**3GPP TSG-RAN WG3 #108-e R3-20xxxx**

**1-11 June 2020**

**Online**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **38.413** | **CR** | **0362** | **rev** | **5** | **Current version:** | **16.1.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

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| ***Title:***  |  |
|  |  |
| ***Source to WG:*** | CATT, Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | RAN3 |
|  |  |
| ***Work item code:*** | NR\_Mob\_enh-Core |  | ***Date:*** | 2020-06-15 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-16 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)Rel-12 (Release 12)Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | In order to enable enhacements to the handover procedure, changes are needed to the NGAP protocol. This is the baseline CR covering all the agreed modification.  |
|  |  |
| ***Summary of change:*** | Following functions were added and modified:* A new procedure was added to enable indicating handover success from AMF to source node;
* Introduce the DAPS HO indicator per DRB and DAPS response list contains the per DRB result into Handover Preparation procedure and Handover resource allocation procedure;
* Define 2 new class-2 messages for First DL COUNT value transfer.
* Reuse the HO Notify and add new indicator to enable indicating handover success for target node to AMF;

 **Impact Analysis:**Impact assessment towards the previous version of the specification (same release):  |
|  |  |
| ***Consequences if not approved:*** | Rel-16 NR mobility enhancement is not implemented. |
|  |  |
| ***Clauses affected:*** | 3.1, 3.2, 8.1, 8.4.1/2/3/x/y/z, 9.2.3.7/x/y/z, 9.3.1.30/34/x/y/z, 9.4.3, 9.4.4, 9.4.5, 9.4.7 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |

|  |  |
| --- | --- |
| ***This CR's revision history:*** | Rev 1: Updated based on TS36.413 v16.1.0Rev 2: Correct the error(Multiple authors of changes)Rev 3: Include the agreements from RAN3#107bis e-meeting* R3-202660 (Remaining Issues for DAPS HO)

Rev 4: Submitted to RAN3#108-eRev 5: Include the agreements from RAN3#108 e-meeting* R3-204297 (Support of NG DAPS HO)
* CR No. in cover page is chnaged from 362 to 0362
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////////////////////////////////////////////////////////////// Start of Change /////////////////////////////////////////////////////////////////////

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

**ACL functionality:** as defined in TS 36.413 [16].

**Elementary Procedure:** NGAP consists of Elementary Procedures (EPs). An Elementary Procedure is a unit of interaction between the NG-RAN node and the AMF. 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 NGAP EPs together or together with EPs from other interfaces is specified in stage 2 specifications (e.g., TS 38.401 [2], TS 38.410 [3] and TS 38.300 [8]).

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.

**gNB:** as defined in TS 38.300 [8].

**ng-eNB:** as defined in TS 38.300 [8].

**NG-RAN node:** as defined in TS 38.300 [8].

**PDU session resource:** as defined in TS 38.401 [2].

**en-gNB**: as defined in TS 37.340 [32].

**DAPS Handover**: as defined in TS 38.300 [8].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP 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 3GPP TR 21.905 [1].

5GC 5G Core Network

5QI 5G QoS Identifier

ACL Access Control List

AMF Access and Mobility Management Function

CGI Cell Global Identifier

CP Control Plane

DAPS Dual Active Protocol Stacks

DC Dual Connectivity

DL Downlink

EPC Evolved Packet Core

GUAMI Globally Unique AMF Identifier

IMEISV International Mobile station Equipment Identity and Software Version number

LMF Location Management Function

N3IWF Non 3GPP InterWorking Function

NGAP NG Application Protocol

NRPPa NR Positioning Protocol Annex

NSCI New Security Context Indicator

NSSAI Network Slice Selection Assistance Information

OTDOA Observed Time Difference of Arrival

PSCell Primary SCG Cell

RIM Remote Interference Management

RIM-RS RIM Reference Signal

SCG Secondary Cell Group

SCTP Stream Control Transmission Protocol

SgNB Secondary gNB

SMF Session Management Function

S-NG-RAN node Secondary NG-RAN node

S-NSSAI Single Network Slice Selection Assistance Information

TAC Tracking Area Code

TAI Tracking Area Identity

TNLA Transport Network Layer Association

UL Uplink

UP User Plane

UPF User Plane Function

8.1 List of NGAP 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 8.1-1: Class 1 procedures**

|  |  |  |  |
| --- | --- | --- | --- |
| **Elementary Procedure** | **Initiating Message** | **Successful Outcome** | **Unsuccessful Outcome** |
| **Response message** | **Response message** |
| AMF Configuration Update | AMF CONFIGURATION UPDATE | AMF CONFIGURATION UPDATE ACKNOWLEDGE | AMF CONFIGURATION UPDATE FAILURE |
| RAN Configuration Update | RAN CONFIGURATION UPDATE | RAN CONFIGURATION UPDATE ACKNOWLEDGE | RAN CONFIGURATION UPDATE FAILURE |
| Handover Cancellation | HANDOVER CANCEL | HANDOVER CANCEL ACKNOWLEDGE |  |
| Handover Preparation | HANDOVER REQUIRED | HANDOVER COMMAND | HANDOVER PREPARATION FAILURE |
| Handover Resource Allocation | HANDOVER REQUEST | HANDOVER REQUEST ACKNOWLEDGE | HANDOVER FAILURE |
| Initial Context Setup | INITIAL CONTEXT SETUP REQUEST | INITIAL CONTEXT SETUP RESPONSE | INITIAL CONTEXT SETUP FAILURE |
| NG Reset | NG RESET | NG RESET ACKNOWLEDGE |  |
| NG Setup | NG SETUP REQUEST | NG SETUP RESPONSE | NG SETUP FAILURE |
| Path Switch Request | PATH SWITCH REQUEST | PATH SWITCH REQUEST ACKNOWLEDGE | PATH SWITCH REQUEST FAILURE |
| PDU Session Resource Modify | PDU SESSION RESOURCE MODIFY REQUEST | PDU SESSION RESOURCE MODIFY RESPONSE |  |
| PDU Session Resource Modify Indication | PDU SESSION RESOURCE MODIFY INDICATION | PDU SESSION RESOURCE MODIFY CONFIRM |  |
| PDU Session Resource Release | PDU SESSION RESOURCE RELEASE COMMAND | PDU SESSION RESOURCE RELEASE RESPONSE |  |
| PDU Session Resource Setup | PDU SESSION RESOURCE SETUP REQUEST | PDU SESSION RESOURCE SETUP RESPONSE |  |
| UE Context Modification | UE CONTEXT MODIFICATION REQUEST | UE CONTEXT MODIFICATION RESPONSE | UE CONTEXT MODIFICATION FAILURE |
| UE Context Release | UE CONTEXT RELEASE COMMAND | UE CONTEXT RELEASE COMPLETE |  |
| Write-Replace Warning  | WRITE-REPLACE WARNING REQUEST | WRITE-REPLACE WARNING RESPONSE |  |
| PWS Cancel | PWS CANCEL REQUEST | PWS CANCEL RESPONSE |  |
| UE Radio Capability Check | UE RADIO CAPABILITY CHECK REQUEST | UE RADIO CAPABILITY CHECK RESPONSE |  |

**Table 8.1-2: Class 2 procedures**

|  |  |
| --- | --- |
| **Elementary Procedure** | **Message** |
| Downlink RAN Configuration Transfer | DOWNLINK RAN CONFIGURATION TRANSFER |
| Downlink RAN Status Transfer | DOWNLINK RAN STATUS TRANSFER |
| Downlink NAS Transport | DOWNLINK NAS TRANSPORT |
| Error Indication | ERROR INDICATION |
| Uplink RAN Configuration Transfer | UPLINK RAN CONFIGURATION TRANSFER |
| Uplink RAN Status Transfer | UPLINK RAN STATUS TRANSFER |
| Handover Notification | HANDOVER NOTIFY |
| Initial UE Message | INITIAL UE MESSAGE |
| NAS Non Delivery Indication | NAS NON DELIVERY INDICATION |
| Paging | PAGING |
| PDU Session Resource Notify | PDU SESSION RESOURCE NOTIFY |
| Reroute NAS Request | REROUTE NAS REQUEST |
| UE Context Release Request | UE CONTEXT RELEASE REQUEST |
| Uplink NAS Transport | UPLINK NAS TRANSPORT |
| AMF Status Indication | AMF STATUS INDICATION |
| PWS Restart Indication | PWS RESTART INDICATION |
| PWS Failure Indication | PWS FAILURE INDICATION |
| Downlink UE Associated NRPPa Transport | DOWNLINK UE ASSOCIATED NRPPA TRANSPORT |
| Uplink UE Associated NRPPa Transport | UPLINK UE ASSOCIATED NRPPA TRANSPORT |
| Downlink Non UE Associated NRPPa Transport | DOWNLINK NON UE ASSOCIATED NRPPA TRANSPORT |
| Uplink Non UE Associated NRPPa Transport | UPLINK NON UE ASSOCIATED NRPPA TRANSPORT |
| Trace Start | TRACE START |
| Trace Failure Indication | TRACE FAILURE INDICATION |
| Deactivate Trace | DEACTIVATE TRACE |
| Cell Traffic Trace | CELL TRAFFIC TRACE |
| Location Reporting Control | LOCATION REPORTING CONTROL |
| Location Reporting Failure Indication | LOCATION REPORTING FAILURE INDICATION |
| Location Report | LOCATION REPORT |
| UE TNLA Binding Release | UE TNLA BINDING RELEASE REQUEST |
| UE Radio Capability Info Indication | UE RADIO CAPABILITY INFO INDICATION |
| RRC Inactive Transition Report | RRC INACTIVE TRANSITION REPORT |
| Overload Start | OVERLOAD START |
| Overload Stop | OVERLOAD STOP |
| Secondary RAT Data Usage Report | SECONDARY RAT DATA USAGE REPORT |
| Uplink RIM Information Transfer | UPLINK RIM INFORMATION TRANSFER |
| Downlink RIM Information Transfer | DOWNLINK RIM INFORMATION TRANSFER |
| Handover Success | HANDOVER SUCCESS |
| Uplink RAN Early Status Transfer | UPLINK RAN EARLY STATUS TRANSFER |
| Downlink RAN Early Status Transfer | DOWNLINK RAN EARLY STATUS TRANSFER |

### 8.4.1 Handover Preparation

#### 8.4.1.1 General

The purpose of the Handover Preparation procedure is to request the preparation of resources at the target side via the 5GC. There is only one Handover Preparation procedure ongoing at the same time for a certain UE.

#### 8.4.1.2 Successful Operation



Figure 8.4.1.2-1: Handover preparation: successful operation

The source NG-RAN node initiates the handover preparation by sending the HANDOVER REQUIRED message to the serving AMF. When the source NG-RAN node sends the HANDOVER REQUIRED message, it shall start the timer TNGRELOCprep. The source NG-RAN node shall indicate the appropriate cause value for the handover in the *Cause* IE.

Upon reception of the HANDOVER REQUIRED message the AMF shall, for each PDU session indicated in the *PDU Session ID* IE, transparently transfer the *Handover Required Transfer* IE to the SMF associated with the concerned PDU session.

In case of intra-system handover, the information in the *Source to Target Transparent Container* IE shall be encoded according to the definition of the *Source NG-RAN node to Target NG-RAN node Transparent Container* IE.

If the *DL Forwarding* IE is included for a given QoS flow in the *PDU Session Resource Information Item* IE within the *Source NG-RAN node to Target NG-RAN node Transparent Container* IE of the HANDOVER REQUIRED message and it is set to "DL forwarding proposed", it indicates that the source NG-RAN node proposes forwarding of downlink data for that QoS flow.

If the *UL Forwarding* IE is included for a given QoS flow in the *PDU Session Resource Information Item* IE within the *Source NG-RAN Node to Target NG-RAN Node Transparent Container* IE of the HANDOVER REQUIRED message and it is set to "UL forwarding proposed", it indicates that the source NG-RAN node proposes forwarding of uplink data for that QoS flow.

If the *DRBs to QoS Flows Mapping List* IE is included in the *PDU Session Resource Information Item* IE within the *Source NG-RAN node to Target NG-RAN node Transparent Container* IE of the HANDOVER REQUIRED message, it implicitly indicates that the source NG-RAN node proposes forwarding of downlink data for those DRBs.

If the *QoS Flow Mapping Indication* IE for a QoS flow is included in the *Associated QoS Flow List* IE within the *DRBs to QoS Flows Mapping List* IE within the *Source NG-RAN node to Target NG-RAN node Transparent Container* IE of the HANDOVER REQUIRED message, it indicates that the source NG-RAN node has mapped only the uplink or downlink of the QoS flow to the DRB.

If the HANDOVER COMMAND message contains the *DL Forwarding UP TNL Information* IE for a given DRB within the *Handover Command Transfer* IE, the source NG-RAN node shall consider that the forwarding of downlink data for this DRB is accepted by the target NG-RAN node. If the HANDOVER COMMAND message contains the *UL Forwarding UP TNL Information* IE for a given DRB in the *Data Forwarding Response DRB List* IE within the *Handover Command Transfer* IE, it means the target NG-RAN node has requested the forwarding of uplink data for this DRB.

If the HANDOVER COMMAND message contains the *UL Forwarding UP TNL Information* IE for a given PDU session within the *Handover Command Transfer* IE, the source NG-RAN node shall consider that the forwarding of uplink data of the QoS flows is accepted by the target NG-RAN node.

In case of inter-system handover to LTE, the information in the *Source to Target Transparent Container* IE shall be encoded according to the *Source eNB to Target eNB Transparent Container* IE definition as specified in TS 36.413 [16].

If the *Direct Forwarding Path Availability* IE is included in the HANDOVER REQUIRED message the AMF shall handle it as specified in TS 23.502 [10].

If the *Direct Forwarding Path Availability* IE is included within the *Handover Required Transfer* IE of the HANDOVER REQUIRED message the SMF shall handle it as specified in TS 23.502 [10].

When the preparation, including the reservation of resources at the target side is ready, the AMF responds with the HANDOVER COMMAND message to the source NG-RAN node. In case of intra-system handover, the AMF shall include the *PDU Session Resource Handover List* IE in the HANDOVER COMMAND message.

Upon reception of the HANDOVER COMMAND message the source NG-RAN node shall stop the timer TNGRELOCprep and start the timer TNGRELOCoverall.

If there are any PDU sessions that could not be admitted in the target, they shall be indicated in the *PDU Session Resource to Release List* IE.

NOTE: As an exception in case of inter-system handover to LTE, the AMF generates the *Handover Preparation Unsuccessful Transfer* IE in the *PDU Session Resource to Release List* IE.

If the HANDOVER COMMAND message contains the *QoS Flow to be Forwarded List* IE within the *Handover Command Transfer* IE for a given PDU session, then the source NG-RAN node should initiate data forwarding for the listed QoS flows over the forwarding tunnel specified in the *DL Forwarding UP TNL Information* IE as specified in TS 38.300 [8].

If the HANDOVER COMMAND message contains the *Additional DL Forwarding UP TNL Information* IE within the *Handover Command Transfer* IE, the source NG-RAN node should initiate data forwarding of the PDU session split in different tunnel and shall use the received UP transport layer information for the forwarding QoS flows associated to it.

If the HANDOVER COMMAND message contains the *Additional UL Forwarding UP TNL Information* IE within the *Handover Command Transfer* IE, the source NG-RAN node should initiate data forwarding of the PDU session split in different tunnels using the received UP transport layer information.

If the *NAS Security Parameters from NG-RAN* IE is included in the HANDOVER COMMAND message the NG-RAN node shall use it as specified in TS 33.501 [13].

