3.16B | O | TLV | 3 |
| 6B | Re-attempt indicator | Re-attempt indicator  9.9.4.13A | O | TLV | 3 |
| 33 | NBIFOM container | NBIFOM container  9.9.4.19 | O | TLV | 3-257 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |

#### 8.3.9.2 Protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.9.3 Back-off timer value

The network may include this IE to request a minimum time interval before procedure retry is allowed.

#### 8.3.9.4 Re-attempt indicator

The network may include this IE only if it includes the Back-off timer value IE and the ESM cause value is not #26 "insufficient resources".

#### 8.3.9.5 NBIFOM container

This information element is used to transfer information associated with network-based IP flow mobility, see 3GPP TS 24.161 [36].

#### 8.3.9.6 Extended protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

### 8.3.10 Bearer resource modification request

#### 8.3.10.1 Message definition

This message is sent by the UE to the network to request the modification of a dedicated bearer resource, or to request re-negotiation of header compression configuration associated to an EPS bearer context if the network has previously indicated support of Control plane CIoT EPS optimization and Header compression for control plane CIoT EPS optimization. See table 8.3.10.1.

Message type: BEARER RESOURCE MODIFICATION REQUEST

Significance: dual

Direction: UE to network

Table 8.3.10.1: BEARER RESOURCE MODIFICATION REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Bearer resource modification request message identity | Message type  9.8 | M | V | 1 |
|  | EPS bearer identity for packet filter | Linked EPS bearer identity  9.9.4.6 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.9.2.9 | M | V | 1/2 |
|  | Traffic flow aggregate | Traffic flow aggregate description  9.9.4.15 | M | LV | 2-256 |
| 5B | Required traffic flow QoS | EPS quality of service  9.9.4.3 | O | TLV | 3-15 |
| 58 | ESM cause | ESM cause  9.9.4.4 | O | TV | 2 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| C- | Device properties | Device properties  9.9.2.0A | O | TV | 1 |
| 33 | NBIFOM container | NBIFOM container  9.9.4.19 | O | TLV | 3-257 |
| 66 | Header compression configuration | Header compression configuration  9.9.4.22 | O | TLV | 5-257 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |
| 5C | Extended EPS QoS | Extended quality of service  9.9.4.30 | O | TLV | 12 |

#### 8.3.10.2 Required traffic flow QoS

This IE is included in the message when the UE requests a change of QoS for the indicated traffic flows and does not request to release all bearer resources for the EPS bearer context.

#### 8.3.10.3 ESM cause

This IE is included in the message when the UE requests the release of a dedicated bearer resource.

#### 8.3.10.4 Protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.10.5 Device properties

The UE shall include this IE if the UE is configured for NAS signalling low priority.

#### 8.3.10.6 NBIFOM container

This information element is used to transfer information associated with network-based IP flow mobility, see 3GPP TS 24.161 [36].

#### 8.3.10.7 Header compression configuration

This IE is included in the message if the UE wishes to re-negotiate header compression configuration associated to an EPS bearer context and both the UE and the network supports Control plane CIoT EPS optimization and header compression.

#### 8.3.10.8 Extended protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.10.9 Extended EPS QoS

This IE shall be included in the message only if the UE wishes to transmit the maximum and guaranteed bit rate values to the network and at least one of the values to be transmitted exceeds the maximum value specified in the EPS quality of service information element in subclause 9.9.4.3.

### 8.3.11 Deactivate EPS bearer context accept

#### 8.3.11.1 Message definition

This message is sent by the UE to acknowledge deactivation of the EPS bearer context requested in the corresponding Deactivate EPS bearer context request message. See table 8.3.11.1.

Message type: DEACTIVATE EPS BEARER CONTEXT ACCEPT

Significance: dual

Direction: UE to network

Table 8.3.11.1: DEACTIVATE EPS BEARER CONTEXT ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Deactivate EPS bearer context accept message identity | Message type  9.8 | M | V | 1 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |

#### 8.3.11.2 Protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.11.3 Void

#### 8.3.11.4 Extended protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

### 8.3.12 Deactivate EPS bearer context request

#### 8.3.12.1 Message definition

This message is sent by the network to request deactivation of an active EPS bearer context. See table 8.3.12.1.

Message type: DEACTIVATE EPS BEARER CONTEXT REQUEST

Significance: dual

Direction: network to UE

Table 8.3.12.1: DEACTIVATE EPS BEARER CONTEXT REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Deactivate EPS bearer context request message identity | Message type  9.8 | M | V | 1 |
|  | ESM cause | ESM cause  9.9.4.4 | M | V | 1 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| 37 | T3396 value | GPRS timer 3  9.9.3.16B | O | TLV | 3 |
| C- | WLAN offload indication | WLAN offload acceptability  9.9.4.18 | O | TV | 1 |
| 33 | NBIFOM container | NBIFOM container  9.9.4.19 | O | TLV | 3-257 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |

#### 8.3.12.2 Protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.12.3 T3396 value

The network may include this IE if the ESM cause is #26 "insufficient resources".

#### 8.3.12.4 WLAN offload indication

This IE shall be included in the message when the network wishes to indicate if the UE is allowed to offload the traffic of the associated PDN connection to WLAN(s), as specified in subclause 9.9.4.18. If the MME wishes to deactivate all EPS bearer contexts of a PDN connection, MME shall not include this IE.

#### 8.3.12.5 NBIFOM container

This information element is used to transfer information associated with network-based IP flow mobility, see 3GPP TS 24.161 [36].

#### 8.3.12.6 Extended protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

### 8.3.12A ESM dummy message

This message is sent by the UE or the network included in an ESM message container information element during an attach procedure, if the UE does not request for PDN connection. See table 8.3.12A.1.

Message type: ESM DUMMY MESSAGE

Significance: dual

Direction: both

Table 8.3.12A.1: ESM DUMMY MESSAGE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | ESM dummy message  message identity | Message type  9.8 | M | V | 1 |

### 8.3.13 ESM information request

This message is sent by the network to the UE to request the UE to provide ESM information, i.e. protocol configuration options or APN or both. See table 8.3.13.1.

Message type: ESM INFORMATION REQUEST

Significance: dual

Direction: network to UE

Table 8.3.13.1: ESM INFORMATION REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | ESM information request message identity | Message type  9.8 | M | V | 1 |

### 8.3.14 ESM information response

#### 8.3.14.1 Message definition

This message is sent by the UE to the network in response to an ESM INFORMATION REQUEST message and provides the requested ESM information. See table 8.3.14.1.

Message type: ESM INFORMATION RESPONSE

Significance: dual

Direction: UE to network

Table 8.3.14.1: ESM INFORMATION RESPONSE message content

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |  |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |  |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |  |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |  |
|  | ESM information response message identity | Message type  9.8 | M | V | 1 |  |
| 28 | Access point name | Access point name  9.9.4.1 | O | TLV | 3-102 |  |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |  |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |  |

#### 8.3.14.2 Access point name

This IE is included in the message when the UE wishes to request network connectivity as defined by a certain access point name during the attach procedure.

#### 8.3.14.3 Protocol configuration options

This IE is included in the message when, during the attach procedure, the UE wishes to transmit security protected (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network, the UE is in WB-S1 mode and the PDN Type requested is different from Non-IP and Ethernet.

This IE shall be included if the UE supports local IP address in traffic flow aggregate description and TFT filter, the UE is in WB-S1 mode and the PDN Type requested is different from Non-IP and Ethernet.

This IE shall not be included if the Extended protocol configuration options IE is included in the message.

#### 8.3.14.4 Extended protocol configuration options

This IE is included in the message when, during the attach procedure, the UE wishes to transmit security protected (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network, and the UE is in NB-S1 mode or Non-IP or Ethernet PDN Type is requested.

This IE shall be included if the UE supports local IP address in traffic flow aggregate description and TFT filter, the UE is in NB-S1 mode and the PDN Type requested is different from Non-IP and Ethernet.

This IE shall not be included if the Protocol configuration options IE is included in the message.

### 8.3.15 ESM status

This message is sent by the network or the UE to pass information on the status of the indicated EPS bearer context and report certain error conditions (e.g. as listed in clause 7). See table 8.3.15.1.

Message type: ESM STATUS

Significance: dual

Direction: both

Table 8.3.15.1: ESM STATUS message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | ESM status message identity | Message type  9.8 | M | V | 1 |
|  | ESM cause | ESM cause  9.9.4.4 | M | V | 1 |

### 8.3.16 Modify EPS bearer context accept

#### 8.3.16.1 Message definition

This message is sent by the UE to the network to acknowledge the modification of an active EPS bearer context. See table 8.3.16.1.

Message type: MODIFY EPS BEARER CONTEXT ACCEPT

Significance: dual

Direction: UE to network

Table 8.3.16.1: MODIFY EPS BEARER CONTEXT ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Modify EPS bearer context accept message identity | Message type  9.8 | M | V | 1 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| 33 | NBIFOM container | NBIFOM container  9.9.4.19 | O | TLV | 3-257 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |

#### 8.3.16.2 Protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.16.3 NBIFOM container

This information element is used to transfer information associated with network-based IP flow mobility, see 3GPP TS 24.161 [36].

#### 8.3.16.4 Extended protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

### 8.3.17 Modify EPS bearer context reject

#### 8.3.17.1 Message definition

This message is sent by the UE or the network to reject a modification of an active EPS bearer context. See table 8.3.17.1.

Message type: MODIFY EPS BEARER CONTEXT REJECT

Significance: dual

Direction: UE to network

Table 8.3.17.1: MODIFY EPS BEARER CONTEXT REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Modify EPS bearer context reject message identity | Message type  9.8 | M | V | 1 |
|  | ESM cause | ESM cause  9.9.4.4 | M | V | 1 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| 33 | NBIFOM container | NBIFOM container  9.9.4.19 | O | TLV | 3-257 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |

#### 8.3.17.2 Protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.17.3 NBIFOM container

This information element is used to transfer information associated with network-based IP flow mobility, see 3GPP TS 24.161 [36].

#### 8.3.17.4 Extended protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

### 8.3.18 Modify EPS bearer context request

#### 8.3.18.1 Message definition

This message is sent by the network to the UE to request modification of an active EPS bearer context, or to request re-negotiation of header compression configuration associated to an EPS bearer context if the UE has previously indicated support of Control plane CIoT EPS optimization and Header compression for control plane CIoT EPS optimization. See table 8.3.18.1.

Message type: MODIFY EPS BEARER CONTEXT REQUEST

Significance: dual

Direction: network to UE

Table 8.3.18.1: MODIFY EPS BEARER CONTEXT REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Modify EPS bearer context request message identity | Message type  9.8 | M | V | 1 |
| 5B | New EPS QoS | EPS quality of service  9.9.4.3 | O | TLV | 3-15 |
| 36 | TFT | Traffic flow template  9.9.4.16 | O | TLV | 3-257 |
| 30 | New QoS | Quality of service  9.9.4.12 | O | TLV | 14-22 |
| 32 | Negotiated LLC SAPI | LLC service access point identifier  9.9.4.7 | O | TV | 2 |
| 8- | Radio priority | Radio priority  9.9.4.13 | O | TV | 1 |
| 34 | Packet flow Identifier | Packet flow Identifier  9.9.4.8 | O | TLV | 3 |
| 5E | APN-AMBR | APN aggregate maximum bit rate  9.9.4.2 | O | TLV | 4-8 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| C- | WLAN offload indication | WLAN offload acceptability  9.9.4.18 | O | TV | 1 |
| 33 | NBIFOM container | NBIFOM container  9.9.4.19 | O | TLV | 3-257 |
| 66 | Header compression configuration | Header compression configuration  9.9.4.22 | O | TLV | 5-257 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |
| 5F | Extended APN-AMBR | Extended APN aggregate maximum bit rate  9.9.4.29 | O | TLV | 8 |
| 5C | Extended EPS QoS | Extended quality of service  9.9.4.30 | O | TLV | 12 |

#### 8.3.18.2 New EPS QoS

When the EPS QoS of the EPS bearer context is modified, the network shall include the modified EPS QoS assigned to the EPS bearer context.

#### 8.3.18.3 TFT

This IE provides the UE with packet filters.

#### 8.3.18.4 New QoS

If the UE supports A/Gb mode or Iu mode or both and when the corresponding R99 QoS of the EPS bearer context is modified, a network supporting mobility from S1 mode to A/Gb mode or Iu mode or both shall include the corresponding R99 QoS parameter values of a PDP context.

#### 8.3.18.5 Negotiated LLC SAPI

If the UE supports A/Gb mode and when the negotiated LLC SAPI is modified, a network supporting mobility from S1 mode to A/Gb mode shall include this IE.

#### 8.3.18.6 Radio priority

If the UE supports A/Gb mode and when the radio priority is modified, a network supporting mobility from S1 mode to A/Gb mode shall include this IE.

#### 8.3.18.7 Packet flow identifier

If the UE supports A/Gb mode and BSS packet flow procedures, a network supporting mobility from S1 mode to A/Gb mode shall include this IE.

#### 8.3.18.8 APN-AMBR

This IE is included when the APN-AMBR has been changed by the network.

#### 8.3.18.9 Protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.18.10 WLAN offload indication

This IE shall be included in the message when the network wishes to indicate if the UE is allowed to offload the traffic of the associated PDN connection to WLAN(s), as specified in subclause 9.9.4.18.

#### 8.3.18.11 NBIFOM container

This information element is used to transfer information associated with network-based IP flow mobility, see 3GPP TS 24.161 [36].

#### 8.3.18.12 Header compression configuration

This IE is included in the message if the network wishes to re-negotiate header compression configuration associated to an EPS bearer context and both the UE and the network support Control plane CIoT EPS optimization and header compression.

#### 8.3.18.13 Extended protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.18.14 Extended APN-AMBR

This IE shall be included in the message only if at least one of the APN-AMBR values has been changed by the network and at least one of the values to be transmitted exceeds the maximum value specified in the APN aggregate maximum bit rate information element in subclause 9.9.4.2.

#### 8.3.18.15 Extended EPS QoS

This IE shall be included in the message only if the network wishes to transmit the maximum and guaranteed bit rate values to the UE and at least one of the values to be transmitted exceeds the maximum value specified in the EPS quality of service information element in subclause 9.9.4.3.

### 8.3.18A Notification

This message is sent by the network to inform the UE about events which are relevant for the upper layer using an EPS bearer context or having requested a procedure transaction. See table 8.3.18A.1.

Message type: NOTIFICATION

Significance: local

Direction: network to UE

Table 8.3.18A.1: NOTIFICATION message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Notification message identity | Message type  9.8 | M | V | 1 |
|  | Notification indicator | Notification indicator  9.9.4.7A | M | LV | 2 |

### 8.3.19 PDN connectivity reject

#### 8.3.19.1 Message definition

This message is sent by the network to the UE to reject establishment of a PDN connection. See table 8.3.19.1.

Message type: PDN CONNECTIVITY REJECT

Significance: dual

Direction: network to UE

Table 8.3.19.1: PDN CONNECTIVITY REJECT message content

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |  |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |  |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |  |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |  |
|  | PDN connectivity reject message identity | Message type  9.8 | M | V | 1 |  |
|  | ESM cause | ESM cause  9.9.4.4 | M | V | 1 |  |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |  |
| 37 | Back-off timer value | GPRS timer 3  9.9.3.16B | O | TLV | 3 |  |
| 6B | Re-attempt indicator | Re-attempt indicator  9.9.4.13A | O | TLV | 3 |  |
| 33 | NBIFOM container | NBIFOM container  9.9.4.19 | O | TLV | 3-257 |  |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |  |

#### 8.3.19.2 Protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.19.3 Back-off timer value

The network may include this IE if the ESM cause is not #50 "PDN type IPv4 only allowed", #51 "PDN type IPv6 only allowed", #54 "PDN connection does not exist", #57 "PDN type IPv4v6 only allowed", #58 "PDN type non IP only allowed", #61 "PDN type Ethernet only allowed", or #65 "maximum number of EPS bearers reached", to request a minimum time interval before procedure retry is allowed.

#### 8.3.19.4 Re-attempt indicator

The network may include this IE only if the ESM cause value is #50 "PDN type IPv4 only allowed", #51 "PDN type IPv6 only allowed", #57 "PDN type IPv4v6 only allowed", #58 "PDN type non IP only allowed", #61 "PDN type Ethernet only allowed", or #66 "requested APN not supported in current RAT and PLMN combination", or if the network includes the Back-off timer value IE and the ESM cause value is not #26 "insufficient resources".

#### 8.3.19.5 Extended protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

### 8.3.20 PDN connectivity request

#### 8.3.20.1 Message definition

This message is sent by the UE to the network to initiate establishment of a PDN connection. See table 8.3.20.1.

Message type: PDN CONNECTIVITY REQUEST

Significance: dual

Direction: UE to network

Table 8.3.20.1: PDN CONNECTIVITY REQUEST message content

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |  |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |  |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |  |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |  |
|  | PDN connectivity request message identity | Message type  9.8 | M | V | 1 |  |
|  | Request type | Request type  9.9.4.14 | M | V | 1/2 |  |
|  | PDN type | PDN type  9.9.4.10 | M | V | 1/2 |  |
| D- | ESM information transfer flag | ESM information transfer flag  9.9.4.5 | O | TV | 1 |  |
| 28 | Access point name | Access point name  9.9.4.1 | O | TLV | 3-102 |  |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |  |
| C- | Device properties | Device properties  9.9.2.0A | O | TV | 1 |  |
| 33 | NBIFOM container | NBIFOM container  9.9.4.19 | O | TLV | 3-257 |  |
| 66 | Header compression configuration | Header compression configuration  9.9.4.22 | O | TLV | 5-257 |  |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |  |

#### 8.3.20.2 ESM information transfer flag

The UE shall include this IE in the PDN CONNECTIVITY REQUEST message sent during the attach procedure if the UE has protocol configuration options that need to be transferred security protected or wishes to provide an access point name for the PDN connection to be established during the attach procedure.

#### 8.3.20.3 Access point name

This IE is included in the message when the UE wishes to request network connectivity as defined by a certain access point name. This IE shall not be included when the PDN CONNECTIVITY REQUEST message is included in an ATTACH REQUEST message or if the request type indicates "emergency" or "handover of emergency bearer services" or "RLOS".

#### 8.3.20.4 Protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network, the UE is in WB-S1 mode and the PDN Type requested is different from Non-IP and Ethernet.

This IE shall be included if the UE supports local IP address in traffic flow aggregate description and TFT filter, the UE is in WB-S1 mode and the PDN Type requested is different from Non-IP and Ethernet.

This IE shall not be included if the Extended protocol configuration options IE is included in the message.

#### 8.3.20.5 Device properties

The UE shall include this IE if the UE is configured for NAS signalling low priority.

#### 8.3.20.6 NBIFOM container

This information element is used to transfer information associated with network-based IP flow mobility, see 3GPP TS 24.161 [36].

#### 8.3.20.7 Header compression configuration

The UE shall include the Header compression configuration IE if:

- the PDN type value of the PDN type IE is set to IPv4 or IPv6 or IPv4v6;

- the UE indicates "Control Plane CIoT EPS optimization supported" in the UE network capability IE of the ATTACH REQUEST message; and

- the UE supports header compression.

#### 8.3.20.8 Extended protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network, and the UE is in NB-S1 mode or Non-IP or Ethernet PDN Type is requested.

This IE shall be included if the UE supports local IP address in traffic flow aggregate description and TFT filter, the UE is in NB-S1 mode and the PDN Type requested is different from Non-IP and Ethernet.

This IE shall not be included if the Protocol configuration options IE is included in the message.

### 8.3.21 PDN disconnect reject

#### 8.3.21.1 Message definition

This message is sent by the network to the UE to reject release of a PDN connection. See table 8.3.21.1.

Message type: PDN DISCONNECT REJECT

Significance: dual

Direction: network to UE

Table 8.3.21.1: PDN DISCONNECT REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | PDN disconnect reject message identity | Message type  9.8 | M | V | 1 |
|  | ESM cause | ESM cause  9.9.4.4 | M | V | 1 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |

#### 8.3.21.2 Protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.21.3 Extended protocol configuration options

This IE is included in the message when the network wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

### 8.3.22 PDN disconnect request

#### 8.3.22.1 Message definition

This message is sent by the UE to the network to initiate release of a PDN connection. See table 8.3.22.1.

Message type: PDN DISCONNECT REQUEST

Significance: dual

Direction: UE to network

Table 8.3.22.1: PDN DISCONNECT REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | PDN disconnect request message identity | Message type  9.8 | M | V | 1 |
|  | Linked EPS bearer identity | Linked EPS bearer identity  9.9.4.6 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.9.2.9 | M | V | 1/2 |
| 27 | Protocol configuration options | Protocol configuration options  9.9.4.11 | O | TLV | 3-253 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.9.4.26 | O | TLV-E | 4-65538 |

#### 8.3.22.2 Protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is not supported by the UE or the network end-to-end for the PDN connection (see subclause 6.6.1.1).

#### 8.3.22.3 Extended protocol configuration options

This IE is included in the message when the UE wishes to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network and the extended protocol configuration options is supported by both the UE and the network end-to-end for the PDN connection (see subclause 6.6.1.1).

### 8.3.23 Remote UE report

#### 8.3.23.1 Message definition

This message is sent by the UE to the network to report connection or disconnection of remote UE(s). See table 8.3.23.1.

Message type: REMOTE UE REPORT

Significance: dual

Direction: UE to network

Table 8.3.23.1: REMOTE UE REPORT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Remote UE report message identity | Message type  9.8 | M | V | 1 |
| 79 | Remote UE Context Connected | Remote UE context list IE  9.9.4.20 | O | TLV-E | 3-65538 |
| 7A | Remote UE Context Disconnected | Remote UE context list IE  9.9.4.20 | O | TLV-E | 3-65538 |
| 6F | ProSe Key Management Function address | PKMF address IE  9.9.4.21 | O | TLV | 3-19 |

#### 8.3.23.2 Remote UE Context Connected

This IE is included in the message by the UE acting as ProSe UE-to-network relay to provide the network with newly connected remote UE information as specified in 3GPP TS 23.303 [31].

#### 8.3.23.3 Remote UE Context Disconnected

This IE is included in the message by the UE acting as ProSe UE-to-Network Relay to provide the network with disconnected remote UE information as specified in 3GPP TS 23.303 [31].

#### 8.3.23.4 ProSe Key Management Function Address

This IE is included in the message by the UE acting as ProSe UE-to-network relay to provide the network with the address of the ProSe Key Management Function associated with the remote UEs connected to or disconnected from the ProSe UE-to-network relay.

### 8.3.24 Remote UE report response

#### 8.3.24.1 Message definition

This message is sent by the network to the UE to acknowledge receipt of a Remote UE report message. See table 8.3.24.1.

Message type: REMOTE UE REPORT RESPONSE

Significance: dual

Direction: network to UE

Table 8.3.24.1: REMOTE UE REPORT RESPONSE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | Remote UE report response message identity | Message type  9.8 | M | V | 1 |

### 8.3.25 ESM DATA TRANSPORT

#### 8.3.25.1 Message definition

This message is sent by the UE or the network in order to carry user data in an encapsulated format. See table 8.3.25.1.

Message type: ESM DATA TRANSPORT

Significance: dual

Direction: both

Table 8.3.25.1: ESM DATA TRANSPORT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Protocol discriminator | Protocol discriminator  9.2 | M | V | 1/2 |
|  | EPS bearer identity | EPS bearer identity  9.3.2 | M | V | 1/2 |
|  | Procedure transaction identity | Procedure transaction identity  9.4 | M | V | 1 |
|  | ESM data transport message identity | Message type  9.8 | M | V | 1 |
|  | User data container | User data container  9.9.4.24 | M | LV-E | 2-n |
| F- | Release assistance indication | Release assistance indication  9.9.4.25 | O | TV | 1 |

#### 8.3.25.2 Release assistance indication

The UE may include this IE to inform the network whether

- no further uplink and no further downlink data transmission is expected; or

- only a single downlink data transmission (e.g. acknowledgement or response to uplink data) and no further uplink data transmission subsequent to the uplink data transmission is expected.

# 9 General message format and information elements coding

## 9.1 Overview

Within the protocols defined in the present document, every message, except the SERVICE REQUEST message, is a standard L3 message as defined in 3GPP TS 24.007 [12]. This means that the message consists of the following parts:

1) if the message is a plain NAS message:

a) protocol discriminator;

b) EPS bearer identity or security header type;

c) procedure transaction identity;

d) message type;

e) other information elements, as required.

2) if the message is a security protected NAS message:

a) protocol discriminator;

b) security header type;

c) message authentication code;

d) sequence number;

e) plain NAS message, as defined in item 1.

The organization of a plain NAS message is illustrated in the example shown in figure 9.1.1.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | | 4 | 3 | 2 | 1 | |  |
| EPS bearer identity  or Security header type | | | | Protocol discriminator | | | | | octet 1 | |
| Procedure transaction identity | | | | | | | | | octet 1a\* | |
| Message type | | | | | | | | | octet 2 | |
|  | | | | | | | | | octet 3 | |
| Other information elements as required | | | | | | | | |  | |
|  | | | | | | | | | octet n | |

Figure 9.1.1: General message organization example for a plain NAS message

The organization of a security protected NAS message is illustrated in the example shown in figure 9.1.2.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | | 4 | 3 | 2 | 1 | |  |
| Security header type | | | | Protocol discriminator | | | | | octet 1 | |
|  | | | | | | | | | octet 2 | |
| Message authentication code | | | | | | | | |  | |
|  | | | | | | | | |  | |
|  | | | | | | | | | octet 5 | |
| Sequence number | | | | | | | | | octet 6 | |
|  | | | | | | | | | octet 7 | |
| NAS message | | | | | | | | |  | |
|  | | | | | | | | | octet n | |

Figure 9.1.2: General message organization example for a security protected NAS message

The EPS bearer identity and the procedure transaction identity are only used in messages with protocol discriminator EPS session management. Octet 1a with the procedure transaction identity shall only be included in these messages.

Unless specified otherwise in the message descriptions of clause 8, a particular information element shall not be present more than once in a given message.

When a field extends over more than one octet, the order of bit values progressively decreases as the octet number increases. The most significant bit of the field is represented by the highest numbered bit of the lowest numbered octet of the field. The least significant bit of the field is represented by the lowest numbered bit of the highest numbered octet of the field.

## 9.2 Protocol discriminator

The Protocol Discriminator (PD) and its use are defined in 3GPP TS 24.007 [12]. The protocol discriminator in the header (see 3GPP TS 24.007 [12]) of a security protected NAS message is encoded as "EPS mobility management messages".

## 9.3 Security header type and EPS bearer identity

### 9.3.1 Security header type

Bits 5 to 8 of the first octet of every EPS Mobility Management (EMM) message contain the Security header type IE. This IE includes control information related to the security protection of a NAS message. The total size of the Security header type IE is 4 bits.

The Security header type IE can take the values shown in table 9.3.1.

Table 9.3.1: Security header type

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Security header type (octet 1) | | | | | |
|  | | | | | |
| 8 | 7 | 6 | 5 | |  |
| 0 | 0 | 0 | 0 | | Plain NAS message, not security protected |
|  |  |  |  | |  |
|  |  |  |  | | Security protected NAS message: |
| 0 | 0 | 0 | 1 | | Integrity protected |
| 0 | 0 | 1 | 0 | | Integrity protected and ciphered |
| 0 | 0 | 1 | 1 | | Integrity protected with new EPS security context (NOTE 1) |
| 0 | 1 | 0 | 0 | | Integrity protected and ciphered with new EPS security context (NOTE 2) |
| 0 | 1 | 0 | 1 | | Integrity protected and partially ciphered NAS message (NOTE 4) |
|  |  |  |  | |  |
|  |  |  |  | | Non-standard L3 message: |
| 1 | 1 | 0 | 0 | | Security header for the SERVICE REQUEST message |
|  |  |  |  | |  |
| 1 | 1 | 0 | 1 | | These values are not used in this version of the protocol. |
| to | | | | If received they shall be interpreted as '1100'. (NOTE 3) | |
| 1 | 1 | 1 | 1 | |  |
|  |  |  |  | |  |
| All other values are reserved. | | | | | |
|  | | | | | |
| NOTE 1: This codepoint may be used only for a SECURITY MODE COMMAND message.  NOTE 2: This codepoint may be used only for a SECURITY MODE COMPLETE message.  NOTE 3: When bits 7 and 8 are set to '11', bits 5 and 6 can be used for future extensions of the SERVICE REQUEST message.  NOTE 4: This codepoint may be used only for a CONTROL PLANE SERVICE REQUEST message. | | | | | |

An EMM message received with the security header type encoded as 0000 shall be treated as not security protected, plain NAS message. A protocol entity sending a not security protected EMM message shall send the message as plain NAS message and encode the security header type as 0000.

### 9.3.2 EPS bearer identity

Bits 5 to 8 of the first octet of every EPS Session Management (ESM) message contain the EPS bearer identity. The EPS bearer identity and its use to identify a message flow are defined in 3GPP TS 24.007 [12].

If the UE or the MME or both do not support signalling for a maximum number of 15 EPS bearer contexts, the MME shall select the EPS bearer identity from the value range 5 to 15, or select the value 0 when it needs to indicate that no EPS bearer identity is assigned.

NOTE: When assigning EPS bearer identities from the range 1 to 4, the MME can take into account that these EPS bearer contexts will be subject to local deactivation if the UE performs inter-system change to A/Gb mode or Iu mode or if it performs a change to an MME not supporting signalling for a maximum number of 15 EPS bearer contexts.

## 9.4 Procedure transaction identity

Bits 1 to 8 of the second octet (octet 1a) of every EPS Session Management (ESM) message contain the procedure transaction identity. The procedure transaction identity and its use are defined in 3GPP TS 24.007 [12].

## 9.5 Message authentication code

The Message authentication code (MAC) information element contains the integrity protection information for the message. The MAC IE shall be included in the security protected NAS message if a valid EPS security context exists and security functions are started. The usage of MAC is specified in subclause 4.4.3.3.

## 9.6 Sequence number

This IE includes the NAS message sequence number (SN) which consists of the eight least significant bits of the NAS COUNT for a security protected NAS message The usage of SN is specified in subclause 4.4.3.

## 9.7 NAS message

This IE includes a complete plain NAS message as specified in subclause 8.2 and 8.3. The SECURITY PROTECTED NAS MESSAGE and the SERVICE REQUEST message are not plain NAS messages and shall not be included in this IE.

## 9.8 Message type

The message type IE and its use are defined in 3GPP TS 24.007 [12]. Tables 9.8.1 and 9.8.2 define the value part of the message type IE used in the EPS mobility management protocol and EPS session management protocol.

Table 9.8.1: Message types for EPS mobility management

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bits | | | | | | | | |  | |  |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | |  | |
|  |  |  |  |  |  |  |  |  | |  | |
| 0 | 1 | - | - | - | - | - | - |  | | EPS mobility management messages | |
|  |  |  |  |  |  |  |  |  | |  | |
| 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |  | | Attach request | |
| 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |  | | Attach accept | |
| 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |  | | Attach complete | |
| 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |  | | Attach reject | |
| 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |  | | Detach request | |
| 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |  | | Detach accept | |
|  |  |  |  |  |  |  |  |  | |  | |
| 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |  | | Tracking area update request | |
| 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |  | | Tracking area update accept | |
| 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |  | | Tracking area update complete | |
| 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 |  | | Tracking area update reject | |
|  |  |  |  |  |  |  |  |  | |  | |
| 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |  | | Extended service request | |
| 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 |  | | Control plane service request | |
| 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 |  | | Service reject | |
| 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |  | | Service accept | |
|  |  |  |  |  |  |  |  |  | |  | |
| 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |  | | GUTI reallocation command | |
| 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |  | | GUTI reallocation complete | |
| 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |  | | Authentication request | |
| 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |  | | Authentication response | |
| 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |  | | Authentication reject | |
| 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 |  | | Authentication failure | |
| 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |  | | Identity request | |
| 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |  | | Identity response | |
| 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 |  | | Security mode command | |
| 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 |  | | Security mode complete | |
| 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |  | | Security mode reject | |
|  |  |  |  |  |  |  |  |  | |  | |
| 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |  | | EMM status | |
| 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |  | | EMM information | |
| 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |  | | Downlink NAS transport | |
| 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |  | | Uplink NAS transport | |
| 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |  | | CS Service notification | |
| 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |  | | Downlink generic NAS transport | |
| 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |  | | Uplink generic NAS transport | |

Table 9.8.2: Message types for EPS session management

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bits | | | | | | | | |  | |  |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | |  | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | - | - | - | - | - | - |  | | EPS session management messages | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |  | | Activate default EPS bearer context request | |
| 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |  | | Activate default EPS bearer context accept | |
| 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |  | | Activate default EPS bearer context reject | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |  | | Activate dedicated EPS bearer context request | |
| 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |  | | Activate dedicated EPS bearer context accept | |
| 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |  | | Activate dedicated EPS bearer context reject | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |  | | Modify EPS bearer context request | |
| 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |  | | Modify EPS bearer context accept | |
| 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 |  | | Modify EPS bearer context reject | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 |  | | Deactivate EPS bearer context request | |
| 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 |  | | Deactivate EPS bearer context accept | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |  | | PDN connectivity request | |
| 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |  | | PDN connectivity reject | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |  | | PDN disconnect request | |
| 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |  | | PDN disconnect reject | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |  | | Bearer resource allocation request | |
| 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |  | | Bearer resource allocation reject | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |  | | Bearer resource modification request | |
| 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |  | | Bearer resource modification reject | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |  | | ESM information request | |
| 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 |  | | ESM information response | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |  | | Notification | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 |  | | ESM dummy message | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |  | | ESM status | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |  | | Remote UE report | |
| 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |  | | Remote UE report response | |
|  |  |  |  |  |  |  |  |  | |  | |
| 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |  | | ESM data transport | |

## 9.9 Other information elements

### 9.9.1 General

The different formats (V, LV, T, TV, TLV, LV-E, TLV-E) and the five categories of information elements (type 1, 2, 3, 4 and 6) are defined in 3GPP TS 24.007 [12].

The first octet of an information element in the non-imperative part contains the IEI of the information element. If this octet does not correspond to an IEI known in the message, the receiver shall determine whether this IE is of type 1 or 2 (i.e. it is an information element of one octet length) or an IE of type 4 (i.e. that the next octet is the length indicator indicating the length of the remaining of the information element) (see 3GPP TS 24.007 [12]).

This allows the receiver to jump over unknown information elements and to analyse any following information elements.

The definitions of information elements which are common for the EMM and ESM protocols or which are used by access stratum protocols are described in subclause 9.9.2.

The information elements of the EMM or ESM protocols can be defined by reference to an appropriate specification, e.g., "see subclause 10.5.6.3 in 3GPP TS 24.008 [13]".

### 9.9.2 Common information elements

#### 9.9.2.0 Additional information

The purpose of the Additional information information element is to provide additional information to upper layers in relation to the generic NAS message transport mechanism.

The Additional information information element is coded as shown in figure 9.9.2.0.1 and table 9.9.2.0.1.

The Additional information is a type 4 information element with a minimum length of 3 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Additional information IEI | | | | | | | | octet 1 |
| Additional information length | | | | | | | | octet 2 |
| Additional information value | | | | | | | | octets 3-n |

Figure 9.9.2.0.1: Additional information information element

Table 9.9.2.0.1: Additional information information element

|  |
| --- |
| Additional information value (octet 3 to octet n) |
|  |
| The coding of the additional information value is dependent on the generic message container type. |

#### 9.9.2.0A Device properties

See subclause 10.5.7.8 in 3GPP TS 24.008 [13].

#### 9.9.2.1 EPS bearer context status

The purpose of the EPS bearer context status information element is to indicate the state of each EPS bearer context that can be identified by an EPS bearer identity.

The EPS bearer context status information element is coded as shown in figure 9.9.2.1.1 and table 9.9.2.1.1.

The EPS bearer context status information element is a type 4 information element with 4 octets length.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | |
| EPS bearer context status IEI | | | | | | | | | octet 1 |
| Length of EPS bearer context status contents | | | | | | | | | octet 2 |
| EBI  (7) | EBI  (6) | EBI  (5) | EBI  (4) | EBI  (3) | EBI  (2) | EBI  (1) | EBI  (0) | octet 3 | |
| EBI  (15) | EBI  (14) | EBI  (13) | EBI  (12) | EBI  (11) | EBI  (10) | EBI  (9) | EBI  (8) | octet 4 | |

Figure 9.9.2.1.1: EPS bearer context status information element

Table 9.9.2.1.1: EPS bearer context status information element

|  |
| --- |
| EBI(x) shall be coded as follows:  EBI(0):  Bit 1 of octet 3 is spare and shall be coded as zero.  EBI(1) – EBI(15):  0 indicates that the ESM state of the corresponding EPS bearer context is BEARER CONTEXT-INACTIVE.  1 indicates that the ESM state of the corresponding EPS bearer context is not BEARER CONTEXT-INACTIVE |

#### 9.9.2.2 Location area identification

See subclause 10.5.1.3 in 3GPP TS 24.008 [13].

#### 9.9.2.3 Mobile identity

See subclause 10.5.1.4 in 3GPP TS 24.008 [13].

#### 9.9.2.4 Mobile station classmark 2

See subclause 10.5.1.6 in 3GPP TS 24.008 [13].

#### 9.9.2.5 Mobile station classmark 3

See subclause 10.5.1.7 in 3GPP TS 24.008 [13].

#### 9.9.2.6 NAS security parameters from E-UTRA

The purpose of the NAS security parameters from E-UTRA information element is to provide the UE with information that enables the UE to create a mapped UMTS security context.

The NAS security parameters from E-UTRA information element is coded as shown in figure 9.9.2.6.1 and table 9.9.2.6.1.

The NAS security parameters from E-UTRA is a type 3 information element with a length of 2 octets.

The value part of the NAS security parameters from E-UTRA information element is included in specific information elements within some RRC messages sent to the UE; see 3GPP TS 36.331 [22]. For these cases the coding of the information element identifier and length information is defined in 3GPP TS 36.331 [22].

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | 2 | 1 |  | |
| NAS security parameters from E-UTRA IEI | | | | | | | | | | octet 1 |
| 0 | 0 | 0 | 0 | DL NAS COUNT value  (short) | | | | | octet 2 | |
| Spare | | | | |  | | | | |

Figure 9.9.2.6.1: NAS security parameters from E-UTRA information element

Table 9.9.2.6.1: NAS security parameters from E-UTRA information element

|  |
| --- |
| DL NAS COUNT value (short) (octet 2, bit 1 to 4) |
|  |
| This field contains the 4 least significant bits of the binary representation of the downlink NAS COUNT value applicable when this information element is sent. |
| Bit 5 to 8 of octet 2 are spare and shall be coded as zero. |

#### 9.9.2.7 NAS security parameters to E-UTRA

The purpose of the NAS security parameters to E-UTRA information element is to provide the UE with parameters that enable the UE to create a mapped EPS security context and take this context into use after inter-system handover to S1 mode.

The NAS security parameters to E-UTRA information element is coded as shown in figure 9.9.2.7.1 and table 9.9.2.7.1.

The NAS security parameters to E-UTRA is a type 3 information element with a length of 7 octets.

The value part of the NAS security parameters to E-UTRA information element is included in specific information elements within some RRC messages sent to the UE; see 3GPP TS 36.331 [22]. For these cases the coding of the information element identifier and length information is defined in 3GPP TS 36.331 [22].

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | |
| NAS security parameters to E-UTRA IEI | | | | | | | | | octet 1 |
| NonceMME value | | | | | | | | | octet 2  octet 5 |
| 0  spare | Type of ciphering algorithm | | | 0  spare | Type of integrity protection algorithm | | | | octet 6 |
| 0 | 0 | 0 | 0 | TSC | NAS key set identifier | | | | octet 7 |
| spare | | | |

Figure 9.9.2.7.1: NAS security parameters to E-UTRA information element

Table 9.9.2.7.1: NAS security parameters to E-UTRA information element

|  |
| --- |
| NonceMME value (octet 2 to 5) |
|  |
| This field is coded as the nonce value in the Nonce information element (see subclause 9.9.3.25). |
|  |
| Type of integrity protection algorithm (octet 6, bit 1 to 3) and  type of ciphering algorithm (octet 6, bit 5 to 7) |
|  |
| These fields are coded as the type of integrity protection algorithm and type of ciphering algorithm in the NAS security algorithms information element (see subclause 9.9.3.23). |
|  |
| Bit 4 and 8 of octet 6 are spare and shall be coded as zero. |
|  |
| NAS key set identifier (octet 7, bit 1 to 3) and  type of security context flag (TSC) (octet 7, bit 4) |
|  |
| These fields are coded as the NAS key set identifier and type of security context flag in the NAS key set identifier information element (see subclause 9.9.3.21). |
|  |
| Bit 5 to 8 of octet 7 are spare and shall be coded as zero. |
|  |

#### 9.9.2.8 PLMN list

See subclause 10.5.1.13 in 3GPP TS 24.008 [13].

#### 9.9.2.9 Spare half octet

This element is used in the description of EMM and ESM messages when an odd number of half octet type 1 information elements are used. This element is filled with spare bits set to zero and is placed in bits 5 to 8 of the octet unless otherwise specified.

#### 9.9.2.10 Supported codec list

See subclause 10.5.4.32 in 3GPP TS 24.008 [13].

### 9.9.3 EPS Mobility Management (EMM) information elements

#### 9.9.3.0A Additional update result

The purpose of the Additional update result information element is to provide additional information about the result of a combined attach procedure or a combined tracking area updating procedure.

The Additional update result information element is coded as shown in figure 9.9.3.0A.1 and table 9.9.3.0A.1.

The Additional update result is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | | 2 | | 1 |  | |
| Additional update result IEI | | | | | 0  Spare | | 0  Spare | | Additional update result value | | | Octet 1 |

Figure 9.9.3.0A.1: Additional update result information element

Table 9.9.3.0A.1: Additional update result information element

|  |  |  |
| --- | --- | --- |
| Additional update result value (octet 1) | | |
|  | | |
| Bits | | |
| 2 | 1 |  |
| 0 | 0 | no additional information |
| 0 | 1 | CS Fallback not preferred |
| 1 | 0 | SMS only |
| 1 | 1 | reserved |
|  | | |
| Bits 4 and 3 of octet 1 are spare and shall all be coded as zero. | | |
|  | | |
| NOTE: Bits 4 and 3 of octet 1 were used in earlier versions of this release of this specification. | | |

#### 9.9.3.0B Additional update type

The purpose of the Additional update type information element is to provide additional information about the type of request for an attach or a tracking area updating procedure.

The Additional update type information element is coded as shown in figure 9.9.3.0B.1 and table 9.9.3.0B.1.

The Additional update type is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | 2 | | 1 | |  | |
| Additional update type  IEI | | | | | PNB-CIoT | | | SAF | | AUTV | | octet 1 |

Figure 9.9.3.0B.1: Additional update type information element

Table 9.9.3.0B.1: Additional update type information element

|  |  |  |
| --- | --- | --- |
| Additional update type value (AUTV) (octet 1) | | |
|  | | |
| Bit | | |
| 1 |  | |
| 0 | no additional information. If received it shall be interpreted as request for combined attach or combined tracking area updating. | |
| 1 | SMS only | |
|  | | |
| "Signalling active" flag (SAF) (octet 1) | | |
|  | | |
| Bit | | |
| 2 |  | |
| 0 | keeping the NAS signalling connection is not required after the completion of the tracking area updating procedure | |
| 1 | keeping the NAS signalling connection is required after the completion of the tracking area updating procedure | |
|  | | |
| Preferred CIoT network behaviour (PNB-CIoT) (octet 1) | | |
|  | | |
| Bit | | |
| 4 | 3 |  |
| 0 | 0 | no additional information |
| 0 | 1 | control plane CIoT EPS optimization |
| 1 | 0 | user plane CIoT EPS optimization |
| 1 | 1 | reserved |
|  | | |
|  | | |
|  | | |

#### 9.9.3.1 Authentication failure parameter

See subclause 10.5.3.2.2 in 3GPP TS 24.008 [13].

#### 9.9.3.2 Authentication parameter AUTN

See subclause 10.5.3.1.1 in 3GPP TS 24.008 [13].

#### 9.9.3.3 Authentication parameter RAND

See subclause 10.5.3.1 in 3GPP TS 24.008 [13].

#### 9.9.3.4 Authentication response parameter

The purpose of the Authentication response parameter information element is to provide the network with the authentication response calculated in the USIM.

The Authentication response parameter information element is coded as shown in figure 9.9.3.4.1 and table 9.9.3.4.1.

The Authentication response parameter is a type 4 information element with a minimum length of 6 octets and a maximum length of 18 octets.

In an EPS authentication challenge, the response calculated in the USIM (RES) is minimum 4 octets and may be up to 16 octets in length.

In a 5G AKA authentication challenge, the response calculated in the ME (RES\*) is 16 octets in length.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  |
| Authentication response parameter IEI | | | | | | | | octet 1 | |
| Length of Authentication response parameter contents | | | | | | | | octet 2 | |
| RES or RES\* | | | | | | | | octet 3 | |
|  | | | | | | | | octet 18 | |

Figure 9.9.3.4.1: Authentication response parameter information element

Table 9.9.3.4.1: Authentication response parameter information element

|  |
| --- |
| RES value (octet 3 to 18)  This contains the RES or RES\*. |

#### 9.9.3.4A Ciphering key sequence number

See subclause 10.5.1.2 in 3GPP TS 24.008 [13].

#### 9.9.3.4B SMS services status

The purpose of the SMS services status information element is to indicate the status of availability for SMS services requested by the UE during the normal attach procedure or tracking area updating procedure.

The SMS services status information element is coded as shown in figure 9.9.3.4B.1 and table 9.9.3.4B.1.

The SMS services status is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | | 2 | 1 |  | |
| SMS services status IEI | | | | | 0  Spare | | SMS services status value | | | | octet 1 |

Figure 9.9.3.4B.1: SMS services status information element

Table 9.9.3.4B.1: SMS services status information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SMS services status value (octet 1, bit 1 to 3) | | | | |
|  | | | | |
| Bits | | | | |
|  | | | | |
| 3 | 2 | 1 |  |  |
| 0 | 0 | 0 |  | SMS services not available |
| 0 | 0 | 1 |  | SMS services not available in this PLMN |
| 0 | 1 | 0 |  | Network failure |
| 0 | 1 | 1 |  | Congestion |
|  | | | | |
| All other values are unused and shall be treated as abnormal case, if received by the UE. | | | | |
|  | | | | |
| Bit 4 of octet 1 is spare and shall be coded as zero. | | | | |

#### 9.9.3.5 CSFB response

The purpose of the CSFB response information element is to indicate whether the UE accepts or rejects a paging for CS fallback.

The CSFB response information element is coded as shown in figure 9.9.3.5.1 and table 9.9.3.5.1.

The CSFB response is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | | 2 | 1 |  | |
| CSFB response  IEI | | | | | 0  spare | | CSFB response value | | | | octet 1 |

Figure 9.9.3.5.1: CSFB response information element

Table 9.9.3.5.1: CSFB response information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CSFB response value (octet 1) | | | | |
|  | | | | |
| Bits | | | | |
| 3 | 2 | 1 |  |  |
| 0 | 0 | 0 |  | CS fallback rejected by the UE |
| 0 | 0 | 1 |  | CS fallback accepted by the UE |
|  |  |  |  |  |
| All other values are reserved. | | | | |
|  | | | | |

#### 9.9.3.6 Daylight saving time

See subclause 10.5.3.12 in 3GPP TS 24.008 [13].

#### 9.9.3.7 Detach type

The purpose of the Detach type information element is to indicate the type of detach.

The Detach type information element is coded as shown in figure 9.9.3.7.1 and table 9.9.3.7.1.

The Detach type is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | | 4 | 3 | | 2 | 1 |  |
| Detach type  IEI | | | | Switch  off | | | Type of detach | | | octet 1 |

Figure 9.9.3.7.1: Detach type information element

Table 9.9.3.7.1: Detach type information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type of detach (octet 1) | | | | |
|  | | | | |
| In the UE to network direction: | | | | |
| Bits | | | | |
| 3 | 2 | 1 |  |  |
| 0 | 0 | 1 |  | EPS detach |
| 0 | 1 | 0 |  | IMSI detach |
| 0 | 1 | 1 |  | combined EPS/IMSI detach |
| 1 | 1 | 0 |  | reserved |
| 1 | 1 | 1 |  | reserved |
|  | | | | |
| All other values are interpreted as "combined EPS/IMSI detach" in this version of the protocol. | | | | |
|  | | | | |
| In the network to UE direction: | | | | |
| Bits | | | | |
| 3 | 2 | 1 |  |  |
| 0 | 0 | 1 |  | re-attach required |
| 0 | 1 | 0 |  | re-attach not required |
| 0 | 1 | 1 |  | IMSI detach |
| 1 | 1 | 0 |  | reserved |
| 1 | 1 | 1 |  | reserved |
|  | | | | |
| All other values are interpreted as "re-attach not required" in this version of the protocol. | | | | |
|  | | | | |
| Switch off (octet 1) | | | | |
|  | | | | |
| In the UE to network direction: | | | | |
| Bit | | | | |
| 4 |  |  |  |  |
| 0 |  |  |  | normal detach |
| 1 |  |  |  | switch off |
|  | | | | |
| In the network to UE direction bit 4 is spare. The network shall set this bit to zero. | | | | |

#### 9.9.3.8 DRX parameter

See subclause 10.5.5.6 in 3GPP TS 24.008 [13].

#### 9.9.3.9 EMM cause

The purpose of the EMM cause information element is to indicate the reason why an EMM request from the UE is rejected by the network.

The EMM cause information element is coded as shown in figure 9.9.3.9.1 and table 9.9.3.9.1.

The EMM cause is a type 3 information element with 2 octets length.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| EMM cause IEI | | | | | | | | octet 1 |
| Cause value | | | | | | | | octet 2 |

Figure 9.9.3.9.1: EMM cause information element

Table 9.9.3.9.1: EMM cause information element

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cause value (octet 2) | | | | | | | | | |
|  | | | | | | | | | |
| Bits | | | | | | | | | |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |  |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |  | IMSI unknown in HSS |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |  | Illegal UE |
| 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |  | IMEI not accepted |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |  | Illegal ME |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |  | EPS services not allowed |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |  | EPS services and non-EPS services not allowed |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |  | UE identity cannot be derived by the network |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |  | Implicitly detached |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |  | PLMN not allowed |
| 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |  | Tracking Area not allowed |
| 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 |  | Roaming not allowed in this tracking area |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |  | EPS services not allowed in this PLMN |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |  | No Suitable Cells In tracking area |
| 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |  | MSC temporarily not reachable |
| 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |  | Network failure |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |  | CS domain not available |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |  | ESM failure |
| 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |  | MAC failure |
| 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |  | Synch failure |
| 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |  | Congestion |
| 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |  | UE security capabilities mismatch |
| 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |  | Security mode rejected, unspecified |
| 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |  | Not authorized for this CSG |
| 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |  | Non-EPS authentication unacceptable |
| 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |  | Redirection to 5GCN required |
| 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |  | Requested service option not authorized in this PLMN |
| 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |  | CS service temporarily not available |
| 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |  | No EPS bearer context activated |
| 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |  | Severe network failure |
| 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |  | Semantically incorrect message |
| 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |  | Invalid mandatory information |
| 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |  | Message type non-existent or not implemented |
| 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |  | Message type not compatible with the protocol state |
| 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |  | Information element non-existent or not implemented |
| 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |  | Conditional IE error |
| 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |  | Message not compatible with the protocol state |
| 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |  | Protocol error, unspecified |
|  |  |  |  |  |  |  |  |  |  |
| Any other value received by the mobile station shall be treated as 0110 1111, "protocol error, unspecified". Any other value received by the network shall be treated as 0110 1111, "protocol error, unspecified". | | | | | | | | | |
|  | | | | | | | | | |

#### 9.9.3.10 EPS attach result

The purpose of the EPS attach result information element is to specify the result of an attach procedure.

The EPS attach result information element is coded as shown in figure 9.9.3.10.1 and table 9.9.3.10.1.

The EPS attach result is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | | 2 | 1 |  | |
| EPS attach result IEI | | | | | 0  Spare | | EPS attach result value | | | | octet 1 |

Figure 9.9.3.10.1: EPS attach result information element

Table 9.9.3.10.1: EPS attach result information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| EPS attach result value (octet 1) | | | | |
| Bits | | | | |
| 3 | 2 | 1 |  |  |
| 0 | 0 | 1 |  | EPS only |
| 0 | 1 | 0 |  | combined EPS/IMSI attach |
|  | | | | |
| All other values are reserved. | | | | |
|  | | | | |
| Bit 4 of octet 1 is spare and shall be coded as zero. | | | | |
|  | | | | |

#### 9.9.3.11 EPS attach type

The purpose of the EPS attach type information element is to indicate the type of the requested attach.

The EPS attach type information element is coded as shown in figure 9.9.3.11.1 and table 9.9.3.11.1.

The EPS attach type is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | | 2 | 1 |  | |
| EPS attach type IEI | | | | | 0  Spare | | EPS attach type value | | | | octet 1 |

Figure 9.9.3.11.1: EPS attach type information element

Table 9.9.3.11.1: EPS attach type information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| EPS attach type value (octet 1) | | | | |
| Bits | | | | |
| 3 | 2 | 1 |  |  |
| 0 | 0 | 1 |  | EPS attach |
| 0 | 1 | 0 |  | combined EPS/IMSI attach |
| 0 | 1 | 1 |  | EPS RLOS attach (NOTE) |
| 1 | 1 | 0 |  | EPS emergency attach |
| 1 | 1 | 1 |  | reserved |
|  | | | | |
| All other values are unused and shall be interpreted as "EPS attach", if received by the network. | | | | |
|  | | | | |
| Bit 4 of octet 1 is spare and shall be coded as zero. | | | | |
|  | | | | |
| NOTE: "EPS RLOS attach" shall be interpreted as "EPS attach" by a network not supporting attach for access to RLOS. | | | | |

#### 9.9.3.12 EPS mobile identity

The purpose of the EPS mobile identity information element is to provide either the IMSI, the GUTI or the IMEI.

The EPS mobile identity information element is coded as shown in figures 9.9.3.12.1 and 9.9.3.12.2 and table 9.9.3.12.1.

The EPS mobile identity is a type 4 information element with a minimum length of 3 octets and a maximum length of 13 octets.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | | 4 | 3 | 2 | 1 | | |  |
| EPS mobile identity IEI | | | | | | | | | octet 1 | | |
| Length of EPS mobile identity contents | | | | | | | | | octet 2 | | |
| 1 | 1 | 1 | 1 | | odd/  even  indic | Type of identity | | | | octet 3 | |
| MCC digit 2 | | | | MCC digit 1 | | | | | octet 4 | | |
| MNC digit 3 | | | | MCC digit 3 | | | | | octet 5 | | |
| MNC digit 2 | | | | MNC digit 1 | | | | | octet 6 | | |
| MME Group ID | | | | | | | | | octet 7 | | |
| MME Group ID (continued) | | | | | | | | | octet 8 | | |
| MME Code | | | | | | | | | octet 9 | | |
| M-TMSI | | | | | | | | | octet 10 | | |
| M-TMSI (continued) | | | | | | | | | octet 11 | | |
| M-TMSI (continued) | | | | | | | | | octet 12 | | |
| M-TMSI (continued) | | | | | | | | | octet 13 | | |

Figure 9.9.3.12.1: EPS mobile identity information element for type of identity "GUTI"

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | | 4 | | 3 | 2 | 1 | |  |
| EPS mobile identity IEI | | | | | | | | | | octet 1 | |
| Length of EPS mobile identity contents | | | | | | | | | | octet 2 | |
| Identity digit 1 | | | | odd/  even  indic | | Type of identity | | | | octet 3 | |
| Identity digit p+1 | | | | Identity digit p | | | | | | octet 4\* | |

Figure 9.9.3.12.2: EPS mobile identity information element for type of identity "IMSI" or "IMEI"

Table 9.9.3.12.1: EPS mobile identity information element

|  |  |  |  |
| --- | --- | --- | --- |
| Type of identity (octet 3)  Bits | | | |
| 3 | 2 | 1 |  |
| 0 | 0 | 1 | IMSI |
| 1 | 1 | 0 | GUTI |
| 0 | 1 | 1 | IMEI |
| All other values are reserved. | | | |
|  | | | |
| Odd/even indication (octet 3)  Bit | | | |
| 4 |  |  |  |
| 0 |  |  | even number of identity digits and also when the GUTI is used |
| 1 |  |  | odd number of identity digits |
|  | | | |
| Identity digits (octet 4 etc)  For the IMSI, this field is coded using BCD coding. If the number of identity digits is even then bits 5 to 8 of the last octet shall be filled with an end mark coded as "1111". | | | |
|  | | | |
| For the GUTI, then bits 5 to 8 of octet 3 are coded as "1111", octet 4 through 6 contain the MCC and MNC values as specified below, and bit 8 of octet 7 is the most significant bit and bit 1 of the last octet the least significant bit for the subsequent fields. The required fields for the GUTI are as defined in 3GPP TS 23.003 [2]. | | | |
| MCC, Mobile country code (octet 4, octet 5 bits 1 to 4)  The MCC field is coded as in ITU-T Recommendation E.212 [30], annex A. | | | |
|  | | | |
| MNC, Mobile network code (octet 5 bits 5 to 8, octet 6)  The coding of this field is the responsibility of each administration but BCD coding shall be used. The MNC shall consist of 2 or 3 digits. If a network operator decides to use only two digits in the MNC, bits 5 to 8 of octet 5 shall be coded as "1111".  The contents of the MCC and MNC digits are coded as octets 6 to 8 of the Temporary Mobile Group Identity IE in figure 10.5.154 of 3GPP TS 24.008 [13]. | | | |
|  | | | |
| For the IMEI, this field is coded using BCD coding. The format of the IMEI is described in 3GPP TS 23.003 [2]. | | | |
|  | | | |

#### 9.9.3.12A EPS network feature support

The purpose of the EPS network feature support information element is to indicate whether certain features are supported by the network.

