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(Release 16)

** 

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***3GPP***

Postal address

3GPP support office address

650 Route des Lucioles - Sophia Antipolis

Valbonne - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet

http://www.3gpp.org

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# Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

# 1 Scope

The present document specifies the 5G radio network layer signalling protocol for the F1 interface. The F1 interface provides means for interconnecting a gNB-CU and a gNB-DU of a gNB within an NG-RAN, or for interconnecting a gNB-CU and a gNB-DU of an en-gNB within an E-UTRAN. The F1 Application Protocol (F1AP) supports the functions of F1 interface by signalling procedures defined in the present document. F1AP is developed in accordance to the general principles stated in TS 38.401 [4] and TS 38.470 [2].

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 38.470: "NG-RAN; F1 general aspects and principles".

[3] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP)".

[4] 3GPP TS 38.401: "NG-RAN; Architecture Description".

[5] ITU-T Recommendation X.691 (2002-07): "Information technology - ASN.1 encoding rules - Specification of Packed Encoding Rules (PER)".

[6] 3GPP TS 38.300: "NR; Overall description; Stage-2".

[7] 3GPP TS 37.340: "NR; Multi-connectivity; Overall description; Stage-2".

[8] 3GPP TS 38.331: "NR; Radio Resource Control (RRC); Protocol specification".

[9] 3GPP TS 36.423: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); X2 Application Protocol (X2AP)".

[10] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

[11] 3GPP TS 23.203: "Policy and charging control architecture".

[12] ITU-T Recommendation X.680 (07/2002): "Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation".

[13] ITU-T Recommendation X.681 (07/2002): "Information technology – Abstract Syntax Notation One (ASN.1): Information object specification".

[14] 3GPP TR 25.921: (version.7.0.0): "Guidelines and principles for protocol description and error".

[15] 3GPP TS 36.413: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP)".

[16] 3GPP TS 38.321: "NR; Medium Access Control (MAC) protocol specification".

[17] 3GPP TS 38.104: "NR; Base Station (BS) radio transmission and reception".

[18] 3GPP TS 29.281: "General Packet Radio System (GPRS); Tunnelling Protocol User Plane (GTPv1-U) ".

[19] 3GPP TS 38.414: "NG-RAN; NG data transport".

[20] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2".

[21] 3GPP TS 23.501: "System Architecture for the 5G System".

[22] 3GPP TS 38.472: "NG-RAN; F1 signalling transport".

[23] 3GPP TS 23.003: "Numbering, addressing and identification".

[24] 3GPP TS 38.304: "NR; User Equipment (UE) procedures in Idle mode and RRC Inactive state ".

[25] 3GPP TS 36.104: "Base Station (BS) radio transmission and reception".

[26] 3GPP TS 38.101-1: "NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone".

[27] 3GPP TS 36.211: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation".

[28] 3GPP TS 38.423: "NG-RAN; Xn application protocol (XnAP)".

[29] 3GPP TS 32.422: "Trace control and configuration management".

[30] 3GPP TS 38.340: "NR; Backhaul Adaptation Protocol (BAP) specification".

[31] 3GPP TS 38.213: "NR; Physical layer procedures for control".

[32] 3GPP TS 38.314: " NR; Layer 2 measurements".

[33] 3GPP TS 38.211: "NR; Physical channels and modulation".

[34] 3GPP TS 38.214: "NR; Physical layer procedures for data".

[35] 3GPP TS 37.320: "Radio measurement collection for Minimization of Drive Tests (MDT)".

[36] 3GPP TS 23.032:"Technical Specification Group Services and System Aspects; Universal Geographical Area Description (GAD)".

[37] 3GPP TS 38.455: "NG-RAN; NR Positioning protocol A (NRPPa)".

[38] 3GPP TS 38.133: "NR; Requirements for support of radio resource management".

[39] 3GPP TS 37.355: "LTE Positioning Protocol (LPP)".

[40] 3GPP TS 23.287: "Architecture enhancements for 5G System (5GS) to support Vehicle-to-Everything (V2X) services".

[41] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification".

[42] 3GPP TS 38.305: "NG Radio Access Network (NG-RAN); Stage 2 functional specification of User Equipment (UE) positioning in NG-RAN".

# 3 Definitions and abbreviations

## 3.1 Definitions

**elementary procedure:** F1AP consists of Elementary Procedures (EPs). An Elementary Procedure is a unit of interaction between gNB-CU and gNB-DU. These Elementary Procedures are defined separately and are intended to be used to build up complete sequences in a flexible manner. If the independence between some EPs is restricted, it is described under the relevant EP description. Unless otherwise stated by the restrictions, the EPs may be invoked independently of each other as standalone procedures, which can be active in parallel. The usage of several F1AP EPs together is specified in stage 2 specifications (e.g., TS 38.470 [2]).

An EP consists of an initiating message and possibly a response message. Two kinds of EPs are used:

- **Class 1:** Elementary Procedures with response (success and/or failure).

- **Class 2:** Elementary Procedures without response.

For Class 1 EPs, the types of responses can be as follows:

Successful:

- A signalling message explicitly indicates that the elementary procedure successfully completed with the receipt of the response.

Unsuccessful:

- A signalling message explicitly indicates that the EP failed.

- On time supervision expiry (i.e., absence of expected response).

Successful and Unsuccessful:

- One signalling message reports both successful and unsuccessful outcome for the different included requests. The response message used is the one defined for successful outcome.

Class 2 EPs are considered always successful.

**BH RLC channel:** as defined in TS 38.300 [6].

**Conditional handover:** as defined in TS 38.300 [6].

**Conditional PSCell Change:** as defined in TS 37.340 [7].

**DAPS Handover**: as defined in TS 38.300 [6].

**EN-DC operation:** Used in this specification when the F1AP is applied for gNB-CU and gNB-DU in E-UTRAN.

**gNB:** as defined in TS 38.300 [6].

**gNB-CU:** as defined in TS 38.401 [4].

**gNB-CU UE F1AP ID:** as defined in TS 38.401 [4].

**gNB-DU:** as defined in TS 38.401 [4].

**gNB-DU UE F1AP ID:** as defined in TS 38.401 [4].

**en-gNB:** as defined in TS 37.340 [7].

**IAB-MT**: as defined in TS 38.300 [6].

**IAB-DU**: as defined in TS 38.300 [6].

**IAB-node**: as defined in TS 38.300 [6].

**IAB-donor**:as defined in TS 38.300 [6].

**IAB-donor-CU**: as defined in TS 38.401 [4].

**IAB-donor-DU**: as defined in TS 38.401 [4].

**Public network integrated NPN:** as defined in TS 23.501 [21].

**Stand-alone Non-Public Network**: as defined in TS 23.501 [21].

**UE-associated signalling:** When F1AP messages associated to one UE uses the UE-associated logical F1-connection for association of the message to the UE in gNB-DU and gNB-CU.

**UE-associated logical F1-connection:** The UE-associated logical F1-connection uses the identities *GNB-CU UE F1AP ID* and *GNB-DU UE F1AP ID* according to the definition in TS 38.401 [4]. For a received UE associated F1AP message thegNB-CU identifies the associated UE based on the *GNB-CU UE F1AP ID* IE and the gNB-DU identifies the associated UE based on the *GNB-DU UE F1AP ID* IE*.* The UE-associated logical F1-connection may exist before the F1 UE context is setup in gNB-DU.

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply.   
An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

5GC 5G Core Network

5QI 5G QoS Identifier

AMF Access and Mobility Management Function

ARP Antenna Reference Point

ARPI Additional RRM Policy Index

BH Backhaul

CAG Closed Access Group

CN Core Network

CG Cell Group

CGI Cell Global Identifier

CHO Conditional Handover

CP Control Plane

CPC Conditional PSCell Change

DAPS Dual Active Protocol Stack

DL Downlink

DL-PRS Downlink Positioning Reference Signal

EN-DC E-UTRA-NR Dual Connectivity

EPC Evolved Packet Core

IAB Integrated Access and Backhaul

IMEISV International Mobile station Equipment Identity and Software Version number

LMF Location Management Function

NID Network Identifier

NPN Non-Public Network

NSSAI Network Slice Selection Assistance Information

posSIB Positioning SIB

PNI-NPN Public Network Integrated NPN

RANAC RAN Area Code

RIM Remote Interference Management

RIM-RS RIM Reference Signal

RRC Radio Resource Control

RSRP Reference Signal Received Power

SNPN Stand-alone Non-Public Network

S-NSSAI Single Network Slice Selection Assistance Information

SUL Supplementary Uplink

TAC Tracking Area Code

TAI Tracking Area Identity

TRP Transmission-Reception Point

UL-AoA Uplink Angle of Arrival

UL-RTOA Uplink Relative Time of Arrival

UL-SRS Uplink Sounding Reference Signal

Z-AoA Zenith Angles of Arrival

# 4 General

## 4.1 Procedure specification principles

The principle for specifying the procedure logic is to specify the functional behaviour of the terminating node exactly and completely. Any rule that specifies the behaviour of the originating node shall be possible to be verified with information that is visible within the system.

The following specification principles have been applied for the procedure text in clause 8:

- The procedure text discriminates between:

1) Functionality which "shall" be executed.

The procedure text indicates that the receiving node "shall" perform a certain function Y under a certain condition. If the receiving node supports procedure X but cannot perform functionality Y requested in the REQUEST message of a Class 1 EP, the receiving node shall respond with the message used to report unsuccessful outcome for this procedure, containing an appropriate cause value.

2) Functionality which "shall, if supported" be executed.

The procedure text indicates that the receiving node "shall, if supported," perform a certain function Y under a certain condition. If the receiving node supports procedure X, but does not support functionality Y, the receiving node shall proceed with the execution of the EP, possibly informing the requesting node about the not supported functionality.

- Any required inclusion of an optional IE in a response message is explicitly indicated in the procedure text. If the procedure text does not explicitly indicate that an optional IE shall be included in a response message, the optional IE shall not be included. For requirements on including *Criticality Diagnostics* IE, see clause 10.

## 4.2 Forwards and backwards compatibility

The forwards and backwards compatibility of the protocol is assured by mechanism where all current and future messages, and IEs or groups of related IEs, include ID and criticality fields that are coded in a standard format that will not be changed in the future. These parts can always be decoded regardless of the standard version.

## 4.3 Specification notations

For the purposes of the present document, the following notations apply:

Procedure When referring to an elementary procedure in the specification the Procedure Name is written with the first letters in each word in upper case characters followed by the word "procedure", e.g. Handover Preparation procedure.

Message When referring to a message in the specification the MESSAGE NAME is written with all letters in upper case characters followed by the word "message", e.g. HANDOVER REQUEST message.

IE When referring to an information element (IE) in the specification the *Information Element Name* is written with the first letters in each word in upper case characters and all letters in Italic font followed by the abbreviation "IE", e.g. *E-RAB ID* IE.

Value of an IE When referring to the value of an information element (IE) in the specification the "Value" is written as it is specified in the specification enclosed by quotation marks, e.g. "Value".

# 5 F1AP services

F1AP provides the signalling service between gNB-DU and the gNB-CU that is required to fulfil the F1AP functions described in clause 7. F1AP services are divided into two groups:

Non UE-associated services: They are related to the whole F1 interface instance between the gNB-DU and gNB-CU utilising a non UE-associated signalling connection.

UE-associated services: They are related to one UE. F1AP functions that provide these services are associated with a UE-associated signalling connection that is maintained for the UE in question.

Unless explicitly indicated in the procedure specification, at any instance in time one protocol endpoint shall have a maximum of one ongoing F1AP procedure related to a certain UE.

All considerations of gNB-DU in this specification also apply to the IAB-DU and IAB-donor-DU, unless stated otherwise. All considerations of gNB-CU in this specification apply to the IAB-donor-CU as well, unless stated otherwise.

# 6 Services expected from signalling transport

The signalling connection shall provide in sequence delivery of F1AP messages. F1AP shall be notified if the signalling connection breaks.

# 7 Functions of F1AP

The functions of F1AP are described in TS 38.470 [2].

# 8 F1AP procedures

## 8.1 List of F1AP Elementary procedures

In the following tables, all EPs are divided into Class 1 and Class 2 EPs (see subclause 3.1 for explanation of the different classes):

Table 1: Class 1 procedures

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Elementary Procedure | | Initiating Message | | Successful Outcome | | Unsuccessful Outcome | |
| Response message | | Response message | |
| Reset | | RESET | | RESET ACKNOWLEDGE | |  | |
| F1 Setup | | F1 SETUP REQUEST | | F1 SETUP RESPONSE | | F1 SETUP FAILURE | |
| gNB-DU Configuration Update | | GNB-DU CONFIGURATION UPDATE | | GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE | | GNB-DU CONFIGURATION UPDATE FAILURE | |
| gNB-CU Configuration Update | | GNB-CU CONFIGURATION UPDATE | | GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE | | GNB-CU CONFIGURATION UPDATE FAILURE | |
| UE Context Setup | | UE CONTEXT SETUP REQUEST | | UE CONTEXT SETUP RESPONSE | | UE CONTEXT SETUP FAILURE | |
| UE Context Release (gNB-CU initiated) | | UE CONTEXT RELEASE COMMAND | | UE CONTEXT RELEASE COMPLETE | |  | |
| UE Context Modification (gNB-CU initiated) | | UE CONTEXT MODIFICATION REQUEST | | UE CONTEXT MODIFICATION RESPONSE | | UE CONTEXT MODIFICATION FAILURE | |
| UE Context Modification Required (gNB-DU initiated) | | UE CONTEXT MODIFICATION REQUIRED | | UE CONTEXT MODIFICATION CONFIRM | | UE CONTEXT MODIFICATION REFUSE | |
| Write-Replace Warning | | WRITE-REPLACE WARNING REQUEST | | WRITE-REPLACE WARNING RESPONSE | |  | |
| PWS Cancel | | PWS CANCEL REQUEST | | PWS CANCEL RESPONSE | |  | |
| gNB-DU Resource Coordination | | GNB-DU RESOURCE COORDINATION REQUEST | | GNB-DU RESOURCE COORDINATION RESPONSE | |  | |
| F1 Removal | | F1 REMOVAL REQUEST | | F1 REMOVAL RESPONSE | | F1 REMOVAL FAILURE | |
| BAP Mapping Configuration | | BAP MAPPING CONFIGURATION | | BAP MAPPING CONFIGURATION ACKNOWLEDGE | | BAP MAPPING CONFIGURATION FAILURE | |
| GNB-DU Resource Configuration | | GNB-DU RESOURCE CONFIGURATION | | GNB-DU RESOURCE CONFIGURATION ACKNOWLEDGE | | GNB-DU RESOURCE CONFIGURATION FAILURE | |
| IAB TNL Address Allocation | | IAB TNL ADDRESS REQUEST | | IAB TNL ADDRESS RESPONSE | | IAB TNL ADDRESS FAILURE | |
| IAB UP Configuration Update | | IAB UP CONFIGURATION UPDATE REQUEST | | IAB UP CONFIGURATION UPDATE RESPONSE | | IAB UP CONFIGURATION UPDATE FAILURE | |
| Resource Status Reporting Initiation | | RESOURCE STATUS REQUEST | | RESOURCE STATUS RESPONSE | | RESOURCE STATUS FAILURE | |
| Positioning Measurement | | POSITIONING MEASUREMENT REQUEST | | POSITIONING MEASUREMENT RESPONSE | | POSITIONING MEASUREMENT FAILURE | |
| Positioning Information Exchange | | POSITIONING INFORMATION REQUEST | | POSITIONING INFORMATION RESPONSE | | POSITIONING INFORMATION FAILURE | |
| TRP Information Exchange | | TRP INFORMATION REQUEST | | TRP INFORMATION RESPONSE | | TRP INFORMATION FAILURE | |
| Positioning Activation | | POSITIONING ACTIVATION REQUEST | | POSITIONING ACTIVATION RESPONSE | | POSITIONING ACTIVATION FAILURE | |
| E-CID Measurement Initiation | | E-CID MEASUREMENT INITIATION REQUEST | | E-CID MEASUREMENT INITIATION RESPONSE | | E-CID MEASUREMENT INITIATION FAILURE | |

Table 2: Class 2 procedures

|  |  |  |  |
| --- | --- | --- | --- |
| Elementary Procedure | | Message | |
| Error Indication | | ERROR INDICATION | |
| UE Context Release Request (gNB-DU initiated) | | UE CONTEXT RELEASE REQUEST | |
| Initial UL RRC Message Transfer | | INITIAL UL RRC MESSAGE TRANSFER | |
| DL RRC Message Transfer | | DL RRC MESSAGE TRANSFER | |
| UL RRC Message Transfer | | UL RRC MESSAGE TRANSFER | |
| UE Inactivity Notification | | UE INACTIVITY NOTIFICATION | |
| System Information Delivery | | SYSTEM INFORMATION DELIVERY COMMAND | |
| Paging | | PAGING | |
| Notify | | NOTIFY | |
| PWS Restart Indication | | PWS RESTART INDICATION | |
| PWS Failure Indication | | PWS FAILURE INDICATION | |
| gNB-DU Status Indication | | GNB-DU STATUS INDICATION | |
| RRC Delivery Report | | RRC DELIVERY REPORT | |
| Network Access Rate Reduction | | NETWORK ACCESS RATE REDUCTION | |
| Trace Start | | TRACE START | |
| Deactivate Trace | | DEACTIVATE TRACE | |
| DU-CU Radio Information Transfer | | DU-CU RADIO INFORMATION TRANSFER | |
| CU-DU Radio Information Transfer | | CU-DU RADIO INFORMATION TRANSFER | |
| Resource Status Reporting | | RESOURCE STATUS UPDATE | |
| Access And Mobility Indication | | ACCESS AND MOBILITY INDICATION | |
| Reference Time Information Reporting Control | | REFERENCE TIME INFORMATION REPORTING CONTROL | |
| Reference Time Information Report | | REFERENCE TIME INFORMATION REPORT | |
| Access Success | | ACCESS SUCCESS | |
| Cell Traffic Trace | | CELL TRAFFIC TRACE | |
| Positioning Assistance Information Control | | POSITIONING ASSISTANCE INFORMATION CONTROL | |
| Positioning Assistance Information Feedback | | POSITIONING ASSISTANCE INFORMATION FEEDBACK | |
| Positioning Measurement Report | | POSITIONING MEASUREMENT REPORT | |
| Positioning Measurement Abort | | POSITIONING MEASUREMENT ABORT | |
| Positioning Measurement Failure Indication | | POSITIONING MEASUREMENT FAILURE INDICATION | |
| Positioning Measurement Update | | POSITIONING MEASUREMENT UPDATE | |
| Positioning Deactivation | | POSITIONING DEACTIVATION | |
| E-CID Measurement Failure Indication | | E-CID MEASUREMENT FAILURE INDICATION | |
| E-CID Measurement Report | | E-CID MEASUREMENT REPORT | |
| E-CID Measurement Termination | | E-CID MEASUREMENT TERMINATION COMMAND | |
| Positioning Information Update | | POSITIONING INFORMATION UPDATE | |
| Positioning System Information Delivery | | POSITIONING SYSTEM INFORMATION DELIVERY COMMAND | |

## 8.2 Interface Management procedures

### 8.2.1 Reset

#### 8.2.1.1 General

The purpose of the Reset procedure is to initialise or re-initialise the F1AP UE-related contexts, in the event of a failure in the gNB-CU or gNB-DU. This procedure does not affect the application level configuration data exchanged during, e.g., the F1 Setup procedure.

The procedure uses non-UE associated signalling.

#### 8.2.1.2 Successful Operation

##### 8.2.1.2.1 Reset Procedure Initiated from the gNB-CU



Figure 8.2.1.2.1-1: Reset procedure initiated from the gNB-CU. Successful operation

In the event of a failure at the gNB-CU, which has resulted in the loss of some or all transaction reference information, a RESET message shall be sent to the gNB-DU.

At reception of the RESET message the gNB-DU shall release all allocated resources on F1 and radio resources related to the UE association(s) indicated explicitly or implicitly in the RESET message and remove the indicated UE contexts including F1AP ID.

After the gNB-DU has released all assigned F1 resources and the UE F1AP IDs for all indicated UE associations which can be used for new UE-associated logical F1-connections over the F1 interface, the gNB-DU shall respond with the RESET ACKNOWLEDGE message. The gNB-DU does not need to wait for the release of radio resources to be completed before returning the RESET ACKNOWLEDGE message.

If the RESET message contains the *UE-associated logical F1-connection list* IE, then:

- The gNB-DU shall use the *gNB-CU UE F1AP ID* IE and/or the *gNB-DU UE F1AP ID* IE to explicitly identify the UE association(s) to be reset.

- The gNB-DU shall include in the RESET ACKNOWLEDGE message, for each UE association to be reset, the *UE-associated logical F1-connection Item* IE in the *UE-associated logical F1-connection list* IE. The *UE-associated logical F1-connection Item* IEs shall be in the same order as received in the RESET message and shall include also unknown UE-associated logical F1-connections. Empty *UE-associated logical F1-connection Item* IEs, received in the RESET message, may be omitted in the RESET ACKNOWLEDGE message.

- If the *gNB-CU UE F1AP ID* IE is included in the *UE-associated logical F1-connection Item* IE for a UE association, the gNB-DU shall include the *gNB-CU UE F1AP ID* IE in the corresponding *UE-associated logical F1-connection Item* IE in the RESET ACKNOWLEDGE message.

- If the *gNB-DU UE F1AP ID* IE is included in the *UE-associated logical F1-connection Item* IE for a UE association, the gNB-DU shall include the *gNB-DU UE F1AP ID* IE in the corresponding *UE-associated logical F1-connection Item* IE in the RESET ACKNOWLEDGE message.

**Interactions with other procedures:**

If the RESET message is received, any other ongoing procedure (except for another Reset procedure) on the same F1 interface related to a UE association, indicated explicitly or implicitly in the RESET message, shall be aborted.

##### 8.2.1.2.2 Reset Procedure Initiated from the gNB-DU



Figure 8.2.1.2.2-1: Reset procedure initiated from the gNB-DU. Successful operation

In the event of a failure at the gNB-DU, which has resulted in the loss of some or all transaction reference information, a RESET message shall be sent to the gNB-CU.

At reception of the RESET message the gNB-CU shall release all allocated resources on F1 related to the UE association(s) indicated explicitly or implicitly in the RESET message and remove the F1AP ID for the indicated UE associations.

After the gNB-CU has released all assigned F1 resources and the UE F1AP IDs for all indicated UE associations which can be used for new UE-associated logical F1-connections over the F1 interface, the gNB-CU shall respond with the RESET ACKNOWLEDGE message.

If the RESET message contains the *UE-associated logical F1-connection list* IE, then:

- The gNB-CU shall use the *gNB-CU UE F1AP ID* IE and/or the *gNB-DU UE F1AP ID* IE to explicitly identify the UE association(s) to be reset.

- The gNB-CU shall in the RESET ACKNOWLEDGE message include, for each UE association to be reset, the *UE-associated logical F1-connection* *Item* IE in the *UE-associated logical F1-connection list* IE. The *UE-associated logical F1-connection Item* IEs shall be in the same order as received in the RESET message and shall include also unknown UE-associated logical F1-connections. Empty *UE-associated logical F1-connection Item* IEs, received in the RESET message, may be omitted in the RESET ACKNOWLEDGE message.

- If the *gNB-CU UE F1AP ID* IE is included in the *UE-associated logical F1-connection Item* IE for a UE association, the gNB-CU shall include the *gNB-CU UE F1AP ID* IE in the corresponding *UE-associated logical F1-connection Item* IE in the RESET ACKNOWLEDGE message.

- If the *gNB-DU UE F1AP ID* IE is included in a *UE-associated logical F1-connection Item* IE for a UE association, the gNB-CU shall include the *gNB-DU UE F1AP ID* IE in the corresponding *UE-associated logical F1-connection Item* IE in the RESET ACKNOWLEDGE message.

**Interactions with other procedures:**

If the RESET message is received, any other ongoing procedure (except for another Reset procedure) on the same F1 interface related to a UE association, indicated explicitly or implicitly in the RESET message, shall be aborted.

#### 8.2.1.3 Abnormal Conditions

Not applicable.

### 8.2.2 Error Indication

#### 8.2.2.1 General

The Error Indication procedure is initiated by a node in order to report detected errors in one incoming message, provided they cannot be reported by an appropriate failure message.

If the error situation arises due to reception of a message utilising UE associated signalling, then the Error Indication procedure uses UE associated signalling. Otherwise the procedure uses non-UE associated signalling.

#### 8.2.2.2 Successful Operation



Figure 8.2.2.2-1: Error Indication procedure, gNB-CU originated. Successful operation



Figure 8.2.2.2-2: Error Indication procedure, gNB-DU originated. Successful operation

When the conditions defined in clause 10 are fulfilled, the Error Indication procedure is initiated by an ERROR INDICATION message sent from the receiving node.

The ERROR INDICATION message shall contain at least either the *Cause* IE or the *Criticality Diagnostics* IE. In case the Error Indication procedure is triggered by utilising UE associated signalling the *gNB-CU UE F1AP ID* IE and *gNB-DU UE F1AP ID* IE shall be included in the ERROR INDICATION message. If one or both of the *gNB-CU UE F1AP ID* IE and the *gNB-DU UE F1AP ID* IE are not correct, the cause shall be set to appropriate value, e.g., "Unknown or already allocated gNB-CU UE F1AP ID", "Unknown or already allocated gNB-DU UE F1AP ID" or "Unknown or inconsistent pair of UE F1AP ID".

#### 8.2.2.3 Abnormal Conditions

Not applicable.

### 8.2.3 F1 Setup

#### 8.2.3.1 General

The purpose of the F1 Setup procedure is to exchange application level data needed for the gNB-DU and the gNB-CU to correctly interoperate on the F1 interface. This procedure shall be the first F1AP procedure triggered for the F1-C interface instance after a TNL association has become operational.

NOTE: If F1-C signalling transport is shared among multiple F1-C interface instances, one F1 Setup procedure is issued per F1-C interface instance to be setup, i.e. several F1 Setup procedures may be issued via the same TNL association after that TNL association has become operational.

NOTE: Exchange of application level configuration data also applies between the gNB-DU and the gNB-CU in case the DU does not broadcast system information other than for radio frame timing and SFN, as specified in the TS 37.340 [8]. How to use this information when this option is used is not explicitly specified.

The procedure uses non-UE associated signalling.

This procedure erases any existing application level configuration data in the two nodes and replaces it by the one received. This procedure also re-initialises the F1AP UE-related contexts (if any) and erases all related signalling connections in the two nodes like a Reset procedure would do.

#### 8.2.3.2 Successful Operation



Figure 8.2.3.2-1: F1 Setup procedure: Successful Operation

The gNB-DU initiates the procedure by sending a F1 SETUP REQUEST message including the appropriate data to the gNB-CU. The gNB-CU responds with a F1 SETUP RESPONSE message including the appropriate data.

The exchanged data shall be stored in respective node and used as long as there is an operational TNL association. When this procedure is finished, the F1 interface is operational and other F1 messages may be exchanged.

If the F1 SETUP REQUEST message contains the *gNB-DU Name* IE, the gNB-CU may use this IE as a human readable name of the gNB-DU. If the F1 SETUP REQUEST message contains the *Extended gNB-DU Name* IE, the gNB-CU may use this IE as a human readable name of the gNB-DU and shall ignore the *gNB-DU Name* IE if included.

If the F1 SETUP RESPONSE message contains the *gNB-CU Name* IE, the gNB-DU may use this IE as a human readable name of the gNB-CU. If the F1 SETUP RESPONSE message contains the *Extended gNB-CU Name* IE, the gNB-DU may use this IE as a human readable name of the gNB-CU and shall ignore the *gNB-CU Name* IE if included.

If the F1 SETUP REQUEST message contains the *gNB-DU Served Cells List* IE, the gNB-CU shall take into account as specified in TS 38.401 [4].

For NG-RAN, the gNB-DU shall include the *gNB-DU System Information* IE and the *TAI Slice Support List* IE in the F1 SETUP REQUEST message.

The gNB-CU may include the *Cells to be Activated List* IE in the F1 SETUP RESPONSE message. The *Cells to be Activated List* IE includes a list of cells that the gNB-CU requests the gNB-DU to activate. The gNB-DU shall activate the cells included in the *Cells to be Activated List* IE and reconfigure the physical cell identity for cells for which the *NR PCI* IE is included.

If *Cells to be Activated List Item* IE is included in the F1 SETUP RESPONSE message, and the information for the cell indicated by the *NR CGI* IE includes the *IAB Info IAB-donor-CU* IE, the gNB-DU shall, if supported, apply the *IAB STC Info* IE therein to the indicated cell.

For NG-RAN, the gNB-CU shall include the *gNB-CU System Information* IE in the F1 SETUP RESPONSE message.

For NG-RAN, the gNB-DU may include the *RAN Area Code* IE in the F1 SETUP REQUEST message. The gNB-CU may use it according to TS 38.300 [6].

For NG-RAN, the gNB-CU may include *Available PLMN List* IE, and optionally also *Extended Available PLMN List* IE in the F1 SETUP RESPONSE message, if the available PLMN(s) are different from what gNB-DU has provided in F1 SETUP REQUEST message, gNB-DU shall take this into account and only broadcast the PLMN(s) included in the received Available PLMN list(s).

For NG-RAN, the gNB-CU may include *Available SNPN ID List* IE in the F1 SETUP RESPONSE message. If the available SNPN(s) are different from what gNB-DU has provided in F1 SETUP REQUEST message, gNB-DU shall take this into account and only broadcast the SNPN(s) included in the received Available SNPN ID list.

The *Latest* *RRC Version Enhanced* IE shall be included in the F1 SETUP REQUEST message and in the F1 SETUP RESPONSE message.

If in F1 SETUP REQUEST message, the *Cell Direction* IE is present, the gNB-CU should use it to understand whether the cell is for UL or DL only. If in F1 SETUP REQUEST message, the *Cell Direction* IE is omitted in the *Served Cell Information* IE it shall be interpreted as that the Cell Direction is Bi-directional.

If the *Intended TDD DL-UL Configuration IE* is present in the F1 SETUP REQUEST message, the receiving gNB-CU shall use the received information for Cross Link Interference management and/or NR-DC power coordination. The gNB-CU may merge the Intended TDD DL-UL Configuration information received from two or more gNB-DUs. The gNB-CU shall consider the received *Intended TDD DL-UL Configuration* content valid until reception of an update of the IE for the same cell(s).

If the *Aggressor gNB Set* *ID* IE is included in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU shall, if supported, take it into account.

If the *Victim gNB Set* *ID* IE is included in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU shall, if supported, take it into account.

If the F1 SETUP REQUEST message contains the Transport Layer Address Info IE, the gNB-CU shall, if supported, take into account for IPSec tunnel establishment.

If the *SFN Offset* IE is contained in the *Served Cell Information* IE in the F1 SETUP REQUEST message, the gNB-CU shall, if supported, use this information to deduce the SFN0 offset of the reported cell.

If the F1 SETUP RESPONSE message contains the *Transport Layer Address Info* IE, the gNB-DU shall, if supported, take into account for IPSec tunnel establishment.

If the F1 SETUP RESPONSE message contains the *Uplink BH Non-UP Traffic Mapping* IE, the gNB-DU shall, if supported, consider the information therein for mapping of non-UP uplink traffic.

If the *BAP Address* IE is included in the F1 SETUP REQUEST, the receiving gNB-CU shall, if supported, consider the information therein for discovering the collocation of an IAB-DU and an IAB-MT.

If the F1 SETUP REQUEST message is received from an IAB-donor-DU, the gNB-CU shall, if supported, include the *BAP Address* IE in the F1 SETUP RESPONSE message.

NOTE: How to identify the IAB-donor-DU is up to gNB-CU implementation.

If the F1 SETUP RESPONSE message contains the *BAP Address* IE, the gNB-DU shall, if supported, store the received BAP address and use it as specified in TS 38.340 [30].

If the *NR Cell PRACH Configuration* IE is included in the *Served Cell Information* IE contained in the F1 SETUP REQUEST message, the gNB-CU may store the information, and forward it to other RAN nodes for RACH optimisation.

#### 8.2.3.3 Unsuccessful Operation



Figure 8.2.3.3-1: F1 Setup procedure: Unsuccessful Operation

If the gNB-CU cannot accept the setup, it should respond with a F1 SETUP FAILURE and appropriate cause value.

If the F1 SETUP FAILURE message includes the *Time To Wait* IE, the gNB-DU shall wait at least for the indicated time before reinitiating the F1 setup towards the same gNB-CU.

#### 8.2.3.4 Abnormal Conditions

Not applicable.

### 8.2.4 gNB-DU Configuration Update

#### 8.2.4.1 General

The purpose of the gNB-DU Configuration Update procedure is to update application level configuration data needed for the gNB-DU and the gNB-CU to interoperate correctly on the F1 interface. This procedure does not affect existing UE-related contexts, if any. The procedure uses non-UE associated signalling.

NOTE: Update of application level configuration data also applies between the gNB-DU and the gNB-CU in case the DU does not broadcast system information other than for radio frame timing and SFN, as specified in the TS 37.340 [8]. How to use this information when this option is used is not explicitly specified.

#### 8.2.4.2 Successful Operation



Figure 8.2.4.2-1: gNB-DU Configuration Update procedure: Successful Operation

The gNB-DU initiates the procedure by sending a GNB-DU CONFIGURATION UPDATE message to the gNB-CU including an appropriate set of updated configuration data that it has just taken into operational use. The gNB-CU responds with GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message to acknowledge that it successfully updated the configuration data. If an information element is not included in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall interpret that the corresponding configuration data is not changed and shall continue to operate the F1-C interface with the existing related configuration data.

The updated configuration data shall be stored in both nodes and used as long as there is an operational TNL association or until any further update is performed.

If g*NB-DU ID* IE is contained in the GNB-DU CONFIGURATION UPDATE message for a newly established SCTP association, the gNB-CU will associate this association with the related gNB-DU.

If *Served Cells To Add Item* IE is contained in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall add cell information according to the information in the *Served Cell Information IE*. For NG-RAN, the gNB-DU shall include the *gNB-DU System Information* IE.

If *Served Cells To Modify Item* IE is contained in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall modify information of cell indicated by *Old* *NR CGI* IE according to the information in the *Served Cell Informatio*n IE and overwrite the served cell information for the affected served cell. Further, if the *gNB-DU System Information* IE is present the gNB-CU shall store and replace any previous information received.

If *Served Cells To Delete Item* IE is contained in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall delete information of cell indicated by *Old* *NR CGI* IE.

If *Cells Status Item* IE is contained in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall update the information about the cells, as described in TS 38.401 [4]. If if the *Switching Off Ongoing* IE is present in the *Cells Status Item* IE, contained in the GNB-DU CONFIGURATION UPDATE message, and the corresponding *Service State IE* is set to "Out-of-Service", the gNB-CU shall ignore the *Switching Off Ongoing* IE.

If *Cells to be Activated List Item* IE is contained in the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-DU shall activate the cell indicated by *NR CGI* IE and reconfigure the physical cell identity for cells for which the *NR PCI* IE is included.

If *Cells to be* *Activated List Item* IE is contained in the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message and the indicated cells are already activated, the gNB-DU shall update the cell information received in *Cells to be Activated List Item* IE.

If *Cells to be Activated List Item* IE is included in the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message, and the information for the cell indicated by the *NR CGI* IE includes the *IAB Info IAB-donor-CU* IE, the gNB-DU shall, if supported, apply the *IAB STC Info* IE therein to the indicated cell.

If *Cells to be Deactivated List Item* IE is contained in the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-DU shall deactivate all the cells with NR CGI listed in the IE.

If *Dedicated SI Delivery Needed UE List* IE is contained in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU should take it into account when informing the UE of the updated system information via the dedicated RRC message.

For NG-RAN, the gNB-CU shall include the *gNB-CU System Information* IE in the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message. The *SIB type to Be Updated List* IE shall contain the full list of SIBs to be broadcast*.*

For NG-RAN, the gNB-DU may include the *RAN Area Code* IE in the GNB-DU CONFIGURATION UPDATE message. The gNB-CU shall store and replace any previously provided *RAN Area Code* IE by the received *RAN Area Code* IE.

If *Available PLMN List* IE, and optionally also *Extended Available PLMN List* IE, is contained in GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-DU shall overwrite the whole available PLMN list and update the corresponding system information.

If *Available SNPN ID List* IE is contained in GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-DU shall overwrite the whole available SNPN ID list and update the corresponding system information.

If in GNB-DU CONFIGURATION UPDATE message, the *Cell Direction* IE is present, the gNB-CU should use it to understand whether the cell is for UL or DL only. If in GNB-DU CONFIGURATION UPDATE message, the *Cell Direction* IE is omitted in the *Served Cell Information* IE it shall be interpreted as that the Cell Direction is Bi-directional.

If the GNB-DU CONFIGURATION UPDATE message includes *gNB-DU TNL Association To Remove List* IE, and the *Endpoint IP address* IE and the *Port Number* IE for both TNL endpoints of the TNL association(s) are included in the *gNB-DU TNL Association To Remove List* IE, the gNB-CU shall, if supported, consider that the TNL association(s) indicated by both received TNL endpoints will be removed by the gNB-DU. If the *Endpoint IP address* IE, or the *Endpoint IP address* IE and the *Port Number* IE for one or both of the TNL endpoints is included in the *gNB-DU TNL Association To Remove List* IE in GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall, if supported, consider that the TNL association(s) indicated by the received endpoint IP address(es) will be removed by the gNB-DU.

If the *Intended TDD DL-UL Configuration* IE is present in the GNB-DU CONFIGURATION UPDATE message, the receiving gNB-CU shall use the received information for Cross Link Interference management and/or NR-DC power coordination. The gNB-CU may merge the Intended TDD DL-UL Configuration information received from two or more gNB-DUs. The gNB-CU shall consider the received *Intended TDD DL-UL Configuration* IE content valid until reception of an update of the IE for the same cell(s).

If the *Aggressor gNB Set* ID IE is included in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall, if supported, take it into account.

If the *Victim gNB Set* ID IE is included in the *Served Cell Information* IE in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall, if supported, take it into account.

If the GNB-DU CONFIGURATION UPDATE message includes *Transport Layer Address Info* IE, the gNB-CU shall, if supported, take into account for IPSec tunnel establishment.

If the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message includes *Transport Layer Address Info* IE, the gNB-DU shall, if supported, take into account for IPSec tunnel establishment.

If the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message contains the *Uplink BH Non-UP Traffic Mapping* IE, the gNB-DU shall, if supported, consider the information therein for mapping of non-UP uplink traffic.

If the *SFN Offset* IE is contained in the *Served Cell Information* IE in GNB-DU CONFIGURATION UPDATE message, the gNB-CU shall, if supported, use this information to deduce the SFN0 offset of the reported cell.

If the *NR Cell PRACH Configuration* IE is included in the *Served Cell Information* IE contained in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU may store the information, and forward it to other RAN nodes for RACH optimisation.

If the GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE message contains the *BAP Address* IE, the gNB-DU shall, if supported, store the received BAP address and use it as specified in TS 38.340 [30].

If the *gNB-DU Name* IE is included in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU may store it or update this IE value if already stored, and use it as a human readable name of the gNB-DU. If the *Extended gNB-DU Name* IE is included in the GNB-DU CONFIGURATION UPDATE message, the gNB-CU may store it or update this IE value if already stored, and use it as a human readable name of the gNB-DU and shall ignore the *gNB-DU Name* IE if also included.

#### 8.2.4.3 Unsuccessful Operation



Figure 8.2.4.3-1: gNB-DU Configuration Update procedure: Unsuccessful Operation

If the gNB-CU cannot accept the update, it shall respond with a GNB-DU CONFIGURATION UPDATE FAILURE message and appropriate cause value.

If the GNB-DU CONFIGURATION UPDATE FAILURE message includes the *Time To Wait* IE, the gNB-DU shall wait at least for the indicated time before reinitiating the GNB-DU CONFIGURATION UPDATE message towards the same gNB-CU.

#### 8.2.4.4 Abnormal Conditions

Not applicable.

### 8.2.5 gNB-CU Configuration Update

#### 8.2.5.1 General

The purpose of the gNB-CU Configuration Update procedure is to update application level configuration data needed for the gNB-DU and gNB-CU to interoperate correctly on the F1 interface. This procedure does not affect existing UE-related contexts, if any. The procedure uses non-UE associated signalling.

#### 8.2.5.2 Successful Operation



Figure 8.2.5.2-1: gNB-CU Configuration Update procedure: Successful Operation

The gNB-CU initiates the procedure by sending a GNB-CU CONFIGURATION UPDATE message including the appropriate updated configuration data to the gNB-DU. The gNB-DU responds with a GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message to acknowledge that it successfully updated the configuration data. If an information element is not included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall interpret that the corresponding configuration data is not changed and shall continue to operate the F1-C interface with the existing related configuration data.

The updated configuration data shall be stored in the respective node and used as long as there is an operational TNL association or until any further update is performed.

If *Cells to be Activated List Item* IE is contained in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall activate the cell indicated by *NR CGI* IE and reconfigure the physical cell identity for which the *NR PCI* IE is included.

If *Cells to be Deactivated List Item* IE is contained in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall deactivate the cell indicated by *NR CGI* IE.

If *Cells to be Activated List Item* IE is contained in the GNB-CU CONFIGURATION UPDATE message and the indicated cells are already activated, the gNB-DU shall update the cell information received in *Cells to be Activated List Item* IE.

If *Cells to be Activated List Item* IE is included in the GNB-CU CONFIGURATION UPDATE message, and the information for the cell indicated by the *NR CGI* IE includes the *IAB Info IAB-donor-CU* IE, the gNB-DU shall, if supported, apply the *IAB STC Info* IE therein to the indicated cell.

If the *gNB-CU System Information* IE is contained in the gNB-CU CONFIGURATION UPDATE message, the gNB-DU shall include the *Dedicated SI Delivery Needed UE List* IE in the GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message for UEs that are unable to receive system information from broadcast.

If *Dedicated SI Delivery Needed UE List* IE is contained in the GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-CU should take it into account when informing the UE of the updated system information via the dedicated RRC message.

If the *gNB-CU TNL Association To Add List* IE is contained in the gNB-CU CONFIGURATION UPDATE message, the gNB-DU shall, if supported, use it to establish the TNL association(s) with the gNB-CU. The gNB-DU shall report to the gNB-CU, in the gNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message, the successful establishment of the TNL association(s) with the gNB-CU as follows:

- A list of TNL address(es) with which the gNB-DU successfully established the TNL association shall be included in the gNB-CU *TNL Association Setup List* IE;

- A list of TNL address(es) with which the gNB-DU failed to establish the TNL association shall be included in the *gNB-CU TNL Association Failed To Setup List* IE.

If the GNB-CU CONFIGURATION UPDATE message includes *gNB-CU TNL Association To Remove List* IE, and the *Endpoint IP address* IE and the *Port Number* IE for both TNL endpoints of the TNL association(s) are included in the *gNB-CU TNL Association To Remove List* IE, the gNB-DU shall, if supported, initiate removal of the TNL association(s) indicated by both received TNL endpoints towards the gNB-CU. If the *Endpoint IP address* IE, or the *Endpoint IP address* IE and the *Port Number* IE for one or both of the TNL endpoints is included in the *gNB-CU TNL Association To Remove List* IE, the gNB-DU shall, if supported, initiate removal of the TNL association(s) indicated by the received endpoint IP address(es).

If the *gNB-CU TNL Association To Update List* IE is contained in the gNB-CU CONFIGURATION UPDATE message the gNB-DU shall, if supported, overwrite the previously stored information for the related TNL Association(s).

If in the gNB-CU CONFIGURATION UPDATE message the *TNL* *Association usage* IE is included in the *gNB-CU TNL Association To Add List* IE or the *gNB-CU TNL Association To Update List* IE, the gNB-DU node shall, if supported, use it as described in TS 38.472 [22].

For NG-RAN, the gNB-CU shall include the *gNB-CU System Information* IE in the GNB-CU CONFIGURATION UPDATE message. The *SIB type to Be Updated List* IE shall contain the full list of SIBs to be broadcast*.*

If *Protected E-UTRA Resources List* IE is contained in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall protect the corresponding resource of the cells indicated by *E-UTRA Cells* *List* IE for spectrum sharing between E-UTRA and NR.

If the GNB-CU CONFIGURATION UPDATE message contains the *Protected E-UTRA Resource Indication* IE, the receiving gNB-DU should forward it to lower layers and use it for cell-level resource coordination. The gNB-DU shall consider the received *Protected E-UTRA Resource Indication* IE when expressing its desired resource allocation during gNB-DU Resource Coordination procedure. The gNB-DU shall consider the received *Protected E-UTRA Resource Indication* IE content valid until reception of a new update of the IE for the same gNB-DU.

If *Available PLMN List* IE, and optionally also *Extended Available PLMN List* IE, is contained in GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall overwrite the whole available PLMN list and update the corresponding system information.

If *Available SNPN ID List* IE is contained in GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall overwrite the whole available SNPN ID list and update the corresponding system information.

If *Cells Failed to be Activated Item* IE is contained in the GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-CU shall consider that the indicated cells are out-of-service as defined in TS 38.401 [4].

If the *Neighbour Cell Information List* IE is present in the GNB-CU CONFIGURATION UPDATE message, the receiving gNB-DU shall use the received information for Cross Link Interference management and/or NR-DC power coordination. The gNB-DU shall consider the received *Neighbour Cell Information List* IE content valid until reception of an update of the IE for the same cell(s). If the *Intended TDD DL-UL Configuration NR* IE is absent from the *Neighbour Cell Information List* IE, whereas the corresponding *NR CGI* IE is present, the receiving gNB-DU shall remove the previously stored *Neighbour Cell Information* IE corresponding to the NR CGI.

If the GNB-CU CONFIGURATION UPDATE message includes *Transport Layer Address Info* IE, the gNB-DU shall, if supported, take into account for IPSec tunnel establishment.

If the GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message includes *Transport Layer Address Info* IE, the gNB-CU shall, if supported, take into account for IPSec tunnel establishment.

If the GNB-CU CONFIGURATION UPDATE message contains the *Uplink BH Non-UP Traffic Mapping* IE, the gNB-DU shall, if supported, consider the information therein for mapping of non-UP uplink traffic.

If the *IAB Barred* IE is included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall, if supported, consider it as an indication of whether the cell allows IAB-node access or not.

If the *BAP Address* IE is included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall, if supported, store the received BAP address and use it as specified in TS 38.340 [30].

If the *gNB-CU Name* IE is included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU may store it or update this IE value if already stored, and use it as a human readable name of the gNB-CU. If the *Extended gNB-CU Name* IE is included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU may store it or update this IE value if already stored, and use it as a human readable name of the gNB-CU and shall ignore the *gNB-CU Name* IE if also included.

#### 8.2.5.3 Unsuccessful Operation



Figure 8.2.5.3-1: gNB-CU Configuration Update: Unsuccessful Operation

If the gNB-DU cannot accept the update, it shall respond with a GNB-CU CONFIGURATION UPDATE FAILURE message and appropriate cause value.

If the GNB-CU CONFIGURATION UPDATE FAILURE message includes the *Time To Wait* IE, the gNB-CU shall wait at least for the indicated time before reinitiating the GNB-CU CONFIGURATION UPDATE message towards the same gNB-DU.

#### 8.2.5.4 Abnormal Conditions

Not applicable.

### 8.2.6 gNB-DU Resource Coordination

#### 8.2.6.1 General

The purpose of the gNB-DU Resource Coordination procedure is to enable coordination of radio resource allocation between a gNB-CU and a gNB-DU for the purpose of spectrum sharing between E-UTRA and NR. This procedure is to be used only for the purpose of spectrum sharing between E-UTRA and NR.

The procedure uses non-UE-associated signalling.

#### 8.2.6.2 Successful Operation



Figure 8.2.6.2-1: gNB-DU Resource Coordination, successful operation

A gNB-CU initiates the procedure by sending the GNB-DU RESOURCE COORDINATION REQUEST message to a gNB-DU over the F1 interface.

The gNB-DU extracts the *E-UTRA – NR Cell Resource Coordination Request Container* IE and it replies by sending the GNB-DU RESOURCE COORDINATION RESPONSE message.

In case of NR-initiated gNB-DU Resource Coordination procedure, the *Ignore Coordination Request Container* IE shall be present and set to "yes" and the *E-UTRA – NR Cell Resource Coordination Request Container* IE in the GNB-DU RESOURCE COORDINATION REQUEST message shall be ignored.

### 8.2.7 gNB-DU Status Indication

#### 8.2.7.1 General

The purpose of the gNB-DU Status Indication procedure is informing the gNB-CU that the gNB-DU is overloaded so that overload reduction actions can be applied. The procedure uses non-UE associated signalling.

#### 8.2.7.2 Successful Operation



Figure 8.2.7.2-1: gNB-DU Status Indication procedure

If the *gNB-DU* *Overload Information* IE in the GNB-DU STATUS INDICATION message indicates that the gNB-DU is overloaded, the gNB-CU shall apply overload reduction actions until informed, with a new GNB-DU STATUS INDICATION message, that the overload situation has ceased.

The detailed overload reduction policy is up to gNB-CU implementation.

#### 8.2.7.3 Abnormal Conditions

Void.

### 8.2.8 F1 Removal

#### 8.2.8.1 General

The purpose of the F1 Removal procedure is to remove the interface instance and all related resources between the gNB-DU and the gNB-CU in a controlled manner. If successful, this procedure erases any existing application level configuration data in the two nodes.

NOTE: In case the signalling transport is shared among several F1-C interface instances, and the TNL association is still used by one or several F1-C interface instances, the initiating node should not initiate the removal of the TNL association.

The procedure uses non-UE-associated signaling.

#### 8.2.8.2 Successful Operation



Figure 8.2.8-1: F1 Removal, gNB-DU initiated, successful operation



Figure 8.2.8.2-2: F1 Removal, gNB-CU initiated, successful operation

**Successful F1 Removal, gNB-DU initiated**

The gNB-DU initiates the procedure by sending the F1 REMOVAL REQUEST message to the gNB-CU. Upon reception of the F1 REMOVAL REQUEST message the gNB-CU shall reply with the F1 REMOVAL RESPONSE message. After receiving the F1 REMOVAL RESPONSE message, the gNB-DU may initiate removal of the TNL association towards the gNB-CU, if applicable, and may remove all resources associated with that interface instance. The gNB-CU may then remove all resources associated with that interface instance.

**Successful F1 Removal, gNB-CU initiated**

The gNB-CU initiates the procedure by sending the F1 REMOVAL REQUEST message to the gNB-DU. Upon reception of the F1 REMOVAL REQUEST message the gNB-DU shall reply with the F1 REMOVAL RESPONSE message. After receiving the F1 REMOVAL RESPONSE message, the gNB-CU may initiate removal of the TNL association towards the gNB-DU, if applicable, and may remove all resources associated with that interface instance. The gNB-DU may then remove all resources associated with that interface instance.

#### 8.2.8.3 Unsuccessful Operation



Figure 8.2.8.3-1: F1 Removal, gNB-DU initiated, unsuccessful operation



Figure 8.2.8.3-2: F1 Removal, gNB-CU initiated, unsuccessful operation

**Unsuccessful F1 Removal, gNB-DU initiated**

If the gNB-CU cannot accept to remove the interface instance with the gNB-DU it shall respond with an F1 REMOVAL FAILURE message with an appropriate cause value.

**Unsuccessful F1 Removal, gNB-CU initiated**

If the gNB-DU cannot accept to remove the interface instance with the gNB-CU it shall respond with an F1 REMOVAL FAILURE message with an appropriate cause value.

#### 8.2.8.4 Abnormal Conditions

Not applicable.

### 8.2.9 Network Access Rate Reduction

#### 8.2.9.1 General

The purpose of the Network Access Rate Reduction procedure is to indicate to the gNB-DU that the rate at which UEs are accessing the network need to be reduced from its current level.

The procedure uses non-UE associated signalling.

#### 8.2.9.2 Successful operation

gNB

-

DU

NETWORK ACCESS RATE REDUCTION

gNB

-

CU

Figure 8.2.9.2-1: Network Access Rate Reduction, Successful operation

The gNB-CU initiates the procedure by sending a NETWORK ACCESS RATE REDUCTION message to the gNB-DU. When receiving the NETWORK ACCESS RATE REDUCTION message the gNB-DU should take into account the information contained in the *UAC assistance information* to set the parameters for Unified Access Barring.

If the *NID* IE is contained in the NETWORK ACCESS RATE REDUCTION message, the gNB-DU should take it into account and combine the *NID* IE with the *PLMN Identity* IE to identify the SNPN.

#### 8.2.9.3 Abnormal Conditions

Not applicable

### 8.2.10 Resource Status Reporting Initiation

#### 8.2.10.1 General

This procedure is used by an gNB-CU to request the reporting of load measurements to gNB-DU.

The procedure uses non UE-associated signalling.

#### 8.2.10.2 Successful Operation



Figure 8.2.10.2-1: Resource Status Reporting Initiation, successful operation

gNB-CU initiates the procedure by sending the RESOURCE STATUS REQUEST message to gNB-DU to start a measurement, stop a measurement, or add cells to report for a measurement. Upon receipt, gNB-DU:

- shall initiate the requested measurement according to the parameters given in the request in case the *Registration Request* IE set to "start"; or

- shall stop all cells measurements and terminate the reporting in case the *Registration Request* IE is set to "stop"; or

- shall add cells indicated in the *Cell To Report List* IE to the measurements initiated before for the given measurement IDs, in case the *Registration Request* IE is set to "add". If measurements are already initiated for a cell indicated in the *Cell To Report List* IE, this information shall be ignored.

If the *Registration Request* IE is set to "start" in the RESOURCE STATUS REQUEST message and the *Report Characteristics* IE indicates cell specific measurements, the *Cell To Report List* IE shall be included.

If *Registration Request* IE is set to "add" in the RESOURCE STATUS REQUEST message, the *Cell To Report List* IE shall be included.

If gNB-DU is capable to provide all requested resource status information, it shall initiate the measurement as requested by gNB-CU, and respond with the RESOURCE STATUS RESPONSE message.

**Interaction with other procedures**

When starting a measurement, the *Report Characteristics* IE in the RESOURCE STATUS REQUEST indicates the type of objects gNB-DU shall perform measurements on. For each cell, gNB-DU shall include in the RESOURCE STATUS UPDATE message:

- the *Radio* *Resource Status* IE, if the first bit, "PRB Periodic" of the *Report Characteristics* IE included in the RESOURCE STATUS REQUEST message is set to 1. If the cell for which *Radio* *Resource Status* IE is requested to be reported supports more than one SSB, the *Radio* *Resource Status* IE for such cell shall include the *SSB Area Radio Resource Status Item* IE for all SSB areas supported by the cell. If the *SSB To Report List* IE is included for a cell, the *Radio* *Resource Status* IE for such cell shall only include the *SSB Area Radio Resource Status List* IE;

- the *TNL Capacity Indicator* IE, if the second bit, "TNL Capacity Ind Periodic" of the *Report Characteristics* IE included in the RESOURCE STATUS REQUEST message is set to 1;

- the *Composite Available Capacity Group* IE, if the third bit, "Composite Available Capacity Periodic" of the *Report Characteristics* IE included in the RESOURCE STATUS REQUEST message is set to 1. If *Cell Capacity Class Value* IE is included within the *Composite* *Available Capacity Group* IE, this IE is used to assign weights to the available capacity indicated in the *Capacity Value* IE. If the cell for which *Composite Available Capacity Group* IE is requested to be reported supports more than one SSB the *Composite Available Capacity Group* IE for such cell shall include the *SSB Area Capacity Value List* IE for all SSB areas supported by the cell, providing the SSB area capacity with respect to the *Cell Capacity Class Value* IE. If the *SSB To Report List* IE is included for a cell, the *Composite Available Capacity Group* IE for such cell shall include the requested *SSB Area Capacity Value List* IE providing the SSB area capacity with respect to the Cell Capacity Class Value. If the cell for which *Composite Available Capacity Group* IE is requested to be reported supports more than one slice, and if the *Slice To Report List* IE is included for a cell, the *Slice Available Capacity* IE for such cell shall include the requested *Slice Available Capacity Value Downlink* IE and *Slice Available Capacity* *Value Uplink* IE, providing the slice capacity with respect to the Cell Capacity Class Value.

- the *Hardware Load Indicator* IE, if the fourth bit, " HW LoadInd Periodic " of the *Report Characteristics* IE included in the RESOURCE STATUS REQUEST message is set to 1;

- the *Number of Active UEs* IE, if the fifth bit, "Number of Active UEs" of the *Report Characteristics* IE included in the RESOURCE STATUS REQUEST message is set to 1;

If the Reporting Periodicity IE in the RESOURCE STATUS REQUEST is present, this indicates the periodicity for the reporting of periodic measurements. The gNB-DU shall report once, unless otherwise requested within the *Reporting Periodicity* IE.

#### 8.2.10.3 Unsuccessful Operation



Figure 8.2.10.3-1: Resource Status Reporting Initiation, unsuccessful operation

If any of the requested measurements cannot be initiated, gNB-DU shall send the RESOURCE STATUS FAILURE message with an appropriate cause value.

#### 8.2.10.4 Abnormal Conditions

If the initiating gNB-CU does not receive either RESOURCE STATUS RESPONSE message or RESOURCE STATUS FAILURE message, the gNB-CU may reinitiate the Resource Status Reporting Initiation procedure towards the same gNB-DU, provided that the content of the new RESOURCE STATUS REQUEST message is identical to the content of the previously unacknowledged RESOURCE STATUS REQUEST message with the same Transaction ID.

If the *Report Characteristics* IE bitmap is set to "0" (all bits are set to "0") in the RESOURCE STATUS REQUEST message then gNB-DU shall initiate a RESOURCE STATUS FAILURE message with an appropriate cause value.

If the gNB-DU receives a RESOURCE STATUS REQUEST message which includes the *Registration Request* IE set to "start" and the *gNB-CU Measurement ID* IE corresponding to an existing on-going load measurement reporting, for which a different Transaction ID is used, then gNB-DU shall initiate a RESOURCE STATUS FAILURE message with an appropriate cause value.

### 8.2.11 Resource Status Reporting

#### 8.2.11.1 General

This procedure is initiated by gNB-DU to report the result of measurements admitted by gNB-DU following a successful Resource Status Reporting Initiation procedure.

The procedure uses non UE-associated signalling.

#### 8.2.11.2 Successful Operation



Figure 8.2.11.2-1: Resource Status Reporting, successful operation

The gNB-DU shall report the results of the admitted measurements in RESOURCE STATUS UPDATE message. The admitted measurements are the measurements that were successfully initiated during the preceding Resource Status Reporting Initiation procedure.

#### 8.2.11.3 Unsuccessful Operation

Not applicable.

#### 8.2.11.4 Abnormal Conditions

Void.

## 8.3 UE Context Management procedures

### 8.3.1 UE Context Setup

#### 8.3.1.1 General

The purpose of the UE Context Setup procedure is to establish the UE Context including, among others, SRB,DRB, BH RLC channel, and SL DRB configuration. The procedure uses UE-associated signalling.

#### 8.3.1.2 Successful Operation



Figure 8.3.1.2-1: UE Context Setup Request procedure: Successful Operation

The gNB-CU initiates the procedure by sending UE CONTEXT SETUP REQUEST message to the gNB-DU. If the gNB-DU succeeds to establish the UE context, it replies to the gNB-CU with UE CONTEXT SETUP RESPONSE. If no UE-associated logical F1-connection exists, the UE-associated logical F1-connection shall be established as part of the procedure.

If the *UE-CapabilityRAT-ContainerList* IE is included in the UE CONTEXT SETUP REQUEST, the gNB-DU shall take this information into account for UE specific configurations.

If the *servingCellMO* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall configure servingCellMO for the indicated SpCell accordingly.

If the *SpCell UL Configured* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall configure UL for the indicated SpCell accordingly.

If the *SCell To Be Setup List* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall consider it as a list of candidate SCells to be set up. If the *SCell UL Configured* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall configure UL for the indicated SCell accordingly. If the *servingCellMO* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall configure servingCellMO for the indicated SCell accordingly.

If the *DRX Cycle* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall use the provided value from the gNB-CU.

If the *UL Configuration* IE in *DRB to Be Setup Item* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall take it into account for UL scheduling.

If the *SRB To Be Setup List* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall act as specified in TS 38.401 [4]. If *Duplication Indication* IE is contained in the *SRB To Be Setup List* IE, the gNB-DU shall, if supported, setup two RLC entities for the indicated SRB. If the *Additional* *Duplication Indication* IE is contained in the *SRB To Be Setup List* IE, the gNB-DU shall, if supported, setup the indicated RLC entities for the indicated SRB.

If the *DRB To Be Setup List* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall act as specified in TS 38.401 [4]. If the *QoS Flow Mapping Indication* IE is included in the *DRB To Be Setup List* IE for a QoS flow, the gNB-DU may take it into account that only the uplink or downlink QoS flow is mapped to the indicated DRB.

For each GBR DRB, if the *Alternative QoS Parameters Sets* IE is included in the *GBR QoS Flow Information* IE in the UE CONTEXT SETUP REQUEST message, gNB-DU shall, if supported, behave the same as the NG-RAN node in the PDU Session Resource Setup procedure, specified in TS 38.413 [3].

If the *BH Information* IE is included in the *UL UP TNL Information to be setup List* IE or the *Additional PDCP Duplication TNL List* IE for a DRB, the gNB-DU shall, if supported, use the indicated BAP Routing ID and BH RLC channel for transmission of the corresponding GTP-U packets to the IAB-donor, as specified in TS 38.340 [30].

If the *BH RLC Channel To Be Setup List* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall act as specified in TS 38.401 [4]. If the *Traffic Mapping Information* IE is included in the *BH RLC Channel To Be Setup Item IEs* IE for a BH RLC Channel, the gNB-DU shall, if supported, process the *Traffic Mapping Information* IE as follows:

- if the *IP to layer2 Traffic Mapping Info* IE is included, the gNB-DU shall store the mapping information contained in the *IP to layer2 Mapping Info To Add* IE, if present, for the egress BH RLC channel identified by the *BH RLC CH ID* IE, and shall remove the previously stored mapping information as indicated by the *IP to layer2 Mapping Info To Remove* IE, if present. The gNB-DU shall use the mapping information stored for the mapping of IP traffic to layer 2, as specified in TS 38.340 [30].

- if the *BAP layer BH RLC channel Mapping Info* IE is included, the gNB-DU shall store the mapping information contained in the *BAP layer BH RLC channel Mapping Info To Add* IE, if present, for the egress or ingress BH RLC channel identified by the *BH RLC CH ID* IE, and shall remove the previously stored mapping information as indicated by the *BAP layer BH RLC channel Mapping Info To Remove* IE, if present. The gNB-DU shall use the mapping information stored when forwarding traffic on BAP sublayer, as specified in TS 38.340 [30].

If two *UL UP TNL Information* IEs are included in UE CONTEXT SETUP REQUEST message for a DRB, gNB-DU shall include two *DL UP TNL Information* IEs in UE CONTEXT SETUP RESPONSE message and setup two RLC entities for the indicated DRB. gNB-CU and gNB-DU use the *UL UP TNL Information* IEs and *DL UP TNL Information* IEs to support packet duplication for intra-gNB-DU CA as defined in TS 38.470 [2]. The first *UP TNL Information* IE of the two *UP TNL Information* IEs is for the primary path*.*

If one or two *Additional PDCP Duplication UP TNL Information* IEs are included in the UE CONTEXT SETUP REQUEST message for a DRB, the gNB-DU shall, if supported, include one or two *Additional PDCP Duplication UP TNL Information* IEs in the UE CONTEXT SETUP RESPONSE message and setup one or two additional RLC entities for the indicated DRB. The gNB-CU and the gNB-DU use the *Additional PDCP Duplication UP TNL Information* IEs to support packet duplication for intra-gNB-DU CA as defined in TS 38.470 [2].

If *Duplication Activation IE* is included in the UE CONTEXT SETUP REQUEST message for a DRB, gNB-DU should take it into account when activating/deactivating CA based PDCP duplication for the DRB. If the *RLC Duplication State List* IE is included in the *RLC Duplication Information* IE contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account when activating/deactivating CA based PDCP duplication for the DRB with more than two RLC entities.

If *DC Based Duplication Configured* IE is included in the UE CONTEXT SETUP REQUEST message for a DRB, gNB-DU shall regard that DC based PDCP duplication is configured for this DRB if the value is set to be "true" and it should take the responsibility of PDCP duplication activation/deactivation. If *DC Based Duplication Activation* IE is included in the UE CONTEXT SETUP REQUEST message for a DRB, gNB-DU should take it into account when activating/deactivating DC based PDCP duplication for this DRB. If the *RLC Duplication State List* IE is included in the *RLC Duplication Information* IE contained in the UE CONTEXT SETUP REQUEST message for a DRB, the gNB-DU shall, if supported, take it into account when activating/deactivating DC based PDCP duplication for the DRB with more than two RLC entities. If the *Primary Path Indication* IE is included in the *RLC Duplication Information* IE, the gNB-DU shall, if supported, take it into account when performing DC based PDCP duplication for the DRB with more than two RLC entities.

If *UL PDCP SN length* IE is included in the UE CONTEXT SETUP REQUEST message for a DRB, gNB-DU shall, if supported, store this information and use it for lower layer configuration.

For EN-DC operation, and if the *Subscriber Profile ID* *for RAT/Frequency priority* IE is received from an MeNB, the UE CONTEXT SETUP REQUEST message shall contain the *Subscriber Profile ID* *for RAT/Frequency priority* IE. If the *Additional RRM Policy Index* IE is received from an MeNB, the UE CONTEXT SETUP REQUEST message shall, if supported, contain the *Additional RRM Policy Index* IE. The gNB-DU shall store the received Subscriber Profile ID for RAT/Frequency priority in the UE context and use it as defined in TS 36.300 [20]. The gNB-DU shall, if supported, store the received Additional RRM Policy Index in the UE context and use it as defined in TS 36.300 [20].

If the *Index to RAT/Frequency Selection Priority* IE is available at the gNB-CU, the *Index to RAT/Frequency Selection Priority* IE shall be included in the UE CONTEXT SETUP REQUEST. The gNB-DU may use it for RRM purposes.

The gNB-DU shall report to the gNB-CU, in the UE CONTEXT SETUP RESPONSE message, the result for all the requested DRBs, SRBs and BH RLC channels in the following way:

- A list of DRBs which are successfully established shall be included in the *DRB Setup List* IE;

- A list of DRBs which failed to be established shall be included in the *DRB Failed to Setup List* IE;

- A list of SRBs which failed to be established shall be included in the *SRB Failed to Setup List* IE.

- A list of successfully established SRBs with logical channel identities for primary path shall be included in the *SRB Setup List* IE only if CA based PDCP duplication is initiated for the concerned SRBs.

- A list of BH RLC channels which are successfully established shall be included in the *BH RLC Channel Setup List* IE;

- A list of BH RLC channels which failed to be established shall be included in the *BH RLC Channel Failed to be Setup List* IE;

- A list of SL DRBs which are successfully established shall be included in the *SL DRB Setup List* IE;

- A list of SL DRBs which failed to be established shall be included in the *SL DRB Failed to Setup List* IE.

When the gNB-DU reports the unsuccessful establishment of a DRB or SRB or SL DRB or a BH RLC channel, the cause value should be precise enough to enable the gNB-CU to know the reason for the unsuccessful establishment.

For EN-DC operation, the gNB-CU shall include in the UE CONTEXT SETUP REQUEST the *E-UTRAN QoS* IE. The allocation of resources according to the values of the *Allocation and Retention Priority* IE included in the *E-UTRAN QoS* IE shall follow the principles described for the E-RAB Setup procedure in TS 36.413 [15].

For NG-RAN operation, the gNB-CU shall include in the UE CONTEXT SETUP REQUEST the *DRB Information* IE.

For DC operation, the *CG-ConfigInfo* IE shall be included in the *CU to DU RRC Information* IE at the gNB acting as secondary node. If the *CG-ConfigInfo* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall regard it as a reconfiguration with sync as defined in TS 38.331 [8].

For sidelink operation, the *CG-ConfigInfo* IE shall be included in the *CU to DU RRC Information* IE if the gNB-CU receives sidelink related UE information from UE. If the *CG-ConfigInfo* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall regard it as an indication of V2X sidelink information as defined in TS 38.331 [8].

If the *HandoverPreparationInformation* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU of the gNB acting as master node shall regard it as a reconfiguration with sync as defined in TS 38.331 [8]. The gNB-CU shall only initiate the UE Context Setup procedure for handover or secondary node addition when at least one DRB is setup for the UE, or at least one BH RLC channel is set up for IAB-MT. If the *HandoverPreparationInformation* IE containing the sidelink related UE information is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall regard it as an indication of V2X sidelink information as defined in TS 38.331 [8].

If the received *CU to DU RRC Information* IE does not include source cell group configuration, the gNB-DU shall generate the cell group configuration using full configuration. Otherwise, delta configuration is allowed.

If the gNB-CU includes the SMTC information of the measured frequency(ies) in the *MeasurementTimingConfiguration* IE of the *CU to DU RRC Information* IE that is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall generate the measurement gaps based on the received SMTC information. Then the gNB-DU shall send the measurement gaps information to the gNB-CU in the *MeasGapConfig* IE of the *DU to CU RRC Information* IE that is included in the UE CONTEXT SETUP RESPONSE message.

If the *MeasConfig* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall deduce that changes to the measurements configuration need to be applied. If the *measObjectToAddModList* IE is included in the *MeasConfig* IE, then the frequencies added in such IE are to be activated. Then the gNB-DU shall decide if measurement gaps are needed or not and, if needed, the gNB-DU shall send the measurement gaps information to the gNB-CU in the *MeasGapConfig* IE of the *DU to CU RRC Information* IE that is included in the UE CONTEXT SETUP RESPONSE message. If the *measObjectToRemoveList* IE is included in the *MeasConfig* IE, the gNB-DU shall ignore it. If the *NeedForGapsInfoNR* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it as described in TS 38.331 [8].

For EN-DC operation, if the gNB-CU includes the *Resource Coordination Transfer Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for the purpose of resource coordination. If the *Ignore PRACH Configuration* IE is present and set to "true" the *E-UTRA PRACH Configuration* IE in the UE CONTEXT SETUP REQUEST message shall be ignored. If the gNB-CU received the MeNB Resource Coordination Information as defined in TS 36.423 [9], it shall transparently transfer it to the gNB-DU via the *Resource Coordination Transfer Container* IE in the UE CONTEXT SETUP REQUEST message. The gNB-DU shall use the information received in the *Resource Coordination Transfer Container* IE for reception of MeNB Resource Coordination Information at the gNB acting as secondary node as described in TS 36.423 [9]. If the *Resource Coordination E-UTRA Cell Information* IE is included in the *Resource Coordination Transfer Information* IE, the gNB-DU shall store the information replacing previously received information for the same E-UTRA cell, and use the stored information for the purpose of resource coordination.

For NGEN-DC or NE-DC operation, if the gNB-CU includes the *Resource Coordination Transfer Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for the purpose of resource coordination. If the gNB-CU received the MR-DC Resource Coordination Information as defined in TS 38.423 [28], it shall transparently transfer it to the gNB-DU via the *Resource Coordination Transfer Container* IE in the UE CONTEXT SETUP REQUEST message. The gNB-DU shall use the information received in the *Resource Coordination Transfer Container* IE for reception of MR-DC Resource Coordination Information at the gNB as described in TS 38.423 [28].

The *UEAssistanceInformation* IE shall be included in *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message if the gNB-CU received this IE from the UE; if the *UEAssistanceInformation* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account when configuring resources for the UE.

The *UEAssistanceInformationEUTRA* IE shall be included in *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message if the gNB-CU received this IE from the UE; if the *UEAssistanceInformationEUTRA* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account when configuring LTE sidelink resources for the UE.

If the *Resource Coordination Transfer Container* IE is included in the UE CONTEXT SETUP RESPONSE, the gNB-CU shall transparently transfer this information for the purpose of resource coordination as described in TS 36.423 [9], TS 38.423 [28].

If the *Masked IMEISV* IE is contained in the UE CONTEXT SETUP REQUEST message the gNB-DU shall, if supported, use it to determine the characteristics of the UE for subsequent handling.

If the *SCell Failed To Setup List* IE is contained in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall regard the corresponding SCell(s) failed to be set up with an appropriate cause value for each SCell failed to setup.

If the *Inactivity Monitoring Request* IE is contained in the UE CONTEXT SETUP REQUEST message, gNB-DU may consider that the gNB-CU has requested the gNB-DU to perform UE inactivity monitoring. If the *Inactivity Monitoring Response* IE is contained in the UE CONTEXT SETUP RESPONSE message and set to "Not-supported", the gNB-CU shall consider that the gNB-DU does not support UE inactivity monitoring for the UE.

If the *CellGroupConfig* IE is included in the *DU to CU RRC Information* IE contained in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall perform RRC Reconfiguration or RRC connection resume as described in TS 38.331 [8]. The *CellGroupConfig* IE shall transparently be signaled to the UE as specified in TS 38.331 [8].

If the *Full Configuration* IE is contained in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall consider that the gNB-DU has generated the *CellGroupConfig* IE using full configuration.

If the *C-RNTI* IE is included in the UE CONTEXT SETUP RESPONSE, the gNB-CU shall consider that the C-RNTI has been allocated by the gNB-DU for this UE context.

The UE Context Setup Procedure is not used to configure SRB0.

If the UE CONTEXT SETUP REQUEST message contains the *RRC-Container* IE, the gNB-DU shall send the corresponding RRC message to the UE via SRB1.

If the *Notification Control* IE is included in the *DRB to Be Setup List* IE contained in the UE CONTEXT SETUP REQUEST message and it is set to active, the gNB-DU shall, if supported, monitor the QoS of the DRB and notify the gNB-CU if the QoS cannot be fulfilled any longer or if the QoS can be fulfilled again. The *Notification Control* IE can only be applied to GBR bearers.

If the *UL PDU Session Aggregate Maximum Bit Rate* IE is included in the *QoS Flow Level QoS Parameters* IE contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall store the received UL PDU Session Aggregate Maximum Bit Rate and use it when enforcing uplink traffic policing for non-GBR Bearers for the concerned UE as specified in TS 23.501 [21].

The gNB-DU shall store the received gNB-DU UE Aggregate Maximum Bit Rate Uplink and use it for non-GBR Bearers for the concerned UE.

If the UE CONTEXT SETUP REQUEST message contains the *QoS Flow Mapping Indication* IE, the gNB-DU may take it into account that only the uplink or downlink QoS flow is mapped to the DRB.

If the UE CONTEXT SETUP REQUEST message contains the *New gNB-CU UE F1AP ID* IE, the gNB-DU shall, if supported, replace the value received in the *gNB-CU UE F1AP ID* IE by the value of the *New gNB-CU UE F1AP ID* and use it for further signalling.

If the *RAN UE ID* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall store and replace any previous information received.

If the *Trace Activation* IE is included in the UE CONTEXT SETUP REQUEST message the gNB-DU shall, if supported, initiate the requested trace function as described in TS 32.422 [29].

In particular, the gNB-DU shall, if supported:

- if the *Trace Activation* IE includes the *MDT Activation* IE set to "Immediate MDT and Trace", initiate the requested trace session and MDT session as described in TS 32.422 [29];

- if the *Trace Activation* IE includes the *MDT Activation* IE set to "Immediate MDT Only", initiate the requested MDT session as described in TS 32.422 [29] and the gNB-DU shall ignore Interfaces To Trace IE, and Trace Depth IE. If the *Management Based MDT PLMN List* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, store the received information in the UE context, and use this information to allow subsequent selection of the UE for management based MDT defined in TS 32.422 [29].

For each QoS flow whose DRB has been successfully established and the *QoS Monitoring Request* IE was included in the *QoS Flow Level QoS Parameters* IE contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall store this information, and, if supported, perform delay measurement and QoS monitoring, as specified in TS 23.501 [21].

If the UE CONTEXT SETUP REQUEST message contains the *Configured* *BAP Address* IE, the gNB-DU shall, if supported, store this BAP address configured for the corresponding child IAB-node and use it as specified in TS 38.340 [30].

If the *BAP Control PDU Channel* IE is included in the *BH RLC Channel to be Setup List* IE, the gNB-DU shall, if supported, consider that the configured BH RLC channel can be used to transmit BAP Control PDUs, and use this BH RLC channel as specified in TS 38.340 [30].

If the *F1-C Transfer Path* IE is included in UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account.

If the *NR* *V2X Services Authorized* IE is contained in the UE CONTEXT SETUP REQUEST message and it contains one or more IEs set to "authorized", the gNB-DU node shall, if supported, consider that the UE is authorized for the relevant service(s).

If the *LTE V2X Services Authorized* IE is contained in the UE CONTEXT SETUP REQUEST message and it contains one or more IEs set to "authorized", the gNB-DU node shall, if supported, consider that the UE is authorized for the relevant service(s).

If the *NR UE Sidelink Aggregate Maximum Bit Rate* IE is contained in theUE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for the concerned UE's sidelink communication in network scheduled mode for NR V2X services.

If the *LTE UE Sidelink Aggregate Maximum Bit Rate* IE is contained in theUE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for the concerned UE's sidelink communication in network scheduled mode for LTE V2X services.

If the *PC5 Link Aggregate Bit Rate* IE is contained in theUE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for the concerned UE's sidelink communication in network scheduled mode for NR V2X services as defined in TS 23.287 [40].

If the *TSC Traffic Characteristics* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take into account the corresponding information received in the *TSC Traffic Characteristics* IE.

If the *Conditional Inter-DU Mobility Information* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall consider that the request concerns a conditional handover or conditional PSCell change for the included *SpCell ID* IE and shall include it as the *Requested Target Cell ID* IE in the UE CONTEXT SETUP RESPONSE message. The gNB-DU shall regard it as a reconfiguration with sync as defined in TS 38.331 [8].

If the *Target gNB-DU UE F1AP ID* IE is contained in the *Conditional Inter-DU Mobility Information* IE included in the UE CONTEXT SETUP REQUEST message, then the gNB-DU shall replace the existing prepared conditional handover or conditional PSCell change identified by the *Target gNB-DU UE F1AP ID* IE and the *SpCell ID* IE.

If the *Serving NID* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall combine the *Serving NID* IE with the *Serving PLMN* IEto identify the serving NPN, and may take it into account for UE context establishment.

If the *Estimated Arrival Probability* IE is contained in the *Conditional Inter-DU Mobility Information* IE included in the UE CONTEXT SETUP REQUEST message, then the gNB-DU may use the information to allocate necessary resources for the UE.

If for a given E-RAB for EN-DC operation the *ENB DL Transport Layer Address* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it as part of its ACL functionality configuration actions, if such ACL functionality is deployed.

If for a given Qos flow for NG-RAN operation the *PDCP Terminating Node DL Transport Layer Address* IE is included in the UE CONTEXT SETUP REQUEST message, then the gNB-DU shall, if supported, use it as part of its ACL functionality configuration actions, if such ACL functionality is deployed.

If the *InterFrequencyConfig-NoGap* IE is included in the *DU to CU RRC Information* IE contained in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, use it as described in TS 38.331 [8].

#### 8.3.1.3 Unsuccessful Operation



Figure 8.3.1.3-1: UE Context Setup Request procedure: unsuccessful Operation

If the gNB-DU is not able to establish an F1 UE context, or cannot even establish one bearer it shall consider the procedure as failed and reply with the UE CONTEXT SETUP FAILURE message. If the *Conditional Inter-DU Mobility Information* IE was included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall include the received *SpCell ID* IE as the *Requested Target Cell ID* IE in the UE CONTEXT SETUP FAILURE message.

If the gNB-DU is not able to accept the *SpCell ID* IE in UE CONTEXT SETUP REQUEST message, it shall reply with the UE CONTEXT SETUP FAILURE message with an appropriate cause value. Further, if the *Candidate SpCell List* IEis included in the UE CONTEXT SETUP REQUEST message and the gNB-DU is not able to accept the *SpCell ID* IE, the gNB-DU shall, if supported, include the *Potential SpCell List* IE in the UE CONTEXT SETUP FAILURE message and the gNB-CU should take this into account for selection of an opportune SpCell. The gNB-DU shall include the cells in the *Potential SpCell List* IE in a priority order, where the first cell in the list is the one most desired and the last one is the one least desired (e.g., based on load conditions). If the *Potential SpCell List* IE is present but no *Potential SpCell Item* IE is present, the gNB-CU should assume that none of the cells in the *Candidate SpCell List* IE are acceptable for the gNB-DU.

#### 8.3.1.4 Abnormal Conditions

If the gNB-DU receives a UE CONTEXT SETUP REQUEST message containing a *E-UTRAN QoS* IE for a GBR QoS DRB but where the *GBR QoS Information* IE is not present, the gNB-DU shall report the establishment of the corresponding DRB as failed in the *DRB Failed to Setup List* IE of the UE CONTEXT SETUP RESPONSE message with an appropriate cause value. If the gNB-DU receives a UE CONTEXT SETUP REQUEST message containing a *DRB QoS* IE for a GBR QoS DRB but where the *GBR QoS Flow Information* IE is not present, the gNB-DU shall report the establishment of the corresponding DRBs as failed in the *DRB Failed to Setup List* IE of the UE CONTEXT SETUP RESPONSE message with an appropriate cause value.

If the *Delay Critical* IE is included in the *Dynamic 5QI Descriptor* IE within the *DRB QoS* IE in the UE CONTEXT SETUP REQUEST message and is set to the value "delay critical" but the *Maximum Data Burst Volume* IE is not present, the gNB-DU shall report the establishment of the corresponding DRB as failed in the *DRB Failed to Setup List* IE of the of the UE CONTEXT SETUP RESPONSE message with an appropriate cause value.

In case of "CHO-replace" when the *Target gNB-DU UE F1AP ID* IE is included, if the candidate cell in the *SpCell ID* IE included in the UE CONTEXT SETUP REQUEST message was not prepared using the same UE-associated signaling connection, the gNB-DU shall ignore this candidate cell.

### 8.3.2 UE Context Release Request (gNB-DU initiated)

#### 8.3.2.1 General

The purpose of the UE Context Release Request procedure is to enable the gNB-DU to request the gNB-CU to release the UE-associated logical F1-connection or candidate cells in conditional handover or conditional PSCell change. The procedure uses UE-associated signalling.

#### 8.3.2.2 Successful Operation



Figure 8.3.2.2-1: UE Context Release (gNB-DU initiated) procedure. Successful operation

The gNB-DU controlling a UE-associated logical F1-connection initiates the procedure by generating a UE CONTEXT RELEASE REQUEST message towards the affected gNB-CU node.

The UE CONTEXT RELEASE REQUEST message shall indicate the appropriate cause value.

If the *Candidate Cells To Be Cancelled List* IE is included in the UE CONTEXT RELEASE REQUEST message, the gNB-CU shall consider that the only the resources reserved for the candidate cells identified by the included NR CGIs and associated to the UE-associated signaling identified by the *gNB-CU UE F1AP ID* IE and the *gNB-DU UE F1AP ID* IE are about to be released by the gNB-DU.

**Interactions with UE Context Release procedure:**

The UE Context Release procedure may be initiated upon reception of a UE CONTEXT RELEASE REQUEST message.

**Interactions with UE Context Setup procedure:**

The UE Context Release Request procedure may be performed before the UE Context Setup procedure to request the release of an existing UE-associated logical F1-connection and related resources in the gNB-DU.

#### 8.3.2.3 Abnormal Conditions

If one or more candidate cells in the *Candidate Cells To Be Cancelled List* IE included in the UE CONTEXT RELEASE REQUEST message were not prepared using the same UE-associated signaling connection, the gNB-CU shall ignore those non-associated candidate cells.

### 8.3.3 UE Context Release (gNB-CU initiated)

#### 8.3.3.1 General

The purpose of the UE Context Release procedure is to enable the gNB-CU to order the release of the UE-associated logical connection or candidate cells in conditional handover or conditional PSCell change. The procedure uses UE-associated signalling.

#### 8.3.3.2 Successful Operation



Figure 8.3.3.2-1: UE Context Release (gNB-CU initiated) procedure. Successful operation

The gNB-CU initiates the procedure by sending the UE CONTEXT RELEASE COMMAND message to the gNB-DU.

Upon reception of the UE CONTEXT RELEASE COMMAND message, the gNB-DU shall release all related signalling and user data transport resources and reply with the UE CONTEXT RELEASE COMPLETE message.

If the *old gNB-DU UE F1AP ID* IE is included in the UE CONTEXT RELEASE COMMAND message, the gNB-DU shall additionally release the UE context associated with the old gNB-DU UE F1AP ID.

If the UE CONTEXT RELEASE COMMAND message contains the *RRC-Container IE*, the gNB-DU shall send the RRC container to the UE via the SRB indicated by the *SRB ID* IE.

If the UE CONTEXT RELEASE COMMAND message includes the *Execute Duplication* IE, the gNB-DU shall perform CA based duplication, if configured, for the SRB for the included *RRC-Container* IE.

If the *Candidate Cells To Be Cancelled List* IE is included in the UE CONTEXT RELEASE COMMAND message, the gNB-DU shall consider that the gNB-CU is cancelling only the conditional handover or conditional PSCell change associated to the cells identified by the included NR CGIs and associated to the UE-associated signaling identified by the *gNB-CU UE F1AP ID* IE and the *gNB-DU UE F1AP ID* IE.

**Interactions with UE Context Setup procedure:**

The UE Context Release procedure may be performed before the UE Context Setup procedure to release an existing UE-associated logical F1-connection and related resources in the gNB-DU, e.g. when gNB-CU rejects UE access it shall trigger UE Context Release procedure with the cause value of UE rejection.

#### 8.3.3.4 Abnormal Conditions

If one or more candidate cells in the *Candidate Cells To Be Cancelled List* IE included in the UE CONTEXT RELEASE COMMAND message were not prepared using the same UE-associated signalling connection, the gNB-DU shall ignore those non-associated candidate cells.

### 8.3.4 UE Context Modification (gNB-CU initiated)

#### 8.3.4.1 General

The purpose of the UE Context Modification procedure is to modify the established UE Context, e.g., establishing, modifying and releasing radio resources or sidelink resources. This procedure is also used to command the gNB-DU to stop data transmission for the UE for mobility (see TS 38.401 [4]). The procedure uses UE-associated signalling.

#### 8.3.4.2 Successful Operation



Figure 8.3.4.2-1: UE Context Modification procedure. Successful operation

The UE CONTEXT MODIFICATION REQUEST message is initiated by the gNB-CU.

Upon reception of the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall perform the modifications, and if successful reports the update in the UE CONTEXT MODIFICATION RESPONSE message.

If the *SpCell ID* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall replace any previously received value and regard it as a reconfiguration with sync as defined in TS 38.331 [8]. If the *ServCellIndex* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall take this into account for the indicated SpCell. If the *SpCell UL Configured* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall configure UL for the indicated SpCell accordingly. If the *servingCellMO* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall configure servingCellMO for the indicated SpCell accordingly.

If the *SCell To Be Setup List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall consider it as a list of candidate SCells to be set up. If the *SCell To Be Setup List* IE is included in the UE CONTEXT MODIFICATION REQUEST message and the indicated SCell(s) are already setup, the gNB-DU shall replace any previously received value. If the *SCell UL Configured* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall configure UL for the indicated SCell accordingly. If the *servingCellMO* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall configure servingCellMO for the indicated SCell accordingly.

If the *SCell To Be Removed List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall consider it as a list of SCells to be removed.

If the *DRX Cycle* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall use the provided value from the gNB-CU. If the *DRX configuration indicator* IE is contained in the UE CONTEXT MODIFICATION REQUEST message and set to "release", the gNB-DU shall release DRX configuration.

If the *SRB To Be Setup List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall act as specified in the TS 38.401 [4], and replace any previously received value. If *Duplication Indication* IE is contained in the *SRB To Be Setup List* IE, the gNB-DU shall, if supported, setup two RLC entities for the indicated SRB if the value is set to be "true", or delete the RLC entity of secondary path if the value is set to be "false". If the *Additional* *Duplication Indication* IE is contained in the *SRB To Be Setup List* IE, the gNB-DU shall, if supported, setup the indicated RLC entities for the indicated SRB.

If the *DRB To Be Setup List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall act as specified in the TS 38.401 [4].

If the *BH Information* IE is included in the *UL UP TNL Information to be setup List* IE or the *Additional PDCP Duplication TNL List* IE for a DRB, the gNB-DU shall, if supported, use the indicated BAP Routing ID and BH RLC channel for transmission of the corresponding GTP-U packets to the IAB-donor, as specified in TS 38.340 [30].

If the *BH RLC Channel To Be Setup List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall act as specified in TS 38.401 [4]. If the *Traffic Mapping Information* IE is included in the *BH RLC Channel To Be Setup Item IEs* IE for a BH RLC Channel, the gNB-DU shall, if supported, process the *Traffic Mapping* Information IE following the behaviour described for the UE Context Setup procedure.

If the *BH RLC Channel To Be Modified List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall act as specified in TS 38.401 [4]. If the *Traffic Mapping Information* IE is included in the *BH RLC Channel To Be Modified Item IEs* IE for a BH RLC Channel, the gNB-DU shall, if supported, process the *Traffic Mapping Information* IE following the behaviour described for the UE Context Setup procedure.

If the *BH RLC Channel To Be Released List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall release the BH RLC channels in the list.

If two *UL UP TNL Information* IEs are included in UE CONTEXT MODIFICATION REQUEST message for a DRB, the gNB-DU shall include two *DL UP TNL Information* IEs in UE CONTEXT MODIFICATION RESPONSE message and setup two RLC entities for the indicated DRB. gNB-CU and gNB-DU use the *UL UP TNL Information* IEs and *DL UP TNL Information* IEs to support packet duplication for intra-gNB-DU CA as defined in TS 38.470 [2]. The first *UP TNL Information* IE of the two *UP TNL Information* IEs is for the primary path*.*

If one or two *Additional PDCP Duplication UP TNL Information* IEs are included in the UE CONTEXT MODIFICATION REQUEST message for a DRB, the gNB-DU shall, if supported, include one or two *Additional PDCP Duplication UP TNL Information* IEs in the UE CONTEXT MODIFICATION RESPONSE message and setup one or two additional RLC entities for the indicated DRB. The gNB-CU and the gNB-DU use the *Additional PDCP Duplication UP TNL Information* IEs to support packet duplication for intra-gNB-DU CA as defined in TS 38.470 [2]*.*

If *Duplication Activation* IE is included in the UE CONTEXT MODIFICATION REQUEST message for a DRB, the gNB-DU should take it into account when activating/deactivating CA based PDCP duplication for the DRB. If the *RLC Duplication State List* IE is included in the *RLC Duplication Information* IE contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account for the DRB with more than two RLC entities.

If *DC Based Duplication Configured* IE is included in the UE CONTEXT MODIFICATION REQUEST message for a DRB, the gNB-DU shall regard that DC based PDCP duplication is configured for this DRB if the value is set to be "true" and it should take the responsibility of PDCP duplication activation/deactivation. Otherwise, the gNB-DU shall regard that DC based PDCP duplication is de-configured for this DRB id the value is set to be "false", and it should stop PDCP duplication activation/deactivation by MAC CE. If *DC Based Duplication Activation* IE is included in the UE CONTEXT MODIFICATION REQUEST message for a DRB, the gNB-DU should take it into account when activating/deactivating DC based PDCP duplication for this DRB. If the *RLC Duplication State List* IE is included in the *RLC Duplication Information* IE contained in the UE CONTEXT MODIFICATION REQUEST message for a DRB, the gNB-DU shall, if supported, take it into account when activating/deactivating DC based PDCP duplication for the DRB with more than two RLC entities. If the *Primary Path Indication* IE is included in the *RLC Duplication Information* IE, the gNB-DU shall, if supported, take it into account when performing DC based PDCP duplication for the DRB with more than two RLC entities.

For a certain DRB which was allocated with two GTP-U tunnels, if such DRB is modified and given one GTP-U tunnel via the UE Context Modification procedure, the gNB-DU shall consider that the CA based PDCP duplication for the concerned DRB is de-configured. If such UE Context Modification procedure occurs, the *Duplication Activation* IE shall not be included for the concerned DRB.

If the *UL Configuration* IE in *DRB to Be Setup Item* IE or *DRB to Be Modified* *Item* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall take it into account for UL scheduling.

If the *RRC Reconfiguration Complete Indicator* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall consider the ongoing reconfiguration procedure involving changes of the L1/L2 configuration at the gNB-DU signalled to the gNB-CU via the *CellGroupConfig* IE for MR-DC operation or standalone operation has been successfully performed when such IE is set to ‘true’; otherwise (when such IE is set to ‘failure’), the gNB-DU shall consider the ongoing reconfiguration procedure has been failed and it shall continue to use the old L1/L2 configuration.

If *DL PDCP SN* *length* IE is included in the UE CONTEXT MODIFICATION REQUEST message for a DRB, gNB-DU shall, if supported, store this information and use it for lower layer configuration.

If *UL PDCP SN length* IE is included in the UE CONTEXT MODIFICATION REQUEST message for a DRB, gNB-DU shall, if supported, store this information and use it for lower layer configuration.

If the *RLC Failure Indication* IE is included in UE CONTEXT MODIFICATION REQUEST message, the gNB-DU should consider that the RLC entity indicated by such IE needs to be re-established when the CA-based packet duplication is active, and the gNB-DU may include the *Associated SCell List* IE in UE CONTEXT MODIFICATION RESPONSE by containing a list of SCell(s) associated with the RLC entity indicated by the *RLC Failure Indication* IE.

If the UE CONTEXT MODIFICATION REQUEST message contains the *RRC-Container* IE, the gNB-DU shall send the corresponding RRC message to the UE. If the UE CONTEXT MODIFICATION REQUEST message includes the *Execute Duplication* IE, the gNB-DU shall perform CA based duplication, if configured, for the SRB for the included *RRC-Container* IE.

If the UE CONTEXT MODIFICATION REQUEST message contains the *Transmission Action Indicator* IE, the gNB-DU shall stop or restart (if already stopped) data transmission for the UE, according to the value of this IE. It is up to gNB-DU implementation when to stop or restart the UE scheduling.

For EN-DC operation, if the *DRB to Be Setup List* IE is present in the UE CONTEXT MODIFICATION REQUEST message the gNB-CU shall include the *E-UTRAN QoS* IE. The allocation of resources according to the values of the *Allocation and Retention Priority* IE included in the *E-UTRAN QoS* IE shall follow the principles described for the E-RAB Setup procedure in TS 36.413 [15]. For NG-RAN operation, the gNB-CU shall include the *DRB Information* IE in the UE CONTEXT MODIFICATION REQUEST message.

If the gNB-CU includes the SMTC information of the measured frequency(ies) in the *MeasurementTimingConfiguration* IE of the *CU to DU RRC Information* IE that is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall generate the measurement gaps based on the received SMTC information. Then the gNB-DU shall send the measurement gaps information to the gNB-CU in the *MeasGapConfig* IE of the *DU to CU RRC Information* IE that is included in the UE CONTEXT MODIFICATION RESPONSE message.

If the *MeasConfig* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall deduce that changes to the measurements’ configuration need to be applied. The gNB-DU shall take the received info, e.g. the *measObjectToAddModList* IE, and/or the *measObjectToRemoveList* IE into account, when generating measurement gap and when deciding if a measurement gap is needed or not. If the *NeedForGapsInfoNR* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it as described in TS 38.331 [8].

For DC operation, if the gNB-CU includes the *CG-Config* IE in the *CU to DU RRC Information* IE that is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU may initiate low layer parameters coordination taking this information into account.

For sidelink operation, the *CG-ConfigInfo* IE shall be included in the *CU to DU RRC Information* IE if the gNB-CU receives sidelink related UE information from UE. If the *CG-ConfigInfo* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall regard it as an indication of V2X sidelink information as defined in TS 38.331 [8].

For EN-DC operation, if the gNB-CU includes the *Resource Coordination Transfer Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it for the purpose of resource coordination. If the gNB-CU received the MeNB Resource Coordination Information as defined in TS 36.423 [9], after completion of UE Context Setup procedures, the gNB-CU shall transparently transfer it to the gNB-DU via the *Resource Coordination Transfer Container* IE in the UE CONTEXT MODIFICATION REQUEST message. The gNB-DU shall use the information received in the *Resource Coordination Transfer Container* IE for reception of MeNB Resource Coordination Information at the gNB acting as secondary node as described in TS 36.423 [9]. If the *Resource Coordination E-UTRA Cell Information* IE is included in the *Resource Coordination Transfer Information* IE, the gNB-DU shall store the information replacing previously received information for the same E-UTRA cell, and use the stored information for the purpose of resource coordination. If the *Ignore PRACH Configuration* IE is present and set to "true" the *E-UTRA PRACH Configuration* IE in the UE CONTEXT MODIFICATION REQUEST message shall be ignored.

For NGEN-DC or NE-DC operation, if the gNB-CU includes the *Resource Coordination Transfer Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it for the purpose of resource coordination. If the gNB-CU received the MR-DC Resource Coordination Information as defined in TS 38.423 [28], after completion of UE Context Setup procedures, the gNB-CU shall transparently transfer it to the gNB-DU via the *Resource Coordination Transfer Container* IE in the UE CONTEXT MODIFICATION REQUEST message. The gNB-DU shall use the information received in the *Resource Coordination Transfer Container* IE for reception of MR-DC Resource Coordination Information at the gNB as described in TS 38.423 [28].

For EN-DC operation, and if the *Subscriber Profile ID* *for RAT/Frequency priority* IE is received from an MeNB, the UE CONTEXT MODIFICTION REQUEST message shall contain the *Subscriber Profile ID* *for RAT/Frequency priority* IE. If the *Additional RRM Policy Index* IE is received from an MeNB, the UE CONTEXT MODIFICATION REQUEST message shall , if supported, contain the *Additional RRM Policy Index* IE. The gNB-DU shall store the received Subscriber Profile ID for RAT/Frequency priority in the UE context and use it as defined in TS 36.300 [20]. The gNB-DU shall, if supported, store the received Additional RRM Policy Index in the UE context and use it as defined in TS 36.300 [20].

If the *Index to RAT/Frequency Selection Priority* IE is modified at the gNB-CU, the *Index to RAT/Frequency Selection Priority* IE shall be included in the UE CONTEXT MODIFICATION REQUEST. The gNB-DU may use it for RRM purposes.

Only one of the *Uplink TxDirectCurrentList Information* IE and *Uplink TxDirectCurrentTwoCarrierList Information* IE IE may be contained in the UE CONTEXT MODIFICATION REQUEST message. If the UE CONTEXT MODIFICATION REQUEST message contains one of the *Uplink TxDirectCurrentList Information* IE or the *Uplink TxDirectCurrentTwoCarrierList Information* IE, the gNB-DU may take that into account when selecting L1 configuration.

The *UEAssistanceInformation* IE shall be included in *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message if the gNB-CU received this IE from the UE; if the *UEAssistanceInformation* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account when configuring resources for the UE.

The *UEAssistanceInformationEUTRA* IE shall be included in *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message if the gNB-CU received this IE from the UE; if the *UEAssistanceInformationEUTRA* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account when configuring LTE sidelink resources for the UE.

The gNB-DU shall report to the gNB-CU, in the UE CONTEXT MODIFICATION RESPONSE message, the result for all the requested or modified DRBs, SRBs and BH RLC Channels in the following way:

- A list of DRBs which are successfully established shall be included in the *DRB Setup List* IE;

- A list of DRBs which failed to be established shall be included in the *DRB Failed to be Setup List* IE;

- A list of DRBs which are successfully modified shall be included in the *DRB Modified List* IE;

- A list of DRBs which failed to be modified shall be included in the *DRB Failed to be Modified List* IE;

- A list of SRBs which failed to be established shall be included in the *SRB Failed to be Setup List* IE.

- A list of successfully established SRBs with logical channel identities for primary path shall be included in the *SRB Setup List* IE only if CA based PDCP duplication is initiated for the concerned SRBs.

- A list of successfully modified SRBs with logical channel identities for primary path shall be included in the *SRB Modified List* IE only if CA based PDCP duplication is initiated for the concerned SRBs.

- A list of BH RLC channels which are successfully established shall be included in the *BH RLC Channel Setup List* IE;

- A list of BH RLC channels which failed to be established shall be included in the *BH RLC Channel Failed to be Setup List* IE;

- A list of BH RLC channels which are successfully modified shall be included in the *BH RLC Channel Modified List* IE;

- A list of BH RLC channels which failed to be modified shall be included in the *BH RLC Channel Failed to be Modified List* IE;

- A list of SL DRBs which are successfully established shall be included in the *SL DRB Setup List* IE;

- A list of SL DRBs which failed to be established shall be included in the *SL DRB Failed to be Setup List* IE;

- A list of SL DRBs which are successfully modified shall be included in the *SL DRB Modified List* IE;

- A list of SL DRBs which failed to be modified shall be included in the *SL DRB Failed to be Modified List* IE.

For each GBR DRB, if the *Alternative QoS Parameters Sets* IE is included in the *GBR QoS Flow Information* IE in the UE CONTEXT MODIFICATION REQUEST message, gNB-DU shall, if supported, behave the same as the NG-RAN node in the PDU Session Resource Setup procedure, specified in TS 38.413 [3].

If the *BAP Control PDU Channel* IE is included in the *BH RLC Channel to be Setup List* IE, the gNB-DU shall, if supported, consider that the configured BH RLC channel can be used to transmit BAP Control PDUs, and use this BH RLC channel as specified in TS 38.340 [30].

If the *BAP Control PDU Channel* IE is included in the *BH RLC Channel to be Modified List* IE, the gNB-DU shall, if supported, consider that the configured BH RLC channel can be used to transmit BAP Control PDUs, and use this BH RLC channel as specified in TS 38.340 [30]. Otherwise, if the *BAP Control PDU Channel* IE is not present for any BH RLC channel, any available BH RLC channel can be used to transmit BAP Control PDUs as specified in TS 38.340 [30].

If the *F1-C Transfer Path* IE is included in UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account.

When the gNB-DU reports the unsuccessful establishment of a DRB or SRB or SL DRB or a BH RLC channel, the cause value should be precise enough to enable the gNB-CU to know the reason for the unsuccessful establishment.

If the *Resource Coordination Transfer Container* IE is included in the UE CONTEXT MODIFICATION RESPONSE, the gNB-CU shall transparently transfer this information for the purpose of resource coordination as described in TS 36.423 [9], TS 38.423 [28].

If the *CellGroupConfig* IE is included in the *DU to CU RRC Information* IE contained in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall perform RRC Reconfiguration as described in TS 38.331 [8]. The *CellGroupConfig* IE shall transparently be signaled to the UE as specified in TS 38.331 [8].

If the *UE-CapabilityRAT-ContainerList* IE is included in the UE CONTEXT SETUP MODIFICATION REQUEST, the gNB-DU shall take this information into account for UE specific configurations.

If the *SCell Failed To Setup List* IE is contained in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall regard the corresponding SCell(s) failed to be set up with an appropriate cause value for each SCell failed to setup.

If the *C-RNTI* IE is included in the UE CONTEXT MODIFICATION RESPONSE, the gNB-CU shall consider that the C-RNTI has been allocated by the gNB-DU for this UE context.

If the *Inactivity Monitoring Request* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, gNB-DU may consider that the gNB-CU has requested the gNB-DU to perform UE inactivity monitoring. If the *Inactivity Monitoring Response* IE is contained in the UE CONTEXT MODIFICATION RESPONSE message and set to "Not-supported", the gNB-CU shall consider that the gNB-DU does not support UE inactivity monitoring for the UE.

The UE Context Modify Procedure is not used to configure SRB0.

If in the UE CONTEXT MODIFICATION REQUEST, the *Notification Control* IE is included in the *DRB to Be Setup List* IE or the *DRB to Be Modified List* IE and it is set to active, the gNB-DU shall, if supported, monitor the QoS of the DRB and notify the gNB-CU if the QoS cannot be fulfilled any longer or if the QoS can be fulfilled again. The *Notification Control* IE can only be applied to GBR bearers.

If the *UL PDU Session Aggregate Maximum Bit Rate* IE is included in the *QoS Flow Level QoS Parameters* IE containded in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall replace the received UL PDU Session Aggregate Maximum Bit Rate and use it as specified in TS 23.501 [21].

If the *gNB-DU UE Aggregate Maximum Bit Rate Uplink* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall:

- replace the previously provided gNB-DU UE Aggregate Maximum Bit Rate Uplink with the new received gNB-DU UE Aggregate Maximum Bit Rate Uplink;

- use the received gNB-DU UE Aggregate Maximum Bit Rate Uplink for non-GBR Bearers for the concerned UE.

The *gNB-DU UE Aggregate Maximum Bit Rate Uplink* IE shall be sent in the UE CONTEXT MODIFICATION REQUEST if *DRB to Be Setup List* IE is included and the gNB-CU has not previously sent it. The gNB-DU shall store and use the received *gNB-DU UE Aggregate Maximum Bit Rate Uplink* IE.

If the *RLC Status IE* is included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall assume that RLC has been reestablished at the gNB-DU and may trigger PDCP data recovery.

If the GNB-*DU Configuration Query* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, gNB-DU shall include the *CellGroupConfig* IE in the *DU To CU RRC Information* IE in the UE CONTEXT MODIFICATION RESPONSE message.

If the *Bearer Type Change* IE is included in *DRB to Be Modified List* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall either reset the lower layers or generate a new LCID for the affected bearer as specified in TS 37.340 [7].

For NE-DC operation, if *NeedforGap* IE is included in the UE CONTEXT MODIFICATION REQUEST message,the gNB-DU shall generate measurement gap for the SeNB.

If the *QoS Flow Mapping Indication* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, replace any previously received value and take it into account that only the uplink or downlink QoS flow is mapped to the DRB.

If the *Lower Layer presence status change* IE set to "suspend lower layers" is included in the UE CONTEXT MODIFICATION REQUEST, the gNB-DU shall keep all lower layer configuration for UEs, and not transmit or receive data from UE.

If the *Lower Layer presence status change* IE set to "resume lower layers" is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall use the previously stored lower layer configuration for the UE.

If the *Full Configuration* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall generate a *CellGroupConfig* IE using full configuration and include it in the UE CONTEXT MODIFICATION RESPONSE.

If the *Full Configuration* IE is contained in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall consider that the gNB-DU has generated the *CellGroupConfig* IE using full configuration.

For each QoS flow whose DRB has been successfully established or modified and the *QoS Monitoring Request* IE was included in the *QoS Flow Level QoS Parameters* IE contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall store this information, and, if supported, perform delay measurement and QoS monitoring, as specified in TS 23.501 [21].

If the *NR* *V2X Services Authorized* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, update its V2X services authorization information for the UE accordingly. If the *NR* *V2X Services Authorized* IE includes one or more IEs set to "not authorized", the gNB-DU shall, if supported, initiate actions to ensure that the UE is no longer accessing the relevant service(s).

If the *LTE* *V2X Services Authorized* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, update its V2X services authorization information for the UE accordingly. If the *LTE* *V2X Services Authorized* IE includes one or more IEs set to "not authorized", the gNB-DU shall, if supported, initiate actions to ensure that the UE is no longer accessing the relevant service(s).

If the *LTE UE Sidelink Aggregate Maximum Bit Rate* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported:

- replace the previously provided UE LTE Sidelink Aggregate Maximum Bit Rate, if available in the UE context, with the received value;

- use the received value for the concerned UE’s sidelink communication in network scheduled mode for LTE V2X services.

If the *NR UE Sidelink Aggregate Maximum Bit Rate* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported:

- replace the previously provided UE NR Sidelink Aggregate Maximum Bit Rate, if available in the UE context, with the received value;

- use the received value for the concerned UE’s sidelink communication in network scheduled mode for NR V2X services.

If the *PC5 Link Aggregate Maximum Bit Rate* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported:

- replace the previously provided UE PC5 Link Aggregate Bit Rate, if available in the UE context, with the received value;

- use the received value for the concerned UE’s sidelink communication in network scheduled mode for NR V2X services as defined in TS 23.287 [40].

If the *TSC Traffic Characteristics* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take into account the corresponding information received in the *TSC Traffic Characteristics* IE.

If the *Conditional Intra-DU Mobility Information* IE is included in the UE CONTEXT MODIFICATION REQUEST message and the CHO Trigger is set to "CHO-initiation", the gNB-DU shall consider that the request concerns a conditional handover or conditional PSCell change for the included *SpCell ID* IE and shall include it as the *Requested Target Cell ID* IE in the UE CONTEXT MODIFICATION RESPONSE message. The gNB-DU shall regard it as a reconfiguration with sync as defined in TS 38.331 [8].

If the *Conditional Intra-DU Mobility Information* IE is included in the UE CONTEXT MODIFICATION REQUEST message and the CHO Trigger is set to "CHO-replace", the gNB-DU shall replace the existing prepared conditional mobility identified by the *gNB-DU UE F1AP ID* IE and the *SpCell ID* IE.

If the *Conditional Intra-DU Mobility Information* IE is included in the UE CONTEXT MODIFICATION REQUEST message and the CHO Trigger is set to "CHO-cancel", the gNB-DU shall consider that the gNB-CU is about to remove any reference to, and release any resources previously reserved for the candidate cells associated to the UE-associated signalling identified by the *gNB-CU UE F1AP ID* IE and the *gNB-DU UE F1AP ID* IE. If the *Candidate Cells To Be Cancelled List* IE is also included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall consider that only the resources reserved for the cells identified by the included NR CGIs are about to be released by the gNB-CU.

If the *Transmission Stop Indicator* IE is included within the *DRB to Be Modified Item* IE in the UE CONTEXT MODIFICATION REQUEST message and set to “true”, the gNB-DU shall, if supported, stop the data transmission for the DRB. It is up to gNB-DU implementation when to stop the UE scheduling for that DRB.

If the *SCG Indicator* IE is contained in the UE CONTEXT MODIFICATION REQUEST message and it is set to “released”, the gNB-DU shall, if supported, deduce that an SCG is removed.

If the *Estimated Arrival Probability* IE is contained in the *Conditional Inter-DU Mobility Information* IE included in the UE CONTEXT MODIFICATION REQUEST message, then the gNB-DU may use the information to allocate necessary resources for the UE.

If the *Location Measurement Information* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account when configuring measurement gaps for the UE.

If for a given E-RAB for EN-DC operation the *ENB DL Transport Layer Address* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it as part of its ACL functionality configuration actions, if such ACL functionality is deployed.

If for a given Qos flow for NG-RAN operation the *PDCP Terminating Node DL Transport Layer Address* IE is included in the UE CONTEXT MODIFICATION REQUEST message, then the gNB-DU shall, if supported, use it as part of its ACL functionality configuration actions, if such ACL functionality is deployed.

If the *InterFrequencyConfig-NoGap* IE is included in the *DU to CU RRC Information* IE contained in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, use it as described in TS 38.331 [8].

#### 8.3.4.3 Unsuccessful Operation



Figure 8.3.4.3-1: UE Context Modification procedure. Unsuccessful operation

In case none of the requested modifications of the UE context can be successfully performed, the gNB-DU shall respond with the UE CONTEXT MODIFICATION FAILURE message with an appropriate cause value. If the *Conditional Intra-DU Mobility Information* IE was included in the UE CONTEXT MODIFICATION REQUEST message and set to "CHO-initiation", the gNB-DU shall include the received *SpCell ID* IE as the *Requested Target Cell ID* IE in the UE CONTEXT MODIFICATION FAILURE message.