If the *Target to Source Transparent Container* IE has been received by the AMF from the handover target then the transparent container shall be included in the HANDOVER COMMAND message.

In case of inter-system handover to LTE, the information in the *Target to Source Transparent Container* IE shall be encoded according to the definition of the *Target eNB to Source eNB Transparent Container* IE as specified in TS 36.413 [16].

If the *Index to RAT/Frequency Selection Priority* IE is contained in the *Source NG-RAN Node to Target NG-RAN Node Transparent Container* IE, the target NG-RAN node shall store the content of the received *Index to RAT/Frequency Selection Priority* IE in the UE context and use it as defined in TS 23.501 [9].

For each QoS flow which has been established in the target NG-RAN node, if the *QoS Monitoring Request* IE was included in the *QoS Flow Level QoS Parameters* IE contained in the HANDOVER REQUEST message, the target NG-RAN node shall store this information, and, if supported, perform delay measurement and QoS monitoring, as specified in TS 23.501 [9].

If the *DAPS Request Information* IE is included for a DRB in the *Source NG-RAN Node to Target NG-RAN Node Transparent Container* IE within the HANDOVER REQUIRED message, it indicates that the request concerns a DAPS Handover for that DRB, as described in TS 38.300 [8].

**Interactions with other NGAP procedures:**

If, after a HANDOVER REQUIRED message is sent and before the Handover Preparation procedure is terminated, the source NG-RAN node receives an AMF initiated PDU Session Management procedure on the same UE-associated signalling connection, the source NG-RAN node shall either:

1. Cancel the Handover Preparation procedure by executing the Handover Cancellation procedure with an appropriate cause value. After successful completion of the Handover Cancellation procedure, the source NG-RAN node shall continue the AMF initiated PDU Session Management procedure.

or

2. Terminate the AMF initiated PDU Session Management procedure by sending the appropriate response message with an appropriate cause value, e.g. "NG intra-system handover triggered" or "NG inter-system handover triggered" to the AMF and then the source NG-RAN node shall continue with the handover procedure.

8.4.2 Handover Resource Allocation

8.4.2.1 General

The purpose of the Handover Resource Allocation procedure is to reserve resources at the target NG-RAN node for the handover of a UE.

8.4.2.2 Successful Operation

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**Figure 8.4.2.2-1: Handover resource allocation: successful operation**

The AMF initiates the procedure by sending the HANDOVER REQUEST message to the target NG-RAN node.

If the *Masked IMEISV* IE is contained in the HANDOVER REQUEST message the target NG-RAN node shall, if supported, use it to determine the characteristics of the UE for subsequent handling.

Upon receipt of the HANDOVER REQUEST message the target NG-RAN node shall

- attempt to execute the requested PDU session configuration and associated security;

- store the received UE Aggregate Maximum Bit Rate in the UE context, and use the received UE Aggregate Maximum Bit Rate for all Non-GBR QoS flows for the concerned UE as specified in TS 23.501 [9];

- store the received Mobility Restriction List in the UE context;

- store the received UE Security Capabilities in the UE context;

- store the received Security Context in the UE context and take it into use as defined in TS 33.501 [13].

Upon reception of the *UE History Information* IE, which is included within the *Source to Target Transparent Container* IE of the HANDOVER REQUEST message, the target NG-RAN node shall collect the information defined as mandatory in the *UE History Information* IE and shall, if supported, collect the information defined as optional in the *UE History Information* IE, for as long as the UE stays in one of its cells, and store the collected information to be used for future handover preparations.

Upon receiving the *PDU Session Resource Setup List* IE contained in the HANDOVER REQUEST message, the target NG-RAN node shall behave the same as defined in the PDU Session Resource Setup procedure. The target NG-RAN node shall report to the AMF in the HANDOVER REQUEST ACKNOWLEDGE message the result for each PDU session resource requested to be setup. In particular, for each PDU session resource successfully setup, it shall include the *Handover Request Acknowledge Transfer* IE containing the following information:

- The list of QoS flows which have been successfully established in the *QoS Flow Setup Response List* IE.

- The *Data Forwarding Accepted* IE if the data forwarding for the QoS flow is accepted.

- The list of QoS flows which have failed to be established, if any, in the *QoS Flow Failed to Setup List* IE.

- The UP transport layer information to be used for the PDU session.

- The security result associated to the PDU session.

For each PDU session resource which failed to be setup, the *Handover Resource Allocation Unsuccessful Transfer* IE shall be included in the HANDOVER REQUEST ACKNOWLEDGE message containing a cause value that should be precise enough to enable the SMF to know the reason for the unsuccessful establishment.

Upon reception of the HANDOVER REQUEST ACKNOWLEDGE message the AMF shall, for each PDU session indicated in the *PDU Session ID* IE, transfer transparently the *Handover Request Acknowledge Transfer* IE or *Handover Resource Allocation Unsuccessful Transfer* IE to the SMF associated with the concerned PDU session.

If the HANDOVER REQUEST message contains the *Data Forwarding Not Possible* IE associated with a given PDU session within the *Handover Request Transfer* IE set to "data forwarding not possible", the target NG-RAN node may not include the *DL Forwarding UP TNL Information* IE and for intra-system handover the *Data Forwarding Response DRB List* IE within the *Handover Request Acknowledge Transfer* IE in the HANDOVER REQUEST ACKNOWLEDGE message for that PDU session.

In case of intra-system handover, if the target NG-RAN node accepts the downlink data forwarding for at least one QoS flow for which the *DL Forwarding* IE is set to "DL forwarding proposed", it may include the *DL Forwarding UP TNL Information* IE in the *Handover Request Acknowledge Transfer* IE as forwarding tunnel for the QoS flows listed in the *QoS Flow Setup Response List* IE of the HANDOVER REQUEST ACKNOWLEDGE message.

In case of intra-system handover, if the target NG-RAN node accepts the uplink data forwarding for at least one QoS flow for which the *UL Forwarding* IE is set to "UL forwarding proposed", it may include the *UL Forwarding UP TNL Information* IE in the *Handover Request Acknowledge Transfer* IE for the PDU session within the *PDU Session Resource Admitted List* IE of the HANDOVER REQUEST ACKNOWLEDGE message.

In case of intra-system handover, for each PDU session for which the *Additional DL UP TNL Information for HO List* IE is included in the *Handover Request Acknowledge Transfer* IE of the HANDOVER REQUEST ACKNOWLEDGE message, the SMF shall consider the included *Additional DL NG-U UP TNL Information* IE as the downlink termination point for the associated flows indicated in the *Additional QoS Flow Setup Response List* IE for this PDU session split in different tunnels and shall consider the *Additional DL Forwarding UP TNL Information* IE, if included, as the forwarding tunnel associated to these QoS flows.

In case of intra-system handover, for each PDU session for which the *Additional UL Forwarding UP TNL Information* IE is included in the *Handover Request Acknowledge Transfer* IE of the HANDOVER REQUEST ACKNOWLEDGE message, the SMF shall consider it as the termination points for the uplink forwarding tunnels for this PDU session split in different tunnels.

In case of intra-system handover, if the target NG-RAN node accepts the data forwarding for a successfully configured DRB, the target NG-RAN node may include the *DL Forwarding UP TNL Information* IE for the DRB within the *Data Forwarding Response DRB List* IE within *Handover Request Acknowledge Transfer* IE of the HANDOVER REQUEST ACKNOWLEDGE message.

If the HANDOVER REQUEST ACKNOWLEDGE message contains the *UL Forwarding UP TNL Information* IE for a given DRB in the *Data Forwarding Response DRB List* IE within the *Handover Request Acknowledge Transfer* IE, it indicates the target NG-RAN node has requested the forwarding of uplink data for the DRB.

In case of inter-system handover from E-UTRAN, if the *PDU Session Resource Setup Request Transfer* IE contains the *Direct Forwarding Path Availability* IE set to "direct path available", the target NG-RAN node shall, if supported, and if it accepts downlink data forwarding for the QoS flows mapped to an E-RAB of an admitted PDU session, include the *DL Forwarding UP TNL Information* IE in the *Data Forwarding Response E-RAB List* IE in the *Handover Request Acknowledge Transfer* IE in the HANDOVER REQUEST ACKNOWLEDGE message for that mapped E-RAB.

In case of inter-system handover from E-UTRAN, the target NG-RAN node includes the *Data Forwarding Accepted* IE for each QoS flow that the *DL Forwarding* IE is set to "DL forwarding proposed" for the corresponding E-RAB in the *Source NG-RAN Node to Target NG-RAN Node Transparent Container* IE and that the target NG-RAN node has admitted the proposed forwarding of downlink data for the QoS flow. If indirect data forwarding is applied for inter-system handover, if the target NG-RAN node accepts the downlink data forwarding for at least one QoS flow of an admitted PDU session it shall include the *DL Forwarding UP TNL Information* IE in the *PDU Session Resource Setup Response Transfer* IE for that PDU session within the *PDU Session Resources Admitted List* IE of the HANDOVER REQUEST ACKNOWLEDGE message.

In case of inter-system handover from E-UTRAN with direct forwarding, if the target NG-RAN node receives the *SgNB UE X2AP ID* IE in the *Source NG-RAN Node to Target NG-RAN Node Transparent Container* IE, it may use it for internal forwarding as described in TS 37.340 [32].

The target NG-RAN node shall use the information in the *Mobility Restriction List* IE if present in the HANDOVER REQUEST message to

- determine a target for subsequent mobility action for which the target NG-RAN node provides information about the target of the mobility action towards the UE;

- select a proper SCG during dual connectivity operation;

- assign proper RNA(s) for the UE when moving the UE to RRC\_INACTIVE state.

If the *Mobility Restriction List* IE is not contained in the HANDOVER REQUEST message, the target NG-RAN node shall consider that no roaming and no access restriction apply to the UE. The target NG-RAN node shall also consider that no roaming and no access restriction apply to the UE when:

- one of the QoS flows includes a particular ARP value (TS 23.501 [9]).

If the *Trace Activation* IE is included in the HANDOVER REQUEST message the target NG-RAN node shall, if supported, initiate the requested trace function as described in TS 32.422 [11].

If the *Location Reporting Request Type* IE is included in the HANDOVER REQUEST message, the target NG-RAN node should perform the requested location reporting functionality for the UE as described in subclause 8.12.

If the *Core Network Assistance Information for RRC INACTIVE* IE is included in the HANDOVER REQUEST message, the target NG-RAN node shall, if supported, store this information in the UE context and use it for e.g. the RRC\_INACTIVE state decision and RNA configuration for the UE and RAN paging if any for a UE in RRC\_INACTIVE state, as specified in TS 38.300 [8].

If the *CN Assisted RAN Parameters Tuning* IE is included in the HANDOVER REQUEST message, the NG-RAN node may use it as described in TS 23.501 [9].

If the *New Security Context Indicator* IE is included in the HANDOVER REQUEST message, the target NG-RAN node shall use the information as specified in TS 33.501 [13].

If the *NASC* IE is included in the HANDOVER REQUEST message, the target NG-RAN node shall use it towards the UE as specified in TS 33.501 [13].

If the *RRC Inactive Transition Report Request* IE is included in the HANDOVER REQUEST message, the NG-RAN node shall, if supported, store this information in the UE context.

If the *Redirection for Voice EPS Fallback* IE is included in the HANDOVER REQUEST message, the NG-RAN node shall, if supported, store it and use it in a subsequent decision of EPS fallback for voice as specified in TS 23.502 [10].

If the *SRVCC Operation Possible* IE is included in the HANDOVER REQUEST message, the target NG-RAN node shall, if supported, store the content of the received *SRVCC Operation Possible* IE in the UE context and use it as defined in TS 23.216 [31].

After all necessary resources for the admitted PDU session resources have been allocated, the target NG-RAN node shall generate the HANDOVER REQUEST ACKNOWLEDGE message.

If the *DAPS Request Information* IE is included for a DRB in the *Source NG-RAN Node to Target NG-RAN Node Transparent Container* IE within the HANDOVER REQUEST message, the target NG-RAN node shall consider that the request concerns a DAPS Handover for that DRB, as described in in TS 38.300 [8]. The target NG-RAN node shall include the *DAPS Response information List* IE in the *Target NG-RAN Node to Source NG-RAN Node Transparent Container* IE within the HANDOVER REQUEST ACKNOWLEDGE message, containing the *DAPS Response Information* IE for each DRB requested to be configured with DAPS Handover.

**Interactions with RRC Inactive Transition Report procedure:**

If the *RRC Inactive Transition Report Request* IE is included in the HANDOVER REQUEST message and set to "subsequent state transition report", the NG-RAN node shall, if supported, send the RRC INACTIVE TRANSITION REPORT message to the AMF to report the RRC state of the UE when the UE enters or leaves RRC\_INACTIVE state.

8.4.3 Handover Notification

8.4.3.1 General

The purpose of the Handover Notification procedure is to indicate to the AMF that the UE has arrived to the target cell and the NG-based handover has been successfully completed.

8.4.3.2 Successful Operation

****

**Figure 8.4.3.2-1: Handover notification**

The target NG-RAN node shall send the HANDOVER NOTIFY message to the AMF when the UE has been identified in the target cell and the NG-based handover has been successfully completed.

If the *Notify Source NG-RAN node* IE is included in the HANDOVER NOTIFY message, the AMF shall, if supported, notify the source NG-RAN node that the UE has successfully accessed the target NG-RAN node.

8.4.3.3 Abnormal Conditions

Void.

//////////////////////////////////////////////////////////////irrelevant operations skipped/////////////////////////////////////////////////////////////////

8.4.x Handover Success

8.4.x.1 General

The Handover Success procedure is used during a DAPS Handover, to inform the source NG-RAN node that the UE has successfully accessed the target NG-RAN node.

The procedure uses UE-associated signalling.

8.4.x.2 Successful Operation



**Figure 8.4.x.2-1: Handover Success, successful operation**

The AMF initiates the procedure by sending the HANDOVER SUCCESS message to the source NG-RAN node.

8.4.x.3 Unsuccessful Operation

Not applicable.

8.4.x.4 Abnormal Conditions

If the HANDOVER SUCCESS message refers to a context that does not exist, the source NG-RAN node shall ignore the message.

### 8.4.y Uplink RAN Early Status Transfer

#### 8.4.y.1 General

The purpose of the Uplink RAN Early Status Transfer procedure is to transfer the COUNT of the first downlink SDU that the source NG-RAN node forwards to the target NG-RAN node, from the source NG-RAN node to the target NG-RAN node via the AMF during NG DAPS Handover. The procedure uses UE-associated signalling.

#### 8.4.y.2 Successful Operation



Figure 8.4.y.2-1: Uplink RAN Early Status Transfer procedure

The source NG-RAN node initiates the procedure by sending the UPLINK RAN EARLY STATUS TRANSFER message to the AMF when it considers at least a DRB to be simultaneously served by the source and the target NG-RAN nodes during NG DAPS Handover.

For each DRB for which DAPS Handover applies, the source NG-RAN node shall include the *DRB ID* IE and the *FIRST DL COUNT Value* IE within the *DRBs Subject To Early Status Transfer Item* IE in the *Early Status Transfer Transparent Container* IE of the UPLINK RAN EARLY STATUS TRANSFER message.

#### 8.4.y.3 Unsuccessful Operation

Not applicable.

#### 8.4.y.4 Abnormal Conditions

Not applicable.

### 8.4.z Downlink RAN Early Status Transfer

#### 8.4.z.1 General

The purpose of the Downlink RAN Early Status Transfer procedure is to transfer the COUNT of the first downlink SDU that the source NG-RAN node forwards to the target NG-RAN node, from the source NG-RAN node to the target NG-RAN node via the AMF during NG DAPS Handover. The procedure uses UE-associated signalling.

