**3GPP TSG-RAN WG3 Meeting #114bis-e *R3-221114***

**17th – 26th January 2022**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | **1852** | **rev** | **1** | **Current version:** | **16.8.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **x** | Core Network | **x** |

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| ***Title:*** | Introduction of User Plane Integrity Protection in EPS | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | , Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | UPIP\_SEC\_LTE-RAN-Core | | | | |  | ***Date:*** | | | 2022-01-17 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | |  |
|  | *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 can be 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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In order to provide integrity protection of user plane data, RAN has agreed to implement the functionality to support user plane integrity protection (UPIP) for data transferred over Uu interface for UE connected to EPC (RP-213669).This aligns with SA3 work in their WI on “User Plane Integrity Protection for LTE”. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add the UP integrity protection policy and Security Result per E-RAB in the related messages, and update the UE Security Capabilities IE to include the UE capability to support UPIP. Add cause value to indicate cases where integrity protection cannot be performed. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | No support for User Plane Integrity Protection in EPS | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.2.1.2, 8.2.2.2, 8.2.4.2, 8.3.1.2, 8.4.1.2, 8.4.2.2, 8.4.4.2, 9.1.3.1, 9.1.3.2, 9.1.3.3, 9.1.3.4, 9.1.3.8, 9.1.4.1, 9.1.4.3, 9.1.5.4, 9.1.5.5, 9.1.5.8, 9.1.5.9, 9.2.1.3, 9.2.1.7, 9.2.1.40, 9.2.1.xx1, 9.2.1.xx2, 9.2.1.xx3, 9.3.3, 9.3.4, 9.3.6 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS36.423 XXXX | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

## 8.2 E-RAB Management procedures

### 8.2.1 E-RAB Setup

#### 8.2.1.1 General

The purpose of the E-RAB Setup procedure is to assign resources on Uu and S1 for one or several E-RABs and to setup corresponding Data Radio Bearers for a given UE. The procedure uses UE-associated signalling.

#### 8.2.1.2 Successful Operation



Figure 8.2.1.2-1: E-RAB Setup procedure. Successful operation.

The MME initiates the procedure by sending an E-RAB SETUP REQUEST message to the eNB.

- The E-RAB SETUP REQUEST message shall contain the information required by the eNB to build the E-RAB configuration consisting of at least one E-RAB and for each E-RAB to setup include an *E-RAB to be Setup Item* IE.

Upon reception of the E-RAB SETUP REQUEST message, and if resources are available for the requested configuration, the eNB shall execute the requested E-RAB configuration. For each E-RAB and based on the *E-RAB level QoS parameters* IE the eNB shall establish a Data Radio Bearer and allocate the required resources on Uu. The eNB shall pass the *NAS-PDU* IE and the value contained in the *E-RAB ID* IE received for the E-RAB for each established Data Radio Bearer to the UE. The eNB does not send the NAS PDUs associated to the failed Data radio bearers to the UE. The eNB shall allocate the required resources on S1 for the E-RABs requested to be established.

If the *Correlation ID* IE is included in the E-RAB SETUP REQUEST message towards the eNB with L-GW function for LIPA operation, then the eNB shall use this information for LIPA operation for the concerned E-RAB.

If the *SIPTO Correlation ID* IE is included in the E-RAB SETUP REQUEST message towards the eNB with L-GW function for SIPTO@LN operation, then the eNB shall use this information for SIPTO@LN operation for the concerned E-RAB.

If the *Bearer Type* IE is included in the E-RAB SETUP REQUEST message and is set to "non IP", then the eNB shall not perform IP header compression for the concerned E-RAB.

If the *Ethernet Type* IE is included in the E-RAB SETUP REQUEST message and is set to "True", then the eNB shall, if supported, take this into account to perform header compression appropriately for the concerned E-RAB.

For each E-RAB for which the *Security Indication* IE is included in the *E-RAB To Be Setup Item IEs* IE of the E-RAB SETUP REQUEST message:

* if the *Integrity Protection Indication* IE is set to "required", then the eNB shall, if supported by the eNB and the UE, perform user plane integrity protection for the concerned E-RAB as specified in TS 33.401 [15], and otherwise it shall reject the establishment of the concerned E-RAB with an appropriate cause value.
* if the *Integrity Protection Indication* IE is set to "preferred", then the eNB should, if supported by the eNB and the UE, perform user plane integrity protection for the concerned E-RAB as specified in TS 33.401 [15], and it shall notify the MME whether it performed the user plane integrity protection by including the *Integrity Protection Result* IE in the *Security Result* IE of the E-RAB SETUP RESPONSE message.

- if the *Integrity Protection Indication* IE is set to "not needed", then the eNB shall not perform user plane integrity protection for the concerned E-RAB.

**>>> NEXT CHANGE <<<**

### 8.2.2 E-RAB Modify

#### 8.2.2.1 General

The purpose of the E-RAB Modify procedure is to enable modifications of already established E-RABs for a given UE. The procedure uses UE-associated signalling.

#### 8.2.2.2 Successful Operation



Figure 8.2.2.2-1: E-RAB Modify procedure. Successful operation.

The MME initiates the procedure by sending an E-RAB MODIFY REQUEST message to the eNB.

- The E-RAB MODIFY REQUEST message shall contain the information required by the eNB to modify one or several E-RABs of the existing E-RAB configuration.

Information shall be present in the E-RAB MODIFY REQUEST message only when any previously set value for the E-RAB configuration is requested to be modified.

Upon reception of the E-RAB MODIFY REQUEST message, and if resources are available for the requested target configuration, the eNB shall execute the modification of the requested E-RAB configuration. For each E-RAB that shall be modified and for which the *Transport Information* IE is not included and based on the new *E-RAB level QoS parameters* IE the eNB shall modify the Data Radio Bearer configuration and change allocation of resources on Uu according to the new resource request. The eNB shall pass the *NAS-PDU* IE received for the E-RAB to the UE when modifying the Data Radio Bearer configuration. The eNB does not send the NAS PDUs associated to the failed Data radio bearers to the UE. The eNB shall change allocation of resources on S1 according to the new resource request.

If the E-UTRAN failed to modify an E-RAB the E-UTRAN shall keep the E-RAB configuration as it was configured prior the E-RAB MODIFY REQUEST.

The E-RAB MODIFY REQUEST message may contain the

- the *UE Aggregate Maximum Bit Rate* IE,

- the *Secondary RAT Data Usage Request* IE.

If the *UE Aggregate Maximum Bit Rate* IE is included in the E-RAB MODIFY REQUEST, the eNB shall

- replace the previously provided UE Aggregate Maximum Bit Rate by the receivedUE Aggregate Maximum Bit Rate in the UE context;

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

If the *UE* *Aggregate Maximum Bit Rate* IE is not contained in the E-RAB MODIFY REQUEST message, the eNB shall use the previously provided UE Aggregate Maximum Bit Rate which is stored in the UE context.

The modification of resources according to the values of the *Allocation and Retention Priority* IE shall follow the principles described for the E-RAB Setup procedure.

If the *Transport Information* IE is included in the E-RAB MODIFY REQUEST message, the eNB shall use the included information as the new S-GW address and uplink packet destination for the relevant E-RAB as defined in TS 23.401 [11], and it shall ignore the *E-RAB Level QoS Parameters* and *NAS-PDU* IEs for the same E-RAB.

The eNB shall report to the MME, in the E-RAB MODIFY RESPONSE message, the result for all the requested E-RABs to be modified.

- A list of E-RABs which are successfully modified shall be included in the *E-RAB Modify List* IE.

- A list of E-RABs which failed to be modified, if any, shall be included in the *E-RAB Failed to Modify List* IE.

When the eNB reports unsuccessful modification of an E-RAB, the cause value should be precise enough to enable the MME to know the reason for an unsuccessful modification, e.g., “Radio resources not available”, “Failure in the Radio Interface Procedure”.

In case of a modification of an E-RAB the EPC must be prepared to receive user data according to the modified E-RAB profile prior to the E-RAB MODIFY RESPONSE message.

If the *Secondary RAT Data Usage Request* IE set to "requested" was included in the E-RAB MODIFY REQUEST message, and the eNB supports EN-DC, LAA, LWA or LWIP and has secondary RAT usage data to report, then the *Secondary RAT Usage Report List* IE shall be included in the E-RAB MODIFY RESPONSE message.

If the *Security Indication* IE is included in the E-RAB MODIFY REQUEST message, the eNB shall, if supported, act as defined in the E-RAB Setup procedure for the concerned E-RAB and ignore all other information elements received for the same E-RAB, and, if the *Integrity Protection Indication* IE was set to "preferred" notify the MME whether it performed user plane integrity protection by including the *Integrity Protection Result* IE in the *Security Result* IE of the E-RAB MODIFY RESPONSE message.

Editor’s Note: inclusion of the IEs above is FFS.

**Interactions with Handover Preparation procedure:**

If a handover becomes necessary during E-RAB modify, the eNB may interrupt the ongoing E-RAB Modify procedure and initiate the Handover Preparation procedure as follows:

1. The eNB shall send the E-RAB MODIFY RESPONSE message in which the eNB shall indicate, if necessary

- all the E-RABs fail with an appropriate cause value, e.g., “S1 intra system Handover triggered”, “S1 inter system Handover triggered” or “X2 Handover triggered”.