If the gNB-DU is not able to accept the *SpCell ID* IE in UE CONTEXT MODIFICATION REQUEST message, it shall reply with the UE CONTEXT MODIFICATION FAILURE message.

If the *Conditional Intra-DU Mobility Information* IE was included and set to "CHO-initiation" or "CHO-replace" but the *SpCell ID* IE was not included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall respond with the UE CONTEXT MODIFICATION FAILURE message with an appropriate cause value.

#### 8.3.4.4 Abnormal Conditions

If the gNB-DU receives a UE CONTEXT MODIFICATION REQUEST message containing a *E-UTRAN QoS* IE for a GBR QoS DRB but where the *GBR QoS Information* IE is not present, the gNB-DU shall report the establishment of the corresponding DRB as failed in the *DRB Failed to Setup List* IE of the UE CONTEXT MODIFICATION RESPONSE message with an appropriate cause value.

If the gNB-DU receives a UE CONTEXT MODIFICATION REQUEST message containing a *DRB QoS* IE for a GBR QoS DRB but where the *GBR QoS Flow Information* IE is not present, the gNB-DU shall report the establishment of the corresponding DRBs as failed in the *DRB Failed to Setup List* IE of the UE CONTEXT MODIFICATION RESPONSE message with an appropriate cause value.

If the *Delay Critical* IE is included in the *Dynamic 5QI Descriptor* IE within the *DRB QoS* IE in the UE CONTEXT MODIFICATION REQUEST message and is set to the value "delay critical" but the *Maximum Data Burst Volume* IE is not present, the gNB-DU shall report the establishment of the corresponding DRB as failed in the *DRB Failed to Setup List* IE of the of the UE CONTEXT MODIFICATION RESPONSE message with an appropriate cause value.

If one or more candidate cells in the *Candidate Cells To Be Cancelled List* IE included in the UE CONTEXT MODIFICATION REQUEST message were not prepared using the same UE-associated signaling connection, the gNB-DU shall ignore those non-associated candidate cells.

In case of "CHO-replace" when the *Target gNB-DU UE F1AP ID* IE is included, if the candidate cell in the *SpCell ID* IE included in the UE CONTEXT MODIFICATION REQUEST message was not prepared using the same UE-associated signalling connection, the gNB-DU shall ignore this candidate cell.

If more than one of the following IEs, i.e., the *Uplink TxDirectCurrentList Information* IE and the *Uplink TxDirectCurrentTwoCarrierList Information* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall consider it as a logical error.

### 8.3.5 UE Context Modification Required (gNB-DU initiated)

#### 8.3.5.1 General

The purpose of the UE Context Modification Required procedure is to modify the established UE Context, e.g., modifying and releasing radio bearer resources, or sidelink radio bearer resources or candidate cells in conditional handover or conditional PSCell change. The procedure uses UE-associated signalling.

#### 8.3.5.2 Successful Operation



Figure 8.3.5.2-1: UE Context Modification Required procedure. Successful operation

The F1AP UE CONTEXT MODIFICATION REQUIRED message is initiated by the gNB-DU.

The gNB-CU reports the successful update of the UE context in the UE CONTEXT MODIFICATION CONFIRM message.

For a given bearer for which PDCP CA duplication was already configured, if two *DL UP TNL Information* IEs are included in UE CONTEXT MODIFICATION REQUIRED message for a DRB, the gNB-CU shall include two *UL UP TNL Information* IEs in UE CONTEXT MODIFICATION CONFIRM message. The gNB-CU and gNB-DU use the *UL UP TNL Information* IEs and *DL UP TNL Information* IEs to support packet duplication for intra-gNB-DU CA as defined in TS 38.470 [2], and the first *UP TNL Information* IE is still for the primary path.

For a given bearer for which PDCP CA duplication was already configured, if one or two *Additional PDCP Duplication UP TNL Information* IEs are included in the UE CONTEXT MODIFICATION REQUIRED message for a DRB, the gNB-CU shall, if supported, include one or two *Additional PDCP Duplication UP TNL Information* IEs in the UE CONTEXT MODIFICATION CONFIRM message. The gNB-CU and gNB-DU use the *Additional PDCP Duplication UP TNL Information* IEs to support packet duplication for intra-gNB-DU CA as defined in TS 38.470 [2].

If the *BH Information* IE is included in the *UL UP TNL Information to be setup List* IE or the *Additional PDCP Duplication TNL List* IE for a DRB, the gNB-DU shall, if supported, use the indicated BAP Routing ID and BH RLC channel for transmission of the corresponding GTP-U packets to the IAB-donor, as specified in TS 38.340 [30].

If the *Resource Coordination Transfer Container* IE is included in the UE CONTEXT MODIFICATION REQUIRED, the gNB-CU shall transparently transfer this information for the purpose of resource coordination as described in TS 36.423 [9], TS 38.423 [28].

For EN-DC operation, if the gNB-CU includes the *Resource Coordination Transfer Information* IE in the UE CONTEXT MODIFICATION CONFIRM message, the gNB-DU shall, if supported, use it for the purpose of resource coordination. If the gNB-CU received the MeNB Resource Coordination Information as defined in TS 36.423 [9], after completion of UE Context Modification Required procedures, the gNB-CU shall transparently transfer it to the gNB-DU via the *Resource Coordination Transfer Container* IE in the UE CONTEXT MODIFICATION CONFIRM message. The gNB-DU shall use the information received in the *Resource Coordination Transfer Container* IE for reception of MeNB Resource Coordination Information at the gNB acting as secondary node as described in TS 36.423 [9]. If the *Resource Coordination E-UTRA Cell Information* IE is included in the *Resource Coordination Transfer Information* IE, the gNB-DU shall store the information replacing previously received information for the same E-UTRA cell, and use the stored information for the purpose of resource coordination. If the *Ignore PRACH Configuration* IE is present and set to "true" the *E-UTRA PRACH Configuration* IE in the UE CONTEXT MODIFICATION CONFIRM message shall be ignored.

For NGEN-DC or NE-DC operation, if the gNB-CU includes the *Resource Coordination Transfer Information* IE in the UE CONTEXT MODIFICATION CONFIRM message, the gNB-DU shall, if supported, use it for the purpose of resource coordination. If the gNB-CU received the MR-DC Resource Coordination Information as defined in TS 38.423 [28], after completion of UE Context Modification Required procedures, the gNB-CU shall transparently transfer it to the gNB-DU via the *Resource Coordination Transfer Container* IE in the UE CONTEXT MODIFICATION CONFIRM message. The gNB-DU shall use the information received in the *Resource Coordination Transfer Container* IE for reception of MR-DC Resource Coordination Information at the gNB as described in TS 38.423 [28].

If the *CellGroupConfig* IE is included in the *DU to CU RRC Information* IE contained in the UE CONTEXT MODIFICATION REQUIRED message, the gNB-CU shall perform RRC Reconfiguration as described in TS 38.331 [8]. The *CellGroupConfig* IE shall transparently be signaled to the UE as specified in TS 38.331 [8].

If the UE CONTEXT MODIFICATION CONFIRM message includes the *Execute Duplication* IE, the gNB-DU shall perform CA based duplication, if configured, for the SRB for the included *RRC-Container* IE.

If the UE CONTEXT MODIFICATION REQUIRED message contains the *RLC Status* IE, the gNB-CU shall assume that RLC has been reestablished at the gNB-DU and may trigger PDCP data recovery.

If the *Candidate Cells To Be Cancelled List* IE is included in the UE CONTEXT MODIFICATION REQUIRED message, the gNB-CU shall consider that only the resources reserved for the candidate cells identified by the included NR CGIs and associated to the UE-associated signaling identified by the *gNB-CU UE F1AP ID* IE and the *gNB-CU UE F1AP ID* IE are about to be released by the gNB-DU.

#### 8.3.5.2A Unsuccessful Operation



Figure 8.3.5.2A-1: UE Context Modification Required procedure. Unsuccessful operation.

In case none of the requested modifications of the UE context can be successfully performed, the gNB-CU shall respond with the UE CONTEXT MODIFICATION REFUSE message with an appropriate cause value.

#### 8.3.5.3 Abnormal Conditions

If one or more candidate cells in the *Candidate Cells To Be Cancelled List* IE included in the UE CONTEXT MODIFICATION REQUIRED message were not prepared using the same UE-associated signaling connection, the gNB-CU shall ignore those non-associated candidate cells.

### 8.3.6 UE Inactivity Notification

#### 8.3.6.1 General

This procedure is initiated by the gNB-DU to indicate the UE activity event.

The procedure uses UE-associated signalling.

#### 8.3.6.2 Successful Operation



Figure 8.3.6.2-1: UE Inactivity Notification procedure.

The gNB-DU initiates the procedure by sending the UE INACTIVITY NOTIFICATION message to the gNB-CU.

If the *DRB ID* IE is included in the *DRB Activity Item* IE in the UE INACTIVITY NOTIFICATION message, the *DRB Activity* IE shall also be included

#### 8.3.6.3 Abnormal Conditions

Not applicable.

### 8.3.7 Notify

#### 8.3.7.1 General

The purpose of the Notify procedure is to enable the gNB-DU to inform the gNB-CU that the QoS of an already established GBR DRB cannot be fulfilled any longer or that it can be fulfilled again. The procedure uses UE-associated signalling.

#### 8.3.7.2 Successful Operation



Figure 8.3.7.2-1: Notify procedure. Successful operation.

The gNB-DU initiates the procedure by sending a NOTIFY message.

The NOTIFY message shall contain the list of the GBR DRBs associated with notification control for which the QoS is not fulfilled anymore or for which the QoS is fulfilled again by the gNB-DU. The gNB-DU may also indicate an alternative QoS parameters set which it can currently fulfil in the *Current QoS Parameters Set Index* IE.

Upon reception of the NOTIFY message, the gNB-CU may identify which are the affected PDU sessions and QoS flows. The gNB-CU may inform the 5GC that the QoS for these PDU sessions or QoS flows is not fulfilled any longer or it is fulfilled again.

#### 8.3.7.3 Abnormal Conditions

Not applicable.

### 8.3.8 Access Success

#### 8.3.8.1 General

The purpose of the Access Success procedure is to enable the gNB-DU to inform the gNB-CU of which cell the UE has successfully accessed during conditional handover or conditional PSCell change. The procedure uses UE-associated signalling.

#### 8.3.8.2 Successful Operation



Figure 8.3.8.2-1: Access Success procedure. Successful operation.

The gNB-DU initiates the procedure by sending a ACCESS SUCCESS message.

Upon reception of the ACCESS SUCCESS message, the gNB-CU shall consider that the UE successfully accessed the cell indicated by the included *NR CGI* IE in this gNB-DU and consider all the other CHO preparations or conditional PSCell change preparations accepted for this UE under the same UE-associated signaling connection in this gNB-DU as cancelled.

**Interaction with other procedure:**

The gNB-CU may initiate UE Context Release procedure toward the other signalling connections or other candidate gNB-DUs for this UE, if any.

#### 8.3.8.3 Abnormal Conditions

If the ACCESS SUCCESS message refers to a context that does not exist, the gNB-CU shall ignore the message.

## 8.4 RRC Message Transfer procedures

### 8.4.1 Initial UL RRC Message Transfer

#### 8.4.1.1 General

The purpose of the Initial UL RRC Message Transfer procedure is to transfer the initial RRC message to the gNB-CU. The procedure uses non-UE-associated signaling.

#### 8.4.1.2 Successful operation



Figure 8.4.1.2-1: Initial UL RRC Message Transfer procedure.

The establishment of the UE-associated logical F1-connection shall be initiated as part of the procedure.

If the *DU to CU RRC Container* IE is not included in the INITIAL UL RRC MESSAGE TRANSFER, the gNB-CU should reject the UE under the assumption that the gNB-DU is not able to serve such UE. If the gNB-DU is able to serve the UE, the gNB-DU shall include the *DU to CU RRC Container* IE and the gNB-CU shall configure the UE as specified in TS 38.331 [8]. The gNB-DU shall not include the *ReconfigurationWithSync* field in the *CellGroupConfig* IE as defined in TS 38.331 [8] of the *DU to CU RRC Container* IE.

If the *SUL Access Indication* IE is included in the INITIAL UL RRC MESSAGE TRANSFER, the gNB-CU shall consider that the UE has performed access on SUL carrier.

If the *RRC-Container-RRCSetupComplete* IE is included in the INITIAL UL RRC MESSAGE TRANSFER, the gNB-CU shall take it into account as specified in TS 38.401 [4].

#### 8.4.1.3 Abnormal Conditions

Not applicable.

### 8.4.2 DL RRC Message Transfer

#### 8.4.2.1 General

The purpose of the DL RRC Message Transfer procedure is to transfer an RRC message The procedure uses UE-associated signalling.

#### 8.4.2.2 Successful operation



Figure 8.4.2.2-1: DL RRC Message Transfer procedure

If a UE-associated logical F1-connection exists, the DL RRC MESSAGE TRANSFER message shall contain the *gNB-DU UE F1AP ID* IE, which should be used by gNB-DU to lookup the stored UE context.If no UE-associated logical F1-connection exists, the UE-associated logical F1-connection shall be established at reception of the DL RRC MESSAGE TRANSFER message.

If the *Index to RAT/Frequency Selection Priority* IE is included in the DL RRC MESSAGE TRANSFER, the gNB-DU may use it for RRM purposes. If the *Additional RRM Policy Index* IE is included in the DL RRC MESSAGE TRANSFER, the gNB-DU may use it for RRM purposes.

The DL RRC MESSAGE TRANSFER message shall include, if available, the *old gNB-DU UE F1AP ID* IE so that the gNB-DU can retrieve the existing UE context in RRC connection reestablishment procedure, as defined in TS 38.401 [4].

The DL RRC MESSAGE TRANSFER message shall include, if SRB duplication is activated, the *Execute Duplication* IE, so that the gNB-DU can perform CA based duplication for the SRB.

If the gNB-DU identifies the UE-associated logical F1-connection by the *gNB-DU UE F1AP ID* IE in the DL RRC MESSAGE TRANSFER message and the *old gNB-DU UE F1AP ID* IE is included, it shall release the old gNB-DU UE F1AP ID and the related configurations associated with the old gNB-DU UE F1AP ID.

If the *UE Context not retrievable* IE set to "true" is included in the DL RRC MESSAGE TRANSFER, the DL RRC MESSAGE TRANSFER may contain the *Redirected RRC message* IE and use it as specified in TS 38.401 [4].

If the *UE Context not retrievable* IE set to "true" is included in the DL RRC MESSAGE TRANSFER, the DL RRC MESSAGE TRANSFER may contain the *PLMN Assistance Info for Network Sharing* IE, if available at the gNB-CU and may use it as specified in TS 38.401 [4].

If the DL RRC MESSAGE TRANSFER message contains the *New gNB-CU UE F1AP ID* IE, the gNB-DU shall, if supported, replace the value received in the *gNB-CU UE F1AP ID* IE by the value of the *New gNB-CU UE F1AP ID* and use it for further signalling.

**Interactions with UE Context Release Request procedure:**

If the *UE Context not retrievable* IE set to "true" is included in the DL RRC MESSAGE TRANSFER, the gNB-DU may trigger the UE Context Release Request procedure, as specified in TS 38.401 [4].

#### 8.4.2.3 Abnormal Conditions

Not applicable.

### 8.4.3 UL RRC Message Transfer

#### 8.4.3.1 General

The purpose of the UL RRC Message Transfer procedure is to transfer an RRC message as an UL PDCP-PDU to the gNB-CU. The procedure uses UE-associated signalling.

#### 8.4.3.2 Successful operation



Figure 8.4.3.2-1: UL RRC Message Transfer procedure

When the gNB-DU has received from the radio interface an RRC message to which a UE-associated logical F1-connection for the UE exists, the gNB-DU shall send the UL RRC MESSAGE TRANSFER message to the gNB-CU including the RRC message as a *RRC-Container* IE.

If the *Selected PLMN ID* IE is contained in the UL RRC MESSAGE TRANSFER message, the gNB-CU may use it as specified in TS 38.401 [4].

If the UL RRC MESSAGE TRANSFER message contains the *New gNB-DU UE F1AP ID* IE, the gNB-CU shall, if supported, replace the value received in the *gNB-DU UE F1AP ID* IE by the value of the *New gNB-DU UE F1AP ID* and use it for further signalling.

#### 8.4.3.3 Abnormal Conditions

Not applicable.

### 8.4.4 RRC Delivery Report

#### 8.4.4.1 General

The purpose of the RRC Delivery Report procedure is to transfer to the gNB-CU information about successful delivery of DL PDCP-PDUs including RRC messages. The procedure uses UE-associated signalling.

#### 8.4.4.2 Successful operation

gNB

-

DU

RRC DELIVERY REPORT

gNB

-

CU

Figure 8.4.4.2-1: RRC Delivery Report procedure.

When the gNB-DU has successfully delivered an RRC message to the UE for which the gNB-CU has requested a delivery report, the gNB-DU shall send the RRC DELIVERY REPORT message to the gNB-CU containng the *RRC* *Delivery Status* IE and the *SRB ID* IE.

#### 8.4.4.3 Abnormal Conditions

Not applicable.

## 8.5 Warning Message Transmission Procedures

### 8.5.1 Write-Replace Warning

#### 8.5.1.1 General

The purpose of Write-Replace Warning procedure is to start or overwrite the broadcasting of warning messages. The procedure uses non UE-associated signalling.

#### 8.5.1.2 Successful Operation



Figure 8.5.1.2-1: Write-Replace Warning procedure: successful operation

The gNB-CU initiates the procedure by sending a WRITE-REPLACE WARNING REQUEST message to the gNB-DU.

Upon receipt of the WRITE-REPLACE WARNING REQUEST message, the gNB-DU shall prioritise its resources to process the warning message.

The gNB-DU acknowledges the WRITE-REPLACE WARNING REQUEST message by sending a WRITE-REPLACE WARNING RESPONSE message to the gNB-CU.

Upon receipt of the WRITE-REPLACE WARNING REQUEST message, the gNB-DU shall include the *Dedicated SI Delivery Needed UE List* IE in the WRITE-REPLACE WARNING RESPONSE message for UEs that are unable to receive system information from broadcast.

If *Dedicated SI Delivery Needed UE List* IE is contained in the WRITE-REPLACE WARNING RESPONSE message, the gNB-CU should take it into account when informing the UE of the updated system information via the dedicated RRC message.

Upon reception of the *Notification Information* IE in the *PWS System Information* IE in the WRITE-REPLACE WARNING REQUEST message, the gNB-DU shall use this information to avoid that duplications trigger new broadcast or replace existing broadcast.

If the gNB-DU receives a WRITE-REPLACE WARNING REQUEST message with the *Notification Information* IE in the *PWS System Information* IE which are different from those of ongoing broadcast warning messages, and if the *SIB Type* IE is set to "8", the gNB-DU shall broadcast the received warning message concurrently with other ongoing messages.

If the gNB-DU receives a WRITE-REPLACE WARNING REQUEST message with the *Notification Information* IE in the *PWS System Information* IE which are different from those of ongoing broadcast warning messages, and if the *SIB Type* IE is set to the value other than ‘8’ , the gNB-DU shall use the newly received one to replace the ongoing broadcast warning message with the same value of *SIB Type* IE.

If the *SIB Type* IE in the *PWS System Information* IE in the WRITE-REPLACE WARNING REQUEST message is set to "8" and if a value "0" is received in the *Number of Broadcast Requested* IE and if the *Repetition Period* IE is different from "0", the gNB-DU shall broadcast the received warning message indefinitely.

If *Additional SIB Message List* IE is included in *PWS System Information* IE, the gNB-DU shall store all SIB message(s) in *PWS System Information* IE, and consider that the first segment of public warning message is included in *SIB message* IE, and the remaining segments are listed in *Additional SIB Message List* IE in segmentation sequence order.

#### 8.5.1.3 Unsuccessful Operation

Not applicable.

#### 8.5.1.4 Abnormal Conditions

If the gNB-DU receives a WRITE-REPLACE WARNING REQUEST message which does not include the *Notification Information* IE in the *PWS System Information* IE, the gNB-DU shall consider it as a logical error.

### 8.5.2 PWS Cancel

#### 8.5.2.1 General

The purpose of the PWS Cancel procedure is to cancel an already ongoing broadcast of a warning message. The procedure uses non UE-associated signalling.

#### 8.5.2.2 Successful Operation



Figure 8.5.2.2-1: PWS Cancel procedure: successful operation

The gNB-CU initiates the procedure by sending a PWS CANCEL REQUEST message to the gNB-DU.

The gNB-DU shall acknowledge the PWS CANCEL REQUEST message by sending the PWS CANCEL RESPONSE message.

If the *Cancel-All Warning Messages Indicator* IE is present in the PWS CANCEL REQUEST message, then the gNB-DU shall stop broadcasting and discard all warning messages for the area as indicated in the *Cell Broadcast To Be Cancelled List* IE or in all the cells of the gNB-DU if the *Cell Broadcast To Be Cancelled List* IE is not included. The gNB-DU shall acknowledge the PWS CANCEL REQUEST message by sending the PWS CANCEL RESPONSE message, and shall, if there is area to report where an ongoing broadcast was stopped successfully, include the *Cell Broadcast Cancelled List* IE with the *Number of Broadcasts* IE set to 0.

If the *Cell Broadcast To Be Cancelled List* IE is not included in the PWS CANCEL REQUEST message, the gNB-DU shall stop broadcasting and discard the warning message identified by the *Message Identifier* IE and the *Serial Number* IE in the *Notification Information* IE in all of the cells in the gNB-DU.

If the *Notification Information* IE is included in the PWS CANCEL REQUEST, the gNB-DU shall cancel broadcast of the public warning message identified by the *Notification Information* IE.

If an area included in the *Cell Broadcast To Be Cancelled List* IE in the PWS CANCEL REQUEST message does not appear in the *Cell Broadcast Cancelled List* IE in the PWS CANCEL RESPONSE, the gNB-CU shall consider that the gNB-DU had no ongoing broadcast to stop for the public warning message identified, if present, by the *Notification Information* IE in that area.

If the *Cell Broadcast Cancelled List* IE is not included in the PWS CANCEL RESPONSE message, the gNB-CU shall consider that the gNB-DU had no ongoing broadcast to stop for the public warning message identified, if present, by the *Notification Information* IE.

#### 8.5.2.3 Unsuccessful Operation

If the gNB-DU receives a PWS CANCEL REQUEST message which contains neither the *Cancel-all Warning Messages Indicator* IE nor the *Notification Information* IE, the gNB-DU shall consider it as a logical error.

8.5.2.4 Abnormal Conditions

Not applicable.

### 8.5.3 PWS Restart Indication

#### 8.5.3.1 General

The purpose of PWS Restart Indication procedure is to inform the gNB-CU that PWS information for some or all cells of the gNB-DU are available for reloading from the CBC if needed. The procedure uses non UE-associated signalling.

#### 8.5.3.2 Successful Operation



Figure 8.5.3.2-1: PWS restart indication

The gNB-DU initiates the procedure by sending a PWS RESTART INDICATION message to the gNB-CU.

#### 8.5.3.3 Abnormal Conditions

Not applicable.

### 8.5.4 PWS Failure Indication

#### 8.5.4.1 General

The purpose of the PWS Failure Indication procedure is to inform the gNB-CU that ongoing PWS operation for one or more cells of the gNB-DU has failed. The procedure uses non UE-associated signalling.

#### 8.5.4.2 Successful Operation



Figure 8.5.4.2-1: PWS failure indication

The gNB-DU initiates the procedure by sending a PWS FAILURE INDICATION message to the gNB-CU.

#### 8.5.4.3 Abnormal Conditions

Not applicable.

## 8.6 System Information Procedures

### 8.6.1 System Information Delivery

#### 8.6.1.1 General

The purpose of the System Information Delivery procedure is to command the gNB-DU to broadcast the requested Other SI. The procedure uses non-UE associated signalling.

#### 8.6.1.2 Successful Operation



Figure 8.6.1.2-1: System Information Delivery procedure. Successful operation.

The gNB-CU initiates the procedure by sending a SYSTEM INFORMATION DELIVERY COMMAND message to the gNB-DU.

Upon reception of the SYSTEM INFORMATION DELIVERY COMMAND message, the gNB-DU shall broadcast the requested Other SI, and if the UE corresponding to the *confirmed UE ID* IE is not in RRC connected state, delete the UE context, if any.

**Interactions with gNB-DU Configuration Update procedure:**

Upon reception of SYSTEM INFORMATION DELIVERY COMMAND message, the gNB-DU Configuration Update procedure may be performed , and as part of such procedure the gNB-DU shall include the *Dedicated SI Delivery Needed UE List* IE in GNB-DU CONFIGURATION UPDATE message for UEs that are unable to receive system information from broadcast.

#### 8.6.1.3 Abnormal Conditions

Not applicable.

## 8.7 Paging procedures

### 8.7.1 Paging

#### 8.7.1.1 General

The purpose of the Paging procedure is used to provide the paging information to enable the gNB-DU to page a UE. The procedure uses non-UE associated signalling.

#### 8.7.1.2 Successful Operation



Figure 8.7.1.2-1: Paging procedure. Successful operation.

The gNB-CU initiates the procedure by sending a PAGING message.

The *Paging DRX* IE may be included in the PAGING message, and if present the gNB-DU may use it to determine the final paging cycle for the UE.

The *Paging Priority* IE may be included in the PAGING message, and if present the gNB-DU may use it according to TS 23.501 [21].

At the reception of the PAGING message, the gNB-DU shall perform paging of the UE in cells which belong to cells as indicated in the *Paging Cell List* IE.

The *Paging Origin* IE may be included in the PAGING message, and if present the gNB-DU shall transfer it to the UE.

#### 8.7.1.3 Abnormal Conditions

Not applicable.

## 8.8 Trace Procedures

### 8.8.1 Trace Start

#### 8.8.1.1 General

The purpose of the Trace Start procedure is to allow the gNB-CU to request the gNB-DU to initiate a trace session for a UE. The procedure uses UE-associated signalling.

#### 8.8.1.2 Successful Operation



Figure 8.8.1.2-1: Trace start procedure: Successful Operation.

Upon reception of the TRACE START message, the gNB-DU shall initiate the requested trace session for the requested UE, as described in TS 32.422 [29]. In particular, the gNB-DU shall, if supported:

- if the *Trace Activation* IE includes the *MDT Activation* IE set to "Immediate MDT and Trace" initiate the requested trace session and MDT session as described in TS 32.422 [29];

- if the *Trace Activation* IE includes the *MDT Activation* IE set to "Immediate MDT Only" initiate the requested MDT session as described in TS 32.422 [29] and the gNB-DU shall ignore *Interfaces To Trace* IE, and *Trace Depth* IE;

#### 8.8.1.3 Abnormal Conditions

Void.

### 8.8.2 Deactivate Trace

#### 8.8.2.1 General

The purpose of the Deactivate Trace procedure is to allow the gNB-CU to request the gNB-DU to stop the trace session for the indicated trace reference. The procedure uses UE-associated signalling.

#### 8.8.2.2 Successful Operation



Figure 8.8.2.2-1: Deactivate trace procedure: Successful Operation

Upon reception of the DEACTIVATE TRACE message, the gNB-DU shall stop the trace session for the indicated trace reference contained in the *Trace ID* IE, as described in TS 32.422 [29].

#### 8.8.2.3 Abnormal Conditions

Void.

### 8.8.3 Cell Traffic Trace

#### 8.8.3.1 General

The purpose of the Cell Traffic Trace procedure is to send the allocated Trace Recording Session Reference and the Trace Reference to the gNB-CU. The procedure uses UE-associated signalling.

#### 8.8.3.2 Successful Operation



Figure 8.8.3.2-1: Cell Traffic Trace procedure. Successful operation.

The procedure is initiated with a CELL TRAFFIC TRACE message sent from the gNB-DU to the gNB-CU.

If the *Privacy Indicator* IE is included in the message, the gNB-CU shall store the information so that it can be transferred towards the AMF.

#### 8.8.3.3 Abnormal Conditions

Void.

## 8.9 Radio Information Transfer procedures

### 8.9.1 DU-CU Radio Information Transfer

#### 8.9.1.1 General

The purpose of the DU-CU Radio Information Transfer procedure is to transfer radio-related information from the gNB-DU to the gNB-CU. The procedure uses non-UE-associated signalling.

#### 8.9.1.2 Successful operation



Figure 8.9.1.2-1: DU-CU Radio Information Transfer procedure.

The gNB-DU initiates the procedure by sending the DU-CU RADIO INFORMATION TRANSFER message to the gNB-CU.

The gNB-CU considers that the *RIM-RS Detection Status* IE indicates the RIM-RS detection status of the cell identified by *Aggressor Cell ID* IE.

#### 8.9.1.3 Abnormal Conditions

Not applicable.

### 8.9.2 CU-DU Radio Information Transfer

#### 8.9.2.1 General

The purpose of the CU-DU Radio Information Transfer procedure is to transfer radio-related information from the gNB-CU to the gNB-DU. The procedure uses non-UE-associated signalling.

#### 8.9.2.2 Successful operation



Figure 8.9.2.2-1: CU-DU Radio Information Transfer procedure.

The gNB-CU initiates the procedure by sending the CU-DU RADIO INFORMATION TRANSFER message to the gNB-DU. The gNB-DU considers that the *RIM-RS Detection Status* IE indicates the detection status of RIM-RS associated with *Victim gNB Set ID* IE.

#### 8.9.2.3 Abnormal Conditions

Not applicable.

## 8.10 IAB Procedures

### 8.10.0 General

In this version of the specification, the IAB procedures are used to configure IAB-donor-DU or IAB-DU.

NOTE: The IAB procedures are applicable for IAB-nodes and IAB-donor-DU, where the term "gNB-DU" applies to IAB-DU and IAB-donor-DU, and the term "gNB-CU" applies to IAB-donor-CU, unless otherwise specified.

### 8.10.1 BAP Mapping Configuration

#### 8.10.1.1 General

The BAP Mapping Configuration Procedure is initiated by the gNB-CU in order to configure the DL/UL routing information and/or traffic mapping information needed for the gNB-DU. The procedure uses non-UE associated signalling.

NOTE: Implementation shall ensure the avoidance of potential race conditions, i.e. it shall ensure that conflicting traffic mapping configurations are not concurrently performed using the non-UE-associated BAP Mapping Configuration procedure and the UE-associated UE Context Management procedures.

#### 8.10.1.2 Successful Operation



Figure 8.10.1.2-1: BAP Mapping Configuration procedure: Successful Operation

The gNB-CU initiates the procedure by sending BAP MAPPING CONFIGURATION message to the gNB-DU. The gNB-DU replies to the gNB-CU with BAP MAPPING CONFIGURATION ACKNOWLEDGE.

If *BH Routing Information Added List* IE is included in the BAP MAPPING CONFIGURATION message, the gNB-DU shall, if supported, store the BH routing information from this IE and use it for DL/UL traffic forwarding as specified in TS 38.340 [30]. If *BH Routing Information Added List* IE contains information for an existing BAP Routing ID, the gNB-DU shall, if supported, replace the previously stored routing information for this BAP Routing ID with the corresponding information in the *BH Routing Information Added List* IE.

If *BH Routing Information Removed List* IE is included in the BAP MAPPING CONFIGURATION message, the gNB-DU shall, if supported, remove the BH routing information according to such IE.

If the *Traffic Mapping Information* IE is included in the BAP MAPPING CONFIGURATION message, the gNB-DU shall, if supported, process the *Traffic Mapping Information* IE as follows:

- if the *IP to layer2 Traffic Mapping Info* IE is included, the gNB-DU shall store the mapping information contained in the *IP to layer2 Mapping Info To Add* IE, if present, and remove the previously stored mapping information as indicated by the *IP to layer2 Mapping Info To Remove* IE, if present. The gNB-DU shall use the mapping information stored for the mapping of IP traffic to layer 2, as specified in TS 38.340 [30].

- if the *BAP layer BH RLC channel Mapping Info* IE is included, the gNB-DU shall store the mapping information contained in the *BAP layer BH RLC channel Mapping Info To Add* IE, if present, and remove the previously stored mapping information as indicated by the *BAP layer BH RLC channel Mapping Info To Remove* IE, if present. The gNB-DU shall use the mapping information stored when forwarding traffic on BAP sublayer, as specified in TS 38.340 [30].

#### 8.10.1.A Unsuccessful Operation



Figure 8.10.1.3-1: BAP Mapping Configuration procedure: Unsuccessful Operation

If the gNB-DU cannot accept the configuration, it shall respond with a BAP MAPPING CONFIGURATION FAILURE and appropriate cause value.

If the BAP MAPPING CONFIGURATION FAILURE message includes the Time To Wait IE, the gNB-CU shall wait at least for the indicated time before reinitiating the BAP MAPPING CONFIGURATION message towards the same gNB-DU.

#### 8.10.1.3 Abnormal Conditions

Not applicable.

### 8.10.2 gNB-DU Resource Configuration

#### 8.10.2.1 General

The gNB-DU Resource Configuration procedure is initiated by the gNB-CU in order to configure the resource usage for a gNB-DU. The procedure uses non-UE associated signalling.

In this version of the specification, this procedure is used to configure IAB resources.

#### 8.10.2.2 Successful Operation



Figure 8.10.2.2-1: gNB-DU Resource Configuration procedure: Successful Operation

The gNB-CU initiates the procedure by sending the GNB-DU RESOURCE CONFIGURATION message to gNB-DU. The gNB-DU replies to the gNB-CU with the GNB-DU RESOURCE CONFIGURATION ACKNOWLEDGE message.

For each cell in the *Activated Cells to Be Updated List* IE of the GNB-DU RESOURCE CONFIGURATION message, the gNB-DU shall store the resource configuration contained in the *IAB-DU Cell Resource Configuration-Mode-Info* IE and use it when performing scheduling in compliance with TS 38.213 [31].

If the *Child-Node List* IE is included in the GNB-DU RESOURCE CONFIGURATION message, for each child-node indicated by the *gNB-CU UE F1AP ID* IE and *gNB-DU UE F1AP ID* IE, and for each cell served by this child node indicated by the *NR CGI* IE in the *Child-Node Cells List* IE, the gNB-DU shall store the received information and use this information for scheduling, in compliance with TS 38.213 [31], clause 14.

#### 8.10.2.B Unsuccessful Operation



Figure 8.10.2.3-1: gNB-DU Resource Configuration procedure: Unsuccessful Operation

If the gNB-DU cannot accept the configuration, it shall respond with a GNB-DU RESOURCE CONFIGURATION FAILURE and appropriate cause value.

If the GNB-DU RESOURCE CONFIGURATION FAILURE message includes the Time To Wait IE, the gNB-CU shall wait at least for the indicated time before reinitiating the GNB-DU RESOURCE CONFIGURATION message towards the same gNB-DU.

#### 8.10.2.3 Abnormal Conditions

Not applicable.

### 8.10.3 IAB TNL Address Allocation

#### 8.10.3.1 General

The purpose of the IAB TNL Address Allocation procedure is to allocate TNL addresses to be used by the IAB-node(s). This procedure uses non-UE associated signalling.

NOTE: This procedure is applicable for IAB-donor-DU, where the term "gNB-DU" applies to IAB-donor-DU, and the term "gNB-CU" applies to IAB-donor-CU.

#### 8.10.3.2 Successful Operation



Figure 8.10.3.2-1: IAB TNL Address Allocation procedure: Successful Operation

The gNB-CU initiates the procedure by sending the IAB TNL ADDRESS REQUEST message to the gNB-DU.

If the IAB TNL ADDRESS REQUEST message contains the *IAB IPv4 Addresses Requested* IE, the gNB-DU shall allocate the individual TNL address(es) accordingly and include these IPv4 address(es) in the IAB TNL ADDRESS RESPONSE message.

If the IAB TNL ADDRESS REQUEST message contains the *IAB IPv6 Request Type* IE, the gNB-DU shall allocate the individual IPv6 address(es) or IPv6 address prefix(es) accordingly and include these IPv6 address(es) or IPv6 address prefix(es) in the IAB TNL ADDRESS RESPONSE message.

If the IAB TNL ADDRESS REQUEST message contains the *IAB TNL Addresses to Remove List* IE, the gNB-DU shall consider that the TNL address(es) and/or TNL address prefix(es) therein are no longer used by the IAB-node(s). In addition, if the IAB TNL ADDRESS REQUEST message only contains the *IAB TNL Addresses to Remove List* IE, the gNB-CU shall ignore the *IAB Allocated TNL Address List* IE in the IAB TNL ADDRESS RESPONSE message.

If the IAB TNL ADDRESS RESPONSE message contains the *IAB TNL Address Usage IE* in the *IAB Allocated TNL Address List Item* IE, the gNB-CU shall consider the indicated TNL address usage when allocating a TNL addressto an IAB-node. Otherwise, the gNB-CU shall consider that the TNL address can be used for all traffic when allocating the TNL address to an IAB-node.

#### 8.10.3.C Unsuccessful Operation



Figure 8.10.3.3-1: IAB TNL Address Allocation procedure: Unsuccessful Operation

If the gNB-DU cannot accept the request, it shall respond with an IAB TNL ADDRESS FAILURE and appropriate cause value.

If the IAB TNL ADDRESS FAILURE message includes the Time To Wait IE, the gNB-CU shall wait at least for the indicated time before reinitiating the IAB TNL ADDRESS REQUEST message towards the same gNB-DU.

#### 8.10.3.3 Abnormal Conditions

Not applicable.

### 8.10.4 IAB UP Configuration Update

#### 8.10.4.1 General

The purpose of the IAB UP Configuration Update procedure is to update the UP parameters including UL mapping configuration and the UL/DL UP TNL information between IAB-donor-CU and IAB-node. This procedure uses non-UE associated signalling.

NOTE: This procedure is applicable for IAB-nodes, where the term "gNB-DU" applies to IAB-DU, and the term "gNB-CU" applies to IAB-donor-CU.

NOTE: Implementation shall ensure the avoidance of potential race conditions, i.e. it shall ensure that the update of UP configuration (e.g. the UL/DL UP TNL information, UL mapping information) is not concurrently performed using the non-UE-associated IAB UP Configuration Update procedure and the UE-associated procedures for UE Context Management.

#### 8.10.4.2 Successful Operation



Figure 8.10.4.2-1: IAB UP Configuration Update procedure: Successful Operation

The gNB-CU initiates the procedure by sending the IAB UP CONFIGURATION UPDATE REQUEST message to the gNB-DU. The gNB-DU replies to the gNB-CU with the IAB UP CONFIGURATION UPDATE RESPONSE message.

If the *UL UP TNL Information to Update List* IE is included in the IAB UP CONFIGURATION UPDATE REQUEST message, the gNB-DU shall perform the mapping according to the new received *BH Information* IE for each F1-U GTP tunnel indicated by the *UL UP TNL Information* IE. If the *New UL UP TNL Information* IE is included in *UL UP TNL Information to Update List* IE, the gNB-DU shall use it to replace the information of UL F1-U GTP tunnel indicated by the *UL UP TNL Information* IE.

If the *UL UP TNL Address to Update List* IE is included in the IAB UP CONFIGURATION UPDATE REQUEST message, the gNB-DU shall replace the old TNL address with the new TNL address for all the maintained UL F1-U GTP tunnels corresponding to the old TNL address.

If the *DL UP TNL Address to Update List* IE is included in the IAB UP CONFIGURATION UPDATE RESPONSE message, the gNB-CU shall replace the old TNL address with the new TNL address for all the maintained DL F1-U GTP tunnels corresponding to the old TNL address.

#### 8.10.4.3 Unsuccessful Operation



Figure 8.10.4.3-1: IAB UP Configuration Update procedure: Unsuccessful Operation

If the gNB-DU receives an IAB UP CONFIGURATION UPDATE REQUEST message and cannot perform any update accordingly, it shall consider the update procedure as failed and respond with an IAB UP CONFIGURATION UPDATE FAILURE message and an appropriate cause value.

If the IAB UP CONFIGURATION UPDATE FAILURE message includes the *Time To Wait* IE, the gNB-CU shall wait at least for the indicated time before reinitiating the IAB UP CONFIGURATION UPDATE REQUEST message towards the same gNB-DU.

#### 8.10.4.4 Abnormal Conditions

Not applicable.

## 8.11 Self Optimisation Support procedures

### 8.11.1 Access and Mobility Indication

#### 8.11.1.1 General

This procedure is initiated by gNB-CU to send the Access and Mobility related Information to gNB-DU.

The procedure uses non-UE-associated signalling.

#### 8.11.1.2 Successful Operation



Figure 8.11.1.2-1: Access and Mobility Indication procedure. Successful operation

The Access and Mobility Indication procedure is initiated by ACCESS AND MOBILITY INDICATION message sent from gNB-CU to gNB-DU.

If the ACCESS AND MOBILITY INDICATION message contains the *RACH Report Information List* IE the gNB-DU shall take it into account for optimisation of RACH access procedures.

If the ACCESS AND MOBILITY INDICATION message contains the *RLF Report Information List* IE the gNB-DU shall take it into account for optimisation of mobility parameters.

#### 8.11.1.3 Abnormal Conditions

Not applicable.

## 8.12 Reference Time Information Reporting procedures

### 8.12.1 Reference Time Information Reporting Control

#### 8.12.1.1 General

The purpose of the Reference Time Information Reporting Control procedure is to command the gNB-DU to send the requested accurate reference time information to the gNB-CU. The procedure uses non-UE associated signalling.

#### 8.12.1.2 Successful Operation



Figure 8.12.1.2-1: Reference Time Information Reporting Control

The gNB-CU initiates the procedure by sending REFERENCE TIME INFORMATION REPORTING CONTROL message to the gNB-DU. Upon reception of the REFERENCE TIME INFORMATION REPORTING CONTROL message, the gNB-DU shall, if supported, perform the requested reference time information reporting action.

The *Report Type* IE indicates to the gNB-DU whether:

- to report on demand;

- to report periodic, with a frequency as specified by the *Report Periodicity* IE;

- to stop periodic reporting.

#### 8.12.1.3 Abnormal Conditions

Not applicable.

### 8.12.2 Reference Time Information Report

#### 8.12.2.1 General

The purpose of the Reference Time Information Report procedure is to report the accurate reference time information from the gNB-DU to the gNB-CU. The procedure uses non-UE associated signalling.

#### 8.12.2.2 Successful Operation



Figure 8.12.2-2-1: Reference Time Information Report

The gNB-DU initiates the procedure by sending a REFERENCE TIME INFORMATION REPORT message to the gNB-CU. The REFERENCE TIME INFORMATION REPORT message may be used as a response to the REFERENCE TIME INFORMATION REPORTING CONTROL message.

#### 8.12.2.3 Abnormal Conditions

Not applicable.

## 8.13 Positioning Procedures

### 8.13.1 Positioning Assistance Information Control

#### 8.13.1.1 General

The purpose of the Positioning Assistance Information Control procedure is to allow the gNB-CU to signal positioning assistance information to the gNB-DU for positioning assistance information broadcasting. The procedure uses non-UE-associated signalling.

#### 8.13.1.2 Successful Operation



Figure 8.13.1.2-1: Positioning Assistance Information Control procedure

The gNB-CU initiates the procedure by sending a POSITIONING ASSISTANCE INFORMATION CONTROL message.

If the *Positioning Assistance Information* IE is included in the POSITIONING ASSISTANCE INFORMATION CONTROL message, the gNB-DU shall, if supported, replace any previously stored positioning assistance information and use the received information to configure positioning assistance information broadcasting as specified in TS 38.455 [37].

If the *Broadcast* IE is included in the POSITIONING ASSISTANCE INFORMATION CONTROL message and set to "start", the gNB-DU may start broadcasting the positioning assistance information. If the *Broadcast* IE is included in the POSITIONING ASSISTANCE INFORMATION CONTROL message and set to "stop", the gNB-DU may stop broadcasting the positioning assistance information.

If the *Positioning Broadcast Cells* IE is included in the POSITIONING ASSISTANCE INFORMATION CONTROL message, the gNB-DU shall, if supported, consider that the received assistance information is applicable to the cells in this IE.

**Interaction with the Positioning Assistance Information Feedback procedure:**

If the *Routing ID* IE is included in the POSITIONING ASSISTANCE INFORMATION CONTROL message, the gNB-DU shall, if supported, store this information and include it in any future POSITIONING ASSISTANCE INFORMATION FEEDBACK messages associated to the requested positioning assistance information broadcasting.

#### 8.13.1.3 Abnormal Conditions

If the *Broadcast* IE is included in the POSITIONING ASSISTANCE INFORMATION CONTROL message and set to "start", and no positioning assistance information is available, the gNB-DU shall consider the procedure as failed.

If neither the *Positioning Assistance Information* IE nor the *Broadcast* IE are included in the POSITIONING ASSISTANCE INFORMATION CONTROL message, the gNB-DU shall consider the procedure as failed.

### 8.13.2 Positioning Assistance Information Feedback

#### 8.13.2.1 General

The purpose of the Positioning Assistance Information Feedback procedure is to allow the gNB-DU to give feedback to the gNB-CU on positioning assistance information broadcasting. The procedure uses non-UE-associated signalling.

#### 8.13.2.2 Successful Operation



Figure 8.13.2.2-1: Positioning Assistance Information Feedback procedure

If the *Positioning Assistance Information Failure List* IE is included in the POSITIONING ASSISTANCE INFORMATION FEEDBACK message, the gNB-CU shall consider that positioning assistance information broadcasting could not be configured for the relevant information.

If the *Positioning Broadcast Cells* IE is included in the POSITIONING ASSISTANCE INFORMATION FEEDBACK message, the gNB-CU shall consider that the feedback provided is applicable to the cells in this IE.

If the *Routing ID* IE is included in the POSITIONING ASSISTANCE INFORMATION FEEDBACK message, the gNB-CU may use this information to identify the positioning assistance information broadcasting for which feedback is provided.

#### 8.13.2.3 Abnormal Conditions

Void.

### 8.13.3 Positioning Measurement

#### 8.13.3.1 General

The purpose of the Positioning Measurement procedure is to allow the gNB-CU to request one or more TRPs in the gNB-DU to perform and report positioning measurements. The procedure uses non-UE-associated signalling.

#### 8.13.3.2 Successful Operation



Figure 8.13.3.2-1: Positioning Measurement procedure: successful operation

The gNB-CU initiates the procedure by sending a POSITIONING MEASUREMENT REQUEST message to the gNB-DU, indicating in the *TRP Measurement Request List* IE the TRP(s) from which measurements are requested. The gNB-DU node shall use the included information to configure positioning measurements by the indicated TRP(s). If at least one of the requested measurements has been successful for at least one of the TRPs, the gNB-DU shall reply with the POSITIONING MEASUREMENT RESPONSE message including the *Positioning Measurement Response List* IE..

If the *Positioning Report Characteristics* IE is set to "OnDemand", the gNB-DU shall return the corresponding measurement results in the *Positioning Measurement Result List* IE in the POSITIONING MEASUREMENT RESPONSE message, and the gNB-CU shall consider that this reporting has been terminated by the gNB-DU.

If the *Measurement Beam Information Request* IE is included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU node shall include the *Measurement Beam Information* IE in the *Positioning Measurement Result* IE of the POSITIONING MEASUREMENT RESPONSE message.

If the *Measurement Quality* IE is included in the *Measurement Result* IE in the POSITIONING MEASUREMENT RESPONSE message, the gNB-CU may use it for further signalling. If the *Measurement Quality* IE includes the *Zenith Quality* IE, the gNB-CU may use it for further signalling.

If the *System Frame Number* IE and/or the *Slot Number* IE are included in the POSITIONING MEASUREMENT REQUEST message, the gNB-DU node shall, if supported, consider that the respective information indicates the activation time of SRS transmission.

**Interaction with the Positioning Measurement Report procedure:**

If the *Positioning Report Characteristics* IE is set to "Periodic", the gNB-DU shall initiate the corresponding measurements, and it shall reply with the POSITIONING MEASUREMENT RESPONSE message without including any measurement results in the message. The gNB-DU shall then periodically initiate the Positioning Measurement Report procedure for the corresponding measurements, with the requested reporting periodicity.

#### 8.13.3.3 Unsuccessful Operation



Figure 8.13.3.3-1: Positioning Measurement procedure: unsuccessful operation

If the gNB-DU is unable to configure any of the requested positioning measurements for any of the TRPs in the *TRP Measurement Request List* IE of the POSITIONING MEASUREMENT REQUEST message, it shall respond with a POSITIONING MEASUREMENT FAILURE message.

#### 8.13.3.4 Abnormal Conditions

If the gNB-DU receives a POSITIONING MEASUREMENT REQUEST message containing an LMF Measurement ID corresponding to an ongoing positioning measurement, it shall consider the procedure as failed and initiate local error handling.

### 8.13.4 Positioning Measurement Report

#### 8.13.4.1 General

The purpose of the Positioning Measurement Report procedure is for the gNB-DU to report positioning measurements to the gNB-CU. The procedure uses non-UE-associated signalling.

#### 8.13.4.2 Successful Operation



Figure 8.13.4.2-1: Positioning Measurement Report procedure: successful operation

The gNB-DU initiates the procedure by sending a POSITIONING MEASUREMENT REPORT message. The POSITIONING MEASUREMENT REPORT message contains the positioning measurement results according to the associated measurement configuration.

#### 8.13.4.3 Unsuccessful Operation

Not applicable.

#### 8.13.4.4 Abnormal Conditions

Not applicable.

### 8.13.5 Positioning Measurement Abort

#### 8.13.5.1 General

The purpose of the Positioning Measurement Abort procedure is to enable the gNB-CU to abort an on-going measurement. The procedure uses non-UE-associated signalling.

#### 8.13.5.2 Successful Operation



Figure 8.13.5.2-1: Positioning Measurement Abort procedure: successful operation

The gNB-CU initiates the procedure by generating a POSITIONING MEASUREMENT ABORT message. Upon receiving this message, the gNB-DU shall terminate the on-going measurement identified by the *RAN Measurement ID* IE and may release any resources previously allocated for the same measurement.

#### 8.13.5.3 Unsuccessful Operation

Not applicable.

#### 8.13.5.4 Abnormal Conditions

If the gNB-DU cannot identify the previously requested measurement to be aborted, it shall ignore the POSITIONING MEASUREMENT ABORT message.

### 8.13.6 Positioning Measurement Failure Indication

#### 8.13.6.1 General

The purpose of the Positioning Measurement Failure Indication procedure is for the gNB-DU to notify the gNB-CU that the positioning measurements previously requested with the Positioning Measurement procedure can no longer be reported. The procedure uses non-UE-associated signalling.

#### 8.13.6.2 Successful Operation



Figure 8.13.6.2-1: Positioning Measurement Failure Indication procedure: successful operation

Upon reception of the POSITIONING MEASUREMENT FAILURE INDICATION message, the gNB-CU shall consider that the indicated positioning measurements have been terminated by the gNB-DU.

#### 8.13.6.3 Unsuccessful Operation

Not applicable.

#### 8.13.6.4 Abnormal Conditions

Not applicable.

### 8.13.7 Positioning Measurement Update

#### 8.13.7.1 General

The purpose of the Positioning Measurement Update procedure is to modify one or more periodic positioning measurements performed by the gNB-DU. The procedure uses non-UE-associated signalling.

#### 8.13.7.2 Successful Operation



Figure 8.13.7.2-1: Positioning Measurement Update procedure: successful operation

The gNB-CU initiates the procedure by generating a POSITIONING MEASUREMENT UPDATE message. Upon receiving the message, the gNB-DU shall overwrite the previously received measurement configuration for the corresponding measurements.

#### 8.13.7.3 Unsuccessful Operation

Not applicable.

#### 8.13.7.4 Abnormal Conditions

If the gNB-DU cannot identify the given positioning measurements, it shall regard the procedure as failed and initiate local error handling.

### 8.13.8 TRP Information Exchange

#### 8.13.8.1 General

The purpose of the TRP Information Exchange procedure is to allow the gNB-CU to request the gNB-DU to provide detailed information for TRPs hosted by the gNB-DU. The procedure uses non-UE-associated signalling.

#### 8.13.8.2 Successful Operation



Figure 8.13.8.2-1: TRP Information Exchange procedure, successful operation

The gNB-CU initiates the procedure by sending a TRP INFORMATION REQUEST message. The gNB-DU responds with a TRP INFORMATION RESPONSE message that contains the requested TRP information.

If the *TRP List* IE is included in the TRP INFORMATION REQUEST message, the gNB-DU should include in the TRP INFORMATION RESPONSE message, the requested information for all TRPs included in the *TRP List* IE.

If the *TRP List* IE is not included in the TRP INFORMATION REQUEST message, the gNB-DU should include the requested information for all TRPs hosted by the gNB-DU in the TRP INFORMATION RESPONSE message.

If the *PRS Muting* IE is included in the *PRS Configuration* IE in the TRP INFORMATION RESPONSE message, the gNB-CU may use it for further signaling.

If the *QCL Info* IE is included in the *PRS Configuration* IE in the TRP INFORMATION RESPONSE message, the gNB-CU may use it for further signaling.

If the *DL-PRS Resource Coordinates* IE is included in the *Geographical Coordinates* IE in the *TRP Information* IE in the TRP INFORMATION RESPONSE message, the gNB-CU may use it for further signaling.

#### 8.13.8.3 Unsuccessful Operation



Figure 8.13.8.3-1: TRP Information Exchange procedure, unsuccessful operation

If the gNB-DU cannot provide any of the requested information, the gNB-DU shall respond with a TRP INFORMATION FAILURE message.

### 8.13.9 Positioning Information Exchange

#### 8.13.9.1 General

The Positioning Information Exchange procedure is initiated by the gNB-CU to indicate to the gNB-DU the need to configure the UE to transmit SRS signals and to retrieve the SRS configuration from the gNB-DU. The procedure uses UE-associated signalling.

#### 8.13.9.2 Successful Operation



Figure 8.13.9.2-1: Positioning Information Exchange procedure, successful operation

The gNB-CU initiates the procedure by sending a POSITIONING INFORMATION REQUEST message to the gNB-DU.

If the *Requested SRS Transmission Characteristics* IE is included in the POSITIONING INFORMATION REQUEST message, the gNB-DU may take this information into account when configuring SRS transmissions for the UE, and it shall include the *SRS Configuration* IE and the *SFN Initialisation Time* IE in the POSITIONING INFORMATION RESPONSE message.

If the *Spatial Relation Information per SRS Resource* IE and the *Periodicity List* IE are both included in the *Requested SRS Transmission Characteristics* IE, the gNB-DU shall consider that the *Spatial Relation per SRS Resource Item* IE and the *Periodicity List Item* IE have one-to-one mapping relation.

**Interaction with the UE Context Modification Required (gNB-DU initiated) procedure:**

The UE Context Modification Required (gNB-DU initiated) procedure may be performed before the POSITIONING INFORMATION RESPONSE message.

#### 8.13.9.3 Unsuccessful Operation



Figure 8.13.9.3-1: Positioning Information Exchange procedure, unsuccessful operation

If the *Requested SRS Transmission Characteristics* IE is included in the POSITIONING INFORMATION REQUEST message and the gNB-DU is unable to configure any SRS transmissions for the UE, the gNB-DU shall respond with a POSITIONING INFORMATION FAILURE message.

### 8.13.10 Positioning Activation

#### 8.13.10.1 General

The Positioning Activation procedure is initiated by the gNB-CU to request the gNB-DU to activate semi-persistent or trigger aperiodic UL SRS transmission by the UE. The procedure uses UE-associated signalling.

#### 8.13.10.2 Successful Operation



Figure 8.13.10.2-1: Positioning Activation procedure, successful operation

The gNB-CU initiates the procedure by sending a POSITIONING ACTIVATION REQUEST message to the gNB-DU.

For semi-persistent UL SRS, the POSITIONING ACTIVATION REQUEST message includes an indication of the UL SRS resource set to be activated, and may include the spatial relation for the semi-persistent UL SRS resource to be activated. For aperiodic UL SRS, if the *SRS Resource Trigger* IE is included in the POSITIONING ACTIVATION REQUEST message, the gNB-DU shall take the value of this IE into account when triggering aperiodic SRS transmission by the UE.

If the *Activation Time* IE is included in the POSITIONING ACTIVATION REQUEST message, the gNB-DU shall take the indicated value as the requested time for activation of the UE’s SRS transmission.

Following successful activation of UL SRS transmission in the UE, the gNB-DU shall respond with a POSITIONING ACTIVATION RESPONSE message. If the POSITIONING ACTIVATION RESPONSE message includes the *System Frame Number* and/or the *Slot Number* IEs, the gNB-CU shall consider that the respective information indicates the activation time of SRS transmission by the UE.

#### 8.13.10.3 Unsuccessful Operation



Figure 8.13.10.3-1: Positioning Activation procedure, unsuccessful operation

If the gNB-DU is unable to activate UL SRS transmission in the UE, it shall respond with a POSITIONING ACTIVATION FAILURE message.

If the gNB-DU is unable to trigger the aperiodic SRS transmission with the indicated *SRS Resource Trigger* IE, it shall respond with a POSITIONING ACTIVATION FAILURE message with an appropriate cause value

#### 8.13.10.4 Abnormal Conditions

Void.

### 8.13.11 Positioning Deactivation

#### 8.13.11.1 General

The Positioning Deactivation procedure is initiated by the gNB-CU to indicate to the gNB-DU node that UL SRS transmission should be deactivated in the UE. The procedure uses UE-associated signalling.

#### 8.13.11.2 Successful Operation



Figure 8.13.11.2-1: Positioning Deactivation procedure, successful operation

The gNB-CU initiates the procedure by sending a POSITIONING DEACTIVATION message to the gNB-DU, including an indication of the UL SRS resources to be deactivated.

#### 8.13.11.3 Unsuccessful Operation

Not Applicable.

#### 8.13.11.4 Abnormal Conditions

Void.

### 8.13.12 E-CID Measurement Initiation

#### 8.13.12.1 General

The purpose of E-CID Measurement Initiation procedure is to allow the gNB-CU to request the gNB-DU to report E-CID measurements used by LMF to compute the location of the UE. The procedure uses UE-associated signalling.

#### 8.13.12.2 Successful Operation



Figure 8.13.12.2-1: E-CID Measurement Initiation procedure, successful operation

The gNB-CU initiates the procedure by sending an E-CID MEASUREMENT INITIATION REQUEST message. If the gNB-DU is able to initiate the requested E-CID measurements, it shall reply with the E-CID MEASUREMENT INITIATION RESPONSE message.

If the *E-CID Report Characteristics* IE is set to "OnDemand", the gNB-DU shall return the result of the measurement in the E-CID MEASUREMENT INITIATION RESPONSE message including, if available, the *Geographical Coordinates* IE in the *E-CID Measurement Result* IE and the *Cell Portion ID* IE, and the gNB-CU shall consider that the E-CID measurements for the UE have been terminated by the gNB-DU. The *Measured Results List* IE shall be included in the *E-CID Measurement Result* IE of the E-CID MEASUREMENT INITIATION RESPONSE message when measurement quantities other than "Default" have been requested.

**Interaction with the E-CID Measurement Report procedure:**

If the *E-CID Report Characteristics* IE is set to "Periodic", the gNB-DU shall initiate the requested measurements and shall reply with the E-CID MEASUREMENT INITIATION RESPONSE message without including either the *E-CID Measurement Result* IE or the *Cell Portion ID* IE in this message. The gNB-DU shall then periodically initiate the E-CID Measurement Report procedure for the measurements, with the requested reporting periodicity.

#### 8.13.12.3 Unsuccessful Operation



Figure 8.13.12.3-1: E-CID Measurement Initiation procedure, unsuccessful operation

If the gNB-DU is not able to initiate at least one of the requested E-CID measurements, the gNB-DU shall respond with an E-CID MEASUREMENT INITIATION FAILURE message.

### 8.13.13 E-CID Measurement Failure Indication

#### 8.13.13.1 General

The purpose of the E-CID Measurement Failure Indication procedure is for the gNB-DU to notify the gNB-CU that the E-CID measurements previously requested with the E-CID Measurement Initiation procedure can no longer be reported. The procedure uses UE-associated signalling.

#### 8.13.13.2 Successful Operation



Figure 8.13.13.2-1: E-CID Measurement Failure Indication, successful operation

Upon reception of the E-CID MEASUREMENT FAILURE INDICATION message, the gNB-CU shall consider that the E-CID measurements for the UE have been terminated by the gNB-DU.

#### 8.13.13.3 Unsuccessful Operation

Not applicable.

### 8.13.14 E-CID Measurement Report

#### 8.13.14.1 General

The purpose of E-CID Measurement Report procedure is for the gNB-DU to provide the E-CID measurements for the UE to the gNB-CU. The procedure uses UE-associated signalling.

#### 8.13.14.2 Successful Operation



Figure 8.13.14.2-1: E-CID Measurement Report procedure, successful operation

The gNB-DU initiates the procedure by sending an E-CID MEASUREMENT REPORT message. The E-CID MEASUREMENT REPORT message contains the E-CID measurement results according to the measurement configuration in the respective E-CID MEASUREMENT INITIATION REQUEST message.

The *Measured Results List* IE shall be included in the *E-CID Measurement Result* IE of the E-CID MEASUREMENT REPORT message when measurement quantities other than "Default" have been requested.

If available, the gNB-DU shall include the *Geographical Coordinates* IE in the *E-CID Measurement Result* IE in the E-CID MEASUREMENT REPORT message.

If available, the gNB-DU shall include the *Cell Portion ID* IE in the E-CID MEASUREMENT REPORT message.

#### 8.13.14.3 Unsuccessful Operation

Not applicable.

### 8.13.15 E-CID Measurement Termination

#### 8.13.15.1 General

The purpose of E-CID Measurement Termination procedure is to terminate periodical E-CID measurements for the UE performed by the gNB-DU. The procedure uses UE-associated signalling.

#### 8.13.15.2 Successful Operation



Figure 8.13.15.2-1: E-CID Measurement Termination procedure, successful operation

The gNB-CU initiates the procedure by generating an E-CID MEASUREMENT TERMINATION COMMAND message.

#### 8.13.15.3 Unsuccessful Operation

Not applicable.

### 8.13.16 Positioning Information Update

#### 8.13.16.1 General

The Positioning Information Update procedure is initiated by the gNB-DU to indicate to the gNB-CU that a change has occurred in the SRS configuration. The procedure uses UE-associated signalling.

#### 8.13.16.2 Successful Operation



Figure 8.13.16.2-1: Positioning Information Update procedure, successful operation

The gNB-DU initiates the procedure by sending a POSITIONING INFORMATION UPDATE message to the gNB-CU.

If the SRS Configuration IE is included in the POSITIONING INFORMATION UPDATE message, the gNB-CU shall consider this information as the updated SRS Configuration for the UE. If the SFN Initialisation Time IE is included in the POSITIONING INFORMATION UPDATE message, the gNB-CU shall consider this information as the SFN Initialisation Time associated to the SRS Configuration.

#### 8.13.16.3 Unsuccessful Operation

Not Applicable.

#### 8.13.16.4 Abnormal Conditions

Void.

### 8.13.17 Positioning System Information Delivery

#### 8.13.17.1 General

The purpose of the Positioning System Information Delivery procedure is to command the gNB-DU to broadcast the requested positioning SI. The procedure uses non-UE associated signalling.

#### 8.13.17.2 Successful Operation



Figure 8.13.17.2-1: Positioning System Information Delivery procedure. Successful operation.

The gNB-CU initiates the procedure by sending a POSITIONING SYSTEM INFORMATION DELIVERY COMMAND message to the gNB-DU.

Upon reception of the POSITIONING SYSTEM INFORMATION DELIVERY COMMAND message, the gNB-DU shall broadcast the requested positioning SI, and delete the UE context corresponding to the *Confirmed UE ID* IE, if any.

**Interactions with gNB-DU Configuration Update procedure:**

Upon reception of POSITIONING SYSTEM INFORMATION DELIVERY COMMAND message, the gNB-DU Configuration Update procedure may be performed, and as part of such procedure the gNB-DU shall include the *Dedicated SI Delivery Needed UE List* IE in GNB-DU CONFIGURATION UPDATE message for UEs that are unable to receive system information from broadcast.

#### 8.13.17.3 Abnormal Conditions

Not applicable.

# 9 Elements for F1AP Communication

## 9.1 General

Subclauses 9.2 and 9.3 present the F1AP message and IE definitions in tabular format. The corresponding ASN.1 definition is presented in subclause 9.4. In case there is contradiction between the tabular format and the ASN.1 definition, the ASN.1 shall take precedence, except for the definition of conditions for the presence of conditional IEs, where the tabular format shall take precedence.

The messages have been defined in accordance to the guidelines specified in TR 25.921 [14].

When specifying IEs which are to be represented by bitstrings, if not otherwise specifically stated in the semantics description of the concerned IE or elsewhere, the following principle applies with regards to the ordering of bits:

- The first bit (leftmost bit) contains the most significant bit (MSB);

- The last bit (rightmost bit) contains the least significant bit (LSB);

- When importing bitstrings from other specifications, the first bit of the bitstring contains the first bit of the concerned information;

The following attributes are used for the tabular description of the messages and information elements: Presence, Range Criticality and Assigned Criticality. Their definition and use can be found in TS 38.413 [3].

## 9.2 Message Functional Definition and Content

### 9.2.1 Interface Management messages

#### 9.2.1.1 RESET

This message is sent by both the gNB-CU and the gNB-DU and is used to request that the F1 interface, or parts of the F1 interface, to be reset.

Direction: gNB-CU → gNB-DU and gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| CHOICE *Reset Type* | M |  |  |  | YES | reject |
| >*F1 interface* |  |  |  |  |  |  |
| >>Reset All | M |  | ENUMERATED (Reset all,...) |  | - |  |
| >*Part of F1 interface* |  |  |  |  |  |  |
| **>>UE-associated logical F1-connection list** |  | *1* |  |  | - |  |
| **>>>UE-associated logical F1-connection Item** |  | *1 .. <maxnoofIndividualF1ConnectionsToReset>* |  |  | EACH | reject |
| >>>> gNB-CU UE F1AP ID | O |  | 9.3.1.4 |  | - |  |
| >>>> gNB-DU UE F1AP ID | O |  | 9.3.1.5 |  | - |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofIndividualF1ConnectionsToReset | Maximum no. of UE-associated logical F1-connections allowed to reset in one message. Value is 65536. |

#### 9.2.1.2 RESET ACKNOWLEDGE

This message is sent by both the gNB-CU and the gNB-DU as a response to a RESET message.

Direction: gNB-DU → gNB-CU and gNB-CU → gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **UE-associated logical F1-connection list** |  | *0..1* |  |  | YES | ignore |
| **>UE-associated logical F1-connection Item** |  | *1 .. <maxnoofIndividualF1ConnectionsToReset>* |  |  | EACH | ignore |
| >>gNB-CU UE F1AP ID | O |  | 9.3.1.4 |  | - |  |
| >>gNB-DU UE F1AP ID | O |  | 9.3.1.5 |  | - |  |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofIndividualF1ConnectionsToReset | Maximum no. of UE-associated logical F1-connections allowed to reset in one message. Value is 65536. |

#### 9.2.1.3 ERROR INDICATION

This message is sent by both the gNB-CU and the gNB-DU and is used to indicate that some error has been detected in the node.

Direction: gNB-CU → gNB-DU and gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 | This IE is ignored if received in UE associated signalling message. | YES | reject |
| gNB-CU UE F1AP ID | O |  | 9.3.1.4 |  | YES | ignore |
| gNB-DU UE F1AP ID | O |  | 9.3.1.5 |  | YES | ignore |
| Cause | O |  | 9.3.1.2 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.1.4 F1 SETUP REQUEST

This message is sent by the gNB-DU to transfer information associated to an F1-C interface instance.

NOTE: If a TNL association is shared among several F1-C interface instances, several F1 Setup procedures are issued via the same TNL association after that TNL association has become operational.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| gNB-DU ID | M |  | 9.3.1.9 |  | YES | reject |
| gNB-DU Name | O |  | PrintableString(SIZE(1..150,...)) |  | YES | ignore |
| **gNB-DU Served Cells List** |  | *0.. 1* |  | List of cells configured in the gNB-DU | YES | reject |
| **>gNB-DU Served Cells Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >>Served Cell Information | M |  | 9.3.1.10 | Information about the cells configured in the gNB-DU | - |  |
| >>gNB-DU System Information | O |  | 9.3.1.18 | RRC container with system information owned by gNB-DU | - |  |
| gNB-DU RRC version | M |  | RRC version 9.3.1.70 |  | YES | reject |
| Transport Layer Address Info | O |  | 9.3.2.5 |  | YES | ignore |
| BAP Address | O |  | 9.3.1.111 | Indicates a BAP address assigned to the IAB-node. | YES | ignore |
| Extended gNB-DU Name | O |  | 9.3.1.205 |  | YES | ignore |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

#### 9.2.1.5 F1 SETUP RESPONSE

This message is sent by the gNB-CU to transfer information associated to an F1-C interface instance.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| gNB-CU Name | O |  | PrintableString(SIZE(1..150,...)) | Human readable name of the gNB-CU. | YES | ignore |
| **Cells to be Activated List** |  | *0.. 1* |  |  | YES | reject |
| **>Cells to be Activated List Item** |  | *1.. <maxCellingNBDU>* |  | List of cells to be activated | EACH | reject |
| >> NR CGI | M |  | 9.3.1.12 |  | - |  |
| >> NR PCI | O |  | INTEGER (0..1007) | Physical Cell ID | - |  |
| >>gNB-CU System Information | O |  | 9.3.1.42 | RRC container with system information owned by gNB-CU | YES | reject |
| >>Available PLMN List | O |  | 9.3.1.65 |  | YES | ignore |
| >>Extended Available PLMN List | O |  | 9.3.1.76 | This is included if *Available PLMN List* IE is included and if more than 6 Available PLMNs is to be signalled. | YES | ignore |
| >>IAB Info IAB-donor-CU | O |  | 9.3.1.105 | IAB-related configuration sent by the IAB-donor-CU. | YES | ignore |
| >>Available SNPN ID List | O |  | 9.3.1.163 | Indicates the available SNPN ID list.  If this IE is included, the content of the *Available PLMN List* IE and *Extended Available PLMN List* IE if present in the *Cells to be Activated List Item* IE is ignored. | YES | ignore |
| gNB-CU RRC version | M |  | RRC version 9.3.1.70 |  | YES | reject |
| Transport Layer Address Info | O |  | 9.3.2.5 |  | YES | ignore |
| Uplink BH Non-UP Traffic Mapping | O |  | 9.3.1.103 |  | YES | reject |
| BAP Address | O |  | 9.3.1.111 | Indicates a BAP address assigned to the IAB-donor-DU. | YES | ignore |
| Extended gNB-CU Name | O |  | 9.3.1.206 |  | YES | ignore |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

#### 9.2.1.6 F1 SETUP FAILURE

This message is sent by the gNB-CU to indicate F1 Setup failure.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Time to wait | O |  | 9.3.1.13 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.1.7 GNB-DU CONFIGURATION UPDATE

This message is sent by the gNB-DU to transfer updated information associated to an F1-C interface instance.

NOTE: If F1-C signalling transport is shared among several F1-C interface instance, this message may transfer updated information associated to several F1-C interface instances.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **Served Cells To Add List** |  | *0..1* |  | Complete list of added cells served by the gNB-DU | YES | reject |
| **>Served Cells To Add Item** |  | *1 .. <maxCellingNBDU>* |  |  | EACH | reject |
| >>Served Cell Information | M |  | 9.3.1.10 | Information about the cells configured in the gNB-DU | - |  |
| >>gNB-DU System Information | O |  | 9.3.1.18 | RRC container with system information owned by gNB-DU | - |  |
| **Served Cells To Modify List** |  | *0..1* |  | Complete list of modified cells served by the gNB-DU | YES | reject |
| **>Served Cells To Modify Item** |  | *1 .. <maxCellingNBDU>* |  |  | EACH | reject |
| >>Old NR CGI | M |  | NR CGI  9.3.1.12 |  | - |  |
| >>Served Cell Information | M |  | 9.3.1.10 | Information about the cells configured in the gNB-DU | - |  |
| >>gNB-DU System Information | O |  | 9.3.1.18 | RRC container with system information owned by gNB-DU | - |  |
| **Served Cells To Delete List** |  | *0..1* |  | Complete list of deleted cells served by the gNB-DU | YES | reject |
| **>Served Cells To Delete Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >>Old NR CGI | M |  | NR CGI  9.3.1.12 |  | - |  |
| **Cells Status List** |  | *0..1* |  | Complete list of active cells | YES | reject |
| **> Cells Status Item** |  | *0 .. <maxCellingNBDU>* |  |  | EACH | reject |
| >> NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>Service Status | M |  | 9.3.1.68 |  | - |  |
| **Dedicated SI Delivery Needed UE List** |  | *0..1* |  | List of UEs unable to receive system information from broadcast | YES | ignore |
| **> Dedicated SI Delivery Needed UE Item** |  | *1 .. <maxnoofUEIDs>* |  |  | EACH | ignore |
| >>gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | - |  |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| gNB-DU ID | O |  | 9.3.1.9 |  | YES | reject |
| **gNB-DU TNL Association To Remove List** |  | *0..1* |  |  | YES | reject |
| **>gNB-DU TNL Association To Remove Item IEs** |  | *1..<maxnoofTNLAssociation>* |  |  | EACH | reject |
| >>TNL Association Transport Layer Address | M |  | CP Transport Layer Address  9.3.2.4 | Transport Layer Address of the gNB-DU. | - | - |
| >>TNL Association Transport Layer Address gNB-CU | O |  | CP Transport Layer Address  9.3.2.4 | Transport Layer Address of the gNB-CU | - | - |
| Transport Layer Address Info | O |  | 9.3.2.5 |  | YES | ignore |
| gNB-DU Name | O |  | PrintableString(SIZE(1..150,...)) | Human readable name of the gNB-DU. | YES | ignore |
| Extended gNB-DU Name | O |  | 9.3.1.205 |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |
| maxnoofUEIDs | Maximum no. of UEs that can be served by a gNB-DU. Value is 65536. |
| maxnoofTNLAssociations | Maximum numbers of TNL Associations between the gNB-CU and the gNB-DU. Value is 32. |

#### 9.2.1.8 GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE

This message is sent by a gNB-CU to a gNB-DU to acknowledge update of information associated to an F1-C interface instance.

NOTE: If F1-C signalling transport is shared among several F1-C interface instances, this message may transfer updated information associated to several F1-C interface instances.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **Cells to be Activated List** |  | *0.. 1* |  | List of cells to be activated | YES | reject |
| **>Cells to be Activated List Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >> NR CGI | M |  | 9.3.1.12 |  | - |  |
| >> NR PCI | O |  | INTEGER (0..1007) | Physical Cell ID | - |  |
| >> gNB-CU System Information | O |  | 9.3.1.42 | RRC container with system information owned by gNB-CU | YES | reject |
| >>Available PLMN List | O |  | 9.3.1.65 |  | YES | ignore |
| >>Extended Available PLMN List | O |  | 9.3.1.76 | This is included if *Available PLMN List* IE is included and if more than 6 Available PLMNs is to be signalled. | YES | ignore |
| >>IAB Info IAB-donor-CU | O |  | 9.3.1.105 | IAB-related configuration sent by the IAB-donor-CU. | YES | ignore |
| >>Available SNPN ID List | O |  | 9.3.1.163 | Indicates the available SNPN ID list.  If this IE is included, the content of the *Available PLMN List* IE and *Extended Available PLMN List* IE if present in the *Cells to be Activated List Item* IE is ignored. | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |
| **Cells to be Deactivated List** |  | *0.. 1* |  | List of cells to be deactivated | YES | reject |
| **>Cells to be Deactivated List Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >> NR CGI | M |  | 9.3.1.12 |  | - | - |
| Transport Layer Address Info | O |  | 9.3.2.5 |  | YES | ignore |
| Uplink BH Non-UP Traffic Mapping | O |  | 9.3.1.103 |  | YES | reject |
| BAP Address | O |  | 9.3.1.111 | Indicates a BAP address assigned to the IAB-donor-DU. | YES | ignore |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

#### 9.2.1.9 GNB-DU CONFIGURATION UPDATE FAILURE

This message is sent by the gNB-CU to indicate gNB-DU Configuration Update failure.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Time to wait | O |  | 9.3.1.13 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.1.10 GNB-CU CONFIGURATION UPDATE

This message is sent by the gNB-CU to transfer updated information associated to an F1-C interface instance.

NOTE: If F1-C signalling transport is shared among several F1-C interface instances, this message may transfer updated information associated to several F1-C interface instances.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **Cells to be Activated List** |  | *0..1* |  | List of cells to be activated or modified | YES | reject |
| **>Cells to be Activated List Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >> NR CGI | M |  | 9.3.1.12 |  | - |  |
| >> NR PCI | O |  | INTEGER (0..1007) | Physical Cell ID | - |  |
| >> gNB-CU System Information | O |  | 9.3.1.42 | RRC container with system information owned by gNB-CU | YES | reject |
| >>Available PLMN List | O |  | 9.3.1.65 |  | YES | ignore |
| >>Extended Available PLMN List | O |  | 9.3.1.76 | This is included if *Available PLMN List* IE is included and if more than 6 Available PLMNs is to be signalled. | YES | ignore |
| >>IAB Info IAB-donor-CU | O |  | 9.3.1.105 | IAB-related configuration sent by the IAB-donor-CU. | YES | ignore |
| >>Available SNPN ID List | O |  | 9.3.1.163 | Indicates the available SNPN ID list.  If this IE is included, the content of the *Available PLMN List* IE and *Extended Available PLMN List* IE if present in the *Cells to be Activated List Item* IE is ignored. | YES | ignore |
| **Cells to be Deactivated List** |  | *0..1* |  | List of cells to be deactivated | YES | reject |
| **>Cells to be Deactivated List Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >> NR CGI | M |  | 9.3.1.12 |  | - |  |
| **gNB-CU TNL Association To Add List** |  | *0..1* |  |  | YES | ignore |
| **>gNB-CU TNL Association To Add Item IEs** |  | *1..<maxnoofTNLAssociations>* |  |  | EACH | ignore |
| >>TNL Association Transport Layer Information | M |  | CP Transport Layer Address  9.3.2.4 | Transport Layer Address of the gNB-CU. | - |  |
| >>TNL Association Usage | M |  | ENUMERATED (ue, non-ue, both, ...) | Indicates whether the TNL association is only used for UE-associated signalling, or non-UE-associated signalling, or both. For usage of this IE, refer to TS 38.472 [22]. | - |  |
| **gNB-CU TNL Association To Remove List** |  | *0..1* |  |  | YES | ignore |
| **>gNB-CU TNL Association To Remove Item IEs** |  | *1..<maxnoofTNLAssociation>* |  |  | EACH | ignore |
| >>TNL Association Transport Layer Address | M |  | CP Transport Layer Address  9.3.2.4 | Transport Layer Address of the gNB-CU. | - |  |
| >>TNL Association Transport Layer Address gNB-DU | O |  | CP Transport Layer Address  9.3.2.4 | Transport Layer Address of the gNB-DU. | YES | reject |
| **gNB-CU TNL Association To Update List** |  | *0..1* |  |  | YES | ignore |
| **>gNB-CU TNL Association To Update Item IEs** |  | *1..<maxnoofTNLAssociations>* |  |  | EACH | ignore |
| >>TNL Association Transport Layer Address | M |  | CP Transport Layer Address  9.3.2.4 | Transport Layer Address of the gNB-CU. | - |  |
| >>TNL Association Usage | O |  | ENUMERATED (ue, non-ue, both, ...) | Indicates whether the TNL association is only used for UE-associated signalling, or non-UE-associated signalling, or both. For usage of this IE, refer to TS 38.472 [22]. | - |  |
| **Cells to be barred List** |  | *0..1* |  | List of cells to be barred. | YES | ignore |
| **>Cells to be barred List Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | ignore |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>Cell Barred | M |  | ENUMERATED (barred, not-barred, ...) |  | - |  |
| >>IAB Barred | O |  | ENUMERATED (barred, not-barred, ...) |  | - |  |
| **Protected E-UTRA Resources List** |  | *0..1* |  | List of Protected E-UTRA Resources. | YES | reject |
| **>Protected E-UTRA Resources List Item** |  | *1.. <maxCellineNB>* |  |  | EACH | reject |
| >>Spectrum Sharing Group ID | M |  | INTEGER (1.. maxCellineNB) | Indicates the E-UTRA cells involved in resource coordination with the NR cells affiliated with the same Spectrum Sharing Group ID. | - |  |
| **>> E-UTRA Cells List** |  | *1* |  | List of applicable E-UTRA cells. | - |  |
| **>>> E-UTRA Cells List Item** |  | *1 .. <maxCellineNB>* |  |  | - |  |
| >>>>EUTRA Cell ID | M |  | BIT STRING (SIZE(28)) | Indicates the E-UTRAN Cell Identifier IE contained in the ECGI as defined in subclause 9.2.14 in TS 36.423 [9]. | - |  |
| >>>>Served E-UTRA Cell Information | M |  | 9.3.1.64 |  | - |  |
| **Neighbour Cell Information List** |  | *0..1* |  |  | YES | ignore |
| **>Neighbour Cell Information List Item** |  | *1 .. <maxCellingNBDU>* |  |  | EACH | ignore |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>Intended TDD DL-UL Configuration | O |  | 9.3.1.89 |  | - |  |
| Transport Layer Address Info | O |  | 9.3.2.5 |  | YES | ignore |
| Uplink BH Non-UP Traffic Mapping | O |  | 9.3.1.103 |  | YES | reject |
| BAP Address | O |  | 9.3.1.111 | Indicates a BAP address assigned to the IAB-donor-DU. | YES | ignore |
| gNB-CU Name | O |  | PrintableString(SIZE(1..150,...)) | Human readable name of the gNB-CU. | YES | ignore |
| Extended gNB-CU Name | O |  | 9.3.1.206 |  | YES | ignore |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxCellingNBDU | Maximum numbers of cells that can be served by a gNB-DU. Value is 512. |
| maxnoofTNLAssociations | Maximum numbers of TNL Associations between the gNB-CU and the gNB-DU. Value is 32. |
| maxCellineNB | Maximum no. cells that can be served by an eNB. Value is 256. |

#### 9.2.1.11 GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE

This message is sent by a gNB-DU to a gNB-CU to acknowledge update of information associated to an F1-C interface instance.

NOTE: If F1-C signalling transport is shared among several F1-C interface instance, this message may transfer updated information associated to several F1-C interface instances.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **Cells Failed to be Activated List** |  | *0..1* |  | List of cells which are failed to be activated | YES | reject |
| **>Cells Failed to be Activated Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >> NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>Cause | M |  | 9.3.1.2 |  | - |  |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |
| **gNB-CU TNL Association Setup List** |  | 0..1 |  |  | YES | ignore |
| **>gNB-CU TNL Association Setup Item IEs** |  | 1..<maxnoofTNLAssociations> |  |  | EACH | ignore |
| >>TNL Association Transport Layer Address | M |  | CP Transport Layer Address  9.3.2.4 | Transport Layer Address of the gNB-CU | - |  |
| **gNB-CU TNL Association Failed to Setup List** |  | 0..1 |  |  | YES | ignore |
| **>gNB-CU TNL Association Failed To Setup Item IEs** |  | 1..<maxnoofTNLAssociations> |  |  | EACH | ignore |
| >>TNL Association Transport Layer Address | M |  | CP Transport Layer Address  9.3.2.4 | Transport Layer Address of the gNB-CU | - |  |
| >>Cause | M |  | 9.3.1.2 |  | - |  |
| **Dedicated SI Delivery Needed UE List** |  | *0..1* |  | List of UEs unable to receive system information from broadcast | YES | ignore |
| **>Dedicated SI Delivery Needed UE List** |  | *1 .. <maxnoofUEIDs>* |  |  | EACH | ignore |
| >>gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | - | - |
| >>NR CGI | M |  | 9.3.1.12 |  | - | - |
| Transport Layer Address Info | O |  | 9.3.2.5 |  | YES | ignore |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |
| maxnoofTNLAssociations | Maximum no. of TNL Associations between the gNB-CU and the gNB-DU. Value is 32. |
| maxnoofUEIDs | Maximum no. of UEs that can be served by a gNB-DU. Value is 65536. |

#### 9.2.1.12 GNB-CU CONFIGURATION UPDATE FAILURE

This message is sent by the gNB-DU to indicate gNB-CU Configuration Update failure.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Time to wait | O |  | 9.3.1.13 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.1.13 GNB-DU RESOURCE COORDINATION REQUEST

This message is sent by a gNB-CU to a gNB-DU, to express the desired resource allocation for data traffic, for the sake of resource coordination. The message triggers gNB-DU resource coordination (for NR-initiated resource coordination), to indicate an initial resource offer by the E-UTRA node (for E-UTRA-initiated gNB-DU Resource Coordination), or to indicate the agreed resource allocation that is to be executed.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Request type | M |  | ENUMERATED (offer, execution, ...) |  | YES | reject |
| E-UTRA – NR Cell Resource Coordination Request Container | M |  | OCTET STRING | Includes the X2AP E-UTRA – NR CELL RESOURCE COORDINATION REQUEST message as defined in subclause 9.1.4.24 in TS 36.423 [9]. | YES | reject |
| Ignore Coordination Request Container | O |  | ENUMERATED (yes, ...) |  | YES | reject |

#### 9.2.1.14 GNB-DU RESOURCE COORDINATION RESPONSE

This message is sent by a gNB-DU to a gNB-CU, to express the desired resource allocation for data traffic, as a response to the GNB-DU RESOURCE COORDINATION REQUEST.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| E-UTRA – NR Cell Resource Coordination Response Container | M |  | OCTET STRING | Includes the X2AP E-UTRA – NR CELL RESOURCE COORDINATION RESPONSE message as defined in subclause 9.1.4.25 in TS 36.423 [9]. | YES | reject |

#### 9.2.1.15 GNB-DU STATUS INDICATION

This message is sent by the gNB-DU to indicate to the gNB-CU its status of overload.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| gNB-DU Overload Information | M |  | ENUMERATED (overloaded, not-overloaded) |  | YES | reject |

#### 9.2.1.16 F1 REMOVAL REQUEST

This message is sent by either the gNB-DU or the gNB-CU to intiate the removal of the interface instance and the related resources.

Direction: gNB-DU 🡪 gNB-CU, gNB-CU 🡪 gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |

#### 9.2.1.17 F1 REMOVAL RESPONSE

This message is sent by either the gNB-DU or the gNB-CU to acknowledge the initiation of removal of the interface instance and the related resources.

Direction: gNB-CU 🡪 gNB-DU, gNB-DU 🡪 gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.1.18 F1 REMOVAL FAILURE

This message is sent by either the gNB-DU or the gNB-CU to indicate that removing the interface instance and the related resources cannot be accepted.

Direction: gNB-CU 🡪 gNB-DU, gNB-DU 🡪 gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.1.19 NETWORK ACCESS RATE REDUCTION

This message is sent by the gNB-CU to indicate to the gNB-DU a need to reduce the rate at which UEs access the network.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| UAC Assistance Information | M |  | 9.3.1.83 |  | YES | reject |

#### 9.2.1.20 RESOURCE STATUS REQUEST

This message is sent by gNB-CU to gNB-DU to initiate the requested measurement according to the parameters given in the message.

Direction: gNB-CU → gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| gNB-CU Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-CU | YES | reject |
| gNB-DU Measurement ID | C-ifRegistrationRequestStoporAdd |  | INTEGER (1..4095,...) | Allocated by gNB-DU | YES | ignore |
| Registration Request | M |  | ENUMERATED(start, stop,  add, …) | Type of request for which the resource status is required. | YES | ignore |
| Report Characteristics | C-ifRegistrationRequestStart |  | BIT STRING  (SIZE(32)) | Each position in the bitmap indicates measurement object the gNB-DU is requested to report.  First Bit = PRB Periodic,  Second Bit = TNL Capacity Ind Periodic,  Third Bit =  Composite Available Capacity Periodic, Fourth Bit = HW LoadInd Periodic, Fifth Bit = Number of Active UEs  Other bits shall be ignored by the gNB-DU. | YES | ignore |
| **Cell To Report List** |  | *0..1* |  | Cell ID list to which the request applies. | YES | ignore |
| **>Cell To Report Item** |  | *1 .. <maxCellingNBDU>* |  |  |  |  |
| >>Cell ID | M |  | NR CGI  9.3.1.12 |  | - |  |
| **>>SSB To Report List** |  | *0..1* |  | SSB list to which the request applies. | - |  |
| **>>>SSB To Report Item** |  | *1 .. < maxnoofSSBAreas>* |  |  | - |  |
| >>>>SSB index | M |  | INTEGER (0..63) |  |  |  |
| **>>Slice To Report List** |  | *0..1* |  | S-NSSAI list to which the request applies. | - |  |
| **>>>Slice To Report Item** |  | *1..< maxnoofBPLMNsNR>* |  |  |  |  |
| **>>>>PLMN Identity** | M |  | 9.3.1.14 | Broadcast PLMN |  |  |
| **>>>>S-NSSAI List** |  | *1* |  |  | - |  |
| **>>>>>S-NSSAI Item** |  | *1 .. < maxnoofSliceItems>* |  |  | - |  |
| >>>>>>S-NSSAI | M |  | 9.3.1.38 |  | - |  |
| Reporting Periodicity | O |  | ENUMERATED(500ms, 1000ms, 2000ms, 5000ms,10000ms, …) | Periodicity that can be used for reporting of PRB Periodic, TNL Capacity Ind Periodic, Composite Available Capacity Periodic. Also used as the averaging window length for all measurement object if supported. | YES | ignore |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifRegistrationRequestStoporAdd | This IE shall be present if the *Registration Request* IE is set to the value "stop" or "add". |
| ifRegistrationRequestStart | This IE shall be present if the Registration Request IE is set to the value "start". |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |
| maxnoofSSBAreas | Maximum no. SSB Areas that can be served by a NG-RAN node cell. Value is 64. |
| maxnoofSliceItems | Maximum no. of signalled slice support items. Value is 1024. |
| maxnoofBPLMNsNR | Maximum no. of PLMN Ids.broadcast in a cell. Value is 12. |

#### 9.2.1.21 RESOURCE STATUS RESPONSE

This message is sent by gNB-DU to gNB-CU to indicate that the requested measurement is successfully initiated.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| gNB-CU Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-CU | YES | reject |
| gNB-DU Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-DU | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.1.22 RESOURCE STATUS FAILURE

This message is sent by gNB-DU to gNB-CU to indicate that for any of the requested measurement objects the measurement cannot be initiated.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| gNB-CU Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-CU | YES | reject |
| gNB-DU Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-DU | YES | ignore |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.1.23 RESOURCE STATUS UPDATE

This message is sent by gNB-DU to gNB-CU to report the results of the requested measurements.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| gNB-CU Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-CU | YES | reject |
| gNB-DU Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-DU | YES | ignore |
| Hardware Load Indicator | O |  | 9.3.1.136 |  | YES | ignore |
| TNL Capacity Indicator | O |  | 9.3.1.128 |  | YES | ignore |
| **Cell Measurement Result** |  | *0..1* |  |  | YES | ignore |
| **>Cell Measurement Result Item** |  | *1 .. <maxCellingNBDU >* |  |  | - |  |
| >>Cell ID | M |  | NR CGI  9.3.1.12 |  | - |  |
| >>Radio Resource Status | O |  | 9.3.1.129 |  | - |  |
| >>Composite Available Capacity Group | O |  | 9.3.1.130 |  | - |  |
| >>Slice Available Capacity | O |  | 9.3.1.134 |  | - |  |
| >>Number of Active UEs | O |  | 9.3.1.135 |  | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

### 9.2.2 UE Context Management messages

#### 9.2.2.1 UE CONTEXT SETUP REQUEST

This message is sent by the gNB-CU to request the setup of a UE context.

Direction: gNB-CU → gNB-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | O |  | 9.3.1.5 |  | YES | ignore |
| SpCell ID | M |  | NR CGI  9.3.1.12 | Special Cell as defined in TS 38.321 [16]. For handover case, this IE is considered as target cell. | YES | reject |
| ServCellIndex | M |  | INTEGER (0..31,...) |  | YES | reject |
| SpCell UL Configured | O |  | Cell UL Configured  9.3.1.33 |  | YES | ignore |
| CU to DU RRC Information | M |  | 9.3.1.25 |  | YES | reject |
| **Candidate SpCell List** |  | *0..1* |  |  | YES | ignore |
| **>Candidate SpCell Item IEs** |  | *1 .. <maxnoofCandidateSpCells>* |  |  | EACH | ignore |
| >>Candidate SpCell ID | M |  | NR CGI  9.3.1.12 | Special Cell as defined in TS 38.321 [16] | - |  |
| DRX Cycle | O |  | DRX Cycle  9.3.1.24 |  | YES | ignore |
| Resource Coordination Transfer Container | O |  | OCTET STRING | Includes the *MeNB Resource Coordination Information* IE as defined in subclause 9.2.116 of TS 36.423 [9] for EN-DC case or *MR-DC Resource Coordination Information* IE as defined in TS 38.423 [28] for NGEN-DC and NE-DC cases. | YES | ignore |
| **SCell To Be Setup List** |  | *0..1* |  |  | YES | ignore |
| **>SCell to Be Setup Item IEs** |  | *1.. <maxnoofSCells>* |  |  | EACH | ignore |
| >>SCell ID | M |  | NR CGI  9.3.1.12 | SCell Identifier in gNB | - |  |
| >>SCellIndex | M |  | INTEGER (1..31) |  | - |  |
| >>SCell UL Configured | O |  | Cell UL Configured  9.3.1.33 |  | - |  |
| >>servingCellMO | O |  | INTEGER (1..64) |  | YES | ignore |
| **SRB to Be Setup List** |  | *0..1* |  |  | YES | reject |
| **>SRB to Be Setup Item IEs** |  | *1 .. <maxnoofSRBs>* |  |  | EACH | reject |
| >>SRB ID | M |  | 9.3.1.7 |  | - |  |
| >>Duplication Indication | O |  | ENUMERATED (true, ..., false) | If included, it should be set to true.  This IE is ignored if the *Additional Duplication Indication* IE is present. | - |  |
| >>Additional Duplication Indication | O |  | ENUMERATED (three, four, …) |  | YES | ignore |
| **DRB to Be Setup List** |  | *0..1* |  |  | YES | reject |
| **>DRB to Be Setup Item IEs** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | reject |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| >>CHOICE QoS Information | M |  |  |  | - |  |
| >>>E-UTRAN QoS | M |  | 9.3.1.19 | Shall be used for EN-DC case to convey E-RAB Level QoS Parameters | - |  |
| >>>DRB Information |  | *1* |  | Shall be used for NG-RAN cases | YES | ignore |
| >>>>DRB QoS | M |  | 9.3.1.45 |  | - |  |
| >>>>S-NSSAI | M |  | 9.3.1.38 |  | - |  |
| >>>>Notification Control | O |  | 9.3.1.56 |  | - |  |
| **>>>>Flows Mapped to DRB Item** |  | *1 .. <maxnoofQoSFlows>* |  |  | - |  |
| >>>>>QoS Flow Identifier | M |  | 9.3.1.63 |  | - |  |
| >>>>>QoS Flow Level QoS Parameters | M |  | 9.3.1.45 |  | - |  |
| >>>>>QoS Flow Mapping Indication | O |  | 9.3.1.72 |  | YES | ignore |
| >>>>>TSC Traffic Characteristics | O |  | 9.3.1.141 | Traffic pattern information associated with the QFI. Details in TS 23.501 [21]. | YES | ignore |
| **>>UL UP TNL Information to be setup List** |  | *1* |  |  | - |  |
| **>>>UL UP TNL Information to Be Setup Item IEs** |  | *1 .. <maxnoofULUPTNLInformation>* |  |  | - |  |
| >>>>UL UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of UL PDUs. | - |  |
| >>>>BH Information | O |  | 9.3.1.114 |  | YES | ignore |
| >>RLC Mode | M |  | 9.3.1.27 |  | - |  |
| >>UL Configuration | O |  | UL Configuraiton  9.3.1.31 | Information about UL usage in gNB-DU. | - |  |
| >>Duplication Activation | O |  | 9.3.1.36 | Information on the initial state of CA based UL PDCP duplication.  This IE is ignored if the *RLC Duplication Information* IE is present. | - |  |
| >>DC Based Duplication Configured | O |  | ENUMERATED (true, ..., false) | Indication on whether DC based PDCP duplication is configured or not. If included, it should be set to true. | YES | reject |
| >>DC Based Duplication Activation | O |  | Duplication Activation  9.3.1.36 | Information on the initial state of DC basedUL PDCP duplication.  This IE is ignored if the *RLC Duplication Information* IE is present. | YES | reject |
| >>DL PDCP SN length | M |  | ENUMERATED (12bits, 18bits, ...) |  | YES | ignore |
| >>UL PDCP SN length | O |  | ENUMERATED (12bits, 18bits, ...) |  | YES | ignore |
| **>>Additional PDCP Duplication TNL List** |  | *0..1* |  |  | YES | ignore |
| **>>>Additional PDCP Duplication TNL Items** |  | *1 .. <maxnoofAdditionalPDCPDuplicationTNL>* |  |  | EACH | ignore |
| >>>>Additional PDCP Duplication UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of UL PDUs. | - |  |
| >>>>BH Information | O |  | 9.3.1.114 |  | YES | ignore |
| >>RLC Duplication Information | O |  | 9.3.1.146 |  | YES | ignore |
| Inactivity Monitoring Request | O |  | ENUMERATED (true, ...) |  | YES | reject |
| RAT-Frequency Priority Information | O |  | 9.3.1.34 |  | YES | reject |
| RRC-Container | O |  | 9.3.1.6 | Includes the *DL-DCCH-Message* IE as defined in subclause 6.2 of TS 38.331 [8], encapsulated in a PDCP PDU. | YES | ignore |
| Masked IMEISV | O |  | 9.3.1.55 |  | YES | ignore |
| Serving PLMN | O |  | PLMN ID  9.3.1.14 | Indicates the PLMN serving the UE. | YES | ignore |
| gNB-DU UE Aggregate Maximum Bit Rate Uplink | C-ifDRBSetup |  | Bit Rate 9.3.1.22 | The gNB-DU UE Aggregate Maximum Bit Rate Uplink is to be enforced by the gNB-DU. | YES | ignore |
| RRC Delivery Status Request | O |  | ENUMERATED (true, …) | Indicates whether RRC DELIVERY REPORT procedure is requested for the RRC message. | YES | ignore |
| Resource Coordination Transfer Information | O |  | 9.3.1.73 |  | YES | ignore |
| servingCellMO | O |  | INTEGER (1..64, ...) |  | YES | ignore |
| New gNB-CU UE F1AP ID | O |  | gNB-CU UE F1AP ID  9.3.1.4 |  | YES | reject |
| RAN UE ID | O |  | OCTET STRING (SIZE (8)) |  | YES | ignore |
| Trace Activation | O |  | 9.3.1.88 |  | YES | ignore |
| Additional RRM Policy Index | O |  | 9.3.1.90 |  | YES | ignore |
| **BH RLC Channel to be Setup List** |  | *0..1* |  |  | YES | reject |
| **>BH RLC Channel to be Setup Item IEs** |  | *1 .. <maxnoofBHRLCChannels>* |  |  | EACH | reject |
| >>BH RLC CH ID | M |  | 9.3.1.113 |  | - |  |
| >>CHOICE *BH QoS Information* | M |  |  |  |  |  |
| >>>BH RLC CH QoS | M |  | QoS Flow Level QoS Parameters  9.3.1.45 | Shall be used for SA case. |  |  |
| >>>E-UTRAN BH RLC CH QoS | M |  | E-UTRAN QoS  9.3.1.19 | Shall be used for EN-DC case. |  |  |
| >>>Control Plane Traffic Type | M |  | 9.3.1.115 |  |  |  |
| >>RLC Mode | M |  | 9.3.1.27 |  | - |  |
| >>BAP Control PDU Channel | O |  | ENUMERATED (true, …) |  | - |  |
| >>Traffic Mapping Information | O |  | 9.3.1.95 |  | - |  |
| Configured BAP Address | O |  | 9.3.1.111 | The BAP address configured for the corresponding child IAB-node. | YES | reject |
| NR V2X Services Authorized | O |  | 9.3.1.116 |  | YES | ignore |
| LTE V2X Services Authorized | O |  | 9.3.1.117 |  | YES | ignore |
| NR UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.3.1.119 | This IE applies only if the UE is authorized for NR V2X services. | YES | ignore |
| LTE UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.3.1.118 | This IE applies only if the UE is authorized for LTE V2X services. | YES | ignore |
| PC5 Link Aggregate Bit Rate | O |  | Bit Rate  9.3.1.22 | Only applies for non-GBR and unicast QoS Flows. | YES | ignore |
| **SL DRB to Be Setup List** |  | *0..1* |  |  | YES | reject |
| **>SL DRB to Be Setup Item IEs** |  | *1 .. <maxnoofSLDRBs>* |  |  | EACH | reject |
| >>SL DRB ID | M |  | 9.3.1.120 |  | - |  |
| **>>SL DRB Information** |  | *1* |  |  | YES | ignore |
| >>>SL DRB QoS | M |  | PC5 QoS Parameters  9.3.1.122 |  | - |  |
| **>>>Flows Mapped to SL DRB Item** |  | *1 .. <maxnoofPC5QoSFlows>* |  |  | - |  |
| >>>>PC5 QoS Flow Identifier |  |  | 9.3.1.121 |  | - |  |
| >>RLC mode | M |  | 9.3.1.27 |  | - |  |
| **Conditional Inter-DU Mobility Information** | O |  |  |  | YES | reject |
| >CHO Trigger | M |  | ENUMERATED (CHO-initiation, CHO-replace, …) |  | - | - |
| >Target gNB-DU UE F1AP ID | C-ifCHOmod |  | 9.3.1.5 | Allocated at the target gNB-DU | - | - |
| >Estimated Arrival Probability | O |  | INTEGER (1..100) |  | YES | ignore |
| Management Based MDT PLMN List | O |  | MDT PLMN List  9.3.1.151 |  | YES | ignore |
| Serving NID | O |  | 9.3.1.155 |  | YES | reject |
| F1-C Transfer Path | O |  | 9.3.1.207 |  | YES | reject |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofSCells | Maximum no. of SCells allowed towards one UE, the maximum value is 32. |
| maxnoofSRBs | Maximum no. of SRB allowed towards one UE, the maximum value is 8. |
| maxnoofDRBs | Maximum no. of DRB allowed towards one UE, the maximum value is 64. |
| maxnoofULUPTNLInformation | Maximum no. of ULUP TNL Information allowed towards one DRB, the maximum value is 2. |
| maxnoofCandidateSpCells | Maximum no. of SpCells allowed towards one UE, the maximum value is 64. |
| maxnoofQoSFlows | Maximum no. of flows allowed to be mapped to one DRB, the maximum value is 64. |
| maxnoofBHRLCChannels | Maximum no. of BH RLC channels allowed towards one IAB-node, the maximum value is 65536. |
| maxnoofSLDRBs | Maximum no. of SL DRB allowed for NR sidelink communication per UE, the maximum value is 512. |
| maxnoofPC5QoSFlows | Maximum no. of PC5 QoS flow allowed towards one UE for NR sidelink communication, the maximum value is 2048. |
| maxnoofAdditionalPDCPDuplicationTNL | Maximum no. of additional UP TNL Information allowed towards one DRB, the maximum value is 2. |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifDRBSetup | This IE shall be present only if the *DRB to Be Setup List* IE is present. |
| ifCHOmod | This IE shall be present if the *CHO Trigger* IE is present and set to "CHO-replace". |

#### 9.2.2.2 UE CONTEXT SETUP RESPONSE

This message is sent by the gNB-DU to confirm the setup of a UE context.

Direction: gNB-DU → gNB-CU.

| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| DU To CU RRC Information | M |  | 9.3.1.26 |  | YES | reject |
| C-RNTI | O |  | 9.3.1.32 | C-RNTI allocated at the gNB-DU | YES | ignore |
| Resource Coordination Transfer Container | O |  | OCTET STRING | Includes the *SgNB Resource Coordination Information* IE as defined in subclause 9.2.117 of TS 36.423 [9] for EN-DC case or *MR-DC Resource Coordination Information* IE as defined in TS 38.423 [28] for NGEN-DC and NE-DC cases. | YES | ignore |
| Full Configuration | O |  | ENUMERATED (full, ...) |  | YES | reject |
| **DRB Setup List** |  | *0..1* |  | The List of DRBs which are successfully established. | YES | ignore |
| **>DRB Setup Item Iist** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | ignore |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| >>LCID | O |  | 9.3.1.35 | LCID for the primary path or for the split secondary path for fallback to split bearer if PDCP duplication is applied. | - |  |
| **>>DL UP TNL Information to be setup List** |  | *1* |  |  | - |  |
| **>>> DL UP TNL Information to Be Setup Item IEs** |  | *1 .. <maxnoofDLUPTNLInformation>* |  |  | - |  |
| >>>>DL UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs. | - |  |
| **>>Additional PDCP Duplication TNL List** |  | *0..1* |  |  | YES | ignore |
| **>>>Additional PDCP Duplication TNL Items** |  | *1 .. <maxnoofAdditionalPDCPDuplicationTNL>* |  |  | EACH | ignore |
| >>>>Additional PDCP Duplication UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs. | - |  |
| >>Current QoS Parameters Set Index | O |  | Alternative QoS Parameters Set Index  9.3.1.123 | Index to the currently fulfilled alternative QoS parameters set. | YES | ignore |
| **SRB Failed to Setup List** |  | *0..1* |  |  | YES | ignore |
| **>SRB Failed to Setup Item** |  | *1 .. <maxnoofSRBs>* |  |  | EACH | ignore |
| >>SRB ID | M |  | 9.3.1.7 |  | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| **DRB Failed to Setup List** |  | *0..1* |  |  | YES | ignore |
| **>DRB Failed to Setup Item** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | ignore |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| **SCell Failed To Setup List** |  | *0..1* |  |  | YES | ignore |
| **>SCell Failed to Setup Item** |  | *1 .. <maxnoofSCells>* |  |  | EACH | ignore |
| >>SCell ID | M |  | NR CGI  9.3.1.12 | SCell Identifier in gNB | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| Inactivity Monitoring Response | O |  | ENUMERATED (not-supported, ...) |  | YES | reject |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |
| **SRB Setup List** |  | *0..1* |  |  | YES | ignore |
| **>SRB Setup Item** |  | *1 .. <maxnoofSRBs>* |  |  | EACH | ignore |
| >>SRB ID | M |  | 9.3.1.7 |  | - |  |
| >>LCID | M |  | 9.3.1.35 | LCID for the primary path if PDCP duplication is applied | - |  |
| **BH RLC Channel Setup List** |  | *0..1* |  | The list of BH RLC channels which are successfully established. | YES | ignore |
| **>BH RLC Channel Setup Item** |  | *1 .. <maxnoofBHRLCChannels>* |  |  | EACH | ignore |
| >>BH RLC CH ID | M |  | 9.3.1.113 |  | - |  |
| **BH RLC Channel Failed to be Setup List** |  | *0..1* |  | The list of BH RLC channels whose setup has failed. | YES | ignore |
| **>BH RLC Channel Failed to be Setup Item** |  | *1 .. <maxnoofBHRLCChannels>* |  |  | EACH | ignore |
| >>BH RLC CH ID | M |  | 9.3.1.113 |  | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| **SL DRB Setup List** |  | *0..1* |  | The List of SL DRBs which are successfully established. | YES | ignore |
| **>SL DRB Setup Item IEs** |  | *1 .. <maxnoofSLDRBs>* |  |  | EACH | ignore |
| >>SL DRB ID | M |  | 9.3.1.120 |  | - |  |
| **SL DRB Failed To Setup List** |  | *0..1* |  |  | EACH | ignore |
| **>SL DRB Failed To Setup Item IE** |  | *1 .. <maxnoofSLDRBs>* |  |  | EACH | ignore |
| >>SL DRB ID | M |  | 9.3.1.120 |  | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| Requested Target Cell ID | O |  | NR CGI  9.3.1.12 | Special Cell indicated in the UE CONTEXT SETUP REQUEST message. | YES | reject |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofSCells | Maximum no. of SCells allowed towards one UE, the maximum value is 32. |
| maxnoofSRBs | Maximum no. of SRB allowed towards one UE, the maximum value is 8. |
| maxnoofDRBs | Maximum no. of DRB allowed towards one UE, the maximum value is 64. |
| maxnoofDLUPTNLInformation | Maximum no. of DL UP TNL Information allowed towards one DRB, the maximum value is 2. |
| maxnoofBHRLCChannels | Maximum no. of BH RLC channels allowed towards one IAB-node, the maximum value is 65536. |
| maxnoofSLDRBs | Maximum no. of SL DRB allowed for NR sidelink communication per UE, the maximum value is 512. |
| maxnoofAdditionalPDCPDuplicationTNL | Maximum no. of additional UP TNL Information allowed towards one DRB, the maximum value is 2. |

#### 9.2.2.3 UE CONTEXT SETUP FAILURE

This message is sent by the gNB-DU to indicate that the setup of the UE context was unsuccessful.

Direction: gNB-DU → gNB-CU

| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | O |  | 9.3.1.5 |  | YES | ignore |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |
| **Potential SpCell List** |  | *0..1* |  |  | YES | ignore |
| **>Potential SpCell Item IEs** |  | *0 .. <maxnoofPotentialSpCells>* |  |  | EACH | ignore |
| >>Potential SpCell ID | M |  | NR CGI  9.3.1.12 | Special Cell as defined in TS 38.321 [16] | - |  |
| Requested Target Cell ID | O |  | NR CGI  9.3.1.12 | Special Cell indicated in the UE CONTEXT SETUP REQUEST message. | YES | reject |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPotentialSpCells | Maximum no. of SpCells allowed towards one UE, the maximum value is 64. |

#### 9.2.2.4 UE CONTEXT RELEASE REQUEST

This message is sent by the gNB-DU to request the gNB-CU to release the UE-associated logical F1 connection or candidate cells in conditional handover or conditional PSCell change.

Direction: gNB-DU → gNB-CU

| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| **Candidate Cells To Be Cancelled List** |  | *0 .. <maxnoofCellsinCHO>* |  |  | YES | reject |
| >Target Cell ID | M |  | NR CGI  9.3.1.12 |  | - | - |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofCellsinCHO | Maximum no. cells that can be prepared for a conditional mobility. Value is 8. |

#### 9.2.2.5 UE CONTEXT RELEASE COMMAND

This message is sent by the gNB-CU to request the gNB-DU to release the UE-associated logical F1 connection or candidate cells in conditional handover or conditional PSCell change.