#### 8.4.z.2 Successful Operation



Figure 8.4.z.2-1: Downlink RAN Early Status Transfer procedure

The AMF initiates the procedure by sending the DOWNLINK RAN EARLY STATUS TRANSFER message to the target NG-RAN node.

For each DRB for which the *FIRST DL COUNT Value* IE is received in the DOWNLINK RAN EARLY STATUS TRANSFER message, the target NG-RAN node shall use it as the COUNT of the first downlink SDU that the source NG-RAN node forwards to the target NG-RAN node.

#### 8.4.z.3 Unsuccessful Operation

Not applicable.

#### 8.4.z.4 Abnormal Conditions

If the target NG-RAN node receives this message for a UE for which no prepared handover exists at the target NG-RAN node, the target NG-RAN node shall ignore the message.

//////////////////////////////////////////////////////////////irrelevant operations skipped/////////////////////////////////////////////////////////////////

9 Elements for NGAP Communication

//////////////////////////////////////////////////////////////irrelevant operations skipped/////////////////////////////////////////////////////////////////

9.2.3.7 HANDOVER NOTIFY

This message is sent by the target NG-RAN node to inform the AMF that the UE has been identified in the target cell and the handover has been completed.

Direction: NG-RAN node → AMF.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| AMF UE NGAP ID | M |  | 9.3.3.1 |  | YES | reject |
| RAN UE NGAP ID | M |  | 9.3.3.2 |  | YES | reject |
| User Location Information | M |  | 9.3.1.16 |  | YES | ignore |
| Notify Source NG-RAN node | O |  | ENUMERATED (NotifySource, …) |  | YES | ignore |

9.2.3.x HANDOVER SUCCESS

This message is sent by the AMF to the source NG-RAN node to indicate the successful access of the UE toward the target NG-RAN node.

Direction: AMF →NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| AMF UE NGAP ID | M |  | 9.3.3.1 |  | YES | reject |
| RAN UE NGAP ID | M |  | 9.3.3.2 |  | YES | reject |

#### 9.2.3.y UPLINK RAN EARLY STATUS TRANSFER

This message is sent by the source NG-RAN node to transfer the COUNT value (s) of the first forwarded downlink SDU(s) during NG DAPS Handover.

Direction: NG-RAN node → AMF.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| AMF UE NGAP ID | M |  | 9.3.3.1 |  | YES | reject |
| RAN UE NGAP ID | M |  | 9.3.3.2 |  | YES | reject |
| Early Status Transfer Transparent Container | M |  | 9.3.1.z |  | YES | reject |

#### 9.2.3.z DOWNLINK RAN EARLY STATUS TRANSFER

This message is sent by the AMF to transfer the COUNT value (s) of the first forwarded downlink SDU(s) during NG DAPS Handover.

Direction: AMF → NG-RAN node

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| AMF UE NGAP ID | M |  | 9.3.3.1 |  | YES | reject |
| RAN UE NGAP ID | M |  | 9.3.3.2 |  | YES | reject |
| Early Status Transfer Transparent Container | M |  | 9.3.1.z |  | YES | reject |

#### 9.3.1.30 Target NG-RAN Node to Source NG-RAN Node Transparent Container

This IE is produced by the target NG-RAN node and is transmitted to the source NG-RAN node. For inter-system handovers to 5G, the IE is transmitted from the target NG-RAN node to the external relocation source.

This IE is transparent to the 5GC.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| RRC Container | M |  | OCTET STRING | Includes the RRC *HandoverCommand* message as defined in TS 38.331 [18] if the target is a gNB.Includes the RRC *HandoverCommand* message as defined in TS 36.331 [21] if the target is an ng-eNB. | - |  |
| DAPS Response Information List  |  | *0..1* |  |  | YES | reject |
| **>DAPS Response Information Item** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | ignore |
| >>DRB ID | M |  | 9.3.1.53 |  | - |  |
| >>DAPS Response Information | M |  | 9.3.1.y | Indicates the response to a requested DAPS Handover | - |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofDRBs | Maximum no. of DRBs allowed towards one UE. Value is 32. |

/////////////////////////////////////////////////////////////// unchange skipped /////////////////////////////////////////////////////////////////////

#### 9.3.1.34 DRBs to QoS Flows Mapping List

This IE contains a list of DRBs containing information about the mapped QoS flows.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| **DRBs to QoS Flows Mapping Item** |  | *1..<maxnoofDRBs>* |  |  |  |  |
| >DRB ID | M |  | 9.3.1.53 |  |  |  |
| >Associated QoS Flow List | M |  | 9.3.1.99 | Contains information of the QoS flows mapped to the DRB |  |  |
| >DAPS Request Information | O |  | 9.3.1.x |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofDRBs | Maximum no. of DRBs allowed towards one UE. Value is 32. |

/////////////////////////////////////////////////////////////unchange skipped/////////////////////////////////////////////////////////////////////

#### 9.3.1.x DAPS Request Information

The *DAPS Indicator* IE indicates that the source NG-RAN node requests a DAPS Handover for the concerned DRB.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| DAPS Indicator | M |  | ENUMERATED (DAPS HO required, …) | Indicates that DAPS Handover is requested |

#### 9.3.1.y DAPS Response Information

The *DAPS Response Indicator* IE indicates the per DRB response to a requested DAPS Handover.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| DAPS Response Indicator | M |  | ENUMERATED (DAPS HO accepted, DAPS HO not accepted,…) | Indicates that DAPS Handover is accepted or not |

9.3.1.z Early Status Transfer Transparent Container

The *Early Status Transfer Transparent Container* IE is an information element that is produced by the source NG-RAN node and is transmitted to the target NG-RAN node. This IE is used for the NG DAPS handover case.

This IE is transparent to the 5GC.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| CHOICE Procedure Stage | M |  |  |  | YES | reject |
| *>First DL COUNT* |  |  |  |  |  |  |
| >>DRBs Subject To Early Status Transfer List |  | *1* |  |  | YES | ignore |
| >>>DRBs Subject To Early Status Transfer Item |  | *1 .. <maxnoofDRBs>* |  |  |  |  |
| >>>>DRB ID | M |  | 9.3.1.53 |  | – |  |
| >>>>CHOICE First DL COUNT | M |  |  |  | – |  |
| >>>>>*12 bits* |  |  |  |  |  |  |
| >>>>>> FIRST DL COUNT Value | M |  | COUNT Value for PDCP SN Length 12 9.3.1.109 | PDCP-SN and Hyper frame number of the first DL SDU that the source NG-RAN node forwards to the target NG-RAN node in case of 12 bit long PDCP-SN | – |  |
| >>>>>*18 bits* |  |  |  |  |  |  |
| >>>>>> FIRST DL COUNT Value | M |  | COUNT Value for PDCP SN Length 189.3.1.110 | PDCP-SN and Hyper frame number of the first DL SDU that the source NG-RAN node forwards to the target NG-RAN node in case of 18 bit long PDCP-SN | – |  |
|  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofDRBs | Maximum no. of DRBs allowed towards one UE. Value is 32. |

//////////////////////////////////////////////////////////////// 2nd Change /////////////////////////////////////////////////////////////////////

9.4.3 Elementary Procedure Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Elementary Procedure definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NGAP-PDU-Descriptions {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-Access (22) modules (3) ngap (1) version1 (1) ngap-PDU-Descriptions (0)}

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IE parameter types from other modules.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IMPORTS

 Criticality,

 ProcedureCode

FROM NGAP-CommonDataTypes

 AMFConfigurationUpdate,

 AMFConfigurationUpdateAcknowledge,

 AMFConfigurationUpdateFailure,

 AMFStatusIndication,

 CellTrafficTrace,

 DeactivateTrace,

 DownlinkNASTransport,

 DownlinkNonUEAssociatedNRPPaTransport,

 DownlinkRANConfigurationTransfer,

 DownlinkRANStatusTransfer,

 DownlinkUEAssociatedNRPPaTransport,

 ErrorIndication,

 HandoverCancel,

 HandoverCancelAcknowledge,

 HandoverCommand,

 HandoverFailure,

 HandoverNotify,

 HandoverPreparationFailure,

 HandoverRequest,

 HandoverRequestAcknowledge,

 HandoverRequired,

 InitialContextSetupFailure,

 InitialContextSetupRequest,

 InitialContextSetupResponse,

 InitialUEMessage,

 LocationReport,

 LocationReportingControl,

 LocationReportingFailureIndication,

 NASNonDeliveryIndication,

 NGReset,

 NGResetAcknowledge,

 NGSetupFailure,

 NGSetupRequest,

 NGSetupResponse,

 OverloadStart,

 OverloadStop,

 Paging,

 PathSwitchRequest,

 PathSwitchRequestAcknowledge,

 PathSwitchRequestFailure,

 PDUSessionResourceModifyConfirm,

 PDUSessionResourceModifyIndication,

 PDUSessionResourceModifyRequest,

 PDUSessionResourceModifyResponse,

 PDUSessionResourceNotify,

 PDUSessionResourceReleaseCommand,

 PDUSessionResourceReleaseResponse,

 PDUSessionResourceSetupRequest,

 PDUSessionResourceSetupResponse,

 PrivateMessage,

 PWSCancelRequest,

 PWSCancelResponse,

 PWSFailureIndication,

 PWSRestartIndication,

 RANConfigurationUpdate,

 RANConfigurationUpdateAcknowledge,

 RANConfigurationUpdateFailure,

 RerouteNASRequest,

 RRCInactiveTransitionReport,

 SecondaryRATDataUsageReport,

 TraceFailureIndication,

 TraceStart,

 UEContextModificationFailure,

 UEContextModificationRequest,

 UEContextModificationResponse,

 UEContextReleaseCommand,

 UEContextReleaseComplete,

 UEContextReleaseRequest,

 UERadioCapabilityCheckRequest,

 UERadioCapabilityCheckResponse,

 UERadioCapabilityInfoIndication,

 UETNLABindingReleaseRequest,

 UplinkNASTransport,

 UplinkNonUEAssociatedNRPPaTransport,

 UplinkRANConfigurationTransfer,

 UplinkRANStatusTransfer,

 UplinkUEAssociatedNRPPaTransport,

 WriteReplaceWarningRequest,

 WriteReplaceWarningResponse,

 UplinkRIMInformationTransfer,

 DownlinkRIMInformationTransfer,

 HandoverSuccess,

 UplinkRANEarlyStatusTransfer,

 DownlinkRANEarlyStatusTransfer

FROM NGAP-PDU-Contents

 id-AMFConfigurationUpdate,

 id-AMFStatusIndication,

 id-CellTrafficTrace,

 id-DeactivateTrace,

 id-DownlinkNASTransport,

 id-DownlinkNonUEAssociatedNRPPaTransport,

 id-DownlinkRANConfigurationTransfer,

 id-DownlinkRANStatusTransfer,

 id-DownlinkUEAssociatedNRPPaTransport,

 id-ErrorIndication,

 id-HandoverCancel,

 id-HandoverNotification,

 id-HandoverPreparation,

 id-HandoverResourceAllocation,

 id-InitialContextSetup,

 id-InitialUEMessage,

 id-LocationReport,

 id-LocationReportingControl,

 id-LocationReportingFailureIndication,

 id-NASNonDeliveryIndication,

 id-NGReset,

 id-NGSetup,

 id-OverloadStart,

 id-OverloadStop,

 id-Paging,

 id-PathSwitchRequest,

 id-PDUSessionResourceModify,

 id-PDUSessionResourceModifyIndication,

 id-PDUSessionResourceNotify,

 id-PDUSessionResourceRelease,

 id-PDUSessionResourceSetup,

 id-PrivateMessage,

 id-PWSCancel,

 id-PWSFailureIndication,

 id-PWSRestartIndication,

 id-RANConfigurationUpdate,

 id-RerouteNASRequest,

 id-RRCInactiveTransitionReport,

 id-SecondaryRATDataUsageReport,

 id-TraceFailureIndication,

 id-TraceStart,

 id-UEContextModification,

 id-UEContextRelease,

 id-UEContextReleaseRequest,

 id-UERadioCapabilityCheck,

 id-UERadioCapabilityInfoIndication,

 id-UETNLABindingRelease,

 id-UplinkNASTransport,

 id-UplinkNonUEAssociatedNRPPaTransport,

 id-UplinkRANConfigurationTransfer,

 id-UplinkRANStatusTransfer,

 id-UplinkUEAssociatedNRPPaTransport,

 id-WriteReplaceWarning,

 id-UplinkRIMInformationTransfer,

 id-DownlinkRIMInformationTransfer,

 id-HandoverSuccess,

 id-UplinkRANEarlyStatusTransfer,

 id-DownlinkRANEarlyStatusTransfer

FROM NGAP-Constants;

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Interface Elementary Procedure Class

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NGAP-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

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NGAP-PDU ::= CHOICE {

 initiatingMessage InitiatingMessage,

 successfulOutcome SuccessfulOutcome,

 unsuccessfulOutcome UnsuccessfulOutcome,

 ...

}

InitiatingMessage ::= SEQUENCE {

 procedureCode NGAP-ELEMENTARY-PROCEDURE.&procedureCode ({NGAP-ELEMENTARY-PROCEDURES}),

 criticality NGAP-ELEMENTARY-PROCEDURE.&criticality ({NGAP-ELEMENTARY-PROCEDURES}{@procedureCode}),

 value NGAP-ELEMENTARY-PROCEDURE.&InitiatingMessage ({NGAP-ELEMENTARY-PROCEDURES}{@procedureCode})

}

SuccessfulOutcome ::= SEQUENCE {

 procedureCode NGAP-ELEMENTARY-PROCEDURE.&procedureCode ({NGAP-ELEMENTARY-PROCEDURES}),

 criticality NGAP-ELEMENTARY-PROCEDURE.&criticality ({NGAP-ELEMENTARY-PROCEDURES}{@procedureCode}),

 value NGAP-ELEMENTARY-PROCEDURE.&SuccessfulOutcome ({NGAP-ELEMENTARY-PROCEDURES}{@procedureCode})

}

UnsuccessfulOutcome ::= SEQUENCE {

 procedureCode NGAP-ELEMENTARY-PROCEDURE.&procedureCode ({NGAP-ELEMENTARY-PROCEDURES}),

 criticality NGAP-ELEMENTARY-PROCEDURE.&criticality ({NGAP-ELEMENTARY-PROCEDURES}{@procedureCode}),

 value NGAP-ELEMENTARY-PROCEDURE.&UnsuccessfulOutcome ({NGAP-ELEMENTARY-PROCEDURES}{@procedureCode})

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Interface Elementary Procedure List

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NGAP-ELEMENTARY-PROCEDURES NGAP-ELEMENTARY-PROCEDURE ::= {

 NGAP-ELEMENTARY-PROCEDURES-CLASS-1 |

 NGAP-ELEMENTARY-PROCEDURES-CLASS-2,

 ...

