

- b) ignore the message except that it should return a status message (5GMM STATUS or 5GSM STATUS depending on the EPD) with cause #100 "conditional IE error".

### 7.7.3 Errors in a Type 6 IE container information element

#### 7.7.3.1 Syntactically incorrect optional IEs

The UE shall treat all optional IEs that are syntactically incorrect in a Type 6 IE container information element as not present in the Type 6 IE container information element.

The network shall take the same approach.

- EXAMPLE 1: If the Type 6 IE container information element includes 2 type 6 information elements, and the first one is syntactically incorrect, the receiver ignores the first information element and continues with the processing of the second one.
- EXAMPLE 2: If the remaining value part of a Type 6 IE container information element is too short to contain a complete type 6 information element, the receiver ignores these octets and continues with the processing of the octets following the Type 6 IE container information element, if there are any.

#### 7.7.3.2 Conditional IE errors

When upon receipt of a 5GMM or 5GSM message the UE diagnoses a "missing conditional IE" error or an "unexpected conditional IE" error for the contents of a Type 6 IE container information element, or when it receives a 5GMM or 5GSM message with a Type 6 IE container information element containing at least one syntactically incorrect conditional IE, the UE shall ignore the message and shall return a status message (5GMM STATUS or 5GSM STATUS depending on the EPD) with cause #100 "conditional IE error".

When the network receives a message and diagnoses a "missing conditional IE" error or an "unexpected conditional IE" error for the contents of a Type 6 IE container information element or when it receives a message with a Type 6 IE container information element containing at least one syntactically incorrect conditional IE, the network shall either:

- a) try to treat the message (the exact further actions are implementation dependent); or
- b) ignore the message except that it should return a status message (5GMM STATUS or 5GSM STATUS depending on the EPD) with cause #100 "conditional IE error".

## 7.8 Messages with semantically incorrect contents

When a message with semantically incorrect contents is received, the UE shall perform the foreseen reactions of the procedural part of the present document (i.e. of clauses 5, 6). If, however no such reactions are specified, the UE shall ignore the message except that it shall return a status message (5GMM STATUS or 5GSM STATUS depending on the EPD) with cause #95 "semantically incorrect message".

The network should follow the same procedure except that a status message is not normally transmitted.

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

NOTE 2: If a message includes a Type 6 IE container information element, then the same IEI can be used for different information element types in the Type 6 IE container information element and in other parts of the same message.

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 5GS mobility management messages

### 8.2.1 Authentication request

#### 8.2.1.1 Message definition

The AUTHENTICATION REQUEST message is sent by the AMF to the UE to initiate authentication of the UE identity. See table 8.2.1.1.1.

Message type: AUTHENTICATION REQUEST

Significance: dual

Direction: network to UE

**Table 8.2.1.1.1: AUTHENTICATION REQUEST message content**

| <b>IEI</b> | <b>Information Element</b>                                  | <b>Type/Reference</b>                   | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|-------------------------------------------------------------|-----------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator                             | Extended protocol discriminator 9.2     | M               | V             | 1             |
|            | Security header type                                        | Security header type 9.3                | M               | V             | 1/2           |
|            | Spare half octet                                            | Spare half octet 9.5                    | M               | V             | 1/2           |
|            | Authentication request message identity                     | Message type 9.7                        | M               | V             | 1             |
|            | ngKSI                                                       | NAS key set identifier 9.11.3.32        | M               | V             | 1/2           |
|            | Spare half octet                                            | Spare half octet 9.5                    | M               | V             | 1/2           |
|            | ABBA                                                        | ABBA 9.11.3.10                          | M               | LV            | 3-n           |
| 21         | Authentication parameter RAND (5G authentication challenge) | Authentication parameter RAND 9.11.3.16 | O               | TV            | 17            |
| 20         | Authentication parameter AUTN (5G authentication challenge) | Authentication parameter AUTN 9.11.3.15 | O               | TLV           | 18            |
| 78         | EAP message                                                 | EAP message 9.11.2.2                    | O               | TLV-E         | 7-1503        |

### 8.2.1.2 Authentication parameter RAND

Authentication parameter RAND IE is included if the AUTHENTICATION REQUEST message is used in a 5G AKA authentication procedure.

### 8.2.1.3 Authentication parameter AUTN

Authentication parameter AUTN IE is included if the AUTHENTICATION REQUEST message is used in a 5G AKA authentication procedure.

### 8.2.1.4 Void

### 8.2.1.5 EAP message

EAP message IE is included if the AUTHENTICATION REQUEST message is used in an EAP based primary authentication and key agreement procedure.

## 8.2.2 Authentication response

### 8.2.2.1 Message definition

The AUTHENTICATION RESPONSE message is sent by the UE to the AMF to deliver a calculated authentication response to the network. See table 8.2.2.1.1.

Message type: AUTHENTICATION RESPONSE

Significance: dual

Direction: UE to network

**Table 8.2.2.1.1: AUTHENTICATION RESPONSE message content**

| <b>IEI</b> | <b>Information Element</b>               | <b>Type/Reference</b>                       | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|------------------------------------------|---------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator          | Extended protocol discriminator 9.2         | M               | V             | 1             |
|            | Security header type                     | Security header type 9.3                    | M               | V             | 1/2           |
|            | Spare half octet                         | Spare half octet 9.5                        | M               | V             | 1/2           |
|            | Authentication response message identity | Message type 9.7                            | M               | V             | 1             |
| 2D         | Authentication response parameter        | Authentication response parameter 9.11.3.17 | O               | TLV           | 18            |
| 78         | EAP message                              | EAP message 9.11.2.2                        | O               | TLV-E         | 7-1503        |

## 8.2.2.2 Authentication response parameter

This IE is included if the message is sent in a 5G AKA based primary authentication and key agreement procedure.

## 8.2.2.3 EAP message

EAP message IE is included if the EAP message received in a related AUTHENTICATION REQUEST message was an EAP-request.

## 8.2.3 Authentication result

### 8.2.3.1 Message definition

The AUTHENTICATION RESULT message is sent by the AMF to the UE to provide result of EAP authentication of the UE identity. See table 8.2.3.1.1.

Message type: AUTHENTICATION RESULT

Significance: dual

Direction: network to UE

**Table 8.2.3.1.1: AUTHENTICATION RESULT message content**

| <b>IEI</b> | <b>Information Element</b>             | <b>Type/Reference</b>               | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|----------------------------------------|-------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator        | Extended protocol discriminator 9.2 | M               | V             | 1             |
|            | Security header type                   | Security header type 9.3            | M               | V             | 1/2           |
|            | Spare half octet                       | Spare half octet 9.5                | M               | V             | 1/2           |
|            | Authentication result message identity | Message type 9.7                    | M               | V             | 1             |
|            | ngKSI                                  | NAS key set identifier 9.11.3.32    | M               | V             | 1/2           |
|            | Spare half octet                       | Spare half octet 9.5                | M               | V             | 1/2           |
|            | EAP message                            | EAP message 9.11.2.2                | M               | LV-E          | 6-1502        |
| 38         | ABBA                                   | ABBA 9.11.3.10                      | O               | TLV           | 4-n           |
| 55         | AUN3 device security key               | AUN3 device security key 9.11.3.107 | O               | TLV           | 36-n          |

NOTE: It is possible for AMFs compliant with version 18.3.0 or 18.3.1 of this specification to send the AUN3 device security key IE with a fixed length of 66 octets.

### 8.2.3.2 ABBA

This IE shall be included if the message contains an EAP message IE with an EAP-success message.

### 8.2.3.3 AUN3 device security key

This IE shall be included when the AUTHENTICATION RESULT message is provided to a 5G-RG that is acting on behalf of an AUN3 device if the EAP message IE is set to an EAP-success message.

## 8.2.4 Authentication failure

### 8.2.4.1 Message definition

The AUTHENTICATION FAILURE message is sent by the UE to the AMF to indicate that authentication of the network has failed. See table 8.2.4.1.1.

Message type: AUTHENTICATION FAILURE

Significance: dual

Direction: UE to network

**Table 8.2.4.1.1: AUTHENTICATION FAILURE message content**

| IEI | Information Element                     | Type/Reference                             | Presence | Format | Length |
|-----|-----------------------------------------|--------------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator         | Extended protocol discriminator 9.2        | M        | V      | 1      |
|     | Security header type                    | Security header type 9.3                   | M        | V      | 1/2    |
|     | Spare half octet                        | Spare half octet 9.5                       | M        | V      | 1/2    |
|     | Authentication failure message identity | Message type 9.7                           | M        | V      | 1      |
|     | 5GMM cause                              | 5GMM cause 9.11.3.2                        | M        | V      | 1      |
| 30  | Authentication failure parameter        | Authentication failure parameter 9.11.3.14 | O        | TLV    | 16     |

### 8.2.4.2 Authentication failure parameter

This IE shall be included in a 5G AKA based primary authentication and key agreement procedure if and only if the 5GMM 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 33.501 [24]).

## 8.2.5 Authentication reject

### 8.2.5.1 Message definition

The AUTHENTICATION REJECT message is sent by the AMF to the UE to indicate that the authentication procedure has failed and that the UE shall abort all activities. See table 8.2.5.1.1.

Message type: AUTHENTICATION REJECT

Significance: dual

Direction: network to UE

**Table 8.2.5.1.1: AUTHENTICATION REJECT message content**

| <b>IEI</b> | <b>Information Element</b>             | <b>Type/Reference</b>               | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|----------------------------------------|-------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator        | Extended protocol discriminator 9.2 | M               | V             | 1             |
|            | Security header type                   | Security header type 9.3            | M               | V             | 1/2           |
|            | Spare half octet                       | Spare half octet 9.5                | M               | V             | 1/2           |
|            | Authentication reject message identity | Message type 9.7                    | M               | V             | 1             |
| 78         | EAP message                            | EAP message 9.11.2.2                | O               | TLV-E         | 7-1503        |

### 8.2.5.2 EAP message

EAP message IE is included if the AUTHENTICATION REJECT message is used to convey EAP-failure message.

## 8.2.6 Registration request

### 8.2.6.1 Message definition

The REGISTRATION REQUEST message is sent by the UE to the AMF. See table 8.2.6.1.1.

Message type: REGISTRATION REQUEST

Significance: dual

Direction: UE to network

**Table 8.2.6.1.1: REGISTRATION REQUEST message content**

| IEI | Information Element                       | Type/Reference                           | Presence | Format | Length  |
|-----|-------------------------------------------|------------------------------------------|----------|--------|---------|
|     | Extended protocol discriminator           | Extended Protocol discriminator<br>9.2   | M        | V      | 1       |
|     | Security header type                      | Security header type<br>9.3              | M        | V      | 1/2     |
|     | Spare half octet                          | Spare half octet<br>9.5                  | M        | V      | 1/2     |
|     | Registration request message identity     | Message type<br>9.7                      | M        | V      | 1       |
|     | 5GS registration type                     | 5GS registration type<br>9.11.3.7        | M        | V      | 1/2     |
|     | ngKSI                                     | NAS key set identifier<br>9.11.3.32      | M        | V      | 1/2     |
|     | 5GS mobile identity                       | 5GS mobile identity<br>9.11.3.4          | M        | LV-E   | 6-n     |
| C-  | Non-current native NAS key set identifier | NAS key set identifier<br>9.11.3.32      | O        | TV     | 1       |
| 10  | 5GMM capability                           | 5GMM capability<br>9.11.3.1              | O        | TLV    | 3-15    |
| 2E  | UE security capability                    | UE security capability<br>9.11.3.54      | O        | TLV    | 4-10    |
| 2F  | Requested NSSAI                           | NSSAI<br>9.11.3.37                       | O        | TLV    | 4-74    |
| 52  | Last visited registered TAI               | 5GS tracking area identity<br>9.11.3.8   | O        | TV     | 7       |
| 17  | S1 UE network capability                  | S1 UE network capability<br>9.11.3.48    | O        | TLV    | 4-15    |
| 40  | Uplink data status                        | Uplink data status<br>9.11.3.57          | O        | TLV    | 4-34    |
| 50  | PDU session status                        | PDU session status<br>9.11.3.44          | O        | TLV    | 4-34    |
| B-  | MICO indication                           | MICO indication<br>9.11.3.31             | O        | TV     | 1       |
| 2B  | UE status                                 | UE status<br>9.11.3.56                   | O        | TLV    | 3       |
| 77  | Additional GUTI                           | 5GS mobile identity<br>9.11.3.4          | O        | TLV-E  | 14      |
| 25  | Allowed PDU session status                | Allowed PDU session status<br>9.11.3.13  | O        | TLV    | 4-34    |
| 18  | UE's usage setting                        | UE's usage setting<br>9.11.3.55          | O        | TLV    | 3       |
| 51  | Requested DRX parameters                  | 5GS DRX parameters<br>9.11.3.2A          | O        | TLV    | 3       |
| 70  | EPS NAS message container                 | EPS NAS message container<br>9.11.3.24   | O        | TLV-E  | 4-n     |
| 74  | LADN indication                           | LADN indication<br>9.11.3.29             | O        | TLV-E  | 3-811   |
| 8-  | Payload container type                    | Payload container type<br>9.11.3.40      | O        | TV     | 1       |
| 7B  | Payload container                         | Payload container<br>9.11.3.39           | O        | TLV-E  | 4-65538 |
| 9-  | Network slicing indication                | Network slicing indication<br>9.11.3.36  | O        | TV     | 1       |
| 53  | 5GS update type                           | 5GS update type<br>9.11.3.9A             | O        | TLV    | 3       |
| 41  | Mobile station classmark 2                | Mobile station classmark 2<br>9.11.3.31C | O        | TLV    | 5       |
| 42  | Supported codecs                          | Supported codec list<br>9.11.3.51A       | O        | TLV    | 5-n     |
| 71  | NAS message container                     | NAS message container<br>9.11.3.33       | O        | TLV-E  | 4-n     |
| 60  | EPS bearer context status                 | EPS bearer context status<br>9.11.3.23A  | O        | TLV    | 4       |
| 6E  | Requested extended DRX parameters         | Extended DRX parameters<br>9.11.3.26A    | O        | TLV    | 3-4     |

|    |                                            |                                                   |   |       |         |
|----|--------------------------------------------|---------------------------------------------------|---|-------|---------|
| 6A | T3324 value                                | GPRS timer 3<br>9.11.2.5                          | O | TLV   | 3       |
| 67 | UE radio capability ID                     | UE radio capability ID<br>9.11.3.68               | O | TLV   | 3-n     |
| 35 | Requested mapped NSSAI                     | Mapped NSSAI<br>9.11.3.31B                        | O | TLV   | 3-42    |
| 48 | Additional information requested           | Additional information requested<br>9.11.3.12A    | O | TLV   | 3       |
| 1A | Requested WUS assistance information       | WUS assistance information<br>9.11.3.71           | O | TLV   | 3-n     |
| A- | N5GC indication                            | N5GC indication<br>9.11.3.72                      | O | TV    | 1       |
| 30 | Requested NB-N1 mode DRX parameters        | NB-N1 mode DRX parameters<br>9.11.3.73            | O | TLV   | 3       |
| 29 | UE request type                            | UE request type<br>9.11.3.76                      | O | TLV   | 3       |
| 28 | Paging restriction                         | Paging restriction<br>9.11.3.77                   | O | TLV   | 3-35    |
| 72 | Service-level-AA container                 | Service-level-AA container<br>9.11.2.10           | O | TLV-E | 4-65538 |
| 32 | NID                                        | NID<br>9.11.3.79                                  | O | TLV   | 8       |
| 16 | UE determined PLMN with disaster condition | PLMN identity<br>9.11.3.85                        | O | TLV   | 5       |
| 2A | Requested PEIPS assistance information     | PEIPS assistance information<br>9.11.3.80         | O | TLV   | 3-n     |
| 3B | Requested T3512 value                      | GPRS timer 3<br>9.11.2.5                          | O | TLV   | 3       |
| 3C | Unavailability information                 | Unavailability information<br>9.11.2.20           | O | TLV   | 3-9     |
| 3F | Non-3GPP path switching information        | Non-3GPP path switching information<br>9.11.3.102 | O | TLV   | 3       |
| 56 | AUN3 indication                            | AUN3 indication<br>9.11.3.104                     | O | TLV   | 3       |

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

The UE shall include this IE if the UE has a valid non-current native 5G NAS security context when the UE performs an inter-system change from S1 mode to N1 mode in 5GMM-CONNECTED mode and the UE uses a mapped 5G NAS security context to protect the REGISTRATION REQUEST message.

### 8.2.6.3 5GMM capability

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

### 8.2.6.4 UE security capability

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

### 8.2.6.5 Requested NSSAI

This IE shall be included by the UE when performing the registration procedure if the 5GS registration type IE indicates:

- a) "initial registration", according to the conditions specified in subclause 5.5.1.2.2; or
- b) "mobility registration updating", according to the conditions specified in subclause 5.5.1.3.2.

### 8.2.6.6 Last visited registered TAI

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

### 8.2.6.7 S1 UE network capability

A UE supporting S1 mode shall include this IE, unless the UE performs a periodic registration updating procedure.

### 8.2.6.8 Uplink data status

This IE shall be included if the UE has uplink user data pending to be sent or the UE has active multicast MBS session(s), unless the UE performs a periodic registration updating procedure.

### 8.2.6.9 PDU session status

This IE shall be included when the UE needs to indicate the PDU sessions that are associated with the access type that the message is sent over, that are active within the UE.

### 8.2.6.10 MICO indication

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

### 8.2.6.11 UE status

This IE shall be included if the UE in single-registration mode performs the registration procedure due to inter-system change from S1 mode to N1 mode or if the UE in dual-registration mode and EMM state EMM-REGISTERED performs initial registration.

### 8.2.6.12 Additional GUTI

This IE shall be included:

- a) if the UE performs the registration procedure due to inter-system change from S1 mode to N1 mode, the UE operates in single-registration mode and the UE has a valid 5G-GUTI; or
- b) the UE holds two valid native 5G-GUTIs and one of the valid native 5G-GUTI was assigned by the PLMN with which the UE is performing the registration.

### 8.2.6.13 Allowed PDU session status

This IE shall be included if the REGISTRATION REQUEST message is sent as a response to paging with the access type indicating non-3GPP access.

### 8.2.6.14 UE's usage setting

This IE shall be included if the UE supports IMS voice.

### 8.2.6.15 Requested DRX parameters

If the UE wants to use or change the UE specific DRX parameters, the UE shall include the Requested DRX parameters IE in the REGISTRATION REQUEST message.

### 8.2.6.16 EPS NAS message container

The UE operating in the single-registration mode shall include this information element as specified in subclause 5.5.1.3.2 if the UE performs mobility from S1 mode to N1 mode in 5GMM-IDLE mode. The content of this message container is the complete integrity protected TRACKING AREA UPDATE REQUEST message, using EPS security context.

The UE performing initial registration shall include this information element if

- a) the UE:
  - 1) was previously registered in S1 mode before entering state EMM-DEREGISTERED; and

- 2) has received an "interworking without N26 interface not supported" indication from the network; and
- b) EPS security context and a valid 4G-GUTI are available.

The content of this message container is the complete integrity protected ATTACH REQUEST message, using EPS security context.

### 8.2.6.17 LADN indication

The UE shall include this information element when the UE needs to request LADN information for specific LADN DNN(s) or to indicate a request for LADN information.

### 8.2.6.17A Payload container type

This IE shall be included if the UE includes the Payload container IE.

**NOTE:** In this version of the protocol, the Payload container type IE in the REGISTRATION REQUEST message is set to "UE policy container" as described in subclauses 5.5.1.2.2 and 5.5.1.3.2.

### 8.2.6.18 Payload container

Within a PLMN, this IE shall be included if:

- a) the UE has one or more stored UE policy sections identified by a UPSI with the PLMN ID part indicating the HPLMN or the selected PLMN for the registration procedure for mobility and periodic registration update due to inter-system change from S1 mode to N1 mode of a UE operating in the single-registration mode or for the registration procedure for initial registration; or
- b) the UE does not have any stored UE policy section identified by a UPSI with the PLMN ID part indicating the HPLMN or the selected PLMN for the registration procedure for mobility and periodic registration update due to inter-system change from S1 mode to N1 mode of a UE operating in the single-registration mode or for the registration procedure for initial registration and the UE needs to send a UE policy container to the network.

Within an SNPN, this IE shall be included if:

- a) the UE has one or more stored UE policy sections for the selected SNPN for the registration procedure for initial registration; or
- b) the UE does not have any UE policy section for the selected SNPN for the registration procedure for initial registration and the UE needs to send a UE policy container to the network.

### 8.2.6.19 Network slicing indication

This IE shall be included when a requested NSSAI is included in the REGISTRATION REQUEST message and the requested NSSAI is created from the default configured NSSAI.

### 8.2.6.20 5GS update type

This IE shall be included when the UE is performing the registration procedure to indicate any of the following:

- a) the UE requests the use of SMS over NAS or there is a change in the UE's requirements to use SMS over NAS;
- b) a change in the UE's radio capability for NG-RAN; or
- c) the UE requests CIoT 5GS optimizations.

### 8.2.6.21 NAS message container

This IE shall be included if the UE is sending a REGISTRATION REQUEST message as an initial NAS message, the UE has a valid 5G NAS security context and the UE needs to send non-cleartext IEs.

### 8.2.6.22 Requested extended DRX parameters

The UE shall include this IE if the UE needs to use extended DRX or change the extended DRX parameters.

### 8.2.6.23 EPS bearer context status

The UE shall include this IE if the UE operating in the single-registration mode performs inter-system change from S1 mode to N1 mode and the UE has locally deactivated EPS bearer context(s) for which interworking to 5GS is supported while the UE was in S1 mode without notifying the network.