Direction: gNB-CU → gNB-DU

| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| RRC-Container | O |  | 9.3.1.6 | Includes the *DL-DCCH-Message* IE as defined in subclause 6.2 of TS 38.331 [8] encapsulated in a PDCP PDU, or the *DL-CCCH-Message* IE as defined in subclause 6.2 of TS 38.331 [8]. | YES | ignore |
| SRB ID | C- ifRRCContainer |  | 9.3.1.7 | The gNB-DU sends the RRC message on the indicated SRB. | YES | ignore |
| old gNB-DU UE F1AP ID | O |  | 9.3.1.5 | Include it if RRCReestablishmentRequest is not accepted | YES | ignore |
| Execute Duplication | O |  | ENUMERATED (true, ...) | This IE may be sent only if duplication has been configured for the UE. | YES | ignore |
| RRC Delivery Status Request | O |  | ENUMERATED (true, …) | Indicates whether RRC DELIVERY REPORT procedure is requested for the RRC message. | YES | ignore |
| **Candidate Cells To Be Cancelled List** |  | *0 .. <maxnoofCellsinCHO>* |  |  | YES | reject |
| >Target Cell ID | M |  | NR CGI  9.3.1.12 |  | - | - |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofCellsinCHO | Maximum no. cells that can be prepared for a conditional mobility. Value is 8. |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifRRCContainer | This IE shall be present if the *RRC container* IE is present. |

#### 9.2.2.6 UE CONTEXT RELEASE COMPLETE

This message is sent by the gNB-DU to confirm the release of the UE-associated logical F1 connection or candidate cells in conditional handover or conditional PSCell change.

Direction: gNB-DU → gNB-CU

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.2.7 UE CONTEXT MODIFICATION REQUEST

This message is sent by the gNB-CU to provide UE Context information changes to the gNB-DU.

Direction: gNB-CU → gNB-DU

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| SpCell ID | O |  | NR CGI  9.3.1.12 | Special Cell as defined in TS 38.321 [16]. For handover case, this IE is considered as target cell. | YES | ignore |
| ServCellIndex | O |  | INTEGER (0..31, ...) |  | YES | reject |
| SpCell UL Configured | O |  | Cell UL Configured  9.3.1.33 |  | YES | ignore |
| DRX Cycle | O |  | DRX Cycle  9.3.1.24 |  | YES | ignore |
| CU to DU RRC Information | O |  | 9.3.1.25 |  | YES | reject |
| Transmission Action Indicator | O |  | 9.3.1.11 |  | YES | ignore |
| Resource Coordination Transfer Container | O |  | OCTET STRING | Includes the *MeNB Resource Coordination Information* IE as defined in subclause 9.2.116 of TS 36.423 [9] for EN-DC case or *MR-DC Resource Coordination Information* IE as defined in TS 38.423 [28] for NGEN-DC and NE-DC cases. | YES | ignore |
| RRC Reconfiguration Complete Indicator | O |  | 9.3.1.30 |  | YES | ignore |
| RRC-Container | O |  | 9.3.1.6 | Includes the *DL-DCCH-Message* IE as defined in subclause 6.2 of TS 38.331 [8], encapsulated in a PDCP PDU. | YES | reject |
| **SCell To Be Setup List** |  | *0..1* |  |  | YES | ignore |
| **>SCell to Be Setup Item IEs** |  | *1.. <maxnoofSCells>* |  |  | EACH | ignore |
| >>SCell ID | M |  | NR CGI  9.3.1.12 | SCell Identifier in gNB | - |  |
| >>SCellIndex | M |  | INTEGER (1..31) |  | - |  |
| >>SCell UL Configured | O |  | Cell UL Configured  9.3.1.33 |  | - |  |
| >>servingCellMO | O |  | INTEGER (1..64) |  | YES | ignore |
| **SCell To Be Removed List** |  | *0..1* |  |  | YES | ignore |
| **>SCell to Be Removed Item IEs** |  | *1 .. <maxnoofSCells>* |  |  | EACH | ignore |
| >>SCell ID | M |  | NR CGI  9.3.1.12 | SCell Identifier in gNB | - |  |
| **SRB to Be Setup List** |  | *0..1* |  |  | YES | reject |
| **>SRB to Be Setup Item IEs** |  | *1..<maxnoofSRBs>* |  |  | EACH | reject |
| >>SRB ID | M |  | 9.3.1.7 |  | - |  |
| >>Duplication Indication | O |  | ENUMERATED (true, ..., false) | This IE is ignored if the *Additional Duplication Indication* IE is present. | - |  |
| >>Additional Duplication Indication | O |  | ENUMERATED (three, four, …) |  | YES | ignore |
| **DRB to Be Setup List** |  | *0..1* |  |  | YES | reject |
| **>DRB to Be Setup Item IEs** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | reject |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| >>CHOICE QoS Information | M |  |  |  | - |  |
| >>>E-UTRAN QoS | M |  | 9.3.1.19 | Shall be used for EN-DC case to convey E-RAB Level QoS Parameters |  |  |
| **>>>DRB Information** |  | *1* |  | Shall be used for NG-RAN cases | YES | ignore |
| >>>>DRB QoS | M |  | 9.3.1.45 |  | - |  |
| >>>>S-NSSAI | M |  | 9.3.1.38 |  | - |  |
| >>>>Notification Control | O |  | 9.3.1.56 |  | - |  |
| **>>>>Flows Mapped to DRB Item** |  | *1 .. <maxnoofQoSFlows>* |  |  | - |  |
| >>>>>QoS Flow Identifier | M |  | 9.3.1.63 |  | - |  |
| >>>>>QoS Flow Level QoS Parameters | M |  | 9.3.1.45 |  | - |  |
| >>>>>QoS Flow Mapping Indication | O |  | 9.3.1.72 |  | YES | ignore |
| >>>>>TSC Traffic Characteristics | O |  | 9.3.1.141 | Traffic pattern information associated with the QFI. Details in TS 23.501 [21]. | YES | ignore |
| **>>UL UP TNL Information to be setup List** |  | *1* |  |  | - |  |
| **>>>UL UP TNL Information to Be Setup Item IEs** |  | *1 .. <maxnoofULUPTNLInformation>* |  |  | - |  |
| >>>>UL UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of UL PDUs. | - |  |
| >>>>BH Information | O |  | 9.3.1.114 |  | YES | ignore |
| >>RLC Mode | M |  | 9.3.1.27 |  | - |  |
| >>UL Configuration | O |  | UL Configuration  9.3.1.31 | Information about UL usage in gNB-DU. | - |  |
| >>Duplication Activation | O |  | 9.3.1.36 | Information on the initial state of CA based UL PDCP duplication.  This IE is ignored if the *RLC Duplication Information* IE is present. | - |  |
| >>DC Based Duplication Configured | O |  | ENUMERATED (true, ..., false) | Indication on whether DC based PDCP duplication is configured or not. If included, it should be set to true. | YES | reject |
| >>DC Based Duplication Activation | O |  | Duplication Activation  9.3.1.36 | Information on the initial state of DC based UL PDCP duplication.  This IE is ignored if the *RLC Duplication Information* IE is present. | YES | reject |
| >>DL PDCP SN length | O |  | ENUMERATED (12bits, 18bits, ...) |  | YES | ignore |
| >>UL PDCP SN length | O |  | ENUMERATED (12bits, 18bits, ...) |  | YES | ignore |
| **>>Additional PDCP Duplication TNL List** |  | *0..1* |  |  | YES | ignore |
| **>>>Additional PDCP Duplication TNL Items** |  | *1 .. < maxnoofAdditionalPDCPDuplicationTNL>* |  |  | EACH | ignore |
| >>>>Additional PDCP Duplication UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of UL PDUs. | - |  |
| >>>>BH Information | O |  | 9.3.1.114 |  | YES | ignore |
| >>RLC Duplication Information | O |  | 9.3.1.146 |  | YES | ignore |
| **DRB to Be Modified List** |  | *0..1* |  |  | YES | reject |
| **>DRB to Be Modified Item IEs** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | reject |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| >>CHOICE QoS Information | O |  |  |  | - |  |
| >>>E-UTRAN QoS | M |  | 9.3.1.19 | Used for EN-DC case to convey E-RAB Level QoS Parameters | - |  |
| **>>>DRB Information** |  | *1* |  | Used for NG-RAN cases | YES | ignore |
| >>>>DRB QoS | M |  | 9.3.1.45 |  | - |  |
| >>>>S-NSSAI | M |  | 9.3.1.38 |  | - |  |
| >>>>Notification Control | O |  | 9.3.1.56 |  | - |  |
| **>>>>Flows Mapped to DRB Item** |  | *1 .. <maxnoofQoSFlows>* |  |  | - |  |
| >>>>>QoS Flow Identifier | M |  | 9.3.1.63 |  | - |  |
| >>>>>QoS Flow Level QoS Parameters | M |  | 9.3.1.45 |  | - |  |
| >>>>>QoS Flow Mapping Indication | O |  | 9.3.1.72 |  | YES | ignore |
| >>>>>TSC Traffic Characteristics | O |  | 9.3.1.141 | Traffic pattern information associated with the QFI. Details in TS 23.501 [21]. | YES | ignore |
| **>>UL UP TNL Information to be setup List** |  | *1* |  |  | - |  |
| **>>>UL UP TNL Information to Be Setup Item IEs** |  | *1 .. <maxnoofULUPTNLInformation>* |  |  | - |  |
| >>>>UL UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of UL PDUs. | - |  |
| >>>>BH Information | O |  | 9.3.1.114 |  | YES | ignore |
| >>UL Configuration | O |  | UL Configuration  9.3.1.31 | Information about UL usage in gNB-DU. | - |  |
| >>DL PDCP SN length | O |  | ENUMERATED(12bits,18bits , ...) |  | YES | ignore |
| >>UL PDCP SN length | O |  | ENUMERATED (12bits, 18bits, ...) |  | YES | ignore |
| >>Bearer Type Change | O |  | ENUMERATED (true, …) |  | YES | ignore |
| >>RLC Mode | O |  | 9.3.1.27 |  | YES | ignore |
| >>Duplication Activation | O |  | 9.3.1.36 | Information on the initial state of CA based UL PDCP duplication.  This IE is ignored if the *RLC Duplication Information* IE is present. | YES | reject |
| >>DC Based Duplication Configured | O |  | ENUMERATED (true, …, false) | Indication on whether DC based PDCP duplication is configured or not. | YES | reject |
| >>DC Based Duplication Activation | O |  | 9.3.1.36 | Information on the initial state of DC based UL PDCP duplication.  This IE is ignored if the *RLC Duplication Information* IE is present. | YES | reject |
| **>>Additional PDCP Duplication TNL List** |  | *0..1* |  |  | YES | ignore |
| >>>Additional PDCP Duplication TNL Items |  | *1 .. <maxnoofAdditionalPDCPDuplicationTNL>* |  |  | EACH | ignore |
| >>>>Additional PDCP Duplication UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of UL PDUs. | - |  |
| >>>>BH Information | O |  | 9.3.1.114 |  | YES | ignore |
| >>RLC Duplication Information | O |  | 9.3.1.146 |  | YES | ignore |
| >>Transmission Stop Indicator | O |  | 9.3.1.209 |  | YES | ignore |
| **SRB To Be Released List** |  | *0..1* |  |  | YES | reject |
| **>SRB To Be Released Item IEs** |  | *1.. <maxnoofSRBs>* |  |  | EACH | reject |
| >>SRB ID | M |  | 9.3.1.7 |  |  |  |
| **DRB to Be Released List** |  | *0..1* |  |  | YES | reject |
| **>DRB to Be Released Item IEs** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | reject |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| Inactivity Monitoring Request | O |  | ENUMERATED (true, ...) |  | YES | reject |
| RAT-Frequency Priority Information | O |  | 9.3.1.34 |  | YES | reject |
| DRX configuration indicator | O |  | ENUMERATED(release,...) |  | YES | ignore |
| RLC Failure Indication | O |  | 9.3.1.66 |  | YES | ignore |
| Uplink TxDirectCurrentList Information | O |  | 9.3.1.67 |  | YES | ignore |
| GNB-DU Configuration Query | O |  | ENUMERATED (true, ...) | Used to request the gNB-DU to provide its configuration. | YES | reject |
| gNB-DU UE Aggregate Maximum Bit Rate Uplink | O |  | Bit Rate 9.3.1.22 | The gNB-DU UE Aggregate Maximum Bit Rate Uplink is to be enforced by the gNB-DU. | YES | ignore |
| Execute Duplication | O |  | ENUMERATED (true, ...) | This IE may be sent only if duplication has been configured for the UE. | YES | ignore |
| RRC Delivery Status Request | O |  | ENUMERATED (true, …) | Indicates whether RRC DELIVERY REPORT procedure is requested for the RRC message. | YES | ignore |
| Resource Coordination Transfer Information | O |  | 9.3.1.73 |  | YES | ignore |
| servingCellMO | O |  | INTEGER (1..64, ...) |  | YES | ignore |
| Need for Gap | O |  | ENUMERATED (true, …) | Indicate gap for SeNB configured measurement is requested.It only applied to NE DC scenario. | Yes | ignore |
| Full Configuration | O |  | ENUMERATED (full, ...) |  | YES | reject |
| Additional RRM Policy Index | O |  | 9.3.1.90 |  | YES | ignore |
| Lower Layer Presence Status Change | O |  | 9.3.1.94 |  | Yes | ignore |
| **BH RLC Channel to be Setup List** |  | *0..1* |  |  | YES | reject |
| **>BH RLC Channel to be Setup Item IEs** |  | *1 .. <maxnoofBHRLCChannels>* |  |  | EACH | reject |
| >>BH RLC CH ID | M |  | 9.3.1.113 |  | - |  |
| >>CHOICE *BH QoS information* | M |  |  |  |  |  |
| >>>BH RLC CH QoS | M |  | QoS Flow Level QoS Parameters  9.3.1.45 | Shall be used for SA case. |  |  |
| >>>E-UTRAN BH RLC CH QoS | M |  | E-UTRAN QoS  9.3.1.19 | Shall be used for EN-DC case. |  |  |
| >>>Control Plane Traffic Type | M |  | 9.3.1.115 |  |  |  |
| >>RLC Mode | M |  | 9.3.1.27 |  | - |  |
| >>BAP Control PDU Channel | O |  | ENUMERATED (true, …) |  | - |  |
| >>Traffic Mapping Information | O |  | 9.3.1.95 |  | - |  |
| **BH RLC Channel to be Modified List** |  | *0..1* |  |  | YES | reject |
| **>BH RLC Channel to be Modified Item IEs** |  | *1 .. <maxnoofBHRLCChannels>* |  |  | EACH | reject |
| >>BH RLC CH ID | M |  | 9.3.1.113 |  | - |  |
| >>CHOICE *BH QoS information* | O |  |  |  |  |  |
| >>>BH RLC CH QoS | M |  | QoS Flow Level QoS Parameters  9.3.1.45 | Shall be used for SA case. |  |  |
| >>>E-UTRAN BH RLC CH QoS | M |  | E-UTRAN QoS  9.3.1.19 | Shall be used for EN-DC case. |  |  |
| >>>Control Plane Traffic Type | M |  | 9.3.1.115 |  |  |  |
| >>RLC Mode | O |  | 9.3.1.27 |  | - |  |
| >>BAP Control PDU Channel | O |  | ENUMERATED (true, …) |  | - |  |
| >>Traffic Mapping Information | O |  | 9.3.1.95 |  | - |  |
| **BH RLC Channel to be Released List** |  | *0..1* |  |  | YES | reject |
| **>BH RLC Channel to be Released Item IEs** |  | *1 .. <maxnoofBHRLCChannels >* |  |  | EACH | reject |
| >>BH RLC CH ID | M |  | 9.3.1.113 |  | - |  |
| NR V2X Services Authorized | O |  | 9.3.1.116 |  | YES | ignore |
| LTE V2X Services Authorized | O |  | 9.3.1.117 |  | YES | ignore |
| NR UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.3.1.119 | This IE applies only if the UE is authorized for NR V2X services. | YES | ignore |
| LTE UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.3.1.118 | This IE applies only if the UE is authorized for LTE V2X services. | YES | ignore |
| PC5 Link Aggregate Bit Rate | O |  | Bit Rate  9.3.1.22 | Only applies for non-GBR and unicast QoS Flows. | YES | ignore |
| **SL DRB to Be Setup List** |  | *0..1* |  |  | YES | reject |
| **>SL DRB to Be Setup Item IEs** |  | *1 .. <maxnoofSLDRBs>* |  |  | EACH | reject |
| >>SL DRB ID | M |  | 9.3.1.120 |  | - |  |
| **>>SL DRB Information** |  | *1* |  |  | YES | ignore |
| >>>SL DRB QoS | M |  | PC5 QoS Parameters  9.3.1.122 |  | - |  |
| **>>>Flows Mapped to SL DRB Item** |  | *1 .. <maxnoofPC5QoSFlows>* |  |  | - |  |
| >>>>PC5 QoS Flow Identifier | M |  | 9.3.1.121 |  | - |  |
| >>RLC mode | O |  | 9.3.1.27 |  | - |  |
| **SL DRB to Be Modified List** |  | *0..1* |  |  | YES | reject |
| **>SL DRB to Be Modified Item IEs** |  | *1 .. <maxnoofSLDRBs>* |  |  | EACH | reject |
| >>SL DRB ID | M |  | 9.3.1.120 |  | - |  |
| **>>SL DRB Information** |  | *1* |  |  | YES | ignore |
| >>>SL DRB QoS | M |  | PC5 QoS Parameters  9.3.1.122 |  | - |  |
| **>>>Flows Mapped to SL DRB Item** |  | *1 .. <maxnoofPC5QoSFlows>* |  |  | - |  |
| >>>>PC5 QoS Flow Identifier | M |  | 9.3.1.121 |  | - |  |
| >>RLC mode | O |  | 9.3.1.27 |  | - |  |
| **SL DRB to Be Released List** |  | *0..1* |  |  | YES | reject |
| **>SL DRB to Be Released Item IEs** |  | *1 .. <maxnoofSLDRBs>* |  |  | EACH | reject |
| >>SL DRB ID | M |  | 9.3.1.120 |  | - |  |
| **Conditional Intra-DU Mobility Information** | O |  |  |  | YES | reject |
| >CHO Trigger | M |  | ENUMERATED (CHO-initiation, CHO-replace, CHO-cancel, …) |  | - | - |
| **>****Candidate Cells To Be Cancelled List** | C-ifCHOcancel | *0 .. <maxnoofCellsinCHO>* |  |  | - | - |
| >>Target Cell ID | M |  | NR CGI  9.3.1.12 |  | - | - |
| >Estimated Arrival Probability | O |  | INTEGER (1..100) |  | YES | ignore |
| F1-C Transfer Path | O |  | 9.3.1.207 |  | YES | reject |
| SCG Indicator | O |  | ENUMERATED(released,...) | This IE is used at the MN in NR-DC and NE-DC and it indicates the release of an SCG | YES | ignore |
| DAPS HO status | O |  | ENUMERATED(initiation, …) | This IE is used if DAPS HO is initiated. | YES | ignore |
| Uplink TxDirectCurrentTwoCarrierList Information | O |  | 9.3.1.283 |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofSCells | Maximum no. of SCells allowed towards one UE, the maximum value is 32. |
| maxnoofSRBs | Maximum no. of SRB allowed towards one UE, the maximum value is 8. |
| maxnoofDRBs | Maximum no. of DRB allowed towards one UE, the maximum value is 64. |
| maxnoofULUPTNLInformation | Maximum no. of UL UP TNL Information allowed towards one DRB, the maximum value is 2. |
| maxnoofQoSFlows | Maximum no. of flows allowed to be mapped to one DRB, the maximum value is 64. |
| maxnoofBHRLCChannels | Maximum no. of BH RLC channels allowed towards one IAB-node, the maximum value is 65536. |
| maxnoofSLDRBs | Maximum no. of SL DRB allowed for NR sidelink communication per UE, the maximum value is 512. |
| maxnoofPC5QoSFlows | Maximum no. of PC5 QoS flow allowed towards one UE for NR sidelink communication, the maximum value is 2048. |
| maxnoofAdditionalPDCPDuplicationTNL | Maximum no. of additional UP TNL Information allowed towards one DRB, the maximum value is 2. |
| maxnoofCellsinCHO | Maximum no. cells that can be prepared for a conditional mobility. Value is 8. |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifCHOcancel | This IE may be present if the CHO Trigger IE is present and set to "CHO-cancel". |

#### 9.2.2.8 UE CONTEXT MODIFICATION RESPONSE

This message is sent by the gNB-DU to confirm the modification of a UE context.

Direction: gNB-DU → gNB-CU.

| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| Resource Coordination Transfer Container | O |  | OCTET STRING | Includes the *SgNB Resource Coordination Information* IE as defined in subclause 9.2.117 of TS 36.423 [9] for EN-DC case or *MR-DC Resource Coordination Information* IE as defined in TS 38.423 [28] for NGEN-DC and NE-DC cases. | YES | ignore |
| DU To CU RRC Information | O |  | 9.3.1.26 |  | YES | reject |
| **DRB Setup List** |  | *0..1* |  | The List of DRBs which are successfully established. | YES | ignore |
| **>DRB Setup Item IEs** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | ignore |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| >>LCID | O |  | 9.3.1.35 | LCID for the primary path or for the split secondary path for fallback to split bearer if PDCP duplication is applied. | - |  |
| **>>DL UP TNL Information to be setup List** |  | *1* |  |  | - |  |
| **>>>DL UP TNL Information to Be Setup Item IEs** |  | *1 .. <maxnoofDLUPTNLInformation>* |  |  | - |  |
| >>>>DL UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs. | - |  |
| **>>Additional PDCP Duplication TNL List** |  | *0..1* |  |  | YES | ignore |
| **>>>Additional PDCP Duplication TNL Items** |  | *1 .. <* *maxnoofAdditionalPDCPDuplicationTNL>* |  |  | EACH | ignore |
| >>>>Additional PDCP Duplication UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs. | - |  |
| >>Current QoS Parameters Set Index | O |  | Alternative QoS Parameters Set Index  9.3.1.123 | Index to the currently fulfilled alternative QoS parameters set. | YES | ignore |
| **DRB Modified List** |  | *0..1* |  | The List of DRBs which are successfully modified. | YES | ignore |
| **>DRB Modified Item IEs** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | ignore |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| >>LCID | O |  | 9.3.1.35 | LCID for the primary path or for the split secondary path for fallback to split bearer if PDCP duplication is applied. | - |  |
| **>>DL UP TNL Information to be setup List** |  | *1* |  |  | - |  |
| **>>>DL UP TNL Information to Be Setup Item IEs** |  | *1 .. <maxnoofDLUPTNLInformation>* |  |  | - |  |
| >>>>DL UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs. | - |  |
| >>RLC Status | O |  | 9.3.1.69 | Indicates the RLC has been re-established at the gNB-DU. | YES | ignore |
| **>>Additional PDCP Duplication TNL List** |  | *0..1* |  |  | YES | ignore |
| **>>>Additional PDCP Duplication TNL Items** |  | *1 .. <* *maxnoofAdditionalPDCPDuplicationTNL>* |  |  | EACH | ignore |
| >>>>Additional PDCP Duplication UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs. | - |  |
| >>Current QoS Parameters Set Index | O |  | Alternative QoS Parameters Set Index  9.3.1.123 | Index to the currently fulfilled alternative QoS parameters set. | YES | ignore |
| **SRB Failed to be Setup List** |  | *0..1* |  | The List of SRBs which are failed to be established. | YES | ignore |
| **>SRB Failed to be Setup Item IEs** |  | *1 .. <maxnoofSRBs>* |  |  | EACH | ignore |
| >>SRB ID | M |  | 9.3.1.7 |  | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| **DRB Failed to be Setup List** |  | *0..1* |  | The List of DRBs which are failed to be setup. | YES | ignore |
| **>DRB Failed to be Setup Item IEs** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | ignore |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| **SCell Failed To Setup List** |  | *0..1* |  |  | YES | ignore |
| **>SCell Failed to Setup Item** |  | *1 .. <maxnoofSCells>* |  |  | EACH | ignore |
| >>SCell ID | M |  | NR CGI  9.3.1.12 | SCell Identifier in gNB | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| **DRB Failed to be Modified List** |  | 0..1 |  | The List of DRBs which are failed to be modified. | YES | ignore |
| **>DRB Failed to be Modified Item IEs** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | ignore |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| Inactivity Monitoring Response | O |  | ENUMERATED (Not-supported, ...) |  | YES | reject |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |
| C-RNTI | O |  | 9.3.1.32 | C-RNTI allocated at the gNB-DU | YES | ignore |
| Associated SCell List | O |  | 9.3.1.77 |  | YES | ignore |
| **SRB Setup List** |  | *0..1* |  |  | YES | ignore |
| **>SRB Setup Item** |  | *1 .. <maxnoofSRBs>* |  |  | EACH | ignore |
| >>SRB ID | M |  | 9.3.1.7 |  | - |  |
| >>LCID | M |  | 9.3.1.35 | LCID for the primary path if PDCP duplication is applied | - |  |
| **SRB Modified List** |  | *0..1* |  |  | YES | ignore |
| **>SRB Modified Item** |  | *1 .. <maxnoofSRBs>* |  |  | EACH | ignore |
| >>SRB ID | M |  | 9.3.1.7 |  | - |  |
| >>LCID | M |  | 9.3.1.35 | LCID for the primary path if PDCP duplication is applied | - |  |
| Full Configuration | O |  | ENUMERATED (full, ...) |  | YES | reject |
| **BH RLC Channel Setup List** |  | *0..1* |  | The list of BH RLC channels which are successfully established. | YES | ignore |
| **>BH RLC Channel Setup Item** |  | *1 .. <maxnoofBHRLCChannels>* |  |  | EACH | ignore |
| >>BH RLC CH ID | M |  | 9.3.1.113 |  | - |  |
| **BH RLC Channel Failed to be Setup List** |  | *0..1* |  | The list of BH RLC channels whose setup has failed. | YES | ignore |
| **>BH RLC Channel Failed to be Setup Item** |  | *1 .. <maxnoofBHRLCChannels>* |  |  | EACH | ignore |
| >>BH RLC CH ID | M |  | 9.3.1.113 |  | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| **BH RLC Channel Modified List** |  | *0..1* |  | The list of BH RLC channels which are successfully modified. | YES | ignore |
| **>BH RLC Channel Modified Item** |  | *1 .. <maxnoofBHRLCChannels>* |  |  | EACH | ignore |
| >>BH RLC CH ID | M |  | 9.3.1.113 |  | - |  |
| **BH RLC Channel Failed to be Modified List** |  | *0..1* |  | The list of BH RLC channels whose modification has failed. | YES | ignore |
| **>BH RLC Channel Failed to be Modified Item** |  | *1 .. <maxnoofBHRLCChannels>* |  |  | EACH | ignore |
| >>BH RLC CH ID | M |  | 9.3.1.113 |  | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| **SL DRB Setup List** |  | *0..1* |  | The List of SL DRBs which are successfully established. | YES | ignore |
| **>SL DRB Setup Item IEs** |  | *1 .. <maxnoofSLDRBs>* |  |  | EACH | ignore |
| >>SL DRB ID | M |  | 9.3.1.120 |  | - |  |
| **SL DRB Modified List** |  | *0..1* |  | The List of SL DRBs which are successfully modified. | YES | ignore |
| **>SL DRB Modified Item IEs** |  | *1 .. <maxnoofSLDRBs>* |  |  | EACH | ignore |
| >>SL DRB ID | M |  | 9.3.1.120 |  | - |  |
| **SL DRB Failed To Setup List** |  | *0..1* |  | The List of SL DRBs which are failed to be setup. | YES | ignore |
| **>SL DRB Failed To Setup Item** |  | *1 .. <maxnoofSLDRBs>* |  |  | EACH | ignore |
| >>SL DRB ID | M |  | 9.3.1.120 |  | - |  |
| >>cause | O |  | 9.3.1.2 |  | - |  |
| **SL DRB Failed To be Modified List** |  | *0..1* |  | The List of SL DRBs which are failed to be modified. | YES | ignore |
| **>SL DRB Failed To be Modified Item** |  | *1 .. <maxnoofSLDRBs>* |  |  | EACH | ignore |
| >>SL DRB ID | M |  | 9.3.1.120 |  | - |  |
| >>cause | O |  | 9.3.1.2 |  | - |  |
| Requested Target Cell ID | O |  | NR CGI  9.3.1.12 | Special Cell indicated in the UE CONTEXT MODIFICATION REQUEST message. | YES | reject |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofSRBs | Maximum no. of SRB allowed towards one UE, the maximum value is 8. |
| maxnoofDRBs | Maximum no. of DRB allowed towards one UE, the maximum value is 64. |
| maxnoofDLUPTNLInformation | Maximum no. of DL UP TNL Information allowed towards one DRB, the maximum value is 2. |
| maxnoofSCells | Maximum no. of SCells allowed towards one UE, the maximum value is 32. |
| maxnoofBHRLCChannels | Maximum no. of BH RLC channels allowed towards one IAB-node, the maximum value is 65536. |
| maxnoofSLDRBs | Maximum no. of SL DRB allowed for NR sidelink communication per UE, the maximum value is 512. |
| maxnoofAdditionalPDCPDuplicationTNL | Maximum no. of additional UP TNL Information allowed towards one DRB, the maximum value is 2. |

#### 9.2.2.9 UE CONTEXT MODIFICATION FAILURE

This message is sent by the gNB-DU to indicate a context modification failure.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |
| Requested Target Cell ID | O |  | NR CGI  9.3.1.12 | Special Cell indicated in the UE CONTEXT MODIFICATION REQUEST message. | YES | reject |

#### 9.2.2.10 UE CONTEXT MODIFICATION REQUIRED

This message is sent by the gNB-DU to request the modification of a UE context.

Direction: gNB-DU → gNB-CU.

| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| Resource Coordination Transfer Container | O |  | OCTET STRING | Includes the *SgNB Resource Coordination Information* IE as defined in subclause 9.2.117 of TS 36.423 [9] for EN-DC case or *MR-DC Resource Coordination Information* IE as defined in TS 38.423 [28] for NGEN-DC and NE-DC cases. | YES | ignore |
| DU To CU RRC Information | O |  | 9.3.1.26 |  | YES | reject |
| **DRB Required to Be Modified List** |  | *0..1* |  |  | YES | reject |
| **>DRB Required to Be Modified Item IEs** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | reject |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| **>>DL UP TNL Information to be setup List** |  | *0..1* |  |  | - |  |
| **>>>DL UP TNL Information to Be Setup Item IEs** |  | *1 .. <maxnoofDLUPTNLInformation>* |  |  | - |  |
| >>>>DL UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs. | - |  |
| >>RLC Status | O |  | 9.3.1.69 | Indicates the RLC has been re-established at the gNB-DU. | YES | ignore |
| **>>Additional PDCP Duplication TNL List** |  | *0..1* |  |  | YES | ignore |
| **>>>Additional PDCP Duplication TNL Items** |  | *1 .. <maxnoofAdditionalPDCPDuplicationTNL>* |  |  | EACH | ignore |
| >>>>Additional PDCP Duplication UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-CU endpoint of the F1 transport bearer. For delivery of DL PDUs. | - |  |
| **SRB Required to be Released List** |  | *0..1* |  |  | YES | reject |
| **>SRB Required to be Released List Item IEs** |  | *1 .. <maxnoofSRBs>* |  |  | EACH | reject |
| >>SRB ID | M |  | 9.3.1.7 |  | - |  |
| **DRB Required to be Released List** |  | *0..1* |  |  | YES | reject |
| **>DRB Required to be Released List Item IEs** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | reject |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| **BH RLC Channel Required to be Released List** |  | *0..1* |  |  | YES | reject |
| **>BH RLC Channel Required to be Released Item IEs** |  | *1 .. <maxnoofBHRLCChannels>* |  |  | EACH | reject |
| >>BH RLC CH ID | M |  | 9.3.1.113 |  | - |  |
| **SL DRB Required to Be Modified List** |  | *0..1* |  |  | YES | reject |
| **>SL DRB Required to Be Modified Item IEs** |  | *1 .. <maxnoofSLDRBs>* |  |  | EACH | reject |
| >>SL DRB ID | M |  | 9.3.1.120 |  | - |  |
| **SL DRB Required to be Released List** |  | *0..1* |  |  | YES | reject |
| **>SL DRB Required to be Release Item IEs** |  | *1 .. <maxnoofSLDRBs>* |  |  | EACH | reject |
| >>SL DRB ID | M |  | 9.3.1.120 |  | - |  |
| Candidate Cells To Be Cancelled List |  | *0 .. <maxnoofCellsinCHO>* |  |  | YES | reject |
| >Target Cell ID | M |  | NR CGI  9.3.1.12 |  | - | - |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofSRBs | Maximum no. of SRB allowed towards one UE, the maximum value is 8. |
| maxnoofDRBs | Maximum no. of DRB allowed towards one UE, the maximum value is 64. |
| maxnoofDLUPTNLInformation | Maximum no. of DL UP TNL Information allowed towards one DRB, the maximum value is 2. |
| maxnoofBHRLCChannels | Maximum no. of BH RLC channels allowed towards one IAB-node, the maximum value is 65536. |
| maxnoofSLDRBs | Maximum no. of SL DRB allowed for NR sidelink communication per UE, the maximum value is 512. |
| maxnoofAdditionalPDCPDuplicationTNL | Maximum no. of additional UP TNL Information allowed towards one DRB, the maximum value is 2. |
| maxnoofCellsinCHO | Maximum no. cells that can be prepared for a conditional mobility. Value is 8. |

#### 9.2.2.11 UE CONTEXT MODIFICATION CONFIRM

This message is sent by the gNB-CU to inform the gNB-DU the successful modification.

Direction: gNB-CU → gNB-DU.

| IE/Group Name | Presence | Range | | IE type and reference | | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | | 9.3.1.1 | |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | | 9.3.1.4 | |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | | 9.3.1.5 | |  | YES | reject |
| Resource Coordination Transfer Container | O |  | | OCTET STRING | | Includes the *MeNB Resource Coordination Information* IE as defined in subclause 9.2.116 of TS 36.423 [9] for EN-DC case or *MR-DC Resource Coordination Information* IE as defined in TS 38.423 [28] for NGEN-DC and NE-DC cases. | YES | ignore |
| **DRB Modified List** |  | *0..1* | |  | | The List of DRBs which are successfully modified. | YES | ignore |
| **>DRB Modified Item IEs** |  | *1 .. <maxnoofDRBs>* | |  | |  | EACH | ignore |
| >>DRB ID | M |  | | 9.3.1.8 | |  | - |  |
| **>>UL UP TNL Information to be setup List** |  | *1* | |  | |  | - |  |
| **>>>UL UP TNL Information to Be Setup Item IEs** |  | *1 .. <maxnoofULUPTNLInformation>* | |  | |  | - |  |
| >>>>UL UP TNL Information | M |  | | UP Transport Layer Information  9.3.2.1 | | gNB-CU endpoint of the F1 transport bearer. For delivery of UL PDUs. | - |  |
| >>>>BH Information | O |  | | 9.3.1.114 | |  | YES | ignore |
| **>>Additional PDCP Duplication TNL List** |  | *0..1* | |  | |  | YES | ignore |
| **>>>Additional PDCP Duplication TNL Items** |  | *1 .. <maxnoofAdditionalPDCPDuplicationTNL>* | |  | |  | EACH | ignore |
| >>>>Additional PDCP Duplication UP TNL Information | M |  | | UP Transport Layer Information  9.3.2.1 | | gNB-DU endpoint of the F1 transport bearer. For delivery of UL PDUs. | - |  |
| >>>>BH Information | O |  | | 9.3.1.114 | |  | YES | ignore |
| RRC-Container | O |  | | 9.3.1.6 | | Includes the DL-DCCH-Message IE as defined in subclause 6.2 of TS 38.331 [8], encapsulated in a PDCP PDU. | YES | ignore |
| Criticality Diagnostics | O |  | | 9.3.1.3 | |  | YES | ignore |
| Execute Duplication | O |  | | ENUMERATED (true, ...) | | This IE may be sent only if duplication has been configured for the UE. | YES | Ignore |
| Resource Coordination Transfer Information | O |  | | 9.3.1.73 | |  | YES | ignore |
| **SL DRB Modified List** |  | | *0..1* |  |  | | YES | reject |
| **>SL DRB Modified Item IEs** |  | | *1 .. <maxnoofSLDRBs>* |  |  | | EACH | reject |
| >>SL DRB ID | M | |  | 9.3.1.120 |  | | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofDRBs | Maximum no. of DRB allowed towards one UE, the maximum value is 64. |
| maxnoofULUPTNLInformation | Maximum no. of UL UP TNL Information allowed towards one DRB, the maximum value is 2. |
| maxnoofSLDRBs | Maximum no. of SL DRB allowed for NR sidelink communication per UE, the maximum value is 512. |
| maxnoofAdditionalPDCPDuplicationTNL | Maximum no. of additional UP TNL Information allowed towards one DRB, the maximum value is 2. |

#### 9.2.2.11A UE CONTEXT MODIFICATION REFUSE

This message is sent by the gNB-CU to indicate the UE context modification was unsuccessful.

Direction: gNB-CU → gNB-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.2.12 UE INACTIVITY NOTIFICATION

This message is sent by the gNB-DU to provide information about the UE activity to the gNB-CU.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| **DRB Activity List** |  | *1* |  |  | YES | reject |
| **>DRB Activity Item** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | reject |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| >>DRB Activity | O |  | ENUMERATED (Active, Not active) |  | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofDRBs | Maximum no. of DRB allowed towards one UE, the maximum value is 64. |

#### 9.2.2.13 NOTIFY

This message is sent by the gNB-DU to notify the gNB-CU that the QoS for already established DRBs associated with notification control is not fulfilled any longer or it is fulfilled again.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| **DRB Notify List** |  | *1* |  |  | YES | reject |
| **>DRB Notify Item IEs** |  | *<1 .. maxnoofDRBs>* |  |  | EACH | reject |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| >>Notification Cause | M |  | ENUMERATED(Fulfilled, Not-Fulfilled, ...) |  | - |  |
| >>Current QoS Parameters Set Index | O |  | Alternative QoS Parameters set Notify Index  9.3.1.124 | Index to the currently fulfilled alternative QoS parameters set. Value 0 indicates that NG-RAN cannot even fulfil the lowest alternative parameter set. | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofDRBs | Maximum no. of DRB allowed towards one UE, the maximum value is 64. |

#### 9.2.2.14 ACCESS SUCCESS

This message is sent by the gNB-DU to inform the gNB-CU of which cell the UE has successfully accessed during conditional handover or conditional PSCell change.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| NR CGI | M |  | 9.3.1.12 |  | YES | reject |

### 9.2.3 RRC Message Transfer messages

#### 9.2.3.1 INITIAL UL RRC MESSAGE TRANSFER

This message is sent by the gNB-DU to transfer the initial layer 3 message to the gNB-CU over the F1 interface.

Direction: gNB-DU →gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| NR CGI | M |  | 9.3.1.12 | NG-RAN Cell Global Identifier (NR CGI) | YES | reject |
| C-RNTI | M |  | 9.3.1.32 | C-RNTI allocated at the gNB-DU | YES | reject |
| RRC-Container | M |  | 9.3.1.6 | Includes the *UL-CCCH-Message* IE or *UL-CCCH1-Message* IE as defined in subclause 6.2 of TS 38.331 [8]. | YES | reject |
| DU to CU RRC Container | O |  | OCTET STRING | *CellGroupConfig* IE as defined in subclause 6.3.2 in TS 38.331 [8]. Required at least to carry SRB1 configuration. The ReconfigurationWithSync field is not included in the *CellGroupConfig* IE. | YES | reject |
| SUL Access Indication | O |  | ENUMERATED (true, ...) |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | Ignore |
| RAN UE ID | O |  | OCTET STRING (SIZE (8)) |  | YES | ignore |
| RRC-Container-RRCSetupComplete | O |  | 9.3.1.6 | Includes the *UL-DCCH-Message* IE including the RRCSetupComplete message, as defined in subclause 6.2 of TS 38.331 [8]. | YES | ignore |

#### 9.2.3.2 DL RRC MESSAGE TRANSFER

This message is sent by the gNB-CU to transfer the layer 3 message to the gNB-DU over the F1 interface.

Direction: gNB-CU →gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| old gNB-DU UE F1AP ID | O |  | 9.3.1.5 |  | YES | reject |
| SRB ID | M |  | 9.3.1.7 |  | YES | reject |
| Execute Duplication | O |  | ENUMERATED (true, ...) |  | YES | ignore |
| RRC-Container | M |  | 9.3.1.6 | Includes the *DL-DCCH-Message* IE as defined in subclause 6.2 of TS 38.331 [8] encapsulated in a PDCP PDU, or the *DL-CCCH-Message* IE as defined in subclause 6.2 of TS 38.331 [8]. | YES | reject |
| RAT-Frequency Priority Information | O |  | 9.3.1.34 |  | YES | reject |
| RRC Delivery Status Request | O |  | ENUMERATED (true, …) | Indicates whether RRC DELIVERY REPORT procedure is requested for the RRC message. | YES | ignore |
| UE Context not retrievable | O |  | ENUMERATED (true, ...) |  | YES | reject |
| Redirected RRC message | O |  | RRC Container  9.3.1.6 | Includes the *UL-CCCH-Message* IE as defined in subclause 6.2 of TS 38.331 [8]. | YES | reject |
| PLMN Assistance Info for Network Sharing | O |  | PLMN Identity  9.3.1.14 |  | YES | ignore |
| New gNB-CU UE F1AP ID | O |  | gNB-CU UE F1AP ID  9.3.1.4 |  | YES | reject |
| Additional RRM Policy Index | O |  | 9.3.1.90 |  | YES | ignore |

#### 9.2.3.3 UL RRC MESSAGE TRANSFER

This message is sent by the gNB-DU to transfer the layer 3 message to the gNB-CU over the F1 interface.

Direction: gNB-DU →gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| SRB ID | M |  | 9.3.1.7 |  | YES | reject |
| RRC-Container | M |  | 9.3.1.6 | Includes the *UL-DCCH-Message* IE as defined in subclause 6.2 of TS 38.331 [8], encapsulated in a PDCP PDU. | YES | reject |
| Selected PLMN ID | O |  | PLMN Identity  9.3.1.14 |  | YES | reject |
| New gNB-DU UE F1AP ID | O |  | gNB-DU UE F1AP ID  9.3.1.5 |  | YES | reject |

#### 9.2.3.4 RRC DELIVERY REPORT

This message is sent by the gNB-DU to inform the gNB-CU about the delivery status of DL RRC messages.

Direction: gNB-DU → gNB-CU

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| RRC Delivery Status | M |  | 9.3.1.71 |  | YES | ignore |
| SRB ID | M |  | 9.3.1.7 |  | YES | ignore |

### 9.2.4 Warning Message Transmission Messages

#### 9.2.4.1 WRITE-REPLACE WARNING REQUEST

This message is sent by the gNB-CU to request the start or overwrite of the broadcast of a warning message.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| PWS System Information | M |  | 9.3.1.58 | This IE includes the system information for public warning, as defined in TS 38.331 [8]. | YES | reject |
| Repetition Period | M |  | 9.3.1.59 |  | YES | reject |
| Number of Broadcasts Requested | M |  | 9.3.1.60 |  | YES | reject |
| **Cell To Be Broadcast List** |  | *0..1* |  |  | YES | reject |
| **>Cell to Be Broadcast Item IEs** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

#### 9.2.4.2 WRITE-REPLACE WARNING RESPONSE

This message is sent by the gNB-DU to acknowledge the gNB-CU on the start or overwrite request of a warning message.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **Cell Broadcast Completed List** |  | *0..1* |  |  | YES | reject |
| **>Cell Broadcast Completed Item IEs** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |
| **Dedicated SI Delivery Needed UE List** |  | *0..1* |  | List of UEs unable to receive system information from broadcast | YES | ignore |
| **>Dedicated SI Delivery Needed UE Item** |  | *1 .. <maxnoofUEIDs>* |  |  | EACH | ignore |
| >>gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | - |  |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |
| maxnoofUEIDs | Maximum no. of UEs that can be served by a gNB-DU. Value is 65536. |

#### 9.2.4.3 PWS CANCEL REQUEST

This message is forwarded by the gNB-CU to gNB-DU to cancel an already ongoing broadcast of a warning message

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Number of Broadcasts Requested | M |  | 9.3.1.60 | This IE is not used in this version of the specification | YES | reject |
| **Cell Broadcast To Be Cancelled List** |  | *0..1* |  |  | YES | reject |
| **>Cell Broadcast to Be Cancelled Item IEs** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| Cancel-all Warning Messages Indicator | O |  |  | ENUMERATED (true, ...) | YES | reject |
| **Notification Information** | O |  |  | This IE is ignored If the *Cancel-all Warning Messages Indicator* IE is included. | YES | reject |
| >Message Identifier | M |  | 9.3.1.81 |  |  |  |
| >Serial Number | M |  | 9.3.1.82 |  |  |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

#### 9.2.4.4 PWS CANCEL RESPONSE

This message is sent by the gNB-DU to indicate the list of warning areas where cancellation of the broadcast of the identified message was successful and unsuccessful.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **Cell Broadcast Cancelled List** |  | *0..1* |  |  | YES | reject |
| **>Cell Broadcast Cancelled Item IEs** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>Number of Broadcasts | M |  | INTEGER (0..65535) | This IE is set to ‘0’ if valid results are not known or not available. It is set to 65535 if the counter results have overflowed. | - |  |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxCellingNBDU | Maximum no. of cells that can be served by a gNB-DU. Value is 512. |

#### 9.2.4.5 PWS RESTART INDICATION

This message is sent by the gNB-DU to inform the gNB-CU that PWS information for some or all cells of the gNB-DU are available if needed.

Direction: gNB-DU →gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **NR CGI List for Restart List** |  | *1* |  |  | YES | reject |
| **>NR CGI List for Restart Item IEs** |  | *1..<maxCellingNBDU>* |  |  | EACH | reject |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxCellingNBDU | Maximum no. of cells that can be served by a gNB-DU. Value is 512. |

#### 9.2.4.6 PWS FAILURE INDICATION

This message is sent by the gNB-DU to inform the gNB-CU that ongoing PWS operation for one or more cells of the gNB-DU has failed.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **PWS failed NR CGI List** |  | *0..1* |  |  | YES | reject |
| **>PWS failed NR CGI Item IEs** |  | *1..<maxCellingNBDU>* |  |  | EACH | reject |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>Number of Broadcasts | M |  | INTEGER (0..65535) | This IE is not used in the specification and is ignored. | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxCellingNBDU | Maximum no. of cells that can be served by a gNB-DU. Value is 512. |

### 9.2.5 System Information messages

#### 9.2.5.1 SYSTEM INFORMATION DELIVERY COMMAND

This message is sent by the gNB-CU and is used to enable the gNB-DU to broadcast the requested other SI.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| NR CGI | M |  | 9.3.1.12 | NR cell identifier | YES | reject |
| SIType List | M |  | 9.3.1.62 |  | YES | reject |
| Confirmed UE ID | M |  | gNB-DU UE F1AP ID  9.3.1.5 |  | YES | reject |

### 9.2.6 Paging messages

#### 9.2.6.1 PAGING

This message is sent by the gNB-CU and is used to request the gNB-DU to page UEs.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| UE Identity Index value | M |  | 9.3.1.39 |  | YES | reject |
| CHOICE Paging Identity | M |  |  |  | YES | reject |
| >RAN UE Paging identity | M |  | 9.3.1.43 |  | - |  |
| >CN UE paging identity | M |  | 9.3.1.44 |  | - |  |
| Paging DRX | O |  | 9.3.1.40 | It is defined as the minimum between the RAN UE Paging DRX and CN UE Paging DRX | YES | ignore |
| Paging Priority | O |  | 9.3.1.41 |  | YES | ignore |
| **Paging Cell List** |  | *1* |  |  | YES | ignore |
| **>Paging Cell Item IEs** |  | *1 .. <maxnoofPagingCells>* |  |  | EACH | ignore |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| Paging Origin | O |  | 9.3.1.79 |  | YES | ignore | |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPagingCells | Maximum no. of paging cells, the maximum value is 512. |

### 9.2.7 Trace Messages

#### 9.2.7.1 TRACE START

This message is sent by the gNB-CU to initiate a trace session for a UE.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| Trace Activation | M |  | 9.3.1.88 |  | YES | ignore |

#### 9.2.7.2 DEACTIVATE TRACE

This message is sent by the gNB-CU to deactivate a trace session.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| Trace ID | M |  | OCTET STRING (SIZE(8)) | As per Trace ID in *Trace Activation* IE | YES | ignore |

#### 9.2.7.3 CELL TRAFFIC TRACE

This message is sent by the gNB-DU to to transfer trace specific information.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| Trace ID | M |  | OCTET STRING (SIZE(8)) | This IE is composed of the following:  Trace Reference defined in TS 32.422 [29] (leftmost 6 octets, with PLMN information encoded as in 9.3.1.14), and  Trace Recording Session Reference defined in TS 32.422 [29] (last 2 octets). | YES | ignore |
| Trace Collection Entity IP Address | M |  | Transport Layer Address  9.3.2.3 | For File based Reporting.  Defined in TS 32.422 [29].  Should be ignored if URI is present | YES | ignore |
| Privacy Indicator | O |  | ENUMERATED (Immediate MDT, Logged MDT, ...) |  | YES | ignore |
| Trace Collection Entity URI | O |  | URI  9.3.2.6 | For Streaming based Reporting.  Defined in TS 32.422 [11]  Replaces Trace Collection Entity IP Address if present | YES | ignore |

### 9.2.8 Radio Information Transfer messages

#### 9.2.8.1 DU-CU RADIO INFORMATION TRANSFER

This message is sent by a gNB-DU to a gNB-CU, to convey radio-related information.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| CHOICE *DU-CU Radio Information Type* | M |  |  |  | YES | ignore |
| >*RIM* |  |  |  |  |  |  |
| >>DU-CU RIM Information | M |  | 9.3.1.91 |  | - | - |

#### 9.2.8.2 CU-DU RADIO INFORMATION TRANSFER

This message is sent by a gNB-CU to a gNB-DU, to convey radio-related information.

Direction: gNB-CU → gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| CHOICE *CU-DU Radio Information Type* | M |  |  |  | YES | ignore |
| >*RIM* |  |  |  |  |  |  |
| >>CU-DU RIM Information | M |  | 9.3.1.92 |  | - | - |

### 9.2.9 IAB messages

#### 9.2.9.1 BAP MAPPING CONFIGURATION

This message is sent by the gNB-CU to provide the backhaul routing information and/or traffic mapping information to the gNB-DU.

Direction: gNB-CU → gNB-DU

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **BH Routing Information Added List** |  | *0...1* |  |  | YES | ignore |
| **>BH Routing Information Added List Item** |  | *1.. <maxnoofRoutingEntries>* |  |  | EACH | ignore |
| >>BAP Routing ID | M |  | 9.3.1.110 |  | - |  |
| >>Next-Hop BAP Address | M |  | 9.3.1.111 | Indicates the BAP address of the next hop IAB-node or IAB-donor-DU. | - |  |
| **BH Routing Information Removed List** |  | *0...1* |  |  | YES | ignore |
| **>BH Routing Information Removed List Item** |  | *1.. <maxnoofRoutingEntries>* |  |  | EACH | ignore |
| >>BAP Routing ID | M |  | 9.3.1.110 |  | - |  |
| Traffic Mapping Information | O |  | 9.3.1.95 |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofRoutingEntries | Maximum no. of routing entries, the maximum value is 1024. |

#### 9.2.9.2 BAP MAPPING CONFIGURATION ACKNOWLEDGE

This message is sent by the gNB-DU as a response to a BAP MAPPING CONFIGURATION message.

Direction: gNB-DU → gNB-CU

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.9.2A BAP MAPPING CONFIGURATION FAILURE

This message is sent by the gNB-DU to indicate a BAP Mapping Configuration Update failure.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Time to wait | O |  | 9.3.1.13 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.9.3 GNB-DU RESOURCE CONFIGURATION

This message is sent by the gNB-CU to provide the resource configuration for an gNB-DU.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **Activated Cells to Be Updated List** |  | *0..1* |  | List of activated cells served by the IAB-DU or the IAB-donor-DU whose resource configuration is updated | YES | reject |
| **>Activated Cells To Be Updated List Item** |  | *1 .. <maxnoofServedCellsIAB>* |  |  | EACH | reject |
| >> NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>CHOICE *IAB-DU Cell Resource Configuration-Mode-Info* | M |  |  |  | - |  |
| >>>FDD |  |  |  |  |  |  |
| **>>>>FDD Info** |  | *1* |  |  | - |  |
| >>>>>gNB-DU Cell Resource Configuration-FDD-UL | M |  | gNB-DU Cell Resource Configuration  9.3.1.107 | Contains FDD UL resource configuration of the gNB-DU’s cell. | - |  |
| >>>>>gNB-DU Cell Resource Configuration-FDD-DL | M |  | gNB-DU Cell Resource Configuration  9.3.1.107 | Contains FDD DL resource configuration of the gNB-DU’s cell. | - |  |
| >>>TDD |  |  |  |  |  |  |
| **>>>>TDD Info** |  | *1* |  |  |  |  |
| >>>>>gNB-DU Cell Resource Configuration-TDD | M |  | gNB-DU Cell Resource Configuration  9.3.1.107 | Contains TDD resource configuration of the gNB-DU’s cell. | - |  |
| **Child-Nodes List** |  | *0..1* |  | List of child IAB-nodes served by the IAB-DU or IAB-donor-DU. | YES | reject |
| **>Child-Nodes List Item** |  | *1 .. <maxnoofChildIABNodes>* |  |  | EACH | reject |
| >>gNB-CU UE F1AP ID | M |  | 9.3.1.4 | Identifier of a descendant node IAB-MT at the IAB-donor-CU. | YES | reject |
| >>gNB-DU UE F1AP ID | M |  | 9.3.1.5 | Identifier of a child-node IAB-MT at an IAB-DU or IAB-donor-DU. | YES | reject |
| **>>Child-Node Cells List** |  | *0..1* |  | List of cells served by the child-node IAB-DU whose resource configuration is updated. | YES | reject |
| **>>>Child-Node Cells List Item** |  | *1 .. <maxnoofServedCellsIAB >* |  |  | EACH | reject |
| >>>>NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>>>CHOICE *IAB-DU Cell Resource Configuration-Mode-Info* | O |  |  |  | - |  |
| >>>>>*FDD* |  |  |  |  | - |  |
| **>>>>>>FDD Info** |  | *1* |  |  | - |  |
| >>>>>>>gNB-DU Cell Resource Configuration-FDD-UL | M |  | gNB-DU Cell Resource Configuration  9.3.1.107 | Contains FDD UL resource configuration of gNB-DU’s cell. | - |  |
| >>>>>>>gNB-DU Cell Resource Configuration-FDD-DL | M |  | gNB-DU Cell Resource Configuration  9.3.1.107 | Contains FDD DL resource configuration of gNB-DU’s cell. | - |  |
| >>>>>*TDD* |  |  |  |  | - |  |
| **>>>>>>TDD Info** |  | *1* |  |  | - |  |
| >>>>>>>gNB-DU Cell Resource Configuration-TDD | M |  | gNB-DU Cell Resource Configuration  9.3.1.107 | Contains TDD resource configuration of gNB-DU’s cell. | - |  |
| >>>>IAB STC Info | O |  | 9.3.1.109 | STC configuration of child-node IAB-DU’s cell. |  |  |
| >>>>RACH Config Common | O |  | OCTET STRING | Corresponds to the *rach-ConfigCommon* as defined in subclause 6.3.2 of TS 38.331 [8]. |  |  |
| >>>>RACH Config Common IAB | O |  | OCTET STRING | Corresponds to the IAB-specific *rach-ConfigCommonIAB-r16* as defined in subclause 6.3.2 of TS 38.331 [8]. |  |  |
| >>>>CSI-RS Configuration | O |  | OCTET STRING | Corresponds to the *NZP-CSI-RS-Resource* as defined in subclause 6.3.2 of TS 38.331 [8]. |  |  |
| >>>>SR Configuration | O |  | OCTET STRING | Corresponds to the *SchedulingRequestResourceConfig* as defined in subclause 6.3.2 of TS 38.331 [8]. |  |  |
| >>>>PDCCH Configuration SIB1 | O |  | OCTET STRING | Corresponds to the *PDCCH-ConfigSIB1* as defined in subclause 6.3.2 of TS 38.331 [8]. |  |  |
| >>>>SCS Common | O |  | OCTET STRING | Corresponds to the *subCarrierSpacingCommon* as defined in subclause 6.2.2 of TS 38.331 [8]. |  |  |
| >>>>Multiplexing Info | O |  | 9.3.1.108 | Contains information on multiplexing with cells configured for collocated IAB-MT. |  |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofChildIABNodes | Maximum number of child nodes served by an IAB-DU or IAB-donor-DU. Value is 1024. |
| maxnoofServedCellsIAB | Maximum number of cells served by an IAB-DU or IAB-donor-DU. Value is 512. |

#### 9.2.9.4 GNB-DU RESOURCE CONFIGURATION ACKNOWLEDGE

This message is sent by the gNB-DU to acknowledge the reception of an GNB-DU RESOURCE CONFIGURATION message.

Direction: gNB-DU → gNB-CU

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.9.4A GNB-DU RESOURCE CONFIGURATION FAILURE

This message is sent by the gNB-DU to indicate a gNB-DU Resource Configuration Update failure.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Time to wait | O |  | 9.3.1.13 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.9.5 IAB TNL ADDRESS REQUEST

This message is sent by the gNB-CU to request the allocation of IP addresses for IAB-node(s).

Direction: gNB-CU → gNB-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| IAB IPv4 Addresses Requested | O |  | IAB TNL Addresses Requested  9.3.1.101 |  | YES | reject |
| CHOICE *IAB IPv6 Request Type* | O |  |  |  | YES | reject |
| >*IPv6 Address* |  |  |  |  | - |  |
| >>IAB IPv6 Addresses Requested | M |  | IAB TNL Addresses Requested  9.3.1.101 |  | - |  |
| >*IPv6 Prefix* |  |  |  |  | - |  |
| >>IAB IPv6 Address Prefixes Requested | M |  | IAB TNL Addresses Requested  9.3.1.101 |  | - |  |
| **IAB TNL Addresses To Remove List** |  | *0..1* |  |  | YES | reject |
| **>IAB TNL Addresses To Remove Item** |  | *1*..<*maxnoofTLAsIAB*> |  |  | EACH | reject |
| >>IAB TNL Address | M |  | 9.3.1.102 |  | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofTLAsIAB | Maximum no. of individual IPv4/IPv6 addresses or IPv6 address prefixes that can be allocated in one procedure execution. The value is 1024. |

#### 9.2.9.6 IAB TNL ADDRESS RESPONSE

This message is sent by the gNB-DU to indicate the TNL addresses allocated to IAB-node(s).

Direction: gNB-DU → gNB-CU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **IAB Allocated TNL Address List** |  | *1* |  |  | YES | reject |
| **>IAB Allocated TNL Address Item** |  | *1*..<*maxnoofTLAsIAB*> |  |  | EACH | reject |
| >>IAB TNL Address | M |  | 9.3.1.102 |  | - |  |
| >>IAB TNL Address Usage | O |  | ENUMERATED (F1-C, F1-U, Non-F1, …) | The usage of the allocated IPv4 or IPv6 address or IPv6 address prefix. | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofTLAsIAB | Maximum no. of IPv6 addresses or IPv6 address prefixes and/or individual IPv4 addresses that can be allocated in one procedure execution. The value is 1024. |

#### 9.2.9.6A IAB TNL ADDRESS FAILURE

This message is sent by the gNB-DU to indicate an IAB TNL Address Allocation failure.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Time to wait | O |  | 9.3.1.13 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.9.7 IAB UP CONFIGURATION UPDATE REQUEST

This message is sent by the gNB-CU to provide the updated UL BH Information or the updated UL UP TNL Information/Address to the gNB-DU.

Direction: gNB-CU → gNB-DU

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **UL UP TNL Information to Update List** |  | *0..1* |  |  | YES | ignore |
| **>UL UP TNL Information to Update List Item IEs** |  | *1.. <* *maxnoofULUPTNLInformationforIAB>* |  |  | EACH | ignore |
| >>UL UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | This field indicates the UL UP TNL Information used before configuration update. | - |  |
| >>New UL UP TNL Information | O |  | UP Transport Layer Information  9.3.2.1 | If present, this field indicates the new UL UP TNL Information used after configuration update. | - |  |
| >>BH Information | M |  | 9.3.1.114 |  | - |  |
| **UL UP TNL Address to Update List** |  | *0..1* |  |  | YES | ignore |
| **>UL UP TNL Address to Update List Item IEs** |  | *1.. < maxnoofUPTNLAddresses>* |  |  | EACH | ignore |
| >>Old TNL Address | M |  | Transport Layer Address  9.3.2.3 | The old UL UP Transport Layer Address of gNB-CU used for UL F1-U GTP Tunnel before the configuration update. | - |  |
| >>New TNL Address | M |  | Transport Layer Address  9.3.2.3 | The corresponding new UL UP Transport Layer Address that replaces the old one. | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofULUPTNLInformationforIAB | Maximum no. of UL UP TNL Information allowed towards one IAB node, the maximum value is 32768. |
| maxnoofUPTNLAddresses | Maximum no. of TNL addresses for F1-U. Value is 8. |

#### 9.2.9.8 IAB UP CONFIGURATION UPDATE RESPONSE

This message is sent by the gNB-DU to provide the updated TNL address(es) of the DL F1-U GTP tunnels to the gNB-CU.

Direction: gNB-DU → gNB-CU

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |
| **DL UP TNL Address to Update List** |  | *0..1* |  |  | YES | ignore |
| **>DL UP TNL Address to Update List Item IEs** |  | *1.. < maxnoofUPTNLAddresses>* |  |  | EACH | ignore |
| >>Old TNL Address | M |  | Transport Layer Address  9.3.2.3 | The old DL UP Transport Layer Address of gNB-DU used for DL F1-U GTP tunnel before the configuration update. | - |  |
| >>New TNL Address | M |  | Transport Layer Address  9.3.2.3 | The corresponding new Transport Layer Address used to replace the old one. | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofUPTNLAddresses | Maximum no. of TNL addresses for F1-U. Value is 8. |

#### 9.2.9.9 IAB UP CONFIGURATION UPDATE FAILURE

This message is sent by the gNB-DU to indicate an IAB UP Configuration Update failure.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Time to wait | O |  | 9.3.1.13 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

### 9.2.10 Self Optimisation Support Messages

#### 9.2.10.1 ACCESS AND MOBILITY INDICATION

This message is sent by gNB-CU to gNB-DU to provide access and mobility information to the gNB-DU.

Direction: gNB-CU → gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **RACH Report Information List** |  | *0..1* |  |  | YES | ignore |
| **>RACH Report Information Item** |  | *1 .. <maxnoofRACHReports>* |  |  | - |  |
| >>RACH Report Container | M |  | OCTET STRING | *RA-ReportList-r16* IE as defined in subclause 6.2.2 in TS 38.331 [8]. | - |  |
| >>UE Assistant Identifier | O |  | gNB-DU UE F1AP ID  9.3.1.5 |  | - |  |
| **RLF Report Information List** |  | *0..1* |  |  | YES | ignore |
| **>RLF Report Information Item** |  | *1 .. <**maxnoofRLFReports>* |  |  | - |  |
| >>NR UE RLF Report Container | M |  | OCTET STRING | *nr-RLF-Report-r16* IE contained in the *UEInformationResponse* message defined in TS 38.331 [8]. | - |  |
| >>UE Assistant Identifier | O |  | gNB-DU UE F1AP ID  9.3.1.5 |  | - |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofRACHReports | Maximum no. of RACH Reports, the maximum value is 64. |
| maxnoofRLFReports | Maximum no. of RLF Reports, the maximum value is 64. |

### 9.2.11 Reference Time Information Reporting messages

#### 9.2.11.1 REFERENCE TIME INFORMATION REPORTING CONTROL

This message is sent by the gNB-CU and is used to request the gNB-DU to deliver the accurate reference time information.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Reporting Request Type | M |  | 9.3.1.147 |  | YES | reject |

#### 9.2.11.2 REFERENCE TIME INFORMATION REPORT

This message is sent by the gNB-DU and is used to report the accurate reference time information to the gNB-CU.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | ignore |
| Time Reference Information | M |  | 9.3.1.148 |  | YES | ignore |

### 9.2.12 Messages for Positioning Procedures

#### 9.2.12.1 POSITIONING ASSISTANCE INFORMATION CONTROL

This message is sent by the gNB-CU to transfer positioning assistance information.

Direction: gNB-CU → gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Positioning Assistance Information | O |  | OCTET STRING | Contains the *Assistance Information* IE as defined in TS 38.455 [37]. | YES | reject |
| Broadcast | O |  | ENUMERATED (start, stop, ...) |  | YES | reject |
| Positioning Broadcast Cells | O |  | 9.3.1.191 | The cell(s) that are requested to broadcast posSIB(s) according to the *Positioning Assistance Information* IE. | YES | reject |
| Routing ID | O |  | OCTET STRING |  | YES | reject |

#### 9.2.12.2 POSITIONING ASSISTANCE INFORMATION FEEDBACK

This message is sent by the gNB-DU to give feedback on positioning assistance information broadcasting.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Positioning Assistance Information Failure List | O |  | OCTET STRING | Contains the *Assistance Information* IE as defined in TS 38.455 [37]. | YES | reject |
| Positioning Broadcast Cells | O |  | 9.3.1.191 | The cells associated to the feedback provided in the *Positioning Assistance Information Failure List* IE. | YES | reject |
| Routing ID | O |  | OCTET STRING |  | YES | reject |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.12.3 POSITIONING MEASUREMENT REQUEST

This message is sent by the gNB-CU to request the gNB-DU to configure a positioning measurement.

Direction: gNB-CU → gNB-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| LMF Measurement ID | M |  | INTEGER (1..65536, …) |  | YES | reject |
| RAN Measurement ID | M |  | INTEGER (1..65536, …) |  | YES | reject |
| **TRP Measurement Request List** |  | 1 |  |  | YES | reject |
| >TRP Measurement Request Item |  | 1..<maxnoofMeasTRPs> |  |  |  |  |
| >>TRP ID | M |  | 9.3.1.197 |  |  |  |
| >>Search Window Information | O |  | 9.3.1.204 |  |  |  |
| >>NR CGI | O |  | 9.3.1.12 | The Cell ID of the TRP identified by the *TRP ID* IE. | YES | ignore |
| Positioning Report Characteristics | M |  | ENUMERATED (OnDemand, Periodic, …) |  | YES | reject |
| Positioning Measurement Periodicity | C-ifReportCharacteristicsPeriodic |  | ENUMERATED (120ms, 240ms, 480ms, 640ms, 1024ms, 2048ms, 5120ms, 10240ms, 1min, 6min, 12min, 30min, …, 20480ms, 40960ms, extended) | The codepoint 120ms, 240ms, 480ms, 1024ms, 2048ms, 1min, 6min, 12min, and 30min are not applicable. | YES | reject |
| **Positioning Measurement Quantities** |  | *1* |  |  | YES | reject |
| **> Positioning Measurement Quantities Item** |  | *1..<maxnoofPosMeas>* |  |  | EACH |  |
| >> Positioning Measurement Type | M |  | ENUMERATED (gNB RX-TX, UL-SRS-RSRP, UL AoA, UL RTOA, …) |  |  | - |
| >>Timing Reporting Granularity Factor | O |  | INTEGER (0..5) | TS 38.133 [38] |  |  |
| SFN Initialisation Time | O |  | Relative Time 1900  9.3.1.183 | If this IE is not present, the TRP may assume that the value is same as its own SFN initialisation time. | YES | ignore |
| SRS Configuration | O |  | 9.3.1.192 |  | YES | ignore |
| Measurement Beam Information Request | O |  | ENUMERATED (true, ...) |  | YES | ignore |
| System Frame Number | O |  | INTEGER(0..1023) |  | YES | ignore |
| Slot Number | O |  | INTEGER(0..79) |  | YES | ignore |
| Measurement Periodicity Extended | C-ifMeasPerExt |  | ENUMERATED (160ms, 320ms, 1280ms, 2560ms, 61440ms,  81920ms, 368640ms, 737280ms, 1843200ms, …) |  | YES | reject |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPosMeas | Maximum no. of measured quantities that can be configured and reported with one message. Value is 16384. |
| maxnoofMeasTRPs | Maximum no. of TRPs that can be included within one measurement message. Value is 64. |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifReportCharacteristicsPeriodic | This IE shall be present if the *Positioning Report Characteristics* IE is set to the value "Periodic". |
| ifMeasPerExt | This IE shall be present if the *Measurement Periodicity* IE is set to the value "extended". |

#### 9.2.12.4 POSITIONING MEASUREMENT RESPONSE

This message is sent by the gNB-DU to report positioning measurements for the target UE.

Direction: gNB-DU → gNB-CU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| LMF Measurement ID | M |  | INTEGER (1..65536, …) |  | YES | reject |
| RAN Measurement ID | M |  | INTEGER (1..65536, …) |  | YES | reject |
| **Positioning Measurement Result List** |  | 0..1 |  |  | YES | reject |
| >**Positioning Measurement Result List Item** |  | 1..< maxnoofMeasTRPs> |  |  |  |  |
| >>Positioning Measurement Result | M |  | 9.3.1.166 |  | - | - |
| >>TRP ID | M |  | 9.3.1.197 |  |  |  |
| >>NR CGI | O |  | 9.3.1.12 | The Cell ID of the TRP identified by the *TRP ID* IE. | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofMeasTRPs | Maximum no. of TRP measurements that can be included within one message. Value is 64. |

#### 9.2.12.5 POSITIONING MEASUREMENT FAILURE

This message is sent by the gNB-DU to report measurement failure.

Direction: gNB-DU → gNB-CU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| LMF Measurement ID | M |  | INTEGER (1..65536, …) |  | YES | reject |
| RAN Measurement ID | M |  | INTEGER (1..65536, …) |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.12.6 POSITIONING MEASUREMENT REPORT

This message is sent by the gNB-DU to report positioning measurements for the target UE.

Direction: gNB-DU → gNB-CU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| LMF Measurement ID | M |  | INTEGER (1..65536, …) |  | YES | reject |
| RAN Measurement ID | M |  | INTEGER (1..65536, …) |  | YES | reject |
| **Positioning Measurement Result List** |  | *1* |  |  | YES | reject |
| **>Positioning Measurement Result List Item** |  | *1..<maxnoofMeasTRPs>* |  |  | EACH |  |
| >>Positioning Measurement Result | M |  | 9.3.1.166 |  | - | - |
| >>TRP ID | M |  | 9.3.1.197 |  | - | - |
| >>NR CGI | O |  | 9.3.1.12 | The Cell ID of the TRP identified by the *TRP ID* IE. | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofMeasTRPs | Maximum no. of TRP measurements that can be included within one message. Value is 64. |

#### 9.2.12.7 POSITIONING MEASUREMENT ABORT

This message is sent by the gNB-CU to request the gNB-DU to abort a positioning measurement.

Direction: gNB-CU → gNB-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| LMF Measurement ID | M |  | INTEGER (1.. 65536,…) |  | YES | reject |
| RAN Measurement ID | M |  | INTEGER (1..65536,…) |  | YES | reject |

#### 9.2.12.8 POSITIONING MEASUREMENT FAILURE INDICATION

This message is sent by the gNB-DU to indicate that the previously requested positioning measurements can no longer be reported.

Direction: gNB-DU → gNB-CU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| LMF Measurement ID | M |  | INTEGER (1.. 65536,…) |  | YES | reject |
| RAN Measurement ID | M |  | INTEGER (1..65536,…) |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |

#### 9.2.12.9 POSITIONING MEASUREMENT UPDATE

This message is sent by the gNB-CU to update a previously configured measurement.

Direction: gNB-CU → gNB-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| LMF Measurement ID | M |  | INTEGER (1..65536,…) |  | YES | reject |
| RAN Measurement ID | M |  | INTEGER (1..65536,…) |  | YES | reject |
| SRS Configuration | O |  | 9.3.1.192 |  | YES | ignore |

#### 9.2.12.10 TRP INFORMATION REQUEST

This message is sent by a gNB-CU to request information for TRPs hosted by a gNB-DU.

Direction: gNB-CU → gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **TRP list** |  | *0..1* |  |  | YES | ignore |
| **>TRP list Item** |  | 1..<maxnoofTRPs> |  |  | EACH | ignore |
| >>TRP ID | M |  | 9.3.1.197 |  | - |  |
| **TRP Information Type List** |  | *1* |  |  | YES | reject |
| **>TRP Information Type Item** |  | *1 .. <maxnoofTRPInfoTypes>* |  |  | EACH | reject |
| >>TRP Information Type Item | M |  | ENUMERATED (nr pci, ng-ran cgi, nr arfcn, prs config, ssb config, sfn init time, spatial direction info, geo-coordinates, …, trp type) |  | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofTRPInfoTypes | Maximum no of TRP information types that can be requested and reported with one message. Value is 64. |
| maxnoofTRPs | Maximum no. of TRPs in a NG-RAN node. Value is 65535. |

#### 9.2.12.11 TRP INFORMATION RESPONSE

This message is sent by a gNB-DU to convey TRP information to a gNB-CU.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **TRP Information List** |  | *1* |  |  | YES | ignore |
| **>TRP Information Item** |  | *1 .. <maxnoofTRPs>* |  |  | EACH | ignore |
| >>TRP Information | M |  | 9.3.1.176 |  |  |  |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofTRPs | Maximum no. of TRPs in a gNB-DU. Value is 65535. |

#### 9.2.12.12 TRP INFORMATION FAILURE

This message is sent by a gNB-DU node to indicate that the requested TRP information cannot be provided to a gNB-CU.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.12.13 POSITIONING INFORMATION REQUEST

This message is sent by the gNB-CU to indicate to the gNB-DU the need to configure the UE to transmit SRS signals for uplink positioning measurement.

Direction: gNB-CU → gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| Requested SRS Transmission Characteristics | O |  | 9.3.1.175 |  | YES | ignore |

#### 9.2.12.14 POSITIONING INFORMATION RESPONSE

This message is sent by the gNB-DU to provide the configured SRS information to the gNB-CU.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| SRS Configuration | O |  | 9.3.1.192 |  | YES | ignore |
| SFN Initialisation Time | O |  | Relative Time 1900  9.3.1.183 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.12.15 POSITIONING INFORMATION FAILURE

This message is sent by the gNB-DU to indicate that no SRS transmissions could be configured for the UE for uplink positioning measurement.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.12.16 POSITIONING ACTIVATION REQUEST

This message is sent by the gNB-CU to cause the gNB-DU to activate/trigger UL SRS transmission by the UE.

Direction: gNB-CU → gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| CHOICE *SRS type* | M |  |  |  | YES | reject |
| *>Semi-persistent* |  |  |  |  |  |  |
| >>SRS Resource Set ID | M |  | 9.3.1.180 |  | - | - |
| >>SRS Spatial Relation | O |  | Spatial Relation Information  9.3.1.181 | This IE is ignored if the *Spatial Relation Information per SRS Resource* IE is present. | - | - |
| >>Spatial Relation Information per SRS Resource | O |  | 9.3.1.210 |  | YES | ignore |
| *>Aperiodic* |  |  |  |  |  |  |
| >>Aperiodic | M |  | ENUMERATED (true, …) |  | - | - |
| >>SRS Resource Trigger | O |  | 9.3.1.182 |  | - | - |
| Activation Time | O |  | Relative Time 1900  9.3.1.183 | Indicates the start time when the SRS activation is requested | YES | ignore |

#### 9.2.12.17 POSITIONING ACTIVATION RESPONSE

This message is sent by the gNB-DU to confirm successful UL SRS activation in the UE.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| System Frame Number | O |  | INTEGER(0..1023) |  | YES | ignore |
| Slot Number | O |  | INTEGER(0..79) |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.12.18 POSITIONING ACTIVATION FAILURE

This message is sent by the gNB-DU to indicate that activation of UL SRS transmission in the UE was unsuccessful.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.12.19 POSITIONING DEACTIVATION

This message is sent by the gNB-CU to cause the NG RAN node to deactivate UL SRS transmission or release all the transmission by the UE.

Direction: gNB-CU → gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| CHOICE *Abort Transmission* | M |  |  |  | YES | ignore |
| >*SRS Resource Set ID deactivation* |  |  |  |  |  |  |
| >>SRS Resource Set ID | M |  | 9.3.1.180 |  | - |  |
| >Release ALL |  |  | NULL |  |  |  |

#### 9.2.12.20 E-CID MEASUREMENT INITIATION REQUEST

This message is sent by gNB-CU to initiate E-CID measurements.

Direction: gNB-CU → gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| LMF UE Measurement ID | M |  | INTEGER (1.. 256, …) |  | YES | reject |
| RAN UE Measurement ID | M |  | INTEGER (1.. 256, …) |  | YES | reject |
| E-CID Report Characteristics | M |  | ENUMERATED (OnDemand, Periodic, …) |  | YES | reject |
| E-CID Measurement Periodicity | C-ifReportCharacteristicsPeriodic |  | ENUMERATED (120ms, 240ms, 480ms, 640ms, 1024ms, 2048ms, 5120ms, 10240ms, 1min, 6min, 12min, 30min, …, 20480ms, 40960ms, extended) | The codepoint “extended” is not applicable.  This IE is not applicable to NR Angle of Arrival. | YES | reject |
| **E-CID Measurement Quantities** |  | *1 .. <maxnoofMeasE-CID>* |  |  | EACH | reject |
| >E-CID Measurement Quantities Item | M |  | ENUMERATED (Default, NR Angle of Arrival, …) | If “Default” is the only requested measurement quantity, it indicates that the *Measured Results List* IE need not be included in response or reporting messages. | - |  |
| Measurement Periodicity NR-AoA | C- ifReportCharacteristicsPeriodicAndMeasQuantityItemAoA |  | ENUMERATED (160ms, 320ms,  640ms,  1280ms, 2560ms,  5120ms,  10240ms, 20480ms,  40960ms,  61440ms,  81920ms, 368640ms, 737280ms, 1843200ms, …) |  | YES | reject |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofMeasE-CID | Maximum no. of E-CID measured quantities that can be configured and reported with one message. Value is 64. |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifReportCharacteristicsPeriodic | This IE shall be present if the *E-CID Report Characteristics* IE is set to the value "Periodic". |
| ifReportCharacteristicsPeriodicAndMeasQuantityItemAoA | This IE shall be present if the *E-CID Report Characteristics* IE is set to the value "Periodic" and the *E-CID Measurement Quantities* *Item* IE is set to the value "NR Angle of Arrival". |

#### 9.2.12.21 E-CID MEASUREMENT INITIATION RESPONSE

This message is sent by gNB-DU to indicate that the requested E-CID measurement is successfully initiated.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| LMF UE Measurement ID | M |  | INTEGER (1.. 256, …) |  | YES | reject |
| RAN UE Measurement ID | M |  | INTEGER (1.. 256, …) |  | YES | reject |
| E-CID Measurement Result | O |  | 9.3.1.199 |  | YES | ignore |
| Cell Portion ID | O |  | 9.3.1.200 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.12.22 E-CID MEASUREMENT INITIATION FAILURE

This message is sent by gNB-DU to indicate that the requested E-CID measurement cannot be initiated.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| LMF UE Measurement ID | M |  | INTEGER (1.. 256, …) |  | YES | reject |
| RAN UE Measurement ID | M |  | INTEGER (1.. 256, …) |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.12.23 E-CID MEASUREMENT FAILURE INDICATION

This message is sent by gNB-DU to indicate that the previously requested E-CID measurement can no longer be reported.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| LMF UE Measurement ID | M |  | INTEGER (1.. 256, …) |  | YES | reject |
| RAN UE Measurement ID | M |  | INTEGER (1.. 256, …) |  | YES | reject |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |

#### 9.2.12.24 E-CID MEASUREMENT REPORT

This message is sent by gNB-DU to report the results of the requested E-CID measurement.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| LMF UE Measurement ID | M |  | INTEGER (1.. 256, …) |  | YES | reject |
| RAN UE Measurement ID | M |  | INTEGER (1.. 256, …) |  | YES | reject |
| E-CID Measurement Result | M |  | 9.3.1.199 |  | YES | ignore |
| Cell Portion ID | O |  | 9.3.1.200 |  | YES | ignore |

#### 9.2.12.25 E-CID MEASUREMENT TERMINATION COMMAND

This message is sent by the gNB-CU to terminate the requested E-CID measurement.

Direction: gNB-CU → gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| LMF UE Measurement ID | M |  | INTEGER (1.. 256, …) |  | YES | reject |
| RAN UE Measurement ID | M |  | INTEGER (1.. 256, …) |  | YES | reject |

#### 9.2.12.26 POSITIONING INFORMATION UPDATE

This message is sent by the gNB-DU to indicate that a change in the SRS configuration has occurred.

Direction: gNB-DU → gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| SRS configuration | O |  | 9.3.1.192 |  | YES | ignore |
| SFN Initialisation Time | O |  | Relative Time 1900  9.3.1.183 |  | YES | ignore |

#### 9.2.12.27 POSITIONING SYSTEM INFORMATION DELIVERY COMMAND

This message is sent by the gNB-CU and is used to enable the gNB-DU to broadcast the requested positioning SI.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| NR CGI | M |  | 9.3.1.12 | NR cell identifier | YES | reject |
| PosSIType List | M |  | 9.3.1.278 |  | YES | reject |
| Confirmed UE ID | M |  | gNB-DU UE F1AP ID  9.3.1.5 |  | YES | reject |

## 9.3 Information Element Definitions

### 9.3.1Radio Network Layer Related IEs

#### 9.3.1.1 Message Type

The *Message Type* IE uniquely identifies the message being sent. It is mandatory for all messages.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| **Message Type** |  |  |  |  |
| >Procedure Code | M |  | INTEGER (0..255) |  |
| >Type of Message | M |  | CHOICE (Initiating Message, Successful Outcome, Unsuccessful Outcome, ...) |  |

#### 9.3.1.2 Cause

The purpose of the *Cause* IE is to indicate the reason for a particular event for the F1AP protocol.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE Type and Reference** | **Semantics Description** |
| CHOICE *Cause Group* | M |  |  |  |
| >*Radio Network Layer* |  |  |  |  |
| >>Radio Network Layer Cause | M |  | ENUMERATED (Unspecified, RL failure-RLC, Unknown or already allocated gNB-CU UE F1AP ID,  Unknown or already allocated gNB-DU UE F1AP ID,  Unknown or inconsistent pair of UE F1AP ID,  Interaction with other procedure,  Not supported QCI Value,  Action Desirable for Radio Reasons,  No Radio Resources Available,  Procedure cancelled, Normal Release, ..., Cell not available, RL failure-others, UE rejection, Resources not available for the slice(s), AMF initiated abnormal release, Release due to Pre-Emption, PLMN not served by the gNB-CU, Multiple DRB ID Instances, Unknown DRB ID, Multiple BH RLC CH ID Instances, Unknown BH RLC CH ID, CHO-CPC resources to be changed, NPN not supported, NPN access denied, gNB-CU Cell Capacity Exceeded, Report Characteristics Empty, Existing Measurement ID, Measurement Temporarily not Available, Measurement not Supported For The Object, Unknown BAP address, Unknown BAP routing ID, Insufficient UE Capabilities) |  |
| *>Transport Layer* |  |  |  |  |
| >>Transport Layer Cause | M |  | ENUMERATED (Unspecified, Transport Resource Unavailable, ... , Unknown TNL address for IAB, Unknown UP TNL information for IAB) |  |
| *>Protocol* |  |  |  |  |
| >>Protocol Cause | M |  | ENUMERATED (Transfer Syntax Error, Abstract Syntax Error (Reject), Abstract Syntax Error (Ignore and Notify), Message not Compatible with Receiver State,  Semantic Error,  Abstract Syntax Error (Falsely Constructed Message), Unspecified, ...) |  |
| *>Misc* |  |  |  |  |
| >>Miscellaneous Cause | M |  | ENUMERATED (Control Processing Overload, Not enough User Plane Processing Resources, Hardware Failure, O&M Intervention, Unspecified, ...) |  |

The meaning of the different cause values is described in the following table. In general, "not supported" cause values indicate that the related capability is missing. On the other hand, "not available" cause values indicate that the related capability is present, but insufficient resources were available to perform the requested action.

|  |  |
| --- | --- |
| Radio Network Layer cause | Meaning |
| Unspecified | Sent for radio network layer cause when none of the specified cause values applies. |
| RL Failure-RLC | The action is due to an RL failure caused by exceeding the maximum number of ARQ retransmissions. |
| Unknown or already allocated gNB-CU UE F1AP ID | The action failed because the gNB-CU UE F1AP ID is either unknown, or (for a first message received at the gNB-CU) is known and already allocated to an existing context. |
| Unknown or already allocated gNB-DU UE F1AP ID | The action failed because the gNB-DU UE F1AP ID is either unknown, or (for a first message received at the gNB-DU) is known and already allocated to an existing context. |
| Unknown or inconsistent pair of UE F1AP ID | The action failed because both UE F1AP IDs are unknown, or are known but do not define a single UE context. |
| Interaction with other procedure | The action is due to an ongoing interaction with another procedure. |
| Not supported QCI Value | The action failed because the requested QCI is not supported. |
| Action Desirable for Radio Reasons | The reason for requesting the action is radio related. |
| No Radio Resources Available | The cell(s) in the requested node don’t have sufficient radio resources available. |
| Procedure cancelled | The sending node cancelled the procedure due to other urgent actions to be performed. |
| Normal Release | The action is due to a normal release of the UE (e.g. because of mobility) and does not indicate an error. |
| Cell Not Available | The action failed due to no cell available in the requested node. |
| RL Failure-others | The action is due to an RL failure caused by other radio link failures than exceeding the maximum number of ARQ retransmissions. |
| UE rejection | The action is due to gNB-CU’s rejection of a UE access request. |
| Resources not available for the slice(s) | The requested resources are not available for the slice(s). |
| AMF initiated abnormal release | The release is triggered by an error in the AMF or in the NAS layer. |
| Release due to Pre-Emption | Release is initiated due to pre-emption. |
| PLMN not served by the gNB-CU | The PLMN indicated by the UE is not served by the gNB-CU. |
| Multiple DRB ID Instances | The action failed because multiple instances of the same DRB had been provided. |
| Unknown DRB ID | The action failed because the DRB ID is unknow. |
| Multiple BH RLC CH ID Instances | The action failed because multiple instances of the same BH RLC CH ID had been provided. This cause value is only applicable to IAB. |
| Unknown BH RLC CH ID | The action failed because the BH RLC CH ID is unknown. This cause value is only applicable to IAB. |
| CHO-CPC resources to be changed | The gNB-DU requires gNB-CU to replace, i.e. overwrite the configuration of indicated candidate target cell. |
| NPN not supported | The action fails because the indicated SNPN is not supported in the node. |
| NPN access denied | The action is due to rejection of a UE access request for NPN. |
| gNB-CU Cell Capacity Exceeded | The number of cells requested to be added was exceeding maximum cell capacity in the gNB-CU. |
| Report Characteristics Empty | The action failed because there is no measurement object in the report characteristics. |
| Existing Measurement ID | The action failed because the measurement ID is already used. |
| Measurement Temporarily not Available | The gNB-DU can temporarily not provide the requested measurement object. |
| Measurement not Supported For The Object | At least one of the concerned object(s) does not support the requested measurement. |
| Unknown BAP address | The action failed because the BAP address is unknown. This cause value is only applicable to IAB. |
| Unknown BAP routing ID | The action failed because the BAP routing ID is unknown. This cause value is only applicable to IAB. |
| Insufficient UE Capabilities | The setup can’t proceed due to insufficient UE capabilities. |

|  |  |
| --- | --- |
| Transport Layer cause | Meaning |
| Unspecified | Sent when none of the above cause values applies but still the cause is Transport Network Layer related. |
| Transport Resource Unavailable | The required transport resources are not available. |
| Unknown TNL address for IAB | The action failed because the TNL address is unknown. This cause value is only applicable to IAB. |
| Unknown UP TNL information for IAB | The action failed because the UP TNL information is unknown. This cause value is only applicable to IAB. |

|  |  |
| --- | --- |
| **Protocol cause** | **Meaning** |
| Transfer Syntax Error | The received message included a transfer syntax error. |
| Abstract Syntax Error (Reject) | The received message included an abstract syntax error and the concerning criticality indicated "reject". |
| Abstract Syntax Error (Ignore And Notify) | The received message included an abstract syntax error and the concerning criticality indicated "ignore and notify". |
| Message Not Compatible With Receiver State | The received message was not compatible with the receiver state. |
| Semantic Error | The received message included a semantic error. |
| Abstract Syntax Error (Falsely Constructed Message) | The received message contained IEs or IE groups in wrong order or with too many occurrences. |
| Unspecified | Sent when none of the above cause values applies but still the cause is Protocol related. |

| **Miscellaneous cause** | **Meaning** |
| --- | --- |
| Control Processing Overload | Control processing overload. |
| Not EnoughUser Plane Processing Resources Available | No enough resources are available related to user plane processing. |
| Hardware Failure | Action related to hardware failure. |
| O&M Intervention | The action is due to O&M intervention. |
| Unspecified Failure | Sent when none of the above cause values applies and the cause is not related to any of the categories Radio Network Layer, Transport Network Layer or Protocol. |

#### 9.3.1.3 Criticality Diagnostics

The *Criticality Diagnostics* IE is sent by the gNB-DU or the gNB-CU when parts of a received message have not been comprehended or were missing, or if the message contained logical errors. When applicable, it contains information about which IEs were not comprehended or were missing.

For further details on how to use the *Criticality Diagnostics* IE, (see clause 10). The conditions for inclusion of the *Transaction ID* IE are described in clause 10.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Procedure Code | O |  | INTEGER (0..255) | Procedure Code is to be used if Criticality Diagnostics is part of Error Indication procedure, and not within the response message of the same procedure that caused the error. |
| Triggering Message | O |  | ENUMERATED(initiating message, successful outcome, unsuccessful outcome) | The Triggering Message is used only if the Criticality Diagnostics is part of Error Indication procedure. |
| Procedure Criticality | O |  | ENUMERATED(reject, ignore, notify) | This Procedure Criticality is used for reporting the Criticality of the Triggering message (Procedure). |
| Transaction ID | O |  | 9.3.1.23 |  |
| **Information Element Criticality Diagnostics** |  | *0 .. <maxnoof Errors>* |  |  |
| >IE Criticality | M |  | ENUMERATED(reject, ignore, notify) | The IE Criticality is used for reporting the criticality of the triggering IE. The value 'ignore' is not applicable. |
| >IE ID | M |  | INTEGER (0..65535) | The IE ID of the not understood or missing IE. |
| >Type of Error | M |  | ENUMERATED(not understood, missing, ...) |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofErrors | Maximum no. of IE errors allowed to be reported with a single message. The value for maxnoofErrors is 256. |

#### 9.3.1.4 gNB-CU UE F1AP ID

The gNB-CU UE F1AP ID uniquely identifies the UE association over the F1 interface within the gNB-CU.

NOTE: If F1-C signalling transport is shared among multiple interface instances, the value of the gNB-CU UE F1AP ID is allocated so that it can be associated with the corresponding F1-C interface instance.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| gNB-CU UE F1AP ID | M |  | INTEGER (0 .. 232 -1) |  |

#### 9.3.1.5 gNB-DU UE F1AP ID

The gNB-DU UE F1AP ID uniquely identifies the UE association over the F1 interface within the gNB-DU.

NOTE: If F1-C signalling transport is shared among multiple interface instances, the value of the gNB-CU UE F1AP ID is allocated so that it can be associated with the corresponding F1-C interface instance.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| gNB-DU UE F1AP ID | M |  | INTEGER (0 .. 232 -1) |  |

#### 9.3.1.6 RRC-Container

This information element contains a gNB-CU→UE or a UE → gNB-CU message that is transferred without interpretation in the gNB-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| RRC-Container | M |  | OCTET STRING |  |

#### 9.3.1.7 SRB ID

This IE uniquely identifies a SRB for a UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| SRB ID | M |  | INTEGER (0..3, ...) | Corresponds to the identities of SRB as defined in TS 38.331 [8]. Value 0 indicates SRB0, value 1 indicates SRB1, etc. |

#### 9.3.1.8 DRB ID

This IE uniquely identifies a DRB for a UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| DRB ID | M |  | INTEGER (1.. 32, ...) | Corresponds to the *DRB-Identity* defined in TS 38.331 [8]. |

#### 9.3.1.9 gNB-DU ID

The gNB-DU ID uniquely identifies the gNB-DU at least within a gNB-CU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| gNB-DU ID | M |  | INTEGER (0 .. 236-1) | The gNB-DU ID is independently configured from cell identifiers, i.e. no connection between gNB-DU ID and cell identifiers. |

#### 9.3.1.10 Served Cell Information

This IE contains cell configuration information of a cell in the gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| NR CGI | M |  | 9.3.1.12 |  | - |  |
| NR PCI | M |  | INTEGER (0..1007) | Physical Cell ID | - |  |
| 5GS TAC | O |  | 9.3.1.29 | 5GS Tracking Area Code | - |  |
| Configured EPS TAC | O |  | 9.3.1.29a |  | - |  |
| **Served PLMNs** |  | *1..<maxnoofBPLMNs>* |  | Broadcast PLMNs in SIB 1 associated to the NR Cell Identity in the *NR CGI* IE | - |  |
| >PLMN Identity | M |  | 9.3.1.14 |  | - |  |
| >TAI Slice Support List | O |  | Slice Support List  9.3.1.37 | Supported S-NSSAIs per PLMN or per SNPN. | YES | ignore |
| >NPN Support Information | O |  | 9.3.1.156 | Supported NPNs per PLMN. | YES | reject |
| >Extended TAI Slice Support List | O |  | Extended Slice Support List  9.3.1.165 | Additional Supported S-NSSAIs per PLMN or per SNPN. | YES | reject |
| CHOICE *NR-Mode-Info* | M |  |  |  | - |  |
| *>FDD* |  |  |  |  | - |  |
| **>>FDD Info** |  | *1* |  |  | - |  |
| >>>UL FreqInfo | M |  | NR Frequency Info  9.3.1.17 | This IE is ignored if the *Cell Direction* IE is included and set to “dl-only”. | - |  |
| >>>DL FreqInfo | M |  | NR Frequency Info  9.3.1.17 | This IE is ignored if the *Cell Direction* IE is included and set to “ul-only”. | - |  |
| >>>UL Transmission Bandwidth | M |  | Transmission Bandwidth  9.3.1.15 | This IE is ignored if the *Cell Direction* IE is included and set to “dl-only”. | - |  |
| >>>DL Transmission Bandwidth | M |  | Transmission Bandwidth  9.3.1.15 | This IE is ignored if the *Cell Direction* IE is included and set to “ul-only”. | - |  |
| >>>UL Carrier List | O |  | NR Carrier List  9.3.1.137 | If included, the UL Transmission Bandwidth IE shall be ignored. | YES | ignore |
| >>>DL Carrier List | O |  | NR Carrier List  9.3.1.137 | If included, the *DL Transmission Bandwidth* IE shall be ignored. | YES | ignore |
| *>TDD* |  |  |  |  | - |  |
| **>>TDD Info** |  | *1* |  |  | - |  |
| >>>NR FreqInfo | M |  | NR Frequency Info  9.3.1.17 |  | - |  |
| >>>Transmission Bandwidth | M |  | Transmission Bandwidth  9.3.1.15 |  | - |  |
| >>>Intended TDD DL-UL Configuration | O |  | 9.3.1.89 |  | YES | ignore |
| >>>TDD UL-DL Configuration Common NR | O |  | OCTET STRING | The *tdd-UL-DL-ConfigurationCommon* as defined in TS 38.331 [8] | YES | ignore |
| >>>Carrier List | O |  | NR Carrier List  9.3.1.137 | If included, the Transmission Bandwidth IE shall be ignored. | YES | ignore |
| Measurement Timing Configuration | M |  | OCTET STRING | Contains the *MeasurementTimingConfiguration* inter-node message defined in TS 38.331 [8]. | - |  |
| RANAC | O |  | RAN Area Code  9.3.1.57 |  | YES | ignore |
| **Extended Served PLMNs List** |  | *0..1* |  | This is included if more than 6 Served PLMNs is to be signalled. | YES | ignore |
| **>Extended Served PLMNs Item** |  | *1 ..<maxnoofExtendedBPLMNs>* |  |  | - |  |
| >>PLMN Identity | M |  | 9.3.1.14 |  | - |  |
| >>TAI Slice Support List | O |  | Slice Support List  9.3.1.37 | Supported S-NSSAIs per PLMN or per SNPN. | - |  |
| >>NPN Support Information | O |  | 9.3.1.156 | Supported NPNs per PLMN. | YES | reject |
| >>Extended TAI Slice Support List | O |  | Extended Slice Support List  9.3.1.165 | Additional Supported S-NSSAIs per PLMN or per SNPN. | YES | reject |
| Cell Direction | O |  | 9.3.1.78 |  | YES | ignore |
| Cell Type | O |  | 9.3.1.87 |  | YES | ignore |
| **Broadcast PLMN Identity Info List** |  | *0..<maxnoofBPLMNsNR>* |  | This IE corresponds to the *PLMN-IdentityInfoList* IE and the *NPN-IdentityInfoList* IE (if available) in *SIB1* as specified in TS 38.331 [8]. All PLMN Identities and associated information contained in the *PLMN-IdentityInfoList* IE and NPN identities and associated information contained in the *NPN-IdentityInfoList* IE (if available) are included and provided in the same order as broadcast in SIB1.  NOTE: In case of NPN-only cell, the PLMN Identities and associated information contained in the *PLMN-IdentityInfoList* IE are not included. | YES | ignore |
| >PLMN Identity List | M |  | Available PLMN List  9.3.1.65 | Broadcast PLMN IDs in SIB1 associated to the *NR Cell Identity* IE | - |  |
| >Extended PLMN Identity List | O |  | Extended Available PLMN List  9.3.1.76 |  | - |  |
| >5GS-TAC | O |  | OCTET STRING (3) |  | - |  |
| >NR Cell Identity | M |  | BIT STRING (36) |  | - |  |
| >RANAC | O |  | RAN Area Code  9.3.1.57 |  | - |  |
| >Configured TAC Indication | O |  | 9.3.1.87a | NOTE: This IE is associated with the 5GS TAC in the *Broadcast PLMN Identity Info List* IE | YES | ignore |
| >NPN Broadcast Information | O |  | 9.3.1.157 | If this IE is included the content of the *PLMN Identity List* IE and *Extended PLMN Identity List* IE if present in the *Broadcast PLMN Identity Info List* IE is ignored. | YES | reject |
| Configured TAC Indication | O |  | 9.3.1.87a | NOTE: This IE is associated with the 5GS TAC on top-level of the *Served Cell Information* IE | YES | ignore |
| Aggressor gNB Set ID | O |  | 9.3.1.93 | This IE indicates the associated aggressor gNB Set ID of the cell | YES | ignore |
| Victim gNB Set ID | O |  | 9.3.1.93 | This IE indicates the associated Victim gNB Set ID of the cell | YES | ignore |
| IAB Info IAB-DU | O |  | 9.3.1.106 |  | YES | ignore |
| SSB Positions In Burst | O |  | 9.3.1.138 |  | YES | ignore |
| NR PRACH Configuration | O |  | 9.3.1.139 |  | YES | ignore |
| SFN Offset | O |  | 9.3.1.208 |  | YES | ignore |
| NPN Broadcast Information | O |  | 9.3.1.157 |  | YES | reject |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofBPLMNs | Maximum no. of Broadcast PLMN Ids. Value is 6. |
| maxnoofExtendedBPLMNs | Maximum no. of Extended Broadcast PLMN Ids. Value is 6. |
| maxnoofBPLMNsNR | Maximum no. of PLMN Ids.broadcast in an NR cell. Value is 12. |

#### 9.3.1.11 Transmission Action Indicator

This IE indicates actions for the gNB-DU for the data transmission to the UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Transmission Action Indicator | M |  | ENUMERATED (stop, ..., restart) |  |

#### 9.3.1.12 NR CGI

The NR Cell Global Identifier (NR CGI) is used to globally identify a cell.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| PLMN Identity | M |  | 9.3.1.14 |  |
| NR Cell Identity | M |  | BIT STRING (SIZE(36)) |  |

#### 9.3.1.13 Time To wait

This IE defines the minimum allowed waiting times.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Time to wait | M |  | ENUMERATED(1s, 2s, 5s, 10s, 20s, 60s) |  |

#### 9.3.1.14 PLMN Identity

This information element indicates the PLMN Identity.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| PLMN Identity | M |  | OCTET STRING (SIZE(3)) | - digits 0 to 9, encoded 0000 to 1001,  - 1111 used as filler digit,  two digits per octet,  - bits 4 to 1 of octet n encoding digit 2n-1  - bits 8 to 5 of octet n encoding digit 2n  -The PLMN identity consists of 3 digits from MCC followed by either  -a filler digit plus 2 digits from MNC (in case of 2 digit MNC) or  -3 digits from MNC (in case of a 3 digit MNC). |

#### 9.3.1.15 Transmission Bandwidth

The *Transmission Bandwidth* IE is used to indicate the UL or DL transmission bandwidth.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| NR SCS | M |  | ENUMERATED (scs15, scs30, scs60, scs120, ...) | The values scs15, scs30, scs60 and scs120 corresponds to the sub carrier spacing in TS 38.104 [17]. |
| NRB | M |  | ENUMERATED (nrb11, nrb18, nrb24, nrb25, nrb31, nrb32, nrb38, nrb51, nrb52, nrb65, nrb66, nrb78, nrb79, nrb93, nrb106, nrb107, nrb121, nrb132, nrb133, nrb135, nrb160, nrb162, nrb189, nrb216, nrb217, nrb245, nrb264, nrb270, nrb273, ...) | This IE is used to indicate the UL or DL transmission bandwidth expressed in units of resource blocks "NRB" (TS 38.104 [17]). The values nrb11, nrb18, etc. correspond to the number of resource blocks "NRB" 11, 18, etc. |

#### 9.3.1.16 Void

Reserved for future use.

#### 9.3.1.17 NR Frequency Info

The NR Frequency Info defines the carrier frequency used in a cell for a given direction (UL or DL) in FDD or for both UL and DL directions in TDD or for an SUL carrier.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
| NR ARFCN | M |  | INTEGER (0.. maxNRARFCN) | RF Reference Frequency as defined in TS 38.104 [17] section 5.4.2.1. The frequency provided in this IE identifies the absolute frequency position of the reference resource block (Common RB 0) of the carrier. Its lowest subcarrier is also known as Point A. | – |  |
| SUL Information | O |  | 9.3.1.28 |  | – |  |
| **Frequency Band List** |  | *1* |  |  | – |  |
| **>Frequency Band Item** |  | *1..<maxnoofNrCellBands>* |  |  | – |  |
| >>NR Frequency Band | M |  | INTEGER (1.. 1024, ...) | Operating Band as defined in TS 38.104 [17] section 5.4.2.3.  The value 1 corresponds to NR operating band n1, value 2 corresponds to NR operating band n2, etc. | – |  |
| >>Supported SUL band List |  | *0..<maxnoofNrCellBands>* |  |  | – |  |
| >>>Supported SUL band Item | M |  | INTEGER (1.. 1024, ...) | Supplementary NR Operating Band as defined in TS 38.104 [17] section 5.4.2.3 that can be used for SUL duplex mode as per TS 38.101-1 [26] table 5.2.-1.  The value 80 corresponds to NR operating band n80, value 81 corresponds to NR operating band n81, etc. | – |  |
| Frequency Shift 7p5khz | O |  | ENUMERATED (false, true, ...) | Indicate whether the value of Δshift is 0kHz or 7.5kHz when calculating FREF,shift as defined in Section 5.4.2.1 of TS 38.104 [17]. | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxNRARFCN | Maximum value of NR ARFCNs. Value is 3279165. |
| maxnoofNrCellBands | Maximum no. of frequency bands supported for a NR cell. Value is 32. |

#### 9.3.1.18 gNB-DU System Information

This IE contains the system information generated by the gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| MIB message | M |  | OCTET STRING | MIB message, as defined in subclause 6.2.2 in TS 38.331 [8]. | - |  |
| SIB1 message | M |  | OCTET STRING | SIB1 message, as defined in subclause 6.2.2 in TS 38.331 [8]. | - |  |
| SIB12 message | O |  | OCTET STRING | SIB12, as defined in subclause 6.2.2 in TS 38.331 [8]. | YES | Ignore |
| SIB13 message | O |  | OCTET STRING | SIB13, as defined in subclause 6.3.1 in TS 38.331 [8]. | YES | Ignore |
| SIB14 message | O |  | OCTET STRING | SIB14, as defined in subclause 6.3.1 in TS 38.331 [8]. | YES | ignore |
| SIB10 message | O |  | OCTET STRING | SIB10, as defined in subclause 6.3.1 in TS 38.331 [8]. | YES | ignore |

#### 9.3.1.19 E-UTRAN QoS

This IE defines the QoS to be applied to a DRB or to a BH RLC channel for EN-DC case.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | Criticality | Assigned Criticality |
| QCI | M |  | INTEGER (0..255) | QoS Class Identifier defined in TS 23.401 [10].  Logical range and coding specified in TS 23.203 [11]. For a BH RLC channel, the Packet Delay Budget included in QCI defines the upper bound for the time that a packet may be delayed between the gNB-DU and its child IAB-MT. |  |  |
| Allocation and Retention Priority | M |  | 9.3.1.20 |  |  |  |
| GBR QoS Information | O |  | 9.3.1.21 | This IE shall be present for GBR bearers only and is ignored otherwise. |  |  |
| ENB DL Transport Layer Address | O |  | Transport Layer Address  9.3.2.3 | DL Transport Layer Address of node terminating PDCP. Included for MN-terminated SCG bearers. | YES | ignore |

#### 9.3.1.20 Allocation and Retention Priority

This IE specifies the relative importance compared to other E-RABs for allocation and retention of the E-UTRAN Radio Access Bearer.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Priority Level | M |  | INTEGER (0..15) | **Desc.:** This IE should be understood as "priority of allocation and retention" (see TS 23.401 [10]).  **Usage:**  Value 15 means "no priority".  Values between 1 and 14 are ordered in decreasing order of priority, i.e. 1 is the highest and 14 the lowest.  Value 0 shall be treated as a logical error if received. |
| Pre-emption Capability | M |  | ENUMERATED(shall not trigger pre-emption, may trigger pre-emption) | **Desc.:** This IE indicates the pre-emption capability of the request on other E-RABs (see TS 23.401 [10]).  **Usage:**  The E-RAB shall not pre-empt other E-RABs or, the E-RAB may pre-empt other E-RABs  The Pre-emption Capability indicator applies to the allocation of resources for an E-RAB and as such it provides the trigger to the pre-emption procedures/processes of the eNB. |
| Pre-emption Vulnerability | M |  | ENUMERATED(not pre-emptable, pre-emptable) | **Desc.:** This IE indicates the vulnerability of the E-RAB to pre-emption of other E-RABs (see TS 23.401 [10]).  **Usage**:  The E-RAB shall not be pre-empted by other E-RABs or the E-RAB may be pre-empted by other RABs.  Pre-emption Vulnerability indicator applies for the entire duration of the E-RAB, unless modified, and as such indicates whether the E-RAB is a target of the pre-emption procedures/processes of the eNB. |

#### 9.3.1.21 GBR QoS Information

This IE indicates the maximum and guaranteed bit rates of a GBR E-RAB for downlink and uplink.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| E-RAB Maximum Bit Rate Downlink | M |  | Bit Rate  9.3.1.22 | Maximum Bit Rate in DL (i.e. from EPC to E-UTRAN) for the bearer.  Details in TS 23.401 [10]. |
| E-RAB Maximum Bit Rate Uplink | M |  | Bit Rate  9.3.1.22 | Maximum Bit Rate in UL (i.e. from E-UTRAN to EPC) for the bearer.  Details in TS 23.401 [10]. |
| E-RAB Guaranteed Bit Rate Downlink | M |  | Bit Rate  9.3.1.22 | Guaranteed Bit Rate (provided that there is data to deliver) in DL (i.e. from EPC to E-UTRAN) for the bearer.  Details in TS 23.401 [10]. |
| E-RAB Guaranteed Bit Rate Uplink | M |  | Bit Rate  9.3.1.22 | Guaranteed Bit Rate (provided that there is data to deliver) in UL (i.e. from E-UTRAN to EPC) for the bearer.  Details in TS 23.401 [10]. |

#### 9.3.1.22 Bit Rate

This IE indicates the number of bits delivered by NG-RAN in UL or to NG-RAN in DL within a period of time, divided by the duration of the period. It is used, for example, to indicate the maximum or guaranteed bit rate for a GBR QoS flow, or an aggregated maximum bit rate.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Bit Rate | M |  | INTEGER (0.. 4,000,000,000,000,...) | The unit is: bit/s |

#### 9.3.1.23 Transaction ID

The *Transaction ID* IE uniquely identifies a procedure among all ongoing parallel procedures of the same type initiated by the same protocol peer. Messages belonging to the same procedure use the same Transaction ID. The Transaction ID is determined by the initiating peer of a procedure.