}

NGAP-ELEMENTARY-PROCEDURES-CLASS-1 NGAP-ELEMENTARY-PROCEDURE ::= {

 aMFConfigurationUpdate |

 handoverCancel |

 handoverPreparation |

 handoverResourceAllocation |

 initialContextSetup |

 nGReset |

 nGSetup |

 pathSwitchRequest |

 pDUSessionResourceModify |

 pDUSessionResourceModifyIndication |

 pDUSessionResourceRelease |

 pDUSessionResourceSetup |

 pWSCancel |

 rANConfigurationUpdate |

 uEContextModification |

 uEContextRelease |

 uERadioCapabilityCheck |

 writeReplaceWarning

}

NGAP-ELEMENTARY-PROCEDURES-CLASS-2 NGAP-ELEMENTARY-PROCEDURE ::= {

 aMFStatusIndication |

 cellTrafficTrace |

 deactivateTrace |

 downlinkNASTransport |

 downlinkNonUEAssociatedNRPPaTransport |

 downlinkRANConfigurationTransfer |

 downlinkRANStatusTransfer |

 downlinkUEAssociatedNRPPaTransport |

 errorIndication |

 handoverNotification |

 initialUEMessage |

 locationReport |

 locationReportingControl |

 locationReportingFailureIndication |

 nASNonDeliveryIndication |

 overloadStart |

 overloadStop |

 paging |

 pDUSessionResourceNotify |

 privateMessage |

 pWSFailureIndication |

 pWSRestartIndication |

 rerouteNASRequest |

 rRCInactiveTransitionReport |

 secondaryRATDataUsageReport |

 traceFailureIndication |

 traceStart |

 uEContextReleaseRequest |

 uERadioCapabilityInfoIndication |

 uETNLABindingRelease |

 uplinkNASTransport |

 uplinkNonUEAssociatedNRPPaTransport |

 uplinkRANConfigurationTransfer |

 uplinkRANStatusTransfer |

 uplinkUEAssociatedNRPPaTransport |

 uplinkRIMInformationTransfer |

 downlinkRIMInformationTransfer |

 handoverSuccess |

 uplinkRANEarlyStatusTransfer |

 downlinkRANEarlyStatusTransfer

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Interface Elementary Procedures

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

aMFConfigurationUpdate NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE AMFConfigurationUpdate

 SUCCESSFUL OUTCOME AMFConfigurationUpdateAcknowledge

 UNSUCCESSFUL OUTCOME AMFConfigurationUpdateFailure

 PROCEDURE CODE id-AMFConfigurationUpdate

 CRITICALITY reject

}

aMFStatusIndication NGAP-ELEMENTARY-PROCEDURE ::={

 INITIATING MESSAGE AMFStatusIndication

 PROCEDURE CODE id-AMFStatusIndication

 CRITICALITY ignore

}

cellTrafficTrace NGAP-ELEMENTARY-PROCEDURE ::={

 INITIATING MESSAGE CellTrafficTrace

 PROCEDURE CODE id-CellTrafficTrace

 CRITICALITY ignore

}

deactivateTrace NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE DeactivateTrace

 PROCEDURE CODE id-DeactivateTrace

 CRITICALITY ignore

}

downlinkNASTransport NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE DownlinkNASTransport

 PROCEDURE CODE id-DownlinkNASTransport

 CRITICALITY ignore

}

downlinkNonUEAssociatedNRPPaTransport NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE DownlinkNonUEAssociatedNRPPaTransport

 PROCEDURE CODE id-DownlinkNonUEAssociatedNRPPaTransport

 CRITICALITY ignore

}

downlinkRANConfigurationTransfer NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE DownlinkRANConfigurationTransfer

 PROCEDURE CODE id-DownlinkRANConfigurationTransfer

 CRITICALITY ignore

}

downlinkRANStatusTransfer NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE DownlinkRANStatusTransfer

 PROCEDURE CODE id-DownlinkRANStatusTransfer

 CRITICALITY ignore

}

downlinkUEAssociatedNRPPaTransport NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE DownlinkUEAssociatedNRPPaTransport

 PROCEDURE CODE id-DownlinkUEAssociatedNRPPaTransport

 CRITICALITY ignore

}

errorIndication NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ErrorIndication

 PROCEDURE CODE id-ErrorIndication

 CRITICALITY ignore

}

handoverCancel NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE HandoverCancel

 SUCCESSFUL OUTCOME HandoverCancelAcknowledge

 PROCEDURE CODE id-HandoverCancel

 CRITICALITY reject

}

handoverNotification NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE HandoverNotify

 PROCEDURE CODE id-HandoverNotification

 CRITICALITY ignore

}

handoverPreparation NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE HandoverRequired

 SUCCESSFUL OUTCOME HandoverCommand

 UNSUCCESSFUL OUTCOME HandoverPreparationFailure

 PROCEDURE CODE id-HandoverPreparation

 CRITICALITY reject

}

handoverResourceAllocation NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE HandoverRequest

 SUCCESSFUL OUTCOME HandoverRequestAcknowledge

 UNSUCCESSFUL OUTCOME HandoverFailure

 PROCEDURE CODE id-HandoverResourceAllocation

 CRITICALITY reject

}

initialContextSetup NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE InitialContextSetupRequest

 SUCCESSFUL OUTCOME InitialContextSetupResponse

 UNSUCCESSFUL OUTCOME InitialContextSetupFailure

 PROCEDURE CODE id-InitialContextSetup

 CRITICALITY reject

}

initialUEMessage NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE InitialUEMessage

 PROCEDURE CODE id-InitialUEMessage

 CRITICALITY ignore

}

locationReport NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE LocationReport

 PROCEDURE CODE id-LocationReport

 CRITICALITY ignore

}

locationReportingControl NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE LocationReportingControl

 PROCEDURE CODE id-LocationReportingControl

 CRITICALITY ignore

}

locationReportingFailureIndication NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE LocationReportingFailureIndication

 PROCEDURE CODE id-LocationReportingFailureIndication

 CRITICALITY ignore

}

nASNonDeliveryIndication NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE NASNonDeliveryIndication

 PROCEDURE CODE id-NASNonDeliveryIndication

 CRITICALITY ignore

}

nGReset NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE NGReset

 SUCCESSFUL OUTCOME NGResetAcknowledge

 PROCEDURE CODE id-NGReset

 CRITICALITY reject

}

nGSetup NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE NGSetupRequest

 SUCCESSFUL OUTCOME NGSetupResponse

 UNSUCCESSFUL OUTCOME NGSetupFailure

 PROCEDURE CODE id-NGSetup

 CRITICALITY reject

}

overloadStart NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE OverloadStart

 PROCEDURE CODE id-OverloadStart

 CRITICALITY ignore

}

overloadStop NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE OverloadStop

 PROCEDURE CODE id-OverloadStop

 CRITICALITY reject

}

paging NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE Paging

 PROCEDURE CODE id-Paging

 CRITICALITY ignore

}

pathSwitchRequest NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE PathSwitchRequest

 SUCCESSFUL OUTCOME PathSwitchRequestAcknowledge

 UNSUCCESSFUL OUTCOME PathSwitchRequestFailure

 PROCEDURE CODE id-PathSwitchRequest

 CRITICALITY reject

}

pDUSessionResourceModify NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE PDUSessionResourceModifyRequest

 SUCCESSFUL OUTCOME PDUSessionResourceModifyResponse

 PROCEDURE CODE id-PDUSessionResourceModify

 CRITICALITY reject

}

pDUSessionResourceModifyIndication NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE PDUSessionResourceModifyIndication

 SUCCESSFUL OUTCOME PDUSessionResourceModifyConfirm

 PROCEDURE CODE id-PDUSessionResourceModifyIndication

 CRITICALITY reject

}

pDUSessionResourceNotify NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE PDUSessionResourceNotify

 PROCEDURE CODE id-PDUSessionResourceNotify

 CRITICALITY ignore

}

pDUSessionResourceRelease NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE PDUSessionResourceReleaseCommand

 SUCCESSFUL OUTCOME PDUSessionResourceReleaseResponse

 PROCEDURE CODE id-PDUSessionResourceRelease

 CRITICALITY reject

}

pDUSessionResourceSetup NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE PDUSessionResourceSetupRequest

 SUCCESSFUL OUTCOME PDUSessionResourceSetupResponse

 PROCEDURE CODE id-PDUSessionResourceSetup

 CRITICALITY reject

}

privateMessage NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE PrivateMessage

 PROCEDURE CODE id-PrivateMessage

 CRITICALITY ignore

}

pWSCancel NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE PWSCancelRequest

 SUCCESSFUL OUTCOME PWSCancelResponse

 PROCEDURE CODE id-PWSCancel

 CRITICALITY reject

}

pWSFailureIndication NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE PWSFailureIndication

 PROCEDURE CODE id-PWSFailureIndication

 CRITICALITY ignore

}

pWSRestartIndication NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE PWSRestartIndication

 PROCEDURE CODE id-PWSRestartIndication

 CRITICALITY ignore

}

rANConfigurationUpdate NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE RANConfigurationUpdate

 SUCCESSFUL OUTCOME RANConfigurationUpdateAcknowledge

 UNSUCCESSFUL OUTCOME RANConfigurationUpdateFailure

 PROCEDURE CODE id-RANConfigurationUpdate

 CRITICALITY reject

}

rerouteNASRequest NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE RerouteNASRequest

 PROCEDURE CODE id-RerouteNASRequest

 CRITICALITY reject

}

rRCInactiveTransitionReport NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE RRCInactiveTransitionReport

 PROCEDURE CODE id-RRCInactiveTransitionReport

 CRITICALITY ignore

}

secondaryRATDataUsageReport NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SecondaryRATDataUsageReport

 PROCEDURE CODE id-SecondaryRATDataUsageReport

 CRITICALITY ignore

}

traceFailureIndication NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE TraceFailureIndication

 PROCEDURE CODE id-TraceFailureIndication

 CRITICALITY ignore

}

traceStart NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE TraceStart

 PROCEDURE CODE id-TraceStart

 CRITICALITY ignore

}

uEContextModification NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UEContextModificationRequest

 SUCCESSFUL OUTCOME UEContextModificationResponse

 UNSUCCESSFUL OUTCOME UEContextModificationFailure

 PROCEDURE CODE id-UEContextModification

 CRITICALITY reject

}

uEContextRelease NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UEContextReleaseCommand

 SUCCESSFUL OUTCOME UEContextReleaseComplete

 PROCEDURE CODE id-UEContextRelease

 CRITICALITY reject

}

uEContextReleaseRequest NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UEContextReleaseRequest

 PROCEDURE CODE id-UEContextReleaseRequest

 CRITICALITY ignore

}

uERadioCapabilityCheck NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UERadioCapabilityCheckRequest

 SUCCESSFUL OUTCOME UERadioCapabilityCheckResponse

 PROCEDURE CODE id-UERadioCapabilityCheck

 CRITICALITY reject

}

uERadioCapabilityInfoIndication NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UERadioCapabilityInfoIndication

 PROCEDURE CODE id-UERadioCapabilityInfoIndication

 CRITICALITY ignore

}

uETNLABindingRelease NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UETNLABindingReleaseRequest

 PROCEDURE CODE id-UETNLABindingRelease

 CRITICALITY ignore

}

uplinkNASTransport NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UplinkNASTransport

 PROCEDURE CODE id-UplinkNASTransport

 CRITICALITY ignore

}

uplinkNonUEAssociatedNRPPaTransport NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UplinkNonUEAssociatedNRPPaTransport

 PROCEDURE CODE id-UplinkNonUEAssociatedNRPPaTransport

 CRITICALITY ignore

}

uplinkRANConfigurationTransfer NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UplinkRANConfigurationTransfer

 PROCEDURE CODE id-UplinkRANConfigurationTransfer

 CRITICALITY ignore

}

uplinkRANStatusTransfer NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UplinkRANStatusTransfer

 PROCEDURE CODE id-UplinkRANStatusTransfer

 CRITICALITY ignore

}

uplinkUEAssociatedNRPPaTransport NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UplinkUEAssociatedNRPPaTransport

 PROCEDURE CODE id-UplinkUEAssociatedNRPPaTransport

 CRITICALITY ignore

}

writeReplaceWarning NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE WriteReplaceWarningRequest

 SUCCESSFUL OUTCOME WriteReplaceWarningResponse

 PROCEDURE CODE id-WriteReplaceWarning

 CRITICALITY reject

}

uplinkRIMInformationTransfer NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UplinkRIMInformationTransfer

 PROCEDURE CODE id-UplinkRIMInformationTransfer

 CRITICALITY ignore

}

downlinkRIMInformationTransfer NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE DownlinkRIMInformationTransfer

 PROCEDURE CODE id-DownlinkRIMInformationTransfer

 CRITICALITY ignore

}

handoverSuccess NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE HandoverSuccess

 PROCEDURE CODE id-HandoverSuccess

 CRITICALITY ignore

}

uplinkRANEarlyStatusTransfer NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UplinkRANEarlyStatusTransfer

 PROCEDURE CODE id-UplinkRANEarlyStatusTransfer

 CRITICALITY reject

}

downlinkRANEarlyStatusTransfer NGAP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE DownlinkRANEarlyStatusTransfer

 PROCEDURE CODE id-DownlinkRANEarlyStatusTransfer

 CRITICALITY ignore

}

END

-- ASN1STOP

9.4.4 PDU Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- PDU definitions for NGAP.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NGAP-PDU-Contents {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-Access (22) modules (3) ngap (1) version1 (1) ngap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IE parameter types from other modules.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IMPORTS