2. The eNB shall trigger the handover procedure.

**>>> NEXT CHANGE <<<**

### 8.2.4 E-RAB Modification Indication

#### 8.2.4.1 General

The purpose of the E-RAB Modification Indication procedure is to enable the eNB to request modifications of already established E-RABs for a given UE. The procedure uses UE-associated signalling.

#### 8.2.4.2 Successful Operation



Figure 8.2.4.2-1: E-RAB Modification Indication procedure. Successful operation.

The eNB initiates the procedure by sending an E-RAB MODIFICATION INDICATION message to the MME.

The *Transport Layer Address* IE and *DL GTP TEID* IE included in the *E-RAB To Be Modified Item IEs* IE in the E-RAB MODIFICATION INDICATON message shall be considered by the MME as the new DL address of the E-RABs. The *Transport Layer Address* IE and *DL GTP TEID* IE included in the *E-RAB Not To Be Modified Item IEs* IE in the E-RAB MODIFICATION INDICATION message shall be considered by the MME as the E-RABs with unchanged DL address

If the *Secondary RAT Usage Report List* IE is included in the E-RAB MODIFICATION INDICATION message, the MME shall handle this information as specified in TS 23.401 [11].

The E-RAB MODIFICATION CONFIRM message shall contain the result for all the E-RABs that were requested to be modified according to the *E-RAB To Be Modified Item IEs* IE of the E-RAB MODIFICATION INDICATION message as follows:

- A list of E-RABs which are successfully modified shall be included in the *E-RAB Modify List* IE.

- A list of E-RABs which failed to be modified, if any, shall be included in the *E-RAB Failed to Modify List* IE.

- A list of E-RABs which are to be released, if any, shall be included in the *E-RAB To Be Released List* IE.

If the *E-RAB Failed to Modify List* IE is received in the E-RAB MODIFICATION CONFIRM message, the eNB shall either

- release all corresponding E-UTRA and E-UTRAN resources for the concerned E-RAB or

- keep the previous transport information before sending the E-RAB MODIFICATION INDICATION message unchanged for the concerned E-RAB.

If the *E-RAB To Be Released List* IE is received in the E-RAB MODIFICATION CONFIRM message, the eNB shall release all corresponding E-UTRA and E-UTRAN resources for the concerned E-RAB.

If the *CSG Membership Info* IE is included in the E-RAB MODIFICATION INDICATION message, the MME shall use the information for CSG membership verification as specified in TS 36.300 [14] and provide the result of the membership verification in the *CSG Membership Status* IE contained in the E-RAB MODIFICATION CONFIRM message.

If *PLMN Identity* IE is received in the *CSG Membership Info* IE in the E-RAB MODIFICATION INDICATION message, the MME shall use it for CSG membership verification as specified in TS 36.300 [14].

When the MME reports unsuccessful modification of an E-RAB, the cause value should be precise enough to enable the eNB to know the reason for an unsuccessful modification.

If the *Tunnel Information for BBF* IE is received in the E-RAB MODIFICATION INDICATION message, the MME shall, if supported, use it in the core network as specified in TS 23.139 [37].

If the *User Location Information* IE is included in the E-RAB MODIFICATION INDICATION message, the MME shall handle this information as specified in TS 23.401 [11].

If the *Security Result* IE is included in the *E-RAB to Be Modified Item IEs* IE in the E-RAB MODIFICATION INDICATION message, it shall be considered by the MME as the new security status of the E-RAB.

**>>> NEXT CHANGE <<<**

## 8.3 Context Management procedures

### 8.3.1 Initial Context Setup

#### 8.3.1.1 General

The purpose of the Initial Context Setup procedure is to establish the necessary overall initial UE Context including E-RAB context, the Security Key, Handover Restriction List, UE Radio capability and UE Security Capabilities etc. The procedure uses UE-associated signalling.

#### 8.3.1.2 Successful Operation



Figure 8.3.1.2-1: Initial Context Setup procedure. Successful operation.

\*\*\* skip unchanged text \*\*\*

In case of the establishment of an E-RAB the EPC must be prepared to receive user data before the INITIAL CONTEXT SETUP RESPONSE message has been received by the MME. If no UE-associated logical S1-connection exists, the UE-associated logical S1-connection shall be established at reception of the INITIAL CONTEXT SETUP REQUEST message.

The INITIAL CONTEXT SETUP REQUEST message shall contain within the *E-RAB to be Setup List* IE the information required by the eNB to build the new E-RAB configuration consisting of at least one additional E-RAB.

The *E-RAB to be Setup Item* IE may contain:

- the *NAS-PDU* IE,

- the *Correlation ID* IE in case of LIPA operation,

- the *SIPTO Correlation ID* IE in case of SIPTO@LN operation,

- the *Bearer Type* IE.

- the *Security Indication* IE

\*\*\* skip unchanged text \*\*\*

If the *Correlation ID* IE is included in the INITIAL CONTEXT SETUP REQUEST message towards the eNB with L-GW function for LIPA operation, then the eNB shall use this information for LIPA operation for the concerned E-RAB.

If the *SIPTO Correlation ID* IE is included in the INITIAL CONTEXT SETUP REQUEST message towards the eNB with L-GW function for SIPTO@LN operation, then the eNB shall use this information for SIPTO@LN operation for the concerned E-RAB.

If the *Bearer Type* IE is included in the INITIAL CONTEXT SETUP REQUEST message and is set to "non IP", then the eNB shall not perform IP header compression for the concerned E-RAB.

If the *Ethernet Type* IE is included in the INITIAL CONTEXT SETUP REQUEST message and is set to "True", then the eNB shall, if supported, take this into account to perform header compression appropriately for the concerned E-RAB.

If the *Security Indication* IE is included in the INITIAL CONTEXT SETUP REQUEST message, the eNB shall, if supported, act as defined in the E-RAB Setup procedure for the concerned E-RAB, and, if the *Integrity Protection Indication* IE was set to "preferred notify the MME whether it performed user plane integrity protection by including the *Integrity Protection Result* IE in the *Security Result* IE of the INITIAL CONTEXT SETUP RESPONSE message.

**>>> NEXT CHANGE <<<**

### 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 EPC. 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 eNB initiates the handover preparation by sending the HANDOVER REQUIRED message to the serving MME. When the source eNB sends the HANDOVER REQUIRED message, it shall start the timer TS1RELOCprep. The source eNB shall indicate the appropriate cause value for the handover in the *Cause* IE.

The source eNB shall include the *Source to Target Transparent Container* IE in the HANDOVER REQUIRED message.

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 eNB to Target eNB Transparent Container* IE. In case of handover to UTRAN, the information in the *Source to Target Transparent Container* IE shall be encoded according to the *Source RNC to Target RNC Transparent Container* IE definition as specified in TS 25.413 [19] and the source eNB shall include the *UE History Information* IE in the *Source RNC to Target RNC Transparent Container* IE. If the handover is to GERAN A/Gb mode then the information in the *Source to Target Transparent Container* IE shall be encoded according to the definition of the *Source BSS to Target BSS Transparent Container* IE as described in TS 48.018 [18]. If the handover is to NG-RAN, the information in the *Source to Target Transparent Container* IE shall be encoded according to the *Source NG-RAN Node to Target NG-RAN Node Transparent Container*IE definition as specified in TS 38.413 [44].

When the preparation, including the reservation of resources at the target side is ready, the MME responds with the HANDOVER COMMAND message to the source eNB.

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

Upon reception of the HANDOVER COMMAND message the source eNB shall stop the timer TS1RELOCprep and start the timer TS1RELOCOverall.

In case of intra-system handover, 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. In case of inter-system handover to UTRAN, the information in the *Target to Source Transparent Container* IE shall be encoded according to the *Target RNC to Source RNC Transparent Container* IE definition as specified in TS 25.413 [19]. In case of inter-system handover to GERAN A/Gb mode, the information in the *Target to Source Transparent Container* IE shall be encoded according to the *Target BSS to Source BSS Transparent Container* IE definition as described in TS 48.018 [18]. In case of inter-system handover to NG-RAN, the information in the *Target to Source Transparent Container* IE shall be encoded according to the *Target NG-RAN Node to Source NG-RAN Node Transparent Container* IE definition as specified in TS 38.413 [44].

If there are any E-RABs that could not be admitted in the target, they shall be indicated in the *E-RABs to Release List* IE.

If the *DL forwarding* IE is included within the *Source eNB to Target eNB Transparent Container* IE of the HANDOVER REQUIRED message and it is set to “DL forwarding proposed”, it indicates that the source eNB proposes forwarding of downlink data.

If the *Security Indication* IE is included within the *Source eNB to Target eNB Transparent Container* IE of the HANDOVER REQUIRED message, it indicates the security policy stored in the source eNB for the concerned E-RAB, as specified in TS 33.401 [15].

If the MME receives the *Direct Forwarding Path Availability* IE in the HANDOVER REQUIRED message indicating that a direct data path is available, it shall handle it as specified in TS 23.401 [11].