### 8.2.6.24 T3324 value

The UE may include this IE during the registration update procedure if it requests to use MICO mode and use the active time timer.

### 8.2.6.25 Mobile station classmark 2

This IE shall be included if the UE supports 5G-SRVCC from NG-RAN to UTRAN (see 3GPP TS 23.216 [6A]).

### 8.2.6.26 Supported codecs

This IE shall be included if the UE supports 5G-SRVCC from NG-RAN to UTRAN.

### 8.2.6.27 UE radio capability ID

This IE shall be included if the UE is not in NB-N1 mode, the UE supports RACS and the UE needs to signal a UE radio capability ID to the network.

### 8.2.6.28 Requested mapped NSSAI

This IE shall be included by the UE when the UE has a PDN connection or a PDU session to transfer to visited PLMN associated only with an S-NSSAI that is applicable in the HPLMN as specified in subclause 5.5.1.3.2.

### 8.2.6.29 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.

### 8.2.6.30 Requested WUS assistance information

The UE may include this IE if:

- the UE supports WUS assistance information;
- the UE is not performing initial registration for emergency services; and
- the UE does not have an active emergency PDU session.

### 8.2.6.31 Void

### 8.2.6.32 N5GC indication

This IE shall be included in the REGISTRATION REQUEST message when the W-AGF is acting on behalf of an N5GC device.

### 8.2.6.33 Requested NB-N1 mode DRX parameters

The UE shall include this IE if the UE wants to use or change the UE specific DRX parameters for NB-N1 mode.

### 8.2.6.34 UE request type

The UE shall include this IE if the MUSIM UE requests the release of the NAS signalling connection.

### 8.2.6.35 Paging restriction

The UE shall include this IE if the Request type is set to "NAS signalling connection release" in the UE request type IE and the UE requests the network to restrict paging.

### 8.2.6.35 Service-level-AA container

The UE shall include this IE if the UE supporting UAS services requests a registration for UAS services.

### 8.2.6.36 NID

The UE shall include this IE if the 5G-GUTI in the 5GS mobile identity IE was assigned by an SNPN other than the SNPN with which the UE is registering.

### 8.2.6.37 UE determined PLMN with disaster condition

The UE shall include this IE when the UE needs to indicate the UE determined PLMN with disaster condition determined as specified in 3GPP TS 23.122 [5].

### 8.2.6.38 Requested PEIPS assistance information

The UE may include this IE if the UE supports NR paging subgrouping, the UE is not performing initial registration for emergency services, is not registered for emergency services and does not have an active emergency PDU session.

### 8.2.6.39 Requested T3512 value

The UE may include this IE during the registration procedure if it requests to use MICO mode and T3324 IE is included, to request a particular T3512 timer value.

### 8.2.6.40 Unavailability information

This IE shall be included if an event is triggered in the UE that would make the UE unavailable for a certain period.

### 8.2.6.41 Non-3GPP path switching information

The UE may include this IE during the registration procedure for mobility registration update if it requests from the network to keep using the user plane resources of the old non-3GPP access during path switching to the new non-3GPP access.

### 8.2.6.42 AUN3 indication

This IE shall be included in the REGISTRATION REQUEST message when the 5G-RG is acting on behalf of an AUN3 device.

## 8.2.7 Registration accept

### 8.2.7.1 Message definition

The REGISTRATION ACCEPT message is sent by the AMF to the UE. See table 8.2.7.1.1.

Message type: REGISTRATION ACCEPT

Significance: dual

Direction: network to UE

**Table 8.2.7.1.1: REGISTRATION ACCEPT message content**

| IEI | Information Element                          | Type/Reference                                            | Presence | Format | Length  |
|-----|----------------------------------------------|-----------------------------------------------------------|----------|--------|---------|
|     | Extended protocol discriminator              | Extended protocol discriminator<br>9.2                    | M        | V      | 1       |
|     | Security header type                         | Security header type<br>9.3                               | M        | V      | 1/2     |
|     | Spare half octet                             | Spare half octet<br>9.5                                   | M        | V      | 1/2     |
|     | Registration accept message identity         | Message type<br>9.7                                       | M        | V      | 1       |
|     | 5GS registration result                      | 5GS registration result<br>9.11.3.6                       | M        | LV     | 2       |
| 77  | 5G-GUTI                                      | 5GS mobile identity<br>9.11.3.4                           | O        | TLV-E  | 14      |
| 4A  | Equivalent PLMNs                             | PLMN list<br>9.11.3.45                                    | O        | TLV    | 5-47    |
| 54  | TAI list                                     | 5GS tracking area identity list<br>9.11.3.9               | O        | TLV    | 9-114   |
| 15  | Allowed NSSAI                                | NSSAI<br>9.11.3.37                                        | O        | TLV    | 4-74    |
| 11  | Rejected NSSAI                               | Rejected NSSAI<br>9.11.3.46                               | O        | TLV    | 4-42    |
| 31  | Configured NSSAI                             | NSSAI<br>9.11.3.37                                        | O        | TLV    | 4-146   |
| 21  | 5GS network feature support                  | 5GS network feature support<br>9.11.3.5                   | O        | TLV    | 3-6     |
| 50  | PDU session status                           | PDU session status<br>9.11.3.44                           | O        | TLV    | 4-34    |
| 26  | PDU session reactivation result              | PDU session reactivation result<br>9.11.3.42              | O        | TLV    | 4-34    |
| 72  | PDU session reactivation result error cause  | PDU session reactivation result error cause<br>9.11.3.43  | O        | TLV-E  | 5-515   |
| 79  | LADN information                             | LADN information<br>9.11.3.30                             | O        | TLV-E  | 13-1715 |
| B-  | MICO indication                              | MICO indication<br>9.11.3.31                              | O        | TV     | 1       |
| 9-  | Network slicing indication                   | Network slicing indication<br>9.11.3.36                   | O        | TV     | 1       |
| 27  | Service area list                            | Service area list<br>9.11.3.49                            | O        | TLV    | 6-114   |
| 5E  | T3512 value                                  | GPRS timer 3<br>9.11.2.5                                  | O        | TLV    | 3       |
| 5D  | Non-3GPP de-registration timer value         | GPRS timer 2<br>9.11.2.4                                  | O        | TLV    | 3       |
| 16  | T3502 value                                  | GPRS timer 2<br>9.11.2.4                                  | O        | TLV    | 3       |
| 34  | Emergency number list                        | Emergency number list<br>9.11.3.23                        | O        | TLV    | 5-50    |
| 7A  | Extended emergency number list               | Extended emergency number list<br>9.11.3.26               | O        | TLV-E  | 7-65538 |
| 73  | SOR transparent container                    | SOR transparent container<br>9.11.3.51                    | O        | TLV-E  | 20-n    |
| 78  | EAP message                                  | EAP message<br>9.11.2.2                                   | O        | TLV-E  | 7-1503  |
| A-  | NSSAI inclusion mode                         | NSSAI inclusion mode<br>9.11.3.37A                        | O        | TV     | 1       |
| 76  | Operator-defined access category definitions | Operator-defined access category definitions<br>9.11.3.38 | O        | TLV-E  | 3-8323  |
| 51  | Negotiated DRX parameters                    | 5GS DRX parameters<br>9.11.3.2A                           | O        | TLV    | 3       |
| D-  | Non-3GPP NW policies                         | Non-3GPP NW provided policies<br>9.11.3.36A               | O        | TV     | 1       |
| 60  | EPS bearer context status                    | EPS bearer context status<br>9.11.3.23A                   | O        | TLV    | 4       |

|    |                                                                                                   |                                                             |   |       |         |
|----|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------|---|-------|---------|
| 6E | Negotiated extended DRX parameters                                                                | Extended DRX parameters<br>9.11.3.26A                       | O | TLV   | 3-4     |
| 6C | T3447 value                                                                                       | GPRS timer 3<br>9.11.2.5                                    | O | TLV   | 3       |
| 6B | T3448 value                                                                                       | GPRS timer 2<br>9.11.2.4                                    | O | TLV   | 3       |
| 6A | T3324 value                                                                                       | GPRS timer 3<br>9.11.2.5                                    | O | TLV   | 3       |
| 67 | UE radio capability ID                                                                            | UE radio capability ID<br>9.11.3.68                         | O | TLV   | 3-n     |
| E- | UE radio capability ID deletion indication                                                        | UE radio capability ID deletion indication<br>9.11.3.69     | O | TV    | 1       |
| 39 | Pending NSSAI                                                                                     | NSSAI<br>9.11.3.37                                          | O | TLV   | 4-146   |
| 74 | Ciphering key data                                                                                | Ciphering key data<br>9.11.3.18C                            | O | TLV-E | 34-n    |
| 75 | CAG information list                                                                              | CAG information list<br>9.11.3.18A                          | O | TLV-E | 3-n     |
| 1B | Truncated 5G-S-TMSI configuration                                                                 | Truncated 5G-S-TMSI configuration<br>9.11.3.70              | O | TLV   | 3       |
| 1C | Negotiated WUS assistance information                                                             | WUS assistance information<br>9.11.3.71                     | O | TLV   | 3-n     |
| 29 | Negotiated NB-N1 mode DRX parameters                                                              | NB-N1 mode DRX parameters<br>9.11.3.73                      | O | TLV   | 3       |
| 68 | Extended rejected NSSAI                                                                           | Extended rejected NSSAI<br>9.11.3.75                        | O | TLV   | 5-90    |
| 7B | Service-level-AA container                                                                        | Service-level-AA container<br>9.11.2.10                     | O | TLV-E | 4-65538 |
| 33 | Negotiated PEIPS assistance information                                                           | PEIPS assistance information<br>9.11.3.80                   | O | TLV   | 3-n     |
| 35 | 5GS additional request result                                                                     | 5GS additional request result<br>9.11.3.81                  | O | TLV   | 3       |
| 70 | NSSRG information                                                                                 | NSSRG information<br>9.11.3.82                              | O | TLV-E | 7-4099  |
| 14 | Disaster roaming wait range                                                                       | Registration wait range<br>9.11.3.84                        | O | TLV   | 4       |
| 2C | Disaster return wait range                                                                        | Registration wait range<br>9.11.3.84                        | O | TLV   | 4       |
| 13 | List of PLMNs to be used in disaster condition                                                    | List of PLMNs to be used in disaster condition<br>9.11.3.83 | O | TLV   | 2-n     |
| 1D | Forbidden TAI(s) for the list of "5GS forbidden tracking areas for roaming"                       | 5GS tracking area identity list<br>9.11.3.9                 | O | TLV   | 9-114   |
| 1E | Forbidden TAI(s) for the list of "5GS forbidden tracking areas for regional provision of service" | 5GS tracking area identity list<br>9.11.3.9                 | O | TLV   | 9-114   |
| 71 | Extended CAG information list                                                                     | Extended CAG information list<br>9.11.3.86                  | O | TLV-E | 3-n     |
| 7C | NSAG information                                                                                  | NSAG information<br>9.11.3.87                               | O | TLV-E | 9-3143  |
| 3D | Equivalent SNPNs                                                                                  | SNPN list<br>9.11.3.92                                      | O | TLV   | 11-137  |
| 32 | NID                                                                                               | NID<br>9.11.3.79                                            | O | TLV   | 8       |
| 7D | Registration accept type 6 IE container                                                           | Type 6 IE container<br>9.11.3.98                            | O | TLV-E | 6-65538 |
| 4B | RAN timing synchronization                                                                        | RAN timing synchronization<br>9.11.3.95                     | O | TLV   | 3       |
| 4C | Alternative NSSAI                                                                                 | Alternative NSSAI<br>9.11.3.97                              | O | TLV   | 2-146   |
| 4F | Maximum time offset                                                                               | GPRS timer 3<br>9.11.2.5                                    | O | TLV   | 3       |

|    |                                   |                                                 |   |     |        |
|----|-----------------------------------|-------------------------------------------------|---|-----|--------|
| 5B | S-NSSAI time validity information | S-NSSAI time validity information<br>9.11.3.101 | O | TLV | 23-257 |
| 3C | Unavailability configuration      | Unavailability configuration<br>9.11.2.21       | O | TLV | 3-6    |
| 5C | Feature authorization indication  | Feature authorization indication<br>9.11.3.105  | O | TLV | 3-257  |
| 61 | On-demand NSSAI                   | On-demand NSSAI<br>9.11.3.108                   | O | TLV | 5-210  |

### 8.2.7.2 5G-GUTI

This IE may be included to assign a 5G-GUTI to a UE.

### 8.2.7.3 Equivalent PLMNs

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

### 8.2.7.4 TAI list

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

### 8.2.7.5 Allowed NSSAI

This IE shall be included:

- a) if:
  - 1) one or more S-NSSAIs in the requested NSSAI of the REGISTRATION REQUEST message are allowed by the AMF for a network not supporting NSSAA;
  - 2) one or more S-NSSAIs in the requested NSSAI of the REGISTRATION REQUEST message are not subject to network slice-specific authentication and authorization and are allowed by the AMF; or
  - 3) the network slice-specific authentication and authorization has been successfully performed for one or more S-NSSAIs in the requested NSSAI of the REGISTRATION REQUEST message; or
- b) if the initial registration request is not for onboarding services in SNPN or the UE is not registered for onboarding services in SNPN, the requested NSSAI was not included in the REGISTRATION REQUEST message or none of the requested NSSAI are allowed; and
  - 1) the network does not support NSSAA; or
  - 2) the network has one or more default S-NSSAIs which are not subject to network slice-specific authentication and authorization.

### 8.2.7.6 Rejected NSSAI

The network may include this IE to inform the UE of one or more S-NSSAIs that were included in the requested NSSAI in the REGISTRATION REQUEST message but were rejected by the network.

### 8.2.7.7 Configured NSSAI

The network may include this IE if the network needs to provide the UE with a new configured NSSAI for the current PLMN or SNPN and the UE is neither registering nor registered for onboarding services in SNPN.

### 8.2.7.8 5GS 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.

### 8.2.7.9 PDU session status

This IE shall be included when the network needs to indicate the PDU sessions that are associated with the access type the message is sent over, that are active in the network.

### 8.2.7.10 PDU session reactivation result

This IE shall be included:

- if the Uplink data status IE is included in the REGISTRATION REQUEST message; or
- if the Allowed PDU session status IE is included in the REGISTRATION REQUEST message and there is at least one PDU session indicated in the Allowed PDU session status IE for which the user-plane resources can be re-established over 3GPP access.

### 8.2.7.11 PDU session reactivation result error cause

This IE may be included, if the PDU session reactivation result IE is included and there exist one or more PDU sessions for which the user-plane resources cannot be re-established, to indicate the cause of failure to re-establish the user-plane resources.

### 8.2.7.12 LADN information

The network shall include this IE if there are valid LADN service area(s) for the subscribed DNN(s) of the UE in the current registration area.

### 8.2.7.13 MICO indication

The network shall include the MICO indication IE if:

- a)- the UE included the MICO indication IE in the REGISTRATION REQUEST message; and
- b) the network supports and accepts the use of MICO mode.

### 8.2.7.14 Network slicing indication

This IE shall be included if the user's network slicing subscription has changed in the UDM of a PLMN or an SNPN.

### 8.2.7.15 Service area list

This IE may be included to assign new service area restrictions to the UE.

### 8.2.7.16 T3512 value

The AMF shall include this IE during a registration procedure over 3GPP access when the 5GS registration type IE does not indicate "periodic registration updating". The AMF may include this IE during the mobility and periodic registration update procedure over 3GPP access when the 5GS registration type IE indicates "periodic registration updating".

### 8.2.7.17 Non-3GPP de-registration timer value

This IE may be included if the network needs to indicate to the UE registered over non-3GPP access the value of a non-3GPP de-registration timer value.

### 8.2.7.18 T3502 value

This IE may be included to indicate a value for timer T3502.

### 8.2.7.19 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.

### 8.2.7.20 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 or SNPN from which this IE is received.

### 8.2.7.21 SOR transparent container

This IE may be sent by the network.

### 8.2.7.22 EAP message

EAP message IE is included if the REGISTRATION ACCEPT message is sent as part of registration for emergency services and is used to convey EAP-failure message.

### 8.2.7.23 NSSAI inclusion mode

This IE shall be included if required by operatory policy.

### 8.2.7.24 Operator-defined access category definitions

This IE may be included to assign new operator-defined access category definitions to the UE or delete the operator-defined access category definitions at the UE side.

### 8.2.7.25 Negotiated DRX parameters

The network shall include this IE if the Requested DRX parameters IE was included in the REGISTRATION REQUEST message.

### 8.2.7.26 Non-3GPP NW policies

The AMF shall not include this IE during a registration procedure over non-3GPP access.

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 [16]). 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.

**NOTE:** In this version of the specification, this IE is applicable in case the UE is connected to a PLMN using an ePDG as specified in 3GPP TS 24.302 [16].

### 8.2.7.27 Negotiated extended DRX parameters

The network shall include the Negotiated extended DRX parameters IE if:

- the UE included the Requested extended DRX parameters IE in the REGISTRATION REQUEST message; and
- the network supports eDRX and accepts the use of eDRX.

### 8.2.7.28 T3447 value

The network may include T3447 value IE if:

- the UE has indicated support for service gap control in the REGISTRATION REQUEST message; and
- the 5GMM context contains a service gap time value.

### 8.2.7.29 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 the control plane CIoT 5GS optimizations.

### 8.2.7.30 T3324 value

The AMF shall include this IE if the UE has requested active time value in the REGISTRATION REQUEST message and the AMF decides to accept the use of MICO mode and the use of the active time.

### 8.2.7.31 EPS bearer context status

This IE shall be included when the network generated an EPS bearer context status information for the UE during the inter-system change from S1 mode to N1 mode and the network supports N26 interface.

### 8.2.7.32 UE radio capability ID

This IE may be included if the UE is not in NB-N1 mode, both the UE and the network support RACS and the network needs to assign a network-assigned UE radio capability ID to the UE.

### 8.2.7.33 UE radio capability ID deletion indication

This IE may be included if the UE is not in NB-N1 mode, 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 or SNPN.

### 8.2.7.34 Pending NSSAI

The network may include this IE to inform the UE of one or more S-NSSAIs that are pending as the network slice-specific authentication and authorization procedure is not completed.

### 8.2.7.35 Ciphering key data

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

### 8.2.7.36 CAG information list

This IE may be included to assign a new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

### 8.2.7.37 Truncated 5G-S-TMSI configuration

The network shall include this IE if:

- the UE is in NB-N1 mode;
- the UE requests "control plane CIoT 5GS optimization" in the 5GS update type IE of REGISTRATION REQUEST message;
- the AMF decides to accept the requested CIoT 5GS optimization; and
- the network is configured to provide the truncated 5G-S-TMSI configuration for control plane CIoT 5GS optimizations.

### 8.2.7.38 Negotiated NB-N1 mode DRX parameters

The network shall include the Negotiated NB-N1 mode DRX parameters IE if the requested NB-N1 mode DRX parameters IE was included in the REGISTRATION REQUEST message.

### 8.2.7.39 Negotiated WUS assistance information

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

- the UE supports WUS assistance information;
- the AMF supports and accepts the use of WUS assistance information;
- the UE is not performing the initial registration for emergency services; and
- the UE does not have an active emergency PDU session.

### 8.2.7.40 Extended rejected NSSAI

If the UE supports Extended rejected NSSAI, the network may include this IE to inform the UE of one or more S-NSSAIs that were included in the requested NSSAI in the REGISTRATION REQUEST message but were rejected by the network.

### 8.2.7.41 Service-level-AA container

The network shall include this IE if the UUAA procedure is triggered for the UE supporting UAS services. The network may include this IE if there is a valid successful UUAA result for the UE in the UE 5GMM context upon a registration for UAS services is requested from the UE.

### 8.2.7.42 Negotiated PEIPS assistance information

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

- the UE supports NR paging subgrouping;
- the AMF supports and accepts the use of PEIPS assistance information for the UE; and
- the UE is not performing initial registration for emergency services and does not have an active emergency PDU session.

### 8.2.7.43 5GS additional request result

The network may include this IE to inform the UE about the result of additional request.

### 8.2.7.44 NSSRG information

This IE may be included to provide NSSRG information associated with the configured NSSAI.

### 8.2.7.45 Disaster roaming wait range

This IE may be included to assign a new disaster roaming wait range to the UE.

### 8.2.7.46 Disaster return wait range

This IE may be included to assign a new disaster return wait range to the UE.

### 8.2.7.47 List of PLMNs to be used in disaster condition

This IE may be included by an allowed PLMN to assign a new "list of PLMN(s) to be used in disaster condition" associated with the serving PLMN to the UE.

### 8.2.7.48 Forbidden TAI(s) for the list of "5GS forbidden tracking areas for roaming"

This IE is included to indicate the forbidden TAI(s) to be stored in the list of "5GS forbidden tracking areas for roaming". This IE is included only if the message is sent via satellite NG-RAN access.

### 8.2.7.49      Forbidden TAI(s) for the list of "5GS forbidden tracking areas for regional provision of service"

This IE is included to indicate the forbidden TAI(s) to be stored in the list of "5GS forbidden tracking areas for regional provision of service". This IE is included only if the message is sent via satellite NG-RAN access.

### 8.2.7.50      Extended CAG information list

If the UE supports Extended CAG information list, the network may include this IE to assign a new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

### 8.2.7.51      NSAG information

If the UE has set the NSAG bit to "NSAG supported" in the 5GMM capability IE of the REGISTRATION REQUEST message over 3GPP access, the network may include this IE to provide NSAG information to the UE. Otherwise, the network shall not include this IE (see the 'comprehension required' scheme in subclause 11.2.5 of 3GPP TS 24.007 [11]).