 AllowedNSSAI,

 AMFName,

 AMFSetID,

 AMF-TNLAssociationSetupList,

 AMF-TNLAssociationToAddList,

 AMF-TNLAssociationToRemoveList,

 AMF-TNLAssociationToUpdateList,

 AMF-UE-NGAP-ID,

 AssistanceDataForPaging,

 BroadcastCancelledAreaList,

 BroadcastCompletedAreaList,

 CancelAllWarningMessages,

 Cause,

 CellIDListForRestart,

 CNAssistedRANTuning,

 ConcurrentWarningMessageInd,

 CoreNetworkAssistanceInformationForInactive,

 CPTransportLayerInformation,

 CriticalityDiagnostics,

 DataCodingScheme,

 DirectForwardingPathAvailability,

 EmergencyAreaIDListForRestart,

 EmergencyFallbackIndicator,

 EN-DCSONConfigurationTransfer,

 EUTRA-CGI,

 FiveG-S-TMSI,

 GlobalRANNodeID,

 GUAMI,

 HandoverFlag,

 HandoverType,

 IMSVoiceSupportIndicator,

 IndexToRFSP,

 InfoOnRecommendedCellsAndRANNodesForPaging,

 LAI,

 LocationReportingRequestType,

 MaskedIMEISV,

 MessageIdentifier,

 MobilityRestrictionList,

 NAS-PDU,

 NASSecurityParametersFromNGRAN,

 NewSecurityContextInd,

 NGRAN-CGI,

 NGRAN-TNLAssociationToRemoveList,

 NGRANTraceID,

 NotifySourceNGRANNode,

 NR-CGI,

 NRPPa-PDU,

 NumberOfBroadcastsRequested,

 OverloadResponse,

 OverloadStartNSSAIList,

 PagingDRX,

 PagingOrigin,

 PagingPriority,

 PDUSessionAggregateMaximumBitRate,

 PDUSessionResourceAdmittedList,

 PDUSessionResourceFailedToModifyListModCfm,

 PDUSessionResourceFailedToModifyListModRes,

 PDUSessionResourceFailedToSetupListCxtFail,

 PDUSessionResourceFailedToSetupListCxtRes,

 PDUSessionResourceFailedToSetupListHOAck,

 PDUSessionResourceFailedToSetupListPSReq,

 PDUSessionResourceFailedToSetupListSURes,

 PDUSessionResourceHandoverList,

 PDUSessionResourceListCxtRelCpl,

 PDUSessionResourceListCxtRelReq,

 PDUSessionResourceListHORqd,

 PDUSessionResourceModifyListModCfm,

 PDUSessionResourceModifyListModInd,

 PDUSessionResourceModifyListModReq,

 PDUSessionResourceModifyListModRes,

 PDUSessionResourceNotifyList,

 PDUSessionResourceReleasedListNot,

 PDUSessionResourceReleasedListPSAck,

 PDUSessionResourceReleasedListPSFail,

 PDUSessionResourceReleasedListRelRes,

 PDUSessionResourceSecondaryRATUsageList,

 PDUSessionResourceSetupListCxtReq,

 PDUSessionResourceSetupListCxtRes,

 PDUSessionResourceSetupListHOReq,

 PDUSessionResourceSetupListSUReq,

 PDUSessionResourceSetupListSURes,

 PDUSessionResourceSwitchedList,

 PDUSessionResourceToBeSwitchedDLList,

 PDUSessionResourceToReleaseListHOCmd,

 PDUSessionResourceToReleaseListRelCmd,

 PLMNSupportList,

 PWSFailedCellIDList,

 RANNodeName,

 RANPagingPriority,

 RANStatusTransfer-TransparentContainer,

 RAN-UE-NGAP-ID,

 RedirectionVoiceFallback,

 RelativeAMFCapacity,

 RepetitionPeriod,

 ResetType,

 RoutingID,

 RRCEstablishmentCause,

 RRCInactiveTransitionReportRequest,

 RRCState,

 SecurityContext,

 SecurityKey,

 SerialNumber,

 ServedGUAMIList,

 SliceSupportList,

 S-NSSAI,

 SONConfigurationTransfer,

 SourceToTarget-TransparentContainer,

 SourceToTarget-AMFInformationReroute,

 SRVCCOperationPossible,

 SupportedTAList,

 TAIListForPaging,

 TAIListForRestart,

 TargetID,

 TargetToSource-TransparentContainer,

 TimeToWait,

 TNLAssociationList,

 TraceActivation,

 TrafficLoadReductionIndication,

 TransportLayerAddress,

 UEAggregateMaximumBitRate,

 UE-associatedLogicalNG-connectionList,

 UEContextRequest,

 UE-NGAP-IDs,

 UEPagingIdentity,

 UEPresenceInAreaOfInterestList,

 UERadioCapability,

 UERadioCapabilityForPaging,

 UERetentionInformation,

 UESecurityCapabilities,

 UnavailableGUAMIList,

 UserLocationInformation,

 WarningAreaCoordinates,

 WarningAreaList,

 WarningMessageContents,

 WarningSecurityInfo,

 WarningType,

 RIMInformationTransfer

 EarlyStatusTransfer-TransparentContainer

FROM NGAP-IEs

 PrivateIE-Container{},

 ProtocolExtensionContainer{},

 ProtocolIE-Container{},

 ProtocolIE-ContainerList{},

 ProtocolIE-ContainerPair{},

 ProtocolIE-SingleContainer{},

 NGAP-PRIVATE-IES,

 NGAP-PROTOCOL-EXTENSION,

 NGAP-PROTOCOL-IES,

 NGAP-PROTOCOL-IES-PAIR

FROM NGAP-Containers

 id-AllowedNSSAI,

 id-AMFName,

 id-AMFOverloadResponse,

 id-AMFSetID,

 id-AMF-TNLAssociationFailedToSetupList,

 id-AMF-TNLAssociationSetupList,

 id-AMF-TNLAssociationToAddList,

 id-AMF-TNLAssociationToRemoveList,

 id-AMF-TNLAssociationToUpdateList,

 id-AMFTrafficLoadReductionIndication,

 id-AMF-UE-NGAP-ID,

 id-AssistanceDataForPaging,

 id-BroadcastCancelledAreaList,

 id-BroadcastCompletedAreaList,

 id-CancelAllWarningMessages,

 id-Cause,

 id-CellIDListForRestart,

 id-CNAssistedRANTuning,

 id-ConcurrentWarningMessageInd,

 id-CoreNetworkAssistanceInformationForInactive,

 id-CriticalityDiagnostics,

 id-DataCodingScheme,

 id-DefaultPagingDRX,

 id-DirectForwardingPathAvailability,

 id-EmergencyAreaIDListForRestart,

 id-EmergencyFallbackIndicator,

 id-ENDC-SONConfigurationTransferDL,

 id-ENDC-SONConfigurationTransferUL,

 id-EUTRA-CGI,

 id-FiveG-S-TMSI,

 id-GlobalRANNodeID,

 id-GUAMI,

 id-HandoverFlag,

 id-HandoverType,

 id-IMSVoiceSupportIndicator,

 id-IndexToRFSP,

 id-InfoOnRecommendedCellsAndRANNodesForPaging,

 id-LocationReportingRequestType,

 id-MaskedIMEISV,

 id-MessageIdentifier,

 id-MobilityRestrictionList,

 id-NAS-PDU,

 id-NASC,

 id-NASSecurityParametersFromNGRAN,

 id-NewAMF-UE-NGAP-ID,

 id-NewGUAMI,

 id-NewSecurityContextInd,

 id-NGAP-Message,

 id-NGRAN-CGI,

 id-NGRAN-TNLAssociationToRemoveList,

 id-NGRANTraceID,

 id-NotifySourceNGRANNode,

 id-NR-CGI,

 id-NRPPa-PDU,

 id-NumberOfBroadcastsRequested,

 id-OldAMF,

 id-OverloadStartNSSAIList,

 id-PagingDRX,

 id-PagingOrigin,

 id-PagingPriority,

 id-PDUSessionResourceAdmittedList,

 id-PDUSessionResourceFailedToModifyListModCfm,

 id-PDUSessionResourceFailedToModifyListModRes,

 id-PDUSessionResourceFailedToSetupListCxtFail,

 id-PDUSessionResourceFailedToSetupListCxtRes,

 id-PDUSessionResourceFailedToSetupListHOAck,

 id-PDUSessionResourceFailedToSetupListPSReq,

 id-PDUSessionResourceFailedToSetupListSURes,

 id-PDUSessionResourceHandoverList,

 id-PDUSessionResourceListCxtRelCpl,

 id-PDUSessionResourceListCxtRelReq,

 id-PDUSessionResourceListHORqd,

 id-PDUSessionResourceModifyListModCfm,

 id-PDUSessionResourceModifyListModInd,

 id-PDUSessionResourceModifyListModReq,

 id-PDUSessionResourceModifyListModRes,

 id-PDUSessionResourceNotifyList,

 id-PDUSessionResourceReleasedListNot,

 id-PDUSessionResourceReleasedListPSAck,

 id-PDUSessionResourceReleasedListPSFail,

 id-PDUSessionResourceReleasedListRelRes,

 id-PDUSessionResourceSecondaryRATUsageList,

 id-PDUSessionResourceSetupListCxtReq,

 id-PDUSessionResourceSetupListCxtRes,

 id-PDUSessionResourceSetupListHOReq,

 id-PDUSessionResourceSetupListSUReq,

 id-PDUSessionResourceSetupListSURes,

 id-PDUSessionResourceSwitchedList,

 id-PDUSessionResourceToBeSwitchedDLList,

 id-PDUSessionResourceToReleaseListHOCmd,

 id-PDUSessionResourceToReleaseListRelCmd,

 id-PLMNSupportList,

 id-PWSFailedCellIDList,

 id-RANNodeName,

 id-RANPagingPriority,

 id-RANStatusTransfer-TransparentContainer,

 id-RAN-UE-NGAP-ID,

 id-RedirectionVoiceFallback,

 id-RelativeAMFCapacity,

 id-RepetitionPeriod,

 id-ResetType,

 id-RoutingID,

 id-RRCEstablishmentCause,

 id-RRCInactiveTransitionReportRequest,

 id-RRCState,

 id-SecurityContext,

 id-SecurityKey,

 id-SerialNumber,

 id-ServedGUAMIList,

 id-SliceSupportList,

 id-SONConfigurationTransferDL,

 id-SONConfigurationTransferUL,

 id-SourceAMF-UE-NGAP-ID,

 id-SourceToTarget-TransparentContainer,

 id-SourceToTarget-AMFInformationReroute,

 id-SRVCCOperationPossible,

 id-SupportedTAList,

 id-TAIListForPaging,

 id-TAIListForRestart,

 id-TargetID,

 id-TargetToSource-TransparentContainer,

 id-TimeToWait,

 id-TraceActivation,

 id-TraceCollectionEntityIPAddress,

 id-UEAggregateMaximumBitRate,

 id-UE-associatedLogicalNG-connectionList,

 id-UEContextRequest,

 id-UE-NGAP-IDs,

 id-UEPagingIdentity,

 id-UEPresenceInAreaOfInterestList,

 id-UERadioCapability,

 id-UERadioCapabilityForPaging,

 id-UERetentionInformation,

 id-UESecurityCapabilities,

 id-UnavailableGUAMIList,

 id-UserLocationInformation,

 id-WarningAreaCoordinates,

 id-WarningAreaList,

 id-WarningMessageContents,

 id-WarningSecurityInfo,

 id-WarningType,

 id-RIMInformationTransfer

 id-EarlyStatusTransfer-TransparentContainer

FROM NGAP-Constants;

///////////////////////////////////////////////////////////////////////unchange skiped /////////////////////////////////////////////////////////////////////

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Handover Notification Elementary Procedure

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- HANDOVER NOTIFY

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

HandoverNotify ::= SEQUENCE {

 protocolIEs ProtocolIE-Container { { HandoverNotifyIEs} },

 ...

}

HandoverNotifyIEs NGAP-PROTOCOL-IES ::= {

 { ID id-AMF-UE-NGAP-ID CRITICALITY reject TYPE AMF-UE-NGAP-ID PRESENCE mandatory }|

 { ID id-RAN-UE-NGAP-ID CRITICALITY reject TYPE RAN-UE-NGAP-ID PRESENCE mandatory }|

 { ID id-UserLocationInformation CRITICALITY ignore TYPE UserLocationInformation PRESENCE mandatory }|

 { ID id-NotifySourceNGRANNode CRITICALITY ignore TYPE NotifySourceNGRANNode PRESENCE optional},

...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Handover Cancellation Elementary Procedure

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- HANDOVER CANCEL

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

HandoverCancel ::= SEQUENCE {

 protocolIEs ProtocolIE-Container { { HandoverCancelIEs} },

 ...

}

HandoverCancelIEs NGAP-PROTOCOL-IES ::= {

 { ID id-AMF-UE-NGAP-ID CRITICALITY reject TYPE AMF-UE-NGAP-ID PRESENCE mandatory }|

 { ID id-RAN-UE-NGAP-ID CRITICALITY reject TYPE RAN-UE-NGAP-ID PRESENCE mandatory }|

 { ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory },

 ...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- HANDOVER CANCEL ACKNOWLEDGE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

HandoverCancelAcknowledge ::= SEQUENCE {

 protocolIEs ProtocolIE-Container { { HandoverCancelAcknowledgeIEs} },

 ...

}

HandoverCancelAcknowledgeIEs NGAP-PROTOCOL-IES ::= {

 { ID id-AMF-UE-NGAP-ID CRITICALITY ignore TYPE AMF-UE-NGAP-ID PRESENCE mandatory }|

 { ID id-RAN-UE-NGAP-ID CRITICALITY ignore TYPE RAN-UE-NGAP-ID PRESENCE mandatory }|

 { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional },

 ...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- HANDOVER SUCCESS ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- HANDOVER SUCCESS

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

HandoverSuccess ::= SEQUENCE {

 protocolIEs ProtocolIE-Container { { HandoverSuccessIEs} },

 ...

}

HandoverSuccessIEs S1AP-PROTOCOL-IES ::= {

 { ID id-AMF-UE-NGAP-ID CRITICALITY reject TYPE AMF-UE-NGAP-ID PRESENCE mandatory }|

 { ID id-RAN-UE-NGAP-ID CRITICALITY reject TYPE RAN-UE-NGAP-ID PRESENCE mandatory },

 ...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- UPLINK RAN EARLY STATUS TRANSFER ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Uplink RAN Early Status Transfer

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

UplinkRANEarlyStatusTransfer ::= SEQUENCE {

 protocolIEs ProtocolIE-Container { {UplinkRANEarlyStatusTransferIEs} },

 ...

}

UplinkRANEarlyStatusTransferIEs NGAP-PROTOCOL-IES ::= {

 { ID id-AMF-UE-NGAP-ID CRITICALITY reject TYPE AMF-UE-NGAP-ID PRESENCE mandatory}|

 { ID id-RAN-UE-NGAP-ID CRITICALITY reject TYPE RAN-UE-NGAP-ID PRESENCE mandatory}|

 { ID id-EarlyStatusTransfer-TransparentContainer CRITICALITY reject TYPE EarlyStatusTransfer-TransparentContainer PRESENCE mandatory},

 ...

}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- DOWNLINK RAN EARLY STATUS TRANSFER ELEMENTARY PROCEDURE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Downlink RAN Early Status Transfer

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

DownlinkRANEarlyStatusTransfer ::= SEQUENCE {

 protocolIEs ProtocolIE-Container { {DownlinkRANEarlyStatusTransferIEs} },

 ...

}

DownlinkRANEarlyStatusTransferIEs NGAP-PROTOCOL-IES ::= {

 { ID id-AMF-UE-NGAP-ID CRITICALITY reject TYPE AMF-UE-NGAP-ID PRESENCE mandatory}|

 { ID id-RAN-UE-NGAP-ID CRITICALITY reject TYPE RAN-UE-NGAP-ID PRESENCE mandatory}|

 { ID id-EarlyStatusTransfer-TransparentContainer CRITICALITY reject TYPE EarlyStatusTransfer-TransparentContainer PRESENCE mandatory},

 ...

}

### 9.4.5 Information Element Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Information Element Definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NGAP-IEs {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-Access (22) modules (3) ngap (1) version1 (1) ngap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

 id-AdditionalDLForwardingUPTNLInformation,

 id-AdditionalULForwardingUPTNLInformation,

 id-AdditionalDLQosFlowPerTNLInformation,

 id-AdditionalDLUPTNLInformationForHOList,

 id-AdditionalNGU-UP-TNLInformation,

 id-AdditionalUL-NGU-UP-TNLInformation,

 id-Cause,

 id-CNTypeRestrictionsForEquivalent,

 id-CNTypeRestrictionsForServing,

 id-CommonNetworkInstance,

 id-DataForwardingNotPossible,

 id-DataForwardingResponseERABList,

 id-DirectForwardingPathAvailability,

 id-DL-NGU-UP-TNLInformation,

 id-EndpointIPAddressAndPort,

 id-ExtendedRATRestrictionInformation,

 id-GUAMIType,

 id-LastEUTRAN-PLMNIdentity,

 id-LocationReportingAdditionalInfo,

 id-MaximumIntegrityProtectedDataRate-DL,

 id-NetworkInstance,

 id-OldAssociatedQosFlowList-ULendmarkerexpected,

 id-PDUSessionAggregateMaximumBitRate,

 id-PDUSessionResourceFailedToSetupListCxtFail,

 id-PDUSessionResourceReleaseResponseTransfer,

 id-PDUSessionType,

 id-PSCellInformation,

 id-QosFlowAddOrModifyRequestList,

 id-QosFlowSetupRequestList,

 id-QosFlowToReleaseList,

 id-QosMonitoringRequest,

 id-RAT-Information,

 id-SCTP-TLAs,

 id-SecondaryRATUsageInformation,

 id-SecurityIndication,

 id-SecurityResult,

 id-SgNB-UE-X2AP-ID,

 id-S-NSSAI,

 id-TNLAssociationTransportLayerAddressNGRAN,

 id-TargetRNC-ID,

 id-UL-NGU-UP-TNLInformation,

 id-UL-NGU-UP-TNLModifyList,

 id-ULForwarding,

 id-ULForwardingUP-TNLInformation,

 id-DAPSRequestInfo,

 id-DAPSResponseInfoList,

 maxnoofAllowedAreas,

 maxnoofAllowedS-NSSAIs,

 maxnoofBPLMNs,

 maxnoofCellIDforWarning,

 maxnoofCellinAoI,

 maxnoofCellinEAI,

 maxnoofCellsingNB,

 maxnoofCellsinngeNB,

 maxnoofCellinTAI,

 maxnoofCellsinUEHistoryInfo,

 maxnoofCellsUEMovingTrajectory,

 maxnoofDRBs,

 maxnoofEmergencyAreaID,

 maxnoofEAIforRestart,

 maxnoofEPLMNs,

 maxnoofEPLMNsPlusOne,

 maxnoofE-RABs,

 maxnoofErrors,

 maxnoofForbTACs,

 maxnoofMultiConnectivity,

 maxnoofMultiConnectivityMinusOne,

 maxnoofNGConnectionsToReset,

 maxnoofPDUSessions,

 maxnoofPLMNs,

 maxnoofQosFlows,

 maxnoofRANNodeinAoI,

 maxnoofRecommendedCells,

 maxnoofRecommendedRANNodes,

 maxnoofAoI,

 maxnoofServedGUAMIs,

 maxnoofSliceItems,

 maxnoofTACs,

 maxnoofTAIforInactive,

 maxnoofTAIforPaging,

 maxnoofTAIforRestart,

 maxnoofTAIforWarning,

 maxnoofTAIinAoI,

 maxnoofTimePeriods,

 maxnoofTNLAssociations,

 maxnoofXnExtTLAs,

 maxnoofXnGTP-TLAs,

 maxnoofXnTLAs

FROM NGAP-Constants

///////////////////////////////////////////////////////////////////////unchange skiped /////////////////////////////////////////////////////////////////////

-- D

DataCodingScheme ::= BIT STRING (SIZE(8))

DataForwardingAccepted ::= ENUMERATED {

 data-forwarding-accepted,

 ...