**>>> NEXT CHANGE <<<**

### 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 eNB for the handover of a UE.

#### 8.4.2.2 Successful Operation



Figure 8.4.2.2-1: Handover resource allocation: successful operation

\*\*\* skip unchanged text \*\*\*

If the *UE Radio Capability ID* IE is included in the HANDOVER REQUEST message, the eNB shall, if supported, use it as defined in TS 23.401 [11].

If the *DAPS Request Information* IE is included for an E-RAB in the *Source eNB to Target eNB Transparent Container* IE within the HANDOVER REQUEST message, the target eNB shall consider that the request concerns a DAPS Handover for that E-RAB, as described in TS 36.300 [14]. The target eNB shall include the *DAPS Response information List* IE in the *Target eNB to Source eNB Transparent Container* IE within the HANDOVER REQUEST ACKNOWLEDGE message, containing the *DAPS Response Information* IE for each E-RAB requested to be configured with DAPS Handover.

If the *IMS voice EPS fallback from 5G* IE is included in the *Source eNB to Target eNB Transparent Container* IE within the HANDOVER REQUEST message, the target eNB shall, if supported, store the information in the UE context and consider that the UE is handed over from NG-RAN to E-UTRAN due to an IMS voice fallback.

If the *Security Indication* IE is contained in the HANDOVER REQUEST message, the target eNB shall, if supported, act as defined in the E-RAB Setup procedure for the concerned E-RAB, and, if the *Integrity Protection Indication* IE was set to "preferred notify the MME whether it performed user plane integrity protection by including the *Integrity Protection Result* IE in the *Security Result* IE of the HANDOVER REQUEST ACKNOWLEDGE message.If the *Security Indication* IE is included in the *Source eNB to Target eNB Transparent Container* IE within the HANDOVER REQUEST message, the target eNB shall, if supported, use it as specified in TS 33.401 [15].

**>>> NEXT CHANGE <<<**

### 8.4.4 Path Switch Request

#### 8.4.4.1 General

The purpose of the Path Switch Request procedure is to establish a UE associated signalling connection to the EPC and, if applicable, to request the switch of a downlink GTP tunnel towards a new GTP tunnel endpoint.

#### 8.4.4.2 Successful Operation



Figure 8.4.4.2-1: Path switch request: successful operation

\*\*\* skip unchanged text \*\*\*

If the *PC5 QoS Parameters* IE is included in the PATH SWITCH REQUEST ACKNOWLEDGE message, the eNB shall, if supported, use it for the concerned UE’s NR sidelink communication as specified in TS 23.285 [49].

For each E-RAB for which the *User Plane Security Information* IE is included in the *E-RABs Switched in Downlink Item* IEs IE of the PATH SWITCH REQUEST message, the MME shall behave as specified in TS 33.401 [15] and may send back the *Security Indication* IE within the *E-RABs Switched in Uplink Item IEs* IE of the PATH SWITCH REQUEST ACKNOWLEDGE message.

If the *Security Indication* IE is included within the *E-RABs Switched in Uplink Item* IEs IE of the PATH SWITCH REQUEST ACKNOWLEDGE message, the eNB shall behave as specified in TS 33.401 [15].

**>>> NEXT CHANGE <<<**

### 9.1.3 E-RAB Management Messages

#### 9.1.3.1 E-RAB SETUP REQUEST

This message is sent by the MME and is used to request the eNB to assign resources on Uu and S1 for one or several E-RABs.

Direction: MME → eNB

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.1.1 |  | YES | reject |
| MME UE S1AP ID | M |  | 9.2.3.3 |  | YES | reject |
| eNB UE S1AP ID | M |  | 9.2.3.4 |  | YES | reject |
| UE Aggregate Maximum Bit Rate | O |  | 9.2.1.20 |  | YES | reject |
| **E-RAB to be Setup List** |  | *1* |  |  | YES | reject |
| **>E-RAB To Be Setup Item IEs** |  | *1 .. <maxnoof E-RABs>* |  |  | EACH | reject |
| >>E-RAB ID | M |  | 9.2.1.2 |  | - |  |
| >>E-RAB Level QoS Parameters | M |  | 9.2.1.15 | Includes necessary QoS parameters. | - |  |
| >>Transport Layer Address | M |  | 9.2.2.1 |  | - |  |
| >>GTP-TEID | M |  | 9.2.2.2 | EPC TEID. | - |  |
| >>NAS-PDU | M |  | 9.2.3.5 |  | - |  |
| >>Correlation ID | O |  | 9.2.1.80 |  | YES | ignore |
| >>SIPTO Correlation ID | O |  | Correlation ID  9.2.1.80 |  | YES | ignore |
| >>Bearer Type | O |  | 9.2.1.116 |  | YES | reject |
| >>Ethernet Type | O |  | 9.2.1.147 |  | YES | ignore |
| >>Security Indication | O |  | 9.2.1.xx1 |  | YES | reject |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofE-RABs | Maximum no. of E-RAB allowed towards one UE, the maximum value is 256. |

#### 9.1.3.2 E-RAB SETUP RESPONSE

This message is sent by the eNB and is used to report the outcome of the request from the E-RAB SETUP REQUEST message.

Direction: eNB → MME

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.1.1 |  | YES | reject |
| MME UE S1AP ID | M |  | 9.2.3.3 |  | YES | ignore |
| eNB UE S1AP ID | M |  | 9.2.3.4 |  | YES | ignore |
| **E-RAB Setup List** |  | *0..1* |  |  | YES | ignore |
| **>E-RAB Setup Item IEs** |  | *1 .. <maxnoof E-RABs>* |  |  | EACH | ignore |
| >>E-RAB ID | M |  |  |  | - |  |
| >>Transport Layer Address | M |  | 9.2.2.1 |  | - |  |
| >>GTP-TEID | M |  | 9.2.2.2 | eNB TEID. | - |  |
| >>Security Result | O |  | 9.2.1.xx2  (FFS) |  | YES | ignore |
| E-RAB Failed to Setup List | O |  | E-RAB List  9.2.1.36 | A value for *E-RAB ID* shall only be present once in*E-RAB Setup List* IE and in *E-RAB Failed to Setup List* IE. | YES | ignore |
| Criticality Diagnostics | O |  | 9.2.1.21 |  | YES | ignore |

Editor’s Note: The inclusion of Security Result in this message is FFS.

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofE-RABs | Maximum no. of E-RAB allowed towards one UE, the maximum value is 256. |

**>>> NEXT CHANGE <<<**

### 9.1.4 Context Management Messages

#### 9.1.4.1 INITIAL CONTEXT SETUP REQUEST

This message is sent by the MME to request the setup of a UE context.

Direction: MME → eNB

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.2.1.1 |  | YES | reject |
| MME UE S1AP ID | M |  | 9.2.3.3 |  | YES | reject |
| eNB UE S1AP ID | M |  | 9.2.3.4 |  | YES | reject |
| UE Aggregate Maximum Bit Rate | M |  | 9.2.1.20 |  | YES | reject |
| **E-RAB to Be Setup List** |  | *1* |  |  | YES | reject |
| **>E-RAB to Be Setup Item IEs** |  | *1 .. <maxnoofE-RABs>* |  |  | EACH | reject |
| >>E-RAB ID | M |  | 9.2.1.2 |  | - |  |
| >>E-RAB Level QoS Parameters | M |  | 9.2.1.15 | Includes necessary QoS parameters. | - |  |
| >>Transport Layer Address | M |  | 9.2.2.1 |  | - |  |
| >>GTP-TEID | M |  | 9.2.2.2 |  | - |  |
| >>NAS-PDU | O |  | 9.2.3.5 |  | - |  |
| >>Correlation ID | O |  | 9.2.1.80 |  | YES | ignore |
| >>SIPTO Correlation ID | O |  | Correlation ID  9.2.1.80 |  | YES | ignore |
| >>Bearer Type | O |  | 9.2.1.116 |  | YES | reject |
| >>Ethernet Type | O |  | 9.2.1.147 |  | YES | ignore |
| >>Security Indication | O |  | 9.2.1.xx1 |  | YES | reject |
| UE Security Capabilities | M |  | 9.2.1.40 |  | YES | reject |
| Security Key | M |  | 9.2.1.41 | The KeNB is provided after the key-generation in the MME, see TS 33.401 [15]. | YES | reject |
| Trace Activation | O |  | 9.2.1.4 |  | YES | ignore |
| Handover Restriction List | O |  | 9.2.1.22 |  | YES | ignore |
| UE Radio Capability | O |  | 9.2.1.27 |  | YES | ignore |
| Subscriber Profile ID for RAT/Frequency priority | O |  | 9.2.1.39 |  | YES | ignore |
| CS Fallback Indicator | O |  | 9.2.3.21 |  | YES | reject |
| SRVCC Operation Possible | O |  | 9.2.1.58 |  | YES | ignore |
| CSG Membership Status | O |  | 9.2.1.73 |  | YES | ignore |
| Registered LAI | O |  | 9.2.3.1 |  | YES | ignore |
| GUMMEI | O |  | 9.2.3.9 | This IE indicates the MME serving the UE. | YES | ignore |
| MME UE S1AP ID 2 | O |  | 9.2.3.3 | This IE indicates the MME UE S1AP ID assigned by the MME. | YES | ignore |
| Management Based MDT Allowed | O |  | 9.2.1.83 |  | YES | ignore |
| Management Based MDT PLMN List | O |  | MDT PLMN List  9.2.1.89 |  | YES | ignore |
| Additional CS Fallback Indicator | C-ifCSFBhighpriority |  | 9.2.3.37 |  | YES | ignore |
| Masked IMEISV | O |  | 9.2.3.38 |  | YES | ignore |
| Expected UE Behaviour | O |  | 9.2.1.96 |  | YES | ignore |
| ProSe Authorized | O |  | 9.2.1.99 |  | YES | ignore |
| UE User Plane CIoT Support Indicator | O |  | 9.2.1.113 |  | YES | ignore |
| V2X Services Authorized | O |  | 9.2.1.120 |  | YES | ignore |
| UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.2.1.122 | This IE applies only if the UE is authorized for V2X services. | YES | ignore |
| Enhanced Coverage Restricted | O |  | 9.2.1.123 |  | YES | ignore |
| NR UE Security Capabilities | O |  | 9.2.1.127 |  | YES | ignore |
| CE-mode-B Restricted | O |  | 9.2.1.129 |  | YES | ignore |
| Aerial UE subscription information | O |  | 9.2.1.136 |  | YES | ignore |
| Pending Data Indication | O |  | 9.2.3.55 |  | YES | ignore |
| Subscription Based UE Differentiation Information | O |  | 9.2.1.140 |  | YES | ignore |
| Additional RRM Policy Index | O |  | 9.2.1.39a |  | YES | ignore |
| IAB Authorized | O |  | 9.2.1.146 |  | YES | ignore |
| NR V2X Services Authorized | O |  | 9.2.1.148 |  | YES | ignore |
| NR UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.2.1.149 | This IE applies only if the UE is authorized for NR V2X services. | YES | ignore |
| PC5 QoS Parameters | O |  | 9.2.1.150 | This IE applies only if the UE is authorized for NR V2X services. | YES | ignore |
| UE Radio Capability ID | O |  | 9.2.1.153 |  | YES | reject |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofE-RABs | Maximum no. of E-RAB allowed towards one UE, the maximum value is 256. |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifCSFBhighpriority | This IE shall be present if the *CS Fallback Indicator* IE is set to “CS Fallback High Priority”. |