The EPS network feature support information element is coded as shown in figure 9.9.3.12A.1 and table 9.9.3.12A.1.

The EPS network feature support is a type 4 information element with a minimum length of 3 octets and a maximum length of 4 octets.

If the network does not include octet 4 as defined below in the present version of the protocol, then the UE shall interpret this as a receipt of an information element with all bits of octet 4 coded as zero.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 8 | | 7 | | 6 | | 5 | | 4 | | 3 | | 2 | | 1 | | |  | | |
| EPS network feature support IEI | | | | | | | | | | | | | | | | octet 1 | | |  | |
| Length of EPS network feature support contents | | | | | | | | | | | | | | | | octet 2 | | |  | |
| CP CIoT | | ERw/oPDN | | ESR PS | | CS-LCS | | | | EPC-LCS | | EMC BS | | IMS VoPS | | | octet 3 | | |  |
| 15 bearers | | IWKN26 | | RestrictDCNR | | RestrictEC | | ePCO | | HC-CP CIoT | | S1-U data | | UP CIoT | | | octet 4\* | | |  |

Figure 9.9.3.12A.1: EPS network feature support information element

Table 9.9.3.12A.1: EPS network feature support information element

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IMS voice over PS session indicator (IMS VoPS) (octet 3, bit 1) | | | | |  | |
|  | | | | |  | |
| Bit | | | | |  | |
| 1 |  |  |  |  | |  |
| 0 |  |  |  | IMS voice over PS session in S1 mode not supported | |  |
| 1 |  |  |  | IMS voice over PS session in S1 mode supported | |  |
|  | | | | |  | |
| Emergency bearer services indicator (EMC BS) (octet 3, bit 2) | | | | |  | |
|  | | | | |  | |
| Bit | | | | |  | |
| 2 |  |  |  |  | |  |
| 0 |  |  |  | emergency bearer services in S1 mode not supported | |  |
| 1 |  |  |  | emergency bearer services in S1 mode supported | |  |
|  | | | | |  | |
| Location services indicator in EPC (EPC-LCS) (octet 3, bit 3) | | | | |  | |
|  | | | | |  | |
| Bit | | | | |  | |
| 3 |  |  |  |  | |  |
| 0 |  |  |  | location services via EPC not supported | |  |
| 1 |  |  |  | location services via EPC supported | |  |
|  | | | | |  | |
| Location services indicator in CS (CS-LCS) (octet 3, bit 4 to 5) | | | | |  | |
|  | | | | |  | |
| Bit | | | | |  | |
| 5 | 4 |  |  |  | |  |
| 0 | 0 |  |  | no information about support of location services via CS domain is available | |  |
| 0 | 1 |  |  | location services via CS domain supported | |  |
| 1 | 0 |  |  | location services via CS domain not supported | |  |
| 1 | 1 |  |  | reserved | |  |
|  | | | | |  | |
| Support of EXTENDED SERVICE REQUEST for packet services (ESRPS)  (octet 3, bit 6) | | | | |  | |
|  | | | | |  | |
| Bit | | | | |  | |
| 6 |  |  |  |  | |  |
| 0 |  |  |  | network does not support use of EXTENDED SERVICE REQUEST to request for packet services | |  |
| 1 |  |  |  | network supports use of EXTENDED SERVICE REQUEST to request for packet services | |  |
|  | | | | |  | |
| EMM REGISTERED without PDN connectivity (ERw/oPDN)  (octet 3, bit 7) | | | | |  | |
| This bit indicates the capability for EMM-REGISTERED without PDN connection | | | | |  | |
| Bit | | | | |  | |
| 7 |  |  |  |  | |  |
| 0 |  |  |  | EMM-REGISTERED without PDN connection not supported | |  |
| 1 |  |  |  | EMM-REGISTERED without PDN connectionsupported | |  |
|  | | | | |  | |
| Control plane CIoT EPS optimization (CP CIoT)  (octet 3, bit 8) | | | | |  | |
| This bit indicates the capability for control plane CIoT EPS optimization | | | | |  | |
| Bit | | | | |  | |
| **8** | | | | |  | |
| 0 |  |  |  | Control plane CIoT EPS optimization not supported | |  |
| 1 |  |  |  | Control plane CIoT EPS optimization supported | |  |
|  | | | | |  | |
| User plane CIoT EPS optimization (UP CIoT)  (octet 4, bit 1) | | | | |  | |
| This bit indicates the capability for user plane CIoT EPS optimization | | | | |  | |
| Bit | | | | |  | |
| **1** | | | | |  | |
| 0 |  |  |  | User plane CIoT EPS optimization not supported | |  |
| 1 |  |  |  | User plane CIoT EPS optimization supported | |  |
|  | | | | |  | |
| S1-u data transfer (S1-U data)  (octet 4, bit 2) | | | | |  | |
| This bit indicates the capability for S1-u data transfer. This bit shall be considered only if the Control plane CIoT EPS optimization (CP CIoT) bit (octet 3, bit 8) is set to 1. If the Control plane CIoT EPS optimization (CP CIoT) bit (octet 3, bit 8) is set to 0, the UE shall assume S1-u data transfer is supported. | | | | |  | |
| Bit | | | | |  | |
| **2** | | | | |  | |
| 0 |  |  |  | S1-u data transfer not supported | |  |
| 1 |  |  |  | S1-u data transfer supported | |  |
|  | | | | |  | |
| Header compression for control plane CIoT EPS optimization (HC-CP CIoT)  (octet 4, bit 3) | | | | |  | |
| This bit indicates the capability for header compression for control plane CIoT EPS optimization | | | | |  | |
| Bit | | | | |  | |
| **3** | | | | |  | |
| 0 |  |  |  | Header compression for control plane CIoT EPS optimization not supported | |  |
| 1 |  |  |  | Header compression for control plane CIoT EPS optimization supported | |  |
|  | | | | |  | |
| Extended protocol configuration options (ePCO) (octet 4, bit 4)  This bit indicates the support of the extended protocol configuration options IE. | | | | |  | |
| Bit | | | | |  | |
| **4** | | | | |  | |
| 0 |  |  |  | Extended protocol configuration options IE not supported | |  |
| 1 |  |  |  | Extended protocol configuration options IE supported | |  |
|  | | | | |  | |
| Restriction on enhanced coverage (RestrictEC) (octet 4, bit 5)  This bit indicates if the use of enhanced coverage is restricted or not. | | | | |  | |
| Bit | | | | |  | |
| **5** | | | | |  | |
| 0 |  |  |  | Use of enhanced coverage is not restricted | |  |
| 1 |  |  |  | Use of enhanced coverage is restricted | |  |
| Restriction on the use of dual connectivity with NR (RestrictDCNR) (octet 4, bit 6)  This bit indicates if the use of dual connectivity with NR is restricted or not. | | | | |  | |
| Bit | | | | |  | |
| **6** | | | | |  | |
| 0 |  |  |  | Use of dual connectivity with NR is not restricted | |  |
| 1 |  |  |  | Use of dual connectivity with NR is restricted | |  |
| Interworking without N26 interface indicator (IWK N26) (octet 4, bit 7)  This bit indicates whether interworking without N26 interface is supported. | | | | | | |
| Bit | | | | | | |
| **7** | | | | | | |
| 0 |  |  |  | Interworking without N26 interface not supported | | |
| 1 |  |  |  | Interworking without N26 interface supported | | |
| Signalling for a maximum number of 15 EPS bearer contexts (15 bearers) (octet 4, bit 8)  This bit indicates the support of signalling for a maximum number of 15 EPS bearer contexts. | | | | | | |
| Bit | | | | | | |
| **8** | | | | | | |
| 0 |  |  |  | Signalling for a maximum number of 15 EPS bearer contexts not supported | | |
| 1 |  |  |  | Signalling for a maximum number of 15 EPS bearer contexts supported | | |
|  | | | | |  | |

#### 9.9.3.13 EPS update result

The purpose of the EPS update result information element is to specify the result of the associated updating procedure.

The EPS update result information element is coded as shown in figure 9.9.3.13.1 and table 9.9.3.13.1.

The EPS update result is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | | 2 | 1 |  | |
| EPS update result  IEI | | | | | 0  Spare | | EPS update result  value | | | | octet 1 |

Figure 9.9.3.13.1: EPS update result information element

Table 9.9.3.13.1: EPS update result information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| EPS update result value (octet 1, bit 1 to 3) | | | | |
| Bits | | | | |
| 3 | 2 | 1 |  |  |
| 0 | 0 | 0 |  | TA updated |
| 0 | 0 | 1 |  | combined TA/LA updated |
| 1 | 0 | 0 |  | TA updated and ISR activated (NOTE) |
| 1 | 0 | 1 |  | combined TA/LA updated and ISR activated (NOTE) |
|  | | | | |
| All other values are reserved. | | | | |
|  | | | | |
| Bit 4 of octet 1 is spare and shall be coded as zero. | | | | |
|  | | | | |
| NOTE: Values "TA updated and ISR activated" and "combined TA/LA updated and ISR activated" are used only for a UE supporting also A/Gb or Iu mode. | | | | |

#### 9.9.3.14 EPS update type

The purpose of the EPS update type information element is to specify the area the updating procedure is associated with.

The EPS update type information element is coded as shown in figure 9.9.3.14.1 and table 9.9.3.14.1.

The EPS update type is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | | 2 | 1 |  | |
| EPS update type  IEI | | | | | "Active" flag | | EPS update type  Value | | | | octet 1 |

Figure 9.9.3.14.1: EPS update type information element

Table 9.9.3.14.1: EPS update type information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| EPS update type value (octet 1, bit 1 to 3) | | | | |
|  | | | | |
| Bits | | | | |
|  | | | | |
| 3 | 2 | 1 |  |  |
| 0 | 0 | 0 |  | TA updating |
| 0 | 0 | 1 |  | combined TA/LA updating |
| 0 | 1 | 0 |  | combined TA/LA updating with IMSI attach |
| 0 | 1 | 1 |  | periodic updating |
| 1 | 0 | 0 |  | unused; shall be interpreted as "TA updating", if received by the network. |
| 1 | 0 | 1 |  | unused; shall be interpreted as "TA updating", if received by the network. |
|  | | | | |
| All other values are reserved. | | | | |
|  | | | | |
| "Active" flag (octet 1, bit 4) | | | | |
| Bit | | | | |
|  | | | | |
| 4 |  |  |  |  |
| 0 |  |  |  | No bearer establishment requested |
| 1 |  |  |  | Bearer establishment requested |
|  | | | | |

#### 9.9.3.15 ESM message container

The purpose of the ESM message container information element is to enable piggybacked transfer of a single ESM message within an EMM message. The ESM message included in this IE shall be coded as specified in subclause 8.3, i.e. without NAS security header.

The ESM message container information element is coded as shown in figure 9.9.3.15.1 and table 9.9.3.15.1.

The ESM message container is a type 6 information element.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| ESM message container IEI | | | | | | | | octet 1 |
| Length of ESM message container contents | | | | | | | | octet 2 |
|  | | | | | | | | octet 3 |
|  | | | | | | | | octet 4 |
| ESM message container contents | | | | | | | |  |
|  | | | | | | | | octet n |

Figure 9.9.3.15.1: ESM message container information element

Table 9.9.3.15.1: ESM message container information element

|  |
| --- |
| ESM message container contents (octet 4 to octet n); Max value of 65535 octets |
|  |
| This IE can contain any ESM PDU as defined in subclause 8.3. |
|  |

#### 9.9.3.16 GPRS timer

See subclause 10.5.7.3 in 3GPP TS 24.008 [13].

#### 9.9.3.16A GPRS timer 2

See subclause 10.5.7.4 in 3GPP TS 24.008 [13].

#### 9.9.3.16B GPRS timer 3

See subclause 10.5.7.4a in 3GPP TS 24.008 [13].

#### 9.9.3.17 Identity type 2

See subclause 10.5.5.9 in 3GPP TS 24.008 [13].

#### 9.9.3.18 IMEISV request

See subclause 10.5.5.10 in 3GPP TS 24.008 [13].

#### 9.9.3.19 KSI and sequence number

The purpose of the KSI and sequence number information element is to provide the network with the key set identifier (KSI) value of the current EPS security context and the 5 least significant bits of the NAS COUNT value applicable for the message including this information element.

The KSI and sequence number information element is coded as shown in figure 9.9.3.19.1 and table 9.9.3.19.1.

The KSI and sequence number is a type 3 information element with a length of 2 octets.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | | 5 | 4 | 3 | 2 | 1 |  | |
| KSI and sequence number IEI | | | | | | | | | | octet 1 |
| KSI | | | Sequence number (short) | | | | | | | octet 2 |

Figure 9.9.3.19.1: KSI and sequence number information element

Table 9.9.3.19.1: KSI and sequence number information element

|  |
| --- |
| Sequence number (short) (octet 2, bit 1 to 5) |
|  |
| This field contains the 5 least significant bits of the NAS COUNT value applicable when this message is sent. |
|  |
| KSI (octet 2, bit 6 to 8) |
|  |
| This field contains the key set identifier value, as specified in bit 1 to 3 of octet 1 of the NAS key set identifier information element. (see subclause 9.9.3.21.) |
|  |

#### 9.9.3.20 MS network capability

See subclause 10.5.5.12 in 3GPP TS 24.008 [13].

#### 9.9.3.20A MS network feature support

See subclause 10.5.1.15 in 3GPP TS 24.008 [13].

#### 9.9.3.21 NAS key set identifier

The NAS key set identifier is allocated by the network.

The NAS key set identifier information element is coded as shown in figure 9.9.3.21.1 and table 9.9.3.21.1.

The NAS key set identifier is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | | 4 | | 3 | 2 | 1 | |  |
| NAS key set identifier IEI | | | | TSC | | NAS key set identifier | | | | octet 1 | |

Figure 9.9.3.21.1: NAS key set identifier information element

Table 9.9.3.21.1: NAS key set identifier information element

|  |  |  |  |
| --- | --- | --- | --- |
| Type of security context flag (TSC) (octet 1) | | | |
|  | | | |
| Bit | | | |
| 4 |  |  |  |
| 0 |  |  | native security context (for KSIASME) |
| 1 |  |  | mapped security context (for KSISGSN) |
|  | | | |
| TSC does not apply for NAS key set identifier value "111". | | | |
|  | | | |
| NAS key set identifier (octet 1) | | | |
|  | | | |
| Bits | | | |
| 3 | 2 | 1 |  |
|  |  |  |  |
| 0 | 0 | 0 |  |
| through | | | possible values for the NAS key set identifier |
| 1 | 1 | 0 |  |
|  |  |  |  |
| 1 | 1 | 1 | no key is available (UE to network); |
|  |  |  | reserved (network to UE) |

#### 9.9.3.22 NAS message container

This information element is used to encapsulate the SMS messages transferred between the UE and the network.The NAS message container information element is coded as shown in figure 9.9.3.22.1 and table 9.9.3.22.1.

The NAS message container is a type 4 information element with a minimum length of 4 octets and a maximum length of 253 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| NAS message container IEI | | | | | | | | octet 1 |
| Length of NAS message container contents | | | | | | | | octet 2 |
|  | | | | | | | | octet 3 |
| NAS message container contents | | | | | | | |  |
|  | | | | | | | | octet n |

Figure 9.9.3.22.1: NAS message container information element

Table 9.9.3.22.1: NAS message container information element

|  |
| --- |
| NAS message container contents (octet 3 to octet n) |
|  |
| This IE can contain an SMS message (i.e. CP-DATA, CP-ACK or CP-ERROR) as defined in subclause 7.2 in 3GPP TS 24.011 [13A]. |
|  |

#### 9.9.3.23 NAS security algorithms

The purpose of the NAS security algorithms information element is to indicate the algorithms to be used for ciphering and integrity protection.

The NAS security algorithms information element is coded as shown in figure 9.9.3.23.1 and table 9.9.3.23.1.

The NAS security algorithms is a type 3 information element with a length of 2 octets.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | |
| NAS security algorithms IEI | | | | | | | | | octet 1 |
| 0  spare | Type of ciphering algorithm | | | 0  spare | Type of integrity protection algorithm | | | | octet 2 |

Figure 9.9.3.23.1: NAS security algorithms information element

Table 9.9.3.23.1: NAS security algorithms information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type of integrity protection algorithm (octet 2, bit 1 to 3) | | | | |
| Bits | | | | |
| 3 | 2 | 1 |  |  |
| 0 | 0 | 0 |  | EPS integrity algorithm EIA0 (null integrity protection algorithm) |
| 0 | 0 | 1 |  | EPS integrity algorithm 128-EIA1 |
| 0 | 1 | 0 |  | EPS integrity algorithm 128-EIA2 |
| 0 | 1 | 1 |  | EPS integrity algorithm 128-EIA3 |
| 1 | 0 | 0 |  | EPS integrity algorithm EIA4 |
| 1 | 0 | 1 |  | EPS integrity algorithm EIA5 |
| 1 | 1 | 0 |  | EPS integrity algorithm EIA6 |
| 1 | 1 | 1 |  | EPS integrity algorithm EIA7 |
|  | | | | |
| Type of ciphering algorithm (octet 2, bit 5 to 7) | | | | |
| Bits | | | | |
| 7 | 6 | 5 |  |  |
| 0 | 0 | 0 |  | EPS encryption algorithm EEA0 (null ciphering algorithm) |
| 0 | 0 | 1 |  | EPS encryption algorithm 128-EEA1 |
| 0 | 1 | 0 |  | EPS encryption algorithm 128-EEA2 |
| 0 | 1 | 1 |  | EPS encryption algorithm 128-EEA3 |
| 1 | 0 | 0 |  | EPS encryption algorithm EEA4 |
| 1 | 0 | 1 |  | EPS encryption algorithm EEA5 |
| 1 | 1 | 0 |  | EPS encryption algorithm EEA6 |
| 1 | 1 | 1 |  | EPS encryption algorithm EEA7 |
|  | | | | |
| Bit 4 and 8 of octet 2 are spare and shall be coded as zero. | | | | |
|  | | | | |

#### 9.9.3.24 Network name

See subclause 10.5.3.5a in 3GPP TS 24.008 [13].

#### 9.9.3.24A Network resource identifier container

See subclause 10.5.5.31 in 3GPP TS 24.008 [13].

#### 9.9.3.25 Nonce

The purpose of the Nonce information element is to transfer a 32-bit nonce value to support deriving a new mapped EPS security context.

The Nonce information element is coded as shown in figure 9.9.3.25.1 and table 9.9.3.25.1.

The Nonce is a type 3 information element with a length of 5 octets.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  |
| Nonce IEI | | | | | | | | octet 1 | |
| Nonce value | | | | | | | | octet 2  octet 5 | |

Figure 9.9.3.25.1: Nonce information element

Table 9.9.3.25.1: Nonce information element

|  |
| --- |
| Nonce value (octet 2 to 5) |
|  |
| This field contains the binary representation of the nonce. Bit 8 of octet 2 represents the most significant bit of the nonce and bit 1 of octet 5 the least significant bit. |
|  |

#### 9.9.3.25A Paging identity

The purpose of the Paging identity information element is to indicate the identity used for paging for non-EPS services.

The Paging identity information element is coded as shown in figure 9.9.3.25A.1 and table 9.9.3.25A.1.

The Paging identity is a type 3 information element with 2 octets length.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  | |
| Paging identity IEI | | | | | | | | | | octet 1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | Paging identity value | | octet 2 | |
| spare | | | | | | | |  | |  |

Figure 9.9.3.25A.1: Paging identity information element

Table 9.9.3.25A.1: Paging identity information element

|  |
| --- |
| Paging identity value (octet 2) |
|  |
| Bit |
| **1** |
| 0 IMSI |
| 1 TMSI |
|  |

#### 9.9.3.26 P-TMSI signature

See subclause 10.5.5.8 in 3GPP TS 24.008 [13].

#### 9.9.3.26A Extended EMM cause

The purpose of the extended EMM cause information element is to indicate additional information associated with the EMM cause.

The Extended EMM cause information element is coded as shown in figure 9.9.3.26A.1 and table 9.9.3.26A.1.

The Extended EMM cause is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | | 4 | | 3 | | 2 | | 1 | |  |
| Extended EMM cause IEI | | | | 0  Spare | | NB-IoT  allowed | | EPS optimization info | | E-UTRAN allowed | | Octet 1 | |

Figure 9.9.3.26A.1: Extended EMM cause information element

Table 9.9.3.26A.1: Extended EMM cause information element

|  |  |  |
| --- | --- | --- |
| E-UTRAN allowed value (octet 1, bit 1) | | |
|  | | |
| Bit | | |
| 1 |  |  |
| 0 |  | E-UTRAN allowed |
| 1 |  | E-UTRAN not allowed |
|  | | |
| EPS optimization info (octet 1, bit 2) | | |
|  | | |
| Bit | | |
| 0 |  | No EPS optimization information |
| 1 |  | requested EPS optimization not supported |
|  | | |
| NB-IoT allowed value (octet 1, bit 3) | | |
|  | | |
| Bit | | |
| 0 |  | NB-IoT allowed |
| 1 |  | NB-IoT not allowed |
|  | | |
| Bit 4 of octet 1 is spare and shall be coded as zero. | | |
|  | | |

#### 9.9.3.27 Service type

The purpose of the Service type information element is to specify the purpose of the service request procedure.

The Service type information element is coded as shown in figure 9.9.3.27.1 and table 9.9.3.27.1.

The Service type is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | 2 | 1 |  | |
| Service type  IEI | | | | | Service type value | | | | | octet 1 |

Figure 9.9.3.27.1: Service type information element

Table 9.9.3.27.1: Service type information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Service type value (octet 1) | | | | |
|  | | | | |
| Service type value | | | | |
| Bits | | | | |
| 4 | 3 | 2 | 1 |  |
| 0 | 0 | 0 | 0 | mobile originating CS fallback or 1xCS fallback |
| 0 | 0 | 0 | 1 | mobile terminating CS fallback or 1xCS fallback |
| 0 | 0 | 1 | 0 | mobile originating CS fallback emergency call or 1xCS fallback emergency call |
| 0 | 0 | 1 | 1 | unused; shall be interpreted as "mobile originating CS fallback or 1xCS fallback", if received by the network |
| 0 | 1 | 0 | 0 | unused; shall be interpreted as "mobile originating CS fallback or 1xCS fallback", if received by the network |
| 1 | 0 | 0 | 0 | packet services via S1 |
| 1 | 0 | 0 | 1 | unused; shall be interpreted as "packet services via S1", if received by the network |
| 1 | 0 | 1 | 0 | unused; shall be interpreted as "packet services via S1", if received by the network |
| 1 | 0 | 1 | 1 | unused; shall be interpreted as "packet services via S1", if received by the network |
|  | | | | |
| All other values are reserved. | | | | |
|  | | | | |

#### 9.9.3.28 Short MAC

The purpose of the Short MAC information element is to protect the integrity of a SERVICE REQUEST message.

The integrity protection shall include octet 1 and 2 of the SERVICE REQUEST message. For the used algorithm and other input parameters to the algorithm see subclause 9.5. Only the 2 least significant octets of the resulting message authentication code are included in the information element.

The Short MAC information element is coded as shown in figure 9.9.3.28.1 and table 9.9.3.28.1.

The Short MAC is a type 3 information element with a length of 3 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Short MAC IEI | | | | | | | | octet 1 |
| Short MAC value | | | | | | | | octet 2 |
| Short MAC value (continued) | | | | | | | | octet 3 |

Figure 9.9.3.28.1: Short MAC information element

Table 9.9.3.28.1: Short MAC information element

|  |
| --- |
| Short MAC value (octet 2 and 3) |
|  |
| This field contains the 2 least significant octets of the message authentication code calculated for the SERVICE REQUEST message. Bit 1 of octet 3 contains the least significant bit, and bit 8 of octet 2 the most significant bit of these 2 octets. |
|  |

#### 9.9.3.29 Time zone

See subclause 10.5.3.8 in 3GPP TS 24.008 [13].

#### 9.9.3.30 Time zone and time

See subclause 10.5.3.9 in 3GPP TS 24.008 [13].

#### 9.9.3.31 TMSI status

See subclause 10.5.5.4 in 3GPP TS 24.008 [13].

#### 9.9.3.32 Tracking area identity

The purpose of the Tracking area identity information element is to provide an unambiguous identification of tracking areas within the area covered by the 3GPP system.

The Tracking area identity information element is coded as shown in figure 9.9.3.32.1 and table 9.9.3.32.1.

The Tracking area identity is a type 3 information element with a length of 6 octets.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | | 4 | 3 | 2 | 1 | |  |
| Tracking area identity IEI | | | | | | | | | octet 1 | |
| MCC digit 2 | | | | MCC digit 1 | | | | | octet 2 | |
| MNC digit 3 | | | | MCC digit 3 | | | | | octet 3 | |
| MNC digit 2 | | | | MNC digit 1 | | | | | octet 4 | |
| TAC | | | | | | | | | octet 5 | |
| TAC (continued) | | | | | | | | | octet 6 | |

Figure 9.9.3.32.1: Tracking area identity information element

Table 9.9.3.32.1: Tracking area identity information element

|  |
| --- |
| MCC, Mobile country code (octet 2 and 3)  The MCC field is coded as in ITU-T Rec. E212 [30], annex A.  If the TAI is deleted the MCC and MNC shall take the value from the deleted TAI.  In abnormal cases, the MCC stored in the UE can contain elements not in the set {0, 1 ... 9}. In such cases the UE should transmit the stored values using full hexadecimal encoding. When receiving such an MCC, the network shall treat the TAI as deleted.  MNC, Mobile network code (octet 3 bits 5 to 8, octet 4)  The coding of this field is the responsibility of each administration, but BCD coding shall be used. The MNC shall consist of 2 or 3 digits. For PCS 1900 for NA, Federal regulation mandates that a 3-digit MNC shall be used. However a network operator may decide to use only two digits in the MNC in the TAI over the radio interface. In this case, bits 5 to 8 of octet 3 shall be coded as "1111". Mobile equipment shall accept a TAI coded in such a way.  In abnormal cases, the MNC stored in the UE can have:  - digit 1 or 2 not in the set {0, 1 ... 9}, or  - digit 3 not in the set {0, 1 ... 9, F} hex.  In such cases the UE shall transmit the stored values using full hexadecimal encoding. When receiving such an MNC, the network shall treat the TAI as deleted.  The same handling shall apply for the network, if a 3-digit MNC is sent by the UE to a network using only a 2-digit MNC.  TAC, Tracking area code (octet 5 and 6)  In the TAC field bit 8 of octet 5 is the most significant bit and bit 1 of octet 6 the least significant bit.  The coding of the tracking area code is the responsibility of each administration except that two values are used to mark the TAC, and hence the TAI, as deleted. Coding using full hexadecimal representation may be used. The tracking area code consists of 2 octets.  If a TAI has to be deleted then all bits of the tracking area code shall be set to one with the exception of the least significant bit which shall be set to zero. If a USIM is inserted in a mobile equipment with the tracking area code containing all zeros, then the mobile equipment shall recognise this TAC as part of a deleted TAI. |

#### 9.9.3.33 Tracking area identity list

The purpose of the Tracking area identity list information element is to transfer a list of tracking areas from the network to the UE.

The coding of the information element allows combining different types of lists. The lists of type "00" and "01" allow a more compact encoding, when the different TAIs are sharing the PLMN identity.

The Tracking area identity list information element is coded as shown in figure 9.9.3.33.1, figure 9.9.3.33.2, figure 9.9.3.33.3, figure 9.9.3.33.4 and table 9.9.3.33.1.

The Tracking area identity list is a type 4 information element, with a minimum length of 8 octets and a maximum length of 98 octets. The list can contain a maximum of 16 different tracking area identities.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  |
| Tracking area identity list IEI | | | | | | | | octet 1 | |
| Length of tracking area identity list contents | | | | | | | | octet 2 | |
| Partial tracking area identity list 1 | | | | | | | | octet 3  octet i | |
| Partial tracking area identity list 2 | | | | | | | | octet i+1\*  octet l\* | |
| … | | | | | | | | octet l+1\*  octet m\* | |
| Partial tracking area identity list p | | | | | | | | octet m+1\*  octet n\* | |

Figure 9.9.3.33.1: Tracking area identity list information element

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | | |
| 0  Spare | Type of list | | Number of elements | | | | | | octet 1 | |
| MCC digit 2 | | | | MCC digit 1 | | | | | octet 2 | |
| MNC digit 3 | | | | MCC digit 3 | | | | | octet 3 | |
| MNC digit 2 | | | | MNC digit 1 | | | | | octet 4 | |
| TAC 1 | | | | | | | | | | octet 5 |
| TAC 1 (continued) | | | | | | | | | | octet 6 |
| … | | | | | | | | | | … |
| … | | | | | | | | | | … |
| TAC k | | | | | | | | | | octet 2k+3\* |
| TAC k (continued) | | | | | | | | | | octet 2k+4\* |

Figure 9.9.3.33.2: Partial tracking area identity list – type of list = "00"

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | | |
| 0  Spare | Type of list | | Number of elements | | | | | | octet 1 | |
| MCC digit 2 | | | | MCC digit 1 | | | | | octet 2 | |
| MNC digit 3 | | | | MCC digit 3 | | | | | octet 3 | |
| MNC digit 2 | | | | MNC digit 1 | | | | | octet 4 | |
| TAC 1 | | | | | | | | | | octet 5 |
| TAC 1 (continued) | | | | | | | | | | octet 6 |

Figure 9.9.3.33.3: Partial tracking area identity list – type of list = "01"

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | | |
| 0  Spare | Type of list | | Number of elements | | | | | | octet 1 | |
| MCC digit 2 | | | | MCC digit 1 | | | | | octet 2 | |
| MNC digit 3 | | | | MCC digit 3 | | | | | octet 3 | |
| MNC digit 2 | | | | MNC digit 1 | | | | | octet 4 | |
| TAC 1 | | | | | | | | | | octet 5 |
| TAC 1 (continued) | | | | | | | | | | octet 6 |
| MCC digit 2 | | | | MCC digit 1 | | | | | octet 7\* | |
| MNC digit 3 | | | | MCC digit 3 | | | | | octet 8\* | |
| MNC digit 2 | | | | MNC digit 1 | | | | | octet 9\* | |
| TAC 2 | | | | | | | | | | octet 10\* |
| TAC 2 (continued) | | | | | | | | | | octet 11\* |
| … | | | | | | | | | |  |
| … | | | | | | | | | |  |
| MCC digit 2 | | | | MCC digit 1 | | | | | octet 5k-3\* | |
| MNC digit 3 | | | | MCC digit 3 | | | | | octet 5k-2\* | |
| MNC digit 2 | | | | MNC digit 1 | | | | | octet 5k-1\* | |
| TAC k | | | | | | | | | | octet 5k\* |
| TAC k (continued) | | | | | | | | | | octet 5k+1\* |

Figure 9.9.3.33.4: Partial tracking area identity list – type of list = "10"

Table 9.9.3.33.1: Tracking area identity list information element

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Value part of the Tracking area identity list information element (octet 3 to n) | | | | | | |
|  | | | | | | |
| The value part of the Tracking area identity list information element consists of one or several partial tracking area identity lists. The length of each partial tracking area identity list can be determined from the 'type of list' field and the 'number of elements' field in the first octet of the partial tracking area identity list. | | | | | | |
| The UE shall store the complete list received. If more than 16 TAIs are included in this information element, the UE shall store the first 16 TAIs and ignore the remaining octets of the information element. | | | | | | |
|  | | | | | | |
|  | | | | | | |
| Partial tracking area identity list: | | | | | | |
|  | | | | | | |
| Type of list (octet 1) | | | | | | |
| Bits | | | | | | |
| 7 | 6 |  | | | | |
| 0 | 0 | list of TACs belonging to one PLMN, with non-consecutive TAC values | | | | |
| 0 | 1 | list of TACs belonging to one PLMN, with consecutive TAC values | | | | |
| 1 | 0 | list of TAIs belonging to different PLMNs (see NOTE) | | | | |
|  | | | | | | |
| All other values are reserved. | | | | | | |
|  | | | | | | |
| Number of elements (octet 1) | | | | | | |
| Bits | | | | | | |
| 5 | 4 | 3 | 2 | 1 |  | |
| 0 | 0 | 0 | 0 | 0 | 1 element | |
| 0 | 0 | 0 | 0 | 1 | 2 elements | |
| 0 | 0 | 0 | 1 | 0 | 3 elements | |
| … | | | | | |  |
| 0 | 1 | 1 | 0 | 1 | 14 elements | |
| 0 | 1 | 1 | 1 | 0 | 15 elements | |
| 0 | 1 | 1 | 1 | 1 | 16 elements | |
|  | | | | | | |
| All other values are unused and shall be interpreted as 16, if received by the UE. | | | | | | |
|  | | | | | | |
| Bit 8 of octet 1 is spare and shall be coded as zero. | | | | | | |
|  | | | | | | |
|  | | | | | | |
| For type of list = "00" and number of elements = k: | | | | | | |
|  | | | | | | |
| octet 2 to 4 contain the MCC+MNC, and | | | | | | |
| for j = 1, k: | | | | | | |
| octet 2j+3 and 2j+4 contain the TAC of the j-th TAI belonging to the partial list, | | | | | | |
|  | | | | | | |
| For type of list = "01" and number of elements = k: | | | | | | |
|  | | | | | | |
| octet 2 to 4 contain the MCC+MNC, and | | | | | | |
| octet 5 and 6 contain the TAC of the first TAI belonging to the partial list. | | | | | | |
| The TAC values of the other k-1 TAIs are TAC+1, TAC+2, …, TAC+k-1. | | | | | | |
|  | | | | | | |
| For type of list = "10" and number of elements = k: | | | | | | |
|  | | | | | | |
| for j = 1, k. | | | | | | |
| octet 5j-3 to 5j-1 contain the MCC+MNC, and | | | | | | |
| octet 5j and 5j+1 contain the TAC of the j-th TAI belonging to the partial list. | | | | | | |
|  | | | | | | |
|  | | | | | | |
| MCC, Mobile country code | | | | | | |
|  | | | | | | |
| The MCC field is coded as in ITU-T Recommendation E.212 [30], annex A. | | | | | | |
|  | | | | | | |
| MNC, Mobile network code | | | | | | |
|  | | | | | | |
| The coding of this field is the responsibility of each administration but BCD coding shall be used. The MNC shall consist of 2 or 3 digits. If a network operator decides to use only two digits in the MNC, MNC digit 3 shall be coded as "1111". | | | | | | |
|  | | | | | | |
| TAC, Tracking area code | | | | | | |
|  | | | | | | |
| In the TAC field bit 8 of the first octet is the most significant bit and bit 1 of second octet the least significant bit. | | | | | | |
| The coding of the tracking area code is the responsibility of each administration. Coding using full hexadecimal representation may be used. The tracking area code consists of 2 octets. | | | | | | |
|  | | | | | | |
| NOTE: If the "list of TAIs belonging to different PLMNs" is used, the PLMNs included in the list need to be present in the list of "equivalent PLMNs". | | | | | | |

#### 9.9.3.34 UE network capability

The purpose of the UE network capability information element is to provide the network with information concerning aspects of the UE related to EPS or interworking with GPRS and 5GS. The contents might affect the manner in which the network handles the operation of the UE. The UE network capability information indicates general UE characteristics and it shall therefore, except for fields explicitly indicated, be independent of the frequency band of the channel it is sent on.

The UE network capability information element is coded as shown in figure 9.9.3.34.1 and table 9.9.3.34.1.

The UE network capability is a type 4 information element with a minimum length of 4 octets and a maximum length of 15 octets.

NOTE: The requirements for the support of UMTS security algorithms in the UE are specified in 3GPP TS 33.102 [18], and the requirements for the support of EPS security algorithms in 3GPP TS 33.401 [19].

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 8 | | | 7 | | | 6 | | | 5 | | | 4 | | | 3 | | | 2 | | | 1 | | | |  | | | | |
| UE network capability IEI | | | | | | | | | | | | | | | | | | | | | | | | octet 1 | | | |  | |  | |
| Length of UE network capability contents | | | | | | | | | | | | | | | | | | | | | | | | octet 2 | | | |  | |  | |
| EEA0 | | | 128-  EEA1 | | | 128-  EEA2 | | | 128-  EEA3 | | | EEA4 | | | EEA5 | | | EEA6 | | | EEA7 | | | | octet 3 | | | |  | |  |
| EIA0 | | | 128-  EIA1 | | | 128-  EIA2 | | | 128-  EIA3 | | | EIA4 | | | EIA5 | | | EIA6 | | | EIA7 | | | | octet 4 | | | |  | |  |
| UEA0 | | | UEA1 | | | UEA2 | | | UEA3 | | | UEA4 | | | UEA5 | | | UEA6 | | | UEA7 | | | | octet 5\* | | | |  | |  |
| UCS2 | | | UIA1 | | | UIA2 | | | UIA3 | | | UIA4 | | | UIA5 | | | UIA6 | | | UIA7 | | | | octet 6\* | | | |  | |  |
| ProSe-dd | | | ProSe | | | H.245-ASH | | | ACC-CSFB | | | LPP | | | LCS | | | 1xSR  VCC | | | NF | | | | octet 7\* | | | |  | |  |
| ePCO | | | HC-CP CIoT | | | ERw/oPDN | | | S1-U data | | | UP CIoT | | | CP CIoT | | | Prose-relay | | | ProSe-dc | | | | octet 8\* | | | |  | |  |
| 15 bearers | | | SGC | | | N1mode | | | DCNR | | | CP backoff | | | RestrictEC | | | V2X PC5 | | | multipleDRB | | | | octet 9\* | | | |  | |  |
|  | 0  Spare | | | 0  Spare | | | 0  Spare | | | 0  Spare | | | UP-MT-EDT | | | CP-MT-EDT | | | WUSA | | | RACS | | | | octet 10\* | | | | |  |
| 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | | octet 11\* -15\* | | | |  | |  |
| Spare | | | | | | | | | | | | | | | | | | | | | | | |  | | | |  | |  | |

Figure 9.9.3.34.1: UE network capability information element

Table 9.9.3.34.1: UE network capability information element

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | EPS encryption algorithms supported (octet 3) | | | | | | | | | | | | | | | |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS encryption algorithm EEA0 supported (octet 3, bit 8) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS encryption algorithm EEA0 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS encryption algorithm EEA0 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS encryption algorithm 128-EEA1 supported (octet 3, bit 7) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS encryption algorithm 128-EEA1 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS encryption algorithm 128-EEA1 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS encryption algorithm 128-EEA2 supported (octet 3, bit 6) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS encryption algorithm 128-EEA2 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS encryption algorithm 128-EEA2 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS encryption algorithm 128-EEA3 supported (octet 3, bit 5) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS encryption algorithm 128-EEA3 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS encryption algorithm 128-EEA3 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS encryption algorithm EEA4 supported (octet 3, bit 4) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS encryption algorithm EEA4 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS encryption algorithm EEA4 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS encryption algorithm EEA5 supported (octet 3, bit 3) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS encryption algorithm EEA5 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS encryption algorithm EEA5 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS encryption algorithm EEA6 supported (octet 3, bit 2) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS encryption algorithm EEA6 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS encryption algorithm EEA6 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS encryption algorithm EEA7 supported (octet 3, bit 1) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS encryption algorithm EEA7 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS encryption algorithm EEA7 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS integrity algorithms supported (octet 4) | | | | | | | | | | | | | | | |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS integrity algorithm EIA0 supported (octet 4, bit 8) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS integrity algorithm EIA0 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS integrity algorithm EIA0 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS integrity algorithm 128-EIA1 supported (octet 4, bit 7) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS integrity algorithm 128-EIA1 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS integrity algorithm 128-EIA1 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS integrity algorithm 128-EIA2 supported (octet 4, bit 6) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS integrity algorithm 128-EIA2 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS integrity algorithm 128-EIA2 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS integrity algorithm 128-EIA3 supported (octet 4, bit 5) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS integrity algorithm 128-EIA3 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS integrity algorithm 128-EIA3 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS integrity algorithm EIA4 supported (octet 4, bit 4) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS integrity algorithm EIA4 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS integrity algorithm EIA4 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS integrity algorithm EIA5 supported (octet 4, bit 3) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS integrity algorithm EIA5 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS integrity algorithm EIA5 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS integrity algorithm EIA6 supported (octet 4, bit 2) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS integrity algorithm EIA6 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS integrity algorithm EIA6 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | EPS integrity algorithm EIA7 supported (octet 4, bit 1) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EPS integrity algorithm EIA7 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EPS integrity algorithm EIA7 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS encryption algorithms supported (octet 5) | | | | | | | | | | | | | | | |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS encryption algorithm UEA0 supported (octet 5, bit 8) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA0 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA0 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS encryption algorithm UEA1 supported (octet 5, bit 7) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA1 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA1 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS encryption algorithm UEA2 supported (octet 5, bit 6) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA2 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA2 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS encryption algorithm UEA3 supported (octet 5, bit 5) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA3 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA3 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS encryption algorithm UEA4 supported (octet 5, bit 4) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA4 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA4 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS encryption algorithm UEA5 supported (octet 5, bit 3) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA5 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA5 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS encryption algorithm UEA6 supported (octet 5, bit 2) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA6 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA6 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS encryption algorithm UEA7 supported (octet 5, bit 1) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA7 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS encryption algorithm UEA7 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UCS2 support (UCS2) (octet 6, bit 8) | | | | | | | | | | | | | | | |  |  |
|  | This information field indicates the likely treatment of UCS2 encoded character strings by the UE. | | | | | | | | | | | | | | | |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | The UE has a preference for the default alphabet (defined in | | |  |  |  |
|  | | | |  | | |  | | |  | | | 3GPP TS 23.038 [3]) over UCS2 (see ISO/IEC 10646 [29]). | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | The UE has no preference between the use of the default alphabet and | | |  |  |  |
|  | | | |  | | |  | | |  | | | the use of UCS2. | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS integrity algorithms supported (octet 6) | | | | | | | | | | | | | | | |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS integrity algorithm UIA1 supported (octet 6, bit 7) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS integrity algorithm UIA1 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS integrity algorithm UIA1 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS integrity algorithm UIA2 supported (octet 6, bit 6) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS integrity algorithm UIA2 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS integrity algorithm UIA2 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS integrity algorithm UIA3 supported (octet 6, bit 5) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS integrity algorithm UIA3 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS integrity algorithm UIA3 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS integrity algorithm UIA4 supported (octet 6, bit 4) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS integrity algorithm UIA4 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS integrity algorithm UIA4 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS integrity algorithm UIA5 supported (octet 6, bit 3) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS integrity algorithm UIA5 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS integrity algorithm UIA5 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS integrity algorithm UIA6 supported (octet 6, bit 2) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS integrity algorithm UIA6 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS integrity algorithm UIA6 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | UMTS integrity algorithm UIA7 supported (octet 6, bit 1) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | UMTS integrity algorithm UIA7 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | UMTS integrity algorithm UIA7 supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | NF capability (octet 7, bit 1) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | notification procedure not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | notification procedure supported | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | 1xSRVCC capability (octet 7, bit 2) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | SRVCC from E-UTRAN to cdma2000® 1x CS not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | SRVCC from E-UTRAN to cdma2000® 1x CS supported | | |  |  |  |
|  | | | |  | | |  | | |  | | | (see 3GPP TS 23.216 [8]) | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | Location services (LCS) notification mechanisms capability (octet 7, bit 3) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | LCS notification mechanisms not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | LCS notification mechanisms supported (see 3GPP TS 24.171 [13C]) | | |  |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | LTE Positioning Protocol (LPP) capability (octet 7, bit 4) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | LPP not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | LPP supported (see 3GPP TS 36.355 [22A]) | | |  |  |  |
|  | Access class control for CSFB (ACC-CSFB) capability (octet 7, bit 5) | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | eNodeB-based access class control for CSFB not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | eNodeB-based access class control for CSFB supported  (see 3GPP TS 22.011 [1A]) | | |  |  |  |
|  | H.245 After SRVCC Handover capability (H.245-ASH) (octet 7, bit 6)  This bit indicates the capability for H.245 with support and use of pre-defined codecs, and if needed, H.245 codec negotiation after SRVCC handover. | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | H.245 after SRVCC handover capability not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | H.245 after SRVCC handover capability supported  (see 3GPP TS 23.216 [8]) | | |  |  |  |
|  | ProSe (octet 7, bit 7)  This bit indicates the capability for ProSe. | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | ProSe not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | ProSe supported | | |  |  |  |
|  | ProSe direct discovery (ProSe-dd) (octet 7, bit 8)  This bit indicates the capability for ProSe direct discovery. | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | ProSe direct discovery not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | ProSe direct discovery supported | | |  |  |  |
|  | ProSe direct communication (ProSe-dc) (octet 8, bit 1)  This bit indicates the capability for ProSe direct communication. | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | ProSe direct communication not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | ProSe direct communication supported | | |  |  |  |
|  | ProSe UE-to-network-relay (ProSe-relay) (octet 8, bit 2)  This bit indicates the capability to act as a ProSe UE-to-network relay | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | Acting as a ProSe UE-to-network relay not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | Acting as a ProSe UE-to-network relay supported | | |  |  |  |
|  | Control plane CIoT EPS optimization (CP CIoT) (octet 8, bit 3)  This bit indicates the capability for control plane CIoT EPS optimization. | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | Control plane CIoT EPS optimization not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | Control plane CIoT EPS optimization supported | | |  |  |  |
|  | User plane CIoT EPS optimization (UP CIoT) (octet 8, bit 4)  This bit indicates the capability for user plane CIoT EPS optimization. | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | User plane CIoT EPS optimization not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | User plane CIoT EPS optimization supported | | |  |  |  |
|  | S1-u data transfer (S1-U data) (octet 8, bit 5)  This bit indicates the capability for S1-u data transfer. This bit shall be considered only if the Control plane CIoT EPS optimization (CP CIoT) bit (octet 8, bit 3) is set to 1. If the Control plane CIoT EPS optimization (CP CIoT) bit (octet 8, bit 3) is set to 0, the MME shall assume S1-u data transfer is supported by the UE. | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | S1-U data transfer not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | S1-U data transfer supported | | |  |  |  |
|  | EMM-REGISTERED without PDN connection (ERw/oPDN) (octet 8, bit 6)  This bit indicates the capability for EMM REGISTERED without PDN connectivity. | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | EMM-REGISTERED without PDN connection not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | EMM-REGISTERED without PDN connection supported | | |  |  |  |
|  | Header compression for control plane CIoT EPS optimization (HC-CP CIoT) (octet 8, bit 7)  This bit indicates the capability for header compression for control plane CIoT EPS optimization. | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | Header compression for control plane CIoT EPS optimization not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | Header compression for control plane CIoT EPS optimization supported | | |  |  |  |
|  | Extended protocol configuration options (ePCO) (octet 8, bit 8)  This bit indicates the support of the extended protocol configuration options IE. | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | Extended protocol configuration options IE not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | Extended protocol configuration options IE supported | | |  |  |  |
|  | Multiple DRB support (multipleDRB) (octet 9, bit 1)  This bit indicates the capability to support multiple user plane radio bearers (see 3GPP TS 36.306 [44], 3GPP TS 36.331 [22]) in NB-S1 mode. | | | | | | | | | | | | | | | |  |  |
| 0 | | | |  | | |  | | |  | | | Multiple DRB not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | Multiple DRB supported | | |  |  |  |
| V2X communication over PC5 (V2X PC5) (octet 9, bit 2)  This bit indicates the capability for V2X communication over PC5. | | | | | | | | | | | | | | | |  |  |  |
| 0 | | | |  | | |  | | |  | | | V2X communication over PC5 not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | V2X communication over PC5 supported | | |  |  |  |
| Restriction on use of enhanced coverage support (RestrictEC) (octet 9, bit 3)  This bit indicates the capability to support restriction on use of enhanced coverage. | | | | | | | | | | | | | | | |  |  |  |
| 0 | | | |  | | |  | | |  | | | Restriction on use of enhanced coverage not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | Restriction on use of enhanced coverage supported | | |  |  |  |
| Control plane data backoff support (CP backoff) (octet 9, bit 4)  This bit indicates the support of back-off timer for transport of user data via the control plane.. | | | | | | | | | | | | | | | |  |  |  |
| 0 | | | |  | | |  | | |  | | | back-off timer for transport of user data via the control plane not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | back-off timer for transport of user data via the control plane supported | | |  |  |  |
| Dual connectivity with NR (DCNR) (octet 9, bit 5)  This bit indicates the capability for dual connecitivity with NR. | | | | | | | | | | | | | | | |  |  |  |
| 0 | | | |  | | |  | | |  | | | dual connectivity with NR not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | dual connectivity with NR supported | | |  |  |  |
|  |  | N1 mode supported (N1mode) (octet 9, bit 6)  This bit indicates the capability for N1 mode. | | | | | | | | | | | | | | | |  |
|  |  | 0 | | |  | | |  | | |  | | | N1 mode not supported | | | |  |
|  |  | 1 | | |  | | |  | | |  | | | N1 mode supported | | | |  |
|  | Service gap control (SGC) (octet 9, bit 7)  This bit indicates the capability for service gap control | | | | | | | | | | | | | | | |  |  |
|  |  | 0 | | |  | | |  | | |  | | | service gap control not supported | | | |  |
|  |  | 1 | | |  | | |  | | |  | | | service gap control supported | | | |  |
| Signalling for a maximum number of 15 EPS bearer contexts (15 bearers) (octet 9, bit 8)  This bit indicates the support of signalling for a maximum number of 15 EPS bearer contexts | | | | | | | | | | | | | | | |  |  |  |
| 0 | | | |  | | |  | | |  | | | Signalling for a maximum number of 15 EPS bearer contexts not supported | | |  |  |  |
| 1 | | | |  | | |  | | |  | | | Signalling for a maximum number of 15 EPS bearer contexts supported | | |  |  |  |
|  |  |  | Radio capability signaling optimisation (RACS) capability (octet 10, bit 1)  This bit indicates the capability for RACS. | | | | | | | | | | | | | | | |
|  |  |  | 0 | | |  | | |  | | |  | | | RACS not supported | | | |
|  |  |  | 1 | | |  | | |  | | |  | | | RACS supported | | | |
|  |  | Wake-up signal (WUS) assistance (octet 10, bit 2)  This bit indicates the support of wake-up signal assistance | | | | | | | | | | | | | | | |  |
|  |  | 0 | | |  | | |  | | |  | | | WUS assistance not supported | | | |  |
|  |  | 1 | | |  | | |  | | |  | | | WUS assistance supported | | | |  |
|  |  | Control plane Mobile Terminated-Early Data Transmission (CP-MT-EDT) (octet 10, bit 3)  This bit indicates the support of control plane Mobile Terminated-Early Data Transmission | | | | | | | | | | | | | | | |  |
|  |  | 0 | | |  | | |  | | |  | | | Control plane Mobile Terminated-Early Data Transmission not supported | | | |  |
|  |  | 1 | | |  | | |  | | |  | | | Control plane Mobile Terminated-Early Data Transmission supported | | | |  |
|  |  | User plane Mobile Terminated-Early Data Transmission (UP-MT-EDT) (octet 10, bit 4)  This bit indicates the support of user plane Mobile Terminated-Early Data Transmission | | | | | | | | | | | | | | | |  |
|  |  | 0 | | |  | | |  | | |  | | | User plane Mobile Terminated-Early Data Transmission not supported | | | |  |
|  |  | 1 | | |  | | |  | | |  | | | User plane Mobile Terminated-Early Data Transmission supported | | | |  |
|  | All other bits in octet 10 to 15 are spare and shall be coded as zero, if the respective octet is included in the information element. | | | | | | | | | | | | | | | |  |  |
|  |  | | | | | | | | | | | | | | | |  |  |
|  | NOTE 1: For a UE supporting dual connectivity with NR, if the UE supports one of the encryption algorithms for E-UTRAN (bits 8 to 5 of octet 3), it shall support the same algorithm for NR-PDCP as specified in 3GPP TS 33.401 [19]. The NR-PDCP is specified in 3GPP TS 38.323 [53].  NOTE 2: For a UE supporting dual connectivity with NR, if the UE supports one of the integrity algorithms for E-UTRAN (bits 8 to 5 of octet 4), it shall support the same algorithm for NR-PDCP as specified in 3GPP TS 33.401 [19]. | | | | | | | | | | | | | | | |  |  |

#### 9.9.3.35 UE radio capability information update needed

The purpose of the UE radio capability information update needed information element is to indicate whether the MME shall delete the stored UE radio capability information, if any.

The UE radio capability information update needed information element is coded as shown in figure 9.9.3.35.1and table 9.9.3.35.1.

The UE radio capability information update needed is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  | |
| UE radio capability information update needed IEI | | | | 0 | 0 | 0 | URC  upd | | octet 1 | |
| spare | | | |  | |  |

Figure 9.9.3.35.1: UE radio capability information update needed information element

Table 9.9.3.35.1: UE radio capability information update needed information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| UE radio capability information update needed flag (URC upd) (octet 1) | | | | |
| Bit | | | | |
| 1 |  |  |  |  |
| 0 |  |  |  | UE radio capability information update not needed |
| 1 |  |  |  | UE radio capability information update needed |
|  | | | | |

#### 9.9.3.36 UE security capability

The UE security capability information element is used by the network to indicate which security algorithms are supported by the UE in S1 mode, Iu mode and Gb mode. Security algorithms supported in S1 mode are supported both for NAS and for AS security. If the UE supports S101 mode, then these security algorithms are also supported for NAS security in S101 mode.

The UE security capability information element is coded as shown in figure 9.9.3.36.1 and table 9.9.3.36.1.

The UE security capability is a type 4 information element with a minimum length of 4 octets and a maximum length of 7 octets.

Octets 5, 6, and 7 are optional. If octet 5 is included, then also octet 6 shall be included and octet 7 may be included.

If a UE did not indicate support of any security algorithm for Gb mode, octet 7 shall not be included. If the UE did not indicate support of any security algorithm for Iu mode and Gb mode, octets 5, 6, and 7 shall not be included.