}

DataForwardingNotPossible ::= ENUMERATED {

 data-forwarding-not-possible,

 ...

}

DataForwardingResponseDRBList ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF DataForwardingResponseDRBItem

DataForwardingResponseDRBItem ::= SEQUENCE {

 dRB-ID DRB-ID,

 dLForwardingUP-TNLInformation UPTransportLayerInformation OPTIONAL,

 uLForwardingUP-TNLInformation UPTransportLayerInformation OPTIONAL,

 iE-Extensions ProtocolExtensionContainer {{DataForwardingResponseDRBItem-ExtIEs}} OPTIONAL,

 ...

}

DataForwardingResponseDRBItem-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

DAPSRequestInfo ::= SEQUENCE {

 DAPSIndicator ENUMERATED {DAPS-HO-required, ...},

 iE-Extensions ProtocolExtensionContainer { {DAPSRequestInfo-ExtIEs} } OPTIONAL,

 ...

}

DAPSRequestInfo-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

DAPSResponseInfoList ::= SEQUENCE (SIZE(1.. maxnoofDRBs)) OF DAPSResponseInfoItem

DAPSResponseInfoItem ::= SEQUENCE {

 dRB-ID DRB-ID,

 dAPSResponseInfo DAPSResponseInfo,

 iE-Extension ProtocolExtensionContainer { {DAPSResponseInfoItem-ExtIEs} } OPTIONAL,

 ...

}

DAPSResponseInfoItem-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

DAPSResponseInfo ::= SEQUENCE {

 dapsresponseindicator ENUMERATED {DAPS-HO-accepted,DAPS-HO-not-accepted,...},

 iE-Extensions ProtocolExtensionContainer { { DAPSResponseInfo-ExtIEs} } OPTIONAL,

 ...

}

DAPSResponseInfo-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

DelayCritical ::= ENUMERATED {

 delay-critical,

 non-delay-critical,

 ...

}

DLForwarding ::= ENUMERATED {

 dl-forwarding-proposed,

 ...

}

DL-NGU-TNLInformationReused ::= ENUMERATED {

 true,

 ...

}

DirectForwardingPathAvailability ::= ENUMERATED {

 direct-path-available,

 ...

}

DRB-ID ::= INTEGER (1..32, ...)

DRBsSubjectToStatusTransferList ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF DRBsSubjectToStatusTransferItem

DRBsSubjectToStatusTransferItem ::= SEQUENCE {

 dRB-ID DRB-ID,

 dRBStatusUL DRBStatusUL,

 dRBStatusDL DRBStatusDL,

 iE-Extension ProtocolExtensionContainer { {DRBsSubjectToStatusTransferItem-ExtIEs} } OPTIONAL,

 ...

}

DRBsSubjectToStatusTransferItem-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 { ID id-OldAssociatedQosFlowList-ULendmarkerexpected CRITICALITY reject EXTENSION AssociatedQosFlowList PRESENCE optional },

 ...

}

DRBStatusDL ::= CHOICE {

 dRBStatusDL12 DRBStatusDL12,

 dRBStatusDL18 DRBStatusDL18,

 choice-Extensions ProtocolIE-SingleContainer { {DRBStatusDL-ExtIEs} }

}

DRBStatusDL-ExtIEs NGAP-PROTOCOL-IES ::= {

 ...

}

DRBStatusDL12 ::= SEQUENCE {

 dL-COUNTValue COUNTValueForPDCP-SN12,

 iE-Extension ProtocolExtensionContainer { {DRBStatusDL12-ExtIEs} } OPTIONAL,

 ...

}

DRBStatusDL12-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

DRBStatusDL18 ::= SEQUENCE {

 dL-COUNTValue COUNTValueForPDCP-SN18,

 iE-Extension ProtocolExtensionContainer { {DRBStatusDL18-ExtIEs} } OPTIONAL,

 ...

}

DRBStatusDL18-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

DRBStatusUL ::= CHOICE {

 dRBStatusUL12 DRBStatusUL12,

 dRBStatusUL18 DRBStatusUL18,

 choice-Extensions ProtocolIE-SingleContainer { {DRBStatusUL-ExtIEs} }

}

DRBStatusUL-ExtIEs NGAP-PROTOCOL-IES ::= {

 ...

}

DRBStatusUL12 ::= SEQUENCE {

 uL-COUNTValue COUNTValueForPDCP-SN12,

 receiveStatusOfUL-PDCP-SDUs BIT STRING (SIZE(1..2048)) OPTIONAL,

 iE-Extension ProtocolExtensionContainer { {DRBStatusUL12-ExtIEs} } OPTIONAL,

 ...

}

DRBStatusUL12-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

DRBStatusUL18 ::= SEQUENCE {

 uL-COUNTValue COUNTValueForPDCP-SN18,

 receiveStatusOfUL-PDCP-SDUs BIT STRING (SIZE(1..131072)) OPTIONAL,

 iE-Extension ProtocolExtensionContainer { {DRBStatusUL18-ExtIEs} } OPTIONAL,

 ...

}

DRBStatusUL18-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

DRBsToQosFlowsMappingList ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF DRBsToQosFlowsMappingItem

DRBsToQosFlowsMappingItem ::= SEQUENCE {

 dRB-ID DRB-ID,

 associatedQosFlowList AssociatedQosFlowList,

 iE-Extensions ProtocolExtensionContainer { {DRBsToQosFlowsMappingItem-ExtIEs} } OPTIONAL,

 ...

}

DRBsToQosFlowsMappingItem-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 { ID id-DAPSRequestInfo CRITICALITY ignore EXTENSION DAPSRequestInfo PRESENCE optional },

 ...

}

Dynamic5QIDescriptor ::= SEQUENCE {

 priorityLevelQos PriorityLevelQos,

 packetDelayBudget PacketDelayBudget,

 packetErrorRate PacketErrorRate,

 fiveQI FiveQI OPTIONAL,

 delayCritical DelayCritical OPTIONAL,

-- The above IE shall be present in case of GBR QoS flow

 averagingWindow AveragingWindow OPTIONAL,

-- The above IE shall be present in case of GBR QoS flow

 maximumDataBurstVolume MaximumDataBurstVolume OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {Dynamic5QIDescriptor-ExtIEs} } OPTIONAL,

 ...

}

Dynamic5QIDescriptor-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

//////////////////////////////////////////////////////////////// unchange skiped /////////////////////////////////////////////////////////////////

-- E

//////////////////////////////////////////////////////////////// unchange skiped /////////////////////////////////////////////////////////////////

EarlyStatusTransfer-TransparentContainer ::= SEQUENCE {

 procedureStage CRITICALITY reject ProcedureStageChoice,

 iE-Extensions ProtocolExtensionContainer { {EarlyStatusTransfer-TransparentContainer-ExtIEs} } OPTIONAL,

 ...

}

EarlyStatusTransfer-TransparentContainer-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

ProcedureStageChoice ::= CHOICE {

 first-dl-count FirstDLCount,

 choice-extension ProtocolIE-Single-Container { {ProcedureStageChoice-ExtIEs} }

}

ProcedureStageChoice-ExtIEs NGAP-PROTOCOL-IES ::= {

 ...

}

FirstDLCount ::= SEQUENCE {

 dRBsSubjectToEarlyStatusTransfer CRITICALITY ignore DRBsSubjectToEarlyStatusTransfer-List,

 iE-Extension ProtocolExtensionContainer { {FirstDLCount-ExtIEs} } OPTIONAL,

 ...

}

FirstDLCount-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

DRBsSubjectToEarlyStatusTransfer-List ::= SEQUENCE (SIZE (1.. maxnoofDRBs)) OF DRBsSubjectToEarlyStatusTransfer-Item

DRBsSubjectToEarlyStatusTransfer-Item ::= SEQUENCE {

 dRB-ID DRB-ID,

 firstDLCOUNT DRBStatusDL,

 iE-Extension ProtocolExtensionContainer { { DRBsSubjectToEarlyStatusTransfer-Item-ExtIEs} } OPTIONAL,

 ...

}

DRBsSubjectToEarlyStatusTransfer-Item-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

EmergencyAreaID ::= OCTET STRING (SIZE(3))

EmergencyAreaIDBroadcastEUTRA ::= SEQUENCE (SIZE(1..maxnoofEmergencyAreaID)) OF EmergencyAreaIDBroadcastEUTRA-Item

EmergencyAreaIDBroadcastEUTRA-Item ::= SEQUENCE {

 emergencyAreaID EmergencyAreaID,

 completedCellsInEAI-EUTRA CompletedCellsInEAI-EUTRA,

 iE-Extensions ProtocolExtensionContainer { {EmergencyAreaIDBroadcastEUTRA-Item-ExtIEs} } OPTIONAL,

 ...

}

EmergencyAreaIDBroadcastEUTRA-Item-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

EmergencyAreaIDBroadcastNR ::= SEQUENCE (SIZE(1..maxnoofEmergencyAreaID)) OF EmergencyAreaIDBroadcastNR-Item

EmergencyAreaIDBroadcastNR-Item ::= SEQUENCE {

 emergencyAreaID EmergencyAreaID,

 completedCellsInEAI-NR CompletedCellsInEAI-NR,

 iE-Extensions ProtocolExtensionContainer { {EmergencyAreaIDBroadcastNR-Item-ExtIEs} } OPTIONAL,

 ...

}

EmergencyAreaIDBroadcastNR-Item-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

EmergencyAreaIDCancelledEUTRA ::= SEQUENCE (SIZE(1..maxnoofEmergencyAreaID)) OF EmergencyAreaIDCancelledEUTRA-Item

EmergencyAreaIDCancelledEUTRA-Item ::= SEQUENCE {

 emergencyAreaID EmergencyAreaID,

 cancelledCellsInEAI-EUTRA CancelledCellsInEAI-EUTRA,

 iE-Extensions ProtocolExtensionContainer { {EmergencyAreaIDCancelledEUTRA-Item-ExtIEs} } OPTIONAL,

 ...

}

EmergencyAreaIDCancelledEUTRA-Item-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

EmergencyAreaIDCancelledNR ::= SEQUENCE (SIZE(1..maxnoofEmergencyAreaID)) OF EmergencyAreaIDCancelledNR-Item

EmergencyAreaIDCancelledNR-Item ::= SEQUENCE {

 emergencyAreaID EmergencyAreaID,

 cancelledCellsInEAI-NR CancelledCellsInEAI-NR,

 iE-Extensions ProtocolExtensionContainer { {EmergencyAreaIDCancelledNR-Item-ExtIEs} } OPTIONAL,

 ...

}

EmergencyAreaIDCancelledNR-Item-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

EmergencyAreaIDList ::= SEQUENCE (SIZE(1..maxnoofEmergencyAreaID)) OF EmergencyAreaID

EmergencyAreaIDListForRestart ::= SEQUENCE (SIZE(1..maxnoofEAIforRestart)) OF EmergencyAreaID

EmergencyFallbackIndicator ::= SEQUENCE {

 emergencyFallbackRequestIndicator EmergencyFallbackRequestIndicator,

 emergencyServiceTargetCN EmergencyServiceTargetCN OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {EmergencyFallbackIndicator-ExtIEs} } OPTIONAL,

 ...

}

EmergencyFallbackIndicator-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

EmergencyFallbackRequestIndicator ::= ENUMERATED {

 emergency-fallback-requested,

 ...

}

EmergencyServiceTargetCN ::= ENUMERATED {

 fiveGC,

 epc,

 ...

}

EN-DCSONConfigurationTransfer ::= OCTET STRING

EndpointIPAddressAndPort ::=SEQUENCE {

 endpointIPAddress TransportLayerAddress,

 portNumber PortNumber,

 iE-Extensions ProtocolExtensionContainer { { EndpointIPAddressAndPort-ExtIEs} } OPTIONAL

}

EndpointIPAddressAndPort-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

EquivalentPLMNs ::= SEQUENCE (SIZE(1..maxnoofEPLMNs)) OF PLMNIdentity

EPS-TAC ::= OCTET STRING (SIZE(2))

EPS-TAI ::= SEQUENCE {

 pLMNIdentity PLMNIdentity,

 ePS-TAC EPS-TAC,

 iE-Extensions ProtocolExtensionContainer { {EPS-TAI-ExtIEs} } OPTIONAL,

 ...

}

EPS-TAI-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

E-RAB-ID ::= INTEGER (0..15, ...)

E-RABInformationList ::= SEQUENCE (SIZE(1..maxnoofE-RABs)) OF E-RABInformationItem

E-RABInformationItem ::= SEQUENCE {

 e-RAB-ID E-RAB-ID,

 dLForwarding DLForwarding OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {E-RABInformationItem-ExtIEs} } OPTIONAL,

 ...

}

E-RABInformationItem-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

EUTRACellIdentity ::= BIT STRING (SIZE(28))

EUTRA-CGI ::= SEQUENCE {

 pLMNIdentity PLMNIdentity,

 eUTRACellIdentity EUTRACellIdentity,

 iE-Extensions ProtocolExtensionContainer { {EUTRA-CGI-ExtIEs} } OPTIONAL,

 ...

}

EUTRA-CGI-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

EUTRA-CGIList ::= SEQUENCE (SIZE(1..maxnoofCellsinngeNB)) OF EUTRA-CGI

EUTRA-CGIListForWarning ::= SEQUENCE (SIZE(1..maxnoofCellIDforWarning)) OF EUTRA-CGI

EUTRAencryptionAlgorithms ::= BIT STRING (SIZE(16, ...))

EUTRAintegrityProtectionAlgorithms ::= BIT STRING (SIZE(16, ...))