#### 9.1.4.2 Void

#### 9.1.4.3 INITIAL CONTEXT SETUP RESPONSE

This message is sent by the eNB to confirm the setup of a UE context.

Direction: eNB → MME

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.2.1.1 |  | YES | reject |
| MME UE S1AP ID | M |  | 9.2.3.3 |  | YES | ignore |
| eNB UE S1AP ID | M |  | 9.2.3.4 |  | YES | ignore |
| **E-RAB Setup List** |  | *1* |  |  | YES | ignore |
| **>E-RAB Setup Item IEs** |  | *1 .. <maxnoofE-RABs>* |  |  | EACH | ignore |
| >>E-RAB ID | M |  | 9.2.1.2 |  | - |  |
| >>Transport Layer Address | M |  | 9.2.2.1 |  | - |  |
| >>GTP-TEID | M |  | 9.2.2.2 |  | - |  |
| >>Security Result | O |  | 9.2.1.xx2  (FFS) |  | YES | ignore |
| E-RAB Failed to Setup List | O |  | E-RAB List  9.2.1.36 | A value for *E-RAB ID* shall only be present once in *E-RAB Setup List* IE and *E-RAB Failed to Setup List* IE. | YES | ignore |
| Criticality Diagnostics | O |  | 9.2.1.21 |  | YES | ignore |

Editor’s Note: The inclusion of Security Result in this message is FFS.

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofE-RABs | Maximum no. of E-RAB allowed towards one UE, the maximum value is 256. |

**>>> NEXT CHANGE <<<**

#### 9.1.5.4 HANDOVER REQUEST

This message is sent by the MME to the target eNB to request the preparation of resources.

Direction: MME → eNB.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.1.1 |  | YES | reject |
| MME UE S1AP ID | M |  | 9.2.3.3 |  | YES | reject |
| Handover Type | M |  | 9.2.1.13 |  | YES | reject |
| Cause | M |  | 9.2.1.3 |  | YES | ignore |
| UE Aggregate Maximum Bit Rate | M |  | 9.2.1.20 |  | YES | reject |
| **E-RABs To Be Setup List** |  | *1* |  |  | YES | reject |
| **>E-RABs To Be Setup Item IEs** |  | *1 .. <maxnoofE-RABs>* |  |  | EACH | reject |
| >>E-RAB ID | M |  | 9.2.1.2 |  | - |  |
| >>Transport Layer Address | M |  | 9.2.2.1 |  | - |  |
| >>GTP-TEID | M |  | 9.2.2.2 | To deliver UL PDUs. | - |  |
| >>E-RAB Level QoS Parameters | M |  | 9.2.1.15 | Includes necessary QoS parameters. | - |  |
| >>Data Forwarding Not Possible | O |  | 9.2.1.76 |  | YES | ignore |
| >>Bearer Type | O |  | 9.2.1.116 |  | YES | reject |
| >>Ethernet Type | O |  | 9.2.1.147 |  | YES | ignore |
| >>Security Indication | O |  | 9.2.1.xx1 |  | YES | reject |
| Source to Target Transparent Container | M |  | 9.2.1.56 |  | YES | reject |
| UE Security Capabilities | M |  | 9.2.1.40 |  | YES | reject |
| Handover Restriction List | O |  | 9.2.1.22 |  | YES | ignore |
| Trace Activation | O |  | 9.2.1.4 |  | YES | ignore |
| Request Type | O |  | 9.2.1.34 |  | YES | ignore |
| SRVCC Operation Possible | O |  | 9.2.1.58 |  | YES | ignore |
| Security Context | M |  | 9.2.1.26 |  | YES | reject |
| NAS Security Parameters to E-UTRAN | C-iffromUTRANGERAN |  | 9.2.3.31 | The eNB shall use this IE as specified in TS 33.401 [15]. | YES | reject |
| CSG Id | O |  | 9.2.1.62 |  | YES | reject |
| CSG Membership Status | O |  | 9.2.1.73 |  | YES | ignore |
| GUMMEI | O |  | 9.2.3.9 | This IE indicates the MME serving the UE. | YES | ignore |
| MME UE S1AP ID 2 | O |  | 9.2.3.3 | This IE indicates the MME UE S1AP ID assigned by the MME. | YES | ignore |
| Management Based MDT Allowed | O |  | 9.2.1.83 |  | YES | ignore |
| Management Based MDT PLMN List | O |  | MDT PLMN List  9.2.1.89 |  | YES | ignore |
| Masked IMEISV | O |  | 9.2.3.38 |  | YES | ignore |
| Expected UE Behaviour | O |  | 9.2.1.96 |  | YES | ignore |
| ProSe Authorized | O |  | 9.2.1.99 |  | YES | ignore |
| UE User Plane CIoT Support Indicator | O |  | 9.2.1.113 |  | YES | ignore |
| V2X Services Authorized | O |  | 9.2.1.120 |  | YES | ignore |
| UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.2.1.122 | This IE applies only if the UE is authorized for V2X services. | YES | ignore |
| Enhanced Coverage Restricted | O |  | 9.2.1.123 |  | YES | ignore |
| NR UE Security Capabilities | O |  | 9.2.1.127 |  | YES | ignore |
| CE-mode-B Restricted | O |  | 9.2.1.129 |  | YES | ignore |
| Aerial UE subscription information | O |  | 9.2.1.136 |  | YES | ignore |
| Pending Data Indication | O |  | 9.2.3.55 |  | YES | ignore |
| Subscription Based UE Differentiation Information | O |  | 9.2.1.140 |  | YES | ignore |
| Additional RRM Policy Index | O |  | 9.2.1.39a |  | YES | ignore |
| IAB Authorized | O |  | 9.2.1.146 |  | YES | reject |
| NR V2X Services Authorized | O |  | 9.2.1.148 |  | YES | ignore |
| NR UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.2.1.149 | This IE applies only if the UE is authorized for NR V2X services. | YES | ignore |
| PC5 QoS Parameters | O |  | 9.2.1.150 | This IE applies only if the UE is authorized for NR V2X services. | YES | ignore |
| UE Radio Capability ID | O |  | 9.2.1.153 |  | YES | reject |

|  |  |
| --- | --- |
| Condition | Explanation |
| C-iffromUTRANGERAN | This IE shall be present if the Handover Type IE is set to the value “UTRANtoLTE” or “GERANtoLTE”. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofE-RABs | Maximum no. of E-RABs for one UE. Value is 256. |

#### 9.1.5.5 HANDOVER REQUEST ACKNOWLEDGE

This message is sent by the target eNB to inform the MME about the prepared resources at the target.