If the UE did not indicate support of any security algorithm for Iu mode but indicated support of a security algorithm for Gb mode, octets 5, 6, and 7 shall be included. In this case octets 5 and 6 are filled with the value of zeroes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 8 | | 7 | | 6 | | 5 | | 4 | | 3 | | 2 | | 1 | | |  | | |
| UE security capability IEI | | | | | | | | | | | | | | | | octet 1 | | |  | |
| Length of UE security capability contents | | | | | | | | | | | | | | | | octet 2 | | |  | |
| EEA0 | | 128-  EEA1 | | 128-  EEA2 | | 128-  EEA3 | | EEA4 | | EEA5 | | EEA6 | | EEA7 | | | octet 3 | | |  |
| EIA0 | | 128-  EIA1 | | 128-  EIA2 | | 128-  EIA3 | | EIA4 | | EIA5 | | EIA6 | | EIA7 | | | octet 4 | | |  |
| UEA0 | | UEA1 | | UEA2 | | UEA3 | | UEA4 | | UEA5 | | UEA6 | | UEA7 | | | octet 5\* | | |  |
| 0  spare | | UIA1 | | UIA2 | | UIA3 | | UIA4 | | UIA5 | | UIA6 | | UIA7 | | | octet 6\* | | |  |
| 0  spare | | GEA1 | | GEA2 | | GEA3 | | GEA4 | | GEA5 | | GEA6 | | GEA7 | | | octet 7\* | | |  |

Figure 9.9.3.36.1: UE security capability information element

Table 9.9.3.36.1: UE security capability information element

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | EPS encryption algorithms supported (octet 3) | | | | | |
|  |  | | | | | |
|  | EPS encryption algorithm EEA0 supported (octet 3, bit 8) | | | | | |
| 0 | |  |  |  | EPS encryption algorithm EEA0 not supported |  |
| 1 | |  |  |  | EPS encryption algorithm EEA0 supported |  |
|  |  | | | | | |
|  | EPS encryption algorithm 128-EEA1 supported (octet 3, bit 7) | | | | | |
| 0 | |  |  |  | EPS encryption algorithm 128-EEA1 not supported |  |
| 1 | |  |  |  | EPS encryption algorithm 128-EEA1 supported |  |
|  |  | | | | | |
|  | EPS encryption algorithm 128-EEA2 supported (octet 3, bit 6) | | | | | |
| 0 | |  |  |  | EPS encryption algorithm 128-EEA2 not supported |  |
| 1 | |  |  |  | EPS encryption algorithm 128-EEA2 supported |  |
|  |  | | | | | |
|  | EPS encryption algorithm 128-EEA3 supported (octet 3, bit 5) | | | | | |
| 0 | |  |  |  | EPS encryption algorithm 128-EEA3 not supported |  |
| 1 | |  |  |  | EPS encryption algorithm 128-EEA3 supported |  |
|  |  | | | | | |
|  | EPS encryption algorithm EEA4 supported (octet 3, bit 4) | | | | | |
| 0 | |  |  |  | EPS encryption algorithm EEA4 not supported |  |
| 1 | |  |  |  | EPS encryption algorithm EEA4 supported |  |
|  |  | | | | | |
|  | EPS encryption algorithm EEA5 supported (octet 3, bit 3) | | | | | |
| 0 | |  |  |  | EPS encryption algorithm EEA5 not supported |  |
| 1 | |  |  |  | EPS encryption algorithm EEA5 supported |  |
|  |  | | | | | |
|  | EPS encryption algorithm EEA6 supported (octet 3, bit 2) | | | | | |
| 0 | |  |  |  | EPS encryption algorithm EEA6 not supported |  |
| 1 | |  |  |  | EPS encryption algorithm EEA6 supported |  |
|  |  | | | | | |
|  | EPS encryption algorithm EEA7 supported (octet 3, bit 1) | | | | | |
| 0 | |  |  |  | EPS encryption algorithm EEA7 not supported |  |
| 1 | |  |  |  | EPS encryption algorithm EEA7 supported |  |
|  |  | | | | | |
|  | EPS integrity algorithms supported (octet 4) | | | | | |
|  |  | | | | | |
|  | EPS integrity algorithm EIA0 supported (octet 4, bit 8) | | | | | |
| 0 | |  |  |  | EPS integrity algorithm EIA0 not supported |  |
| 1 | |  |  |  | EPS integrity algorithm EIA0 supported |  |
|  |  | | | | | |
|  | EPS integrity algorithm 128-EIA1 supported (octet 4, bit 7) | | | | | |
| 0 | |  |  |  | EPS integrity algorithm 128-EIA1 not supported |  |
| 1 | |  |  |  | EPS integrity algorithm 128-EIA1 supported |  |
|  |  | | | | | |
|  | EPS integrity algorithm 128-EIA2 supported (octet 4, bit 6) | | | | | |
| 0 | |  |  |  | EPS integrity algorithm 128-EIA2 not supported |  |
| 1 | |  |  |  | EPS integrity algorithm 128-EIA2 supported |  |
|  |  | | | | | |
|  | EPS integrity algorithm 128-EIA3 supported (octet 4, bit 5) | | | | | |
| 0 | |  |  |  | EPS integrity algorithm 128-EIA3 not supported |  |
| 1 | |  |  |  | EPS integrity algorithm 128-EIA3 supported |  |
|  |  | | | | | |
|  | EPS integrity algorithm EIA4 supported (octet 4, bit 4) | | | | | |
| 0 | |  |  |  | EPS integrity algorithm EIA4 not supported |  |
| 1 | |  |  |  | EPS integrity algorithm EIA4 supported |  |
|  |  | | | | | |
|  | EPS integrity algorithm EIA5 supported (octet 4, bit 3) | | | | | |
| 0 | |  |  |  | EPS integrity algorithm EIA5 not supported |  |
| 1 | |  |  |  | EPS integrity algorithm EIA5 supported |  |
|  |  | | | | | |
|  | EPS integrity algorithm EIA6 supported (octet 4, bit 2) | | | | | |
| 0 | |  |  |  | EPS integrity algorithm EIA6 not supported |  |
| 1 | |  |  |  | EPS integrity algorithm EIA6 supported |  |
|  |  | | | | | |
|  | EPS integrity algorithm EIA7 supported (octet 4, bit 1) | | | | | |
| 0 | |  |  |  | EPS integrity algorithm EIA7 not supported |  |
| 1 | |  |  |  | EPS integrity algorithm EIA7 supported |  |
|  |  | | | | | |
|  | UMTS encryption algorithms supported (octet 5) | | | | | |
|  |  | | | | | |
|  | UMTS encryption algorithm UEA0 supported (octet 5, bit 8) | | | | | |
| 0 | |  |  |  | UMTS encryption algorithm UEA0 not supported |  |
| 1 | |  |  |  | UMTS encryption algorithm UEA0 supported |  |
|  |  | | | | | |
|  | UMTS encryption algorithm UEA1 supported (octet 5, bit 7) | | | | | |
| 0 | |  |  |  | UMTS encryption algorithm UEA1 not supported |  |
| 1 | |  |  |  | UMTS encryption algorithm UEA1 supported |  |
|  |  | | | | | |
|  | UMTS encryption algorithm UEA2 supported (octet 5, bit 6) | | | | | |
| 0 | |  |  |  | UMTS encryption algorithm UEA2 not supported |  |
| 1 | |  |  |  | UMTS encryption algorithm UEA2 supported |  |
|  |  | | | | | |
|  | UMTS encryption algorithm UEA3 supported (octet 5, bit 5) | | | | | |
| 0 | |  |  |  | UMTS encryption algorithm UEA3 not supported |  |
| 1 | |  |  |  | UMTS encryption algorithm UEA3 supported |  |
|  |  | | | | | |
|  | UMTS encryption algorithm UEA4 supported (octet 5, bit 4) | | | | | |
| 0 | |  |  |  | UMTS encryption algorithm UEA4 not supported |  |
| 1 | |  |  |  | UMTS encryption algorithm UEA4 supported |  |
|  |  | | | | | |
|  | UMTS encryption algorithm UEA5 supported (octet 5, bit 3) | | | | | |
| 0 | |  |  |  | UMTS encryption algorithm UEA5 not supported |  |
| 1 | |  |  |  | UMTS encryption algorithm UEA5 supported |  |
|  |  | | | | | |
|  | UMTS encryption algorithm UEA6 supported (octet 5, bit 2) | | | | | |
| 0 | |  |  |  | UMTS encryption algorithm UEA6 not supported |  |
| 1 | |  |  |  | UMTS encryption algorithm UEA6 supported |  |
|  |  | | | | | |
|  | UMTS encryption algorithm UEA7 supported (octet 5, bit 1) | | | | | |
| 0 | |  |  |  | UMTS encryption algorithm UEA7 not supported |  |
| 1 | |  |  |  | UMTS encryption algorithm UEA7 supported |  |
|  |  | | | | | |
|  | UMTS integrity algorithms supported (octet 6) | | | | | |
|  |  | | | | | |
|  | Bit 8 of octet 6 is spare and shall be coded as zero. | | | | | |
|  |  | | | | | |
|  | UMTS integrity algorithm UIA1 supported (octet 6, bit 7) | | | | | |
| 0 | |  |  |  | UMTS integrity algorithm UIA1 not supported |  |
| 1 | |  |  |  | UMTS integrity algorithm UIA1 supported |  |
|  |  | | | | | |
|  | UMTS integrity algorithm UIA2 supported (octet 6, bit 6) | | | | | |
| 0 | |  |  |  | UMTS integrity algorithm UIA2 not supported |  |
| 1 | |  |  |  | UMTS integrity algorithm UIA2 supported |  |
|  |  | | | | | |
|  | UMTS integrity algorithm UIA3 supported (octet 6, bit 5) | | | | | |
| 0 | |  |  |  | UMTS integrity algorithm UIA3 not supported |  |
| 1 | |  |  |  | UMTS integrity algorithm UIA3 supported |  |
|  |  | | | | | |
|  | UMTS integrity algorithm UIA4 supported (octet 6, bit 4) | | | | | |
| 0 | |  |  |  | UMTS integrity algorithm UIA4 not supported |  |
| 1 | |  |  |  | UMTS integrity algorithm UIA4 supported |  |
|  |  | | | | | |
|  | UMTS integrity algorithm UIA5 supported (octet 6, bit 3) | | | | | |
| 0 | |  |  |  | UMTS integrity algorithm UIA5 not supported |  |
| 1 | |  |  |  | UMTS integrity algorithm UIA5 supported |  |
|  |  | | | | | |
|  | UMTS integrity algorithm UIA6 supported (octet 6, bit 2) | | | | | |
| 0 | |  |  |  | UMTS integrity algorithm UIA6 not supported |  |
| 1 | |  |  |  | UMTS integrity algorithm UIA6 supported |  |
|  |  | | | | | |
|  | UMTS integrity algorithm UIA7 supported (octet 6, bit 1) | | | | | |
| 0 | |  |  |  | UMTS integrity algorithm UIA7 not supported |  |
| 1 | |  |  |  | UMTS integrity algorithm UIA7 supported |  |
|  |  | | | | | |
|  | GPRS encryption algorithms supported (octet 7) | | | | | |
|  |  | | | | | |
|  | Bit 8 of octet 7 is spare and shall be coded as zero. | | | | | |
|  |  | | | | | |
|  | GPRS encryption algorithm GEA1 supported (octet 7, bit 7) | | | | | |
| 0 | |  |  |  | GPRS encryption algorithm GEA1 not supported |  |
| 1 | |  |  |  | GPRS encryption algorithm GEA1 supported |  |
|  |  | | | | | |
|  | GPRS encryption algorithm GEA2 supported (octet 7, bit 6) | | | | | |
| 0 | |  |  |  | GPRS encryption algorithm GEA2 not supported |  |
| 1 | |  |  |  | GPRS encryption algorithm GEA2 supported |  |
|  |  | | | | | |
|  | GPRS encryption algorithm GEA3 supported (octet 7, bit 5) | | | | | |
| 0 | |  |  |  | GPRS encryption algorithm GEA3 not supported |  |
| 1 | |  |  |  | GPRS encryption algorithm GEA3 supported |  |
|  |  | | | | | |
|  | GPRS encryption algorithm GEA4 supported (octet 7, bit 4) | | | | | |
| 0 | |  |  |  | GPRS encryption algorithm GEA4 not supported |  |
| 1 | |  |  |  | GPRS encryption algorithm GEA4 supported |  |
|  |  | | | | | |
|  | GPRS encryption algorithm GEA5 supported (octet 7, bit 3) | | | | | |
| 0 | |  |  |  | GPRS encryption algorithm GEA5 not supported |  |
| 1 | |  |  |  | GPRS encryption algorithm GEA5 supported |  |
|  |  | | | | | |
|  | GPRS encryption algorithm GEA6 supported (octet 7, bit 2) | | | | | |
| 0 | |  |  |  | GPRS encryption algorithm GEA6 not supported |  |
| 1 | |  |  |  | GPRS encryption algorithm GEA6 supported |  |
|  |  | | | | | |
|  | GPRS encryption algorithm GEA7 supported (octet 7, bit 1) | | | | | |
| 0 | |  |  |  | GPRS encryption algorithm GEA7 not supported |  |
| 1 | |  |  |  | GPRS encryption algorithm GEA7 supported |  |
|  |  | | | | | |
|  | NOTE 1: For a UE supporting dual connectivity with NR, if the UE supports one of the encryption algorithms for E-UTRAN (bits 8 to 5 of octet 3), it shall support the same algorithm for NR-PDCP as specified in 3GPP TS 33.401 [19].  NOTE 2: For a UE supporting dual connectivity with NR, if the UE supports one of the integrity algorithms for E-UTRAN different from EIA0 (bits 7 to 5 of octet 4), it shall support the same algorithm for NR-PDCP as specified in 3GPP TS 33.401 [19]. | | | | | |

#### 9.9.3.37 Emergency Number List

See subclause 10.5.3.13 in 3GPP TS 24.008 [13].

#### 9.9.3.37A Extended emergency number list

The purpose of this information element is to encode one or more local emergency number(s) together with a sub-services field containing zero ore more sub-services of the associated emergency service URN and a validity indication. An emergency service URN is a service URN with top level service type of "sos" as specified in IETF RFC 5031 [55].

EXAMPLE 1: If the associated emergency service URN is "urn:service:sos.gas", there is only one sub-service provided in the sub-services field which is "gas".

EXAMPLE 2: If the associated emergency service URN is "urn:service:sos", there is no sub-services provided in the sub-services field and the length of the sub-services field is "0".

NOTE: The associated emergency service URN can be a country-specific emergency service URN as defined in 3GPP TS 24.229 [13D].

The Extended emergency number list information element is coded as shown in figure 9.9.3.37A.1 and table 9.9.3.37A.1.

The Extended emergency number list IE is a type 6 information element with a minimum length of 6 octets and a maximum length of 65538 octets.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | | 6 | | | 5 | 4 | | | 3 | | 2 | | | | 1 |  | | |
| Extended emergency number list IEI | | | | | | | | | | | | | | | | | | octet 1 | |
| Length of Extended emergency number list IE contents | | | | | | | | | | | | | | | | | | octet 2  octet 3 | |
| 0 | | 0 | | 0 | 0 | | | | 0 | | 0 | | 0 | | EENLV | | | | octet 4 |
| spare | | | | | | | | | | | | | |  | | | |  | |
| Length of 1st Emergency Number information (Note 1) | | | | | | | | | | | | | | | | | | octet 5 | |
| Number digit 2 | | | | | | | | Number digit 1 | | | | | | | | | | octet 6 | |
| (Note 2) | |
| Number digit 4 | | | | | | | | Number digit 3 | | | | | | | | | | octet 7\* | |
|  | |
| : | | | | | | | | : | | | | | | | | | | : | |
|  | |
| (Note 3) | | | | | | | |  | | | | | | | | | | octet j-1\* | |
|  | |
| Length of 1st sub-services field (Note 4) | | | | | | | | | | | | | | | | | | octet j | |
| sub-services field | | | | | | | | | | | | | | | | | | octet j+1\*  (Note 5)  octet k-1\* | |
| Length of 2nd Emergency Number information (Note 1) | | | | | | | | | | | | | | | | | | octet k\* | |
| Number digit 2 | | | | | | | | Number digit 1 | | | | | | | | | | octet k+1\* | |
| (Note 2) | |
| Number digit 4 | | | | | | | | Number digit 3 | | | | | | | | | | octet k+2\* | |
|  | |
| : | | | | | | | | : | | | | | | | | | | : | |
|  | |
| (Note 3) | | | | | | | | : | | | | | | | | | | octet l-1\* | |
|  | |
| Length of 2nd sub-services field (Note 4) | | | | | | | | | | | | | | | | | | octet l\* | |
| sub-services field | | | | | | | | | | | | | | | | | | octet l+1\*  (Note 5)  octet m-1\* | |
| Length of 3rd Emergency Number information (Note 1) | | | | | | | | | | | | | | | | | | octet m\* | |
| Number digit 2 | | | | | | | | Number digit 1 | | | | | | | | | | octet m+1\* | |
| (Note 2) | |
| Number digit 4 | | | | | | | | Number digit 3 | | | | | | | | | | octet m+2\* | |
|  | |
| : | | | | | | | | : | | | | | | | | | | : | |
|  | |
| (Note 3) | | | | | | | | : | | | | | | | | | | octet n-1\* | |
|  | |
| Length of 3rd sub-services field (Note 4) | | | | | | | | | | | | | | | | | | octet n\* | |
| sub-services field | | | | | | | | | | | | | | | | | | octet n+1\*  (Note 5)  octet o\* | |

NOTE 1: The length shall contain the number of octets used to encode the number digits.

NOTE 2: The number digit(s) in octet 6 precedes the digit(s) in octet 7 etc. The number digit, which would be entered first, is located in octet 7, bits 1 to 4. The contents of the number digits are coded as shown in table 10.5.118/3GPP TS 24.008 [13].

NOTE 3: If the emergency number contains an odd number of digits, bits 5 to 8 of the last octet of the respective emergency number shall be filled with an end mark coded as "1111".

NOTE 4: The length shall contain the number of octets used to encode the sub-services field.

NOTE 5: The characters of the sub-services of the associated emergency service URN shall be coded in accordance to GSM 7 bit default alphabet (see 3GPP TS 23.038 [3]) and the first character starts in octet j+1, l+1 or n+1.

Figure 9.9.3.37A.1 Extended Emergency Number List IE

EXAMPLE 3: If the associated emergency service URN is "urn:service:sos.police.municipal", the sub-services field contains "police.municipal" and the first character is "p".

Table 9.9.3.37A.1: Extended Emergency Number List Validity information IE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Extended Emergency Number List Validity (EENLV) (octet 4) | | | | |
| Bit | | | | |
| 1 |  |  |  |  |
| 0 |  |  |  | Extended Local Emergency Numbers List is valid in the country of the PLMN from which this IE is received |
| 1 |  |  |  | Extended Local Emergency Numbers List is valid only in the PLMN from which this IE is received |
|  | | | | |

#### 9.9.3.38 CLI

The purpose of the CLI information element is to convey information about the calling line for a terminated call to a CS fallback capable UE.

The CLI information element is coded as shown in figure 9.9.3.38.1 and table 9.9.3.38.1.

The CLI is a type 4 information element with a minimum length of 3 octets and a maximum length of 14 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| CLI IEI | | | | | | | | octet 1 |
| Length of CLI | | | | | | | | octet 2 |
| CLI (value part) | | | | | | | | octet 3  to |
|  | | | | | | | | octet 14 |

Figure 9.9.3.38.1: CLI information element

Table 9.9.3.38.1: CLI information element

|  |
| --- |
| CLI (value part) |
|  |
| The coding of the CLI value part is the same as for octets 3 to 14 of the Calling party BCD number information element defined in subclause 10.5.4.9 of 3GPP TS 24.008 [13]. |

#### 9.9.3.39 SS Code

The purpose of the SS code information element is to convey information related to a network initiated supplementary service request to a CS fallback capable UE.

The SS Code information element is coded as shown in figure 9.9.3.39.1 and table 9.9.3.39.1.

The SS Code is a type 3 information element with 2 octets length.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| SS Code IEI | | | | | | | | octet 1 |
| SS Code value | | | | | | | | octet 2 |

Figure 9.9.3.39.1: SS Code information element

Table 9.9.3.39.1: SS Code information element

|  |
| --- |
| SS Code value |
|  |
| The coding of the SS Code value is given in subclause 17.7.5 of 3GPP TS 29.002 [15C]. |

#### 9.9.3.40 LCS indicator

The purpose of the LCS indicator information element is to indicate that the origin of the message is due to a LCS request and the type of this request to a CS fallback capable UE.

The LCS indicator information element is coded as shown in figure 9.9.3.40.1 and table 9.9.3.40.1.

The LCS indicator is a type 3 information element with 2 octets length.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| LCS indicator IEI | | | | | | | | octet 1 |
| LCS indicator value | | | | | | | | octet 2 |

Figure 9.9.3.40.1: LCS indicator information element

Table 9.9.3.40.1: LCS indicator information element

|  |
| --- |
| LCS indicator value  Bits  8 7 6 5 4 3 2 1  0 0 0 0 0 0 0 0 Normal, unspecified in this version of the protocol.  0 0 0 0 0 0 0 1 MT-LR  0 0 0 0 0 0 1 0  to Normal, unspecified in this version of the protocol  1 1 1 1 1 1 1 1 |

#### 9.9.3.41 LCS client identity

The purpose of the LCS client identity information element is to convey information related to the client of a LCS request for a CS fallback capable UE.

The LCS client identity information element is coded as shown in figure 9.9.3.41.1 and table 9.9.3.41.1.

The LCI client identity is a type 4 information element with a minimum length of 3 octets and a maximum length of 257 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| LCS client identity IEI | | | | | | | | octet 1 |
| Length of LCS client identity | | | | | | | | octet 2 |
| LCS client identity (value part) | | | | | | | | octet 3  to |
|  | | | | | | | | octet 257 |

Figure 9.9.3.41.1: LCS client identity information element

Table 9.9.3.41.1: LCS client identity information element

|  |
| --- |
| LCS client identity (value part) |
|  |
| The coding of the value part of the LCS client identity is given in subclause 17.7.13 of 3GPP TS 29.002 [15C]. |

#### 9.9.3.42 Generic message container type

The purpose of the generic message container type information element is to specify the type of message contained in the generic message container IE.

The generic message container type information element is coded as shown in table 9.9.3.42.1.

Table 9.9.3.42.1: Generic message container type information element

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bits | | | | | | | |  | |  | |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  | |  |
|  |  |  |  |  |  |  |  | |  | |  |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |  | | Reserved |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |  | | LTE Positioning Protocol (LPP) message container (see 3GPP TS 36.355 [22A] ) |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |  | | Location services message container (see 3GPP TS 24.171 [13C]) |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |  | |  |
| to | | | | | | | |  | | Unused | |
| 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |  | |  |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |  | |  |
| to | | | | | | | |  | | Reserved | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |  | |  |
|  |  |  |  |  |  |  |  | |  | |  |
|  | | | | | | | | | | | |

#### 9.9.3.43 Generic message container

This information element is used to encapsulate the application message transferred between the UE and the network.The generic message container information element is coded as shown in figure 9.9.3.43.1 and table 9.9.3.43.1.

The generic message container is a type 6 information element.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Generic message container IEI | | | | | | | | octet 1 |
| Length of generic message container contents | | | | | | | | octet 2 |
|  | | | | | | | | octet 3 |
|  | | | | | | | | octet 4 |
| Generic message container contents | | | | | | | |  |
|  | | | | | | | | octet n |

Figure 9.9.3.43.1: Generic message container information element

Table 9.9.3.43.1: Generic message container information element

|  |
| --- |
| Generic message container contents (octet 4 to octet n); Max value of 65535 octets |
|  |
| The coding of the contents of the generic message container is dependent on the particular application. |
|  |

#### 9.9.3.44 Voice domain preference and UE's usage setting

See subclause 10.5.5.28 in 3GPP TS 24.008 [13].

#### 9.9.3.45 GUTI type

The purpose of the GUTI type information element is to indicate whether the GUTI included in the same message in an information element of type EPS mobile identity represents a native GUTI or a mapped GUTI.

The GUTI type information element information element is coded as shown in figure 9.9.3.45.1 and table 9.9.3.45.1.

The GUTI type is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  | |
| GUTI type IEI | | | | 0 | 0 | 0 | GUTI type | | octet 1 | |
| spare | | | |  | |  |

Figure 9.9.3.45.1: GUTI type information element

Table 9.9.3.45.1: GUTI type information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| GUTI type (octet 1) | | | | |
| Bit | | | | |
| 1 |  |  |  |  |
| 0 |  |  |  | Native GUTI |
| 1 |  |  |  | Mapped GUTI |
|  | | | | |
| Bits 2 to 4 of octet 1 are spare and shall be coded as zero. | | | | |
|  | | | | |

#### 9.9.3.46 Extended DRX parameters

See subclause 10.5.5.32 in 3GPP TS 24.008 [13].

#### 9.9.3.47 Control plane service type

The purpose of the Control plane service type information element is to specify the purpose of the CONTROL PLANE SERVICE REQUEST message.

The Control plane service type information element is coded as shown in figure 9.9.3.47.1 and table 9.9.3.47.1.

The Control plane service type is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | | 2 | 1 |  | |
| Control plane service type  IEI | | | | | "Active" flag | | Control plane service type  value | | | | octet 1 |

Figure 9.9.3.47.1: Control plane service type information element

Table 9.9.3.47.1: Control plane service type information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Control plane service type value (octet 1, bit 1 to 3) | | | | |
|  | | | | |
| Bits | | | | |
|  | | | | |
| 3 | 2 | 1 |  |  |
| 0 | 0 | 0 |  | mobile originating request |
| 0 | 0 | 1 |  | mobile terminating request |
| 0 | 1 | 0 |  |  |
|  | to |  |  | unused; shall be interpreted as " mobile originating request", if received |
| 1 | 1 | 1 |  | by the network. |
|  | | | | |
| "Active" flag (octet 1, bit 4) | | | | |
| Bit | | | | |
|  | | | | |
| 4 |  |  |  |  |
| 0 |  |  |  | No radio bearer establishment requested |
| 1 |  |  |  | Radio bearer establishment requested |
|  | | | | |

#### 9.9.3.48 DCN-ID

See subclause 10.5.5.35 in 3GPP TS 24.008 [13].

#### 9.9.3.49 Non-3GPP NW provided policies

See subclause 10.5.5.37 in 3GPP TS 24.008 [13].

#### 9.9.3.50 HashMME

The purpose of the HashMME information element is to transfer a 64-bit hash value to the UE so the UE can check the MME calculated value against the value locally calculated by the UE to determine whether the ATTACH REQUEST or TRACKING AREA UPDATE REQUEST message sent by the UE has been modified.

The HashMME information element is coded as shown in figure 9.9.3.50.1 and table 9.9.3.50.1.

The HashMME is a type 4 information element with a length of 10 octets.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  |
| HashMME IEI | | | | | | | | octet 1 | |
| Length of HashMME | | | | | | | | octet 2 | |
| HashMME value | | | | | | | | octet 3  octet 10 | |

Figure 9.9.3.50.1: HashMME information element

Table 9.9.3.50.1: HashMME information element

|  |
| --- |
| HashMME value (octet 3 to 10) |
|  |
| This field contains the binary representation of the HashMME. Bit 8 of octet 3 represents the most significant bit of the HashMME and bit 1 of octet 10 the least significant bit. |
|  |

#### 9.9.3.51 Replayed NAS message container

The purpose of the Replayed NAS message containerIE is to, during an ongoing attach or tracking area updating procedure, re-send the ATTACH REQUEST or TRACKING AREA UPDATE REQUEST message with which the UE had initiated the procedure, if the MME has included a HASHMME in the SECURITY MODE COMMAND message and the HASHMME is different from the hash value locally calculated at the UE as described in 3GPP TS 33.401 [19]. If an ATTACH REQUEST message is included in this IE, the ATTACH REQUEST message shall be coded as specified in subclause 8.2.4, i.e. without NAS security header. If a TRACKING AREA UPDATE REQUEST message is included in this IE, the TRACKING AREA UPDATE REQUEST message shall be coded as specified in subclause 8.2.29, i.e. without NAS security header

The Replayed NAS message container information element is coded as shown in figure 9.9.3.51.1 and table 9.9.3.51.1.

The Replayed NAS message container is a type 6 information element.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Replayed NAS message container IEI | | | | | | | | octet 1 |
| Length of Replayed NAS message container contents | | | | | | | | octet 2 |
|  | | | | | | | | octet 3 |
|  | | | | | | | | octet 4 |
| Replayed NAS message container contents | | | | | | | |  |
|  | | | | | | | | octet n |

Figure 9.9.3.51.1: Replayed NAS message container information element

Table 9.9.3.51.1: Replayed NAS message container information element

|  |
| --- |
| Replayed NAS message container contents (octet 4 to octet n); Max value of 65535 octets |
|  |
| This IE can contain an ATTACH REQUEST message as defined in subclause 8.2.4, or a TRACKING AREA UPDATE REQUEST message as defined in subclause 8.2.29. |
|  |

#### 9.9.3.52 Network policy

The purpose of the Network policy information element is to provide network policy information to the UE during attach or tracking area updating procedure via the ATTACH ACCEPT message or TRACKING AREA UPDATE ACCEPT message.

The Network policy information element is coded as shown in figure 9.9.3.52.1 and table 9.9.3.52.1.

The Network policy is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | | 4 | 3 | | 2 | | 1 | |  |
| Network policy IEI | | | | 0  spare | | 0  spare | 0  spare | | redir- policy | | octet 1 | |

Figure 9.9.3.52.1: Network policy information element

Table 9.9.3.52.1: Network policy information element

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Network policy value | | | | | |
|  |  | | | | | |
|  | Redirection to GERAN security policy (redir-policy) (octet 1, bit 1) | | | | | |
| 0 | |  |  |  | Unsecured redirection to GERAN allowed |  |
| 1 | |  |  |  | Unsecured redirection to GERAN not allowed |  |
|  | | | | | |  |
|  | Bits 2 to 4 are spare and shall be set to "0". | | | | | |
|  |  | | | | | |

#### 9.9.3.53 UE additional security capability

The UE additional security capability information element is used by the UE to indicate which additional security algorithms are supported by the UE for S1 mode in dual connectivity with NR or for N1 mode or both.

The UE additional security capability information element is coded as shown in figure 9.9.3.53.1 and table 9.9.3.53.1.

The UE additional security capability is a type 4 information element with a length of 6 octets.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 8 | | 7 | | 6 | | 5 | | 4 | | 3 | | 2 | | 1 | | |  | | |
| UE additional security capability IEI | | | | | | | | | | | | | | | | octet 1 | | |  | |
| Length of UE additional security capability contents | | | | | | | | | | | | | | | | octet 2 | | |  | |
| 5G-EA0 | | 128-  5G-EA1 | | 128-  5G-EA2 | | 128-  5G-EA3 | | 5G-EA4 | | 5G-EA5 | | 5G-EA6 | | 5G-EA7 | | | octet 3 | | |  |
| 5G-EA8 | | 5G-EA9 | | 5G-EA10 | | 5G-EA11 | | 5G-EA12 | | 5G-EA13 | | 5G-EA14 | | 5G-EA15 | | | octet 4 | | |  |
| 5G-IA0 | | 128-  5G-IA1 | | 128-  5G-IA2 | | 128-  5G-IA3 | | 5G-IA4 | | 5G-IA5 | | 5G-IA6 | | 5G-IA7 | | | octet 5 | | |  |
| 5G-IA8 | | 5G-IA9 | | 5G-IA10 | | 5G-IA11 | | 5G-IA12 | | 5G-IA13 | | 5G-IA14 | | 5G-IA15 | | | octet 6 | | |  |

Figure 9.9.3.53.1: UE additional security capability information element

Table 9.9.3.53.1: UE additional security capability information element

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 5GS encryption algorithms supported (octet 3) (NOTE 1) | | | | | |
|  |  | | | | | |
|  | 5GS encryption algorithm 5G-EA0 supported (octet 3, bit 8) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 5G-EA0 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 5G-EA0 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithm 128-5G-EA1 supported (octet 3, bit 7) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 128-5G-EA1 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 128-5G-EA1 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithm 128-5G-EA2 supported (octet 3, bit 6) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 128-5G-EA2 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 128-5G-EA2 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithm 128-5G-EA3 supported (octet 3, bit 5) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 128-5G-EA3 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 128-5G-EA3 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithm 5G-EA4 supported (octet 3, bit 4) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 5G-EA4 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 5G-EA4 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithm 5G-EA5 supported (octet 3, bit 3) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 5G-EA5 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 5G-EA5 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithm 5G-EA6 supported (octet 3, bit 2) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 5G-EA6 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 5G-EA6 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithm 5G-EA7 supported (octet 3, bit 1) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 5G-EA7 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 5G-EA7 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithms supported (octet 4) | | | | | |
|  |  | | | | | |
|  | 5GS encryption algorithm 5G-EA8 supported (octet 4, bit 8) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 5G-EA8 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 5G-EA8 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithm 5G-EA9 supported (octet 4, bit 7) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 5G-EA9 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 5G-EA9 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithm 5G-EA10 supported (octet 4, bit 6) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 5G-EA10 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 5G-EA10 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithm 5G-EA11 supported (octet 4, bit 5) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 5G-EA11 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 5G-EA11 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithm 5G-EA12 supported (octet 4, bit 4) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 5G-EA12 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 5G-EA12 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithm 5G-EA13 supported (octet 4, bit 3) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 5G-EA13 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 5G-EA13 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithm 5G-EA14 supported (octet 4, bit 2) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 5G-EA14 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 5G-EA14 supported |  |
|  |  | | | | | |
|  | 5GS encryption algorithm 5G-EA15 supported (octet 4, bit 1) | | | | | |
| 0 | |  |  |  | 5GS encryption algorithm 5G-EA15 not supported |  |
| 1 | |  |  |  | 5GS encryption algorithm 5G-EA15 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithms supported (octet 5) (NOTE 2) | | | | | |
|  |  | | | | | |
|  | 5GS integrity algorithm 5G-IA0 supported (octet 5, bit 8) (NOTE 3) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 5G-IA0 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 5G-IA0 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithm 128-5G-IA1 supported (octet 5, bit 7) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 128-5G-IA1 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 128-5G-IA1 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithm 128-5G-IA2 supported (octet 5, bit 6) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 128-5G-IA2 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 128-5G-IA2 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithm 128-5G-IA3 supported (octet 5, bit 5) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 128-5G-IA3 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 128-5G-IA3 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithm 5G-IA4 supported (octet 5, bit 4) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 5G-IA4 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 5G-IA4 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithm 5G-IA5 supported (octet 5, bit 3) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 5G-IA5 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 5G-IA5 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithm 5G-IA6 supported (octet 5, bit 2) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 5G-IA6 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 5G-IA6 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithm 5G-IA7 supported (octet 5, bit 1) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 5G-IA7 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 5G-IA7 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithms supported (octet 6) | | | | | |
|  |  | | | | | |
|  | 5GS integrity algorithm 5G-IA8 supported (octet 6, bit 8) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 5G-IA8 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 5G-IA8 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithm 5G-IA9 supported (octet 6, bit 7) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 5G-IA9 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 5G-IA9 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithm 5G-IA10 supported (octet 6, bit 6) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 5G-IA10 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 5G-IA10 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithm 5G-IA11 supported (octet 6, bit 5) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 5G-IA11 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 5G-IA11 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithm 5G-IA12 supported (octet 6, bit 4) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 5G-IA12 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 5G-IA12 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithm 5G-IA13 supported (octet 6, bit 3) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 5G-IA13 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 5G-IA13 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithm 5G-IA14 supported (octet 6, bit 2) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 5G-IA14 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 5G-IA14 supported |  |
|  |  | | | | | |
|  | 5GS integrity algorithm 5G-IA15 supported (octet 6, bit 1) | | | | | |
| 0 | |  |  |  | 5GS integrity algorithm 5G-IA15 not supported |  |
| 1 | |  |  |  | 5GS integrity algorithm 5G-IA15 supported |  |
|  |  | | | | | |
|  | NOTE 1: For a UE supporting dual connectivity with NR. if the UE supports one of the encryption algorithms for 5GS in bits 8 to 5 of octet 3, it shall support the same algorithms for E-UTRAN as specified in 3GPP TS 33.401 [19]. | | | | | |
|  | NOTE 2: For a UE supporting dual connectivity with NR, if the UE supports one of the integrity protection algorithms for 5GS different from 5G-IA0 (bits 7 to 5 of octet 5), it shall support the same algorithms for E-UTRAN as specified in 3GPP TS 33.401 [19].  NOTE 3: This algorithm is not applicable to dual connectivity with NR. A UE not supporting N1 mode shall set this bit to "0". | | | | | |

#### 9.9.3.54 UE status

See subclause 9.11.3.56 in 3GPP TS 24.501 [54].

#### 9.9.3.55 Additional information requested

The purpose of the Additional information requested information element is to enable the UE to request ciphering keys for deciphering of ciphered broadcast assistance data.

The Additional information requested information element is coded as shown in figure 9.9.3.55.1 and table 9.9.3.55.1.

The Additional information requested is a type 3 information element with a length of 2 octets.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  | |
| Ciphered broadcast assistance data IEI | | | | | | | | | | octet 1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | CipherKey | | octet 2 | |
| Spare | | | | | | | |  | |  |

Figure 9.9.3.55.1: Additional information requested information element

Table 9.9.3.55.1: Additional information requested information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ciphering keys for ciphered broadcast assistance data (CipherKey) (octet 2, bit 1) | | | | |
| Bit | | | | |
| 1 |  |  |  |  |
| 0 |  |  |  | ciphering keys for ciphered broadcast assistance data not requested |
| 1 |  |  |  | ciphering keys for ciphered broadcast assistance data requested |
|  | | | | |
| Bits 8 to 2 of octet 2 are spare and shall be coded as zero. | | | | |
|  | | | | |

#### 9.9.3.56 Ciphering key data

The purpose of the Ciphering key data information element is to transfer a list of ciphering data sets from the network to the UE for deciphering of ciphered assistance data.

The Ciphering key data information element is coded as shown in figure 9.9.3.56.1, figure 9.9.3.56.2 and table 9.9.3.56.1.

The Ciphering key data is a type 6 information element, with a minimum length of 35 octets and a maximum length of 2291 octets. The list can contain a maximum of 16 ciphering data sets.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  |
| Ciphering key data IEI | | | | | | | | octet 1 | |
| Length of ciphering key data contents | | | | | | | | octet 2  octet 3 | |
| Ciphering data set 1 | | | | | | | | octet 4  octet i | |
| Ciphering data set 2 | | | | | | | | octet i+1\*  octet l\* | |
| … | | | | | | | | octet l+1\*  octet m\* | |
| Ciphering data set p | | | | | | | | octet m+1\*  octet n\* | |

Figure 9.9.3.56.1: Ciphering key data information element

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | | |
| Ciphering set ID | | | | | | | | | | octet 1  octet 2 |
| Ciphering key | | | | | | | | | | octet 3  octet 18 |
| 0 | 0 | 0 | c0 length | | | | | | octet 19 | |
| Spare | | |  |
| c0 | | | | | | | | | | octet 20  octet k |
| PosSIBType1-1 | PosSIBType1-2 | PosSIBType1-3 | PosSIBType1-4 | PosSIBType1-5 | PosSIBType1-6 | PosSIBType1-7 | PosSIBType2-1 | octet k+1  octet k+4 | | |
| PosSIBType2-2 | PosSIBType2-3 | PosSIBType2-4 | PosSIBType2-5 | PosSIBType2-6 | PosSIBType2-7 | PosSIBType2-8 | PosSIBType2-9 |
| PosSIBType2-10 | PosSIBType2-11 | PosSIBType2-12 | PosSIBType2-13 | PosSIBType2-14 | PosSIBType2-15 | PosSIBType2-16 | PosSIBType2-17 |
| PosSIBType2-18 | PosSIBType2-19 | PosSIBType3-1 | 0  Spare | 0  Spare | 0  Spare | 0  Spare | 0  Spare |
| Validity start time | | | | | | | | | | octet k+5  octet k+9 |
| Validity duration | | | | | | | | | | octet k+10  octet k+11 |
| TAIs list | | | | | | | | | | octet k+12  octet n |

Figure 9.9.3.56.2: Ciphering data set

Table 9.9.3.56.1: Ciphering key data information element

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Value part of the Ciphering key data information element (octets 4 to n) | | | | | |  |
|  |  |  | | | | | |  |
|  |  | The value part of the Ciphering key data information element consists of one or several ciphering data sets. | | | | | |  |
|  |  | The UE shall store the complete list received. If more than 16 ciphering data sets are included in this information element, the UE shall store the first 16 ciphering data sets and ignore the remaining octets of the information element. | | | | | |  |
|  |  |  | | | | | |  |
|  |  |  | | | | | |  |
|  |  | Ciphering data set: | | | | | |  |
|  |  |  | | | | | |  |
|  |  | Ciphering set ID (octets 1 to 2) | | | | | |  |
|  |  |  | | | | | |  |
|  |  | This field contains the binary encoding of the ID identifying the ciphering set. | | | | | |  |
|  |  |  | | | | | |  |
|  |  | Ciphering key (octets 3 to octet 18) | | | | | |  |
|  |  |  | | | | | |  |
|  |  | This field contains the 128 bit ciphering key. | | | | | |  |
|  |  |  | | | | | |  |
|  |  | c0 length (octet 19, bits 5 to 1)  This field contains the binary encoding of the length, in octets, of the c0 counter. The maximum value for the length of the c0 counter is 16 octets. | | | | | |  |
|  |  |  | | | | | |  |
|  |  | Bits 8 to 6 of octect 19 are spare and shall be coded as zero. | | | | | |  |
|  |  |  | | | | | |  |
|  |  |  | | | | | |  |
|  |  | c0 (octets 20 to k) | | | | | |  |
|  |  |  | | | | | |  |
|  |  | This field contains the binary encoding of the c0 counter. | | | | | |  |
|  |  |  | | | | | |  |
|  |  |  | | | | | |  |
|  |  | Positioning SIB types for which the ciphering data set is applicable (octets k+1 to k+4) | | | | | |  |
|  |  |  | | | | | |  |
|  | Ciphering data set applicable for positioning SIB type 1-1 (octet k+1, bit 8) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 1-1 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 1-1 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 1-2 (octet k+1, bit 7) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 1-2 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 1-2 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 1-3 (octet k+1, bit 6) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 1-3 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 1-3 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 1-4 (octet k+1, bit 5) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 1-4 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 1-4 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 1-5 (octet k+1, bit 4) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 1-5 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 1-5 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 1-6 (octet k+1, bit 3) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 1-6 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 1-6 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 1-7 (octet k+1, bit 2) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 1-7 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 1-7 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-1 (octet k+1, bit 1) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-1 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-1 |  | |
|  |  | | | | | | | |
|  |  |  | | | | | |  |
|  | Ciphering data set applicable for positioning SIB type 2-2 (octet k+2, bit 8) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-2 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-2 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-3 (octet k+2, bit 7) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-3 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-3 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-4 (octet k+2, bit 6) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-4 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-4 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-5 (octet k+2, bit 5) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-5 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-5 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-6 (octet k+2, bit 4) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-6 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-6 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-7 (octet k+2, bit 3) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-7 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-7 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-8 (octet k+2, bit 2) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-8 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-8 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-9 (octet k+2, bit 1) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-9 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-9 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-10 (octet k+3, bit 8) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-10 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-10 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-11 (octet k+3, bit 7) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-11 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-11 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-12 (octet k+3, bit 6) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-12 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-12 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-13 (octet k+3, bit 5) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-13 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-13 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-14 (octet k+3, bit 4) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-14 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-14 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-15 (octet k+3, bit 3) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-15 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-15 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-16 (octet k+3, bit 2) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-16 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-16 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-17 (octet k+3, bit 1) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-17 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-17 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-18 (octet k+4, bit 8) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-18 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-18 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 2-19 (octet k+4, bit 7) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 2-19 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 2-19 |  | |
|  |  | | | | | | | |
|  | Ciphering data set applicable for positioning SIB type 3-1 (octet k+4, bit 6) | | | | | | | |
| 0 | | |  |  |  | Ciphering data set not applicable to positioning SIB type 3-1 |  | |
| 1 | | |  |  |  | Ciphering data set applicable to positioning SIB type 3-1 |  | |
|  |  | | | | | | | |
|  |  | Bits 5 to 1 of octet k+4 are spare and shall be coded as zero. | | | | | |  |
|  |  |  | | | | | |  |
|  |  |  | | | | | |  |
|  |  | Validity start time (octets k+5 to k+9) | | | | | |  |
|  |  |  | | | | | |  |
|  |  | This field contains the UTC time when the ciphering data set becomes valid, encoded as octets 2 to 6 of the Time zone and time IE specified in 3GPP TS 24.008 [13]. | | | | | |  |
|  |  |  | | | | | |  |
|  |  |  | | | | | |  |
|  |  | Validity duration (octets k+10 to k+11) | | | | | |  |
|  |  |  | | | | | |  |
|  |  | This field contains the duration for which the ciphering data set is valid after the validity start time, in units of minutes. | | | | | |  |
|  |  |  | | | | | |  |
|  |  |  | | | | | |  |
|  |  | TAIs list (octets k+12 to n) | | | | | |  |
|  |  |  | | | | | |  |
|  |  | This field contains the list of tracking areas for which the ciphering data set is applicable, encoded as octets 2 to n of the Tracking area identity list IE as specified in subclause 9.9.3.33. If the TAIs list is empty (as indicated by a zero length), the ciphering data set is applicable to the entire serving PLMN. | | | | | |  |
|  |  |  | | | | | |  |

#### 9.9.3.57 N1 UE network capability

The purpose of the N1 UE network capability IE is to allow the UE that supports N1 mode, to provide the network with information related to the UE’s capabilities for 5GS.

The N1 UE network capability information element is coded as shown in figure 9.9.3.57.1 and table 9.9.3.57.1.

The N1 UE network capability is a type 4 information element.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| N1 UE network capability IEI | | | | | | | octet 1 | |
| Length of N1 UE network capability contents | | | | | | | octet 2 | |
| 0  Spare | 0  Spare | 5GS-PNB-CIoT | 5G-UP CIoT | 5G-HC-CP CIoT | N3 data | 5G-CP CIoT | | octet 3 |

Figure 9.9.3.57.1: N1 UE network capability information element

Table 9.9.3.57.1: N1 UE network capability information element

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Control plane CIoT 5GS optimization (5G-CP CIoT) (octet 3, bit 1) | | | | | |  | |  |
| This bit indicates the capability for control plane CIoT 5GS optimization | | | | | |  | |  |
| Bit | | | | | |  | |  |
| 1 | |  | |  | |  | |  |
| 0 | |  | | Control plane CIoT 5GS optimization not supported | |  | |  |
| 1 | |  | | Control plane CIoT 5GS optimization supported | |  | |  |
|  | | | | | |  | |  |
| N3 data transfer (N3 data) (octet 3, bits 2)  This bit indicates the capability for N3 data transfer. | | | | | |  | |  |
| Bit | | | | | |  | |  |
| 2 | |  | |  | |  | |  |
| 0 | |  | | N3 data transfer supported | |  | |  |
| 1 | |  | | N3 data transfer not supported | |  | |  |
|  | | | | | |  | |  |
| Header compression for control plane CIoT 5GS optimization (5G-HC-CP CIoT) (octet 3, bit 3)  This bit indicates the capability for header compression for control plane CIoT 5GS optimization. | | | | | |  | |  |
| Bit | | | | | |  | |  |
| 3 | |  | |  | |  | |  |
| 0 | |  | | Header compression for control plane CIoT 5GS optimization not supported | |  | |  |
| 1 | |  | | Header compression for control plane CIoT 5GS optimization supported | |  | |  |
|  | | | | | |  | |  |
| User plane CIoT 5GS optimization (5G-UP CIoT) (octet 3, bit 4) | | | | | |  | |  |
| This bit indicates the capability for user plane CIoT 5GS optimization | | | | | |  | |  |
| Bit | | | | | |  | |  |
| 4 | |  | |  | |  | |  |
| 0 | |  | | User plane CIoT 5GS optimization not supported | |  | |  |
| 1 | |  | | User plane CIoT 5GS optimization supported | |  | |  |
|  | | | | | |  | |  |
|  | 5GS Preferred CIoT network behaviour (5GS-PNB-CIoT) (octet 3, bits 5 and 6) | | | | | | | |
|  | These bits indicates the 5GS CIoT network behaviour the UE prefers to use | | | | | | | |
|  | Bits | | | | | | | |
|  | 6 | | 5 | |  | |  | |
|  | 0 | | 0 | | no additional information | |  | |
|  | 0 | | 1 | | control plane CIoT 5GS optimization | |  | |
|  | 1 | | 0 | | user plane CIoT 5GS optimization | |  | |
|  | 1 | | 1 | | reserved | |  | |
|  |  | | | | | | | |
| All other bits in octet 3 are spare and shall be coded as zero, if the respective octet is included in the information element. | | | | | |  | |  |

#### 9.9.3.58 UE radio capability ID availability

The purpose of the UE radio capability ID availabilityinformation element is to indicate that the UE has an applicable UE radio capability ID for the current UE radio configuration in the selected PLMN.

The UE radio capability ID availabilityis a type 1 information element.

The UE radio capability ID availabilityinformation element is coded as shown in figure 9.9.3.58.1 and table 9.9.3.58.1.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | | 4 | 3 | | 2 | 1 |  |
| UE radio capability ID availability  IEI | | | | 0  spare | | | UE radio capability ID availability  value | | | octet 1 |

Figure 9.9.3.58.1: UE radio capability ID availability information element

Table 9.9.3.58.1: UE radio capability ID availability information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| UE radio capability ID availability value (octet 1) | | | | |
| Bits | | | | |
| 3 | 2 | 1 |  |  |
| 0 | 0 | 0 |  | UE radio capability ID not available |
| 0 | 0 | 1 |  | UE radio capability ID available |
|  | | | | |
| All other values are interpreted as UE radio capability ID not available by this version of the protocol. | | | | |
|  | | | | |

#### 9.9.3.59 UE radio capability ID request

The purpose of the UE radio capability ID requestinformation element is to indicate that the UE radio capability ID shall be included by the UE in the SECURITY MODE COMPLETE message.

The UE radio capability ID requestis a type 4 information element with a length of 3 octets.

The UE radio capability ID requestinformation element is coded as shown in figure 9.9.3.59.1 and table 9.9.3.59.1.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 8 | | 7 | | 6 | | 5 | | 4 | | 3 | | 2 | | 1 | | |  | | |
| UE radio capability ID availability IEI | | | | | | | | | | | | | | | | octet 1 | | |  | |
| Length of UE radio capability ID availability contents | | | | | | | | | | | | | | | | octet 2 | | |  | |
| 0  Spare | | 0  Spare | | 0  Spare | | 0  Spare | | 0  Spare | | 0  Spare | | 0  Spare | | URCIDA | | | octet 3 | | |  |

Figure 9.9.3.58.1: UE radio capability ID availability information element

Table 9.9.3.59.1: UE radio capability ID request information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| UE radio capability ID availability (URCIDA) (octet 3, bit 1) | | | | |
| Bits | | | | |
| 1 |  |  |  |  |
| 0 |  |  |  | UE radio capability ID not available |
| 1 |  |  |  | UE radio capability ID available |
|  | | | | |
| Bits 2 to 8 of octet 3 are spare and shall be coded as zero. | | | | |
|  | | | | |

#### 9.9.3.60 UE radio capability ID

See subclause 9.11.3.65 in 3GPP TS 24.501 [54].

#### 9.9.3.61 UE radio capability ID deletion indication

See subclause 9.11.3.zz in 3GPP TS 24.501 [54].

#### 9.9.3.62 WUS assistance information

The purpose of the WUS assistance information information element is to transfer the required assistance information to determine the WUS group used when paging the UE.

The coding of the information element allows combining different types of WUS assistance information.

The WUS assistance information information element is coded as shown in figure 9.9.3.62.1, figure 9.9.3.62.2 and table 9.9.3.62.1.

The WUS assistance information is a type 4 information element, with a minimum length of 3 octets.

Editor’s Note: Whether the WUS assistance information is a type 6 information element is FFS.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  |
| WUS assistance information IEI | | | | | | | | octet 1 | |
| Length of WUS assistance information contents | | | | | | | | octet 2 | |
| WUS assistance information type 1 | | | | | | | | octet 3  octet i | |
| WUS assistance information type 2 | | | | | | | | octet i+1\*  octet l\* | |
| … | | | | | | | | octet l+1\*  octet m\* | |
| WUS assistance information type p | | | | | | | | octet m+1\*  octet n\* | |

Figure 9.9.3.62.1: WUS assistance information information element

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 8 | 7 | 6 | | 5 | 4 | 3 | 2 | 1 | |  | |
| Type of information | | | | UE paging probability information value | | | | | | octet 1 | |  |

Figure 9.9.3.62.2: WUS assistance information type –type of information= "000"

Editor’s Note: The format of WUS assistance information type is FFS.

Table 9.9.3.62.1: WUS assistance information information element

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Value part of the WUS assistance information information element (octet 3 to n) | | | | | | | | |
|  | | | | | | | | |
| The value part of the WUS assistance information information element consists of one or several types of WUS assistance information. | | | | | | | | |
|  | | | | | | | | |
| WUS assistance information type: | | | | | | | | |
|  | | | | | | | | |
| Type of information (octet 1) | | | | | | | | |
| Bits | | | | | | | | |
| 8 | | 7 | | 6 | |  | | |
| 0 | | 0 | | 0 | | UE paging probability information | | |
|  | | | | | | | | |
| All other values are reserved. | | | | | | | | |
|  | | | | | | | | |
| UE paging probability information value: | | | | | | | | |
|  | | | | | | | | |
| This field contains the value of UE paging probability information requested by the UE or negotiated by the network. It represents the probability of the UE receiving the paging.  bit | | | | | | | | |
| 5 | 4 | | 3 | | 2 | | 1 | UE paging probability information value |
| 0 | 0 | | 0 | | 0 | | 0 | p00 |
| 0 | 0 | | 0 | | 0 | | 1 | p05 |
| 0 | 0 | | 0 | | 1 | | 0 | p10 |
| 0 | 0 | | 0 | | 1 | | 1 | p15 |
| 0 | 0 | | 1 | | 0 | | 0 | p20 |
| 0 | 0 | | 1 | | 0 | | 1 | p25 |
| 0 | 0 | | 1 | | 1 | | 0 | p30 |
| 0 | 0 | | 1 | | 1 | | 1 | p35 |
| 0 | 1 | | 0 | | 0 | | 0 | p40 |
| 0 | 1 | | 0 | | 0 | | 1 | p45 |
| 0 | 1 | | 0 | | 1 | | 0 | p50 |
| 0 | 1 | | 0 | | 1 | | 1 | p55 |
| 0 | 1 | | 1 | | 0 | | 0 | p60 |
| 0 | 1 | | 1 | | 0 | | 1 | p65 |
| 0 | 1 | | 1 | | 1 | | 0 | p70 |
| 0 | 1 | | 1 | | 1 | | 1 | p75 |
| 1 | 0 | | 0 | | 0 | | 0 | p80 |
| 1 | 0 | | 0 | | 0 | | 1 | p85 |
| 1 | 0 | | 0 | | 1 | | 0 | p90 |
| 1 | 0 | | 0 | | 1 | | 1 | p95 |
| 1 | 0 | | 1 | | 0 | | 0 | p100 |
|  | | | | | | | | |
| All other values shall be interpreted as 10100 by this version of the protocol. | | | | | | | | |

Editor’s Note: The code of the UE paging probability information value is FFS.

### 9.9.4 EPS Session Management (ESM) information elements

#### 9.9.4.1 Access point name

See subclause 10.5.6.1 in 3GPP TS 24.008 [13].

#### 9.9.4.2 APN aggregate maximum bit rate

The purpose of the APN aggregate maximum bit rate information element is to indicate the initial subscribed APN-AMBR when the UE establishes a PDN connection or to indicate the new APN-AMBR if it is changed by the network.

The APN aggregate maximum bit rate information element is coded as shown in figure 9.9.4.2.1 and table 9.9.4.2.1.