EventType ::= ENUMERATED {

 direct,

 change-of-serve-cell,

 ue-presence-in-area-of-interest,

 stop-change-of-serve-cell,

 stop-ue-presence-in-area-of-interest,

 cancel-location-reporting-for-the-ue,

 ...

}

ExpectedActivityPeriod ::= INTEGER (1..30|40|50|60|80|100|120|150|180|181, ...)

ExpectedHOInterval ::= ENUMERATED {

 sec15, sec30, sec60, sec90, sec120, sec180, long-time,

 ...

}

ExpectedIdlePeriod ::= INTEGER (1..30|40|50|60|80|100|120|150|180|181, ...)

ExpectedUEActivityBehaviour ::= SEQUENCE {

 expectedActivityPeriod ExpectedActivityPeriod OPTIONAL,

 expectedIdlePeriod ExpectedIdlePeriod OPTIONAL,

 sourceOfUEActivityBehaviourInformation SourceOfUEActivityBehaviourInformation OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {ExpectedUEActivityBehaviour-ExtIEs} } OPTIONAL,

 ...

}

ExpectedUEActivityBehaviour-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

ExpectedUEBehaviour ::= SEQUENCE {

 expectedUEActivityBehaviour ExpectedUEActivityBehaviour OPTIONAL,

 expectedHOInterval ExpectedHOInterval OPTIONAL,

 expectedUEMobility ExpectedUEMobility OPTIONAL,

 expectedUEMovingTrajectory ExpectedUEMovingTrajectory OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {ExpectedUEBehaviour-ExtIEs} } OPTIONAL,

 ...

}

ExpectedUEBehaviour-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

ExpectedUEMobility ::= ENUMERATED {

 stationary,

 mobile,

 ...

}

ExpectedUEMovingTrajectory ::= SEQUENCE (SIZE(1..maxnoofCellsUEMovingTrajectory)) OF ExpectedUEMovingTrajectoryItem

ExpectedUEMovingTrajectoryItem ::= SEQUENCE {

 nGRAN-CGI NGRAN-CGI,

 timeStayedInCell INTEGER (0..4095) OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {ExpectedUEMovingTrajectoryItem-ExtIEs} } OPTIONAL,

 ...

}

ExpectedUEMovingTrajectoryItem-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

//////////////////////////////////////////////////////////////// unchange skiped /////////////////////////////////////////////////////////////////

-- N

NgENB-ID-ExtIEs NGAP-PROTOCOL-IES ::= {

 ...

}

NotifySourceNGRANNode ::= ENUMERATED {

 notifySource,

 ...

}

NGRAN-CGI ::= CHOICE {

 nR-CGI NR-CGI,

 eUTRA-CGI EUTRA-CGI,

 choice-Extensions ProtocolIE-SingleContainer { {NGRAN-CGI-ExtIEs} }

}

NGRAN-CGI-ExtIEs NGAP-PROTOCOL-IES ::= {

 ...

}

-- T

TAC ::= OCTET STRING (SIZE(3))

TAI ::= SEQUENCE {

 pLMNIdentity PLMNIdentity,

 tAC TAC,

 iE-Extensions ProtocolExtensionContainer { {TAI-ExtIEs} } OPTIONAL,

 ...

}

TAI-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

TAIBroadcastEUTRA ::= SEQUENCE (SIZE(1..maxnoofTAIforWarning)) OF TAIBroadcastEUTRA-Item

TAIBroadcastEUTRA-Item ::= SEQUENCE {

 tAI TAI,

 completedCellsInTAI-EUTRA CompletedCellsInTAI-EUTRA,

 iE-Extensions ProtocolExtensionContainer { {TAIBroadcastEUTRA-Item-ExtIEs} } OPTIONAL,

 ...

}

TAIBroadcastEUTRA-Item-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

TAIBroadcastNR ::= SEQUENCE (SIZE(1..maxnoofTAIforWarning)) OF TAIBroadcastNR-Item

TAIBroadcastNR-Item ::= SEQUENCE {

 tAI TAI,

 completedCellsInTAI-NR CompletedCellsInTAI-NR,

 iE-Extensions ProtocolExtensionContainer { {TAIBroadcastNR-Item-ExtIEs} } OPTIONAL,

 ...

}

TAIBroadcastNR-Item-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

TAICancelledEUTRA ::= SEQUENCE (SIZE(1..maxnoofTAIforWarning)) OF TAICancelledEUTRA-Item

TAICancelledEUTRA-Item ::= SEQUENCE {

 tAI TAI,

 cancelledCellsInTAI-EUTRA CancelledCellsInTAI-EUTRA,

 iE-Extensions ProtocolExtensionContainer { {TAICancelledEUTRA-Item-ExtIEs} } OPTIONAL,

 ...

}

TAICancelledEUTRA-Item-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

TAICancelledNR ::= SEQUENCE (SIZE(1..maxnoofTAIforWarning)) OF TAICancelledNR-Item

TAICancelledNR-Item ::= SEQUENCE {

 tAI TAI,

 cancelledCellsInTAI-NR CancelledCellsInTAI-NR,

 iE-Extensions ProtocolExtensionContainer { {TAICancelledNR-Item-ExtIEs} } OPTIONAL,

 ...

}

TAICancelledNR-Item-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

TAIListForInactive ::= SEQUENCE (SIZE(1..maxnoofTAIforInactive)) OF TAIListForInactiveItem

TAIListForInactiveItem ::= SEQUENCE {

 tAI TAI,

 iE-Extensions ProtocolExtensionContainer { {TAIListForInactiveItem-ExtIEs} } OPTIONAL,

 ...

}

TAIListForInactiveItem-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

TAIListForPaging ::= SEQUENCE (SIZE(1..maxnoofTAIforPaging)) OF TAIListForPagingItem

TAIListForPagingItem ::= SEQUENCE {

 tAI TAI,

 iE-Extensions ProtocolExtensionContainer { {TAIListForPagingItem-ExtIEs} } OPTIONAL,

 ...

}

TAIListForPagingItem-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

TAIListForRestart ::= SEQUENCE (SIZE(1..maxnoofTAIforRestart)) OF TAI

TAIListForWarning ::= SEQUENCE (SIZE(1..maxnoofTAIforWarning)) OF TAI

TargeteNB-ID ::= SEQUENCE {

 globalENB-ID GlobalNgENB-ID,

 selected-EPS-TAI EPS-TAI,

 iE-Extensions ProtocolExtensionContainer { {TargeteNB-ID-ExtIEs} } OPTIONAL,

 ...

}

TargeteNB-ID-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

TargetID ::= CHOICE {

 targetRANNodeID TargetRANNodeID,

 targeteNB-ID TargeteNB-ID,

 choice-Extensions ProtocolIE-SingleContainer { {TargetID-ExtIEs} }

}

TargetID-ExtIEs NGAP-PROTOCOL-IES ::= {

 {ID id-TargetRNC-ID CRITICALITY reject TYPE TargetRNC-ID PRESENCE mandatory },

 ...

}

TargetNGRANNode-ToSourceNGRANNode-TransparentContainer ::= SEQUENCE {

 rRCContainer RRCContainer,

 iE-Extensions ProtocolExtensionContainer { {TargetNGRANNode-ToSourceNGRANNode-TransparentContainer-ExtIEs} } OPTIONAL,

 ...

}

TargetNGRANNode-ToSourceNGRANNode-TransparentContainer-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 { ID id-DAPSResponseInfoList CRITICALITY reject EXTENSION DAPSResponseInfoList PRESENCE optional},

 ...

}

TargetRANNodeID ::= SEQUENCE {

 globalRANNodeID GlobalRANNodeID,

 selectedTAI TAI,

 iE-Extensions ProtocolExtensionContainer { {TargetRANNodeID-ExtIEs} } OPTIONAL,

 ...

}

TargetRANNodeID-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

TargetRNC-ID ::= SEQUENCE {

 lAI LAI,

 rNC-ID RNC-ID,

 extendedRNC-ID ExtendedRNC-ID OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {TargetRNC-ID-ExtIEs} } OPTIONAL,

 ...

 }

TargetRNC-ID-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

TargetToSource-TransparentContainer ::= OCTET STRING

-- This IE includes a transparent container from the target RAN node to the source RAN node.

-- The octets of the OCTET STRING are encoded according to the specifications of the target system.

TimerApproachForGUAMIRemoval ::= ENUMERATED {

 apply-timer,

 ...

}

TimeStamp ::= OCTET STRING (SIZE(4))

TimeToWait ::= ENUMERATED {v1s, v2s, v5s, v10s, v20s, v60s, ...}

TimeUEStayedInCell ::= INTEGER (0..4095)

TimeUEStayedInCellEnhancedGranularity ::= INTEGER (0..40950)

TNLAddressWeightFactor ::= INTEGER (0..255)

TNLAssociationList ::= SEQUENCE (SIZE(1..maxnoofTNLAssociations)) OF TNLAssociationItem

TNLAssociationItem ::= SEQUENCE {

 tNLAssociationAddress CPTransportLayerInformation,

 cause Cause,

 iE-Extensions ProtocolExtensionContainer { {TNLAssociationItem-ExtIEs} } OPTIONAL,

 ...

}

TNLAssociationItem-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

TNLAssociationUsage ::= ENUMERATED {

 ue,

 non-ue,

 both,

 ...

}

TraceActivation ::= SEQUENCE {

 nGRANTraceID NGRANTraceID,

 interfacesToTrace InterfacesToTrace,

traceDepth TraceDepth,

traceCollectionEntityIPAddress TransportLayerAddress,

 iE-Extensions ProtocolExtensionContainer { {TraceActivation-ExtIEs} } OPTIONAL,

 ...

}

TraceActivation-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

 ...

}

TraceDepth ::= ENUMERATED {

 minimum,

 medium,

 maximum,

 minimumWithoutVendorSpecificExtension,

 mediumWithoutVendorSpecificExtension,

 maximumWithoutVendorSpecificExtension,

 ...

}

TrafficLoadReductionIndication ::= INTEGER (1..99)

TransportLayerAddress ::= BIT STRING (SIZE(1..160, ...))

TypeOfError ::= ENUMERATED {

 not-understood,

 missing,

 ...

}

9.4.7 Constant Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Constant definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NGAP-Constants {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-Access (22) modules (3) ngap (1) version1 (1) ngap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IE parameter types from other modules.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IMPORTS

 ProcedureCode,

 ProtocolIE-ID

FROM NGAP-CommonDataTypes;