### 8.2.7.52      Equivalent SNPNs

This IE may be included in order to assign an equivalent SNPNs list to a UE, by an AMF of an SNPN.

### 8.2.7.53      NID

This IE shall be included if the UE supports equivalent SNPNs and the serving SNPN changes.

### 8.2.7.54      Registration accept type 6 IE container

#### 8.2.7.54.1      General

This information element may be included only if the network knows that the UE will not treat this IE as unknown 'comprehension required' IE. Otherwise, the network shall not include this IE (see the 'comprehension required' scheme in subclause 11.2.5 of 3GPP TS 24.007 [11]).

In this version of the specification, only the transfer of the information elements specified in table 8.2.7.54.1.1 is supported in the Registration accept type 6 IE container information element in the present message. For the handling of an information element with an IEI not listed in table 8.2.7.54.1.1, i.e., with an IEI unknown in the Registration accept type 6 IE container information element, see subclause 7.6.4.1.

**Table 8.2.7.54.1.1: Information elements and IEIs for the Registration accept type 6 IE container**

| IEI | Information Element                   | Type/Reference                                      | Presence | Format | Length   |
|-----|---------------------------------------|-----------------------------------------------------|----------|--------|----------|
| 01  | Extended LADN information             | Extended LADN information<br>9.11.3.96              | O        | TLV-E  | 15-1787  |
| 02  | S-NSSAI location validity information | S-NSSAI location validity information<br>9.11.3.100 | O        | TLV-E  | 17-38611 |
| 03  | Partially allowed NSSAI               | Partial NSSAI<br>9.11.3.103                         | O        | TLV-E  | 3-808    |
| 04  | Partially rejected NSSAI              | Partial NSSAI<br>9.11.3.103                         | O        | TLV-E  | 3-808    |

#### 8.2.7.54.2      Extended LADN information

The network shall include this IE if the UE supports LADN per DNN and S-NSSAI and there are valid LADN service area(s) for the subscribed DNN(s) of the UE and S-NSSAI associated with the LADN in the current registration area.

#### 8.2.7.54.3      S-NSSAI location validity information

The network may include this IE to update the S-NSSAI location validity information.

**8.2.7.54.4      Void**

Void.

**8.2.7.54.5      Partially allowed NSSAI**

The network may include this IE to assign a partially allowed NSSAI to the UE.

**8.2.7.54.6      Partially rejected NSSAI**

The network may include this IE to assign a partially rejected NSSAI to the UE.

**8.2.7.55      RAN timing synchronization**

This IE may be included to provide information related to the RAN timing synchronization to a UE which has set the Reconnection to the network due to RAN timing synchronization status change (RANTiming) bit to "Reconnection to the network due to RAN timing synchronization status change supported" in the 5GMM capability IE of the REGISTRATION REQUEST message.

**8.2.7.56      Alternative NSSAI**

The network may include this IE to provide the alternative NSSAI to the UE.

**8.2.7.57      Maximum time offset**

This IE may be included to provide the UE with a maximum waiting time after return from discontinuous coverage.

**8.2.7.58      S-NSSAI time validity information**

If the UE supports S-NSSAI time validity information, the network may include this IE to update the S-NSSAI time validity information.

**8.2.7.59      Unavailability configuration**

The network should include this IE if the network needs to provide parameters related to unavailability period to the UE.

**8.2.7.60      Feature authorization indication**

The network may include this IE to inform to the UE about the authorization status of the UE whether to operate as an MBSR or to operate not as an MBSR but to operate as a UE.

**8.2.7.61      On-demand NSSAI**

The network may include this IE to provide the on-demand NSSAI to the UE.

**8.2.8      Registration complete****8.2.8.1      Message definition**

The REGISTRATION COMPLETE message is sent by the UE to the AMF. See table 8.2.8.1.1.

Message type: REGISTRATION COMPLETE

Significance: dual

Direction: UE to network

**Table 8.2.8.1.1: REGISTRATION COMPLETE message content**

| <b>IEI</b> | <b>Information Element</b>             | <b>Type/Reference</b>               | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|----------------------------------------|-------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator        | Extended protocol discriminator 9.2 | M               | V             | 1             |
|            | Security header type                   | Security header type 9.3            | M               | V             | 1/2           |
|            | Spare half octet                       | Spare half octet 9.5                | M               | V             | 1/2           |
|            | Registration complete message identity | Message type 9.7                    | M               | V             | 1             |
| 73         | SOR transparent container              | SOR transparent container 9.11.3.51 | O               | TLV-E         | 20            |

### 8.2.8.2 SOR transparent container

This IE may be sent by the UE. If this IE is sent, the contents of this IE indicates the UE acknowledgement of successful reception of the SOR transparent container IE in the REGISTRATION ACCEPT message. This IE shall indicate the ME support of SOR-CMCI.

### 8.2.9 Registration reject

#### 8.2.9.1 Message definition

The REGISTRATION REJECT message is sent by the AMF to the UE. See table 8.2.9.1.1.

Message type: REGISTRATION REJECT

Significance: dual

Direction: network to UE

**Table 8.2.9.1.1: REGISTRATION REJECT message content**

| <b>IEI</b> | <b>Information Element</b>                                                                        | <b>Type/Reference</b>                    | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|---------------------------------------------------------------------------------------------------|------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator                                                                   | Extended protocol discriminator 9.2      | M               | V             | 1             |
|            | Security header type                                                                              | Security header type 9.3                 | M               | V             | 1/2           |
|            | Spare half octet                                                                                  | Spare half octet 9.5                     | M               | V             | 1/2           |
|            | Registration reject message identity                                                              | Message type 9.7                         | M               | V             | 1             |
|            | 5GMM cause                                                                                        | 5GMM cause 9.11.3.2                      | M               | V             | 1             |
| 5F         | T3346 value                                                                                       | GPRS timer 2 9.11.2.4                    | O               | TLV           | 3             |
| 16         | T3502 value                                                                                       | GPRS timer 2 9.11.2.4                    | O               | TLV           | 3             |
| 78         | EAP message                                                                                       | EAP message 9.11.2.2                     | O               | TLV-E         | 7-1503        |
| 69         | Rejected NSSAI                                                                                    | Rejected NSSAI 9.11.3.46                 | O               | TLV           | 4-42          |
| 75         | CAG information list                                                                              | CAG information list 9.11.3.18A          | O               | TLV-E         | 3-n           |
| 68         | Extended rejected NSSAI                                                                           | Extended rejected NSSAI 9.11.3.75        | O               | TLV           | 5-90          |
| 2C         | Disaster return wait range                                                                        | Registration wait range 9.11.3.84        | O               | TLV           | 4             |
| 71         | Extended CAG information list                                                                     | Extended CAG information list 9.11.3.86  | O               | TLV-E         | 3-n           |
| 3A         | Lower bound timer value                                                                           | GPRS timer 3 9.11.2.5                    | O               | TLV           | 3             |
| 1D         | Forbidden TAI(s) for the list of "5GS forbidden tracking areas for roaming"                       | 5GS tracking area identity list 9.11.3.9 | O               | TLV           | 9-114         |
| 1E         | Forbidden TAI(s) for the list of "5GS forbidden tracking areas for regional provision of service" | 5GS tracking area identity list 9.11.3.9 | O               | TLV           | 9-114         |
| 3E         | N3IWF identifier                                                                                  | N3IWF identifier 9.11.3.93               | O               | TLV           | 7-n           |
| 4D         | TNAN information                                                                                  | TNAN information 9.11.3.94               | O               | TLV           | 3-n           |
| 62         | Extended 5GMM cause                                                                               | Extended 5GMM cause 9.11.3.109           | O               | TLV           | 3             |

**NOTE:** It is possible for AMFs compliant with version 17.7.0 or 17.8.0 of this specification to send the Forbidden TAI(s) for the list of "5GS forbidden tracking areas for roaming" IE with IEI of value "3B" for this message or the Forbidden TAI(s) for the list of "5GS forbidden tracking areas for regional provision of service" IE with IEI of value "3C" for this message.

### 8.2.9.2 T3346 value

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

### 8.2.9.3 T3502 value

This IE may be included to indicate a value for timer T3502 during the initial registration.

### 8.2.9.4 EAP message

EAP message IE is included if the REGISTRATION REJECT message is used to convey EAP-failure message.

### 8.2.9.5 Rejected NSSAI

The network may include this IE to inform the UE of one or more S-NSSAIs that were included in the requested NSSAI in the REGISTRATION REQUEST message but were rejected by the network.

### 8.2.9.6 CAG information list

This IE may be included to assign a new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

### 8.2.9.7 Extended rejected NSSAI

If the UE supports Extended rejected NSSAI, the network may include this IE to inform the UE of one or more S-NSSAIs that were included in the requested NSSAI in the REGISTRATION REQUEST message but were rejected by the network.

### 8.2.9.8 Disaster return wait range

This IE may be included to assign a new disaster return wait range to the UE.

### 8.2.9.9 Extended CAG information list

If the UE supports Extended CAG information list, the network may include this IE to assign a new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

### 8.2.9.10 Lower bound timer value

The AMF may include this IE when the 5GMM cause is set to #78 "PLMN not allowed to operate at the present UE location", to provide a minimum time value for an entry added to the list of "PLMNs not allowed to operate at the present UE location".

### 8.2.9.11 Forbidden TAI(s) for the list of "5GS forbidden tracking areas for roaming"

This IE is included to indicate the forbidden TAI(s) to be stored in the list of "5GS forbidden tracking areas for roaming". This IE is included only if the message is sent via satellite NG-RAN access.

### 8.2.9.12 Forbidden TAI(s) for the list of "5GS forbidden tracking areas for regional provision of service"

This IE is included to indicate the forbidden TAI(s) to be stored in the list of "5GS forbidden tracking areas for regional provision of service". This IE is included only if the message is sent via satellite NG-RAN access.

### 8.2.9.13 N3IWF identifier

The network may include this IE if the UE supports slice-based N3IWF selection over non-3GPP access network.

### 8.2.9.14 TNAN information

The network may include this IE if the UE supports slice-based TNAN selection over trusted non-3GPP access network.

### 8.2.9.15 Extended 5GMM cause

This IE may be included by the network to indicate additional information associated with the 5GMM cause value #15 "no suitable cells in tracking area".

## 8.2.10 UL NAS transport

### 8.2.10.1 Message definition

The UL NAS TRANSPORT message transports message payload and associated information to the AMF. See table 8.2.10.1.1.

Message type: UL NAS TRANSPORT

Significance: dual

Direction: UE to network

**Table 8.2.10.1.1: UL NAS TRANSPORT message content**

| IEI | Information Element                       | Type/Reference                                      | Presence | Format | Length  |
|-----|-------------------------------------------|-----------------------------------------------------|----------|--------|---------|
|     | Extended protocol discriminator           | Extended protocol discriminator 9.2                 | M        | V      | 1       |
|     | Security header type                      | Security header type 9.3                            | M        | V      | 1/2     |
|     | Spare half octet                          | Spare half octet 9.5                                | M        | V      | 1/2     |
|     | UL NAS TRANSPORT message identity         | Message type 9.7                                    | M        | V      | 1       |
|     | Payload container type                    | Payload container type 9.11.3.40                    | M        | V      | 1/2     |
|     | Spare half octet                          | Spare half octet 9.5                                | M        | V      | 1/2     |
|     | Payload container                         | Payload container 9.11.3.39                         | M        | LV-E   | 3-65537 |
| 12  | PDU session ID                            | PDU session identity 2 9.11.3.41                    | C        | TV     | 2       |
| 59  | Old PDU session ID                        | PDU session identity 2 9.11.3.41                    | O        | TV     | 2       |
| 8-  | Request type                              | Request type 9.11.3.47                              | O        | TV     | 1       |
| 22  | S-NSSAI                                   | S-NSSAI 9.11.2.8                                    | O        | TLV    | 3-10    |
| 25  | DNN                                       | DNN 9.11.2.1B                                       | O        | TLV    | 3-102   |
| 24  | Additional information                    | Additional information 9.11.2.1                     | O        | TLV    | 3-n     |
| A-  | MA PDU session information                | MA PDU session information 9.11.3.31A               | O        | TV     | 1       |
| F-  | Release assistance indication             | Release assistance indication 9.11.3.46A            | O        | TV     | 1       |
| 4E  | Non-3GPP access path switching indication | Non-3GPP access path switching indication 9.11.3.99 | O        | TLV    | 3       |
| 5A  | Alternative S-NSSAI                       | S-NSSAI 9.11.2.8                                    | O        | TLV    | 3-10    |
| 9-  | Payload container information             | Payload container information 9.11.3.106            | O        | TV     | 1       |

### 8.2.10.2 PDU session ID

The UE shall include this IE when the Payload container type IE is set to "N1 SM information" or "CIoT user data".

### 8.2.10.3 Old PDU session ID

The UE shall include this IE if the UL NAS TRANSPORT message transports a PDU SESSION ESTABLISHMENT REQUEST message upon receiving the PDU SESSION MODIFICATION COMMAND message with the 5GSM cause IE set to #39 "reactivation requested" and the Payload container type IE is set to "N1 SM information".

### 8.2.10.4 Request type

The UE shall include this IE when the PDU session ID IE is included and the Payload container IE contains the PDU SESSION ESTABLISHMENT REQUEST message or the PDU SESSION MODIFICATION REQUEST which is not initiated to indicate a change of 3GPP PS data off UE status associated to a PDU session.

### 8.2.10.5 S-NSSAI

The UE may include this IE when the Request type IE is set to "initial request", "existing PDU session" or "MA PDU request", the Payload container type IE is set to "N1 SM information" and the UE is not registered for onboarding services in SNPN.

### 8.2.10.6 DNN

The UE may include this IE when the Request type IE is set to "initial request", "existing PDU session" or "MA PDU request", the Payload container type IE is set to "N1 SM information" and the UE is not registered for onboarding services in SNPN.

### 8.2.10.7 Additional information

This IE is included when the Payload container type IE is set to "LTE Positioning Protocol (LPP) message container", "UPP-CMI container", "SLPP message container", or "Location services (LCS) message container".

### 8.2.10.8 MA PDU session information

The UE may include this IE if the Request type IE is included and is not set to "initial emergency request" or "existing emergency PDU session" in the UL NAS TRANSPORT message.

### 8.2.10.9 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.

### 8.2.10.10 Non-3GPP access path switching indication

The UE may include this IE when the Payload container type IE is set to "N1 SM information" to indicate whether the UE supports the non-3GPP access path switching for the PDU session.

### 8.2.10.11 Alternative S-NSSAI

The UE shall include this IE if the UE can provide alternative S-NSSAI associated with the S-NSSAI to be replaced to the network.

### 8.2.10.12 Payload container information

The UE may include this IE when the Payload container type IE is set to "Location services (LCS) message container".

## 8.2.11 DL NAS transport

### 8.2.11.1 Message definition

The DL NAS TRANSPORT message transports message payload and associated information to the UE. See table 8.2.11.1.1.

Message type: DL NAS TRANSPORT

Significance: dual

Direction: network to UE

**Table 8.2.11.1.1: DL NAS TRANSPORT message content**

| IEI | Information Element               | Type/Reference                      | Presence | Format | Length  |
|-----|-----------------------------------|-------------------------------------|----------|--------|---------|
|     | Extended protocol discriminator   | Extended protocol discriminator 9.2 | M        | V      | 1       |
|     | Security header type              | Security header type 9.3            | M        | V      | 1/2     |
|     | Spare half octet                  | Spare half octet 9.5                | M        | V      | 1/2     |
|     | DL NAS TRANSPORT message identity | Message type 9.7                    | M        | V      | 1       |
|     | Payload container type            | Payload container type 9.11.3.40    | M        | V      | 1/2     |
|     | Spare half octet                  | Spare half octet 9.5                | M        | V      | 1/2     |
|     | Payload container                 | Payload container 9.11.3.39         | M        | LV-E   | 3-65537 |
| 12  | PDU session ID                    | PDU session identity 2 9.11.3.41    | C        | TV     | 2       |
| 24  | Additional information            | Additional information 9.11.2.1     | O        | TLV    | 3-n     |
| 58  | 5GMM cause                        | 5GMM cause 9.11.3.2                 | O        | TV     | 2       |
| 37  | Back-off timer value              | GPRS timer 3 9.11.2.5               | O        | TLV    | 3       |
| 3A  | Lower bound timer value           | GPRS timer 3 9.11.2.5               | O        | TLV    | 3       |

## 8.2.11.2 PDU session ID

The AMF shall include this IE when the Payload container type IE is set to "N1 SM information" or "CIoT user data container".

## 8.2.11.3 Additional information

This IE is included when the Payload container type IE is set to "LTE Positioning Protocol (LPP) message container", "UPP-CMI container", "SLPP message container", or "Location services (LCS) message container".

## 8.2.11.4 5GMM cause

The AMF shall include this IE when the Payload container IE contains an uplink payload which was not forwarded and the Payload container type IE is not set to "Multiple payloads".

## 8.2.11.5 Back-off timer value

The AMF may include this IE to indicate the back-off timer value when the Payload container IE is included and the Payload container type IE is not set to "Multiple payloads".

## 8.2.11.6 Lower bound timer value

The AMF may include this IE when the 5GMM cause is set to #78 "PLMN not allowed to operate at the present UE location", to provide a minimum time value for an entry added to the list of "PLMNs not allowed to operate at the present UE location".

## 8.2.12 De-registration request (UE originating de-registration)

### 8.2.12.1 Message definition

The Deregistration Request message is sent by the UE to the AMF. See table 8.2.12.1.1.

Message type: Deregistration Request

Significance: dual

Direction: UE to network

**Table 8.2.12.1.1: Deregistration Request message content**

| IEI | Information Element                      | Type/Reference                       | Presence | Format | Length |
|-----|------------------------------------------|--------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator          | Extended protocol discriminator 9.2  | M        | V      | 1      |
|     | Security header type                     | Security header type 9.3             | M        | V      | 1/2    |
|     | Spare half octet                         | Spare half octet 9.5                 | M        | V      | 1/2    |
|     | De-registration request message identity | Message type 9.7                     | M        | V      | 1      |
|     | De-registration type                     | De-registration type 9.11.3.20       | M        | V      | 1/2    |
|     | ngKSI                                    | NAS key set identifier 9.11.3.32     | M        | V      | 1/2    |
|     | 5GS mobile identity                      | 5GS mobile identity 9.11.3.4         | M        | LV-E   | 6-n    |
| 3C  | Unavailability information               | Unavailability information 9.11.2.20 | O        | TLV    | 3-9    |
| 71  | NAS message container                    | NAS message container 9.11.3.33      | O        | TLV-E  | 4-n    |

### 8.2.12.2 Unavailability information

The UE may include this IE when an event is triggered in the UE that would make the UE unavailable for a certain period and the use of unavailability period is not due to NR satellite access discontinuous coverage.

### 8.2.12.3 NAS message container

This IE shall be included if the UE is sending a Deregistration Request message as an initial NAS message and the UE needs to send non-cleartext IEs.

## 8.2.13 De-registration accept (UE originating de-registration)

### 8.2.13.1 Message definition

The Deregistration Accept message is sent by the AMF to the UE. See table 8.2.13.1.1.

Message type: Deregistration Accept

Significance: dual

Direction: network to UE

**Table 8.2.13.1.1: Deregistration ACCEPT message content**

| IEI | Information Element                     | Type/Reference                      | Presence | Format | Length |
|-----|-----------------------------------------|-------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator         | Extended protocol discriminator 9.2 | M        | V      | 1      |
|     | Security header type                    | Security header type 9.3            | M        | V      | 1/2    |
|     | Spare half octet                        | Spare half octet 9.5                | M        | V      | 1/2    |
|     | De-registration accept message identity | Message type 9.7                    | M        | V      | 1      |

## 8.2.14 De-registration request (UE terminated de-registration)

### 8.2.14.1 Message definition

The Deregistration REQUEST message is sent by the AMF to the UE. See table 8.2.14.1.1.

Message type: Deregistration REQUEST

Significance: dual

Direction: network to UE

**Table 8.2.14.1.1: Deregistration REQUEST message content**

| IEI | Information Element                                                                               | Type/Reference                           | Presence | Format | Length |
|-----|---------------------------------------------------------------------------------------------------|------------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator                                                                   | Extended protocol discriminator 9.2      | M        | V      | 1      |
|     | Security header type                                                                              | Security header type 9.3                 | M        | V      | 1/2    |
|     | Spare half octet                                                                                  | Spare half octet 9.5                     | M        | V      | 1/2    |
|     | De-registration request message identity                                                          | Message type 9.7                         | M        | V      | 1      |
|     | De-registration type                                                                              | De-registration type 9.11.3.20           | M        | V      | 1/2    |
|     | Spare half octet                                                                                  | Spare half octet 9.5                     | M        | V      | 1/2    |
| 58  | 5GMM cause                                                                                        | 5GMM cause 9.11.3.2                      | O        | TV     | 2      |
| 5F  | T3346 value                                                                                       | GPRS timer 2 9.11.2.4                    | O        | TLV    | 3      |
| 6D  | Rejected NSSAI                                                                                    | Rejected NSSAI 9.11.3.46                 | O        | TLV    | 4-42   |
| 75  | CAG information list                                                                              | CAG information list 9.11.3.18A          | O        | TLV-E  | 3-n    |
| 68  | Extended rejected NSSAI                                                                           | Extended rejected NSSAI 9.11.3.75        | O        | TLV    | 5-90   |
| 2C  | Disaster return wait range                                                                        | Registration wait range 9.11.3.84        | O        | TLV    | 4      |
| 71  | Extended CAG information list                                                                     | Extended CAG information list 9.11.3.86  | O        | TLV-E  | 3-n    |
| 3A  | Lower bound timer value                                                                           | GPRS timer 3 9.11.2.5                    | O        | TLV    | 3      |
| 1D  | Forbidden TAI(s) for the list of "5GS forbidden tracking areas for roaming"                       | 5GS tracking area identity list 9.11.3.9 | O        | TLV    | 9-114  |
| 1E  | Forbidden TAI(s) for the list of "5GS forbidden tracking areas for regional provision of service" | 5GS tracking area identity list 9.11.3.9 | O        | TLV    | 9-114  |

**NOTE:** It is possible for AMFs compliant with version 17.7.0 or 17.8.0 of this specification to send the Forbidden TAI(s) for the list of "5GS forbidden tracking areas for roaming" IE with IEI of value "3B" for this message or the Forbidden TAI(s) for the list of "5GS forbidden tracking areas for regional provision of service" IE with IEI of value "3C" for this message.

