3GPP TSG-RAN WG3 Meeting #109-e R3-205752

**Online, 17th – 27th August 2020 was R3-205068**

|  |
| --- |
| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **36.423** | **CR** | **1532** | **rev** | **1** | **Current version:** | **16.2.0** |  |
|  |
| *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)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

|  |
| --- |
|  |
| ***Title:***  | Introducing UE Radio Capability ID Mapping procedure |
|  |  |
| ***Source to WG:*** | Ericsson, NEC, Huawei, CATT, Samsung |
| ***Source to TSG:*** | R3 |
|  |  |
| ***Work item code:*** | RACS\_RAN |  | ***Date:*** | 2020-08-06 |
|  |  |  |  |  |
| ***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:*** | This CR introduces the missing UE Radio Capability ID Mapping procedure on X2AP. |
|  |  |
| ***Summary of change:*** | Intorducing the UE Radio Capability ID Mapping procedure on X2AP. |
|  |  |
| ***Consequences if not approved:*** | The UE Radio Capability ID Mapping procedure would not exist on X2AP and an en-gNB would not be able to retrieve mapping information for RACS. |
|  |  |
| ***Clauses affected:*** | 7, 8.1, 8.7.x1 (new), 9.1.4.x2 (new), 9.1.4.x3 (new), 9.1.4.x4 (new), 9.3.3, 9.3.4, 9.3.5, 9.3.7 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 36.420 CR0022 Rel-16 |
| ***affected:*** |  | **X** |  Test specifications |  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications |  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | rev 1: adding co-signers |

<<<<<<<<<<<<<<<<<<<< First Change >>>>>>>>>>>>>>>>>>>>

# 7 Functions of X2AP

The X2AP protocol provides the following functions:

- Mobility Management. This function allows the eNB to move the responsibility of a certain UE to another eNB. Forwarding of user plane data, Status Transfer and UE Context Release function are parts of the mobility management.

- Dual Connectivity. This function allows the eNB to request another eNB to provide radio resources for a certain UE while keeping responsibility for that UE.

- E-UTRA-NR Dual Connectivity. This function allows the eNB to request another en-gNB to provide radio resources for a certain UE while keeping responsibility for that UE.

- Load Management. This function is used by eNBs to indicate resource status, overload and traffic load to each other.

- Reporting of General Error Situations. This function allows reporting of general error situations, for which function specific error messages have not been defined.

- Resetting the X2. This function is used to reset the X2 interface.

- Setting up the X2. This function is used to exchange necessary data for the eNB or en-gNB for setup the X2 interface and implicitly perform an X2 Reset.

- eNB Configuration Update. This function allows updating of application level data needed for two eNBs to interoperate correctly over the X2 interface.

- Mobility Parameters Management. This function allows the eNB to coordinate adaptation of mobility parameter settings with a peer eNB.

- Mobility Robustness Optimisation. This function allows reporting of information related to mobility failure events.

- Energy Saving. This function allows decreasing energy consumption by enabling indication of cell activation/deactivation over the X2 interface.

- X2 Release. This function allows an eNB to be aware that the signalling connection to a peer eNB is unavailable.

- Message Transfer. This function allows indirect transport of X2AP messages to a peer eNB.

- Registration. This function allows registration of eNB in case indirect transport of X2AP messages is supported.

- Removing the X2. This function allows removing the signalling connection between two eNBs or between eNB and en-gNB in a controlled manner.

- Inter-eNB UE Context Retrieval. This function allows retrieval of a UE context in case of resumption or re-establishment of an RRC connection.

- Secondary RAT Data Usage Report. This function allows eNB to get the uplink and downlink data volumes for the Secondary RAT on a per E-RAB basis.

- E-UTRA - NR Spectrum Sharing. This function allows uplink and downlink spectrum sharing between a number of E - UTRA and a number of NR cells with overlapping coverage.

- EN-DC Configuration Transfer. This function supports en-gNB X2 TNL address discovery.

- EN-DC Load Management. This function is used by MeNB/en-gNB to indicate resource status, overload and traffic load to each other.

- UE Radio Capability ID Mapping.

The mapping between the above functions and X2 EPs is shown in the table below.

Table 7-1: Mapping between X2AP functions and X2AP EPs

| Function | Elementary Procedure(s) |
| --- | --- |
| Mobility Management | a) Handover Preparationb) SN Status Transferc) UE Context Released) Handover Cancel e) Handover Successf) Conditional Handover Cancel |
| Dual Connectivity | a) SeNB Addition Preparationb) SeNB Reconfiguration Completionc) MeNB initiated SeNB Modification Preparationd) SeNB initiated SeNB Modificatione) MeNB initiated SeNB Releasef) SeNB initiated SeNB Releaseg) SeNB Counter Check |
| E-UTRA-NR Dual Connectivity | a) SgNB Addition Preparationb) SgNB Reconfiguration Completionc) MeNB initiated SgNB Modification Preparationd) SgNB initiated SgNB Modificatione) SgNB changef) MeNB initiated SgNB Releaseg) SgNB initiated SgNB Releaseh) SgNB Counter Checki) RRC transferj) EN-DC X2 Setupk) EN-DC Configuration Updatel) EN-DC Cell Activationm) SgNB Activity Notificationn) EN-DC X2 Removalo) gNB Status Indication p) EN-DC Resource Status Reporting Initiationq) EN-DC Resource Status Reportingr) F1-C Traffic Transfer |
| Load Management | a) Load Indicationb) Resource Status Reporting Initiationc) Resource Status Reporting |
| Reporting of General Error Situations | Error Indication |
| Resetting the X2 | Reset |
| Setting up the X2 | X2 Setup |
| eNB Configuration Update | a) eNB Configuration Updateb) Cell Activation |
| Mobility Parameters Management | Mobility Settings Change |
| Mobility Robustness Optimisation | a) Radio Link Failure Indicationb) Handover Report |
| Energy Saving | a) eNB Configuration Updateb) Cell Activation |
| X2 Release | X2 Release |
| Message Transfer Registration | X2AP Message Transfer |
| Removing the X2 | X2 Removal |
| Inter-eNB UE Context Retrieval | a) Retrieve UE Contextb) Data Forwarding Address Indication |
| Secondary RAT Data Usage Report | Secondary RAT Data Usage Report |
| E-UTRA – NR Spectrum Sharing | E-UTRA - NR Cell Resource Coordination |
| EN-DC Configuration Transfer | EN-DC Configuration Transfer |
| UE Radio Capability ID Mapping | UE Radio Capability ID Mapping |

# 8 X2AP procedures

## 8.1 Elementary procedures

In the following tables, all EPs are divided into Class 1 and Class 2 EPs.