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Elementary Procedures

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

id-AMFConfigurationUpdate ProcedureCode ::= 0

id-AMFStatusIndication ProcedureCode ::= 1

id-CellTrafficTrace ProcedureCode ::= 2

id-DeactivateTrace ProcedureCode ::= 3

id-DownlinkNASTransport ProcedureCode ::= 4

id-DownlinkNonUEAssociatedNRPPaTransport ProcedureCode ::= 5

id-DownlinkRANConfigurationTransfer ProcedureCode ::= 6

id-DownlinkRANStatusTransfer ProcedureCode ::= 7

id-DownlinkUEAssociatedNRPPaTransport ProcedureCode ::= 8

id-ErrorIndication ProcedureCode ::= 9

id-HandoverCancel ProcedureCode ::= 10

id-HandoverNotification ProcedureCode ::= 11

id-HandoverPreparation ProcedureCode ::= 12

id-HandoverResourceAllocation ProcedureCode ::= 13

id-InitialContextSetup ProcedureCode ::= 14

id-InitialUEMessage ProcedureCode ::= 15

id-LocationReportingControl ProcedureCode ::= 16

id-LocationReportingFailureIndication ProcedureCode ::= 17

id-LocationReport ProcedureCode ::= 18

id-NASNonDeliveryIndication ProcedureCode ::= 19

id-NGReset ProcedureCode ::= 20

id-NGSetup ProcedureCode ::= 21

id-OverloadStart ProcedureCode ::= 22

id-OverloadStop ProcedureCode ::= 23

id-Paging ProcedureCode ::= 24

id-PathSwitchRequest ProcedureCode ::= 25

id-PDUSessionResourceModify ProcedureCode ::= 26

id-PDUSessionResourceModifyIndication ProcedureCode ::= 27

id-PDUSessionResourceRelease ProcedureCode ::= 28

id-PDUSessionResourceSetup ProcedureCode ::= 29

id-PDUSessionResourceNotify ProcedureCode ::= 30

id-PrivateMessage ProcedureCode ::= 31

id-PWSCancel ProcedureCode ::= 32

id-PWSFailureIndication ProcedureCode ::= 33

id-PWSRestartIndication ProcedureCode ::= 34

id-RANConfigurationUpdate ProcedureCode ::= 35

id-RerouteNASRequest ProcedureCode ::= 36

id-RRCInactiveTransitionReport ProcedureCode ::= 37

id-TraceFailureIndication ProcedureCode ::= 38

id-TraceStart ProcedureCode ::= 39

id-UEContextModification ProcedureCode ::= 40

id-UEContextRelease ProcedureCode ::= 41

id-UEContextReleaseRequest ProcedureCode ::= 42

id-UERadioCapabilityCheck ProcedureCode ::= 43

id-UERadioCapabilityInfoIndication ProcedureCode ::= 44

id-UETNLABindingRelease ProcedureCode ::= 45

id-UplinkNASTransport ProcedureCode ::= 46

id-UplinkNonUEAssociatedNRPPaTransport ProcedureCode ::= 47

id-UplinkRANConfigurationTransfer ProcedureCode ::= 48

id-UplinkRANStatusTransfer ProcedureCode ::= 49

id-UplinkUEAssociatedNRPPaTransport ProcedureCode ::= 50

id-WriteReplaceWarning ProcedureCode ::= 51

id-SecondaryRATDataUsageReport ProcedureCode ::= 52

id-UplinkRIMInformationTransfer ProcedureCode ::= 53

id-DownlinkRIMInformationTransfer ProcedureCode ::= 54

id-HandoverSuccess ProcedureCode ::= aa

id-UplinkRANEarlyStatusTransfer ProcedureCode ::= bb

id-DownlinkRANEarlyStatusTransfer ProcedureCode ::= cc

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Extension constants

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

maxPrivateIEs INTEGER ::= 65535

maxProtocolExtensions INTEGER ::= 65535

maxProtocolIEs INTEGER ::= 65535

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Lists

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

 maxnoofAllowedAreas INTEGER ::= 16

 maxnoofAllowedS-NSSAIs INTEGER ::= 8

 maxnoofBPLMNs INTEGER ::= 12

 maxnoofCellIDforWarning INTEGER ::= 65535

 maxnoofCellinAoI INTEGER ::= 256

 maxnoofCellinEAI INTEGER ::= 65535

 maxnoofCellinTAI INTEGER ::= 65535

 maxnoofCellsingNB INTEGER ::= 16384

 maxnoofCellsinngeNB INTEGER ::= 256

 maxnoofCellsinUEHistoryInfo INTEGER ::= 16

 maxnoofCellsUEMovingTrajectory INTEGER ::= 16

 maxnoofDRBs INTEGER ::= 32

 maxnoofEmergencyAreaID INTEGER ::= 65535

 maxnoofEAIforRestart INTEGER ::= 256

 maxnoofEPLMNs INTEGER ::= 15

 maxnoofEPLMNsPlusOne INTEGER ::= 16

 maxnoofE-RABs INTEGER ::= 256

 maxnoofErrors INTEGER ::= 256

 maxnoofForbTACs INTEGER ::= 4096

 maxnoofMultiConnectivity INTEGER ::= 4

 maxnoofMultiConnectivityMinusOne INTEGER ::= 3

 maxnoofNGConnectionsToReset INTEGER ::= 65536

 maxnoofPDUSessions INTEGER ::= 256

 maxnoofPLMNs INTEGER ::= 12

 maxnoofQosFlows INTEGER ::= 64

 maxnoofRANNodeinAoI INTEGER ::= 64

 maxnoofRecommendedCells INTEGER ::= 16

 maxnoofRecommendedRANNodes INTEGER ::= 16

 maxnoofAoI INTEGER ::= 64

 maxnoofServedGUAMIs INTEGER ::= 256

 maxnoofSliceItems INTEGER ::= 1024

 maxnoofTACs INTEGER ::= 256

 maxnoofTAIforInactive INTEGER ::= 16

 maxnoofTAIforPaging INTEGER ::= 16

 maxnoofTAIforRestart INTEGER ::= 2048

 maxnoofTAIforWarning INTEGER ::= 65535

 maxnoofTAIinAoI INTEGER ::= 16

 maxnoofTimePeriods INTEGER ::= 2

 maxnoofTNLAssociations INTEGER ::= 32

 maxnoofXnExtTLAs INTEGER ::= 16

 maxnoofXnGTP-TLAs INTEGER ::= 16

 maxnoofXnTLAs INTEGER ::= 2

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IEs

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

 id-AllowedNSSAI ProtocolIE-ID ::= 0

 id-AMFName ProtocolIE-ID ::= 1

 id-AMFOverloadResponse ProtocolIE-ID ::= 2

 id-AMFSetID ProtocolIE-ID ::= 3

 id-AMF-TNLAssociationFailedToSetupList ProtocolIE-ID ::= 4

 id-AMF-TNLAssociationSetupList ProtocolIE-ID ::= 5

 id-AMF-TNLAssociationToAddList ProtocolIE-ID ::= 6

 id-AMF-TNLAssociationToRemoveList ProtocolIE-ID ::= 7

 id-AMF-TNLAssociationToUpdateList ProtocolIE-ID ::= 8

 id-AMFTrafficLoadReductionIndication ProtocolIE-ID ::= 9

 id-AMF-UE-NGAP-ID ProtocolIE-ID ::= 10

 id-AssistanceDataForPaging ProtocolIE-ID ::= 11

 id-BroadcastCancelledAreaList ProtocolIE-ID ::= 12

 id-BroadcastCompletedAreaList ProtocolIE-ID ::= 13

 id-CancelAllWarningMessages ProtocolIE-ID ::= 14

 id-Cause ProtocolIE-ID ::= 15

 id-CellIDListForRestart ProtocolIE-ID ::= 16

 id-ConcurrentWarningMessageInd ProtocolIE-ID ::= 17

 id-CoreNetworkAssistanceInformationForInactive ProtocolIE-ID ::= 18

 id-CriticalityDiagnostics ProtocolIE-ID ::= 19

 id-DataCodingScheme ProtocolIE-ID ::= 20

 id-DefaultPagingDRX ProtocolIE-ID ::= 21

 id-DirectForwardingPathAvailability ProtocolIE-ID ::= 22

 id-EmergencyAreaIDListForRestart ProtocolIE-ID ::= 23

 id-EmergencyFallbackIndicator ProtocolIE-ID ::= 24

 id-EUTRA-CGI ProtocolIE-ID ::= 25

 id-FiveG-S-TMSI ProtocolIE-ID ::= 26

 id-GlobalRANNodeID ProtocolIE-ID ::= 27

 id-GUAMI ProtocolIE-ID ::= 28

 id-HandoverType ProtocolIE-ID ::= 29

 id-IMSVoiceSupportIndicator ProtocolIE-ID ::= 30

 id-IndexToRFSP ProtocolIE-ID ::= 31

 id-InfoOnRecommendedCellsAndRANNodesForPaging ProtocolIE-ID ::= 32

 id-LocationReportingRequestType ProtocolIE-ID ::= 33

 id-MaskedIMEISV ProtocolIE-ID ::= 34

 id-MessageIdentifier ProtocolIE-ID ::= 35

 id-MobilityRestrictionList ProtocolIE-ID ::= 36

 id-NASC ProtocolIE-ID ::= 37

 id-NAS-PDU ProtocolIE-ID ::= 38

 id-NASSecurityParametersFromNGRAN ProtocolIE-ID ::= 39

 id-NewAMF-UE-NGAP-ID ProtocolIE-ID ::= 40

 id-NewSecurityContextInd ProtocolIE-ID ::= 41

 id-NGAP-Message ProtocolIE-ID ::= 42

 id-NGRAN-CGI ProtocolIE-ID ::= 43

 id-NGRANTraceID ProtocolIE-ID ::= 44

 id-NR-CGI ProtocolIE-ID ::= 45

 id-NRPPa-PDU ProtocolIE-ID ::= 46

 id-NumberOfBroadcastsRequested ProtocolIE-ID ::= 47

 id-OldAMF ProtocolIE-ID ::= 48

 id-OverloadStartNSSAIList ProtocolIE-ID ::= 49

 id-PagingDRX ProtocolIE-ID ::= 50

 id-PagingOrigin ProtocolIE-ID ::= 51

 id-PagingPriority ProtocolIE-ID ::= 52

 id-PDUSessionResourceAdmittedList ProtocolIE-ID ::= 53

 id-PDUSessionResourceFailedToModifyListModRes ProtocolIE-ID ::= 54

 id-PDUSessionResourceFailedToSetupListCxtRes ProtocolIE-ID ::= 55

 id-PDUSessionResourceFailedToSetupListHOAck ProtocolIE-ID ::= 56

 id-PDUSessionResourceFailedToSetupListPSReq ProtocolIE-ID ::= 57

 id-PDUSessionResourceFailedToSetupListSURes ProtocolIE-ID ::= 58

 id-PDUSessionResourceHandoverList ProtocolIE-ID ::= 59

 id-PDUSessionResourceListCxtRelCpl ProtocolIE-ID ::= 60

 id-PDUSessionResourceListHORqd ProtocolIE-ID ::= 61

 id-PDUSessionResourceModifyListModCfm ProtocolIE-ID ::= 62

 id-PDUSessionResourceModifyListModInd ProtocolIE-ID ::= 63

 id-PDUSessionResourceModifyListModReq ProtocolIE-ID ::= 64

 id-PDUSessionResourceModifyListModRes ProtocolIE-ID ::= 65

 id-PDUSessionResourceNotifyList ProtocolIE-ID ::= 66

 id-PDUSessionResourceReleasedListNot ProtocolIE-ID ::= 67

 id-PDUSessionResourceReleasedListPSAck ProtocolIE-ID ::= 68

 id-PDUSessionResourceReleasedListPSFail ProtocolIE-ID ::= 69

 id-PDUSessionResourceReleasedListRelRes ProtocolIE-ID ::= 70

 id-PDUSessionResourceSetupListCxtReq ProtocolIE-ID ::= 71

 id-PDUSessionResourceSetupListCxtRes ProtocolIE-ID ::= 72

 id-PDUSessionResourceSetupListHOReq ProtocolIE-ID ::= 73

 id-PDUSessionResourceSetupListSUReq ProtocolIE-ID ::= 74

 id-PDUSessionResourceSetupListSURes ProtocolIE-ID ::= 75

 id-PDUSessionResourceToBeSwitchedDLList ProtocolIE-ID ::= 76

 id-PDUSessionResourceSwitchedList ProtocolIE-ID ::= 77

 id-PDUSessionResourceToReleaseListHOCmd ProtocolIE-ID ::= 78

 id-PDUSessionResourceToReleaseListRelCmd ProtocolIE-ID ::= 79

 id-PLMNSupportList ProtocolIE-ID ::= 80

 id-PWSFailedCellIDList ProtocolIE-ID ::= 81

 id-RANNodeName ProtocolIE-ID ::= 82

 id-RANPagingPriority ProtocolIE-ID ::= 83

 id-RANStatusTransfer-TransparentContainer ProtocolIE-ID ::= 84

 id-RAN-UE-NGAP-ID ProtocolIE-ID ::= 85

 id-RelativeAMFCapacity ProtocolIE-ID ::= 86

 id-RepetitionPeriod ProtocolIE-ID ::= 87

 id-ResetType ProtocolIE-ID ::= 88

 id-RoutingID ProtocolIE-ID ::= 89

 id-RRCEstablishmentCause ProtocolIE-ID ::= 90

 id-RRCInactiveTransitionReportRequest ProtocolIE-ID ::= 91

 id-RRCState ProtocolIE-ID ::= 92

 id-SecurityContext ProtocolIE-ID ::= 93

 id-SecurityKey ProtocolIE-ID ::= 94

 id-SerialNumber ProtocolIE-ID ::= 95

 id-ServedGUAMIList ProtocolIE-ID ::= 96

 id-SliceSupportList ProtocolIE-ID ::= 97

 id-SONConfigurationTransferDL ProtocolIE-ID ::= 98

 id-SONConfigurationTransferUL ProtocolIE-ID ::= 99

 id-SourceAMF-UE-NGAP-ID ProtocolIE-ID ::= 100

 id-SourceToTarget-TransparentContainer ProtocolIE-ID ::= 101

 id-SupportedTAList ProtocolIE-ID ::= 102

 id-TAIListForPaging ProtocolIE-ID ::= 103

 id-TAIListForRestart ProtocolIE-ID ::= 104

 id-TargetID ProtocolIE-ID ::= 105

 id-TargetToSource-TransparentContainer ProtocolIE-ID ::= 106

 id-TimeToWait ProtocolIE-ID ::= 107

 id-TraceActivation ProtocolIE-ID ::= 108

 id-TraceCollectionEntityIPAddress ProtocolIE-ID ::= 109

 id-UEAggregateMaximumBitRate ProtocolIE-ID ::= 110

 id-UE-associatedLogicalNG-connectionList ProtocolIE-ID ::= 111

 id-UEContextRequest ProtocolIE-ID ::= 112

 id-UE-NGAP-IDs ProtocolIE-ID ::= 114

 id-UEPagingIdentity ProtocolIE-ID ::= 115

 id-UEPresenceInAreaOfInterestList ProtocolIE-ID ::= 116

 id-UERadioCapability ProtocolIE-ID ::= 117

 id-UERadioCapabilityForPaging ProtocolIE-ID ::= 118

 id-UESecurityCapabilities ProtocolIE-ID ::= 119

 id-UnavailableGUAMIList ProtocolIE-ID ::= 120

 id-UserLocationInformation ProtocolIE-ID ::= 121

 id-WarningAreaList ProtocolIE-ID ::= 122

 id-WarningMessageContents ProtocolIE-ID ::= 123

 id-WarningSecurityInfo ProtocolIE-ID ::= 124

 id-WarningType ProtocolIE-ID ::= 125

 id-AdditionalUL-NGU-UP-TNLInformation ProtocolIE-ID ::= 126

 id-DataForwardingNotPossible ProtocolIE-ID ::= 127

 id-DL-NGU-UP-TNLInformation ProtocolIE-ID ::= 128

 id-NetworkInstance ProtocolIE-ID ::= 129

 id-PDUSessionAggregateMaximumBitRate ProtocolIE-ID ::= 130

 id-PDUSessionResourceFailedToModifyListModCfm ProtocolIE-ID ::= 131

 id-PDUSessionResourceFailedToSetupListCxtFail ProtocolIE-ID ::= 132

 id-PDUSessionResourceListCxtRelReq ProtocolIE-ID ::= 133

 id-PDUSessionType ProtocolIE-ID ::= 134

 id-QosFlowAddOrModifyRequestList ProtocolIE-ID ::= 135

 id-QosFlowSetupRequestList ProtocolIE-ID ::= 136

 id-QosFlowToReleaseList ProtocolIE-ID ::= 137

 id-SecurityIndication ProtocolIE-ID ::= 138

 id-UL-NGU-UP-TNLInformation ProtocolIE-ID ::= 139

 id-UL-NGU-UP-TNLModifyList ProtocolIE-ID ::= 140

 id-WarningAreaCoordinates ProtocolIE-ID ::= 141

 id-PDUSessionResourceSecondaryRATUsageList ProtocolIE-ID ::= 142

 id-HandoverFlag ProtocolIE-ID ::= 143

 id-SecondaryRATUsageInformation ProtocolIE-ID ::= 144

 id-PDUSessionResourceReleaseResponseTransfer ProtocolIE-ID ::= 145

 id-RedirectionVoiceFallback ProtocolIE-ID ::= 146

 id-UERetentionInformation ProtocolIE-ID ::= 147

 id-S-NSSAI ProtocolIE-ID ::= 148

 id-PSCellInformation ProtocolIE-ID ::= 149

 id-LastEUTRAN-PLMNIdentity ProtocolIE-ID ::= 150

 id-MaximumIntegrityProtectedDataRate-DL ProtocolIE-ID ::= 151

 id-AdditionalDLForwardingUPTNLInformation ProtocolIE-ID ::= 152

 id-AdditionalDLUPTNLInformationForHOList ProtocolIE-ID ::= 153

 id-AdditionalNGU-UP-TNLInformation ProtocolIE-ID ::= 154

 id-AdditionalDLQosFlowPerTNLInformation ProtocolIE-ID ::= 155

 id-SecurityResult ProtocolIE-ID ::= 156

 id-ENDC-SONConfigurationTransferDL ProtocolIE-ID ::= 157

 id-ENDC-SONConfigurationTransferUL ProtocolIE-ID ::= 158

 id-OldAssociatedQosFlowList-ULendmarkerexpected ProtocolIE-ID ::= 159

 id-CNTypeRestrictionsForEquivalent ProtocolIE-ID ::= 160

 id-CNTypeRestrictionsForServing ProtocolIE-ID ::= 161

 id-NewGUAMI ProtocolIE-ID ::= 162

 id-ULForwarding ProtocolIE-ID ::= 163

 id-ULForwardingUP-TNLInformation ProtocolIE-ID ::= 164

 id-CNAssistedRANTuning ProtocolIE-ID ::= 165

 id-CommonNetworkInstance ProtocolIE-ID ::= 166

 id-NGRAN-TNLAssociationToRemoveList ProtocolIE-ID ::= 167

 id-TNLAssociationTransportLayerAddressNGRAN ProtocolIE-ID ::= 168

 id-EndpointIPAddressAndPort ProtocolIE-ID ::= 169

 id-LocationReportingAdditionalInfo ProtocolIE-ID ::= 170

 id-SourceToTarget-AMFInformationReroute ProtocolIE-ID ::= 171

 id-AdditionalULForwardingUPTNLInformation ProtocolIE-ID ::= 172

 id-SCTP-TLAs ProtocolIE-ID ::= 173

 id-DataForwardingResponseERABList ProtocolIE-ID ::= 174

 id-RIMInformationTransfer ProtocolIE-ID ::= 175

 id-GUAMIType ProtocolIE-ID ::= 176

 id-SRVCCOperationPossible ProtocolIE-ID ::= 177

 id-TargetRNC-ID ProtocolIE-ID ::= 178

 id-RAT-Information ProtocolIE-ID ::= 179

 id-ExtendedRATRestrictionInformation ProtocolIE-ID ::= 180

 id-QosMonitoringRequest ProtocolIE-ID ::= 181

 id-SgNB-UE-X2AP-ID ProtocolIE-ID ::= 182

 id-DAPSRequestInfo ProtocolIE-ID ::= XXX

 id-DAPSResponseInfoList ProtocolIE-ID ::= YYY

id-EarlyStatusTransfer-TransparentContainer ProtocolIE-ID ::= ZZ1

 id-NotifySourceNGRANNode ProtocolIE-ID ::= ZZ2

END

-- ASN1STOP

//////////////////////////////////////////////////////////////// End of Change /////////////////////////////////////////////////////////////////////