#### 8.2.14.2 5GMM cause

This information element is included if a 5GMM cause is provided.

#### 8.2.14.3 T3346 value

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

#### 8.2.14.4 Rejected NSSAI

The AMF may include this IE to inform the UE of one or more S-NSSAIs that were rejected by the network.

#### 8.2.14.5 CAG information list

This IE may be included to assign a new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

#### 8.2.14.6 Extended rejected NSSAI

If the UE supports Extended rejected NSSAI, the AMF may include this IE to inform the UE of one or more S-NSSAIs that were rejected by the network.

#### 8.2.14.7 Disaster return wait range

This IE may be included to assign a new disaster return wait range to the UE.

#### 8.2.14.7A Extended CAG information list

If the UE supports Extended CAG information list, the network may include this IE to assign a new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

#### 8.2.14.8 Lower bound timer value

The AMF may include this IE when the 5GMM cause is set to #78 "PLMN not allowed to operate at the present UE location", to provide a minimum time value for an entry added to the list of "PLMNs not allowed to operate at the present UE location".

#### 8.2.14.9 Forbidden TAI(s) for the list of "5GS forbidden tracking areas for roaming"

This IE is included to indicate the forbidden TAI(s) to be stored in the list of "5GS forbidden tracking areas for roaming". This IE is included only if the message is sent via satellite NG-RAN access.

#### 8.2.14.10 Forbidden TAI(s) for the list of "5GS forbidden tracking areas for regional provision of service"

This IE is included to indicate the forbidden TAI(s) to be stored in the list of "5GS forbidden tracking areas for regional provision of service". This IE is included only if the message is sent via satellite NG-RAN access.

### 8.2.15 De-registration accept (UE terminated de-registration)

#### 8.2.15.1 Message definition

The DEREGISTRATION ACCEPT message is sent by the UE to the AMF. See table 8.2.15.1.1.

Message type: Deregistration Accept

Significance: dual

Direction: UE to network

**Table 8.2.15.1.1.1: Deregistration Accept message content**

| IEI | Information Element                     | Type/Reference                      | Presence | Format | Length |
|-----|-----------------------------------------|-------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator         | Extended protocol discriminator 9.2 | M        | V      | 1      |
|     | Security header type                    | Security header type 9.3            | M        | V      | 1/2    |
|     | Spare half octet                        | Spare half octet 9.5                | M        | V      | 1/2    |
|     | De-registration accept message identity | Message type 9.7                    | M        | V      | 1      |

## 8.2.16 Service request

### 8.2.16.1 Message definition

The SERVICE REQUEST message is sent by the UE to the AMF in order to request the establishment of an N1 NAS signalling connection, to request the establishment of user-plane resources for PDU sessions which are established without user-plane resources, or both. See table 8.2.16.1.1.

Message type: SERVICE REQUEST

Significance: dual

Direction: UE to network

**Table 8.2.16.1.1: SERVICE REQUEST message content**

| IEI | Information Element              | Type/Reference                       | Presence | Format | Length |
|-----|----------------------------------|--------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator  | Extended protocol discriminator 9.2  | M        | V      | 1      |
|     | Security header type             | Security header type 9.3             | M        | V      | 1/2    |
|     | Spare half octet                 | Spare half octet 9.5                 | M        | V      | 1/2    |
|     | Service request message identity | Message type 9.7                     | M        | V      | 1      |
|     | ngKSI                            | NAS key set identifier 9.11.3.32     | M        | V      | 1/2    |
|     | Service type                     | Service type 9.11.3.50               | M        | V      | 1/2    |
|     | 5G-S-TMSI                        | 5GS mobile identity 9.11.3.4         | M        | LV-E   | 9      |
| 40  | Uplink data status               | Uplink data status 9.11.3.57         | O        | TLV    | 4-34   |
| 50  | PDU session status               | PDU session status 9.11.3.44         | O        | TLV    | 4-34   |
| 25  | Allowed PDU session status       | Allowed PDU session status 9.11.3.13 | O        | TLV    | 4-34   |
| 71  | NAS message container            | NAS message container 9.11.3.33      | O        | TLV-E  | 4-n    |
| 29  | UE request type                  | UE request type 9.11.3.76            | O        | TLV    | 3      |
| 28  | Paging restriction               | Paging restriction 9.11.3.77         | O        | TLV    | 3-35   |

### 8.2.16.2 Uplink data status

This IE shall be included if the UE has uplink user data pending to be sent.

### 8.2.16.3 PDU session status

This IE shall be included when the UE needs to indicate the PDU sessions that are associated with the access type that the message is sent over, that are active within the UE.

### 8.2.16.4 Allowed PDU session status

This IE shall be included if the SERVICE REQUEST message is sent as a response to paging with the access type indicating non-3GPP access or notification via 3GPP access for PDU session(s) associated with non-3GPP access.

### 8.2.16.5 NAS message container

This IE shall be included if the UE is sending a SERVICE REQUEST message as an initial NAS message and the UE needs to send non-cleartext IEs.

### 8.2.16.6 UE request type

The UE shall include this IE if the MUSIM UE requests the release of the NAS signalling connection or rejects the paging request from the network.

### 8.2.16.7 Paging restriction

The UE shall include this IE if the Request type is set to "NAS signalling connection release" or to "Rejection of paging" in the UE request type IE and the UE requests the network to restrict paging.

## 8.2.17 Service accept

### 8.2.17.1 Message definition

The SERVICE ACCEPT message is sent by the AMF to the UE in order to accept the service request procedure. See table 8.2.17.1.1.

Message type: SERVICE ACCEPT

Significance: dual

Direction: network to UE

**Table 8.2.17.1.1: SERVICE ACCEPT message content**

| <b>IEI</b> | <b>Information Element</b>                                                                        | <b>Type/Reference</b>                                 | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator                                                                   | Extended protocol discriminator 9.2                   | M               | V             | 1             |
|            | Security header type                                                                              | Security header type 9.3                              | M               | V             | 1/2           |
|            | Spare half octet                                                                                  | Spare half octet 9.5                                  | M               | V             | 1/2           |
|            | Service accept message identity                                                                   | Message type 9.7                                      | M               | V             | 1             |
| 50         | PDU session status                                                                                | PDU session status 9.11.3.44                          | O               | TLV           | 4-34          |
| 26         | PDU session reactivation result                                                                   | PDU session reactivation result 9.11.3.42             | O               | TLV           | 4-34          |
| 72         | PDU session reactivation result error cause                                                       | PDU session reactivation result error cause 9.11.3.43 | O               | TLV-E         | 5-515         |
| 78         | EAP message                                                                                       | EAP message 9.11.2.2                                  | O               | TLV-E         | 7-1503        |
| 6B         | T3448 value                                                                                       | GPRS timer 2 9.11.2.4                                 | O               | TLV           | 3             |
| 34         | 5GS additional request result                                                                     | 5GS additional request result 9.11.3.81               | O               | TLV           | 3             |
| 1D         | Forbidden TAI(s) for the list of "5GS forbidden tracking areas for roaming"                       | 5GS tracking area identity list 9.11.3.9              | O               | TLV           | 9-114         |
| 1E         | Forbidden TAI(s) for the list of "5GS forbidden tracking areas for regional provision of service" | 5GS tracking area identity list 9.11.3.9              | O               | TLV           | 9-114         |

## 8.2.17.2 PDU session status

This IE shall be included when the network needs to indicate the PDU sessions that are associated with the access type that the message is sent over that are active within the network.

## 8.2.17.3 PDU session reactivation result

This IE shall be included:

- if the Uplink data status IE is included in the SERVICE REQUEST message; or
- if the Allowed PDU session status IE is included in the SERVICE REQUEST message and there is at least one PDU session indicated in the Allowed PDU session status IE for which user-plane resources can be re-established over 3GPP access.

## 8.2.17.4 PDU session reactivation result error cause

This IE may be included if the PDU session reactivation result IE is included and there exist one or more PDU sessions for which the user-plane resources cannot be re-established, to indicate the cause of failure to re-establish the user-plane resources.

## 8.2.17.5 EAP message

EAP message IE is included if the SERVICE ACCEPT message is sent to a UE registered for emergency services and is used to convey EAP-failure message.

## 8.2.17.6 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 the control plane CIoT 5GS optimizations.

### 8.2.17.7 5GS additional request result

The network may include this IE to inform the UE about the result of additional request.

### 8.2.17.8 Forbidden TAI(s) for the list of "5GS forbidden tracking areas for roaming"

This IE is included to indicate the forbidden TAI(s) to be stored in the list of "5GS forbidden tracking areas for roaming". This IE is included only if the message is sent via satellite NG-RAN access.

### 8.2.17.9 Forbidden TAI(s) for the list of "5GS forbidden tracking areas for regional provision of service"

This IE is included to indicate the forbidden TAI(s) to be stored in the list of "5GS forbidden tracking areas for regional provision of service". This IE is included only if the message is sent via satellite NG-RAN access.

## 8.2.18 Service reject

### 8.2.18.1 Message definition

The SERVICE REJECT message is sent by the AMF to the UE in order to reject the service request procedure. See table 8.2.18.1.1.

Message type: SERVICE REJECT

Significance: dual

Direction: network to UE

**Table 8.2.18.1.1: SERVICE REJECT message content**

| <b>IEI</b> | <b>Information Element</b>                                                                        | <b>Type/Reference</b>                    | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|---------------------------------------------------------------------------------------------------|------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator                                                                   | Extended protocol discriminator 9.2      | M               | V             | 1             |
|            | Security header type                                                                              | Security header type 9.3                 | M               | V             | 1/2           |
|            | Spare half octet                                                                                  | Spare half octet 9.5                     | M               | V             | 1/2           |
|            | Service reject message identity                                                                   | Message type 9.7                         | M               | V             | 1             |
|            | 5GMM cause                                                                                        | 5GMM cause 9.11.3.2                      | M               | V             | 1             |
| 50         | PDU session status                                                                                | PDU session status 9.11.3.44             | O               | TLV           | 4-34          |
| 5F         | T3346 value                                                                                       | GPRS timer 2 9.11.2.4                    | O               | TLV           | 3             |
| 78         | EAP message                                                                                       | EAP message 9.11.2.2                     | O               | TLV-E         | 7-1503        |
| 6B         | T3448 value                                                                                       | GPRS timer 2 9.11.2.4                    | O               | TLV           | 3             |
| 75         | CAG information list                                                                              | CAG information list 9.11.3.18A          | O               | TLV-E         | 3-n           |
| 2C         | Disaster return wait range                                                                        | Registration wait range 9.11.3.84        | O               | TLV           | 4             |
| 71         | Extended CAG information list                                                                     | Extended CAG information list 9.11.3.86  | O               | TLV-E         | 3-n           |
| 3A         | Lower bound timer value                                                                           | GPRS timer 3 9.11.2.5                    | O               | TLV           | 3             |
| 1D         | Forbidden TAI(s) for the list of "5GS forbidden tracking areas for roaming"                       | 5GS tracking area identity list 9.11.3.9 | O               | TLV           | 9-114         |
| 1E         | Forbidden TAI(s) for the list of "5GS forbidden tracking areas for regional provision of service" | 5GS tracking area identity list 9.11.3.9 | O               | TLV           | 9-114         |

**NOTE:** It is possible for AMFs compliant with version 17.7.0 or 17.8.0 of this specification to send the Forbidden TAI(s) for the list of "5GS forbidden tracking areas for roaming" IE with IEI of value "3B" for this message or the Forbidden TAI(s) for the list of "5GS forbidden tracking areas for regional provision of service" IE with IEI of value "3C" for this message.

## 8.2.18.2 PDU session status

This IE shall be included when the network needs to indicate the PDU sessions that are associated with the access type that the message is sent over, that are active within the network.

## 8.2.18.3 T3346 value

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

## 8.2.18.4 EAP message

EAP message IE is included if the SERVICE REJECT message is used to convey EAP-failure message.

## 8.2.18.5 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 the control plane CIoT 5GS optimizations.

### 8.2.18.6 CAG information list

This IE may be included to assign a new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

### 8.2.18.7 Disaster return wait range

This IE may be included to assign a new disaster return wait range to the UE.

### 8.2.18.8 Extended CAG information list

If the UE supports Extended CAG information list, the network may include this IE to assign a new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

### 8.2.18.9 Lower bound timer value

The AMF may include this IE when the 5GMM cause is set to #78 "PLMN not allowed to operate at the present UE location", to provide a minimum time value for an entry added to the list of "PLMNs not allowed to operate at the present UE location".

### 8.2.18.10 Forbidden TAI(s) for the list of "5GS forbidden tracking areas for roaming"

This IE is included to indicate the forbidden TAI(s) to be stored in the list of "5GS forbidden tracking areas for roaming". This IE is included only if the message is sent via satellite NG-RAN access.

### 8.2.18.11 Forbidden TAI(s) for the list of "5GS forbidden tracking areas for regional provision of service"

This IE is included to indicate the forbidden TAI(s) to be stored in the list of "5GS forbidden tracking areas for regional provision of service". This IE is included only if the message is sent via satellite NG-RAN access.

## 8.2.19 Configuration update command

### 8.2.19.1 Message definition

The CONFIGURATION UPDATE COMMAND message is sent by the AMF to the UE. See table 8.2.19.1.1.

Message type: CONFIGURATION UPDATE COMMAND

Significance: dual

Direction: network to UE

**Table 8.2.19.1.1: CONFIGURATION UPDATE COMMAND message content**

| IEI | Information Element                           | Type/Reference                                            | Presence | Format | Length  |
|-----|-----------------------------------------------|-----------------------------------------------------------|----------|--------|---------|
|     | Extended protocol discriminator               | Extended protocol discriminator<br>9.2                    | M        | V      | 1       |
|     | Security header type                          | Security header type<br>9.3                               | M        | V      | 1/2     |
|     | Spare half octet                              | Spare half octet<br>9.5                                   | M        | V      | 1/2     |
|     | Configuration update command message identity | Message type<br>9.7                                       | M        | V      | 1       |
| D-  | Configuration update indication               | Configuration update indication<br>9.11.3.18              | O        | TV     | 1       |
| 77  | 5G-GUTI                                       | 5GS mobile identity<br>9.11.3.4                           | O        | TLV-E  | 14      |
| 54  | TAI list                                      | 5GS tracking area identity list<br>9.11.3.9               | O        | TLV    | 9-114   |
| 15  | Allowed NSSAI                                 | NSSAI<br>9.11.3.37                                        | O        | TLV    | 4-74    |
| 27  | Service area list                             | Service area list<br>9.11.3.49                            | O        | TLV    | 6-114   |
| 43  | Full name for network                         | Network name<br>9.11.3.35                                 | O        | TLV    | 3-n     |
| 45  | Short name for network                        | Network name<br>9.11.3.35                                 | O        | TLV    | 3-n     |
| 46  | Local time zone                               | Time zone<br>9.11.3.52                                    | O        | TV     | 2       |
| 47  | Universal time and local time zone            | Time zone and time<br>9.11.3.53                           | O        | TV     | 8       |
| 49  | Network daylight saving time                  | Daylight saving time<br>9.11.3.19                         | O        | TLV    | 3       |
| 79  | LADN information                              | LADN information<br>9.11.3.30                             | O        | TLV-E  | 3-1715  |
| B-  | MICO indication                               | MICO indication<br>9.11.3.31                              | O        | TV     | 1       |
| 9-  | Network slicing indication                    | Network slicing indication<br>9.11.3.36                   | O        | TV     | 1       |
| 31  | Configured NSSAI                              | NSSAI<br>9.11.3.37                                        | O        | TLV    | 4-146   |
| 11  | Rejected NSSAI                                | Rejected NSSAI<br>9.11.3.46                               | O        | TLV    | 4-42    |
| 76  | Operator-defined access category definitions  | Operator-defined access category definitions<br>9.11.3.38 | O        | TLV-E  | 3-8323  |
| F-  | SMS indication                                | SMS indication<br>9.11.3.50A                              | O        | TV     | 1       |
| 6C  | T3447 value                                   | GPRS timer 3<br>9.11.2.5                                  | O        | TLV    | 3       |
| 75  | CAG information list                          | CAG information list<br>9.11.3.18A                        | O        | TLV-E  | 3-n     |
| 67  | UE radio capability ID                        | UE radio capability ID<br>9.11.3.68                       | O        | TLV    | 3-n     |
| A-  | UE radio capability ID deletion indication    | UE radio capability ID deletion indication<br>9.11.3.69   | O        | TV     | 1       |
| 44  | 5GS registration result                       | 5GS registration result<br>9.11.3.6                       | O        | TLV    | 3       |
| 1B  | Truncated 5G-S-TMSI configuration             | Truncated 5G-S-TMSI configuration<br>9.11.3.70            | O        | TLV    | 3       |
| C-  | Additional configuration indication           | Additional configuration indication<br>9.11.3.74          | O        | TV     | 1       |
| 68  | Extended rejected NSSAI                       | Extended rejected NSSAI<br>9.11.3.75                      | O        | TLV    | 5-90    |
| 72  | Service-level-AA container                    | Service-level-AA container<br>9.11.2.10                   | O        | TLV-E  | 4-65538 |
| 70  | NSSRG information                             | NSSRG information<br>9.11.3.82                            | O        | TLV-E  | 7-4099  |

|    |                                                |                                                             |   |       |          |
|----|------------------------------------------------|-------------------------------------------------------------|---|-------|----------|
| 14 | Disaster roaming wait range                    | Registration wait range<br>9.11.3.84                        | O | TLV   | 4        |
| 2C | Disaster return wait range                     | Registration wait range<br>9.11.3.84                        | O | TLV   | 4        |
| 13 | List of PLMNs to be used in disaster condition | List of PLMNs to be used in disaster condition<br>9.11.3.83 | O | TLV   | 2-n      |
| 71 | Extended CAG information list                  | Extended CAG information list<br>9.11.3.86                  | O | TLV-E | 3-n      |
| 1F | Updated PEIPS assistance information           | PEIPS assistance information<br>9.11.3.80                   | O | TLV   | 3-n      |
| 73 | NSAG information                               | NSAG information<br>9.11.3.87                               | O | TLV-E | 9-3143   |
| E- | Priority indicator                             | Priority indicator<br>9.11.3.91                             | O | TV    | 1        |
| 4B | RAN timing synchronization                     | RAN timing synchronization<br>9.11.3.95                     | O | TLV   | 3        |
| 78 | Extended LADN information                      | Extended LADN information<br>9.11.3.96                      | O | TLV-E | 3-1787   |
| 4C | Alternative NSSAI                              | Alternative NSSAI<br>9.11.3.97                              | O | TLV   | 2-146    |
| 7B | S-NSSAI location validity information          | S-NSSAI location validity information<br>9.11.3.100         | O | TLV-E | 17-38611 |
| 5B | S-NSSAI time validity information              | S-NSSAI time validity information<br>9.11.3.101             | O | TLV   | 23-257   |
| 4F | Maximum time offset                            | GPRS timer 3<br>9.11.2.5                                    | O | TLV   | 3        |
| 74 | Partially allowed NSSAI                        | Partial NSSAI<br>9.11.3.103                                 | O | TLV-E | 3-808    |
| 7A | Partially rejected NSSAI                       | Partial NSSAI<br>9.11.3.103                                 | O | TLV-E | 3-808    |
| 5C | Feature authorization indication               | Feature authorization indication<br>9.11.3.105              | O | TLV   | 3-257    |
| 61 | On-demand NSSAI                                | On-demand NSSAI<br>9.11.3.108                               | O | TLV   | 5-210    |

### 8.2.19.2 Configuration update indication

The AMF shall include this IE if the AMF needs to request an acknowledgement or a registration procedure from the UE.

### 8.2.19.3 5G-GUTI

This IE may be included to assign a new 5G GUTI to the UE.

### 8.2.19.4 TAI list

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

### 8.2.19.5 Allowed NSSAI

This IE may be included to assign a new allowed NSSAI to the UE not registered for onboarding services in SNPN.

### 8.2.19.6 Service area list

This IE may be included to assign a new service area list to the UE.

### 8.2.19.7 Full name for network

This IE may be included to assign a new full name for network to the UE.

### 8.2.19.8 Short name for network

This IE may be included to assign a new short name for network to the UE.

### 8.2.19.9 Local time zone

This IE may be included to assign a new local time zone to the UE.

### 8.2.19.10 Universal time and local time zone

This IE may be included to assign new universal time and local time zone to the UE.

### 8.2.19.11 Network daylight saving time

This IE may be included to assign new network daylight saving time to the UE.

### 8.2.19.12 LADN information

This IE may be included to assign new LADN information to the UE or delete the LADN information at the UE side.

### 8.2.19.13 MICO indication

This IE may be included to request the UE to re-negotiate MICO mode.

### 8.2.19.14 Network slicing indication

This IE shall be included if the user's network slicing subscription has changed in the UDM of a PLMN or an SNPN.