Table 8.1-1: Class 1 Elementary Procedures

| Elementary Procedure | Initiating Message | Successful Outcome | Unsuccessful Outcome |
| --- | --- | --- | --- |
| Response message | Response message |
| Handover Preparation | HANDOVER REQUEST | HANDOVER REQUEST ACKNOWLEDGE | HANDOVER PREPARATION FAILURE |
| Reset | RESET REQUEST | RESET RESPONSE |  |
| X2 Setup  | X2 SETUP REQUEST | X2 SETUP RESPONSE | X2 SETUP FAILURE |
| eNB Configuration Update | ENB CONFIGURATION UPDATE | ENB CONFIGURATION UPDATE ACKNOWLEDGE | ENB CONFIGURATION UPDATE FAILURE |
| Resource Status Reporting Initiation | RESOURCE STATUS REQUEST | RESOURCE STATUS RESPONSE | RESOURCE STATUS FAILURE |
| Mobility Settings Change | MOBILITY CHANGE REQUEST | MOBILITY CHANGE ACKNOWLEDGE | MOBILITY CHANGE FAILURE |
| Cell Activation | CELL ACTIVATION REQUEST | CELL ACTIVATION RESPONSE | CELL ACTIVATION FAILURE |
| SeNB Addition Preparation | SENB ADDITION REQUEST | SENB ADDITION REQUEST ACKNOWLEDGE | SENB ADDITION REQUEST REJECT |
| MeNB initiated SeNB Modification Preparation | SENB MODIFICATION REQUEST | SENB MODIFICATION REQUEST ACKNOWLEDGE | SENB MODIFICATION REQUEST REJECT |
| SeNB initiated SeNB Modification | SENB MODIFICATION REQUIRED | SENB MODIFICATION CONFIRM | SENB MODIFICATION REFUSE |
| SeNB initiated SeNB Release | SENB RELEASE REQUIRED | SENB RELEASE CONFIRM |  |
| X2 Removal | X2 REMOVAL REQUEST | X2 REMOVAL RESPONSE | X2 REMOVAL FAILURE |
| Retrieve UE Context | RETRIEVE UE CONTEXT REQUEST | RETRIEVE UE CONTEXT RESPONSE | RETRIEVE UE CONTEXT FAILURE |
| SgNB Addition Preparation | SGNB ADDITION REQUEST | SGNB ADDITION REQUEST ACKNOWLEDGE | SGNB ADDITION REQUEST REJECT |
| MeNB initiated SgNB Modification Preparation | SGNB MODIFICATION REQUEST | SGNB MODIFICATION REQUEST ACKNOWLEDGE | SGNB MODIFICATION REQUEST REJECT |
| SgNB initiated SgNB Modification | SGNB MODIFICATION REQUIRED | SGNB MODIFICATION CONFIRM | SGNB MODIFICATION REFUSE |
| SgNB change  | SGNB CHANGE REQUIRED | SGNB CHANGE CONFIRM | SGNB CHANGE REFUSE |
| MeNB initiated SgNB Release | SGNB RELEASE REQUEST | SGNB RELEASE REQUEST ACKNOWLEDGE | SGNB RELEASE REQUEST REJECT |
| SgNB initiated SgNB Release | SGNB RELEASE REQUIRED | SGNB RELEASE CONFIRM |  |
| EN-DC X2 Setup  | EN-DC X2 SETUP REQUEST | EN-DC X2 SETUP RESPONSE | EN-DC X2 SETUP FAILURE |
| EN-DC Configuration Update | EN-DC CONFIGURATION UPDATE | EN-DC CONFIGURATION UPDATE ACKNOWLEDGE | EN-DC CONFIGURATION UPDATE FAILURE |
| EN-DC Cell Activation | EN-DC CELL ACTIVATION REQUEST | EN-DC CELL ACTIVATION RESPONSE | EN-DC CELL ACTIVATION FAILURE |
| E-UTRA - NR Cell Resource Coordination | E-UTRA - NR CELL RESOURCE COORDINATION REQUEST | E-UTRA - NR CELL RESOURCE COORDINATION RESPONSE |  |
| EN-DC X2 Removal | EN-DC X2 REMOVAL REQUEST | EN-DC X2 REMOVAL RESPONSE | EN-DC X2 REMOVAL FAILURE |
| EN-DC Resource Status Reporting Initiation | EN-DC RESOURCE STATUS REQUEST | EN-DC RESOURCE STATUS RESPONSE | EN-DC RESOURCE STATUS FAILURE |
| UE Radio Capability ID Mapping | UE RADIO CAPABILITY ID MAPPING REQUEST | UE RADIO CAPABILITY ID MAPPING RESPONSE |  |

Table 8.1-2: Class 2 Elementary Procedures

| Elementary Procedure | Initiating Message |
| --- | --- |
| Load Indication | LOAD INFORMATION |
| Handover Cancel | HANDOVER CANCEL |
| SN Status Transfer | SN STATUS TRANSFER |
| UE Context Release | UE CONTEXT RELEASE |
| Resource Status Reporting | RESOURCE STATUS UPDATE |
| Error Indication | ERROR INDICATION |
| Radio Link Failure Indication | RLF INDICATION |
| Handover Report | HANDOVER REPORT |
| X2 Release | X2 RELEASE |
| X2AP Message Transfer | X2AP MESSAGE TRANSFER |
| SeNB Reconfiguration Completion | SENB RECONFIGURATION COMPLETE |
| MeNB initiated SeNB Release | SENB RELEASE REQUEST |
| SeNB Counter Check | SENB COUNTER CHECK REQUEST |
| SgNB Reconfiguration Completion | SGNB RECONFIGURATION COMPLETE |
| SgNB Counter Check | SGNB COUNTER CHECK REQUEST |
| RRC Transfer | RRC TRANSFER |
| Secondary RAT Data Usage Report | SECONDARY RAT DATA USAGE REPORT |
| SgNB Activity Notification | SGNB ACTIVITY NOTIFICATION |
| Data Forwarding Address Indication | DATA FORWARDING ADDRESS INDICATION |
| gNB Status Indication | GNB STATUS INDICATION |
| EN-DC Configuration Transfer | EN-DC CONFIGURATION TRANSFER |
| Trace Start | TRACE START |
| Deactivate Trace | DEACTIVATE TRACE |
| Handover Success | HANDOVER SUCCESS |
| Conditional Handover Cancel | CONDITIONAL HANDOVER CANCEL |
| Early Status Transfer | EARLY STATUS TRANSFER |
| EN-DC Resource Status Reporting | EN-DC RESOURCE STATUS UPDATE |
| Cell Traffic Trace | CELL TRAFFIC TRACE |
| F1-C Traffic Transfer | F1-C TRAFFIC TRANSFER |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

### 8.7.x1 UE Radio Capability ID Mapping

#### 8.7.x1.1 General

The purpose of the UE Radio Capability ID Mapping procedure is to enable an en-gNB to request a connected eNB to provide the UE Radio Capability information that maps to a specific UE Radio Capability ID.

The procedure uses non-UE-associated signalling.

#### 8.7.x1.2 Successful Operation



Figure 8.7.x1.2-1: UE Radio Capability ID Mapping procedure. Successful operation

The en-gNB initiates the procedure by sending a UE RADIO CAPABILITY ID MAPPING REQUEST message to the eNB.

Upon receipt of the UE RADIO CAPABILITY ID MAPPING REQUEST message, the eNB shall include the UE Radio Capability information that maps to the UE Radio Capability ID indicated in the UE RADIO CAPABILITY ID MAPPING REQUEST message in the UE RADIO CAPABILITY ID MAPPING RESPONSE message.

#### 8.7.x1.3 Unsuccessful Operation

Not applicable.

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### 9.1.4.x2 UE Radio Capability ID Mapping Request

This message is sent by the en-gNB and is used to request the UE Radio Capability information that maps to a specific UE Radio Capability ID.

Direction: en-gNB → eNB

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.13 |  | YES | reject |
| UE Radio Capability ID | M |  | 9.2.171 |  | YES | reject |

#### 9.1.4.x3 UE Radio Capability ID Mapping Response

This message is sent by the eNB and is used to provide the UE Radio Capability information that maps to a specific UE Radio Capability ID indicated in the UE RADIO CAPABILITY ID MAPPING REQUEST message.

Direction: eNB → en-gNB.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.13 |  | YES | reject |
| UE Radio Capability ID | M |  | 9.2.171 |  | YES | reject |
| UE Radio Capability | M |  | 9.2.x4 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.2.7 |  | YES | ignore |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

### 9.2.x4 UE Radio Capability

This IE contains UE Radio Capability information.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| UE Radio Capability  | M |  | OCTET STRING | Includes the *UERadioAccessCapabilityInformation* message as defined in 10.2.2 ofTS 36.331 [9]. |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

###

### 9.3.3 Elementary Procedure Definitions

-- ASN1START

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

--

-- Elementary Procedure definitions

--

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

X2AP-PDU-Descriptions {

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

eps-Access (21) modules (3) x2ap (2) version1 (1) x2ap-PDU-Descriptions (0) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

--

-- IE parameter types from other modules.