The APN aggregate maximum bit rate is a type 4 information element with a minimum length of 4 octets and a maximum length of 8 octets. Octets 5-8 are optional. If octet 5 is included, then octet 6 shall also be included, and octets 7-8 may be included. If octet 7 is included, then octet 8 shall also be included. The length of the APN-AMBR IE can be either 4 octets, 6 octets or 8 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| APN aggregate maximum bit rate IEI | | | | | | | | octet 1 |
| Length of APN aggregate maximum bit rate contents | | | | | | | | octet 2 |
| APN-AMBR for downlink | | | | | | | | octet 3 |
| APN-AMBR for uplink | | | | | | | | octet 4 |
| APN-AMBR for downlink (extended) | | | | | | | | octet 5\* |
| APN-AMBR for uplink (extended) | | | | | | | | octet 6\* |
| APN-AMBR for downlink (extended-2) | | | | | | | | octet 7\* |
| APN-AMBR for uplink (extended-2) | | | | | | | | octet 8\* |

Figure 9.9.4.2.1: APN aggregate maximum bit rate information element

Table 9.9.4.2.1: APN aggregate maximum bit rate information element

|  |
| --- |
| APN-AMBR for downlink, octet 3  Bits  8 7 6 5 4 3 2 1  0 0 0 0 0 0 0 0 Reserved  0 0 0 0 0 0 0 1 The APN-AMBR is binary coded in 8 bits, using a granularity of 1 kbps  to giving a range of values from 1 kbps to 63 kbps in 1 kbps increments. 0 0 1 1 1 1 1 1  0 1 0 0 0 0 0 0 The APN-AMBR is 64 kbps + ((the binary coded value in 8 bits –01000000) \* 8 kbps)  to giving a range of values from 64 kbps to 568 kbps in 8 kbps increments. 0 1 1 1 1 1 1 1  1 0 0 0 0 0 0 0 The APN-AMBR is 576 kbps + ((the binary coded value in 8 bits –10000000) \* 64 kbps)  to giving a range of values from 576 kbps to 8640 kbps in 64 kbps increments. 1 1 1 1 1 1 1 0  1 1 1 1 1 1 1 1 0kbps  If the network wants to indicate an APN-AMBR for downlink higher than 8640 kbps, it shall set octet 3 to "11111110", i.e. 8640 kbps, and shall encode the value for the APN-AMBR in octet 5.  APN-AMBR for uplink, octet 4  Coding is identical to that of APN-AMBR for downlink.  APN-AMBR for downlink (extended), octet 5  Bits  8 7 6 5 4 3 2 1  0 0 0 0 0 0 0 0 Use the value indicated by the APN-AMBR for downlink in octet 3.   For all other values: Ignore the value indicated by the APN-AMBR for downlink in octet 3  and use the following value: 0 0 0 0 0 0 0 1 The APN-AMBR is 8600 kbps + ((the binary coded value in 8 bits) \* 100 kbps),  to giving a range of values from 8700 kbps to 16000 kbps in 100 kbps increments. 0 1 0 0 1 0 1 0  0 1 0 0 1 0 1 1 The APN-AMBR is 16 Mbps + ((the binary coded value in 8 bits - 01001010) \* 1 Mbps),  to giving a range of values from 17 Mbps to 128 Mbps in 1 Mbps increments. 1 0 1 1 1 0 1 0  1 0 1 1 1 0 1 1 The APN-AMBR is 128 Mbps + ((the binary coded value in 8 bits - 10111010) \* 2 Mbps),  to giving a range of values from 130 Mbps to 256 Mbps in 2 Mbps increments. 1 1 1 1 1 0 1 0  All other values shall be interpreted as '1 1 1 1 1 0 1 0'  APN-AMBR for uplink (extended), octet 6  This field is an extension of the APN-AMBR for uplink in octet 4. The coding is identical to that of the APN-AMBR for downlink (extended).  APN-AMBR for downlink (extended-2), octet 7  Bits  8 7 6 5 4 3 2 1 0 0 0 0 0 0 0 0 Use the value indicated by the APN-AMBR for downlink and APN-AMBR for downlink (extended) in  octets 3 and 5.  0 0 0 0 0 0 0 1 The APN-AMBR is (the binary coded value in 8 bits) \* 256 Mbps + (the value indicated by  to the APN-AMBR for downlink and APN-AMBR for downlink (extended) in octets 3 and 5),  1 1 1 1 1 1 1 0 giving a range of 264,64 Mbps to 65280 Mbps.  1 1 1 1 1 1 1 1 This value shall be interpreted as '0 0 0 0 0 0 0 0' in this version of the specification.  If the network wants to indicate an APN-AMBR value for downlink higher than 65280 Mbps, it shall set octet 5 to "11111010" and octet 7 to "11111110", i.e. 65280 Mbps, and shall encode the higher value for the APN-AMBR in the extended APN aggregate maximum bit rate information element specified in subclause 9.9.4.29.  APN-AMBR for uplink (extended-2), octet 8  This field is an extension of the APN-AMBR for uplink and APN-AMBR for uplink (extended) in octets 4 and 6. The coding is identical to that of the APN-AMBR for downlink (extended-2).  If the UE or the network wants to indicate an APN-AMBR value for uplink higher than 65280 Mbps, it shall set octet 8 to "11111110", i.e. 65280 Mbps, and shall encode the higher value for the APN-AMBR in the extended APN aggregate maximum bit rate information element specified in subclause 9.9.4.29. |

#### 9.9.4.2A Connectivity type

See subclause 10.5.6.19 in 3GPP TS 24.008 [13].

#### 9.9.4.3 EPS quality of service

The purpose of the EPS quality of service information element is to specify the QoS parameters for an EPS bearer context.

The EPS quality of service information element is coded as shown in figure 9.9.4.3.1 and table 9.9.4.3.1.

The EPS quality of service is a type 4 information element with a minimum length of 3 octets and a maximum length of 15 octets. Octets 4-15 are optional. If octet 4 is included, then octets 5-7 shall also be included, and octets 8-15 may be included. If octet 8 is included, then octets 4-11 shall also be included, and octets 12-15 may be included. If octet 12 is included, then octets 4-15 shall also be included. The length of the EPS QoS IE can be either 3 octets, 7 octets, 11 octets or 15 octets.

Refer to 3GPP TS 23.203 [7] for a detailed description of the QoS Class Identifier (QCI).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  |
| EPS quality of service IEI | | | | | | | | octet 1 | |
| Length of EPS quality of service contents | | | | | | | | octet 2 | |
| QCI | | | | | | | | octet 3 | |
| Maximum bit rate for uplink | | | | | | | | octet 4\* | |
| Maximum bit rate for downlink | | | | | | | | octet 5\* | |
| Guaranteed bit rate for uplink | | | | | | | | octet 6\* | |
| Guaranteed bit rate for downlink | | | | | | | | octet 7\* | |
| Maximum bit rate for uplink (extended) | | | | | | | | octet 8\* | |
| Maximum bit rate for downlink (extended) | | | | | | | | octet 9\* | |
| Guaranteed bit rate for uplink (extended) | | | | | | | | octet 10\* | |
| Guaranteed bit rate for downlink (extended) | | | | | | | | octet 11\* | |
| Maximum bit rate for uplink (extended-2) | | | | | | | | octet 12\* | |
| Maximum bit rate for downlink (extended-2) | | | | | | | | octet 13\* | |
| Guaranteed bit rate for uplink (extended-2) | | | | | | | | octet 14\* | |
| Guaranteed bit rate for downlink (extended-2) | | | | | | | | octet 15\* | |

Figure 9.9.4.3.1: EPS quality of service information element

Table 9.9.4.3.1: EPS quality of service information element

|  |
| --- |
| Quality of Service Class Identifier (QCI), octet 3 (see 3GPP TS 23.203 [7] and 3GPP TS 29.212 [16B])  Bits  8 7 6 5 4 3 2 1  In UE to network direction:  0 0 0 0 0 0 0 0 no QCI requested (NOTE)  In network to UE direction:  0 0 0 0 0 0 0 0 Reserved  In UE to network direction and in network to UE direction:  0 0 0 0 0 0 0 1 QCI 1  0 0 0 0 0 0 1 0 QCI 2  0 0 0 0 0 0 1 1 QCI 3  0 0 0 0 0 1 0 0 QCI 4  0 0 0 0 0 1 0 1 QCI 5  0 0 0 0 0 1 1 0 QCI 6  0 0 0 0 0 1 1 1 QCI 7  0 0 0 0 1 0 0 0 QCI 8  0 0 0 0 1 0 0 1 QCI 9  0 0 0 0 1 0 1 0  to Spare  0 1 0 0 0 0 0 0  0 1 0 0 0 0 0 1 QCI 65  0 1 0 0 0 0 1 0 QCI 66  0 1 0 0 0 0 1 1 QCI 67  0 1 0 0 0 1 0 0  to Spare  0 1 0 0 0 1 0 0  0 1 0 0 0 1 0 1 QCI 69  0 1 0 0 0 1 1 0 QCI 70  0 1 0 0 0 1 1 1 QCI 71  0 1 0 0 1 0 0 0 QCI 72  0 1 0 0 1 0 0 1 QCI 73  0 1 0 0 1 0 1 0 QCI 74  0 1 0 0 1 0 1 1 QCI 75  0 1 0 0 1 1 0 0 QCI 76  0 1 0 0 1 1 0 0  to Spare  0 1 0 0 1 1 1 0  0 1 0 0 1 1 1 1 QCI 79  0 1 0 1 0 0 0 0 QCI 80  0 1 0 1 0 0 0 1 Spare  0 1 0 1 0 0 1 0 QCI 82  0 1 0 1 0 0 1 1 QCI 83  0 1 0 1 0 1 0 0 QCI 84  0 1 0 1 0 1 0 1 QCI 85  0 1 0 1 0 1 1 0  to Spare  0 1 1 1 1 1 1 1  1 0 0 0 0 0 0 0  to Operator-specific QCIs  1 1 1 1 1 1 1 0  1 1 1 1 1 1 1 1 Reserved  The network shall consider all other values not explicitly defined in this version of the protocol as unsupported.  NOTE: The UE shall use this value, if the information element has presence requirement "M" in a message, but the information element does not serve any useful purpose in the specific procedure for which the message is sent (see subclause 6.5.3.2).  QCI values 10-127 were reserved in earlier versions of the protocol.  If the UE receives a QCI value (excluding the reserved QCI values) that it does not understand, the UE shall choose a QCI value from the set of QCI values defined in this version of the protocol (see 3GPP TS 23.203 [7] and 3GPP TS 29.212 [16B]) and associated with:  - GBR bearers if the IE includes a guaranteed bit rate value; and  - non-GBR bearers if the IE does not include a guaranteed bit rate value.  The UE shall use this chosen QCI value for internal operations only. The UE shall use the received QCI value in subsequent NAS signalling procedures.  For all non-GBR QCIs, the maximum and guaranteed bit rates shall be ignored.  Maximum bit rate for uplink, octet 4 (see 3GPP TS 23.107 [5])  Bits  8 7 6 5 4 3 2 1  In UE to network direction: 0 0 0 0 0 0 0 0 Subscribed maximum bit rate for uplink  In network to UE direction: 0 0 0 0 0 0 0 0 Reserved  In UE to network direction and in network to UE direction:  0 0 0 0 0 0 0 1 The maximum bit rate is binary coded in 8 bits, using a granularity of 1 kbps  to giving a range of values from 1 kbps to 63 kbps in 1 kbps increments.  0 0 1 1 1 1 1 1  0 1 0 0 0 0 0 0 The maximum bit rate is 64 kbps + ((the binary coded value in 8 bits – 01000000) \* 8 kbps)  to giving a range of values from 64 kbps to 568 kbps in 8 kbps increments.  0 1 1 1 1 1 1 1  1 0 0 0 0 0 0 0 The maximum bit rate is 576 kbps + ((the binary coded value in 8 bits – 10000000) \* 64 kbps)  to giving a range of values from 576 kbps to 8640 kbps in 64 kbps increments. 1 1 1 1 1 1 1 0  1 1 1 1 1 1 1 1 0kbps  If the sending entity wants to indicate a maximum bit rate for uplink higher than 8640 kbps, it shall set octet 4 to "11111110", i.e. 8640 kbps, and shall encode the value for the maximum bit rate in octet 8.  The network shall map all other values not explicitly defined onto one of the values defined in this version of the protocol. The network shall return a negotiated value which is explicitly defined in this version of the protocol.  Maximum bit rate for downlink, octet 5 (see 3GPP TS 23.107 [5])  Coding is identical to that of maximum bit rate for uplink.  If the sending entity wants to indicate a maximum bit rate for downlink higher than 8640 kbps, it shall set octet 5 to "11111110", i.e. 8640 kbps, and shall encode the value for the maximum bit rate in octet 9.  The network shall map all other values not explicitly defined onto one of the values defined in this version of the protocol. The network shall return a negotiated value which is explicitly defined in this version of the protocol.  In this version of the protocol, for messages specified in the present document, the sending entity shall not request 0 kbps for both the maximum bit rate for downlink and the maximum bit rate for uplink at the same time. Any entity receiving a request for 0 kbps in both the maximum bit rate for downlink and the maximum bit rate for uplink shall consider that as a syntactical error (see clause 8 of 3GPP TS 24.008 [13]).  Guaranteed bit rate for uplink, octet 6 (see 3GPP TS 23.107 [5])  Coding is identical to that of maximum bit rate for uplink.  If the sending entity wants to indicate a guaranteed bit rate for uplink higher than 8640 kbps, it shall set octet 6 to "11111110", i.e. 8640 kbps, and shall encode the value for the guaranteed bit rate in octet 10.  The network shall map all other values not explicitly defined onto one of the values defined in this version of the protocol. The network shall return a negotiated value which is explicitly defined in this version of the protocol.  Guaranteed bit rate for downlink, octet 7 (see 3GPP TS 23.107 [5])  Coding is identical to that of maximum bit rate for uplink.  If the sending entity wants to indicate a guaranteed bit rate for downlink higher than 8640 kbps, it shall set octet 7 to "11111110", i.e. 8640 kbps, and shall encode the value for the guaranteed bit rate in octet 11.  The network shall map all other values not explicitly defined onto one of the values defined in this version of the protocol. The network shall return a negotiated value which is explicitly defined in this version of the protocol.  Maximum bit rate for uplink (extended), octet 8  Bits 8 7 6 5 4 3 2 1  In UE to network direction and in network to UE direction: 0 0 0 0 0 0 0 0 Use the value indicated by the maximum bit rate for uplink in octet 4.   For all other values: ignore the value indicated by the maximum bit rate for uplink in octet 4  and use the following value: 0 0 0 0 0 0 0 1 The maximum bit rate is 8600 kbps + ((the binary coded value in 8 bits) \* 100 kbps),  to giving a range of values from 8700 kbps to 16000 kbps in 100 kbps increments. 0 1 0 0 1 0 1 0  0 1 0 0 1 0 1 1 The maximum bit rate is 16 Mbps + ((the binary coded value in 8 bits - 01001010) \* 1 Mbps),  to giving a range of values from 17 Mbps to 128 Mbps in 1 Mbps increments. 1 0 1 1 1 0 1 0  1 0 1 1 1 0 1 1 The maximum bit rate is 128 Mbps + ((the binary coded value in 8 bits - 10111010) \* 2 Mbps),  to giving a range of values from 130 Mbps to 256 Mbps in 2 Mbps increments. 1 1 1 1 1 0 1 0  If the sending entity wants to indicate a Maximum bit rate for uplink higher than 256 Mbps, it shall set octet 8 to "11111010", i.e. 256 Mbps, and shall encode the value for the Maximum bit rate in octet 12.  The network shall map all other values not explicitly defined onto one of the values defined in this version of the protocol. The network shall return a negotiated value which is explicitly defined in this version of the protocol.  Maximum bit rate for downlink (extended), octet 9  This field is an extension of the maximum bit rate for downlink in octet 5. The coding is identical to that of the maximum bit rate for uplink (extended).  If the sending entity wants to indicate a Maximum bit rate for downlink higher than 256 Mbps, it shall set octet 9 to "11111010", i.e. 256 Mbps, and shall encode the value for the Maximum bit rate in octet 13.  The network shall map all other values not explicitly defined onto one of the values defined in this version of the protocol. The network shall return a negotiated value which is explicitly defined in this version of the protocol.  Guaranteed bit rate for uplink (extended), octet 10  Bits 8 7 6 5 4 3 2 1  In UE to network direction and in network to UE direction:  0 0 0 0 0 0 0 0 Use the value indicated by the guaranteed bit rate for uplink in octet 6.   For all other values: ignore the value indicated by the guaranteed bit rate for uplink in octet 6  and use the following value: 0 0 0 0 0 0 0 1 The guaranteed bit rate is 8600 kbps + ((the binary coded value in 8 bits) \* 100 kbps),  to giving a range of values from 8700 kbps to 16000 kbps in 100 kbps increments. 0 1 0 0 1 0 1 0  0 1 0 0 1 0 1 1 The guaranteed bit rate is 16 Mbps + ((the binary coded value in 8 bits - 01001010) \* 1 Mbps),  to giving a range of values from 17 Mbps to 128 Mbps in 1 Mbps increments. 1 0 1 1 1 0 1 0  1 0 1 1 1 0 1 1 The guaranteed bit rate is 128 Mbps + ((the binary coded value in 8 bits - 10111010) \* 2 Mbps),  to giving a range of values from 130 Mbps to 256 Mbps in 2 Mbps increments. 1 1 1 1 1 0 1 0  If the sending entity wants to indicate a Guaranteed bit rate for uplink higher than 256 Mbps, it shall set octet 10 to "11111010", i.e. 256 Mbps, and shall encode the value for the Maximum bit rate in octet 14.  The network shall map all other values not explicitly defined onto one of the values defined in this version of the protocol. The network shall return a negotiated value which is explicitly defined in this version of the protocol.  Guaranteed bit rate for downlink (extended), octet 11  This field is an extension of the guaranteed bit rate for downlink in octet 7. The coding is identical to that of guaranteed bit rate for uplink (extended).  If the sending entity wants to indicate a Guaranteed bit rate for downlink higher than 256 Mbps, it shall set octet 11 to "11111010", i.e. 256 Mbps, and shall encode the value for the Maximum bit rate in octet 15.  The network shall map all other values not explicitly defined onto one of the values defined in this version of the protocol. The network shall return a negotiated value which is explicitly defined in this version of the protocol.  Maximum bit rate for uplink (extended-2), octet 12  Bits  8 7 6 5 4 3 2 1  In UE to network direction and in network to UE direction:  0 0 0 0 0 0 0 0 Use the value indicated by the Maximum bit rate for uplink in octet 4 and octet 8.  For all other values: Ignore the value indicated by the Maximum bit rate for upink in octet 4 and  octet 8 and use the following value:  0 0 0 0 0 0 0 1 The maximum bit rate is 256 Mbps + ((the binary coded value in 8 bits) \* 4 Mbps),  0 0 1 1 1 1 0 1 giving a range of values from 260 Mbps to 500 Mbps in 4 Mbps increments.  0 0 1 1 1 1 1 0 The maximum bit rate is 500 Mbps + ((the binary coded value in 8 bits - 00111101) \* 10 Mbps),  1 0 1 0 0 0 0 1 giving a range of values from 510 Mbps to 1500 Mbps in 10 Mbps increments.  1 0 1 0 0 0 1 0 The maximum bit rate is 1500 Mbps + ((the binary coded value in 8 bits - 10100001) \* 100 Mbps),  1 1 1 1 0 1 1 0 giving a range of values from 1600 Mbps to 10 Gbps in 100 Mbps increments.  If the sending entity wants to indicate a Maximum bit rate for uplink higher than 10 Gbps, it shall set octet 12 to "11110110", i.e. 10 Gbps, and shall encode the value for the maximum bit rate in the Extended quality of service information element specified in subclause 9.9.4.30.  The network shall map all other values not explicitly defined onto one of the values defined in this version of the protocol. The network shall return a negotiated value which is explicitly defined in this version of the protocol.  The UE shall map all other values not explicitly defined onto the maximum value defined in this version of the protocol.  Maximum bit rate for downlink (extended-2), octet 13  This field is an extension of the Maximum bit rate for downlink in octet 9. The coding is identical to that of the Maximum bit rate for uplink (extended-2).  If the sending entity wants to indicate a Maximum bit rate for downlink higher than 10 Gbps, it shall set octet 13 to "11110110", i.e. 10 Gbps, and shall encode the value for the maximum bit rate in the Extended quality of service information element specified in subclause 9.9.4.30.  The network shall map all other values not explicitly defined onto one of the values defined in this version of the protocol. The network shall return a negotiated value which is explicitly defined in this version of the protocol.  The UE shall map all other values not explicitly defined onto the maximum value defined in this version of the protocol.  Guaranteed bit rate for uplink (extended-2), octet 14  Bits  8 7 6 5 4 3 2 1  In UE to network direction and in network to UE direction:  0 0 0 0 0 0 0 0 Use the value indicated by the Guaranteed bit rate for uplink in octet 6 and octet 10.  For all other values: Ignore the value indicated by the Guaranteed bit rate for uplink in octet 6 and  octet 10 and use the following value:  0 0 0 0 0 0 0 1 The guaranteed bit rate is 256 Mbps + ((the binary coded value in 8 bits) \* 4 Mbps),  0 0 1 1 1 1 0 1 giving a range of values from 260 Mbps to 500 Mbps in 4 Mbps increments.  0 0 1 1 1 1 1 0 The guaranteed bit rate is 500 Mbps + ((the binary coded value in 8 bits - 00111101) \* 10 Mbps),  1 0 1 0 0 0 0 1 giving a range of values from 510 Mbps to 1500 Mbps in 10 Mbps increments.  1 0 1 0 0 0 1 0 The guaranteed bit rate is 1500 Mbps + ((the binary coded value in 8 bits - 10100001) \* 100 Mbps),  1 1 1 1 0 1 1 0 giving a range of values from 1600 Mbps to 10 Gbps in 100 Mbps increments.  If the sending entity wants to indicate a Guaranteed bit rate for uplink higher than 10 Gbps, it shall set octet 14 to "11110110", i.e. 10 Gbps, and shall encode the value for the guaranteed bit rate in the Extended quality of service information element specified in subclause 9.9.4.30.  The network shall map all other values not explicitly defined onto one of the values defined in this version of the protocol. The network shall return a negotiated value which is explicitly defined in this version of the protocol.  The UE shall map all other values not explicitly defined onto the maximum value defined in this version of the protocol.  Guaranteed bit rate for downlink (extended-2), octet 15  This field is an extension of the Guaranteed bit rate for downlink in octet 11. The coding is identical to that of the Guaranteed bit rate for uplink (extended-2).  If the sending entity wants to indicate a Guaranteed bit rate for downlink higher than 10 Gbps, it shall set octet 15 to "11110110", i.e. 10 Gbps, and shall encode the value for the guaranteed bit rate in the Extended quality of service information element specified in subclause 9.9.4.30.  The network shall map all other values not explicitly defined onto one of the values defined in this version of the protocol. The network shall return a negotiated value which is explicitly defined in this version of the protocol.  The UE shall map all other values not explicitly defined onto the maximum value defined in this version of the protocol. |

#### 9.9.4.4 ESM cause

The purpose of the ESM cause information element is to indicate the reason why a session management request is rejected.

The ESM cause information element is coded as shown in figure 9.9.4.4.1 and table 9.9.4.4.1.

The ESM cause is a type 3 information element with 2 octets length.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| ESM cause IEI | | | | | | | | octet 1 |
| Cause value | | | | | | | | octet 2 |

Figure 9.9.4.4.1: ESM cause information element

Table 9.9.4.4.1: ESM cause information element

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cause value (octet 2) | | | | | | | | | |
|  | | | | | | | | | |
| Bits | | | | | | | | | |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |  |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |  | Operator Determined Barring |
| 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |  | Insufficient resources |
| 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |  | Missing or unknown APN |
| 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 |  | Unknown PDN type |
| 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 |  | User authentication failed |
| 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |  | Request rejected by Serving GW or PDN GW |
| 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |  | Request rejected, unspecified |
| 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |  | Service option not supported |
| 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |  | Requested service option not subscribed |
| 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |  | Service option temporarily out of order |
| 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |  | PTI already in use |
| 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |  | Regular deactivation |
| 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |  | EPS QoS not accepted |
| 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |  | Network failure |
| 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |  | Reactivation requested |
| 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |  | Semantic error in the TFT operation |
| 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |  | Syntactical error in the TFT operation |
| 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |  | Invalid EPS bearer identity |
| 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |  | Semantic errors in packet filter(s) |
| 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |  | Syntactical errors in packet filter(s) |
| 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 |  | Unused (see NOTE 2) |
| 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 |  | PTI mismatch |
| 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |  | Last PDN disconnection not allowed |
| 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |  | PDN type IPv4 only allowed |
| 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |  | PDN type IPv6 only allowed |
| 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 |  | PDN type IPv4v6 only allowed |
| 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 |  | PDN type non IP only allowed |
| 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |  | Single address bearers only allowed |
| 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 |  | ESM information not received |
| 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |  | PDN connection does not exist |
| 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |  | Multiple PDN connections for a given APN not allowed |
| 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |  | Collision with network initiated request |
| 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 |  | Unsupported QCI value |
| 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |  | Bearer handling not supported |
| 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 |  | PDN type Ethernet only allowed |
| 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |  | Maximum number of EPS bearers reached |
| 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |  | Requested APN not supported in current RAT and PLMN combination |
| 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |  | Invalid PTI value |
| 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |  | Semantically incorrect message |
| 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |  | Invalid mandatory information |
| 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |  | Message type non-existent or not implemented |
| 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |  | Message type not compatible with the protocol state |
| 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |  | Information element non-existent or not implemented |
| 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |  | Conditional IE error |
| 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |  | Message not compatible with the protocol state |
| 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |  | Protocol error, unspecified |
| 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |  | APN restriction value incompatible with active EPS bearer context |
| 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |  | Multiple accesses to a PDN connection not allowed |
|  |  |  |  |  |  |  |  |  |  |
| Any other value received by the UE shall be treated as 0010 0010, "service option temporarily out of order". Any other value received by the network shall be treated as 0110 1111, "protocol error, unspecified". | | | | | | | | | |
|  | | | | | | | | | |
| NOTE 1: The listed cause values are defined in annex B.  NOTE 2: This value was allocated in earlier versions of this protocol, but there is no situation where this value can be used. If received by the network, it shall be treated as 0110 1111, "protocol error, unspecified". | | | | | | | | | |

#### 9.9.4.5 ESM information transfer flag

The purpose of the ESM information transfer flag information element is to indicate whether ESM information, i.e. protocol configuration options or APN or both, is to be transferred security protected.

The ESM information transfer flag information element is coded as shown in figure 9.9.4.5.1 and table 9.9.4.5.1.

The ESM information transfer flag is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  | |
| ESM information transfer flag IEI | | | | 0 | 0 | 0 | EIT  value | | octet 1 | |
| spare | | | |  | |  |

Figure 9.9.4.5.1: ESM information transfer flag information element

Table 9.9.4.5.1: ESM information transfer flag information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| EIT (ESM information transfer) | | | |  |
|  | | | |  |
| Bit | | | |  |
|  | 1 |  |  | |
|  | 0 |  | security protected ESM information transfer not required | |
|  | 1 |  | security protected ESM information transfer required | |
|  |  |  |  | |

#### 9.9.4.6 Linked EPS bearer identity

The purpose of the Linked EPS bearer identity IE is to identify the default bearer that is associated with a dedicated EPS bearer or to identify the EPS bearer (default or dedicated) with which one or more packet filters specified in a traffic flow aggregate are associated.

The Linked EPS bearer identity information element is coded as shown in figure 9.9.4.6.1 and table 9.9.4.6.1.

The Linked EPS bearer identity is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | 2 | 1 |  | |
| Linked EPS bearer identity IEI | | | | | Linked EPS bearer identity value | | | | | octet 1 |

Figure 9.9.4.6.1: Linked EPS bearer identity information element

Table 9.9.4.6.1: Linked EPS bearer identity information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Linked EPS bearer identity (bits 1-4) | | | | |
|  | | | | |
| 4 | 3 | 2 | 1 |  |
| 0 | 0 | 0 | 0 | Reserved |
| 0 | 0 | 0 | 1 | EPS bearer identity value 1 |
| 0 | 0 | 1 | 0 | EPS bearer identity value 2 |
| 0 | 0 | 1 | 1 | EPS bearer identity value 3 |
| 0 | 1 | 0 | 0 | EPS bearer identity value 4 |
| 0 | 1 | 0 | 1 | EPS bearer identity value 5 |
| 0 | 1 | 1 | 0 | EPS bearer identity value 6 |
| 0 | 1 | 1 | 1 | EPS bearer identity value 7 |
| 1 | 0 | 0 | 0 | EPS bearer identity value 8 |
| 1 | 0 | 0 | 1 | EPS bearer identity value 9 |
| 1 | 0 | 1 | 0 | EPS bearer identity value 10 |
| 1 | 0 | 1 | 1 | EPS bearer identity value 11 |
| 1 | 1 | 0 | 0 | EPS bearer identity value 12 |
| 1 | 1 | 0 | 1 | EPS bearer identity value 13 |
| 1 | 1 | 1 | 0 | EPS bearer identity value 14 |
| 1 | 1 | 1 | 1 | EPS bearer identity value 15 |
|  | | | | |

#### 9.9.4.7 LLC service access point identifier

See subclause 10.5.6.9 in 3GPP TS 24.008 [13].

#### 9.9.4.7A Notification indicator

The purpose of the Notification indicator information element is to inform the UE about an event which is relevant for the upper layer using an EPS bearer context or having requested a procedure transaction.

The Notification indicator information element is coded as shown in figure 9.9.4.7A.1 and table 9.9.4.7A.1.

The Notification indicator is a type 4 information element with 3 octets length.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Notification indicator IEI | | | | | | | | octet 1 |
| Length of notification indicator contents | | | | | | | | octet 2 |
| Notification indicator value | | | | | | | | octet 3 |

Figure 9.9.4.7A.1: Notification indicator information element

Table 9.9.4.7A.1: Notification indicator information element

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Notification indicator value (octet 3) | | | | | | | | | | | |
|  | | | | | | | | | | | |
| Bits | | | | | | | | | | | |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | |  | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |  | | SRVCC handover cancelled, IMS session re-establishment required (see 3GPP TS 23.216 [8]) | |
|  |  |  |  |  |  |  |  |  | |  | |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |  | |  | |
| to | | | | | | | | |  | | Unused, shall be ignored if received by the UE |
| 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |  | |  | |
|  | | | | | | | | | | | |
| All other values are reserved. | | | | | | | | | | | |
|  | | | | | | | | | | | |

#### 9.9.4.8 Packet flow identifier

See subclause 10.5.6.11 in 3GPP TS 24.008 [13].

#### 9.9.4.9 PDN address

The PDN address information element can assign an IPv4 address to the UE associated with a packet data network and provide the UE with an interface identifier to be used to build the IPv6 link local address.

The PDN address information element is coded as shown in figure 9.9.4.9.1 and table 9.9.4.9.1.

The PDN address is a type 4 information element with minimum length of 7 octets and a maximum length of 15 octets.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  |
| PDN address IEI | | | | | | | | octet 1 | |
| Length of PDN address contents | | | | | | | | octet 2 | |
| 0 | 0 | 0 | 0 | 0 | PDN type value | | | | octet 3 |
| spare | | | | |
| PDN address information | | | | | | | | octet 4  octet 15 | |

Figure 9.9.4.9.1: PDN address information element

Table 9.9.4.9.1: PDN address information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| PDN type value (octet 3) | | | | |
| Bits | | | | |
| 3 | 2 | 1 |  |  |
| 0 | 0 | 1 |  | IPv4 |
| 0 | 1 | 0 |  | IPv6 |
| 0 | 1 | 1 |  | IPv4v6 |
| 1 | 0 | 1 |  | non IP |
| 1 | 1 | 0 |  | Ethernet |
|  | | | | |
| All other values are reserved. | | | | |
|  | | | | |
| Bit 4 to 8 of octet 3 are spare and shall be coded as zero. | | | | |
|  | | | | |
|  | | | | |
| PDN address information (octet 4 to 15) | | | | |
|  | | | | |
| If PDN type value indicates IPv4, the PDN address information in octet 4 to octet 7 contains an IPv4 address. Bit 8 of octet 4 represents the most significant bit of the IPv4 address and bit 1 of octet 7 the least significant bit. | | | | |
|  | | | | |
| If PDN type value indicates IPv6, the PDN address information in octet 4 to octet 11 contains an IPv6 interface identifier. Bit 8 of octet 4 represents the most significant bit of the IPv6 interface identifier and bit 1 of octet 11 the least significant bit. | | | | |
|  | | | | |
| If PDN type value indicates IPv4v6, the PDN address information in octet 4 to octet 15 contains an IPv6 interface identifier and an IPv4 address. Bit 8 of octet 4 represents the most significant bit of the IPv6 interface identifier and bit 1 of octet 11 the least significant bit. Bit 8 of octet 12 represents the most significant bit of the IPv4 address and bit 1 of octet 15 the least significant bit. | | | | |
|  | | | | |
| If PDN type value indicates IPv4 or IPv4v6 and DHCPv4 is to be used to allocate the IPv4 address, the IPv4 address shall be coded as 0.0.0.0. | | | | |
|  | | | | |
| If PDN type value indicates non IP, the PDN address information in octet 4 to octet 7 are spare and shall be coded as zero. | | | | |
|  | | | | |
| If PDN type value indicates Ethernet, the PDN address information in octet 4 to octet 7 are spare and shall be coded as zero. | | | | |

#### 9.9.4.10 PDN type

The purpose of the PDN type information element is to indicate:

- the IP version capability of the IP stack associated with the UE;

- non IP; or

- Ethernet.

The PDN type information element is coded as shown in figure 9.9.4.10.1 and table 9.9.4.10.1.

The PDN type is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | | 2 | 1 |  | |
| PDN type IEI | | | | | 0  Spare | | PDN type value | | | | octet 1 |

Figure 9.9.4.10.1: PDN type information element

Table 9.9.4.10.1: PDN type information element

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| PDN type value (octet 1) | | | | |
| Bits | | | | |
| 3 | 2 | 1 |  |  |
| 0 | 0 | 1 |  | IPv4 |
| 0 | 1 | 0 |  | IPv6 |
| 0 | 1 | 1 |  | IPv4v6 |
| 1 | 0 | 0 |  | unused; shall be interpreted as "IPv6" if received by the network |
| 1 | 0 | 1 |  | non IP |
| 1 | 1 | 0 |  | Ethernet |
|  | | | | |
| All other values are reserved. | | | | |
|  | | | | |
| Bit 4 of octet 1 is spare and shall be coded as zero. | | | | |
|  | | | | |

#### 9.9.4.11 Protocol configuration options

See subclause 10.5.6.3 in 3GPP TS 24.008 [13].

#### 9.9.4.12 Quality of service

See subclause 10.5.6.5 in 3GPP TS 24.008 [13].

#### 9.9.4.13 Radio priority

See subclause 10.5.7.2 in 3GPP TS 24.008 [13].

#### 9.9.4.13A Re-attempt indicator

The purpose of the *Re-attempt indicator* information element is to indicate a condition under which the UE is allowed, in the current PLMN for the same APN, to re-attempt a session management procedure (see 3GPP TS 24.008 [13]) corresponding to the EPS session management procedure which was rejected by the network.

The *Re-attempt indicator* information element is coded as shown in figure 9.9.4.13A/3GPP TS 24.301 and table 9.9.4.13A/3GPP TS 24.301.

The Re-attempt indicator is a type 4 information element with a length of 3 octets.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | | 7 | | 6 | | 5 | | 4 | 3 | | 2 | 1 | | |  |
| *Reattempt indicator* IEI | | | | | | | | | | | | | | octet 1 | |
| *Length of Reattempt indicator* *contents* | | | | | | | | | | | | | | octet 2 | |
| 0  Spare | 0  Spare | | 0  Spare | | 0  Spare | | 0  Spare | | 0  Spare | EPLMNC value | | | RATC value | octet 3 | |

Figure 9.9.4.13A: Re-attempt indicator information element

Table 9.9.4.13A: Re-attempt indicator information element

|  |
| --- |
| Re-attempt indicator  RATC (octet 3, bit 1)  0 UE is allowed to re-attempt the procedure in A/Gb mode or Iu mode or N1 mode  1 UE is not allowed to re-attempt the procedure in A/Gb mode or Iu mode or N1 mode  EPLMNC (octet 3, bit 2)  0 UE is allowed to re-attempt the procedure in an equivalent PLMN  1 UE is not allowed to re-attempt the procedure in an equivalent PLMN  Bits 3 to 8 of octet 3 are spare and shall be encoded as zero. |

#### 9.9.4.14 Request type

See subclause 10.5.6.17 in 3GPP TS 24.008 [13].

#### 9.9.4.15 Traffic flow aggregate description

The purpose of the Traffic flow aggregate description information element is to specify the aggregate of one of more packet filters and their related parameters and operations. The traffic flow aggregate description may contain the aggregate of packet filters for the downlink direction, the uplink direction or packet filters that apply for both directions. The packet filters determine the traffic mapping to EPS bearer contexts. The downlink packet filters shall be applied by the network, and the uplink packet filters shall be applied by the UE. A packet filter that applies for both directions shall be applied by the network as a downlink packet filter and by the UE as an uplink packet filter.

When the traffic flow aggregate description is used in the UE requested bearer resource allocation procedure or the UE requested bearer resource modification procedure, it is associated to a particular procedure identified by a procedure transaction identity (PTI). Therefore, the UE shall release the traffic flow aggregate description when the UE requested bearer resource allocation procedure or the UE requested bearer resource modification procedure is completed. The UE shall not include the packet filters of a particular traffic flow aggregate description in any other traffic flow aggregate description when multiple UE requested bearer resource allocation procedures and/or UE requested bearer resource modification procedures are ongoing in parallel.

The Traffic flow aggregate description information element is encoded using the same format as the Traffic flow template (TFT) information element (see subclause 10.5.6.12 in 3GPP TS 24.008 [13]). When sending this IE in the BEARER RESOURCE ALLOCATION REQUEST message or the BEARER RESOURCE MODIFICATION REQUEST message, the UE shall set the packet filter identifier values to 0 if the packet filters are newly created; otherwise, the UE shall set the packet filter identifier values from those of already assigned packet filter identifiers of the existing EPS bearer, so that they are unique across all packet filters for the EPS bearer context indicated by the EPS bearer identity IE.

#### 9.9.4.16 Traffic flow template

See subclause 10.5.6.12 in 3GPP TS 24.008 [13].

#### 9.9.4.17 Transaction identifier

The purpose of the Transaction identifier information element is to represent the corresponding PDP context in A/Gb mode or Iu mode which is mapped from the EPS bearer context.

The Transaction identifier information element is coded as the Linked TI information element in 3GPP TS 24.008 [13], subclause 10.5.6.7.

#### 9.9.4.18 WLAN offload acceptability

See subclause 10.5.6.20 in 3GPP TS 24.008 [13].

#### 9.9.4.19 NBIFOM container

See subclause 10.5.6.21 in 3GPP TS 24.008 [4].

#### 9.9.4.20 Remote UE context list

The purpose of the Remote UE context list information element is to provide identity and optionally IP address of a remote UE connected to, or disconnected from, a UE acting as a ProSe UE-to-network relay.

The Remote UE context list information element is coded as shown in figure 9.9.4.20.1 and table 9.9.4.20.1.

The Remote UE context list is a type 6 information element with a minimum length of 5 octets and a maximum length of 65538 octets.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  |
| Remote UE context list IEI | | | | | | | | octet 1 | |
| Length of remote UE context list contents | | | | | | | | octet 2 to 3 | |
|  | |
| Number of remote UE contexts | | | | | | | | octet 4 | |
| Remote UE context 1 | | | | | | | | octet 5 to a | |
|  | |
|  | |
| … | | | | | | | |  | |
| Remote UE context k | | | | | | | | octet b | |
|  | |
| octet m | |

Figure 9.9.4.20.1: Remote UE context list

Table 9.9.4.20.1: Remote UE context list

|  |
| --- |
| Remote UE context (octet 5 etc) |
|  |
| The contents of remote UE context are applicable for one individual UE and are coded as shown in figure 9.9.4.20.2 and table 9.9.4.20.2. |
|  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | | 2 | 1 | |  | |
| Length of remote UE context | | | | | | | | | | octet 1 | | |
| Number of user identities | | | | | | | | | | octet 2 | | |
| Length of user identity 1 | | | | | | | | | | octet 3 | | |
| User identity 1 digit 1 | | | | | odd/  even  indic | | Type of user identity 1 | | | | | octet 4 |
| User identity 1 digit p+1 | | | | | User identity 1 digit p | | | | | | | octet 5\* |
| … | | | | | | | | | |  | | |
| Length of user identity v | | | | | | | | | | octet m | | |
| User identity v digit 1 | | | | | odd/  even  indic | | Type of user identity v | | | | | octet m+1 |
| User identity v digit p+1 | | | | | User identity v digit p | | | | | | | octet m+2\* |
| Spare | | | | | | | Address type | | | | | octet j |
| Address information | | | | | | | | | | octet j+1  octet j+k | | |

Figure 9.9.4.20.2: Remote UE context

Table 9.9.4.20.2: Remote UE context list information element

|  |  |  |  |
| --- | --- | --- | --- |
| Odd/even indication (octet 4)  Bit | | | |
| 4 |  |  |  |
| 0 |  |  | even number of identity digits |
| 1 |  |  | odd number of identity digits |
|  | | | |
| Type of user identity (octet 4)  Bits | | | |
| 3 | 2 | 1 |  |
| 0 | 0 | 1 | Encrypted IMSI |
| 0 | 1 | 0 | IMSI |
| 0 | 1 | 1 | MSISDN |
| 1 | 0 | 0 | IMEI |
| 1 | 0 | 1 | IMEISV |
| All other values are reserved. | | | |
|  | | | |
| Identity digits (octet 4 etc)  For the Encrypted IMSI, this field is coded as a 128-bit string. Bits 5 to 8 of octet 4 are not part of the encrypted IMSI and shall be coded as zero. Bit 8 of octet 5 represents the most significant bit of the encrypted IMSI and bit 1 of octet 21 the least significant bit. | | | |
| For the IMSI, this field is coded using BCD coding. If the number of identity digits is even then bits 5 to 8 of the last octet shall be filled with an end mark coded as "1111". The format of IMSI is described in 3GPP TS 23.003 [2]. | | | |
|  | | | |
| For the MSISDN, this field is coded using BCD coding. The format of MSISDN is described in 3GPP TS 23.003 [2]. | | | |
|  | | | |
| For the IMEI, this field is coded using BCD coding. The format of the IMEI is described in 3GPP TS 23.003 [2]. | | | |
|  | | | |
| For the IMEISV, this field is coded using BCD coding. Bits 5 to 8 of the last octet shall be filled with an end mark coded as "1111". The format of the IMEISV is described in 3GPP TS 23.003 [2].  Bits 4 to 8 of octet j are spare and shall be coded as zero. | | | |
|  | | | |
| Address type (octet j)  Bits | | | |
| 3 | 2 | 1 |  |
| 0 | 0 | 0 | No IP Info |
| 0 | 0 | 1 | IPv4 |
| 0 | 1 | 0 | IPv6 |
| All other values are reserved. | | | |
|  | | | |

If Address type indicates IPv4, the Address information in octet j+1 to octet j+6 contains the IPv4 address and port number. Bit 8 of octet j+1 represents the most significant bit of the IP address and bit 1 of octet j+4 the least significant bit. Bit 8 of octet j+5 represents the most significant bit of the port number and bit 1 of octet j+6 the least significant bit.

If Address type indicates IPv6, the Address information in octet j+1 to octet j+8 contains the /64 IPv6 prefix of a remote UE. Bit 8 of octet j+1 represents the most significant bit of the /64 IPv6 prefix and bit 1 of octet j+8 the least significant bit.

If Address type indicates No IP info, the Address information octets are not included.

#### 9.9.4.21 PKMF address

The purpose of the PKMF address information element is to provide IP address of a ProSe Key Management Function associated with remote UEs connected to or disconnected from a UE acting as a ProSe UE-to-network relay.

The PKMF address information element is coded as shown in figure 9.9.4.21.1 and table 9.9.4.21.1.

The PKMF address is a type 4 information element with a minimum length of 3 octets and a maximum length of 19 octets.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | 2 | 1 | | |  |
| PKMF address IEI | | | | | | | | | octet 1 | | |
| Length of PKMF address contents | | | | | | | | | octet 2 | | |
| Spare | | | | | Address type | | | | | octet 3 | |
| Address information | | | | | | | | | octet 4  octet 4+k | | |

Figure 9.9.4.21.1: PKMF Address

Table 9.9.4.21.1: PKMF Address information element

|  |  |  |  |
| --- | --- | --- | --- |
| Bits 4 to 8 of octet 1 are spare and shall be coded as zero. | | | |
|  | | | |
| Address type (octet 1)  Bits | | | |
| 3 | 2 | 1 |  |
| 0 | 0 | 1 | IPv4 |
| 0 | 1 | 0 | IPv6 |
| All other values are reserved. | | | |
|  | | | |

If Address type indicates IPv4, the Address information in octet 4 to octet 7 contains the IPv4 address. Bit 8 of octet 4 represents the most significant bit of the IP address and bit 1 of octet 7 the least significant bit.

If Address type indicates IPv6, the Address information in octet 4 to octet 19 contains the IPv6 address. Bit 8 of octet 4 represents the most significant bit of the IP address and bit 1 of octet 19 the least significant bit.

#### 9.9.4.22 Header compression configuration

The purpose of the Header compression configuration information element is to negotiate ROHC channel setup parameters specified in IETF RFC 5795 [37] and, optionally, provide additional header compression context setup parameters.

The Header compression configuration information element is coded as shown in figure 9.9.4.22.1 and table 9.9.4.22.1.

The Header compression configuration is a type 4 information element with a minimum length of 5 octets and a maximum length of 257 octets.

The optional Additional header compression parameters container field conveys the additional header compression context setup parameters as specified in 3GPP TS 23.401 [10] in a generic container. This field corresponds to the profile-specific information in the header of the ROHC IR packet type in IETF RFC 5795 [37].

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | | 3 | 2 | | 1 | |  |
| Header compression configuration IEI | | | | | | | | | | | | octet 1 |
| Length of Header compression configuration contents | | | | | | | | | | | | octet 2 |
| Spare | P0x0104 | P0x0103 | P0x0102 | | P0x0006 | P0x0004 | | P0x0003 | P0x0002 | | octet 3 | |
| MAX\_CID | | | | | | | | | | | | octet 4 |
| octet 5 |
| Additional header compression context setup parameters type | | | | | | | | | | | | octet 6\* |
| Additional header compression context setup parameters container | | | | | | | | | | | | octet 7\* |
|  |
| octet n\* |

Figure 9.9.4.22.1: Header compression configuration information element

Table 9.9.4.22.1: Header compression configuration information element

|  |
| --- |
| ROHC Profiles (octet 3)  The ROHC Profiles shall indicate which of the ROHC profiles is supported. When a particular bit is set to 1, this indicates that the corresponding profile is supported. The No Compression profile 0x0000 (see IETF RFC 5795 [37]) shall always be supported. When all the bits are set to 0, this indicates that only the No Compression profile 0x0000 is supported.  Profile 0x0002 support indicator (see IETF RFC 3095 [40] and IETF RFC 4815 [42]) (octet 3 bit 1)  0 RoHC profile 0x0002 (UDP/IP) is not supported  1 RoHC profile 0x0002 (UDP/IP) is supported  Profile 0x0003 support indicator (see IETF RFC 3095 [40] and IETF RFC 4815 [42]) (octet 3 bit 2)  0 RoHC profile 0x0003 (ESP/IP) is not supported  1 RoHC profile 0x0003 (ESP/IP) is supported  Profile 0x0004 support indicator (see IETF RFC 3843 [41] and IETF RFC 4815 [42]) (octet 3 bit 3)  0 RoHC profile 0x0004 (IP) is not supported  1 RoHC profile 0x0004 (IP) is supported  Profile 0x0006 support indicator (see IETF RFC 6846 [39]) (octet 3 bit 4)  0 RoHC profile 0x0006 (TCP/IP) is not supported  1 RoHC profile 0x0006 (TCP/IP) is supported  Profile 0x0102 support indicator (see IETF RFC 5225 [43]) (octet 3 bit 5)  0 RoHC profile 0x0102 (UDP/IP) is not supported  1 RoHC profile 0x0102 (UDP/IP) is supported  Profile 0x0103 support indicator (see IETF RFC 5225 [43]) (octet 3 bit 6)  0 RoHC profile 0x0103 (ESP/IP) is not supported  1 RoHC profile 0x0103 (ESP/IP) is supported  Profile 0x0104 support indicator (see IETF RFC 5225 [43]) (octet 3 bit 7)  0 RoHC profile 0x0104 (IP) is not supported  1 RoHC profile 0x0104 (IP) is supported  Bits 8 is spare and shall be set to 0.  MAX\_CID (octet 4 and octet 5)  This is the MAX\_CID value as specified in 3GPP TS 36.323 [38]. It is encoded in binary coding with a value in the range from 1 to 16383.  Additional header compression context parameters type (octet 6).  The Additional header compression context parameters type octet indicates the profile associated with the profile-specific information in the Additional header compression context parameters container.  Bits  **8 7 6 5 4 3 2 1** Type    0 0 0 0 0 0 0 0 0x0000 (No Compression)  0 0 0 0 0 0 0 1 0x0002 (UDP/IP)  0 0 0 0 0 0 1 0 0x0003 (ESP/IP)  0 0 0 0 0 0 1 1 0x0004 (IP)  0 0 0 0 0 1 0 0 0x0006 (TCP/IP)  0 0 0 0 0 1 0 1 0x0102 (UDP/IP)  0 0 0 0 0 1 1 0 0x0103 (ESP/IP)  0 0 0 0 0 1 1 1 0x0104 (IP)  0 0 0 0 1 0 0 0 Other  0 0 0 0 1 0 0 1  to  1 1 1 1 1 1 1 1 Spare  Additional header compression context parameters container (octets 7 to n).  Additional header compression context parameters container carries the profile-specific information (see IETF RFC 5795 [37]). The maximum size is 251 octets. |

#### 9.9.4.23 Control plane only indication

The purpose of the Control plane only indication information element is to indicate that a PDN connection is only for control plane CIoT EPS optimization, e.g. the PDN connection is with an SCEF (see 3GPP TS 23.401 [10]).

The Control plane only indication information element is coded as shown in figure 9.9.4.23.1.

The Control plane only indication is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | | 4 | 3 | | 2 | | 1 | |  |
| Control plane only indication IEI | | | | 0  Spare | | 0  Spare | 0  Spare | | CPOI value | | octet 1 | |

Figure 9.9.4.23.1: Control plane only indication information element

Table 9.9.4.23.1: Control plane only indication information element

|  |  |
| --- | --- |
| Control plane only indication value (CPOI) (octet 1) | |
| Bit | |
| 1 |  |
| 0 | reserved |
| 1 | PDN connection can be used for control plane CIoT EPS optimization only |
|  | |
| The value 0 is reserved. If received, it shall be interpreted as if the Control plane indication IE was not included in the message. | |
| Bits 4 to 2 of octet 1 are spare and shall be all encoded as zero. | |
|  | |

#### 9.9.4.24 User data container

This information element is used to encapsulate the user data transferred between the UE and the MME. The User data container information element is coded as shown in figure 9.9.4.24.1 and table 9.9.4.24.1.

The User data container is a type 6 information element.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| User data container IEI | | | | | | | | octet 1 |
| Length of User data container contents | | | | | | | | octet 2 |
|  | | | | | | | | octet 3 |
|  | | | | | | | | octet 4 |
| User data container contents | | | | | | | |  |
|  | | | | | | | | octet n |

Figure 9.9.4.24.1: User data container information element

Table 9.9.4.24.1: User data container information element

|  |
| --- |
| User data container contents (octet 4 to octet n) |
|  |
| These octets include user data to be delivered between UE and MME. |
|  |

#### 9.9.4.25 Release assistance indication

The purpose of the Release assistance indication IE is to inform the network whether

- no further uplink and no further downlink data transmission is expected; or

- only a single downlink data transmission (e.g. acknowledgement or response to uplink data) and no further uplink data transmission subsequent to the uplink data transmission is expected.

The Release assistance indication information element is coded as shown in figure 9.9.4.25.1 and table 9.9.4.25.1.

The Release assistance indication is a type 1 information element.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | | 3 | | | 2 | 1 |  | |
| Release assistance indication  IEI | | | | | 0  Spare | | 0  Spare | DDX | | | | octet 1 |

Figure 9.9.4.25.1: Release assistance indication information element

Table 9.9.4.25.1: Release assistance indication information element

|  |  |  |
| --- | --- | --- |
| Release assistance indication value | | |
|  | | |
| Downlink data expected (DDX) | | |
|  | | |
| Bits | | |
| 2 | 1 |  |
| 0 | 0 | No information regarding DDX is conveyed by the information element. If received it shall be interpreted as 'neither value "01" nor "10" applies' |
| 0 | 1 | No further uplink and no further downlink data transmission subsequent to the uplink data transmission is expected |
| 1 | 0 | Only a single downlink data transmission and no further uplink data transmission subsequent to the uplink data transmission is expected |
| 1 | 1 | reserved |
|  |  |  |
| Bits 3 and 4 of octet 1 are spare and shall be encoded as zero. | | |
|  | | |

#### 9.9.4.26 Extended protocol configuration options

See subclause 10.5.6.3A in 3GPP TS 24.008 [13].

#### 9.9.4.27 Header compression configuration status

The purpose of the Header compression configuration status information element is to indicate the status of the Header compression configuration for each EPS bearer using Control plane CIoT EPS optimisation that can be identified by an EPS bearer identity.

The Header compression confguration status information element is a type 4 information element with 4 the length of 4 octets.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | |
| Header compression configuration status IEI | | | | | | | | | octet 1 |
| Length of Header compression configuration status contents | | | | | | | | | octet 2 |
| EBI  (7) | EBI  (6) | EBI  (5) | EBI  (4) | EBI  (3) | EBI  (2) | EBI  (1) | EBI  (0) | octet 3 | |
| EBI  (15) | EBI  (14) | EBI  (13) | EBI  (12) | EBI  (11) | EBI  (10) | EBI  (9) | EBI  (8) | octet 4 | |

Figure 9.9.4.27.1: Header compression confguration status information element

Table 9.9.4.27.1: Header compression confguration status information element

|  |
| --- |
| EBI(x) shall be coded as follows:  EBI(0):  Bit 0 of octet 3 is spare and shall be coded as zero.  EBI(1) – EBI(15):  0 indicates that the header compression configuration for the corresponding EPS bearer is used.  1 indicates that the header compression configuration for the corresponding EPS bearer is not used. |

#### 9.9.4.28 Serving PLMN rate control

The purpose of the Serving PLMN rate control information element is to indicate the maximum number of uplink ESM DATA TRANSPORT messages including User data container IEs the UE is allowed to send via a PDN connection per 6 minute interval (see 3GPP TS 23.401 [10]).

The Serving PLMN rate control information element is coded as shown in figure 9.9.4.28.1.

The Serving PLMN rate control is a type 4 information element with 4 octets length.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Serving PLMN rate control IEI | | | | | | | | octet 1 |
| Length of serving PLMN rate control contents | | | | | | | | octet 2 |
| Serving PLMN rate control value | | | | | | | | octet 3  octet 4 |

Figure 9.9.4.28.1: Serving PLMN rate control information element

Serving PLMN rate control value (octet 3 to octet 4) is a binary encoded integer indicating the maximum number of uplink ESM DATA TRANSPORT messages including User data container IEs the UE is allowed to send per 6 minute interval. The Serving PLMN rate control value is an integer equal to or higher than 10. The Serving PLMN rate control value FFFFH indicates that the maximum number of uplink ESM DATA TRANSPORT messages including User data container IEs the UE is allowed to send per 6 minute interval is not restricted.

#### 9.9.4.29 Extended APN aggregate maximum bit rate

The purpose of the extended APN aggregate maximum bit rate information element is to indicate the initial subscribed APN-AMBR with a value higher than 65280 Mbps when the UE establishes a PDN connection or to indicate the new APN-AMBR with a value higher than 65280 Mbps if it is changed by the network.

The receiving entityshall ignore the bit rate values which are included in the extended APN aggregate maximum bit rate information element and not higher than 65280 Mbps.

The extended APN aggregate maximum bit rate information element is coded as shown in figure 9.9.4.29.1 and table 9.9.4.29.1.

The extended APN aggregate maximum bit rate is a type 4 information element with a length of 8 octets.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  |
| Extended APN aggregate maximum bit rate IEI | | | | | | | | octet 1 | |
| Length of extended APN aggregate maximum bit rate contents | | | | | | | | octet 2 | |
| Unit for extended APN-AMBR for downlink | | | | | | | | octet 3 | |
| Extended APN-AMBR for downlink | | | | | | | | octet 4 | |
| Extended APN-AMBR for downlink (continued) | | | | | | | | octet 5 | |
| Unit for extended APN-AMBR for uplink | | | | | | | | octet 6 | |
| Extended APN-AMBR for uplink | | | | | | | | octet 7 | |
| Extended APN-AMBR for uplink (continued) | | | | | | | | octet 8 | |

Figure 9.9.4.29.1: Extended APN aggregate maximum bit rate information element

Table 9.9.4.29.1: Extended APN aggregate maximum bit rate information element

|  |
| --- |
| Unit for extended APN-AMBR for downlink (octet 3)  0 0 0 0 0 0 0 0 value is not used  0 0 0 0 0 0 0 1 value is not used  0 0 0 0 0 0 1 0 value is not used  0 0 0 0 0 0 1 1 value is incremented in multiples of 4 Mbps  0 0 0 0 0 1 0 0 value is incremented in multiples of 16 Mbps  0 0 0 0 0 1 0 1 value is incremented in multiples of 64 Mbps  0 0 0 0 0 1 1 0 value is incremented in multiples of 256 Mbps  0 0 0 0 0 1 1 1 value is incremented in multiples of 1 Gbps  0 0 0 0 1 0 0 0 value is incremented in multiples of 4 Gbps  0 0 0 0 1 0 0 1 value is incremented in multiples of 16 Gbps  0 0 0 0 1 0 1 0 value is incremented in multiples of 64 Gbps  0 0 0 0 1 0 1 1 value is incremented in multiples of 256 Gbps  0 0 0 0 1 1 0 0 value is incremented in multiples of 1 Tbps  0 0 0 0 1 1 0 1 value is incremented in multiples of 4 Tbps  0 0 0 0 1 1 1 0 value is incremented in multiples of 16 Tbps  0 0 0 0 1 1 1 1 value is incremented in multiples of 64 Tbps  0 0 0 1 0 0 0 0 value is incremented in multiples of 256 Tbps  0 0 0 1 0 0 0 1 value is incremented in multiples of 1 Pbps  0 0 0 1 0 0 1 0 value is incremented in multiples of 4 Pbps  0 0 0 1 0 0 1 1 value is incremented in multiples of 16 Pbps  0 0 0 1 0 1 0 0 value is incremented in multiples of 64 Pbps  0 0 0 1 0 1 0 1 value is incremented in multiples of 256 Pbps  Other values shall be interpreted as multiples of 256 Pbps in this version of the protocol.  Extended APN-AMBR for downlink (octets 4 and 5)  Octets 4 and 5 represent the binary coded value of extended APN-AMBR for downlink in units defined by octet 3  Unit for extended APN-AMBR for uplink (octet 6)  The coding is identical to that of the unit for extended APN-AMBR for downlink (octet 3)  Extended APN-AMBR for uplink (octets 7 and 8)  Octets 7 and 8 represent the binary coded value of extended APN-AMBR for uplink in units defined by octet 6. |

#### 9.9.4.30 Extended quality of service

The purpose of the Extended quality of service information element is to indicate for an EPS bearer context the maximum bit rates for uplink and downlink and the guaranteed bit rates for uplink and downlink, if at least one of the bit rates has a value higher than 10 Gbps.