Direction: eNB → MME.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.1.1 |  | YES | reject |
| MME UE S1AP ID | M |  | 9.2.3.3 |  | YES | ignore |
| eNB UE S1AP ID | M |  | 9.2.3.4 | Allocated at the target eNB. | YES | ignore |
| **E-RABs Admitted List** |  | *1* |  |  | YES | ignore |
| **>E-RABs Admitted Item IEs** |  | *1 .. <maxnoofE-RABs>* |  |  | EACH | ignore |
| >>E-RAB ID | M |  | 9.2.1.2 |  | - |  |
| >>Transport Layer Address | M |  | 9.2.2.1 |  | - |  |
| >>GTP-TEID | M |  | 9.2.2.2 | To deliver DL PDUs. | - |  |
| >>DL Transport Layer Address | O |  | 9.2.2.1 |  | - |  |
| >>DL GTP-TEID | O |  | 9.2.2.2 | To deliver forwarded DL PDCP SDUs. | - |  |
| >>UL Transport Layer Address | O |  | 9.2.2.1 |  | - |  |
| >>UL GTP-TEID | O |  | 9.2.2.2 | To deliver forwarded UL PDCP SDUs. | - |  |
| >>Security Result | O |  | 9.2.1.xx2  (FFS) |  | YES | ignore |
| E-RABs Failed to Setup List | O |  | E-RAB List  9.2.1.36 | A value for *E-RAB ID* shall only be present once in *E-RABs Admitted List* IE and *E-RABs Failed to Setup List* IE. | YES | ignore |
| Target to Source Transparent Container | M |  | 9.2.1.57 |  | YES | reject |
| CSG Id | O |  | 9.2.1.62 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.2.1.21 |  | YES | ignore |
| Cell Access Mode | O |  | 9.2.1.74 |  | YES | ignore |
| CE-mode-B Support Indicator | O |  | 9.2.1.118 |  | YES | ignore |

Editor’s Note: The inclusion of Security Result in this message is FFS.

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofE-RABs | Maximum no. of E-RABs for one UE. Value is 256. |

**>>> NEXT CHANGE <<<**

#### 9.1.5.8 PATH SWITCH REQUEST

This message is sent by the eNB to request the MME to switch DL GTP tunnel termination point(s) from one end-point to another.

Direction: eNB → MME.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.1.1 |  | YES | reject |
| eNB UE S1AP ID | M |  | 9.2.3.4 |  | YES | reject |
| **E-RAB To Be Switched in Downlink List** |  | *1* |  |  | YES | reject |
| **>E-RABs Switched in Downlink Item IEs** |  | *1 .. <maxnoofE-RABs>* |  |  | EACH | reject |
| >>E-RAB ID | M |  | 9.2.1.2 |  | - |  |
| >>Transport Layer address | M |  | 9.2.2.1 |  | - |  |
| >>GTP-TEID | M |  | 9.2.2.2 | To deliver DL PDUs. | - |  |
| >>User Plane Security Information | O |  | 9.2.1.xx3  (FFS) |  | - |  |
| Source MME UE S1AP ID | M |  | 9.2.3.3 |  | YES | reject |
| E-UTRAN CGI | M |  | 9.2.1.38 |  | YES | ignore |
| TAI | M |  | 9.2.3.16 |  | YES | ignore |
| UE Security Capabilities | M |  | 9.2.1.40 |  | YES | ignore |
| CSG Id | O |  | 9.2.1.62 |  | YES | ignore |
| Cell Access Mode | O |  | 9.2.1.74 |  | YES | ignore |
| Source MME GUMMEI | O |  | 9.2.3.9 |  | YES | ignore |
| CSG Membership Status | O |  | 9.2.1.73 |  | YES | ignore |
| Tunnel Information for BBF | O |  | Tunnel Information 9.2.2.3 | Indicating HeNB’s Local IP Address assigned by the broadband access provider, UDP port Number. | YES | ignore |
| LHN ID | O |  | 9.2.1.92 |  | YES | ignore |
| RRC Resume Cause | O |  | RRC Establishment Cause  9.2.1.3a |  | YES | ignore |
| NR UE Security Capabilities | O |  | 9.2.1.127 |  | YES | ignore |
| PSCell Information | O |  | 9.2.1.141 |  | YES | ignore |

Editor’s Note: The inclusion of Security Result in this message is FFS.

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofE-RABs | Maximum no. of E-RABs for one UE. Value is 256. |

#### 9.1.5.9 PATH SWITCH REQUEST ACKNOWLEDGE

This message is sent by the MME to inform the eNB that the path switch has been successfully completed in the EPC.

Direction: MME → eNB.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.1.1 |  | YES | reject |
| MME UE S1AP ID | M |  | 9.2.3.3 |  | YES | ignore |
| eNB UE S1AP ID | M |  | 9.2.3.4 |  | YES | ignore |
| UE Aggregate Maximum Bit Rate | O |  | 9.2.1.20 |  | YES | ignore |
| **E-RAB To Be Switched in Uplink List** |  | *0..1* |  |  | YES | ignore |
| **>E-RABs Switched in Uplink Item IEs** |  | *1 .. <maxnoofE-RABs>* |  |  | EACH | ignore |
| >>E-RAB ID | M |  | 9.2.1.2 |  | - |  |
| >>Transport Layer Address | M |  | 9.2.2.1 |  | - |  |
| >>GTP-TEID | M |  | 9.2.2.2 |  | - |  |
| >>Security Indication | O |  | 9.2.1.xx1 |  | YES | reject |
| E-RAB To Be Released List | O |  | E-RAB List  9.2.1.36 | A value for *E-RAB ID* shall only be present once in *E-RAB To Be Switched in Uplink List* IE and *E-RAB to Be Released List* IE. | YES | ignore |
| Security Context | M |  | 9.2.1.26 | One pair of {NCC, NH} is provided. | YES | reject |
| Criticality Diagnostics | O |  | 9.2.1.21 |  | YES | ignore |
| MME UE S1AP ID 2 | O |  | 9.2.3.3 | This IE indicates the MME UE S1AP ID assigned by the MME. | YES | ignore |
| CSG Membership Status | O |  | 9.2.1.73 |  | YES | ignore |
| ProSe Authorized | O |  | 9.2.1.99 |  | YES | ignore |
| UE User Plane CIoT Support Indicator | O |  | 9.2.1.113 |  | YES | ignore |
| V2X Services Authorized | O |  | 9.2.1.120 |  | YES | ignore |
| UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.2.1.122 | This IE applies only if the UE is authorized for V2X services. | YES | ignore |
| Enhanced Coverage Restricted | O |  | 9.2.1.123 |  | YES | ignore |
| NR UE Security Capabilities | O |  | 9.2.1.127 |  | YES | ignore |
| CE-mode-B Restricted | O |  | 9.2.1.129 |  | YES | ignore |
| Aerial UE subscription information | O |  | 9.2.1.136 |  | YES | ignore |
| Pending Data Indication | O |  | 9.2.3.55 |  | YES | ignore |
| Subscription Based UE Differentiation Information | O |  | 9.2.1.140 |  | YES | ignore |
| Handover Restriction List | O |  | 9.2.1.22 |  | YES | ignore |
| Additional RRM Policy Index | O |  | 9.2.1.39a |  | YES | ignore |
| NR V2X Services Authorized | O |  | 9.2.1.148 |  | YES | ignore |
| NR UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.2.1.149 | This IE applies only if the UE is authorized for NR V2X services. | YES | ignore |
| PC5 QoS Parameters | O |  | 9.2.1.150 | This IE applies only if the UE is authorized for NR V2X services. | YES | ignore |
| UE Radio Capability ID | O |  | 9.2.1.153 |  | YES | reject |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofE-RABs | Maximum no. of E-RABs for one UE. Value is 256. |

**>>> NEXT CHANGE <<<**

#### 9.2.1.3 Cause

The purpose of the *Cause* IE is to indicate the reason for a particular event for the S1AP protocol.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| CHOICE *Cause Group* | M |  |  |  |
| >*Radio Network Layer* |  |  |  |  |
| >>Radio Network Layer Cause | M |  | ENUMERATED (Unspecified,  TX2RELOCOverall Expiry,  Successful Handover,  Release due to E-UTRAN Generated Reason,  Handover Cancelled, Partial Handover, Handover Failure In Target EPC/eNB Or Target System,  Handover Target not allowed,  TS1RELOCoverall Expiry,  TS1RELOCprep Expiry,  Cell not available,  Unknown Target ID,  No Radio Resources Available in Target Cell, Unknown or already allocated MME UE S1AP ID,  Unknown or already allocated eNB UE S1AP ID,  Unknown or inconsistent pair of UE S1AP ID, Handover desirable for radio reasons,  Time critical handover,  Resource optimisation handover,  Reduce load in serving cell, User inactivity,  Radio Connection With UE Lost, Load Balancing TAU Required, CS Fallback Triggered,  UE Not Available For PS Service, Radio resources not available,  Failure in the Radio Interface Procedure,  Invalid QoS combination, Inter-RAT redirection,  Interaction with other procedure, Unknown E-RAB ID, Multiple E-RAB ID instances, Encryption and/or integrity protection algorithms not supported, S1 intra system Handover triggered, S1 inter system Handover triggered, X2 Handover triggered  …,  Redirection towards 1xRTT,  Not supported QCI value,  invalid CSG Id,  Release due to Pre-Emption,  N26 interface not available, Insufficient UE Capabilities, UP integrity protection not possible) |  |
| *>Transport Layer* |  |  |  |  |
| >>Transport Layer Cause | M |  | ENUMERATED (Transport Resource Unavailable,  Unspecified, …) |  |
| *>NAS* |  |  |  |  |
| >>NAS Cause | M |  | ENUMERATED (Normal Release,  Authentication failure,  Detach,  Unspecified,  …,  CSG Subscription Expiry) |  |
| *>Protocol* |  |  |  |  |
| >>Protocol Cause | M |  | ENUMERATED (Transfer Syntax Error, Abstract Syntax Error (Reject), Abstract Syntax Error (Ignore and Notify), Message not Compatible with Receiver State,  Semantic Error,  Abstract Syntax Error (Falsely Constructed Message), Unspecified, …) |  |
| *>Misc* |  |  |  |  |
| >>Miscellaneous Cause | M |  | ENUMERATED (Control Processing Overload, Not enough User Plane Processing Resources, Hardware Failure, O&M Intervention, Unspecified, Unknown PLMN, …) |  |