--

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

IMPORTS

 Criticality,

 ProcedureCode

FROM X2AP-CommonDataTypes

 CellActivationRequest,

 CellActivationResponse,

 CellActivationFailure,

 ENBConfigurationUpdate,

 ENBConfigurationUpdateAcknowledge,

 ENBConfigurationUpdateFailure,

 ErrorIndication,

 HandoverCancel,

 HandoverReport,

 HandoverPreparationFailure,

 HandoverRequest,

 HandoverRequestAcknowledge,

 LoadInformation,

 PrivateMessage,

 ResetRequest,

 ResetResponse,

 ResourceStatusFailure,

 ResourceStatusRequest,

 ResourceStatusResponse,

 ResourceStatusUpdate,

 RLFIndication,

 SNStatusTransfer,

 UEContextRelease,

 X2SetupFailure,

 X2SetupRequest,

 X2SetupResponse,

 MobilityChangeRequest,

 MobilityChangeAcknowledge,

 MobilityChangeFailure,

 X2Release,

 X2APMessageTransfer,

 SeNBAdditionRequest,

 SeNBAdditionRequestAcknowledge,

 SeNBAdditionRequestReject,

 SeNBReconfigurationComplete,

 SeNBModificationRequest,

 SeNBModificationRequestAcknowledge,

 SeNBModificationRequestReject,

 SeNBModificationRequired,

 SeNBModificationConfirm,

 SeNBModificationRefuse,

 SeNBReleaseRequest,

 SeNBReleaseRequired,

 SeNBReleaseConfirm,

 SeNBCounterCheckRequest,

 X2RemovalFailure,

 X2RemovalRequest,

 X2RemovalResponse,

 RetrieveUEContextRequest,

 RetrieveUEContextResponse,

 RetrieveUEContextFailure,

 SgNBAdditionRequest,

 SgNBAdditionRequestAcknowledge,

 SgNBAdditionRequestReject,

 SgNBReconfigurationComplete,

 SgNBModificationRequest,

 SgNBModificationRequestAcknowledge,

 SgNBModificationRequestReject,

 SgNBModificationRequired,

 SgNBModificationConfirm,

 SgNBModificationRefuse,

 SgNBReleaseRequest,

 SgNBReleaseRequestAcknowledge,

 SgNBReleaseRequestReject,

 SgNBReleaseRequired,

 SgNBReleaseConfirm,

 SgNBCounterCheckRequest,

 SgNBChangeRequired,

 SgNBChangeConfirm,

 SgNBChangeRefuse,

 RRCTransfer,

 ENDCX2SetupRequest,

 ENDCX2SetupResponse,

 ENDCX2SetupFailure,

 ENDCConfigurationUpdate,

 ENDCConfigurationUpdateAcknowledge,

 ENDCConfigurationUpdateFailure,

 SecondaryRATDataUsageReport,

 ENDCCellActivationRequest,

 ENDCCellActivationResponse,

 ENDCCellActivationFailure,

 ENDCPartialResetRequired,

 ENDCPartialResetConfirm,

 EUTRANRCellResourceCoordinationRequest,

 EUTRANRCellResourceCoordinationResponse,

 SgNBActivityNotification,

 ENDCX2RemovalRequest,

 ENDCX2RemovalResponse,

 ENDCX2RemovalFailure,

 DataForwardingAddressIndication,

 GNBStatusIndication,

 ENDCConfigurationTransfer,

 DeactivateTrace,

 TraceStart,

 HandoverSuccess,

 EarlyStatusTransfer,

 ConditionalHandoverCancel,

 ENDCResourceStatusRequest,

 ENDCResourceStatusResponse,

 ENDCResourceStatusFailure,

 ENDCResourceStatusUpdate,

 CellTrafficTrace,

 F1CTrafficTransfer,

 UERadioCapabilityIDMappingRequest,

 UERadioCapabilityIDMappingResponse

FROM X2AP-PDU-Contents

 id-cellActivation,

 id-eNBConfigurationUpdate,

 id-errorIndication,

 id-handoverCancel,

 id-handoverReport,

 id-handoverPreparation,

 id-loadIndication,

 id-privateMessage,

 id-reset,

 id-resourceStatusReporting,

 id-resourceStatusReportingInitiation,

 id-rLFIndication,

 id-snStatusTransfer,

 id-uEContextRelease,

 id-x2Setup,

 id-mobilitySettingsChange,

 id-x2Release,

 id-x2APMessageTransfer,

 id-seNBAdditionPreparation,

 id-seNBReconfigurationCompletion,

 id-meNBinitiatedSeNBModificationPreparation,

 id-seNBinitiatedSeNBModification,

 id-meNBinitiatedSeNBRelease,

 id-seNBinitiatedSeNBRelease,

 id-seNBCounterCheck,

 id-x2Removal,

 id-retrieveUEContext,

 id-sgNBAdditionPreparation,

 id-sgNBReconfigurationCompletion,

 id-meNBinitiatedSgNBModificationPreparation,

 id-sgNBinitiatedSgNBModification,

 id-meNBinitiatedSgNBRelease,

 id-sgNBinitiatedSgNBRelease,

 id-sgNBChange,

 id-sgNBCounterCheck,

 id-rRCTransfer,

 id-endcX2Setup,

 id-endcConfigurationUpdate,

 id-secondaryRATDataUsageReport,

 id-endcCellActivation,

 id-endcPartialReset,

 id-eUTRANRCellResourceCoordination,

 id-SgNBActivityNotification,

 id-endcX2Removal,

 id-dataForwardingAddressIndication,

 id-gNBStatusIndication,

 id-endcConfigurationTransfer,

 id-deactivateTrace,

 id-traceStart,

 id-handoverSuccess,

 id-earlyStatusTransfer,

 id-conditionalHandoverCancel,

 id-endcresourceStatusReporting,

 id-endcresourceStatusReportingInitiation,

 id-cellTrafficTrace,

 id-f1CTrafficTransfer,

 id-UERadioCapabilityIDMapping

FROM X2AP-Constants;

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

--

-- Interface Elementary Procedure Class

--

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

X2AP-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

--

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

X2AP-PDU ::= CHOICE {

 initiatingMessage InitiatingMessage,

 successfulOutcome SuccessfulOutcome,

 unsuccessfulOutcome UnsuccessfulOutcome,

 ...

}

InitiatingMessage ::= SEQUENCE {

 procedureCode X2AP-ELEMENTARY-PROCEDURE.&procedureCode ({X2AP-ELEMENTARY-PROCEDURES}),

 criticality X2AP-ELEMENTARY-PROCEDURE.&criticality ({X2AP-ELEMENTARY-PROCEDURES}{@procedureCode}),

 value X2AP-ELEMENTARY-PROCEDURE.&InitiatingMessage ({X2AP-ELEMENTARY-PROCEDURES}{@procedureCode})

}

SuccessfulOutcome ::= SEQUENCE {

 procedureCode X2AP-ELEMENTARY-PROCEDURE.&procedureCode ({X2AP-ELEMENTARY-PROCEDURES}),

 criticality X2AP-ELEMENTARY-PROCEDURE.&criticality ({X2AP-ELEMENTARY-PROCEDURES}{@procedureCode}),

 value X2AP-ELEMENTARY-PROCEDURE.&SuccessfulOutcome ({X2AP-ELEMENTARY-PROCEDURES}{@procedureCode})

}

UnsuccessfulOutcome ::= SEQUENCE {

 procedureCode X2AP-ELEMENTARY-PROCEDURE.&procedureCode ({X2AP-ELEMENTARY-PROCEDURES}),

 criticality X2AP-ELEMENTARY-PROCEDURE.&criticality ({X2AP-ELEMENTARY-PROCEDURES}{@procedureCode}),

 value X2AP-ELEMENTARY-PROCEDURE.&UnsuccessfulOutcome ({X2AP-ELEMENTARY-PROCEDURES}{@procedureCode})

}

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

--

-- Interface Elementary Procedure List

--

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

X2AP-ELEMENTARY-PROCEDURES X2AP-ELEMENTARY-PROCEDURE ::= {

 X2AP-ELEMENTARY-PROCEDURES-CLASS-1 |

 X2AP-ELEMENTARY-PROCEDURES-CLASS-2 ,

 ...

}

X2AP-ELEMENTARY-PROCEDURES-CLASS-1 X2AP-ELEMENTARY-PROCEDURE ::= {

 handoverPreparation |

 reset |

 x2Setup |

 resourceStatusReportingInitiation |

 eNBConfigurationUpdate |

 mobilitySettingsChange |

 cellActivation |

 seNBAdditionPreparation |

 meNBinitiatedSeNBModificationPreparation |

 seNBinitiatedSeNBModification |

 seNBinitiatedSeNBRelease |

 x2Removal |

 retrieveUEContext |

 sgNBAdditionPreparation |

 meNBinitiatedSgNBModificationPreparation |

 sgNBinitiatedSgNBModification |

 meNBinitiatedSgNBRelease |

 sgNBinitiatedSgNBRelease |

 sgNBChange |

 endcX2Setup |

 endcConfigurationUpdate |

 endcCellActivation |

 endcPartialReset |

 eUTRANRCellResourceCoordination |

 endcX2Removal |

 endcresourceStatusReportingInitiation |

 uERadioCapabilityMapping ,

 ...

}

X2AP-ELEMENTARY-PROCEDURES-CLASS-2 X2AP-ELEMENTARY-PROCEDURE ::= {

 snStatusTransfer |

 uEContextRelease |

 handoverCancel |

 errorIndication |

 resourceStatusReporting |

 loadIndication |

 privateMessage |

 rLFIndication |

 handoverReport |

 x2Release |

 x2APMessageTransfer |

 seNBReconfigurationCompletion |

 meNBinitiatedSeNBRelease |

 seNBCounterCheck |

 sgNBReconfigurationCompletion |

 sgNBCounterCheck |

 rRCTransfer |

 secondaryRATDataUsageReport |

 sgNBActivityNotification |

 dataForwardingAddressIndication |

 gNBStatusIndication |

 endcConfigurationTransfer |

 deactivateTrace |

 traceStart |

 handoverSuccess |

 earlyStatusTransfer |

 conditionalHandoverCancel |

 endcresourceStatusReporting |

 cellTrafficTrace |

 f1CTrafficTransfer ,

 ...