The Extended quality of service information element is coded as shown in figure 9.9.4.30.1 and table 9.9.4.30.1. For uplink and downlink, if the sending entity only has to indicate one bit rate (i.e, with a value higher than 10 Gbps), it shall encode the other bit rate (i.e., with a value smaller or equal to 10 Gbps) as "00000000". The receiving entity shall ignore a bit rate which is included in the extended quality of service information element and has a value smaller or equal to 10 Gbps.

The Extended quality of service is a type 4 information element with a length of 12 octets.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  |
| Extended quality of service IEI | | | | | | | | octet 1 | |
| Length of Extended quality of service contents | | | | | | | | octet 2 | |
| Unit for maximum bit rate | | | | | | | | octet 3 | |
| Maximum bit rate for uplink | | | | | | | | octet 4 | |
| Maximum bit rate for uplink (continued) | | | | | | | | octet 5 | |
| Maximum bit rate for downlink | | | | | | | | octet 6 | |
| Maximum bit rate for downlink (continued) | | | | | | | | octet 7 | |
| Unit for guaranteed bit rate | | | | | | | | octet 8 | |
| Guaranteed bit rate for uplink | | | | | | | | octet 9 | |
| Guaranteed bit rate for uplink (continued) | | | | | | | | octet 10 | |
| Guaranteed bit rate for downlink | | | | | | | | octet 11 | |
| Guaranteed bit rate for downlink (continued) | | | | | | | | octet 12 | |

Figure 9.9.4.30.1: Extended quality of service information element

Table 9.9.4.30.1: Extended quality of service information element

|  |
| --- |
| Unit for maximum bit rate (octet 3)  0 0 0 0 0 0 0 0 value is not used  0 0 0 0 0 0 0 1 value is incremented in multiples of 200 kbps  0 0 0 0 0 0 1 0 value is incremented in multiples of 1 Mbps  0 0 0 0 0 0 1 1 value is incremented in multiples of 4 Mbps  0 0 0 0 0 1 0 0 value is incremented in multiples of 16 Mbps  0 0 0 0 0 1 0 1 value is incremented in multiples of 64 Mbps  0 0 0 0 0 1 1 0 value is incremented in multiples of 256 Mbps  0 0 0 0 0 1 1 1 value is incremented in multiples of 1 Gbps  0 0 0 0 1 0 0 0 value is incremented in multiples of 4 Gbps  0 0 0 0 1 0 0 1 value is incremented in multiples of 16 Gbps  0 0 0 0 1 0 1 0 value is incremented in multiples of 64 Gbps  0 0 0 0 1 0 1 1 value is incremented in multiples of 256 Gbps  0 0 0 0 1 1 0 0 value is incremented in multiples of 1 Tbps  0 0 0 0 1 1 0 1 value is incremented in multiples of 4 Tbps  0 0 0 0 1 1 1 0 value is incremented in multiples of 16 Tbps  0 0 0 0 1 1 1 1 value is incremented in multiples of 64 Tbps  0 0 0 1 0 0 0 0 value is incremented in multiples of 256 Tbps  0 0 0 1 0 0 0 1 value is incremented in multiples of 1 Pbps  0 0 0 1 0 0 1 0 value is incremented in multiples of 4 Pbps  0 0 0 1 0 0 1 1 value is incremented in multiples of 16 Pbps  0 0 0 1 0 1 0 0 value is incremented in multiples of 64 Pbps  0 0 0 1 0 1 0 1 value is incremented in multiples of 256 Pbps  Other values shall be interpreted as multiples of 256 Pbps in this version of the protocol.  Maximum bit rate for uplink (octets 4 and 5)  Octets 4 and 5 represent the binary coded value of maximum bit rate for uplink in units defined by octet 3.  Maximum bit rate for downlink (octets 6 and 7)  Octets 6 and 7 represent the binary coded value of maximum bit rate for downlink in units defined by octet 3.  Unit for guaranteed bit rate (octet 8)  The coding is identical to that of the unit for maximum bit rate (octet 3).  Guaranteed bit rate for uplink (octets 9 and 10)  Octets 9 and 10 represent the binary coded value of guaranteed bit rate for uplink in units defined by octet 8.  Guaranteed bit rate for downlink (octets 11 and 12)  Octets 11 and 12 represent the binary coded value of guaranteed bit rate for downlink in units defined by octet 8. |

# 10 List of system parameters

## 10.1 General

The description of timers in the following tables should be considered a brief summary.

## 10.2 Timers of EPS mobility management

Table 10.2.1: EPS mobility management timers – UE side

| TIMER NUM. | TIMER VALUE | STATE | CAUSE OF START | NORMAL STOP | ON  EXPIRY |
| --- | --- | --- | --- | --- | --- |
| T3402 | Default 12 min.  NOTE 1 | EMM-DEREGISTERED  EMM-REGISTERED | At attach failure and the attempt counter is equal to 5.  At tracking area updating failure and the attempt counter is equal to 5.  ATTACH ACCEPT with EMM cause #16 or #17 and the attempt counter is equal to 5 for CS/PS mode 2 UE, or ATTACH ACCEPT with EMM cause #22, as described in subclause 5.5.1.3.4.3.  TRACKING AREA UPDATE ACCEPT with EMM cause #16 or #17 and the attempt counter is equal to 5 for CS/PS mode 2 UE, TRACKING AREA UPDATE ACCEPT with EMM cause #16 or #17 and the attempt counter is equal to 5 for CS/PS mode 1 UE with "IMS voice not available" and with a persistent EPS bearer context, or TRACKING AREA UPDATE ACCEPT with EMM cause #22, as described in subclause 5.5.3.3.4.3.  ATTACH ACCEPT and the attempt counter is equal to 5 as described in subclause 5.5.1.2.4A and 5.5.1.2.6A.  TRACKING AREA UPDATE ACCEPT and the attempt counter is equal to 5 as described in subclause 5.5.3.2.4A and 5.5.3.2.6A.  DETACH REQUEST with other EMM cause values than those treated in subclause 5.5.2.3.2 or no EMM cause IE and Detach type IE indicates "re-attach not required" as described in subclause 5.5.2.3.4. | ATTACH REQUEST sent  TRACKING AREA UPDATE REQUEST sent  NAS signalling connection released | Initiation of the attach procedure, if still required or TAU procedure |
| T3410 | 15s NOTE 7 NOTE 8  In WB-S1/CE mode, 85s | EMM-REGISTERED-INITIATED | ATTACH REQUEST sent | ATTACH ACCEPT received  ATTACH REJECT received | Start T3411 or T3402 as described in subclause 5.5.1.2.6 |
| T3411 | 10s | EMM-DEREGISTERED. ATTEMPTING-TO-ATTACH  EMM-REGISTERED. ATTEMPTING-TO-UPDATE  EMM-REGISTERED. NORMAL-SERVICE | At attach failure due to lower layer failure, T3410 timeout or attach rejected with other EMM cause values than those treated in subclause 5.5.1.2.5.  At tracking area updating failure due to lower layer failure, T3430 timeout or TAU rejected with other EMM cause values than those treated in subclause 5.5.3.2.5.  ATTACH ACCEPT and the attempt counter is less than 5 as described in subclause 5.5.1.2.4A and 5.5.1.2.6A.  TRACKING AREA UPDATE ACCEPT and the attempt counter is less than 5 as described in subclause 5.5.3.2.4A and 5.5.3.2.6A. | ATTACH REQUEST sent  TRACKING AREA UPDATE REQUEST sent  EMM-CONNECTED mode entered (NOTE 6) | Retransmission of the ATTACH REQUEST, if still required as described in subclause 5.5.1.2.6 or retransmission of TRACKING AREA UPDATE REQUEST |
| T3412 | Default 54 min.  NOTE 2  NOTE 5 | EMM-REGISTERED | In EMM-REGISTERED, when EMM-CONNECTED mode is left. | When entering state EMM-DEREGISTERED or when entering EMM-CONNECTED mode. | Initiation of the periodic TAU procedure if the UE is not attached for emergency bearer services or T3423 started under the conditions as specified in subclause 5.3.5.  Implicit detach from network if the UE is attached for emergency bearer services. |
| T3416 | 30s NOTE 7 NOTE 8  In WB-S1/CE mode, 48s | EMM-REGISTERED-INITIATED  EMM-REGISTERED  EMM-DEREGISTERED-INITIATED  EMM-TRACKING-AREA-UPDATING-INITIATED  EMM-SERVICE-REQUEST-INITIATED | RAND and RES stored as a result of an EPS authentication challenge | SECURITY MODE COMMAND received  SERVICE REJECT received  SERVICE ACCEPT received  TRACKING AREA UPDATE ACCEPT received  AUTHENTICATION REJECT received  AUTHENTICATION FAILURE sent  EMM-DEREGISTERED, EMM-NULL or  EMM-IDLE mode entered | Delete the stored RAND and RES |
| T3417 | 5s  NOTE 7 NOTE 8  In WB-S1/CE mode, 51s | EMM-SERVICE-REQUEST-INITIATED | SERVICE REQUEST sent  EXTENDED SERVICE REQUEST sent in case f, g, i and j in subclause 5.6.1.1  EXTENDED SERVICE REQUEST sent with service type set to "packet services via S1" in case a, b, c, h and k in subclause 5.6.1.1  CONTROL PLANE SERVICE REQUEST sent as specified in subclause 5.6.1.2.2 | Bearers have been set up  SERVICE REJECT received  SERVICE ACCEPT received  Indication of system change from lower layer received  cdma2000® 1xCS fallback rejection received  see subclause 5.6.1.4.2 | Abort the procedure |
| T3417ext | 10s | EMM-SERVICE-REQUEST-INITIATED | EXTENDED SERVICE REQUEST sent in case d in subclause 5.6.1.1 | Inter-system change from S1 mode to A/Gb mode or Iu mode is completed  Inter-system change from S1 mode to A/Gb mode or Iu mode is failed  SERVICE REJECT received | Select GERAN or UTRAN |
| T3417ext-mt | 4s | EMM-SERVICE-REQUEST-INITIATED | EXTENDED SERVICE REQUEST sent in case e in subclause 5.6.1.1 and the CSFB response was set to "CS fallback accepted by the UE" | Inter-system change from S1 mode to A/Gb mode or Iu mode is completed  Inter-system change from S1 mode to A/Gb mode or Iu mode is failed  SERVICE REJECT received | Select GERAN or UTRAN |
| T3418 | 20s NOTE 7 NOTE 8  In WB-S1/CE mode, 38s | EMM-REGISTERED-INITIATED  EMM-REGISTERED  EMM-TRACKING-AREA-UPDATING-INITIATED  EMM-DEREGISTERED-INITIATED  EMM-SERVICE-REQUEST-INITIATED | AUTHENTICATION FAILURE (EMM cause = #20 "MAC failure" or #26 "non-EPS authentication unacceptable") sent | AUTHENTICATION REQUEST received or AUTHENTICATION REJECT received  or  SECURITY MODE COMMAND received  when entering EMM-IDLE mode  indication of transmission failure of AUTHENTICATION FAILURE message from lower layers | On first expiry, the UE should consider the network as false and follow item f of subclause 5.4.2.7, if the UE is not attached for emergency bearer services or access to RLOS.  On first expiry, the UE will follow subclause 5.4.2.7 under "For items c, d, and e:", if the UE is attached for emergency bearer services or if the UE is attached for access to RLOS. |
| T3420 | 15s NOTE 7 NOTE 8  In WB-S1/CE mode, 33s | EMM-REGISTERED-INITIATED  EMM-REGISTERED  EMM-DEREGISTERED-INITIATED  EMM-TRACKING-AREA-UPDATING-INITIATED  EMM-SERVICE-REQUEST-INITIATED | AUTHENTICATION FAILURE (cause = #21 "synch failure") sent | AUTHENTICATION REQUEST received or AUTHENTICATION REJECT received  or  SECURITY MODE COMMAND received  when entering EMM-IDLE mode  indication of transmission failure of AUTHENTICATION FAILURE message from lower layers | On first expiry, the UE should consider the network as false and follow item f of subclause 5.4.2.7, if the UE is not attached for emergency bearer services or access to RLOS.  On first expiry, the UE will follow subclause 5.4.2.7 under "For items c, d, and e:", if the UE is attached for emergency bearer services or if the UE is attached for access to RLOS. |
| T3421 | 15s  NOTE 7  NOTE 8  In WB-S1/CE mode, 45s | EMM-DEREGISTERED-INITIATED  EMM- REGISTERED. IMSI-DETACH- INITIATED | DETACH REQUEST sent with  the Detach type IE not indicating "switch off" | DETACH ACCEPT received | Retransmission of DETACH REQUEST |
| T3423 | NOTE 3 | EMM-REGISTERED | T3412 expires while ISR is activated and either T3346 is running or the UE is in one of the following states:  - EMM-REGISTERED.NO-CELL-AVAILABLE;  - EMM-REGISTERED.PLMN-SEARCH;  -EMM-REGISTERED.UPDATE-NEEDED; or  -EMM-REGISTERED.LIMITED-SERVICE. | When entering state EMM-DEREGISTERED or when entering EMM-CONNECTED mode. | Set TIN to "P‑TMSI".  For A/Gb mode or Iu mode, see 3GPP TS 24.008 [13] |
| T3430 | 15s NOTE 7 NOTE 8  In WB-S1/CE mode, 77s | EMM-TRACKING-AREA-UPDATING-INITIATED | TRACKING AREA UPDATE REQUEST sent | TRACKING AREA UPDATE ACCEPT received  TRACKING AREA UPDATE REJECT received | Start T3411 or T3402 as described in subclause 5.5.3.2.6 |
| T3440 | 10s | EMM-DEREGISTERED EMM-REGISTERED | ATTACH REJECT, DETACH REQUEST, TRACKING AREA UPDATE REJECT with any of the EMM cause #3, #6, #7, #8, #11, #12, #13, #14, #15, #25, #31 or #35  SERVICE REJECT received with any of the EMM cause #3, #6, #7, #8, #11, #12, #13, #15, #25, #31, #35 or #39  TRACKING AREA UPDATE ACCEPT received after the UE sent TRACKING AREA UPDATE REQUEST in EMM-IDLE mode without the "active" flag set and without the "signalling active" flag set, and the user-plane radio bearers have not been setup  DETACH ACCEPT received after the UE sent DETACH REQUEST with detach type to "IMSI detach"  Upon receipt of ESM DATA TRANSPORT message as described in subclause 5.3.1.2.1 (NOTE 9)  AUTHENTICATION REJECT received | NAS signalling connection released  Bearers have been set up or a request for PDN connection for emergency bearer services or a CS emergency call is started  Upon receipt of ESM DATA TRANSPORT message as described in subclause 5.3.1.2.1 (NOTE 9) | Release the NAS signalling connection for the cases a), b) and c) as described in subclause 5.3.1.2 |
| EMM-DEREGISTERED  EMM-DEREGISTERED.NORMAL-SERVICE | TRACKING AREA UPDATE REJECT, SERVICE REJECT with any of the EMM cause #9, #10 or #40 | NAS signalling connection released | Release the NAS signalling connection for the cases d) and e) as described in subclause  5.3.1.2 and initiation of the attach procedure as specified in subclause 5.5.3.2.5, 5.5.3.3.5 or 5.6.1.5 |
| T3442 | NOTE 4 | EMM-REGISTERED | SERVICE REJECT received with EMM cause #39 "CS service temporarily not available" with a non-zero T3442 value | TRACKING AREA UPDATE REQUEST sent | None |
| T3444 | NOTE 11 | All except EMM-NULL and 5GMM-NULL (defined in 3GPP TS 24.501 [54]) | - UE configured for eCall only mode enters EMM-IDLE mode after an eCall over IMS  - UE configured for eCall only mode moves from GERAN/UTRAN to E-UTRAN with timer T3242 (see 3GPP TS 24.008 [13]) running  - UE configured for eCall only mode enters 5GMM-IDLE mode (defined in 3GPP TS 24.501 [54]) after an eCall over IMS | - Removal of eCall only restriction  - Intersystem change from S1 mode to A/Gb or Iu mode | Perform eCall inactivity procedure in EPS as described in subclause 5.5.4.  Perform eCall inactivity procedure in 5GS as described in 3GPP TS 24.501 [54]. |
| T3445 | NOTE 12 | All except EMM-NULL and 5GMM-NULL (defined in 3GPP TS 24.501 [54]) | - UE configured for eCall only mode enters EMM-IDLE mode after a call to a non-emergency MSISDN or URI for test or terminal reconfiguration service  - UE configured for eCall only mode moves from GERAN/UTRAN to E-UTRAN with timer T3243 (see 3GPP TS 24.008 [13]) running  - UE configured for eCall only mode enters 5GMM-IDLE mode (defined in 3GPP TS 24.501 [54]) after a call to a non-emergency MSISDN or URI for test or terminal reconfiguration service | Removal of eCall only restriction  - Intersystem change from S1 mode to A/Gb or Iu mode | Perform eCall inactivity procedure in EPS as described in subclause 5.5.4.  Perform eCall inactivity procedure in 5GS as described in 3GPP TS 24.501 [54]. |
| T3447 | NOTE 2 | All except EMM-NULL | NAS signalling connection release that was not established for paging, attach without PDN connection or tracking area update request without "active" or "signalling active" flag set.  N1 NAS signalling connection release that was not established due to paging, or REGISTRATION REQUEST for initial registration with Follow-on request indicator set to "No follow-on request pending", or REGISTRATION REQUEST for mobility and periodic registration update with Follow-on request indicator set to "No follow-on request pending" and without Uplink data status IE included (defined in 3GPP TS 24.501 [54]). | ATTACH ACCEPT or TRACKING AREA UPDATE ACCEPT without the T3447 value IE.  Inter-system change from S1 mode to A/Gb mode or Iu mode is completed  REGISTRATION ACCEPT without the T3447 value IE (defined in 3GPP TS 24.501 [54]). CONFIGURATION UPDATE COMMAND with the T3447 value IE set to zero or deactivated (defined in 3GPP TS 24.501 [54]). | Allowed to initiate transfer of uplink user data |
| T3448 | NOTE 10 | All except EMM-NULL and 5GMM-NULL (defined in 3GPP TS 24.501 [54]) | ATTACH ACCEPT message or TRACKING AREA UPDATE ACCEPT message or SERVICE ACCEPT message received with a non-zero T3448 value.  SERVICE REJECT message received with EMM cause #22 "Congestion" and a non-zero T3448 value.  REGISTRATION ACCEPT message or SERVICE ACCEPT message received with a non-zero T3448 value(defined in 3GPP TS 24.501 [54])  SERVICE REJECT message received with 5GMM cause #22 "Congestion" and a non-zero T3448 value(defined in 3GPP TS 24.501 [54]) | SERVICE ACCEPT message or TRACKING AREA UPDATE ACCEPT message received without T3448 value  SERVICE ACCEPT message or REGISTRATION ACCEPT message received without T3448 value(defined in 3GPP TS 24.501 [54]) | Allowed to initiate transfer of user data via the control plane |
| T3449 | 5s  NOTE 7 NOTE 8  In WB-S1/CE mode, 51s | EMM-REGISTERED | Bearers have been set up  SECURITY MODE COMMAND message received | SERVICE ACCEPT message received  Security protected ESM message or a security protected EMM message not related to an EMM common procedure received | SERVICE ACCEPT message considered as a protocol error and EMM STATUS returned |
| NOTE 1: The cases in which the default value of this timer is used are described in subclause 5.3.6.  NOTE 2: The value of this timer is provided by the network operator during the attach and tracking area updating procedures.  NOTE 3: The value of this timer may be provided by the network in the ATTACH ACCEPT message and TRACKING AREA UPDATE ACCEPT message. The default value of this timer is identical to the value of T3412.  NOTE 4: The value of this timer is provided by the network operator when a service request for CS fallback is rejected by the network with EMM cause #39 "CS service temporarily not available".  NOTE 5: The default value of this timer is used if the network does not indicate a value in the TRACKING AREA UPDATE ACCEPT message and the UE does not have a stored value for this timer.  NOTE 6: The conditions for which this applies are described in subclause 5.5.3.2.6.  NOTE 7: In NB-S1 mode, the timer value shall be calculated as described in subclause 4.7.  NOTE 8: In WB-S1 mode, if the UE supports CE mode B and operates in either CE mode A or CE mode B, then the timer value is as described in this table for the case of WB-S1/CE mode (see subclause 4.8).  NOTE 9: It is possible that the UE does not stop or start timer T3440 upon receipt of ESM DATA TRANSPORT message as described in subclause 5.3.1.2.1.  NOTE 10: The timer value is provided by the network in the ATTACH ACCEPT, TRACKING AREA UPDATE ACCEPT, SERVICE ACCEPT, SERVICE REJECT or REGISTRATION ACCEPT message, or chosen randomly from a default value range of 15 – 30 minutes.  NOTE 11: If the timer is started due to a UE configured for eCall only mode moving from GERAN/UTRAN to E-UTRAN with timer T3242 (see 3GPP TS 24.008 [13]) running, the UE starts the timer with a value set to the time left on timer T3242. Otherwise the UE starts the timer with a value set to 12 hours.  NOTE 12: If the timer is started due to a UE configured for eCall only mode moving from GERAN/UTRAN to E-UTRAN with timer T3243 (see 3GPP TS 24.008 [13]) running, the UE starts the timer with a value set to the time left on timer T3243. Otherwise the UE starts the timer with a value set to 12 hours. | | | | | |

Table 10.2.2: EPS mobility management timers – network side

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| TIMER NUM. | TIMER VALUE | STATE | CAUSE OF START | NORMAL STOP | ON THE 1st, 2nd, 3rd, 4th EXPIRY (NOTE 1) |
| T3413 NOTE 8  NOTE 10 | NOTE 2 | EMM-REGISTERED | Paging procedure for EPS services initiated | Paging procedure for EPS services completed  Paging procedure is aborted | Network dependent |
| T3415  NOTE 8 NOTE 10 | NOTE 6 | EMM-REGISTERED | Paging procedure for EPS services initiated for a UE which the network accepted the request to use eDRX and the UE does not have a PDN connection for emergency bearer services | Paging procedure for EPS services completed  Paging procedure is aborted | Paging procedure is aborted and the network proceeds as specified in 3GPP TS 23.401 [10] |
| T3422 NOTE 7 NOTE 9 | 6s  In WB-S1/CE mode, 24s | EMM-DEREGISTERED-INITIATED | DETACH REQUEST sent | DETACH ACCEPT received | Retransmission of DETACH REQUEST |
| T3447 | NOTE 2 | All | UE transitions from EMM-CONNECTED mode to EMM-IDLE mode except when UE was in EMM-CONNECTED mode due to paging, attach without PDN connection or tracking area update request without "active" or "signalling active" flag set  UE transitions from 5GMM-CONNECTED mode to 5GMM-IDLE mode except when UE was in 5GMM-CONNECTED mode due to paging, REGISTRATION REQUEST for initial registration with Follow-on request indicator set to "No follow-on request pending", or REGISTRATION REQUEST for mobility and periodic registration update with Follow-on request indicator set to "No follow-on request pending" and without Uplink data status IE included. | ATTACH ACCEPT or TRACKING AREA UPDATE ACCEPT without the T3447 value IE. At MME during inter-system change from S1 mode to N1 mode.  REGISTRATION ACCEPT without the T3447 value IE (defined in 3GPP TS 24.501 [54]). CONFIGURATION UPDATE COMMAND with the T3447 value IE set to zero or deactivated (defined in 3GPP TS 24.501 [54]). At AMF during inter-system change from N1 mode to S1 mode defined in 3GPP TS 24.501 [54]). | Allow the UE to initiate a connection for transfer of uplink user data. |
| T3450 NOTE 7 NOTE 9 | 6s  In WB-S1/CE mode, 18s | EMM-COMMON-PROC-INIT | ATTACH ACCEPT sent  TRACKING AREA UPDATE ACCEPT sent with GUTI  TRACKING AREA UPDATE ACCEPT sent with TMSI  GUTI REALLOCATION COMMAND sent | ATTACH COMPLETE received  TRACKING AREA UPDATE COMPLETE received  GUTI REALLOCATION COMPLETE received | Retransmission of the same message type, i.e. ATTACH ACCEPT, TRACKING AREA UPDATE ACCEPT or GUTI REALLOCATION COMMAND |
| T3460 NOTE 7 NOTE 9 | 6s  In WB-S1/CE mode, 24s | EMM-COMMON-PROC-INIT | AUTHENTICATION REQUEST sent  SECURITY MODE COMMAND sent | AUTHENTICATION RESPONSE received  AUTHENTICATION FAILURE received  SECURITY MODE COMPLETE received  SECURITY MODE REJECT received | Retransmission of the same message type, i.e. AUTHENTICATION REQUEST  or SECURITY MODE COMMAND |
| T3470 NOTE 7 NOTE 9 | 6s  In WB-S1 mode, 24s | EMM-COMMON-PROC-INIT | IDENTITY REQUEST sent | IDENTITY RESPONSE received | Retransmission of IDENTITY REQUEST |
| Mobile reachable | NOTE 4 | All except EMM-DEREGISTERED | Entering EMM-IDLE mode | NAS signalling connection established | Network dependent, but typically paging is halted on 1st expiry if the UE is not attached for emergency bearer services.  Implicitly detach the UE which is attached for emergency bearer services. |
| Implicit detach timer | NOTE 3 | All except EMM-DEREGISTERED | The mobile reachable timer expires while the network is in EMM-IDLE mode | NAS signalling connection established | Implicitly detach the UE on 1st expiry |
| active timer | NOTE 5 | All except EMM-DEREGISTERED | Entering EMM-IDLE mode | NAS signalling connection established | Network dependent, but typically paging is halted on 1st expiry |
| NOTE 1: Typically, the procedures are aborted on the fifth expiry of the relevant timer. Exceptions are described in the corresponding procedure description.  NOTE 2: The value of this timer is network dependent.  NOTE 3: The value of this timer is network dependent. If ISR is activated, the default value of this timer is 4 minutes greater than T3423.  NOTE 4: The default value of this timer is 4 minutes greater than T3412. If T3346 is larger than T3412 and the MME includes timer T3346 in the TRACKING AREA UPDATE REJECT message or SERVICE REJECT message, the value of the mobile reachable timer and implicit detach timer is set such that the sum of the timer values is greater than T3346. If the UE is attached for emergency bearer services, the value of this timer is set equal to T3412.  NOTE 5: If the MME includes timer T3324 in the ATTACH ACCEPT message or TRACKING AREA UPDATE ACCEPT message and if the UE is not attached for emergency bearer services and has no PDN connection for emergency bearer services, the value of this timer is equal to the value of timer T3324.  NOTE 6: The value of this timer is smaller than the value of timer T3-RESPONSE (see 3GPP TS 29.274 [16D]).  NOTE 7: In NB-S1 mode, then the timer value shall be calculated as described in subclause 4.7.  NOTE 8: In NB-S1 mode, then the timer value shall be calculated by using an NAS timer value which is network dependent.  NOTE 9: In WB-S1 mode, if the UE supports CE mode B and operates in either CE mode A or CE mode B, then the timer value is as described in this table for the case of WB-S1/CE mode (see subclause 4.8).  NOTE 10: In WB-S1 mode, if the UE supports CE mode B, then the timer value shall be calculated by using an NAS timer value which value is network dependent. | | | | | |

## 10.3 Timers of EPS session management

Table 10.3.1: EPS session management timers – UE side

| TIMER NUM. | TIMER VALUE | STATE | CAUSE OF START | NORMAL STOP | ON THE 1st, 2nd, 3rd, 4th EXPIRY (NOTE 1) |
| --- | --- | --- | --- | --- | --- |
| T3480 NOTE 2 NOTE 3 | 8s  In WB-S1/CE mode, 16s | PROCEDURE TRANSACTION PENDING | BEARER RESOURCE ALLOCATION REQUEST sent | ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST received or MODIFY EPS BEARER CONTEXT REQUEST received or BEARER RESOURCE ALLOCATION REJECT received | Retransmission of BEARER RESOURCE ALLOCATION REQUEST |
| T3481  NOTE 2  NOTE 3 | 8s  In WB-S1/CE mode, 16s | PROCEDURE TRANSACTION PENDING | BEARER RESOURCE MODIFICATION REQUEST sent | ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST received or MODIFY EPS BEARER CONTEXT REQUEST received or DEACTIVATE EPS BEARER CONTEXT REQUEST received or BEARER RESOURCE MODIFICATION REJECT received | Retransmission of BEARER RESOURCE MODIFICATION REQUEST |
| T3482  NOTE 2  NOTE 3 | 8s  In WB-S1/CE mode, 16s | PROCEDURE TRANSACTION PENDING | An additional PDN connection is requested by the UE which is not combined in attach procedure | ACTIVE DEFAULT EPS BEARER CONTEXT REQUEST received or PDN CONNECTIVITY REJECT received | Retransmission of PDN CONNECTIVITY REQUEST |
| T3492  NOTE 2  NOTE 3 | 6s  In WB-S1/CE mode, 14s | PROCEDURE TRANSACTION PENDING | PDN DISCONNECT REQUEST sent | DEACTIVATE EPS BEARER CONTEXT REQUEST received or PDN DISCONNECT REJECT received | Retransmission of PDN DISCONNECT REQUEST |
| T3493  NOTE 2 | 4s  In WB-S1/CE mode, 12s | PROCEDURE TRANSACTION PENDING | REMOTE UE REPORT sent | REMOTE UE REPORT RESPONSE received | Retransmission of REMOTE UE REPORT |
| Back-off timer |  |  | defined in 3GPP TS 24.008 [13] |  |  |
| NOTE 1: Typically, the procedures are aborted on the fifth expiry of the relevant timer. Exceptions are described in the corresponding procedure description.  NOTE 2: In NB-S1 mode, then the timer value shall be calculated as described in subclause 4.7.  NOTE 3: In WB-S1 mode, if the UE supports CE mode B and operates in either CE mode A or CE mode B, then the timer value is as described in this table for the case of WB-S1/CE mode (see subclause 4.8). | | | | | |

NOTE 1: The back-off timer is used to describe a logical model of the required UE behaviour. This model does not imply any specific implementation, e.g. as a timer or timestamp.

NOTE 2: Reference to back-off timer in this section can either refer to use of timer T3396 or to use of a different packet system specific timer within the UE. Whether the UE uses T3396 as a back-off timer or it uses different packet system specific timers as back-off timers is left up to UE implementation.

Table 10.3.2: EPS session management timers – network side

| TIMER NUM. | TIMER VALUE | STATE | CAUSE OF START | NORMAL STOP | ON THE 1st, 2nd, 3rd, 4th EXPIRY (NOTE 1) |
| --- | --- | --- | --- | --- | --- |
| T3485  NOTE 2  NOTE 3 | 8s  In WB-S1/CE mode, 16s | BEARER CONTEXT ACTIVE PENDING | ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST sent  ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST sent | ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT received  or ACTIVATE DEFAULT EPS BEARER CONTEXT REJECT received  or ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT received  or ACTIVATE DEDICATED EPS BEARER CONTEXT REJECT received | Retransmission of the same message |
| T3486  NOTE 2  NOTE 3 | 8s  In WB-S1/CE mode, 16s | BEARER CONTEXT MODIFY PENDING | MODIFY EPS BEARER CONTEXT REQUEST sent | MODIFY EPS BEARER CONTEXT ACCEPT received  or MODIFY EPS BEARER CONTEXT REJECT received | Retransmission of MODIFY EPS BEARER CONTEXT REQUEST |
| T3489  NOTE 2  NOTE 3 | 4s  In WB-S1/CE mode, 12s | PROCEDURE TRANSACTION PENDING | ESM INFORMATION REQUEST sent | ESM INFORMATION RESPONSE received | Retransmission of ESM INFORMATION REQUEST on 1st and 2nd expiry only |
| T3495  NOTE 2  NOTE 3 | 8s  In WB-S1/CE mode, 16s | BEARER CONTEXT INACTIVE PENDING | DEACTIVATE EPS BEARER CONTEXT REQUEST sent | DEACTIVATE EPS BEARER CONTEXT ACCEPT received | Retransmission of DEACTIVATE EPS BEARER CONTEXT REQUEST |
| NOTE 1: Typically, the procedures are aborted on the fifth expiry of the relevant timer. Exceptions are described in the corresponding procedure description.  NOTE 2: In NB-S1 mode, then the timer value shall be calculated as described in subclause 4.7.  NOTE 3: In WB-S1 mode, if the UE supports CE mode B and operates in either CE mode A or CE mode B, then the timer value is as described in this table for the case of WB-S1/CE mode (see subclause 4.8). | | | | | |

Annex A (informative):  
Cause values for EPS mobility management

# A.1 Causes related to UE identification

Cause #2 – IMSI unknown in HSS

This EMM cause is sent to the UE if the UE is not known (registered) in the HSS or if the UE has packet only subscription. This EMM cause does not affect operation of the EPS service, although is may be used by an EMM procedure.

Cause #3 – Illegal UE

This EMM cause is sent to the UE when the network refuses service to the UE either because an identity of the UE is not acceptable to the network or because the UE does not pass the authentication check, i.e. the RES received from the UE is different from that generated by the network.

Cause #6 – Illegal ME

This EMM cause is sent to the UE if the ME used is not acceptable to the network, e.g. blacklisted.

Cause #9 – UE identity cannot be derived by the network.

This EMM cause is sent to the UE when the network cannot derive the UE's identity from the GUTI/S-TMSI/P-TMSI and RAI e.g. no matching identity/context in the network or failure to validate the UE's identity due to integrity check failure of the received message.

Cause #10 – Implicitly detached

This EMM cause is sent to the UE either if the network has implicitly detached the UE, e.g. after the implicit detach timer has expired, or if the EMM context data related to the subscription does not exist in the MME e.g. because of a MME restart, or because of a periodic tracking area update request routed to a new MME.

# A.2 Cause related to subscription options

Cause #5 – IMEI not accepted

This cause is sent to the UE if the network does not accept an attach procedure for emergency bearer services using an IMEI.

Cause #7 – EPS services not allowed

This EMM cause is sent to the UE when it is not allowed to operate EPS services.

Cause #8 – EPS services and non-EPS services not allowed

This EMM cause is sent to the UE when it is not allowed to operate either EPS or non-EPS services.

Cause #11 – PLMN not allowed

This EMM cause is sent to the UE if it requests service, or if the network initiates a detach request, in a PLMN where the UE, by subscription or due to operator determined barring, is not allowed to operate.

Cause #12 – Tracking area not allowed

This EMM cause is sent to the UE if it requests service, or if the network initiates a detach request, in a tracking area where the HPLMN determines that the UE, by subscription, is not allowed to operate.

NOTE 1: If EMM cause #12 is sent to a roaming subscriber the subscriber is denied service even if other PLMNs are available on which registration was possible.

Cause #13 – Roaming not allowed in this tracking area

This EMM cause is sent to an UE which requests service, or if the network initiates a detach request, in a tracking area of a PLMN which by subscription offers roaming to that UE but not in that tracking area.

Cause #14 – EPS services not allowed in this PLMN

This EMM cause is sent to the UE which requests service, or if the network initiates a detach request, in a PLMN which does not offer roaming for EPS services to that UE.

NOTE 2: Since only one list of forbidden PLMNs for packet services is maintained in the UE, then the "forbidden PLMNs for GPRS service" is the maintained list and the forbidden PLMNs for EPS service is equivalent to it.

Cause #15 – No suitable cells in tracking area

This EMM cause is sent to the UE if it requests service, or if the network initiates a detach request, in a tracking area where the UE, by subscription, is not allowed to operate, but when it should find another allowed tracking area or location area in the same PLMN or an equivalent PLMN.

NOTE 3: Cause #15 and cause #12 differ in the fact that cause #12 does not trigger the UE to search for another allowed tracking area on the same PLMN.

Cause #25 – Not authorized for this CSG

This EMM cause is sent to the UE if it requests access, or if the network initiates a detach request, in a CSG cell with CSG ID where the UE either has no subscription to operate or the UE's subscription has expired and it should find another cell in the same PLMN or an equivalent PLMN.

Cause #35 – Requested service option not authorized in this PLMN

This EMM cause is sent to the UE if it requests in a PLMN a service option for which it is not authorized, e.g. if it attempts to attach for relay node operation in a PLMN with a USIM which does not belong to a relay node-specific subscription.

Cause #40 – No EPS bearer context activated

This EMM cause is sent to the UE, if during a tracking area updating procedure or a service request, the MME detects that there is no active EPS bearer context in the network.

Cause #31 – Redirection to 5GCN required

This EMM cause is sent to the UE if it requests service in a PLMN where the UE by operator policy, is not allowed in EPC and redirection to 5GCN is required.

# A.3 Causes related to PLMN specific network failures and congestion/authentication failures

Cause #16 – MSC temporarily not reachable

This EMM cause is sent to the UE if it requests a combined EPS attach or tracking area updating in a PLMN where the MSC is temporarily not reachable via the EPS part of the network.

Cause #17 – Network failure

This EMM cause is sent to the UE if the MME cannot service an UE generated request because of PLMN failures.

Cause #18 – CS domain not available

This EMM cause is sent to the UE if the MME cannot service an UE generated request because CS domain is not available and SMS in MME is not supported.

Cause #19 – ESM failure

This EMM cause is sent to the UE when there is a failure in the ESM message contained in the EMM message.

Cause #20 – MAC failure

This EMM cause is sent to the network if the USIM detects that the MAC in the AUTHENTICATION REQUEST message is not fresh (see 3GPP TS 33.401 [19]).

Cause #21 – Synch failure

This EMM cause is sent to the network if the USIM detects that the SQN in the AUTHENTICATION REQUEST message is out of range (see 3GPP TS 33.401 [19]).

Cause #22 – Congestion

This EMM cause is sent to the UE because of congestion in the network (e.g. no channel, facility busy/congested etc.).

Cause #23 – UE security capabilities mismatch

This EMM cause is sent to the network if the UE detects that the UE security capability does not match the one sent back by the network.

Cause #24 – Security mode rejected, unspecified

This EMM cause is sent to the network if the security mode command is rejected by the UE if the UE detects that the nonceUE does not match the one sent back by the network or for unspecified reasons.

Cause #26 – Non-EPS authentication unacceptable

This EMM cause is sent to the network in S1 mode if the "separation bit" in the AMF field of AUTN is set to 0 in the AUTHENTICATION REQUEST message (see 3GPP TS 33.401 [19]).

Cause #39 – CS service temporarily not available

This EMM cause is sent to the UE when the CS fallback or 1xCS fallback request cannot be served temporarily due to O&M reasons or a mobile terminating CS fallback call is aborted by the network during call establishment (see 3GPP TS 29.118 [16A]).

Cause #42 – Severe network failure

This EMM cause is sent to the UE when the network has determined that the requested procedure cannot be completed successfully due to network failure. The failure is not expected to be temporary and repeated request is not likely to succeed in near future.

# A.4 Causes related to nature of request

NOTE: This subclause has no entries in this version of the specification

# A.5 Causes related to invalid messages

Cause value #95 – Semantically incorrect message.

See 3GPP TS 24.008 [13], annex H, subclause H.5.5.

Cause value #96 – Invalid mandatory information.

See 3GPP TS 24.008 [13], annex H, subclause H.6.1.

Cause value #97 – Message type non-existent or not implemented.

See 3GPP TS 24.008 [13], annex H, subclause H.6.2.

Cause value #98 – Message type not compatible with protocol state.

See 3GPP TS 24.008 [13], annex H, subclause H.6.3.

Cause value #99 – Information element non-existent or not implemented.

See 3GPP TS 24.008 [13], annex H, subclause H.6.4.

Cause value #100 – Conditional IE error.

See 3GPP TS 24.008 [13], annex H, subclause H.6.5.

Cause value #101 – Message not compatible with protocol state.

See 3GPP TS 24.008 [13], annex H, subclause H.6.6.

Cause value #111 – Protocol error, unspecified.

See 3GPP TS 24.008 [13], annex H, subclause H.6.8.

Annex B (informative):  
Cause values for EPS session management

# B.1 Causes related to nature of request

Cause #8 – Operator Determined Barring

This ESM cause is used by the network to indicate that the requested service was rejected by the MME due to Operator Determined Barring.

Cause #26 – Insufficient resources

This ESM cause is used by the UE or by the network to indicate that the requested service cannot be provided due to insufficient resources.

Cause #27 – Missing or unknown APN

This ESM cause is used by the network to indicate that the requested service was rejected by the external packet data network because the access point name was not included although required or if the access point name could not be resolved.

Cause #28 – Unknown PDN type

This ESM cause is used by the network to indicate that the requested service was rejected by the external packet data network because the PDN type could not be recognised.

Cause #29 – User authentication or authorization failed

This ESM cause is used by the network to indicate that the requested service was rejected by the external packet data network due to a failed user authentication or revoked by the external packet data network.

Cause #30 – Request rejected by Serving GW or PDN GW

This ESM cause is used by the network to indicate that the requested service or operation or the request for a resource was rejected by the Serving GW or PDN GW.

Cause #31 – Request rejected, unspecified

This ESM cause is used by the network or by the UE to indicate that the requested service or operation or the request for a resource was rejected due to unspecified reasons.

Cause #32 – Service option not supported

This ESM cause is used by the network when the UE requests a service which is not supported by the PLMN.

Cause #33 – Requested service option not subscribed

This ESM cause is sent when the UE requests a service option for which it has no subscription.

Cause #34 – Service option temporarily out of order

This ESM cause is sent when the network cannot service the request because of temporary outage of one or more functions required for supporting the service.

Cause #35 – PTI already in use

This ESM cause is used by the network to indicate that the PTI included by the UE is already in use by another active UE requested procedure for this UE.

Cause #36 – Regular deactivation

This ESM cause is used to indicate a regular UE or network initiated release of EPS bearer resources.

Cause #37 – EPS QoS not accepted

This ESM cause is used by the network if the new EPS QoS cannot be accepted that was indicated in the UE request.

Cause #38 – Network failure

This ESM cause is used by the network to indicate that the requested service was rejected due to an error situation in the network.

Cause #39 – Reactivation requested

This ESM cause is used by the network to request a PDN connection reactivation.

Cause #41 – Semantic error in the TFT operation.

This ESM cause is used by the network or the UE to indicate that the requested service was rejected due to a semantic error in the TFT operation included in the request.

Cause #42 – Syntactical error in the TFT operation.

This ESM cause is used by the network or the UE to indicate that the requested service was rejected due to a syntactical error in the TFT operation included in the request.

Cause #43 – Invalid EPS bearer identity

This ESM cause is used by the network or the UE to indicate that the EPS bearer identity value provided to it is not a valid value for the received message or the EPS bearer context identified by the linked EPS bearer identity IE in the request is not active.

Cause #44 – Semantic errors in packet filter(s)

This ESM cause is used by the network or the UE to indicate that the requested service was rejected due to one or more semantic errors in packet filter(s) of the TFT included in the request.

Cause #45 – Syntactical error in packet filter(s)

This ESM cause is used by the network or the UE to indicate that the requested service was rejected due to one or more syntactical errors in packet filter(s) of the TFT included in the request.

Cause #47 – PTI mismatch

This ESM cause is used by the UE to indicate that the PTI value which is included in the ESM message that the UE receives does not match a PTI in use.

Cause #49 – Last PDN disconnection not allowed

This ESM cause is used by the network, in case of EMM-REGISTERED without PDN connection is not supported by the UE or the MME, to indicate that the UE requested PDN disconnection procedure on the last remaining PDN connection is not allowed.

Cause #50 – PDN type IPv4 only allowed

This ESM cause is used by the network to indicate that only PDN type IPv4 is allowed for the requested PDN connectivity.

Cause #51 – PDN type IPv6 only allowed

This ESM cause is used by the network to indicate that only PDN type IPv6 is allowed for the requested PDN connectivity.

Cause #52 – single address bearers only allowed

This ESM cause is used by the network to indicate that the requested PDN connectivity is accepted with the restriction that only single IP version bearers are allowed.

Cause #53 – ESM information not received

This ESM cause is used by the network to indicate that the PDN connectivity procedure was rejected due to the ESM information was not received.

Cause #54 – PDN connection does not exist

This ESM cause is used by the network at handover from a non-3GPP access network to indicate that the MME does not have any information about the requested PDN connection.

Cause #55 – Multiple PDN connections for a given APN not allowed

This ESM cause is used by the network to indicate that the PDN connectivity procedure was rejected due to multiple PDN connections for a given APN are not allowed.

Cause #56 – Collision with network initiated request

This ESM cause is used by the network to indicate that the network has already initiated the activation, modification or deactivation of bearer resources which was requested by the UE.

Cause #57 – PDN type IPv4v6 only allowed

This ESM cause is used by the network to indicate that only PDN types IPv4, IPv6 or IPv4v6 are allowed for the requested PDN connectivity.

Cause #58 – PDN type non IP only allowed

This ESM cause is used by the network to indicate that only PDN type non IP is allowed for the requested PDN connectivity.

Cause #59 – Unsupported QCI value

This ESM cause is used by the network if the QCI indicated in the UE request cannot be supported.

Cause #60 – Bearer handling not supported

This ESM cause is used by the network to indicate that the procedure requested by the UE was rejected because the bearer handling is not supported.

Cause #61 – PDN type Ethernet only allowed

This ESM cause is used by the network to indicate that only PDN type Ethernet is allowed for the requested PDN connectivity.

Cause #65 – Maximum number of EPS bearers reached

This ESM cause is used by the network to indicate that the procedure requested by the UE was rejected as the network has reached the maximum number of simultaneously active EPS bearer contexts for the UE.

Cause #66 – Requested APN not supported in current RAT and PLMN combination

This ESM cause is used by the network to indicate that the procedure requested by the UE was rejected as the requested APN is not supported in the current RAT and PLMN.

Cause #81 – Invalid PTI value

This ESM cause is used by the network or UE to indicate that the PTI provided to it is unassigned or reserved.

Cause #112 – APN restriction value incompatible with active EPS bearer context.

This ESM cause is used by the network to indicate that the EPS bearer context(s) have an APN restriction value that is not allowed in combination with a currently active EPS bearer context. Restriction values are defined in 3GPP TS 23.060 [4].

Cause #113 –Multiple accesses to a PDN connection not allowed

This ESM cause is used by the network to indicate that multiple accesses to a PDN connection for NBIFOM is not allowed.

# B.2 Protocol errors (e.g., unknown message) class

Cause #95 – Semantically incorrect message

This ESM cause is used to report receipt of a message with semantically incorrect contents.

Cause #96 – Invalid mandatory information

This ESM cause indicates that the equipment sending this ESM cause has received a message with a non-semantical mandatory IE error.

Cause #97 – Message type non-existent or not implemented

This ESM cause indicates that the equipment sending this ESM cause has received a message with a message type it does not recognize either because this is a message not defined, or defined but not implemented by the equipment sending this ESM cause.

Cause #98 – Message type not compatible with protocol state

This ESM cause indicates that the equipment sending this ESM cause has received a message not compatible with the protocol state.

Cause #99 – Information element non-existent or not implemented

This ESM cause indicates that the equipment sending this ESM cause has received a message which includes information elements not recognized because the information element identifier is not defined or it is defined but not implemented by the equipment sending the ESM cause. However, the information element is not required to be present in the message in order for the equipment sending the ESM cause to process the message.

Cause #100 – Conditional IE error

This ESM cause indicates that the equipment sending this cause has received a message with conditional IE errors.

Cause #101 – Message not compatible with protocol state

This ESM cause indicates that a message has been received which is incompatible with the protocol state.

Cause #111 – Protocol error, unspecified

This ESM cause is used to report a protocol error event only when no other ESM cause in the protocol error class applies.

Annex C (normative):  
Storage of EMM information

The following EMM parameters shall be stored on the USIM if the corresponding file is present:

- GUTI;

- last visited registered TAI;

- EPS update status;

- Allowed CSG list;

- Operator CSG list; and

- EPS security context parameters from a full native EPS security context (see 3GPP TS 33.401 [19]).

The presence and format of corresponding files on the USIM is specified in 3GPP TS 31.102 [17].

If the corresponding file is not present on the USIM, these EMM parameters except allowed CSG list are stored in a non-volatile memory in the ME together with the IMSI from the USIM. The allowed CSG list is stored in a non-volatile memory in the ME if the UE supports CSG selection. These EMM parameters can only be used if the IMSI from the USIM matches the IMSI stored in the non-volatile memory; else the UE shall delete the EMM parameters.

The following EMM parameters shall be stored in a non-volatile memory in the ME together with the IMSI from the USIM:

- TIN;

- DCN-ID list; and

- network-assigned UE radio capability IDs.

The TIN parameter can only be used if the IMSI from the USIM matches the IMSI stored in the non-volatile memory of the ME; else the UE shall delete the TIN parameter.

The DCN-ID list consists of DCN-IDs stored together with a PLMN identity. The list can have zero or more entries and the maximum length shall be at least 32 entries. When the maximum length is reached any new entry shall replace the oldest entry in the list. There shall be no duplicated PLMN identities in the list and any existing DCN-ID shall be deleted when a new DCN-ID is added for the same PLMN.

The DCN-ID list can only be used if the IMSI from the USIM matches the IMSI stored in the non-volatile memory of the ME; else the UE shall delete the DCN-ID list. The UE shall delete the stored DCN-ID list if the default standardized DCN-ID in the UE is changed.

Each network-assigned UE radio capability ID is stored together with a PLMN identity of the PLMN that provided it as well as a mapping to the corresponding UE radio configuration, and is valid in that PLMN. A network-assigned UE radio capability ID can only be used if the IMSI from the USIM matches the IMSI stored in the non-volatile memory of the ME, else the UE shall delete the network-assigned UE radio capability ID. The UE shall be able to store at least the last 16 received network-assigned UE radio capability IDs. There shall be only one network-assigned UE radio capability ID stored for a given combination of PLMN identity and UE radio configuration and any existing UE radio capability ID shall be deleted when a new UE radio capability ID is added for the same combination of PLMN identity and UE radio configuration. If the UE receives a network-assigned UE radio capability ID with a Version ID value different from the value included in the network-assigned UE radio capability ID(s) stored at the UE for the serving PLMN, the UE may delete these stored network-assigned UE radio capability ID(s).

If the UE is attached for emergency bearer services, the UE shall not store the EMM parameters described in this annex on the USIM or in non-volatile memory. Instead the UE shall temporarily store these parameters locally in the ME and the UE shall delete these parameters when the UE is detached.

If the UE is configured for eCall only mode as specified in 3GPP TS 31.102 [17], the UE shall not store the EMM parameters described in this annex on the USIM or in non-volatile memory. Instead the UE shall temporarily store these parameters locally in the ME and the UE shall delete these parameters when the UE enters EMM-DEREGISTERED.eCALL-INACTIVE state, the UE is switched-off or the USIM is removed.

If the UE is attached for access to RLOS, the UE shall not store the EMM parameters described in this annex on the USIM or in non-volatile memory. Instead, the UE shall temporarily store these parameters locally in the ME and the UE shall delete these parameters after detach.

Annex D (normative):  
Establishment cause (S1 mode only)

# D.1 Mapping of NAS procedure to RRC establishment cause (S1 mode only)

When EMM requests the establishment of a NAS-signalling connection, or when EMM requests the lower layers to resume a NAS signalling connection, the RRC establishment cause used by the UE shall be selected according to the NAS procedure as specified in table D.1.1. The EMM shall also indicate to the lower layer for the purpose of access control, the call type associated with the RRC establishment cause as specified in table D.1.1. If the UE is configured for EAB (see the "ExtendedAccessBarring" leaf of NAS configuration MO in 3GPP TS 24.368 [15A] or 3GPP TS 31.102 [17]), the EMM shall indicate to the lower layer for the purpose of access control that EAB applies for this request except for the following cases:

- the UE is a UE configured to use AC11 – 15 in selected PLMN;

- the UE is answering to paging;

- the RRC Establishment cause is set to "Emergency call";

- the UE is configured to allow overriding EAB (see the "Override\_ExtendedAccessBarring" leaf of the NAS configuration MO as specified in 3GPP TS 24.368 [15A] or 3GPP TS 31.102 [17]) and receives an indication from the upper layers to override EAB; or

- the UE is configured to allow overriding EAB (see the "Override\_ExtendedAccessBarring" leaf of the NAS configuration MO as specified in 3GPP TS 24.368 [15A] or 3GPP TS 31.102 [17]) and already has a PDN connection that was established with EAB override.