### 8.2.19.15 Configured NSSAI

The AMF shall include this IE when the AMF needs to provide the UE with a new configured NSSAI for the current PLMN or SNPN and the UE is neither registering nor registered for onboarding services in SNPN.

### 8.2.19.16 Rejected NSSAI

The network may include this IE to inform the UE of one or more S-NSSAIs that were previously sent to the UE in the allowed NSSAI or the pending NSSAI, but are now considered rejected by the network.

### 8.2.19.17 Operator-defined access category definitions

This IE may be included to assign new operator-defined access category definitions to the UE or delete the operator-defined access category definitions at the UE side.

### 8.2.19.18 SMS indication

This IE may be included to indicate that the ability for the UE to use SMS over NAS has changed.

### 8.2.19.19 T3447 value

This IE may be included to assign a new T3447 value to the UE.

### 8.2.19.20 CAG information list

This IE may be included to assign new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

### 8.2.19.21 UE radio capability ID

This IE may be included if the UE is not in NB-N1 mode, both the UE and the network support RACS and the network needs to assign a network-assigned UE radio capability ID to the UE.

### 8.2.19.22 UE radio capability ID deletion indication

This IE may be included if the UE is not in NB-N1 mode, 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 or serving SNPN.

### 8.2.19.23 5GS registration result

This IE shall be included if the network wants to indicate to the UE that the UE is registered for emergency services.

### 8.2.19.24 Truncated 5G-S-TMSI configuration

This IE may be included to provide a new truncated 5G-S-TMSI configuration to the UE in NB-N1 mode if the network is configured to provide the truncated 5G-S-TMSI configuration for control plane CIoT 5GS optimizations.

### 8.2.19.25 Additional configuration indication

The network may include this IE when requesting the UE to register without the release of the N1 NAS signalling connection.

### 8.2.19.26 Extended rejected NSSAI

If the UE supports Extended rejected NSSAI, the network may include this IE to inform the UE of one or more S-NSSAIs that were previously sent to the UE in the allowed NSSAI or the pending NSSAI, but are now considered rejected by the network.

### 8.2.19.27 Service-level-AA container

The network shall include this IE when the AMF receives the Service-level-AA payload or the UUAA-MM result from the UAS-NF during the UUAA-MM procedure or the UUAA revocation procedure. The network shall also include this IE if the AMF receives from the UAS-NF, the CAA-Level UAV ID as part of the UUAA-MM procedure.

### 8.2.19.28 NSSRG information

This IE may be included to provide NSSRG information associated with the configured NSSAI.

### 8.2.19.29 Disaster roaming wait range

This IE may be included to assign a new disaster roaming wait range to the UE.

### 8.2.19.30 Disaster return wait range

This IE may be included to assign a new disaster return wait range to the UE.

### 8.2.19.31 List of PLMNs to be used in disaster condition

This IE may be included by an allowed PLMN to assign a new "list of PLMN(s) to be used in disaster condition" associated with the serving PLMN to the UE.

### 8.2.19.32 Extended CAG information list

If the UE supports Extended CAG information list, the network may include this IE to assign a new "CAG information list" to the UE or delete the "CAG information list" at the UE side.

### 8.2.19.33 Updated PEIPS assistance information

The AMF may include this IE if the UE supports NR paging subgrouping, the AMF supports and accepts the use of PEIPIS assistance information for the UE, the UE is not registered for emergency services, the UE does not have an active emergency PDU session, and the network needs to update PEIPS assistance information for the UE.

### 8.2.19.34 NSAG information

If the UE has set the NSAG bit to "NSAG supported" in the 5GMM capability IE of the REGISTRATION REQUEST message and the CONFIGURATION UPDATE COMMAND message is sent over 3GPP access, the network may include this IE to provide NSAG information to the UE.

### 8.2.19.35 Priority indicator

The network shall include this IE when it needs to inform the UE that the use of access identity 1 is valid or is no longer valid.

### 8.2.19.36 RAN timing synchronization

This IE may be included to provide information related to the RAN timing synchronization to a UE which has set the Reconnection to the network due to RAN timing synchronization status change (RANTiming) bit to "Reconnection to the network due to RAN timing synchronization status change supported" in the 5GMM capability IE of the REGISTRATION REQUEST message.

### 8.2.19.37 Extended LADN information

This IE may be included to assign new extended LADN information to the UE or delete the extended LADN information at the UE side.

### 8.2.19.38 Alternative NSSAI

The network may include this IE to provide the mapping information between the S-NSSAI to be replaced and the alternative S-NSSAI to the UE.

### 8.2.19.39 S-NSSAI location validity information

The network may include this IE to update the S-NSSAI location validity information.

### 8.2.19.40 S-NSSAI time validity information

The network may include this IE to update the S-NSSAI time validity information.

### 8.2.19.41 Maximum time offset

This IE may be included to provide the UE with a maximum time offset after return from discontinuous coverage.

### 8.2.19.42 Partially allowed NSSAI

The network may include this IE to assign a partially allowed NSSAI to the UE.

### 8.2.19.43 Partially rejected NSSAI

The network may include this IE to assign a partially rejected NSSAI to the UE.

### 8.2.19.44 Feature authorization indication

The network may include this IE to inform to the UE about the authorization status of the UE whether to operate as an MBSR or to operate not as an MBSR but to operate as a UE.

### 8.2.19.45 On-demand NSSAI

The network may include this IE to provide the on-demand NSSAI to the UE.

## 8.2.20 Configuration update complete

### 8.2.20.1 Message definition

The CONFIGURATION UPDATE COMPLETE message is sent by the UE to the AMF. See table 8.2.20.1.1.

Message type: CONFIGURATION UPDATE COMPLETE

Significance: dual

Direction: UE to network

**Table 8.2.20.1.1: CONFIGURATION UPDATE COMPLETE message content**

| IEI | Information Element                            | Type/Reference                      | Presence | Format | Length |
|-----|------------------------------------------------|-------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator                | Extended protocol discriminator 9.2 | M        | V      | 1      |
|     | Security header type                           | Security header type 9.3            | M        | V      | 1/2    |
|     | Spare half octet                               | Spare half octet 9.5                | M        | V      | 1/2    |
|     | Configuration update complete message identity | Message type 9.7                    | M        | V      | 1      |

### 8.2.20.2 Void

## 8.2.21 Identity request

### 8.2.21.1 Message definition

The IDENTITY REQUEST message is sent by the AMF to the UE to request the UE to provide specified identity. See table 8.2.21.1.1

Message type: IDENTITY REQUEST

Significance: dual

Direction: AMF to UE

**Table 8.2.21.1.1: IDENTITY REQUEST message content**

| IEI | Information Element               | Type/Reference                      | Presence | Format | Length |
|-----|-----------------------------------|-------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator   | Extended protocol discriminator 9.2 | M        | V      | 1      |
|     | Security header type              | Security header type 9.3            | M        | V      | 1/2    |
|     | Spare half octet                  | Spare half octet 9.5                | M        | V      | 1/2    |
|     | Identity request message identity | Message type 9.7                    | M        | V      | 1      |
|     | Identity type                     | 5GS identity type 9.11.3.3          | M        | V      | 1/2    |
|     | Spare half octet                  | Spare half octet 9.5                | M        | V      | 1/2    |

## 8.2.22 Identity response

### 8.2.22.1 Message definition

The IDENTITY RESPONSE message is sent by the UE to the AMF to provide the requested identity. See table 8.2.22.1.

Message type: IDENTITY RESPONSE

Significance: dual

Direction: UE to AMF

**Table 8.2.22.1.1: IDENTITY RESPONSE message content**

| IEI | Information Element                | Type/Reference                      | Presence | Format | Length |
|-----|------------------------------------|-------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator    | Extended protocol discriminator 9.2 | M        | V      | 1      |
|     | Security header type               | Security header type 9.3            | M        | V      | 1/2    |
|     | Spare half octet                   | Spare half octet 9.5                | M        | V      | 1/2    |
|     | Identity response message identity | Message type 9.7                    | M        | V      | 1      |
|     | Mobile identity                    | 5GS mobile identity 9.11.3.4        | M        | LV-E   | 3-n    |

## 8.2.23 Notification

### 8.2.23.1 Message definition

The NOTIFICATION message is sent by the AMF to the UE to notify the UE to initiate a service request procedure. See table 8.2.23.1.1.

Message type: NOTIFICATION

Significance: dual

Direction: network to UE

**Table 8.2.23.1.1: NOTIFICATION message content**

| IEI | Information Element             | Type/Reference                      | Presence | Format | Length |
|-----|---------------------------------|-------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator | Extended protocol discriminator 9.2 | M        | V      | 1      |
|     | Security header type            | Security header type 9.3            | M        | V      | 1/2    |
|     | Spare half octet                | Spare half octet 9.5                | M        | V      | 1/2    |
|     | Notification message identity   | Message type 9.7                    | M        | V      | 1      |
|     | Access type                     | Access type 9.11.2.1A               | M        | V      | 1/2    |
|     | Spare half octet                | Spare half octet 9.5                | M        | V      | 1/2    |

## 8.2.24 Notification response

### 8.2.24.1 Message definition

The NOTIFICATION RESPONSE message is sent by the UE to the AMF to notify the failure to initiate the service request procedure as a response of notification. See table 8.2.24.1.1.

Message type: NOTIFICATION RESPONSE

Significance: dual

Direction: UE to network

**Table 8.2.2341.1: NOTIFICATION RESPONSE message content**

| IEI | Information Element                    | Type/Reference                      | Presence | Format | Length |
|-----|----------------------------------------|-------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator        | Extended protocol discriminator 9.2 | M        | V      | 1      |
|     | Security header type                   | Security header type 9.3            | M        | V      | 1/2    |
|     | Spare half octet                       | Spare half octet 9.5                | M        | V      | 1/2    |
|     | Notification response message identity | Message type 9.7                    | M        | V      | 1      |
| 50  | PDU session status                     | PDU session status 9.11.3.44        | O        | TLV    | 4-34   |

### 8.2.24.2 PDU session status

This information element shall be included when the UE needs to indicate over non-3GPP access the PDU sessions that are associated with the 3GPP access type that are active within the UE.

## 8.2.25 Security mode command

### 8.2.25.1 Message definition

The SECURITY MODE COMMAND message is sent by the AMF to the UE to establish NAS signalling security. See table 8.2.25.1.1.

Message type: SECURITY MODE COMMAND

Significance: dual

Direction: network to UE

**Table 8.2.25.1.1: SECURITY MODE COMMAND message content**

| <b>IEI</b> | <b>Information Element</b>             | <b>Type/Reference</b>                        | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|----------------------------------------|----------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator        | Extended protocol discriminator 9.2          | M               | V             | 1             |
|            | Security header type                   | Security header type 9.3                     | M               | V             | 1/2           |
|            | Spare half octet                       | Spare half octet 9.5                         | M               | V             | 1/2           |
|            | Security mode command message identity | Message type 9.7                             | M               | V             | 1             |
|            | Selected NAS security algorithms       | NAS security algorithms 9.11.3.34            | M               | V             | 1             |
|            | ngKSI                                  | NAS key set identifier 9.11.3.32             | M               | V             | 1/2           |
|            | Spare half octet                       | Spare half octet 9.5                         | M               | V             | 1/2           |
|            | Replayed UE security capabilities      | UE security capability 9.11.3.54             | M               | LV            | 3-9           |
| E-         | IMEISV request                         | IMEISV request 9.11.3.28                     | O               | TV            | 1             |
| 57         | Selected EPS NAS security algorithms   | EPS NAS security algorithms 9.11.3.25        | O               | TV            | 2             |
| 36         | Additional 5G security information     | Additional 5G security information 9.11.3.12 | O               | TLV           | 3             |
| 78         | EAP message                            | EAP message 9.11.2.2                         | O               | TLV-E         | 7-1503        |
| 38         | ABBA                                   | ABBA 9.11.3.10                               | O               | TLV           | 4-n           |
| 19         | Replayed S1 UE security capabilities   | S1 UE security capability 9.11.3.48A         | O               | TLV           | 4-7           |
| 55         | AUN3 device security key               | AUN3 device security key 9.11.3.107          | O               | TLV           | 36-257        |

NOTE: It is possible for AMFs compliant with version 18.3.0 or 18.3.1 of this specification to send the AUN3 device security key IE with a fixed length of 66 octets.

## 8.2.25.2 IMEISV request

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

## 8.2.25.3 Void

## 8.2.25.4 Selected EPS NAS security algorithms

This IE shall be included if the AMF supports N26 interface, the UE set the S1 mode bit to "S1 mode supported" in the 5GMM capability IE of the REGISTRATION REQUEST message, and the AMF needs to provide the selected EPS NAS security algorithms to the UE.

## 8.2.25.5 Additional 5G security information

The network shall include this IE if:

- a) the network needs to provide the UE with horizontal derivation parameter; or
- b) the applicable initial NAS message (i.e. REGISTRATION REQUEST, CONTROL PLANE SERVICE REQUEST or SERVICE REQUEST) does not successfully pass the integrity check at the AMF (see subclause 5.4.2.2).

### 8.2.25.6 EAP message

This IE is included when the EAP Success message is sent as part of the EAP based primary authentication and key agreement procedure, as specified in subclause 5.4.1.2.

### 8.2.25.7 ABBA

This IE shall be included if the message contains an EAP message IE with an EAP-success message.

### 8.2.25.8 Replayed S1 UE security capabilities

This IE shall be included if the Selected EPS NAS security algorithms information element is included.

### 8.2.25.9 AUN3 device security key

This IE shall be included when the SECURITY MODE COMMAND message is provided to a 5G-RG that is acting on behalf of an AUN3 device if the EAP message IE is set to an EAP-success message.

## 8.2.26 Security mode complete

### 8.2.26.1 Message definition

The SECURITY MODE COMPLETE message is sent by the UE to the AMF in response to a SECURITY MODE COMMAND message. See table 8.2.26.1.1.

Message type: SECURITY MODE COMPLETE

Significance: dual

Direction: UE to network

**Table 8.2.26.1.1: SECURITY MODE COMPLETE message content**

| IEI | Information Element                     | Type/Reference                         | Presence | Format | Length |
|-----|-----------------------------------------|----------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator         | Extended protocol discriminator<br>9.2 | M        | V      | 1      |
|     | Security header type                    | Security header type<br>9.3            | M        | V      | 1/2    |
|     | Spare half octet                        | Spare half octet<br>9.5                | M        | V      | 1/2    |
|     | Security mode complete message identity | Message type<br>9.6                    | M        | V      | 1      |
| 77  | IMEISV                                  | 5GS mobile identity<br>9.11.3.4        | O        | TLV-E  | 12     |
| 71  | NAS message container                   | NAS message container<br>9.11.3.33     | O        | TLV-E  | 4-n    |
| 78  | non-IMEISV PEI                          | 5GS mobile identity<br>9.11.3.4        | O        | TLV-E  | 7-n    |

### 8.2.26.2 IMEISV

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

### 8.2.26.3 NAS message container

The UE shall include this information element:

- a) if during an ongoing registration procedure or service request procedure, the AMF included the Additional 5G security information with the RINMR bit set to "Retransmission of the initial NAS message requested" in the SECURITY MODE COMMAND message as described in 3GPP TS 33.501 [24]; or
- b) if during an ongoing registration procedure, the UE does not have a valid 5G NAS security context.

#### 8.2.26.4 non-IMEISV PEI

The 5G-RG or the W-AGF acting on behalf of the FN-RG (or on behalf of the N5GC device) shall include this information element, if the IMEISV was requested within the corresponding SECURITY MODE COMMAND message, the IMEISV is not available but MAC address is available.

The UE shall include this information element, if the IMEISV was requested within the corresponding SECURITY MODE COMMAND message, the IMEISV is not available but EUI-64 is available.

#### 8.2.27 Security mode reject

##### 8.6.27.1 Message definition

The SECURITY MODE REJECT message is sent by the UE to the AMF to indicate that the corresponding security mode command has been rejected. See table 8.2.27.1.1.

Message type: SECURITY MODE REJECT

Significance: dual

Direction: UE to network

**Table 8.2.27.1.1: SECURITY MODE REJECT message content**

| IEI | Information Element                   | Type/Reference                      | Presence | Format | Length |
|-----|---------------------------------------|-------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator       | Extended protocol discriminator 9.2 | M        | V      | 1      |
|     | Security header type                  | Security header type 9.3            | M        | V      | 1/2    |
|     | Spare half octet                      | Spare half octet 9.5                | M        | V      | 1/2    |
|     | Security mode reject message identity | Message type 9.6                    | M        | V      | 1      |
|     | 5GMM cause                            | 5GMM cause 9.11.3.2                 | M        | V      | 1      |

#### 8.2.28 Security protected 5GS NAS message

##### 8.2.28.1 Message definition

This message is sent by the UE or the network to transfer a plain 5GS NAS message as specified in subclause 8.2 together with the sequence number and the message authentication code protecting the message. See table 8.2.28.1.1.

Message type: SECURITY PROTECTED 5GS NAS MESSAGE

Significance: dual

Direction: both

**Table 8.2.28.1.1: SECURITY PROTECTED 5GS NAS MESSAGE message content**

| <b>IEI</b> | <b>Information Element</b>      | <b>Type/Reference</b>               | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|---------------------------------|-------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator | Extended protocol discriminator 9.2 | M               | V             | 1             |
|            | Security header type            | Security header type 9.3            | M               | V             | 1/2           |
|            | Spare half octet                | Spare half octet 9.5                | M               | V             | 1/2           |
|            | Message authentication code     | Message authentication code 9.8     | M               | V             | 4             |
|            | Sequence number                 | Sequence number 9.10                | M               | V             | 1             |
|            | Plain 5GS NAS message           | Plain 5GS NAS message 9.9           | M               | V             | 3-n           |

NOTE: The minimum length of Plain 5GS NAS message IE can be 2 octets if it includes a Test Mode Control message specified in 3GPP TS 38.509 [31AA].

## 8.2.29 5GMM status

### 8.2.29.1 Message definition

The 5GMM STATUS message is sent by the UE or by the AMF at any time to report certain error conditions. See table 8.2.29.1.1.

Message type: 5GMM STATUS

Significance: local

Direction: both

**Table 8.2.29.1.1: 5GMM STATUS message content**

| <b>IEI</b> | <b>Information Element</b>      | <b>Type/Reference</b>               | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|---------------------------------|-------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator | Extended protocol discriminator 9.2 | M               | V             | 1             |
|            | Security header type            | Security header type 9.3            | M               | V             | 1/2           |
|            | Spare half octet                | Spare half octet 9.5                | M               | V             | 1/2           |
|            | 5GMM STATUS message identity    | Message type 9.7                    | M               | V             | 1             |
|            | 5GMM cause                      | 5GMM cause 9.11.3.2                 | M               | V             | 1             |

## 8.2.30 Control Plane Service request

### 8.2.30.1 Message definition

The CONTROL PLANE SERVICE REQUEST message is sent by the UE to the AMF when the UE is using 5GS services with control plane CIoT 5GS optimization. See table 8.2.30.1.1.

Message type: CONTROL PLANE SERVICE REQUEST

Significance: dual

Direction: UE to network

**Table 8.2.30.1.1: CONTROL PLANE SERVICE REQUEST message content**

| <b>IEI</b> | <b>Information Element</b>                     | <b>Type/Reference</b>                    | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|------------------------------------------------|------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator                | Extended protocol discriminator 9.2      | M               | V             | 1             |
|            | Security header type                           | Security header type 9.3                 | M               | V             | 1/2           |
|            | Spare half octet                               | Spare half octet 9.5                     | M               | V             | 1/2           |
|            | Control plane service request message identity | Message type 9.7                         | M               | V             | 1             |
|            | Control plane service type                     | Control plane service type 9.11.3.18D    | M               | V             | 1/2           |
|            | ngKSI                                          | NAS key set identifier 9.11.3.32         | M               | V             | 1/2           |
| 6F         | CIoT small data container                      | CIoT small data container 9.11.3.18B     | O               | TLV           | 4-257         |
| 8-         | Payload container type                         | Payload container type 9.11.3.40         | O               | TV            | 1             |
| 7B         | Payload container                              | Payload container 9.11.3.39              | O               | TLV-E         | 4-65538       |
| 12         | PDU session ID                                 | PDU session identity 2 9.11.3.41         | C               | TV            | 2             |
| 50         | PDU session status                             | PDU session status 9.11.3.44             | O               | TLV           | 4-34          |
| F-         | Release assistance indication                  | Release assistance indication 9.11.3.46A | O               | TV            | 1             |
| 40         | Uplink data status                             | Uplink data status 9.11.3.57             | O               | TLV           | 4-34          |
| 71         | NAS message container                          | NAS message container 9.11.3.33          | O               | TLV-E         | 4-n           |
| 24         | Additional information                         | Additional information 9.11.2.1          | O               | TLV           | 3-n           |
| 25         | Allowed PDU session status                     | Allowed PDU session status 9.11.3.13     | O               | TLV           | 4-34          |
| 29         | UE request type                                | UE request type 9.11.3.76                | O               | TLV           | 3             |
| 28         | Paging restriction                             | Paging restriction 9.11.3.77             | O               | TLV           | 3-35          |

## 8.2.30.2 CIoT small data container

This IE shall be included if the UE needs to send uplink small user data, SMS or location services message that is not more than 254 bytes, and there is no other optional IE to be sent.

NOTE: When the UE determines to use the CIoT small data container IE to send uplink data in this message, there is no other optional IEs in this message.

## 8.2.30.3 Payload container type

This IE shall be included if the UE includes the Payload container IE.

## 8.2.30.4 Payload container

This IE shall be included if the UE needs to send uplink CIoT user data, SMS or location services message.