}

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

--

-- Interface Elementary Procedures

--

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

handoverPreparation X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE HandoverRequest

 SUCCESSFUL OUTCOME HandoverRequestAcknowledge

 UNSUCCESSFUL OUTCOME HandoverPreparationFailure

 PROCEDURE CODE id-handoverPreparation

 CRITICALITY reject

}

snStatusTransfer X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SNStatusTransfer

 PROCEDURE CODE id-snStatusTransfer

 CRITICALITY ignore

}

uEContextRelease X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UEContextRelease

 PROCEDURE CODE id-uEContextRelease

 CRITICALITY ignore

}

handoverCancel X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE HandoverCancel

 PROCEDURE CODE id-handoverCancel

 CRITICALITY ignore

}

handoverReport X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE HandoverReport

 PROCEDURE CODE id-handoverReport

 CRITICALITY ignore

}

errorIndication X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ErrorIndication

 PROCEDURE CODE id-errorIndication

 CRITICALITY ignore

}

reset X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ResetRequest

 SUCCESSFUL OUTCOME ResetResponse

 PROCEDURE CODE id-reset

 CRITICALITY reject

}

x2Setup X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE X2SetupRequest

 SUCCESSFUL OUTCOME X2SetupResponse

 UNSUCCESSFUL OUTCOME X2SetupFailure

 PROCEDURE CODE id-x2Setup

 CRITICALITY reject

}

loadIndication X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE LoadInformation

 PROCEDURE CODE id-loadIndication

 CRITICALITY ignore

}

eNBConfigurationUpdate X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ENBConfigurationUpdate

 SUCCESSFUL OUTCOME ENBConfigurationUpdateAcknowledge

 UNSUCCESSFUL OUTCOME ENBConfigurationUpdateFailure

 PROCEDURE CODE id-eNBConfigurationUpdate

 CRITICALITY reject

}

resourceStatusReportingInitiation X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ResourceStatusRequest

 SUCCESSFUL OUTCOME ResourceStatusResponse

 UNSUCCESSFUL OUTCOME ResourceStatusFailure

 PROCEDURE CODE id-resourceStatusReportingInitiation

 CRITICALITY reject

}

resourceStatusReporting X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ResourceStatusUpdate

 PROCEDURE CODE id-resourceStatusReporting

 CRITICALITY ignore

}

rLFIndication X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE RLFIndication

 PROCEDURE CODE id-rLFIndication

 CRITICALITY ignore

}

privateMessage X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE PrivateMessage

 PROCEDURE CODE id-privateMessage

 CRITICALITY ignore

}

mobilitySettingsChange X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE MobilityChangeRequest

 SUCCESSFUL OUTCOME MobilityChangeAcknowledge

 UNSUCCESSFUL OUTCOME MobilityChangeFailure

 PROCEDURE CODE id-mobilitySettingsChange

 CRITICALITY reject

}

cellActivation X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE CellActivationRequest

 SUCCESSFUL OUTCOME CellActivationResponse

 UNSUCCESSFUL OUTCOME CellActivationFailure

 PROCEDURE CODE id-cellActivation

 CRITICALITY reject

}

x2Release X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE X2Release

 PROCEDURE CODE id-x2Release

 CRITICALITY reject

}

x2APMessageTransfer X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE X2APMessageTransfer

 PROCEDURE CODE id-x2APMessageTransfer

 CRITICALITY reject

}

seNBAdditionPreparation X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SeNBAdditionRequest

 SUCCESSFUL OUTCOME SeNBAdditionRequestAcknowledge

 UNSUCCESSFUL OUTCOME SeNBAdditionRequestReject

 PROCEDURE CODE id-seNBAdditionPreparation

 CRITICALITY reject

}

seNBReconfigurationCompletion X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SeNBReconfigurationComplete

 PROCEDURE CODE id-seNBReconfigurationCompletion

 CRITICALITY ignore

}

meNBinitiatedSeNBModificationPreparation X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SeNBModificationRequest

 SUCCESSFUL OUTCOME SeNBModificationRequestAcknowledge

 UNSUCCESSFUL OUTCOME SeNBModificationRequestReject

 PROCEDURE CODE id-meNBinitiatedSeNBModificationPreparation

 CRITICALITY reject

}

seNBinitiatedSeNBModification X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SeNBModificationRequired

 SUCCESSFUL OUTCOME SeNBModificationConfirm

 UNSUCCESSFUL OUTCOME SeNBModificationRefuse

 PROCEDURE CODE id-seNBinitiatedSeNBModification

 CRITICALITY reject

}

meNBinitiatedSeNBRelease X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SeNBReleaseRequest

 PROCEDURE CODE id-meNBinitiatedSeNBRelease

 CRITICALITY ignore

}

seNBinitiatedSeNBRelease X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SeNBReleaseRequired

 SUCCESSFUL OUTCOME SeNBReleaseConfirm

 PROCEDURE CODE id-seNBinitiatedSeNBRelease

 CRITICALITY reject

}

seNBCounterCheck X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SeNBCounterCheckRequest

 PROCEDURE CODE id-seNBCounterCheck

 CRITICALITY reject

}

x2Removal X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE X2RemovalRequest

 SUCCESSFUL OUTCOME X2RemovalResponse

 UNSUCCESSFUL OUTCOME X2RemovalFailure

 PROCEDURE CODE id-x2Removal

 CRITICALITY reject

}

retrieveUEContext X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE RetrieveUEContextRequest

 SUCCESSFUL OUTCOME RetrieveUEContextResponse

 UNSUCCESSFUL OUTCOME RetrieveUEContextFailure

 PROCEDURE CODE id-retrieveUEContext

 CRITICALITY reject

}

sgNBAdditionPreparation X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SgNBAdditionRequest

 SUCCESSFUL OUTCOME SgNBAdditionRequestAcknowledge

 UNSUCCESSFUL OUTCOME SgNBAdditionRequestReject

 PROCEDURE CODE id-sgNBAdditionPreparation

 CRITICALITY reject

}

sgNBReconfigurationCompletion X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SgNBReconfigurationComplete

 PROCEDURE CODE id-sgNBReconfigurationCompletion

 CRITICALITY ignore

}

meNBinitiatedSgNBModificationPreparation X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SgNBModificationRequest

 SUCCESSFUL OUTCOME SgNBModificationRequestAcknowledge

 UNSUCCESSFUL OUTCOME SgNBModificationRequestReject

 PROCEDURE CODE id-meNBinitiatedSgNBModificationPreparation

 CRITICALITY reject

}

sgNBinitiatedSgNBModification X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SgNBModificationRequired

 SUCCESSFUL OUTCOME SgNBModificationConfirm

 UNSUCCESSFUL OUTCOME SgNBModificationRefuse

 PROCEDURE CODE id-sgNBinitiatedSgNBModification

 CRITICALITY reject

}

meNBinitiatedSgNBRelease X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SgNBReleaseRequest

 SUCCESSFUL OUTCOME SgNBReleaseRequestAcknowledge

 UNSUCCESSFUL OUTCOME SgNBReleaseRequestReject

 PROCEDURE CODE id-meNBinitiatedSgNBRelease

 CRITICALITY ignore

}

sgNBinitiatedSgNBRelease X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SgNBReleaseRequired

 SUCCESSFUL OUTCOME SgNBReleaseConfirm

 PROCEDURE CODE id-sgNBinitiatedSgNBRelease

 CRITICALITY reject

}

sgNBCounterCheck X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SgNBCounterCheckRequest

 PROCEDURE CODE id-sgNBCounterCheck

 CRITICALITY reject

}

sgNBChange X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SgNBChangeRequired

 SUCCESSFUL OUTCOME SgNBChangeConfirm

 UNSUCCESSFUL OUTCOME SgNBChangeRefuse

 PROCEDURE CODE id-sgNBChange

 CRITICALITY reject

}

rRCTransfer X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE RRCTransfer

 PROCEDURE CODE id-rRCTransfer

 CRITICALITY reject

}

endcX2Setup X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ENDCX2SetupRequest

 SUCCESSFUL OUTCOME ENDCX2SetupResponse

 UNSUCCESSFUL OUTCOME ENDCX2SetupFailure

 PROCEDURE CODE id-endcX2Setup

 CRITICALITY reject

}

endcConfigurationUpdate X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ENDCConfigurationUpdate

 SUCCESSFUL OUTCOME ENDCConfigurationUpdateAcknowledge

 UNSUCCESSFUL OUTCOME ENDCConfigurationUpdateFailure

 PROCEDURE CODE id-endcConfigurationUpdate

 CRITICALITY reject

}

secondaryRATDataUsageReport X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SecondaryRATDataUsageReport

 PROCEDURE CODE id-secondaryRATDataUsageReport

 CRITICALITY reject

}

endcCellActivation X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ENDCCellActivationRequest

 SUCCESSFUL OUTCOME ENDCCellActivationResponse

 UNSUCCESSFUL OUTCOME ENDCCellActivationFailure

 PROCEDURE CODE id-endcCellActivation

 CRITICALITY reject

}

endcPartialReset X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ENDCPartialResetRequired

 SUCCESSFUL OUTCOME ENDCPartialResetConfirm

 PROCEDURE CODE id-endcPartialReset

 CRITICALITY reject

}

eUTRANRCellResourceCoordination X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE EUTRANRCellResourceCoordinationRequest

 SUCCESSFUL OUTCOME EUTRANRCellResourceCoordinationResponse

 PROCEDURE CODE id-eUTRANRCellResourceCoordination

 CRITICALITY reject

}

sgNBActivityNotification X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SgNBActivityNotification