Table D.1.1: Mapping of NAS procedure to establishment cause and call type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **NAS procedure** | **RRC establishment cause (according 3GPP TS 36.331 [22])** | **Call type** | |
|  | Attach | If an ATTACH REQUEST has EPS attach type not set to "EPS emergency attach", the RRC establishment cause shall be set to MO signalling except when the UE initiates attach procedure to establish emergency bearer services. (See Note 1) | "originating signalling" | |
|  | Iif an ATTACH REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority", the RRC establishment cause shall be set to Delay tolerant. (See Note 1) | "originating signalling" | |
|  | If an ATTACH REQUEST has EPS attach type set to "EPS emergency attach", or if the ATTACH REQUEST has EPS attach type not set to "EPS emergency attach" but the UE initiates the attach procedure either on receiving request from upper layer to establish emergency bearer services or with a PDN CONNECTIVITY REQUEST that has request type set to "handover of emergency bearer services", the RRC establishment cause shall be set to Emergency call. (See Note 1, Note 4) | "emergency calls" | |
|  | If the UE is allowed to use exception data reporting (see the ExceptionDataReportingAllowed leaf of the NAS configuration MO in 3GPP TS 24.368 [15A] or the USIM file EFNASCONFIG in 3GPP TS 31.102 [17]) and the attach procedure has been initiated upon receiving a request from upper layers to transmit user data related to an exceptional event, the RRC establishment cause shall be set to MO exception data. (See Note 1) | "originating signalling" | |
|  | Tracking Area Update | If the UE does not have a PDN connection established for emergency bearer services and is not initiating a PDN CONNECTIVITY REQUEST that has request type set to "emergency" or "handover of emergency bearer services", and MO MMTEL voice call is not started, MO MMTEL video call is not started, MO SMSoIP is not started, MO SMS over NAS or MO SMS over S102 is not requested, the RRC establishment cause shall be set to MO signalling. (See Note 1) | "originating signalling" | |
|  | If the UE does not have a PDN connection established for emergency bearer services and is not initiating a PDN CONNECTIVITY REQUEST that has request type set to "emergency" or "handover of emergency bearer services", and an MO MMTEL voice call is started, the RRC establishment cause shall be set to MO signalling. (See Note 1, Note 3) | "originating MMTEL voice" | |
|  | If the UE does not have a PDN connection established for emergency bearer services and is not initiating a PDN CONNECTIVITY REQUEST that has request type set to "emergency" or "handover of emergency bearer services", and an MO MMTEL video call is started, the RRC establishment cause shall be set to MO signalling. (See Note 1, Note 3) | "originating MMTEL video" | |
|  | If the UE does not have a PDN connection established for emergency bearer services and is not initiating a PDN CONNECTIVITY REQUEST that has request type set to "emergency" or "handover of emergency bearer services", and an MO SMSoIP is started, the RRC establishment cause shall be set to MO signalling. (See Note 1) | "originating SMSoIP" | |
|  | If the UE does not have a PDN connection established for emergency bearer services and is not initiating a PDN CONNECTIVITY REQUEST that has request type set to "emergency" or "handover of emergency bearer services", and an MO SMS over NAS or MO SMS over S102 is requested, the RRC establishment cause shall be set to MO signalling. (See Note 1) | "originating SMS" | |
|  | If the UE does not have a PDN connection established for emergency bearer services and is not initiating a PDN CONNECTIVITY REQUEST that has request type set to "emergency" or "handover of emergency bearer services", the tracking area update procedure is not triggered due to paging, a TRACKING AREA UPDATE REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority", and MO MMTEL voice call is not started, MO MMTEL video call is not started, MO SMSoIP is not started, MO SMS over NAS or MO SMS over S102 is not requested, the RRC establishment cause shall be set to Delay tolerant. (See Note 1) | "originating signalling" | |
|  | If the UE does not have a PDN connection established for emergency bearer services and is not initiating a PDN CONNECTIVITY REQUEST that has request type set to "emergency" or "handover of emergency bearer services", an MO MMTEL voice call is started, and a TRACKING AREA UPDATE REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority", the RRC establishment cause shall be set to MO signalling. (See Note 1, Note 3) | "originating MMTEL voice" | |
|  | If the UE does not have a PDN connection established for emergency bearer services and is not initiating a PDN CONNECTIVITY REQUEST that has request type set to "emergency" or "handover of emergency bearer services", an MO MMTEL video call is started, and a TRACKING AREA UPDATE REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority", the RRC establishment cause shall be set to MO signalling. (See Note 1, Note 3) | "originating MMTEL video" | |
|  | If the UE does not have a PDN connection established for emergency bearer services and is not initiating a PDN CONNECTIVITY REQUEST that has request type set to "emergency" or "handover of emergency bearer services", an MO SMSoIP is started, and a TRACKING AREA UPDATE REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority", the RRC establishment cause shall be set to MO signalling. (See Note 1) | "originating SMSoIP" | |
|  | If the UE does not have a PDN connection established for emergency bearer services and is not initiating a PDN CONNECTIVITY REQUEST that has request type set to "emergency" or "handover of emergency bearer services", an MO SMS over NAS or MO SMS over S102 is requested, and a TRACKING AREA UPDATE REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority", the RRC establishment cause shall be set to MO signalling. (See Note 1) | "originating SMS" | |
|  | If the UE does not have a PDN connection established for emergency bearer services and is not initiating a PDN CONNECTIVITY REQUEST that has request type set to "emergency" or "handover of emergency bearer services", and a TRACKING AREA UPDATE REQUEST is a response to paging where the CN domain indicator is set to "PS" or "CS", the RRC establishment cause shall be set to MT access. (See Note 1) | "terminating calls" | |
|  | If the UE has CS fallback emergency call or 1xCS fallback emergency call pending, the RRC establishment cause shall be set to Emergency call. (See Note 1) | "emergency calls" | |
|  | If the UE has a PDN connection established for emergency bearer services or is initiating a PDN CONNECTIVITY REQUEST that has request type set to "emergency" or "handover of emergency bearer services", the RRC establishment cause shall be set to Emergency call. (See Note 1) | "emergency calls" | |
|  | If the UE is allowed to use exception data reporting (see the ExceptionDataReportingAllowed leaf of the NAS configuration MO in 3GPP TS 24.368 [15A] or the USIM file EFNASCONFIG in 3GPP TS 31.102 [17]) and there is a pending request from upper layers to transmit user data related to an exceptional event, the RRC establishment cause shall be set to MO exception data. | "originating signalling" | |
|  | If the UE is requesting resources for V2X communication over PC5, the RRC establishment cause shall be set to MO signalling.  (See Note 1) | "originating signalling" | |
|  | If the UE is requesting resources for V2X communication over PC5 and a TRACKING AREA UPDATE REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority", the RRC establishment cause shall be set to Delay tolerant.  (See Note 1) | "originating signalling" | |
|  | If the UE is requesting resources for ProSe direct discovery or ProSe direct communication as specified in 3GPP TS 36.331 [22], the RRC establishment cause shall be set to MO signalling. (See Note 1) | "originating signalling" | |
|  | If the UE is requesting resources for ProSe direct discovery or ProSe direct communication as specified in 3GPP TS 36.331 [22] and a TRACKING AREA UPDATE REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority", the RRC establishment cause shall be set to Delay tolerant. (See Note 1) | "originating signalling" | |
|  | Detach | MO signalling (See Note 1) | "originating signalling" | |
|  |  | If a SERVICE REQUEST is to request user plane radio resources and MO MMTEL voice call is not started, MO MMTEL video call is not started and MO SMSoIP is not started, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating calls" | |
|  | If a SERVICE REQUEST is to request user plane radio resources and an MO MMTEL voice call is started, the RRC establishment cause shall be set to MO data. (See Note 1, Note 3) | "originating MMTEL voice" | |
|  | If a SERVICE REQUEST is to request user plane radio resources and an MO MMTEL video call is started, the RRC establishment cause shall be set to MO data. (See Note 1, Note 3) | "originating MMTEL video" | |
|  | If a SERVICE REQUEST is to request user plane radio resources and an MO SMSoIP is started, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating SMSoIP" | |
|  | If a SERVICE REQUEST is to request user plane radio resources for emergency bearer services, the RRC establishment cause shall be set to Emergency call. (See Note 1) | "emergency calls" | |
|  | If a SERVICE REQUEST is to request resources for UL signalling and not for MO SMS over NAS or MO SMS over S102, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating calls" | |
|  | If a SERVICE REQUEST is to request resources for UL signalling for MO SMS over NAS or MO SMS over S102, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating SMS" | |
|  | If a SERVICE REQUEST is to request user plane radio resources or to request resources for UL signalling and the UE is configured for dual priority and the NAS signalling low priority indicator is overridden, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating calls" | |
|  | If a SERVICE REQUEST is triggered by a PDN CONNECTIVITY REQUEST that has request type set to "emergency" or "handover of emergency bearer services", the RRC establishment cause shall be set to Emergency call. (See Note 1) | "emergency calls" | |
|  | If a SERVICE REQUEST is to request user plane radio resources or to request resources for UL signalling, the UE is configured for NAS signalling low priority, and MO MMTEL voice call is not started, MO MMTEL video call is not started and MO SMSoIP is not started, MO SMS over NAS or MO SMS over S102 is not requested, the RRC establishment cause shall be set to Delay tolerant. (See Note 1) | "originating calls" | |
|  | If a SERVICE REQUEST is to request user plane radio resources, an MO MMTEL voice call is started, and the UE is configured for NAS signalling low priority, the RRC establishment cause shall be set to MO data. (See Note 1, Note 3) | "originating MMTEL voice" | |
|  | If a SERVICE REQUEST is to request user plane radio resources, an MO MMTEL video call is started, and the UE is configured for NAS signalling low priority, the RRC establishment cause shall be set to MO data. (See Note 1, Note 3) | "originating MMTEL video" | |
|  | If a SERVICE REQUEST is to request user plane radio resources, an MO SMSoIP is started, and the UE is configured for NAS signalling low priority, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating SMSoIP" | |
|  | If a SERVICE REQUEST is to request resources for UL signalling for MO SMS over NAS or MO SMS over S102 and the UE is configured for NAS signalling low priority, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating SMS" | |
|  | If a SERVICE REQUEST is a response to paging where the CN domain indicator is set to "PS", the RRC establishment cause shall be set to MT access. (See Note 1) | "terminating calls" | |
|  | If a SERVICE REQUEST is triggered to request resources for ProSe direct discovery or ProSe direct communication as specified in 3GPP TS 36.331 [22], the RRC establishment cause shall be set to MO data. (See Note 1) | "originating calls" | |
|  | If a SERVICE REQUEST is triggered to request resources for ProSe direct discovery or ProSe direct communication as specified in 3GPP TS 36.331 [22] and the UE is configured for NAS signalling low priority, the RRC establishment cause shall be set to Delay tolerant. (See Note 1) | "originating calls" | |
|  | If a SERVICE REQUEST is triggered to request resources for V2X communication over PC5, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating calls" | |
|  | If a SERVICE REQUEST is triggered to request resources for V2X communication over PC5 and the UE is configured for NAS signalling low priority, the RRC establishment cause shall be set to Delay tolerant. (See Note 1) | "originating calls" | |
|  | If an EXTENDED SERVICE REQUEST has service type set to "packet services via S1" and is to request user plane radio resources for emergency bearer services, the RRC establishment cause shall be set to Emergency call. (See Note 1) | "emergency calls" | |
|  | If an EXTENDED SERVICE REQUEST has service type set to "packet services via S1" and is triggered by a PDN CONNECTIVITY REQUEST that has request type set to "emergency" or "handover of emergency bearer services", the RRC establishment cause shall be set to Emergency call. (See Note 1) | "emergency calls" | |
|  | If an EXTENDED SERVICE REQUEST has service type set to "packet services via S1" and is a response to paging where the CN domain indicator is set to "PS", the RRC establishment cause shall be set to MT access. (See Note 1) | "terminating calls" | |
|  | If an EXTENDED SERVICE REQUEST has service type set to "mobile originating CS fallback or 1xCS fallback" and is to request mobile originating 1xCS fallback, or if an EXTENDED SERVICE REQUEST is a response to paging for 1xCS fallback received over cdma2000® 1xRTT and has service type set to "mobile terminating CS fallback or 1xCS fallback", the RRC establishment cause shall be set to MO data. (See Note 1). | "originating calls" | |
|  | If an EXTENDED SERVICE REQUEST has service type set to "mobile originating CS fallback or 1xCS fallback" and is to request mobile originating CS fallback, the RRC establishment cause shall be set to MO data. (See Note 1). | "mobile originating CS fallback" | |
|  | If an EXTENDED SERVICE REQUEST is a response to paging for CS fallback, service type set to "mobile terminating CS fallback or 1xCS fallback", the RRC establishment cause shall be set to MT access. (See Note1, Note 2). | "terminating calls" | |
|  | If an EXTENDED SERVICE REQUEST has service type set to "mobile originating CS fallback emergency call or 1xCS fallback emergency call", the RRC establishment cause shall be set to Emergency call.  (See Note 1). | "emergency calls" | |
|  | If an EXTENDED SERVICE REQUEST contains the Device properties IE with low priority indicator set to "MS is not configured for NAS signalling low priority", and MO MMTEL voice call is not started, MO MMTEL video call is not started and MO SMSoIP is not started, MO SMS over NAS or MO SMS over S102 is not requested, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating calls" | |
|  | If an EXTENDED SERVICE REQUEST contains the Device properties IE with low priority indicator set to "MS is not configured for NAS signalling low priority" and an MO MMTEL voice call is started, the RRC establishment cause shall be set to MO data. (See Note 1, Note 3) | "originating MMTEL voice" | |
|  | If an EXTENDED SERVICE REQUEST contains the Device properties IE with low priority indicator set to "MS is not configured for NAS signalling low priority" and an MO MMTEL video call is started, the RRC establishment cause shall be set to MO data. (See Note 1, Note 3) | "originating MMTEL video" | |
|  | If an EXTENDED SERVICE REQUEST contains the Device properties IE with low priority indicator set to "MS is not configured for NAS signalling low priority" and an MO SMSoIP is started, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating SMSoIP" | |
|  | If an EXTENDED SERVICE REQUEST contains the Device properties IE with low priority indicator set to "MS is not configured for NAS signalling low priority" and an MO SMS over NAS or MO SMS over S102 is requested, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating SMS" | |
|  | If an EXTENDED SERVICE REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority", and MO MMTEL voice call is not started, MO MMTEL video call is not started and MO SMSoIP is not started, MO SMS over NAS or MO SMS over S102 is not requested, the RRC establishment cause shall be set to Delay tolerant. (See Note 1). | "originating calls" | |
|  | If an EXTENDED SERVICE REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority" and an MO MMTEL voice call is started, the RRC establishment cause shall be set to MO data. (See Note 1, Note 3) | "originating MMTEL voice" | |
|  | If an EXTENDED SERVICE REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority" and an MO MMTEL video call is started, the RRC establishment cause shall be set to MO data. (See Note 1, Note 3) | "originating MMTEL video" | |
|  | If an EXTENDED SERVICE REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority" and an MO SMSoIP is started, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating SMSoIP" | |
|  | If an EXTENDED SERVICE REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority" and an MO SMS over NAS or MO SMS over S102 is requested, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating SMS" | |
|  | If an EXTENDED SERVICE REQUEST contains the Device properties IE with low priority indicator set to "MS is not configured for NAS signalling low priority" and is triggered to request resources for ProSe direct discovery or ProSe direct communication, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating calls" | |
|  | If an EXTENDED SERVICE REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority" and is triggered to request resources for ProSe direct discovery or ProSe direct communication, the RRC establishment cause shall be set to Delay tolerant. (See Note 1) | "originating calls" | |
|  | If an EXTENDED SERVICE REQUEST contains the Device properties IE with low priority indicator set to "MS is not configured for NAS signalling low priority" and is triggered to request resources for V2X communication over PC5, the RRC establishment cause shall be set to MO data. (See Note 1) | "originating calls" | |
|  | If an EXTENDED SERVICE REQUEST contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority" and is triggered to request resources for V2X communication over PC5, the RRC establishment cause shall be set to Delay tolerant. (See Note 1) | "originating calls" | |
|  | If a CONTROL PLANE SERVICE REQUEST is a response to paging where the Control plane service type is set to "mobile terminating request", the RRC establishment cause shall be set to MT access. (see Note 1) | "terminating calls" | |
|  | If a CONTROL PLANE SERVICE REQUEST is to transfer user data or to request resources for UL signalling , the RRC establishment cause shall be set to MO data. (see Note 1) | "originating calls" | |
|  | If a CONTROL PLANE SERVICE REQUEST is to transfer user data or to request resources for UL signalling and contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority", the RRC establishment cause shall be set to Delay tolerant. (see Note 1) | "originating calls" | |
|  | In WB-S1 Mode, if a CONTROL PLANE SERVICE REQUEST is to transfer MO SMS, the RRC establishment cause shall be set to MO data. (see Note 1) | "originating SMS" | |
|  | In NB-S1 Mode, if a CONTROL PLANE SERVICE REQUEST is to transfer MO SMS, the RRC establishment cause shall be set to MO data. | "originating calls" | |
|  | In NB-S1 Mode, if a CONTROL PLANE SERVICE REQUEST is to transfer MO SMS and contains the Device properties IE with low priority indicator set to "MS is configured for NAS signalling low priority", the RRC establishment cause shall be set to Delay tolerant. | "originating calls" | |
|  | If the UE is allowed to use exception data reporting (see the ExceptionDataReportingAllowed leaf of the NAS configuration MO in 3GPP TS 24.368 [15A] or the USIM file EFNASCONFIG in 3GPP TS 31.102 [17]) and a CONTROL PLANE SERVICE REQUEST is to perform initial data transfer related to an exceptional event, the RRC establishment cause shall be set to MO exception data. | "originating calls" | |
| Note 1: For these NAS procedures in WB-S1 mode initiated by UEs of access class 12, 13 or 14 in their home country, the RRC establishment cause will be set to "High priority access AC 11 – 15". For this purpose, the home country is defined as the country to which the MCC part of the IMSI is associated, see 3GPP TS 23.122 [6] for the definition of country.  For these NAS procedures in WB-S1 mode initiated by UE of access class 11 or 15 in their HPLMN (if the EHPLMN list is not present or is empty) or EHPLMN (if the EHPLMN list is present), the RRC establishment cause will be set to "High priority access AC 11 – 15".  Note 2: This row is not applicable for mobile terminating 1xCS fallback with 1xCS paging request received over E-UTRAN.  Note 3: For these NAS procedures, the lower layers can change the RRC establishment cause from "MO data" or from "MO Signalling" to "MO Voice Call", if the serving cell requests the UE to use the RRC establishment cause "MO voice call" (see 3GPP TS 36.331 [22]).  Note 4: It is an implementation option to initiate attach request carrying a PDN CONNECTIVITY REQUEST with request type "handover of emergency bearer services" to support access transfer of an ongoing emergency session from non-3GPP access to 3GPP access when the UE is not already in EMM-REGISTERED state. | | | |  |

NOTE: The RRC establishment cause can be used by the network to prioritise the connection establishment request from the UE at high load situations in the network.

Annex E (informative):  
Guidelines for enhancements to MS network capability IE and UE network capability IE

The UE uses the information elements MS network capability and UE network capability to inform the core network about its network related capabilities. Both information elements can be signalled in any of the modes: A/Gb mode, Iu mode and S1 mode.

The purpose of the present annex is to give some guidelines how to select the information element(s) to be enhanced if new capabilities need to be added.

1) If a capability is related to a feature that can be used in a network supporting A/Gb mode only or Iu mode only or both, the capability will be signalled in the MS network capability IE.

2) If a capability is related to a feature that can be used in network supporting S1 mode only, the capability will be signalled in the UE network capability IE.

3) If a capability is related to a feature that can be used only in a network supporting both S1 mode and at least one of the two modes A/Gb mode and Iu mode, the capability is added only to one of the two information elements:

a) If the information is used by the MME only, the capability will be signalled in the UE network capability IE.

b) If the information is used by the SGSN only or both by the SGSN and by the MME, the capability will be signalled in the MS network capability IE.

NOTE: The reason for rules 1 and 2 is that a UE not supporting A/Gb mode and Iu mode will not provide the MS network capability IE to the network and a UE not supporting S1 mode will not provide the UE network capability IE. In some cases, due to rules 1 and 2 the capability indicator will be included in both information elements.

EXAMPLE 1: The support indicator for UCS2 is included in both information elements.

EXAMPLE 2: The "SRVCC to GERAN/UTRAN capability" is included in the MS network capability IE, as it is used both by the MME for SRVCC from E-UTRAN to GERAN/UTRAN and by the SGSN for SRVCC from UTRAN HSPA to GERAN/UTRAN.

Annex F (normative):  
Application specific Congestion control for Data Communication (ACDC)

The UE may support the procedures in this annex.

If the UE supports ACDC, the EMM layer shall determine the ACDC category applicable to the request based on the application identifier received from the upper layers and the configuration information in the "ACDCConf" leaf of ACDC MO as specified in 3GPP TS 24.105 [35] or in the USIM EFACDC as specified in 3GPP TS 31.102 [17].

NOTE 1: As an implementation option, the upper layers can determine the ACDC category and send it to the EMM layer. Then the EMM layer need not read the ACDC MO or USIM to determine the ACDC category.

The EMM sublayer shall indicate to the lower layers, for the purpose of access control:

- the ACDC category that applies to this request if only one ACDC category is applicable;

- the highest ranked ACDC category among the ACDC categories that applies to this request if multiple ACDC categories are applicable; or

- this request is for an uncategorized application if an application identifier received from the upper layers is not mapped to any ACDC category,

except for the following cases:

- the UE is a UE configured to use AC11 – 15 in selected PLMN;

- the UE is answering to paging;

- the RRC Establishment cause is set to "Emergency call"; or

- if conditions MO MMTEL voice call is started or MO MMTEL video call is started or MO SMSoIP is started, is satisfied.

NOTE 2: The request from the EMM sublayer refers to either a request to establish an initial NAS signalling connection or a request to re-establish a NAS signalling connection.

If the UE supports ACDC and access is barred because of ACDC, the EMM layer shall keep track of the ACDC category for which access is barred and it shall not send a request for the same ACDC category or a lower ACDC category until access is granted.

If the UE supports ACDC and access is barred because of ACDC, the EMM layer shall not send a request for any uncategorized application until access is granted.