The meaning of the different cause values is described in the following table. In general, “not supported” cause values indicate that the related capability is missing. On the other hand, “not available” cause values indicate that the related capability is present, but insufficient resources were available to perform the requested action.

|  |  |  |
| --- | --- | --- |
| Radio Network Layer cause | | Meaning |
| Unspecified | | Sent for radio network layer cause when none of the specified cause values applies. |
| TX2RELOCOverall Expiry | | The timer guarding the handover that takes place over X2 has abnormally expired. |
| Successful Handover | | Successful handover. |
| Release due to E-UTRAN generated reason | | Release is initiated due to E-UTRAN generated reason. |
| Handover Cancelled | | The reason for the action is cancellation of Handover. |
| Partial Handover | | Provides a reason for the handover cancellation. The HANDOVER COMMAND message from MME contained *E-RABs to Release List* IE and the source eNB estimated service continuity for the UE would be better by not proceeding with handover towards this particular target eNB. |
| Handover Failure In Target EPC/eNB Or Target System | | The handover failed due to a failure in target EPC/eNB or target system. |
| Handover Target not allowed | | Handover to the indicated target cell is not allowed for the UE in question. |
| TS1RELOCoverall Expiry | | The reason for the action is expiry of timer TS1RELOCoverall. |
| TS1RELOCprep Expiry | | Handover Preparation procedure is cancelled when timer TS1RELOCprep expires. |
| Cell not available | | The concerned cell is not available. |
| Unknown Target ID | | Handover rejected because the target ID is not known to the EPC. |
| No radio resources available in target cell | | Load on target cell is too high. |
| Unknown or already allocated MME UE S1AP ID | | The action failed because the MME UE S1AP ID is either unknown, or (for a first message received at the eNB) is known and already allocated to an existing context. |
| Unknown or already allocated eNB UE S1AP ID | | The action failed because the eNB UE S1AP ID is either unknown, or (for a first message received at the MME) is known and already allocated to an existing context. |
| Unknown or inconsistent pair of UE S1AP ID | | The action failed because both UE S1AP IDs are unknown, or are known but do not define a single UE context. |
| Handover Desirable for Radio Reasons | | The reason for requesting handover is radio related. |
| Time Critical Handover | | Handover is requested for time critical reason i.e., this cause value is reserved to represent all critical cases where the connection is likely to be dropped if handover is not performed. |
| Resource Optimisation Handover | | The reason for requesting handover is to improve the load distribution with the neighbour cells. |
| Reduce Load in Serving Cell | | Load on serving cell needs to be reduced. When applied to handover preparation, it indicates the handover is triggered due to load balancing. |
| User Inactivity | | The action is requested due to user inactivity on all E-RABs, e.g., S1 is requested to be released in order to optimise the radio resources. |
| Radio Connection With UE Lost | | The action is requested due to losing the radio connection to the UE. |
| Load Balancing TAU Required | | The action is requested for all load balancing and offload cases in the MME. |
| CS Fallback triggered | | The action is due to a CS fallback that has been triggered. When it is included in UE CONTEXT RELEASE REQUEST message, it indicates the PS service suspension is not required in the EPC. |
| UE Not Available for PS Service | | The action is requested due to a CS fallback to GERAN that has been triggered.  When it is included in the UE CONTEXT RELEASE REQUEST message, it indicates that the PS service suspension is required in the EPC due to the target GERAN cell or the UE has no DTM capability. |
| Radio resources not available | | No requested radio resources are available. |
| Invalid QoS combination | | The action was failed because of invalid QoS combination. |
| Inter-RAT Redirection | | The release is requested due to inter-RAT redirection or intra-LTE redirection. When it is included in UE CONTEXT RELEASE REQUEST message, the behaviour of the EPC is specified in TS 23.401 [11]. |
| Failure in the Radio Interface Procedure | | Radio interface procedure has failed. |
| Interaction with other procedure | | The action is due to an ongoing interaction with another procedure. |
| Unknown E-RAB ID | | The action failed because the E-RAB ID is unknown in the eNB. |
| Multiple E-RAB ID Instances | | The action failed because multiple instance of the same E-RAB had been provided to the eNB. |
| Encryption and/or integrity protection algorithms not supported | | The eNB is unable to support any of the encryption and/or integrity protection algorithms supported by the UE. |
| S1 Intra system Handover triggered | The action is due to a S1 intra system handover that has been triggered. | |
| S1 Inter system Handover triggered | The action is due to a S1 inter system handover that has been triggered. | |
| X2 Handover triggered | The action is due to an X2 handover that has been triggered. | |
| Redirection towards 1xRTT | The release of the UE-associated logical S1 connection is requested due to redirection towards a 1xRTT system e.g., CS fallback to 1xRTT, or SRVCC to 1xRTT, when the PS service suspension is required in the EPC. During this procedure, the radio interface message might but need not include redirection information. | |
| Not supported QCI Value | The E-RAB setup failed because the requested QCI is not supported. | |
| Invalid CSG Id | The CSG ID provided to the target eNB was found invalid. | |
| Release due to Pre-Emption | Release is initiated due to pre-emption. | |
| N26 interface not available | The action failed due to a temporary failure of the N26 interface. | |
| Insufficient UE Capabilities | The procedure can’t proceed due to insufficient UE capabilities. | |
| UP integrity protection not possible | The PDU session cannot be accepted according to the required user plane integrity protection policy. | |

|  |  |
| --- | --- |
| Transport Layer cause | Meaning |
| Transport Resource Unavailable | The required transport resources are not available. |
| Unspecified | Sent when none of the above cause values applies but still the cause is Transport Network Layer related. |

|  |  |
| --- | --- |
| NAS cause | Meaning |
| Normal Release | The release is normal. |
| Authentication Failure | The action is due to authentication failure. |
| Detach | The action is due to detach. |
| Unspecified | Sent when none of the above cause values applies but still the cause is NAS related. |
| CSG Subscription Expiry | The action is due to the UE becoming a non-member of the currently used CSG. |

|  |  |
| --- | --- |
| Protocol cause | Meaning |
| Transfer Syntax Error | The received message included a transfer syntax error. |
| Abstract Syntax Error (Reject) | The received message included an abstract syntax error and the concerning criticality indicated “reject”. |
| Abstract Syntax Error (Ignore And Notify) | The received message included an abstract syntax error and the concerning criticality indicated “ignore and notify”. |
| Message Not Compatible With Receiver State | The received message was not compatible with the receiver state. |
| Semantic Error | The received message included a semantic error. |
| Abstract Syntax Error (Falsely Constructed Message) | The received message contained IEs or IE groups in wrong order or with too many occurrences. |
| Unspecified | Sent when none of the above cause values applies but still the cause is Protocol related. |

|  |  |
| --- | --- |
| Miscellaneous cause | Meaning |
| Control Processing Overload | Control processing overload. |
| Not EnoughUser Plane Processing Resources Available | No enough resources are available related to user plane processing. |
| Hardware Failure | Action related to hardware failure. |
| O&M Intervention | The action is due to O&M intervention. |
| Unspecified Failure | Sent when none of the above cause values applies and the cause is not related to any of the categories Radio Network Layer, Transport Network Layer, NAS or Protocol. |
| Unknown PLMN | The MME does not identify any PLMN provided by the eNB. |

**>>> NEXT CHANGE <<<**

#### 9.2.1.7 Source eNB to Target eNB Transparent Container

The *Source eNB to target eNB Transparent Container* IE is an information element that is produced by the source eNB and is transmitted to the target eNB. For inter-system handovers to E-UTRAN, the IE is transmitted from the external handover source to the target eNB.