NOTE: If F1-C signalling transport is shared among multiple interface instances, the Transaction ID is allocated so that it can be associated with an F1-C interface instance. The Transaction ID may identify more than one interface instance.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Transaction ID | M |  | INTEGER (0..255, ...) |  |

#### 9.3.1.24 DRX Cycle

The *DRX Cycle* IEis to indicate the desired DRX cycle.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE Type and Reference** | **Semantics Description** |
| Long DRX Cycle Length | M |  | ENUMERATED (ms10, ms20, ms32, ms40, ms60, ms64, ms70, ms80, ms128, ms160, ms256, ms320, ms512, ms640, ms1024, ms1280, ms2048, ms2560, ms5120, ms10240, ...) | This IE is defined in TS 38.331 [8] |
| Short DRX Cycle Length | O |  | ENUMERATED (ms2, ms3, ms4, ms5, ms6, ms7, ms8, ms10, ms14, ms16, ms20, ms30, ms32, ms35, ms40, ms64, ms80, ms128, ms160, ms256, ms320, ms512, ms640, ...) | This IE is defined in TS 38.331 [8] |
| Short DRX Cycle Timer | O |  | INTEGER (1..16) | This IE is defined in TS 38.331 [8] |

#### 9.3.1.25 CU to DU RRC Information

This IE contains the RRC Information that are sent from gNB-CU to gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| CG-ConfigInfo | O |  | OCTET STRING | CG-ConfigInfo, as defined in TS 38.331 [8]. | - |  |
| UE-CapabilityRAT-ContainerList | O |  | OCTET STRING | This IE is used in the NG-RAN and it consists of the UE-CapabilityRAT-ContainerList, as defined in TS 38.331 [8]. | - |  |
| MeasConfig | O |  | OCTET STRING | MeasConfig, as defined in TS 38.331 [8] (without MeasGapConfig).  For EN-DC/NGEN-DC operation, includes the list of FR2 frequencies for which the gNB-CU requests the gNB-DU to generate gaps.  For NG-RAN, NE-DC and MN for NR-NR DC, includes the list of FR1 and/or FR2 frequencies, for which the gNB-CU requests the gNB-DU to generate gaps and the gap type (per-UE or per-FR). | - |  |
| Handover Preparation Information | O |  | OCTET STRING | HandoverPreparationInformation, as defined in TS 38.331 [8]. | YES | ignore |
| CellGroupConfig | O |  | OCTET STRING | CellGroupConfig, as defined in TS 38.331 [8]. | YES | ignore |
| Measurement Timing Configuration | O |  | OCTET STRING | Contains the *MeasurementTimingConfiguration* inter-node message defined in TS 38.331 [8].  In EN-DC/NGEN-DC, it is included when the gaps for FR2 are requested to be configured by the MeNB. For MN in NR-NR DC,it is included when the gaps for FR2 and/or FR1 are requested by the SgNB | YES | ignore |
| UEAssistanceInformation | O |  | OCTET STRING | UEAssistanceInformation, as defined in TS 38.331 [8]. | YES | ignore |
| CG-Config | O |  | OCTET STRING | CG-Config, as defined in TS 38.331 [8]. | YES | ignore |
| UEAssistanceInformationEUTRA | O |  | OCTET STRING | UEAssistanceInformation, as defined in TS 36.331 [41]. | YES | ignore |
| Location Measurement Information | O |  | OCTET STRING | LocationMeasurementInfo, as defined in TS 38.331[8] | YES | ignore |
| NeedForGapsInfoNR | O |  | OCTET STRING | NeedForGapsInfoNR, as defined in TS 38.331 [8]. | YES | ignore |
| ConfigRestrictInfoDAPS | O |  | OCTET STRING | ConfigRestrictInfoDAPS-r16 as defined in TS 38.331 [8]. This IE is used at the source node if DAPS HO is configured. | YES | ignore |

#### 9.3.1.26 DU to CU RRC Information

This IE contains the RRC Information that are sent from the gNB-DU to the gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| CellGroupConfig | M |  | OCTET STRING | CellGroupConfig, as defined in TS 38.331 [8]. |  |  |
| MeasGapConfig | O |  | OCTET STRING | MeasGapConfig as defined in TS 38.331 [8].  For EN-DC/NGEN-DC operation, includes the gap for FR2, as requested by the gNB-CU via MeasConfig IE.  For NG-RAN, NE-DC and MN for NR-NR DC, includes the gap(s) for FR1 and/or FR2, as requested by the gNB-CU via MeasConfig IE. |  |  |
| Requested P-MaxFR1 | O |  | OCTET STRING | requestedP-MaxFR1, as defined in TS 38.331 [8].  For EN-DC, NGEN-DC and NR-DC operation, this IE should be included. |  |  |
| DRX Long Cycle Start Offset | O |  | INTEGER (0..10239) | Identical to the value of the drx-LongCycleStartOffset IE within the DRX-Config as defined in TS 38.331 [8].  This field is not used in NR-DC. |  |  |
| Selected BandCombinationIndex | O |  | OCTET STRING | BandCombinationIndex, as defined in TS 38.331 [8].  For (NG)EN-DC and NR DC operation, this IE should be included so that gNB-CU is informed of the selected Band Combination; if this IE is included, the gNB-CU uses this information to deduce the selected band. | YES | ignore |
| Selected FeatureSetEntryIndex | O |  | OCTET STRING | FeatureSetEntryIndex, as defined in TS 38.331 [8].  For (NG)EN-DC and NR DC operation, this IE should be included so that gNB-CU is informed of the selected FeatureSet. | YES | ignore |
| Ph-InfoSCG | O |  | OCTET STRING | PH-TypeListSCG, as defined in TS 38.331 [8].For MR-DC, this IE should be included so that gNB-CU is informed of the Power Headroom type for each serving cell in SN. | Yes | ignore |
| Requested BandCombinationIndex | O |  | OCTET STRING | BandCombinationIndex, as defined in TS 38.331 [8].  This IE is used for the gNB-DU to request a new Band Combination. | YES | ignore |
| Requested FeatureSetEntryIndex | O |  | OCTET STRING | FeatureSetEntryIndex, as defined in TS 38.331 [8].  This IE is used for the gNB-DU to request a new Feature Set. | YES | ignore |
| DRX Config | O |  | OCTET STRING | DRX-Config, as defined in TS 38.331 [8].  This field is only used in NR-DC. | YES | ignore |
| PDCCH BlindDetectionSCG | O |  | OCTET STRING | pdcch-BlindDetectionSCG, as defined in TS 38.331 [8]. This IE is used between the MgNB-DU and the MgNB-CU. | YES | ignore |
| Requested PDCCH BlindDetectionSCG | O |  | OCTET STRING | requestedPDCCH-BlindDetectionSCG, as defined in TS 38.331 [8]. This IE is used between the SgNB-DU and the SgNB-CU. | YES | ignore |
| Ph-InfoMCG | O |  | OCTET STRING | PH-TypeListMCG, as defined in TS 38.331 [8]. For MR-DC, this IE should be included so that gNB-CU is informed of the Power Headroom type for each serving cell in MCG. | YES | ignore |
| MeasGapSharingConfig | O |  | OCTET STRING | MeasGapSharingConfig as defined in TS 38.331 [8]. | YES | ignore |
| SL-PHY-MAC-RLC-Config | O |  | OCTET STRING | SL-PHY-MAC-RLC-Config as defined in TS 38.331 [8]. | YES | ignore |
| SL-ConfigDedicatedEUTRA-Info | O |  | OCTET STRING | SL-ConfigDedicatedEUTRA-Info as defined in TS 38.331 [8]. | YES | ignore |
| Requested P-MaxFR2 | O |  | OCTET STRING | RequestedP-MaxFR2, as defined in TS 38.331 [8].  For NR-DC operation, this IE should be included. | YES | ignore |
| InterFrequencyConfig-NoGap | O |  | ENUMERATED (true, …) | Identical to the value of the interFrequencyConfig-NoGap-r16 IE, as defined in TS 38.331 [8]. | YES | ignore |

#### 9.3.1.27 RLC Mode

The *RLC Mode* IE indicates the RLC Mode used for a DRB or a BH RLC channel.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| RLC Mode |  |  | ENUMERATED (  RLC-AM, RLC-UM-Bidirectional, RLC-UM-Unidirectional-UL, RLC-UM-Unidirectional-DL, ...) |  |

#### 9.3.1.28 SUL Information

This IE provides information about the SUL carrier.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| SUL ARFCN | M |  | INTEGER (0.. maxNRARFCN) | RF Reference Frequency as defined in TS 38.104 [17] section 5.4.2.1. The frequency provided in this IE identifies the absolute frequency position of the reference resource block (Common RB 0) of the SUL carrier. Its lowest subcarrier is also known as Point A. | – |  |
| SUL Transmission Bandwidth | M |  | Transmission Bandwidth  9.3.1.15 |  | – |  |
| Carrier List | O |  | NR Carrier List  9.3.1.137 | If included, the SUL Transmission Bandwidth IE shall be ignored. | YES | ignore |
| Frequency Shift 7p5khz | O |  | ENUMERATED (false, true, ...) | Indicate whether the value of Δshift is 0kHz or 7.5kHz when calculating FREF,shift as defined in Section 5.4.2.1 of TS 38.104 [17]. | YES | ignore |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxNRARFCN | Maximum value of NR ARFCNs. Value is 3279165. |

#### 9.3.1.29 5GS TAC

This information element is used to identify Tracking Area Code.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| 5GS TAC | M |  | OCTET STRING (SIZE (3)) |  |

#### 9.3.1.29a Configured EPS TAC

This information element is used to identify a configured EPS Tracking Area Code in order to enable application of Roaming and Access Restrictions for EN-DC as specified in TS 37.340 [7]. This IE is configured for the cell, but not broadcast.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Configured EPS TAC | M |  | OCTET STRING (SIZE (2)) |  |

#### 9.3.1.30 RRC Reconfiguration Complete Indicator

This IE indicates the result of the reconfiguration performed towards the UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| RRC Reconfiguration Complete Indicator | M |  | ENUMERATED (true, ... , failure) |  |

#### 9.3.1.31 UL Configuration

This IE indicates how the UL scheduling is configured at gNB-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| UL UE Configuration | M |  | ENUMERATED (no-data, shared, only, ...) | Indicates how the UE uses the UL at gNB-DU, for which "no-data" indicates that the UL scheduling is not performed at gNB-DU, "shared" indicates that the UL scheduling is performed at both gNB-DU and another node, and "only" indicates that the UL scheduling is only performed at the gNB-DU. |

#### 9.3.1.32 C-RNTI

This IE contains the C-RNTI information.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| C-RNTI | M |  | INTEGER (0..65535, ...) | C-RNTI as defined in TS 38.331 [8]. |

#### 9.3.1.33 Cell UL Configured

This IE indicates whether the gNB-CU requests the gNB-DU to configure the uplink as no UL, UL, SUL or UL+SUL for the indicated cell for the UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Cell UL Configured | M |  | ENUMERATED (none, UL, SUL, UL and SUL, ...) | Further details are defined in TS 38.331 [8] |

#### 9.3.1.34 RAT-Frequency Priority Information

The RAT-Frequency Priority Information contains either the *Subscriber Profile ID* *for RAT/Frequency priority* IE or the *Index to RAT/Frequency Selection Priority* IE. These parameters are used to define local configuration for RRM strategies.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE RAT-Frequency Priority Information | M |  |  |  |
| >EN-DC |  |  |  |  |
| >>Subscriber Profile ID for RAT/Frequency priority | M |  | INTEGER (1..256, ...) |  |
| >NG-RAN |  |  |  |  |
| >> *Index to RAT/Frequency Selection Priority* | M |  | INTEGER (1..256, ...) |  |

#### 9.3.1.35 LCID

This IE uniquely identifies a LCID for the associated SRB or DRB.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| LCID | M |  | INTEGER (1..32, ...) | Corresponds to the *LogicalChannelIdentity* defined in TS 38.331 [8]. |

#### 9.3.1.36 Duplication activation

The *Duplication Activation* IE indicates whether UL PDCP Duplication is activated or not.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| Duplication Activation | M |  | ENUMERATED (  Active, Inactive, ...) |  |

#### 9.3.1.37 Slice Support List

This IE indicates the list of supported slices.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Slice Support Item IEs** |  | *1..<maxnoofSliceItems>* |  |  |
| >S-NSSAI | M |  | 9.3.1.38 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofSliceItems | Maximum no. of signalled slice support items. Value is 1024. |

#### 9.3.1.38 S-NSSAI

This IE indicates the S-NSSAI as defined in TS 23.003 [23].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| SST | M |  | OCTET STRING (SIZE(1)) |  |
| SD | O |  | OCTET STRING (SIZE(3)) |  |

#### 9.3.1.39 UE Identity Index value

This IE is used by the gNB-DU to calculate the Paging Frame.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *UE Identity Index Value* | M |  |  |  |
| >Length-10 |  |  |  |  |
| >>Index Length 10 | M |  | BIT STRING (SIZE(10)) | Coded as specified in TS 38.304 [24]. |

#### 9.3.1.40 Paging DRX

This IE indicates the Paging DRX as defined in TS 38.304 [24].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Paging DRX | M |  | ENUMERATED(32, 64, 128, 256, ...) | Unit in radio frame. |

#### 9.3.1.41 Paging Priority

This IE indicates the paging priority for paging a UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Paging Priority | M |  | ENUMERATED (PrioLevel1, PrioLevel2, PrioLevel3, PrioLevel4, PrioLevel5, PrioLevel6, PrioLevel7, PrioLevel8, ...) | Lower value codepoint indicates higher priority. |

#### 9.3.1.42 gNB-CU System Information

This IE contains the system information encoded by the gNB-CU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| **SIB type to Be Updated List** |  | *1* |  |  |  |  |
| **>SIB type to Be Updated Item IEs** |  | *1... <maxnoofSIBTypes>* |  |  |  |  |
| >>SIB type | M |  | INTEGER (2..32, ...) | Indicates a certain SIB block, e.g. 2 means sibType2, 3 for sibType3, etc. Values for SIBs generated by the gNB-DU as defined subclause 5.2.2 in TS 38.470 [2], values 6, 7, 8 and values corresponding to not defined SIBs in TS 38.331 are not applicable in this version of the specifications. |  |  |
| >>SIB message | M |  | OCTET STRING | SIB as defined in subclause 6.3.1 in TS 38.331 [8]. |  |  |
| >>Value Tag | M |  | INTEGER (0..31, ...) |  |  |  |
| >>areaScope | O |  | ENUMERATED (true, …) | Indicates that a SIB is area specific. If the field is not present, the SIB is cell specific. | YES | ignore |
| SystemInformationAreaID | O |  | BIT STRING (SIZE (24)) | Indicates the system information area that the cell belongs to, if any. | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofSIBTypes | Maximum no. of SIB types, the maximum value is 32. |

#### 9.3.1.43 RAN UE Paging identity

This IE indicates the RAN UE Paging identity.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| I-RNTI | M |  | BIT STRING (SIZE(40)) |  |

#### 9.3.1.44 CN UE Paging Identity

The 5G-S-TMSI is used as UE identifier for CN paging.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE CN UE paging identity | M |  |  |  |
| >5G-S-TMSI |  |  |  |  |
| >>5G-S-TMSI | M |  | BIT STRING (SIZE(48)) | Details defined in TS 38.413 [3] |

#### 9.3.1.45 QoS Flow Level QoS Parameters

This IE defines the QoS to be applied to a QoS flow, to a DRB or to a BH RLC channel.

NOTE: For a BH RLC channel, the listed mandatory IEs and the *GBR QoS Flow Information* IE are applicable, where *GBR QoS Flow Information* IE may be present if BH RLC channel conveys the traffic belonging to a GBR QoS Flow.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| CHOICE *QoS Characteristics* | M |  |  |  | - |  |
| >*Non-dynamic 5QI* |  |  |  |  | - |  |
| >>Non Dynamic 5QI Descriptor | M |  | 9.3.1.49 |  | - |  |
| >*Dynamic 5QI* |  |  |  |  | - |  |
| >>Dynamic 5QI Descriptor | M |  | 9.3.1.47 |  | - |  |
| NG-RAN Allocation and Retention Priority | M |  | 9.3.1.48 |  | - |  |
| GBR QoS Flow Information | O |  | 9.3.1.46 | This IE shall be present for GBR QoS Flows only and is ignored otherwise. | - |  |
| Reflective QoS Attribute | O |  | ENUMERATED (subject to, ...) | Details in TS 23.501 [21]. This IE applies to non-GBR flows only and is ignored otherwise. | - |  |
| PDU Session ID | O |  | INTEGER (0 ..255) | As specified in TS 23.501 [21]. | YES | ignore |
| UL PDU Session Aggregate Maximum Bit Rate | O |  | Bit Rate  9.3.1.22 | The PDU session Aggregate Maximum Bit Rate Uplink which is associated with the involved PDU session. | YES | ignore |
| QoS Monitoring Request | O |  | ENUMERATED (UL, DL, Both, …, stop) | Indicates to measure UL, or DL, or both UL/DL delays for the associated QoS flow or stop the corresponding QoS monitoring. | YES | ignore |
| PDCP Terminating Node DL Transport Layer Address | O |  | Transport Layer Address  9.3.2.3 | DL Transport Layer Address of node terminating PDCP. Included for MN-terminated SCG bearers and SN-terminated MCG bearers. | YES | ignore |

#### 9.3.1.46 GBR QoS Flow Information

This IE indicates QoS parameters for a GBR QoS flow or GBR bearer for downlink and uplink.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Maximum Flow Bit Rate Downlink | M |  | Bit Rate  9.3.1.22 | Maximum Bit Rate in DL. Details in TS 23.501 [21]. | - |  |
| Maximum Flow Bit Rate Uplink | M |  | Bit Rate  9.3.1.22 | Maximum Bit Rate in UL. Details in TS 23.501 [21]. | - |  |
| Guaranteed Flow Bit Rate Downlink | M |  | Bit Rate  9.3.1.22 | Guaranteed Bit Rate (provided there is data to deliver) in DL. Details in TS 23.501 [21]. | - |  |
| Guaranteed Flow Bit Rate Uplink | M |  | Bit Rate  9.3.1.22 | Guaranteed Bit Rate (provided there is data to deliver). Details in TS 23.501 [21]. | - |  |
| Maximum Packet Loss Rate Downlink | O |  | Maximum Packet Loss Rate 9.3.1.50 | Indicates the maximum rate for lost packets that can be tolerated in the downlink direction. Details in TS 23.501 [21]. | - |  |
| Maximum Packet Loss Rate Uplink | O |  | Maximum Packet Loss Rate 9.3.1.50 | Indicates the maximum rate for lost packets that can be tolerated in the uplink direction. Details in TS 23.501 [21]. | - |  |
| Alternative QoS Parameters Set List | O |  | 9.3.1.125 | Indicates alternative sets of QoS Parameters for the QoS flow. | YES | ignore |

#### 9.3.1.47 Dynamic 5QI Descriptor

This IE indicates the QoS Characteristics for a Non-standardised or not pre-configured 5QI for downlink and uplink.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| QoS Priority Level | M |  | INTEGER (1..127) | For details see TS 23.501 [21]. | - |  |
| Packet Delay Budget | M |  | 9.3.1.51 | For details see TS 23.501 [21]. For IAB, the Packet Delay Budget defines the upper bound for the time that a packet may be delayed between the IAB-DU/IAB-donor-DU and its child IAB-MT, or between the IAB-DU and its served UE. This IE is ignored if the *Extended Packet Delay Budget* IE is present. | - |  |
| Packet Error Rate | M |  | 9.3.1.52 | For details see TS 23.501 [21]. | - |  |
| 5QI | O |  | INTEGER (0..255,...) | This IE contains the dynamically assigned 5QI as specified in TS 23.501 [21]. | - |  |
| Delay Critical | C-ifGBRflow |  | ENUMERATED (delay critical, non-delay critical) | For details see TS 23.501 [21]. | - |  |
| Averaging Window | C-ifGBRflow |  | 9.3.1.53 | For details see TS 23.501 [21]. | - |  |
| Maximum Data Burst Volume | O |  | 9.3.1.54 | For details see TS 23.501 [21]. This IE shall be included if the *Delay Critical* IE is set to "delay critical" and is ignored otherwise. | - |  |
| Extended Packet Delay Budget | O |  | 9.3.1.145 | Packet Delay Budget is specified in TS 23.501 [21]. | YES | ignore |
| CN Packet Delay Budget Downlink | O |  | Extended Packet Delay Budget  9.3.1.145 | Core Network Packet Delay Budget is specified in TS 23.501 [21].  This IE may be present in case of GBR QoS flows and is ignored otherwise. | YES | ignore |
| CN Packet Delay Budget Uplink | O |  | Extended Packet Delay Budget  9.3.1.145 | Core Network Packet Delay Budget is specified in TS 23.501 [21].  This IE may be present in case of GBR QoS flows and is ignored otherwise. | YES | ignore |

|  |  |
| --- | --- |
| **Condition** | **Explanation** |
| ifGBRflow | This IE shall be present if the *GBR QoS Flow Information* IE is present in the *QoS Flow Level QoS Parameters* IE. |

#### 9.3.1.48 NG-RAN Allocation and Retention Priority

This IE specifies the relative importance of a QoS flow or a DRB compared to other QoS flows or DRBs for allocation and retention of NG-RAN resources.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Priority Level | M |  | INTEGER (0..15) | **Desc**.: This IE defines the relative importance of a resource request (see TS 23.501 [21]).  **Usage**: Values are ordered in decreasing order of priority, i.e., with 1 as the highest priority and 15 as the lowest priority. Further usage is defined in TS 23.501 [21]. |
| Pre-emption Capability | M |  | ENUMERATED (shall not trigger pre-emption, may trigger pre-emption) | **Desc.:** This IE indicates the pre-emption capability of the request on other QoS flows (see TS 23.501 [21]).  **Usage**: The QoS flow shall not pre-empt other QoS flows or, the QoS flow may pre-empt other QoS flows.  Note: The Pre-emption Capability indicator applies to the allocation of resources for a QoS flow and as such it provides the trigger to the pre-emption procedures/processes of the NG-RAN node. |
| Pre-emption Vulnerability | M |  | ENUMERATED (not pre-emptable, pre-emptable) | **Desc.**: This IE indicates the vulnerability of the QoS flow to pre-emption of other QoS flows (see TS 23.501 [21]).  **Usage**: The QoS flow shall not be pre-empted by other QoS flows or the QoS flow may be pre-empted by other QoS flows.  Note: The Pre-emption Vulnerability indicator applies for the entire duration of the QoS flow, unless modified and as such indicates whether the QoS flow is a target of the pre-emption procedures/processes of the NG-RAN node. |

#### 9.3.1.49 Non Dynamic 5QI Descriptor

This IE indicates the QoS Characteristics for a standardized or pre-configured 5QI for downlink and uplink.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| 5QI | M |  | INTEGER (0..255,...) | This IE contains the standardized or pre-configured 5QI as specified in TS 23.501 [21]. For a BH RLC channel, the Packet Delay Budget included in 5QI defines the upper bound for the time that a packet may be delayed between the gNB-DU and its child IAB-MT. | - |  |
| Priority Level | O |  | INTEGER (1..127) | For details see TS 23.501 [21]. When included overrides standardized or pre-configured value. | - |  |
| Averaging Window | O |  | 9.3.1.53 | For details see TS 23.501 [21]. When included overrides standardized or pre-configured value. | - |  |
| Maximum Data Burst Volume | O |  | 9.3.1.54 | For details see TS 23.501 [21]. When included overrides standardized or pre-configured value. | - |  |
| CN Packet Delay Budget Downlink | O |  | Extended Packet Delay Budget  9.3.1.145 | Core Network Packet Delay Budget is specified in TS 23.501 [21].  This IE may be present in case of GBR QoS flows and is ignored otherwise. | YES | ignore |
| CN Packet Delay Budget Uplink | O |  | Extended Packet Delay Budget  9.3.1.145 | Core Network Packet Delay Budget is specified in TS 23.501 [21].  This IE may be present in case of GBR QoS flows and is ignored otherwise. | YES | ignore |

#### 9.3.1.50 Maximum Packet Loss Rate

This IE indicates the Maximum Packet Loss Rate.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Maximum Packet Loss Rate | M |  | INTEGER(0..1000) | Ratio of lost packets per number of packets sent, expressed in tenth of percent. |

#### 9.3.1.51 Packet Delay Budget

This IE indicates the Packet Delay Budget for a QoS flow.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Packet Delay Budget | M |  | INTEGER (0..1023, ...) | Upper bound value for the delay that a packet may experience expressed in unit of 0.5ms. |

#### 9.3.1.52 Packet Error Rate

This IE indicates the Packet Error Rate for a QoS flow.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Scalar | M |  | INTEGER (0..9, ...) | The packet error rate is expressed as Scalar x 10-k where k is the Exponent. |
| Exponent | M |  | INTEGER (0..9, ...) |  |

#### 9.3.1.53 Averaging Window

This IE indicates the Averaging Window for a QoS flow, and applies to GBR QoS Flows only.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Averaging Window | M |  | INTEGER (0..4095, ...) | Unit: ms. The default value is 2000ms. |

#### 9.3.1.54 Maximum Data Burst Volume

This IE indicates the Maximum Data Burst Volume for a QoS flow, and applies to delay critical GBR QoS flows only.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Maximum Data Burst Volume | M |  | INTEGER (0..4095, ..., 4096.. 2000000) | Unit: byte. |

#### 9.3.1.55 Masked IMEISV

This information element contains the IMEISV value with a mask, to identify a terminal model without identifying an individual Mobile Equipment.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Masked IMEISV | M |  | BIT STRING (SIZE (64)) | Coded as the International Mobile station Equipment Identity and Software Version Number (IMEISV) defined in TS 23.003 [23] with the last 4 digits of the SNR masked by setting the corresponding bits to 1.  The first to fourth bits correspond to the first digit of the IMEISV, the fifth to eighth bits correspond to the second digit of the IMEISV, and so on. |

#### 9.3.1.56 Notification Control

The *Notification Control* IE indicates whether the notification control for a given DRB is active or not-active.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE Type and Reference** | **Semantics Description** |
| Notification Control | M |  | ENUMERATED(Active, Not-Active, ...) |  |

#### 9.3.1.57 RAN Area Code

This information element is used to uniquely identify a RAN Area Code.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| RANAC | M |  | INTEGER (0..255) | RAN Area Code |

#### 9.3.1.58 PWS System Information

This IE contains the system information used for public warning.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| SIB type | M |  | INTEGER (6..8, …) | Indicates a certain SIB block for public warning message, e.g. 6 means sibType6, 7 for sibType7, etc. | - |  |
| SIB message | M |  | OCTET STRING | SIB message for public warning, as defined in TS 38.331 [8]. | - |  |
| **Notification Information** | O |  |  |  | YES | ignore |
| >Message Identifier | M |  | 9.3.1.81 |  | - |  |
| >Serial Number | M |  | 9.3.1.82 |  | - |  |
| Additional SIB Message List | O |  | 9.3.1.86 | Additional SIB messages containing different segments of a public warning message if segmentation is applied, as defined in TS 38.331 [8]. | Yes | reject |

#### 9.3.1.59 Repetition Period

ThisIE indicates the periodicity of the warning message to be broadcast.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Repetition Period | M |  | INTEGER (0..217-1) | The unit of value 1 to 217-1 is [second]. |

#### 9.3.1.60 Number of Broadcasts Requested

This IE indicates the number of times a message is to be broadcast.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Number of Broadcasts Requested | M |  | INTEGER (0..65535) |  |

#### 9.3.1.61 Void

#### 9.3.1.62 SIType List

This IE is used by gNB-CU to provide SI list of other SI for gNB-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| **SI type item IEs** |  | *1.. <maxnoofSITypes>* |  |  |
| >SI Type | M |  | INTEGER (1..32, ...) | Indicates a certain SI type required to be broadcasted by the gNB-DU. The SI Type value of other SI starts from 2 |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofSITypes | Maximum no. of SI types, the maximum value is 32. |

#### 9.3.1.63 QoS Flow Identifier

This IE identifies a QoS Flow within a PDU Session. The definition and use of the QoS Flow Identifieris specified in TS 23.501 [21].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| QoS Flow Identifier | M |  | INTEGER (0 ..63) |  |

#### 9.3.1.64 Served E-UTRA Cell Information

This IE contains served cell information of an E-UTRA cell for spectrum sharing between E-UTRA and NR.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *EUTRA-Mode-Info* | M |  |  |  |
| *>FDD* |  |  |  |  |
| **>>FDD Info** |  | *1* |  |  |
| >>>UL Offset to Point A | M |  | INTEGER (0..2199,...) | Indicates the offset to the center of the NR carrier for UL. |
| >>>DL Offset to Point A | M |  | INTEGER (0..2199,...) | Indicates the offset to the center of the NR carrier for DL. |
| *>TDD* |  |  |  |  |
| **>>TDD Info** |  | *1* |  |  |
| >>>Offset to Point A | M |  | INTEGER (0..2199,...) | Indicates the offset to the center of the NR carrier. |
| Protected E-UTRA Resource Indication | O |  | OCTET STRING | Indicates the Protected E-UTRA Resource Indication as defined in subclause 9.2.125 of TS 36.423 [9]. |

#### 9.3.1.65 Available PLMN List

This IE indicates the list of available PLMN.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Available PLMN Item IEs** |  | *1..<* maxnoofBPLMNs *>* |  |  |
| >PLMN Identity | M |  | 9.3.1.14 |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofBPLMNs | Maximum no. of Broadcast PLMN Ids. Value is 6. |

#### 9.3.1.66 RLC Failure Indication

This IE indicates the LCID associated with the RLC entity needing re-establishment.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Associated LCID | M |  | LCID  9.3.1.35 |  |

#### 9.3.1.67 Uplink TxDirectCurrentList Information

This IE contains the Uplink TxDirectCurrentList information that is configured by the UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Uplink TxDirectCurrentList Information | M |  | OCTET STRING | *UplinkTxDirectCurrentList* as defined in TS 38.331 [8]. |

#### 9.3.1.68 Service Status

This IE is used to indicate the service status of a cell by the gNB-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Service State | M |  | ENUMERATED (In-Service, Out-Of-Service, ...) | Indicates the Service State of the cell. In-Service and Out-of-Service Service States are defined in TS 38.401 [4]. |
| Switching Off Ongoing | O |  | ENUMERATED (True, ...) | This IE indicates that the gNB-DU will delete the cell after some time using a new gNB-DU Configuration Update procedure. |

#### 9.3.1.69 RLC Status

This IE indicates about the RLC configuration change included in the container towards the UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Reestablishment Indication | O |  | ENUMERATED (reestablished, ...) | Indicates that following a change in the radio status, the RLC has been re-established. |

#### 9.3.1.70 RRC Version

This information element is used to identify RRC version corresponding to TS 38.331 [8].

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Latest RRC Version | M |  | BIT STRING (SIZE (3)) | This IE is not used in this release. | - |  |
| Latest RRC Version Enhanced | O |  | OCTET STRING (SIZE (3)) | Latest supported RRC version in the release corresponding to TS 38.331 [8]. For a 3GPP specification version x.y.z, x is encoded by the leftmost byte, y by the middle byte, and z by the rightmost byte.  If the RRC protocol is not supported in the gNB-DU, this IE is set to all ‘0’s. | YES | ignore |

#### 9.3.1.71 RRC Delivery Status

This IE provides information about the delivery status of RRC messages to the UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Delivery Status | M |  | INTEGER (0..212-1) | Highest NR PDCP SN successfully delivered in sequence to the UE. |
| Triggering Message | M |  | INTEGER (0..212-1) | NR PDCP SN for the RRC message that triggered the report. |

#### 9.3.1.72 QoS Flow Mapping Indication

This IE is used to indicate only the uplink or downlink QoS flow is mapped to the DRB.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| QoS Flow Mapping Indication | O |  | ENUMERATED(ul, dl,…) | Indicates that only the uplink or downlink QoS flow is mapped to the DRB |

#### 9.3.1.73 Resource Coordination Transfer Information

This IE contains information for UE-associated E-UTRA – NR resource coordination.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| MeNB Cell ID | M |  | BIT STRING (SIZE(28)) | E-UTRAN Cell Identifier IE contained in the ECGI as defined in TS 36.423 [9] clause 9.2.14 |
| Resource Coordination E-UTRA Cell Information | O |  | 9.3.1.75 |  |

#### 9.3.1.74 E-UTRA PRACH Configuration

This IE indicates the PRACH resources used in E-UTRA cell.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| RootSequenceIndex | M |  | INTEGER  (0..837) | See section 5.7.2. in TS 36.211 [27] |
| ZeroCorrelationZoneConfiguration | M |  | INTEGER  (0..15) | See section 5.7.2. in TS 36.211 [27] |
| HighSpeedFlag | M |  | BOOLEAN | TRUE corresponds to Restricted set and FALSE to Unrestricted set. See section 5.7.2 in TS 36.211 [27] |
| PRACH-FrequencyOffset | M |  | INTEGER  (0..94) | See section 5.7.1 of TS 36.211 [27] |
| PRACH-ConfigurationIndex | C-ifTDD |  | INTEGER  (0..63) | See section 5.7.1. in TS 36.211 [27] |

|  |  |
| --- | --- |
| **Condition** | **Explanation** |
| ifTDD | This IE shall be present if the *EUTRA-Mode-Info* IE in the *Resource Coordination E-UTRA Cell Information* IE is set to the value "TDD". |

#### 9.3.1.75 Resource Coordination E-UTRA Cell Information

This IE contains E-UTRA cell information for UE-associated E-UTRA – NR resource coordination.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| CHOICE *EUTRA-Mode-Info* | M |  |  |  | - |  |
| *>FDD* |  |  |  |  | - |  |
| **>>FDD Info** |  | *1* |  |  | - |  |
| >>>UL EARFCN | O |  | INTEGER (0 .. maxExtendedEARFCN, ...) | The relation between EARFCN and carrier frequency (in MHz) is defined in TS 36.104 [25]. | - |  |
| >>>DL EARFCN | M |  | INTEGER (0 .. maxExtendedEARFCN, ...) | The relation between EARFCN and carrier frequency (in MHz) is defined in TS 36.104 [25]. | - |  |
| >>>UL Transmission Bandwidth | O |  | E-UTRA Transmission Bandwidth  9.3.1.80 | Present if *UL EARFCN* IE is present. | - |  |
| >>>DL Transmission Bandwidth | M |  | E-UTRA Transmission Bandwidth  9.3.1.80 |  | - |  |
| *>TDD* |  |  |  |  | - |  |
| **>>TDD Info** |  | *1* |  |  | - |  |
| >>>EARFCN | M |  | INTEGER (0 .. maxExtendedEARFCN, ...) | The relation between EARFCN and carrier frequency (in MHz) is defined in TS 36.104 [25]. | - |  |
| >>>Transmission Bandwidth | M |  | E-UTRA Transmission Bandwidth  9.3.1.80 |  | - |  |
| >>>Subframe Assignment | M |  | ENUMERATED(sa0, sa1, sa2, sa3, sa4, sa5, sa6,…) | Uplink-downlink subframe configuration information defined in TS 36.211 [27].  In NB-IOT, sa0 and sa6 are not applicable. | - |  |
| **>>>Special Subframe Info** |  | *1* |  | Special subframe configuration information defined in TS 36.211 [27] | - |  |
| >>>>Special Subframe Patterns | M |  | ENUMERATED(ssp0, ssp1, ssp2, ssp3, ssp4, ssp5, ssp6, ssp7, ssp8, ssp9, ssp10, …) |  | - |  |
| >>>>Cyclic Prefix DL | M |  | ENUMERATED(Normal, Extended,…) |  | - |  |
| >>>>Cyclic Prefix UL | M |  | ENUMERATED(Normal, Extended,…) |  | - |  |
| E-UTRA PRACH Configuration | M |  | 9.3.1.74 |  | - |  |
| Ignore PRACH Configuration | O |  | ENUMERATED (true,...) |  | YES | reject |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxExtendedEARFCN | Maximum value of extended EARFCN. Value is 262143. |

#### 9.3.1.76 Extended Available PLMN List

This IE indicates the list of available PLMN.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Extended Available PLMN Item IEs** |  | *1..<* maxnoofExtendedBPLMNs *>* |  |  |
| >PLMN Identity | M |  | 9.3.1.14 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofExtendedBPLMNs | Maximum no. of Extended Broadcast PLMN Ids. Value is 6. |

#### 9.3.1.77 Associated SCell List

This IE indicates the list of SCells associated with the RLC entity indicated by the *RLC Failure Indication* IE.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| **Associated SCell Item IEs** |  | *1..< maxnoofSCells >* |  |  | - | - |
| >SCell ID | M |  | NR CGI  9.3.1.12 |  | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofSCells | Maximum no. of SCells allowed towards one UE, the maximum value is 32. |

#### 9.3.1.78 Cell Direction

This IE indicates if the cell is either bidirectional or only DL or only UL.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Cell Direction | M |  | ENUMERATED (dl-only, ul-only) |  |

#### 9.3.1.79 Paging Origin

This IE indicates whether Paging is originated due to the PDU sessions from the non-3GPP access.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Paging Origin | M |  | ENUMERATED (non-3GPP, …) |  |

#### 9.3.1.80 E-UTRA Transmission Bandwidth

This IE is used to indicate the E-UTRA UL or DL transmission bandwidth expressed in units of resource blocks " NRB " (TS 36.104 [25]). The values bw1, bw6, bw15, bw25, bw50, bw75, bw100 correspond to the number of resource blocks "NRB" 6, 15, 25, 50, 75, 100.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| E-UTRA Transmission Bandwidth | **M** |  | ENUMERATED (bw6, bw15, bw25, bw50, bw75, bw100,... ) |  |

#### 9.3.1.81 Message Identifier

This IE identifies the warning message.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Message Identifier | M |  | BIT STRING (SIZE(16)) | This IE is set by the 5GC, transferred to the UE by the NG-RAN node. |

#### 9.3.1.82 Serial Number

This IE identifies a particular message from the source and type indicated by the Message Identifier and is altered every time the message with a given Message Identifier is changed.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Serial Number | M |  | BIT STRING (SIZE(16)) |  |

#### 9.3.1.83 UAC Assistance Information

This information element contains assistance information helping the gNB-DU to set parameters for Unified Access Class barring.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| **UAC PLMN List** |  | *1* |  |  |
| **>UAC PLMN Item** |  | *1..<maxnoofUACPLMNs>* |  |  |
| >>PLMN Identity | M |  | 9.3.1.14 |  |
| **>>UAC Type List** |  | *1* |  |  |
| **>>>UAC Type Item** |  | *1..<maxnoofUACperPLMN>* |  |  |
| >>>>UAC Reduction Indication | M |  | 9.3.1.85 |  |
| >>>>CHOICE UAC Category Type | M |  |  |  |
| >>>>>UAC Standardized |  |  |  |  |
| >>>>>> UAC Action | M |  | 9.3.1.84 |  |
| >>>>>UAC Operator Defined |  |  |  |  |
| >>>>>>Access Category | M |  | INTEGER (32..63, …) | Indicates the operator defined Access Category as defined in subclause 6.3.2 in TS 38.331 [8]. |
| >>>>>>Access Identity | M |  | BIT STRING (SIZE(7)) | Indicates whether access attempt is allowed for each Access Identity as defined in subclause 6.3.2 in TS 38.331 [8]. |
| >>NID | O |  | 9.3.1.155 |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofUACPLMNs | Maximum no. of UAC PLMN Ids. Value is 12. |
| maxnoofUACperPLMN | Maximum no. of signalled categories per PLMN. Value is 64. |

#### 9.3.1.84 UAC Action

This IE indicates which signalling traffic is expected to be reduced by the gNB-CU, as defined in clause 8.7.7 of TS 38.413 [3]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| UAC Action | M |  | ENUMERATED  (Reject RRC connection establishments for non-emergency MO DT, Reject RRC connection establishments for Signalling, Permit Emergency Sessions and mobile terminated services only, Permit High Priority Sessions and mobile terminated services only,…) |  |

#### 9.3.1.85 UAC reduction Indication

This IE indicates the percentage of signalling traffic expected to be reduced by the gNB-CU, relative to the instantaneous incoming rate from the gNB-DU

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| UAC reduction Indication | M |  | INTEGER (0..100) | Value 0 indicates that no access rate reduction is desired. In this version of specification, value 99 indicates the highest desired rate reduction. |

#### 9.3.1.86 Additional SIB Message List

This IE indicates the list of additional SIB messages containing all the remaining segments of a public warning message if segmentation is applied to such message.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Additional SIB Message List Item IEs** |  | *1..*  *<*maxnoofAdditionalSIBs *>* |  |  |
| >Additional SIB | M |  | OCTET STRING | SIB message containing one segment of a public warning message, as defined in TS 38.331 [8]. |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofAdditionalSIBs | Maximum no. of additional segments of a public warning message. Value is 63. |

#### 9.3.1.87 Cell Type

This IE provides the cell coverage area.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Cell Size | M |  | ENUMERATED (verysmall, small, medium, large, …) |  |

#### 9.3.1.87a Configured TAC Indication

This IE indicates that the TAC with which this IE is associated, is only configured for the cell, but not broadcast.

NOTE: This IE is defined in accordance to the possibility foreseen in TS 38.331 [8] to not broadcast the TAC if the NR cell only supports PSCell/SCell functionality.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Configured TAC Indication | M |  | ENUMERATED (true, ...) |  |

#### 9.3.1.88 Trace Activation

This IE defines parameters related to a trace session activation.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Trace ID | M |  | OCTET STRING (SIZE(8)) | This IE is composed of the following:  Trace Reference defined in TS 32.422 [29] (leftmost 6 octets, with PLMN information encoded as in 9.3.1.14), and  Trace Recording Session Reference defined in TS 32.422 [29] (last 2 octets). | - | - |
| Interfaces To Trace | M |  | BIT STRING (SIZE(8)) | Each position in the bitmap represents an NG-RAN node interface:  first bit = NG-C, second bit = Xn-C, third bit = Uu, fourth bit = F1-C, fifth bit = E1:  other bits reserved for future use. Value '1' indicates 'should be traced'. Value '0' indicates 'should not be traced'. | - | - |
| Trace Depth | M |  | ENUMERATED (minimum, medium, maximum, minimumWithoutVendorSpecificExtension,  mediumWithoutVendorSpecificExtension,  maximumWithoutVendorSpecificExtension, …) | Defined in TS 32.422 [29]. | - | - |
| Trace Collection Entity IP Address | M |  | Transport Layer Address  9.3.2.3 | For File based Reporting.  Defined in TS 32.422 [29].  Should be ignored if URI is present. | - | - |
| MDT Configuration | O |  | 9.3.1.150 |  | YES | ignore |
| Trace Collection Entity URI | O |  | URI  9.3.2.6 | For Streaming based Reporting.  Defined in TS 32.422 [11]  Replaces Trace Collection Entity IP Address if present | YES | ignore |

#### 9.3.1.89 Intended TDD DL-UL Configuration

This IE contains the subcarrier spacing, cyclic prefix and TDD DL-UL slot configuration of an NR cell that the receiving NG-RAN node needs to take into account for cross-link interference mitigation, and/or for NR-DC power coordination, when operating its own cells.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| NR SCS | M |  | ENUMERATED (scs15, scs30, scs60, scs120, …) | The values scs15, scs30, scs60 and scs120 corresponds to the sub carrier spacing in TS 38.104 [17]. |
| NR Cyclic Prefix | M |  | ENUMERATED (Normal, Extended, …) | The type of cyclic prefix, which determines the number of symbols in a slot. |
| NR DL-UL Transmission Periodicity | M |  | ENUMERATED (ms0p5, ms0p625, ms1, ms1p25, ms2, ms2p5, ms3, ms4, ms5, ms10, ms20, ms40, ms60, ms80, ms100, ms120, ms140, ms160, …) | The periodicity is expressed in the format msXpYZ, and equals X.YZ milliseconds. |
| **Slot Configuration List** |  | 1 |  |  |
| **>Slot Configuration List Item** |  | *1..<maxnoofslots>* |  |  |
| >>Slot Index | M |  | INTEGER (0..5119) |  |
| >>CHOICE *Symbol Allocation in Slot* | M |  |  |  |
| >>>*All DL* |  |  | NULL | This choice implies that all symbols in the slot are DL symbols. |
| >>>*All UL* |  |  | NULL | This choice implies that all symbols in the slot are UL symbols. |
| >>>*Both DL and UL* |  |  |  |  |
| >>>>Number of DL Symbols | M |  | INTEGER (0..13) | Number of consecutive DL symbols at the beginning of the slot identified by Slot Index. If extended cyclic prefix is used, the maximum value is 11. |
| >>>>Number of UL Symbols | M |  | INTEGER (0..13) | Number of consecutive UL symbols in the end of the slot identified by Slot Index. If extended cyclic prefix is used, the maximum value is 11. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| *maxnoofslots* | Maximum length of number of slots in a 10-ms period. Value is 5120. |

#### 9.3.1.90 Additional RRM Policy Index

The *Additional RRM Policy Index* IE is used to provide additional information independent from the Subscriber Profile ID for RAT/Frequency priority as specified in TS 36.300 [20].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Additional RRM Policy Index | M |  | BIT STRING (32) |  |

#### 9.3.1.91 DU-CU RIM Information

This IE conveys the Remote Interference Management message from the gNB-DU to the gNB-CU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Victim gNB Set ID | M |  | 9.3.1.93 |  |
| RIM-RS Detection Status | M |  | ENUMERATED(RS detected, RS disappeared) | This IE indicates detection status of RIM-RS in gNB-DU |
| **Aggressor Cell List** |  | *1* |  |  |
| >**Aggressor Cell List Item** |  | *1..< maxCellingNBDU >* |  |  |
| >>Aggressor Cell ID | M |  | NR CGI  9.3.1.12 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

#### 9.3.1.92 CU-DU RIM Information

This IE conveys the Remote Interference Management message from the gNB-CU to the gNB-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Victim gNB Set ID | M |  | 9.3.1.93 |  |
| RIM-RS Detection Status | M |  | ENUMERATED(RS detected, RS disappeared) | This IE indicates detection status of RIM-RS in remote gNB(s). |

#### 9.3.1.93 gNB Set ID

The gNB Set ID IE is used to identify a group of gNBs which transmit the same RIM-RS.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| gNB Set ID | M |  | BIT STRING (SIZE(22)) |  |

#### 9.3.1.94 Lower Layer Presence Status Change

This IE indicates lower layer resources’ presence status shall be changed.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Lower Layer Presence Status Change | M |  | ENUMERATED (suspend lower layers, resume lower layers ...) | "suspend lower layers" will store CellGroupConfig. From the parameters received within the ReconfigurationWithSync, only the sPCellConfigCommon is stored. "resume lower layers" shall restore SCG and it is set only after "suspend lower layers" has been indicated. |

#### 9.3.1.95 Traffic Mapping Information

This IE includes the information used by the gNB-DU to perform traffic mapping.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *Traffic Mapping Information Type* | M |  |  |  |
| **>IP to layer2 Traffic Mapping Info** |  |  |  |  |
| >>IP to layer2 Traffic Mapping Info To Add | O |  | IP-to-layer-2 traffic mapping Information List  9.3.1.96 | This IE indicates the mapping information for forwarding of IP traffic to layer-2 to be added. |
| >>IP to layer2 Traffic Mapping Info To Remove | O |  | Mapping Information to Remove  9.3.1.99 | This IE indicates the mapping information for forwarding of IP traffic to layer 2 to be removed. |
| **>BAP layer BH RLC channel Mapping Info** |  |  |  |  |
| >>BAP layer BH RLC channel Mapping Info To Add | O |  | BAP layer BH RLC channel mapping Information List  9.3.1.98 | This IE indicates the mapping information for forwarding of traffic on BAP layer to be added. |
| >>BAP layer BH RLC channel Mapping Info To Remove | O |  | Mapping Information to Remove  9.3.1.99 | This IE indicates the mapping information for forwarding of traffic on BAP layer to be removed. |

#### 9.3.1.96 IP-to-layer-2 traffic mapping Information List

This IE includes the information used by the IAB-donor-DU to perform the mapping from IP layer to layer-2. If this IE appears in the UE-associated F1AP signalling, the *BH Information* IE should only contain the *BAP Routing ID* IE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **IP-to-layer-2 mapping information Item** |  | 1.. <*maxnoofMappingEntries*> |  |  |
| >Mapping Information Index | M |  | 9.3.1.100 |  |
| >IP header information | M |  | 9.3.1.97 |  |
| >BH Information | M |  | 9.3.1.114 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofMappingEntries | Maximum no. of mapping entries, the maximum value is 67108864 (i.e. 2^26). |

#### 9.3.1.97 IP Header Information

This IE indicates the IP header information included in the *Traffic Mapping Information* IE for DL traffic.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Destination IAB TNL Address | M |  | 9.3.1.102 | This IE indicates the destination IPv4 address, or IPv6 address or IPv6 prefix of a DL packet. |
| **DS Information List** |  | *0*.. <*maxnoofDSInfo*> |  |  |
| >DSCP | M |  | BIT STRING (SIZE(6)) | This IE indicates the DS information of DL traffic. |
| IPv6 Flow Label | O |  | BIT STRING (SIZE(20)) | This IE indicates the IPv6 Flow Label of DL traffic. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofDSInfo | Maximum no. of DSCP values related to a destination IP address that can be mapped to one BH RLC channel, the maximum value is 64. |

#### 9.3.1.98 BAP layer BH RLC channel mapping Information List

This IE includes the information used by the IAB-DU to perform the BH RLC channel mapping when forwarding traffic on BAP sublayer.

When this IE is included in the UE-associated F1AP signalling for setting up or modifying a BH RLC channel, it contains either the *Prior-Hop BAP Address* IE and the *Ingress BH RLC CH ID* IE to configure a mapping in downlink direction, or the *Next-Hop BAP address* IE and the *Egress BH RLC CH ID* IE to configure a mapping in uplink direction. This IE indicates the BH RLC channel served by the collocated IAB-MT.

When this IE is included in the non-UE-associated F1AP signalling, it shall contain the *Prior-Hop BAP Address* IE, the *Ingress BH RLC CH ID* IE, the *Next-Hop BAP address* IE and the *Egress BH RLC CH ID* IE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **BAP layer BH RLC channel mapping info Item** |  | 1.. <*maxnoofMappingEntries*> |  |  |
| >Mapping Information Index | M |  | 9.3.1.100 |  |
| >Prior-Hop BAP Address | O |  | 9.3.1.111 |  |
| >Ingress BH RLC CH ID | O |  | BH RLC Channel ID  9.3.1.113 |  |
| >Next-Hop BAP Address | O |  | 9.3.1.111 |  |
| >Egress BH RLC CH ID | O |  | BH RLC Channel ID  9.3.1.113 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| *maxnoofMappingEntries* | Maximum no. of mapping entries, the maximum value is 67108864 (i.e. 2^26). |

#### 9.3.1.99 Mapping Information to Remove

This IE includes a list of mapping information indexes corresponding to the mapping configuration which is to be removed.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Mapping Information to Remove List Item** |  | 1.. <*maxnoofMappingEntries*> |  |  |
| >Mapping Information Index | M |  | 9.3.1.100 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofMappingEntries | Maximum no. of mapping entries, the maximum value is 67108864 (i.e. 2^26). |

#### 9.3.1.100 Mapping Information Index

This IE includes an index of one mapping information entry at the IAB-donor-DU or an IAB-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Mapping Information Index | M |  | BIT STRING (SIZE(26)) |  |

#### 9.3.1.101 IAB TNL Addresses Requested

The *IAB TNL Addresses Requested* IE indicates the number of IPv4 or IPv6 addresses or IPv6 address prefixes requested for the indicated usage.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| TNL Addresses or Prefixes Requested - All Traffic | O |  | INTEGER (1..256) | The number of TNL addresses/ IPv6 prefixes requested for all traffic. |
| TNL Addresses or Prefixes Requested - F1-C traffic | O |  | INTEGER (1..256) | The number of TNL addresses/IPv6 prefixes requested for F1-C traffic. |
| TNL Addresses or Prefixes Requested - F1-U traffic | O |  | INTEGER (1..256) | The number of TNL addresses/ IPv6 prefixes requested for F1-U traffic. |
| TNL Addresses or Prefixes Requested - Non-F1 traffic | O |  | INTEGER (1..256) | The number of TNL addresses/ IPv6 prefixes requested for non-F1 traffic. |

#### 9.3.1.102 IAB TNL Address

The *IAB TNL Address* IE indicates an IPv4 or IPv6 address or an IPv6 address prefix assigned to an IAB-node.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *IAB TNL Address* | M |  |  |  |
| >IPv4 Address |  |  | BIT STRING (SIZE(32)) | The IPv4 address allocated to an IAB-node. |
| >IPv6 Address |  |  | BIT STRING (SIZE(128)) | The IPv6 address allocated to an IAB-node. |
| >IPv6 Prefix |  |  | BIT STRING (SIZE(64)) | The IPv6 address prefix allocated to an IAB-node. |

#### 9.3.1.103 Uplink BH Non-UP Traffic Mapping

This IE indicates the mapping of uplink non-UP traffic to a BH RLC channel and BAP Routing ID.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Uplink Non-UP Traffic Mapping List** |  | *1* |  |  |
| **>Uplink Non-UP Traffic Mapping List Item IEs** |  | *1 .. <maxnoofNonUPTrafficMappings>* |  |  |
| >>Non-UP Traffic Type | M |  | 9.3.1.104 |  |
| >>BH Information | M |  | 9.3.1.114 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofNonUPTrafficMappings | Maximum no. of non-UP traffic mappings. Value is 32. |

#### 9.3.1.104 Non-UP Traffic Type

This IE indicates the type of non-UP traffic.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Non-UP Traffic Type | M |  | ENUMERATED(UE-associated F1AP, non-UE-associated F1AP, non-F1, BAP control PDU, ...) |  |

#### 9.3.1.105 IAB Info IAB-donor-CU

This IE contains cell-specific IAB-related information sent by an IAB-donor-CU to an IAB-DU or IAB-donor-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| IAB STC Info | O |  | 9.3.1.109 | Contains STC configuration of IAB-DU or IAB-donor-DU. |

#### 9.3.1.106 IAB Info IAB-DU

This IE contains cell-specific IAB-related information sent by an IAB-DU or IAB-donor-DU to an IAB-donor-CU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Multiplexing Info | O |  | 9.3.1.108 | Contains the information about multiplexing with cells configured for a collocated IAB-MT. Applicable for an IAB-DU. |
| IAB STC Info | O |  | 9.3.1.109 | Contains the information about STC configuration of IAB-DU or IAB-donor-DU. |

#### 9.3.1.107 gNB-DU Cell Resource Configuration

This IE contains the resource configuration of the cells served by a gNB-DU, i.e. the TDD/FDD resource parameters for each activated cell (TS 38.213 [31], clause 11.1.1).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Subcarrier Spacing | M |  | ENUMERATED (kHz15, kHz30, kHz60, kHz120, kHz240, spare3, spare2, spare1, …) | Subcarrier spacing used as reference for the TDD/FDD slot configuration. | YES | reject |
| DUF Transmission Periodicity | O |  | ENUMERATED (ms0p5, ms0p625, ms1, ms1p25, ms2, ms2p5, ms5, ms10, …) |  | YES | reject |
| **DUF Slot Configuration List** |  | *0..1* |  |  |  |  |
| >**DUF Slot Configuration Item** |  | *1*..<*maxnoofDUFSlots*> |  | The *maxNrofSlots* in TS 38.331 [8]. | - |  |
| >>CHOICE *DUF Slot Configuration* | M |  |  |  | - |  |
| >>>Explicit Format |  |  |  |  | - |  |
| >>>>Permutation | M |  | ENUMERATED (DFU, UFD, …) |  | - |  |
| >>>>Number of Downlink Symbols | O |  | INTEGER (0..14) |  | - |  |
| >>>>Number of Uplink Symbols | O |  | INTEGER (0..14) |  | - |  |
| >>>Implicit Format |  |  |  |  |  |  |
| >>>>DUF Slot Format Index | M |  | INTEGER (0..254) | Index into Table 11.1.1-1 and Table 14-2 in TS 38.213 [31], excluding the last row in Table 14-2. | - |  |
| HSNA Transmission Periodicity | M |  | ENUMERATED (ms0p5, ms0p625, ms1, ms1p25, ms2, ms2p5, ms5, ms10, ms20, ms40, ms80, ms160, …) |  | YES | reject |
| **HSNA Slot Configuration List** |  | 0..1 |  |  |  |  |
| >**HSNA Slot Configuration Item** |  | 1..<*maxnoofHSNASlots*> |  |  |  |  |
| >>HSNA Downlink | O |  | ENUMERATED (HARD, SOFT, NOTAVAILABLE) | HSNA value for downlink symbols in a slot. | - |  |
| >>HSNA Uplink | O |  | ENUMERATED (HARD, SOFT, NOTAVAILABLE) | HSNA value for uplink symbols in a slot. | - |  |
| >>HSNA Flexible | O |  | ENUMERATED (HARD, SOFT, NOTAVAILABLE) | HSNA value for flexible symbols in a slot. | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofDUFSlots | Maximum no. of slots in 10ms. Value is 320. |
| maxnoofSymbols | Maximum no. of symbols in a slot. Value is 14. |
| maxnoofHSNASlots | Maximum no of "Hard", "Soft" or "Not available" slots in 160ms. Value is 5120. |

#### 9.3.1.108 Multiplexing Info

This IE contains information about the multiplexing capabilities between the gNB-DU’s cell and the cells configured on the collocated IAB-MT.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **IAB-MT Cell List** |  | *1* |  |  |
| **>IAB-MT Cell Item** |  | *1* .. <*maxnoofServingCells*> |  |  |
| >>NR Cell Identity | M |  | BIT STRING (SIZE(36)) | Cell identity of a serving cell configured for a collocated IAB-MT. |
| >>DU\_RX/MT\_RX | M |  | ENUMERATED (supported, not supported) | An indication of whether the IAB-node supports simultaneous reception at its DU and MT side. |
| >>DU\_TX/MT\_TX | M |  | ENUMERATED (supported, not supported) | An indication of whether the IAB-node supports simultaneous transmission at its DU and MT side. |
| >>DU\_RX/MT\_TX | M |  | ENUMERATED (supported, not supported) | An indication of whether the IAB-node supports simultaneous reception at its DU and transmission at its MT side. |
| >>DU\_TX/MT\_RX | M |  | ENUMERATED (supported, not supported) | An indication of whether the IAB-node supports simultaneous transmission at its DU and reception at its MT side. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofServingCells | Maximum no. of serving cells for IAB-MT. Value is 32, as defined by the *maxNrofServingCells* in TS 38.331 [8]. |

#### 9.3.1.109 IAB STC Info

This IE contains cell SSB Transmission Configuration (STC) information of an IAB-DU or IAB-donor-DU. The information is used by neighbour IAB-MTs for discovery and measurements of this IAB-DU or IAB-donor-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **IAB STC-Info List** |  | *1* |  |  |
| **>IAB STC-Info Item** |  | *1* ..<*maxnoofIABSTCInfo*> |  |  |
| >>SSB Frequency Info | M |  | INTEGER (0.. maxNRARFCN) | The SSB central frequency. |
| >>SSB Subcarrier Spacing | M |  | ENUMERATED (kHz15, kHz30, kHz120, kHz240, spare3, spare2, spare1, …) | The SSB subcarrier spacing. |
| >>SSB Transmission Periodicity | M |  | ENUMERATED (sf5, sf10, sf20, sf40, sf80, sf160, sf320, sf640, ...) |  |
| >>SSB Transmission Timing Offset | M |  | INTEGER (0.. 127, …) | SSB transmission timing offset in number of half-frames. |
| >>CHOICE *SSB Transmission Bitmap* | M |  |  | The *SSB-ToMeasure* IE defined in TS 38.331 [8]. |
| >>>Short Bitmap | M |  | BIT STRING (SIZE (4)) |  |
| >>>Medium Bitmap | M |  | BIT STRING (SIZE (8)) |  |
| >>>Long Bitmap | M |  | BIT STRING (SIZE (64)) |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofIABSTCInfo | Maximum no. of STC configurations. Value is 5. This includes 1 STC configuration for access and 4 STC configurations for backhaul. |
| maxNRARFCN | Maximum value of NR ARFCNs. Value is 3279165. |

#### 9.3.1.110 BAP Routing ID

This IE indicates the BAP Routing ID.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| BAP Address | M |  | 9.3.1.111 |  |
| Path ID | M |  | BAP Path ID  9.3.1.112 |  |

#### 9.3.1.111 BAP Address

This IE indicates the BAP address of an IAB-node or of an IAB-donor-DU, and it is part of the BAP Routing ID.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| BAP Address | M |  | BIT STRING (SIZE(10)) | Corresponds to the *bap-Address-r16*, defined in subclause 6.2.2 or subclause 6.3.2 of TS 38.331 [8], *or the iab-donor-DU-BAP-address-r16* defined in subclause 6.2.2 of TS 38.331[8]. |

#### 9.3.1.112 BAP Path ID

This IE indicates the BAP path ID, which is part of the BAP Routing ID.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| BAP Path ID | M |  | BIT STRING (SIZE(10)) | Corresponds to the *Bap-Pathid-r16* defined in subclause 6.3.2 of TS 38.331 [8]. |

#### 9.3.1.113 BH RLC Channel ID

This IE uniquely identifies a BH RLC channel in the link between IAB-MT of the IAB-node and IAB-DU of the parent IAB-node or IAB-donor-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| BH RLC CH ID | M |  | BIT STRING (SIZE(16)) |  |

#### 9.3.1.114 BH Information

This IE includes the backhaul information for UL or DL.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| BAP Routing ID | O |  | 9.3.1.110 | This IE is not needed for the BAP control PDU.  For UL F1-U traffic, the BAP address included in this IE also indicates the IAB-donor-DU via which the DL traffic is transmitted. |
| **Egress BH RLC CH List** |  | *0..1* |  |  |
| **>Egress BH RLC CH List Item** |  | *1..*  *<maxnoofEgressLinks>* |  |  |
| >>Next-Hop BAP Address | M |  | 9.3.1.111 | This IE identifies the next-hop node on the backhaul path to receive the packet. The value of this IE should be unique in the whole list. |
| >>Egress BH RLC CH ID | M |  | BH RLC Channel ID  9.3.1.113 | This IE identifies the BH RLC channel in the link between the IAB node/IAB-donor-DU and the node identified by the *Next-Hop BAP Address* IE. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofEgressLinks | Maximum no. of egress links. Value is 2. |

#### 9.3.1.115 Control Plane Traffic Type

This IE indicates the control plane traffic type carried over a BH RLC channel.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Control Plane Traffic Type | M |  | INTEGER (1..3, ...) | Control plane traffic types with different priorities are identified by the different codepoints in this IE, where 1 has the highest priority. |

#### 9.3.1.116 NR V2X Services Authorized

This IE provides information on the authorization status of the UE to use the NR sidelink for V2X services.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Vehicle UE | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Vehicle UE. |
| Pedestrian UE | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Pedestrian UE. |

#### 9.3.1.117 LTE V2X Services Authorized

This IE provides information on the authorization status of the UE to use the LTE sidelink for V2X services.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Vehicle UE | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Vehicle UE. |
| Pedestrian UE | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Pedestrian UE. |

#### 9.3.1.118 LTE UE Sidelink Aggregate Maximum Bit Rate

This IE provides information on the Aggregate Maximum Bitrate of the UE’s communication over LTE sidelink.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| LTE UE Sidelink Aggregate Maximum Bit Rate | M |  | Bit Rate  9.3.1.4 | Value 0 shall be considered as a logical error by the receiving gNB-DU. |

#### 9.3.1.119 NR UE Sidelink Aggregate Maximum Bit Rate

This IE provides information on the Aggregate Maximum Bitrate of the UE’s communication over NR sidelink.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| NR UE Sidelink Aggregate Maximum Bit Rate | M |  | Bit Rate  9.3.1.4 | Value 0 shall be considered as a logical error by the receiving gNB-DU. |

#### 9.3.1.120 SL DRB ID

This IE uniquely identifies a SL DRB for a UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| SL DRB ID | M |  | INTEGER (1.. 512, ...) | Corresponds to the *SLRB-Uu-ConfigIndex* defined in TS 38.331 [8]. |

#### 9.3.1.121 PC5 QoS Flow Identifier

This IE uniquely identifies one sidelink QoS flow between the UE and the network in the scope of UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| PC5 QoS Flow Identifier | M |  | INTEGER (1.. 2048) | Corresponds to the *SL-QoS-FlowIdentity* defined in TS 38.331 [8]. |

#### 9.3.1.122 PC5 QoS Parameters

This IE defines the QoS to be applied to a SL DRB.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| CHOICE *PC5 QoS Characteristics* | M |  |  |  | - |  |
| >*Non-dynamic PQI* |  |  |  |  | - |  |
| >>Non Dynamic PQI Descriptor | M |  | 9.3.1.126 |  | - |  |
| *>Dynamic PQI* |  |  |  |  | - |  |
| >>Dynamic PQI Descriptor | M |  | 9.3.1.127 |  | - |  |
| PC5 QoS Flow Bit Rates | O |  |  | Only applies for GBR QoS Flows. | - |  |
| >Guaranteed Flow Bit Rate | M |  | Bit Rate  9.3.1.22 | Guaranteed Bit Rate for the PC5 QoS flow. Details in TS 23.287 [40]. | - |  |
| >Maximum Flow Bit Rate | M |  | Bit Rate  9.3.1.22 | Maximum Bit Rate for the PC5 QoS flow. Details in TS 23.287 [40]. | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPC5QoSFlows | Maximum no. of PC5 QoS flows allowed towards one UE for NR sidelink communication, the maximum value is 2048. |

#### 9.3.1.123 Alternative QoS Parameters Set Index

This IE indicates the QoS parameters set which can currently be fulfilled.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Alternative QoS Parameters Set Index | M |  | INTEGER (1..8, ...) | Indicates the index of the item within the *Alternative QoS Parameters Set List* IE corresponding to the currently fulfilled alternative QoS parameters set. |

#### 9.3.1.124 Alternative QoS Parameters Set Notify Index

This IE indicates the QoS parameters set which can currently be fulfilled.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Alternative QoS Parameters Set Notify Index | M |  | INTEGER (0..8, ...) | Indicates the index of the item within the the *Alternative QoS Parameters Set List* IE corresponding to the currently fulfilled alternative QoS parameters set. Value 0 indicates that NG-RAN cannot even fulfil the lowest alternative parameter set. |

#### 9.3.1.125 Alternative QoS Parameters Set List

This IE contains alternative sets of QoS parameters which the NG-RAN node can indicate to be fulfilled when notification control is enabled and it cannot fulfil the requested list of QoS parameters.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Alternative QoS Parameters Set Item** |  | *1..<maxnoofQoSParaSets>* |  |  |
| >Alternative QoS Parameters Set Index | M |  | 9.3.1.123 |  |
| >Guaranteed Flow Bit Rate Downlink | O |  | Bit Rate  9.3.1.22 |  |
| >Guaranteed Flow Bit Rate Uplink | O |  | Bit Rate  9.3.1.22 |  |
| >Packet Delay Budget | O |  | 9.3.1.51 |  |
| >Packet Error Rate | O |  | 9.3.1.52 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofQoSParaSets | Maximum no. of alternative sets of QoS Parameters allowed for the QoS profile. Value is 8. |

#### 9.3.1.126 Non Dynamic PQI Descriptor

This IE indicates the QoS Characteristics for a standardized or pre-configured PQI for sidelink.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| 5QI | M |  | INTEGER (0..255,...) | This IE contains the standardized or pre-configured PQI as specified in TS 23.287 [40] |
| QoS Priority Level | O |  | INTEGER (1..8,…) | For details see TS 23.501 [21]. When included overrides standardized or pre-configured value. |
| Averaging Window | O |  | 9.3.1.53 | For details see TS 23.501 [21]. When included overrides standardized or pre-configured value. |
| Maximum Data Burst Volume | O |  | 9.3.1.54 | For details see TS 23.501 [21]. When included overrides standardized or pre-configured value. |

#### 9.3.1.127 Dynamic PQI Descriptor

This IE indicates the QoS Characteristics for a Non-standardised or not pre-configured PQI for sidelink.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Resource Type | O |  | ENUMERATED (GBR, non-GBR, delay critical GBR, …) |  |
| QoS Priority Level | O |  | INTEGER (1..8, …) | For details see TS 23.501 [21]. |
| Packet Delay Budget | O |  | 9.3.1.51 | For details see TS 23.501 [21]. |
| Packet Error Rate | O |  | 9.3.1.52 | For details see TS 23.501 [21]. |
| Averaging Window | C-ifGBRflow |  | 9.3.1.53 | For details see TS 23.501 [21]. |
| Maximum Data Burst Volume | O |  | 9.3.1.54 | For details see TS 23.501 [21]. This IE shall be included if the *Delay Critical* IE is set to "delay critical" and is ignored otherwise. |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifGBRflow | This IE shall be present if the *PC5 QoS Flow Bit Rates* IE is present in the *PC5 QoS parameters* IE. |

#### 9.3.1.128 TNL Capacity Indicator

The *TNL Capacity Indicator* IE indicates the offered and available capacity of the Transport Network experienced by the gNB-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| DL TNL Offered Capacity | M |  | INTEGER (1.. 16777216,...) | Maximum capacity offered by the transport portion of the gNB-DU – gNB-CU in kbps |
| DL TNL Available Capacity | M |  | INTEGER (0.. 100,...) | Available capacity over the transport portion serving the node in percentage. Value 100 corresponds to the offered capacity |
| UL TNL Offered Capacity | M |  | INTEGER (1.. 16777216,...) | Maximum capacity offered by the transport portion of the gNB-DU – gNB-CU in kbps |
| UL TNL Available Capacity | M |  | INTEGER (0.. 100,...) | Available capacity over the transport portion serving the node in percentage. Value 100 corresponds to the offered capacity |

#### 9.3.1.129 Radio Resource Status

The *Radio* *Resource Status* IE indicates the usage of the PRBs per cell and per SSB area for all traffic in Downlink and Uplink.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **SSB Area Radio Resource Status List** |  | *1* |  |  |
| **>SSB Area Radio Resource Status Item** |  | *1..<maxnoofSSBAreas>* |  |  |
| >>SSB Index | M |  | INTEGER (0..63) |  |
| >>SSB Area DL GBR PRB usage | M |  | INTEGER (0..100) | Per SSB area DL GBR PRB usage |
| >>SSB Area UL GBR PRB usage | M |  | INTEGER (0..100) | Per SSB area UL GBR PRB usage |
| >>SSB Area DL non-GBR PRB usage | M |  | INTEGER (0..100) | Per SSB area DL non-GBR PRB usage |
| >>SSB Area UL non-GBR PRB usage | M |  | INTEGER (0..100) | Per SSB area UL non-GBR PRB usage |
| >>SSB Area DL Total PRB usage | M |  | INTEGER (0..100) | Per SSB area DL Total PRB usage |
| >>SSB Area UL Total PRB usage | M |  | INTEGER (0..100) | Per SSB area UL Total PRB usage |
| >>DL scheduling PDCCH CCE usage | O |  | INTEGER (0..100) |  |
| >>UL scheduling PDCCH CCE usage | O |  | INTEGER (0..100) |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| *maxnoofSSBAreas* | Maximum no. SSB Areas that can be served by a cell. Value is 64. |

#### 9.3.1.130 Composite Available Capacity Group

The *Composite Available Capacity Group* IE indicates the overall available resource level per cell and per SSB area in the cell in Downlink and Uplink.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Composite Available Capacity Downlink | M |  | Composite Available Capacity  9.3.1.131 | For the Downlink |
| Composite Available Capacity Uplink | M |  | Composite Available Capacity  9.3.1.131 | For the Uplink |

#### 9.3.1.131 Composite Available Capacity

The *Composite Available Capacity* IE indicates the overall available resource level in the cell in either Downlink or Uplink.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Cell Capacity Class Value | O |  | 9.3.1.132 |  |
| Capacity Value | M |  | 9.3.1.133 | ‘0’ indicates no resource is available, Measured on a linear scale. |

#### 9.3.1.132 Cell Capacity Class Value

The *Cell Capacity Class Value* IE indicates the value that classifies the cell capacity with regards to the other cells. The *Cell Capacity Class Value* IEonly indicates resources that are configured for traffic purposes.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Capacity Class Value | M |  | INTEGER (1..100,...) | Value 1 shall indicate the minimum cell capacity, and 100 shall indicate the maximum cell capacity. There should be a linear relation between cell capacity and Cell Capacity Class Value. |

#### 9.3.1.133 Capacity Value

The *Capacity Value* IE indicates the amount of resources per cell and per SSB area that are available relative to the total gNB-DU resources. The capacity value should be measured and reported so that the minimum gNB-DU resource usage of existing services is reserved according to implementation. The *Capacity Value* IE can be weighted according to the ratio of cell capacity class values, if available.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Capacity Value | M |  | INTEGER (0..100) | Value 0 shall indicate no available capacity, and 100 shall indicate maximum available capacity with respect to the whole cell. Capacity Value should be measured on a linear scale. |
| **SSB Area Capacity Value List** |  | *0..1* |  |  |
| **>SSB Area Capacity Value Item** |  | *1..<maxnoofSSBAreas>* |  |  |
| >>SSB Index | M |  | INTEGER (0..63) |  |
| >>SSB Area Capacity Value | M |  | INTEGER (0..100) | Value 0 shall indicate no available capacity, and 100 shall indicate maximum available capacity . SSB Area Capacity Value should be measured on a linear scale. |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| *maxnoofSSBAreas* | Maximum no. SSB Areas that can be served by a cell. Value is 64. |

#### 9.3.1.134 Slice Available Capacity

The *Slice Available Capacity* IE indicates the amount of resources per network slice that are available per cell relative to the total gNB-DU resources per cell. The *Slice Capacity Value Downlink* IE and the *Slice Capacity Value Uplink* IE can be weighted according to the ratio of the corresponding cell capacity class values contained in the *Composite Available Capacity Group* IE, if available.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Slice Available Capacity List** |  | *1* |  |  |
| **Slice Available Capacity Item** |  | *1..<* maxnoofBPLMNsNR *>* |  |  |
| >PLMN Identity | M |  | 9.3.1.14 | Broadcast PLMN |
| **>S-NSSAI Available Capacity List** |  | *1* |  |  |
| **>>S-NSSAI Available Capacity Item** | M | *1 .. < maxnoofSliceItems>* |  |  |
| >>>S-NSSAI |  |  | 9.3.1.38 |  |
| >>>Slice Available Capacity Value Downlink | O |  | INTEGER (0..100) | Value 0 shall indicate no available capacity, and 100 shall indicate maximum available capacity . Slice Capacity Value should be measured on a linear scale. |
| >>>Slice Available Capacity Value Uplink | O |  | INTEGER (0..100) | Value 0 shall indicate no available capacity, and 100 shall indicate maximum available capacity . Slice Capacity Value should be measured on a linear scale. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofSliceItems | Maximum no. of signalled slice support items. Value is 1024. |
| maxnoofBPLMNsNR | Maximum no. of PLMN Ids.broadcast in a cell. Value is 12. |

#### 9.3.1.135 Number of Active UEs

The *Number of Active UEs* IE indicates the mean number of active UEs as defined in TS 38.314 [32].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Mean number of Active UEs | M |  | INTEGER (0..16777215, ...) | As defined in TS 38.314 [32] and where value "1" is equivalent to 0.1 Active  UEs, value "2" is equivalent to 0.2 Active UEs, value *n* is equivalent to n/10 Active UEs. |

#### 9.3.1.136 Hardware Load Indicator

The *Hardware Load Indicator* IE indicates the status of the Hardware Load.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| DL Hardware Load Indicator | M |  | INTEGER (0..100) | This indicates the load in percent |
| UL Hardware Load Indicator | M |  | INTEGER (0..100) | This indicates the load in percent |

#### 9.3.1.137 NR Carrier List

This IE indicates the SCS-specific carriers per TDD, per DL, per UL or per SUL of an NR cell.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| **NR Carrier Item** |  | *1..<maxnoofNRSCSs>* |  |  |
| >NR SCS | M |  | ENUMERATED (scs15, scs30, scs60, scs120, …) | SCS for the corresponding carrier. |
| >Offset to Carrier | M |  | INTEGER (0.. 2199, ...) | Offset in frequency domain between Point A (lowest subcarrier of common RB 0) and the lowest usable subcarrier on this carrier in number of PRBs (using the *NR SCS* IE defined for this carrier). The maximum value corresponds to 275×8−1. See TS 38.211 [33], clause 4.4.2. |
| >Carrier Bandwidth | M |  | INTEGER (1.. maxnoofPhysicalResourceBlocks, ...) | Width of this carrier in number of PRBs (using the *NR SCS* IE defined for this carrier). See TS 38.211 [33], clause 4.4.2. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofNRSCSs | Maximum no. of SCS-specific carriers per TDD, per DL, per UL or per SUL of an NR cell. Value is 5. |
| maxnoofPhysicalResourceBlocks | Maximum no. of Physical Resource Blocks. Value is 275. |

#### 9.3.1.138 SSB Positions In Burst

Indicates the time domain positions of the transmitted SS-blocks in a half frame with SS/PBCH blocks as defined in TS 38.213 [31], clause 4.1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| CHOICE *ssb-PositionsInBurst* | M |  |  | The first/ leftmost bit corresponds to SS/PBCH block index 0, the second bit corresponds to SS/PBCH block index 1, and so on. Value 0 in the bitmap indicates that the corresponding SS/PBCH block is not transmitted while value 1 indicates that the corresponding SS/PBCH block is transmitted. |
| >*ShortBitmap* |  |  |  |  |
| >>ShortBitmap | M |  | BIT STRING (SIZE(4)) |  |
| >*MediumBitmap* |  |  |  |  |
| >>MediumBitmap | M |  | BIT STRING (SIZE(8)) |  |
| >*LongBitmap* |  |  |  |  |
| >>LongBitmap | M |  | BIT STRING (SIZE(64)) |  |

#### 9.3.1.139 NR PRACH Configuration

This IE indicates the PRACH resources by a NR cell.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| UL PRACH Configuration | M |  | NR PRACH Configuration List  9.3.1.140 |  |
| SUL PRACH Configuration | O |  | NR PRACH Configuration List  9.3.1.140 |  |

#### 9.3.1.140 NR PRACH Configuration List

This IE indicates the PRACH resources used or reserved in the UL carrier(s) or SUL carrier(s) of the current NR cell.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
| **NR PRACH Configuration Item** |  | *0..< maxnoofPrachConfiguration >* |  | Length=0 means releasing of all NR PRACH Configuration Items for this UL or SUL. | - |  |
| >NR SCS | M |  | ENUMERATED (scs15, scs30, scs60, scs120, …) | The SCS of the carrier to which this *PRACH Configuration Item* relates, i.e. in Section 5.3.2 in TS 38.211 [33]. The values scs15, scs30, scs60 and scs120 corresponds to the sub carrier spacing in TS 38.104 [17].  NOTE: Its value may not be identical to the SCS of MSG1. | - |  |
| > PRACH Frequency Start from Carrier | M |  | INTEGER (0.. maxNrofPhysicalResourceBlocks-1, …) | Lowest number of resource blocks which can be used to deliver MSG1, counting from the start number of the corresponding carrier.  Identical to  in Section 5.1.2.2.2 in TS 38.214 [34] plus *msg1-FrequencyStart* in TS 38.331 [8]. | - |  |
| >MSG1-FDM | M |  | ENUMERATED (one, two, four, eight, …) | in Section 6.3.3.2 in TS 38.211 [33]. | - |  |
| >PRACH Configuration Index | M |  | INTEGER (0.. 255, …, 256..262) | See Section 6.3.3.2 in TS 38.211 [33]. | - |  |
| >SSB per RACH Occasion | M |  | ENUMERATED (oneEighth, oneFourth, oneHalf, one, two, four, eight, sixteen, ...) | Number of SSBs per RACH occasion. Value *oneEight* corresponds to one SSB associated with 8 RACH occasions, value *oneFourth* corresponds to one SSB associated with 4 RACH occasions, and so on. | - |  |
| >CHOICE *FreqDomainLength* | M |  |  | For the case of PRACH resources reserved for BFR or MSG1-based SI Request, *L139* is always used. | - |  |
| >>*L839* |  |  |  |  | - |  |
| >>>**L839 Info** |  | *1* |  |  | - |  |
| >>>>Root Sequence Index | M |  | INTEGER (0..837) | See Section 6.3.3.1 in TS 38.211 [33]. | - |  |
| >>>>Restricted Set Config | M |  | ENUMERATED (unrestrictedSet, restrictedSetTypeA, restrictedSetTypeB, …) | See Section 6.3.3.1 in TS 38.211 [33]. | - |  |
| >>*L139* |  |  |  |  | - |  |
| >>>**L139 Info** |  | *1* |  |  | - |  |
| >>>>MSG1 SCS | M |  | ENUMERATED (scs15, scs30, scs60, scs120, …) | Subcarrier Spacing used in sending MSG1, i.e. in Section 5.3.2 in TS 38.211 [33]. | - |  |
| >>>>Root Sequence Index | M |  | INTEGER (0..137) | See Section 6.3.3.1 in TS 38.211 [33]. | - |  |
| *>>L571* |  |  |  |  | - |  |
| **>>>L571 Info** |  | *1* |  |  | YES | reject |
| >>>>PRACH SCS for L571 | M |  | ENUMERATED (scs30, spare1, … ) | Subcarrier Spacing of PRACH, i.e. in Section 5.3.2 in TS 38.211 [33]. | - |  |
| >>>>Root Sequence Index | M |  | INTEGER (0..569) | See Section 6.3.3.1 in TS 38.211 [33]. | - |  |
| *>>L1151* |  |  |  |  | - |  |
| **>>>L1151 Info** |  | *1* |  |  | YES | reject |
| >>>>PRACH SCS for L1151 | M |  | ENUMERATED (scs15, spare1, …) | Subcarrier Spacing of PRACH, i.e. in Section 5.3.2 in TS 38.211 [33]. | - |  |
| >>>>Root Sequence Index | M |  | INTEGER (0..1149) | See Section 6.3.3.1 in TS 38.211 [33]. | - |  |
| >Zero Correlation Zone Config | M |  | INTEGER (0..15) | See Section 6.3.3.1 in TS 38.211 [33]. | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPhysicalResourceBlocks-1 | Maximum no. of Physical Resource Blocks minus 1. Value is 274. |
| maxnoofPrachConfiguration | Maximum no. of PRACH Configuration. Value is 16. |

#### 9.3.1.141 TSC Traffic Characteristics

This IE provides the traffic characteristics of TSC QoS flows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| TSC Assistance Information Downlink | O |  | TSC Assistance Information  9.3.1.142 |  |
| TSC Assistance Information Uplink | O |  | TSC Assistance Information  9.3.1.142 |  |

#### 9.3.1.142 TSC Assistance Information

This IE provides the TSC assistance information for a TSC QoS flow in the uplink or downlink (see TS 23.501 [21]).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Periodicity | M |  | 9.3.1.143 | Periodicity as specified in TS 23.501 [21]. |
| Burst Arrival Time | O |  | 9.3.1.144 | Burst Arrival Time as specified in TS 23.501 [21]. |

#### 9.3.1.143 Periodicity

This IE indicates the Periodicity as defined in TS 23.501 [21].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Periodicity | M |  | INTEGER (0..640000, …) | Periodicity expressed in units of 1 us. |

#### 9.3.1.144 Burst Arrival Time

This IE indicates the Burst Arrival Time as defined in TS 23.501 [21].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Burst Arrival Time | M |  | OCTET STRING | Encoded in the same format as the *ReferenceTime* IE as defined in TS 38.331 [8]. The value is truncated to 1 us granularity. |

#### 9.3.1.145 Extended Packet Delay Budget

This IE indicates the Packet Delay Budget for a QoS flow.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Extended Packet Delay Budget | M |  | INTEGER (0..65535, …) | Upper bound value for the delay that a packet may experience expressed in unit of 0.01ms. |

#### 9.3.1.146 RLC Duplication Information

The IE contains the RLC duplication information in case that the indicated DRB is configured with more than two RLC entities as specified in TS 38.331 [8].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **RLC Duplication State List** |  | *1* |  |  |
| **>RLC Duplication State Items** |  | *1 .. <maxnoofRLCDuplicationState>* |  | Each position in the list represents a secondary RLC entity in ascending order by the logical channel ID in the order of MCG and SCG. |
| >>Duplication State | M |  | ENUMERATED (Active, Inactive, ...) |  |
| Primary Path Indication | O |  | ENUMERATED (True, False...) | Indicates whether the primary path is located at the gNB-DU for DC based PDCP duplication. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofRLCDuplicationState | Maximum no of Secondary RLC entities. Value is 3. |

#### 9.3.1.147 Reporting Request Type

This IE indicates the type of accurate reference time information reporting to be handled by the gNB-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Event Type | M |  | ENUMERATED (on demand, periodic, stop, …) |  |
| Report Periodicity Value | C-ifEventTypeisPeriodic |  | INTEGER (0..512, …) | Indicates the periodicity of accurate reference time information report,  Unit in radio frame. |

|  |  |
| --- | --- |
| C-ifEventYpeisStop | Explanation |
| ifEventTypeisPeriodic | This IE shall be present if the *Event Type* IE is set to "periodic". |

#### 9.3.1.148 Time Reference Information

This IE contains the time reference information.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Reference Time | M |  | 9.3.1.149 |  |
| Reference SFN | M |  | INTEGER (0..1023) |  |
| Uncertainty | O |  | INTEGER (0..32767, …) | This field indicates the uncertainty of the reference time information provided in ReferenceTimeInfo IE, refer to 6.3.2 ofTS 38.331 [8]. |
| Time Information Type | O |  | ENUMERATED (localClock) |  |

#### 9.3.1.149 Reference Time

This IE provides the accurate Reference Time information.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Reference Time | M |  | OCTET STRING | Includes the *ReferenceTime* IE as defined in 6.3.2 ofTS 38.331 [8]. |

#### 9.3.1.150 MDT Configuration

The IE defines the MDT configuration parameters.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| MDT Activation | M |  | ENUMERATED(Immediate MDT only, Immediate MDT and Trace, …) |  |
| Measurements to Activate | M |  | BITSTRING  (SIZE(8)) | Each position in the bitmap indicates a MDT measurement, as defined in TS 37.320 [35].  Second Bit = M2,  Fifth Bit = M5,  Seventh Bit = M6,  Eighth Bit = M7.  Value "1" indicates "activate" and value "0" indicates "do not activate".  This version of the specification does not use bits 1, bit 3, bit 4 and bit 6. |
| M2 Configuration | C-ifM2 |  | ENUMERATED (true, …) |  |
| M5 Configuration | C-ifM5 |  | 9.3.1.152 |  |
| M6 Configuration | C-ifM6 |  | 9.3.1.153 |  |
| M7 Configuration | C-ifM7 |  | 9.3.1.154 |  |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifM2 | This IE shall be present if the *Measurements to Activate* IE has the second bit set to "1". |
| ifM5 | This IE shall be present if the *Measurements to Activate* IE has the fifth bit set to "1". |
| ifM6 | This IE shall be present if the *Measurements to Activate* IE has the seventh bit set to "1". |
| ifM7 | This IE shall be present if the *Measurements to Activate* IE has the eighth bit set to "1". |

#### 9.3.1.151 MDT PLMN List

The purpose of the *MDT PLMN List* IE is to provide the list of PLMN allowed for MDT.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **MDT PLMN List** |  | *1..<maxnoofMDTPLMNs>* |  |  |
| >PLMN Identity | M |  | PLMN ID  9.3.1.14 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofMDTPLMNs | Maximum no. of PLMNs in the MDT PLMN list. Value is 16. |

#### 9.3.1.152 M5 Configuration

This IE defines the parameters for M5 measurement collection.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| M5 Collection Period | M |  | ENUMERATED (ms1024, ms2048, ms5120, ms10240, min1, …) |  |
| M5 Links to log | M |  | ENUMERATED(uplink, downlink, both-uplink-and-downlink, …) |  |

#### 9.3.1.153 M6 Configuration

This IE defines the parameters for M6 measurement collection.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| M6 Report Interval | M |  | ENUMERATED (ms120, ms240, ms640, ms1024, ms2048, ms5120, ms10240, ms20480, ms40960, min1,min6, min12, min30,… ms480) |  |
| M6 Links to log | M |  | ENUMERATED(uplink, downlink, both-uplink-and-downlink, …) |  |

#### 9.3.1.154 M7 Configuration

This IE defines the parameters for M7 measurement collection.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| M7 Collection Period | M |  | INTEGER (1..60, …) | Unit: minutes |
| M7 Links to log | M |  | ENUMERATED(downlink, …) |  |

#### 9.3.1.155 NID

This IE is used to identify (together with a PLMN identifier) a Stand-alone Non-Public Network. The NID is specified in TS 23.003 [23].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| NID | M |  | BIT STRING (SIZE(44)) |  |

#### 9.3.1.156 NPN Support Information

This IE contains NPN related information associated with Network Slicing information.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *NPN Support Information* | M |  |  |  |
| *>SNPN Information* |  |  |  |  |
| >>NID | M |  | 9.3.1.155 |  |

#### 9.3.1.157 NPN Broadcast Information

This IE contains NPN related broadcast information.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *NPN Broadcast Information per PLMN* | M |  |  |  |
| *>SNPN Information* |  |  |  |  |
| >>Broadcast SNPN ID List | M |  | 9.3.1.158 |  |
| *>PNI-NPN Information* |  |  |  |  |
| >>Broadcast PNI-NPN ID List | M |  | 9.3.1.162 |  |

#### 9.3.1.158 Broadcast SNPN ID List

This IE contains SNPN related broadcast information associated with a set of PLMNs.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Broadcast SNPN ID List** |  | *1..<maxnoofNIDs>* |  |  |
| >PLMN Identity | M |  | 9.3.1.14 |  |
| >Broadcast NID List | M |  | 9.3.1.159 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| *maxnoofNIDs* | Maximum no. of NIDs broadcast in a cell. Value is 12. |

#### 9.3.1.159 Broadcast NID List

This IE contains a list of NIDs.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | RangeNIDsupported | IE type and reference | Semantics description |
| **Broadcast NID** |  | *1..<maxnoofNIDsupported* |  |  |
| >NID | M |  | 9.3.1.155 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofNIDsupported | Maximum no. of NIDs broadcast in a cell. Value is 12. |

#### 9.3.1.160 Broadcast CAG-Identifier List

This IE contains a list of CAG-Identifiers.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Broadcast CAG-Identifier List** |  | *1..<maxnoofCAGsupported>* |  |  |
| >CAG ID | M |  | 9.3.1.161 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofCAGsupported | Maximum no. of CAG-Identifiers broadcast in a cell. Value is 12. |

#### 9.3.1.161 CAG ID

This IE is used to identify (together with a PLMN identifier) a Public Network Integrated NPN, as defined in TS 23.003 [23].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| CAG ID | M |  | BIT STRING (SIZE (32)) | Closed Access Group ID used in NR. |

#### 9.3.1.162 Broadcast PNI-NPN ID Information

This IE contains a list of PNI-NPN IDs.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Broadcast PNI-NPN ID Information** |  | *1..<maxnoofBPLMNs>* |  | Broadcast PLMNs |
| >PLMN Identity | M |  | 9.3.1.14 |  |
| >Broadcast CAG-Identifier List | M |  | 9.3.1.160 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofBPLMNs | Maximum no. of broadcast PLMNs by a cell. Value is 12. |

#### 9.3.1.163 Available SNPN ID List

This IE indicates the list of available SNPN ID.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Available SNPN ID List** |  | *1..<maxnoofNIDs>* |  |  |
| >PLMN Identity | M |  | 9.3.1.14 |  |
| >Available NID List | M |  | Broadcast NID List  9.3.1.159 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| *maxnoofNIDs* | Maximum no. of NIDs broadcast in a cell. Value is 12. |

#### 9.3.1.164 Void

#### 9.3.1.165 Extended Slice Support List

This IE indicates a list of supported slices.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Slice Support Item IEs** |  | *1..<maxnoofExtSliceItems>* |  |  |
| >S-NSSAI | M |  | 9.3.1.38 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofExtSliceItems | Maximum no. of signalled slice support items. Value is 65535. |

#### 9.3.1.166 Positioning Measurement Result

The purpose of this information element is to provide the measurement result(s).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| Positioning Measured Result Item |  | 1 .. <maxnoofPosMeas> |  |  |
| >CHOICE Measured Results Value | M |  |  |  |
| >>UL Angle of Arrival | M |  | 9.3.1.167 |  |
| >>UL SRS-RSRP | M |  | INTEGER (0..126) |  |
| >>UL RTOA | M |  | UL RTOA Measurement  9.3.1.168 |  |
| >>gNB Rx-Tx Time Difference | M |  | 9.3.1.170 |  |
| >Time Stamp | M |  | 9.3.1.171 |  |
| >Measurement Quality | O |  | TRP Measurement Quality  9.3.1.172 |  |
| >Measurement Beam Information | O |  | 9.3.1.173 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPosMeas | Maximum no. of measured quantities that can be configured and reported with one message. Value is 16384. |

#### 9.3.1.167 UL Angle of Arrival

This information element contains the uplink Angle of Arrival measurement.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| Azimuth Angle of Arrival | M |  | INTEGER(0..3599) | TS 38.133 [38] |
| Zenith Angle of Arrival | O |  | INTEGER(0..1799) | TS 38.133 [38] |
| **LCS to GCS Translation** |  | *0..1* |  | If absent, the azimuth and zenith are provided in GCS. |
| >Alpha | M |  | INTEGER (0..3599) |  |
| >Beta | M |  | INTEGER (0..3599) |  |
| >Gamma | M |  | INTEGER (0..3599) |  |

#### 9.3.1.168 UL RTOA Measurement

This information element contains the uplink RTOA measurement.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| CHOICE *UL RTOA Measurement* | M |  |  |  |
| >k0 | M |  | INTEGER (0.. 1970049) | TS 38.133 [38] |
| >k1 | M |  | INTEGER (0.. 985025) | TS 38.133 [38] |
| >k2 | M |  | INTEGER (0.. 492513) | TS 38.133 [38] |
| >k3 | M |  | INTEGER (0.. 246257) | TS 38.133 [38] |
| >k4 | M |  | INTEGER (0.. 123129) | TS 38.133 [38] |
| >k5 | M |  | INTEGER (0.. 61565) | TS 38.133 [38] |
| Additional Path List | O |  | 9.3.1.169 |  |

#### 9.3.1.169 Additional Path List

This information element contains the additional path results of time measurement.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| **Additional Path Item** |  | 1..<maxno*of*Path> |  |  |
| >CHOICE *Relative* *Path Delay* | M |  |  |  |
| >>k0 | M |  | INTEGER(0..16351) |  |
| >>k1 | M |  | INTEGER(0..8176) |  |
| >>k2 | M |  | INTEGER(0..4088) |  |
| >>k3 | M |  | INTEGER(0..2044) |  |
| >>k4 | M |  | INTEGER(0..1022) |  |
| >>k5 | M |  | INTEGER(0..511) |  |
| >Path Quality | O |  | TRP Measurement Quality  9.3.1.172 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPath | Maximum no. of additional path measurements. Value is 2. |

#### 9.3.1.170 gNB Rx-Tx Time Difference

This information element contains the gNB Rx-Tx Time Difference measurement.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| CHOICE *gNB Rx-Tx Time Difference Measurement* | M |  |  |  |
| >k0 | M |  | INTEGER (0.. 1970049) | TS 38.133 [38] |
| >k1 | M |  | INTEGER (0.. 985025) | TS 38.133 [38] |
| >k2 | M |  | INTEGER (0.. 492513) | TS 38.133 [38] |
| >k3 | M |  | INTEGER (0.. 246257) | TS 38.133 [38] |
| >k4 | M |  | INTEGER (0.. 123129) | TS 38.133 [38] |
| >k5 | M |  | INTEGER (0.. 61565) | TS 38.133 [38] |
| Additional Path List | O |  | 9.3.1.169 |  |

#### 9.3.1.171 Time Stamp

This information element contains the time stamp associated with the measurement.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| System Frame Number | M |  | INTEGER(0..1023) |  |
| CHOICE *Slot Index* | M |  |  |  |
| >SCS-15 | M |  | INTEGER(0..9) |  |
| >SCS-30 | M, |  | INTEGER(0..19) |  |
| >SCS-60 | M |  | INTEGER(0..39) |  |
| >SCS-120 | M |  | INTEGER(0..79) |  |
| Measurement Time | O |  | Relative Time 1900  9.3.1.183 |  |

#### 9.3.1.172 TRP Measurement Quality

This information element contains the TRP’s best estimate of the quality of the measurement.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| CHOICE *TRP Measurement Quality* | M |  |  |  |
| >*Timing Measurement Quality* |  |  |  |  |
| >>Measurement Quality | M |  | INTEGER(0..31) | TS 37.355 [39] |
| >>Resolution | M |  | ENUMERATED(0.1m, 1m, 10m, 30m, …) | TS 37.355 [39] |
| >*Angle Measurement Quality* |  |  |  |  |
| >> Azimuth Quality | M |  | INTEGER(0..255) |  |
| >> Zenith Quality | O |  | INTEGER(0..255) |  |
| >>Resolution | M |  | ENUMERATED (0.1deg, …) |  |

#### 9.3.1.173 Measurement Beam Information

This information element contains the receiving beam information when measuring UL signals.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| PRS Resource ID | O |  | INTEGER(0..63) |  |
| PRS Resource Set ID | O |  | INTEGER(0..7) |  |
| SSB Index | O |  | INTEGER(0..63) |  |

#### 9.3.1.174 NG-RAN Access Point Position

This IE is used to identify the geographical position of an NG-RAN Access Point / TRP / TRP Antenna Reference Points. It is expressed as ellipsoid point with altitude and uncertainty ellipsoid according to TS 23.032 [36].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| Latitude Sign | M |  | ENUMERATED (North, South) |  |
| Degrees Of Latitude | M |  | INTEGER  (0..223-1) | The IE value (N) is derived by this formula:  N223 X /90  N+1  X being the latitude in degrees (0°.. 90°). |
| Degrees Of Longitude | M |  | INTEGER  (-223..223-1) | The IE value (N) is derived by this formula:  N224 X /360  N+1  X being the longitude in degrees (-180°..+180°). |
| Direction of Altitude | M |  | ENUMERATED (Height, Depth) |  |
| Altitude | M |  | INTEGER  (0..215-1) | The relation between the value (N) and the altitude (a) in meters it describes is N ≤ a < N+1, except for N=215-1 for which the range is extended to include all greater values of (a). |
| Uncertainty semi-major | M |  | INTEGER (0..127) | The uncertainty "r" is derived from the "uncertainty code" k by r = 10x(1.1k-1). |
| Uncertainty semi-minor | M |  | INTEGER (0..127) | The uncertainty "r" is derived from the "uncertainty code" k by r = 10x(1.1k-1). |
| Orientation of major axis | M |  | INTEGER (0..179) |  |
| Uncertainty Altitude | M |  | INTEGER (0..127) | The uncertainty altitude "h" expressed in metres is derived from the "uncertainty code" k, by:  h=45x(1.025k-1). |
| Confidence | M |  | INTEGER (0..100) | In percentage |

#### 9.3.1.175 Requested SRS Transmission Characteristics

This IE contains the requested SRS configuration for the UE for positioning purposes.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
| Number Of Periodic Transmissions | C-ifResourceTypePeriodic |  | INTEGER (0..500,…) | The number of periodic SRS transmissions requested. The value of ‘0’ represents an infinite number of SRS transmissions. | - |  |
| Resource Type | M |  | ENUMERATED (periodic, semi-persistent, aperiodic, …) |  | - |  |
| CHOICE *Bandwidth SRS* | M |  |  |  | - |  |
| >*FR1* |  |  |  |  | - |  |
| >>FR1 Bandwidth | M |  | ENUMERATED (5, 10, 20, 40, 50, 80, 100, ...) |  | - |  |
| >*FR2* |  |  |  |  | - |  |
| >>FR2 Bandwidth | M |  | ENUMERATED (50, 100, 200, 400,…) |  | - |  |
| **SRS Resource Set List** |  | *0.. 1* |  |  | - |  |
| **>SRS Resource Set Item** |  | *1..<* *maxnoSRS-ResourceSets>* |  |  | - |  |
| >>Number of SRS Resources Per Set | O |  | INTEGER (1..16,...) | The number of SRS Resources per resource set for SRS transmission. | - |  |
| >>**Periodicity List** |  | *0.. 1* |  |  | - |  |
| **>>>Periodicity List Item** |  | 1..<*maxnoSRS-ResourcePerSet*> |  |  | - |  |
| >>>>PeriodicitySRS | M |  | ENUMERATED (0.125, 0.25, 0.5, 0.625, 1, 1.25, 2, 2.5, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 160, 320, 640, 1280, 2560, 5120, 10240, …) | Milli-seconds | - |  |
| >>Spatial Relation Information | O |  | 9.3.1.181 | This IE is ignored if the *Spatial Relation Information per SRS Resource* IE is present. | - |  |
| >>Pathloss Reference Information | O |  | 9.3.1.201 |  | - |  |
| >>Spatial Relation Information per SRS Resource | O |  | 9.3.1.210 |  | YES | ignore |
| SSB Information | O |  | 9.3.1.202 |  | - |  |
| SRS Frequency | O |  | INTEGER(0..3279165) | NR ARFCN  The carrier frequency of SRS transmission bandwidth. | YES | ignore |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifResourceTypePeriodic | This IE shall be present if the *Resource Type* IE is set to the value "Periodic". |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoSRS-ResourceSets | Maximum no of requested SRS Resource Sets for SRS transmission. Value is 16. |
| *maxnoSRS-ResourcePerSet* | Maximum no of SRS Resources per set. Value is 16. |

#### 9.3.1.176 TRP Information

The *TRP Information* IE contains information for one TRP within a gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
| TRP ID | M |  | 9.3.1.197 |  | - |  |
| **TRP Information Type Response List** |  | *1* |  |  | - |  |
| **>TRP Information Type Response Item** |  | *1 .. <maxnoofTRPInfoTypes>* |  |  | - |  |
| >>CHOICE *TRP Information Type Response Item* | M |  |  |  | - |  |
| >>>NR PCI | M |  | INTEGER (0..1007) | NR Physical Cell ID | - |  |
| >>>NR CGI |  |  | 9.3.1.12 |  | - |  |
| >>>NR ARFCN | M |  | INTEGER (0..3279165) |  | - |  |
| >>>PRS Configuration | M |  | 9.3.1.177 |  | - |  |
| >>>SSB Information | M |  | 9.3.1.202 |  | - |  |
| >>>SFN Initialisation Time | M |  | Relative Time 1900  9.3.1.183 |  | - |  |
| >>>Spatial Direction Information | M |  | 9.3.1.179 |  | - |  |
| >>>Geographical Coordinates | M |  | 9.3.1.184 |  | - |  |
| >>>TRP Type | M |  | ENUMERATED (prs-only-tp, srs-only-rp, tp, rp, trp…) | TS 38.305 [42] | YES | reject |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofTRPInfoTypes | Maximum no of TRP information types that can be requested and reported with one message. Value is 64. |

#### 9.3.1.177 PRS Configuration

This information element contains the DL PRS configuration for the TRP.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| **PRS Resource Set List** | M | 1..<maxnoofPRSresourceSets> |  |  |
| >PRS Resource Set ID | M |  | INTEGER(0..7) |  |
| >Subcarrier Spacing | M |  | ENUMERATED(kHz15, kHz30, kHz60, kHz120, …) |  |
| >PRS bandwidth | M |  | INTEGER(1..63) | 24,28,…,272 PRBs |
| >Start PRB | M |  | INTEGER(0..2176) | Starting PRB to Point A |
| >Point A | M |  | INTEGER (0..3279165) | NR ARFCN |
| >Comb Size | M |  | ENUMERATED(2, 4, 6, 12, …) |  |
| >CP Type | M |  | ENUMERATED(normal, extended, …) |  |
| >Resource Set Periodicity | M |  | ENUMERATED(4,5,8,10,16,20,32,40,64,80,160,320,640,1280,2560,5120,10240,20480,40960,81920, …) |  |
| >Resource Set Slot Offset | M |  | INTEGER(0..81919,…) |  |
| >Resource Repetition Factor | M |  | ENUMERATED(rf1,rf2,rf4,rf6,rf8,rf16,rf32,…) |  |
| >Resource Time Gap | M |  | ENUMERATED(tg1,tg2,tg4,tg8,tg16,tg32,…) |  |
| >Resource Number of Symbols | M |  | ENUMERATED(n2,n4,n6,n12,…) |  |
| >PRS Muting | O |  |  |  |
| >>Option1 | O |  |  |  |
| >>>Muting Pattern | M |  | DL-PRS Muting Pattern  9.3.1.178 | Muting pattern option 1 is used to mute the whole PRS resource set (within a period) |
| >>>Muting Bit Repetition Factor | M |  | ENUMERATED(rf1,rf2,rf4,rf8,…) |  |
| >>Option2 | O |  |  |  |
| >>>Muting Pattern | M |  | DL-PRS Muting Pattern  9.3.1.178 | Muting pattern option 2 is used to mute the selected repetition of the resource set (within the period) |
| >PRS Resource Transmit Power | M |  | INTEGER(-60..50) |  |
| **>PRS Resource List** | M | 1..<maxnoofPRSresources> |  | *NR-DL-PRS-Resource-r16* as defined in TS 37.355 [39] |
| >>PRS Resource ID | M |  | INTEGER(0..63) |  |
| >>Sequence ID | M |  | INTEGER(0..4095) |  |
| >>RE Offset | M |  | INTEGER(0..11, …) |  |
| >>Resource Slot Offset | M |  | INTEGER(0..511) |  |
| >>Resource Symbol Offset | M |  | INTEGER(0..12) |  |
| >>CHOICE *QCL Info* | O |  |  |  |
| >>>*SSB* |  |  |  |  |
| >>>>PCI | M |  | INTEGER (0..1007) |  |
| >>>>SSB Index | O |  | INTEGER(0..63) |  |
| >>>*DL-PRS* | O |  |  |  |
| >>>>QCL Source PRS Resource Set ID | M |  | INTEGER(0..7) |  |
| >>>>QCL Source PRS Resource ID | O |  | INTEGER(0..63) | If absent, the QCL source PRS resource ID is the same as the PRS resource ID |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPRSresourceSets | Maximum no of PRS resource sets. Value is 8. |
| maxnoofPRSresources | Maximum no of PRS resources per PRS resource set. Value is 64. |

#### 9.3.1.178 DL-PRS Muting Pattern

This information element contains the DL-PRS muting pattern.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| CHOICE DL-*PRS Muting Pattern* | M |  |  |  |
| >Two | M |  | BIT STRING (SIZE(2)) |  |
| >Four | M |  | BIT STRING (SIZE(4)) |  |
| >Six | M |  | BIT STRING (SIZE(6)) |  |
| >Eight | M |  | BIT STRING (SIZE(8)) |  |
| >Sixteen | M |  | BIT STRING (SIZE(16)) |  |
| >Thirty-two | M |  | BIT STRING (SIZE(32)) |  |

#### 9.3.1.179 Spatial Direction Information

This information element contains the spatial direction information of the DL PRS resources for the TRP.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| NR-PRS Beam Information | M |  | 9.3.1.198 | The spatial directions of DL-PRS Resources for TRP |

#### 9.3.1.180 SRS Resource Set ID

This information element indicates a resource set in the UE for UL SRS transmission.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| SRS Resource Set ID | M |  | INTEGER (0..15) | According to TS 38.331 [8] |

#### 9.3.1.181 Spatial Relation Information

This information element indicates a spatial relation for transmission of UL SRS by a UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| **Spatial Relation for Resource ID** |  | *1* |  | According to TS 38.321 [16] and and TS 38.331 [8] |
| **>Spatial Relation for Resource ID Item** |  | *1..<maxnoSpatialRelations>* |  |  |
| >>CHOICE *Reference Signal* | M |  |  |  |
| >>>*NZP CSI-RS* |  |  |  |  |
| >>>>NZP CSI-RS Resource ID | M |  | INTEGER (0..191) |  |
| >>>*SSB* |  |  |  |  |
| >>>>PCI | M |  | INTEGER (0..1007) |  |
| >>>>SSB Index | O |  | INTEGER (0..63) |  |
| >>>*SRS* |  |  |  |  |
| >>>>SRS Resource ID | M |  | INTEGER (0..63) |  |
| >>>*Positioning SRS* |  |  |  |  |
| >>>> Positioning SRS Resource ID | M |  | INTEGER (0..63) |  |
| >>>*DL-PRS* |  |  |  |  |
| >>>>DL-PRS ID | M |  | INTEGER (0..255) |  |
| >>>>DL-PRS Resource Set ID | M |  | INTEGER (0..7) |  |
| >>>>DL PRS Resource ID | O |  | INTEGER (0..63) |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoSpatialRelations | Maximum no. of Spatial Relations that can be configured. Value is 64. |

#### 9.3.1.182 SRS Resource Trigger

This information element indicates a DCI code point according to a SRS resource set configuration.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| **Aperiodic SRS Resource Trigger List** |  | *1..<maxnoSRS-TriggerStates>* |  | According to TS 38.331 [8] |
| >Aperiodic SRS Resource Trigger |  |  | INTEGER (1..3) |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoSRS-TriggerStates | Maximum no. of SRS trigger states. Value is 3. |

#### 9.3.1.183 Relative Time 1900

This information element indicates the initialisation time (e.g. SFN Initalisation Time for a cell, requested time for an action, etc).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| Relative Time 1900 | M |  | BIT STRING (SIZE(64)) | Time in seconds relative to 00:00:00 on 1 January 1900 (calculated as continuous time without leap seconds and traceable to a common time reference) where binary encoding of the integer part is in the first 32 bits and binary encoding of the fraction part in the last 32 bits. The fraction part is expressed with a granularity of 1 /2\*\*32 second |

#### 9.3.1.184 Geographical Coordinates

This information element contains the geographical coordinates for the TRP.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| CHOICE *TRP Position Definition Type* | M |  |  |  |
| >*Direct* |  |  |  |  |
| >>CHOICE *Accuracy* | M |  |  |  |
| >>>*normal accuracy* |  |  |  |  |
| >>>>TRP Position | M |  | NG-RAN Access Point Position  9.3.1.174 | The configured estimated geographical position of the antenna of the cell/TRP. |
| >>>*high accuracy* |  |  |  |  |
| >>>>TRP High Accuracy Access Position | M |  | NG-RAN High Accuracy Access Point Position  9.3.1.190 | The configured estimated geographical high accuracy position of the antenna of the cell/TRP. |
| >*Referenced* |  |  |  |  |
| >>Reference Point | M |  | 9.3.1.188 | The reference point is used to derive the TRP position |
| >>CHOICE *Type* | M |  |  |  |
| >>>*Geodetic* |  |  |  |  |
| >>>>TRP Position Relative Geodetic | M |  | Relative Geodetic Location  9.3.1.186 | The configured estimated relative geodetic coordinate of the antenna of the cell/TRP |
| >>>*Cartesian* |  |  |  |  |
| >>>>TRP Position Relative Cartesian | M |  | Relative Cartesian Location  9.3.1.187 | The configured estimated relative Cartesian coordinate of the antenna of the cell/TRP |
| DL-PRS Resource Coordinates | O |  | 9.3.1.185 | DL-PRS Resource Coordinates relative to the TRP coordinate |

#### 9.3.1.185 DL-PRS Resource Coordinates

This information element contains the geographical coordinates of the antenna reference points (ARP) for the DL-PRS Resources of a TRP.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| **DL-PRS Resource Set ARP List** | M | *1..<maxnoofPRS-ResourceSets>* |  |  |
| >DL-PRS Resource Set ID | M |  | INTEGER (0..7) |  |
| >CHOICE *DL-PRS Resource Set ARP Location* | M |  |  | Relative to the geographical coordinates for the TRP. If this IE is absent, the Relative Location is zero for the indicated DL-PRS Resource Set ID. |
| >>*Geodetic* |  |  |  |  |
| >>>Relative Geodetic Location | M |  | Relative Geodetic Location 9.3.1.186 |  |
| >>*Cartesian* |  |  |  |  |
| >>>Relative Cartesian Location | M |  | Relative Cartesian Location 9.3.1.187 |  |
| **>DL-PRS Resource ARP List** | M | *1..<maxnoofPRS-ResourcesPerSet>* |  |  |
| >>DL-PRS Resource ID | M |  | INTEGER (0..63) |  |
| >>CHOICE *DL-PRS Resource ARP Location* | M |  |  | Relative to the DL-PRS Resource Set ARP Location.  If this IE is absent, the Relative Location is zero for the indicated DL-PRS Resource ID. |
| >>*Geodetic* |  |  |  |  |
| >>>Relative Geodetic Location | O |  | Relative Geodetic Location 9.3.1.186 |  |
| >>*Cartesian* |  |  |  |  |
| >>>Relative Cartesian Location | O |  | Relative Cartesian Location 9.3.1.187 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPRS-ResourceSets | Maximum no of DL-PRS resource sets per TRP. Value is 2. |
| maxnoofPRS-ResourcesPerSet | Maximum no of DL-PRS resources of the DL-PRS resource set of the TRP. Value is 64. |