Annex G (informative):  
Change history

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Change history** | | | | | | | |
| **Date** | **TSG #** | **TSG Doc.** | **CR** | **Rev** | **Subject/Comment** | **Old** | **New** |
| 2008-02 |  |  |  |  | Draft skeleton provided |  | 0.0.0 |
| 2008-02 | CT1#51 bis |  |  |  | Includes the following contributions agreed by CT1: C1-080690, C1-080743, C1-080769 | 0.0.0 | 0.1.0 |
| 2008-03 | e-mail review |  |  |  | Correction of references that were not updated during the implementation of C1-080769 | 0.1.0 | 0.1.1 |
| 2008-04 | CT1#52 |  |  |  | Includes the following contributions agreed by CT1: C1-080943, C1-081020, C1-081037, C1-081057, C1-081058, C1‑081268, C1-081269, C1-081272, C1-081273, C1-081278, C1‑081280, C1-081289, C1-081290, C1-081291, C1-081292, C1‑081296, C1-081301, C1-081302, C1-081387, C1-081407, C1‑081409, C1-081417, C1-081418, C1-081436, C1-081437, C1‑081438, C1-081439, C1-081440, C1-081442 | 0.1.1 | 0.2.0 |
| 2008-05 | CT1#53 |  |  |  | Includes the following contributions agreed by CT1: C1-081650, C1-081651, C1-081878, C1-081886, C1-081887, C1‑081888, C1-081889, C1-081890, C1-081971, C1-081972, C1‑081973, C1-081974, C1-081975, C1-081978, C1-081979, C1‑081988, C1-081989, C1-081990, C1-081991, C1-081992, C1‑081993, C1-081994, C1-081996, C1-081997, C1-081998, C1‑081999, C1-082000, C1-082062, C1-082095, C1-082097, C1‑082099, C1-082100, C1-082101, C1-082111 | 0.2.0 | 0.3.0 |
| 2008-07 | CT1#54 |  |  |  | Includes the following contributions agreed by CT1: C1-082125, C1-082126, C1-082282, C1-082415, C1-082432, C1‑082485, C1-082487, C1-082510, C1-082572, C1-082573, C1‑082574, C1-082577, C1-082578, C1-082579, C1-082580, C1‑082586, C1-082588, C1-082589, C1-082633, C1-082634, C1‑082635, C1-082636, C1-082701, C1-082702, C1-082703, C1‑082705, C1-082719, C1-082720, C1-082722, C1-082723, C1‑082724, C1-082725, C1-082726, C1-082727, C1-082728, C1‑082729, C1-082791, C1-082794, C1-082795, C1-082797, C1‑082802, C1-082807, C1-082811, C1-082816, C1-082819, C1‑082820 | 0.3.0 | 0.4.0 |
| 2008-08 | CT1#55 |  |  |  | Includes the following contributions agreed by CT1: C1-082981, C1-082995, C1-082997, C1-083013, C1-083030, C1‑083031, C1-083032, C1-083056, C1-083131, C1-083139, C1‑083140, C1-083146, C1-083151, C1-083168, C1-083442, C1‑083445, C1-083450, C1-083452, C1-083453, C1-083454, C1‑083456, C1-083457, C1-083461, C1-083462, C1-083463, C1‑083465, C1-083468, C1-083471, C1-083472, C1-083473, C1‑083474, C1-083476, C1-083477, C1-083517, C1-083522, C1‑083580, C1-083581, C1-083582, C1-083583, C1-083584, C1‑083588, C1-083591, C1-083592, C1-083593, C1-083597, C1‑083598, C1-083599, C1-083605, C1-083606, C1-083607, C1‑083609, C1-083616, C1-083619, C1-083629, C1-083630, C1‑083635, C1-083636, C1-083638 | 0.4.0 | 0.5.0 |
| 2008-09 | - | - | - | - | Version 1.0.0 created for presentation to TSG CT#41 for information | 0.5.0 | 1.0.0 |
| 2008-10 | CT1#55 bis |  |  |  | Includes the following contributions agreed by CT1: C1-083788, C1-083789, C1-083948, C1-083949, C1-083953, C1‑084002, C1-084012, C1-084104, C1-084143, C1-084144, C1‑084146, C1-084308, C1-084310, C1-084316, C1-084329, C1‑084332, C1-084333, C1-084335, C1-084337, C1-084338, C1‑084340, C1-084341, C1-084343, C1-084344, C1-084346, C1‑084348, C1-084349, C1-084351, C1-084352, C1-084353, C1‑084355, C1-084357, C1-084358, C1-084359, C1-084360, C1‑084362, C1-084381, C1-084475, C1-084478, C1-084479, C1‑084480, C1-084484, C1-084490, C1-084491, C1-084492, C1‑084499, C1-084551, C1-084554 | 1.0.0 | 1.1.0 |
| 2008-10 | e-mail review |  |  |  | Correction of implementation of C1-084492 | 1.1.0 | 1.1.1 |
| 2008-10 | e-mail review |  |  |  | Correction of implementation of C1-084353 | 1.1.1 | 1.1.2 |
| 2008-11 | CT1#56 |  |  |  | Includes the following contributions agreed by CT1: C1-084592, C1-084610, C1-084624, C1-084627, C1-084666, C1‑084668, C1-084747, C1-084785, C1-084925, C1-084926, C1‑084976, C1-084977, C1-085167, C1-085170, C1-085171, C1‑085172, C1-085174, C1-085175, C1-085178, C1-085180, C1‑085199, C1-085304, C1-085310, C1-085312, C1-085313, C1‑085315, C1-085317, C1-085356, C1-085372, C1-085381, C1‑085385, C1-085387, C1-085388, C1-085390, C1-085392, C1‑085394, C1-085396, C1-085398, C1-085399, C1-085505, C1‑085506, C1-085508, C1-085509, C1-085510, C1-085511, C1‑085512, C1-085513, C1-085514, C1-085515, C1-085518, C1‑085520, C1-085521, C1-085528, C1-085533, C1-085539, C1‑085540, C1-085541, C1-085542, C1-085545, C1-085550, C1‑085551, C1-085552, C1-085553 | 1.1.2 | 1.2.0 |
| 2008-11 | review |  |  |  | Correction of implementation of C1-084926, C1-085180 | 1.2.0 | 1.2.1 |
| 2008-11 |  |  |  |  | Version 2.0.0 created for presentation to TSG CT#42 for approval | 1.2.1 | 2.0.0 |
| 2008-12 | CT-42 |  |  |  | Version 8.0.0 created after approval in CT#42 | 2.0.0 | 8.0.0 |
| 2009-03 | CT-43 | CP-090153 | 0003 | 2 | Clarification of the timer T3413 in paging procedure for CSFB | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0004 | 2 | Clarification of the abnormal case in UE requested PDN connectivity procedure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0006 | 1 | Clarification on expiration of T3417 | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0010 | 1 | Clean up the unuseful definition and complete sentence | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090127 | 0011 | 1 | Cleanup the definition of the TAI list | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090131 | 0015 | 1 | Updating the identities of forbidden tracking areas | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090153 | 0017 | 2 | the handling of the UE after the EPS detach only | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090130 | 0019 | 2 | Resolve editors'notes for NAS security | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090130 | 0022 | 1 | APN-AMBR Clarifications | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090130 | 0023 | 2 | State change to EMM-DEREGISTERED for non-3GPP access | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090131 | 0025 | 2 | Updating the APN-AMBR of the UE after inter-system handover to S1 mode | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090129 | 0027 | 2 | Provision of RRC establishment cause values by EPS NAS | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090131 | 0034 | 2 | Update to Paging using IMSI procedure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090131 | 0035 | 1 | Update the PDN address IE to Mandatory | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090131 | 0037 | 1 | Update to the detach procedure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090130 | 0039 | 3 | Security and inter RAT mobility to E-UTRAN | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090129 | 0040 | 1 | KSI inclusion in Detach Request | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0044 | 1 | Editorials on security issues | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090125 | 0045 | 2 | Behaviour on Service Reject(cause#10), relationship between SM and ESM state machines, inclusion of PDP context parameters | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0046 | 2 | Clarifications on issues for bearer context states | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090130 | 0050 |  | Remove Editors Note for TAI length | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090130 | 0051 | 1 | Correct use of cdma terminology | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090125 | 0059 | 1 | Addition of actions on receiving an ESM STATUS message | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090125 | 0060 | 1 | Addition of the definition of casue value #47 (PTI mismatch) | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0061 | 1 | Editorial corrections on the definition of default bearer and the ESM message names | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090127 | 0062 | 2 | Correction to error cause value #9 and integrity check failure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090129 | 0064 |  | IPv6 interface identifier coding | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0066 | 3 | Clarification for local release of bearers | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090127 | 0068 | 1 | Corrections for Attach failure procedure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090130 | 0069 | 2 | Re-transmission of EMM DL NAS message handling due to handover | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090130 | 0070 | 2 | Re-transmission of ESM DL NAS message handling due to handover | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090129 | 0071 |  | Paging for EPS services using IMSI and DRX | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090129 | 0075 | 2 | Coordination of ESM and EMM sublayers for supporting ISR | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0076 | 1 | Handling of TAI list at the UE | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090131 | 0078 | 2 | UE specific DRX Parameter handling in ATTACH/TAU procedure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090131 | 0081 | 1 | Handling of security context during state transitions | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090131 | 0082 | 2 | Trigger for initiating ciphering protection | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090131 | 0085 | 2 | UE action related to ISR local deactivation | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090153 | 0088 | 3 | Clarification on CLI usage | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090153 | 0092 | 1 | Abnormal case handling for Extended Service request | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090259 | 0093 | 4 | UE behaviour when UE support of CSG selection is optional | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090153 | 0094 | 2 | Conditions for initiating TAU and combined TAU | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090127 | 0095 | 1 | Corrections for attach and TAU attempt counters | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090129 | 0096 | 1 | Network initiated detach procedure corrections | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0097 | 1 | EMM states cleanup | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0099 | 2 | Supervision timer and corrections for the extended service request procedure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090153 | 0100 | 1 | Corrections for combined attach procedure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090153 | 0102 | 2 | Definition of NAS Message Container and Removal of Editor's Note | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090125 | 0103 | 1 | Adding missing procedure figure to Service Request | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0104 | 1 | Introduction of the Local Emergency Numbers List | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090129 | 0105 | 2 | New cause value for separation bit failure in authentication | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090153 | 0106 | 3 | Solving editor's notes in Annex A.3 | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090131 | 0109 | 2 | Update on security procedure section | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0112 | 1 | Clarification on Dedicated bearer setup procedure failure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090129 | 0116 | 1 | New ESM cause value for collision with network initiated request | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090129 | 0117 | 1 | Populating PDN type IE value in PDN CONNECTIVITY REQUEST message | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090153 | 0119 | 2 | Extended service request for 1xCSFB | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090129 | 0125 | 1 | ODB Error Cause Clarification | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090129 | 0128 |  | NAS recovery on/off mechanism(LTE) | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0129 | 1 | Introduce definition of EPS services and non-EPS services | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090129 | 0131 | 1 | Proposal of UE GMM and MM behavior on reception of error cause #9 when UE executed TAU, combined TAU and Service Request | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0135 | 1 | Clarifications on IP address handling | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090131 | 0136 | 1 | Unsuccessful cases for pre-registration | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090131 | 0137 | 2 | Use of P-TMSI for the attach procedure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090127 | 0138 |  | Cleanup of editor's notes | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090127 | 0139 | 1 | Correction of the paging procedure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090127 | 0140 | 1 | Cleanup of editor's notes for ESM abnormal cases | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090127 | 0141 |  | Definition of ESM cause #54 | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090127 | 0142 |  | Definition of security related IEs for inter-system handover | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090130 | 0143 |  | Removal of ISR bit from UE network capability | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090127 | 0144 |  | Correction of detach procedure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090125 | 0145 | 1 | Addition of text for subclause 4.1, Overview | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090125 | 0146 | 1 | Addition of text for subclause 6.1.1, General | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090125 | 0147 | 1 | Addition of text for subclause 6.1.2, Types of ESM procedures | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090157 | 0152 |  | Correction of cause#25 handling | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0153 |  | Description of procedure transaction states for the network | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090129 | 0154 | 1 | Moving the description of the eKSI to subclause 4.4 | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090129 | 0155 | 3 | CS Service Notification | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0158 | 1 | E9.04, removal of Editor's note in 9.5 | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0159 |  | E4.03 and E9.05, removal of Editor's notes in 4.3.3.1 and 9.6 | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0160 | 2 | Inclusion of APN in PDN connectivity request | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0162 | 2 | Clarification on local EPS bearer context deactivation | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090131 | 0163 | 2 | Unciphered network operation | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0164 |  | ESM cause value #53 missing in 6.5.1.4 | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090130 | 0165 | 1 | Reservation of "reserved" and "unused" code points | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0166 |  | Editorial modification to add a "new line" character | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090125 | 0167 | 2 | Activation of dedicated bearers during attach procedure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090125 | 0168 | 2 | Additions to " EPS bearer context deactivation initiated by the network" | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090130 | 0170 |  | Removal of EN for TAU reject (cause #12) | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090130 | 0171 | 2 | Security Terminolgy Change to Reflect 33.401 | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090125 | 0172 | 1 | Alignment of cause representation | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090127 | 0173 |  | Correction of fields within Detach type IE | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0174 |  | Deletion of editor's note for 2 digit MNC | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0176 | 2 | Clarification of the network behaviour on SMC rejection | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090125 | 0178 | 1 | Add an abnormal case in the dedicated EPS bearer context activation procedure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0181 | 3 | Clarify the collison between detach and service request procedure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090127 | 0186 | 1 | Correction of QCI | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0187 |  | Clarifications related to the use of "active flag" | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090153 | 0189 | 1 | Corrections for CS/PS mode 1 and CS/PS mode 2 of operation | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0195 | 1 | ESM information transfer flag | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090125 | 0198 |  | Attach attempt counter | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090128 | 0199 | 1 | Error correction in reference for timer T3412 in TAU procedure | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0201 | 1 | Clarifications for request type | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0203 | 1 | Clarification of the use of NAS security header | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0205 | 1 | Proposal of UE GMM and MM behavior on reception of error cause #10 when UE executed TAU, combined TAU and Service Request | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090126 | 0206 |  | Definition of T3480, T3485, T3486, T3495 timer duration; Corrections on EPS bearer identity checking | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090215 | 0207 | 3 | Clarification of UE requested ESM procedures | 8.0.0 | 8.1.0 |
| 2009-03 | CT-43 | CP-090157 | 0208 |  | Corrections to CSG related NAS behavior | 8.0.0 | 8.1.0 |
| 2009-06 | CT-44 | CP-090421 | 0190 | 1 | Cleanup for transport of NAS messages procedure | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090410 | 0210 | 1 | TAU handling | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090410 | 0214 |  | NAS security parameters for inter system handovers | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090410 | 0216 | 2 | Transmission failure of EMM messages | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090410 | 0217 | 1 | Clarifications on protocol discriminator for security protected NAS message | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090410 | 0219 | 1 | Clarifications related PDN disconnect request, ESM information request, EPS bearer context modification request and bearer resource allocation request procedures | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090410 | 0220 |  | Service Reject(cause #12) | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090410 | 0227 | 1 | Security context cleanup at Security Mode Reject | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090410 | 0228 | 2 | Removal of KSIASME from TAU accept | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090410 | 0229 |  | Add missing LV-E format | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090410 | 0230 |  | New value for ESM timer T3482 | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090410 | 0231 |  | EPS mobile identity octet numbering | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0232 | 2 | PDN connectivity reject cause value corrections | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0233 | 1 | MME handling of lower layer failure during the attach procedure | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0239 | 1 | Null ciphering algorithm | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0242 | 1 | EPS security modification | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0243 | 2 | Clarification regarding bearer resource allocation procedure, EPS bearer identity and PTI in several ESM messages. | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0244 | 1 | Removal of default PDN | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0245 | 2 | Add description of cause #40 in Annex A | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0246 | 2 | Correct the UE behavior of handling ESM message | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0247 | 1 | Clarify the UE behavior upon reception of some reject messages | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090498 | 0251 | 5 | eKSI definition in NAS messages | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0252 | 1 | eKSI in Service Request message | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0257 |  | Remove unused ESM cause value #40 – "Feature not supported" | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090421 | 0260 | 1 | Abnormal case handling for Extended Service request in 1xCSFB | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0269 | 1 | Resolution of Editor's Note in subclause 5.4.4.2 | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0272 |  | Update the cause of start and stop of T3413 | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090421 | 0274 |  | The collison handling for Extended Service Request | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0275 |  | Handling of undefined QCI values | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0276 | 1 | Relation between HNP and HA delivered through PCO | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0277 |  | Corrections on abnormal case in UE requested PDN connectivity procedure | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090411 | 0280 | 1 | Correction of UE requested resource procedures | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0282 | 1 | More precise general text for UE requested PDN connectivity procedure | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0283 |  | Alignment of cause representation | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0284 |  | Text clean up in 24.301 | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0292 | 1 | Correction for the main state change in the UE | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0293 | 1 | Correction for implicit detach timer | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0296 | 1 | Clarification on Local Network initiated detach procedure without EMM signalling | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0300 | 2 | Correction for the EPS mobile identity | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090421 | 0301 |  | Impacts of successful combined registration on forbidden LAs lists | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090421 | 0302 |  | CS/PS mode 1 UE behaviour on reception of cause #18 | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0303 |  | Corrections on handling of UE network capability | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090421 | 0304 |  | Cleanup for EMM procedures | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090421 | 0306 | 1 | Handling of non-semantical mandatory information element errors in the PDN DISCONNNECT REQUEST message. | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0309 | 2 | Clarification on the registered PLMN for Network Sharing | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090421 | 0312 | 1 | Definition of kbps | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090421 | 0315 | 2 | Sending UE Id in the CS Service Notification | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0318 | 1 | Clarification of EPS QoS length | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0319 |  | Removal of unnecessary TAU procedure after abnormal bearer allocation failure | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0320 | 1 | Set of minor corrections to TS 24.301 | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0321 | 2 | Clarifications to 24.301 | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0322 | 1 | Set of corrections to security procedure | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 | CP-090412 | 0328 |  | Clarification on access class applicability | 8.1.0 | 8.2.0 |
| 2009-06 | CT-44 |  |  |  | Correction of minor typo | 8.2.0 | 8.2.1 |
| 2009-09 | CT-45 | CP-090650 | 0226 | 7 | Correcting ESM and SM coordination | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090651 | 0255 | 4 | Definition of valid GUTI | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090674 | 0266 | 3 | Clarification of T3212 | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090653 | 0310 | 6 | TFT for default bearer | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090630 | 0329 | 9 | Corrections in TFT checks | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090653 | 0330 | 4 | Resynchronization of EPS bearer contexts on TAU without active flag | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090652 | 0333 | 2 | Inclusion of GERAN/UTRAN parameters in ESM messages | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090650 | 0337 | 1 | Clarifications on usage of EPS security context | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090650 | 0338 | 1 | BCM mode notification for LTE UE | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090677 | 0340 |  | Update to the CSG ID definition | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090653 | 0344 |  | Replacing "MS" by "UE" | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090651 | 0345 | 1 | Correction of error handling | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090677 | 0346 | 1 | Clarifications related to manual CSG selection | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090674 | 0358 | 2 | Handling of UE's usage setting, voice setting and VoIMS indicator – 24.301 | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090653 | 0362 | 2 | Storing EPS security parameters | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090674 | 0370 | 2 | Clarification on CSFB using redirection | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090674 | 0372 | 5 | Disabling E-UTRAN capability for the voice centric UE | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090651 | 0374 | 2 | Detach procedure for the last PDN disconnect by the network | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090650 | 0375 | 1 | Correction for network abnormal case - Attach and TAU procedures collision | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090650 | 0376 | 2 | Correction for abnormal case on network side due to lower layer failure | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090650 | 0379 | 4 | Inclusion of Old P-TMSI signature IE in ATTACH REQUEST and TRACKING AREA UPDATE REQUEST | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090652 | 0380 | 1 | Interaction between S1 mode and A/Gb or Iu mode | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090653 | 0381 | 1 | Selected PLMN identity at NAS signalling connection establishment | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090674 | 0382 | 4 | Aligning UE modes of operation definition with stage 2 principles for CS domain and IM CN Subsystem selection | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090651 | 0388 | 2 | Corrections for abnormal case of GUTI REALLOCATION procedure | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090677 | 0389 | 1 | The abnormal case of detach for CSG | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090652 | 0391 | 2 | Handling of unknown QCI in the network | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090674 | 0393 | 1 | Corrections for TAU complete initiation | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090674 | 0395 | 1 | Corrections for Combined TAU procedure initiation | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090652 | 0396 | 1 | NAS COUNT estimation correction | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090653 | 0397 | 2 | Security protection of Security mode reject | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090653 | 0398 | 1 | Rename of ESM cause #30 and #31 | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090650 | 0400 | 2 | Abnormal case of combined default bearer and dedicated bearer | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090650 | 0405 | 1 | Clarification of behavior upon reception of ESM cause #43 | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090674 | 0407 | 1 | Correcting service type and EPS update type | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090650 | 0408 |  | Addition of missing LV-E format | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090650 | 0409 | 1 | Clarification on APN-AMBR IE description | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090650 | 0411 | 2 | Clarification on abnormal cases in the UE for a few ESM procedures | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090651 | 0413 | 1 | Correction for the misplaced ESM message | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090733 | 0415 | 1 | Additional triggers for tracking area update procedure | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090651 | 0417 | 2 | Deletion of mapped context after detach | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090651 | 0419 | 1 | Corrections to EPS security context handling | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090652 | 0425 | 2 | Providing the MSISDN to the MS | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090651 | 0426 |  | Correction QCI within EPS quality of service information | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090653 | 0428 |  | Removal of inclusion of cause#46 in some ESM reject messages | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090651 | 0429 |  | Correction of definition of Linked EPS bearer identity IE | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090652 | 0430 | 1 | MME and network synchronisation during TAU | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090650 | 0439 | 2 | Clarification to UE requested bearer modification procedure | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090674 | 0442 |  | Dependency between transport of NAS messages procedure and other EMM procedures | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090650 | 0447 | 1 | Correction for EPS update status change | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090653 | 0448 | 2 | Security handling of TAU | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090651 | 0449 | 1 | Correction for the usage of Additional GUTI IE | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090674 | 0452 | 1 | Corrections for detach procedure | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090675 | 0459 | 1 | Paging for SMS messages | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090650 | 0461 | 1 | Clarification of the abnormal case in the attach procedure | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090652 | 0469 | 1 | Miscelleneous corrections to references and incorrect aspects of the specification | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090653 | 0479 | 2 | Radio capability handling | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090653 | 0481 | 3 | UE handling unknown QCI value received from the network | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090652 | 0482 | 1 | Local deactivation of GBR EPS bearer context at MME during RLF | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090682 | 0487 | 1 | Graphs for paging procedures | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090650 | 0490 |  | Clarification of bearer context deactivation procedure and correction for ESM cause name | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090675 | 0494 | 1 | Parameters for SMS over SGs charging | 8.2.1 | 8.3.0 |
| 2009-09 | CT-45 | CP-090682 | 0331 | 2 | Clarifications related to security mode control procedure | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090694 | 0341 | 2 | Paging Optimization | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090689 | 0342 | 1 | Including call type "emergency calls" | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090689 | 0343 | 1 | Introducing reject cause value for emergency service over EPS | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090689 | 0347 | 3 | Bearer resource allocation for emergency service | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090690 | 0348 | 4 | PDN Connection for emergency service | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090690 | 0349 | 3 | Types of EMM procedures for emergency service | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090689 | 0351 | 3 | Authentication failure for emergency service | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090689 | 0352 | 2 | Limited service state attach for emergency service | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090689 | 0353 | 4 | Emergency service security | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090689 | 0356 | 2 | Emergency service authentication | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090682 | 0366 | 2 | Clarify terminology of PTI assignment in bearer context | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090690 | 0422 | 1 | Null algorithm for integrity protection | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090690 | 0433 | 2 | UE states and attach for emergency services | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090690 | 0440 | 1 | Update the forbidden TAI list in the limited state | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090690 | 0441 | 1 | Bearer resource modification for emergency bearer | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090690 | 0444 | 1 | Support indications for IMS Voice over PS session and emergency call | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090689 | 0456 | 2 | Clarification about the UE handling with the TAI list in the forbidden TA | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090690 | 0464 | 1 | GUTI allocation for the UE without USIM | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090689 | 0466 | 2 | Handling of attach rejection for emergency service | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090689 | 0468 | 2 | Deactivating non-emergency bearers | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090689 | 0473 | 3 | Limited service state attach for emergency service | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090689 | 0474 | 1 | Detach on timeout for emergency service | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090689 | 0476 | 1 | HSS detach request and deactivate non-emergency bearers | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090694 | 0483 | 1 | Update of allowed CSG list after successful manual selection of a CSG cell in a different PLMN | 8.3.0 | 9.0.0 |
| 2009-09 | CT-45 | CP-090682 | 0493 | 1 | Discard unencrypted NAS messages | 8.3.0 | 9.0.0 |
| 2009-12 | CT-46 | CP-090922 | 0485 | 5 | ESM retransmission and PTI mismatch issue | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090930 | 0496 | 2 | Stop paging optimization for emergency attached UE | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090930 | 0497 | 4 | RRC establishment cause for Emergency Service | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090935 | 0498 | 3 | Clarification on the Closed mode CSG cell | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090922 | 0499 | 2 | Corrections for description of UE behaviour in state EMM-REGISTERED | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090935 | 0500 | 3 | Operator CSG List | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090899 | 0505 | 1 | Mapped QCI Handling in UE | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090930 | 0507 | 1 | Correction on Timer handling | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090898 | 0512 |  | Correction of criterion to trigger TAU | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090930 | 0513 | 1 | Specification of EPS emergency bearer services attach rules | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090930 | 0515 | 4 | TAU authentication while attached for emergency services | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090915 | 0518 | 3 | UE mode of operation selection corrections and additions | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090935 | 0521 | 4 | Processing the reject cause code #25 for the Operator CSG List | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090930 | 0523 |  | Deactivating non-emergency bearers | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090922 | 0524 | 3 | Clarification for TAU trigger for NAS recovery | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090916 | 0526 | 4 | Correction to the SMS paging procedure | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090922 | 0529 | 1 | Correction to conditions for EMM initiating service request | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090930 | 0530 |  | EMM state machine on the UE side for emergency attach | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090930 | 0534 | 4 | EPS security context storage while emergency EPS security context exists | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090899 | 0540 | 2 | From MBR of default PDP context to APN-AMBR of default EPS bearer | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090922 | 0542 | 1 | Correction of length values for ESM message container IEIs | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090898 | 0546 | 1 | Correction to SMC procedure for establishment of mapped EPS security context in EMM-IDLE | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090898 | 0548 | 1 | Correction to establishment of mapped EPS security context during inter-sytem handover | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090898 | 0550 | 1 | Correction to the storage of the EPS security context | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090898 | 0552 | 4 | Correction to the EPS security context handling | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090898 | 0554 | 2 | Correction to the EPS authentication procedure | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090899 | 0556 | 4 | Transition to the EMM-DEREGISTERED state and EPS security context actions | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090898 | 0562 | 4 | Clarification of local detach | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090922 | 0563 | 2 | Clarifications on EPS security and minor corrections | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090916 | 0564 | 4 | Combined Attach and TAU for "SMS only" and "CS fallback not preferred", and related UE behaviour | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090916 | 0569 | 2 | Ignoring paging for CS fallback to A/Gb or Iu mode by an SMS only UE | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090899 | 0571 | 3 | Default value for T3412 | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090922 | 0574 | 2 | Enhanced CS fallback to 1xRTT | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090900 | 0576 | 5 | NAS count handling in idle mode inter-RAT mobility | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090900 | 0578 | 2 | NAS count handling on inter-RAT mobility | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090899 | 0580 |  | Integrity protection of DETACH REQUEST | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090926 | 0581 | 4 | Generic Transport of NAS messages | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090915 | 0584 | 1 | Clarification of disabling E-UTRAN capabilities | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090930 | 0585 | 1 | Handling of only Emergency Bearers existing scenarios | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090930 | 0588 | 1 | Remove Support of Emergency HO from HRPD to E-UTRAN | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090930 | 0589 | 1 | EMM context handling for emergency attach | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090916 | 0590 | 2 | Detach for "SMS only" | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090915 | 0592 | 1 | 1xCSFB triggers for RRC establishment | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090922 | 0593 | 2 | Detach with re-attach required | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090922 | 0594 |  | Paging cycles for EPS using S-TMSI | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090900 | 0598 | 1 | Defining the value of NAS COUNTs | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090898 | 0602 |  | Correcting the handling of multiple authentication failures in the UE | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090899 | 0604 | 1 | Handling of missing NAS Securirty Mode Complete when generating mapped context | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090900 | 0606 | 1 | Security handling when NAS COUNT wrap around | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090930 | 0607 | 2 | Deactivate non-EMC bearers with CSG ID not in allowed CSG list | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090922 | 0611 | 1 | Introduction of generic notification procedure | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090922 | 0615 | 1 | Clarifications on security | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090930 | 0618 | 1 | Rules for integrity protection with NULL algorithm | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090899 | 0620 | 1 | TFT corrections | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090922 | 0621 | 2 | Interpretation of GPRS timer value of 0 | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090930 | 0625 | 1 | Handling authentication failure during TAU | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090935 | 0626 | 1 | Removal of definition of Allowed CSG list | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090916 | 0629 | 1 | Abnormal cases in the UE for "SMS only" and "CS Fallback not preferred" | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090898 | 0633 | 2 | Correction to the NAS security mode control procedure | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-091054 | 0637 | 2 | Alignment with TS23.401 caused by changing the term CSFB to "CSFB and SMS over SGs". | 9.0.0 | 9.1.0 |
| 2009-12 | CT-46 | CP-090919 | 0567 | 5 | Protecting the allowed CSG list | 9.0.0 | 9.1.0 |
| 2010-03 | CT-47 | CP-100144 | 0587 | 3 | Deactive ISR for UE attached for emergency bearer services | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100134 | 0624 | 3 | EPS Bearer Context Synchronization during Extended Service Request | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100106 | 0639 | 1 | Correction of MME DL NAS COUNT at handover | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100139 | 0640 | 1 | Inclusion of routing identifier for generic NAS transport | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0641 |  | Tracking Area Update Procedure | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0642 | 1 | UE Initiated Detach Procedure | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0643 |  | UE Substate PLMN Search | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100106 | 0647 | 2 | Security at idle mobility from E-UTRAN to UTRAN/GERAN | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0657 |  | UE behavior after EPS bearer context deactivation | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100106 | 0660 | 2 | Correction of used parameter in coordination between ESM and SM | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100134 | 0664 | 1 | Store EPS security context at state transition to EMM-DEREGISTERED | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0665 | 1 | Definition of attached for emergency bearer service | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100134 | 0667 | 2 | Defining Selective camping capability IE | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0668 | 1 | Security handling when NAS COUNT wrap around | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0670 | 1 | Deletion of RAND and RES in the UE | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100134 | 0671 | 1 | Add packet filters to existing TFT | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0672 | 1 | CSG subcription expiration and non-emergency bearer deactivation | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0673 |  | Clarification of IMEI used for EMC attach | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100134 | 0674 | 1 | Correction on the security protection of the NAS message | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0675 | 1 | Handling of authentication failure in EMC cases | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100106 | 0677 | 2 | EPS security context handling in detach procedure | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100106 | 0679 | 1 | Re-Authentication after intergity check failure of TAU Request | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100148 | 0682 |  | Use of Cause #25 when UE's subscription to CSG has expired – 24.301 | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100106 | 0685 |  | Correction on E-UTRAN Deactivate ISR timer | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100139 | 0686 | 1 | Retransmission of non-transmistted LPP PDUs | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100106 | 0693 | 2 | TAU request and ciphering in connected mode | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100139 | 0696 | 2 | CS Fallback for MO-LR in Rel9 | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100134 | 0700 | 1 | Add reactivation requested cause code to EPS | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100106 | 0702 | 1 | Deletion of mapped EPS security context when I-RAT HO fails | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100126 | 0704 |  | UE behaviour corrections for 'SMS only' | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0705 |  | Definition of non-emergency EPS bearer context | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100134 | 0711 | 2 | Pre Rel8 QoS mapping when this QoS is not received while on E-UTRAN | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100134 | 0713 | 1 | Clarification of Integrity protection of Service Request in section 4.4.3.3 | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0714 | 1 | No reset of DL NAS Count on Security Mode Command accepted by the UE | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0716 | 2 | Attach for emergency bearer services to a network not supporting EM BS | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0718 | 1 | Security Mode Command using NULL algos during TAU for normal attached UE | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0720 | 1 | Retransmission of PDN connectivity request for emergency bearer services | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0724 |  | Correction of access class bit 10 handling | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100144 | 0725 | 2 | Mobility aspects of Emergency attached UEs | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100134 | 0726 | 1 | Arrange definitions in alphabetical order | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100062 | 0708 | 3 | Authentication Procedure after Inter PLMN Handover | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100134 | 0727 | 3 | Alignment of TAI list boundary with 2G/3G LA boundary | 9.1.0 | 9.2.0 |
| 2010-03 | CT-47 | CP-100210 | 0730 | 2 | Correct terminating domain selection for IMS voice UEs | 9.1.0 | 9.2.0 |
| 2010-06 | CT#48 | CP-100354 | 0722 | 3 | Avoiding rejection of a CS fallback due to CSG subscription expiry | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100354 | 0735 | 1 | eKSI value setting for no valid EPS security context | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100360 | 0736 | 4 | Authentication procedure for emergency services | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100360 | 0746 | 2 | Handover to EUTRAN including NULL algos | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100360 | 0748 | 1 | Authentication failure by UE while it has a PDN connection for emergency bearer services | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100362 | 0749 | 3 | Add HeNB name | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100354 | 0751 | 1 | Correction on request type | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100354 | 0752 | 1 | Correction of conditions for TAU and ISR deactivation for T-ADS | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100354 | 0753 | 2 | CSFB corrections in Service request procedure | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100354 | 0754 | 1 | No NAS retransmission of SMS messages | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100348 | 0757 | 1 | Voice domain preference alignments | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100354 | 0759 |  | Update status for cause #9 and #10 | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100349 | 0761 | 1 | Combined TAU trigger after SRVCC | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100354 | 0763 | 1 | Cause #39 | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100360 | 0767 | 3 | Clarification to establishment cause used by a UE in case of EMC procedure. | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100360 | 0768 | 2 | Clarifications to expirey of Periodic RAU and mobile Reachable timer in case of EMC | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100350 | 0770 | 2 | Clarification to network initiated detach procedure with cause #25 | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100360 | 0771 | 1 | Handling EPS Security Contexts | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100348 | 0775 | 2 | Correction to UE mode of operation | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100339 | 0777 | 3 | Correction to mapping of EPS QoS to pre-Rel-8 QoS | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100354 | 0783 | 1 | Correction of selective camping IE inclusion requirement for 1x CS fallback capable UE | 9.2.0 | 9.3.0 |
| 2010-06 | CT#48 | CP-100360 | 0784 | 2 | Emergency attach reject from EMM in shared networks | 9.2.0 | 9.3.0 |
| 2010-09 | CT#49 | CP-100501 | 0739 | 4 | Corrections to UE mode of operation selection taking into account the UE's availability for voice calls in the IMS | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100506 | 0786 | 2 | Handling of Detach Procedure for non-EPS services on a CSG cell which is no longer valid for the UE.and IMS EMG call is active. | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100506 | 0787 | 1 | Emergency security context creation at standalone SMC | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100501 | 0789 | 1 | Adding spec reference to ensure QoS alignment | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100506 | 0794 | 2 | Skip Authentication for Emergency Services | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100506 | 0797 | 1 | Clarification to timer T3418 and T3420 timer description in EMC case. | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100501 | 0812 | 2 | On UE handling of 1xCSFB failure due to lower layer failure | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100501 | 0820 | 1 | Allowing the UE to send a request for emergency call when the timer T3442 is running | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100495 | 0832 | 3 | Correction on CS Fallback procedure using Release with Redirection | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100506 | 0842 | 1 | Clarification to an emergency PDN connection establishment procedure. | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100506 | 0844 | 1 | Handling of collision of Network Initiated Detach procdure with Service Request procedure and TAU procedure. | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100495 | 0850 | 1 | No EPS bearer context activated during combined tracking area update | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100485 | 0852 | 1 | Context transfer on inter-system change from A/Gb mode or Iu mode | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100506 | 0854 | 1 | Skip authentication during TAU in EMC cases | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100506 | 0859 | 1 | Local bearer deactivation and UE status | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100501 | 0868 | 1 | Inclusion of transaction identifier | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100501 | 0871 | 1 | Alignment with 23.401 for ESM cause value #52 "single address bearers only allowed" | 9.3.0 | 9.4.0 |
| 2010-09 | CT#49 | CP-100517 | 0758 | 2 | Local ISR deactivation in the UE when T3312 has expired | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0773 | 2 | Correcting ISR handling in UE | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0788 | 1 | Adding a definition of the term "Lower layer failure" | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100514 | 0799 | 1 | PDN connection redirection in SIPTO scenario | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0800 | 3 | CSFB rejected by network without inter system change | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100514 | 0801 | 1 | Clarification on PDN connection re-activation | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0802 | 1 | Correction for value setting of the mobile reachable timer | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0804 | 2 | Abnormal case handling for SMC procedure | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0807 | 1 | Clarifying the presence of APN IE | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0808 |  | CS fallback alignments | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0815 | 1 | Editorial corrections in definitions | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0817 | 2 | Fix ambiguity in the UE security capability information element | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0819 |  | Editorial corrections to 24.301 | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0823 | 1 | Clarification to set TIN parameter in Attach, Tracking,Detach and PDN connectivity procedure. | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0835 | 1 | Correction of EMM main states in the UE | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0837 | 2 | Correction of network initiated detach procedure with EMM cause #2 | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0845 | 1 | Clarification of TAI list assignment for network sharing | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100520 | 0847 | 2 | Handling of cause #27 (missing or unknown APN) | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0853 | 1 | Removal of ESM cause #46 | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0855 | 1 | Combined attached UE's behavior during PTAU with reject cause #7 or #14 | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0856 | 1 | Correction on LIMITED-SERVIC substate | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100514 | 0857 | 1 | Network initiated Detach procedure completion by the UE | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0858 | 2 | Support of IPv6 Prefix Delegation | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0862 | 1 | Collision of UE requested bearer resource allocation and EPS bearer context deactivation | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0863 | 1 | Establish radio bearer due to downlink ESM signaling pending | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100517 | 0866 | 1 | EMM state transitions in MME | 9.4.0 | 10.0.0 |
| 2010-09 | CT#49 | CP-100520 | 0872 |  | Editorial correction of security context handling for network initiated detach procedure initiation | 9.4.0 | 10.0.0 |
| 2010-12 | CT#50 | CP-100760 | 0877 | 1 | Attach with IMSI | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100760 | 0878 | 5 | Extended Tracking Area Update Timer | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100760 | 0879 | 4 | Rejection due to per APN congestion | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100760 | 0880 | 1 | Modified EMM Cause values for NIMTC | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0881 |  | Correction of description of EMM state machine | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0882 |  | Correction of network initiated detach procedure | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0883 | 1 | Correction of local EPS bearer context deactivation | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0888 |  | Abnormal case for Service Request | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100758 | 0889 | 2 | Paging priority indication for MPS service | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0896 | 1 | CS paging with IMSI | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100747 | 0898 | 1 | Deleting equivalent PLMNs list in EMC case | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0901 | 1 | Lower layer failure handling during network initiated detach procedure | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0905 | 1 | Moving GMM to detached state at reception of EMM cause #40 | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0912 | 1 | Correction of T3442 behaviouir for SERVICE REJECT with cause #39 | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0920 | 1 | Correction to QoS mapping at IRAT change | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0927 | 1 | UE Substate Selection | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100760 | 0928 | 4 | TAU procedure when Low Priority indicator in UE changes | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100740 | 0931 | 1 | ISR deactivation before TAU when UE moves from PMM-CONNECTED to E-UTRAN | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0933 | 2 | Explicit signalling of native vs mapped GUTI during TAU | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0934 |  | Removal of 2G SIM UE in E-UTRAN | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100742 | 0936 | 1 | Correction in the use of cause value #2 in detach collision cases | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100760 | 0937 | 1 | Adding NAS signalling priority Indication in Attach Request | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0939 | 3 | Clarification about abnormal cases on the network side for Service Request | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0940 | 2 | CSFB response for page received for1xCSFB | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100760 | 0945 | 2 | Clarifying the APN congestion control for EMC attached UE | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100747 | 0949 | 1 | Correction on EMM authentication failure for EMC services | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100760 | 0950 | 1 | ESM procedures for low priority | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0908 | 5 | Adding e1xCSFB support for dual Rx/Tx UE and corrections to unhandled T3417 when 1x call is rejected by 1x network | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100761 | 0833 | 10 | Alignment with the latest SA1 specification regarding access control for CSFB | 10.0.0 | 10.1.0 |
| 2010-12 | CT#50 | CP-100753 | 0886 | 4 | PDN disconnection for LIPA | 10.0.0 | 10.1.0 |
| 2011-03 | CT#51 | CP-110195 | 0944 | 4 | Local Bearer deactivation during CSFB | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110193 | 0947 | 3 | Handling of periodic TAU timer, mobile reachable timer and MM back-off timer | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110193 | 0954 | 3 | Clarification to the handling of timer T3245 | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110193 | 0955 | 6 | Handling of dedicated EPS bearer context activation procerdure in case of APN congestion. | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 0956 | 2 | Explicit Signalling Indication During Attach | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110193 | 0960 | 3 | Service Type for machine-to-machine communication – 24.301 | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110193 | 0962 | 5 | Mobility management congestion control and back-off timer | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110183 | 0965 | 1 | Addition to Combined procedure for PDN disconnection for LIPA | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110183 | 0966 | 2 | Exception for the LIPA PDN disconnection | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 0967 | 1 | Providing the UE with R99 QoS | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 0969 | 1 | Inter system change to S1-mode with no active PDP Context | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 0970 |  | Handling of non-delivered CS SERVICE INDICATION | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110193 | 0974 | 1 | Attach with IMSI Alignment of Terminology | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110193 | 0975 |  | Specific requirements Alignment of Terminology | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110193 | 0976 |  | Extended Periodic Timer Correction | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110193 | 0977 | 1 | Attach Attempt Counter for Low Priority Devices | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110183 | 0978 | 3 | Notify UE when a HeNB provides access to a residential/enterprise IP network | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110174 | 0980 | 1 | Service request initiation for dual rx 1xCSFB UE | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 0981 | 1 | Clarification to the ESM cause #31 | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110193 | 0983 | 3 | Storage and handling of the NAS signalling low priority indicator | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 0986 | 2 | Correction on detach and service request collision | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 0987 | 1 | Correction on UE substate selection | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110193 | 0988 | 4 | Adding NAS signalling priority indication in EPS SM messages | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 0989 | 3 | Correction of the handling of the Old GUTI type IE | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 0990 |  | T3440 is not started when user plane radio bearers are setup during TAU | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 0994 |  | EMM state after lower layers failure during TAU when TIN=P-TMSI | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 0995 | 3 | Stopping T3411 when UE moves to EMM-CONNECTED | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 0997 | 1 | Automatic re-attach following TAU reject or Service Request reject | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110193 | 1005 | 2 | Clarification to the handling of timer T3496 | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 1006 |  | Correction to the condition of inclusion of PCO IE in PDN CONNECTIVITY REJECT message | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110193 | 1013 | 2 | ESM Backoff timer, Editor's note removal | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110183 | 1015 | 2 | Restriction on the use of PDN connection for LIPA | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110171 | 1018 |  | Correction to detection of CSG cell based on CSG ID – 24.301 | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110163 | 1021 | 2 | Sending ESM messages together with Service request procedure | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110253 | 1029 | 4 | Clarification to RRC establishment cause when device is attaching for emergency bearer services. | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 1034 | 1 | Verification of dedicated bearer context activation | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110195 | 0959 | 1 | Reconsidering the UE behavior when it is barred to MO CSFB | 10.1.0 | 10.2.0 |
| 2011-03 | CT#51 | CP-110303 | 0961 | 5 | Device properties and RRC establishment cause = Delay tolerant – 24.301 | 10.1.0 | 10.2.0 |
| 2011-06 | CT#52 | CP-110462 | 1039 | 1 | Corrections for overload behavior | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110464 | 1040 | 1 | Avoiding the problem of barring duplication for CSFB | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110455 | 1042 |  | Correction on encoding of CS-LCS in EPS network feature support IE | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1046 | 1 | Clearly specify conditions for UE actions at switch off for T3245, T3446 and T3496 | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1047 | 1 | Further clarification of PLMN reselection and handling of EMM back-off timer | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110467 | 1051 | 1 | Support of relay node functionality | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110446 | 1054 |  | Manipulation of CSG ID entries (in ACL and OCL) and the associated PLMNID - LTE | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1055 | 1 | Missing abnormal handling of EXTENDED SERVICE REQUEST | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1057 | 1 | Replace T3446 with T3346 | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110476 | 1058 |  | Correct conditions for including the connectivity type IE | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110476 | 1059 | 2 | Correct the trigger of the LIPA PDN disconnection | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1060 | 1 | Reference to NAS configuration in USIM | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1061 | 2 | Inter RAT Change | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1063 | 2 | Handling Network initiated procedure when backoff timer is running | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1064 | 2 | Emergency attach during backoff | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1065 | 1 | Correction to the service request procedure | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110464 | 1066 | 1 | Stopping Timer T3417ext upon reception of SERVICE REJECT | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1068 | 1 | alignment about MM congestion control | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1081 |  | RRC establishment cause for MT services | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1083 | 2 | Correction on UE behavior for ESM cause #26 and #27 | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1084 |  | TAU attempt counter reset under T3446 running | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110464 | 1087 |  | SMS paging at MME failure | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110464 | 1088 | 1 | Correction to handling of reject cause #14 | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1089 |  | Correction to sub-clause reference | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110464 | 1092 | 1 | Initiating Service request peocedure for HRPD during intersystem change | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1093 | 1 | Clarification about APN based congeston control procedure | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110462 | 1096 | 2 | Correction of T3396 handling for PDN connection reactivation | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110476 | 1097 | 2 | LIPA PDN connectivity request during handover preparation | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110476 | 1100 | 2 | Service reject for LIPA only | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110453 | 1074 | 1 | Modification of NAS security context storage | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110463 | 1082 | 1 | NAS signalling low priority indication for exception cases | 10.2.0 | 10.3.0 |
| 2011-06 | CT#52 | CP-110536 | 0957 | 4 | GUMMEI Type indication during establishment of NAS signalling connection | 10.2.0 | 10.3.0 |
| 2011-09 | CT#53 | CP-110680 | 1030 | 4 | Handling mobile reachable timer for back-off UE with emergency PDN connection | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1098 | 5 | Call forwarding, paging and long periodic timers | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1108 | 1 | EPS Bearer Context Deactivation | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1110 | 1 | Replace T3496 with T3396 | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1111 | 4 | Correction and clarification on the terminologies of NAS level congestion control | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1114 |  | Correction to the service request procedure | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110679 | 1127 | 2 | Relay node indication to lower layers while attaching for relay node operation | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110679 | 1132 | 1 | Clarify the RN behavior as a UE part | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110682 | 1133 | 1 | Clarification of UE behavior when combined TAU is not accepted | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110678 | 1135 | 4 | Clarify the behavior of the UE upon receipt of the Service Reject message with Cause #40 | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1141 | 1 | RRC establishment cause for Extended Service Request | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1142 | 4 | Correction to network-initiated detach procedure | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1143 | 1 | Scope of SM APN congestion control | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110678 | 1144 |  | Correction to service request procedure for LIPA only | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1150 | 1 | Clarification of EXTENDED SERVICE REQUEST handling | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1152 | 4 | Clarification of TAU triggered after paging | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1155 | 1 | Establishing emergency services when T3346 is running | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1163 | 1 | Handling NAS Low Priority Indication | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1173 | 1 | Correction to cause #22 handling | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1177 | 1 | Correcting mention of Service User of MultiMedia Priority Service- alternative to C1-112930 | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1197 | 2 | SM backoff while paged using IMSI | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1199 | 1 | T3423 may not be started | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1202 | 3 | Clarification on CSFB handling when PS MM back-off timer is running | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110665 | 1206 | 2 | Reject Cause handling while UE attaching for emergency bearer services | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110680 | 1207 | 1 | Value of timer T3412 in the network | 10.3.0 | 10.4.0 |
| 2011-09 | CT#53 | CP-110694 | 1048 | 4 | Clarifications for removal of numbers from the Local Emergency Numbers List | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110690 | 1107 | 3 | MME Behaviour when MS Network Capability is not included in Attach/TAU | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110691 | 1117 | 3 | Correction to the UE registration status for SMS | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110690 | 1121 | 3 | Local EPS bearer context deactivation without ESM signalling | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110695 | 1123 | 1 | Editorial correction to the ESM cause #27 | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110690 | 1139 | 3 | Starting deactivate ISR timer in substate PLMN-SEARCH when T3412 expires | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110690 | 1140 | 2 | P-TMSI signature value derivation after handover | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110694 | 1145 | 2 | Detach procedure collision handling | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110697 | 1159 | 2 | vSRVCC Enhancements in TS 24.301 including vSRVCC indicator (terminology variant 1) | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110695 | 1165 | 1 | Emergency Attach from PLMN-SEARCH, ATTACH NEEDED | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110690 | 1172 |  | Guidelines for enhancements to MS network capability IE and UE network capability IE | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110695 | 1180 | 1 | RPLMN to PLMN in handling of Emergency Numbers List | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110695 | 1185 | 3 | Correction of an abnormal case during detach procedure | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110695 | 1187 | 2 | Support for multiple MCC countries | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110690 | 1189 | 2 | Handling of forbidden PLMNs list during attach and tracking area update | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110694 | 1190 | 1 | Handling of timer T3402 | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110694 | 1193 |  | Correction to references | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110691 | 1194 | 2 | Correction of reference to 1xRTT procedures | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110691 | 1198 | 1 | Dual rx 1xCSFB procedure conflicts with note 2 | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110690 | 1204 | 1 | Correction to Sequence Number Handling | 10.4.0 | 11.0.0 |
| 2011-09 | CT#53 | CP-110692 | 1208 | 3 | Access class control for EUTRAN | 10.4.0 | 11.0.0 |
| 2011-12 | CT#54 | CP-110882 | 1182 | 7 | Re-attach for emergency bearer service | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110871 | 1210 | 3 | Setting Mobile Reachable timer, Implicit Detach Timer | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110871 | 1214 | 1 | Clarify UE action upon T3411 expiry | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110882 | 1219 | 2 | Update of handling of collision between UE initiated detach procedure and network initiated detach procedure with "re-attached required" | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110888 | 1220 | 1 | Correction on starting deactivate ISR timer in substate PLMN-SEARCH when T3412 expires | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110882 | 1224 | 1 | Emergency bearer services from EMM-REGISTERED substates | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110882 | 1227 |  | IMSI detach and EMM common procedure collision | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110882 | 1228 | 3 | Correction to authentication not accepted by the UE | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110882 | 1229 | 1 | Handling of Equivalent PLMN after emergency PDN connection is released. | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110882 | 1233 | 2 | Correction to UE initiated bearer modification without changing packet filter(s) procedure | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110884 | 1235 | 2 | Relationship between vSRVCC and SRVCC –Option2 | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110888 | 1236 | 1 | Clarification to paging for CSFB | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110871 | 1241 |  | Removal and replacement of undefined "forbidden PLMN for attach in S1 mode" list | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110888 | 1242 | 1 | Forbidden PLMNs for EPS services | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110882 | 1245 | 1 | Clarification of network's knowledge of UE's valid CSG subscription | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110871 | 1247 | 1 | Correction to the Service request procedure | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110871 | 1249 | 3 | Clarifiaction to the SR procedure for CS emergency call when T3346 timer is running. | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110888 | 1254 | 3 | Disabling EUTRAN at service reject with cause #18 | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110882 | 1255 | 4 | Request for CS emergency call when CS domain not available | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110888 | 1258 |  | Resetting GPRS attach attempt counter and attach attempt counter | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110871 | 1261 | 2 | UE initiated procedures when MM back-off timer is running | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110888 | 1274 | 2 | Update of MME behavior at security protected inter-system TAU without native GUTI | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110888 | 1278 | 1 | Indication of GBR in release of GBR bearer resources | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110871 | 1280 | 2 | Release of the NAS signalling connection after completion of UE-initiated detach procedure | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110882 | 1282 | 1 | eKSI value allocation when no eKSI value stored | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110874 | 1285 | 2 | Coordination between ESM and EMM for supporting ISR | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110888 | 1301 | 1 | Adding ZUC to NAS security algorithms, UE network capability and UE security capability | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110871 | 1311 | 2 | Remove "CN congestion" indication | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110871 | 1313 |  | Start of backoff timer when the ATTACH REJECT is not integrity protected | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110871 | 1315 | 1 | Handling of APN based congestion control | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110872 | 1256 |  | Trigger to stop T3246 | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110871 | 1288 | 2 | Back-off timer handling in connected mode mobility | 11.0.0 | 11.1.0 |
| 2011-12 | CT#54 | CP-110888 | 1289 | 1 | Correction of domain selection for UE in CS/PS mode 1 configured for SMS over SGs | 11.0.0 | 11.1.0 |
| 2012-03 | CT#55 | CP-120111 | 1217 | 8 | Correction of handling of ATTACH REJECT together with SM back-off timer | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120192 | 1257 | 5 | MO SMS when T3346 is running in LTE | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120122 | 1305 | 5 | Corrections to MME behaviour in Service Request Abnormal Cases handling | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120125 | 1316 |  | Definition of "chosen PLMN" | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120102 | 1321 | 2 | Re-attach for emergency bearer service | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120111 | 1324 | 1 | Allow AC11-15 user when MM backoff timer is running | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120123 | 1325 | 2 | Extended Access Barring for EUTRAN | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120122 | 1326 | 1 | Local ISR deactivation in the UE upon change of the UE's usage setting or the voice domain preference for E-UTRAN | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120111 | 1329 | 2 | Release of NAS signalling connection with EWT | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120122 | 1338 | 3 | Correcting conditions for selecting GERAN or UTRAN due to no IMS voice | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120122 | 1339 | 1 | Correcting conditions for detaching from non-EPS services due SMS using IMS | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120125 | 1341 | 1 | Rejecting ESM messages with low priority indicator | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120122 | 1342 | 1 | MM state handling in E-UTRAN | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120122 | 1343 | 1 | Subclause reference correction | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120125 | 1344 | 1 | Service request procedure when the UE has an establish PDN connection for EMC | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120122 | 1345 | 2 | UE-requested modification procedure of a GBR bearer | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120125 | 1346 | 2 | Local EPS bearer deactivation without ESM signalling in the network side | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120122 | 1348 | 1 | Stopping timer T3417 or T3417ext in the abnormal cases of the service request procedure | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120126 | 1352 | 1 | Setting of SRVCC to UTRAN/GERAN capability bit for UE not supporting vSRVCC | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120122 | 1354 |  | Clarification of new EPS security context | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120125 | 1356 | 1 | Correction on MO CSFB handling | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120111 | 1360 | 3 | Handling NAS signalling low priority indication | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120111 | 1363 | 1 | Correction for TAU triggering after paging | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120122 | 1369 | 1 | Handling of stored RAND and RES values in case of connection aborted | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120111 | 1372 | 2 | Correction to the handling of wait time from AS | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120122 | 1374 |  | Handling of update status upon combined TAU abnormal failure | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 | CP-120125 | 1375 |  | Indication of supporting T3412 extended value in TAU | 11.1.0 | 11.2.0 |
| 2012-03 | CT#55 |  |  |  | Rapporteur cleanup (editorial corrections and change of IEI for T3402 value/GPRS timer 2 in Attach Reject message) | 11.2.0 | 11.2.1 |
| 2012-06 | CT#56 | CP-120308 | 1331 | 1 | Inclusion of T3246 condition when reselecting to CS due to Service Reject cause #22 | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1350 | 2 | Correction of detach procedure collision | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1373 | 2 | Extension of maximum bitrates in EPS QoS IE | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1376 | 2 | Traffic flow aggregate description and TFT IE extension | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120315 | 1377 | 4 | Support of SMS in MME for PS-only Subscription | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1378 | 1 | Replay of NONCE\_UE | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1379 | 1 | Miscellaneous corrections to authentication when PDN connection for emergency is (or is being) established | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1380 | 1 | Correction to TAU trigger for the support of terminating access domain selection for voice calls | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1382 | 5 | EUTRAN disabling correction | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120296 | 1385 | 1 | Ensuring add filter resource modification targets a single traffic flow aggregate | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1390 |  | Correction of the error handling for notification messages | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1391 | 6 | Introduction of LTE Enable Timer | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1394 | 4 | Application of ESM backoff Timer when UE received ESM cause #50 or #51(Alt.3) | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1396 | 4 | Addition of SM-backoff timer handling for NW initiated PDN connectivity deactivation | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1398 | 1 | Corrections to 24.301 | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1399 | 1 | Clarification on description of triggering UE to enter EMM-DEREGISTERED state | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1401 | 1 | Handling of the Local Emergency Numbers List | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120315 | 1404 | 1 | Extended access barring not applicable for MT | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1405 | 1 | ISR deactivation and TAU/combined TAU in connected mode mobility from GERAN to E-UTRAN | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1406 |  | Clarification of the inclusion of "EPS bearer context status IE" in ESR. | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1407 | 3 | Use of existing NAS signalling connection for uplink signalling | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120302 | 1409 | 1 | Abnormal cases when Extended Wait Time is received | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1413 | 4 | Enhancements on local release of NAS signalling connection | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1416 | 4 | E-UTRAN capability disable for CS/PS mode 2 UE | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1417 | 2 | Release of NAS signalling connection before selecting to 2G or 3G | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1418 | 1 | Congestion control for 1xCS fallback emergency call | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1419 | 1 | Allowing emergency CSFB when network is congested | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1421 |  | Correction on IE names and IE reference | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1422 | 1 | Handling of the ePLMN list on receipt of #14 | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1423 |  | Setting of the update status for a UE which is IMSI attached for non-EPS services | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1427 |  | Alignment of disconnecting PDN connection | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1428 | 3 | Correction of APN based congestion control | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1429 |  | Correction of high priority user | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1430 |  | Comparison of replayed UE security capabilities | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1431 | 3 | Handling the maximum number of active EPS bearer contexts | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120309 | 1432 | 2 | SGs Support for MSC in Pool to avoid dual VLR registration | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1440 | 1 | Clarification on the MS Network Capability IE of E-UTRAN disabling | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1441 | 1 | Trigger to enable the E-UTRAN capability | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1446 | 4 | Setting method of EPC capability | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1447 | 2 | How UE detects IMS registration failure | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120315 | 1448 | 1 | NAS signalling low priority for dual priority device | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120315 | 1453 | 2 | SM Timer handling for dual priority requirement | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1454 | 1 | Improvement in the definition of cause codes | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120318 | 1456 |  | Clarification on congestion control for a 1xCS fallback for emergency call | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120309 | 1457 | 1 | Restatement of detach and re-attach upon end of attached for emergency bearer service – 24.301 | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120315 | 1459 | 2 | MM Timer Handling for Dual Priority Support | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120315 | 1461 | 2 | Handling of NAS signalling low priority overriding indication | 11.2.1 | 11.3.0 |
| 2012-06 | CT#56 | CP-120308 | 1462 | 1 | New SM cause codes | 11.2.1 | 11.3.0 |
| 2012-09 | CT#57 | CP-120593 | 1397 | 5 | Security context mapping for SRVCC from CS to PS | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120595 | 1460 | 4 | PLMN selection timer for E-UTRA disabling | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120589 | 1467 | 5 | Update result indication for combined procedures | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120594 | 1468 | 4 | Correction and completion of handling of the maximum number of active EPS bearer contexts | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120594 | 1469 | 1 | Clearing of the maximum number of active EPS bearer contexts | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120584 | 1471 |  | Corrections to SGs Support for MSC in Pool | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120594 | 1473 | 2 | New cause code for long term errors | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120594 | 1478 |  | Clarification of requirement to include the PCO IE | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120584 | 1479 | 1 | Considering ePLMN for ESM backoff Timer with cause #50 or #51 | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120581 | 1481 | 2 | Clarify UE behaviour after deletion of forbidden lists | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120589 | 1485 | 2 | CS congestion control handling for combined procedure | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120584 | 1490 | 1 | Correcting erroneous definitive of reject causes introduced by C1-122338 | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120584 | 1491 | 1 | Maximum number of active EPS bearer contexts in combined procedure | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120589 | 1492 | 5 | Handling of PDN connection for dual-priority functionality | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120589 | 1493 | 3 | Correction on handling of ESM NAS request for dual-priority functionality | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120589 | 1494 | 1 | Correction on handling of SM back-off timer for dual-priority | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120589 | 1495 | 2 | Dual priority definition | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120589 | 1496 |  | Correction on NAS signalling low priority overriding handling | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120594 | 1499 | 3 | Disabling E-UTRA capability for #7 and #14 | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120594 | 1500 |  | Response of TAU complete message | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120594 | 1502 | 2 | UE-initiated detach procedure during attach when in EMM-DEREGISTERED state | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120594 | 1503 | 1 | Clarification of UE in CS/PS mode of operation | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120594 | 1504 | 1 | Clarification of E-UTRA re-enabling. | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120584 | 1506 |  | Low Priority Indicator vs NAS Signalling Low Priority Indication Terminology | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120594 | 1507 |  | Clarification on TAU trigger after 1xSRVCC | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120589 | 1510 | 2 | UE configured for "Override\_ExtendedAccessBarring" | 11.3.0 | 11.4.0 |
| 2012-09 | CT#57 | CP-120656 | 1518 | 1 | Reference list correction to align with the corrected TS 29.212 title | 11.3.0 | 11.4.0 |
| 2012-12 | CT#58 | CP-120794 | 1458 | 4 | Restructure for cause #8 in normal attach and detach | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1486 | 3 | Clarification to the ESR procedure in connected mode | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1501 | 4 | UE unable to perform 1x CS fallback for CS emergency call | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1505 | 1 | CS/PS mode 1 UE with "IMS voice not available" (revert approved CR C1-115106) | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1514 | 2 | Coordination between EMM and GMM parameters for UE receiving EMM cause #22 | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1520 | 1 | Avoid to reselect E-UTRAN for #14 | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1521 | 2 | Emergency handling for abnormal cases | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1522 |  | EMM state correction for network initiated EPS detach | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1523 |  | Reference correction | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120803 | 1525 | 3 | Cause code setting for combined procedures in case of PS-only subscription | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1526 |  | E-UTRA disabling note removal | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1527 | 1 | E-UTRA disabling stored information deletion criteria correction | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1528 | 1 | TAU reject in shared networks in CONNECTED mode | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1531 | 1 | Fix timer specification | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1532 | 1 | UE behaviour when receiving mobile identity during periodic TAU | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120803 | 1533 | 2 | Corrections for Dual priority PDN connection handling | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1534 | 2 | Handling ESR Procedure Timeout for MO CSFB | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1535 | 2 | Correction to Combined Attach/TAU Accept abnormal case handling | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120790 | 1536 | 1 | Correction to Handling of #40 in Service Reject Procedure | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1543 | 1 | Network behavior in case of PDN connectivity procedure | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120803 | 1544 | 4 | UE knowledge that the back-off timer is running for low or normal priority | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1545 | 1 | Incomplete and unspecified network and UE procedures for Detach | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1547 | 7 | Handling maximum number of active EPS contexts | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1550 | 1 | Distinguishing UE's disabling of EPS services | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120803 | 1551 | 4 | Clarification on handling of ESM for dual priority | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120789 | 1553 | 1 | Correction of Extended Service Request message and low priority indicator | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120803 | 1555 | 2 | Clarification on UE with T3396 running receiving a new T3396 value | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120789 | 1557 | 1 | Correction of the UE behavior after starting Timer T3396 with a random value | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1558 | 1 | MM state when EPS service only is accepted in combined procedure | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1560 | 1 | Reference correction | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1562 | 1 | Update of figure for Paging procedure using S-TMSI | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1563 |  | Correcting ambiguity caused with text "for all other cases" in Attach procedure. | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120790 | 1567 | 2 | EPS bearer context deactivation required with reactivation requested when UE is EMM-IDLE | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1568 |  | Corrections to reference errors | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120913 | 1570 | 5 | Paging for downlink signalling when the UE is in EMM-IDLE mode and collision case | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1577 | 4 | Solving TAU and SR Delay with Flexible re-Attach Handling | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120892 | 1581 | 3 | Handling CSFB when PS domain is congested in LTE | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120803 | 1586 | 2 | Handling of timer T3396 for dual priority UE. | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1587 | 1 | Correction on purpose and triggering condition of TAU procedure | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1588 | 3 | Abnormal cases of SERVICE REQUEST message for uplink signalling due to AC barring | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1589 | 2 | PDN CONNECTIVITY REQUEST handling when UE coming back to E-UTRAN coverage | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120803 | 1592 | 1 | CS fallback not available | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120803 | 1593 |  | Provision of LAI and TMSI for "SMS only" | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120807 | 1594 | 1 | Service request procedure considered as completed from the network side | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1595 | 2 | Reject cause #8 used for normal TAU and SR | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1596 | 1 | Adding a term shared network | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1597 | 2 | NW-initiated detach with re-attach not required and no cause code | 11.4.0 | 11.5.0 |