This IE is transparent to the EPC.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| RRC Container | M |  | OCTET STRING | Includes the RRC Handover Preparation Information message as defined in subclause 10.2.2 of TS 36.331 [16]. | - |  |
| **E-RABs Information List** |  | *0..1* |  |  | - |  |
| **>E-RABs Information Item** |  | *1 .. <maxnoof E-RABs>* |  |  | EACH | ignore |
| >>E-RAB ID | M |  | 9.2.1.2 |  | - |  |
| >>DL Forwarding | O |  | 9.2.3.14 |  | - |  |
| >>Security Indication | O |  | 9.2.1.xx1 |  | YES | FFS |
| >>DAPS Request Information | O |  | 9.2.1.155 |  | YES | ignore |
| Target Cell ID | M |  | E-UTRAN CGI  9.2.1.38 |  | - |  |
| Subscriber Profile IDfor RAT/Frequency priority | O |  | 9.2.1.39 |  | - |  |
| UE History Information | M |  | 9.2.1.42 |  | - |  |
| Mobility Information | O |  | BIT STRING (SIZE (32)) | Information related to the handover; the external handover source provides it in order to enable later analysis of the conditions that led to a wrong HO. | YES | ignore |
| UE History Information from the UE | O |  | OCTET STRING | VisitedCellInfoList contained in the UEInformationResponse message (TS 36.331 [16]) | YES | ignore |
| IMS voice EPS fallback from 5G | O |  | ENUMERATED (true, …) |  | YES | ignore |
| Additional RRM Policy Index | O |  | 9.2.1.39a |  | YES | ignore |
| UE Context Reference at Source | O |  | 9.2.1.144 |  | YES | ignore |
| Inter-system measurement Configuration | O |  | 9.2.1.151 |  | YES | ignore |
| Source Node ID | O |  | 9.2.1.152 |  | YES | ignore |
| Emergency Indicator | O |  | ENUMERATED (true, …) | Indicates an emergency EPS voice fallback | YES | ignore |

Editor’s Note: criticality of the Security Indication IE is related to how the target side support is derived.

**>>> NEXT CHANGE <<<**

#### 9.2.1.40 UE Security Capabilities

The *UE Security Capabilities* IE defines the supported algorithms for encryption and integrity protection in the UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| **UE Security Capabilities** |  |  |  |  |
| >Encryption Algorithms | M |  | BIT STRING (SIZE(16, …)) | Each position in the bitmap represents an encryption algorithm:  “all bits equal to 0” – UE supports no other algorithm than EEA0,  “first bit” – 128-EEA1,  “second bit” – 128-EEA2,  “third bit” – 128-EEA3,  other bits reserved for future use. Value ‘1’ indicates support and value ‘0’ indicates no support of the algorithm.  Algorithms are defined in TS 33.401 [15]. |
| >Integrity Protection Algorithms | M |  | BIT STRING (SIZE(16, …)) | Each position in the bitmap represents an integrity protection algorithm:  “all bits equal to 0” – UE supports no other algorithm than EIA0,  “first bit” – 128-EIA1,  “second bit” – 128-EIA2,  “third bit” – 128-EIA3,  “seventh bit” – EIA7 (support of user plane integrity protection),  other bits reserved for future use.  Value ‘1’ indicates support and value ‘0’ indicates no support of the algorithm.  Algorithms are defined in TS 33.401 [15]. |

**>>> NEXT CHANGE <<<**

#### 9.2.1.xx1 Security Indication

This IE contains the user plane integrity protection indication which indicates the requirements on UP integrity protection for corresponding E-RABs.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Integrity Protection Indication | M |  | ENUMERATED (required, preferred, not needed, …) | Indicates whether UP integrity protection shall apply, should apply or shall not apply for the concerned E-RAB. | - |  |

#### 9.2.1.xx2 Security Result (FFS)

This IE indicates whether the security policy indicated as "preferred" in the *Security Indication* IE is performed or not.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Integrity Protection Result | M |  | ENUMERATED (performed, not performed, …) | Indicates whether UP integrity protection is performed or not for the concerned E-RAB. |

Editor’s Note: The introduction of this IE is FFS.

#### 9.2.1.xx3 User Plane Security Information (FFS)

This IE indicates user plane security information related to security policy.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Security Result | M |  | 9.2.1.xx2 (FFS) |  |
| Security Indication | M |  | 9.2.1.xx1 |  |

Editor’s Note: The inclusion of Security Result in this IE is FFS, and the composite IE may not be needed.

**>>> NEXT CHANGE <<<**

### 9.3.2 Elementary Procedure Definitions

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

--

-- Elementary Procedure definitions

--

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

S1AP-PDU-Descriptions {

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

eps-Access (21) modules (3) s1ap (1) version1 (1) s1ap-PDU-Descriptions (0)}

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

--

-- IE parameter types from other modules.

--

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

IMPORTS

Criticality,

ProcedureCode

FROM S1AP-CommonDataTypes

CellTrafficTrace,

DeactivateTrace,

DownlinkUEAssociatedLPPaTransport,

DownlinkNASTransport,

DownlinkNonUEAssociatedLPPaTransport,

DownlinkS1cdma2000tunnelling,

ENBDirectInformationTransfer,

ENBStatusTransfer,

ENBConfigurationUpdate,

ENBConfigurationUpdateAcknowledge,

ENBConfigurationUpdateFailure,

ErrorIndication,

HandoverCancel,

HandoverCancelAcknowledge,

HandoverCommand,

HandoverFailure,

HandoverNotify,

HandoverPreparationFailure,

HandoverRequest,

HandoverRequestAcknowledge,

HandoverRequired,

InitialContextSetupFailure,

InitialContextSetupRequest,

InitialContextSetupResponse,

InitialUEMessage,

KillRequest,

KillResponse,

LocationReportingControl,

LocationReportingFailureIndication,

LocationReport,

MMEConfigurationUpdate,

MMEConfigurationUpdateAcknowledge,

MMEConfigurationUpdateFailure,

MMEDirectInformationTransfer,

MMEStatusTransfer,

NASNonDeliveryIndication,

OverloadStart,

OverloadStop,

Paging,

PathSwitchRequest,

PathSwitchRequestAcknowledge,

PathSwitchRequestFailure,

PrivateMessage,

Reset,

ResetAcknowledge,

S1SetupFailure,

S1SetupRequest,

S1SetupResponse,

E-RABModifyRequest,

E-RABModifyResponse,

E-RABModificationIndication,

E-RABModificationConfirm,

E-RABReleaseCommand,

E-RABReleaseResponse,

E-RABReleaseIndication,

E-RABSetupRequest,

E-RABSetupResponse,

TraceFailureIndication,

TraceStart,

UECapabilityInfoIndication,

UEContextModificationFailure,

UEContextModificationRequest,

UEContextModificationResponse,

UEContextReleaseCommand,

UEContextReleaseComplete,

UEContextReleaseRequest,

UERadioCapabilityMatchRequest,

UERadioCapabilityMatchResponse,

UplinkUEAssociatedLPPaTransport,

UplinkNASTransport,

UplinkNonUEAssociatedLPPaTransport,

UplinkS1cdma2000tunnelling,

WriteReplaceWarningRequest,

WriteReplaceWarningResponse,

ENBConfigurationTransfer,

MMEConfigurationTransfer,

PWSRestartIndication,

UEContextModificationIndication,

UEContextModificationConfirm,

RerouteNASRequest,

PWSFailureIndication,

UEContextSuspendRequest,

UEContextSuspendResponse,

UEContextResumeRequest,

UEContextResumeResponse,

UEContextResumeFailure,

ConnectionEstablishmentIndication,

NASDeliveryIndication,

RetrieveUEInformation,

UEInformationTransfer,

ENBCPRelocationIndication,

MMECPRelocationIndication,

SecondaryRATDataUsageReport,

UERadioCapabilityIDMappingRequest,

UERadioCapabilityIDMappingResponse,

HandoverSuccess,

ENBEarlyStatusTransfer,

MMEEarlyStatusTransfer

FROM S1AP-PDU-Contents

id-CellTrafficTrace,

id-DeactivateTrace,

id-downlinkUEAssociatedLPPaTransport,

id-downlinkNASTransport,

id-downlinkNonUEAssociatedLPPaTransport,

id-DownlinkS1cdma2000tunnelling,

id-eNBStatusTransfer,

id-ErrorIndication,

id-HandoverCancel,

id-HandoverNotification,

id-HandoverPreparation,

id-HandoverResourceAllocation,

id-InitialContextSetup,

id-initialUEMessage,

id-ENBConfigurationUpdate,

id-Kill,

id-LocationReportingControl,

id-LocationReportingFailureIndication,

id-LocationReport,

id-eNBDirectInformationTransfer,

id-MMEConfigurationUpdate,

id-MMEDirectInformationTransfer,

id-MMEStatusTransfer,

id-NASNonDeliveryIndication,

id-OverloadStart,

id-OverloadStop,

id-Paging,

id-PathSwitchRequest,

id-PrivateMessage,

id-Reset,

id-S1Setup,

id-E-RABModify,

id-E-RABModificationIndication,

id-E-RABRelease,

id-E-RABReleaseIndication,

id-E-RABSetup,

id-TraceFailureIndication,

id-TraceStart,

id-UECapabilityInfoIndication,

id-UEContextModification,

id-UEContextRelease,

id-UEContextReleaseRequest,

id-UERadioCapabilityMatch,

id-uplinkUEAssociatedLPPaTransport,

id-uplinkNASTransport,

id-uplinkNonUEAssociatedLPPaTransport,

id-UplinkS1cdma2000tunnelling,

id-WriteReplaceWarning,

id-eNBConfigurationTransfer,

id-MMEConfigurationTransfer,

id-PWSRestartIndication,

id-UEContextModificationIndication,

id-RerouteNASRequest,

id-PWSFailureIndication,

id-UEContextSuspend,

id-UEContextResume,

id-ConnectionEstablishmentIndication,

id-NASDeliveryIndication,

id-RetrieveUEInformation,

id-UEInformationTransfer,

id-eNBCPRelocationIndication,

id-MMECPRelocationIndication,

id-SecondaryRATDataUsageReport,

id-UERadioCapabilityIDMapping,

id-HandoverSuccess,

id-eNBEarlyStatusTransfer,

id-MMEEarlyStatusTransfer

FROM S1AP-Constants;

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

--

-- Interface Elementary Procedure Class

--

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

S1AP-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

--

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

S1AP-PDU ::= CHOICE {

initiatingMessage InitiatingMessage,

successfulOutcome SuccessfulOutcome,

unsuccessfulOutcome UnsuccessfulOutcome,

...