 PROCEDURE CODE id-SgNBActivityNotification

 CRITICALITY reject

}

endcX2Removal X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ENDCX2RemovalRequest

 SUCCESSFUL OUTCOME ENDCX2RemovalResponse

 UNSUCCESSFUL OUTCOME ENDCX2RemovalFailure

 PROCEDURE CODE id-endcX2Removal

 CRITICALITY reject

}

dataForwardingAddressIndication X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE DataForwardingAddressIndication

 PROCEDURE CODE id-dataForwardingAddressIndication

 CRITICALITY ignore

}

gNBStatusIndication X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE GNBStatusIndication

 PROCEDURE CODE id-gNBStatusIndication

 CRITICALITY ignore

}

endcConfigurationTransfer X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ENDCConfigurationTransfer

 PROCEDURE CODE id-endcConfigurationTransfer

 CRITICALITY ignore

}

deactivateTrace X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE DeactivateTrace

 PROCEDURE CODE id-deactivateTrace

 CRITICALITY ignore

}

traceStart X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE TraceStart

 PROCEDURE CODE id-traceStart

 CRITICALITY ignore

}

handoverSuccess X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE HandoverSuccess

 PROCEDURE CODE id-handoverSuccess

 CRITICALITY ignore

}

earlyStatusTransfer X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE EarlyStatusTransfer

 PROCEDURE CODE id-earlyStatusTransfer

 CRITICALITY ignore

}

conditionalHandoverCancel X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ConditionalHandoverCancel

 PROCEDURE CODE id-conditionalHandoverCancel

 CRITICALITY ignore

}

endcresourceStatusReportingInitiation X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ENDCResourceStatusRequest

 SUCCESSFUL OUTCOME ENDCResourceStatusResponse

 UNSUCCESSFUL OUTCOME ENDCResourceStatusFailure

 PROCEDURE CODE id-endcresourceStatusReportingInitiation

 CRITICALITY reject

}

endcresourceStatusReporting X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE ENDCResourceStatusUpdate

 PROCEDURE CODE id-endcresourceStatusReporting

 CRITICALITY ignore

}

cellTrafficTrace X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE CellTrafficTrace

 PROCEDURE CODE id-cellTrafficTrace

 CRITICALITY ignore

}

f1CTrafficTransfer X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE F1CTrafficTransfer

 PROCEDURE CODE id-f1CTrafficTransfer

 CRITICALITY ignore

}

uERadioCapabilityIDMapping X2AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE UERadioCapabilityIDMappingRequest

 SUCCESSFUL OUTCOME UERadioCapabilityIDMappingResponse

 PROCEDURE CODE id-UERadioCapabilityIDMapping

 CRITICALITY reject

}

END

-- ASN1STOP

### 9.3.4 PDU Definitions

-- ASN1START

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

--

-- PDU definitions for X2AP.

--

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

X2AP-PDU-Contents {

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

eps-Access (21) modules (3) x2ap (2) version1 (1) x2ap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

--

-- IE parameter types from other modules.