| 2012-12 | CT#58 | CP-120794 | 1598 | 1 | Correction on misalignment of attach and NW initiated detach procedure collision | 11.4.0 | 11.5.0 |
| 2013-03 | CT#59 | CP-130115 | 1599 | 3 | Correction and cleanup of maximum number of context procedures | 11.5.0 | 11.6.0 |
| 2013-03 | CT#59 | CP-130113 | 1600 | 1 | Correcting condition for executing procedures when IMS registration status changes | 11.5.0 | 11.6.0 |
| 2013-03 | CT#59 | CP-130108 | 1606 | 1 | LAI and TMSI for "SMS-only" in case of SMS in MME | 11.5.0 | 11.6.0 |
| 2013-03 | CT#59 | CP-130099 | 1611 | 2 | Inclusion of PLMN ID for the CS domain | 11.5.0 | 11.6.0 |
| 2013-03 | CT#59 | CP-130113 | 1618 | 3 | Detach procedure to disable EPS services | 11.5.0 | 11.6.0 |
| 2013-03 | CT#59 | CP-130123 | 1619 | 1 | LAI setting over NAS in network sharing | 11.5.0 | 11.6.0 |
| 2013-03 | CT#59 | CP-130113 | 1623 | 2 | Correcting anomalies on timer guarding enabling of E-UTRA capability | 11.5.0 | 11.6.0 |
| 2013-03 | CT#59 | CP-130185 | 1584 | 5 | Correction of de-activating EPS bearer context | 11.6.0 | 12.0.0 |
| 2013-03 | CT#59 | CP-130125 | 1608 | 1 | Allow UEs to proceed with CSFB after Service Reject #9 or #10 | 11.6.0 | 12.0.0 |
| 2013-03 | CT#59 | CP-130125 | 1620 | 1 | UE identity used for initial NAS message routing | 11.6.0 | 12.0.0 |
| 2013-03 | CT#59 | CP-130125 | 1621 |  | E-UTRA capability alignment | 11.6.0 | 12.0.0 |
| 2013-03 | CT#59 | CP-130125 | 1622 | 3 | Correction to ISR handling during PS handover | 11.6.0 | 12.0.0 |
| 2013-03 | CT#59 | CP-130125 | 1634 | 1 | Correction on the entity which handles EPS bearer contexts | 11.6.0 | 12.0.0 |
| 2013-06 | CT#60 | CP-130258 | 1604 | 2 | TAU trigger at return to LTE after failed CSFB | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130264 | 1628 | 3 | Performing Emergency Attach from Attempting to Attach/Update substates | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1633 | 8 | EPS bearer deactivation procedure during EPS bearer context unsynchronization | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130264 | 1639 | 4 | Adding the requests from CM layers as combined attach/TAU trigger | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1640 | 5 | Correcting UE behaviour when receiving a cause code requiring search for a suitable cell | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1641 | 2 | EPS timer usage in GERAN and UTRAN | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130264 | 1651 | 2 | Setting of Device properties IE by NAS for UEs allowed to use AC 11 to 15 | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130247 | 1653 | 2 | Wrong indication of T3340 and missing stop condition for T3440 | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1655 | 2 | Incorrect checks on existing EPS bearer identities | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130264 | 1656 | 1 | Correction to T3421 in timer tables | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130247 | 1659 | 1 | Addressing backward compatibility concerns related to TAU Complete handling | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1660 | 2 | Clarifications to "Abnormal Cases in the UE" for EPS detach procedure | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130264 | 1661 | 1 | Clarifications on terminology of last PDN connection | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130264 | 1662 | 2 | Modification of Cause #65 to not include consideration for emergency EPS bearers. | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1664 | 1 | Cause value for the Forbidden list in S101 mode | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1667 | 1 | Non-EPS service in the combined TAU | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130264 | 1668 | 2 | Obtain PDN address during attcach procedure | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1671 | 2 | Initiation of TAU in EMM-REGISTERED substates | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1672 | 4 | Correction for collision between NW initiated IMSI detach and service request | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1673 | 1 | Correction to UE behaviour when UE requests for PDN type IPv4v6 but the NW only allows IPv4 or IPv6 | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130264 | 1674 | 3 | Updating forbidden lists during TAU for a UE with emergency bearers | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1678 | 1 | Local deactivation of EPS bearers during service request procedure | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130404 | 1681 | 5 | Handling CSFB when PS domain is backed off | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1682 | 2 | Procedure when UE changes voice domain preference or SMS configuration | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130264 | 1683 | 2 | Non-EPS update triggered during periodic tracking area update | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130264 | 1685 | 2 | Service request procedure initiation for a UE configured for NAS signalling low priority | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130244 | 1687 | 1 | Correction to the exception of not stopping T3396 for dual-priority UE | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130244 | 1689 | 5 | Correction to TMSI for "SMS-only" in case of SMS in MME | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130244 | 1691 | 2 | No ISR for SMS in MME | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1692 | 2 | Start T3440 for EMM cause#35 | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1693 | 1 | Correction to the use of the null integrity protection algorithm | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1694 | 1 | Set of the KSI to all zeros and editorials | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1695 | 3 | Select 2G/3G after 5 times failure of periodic TAU for combined UE | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130267 | 1696 | 6 | Terminology for SIPTO at the local network | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130267 | 1697 | 4 | Updates to EMM and ESM procedures because of SIPTO at the local network | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1702 | 3 | Addition of T3402 timer handling | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1707 | 1 | Correction on UE behavior for attach not accepted by the network | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1710 |  | Correction of term 'PDP type' to EPS terminology | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1712 | 5 | NAS security setup without a new EPS authentication for initial NAS messages | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130250 | 1718 | 1 | Correction of local IP address indication | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1727 | 1 | Removal of dependency on SGs state in the NW when determining update type | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130264 | 1732 | 3 | Correction on encoding for EPS QoS information element | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1733 | 1 | Clarifications of the specification of T3412 Extended Value | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130239 | 1737 | 2 | Updating conditions to enable E-UTRAN | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1738 | 2 | Remove NOTE on disabling LTE capability | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130258 | 1739 |  | Correction on NAS security parameters from E-UTRA IE definition | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130264 | 1740 | 1 | Adding term definition for UE and MS | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130264 | 1747 | 2 | Clarification to the attach attempt counter | 12.0.0 | 12.1.0 |
| 2013-06 | CT#60 | CP-130264 | 1753 | 2 | UE behaviour on cause #25 in messages that are NOT integrity protected | 12.0.0 | 12.1.0 |
| 2013-09 | CT#61 | CP-130505 | 1755 | 2 | E-UTRA re-enabling after UE initiated detach for EPS services | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130510 | 1763 | 1 | Correction of conditions brought about by approval of C1-132662 | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130510 | 1764 | 1 | Addition of cause #25 to "abnormal cases in the UE" | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130505 | 1765 | 1 | Update of EMM-REGISTERED.ATTEMPTING-TO-UPDATE definition | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130510 | 1771 | 2 | EPS QoS GBR/MBR rate handling at the NAS interface | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130505 | 1772 | 2 | TAU trigger at return to LTE after CSFB cancellation | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130505 | 1775 | 1 | Clarification of the update type to be used in TAU Request | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130498 | 1780 | 1 | Control of the release of the NAS signalling connection for reject messages | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130505 | 1781 | 2 | TIN set to "P-TMSI" and inclusion of the NonceUE in the TRACKING AREA UPDATE REQUEST message | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130510 | 1783 | 1 | Non-EPS update triggered during periodic tracking area update | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130510 | 1786 | 1 | Conditions when T3346 is not running | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130514 | 1792 | 1 | Service request procedure for SIPTO at the local network with stand-along GW | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130497 | 1794 |  | Correcting requirement for including SRVCC support indicator | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130505 | 1795 |  | Clean-up of agreed correction for failed CSFB cases | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130514 | 1796 | 1 | Local home network identifier | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130510 | 1806 | 1 | Suitable cell search when the UE receives a EMM cause code #15 or #25 | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130510 | 1809 | 1 | Collision of UE behavior for UE abnormal case in TAU procedure | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130505 | 1813 | 1 | Handling of update status upon combined Attach abnormal failure | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130505 | 1814 | 1 | On NAS Security Mode control and KeNB re-keying | 12.1.0 | 12.2.0 |
| 2013-09 | CT#61 | CP-130505 | 1815 |  | Fixing table 4.3.2.5.2 implementation error | 12.1.0 | 12.2.0 |
| 2013-12 | CT#62 | CP-130754 | 1759 | 5 | Correcting LIPA PDN connection deactivation upon SR | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130762 | 1784 | 3 | UE-initiated detach procedure during tracking area updating procedure | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130762 | 1785 | 2 | Update of ePLMN list for a UE with a PDN connection for emergency bearer services | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130762 | 1788 | 3 | Deletion of the ePLMNs list upon receipt of #9, #10 or #40 | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130754 | 1816 | 1 | T3396 timer handling | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130769 | 1818 | 2 | Detect that SIPTO@LN PDN connection involves a stand-alone GW after during inter-MME HO | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130754 | 1828 |  | Alignment of EMM state change of agreed corrections | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130762 | 1829 |  | GUTI handling in the network abnormal case in attach procedure | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130762 | 1830 |  | Stop ongoing user data transmission for UE abnormal case in TAU procedure | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130754 | 1836 | 1 | Trigger for Combined TAU with IMSI attach | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130762 | 1839 | 1 | Clarification to the combined TAU procedure when rejected with EMM cause #10 | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130741 | 1844 |  | Correcting conditions for performing TAU when T3346 is running | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130762 | 1852 | 3 | Paging response when running T3346 | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130762 | 1853 | 2 | Requirement for resetting the Attach/TAU attempt counter | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130754 | 1854 | 2 | TAU procedure initiation following CSFB failure or CSFB cancellation | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130754 | 1857 | 1 | Clarification to description of the EMM cause value#40 | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130754 | 1859 | 1 | Correction of conditions for re-enablement of E-UTRA having received cause #14 | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130754 | 1860 | 2 | Condition to stop the paging timer | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130754 | 1863 | 1 | RRC establishment cause for 1xCSFB | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130738 | 1868 | 3 | Keeping ongoing realtime and multimedia services if IMS VoPS change | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130762 | 1873 |  | Missing sentence in the sub-clause 6.5.4.6 | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130754 | 1874 | 1 | PLMN identity for the CS domain in the acceptance messages | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130762 | 1875 | 1 | Clarification of requirements for UEs configured for dual priority | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130754 | 1879 | 2 | Clarification for T3423 start condition | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130769 | 1882 |  | TAU procedure actions because of SIPTO at local network | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130769 | 1734 | 4 | ISR handling for SIPTO at the local network | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130769 | 1761 | 13 | Removal of SIPTO@LN procedures upon SR reject unless SR received is not due to CS fallback or 1xCS fallback | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130745 | 1832 | 2 | Local deactivation of ISR after CSFB to correct resume of packet services | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130769 | 1846 | 1 | Correcting IE name transporting L-GW address in INITIAL UE MESSAGE message for SIPTO@LN | 12.2.0 | 12.3.0 |
| 2013-12 | CT#62 | CP-130799 | 1861 | 5 | MME behaviour after sending Reject message with cause#9 | 12.2.0 | 12.3.0 |
| 2014-03 | CT#63 | CP-140134 | 1848 | 5 | TMSI handling during tracking area update procedures | 12.3.0 | 12.4.0 |
| 2014-03 | CT#63 | CP-140142 | 1864 | 3 | Handling Service Request failure due to timeout | 12.3.0 | 12.4.0 |
| 2014-03 | CT#63 | CP-140126 | 1885 | 4 | Keeping ongoing realtime and multimedia services if IMS VoPS change for a CS/PS mode 1 UE registered for EPS services only | 12.3.0 | 12.4.0 |
| 2014-03 | CT#63 | CP-140144 | 1890 | 3 | Emergency Attach in the network not supporting IMS emergency call for limited service state | 12.3.0 | 12.4.0 |
| 2014-03 | CT#63 | CP-140144 | 1893 | 1 | RRC Establishment Cause for TAU procedure | 12.3.0 | 12.4.0 |
| 2014-03 | CT#63 | CP-140141 | 1894 | 3 | Implicitly detached cause | 12.3.0 | 12.4.0 |
| 2014-03 | CT#63 | CP-140141 | 1895 | 1 | Combined TAU trigger for U2 NOT UPDATED | 12.3.0 | 12.4.0 |
| 2014-03 | CT#63 | CP-140144 | 1898 | 2 | Missing condition for cause of start of T3402 | 12.3.0 | 12.4.0 |
| 2014-03 | CT#63 | CP-140141 | 1901 | 1 | RRC establishment cause used for extended service request | 12.3.0 | 12.4.0 |
| 2014-03 | CT#63 | CP-140125 | 1904 | 1 | Delay tolerant setting and back-off timer start for Service Request with low priority | 12.3.0 | 12.4.0 |
| 2014-03 | CT#63 | CP-140131 | 1906 | 1 | RRC establishment cause setting for dual priority UEs | 12.3.0 | 12.4.0 |
| 2014-03 | CT#63 | CP-140142 | 1907 | 2 | UE behavior for ESM #54 "PDN connection does not exist" | 12.3.0 | 12.4.0 |
| 2014-03 | CT#63 | CP-140136 | 1909 | 3 | Introduction of UE power saving mode | 12.3.0 | 12.4.0 |
| 2014-06 | CT#64 | CP-140310 | 1866 | 5 | Continuation of EAB override for requests on a PDN connection established with EAB override | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140331 | 1876 | 5 | Conditionsfor performing TAU for UE configured with Dual Priority | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140331 | 1878 | 4 | Start T3440 for EMM cause values #7, #8 | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140331 | 1917 | 3 | Introduce enhanced EMM cause #15 for disabling the E-UTRA capability | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140331 | 1919 |  | Abbreviation update | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140329 | 1921 | 2 | Service Request attempt counter | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140331 | 1922 | 3 | T3412 and T3417 correction | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140326 | 1924 | 3 | Indication of UE ProSe capability | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140331 | 1928 | 7 | Handling of Abnormal Cases related to Emergency PDN Connectivity Request Procedure | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140304 | 1931 | 1 | Handling CS Service Notification | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140328 | 1934 | 1 | MME behavior when there is lower layer failure during TAU procedure | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140329 | 1935 | 1 | Attach retry for ESM #54 "PDN connection does not exist" | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140328 | 1936 | 3 | Behaviour of CS/PS mode 1 UE with IMS voice available | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140311 | 1938 | 4 | TFT validity criteria | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140323 | 1939 | 3 | Editorials on power saving mode | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140328 | 1940 | 4 | Local release of NAS signalling connection for emergency sessions after IMSI detach | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140331 | 1941 | 4 | Using default value for T3402 upon attach failure in new PLMN | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140329 | 1946 | 3 | Handling of Service request procedure for emergency bearer services. | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140328 | 1950 | 1 | MME handling on collision between attach and paging for EPS services | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140323 | 1951 | 2 | No data transmission when PSM is activated | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140331 | 1959 | 1 | Setting the values of MRT and IDT in the MME | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140328 | 1960 | 1 | Handling of the update status upon receipt of Service Reject | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140326 | 1961 | 2 | Addition of SR trigger for ProSe | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140331 | 1963 | 2 | Emergency call clarifications | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140331 | 1964 | 2 | ISR should be activated in the UE when T3312 is deactivated. | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140323 | 1965 | 2 | Clarifications on emergency attach and PSM | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140328 | 1966 | 3 | Coordination between EMM and ESM when UE receives cause #19 to initial attach | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140328 | 1970 | 1 | Paging timer stop for TAU as a paging response in case of integrity check failure | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140309 | 1975 |  | Aligment of the UE behaviour between attach and TAU procedures | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140328 | 1976 |  | UE in CS/PS mode of operation 1 | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140323 | 1977 | 1 | T3324 value set to zero | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140323 | 1978 | 2 | ISR deactivation for Power Saving Mode | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140331 | 1979 | 2 | Correction for attempt counter | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140331 | 1980 | 2 | UE behaviour in abnormal cases for Attach and TAU procedures | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140323 | 1981 |  | Corrections to UE power saving mode | 12.4.0 | 12.5.0 |
| 2014-06 | CT#64 | CP-140323 | 1983 | 1 | The set of mobile reachable timer and implicit detach timer considering PSM | 12.4.0 | 12.5.0 |
| 2014-09 | CT#65 | CP-140661 | 1923 | 5 | Clarifications on the selection of another RAT when disabling E-UTRA. | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140662 | 1962 | 3 | Handling of SCM at NAS layer | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140640 | 1969 | 4 | Correction on handling of cause #27 (missing or unknown APN) | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140664 | 1984 | 3 | Stopping T3312 for TAU ACCEPT (ISR not activated) | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140664 | 1989 |  | Immediate restart of attach procedure for transmission failures | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140670 | 1992 | 2 | Add the WLAN offloadability to the NAS message | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140573 | 1995 | 2 | Service request counter for AC 11-15 UEs | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140664 | 1996 |  | TMSI handling in the combined attach procedure | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140661 | 1997 | 1 | Access barring for terminating calls | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140643 | 2004 | 1 | Exception for dual priority UE(s) | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140664 | 2005 | 1 | Editorial Corrections | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140657 | 2006 | 3 | Optimization for PSM | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140642 | 2010 | 1 | MS network capability setting after disabling LTE capability | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140664 | 2011 |  | Abnormal case handling for SMC | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140664 | 2013 |  | Stop NAS retry timer upon receipt of EWT from AS | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140661 | 2014 | 1 | Expiry of T3440 | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140657 | 2018 | 1 | MS network feature support usage with PSM | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140643 | 2020 | 1 | Correction to EAB override | 12.5.0 | 12.6.0 |
| 2014-09 | CT#65 | CP-140651 | 2024 | 3 | Introducing new QCIs for MCPTT signaling | 12.5.0 | 12.6.0 |
| 2014-12 | CT#66 | CP-140847 | 1994 | 3 | Addition of SR trigger for ProSe direct communication | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140836 | 2012 | 4 | Request for emergency services allowed even if back-off timer running | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140855 | 2029 | 3 | NAS recovery when NAS has received START indications of different types. | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140836 | 2035 |  | Aligning to the term "UE configured to use AC11 – 15 in selected PLMN" | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140854 | 2039 | 2 | Handling of WLAN offload indication from the MME | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140832 | 2041 | 2 | Correction of handling of repeated periodic TAU failure | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140832 | 2042 | 2 | GBR and MBR values during EPS bearer context modification | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140843 | 2043 |  | Implicit detach timer setting for PSM UE | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140850 | 2048 | 2 | MCPTT QCI usage limitation | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140846 | 2049 | 4 | Trigger to re-initiate service request procedure. | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140854 | 2051 | 8 | Add WLAN offload indication to NAS | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140854 | 2052 |  | MME initiating SM procedure | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140832 | 2055 | 4 | Misalignment between attach and TAU | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140855 | 2056 | 4 | Handling of SCM during TAU procedure | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140836 | 2057 |  | Stopping T3312 for TAU ACCEPT (ISR not activated) | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140850 | 2063 | 2 | QCI code values "spare for future use" | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140824 | 2066 | 2 | Conditions to stop timer | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140847 | 2069 | 2 | Conditions for setting "active" flag in TAU Request | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140836 | 2070 | 1 | Clarification on EMM Procedure Timer handling during authentication failure timers during emergency call | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140843 | 2073 | 2 | Condition for including the T3324 IE | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140843 | 2075 | 5 | Trigger to TAU procedure | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140836 | 2032 | 2 | Solution to Non-availability of Services due to LTE-Roaming | 12.6.0 | 12.7.0 |
| 2014-12 | CT#66 | CP-140858 | 2030 |  | Removal of EPS update status in substates "NORMAL-SERVICE" and "LIMITED-SERVICE" of "EMM-DEREGISTERED". | 12.7.0 | 13.0.0 |
| 2014-12 | CT#66 | CP-140858 | 2038 |  | Deletion of TAI list when GUTI and last visited registered TAI are deleted | 12.7.0 | 13.0.0 |
| 2014-12 | CT#66 | CP-140862 | 2040 | 2 | Correction of description of security protection | 12.7.0 | 13.0.0 |
| 2014-12 | CT#66 | CP-140862 | 2044 | 4 | ISR activation at the UE | 12.7.0 | 13.0.0 |
| 2014-12 | CT#66 | CP-140862 | 2053 | 1 | Retransmit non-delivered NAS PDU due to handover | 12.7.0 | 13.0.0 |
| 2014-12 | CT#66 | CP-140862 | 2064 | 1 | Handling NAS procedure re-attempts | 12.7.0 | 13.0.0 |
| 2014-12 | CT#66 | CP-140858 | 2074 | 1 | Editorials on PSM | 12.7.0 | 13.0.0 |
| 2014-12 | CT#66 | CP-140858 | 2076 | 2 | Network failing the authentication check | 12.7.0 | 13.0.0 |
| 2015-03 | CT#67 | CP-150066 | 2081 | 1 | Paging trigger for IMS PDN connection restoration | 13.0.0 | 13.1.0 |
| 2015-03 | CT#67 | CP-150204 | 2082 | 5 | Correcting ESM re-activation attempts at PLMN change when only one IP version is supported by the network. | 13.0.0 | 13.1.0 |
| 2015-03 | CT#67 | CP-150064 | 2085 | 2 | Handling of PDN connectivity reject from the network due to APN based congestion control | 13.0.0 | 13.1.0 |
| 2015-03 | CT#67 | CP-150064 | 2087 | 1 | Correction on ESM congestion control handling | 13.0.0 | 13.1.0 |
| 2015-03 | CT#67 | CP-150069 | 2089 | 4 | UE retry behavior for ESM cause codes | 13.0.0 | 13.1.0 |
| 2015-03 | CT#67 | CP-150076 | 2091 | 1 | ACB skip for low priority and dual priority UEs | 13.0.0 | 13.1.0 |
| 2015-03 | CT#67 | CP-150075 | 2093 | 2 | Clarification on WLAN offload indication | 13.0.0 | 13.1.0 |
| 2015-03 | CT#67 | CP-150083 | 2098 | 2 | Corrections to the EPS attach procedure when LTE roaming is not allowed. | 13.0.0 | 13.1.0 |
| 2015-03 | CT#67 | CP-150193 | 2096 | 3 | Unsuccessful PDN connectivity with #50 or #51 | 13.0.0 | 13.1.0 |
| 2015-06 | CT#68 | CP-150323 | 2083 | 3 | Detach and re-attach required for changes in E-UTRAN capabilities | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150315 | 2098 | 4 | Correction of UE retry behaviour after rejection by the network | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150329 | 2099 | 1 | Handling of authentication timers after loss or release of signalling connection | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150329 | 2100 | 1 | Handling of access class barring when accessing the network for emergency bearer sevices | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150315 | 2107 |  | Remove the note for ESM cause value #27 | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150329 | 2116 | 1 | Clarification on T3346 | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150308 | 2119 | 1 | ESM re-activation attempts | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150316 | 2121 | 4 | Proper Call Type for service request in ProSe | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150323 | 2122 | 2 | Clarfication for TMSI handling during combined tracking area update procedure | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150329 | 2126 |  | Correction on UE's behaviour for EWT from the lower layers | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150323 | 2127 |  | TAU trigger at T3417ext expiry for MO CSFB | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150329 | 2132 | 2 | Handling of ESM cause value #50, #51 | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150329 | 2133 |  | Removal of dependency on EPS Update Status from EMM-DEREGISTERED.ATTEMPTING-TO-ATTACH | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150316 | 2137 | 2 | Correction of service request triggering condition for ProSe direct service | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150329 | 2138 |  | Handling of timers T3346 | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150329 | 2139 | 1 | Setting of the Device properties IE for CSFB emergency call and 1x CSFB emergency call | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150323 | 2140 |  | Clarifications on Disabling E-UTRA | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150323 | 2141 | 1 | Clarifications on Enabling E-UTRA when UE performs PLMN selection | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150310 | 2145 | 1 | Rollback of changes on reset attempt counters | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150329 | 2148 | 1 | Handling of timer T3245 | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150329 | 2150 |  | Alignment of UE behaviour for EWT in Service Request procedure | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150323 | 2151 | 1 | RRC release with redirection for CSFB or 1x CSFB | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150315 | 2154 | 2 | UE back-off timer for EPS session management rejections | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150323 | 2155 | 1 | Clarifications on Enabling E-UTRA after handover | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150323 | 2167 | 1 | Allow UEs to proceed with CSFB after TAU Reject #9,#10 or #40 | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150313 | 2147 | 2 | Trigger to initate Tracking area procedure (PSM) | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150329 | 2149 | 1 | Enable ISR for PS-only UE | 13.1.0 | 13.2.0 |
| 2015-06 | CT#68 | CP-150326 | 2163 | 3 | Updates to mobile reachable timer and network behaviour because of MONTE | 13.1.0 | 13.2.0 |
| 2015-09 | CT#69 | CP-150526 | 2169 | 2 | NBIFOM - coding of Access usability | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150519 | 2174 | 1 | CSFB cancellation invalidating need to restart service request procedure | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150526 | 2177 | 2 | NBIFOM - coding of RAN rules related indications | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150529 | 2178 | 2 | Correction of criterion for clearing a maximum number of EPS bearer contexts | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150529 | 2179 | 2 | Correction of criterion for stopping timer T3346 | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150516 | 2181 |  | Removal of incorrect reference to PLMN selection | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150523 | 2182 | 2 | Back-off timer mechanism for equivalent PLMNs | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150526 | 2183 | 1 | Addition of an access using E-UTRAN in UE-initiated mode | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150519 | 2185 | 2 | T3440 for TAU reject with cause #9,10,40 | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150519 | 2186 | 2 | RRC establishment cause for TAU procedure | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150526 | 2190 | 1 | UE-initiated IP flow mobility | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150526 | 2191 | 1 | Network-initiated IP flow mobility | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150523 | 2192 |  | Correction of MS retry behaviour after rejection with #8, #27, #32, #33 | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150519 | 2193 | 2 | Extended service request message rejected with #12 and #15 | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150529 | 2194 |  | UE-initiated detach for "switch off" and change of cell into a new TAI | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150529 | 2195 | 1 | Expiry of T3412 when the UE is attached for emergency bearer services | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150529 | 2198 | 2 | Clarification on the handling of the back-off timer when the UE is switched off | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150529 | 2200 |  | Enhancement on NW initiated EPS bearer deactivation | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150529 | 2201 |  | Handling of back-off timer at switch-on | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150519 | 2202 | 2 | Correction on CSFB in TAU reject with #9,#10 or #40 | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150516 | 2204 | 2 | Delete the incorrect cause values in UE requested bearer resource modification procedure | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150519 | 2207 | 2 | Correction on reporting of EPS bearer context status information | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150519 | 2210 |  | Clarification on TAU and access class barring | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150536 | 2212 | 2 | Introduction of extended idle mode DRX cycle | 13.2.0 | 13.3.0 |
| 2015-09 | CT#69 | CP-150543 | 2135 | 5 | Handling of Application specific Congestion control for Data Communication (ACDC) | 13.2.0 | 13.3.0 |
| 2015-12 | CT#70 | CP-150710 | 2034 | 5 | Local deactivation of EPS bearers contexts upon receipt of ESM reject cause #49 | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150696 | 2037 | 6 | UE actions on detach request indicating "re-attach not required" without EMM cause | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150710 | 2172 | 3 | Incorrect test condition on linkage of override EAB and override NSLPI | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150706 | 2214 | 2 | Define ESM cause for the rejection of additional access to a PDN connection | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150710 | 2216 |  | Correction on UE behaviour for SR rejected with #10 | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150710 | 2217 | 3 | Alignment on NW initiated EPS bearer deactivation | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150696 | 2218 |  | T3440 for emergency service PDN Connection | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150696 | 2219 | 1 | Stand-alone PDN connectivity procedure without APN IE | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150696 | 2221 | 1 | Handling of CSFB requests in ATTEMPTING-TO-ATTACH and ATTEMPTING-TO-UPDATE | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150702 | 2228 | 1 | Handling of Re-attempt indicator IE | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150713 | 2229 | 4 | Extended DRX IE addition | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150713 | 2230 | 1 | Extended DRX accepted by the network | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150706 | 2232 | 4 | Inclusion of RAN rules and access usability IEs in NBIFOM container | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150696 | 2237 | 2 | TAU successful for "EPS service only" with a persistent EPS bearer context | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150713 | 2238 | 2 | Interaction between PSM and eDRX | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150713 | 2239 |  | eDRX abbreviation, reference to TS 24.008 and some corrections | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150713 | 2240 |  | eDRX and emergency bearer services | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150713 | 2241 | 3 | Lack of requirement on mandating repeating the request of eDRX at TAU | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150713 | 2242 | 1 | Support of eDRX in the UE | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150702 | 2243 | 1 | Correction to the UE retry behaviour for PDN connectivity procedure | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150702 | 2244 | 2 | Correction to UE-requested bearer resource allocation and modification procedures after rejection with #32, #33 | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150704 | 2245 | 1 | Group specific congestion control | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150710 | 2248 | 4 | Clarification about timer T3245 usage | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150706 | 2250 | 1 | NBIFOM Container IEI | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150713 | 2253 |  | use of the eDRX parameters provided by the network | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150696 | 2255 |  | Starting timer T3440 for EMM cause value #25 | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150688 | 2258 | 2 | Correction of UE-initiated detach request during tracking area updating procedure | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150702 | 2259 | 2 | Retry restriction for default APN | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150696 | 2260 |  | Alignment of TAU reject with #9,#10 or #40 for CSFB | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150696 | 2261 | 2 | Enhancement of CSFB and network initiated detach collision | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150696 | 2262 | 1 | Removal of duplicated UE behaviour | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150710 | 2263 | 2 | Correction to UE initiated release of bearer resources | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150708 | 2264 | 2 | Remote UE Report procedure addition | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150710 | 2265 |  | Clarification regarding update status in LTE RAT | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150696 | 2272 |  | Correction on the EPS security context term | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150716 | 2273 |  | Dedicated core networks | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150710 | 2274 |  | Incorrect reference about treating the active cell as barred | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150713 | 2275 | 1 | Paging for a UE which the network accepted to use eDRX | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150710 | 2276 |  | Fixing underlined text and editorial | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150710 | 2278 | 3 | Handling of back off timer T3346 and T3396 | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150710 | 2281 | 1 | Stop running T3323 | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150719 | 2282 | 1 | ACDC handling for emergency call and IMS | 13.3.0 | 13.4.0 |
| 2015-12 | CT#70 | CP-150719 | 2283 | 1 | Handling of ACDC mechanism | 13.3.0 | 13.4.0 |
| 2016-03 | CT#71 | CP-160085 | 2277 | 6 | Starting Timer T3440 in service request procedure for CS Fallback | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160085 | 2292 | 6 | Correction of handling NAS reject messages without Integrity protection | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160071 | 2295 | 5 | Support of CIoT EPS optimization | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160069 | 2300 | 5 | Handling of uncategorized app for ACDC | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160072 | 2306 | 6 | MT-SMS triggered Paging handling for UE using eDRX | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160085 | 2307 |  | Correction on active timer in timer table | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160073 | 2309 | 2 | Addition of Remote UE report to general ESM procedures | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160072 | 2312 | 2 | Handling when UE wants to disable eDRX | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160082 | 2313 | 3 | Ending CS domain congestion when network accepts to provide service | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160073 | 2314 | 1 | Adding UE-to-Network Relay capability in UE nework capability IE | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160067 | 2318 | 2 | RRC establishment cause for mobile-originated VoLTE calls | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160158 | 2321 | 7 | Enhacements to the EPS attach procedure for CIoT | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160072 | 2325 | 1 | Enabling eDRX when T3346 running | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160085 | 2327 |  | Correction of handling of timer T3346 and T3396 at detach without switch-off | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160085 | 2328 | 2 | APN change after ESM failure | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160073 | 2329 | 3 | Update of remote UE report procedure | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160073 | 2330 | 1 | UE behavior at the failure of Remote UE Report procedure | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160069 | 2331 | 1 | Correction of ACDC handling for IMS services | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160085 | 2333 | 2 | Naming service request guard timer | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160072 | 2334 | 1 | eDRX cleanup | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160085 | 2335 | 1 | Moving the note for T3324 to right place | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160085 | 2337 |  | Correction of SM Retry Timer to SM\_RetryWaitTime | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160071 | 2340 | 2 | Enhancement on detach procedure for CIoT | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160071 | 2341 | 2 | Enhancement on PDN connection/disconnect trigger for CIoT | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160071 | 2343 | 3 | Addition of User Plane EPS optimization | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160071 | 2344 | 2 | Introduction of ROHC | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160071 | 2345 | 1 | Enhacements to the tracking area updating procedure for CIoT | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160071 | 2347 | 2 | Paging for MT-SMS when the UE is EPS attached | 13.4.0 | 13.5.0 |
| 2016-03 | CT#71 | CP-160071 | 2348 | 2 | Downlink data delivery when the UE is in power saving mode | 13.4.0 | 13.5.0 |
| 2016-06 | CT#72 | CP-160312 | 2315 | 8 | Use of eDRX in case of emergency bearer services | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2324 | 9 | CIoT ESM Procedure for Transfer of Data via MME | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160315 | 2326 | 5 | Handling of T3396 for PDN connections established without APN | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2342 | 11 | Support of EMM-REGISTERED without PDN connection | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160315 | 2350 |  | Correction of the handing of the Re-attempt indicator IE for cause #66 | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160318 | 2351 |  | Further corrections of handling of NAS reject messages without integrity protection | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2353 | 7 | Update of User Plane EPS optimization | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160318 | 2360 | 1 | Cleanup for NAS reject messages without Integrity protection | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2364 | 5 | Header compression configuration IEI value | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2365 | 4 | Paging response for MT CIoT data | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2366 | 4 | Priority handling of NAS signalling vs CIoT data over NAS | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2367 | 3 | Re-establish DRBs in CP CIoT optimization | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2368 | 2 | Partly ciphered CIoT Data via MME for the ECM-IDLE UE | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160325 | 2369 |  | Wrong 24.008 subclause referenced for NBIFOM container | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2370 | 1 | Optional support for header compression during attach for CIoT EPS optimization | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2372 | 3 | Correction to the coding of the Supported Network Behavior | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2374 | 7 | NAS priority configuration for NB-IoT and non-NB-IoT UE | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2378 | 3 | Paging handling for the UE using User Plane CIoT optimization | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2379 | 1 | Control-plane CIoT EPS optimization for UEs in NB-S1 mode | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2380 | 1 | EPS services and "SMS only" for a UE that supports NB-S1 mode only | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2381 | 6 | Indication of support of CIoT EPS optimizations to the UE | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2382 | 2 | Support of Header compression for control-plane EPS CIoT optimization | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2383 | 1 | Correction to description of CIoT EPS optimizations | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2384 | 1 | Alignement on terminology | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2385 | 3 | DRX during attach and TAU when in NB-S1 mode | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2386 | 1 | Indication of support of emergency bearer services when UE accesses via NB-S1 mode | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2387 | 3 | User-plane EPS optimization and S1-U data transfer | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160312 | 2389 | 1 | Interaction between legacy DRX and eDRX | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2390 | 2 | Limitation on EPS bearer activation for non-IP PDN in EPS CP CIoT optimization | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2393 | 1 | Update to voice domain preference and UE's usage setting conditions | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2394 |  | Correction on network behavior negotiation during CIoT attach | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2401 |  | Timer table for Data Service Request | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2405 | 1 | Trigger to resume NAS signalling in EMM procedures | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2406 | 6 | NAS signalling connection recovery for CP CIoT Optimization | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2412 |  | General subscription update for new ESM procedure for CIoT data transfer | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160318 | 2416 | 1 | Handling of PLMN background scan timer during PSM | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2417 | 4 | Encoding of the Header Compression Configuration IE | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160325 | 2420 |  | Adding NBIFOM container IE to PDN CONNECTIVITY REJECT message content | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160311 | 2422 | 2 | Addition of IMEI support in remote UE report procedure | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160325 | 2423 | 1 | Update the ESM cause value list with an indication that the PDN connectivity procedure was not accepted by the network | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160325 | 2425 | 1 | Local deactivation related to NBIFOM multi-access PDN connection | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160325 | 2426 |  | Delete the NBIFOM container IE in TS 24.301 | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2427 | 3 | Update of NAS timers to support NB-S1 mode | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160318 | 2428 | 2 | Update of NAS timers to support WB-S1 mode for IoT | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2429 | 2 | Header compression configuration status IE handling | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2430 |  | Correction to the CIoT definitions | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160318 | 2431 | 2 | SIB indications about support of CIoT optimizations | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2433 | 1 | EPS attached without PDN connectivity Indication | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160318 | 2437 |  | CS domain congestion and SMS | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2441 | 1 | Introducing Access Barring (AB) for NB-IoT | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2446 | 1 | ACB handling in NB-S1 mode | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2448 |  | Principles of address handling for new ESM DATA TRANSPORT message | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2449 | 1 | Principles of address handling for new ESM DUMMY MESSAGE | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2450 |  | Clean-up Editorial Notes for CIoT | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2454 | 1 | Paging timer for resume | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2461 |  | Updates to the UE network capability IE due to CIoT | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160318 | 2415 | 2 | Addition of extended protocol configuration options | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2354 | 2 | Clean up of CIoT terms | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2371 | 6 | Header Compression Configuration status in the TAU Accept message | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2397 | 7 | Serving PLMN rate control | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2398 | 6 | Procedures for APN Rate Control | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2400 | 1 | Network features per TAI list | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2408 | 2 | SMS transfer using Control Plane CIoT EPS optimization | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2409 | 6 | Signalling of link MTU during non-IP connection establishment | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2410 | 2 | Enabling to switch from CP to UP CIoT EPS optimization | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160325 | 2419 | 1 | "Multiple accesses to a PDN connection not allowed" in NW-initiated PDN disconnection procedure | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2460 |  | Support of PCO signaling for SCEF PDN connection | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2435 | 3 | EPS attach with CIoT EPS Optimisation based on System information | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160363 | 2455 | 4 | Active Flag handling in CP-CIoT EPS optimization | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160309 | 2395 | 11 | CIoT Updates to Service Request Procedure for Transfer of Data via MME | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160339 | 2445 | 1 | Rollback of MME paging behaviour in CP optimization and eDRX are used | 13.5.0 | 13.6.0 |
| 2016-06 | CT#72 | CP-160331 | 2352 | 2 | Correction of UE behaviour in substate ATTEMPTING-TO-UPDATE | 13.6.0 | 14.0.0 |
| 2016-06 | CT#72 | CP-160331 | 2375 |  | T3411 handling correction for RRC connection failure case | 13.6.0 | 14.0.0 |
| 2016-06 | CT#72 | CP-160331 | 2376 | 1 | Collision case handling for service request for SMS and IMSI detach from network | 13.6.0 | 14.0.0 |
| 2016-06 | CT#72 | CP-160331 | 2418 | 1 | T3396 running due to the release message from network | 13.6.0 | 14.0.0 |
| 2016-06 | CT#72 |  |  |  | Various corrections | 14.0.0 | 14.0.1 |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Change history** | | | | | | | |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2016-09 | CT#73 | CP-160516 | 2459 | 2 | F | Handling of MO/MT CSFB in EMM-REGISTERED.ATTEMPTING-TO-UPDATE-MM | 14.1.0 |
| 2016-09 | CT#73 | CP-160516 | 2462 |  | D | Incorrectly formatted bullet list of PDN type values | 14.1.0 |
| 2016-09 | CT#73 | CP-160488 | 2464 | 1 | A | NAS timer handling for eMTC | 14.1.0 |
| 2016-09 | CT#73 | CP-160470 | 2466 | 2 | A | Addition of DelayTolerant RRC establishment cause for NB-IoT | 14.1.0 |
| 2016-09 | CT#73 | CP-160488 | 2475 | 2 | A | Extended Wait Time for non-low access priority UEs in NB-IoT | 14.1.0 |
| 2016-09 | CT#73 | CP-160486 | 2477 | 3 | A | Clarification for EMM-REGISTERED without PDN connection | 14.1.0 |
| 2016-09 | CT#73 | CP-160493 | 2478 |  | A | Message type for REMOTE UE REPORT and REMOTE UE REPORT RESPONSE message | 14.1.0 |
| 2016-09 | CT#73 | CP-160486 | 2481 |  | A | Correction of ePCO indication IE | 14.1.0 |
| 2016-09 | CT#73 | CP-160488 | 2483 | 2 | A | Indication of Support of CIOT EPS optimizations | 14.1.0 |
| 2016-09 | CT#73 | CP-160488 | 2485 | 2 | A | piggyback ESM data transport in CP service request | 14.1.0 |
| 2016-09 | CT#73 | CP-160525 | 2492 | 3 | A | When to send service accept message | 14.1.0 |
| 2016-09 | CT#73 | CP-160489 | 2495 | 1 | A | Preferred CIoT network behaviour when CIoT optimization is not supported | 14.1.0 |
| 2016-09 | CT#73 | CP-160486 | 2497 | 1 | A | Alignment on Control Plane Service Request related usage | 14.1.0 |
| 2016-09 | CT#73 | CP-160488 | 2501 | 1 | A | Non IP PDN type in the PDN address | 14.1.0 |
| 2016-09 | CT#73 | CP-160492 | 2507 |  | A | Wrong ordering of and repeated requirements on eDRX parameters handling | 14.1.0 |
| 2016-09 | CT#73 | CP-160512 | 2508 | 1 | B | Introduction of eCall over IMS in TS 24.301 | 14.1.0 |
| 2016-09 | CT#73 | CP-160527 | 2510 | 2 | A | Multiple DRB capability handling | 14.1.0 |
| 2016-09 | CT#73 | CP-160489 | 2512 | 1 | A | Resolution of editor's note on abnormal cases during service request procedure | 14.1.0 |
| 2016-09 | CT#73 | CP-160486 | 2514 | 1 | A | Correction of use of broadcast support indications of CIoT optimizations | 14.1.0 |
| 2016-09 | CT#73 | CP-160486 | 2518 | 1 | A | Alignment for consistent use of term "Control plane"and "User plane" | 14.1.0 |
| 2016-09 | CT#73 | CP-160487 | 2520 |  | A | Correction to NAS timer extension multiplier to support NB-S1 mode | 14.1.0 |
| 2016-09 | CT#73 | CP-160487 | 2522 |  | A | EMM NAS timers for applying extension to support NB-S1 mode | 14.1.0 |
| 2016-09 | CT#73 | CP-160487 | 2524 | 1 | A | Editor's note in sub-clauses 5.5.1.2.4 and 5.5.3.2.4 | 14.1.0 |
| 2016-09 | CT#73 | CP-160487 | 2528 |  | A | Correction to requirement on requesting CIoT EPS optimizations | 14.1.0 |
| 2016-09 | CT#73 | CP-160487 | 2530 |  | A | Correction to procedure to inform the UE of any local serving PLMN rate control | 14.1.0 |
| 2016-09 | CT#73 | CP-160487 | 2532 |  | A | Correction to the use of NB-IoT RAT | 14.1.0 |
| 2016-09 | CT#73 | CP-160492 | 2534 |  | A | Paging for EPS service for UE using eDRX | 14.1.0 |
| 2016-09 | CT#73 | CP-160488 | 2536 |  | A | Partial ciphering for SMS transfer over CIoT CP optimization | 14.1.0 |
| 2016-09 | CT#73 | CP-160516 | 2537 | 1 | F | Clarification on general description of ESM procedrue | 14.1.0 |
| 2016-09 | CT#73 | CP-160486 | 2543 | 3 | A | Correction on usage of extended protocol configuration options | 14.1.0 |
| 2016-09 | CT#73 | CP-160488 | 2545 | 2 | A | ePCO support by UEs supporting NB-S1 mode or Non-IP PDN type | 14.1.0 |
| 2016-09 | CT#73 | CP-160487 | 2547 |  | A | Editor's note in sub-clause 5.5.2.3.4 | 14.1.0 |
| 2016-09 | CT#73 | CP-160570 | 2553 | 4 | A | Correction on T3440 when "signalling active" flag is used | 14.1.0 |
| 2016-09 | CT#73 | CP-160487 | 2559 | 1 | A | Corrections to Table D.1.1 regarding exception data reporting | 14.1.0 |
| 2016-09 | CT#73 | CP-160489 | 2561 | 1 | A | Remove duplication in triggering the establishment of UP bearers in EMM-CONNECTED for a UE using CP CIoT optimization | 14.1.0 |
| 2016-09 | CT#73 | CP-160488 | 2565 | 1 | A | Encoding of additional header compression context setup parameters | 14.1.0 |
| 2016-09 | CT#73 | CP-160489 | 2567 | 1 | A | Release Assistance Information Alignment | 14.1.0 |
| 2016-09 | CT#73 | CP-160486 | 2569 | 2 | A | Attach reject due to incompatibility between CIoT features supported by the UE and the network | 14.1.0 |
| 2016-09 | CT#73 | CP-160487 | 2571 | 1 | A | DL NAS prioritization | 14.1.0 |
| 2016-12 | CT#74 | CP-160723 | 2516 | 2 | A | Removal of options related to CP/UP switch | 14.2.0 |
| 2016-12 | CT#74 | CP-160722 | 2573 | 3 | A | MME behavior when accepting control plane service request | 14.2.0 |
| 2016-12 | CT#74 | CP-160723 | 2579 | 1 | A | Synchronization for EPS bearer contexts associated with CP only indication | 14.2.0 |
| 2016-12 | CT#74 | CP-160798 | 2580 | 2 | B | Handover of emergency PDN connection from non-3GPP access to 3GPP access | 14.2.0 |
| 2016-12 | CT#74 | CP-160722 | 2584 | 6 | A | PDN connection restriction due to subscription restriction (Alt4) | 14.2.0 |
| 2016-12 | CT#74 | CP-160720 | 2586 | 2 | A | Control Plane "pinning" and CP to UP switching | 14.2.0 |
| 2016-12 | CT#74 | CP-160726 | 2589 | 2 | A | Paging with TMSI for eDRX UE | 14.2.0 |
| 2016-12 | CT#74 | CP-160753 | 2591 | 3 | F | Reduce running NAS time in the MME | 14.2.0 |
| 2016-12 | CT#74 | CP-160721 | 2594 | 2 | A | Correction of the use of broadcasted CIoT optimization support indications | 14.2.0 |
| 2016-12 | CT#74 | CP-160738 | 2595 | 4 | B | Addition of DCN ID handling for eDecor | 14.2.0 |
| 2016-12 | CT#74 | CP-160720 | 2597 | 1 | A | Addition of Non-IP related cause values | 14.2.0 |
| 2016-12 | CT#74 | CP-160749 | 2598 | 1 | F | Improved clarification on general description of ESM procedure | 14.2.0 |
| 2016-12 | CT#74 | CP-160723 | 2602 | 1 | A | Updates to Handle multiple DRB Capability | 14.2.0 |
| 2016-12 | CT#74 | CP-160738 | 2606 | 2 | F | DCN-ID in GUTI Reallocation Command Message | 14.2.0 |
| 2016-12 | CT#74 | CP-160739 | 2607 |  | F | Removal of Editor's note on normal emergency call by UE in eCall only mode | 14.2.0 |
| 2016-12 | CT#74 | CP-160739 | 2608 | 1 | F | Correction of eCall timer names | 14.2.0 |
| 2016-12 | CT#74 | CP-160720 | 2610 | 2 | A | Abnormal case for ESM DATA TRANSPORT | 14.2.0 |
| 2016-12 | CT#74 | CP-160723 | 2616 | 1 | A | Restarting T3440 when CP optimisation applied | 14.2.0 |
| 2016-12 | CT#74 | CP-160722 | 2618 | 2 | A | Exception data handling | 14.2.0 |
| 2016-12 | CT#74 | CP-160723 | 2620 | 5 | A | RRC Establishment cause and Call Type corrections. | 14.2.0 |
| 2016-12 | CT#74 | CP-160753 | 2621 | 2 | F | Correction of local deactivation of EPS bearer context handling | 14.2.0 |
| 2016-12 | CT#74 | CP-160721 | 2625 | 5 | A | Correction to the implementation of the PNB/SNB framework | 14.2.0 |
| 2016-12 | CT#74 | CP-160721 | 2629 | 2 | A | Correction to the definitions related to CIOT | 14.2.0 |
| 2016-12 | CT#74 | CP-160721 | 2633 | 2 | A | Correction on CPSR usage for user plane establishment | 14.2.0 |
| 2016-12 | CT#74 | CP-160720 | 2635 |  | A | Correction of partial encryption of CPSR | 14.2.0 |
| 2016-12 | CT#74 | CP-160722 | 2637 | 2 | A | Initial NAS message discard at successful RRC Resume | 14.2.0 |
| 2016-12 | CT#74 | CP-160722 | 2639 | 3 | A | Re-insert ePCO IE in PDN Connectivity Request | 14.2.0 |
| 2016-12 | CT#74 | CP-160722 | 2641 | 1 | A | Further alignment on Control plane service type usage | 14.2.0 |
| 2016-12 | CT#74 | CP-160721 | 2645 | 4 | A | Correction to the setting of the Control plane only indication | 14.2.0 |
| 2016-12 | CT#74 | CP-160723 | 2647 | 2 | A | TAU reject upon inter-RAT mobility involving NB-S1 mode | 14.2.0 |
| 2016-12 | CT#74 | CP-160722 | 2654 | 2 | A | Exception data reporting initiation when T3346 is running | 14.2.0 |
| 2016-12 | CT#74 | CP-160721 | 2658 |  | A | Correction on the length of Header Compression Configuration IE | 14.2.0 |
| 2016-12 | CT#74 | CP-160754 | 2659 |  | F | New QCI values for V2X services | 14.2.0 |
| 2016-12 | CT#74 | CP-160735 | 2661 | 4 | A | Traffic flow aggregate IE | 14.2.0 |
| 2016-12 | CT#74 | CP-160721 | 2663 | 1 | A | Correction to EPS MM and SM timers in NB-S1 mode | 14.2.0 |
| 2016-12 | CT#74 | CP-160723 | 2665 | 2 | A | Correction to EPS MM and SM timers in WB-S1 mode | 14.2.0 |
| 2016-12 | CT#74 | CP-160753 | 2666 | 2 | D | Editorials and minor correction on CIoT | 14.2.0 |
| 2016-12 | CT#74 | CP-160718 | 2669 | 3 | A | Correction to cases which all EPS bearer contexts to a given APN are deactivated | 14.2.0 |
| 2016-12 | CT#74 | CP-160753 | 2670 |  | F | Detach procedure triggered due to USIM removal | 14.2.0 |
| 2016-12 | CT#74 | CP-160749 | 2671 |  | F | Correction to initiation of TAU when the EPS update status is set to EU2 NOT UPDATED | 14.2.0 |
| 2016-12 | CT#74 | CP-160749 | 2672 | 1 | F | Correction to network cases to release the NAS signalling connection | 14.2.0 |
| 2016-12 | CT#74 | CP-160749 | 2673 |  | F | Correction to EPS attach counter after successful registration | 14.2.0 |
| 2016-12 | CT#74 | CP-160754 | 2674 | 2 | B | Introduction ofV2X capability in ATTACH REQUEST and TRACKING AREA UPDATE REQUEST messages | 14.2.0 |
| 2016-12 | CT#74 | CP-160754 | 2675 | 4 | B | New trigger conditions for service request and tracking area updating procedures due to V2X | 14.2.0 |
| 2016-12 | CT#74 | CP-160720 | 2677 | 3 | A | Correction of the abnormal case handling for EMM-REGISTERED without PDN connection | 14.2.0 |
| 2016-12 | CT#74 | CP-160722 | 2679 |  | A | Removal of editor's note for CP service request | 14.2.0 |
| 2016-12 | CT#74 | CP-160721 | 2681 | 1 | A | Correction to encoding of UE network capability IE and TAU initiation | 14.2.0 |
| 2016-12 | CT#74 | CP-160753 | 2682 |  | F | Information on RRC establishment cause change at MMTEL Video | 14.2.0 |
| 2016-12 | CT#74 | CP-160723 | 2684 | 1 | A | Synchronisation of CP only EPS bearers | 14.2.0 |
| 2016-12 | CT#74 | CP-160720 | 2686 | 1 | A | Alignment of MTU for CP user data | 14.2.0 |
| 2016-12 | CT#74 | CP-160722 | 2690 |  | A | NAS message container successfully deciphered | 14.2.0 |
| 2016-12 | CT#74 | CP-160738 | 2691 | 1 | B | Trigger TAU at Default DCN-ID change | 14.2.0 |
| 2016-12 | CT#74 | CP-160718 | 2697 | 1 | A | Indication to upper layers on first expiry of T3482 for emergency bearer services | 14.2.0 |
| 2016-12 | CT#74 | CP-160720 | 2701 | 3 | A | APN rate Control and Emergency bearer services | 14.2.0 |
| 2016-12 | CT#74 | CP-160720 | 2703 |  | A | Alignment of the ROHC support requirements | 14.2.0 |
| 2016-12 | CT#74 | CP-160753 | 2707 | 3 | D | Correction to the handling of the Link MTU parameters | 14.2.0 |
| 2016-12 | CT#74 | CP-160721 | 2709 | 2 | A | Enabling SMS over SGs for NB-IoT only UEs | 14.2.0 |
| 2016-12 | CT#74 | CP-160749 | 2710 |  | F | Alignment on UE's behaviour for CS fallback failure | 14.2.0 |
| 2016-12 | CT#74 | CP-160749 | 2711 | 1 | F | Clarification to EMM-REGISTERED.UPDATE-NEEDED state | 14.2.0 |
| 2016-12 | CT#74 | CP-160749 | 2712 | 1 | F | Service request initiated for CS fallback - abnormal case in the UE | 14.2.0 |
| 2016-12 | CT#74 | CP-160720 | 2715 | 2 | A | Alignment of CP Service Request for abnormal case | 14.2.0 |
| 2016-12 | CT#74 | CP-160723 | 2719 | 1 | A | Service Request Counter | 14.2.0 |
| 2016-12 | CT#74 | CP-160721 | 2723 |  | A | Correction on NAS timer usage condition for CE mode B | 14.2.0 |
| 2016-12 | CT#74 | CP-160753 | 2725 |  | F | Aligning definitions of EMM\_DEREGISTERED.PLMN-SEARCH and EMM\_DEREGISTERED.NO-IMSI | 14.2.0 |
| 2016-12 | CT#74 | CP-160753 | 2726 | 1 | F | Clarification to the CIOT EPS optimisation procedure | 14.2.0 |
| 2017-03 | CT#75 | CP-170136 | 2490 | 4 | F | Voice domain preference change during "CSFB not available", "CSFB not preferred" or "SMS only" | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2724 | 1 | F | Handling paging in EMM-REGISTERED.ATTEMPTING-TO-UPDATE | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2730 | 2 | F | Correction for the Additional update result IE in Tracking Area Update Accept message | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2734 | 1 | D | Correction to the usage of the Control plane only indication | 14.3.0 |
| 2017-03 | CT#75 | CP-170110 | 2736 | 2 | A | Correction to the UE behavior for completion of the service request procedure | 14.3.0 |
| 2017-03 | CT#75 | CP-170110 | 2742 |  | A | Release of NAS signalling due to service reject to CPSR | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2746 | 1 | F | Correction of Additional update type inclusion criteria in TAU | 14.3.0 |
| 2017-03 | CT#75 | CP-170110 | 2748 | 1 | A | Encryption at resume of NAS signalling connection | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2751 | 1 | F | Addition of TAU triggers for ProSe in table D.1.1 | 14.3.0 |
| 2017-03 | CT#75 | CP-170121 | 2752 | 1 | B | TAU support for NB-S1 | 14.3.0 |
| 2017-03 | CT#75 | CP-170121 | 2762 | 2 | B | Restriction of use of Coverage Enhancement | 14.3.0 |
| 2017-03 | CT#75 | CP-170130 | 2763 | 7 | B | Introduction of 3GPP PS data off UE status and 3GPP PS data off support indicator | 14.3.0 |
| 2017-03 | CT#75 | CP-170110 | 2765 | 4 | A | Values for the EPS MM and SM timers in WB-S1 mode | 14.3.0 |
| 2017-03 | CT#75 | CP-170121 | 2768 | 1 | B | Interaction between PSM and MBMS | 14.3.0 |
| 2017-03 | CT#75 | CP-170110 | 2771 | 3 | A | Failure case handling of SMS over SGs for NB-IoT only UEs | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2773 | 1 | F | Correction on multiple DRB Capability handling | 14.3.0 |
| 2017-03 | CT#75 | CP-170133 | 2774 | 1 | F | Skip back-off timer for emergency CSFB call | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2775 | 3 | F | Clarification to the Suspend and Resume procedure | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2781 | 1 | F | SGi PDN connections for CP to UP switching | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2783 | 3 | F | Exception data handling in Attempting to Update or Attach state. | 14.3.0 |
| 2017-03 | CT#75 | CP-170122 | 2791 | 3 | F | Resolve DCN-ID length | 14.3.0 |
| 2017-03 | CT#75 | CP-170119 | 2793 |  | A | Further corrections of handling of NAS reject messages without integrity protection | 14.3.0 |
| 2017-03 | CT#75 | CP-170110 | 2795 |  | A | Extended wait time for CPSR with low priority indicator | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2797 | 1 | F | Correction to the handling ot Serving PLMN rate control values | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2798 | 1 | F | UE configuration for exception data reporting via USIM | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2801 | 1 | F | UE getting detached when last PDN connection moved to non-3GPP access | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2803 | 2 | F | Multiple bearer capability handling independent of CIoT user plane optimization | 14.3.0 |
| 2017-03 | CT#75 | CP-170119 | 2807 |  | A | Correction to the handling of non-integrity proctected reject messages | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2808 | 1 | F | Local EPS bearer context deactivation | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2810 | 2 | F | Service accept message for CPSR with active flag | 14.3.0 |
| 2017-03 | CT#75 | CP-170133 | 2813 | 1 | F | Emergency CS/PS call handling when T3440 started due to g) in subclause 5.3.1.2.1 | 14.3.0 |
| 2017-03 | CT#75 | CP-170121 | 2815 | 2 | B | Intra-MME mobility enhancements for DL data transmission for NB-IoT | 14.3.0 |
| 2017-03 | CT#75 | CP-170136 | 2817 | 2 | F | (Sol A) Extended DRX parameters handling | 14.3.0 |
| 2017-03 | CT#75 | CP-170121 | 2822 | 2 | B | Mobility enhancements for UL data transmission for NB-IoT | 14.3.0 |
| 2017-03 | CT#75 | CP-170134 | 2823 |  | B | Support of handovers of emergency sessions over WLAN to 3GPP access | 14.3.0 |
| 2017-06 | CT#76 | CP-171089 | 2761 | 3 | B | Indicating policy related to emergency numbers/types received via non-3GPP access | 14.4.0 |
| 2017-06 | CT#76 | CP-171073 | 2766 | 4 | B | Congestion control for transport of user data via the control plane | 14.4.0 |
| 2017-06 | CT#76 | CP-171089 | 2796 | 4 | B | Inclusion of Local Emergency Numbers List over non-3GPP access | 14.4.0 |
| 2017-06 | CT#76 | CP-171069 | 2826 | 2 | A | Correction of ePCO for EPS | 14.4.0 |
| 2017-06 | CT#76 | CP-171088 | 2827 | 1 | F | Correction to the handling of paging in EMM-REGISTERED.ATTEMPTING-TO-UPDATE | 14.4.0 |
| 2017-06 | CT#76 | CP-171088 | 2828 | 1 | F | Handling of IMS voice not available in substate ATTEMPTING-TO-UPDATE-MM | 14.4.0 |
| 2017-06 | CT#76 | CP-171062 | 2830 | 1 | A | Handling of UE initiated PDN connectivity request for emergency bearer services | 14.4.0 |
| 2017-06 | CT#76 | CP-171085 | 2831 | 1 | F | Corrections on PS data off | 14.4.0 |
| 2017-06 | CT#76 | CP-171092 | 2832 | 1 | F | Correction in Service Request procedure for ACB handling in NB-S1 mode | 14.4.0 |
| 2017-06 | CT#76 | CP-171068 | 2838 | 2 | A | TAU procedure initiation following CSFB failure or CSFB cancellation | 14.4.0 |
| 2017-06 | CT#76 | CP-171062 | 2840 | 1 | A | Correction of description of ePCO IE in PDN Connectivity Request | 14.4.0 |
| 2017-06 | CT#76 | CP-171075 | 2841 | 1 | F | Correction on subclause of eCall inactivity procedure | 14.4.0 |
| 2017-06 | CT#76 | CP-171073 | 2848 | 1 | F | T3440 timer and CP Data BO timer. | 14.4.0 |
| 2017-06 | CT#76 | CP-171092 | 2850 | 1 | F | The UE behavior for successful completion of the service request procedure | 14.4.0 |
| 2017-06 | CT#76 | CP-171088 | 2853 | 2 | B | Protecting against the modification of Attach/TAU Request attacks | 14.4.0 |
| 2017-06 | CT#76 | CP-171062 | 2855 | 1 | A | Assign IEI for SMS services status IE | 14.4.0 |
| 2017-06 | CT#76 | CP-171092 | 2857 | 1 | F | Support of Data volume reporting in User Plane CIoT EPS optimization | 14.4.0 |
| 2017-06 | CT#76 | CP-171062 | 2859 | 1 | A | Correction of TAU triggering after paging for Control Plane CIoT Optimization | 14.4.0 |
| 2017-06 | CT#76 | CP-171073 | 2860 | 4 | F | UE support of restriction on enhanced coverage | 14.4.0 |
| 2017-06 | CT#76 | CP-171073 | 2861 | 1 | F | Correction to mobility enhancement for UL CP data | 14.4.0 |
| 2017-06 | CT#76 | CP-171092 | 2862 |  | F | Correction to local context deactivation | 14.4.0 |
| 2017-06 | CT#76 | CP-171062 | 2865 |  | A | EPS network feature support length | 14.4.0 |
| 2017-06 | CT#76 | CP-171085 | 2867 | 1 | F | Removal of editor's note [WI PS\_DATA\_OFF-CT CR#2763] on when the user activates or deactivates 3GPP PS data off while connected via WLAN access only | 14.4.0 |
| 2017-06 | CT#76 | CP-171085 | 2868 | 1 | B | XCAP over Ut interface - new case for except service | 14.4.0 |
| 2017-06 | CT#76 | CP-171092 | 2869 |  | F | Paging procedure for eDRX | 14.4.0 |
| 2017-06 | CT#76 | CP-171092 | 2870 | 1 | F | EMM-REGISTERED without PDN connection in attach procedure | 14.4.0 |
| 2017-06 | CT#76 | CP-171092 | 2871 | 2 | F | Correction of handling of MO detach without integrity protection | 14.4.0 |
| 2017-06 | CT#76 | CP-171092 | 2873 | 2 | F | Correction on header compression configuration re-negotiation | 14.4.0 |
| 2017-06 | CT#76 | CP-171062 | 2875 |  | A | Correction to add ESM #57 and ESM#58 to ESM cause IE | 14.4.0 |
| 2017-06 | CT#76 | CP-171075 | 2879 | 1 | F | Storage of EMM parameters for eCall only UE | 14.4.0 |
| 2017-06 | CT#76 | CP-171073 | 2880 | 1 | F | Change Editorial Note to Note for DL data transmission for NB-IoT in inter-MME mobility cases | 14.4.0 |
| 2017-06 | CT#76 | CP-171073 | 2881 | 1 | B | Support for reliable data service | 14.4.0 |
| 2017-06 | CT#76 | CP-171073 | 2883 | 4 | B | Correction of the condition to initiate the setup of the user plane radio bearers | 14.4.0 |
| 2017-06 | CT#76 | CP-171092 | 2885 | 1 | F | Correction in EMM-REGISTERED.UPDATE-NEEDED state description | 14.4.0 |
| 2017-06 | CT#76 | CP-171069 | 2887 | 5 | A | Further corrections to the handling of NAS reject messages without integrity protection | 14.4.0 |
| 2017-06 | CT#76 | CP-171088 | 2889 | 1 | F | Correction to TAU trigger case with pending IMSI detach procedure | 14.4.0 |
| 2017-09 | CT#77 | CP-172114 | 2843 | 6 | F | Enhanced correction of procedures for CIoT Control Plane optimization | 14.5.0 |
| 2017-09 | CT#77 | CP-172098 | 2894 | 2 | F | Update of eCall inactivity procedure | 14.5.0 |
| 2017-09 | CT#77 | CP-172097 | 2896 | 1 | F | Paging response when T3448 running | 14.5.0 |
| 2017-09 | CT#77 | CP-172106 | 2898 |  | F | Definition of ePCO is given in 24.008 (Rel-14 onwards) | 14.5.0 |
| 2017-09 | CT#77 | CP-172111 | 2899 |  | F | Aligning IE name to Non-3GPP NW provided policies | 14.5.0 |
| 2017-09 | CT#77 | CP-172097 | 2901 | 2 | F | Stop of CP backoff timer | 14.5.0 |
| 2017-09 | CT#77 | CP-172114 | 2902 | 3 | F | Extending time for sending DETACH REQUEST in NB-S1 and WB-S1 (EC) | 14.5.0 |
| 2017-09 | CT#77 | CP-172098 | 2905 | 2 | F | Handling of inter-RAT mobility for UE in eCall only mode capable of eCall over IMS | 14.5.0 |
| 2017-09 | CT#77 | CP-172114 | 2908 |  | F | Stopping timer T3440 upon receiving signalling from network for UE using only CP CIoT | 14.5.0 |
| 2017-09 | CT#77 | CP-172114 | 2909 |  | F | Keep forbidden PLMN after receiving integrity protected EMM #11,14,35 | 14.5.0 |
| 2017-09 | CT#77 | CP-172114 | 2910 | 1 | F | Update to ROHC RFCs | 14.5.0 |
| 2017-09 | CT#77 | CP-172097 | 2912 | 1 | F | Correction to RRC establishment cause for Control Plane Service Request | 14.5.0 |
| 2017-09 | CT#77 | CP-172097 | 2914 | 2 | F | Synchronizaton between UE and MME regarding CP congestion situation. | 14.5.0 |
| 2017-09 | CT#77 | CP-172114 | 2915 | 1 | F | Removing redundant information related to RAI | 14.5.0 |
| 2017-09 | CT#77 | CP-172155 | 2891 | 6 | F | Extending maximum bitrate in EPS QoS IE | 15.0.0 |
| 2017-09 | CT#77 | CP-172116 | 2892 | 1 | B | Addition of UE NAS capability for support of dual connectivity with NR | 15.0.0 |
| 2017-09 | CT#77 | CP-172116 | 2893 | 1 | B | Addition of NAS indication for dual connectivity with NR being restricted | 15.0.0 |
| 2017-09 | CT#77 | CP-172122 | 2895 |  | F | Clarification on eDRX handling with assigning a new GUTI | 15.0.0 |
| 2017-09 | CT#77 | CP-172120 | 2900 | 1 | C | Handling of timer expiry during extended service request procedure for MT CSFB | 15.0.0 |
| 2017-09 | CT#77 | CP-172120 | 2913 | 1 | F | Correction to MT CSFB call failure problem in CONNECTED mode | 15.0.0 |
| 2017-09 | CT#77 | CP-172120 | 2916 |  | F | UE behaviour in #18 for persistent EPS bearer context | 15.0.0 |
| 2017-09 | CT#77 | CP-172122 | 2917 |  | F | Ignoring EWT for UE using AC11-15 in NB-S1 mode | 15.0.0 |
| 2017-09 | CT#77 |  |  |  |  | addition of missing IEI value | 15.0.1 |
| 2017-12 | CT#78 | CP-173078 | 2897 | 1 | F | Correction of inconsistency in EMM timers table | 15.1.0 |
| 2017-12 | CT#78 | CP-173072 | 2919 | 1 | F | Handling of extended EPS quality of service IE and extended APN-AMBR IE | 15.1.0 |
| 2017-12 | CT#78 | CP-173067 | 2921 | 1 | A | Correction to attempting to ATTACH/TAU for exception data | 15.1.0 |
| 2017-12 | CT#78 | CP-173050 | 2924 | 1 | A | No support for dedicated bearers in NB-IoT RAT | 15.1.0 |
| 2017-12 | CT#78 | CP-173067 | 2925 | 1 | A | T3440 starting for UE attaching without PDN connections | 15.1.0 |
| 2017-12 | CT#78 | CP-173078 | 2926 |  | F | Correction of the handling of counters for "SIM/USIM considered invalid" events | 15.1.0 |
| 2017-12 | CT#78 | CP-173078 | 2931 | 4 | F | Correction of Additional update type for CIoT | 15.1.0 |
| 2017-12 | CT#78 | CP-173050 | 2932 | 1 | A | Service request handling for EMM-REGISTERED without PDN connection | 15.1.0 |
| 2017-12 | CT#78 | CP-173067 | 2935 |  | A | Correction for support of multiple TAC in shared network deployments | 15.1.0 |
| 2017-12 | CT#78 | CP-173078 | 2936 | 1 | F | Attach and Detach Collision | 15.1.0 |
| 2017-12 | CT#78 | CP-173078 | 2937 | 1 | F | Attempting EPS Attach for Emergency Bearer Services | 15.1.0 |
| 2017-12 | CT#78 | CP-173077 | 2938 | 1 | F | Alignment on ESM cause #66 on back-off timer handling | 15.1.0 |
| 2017-12 | CT#78 | CP-173078 | 2939 |  | F | Correction on UE behaviour of CP back-off timer | 15.1.0 |
| 2017-12 | CT#78 | CP-173078 | 2940 | 1 | F | Adding missing abnormal case handling for T3448 | 15.1.0 |
| 2017-12 | CT#78 | CP-173060 | 2944 | 2 | A | CP data back-off timer for EWT CP data received from lower layers | 15.1.0 |
| 2017-12 | CT#78 | CP-173067 | 2947 | 2 | A | Correction to SERVICE ACCEPT handling at control plane CIoT case | 15.1.0 |
| 2017-12 | CT#78 | CP-173072 | 2949 |  | F | Correction of Extended EPS quality of service IE naming | 15.1.0 |
| 2017-12 | CT#78 | CP-173077 | 2950 |  | F | Bit allocation correction in EPS bearer context status | 15.1.0 |
| 2017-12 | CT#78 | CP-173078 | 2951 | 3 | B | Network policy indication on LTE call redirection to GERAN | 15.1.0 |
| 2017-12 | CT#78 | CP-173077 | 2952 |  | F | Correction on TAI list coding | 15.1.0 |
| 2017-12 | CT#78 | CP-173078 | 2953 | 1 | F | Storing CE Mode B in MME | 15.1.0 |
| 2017-12 | CT#78 | CP-173078 | 2955 | 1 | B | UE behaviour on congestion for MO MMtel voice call | 15.1.0 |
| 2017-12 | CT#78 | CP-173078 | 2956 | 1 | F | Handling IMS calls when starting timer T3325 | 15.1.0 |
| 2017-12 | CT#78 | CP-173060 | 2942 | 3 | A | Enhancement of APN rate control for MO exception data | 15.1.0 |
| 2017-12 | CT#78 | CP-173072 | 2954 | 2 | B | Signalling of UE's additional security capabilities | 15.1.0 |
| 2017-12 | CT#78 | CP-173078 | 2961 | 1 | C | Support for Reliable Data Service with PtP SGi Tunneling | 15.1.0 |
| 2017-12 | CT#78 | CP-173072 | 2960 | 2 | B | Security algorithm support for Dual Connectivity | 15.1.0 |
| 2018-01 | CT#78 |  |  |  |  | Assigning IEI values for new IEs by Rapporteur | 15.1.1 |
| 2018-03 | CT#79 | CP-180089 | 2963 | 1 | F | Correction of network policy indication on LTE call redirection to GERAN | 15.2.0 |
| 2018-03 | CT#79 | CP-180104 | 2964 | 4 | F | Correction of Extended EPS QoS IE | 15.2.0 |
| 2018-03 | CT#79 | CP-180077 | 2965 | 4 | B | Handling of S-NSSAI and PDU session ID during mobility between EPS and 5GS | 15.2.0 |
| 2018-03 | CT#79 | CP-180077 | 2968 | 3 | B | Intersystem change from N1 mode to S1 in Idle mode using TAU procedure | 15.2.0 |
| 2018-03 | CT#79 | CP-180075 | 2969 | 1 | B | Including NG-RAN in the Scope | 15.2.0 |
| 2018-03 | CT#79 | CP-180081 | 2972 |  | F | Addition of new QCIs | 15.2.0 |
| 2018-03 | CT#79 | CP-180088 | 2973 | 1 | F | Updates to UE behaviour in state ATTEMPTING-TO-UPDATE | 15.2.0 |
| 2018-03 | CT#79 | CP-180065 | 2975 | 3 | A | Data support for "voice centric" UE supporting CE mode B | 15.2.0 |
| 2018-03 | CT#79 | CP-180089 | 2976 | 2 | F | Updating periodic TAU timer and PSM during service request | 15.2.0 |
| 2018-03 | CT#79 | CP-180077 | 2977 | 2 | B | QoS provision for interworking with 5GS | 15.2.0 |
| 2018-03 | CT#79 | CP-180077 | 2979 | 2 | B | Mode selection for inter-system change between EPS and 5GS | 15.2.0 |
| 2018-03 | CT#79 | CP-180089 | 2981 |  | F | Correction to EMM/GMM coordination | 15.2.0 |
| 2018-03 | CT#79 | CP-180089 | 2982 | 2 | B | Introduction of Service Gap Control; basics and feature negotiation | 15.2.0 |
| 2018-03 | CT#79 | CP-180089 | 2983 | 2 | B | Service Gap Control feature; non supporting UEs | 15.2.0 |
| 2018-03 | CT#79 | CP-180089 | 2984 | 2 | B | Service Gap Control; UE behaviour service gap timer is running | 15.2.0 |
| 2018-03 | CT#79 | CP-180069 | 2990 |  | A | Hash-MME extended usage | 15.2.0 |
| 2018-03 | CT#79 | CP-180076 | 2993 | 1 | C | Update the UE's usage setting to be applicable to 5GS. | 15.2.0 |
| 2018-03 | CT#79 | CP-180065 | 2995 |  | A | Remove Editor's note on HASHMME computation | 15.2.0 |
| 2018-03 | CT#79 | CP-180089 | 2996 | 1 | F | Adding back UP CIoT indication in PNB-CIoT | 15.2.0 |
| 2018-03 | CT#79 | CP-180077 | 2998 | 3 | B | Emergency numbers list with URN formats | 15.2.0 |
| 2018-03 | CT#79 | CP-180089 | 2999 | 3 | F | Enabling E-UTRA capability triggered by emergency call | 15.2.0 |
| 2018-03 | CT#79 | CP-180089 | 3000 |  | F | S1-u data capability indication correction | 15.2.0 |
| 2018-03 | CT#79 | CP-180065 | 3002 | 1 | A | Numbering of timer Txy | 15.2.0 |
| 2018-03 | CT#79 | CP-180077 | 3003 | 1 | B | Coordination between ESM and 5GSM | 15.2.0 |
| 2018-06 | CT#80 | CP-181059 | 3006 | 1 | F | Supporting ePCO for N1 mode capable UE and network supporting 5GS interworking | 15.3.0 |
| 2018-06 | CT#80 | CP-181076 | 3007 |  | F | Applying EAB for attach and detach and skiping EAB for paging | 15.3.0 |
| 2018-06 | CT#80 | CP-181075 | 3008 |  | F | Keep PTI during UE initiated PDN disconnect procedure | 15.3.0 |
| 2018-06 | CT#80 | CP-181069 | 3009 | 7 | B | Support of 15 EPS Bearer IDs in NAS | 15.3.0 |
| 2018-06 | CT#80 | CP-181076 | 3010 | 2 | B | Service Gap Control feature cleanup and corrections | 15.3.0 |
| 2018-06 | CT#80 | CP-181063 | 3011 |  | F | Correction to the length of UE additional security capability IE | 15.3.0 |
| 2018-06 | CT#80 | CP-181059 | 3012 | 2 | B | Extended and local emergency numbers and applicable domain for call initiation | 15.3.0 |
| 2018-06 | CT#80 | CP-181059 | 3013 | 3 | B | Storage of extended local emergency numbers | 15.3.0 |
| 2018-06 | CT#80 | CP-181059 | 3014 |  | B | Update of eCall timers start and stop conditions to support eCall over IMS in 5GS | 15.3.0 |
| 2018-06 | CT#80 | CP-181069 | 3015 | 3 | B | Addition of UE and network NAS capabilities for support of 15 EPS bearers | 15.3.0 |
| 2018-06 | CT#80 | CP-181059 | 3017 |  | D | Remove "-" between N1 and mode | 15.3.0 |
| 2018-06 | CT#80 | CP-181049 | 3023 | 2 | A | Receipt of the EPS network feature support IE | 15.3.0 |
| 2018-06 | CT#80 | CP-181075 | 3024 |  | C | Handling of PDN Connectivity Reject (cause #66) during an attach procedure | 15.3.0 |
| 2018-06 | CT#80 | CP-181059 | 3026 | 3 | F | Secondary authentication/authorization revocation by DN-AAA server after intersystem change from N1 mode to S1. | 15.3.0 |
| 2018-06 | CT#80 | CP-181074 | 3027 | 1 | B | Enabling 3GPP PS data off in roaming | 15.3.0 |
| 2018-06 | CT#80 | CP-181059 | 3028 | 4 | B | EPS mobile identity and UE status in the ATTACH REQUEST message | 15.3.0 |
| 2018-06 | CT#80 | CP-181059 | 3030 | 3 | C | Intersystem interworking improvement | 15.3.0 |
| 2018-06 | CT#80 | CP-181075 | 3031 | 1 | F | Correction of APN-AMBR | 15.3.0 |
| 2018-06 | CT#80 | CP-181059 | 3032 | 2 | F | Disabling and re-enabling S1 mode | 15.3.0 |
| 2018-06 | CT#80 | CP-181059 | 3033 | 2 | B | Extended Emergency Number List IE | 15.3.0 |
| 2018-06 | CT#80 | CP-181076 | 3035 | 3 | B | Extended EMM cause for NB-IoT | 15.3.0 |
| 2018-06 | CT#80 | CP-181076 | 3036 | 2 | C | Service Gap Control, attach without PDN connection for supporting UEs | 15.3.0 |
| 2018-06 | CT#80 | CP-181063 | 3037 | 1 | F | MSB & LSB in the coding of Extended QoS and Extended APN AMBR IE | 15.3.0 |
| 2018-06 | CT#80 | CP-181076 | 3038 | 2 | F | UE Radio Capability Update using TAU procedure | 15.3.0 |
| 2018-06 | CT#80 | CP-181076 | 3039 | 1 | F | Corrections to handling of timer T3402 | 15.3.0 |
| 2018-06 | CT#80 | CP-181076 | 3042 |  | F | Correction on service request as paging response | 15.3.0 |
| 2018-06 | CT#80 | CP-181076 | 3043 |  | F | Correction on EPS network feature support IE | 15.3.0 |
| 2018-06 | CT#80 | CP-181063 | 3044 | 1 | F | Removal of Extended EPS QoS IE | 15.3.0 |
| 2018-06 | CT#80 | CP-181059 | 3047 | 1 | B | 5GMM parameter handling for TAU rejected with EMM cause #9 | 15.3.0 |
| 2018-06 | CT#80 | CP-181075 | 3050 |  | F | Non-semantical mandatory information element errors for EMM | 15.3.0 |
| 2018-06 | CT#80 | CP-181076 | 3041 | 1 | B | Ciphering keys delivery for broadcast of ciphered assistance data | 15.3.0 |
| 2018-09 | CT#81 | CP-182129 | 3054 | 1 | F | Pass (Extended) Emergency Number List to upper layers | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3055 | 2 | F | Correct Extended Emergency Number List | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3056 | 1 | F | Correcting ambiguities when detecting an emergency number not provided using EENL | 15.4.0 |
| 2018-09 | CT#81 | CP-182158 | 3058 |  | F | Code points split into “unused values” and “reserved values” | 15.4.0 |
| 2018-09 | CT#81 | CP-182158 | 3059 | 1 | D | Message sequence charts should be documented in the correct subclause | 15.4.0 |
| 2018-09 | CT#81 | CP-182158 | 3060 |  | B | QCIs for URLLC | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3061 | 1 | F | Correcting message definition of messages including EENL | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3063 | 1 | B | 5GMM context handling | 15.4.0 |
| 2018-09 | CT#81 | CP-182158 | 3065 |  | F | Handling IMS calls while timer T3325 is running | 15.4.0 |
| 2018-09 | CT#81 | CP-182158 | 3068 | 2 | F | Correction on S1-u data capability indication and handling | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3069 |  | B | Including UE additional security capability IE in Attach/TAU Request for UE supporting N1 mode | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3070 |  | B | Update of UE identity used for attach in S1 mode for single-registered UE without N26 | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3071 |  | B | First TAU in EPS after initial registration in 5GS | 15.4.0 |
| 2018-09 | CT#81 | CP-182158 | 3072 |  | F | Update of the Ciphering key data IE | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3073 | 3 | F | Provision of IWK N26 indication in TAU procedures | 15.4.0 |
| 2018-09 | CT#81 | CP-182124 | 3075 |  | A | NAS-MAC calculation for RRC connection reestablishment for NB-IoT CP optimisation | 15.4.0 |
| 2018-09 | CT#81 | CP-182157 | 3076 |  | F | Handling of T3346 for paging for MT CS call | 15.4.0 |
| 2018-09 | CT#81 | CP-182158 | 3077 |  | F | Checking emergency for stopping the back-off timer | 15.4.0 |
| 2018-09 | CT#81 | CP-182158 | 3078 |  | F | Correction on transmission failure of IDENTITY RESPONSE message | 15.4.0 |
| 2018-09 | CT#81 | CP-182148 | 3080 |  | B | New QCI for MCVideo | 15.4.0 |
| 2018-09 | CT#81 | CP-182121 | 3082 | 1 | A | TFT operation for header compression re-negotiation and PS data off | 15.4.0 |
| 2018-09 | CT#81 | CP-182158 | 3083 | 1 | F | Correction for the RRC Resume procedure | 15.4.0 |
| 2018-09 | CT#81 | CP-182158 | 3087 |  | F | Incorrect IEI for Ciphering Key Data | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3088 |  | F | Correct 5GMM reference used in the handling of the emergency numbers procedures | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3089 | 1 | D | Correct conditions for invoking tracking area updating procedure (S1 mode only) | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3094 |  | B | Addition of TAU trigger for change of NG-RAN radio capability | 15.4.0 |
| 2018-09 | CT#81 | CP-182158 | 3095 | 1 | F | Handling of change of UE radio capability information in EMM-IDLE mode with suspend indication | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3098 | 1 | F | Authentication response parameter IE to be of fixed length (24.301) | 15.4.0 |
| 2018-09 | CT#81 | CP-182158 | 3099 |  | D | Error in EPS network feature support IE due to wrong styles | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3100 | 1 | B | Establishment of a mapped EPS security context during inter-system handover from N1 mode | 15.4.0 |
| 2018-09 | CT#81 | CP-182158 | 3101 | 1 | F | Correction on wrong sub-clause reference, terminology and editorial correction | 15.4.0 |
| 2018-09 | CT#81 | CP-182158 | 3102 | 4 | F | Corrections on Extended EMM cause for NB-IoT | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3103 | 1 | F | ESM protocol impacts to support interworking with 5GS | 15.4.0 |
| 2018-09 | CT#81 | CP-182129 | 3106 | 2 | B | Tracking area update request from S1 mode to N1 mode | 15.4.0 |
| 2018-12 | CT#82 | CP-183031 | 3097 | 4 | F | Correct Extended Local Emergency Numbers List deletion upon PLMN change | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3110 | 1 | F | Correction for selection of PDU session ID for EPS | 15.5.0 |
| 2018-12 | CT#82 | CP-183066 | 3112 | 1 | A | Correction for 3GPP PS data off and non-IP user data packets | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3115 | 1 | F | Update of handling of 5GMM parameters in EPS | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3116 | 1 | F | Correction for KSI name for mapped EPS security context during inter-system handover from 5GS to EPS | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3117 |  | F | Correction to a reference for the UE status IE | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3118 | 1 | F | Correction on TAU trigger for UEs in single-registration mode | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3119 | 2 | F | Correction on inclusion of GUTI for UE in single-registration mode | 15.5.0 |
| 2018-12 | CT#82 | CP-183076 | 3122 | 2 | F | Reset of PLMN's maximum number of EPS bearer contexts | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3124 |  | F | UL NAS COUNT when TAU is constructed for S1 to N1 intersystem change | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3125 | 2 | D | Terminology alignment regarding support for interworking without N26 | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3126 | 1 | D | Corrections on the TAU procedure not accepted by the network due to EMM cause value #7 or #22 | 15.5.0 |
| 2018-12 | CT#82 | CP-183066 | 3128 | 1 | A | Correction for indicating 3GPP PS data off status | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3130 |  | F | Reset of attach attempt counter | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3131 | 1 | F | 5GMM parameters handling for 5GC interworking | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3132 |  | F | Protection of EPS attach for 5GC interworking | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3133 |  | F | TAU trigger for EPC interworking in connected mode | 15.5.0 |
| 2018-12 | CT#82 | CP-183070 | 3134 | 1 | F | Correction of TAU abnormal case for the network | 15.5.0 |
| 2018-12 | CT#82 | CP-183070 | 3135 | 1 | F | Collision between paging for CS fallback and UE initiated NAS procedures | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3136 |  | F | Clarification for abnormal case handling of TAU procedure after inter-system change from N1 mode to S1 mode | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3138 | 1 | F | Handling of attempt counter upon receipt of the ATTACH ACCEPT message | 15.5.0 |
| 2018-12 | CT#82 | CP-183031 | 3139 | 1 | F | Establishment of secure exchange of NAS messages during inter-system change from N1 mode to S1 mode | 15.5.0 |
| 2018-12 | CT#82 | CP-183070 | 3140 |  | F | Correction on network behavior in paging | 15.5.0 |
| 2018-12 | CT#82 | CP-183076 | 3141 | 1 | F | Correction on ePCO support | 15.5.0 |
| 2018-12 | CT#82 | CP-183076 | 3142 | 2 | F | MO signaling and data with service gap control timer running in connected mode | 15.5.0 |
| 2018-12 | CT#82 | CP-183028 | 3108 | 3 | F | GUMMEI mapped from 5G GUTI with indication at 5G interworking | 15.5.0 |
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