#### 9.3.1.186 Relative Geodetic Location

This information element provides a location relative to some known reference location in a relative geodetic coordinate system.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| Milli-Arc-Second Units | M |  | ENUMERATED (0.03, 0.3, 3, ...) | Units and scale factor for the delta-latitude and delta-longitude fields, TS 37.355 [39]. |
| Height Units | M |  | ENUMERATED (mm, cm, m, ...) | Units and scale factor for the delta-height field, TS 37.355 [39]. |
| Delta Latitude | M |  | INTEGER (-1024..1023) | Delta value in latitude in the unit provided in Milli-Arc-Second Units, TS 37.355 [39]. |
| Delta Longitude | M |  | INTEGER (-1024..1023) | Delta value in longitude in the unit provided in Milli-Arc-Second Units, TS 37.355 [39]. |
| Delta Height | M |  | INTEGER (-1024..1023) | Delta value in ellipsoidal height in the unit provided in Height Units, TS 37.355 [39]. |
| Location uncertainty | M |  | 9.3.1.189 |  |

#### 9.3.1.187 Relative Cartesian Location

This information element provides a location relative to some known reference location in a relative Cartesian coordinate.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| XYZ unit | M |  | ENUMERATED (mm, cm, dm,..) |  |
| X value | M |  | INTEGER  (-216.. 216-1) | Positive value represents easting from reference point, in units of *XYZ Unit* IE. |
| Y value | M |  | INTEGER  (-216.. 216-1) | Positive value represents northing from reference point in units of *XYZ Unit* IE. |
| Z value | M |  | INTEGER  (-215.. 215-1) | Height with respect to reference point in units of *XYZ Unit* IE, where the XY-plane is horizontal and the Z-axis points up. |
| Location uncertainty | M |  | 9.3.1.189 |  |

#### 9.3.1.188 Reference Point

This information element provides a reference point location information.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| CHOICE *ReferencePoint* | M |  |  | Reference point to which relative location information is related to |
| >*Coordinate ID* |  |  |  |  |
| >>Coordinate ID | M |  | INTEGER(0.. 29-1,..) | Referential ID mapped via OAM |
| >*Reference Point Coordinates* |  |  |  |  |
| >>Reference Point Position | M |  | NG-RAN Access Point Position  9.3.1.174 |  |
| >*Reference Point Coordinates High Accuracy* |  |  |  |  |
| >>Reference Point High Accuracy Access Position | M |  | NG-RAN High Accuracy Access Point Position  9.3.1.190 |  |

#### 9.3.1.189 Location Uncertainty

This information element provides the location uncertainty information.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| Horizontal Uncertainty | M |  | INTEGER (0..255) | Horizontal uncertainty of the ARP latitude/longitude. Corresponds to the encoded high accuracy uncertainty as defined in TS 23.032 [36] |
| Horizontal Confidence | M |  | INTEGER (0..100) | Corresponds to confidence as defined in TS 23.032 [36]. |
| Vertical Uncertainty | M |  | INTEGER (0..255) | Vertical uncertainty of the ARP altitude. Corresponds to the encoded high accuracy uncertainty as defined in TS 23.032 [36] |
| Vertical Confidence | M |  | INTEGER (0..100) | Corresponds to confidence as defined in TS 23.032 [36]. |

#### 9.3.1.190 NG-RAN High Accuracy Access Point Position

The *NG-RAN High Accuracy Access Point Position* IE is used to identify the geographical position of an NG-RAN Access Point. It is expressed as High Accuracy Ellipsoid point with altitude and uncertainty ellipsoid according to TS 23.032 [36].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| Degrees of Latitude | M |  | INTEGER(-2147483648..2147483647) |  |
| Degrees of Longitude | M |  | INTEGER(-2147483648..2147483647) |  |
| Altitude | M |  | INTEGER(-64000..1280000) |  |
| Uncertainty Semi Major | M |  | INTEGER (0..255) |  |
| Uncertainty Semi Minor | M |  | INTEGER (0..255) |  |
| Orientation Major Axis | M |  | INTEGER (0..179) |  |
| Horizontal Confidence | M |  | INTEGER (0..100) |  |
| Uncertainty Altitude | M |  | INTEGER (0..255) |  |
| Vertical Confidence | M |  | INTEGER (0..100) |  |

#### 9.3.1.191 Positioning Broadcast Cells

This IE is used to indicate the cells that are requested to broadcast, or failed to broadcast, the associated posSIB(s).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Positioning Broadcast Cells** |  | *1 .. <maxnoBcastCell>* |  |  |
| >NR CGI | M |  | 9.3.1.12 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoBcastCells | Maximum no. of cells broadcasting a posSIB in a NB-DU. Value is 16384. |

#### 9.3.1.192 SRS Configuration

This information element contains the SRS configuration configured by the gNB-CU for the UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| **SRS Carrier List** |  | *1..<maxnoSRS-Carriers>* |  |  |
| >Point A | M |  | INTEGER (0..3279165) | NR ARFCN |
| **>Uplink Channel BW-PerSCS-List** |  | *1..<maxnoSCSs>* |  | SCS-SpecificCarrier TS 38.331 [8] |
| >>Offset To Carrier | M |  | INTEGER(0..2199,…) | First usable RB to Point A in the number of PRBs |
| >>Subcarrier Spacing | M |  | ENUMERATED(kHz15, kHz30, kHz60, kHz120,…) |  |
| >>Carrier Bandwidth | M |  | INTEGER(1..275,…) |  |
| **>Active UL BWP** | M |  |  | Only the configuration in the active UL BWP is needed. |
| >>Location And Bandwidth | M |  | INTEGER(0..37949,…) | BWP TS 38.331 [8] |
| >>Subcarrier Spacing | M |  | ENUMERATED(kHz15, kHz30, kHz60, kHz120,…) |  |
| >>Cyclic Prefix | M |  | ENUMERATED(Normal, Extended) |  |
| >>Tx Direct Current Location | M |  | INTEGER(0..3301,…) |  |
| >>Shift7dot5kHz | O |  | ENUMERATED(true,…) |  |
| **>>SRS Config** | M |  |  | *SRS-Config* as defined in TS 38.331 [8] |
| **>>>SRS Resource List** |  | *0..<maxnoSRS-Resources>* |  |  |
| >>>>SRS Resource | M |  | 9.3.1.193 | *SRS-Resource* as defined in TS 38.331 [8] |
| **>>>Positioning SRS Resource List** |  | *0..<maxnoSRS-PosResources>* |  |  |
| >>>>Positioning SRS Resource | M |  | 9.3.1.194 | *SRS-PosResource-r16* as defined in TS 38.331 [8] |
| **>>>SRS Resource Set List** |  | *0..<maxnoSRS-ResourceSets>* |  |  |
| >>>>SRS Resource Set | M |  | 9.3.1.195 | *SRS-ResourceSet* as defined in TS 38.331 [8] |
| **>>>Positioning SRS Resource Set List** |  | *0..<maxnoSRS-PosResourceSets>* |  |  |
| >>>>Positioning SRS Resource Set | M |  | 9.3.1.196 | *SRS-PosResourceSet-r16* as defined in TS 38.331 [8] |
| >PCI | O |  | INTEGER (0..1007) | Physical Cell ID of the cell that contains the SRS carrier |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoSRS-Carriers | Maximum no of carriers for SRS. Value is 32. |
| maxnoSCSs | Maximum no of SCS spacings for a carrier. Value is 5. |
| maxnoSRS-Resources | Maximum no of SRS resources per UL BWP. Value is 64. |
| maxnoSRS-PosResources | Maximum no of positioning SRS resources per UL BWP. Value is 64. |
| maxnoSRS-ResourceSets | Maximum no of SRS resource sets. Value is 16. |
| maxnoSRS-PosResourceSets | Maximum no of positioning SRS resource sets per UL BWP. Value is 16. |

#### 9.3.1.193 SRS Resource

This information element contains the SRS resource.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| SRS Resource ID | M |  | INTEGER (0..63, ...) |  |
| Number of Ports | M |  | ENUMERATED(ports1, ports2, ports4) |  |
| CHOICE *Transmission Comb* | M |  |  |  |
| >*Comb Two* |  |  |  |  |
| >>Comb Offset | M |  | INTEGER(0..1) |  |
| >>Cyclic Shift | M |  | INTEGER(0..7) |  |
| >*Comb Four* |  |  |  |  |
| >>Comb Offset | M |  | INTEGER(0..3) |  |
| >>Cyclic Shift | M |  | INTEGER(0..11) |  |
| Start Position | M |  | INTEGER(0..13) |  |
| Number of Symbols | M |  | ENUMERATED(1,2,4) |  |
| Repetition Factor | M |  | ENUMERATED(1,2,4) |  |
| Frequency Domain Position | M |  | INTEGER(0..67) |  |
| Frequency Domain Shift | M |  | INTEGER(0..268) |  |
| C-SRS | M |  | INTEGER(0..63) |  |
| B-SRS | M |  | INTEGER(0..3) |  |
| B-Hop | M |  | INTEGER(0..3) |  |
| Group or Sequence Hopping | M |  | ENUMERATED(Neither, groupHopping, sequenceHopping) |  |
| CHOICE *Resource Type* | M |  |  |  |
| >*Periodic* |  |  |  |  |
| >>Periodicity | M |  | ENUMERATED(slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320, slot640, slot1280, slot2560, …) |  |
| >>Offset | M |  | INTEGER(0..2559, …) |  |
| >*Semi-persistent* |  |  |  |  |
| >>Periodicity | M |  | ENUMERATED(slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320, slot640, slot1280, slot2560, …) |  |
| >>Offset | M |  | INTEGER(0..2559, …) |  |
| >*Aperiodic* |  |  |  |  |
| >>Aperiodic Resource Type | M |  | ENUMERATED(true,…) |  |
| Sequence ID | M |  | INTEGER(0..1023) |  |

#### 9.3.1.194 Positioning SRS Resource

This information element contains the SRS resource for positioning.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| Positioning SRS Resource ID | M |  | INTEGER (0..63) |  |
| CHOICE *Transmission Comb Positioning* | M |  |  |  |
| >*Comb Two* |  |  |  |  |
| >>Comb Offset | M |  | INTEGER(0..1) |  |
| >>Cyclic Shift | M |  | INTEGER(0..7) |  |
| >*Comb Four* |  |  |  |  |
| >>Comb Offset | M |  | INTEGER(0..3) |  |
| >>Cyclic Shift | M |  | INTEGER(0..11) |  |
| >*Comb Eight* |  |  |  |  |
| >>Comb Offset | M |  | INTEGER(0..7) |  |
| >>Cyclic Shift | M |  | INTEGER(0..5) |  |
| Start Position | M |  | INTEGER(0..13) |  |
| Number of Symbols | M |  | ENUMERATED(1,2,4,8,12) |  |
| Frequency Domain Shift | M |  | INTEGER(0..268) |  |
| C-SRS | M |  | INTEGER(0..63) |  |
| Group or Sequence Hopping | M |  | ENUMERATED(Neither, groupHopping, sequenceHopping) |  |
| CHOICE *Resource Type Positioning* | M |  |  |  |
| >*Periodic* |  |  |  |  |
| >>Periodicity | M |  | ENUMERATED(slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320, slot640, slot1280, slot2560, slot5120, slot10240, slot40960, slot81920,…, slot128, slot256, slot512, slot20480) |  |
| >>Offset | M |  | INTEGER(0..81919,…) |  |
| >*Semi-persistent* |  |  |  |  |
| >>Periodicity | M |  | ENUMERATED(slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320, slot640, slot1280, slot2560, slot5120, slot10240, slot20480, slot40960, slot81920,…, slot128, slot256, slot512, slot20480) |  |
| >>Offset | M |  | INTEGER(0..81919,…) |  |
| >*Aperiodic* |  |  |  |  |
| >>Slot offset | M |  | INTEGER(0..32) |  |
| Sequence ID | M |  | INTEGER(0..65535) |  |
| CHOICE *Spatial Relation Positioning* | O |  |  |  |
| >*SSB* |  |  |  |  |
| >>PCI | M |  | INTEGER (0..1007) |  |
| >>SSB index | O |  | INTEGER(0..63) |  |
| >*PRS* |  |  |  |  |
| >>PRS ID | M |  | INTEGER(0..255) |  |
| >>PRS Resource Set ID | M |  | INTEGER(0..7) |  |
| >>PRS Resource ID | O |  | INTEGER(0..63) |  |

#### 9.3.1.195 SRS Resource Set

This information element indicates a SRS resource set in the UE for UL SRS transmission.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| SRS Resource Set ID | M |  | INTEGER(0..15) |  |
| **SRS Resource ID List** |  | 1..<*maxnoSRS-ResourcePerSet*> |  |  |
| >SRS Resource ID | M |  | INTEGER (0..63, ...) |  |
| CHOICE *Resource Set Type* | M |  |  |  |
| >*Periodic* |  |  |  |  |
| >>PeriodicSet | M |  | ENUMERATED(true,…) |  |
| >*Semi-persistent* |  |  |  |  |
| >>Semi-persistentSet | M |  | ENUMERATED(true,…) |  |
| >*Aperiodic* |  |  |  |  |
| >>SRS Resource Trigger List | M |  | INTEGER(1..3) |  |
| >>Slot offset | M |  | INTEGER(0..32) |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoSRS-ResourcePerSet | Maximum no of SRS resources per SRS resource set. Value is 16. |

#### 9.3.1.196 Positioning SRS Resource Set

This information element indicates a positioning SRS resource set in the UE for UL SRS transmission.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| Positioning SRS Resource Set ID | M |  | INTEGER(0..15) |  |
| **Positioning SRS Resource ID List** |  | 1..<*maxnoSRS-PosResourcePerSet*> |  |  |
| >Positioning SRS Resource ID | M |  | INTEGER (0..63, ...) |  |
| CHOICE *Resource Type* | M |  |  |  |
| >*Periodic* |  |  |  |  |
| >>PosperiodicSet | M |  | ENUMERATED(true,…) |  |
| >*Semi-persistent* |  |  |  |  |
| >>Possemi-persistentSet | M |  | ENUMERATED(true,…) |  |
| >*Aperiodic* |  |  |  |  |
| >>SRS Resource Trigger List | M |  | INTEGER(1..3) |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoSRS-PosResourcePerSet | Maximum no of positioning SRS resources per positioning SRS resource set. Value is 16. |

#### 9.3.1.197 TRP ID

The *TRP ID* IE is used to identify a TRP uniquely within a gNB-CU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| TRP Identifier | M |  | INTEGER (1..65535,…) | Identifies a TRP within an gNB-CU |

#### 9.3.1.198 NR-PRS Beam Information

This IE contains spatial direction information of the DL-PRS Resources.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
| **NR-PRS Beam Information List** |  | *1* |  |  |  |  |
| **>NR-PRS Beam Information Item** |  | *1 .. <* *maxnoofPRS-ResourceSets >* |  |  |  |  |
| >>PRS Resource Set ID | M |  | INTEGER (0..7) | The resource set in which the resources are associated with the angle. |  |  |
| **>>PRS Angle List** |  | *1* |  |  |  |  |
| **>>>PRS Angle Item** |  | *1..<* *maxnoofPRS-ResourcesPerSet >* |  |  |  |  |
| >>>>NR PRS Azimuth | M |  | INTEGER (0..359) |  |  |  |
| >>>>NR PRS Azimuth fine | O |  | INTEGER (0..9) | Fine angles |  |  |
| >>>>NR PRS Elevation | O |  | INTEGER (0..180) |  |  |  |
| >>>>NR PRS Elevation fine | O |  | INTEGER (0..9) | Fine angles |  |  |
| >>>PRS Resource ID | O |  | INTEGER(0..63) |  | YES | ignore |
| **LCS to GCS Translation List** |  | *0..1* |  | If absent, the azimuth and elevation are provided in GCS. |  |  |
| **>LCS to GCS Translation** |  | *1 .. <maxnooflcs-gcs-translation>* |  |  |  |  |
| >>Alpha | M |  | INTEGER (0..359) |  |  |  |
| >>Alpha-fine | O |  | INTEGER (0..9) | Fine angles |  |  |
| >>Beta | M |  | INTEGER (0..359) |  |  |  |
| >>Beta-fine | O |  | INTEGER (0..9) | Fine angles |  |  |
| >>Gamma | M |  | INTEGER (0..359) |  |  |  |
| >>Gamma-fine | O |  | INTEGER (0..9) | Fine angles |  |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPRS-ResourceSets | Maximum no of DL-PRS resource sets per TRP. Value is 2. |
| maxnoofPRS-ResourcesPerSet | Maximum no of DL-PRS resources of the DL-PRS resource set of the TRP. Value is 64. |
| maxnooflcs-gcs-translation | Maximum no. of LCS-GS-Translation-Parameters that can reported with one message. Value is 3. The current version of the specification supports 1. |

#### 9.3.1.199 E-CID Measurement Result

The purpose of this IE is to provide the E-CID measurement result.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| Geographical Coordinates | O |  | 9.3.1.184 | The configured estimated geographical position of the antenna of the cell. |
| **Measured Results List** |  | *0..1* |  |  |
| **>E-CID Measured Results Item** |  | *1 .. <maxnoMeasE-CID>* |  |  |
| >>CHOICE *Measured Results Value* | M |  |  |  |
| >>>Value Angle of Arrival NR | M |  | UL Angle of Arrival  9.3.1.167 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoMeasE-CID | Maximum no. of measured quantities that can be configured and reported with one message. Value is 64. |

#### 9.3.1.200 Cell Portion ID

This IE gives the current Cell Portion associated with the target UE. The Cell Portion ID is the unique identifier for a cell portion within a cell.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Cell Portion ID | M |  | INTEGER (0..4095, …) |  |

#### 9.3.1.201 Pathloss Reference Information

This information element indicates a pathloss reference for transmission of UL SRS by a UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| CHOICE *Pathloss Reference Signal* | M |  |  |  |
| *>SSB* |  |  |  |  |
| >>PCI | M |  | INTEGER (0..1007) |  |
| >>SSB Index | O |  | INTEGER (0..63) |  |
| >*DL-PRS* |  |  |  |  |
| >>DL-PRS ID | M |  | INTEGER (0..255) |  |
| >>DL-PRS Resource Set ID | M |  | INTEGER (0..7) |  |
| >>DL PRS Resource ID | O |  | INTEGER (0..63) |  |

#### 9.3.1.202 SSB Information

This information element contains the SSB time/frequency information for the TRPs.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| **SSB Information List** |  | 1 |  |  |
| **>SSB Information Item** |  | 1…<maxNoSSBs> |  |  |
| >SSB Configuration | M |  | SSB Time/Frequency Configuration  9.3.1.203 |  |
| >PCI | M |  | INTEGER (0..1007) |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxNoSSBs | Maximum no of SSBs for which the configuration can be provided. Value is 255. |

#### 9.3.1.203 SSB Time/Frequency Configuration

This information element contains the time and frequency configuration of an SSB.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| SSB frequency | M |  | INTEGER (0..3279165) | ARFCN |
| SSB subcarrier spacing | M |  | ENUMERATED(kHz15, kHz30, kHz60, kHz120, kHz240,...) |  |
| SSB Transmit power | M |  | INTEGER (-60..50) | EPRE of SSS |
| SSB periodicity | M |  | ENUMERATED(ms5, ms10, ms20, ms40, ms80, ms160, …) |  |
| SSB half frame index | M |  | INTEGER(0..1) |  |
| SSB SFN offset | M |  | INTEGER(0..15) |  |
| CHOICE *SSB Position in Burst* | O |  |  |  |
| >*Short* |  |  |  |  |
| >>Short Bitmap |  |  | BIT STRING (SIZE(4)) |  |
| >*Medium* |  |  |  |  |
| >>Medium Bitmap |  |  | BIT STRING (SIZE(8)) |  |
| >*Long* |  |  |  |  |
| >>Long Bitmap |  |  | BIT STRING (SIZE(64)) |  |
| SFN Initialisation Time | O |  | Relative Time 1900  9.3.1.183 |  |

#### 9.3.1.204 Search Window Information

This information element contains search window information for the TRP.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| Expected Propagation Delay | M |  | INTEGER  (-3841..3841,…) | Indicates when the SRS is expected to arrive in time at the TRP relative to the UL RTOA Reference Time.  The UL RTOA Reference Time for a target SRS is defined as , where  -     is the SFN Initialisation Time  -     , where and are the system frame number and the subframe number of the SRS, respectively.  Granularity 4Ts, where Ts=1/(15⋅103 ⋅2048) seconds.  Centre of the search window. |
| Delay Uncertainty | M |  | INTEGER  (1..246,…) | Indicates the uncertainty of the expected SRS arrival time at the TRP  Granularity 4Ts, where Ts=1/(15⋅103⋅2048) seconds.  Single-sided search window. |

#### 9.3.1.205 Extended gNB-DU Name

This IE provides extended human readable name of the gNB-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| gNB-DU Name Visible | O |  | VisibleString (SIZE(1..150, …)) |  |
| gNB-DU Name UTF8 | O |  | UTF8String (SIZE(1..150, …)) |  |

#### 9.3.1.206 Extended gNB-CU Name

This IE provides extended human readable name of the gNB-CU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| gNB-CU Name Visible | O |  | VisibleString (SIZE(1..150, …)) |  |
| gNB-CU Name UTF8 | O |  | UTF8String (SIZE(1..150, …)) |  |

#### 9.3.1.207 F1-C Transfer Path

This IE indicates the transmission path of the F1-C traffic.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| F1-C Path NSA | M |  | ENUMERATED (lte, nr, both) | This IE indicates the transmission path of the F1-C traffic in EN-DC. |

#### 9.3.1.208 SFN Offset

This IE contains the time offset between an absolute time reference and the SFN0 start. The IE is calculated assuming that the SFN transmission started at the absolute time reference. The absolute time reference chosen is the 1980-01-06 T00:00:19 International Atomic Time (TAI).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| SFN Time Offset | M |  | BIT STRING (SIZE(24)) | Time offset in microseconds between the absolute time reference "1980-01-06 T00:00:19 International Atomic Time (TAI)” and the SFN0 start. The maximum usable value is (1024\*10^4-1). Values higher than the maximum are discarded. |

#### 9.3.1.209 Transmission Stop Indicator

This IE indicates to stop the data transmission at gNB-DU side for an DRB not subject to DAPS Handover.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Transmission Stop Indicator | M |  | ENUMERATED (true, …) |  |

#### 9.3.1.210 Spatial Relation Information per SRS Resource

This information element indicates a spatial relation for transmission of each UL SRS resource recommened by LMF.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| **Spatial Relation per SRS Resource List** |  | *1* |  |  |
| > Spatial Relation per SRS Resource Item |  | *1..<maxnoSRS-ResourcePerSet>* |  |  |
| >CHOICE *Reference Signal* | M |  |  |  |
| >*NZP CSI-RS* |  |  |  |  |
| >>NZP CSI-RS Resource ID | M |  | INTEGER (0..191) |  |
| >*SSB* |  |  |  |  |
| >> NR PCI | M |  | INTEGER (0..1007) |  |
| >>SSB Index | O |  | INTEGER (0..63) |  |
| >*SRS* |  |  |  |  |
| >>SRS Resource ID | M |  | INTEGER (0..63) |  |
| >*Positioning SRS* |  |  |  |  |
| >> Positioning SRS Resource ID | M |  | INTEGER (0..63) |  |
| >*DL-PRS* |  |  |  |  |
| >>DL-PRS ID | M |  | INTEGER (0..255) |  |
| >>DL-PRS Resource Set ID | M |  | INTEGER (0..7) |  |
| >>DL-PRS Resource ID | O |  | INTEGER (0..63) |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoSRS-ResourcePerSet | Maximum no of SRS resources per SRS resource set. Value is 16. |

#### 9.3.1.278 PosSIType List

This IE is used by the gNB-CU to provide SI list of positioning SI for the gNB-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| PosSI type item IEs |  | *1.. <maxnoofPosSITypes>* |  |  |
| >PosSI Type | M |  | INTEGER (1..32, ...) | Indicates a certain positioning SI type required to be broadcasted by the gNB-DU. The SI Type value of positioning SI starts from 1. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPosSITypes | Maximum no. of positioning SI types, the maximum value is 32. |

#### 9.3.1.283 Uplink TxDirectCurrentTwoCarrierList Information

This IE contains the Uplink TxDirectCurrentTwoCarrierList information that is configured by the UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Uplink TxDirectCurrentTwoCarrierList Information | M |  | OCTET STRING | Includes the *UplinkTxDirectCurrentTwoCarrierList* IE as defined in TS 38.331 [8]. |

### 9.3.2 Transport Network Layer Related IEs

#### 9.3.2.1 UP Transport Layer Information

The *UP Transport Layer Information* IE identifies an F1 transport bearer associated to a DRB. It contains a Transport Layer Address and a GTP Tunnel Endpoint Identifier. The Transport Layer Address is an IP address to be used for the F1 user plane transport. The GTP Tunnel Endpoint Identifier is to be used for the user plane transport between gNB-CU and gNB-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| CHOICE *Transport Layer Information* | M |  |  |  |
| >*GTP Tunnel* |  |  |  |  |
| >>Transport Layer Address | M |  | 9.3.2.3 |  |
| >>GTP-TEID | M |  | 9.3.2.2 |  |

#### 9.3.2.2 GTP-TEID

The *GTP-TEID* IE is the GTP Tunnel Endpoint Identifier to be used for the user plane transport between the gNB-CU and gNB-DU.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| GTP-TEID | M |  | OCTET STRING (SIZE(4)) | For details and range, see TS 29.281 [18]. |

#### 9.3.2.3 Transport Layer Address

This *Transport Layer Address* IE is an IP address.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Transport Layer Address | M |  | BIT STRING (SIZE(1..160, ...)) | The Radio Network Layer is not supposed to interpret the address information. It should pass it to the Transport Layer for interpretation.  For details, see TS 38.414 [19]. |

#### 9.3.2.4 CP Transport Layer Information

This IE is used to provide the F1 control plane transport layer information associated with a gNB-CU – gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| CHOICE *CP Transport Layer Information* |  |  |  |  | - |  |
| >*Endpoint-IP-address* |  |  |  |  | - |  |
| >> Endpoint IP address | M |  | Transport Layer Address 9.3.2.3 |  | - |  |
| >*Endpoint-IP-address-and-port* |  |  |  |  | - |  |
| >> Endpoint IP address | M |  | Transport Layer Address 9.3.2.3 |  | - |  |
| >> Port Number | M |  | BIT STRING (SIZE(16)) |  | Yes | reject |

#### 9.3.2.5 Transport Layer Address Info

This IE is used for signalling TNL Configuration information for IPSec tunnel over which GTP traffic is transmitted.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Transport UP Layer Address Info to Add List** |  | *0..1* |  |  |
| **>Transport UP Layer Address Info to Add Item** |  | *1..<maxnoofTLAs>* |  |  |
| >>IP-Sec Transport Layer Address | M |  | Transport Layer Address  9.3.2.3 | Transport Layer Address for IP-Sec endpoint. |
| **>>GTP Transport Layer Address To Add List** |  | *0..1* |  |  |
| **>>>GTP Transport Layer Address To Add Item** |  | *1..<maxnoofGTPTLAs>* |  |  |
| >>>>GTP Transport Layer Address Info | M |  | Transport Layer Address  9.3.2.3 | GTP Transport Layer Address for GTP end-points. |
| **Transport UP Layer Address Info to Remove List** |  | *0..1* |  |  |
| **>Transport UP Layer Address Info to Remove Item** |  | *1..<maxnoofTLAs>* |  |  |
| >>IP-Sec Transport Layer Address | M |  | Transport Layer Address  9.3.2.3 | Transport Layer Address for IP-Sec endpoint. |
| **>>GTP Transport Layer Address To Remove List** |  | *0..1* |  |  |
| **>>>GTP Transport Layer Address To Remove Item** |  | *1..<maxnoofGTPTLAs>* |  |  |
| >>>>GTP Transport Layer Address Info | M |  | Transport Layer Address  9.3.2.3 | GTP Transport Layer Address for GTP end-points. |

|  |  |
| --- | --- |
| maxnoofTLAs | Maximum no. of F1 Transport Layer Address in the message. Value is 16. |
| maxnoofGTPTLAs | Maximum no. of F1 GTP Transport Layer Address for a GTP end-point in the message. Value is 16. |

#### 9.3.2.6 URI

This IE is an URI.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| URI | M |  | VisibleString | String representing URI (Uniform Resource Identifier) |

## 9.4 Message and Information Element Abstract Syntax (with ASN.1)

### 9.4.1 General

F1AP ASN.1 definition conforms to ITU-T Recommendation X.691 [5], ITU-T Recommendation X.680 [12] and ITU-T Recommendation X.681 [13].

The ASN.1 definition specifies the structure and content of F1AP messages. F1AP messages can contain any IEs specified in the object set definitions for that message without the order or number of occurrence being restricted by ASN.1. However, for this version of the standard, a sending entity shall construct an F1AP message according to the PDU definitions module and with the following additional rules:

- IEs shall be ordered (in an IE container) in the order they appear in object set definitions.

- Object set definitions specify how many times IEs may appear. An IE shall appear exactly once if the presence field in an object has value "mandatory". An IE may appear at most once if the presence field in an object has value "optional" or "conditional". If in a tabular format there is multiplicity specified for an IE (i.e., an IE list) then in the corresponding ASN.1 definition the list definition is separated into two parts. The first part defines an IE container list where the list elements reside. The second part defines list elements. The IE container list appears as an IE of its own. For this version of the standard an IE container list may contain only one kind of list elements.

NOTE: In the above "IE" means an IE in the object set with an explicit ID. If one IE needs to appear more than once in one object set, then the different occurrences will have different IE IDs.

If an F1AP message that is not constructed as defined above is received, this shall be considered as Abstract Syntax Error, and the message shall be handled as defined for Abstract Syntax Error in clause 10.

### 9.4.2 Usage of private message mechanism for non-standard use

The private message mechanism for non-standard use may be used:

- for special operator- (and/or vendor) specific features considered not to be part of the basic functionality, i.e., the functionality required for a complete and high-quality specification in order to guarantee multivendor interoperability;

- by vendors for research purposes, e.g., to implement and evaluate new algorithms/features before such features are proposed for standardisation.

The private message mechanism shall not be used for basic functionality. Such functionality shall be standardised.

### 9.4.3 Elementary Procedure Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Elementary Procedure definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-PDU-Descriptions {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-PDU-Descriptions (0)}

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IE parameter types from other modules.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IMPORTS

Criticality,

ProcedureCode

FROM F1AP-CommonDataTypes

Reset,

ResetAcknowledge,

F1SetupRequest,

F1SetupResponse,

F1SetupFailure,

GNBDUConfigurationUpdate,

GNBDUConfigurationUpdateAcknowledge,

GNBDUConfigurationUpdateFailure,

GNBCUConfigurationUpdate,

GNBCUConfigurationUpdateAcknowledge,

GNBCUConfigurationUpdateFailure,

UEContextSetupRequest,

UEContextSetupResponse,

UEContextSetupFailure,

UEContextReleaseCommand,

UEContextReleaseComplete,

UEContextModificationRequest,

UEContextModificationResponse,

UEContextModificationFailure,

UEContextModificationRequired,

UEContextModificationConfirm,

ErrorIndication,

UEContextReleaseRequest,

DLRRCMessageTransfer,

ULRRCMessageTransfer,

GNBDUResourceCoordinationRequest,

GNBDUResourceCoordinationResponse,

PrivateMessage,

UEInactivityNotification,

InitialULRRCMessageTransfer,

SystemInformationDeliveryCommand,

Paging,

Notify,

WriteReplaceWarningRequest,

WriteReplaceWarningResponse,

PWSCancelRequest,

PWSCancelResponse,

PWSRestartIndication,

PWSFailureIndication,

GNBDUStatusIndication,

RRCDeliveryReport,

UEContextModificationRefuse,

F1RemovalRequest,

F1RemovalResponse,

F1RemovalFailure,

NetworkAccessRateReduction,

TraceStart,

DeactivateTrace,

DUCURadioInformationTransfer,

CUDURadioInformationTransfer,

BAPMappingConfiguration,

BAPMappingConfigurationAcknowledge,

BAPMappingConfigurationFailure,

GNBDUResourceConfiguration,

GNBDUResourceConfigurationAcknowledge,

GNBDUResourceConfigurationFailure,

IABTNLAddressRequest,

IABTNLAddressResponse,

IABTNLAddressFailure,

IABUPConfigurationUpdateRequest,

IABUPConfigurationUpdateResponse,

IABUPConfigurationUpdateFailure,

ResourceStatusRequest,

ResourceStatusResponse,

ResourceStatusFailure,

ResourceStatusUpdate,

AccessAndMobilityIndication,

ReferenceTimeInformationReportingControl,

ReferenceTimeInformationReport,

AccessSuccess,

CellTrafficTrace,

PositioningMeasurementRequest,

PositioningMeasurementResponse,

PositioningMeasurementFailure,

PositioningAssistanceInformationControl,

PositioningAssistanceInformationFeedback,

PositioningMeasurementReport,

PositioningMeasurementAbort,

PositioningMeasurementFailureIndication,

PositioningMeasurementUpdate,

TRPInformationRequest,

TRPInformationResponse,

TRPInformationFailure,

PositioningInformationRequest,

PositioningInformationResponse,

PositioningInformationFailure,

PositioningActivationRequest,

PositioningActivationResponse,

PositioningActivationFailure,

PositioningDeactivation,

PositioningInformationUpdate,

E-CIDMeasurementInitiationRequest,

E-CIDMeasurementInitiationResponse,

E-CIDMeasurementInitiationFailure,

E-CIDMeasurementFailureIndication,

E-CIDMeasurementReport,

E-CIDMeasurementTerminationCommand,

PosSystemInformationDeliveryCommand

FROM F1AP-PDU-Contents

id-Reset,

id-F1Setup,

id-gNBDUConfigurationUpdate,

id-gNBCUConfigurationUpdate,

id-UEContextSetup,

id-UEContextRelease,

id-UEContextModification,

id-UEContextModificationRequired,

id-ErrorIndication,

id-UEContextReleaseRequest,

id-DLRRCMessageTransfer,

id-ULRRCMessageTransfer,

id-GNBDUResourceCoordination,

id-privateMessage,

id-UEInactivityNotification,

id-InitialULRRCMessageTransfer,

id-SystemInformationDeliveryCommand,

id-Paging,

id-Notify,

id-WriteReplaceWarning,

id-PWSCancel,

id-PWSRestartIndication,

id-PWSFailureIndication,

id-GNBDUStatusIndication,

id-RRCDeliveryReport,

id-F1Removal,

id-NetworkAccessRateReduction,

id-TraceStart,

id-DeactivateTrace,

id-DUCURadioInformationTransfer,

id-CUDURadioInformationTransfer,

id-BAPMappingConfiguration,

id-GNBDUResourceConfiguration,

id-IABTNLAddressAllocation,

id-IABUPConfigurationUpdate,

id-resourceStatusReportingInitiation,

id-resourceStatusReporting,

id-accessAndMobilityIndication,

id-ReferenceTimeInformationReportingControl,

id-ReferenceTimeInformationReport,

id-accessSuccess,

id-cellTrafficTrace,

id-PositioningMeasurementExchange,

id-PositioningAssistanceInformationControl,

id-PositioningAssistanceInformationFeedback,

id-PositioningMeasurementReport,

id-PositioningMeasurementAbort,

id-PositioningMeasurementFailureIndication,

id-PositioningMeasurementUpdate,

id-TRPInformationExchange,

id-PositioningInformationExchange,

id-PositioningActivation,

id-PositioningDeactivation,

id-PositioningInformationUpdate,

id-E-CIDMeasurementInitiation,

id-E-CIDMeasurementFailureIndication,

id-E-CIDMeasurementReport,

id-E-CIDMeasurementTermination,

id-PosSystemInformationDeliveryCommand

FROM F1AP-Constants

ProtocolIE-SingleContainer{},

F1AP-PROTOCOL-IES

FROM F1AP-Containers;

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Interface Elementary Procedure Class

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-ELEMENTARY-PROCEDURE ::= CLASS {

&InitiatingMessage ,

&SuccessfulOutcome OPTIONAL,

&UnsuccessfulOutcome OPTIONAL,

&procedureCode ProcedureCode UNIQUE,

&criticality Criticality DEFAULT ignore

}

WITH SYNTAX {

INITIATING MESSAGE &InitiatingMessage

[SUCCESSFUL OUTCOME &SuccessfulOutcome]

[UNSUCCESSFUL OUTCOME &UnsuccessfulOutcome]

PROCEDURE CODE &procedureCode

[CRITICALITY &criticality]

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Interface PDU Definition

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-PDU ::= CHOICE {

initiatingMessage InitiatingMessage,

successfulOutcome SuccessfulOutcome,

unsuccessfulOutcome UnsuccessfulOutcome,

choice-extension ProtocolIE-SingleContainer { { F1AP-PDU-ExtIEs} }

}

F1AP-PDU-ExtIEs F1AP-PROTOCOL-IES ::= { -- this extension is not used

...

}

InitiatingMessage ::= SEQUENCE {

procedureCode F1AP-ELEMENTARY-PROCEDURE.&procedureCode ({F1AP-ELEMENTARY-PROCEDURES}),

criticality F1AP-ELEMENTARY-PROCEDURE.&criticality ({F1AP-ELEMENTARY-PROCEDURES}{@procedureCode}),

value F1AP-ELEMENTARY-PROCEDURE.&InitiatingMessage ({F1AP-ELEMENTARY-PROCEDURES}{@procedureCode})

}

SuccessfulOutcome ::= SEQUENCE {

procedureCode F1AP-ELEMENTARY-PROCEDURE.&procedureCode ({F1AP-ELEMENTARY-PROCEDURES}),

criticality F1AP-ELEMENTARY-PROCEDURE.&criticality ({F1AP-ELEMENTARY-PROCEDURES}{@procedureCode}),

value F1AP-ELEMENTARY-PROCEDURE.&SuccessfulOutcome ({F1AP-ELEMENTARY-PROCEDURES}{@procedureCode})

}

UnsuccessfulOutcome ::= SEQUENCE {

procedureCode F1AP-ELEMENTARY-PROCEDURE.&procedureCode ({F1AP-ELEMENTARY-PROCEDURES}),

criticality F1AP-ELEMENTARY-PROCEDURE.&criticality ({F1AP-ELEMENTARY-PROCEDURES}{@procedureCode}),

value F1AP-ELEMENTARY-PROCEDURE.&UnsuccessfulOutcome ({F1AP-ELEMENTARY-PROCEDURES}{@procedureCode})

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Interface Elementary Procedure List

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-ELEMENTARY-PROCEDURES F1AP-ELEMENTARY-PROCEDURE ::= {

F1AP-ELEMENTARY-PROCEDURES-CLASS-1 |

F1AP-ELEMENTARY-PROCEDURES-CLASS-2,

...

}

F1AP-ELEMENTARY-PROCEDURES-CLASS-1 F1AP-ELEMENTARY-PROCEDURE ::= {

reset |

f1Setup |

gNBDUConfigurationUpdate |

gNBCUConfigurationUpdate |

uEContextSetup |

uEContextRelease |

uEContextModification |

uEContextModificationRequired |

writeReplaceWarning |

pWSCancel |

gNBDUResourceCoordination |

f1Removal |

bAPMappingConfiguration |

gNBDUResourceConfiguration |

iABTNLAddressAllocation |

iABUPConfigurationUpdate |

resourceStatusReportingInitiation |

positioningMeasurementExchange |

tRPInformationExchange |

positioningInformationExchange |

positioningActivation |

e-CIDMeasurementInitiation,

...

}

F1AP-ELEMENTARY-PROCEDURES-CLASS-2 F1AP-ELEMENTARY-PROCEDURE ::= {

errorIndication |

uEContextReleaseRequest |

dLRRCMessageTransfer |

uLRRCMessageTransfer |

uEInactivityNotification |

privateMessage |

initialULRRCMessageTransfer |

systemInformationDelivery |

paging |

notify |

pWSRestartIndication |

pWSFailureIndication |

gNBDUStatusIndication |

rRCDeliveryReport |

networkAccessRateReduction |

traceStart |

deactivateTrace |

dUCURadioInformationTransfer |

cUDURadioInformationTransfer |

resourceStatusReporting |

accessAndMobilityIndication |

referenceTimeInformationReportingControl|

referenceTimeInformationReport |

accessSuccess |

cellTrafficTrace |

positioningAssistanceInformationControl |

positioningAssistanceInformationFeedback |

positioningMeasurementReport |

positioningMeasurementAbort |

positioningMeasurementFailureIndication |

positioningMeasurementUpdate |

positioningDeactivation |

e-CIDMeasurementFailureIndication |

e-CIDMeasurementReport |

e-CIDMeasurementTermination |

positioningInformationUpdate |

posSystemInformationDelivery ,

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Interface Elementary Procedures

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

reset F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE Reset

SUCCESSFUL OUTCOME ResetAcknowledge

PROCEDURE CODE id-Reset

CRITICALITY reject

}

f1Setup F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE F1SetupRequest

SUCCESSFUL OUTCOME F1SetupResponse

UNSUCCESSFUL OUTCOME F1SetupFailure

PROCEDURE CODE id-F1Setup

CRITICALITY reject

}

gNBDUConfigurationUpdate F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE GNBDUConfigurationUpdate

SUCCESSFUL OUTCOME GNBDUConfigurationUpdateAcknowledge

UNSUCCESSFUL OUTCOME GNBDUConfigurationUpdateFailure

PROCEDURE CODE id-gNBDUConfigurationUpdate

CRITICALITY reject

}

gNBCUConfigurationUpdate F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE GNBCUConfigurationUpdate

SUCCESSFUL OUTCOME GNBCUConfigurationUpdateAcknowledge

UNSUCCESSFUL OUTCOME GNBCUConfigurationUpdateFailure

PROCEDURE CODE id-gNBCUConfigurationUpdate

CRITICALITY reject

}

uEContextSetup F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UEContextSetupRequest

SUCCESSFUL OUTCOME UEContextSetupResponse

UNSUCCESSFUL OUTCOME UEContextSetupFailure

PROCEDURE CODE id-UEContextSetup

CRITICALITY reject

}

uEContextRelease F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UEContextReleaseCommand

SUCCESSFUL OUTCOME UEContextReleaseComplete

PROCEDURE CODE id-UEContextRelease

CRITICALITY reject

}

uEContextModification F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UEContextModificationRequest

SUCCESSFUL OUTCOME UEContextModificationResponse

UNSUCCESSFUL OUTCOME UEContextModificationFailure

PROCEDURE CODE id-UEContextModification

CRITICALITY reject

}

uEContextModificationRequired F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UEContextModificationRequired

SUCCESSFUL OUTCOME UEContextModificationConfirm

UNSUCCESSFUL OUTCOME UEContextModificationRefuse

PROCEDURE CODE id-UEContextModificationRequired

CRITICALITY reject

}

writeReplaceWarning F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE WriteReplaceWarningRequest

SUCCESSFUL OUTCOME WriteReplaceWarningResponse

PROCEDURE CODE id-WriteReplaceWarning

CRITICALITY reject

}

pWSCancel F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PWSCancelRequest

SUCCESSFUL OUTCOME PWSCancelResponse

PROCEDURE CODE id-PWSCancel

CRITICALITY reject

}

errorIndication F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE ErrorIndication

PROCEDURE CODE id-ErrorIndication

CRITICALITY ignore

}

uEContextReleaseRequest F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UEContextReleaseRequest

PROCEDURE CODE id-UEContextReleaseRequest

CRITICALITY ignore

}

initialULRRCMessageTransfer F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE InitialULRRCMessageTransfer

PROCEDURE CODE id-InitialULRRCMessageTransfer

CRITICALITY ignore

}

dLRRCMessageTransfer F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE DLRRCMessageTransfer

PROCEDURE CODE id-DLRRCMessageTransfer

CRITICALITY ignore

}

uLRRCMessageTransfer F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE ULRRCMessageTransfer

PROCEDURE CODE id-ULRRCMessageTransfer

CRITICALITY ignore

}

uEInactivityNotification F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UEInactivityNotification

PROCEDURE CODE id-UEInactivityNotification

CRITICALITY ignore

}

gNBDUResourceCoordination F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE GNBDUResourceCoordinationRequest

SUCCESSFUL OUTCOME GNBDUResourceCoordinationResponse

PROCEDURE CODE id-GNBDUResourceCoordination

CRITICALITY reject

}

privateMessage F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PrivateMessage

PROCEDURE CODE id-privateMessage

CRITICALITY ignore

}

systemInformationDelivery F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE SystemInformationDeliveryCommand

PROCEDURE CODE id-SystemInformationDeliveryCommand

CRITICALITY ignore

}

paging F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE Paging

PROCEDURE CODE id-Paging

CRITICALITY ignore

}

notify F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE Notify

PROCEDURE CODE id-Notify

CRITICALITY ignore

}

networkAccessRateReduction F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE NetworkAccessRateReduction

PROCEDURE CODE id-NetworkAccessRateReduction

CRITICALITY ignore

}

pWSRestartIndication F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PWSRestartIndication

PROCEDURE CODE id-PWSRestartIndication

CRITICALITY ignore

}

pWSFailureIndication F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PWSFailureIndication

PROCEDURE CODE id-PWSFailureIndication

CRITICALITY ignore

}

gNBDUStatusIndication F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE GNBDUStatusIndication

PROCEDURE CODE id-GNBDUStatusIndication

CRITICALITY ignore

}

rRCDeliveryReport F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE RRCDeliveryReport

PROCEDURE CODE id-RRCDeliveryReport

CRITICALITY ignore

}

f1Removal F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE F1RemovalRequest

SUCCESSFUL OUTCOME F1RemovalResponse

UNSUCCESSFUL OUTCOME F1RemovalFailure

PROCEDURE CODE id-F1Removal

CRITICALITY reject

}

traceStart F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE TraceStart

PROCEDURE CODE id-TraceStart

CRITICALITY ignore

}

deactivateTrace F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE DeactivateTrace

PROCEDURE CODE id-DeactivateTrace

CRITICALITY ignore

}

dUCURadioInformationTransfer F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE DUCURadioInformationTransfer

PROCEDURE CODE id-DUCURadioInformationTransfer

CRITICALITY ignore

}

cUDURadioInformationTransfer F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE CUDURadioInformationTransfer

PROCEDURE CODE id-CUDURadioInformationTransfer

CRITICALITY ignore

}

bAPMappingConfiguration F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE BAPMappingConfiguration

SUCCESSFUL OUTCOME BAPMappingConfigurationAcknowledge

UNSUCCESSFUL OUTCOME BAPMappingConfigurationFailure

PROCEDURE CODE id-BAPMappingConfiguration

CRITICALITY reject

}

gNBDUResourceConfiguration F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE GNBDUResourceConfiguration

SUCCESSFUL OUTCOME GNBDUResourceConfigurationAcknowledge

UNSUCCESSFUL OUTCOME GNBDUResourceConfigurationFailure

PROCEDURE CODE id-GNBDUResourceConfiguration

CRITICALITY reject

}

iABTNLAddressAllocation F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE IABTNLAddressRequest

SUCCESSFUL OUTCOME IABTNLAddressResponse

UNSUCCESSFUL OUTCOME IABTNLAddressFailure

PROCEDURE CODE id-IABTNLAddressAllocation

CRITICALITY reject

}

iABUPConfigurationUpdate F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE IABUPConfigurationUpdateRequest

SUCCESSFUL OUTCOME IABUPConfigurationUpdateResponse

UNSUCCESSFUL OUTCOME IABUPConfigurationUpdateFailure

PROCEDURE CODE id-IABUPConfigurationUpdate

CRITICALITY reject

}

resourceStatusReportingInitiation F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE ResourceStatusRequest

SUCCESSFUL OUTCOME ResourceStatusResponse

UNSUCCESSFUL OUTCOME ResourceStatusFailure

PROCEDURE CODE id-resourceStatusReportingInitiation

CRITICALITY reject

}

resourceStatusReporting F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE ResourceStatusUpdate

PROCEDURE CODE id-resourceStatusReporting

CRITICALITY ignore

}

accessAndMobilityIndication F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE AccessAndMobilityIndication

PROCEDURE CODE id-accessAndMobilityIndication

CRITICALITY ignore

}

referenceTimeInformationReportingControl F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE ReferenceTimeInformationReportingControl

PROCEDURE CODE id-ReferenceTimeInformationReportingControl

CRITICALITY ignore

}

referenceTimeInformationReport F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE ReferenceTimeInformationReport

PROCEDURE CODE id-ReferenceTimeInformationReport

CRITICALITY ignore

}

accessSuccess F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE AccessSuccess

PROCEDURE CODE id-accessSuccess

CRITICALITY ignore

}

cellTrafficTrace F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE CellTrafficTrace

PROCEDURE CODE id-cellTrafficTrace

CRITICALITY ignore

}

positioningAssistanceInformationControl F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PositioningAssistanceInformationControl

PROCEDURE CODE id-PositioningAssistanceInformationControl

CRITICALITY ignore

}

positioningAssistanceInformationFeedback F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PositioningAssistanceInformationFeedback

PROCEDURE CODE id-PositioningAssistanceInformationFeedback

CRITICALITY ignore

}

positioningMeasurementExchange F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PositioningMeasurementRequest

SUCCESSFUL OUTCOME PositioningMeasurementResponse

UNSUCCESSFUL OUTCOME PositioningMeasurementFailure

PROCEDURE CODE id-PositioningMeasurementExchange

CRITICALITY reject

}

positioningMeasurementReport F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PositioningMeasurementReport

PROCEDURE CODE id-PositioningMeasurementReport

CRITICALITY ignore

}

positioningMeasurementAbort F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PositioningMeasurementAbort

PROCEDURE CODE id-PositioningMeasurementAbort

CRITICALITY ignore

}

positioningMeasurementFailureIndication F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PositioningMeasurementFailureIndication

PROCEDURE CODE id-PositioningMeasurementFailureIndication

CRITICALITY ignore

}

positioningMeasurementUpdate F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PositioningMeasurementUpdate

PROCEDURE CODE id-PositioningMeasurementUpdate

CRITICALITY ignore

}

tRPInformationExchange F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE TRPInformationRequest

SUCCESSFUL OUTCOME TRPInformationResponse

UNSUCCESSFUL OUTCOME TRPInformationFailure

PROCEDURE CODE id-TRPInformationExchange

CRITICALITY reject

}

positioningInformationExchange F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PositioningInformationRequest

SUCCESSFUL OUTCOME PositioningInformationResponse

UNSUCCESSFUL OUTCOME PositioningInformationFailure

PROCEDURE CODE id-PositioningInformationExchange

CRITICALITY reject

}

positioningActivation F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PositioningActivationRequest

SUCCESSFUL OUTCOME PositioningActivationResponse

UNSUCCESSFUL OUTCOME PositioningActivationFailure

PROCEDURE CODE id-PositioningActivation

CRITICALITY reject

}

positioningDeactivation F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PositioningDeactivation

PROCEDURE CODE id-PositioningDeactivation

CRITICALITY ignore

}

e-CIDMeasurementInitiation F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE E-CIDMeasurementInitiationRequest

SUCCESSFUL OUTCOME E-CIDMeasurementInitiationResponse

UNSUCCESSFUL OUTCOME E-CIDMeasurementInitiationFailure

PROCEDURE CODE id-E-CIDMeasurementInitiation

CRITICALITY reject

}

e-CIDMeasurementFailureIndication F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE E-CIDMeasurementFailureIndication

PROCEDURE CODE id-E-CIDMeasurementFailureIndication

CRITICALITY ignore

}

e-CIDMeasurementReport F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE E-CIDMeasurementReport

PROCEDURE CODE id-E-CIDMeasurementReport

CRITICALITY ignore

}

e-CIDMeasurementTermination F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE E-CIDMeasurementTerminationCommand

PROCEDURE CODE id-E-CIDMeasurementTermination

CRITICALITY ignore

}

positioningInformationUpdate F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PositioningInformationUpdate

PROCEDURE CODE id-PositioningInformationUpdate

CRITICALITY ignore

}

posSystemInformationDelivery F1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PosSystemInformationDeliveryCommand

PROCEDURE CODE id-PosSystemInformationDeliveryCommand

CRITICALITY ignore

}

END

-- ASN1STOP

### 9.4.4 PDU Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- PDU definitions for F1AP.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-PDU-Contents {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IE parameter types from other modules.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IMPORTS

Candidate-SpCell-Item,

Cause,

Cells-Failed-to-be-Activated-List-Item,

Cells-Status-Item,

Cells-to-be-Activated-List-Item,

Cells-to-be-Deactivated-List-Item,

CellULConfigured,

CriticalityDiagnostics,

C-RNTI,

CUtoDURRCInformation,

DRB-Activity-Item,

DRBID,

DRBs-FailedToBeModified-Item,

DRBs-FailedToBeSetup-Item,

DRBs-FailedToBeSetupMod-Item,

DRB-Notify-Item,

DRBs-ModifiedConf-Item,

DRBs-Modified-Item,

DRBs-Required-ToBeModified-Item,

DRBs-Required-ToBeReleased-Item,

DRBs-Setup-Item,

DRBs-SetupMod-Item,

DRBs-ToBeModified-Item,

DRBs-ToBeReleased-Item,

DRBs-ToBeSetup-Item,

DRBs-ToBeSetupMod-Item,

DRXCycle,

DRXConfigurationIndicator,

DUtoCURRCInformation,

EUTRANQoS,

ExecuteDuplication,

FullConfiguration,

GNB-CU-UE-F1AP-ID,

GNB-DU-UE-F1AP-ID,

GNB-DU-ID,

GNB-DU-Served-Cells-Item,

GNB-DU-System-Information,

GNB-CU-Name,

GNB-DU-Name,

InactivityMonitoringRequest,

InactivityMonitoringResponse,

LowerLayerPresenceStatusChange,

NotificationControl,

NRCGI,

NRPCI,

UEContextNotRetrievable,

Potential-SpCell-Item,

RAT-FrequencyPriorityInformation,

RequestedSRSTransmissionCharacteristics,

ResourceCoordinationTransferContainer,

RRCContainer,

RRCContainer-RRCSetupComplete,

RRCReconfigurationCompleteIndicator,

SCellIndex,

SCell-ToBeRemoved-Item,

SCell-ToBeSetup-Item,

SCell-ToBeSetupMod-Item,

SCell-FailedtoSetup-Item,

SCell-FailedtoSetupMod-Item,

ServCellIndex,

Served-Cell-Information,

Served-Cells-To-Add-Item,

Served-Cells-To-Delete-Item,

Served-Cells-To-Modify-Item,

ServingCellMO,

SRBID,

SRBs-FailedToBeSetup-Item,

SRBs-FailedToBeSetupMod-Item,

SRBs-Required-ToBeReleased-Item,

SRBs-ToBeReleased-Item,

SRBs-ToBeSetup-Item,

SRBs-ToBeSetupMod-Item,

SRBs-Modified-Item,

SRBs-Setup-Item,

SRBs-SetupMod-Item,

TimeToWait,

TransactionID,

TransmissionActionIndicator,

UE-associatedLogicalF1-ConnectionItem,

DUtoCURRCContainer,

PagingCell-Item,

SItype-List,

UEIdentityIndexValue,

GNB-CU-TNL-Association-Setup-Item,

GNB-CU-TNL-Association-Failed-To-Setup-Item,

GNB-CU-TNL-Association-To-Add-Item,

GNB-CU-TNL-Association-To-Remove-Item,

GNB-CU-TNL-Association-To-Update-Item,

MaskedIMEISV,

PagingDRX,

PagingPriority,

PagingIdentity,

Cells-to-be-Barred-Item,

PWSSystemInformation,

Broadcast-To-Be-Cancelled-Item,

Cells-Broadcast-Cancelled-Item,

NR-CGI-List-For-Restart-Item,

PWS-Failed-NR-CGI-Item,

RepetitionPeriod,

NumberofBroadcastRequest,

Cells-To-Be-Broadcast-Item,

Cells-Broadcast-Completed-Item,

Cancel-all-Warning-Messages-Indicator,

EUTRA-NR-CellResourceCoordinationReq-Container,

EUTRA-NR-CellResourceCoordinationReqAck-Container,

RequestType,

PLMN-Identity,

RLCFailureIndication,

UplinkTxDirectCurrentListInformation,

SULAccessIndication,

Protected-EUTRA-Resources-Item,

GNB-DUConfigurationQuery,

BitRate,

RRC-Version,

GNBDUOverloadInformation,

RRCDeliveryStatusRequest,

NeedforGap,

RRCDeliveryStatus,

ResourceCoordinationTransferInformation,

Dedicated-SIDelivery-NeededUE-Item,

Associated-SCell-Item,

IgnoreResourceCoordinationContainer,

PagingOrigin,

UAC-Assistance-Info,

RANUEID,

GNB-DU-TNL-Association-To-Remove-Item,

NotificationInformation,

TraceActivation,

TraceID,

Neighbour-Cell-Information-Item,

SymbolAllocInSlot,

NumDLULSymbols,

AdditionalRRMPriorityIndex,

DUCURadioInformationType,

CUDURadioInformationType,

Transport-Layer-Address-Info,

BHChannels-ToBeSetup-Item,

BHChannels-Setup-Item,

BHChannels-FailedToBeSetup-Item,

BHChannels-ToBeModified-Item,

BHChannels-ToBeReleased-Item,

BHChannels-ToBeSetupMod-Item,

BHChannels-FailedToBeModified-Item,

BHChannels-FailedToBeSetupMod-Item,

BHChannels-Modified-Item,

BHChannels-SetupMod-Item,

BHChannels-Required-ToBeReleased-Item,

BAPAddress,

BAPPathID,

BAPRoutingID,

BH-Routing-Information-Added-List-Item,

BH-Routing-Information-Removed-List-Item,

Child-Nodes-List,

Child-Nodes-List-Item,

Child-Node-Cells-List,

Child-Node-Cells-List-Item,

Activated-Cells-to-be-Updated-List,

Activated-Cells-to-be-Updated-List-Item,

UL-BH-Non-UP-Traffic-Mapping,

IABTNLAddressesRequested,

IABIPv6RequestType,

IAB-TNL-Addresses-To-Remove-Item,

IABTNLAddress,

IAB-Allocated-TNL-Address-Item,

IABv4AddressesRequested,

TrafficMappingInfo,

UL-UP-TNL-Information-to-Update-List-Item,

UL-UP-TNL-Address-to-Update-List-Item,

DL-UP-TNL-Address-to-Update-List-Item,

NRV2XServicesAuthorized,

LTEV2XServicesAuthorized,

NRUESidelinkAggregateMaximumBitrate,

LTEUESidelinkAggregateMaximumBitrate,

SLDRBs-SetupMod-Item,

SLDRBs-ModifiedConf-Item,

SLDRBID,

SLDRBs-FailedToBeModified-Item,

SLDRBs-FailedToBeSetup-Item,

SLDRBs-FailedToBeSetupMod-Item,

SLDRBs-Modified-Item,

SLDRBs-Required-ToBeModified-Item,

SLDRBs-Required-ToBeReleased-Item,

SLDRBs-Setup-Item,

SLDRBs-ToBeModified-Item,

SLDRBs-ToBeReleased-Item,

SLDRBs-ToBeSetup-Item,

SLDRBs-ToBeSetupMod-Item,

GNBCUMeasurementID,

GNBDUMeasurementID,

RegistrationRequest,

ReportCharacteristics,

CellToReportList,

HardwareLoadIndicator,

CellMeasurementResultList,

ReportingPeriodicity,

TNLCapacityIndicator,

RACHReportInformationList,

RLFReportInformationList,

ReportingRequestType,

TimeReferenceInformation,

ConditionalInterDUMobilityInformation,

ConditionalIntraDUMobilityInformation,

TargetCellList,

MDTPLMNList,

PrivacyIndicator,

TransportLayerAddress,

URI-address,

NID,

PosAssistance-Information,

PosBroadcast,

PositioningBroadcastCells,

RoutingID,

PosAssistanceInformationFailureList,

PosMeasurementQuantities,

PosMeasurementResultList,

PosReportCharacteristics,

TRPInformationTypeItem,

TRPInformationItem,

LMF-MeasurementID,

RAN-MeasurementID,

SRSResourceSetID,

SpatialRelationInfo,

SRSResourceTrigger,

SRSConfiguration,

TRPList,

E-CID-MeasurementQuantities,

MeasurementPeriodicity,

E-CID-MeasurementResult,

Cell-Portion-ID,

LMF-UE-MeasurementID,

RAN-UE-MeasurementID,

RelativeTime1900,

SystemFrameNumber,

SlotNumber,

AbortTransmission,

TRP-MeasurementRequestList,

MeasurementBeamInfoRequest,

E-CID-ReportCharacteristics,

Extended-GNB-CU-Name,

Extended-GNB-DU-Name,

F1CTransferPath,

SCGIndicator,

SpatialRelationPerSRSResource,

MeasurementPeriodicityExtended,

PosMeasurementPeriodicityNR-AoA,

PosSItypeList,

DAPS-HO-Status,

UplinkTxDirectCurrentTwoCarrierListInfo

FROM F1AP-IEs

PrivateIE-Container{},

ProtocolExtensionContainer{},

ProtocolIE-Container{},

ProtocolIE-ContainerPair{},

ProtocolIE-SingleContainer{},

F1AP-PRIVATE-IES,

F1AP-PROTOCOL-EXTENSION,

F1AP-PROTOCOL-IES,

F1AP-PROTOCOL-IES-PAIR

FROM F1AP-Containers

id-Candidate-SpCell-Item,

id-Candidate-SpCell-List,

id-Cause,

id-Cancel-all-Warning-Messages-Indicator,

id-Cells-Failed-to-be-Activated-List,

id-Cells-Failed-to-be-Activated-List-Item,

id-Cells-Status-Item,

id-Cells-Status-List,

id-Cells-to-be-Activated-List,

id-Cells-to-be-Activated-List-Item,

id-Cells-to-be-Deactivated-List,

id-Cells-to-be-Deactivated-List-Item,

id-ConfirmedUEID,

id-CriticalityDiagnostics,

id-C-RNTI,

id-CUtoDURRCInformation,

id-DRB-Activity-Item,

id-DRB-Activity-List,

id-DRBs-FailedToBeModified-Item,

id-DRBs-FailedToBeModified-List,

id-DRBs-FailedToBeSetup-Item,

id-DRBs-FailedToBeSetup-List,

id-DRBs-FailedToBeSetupMod-Item,

id-DRBs-FailedToBeSetupMod-List,

id-DRBs-ModifiedConf-Item,

id-DRBs-ModifiedConf-List,

id-DRBs-Modified-Item,

id-DRBs-Modified-List,

id-DRB-Notify-Item,

id-DRB-Notify-List,

id-DRBs-Required-ToBeModified-Item,

id-DRBs-Required-ToBeModified-List,

id-DRBs-Required-ToBeReleased-Item,

id-DRBs-Required-ToBeReleased-List,

id-DRBs-Setup-Item,

id-DRBs-Setup-List,

id-DRBs-SetupMod-Item,

id-DRBs-SetupMod-List,

id-DRBs-ToBeModified-Item,

id-DRBs-ToBeModified-List,

id-DRBs-ToBeReleased-Item,

id-DRBs-ToBeReleased-List,

id-DRBs-ToBeSetup-Item,

id-DRBs-ToBeSetup-List,

id-DRBs-ToBeSetupMod-Item,

id-DRBs-ToBeSetupMod-List,

id-DRXCycle,

id-DUtoCURRCInformation,

id-ExecuteDuplication,

id-FullConfiguration,

id-gNB-CU-UE-F1AP-ID,

id-gNB-DU-UE-F1AP-ID,

id-gNB-DU-ID,

id-GNB-DU-Served-Cells-Item,

id-gNB-DU-Served-Cells-List,

id-gNB-CU-Name,

id-gNB-DU-Name,

id-Extended-GNB-CU-Name,

id-Extended-GNB-DU-Name,

id-InactivityMonitoringRequest,

id-InactivityMonitoringResponse,

id-new-gNB-CU-UE-F1AP-ID,

id-new-gNB-DU-UE-F1AP-ID,

id-oldgNB-DU-UE-F1AP-ID,

id-PLMNAssistanceInfoForNetShar,

id-Potential-SpCell-Item,

id-Potential-SpCell-List,

id-RAT-FrequencyPriorityInformation,

id-RedirectedRRCmessage,

id-ResetType,

id-RequestedSRSTransmissionCharacteristics,

id-ResourceCoordinationTransferContainer,

id-RRCContainer,

id-RRCContainer-RRCSetupComplete,

id-RRCReconfigurationCompleteIndicator,

id-SCell-FailedtoSetup-List,

id-SCell-FailedtoSetup-Item,

id-SCell-FailedtoSetupMod-List,

id-SCell-FailedtoSetupMod-Item,

id-SCell-ToBeRemoved-Item,

id-SCell-ToBeRemoved-List,

id-SCell-ToBeSetup-Item,

id-SCell-ToBeSetup-List,

id-SCell-ToBeSetupMod-Item,

id-SCell-ToBeSetupMod-List,

id-SelectedPLMNID,

id-Served-Cells-To-Add-Item,

id-Served-Cells-To-Add-List,

id-Served-Cells-To-Delete-Item,

id-Served-Cells-To-Delete-List,

id-Served-Cells-To-Modify-Item,

id-Served-Cells-To-Modify-List,

id-ServCellIndex,

id-ServingCellMO,

id-SpCell-ID,

id-SpCellULConfigured,

id-SRBID,

id-SRBs-FailedToBeSetup-Item,

id-SRBs-FailedToBeSetup-List,

id-SRBs-FailedToBeSetupMod-Item,

id-SRBs-FailedToBeSetupMod-List,

id-SRBs-Required-ToBeReleased-Item,

id-SRBs-Required-ToBeReleased-List,

id-SRBs-ToBeReleased-Item,

id-SRBs-ToBeReleased-List,

id-SRBs-ToBeSetup-Item,

id-SRBs-ToBeSetup-List,

id-SRBs-ToBeSetupMod-Item,

id-SRBs-ToBeSetupMod-List,

id-SRBs-Modified-Item,

id-SRBs-Modified-List,

id-SRBs-Setup-Item,

id-SRBs-Setup-List,

id-SRBs-SetupMod-Item,

id-SRBs-SetupMod-List,

id-TimeToWait,

id-TransactionID,

id-TransmissionActionIndicator,

id-UEContextNotRetrievable,

id-UE-associatedLogicalF1-ConnectionItem,

id-UE-associatedLogicalF1-ConnectionListResAck,

id-DUtoCURRCContainer,

id-NRCGI,

id-PagingCell-Item,

id-PagingCell-List,

id-PagingDRX,

id-PagingPriority,

id-SItype-List,

id-UEIdentityIndexValue,

id-GNB-CU-TNL-Association-Setup-List,

id-GNB-CU-TNL-Association-Setup-Item,

id-GNB-CU-TNL-Association-Failed-To-Setup-List,

id-GNB-CU-TNL-Association-Failed-To-Setup-Item,

id-GNB-CU-TNL-Association-To-Add-Item,

id-GNB-CU-TNL-Association-To-Add-List,

id-GNB-CU-TNL-Association-To-Remove-Item,

id-GNB-CU-TNL-Association-To-Remove-List,

id-GNB-CU-TNL-Association-To-Update-Item,

id-GNB-CU-TNL-Association-To-Update-List,

id-MaskedIMEISV,

id-PagingIdentity,

id-Cells-to-be-Barred-List,

id-Cells-to-be-Barred-Item,

id-PWSSystemInformation,

id-RepetitionPeriod,

id-NumberofBroadcastRequest,

id-Cells-To-Be-Broadcast-List,

id-Cells-To-Be-Broadcast-Item,

id-Cells-Broadcast-Completed-List,

id-Cells-Broadcast-Completed-Item,

id-Broadcast-To-Be-Cancelled-List,

id-Broadcast-To-Be-Cancelled-Item,

id-Cells-Broadcast-Cancelled-List,

id-Cells-Broadcast-Cancelled-Item,

id-NR-CGI-List-For-Restart-List,

id-NR-CGI-List-For-Restart-Item,

id-PWS-Failed-NR-CGI-List,

id-PWS-Failed-NR-CGI-Item,

id-EUTRA-NR-CellResourceCoordinationReq-Container,

id-EUTRA-NR-CellResourceCoordinationReqAck-Container,

id-Protected-EUTRA-Resources-List,

id-RequestType,

id-ServingPLMN,

id-DRXConfigurationIndicator,

id-RLCFailureIndication,

id-UplinkTxDirectCurrentListInformation,

id-SULAccessIndication,

id-Protected-EUTRA-Resources-Item,

id-GNB-DUConfigurationQuery,

id-GNB-DU-UE-AMBR-UL,

id-GNB-CU-RRC-Version,

id-GNB-DU-RRC-Version,

id-GNBDUOverloadInformation,

id-NeedforGap,

id-RRCDeliveryStatusRequest,

id-RRCDeliveryStatus,

id-Dedicated-SIDelivery-NeededUE-List,

id-Dedicated-SIDelivery-NeededUE-Item,

id-ResourceCoordinationTransferInformation,

id-Associated-SCell-List,

id-Associated-SCell-Item,

id-IgnoreResourceCoordinationContainer,

id-UAC-Assistance-Info,

id-RANUEID,

id-PagingOrigin,

id-GNB-DU-TNL-Association-To-Remove-Item,

id-GNB-DU-TNL-Association-To-Remove-List,

id-NotificationInformation,

id-TraceActivation,

id-TraceID,

id-Neighbour-Cell-Information-List,

id-Neighbour-Cell-Information-Item,

id-SymbolAllocInSlot,

id-NumDLULSymbols,

id-AdditionalRRMPriorityIndex,

id-DUCURadioInformationType,

id-CUDURadioInformationType,

id-LowerLayerPresenceStatusChange,

id-Transport-Layer-Address-Info,

id-BHChannels-ToBeSetup-List,

id-BHChannels-ToBeSetup-Item,

id-BHChannels-Setup-List,

id-BHChannels-Setup-Item,

id-BHChannels-ToBeModified-Item,

id-BHChannels-ToBeModified-List,

id-BHChannels-ToBeReleased-Item,

id-BHChannels-ToBeReleased-List,

id-BHChannels-ToBeSetupMod-Item,

id-BHChannels-ToBeSetupMod-List,

id-BHChannels-FailedToBeSetup-Item,

id-BHChannels-FailedToBeSetup-List,

id-BHChannels-FailedToBeModified-Item,

id-BHChannels-FailedToBeModified-List,

id-BHChannels-FailedToBeSetupMod-Item,

id-BHChannels-FailedToBeSetupMod-List,

id-BHChannels-Modified-Item,

id-BHChannels-Modified-List,

id-BHChannels-SetupMod-Item,

id-BHChannels-SetupMod-List,

id-BHChannels-Required-ToBeReleased-Item,

id-BHChannels-Required-ToBeReleased-List,

id-BAPAddress,

id-ConfiguredBAPAddress,

id-BH-Routing-Information-Added-List,

id-BH-Routing-Information-Added-List-Item,

id-BH-Routing-Information-Removed-List,

id-BH-Routing-Information-Removed-List-Item,

id-UL-BH-Non-UP-Traffic-Mapping,

id-Child-Nodes-List,

id-Activated-Cells-to-be-Updated-List,

id-IABIPv6RequestType,

id-IAB-TNL-Addresses-To-Remove-List,

id-IAB-TNL-Addresses-To-Remove-Item,

id-IAB-Allocated-TNL-Address-List,

id-IAB-Allocated-TNL-Address-Item,

id-IABv4AddressesRequested,

id-TrafficMappingInformation,

id-UL-UP-TNL-Information-to-Update-List,

id-UL-UP-TNL-Information-to-Update-List-Item,

id-UL-UP-TNL-Address-to-Update-List,

id-UL-UP-TNL-Address-to-Update-List-Item,

id-DL-UP-TNL-Address-to-Update-List,

id-DL-UP-TNL-Address-to-Update-List-Item,

id-NRV2XServicesAuthorized,

id-LTEV2XServicesAuthorized,

id-NRUESidelinkAggregateMaximumBitrate,

id-LTEUESidelinkAggregateMaximumBitrate,

id-PC5LinkAMBR,

id-SLDRBs-FailedToBeModified-Item,

id-SLDRBs-FailedToBeModified-List,

id-SLDRBs-FailedToBeSetup-Item,

id-SLDRBs-FailedToBeSetup-List,

id-SLDRBs-Modified-Item,

id-SLDRBs-Modified-List,

id-SLDRBs-Required-ToBeModified-Item,

id-SLDRBs-Required-ToBeModified-List,

id-SLDRBs-Required-ToBeReleased-Item,

id-SLDRBs-Required-ToBeReleased-List,

id-SLDRBs-Setup-Item,

id-SLDRBs-Setup-List,

id-SLDRBs-ToBeModified-Item,

id-SLDRBs-ToBeModified-List,

id-SLDRBs-ToBeReleased-Item,

id-SLDRBs-ToBeReleased-List,

id-SLDRBs-ToBeSetup-Item,

id-SLDRBs-ToBeSetup-List,

id-SLDRBs-ToBeSetupMod-Item,

id-SLDRBs-ToBeSetupMod-List,

id-SLDRBs-SetupMod-List,

id-SLDRBs-FailedToBeSetupMod-List,

id-SLDRBs-SetupMod-Item,

id-SLDRBs-FailedToBeSetupMod-Item,

id-SLDRBs-ModifiedConf-List,

id-SLDRBs-ModifiedConf-Item,

id-gNBCUMeasurementID,

id-gNBDUMeasurementID,

id-RegistrationRequest,

id-ReportCharacteristics,

id-CellToReportList,

id-CellMeasurementResultList,

id-HardwareLoadIndicator,

id-ReportingPeriodicity,

id-TNLCapacityIndicator,

id-RACHReportInformationList,

id-RLFReportInformationList,

id-ReportingRequestType,

id-TimeReferenceInformation,

id-ConditionalInterDUMobilityInformation,

id-ConditionalIntraDUMobilityInformation,

id-targetCellsToCancel,

id-requestedTargetCellGlobalID,

id-TraceCollectionEntityIPAddress,

id-ManagementBasedMDTPLMNList,

id-PrivacyIndicator,

id-TraceCollectionEntityURI,

id-ServingNID,

id-PosAssistance-Information,

id-PosBroadcast,

id-PositioningBroadcastCells,

id-RoutingID,

id-PosAssistanceInformationFailureList,

id-PosMeasurementQuantities,

id-PosMeasurementResultList,

id-PosMeasurementPeriodicity,

id-PosReportCharacteristics,

id-TRPInformationTypeListTRPReq,

id-TRPInformationTypeItem,

id-TRPInformationListTRPResp,

id-TRPInformationItem,

id-LMF-MeasurementID,

id-RAN-MeasurementID,

id-SRSType,

id-ActivationTime,

id-AbortTransmission,

id-SRSConfiguration,

id-TRPList,

id-E-CID-MeasurementQuantities,

id-E-CID-MeasurementPeriodicity,

id-E-CID-MeasurementResult,

id-Cell-Portion-ID,

id-LMF-UE-MeasurementID,

id-RAN-UE-MeasurementID,

id-SFNInitialisationTime,

id-SystemFrameNumber,

id-SlotNumber,

id-TRP-MeasurementRequestList,

id-MeasurementBeamInfoRequest,

id-E-CID-ReportCharacteristics,

id-F1CTransferPath,

id-SCGIndicator,

id-SRSSpatialRelationPerSRSResource,

id-PosMeasurementPeriodicityExtended,

id-PosMeasurementPeriodicityNR-AoA,

id-PosSItypeList,

id-DAPS-HO-Status,

id-UplinkTxDirectCurrentTwoCarrierListInfo,

maxCellingNBDU,

maxnoofCandidateSpCells,

maxnoofDRBs,

maxnoofErrors,

maxnoofIndividualF1ConnectionsToReset,

maxnoofPotentialSpCells,

maxnoofSCells,

maxnoofSRBs,

maxnoofPagingCells,

maxnoofTNLAssociations,

maxCellineNB,

maxnoofUEIDs,

maxnoofBHRLCChannels,

maxnoofRoutingEntries,

maxnoofChildIABNodes,

maxnoofServedCellsIAB,

maxnoofTLAsIAB,

maxnoofULUPTNLInformationforIAB,

maxnoofUPTNLAddresses,

maxnoofSLDRBs,

maxnoofTRPInfoTypes,

maxnoofTRPs

FROM F1AP-Constants;

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- RESET ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Reset

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Reset ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {ResetIEs} },

...

}

ResetIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-ResetType CRITICALITY reject TYPE ResetType PRESENCE mandatory },

...

}

ResetType ::= CHOICE {

f1-Interface ResetAll,

partOfF1-Interface UE-associatedLogicalF1-ConnectionListRes,

choice-extension ProtocolIE-SingleContainer { { ResetType-ExtIEs} }

}

ResetType-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

ResetAll ::= ENUMERATED {

reset-all,

...

}

UE-associatedLogicalF1-ConnectionListRes ::= SEQUENCE (SIZE(1.. maxnoofIndividualF1ConnectionsToReset)) OF ProtocolIE-SingleContainer { { UE-associatedLogicalF1-ConnectionItemRes } }

UE-associatedLogicalF1-ConnectionItemRes F1AP-PROTOCOL-IES ::= {

{ ID id-UE-associatedLogicalF1-ConnectionItem CRITICALITY reject TYPE UE-associatedLogicalF1-ConnectionItem PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Reset Acknowledge

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ResetAcknowledge ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {ResetAcknowledgeIEs} },

...

}

ResetAcknowledgeIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-UE-associatedLogicalF1-ConnectionListResAck CRITICALITY ignore TYPE UE-associatedLogicalF1-ConnectionListResAck PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

UE-associatedLogicalF1-ConnectionListResAck ::= SEQUENCE (SIZE(1.. maxnoofIndividualF1ConnectionsToReset)) OF ProtocolIE-SingleContainer { { UE-associatedLogicalF1-ConnectionItemResAck } }

UE-associatedLogicalF1-ConnectionItemResAck F1AP-PROTOCOL-IES ::= {

{ ID id-UE-associatedLogicalF1-ConnectionItem CRITICALITY ignore TYPE UE-associatedLogicalF1-ConnectionItem PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- ERROR INDICATION ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Error Indication

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ErrorIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ErrorIndicationIEs}},

...

}

ErrorIndicationIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory}|

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY ignore TYPE GNB-CU-UE-F1AP-ID PRESENCE optional }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY ignore TYPE GNB-DU-UE-F1AP-ID PRESENCE optional }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- F1 SETUP ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- F1 Setup Request

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1SetupRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {F1SetupRequestIEs} },

...

}

F1SetupRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-gNB-DU-ID CRITICALITY reject TYPE GNB-DU-ID PRESENCE mandatory }|

{ ID id-gNB-DU-Name CRITICALITY ignore TYPE GNB-DU-Name PRESENCE optional }|

{ ID id-gNB-DU-Served-Cells-List CRITICALITY reject TYPE GNB-DU-Served-Cells-List PRESENCE optional }|

{ ID id-GNB-DU-RRC-Version CRITICALITY reject TYPE RRC-Version PRESENCE mandatory }|

{ ID id-Transport-Layer-Address-Info CRITICALITY ignore TYPE Transport-Layer-Address-Info PRESENCE optional }|

{ ID id-BAPAddress CRITICALITY ignore TYPE BAPAddress PRESENCE optional }|

{ ID id-Extended-GNB-DU-Name CRITICALITY ignore TYPE Extended-GNB-DU-Name PRESENCE optional },

...

}

GNB-DU-Served-Cells-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { GNB-DU-Served-Cells-ItemIEs } }

GNB-DU-Served-Cells-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-GNB-DU-Served-Cells-Item CRITICALITY reject TYPE GNB-DU-Served-Cells-Item PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- F1 Setup Response

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1SetupResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {F1SetupResponseIEs} },

...

}

F1SetupResponseIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-gNB-CU-Name CRITICALITY ignore TYPE GNB-CU-Name PRESENCE optional }|

{ ID id-Cells-to-be-Activated-List CRITICALITY reject TYPE Cells-to-be-Activated-List PRESENCE optional }|

{ ID id-GNB-CU-RRC-Version CRITICALITY reject TYPE RRC-Version PRESENCE mandatory }|

{ ID id-Transport-Layer-Address-Info CRITICALITY ignore TYPE Transport-Layer-Address-Info PRESENCE optional }|

{ ID id-UL-BH-Non-UP-Traffic-Mapping CRITICALITY reject TYPE UL-BH-Non-UP-Traffic-Mapping PRESENCE optional }|

{ ID id-BAPAddress CRITICALITY ignore TYPE BAPAddress PRESENCE optional }|

{ ID id-Extended-GNB-CU-Name CRITICALITY ignore TYPE Extended-GNB-CU-Name PRESENCE optional },

...

}

Cells-to-be-Activated-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-to-be-Activated-List-ItemIEs } }

Cells-to-be-Activated-List-ItemIEs F1AP-PROTOCOL-IES::= {

{ ID id-Cells-to-be-Activated-List-Item CRITICALITY reject TYPE Cells-to-be-Activated-List-Item PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- F1 Setup Failure

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1SetupFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {F1SetupFailureIEs} },

...

}

F1SetupFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-TimeToWait CRITICALITY ignore TYPE TimeToWait PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- GNB-DU CONFIGURATION UPDATE ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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--

-- GNB-DU CONFIGURATION UPDATE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GNBDUConfigurationUpdate::= SEQUENCE {

protocolIEs ProtocolIE-Container { {GNBDUConfigurationUpdateIEs} },

...

}

GNBDUConfigurationUpdateIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Served-Cells-To-Add-List CRITICALITY reject TYPE Served-Cells-To-Add-List PRESENCE optional }|

{ ID id-Served-Cells-To-Modify-List CRITICALITY reject TYPE Served-Cells-To-Modify-List PRESENCE optional }|

{ ID id-Served-Cells-To-Delete-List CRITICALITY reject TYPE Served-Cells-To-Delete-List PRESENCE optional }|

{ ID id-Cells-Status-List CRITICALITY reject TYPE Cells-Status-List PRESENCE optional }|

{ ID id-Dedicated-SIDelivery-NeededUE-List CRITICALITY ignore TYPE Dedicated-SIDelivery-NeededUE-List PRESENCE optional }|

{ ID id-gNB-DU-ID CRITICALITY reject TYPE GNB-DU-ID PRESENCE optional }|

{ ID id-GNB-DU-TNL-Association-To-Remove-List CRITICALITY reject TYPE GNB-DU-TNL-Association-To-Remove-List PRESENCE optional }|

{ ID id-Transport-Layer-Address-Info CRITICALITY ignore TYPE Transport-Layer-Address-Info PRESENCE optional }|

{ ID id-gNB-DU-Name CRITICALITY ignore TYPE GNB-DU-Name PRESENCE optional }|

{ ID id-Extended-GNB-DU-Name CRITICALITY ignore TYPE Extended-GNB-DU-Name PRESENCE optional },

...

}

Served-Cells-To-Add-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Served-Cells-To-Add-ItemIEs } }

Served-Cells-To-Modify-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Served-Cells-To-Modify-ItemIEs } }

Served-Cells-To-Delete-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Served-Cells-To-Delete-ItemIEs } }

Cells-Status-List ::= SEQUENCE (SIZE(0.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-Status-ItemIEs } }

Dedicated-SIDelivery-NeededUE-List::= SEQUENCE (SIZE(1.. maxnoofUEIDs)) OF ProtocolIE-SingleContainer { { Dedicated-SIDelivery-NeededUE-ItemIEs } }

GNB-DU-TNL-Association-To-Remove-List ::= SEQUENCE (SIZE(1.. maxnoofTNLAssociations)) OF ProtocolIE-SingleContainer { { GNB-DU-TNL-Association-To-Remove-ItemIEs } }

Served-Cells-To-Add-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Served-Cells-To-Add-Item CRITICALITY reject TYPE Served-Cells-To-Add-Item PRESENCE mandatory },

...

}

Served-Cells-To-Modify-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Served-Cells-To-Modify-Item CRITICALITY reject TYPE Served-Cells-To-Modify-Item PRESENCE mandatory },

...

}

Served-Cells-To-Delete-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Served-Cells-To-Delete-Item CRITICALITY reject TYPE Served-Cells-To-Delete-Item PRESENCE mandatory },

...

}

Cells-Status-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Cells-Status-Item CRITICALITY reject TYPE Cells-Status-Item PRESENCE mandatory },

...

}

Dedicated-SIDelivery-NeededUE-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Dedicated-SIDelivery-NeededUE-Item CRITICALITY ignore TYPE Dedicated-SIDelivery-NeededUE-Item PRESENCE mandatory },

...

}

GNB-DU-TNL-Association-To-Remove-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-GNB-DU-TNL-Association-To-Remove-Item CRITICALITY reject TYPE GNB-DU-TNL-Association-To-Remove-Item PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GNBDUConfigurationUpdateAcknowledge ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {GNBDUConfigurationUpdateAcknowledgeIEs} },

...

}

GNBDUConfigurationUpdateAcknowledgeIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cells-to-be-Activated-List CRITICALITY reject TYPE Cells-to-be-Activated-List PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

{ ID id-Cells-to-be-Deactivated-List CRITICALITY reject TYPE Cells-to-be-Deactivated-List PRESENCE optional }|

{ ID id-Transport-Layer-Address-Info CRITICALITY ignore TYPE Transport-Layer-Address-Info PRESENCE optional }|

{ ID id-UL-BH-Non-UP-Traffic-Mapping CRITICALITY reject TYPE UL-BH-Non-UP-Traffic-Mapping PRESENCE optional }|

{ ID id-BAPAddress CRITICALITY ignore TYPE BAPAddress PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- GNB-DU CONFIGURATION UPDATE FAILURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GNBDUConfigurationUpdateFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {GNBDUConfigurationUpdateFailureIEs} },

...

}

GNBDUConfigurationUpdateFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-TimeToWait CRITICALITY ignore TYPE TimeToWait PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- GNB-CU CONFIGURATION UPDATE ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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--

-- GNB-CU CONFIGURATION UPDATE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GNBCUConfigurationUpdate ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { GNBCUConfigurationUpdateIEs} },

...

}

GNBCUConfigurationUpdateIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cells-to-be-Activated-List CRITICALITY reject TYPE Cells-to-be-Activated-List PRESENCE optional }|

{ ID id-Cells-to-be-Deactivated-List CRITICALITY reject TYPE Cells-to-be-Deactivated-List PRESENCE optional }|

{ ID id-GNB-CU-TNL-Association-To-Add-List CRITICALITY ignore TYPE GNB-CU-TNL-Association-To-Add-List PRESENCE optional }|

{ ID id-GNB-CU-TNL-Association-To-Remove-List CRITICALITY ignore TYPE GNB-CU-TNL-Association-To-Remove-List PRESENCE optional }|

{ ID id-GNB-CU-TNL-Association-To-Update-List CRITICALITY ignore TYPE GNB-CU-TNL-Association-To-Update-List PRESENCE optional }|

{ ID id-Cells-to-be-Barred-List CRITICALITY ignore TYPE Cells-to-be-Barred-List PRESENCE optional }|

{ ID id-Protected-EUTRA-Resources-List CRITICALITY reject TYPE Protected-EUTRA-Resources-List PRESENCE optional }|

{ ID id-Neighbour-Cell-Information-List CRITICALITY ignore TYPE Neighbour-Cell-Information-List PRESENCE optional }|

{ ID id-Transport-Layer-Address-Info CRITICALITY ignore TYPE Transport-Layer-Address-Info PRESENCE optional }|

{ ID id-UL-BH-Non-UP-Traffic-Mapping CRITICALITY reject TYPE UL-BH-Non-UP-Traffic-Mapping PRESENCE optional }|

{ ID id-BAPAddress CRITICALITY ignore TYPE BAPAddress PRESENCE optional }|

{ ID id-gNB-CU-Name CRITICALITY ignore TYPE GNB-CU-Name PRESENCE optional }|

{ ID id-Extended-GNB-CU-Name CRITICALITY ignore TYPE Extended-GNB-CU-Name PRESENCE optional },

...

}

Cells-to-be-Deactivated-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-to-be-Deactivated-List-ItemIEs } }

GNB-CU-TNL-Association-To-Add-List ::= SEQUENCE (SIZE(1.. maxnoofTNLAssociations)) OF ProtocolIE-SingleContainer { { GNB-CU-TNL-Association-To-Add-ItemIEs } }

GNB-CU-TNL-Association-To-Remove-List ::= SEQUENCE (SIZE(1.. maxnoofTNLAssociations)) OF ProtocolIE-SingleContainer { { GNB-CU-TNL-Association-To-Remove-ItemIEs } }

GNB-CU-TNL-Association-To-Update-List ::= SEQUENCE (SIZE(1.. maxnoofTNLAssociations)) OF ProtocolIE-SingleContainer { { GNB-CU-TNL-Association-To-Update-ItemIEs } }

Cells-to-be-Barred-List ::= SEQUENCE(SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-to-be-Barred-ItemIEs } }

Cells-to-be-Deactivated-List-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Cells-to-be-Deactivated-List-Item CRITICALITY reject TYPE Cells-to-be-Deactivated-List-Item PRESENCE mandatory },

...

}

GNB-CU-TNL-Association-To-Add-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-GNB-CU-TNL-Association-To-Add-Item CRITICALITY ignore TYPE GNB-CU-TNL-Association-To-Add-Item PRESENCE mandatory },

...

}

GNB-CU-TNL-Association-To-Remove-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-GNB-CU-TNL-Association-To-Remove-Item CRITICALITY ignore TYPE GNB-CU-TNL-Association-To-Remove-Item PRESENCE mandatory },

...

}

GNB-CU-TNL-Association-To-Update-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-GNB-CU-TNL-Association-To-Update-Item CRITICALITY ignore TYPE GNB-CU-TNL-Association-To-Update-Item PRESENCE mandatory },

...

}

Cells-to-be-Barred-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Cells-to-be-Barred-Item CRITICALITY ignore TYPE Cells-to-be-Barred-Item PRESENCE mandatory },

...

}

Protected-EUTRA-Resources-List ::= SEQUENCE (SIZE(1.. maxCellineNB)) OF ProtocolIE-SingleContainer { { Protected-EUTRA-Resources-ItemIEs } }

Protected-EUTRA-Resources-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Protected-EUTRA-Resources-Item CRITICALITY reject TYPE Protected-EUTRA-Resources-Item PRESENCE mandatory},

...

}

Neighbour-Cell-Information-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Neighbour-Cell-Information-ItemIEs } }

Neighbour-Cell-Information-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Neighbour-Cell-Information-Item CRITICALITY ignore TYPE Neighbour-Cell-Information-Item PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GNBCUConfigurationUpdateAcknowledge ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { GNBCUConfigurationUpdateAcknowledgeIEs} },

...

}

GNBCUConfigurationUpdateAcknowledgeIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cells-Failed-to-be-Activated-List CRITICALITY reject TYPE Cells-Failed-to-be-Activated-List PRESENCE optional}|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

{ ID id-GNB-CU-TNL-Association-Setup-List CRITICALITY ignore TYPE GNB-CU-TNL-Association-Setup-List PRESENCE optional }|

{ ID id-GNB-CU-TNL-Association-Failed-To-Setup-List CRITICALITY ignore TYPE GNB-CU-TNL-Association-Failed-To-Setup-List PRESENCE optional }|

{ ID id-Dedicated-SIDelivery-NeededUE-List CRITICALITY ignore TYPE Dedicated-SIDelivery-NeededUE-List PRESENCE optional }|

{ ID id-Transport-Layer-Address-Info CRITICALITY ignore TYPE Transport-Layer-Address-Info PRESENCE optional },

...

}

Cells-Failed-to-be-Activated-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-Failed-to-be-Activated-List-ItemIEs } }

GNB-CU-TNL-Association-Setup-List ::= SEQUENCE (SIZE(1.. maxnoofTNLAssociations)) OF ProtocolIE-SingleContainer { { GNB-CU-TNL-Association-Setup-ItemIEs } }

GNB-CU-TNL-Association-Failed-To-Setup-List ::= SEQUENCE (SIZE(1.. maxnoofTNLAssociations)) OF ProtocolIE-SingleContainer { { GNB-CU-TNL-Association-Failed-To-Setup-ItemIEs } }

Cells-Failed-to-be-Activated-List-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Cells-Failed-to-be-Activated-List-Item CRITICALITY reject TYPE Cells-Failed-to-be-Activated-List-Item PRESENCE mandatory },

...

}

GNB-CU-TNL-Association-Setup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-GNB-CU-TNL-Association-Setup-Item CRITICALITY ignore TYPE GNB-CU-TNL-Association-Setup-Item PRESENCE mandatory },

...

}

GNB-CU-TNL-Association-Failed-To-Setup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-GNB-CU-TNL-Association-Failed-To-Setup-Item CRITICALITY ignore TYPE GNB-CU-TNL-Association-Failed-To-Setup-Item PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- GNB-CU CONFIGURATION UPDATE FAILURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GNBCUConfigurationUpdateFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { GNBCUConfigurationUpdateFailureIEs} },

...

}

GNBCUConfigurationUpdateFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-TimeToWait CRITICALITY ignore TYPE TimeToWait PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- GNB-DU RESOURCE COORDINATION REQUEST

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GNBDUResourceCoordinationRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{GNBDUResourceCoordinationRequest-IEs}},

...

}

GNBDUResourceCoordinationRequest-IEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-RequestType CRITICALITY reject TYPE RequestType PRESENCE mandatory }|

{ ID id-EUTRA-NR-CellResourceCoordinationReq-Container CRITICALITY reject TYPE EUTRA-NR-CellResourceCoordinationReq-Container PRESENCE mandatory}|

{ ID id-IgnoreResourceCoordinationContainer CRITICALITY reject TYPE IgnoreResourceCoordinationContainer PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- GNB-DU RESOURCE COORDINATION RESPONSE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GNBDUResourceCoordinationResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{GNBDUResourceCoordinationResponse-IEs}},

...

}

GNBDUResourceCoordinationResponse-IEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-EUTRA-NR-CellResourceCoordinationReqAck-Container CRITICALITY reject TYPE EUTRA-NR-CellResourceCoordinationReqAck-Container PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE Context Setup ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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-- UE CONTEXT SETUP REQUEST

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

UEContextSetupRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextSetupRequestIEs} },

...

}

UEContextSetupRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY ignore TYPE GNB-DU-UE-F1AP-ID PRESENCE optional }|

{ ID id-SpCell-ID CRITICALITY reject TYPE NRCGI PRESENCE mandatory }|

{ ID id-ServCellIndex CRITICALITY reject TYPE ServCellIndex PRESENCE mandatory }|

{ ID id-SpCellULConfigured CRITICALITY ignore TYPE CellULConfigured PRESENCE optional }|

{ ID id-CUtoDURRCInformation CRITICALITY reject TYPE CUtoDURRCInformation PRESENCE mandatory}|

{ ID id-Candidate-SpCell-List CRITICALITY ignore TYPE Candidate-SpCell-List PRESENCE optional }|

{ ID id-DRXCycle CRITICALITY ignore TYPE DRXCycle PRESENCE optional }|

{ ID id-ResourceCoordinationTransferContainer CRITICALITY ignore TYPE ResourceCoordinationTransferContainer PRESENCE optional }|

{ ID id-SCell-ToBeSetup-List CRITICALITY ignore TYPE SCell-ToBeSetup-List PRESENCE optional }|

{ ID id-SRBs-ToBeSetup-List CRITICALITY reject TYPE SRBs-ToBeSetup-List PRESENCE optional }|

{ ID id-DRBs-ToBeSetup-List CRITICALITY reject TYPE DRBs-ToBeSetup-List PRESENCE optional }|

{ ID id-InactivityMonitoringRequest CRITICALITY reject TYPE InactivityMonitoringRequest PRESENCE optional }|

{ ID id-RAT-FrequencyPriorityInformation CRITICALITY reject TYPE RAT-FrequencyPriorityInformation PRESENCE optional }|

{ ID id-RRCContainer CRITICALITY ignore TYPE RRCContainer PRESENCE optional }|

{ ID id-MaskedIMEISV CRITICALITY ignore TYPE MaskedIMEISV PRESENCE optional }|

{ ID id-ServingPLMN CRITICALITY ignore TYPE PLMN-Identity PRESENCE optional }|

{ ID id-GNB-DU-UE-AMBR-UL CRITICALITY ignore TYPE BitRate PRESENCE conditional }|

{ ID id-RRCDeliveryStatusRequest CRITICALITY ignore TYPE RRCDeliveryStatusRequest PRESENCE optional }|

{ ID id-ResourceCoordinationTransferInformation CRITICALITY ignore TYPE ResourceCoordinationTransferInformation PRESENCE optional }|

{ ID id-ServingCellMO CRITICALITY ignore TYPE ServingCellMO PRESENCE optional }|

{ ID id-new-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE optional }|

{ ID id-RANUEID CRITICALITY ignore TYPE RANUEID PRESENCE optional }|

{ ID id-TraceActivation CRITICALITY ignore TYPE TraceActivation PRESENCE optional }|

{ ID id-AdditionalRRMPriorityIndex CRITICALITY ignore TYPE AdditionalRRMPriorityIndex PRESENCE optional }|

{ ID id-BHChannels-ToBeSetup-List CRITICALITY reject TYPE BHChannels-ToBeSetup-List PRESENCE optional }|

{ ID id-ConfiguredBAPAddress CRITICALITY reject TYPE BAPAddress PRESENCE optional }|

{ ID id-NRV2XServicesAuthorized CRITICALITY ignore TYPE NRV2XServicesAuthorized PRESENCE optional }|

{ ID id-LTEV2XServicesAuthorized CRITICALITY ignore TYPE LTEV2XServicesAuthorized PRESENCE optional }|

{ ID id-NRUESidelinkAggregateMaximumBitrate CRITICALITY ignore TYPE NRUESidelinkAggregateMaximumBitrate PRESENCE optional }|

{ ID id-LTEUESidelinkAggregateMaximumBitrate CRITICALITY ignore TYPE LTEUESidelinkAggregateMaximumBitrate PRESENCE optional }|

{ ID id-PC5LinkAMBR CRITICALITY ignore TYPE BitRate PRESENCE optional}|

{ ID id-SLDRBs-ToBeSetup-List CRITICALITY reject TYPE SLDRBs-ToBeSetup-List PRESENCE optional }|

{ ID id-ConditionalInterDUMobilityInformation CRITICALITY reject TYPE ConditionalInterDUMobilityInformation PRESENCE optional}|

{ ID id-ManagementBasedMDTPLMNList CRITICALITY ignore TYPE MDTPLMNList PRESENCE optional }|

{ ID id-ServingNID CRITICALITY reject TYPE NID PRESENCE optional }|

{ ID id-F1CTransferPath CRITICALITY reject TYPE F1CTransferPath PRESENCE optional },

...

}

Candidate-SpCell-List::= SEQUENCE (SIZE(1..maxnoofCandidateSpCells)) OF ProtocolIE-SingleContainer { { Candidate-SpCell-ItemIEs} }

SCell-ToBeSetup-List::= SEQUENCE (SIZE(1..maxnoofSCells)) OF ProtocolIE-SingleContainer { { SCell-ToBeSetup-ItemIEs} }

SRBs-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-ToBeSetup-ItemIEs} }

DRBs-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-ToBeSetup-ItemIEs} }

BHChannels-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-ToBeSetup-ItemIEs} }

SLDRBs-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-ToBeSetup-ItemIEs} }

Candidate-SpCell-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Candidate-SpCell-Item CRITICALITY ignore TYPE Candidate-SpCell-Item PRESENCE mandatory },

...

}

SCell-ToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SCell-ToBeSetup-Item CRITICALITY ignore TYPE SCell-ToBeSetup-Item PRESENCE mandatory },

...

}

SRBs-ToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SRBs-ToBeSetup-Item CRITICALITY reject TYPE SRBs-ToBeSetup-Item PRESENCE mandatory},

...

}

DRBs-ToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRBs-ToBeSetup-Item CRITICALITY reject TYPE DRBs-ToBeSetup-Item PRESENCE mandatory},

...

}

BHChannels-ToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-BHChannels-ToBeSetup-Item CRITICALITY reject TYPE BHChannels-ToBeSetup-Item PRESENCE mandatory},

...

}

SLDRBs-ToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SLDRBs-ToBeSetup-Item CRITICALITY reject TYPE SLDRBs-ToBeSetup-Item PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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-- UE CONTEXT SETUP RESPONSE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

UEContextSetupResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextSetupResponseIEs} },

...

}

UEContextSetupResponseIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-DUtoCURRCInformation CRITICALITY reject TYPE DUtoCURRCInformation PRESENCE mandatory }|

{ ID id-C-RNTI CRITICALITY ignore TYPE C-RNTI PRESENCE optional }|

{ ID id-ResourceCoordinationTransferContainer CRITICALITY ignore TYPE ResourceCoordinationTransferContainer PRESENCE optional }|

{ ID id-FullConfiguration CRITICALITY reject TYPE FullConfiguration PRESENCE optional }|

{ ID id-DRBs-Setup-List CRITICALITY ignore TYPE DRBs-Setup-List PRESENCE optional }|

{ ID id-SRBs-FailedToBeSetup-List CRITICALITY ignore TYPE SRBs-FailedToBeSetup-List PRESENCE optional }|

{ ID id-DRBs-FailedToBeSetup-List CRITICALITY ignore TYPE DRBs-FailedToBeSetup-List PRESENCE optional }|

{ ID id-SCell-FailedtoSetup-List CRITICALITY ignore TYPE SCell-FailedtoSetup-List PRESENCE optional }|

{ ID id-InactivityMonitoringResponse CRITICALITY reject TYPE InactivityMonitoringResponse PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

{ ID id-SRBs-Setup-List CRITICALITY ignore TYPE SRBs-Setup-List PRESENCE optional }|

{ ID id-BHChannels-Setup-List CRITICALITY ignore TYPE BHChannels-Setup-List PRESENCE optional }|

{ ID id-BHChannels-FailedToBeSetup-List CRITICALITY ignore TYPE BHChannels-FailedToBeSetup-List PRESENCE optional }|

{ ID id-SLDRBs-Setup-List CRITICALITY ignore TYPE SLDRBs-Setup-List PRESENCE optional }|

{ ID id-SLDRBs-FailedToBeSetup-List CRITICALITY ignore TYPE SLDRBs-FailedToBeSetup-List PRESENCE optional }|

{ ID id-requestedTargetCellGlobalID CRITICALITY reject TYPE NRCGI PRESENCE optional},

...

}

DRBs-Setup-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-Setup-ItemIEs} }

SRBs-FailedToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-FailedToBeSetup-ItemIEs} }

DRBs-FailedToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-FailedToBeSetup-ItemIEs} }

SCell-FailedtoSetup-List ::= SEQUENCE (SIZE(1..maxnoofSCells)) OF ProtocolIE-SingleContainer { { SCell-FailedtoSetup-ItemIEs} }

SRBs-Setup-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-Setup-ItemIEs} }

BHChannels-Setup-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-Setup-ItemIEs} }

BHChannels-FailedToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-FailedToBeSetup-ItemIEs} }

DRBs-Setup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRBs-Setup-Item CRITICALITY ignore TYPE DRBs-Setup-Item PRESENCE mandatory},

...

}

SRBs-Setup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SRBs-Setup-Item CRITICALITY ignore TYPE SRBs-Setup-Item PRESENCE mandatory},

...

}

SRBs-FailedToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SRBs-FailedToBeSetup-Item CRITICALITY ignore TYPE SRBs-FailedToBeSetup-Item PRESENCE mandatory},

...

}

DRBs-FailedToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRBs-FailedToBeSetup-Item CRITICALITY ignore TYPE DRBs-FailedToBeSetup-Item PRESENCE mandatory},

...

}

SCell-FailedtoSetup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SCell-FailedtoSetup-Item CRITICALITY ignore TYPE SCell-FailedtoSetup-Item PRESENCE mandatory},

...

}

BHChannels-Setup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-BHChannels-Setup-Item CRITICALITY ignore TYPE BHChannels-Setup-Item PRESENCE mandatory},

...

}

BHChannels-FailedToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-BHChannels-FailedToBeSetup-Item CRITICALITY ignore TYPE BHChannels-FailedToBeSetup-Item PRESENCE mandatory},

...

}

SLDRBs-Setup-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-Setup-ItemIEs} }

SLDRBs-FailedToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-FailedToBeSetup-ItemIEs} }

SLDRBs-Setup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SLDRBs-Setup-Item CRITICALITY ignore TYPE SLDRBs-Setup-Item PRESENCE mandatory},

...

}

SLDRBs-FailedToBeSetup-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SLDRBs-FailedToBeSetup-Item CRITICALITY ignore TYPE SLDRBs-FailedToBeSetup-Item PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE CONTEXT SETUP FAILURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

UEContextSetupFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextSetupFailureIEs} },

...

}

UEContextSetupFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY ignore TYPE GNB-DU-UE-F1AP-ID PRESENCE optional }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

{ ID id-Potential-SpCell-List CRITICALITY ignore TYPE Potential-SpCell-List PRESENCE optional }|

{ ID id-requestedTargetCellGlobalID CRITICALITY reject TYPE NRCGI PRESENCE optional},

...

}

Potential-SpCell-List::= SEQUENCE (SIZE(0..maxnoofPotentialSpCells)) OF ProtocolIE-SingleContainer { { Potential-SpCell-ItemIEs} }

Potential-SpCell-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Potential-SpCell-Item CRITICALITY ignore TYPE Potential-SpCell-Item PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE Context Release Request ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE Context Release Request

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

UEContextReleaseRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ UEContextReleaseRequestIEs}},

...

}

UEContextReleaseRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-targetCellsToCancel CRITICALITY reject TYPE TargetCellList PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE Context Release (gNB-CU initiated) ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE CONTEXT RELEASE COMMAND

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

UEContextReleaseCommand ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextReleaseCommandIEs} },

...

}

UEContextReleaseCommandIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-RRCContainer CRITICALITY ignore TYPE RRCContainer PRESENCE optional }|

{ ID id-SRBID CRITICALITY ignore TYPE SRBID PRESENCE conditional }|

{ ID id-oldgNB-DU-UE-F1AP-ID CRITICALITY ignore TYPE GNB-DU-UE-F1AP-ID PRESENCE optional }|

{ ID id-ExecuteDuplication CRITICALITY ignore TYPE ExecuteDuplication PRESENCE optional}|

{ ID id-RRCDeliveryStatusRequest CRITICALITY ignore TYPE RRCDeliveryStatusRequest PRESENCE optional }|

{ ID id-targetCellsToCancel CRITICALITY reject TYPE TargetCellList PRESENCE optional},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE CONTEXT RELEASE COMPLETE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

UEContextReleaseComplete ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextReleaseCompleteIEs} },

...

}

UEContextReleaseCompleteIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE Context Modification ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE CONTEXT MODIFICATION REQUEST

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

UEContextModificationRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextModificationRequestIEs} },

...

}

UEContextModificationRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-SpCell-ID CRITICALITY ignore TYPE NRCGI PRESENCE optional }|

{ ID id-ServCellIndex CRITICALITY reject TYPE ServCellIndex PRESENCE optional }|

{ ID id-SpCellULConfigured CRITICALITY ignore TYPE CellULConfigured PRESENCE optional }|

{ ID id-DRXCycle CRITICALITY ignore TYPE DRXCycle PRESENCE optional }|

{ ID id-CUtoDURRCInformation CRITICALITY reject TYPE CUtoDURRCInformation PRESENCE optional }|

{ ID id-TransmissionActionIndicator CRITICALITY ignore TYPE TransmissionActionIndicator PRESENCE optional }|

{ ID id-ResourceCoordinationTransferContainer CRITICALITY ignore TYPE ResourceCoordinationTransferContainer PRESENCE optional }|

{ ID id-RRCReconfigurationCompleteIndicator CRITICALITY ignore TYPE RRCReconfigurationCompleteIndicator PRESENCE optional }|

{ ID id-RRCContainer CRITICALITY reject TYPE RRCContainer PRESENCE optional }|

{ ID id-SCell-ToBeSetupMod-List CRITICALITY ignore TYPE SCell-ToBeSetupMod-List PRESENCE optional }|

{ ID id-SCell-ToBeRemoved-List CRITICALITY ignore TYPE SCell-ToBeRemoved-List PRESENCE optional }|

{ ID id-SRBs-ToBeSetupMod-List CRITICALITY reject TYPE SRBs-ToBeSetupMod-List PRESENCE optional }|

{ ID id-DRBs-ToBeSetupMod-List CRITICALITY reject TYPE DRBs-ToBeSetupMod-List PRESENCE optional }|

{ ID id-DRBs-ToBeModified-List CRITICALITY reject TYPE DRBs-ToBeModified-List PRESENCE optional }|

{ ID id-SRBs-ToBeReleased-List CRITICALITY reject TYPE SRBs-ToBeReleased-List PRESENCE optional }|

{ ID id-DRBs-ToBeReleased-List CRITICALITY reject TYPE DRBs-ToBeReleased-List PRESENCE optional }|

{ ID id-InactivityMonitoringRequest CRITICALITY reject TYPE InactivityMonitoringRequest PRESENCE optional }|

{ ID id-RAT-FrequencyPriorityInformation CRITICALITY reject TYPE RAT-FrequencyPriorityInformation PRESENCE optional }|

{ ID id-DRXConfigurationIndicator CRITICALITY ignore TYPE DRXConfigurationIndicator PRESENCE optional }|

{ ID id-RLCFailureIndication CRITICALITY ignore TYPE RLCFailureIndication PRESENCE optional }|

{ ID id-UplinkTxDirectCurrentListInformation CRITICALITY ignore TYPE UplinkTxDirectCurrentListInformation PRESENCE optional }|

{ ID id-GNB-DUConfigurationQuery CRITICALITY reject TYPE GNB-DUConfigurationQuery PRESENCE optional }|

{ ID id-GNB-DU-UE-AMBR-UL CRITICALITY ignore TYPE BitRate PRESENCE optional }|

{ ID id-ExecuteDuplication CRITICALITY ignore TYPE ExecuteDuplication PRESENCE optional}|

{ ID id-RRCDeliveryStatusRequest CRITICALITY ignore TYPE RRCDeliveryStatusRequest PRESENCE optional }|

{ ID id-ResourceCoordinationTransferInformation CRITICALITY ignore TYPE ResourceCoordinationTransferInformation PRESENCE optional }|

{ ID id-ServingCellMO CRITICALITY ignore TYPE ServingCellMO PRESENCE optional }|

{ ID id-NeedforGap CRITICALITY ignore TYPE NeedforGap PRESENCE optional }|

{ ID id-FullConfiguration CRITICALITY reject TYPE FullConfiguration PRESENCE optional }|

{ ID id-AdditionalRRMPriorityIndex CRITICALITY ignore TYPE AdditionalRRMPriorityIndex PRESENCE optional }|

{ ID id-LowerLayerPresenceStatusChange CRITICALITY ignore TYPE LowerLayerPresenceStatusChange PRESENCE optional }|

{ ID id-BHChannels-ToBeSetupMod-List CRITICALITY reject TYPE BHChannels-ToBeSetupMod-List PRESENCE optional }|

{ ID id-BHChannels-ToBeModified-List CRITICALITY reject TYPE BHChannels-ToBeModified-List PRESENCE optional }|

{ ID id-BHChannels-ToBeReleased-List CRITICALITY reject TYPE BHChannels-ToBeReleased-List PRESENCE optional }|

{ ID id-NRV2XServicesAuthorized CRITICALITY ignore TYPE NRV2XServicesAuthorized PRESENCE optional }|

{ ID id-LTEV2XServicesAuthorized CRITICALITY ignore TYPE LTEV2XServicesAuthorized PRESENCE optional }|

{ ID id-NRUESidelinkAggregateMaximumBitrate CRITICALITY ignore TYPE NRUESidelinkAggregateMaximumBitrate PRESENCE optional }|

{ ID id-LTEUESidelinkAggregateMaximumBitrate CRITICALITY ignore TYPE LTEUESidelinkAggregateMaximumBitrate PRESENCE optional }|

{ ID id-PC5LinkAMBR CRITICALITY ignore TYPE BitRate PRESENCE optional}|

{ ID id-SLDRBs-ToBeSetupMod-List CRITICALITY reject TYPE SLDRBs-ToBeSetupMod-List PRESENCE optional }|

{ ID id-SLDRBs-ToBeModified-List CRITICALITY reject TYPE SLDRBs-ToBeModified-List PRESENCE optional }|

{ ID id-SLDRBs-ToBeReleased-List CRITICALITY reject TYPE SLDRBs-ToBeReleased-List PRESENCE optional }|

{ ID id-ConditionalIntraDUMobilityInformation CRITICALITY reject TYPE ConditionalIntraDUMobilityInformation PRESENCE optional}|

{ ID id-F1CTransferPath CRITICALITY reject TYPE F1CTransferPath PRESENCE optional }|

{ ID id-SCGIndicator CRITICALITY ignore TYPE SCGIndicator PRESENCE optional }|

{ ID id-DAPS-HO-Status CRITICALITY ignore TYPE DAPS-HO-Status PRESENCE optional }|

{ ID id-UplinkTxDirectCurrentTwoCarrierListInfo CRITICALITY ignore TYPE UplinkTxDirectCurrentTwoCarrierListInfo PRESENCE optional },

...