--

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

IMPORTS

 ABSInformation,

 ABS-Status,

 AS-SecurityInformation,

 BearerType,

 Cause,

 CompositeAvailableCapacityGroup,

 Correlation-ID,

 COUNTvalue,

 CellReportingIndicator,

 AerialUEsubscriptionInformation,

 CriticalityDiagnostics,

 CRNTI,

 CSGMembershipStatus,

 CSG-Id,

 DeactivationIndication,

 DL-Forwarding,

 DynamicDLTransmissionInformation,

 E-RABsSubjectToDLDiscarding-List,

 E-RABsSubjectToEarlyStatusTransfer-List,

 ECGI,

 E-RAB-ID,

 E-RAB-Level-QoS-Parameters,

 E-RAB-List,

 EUTRANTraceID,

 GlobalENB-ID,

 GTPtunnelEndpoint,

 GUGroupIDList,

 GUMMEI,

 HandoverReportType,

 HandoverRestrictionList,

 Masked-IMEISV,

 InvokeIndication,

 LocationReportingInformation,

 LowerLayerPresenceStatusChange,

 MDT-Configuration,

 ManagementBasedMDTallowed,

 MDTPLMNList,

 Neighbour-Information,

 PCI,

 PDCP-SN,

 PLMN-Identity,

 ReceiveStatusofULPDCPSDUs,

 Registration-Request,

 RelativeNarrowbandTxPower,

 RadioResourceStatus,

 RLC-Status,

 RRCConnReestabIndicator,

 RRCConnSetupIndicator,

 UE-RLF-Report-Container,

 UEAppLayerMeasConfig,

 RRC-Context,

 ServedCell-Information,

 ServedCells,

 ShortMAC-I,

 SRVCCOperationPossible,

 SubscriberProfileIDforRFP,

 TargetCellInUTRAN,

 TargeteNBtoSource-eNBTransparentContainer,

 TimeToWait,

 TraceActivation,

 TraceDepth,

 TransportLayerAddress,

 UEAggregateMaximumBitRate,

 UE-HistoryInformation,

 UE-HistoryInformationFromTheUE,

 UE-S1AP-ID,

 UESecurityCapabilities,

 UEsToBeResetList,

 UE-X2AP-ID,

 UL-HighInterferenceIndicationInfo,

 UL-InterferenceOverloadIndication,

 HWLoadIndicator,

 S1TNLLoadIndicator,

 Measurement-ID,

 ReportCharacteristics,

 MobilityParametersInformation,

 MobilityParametersModificationRange,

 ReceiveStatusOfULPDCPSDUsExtended,

 COUNTValueExtended,

 SubframeAssignment,

 ExtendedULInterferenceOverloadInfo,

 ExpectedUEBehaviour,

 SeNBSecurityKey,

 MeNBtoSeNBContainer,

 SeNBtoMeNBContainer,

 SCGChangeIndication,

 CoMPInformation,

 ReportingPeriodicityRSRPMR,

 RSRPMRList,

 UE-RLF-Report-Container-for-extended-bands,

 ProSeAuthorized,

 CoverageModificationList,

 ReportingPeriodicityCSIR,

 CSIReportList,

 ReceiveStatusOfULPDCPSDUsPDCP-SNlength18,

 COUNTvaluePDCP-SNlength18,

 LHN-ID,

 UE-ContextKeptIndicator,

 UE-X2AP-ID-Extension,

 SIPTOBearerDeactivationIndication,

 TunnelInformation,

 V2XServicesAuthorized,

 X2BenefitValue,

 ResumeID,

 EUTRANCellIdentifier,

 MakeBeforeBreakIndicator,

 WTID,

 WT-UE-XwAP-ID,

 UESidelinkAggregateMaximumBitRate,

 SgNBSecurityKey,

 MeNBtoSgNBContainer,

 SgNBtoMeNBContainer,

 SplitSRBs,

 RRCContainer,

 SRBType,

 GlobalGNB-ID,

 GNB-ID,

 SCGConfigurationQuery,

 SplitSRB,

 NRUeReport,

 EN-DC-ResourceConfiguration,

 TAC,

 NRFreqInfo,

 NRCGI,

 NRPCI,

 NRUESecurityCapabilities,

 PDCPChangeIndication,

 ULConfiguration,

 SgNB-UE-X2AP-ID,

 SecondaryRATUsageReportList,

 ActivationID,

 MeNBResourceCoordinationInformation,

 SgNBResourceCoordinationInformation,

 NR-TxBW,

 BroadcastPLMNs-Item,

 AdditionalPLMNs-Item,

 RLCMode,

 GBR-QosInformation,

 DRB-ID,

 FiveGS-TAC,

 SULInformation,

 Packet-LossRate,

 ResourceType,

 DataTrafficResourceIndication,

 SpectrumSharingGroupID,

 RRC-Config-Ind,

 SGNB-Addition-Trigger-Ind,

 UserPlaneTrafficActivityReport,

 ERABActivityNotifyItemList,

 PDCPSnLength,

 Subscription-Based-UE-DifferentiationInfo,

 LCID,

 DuplicationActivation,

 GNBOverloadInformation,

 NewDRBIDrequest,

 DesiredActNotificationLevel,

 LocationInformationSgNB,

 LocationInformationSgNBReporting,

 EndcSONConfigurationTransfer,

 NRNeighbour-Information,

 InterfaceInstanceIndication,

 BPLMN-ID-Info-NR,

 SNtriggered,

 EPCHandoverRestrictionListContainer,

 AdditionalRRMPriorityIndex,

 RequestedFastMCGRecoveryViaSRB3,

 AvailableFastMCGRecoveryViaSRB3,

 RequestedFastMCGRecoveryViaSRB3Release,

 ReleaseFastMCGRecoveryViaSRB3,

 FastMCGRecovery,

 PartialListIndicator,

 MaximumCellListSize,

 MessageOversizeNotification,

 TNLConfigurationInfo,

 TNLA-To-Add-List,

 TNLA-To-Update-List,

 TNLA-To-Remove-List,

 TNLA-Setup-List,

 TNLA-Failed-To-Setup-List,

 RAN-UE-NGAP-ID,

 CHOinformation-REQ,

 CHOinformation-ACK,

 DAPSRequestInfo,

 DAPSResponseInfo,

 LowerLayerPresenceStatusChange,

 CandidateCellsToBeCancelledList,

 CHO-DC-Indicator,

 Ethernet-Type,

 NRV2XServicesAuthorized,

 NRUESidelinkAggregateMaximumBitRate,

 PC5QoSParameters,

 TargetCellInNGRAN,

 Measurement-ID-ENDC,

 Registration-Request-ENDC,

 ReportCharacteristics-ENDC,

 NRRadioResourceStatus,

 TNLCapacityIndicator,

 NRCompositeAvailableCapacityGroup,

 SSBIndex,

 TDDULDLConfigurationCommonNR,

 NRCarrierList,

 SSB-PositionsInBurst,

 NRCellPRACHConfig,

 NBIoT-RLF-Report-Container, PrivacyIndicator,

 UERadioCapabilityID,

 CSI-RSTransmissionIndication,

 IABNodeIndication,

 F1CTrafficContainer,

 IABInformation,

 UERadioCapability

FROM X2AP-IEs

 PrivateIE-Container{},

 ProtocolExtensionContainer{},

 ProtocolIE-Container{},

 ProtocolIE-ContainerList{},

 ProtocolIE-ContainerPair{},

 ProtocolIE-ContainerPairList{},

 ProtocolIE-Single-Container{},

 X2AP-PRIVATE-IES,

 X2AP-PROTOCOL-EXTENSION,

 X2AP-PROTOCOL-IES,

 X2AP-PROTOCOL-IES-PAIR

FROM X2AP-Containers

 id-ABSInformation,

 id-ActivatedCellList,

 id-BearerType,

 id-Cause,

 id-CellInformation,

 id-CellInformation-Item,

 id-CellMeasurementResult,

 id-CellMeasurementResult-ENDC,

 id-CellMeasurementResult-Item,

 id-CellMeasurementResult-ENDC-Item,

 id-CellToReport,

 id-CellToReport-ENDC,

 id-CellToReport-Item,

 id-CellToReport-ENDC-Item,

 id-CompositeAvailableCapacityGroup,

 id-AerialUEsubscriptionInformation,

 id-CriticalityDiagnostics,

 id-DeactivationIndication,

 id-DynamicDLTransmissionInformation,

 id-E-RABs-Admitted-Item,

 id-E-RABs-Admitted-List,

 id-E-RABs-NotAdmitted-List,

 id-E-RABs-SubjectToStatusTransfer-List,

 id-E-RABs-SubjectToStatusTransfer-Item,

 id-E-RABs-ToBeSetup-Item,

 id-GlobalENB-ID,

 id-GUGroupIDList,

 id-GUGroupIDToAddList,

 id-GUGroupIDToDeleteList,

 id-GUMMEI-ID,

 id-Masked-IMEISV,

 id-InvokeIndication,

 id-New-eNB-UE-X2AP-ID,

 id-Old-eNB-UE-X2AP-ID,

 id-Registration-Request,

 id-ReportingPeriodicity,

 id-RLC-Status,

 id-ServedCells,

 id-ServedCellsToActivate,

 id-ServedCellsToAdd,

 id-ServedCellsToModify,

 id-ServedCellsToDelete,

 id-SRVCCOperationPossible,

 id-TargetCell-ID,

 id-TargeteNBtoSource-eNBTransparentContainer,

 id-TimeToWait,

 id-TraceActivation,

 id-UE-ContextInformation,

 id-UE-HistoryInformation,

 id-UE-X2AP-ID,

 id-Measurement-ID,

 id-ReportCharacteristics,

 id-ENB1-Measurement-ID,

 id-ENB2-Measurement-ID,

 id-ENB1-Cell-ID,

 id-ENB2-Cell-ID,

 id-ENB2-Proposed-Mobility-Parameters,

 id-ENB1-Mobility-Parameters,

 id-ENB2-Mobility-Parameters-Modification-Range,

 id-FailureCellPCI,

 id-Re-establishmentCellECGI,

 id-FailureCellCRNTI,

 id-ShortMAC-I,

 id-SourceCellECGI,

 id-FailureCellECGI,

 id-HandoverReportType,

 id-UE-RLF-Report-Container,

 id-PartialSuccessIndicator,

 id-MeasurementInitiationResult-List,

 id-MeasurementInitiationResult-Item,

 id-MeasurementFailureCause-Item,

 id-CompleteFailureCauseInformation-List,

 id-CompleteFailureCauseInformation-Item,

 id-CSGMembershipStatus,

 id-CSG-Id,

 id-MDTConfiguration,

 id-ManagementBasedMDTallowed,

 id-ABS-Status,

 id-RRCConnSetupIndicator,

 id-RRCConnReestabIndicator,

 id-TargetCellInUTRAN,

 id-MobilityInformation,

 id-SourceCellCRNTI,

 id-ManagementBasedMDTPLMNList,

 id-ReceiveStatusOfULPDCPSDUsExtended,

 id-ULCOUNTValueExtended,

 id-DLCOUNTValueExtended,

 id-IntendedULDLConfiguration,

 id-ExtendedULInterferenceOverloadInfo,

 id-RNL-Header,

 id-x2APMessage,

 id-UE-HistoryInformationFromTheUE,

 id-ExpectedUEBehaviour,

 id-MeNB-UE-X2AP-ID,

 id-SeNB-UE-X2AP-ID,

 id-UE-SecurityCapabilities,

 id-SeNBSecurityKey,

 id-SeNBUEAggregateMaximumBitRate,

 id-ServingPLMN,

 id-E-RABs-ToBeAdded-List,

 id-E-RABs-ToBeAdded-Item,

 id-MeNBtoSeNBContainer,

 id-E-RABs-Admitted-ToBeAdded-List,

 id-E-RABs-Admitted-ToBeAdded-Item,