## 8.2.30.5 PDU session ID

The UE shall include this IE when the Payload container type IE is set to "CIoT user data container".

### 8.2.30.6 PDU session status

This IE shall be included when the UE needs to indicate the PDU sessions that are associated with the access type that the message is sent over, that are active within the UE.

### 8.2.30.7 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.

### 8.2.30.8 Uplink data status

This IE shall be included if the UE has uplink user data pending to be sent over the user plane.

### 8.2.30.9 NAS message container

This IE shall be included if the UE is sending a CONTROL PLANE SERVICE REQUEST message as an initial NAS message and the UE needs to send non-cleartext IEs.

### 8.2.30.10 Additional information

The UE may include this IE when the Payload container type IE is set to "Location services message container".

### 8.2.30.11 Allowed PDU session status

This IE shall be included if the CONTROL PLANE SERVICE REQUEST message is sent as a response to paging with the access type indicating non-3GPP access or notification via 3GPP access for PDU session(s) associated with non-3GPP access.

### 8.2.30.12 UE request type

The UE shall include this IE if the MUSIM UE requests the release of the NAS signalling connection or rejects the paging request from the network.

### 8.2.30.13 Paging restriction

The UE shall include this IE if the Request type is set to "NAS signalling connection release" or to "Rejection of paging" in the UE request type IE and the UE requests the network to restrict paging.

## 8.2.31 Network slice-specific authentication command

### 8.2.31.1 Message definition

The NETWORK SLICE-SPECIFIC AUTHENTICATION COMMAND message is sent by the AMF to the UE for authentication of the upper layers of the UE. See table 8.2.31.1.1.

Message type: NETWORK SLICE-SPECIFIC AUTHENTICATION COMMAND

Significance: dual

Direction: network to UE

**Table 8.2.31.1.1: NETWORK SLICE-SPECIFIC AUTHENTICATION COMMAND message content**

| IEI | Information Element                                            | Type/Reference                      | Presence | Format | Length |
|-----|----------------------------------------------------------------|-------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator                                | Extended protocol discriminator 9.2 | M        | V      | 1      |
|     | Security header type                                           | Security header type 9.3            | M        | V      | 1/2    |
|     | Spare half octet                                               | Spare half octet 9.5                | M        | V      | 1/2    |
|     | NETWORK SLICE-SPECIFIC AUTHENTICATION COMMAND message identity | Message type 9.7                    | M        | V      | 1      |
|     | S-NSSAI                                                        | S-NSSAI 9.11.2.8                    | M        | LV     | 2-5    |
|     | EAP message                                                    | EAP message 9.11.2.2                | M        | LV-E   | 6-1502 |

## 8.2.32 Network slice-specific authentication complete

### 8.2.32.1 Message definition

The NETWORK SLICE-SPECIFIC AUTHENTICATION COMPLETE message is sent by the UE to the AMF in response to the NETWORK SLICE-SPECIFIC AUTHENTICATION COMMAND message and indicates acceptance of the NETWORK SLICE-SPECIFIC AUTHENTICATION COMMAND message. See table 8.2.32.1.1.

Message type: NETWORK SLICE-SPECIFIC AUTHENTICATION COMPLETE

Significance: dual

Direction: UE to network

**Table 8.2.32.1.1: NETWORK SLICE-SPECIFIC AUTHENTICATION COMPLETE message content**

| IEI | Information Element                                             | Type/Reference                      | Presence | Format | Length |
|-----|-----------------------------------------------------------------|-------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator                                 | Extended protocol discriminator 9.2 | M        | V      | 1      |
|     | Security header type                                            | Security header type 9.3            | M        | V      | 1/2    |
|     | Spare half octet                                                | Spare half octet 9.5                | M        | V      | 1/2    |
|     | NETWORK SLICE-SPECIFIC AUTHENTICATION COMPLETE message identity | Message type 9.7                    | M        | V      | 1      |
|     | S-NSSAI                                                         | S-NSSAI 9.11.2.8                    | M        | LV     | 2-5    |
|     | EAP message                                                     | EAP message 9.11.2.2                | M        | LV-E   | 6-1502 |

## 8.2.33 Network slice-specific authentication result

### 8.2.33.1 Message definition

The NETWORK SLICE-SPECIFIC AUTHENTICATION RESULT message is sent by the AMF to the UE for indicating the result of the network slice-specific authentication and authorization procedure. See table 8.2.33.1.1.

Message type: NETWORK SLICE-SPECIFIC AUTHENTICATION RESULT

Significance: dual

Direction: network to UE

**Table 8.2.33.1.1: NETWORK SLICE-SPECIFIC AUTHENTICATION RESULT message content**

| <b>IEI</b> | <b>Information Element</b>                                    | <b>Type/Reference</b>               | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|---------------------------------------------------------------|-------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator                               | Extended protocol discriminator 9.2 | M               | V             | 1             |
|            | Security header type                                          | Security header type 9.3            | M               | V             | 1/2           |
|            | Spare half octet                                              | Spare half octet 9.5                | M               | V             | 1/2           |
|            | NETWORK SLICE-SPECIFIC AUTHENTICATION RESULT message identity | Message type 9.7                    | M               | V             | 1             |
|            | S-NSSAI                                                       | S-NSSAI 9.11.2.8                    | M               | LV            | 2-5           |
|            | EAP message                                                   | EAP message 9.11.2.2                | M               | LV-E          | 6-1502        |

## 8.2.34 Relay key request

### 8.2.34.1 Message definition

The RELAY KEY REQUEST message is sent by the UE to the AMF for initiation of PC5 keys establishment with the 5G ProSe remote UE or the 5G ProSe end UE as specified in 3GPP TS 33.503 [56]. See table 8.2.34.1.

Message type: RELAY KEY REQUEST

Significance: dual

Direction: UE to network

**Table 8.2.34.1: RELAY KEY REQUEST message content**

| <b>IEI</b> | <b>Information Element</b>         | <b>Type/Reference</b>                      | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|------------------------------------|--------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator    | Extended protocol discriminator 9.2        | M               | V             | 1             |
|            | Security header type               | Security header type 9.3                   | M               | V             | 1/2           |
|            | Spare half octet                   | Spare half octet 9.5                       | M               | V             | 1/2           |
|            | Relay key request message identity | Message type 9.7                           | M               | V             | 1             |
|            | PRTI                               | ProSe relay transaction identity 9.11.3.88 | M               | V             | 1             |
|            | Relay key request parameters       | Relay key request parameters 9.11.3.89     | M               | LV            | 22-65537      |

## 8.2.35 Relay key accept

### 8.2.35.1 Message definition

The RELAY KEY ACCEPT message is sent by the AMF to the UE as specified in 3GPP TS 33.503 [56]. See table 8.2.35.1.

Message type: RELAY KEY ACCEPT

Significance: dual

Direction: network to UE

**Table 8.2.35.1: RELAY KEY ACCEPT message content**

| <b>IEI</b> | <b>Information Element</b>        | <b>Type/Reference</b>                      | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|-----------------------------------|--------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator   | Extended protocol discriminator 9.2        | M               | V             | 1             |
|            | Security header type              | Security header type 9.3                   | M               | V             | 1/2           |
|            | Spare half octet                  | Spare half octet 9.5                       | M               | V             | 1/2           |
|            | Relay key accept message identity | Message type 9.7                           | M               | V             | 1             |
|            | PRTI                              | ProSe relay transaction identity 9.11.3.88 | M               | V             | 1             |
|            | Relay key response parameters     | Relay key response parameters 9.11.3.90    | M               | LV-E          | 51-65537      |
| 78         | EAP message                       | EAP message 9.11.2.2                       | O               | TLV-E         | 7-1503        |

### 8.2.35.2 EAP message

The AMF shall include the EAP message IE if the AMF has received an EAP-success message from the AUSF.

## 8.2.36 Relay key reject

### 8.2.36.1 Message definition

The RELAY KEY REJECT message is sent by the AMF to the UE to indicate the rejection of the relay key request. See table 8.2.36.1.

Message type: RELAY KEY REJECT

Significance: dual

Direction: network to UE

**Table 8.2.36.1: RELAY KEY REJECT message content**

| <b>IEI</b> | <b>Information Element</b>        | <b>Type/Reference</b>                      | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|-----------------------------------|--------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator   | Extended protocol discriminator 9.2        | M               | V             | 1             |
|            | Security header type              | Security header type 9.3                   | M               | V             | 1/2           |
|            | Spare half octet                  | Spare half octet 9.5                       | M               | V             | 1/2           |
|            | Relay key reject message identity | Message type 9.7                           | M               | V             | 1             |
|            | PRTI                              | ProSe relay transaction identity 9.11.3.88 | M               | V             | 1             |
| 78         | EAP message                       | EAP message 9.11.2.2                       | O               | TLV-E         | 7-1503        |

### 8.2.36.2 EAP message

EAP message IE is included if the RELAY KEY REJECT message is used to convey EAP-failure message.

## 8.2.37 Relay authentication request

### 8.2.37.1 Message definition

The RELAY AUTHENTICATION REQUEST message is sent by the network to the UE to initiate authentication of the 5G ProSe remote UE or the 5G ProSe end UE as specified in 3GPP TS 33.503 [56]. See table 8.2.37.1.

Message type: RELAY AUTHENTICATION REQUEST

Significance: dual

Direction: Network to UE

**Table 8.2.37.1: RELAY AUTHENTICATION REQUEST message content**

| IEI | Information Element                           | Type/Reference                             | Presence | Format | Length |
|-----|-----------------------------------------------|--------------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator               | Extended protocol discriminator 9.2        | M        | V      | 1      |
|     | Security header type                          | Security header type 9.3                   | M        | V      | 1/2    |
|     | Spare half octet                              | Spare half octet 9.5                       | M        | V      | 1/2    |
|     | Relay authentication request message identity | Message type 9.7                           | M        | V      | 1      |
|     | PRTI                                          | ProSe relay transaction identity 9.11.3.88 | M        | V      | 1      |
|     | EAP message                                   | EAP message 9.11.2.2                       | M        | LV-E   | 7-1503 |

## 8.2.38 Relay authentication response

### 8.2.38.1 Message definition

The RELAY AUTHENTICATION RESPONSE message is sent by the UE to the network to forward the authentication response from the 5G ProSe remote UE or the 5G ProSe end UE as specified in 3GPP TS 33.503 [56]. See table 8.2.38.1.

Message type: RELAY AUTHENTICATION RESPONSE

Significance: dual

Direction: UE to network

**Table 8.2.38.1: RELAY AUTHENTICATION RESPONSE message content**

| IEI | Information Element                            | Type/Reference                             | Presence | Format | Length |
|-----|------------------------------------------------|--------------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator                | Extended protocol discriminator 9.2        | M        | V      | 1      |
|     | Security header type                           | Security header type 9.3                   | M        | V      | 1/2    |
|     | Spare half octet                               | Spare half octet 9.5                       | M        | V      | 1/2    |
|     | Relay authentication response message identity | Message type 9.7                           | M        | V      | 1      |
|     | PRTI                                           | ProSe relay transaction identity 9.11.3.88 | M        | V      | 1      |
|     | EAP message                                    | EAP message 9.11.2.2                       | M        | LV-E   | 6-1502 |

## 8.3 5GS session management messages

### 8.3.1 PDU session establishment request

#### 8.3.1.1 Message definition

The PDU SESSION ESTABLISHMENT REQUEST message is sent by the UE to the SMF to initiate establishment of a PDU session. See table 8.3.1.1.1.

Message type: PDU SESSION ESTABLISHMENT REQUEST

Significance: dual

Direction: UE to network

**Table 8.3.1.1.1: PDU SESSION ESTABLISHMENT REQUEST message content**

| <b>IEI</b> | <b>Information Element</b>                         | <b>Type/Reference</b>                                  | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|----------------------------------------------------|--------------------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator                    | Extended protocol discriminator<br>9.2                 | M               | V             | 1             |
|            | PDU session ID                                     | PDU session identity<br>9.4                            | M               | V             | 1             |
|            | PTI                                                | Procedure transaction identity<br>9.6                  | M               | V             | 1             |
|            | PDU SESSION ESTABLISHMENT REQUEST message identity | Message type<br>9.7                                    | M               | V             | 1             |
|            | Integrity protection maximum data rate             | Integrity protection maximum data rate<br>9.11.4.7     | M               | V             | 2             |
| 9-         | PDU session type                                   | PDU session type<br>9.11.4.11                          | O               | TV            | 1             |
| A-         | SSC mode                                           | SSC mode<br>9.11.4.16                                  | O               | TV            | 1             |
| 28         | 5GSM capability                                    | 5GSM capability<br>9.11.4.1                            | O               | TLV           | 3-15          |
| 55         | Maximum number of supported packet filters         | Maximum number of supported packet filters<br>9.11.4.9 | O               | TV            | 3             |
| B-         | Always-on PDU session requested                    | Always-on PDU session requested<br>9.11.4.4            | O               | TV            | 1             |
| 39         | SM PDU DN request container                        | SM PDU DN request container<br>9.11.4.15               | O               | TLV           | 3-255         |
| 7B         | Extended protocol configuration options            | Extended protocol configuration options<br>9.11.4.6    | O               | TLV-E         | 4-65538       |
| 66         | IP header compression configuration                | IP header compression configuration<br>9.11.4.24       | O               | TLV           | 5-257         |
| 6E         | DS-TT Ethernet port MAC address                    | DS-TT Ethernet port MAC address<br>9.11.4.25           | O               | TLV           | 8             |
| 6F         | UE-DS-TT residence time                            | UE-DS-TT residence time<br>9.11.4.26                   | O               | TLV           | 10            |
| 74         | Port management information container              | Port management information container<br>9.11.4.27     | O               | TLV-E         | 8-65538       |
| 1F         | Ethernet header compression configuration          | Ethernet header compression configuration<br>9.11.4.28 | O               | TLV           | 3             |
| 29         | Suggested interface identifier                     | PDU address<br>9.11.4.10                               | O               | TLV           | 11            |
| 72         | Service-level-AA container                         | Service-level-AA container<br>9.11.2.10                | O               | TLV-E         | 4-65538       |
| 70         | Requested MBS container                            | Requested MBS container<br>9.11.4.30                   | O               | TLV-E         | 8-65538       |
| 34         | PDU session pair ID                                | PDU session pair ID<br>9.11.4.32                       | O               | TLV           | 3             |
| 35         | RSN                                                | RSN<br>9.11.4.33                                       | O               | TLV           | 3             |
| 36         | URSP rule enforcement reports                      | URSP rule enforcement reports<br>9.11.4.38             | O               | TLV           | 4-n           |

### 8.3.1.2 PDU session type

This IE shall be included in the message when the UE requests to establish a new PDU session.

### 8.3.1.3 SSC mode

This IE is included in the message when the UE requests to establish a new PDU session with a DN and requests an SSC mode.

### 8.3.1.4 Maximum number of supported packet filters

This IE shall be included in the message when the selected PDU session type is "IPv4", "IPv6", "IPv4v6" or "Ethernet" and the UE can support more than 16 packet filters for this PDU session.

### 8.3.1.5 5GSM capability

This IE is included in the message when the UE requests to establish a new PDU session or to transfer an existing PDN connection and any of the 5GSM capabilities supported by the UE is relevant for the PDU session.

### 8.3.1.6 Void

### 8.3.1.7 Always-on PDU session requested

The UE shall include this IE if the UE requests to establish a PDU session as an always-on PDU session.

### 8.3.1.8 SM PDU DN request container

This IE is included in the message when the UE requests to establish a new PDU session with a DN and needs to provide information for the PDU session authentication and authorization by the external DN.

### 8.3.1.9 Extended protocol configuration options

This IE is included in the message when the UE needs to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network.

### 8.3.1.10 IP header compression configuration

The UE shall include the IP header compression configuration IE if:

- the PDU session type value of the PDU session type IE is set to "IPv4", "IPv6" or "IPv4v6";
- the UE indicates "Control Plane CIoT 5GS optimization supported" and "IP header compression for control plane CIoT 5GS optimization supported" in the 5GMM capability IE of the REGISTRATION REQUEST message; and
- the network indicates "Control plane CIoT 5GS optimization supported" and "IP header compression for control plane CIoT 5GS optimization supported" in the 5GS network support feature IE of the REGISTRATION ACCEPT message.

### 8.3.1.11 DS-TT Ethernet port MAC address

This IE shall be included in the message if the UE supports transfer of port management information containers and the UE requests to establish a new PDU session of "Ethernet" PDU session type.

### 8.3.1.12 UE-DS-TT residence time

This IE shall be included in the message if:

- a) the UE supports transfer of port management information containers; and
- b) the UE-DS-TT residence time is available at the UE.

### 8.3.1.13 Port management information container

This IE shall be included in the message if the UE supports transfer of port management information containers.

### 8.3.1.14 Ethernet header compression configuration

The UE shall include the Ethernet header compression configuration IE if:

- the PDU session type value of the PDU session type IE is set to "Ethernet";
- the UE indicated "Control Plane CIoT 5GS optimization supported" and "Ethernet header compression for control plane CIoT 5GS optimization supported" in the 5GMM capability IE of the REGISTRATION REQUEST message; and
- the network indicated "Control plane CIoT 5GS optimization supported" and "Ethernet header compression for control plane CIoT 5GS optimization supported" in the 5GS network support feature IE of the REGISTRATION ACCEPT message.

### 8.3.1.15 Suggested interface identifier

This IE may be included by the W-AGF acting on behalf of the FN-RG.

### 8.3.1.16 Service-level-AA container

This IE shall be included in the message when the UE needs to establish a PDU session for the UAS services.

### 8.3.1.17 Requested MBS container

This IE is included in the message when the UE requests to join one or more multicast MBS sessions that are associated with the PDU session.

### 8.3.1.18 PDU session pair ID

This IE shall be included in the message when the UE needs to include a PDU session pair ID.

### 8.3.1.19 RSN

This IE shall be included in the message when the UE needs to include an RSN.

### 8.3.1.20 URSP rule enforcement reports

This IE is included in the message when the UE sends one or more URSP rule enforcement reports to the network.

## 8.3.2 PDU session establishment accept

### 8.3.2.1 Message definition

The PDU SESSION ESTABLISHMENT ACCEPT message is sent by the SMF to the UE in response to PDU SESSION ESTABLISHMENT REQUEST message and indicates successful establishment of a PDU session. See table 8.3.2.1.1.

Message type: PDU SESSION ESTABLISHMENT ACCEPT

Significance: dual

Direction: network to UE

**Table 8.3.2.1.1: PDU SESSION ESTABLISHMENT ACCEPT message content**

| <b>IEI</b> | <b>Information Element</b>                        | <b>Type/Reference</b>                                  | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|---------------------------------------------------|--------------------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator                   | Extended protocol discriminator<br>9.2                 | M               | V             | 1             |
|            | PDU session ID                                    | PDU session identity<br>9.4                            | M               | V             | 1             |
|            | PTI                                               | Procedure transaction identity<br>9.6                  | M               | V             | 1             |
|            | PDU SESSION ESTABLISHMENT ACCEPT message identity | Message type<br>9.7                                    | M               | V             | 1             |
|            | Selected PDU session type                         | PDU session type<br>9.11.4.11                          | M               | V             | 1/2           |
|            | Selected SSC mode                                 | SSC mode<br>9.11.4.16                                  | M               | V             | 1/2           |
|            | Authorized QoS rules                              | QoS rules<br>9.11.4.13                                 | M               | LV-E          | 6-65538       |
|            | Session AMBR                                      | Session-AMBR<br>9.11.4.14                              | M               | LV            | 7             |
| 59         | 5GSM cause                                        | 5GSM cause<br>9.11.4.2                                 | O               | TV            | 2             |
| 29         | PDU address                                       | PDU address<br>9.11.4.10                               | O               | TLV           | 7-31          |
| 56         | RQ timer value                                    | GPRS timer<br>9.11.2.3                                 | O               | TV            | 2             |
| 22         | S-NSSAI                                           | S-NSSAI<br>9.11.2.8                                    | O               | TLV           | 3-10          |
| 8-         | Always-on PDU session indication                  | Always-on PDU session indication<br>9.11.4.3           | O               | TV            | 1             |
| 75         | Mapped EPS bearer contexts                        | Mapped EPS bearer contexts<br>9.11.4.8                 | O               | TLV-E         | 7-65538       |
| 78         | EAP message                                       | EAP message<br>9.11.2.2                                | O               | TLV-E         | 7-1503        |
| 79         | Authorized QoS flow descriptions                  | QoS flow descriptions<br>9.11.4.12                     | O               | TLV-E         | 6-65538       |
| 7B         | Extended protocol configuration options           | Extended protocol configuration options<br>9.11.4.6    | O               | TLV-E         | 4-65538       |
| 25         | DNN                                               | DNN<br>9.11.2.1B                                       | O               | TLV           | 3-102         |
| 17         | 5GSM network feature support                      | 5GSM network feature support<br>9.11.4.18              | O               | TLV           | 3-15          |
| 18         | Serving PLMN rate control                         | Serving PLMN rate control<br>9.11.4.20                 | O               | TLV           | 4             |
| 77         | ATSSS container                                   | ATSSS container<br>9.11.4.22                           | O               | TLV-E         | 3-65538       |
| C-         | Control plane only indication                     | Control plane only indication<br>9.11.4.23             | O               | TV            | 1             |
| 66         | IP header compression configuration               | IP header compression configuration<br>9.11.4.24       | O               | TLV           | 5-257         |
| 1F         | Ethernet header compression configuration         | Ethernet header compression configuration<br>9.11.4.28 | O               | TLV           | 3             |
| 72         | Service-level-AA container                        | Service-level-AA container<br>9.11.2.10                | O               | TLV-E         | 4-65538       |
| 71         | Received MBS container                            | Received MBS container<br>9.11.4.31                    | O               | TLV-E         | 9-65538       |
| 70         | N3QAI                                             | N3QAI<br>9.11.4.36                                     | O               | TLV-E         | 9-n           |
| 73         | Protocol description                              | Protocol description<br>9.11.4.39                      | O               | TLV-E         | 6-n           |

### 8.3.2.2 5GSM cause

This IE is included when the selected PDU session type is different from the PDU session type requested by the UE.