}

SCell-ToBeSetupMod-List::= SEQUENCE (SIZE(1..maxnoofSCells)) OF ProtocolIE-SingleContainer { { SCell-ToBeSetupMod-ItemIEs} }

SCell-ToBeRemoved-List::= SEQUENCE (SIZE(1..maxnoofSCells)) OF ProtocolIE-SingleContainer { { SCell-ToBeRemoved-ItemIEs} }

SRBs-ToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-ToBeSetupMod-ItemIEs} }

DRBs-ToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-ToBeSetupMod-ItemIEs} }

BHChannels-ToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-ToBeSetupMod-ItemIEs} }

DRBs-ToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-ToBeModified-ItemIEs} }

BHChannels-ToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-ToBeModified-ItemIEs} }

SRBs-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-ToBeReleased-ItemIEs} }

DRBs-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-ToBeReleased-ItemIEs} }

BHChannels-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-ToBeReleased-ItemIEs} }

SCell-ToBeSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SCell-ToBeSetupMod-Item CRITICALITY ignore TYPE SCell-ToBeSetupMod-Item PRESENCE mandatory },

...

}

SCell-ToBeRemoved-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SCell-ToBeRemoved-Item CRITICALITY ignore TYPE SCell-ToBeRemoved-Item PRESENCE mandatory },

...

}

SRBs-ToBeSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SRBs-ToBeSetupMod-Item CRITICALITY reject TYPE SRBs-ToBeSetupMod-Item PRESENCE mandatory},

...

}

DRBs-ToBeSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRBs-ToBeSetupMod-Item CRITICALITY reject TYPE DRBs-ToBeSetupMod-Item PRESENCE mandatory},

...

}

DRBs-ToBeModified-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRBs-ToBeModified-Item CRITICALITY reject TYPE DRBs-ToBeModified-Item PRESENCE mandatory},

...

}

SRBs-ToBeReleased-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SRBs-ToBeReleased-Item CRITICALITY reject TYPE SRBs-ToBeReleased-Item PRESENCE mandatory},

...

}

DRBs-ToBeReleased-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRBs-ToBeReleased-Item CRITICALITY reject TYPE DRBs-ToBeReleased-Item PRESENCE mandatory},

...

}

BHChannels-ToBeSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-BHChannels-ToBeSetupMod-Item CRITICALITY reject TYPE BHChannels-ToBeSetupMod-Item PRESENCE mandatory},

...

}

BHChannels-ToBeModified-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-BHChannels-ToBeModified-Item CRITICALITY reject TYPE BHChannels-ToBeModified-Item PRESENCE mandatory},

...

}

BHChannels-ToBeReleased-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-BHChannels-ToBeReleased-Item CRITICALITY reject TYPE BHChannels-ToBeReleased-Item PRESENCE mandatory},

...

}

SLDRBs-ToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-ToBeSetupMod-ItemIEs} }

SLDRBs-ToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-ToBeModified-ItemIEs} }

SLDRBs-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-ToBeReleased-ItemIEs} }

SLDRBs-ToBeSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SLDRBs-ToBeSetupMod-Item CRITICALITY reject TYPE SLDRBs-ToBeSetupMod-Item PRESENCE mandatory},

...

}

SLDRBs-ToBeModified-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SLDRBs-ToBeModified-Item CRITICALITY reject TYPE SLDRBs-ToBeModified-Item PRESENCE mandatory},

...

}

SLDRBs-ToBeReleased-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SLDRBs-ToBeReleased-Item CRITICALITY reject TYPE SLDRBs-ToBeReleased-Item PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE CONTEXT MODIFICATION RESPONSE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

UEContextModificationResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextModificationResponseIEs} },

...

}

UEContextModificationResponseIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-ResourceCoordinationTransferContainer CRITICALITY ignore TYPE ResourceCoordinationTransferContainer PRESENCE optional }|

{ ID id-DUtoCURRCInformation CRITICALITY reject TYPE DUtoCURRCInformation PRESENCE optional}|

{ ID id-DRBs-SetupMod-List CRITICALITY ignore TYPE DRBs-SetupMod-List PRESENCE optional}|

{ ID id-DRBs-Modified-List CRITICALITY ignore TYPE DRBs-Modified-List PRESENCE optional}|

{ ID id-SRBs-FailedToBeSetupMod-List CRITICALITY ignore TYPE SRBs-FailedToBeSetupMod-List PRESENCE optional }|

{ ID id-DRBs-FailedToBeSetupMod-List CRITICALITY ignore TYPE DRBs-FailedToBeSetupMod-List PRESENCE optional }|

{ ID id-SCell-FailedtoSetupMod-List CRITICALITY ignore TYPE SCell-FailedtoSetupMod-List PRESENCE optional }|

{ ID id-DRBs-FailedToBeModified-List CRITICALITY ignore TYPE DRBs-FailedToBeModified-List PRESENCE optional }|

{ ID id-InactivityMonitoringResponse CRITICALITY reject TYPE InactivityMonitoringResponse PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

{ ID id-C-RNTI CRITICALITY ignore TYPE C-RNTI PRESENCE optional }|

{ ID id-Associated-SCell-List CRITICALITY ignore TYPE Associated-SCell-List PRESENCE optional }|

{ ID id-SRBs-SetupMod-List CRITICALITY ignore TYPE SRBs-SetupMod-List PRESENCE optional }|

{ ID id-SRBs-Modified-List CRITICALITY ignore TYPE SRBs-Modified-List PRESENCE optional }|

{ ID id-FullConfiguration CRITICALITY reject TYPE FullConfiguration PRESENCE optional }|

{ ID id-BHChannels-SetupMod-List CRITICALITY ignore TYPE BHChannels-SetupMod-List PRESENCE optional}|

{ ID id-BHChannels-Modified-List CRITICALITY ignore TYPE BHChannels-Modified-List PRESENCE optional}|

{ ID id-BHChannels-FailedToBeSetupMod-List CRITICALITY ignore TYPE BHChannels-FailedToBeSetupMod-List PRESENCE optional }|

{ ID id-BHChannels-FailedToBeModified-List CRITICALITY ignore TYPE BHChannels-FailedToBeModified-List PRESENCE optional }|

{ ID id-SLDRBs-SetupMod-List CRITICALITY ignore TYPE SLDRBs-SetupMod-List PRESENCE optional }|

{ ID id-SLDRBs-Modified-List CRITICALITY ignore TYPE SLDRBs-Modified-List PRESENCE optional }|

{ ID id-SLDRBs-FailedToBeSetupMod-List CRITICALITY ignore TYPE SLDRBs-FailedToBeSetupMod-List PRESENCE optional }|

{ ID id-SLDRBs-FailedToBeModified-List CRITICALITY ignore TYPE SLDRBs-FailedToBeModified-List PRESENCE optional }|

{ ID id-requestedTargetCellGlobalID CRITICALITY reject TYPE NRCGI PRESENCE optional},

...

}

DRBs-SetupMod-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-SetupMod-ItemIEs} }

DRBs-Modified-List::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-Modified-ItemIEs } }

SRBs-SetupMod-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-SetupMod-ItemIEs} }

SRBs-Modified-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-Modified-ItemIEs } }

DRBs-FailedToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-FailedToBeModified-ItemIEs} }

SRBs-FailedToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-FailedToBeSetupMod-ItemIEs} }

DRBs-FailedToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-FailedToBeSetupMod-ItemIEs} }

SCell-FailedtoSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofSCells)) OF ProtocolIE-SingleContainer { { SCell-FailedtoSetupMod-ItemIEs} }

BHChannels-SetupMod-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-SetupMod-ItemIEs} }

BHChannels-Modified-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-Modified-ItemIEs } }

BHChannels-FailedToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-FailedToBeModified-ItemIEs} }

BHChannels-FailedToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-FailedToBeSetupMod-ItemIEs} }

Associated-SCell-List ::= SEQUENCE (SIZE(1.. maxnoofSCells)) OF ProtocolIE-SingleContainer { { Associated-SCell-ItemIEs} }

DRBs-SetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRBs-SetupMod-Item CRITICALITY ignore TYPE DRBs-SetupMod-Item PRESENCE mandatory},

...

}

DRBs-Modified-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRBs-Modified-Item CRITICALITY ignore TYPE DRBs-Modified-Item PRESENCE mandatory},

...

}

SRBs-SetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SRBs-SetupMod-Item CRITICALITY ignore TYPE SRBs-SetupMod-Item PRESENCE mandatory},

...

}

SRBs-Modified-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SRBs-Modified-Item CRITICALITY ignore TYPE SRBs-Modified-Item PRESENCE mandatory},

...

}

SRBs-FailedToBeSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SRBs-FailedToBeSetupMod-Item CRITICALITY ignore TYPE SRBs-FailedToBeSetupMod-Item PRESENCE mandatory},

...

}

DRBs-FailedToBeSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRBs-FailedToBeSetupMod-Item CRITICALITY ignore TYPE DRBs-FailedToBeSetupMod-Item PRESENCE mandatory},

...

}

DRBs-FailedToBeModified-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRBs-FailedToBeModified-Item CRITICALITY ignore TYPE DRBs-FailedToBeModified-Item PRESENCE mandatory},

...

}

SCell-FailedtoSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SCell-FailedtoSetupMod-Item CRITICALITY ignore TYPE SCell-FailedtoSetupMod-Item PRESENCE mandatory},

...

}

Associated-SCell-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Associated-SCell-Item CRITICALITY ignore TYPE Associated-SCell-Item PRESENCE mandatory},

...

}

BHChannels-SetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-BHChannels-SetupMod-Item CRITICALITY ignore TYPE BHChannels-SetupMod-Item PRESENCE mandatory},

...

}

BHChannels-Modified-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-BHChannels-Modified-Item CRITICALITY ignore TYPE BHChannels-Modified-Item PRESENCE mandatory},

...

}

BHChannels-FailedToBeSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-BHChannels-FailedToBeSetupMod-Item CRITICALITY ignore TYPE BHChannels-FailedToBeSetupMod-Item PRESENCE mandatory},

...

}

BHChannels-FailedToBeModified-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-BHChannels-FailedToBeModified-Item CRITICALITY ignore TYPE BHChannels-FailedToBeModified-Item PRESENCE mandatory},

...

}

SLDRBs-SetupMod-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-SetupMod-ItemIEs} }

SLDRBs-Modified-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-Modified-ItemIEs } }

SLDRBs-FailedToBeModified-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-FailedToBeModified-ItemIEs} }

SLDRBs-FailedToBeSetupMod-List ::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-FailedToBeSetupMod-ItemIEs} }

SLDRBs-SetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SLDRBs-SetupMod-Item CRITICALITY ignore TYPE SLDRBs-SetupMod-Item PRESENCE mandatory},

...

}

SLDRBs-Modified-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SLDRBs-Modified-Item CRITICALITY ignore TYPE SLDRBs-Modified-Item PRESENCE mandatory},

...

}

SLDRBs-FailedToBeSetupMod-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SLDRBs-FailedToBeSetupMod-Item CRITICALITY ignore TYPE SLDRBs-FailedToBeSetupMod-Item PRESENCE mandatory},

...

}

SLDRBs-FailedToBeModified-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SLDRBs-FailedToBeModified-Item CRITICALITY ignore TYPE SLDRBs-FailedToBeModified-Item PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE CONTEXT MODIFICATION FAILURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

UEContextModificationFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextModificationFailureIEs} },

...

}

UEContextModificationFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

{ ID id-requestedTargetCellGlobalID CRITICALITY reject TYPE NRCGI PRESENCE optional},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE Context Modification Required (gNB-DU initiated) ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE CONTEXT MODIFICATION REQUIRED

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

UEContextModificationRequired ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextModificationRequiredIEs} },

...

}

UEContextModificationRequiredIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-ResourceCoordinationTransferContainer CRITICALITY ignore TYPE ResourceCoordinationTransferContainer PRESENCE optional }|

{ ID id-DUtoCURRCInformation CRITICALITY reject TYPE DUtoCURRCInformation PRESENCE optional}|

{ ID id-DRBs-Required-ToBeModified-List CRITICALITY reject TYPE DRBs-Required-ToBeModified-List PRESENCE optional}|

{ ID id-SRBs-Required-ToBeReleased-List CRITICALITY reject TYPE SRBs-Required-ToBeReleased-List PRESENCE optional}|

{ ID id-DRBs-Required-ToBeReleased-List CRITICALITY reject TYPE DRBs-Required-ToBeReleased-List PRESENCE optional}|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-BHChannels-Required-ToBeReleased-List CRITICALITY reject TYPE BHChannels-Required-ToBeReleased-List PRESENCE optional}|

{ ID id-SLDRBs-Required-ToBeModified-List CRITICALITY reject TYPE SLDRBs-Required-ToBeModified-List PRESENCE optional}|

{ ID id-SLDRBs-Required-ToBeReleased-List CRITICALITY reject TYPE SLDRBs-Required-ToBeReleased-List PRESENCE optional}|

{ ID id-targetCellsToCancel CRITICALITY reject TYPE TargetCellList PRESENCE optional},

...

}

DRBs-Required-ToBeModified-List::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-Required-ToBeModified-ItemIEs } }

DRBs-Required-ToBeReleased-List::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-Required-ToBeReleased-ItemIEs } }

SRBs-Required-ToBeReleased-List::= SEQUENCE (SIZE(1..maxnoofSRBs)) OF ProtocolIE-SingleContainer { { SRBs-Required-ToBeReleased-ItemIEs } }

BHChannels-Required-ToBeReleased-List ::= SEQUENCE (SIZE(1..maxnoofBHRLCChannels)) OF ProtocolIE-SingleContainer { { BHChannels-Required-ToBeReleased-ItemIEs } }

DRBs-Required-ToBeModified-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRBs-Required-ToBeModified-Item CRITICALITY reject TYPE DRBs-Required-ToBeModified-Item PRESENCE mandatory},

...

}

DRBs-Required-ToBeReleased-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRBs-Required-ToBeReleased-Item CRITICALITY reject TYPE DRBs-Required-ToBeReleased-Item PRESENCE mandatory},

...

}

SRBs-Required-ToBeReleased-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SRBs-Required-ToBeReleased-Item CRITICALITY reject TYPE SRBs-Required-ToBeReleased-Item PRESENCE mandatory},

...

}

BHChannels-Required-ToBeReleased-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-BHChannels-Required-ToBeReleased-Item CRITICALITY reject TYPE BHChannels-Required-ToBeReleased-Item PRESENCE mandatory},

...

}

SLDRBs-Required-ToBeModified-List::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-Required-ToBeModified-ItemIEs } }

SLDRBs-Required-ToBeReleased-List::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-Required-ToBeReleased-ItemIEs } }

SLDRBs-Required-ToBeModified-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SLDRBs-Required-ToBeModified-Item CRITICALITY reject TYPE SLDRBs-Required-ToBeModified-Item PRESENCE mandatory},

...

}

SLDRBs-Required-ToBeReleased-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SLDRBs-Required-ToBeReleased-Item CRITICALITY reject TYPE SLDRBs-Required-ToBeReleased-Item PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE CONTEXT MODIFICATION CONFIRM

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

UEContextModificationConfirm::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextModificationConfirmIEs} },

...

}

UEContextModificationConfirmIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-ResourceCoordinationTransferContainer CRITICALITY ignore TYPE ResourceCoordinationTransferContainer PRESENCE optional }|

{ ID id-DRBs-ModifiedConf-List CRITICALITY ignore TYPE DRBs-ModifiedConf-List PRESENCE optional}|

{ ID id-RRCContainer CRITICALITY ignore TYPE RRCContainer PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

{ ID id-ExecuteDuplication CRITICALITY ignore TYPE ExecuteDuplication PRESENCE optional}|

{ ID id-ResourceCoordinationTransferInformation CRITICALITY ignore TYPE ResourceCoordinationTransferInformation PRESENCE optional }|

{ ID id-SLDRBs-ModifiedConf-List CRITICALITY ignore TYPE SLDRBs-ModifiedConf-List PRESENCE optional},

...

}

DRBs-ModifiedConf-List::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRBs-ModifiedConf-ItemIEs } }

DRBs-ModifiedConf-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRBs-ModifiedConf-Item CRITICALITY ignore TYPE DRBs-ModifiedConf-Item PRESENCE mandatory},

...

}

SLDRBs-ModifiedConf-List::= SEQUENCE (SIZE(1..maxnoofSLDRBs)) OF ProtocolIE-SingleContainer { { SLDRBs-ModifiedConf-ItemIEs } }

SLDRBs-ModifiedConf-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-SLDRBs-ModifiedConf-Item CRITICALITY ignore TYPE SLDRBs-ModifiedConf-Item PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE CONTEXT MODIFICATION REFUSE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

UEContextModificationRefuse::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextModificationRefuseIEs} },

...

}

UEContextModificationRefuseIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- WRITE-REPLACE WARNING ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Write-Replace Warning Request

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

WriteReplaceWarningRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {WriteReplaceWarningRequestIEs} },

...

}

WriteReplaceWarningRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-PWSSystemInformation CRITICALITY reject TYPE PWSSystemInformation PRESENCE mandatory }|

{ ID id-RepetitionPeriod CRITICALITY reject TYPE RepetitionPeriod PRESENCE mandatory }|

{ ID id-NumberofBroadcastRequest CRITICALITY reject TYPE NumberofBroadcastRequest PRESENCE mandatory }|

{ ID id-Cells-To-Be-Broadcast-List CRITICALITY reject TYPE Cells-To-Be-Broadcast-List PRESENCE optional },

...

}

Cells-To-Be-Broadcast-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-To-Be-Broadcast-List-ItemIEs } }

Cells-To-Be-Broadcast-List-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Cells-To-Be-Broadcast-Item CRITICALITY reject TYPE Cells-To-Be-Broadcast-Item PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Write-Replace Warning Response

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

WriteReplaceWarningResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {WriteReplaceWarningResponseIEs} },

...

}

WriteReplaceWarningResponseIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cells-Broadcast-Completed-List CRITICALITY reject TYPE Cells-Broadcast-Completed-List PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

{ ID id-Dedicated-SIDelivery-NeededUE-List CRITICALITY ignore TYPE Dedicated-SIDelivery-NeededUE-List PRESENCE optional },

...

}

Cells-Broadcast-Completed-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-Broadcast-Completed-List-ItemIEs } }

Cells-Broadcast-Completed-List-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Cells-Broadcast-Completed-Item CRITICALITY reject TYPE Cells-Broadcast-Completed-Item PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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-- PWS CANCEL ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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--

-- PWS Cancel Request

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PWSCancelRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {PWSCancelRequestIEs} },

...

}

PWSCancelRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-NumberofBroadcastRequest CRITICALITY reject TYPE NumberofBroadcastRequest PRESENCE mandatory }|

{ ID id-Broadcast-To-Be-Cancelled-List CRITICALITY reject TYPE Broadcast-To-Be-Cancelled-List PRESENCE optional }|

{ ID id-Cancel-all-Warning-Messages-Indicator CRITICALITY reject TYPE Cancel-all-Warning-Messages-Indicator PRESENCE optional }|

{ ID id-NotificationInformation CRITICALITY reject TYPE NotificationInformation PRESENCE optional},

...

}

Broadcast-To-Be-Cancelled-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Broadcast-To-Be-Cancelled-List-ItemIEs } }

Broadcast-To-Be-Cancelled-List-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Broadcast-To-Be-Cancelled-Item CRITICALITY reject TYPE Broadcast-To-Be-Cancelled-Item PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- PWS Cancel Response

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PWSCancelResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {PWSCancelResponseIEs} },

...

}

PWSCancelResponseIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cells-Broadcast-Cancelled-List CRITICALITY reject TYPE Cells-Broadcast-Cancelled-List PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

Cells-Broadcast-Cancelled-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { Cells-Broadcast-Cancelled-List-ItemIEs } }

Cells-Broadcast-Cancelled-List-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-Cells-Broadcast-Cancelled-Item CRITICALITY reject TYPE Cells-Broadcast-Cancelled-Item PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UE Inactivity Notification ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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--

-- UE Inactivity Notification

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

UEInactivityNotification ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ UEInactivityNotificationIEs}},

...

}

UEInactivityNotificationIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-DRB-Activity-List CRITICALITY reject TYPE DRB-Activity-List PRESENCE mandatory } ,

...

}

DRB-Activity-List::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRB-Activity-ItemIEs } }

DRB-Activity-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRB-Activity-Item CRITICALITY reject TYPE DRB-Activity-Item PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Initial UL RRC Message Transfer ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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--

-- INITIAL UL RRC Message Transfer

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

InitialULRRCMessageTransfer ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ InitialULRRCMessageTransferIEs}},

...

}

InitialULRRCMessageTransferIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-NRCGI CRITICALITY reject TYPE NRCGI PRESENCE mandatory }|

{ ID id-C-RNTI CRITICALITY reject TYPE C-RNTI PRESENCE mandatory }|

{ ID id-RRCContainer CRITICALITY reject TYPE RRCContainer PRESENCE mandatory }|

{ ID id-DUtoCURRCContainer CRITICALITY reject TYPE DUtoCURRCContainer PRESENCE optional }|

{ ID id-SULAccessIndication CRITICALITY ignore TYPE SULAccessIndication PRESENCE optional }|

{ ID id-TransactionID CRITICALITY ignore TYPE TransactionID PRESENCE mandatory }|

{ ID id-RANUEID CRITICALITY ignore TYPE RANUEID PRESENCE optional }|

{ ID id-RRCContainer-RRCSetupComplete CRITICALITY ignore TYPE RRCContainer-RRCSetupComplete PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- DL RRC Message Transfer ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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--

-- DL RRC Message Transfer

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

DLRRCMessageTransfer ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ DLRRCMessageTransferIEs}},

...

}

DLRRCMessageTransferIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-oldgNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE optional }|

{ ID id-SRBID CRITICALITY reject TYPE SRBID PRESENCE mandatory }|

{ ID id-ExecuteDuplication CRITICALITY ignore TYPE ExecuteDuplication PRESENCE optional}|

{ ID id-RRCContainer CRITICALITY reject TYPE RRCContainer PRESENCE mandatory }|

{ ID id-RAT-FrequencyPriorityInformation CRITICALITY reject TYPE RAT-FrequencyPriorityInformation PRESENCE optional }|

{ ID id-RRCDeliveryStatusRequest CRITICALITY ignore TYPE RRCDeliveryStatusRequest PRESENCE optional }|

{ ID id-UEContextNotRetrievable CRITICALITY reject TYPE UEContextNotRetrievable PRESENCE optional }|

{ ID id-RedirectedRRCmessage CRITICALITY reject TYPE OCTET STRING PRESENCE optional }|

{ ID id-PLMNAssistanceInfoForNetShar CRITICALITY ignore TYPE PLMN-Identity PRESENCE optional }|

{ ID id-new-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE optional }|

{ ID id-AdditionalRRMPriorityIndex CRITICALITY ignore TYPE AdditionalRRMPriorityIndex PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UL RRC Message Transfer ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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--

-- UL RRC Message Transfer

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ULRRCMessageTransfer ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ ULRRCMessageTransferIEs}},

...

}

ULRRCMessageTransferIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-SRBID CRITICALITY reject TYPE SRBID PRESENCE mandatory }|

{ ID id-RRCContainer CRITICALITY reject TYPE RRCContainer PRESENCE mandatory }|

{ ID id-SelectedPLMNID CRITICALITY reject TYPE PLMN-Identity PRESENCE optional }|

{ ID id-new-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- PRIVATE MESSAGE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PrivateMessage ::= SEQUENCE {

privateIEs PrivateIE-Container {{PrivateMessage-IEs}},

...

}

PrivateMessage-IEs F1AP-PRIVATE-IES ::= {

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- System Information ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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--

-- System information Delivery Command

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SystemInformationDeliveryCommand ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ SystemInformationDeliveryCommandIEs}},

...

}

SystemInformationDeliveryCommandIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-NRCGI CRITICALITY reject TYPE NRCGI PRESENCE mandatory }|

{ ID id-SItype-List CRITICALITY reject TYPE SItype-List PRESENCE mandatory }|

{ ID id-ConfirmedUEID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Paging PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Paging

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Paging ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ PagingIEs}},

...

}

PagingIEs F1AP-PROTOCOL-IES ::= {

{ ID id-UEIdentityIndexValue CRITICALITY reject TYPE UEIdentityIndexValue PRESENCE mandatory }|

{ ID id-PagingIdentity CRITICALITY reject TYPE PagingIdentity PRESENCE mandatory }|

{ ID id-PagingDRX CRITICALITY ignore TYPE PagingDRX PRESENCE optional }|

{ ID id-PagingPriority CRITICALITY ignore TYPE PagingPriority PRESENCE optional }|

{ ID id-PagingCell-List CRITICALITY ignore TYPE PagingCell-list PRESENCE mandatory }|

{ ID id-PagingOrigin CRITICALITY ignore TYPE PagingOrigin PRESENCE optional },

...

}

PagingCell-list::= SEQUENCE (SIZE(1.. maxnoofPagingCells)) OF ProtocolIE-SingleContainer { { PagingCell-ItemIEs } }

PagingCell-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-PagingCell-Item CRITICALITY ignore TYPE PagingCell-Item PRESENCE mandatory} ,

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Notify

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Notify ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ NotifyIEs}},

...

}

NotifyIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-DRB-Notify-List CRITICALITY reject TYPE DRB-Notify-List PRESENCE mandatory },

...

}

DRB-Notify-List::= SEQUENCE (SIZE(1.. maxnoofDRBs)) OF ProtocolIE-SingleContainer { { DRB-Notify-ItemIEs } }

DRB-Notify-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRB-Notify-Item CRITICALITY reject TYPE DRB-Notify-Item PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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-- NETWORK ACCESS RATE REDUCTION ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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--

-- Network Access Rate Reduction

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NetworkAccessRateReduction ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ NetworkAccessRateReductionIEs }},

...

}

NetworkAccessRateReductionIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-UAC-Assistance-Info CRITICALITY reject TYPE UAC-Assistance-Info PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- PWS RESTART INDICATION ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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--

-- PWS Restart Indication

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PWSRestartIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PWSRestartIndicationIEs} },

...

}

PWSRestartIndicationIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-NR-CGI-List-For-Restart-List CRITICALITY reject TYPE NR-CGI-List-For-Restart-List PRESENCE mandatory },

...

}

NR-CGI-List-For-Restart-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { NR-CGI-List-For-Restart-List-ItemIEs } }

NR-CGI-List-For-Restart-List-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-NR-CGI-List-For-Restart-Item CRITICALITY reject TYPE NR-CGI-List-For-Restart-Item PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- PWS FAILURE INDICATION ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- PWS Failure Indication

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PWSFailureIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PWSFailureIndicationIEs} },

...

}

PWSFailureIndicationIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-PWS-Failed-NR-CGI-List CRITICALITY reject TYPE PWS-Failed-NR-CGI-List PRESENCE optional },

...

}

PWS-Failed-NR-CGI-List ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF ProtocolIE-SingleContainer { { PWS-Failed-NR-CGI-List-ItemIEs } }

PWS-Failed-NR-CGI-List-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-PWS-Failed-NR-CGI-Item CRITICALITY reject TYPE PWS-Failed-NR-CGI-Item PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- gNB-DU STATUS INDICATION ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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--

-- gNB-DU Status Indication

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GNBDUStatusIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {GNBDUStatusIndicationIEs} },

...

}

GNBDUStatusIndicationIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-GNBDUOverloadInformation CRITICALITY reject TYPE GNBDUOverloadInformation PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- RRC Delivery Report ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- RRC Delivery Report

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

RRCDeliveryReport ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ RRCDeliveryReportIEs}},

...

}

RRCDeliveryReportIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-RRCDeliveryStatus CRITICALITY ignore TYPE RRCDeliveryStatus PRESENCE mandatory }|

{ ID id-SRBID CRITICALITY ignore TYPE SRBID PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- F1 Removal ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- F1 Removal Request

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1RemovalRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ F1RemovalRequestIEs }},

...

}

F1RemovalRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- F1 Removal Response

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1RemovalResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ F1RemovalResponseIEs }},

...

}

F1RemovalResponseIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- F1 Removal Failure

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1RemovalFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ F1RemovalFailureIEs }},

...

}

F1RemovalFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- TRACE ELEMENTARY PROCEDURES

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- TRACE START

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

TraceStart ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {TraceStartIEs} },

...

}

TraceStartIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-TraceActivation CRITICALITY ignore TYPE TraceActivation PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- DEACTIVATE TRACE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

DeactivateTrace ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {DeactivateTraceIEs} },

...

}

DeactivateTraceIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-TraceID CRITICALITY ignore TYPE TraceID PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- CELL TRAFFIC TRACE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

CellTrafficTrace ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {CellTrafficTraceIEs} },

...

}

CellTrafficTraceIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ID id-TraceID CRITICALITY ignore TYPE TraceID PRESENCE mandatory }|

{ID id-TraceCollectionEntityIPAddress CRITICALITY ignore TYPE TransportLayerAddress PRESENCE mandatory }|

{ID id-PrivacyIndicator CRITICALITY ignore TYPE PrivacyIndicator PRESENCE optional }|

{ID id-TraceCollectionEntityURI CRITICALITY ignore TYPE URI-address PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- DU-CU Radio Information Transfer ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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--

-- DU-CU Radio Information Transfer

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

DUCURadioInformationTransfer ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ DUCURadioInformationTransferIEs}},

...

}

DUCURadioInformationTransferIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-DUCURadioInformationType CRITICALITY ignore TYPE DUCURadioInformationType PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- CU-DU Radio Information Transfer ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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--

-- CU-DU Radio Information Transfer

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

CUDURadioInformationTransfer ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ CUDURadioInformationTransferIEs}},

...

}

CUDURadioInformationTransferIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-CUDURadioInformationType CRITICALITY ignore TYPE CUDURadioInformationType PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IAB PROCEDURES

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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-- BAP Mapping Configuration ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- BAP MAPPING CONFIGURATION

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

BAPMappingConfiguration ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {BAPMappingConfiguration-IEs} },

...

}

BAPMappingConfiguration-IEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory}|

{ ID id-BH-Routing-Information-Added-List CRITICALITY ignore TYPE BH-Routing-Information-Added-List PRESENCE optional}|

{ ID id-BH-Routing-Information-Removed-List CRITICALITY ignore TYPE BH-Routing-Information-Removed-List PRESENCE optional}|

{ ID id-TrafficMappingInformation CRITICALITY ignore TYPE TrafficMappingInfo PRESENCE optional},

...

}

BH-Routing-Information-Added-List ::= SEQUENCE (SIZE(1.. maxnoofRoutingEntries)) OF ProtocolIE-SingleContainer { { BH-Routing-Information-Added-List-ItemIEs } }

BH-Routing-Information-Removed-List ::= SEQUENCE (SIZE(1.. maxnoofRoutingEntries)) OF ProtocolIE-SingleContainer { { BH-Routing-Information-Removed-List-ItemIEs } }

BH-Routing-Information-Added-List-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-BH-Routing-Information-Added-List-Item CRITICALITY ignore TYPE BH-Routing-Information-Added-List-Item PRESENCE optional},

...

}

BH-Routing-Information-Removed-List-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-BH-Routing-Information-Removed-List-Item CRITICALITY ignore TYPE BH-Routing-Information-Removed-List-Item PRESENCE optional},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- BAP MAPPING CONFIGURATION ACKNOWLEDGE

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

BAPMappingConfigurationAcknowledge ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {BAPMappingConfigurationAcknowledge-IEs} },

...

}

BAPMappingConfigurationAcknowledge-IEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory}|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- BAP MAPPING CONFIGURATION FAILURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

BAPMappingConfigurationFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { BAPMappingConfigurationFailureIEs} },

...

}

BAPMappingConfigurationFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-TimeToWait CRITICALITY ignore TYPE TimeToWait PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- GNB-DU Configuration ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- GNB-DU RESOURCE CONFIGURATION

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GNBDUResourceConfiguration ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ GNBDUResourceConfigurationIEs}},

...

}

GNBDUResourceConfigurationIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Activated-Cells-to-be-Updated-List CRITICALITY reject TYPE Activated-Cells-to-be-Updated-List PRESENCE optional}|

{ ID id-Child-Nodes-List CRITICALITY reject TYPE Child-Nodes-List PRESENCE optional},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- GNB-DU RESOURCE CONFIGURATION ACKNOWLEDGE

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GNBDUResourceConfigurationAcknowledge ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { GNBDUResourceConfigurationAcknowledgeIEs} },

...

}

GNBDUResourceConfigurationAcknowledgeIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- GNB-DU RESOURCE CONFIGURATION FAILURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GNBDUResourceConfigurationFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { GNBDUResourceConfigurationFailureIEs} },

...

}

GNBDUResourceConfigurationFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-TimeToWait CRITICALITY ignore TYPE TimeToWait PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IAB TNL Address Allocation ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IAB TNL ADDRESS REQUEST

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IABTNLAddressRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {IABTNLAddressRequestIEs} },

...

}

IABTNLAddressRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-IABv4AddressesRequested CRITICALITY reject TYPE IABv4AddressesRequested PRESENCE optional }|

{ ID id-IABIPv6RequestType CRITICALITY reject TYPE IABIPv6RequestType PRESENCE optional }|

{ ID id-IAB-TNL-Addresses-To-Remove-List CRITICALITY reject TYPE IAB-TNL-Addresses-To-Remove-List PRESENCE optional },

...

}

IAB-TNL-Addresses-To-Remove-List ::= SEQUENCE (SIZE(1..maxnoofTLAsIAB)) OF ProtocolIE-SingleContainer { { IAB-TNL-Addresses-To-Remove-ItemIEs } }

IAB-TNL-Addresses-To-Remove-ItemIEs F1AP-PROTOCOL-IES::= {

{ ID id-IAB-TNL-Addresses-To-Remove-Item CRITICALITY reject TYPE IAB-TNL-Addresses-To-Remove-Item PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IAB TNL ADDRESS RESPONSE

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IABTNLAddressResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {IABTNLAddressResponseIEs} },

...

}

IABTNLAddressResponseIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-IAB-Allocated-TNL-Address-List CRITICALITY reject TYPE IAB-Allocated-TNL-Address-List PRESENCE mandatory },

...

}

IAB-Allocated-TNL-Address-List ::= SEQUENCE (SIZE(1.. maxnoofTLAsIAB)) OF ProtocolIE-SingleContainer { { IAB-Allocated-TNL-Address-List-ItemIEs } }

IAB-Allocated-TNL-Address-List-ItemIEs F1AP-PROTOCOL-IES::= {

{ ID id-IAB-Allocated-TNL-Address-Item CRITICALITY reject TYPE IAB-Allocated-TNL-Address-Item PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IAB TNL ADDRESS FAILURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IABTNLAddressFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { IABTNLAddressFailureIEs} },

...

}

IABTNLAddressFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-TimeToWait CRITICALITY ignore TYPE TimeToWait PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IAB UP Configuration Update ELEMENTARY PROCEDURE

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IAB UP Configuration Update Request

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IABUPConfigurationUpdateRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { IABUPConfigurationUpdateRequestIEs} },

...

}

IABUPConfigurationUpdateRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-UL-UP-TNL-Information-to-Update-List CRITICALITY ignore TYPE UL-UP-TNL-Information-to-Update-List PRESENCE optional }|

{ ID id-UL-UP-TNL-Address-to-Update-List CRITICALITY ignore TYPE UL-UP-TNL-Address-to-Update-List PRESENCE optional },

...

}

UL-UP-TNL-Information-to-Update-List ::= SEQUENCE (SIZE(1.. maxnoofULUPTNLInformationforIAB)) OF ProtocolIE-SingleContainer { { UL-UP-TNL-Information-to-Update-List-ItemIEs } }

UL-UP-TNL-Information-to-Update-List-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-UL-UP-TNL-Information-to-Update-List-Item CRITICALITY ignore TYPE UL-UP-TNL-Information-to-Update-List-Item PRESENCE mandatory },

...

}

UL-UP-TNL-Address-to-Update-List ::= SEQUENCE (SIZE(1.. maxnoofUPTNLAddresses)) OF ProtocolIE-SingleContainer { { UL-UP-TNL-Address-to-Update-List-ItemIEs } }

UL-UP-TNL-Address-to-Update-List-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-UL-UP-TNL-Address-to-Update-List-Item CRITICALITY ignore TYPE UL-UP-TNL-Address-to-Update-List-Item PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IAB UP Configuration Update Response

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IABUPConfigurationUpdateResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { IABUPConfigurationUpdateResponseIEs} },

...

}

IABUPConfigurationUpdateResponseIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

{ ID id-DL-UP-TNL-Address-to-Update-List CRITICALITY reject TYPE DL-UP-TNL-Address-to-Update-List PRESENCE optional },

...

}

DL-UP-TNL-Address-to-Update-List ::= SEQUENCE (SIZE(1.. maxnoofUPTNLAddresses)) OF ProtocolIE-SingleContainer { { DL-UP-TNL-Address-to-Update-List-ItemIEs } }

DL-UP-TNL-Address-to-Update-List-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DL-UP-TNL-Address-to-Update-List-Item CRITICALITY ignore TYPE DL-UP-TNL-Address-to-Update-List-Item PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IAB UP Configuration Update Failure

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IABUPConfigurationUpdateFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { IABUPConfigurationUpdateFailureIEs} },

...

}

IABUPConfigurationUpdateFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-TimeToWait CRITICALITY ignore TYPE TimeToWait PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Resource Status Reporting Initiation ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Resource Status Request

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ResourceStatusRequest::= SEQUENCE {

protocolIEs ProtocolIE-Container { {ResourceStatusRequestIEs} },

...

}

ResourceStatusRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-gNBCUMeasurementID CRITICALITY reject TYPE GNBCUMeasurementID PRESENCE mandatory }|

{ ID id-gNBDUMeasurementID CRITICALITY ignore TYPE GNBDUMeasurementID PRESENCE conditional }|

{ ID id-RegistrationRequest CRITICALITY ignore TYPE RegistrationRequest PRESENCE mandatory }|

{ ID id-ReportCharacteristics CRITICALITY ignore TYPE ReportCharacteristics PRESENCE conditional }|

{ ID id-CellToReportList CRITICALITY ignore TYPE CellToReportList PRESENCE optional }|

{ ID id-ReportingPeriodicity CRITICALITY ignore TYPE ReportingPeriodicity PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Resource Status Response

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ResourceStatusResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { ResourceStatusResponseIEs} },

...

}

ResourceStatusResponseIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-gNBCUMeasurementID CRITICALITY reject TYPE GNBCUMeasurementID PRESENCE mandatory }|

{ ID id-gNBDUMeasurementID CRITICALITY ignore TYPE GNBDUMeasurementID PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Resource Status Failure

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ResourceStatusFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { ResourceStatusFailureIEs} },

...

}

ResourceStatusFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-gNBCUMeasurementID CRITICALITY reject TYPE GNBCUMeasurementID PRESENCE mandatory }|

{ ID id-gNBDUMeasurementID CRITICALITY ignore TYPE GNBDUMeasurementID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Resource Status Reporting ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Resource Status Update

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ResourceStatusUpdate ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ ResourceStatusUpdateIEs}},

...

}

ResourceStatusUpdateIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-gNBCUMeasurementID CRITICALITY reject TYPE GNBCUMeasurementID PRESENCE mandatory }|

{ ID id-gNBDUMeasurementID CRITICALITY ignore TYPE GNBDUMeasurementID PRESENCE mandatory }|

{ ID id-HardwareLoadIndicator CRITICALITY ignore TYPE HardwareLoadIndicator PRESENCE optional }|

{ ID id-TNLCapacityIndicator CRITICALITY ignore TYPE TNLCapacityIndicator PRESENCE optional }|

{ ID id-CellMeasurementResultList CRITICALITY ignore TYPE CellMeasurementResultList PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Access And Mobility Indication ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Access And Mobility Indication

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

AccessAndMobilityIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { AccessAndMobilityIndicationIEs} },

...

}

AccessAndMobilityIndicationIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-RACHReportInformationList CRITICALITY ignore TYPE RACHReportInformationList PRESENCE optional }|

{ ID id-RLFReportInformationList CRITICALITY ignore TYPE RLFReportInformationList PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- REFERENCE TIME INFORMATION REPORTING CONTROL

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ReferenceTimeInformationReportingControl::= SEQUENCE {

protocolIEs ProtocolIE-Container { { ReferenceTimeInformationReportingControlIEs} },

...

}

ReferenceTimeInformationReportingControlIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-ReportingRequestType CRITICALITY reject TYPE ReportingRequestType PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- REFERENCE TIME INFORMATION REPORT

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ReferenceTimeInformationReport::= SEQUENCE {

protocolIEs ProtocolIE-Container { { ReferenceTimeInformationReportIEs} },

...

}

ReferenceTimeInformationReportIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY ignore TYPE TransactionID PRESENCE mandatory }|

{ ID id-TimeReferenceInformation CRITICALITY ignore TYPE TimeReferenceInformation PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Access Success

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

AccessSuccess ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ AccessSuccessIEs}},

...

}

AccessSuccessIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-NRCGI CRITICALITY reject TYPE NRCGI PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- POSITIONING ASSISTANCE INFORMATION CONTROL ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Assistance Information Control

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningAssistanceInformationControl ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ PositioningAssistanceInformationControlIEs}},

...

}

PositioningAssistanceInformationControlIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-PosAssistance-Information CRITICALITY reject TYPE PosAssistance-Information PRESENCE optional}|

{ ID id-PosBroadcast CRITICALITY reject TYPE PosBroadcast PRESENCE optional}|

{ ID id-PositioningBroadcastCells CRITICALITY reject TYPE PositioningBroadcastCells PRESENCE optional}|

{ ID id-RoutingID CRITICALITY reject TYPE RoutingID PRESENCE optional},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- POSITIONING ASSISTANCE INFORMATION FEEDBACK ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Assistance Information Feedback

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningAssistanceInformationFeedback ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ PositioningAssistanceInformationFeedbackIEs}},

...

}

PositioningAssistanceInformationFeedbackIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-PosAssistanceInformationFailureList CRITICALITY reject TYPE PosAssistanceInformationFailureList PRESENCE optional}|

{ ID id-PositioningBroadcastCells CRITICALITY reject TYPE PositioningBroadcastCells PRESENCE optional}|

{ ID id-RoutingID CRITICALITY reject TYPE RoutingID PRESENCE optional}|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- POSITONING MEASUREMENT EXCHANGE ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Measurement Request

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningMeasurementRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningMeasurementRequestIEs} },

...

}

PositioningMeasurementRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory}|

{ ID id-LMF-MeasurementID CRITICALITY reject TYPE LMF-MeasurementID PRESENCE mandatory}|

{ ID id-RAN-MeasurementID CRITICALITY reject TYPE RAN-MeasurementID PRESENCE mandatory}|

{ ID id-TRP-MeasurementRequestList CRITICALITY reject TYPE TRP-MeasurementRequestList PRESENCE mandatory}|

{ ID id-PosReportCharacteristics CRITICALITY reject TYPE PosReportCharacteristics PRESENCE mandatory}|

{ ID id-PosMeasurementPeriodicity CRITICALITY reject TYPE MeasurementPeriodicity PRESENCE conditional }|

-- The above IE shall be present if the PosReportCharacteristics IE is set to “periodic” --

{ ID id-PosMeasurementQuantities CRITICALITY reject TYPE PosMeasurementQuantities PRESENCE mandatory}|

{ ID id-SFNInitialisationTime CRITICALITY ignore TYPE RelativeTime1900 PRESENCE optional }|

{ ID id-SRSConfiguration CRITICALITY ignore TYPE SRSConfiguration PRESENCE optional}|

{ ID id-MeasurementBeamInfoRequest CRITICALITY ignore TYPE MeasurementBeamInfoRequest PRESENCE optional }|

{ ID id-SystemFrameNumber CRITICALITY ignore TYPE SystemFrameNumber PRESENCE optional}|

{ ID id-SlotNumber CRITICALITY ignore TYPE SlotNumber PRESENCE optional}|

{ ID id-PosMeasurementPeriodicityExtended CRITICALITY reject TYPE MeasurementPeriodicityExtended PRESENCE conditional }

-- The IE shall be present the MeasurementPeriodicity IE is set to the value "extended"

,

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Measurement Response

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningMeasurementResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningMeasurementResponseIEs} },

...

}

PositioningMeasurementResponseIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory}|

{ ID id-LMF-MeasurementID CRITICALITY reject TYPE LMF-MeasurementID PRESENCE mandatory}|

{ ID id-RAN-MeasurementID CRITICALITY reject TYPE RAN-MeasurementID PRESENCE mandatory}|

{ ID id-PosMeasurementResultList CRITICALITY reject TYPE PosMeasurementResultList PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Measurement Failure

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningMeasurementFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningMeasurementFailureIEs} },

...

}

PositioningMeasurementFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-LMF-MeasurementID CRITICALITY reject TYPE LMF-MeasurementID PRESENCE mandatory }|

{ ID id-RAN-MeasurementID CRITICALITY reject TYPE RAN-MeasurementID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- POSITIONING MEASUREMENT REPORT ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Measurement Report

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningMeasurementReport ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningMeasurementReportIEs} },

...

}

PositioningMeasurementReportIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-LMF-MeasurementID CRITICALITY reject TYPE LMF-MeasurementID PRESENCE mandatory }|

{ ID id-RAN-MeasurementID CRITICALITY reject TYPE RAN-MeasurementID PRESENCE mandatory }|

{ ID id-PosMeasurementResultList CRITICALITY reject TYPE PosMeasurementResultList PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- POSITIONING MEASUREMENT ABORT ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Measurement Abort

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningMeasurementAbort ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningMeasurementAbortIEs} },

...

}

PositioningMeasurementAbortIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-LMF-MeasurementID CRITICALITY reject TYPE LMF-MeasurementID PRESENCE mandatory }|

{ ID id-RAN-MeasurementID CRITICALITY reject TYPE RAN-MeasurementID PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- POSITIONING MEASUREMENT FAILURE INDICATION ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Measurement Failure Indication

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningMeasurementFailureIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningMeasurementFailureIndicationIEs} },

...

}

PositioningMeasurementFailureIndicationIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-LMF-MeasurementID CRITICALITY reject TYPE LMF-MeasurementID PRESENCE mandatory }|

{ ID id-RAN-MeasurementID CRITICALITY reject TYPE RAN-MeasurementID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- POSITIONING MEASUREMENT UPDATE ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Measurement Update

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningMeasurementUpdate ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningMeasurementUpdateIEs} },

...

}

PositioningMeasurementUpdateIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-LMF-MeasurementID CRITICALITY reject TYPE LMF-MeasurementID PRESENCE mandatory }|

{ ID id-RAN-MeasurementID CRITICALITY reject TYPE RAN-MeasurementID PRESENCE mandatory }|

{ ID id-SRSConfiguration CRITICALITY ignore TYPE SRSConfiguration PRESENCE optional},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- TRP INFORMATION EXCHANGE ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- TRP Information Request

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

TRPInformationRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { TRPInformationRequestIEs} },

...

}

TRPInformationRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-TRPList CRITICALITY ignore TYPE TRPList PRESENCE optional }|

{ ID id-TRPInformationTypeListTRPReq CRITICALITY reject TYPE TRPInformationTypeListTRPReq PRESENCE mandatory },

...

}

TRPInformationTypeListTRPReq ::= SEQUENCE (SIZE(1.. maxnoofTRPInfoTypes)) OF ProtocolIE-SingleContainer { { TRPInformationTypeItemTRPReq } }

TRPInformationTypeItemTRPReq F1AP-PROTOCOL-IES ::= {

{ ID id-TRPInformationTypeItem CRITICALITY reject TYPE TRPInformationTypeItem PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- TRP Information Response

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

TRPInformationResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { TRPInformationResponseIEs} },

...

}

TRPInformationResponseIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-TRPInformationListTRPResp CRITICALITY ignore TYPE TRPInformationListTRPResp PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

TRPInformationListTRPResp ::= SEQUENCE (SIZE(1.. maxnoofTRPs)) OF ProtocolIE-SingleContainer { { TRPInformationItemTRPResp } }

TRPInformationItemTRPResp F1AP-PROTOCOL-IES ::= {

{ ID id-TRPInformationItem CRITICALITY ignore TYPE TRPInformationItem PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- TRP Information Failure

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

TRPInformationFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { TRPInformationFailureIEs} },

...

}

TRPInformationFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- POSITIONING INFORMATION EXCHANGE ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Information Request

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningInformationRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningInformationRequestIEs} },

...

}

PositioningInformationRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-RequestedSRSTransmissionCharacteristics CRITICALITY ignore TYPE RequestedSRSTransmissionCharacteristics PRESENCE optional},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Information Response

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningInformationResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningInformationResponseIEs} },

...

}

PositioningInformationResponseIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-SRSConfiguration CRITICALITY ignore TYPE SRSConfiguration PRESENCE optional}|

{ ID id-SFNInitialisationTime CRITICALITY ignore TYPE RelativeTime1900 PRESENCE optional}|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Information Failure

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningInformationFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningInformationFailureIEs} },

...

}

PositioningInformationFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- POSITIONING ACTIVATION PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Activation Request

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningActivationRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningActivationRequestIEs} },

...

}

PositioningActivationRequestIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-SRSType CRITICALITY reject TYPE SRSType PRESENCE mandatory }|

{ ID id-ActivationTime CRITICALITY ignore TYPE RelativeTime1900 PRESENCE optional },

...

}

SRSType ::= CHOICE {

semipersistentSRS SemipersistentSRS,

aperiodicSRS AperiodicSRS,

choice-extension ProtocolIE-SingleContainer { { SRSType-ExtIEs} }

}

SRSType-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

SemipersistentSRS ::= SEQUENCE {

sRSResourceSetID SRSResourceSetID,

sRSSpatialRelation SpatialRelationInfo OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {SemipersistentSRS-ExtIEs} } OPTIONAL,

...

}

SemipersistentSRS-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-SRSSpatialRelationPerSRSResource CRITICALITY ignore EXTENSION SpatialRelationPerSRSResource PRESENCE optional},

...

}

AperiodicSRS ::= SEQUENCE {

aperiodic ENUMERATED {true, ...},

sRSResourceTrigger SRSResourceTrigger OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {AperiodicSRS-ExtIEs} } OPTIONAL,

...

}

AperiodicSRS-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Activation Response

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningActivationResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningActivationResponseIEs} },

...

}

PositioningActivationResponseIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-SystemFrameNumber CRITICALITY ignore TYPE SystemFrameNumber PRESENCE optional }|

{ ID id-SlotNumber CRITICALITY ignore TYPE SlotNumber PRESENCE optional }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Activation Failure

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningActivationFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningActivationFailureIEs} },

...

}

PositioningActivationFailureIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- POSITIONING DEACTIVATION PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Deactivation

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningDeactivation ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningDeactivationIEs} },

...

}

PositioningDeactivationIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-AbortTransmission CRITICALITY ignore TYPE AbortTransmission PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- POSITIONING INFORMATION UPDATE PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning Information Update

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PositioningInformationUpdate ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PositioningInformationUpdateIEs} },

...

}

PositioningInformationUpdateIEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-SRSConfiguration CRITICALITY ignore TYPE SRSConfiguration PRESENCE optional}|

{ ID id-SFNInitialisationTime CRITICALITY ignore TYPE RelativeTime1900 PRESENCE optional},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- E-CID MEASUREMENT PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- E-CID Measurement Initiation Request

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

E-CIDMeasurementInitiationRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{E-CIDMeasurementInitiationRequest-IEs}},

...

}

E-CIDMeasurementInitiationRequest-IEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-LMF-UE-MeasurementID CRITICALITY reject TYPE LMF-UE-MeasurementID PRESENCE mandatory }|

{ ID id-RAN-UE-MeasurementID CRITICALITY reject TYPE RAN-UE-MeasurementID PRESENCE mandatory }|

{ ID id-E-CID-ReportCharacteristics CRITICALITY reject TYPE E-CID-ReportCharacteristics PRESENCE mandatory }|

{ ID id-E-CID-MeasurementPeriodicity CRITICALITY reject TYPE MeasurementPeriodicity PRESENCE conditional }|

-- The above IE shall be present if the E-CID-ReportCharacteristics IE is set to “periodic” –-

{ ID id-E-CID-MeasurementQuantities CRITICALITY reject TYPE E-CID-MeasurementQuantities PRESENCE mandatory }|

{ ID id-PosMeasurementPeriodicityNR-AoA CRITICALITY reject TYPE PosMeasurementPeriodicityNR-AoA PRESENCE conditional },

-- The IE shall be present if the E-CID-ReportCharacteristics IE is set to “periodic” and the E-CID-MeasurementQuantities-Item IE in the E-CID-MeasurementQuantities IE is set to the value "angleOfArrivalNR"--

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- E-CID Measurement Initiation Response

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

E-CIDMeasurementInitiationResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{E-CIDMeasurementInitiationResponse-IEs}},

...

}

E-CIDMeasurementInitiationResponse-IEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-LMF-UE-MeasurementID CRITICALITY reject TYPE LMF-UE-MeasurementID PRESENCE mandatory }|

{ ID id-RAN-UE-MeasurementID CRITICALITY reject TYPE RAN-UE-MeasurementID PRESENCE mandatory }|

{ ID id-E-CID-MeasurementResult CRITICALITY ignore TYPE E-CID-MeasurementResult PRESENCE optional}|

{ ID id-Cell-Portion-ID CRITICALITY ignore TYPE Cell-Portion-ID PRESENCE optional}|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- E-CID Measurement Initiation Failure

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

E-CIDMeasurementInitiationFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{E-CIDMeasurementInitiationFailure-IEs}},

...

}

E-CIDMeasurementInitiationFailure-IEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-LMF-UE-MeasurementID CRITICALITY reject TYPE LMF-UE-MeasurementID PRESENCE mandatory }|

{ ID id-RAN-UE-MeasurementID CRITICALITY reject TYPE RAN-UE-MeasurementID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- E-CID MEASUREMENT FAILURE INDICATION PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- E-CID Measurement Failure Indication

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

E-CIDMeasurementFailureIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{E-CIDMeasurementFailureIndication-IEs}},

...

}

E-CIDMeasurementFailureIndication-IEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-LMF-UE-MeasurementID CRITICALITY reject TYPE LMF-UE-MeasurementID PRESENCE mandatory }|

{ ID id-RAN-UE-MeasurementID CRITICALITY reject TYPE RAN-UE-MeasurementID PRESENCE mandatory }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- E-CID MEASUREMENT REPORT PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- E-CID Measurement Report

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

E-CIDMeasurementReport ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{E-CIDMeasurementReport-IEs}},

...

}

E-CIDMeasurementReport-IEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-LMF-UE-MeasurementID CRITICALITY reject TYPE LMF-UE-MeasurementID PRESENCE mandatory }|

{ ID id-RAN-UE-MeasurementID CRITICALITY reject TYPE RAN-UE-MeasurementID PRESENCE mandatory }|

{ ID id-E-CID-MeasurementResult CRITICALITY ignore TYPE E-CID-MeasurementResult PRESENCE mandatory }|

{ ID id-Cell-Portion-ID CRITICALITY ignore TYPE Cell-Portion-ID PRESENCE optional},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- E-CID MEASUREMENT TERMINATION PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- E-CID Measurement Termination Command

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

E-CIDMeasurementTerminationCommand ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{E-CIDMeasurementTerminationCommand-IEs}},

...

}

E-CIDMeasurementTerminationCommand-IEs F1AP-PROTOCOL-IES ::= {

{ ID id-gNB-CU-UE-F1AP-ID CRITICALITY reject TYPE GNB-CU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-gNB-DU-UE-F1AP-ID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory }|

{ ID id-LMF-UE-MeasurementID CRITICALITY reject TYPE LMF-UE-MeasurementID PRESENCE mandatory }|

{ ID id-RAN-UE-MeasurementID CRITICALITY reject TYPE RAN-UE-MeasurementID PRESENCE mandatory },

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Positioning System information Delivery Command

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PosSystemInformationDeliveryCommand ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ PosSystemInformationDeliveryCommandIEs}},

...

}

PosSystemInformationDeliveryCommandIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

{ ID id-NRCGI CRITICALITY reject TYPE NRCGI PRESENCE mandatory }|

{ ID id-PosSItypeList CRITICALITY reject TYPE PosSItypeList PRESENCE mandatory }|

{ ID id-ConfirmedUEID CRITICALITY reject TYPE GNB-DU-UE-F1AP-ID PRESENCE mandatory },

...

}

END

-- ASN1STOP

### 9.4.5 Information Element Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Information Element Definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-IEs {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

id-gNB-CUSystemInformation,

id-HandoverPreparationInformation,

id-TAISliceSupportList,

id-RANAC,

id-BearerTypeChange,

id-Cell-Direction,

id-Cell-Type,

id-CellGroupConfig,

id-AvailablePLMNList,

id-PDUSessionID,

id-ULPDUSessionAggregateMaximumBitRate,

id-DC-Based-Duplication-Configured,

id-DC-Based-Duplication-Activation,

id-Duplication-Activation,

id-DLPDCPSNLength,

id-ULPDCPSNLength,

id-RLC-Status,

id-MeasurementTimingConfiguration,

id-DRB-Information,

id-QoSFlowMappingIndication,

id-ServingCellMO,

id-RLCMode,

id-ExtendedServedPLMNs-List,

id-ExtendedAvailablePLMN-List,

id-DRX-LongCycleStartOffset,

id-SelectedBandCombinationIndex,

id-SelectedFeatureSetEntryIndex,

id-Ph-InfoSCG,

id-latest-RRC-Version-Enhanced,

id-RequestedBandCombinationIndex,

id-RequestedFeatureSetEntryIndex,

id-DRX-Config,

id-UEAssistanceInformation,

id-PDCCH-BlindDetectionSCG,

id-Requested-PDCCH-BlindDetectionSCG,

id-BPLMN-ID-Info-List,

id-NotificationInformation,

id-TNLAssociationTransportLayerAddressgNBDU,

id-portNumber,

id-AdditionalSIBMessageList,

id-IgnorePRACHConfiguration,

id-CG-Config,

id-Ph-InfoMCG,

id-AggressorgNBSetID,

id-VictimgNBSetID,

id-MeasGapSharingConfig,

id-systemInformationAreaID,

id-areaScope,

id-IntendedTDD-DL-ULConfig,

id-QosMonitoringRequest,

id-BHInfo,

id-IAB-Info-IAB-DU,

id-IAB-Info-IAB-donor-CU,

id-IAB-Barred,

id-SIB12-message,

id-SIB13-message,

id-SIB14-message,

id-UEAssistanceInformationEUTRA,

id-SL-PHY-MAC-RLC-Config,

id-SL-ConfigDedicatedEUTRA-Info,

id-AlternativeQoSParaSetList,

id-CurrentQoSParaSetIndex,

id-CarrierList,

id-ULCarrierList,

id-FrequencyShift7p5khz,

id-SSB-PositionsInBurst,

id-NRPRACHConfig,

id-TDD-UL-DLConfigCommonNR,

id-CNPacketDelayBudgetDownlink,

id-CNPacketDelayBudgetUplink,

id-ExtendedPacketDelayBudget,

id-TSCTrafficCharacteristics,

id-AdditionalPDCPDuplicationTNL-List,

id-RLCDuplicationInformation,

id-AdditionalDuplicationIndication,

id-mdtConfiguration,

id-TraceCollectionEntityURI,

id-NID,

id-NPNSupportInfo,

id-NPNBroadcastInformation,

id-AvailableSNPN-ID-List,

id-SIB10-message,

id-RequestedP-MaxFR2,

id-DLCarrierList,

id-ExtendedTAISliceSupportList,

id-E-CID-MeasurementQuantities-Item,

id-ConfiguredTACIndication,

id-NRCGI,

id-SFN-Offset,

id-TransmissionStopIndicator,

id-SrsFrequency,

id-EstimatedArrivalProbability,

id-TRPType,

id-SRSSpatialRelationPerSRSResource,

id-PDCPTerminatingNodeDLTNLAddrInfo,

id-ENBDLTNLAddress,

id-PRS-Resource-ID,

id-LocationMeasurementInformation,

id-InterFrequencyConfig-NoGap,

id-NeedForGapsInfoNR,

id-ConfigRestrictInfoDAPS,

id-L571Info,

id-L1151Info,

maxNRARFCN,

maxnoofErrors,

maxnoofBPLMNs,

maxnoofBPLMNsNR,

maxnoofDLUPTNLInformation,

maxnoofNrCellBands,

maxnoofULUPTNLInformation,

maxnoofQoSFlows,

maxnoofSliceItems,

maxnoofSIBTypes,

maxnoofSITypes,

maxCellineNB,

maxnoofExtendedBPLMNs,

maxnoofAdditionalSIBs,

maxnoofUACPLMNs,

maxnoofUACperPLMN,

maxCellingNBDU,

maxnoofTLAs,

maxnoofGTPTLAs,

maxnoofslots,

maxnoofNonUPTrafficMappings,

maxnoofServingCells,

maxnoofServedCellsIAB,

maxnoofChildIABNodes,

maxnoofIABSTCInfo,

maxnoofSymbols,

maxnoofDUFSlots,

maxnoofHSNASlots,

maxnoofEgressLinks,

maxnoofMappingEntries,

maxnoofDSInfo,

maxnoofQoSParaSets,

maxnoofPC5QoSFlows,

maxnoofSSBAreas,

maxnoofNRSCSs,

maxnoofPhysicalResourceBlocks,

maxnoofPhysicalResourceBlocks-1,

maxnoofPRACHconfigs,

maxnoofRACHReports,

maxnoofRLFReports,

maxnoofAdditionalPDCPDuplicationTNL,

maxnoofRLCDuplicationState,

maxnoofCHOcells,

maxnoofMDTPLMNs,

maxnoofCAGsupported,

maxnoofNIDsupported,

maxnoofExtSliceItems,

maxnoofPosMeas,

maxnoofTRPInfoTypes,

maxnoofSRSTriggerStates,

maxnoofSpatialRelations,

maxnoBcastCell,

maxnoofTRPs,

maxnoofAngleInfo,

maxnooflcs-gcs-translation,

maxnoofPath,

maxnoofMeasE-CID,

maxnoofSSBs,

maxnoSRS-ResourceSets,

maxnoSRS-ResourcePerSet,

maxnoSRS-Carriers,

maxnoSCSs,

maxnoSRS-Resources,

maxnoSRS-PosResources,

maxnoSRS-PosResourceSets,

maxnoSRS-PosResourcePerSet,

maxnoofPRS-ResourceSets,

maxnoofPRS-ResourcesPerSet,

maxNoOfMeasTRPs,

maxnoofPRSresourceSets,

maxnoofPRSresources,

maxnoofPosSITypes

FROM F1AP-Constants

Criticality,

ProcedureCode,

ProtocolIE-ID,

TriggeringMessage

FROM F1AP-CommonDataTypes

ProtocolExtensionContainer{},

F1AP-PROTOCOL-EXTENSION,

ProtocolIE-SingleContainer{},

F1AP-PROTOCOL-IES

FROM F1AP-Containers;

-- A

AbortTransmission ::= CHOICE {

sRSResourceSetID SRSResourceSetID,

releaseALL NULL,

choice-extension ProtocolIE-SingleContainer { { AbortTransmission-ExtIEs } }

}

AbortTransmission-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

AccessPointPosition ::= SEQUENCE {

latitudeSign ENUMERATED {north, south},

latitude INTEGER (0..8388607),

longitude INTEGER (-8388608..8388607),

directionOfAltitude ENUMERATED {height, depth},

altitude INTEGER (0..32767),

uncertaintySemi-major INTEGER (0..127),

uncertaintySemi-minor INTEGER (0..127),

orientationOfMajorAxis INTEGER (0..179),

uncertaintyAltitude INTEGER (0..127),

confidence INTEGER (0..100),

iE-Extensions ProtocolExtensionContainer { { AccessPointPosition-ExtIEs} } OPTIONAL

}

AccessPointPosition-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Activated-Cells-to-be-Updated-List ::= SEQUENCE (SIZE(1..maxnoofServedCellsIAB)) OF Activated-Cells-to-be-Updated-List-Item

Activated-Cells-to-be-Updated-List-Item ::= SEQUENCE{

nRCGI NRCGI,

iAB-DU-Cell-Resource-Configuration-Mode-Info IAB-DU-Cell-Resource-Configuration-Mode-Info,

iE-Extensions ProtocolExtensionContainer { { Activated-Cells-to-be-Updated-List-Item-ExtIEs} } OPTIONAL

}

Activated-Cells-to-be-Updated-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ActiveULBWP ::= SEQUENCE {

locationAndBandwidth INTEGER (0..37949,...),

subcarrierSpacing ENUMERATED {kHz15, kHz30, kHz60, kHz120,...},

cyclicPrefix ENUMERATED {normal, extended},

txDirectCurrentLocation INTEGER (0..3301,...),

shift7dot5kHz ENUMERATED {true, ...} OPTIONAL,

sRSConfig SRSConfig,

iE-Extensions ProtocolExtensionContainer { { ActiveULBWP-ExtIEs} } OPTIONAL

}

ActiveULBWP-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

AdditionalDuplicationIndication ::= ENUMERATED {

three,

four,

...

}

AdditionalPath-List::= SEQUENCE (SIZE(1..maxnoofPath)) OF AdditionalPath-Item

AdditionalPath-Item ::=SEQUENCE {

relativePathDelay RelativePathDelay,

pathQuality TRPMeasurementQuality OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { AdditionalPath-Item-ExtIEs } } OPTIONAL

}

AdditionalPath-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

AdditionalPDCPDuplicationTNL-List ::= SEQUENCE (SIZE(1..maxnoofAdditionalPDCPDuplicationTNL)) OF AdditionalPDCPDuplicationTNL-Item

AdditionalPDCPDuplicationTNL-Item ::=SEQUENCE {

additionalPDCPDuplicationUPTNLInformation UPTransportLayerInformation,

iE-Extensions ProtocolExtensionContainer { { AdditionalPDCPDuplicationTNL-ItemExtIEs } } OPTIONAL,

...

}

AdditionalPDCPDuplicationTNL-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-BHInfo CRITICALITY ignore EXTENSION BHInfo PRESENCE optional },

...

}

AdditionalSIBMessageList ::= SEQUENCE (SIZE(1..maxnoofAdditionalSIBs)) OF AdditionalSIBMessageList-Item

AdditionalSIBMessageList-Item ::= SEQUENCE {

additionalSIB OCTET STRING,

iE-Extensions ProtocolExtensionContainer { { AdditionalSIBMessageList-Item-ExtIEs} } OPTIONAL

}

AdditionalSIBMessageList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

AdditionalRRMPriorityIndex ::= BIT STRING (SIZE(32))

AggressorCellList ::= SEQUENCE (SIZE(1..maxCellingNBDU)) OF AggressorCellList-Item

AggressorCellList-Item ::= SEQUENCE {

aggressorCell-ID NRCGI,

iE-Extensions ProtocolExtensionContainer { { AggressorCellList-Item-ExtIEs } } OPTIONAL

}

AggressorCellList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

AggressorgNBSetID ::= SEQUENCE {

aggressorgNBSetID GNBSetID,

iE-Extensions ProtocolExtensionContainer { { AggressorgNBSetID-ExtIEs } } OPTIONAL

}

AggressorgNBSetID-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

AllocationAndRetentionPriority ::= SEQUENCE {

priorityLevel PriorityLevel,

pre-emptionCapability Pre-emptionCapability,

pre-emptionVulnerability Pre-emptionVulnerability,

iE-Extensions ProtocolExtensionContainer { {AllocationAndRetentionPriority-ExtIEs} } OPTIONAL,

...

}

AllocationAndRetentionPriority-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

AlternativeQoSParaSetList ::= SEQUENCE (SIZE(1..maxnoofQoSParaSets)) OF AlternativeQoSParaSetItem

AlternativeQoSParaSetItem ::= SEQUENCE {

alternativeQoSParaSetIndex QoSParaSetIndex,

guaranteedFlowBitRateDL BitRate OPTIONAL,

guaranteedFlowBitRateUL BitRate OPTIONAL,

packetDelayBudget PacketDelayBudget OPTIONAL,

packetErrorRate PacketErrorRate OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {AlternativeQoSParaSetItem-ExtIEs} } OPTIONAL,

...

}

AlternativeQoSParaSetItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

AngleMeasurementQuality ::= SEQUENCE {

azimuthQuality INTEGER(0..255),

zenithQuality INTEGER(0..255) OPTIONAL,

resolution ENUMERATED{deg0dot1,...},

iE-Extensions ProtocolExtensionContainer { { AngleMeasurementQuality-ExtIEs } } OPTIONAL

}

AngleMeasurementQuality-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

AperiodicSRSResourceTriggerList ::= SEQUENCE (SIZE(1..maxnoofSRSTriggerStates)) OF AperiodicSRSResourceTrigger

AperiodicSRSResourceTrigger ::= INTEGER (1..3)

Associated-SCell-Item ::= SEQUENCE {

sCell-ID NRCGI,

iE-Extensions ProtocolExtensionContainer { { Associated-SCell-ItemExtIEs } } OPTIONAL

}

Associated-SCell-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

AvailablePLMNList ::= SEQUENCE (SIZE(1..maxnoofBPLMNs)) OF AvailablePLMNList-Item

AvailablePLMNList-Item ::= SEQUENCE {

pLMNIdentity PLMN-Identity,

iE-Extensions ProtocolExtensionContainer { { AvailablePLMNList-Item-ExtIEs} } OPTIONAL

}

AvailablePLMNList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

AvailableSNPN-ID-List ::= SEQUENCE (SIZE(1..maxnoofNIDsupported)) OF AvailableSNPN-ID-List-Item

AvailableSNPN-ID-List-Item ::= SEQUENCE {

pLMN-Identity PLMN-Identity,

availableNIDList BroadcastNIDList,

iE-Extensions ProtocolExtensionContainer { { AvailableSNPN-ID-List-ItemExtIEs} } OPTIONAL,

...

}

AvailableSNPN-ID-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

AveragingWindow ::= INTEGER (0..4095, ...)

AreaScope ::= ENUMERATED {true, ...}

-- B

BandwidthSRS ::= CHOICE {

fR1 FR1-Bandwidth,

fR2 FR2-Bandwidth,

choice-extension ProtocolIE-SingleContainer {{ BandwidthSRS-ExtIEs }}

}

BandwidthSRS-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

BAPAddress ::= BIT STRING (SIZE(10))

BAPCtrlPDUChannel ::= ENUMERATED {true, ...}

BAPlayerBHRLCchannelMappingInfo ::= SEQUENCE {

bAPlayerBHRLCchannelMappingInfoToAdd BAPlayerBHRLCchannelMappingInfoList OPTIONAL,

bAPlayerBHRLCchannelMappingInfoToRemove MappingInformationtoRemove OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { BAPlayerBHRLCchannelMappingInfo-ExtIEs} } OPTIONAL,

...

}

BAPlayerBHRLCchannelMappingInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BAPlayerBHRLCchannelMappingInfoList ::= SEQUENCE (SIZE(1..maxnoofMappingEntries)) OF BAPlayerBHRLCchannelMappingInfo-Item

BAPlayerBHRLCchannelMappingInfo-Item ::= SEQUENCE {

mappingInformationIndex MappingInformationIndex,

priorHopBAPAddress BAPAddress OPTIONAL,

ingressbHRLCChannelID BHRLCChannelID OPTIONAL,

nextHopBAPAddress BAPAddress OPTIONAL,

egressbHRLCChannelID BHRLCChannelID OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { BAPlayerBHRLCchannelMappingInfo-ItemExtIEs} } OPTIONAL,

...

}

BAPlayerBHRLCchannelMappingInfo-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BAPPathID ::= BIT STRING (SIZE(10))

BAPRoutingID ::= SEQUENCE {

bAPAddress BAPAddress,

bAPPathID BAPPathID,

iE-Extensions ProtocolExtensionContainer { { BAPRoutingIDExtIEs } } OPTIONAL

}

BAPRoutingIDExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BitRate ::= INTEGER (0..4000000000000,...)

BearerTypeChange ::= ENUMERATED {true, ...}

BHRLCChannelID ::= BIT STRING (SIZE(16))

BHChannels-FailedToBeModified-Item ::= SEQUENCE {

bHRLCChannelID BHRLCChannelID,

cause Cause OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { BHChannels-FailedToBeModified-ItemExtIEs } } OPTIONAL

}

BHChannels-FailedToBeModified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BHChannels-FailedToBeSetup-Item ::= SEQUENCE {

bHRLCChannelID BHRLCChannelID,

cause Cause OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { BHChannels-FailedToBeSetup-ItemExtIEs } } OPTIONAL

}

BHChannels-FailedToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BHChannels-FailedToBeSetupMod-Item ::= SEQUENCE {

bHRLCChannelID BHRLCChannelID,

cause Cause OPTIONAL ,

iE-Extensions ProtocolExtensionContainer { { BHChannels-FailedToBeSetupMod-ItemExtIEs } } OPTIONAL

}

BHChannels-FailedToBeSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BHChannels-Modified-Item ::= SEQUENCE {

bHRLCChannelID BHRLCChannelID,

iE-Extensions ProtocolExtensionContainer { { BHChannels-Modified-ItemExtIEs } } OPTIONAL

}

BHChannels-Modified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BHChannels-Required-ToBeReleased-Item ::= SEQUENCE {

bHRLCChannelID BHRLCChannelID,

iE-Extensions ProtocolExtensionContainer { { BHChannels-Required-ToBeReleased-ItemExtIEs } } OPTIONAL

}

BHChannels-Required-ToBeReleased-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BHChannels-Setup-Item ::= SEQUENCE {

bHRLCChannelID BHRLCChannelID,

iE-Extensions ProtocolExtensionContainer { { BHChannels-Setup-ItemExtIEs } } OPTIONAL

}

BHChannels-Setup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BHChannels-SetupMod-Item ::= SEQUENCE {

bHRLCChannelID BHRLCChannelID,

iE-Extensions ProtocolExtensionContainer { { BHChannels-SetupMod-ItemExtIEs } } OPTIONAL

}

BHChannels-SetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BHChannels-ToBeModified-Item ::= SEQUENCE {

bHRLCChannelID BHRLCChannelID,

bHQoSInformation BHQoSInformation,

rLCmode RLCMode OPTIONAL,

bAPCtrlPDUChannel BAPCtrlPDUChannel OPTIONAL,

trafficMappingInfo TrafficMappingInfo OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { BHChannels-ToBeModified-ItemExtIEs } } OPTIONAL

}

BHChannels-ToBeModified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BHChannels-ToBeReleased-Item ::= SEQUENCE {

bHRLCChannelID BHRLCChannelID,

iE-Extensions ProtocolExtensionContainer { { BHChannels-ToBeReleased-ItemExtIEs } } OPTIONAL

}

BHChannels-ToBeReleased-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BHChannels-ToBeSetup-Item ::= SEQUENCE {

bHRLCChannelID BHRLCChannelID,

bHQoSInformation BHQoSInformation,

rLCmode RLCMode,

bAPCtrlPDUChannel BAPCtrlPDUChannel OPTIONAL,

trafficMappingInfo TrafficMappingInfo OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { BHChannels-ToBeSetup-ItemExtIEs } } OPTIONAL

}

BHChannels-ToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BHChannels-ToBeSetupMod-Item ::= SEQUENCE {

bHRLCChannelID BHRLCChannelID,

bHQoSInformation BHQoSInformation,

rLCmode RLCMode,

bAPCtrlPDUChannel BAPCtrlPDUChannel OPTIONAL,

trafficMappingInfo TrafficMappingInfo OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { BHChannels-ToBeSetupMod-ItemExtIEs } } OPTIONAL

}

BHChannels-ToBeSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BHInfo ::= SEQUENCE {

bAProutingID BAPRoutingID OPTIONAL,

egressBHRLCCHList EgressBHRLCCHList OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { BHInfo-ExtIEs} } OPTIONAL

}

BHInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BHQoSInformation ::= CHOICE {

bHRLCCHQoS QoSFlowLevelQoSParameters,

eUTRANBHRLCCHQoS EUTRANQoS,

cPTrafficType CPTrafficType,

choice-extension ProtocolIE-SingleContainer { { BHQoSInformation-ExtIEs} }

}

BHQoSInformation-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

BH-Routing-Information-Added-List-Item ::= SEQUENCE {

bAPRoutingID BAPRoutingID,

nextHopBAPAddress BAPAddress,

iE-Extensions ProtocolExtensionContainer { { BH-Routing-Information-Added-List-ItemExtIEs} } OPTIONAL

}

BH-Routing-Information-Added-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BH-Routing-Information-Removed-List-Item ::= SEQUENCE {

bAPRoutingID BAPRoutingID,

iE-Extensions ProtocolExtensionContainer { { BH-Routing-Information-Removed-List-ItemExtIEs} } OPTIONAL

}

BH-Routing-Information-Removed-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BPLMN-ID-Info-List ::= SEQUENCE (SIZE(1..maxnoofBPLMNsNR)) OF BPLMN-ID-Info-Item

BPLMN-ID-Info-Item ::= SEQUENCE {

pLMN-Identity-List AvailablePLMNList,

extended-PLMN-Identity-List ExtendedAvailablePLMN-List OPTIONAL,

fiveGS-TAC FiveGS-TAC OPTIONAL,

nr-cell-ID NRCellIdentity,

ranac RANAC OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { BPLMN-ID-Info-ItemExtIEs} } OPTIONAL,

...

}

BPLMN-ID-Info-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-ConfiguredTACIndication CRITICALITY ignore EXTENSION ConfiguredTACIndication PRESENCE optional }|

{ ID id-NPNBroadcastInformation CRITICALITY reject EXTENSION NPNBroadcastInformation PRESENCE optional},

...

}

ServedPLMNs-List ::= SEQUENCE (SIZE(1..maxnoofBPLMNs)) OF ServedPLMNs-Item

ServedPLMNs-Item ::= SEQUENCE {

pLMN-Identity PLMN-Identity,

iE-Extensions ProtocolExtensionContainer { { ServedPLMNs-ItemExtIEs} } OPTIONAL,

...

}

ServedPLMNs-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-TAISliceSupportList CRITICALITY ignore EXTENSION SliceSupportList PRESENCE optional }|

{ ID id-NPNSupportInfo CRITICALITY reject EXTENSION NPNSupportInfo PRESENCE optional }|

{ ID id-ExtendedTAISliceSupportList CRITICALITY reject EXTENSION ExtendedSliceSupportList PRESENCE optional },

...

}

BroadcastCAGList ::= SEQUENCE (SIZE(1..maxnoofCAGsupported)) OF CAGID

BroadcastNIDList ::= SEQUENCE (SIZE(1..maxnoofNIDsupported)) OF NID

BroadcastSNPN-ID-List ::= SEQUENCE (SIZE(1..maxnoofNIDsupported)) OF BroadcastSNPN-ID-List-Item

BroadcastSNPN-ID-List-Item ::= SEQUENCE {

pLMN-Identity PLMN-Identity,

broadcastNIDList BroadcastNIDList,

iE-Extensions ProtocolExtensionContainer { { BroadcastSNPN-ID-List-ItemExtIEs} } OPTIONAL,

...

}

BroadcastSNPN-ID-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BroadcastPNI-NPN-ID-List ::= SEQUENCE (SIZE(1..maxnoofCAGsupported)) OF BroadcastPNI-NPN-ID-List-Item

BroadcastPNI-NPN-ID-List-Item ::= SEQUENCE {

pLMN-Identity PLMN-Identity,

broadcastCAGList BroadcastCAGList,

iE-Extensions ProtocolExtensionContainer { { BroadcastPNI-NPN-ID-List-ItemExtIEs} } OPTIONAL,

...

}

BroadcastPNI-NPN-ID-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

BurstArrivalTime ::= OCTET STRING

-- C

CAGID ::= BIT STRING (SIZE(32))

Cancel-all-Warning-Messages-Indicator ::= ENUMERATED {true, ...}

Candidate-SpCell-Item ::= SEQUENCE {

candidate-SpCell-ID NRCGI ,

iE-Extensions ProtocolExtensionContainer { { Candidate-SpCell-ItemExtIEs } } OPTIONAL,

...

}

Candidate-SpCell-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

CapacityValue::= SEQUENCE {

capacityValue INTEGER (0..100),

sSBAreaCapacityValueList SSBAreaCapacityValueList OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { CapacityValue-ExtIEs} } OPTIONAL

}

CapacityValue-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Cause ::= CHOICE {

radioNetwork CauseRadioNetwork,

transport CauseTransport,

protocol CauseProtocol,

misc CauseMisc,

choice-extension ProtocolIE-SingleContainer { { Cause-ExtIEs} }

}

Cause-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

CauseMisc ::= ENUMERATED {

control-processing-overload,

not-enough-user-plane-processing-resources,

hardware-failure,

om-intervention,

unspecified,

...

}

CauseProtocol ::= ENUMERATED {

transfer-syntax-error,

abstract-syntax-error-reject,

abstract-syntax-error-ignore-and-notify,

message-not-compatible-with-receiver-state,

semantic-error,

abstract-syntax-error-falsely-constructed-message,

unspecified,

...

}

CauseRadioNetwork ::= ENUMERATED {

unspecified,

rl-failure-rlc,

unknown-or-already-allocated-gnb-cu-ue-f1ap-id,

unknown-or-already-allocated-gnb-du-ue-f1ap-id,

unknown-or-inconsistent-pair-of-ue-f1ap-id,

interaction-with-other-procedure,

not-supported-qci-Value,

action-desirable-for-radio-reasons,

no-radio-resources-available,

procedure-cancelled,

normal-release,

...,

cell-not-available,

rl-failure-others,

ue-rejection,

resources-not-available-for-the-slice,

amf-initiated-abnormal-release,

release-due-to-pre-emption,

plmn-not-served-by-the-gNB-CU,

multiple-drb-id-instances,

unknown-drb-id,

multiple-bh-rlc-ch-id-instances,

unknown-bh-rlc-ch-id,

cho-cpc-resources-tobechanged,

nPN-not-supported,

nPN-access-denied,

gNB-CU-Cell-Capacity-Exceeded,

report-characteristics-empty,

existing-measurement-ID,

measurement-temporarily-not-available,

measurement-not-supported-for-the-object,

unknown-bh-address,

unknown-bap-routing-id,

insufficient-ue-capabilities

}

CauseTransport ::= ENUMERATED {

unspecified,

transport-resource-unavailable,

...,

unknown-TNL-address-for-IAB,

unknown-UP-TNL-information-for-IAB

}

CellGroupConfig ::= OCTET STRING

CellCapacityClassValue ::= INTEGER (1..100,...)

Cell-Direction ::= ENUMERATED {dl-only, ul-only}

CellMeasurementResultList ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF CellMeasurementResultItem

CellMeasurementResultItem ::= SEQUENCE {

cellID NRCGI,

radioResourceStatus RadioResourceStatus OPTIONAL,

compositeAvailableCapacityGroup CompositeAvailableCapacityGroup OPTIONAL,

sliceAvailableCapacity SliceAvailableCapacity OPTIONAL,

numberofActiveUEs NumberofActiveUEs OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { CellMeasurementResultItem-ExtIEs} } OPTIONAL

}

CellMeasurementResultItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Cell-Portion-ID ::= INTEGER (0..4095,...)

Cells-Failed-to-be-Activated-List-Item ::= SEQUENCE {

nRCGI NRCGI,

cause Cause,

iE-Extensions ProtocolExtensionContainer { { Cells-Failed-to-be-Activated-List-ItemExtIEs } } OPTIONAL,

...

}

Cells-Failed-to-be-Activated-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Cells-Status-Item ::= SEQUENCE {

nRCGI NRCGI,

service-status Service-Status,

iE-Extensions ProtocolExtensionContainer { { Cells-Status-ItemExtIEs } } OPTIONAL,

...

}

Cells-Status-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Cells-To-Be-Broadcast-Item ::= SEQUENCE {

nRCGI NRCGI,

iE-Extensions ProtocolExtensionContainer { { Cells-To-Be-Broadcast-ItemExtIEs } } OPTIONAL,

...

}

Cells-To-Be-Broadcast-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Cells-Broadcast-Completed-Item ::= SEQUENCE {

nRCGI NRCGI,

iE-Extensions ProtocolExtensionContainer { { Cells-Broadcast-Completed-ItemExtIEs } } OPTIONAL,

...

}

Cells-Broadcast-Completed-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Broadcast-To-Be-Cancelled-Item ::= SEQUENCE {

nRCGI NRCGI,

iE-Extensions ProtocolExtensionContainer { { Broadcast-To-Be-Cancelled-ItemExtIEs } } OPTIONAL,

...

}

Broadcast-To-Be-Cancelled-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Cells-Broadcast-Cancelled-Item ::= SEQUENCE {

nRCGI NRCGI,

numberOfBroadcasts NumberOfBroadcasts,

iE-Extensions ProtocolExtensionContainer { { Cells-Broadcast-Cancelled-ItemExtIEs } } OPTIONAL,

...

}

Cells-Broadcast-Cancelled-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Cells-to-be-Activated-List-Item ::= SEQUENCE {

nRCGI NRCGI,

nRPCI NRPCI OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { Cells-to-be-Activated-List-ItemExtIEs} } OPTIONAL,

...

}

Cells-to-be-Activated-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-gNB-CUSystemInformation CRITICALITY reject EXTENSION GNB-CUSystemInformation PRESENCE optional }|

{ ID id-AvailablePLMNList CRITICALITY ignore EXTENSION AvailablePLMNList PRESENCE optional }|

{ ID id-ExtendedAvailablePLMN-List CRITICALITY ignore EXTENSION ExtendedAvailablePLMN-List PRESENCE optional }|

{ ID id-IAB-Info-IAB-donor-CU CRITICALITY ignore EXTENSION IAB-Info-IAB-donor-CU PRESENCE optional}|

{ ID id-AvailableSNPN-ID-List CRITICALITY ignore EXTENSION AvailableSNPN-ID-List PRESENCE optional },

...

}

Cells-to-be-Deactivated-List-Item ::= SEQUENCE {

nRCGI NRCGI ,

iE-Extensions ProtocolExtensionContainer { { Cells-to-be-Deactivated-List-ItemExtIEs } } OPTIONAL,

...

}

Cells-to-be-Deactivated-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Cells-to-be-Barred-Item::= SEQUENCE {

nRCGI NRCGI ,

cellBarred CellBarred,

iE-Extensions ProtocolExtensionContainer { { Cells-to-be-Barred-Item-ExtIEs } } OPTIONAL

}

Cells-to-be-Barred-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-IAB-Barred CRITICALITY ignore EXTENSION IAB-Barred PRESENCE optional },

...

}

CellBarred ::= ENUMERATED {barred, not-barred, ...}

CellSize ::= ENUMERATED {verysmall, small, medium, large, ...}

CellToReportList ::= SEQUENCE (SIZE(1.. maxCellingNBDU)) OF CellToReportItem

CellToReportItem ::= SEQUENCE {

cellID NRCGI,

sSBToReportList SSBToReportList OPTIONAL,

sliceToReportList SliceToReportList OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { CellToReportItem-ExtIEs} } OPTIONAL

}

CellToReportItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

CellType ::= SEQUENCE {

cellSize CellSize,

iE-Extensions ProtocolExtensionContainer { {CellType-ExtIEs} } OPTIONAL,

...

}

CellType-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

CellULConfigured ::= ENUMERATED {none, ul, sul, ul-and-sul, ...}

Child-Node-Cells-List ::= SEQUENCE (SIZE(1..maxnoofChildIABNodes)) OF Child-Node-Cells-List-Item

Child-Node-Cells-List-Item ::= SEQUENCE{

nRCGI NRCGI,

iAB-DU-Cell-Resource-Configuration-Mode-Info IAB-DU-Cell-Resource-Configuration-Mode-Info OPTIONAL,

iAB-STC-Info IAB-STC-Info OPTIONAL,

rACH-Config-Common RACH-Config-Common OPTIONAL,

rACH-Config-Common-IAB RACH-Config-Common-IAB OPTIONAL,

cSI-RS-Configuration OCTET STRING OPTIONAL,

sR-Configuration OCTET STRING OPTIONAL,

pDCCH-ConfigSIB1 OCTET STRING OPTIONAL,

sCS-Common OCTET STRING OPTIONAL,

multiplexingInfo MultiplexingInfo OPTIONAL,

iE-Extensions ProtocolExtensionContainer {{Child-Node-Cells-List-Item-ExtIEs}} OPTIONAL

}

Child-Node-Cells-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Child-Nodes-List ::= SEQUENCE (SIZE(1..maxnoofChildIABNodes)) OF Child-Nodes-List-Item

Child-Nodes-List-Item ::= SEQUENCE{

gNB-CU-UE-F1AP-ID GNB-CU-UE-F1AP-ID,

gNB-DU-UE-F1AP-ID GNB-DU-UE-F1AP-ID,

child-Node-Cells-List Child-Node-Cells-List OPTIONAL,

iE-Extensions ProtocolExtensionContainer {{Child-Nodes-List-Item-ExtIEs}} OPTIONAL

}

Child-Nodes-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

CHOtrigger-InterDU ::= ENUMERATED {

cho-initiation,

cho-replace,

...

}

CHOtrigger-IntraDU ::= ENUMERATED {

cho-initiation,

cho-replace,

cho-cancel,

...

}

CNUEPagingIdentity ::= CHOICE {

fiveG-S-TMSI BIT STRING (SIZE(48)),

choice-extension ProtocolIE-SingleContainer { { CNUEPagingIdentity-ExtIEs } }

}

CNUEPagingIdentity-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

CompositeAvailableCapacityGroup ::= SEQUENCE {

compositeAvailableCapacityDownlink CompositeAvailableCapacity,

compositeAvailableCapacityUplink CompositeAvailableCapacity,

iE-Extensions ProtocolExtensionContainer { { CompositeAvailableCapacityGroup-ExtIEs} } OPTIONAL

}

CompositeAvailableCapacityGroup-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

CompositeAvailableCapacity ::= SEQUENCE {

cellCapacityClassValue CellCapacityClassValue OPTIONAL,

capacityValue CapacityValue,

iE-Extensions ProtocolExtensionContainer { { CompositeAvailableCapacity-ExtIEs} } OPTIONAL

}

CompositeAvailableCapacity-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

CHO-Probability ::= INTEGER (1..100)

ConditionalInterDUMobilityInformation ::= SEQUENCE {

cho-trigger CHOtrigger-InterDU,

targetgNB-DUUEF1APID GNB-DU-UE-F1AP-ID OPTIONAL

-- This IE shall be present if the cho-trigger IE is present and set to "cho-replace" --,

iE-Extensions ProtocolExtensionContainer { { ConditionalInterDUMobilityInformation-ExtIEs} } OPTIONAL,

...

}

ConditionalInterDUMobilityInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::={

{ ID id-EstimatedArrivalProbability CRITICALITY ignore EXTENSION CHO-Probability PRESENCE optional },

...

}

ConditionalIntraDUMobilityInformation ::= SEQUENCE {

cho-trigger CHOtrigger-IntraDU,

targetCellsTocancel TargetCellList OPTIONAL,

-- This IE may be present if the cho-trigger IE is present and set to "cho-cancel"

iE-Extensions ProtocolExtensionContainer { { ConditionalIntraDUMobilityInformation-ExtIEs} } OPTIONAL,

...

}

ConditionalIntraDUMobilityInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::={

{ ID id-EstimatedArrivalProbability CRITICALITY ignore EXTENSION CHO-Probability PRESENCE optional },

...

}

ConfigRestrictInfoDAPS ::= OCTET STRING

ConfiguredTACIndication ::= ENUMERATED {

true,

...

}

CoordinateID ::= INTEGER (0..511, ...)

CP-TransportLayerAddress ::= CHOICE {

endpoint-IP-address TransportLayerAddress,

endpoint-IP-address-and-port Endpoint-IP-address-and-port,

choice-extension ProtocolIE-SingleContainer { { CP-TransportLayerAddress-ExtIEs } }

}

CP-TransportLayerAddress-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

CPTrafficType ::= INTEGER (1..3,...)

CriticalityDiagnostics ::= SEQUENCE {

procedureCode ProcedureCode OPTIONAL,

triggeringMessage TriggeringMessage OPTIONAL,

procedureCriticality Criticality OPTIONAL,

transactionID TransactionID OPTIONAL,

iEsCriticalityDiagnostics CriticalityDiagnostics-IE-List OPTIONAL,

iE-Extensions ProtocolExtensionContainer {{CriticalityDiagnostics-ExtIEs}} OPTIONAL,

...

}

CriticalityDiagnostics-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

CriticalityDiagnostics-IE-List ::= SEQUENCE (SIZE (1.. maxnoofErrors)) OF CriticalityDiagnostics-IE-Item

CriticalityDiagnostics-IE-Item ::= SEQUENCE {

iECriticality Criticality,

iE-ID ProtocolIE-ID,

typeOfError TypeOfError,

iE-Extensions ProtocolExtensionContainer {{CriticalityDiagnostics-IE-Item-ExtIEs}} OPTIONAL,

...

}

CriticalityDiagnostics-IE-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

C-RNTI ::= INTEGER (0..65535, ...)

CUDURadioInformationType ::= CHOICE {

rIM CUDURIMInformation,

choice-extension ProtocolIE-SingleContainer { { CUDURadioInformationType-ExtIEs} }

}

CUDURadioInformationType-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

CUDURIMInformation ::= SEQUENCE {

victimgNBSetID GNBSetID,

rIMRSDetectionStatus RIMRSDetectionStatus,

iE-Extensions ProtocolExtensionContainer { { CUDURIMInformation-ExtIEs} } OPTIONAL

}

CUDURIMInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

CUtoDURRCInformation ::= SEQUENCE {

cG-ConfigInfo CG-ConfigInfo OPTIONAL,

uE-CapabilityRAT-ContainerList UE-CapabilityRAT-ContainerList OPTIONAL,

measConfig MeasConfig OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { CUtoDURRCInformation-ExtIEs} } OPTIONAL,

...

}

CUtoDURRCInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-HandoverPreparationInformation CRITICALITY ignore EXTENSION HandoverPreparationInformation PRESENCE optional }|

{ ID id-CellGroupConfig CRITICALITY ignore EXTENSION CellGroupConfig PRESENCE optional }|

{ ID id-MeasurementTimingConfiguration CRITICALITY ignore EXTENSION MeasurementTimingConfiguration PRESENCE optional }|

{ ID id-UEAssistanceInformation CRITICALITY ignore EXTENSION UEAssistanceInformation PRESENCE optional }|

{ ID id-CG-Config CRITICALITY ignore EXTENSION CG-Config PRESENCE optional }|

{ ID id-UEAssistanceInformationEUTRA CRITICALITY ignore EXTENSION UEAssistanceInformationEUTRA PRESENCE optional }|

{ ID id-LocationMeasurementInformation CRITICALITY ignore EXTENSION LocationMeasurementInformation PRESENCE optional }|

{ ID id-NeedForGapsInfoNR CRITICALITY ignore EXTENSION NeedForGapsInfoNR PRESENCE optional }|

{ ID id-ConfigRestrictInfoDAPS CRITICALITY ignore EXTENSION ConfigRestrictInfoDAPS PRESENCE optional },

...

}

-- D

DAPS-HO-Status::= ENUMERATED{initiation, ... }

DCBasedDuplicationConfigured::= ENUMERATED{true,..., false}

Dedicated-SIDelivery-NeededUE-Item ::= SEQUENCE {

gNB-CU-UE-F1AP-ID GNB-CU-UE-F1AP-ID,

nRCGI NRCGI,

iE-Extensions ProtocolExtensionContainer { { DedicatedSIDeliveryNeededUE-Item-ExtIEs} } OPTIONAL,

...

}

DedicatedSIDeliveryNeededUE-Item-ExtIEs F1AP-PROTOCOL-EXTENSION::={

...

}

DL-PRS ::= SEQUENCE {

prsid INTEGER (0..255),

dl-PRSResourceSetID PRS-Resource-Set-ID,

dl-PRSResourceID PRS-Resource-ID OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {DL-PRS-ExtIEs} } OPTIONAL

}

DL-PRS-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DL-PRSMutingPattern ::= CHOICE {

two BIT STRING (SIZE(2)),

four BIT STRING (SIZE(4)),

six BIT STRING (SIZE(6)),

eight BIT STRING (SIZE(8)),

sixteen BIT STRING (SIZE(16)),

thirty-two BIT STRING (SIZE(32)),

choice-extension ProtocolIE-SingleContainer { { DL-PRSMutingPattern-ExtIEs } }

}

DL-PRSMutingPattern-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

DLPRSResourceCoordinates ::= SEQUENCE {

listofDL-PRSResourceSetARP SEQUENCE (SIZE(1.. maxnoofPRS-ResourceSets)) OF DLPRSResourceSetARP,

iE-Extensions ProtocolExtensionContainer { { DLPRSResourceCoordinates-ExtIEs } } OPTIONAL

}

DLPRSResourceCoordinates-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DLPRSResourceSetARP ::= SEQUENCE {

dl-PRSResourceSetID PRS-Resource-Set-ID,

dL-PRSResourceSetARPLocation DL-PRSResourceSetARPLocation,

listofDL-PRSResourceARP SEQUENCE (SIZE(1.. maxnoofPRS-ResourcesPerSet)) OF DLPRSResourceARP,

iE-Extensions ProtocolExtensionContainer { { DLPRSResourceSetARP-ExtIEs } } OPTIONAL

}

DLPRSResourceSetARP-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DL-PRSResourceSetARPLocation ::= CHOICE {

relativeGeodeticLocation RelativeGeodeticLocation,

relativeCartesianLocation RelativeCartesianLocation,

choice-Extension ProtocolIE-SingleContainer { { DL-PRSResourceSetARPLocation-ExtIEs } }

}

DL-PRSResourceSetARPLocation-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

DLPRSResourceARP ::= SEQUENCE {

dl-PRSResourceID PRS-Resource-ID,

dL-PRSResourceARPLocation DL-PRSResourceARPLocation,

iE-Extensions ProtocolExtensionContainer { { DLPRSResourceARP-ExtIEs } } OPTIONAL

}

DLPRSResourceARP-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DL-PRSResourceARPLocation ::= CHOICE {

relativeGeodeticLocation RelativeGeodeticLocation,

relativeCartesianLocation RelativeCartesianLocation,

choice-Extension ProtocolIE-SingleContainer { { DL-PRSResourceARPLocation-ExtIEs } }

}

DL-PRSResourceARPLocation-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

DL-UP-TNL-Address-to-Update-List-Item ::= SEQUENCE {

oldIPAdress TransportLayerAddress,

newIPAdress TransportLayerAddress,

iE-Extensions ProtocolExtensionContainer { { DL-UP-TNL-Address-to-Update-List-ItemExtIEs } } OPTIONAL,

...

}

DL-UP-TNL-Address-to-Update-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DLUPTNLInformation-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofDLUPTNLInformation)) OF DLUPTNLInformation-ToBeSetup-Item

DLUPTNLInformation-ToBeSetup-Item ::= SEQUENCE {

dLUPTNLInformation UPTransportLayerInformation ,

iE-Extensions ProtocolExtensionContainer { { DLUPTNLInformation-ToBeSetup-ItemExtIEs } } OPTIONAL,

...

}

DLUPTNLInformation-ToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DRB-Activity-Item ::= SEQUENCE {

dRBID DRBID,

dRB-Activity DRB-Activity OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { DRB-Activity-ItemExtIEs } } OPTIONAL,

...

}

DRB-Activity-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DRB-Activity ::= ENUMERATED {active, not-active}

DRBID ::= INTEGER (1..32, ...)

DRBs-FailedToBeModified-Item ::= SEQUENCE {

dRBID DRBID ,

cause Cause OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { DRBs-FailedToBeModified-ItemExtIEs } } OPTIONAL,

...

}

DRBs-FailedToBeModified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DRBs-FailedToBeSetup-Item ::= SEQUENCE {

dRBID DRBID,

cause Cause OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { DRBs-FailedToBeSetup-ItemExtIEs } } OPTIONAL,

...

}

DRBs-FailedToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DRBs-FailedToBeSetupMod-Item ::= SEQUENCE {

dRBID DRBID ,

cause Cause OPTIONAL ,

iE-Extensions ProtocolExtensionContainer { { DRBs-FailedToBeSetupMod-ItemExtIEs } } OPTIONAL,

...

}

DRBs-FailedToBeSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DRB-Information ::= SEQUENCE {

dRB-QoS QoSFlowLevelQoSParameters,

sNSSAI SNSSAI,

notificationControl NotificationControl OPTIONAL,

flows-Mapped-To-DRB-List Flows-Mapped-To-DRB-List,

iE-Extensions ProtocolExtensionContainer { { DRB-Information-ItemExtIEs } } OPTIONAL

}

DRB-Information-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DRBs-Modified-Item ::= SEQUENCE {

dRBID DRBID,

lCID LCID OPTIONAL,

dLUPTNLInformation-ToBeSetup-List DLUPTNLInformation-ToBeSetup-List,

iE-Extensions ProtocolExtensionContainer { { DRBs-Modified-ItemExtIEs } } OPTIONAL,

...

}

DRBs-Modified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-RLC-Status CRITICALITY ignore EXTENSION RLC-Status PRESENCE optional }|

{ ID id-AdditionalPDCPDuplicationTNL-List CRITICALITY ignore EXTENSION AdditionalPDCPDuplicationTNL-List PRESENCE optional }|

{ ID id-CurrentQoSParaSetIndex CRITICALITY ignore EXTENSION QoSParaSetIndex PRESENCE optional },

...

}

DRBs-ModifiedConf-Item ::= SEQUENCE {

dRBID DRBID,

uLUPTNLInformation-ToBeSetup-List ULUPTNLInformation-ToBeSetup-List ,

iE-Extensions ProtocolExtensionContainer { { DRBs-ModifiedConf-ItemExtIEs } } OPTIONAL,

...

}

DRBs-ModifiedConf-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-AdditionalPDCPDuplicationTNL-List CRITICALITY ignore EXTENSION AdditionalPDCPDuplicationTNL-List PRESENCE optional },

...

}

DRB-Notify-Item ::= SEQUENCE {

dRBID DRBID,

notification-Cause Notification-Cause,

iE-Extensions ProtocolExtensionContainer { { DRB-Notify-ItemExtIEs } } OPTIONAL,

...

}

DRB-Notify-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-CurrentQoSParaSetIndex CRITICALITY ignore EXTENSION QoSParaSetNotifyIndex PRESENCE optional },

...

}

DRBs-Required-ToBeModified-Item ::= SEQUENCE {

dRBID DRBID,

dLUPTNLInformation-ToBeSetup-List DLUPTNLInformation-ToBeSetup-List ,

iE-Extensions ProtocolExtensionContainer { { DRBs-Required-ToBeModified-ItemExtIEs } } OPTIONAL,

...

}

DRBs-Required-ToBeModified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-RLC-Status CRITICALITY ignore EXTENSION RLC-Status PRESENCE optional }|

{ ID id-AdditionalPDCPDuplicationTNL-List CRITICALITY ignore EXTENSION AdditionalPDCPDuplicationTNL-List PRESENCE optional },

...

}

DRBs-Required-ToBeReleased-Item ::= SEQUENCE {

dRBID DRBID,

iE-Extensions ProtocolExtensionContainer { { DRBs-Required-ToBeReleased-ItemExtIEs } } OPTIONAL,

...

}

DRBs-Required-ToBeReleased-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DRBs-Setup-Item ::= SEQUENCE {

dRBID DRBID,

lCID LCID OPTIONAL,

dLUPTNLInformation-ToBeSetup-List DLUPTNLInformation-ToBeSetup-List ,

iE-Extensions ProtocolExtensionContainer { { DRBs-Setup-ItemExtIEs } } OPTIONAL,

...

}

DRBs-Setup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-AdditionalPDCPDuplicationTNL-List CRITICALITY ignore EXTENSION AdditionalPDCPDuplicationTNL-List PRESENCE optional }|

{ ID id-CurrentQoSParaSetIndex CRITICALITY ignore EXTENSION QoSParaSetIndex PRESENCE optional },

...

}

DRBs-SetupMod-Item ::= SEQUENCE {

dRBID DRBID,

lCID LCID OPTIONAL,

dLUPTNLInformation-ToBeSetup-List DLUPTNLInformation-ToBeSetup-List ,

iE-Extensions ProtocolExtensionContainer { { DRBs-SetupMod-ItemExtIEs } } OPTIONAL,

...

}

DRBs-SetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-AdditionalPDCPDuplicationTNL-List CRITICALITY ignore EXTENSION AdditionalPDCPDuplicationTNL-List PRESENCE optional }|

{ ID id-CurrentQoSParaSetIndex CRITICALITY ignore EXTENSION QoSParaSetIndex PRESENCE optional },

...

}

DRBs-ToBeModified-Item ::= SEQUENCE {

dRBID DRBID,

qoSInformation QoSInformation OPTIONAL,

uLUPTNLInformation-ToBeSetup-List ULUPTNLInformation-ToBeSetup-List ,

uLConfiguration ULConfiguration OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { DRBs-ToBeModified-ItemExtIEs } } OPTIONAL,

...

}

DRBs-ToBeModified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-DLPDCPSNLength CRITICALITY ignore EXTENSION PDCPSNLength PRESENCE optional }|

{ ID id-ULPDCPSNLength CRITICALITY ignore EXTENSION PDCPSNLength PRESENCE optional }|

{ID id-BearerTypeChange CRITICALITY ignore EXTENSION BearerTypeChange PRESENCE optional}|

{ ID id-RLCMode CRITICALITY ignore EXTENSION RLCMode PRESENCE optional }|

{ ID id-Duplication-Activation CRITICALITY reject EXTENSION DuplicationActivation PRESENCE optional }|

{ ID id-DC-Based-Duplication-Configured CRITICALITY reject EXTENSION DCBasedDuplicationConfigured PRESENCE optional }|

{ ID id-DC-Based-Duplication-Activation CRITICALITY reject EXTENSION DuplicationActivation PRESENCE optional }|

{ ID id-AdditionalPDCPDuplicationTNL-List CRITICALITY ignore EXTENSION AdditionalPDCPDuplicationTNL-List PRESENCE optional }|

{ ID id-RLCDuplicationInformation CRITICALITY ignore EXTENSION RLCDuplicationInformation PRESENCE optional}|

{ ID id-TransmissionStopIndicator CRITICALITY ignore EXTENSION TransmissionStopIndicator PRESENCE optional},

...

}

DRBs-ToBeReleased-Item ::= SEQUENCE {

dRBID DRBID,

iE-Extensions ProtocolExtensionContainer { { DRBs-ToBeReleased-ItemExtIEs } } OPTIONAL,

...

}

DRBs-ToBeReleased-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DRBs-ToBeSetup-Item ::= SEQUENCE {

dRBID DRBID,

qoSInformation QoSInformation,

uLUPTNLInformation-ToBeSetup-List ULUPTNLInformation-ToBeSetup-List ,

rLCMode RLCMode,

uLConfiguration ULConfiguration OPTIONAL,

duplicationActivation DuplicationActivation OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { DRBs-ToBeSetup-ItemExtIEs } } OPTIONAL,

...

}

DRBs-ToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-DC-Based-Duplication-Configured CRITICALITY reject EXTENSION DCBasedDuplicationConfigured PRESENCE optional }|

{ ID id-DC-Based-Duplication-Activation CRITICALITY reject EXTENSION DuplicationActivation PRESENCE optional }|

{ ID id-DLPDCPSNLength CRITICALITY ignore EXTENSION PDCPSNLength PRESENCE mandatory }|

{ ID id-ULPDCPSNLength CRITICALITY ignore EXTENSION PDCPSNLength PRESENCE optional }|

{ ID id-AdditionalPDCPDuplicationTNL-List CRITICALITY ignore EXTENSION AdditionalPDCPDuplicationTNL-List PRESENCE optional }|

{ ID id-RLCDuplicationInformation CRITICALITY ignore EXTENSION RLCDuplicationInformation PRESENCE optional},

...

}

DRBs-ToBeSetupMod-Item ::= SEQUENCE {

dRBID DRBID,

qoSInformation QoSInformation,

uLUPTNLInformation-ToBeSetup-List ULUPTNLInformation-ToBeSetup-List,

rLCMode RLCMode,

uLConfiguration ULConfiguration OPTIONAL,

duplicationActivation DuplicationActivation OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { DRBs-ToBeSetupMod-ItemExtIEs } } OPTIONAL,

...

}

DRBs-ToBeSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-DC-Based-Duplication-Configured CRITICALITY reject EXTENSION DCBasedDuplicationConfigured PRESENCE optional }|

{ ID id-DC-Based-Duplication-Activation CRITICALITY reject EXTENSION DuplicationActivation PRESENCE optional }|

{ ID id-DLPDCPSNLength CRITICALITY ignore EXTENSION PDCPSNLength PRESENCE optional }|

{ ID id-ULPDCPSNLength CRITICALITY ignore EXTENSION PDCPSNLength PRESENCE optional }|

{ ID id-AdditionalPDCPDuplicationTNL-List CRITICALITY ignore EXTENSION AdditionalPDCPDuplicationTNL-List PRESENCE optional }|

{ ID id-RLCDuplicationInformation CRITICALITY ignore EXTENSION RLCDuplicationInformation PRESENCE optional},

...