 id-SeNBtoMeNBContainer,

 id-ResponseInformationSeNBReconfComp,

 id-UE-ContextInformationSeNBModReq,

 id-E-RABs-ToBeAdded-ModReqItem,

 id-E-RABs-ToBeModified-ModReqItem,

 id-E-RABs-ToBeReleased-ModReqItem,

 id-E-RABs-Admitted-ToBeAdded-ModAckList,

 id-E-RABs-Admitted-ToBeModified-ModAckList,

 id-E-RABs-Admitted-ToBeReleased-ModAckList,

 id-E-RABs-Admitted-ToBeAdded-ModAckItem,

 id-E-RABs-Admitted-ToBeModified-ModAckItem,

 id-E-RABs-Admitted-ToBeReleased-ModAckItem,

 id-SCGChangeIndication,

 id-E-RABs-ToBeReleased-ModReqd,

 id-E-RABs-ToBeReleased-ModReqdItem,

 id-E-RABs-ToBeReleased-List-RelReq,

 id-E-RABs-ToBeReleased-RelReqItem,

 id-E-RABs-ToBeReleased-List-RelConf,

 id-E-RABs-ToBeReleased-RelConfItem,

 id-E-RABs-SubjectToCounterCheck-List,

 id-E-RABs-SubjectToCounterCheckItem,

 id-CoMPInformation,

 id-ReportingPeriodicityRSRPMR,

 id-RSRPMRList,

 id-UE-RLF-Report-Container-for-extended-bands,

 id-ProSeAuthorized,

 id-CoverageModificationList,

 id-ReportingPeriodicityCSIR,

 id-CSIReportList,

 id-ReceiveStatusOfULPDCPSDUsPDCP-SNlength18,

 id-ULCOUNTValuePDCP-SNlength18,

 id-DLCOUNTValuePDCP-SNlength18,

 id-LHN-ID,

 id-Correlation-ID,

 id-SIPTO-Correlation-ID,

 id-UE-ContextReferenceAtSeNB,

 id-UE-ContextReferenceAtWT,

 id-UE-ContextKeptIndicator,

 id-UEs-ToBeReset,

 id-UEs-Admitted-ToBeReset,

 id-WT-UE-ContextKeptIndicator,

 id-New-eNB-UE-X2AP-ID-Extension,

 id-Old-eNB-UE-X2AP-ID-Extension,

 id-MeNB-UE-X2AP-ID-Extension,

 id-SeNB-UE-X2AP-ID-Extension,

 id-SIPTO-BearerDeactivationIndication,

 id-Tunnel-Information-for-BBF,

 id-SIPTO-L-GW-TransportLayerAddress,

 id-GW-TransportLayerAddress,

 id-X2RemovalThreshold,

 id-CellReportingIndicator,

 id-V2XServicesAuthorized,

 id-resumeID,

 id-UE-ContextInformationRetrieve,

 id-E-RABs-ToBeSetupRetrieve-Item,

 id-NewEUTRANCellIdentifier,

 id-MakeBeforeBreakIndicator,

 id-UESidelinkAggregateMaximumBitRate,

 id-uL-GTPtunnelEndpoint,

 id-SgNBSecurityKey,

 id-SgNBUEAggregateMaximumBitRate,

 id-E-RABs-ToBeAdded-SgNBAddReqList,

 id-MeNBtoSgNBContainer,

 id-SgNB-UE-X2AP-ID,

 id-RequestedSplitSRBs,

 id-E-RABs-ToBeAdded-SgNBAddReq-Item,

 id-E-RABs-Admitted-ToBeAdded-SgNBAddReqAckList,

 id-SgNBtoMeNBContainer,

 id-AdmittedSplitSRBs,

 id-E-RABs-Admitted-ToBeAdded-SgNBAddReqAck-Item,

 id-ResponseInformationSgNBReconfComp,

 id-UE-ContextInformation-SgNBModReq,

 id-E-RABs-ToBeAdded-SgNBModReq-Item,

 id-E-RABs-ToBeModified-SgNBModReq-Item,

 id-E-RABs-ToBeReleased-SgNBModReq-Item,

 id-E-RABs-Admitted-ToBeAdded-SgNBModAckList,

 id-E-RABs-Admitted-ToBeModified-SgNBModAckList,

 id-E-RABs-Admitted-ToBeReleased-SgNBModAckList,

 id-E-RABs-Admitted-ToBeAdded-SgNBModAck-Item,

 id-E-RABs-Admitted-ToBeModified-SgNBModAck-Item,

 id-E-RABs-Admitted-ToBeReleased-SgNBModAck-Item,

 id-E-RABs-Admitted-ToBeReleased-SgNBRelReqAckList,

 id-E-RABs-Admitted-ToBeReleased-SgNBRelReqAck-Item,

 id-E-RABs-ToBeReleased-SgNBModReqdList,

 id-E-RABs-ToBeModified-SgNBModReqdList,

 id-E-RABs-ToBeReleased-SgNBModReqd-Item,

 id-E-RABs-ToBeModified-SgNBModReqd-Item,

 id-E-RABs-ToBeReleased-SgNBChaConfList,

 id-E-RABs-ToBeReleased-SgNBChaConf-Item,

 id-E-RABs-ToBeReleased-SgNBRelReqList,

 id-E-RABs-ToBeReleased-SgNBRelReq-Item,

 id-E-RABs-ToBeReleased-SgNBRelConfList,

 id-E-RABs-ToBeReleased-SgNBRelConf-Item,

 id-E-RABs-ToBeReleased-SgNBRelReqdList,

 id-E-RABs-ToBeReleased-SgNBRelReqd-Item,

 id-E-RABs-SubjectToSgNBCounterCheck-List,

 id-E-RABs-SubjectToSgNBCounterCheck-Item,

 id-Target-SgNB-ID,

 id-RRCContainer,

 id-SRBType,

 id-HandoverRestrictionList,

 id-SCGConfigurationQuery,

 id-SplitSRB,

 id-NRUeReport,

 id-InitiatingNodeType-EndcX2Setup,

 id-InitiatingNodeType-EndcConfigUpdate,

 id-RespondingNodeType-EndcX2Setup,

 id-RespondingNodeType-EndcConfigUpdate,

 id-NRUESecurityCapabilities,

 id-PDCPChangeIndication,

 id-ServedEUTRAcellsENDCX2ManagementList,

 id-ServedEUTRAcellsToModifyListENDCConfUpd,

 id-ServedEUTRAcellsToDeleteListENDCConfUpd,

 id-ServedNRcellsToModifyListENDCConfUpd,

 id-ServedNRcellsToDeleteListENDCConfUpd,

 id-CellAssistanceInformation,

 id-Globalen-gNB-ID,

 id-ServedNRcellsENDCX2ManagementList,

 id-Old-SgNB-UE-X2AP-ID,

 id-UE-ContextReferenceAtSgNB,

 id-SecondaryRATUsageReportList,

 id-ActivationID,

 id-ServedNRCellsToActivate,

 id-ActivatedNRCellList,

 id-MeNBResourceCoordinationInformation,

 id-SgNBResourceCoordinationInformation,

 id-UEAppLayerMeasConfig,

 id-SelectedPLMN,

 id-SubscriberProfileIDforRFP,

 id-InitiatingNodeType-EutranrCellResourceCoordination,

 id-RespondingNodeType-EutranrCellResourceCoordination,

 id-DataTrafficResourceIndication,

 id-SpectrumSharingGroupID,

 id-ListofEUTRACellsinEUTRACoordinationReq,

 id-ListofEUTRACellsinEUTRACoordinationResp,

 id-ListofEUTRACellsinNRCoordinationReq,

 id-ListofNRCellsinNRCoordinationReq,

 id-ListofNRCellsinNRCoordinationResp,

 id-RRCConfigIndication,

 id-SGNB-Addition-Trigger-Ind,

 id-RequestedSplitSRBsrelease,

 id-AdmittedSplitSRBsrelease,

 id-E-RABs-AdmittedToBeModified-SgNBModConfList,

 id-E-RABs-AdmittedToBeModified-SgNBModConf-Item,

 id-UEContextLevelUserPlaneActivity,

 id-ERABActivityNotifyItemList,

 id-MeNBCell-ID,

 id-InitiatingNodeType-EndcX2Removal,

 id-RespondingNodeType-EndcX2Removal,

 id-uLpDCPSnLength,

 id-dL-Forwarding,

 id-E-RABs-DataForwardingAddress-List,

 id-E-RABs-DataForwardingAddress-Item,

 id-Subscription-Based-UE-DifferentiationInfo,

 id-RLCMode-transferred,

 id-dLPDCPSnLength,

 id-secondarysgNBDLGTPTEIDatPDCP,

 id-secondarymeNBULGTPTEIDatPDCP,

 id-lCID,

 id-duplicationActivation,

 id-GNBOverloadInformation,

 id-new-drb-ID-req,

 id-NRNeighbourInfoToModify,

 id-DesiredActNotificationLevel,

 id-LocationInformationSgNB,

 id-LocationInformationSgNBReporting,

 id-endcSONConfigurationTransfer,

 id-EUTRANTraceID,

 id-additionalPLMNs-Item,

 id-InterfaceInstanceIndication,

 id-BPLMN-ID-Info-NR,

 id-SNtriggered,

 id-EPCHandoverRestrictionListContainer,

 id-ERABs-transferred-to-MeNB,

 id-AdditionalRRMPriorityIndex,

 id-LowerLayerPresenceStatusChange,

 id-FastMCGRecovery-SN-to-MN,

 id-FastMCGRecovery-MN-to-SN,

 id-RequestedFastMCGRecoveryViaSRB3,

 id-AvailableFastMCGRecoveryViaSRB3,

 id-RequestedFastMCGRecoveryViaSRB3Release,

 id-ReleaseFastMCGRecoveryViaSRB3,

 id-PartialListIndicator,

 id-MaximumCellListSize,

 id-MessageOversizeNotification,

 id-CellandCapacityAssistInfo,

 id-TNLConfigurationInfo,

 id-TNLA-To-Add-List,

 id-TNLA-To-Update-List,

 id-TNLA-To-Remove-List,

 id-TNLA-Setup-List,

 id-TNLA-Failed-To-Setup-List,

 id-UEContextReferenceatSourceNGRAN,

 id-CHOinformation-REQ,

 id-CHOinformation-ACK,

 id-DAPSRequestInfo,

 id-RequestedTargetCellID,

 id-CandidateCellsToBeCancelledList,

 id-DAPSResponseInfo,

 id-ProcedureStage,

 id-CHO-DC-Indicator,

 id-Ethernet-Type,

 id-NRV2XServicesAuthorized,

 id-NRUESidelinkAggregateMaximumBitRate,

 id-PC5QoSParameters,

 id-TargetCellInNGRAN,

 id-eNB-Measurement-ID-ENDC,

 id-engNB-Measurement-ID-ENDC,

 id-TDDULDLConfigurationCommonNR,

 id-CarrierList,

 id-ULCarrierList,

 id-SSB-PositionsInBurst,

 id-NRCellPRACHConfig,

 id-NBIoT-RLF-Report-Container,

 id-MDTConfigurationNR,

 id-PrivacyIndicator,

 id-TraceCollectionEntityIPAddress,

 id-UERadioCapabilityID,

 id-CSI-RSTransmissionIndication,

 id-DLCarrierList,

 id-IABNodeIndication,

 id-F1CTrafficContainer,

 id-IABInformation,

 id-UERadioCapability,

 maxCellineNB,

 maxnoofBearers,

 maxnoofPDCP-SN,

 maxFailedMeasObjects,

 maxnoofCellIDforMDT,

 maxnoofTAforMDT,

 maxCellinengNB,

 maxnoofCellIDforQMC,

 maxnoofTAforQMC,

 maxnoofPLMNforQMC,

 maxnoofProtectedResourcePatterns,

 maxnoNRcellsSpectrumSharingWithE-UTRA,

 maxnoofNrCellBands,

 maxnoofSSBAreas

FROM X2AP-Constants;

<<<<<<<<<<<<<<<<<<<< Unmodified Text omitted >>>>>>>>>>>>>>>>>>>>

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

--

-- UE RADIO CAPABILITY ID MAPPING REQUEST

--

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

UERadioCapabilityIDMappingRequest::= SEQUENCE {

 protocolIEs ProtocolIE-Container { { UERadioCapabilityIDMappingRequestIEs} },

 ...