### 8.3.2.3 PDU address

This IE is included when the selected PDU session type is "IPv4", "IPv6" or "IPv4v6".

### 8.3.2.4 RQ timer value

This IE is included when the network needs to provide the RQ timer value.

### 8.3.2.5 S-NSSAI

This IE shall be included in the message when the SMF received from the AMF an S-NSSAI together with the PDU SESSION ESTABLISHMENT REQUEST message, the PDU session is a non-emergency PDU session and the UE is not registered for onboarding services in SNPN.

### 8.3.2.6 Always-on PDU session indication

The network shall include this IE if the network decides to inform the UE whether the PDU session is established as an always-on PDU session.

### 8.3.2.7 Mapped EPS bearer contexts

This IE is included when interworking with EPS is supported for the PDU session.

### 8.3.2.8 EAP message

This IE is included when the external DN successfully performed authentication and authorization of the UE using EAP.

### 8.3.2.9 Authorized QoS flow descriptions

This IE is included when the network needs to provide authorized QoS flow descriptions.

### 8.3.2.10 Extended protocol configuration options

This IE is included in the message when the network needs to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

### 8.3.2.11 DNN

The IE shall be included in the message when the PDU session is a non-emergency PDU session and the UE is not registered for onboarding services in SNPN.

### 8.3.2.12 5GSM network feature support

This IE is included when the network needs to indicate support of 5GSM network features.

### 8.3.2.13 Void

### 8.3.2.14 Serving PLMN rate control

This IE shall be included when the network needs to indicate the maximum uplink control plane user data the UE is allowed to send per 6 minute interval.

### 8.3.2.15 ATSSS container

The IE shall be included in the message when the PDU session is an MA PDU session.

### 8.3.2.16 Control plane only indication

The network shall include the control plane only indication IE if the network determines that the associated PDU session is only for control plane CIoT 5GS optimization.

### 8.3.2.17 IP header compression configuration

The SMF may include the IP header compression configuration IE if:

- the network accepts an IP PDU session type;
- control plane CIoT 5GS optimization is selected; and
- the UE provided the IP header compression configuration IE in the PDU SESSION ESTABLISHMENT REQUEST message.

### 8.3.2.18 Ethernet header compression configuration

The SMF may include the Ethernet header compression configuration IE if:

- the network accepts an Ethernet PDU session type;
- control plane CIoT 5GS optimization is selected; and
- the UE provided the Ethernet header compression configuration IE in the PDU SESSION ESTABLISHMENT REQUEST message.

### 8.3.2.19 Service-level-AA container

The SMF shall include the Service-level-AA container IE if the service-level authentication and authorization procedure is completed successfully by the external DN.

### 8.3.2.20 Received MBS container

The network shall include this IE if the UE has requested to join one or more multicast MBS sessions.

### 8.3.2.21 N3QAI

This IE is included when the network needs to provide the N3QAI to the UE.

### 8.3.2.22 Protocol description

This IE is included when the network needs to indicate the protocol description for UL PDU set handling to the UE.

## 8.3.3 PDU session establishment reject

### 8.3.3.1 Message definition

The PDU SESSION ESTABLISHMENT REJECT message is sent by the SMF to the UE in response to PDU SESSION ESTABLISHMENT REQUEST message and indicates unsuccessful establishment of a PDU session. See table 8.3.3.1.1.

Message type: PDU SESSION ESTABLISHMENT REJECT

Significance: dual

Direction: network to UE

**Table 8.3.3.1.1: PDU SESSION ESTABLISHMENT REJECT message content**

| <b>IEI</b> | <b>Information Element</b>                        | <b>Type/Reference</b>                            | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|---------------------------------------------------|--------------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator                   | Extended protocol discriminator 9.2              | M               | V             | 1             |
|            | PDU session ID                                    | PDU session identity 9.4                         | M               | V             | 1             |
|            | PTI                                               | Procedure transaction identity 9.6               | M               | V             | 1             |
|            | PDU SESSION ESTABLISHMENT REJECT message identity | Message type 9.7                                 | M               | V             | 1             |
|            | 5GSM cause                                        | 5GSM cause 9.11.4.2                              | M               | V             | 1             |
| 37         | Back-off timer value                              | GPRS timer 3 9.11.2.5                            | O               | TLV           | 3             |
| F-         | Allowed SSC mode                                  | Allowed SSC mode 9.11.4.5                        | O               | TV            | 1             |
| 78         | EAP message                                       | EAP message 9.11.2.2                             | O               | TLV-E         | 7-1503        |
| 61         | 5GSM congestion re-attempt indicator              | 5GSM congestion re-attempt indicator 9.11.4.21   | O               | TLV           | 3             |
| 7B         | Extended protocol configuration options           | Extended protocol configuration options 9.11.4.6 | O               | TLV-E         | 4-65538       |
| 1D         | Re-attempt indicator                              | Re-attempt indicator 9.11.4.17                   | O               | TLV           | 3             |
| 72         | Service-level-AA container                        | Service-level-AA container 9.11.2.10             | O               | TLV-E         | 4-65538       |

### 8.3.3.2 Back-off timer value

The network may include this IE if the 5GSM cause is not #28 "unknown PDU session type", #39 "reactivation requested", #46 "out of LADN service area", #50 "PDU session type IPv4 only allowed", #51 "PDU session type IPv6 only allowed", #54 "PDU session does not exist", #57 "PDU session type IPv4v6 only allowed", #58 "PDU session type Unstructured only allowed", #61 "PDU session type Ethernet only allowed", #68 "not supported SSC mode", or #86 "UAS services not allowed" to request a minimum time interval before procedure retry is allowed.

### 8.3.3.3 Allowed SSC mode

This IE is included when the network rejects the PDU SESSION ESTABLISHMENT REQUEST with cause #68 "not supported SSC mode".

### 8.3.3.4 EAP message

This IE is included when the external DN unsuccessfully performed authentication and authorization of the UE using EAP.

### 8.3.3.4A 5GSM congestion re-attempt indicator

The network may include this IE only if it includes the Back-off timer value IE and the 5GSM cause value is either #67 "insufficient resources for specific slice and DNN" or #69 "insufficient resources for specific slice".

### 8.3.3.5 Extended protocol configuration options

This IE is included in the message when the network needs to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

### 8.3.3.6 Re-attempt indicator

The network may include this IE if the network includes the Back-off timer value IE and the 5GSM cause value is not #26 "insufficient resources", #28 "unknown PDU session type", #39 "reactivation requested", #46 "out of LADN service area", #54 "PDU session does not exist", #67 "insufficient resources for specific slice and DNN", #68 "not supported SSC mode", or #69 "insufficient resources for specific slice".

### 8.3.3.7 Service-level-AA container

The network shall include this IE if the service-level authentication and authorization procedure has completed unsuccessfully and the 5GSM cause is #29 "user authentication or authorization failed". The network shall include the service-level-AA response if provided by the DN in the service-level-AA container.

## 8.3.4 PDU session authentication command

### 8.3.4.1 Message definition

The PDU SESSION AUTHENTICATION COMMAND message is sent by the SMF to the UE for authentication of the UE establishing the PDU session or of the UE participating in the PDU session. See table 8.3.4.1.1.

Message type: PDU SESSION AUTHENTICATION COMMAND

Significance: dual

Direction: network to UE

**Table 8.3.4.1.1: PDU SESSION AUTHENTICATION COMMAND message content**

| IEI | Information Element                                 | Type/Reference                                   | Presence | Format | Length  |
|-----|-----------------------------------------------------|--------------------------------------------------|----------|--------|---------|
|     | Extended protocol discriminator                     | Extended protocol discriminator 9.2              | M        | V      | 1       |
|     | PDU session ID                                      | PDU session identity 9.4                         | M        | V      | 1       |
|     | PTI                                                 | Procedure transaction identity 9.6               | M        | V      | 1       |
|     | PDU SESSION AUTHENTICATION COMMAND message identity | Message type 9.7                                 | M        | V      | 1       |
|     | EAP message                                         | EAP message 9.11.2.2                             | M        | LV-E   | 6-1502  |
| 7B  | Extended protocol configuration options             | Extended protocol configuration options 9.11.4.6 | O        | TLV-E  | 4-65538 |

### 8.3.4.2 Extended protocol configuration options

This IE is included in the message when the network needs to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

NOTE: How the Extended protocol configuration options IE is used by the network and the UE during the PDU session authentication and authorization procedure is not specified in this release of the specification.

### 8.3.4.3 Void

## 8.3.5 PDU session authentication complete

### 8.3.5.1 Message definition

The PDU SESSION AUTHENTICATION COMPLETE message is sent by the UE to the SMF in response to the PDU SESSION AUTHENTICATION COMMAND message and indicates acceptance of the PDU SESSION AUTHENTICATION COMMAND message. See table 8.3.5.1.1.

Message type: PDU SESSION AUTHENTICATION COMPLETE

Significance: dual

Direction: UE to network

**Table 8.3.5.1.1: PDU SESSION AUTHENTICATION COMPLETE message content**

| IEI | Information Element                                  | Type/Reference                                   | Presence | Format | Length  |
|-----|------------------------------------------------------|--------------------------------------------------|----------|--------|---------|
|     | Extended protocol discriminator                      | Extended protocol discriminator 9.2              | M        | V      | 1       |
|     | PDU session ID                                       | PDU session identity 9.4                         | M        | V      | 1       |
|     | PTI                                                  | Procedure transaction identity 9.6               | M        | V      | 1       |
|     | PDU SESSION AUTHENTICATION COMPLETE message identity | Message type 9.7                                 | M        | V      | 1       |
|     | EAP message                                          | EAP message 9.11.2.2                             | M        | LV-E   | 6-1502  |
| 7B  | Extended protocol configuration options              | Extended protocol configuration options 9.11.4.6 | O        | TLV-E  | 4-65538 |

### 8.3.5.2 Extended protocol configuration options

This IE is included in the message when the UE needs to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network.

NOTE: How the Extended protocol configuration options IE is used by the network and the UE during the PDU session authentication and authorization procedure is not specified in this release of the specification.

### 8.3.5.3 Void

## 8.3.6 PDU session authentication result

### 8.3.6.1 Message definition

The PDU SESSION AUTHENTICATION RESULT message is sent by the SMF to the UE for indication of successful result of authentication of the UE participating in the PDU session. See table 8.3.6.1.1.

Message type: PDU SESSION AUTHENTICATION RESULT

Significance: dual

Direction: network to UE

**Table 8.3.6.1.1: PDU SESSION AUTHENTICATION RESULT message content**

| <b>IEI</b> | <b>Information Element</b>                         | <b>Type/Reference</b>                            | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|----------------------------------------------------|--------------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator                    | Extended protocol discriminator 9.2              | M               | V             | 1             |
|            | PDU session ID                                     | PDU session identity 9.4                         | M               | V             | 1             |
|            | PTI                                                | Procedure transaction identity 9.6               | M               | V             | 1             |
|            | PDU SESSION AUTHENTICATION RESULT message identity | Message type 9.7                                 | M               | V             | 1             |
| 78         | EAP message                                        | EAP message 9.11.2.2                             | O               | TLV-E         | 7-1503        |
| 7B         | Extended protocol configuration options            | Extended protocol configuration options 9.11.4.6 | O               | TLV-E         | 4-65538       |

### 8.3.6.2 EAP message

This IE shall be included when the external DN performs authentication and authorization of the UE using EAP and it completes successfully.

### 8.3.6.3 Extended protocol configuration options

This IE is included in the message when the network needs to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

NOTE: How the Extended protocol configuration options IE is used by the network and the UE during the PDU session authentication and authorization procedure is not specified in this release of the specification.

## 8.3.7 PDU session modification request

### 8.3.7.1 Message definition

The PDU SESSION MODIFICATION REQUEST message is sent by the UE to the SMF to request a modification of a PDU session. See table 8.3.7.1.1.

Message type: PDU SESSION MODIFICATION REQUEST

Significance: dual

Direction: UE to network

**Table 8.3.7.1.1: PDU SESSION MODIFICATION REQUEST message content**

| <b>IEI</b> | <b>Information Element</b>                        | <b>Type/Reference</b>                               | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|---------------------------------------------------|-----------------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator                   | Extended protocol discriminator 9.2                 | M               | V             | 1             |
|            | PDU session ID                                    | PDU session identity 9.4                            | M               | V             | 1             |
|            | PTI                                               | Procedure transaction identity 9.6                  | M               | V             | 1             |
|            | PDU SESSION MODIFICATION REQUEST message identity | Message type 9.7                                    | M               | V             | 1             |
| 28         | 5GSM capability                                   | 5GSM capability 9.11.4.1                            | O               | TLV           | 3-15          |
| 59         | 5GSM cause                                        | 5GSM cause 9.11.4.2                                 | O               | TV            | 2             |
| 55         | Maximum number of supported packet filters        | Maximum number of supported packet filters 9.11.4.9 | O               | TV            | 3             |
| B-         | Always-on PDU session requested                   | Always-on PDU session requested 9.11.4.4            | O               | TV            | 1             |
| 13         | Integrity protection maximum data rate            | Integrity protection maximum data rate 9.11.4.7     | O               | TV            | 3             |
| 7A         | Requested QoS rules                               | QoS rules 9.11.4.13                                 | O               | TLV-E         | 7-65538       |
| 79         | Requested QoS flow descriptions                   | QoS flow descriptions 9.11.4.12                     | O               | TLV-E         | 6-65538       |
| 75         | Mapped EPS bearer contexts                        | Mapped EPS bearer contexts 9.11.4.8                 | O               | TLV-E         | 7-65538       |
| 7B         | Extended protocol configuration options           | Extended protocol configuration options 9.11.4.6    | O               | TLV-E         | 4-65538       |
| 74         | Port management information container             | Port management information container 9.11.4.27     | O               | TLV-E         | 4-65538       |
| 66         | IP header compression configuration               | Header compression configuration 9.11.4.24          | O               | TLV           | 5-257         |
| 1F         | Ethernet header compression configuration         | Ethernet header compression configuration 9.11.4.28 | O               | TLV           | 3             |
| 70         | Requested MBS container                           | Requested MBS container 9.11.4.30                   | O               | TLV-E         | 8-65538       |
| 72         | Service-level-AA container                        | Service-level-AA container 9.11.2.10                | O               | TLV-E         | 4-65538       |
| 73         | Non-3GPP delay budget                             | Non-3GPP delay budget 9.11.4.37                     | O               | TLV-E         | 6-n           |
| 36         | URSP rule enforcement reports                     | URSP rule enforcement reports 9.11.4.38             | O               | TLV           | 4-n           |

NOTE: It is possible for UEs compliant with version 15.2.1 or earlier versions of this specification to send the Mapped EPS bearer contexts IE with IEI of value "7F" for this message.

### 8.3.7.2 5GSM capability

This IE is included in the message:

- 1) for a PDN connection established when in S1 mode, after an inter-system change from S1 mode to N1 mode, if the UE is a UE operating in single-registration mode in a network supporting N26 interface, the UE has not previously successfully performed the UE-requested PDU session modification to provide this capability, and:
  - a) if the PDU session is of "IPv4", "IPv6", "IPv4v6" or "Ethernet" PDU session type, and the UE supports reflective QoS; or
  - b) if the PDU session is of "IPv6" or "IPv4v6" PDU session type, and the UE supports multi-homed IPv6 PDU session; or

- 2) if the UE needs to revoke the previously indicated support of reflective QoS.

### 8.3.7.3 5GSM cause

This IE is included in the message to indicate the reason for the deletion of one or more non-default QoS rules, QoS flow descriptions or mapped EPS bearer contexts.

### 8.3.7.4 Maximum number of supported packet filters

This IE shall be included in the message for a PDN connection established when in S1 mode, after an inter-system change from S1 mode to N1 mode, if the UE is a UE operating in single-registration mode in a network supporting N26 interface, the UE has not previously successfully performed the UE-requested PDU session modification to provide this capability, the PDU session type is "IPv4", "IPv6", "IPv4v6" or "Ethernet", and the UE can support more than 16 packet filters for this PDU session.

### 8.3.7.5 Always-on PDU session requested

This IE shall be included in the message for a PDN connection established when in S1 mode, after an inter-system change from S1 mode to N1 mode, if the UE is a UE operating in single-registration mode in a network supporting N26 interface, the UE has not previously successfully performed the UE-requested PDU session modification to provide this capability, and the UE requests the PDU session to be an always-on PDU session in the 5GS.

### 8.3.7.6 Integrity protection maximum data rate

This IE shall be included in the message for a PDN connection established when in S1 mode, after an inter-system change from S1 mode to N1 mode, if the UE is a UE operating in single-registration mode in a network supporting N26 interface, and the UE has not previously successfully performed the UE-requested PDU session modification to provide this capability.

### 8.3.7.7 Requested QoS rules

This IE is included in the message when the UE requests a specific QoS handling.

### 8.3.7.8 Requested QoS flow descriptions

This IE is included in the message when the UE requests a specific QoS flow descriptions.

### 8.3.7.9 Extended protocol configuration options

This IE is included in the message when the UE needs to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network.

### 8.3.7.10 Mapped EPS bearer contexts

This IE is included when the UE requests to delete one or more mapped EPS bearer contexts.

### 8.3.7.11 Port management information container

This IE shall be included when the UE needs to convey a port management information container.

### 8.3.7.12 IP header compression configuration

This IE is included in the message:

- a) if the UE wishes to re-negotiate IP header compression configuration associated to a PDU session and both the UE and the network supports Control plane CIoT 5GS optimization and IP header compression; or
- b) to negotiate IP header compression configuration associated to a PDU session after an inter-system change from S1 mode to N1 mode when both the UE and the network support control plane CIoT 5GS optimization and IP

header compression, and the UE is operating in single-registration mode in the network supporting N26 interface.

### 8.3.7.13 Ethernet header compression configuration

This IE is included in the message:

- a) if the UE wishes to re-negotiate Ethernet header compression configuration associated to a PDU session and both the UE and the network support Control plane CIoT 5GS optimization and Ethernet header compression; or
- b) to negotiate Ethernet header compression configuration associated to a PDU session after an inter-system change from S1 mode to N1 mode.

### 8.3.7.14 Requested MBS container

This IE is included in the message when the UE requests to join or leave one or more multicast MBS sessions that are associated with the PDU session.

### 8.3.7.15 Service-level-AA container

This IE shall be included in the message when the UE needs to modify an established PDU session for C2 communication.

### 8.3.7.16 Non-3GPP delay budget

This IE is included in the message when the UE requests a specific QoS handling for the PDU session established for PIN.

### 8.3.7.17 URSP rule enforcement reports

This IE is included in the message when the UE sends one or more URSP rule enforcement reports to the network.

## 8.3.8 PDU session modification reject

### 8.3.8.1 Message definition

The PDU SESSION MODIFICATION REJECT message is sent by the SMF to the UE to indicate rejection of the PDU SESSION MODIFICATION REQUEST. See table 8.3.8.1.1.

Message type: PDU SESSION MODIFICATION REJECT

Significance: dual

Direction: network to UE

**Table 8.3.8.1.1: PDU SESSION MODIFICATION REJECT message content**

| <b>IEI</b> | <b>Information Element</b>                       | <b>Type/Reference</b>                            | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|--------------------------------------------------|--------------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator                  | Extended protocol discriminator 9.2              | M               | V             | 1             |
|            | PDU session ID                                   | PDU session identity 9.4                         | M               | V             | 1             |
|            | PTI                                              | Procedure transaction identity 9.6               | M               | V             | 1             |
|            | PDU SESSION MODIFICATION REJECT message identity | Message type 9.7                                 | M               | V             | 1             |
|            | 5GSM cause                                       | 5GSM cause 9.11.4.2                              | M               | V             | 1             |
| 37         | Back-off timer value                             | GPRS timer 3 9.11.2.5                            | O               | TLV           | 3             |
| 61         | 5GSM congestion re-attempt indicator             | 5GSM congestion re-attempt indicator 9.11.4.21   | O               | TLV           | 3             |
| 7B         | Extended protocol configuration options          | Extended protocol configuration options 9.11.4.6 | O               | TLV-E         | 4-65538       |
| 1D         | Re-attempt indicator                             | Re-attempt indicator 9.11.4.17                   | O               | TLV           | 3             |

### 8.3.8.2 Back-off timer value

The network may include this IE if the 5GSM cause is not #26 "insufficient resources", #37 "5GS QoS not accepted", #44 "Semantic errors in packet filter(s)", #45 "Syntactical error in packet filter(s)", #46 "out of LADN service area", #59 "unsupported 5QI value", #67 "insufficient resources for specific slice and DNN", #69 "insufficient resources for specific slice", #83 "Semantic error in the QoS operation", or #84 "Syntactical error in the QoS operation" to request a minimum time interval before procedure retry is allowed.

#### 8.3.8.2A 5GSM congestion re-attempt indicator

The network may include this IE only if it includes the Back-off timer value IE and the 5GSM cause value is either #67 "insufficient resources for specific slice and DNN" or #69 "insufficient resources for specific slice".