}

DRXCycle ::= SEQUENCE {

longDRXCycleLength LongDRXCycleLength,

shortDRXCycleLength ShortDRXCycleLength OPTIONAL,

shortDRXCycleTimer ShortDRXCycleTimer OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { DRXCycle-ExtIEs} } OPTIONAL,

...

}

DRXCycle-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DRX-Config ::= OCTET STRING

DRXConfigurationIndicator ::= ENUMERATED{ release, ...}

DRX-LongCycleStartOffset ::= INTEGER (0..10239)

DSInformationList ::= SEQUENCE (SIZE(0..maxnoofDSInfo)) OF DSCP

DSCP ::= BIT STRING (SIZE (6))

DUtoCURRCContainer ::= OCTET STRING

DUCURadioInformationType ::= CHOICE {

rIM DUCURIMInformation,

choice-extension ProtocolIE-SingleContainer { { DUCURadioInformationType-ExtIEs} }

}

DUCURadioInformationType-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

DUCURIMInformation ::= SEQUENCE {

victimgNBSetID GNBSetID,

rIMRSDetectionStatus RIMRSDetectionStatus,

aggressorCellList AggressorCellList,

iE-Extensions ProtocolExtensionContainer { { DUCURIMInformation-ExtIEs} } OPTIONAL

}

DUCURIMInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

DUF-Slot-Config-Item ::= CHOICE {

explicitFormat ExplicitFormat,

implicitFormat ImplicitFormat,

choice-extension ProtocolIE-SingleContainer { { DUF-Slot-Config-Item-ExtIEs} }

}

DUF-Slot-Config-Item-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

DUF-Slot-Config-List ::= SEQUENCE (SIZE(1..maxnoofDUFSlots)) OF DUF-Slot-Config-Item

DUFSlotformatIndex ::= INTEGER(0..254)

DUFTransmissionPeriodicity ::= ENUMERATED { ms0p5, ms0p625, ms1, ms1p25, ms2, ms2p5, ms5, ms10, ...}

DU-RX-MT-RX ::= ENUMERATED {supported, not-supported}

DU-TX-MT-TX ::= ENUMERATED {supported, not-supported}

DU-RX-MT-TX ::= ENUMERATED {supported, not-supported}

DU-TX-MT-RX ::= ENUMERATED {supported, not-supported}

DUtoCURRCInformation ::= SEQUENCE {

cellGroupConfig CellGroupConfig,

measGapConfig MeasGapConfig OPTIONAL,

requestedP-MaxFR1 OCTET STRING OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { DUtoCURRCInformation-ExtIEs} } OPTIONAL,

...

}

DUtoCURRCInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-DRX-LongCycleStartOffset CRITICALITY ignore EXTENSION DRX-LongCycleStartOffset PRESENCE optional }|

{ ID id-SelectedBandCombinationIndex CRITICALITY ignore EXTENSION SelectedBandCombinationIndex PRESENCE optional }|

{ ID id-SelectedFeatureSetEntryIndex CRITICALITY ignore EXTENSION SelectedFeatureSetEntryIndex PRESENCE optional }|

{ ID id-Ph-InfoSCG CRITICALITY ignore EXTENSION Ph-InfoSCG PRESENCE optional }|

{ ID id-RequestedBandCombinationIndex CRITICALITY ignore EXTENSION RequestedBandCombinationIndex PRESENCE optional }|

{ ID id-RequestedFeatureSetEntryIndex CRITICALITY ignore EXTENSION RequestedFeatureSetEntryIndex PRESENCE optional }|

{ ID id-DRX-Config CRITICALITY ignore EXTENSION DRX-Config PRESENCE optional }|

{ ID id-PDCCH-BlindDetectionSCG CRITICALITY ignore EXTENSION PDCCH-BlindDetectionSCG PRESENCE optional }|

{ ID id-Requested-PDCCH-BlindDetectionSCG CRITICALITY ignore EXTENSION Requested-PDCCH-BlindDetectionSCG PRESENCE optional }|

{ ID id-Ph-InfoMCG CRITICALITY ignore EXTENSION Ph-InfoMCG PRESENCE optional }|

{ ID id-MeasGapSharingConfig CRITICALITY ignore EXTENSION MeasGapSharingConfig PRESENCE optional }|

{ ID id-SL-PHY-MAC-RLC-Config CRITICALITY ignore EXTENSION SL-PHY-MAC-RLC-Config PRESENCE optional }|

{ ID id-SL-ConfigDedicatedEUTRA-Info CRITICALITY ignore EXTENSION SL-ConfigDedicatedEUTRA-Info PRESENCE optional }|

{ ID id-RequestedP-MaxFR2 CRITICALITY ignore EXTENSION RequestedP-MaxFR2 PRESENCE optional }|

{ ID id-InterFrequencyConfig-NoGap CRITICALITY ignore EXTENSION InterFrequencyConfig-NoGap PRESENCE optional },

...

}

DuplicationActivation ::= ENUMERATED{active,inactive,... }

DuplicationIndication ::= ENUMERATED {true, ... , false }

DuplicationState ::= ENUMERATED {

active,

inactive,

...

}

Dynamic5QIDescriptor ::= SEQUENCE {

qoSPriorityLevel INTEGER (1..127),

packetDelayBudget PacketDelayBudget,

packetErrorRate PacketErrorRate,

fiveQI INTEGER (0..255, ...) OPTIONAL,

delayCritical ENUMERATED {delay-critical, non-delay-critical} OPTIONAL,

-- C-ifGBRflow: This IE shall be present if the GBR QoS Flow Information IE is present in the QoS Flow Level QoS Parameters IE.

averagingWindow AveragingWindow OPTIONAL,

-- C-ifGBRflow: This IE shall be present if the GBR QoS Flow Information IE is present in the QoS Flow Level QoS Parameters IE.

maxDataBurstVolume MaxDataBurstVolume OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { Dynamic5QIDescriptor-ExtIEs } } OPTIONAL

}

Dynamic5QIDescriptor-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-ExtendedPacketDelayBudget CRITICALITY ignore EXTENSION ExtendedPacketDelayBudget PRESENCE optional }|

{ ID id-CNPacketDelayBudgetDownlink CRITICALITY ignore EXTENSION ExtendedPacketDelayBudget PRESENCE optional }|

{ ID id-CNPacketDelayBudgetUplink CRITICALITY ignore EXTENSION ExtendedPacketDelayBudget PRESENCE optional },

...

}

DynamicPQIDescriptor ::= SEQUENCE {

resourceType ENUMERATED {gbr, non-gbr, delay-critical-grb, ...} OPTIONAL,

qoSPriorityLevel INTEGER (1..8, ...),

packetDelayBudget PacketDelayBudget,

packetErrorRate PacketErrorRate,

averagingWindow AveragingWindow OPTIONAL,

-- C-ifGBRflow: This IE shall be present if the GBR QoS Flow Information IE is present in the QoS Flow Level QoS Parameters IE.

maxDataBurstVolume MaxDataBurstVolume OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { DynamicPQIDescriptor-ExtIEs } } OPTIONAL

}

DynamicPQIDescriptor-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

-- E

E-CID-MeasurementQuantities ::= SEQUENCE (SIZE (1.. maxnoofMeasE-CID)) OF ProtocolIE-SingleContainer { {E-CID-MeasurementQuantities-ItemIEs} }

E-CID-MeasurementQuantities-ItemIEs F1AP-PROTOCOL-IES ::= {

{ ID id-E-CID-MeasurementQuantities-Item CRITICALITY reject TYPE E-CID-MeasurementQuantities-Item PRESENCE mandatory}

}

E-CID-MeasurementQuantities-Item ::= SEQUENCE {

e-CIDmeasurementQuantitiesValue E-CID-MeasurementQuantitiesValue,

iE-Extensions ProtocolExtensionContainer { { E-CID-MeasurementQuantitiesValue-ExtIEs} } OPTIONAL

}

E-CID-MeasurementQuantitiesValue-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

E-CID-MeasurementQuantitiesValue ::= ENUMERATED {

default,

angleOfArrivalNR,

...

}

E-CID-MeasurementResult ::= SEQUENCE {

geographicalCoordinates GeographicalCoordinates OPTIONAL,

measuredResults-List E-CID-MeasuredResults-List OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { E-CID-MeasurementResult-ExtIEs} } OPTIONAL

}

E-CID-MeasurementResult-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

E-CID-MeasuredResults-List ::= SEQUENCE (SIZE(1..maxnoofMeasE-CID)) OF E-CID-MeasuredResults-Item

E-CID-MeasuredResults-Item ::= SEQUENCE {

e-CID-MeasuredResults-Value E-CID-MeasuredResults-Value,

iE-Extensions ProtocolExtensionContainer {{ E-CID-MeasuredResults-Item-ExtIEs }} OPTIONAL

}

E-CID-MeasuredResults-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

E-CID-MeasuredResults-Value ::= CHOICE {

valueAngleofArrivalNR UL-AoA,

choice-extension ProtocolIE-SingleContainer { { E-CID-MeasuredResults-Value-ExtIEs} }

}

E-CID-MeasuredResults-Value-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

E-CID-ReportCharacteristics ::= ENUMERATED {

onDemand,

periodic,

...

}

EgressBHRLCCHList ::= SEQUENCE (SIZE(1..maxnoofEgressLinks)) OF EgressBHRLCCHItem

EgressBHRLCCHItem ::= SEQUENCE {

nextHopBAPAddress BAPAddress,

bHRLCChannelID BHRLCChannelID,

iE-Extensions ProtocolExtensionContainer {{EgressBHRLCCHItemExtIEs }} OPTIONAL

}

EgressBHRLCCHItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Endpoint-IP-address-and-port ::=SEQUENCE {

endpointIPAddress TransportLayerAddress,

iE-Extensions ProtocolExtensionContainer { { Endpoint-IP-address-and-port-ExtIEs} } OPTIONAL

}

Endpoint-IP-address-and-port-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-portNumber CRITICALITY reject EXTENSION PortNumber PRESENCE optional},

...

}

ExtendedAvailablePLMN-List ::= SEQUENCE (SIZE(1..maxnoofExtendedBPLMNs)) OF ExtendedAvailablePLMN-Item

ExtendedAvailablePLMN-Item ::= SEQUENCE {

pLMNIdentity PLMN-Identity,

iE-Extensions ProtocolExtensionContainer { { ExtendedAvailablePLMN-Item-ExtIEs} } OPTIONAL

}

ExplicitFormat ::= SEQUENCE {

permutation Permutation,

noofDownlinkSymbols NoofDownlinkSymbols OPTIONAL,

noofUplinkSymbols NoofUplinkSymbols OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { ExplicitFormat-ExtIEs} } OPTIONAL

}

ExplicitFormat-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ExtendedAvailablePLMN-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ExtendedServedPLMNs-List ::= SEQUENCE (SIZE(1.. maxnoofExtendedBPLMNs)) OF ExtendedServedPLMNs-Item

ExtendedServedPLMNs-Item ::= SEQUENCE {

pLMN-Identity PLMN-Identity,

tAISliceSupportList SliceSupportList OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { ExtendedServedPLMNs-ItemExtIEs} } OPTIONAL,

...

}

ExtendedServedPLMNs-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-NPNSupportInfo CRITICALITY reject EXTENSION NPNSupportInfo PRESENCE optional }|

{ ID id-ExtendedTAISliceSupportList CRITICALITY reject EXTENSION ExtendedSliceSupportList PRESENCE optional },

...

}

ExtendedSliceSupportList ::= SEQUENCE (SIZE(1.. maxnoofExtSliceItems)) OF SliceSupportItem

EUTRACells-List ::= SEQUENCE (SIZE (1.. maxCellineNB)) OF EUTRACells-List-item

EUTRACells-List-item ::= SEQUENCE {

eUTRA-Cell-ID EUTRA-Cell-ID,

served-EUTRA-Cells-Information Served-EUTRA-Cells-Information,

iE-Extensions ProtocolExtensionContainer { { EUTRACells-List-itemExtIEs } } OPTIONAL

}

EUTRACells-List-itemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

EUTRA-Cell-ID ::= BIT STRING (SIZE(28))

EUTRA-Coex-FDD-Info ::= SEQUENCE {

uL-EARFCN ExtendedEARFCN OPTIONAL,

dL-EARFCN ExtendedEARFCN,

uL-Transmission-Bandwidth EUTRA-Transmission-Bandwidth OPTIONAL,

dL-Transmission-Bandwidth EUTRA-Transmission-Bandwidth,

iE-Extensions ProtocolExtensionContainer { {EUTRA-Coex-FDD-Info-ExtIEs} } OPTIONAL,

...

}

EUTRA-Coex-FDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

EUTRA-Coex-Mode-Info ::= CHOICE {

fDD EUTRA-Coex-FDD-Info,

tDD EUTRA-Coex-TDD-Info,

...

}

EUTRA-Coex-TDD-Info ::= SEQUENCE {

eARFCN ExtendedEARFCN,

transmission-Bandwidth EUTRA-Transmission-Bandwidth,

subframeAssignment EUTRA-SubframeAssignment,

specialSubframe-Info EUTRA-SpecialSubframe-Info,

iE-Extensions ProtocolExtensionContainer { {EUTRA-Coex-TDD-Info-ExtIEs} } OPTIONAL,

...

}

EUTRA-Coex-TDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

EUTRA-CyclicPrefixDL ::= ENUMERATED {

normal,

extended,

...

}

EUTRA-CyclicPrefixUL ::= ENUMERATED {

normal,

extended,

...

}

EUTRA-PRACH-Configuration ::= SEQUENCE {

rootSequenceIndex INTEGER (0..837),

zeroCorrelationIndex INTEGER (0..15),

highSpeedFlag BOOLEAN,

prach-FreqOffset INTEGER (0..94),

prach-ConfigIndex INTEGER (0..63) OPTIONAL,

-- C-ifTDD: This IE shall be present if the EUTRA-Mode-Info IE in the Resource Coordination E-UTRA Cell Information IE is set to the value "TDD"

iE-Extensions ProtocolExtensionContainer { {EUTRA-PRACH-Configuration-ExtIEs} } OPTIONAL,

...

}

EUTRA-PRACH-Configuration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

EUTRA-SpecialSubframe-Info ::= SEQUENCE {

specialSubframePatterns EUTRA-SpecialSubframePatterns,

cyclicPrefixDL EUTRA-CyclicPrefixDL,

cyclicPrefixUL EUTRA-CyclicPrefixUL,

iE-Extensions ProtocolExtensionContainer { { EUTRA-SpecialSubframe-Info-ExtIEs} } OPTIONAL,

...

}

EUTRA-SpecialSubframe-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

EUTRA-SpecialSubframePatterns ::= ENUMERATED {

ssp0,

ssp1,

ssp2,

ssp3,

ssp4,

ssp5,

ssp6,

ssp7,

ssp8,

ssp9,

ssp10,

...

}

EUTRA-SubframeAssignment ::= ENUMERATED {

sa0,

sa1,

sa2,

sa3,

sa4,

sa5,

sa6,

...

}

EUTRA-Transmission-Bandwidth ::= ENUMERATED {

bw6,

bw15,

bw25,

bw50,

bw75,

bw100,

...

}

EUTRANQoS ::= SEQUENCE {

qCI QCI,

allocationAndRetentionPriority AllocationAndRetentionPriority,

gbrQosInformation GBR-QosInformation OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { EUTRANQoS-ExtIEs} } OPTIONAL,

...

}

EUTRANQoS-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-ENBDLTNLAddress CRITICALITY ignore EXTENSION TransportLayerAddress PRESENCE optional },

...

}

ExecuteDuplication ::= ENUMERATED{true,...}

ExtendedEARFCN ::= INTEGER (0..262143)

EUTRA-Mode-Info ::= CHOICE {

eUTRAFDD EUTRA-FDD-Info,

eUTRATDD EUTRA-TDD-Info,

choice-extension ProtocolIE-SingleContainer { { EUTRA-Mode-Info-ExtIEs} }

}

EUTRA-Mode-Info-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

EUTRA-NR-CellResourceCoordinationReq-Container ::= OCTET STRING

EUTRA-NR-CellResourceCoordinationReqAck-Container ::= OCTET STRING

EUTRA-FDD-Info ::= SEQUENCE {

uL-offsetToPointA OffsetToPointA,

dL-offsetToPointA OffsetToPointA,

iE-Extensions ProtocolExtensionContainer { {EUTRA-FDD-Info-ExtIEs} } OPTIONAL,

...

}

EUTRA-FDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

EUTRA-TDD-Info ::= SEQUENCE {

offsetToPointA OffsetToPointA,

iE-Extensions ProtocolExtensionContainer { {EUTRA-TDD-Info-ExtIEs} } OPTIONAL,

...

}

EUTRA-TDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

EventType ::= ENUMERATED {

on-demand,

periodic,

stop,

...

}

ExtendedPacketDelayBudget ::= INTEGER (1..65535, ...)

-- F

F1CPathNSA ::= ENUMERATED {lte, nr, both}

F1CTransferPath ::= SEQUENCE {

f1CPathNSA F1CPathNSA,

iE-Extensions ProtocolExtensionContainer { { F1CTransferPath-ExtIEs} } OPTIONAL,

...

}

F1CTransferPath-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

FDD-Info ::= SEQUENCE {

uL-NRFreqInfo NRFreqInfo,

dL-NRFreqInfo NRFreqInfo,

uL-Transmission-Bandwidth Transmission-Bandwidth,

dL-Transmission-Bandwidth Transmission-Bandwidth,

iE-Extensions ProtocolExtensionContainer { {FDD-Info-ExtIEs} } OPTIONAL,

...

}

FDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-ULCarrierList CRITICALITY ignore EXTENSION NRCarrierList PRESENCE optional }|

{ ID id-DLCarrierList CRITICALITY ignore EXTENSION NRCarrierList PRESENCE optional },

...

}

Flows-Mapped-To-DRB-List ::= SEQUENCE (SIZE(1.. maxnoofQoSFlows)) OF Flows-Mapped-To-DRB-Item

Flows-Mapped-To-DRB-Item ::= SEQUENCE {

qoSFlowIdentifier QoSFlowIdentifier,

qoSFlowLevelQoSParameters QoSFlowLevelQoSParameters,

iE-Extensions ProtocolExtensionContainer { { Flows-Mapped-To-DRB-ItemExtIEs} } OPTIONAL

}

Flows-Mapped-To-DRB-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ID id-QoSFlowMappingIndication CRITICALITY ignore EXTENSION QoSFlowMappingIndication PRESENCE optional}|

{ID id-TSCTrafficCharacteristics CRITICALITY ignore EXTENSION TSCTrafficCharacteristics PRESENCE optional},

...

}

FR1-Bandwidth ::= ENUMERATED {bw5, bw10, bw20, bw40, bw50, bw80, bw100, ...}

FR2-Bandwidth ::= ENUMERATED {bw50, bw100, bw200, bw400, ...}

FreqBandNrItem ::= SEQUENCE {

freqBandIndicatorNr INTEGER (1..1024,...),

supportedSULBandList SEQUENCE (SIZE(0..maxnoofNrCellBands)) OF SupportedSULFreqBandItem,

iE-Extensions ProtocolExtensionContainer { {FreqBandNrItem-ExtIEs} } OPTIONAL,

...

}

FreqBandNrItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

FreqDomainLength ::= CHOICE {

l839 L839Info,

l139 L139Info,

choice-extension ProtocolIE-SingleContainer { {FreqDomainLength-ExtIEs} }

}

FreqDomainLength-ExtIEs F1AP-PROTOCOL-IES ::= {

{ ID id-L571Info CRITICALITY reject TYPE L571Info PRESENCE mandatory}|

{ ID id-L1151Info CRITICALITY reject TYPE L1151Info PRESENCE mandatory},

...

}

FrequencyShift7p5khz ::= ENUMERATED {false, true, ...}

FullConfiguration ::= ENUMERATED {full, ...}

FlowsMappedToSLDRB-List ::= SEQUENCE (SIZE(1.. maxnoofPC5QoSFlows)) OF FlowsMappedToSLDRB-Item

FlowsMappedToSLDRB-Item ::= SEQUENCE {

pc5QoSFlowIdentifier PC5QoSFlowIdentifier,

iE-Extensions ProtocolExtensionContainer { {FlowsMappedToSLDRB-Item-ExtIEs} } OPTIONAL,

...

}

FlowsMappedToSLDRB-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

-- G

GBR-QosInformation ::= SEQUENCE {

e-RAB-MaximumBitrateDL BitRate,

e-RAB-MaximumBitrateUL BitRate,

e-RAB-GuaranteedBitrateDL BitRate,

e-RAB-GuaranteedBitrateUL BitRate,

iE-Extensions ProtocolExtensionContainer { { GBR-QosInformation-ExtIEs} } OPTIONAL,

...

}

GBR-QosInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

GBR-QoSFlowInformation::= SEQUENCE {

maxFlowBitRateDownlink BitRate,

maxFlowBitRateUplink BitRate,

guaranteedFlowBitRateDownlink BitRate,

guaranteedFlowBitRateUplink BitRate,

maxPacketLossRateDownlink MaxPacketLossRate OPTIONAL,

maxPacketLossRateUplink MaxPacketLossRate OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { GBR-QosFlowInformation-ExtIEs} } OPTIONAL,

...

}

GBR-QosFlowInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-AlternativeQoSParaSetList CRITICALITY ignore EXTENSION AlternativeQoSParaSetList PRESENCE optional },

...

}

CG-Config ::= OCTET STRING

GeographicalCoordinates ::= SEQUENCE {

tRPPositionDefinitionType TRPPositionDefinitionType,

dLPRSResourceCoordinates DLPRSResourceCoordinates OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { GeographicalCoordinates-ExtIEs } } OPTIONAL

}

GeographicalCoordinates-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

GNBCUMeasurementID ::= INTEGER (0.. 4095, ...)

GNBDUMeasurementID ::= INTEGER (0.. 4095, ...)

GNB-CUSystemInformation::= SEQUENCE {

sibtypetobeupdatedlist SEQUENCE (SIZE(1.. maxnoofSIBTypes)) OF SibtypetobeupdatedListItem,

iE-Extensions ProtocolExtensionContainer { { GNB-CUSystemInformation-ExtIEs} } OPTIONAL,

...

}

GNB-CUSystemInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ID id-systemInformationAreaID CRITICALITY ignore EXTENSION SystemInformationAreaID PRESENCE optional},

...

}

GNB-CU-TNL-Association-Setup-Item::= SEQUENCE {

tNLAssociationTransportLayerAddress CP-TransportLayerAddress ,

iE-Extensions ProtocolExtensionContainer { { GNB-CU-TNL-Association-Setup-Item-ExtIEs} } OPTIONAL

}

GNB-CU-TNL-Association-Setup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

GNB-CU-TNL-Association-Failed-To-Setup-Item ::= SEQUENCE {

tNLAssociationTransportLayerAddress CP-TransportLayerAddress ,

cause Cause,

iE-Extensions ProtocolExtensionContainer { { GNB-CU-TNL-Association-Failed-To-Setup-Item-ExtIEs} } OPTIONAL

}

GNB-CU-TNL-Association-Failed-To-Setup-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

GNB-CU-TNL-Association-To-Add-Item ::= SEQUENCE {

tNLAssociationTransportLayerAddress CP-TransportLayerAddress ,

tNLAssociationUsage TNLAssociationUsage,

iE-Extensions ProtocolExtensionContainer { { GNB-CU-TNL-Association-To-Add-Item-ExtIEs} } OPTIONAL

}

GNB-CU-TNL-Association-To-Add-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

GNB-CU-TNL-Association-To-Remove-Item::= SEQUENCE {

tNLAssociationTransportLayerAddress CP-TransportLayerAddress ,

iE-Extensions ProtocolExtensionContainer { { GNB-CU-TNL-Association-To-Remove-Item-ExtIEs} } OPTIONAL

}

GNB-CU-TNL-Association-To-Remove-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ID id-TNLAssociationTransportLayerAddressgNBDU CRITICALITY reject EXTENSION CP-TransportLayerAddress PRESENCE optional},

...

}

GNB-CU-TNL-Association-To-Update-Item::= SEQUENCE {

tNLAssociationTransportLayerAddress CP-TransportLayerAddress ,

tNLAssociationUsage TNLAssociationUsage OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { GNB-CU-TNL-Association-To-Update-Item-ExtIEs} } OPTIONAL

}

GNB-CU-TNL-Association-To-Update-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

GNB-CU-UE-F1AP-ID ::= INTEGER (0..4294967295)

GNB-DU-Cell-Resource-Configuration ::= SEQUENCE {

subcarrierSpacing SubcarrierSpacing,

dUFTransmissionPeriodicity DUFTransmissionPeriodicity OPTIONAL,

dUF-Slot-Config-List DUF-Slot-Config-List OPTIONAL,

hSNATransmissionPeriodicity HSNATransmissionPeriodicity,

hNSASlotConfigList HSNASlotConfigList OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { GNB-DU-Cell-Resource-Configuration-ExtIEs } } OPTIONAL

}

GNB-DU-Cell-Resource-Configuration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

GNB-DU-UE-F1AP-ID ::= INTEGER (0..4294967295)

GNB-DU-ID ::= INTEGER (0..68719476735)

GNB-CU-Name ::= PrintableString(SIZE(1..150,...))

GNB-DU-Name ::= PrintableString(SIZE(1..150,...))

Extended-GNB-CU-Name ::= SEQUENCE {

gNB-CU-NameVisibleString GNB-CU-NameVisibleString OPTIONAL,

gNB-CU-NameUTF8String GNB-CU-NameUTF8String OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { Extended-GNB-CU-Name-ExtIEs } } OPTIONAL,

...

}

Extended-GNB-CU-Name-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

GNB-CU-NameVisibleString ::= VisibleString(SIZE(1..150,...))

GNB-CU-NameUTF8String ::= UTF8String(SIZE(1..150,...))

Extended-GNB-DU-Name ::= SEQUENCE {

gNB-DU-NameVisibleString GNB-DU-NameVisibleString OPTIONAL,

gNB-DU-NameUTF8String GNB-DU-NameUTF8String OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { Extended-GNB-DU-Name-ExtIEs } } OPTIONAL,

...

}

Extended-GNB-DU-Name-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

GNB-DU-NameVisibleString ::= VisibleString(SIZE(1..150,...))

GNB-DU-NameUTF8String ::= UTF8String(SIZE(1..150,...))

GNB-DU-Served-Cells-Item ::= SEQUENCE {

served-Cell-Information Served-Cell-Information,

gNB-DU-System-Information GNB-DU-System-Information OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { GNB-DU-Served-Cells-ItemExtIEs} } OPTIONAL,

...

}

GNB-DU-Served-Cells-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

GNB-DU-System-Information ::= SEQUENCE {

mIB-message MIB-message,

sIB1-message SIB1-message,

iE-Extensions ProtocolExtensionContainer { { GNB-DU-System-Information-ExtIEs } } OPTIONAL,

...

}

GNB-DU-System-Information-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-SIB12-message CRITICALITY ignore EXTENSION SIB12-message PRESENCE optional}|

{ ID id-SIB13-message CRITICALITY ignore EXTENSION SIB13-message PRESENCE optional}|

{ ID id-SIB14-message CRITICALITY ignore EXTENSION SIB14-message PRESENCE optional}|

{ ID id-SIB10-message CRITICALITY ignore EXTENSION SIB10-message PRESENCE optional},

...

}

GNB-DUConfigurationQuery ::= ENUMERATED {true, ...}

GNBDUOverloadInformation ::= ENUMERATED {overloaded, not-overloaded}

GNB-DU-TNL-Association-To-Remove-Item::= SEQUENCE {

tNLAssociationTransportLayerAddress CP-TransportLayerAddress ,

tNLAssociationTransportLayerAddressgNBCU CP-TransportLayerAddress OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { GNB-DU-TNL-Association-To-Remove-Item-ExtIEs} } OPTIONAL

}

GNB-DU-TNL-Association-To-Remove-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

GNB-RxTxTimeDiff ::= SEQUENCE {

rxTxTimeDiff GNBRxTxTimeDiffMeas,

additionalPath-List AdditionalPath-List OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { GNB-RxTxTimeDiff-ExtIEs} } OPTIONAL

}

GNB-RxTxTimeDiff-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

GNBRxTxTimeDiffMeas ::= CHOICE {

k0 INTEGER (0.. 1970049),

k1 INTEGER (0.. 985025),

k2 INTEGER (0.. 492513),

k3 INTEGER (0.. 246257),

k4 INTEGER (0.. 123129),

k5 INTEGER (0.. 61565),

choice-extension ProtocolIE-SingleContainer { { GNBRxTxTimeDiffMeas-ExtIEs } }

}

GNBRxTxTimeDiffMeas-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

GNBSetID ::= BIT STRING (SIZE(22))

GTP-TEID ::= OCTET STRING (SIZE (4))

GTPTLAs ::= SEQUENCE (SIZE(1.. maxnoofGTPTLAs)) OF GTPTLA-Item

GTPTLA-Item ::= SEQUENCE {

gTPTransportLayerAddress TransportLayerAddress,

iE-Extensions ProtocolExtensionContainer { { GTPTLA-Item-ExtIEs } } OPTIONAL

}

GTPTLA-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

GTPTunnel ::= SEQUENCE {

transportLayerAddress TransportLayerAddress,

gTP-TEID GTP-TEID,

iE-Extensions ProtocolExtensionContainer { { GTPTunnel-ExtIEs } } OPTIONAL,

...

}

GTPTunnel-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

-- H

HandoverPreparationInformation ::= OCTET STRING

HardwareLoadIndicator ::= SEQUENCE {

dLHardwareLoadIndicator INTEGER (0..100, ...),

uLHardwareLoadIndicator INTEGER (0..100, ...),

iE-Extensions ProtocolExtensionContainer { { HardwareLoadIndicator-ExtIEs } } OPTIONAL,

...

}

HardwareLoadIndicator-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

HSNASlotConfigList ::= SEQUENCE (SIZE(1..maxnoofHSNASlots)) OF HSNASlotConfigItem

HSNASlotConfigItem ::= SEQUENCE {

hSNADownlink HSNADownlink OPTIONAL,

hSNAUplink HSNAUplink OPTIONAL,

hSNAFlexible HSNAFlexible OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { HSNASlotConfigItem-ExtIEs } } OPTIONAL

}

HSNASlotConfigItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

HSNADownlink ::= ENUMERATED { hard, soft, notavailable }

HSNAFlexible ::= ENUMERATED { hard, soft, notavailable }

HSNAUplink ::= ENUMERATED { hard, soft, notavailable }

HSNATransmissionPeriodicity ::= ENUMERATED { ms0p5, ms0p625, ms1, ms1p25, ms2, ms2p5, ms5, ms10, ms20, ms40, ms80, ms160, ...}

-- I

IAB-Barred ::= ENUMERATED {barred, not-barred, ...}

IAB-Info-IAB-donor-CU ::= SEQUENCE{

iAB-STC-Info IAB-STC-Info OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { IAB-Info-IAB-donor-CU-ExtIEs } } OPTIONAL

}

IAB-Info-IAB-donor-CU-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

IAB-Info-IAB-DU ::= SEQUENCE{

multiplexingInfo MultiplexingInfo OPTIONAL,

iAB-STC-Info IAB-STC-Info OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { IAB-Info-IAB-DU-ExtIEs } } OPTIONAL

}

IAB-Info-IAB-DU-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

IAB-MT-Cell-List ::= SEQUENCE (SIZE(1..maxnoofServingCells)) OF IAB-MT-Cell-List-Item

IAB-MT-Cell-List-Item ::= SEQUENCE {

nRCellIdentity NRCellIdentity,

dU-RX-MT-RX DU-RX-MT-RX,

dU-TX-MT-TX DU-TX-MT-TX,

dU-RX-MT-TX DU-RX-MT-TX,

dU-TX-MT-RX DU-TX-MT-RX,

iE-Extensions ProtocolExtensionContainer { { IAB-MT-Cell-List-Item-ExtIEs } } OPTIONAL

}

IAB-MT-Cell-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

IAB-STC-Info ::= SEQUENCE{

iAB-STC-Info-List IAB-STC-Info-List,

iE-Extensions ProtocolExtensionContainer { { IAB-STC-Info-ExtIEs } } OPTIONAL

}

IAB-STC-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

IAB-STC-Info-List ::= SEQUENCE (SIZE(1..maxnoofIABSTCInfo)) OF IAB-STC-Info-Item

IAB-STC-Info-Item::= SEQUENCE {

sSB-freqInfo SSB-freqInfo,

sSB-subcarrierSpacing SSB-subcarrierSpacing,

sSB-transmissionPeriodicity SSB-transmissionPeriodicity,

sSB-transmissionTimingOffset SSB-transmissionTimingOffset,

sSB-transmissionBitmap SSB-transmissionBitmap,

iE-Extensions ProtocolExtensionContainer { { IAB-STC-Info-Item-ExtIEs } } OPTIONAL

}

IAB-STC-Info-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

IAB-Allocated-TNL-Address-Item ::= SEQUENCE {

iABTNLAddress IABTNLAddress,

iABTNLAddressUsage IABTNLAddressUsage OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { IAB-Allocated-TNL-Address-Item-ExtIEs } } OPTIONAL

}

IAB-Allocated-TNL-Address-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

IAB-DU-Cell-Resource-Configuration-Mode-Info ::= CHOICE {

fDD IAB-DU-Cell-Resource-Configuration-FDD-Info,

tDD IAB-DU-Cell-Resource-Configuration-TDD-Info,

choice-extension ProtocolIE-SingleContainer { { IAB-DU-Cell-Resource-Configuration-Mode-Info-ExtIEs} }

}

IAB-DU-Cell-Resource-Configuration-Mode-Info-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

IAB-DU-Cell-Resource-Configuration-FDD-Info ::= SEQUENCE {

gNB-DU-Cell-Resource-Configuration-FDD-UL GNB-DU-Cell-Resource-Configuration,

gNB-DU-Cell-Resource-Configuration-FDD-DL GNB-DU-Cell-Resource-Configuration,

iE-Extensions ProtocolExtensionContainer { {IAB-DU-Cell-Resource-Configuration-FDD-Info-ExtIEs} } OPTIONAL,

...

}

IAB-DU-Cell-Resource-Configuration-FDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

IAB-DU-Cell-Resource-Configuration-TDD-Info ::= SEQUENCE {

gNB-DU-Cell-Resourc-Configuration-TDD GNB-DU-Cell-Resource-Configuration,

iE-Extensions ProtocolExtensionContainer { {IAB-DU-Cell-Resource-Configuration-TDD-Info-ExtIEs} } OPTIONAL,

...

}

IAB-DU-Cell-Resource-Configuration-TDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

IABIPv6RequestType ::= CHOICE {

iPv6Address IABTNLAddressesRequested,

iPv6Prefix IABTNLAddressesRequested,

choice-extension ProtocolIE-SingleContainer { { IABIPv6RequestType-ExtIEs} }

}

IABIPv6RequestType-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

IABTNLAddress ::= CHOICE {

iPv4Address BIT STRING (SIZE(32)),

iPv6Address BIT STRING (SIZE(128)),

iPv6Prefix BIT STRING (SIZE(64)),

choice-extension ProtocolIE-SingleContainer { { IABTNLAddress-ExtIEs} }

}

IABTNLAddress-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

IABTNLAddressesRequested ::= SEQUENCE {

tNLAddressesOrPrefixesRequestedAllTraffic INTEGER (1..256) OPTIONAL,

tNLAddressesOrPrefixesRequestedF1-C INTEGER (1..256) OPTIONAL,

tNLAddressesOrPrefixesRequestedF1-U INTEGER (1..256) OPTIONAL,

tNLAddressesOrPrefixesRequestedNoNF1 INTEGER (1..256) OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { IABTNLAddressesRequested-ExtIEs } } OPTIONAL

}

IABTNLAddressesRequested-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

IAB-TNL-Addresses-To-Remove-Item ::= SEQUENCE {

iABTNLAddress IABTNLAddress,

iE-Extensions ProtocolExtensionContainer { { IAB-TNL-Addresses-To-Remove-Item-ExtIEs} } OPTIONAL

}

IAB-TNL-Addresses-To-Remove-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

IABTNLAddressUsage ::= ENUMERATED {

f1-c,

f1-u,

non-f1,

...

}

IABv4AddressesRequested ::= SEQUENCE {

iABv4AddressesRequested IABTNLAddressesRequested,

iE-Extensions ProtocolExtensionContainer { { IABv4AddressesRequested-ExtIEs} } OPTIONAL

}

IABv4AddressesRequested-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ImplicitFormat ::= SEQUENCE {

dUFSlotformatIndex DUFSlotformatIndex,

iE-Extensions ProtocolExtensionContainer { { ImplicitFormat-ExtIEs } } OPTIONAL

}

ImplicitFormat-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

IgnorePRACHConfiguration::= ENUMERATED { true,...}

IgnoreResourceCoordinationContainer ::= ENUMERATED { yes,...}

InactivityMonitoringRequest ::= ENUMERATED { true,...}

InactivityMonitoringResponse ::= ENUMERATED { not-supported,...}

InterfacesToTrace ::= BIT STRING (SIZE(8))

IntendedTDD-DL-ULConfig ::= SEQUENCE {

nRSCS ENUMERATED { scs15, scs30, scs60, scs120,...},

nRCP ENUMERATED { normal, extended,...},

nRDLULTxPeriodicity ENUMERATED { ms0p5, ms0p625, ms1, ms1p25, ms2, ms2p5, ms3, ms4, ms5, ms10, ms20, ms40, ms60, ms80, ms100, ms120, ms140, ms160, ...},

slot-Configuration-List Slot-Configuration-List,

iE-Extensions ProtocolExtensionContainer { {IntendedTDD-DL-ULConfig-ExtIEs} } OPTIONAL

}

IntendedTDD-DL-ULConfig-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

InterFrequencyConfig-NoGap ::= ENUMERATED {

true,

...

}

IPHeaderInformation ::= SEQUENCE {

destinationIABTNLAddress IABTNLAddress,

dsInformationList DSInformationList OPTIONAL,

iPv6FlowLabel BIT STRING (SIZE (20)) OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { IPHeaderInformation-ItemExtIEs} } OPTIONAL,

...

}

IPHeaderInformation-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

IPtolayer2TrafficMappingInfo ::= SEQUENCE {

iPtolayer2TrafficMappingInfoToAdd IPtolayer2TrafficMappingInfoList OPTIONAL,

iPtolayer2TrafficMappingInfoToRemove MappingInformationtoRemove OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { IPtolayer2TrafficMappingInfo-ItemExtIEs} } OPTIONAL,

...

}

IPtolayer2TrafficMappingInfoList ::= SEQUENCE (SIZE(1..maxnoofMappingEntries)) OF IPtolayer2TrafficMappingInfo-Item

IPtolayer2TrafficMappingInfo-Item ::= SEQUENCE {

mappingInformationIndex MappingInformationIndex,

iPHeaderInformation IPHeaderInformation,

bHInfo BHInfo, iE-Extensions ProtocolExtensionContainer { { IPtolayer2TrafficMappingInfo-ItemExtIEs} } OPTIONAL,

...

}

IPtolayer2TrafficMappingInfo-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

-- J

-- K

-- L

L139Info ::= SEQUENCE {

msg1SCS ENUMERATED {scs15, scs30, scs60, scs120, ...},

rootSequenceIndex INTEGER (0..137) OPTIONAL,

iE-Extension ProtocolExtensionContainer { {L139Info-ExtIEs} } OPTIONAL,

...

}

L139Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

L839Info ::= SEQUENCE {

rootSequenceIndex INTEGER (0..837),

restrictedSetConfig ENUMERATED {unrestrictedSet, restrictedSetTypeA,

restrictedSetTypeB, ...},

iE-Extension ProtocolExtensionContainer { {L839Info-ExtIEs} } OPTIONAL,

...

}

L839Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

L571Info ::= SEQUENCE {

prachSCSForL571 ENUMERATED { scs30, spare1, ...},

rootSequenceIndex INTEGER (0..569),

iE-Extension ProtocolExtensionContainer { {L571Info-ExtIEs} } OPTIONAL,

...

}

L571Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

L1151Info ::= SEQUENCE {

prachSCSForL1151 ENUMERATED { scs15, spare1, ...},

rootSequenceIndex INTEGER (0..1149),

iE-Extension ProtocolExtensionContainer { {L1151Info-ExtIEs} } OPTIONAL,

...

}

L1151Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

LCID ::= INTEGER (1..32, ...)

LCS-to-GCS-TranslationAoA::= SEQUENCE {

alpha INTEGER (0..3599),

beta INTEGER (0..3599),

gamma INTEGER (0..3599),

iE-Extensions ProtocolExtensionContainer { { LCS-to-GCS-TranslationAoA-ExtIEs} } OPTIONAL,

...

}

LCS-to-GCS-TranslationAoA-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

LCStoGCSTranslationList ::= SEQUENCE (SIZE (1.. maxnooflcs-gcs-translation)) OF LCStoGCSTranslation

LCStoGCSTranslation ::= SEQUENCE {

alpha INTEGER (0..359),

alpha-fine INTEGER (0..9) OPTIONAL,

beta INTEGER (0..359),

beta-fine INTEGER (0..9) OPTIONAL,

gamma INTEGER (0..359),

gamma-fine INTEGER (0..9) OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {LCStoGCSTranslation-ExtIEs} } OPTIONAL

}

LCStoGCSTranslation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

LMF-MeasurementID ::= INTEGER (1.. 65536, ...)

LMF-UE-MeasurementID ::= INTEGER (1.. 256, ...)

LocationMeasurementInformation ::= OCTET STRING

LocationUncertainty ::= SEQUENCE {

horizontalUncertainty INTEGER (0..255),

horizontalConfidence INTEGER (0..100),

verticalUncertainty INTEGER (0..255),

verticalConfidence INTEGER (0..100),

iE-Extensions ProtocolExtensionContainer { { LocationUncertainty-ExtIEs} } OPTIONAL

}

LocationUncertainty-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

LongDRXCycleLength ::= ENUMERATED

{ms10, ms20, ms32, ms40, ms60, ms64, ms70, ms80, ms128, ms160, ms256, ms320, ms512, ms640, ms1024, ms1280, ms2048, ms2560, ms5120, ms10240, ...}

LowerLayerPresenceStatusChange ::= ENUMERATED {

suspend-lower-layers,

resume-lower-layers,

...

}

LTEUESidelinkAggregateMaximumBitrate ::= SEQUENCE {

uELTESidelinkAggregateMaximumBitrate BitRate,

iE-Extensions ProtocolExtensionContainer { {LTEUESidelinkAggregateMaximumBitrate-ExtIEs} } OPTIONAL

}

LTEUESidelinkAggregateMaximumBitrate-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

LTEV2XServicesAuthorized ::= SEQUENCE {

vehicleUE VehicleUE OPTIONAL,

pedestrianUE PedestrianUE OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {LTEV2XServicesAuthorized-ExtIEs} } OPTIONAL

}

LTEV2XServicesAuthorized-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

-- M

MappingInformationIndex ::= BIT STRING (SIZE (26))

MappingInformationtoRemove ::= SEQUENCE (SIZE(1..maxnoofMappingEntries)) OF MappingInformationIndex

MaskedIMEISV ::= BIT STRING (SIZE (64))

MaxDataBurstVolume ::= INTEGER (0..4095, ..., 4096.. 2000000)

MaxPacketLossRate ::= INTEGER (0..1000)

MIB-message ::= OCTET STRING

MeasConfig ::= OCTET STRING

MeasGapConfig ::= OCTET STRING

MeasGapSharingConfig ::= OCTET STRING

MeasurementBeamInfoRequest ::= ENUMERATED {true, ...}

MeasurementBeamInfo ::= SEQUENCE {

pRS-Resource-ID PRS-Resource-ID OPTIONAL,

pRS-Resource-Set-ID PRS-Resource-Set-ID OPTIONAL,

sSB-Index SSB-Index OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { MeasurementBeamInfo-ExtIEs} } OPTIONAL

}

MeasurementBeamInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

MeasurementTimingConfiguration ::= OCTET STRING

MessageIdentifier ::= BIT STRING (SIZE (16))

MultiplexingInfo ::= SEQUENCE{

iAB-MT-Cell-List IAB-MT-Cell-List,

iE-Extensions ProtocolExtensionContainer { {MultiplexingInfo-ExtIEs} } OPTIONAL

}

MultiplexingInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

M2Configuration ::= ENUMERATED {true, ...}

M5Configuration ::= SEQUENCE {

m5period M5period,

m5-links-to-log M5-Links-to-log,

iE-Extensions ProtocolExtensionContainer { { M5Configuration-ExtIEs} } OPTIONAL,

...

}

M5Configuration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

M5period ::= ENUMERATED { ms1024, ms2048, ms5120, ms10240, min1, ... }

M5-Links-to-log ::= ENUMERATED {uplink, downlink, both-uplink-and-downlink, ...}

M6Configuration ::= SEQUENCE {

m6report-Interval M6report-Interval,

m6-links-to-log M6-Links-to-log,

iE-Extensions ProtocolExtensionContainer { { M6Configuration-ExtIEs} } OPTIONAL,

...

}

M6Configuration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

M6report-Interval ::= ENUMERATED { ms120, ms240, ms640, ms1024, ms2048, ms5120, ms10240, ms20480, ms40960, min1, min6, min12, min30, ..., ms480}

M6-Links-to-log ::= ENUMERATED {uplink, downlink, both-uplink-and-downlink, ...}

M7Configuration ::= SEQUENCE {

m7period M7period,

m7-links-to-log M7-Links-to-log,

iE-Extensions ProtocolExtensionContainer { { M7Configuration-ExtIEs} } OPTIONAL,

...

}

M7Configuration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

M7period ::= INTEGER(1..60, ...)

M7-Links-to-log ::= ENUMERATED {downlink, ...}

MDT-Activation ::= ENUMERATED {

immediate-MDT-only,

immediate-MDT-and-Trace,

...

}

MDTConfiguration ::= SEQUENCE {

mdt-Activation MDT-Activation,

measurementsToActivate MeasurementsToActivate,

m2Configuration M2Configuration OPTIONAL,

-- C-ifM2: This IE shall be present if the Measurements to Activate IE has the second bit set to "1".

m5Configuration M5Configuration OPTIONAL,

-- C-ifM5: This IE shall be present if the Measurements to Activate IE has the fifth bit set to "1".

m6Configuration M6Configuration OPTIONAL,

-- C-ifM6: This IE shall be present if the Measurements to Activate IE has the seventh bit set to "1".

m7Configuration M7Configuration OPTIONAL,

-- C-ifM7: This IE shall be present if the Measurements to Activate IE has the eighth bit set to "1".

iE-Extensions ProtocolExtensionContainer { { MDTConfiguration-ExtIEs} } OPTIONAL,

...

}

MDTConfiguration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

MDTPLMNList ::= SEQUENCE (SIZE(1..maxnoofMDTPLMNs)) OF PLMN-Identity

MeasuredResultsValue ::= CHOICE {

uL-AngleOfArrival UL-AoA,

uL-SRS-RSRP UL-SRS-RSRP,

uL-RTOA UL-RTOA-Measurement,

gNB-RxTxTimeDiff GNB-RxTxTimeDiff,

choice-extension ProtocolIE-SingleContainer { { MeasuredResultsValue-ExtIEs } }

}

MeasuredResultsValue-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

MeasurementsToActivate ::= BIT STRING (SIZE (8))

-- N

NeedforGap::= ENUMERATED {true, ...}

NeedForGapsInfoNR ::= OCTET STRING

Neighbour-Cell-Information-Item ::= SEQUENCE {

nRCGI NRCGI,

intendedTDD-DL-ULConfig IntendedTDD-DL-ULConfig OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { Neighbour-Cell-Information-ItemExtIEs } } OPTIONAL

}

Neighbour-Cell-Information-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NGRANAllocationAndRetentionPriority ::= SEQUENCE {

priorityLevel PriorityLevel,

pre-emptionCapability Pre-emptionCapability,

pre-emptionVulnerability Pre-emptionVulnerability,

iE-Extensions ProtocolExtensionContainer { {NGRANAllocationAndRetentionPriority-ExtIEs} } OPTIONAL

}

NGRANAllocationAndRetentionPriority-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NGRANHighAccuracyAccessPointPosition ::= SEQUENCE {

latitude INTEGER (-2147483648.. 2147483647),

longitude INTEGER (-2147483648.. 2147483647),

altitude INTEGER (-64000..1280000),

uncertaintySemi-major INTEGER (0..255),

uncertaintySemi-minor INTEGER (0..255),

orientationOfMajorAxis INTEGER (0..179),

horizontalConfidence INTEGER (0..100),

uncertaintyAltitude INTEGER (0..255),

verticalConfidence INTEGER (0..100),

iE-Extensions ProtocolExtensionContainer { { NGRANHighAccuracyAccessPointPosition-ExtIEs} } OPTIONAL

}

NGRANHighAccuracyAccessPointPosition-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NID ::= BIT STRING (SIZE(44))

NR-CGI-List-For-Restart-Item ::= SEQUENCE {

nRCGI NRCGI,

iE-Extensions ProtocolExtensionContainer { { NR-CGI-List-For-Restart-ItemExtIEs } } OPTIONAL,

...

}

NR-CGI-List-For-Restart-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NR-PRSBeamInformation ::= SEQUENCE {

nR-PRSBeamInformationList NR-PRSBeamInformationList,

lCStoGCSTranslationList LCStoGCSTranslationList OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { NR-PRSBeamInformation-ExtIEs } } OPTIONAL

}

NR-PRSBeamInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NR-PRSBeamInformationList ::= SEQUENCE (SIZE(1.. maxnoofPRS-ResourceSets)) OF NR-PRSBeamInformationItem

NR-PRSBeamInformationItem ::= SEQUENCE {

pRSResourceSetID PRS-Resource-Set-ID,

pRSAngleList PRSAngleList,

iE-Extensions ProtocolExtensionContainer { { NR-PRSBeamInformationItem-ExtIEs } } OPTIONAL

}

NR-PRSBeamInformationItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NonDynamic5QIDescriptor ::= SEQUENCE {

fiveQI INTEGER (0..255, ...),

qoSPriorityLevel INTEGER (1..127) OPTIONAL,

averagingWindow AveragingWindow OPTIONAL,

maxDataBurstVolume MaxDataBurstVolume OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { NonDynamic5QIDescriptor-ExtIEs } } OPTIONAL

}

NonDynamic5QIDescriptor-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-CNPacketDelayBudgetDownlink CRITICALITY ignore EXTENSION ExtendedPacketDelayBudget PRESENCE optional }|

{ ID id-CNPacketDelayBudgetUplink CRITICALITY ignore EXTENSION ExtendedPacketDelayBudget PRESENCE optional },

...

}

NonDynamicPQIDescriptor ::= SEQUENCE {

fiveQI INTEGER (0..255, ...),

qoSPriorityLevel INTEGER (1..8, ...) OPTIONAL,

averagingWindow AveragingWindow OPTIONAL,

maxDataBurstVolume MaxDataBurstVolume OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { NonDynamicPQIDescriptor-ExtIEs } } OPTIONAL

}

NonDynamicPQIDescriptor-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NonUPTrafficType ::= ENUMERATED {ue-associated, non-ue-associated, non-f1, bap-control-pdu,...}

NoofDownlinkSymbols ::= INTEGER (0..14)

NoofUplinkSymbols ::= INTEGER (0..14)

Notification-Cause ::= ENUMERATED {fulfilled, not-fulfilled, ...}

NotificationControl ::= ENUMERATED {active, not-active, ...}

NotificationInformation ::= SEQUENCE {

message-Identifier MessageIdentifier,

serialNumber SerialNumber,

iE-Extensions ProtocolExtensionContainer { { NotificationInformationExtIEs} } OPTIONAL,

...

}

NotificationInformationExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NPNBroadcastInformation ::= CHOICE {

sNPN-Broadcast-Information NPN-Broadcast-Information-SNPN,

pNI-NPN-Broadcast-Information NPN-Broadcast-Information-PNI-NPN,

choice-extension ProtocolIE-SingleContainer { {NPNBroadcastInformation-ExtIEs} }

}

NPNBroadcastInformation-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

NPN-Broadcast-Information-SNPN ::= SEQUENCE {

broadcastSNPNID-List BroadcastSNPN-ID-List,

iE-Extension ProtocolExtensionContainer { {NPN-Broadcast-Information-SNPN-ExtIEs} } OPTIONAL,

...

}

NPN-Broadcast-Information-SNPN-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NPN-Broadcast-Information-PNI-NPN ::= SEQUENCE {

broadcastPNI-NPN-ID-Information BroadcastPNI-NPN-ID-List,

iE-Extension ProtocolExtensionContainer { {NPN-Broadcast-Information-PNI-NPN-ExtIEs} } OPTIONAL,

...

}

NPN-Broadcast-Information-PNI-NPN-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NPNSupportInfo ::= CHOICE {

sNPN-Information NID,

choice-extension ProtocolIE-SingleContainer { { NPNSupportInfo-ExtIEs } }

}

NPNSupportInfo-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

NRCarrierList ::= SEQUENCE (SIZE(1..maxnoofNRSCSs)) OF NRCarrierItem

NRCarrierItem ::= SEQUENCE {

carrierSCS NRSCS,

offsetToCarrier INTEGER (0..2199, ...),

carrierBandwidth INTEGER (0..maxnoofPhysicalResourceBlocks, ...),

iE-Extension ProtocolExtensionContainer { {NRCarrierItem-ExtIEs} } OPTIONAL,

...

}

NRCarrierItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NRFreqInfo ::= SEQUENCE {

nRARFCN INTEGER (0..maxNRARFCN),

sul-Information SUL-Information OPTIONAL,

freqBandListNr SEQUENCE (SIZE(1..maxnoofNrCellBands)) OF FreqBandNrItem,

iE-Extensions ProtocolExtensionContainer { { NRFreqInfoExtIEs} } OPTIONAL,

...

}

NRFreqInfoExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-FrequencyShift7p5khz CRITICALITY ignore EXTENSION FrequencyShift7p5khz PRESENCE optional },

...

}

NRCGI ::= SEQUENCE {

pLMN-Identity PLMN-Identity,

nRCellIdentity NRCellIdentity,

iE-Extensions ProtocolExtensionContainer { {NRCGI-ExtIEs} } OPTIONAL,

...

}

NRCGI-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NR-Mode-Info ::= CHOICE {

fDD FDD-Info,

tDD TDD-Info,

choice-extension ProtocolIE-SingleContainer { { NR-Mode-Info-ExtIEs} }

}

NR-Mode-Info-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

NRPRACHConfig ::= SEQUENCE {

ulPRACHConfigList NRPRACHConfigList OPTIONAL,

sulPRACHConfigList NRPRACHConfigList OPTIONAL,

iE-Extension ProtocolExtensionContainer { {NRPRACHConfig-ExtIEs} } OPTIONAL,

...

}

NRPRACHConfig-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NRCellIdentity ::= BIT STRING (SIZE(36))

NRNRB ::= ENUMERATED { nrb11, nrb18, nrb24, nrb25, nrb31, nrb32, nrb38, nrb51, nrb52, nrb65, nrb66, nrb78, nrb79, nrb93, nrb106, nrb107, nrb121, nrb132, nrb133, nrb135, nrb160, nrb162, nrb189, nrb216, nrb217, nrb245, nrb264, nrb270, nrb273, ...}

NRPCI ::= INTEGER(0..1007)

NRPRACHConfigList ::= SEQUENCE (SIZE(0..maxnoofPRACHconfigs)) OF NRPRACHConfigItem

NRPRACHConfigItem ::= SEQUENCE {

nRSCS NRSCS,

prachFreqStartfromCarrier INTEGER (0..maxnoofPhysicalResourceBlocks-1, ...),

msg1FDM ENUMERATED {one, two, four, eight, ...},

parchConfigIndex INTEGER (0..255, ..., 256..262),

ssb-perRACH-Occasion ENUMERATED {oneEighth, oneFourth, oneHalf, one,

two, four, eight, sixteen, ...},

freqDomainLength FreqDomainLength,

zeroCorrelZoneConfig INTEGER (0..15),

iE-Extension ProtocolExtensionContainer { { NRPRACHConfigItem-ExtIEs} } OPTIONAL,

...

}

NRPRACHConfigItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NRSCS ::= ENUMERATED { scs15, scs30, scs60, scs120, ...}

NRUERLFReportContainer ::= OCTET STRING

NumberofActiveUEs ::= INTEGER(0..16777215, ...)

NumberOfBroadcasts ::= INTEGER (0..65535)

NumberofBroadcastRequest ::= INTEGER (0..65535)

NumDLULSymbols ::= SEQUENCE {

numDLSymbols INTEGER (0..13, ...),

numULSymbols INTEGER (0..13, ...),

iE-Extensions ProtocolExtensionContainer { { NumDLULSymbols-ExtIEs} } OPTIONAL

}

NumDLULSymbols-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NRV2XServicesAuthorized ::= SEQUENCE {

vehicleUE VehicleUE OPTIONAL,

pedestrianUE PedestrianUE OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {NRV2XServicesAuthorized-ExtIEs} } OPTIONAL

}

NRV2XServicesAuthorized-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NRUESidelinkAggregateMaximumBitrate ::= SEQUENCE {

uENRSidelinkAggregateMaximumBitrate BitRate,

iE-Extensions ProtocolExtensionContainer { {NRUESidelinkAggregateMaximumBitrate-ExtIEs} } OPTIONAL

}

NRUESidelinkAggregateMaximumBitrate-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

NZP-CSI-RS-ResourceID::= INTEGER (0..191)

-- O

OffsetToPointA ::= INTEGER (0..2199,...)

-- P

PacketDelayBudget ::= INTEGER (0..1023, ...)

PacketErrorRate ::= SEQUENCE {

pER-Scalar PER-Scalar,

pER-Exponent PER-Exponent,

iE-Extensions ProtocolExtensionContainer { {PacketErrorRate-ExtIEs} } OPTIONAL,

...

}

PacketErrorRate-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PER-Scalar ::= INTEGER (0..9, ...)

PER-Exponent ::= INTEGER (0..9, ...)

PagingCell-Item ::= SEQUENCE {

nRCGI NRCGI ,

iE-Extensions ProtocolExtensionContainer { { PagingCell-ItemExtIEs } } OPTIONAL

}

PagingCell-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PagingDRX ::= ENUMERATED {

v32,

v64,

v128,

v256,

...

}

PagingIdentity ::= CHOICE {

rANUEPagingIdentity RANUEPagingIdentity,

cNUEPagingIdentity CNUEPagingIdentity,

choice-extension ProtocolIE-SingleContainer { { PagingIdentity-ExtIEs } }

}

PagingIdentity-ExtIEs F1AP-PROTOCOL-IES::= {

...

}

PagingOrigin ::= ENUMERATED { non-3gpp, ...}

PagingPriority ::= ENUMERATED { priolevel1, priolevel2, priolevel3, priolevel4, priolevel5, priolevel6, priolevel7, priolevel8,...}

RelativePathDelay ::= CHOICE {

k0 INTEGER (0..16351),

k1 INTEGER (0..8176),

k2 INTEGER (0..4088),

k3 INTEGER (0..2044),

k4 INTEGER (0..1022),

k5 INTEGER (0..511),

choice-extension ProtocolIE-SingleContainer { { RelativePathDelay-ExtIEs } }

}

RelativePathDelay-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

PathlossReferenceInfo ::= SEQUENCE {

pathlossReferenceSignal PathlossReferenceSignal,

iE-Extensions ProtocolExtensionContainer { {PathlossReferenceInfo-ExtIEs} } OPTIONAL

}

PathlossReferenceInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PathlossReferenceSignal ::= CHOICE {

sSB SSB,

dL-PRS DL-PRS,

choice-extension ProtocolIE-SingleContainer {{PathlossReferenceSignal-ExtIEs }}

}

PathlossReferenceSignal-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

PC5QoSFlowIdentifier ::= INTEGER (1..2048)

PC5-QoS-Characteristics ::= CHOICE {

non-Dynamic-PQI NonDynamicPQIDescriptor,

dynamic-PQI DynamicPQIDescriptor,

choice-extension ProtocolIE-SingleContainer { { PC5-QoS-Characteristics-ExtIEs } }

}

PC5-QoS-Characteristics-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

PC5QoSParameters ::= SEQUENCE {

pC5-QoS-Characteristics PC5-QoS-Characteristics,

pC5-QoS-Flow-Bit-Rates PC5FlowBitRates OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { PC5QoSParameters-ExtIEs } } OPTIONAL,

...

}

PC5QoSParameters-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PC5FlowBitRates ::= SEQUENCE {

guaranteedFlowBitRate BitRate,

maximumFlowBitRate BitRate,

iE-Extensions ProtocolExtensionContainer { { PC5FlowBitRates-ExtIEs } } OPTIONAL,

...

}

PC5FlowBitRates-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PDCCH-BlindDetectionSCG ::= OCTET STRING

PDCP-SN ::= INTEGER (0..4095)

PDCPSNLength ::= ENUMERATED { twelve-bits,eighteen-bits,...}

PDUSessionID ::= INTEGER (0..255)

ReportingPeriodicityValue ::= INTEGER (0..512, ...)

Periodicity ::= INTEGER (0..640000, ...)

PeriodicitySRS ::= ENUMERATED { ms0p125, ms0p25, ms0p5, ms0p625, ms1, ms1p25, ms2, ms2p5, ms4, ms5, ms8, ms10, ms16, ms20, ms32, ms40, ms64, ms80, ms160, ms320, ms640, ms1280, ms2560, ms5120, ms10240, ...}

PeriodicityList ::= SEQUENCE (SIZE(1.. maxnoSRS-ResourcePerSet)) OF PeriodicityList-Item

PeriodicityList-Item ::= SEQUENCE {

periodicitySRS PeriodicitySRS,

iE-Extensions ProtocolExtensionContainer { { PeriodicityList-ItemExtIEs} } OPTIONAL

}

PeriodicityList-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Permutation ::= ENUMERATED {dfu, ufd, ...}

Ph-InfoMCG ::= OCTET STRING

Ph-InfoSCG ::= OCTET STRING

PLMN-Identity ::= OCTET STRING (SIZE(3))

PortNumber ::= BIT STRING (SIZE (16))

PosAssistance-Information ::= OCTET STRING

PosAssistanceInformationFailureList ::= OCTET STRING

PosBroadcast ::= ENUMERATED {

start,

stop,

...

}

PositioningBroadcastCells ::= SEQUENCE (SIZE (1..maxnoBcastCell)) OF NRCGI

MeasurementPeriodicity ::= ENUMERATED

{ms120, ms240, ms480, ms640, ms1024, ms2048, ms5120, ms10240, min1, min6, min12, min30, ..., ms20480, ms40960, extended }

MeasurementPeriodicityExtended ::= ENUMERATED {ms160, ms320, ms1280, ms2560, ms61440, ms81920, ms368640, ms737280, ms1843200, ...}

PosMeasurementPeriodicityNR-AoA ::= ENUMERATED {

ms160,

ms320,

ms640,

ms1280,

ms2560,

ms5120,

ms10240,

ms20480,

ms40960,

ms61440,

ms81920,

ms368640,

ms737280,

ms1843200,

...

}

PosMeasurementQuantities ::= SEQUENCE (SIZE(1.. maxnoofPosMeas)) OF PosMeasurementQuantities-Item

PosMeasurementQuantities-Item ::= SEQUENCE {

posMeasurementType PosMeasurementType,

timingReportingGranularityFactor INTEGER (0..5) OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { PosMeasurementQuantities-ItemExtIEs} } OPTIONAL

}

PosMeasurementQuantities-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PosMeasurementResult ::= SEQUENCE (SIZE (1.. maxnoofPosMeas)) OF PosMeasurementResultItem

PosMeasurementResultItem ::= SEQUENCE {

measuredResultsValue MeasuredResultsValue,

timeStamp TimeStamp,

measurementQuality TRPMeasurementQuality OPTIONAL,

measurementBeamInfo MeasurementBeamInfo OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { PosMeasurementResultItemExtIEs } } OPTIONAL

}

PosMeasurementResultItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PosMeasurementResultList ::= SEQUENCE (SIZE(1.. maxNoOfMeasTRPs)) OF PosMeasurementResultList-Item

PosMeasurementResultList-Item ::= SEQUENCE {

posMeasurementResult PosMeasurementResult,

tRPID TRPID,

iE-Extensions ProtocolExtensionContainer { { PosMeasurementResultList-ItemExtIEs} } OPTIONAL

}

PosMeasurementResultList-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-NRCGI CRITICALITY ignore EXTENSION NRCGI PRESENCE optional },

...

}

PosMeasurementType ::= ENUMERATED {

gnb-rx-tx,

ul-srs-rsrp,

ul-aoa,

ul-rtoa,

...

}

PosReportCharacteristics ::= ENUMERATED {

ondemand,

periodic,

...

}

PosResourceSetType ::= CHOICE {

periodic PosResourceSetTypePR,

semi-persistent PosResourceSetTypeSP,

aperiodic PosResourceSetTypeAP,

choice-extension ProtocolIE-SingleContainer {{ PosResourceSetType-ExtIEs }}

}

PosResourceSetType-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

PosResourceSetTypePR ::= SEQUENCE {

posperiodicSet ENUMERATED{true, ...},

iE-Extensions ProtocolExtensionContainer { { PosResourceSetTypePR-ExtIEs} } OPTIONAL

}

PosResourceSetTypePR-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PosResourceSetTypeSP ::= SEQUENCE {

possemi-persistentSet ENUMERATED{true, ...},

iE-Extensions ProtocolExtensionContainer { { PosResourceSetTypeSP-ExtIEs} } OPTIONAL

}

PosResourceSetTypeSP-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PosResourceSetTypeAP ::= SEQUENCE {

sRSResourceTrigger-List INTEGER(1..3),

iE-Extensions ProtocolExtensionContainer { { PosResourceSetTypeAP-ExtIEs} } OPTIONAL

}

PosResourceSetTypeAP-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PosSItypeList ::= SEQUENCE (SIZE(1.. maxnoofPosSITypes)) OF PosSItype-Item

PosSItype-Item ::= SEQUENCE {

posItype PosSItype ,

iE-Extensions ProtocolExtensionContainer { { PosSItype-ItemExtIEs } } OPTIONAL

}

PosSItype-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PosSItype ::= INTEGER (1..32, ...)

PosSRSResourceID-List ::= SEQUENCE (SIZE (1..maxnoSRS-PosResourcePerSet)) OF SRSPosResourceID

PosSRSResource-Item ::= SEQUENCE {

srs-PosResourceId SRSPosResourceID,

transmissionCombPos TransmissionCombPos,

startPosition INTEGER (0..13),

nrofSymbols ENUMERATED {n1, n2, n4, n8, n12},

freqDomainShift INTEGER (0..268),

c-SRS INTEGER (0..63),

groupOrSequenceHopping ENUMERATED { neither, groupHopping, sequenceHopping },

resourceTypePos ResourceTypePos,

sequenceId INTEGER (0.. 65535),

spatialRelationPos SpatialRelationPos OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { PosSRSResource-Item-ExtIEs} } OPTIONAL

}

PosSRSResource-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PosSRSResource-List ::= SEQUENCE (SIZE (1..maxnoSRS-PosResources)) OF PosSRSResource-Item

PosSRSResourceSet-Item ::= SEQUENCE {

possrsResourceSetID INTEGER(0..15),

possRSResourceID-List PosSRSResourceID-List,

posresourceSetType PosResourceSetType,

iE-Extensions ProtocolExtensionContainer { { PosSRSResourceSet-Item-ExtIEs} } OPTIONAL

}

PosSRSResourceSet-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PosSRSResourceSet-List ::= SEQUENCE (SIZE (1..maxnoSRS-PosResourceSets)) OF PosSRSResourceSet-Item

PrimaryPathIndication ::= ENUMERATED {

true,

false,

...

}

Pre-emptionCapability ::= ENUMERATED {

shall-not-trigger-pre-emption,

may-trigger-pre-emption

}

Pre-emptionVulnerability ::= ENUMERATED {

not-pre-emptable,

pre-emptable

}

PriorityLevel ::= INTEGER { spare (0), highest (1), lowest (14), no-priority (15) } (0..15)

ProtectedEUTRAResourceIndication ::= OCTET STRING

Protected-EUTRA-Resources-Item ::= SEQUENCE {

spectrumSharingGroupID SpectrumSharingGroupID,

eUTRACells-List EUTRACells-List,

iE-Extensions ProtocolExtensionContainer { { Protected-EUTRA-Resources-ItemExtIEs } } OPTIONAL

}

Protected-EUTRA-Resources-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PRSConfiguration ::= SEQUENCE {

pRSResourceSet-List PRSResourceSet-List,

iE-Extensions ProtocolExtensionContainer { { PRSConfiguration-ExtIEs } } OPTIONAL

}

PRSConfiguration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PRSInformationPos ::= SEQUENCE {

pRS-IDPos INTEGER(0..255),

pRS-Resource-Set-IDPos INTEGER(0..7),

pRS-Resource-IDPos INTEGER(0..63) OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { PRSInformationPos-ExtIEs} } OPTIONAL

}

PRSInformationPos-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Potential-SpCell-Item ::= SEQUENCE {

potential-SpCell-ID NRCGI ,

iE-Extensions ProtocolExtensionContainer { { Potential-SpCell-ItemExtIEs } } OPTIONAL,

...

}

Potential-SpCell-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PRSAngleList ::= SEQUENCE (SIZE(1.. maxnoofPRS-ResourcesPerSet)) OF PRSAngleItem

PRSAngleItem ::= SEQUENCE {

nR-PRS-Azimuth INTEGER (0..359),

nR-PRS-Azimuth-fine INTEGER (0..9),

nR-PRS-Elevation INTEGER (0..180),

nR-PRS-Elevation-fine INTEGER (0..9),

iE-Extensions ProtocolExtensionContainer { { PRSAngleItem-ItemExtIEs } } OPTIONAL

}

PRSAngleItem-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-PRS-Resource-ID CRITICALITY ignore EXTENSION PRS-Resource-ID PRESENCE optional },

...

}

PRSMuting::= SEQUENCE {

pRSMutingOption1 PRSMutingOption1 OPTIONAL,

pRSMutingOption2 PRSMutingOption2 OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { PRSMuting-ExtIEs} } OPTIONAL

}

PRSMuting-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PRSMutingOption1 ::= SEQUENCE {

mutingPattern DL-PRSMutingPattern,

mutingBitRepetitionFactor ENUMERATED{rf1,rf2,rf4,rf8,...},

iE-Extensions ProtocolExtensionContainer { { PRSMutingOption1-ExtIEs} } OPTIONAL

}

PRSMutingOption1-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PRSMutingOption2 ::= SEQUENCE {

mutingPattern DL-PRSMutingPattern,

iE-Extensions ProtocolExtensionContainer { { PRSMutingOption2-ExtIEs} } OPTIONAL

}

PRSMutingOption2-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PRS-Resource-ID ::= INTEGER (0..63)

PRSResource-List::= SEQUENCE (SIZE (1..maxnoofPRSresources)) OF PRSResource-Item

PRSResource-Item ::= SEQUENCE {

pRSResourceID PRS-Resource-ID,

sequenceID INTEGER(0..4095),

rEOffset INTEGER(0..11,...),

resourceSlotOffset INTEGER(0..511),

resourceSymbolOffset INTEGER(0..12),

qCLInfo PRSResource-QCLInfo OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { PRSResource-Item-ExtIEs} } OPTIONAL

}

PRSResource-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PRSResource-QCLInfo ::= CHOICE {

qCLSourceSSB PRSResource-QCLSourceSSB,

qCLSourcePRS PRSResource-QCLSourcePRS,

choice-extension ProtocolIE-SingleContainer { { PRSResource-QCLInfo-ExtIEs } }

}

PRSResource-QCLInfo-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

PRSResource-QCLSourceSSB ::= SEQUENCE {

pCI-NR INTEGER(0..1007),

sSB-Index SSB-Index OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { PRSResource-QCLSourceSSB-ExtIEs} } OPTIONAL,

...

}

PRSResource-QCLSourceSSB-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PRSResource-QCLSourcePRS ::= SEQUENCE {

qCLSourcePRSResourceSetID PRS-Resource-Set-ID,

qCLSourcePRSResourceID PRS-Resource-ID OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { PRSResource-QCLSourcePRS-ExtIEs} } OPTIONAL

}

PRSResource-QCLSourcePRS-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PRS-Resource-Set-ID ::= INTEGER(0..7)

PRSResourceSet-List ::= SEQUENCE (SIZE (1.. maxnoofPRSresourceSets)) OF PRSResourceSet-Item

PRSResourceSet-Item ::= SEQUENCE {

pRSResourceSetID PRS-Resource-Set-ID,

subcarrierSpacing ENUMERATED{kHz15, kHz30, kHz60, kHz120, ...},

pRSbandwidth INTEGER(1..63),

startPRB INTEGER(0..2176),

pointA INTEGER (0..3279165),

combSize ENUMERATED{n2, n4, n6, n12, ...},

cPType ENUMERATED{normal, extended, ...},

resourceSetPeriodicity ENUMERATED{n4,n5,n8,n10,n16,n20,n32,n40,n64,n80,n160,n320,n640,n1280,n2560,n5120,n10240,n20480,n40960, n81920,...},

resourceSetSlotOffset INTEGER(0..81919,...),

resourceRepetitionFactor ENUMERATED{rf1,rf2,rf4,rf6,rf8,rf16,rf32,...},

resourceTimeGap ENUMERATED{tg1,tg2,tg4,tg8,tg16,tg32,...},

resourceNumberofSymbols ENUMERATED{n2,n4,n6,n12,...},

pRSMuting PRSMuting OPTIONAL,

pRSResourceTransmitPower INTEGER(-60..50),

pRSResource-List PRSResource-List,

iE-Extensions ProtocolExtensionContainer { { PRSResourceSet-Item-ExtIEs} } OPTIONAL

}

PRSResourceSet-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PWS-Failed-NR-CGI-Item ::= SEQUENCE {

nRCGI NRCGI,

numberOfBroadcasts NumberOfBroadcasts,

iE-Extensions ProtocolExtensionContainer { { PWS-Failed-NR-CGI-ItemExtIEs } } OPTIONAL,

...

}

PWS-Failed-NR-CGI-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PWSSystemInformation ::= SEQUENCE {

sIBtype SIBType-PWS,

sIBmessage OCTET STRING,

iE-Extensions ProtocolExtensionContainer { { PWSSystemInformationExtIEs } } OPTIONAL,

...

}

PWSSystemInformationExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ID id-NotificationInformation CRITICALITY ignore EXTENSION NotificationInformation PRESENCE optional}|

{ ID id-AdditionalSIBMessageList CRITICALITY reject EXTENSION AdditionalSIBMessageList PRESENCE optional},

...

}

PrivacyIndicator ::= ENUMERATED {immediate-MDT, logged-MDT, ...}

-- Q

QCI ::= INTEGER (0..255)

QoS-Characteristics ::= CHOICE {

non-Dynamic-5QI NonDynamic5QIDescriptor,

dynamic-5QI Dynamic5QIDescriptor,

choice-extension ProtocolIE-SingleContainer { { QoS-Characteristics-ExtIEs } }

}

QoS-Characteristics-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

QoSFlowIdentifier ::= INTEGER (0..63)

QoSFlowLevelQoSParameters ::= SEQUENCE {

qoS-Characteristics QoS-Characteristics,

nGRANallocationRetentionPriority NGRANAllocationAndRetentionPriority,

gBR-QoS-Flow-Information GBR-QoSFlowInformation OPTIONAL,

reflective-QoS-Attribute ENUMERATED {subject-to, ...} OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { QoSFlowLevelQoSParameters-ExtIEs } } OPTIONAL

}

QoSFlowLevelQoSParameters-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-PDUSessionID CRITICALITY ignore EXTENSION PDUSessionID PRESENCE optional}|

{ ID id-ULPDUSessionAggregateMaximumBitRate CRITICALITY ignore EXTENSION BitRate PRESENCE optional}|

{ ID id-QosMonitoringRequest CRITICALITY ignore EXTENSION QosMonitoringRequest PRESENCE optional}|

{ ID id-PDCPTerminatingNodeDLTNLAddrInfo CRITICALITY ignore EXTENSION TransportLayerAddress PRESENCE optional },

...

}

QoSFlowMappingIndication ::= ENUMERATED {ul,dl,...}

QoSInformation ::= CHOICE {

eUTRANQoS EUTRANQoS,

choice-extension ProtocolIE-SingleContainer { { QoSInformation-ExtIEs} }

}

QoSInformation-ExtIEs F1AP-PROTOCOL-IES ::= {

{ ID id-DRB-Information CRITICALITY ignore TYPE DRB-Information PRESENCE mandatory},

...

}

QosMonitoringRequest ::= ENUMERATED {ul, dl, both, ..., stop}

QoSParaSetIndex ::= INTEGER (1..8, ...)

QoSParaSetNotifyIndex ::= INTEGER (0..8, ...)

-- R

RACH-Config-Common ::= OCTET STRING

RACH-Config-Common-IAB ::= OCTET STRING

RACHReportContainer::= OCTET STRING

RACHReportInformationList ::= SEQUENCE (SIZE(1.. maxnoofRACHReports)) OF RACHReportInformationItem

RACHReportInformationItem ::= SEQUENCE {

rACHReportContainer RACHReportContainer,

uEAssitantIdentifier GNB-DU-UE-F1AP-ID OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { RACHReportInformationItem-ExtIEs} } OPTIONAL,

...

}

RACHReportInformationItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

RadioResourceStatus ::= SEQUENCE {

sSBAreaRadioResourceStatusList SSBAreaRadioResourceStatusList,

iE-Extensions ProtocolExtensionContainer { { RadioResourceStatus-ExtIEs} } OPTIONAL

}

RadioResourceStatus-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

RANAC ::= INTEGER (0..255)

RAN-MeasurementID ::= INTEGER (1.. 65536, ...)

RAN-UE-MeasurementID ::= INTEGER (1.. 256, ...)

RANUEID ::= OCTET STRING (SIZE (8))

RANUEPagingIdentity ::= SEQUENCE {

iRNTI BIT STRING (SIZE(40)),

iE-Extensions ProtocolExtensionContainer { { RANUEPagingIdentity-ExtIEs } } OPTIONAL}

RANUEPagingIdentity-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

RAT-FrequencyPriorityInformation::= CHOICE {

eNDC SubscriberProfileIDforRFP,

nGRAN RAT-FrequencySelectionPriority,

choice-extension ProtocolIE-SingleContainer { { RAT-FrequencyPriorityInformation-ExtIEs} }

}

RAT-FrequencyPriorityInformation-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

RAT-FrequencySelectionPriority::= INTEGER (1.. 256, ...)

Reestablishment-Indication ::= ENUMERATED {

reestablished,

...

}

ReferencePoint ::= CHOICE {

coordinateID CoordinateID,

referencePointCoordinate AccessPointPosition,

referencePointCoordinateHA NGRANHighAccuracyAccessPointPosition,

choice-Extension ProtocolIE-SingleContainer { { ReferencePoint-ExtIEs} }

}

ReferencePoint-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

ReferenceSFN ::= INTEGER (0..1023)

ReferenceSignal ::= CHOICE {

nZP-CSI-RS NZP-CSI-RS-ResourceID,

sSB SSB,

sRS SRSResourceID,

positioningSRS SRSPosResourceID,

dL-PRS DL-PRS,

choice-extension ProtocolIE-SingleContainer {{ReferenceSignal-ExtIEs }}

}

ReferenceSignal-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

RelativeCartesianLocation ::= SEQUENCE {

xYZunit ENUMERATED {mm, cm, dm, ...},

xvalue INTEGER (-65536..65535),

yvalue INTEGER (-65536..65535),

zvalue INTEGER (-32768..32767),

locationUncertainty LocationUncertainty,

iE-Extensions ProtocolExtensionContainer { { RelativeCartesianLocation-ExtIEs} } OPTIONAL

}

RelativeCartesianLocation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

RelativeGeodeticLocation ::= SEQUENCE {

milli-Arc-SecondUnits ENUMERATED {zerodot03, zerodot3, three, ...},

heightUnits ENUMERATED {mm, cm, m, ...},

deltaLatitude INTEGER (-1024.. 1023),

deltaLongitude INTEGER (-1024.. 1023),

deltaHeight INTEGER (-1024.. 1023),

locationUncertainty LocationUncertainty,

iE-extensions ProtocolExtensionContainer {{RelativeGeodeticLocation-ExtIEs }} OPTIONAL

}

RelativeGeodeticLocation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ReferenceTime ::= OCTET STRING

RegistrationRequest ::= ENUMERATED{start, stop, add, ...}

ReportCharacteristics ::= BIT STRING (SIZE(32))

ReportingPeriodicity ::= ENUMERATED{ms500, ms1000, ms2000, ms5000, ms10000, ...}

RequestedBandCombinationIndex ::= OCTET STRING

RequestedFeatureSetEntryIndex ::= OCTET STRING

RequestedP-MaxFR2 ::= OCTET STRING

Requested-PDCCH-BlindDetectionSCG ::= OCTET STRING

RequestedSRSTransmissionCharacteristics ::= SEQUENCE {

numberOfTransmissions INTEGER (0..500, ...) OPTIONAL,

-- The IE shall be present if the Resource Type IE is set to “periodic” --

resourceType ENUMERATED {periodic, semi-persistent, aperiodic,...},

bandwidthSRS BandwidthSRS,

sRSResourceSetList SRSResourceSetList OPTIONAL,

sSBInformation SSBInformation OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { RequestedSRSTransmissionCharacteristics-ExtIEs} } OPTIONAL

}

RequestedSRSTransmissionCharacteristics-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-SrsFrequency CRITICALITY ignore EXTENSION SrsFrequency PRESENCE optional },

...

}

RequestType ::= ENUMERATED {offer, execution, ...}

ResourceCoordinationEUTRACellInfo ::= SEQUENCE {

eUTRA-Mode-Info EUTRA-Coex-Mode-Info,

eUTRA-PRACH-Configuration EUTRA-PRACH-Configuration,

iE-Extensions ProtocolExtensionContainer { { ResourceCoordinationEUTRACellInfo-ExtIEs } } OPTIONAL,

...

}

ResourceCoordinationEUTRACellInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ID id-IgnorePRACHConfiguration CRITICALITY reject EXTENSION IgnorePRACHConfiguration PRESENCE optional },

...

}

ResourceCoordinationTransferInformation ::= SEQUENCE {

meNB-Cell-ID EUTRA-Cell-ID,

resourceCoordinationEUTRACellInfo ResourceCoordinationEUTRACellInfo OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { ResourceCoordinationTransferInformation-ExtIEs } } OPTIONAL,

...

}

ResourceCoordinationTransferInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ResourceCoordinationTransferContainer ::= OCTET STRING

ResourceSetType ::= CHOICE {

periodic ResourceSetTypePeriodic,

semi-persistent ResourceSetTypeSemi-persistent,

aperiodic ResourceSetTypeAperiodic,

choice-extension ProtocolIE-SingleContainer {{ ResourceSetType-ExtIEs }}

}

ResourceSetType-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

ResourceSetTypePeriodic ::= SEQUENCE {

periodicSet ENUMERATED{true, ...},

iE-Extensions ProtocolExtensionContainer { { ResourceSetTypePeriodic-ExtIEs} } OPTIONAL

}

ResourceSetTypePeriodic-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ResourceSetTypeSemi-persistent ::= SEQUENCE {

semi-persistentSet ENUMERATED{true, ...},

iE-Extensions ProtocolExtensionContainer { { ResourceSetTypeSemi-persistent-ExtIEs} } OPTIONAL

}

ResourceSetTypeSemi-persistent-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ResourceSetTypeAperiodic ::= SEQUENCE {

sRSResourceTrigger-List INTEGER(1..3),

slotoffset INTEGER(0..32),

iE-Extensions ProtocolExtensionContainer { { ResourceSetTypeAperiodic-ExtIEs} } OPTIONAL

}

ResourceSetTypeAperiodic-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

RepetitionPeriod ::= INTEGER (0..131071, ...)

ReportingRequestType ::= SEQUENCE {

eventType EventType,

reportingPeriodicityValue ReportingPeriodicityValue OPTIONAL,

-- C-ifEventTypeisPeriodic: This IE shall be present if the Event Type IE is set to "periodic" in the Event Type IE.

iE-Extensions ProtocolExtensionContainer { {ReportingRequestType-ExtIEs} } OPTIONAL

}

ReportingRequestType-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ResourceType ::= CHOICE {

periodic ResourceTypePeriodic,

semi-persistent ResourceTypeSemi-persistent,

aperiodic ResourceTypeAperiodic,

choice-extension ProtocolIE-SingleContainer {{ ResourceType-ExtIEs }}

}

ResourceType-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

ResourceTypePeriodic ::= SEQUENCE {

periodicity ENUMERATED{slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320, slot640, slot1280, slot2560, ...},

offset INTEGER(0..2559, ...),

iE-Extensions ProtocolExtensionContainer { { ResourceTypePeriodic-ExtIEs} } OPTIONAL

}

ResourceTypePeriodic-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ResourceTypeSemi-persistent ::= SEQUENCE {

periodicity ENUMERATED{slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320, slot640, slot1280, slot2560, ...},

offset INTEGER(0..2559, ...),

iE-Extensions ProtocolExtensionContainer { { ResourceTypeSemi-persistent-ExtIEs} } OPTIONAL

}

ResourceTypeSemi-persistent-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ResourceTypeAperiodic ::= SEQUENCE {

aperiodicResourceType ENUMERATED{true, ...},

iE-Extensions ProtocolExtensionContainer { { ResourceTypeAperiodic-ExtIEs} } OPTIONAL

}

ResourceTypeAperiodic-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ResourceTypePos ::= CHOICE {

periodic ResourceTypePeriodicPos,

semi-persistent ResourceTypeSemi-persistentPos,

aperiodic ResourceTypeAperiodicPos,

choice-extension ProtocolIE-SingleContainer {{ ResourceTypePos-ExtIEs }}

}

ResourceTypePos-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

ResourceTypePeriodicPos ::= SEQUENCE {

periodicity ENUMERATED{slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320, slot640, slot1280, slot2560, slot5120, slot10240, slot40960, slot81920, ..., slot128, slot256, slot512, slot20480},

offset INTEGER(0..81919, ...),

iE-Extensions ProtocolExtensionContainer { { ResourceTypePeriodicPos-ExtIEs} } OPTIONAL

}

ResourceTypePeriodicPos-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ResourceTypeSemi-persistentPos ::= SEQUENCE {

periodicity ENUMERATED{slot1, slot2, slot4, slot5, slot8, slot10, slot16, slot20, slot32, slot40, slot64, slot80, slot160, slot320, slot640, slot1280, slot2560, slot5120, slot10240, slot40960, slot81920, ..., slot128, slot256, slot512, slot20480},

offset INTEGER(0..81919, ...),

iE-Extensions ProtocolExtensionContainer { { ResourceTypeSemi-persistentPos-ExtIEs} } OPTIONAL

}

ResourceTypeSemi-persistentPos-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ResourceTypeAperiodicPos ::= SEQUENCE {

slotOffset INTEGER (0..32),

iE-Extensions ProtocolExtensionContainer { { ResourceTypeAperiodicPos-ExtIEs} } OPTIONAL

}

ResourceTypeAperiodicPos-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

RLCDuplicationInformation ::= SEQUENCE {

rLCDuplicationStateList RLCDuplicationStateList,

primaryPathIndication PrimaryPathIndication OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {RLCDuplicationInformation-ExtIEs} } OPTIONAL

}

RLCDuplicationInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

RLCDuplicationStateList ::= SEQUENCE (SIZE(1..maxnoofRLCDuplicationState)) OF RLCDuplicationState-Item

RLCDuplicationState-Item ::=SEQUENCE {

duplicationState DuplicationState,

iE-Extensions ProtocolExtensionContainer { {RLCDuplicationState-Item-ExtIEs } } OPTIONAL,

...

}

RLCDuplicationState-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

RLCFailureIndication ::= SEQUENCE {

assocatedLCID LCID,

iE-Extensions ProtocolExtensionContainer { {RLCFailureIndication-ExtIEs} } OPTIONAL

}

RLCFailureIndication-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

RLCMode ::= ENUMERATED {

rlc-am,

rlc-um-bidirectional,

rlc-um-unidirectional-ul,

rlc-um-unidirectional-dl,

...

}

RLC-Status ::= SEQUENCE {

reestablishment-Indication Reestablishment-Indication,

iE-Extensions ProtocolExtensionContainer { { RLC-Status-ExtIEs } } OPTIONAL,

...

}

RLC-Status-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

RLFReportInformationList ::= SEQUENCE (SIZE(1.. maxnoofRLFReports)) OF RLFReportInformationItem

RLFReportInformationItem ::= SEQUENCE {

nRUERLFReportContainer NRUERLFReportContainer,

uEAssitantIdentifier GNB-DU-UE-F1AP-ID OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { RLFReportInformationItem-ExtIEs} } OPTIONAL,

...

}

RLFReportInformationItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

RIMRSDetectionStatus ::= ENUMERATED {rs-detected, rs-disappeared, ...}

RRCContainer ::= OCTET STRING

RRCContainer-RRCSetupComplete ::= OCTET STRING

RRCDeliveryStatus ::= SEQUENCE {

delivery-status PDCP-SN,

triggering-message PDCP-SN,

iE-Extensions ProtocolExtensionContainer { { RRCDeliveryStatus-ExtIEs } } OPTIONAL}

RRCDeliveryStatus-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

RRCDeliveryStatusRequest ::= ENUMERATED {true, ...}

RRCReconfigurationCompleteIndicator ::= ENUMERATED {

true,

...,

failure

}

RRC-Version ::= SEQUENCE {

latest-RRC-Version BIT STRING (SIZE(3)),

iE-Extensions ProtocolExtensionContainer { { RRC-Version-ExtIEs } } OPTIONAL}

RRC-Version-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ID id-latest-RRC-Version-Enhanced CRITICALITY ignore EXTENSION OCTET STRING (SIZE(3)) PRESENCE optional },

...

}

RoutingID ::= OCTET STRING

-- S

SCell-FailedtoSetup-Item ::= SEQUENCE {

sCell-ID NRCGI ,

cause Cause OPTIONAL ,

iE-Extensions ProtocolExtensionContainer { { SCell-FailedtoSetup-ItemExtIEs } } OPTIONAL,

...

}

SCell-FailedtoSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SCell-FailedtoSetupMod-Item ::= SEQUENCE {

sCell-ID NRCGI ,

cause Cause OPTIONAL ,

iE-Extensions ProtocolExtensionContainer { { SCell-FailedtoSetupMod-ItemExtIEs } } OPTIONAL,

...

}

SCell-FailedtoSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SCell-ToBeRemoved-Item ::= SEQUENCE {

sCell-ID NRCGI ,

iE-Extensions ProtocolExtensionContainer { { SCell-ToBeRemoved-ItemExtIEs } } OPTIONAL,

...

}

SCell-ToBeRemoved-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SCell-ToBeSetup-Item ::= SEQUENCE {

sCell-ID NRCGI ,

sCellIndex SCellIndex,

sCellULConfigured CellULConfigured OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SCell-ToBeSetup-ItemExtIEs } } OPTIONAL,

...

}

SCell-ToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-ServingCellMO CRITICALITY ignore EXTENSION ServingCellMO PRESENCE optional },

...

}

SCell-ToBeSetupMod-Item ::= SEQUENCE {

sCell-ID NRCGI ,

sCellIndex SCellIndex,

sCellULConfigured CellULConfigured OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SCell-ToBeSetupMod-ItemExtIEs } } OPTIONAL,

...

}

SCell-ToBeSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-ServingCellMO CRITICALITY ignore EXTENSION ServingCellMO PRESENCE optional },

...

}

SCellIndex ::=INTEGER (1..31, ...)

SCGIndicator ::= ENUMERATED{released, ...}

SCS-SpecificCarrier ::= SEQUENCE {

offsetToCarrier INTEGER (0..2199,...),

subcarrierSpacing ENUMERATED {kHz15, kHz30, kHz60, kHz120,...},

carrierBandwidth INTEGER (1..275,...),

iE-Extensions ProtocolExtensionContainer { { SCS-SpecificCarrier-ExtIEs } } OPTIONAL

}

SCS-SpecificCarrier-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Search-window-information ::= SEQUENCE {

expectedPropagationDelay INTEGER (-3841..3841,...),

delayUncertainty INTEGER (1..246,...),

iE-Extensions ProtocolExtensionContainer { { Search-window-information-ExtIEs } } OPTIONAL

}

Search-window-information-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SerialNumber ::= BIT STRING (SIZE (16))

SIBType-PWS ::=INTEGER (6..8, ...)

SelectedBandCombinationIndex ::= OCTET STRING

SelectedFeatureSetEntryIndex ::= OCTET STRING

CG-ConfigInfo ::= OCTET STRING

ServCellIndex ::= INTEGER (0..31, ...)

ServingCellMO ::= INTEGER (1..64, ...)

Served-Cell-Information ::= SEQUENCE {

nRCGI NRCGI,

nRPCI NRPCI,

fiveGS-TAC FiveGS-TAC OPTIONAL,

configured-EPS-TAC Configured-EPS-TAC OPTIONAL,

servedPLMNs ServedPLMNs-List,

nR-Mode-Info NR-Mode-Info,

measurementTimingConfiguration OCTET STRING,

iE-Extensions ProtocolExtensionContainer { {Served-Cell-Information-ExtIEs} } OPTIONAL,

...

}

Served-Cell-Information-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-RANAC CRITICALITY ignore EXTENSION RANAC PRESENCE optional }|

{ ID id-ExtendedServedPLMNs-List CRITICALITY ignore EXTENSION ExtendedServedPLMNs-List PRESENCE optional }|

{ ID id-Cell-Direction CRITICALITY ignore EXTENSION Cell-Direction PRESENCE optional }|

{ ID id-BPLMN-ID-Info-List CRITICALITY ignore EXTENSION BPLMN-ID-Info-List PRESENCE optional }|

{ ID id-Cell-Type CRITICALITY ignore EXTENSION CellType PRESENCE optional}|

{ ID id-ConfiguredTACIndication CRITICALITY ignore EXTENSION ConfiguredTACIndication PRESENCE optional }|

{ ID id-AggressorgNBSetID CRITICALITY ignore EXTENSION AggressorgNBSetID PRESENCE optional}|

{ ID id-VictimgNBSetID CRITICALITY ignore EXTENSION VictimgNBSetID PRESENCE optional}|

{ ID id-IAB-Info-IAB-DU CRITICALITY ignore EXTENSION IAB-Info-IAB-DU PRESENCE optional}|

{ ID id-SSB-PositionsInBurst CRITICALITY ignore EXTENSION SSB-PositionsInBurst PRESENCE optional }|

{ ID id-NRPRACHConfig CRITICALITY ignore EXTENSION NRPRACHConfig PRESENCE optional }|

{ ID id-SFN-Offset CRITICALITY ignore EXTENSION SFN-Offset PRESENCE optional }|

{ ID id-NPNBroadcastInformation CRITICALITY reject EXTENSION NPNBroadcastInformation PRESENCE optional },

...

}

SFN-Offset ::= SEQUENCE {

sFN-Time-Offset BIT STRING (SIZE(24)),

iE-Extensions ProtocolExtensionContainer { {SFN-Offset-ExtIEs} } OPTIONAL,

...

}

SFN-Offset-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Served-Cells-To-Add-Item ::= SEQUENCE {

served-Cell-Information Served-Cell-Information,

gNB-DU-System-Information GNB-DU-System-Information OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { Served-Cells-To-Add-ItemExtIEs} } OPTIONAL,

...

}

Served-Cells-To-Add-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Served-Cells-To-Delete-Item ::= SEQUENCE {

oldNRCGI NRCGI ,

iE-Extensions ProtocolExtensionContainer { { Served-Cells-To-Delete-ItemExtIEs } } OPTIONAL,

...

}

Served-Cells-To-Delete-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Served-Cells-To-Modify-Item ::= SEQUENCE {

oldNRCGI NRCGI ,

served-Cell-Information Served-Cell-Information ,

gNB-DU-System-Information GNB-DU-System-Information OPTIONAL ,

iE-Extensions ProtocolExtensionContainer { { Served-Cells-To-Modify-ItemExtIEs } } OPTIONAL,

...

}

Served-Cells-To-Modify-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Served-EUTRA-Cells-Information::= SEQUENCE {

eUTRA-Mode-Info EUTRA-Mode-Info,

protectedEUTRAResourceIndication ProtectedEUTRAResourceIndication,

iE-Extensions ProtocolExtensionContainer { {Served-EUTRA-Cell-Information-ExtIEs} } OPTIONAL,

...

}

Served-EUTRA-Cell-Information-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Service-State ::= ENUMERATED {

in-service,

out-of-service,

...

}

Service-Status ::= SEQUENCE {

service-state Service-State,

switchingOffOngoing ENUMERATED {true, ...} OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { Service-Status-ExtIEs } } OPTIONAL,

...

}

Service-Status-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

RelativeTime1900 ::= BIT STRING (SIZE (64))

ShortDRXCycleLength ::= ENUMERATED {ms2, ms3, ms4, ms5, ms6, ms7, ms8, ms10, ms14, ms16, ms20, ms30, ms32, ms35, ms40, ms64, ms80, ms128, ms160, ms256, ms320, ms512, ms640, ...}

ShortDRXCycleTimer ::= INTEGER (1..16)

SIB1-message ::= OCTET STRING

SIB10-message ::= OCTET STRING

SIB12-message ::= OCTET STRING

SIB13-message ::= OCTET STRING

SIB14-message ::= OCTET STRING

SItype ::= INTEGER (1..32, ...)

SItype-List ::= SEQUENCE (SIZE(1.. maxnoofSITypes)) OF SItype-Item

SItype-Item ::= SEQUENCE {

sItype SItype ,

iE-Extensions ProtocolExtensionContainer { { SItype-ItemExtIEs } } OPTIONAL

}

SItype-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SibtypetobeupdatedListItem ::= SEQUENCE {

sIBtype INTEGER (2..32,...),

sIBmessage OCTET STRING,

valueTag INTEGER (0..31,...),

iE-Extensions ProtocolExtensionContainer { { SibtypetobeupdatedListItem-ExtIEs } } OPTIONAL,

...

}

SibtypetobeupdatedListItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ID id-areaScope CRITICALITY ignore EXTENSION AreaScope PRESENCE optional},

...

}

SLDRBID ::= INTEGER (1..512, ...)

SLDRBInformation ::= SEQUENCE {

sLDRB-QoS PC5QoSParameters,

flowsMappedToSLDRB-List FlowsMappedToSLDRB-List,

...

}

SLDRBs-FailedToBeModified-Item ::= SEQUENCE {

sLDRBID SLDRBID ,

cause Cause OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SLDRBs-FailedToBeModified-ItemExtIEs } } OPTIONAL

}

SLDRBs-FailedToBeModified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SLDRBs-FailedToBeSetup-Item ::= SEQUENCE {

sLDRBID SLDRBID,

cause Cause OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SLDRBs-FailedToBeSetup-ItemExtIEs } } OPTIONAL

}

SLDRBs-FailedToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SLDRBs-FailedToBeSetupMod-Item ::= SEQUENCE {

sLDRBID SLDRBID ,

cause Cause OPTIONAL ,

iE-Extensions ProtocolExtensionContainer { { SLDRBs-FailedToBeSetupMod-ItemExtIEs } } OPTIONAL

}

SLDRBs-FailedToBeSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SLDRBs-Modified-Item ::= SEQUENCE {

sLDRBID SLDRBID,

iE-Extensions ProtocolExtensionContainer { { SLDRBs-Modified-ItemExtIEs } } OPTIONAL

}

SLDRBs-Modified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SLDRBs-ModifiedConf-Item ::= SEQUENCE {

sLDRBID SLDRBID,

iE-Extensions ProtocolExtensionContainer { { SLDRBs-ModifiedConf-ItemExtIEs } } OPTIONAL

}

SLDRBs-ModifiedConf-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SLDRBs-Required-ToBeModified-Item ::= SEQUENCE {

sLDRBID SLDRBID,

iE-Extensions ProtocolExtensionContainer { { SLDRBs-Required-ToBeModified-ItemExtIEs } } OPTIONAL

}

SLDRBs-Required-ToBeModified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SLDRBs-Required-ToBeReleased-Item ::= SEQUENCE {

sLDRBID SLDRBID,

iE-Extensions ProtocolExtensionContainer { { SLDRBs-Required-ToBeReleased-ItemExtIEs } } OPTIONAL

}

SLDRBs-Required-ToBeReleased-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SLDRBs-Setup-Item ::= SEQUENCE {

sLDRBID SLDRBID,

iE-Extensions ProtocolExtensionContainer { { SLDRBs-Setup-ItemExtIEs } } OPTIONAL

}

SLDRBs-Setup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SLDRBs-SetupMod-Item ::= SEQUENCE {

sLDRBID SLDRBID,

iE-Extensions ProtocolExtensionContainer { { SLDRBs-SetupMod-ItemExtIEs } } OPTIONAL

}

SLDRBs-SetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SLDRBs-ToBeModified-Item ::= SEQUENCE {

sLDRBID SLDRBID,

sLDRBInformation SLDRBInformation OPTIONAL,

rLCMode RLCMode OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SLDRBs-ToBeModified-ItemExtIEs } } OPTIONAL

}

SLDRBs-ToBeModified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SLDRBs-ToBeReleased-Item ::= SEQUENCE {

sLDRBID SLDRBID,

iE-Extensions ProtocolExtensionContainer { { SLDRBs-ToBeReleased-ItemExtIEs } } OPTIONAL

}

SLDRBs-ToBeReleased-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SLDRBs-ToBeSetup-Item ::= SEQUENCE {

sLDRBID SLDRBID,

sLDRBInformation SLDRBInformation,

rLCMode RLCMode,

iE-Extensions ProtocolExtensionContainer { { SLDRBs-ToBeSetup-ItemExtIEs } } OPTIONAL

}

SLDRBs-ToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SLDRBs-ToBeSetupMod-Item ::= SEQUENCE {

sLDRBID SLDRBID,

sLDRBInformation SLDRBInformation,

rLCMode RLCMode OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SLDRBs-ToBeSetupMod-ItemExtIEs } } OPTIONAL

}

SLDRBs-ToBeSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SL-PHY-MAC-RLC-Config ::= OCTET STRING

SL-ConfigDedicatedEUTRA-Info ::= OCTET STRING

SliceAvailableCapacity ::= SEQUENCE {

sliceAvailableCapacityList SliceAvailableCapacityList,

iE-Extensions ProtocolExtensionContainer { { SliceAvailableCapacity-ExtIEs} } OPTIONAL

}

SliceAvailableCapacity-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SliceAvailableCapacityList ::= SEQUENCE (SIZE(1.. maxnoofBPLMNsNR)) OF SliceAvailableCapacityItem

SliceAvailableCapacityItem ::= SEQUENCE {

pLMNIdentity PLMN-Identity,

sNSSAIAvailableCapacity-List SNSSAIAvailableCapacity-List,

iE-Extensions ProtocolExtensionContainer { { SliceAvailableCapacityItem-ExtIEs} } OPTIONAL

}

SliceAvailableCapacityItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SNSSAIAvailableCapacity-List ::= SEQUENCE (SIZE(1.. maxnoofSliceItems)) OF SNSSAIAvailableCapacity-Item

SNSSAIAvailableCapacity-Item ::= SEQUENCE {

sNSSAI SNSSAI,

sliceAvailableCapacityValueDownlink INTEGER (0..100) OPTIONAL,

sliceAvailableCapacityValueUplink INTEGER (0..100) OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SNSSAIAvailableCapacity-Item-ExtIEs } } OPTIONAL

}

SNSSAIAvailableCapacity-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SliceSupportList ::= SEQUENCE (SIZE(1.. maxnoofSliceItems)) OF SliceSupportItem

SliceSupportItem ::= SEQUENCE {

sNSSAI SNSSAI,

iE-Extensions ProtocolExtensionContainer { { SliceSupportItem-ExtIEs } } OPTIONAL

}

SliceSupportItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SliceToReportList ::= SEQUENCE (SIZE(1.. maxnoofBPLMNsNR)) OF SliceToReportItem

SliceToReportItem ::= SEQUENCE {

pLMNIdentity PLMN-Identity,

sNSSAIlist SNSSAI-list,

iE-Extensions ProtocolExtensionContainer { { SliceToReportItem-ExtIEs} } OPTIONAL

}

SliceToReportItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SlotNumber ::= INTEGER (0..79)

SNSSAI-list ::= SEQUENCE (SIZE(1.. maxnoofSliceItems)) OF SNSSAI-Item

SNSSAI-Item ::= SEQUENCE {

sNSSAI SNSSAI,

iE-Extensions ProtocolExtensionContainer { { SNSSAI-Item-ExtIEs } } OPTIONAL

}

SNSSAI-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Slot-Configuration-List ::= SEQUENCE (SIZE(1.. maxnoofslots)) OF Slot-Configuration-Item

Slot-Configuration-Item ::= SEQUENCE {

slotIndex INTEGER (0..5119, ...),

symbolAllocInSlot SymbolAllocInSlot,

iE-Extensions ProtocolExtensionContainer { { Slot-Configuration-ItemExtIEs } } OPTIONAL

}

Slot-Configuration-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SNSSAI ::= SEQUENCE {

sST OCTET STRING (SIZE(1)),

sD OCTET STRING (SIZE(3)) OPTIONAL ,

iE-Extensions ProtocolExtensionContainer { { SNSSAI-ExtIEs } } OPTIONAL

}

SNSSAI-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SpatialDirectionInformation ::= SEQUENCE {

nR-PRSBeamInformation NR-PRSBeamInformation,

iE-Extensions ProtocolExtensionContainer { { SpatialDirectionInformation-ExtIEs } } OPTIONAL

}

SpatialDirectionInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SpatialRelationInfo ::= SEQUENCE {

spatialRelationforResourceID SpatialRelationforResourceID,

iE-Extensions ProtocolExtensionContainer { {SpatialRelationInfo-ExtIEs} } OPTIONAL

}

SpatialRelationInfo-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SpatialRelationforResourceID ::= SEQUENCE (SIZE(1..maxnoofSpatialRelations)) OF SpatialRelationforResourceIDItem

SpatialRelationforResourceIDItem ::= SEQUENCE {

referenceSignal ReferenceSignal,

iE-Extensions ProtocolExtensionContainer { {SpatialRelationforResourceIDItem-ExtIEs} } OPTIONAL

}

SpatialRelationforResourceIDItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SpatialRelationPerSRSResource ::= SEQUENCE {

spatialRelationPerSRSResource-List SpatialRelationPerSRSResource-List,

iE-Extensions ProtocolExtensionContainer { { SpatialRelationPerSRSResource-ExtIEs} } OPTIONAL,

...

}

SpatialRelationPerSRSResource-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SpatialRelationPerSRSResource-List::= SEQUENCE(SIZE (1.. maxnoSRS-ResourcePerSet)) OF SpatialRelationPerSRSResourceItem

SpatialRelationPerSRSResourceItem ::= SEQUENCE {

referenceSignal ReferenceSignal,

iE-Extensions ProtocolExtensionContainer { { SpatialRelationPerSRSResourceItem-ExtIEs} } OPTIONAL,

...

}

SpatialRelationPerSRSResourceItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SpatialRelationPos ::= CHOICE {

sSBPos SSB,

pRSInformationPos PRSInformationPos,

choice-extension ProtocolIE-SingleContainer {{ SpatialInformationPos-ExtIEs }}

}

SpatialInformationPos-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

SpectrumSharingGroupID ::= INTEGER (1..maxCellineNB)

SRBID ::= INTEGER (0..3, ...)

SRBs-FailedToBeSetup-Item ::= SEQUENCE {

sRBID SRBID ,

cause Cause OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SRBs-FailedToBeSetup-ItemExtIEs } } OPTIONAL,

...

}

SRBs-FailedToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SRBs-FailedToBeSetupMod-Item ::= SEQUENCE {

sRBID SRBID ,

cause Cause OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SRBs-FailedToBeSetupMod-ItemExtIEs } } OPTIONAL,

...

}

SRBs-FailedToBeSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SRBs-Modified-Item ::= SEQUENCE {

sRBID SRBID,

lCID LCID,

iE-Extensions ProtocolExtensionContainer { { SRBs-Modified-ItemExtIEs } } OPTIONAL,

...

}

SRBs-Modified-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SRBs-Required-ToBeReleased-Item ::= SEQUENCE {

sRBID SRBID,

iE-Extensions ProtocolExtensionContainer { { SRBs-Required-ToBeReleased-ItemExtIEs } } OPTIONAL,

...

}

SRBs-Required-ToBeReleased-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SRBs-Setup-Item ::= SEQUENCE {

sRBID SRBID,

lCID LCID,

iE-Extensions ProtocolExtensionContainer { { SRBs-Setup-ItemExtIEs } } OPTIONAL,

...

}

SRBs-Setup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SRBs-SetupMod-Item ::= SEQUENCE {

sRBID SRBID,

lCID LCID,

iE-Extensions ProtocolExtensionContainer { { SRBs-SetupMod-ItemExtIEs } } OPTIONAL,

...

}

SRBs-SetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SRBs-ToBeReleased-Item ::= SEQUENCE {

sRBID SRBID,

iE-Extensions ProtocolExtensionContainer { { SRBs-ToBeReleased-ItemExtIEs } } OPTIONAL,

...

}

SRBs-ToBeReleased-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SRBs-ToBeSetup-Item ::= SEQUENCE {

sRBID SRBID ,

duplicationIndication DuplicationIndication OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SRBs-ToBeSetup-ItemExtIEs } } OPTIONAL,

...

}

SRBs-ToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-AdditionalDuplicationIndication CRITICALITY ignore EXTENSION AdditionalDuplicationIndication PRESENCE optional },

...

}

SRBs-ToBeSetupMod-Item ::= SEQUENCE {

sRBID SRBID,

duplicationIndication DuplicationIndication OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SRBs-ToBeSetupMod-ItemExtIEs } } OPTIONAL,

...

}

SRBs-ToBeSetupMod-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-AdditionalDuplicationIndication CRITICALITY ignore EXTENSION AdditionalDuplicationIndication PRESENCE optional },

...