}

UERadioCapabilityIDMappingRequestIEs X2AP-PROTOCOL-IES ::= {

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

 ...

}

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

--

-- UE RADIO CAPABILITY ID MAPPING RESPONSE

--

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

UERadioCapabilityIDMappingResponse ::= SEQUENCE {

 protocolIEs ProtocolIE-Container { { UERadioCapabilityIDMappingResponseIEs} },

 ...

}

UERadioCapabilityIDMappingResponseIEs X2AP-PROTOCOL-IES ::= {

 { ID id-UERadioCapabilityID CRITICALITY reject TYPE UERadioCapabilityID PRESENCE mandatory }|

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

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

 ...

}

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

### 9.3.5 Information Element definitions

-- ASN1START

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

--

-- Information Element Definitions

--

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

X2AP-IEs {

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

eps-Access (21) modules (3) x2ap (2) version1 (1) x2ap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

<<<<<<<<<<<<<<<<<<<< Unmodified Text omitted >>>>>>>>>>>>>>>>>>>>

-- U

UEAggregateMaximumBitRate ::= SEQUENCE {

 uEaggregateMaximumBitRateDownlink BitRate,

 uEaggregateMaximumBitRateUplink BitRate,

 iE-Extensions ProtocolExtensionContainer { {UEAggregate-MaximumBitrate-ExtIEs} } OPTIONAL,

 ...

}

UEAggregate-MaximumBitrate-ExtIEs X2AP-PROTOCOL-EXTENSION ::= {

 { ID id-extended-uEaggregateMaximumBitRateDownlink CRITICALITY ignore EXTENSION ExtendedBitRate PRESENCE optional}|

 { ID id-extended-uEaggregateMaximumBitRateUplink CRITICALITY ignore EXTENSION ExtendedBitRate PRESENCE optional},

 ...

}

UEAppLayerMeasConfig ::= SEQUENCE {

 containerForAppLayerMeasConfig OCTET STRING (SIZE(1..1000)),

 areaScopeOfQMC AreaScopeOfQMC,

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

 ...

}

UEAppLayerMeasConfig-ExtIEs X2AP-PROTOCOL-EXTENSION ::= {

 {ID id-serviceType CRITICALITY ignore EXTENSION ServiceType PRESENCE optional},

 ...

}

UE-ContextKeptIndicator ::= ENUMERATED {

 true,

 ...

}

UEID ::= BIT STRING (SIZE (16))

UE-HistoryInformation ::= SEQUENCE (SIZE(1..maxnoofCells)) OF LastVisitedCell-Item

UE-HistoryInformationFromTheUE ::= OCTET STRING

-- This IE is a transparent container and shall be encoded as the VisitedCellInfoList field contained in the UEInformationResponse message as defined in TS 36.331 [9]

UE-S1AP-ID ::= INTEGER (0.. 4294967295)

UE-X2AP-ID ::= INTEGER (0..4095)

UE-X2AP-ID-Extension ::= INTEGER (0..4095, ...)

UERadioCapability ::= OCTET STRING

UERadioCapabilityID ::= OCTET STRING

<<<<<<<<<<<<<<<<<<<< Last Change >>>>>>>>>>>>>>>>>>>>

### 9.3.7 Constant definitions

-- ASN1START

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

--

-- Constant definitions

--

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

X2AP-Constants {

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

eps-Access (21) modules (3) x2ap (2) version1 (1) x2ap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

 ProcedureCode,

 ProtocolIE-ID

FROM X2AP-CommonDataTypes;

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

--

-- Elementary Procedures

--

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

id-handoverPreparation ProcedureCode ::= 0

id-handoverCancel ProcedureCode ::= 1

id-loadIndication ProcedureCode ::= 2

id-errorIndication ProcedureCode ::= 3

id-snStatusTransfer ProcedureCode ::= 4

id-uEContextRelease ProcedureCode ::= 5

id-x2Setup ProcedureCode ::= 6

id-reset ProcedureCode ::= 7

id-eNBConfigurationUpdate ProcedureCode ::= 8

id-resourceStatusReportingInitiation ProcedureCode ::= 9

id-resourceStatusReporting ProcedureCode ::= 10

id-privateMessage ProcedureCode ::= 11

id-mobilitySettingsChange ProcedureCode ::= 12

id-rLFIndication ProcedureCode ::= 13

id-handoverReport ProcedureCode ::= 14

id-cellActivation ProcedureCode ::= 15

id-x2Release ProcedureCode ::= 16

id-x2APMessageTransfer ProcedureCode ::= 17

id-x2Removal ProcedureCode ::= 18

id-seNBAdditionPreparation ProcedureCode ::= 19

id-seNBReconfigurationCompletion ProcedureCode ::= 20

id-meNBinitiatedSeNBModificationPreparation ProcedureCode ::= 21

id-seNBinitiatedSeNBModification ProcedureCode ::= 22

id-meNBinitiatedSeNBRelease ProcedureCode ::= 23

id-seNBinitiatedSeNBRelease ProcedureCode ::= 24

id-seNBCounterCheck ProcedureCode ::= 25

id-retrieveUEContext ProcedureCode ::= 26

id-sgNBAdditionPreparation ProcedureCode ::= 27

id-sgNBReconfigurationCompletion ProcedureCode ::= 28

id-meNBinitiatedSgNBModificationPreparation ProcedureCode ::= 29

id-sgNBinitiatedSgNBModification ProcedureCode ::= 30

id-meNBinitiatedSgNBRelease ProcedureCode ::= 31

id-sgNBinitiatedSgNBRelease ProcedureCode ::= 32

id-sgNBCounterCheck ProcedureCode ::= 33

id-sgNBChange ProcedureCode ::= 34

id-rRCTransfer ProcedureCode ::= 35

id-endcX2Setup ProcedureCode ::= 36

id-endcConfigurationUpdate ProcedureCode ::= 37

id-secondaryRATDataUsageReport ProcedureCode ::= 38

id-endcCellActivation ProcedureCode ::= 39

id-endcPartialReset ProcedureCode ::= 40

id-eUTRANRCellResourceCoordination ProcedureCode ::= 41

id-SgNBActivityNotification ProcedureCode ::= 42

id-endcX2Removal ProcedureCode ::= 43

id-dataForwardingAddressIndication ProcedureCode ::= 44

id-gNBStatusIndication ProcedureCode ::= 45

id-deactivateTrace ProcedureCode ::= 46

id-traceStart ProcedureCode ::= 47

id-endcConfigurationTransfer ProcedureCode ::= 48

id-handoverSuccess ProcedureCode ::= 49

id-conditionalHandoverCancel ProcedureCode ::= 50

id-earlyStatusTransfer ProcedureCode ::= 51

id-cellTrafficTrace ProcedureCode ::= 52

id-endcresourceStatusReporting ProcedureCode ::= 53

id-endcresourceStatusReportingInitiation ProcedureCode ::= 54

id-f1CTrafficTransfer ProcedureCode ::= 55

id-UERadioCapabilityIDMapping ProcedureCode ::= 99 -- to be assigned

<<<<<<<<<<<<<<<<<<<< Unmodified Text omitted >>>>>>>>>>>>>>>>>>>>

id-SSB-PositionsInBurst ProtocolIE-ID ::= 389

id-NRCellPRACHConfig ProtocolIE-ID ::= 390

id-CellToReport-ENDC ProtocolIE-ID ::= 391

id-CellToReport-ENDC-Item ProtocolIE-ID ::= 392

id-CellMeasurementResult-ENDC ProtocolIE-ID ::= 393

id-CellMeasurementResult-ENDC-Item ProtocolIE-ID ::= 394

id-IABNodeIndication ProtocolIE-ID ::= 395

id-QoS-Mapping-Information ProtocolIE-ID ::= 396

id-F1CTrafficContainer ProtocolIE-ID ::= 397

id-IABInformation ProtocolIE-ID ::= 398

id-UERadioCapability ProtocolIE-ID ::= 999 -- to be assigned

END

-- ASN1STOP

<<<<<<<<<<<<<<<<<<<< End of Changes >>>>>>>>>>>>>>>>>>>>