#### 8.3.8.3 Extended protocol configuration options

This IE is included in the message when the network needs to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

#### 8.3.8.4 Re-attempt indicator

The network may include this IE only if it includes the Back-off timer value IE and the 5GSM cause value is not #26 "insufficient resources", #37 "5GS QoS not accepted", #44 "Semantic errors in packet filter(s)", #45 "Syntactical error in packet filter(s)", #46 "out of LADN service area", #59 "unsupported 5QI value", #67 "insufficient resources for specific slice and DNN", #69 "insufficient resources for specific slice", #83 "Semantic error in the QoS operation", or #84 "Syntactical error in the QoS operation".

### 8.3.9 PDU session modification command

#### 8.3.9.1 Message definition

The PDU SESSION MODIFICATION COMMAND message is sent by the SMF to the UE to indicate a modification of a PDU session. See table 8.3.9.1.1.

Message type: PDU SESSION MODIFICATION COMMAND

Significance: dual

Direction: network to UE

**Table 8.3.9.1.1: PDU SESSION MODIFICATION COMMAND message content**

| <b>IEI</b> | <b>Information Element</b>                           | <b>Type/Reference</b>                                     | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|------------------------------------------------------|-----------------------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator                      | Extended protocol discriminator<br>9.2                    | M               | V             | 1             |
|            | PDU session ID                                       | PDU session identity<br>9.4                               | M               | V             | 1             |
|            | PTI                                                  | Procedure transaction identity<br>9.6                     | M               | V             | 1             |
|            | PDU SESSION MODIFICATION<br>COMMAND message identity | Message type<br>9.7                                       | M               | V             | 1             |
| 59         | 5GSM cause                                           | 5GSM cause<br>9.11.4.2                                    | O               | TV            | 2             |
| 2A         | Session AMBR                                         | Session-AMBR<br>9.11.4.14                                 | O               | TLV           | 8             |
| 56         | RQ timer value                                       | GPRS timer<br>9.11.2.3                                    | O               | TV            | 2             |
| 8-         | Always-on PDU session indication                     | Always-on PDU session indication<br>9.11.4.3              | O               | TV            | 1             |
| 7A         | Authorized QoS rules                                 | QoS rules<br>9.11.4.13                                    | O               | TLV-E         | 7-65538       |
| 75         | Mapped EPS bearer contexts                           | Mapped EPS bearer contexts<br>9.11.4.8                    | O               | TLV-E         | 7-65538       |
| 79         | Authorized QoS flow descriptions                     | QoS flow descriptions<br>9.11.4.12                        | O               | TLV-E         | 6-65538       |
| 7B         | Extended protocol configuration<br>options           | Extended protocol configuration<br>options<br>9.11.4.6    | O               | TLV-E         | 4-65538       |
| 77         | ATSSS container                                      | ATSSS container<br>9.11.4.22                              | O               | TLV-E         | 3-65538       |
| 66         | IP header compression<br>configuration               | IP header compression configuration<br>9.11.4.24          | O               | TLV           | 5-257         |
| 74         | Port management information<br>container             | Port management information<br>container<br>9.11.4.27     | O               | TLV-E         | 4-65538       |
| 1E         | Serving PLMN rate control                            | Serving PLMN rate control<br>9.11.4.20                    | O               | TLV           | 4             |
| 1F         | Ethernet header compression<br>configuration         | Ethernet header compression<br>configuration<br>9.11.4.28 | O               | TLV           | 3             |
| 71         | Received MBS container                               | Received MBS container<br>9.11.4.31                       | O               | TLV-E         | 9-65538       |
| 72         | Service-level-AA container                           | Service-level-AA container<br>9.11.2.10                   | O               | TLV-E         | 4-65538       |
| 5A         | Alternative S-NSSAI                                  | S-NSSAI<br>9.11.2.8                                       | O               | TLV           | 3-10          |
| 70         | N3QAI                                                | N3QAI<br>9.11.4.36                                        | O               | TLV-E         | 9-n           |
| 73         | Protocol description                                 | Protocol description<br>9.11.4.39                         | O               | TLV-E         | 6-n           |

NOTE: It is possible for networks compliant with version 15.2.1 or earlier versions of this specification to send the Mapped EPS bearer contexts IE with IEI of value "7F" for this message.

### 8.3.9.2 5GSM cause

This IE is included when the network performs the PDU session anchor relocation for SSC mode 3.

### 8.3.9.3 Session-AMBR

This IE is included when the session-AMBR of the PDU session is modified.

### 8.3.9.4 RQ timer value

This IE is included when the network needs to provide the RQ timer value.

### 8.3.9.5 Always-on PDU session indication

The network shall include this IE if the network decides to inform the UE whether the PDU session is an always-on PDU session.

### 8.3.9.6 Authorized QoS rules

This IE is included when the authorized QoS rules of the PDU session are modified.

### 8.3.9.7 Mapped EPS bearer contexts

This IE is included when interworking with EPS is supported for the PDU session and the mapped EPS bearer contexts is modified.

### 8.3.9.8 Authorized QoS flow descriptions

This IE is included when the authorized QoS flow descriptions of the PDU session are modified.

### 8.3.9.9 Extended protocol configuration options

This IE is included in the message when the network needs to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

### 8.3.9.10 Void

### 8.3.9.11 ATSSS container

The IE is included in the message when the network needs to indicate that the ATSSS parameters of the MA PDU session are modified.

### 8.3.9.12 IP header compression configuration

This IE is included in the message if the network wishes to re-negotiate IP header compression configuration associated to a PDU session and both the UE and the network support Control plane CIoT 5GS optimization and IP header compression.

### 8.3.9.13 Port management information container

This IE shall be included when the network needs to convey a port management information container.

### 8.3.9.14 Serving PLMN rate control

This IE shall be included when the network needs to indicate the maximum uplink control plane user data the UE is allowed to send per 6 minute interval.

### 8.3.9.15 Ethernet header compression configuration

This IE is included in the message if the network wishes to re-negotiate Ethernet header compression configuration associated to a PDU session and both the UE and the network support Control plane CIoT 5GS optimization and Ethernet header compression.

### 8.3.9.16 Received MBS container

The network shall include this IE if:

- the UE has requested to join or leave one or more multicast MBS sessions;
- the network wants to remove joined UE from one or more multicast MBS sessions; or
- the network wants to update the MBS service area of multicast MBS session that the UE has joined; or
- the network wants to update the MBS security information of multicast MBS session that the UE has joined.

### 8.3.9.17 Service-level-AA container

The SMF shall include the service-level-AA container IE if the service-level authentication and authorization procedure for re-authentication purpose is completed successfully by the external DN.

### 8.3.9.18 Alternative S-NSSAI

This IE shall be included when the network needs to provide the alternative S-NSSAI to replace the S-NSSAI of the SSC mode 1 or SSC mode 3 PDU session.

### 8.3.9.19 N3QAI

This IE is included when the network needs to provide the N3QAI to the UE.

### 8.3.9.20 Protocol description

This IE is included when the network needs to provide the protocol description for UL PDU set handling to the UE.

## 8.3.10 PDU session modification complete

### 8.3.10.1 Message definition

The PDU SESSION MODIFICATION COMPLETE message is sent by the UE to the SMF in response to the PDU SESSION MODIFICATION COMMAND message and indicates an acceptance of the PDU SESSION MODIFICATION COMMAND message. See table 8.3.10.1.1.

Message type: PDU SESSION MODIFICATION COMPLETE

Significance: dual

Direction: UE to network

**Table 8.3.10.1.1: PDU SESSION MODIFICATION COMPLETE message content**

| IEI | Information Element                                | Type/Reference                                      | Presence | Format | Length  |
|-----|----------------------------------------------------|-----------------------------------------------------|----------|--------|---------|
|     | Extended protocol discriminator                    | Extended protocol discriminator<br>9.2              | M        | V      | 1       |
|     | PDU session ID                                     | PDU session identity<br>9.4                         | M        | V      | 1       |
|     | PTI                                                | Procedure transaction identity<br>9.6               | M        | V      | 1       |
|     | PDU SESSION MODIFICATION COMPLETE message identity | Message type<br>9.7                                 | M        | V      | 1       |
| 7B  | Extended protocol configuration options            | Extended protocol configuration options<br>9.11.4.6 | O        | TLV-E  | 4-65538 |
| 74  | Port management information container              | Port management information container<br>9.11.4.27  | O        | TLV-E  | 4-65538 |

NOTE: It is possible for UEs compliant with version 15.3.0 of this specification to include the 5GSM cause IE with IEI 59 in the PDU SESSION MODIFICATION COMPLETE message, and therefore the IEI 59 cannot be used for other optional IEs other than the 5GSM cause IE for future extensions of the PDU SESSION MODIFICATION COMPLETE message.

### 8.3.10.2 Extended protocol configuration options

This IE is included in the message when the UE needs to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network.

### 8.3.10.3 Port management information container

This IE shall be included when the UE needs to convey a port management information container.

## 8.3.11 PDU session modification command reject

### 8.3.11.1 Message definition

The PDU SESSION MODIFICATION COMMAND REJECT message is sent by the UE to the SMF to indicate rejection of the PDU SESSION MODIFICATION COMMAND message. See table 8.3.11.1.1.

Message type: PDU SESSION MODIFICATION COMMAND REJECT

Significance: dual

Direction: UE to network

**Table 8.3.11.1.1: PDU SESSION MODIFICATION COMMAND REJECT message content**

| IEI | Information Element                                      | Type/Reference                                   | Presence | Format | Length  |
|-----|----------------------------------------------------------|--------------------------------------------------|----------|--------|---------|
|     | Extended protocol discriminator                          | Extended protocol discriminator 9.2              | M        | V      | 1       |
|     | PDU session ID                                           | PDU session identity 9.4                         | M        | V      | 1       |
|     | PTI                                                      | Procedure transaction identity 9.6               | M        | V      | 1       |
|     | PDU SESSION MODIFICATION COMMAND REJECT message identity | Message type 9.7                                 | M        | V      | 1       |
|     | 5GSM cause                                               | 5GSM cause 9.11.4.2                              | M        | V      | 1       |
| 7B  | Extended protocol configuration options                  | Extended protocol configuration options 9.11.4.6 | O        | TLV-E  | 4-65538 |

### 8.3.11.2 Extended protocol configuration options

This IE is included in the message when the UE needs to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network.

## 8.3.12 PDU session release request

### 8.3.12.1 Message definition

The PDU SESSION RELEASE REQUEST message is sent by the UE to the SMF to request a release of a PDU session. See table 8.3.12.1.1.

Message type: PDU SESSION RELEASE REQUEST

Significance: dual

Direction: UE to network

**Table 8.3.12.1.1: PDU SESSION RELEASE REQUEST message content**

| <b>IEI</b> | <b>Information Element</b>                   | <b>Type/Reference</b>                               | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|----------------------------------------------|-----------------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator              | Extended protocol discriminator<br>9.2              | M               | V             | 1             |
|            | PDU session ID                               | PDU session identity<br>9.4                         | M               | V             | 1             |
|            | PTI                                          | Procedure transaction identity<br>9.6               | M               | V             | 1             |
|            | PDU SESSION RELEASE REQUEST message identity | Message type<br>9.7                                 | M               | V             | 1             |
| 59         | 5GSM cause                                   | 5GSM cause<br>9.11.4.2                              | O               | TV            | 2             |
| 7B         | Extended protocol configuration options      | Extended protocol configuration options<br>9.11.4.6 | O               | TLV-E         | 4-65538       |

### 8.3.12.2 5GSM cause

This IE is included in the message to indicate the reason for releasing the PDU session.

### 8.3.12.3 Extended protocol configuration options

This IE is included in the message when the UE needs to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network.

## 8.3.13 PDU session release reject

### 8.3.13.1 Message definition

The PDU SESSION RELEASE REJECT message is sent by the SMF to the UE to indicate rejection of request a release of a PDU session. See table 8.3.13.1.1.

Message type: PDU SESSION RELEASE REJECT

Significance: dual

Direction: network to UE

**Table 8.3.13.1.1: PDU SESSION RELEASE REJECT message content**

| <b>IEI</b> | <b>Information Element</b>                  | <b>Type/Reference</b>                               | <b>Presence</b> | <b>Format</b> | <b>Length</b> |
|------------|---------------------------------------------|-----------------------------------------------------|-----------------|---------------|---------------|
|            | Extended protocol discriminator             | Extended protocol discriminator<br>9.2              | M               | V             | 1             |
|            | PDU session ID                              | PDU session identity<br>9.4                         | M               | V             | 1             |
|            | PTI                                         | Procedure transaction identity<br>9.6               | M               | V             | 1             |
|            | PDU SESSION RELEASE REJECT message identity | Message type<br>9.7                                 | M               | V             | 1             |
|            | 5GSM cause                                  | 5GSM cause<br>9.11.4.2                              | M               | V             | 1             |
| 7B         | Extended protocol configuration options     | Extended protocol configuration options<br>9.11.4.6 | O               | TLV-E         | 4-65538       |

### 8.3.13.2 Extended protocol configuration options

This IE is included in the message when the network needs to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

### 8.3.14 PDU session release command

#### 8.3.14.1 Message definition

The PDU SESSION RELEASE COMMAND message is sent by the SMF to the UE to indicate a release of a PDU session. See table 8.3.14.1.1.

Message type: PDU SESSION RELEASE COMMAND

Significance: dual

Direction: network to UE

**Table 8.3.14.1.1: PDU SESSION RELEASE COMMAND message content**

| IEI | Information Element                          | Type/Reference                                   | Presence | Format | Length  |
|-----|----------------------------------------------|--------------------------------------------------|----------|--------|---------|
|     | Extended protocol discriminator              | Extended protocol discriminator 9.2              | M        | V      | 1       |
|     | PDU session ID                               | PDU session identity 9.4                         | M        | V      | 1       |
|     | PTI                                          | Procedure transaction identity 9.6               | M        | V      | 1       |
|     | PDU SESSION RELEASE COMMAND message identity | Message type 9.7                                 | M        | V      | 1       |
|     | 5GSM cause                                   | 5GSM cause 9.11.4.2                              | M        | V      | 1       |
| 37  | Back-off timer value                         | GPRS timer 3 9.11.2.5                            | O        | TLV    | 3       |
| 78  | EAP message                                  | EAP message 9.11.2.2                             | O        | TLV-E  | 7-1503  |
| 61  | 5GSM congestion re-attempt indicator         | 5GSM congestion re-attempt indicator 9.11.4.21   | O        | TLV    | 3       |
| 7B  | Extended protocol configuration options      | Extended protocol configuration options 9.11.4.6 | O        | TLV-E  | 4-65538 |
| D-  | Access type                                  | Access type 9.11.2.1A                            | O        | TV     | 1       |
| 72  | Service-level-AA container                   | Service-level-AA container 9.11.2.10             | O        | TLV-E  | 4-65538 |
| 5A  | Alternative S-NSSAI                          | S-NSSAI 9.11.2.8                                 | O        | TLV    | 3-10    |

#### 8.3.14.2 Back-off timer value

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

#### 8.3.14.3 EAP message

This IE is included when the external DN performs re-authentication and re-authorization of the UE using EAP and it completes unsuccessfully.

#### 8.3.14.4 Extended protocol configuration options

This IE is included in the message when the network wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

#### 8.3.14.5 5GSM congestion re-attempt indicator

The network may include this IE only if it includes the Back-off timer value IE and the 5GSM cause value is either #67 "insufficient resources for specific slice and DNN" or #69 "insufficient resources for specific slice".

### 8.3.14.6 Access type

This IE is included in the message when the network releases user-plane resources of an MA PDU session specifically over either 3GPP access or non-3GPP access.

### 8.3.14.7 Service-level-AA container

The SMF shall include the service-level-AA container IE if the service-level authentication and authorization procedure for re-authentication purpose is completed unsuccessfully by the external DN.

### 8.3.14.8 Alternative S-NSSAI

This IE shall be included when the network needs to trigger the re-establishment of the PDU Session with the alternative S-NSSAI in SSC mode 2 or SSC mode 1.

## 8.3.15 PDU session release complete

### 8.3.15.1 Message definition

The PDU SESSION RELEASE COMPLETE message is sent by the UE to the SMF in response to the PDU SESSION RELEASE COMMAND message and indicates an acceptance of a release of the PDU session. See table 8.3.15.1.1.

Message type: PDU SESSION RELEASE COMPLETE

Significance: dual

Direction: UE to network

**Table 8.3.15.1.1: PDU SESSION RELEASE COMPLETE message content**

| IEI | Information Element                           | Type/Reference                                      | Presence | Format | Length  |
|-----|-----------------------------------------------|-----------------------------------------------------|----------|--------|---------|
|     | Extended protocol discriminator               | Extended protocol discriminator<br>9.2              | M        | V      | 1       |
|     | PDU session ID                                | PDU session identity<br>9.4                         | M        | V      | 1       |
|     | PTI                                           | Procedure transaction identity<br>9.6               | M        | V      | 1       |
|     | PDU SESSION RELEASE COMPLETE message identity | Message type<br>9.7                                 | M        | V      | 1       |
| 59  | 5GSM cause                                    | 5GSM cause<br>9.11.4.2                              | O        | TV     | 2       |
| 7B  | Extended protocol configuration options       | Extended protocol configuration options<br>9.11.4.6 | O        | TLV-E  | 4-65538 |

### 8.3.15.2 5GSM cause

This IE is included in the message when the UE needs to indicate to the network that an error encountered with a mandatory information element in the PDU SESSION RELEASE COMMAND message.

### 8.3.15.3 Extended protocol configuration options

This IE is included in the message when the UE needs to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network.

### 8.3.16 5GSM status

#### 8.3.16.1 Message definition

The 5GSM STATUS message is sent by the SMF or the UE to pass information on the status of the indicated PDU session and report certain error conditions. See table 8.3.16.1.1.

Message type: 5GSM STATUS

Significance: dual

Direction: both

**Table 8.3.16.1.1: 5GSM STATUS message content**

| IEI | Information Element             | Type/Reference                      | Presence | Format | Length |
|-----|---------------------------------|-------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator | Extended protocol discriminator 9.2 | M        | V      | 1      |
|     | PDU session ID                  | PDU session identity 9.4            | M        | V      | 1      |
|     | PTI                             | Procedure transaction identity 9.6  | M        | V      | 1      |
|     | 5GSM STATUS message identity    | Message type 9.7                    | M        | V      | 1      |
|     | 5GSM cause                      | 5GSM cause 9.11.4.2                 | M        | V      | 1      |

### 8.3.17 Service-level authentication command

#### 8.3.17.1 Message definition

The SERVICE-LEVEL AUTHENTICATION COMMAND message is sent by the SMF to the UE for service-level authentication and authorization procedure. See table 8.3.17.1.1.

Message type: SERVICE-LEVEL AUTHENTICATION COMMAND

Significance: dual

Direction: network to UE

**Table 8.3.17.1.1: SERVICE-LEVEL AUTHENTICATION COMMAND message content**

| IEI | Information Element                                   | Type/Reference                       | Presence | Format | Length |
|-----|-------------------------------------------------------|--------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator                       | Extended protocol discriminator 9.2  | M        | V      | 1      |
|     | PDU session ID                                        | PDU session identity 9.4             | M        | V      | 1      |
|     | PTI                                                   | Procedure transaction identity 9.6   | M        | V      | 1      |
|     | SERVICE-LEVEL AUTHENTICATION COMMAND message identity | Message type 9.7                     | M        | V      | 1      |
|     | Service-level-AA container                            | Service-level-AA container 9.11.2.10 | M        | LV-E   | 5-n    |

### 8.3.18 Service-level authentication complete

#### 8.3.18.1 Message definition

The SERVICE-LEVEL AUTHENTICATION COMPLETE message is sent by the UE to the SMF in response to the SERVICE-LEVEL AUTHENTICATION COMMAND message and indicates acceptance of the SERVICE-LEVEL AUTHENTICATION COMMAND message. See table 8.3.18.1.1.

Message type: SERVICE-LEVEL AUTHENTICATION COMPLETE

Significance: dual

Direction: UE to network

**Table 8.3.18.1.1: SERVICE-LEVEL AUTHENTICATION COMPLETE message content**

| IEI | Information Element                                    | Type/Reference                       | Presence | Format | Length |
|-----|--------------------------------------------------------|--------------------------------------|----------|--------|--------|
|     | Extended protocol discriminator                        | Extended protocol discriminator 9.2  | M        | V      | 1      |
|     | PDU session ID                                         | PDU session identity 9.4             | M        | V      | 1      |
|     | PTI                                                    | Procedure transaction identity 9.6   | M        | V      | 1      |
|     | SERVICE-LEVEL AUTHENTICATION COMPLETE message identity | Message type 9.7                     | M        | V      | 1      |
|     | Service-level-AA container                             | Service-level-AA container 9.11.2.10 | M        | LV-E   | 5-n    |

### 8.3.19 Remote UE report

#### 8.3.19.1 Message definition

The REMOTE UE REPORT message is sent by the UE to the network to report connection or disconnection of 5G ProSe remote UE(s). See table 8.3.19.1.

Message type: REMOTE UE REPORT

Significance: dual

Direction: UE to network

**Table 8.3.19.1: REMOTE UE REPORT message content**

| IEI | Information Element               | Type/Reference                      | Presence | Format | Length   |
|-----|-----------------------------------|-------------------------------------|----------|--------|----------|
|     | Extended protocol discriminator   | Extended protocol discriminator 9.2 | M        | V      | 1        |
|     | PDU session ID                    | PDU session identity 9.4            | M        | V      | 1        |
|     | PTI                               | Procedure transaction identity 9.6  | M        | V      | 1        |
|     | Remote UE report message identity | Message type 9.7                    | M        | V      | 1        |
| 76  | Remote UE context connected       | Remote UE context list 9.11.4.29    | O        | TLV-E  | 16-65538 |
| 70  | Remote UE context disconnected    | Remote UE context list 9.11.4.29    | O        | TLV-E  | 16-65538 |