}

SRSCarrier-List ::= SEQUENCE (SIZE(1.. maxnoSRS-Carriers)) OF SRSCarrier-List-Item

SRSCarrier-List-Item ::= SEQUENCE {

pointA INTEGER (0..3279165),

uplinkChannelBW-PerSCS-List UplinkChannelBW-PerSCS-List,

activeULBWP ActiveULBWP,

pci NRPCI OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SRSCarrier-List-Item-ExtIEs } } OPTIONAL

}

SRSCarrier-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SRSConfig ::= SEQUENCE {

sRSResource-List SRSResource-List OPTIONAL,

posSRSResource-List PosSRSResource-List OPTIONAL,

sRSResourceSet-List SRSResourceSet-List OPTIONAL,

posSRSResourceSet-List PosSRSResourceSet-List OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SRSConfig-ExtIEs } } OPTIONAL

}

SRSConfig-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SRSConfiguration ::= SEQUENCE {

sRSCarrier-List SRSCarrier-List,

iE-Extensions ProtocolExtensionContainer { { SRSConfiguration-ExtIEs } } OPTIONAL

}

SRSConfiguration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SrsFrequency ::= INTEGER (0..3279165)

SRSPosResourceID ::= INTEGER (0..63)

SRSResource::= SEQUENCE {

sRSResourceID SRSResourceID,

nrofSRS-Ports ENUMERATED {port1, ports2, ports4},

transmissionComb TransmissionComb,

startPosition INTEGER (0..13),

nrofSymbols ENUMERATED {n1, n2, n4},

repetitionFactor ENUMERATED {n1, n2, n4},

freqDomainPosition INTEGER (0..67),

freqDomainShift INTEGER (0..268),

c-SRS INTEGER (0..63),

b-SRS INTEGER (0..3),

b-hop INTEGER (0..3),

groupOrSequenceHopping ENUMERATED { neither, groupHopping, sequenceHopping },

resourceType ResourceType,

sequenceId INTEGER (0..1023),

iE-Extensions ProtocolExtensionContainer { { SRSResource-ExtIEs } } OPTIONAL

}

SRSResource-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SRSResourceID ::= INTEGER (0..63)

SRSResourceID-List::= SEQUENCE (SIZE (1..maxnoSRS-ResourcePerSet)) OF SRSResourceID

SRSResource-List ::= SEQUENCE (SIZE (1..maxnoSRS-Resources)) OF SRSResource

SRSResourceSet::= SEQUENCE {

sRSResourceSetID SRSResourceSetID,

sRSResourceID-List SRSResourceID-List,

resourceSetType ResourceSetType,

iE-Extensions ProtocolExtensionContainer { { SRSResourceSet-ExtIEs } } OPTIONAL

}

SRSResourceSet-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SRSResourceSetID ::= INTEGER (0..15, ...)

SRSResourceSetList ::= SEQUENCE (SIZE(1.. maxnoSRS-ResourceSets)) OF SRSResourceSetItem

SRSResourceSetItem ::= SEQUENCE {

numSRSresourcesperset INTEGER (1..16, ...) OPTIONAL,

periodicityList PeriodicityList OPTIONAL,

spatialRelationInfo SpatialRelationInfo OPTIONAL,

pathlossReferenceInfo PathlossReferenceInfo OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SRSResourceSetItemExtIEs } } OPTIONAL

}

SRSResourceSetItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-SRSSpatialRelationPerSRSResource CRITICALITY ignore EXTENSION SpatialRelationPerSRSResource PRESENCE optional},

...

}

SRSResourceSet-List ::= SEQUENCE (SIZE (1..maxnoSRS-ResourceSets)) OF SRSResourceSet

SRSResourceTrigger ::= SEQUENCE {

aperiodicSRSResourceTriggerList AperiodicSRSResourceTriggerList,

iE-Extensions ProtocolExtensionContainer { {SRSResourceTrigger-ExtIEs} } OPTIONAL

}

SRSResourceTrigger-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SSB ::= SEQUENCE {

pCI-NR NRPCI,

ssb-index SSB-Index OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {SSB-ExtIEs} } OPTIONAL

}

SSB-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SSB-freqInfo ::= INTEGER (0..maxNRARFCN)

SSB-Index ::= INTEGER(0..63)

SSB-subcarrierSpacing ::= ENUMERATED {kHz15, kHz30, kHz120, kHz240, spare3, spare2, spare1, ...}

SSB-transmissionPeriodicity ::= ENUMERATED {sf10, sf20, sf40, sf80, sf160, sf320, sf640, ...}

SSB-transmissionTimingOffset ::= INTEGER (0..127, ...)

SSB-transmissionBitmap ::= CHOICE {

shortBitmap BIT STRING (SIZE (4)),

mediumBitmap BIT STRING (SIZE (8)),

longBitmap BIT STRING (SIZE (64)),

choice-extension ProtocolIE-SingleContainer { { SSB-transmisisonBitmap-ExtIEs} }

}

SSB-transmisisonBitmap-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

SSBAreaCapacityValueList ::= SEQUENCE (SIZE(1.. maxnoofSSBAreas)) OF SSBAreaCapacityValueItem

SSBAreaCapacityValueItem ::= SEQUENCE {

sSBIndex INTEGER(0..63),

sSBAreaCapacityValue INTEGER (0..100),

iE-Extensions ProtocolExtensionContainer { { SSBAreaCapacityValueItem-ExtIEs} } OPTIONAL

}

SSBAreaCapacityValueItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SSBAreaRadioResourceStatusList::= SEQUENCE (SIZE(1.. maxnoofSSBAreas)) OF SSBAreaRadioResourceStatusItem

SSBAreaRadioResourceStatusItem::= SEQUENCE {

sSBIndex INTEGER(0..63),

sSBAreaDLGBRPRBusage INTEGER (0..100),

sSBAreaULGBRPRBusage INTEGER (0..100),

sSBAreaDLnon-GBRPRBusage INTEGER (0..100),

sSBAreaULnon-GBRPRBusage INTEGER (0..100),

sSBAreaDLTotalPRBusage INTEGER (0..100),

sSBAreaULTotalPRBusage INTEGER (0..100),

dLschedulingPDCCHCCEusage INTEGER (0..100) OPTIONAL,

uLschedulingPDCCHCCEusage INTEGER (0..100) OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SSBAreaRadioResourceStatusItem-ExtIEs} } OPTIONAL

}

SSBAreaRadioResourceStatusItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SSBInformation ::= SEQUENCE {

sSBInformationList SSBInformationList,

iE-Extensions ProtocolExtensionContainer { { SSBInformation-ExtIEs } } OPTIONAL

}

SSBInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SSBInformationList ::= SEQUENCE (SIZE(1.. maxnoofSSBs)) OF SSBInformationItem

SSBInformationItem ::= SEQUENCE {

sSB-Configuration SSB-TF-Configuration,

pCI-NR NRPCI,

iE-Extensions ProtocolExtensionContainer { { SSBInformationItem-ExtIEs } } OPTIONAL

}

SSBInformationItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SSB-PositionsInBurst ::= CHOICE {

shortBitmap BIT STRING (SIZE (4)),

mediumBitmap BIT STRING (SIZE (8)),

longBitmap BIT STRING (SIZE (64)),

choice-extension ProtocolIE-SingleContainer { {SSB-PositionsInBurst-ExtIEs} }

}

SSB-PositionsInBurst-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

SSB-TF-Configuration ::= SEQUENCE {

sSB-frequency INTEGER (0..3279165),

sSB-subcarrier-spacing ENUMERATED {kHz15, kHz30, kHz60, kHz120, kHz240, ...},

sSB-Transmit-power INTEGER (-60..50),

sSB-periodicity ENUMERATED {ms5, ms10, ms20, ms40, ms80, ms160, ...},

sSB-half-frame-offset INTEGER(0..1),

sSB-SFN-offset INTEGER(0..15),

sSB-position-in-burst SSB-PositionsInBurst OPTIONAL,

sFNInitialisationTime RelativeTime1900 OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { SSB-TF-Configuration-ExtIEs} } OPTIONAL

}

SSB-TF-Configuration-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SSBToReportList ::= SEQUENCE (SIZE(1.. maxnoofSSBAreas)) OF SSBToReportItem

SSBToReportItem ::= SEQUENCE {

sSBIndex INTEGER(0..63),

iE-Extensions ProtocolExtensionContainer { { SSBToReportItem-ExtIEs} } OPTIONAL

}

SSBToReportItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SUL-Information ::= SEQUENCE {

sUL-NRARFCN INTEGER (0..maxNRARFCN),

sUL-transmission-Bandwidth Transmission-Bandwidth,

iE-Extensions ProtocolExtensionContainer { { SUL-InformationExtIEs} } OPTIONAL,

...

}

SUL-InformationExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-CarrierList CRITICALITY ignore EXTENSION NRCarrierList PRESENCE optional }|

{ ID id-FrequencyShift7p5khz CRITICALITY ignore EXTENSION FrequencyShift7p5khz PRESENCE optional },

...

}

SubcarrierSpacing ::= ENUMERATED { kHz15, kHz30, kHz60, kHz120, kHz240, spare3, spare2, spare1, ...}

SubscriberProfileIDforRFP ::= INTEGER (1..256, ...)

SULAccessIndication ::= ENUMERATED {true,...}

SupportedSULFreqBandItem ::= SEQUENCE {

freqBandIndicatorNr INTEGER (1..1024,...),

iE-Extensions ProtocolExtensionContainer { { SupportedSULFreqBandItem-ExtIEs} } OPTIONAL,

...

}

SupportedSULFreqBandItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

SymbolAllocInSlot ::= CHOICE {

all-DL NULL,

all-UL NULL,

both-DL-and-UL NumDLULSymbols,

choice-extension ProtocolIE-SingleContainer { { SymbolAllocInSlot-ExtIEs } }

}

SymbolAllocInSlot-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

SystemFrameNumber ::= INTEGER (0..1023)

SystemInformationAreaID ::=BIT STRING (SIZE (24))

-- T

FiveGS-TAC ::= OCTET STRING (SIZE(3))

Configured-EPS-TAC ::= OCTET STRING (SIZE(2))

TargetCellList ::= SEQUENCE (SIZE(1..maxnoofCHOcells)) OF TargetCellList-Item

TargetCellList-Item ::= SEQUENCE {

target-cell NRCGI,

iE-Extensions ProtocolExtensionContainer { { TargetCellList-Item-ExtIEs} } OPTIONAL

}

TargetCellList-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TDD-Info ::= SEQUENCE {

nRFreqInfo NRFreqInfo,

transmission-Bandwidth Transmission-Bandwidth,

iE-Extensions ProtocolExtensionContainer { {TDD-Info-ExtIEs} } OPTIONAL,

...

}

TDD-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ID id-IntendedTDD-DL-ULConfig CRITICALITY ignore EXTENSION IntendedTDD-DL-ULConfig PRESENCE optional}|

{ID id-TDD-UL-DLConfigCommonNR CRITICALITY ignore EXTENSION TDD-UL-DLConfigCommonNR PRESENCE optional }|

{ID id-CarrierList CRITICALITY ignore EXTENSION NRCarrierList PRESENCE optional },

...

}

TDD-UL-DLConfigCommonNR ::= OCTET STRING

TimeReferenceInformation ::= SEQUENCE {

referenceTime ReferenceTime,

referenceSFN ReferenceSFN,

uncertainty Uncertainty,

timeInformationType TimeInformationType,

iE-Extensions ProtocolExtensionContainer { {TimeReferenceInformation-ExtIEs} } OPTIONAL

}

TimeReferenceInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TimeInformationType ::= ENUMERATED {localClock}

TimeStamp ::= SEQUENCE {

systemFrameNumber SystemFrameNumber,

slotIndex TimeStampSlotIndex,

measurementTime RelativeTime1900 OPTIONAL,

iE-Extension ProtocolExtensionContainer { { TimeStamp-ExtIEs} } OPTIONAL

}

TimeStamp-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TimeStampSlotIndex ::= CHOICE {

sCS-15 INTEGER(0..9),

sCS-30 INTEGER(0..19),

sCS-60 INTEGER(0..39),

sCS-120 INTEGER(0..79),

choice-extension ProtocolIE-SingleContainer { { TimeStampSlotIndex-ExtIEs} }

}

TimeStampSlotIndex-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

TimeToWait ::= ENUMERATED {v1s, v2s, v5s, v10s, v20s, v60s, ...}

TimingMeasurementQuality ::= SEQUENCE {

measurementQuality INTEGER(0..31),

resolution ENUMERATED{m0dot1, m1, m10, m30, ...},

iE-Extensions ProtocolExtensionContainer { { TimingMeasurementQuality-ExtIEs} } OPTIONAL

}

TimingMeasurementQuality-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TNLAssociationUsage ::= ENUMERATED {

ue,

non-ue,

both,

...

}

TNLCapacityIndicator::= SEQUENCE {

dLTNLOfferedCapacity INTEGER (1.. 16777216,...),

dLTNLAvailableCapacity INTEGER (0.. 100,...),

uLTNLOfferedCapacity INTEGER (1.. 16777216,...),

uLTNLAvailableCapacity INTEGER (0.. 100,...),

iE-Extensions ProtocolExtensionContainer { { TNLCapacityIndicator-ExtIEs} } OPTIONAL

}

TNLCapacityIndicator-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TraceActivation ::= SEQUENCE {

traceID TraceID,

interfacesToTrace InterfacesToTrace,

traceDepth TraceDepth,

traceCollectionEntityIPAddress TransportLayerAddress,

iE-Extensions ProtocolExtensionContainer { {TraceActivation-ExtIEs} } OPTIONAL

}

TraceActivation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ID id-mdtConfiguration CRITICALITY ignore EXTENSION MDTConfiguration PRESENCE optional}|

{ID id-TraceCollectionEntityURI CRITICALITY ignore EXTENSION URI-address PRESENCE optional },

...

}

TraceDepth ::= ENUMERATED {

minimum,

medium,

maximum,

minimumWithoutVendorSpecificExtension,

mediumWithoutVendorSpecificExtension,

maximumWithoutVendorSpecificExtension,

...

}

TraceID ::= OCTET STRING (SIZE(8))

TrafficMappingInfo ::= CHOICE {

iPtolayer2TrafficMappingInfo IPtolayer2TrafficMappingInfo,

bAPlayerBHRLCchannelMappingInfo BAPlayerBHRLCchannelMappingInfo,

choice-extension ProtocolIE-SingleContainer { { TrafficMappingInfo-ExtIEs} }

}

TrafficMappingInfo-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

TransportLayerAddress ::= BIT STRING (SIZE(1..160, ...))

TransactionID ::= INTEGER (0..255, ...)

Transmission-Bandwidth ::= SEQUENCE {

nRSCS NRSCS,

nRNRB NRNRB,

iE-Extensions ProtocolExtensionContainer { { Transmission-Bandwidth-ExtIEs} } OPTIONAL,

...

}

Transmission-Bandwidth-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TransmissionComb ::= CHOICE {

n2 SEQUENCE {

combOffset-n2 INTEGER (0..1),

cyclicShift-n2 INTEGER (0..7)

},

n4 SEQUENCE {

combOffset-n4 INTEGER (0..3),

cyclicShift-n4 INTEGER (0..11)

},

choice-extension ProtocolIE-SingleContainer { { TransmissionComb-ExtIEs} }

}

TransmissionComb-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

TransmissionCombPos ::= CHOICE {

n2 SEQUENCE {

combOffset-n2 INTEGER (0..1),

cyclicShift-n2 INTEGER (0..7)

},

n4 SEQUENCE {

combOffset-n4 INTEGER (0..3),

cyclicShift-n4 INTEGER (0..11)

},

n8 SEQUENCE {

combOffset-n8 INTEGER (0..7),

cyclicShift-n8 INTEGER (0..5)

},

choice-extension ProtocolIE-SingleContainer { { TransmissionCombPos-ExtIEs} }

}

TransmissionCombPos-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

TransmissionStopIndicator ::= ENUMERATED {true, ... }

Transport-UP-Layer-Address-Info-To-Add-List ::= SEQUENCE (SIZE(1.. maxnoofTLAs)) OF Transport-UP-Layer-Address-Info-To-Add-Item

Transport-UP-Layer-Address-Info-To-Add-Item ::= SEQUENCE {

iP-SecTransportLayerAddress TransportLayerAddress,

gTPTransportLayerAddressToAdd GTPTLAs OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { Transport-UP-Layer-Address-Info-To-Add-ItemExtIEs } } OPTIONAL

}

Transport-UP-Layer-Address-Info-To-Add-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

Transport-UP-Layer-Address-Info-To-Remove-List ::= SEQUENCE (SIZE(1.. maxnoofTLAs)) OF Transport-UP-Layer-Address-Info-To-Remove-Item

Transport-UP-Layer-Address-Info-To-Remove-Item ::= SEQUENCE {

iP-SecTransportLayerAddress TransportLayerAddress,

gTPTransportLayerAddressToRemove GTPTLAs OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { Transport-UP-Layer-Address-Info-To-Remove-ItemExtIEs } } OPTIONAL

}

Transport-UP-Layer-Address-Info-To-Remove-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TransmissionActionIndicator ::= ENUMERATED {stop, ..., restart }

TRPID ::= INTEGER (0.. maxnoofTRPs, ...)

TRPInformation ::= SEQUENCE {

tRPID TRPID,

tRPInformationTypeResponseList TRPInformationTypeResponseList,

iE-Extensions ProtocolExtensionContainer { { TRPInformation-ExtIEs } } OPTIONAL

}

TRPInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TRPInformationItem ::= SEQUENCE {

tRPInformation TRPInformation,

iE-Extensions ProtocolExtensionContainer { { TRPInformationItem-ExtIEs } } OPTIONAL

}

TRPInformationItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TRPInformationTypeItem ::= ENUMERATED {

nrPCI,

nG-RAN-CGI,

arfcn,

pRSConfig,

sSBConfig,

sFNInitTime,

spatialDirectInfo,

geoCoord,

...,

trp-type

}

TRPInformationTypeResponseList ::= SEQUENCE (SIZE(1.. maxnoofTRPInfoTypes)) OF TRPInformationTypeResponseItem

TRPInformationTypeResponseItem ::= CHOICE {

pCI-NR NRPCI,

nG-RAN-CGI NRCGI,

nRARFCN INTEGER (0..maxNRARFCN),

pRSConfiguration PRSConfiguration,

sSBinformation SSBInformation,

sFNInitialisationTime RelativeTime1900,

spatialDirectionInformation SpatialDirectionInformation,

geographicalCoordinates GeographicalCoordinates,

choice-extension ProtocolIE-SingleContainer { { TRPInformationTypeResponseItem-ExtIEs} }

}

TRPInformationTypeResponseItem-ExtIEs F1AP-PROTOCOL-IES ::= {

{ ID id-TRPType CRITICALITY reject TYPE TRPType PRESENCE mandatory },

...

}

TRPList ::= SEQUENCE (SIZE(1.. maxnoofTRPs)) OF TRPListItem

TRPListItem ::= SEQUENCE {

tRPID TRPID,

iE-Extensions ProtocolExtensionContainer { { TRPListItem-ExtIEs } } OPTIONAL

}

TRPListItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TRPMeasurementQuality ::= SEQUENCE {

tRPmeasurementQuality-Item TRPMeasurementQuality-Item,

iE-Extensions ProtocolExtensionContainer { {TRPMeasurementQuality-ExtIEs} } OPTIONAL

}

TRPMeasurementQuality-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TRPMeasurementQuality-Item ::= CHOICE {

timingMeasurementQuality TimingMeasurementQuality,

angleMeasurementQuality AngleMeasurementQuality,

choice-extension ProtocolIE-SingleContainer { { TRPMeasurementQuality-Item-ExtIEs } }

}

TRPMeasurementQuality-Item-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

TRP-MeasurementRequestList ::= SEQUENCE (SIZE (1..maxNoOfMeasTRPs)) OF TRP-MeasurementRequestItem

TRP-MeasurementRequestItem ::= SEQUENCE {

tRPID TRPID,

search-window-information Search-window-information OPTIONAL,

iE-extensions ProtocolExtensionContainer { { TRP-MeasurementRequestItem-ExtIEs } } OPTIONAL

}

TRP-MeasurementRequestItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-NRCGI CRITICALITY ignore EXTENSION NRCGI PRESENCE optional },

...

}

TRPPositionDefinitionType ::= CHOICE {

direct TRPPositionDirect,

referenced TRPPositionReferenced,

choice-extension ProtocolIE-SingleContainer { { TRPPositionDefinitionType-ExtIEs } }

}

TRPPositionDefinitionType-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

TRPPositionDirect ::= SEQUENCE {

accuracy TRPPositionDirectAccuracy,

iE-extensions ProtocolExtensionContainer { { TRPPositionDirect-ExtIEs } } OPTIONAL

}

TRPPositionDirect-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TRPPositionDirectAccuracy ::= CHOICE {

tRPPosition AccessPointPosition,

tRPHAposition NGRANHighAccuracyAccessPointPosition,

choice-extension ProtocolIE-SingleContainer { { TRPPositionDirectAccuracy-ExtIEs } }

}

TRPPositionDirectAccuracy-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

TRPPositionReferenced ::= SEQUENCE {

referencePoint ReferencePoint,

referencePointType TRPReferencePointType,

iE-extensions ProtocolExtensionContainer { { TRPPositionReferenced-ExtIEs } } OPTIONAL

}

TRPPositionReferenced-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TRPReferencePointType ::= CHOICE {

tRPPositionRelativeGeodetic RelativeGeodeticLocation,

tRPPositionRelativeCartesian RelativeCartesianLocation,

choice-extension ProtocolIE-SingleContainer { { TRPReferencePointType-ExtIEs } }

}

TRPReferencePointType-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

TypeOfError ::= ENUMERATED {

not-understood,

missing,

...

}

Transport-Layer-Address-Info ::= SEQUENCE {

transport-UP-Layer-Address-Info-To-Add-List Transport-UP-Layer-Address-Info-To-Add-List OPTIONAL,

transport-UP-Layer-Address-Info-To-Remove-List Transport-UP-Layer-Address-Info-To-Remove-List OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { Transport-Layer-Address-Info-ExtIEs } } OPTIONAL

}

Transport-Layer-Address-Info-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TRPType ::= ENUMERATED {

prsOnlyTP,

srsOnlyRP,

tp,

rp,

trp,

...

}

TSCAssistanceInformation ::= SEQUENCE {

periodicity Periodicity,

burstArrivalTime BurstArrivalTime OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {TSCAssistanceInformation-ExtIEs} } OPTIONAL,

...

}

TSCAssistanceInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

TSCTrafficCharacteristics ::= SEQUENCE {

tSCAssistanceInformationDL TSCAssistanceInformation OPTIONAL,

tSCAssistanceInformationUL TSCAssistanceInformation OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {TSCTrafficCharacteristics-ExtIEs} } OPTIONAL,

...

}

TSCTrafficCharacteristics-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

-- U

UAC-Assistance-Info ::= SEQUENCE {

uACPLMN-List UACPLMN-List,

iE-Extensions ProtocolExtensionContainer { { UAC-Assistance-InfoExtIEs} } OPTIONAL

}

UAC-Assistance-InfoExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

UACPLMN-List ::= SEQUENCE (SIZE(1..maxnoofUACPLMNs)) OF UACPLMN-Item

UACPLMN-Item::= SEQUENCE {

pLMNIdentity PLMN-Identity,

uACType-List UACType-List, iE-Extensions ProtocolExtensionContainer { { UACPLMN-Item-ExtIEs} } OPTIONAL

}

UACPLMN-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-NID CRITICALITY ignore EXTENSION NID PRESENCE optional },

...

}

UACType-List ::= SEQUENCE (SIZE(1..maxnoofUACperPLMN)) OF UACType-Item

UACType-Item::= SEQUENCE {

uACReductionIndication UACReductionIndication,

uACCategoryType UACCategoryType,

iE-Extensions ProtocolExtensionContainer { { UACType-Item-ExtIEs } } OPTIONAL

}

UACType-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

UACCategoryType ::= CHOICE {

uACstandardized UACAction,

uACOperatorDefined UACOperatorDefined,

choice-extension ProtocolIE-SingleContainer { { UACCategoryType-ExtIEs } }

}

UACCategoryType-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

UACOperatorDefined ::= SEQUENCE {

accessCategory INTEGER (32..63,...),

accessIdentity BIT STRING (SIZE(7)),

iE-Extensions ProtocolExtensionContainer { { UACOperatorDefined-ExtIEs} } OPTIONAL

}

UACOperatorDefined-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

UACAction ::= ENUMERATED {

reject-non-emergency-mo-dt,

reject-rrc-cr-signalling,

permit-emergency-sessions-and-mobile-terminated-services-only,

permit-high-priority-sessions-and-mobile-terminated-services-only,

...

}

UACReductionIndication ::= INTEGER (0..100)

UE-associatedLogicalF1-ConnectionItem ::= SEQUENCE {

gNB-CU-UE-F1AP-ID GNB-CU-UE-F1AP-ID OPTIONAL,

gNB-DU-UE-F1AP-ID GNB-DU-UE-F1AP-ID OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { UE-associatedLogicalF1-ConnectionItemExtIEs} } OPTIONAL,

...

}

UEAssistanceInformation ::= OCTET STRING

UEAssistanceInformationEUTRA ::= OCTET STRING

UE-associatedLogicalF1-ConnectionItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

UE-CapabilityRAT-ContainerList::= OCTET STRING

UEContextNotRetrievable ::= ENUMERATED {true, ...}

UEIdentityIndexValue ::= CHOICE {

indexLength10 BIT STRING (SIZE (10)),

choice-extension ProtocolIE-SingleContainer { {UEIdentityIndexValueChoice-ExtIEs} }

}

UEIdentityIndexValueChoice-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

UL-AoA ::= SEQUENCE {

azimuthAoA INTEGER (0..3599),

zenithAoA INTEGER (0..1799) OPTIONAL,

lCS-to-GCS-TranslationAoA LCS-to-GCS-TranslationAoA OPTIONAL,

iE-extensions ProtocolExtensionContainer { { UL-AoA-ExtIEs } } OPTIONAL,

...

}

UL-AoA-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

UL-BH-Non-UP-Traffic-Mapping ::= SEQUENCE {

uL-BH-Non-UP-Traffic-Mapping-List UL-BH-Non-UP-Traffic-Mapping-List,

iE-Extensions ProtocolExtensionContainer { { UL-BH-Non-UP-Traffic-Mapping-ExtIEs } } OPTIONAL

}

UL-BH-Non-UP-Traffic-Mapping-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

UL-BH-Non-UP-Traffic-Mapping-List ::= SEQUENCE (SIZE(1..maxnoofNonUPTrafficMappings)) OF UL-BH-Non-UP-Traffic-Mapping-Item

UL-BH-Non-UP-Traffic-Mapping-Item ::= SEQUENCE {

nonUPTrafficType NonUPTrafficType,

bHInfo BHInfo,

iE-Extensions ProtocolExtensionContainer { { UL-BH-Non-UP-Traffic-Mapping-ItemExtIEs } } OPTIONAL

}

UL-BH-Non-UP-Traffic-Mapping-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ULConfiguration ::= SEQUENCE {

uLUEConfiguration ULUEConfiguration,

iE-Extensions ProtocolExtensionContainer { { ULConfigurationExtIEs } } OPTIONAL,

...

}

ULConfigurationExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

UL-RTOA-Measurement ::= SEQUENCE {

uL-RTOA-MeasurementItem UL-RTOA-MeasurementItem,

additionalPath-List AdditionalPath-List OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { UL-RTOA-Measurement-ExtIEs } } OPTIONAL

}

UL-RTOA-Measurement-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

UL-RTOA-MeasurementItem ::= CHOICE {

k0 INTEGER (0..1970049),

k1 INTEGER (0..985025),

k2 INTEGER (0..492513),

k3 INTEGER (0..246257),

k4 INTEGER (0..123129),

k5 INTEGER (0..61565),

choice-extension ProtocolIE-SingleContainer { { UL-RTOA-MeasurementItem-ExtIEs } }

}

UL-RTOA-MeasurementItem-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

UL-SRS-RSRP ::= INTEGER (0..126)

ULUEConfiguration ::= ENUMERATED {no-data, shared, only, ...}

UL-UP-TNL-Information-to-Update-List-Item ::= SEQUENCE {

uLUPTNLInformation UPTransportLayerInformation,

newULUPTNLInformation UPTransportLayerInformation OPTIONAL,

bHInfo BHInfo,

iE-Extensions ProtocolExtensionContainer { { UL-UP-TNL-Information-to-Update-List-ItemExtIEs } } OPTIONAL,

...

}

UL-UP-TNL-Information-to-Update-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

UL-UP-TNL-Address-to-Update-List-Item ::= SEQUENCE {

oldIPAdress TransportLayerAddress,

newIPAdress TransportLayerAddress,

iE-Extensions ProtocolExtensionContainer { { UL-UP-TNL-Address-to-Update-List-ItemExtIEs } } OPTIONAL,

...

}

UL-UP-TNL-Address-to-Update-List-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ULUPTNLInformation-ToBeSetup-List ::= SEQUENCE (SIZE(1..maxnoofULUPTNLInformation)) OF ULUPTNLInformation-ToBeSetup-Item

ULUPTNLInformation-ToBeSetup-Item ::=SEQUENCE {

uLUPTNLInformation UPTransportLayerInformation,

iE-Extensions ProtocolExtensionContainer { { ULUPTNLInformation-ToBeSetup-ItemExtIEs } } OPTIONAL,

...

}

ULUPTNLInformation-ToBeSetup-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-BHInfo CRITICALITY ignore EXTENSION BHInfo PRESENCE optional },

...

}

Uncertainty ::= INTEGER (0..32767, ...)

UplinkChannelBW-PerSCS-List ::= SEQUENCE (SIZE (1..maxnoSCSs)) OF SCS-SpecificCarrier

UplinkTxDirectCurrentListInformation ::= OCTET STRING

UplinkTxDirectCurrentTwoCarrierListInfo ::= OCTET STRING

UPTransportLayerInformation ::= CHOICE {

gTPTunnel GTPTunnel,

choice-extension ProtocolIE-SingleContainer { { UPTransportLayerInformation-ExtIEs} }

}

UPTransportLayerInformation-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

URI-address ::= VisibleString

-- V

VictimgNBSetID ::= SEQUENCE {

victimgNBSetID GNBSetID,

iE-Extensions ProtocolExtensionContainer { { VictimgNBSetID-ExtIEs } } OPTIONAL

}

VictimgNBSetID-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

VehicleUE ::= ENUMERATED {

authorized,

not-authorized,

...

}

PedestrianUE ::= ENUMERATED {

authorized,

not-authorized,

...

}

-- W

-- X

-- Y

-- Z

END

-- ASN1STOP

### 9.4.6 Common Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Common definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-CommonDataTypes {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-CommonDataTypes (3) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

Criticality ::= ENUMERATED { reject, ignore, notify }

Presence ::= ENUMERATED { optional, conditional, mandatory }

PrivateIE-ID ::= CHOICE {

local INTEGER (0..65535),

global OBJECT IDENTIFIER

}

ProcedureCode ::= INTEGER (0..255)

ProtocolExtensionID ::= INTEGER (0..65535)

ProtocolIE-ID ::= INTEGER (0..65535)

TriggeringMessage ::= ENUMERATED { initiating-message, successful-outcome, unsuccessful-outcome }

END

-- ASN1STOP

### 9.4.7 Constant Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Constant definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-Constants {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IE parameter types from other modules.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IMPORTS

ProcedureCode,

ProtocolIE-ID

FROM F1AP-CommonDataTypes;

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Elementary Procedures

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

id-Reset ProcedureCode ::= 0

id-F1Setup ProcedureCode ::= 1

id-ErrorIndication ProcedureCode ::= 2

id-gNBDUConfigurationUpdate ProcedureCode ::= 3

id-gNBCUConfigurationUpdate ProcedureCode ::= 4

id-UEContextSetup ProcedureCode ::= 5

id-UEContextRelease ProcedureCode ::= 6

id-UEContextModification ProcedureCode ::= 7

id-UEContextModificationRequired ProcedureCode ::= 8

id-UEMobilityCommand ProcedureCode ::= 9

id-UEContextReleaseRequest ProcedureCode ::= 10

id-InitialULRRCMessageTransfer ProcedureCode ::= 11

id-DLRRCMessageTransfer ProcedureCode ::= 12

id-ULRRCMessageTransfer ProcedureCode ::= 13

id-privateMessage ProcedureCode ::= 14

id-UEInactivityNotification ProcedureCode ::= 15

id-GNBDUResourceCoordination ProcedureCode ::= 16

id-SystemInformationDeliveryCommand ProcedureCode ::= 17

id-Paging ProcedureCode ::= 18

id-Notify ProcedureCode ::= 19

id-WriteReplaceWarning ProcedureCode ::= 20

id-PWSCancel ProcedureCode ::= 21

id-PWSRestartIndication ProcedureCode ::= 22

id-PWSFailureIndication ProcedureCode ::= 23

id-GNBDUStatusIndication ProcedureCode ::= 24

id-RRCDeliveryReport ProcedureCode ::= 25

id-F1Removal ProcedureCode ::= 26

id-NetworkAccessRateReduction ProcedureCode ::= 27

id-TraceStart ProcedureCode ::= 28

id-DeactivateTrace ProcedureCode ::= 29

id-DUCURadioInformationTransfer ProcedureCode ::= 30

id-CUDURadioInformationTransfer ProcedureCode ::= 31

id-BAPMappingConfiguration ProcedureCode ::= 32

id-GNBDUResourceConfiguration ProcedureCode ::= 33

id-IABTNLAddressAllocation ProcedureCode ::= 34

id-IABUPConfigurationUpdate ProcedureCode ::= 35

id-resourceStatusReportingInitiation ProcedureCode ::= 36

id-resourceStatusReporting ProcedureCode ::= 37

id-accessAndMobilityIndication ProcedureCode ::= 38

id-accessSuccess ProcedureCode ::= 39

id-cellTrafficTrace ProcedureCode ::= 40

id-PositioningMeasurementExchange ProcedureCode ::= 41

id-PositioningAssistanceInformationControl ProcedureCode ::= 42

id-PositioningAssistanceInformationFeedback ProcedureCode ::= 43

id-PositioningMeasurementReport ProcedureCode ::= 44

id-PositioningMeasurementAbort ProcedureCode ::= 45

id-PositioningMeasurementFailureIndication ProcedureCode ::= 46

id-PositioningMeasurementUpdate ProcedureCode ::= 47

id-TRPInformationExchange ProcedureCode ::= 48

id-PositioningInformationExchange ProcedureCode ::= 49

id-PositioningActivation ProcedureCode ::= 50

id-PositioningDeactivation ProcedureCode ::= 51

id-E-CIDMeasurementInitiation ProcedureCode ::= 52

id-E-CIDMeasurementFailureIndication ProcedureCode ::= 53

id-E-CIDMeasurementReport ProcedureCode ::= 54

id-E-CIDMeasurementTermination ProcedureCode ::= 55

id-PositioningInformationUpdate ProcedureCode ::= 56

id-ReferenceTimeInformationReport ProcedureCode ::= 57

id-ReferenceTimeInformationReportingControl ProcedureCode ::= 58

id-PosSystemInformationDeliveryCommand ProcedureCode ::= 59

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Extension constants

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

maxPrivateIEs INTEGER ::= 65535

maxProtocolExtensions INTEGER ::= 65535

maxProtocolIEs INTEGER ::= 65535

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Lists

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

maxNRARFCN INTEGER ::= 3279165

maxnoofErrors INTEGER ::= 256

maxnoofIndividualF1ConnectionsToReset INTEGER ::= 65536

maxCellingNBDU INTEGER ::= 512

maxnoofSCells INTEGER ::= 32

maxnoofSRBs INTEGER ::= 8

maxnoofDRBs INTEGER ::= 64

maxnoofULUPTNLInformation INTEGER ::= 2

maxnoofDLUPTNLInformation INTEGER ::= 2

maxnoofBPLMNs INTEGER ::= 6

maxnoofCandidateSpCells INTEGER ::= 64

maxnoofPotentialSpCells INTEGER ::= 64

maxnoofNrCellBands INTEGER ::= 32

maxnoofSIBTypes INTEGER ::= 32

maxnoofSITypes INTEGER ::= 32

maxnoofPagingCells INTEGER ::= 512

maxnoofTNLAssociations INTEGER ::= 32

maxnoofQoSFlows INTEGER ::= 64

maxnoofSliceItems INTEGER ::= 1024

maxCellineNB INTEGER ::= 256

maxnoofExtendedBPLMNs INTEGER ::= 6

maxnoofUEIDs INTEGER ::= 65536

maxnoofBPLMNsNR INTEGER ::= 12

maxnoofUACPLMNs INTEGER ::= 12

maxnoofUACperPLMN INTEGER ::= 64

maxnoofAdditionalSIBs INTEGER ::= 63

maxnoofslots INTEGER ::= 5120

maxnoofTLAs INTEGER ::= 16

maxnoofGTPTLAs INTEGER ::= 16

maxnoofBHRLCChannels INTEGER ::= 65536

maxnoofRoutingEntries INTEGER ::= 1024

maxnoofIABSTCInfo INTEGER ::= 45

maxnoofSymbols INTEGER ::= 14

maxnoofServingCells INTEGER ::= 32

maxnoofDUFSlots INTEGER ::= 320

maxnoofHSNASlots INTEGER ::= 5120

maxnoofServedCellsIAB INTEGER ::= 512

maxnoofChildIABNodes INTEGER ::= 1024

maxnoofNonUPTrafficMappings INTEGER ::= 32

maxnoofTLAsIAB INTEGER ::= 1024

maxnoofMappingEntries INTEGER ::= 67108864

maxnoofDSInfo INTEGER ::= 64

maxnoofEgressLinks INTEGER ::= 2

maxnoofULUPTNLInformationforIAB INTEGER ::= 32678

maxnoofUPTNLAddresses INTEGER ::= 8

maxnoofSLDRBs INTEGER ::= 512

maxnoofQoSParaSets INTEGER ::= 8

maxnoofPC5QoSFlows INTEGER ::= 2048

maxnoofSSBAreas INTEGER ::= 64

maxnoofPhysicalResourceBlocks INTEGER ::= 275

maxnoofPhysicalResourceBlocks-1 INTEGER ::= 274

maxnoofPRACHconfigs INTEGER ::= 16

maxnoofRACHReports INTEGER ::= 64

maxnoofRLFReports INTEGER ::= 64

maxnoofAdditionalPDCPDuplicationTNL INTEGER ::= 2

maxnoofRLCDuplicationState INTEGER ::= 3

maxnoofCHOcells INTEGER ::= 8

maxnoofMDTPLMNs INTEGER ::= 16

maxnoofCAGsupported INTEGER ::= 12

maxnoofNIDsupported INTEGER ::= 12

maxnoofNRSCSs INTEGER ::= 5

maxnoofExtSliceItems INTEGER ::= 65535

maxnoofPosMeas INTEGER ::= 16384

maxnoofTRPInfoTypes INTEGER ::= 64

maxnoofTRPs INTEGER ::= 65535

maxnoofSRSTriggerStates INTEGER ::= 3

maxnoofSpatialRelations INTEGER ::= 64

maxnoBcastCell INTEGER ::= 16384

maxnoofAngleInfo INTEGER ::= 65535

maxnooflcs-gcs-translation INTEGER ::= 3

maxnoofPath INTEGER ::= 2

maxnoofMeasE-CID INTEGER ::= 64

maxnoofSSBs INTEGER ::= 255

maxnoSRS-ResourceSets INTEGER ::= 16

maxnoSRS-ResourcePerSet INTEGER ::= 16

maxnoSRS-Carriers INTEGER ::= 32

maxnoSCSs INTEGER ::= 5

maxnoSRS-Resources INTEGER ::= 64

maxnoSRS-PosResources INTEGER ::= 64

maxnoSRS-PosResourceSets INTEGER ::= 16

maxnoSRS-PosResourcePerSet INTEGER ::= 16

maxnoofPRS-ResourceSets INTEGER ::= 2

maxnoofPRS-ResourcesPerSet INTEGER ::= 64

maxNoOfMeasTRPs INTEGER ::= 64

maxnoofPRSresourceSets INTEGER ::= 8

maxnoofPRSresources INTEGER ::= 64

maxnoofPosSITypes INTEGER ::= 32

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IEs

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

id-Cause ProtocolIE-ID ::= 0

id-Cells-Failed-to-be-Activated-List ProtocolIE-ID ::= 1

id-Cells-Failed-to-be-Activated-List-Item ProtocolIE-ID ::= 2

id-Cells-to-be-Activated-List ProtocolIE-ID ::= 3

id-Cells-to-be-Activated-List-Item ProtocolIE-ID ::= 4

id-Cells-to-be-Deactivated-List ProtocolIE-ID ::= 5

id-Cells-to-be-Deactivated-List-Item ProtocolIE-ID ::= 6

id-CriticalityDiagnostics ProtocolIE-ID ::= 7

id-CUtoDURRCInformation ProtocolIE-ID ::= 9

id-DRBs-FailedToBeModified-Item ProtocolIE-ID ::= 12

id-DRBs-FailedToBeModified-List ProtocolIE-ID ::= 13

id-DRBs-FailedToBeSetup-Item ProtocolIE-ID ::= 14

id-DRBs-FailedToBeSetup-List ProtocolIE-ID ::= 15

id-DRBs-FailedToBeSetupMod-Item ProtocolIE-ID ::= 16

id-DRBs-FailedToBeSetupMod-List ProtocolIE-ID ::= 17

id-DRBs-ModifiedConf-Item ProtocolIE-ID ::= 18

id-DRBs-ModifiedConf-List ProtocolIE-ID ::= 19

id-DRBs-Modified-Item ProtocolIE-ID ::= 20

id-DRBs-Modified-List ProtocolIE-ID ::= 21

id-DRBs-Required-ToBeModified-Item ProtocolIE-ID ::= 22

id-DRBs-Required-ToBeModified-List ProtocolIE-ID ::= 23

id-DRBs-Required-ToBeReleased-Item ProtocolIE-ID ::= 24

id-DRBs-Required-ToBeReleased-List ProtocolIE-ID ::= 25

id-DRBs-Setup-Item ProtocolIE-ID ::= 26

id-DRBs-Setup-List ProtocolIE-ID ::= 27

id-DRBs-SetupMod-Item ProtocolIE-ID ::= 28

id-DRBs-SetupMod-List ProtocolIE-ID ::= 29

id-DRBs-ToBeModified-Item ProtocolIE-ID ::= 30

id-DRBs-ToBeModified-List ProtocolIE-ID ::= 31

id-DRBs-ToBeReleased-Item ProtocolIE-ID ::= 32

id-DRBs-ToBeReleased-List ProtocolIE-ID ::= 33

id-DRBs-ToBeSetup-Item ProtocolIE-ID ::= 34

id-DRBs-ToBeSetup-List ProtocolIE-ID ::= 35

id-DRBs-ToBeSetupMod-Item ProtocolIE-ID ::= 36

id-DRBs-ToBeSetupMod-List ProtocolIE-ID ::= 37

id-DRXCycle ProtocolIE-ID ::= 38

id-DUtoCURRCInformation ProtocolIE-ID ::= 39

id-gNB-CU-UE-F1AP-ID ProtocolIE-ID ::= 40

id-gNB-DU-UE-F1AP-ID ProtocolIE-ID ::= 41

id-gNB-DU-ID ProtocolIE-ID ::= 42

id-GNB-DU-Served-Cells-Item ProtocolIE-ID ::= 43

id-gNB-DU-Served-Cells-List ProtocolIE-ID ::= 44

id-gNB-DU-Name ProtocolIE-ID ::= 45

id-NRCellID ProtocolIE-ID ::= 46

id-oldgNB-DU-UE-F1AP-ID ProtocolIE-ID ::= 47

id-ResetType ProtocolIE-ID ::= 48

id-ResourceCoordinationTransferContainer ProtocolIE-ID ::= 49

id-RRCContainer ProtocolIE-ID ::= 50

id-SCell-ToBeRemoved-Item ProtocolIE-ID ::= 51

id-SCell-ToBeRemoved-List ProtocolIE-ID ::= 52

id-SCell-ToBeSetup-Item ProtocolIE-ID ::= 53

id-SCell-ToBeSetup-List ProtocolIE-ID ::= 54

id-SCell-ToBeSetupMod-Item ProtocolIE-ID ::= 55

id-SCell-ToBeSetupMod-List ProtocolIE-ID ::= 56

id-Served-Cells-To-Add-Item ProtocolIE-ID ::= 57

id-Served-Cells-To-Add-List ProtocolIE-ID ::= 58

id-Served-Cells-To-Delete-Item ProtocolIE-ID ::= 59

id-Served-Cells-To-Delete-List ProtocolIE-ID ::= 60

id-Served-Cells-To-Modify-Item ProtocolIE-ID ::= 61

id-Served-Cells-To-Modify-List ProtocolIE-ID ::= 62

id-SpCell-ID ProtocolIE-ID ::= 63

id-SRBID ProtocolIE-ID ::= 64

id-SRBs-FailedToBeSetup-Item ProtocolIE-ID ::= 65

id-SRBs-FailedToBeSetup-List ProtocolIE-ID ::= 66

id-SRBs-FailedToBeSetupMod-Item ProtocolIE-ID ::= 67

id-SRBs-FailedToBeSetupMod-List ProtocolIE-ID ::= 68

id-SRBs-Required-ToBeReleased-Item ProtocolIE-ID ::= 69

id-SRBs-Required-ToBeReleased-List ProtocolIE-ID ::= 70

id-SRBs-ToBeReleased-Item ProtocolIE-ID ::= 71

id-SRBs-ToBeReleased-List ProtocolIE-ID ::= 72

id-SRBs-ToBeSetup-Item ProtocolIE-ID ::= 73

id-SRBs-ToBeSetup-List ProtocolIE-ID ::= 74

id-SRBs-ToBeSetupMod-Item ProtocolIE-ID ::= 75

id-SRBs-ToBeSetupMod-List ProtocolIE-ID ::= 76

id-TimeToWait ProtocolIE-ID ::= 77

id-TransactionID ProtocolIE-ID ::= 78

id-TransmissionActionIndicator ProtocolIE-ID ::= 79

id-UE-associatedLogicalF1-ConnectionItem ProtocolIE-ID ::= 80

id-UE-associatedLogicalF1-ConnectionListResAck ProtocolIE-ID ::= 81

id-gNB-CU-Name ProtocolIE-ID ::= 82

id-SCell-FailedtoSetup-List ProtocolIE-ID ::= 83

id-SCell-FailedtoSetup-Item ProtocolIE-ID ::= 84

id-SCell-FailedtoSetupMod-List ProtocolIE-ID ::= 85

id-SCell-FailedtoSetupMod-Item ProtocolIE-ID ::= 86

id-RRCReconfigurationCompleteIndicator ProtocolIE-ID ::= 87

id-Cells-Status-Item ProtocolIE-ID ::= 88

id-Cells-Status-List ProtocolIE-ID ::= 89

id-Candidate-SpCell-List ProtocolIE-ID ::= 90

id-Candidate-SpCell-Item ProtocolIE-ID ::= 91

id-Potential-SpCell-List ProtocolIE-ID ::= 92

id-Potential-SpCell-Item ProtocolIE-ID ::= 93

id-FullConfiguration ProtocolIE-ID ::= 94

id-C-RNTI ProtocolIE-ID ::= 95

id-SpCellULConfigured ProtocolIE-ID ::= 96

id-InactivityMonitoringRequest ProtocolIE-ID ::= 97

id-InactivityMonitoringResponse ProtocolIE-ID ::= 98

id-DRB-Activity-Item ProtocolIE-ID ::= 99

id-DRB-Activity-List ProtocolIE-ID ::= 100

id-EUTRA-NR-CellResourceCoordinationReq-Container ProtocolIE-ID ::= 101

id-EUTRA-NR-CellResourceCoordinationReqAck-Container ProtocolIE-ID ::= 102

id-Protected-EUTRA-Resources-List ProtocolIE-ID ::= 105

id-RequestType ProtocolIE-ID ::= 106

id-ServCellIndex ProtocolIE-ID ::= 107

id-RAT-FrequencyPriorityInformation ProtocolIE-ID ::= 108

id-ExecuteDuplication ProtocolIE-ID ::= 109

id-NRCGI ProtocolIE-ID ::= 111

id-PagingCell-Item ProtocolIE-ID ::= 112

id-PagingCell-List ProtocolIE-ID ::= 113

id-PagingDRX ProtocolIE-ID ::= 114

id-PagingPriority ProtocolIE-ID ::= 115

id-SItype-List ProtocolIE-ID ::= 116

id-UEIdentityIndexValue ProtocolIE-ID ::= 117

id-gNB-CUSystemInformation ProtocolIE-ID ::= 118

id-HandoverPreparationInformation ProtocolIE-ID ::= 119

id-GNB-CU-TNL-Association-To-Add-Item ProtocolIE-ID ::= 120

id-GNB-CU-TNL-Association-To-Add-List ProtocolIE-ID ::= 121

id-GNB-CU-TNL-Association-To-Remove-Item ProtocolIE-ID ::= 122

id-GNB-CU-TNL-Association-To-Remove-List ProtocolIE-ID ::= 123

id-GNB-CU-TNL-Association-To-Update-Item ProtocolIE-ID ::= 124

id-GNB-CU-TNL-Association-To-Update-List ProtocolIE-ID ::= 125

id-MaskedIMEISV ProtocolIE-ID ::= 126

id-PagingIdentity ProtocolIE-ID ::= 127

id-DUtoCURRCContainer ProtocolIE-ID ::= 128

id-Cells-to-be-Barred-List ProtocolIE-ID ::= 129

id-Cells-to-be-Barred-Item ProtocolIE-ID ::= 130

id-TAISliceSupportList ProtocolIE-ID ::= 131

id-GNB-CU-TNL-Association-Setup-List ProtocolIE-ID ::= 132

id-GNB-CU-TNL-Association-Setup-Item ProtocolIE-ID ::= 133

id-GNB-CU-TNL-Association-Failed-To-Setup-List ProtocolIE-ID ::= 134

id-GNB-CU-TNL-Association-Failed-To-Setup-Item ProtocolIE-ID ::= 135

id-DRB-Notify-Item ProtocolIE-ID ::= 136

id-DRB-Notify-List ProtocolIE-ID ::= 137

id-NotficationControl ProtocolIE-ID ::= 138

id-RANAC ProtocolIE-ID ::= 139

id-PWSSystemInformation ProtocolIE-ID ::= 140

id-RepetitionPeriod ProtocolIE-ID ::= 141

id-NumberofBroadcastRequest ProtocolIE-ID ::= 142

id-Cells-To-Be-Broadcast-List ProtocolIE-ID ::= 144

id-Cells-To-Be-Broadcast-Item ProtocolIE-ID ::= 145

id-Cells-Broadcast-Completed-List ProtocolIE-ID ::= 146

id-Cells-Broadcast-Completed-Item ProtocolIE-ID ::= 147

id-Broadcast-To-Be-Cancelled-List ProtocolIE-ID ::= 148

id-Broadcast-To-Be-Cancelled-Item ProtocolIE-ID ::= 149

id-Cells-Broadcast-Cancelled-List ProtocolIE-ID ::= 150

id-Cells-Broadcast-Cancelled-Item ProtocolIE-ID ::= 151

id-NR-CGI-List-For-Restart-List ProtocolIE-ID ::= 152

id-NR-CGI-List-For-Restart-Item ProtocolIE-ID ::= 153

id-PWS-Failed-NR-CGI-List ProtocolIE-ID ::= 154

id-PWS-Failed-NR-CGI-Item ProtocolIE-ID ::= 155

id-ConfirmedUEID ProtocolIE-ID ::= 156

id-Cancel-all-Warning-Messages-Indicator ProtocolIE-ID ::= 157

id-GNB-DU-UE-AMBR-UL ProtocolIE-ID ::= 158

id-DRXConfigurationIndicator ProtocolIE-ID ::= 159

id-RLC-Status ProtocolIE-ID ::= 160

id-DLPDCPSNLength ProtocolIE-ID ::= 161

id-GNB-DUConfigurationQuery ProtocolIE-ID ::= 162

id-MeasurementTimingConfiguration ProtocolIE-ID ::= 163

id-DRB-Information ProtocolIE-ID ::= 164

id-ServingPLMN ProtocolIE-ID ::= 165

id-Protected-EUTRA-Resources-Item ProtocolIE-ID ::= 168

id-GNB-CU-RRC-Version ProtocolIE-ID ::= 170

id-GNB-DU-RRC-Version ProtocolIE-ID ::= 171

id-GNBDUOverloadInformation ProtocolIE-ID ::= 172

id-CellGroupConfig ProtocolIE-ID ::= 173

id-RLCFailureIndication ProtocolIE-ID ::= 174

id-UplinkTxDirectCurrentListInformation ProtocolIE-ID ::= 175

id-DC-Based-Duplication-Configured ProtocolIE-ID ::= 176

id-DC-Based-Duplication-Activation ProtocolIE-ID ::= 177

id-SULAccessIndication ProtocolIE-ID ::= 178

id-AvailablePLMNList ProtocolIE-ID ::= 179

id-PDUSessionID ProtocolIE-ID ::= 180

id-ULPDUSessionAggregateMaximumBitRate ProtocolIE-ID ::= 181

id-ServingCellMO ProtocolIE-ID ::= 182

id-QoSFlowMappingIndication ProtocolIE-ID ::= 183

id-RRCDeliveryStatusRequest ProtocolIE-ID ::= 184

id-RRCDeliveryStatus ProtocolIE-ID ::= 185

id-BearerTypeChange ProtocolIE-ID ::= 186

id-RLCMode ProtocolIE-ID ::= 187

id-Duplication-Activation ProtocolIE-ID ::= 188

id-Dedicated-SIDelivery-NeededUE-List ProtocolIE-ID ::= 189

id-Dedicated-SIDelivery-NeededUE-Item ProtocolIE-ID ::= 190

id-DRX-LongCycleStartOffset ProtocolIE-ID ::= 191

id-ULPDCPSNLength ProtocolIE-ID ::= 192

id-SelectedBandCombinationIndex ProtocolIE-ID ::= 193

id-SelectedFeatureSetEntryIndex ProtocolIE-ID ::= 194

id-ResourceCoordinationTransferInformation ProtocolIE-ID ::= 195

id-ExtendedServedPLMNs-List ProtocolIE-ID ::= 196

id-ExtendedAvailablePLMN-List ProtocolIE-ID ::= 197

id-Associated-SCell-List ProtocolIE-ID ::= 198

id-latest-RRC-Version-Enhanced ProtocolIE-ID ::= 199

id-Associated-SCell-Item ProtocolIE-ID ::= 200

id-Cell-Direction ProtocolIE-ID ::= 201

id-SRBs-Setup-List ProtocolIE-ID ::= 202

id-SRBs-Setup-Item ProtocolIE-ID ::= 203

id-SRBs-SetupMod-List ProtocolIE-ID ::= 204

id-SRBs-SetupMod-Item ProtocolIE-ID ::= 205

id-SRBs-Modified-List ProtocolIE-ID ::= 206

id-SRBs-Modified-Item ProtocolIE-ID ::= 207

id-Ph-InfoSCG ProtocolIE-ID ::= 208

id-RequestedBandCombinationIndex ProtocolIE-ID ::= 209

id-RequestedFeatureSetEntryIndex ProtocolIE-ID ::= 210

id-RequestedP-MaxFR2 ProtocolIE-ID ::= 211

id-DRX-Config ProtocolIE-ID ::= 212

id-IgnoreResourceCoordinationContainer ProtocolIE-ID ::= 213

id-UEAssistanceInformation ProtocolIE-ID ::= 214

id-NeedforGap ProtocolIE-ID ::= 215

id-PagingOrigin ProtocolIE-ID ::= 216

id-new-gNB-CU-UE-F1AP-ID ProtocolIE-ID ::= 217

id-RedirectedRRCmessage ProtocolIE-ID ::= 218

id-new-gNB-DU-UE-F1AP-ID ProtocolIE-ID ::= 219

id-NotificationInformation ProtocolIE-ID ::= 220

id-PLMNAssistanceInfoForNetShar ProtocolIE-ID ::= 221

id-UEContextNotRetrievable ProtocolIE-ID ::= 222

id-BPLMN-ID-Info-List ProtocolIE-ID ::= 223

id-SelectedPLMNID ProtocolIE-ID ::= 224

id-UAC-Assistance-Info ProtocolIE-ID ::= 225

id-RANUEID ProtocolIE-ID ::= 226

id-GNB-DU-TNL-Association-To-Remove-Item ProtocolIE-ID ::= 227

id-GNB-DU-TNL-Association-To-Remove-List ProtocolIE-ID ::= 228

id-TNLAssociationTransportLayerAddressgNBDU ProtocolIE-ID ::= 229

id-portNumber ProtocolIE-ID ::= 230

id-AdditionalSIBMessageList ProtocolIE-ID ::= 231

id-Cell-Type ProtocolIE-ID ::= 232

id-IgnorePRACHConfiguration ProtocolIE-ID ::= 233

id-CG-Config ProtocolIE-ID ::= 234

id-PDCCH-BlindDetectionSCG ProtocolIE-ID ::= 235

id-Requested-PDCCH-BlindDetectionSCG ProtocolIE-ID ::= 236

id-Ph-InfoMCG ProtocolIE-ID ::= 237

id-MeasGapSharingConfig ProtocolIE-ID ::= 238

id-systemInformationAreaID ProtocolIE-ID ::= 239

id-areaScope ProtocolIE-ID ::= 240

id-RRCContainer-RRCSetupComplete ProtocolIE-ID ::= 241

id-TraceActivation ProtocolIE-ID ::= 242

id-TraceID ProtocolIE-ID ::= 243

id-Neighbour-Cell-Information-List ProtocolIE-ID ::= 244

id-SymbolAllocInSlot ProtocolIE-ID ::= 246

id-NumDLULSymbols ProtocolIE-ID ::= 247

id-AdditionalRRMPriorityIndex ProtocolIE-ID ::= 248

id-DUCURadioInformationType ProtocolIE-ID ::= 249

id-CUDURadioInformationType ProtocolIE-ID ::= 250

id-AggressorgNBSetID ProtocolIE-ID ::= 251

id-VictimgNBSetID ProtocolIE-ID ::= 252

id-LowerLayerPresenceStatusChange ProtocolIE-ID ::= 253

id-Transport-Layer-Address-Info ProtocolIE-ID ::= 254

id-Neighbour-Cell-Information-Item ProtocolIE-ID ::= 255

id-IntendedTDD-DL-ULConfig ProtocolIE-ID ::= 256

id-QosMonitoringRequest ProtocolIE-ID ::= 257

id-BHChannels-ToBeSetup-List ProtocolIE-ID ::= 258

id-BHChannels-ToBeSetup-Item ProtocolIE-ID ::= 259

id-BHChannels-Setup-List ProtocolIE-ID ::= 260

id-BHChannels-Setup-Item ProtocolIE-ID ::= 261

id-BHChannels-ToBeModified-Item ProtocolIE-ID ::= 262

id-BHChannels-ToBeModified-List ProtocolIE-ID ::= 263

id-BHChannels-ToBeReleased-Item ProtocolIE-ID ::= 264

id-BHChannels-ToBeReleased-List ProtocolIE-ID ::= 265

id-BHChannels-ToBeSetupMod-Item ProtocolIE-ID ::= 266

id-BHChannels-ToBeSetupMod-List ProtocolIE-ID ::= 267

id-BHChannels-FailedToBeModified-Item ProtocolIE-ID ::= 268

id-BHChannels-FailedToBeModified-List ProtocolIE-ID ::= 269

id-BHChannels-FailedToBeSetupMod-Item ProtocolIE-ID ::= 270

id-BHChannels-FailedToBeSetupMod-List ProtocolIE-ID ::= 271

id-BHChannels-Modified-Item ProtocolIE-ID ::= 272

id-BHChannels-Modified-List ProtocolIE-ID ::= 273

id-BHChannels-SetupMod-Item ProtocolIE-ID ::= 274

id-BHChannels-SetupMod-List ProtocolIE-ID ::= 275

id-BHChannels-Required-ToBeReleased-Item ProtocolIE-ID ::= 276

id-BHChannels-Required-ToBeReleased-List ProtocolIE-ID ::= 277

id-BHChannels-FailedToBeSetup-Item ProtocolIE-ID ::= 278

id-BHChannels-FailedToBeSetup-List ProtocolIE-ID ::= 279

id-BHInfo ProtocolIE-ID ::= 280

id-BAPAddress ProtocolIE-ID ::= 281

id-ConfiguredBAPAddress ProtocolIE-ID ::= 282

id-BH-Routing-Information-Added-List ProtocolIE-ID ::= 283

id-BH-Routing-Information-Added-List-Item ProtocolIE-ID ::= 284

id-BH-Routing-Information-Removed-List ProtocolIE-ID ::= 285

id-BH-Routing-Information-Removed-List-Item ProtocolIE-ID ::= 286

id-UL-BH-Non-UP-Traffic-Mapping ProtocolIE-ID ::= 287

id-Activated-Cells-to-be-Updated-List ProtocolIE-ID ::= 288

id-Child-Nodes-List ProtocolIE-ID ::= 289

id-IAB-Info-IAB-DU ProtocolIE-ID ::= 290

id-IAB-Info-IAB-donor-CU ProtocolIE-ID ::= 291

id-IAB-TNL-Addresses-To-Remove-List ProtocolIE-ID ::= 292

id-IAB-TNL-Addresses-To-Remove-Item ProtocolIE-ID ::= 293

id-IAB-Allocated-TNL-Address-List ProtocolIE-ID ::= 294

id-IAB-Allocated-TNL-Address-Item ProtocolIE-ID ::= 295

id-IABIPv6RequestType ProtocolIE-ID ::= 296

id-IABv4AddressesRequested ProtocolIE-ID ::= 297

id-IAB-Barred ProtocolIE-ID ::= 298

id-TrafficMappingInformation ProtocolIE-ID ::= 299

id-UL-UP-TNL-Information-to-Update-List ProtocolIE-ID ::= 300

id-UL-UP-TNL-Information-to-Update-List-Item ProtocolIE-ID ::= 301

id-UL-UP-TNL-Address-to-Update-List ProtocolIE-ID ::= 302

id-UL-UP-TNL-Address-to-Update-List-Item ProtocolIE-ID ::= 303

id-DL-UP-TNL-Address-to-Update-List ProtocolIE-ID ::= 304

id-DL-UP-TNL-Address-to-Update-List-Item ProtocolIE-ID ::= 305

id-NRV2XServicesAuthorized ProtocolIE-ID ::= 306

id-LTEV2XServicesAuthorized ProtocolIE-ID ::= 307

id-NRUESidelinkAggregateMaximumBitrate ProtocolIE-ID ::= 308

id-LTEUESidelinkAggregateMaximumBitrate ProtocolIE-ID ::= 309

id-SIB12-message ProtocolIE-ID ::= 310

id-SIB13-message ProtocolIE-ID ::= 311

id-SIB14-message ProtocolIE-ID ::= 312

id-SLDRBs-FailedToBeModified-Item ProtocolIE-ID ::= 313

id-SLDRBs-FailedToBeModified-List ProtocolIE-ID ::= 314

id-SLDRBs-FailedToBeSetup-Item ProtocolIE-ID ::= 315

id-SLDRBs-FailedToBeSetup-List ProtocolIE-ID ::= 316

id-SLDRBs-Modified-Item ProtocolIE-ID ::= 317

id-SLDRBs-Modified-List ProtocolIE-ID ::= 318

id-SLDRBs-Required-ToBeModified-Item ProtocolIE-ID ::= 319

id-SLDRBs-Required-ToBeModified-List ProtocolIE-ID ::= 320

id-SLDRBs-Required-ToBeReleased-Item ProtocolIE-ID ::= 321

id-SLDRBs-Required-ToBeReleased-List ProtocolIE-ID ::= 322

id-SLDRBs-Setup-Item ProtocolIE-ID ::= 323

id-SLDRBs-Setup-List ProtocolIE-ID ::= 324

id-SLDRBs-ToBeModified-Item ProtocolIE-ID ::= 325

id-SLDRBs-ToBeModified-List ProtocolIE-ID ::= 326

id-SLDRBs-ToBeReleased-Item ProtocolIE-ID ::= 327

id-SLDRBs-ToBeReleased-List ProtocolIE-ID ::= 328

id-SLDRBs-ToBeSetup-Item ProtocolIE-ID ::= 329

id-SLDRBs-ToBeSetup-List ProtocolIE-ID ::= 330

id-SLDRBs-ToBeSetupMod-Item ProtocolIE-ID ::= 331

id-SLDRBs-ToBeSetupMod-List ProtocolIE-ID ::= 332

id-SLDRBs-SetupMod-List ProtocolIE-ID ::= 333

id-SLDRBs-FailedToBeSetupMod-List ProtocolIE-ID ::= 334

id-SLDRBs-SetupMod-Item ProtocolIE-ID ::= 335

id-SLDRBs-FailedToBeSetupMod-Item ProtocolIE-ID ::= 336

id-SLDRBs-ModifiedConf-List ProtocolIE-ID ::= 337

id-SLDRBs-ModifiedConf-Item ProtocolIE-ID ::= 338

id-UEAssistanceInformationEUTRA ProtocolIE-ID ::= 339

id-PC5LinkAMBR ProtocolIE-ID ::= 340

id-SL-PHY-MAC-RLC-Config ProtocolIE-ID ::= 341

id-SL-ConfigDedicatedEUTRA-Info ProtocolIE-ID ::= 342

id-AlternativeQoSParaSetList ProtocolIE-ID ::= 343

id-CurrentQoSParaSetIndex ProtocolIE-ID ::= 344

id-gNBCUMeasurementID ProtocolIE-ID ::= 345

id-gNBDUMeasurementID ProtocolIE-ID ::= 346

id-RegistrationRequest ProtocolIE-ID ::= 347

id-ReportCharacteristics ProtocolIE-ID ::= 348

id-CellToReportList ProtocolIE-ID ::= 349

id-CellMeasurementResultList ProtocolIE-ID ::= 350

id-HardwareLoadIndicator ProtocolIE-ID ::= 351

id-ReportingPeriodicity ProtocolIE-ID ::= 352

id-TNLCapacityIndicator ProtocolIE-ID ::= 353

id-CarrierList ProtocolIE-ID ::= 354

id-ULCarrierList ProtocolIE-ID ::= 355

id-FrequencyShift7p5khz ProtocolIE-ID ::= 356

id-SSB-PositionsInBurst ProtocolIE-ID ::= 357

id-NRPRACHConfig ProtocolIE-ID ::= 358

id-RACHReportInformationList ProtocolIE-ID ::= 359

id-RLFReportInformationList ProtocolIE-ID ::= 360

id-TDD-UL-DLConfigCommonNR ProtocolIE-ID ::= 361

id-CNPacketDelayBudgetDownlink ProtocolIE-ID ::= 362

id-ExtendedPacketDelayBudget ProtocolIE-ID ::= 363

id-TSCTrafficCharacteristics ProtocolIE-ID ::= 364

id-ReportingRequestType ProtocolIE-ID ::= 365

id-TimeReferenceInformation ProtocolIE-ID ::= 366

id-CNPacketDelayBudgetUplink ProtocolIE-ID ::= 369

id-AdditionalPDCPDuplicationTNL-List ProtocolIE-ID ::= 370

id-RLCDuplicationInformation ProtocolIE-ID ::= 371

id-AdditionalDuplicationIndication ProtocolIE-ID ::= 372

id-ConditionalInterDUMobilityInformation ProtocolIE-ID ::= 373

id-ConditionalIntraDUMobilityInformation ProtocolIE-ID ::= 374

id-targetCellsToCancel ProtocolIE-ID ::= 375

id-requestedTargetCellGlobalID ProtocolIE-ID ::= 376

id-ManagementBasedMDTPLMNList ProtocolIE-ID ::= 377

id-TraceCollectionEntityIPAddress ProtocolIE-ID ::= 378

id-PrivacyIndicator ProtocolIE-ID ::= 379

id-TraceCollectionEntityURI ProtocolIE-ID ::= 380

id-mdtConfiguration ProtocolIE-ID ::= 381

id-ServingNID ProtocolIE-ID ::= 382

id-NPNBroadcastInformation ProtocolIE-ID ::= 383

id-NPNSupportInfo ProtocolIE-ID ::= 384

id-NID ProtocolIE-ID ::= 385

id-AvailableSNPN-ID-List ProtocolIE-ID ::= 386

id-SIB10-message ProtocolIE-ID ::= 387

id-DLCarrierList ProtocolIE-ID ::= 389

id-ExtendedTAISliceSupportList ProtocolIE-ID ::= 390

id-RequestedSRSTransmissionCharacteristics ProtocolIE-ID ::= 391

id-PosAssistance-Information ProtocolIE-ID ::= 392

id-PosBroadcast ProtocolIE-ID ::= 393

id-RoutingID ProtocolIE-ID ::= 394

id-PosAssistanceInformationFailureList ProtocolIE-ID ::= 395

id-PosMeasurementQuantities ProtocolIE-ID ::= 396

id-PosMeasurementResultList ProtocolIE-ID ::= 397

id-TRPInformationTypeListTRPReq ProtocolIE-ID ::= 398

id-TRPInformationTypeItem ProtocolIE-ID ::= 399

id-TRPInformationListTRPResp ProtocolIE-ID ::= 400

id-TRPInformationItem ProtocolIE-ID ::= 401

id-LMF-MeasurementID ProtocolIE-ID ::= 402

id-SRSType ProtocolIE-ID ::= 403

id-ActivationTime ProtocolIE-ID ::= 404

id-AbortTransmission ProtocolIE-ID ::= 405

id-PositioningBroadcastCells ProtocolIE-ID ::= 406

id-SRSConfiguration ProtocolIE-ID ::= 407

id-PosReportCharacteristics ProtocolIE-ID ::= 408

id-PosMeasurementPeriodicity ProtocolIE-ID ::= 409

id-TRPList ProtocolIE-ID ::= 410

id-RAN-MeasurementID ProtocolIE-ID ::= 411

id-LMF-UE-MeasurementID ProtocolIE-ID ::= 412

id-RAN-UE-MeasurementID ProtocolIE-ID ::= 413

id-E-CID-MeasurementQuantities ProtocolIE-ID ::= 414

id-E-CID-MeasurementQuantities-Item ProtocolIE-ID ::= 415

id-E-CID-MeasurementPeriodicity ProtocolIE-ID ::= 416

id-E-CID-MeasurementResult ProtocolIE-ID ::= 417

id-Cell-Portion-ID ProtocolIE-ID ::= 418

id-SFNInitialisationTime ProtocolIE-ID ::= 419

id-SystemFrameNumber ProtocolIE-ID ::= 420

id-SlotNumber ProtocolIE-ID ::= 421

id-TRP-MeasurementRequestList ProtocolIE-ID ::= 422

id-MeasurementBeamInfoRequest ProtocolIE-ID ::= 423

id-E-CID-ReportCharacteristics ProtocolIE-ID ::= 424

id-ConfiguredTACIndication ProtocolIE-ID ::= 425

id-Extended-GNB-CU-Name ProtocolIE-ID ::= 426

id-Extended-GNB-DU-Name ProtocolIE-ID ::= 427

id-F1CTransferPath ProtocolIE-ID ::= 428

id-SFN-Offset ProtocolIE-ID ::= 429

id-TransmissionStopIndicator ProtocolIE-ID ::= 430

id-SrsFrequency ProtocolIE-ID ::= 431

id-SCGIndicator ProtocolIE-ID ::= 432

id-EstimatedArrivalProbability ProtocolIE-ID ::= 433

id-TRPType ProtocolIE-ID ::= 434

id-SRSSpatialRelationPerSRSResource ProtocolIE-ID ::= 435

id-PDCPTerminatingNodeDLTNLAddrInfo ProtocolIE-ID ::= 436

id-ENBDLTNLAddress ProtocolIE-ID ::= 437

id-PosMeasurementPeriodicityExtended ProtocolIE-ID ::= 438

id-PRS-Resource-ID ProtocolIE-ID ::= 439

id-LocationMeasurementInformation ProtocolIE-ID ::= 440

id-InterFrequencyConfig-NoGap ProtocolIE-ID ::= 651

id-NeedForGapsInfoNR ProtocolIE-ID ::= 665

id-PosMeasurementPeriodicityNR-AoA ProtocolIE-ID ::= 672

id-ConfigRestrictInfoDAPS ProtocolIE-ID ::= 678

id-PosSItypeList ProtocolIE-ID ::= 682

id-DAPS-HO-Status ProtocolIE-ID ::= 683

id-UplinkTxDirectCurrentTwoCarrierListInfo ProtocolIE-ID ::= 684

END

-- ASN1STOP

### 9.4.8 Container Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Container definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-Containers {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-Containers (5) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IE parameter types from other modules.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IMPORTS

Criticality,

Presence,

PrivateIE-ID,

ProtocolExtensionID,

ProtocolIE-ID

FROM F1AP-CommonDataTypes

maxPrivateIEs,

maxProtocolExtensions,

maxProtocolIEs

FROM F1AP-Constants;

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Class Definition for Protocol IEs

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-PROTOCOL-IES ::= CLASS {

&id ProtocolIE-ID UNIQUE,

&criticality Criticality,

&Value,

&presence Presence

}

WITH SYNTAX {

ID &id

CRITICALITY &criticality

TYPE &Value

PRESENCE &presence

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Class Definition for Protocol IEs

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-PROTOCOL-IES-PAIR ::= CLASS {

&id ProtocolIE-ID UNIQUE,

&firstCriticality Criticality,

&FirstValue,

&secondCriticality Criticality,

&SecondValue,

&presence Presence

}

WITH SYNTAX {

ID &id

FIRST CRITICALITY &firstCriticality

FIRST TYPE &FirstValue

SECOND CRITICALITY &secondCriticality

SECOND TYPE &SecondValue

PRESENCE &presence

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Class Definition for Protocol Extensions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-PROTOCOL-EXTENSION ::= CLASS {

&id ProtocolExtensionID UNIQUE,

&criticality Criticality,

&Extension,

&presence Presence

}

WITH SYNTAX {

ID &id

CRITICALITY &criticality

EXTENSION &Extension

PRESENCE &presence

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Class Definition for Private IEs

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

F1AP-PRIVATE-IES ::= CLASS {

&id PrivateIE-ID,

&criticality Criticality,

&Value,

&presence Presence

}

WITH SYNTAX {

ID &id

CRITICALITY &criticality

TYPE &Value

PRESENCE &presence

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Container for Protocol IEs

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ProtocolIE-Container {F1AP-PROTOCOL-IES : IEsSetParam} ::=

SEQUENCE (SIZE (0..maxProtocolIEs)) OF

ProtocolIE-Field {{IEsSetParam}}

ProtocolIE-SingleContainer {F1AP-PROTOCOL-IES : IEsSetParam} ::=

ProtocolIE-Field {{IEsSetParam}}

ProtocolIE-Field {F1AP-PROTOCOL-IES : IEsSetParam} ::= SEQUENCE {

id F1AP-PROTOCOL-IES.&id ({IEsSetParam}),

criticality F1AP-PROTOCOL-IES.&criticality ({IEsSetParam}{@id}),

value F1AP-PROTOCOL-IES.&Value ({IEsSetParam}{@id})

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Container for Protocol IE Pairs

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ProtocolIE-ContainerPair {F1AP-PROTOCOL-IES-PAIR : IEsSetParam} ::=

SEQUENCE (SIZE (0..maxProtocolIEs)) OF

ProtocolIE-FieldPair {{IEsSetParam}}

ProtocolIE-FieldPair {F1AP-PROTOCOL-IES-PAIR : IEsSetParam} ::= SEQUENCE {

id F1AP-PROTOCOL-IES-PAIR.&id ({IEsSetParam}),

firstCriticality F1AP-PROTOCOL-IES-PAIR.&firstCriticality ({IEsSetParam}{@id}),

firstValue F1AP-PROTOCOL-IES-PAIR.&FirstValue ({IEsSetParam}{@id}),

secondCriticality F1AP-PROTOCOL-IES-PAIR.&secondCriticality ({IEsSetParam}{@id}),

secondValue F1AP-PROTOCOL-IES-PAIR.&SecondValue ({IEsSetParam}{@id})

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Container for Protocol Extensions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ProtocolExtensionContainer {F1AP-PROTOCOL-EXTENSION : ExtensionSetParam} ::=

SEQUENCE (SIZE (1..maxProtocolExtensions)) OF

ProtocolExtensionField {{ExtensionSetParam}}

ProtocolExtensionField {F1AP-PROTOCOL-EXTENSION : ExtensionSetParam} ::= SEQUENCE {

id F1AP-PROTOCOL-EXTENSION.&id ({ExtensionSetParam}),

criticality F1AP-PROTOCOL-EXTENSION.&criticality ({ExtensionSetParam}{@id}),

extensionValue F1AP-PROTOCOL-EXTENSION.&Extension ({ExtensionSetParam}{@id})

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Container for Private IEs

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PrivateIE-Container {F1AP-PRIVATE-IES : IEsSetParam } ::=

SEQUENCE (SIZE (1.. maxPrivateIEs)) OF

PrivateIE-Field {{IEsSetParam}}

PrivateIE-Field {F1AP-PRIVATE-IES : IEsSetParam} ::= SEQUENCE {

id F1AP-PRIVATE-IES.&id ({IEsSetParam}),

criticality F1AP-PRIVATE-IES.&criticality ({IEsSetParam}{@id}),

value F1AP-PRIVATE-IES.&Value ({IEsSetParam}{@id})

}

END

-- ASN1STOP

## 9.5 Message Transfer Syntax

F1AP shall use the ASN.1 Basic Packed Encoding Rules (BASIC-PER) Aligned Variant as transfer syntax, as specified in ITU-T Recommendation X.691 [5].

## 9.6 Timers

# 10 Handling of unknown, unforeseen and erroneous protocol data

Clause 10 of TS 38.413 [3] is applicable for the purposes of the present document, with the following additions for non-UE-associated procedures:

- In case of Abstract Syntax Error, when reporting the *Criticality Diagnostics* IE for not comprehended IE/IEgroups or missing IE/IE groups, the *Transaction ID* IE shall also be included;

- In case of Logical Error, when reporting the *Criticality Diagnostics* IE, the *Transaction ID* IE shall also be included;

- In case of Logical Error in a response message of a Class 1 procedure, or failure to comprehend *Transaction ID* IE from a received message, the procedure shall be considered as unsuccessfully terminated or not terminated (e.g., transaction ID unknown in response message), and local error handling shall be initiated.

Annex A (informative):  
Change History

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Change history** | | | | | | | |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2017-06 | R3 NR#2 | R3-172493 | - | - | - | First version | 0.1.0 |
| 2017-07 | R3 NR#2 | R3-172640 | - | - | - | Incorporated agreed TPs from R3 NR#2 Adhoc | 0.2.0 |
| 2017-08 | R3#97 | R3-173451 | - | - | - | Incorporated agreed TPs from R3#97 | 0.3.0 |
| 2017-10 | R3#97b | R3-174247 | - | - | - | Incorporated agreed TPs from R3#97b | 0.4.0 |
| 2017-12 | R3#98 | R3-175062 | - | - | - | Incorporated agreed TPs from R3#98 | 0.5.0 |
| 2017-12 | RAN#78 | RP-172287 |  |  |  | Submitted for approval to RAN | 1.0.0 |
| 2017-12 | RAN#78 |  |  |  |  | TR approved by RAN plenary | 15.0.0 |
| 2018-03 | RP-79 | RP-180468 | 0001 | 2 | B | Baseline CR for March version of TS 38.473 covering agreements of RAN3#99 | 15.1.0 |
| 2018-04 |  |  |  |  |  | Editorial correction to ASN.1 (correction to id-TimeToWait ProtocolIE-ID) | 15.1.1 |
| 2018-06 | RP-80 | RP-181237 | 0011 | 6 | B | Introduction of SA NR (38.473 Baseline CR covering RAN3 agreements) | 15.2.0 |
| 2018-06 | RP-80 | RP-181239 | 0043 | 3 | F | Essential corrections of EN-DC for NSA NR (38.473 Baseline CR covering RAN3 agreements) | 15.2.0 |
| 2018-06 | RP-80 | RP-181237 | 0045 | - | B | F1 support for LTE - NR coexistence | 15.2.0 |
| 2018-06 | RP-80 |  |  |  |  | Correction to ASN.1 and to Change History table | 15.2.1 |
| 2018-09 | RP-81 | RP-181920 | 0055 | 2 | F | Introduction of DU Configuration Query | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0056 | 4 | F | CR to 38.473 on further clarifications on System information transfer over F1 | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0058 | 4 | F | CR to 38.473 on corrections to System information delivery | 15.3.0 |
| 2018-09 | RP-81 | RP-181920 | 0059 | 1 | F | CR to 38.473 on corrections to PWS transfer over F1 | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0063 | 3 | F | CR to 38.473 on PDCP SN over F1 interface | 15.3.0 |
| 2018-09 | RP-81 | RP-181922 | 0064 | 3 | F | NR Corrections (38.473 Baseline CR covering RAN3-101 agreements) | 15.3.0 |
| 2018-09 | RP-81 | RP-181997 | 0068 | - | F | Introduction of UL AMBR on F1 | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0072 | 3 | F | Correction on cell management | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0073 | 2 | F | RLC Mode Indication over F1 | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0076 | 3 | F | CR to 38.473 on UE Identity Index value | 15.3.0 |
| 2018-09 | RP-81 | RP-181920 | 0077 | 1 | F | Correction for UE Context Modification on presence of ServCellIndex IE | 15.3.0 |
| 2018-09 | RP-81 | RP-181920 | 0078 | - | F | Executing duplication for RRC-container | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0079 | 1 | F | Indication of RLC re-establishment at the gNB-DU | 15.3.0 |
| 2018-09 | RP-81 | RP-181920 | 0080 | - | F | Exchange of SMTC over F1 | 15.3.0 |
| 2018-09 | RP-81 | RP-181920 | 0081 | - | F | Solving remaining issues with QoS parameters – TS 38.473 | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0090 |  | F | Correction of 5GS TAC | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0095 | 1 | F | Extend the RANAC size to 8bits | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0097 | - | F | Corrections of Choice | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0098 | 1 | F | Correction of TNL criticality | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0099 | 1 | F | Corrections of usage of single container | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0105 | 2 | B | RRC version handling | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0106 | 1 | B | Introduction of Overload Handling in F1-C | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0113 | - | F | CR to 38.473 on presence of QoS information | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0114 | 1 | F | Correction C-RNTI format | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0115 | - | F | Correction of QoS Parameters | 15.3.0 |
| 2018-09 | RP-81 | RP-181921 | 0116 | 1 | F | Correction on F1 Setup Request | 15.3.0 |
| 2018-12 | RP-82 | RP-182446 | 0070 | 3 | F | RRC Delivery Indication | 15.4.0 |
| 2018-12 | RP-82 | RP-182446 | 0117 | 1 | F | Correction of AMBR Enforcement | 15.4.0 |
| 2018-12 | RP-82 | RP-182446 | 0138 | - | F | CR for correction on Initial UL RRC message transfer | 15.4.0 |
| 2018-12 | RP-82 | RP-182446 | 0140 | 1 | F | CR to 38.473 on bearer type change indication | 15.4.0 |
| 2018-12 | RP-82 | RP-182446 | 0142 | 1 | F | CR to 38.473 on correction to PWS System Information | 15.4.0 |
| 2018-12 | RP-82 | RP-182446 | 0144 | 2 | F | CR to 38.473 on asymmetric mapping for UL and DL QoS flow | 15.4.0 |
| 2018-12 | RP-82 | RP-182447 | 0145 | 4 | F | Corrections on UE-associated LTE/NR resource coordination | 15.4.0 |
| 2018-12 | RP-82 | RP-182446 | 0147 | 2 | F | CR for F1 Cell Management | 15.4.0 |
| 2018-12 | RP-82 | RP-182447 | 0150 | 1 | F | Missing Transaction ID in non-UE-associated procedures | 15.4.0 |
| 2018-12 | RP-82 | RP-182446 | 0157 | 1 | F | CR to 38.473 on mapping of servingCellMO and Serving Cell | 15.4.0 |
| 2018-12 | RP-82 | RP-182446 | 0160 | 1 | F | CR to 38.473 on UE context modification required procedure | 15.4.0 |
| 2018-12 | RP-82 | RP-182447 | 0165 | 1 | F | Addition of the RLC Mode information for bearer modification | 15.4.0 |
| 2018-12 | RP-82 | RP-182448 | 0167 | 2 | F | Rapporteur CR to align tabular | 15.4.0 |
| 2018-12 | RP-82 | RP-182448 | 0168 | 2 | F | Rapporteur CR to align ASN.1 | 15.4.0 |
| 2018-12 | RP-82 | RP-182447 | 0169 | 2 | F | Correction of MaxnoofBPLMNs | 15.4.0 |
| 2018-12 | RP-82 | RP-182351 | 0174 | 2 | F | Correction on PDCP SN length on F1 | 15.4.0 |
| 2018-12 | RP-82 | RP-182447 | 0178 | 2 | F | CR for TS 38.473 for MR-DC coordination | 15.4.0 |
| 2018-12 | RP-82 | RP-182447 | 0179 | 2 | F | Support of system information update for active UE without CSS | 15.4.0 |
| 2018-12 | RP-82 | RP-182447 | 0187 | 1 | F | CR to 38.473 on clarification to the presence of UE AMBR | 15.4.0 |
| 2018-12 | RP-82 | RP-182506 | 0195 | 2 | F | CR on Scell release for RLC failure | 15.4.0 |
| 2018-12 | RP-82 | RP-182447 | 0205 | 1 | F | About bandcombinationindex and featureSetEntryIndex | 15.4.0 |
| 2018-12 | RP-82 | RP-182447 | 0211 | 1 | F | CR to 38.473 on DRB PDCP duplication | 15.4.0 |
| 2018-12 | RP-82 | RP-182447 | 0216 | 1 | F | CR to 38.473 on clarifications on system information update over F1 | 15.4.0 |
| 2018-12 | RP-82 | RP-182448 | 0219 | - | F | Correction of RRC version handling and UE inactivity notification | 15.4.0 |
| 2019-01 | RP-82 |  |  |  |  | - correction to ASN.1:  addiming a missing change to "WriteReplaceWarningResponseIEs F1AP-PROTOCOL-IES ::= {" | 15.4.1 |
| 2019-03 | RP-83 | RP-190555 | 0202 | 2 | F | Indication that cells are only UL or DL on F1 | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0204 | 1 | F | AMF intitiated UE Context Release failure cause | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0220 | 1 | F | Correction to reconfiguration with sync for gNB-DU | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0225 | 1 | F | Introduction of PH-InforSCG in DU to CU RRC Information | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0226 | 1 | F | CR to 38.473 on Measurement gap coordination | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0228 | 1 | F | CR for TS 38.473 for MR-DC coordination | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0229 | 2 | F | Condition for inclusion of the Dedicated SI Delivery Needed UE List IE | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0230 | 1 | F | Correction of the Transmission stop/restart indication | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0231 | - | F | Corrections on gNB-CU/gNB-DU Configuration Update | 15.5.0 |
| 2019-03 | RP-83 | RP-190556 | 0236 | 2 | F | Correction of QoS Flow Mapping Indication | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0244 | - | F | Release due to pre-emption | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0245 | 2 | F | CR on RRC container in UE context modification request message | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0246 | 2 | F | CR on UE context modification refuse | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0247 | - | F | Transaction ID in Error Indication procedure | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0249 | 2 | F | Cells to be deactivated over F1 | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0251 | 1 | F | CR to 38.473 on SRB duplication and LCID | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0258 | - | F | CR to 38.473 on corrections for removal of PDCP duplication for SRB | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0263 | 1 | F | CR to 38.473 on transfering UEAssistanceInformation over F1 | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0265 | - | F | Rapporteur updates | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0266 | 1 | F | Correction on gNB-DU Resource Coordination | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0267 | 1 | F | Endpoint IP address and port | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0268 | 1 | F | Correction to add paging origin IE | 15.5.0 |
| 2019-03 | RP-83 | RP-190555 | 0269 | 2 | F | Multiple SCTP associations over F1AP | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0272 | 1 | F | About Cells Failed to be Activated IE in gNB-CU Configuration Update Ack | 15.5.0 |
| 2019-03 | RP-83 | RP-190556 | 0273 | 1 | F | gNB-DU UE Aggregate Maximum Bit Rate Uplink correction | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0276 | 1 | F | RRC Reconfiguration failure | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0278 | 1 | F | Node behaviour at reception of DU to CU RRC Information | 15.5.0 |
| 2019-03 | RP-83 | RP-190554 | 0281 | - | F | Addition of Transaction ID to Initial UL RRC Message Transfer | 15.5.0 |
| 2019-07 | RP-84 | RP-191397 | 0200 | 5 | F | RAN sharing with multiple Cell ID broadcast | 15.6.0 |
| 2019-07 | RP-84 | RP-191397 | 0270 | 5 | F | Addition of Network Access Rate Reduction message | 15.6.0 |
| 2019-07 | RP-84 | RP-191397 | 0271 | 3 | F | RAN UE ID for F1 | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0283 | 2 | F | MR-DC resource coordination in F1 | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0316 | 2 | F | Full configuration indication from gNB-CU to gNB-DU. | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0322 | 2 | F | CR to 38.473 on clarification to RRC reconfigure complete indicator | 15.6.0 |
| 2019-07 | RP-84 | RP-191394 | 0326 | 2 | F | CR to 38.473 on deconfiguring CA based PDCP duplication for DRB | 15.6.0 |
| 2019-07 | RP-84 | RP-191395 | 0330 | 3 | F | CR to 38.473 on Removal of Multiple TNLAs | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0348 | - | F | Full configuration in UE Context Setup | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0351 | 2 | F | CR on PWS segmentation over F1 | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0352 | 1 | F | CR on cell type over F1 | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0357 | - | F | Rapporteur updates: Alignment and editorials | 15.5.0 |
| 2019-07 | RP-84 | RP-191396 | 0358 | - | F | Rapporteur update: Correction of Presence for DRB information | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0359 | - | F | Rapporteur updates: Correction of Presence for E-UTRA PRACH Configuration | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0370 | - | F | Full configuration IE included in the UE Context Modification Response. | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0376 |  | F | CR to 38.473 on clarification for UP TNL Information IE over F1 | 15.6.0 |
| 2019-07 | RP-84 | RP-191396 | 0377 | 2 | F | Procedure description on optional IEs in CU to DU RRC information IE. | 15.6.0 |
| 2019-09 | RP-85 | RP-192166 | 0343 | 3 | F | CR on MR-DC low layer coordination with an MgNB-DU | 15.7.0 |
| 2019-09 | RP-85 | RP-192166 | 0344 | 2 | F | CR on MCG PHR format in MgNB-DU | 15.7.0 |
| 2019-09 | RP-85 | RP-192166 | 0388 |  | F | CR on DC Coordination for PDCCH Blind Detection | 15.7.0 |
| 2019-09 | RP-85 | RP-192167 | 0393 | 1 | F | Rapporteur update - clarification of semantics | 15.7.0 |
| 2019-09 | RP-85 | RP-192166 | 0399 | 1 | F | Clarification for TNLA removal | 15.7.0 |
| 2019-12 | RP-86 | RP-192915 | 0318 | 5 | F | Correction about gNB-CU System Information IE | 15.8.0 |
| 2019-12 | RP-86 | RP-192915 | 0447 | 1 | F | On CellGroupConfig handling | 15.8.0 |
| 2019-12 | RP-86 | RP-192915 | 0458 | 1 | F | Correction of S-NSSAI coding | 15.8.0 |
| 2019-12 | RP-86 | RP-192915 | 0459 | 1 | F | Removal of Requested P-MaxFR2 | 15.8.0 |
| 2019-12 | RP-86 | RP-192915 | 0479 | 2 | F | Addition of Message Identifier and Serial Number to PWS Cancel Request | 15.8.0 |
| 2019-12 | RP-86 | RP-192916 | 0482 | 2 | F | Clarifications on SCell lists | 15.8.0 |
| 2019-12 | RP-86 | RP-192916 | 0494 | - | F | RRC Container in Modification Procedure | 15.8.0 |
| 2019-12 | RP-86 | RP-192916 | 0508 | 0 | F | CR to 38.473 on applicability of the IE Selected BandCombinationIndex and Selected FeatureSetEntryIndex | 15.8.0 |
| 2019-12 | RP-86 | RP-192916 | 0509 | 1 | F | CR to 38.473 on MeasGapSharingConfig and gNB-CU System Information | 15.8.0 |
| 2019-12 | RP-86 | RP-192916 | 0510 | 1 | F | CR to 38.473 on cause values over F1 | 15.8.0 |
| 2019-12 | RP-86 | RP-192916 | 0515 | 2 | F | Clarification on Initial UL RRC Message Transfer procedure | 15.8.0 |
| 2019-12 | RP-86 | RP-192913 | 0280 | 7 | F | Trace function support for F1AP | 16.0.0 |
| 2019-12 | RP-86 | RP-192908 | 0287 | 7 | B | Support for CLI | 16.0.0 |
| 2019-12 | RP-86 | RP-192913 | 0314 | 5 | B | Introduction of Additional RRM Policy Index (ARPI) | 16.0.0 |
| 2019-12 | RP-86 | RP-192908 | 0339 | 6 | B | CR to F1-AP for RIM new message | 16.0.0 |
| 2019-12 | RP-86 | RP-192915 | 0460 |  | F | Removal of unused IEs | 16.0.0 |
| 2019-12 | RP-86 | RP-192913 | 0463 | 1 | C | Extending the MDBV Range | 16.0.0 |
| 2019-12 | RP-86 | RP-192910 | 0514 | 3 | B | CR for TS38.473 on supporting SN Resume during the RRCResume procedure | 16.0.0 |
| 2019-12 | RP-86 | RP-192914 | 0518 | 2 | F | Support for setting up IPSec a priori in F1 | 16.0.0 |
| 2020-03 | RP-87-e | RP-200428 | 0522 | 1 | A | Correction of PWS Failure Indication | 16.1.0 |
| 2020-03 | RP-87-e | RP-200428 | 0525 | - | A | Correction of the presence of UL UP TNL Information to be setup List IE in tabular | 16.1.0 |
| 2020-03 | RP-87-e | RP-200425 | 0527 | 2 | F | Corrections to CLI | 16.1.0 |
| 2020-03 | RP-87-e | RP-200425 | 0528 | 1 | D | Rapporteur: Editorial updates | 16.1.0 |
| 2020-03 | RP-87-e | RP-200425 | 0530 | 2 | B | E2E delay measurement for Qos monitoring for URLLC | 16.1.0 |
| 2020-03 | RP-87-e | RP-200428 | 0534 | 1 | A | Correction relating to Initial UL RRC Message Transfer procedure CR 38.473 | 16.1.0 |
| 2020-07 | RP-88-e | RP-201077 | 0285 | 17 | B | BL CR to 38.473: Support for IAB | 16.2.0 |
| 2020-07 | RP-88-e | RP-201074 | 0432 | 12 | B | Support of NR V2X over F1 | 16.2.0 |
| 2020-07 | RP-88-e | RP-201082 | 0441 | 12 | B | Addition of SON features | 16.2.0 |
| 2020-07 | RP-88-e | RP-201079 | 0477 | 8 | B | Introduction of NR\_IIOT support to TS 38.473 | 16.2.0 |
| 2020-07 | RP-88-e | RP-201075 | 0481 | 10 | B | Baseline CR for introducing Rel-16 NR mobility enhancement | 16.2.0 |
| 2020-07 | RP-88-e | RP-201082 | 0492 | 6 | B | Addition of MDT features | 16.2.0 |
| 2020-07 | RP-88-e | RP-201080 | 0502 | 7 | B | Introduction of NPN | 16.2.0 |
| 2020-07 | RP-88-e | RP-201076 | 0537 | 1 | B | CR38.473 on TDD pattern for NR-DC power control cordination for sol1 | 16.2.0 |
| 2020-07 | RP-88-e | RP-201085 | 0539 | - | F | Rapporteur: Corrections after implementation | 16.2.0 |
| 2020-07 | RP-88-e | RP-201090 | 0543 | 2 | A | Encoding PLMNs in served cell information NR | 16.2.0 |
| 2020-07 | RP-88-e | RP-201091 | 0545 | 1 | A | Correction for usage of Cell Broadcast Cancelled List | 16.2.0 |
| 2020-07 | RP-88-e | RP-201091 | 0548 | 1 | A | Correction on UE CONTEXT MODIFICATION REQUIRED message | 16.2.0 |
| 2020-07 | RP-88-e | RP-201085 | 0561 | 1 | F | Correction on CLI | 16.2.0 |
| 2020-07 | RP-88-e | RP-201090 | 0567 | - | A | Encoding PLMNs in served cell information IEs - semantics corrections | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092 | 0570 | 1 | A | Correction for UL UP TNL Information | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092 | 0572 | - | A | Correction on RRC Container in Initial UL RRC Messag Transfer | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092 | 0576 | 1 | A | Correction on RRC Connection Reconfiguration Complete Indicator | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092 | 0581 | 2 | F | Corrections of Inactive UE Context stored at gNB-DU | 16.2.0 |
| 2020-07 | RP-88-e | RP-201085 | 0600 | 2 | F | Correction on RF parameters in NR cell information | 16.2.0 |
| 2020-07 | RP-88-e | RP-201090 | 0601 | 4 | F | Correction of S-NSSAI range | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092 | 0603 | 2 | A | Correction for Handover Preparation Information | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092 | 0607 | 1 | A | CR on Concurrent Warning Message Indicator over F1 (Rel-16) | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092 | 0615 | - | A | Section renumbering for PWS cancel | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092 | 0616 | - | A | Correction on DL RRC MESSAGE TRANSFER | 16.2.0 |
| 2020-07 | RP-88-e | RP-201092 | 0618 |  | A | Addition of abnormal conditions in PWS Cancel procedure | 16.2.0 |
| 2020-09 | RP-89-e | [RP-201850](file:///C:\Users\joyou\MinuteMan\RAN3_109e\Docs\RP-201850.zip) | 0495 | 10 | B | Introduction of positioning support over F1AP | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956 | 0557 | 2 | A | Support of PSCell/SCell-only operation mode | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956 | 0583 | 5 | F | Cell Creation Rejection when max number of supported cells is exceeded at CU CR 38.473 | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956 | 0587 | 5 | A | Measurement gap deactivation over F1AP CR 38.473 | 16.3.0 |
| 2020-09 | RP-89-e | RP-201949 | 0619 | 2 | F | Slot list length correction in TDD UL-DL Configuration | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956 | 0625 | 1 | F | Addition of abnormal conditions in Write-Replace Warning procedure | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956 | 0628 | 2 | A | Correction of PSCell/SCell-only mode | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956 | 0634 | 1 | A | Correction on UE Context Modification Procedure | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956 | 0639 | 1 | F | Rapporteur Corrections | 16.3.0 |
| 2020-09 | RP-89-e | RP-201949 | 0640 | - | F | Correction of procedure ID | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956 | 0642 | - | A | Correction of PWS cancel | 16.3.0 |
| 2020-09 | RP-89-e | RP-201949 | 0643 | 1 | F | Corrections on PC5 Link Aggregated Bit Rate | 16.3.0 |
| 2020-09 | RP-89-e | RP-201949 | 0660 | - | F | Correction on the Maximum Number of CHO Preparations in F1AP | 16.3.0 |
| 2020-09 | RP-89-e | RP-201956 | 0663 | 1 | F | Corrections to 38.473 on node name type | 16.3.0 |
| 2020-09 | RP-89-e | RP-201947 | 0664 | 1 | F | Correction on IAB-DU configuration | 16.3.0 |
| 2020-09 | RP-89-e | RP-201982 | 0671 |  | F | Correction on IAB-DU configuration | 16.3.0 |
| 2020-09 | RP-89-e |  |  |  |  | Correct wrong numbering of protocolIE-ID in clause 9.4.7 | 16.3.1 |
| 2020-12 | RP-90-e | RP-202310 | 0645 | 2 | F | Uniqueness of BH RLC channel ID | 16.4.0 |
| 2020-12 | RP-90-e | RP-202310 | 0658 | 3 | F | Correction on V2X related information | 16.4.0 |
| 2020-12 | RP-90-e | RP-202310 | 0665 | 2 | F | Correction on unsuccessful operations of IAB procedures | 16.4.0 |
| 2020-12 | RP-90-e | RP-202310 | 0666 | 1 | F | Correction on the identification of IAB-donor-DU | 16.4.0 |
| 2020-12 | RP-90-e | RP-202310 | 0667 | 2 | F | Correction on the Context Setup procedure for IAB node | 16.4.0 |
| 2020-12 | RP-90-e | RP-202310 | 0668 | 1 | F | Correction on BAP address | 16.4.0 |
| 2020-12 | RP-90-e | RP-202310 | 0672 | 1 | F | CR on F1-C transfer for Rel-16 IAB | 16.4.0 |
| 2020-12 | RP-90-e | RP-202311 | 0677 | - | F | Correction of F1AP positioning procedures | 16.4.0 |
| 2020-12 | RP-90-e | RP-202311 | 0678 | 1 | F | Corrections to tabular and asn.1 for NR positioning (F1AP) | 16.4.0 |
| 2020-12 | RP-90-e | RP-202310 | 0681 | 1 | F | Correction of alternative QoS profile | 16.4.0 |
| 2020-12 | RP-90-e | RP-202313 | 0683 | - | F | Removal of duplicated imports | 16.4.0 |
| 2020-12 | RP-90-e | RP-202312 | 0684 | 2 | F | Corrections of UL and DL carrier list | 16.4.0 |
| 2020-12 | RP-90-e | RP-202311 | 0689 | 1 | F | RRC alignement and various correction including ASN.1 | 16.4.0 |
| 2020-12 | RP-90-e | RP-202311 | 0691 | 1 | F | Correction of RLC Duplication Information over F1 | 16.4.0 |
| 2020-12 | RP-90-e | RP-202288 | 0695 | 3 | A | Correction on value range of UAC reduction Indication | 16.4.0 |
| 2020-12 | RP-90-e | RP-202311 | 0709 | 1 | F | Coupling TRP ID and Cell ID in Measurement procedures | 16.4.0 |
| 2021-03 | RP-91-e | RP-210123 | 0431 | 7 | B | Introduction of SFN Offset per cell over F1 | 16.5.0 |
| 2021-03 | RP-91-e | RP-210240 | 0632 | 6 | A | Correction on Overlapping Band Handling over F1 | 16.5.0 |
| 2021-03 | RP-91-e | RP-210235 | 0676 | 2 | F | Correction on PRACH coordination | 16.5.0 |
| 2021-03 | RP-91-e | RP-210239 | 0702 | 3 | F | Cause value on F1 for insufficient UE capabilities CR 38.473 | 16.5.0 |
| 2021-03 | RP-91-e | RP-210239 | 0711 | 1 | F | Update on QoS monitoring control | 16.5.0 |
| 2021-03 | RP-91-e | RP-210233 | 0715 | 2 | F | Stage-3 CR on transmission stop for Rel-16 DAPS handover | 16.5.0 |
| 2021-03 | RP-91-e | RP-210232 | 0720 | 1 | F | Correction of NPN related Cell Information | 16.5.0 |
| 2021-03 | RP-91-e | RP-210231 | 0721 | - | F | Correction on IAB configuration | 16.5.0 |
| 2021-03 | RP-91-e | RP-210231 | 0722 | - | F | Correction on BAP address configuration for IAB-donor-DU | 16.5.0 |
| 2021-03 | RP-91-e | RP-210230 | 0725 | 1 | F | Including SRS frequency information in Positioning Information Request | 16.5.0 |
| 2021-03 | RP-91-e | RP-210231 | 0728 | 2 | F | CR to 38.473: Correction on IAB related definitions and unsuccessful establishment of a BH RLC channel | 16.5.0 |
| 2021-03 | RP-91-e | RP-210230 | 0736 | - | F | Correction of the PCI IE presence in the ASN.1 for the SRS Configuration | 16.5.0 |
| 2021-06 | RP-92-e | RP-211334 | 0704 | 4 | A | How to release SCG configuration between MN-CU and MN-DU CR 38.473 | 16.6.0 |
| 2021-06 | RP-92-e | RP-211315 | 0712 | 2 | F | Clarification on TAI Slice Support List | 16.6.0 |
| 2021-06 | RP-92-e | RP-211323 | 0740 | 2 | F | Enabling CHO with SCG configuration | 16.6.0 |
| 2021-06 | RP-92-e | RP-211327 | 0743 | - | F | Correction of Spatial Relation Information | 16.6.0 |
| 2021-06 | RP-92-e | RP-211317 | 0744 | - | F | Correction on reference to RACH-Report | 16.6.0 |
| 2021-06 | RP-92-e | RP-211330 | 0753 |  | F | Stage-3 CR on system information message over F1 (Rel-16) | 16.6.0 |
| 2021-06 | RP-92-e | RP-211333 | 0760 | - | A | Correction on SRB ID | 16.6.0 |
| 2021-06 | RP-92-e | RP-211334 | 0762 | 3 | A | gNB-DU UE Aggregate Maximum Bit Rate Uplink correction | 16.6.0 |
| 2021-06 | RP-92-e | RP-211322 | 0763 | - | F | Miscellaneous corrections on IAB in TS 38.473 | 16.6.0 |
| 2021-06 | RP-92-e | RP-211327 | 0765 | 1 | F | Correction on SFN Initialisation Time | 16.6.0 |
| 2021-06 | RP-92-e | RP-211327 | 0766 | - | F | Correction on relative cartesian coordinate | 16.6.0 |
| 2021-06 | RP-92-e | RP-211322 | 0770 | 1 | F | Correction on BH RLC CH configured for BAP control PDU | 16.6.0 |
| 2021-06 | RP-92-e | RP-211322 | 0771 | - | F | Correction on gNB-DU Resource Configuration | 16.6.0 |
| 2021-06 | RP-92-e | RP-211322 | 0772 | 1 | F | Correction on UL BH information configuration for DRBs support CA based duplication | 16.6.0 |
| 2021-06 | RP-92-e | RP-211317 | 0776 | 1 | F | Correction on MLB for TS 38.473 | 16.6.0 |
| 2021-09 | RP-93-e | RP-211876 | 0790 | 1 | F | Correction of served cell information for NPN | 16.7.0 |
| 2021-09 | RP-93-e | RP-211880 | 0792 | 1 | F | Correction of wrong CR implementation for Stage-3 CR on transmission stop for Rel-16 DAPS handover | 16.7.0 |
| 2021-09 | RP-93-e | RP-211883 | 0796 | 1 | F | Adding procedural text for System Frame Number and Slot Number | 16.7.0 |
| 2021-09 | RP-93-e | RP-211881 | 0800 | - | A | Correction of the IE related to E-UTRA resource coordination in F1AP | 16.7.0 |
| 2021-12 | RP-94-e | RP-212864 | 0804 | 1 | A | Correction on F1 Removal for RAN Sharing in Rel-16 | 16.8.0 |
| 2021-12 | RP-94-e | RP-212864 | 0811 | 4 | F | Incorrect Node Name IE in ASN.1 | 16.8.0 |
| 2021-12 | RP-94-e | RP-213174 | 0822 | 3 | F | Correction on PRS-only TRP | 16.8.0 |
| 2021-12 | RP-94-e | RP-212867 | 0827 | 1 | F | Support of providing spatial relation per SRS resource from gNB-CU to gNB-DU | 16.8.0 |
| 2022-03 | RP-95-e | RP-220279 | 0778 | 4 | F | Support of dynamic ACL during dual connectivity | 16.9.0 |
| 2022-03 | RP-95-e | RP-220276 | 0837 | 1 | F | Correction on packet delay budget for IAB access link in TS 38.473 | 16.9.0 |
| 2022-03 | RP-95-e | RP-220276 | 0838 | - | F | CR to 38.473: Correction on IAB TNL Address Allocation procedure | 16.9.0 |
| 2022-03 | RP-95-e | RP-220242 | 0844 | 2 | F | CR to TS38.473: Correction on PC5 QoS parameters for NR V2X | 16.9.0 |
| 2022-03 | RP-95-e | RP-220281 | 0847 | 1 | F | Correction on positioning information configuration | 16.9.0 |
| 2022-03 | RP-95-e | RP-220281 | 0848 | 1 | F | Correction on Measurement Periodicity | 16.9.0 |
| 2022-03 | RP-95-e | RP-220281 | 0849 | 1 | F | Correction on PRS Beam Information | 16.9.0 |
| 2022-03 | RP-95-e | RP-220281 | 0850 |  | F | CR for the correction on measurement gap configuration for position | 16.9.0 |
| 2022-03 | RP-95-e | RP-220278 | 0854 | 1 | F | Correction of frequency information for DL only or UL only cell | 16.9.0 |
| 2022-03 | RP-95-e | RP-220276 | 0860 |  | F | (Stage-3) Clarification on IAB Address Remove | 16.9.0 |
| 2022-06 | RP-96 | RP-221150 | 0878 | - | F | F1AP CR for ACL remaining issues | 16.10.0 |
| 2022-06 | RP-96 | RP-221149 | 0912 | 1 | F | Correction on IAB-DU cell resource configuration | 16.10.0 |
| 2022-06 | RP-96 | RP-221152 | 0922 | 2 | F | Correction for PRS Muting | 16.10.0 |
| 2022-06 | RP-96 | RP-221150 | 0950 | 2 | F | SIB Issues Rel-16 | 16.10.0 |
| 2022-06 | RP-96 | RP-221150 | 0952 | 1 | F | gNB-CU and gNB-DU Name in Configuration Update Procedures | 16.10.0 |
| 2022-06 | RP-96 | RP-221152 | 0963 | 1 | F | ASN.1 correction for UL-AoA | 16.10.0 |
| 2022-09 | RP-97-e | RP-222201 | 0888 | 2 | F | Correction on interFrequencyConfig-NoGap | 16.11.0 |
| 2022-09 | RP-97-e | RP-222200 | 0980 | - | F | Correction on IAB Multiplexing info | 16.11.0 |
| 2022-09 | RP-97-e | RP-222201 | 0996 | 1 | F | Correction on measurement gap configuration over F1 in Rel-16 | 16.11.0 |
| 2022-09 | RP-97-e | RP-222540 | 1003 | 3 | F | CR to 38.473 on E-CID measurement periodicity | 16.11.0 |
| 2022-12 | RP-98-e | RP-222883 | 0974 | 4 | F | R16CR for DAPS over F1 to TS38.473 | 16.12.0 |
| 2022-12 | RP-98-e | RP-222884 | 1011 | 1 | F | Correction of on-demand SI for connected UE | 16.12.0 |
| 2022-12 | RP-98-e | RP-222884 | 1051 | 2 | F | Correction on generation of gap type over F1 in Rel-16 | 16.12.0 |
| 2022-12 | RP-98-e | RP-222887 | 1056 | 1 | F | CR to 38.473 on SRS periodicity | 16.12.0 |
| 2022-12 | RP-98-e | RP-222887 | 1059 | 3 | F | Correction on positioning SI delivery over F1AP | 16.12.0 |
| 2022-12 | RP-98-e | RP-222883 | 1074 | 1 | F | CR for DAPS state transfer in case of split gNB deployment to Rel-16 38.473 | 16.12.0 |
| 2022-12 | RP-98-e | RP-222884 | 1095 | 2 | F | Uplink Tx DC locations for two carriers | 16.12.0 |
| 2023-03 | RAN#99 | RP-230593 | 1098 | 2 | F | Correction of NR PRACH Configuration List for NR-U | 16.13.0 |
| 2023-03 | RAN#99 | RP-230596 | 1115 | - | F | Correction on IAB UP configuration update | 16.13.0 |
| 2023-03 | RAN#99 | RP-230595 | 1136 | 2 | F | ASN.1 Correction of M6 Configuration | 16.13.0 |