}

InitiatingMessage ::= SEQUENCE {

procedureCode S1AP-ELEMENTARY-PROCEDURE.&procedureCode ({S1AP-ELEMENTARY-PROCEDURES}),

criticality S1AP-ELEMENTARY-PROCEDURE.&criticality ({S1AP-ELEMENTARY-PROCEDURES}{@procedureCode}),

value S1AP-ELEMENTARY-PROCEDURE.&InitiatingMessage ({S1AP-ELEMENTARY-PROCEDURES}{@procedureCode})

}

SuccessfulOutcome ::= SEQUENCE {

procedureCode S1AP-ELEMENTARY-PROCEDURE.&procedureCode ({S1AP-ELEMENTARY-PROCEDURES}),

criticality S1AP-ELEMENTARY-PROCEDURE.&criticality ({S1AP-ELEMENTARY-PROCEDURES}{@procedureCode}),

value S1AP-ELEMENTARY-PROCEDURE.&SuccessfulOutcome ({S1AP-ELEMENTARY-PROCEDURES}{@procedureCode})

}

UnsuccessfulOutcome ::= SEQUENCE {

procedureCode S1AP-ELEMENTARY-PROCEDURE.&procedureCode ({S1AP-ELEMENTARY-PROCEDURES}),

criticality S1AP-ELEMENTARY-PROCEDURE.&criticality ({S1AP-ELEMENTARY-PROCEDURES}{@procedureCode}),

value S1AP-ELEMENTARY-PROCEDURE.&UnsuccessfulOutcome ({S1AP-ELEMENTARY-PROCEDURES}{@procedureCode})

}

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

--

-- Interface Elementary Procedure List

--

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

S1AP-ELEMENTARY-PROCEDURES S1AP-ELEMENTARY-PROCEDURE ::= {

S1AP-ELEMENTARY-PROCEDURES-CLASS-1 |

S1AP-ELEMENTARY-PROCEDURES-CLASS-2,

...

}

S1AP-ELEMENTARY-PROCEDURES-CLASS-1 S1AP-ELEMENTARY-PROCEDURE ::= {

handoverPreparation |

handoverResourceAllocation |

pathSwitchRequest |

e-RABSetup |

e-RABModify |

e-RABRelease |

initialContextSetup |

handoverCancel |

kill |

reset |

s1Setup |

uEContextModification |

uEContextRelease |

eNBConfigurationUpdate |

mMEConfigurationUpdate |

writeReplaceWarning ,

...,

uERadioCapabilityMatch |

e-RABModificationIndication |

uEContextModificationIndication |

uEContextSuspend |

uEContextResume |

uERadioCapabilityIDMapping

}

S1AP-ELEMENTARY-PROCEDURES-CLASS-2 S1AP-ELEMENTARY-PROCEDURE ::= {

handoverNotification |

e-RABReleaseIndication |

paging |

downlinkNASTransport |

initialUEMessage |

uplinkNASTransport |

errorIndication |

nASNonDeliveryIndication |

uEContextReleaseRequest |

downlinkS1cdma2000tunnelling |

uplinkS1cdma2000tunnelling |

uECapabilityInfoIndication |

eNBStatusTransfer |

mMEStatusTransfer |

deactivateTrace |

traceStart |

traceFailureIndication |

cellTrafficTrace |

locationReportingControl |

locationReportingFailureIndication |

locationReport |

overloadStart |

overloadStop |

eNBDirectInformationTransfer |

mMEDirectInformationTransfer |

eNBConfigurationTransfer |

mMEConfigurationTransfer |

privateMessage ,

...,

downlinkUEAssociatedLPPaTransport |

uplinkUEAssociatedLPPaTransport |

downlinkNonUEAssociatedLPPaTransport |

uplinkNonUEAssociatedLPPaTransport |

pWSRestartIndication |

rerouteNASRequest |

pWSFailureIndication |

connectionEstablishmentIndication |

nASDeliveryIndication |

retrieveUEInformation |

uEInformationTransfer |

eNBCPRelocationIndication |

mMECPRelocationIndication |

secondaryRATDataUsageReport |

handoverSuccess |

eNBEarlyStatusTransfer |

mMEEarlyStatusTransfer

}

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

--

-- Interface Elementary Procedures

--

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

handoverPreparation S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE HandoverRequired

SUCCESSFUL OUTCOME HandoverCommand

UNSUCCESSFUL OUTCOME HandoverPreparationFailure

PROCEDURE CODE id-HandoverPreparation

CRITICALITY reject

}

handoverResourceAllocation S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE HandoverRequest

SUCCESSFUL OUTCOME HandoverRequestAcknowledge

UNSUCCESSFUL OUTCOME HandoverFailure

PROCEDURE CODE id-HandoverResourceAllocation

CRITICALITY reject

}

handoverNotification S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE HandoverNotify

PROCEDURE CODE id-HandoverNotification

CRITICALITY ignore

}

pathSwitchRequest S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PathSwitchRequest

SUCCESSFUL OUTCOME PathSwitchRequestAcknowledge

UNSUCCESSFUL OUTCOME PathSwitchRequestFailure

PROCEDURE CODE id-PathSwitchRequest

CRITICALITY reject

}

e-RABSetup S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE E-RABSetupRequest

SUCCESSFUL OUTCOME E-RABSetupResponse

PROCEDURE CODE id-E-RABSetup

CRITICALITY reject

}

e-RABModify S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE E-RABModifyRequest

SUCCESSFUL OUTCOME E-RABModifyResponse

PROCEDURE CODE id-E-RABModify

CRITICALITY reject

}

e-RABRelease S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE E-RABReleaseCommand

SUCCESSFUL OUTCOME E-RABReleaseResponse

PROCEDURE CODE id-E-RABRelease

CRITICALITY reject

}

e-RABReleaseIndication S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE E-RABReleaseIndication

PROCEDURE CODE id-E-RABReleaseIndication

CRITICALITY ignore

}

initialContextSetup S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE InitialContextSetupRequest

SUCCESSFUL OUTCOME InitialContextSetupResponse

UNSUCCESSFUL OUTCOME InitialContextSetupFailure

PROCEDURE CODE id-InitialContextSetup

CRITICALITY reject

}

uEContextReleaseRequest S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UEContextReleaseRequest

PROCEDURE CODE id-UEContextReleaseRequest

CRITICALITY ignore

}

paging S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE Paging

PROCEDURE CODE id-Paging

CRITICALITY ignore

}

downlinkNASTransport S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE DownlinkNASTransport

PROCEDURE CODE id-downlinkNASTransport

CRITICALITY ignore

}

initialUEMessage S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE InitialUEMessage

PROCEDURE CODE id-initialUEMessage

CRITICALITY ignore

}

uplinkNASTransport S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UplinkNASTransport

PROCEDURE CODE id-uplinkNASTransport

CRITICALITY ignore

}

nASNonDeliveryIndication S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE NASNonDeliveryIndication

PROCEDURE CODE id-NASNonDeliveryIndication

CRITICALITY ignore

}

handoverCancel S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE HandoverCancel

SUCCESSFUL OUTCOME HandoverCancelAcknowledge

PROCEDURE CODE id-HandoverCancel

CRITICALITY reject

}

reset S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE Reset

SUCCESSFUL OUTCOME ResetAcknowledge

PROCEDURE CODE id-Reset

CRITICALITY reject

}

errorIndication S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE ErrorIndication

PROCEDURE CODE id-ErrorIndication

CRITICALITY ignore

}

s1Setup S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE S1SetupRequest

SUCCESSFUL OUTCOME S1SetupResponse

UNSUCCESSFUL OUTCOME S1SetupFailure

PROCEDURE CODE id-S1Setup

CRITICALITY reject

}

eNBConfigurationUpdate S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE ENBConfigurationUpdate

SUCCESSFUL OUTCOME ENBConfigurationUpdateAcknowledge

UNSUCCESSFUL OUTCOME ENBConfigurationUpdateFailure

PROCEDURE CODE id-ENBConfigurationUpdate

CRITICALITY reject

}

mMEConfigurationUpdate S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE MMEConfigurationUpdate

SUCCESSFUL OUTCOME MMEConfigurationUpdateAcknowledge

UNSUCCESSFUL OUTCOME MMEConfigurationUpdateFailure

PROCEDURE CODE id-MMEConfigurationUpdate

CRITICALITY reject

}

downlinkS1cdma2000tunnelling S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE DownlinkS1cdma2000tunnelling

PROCEDURE CODE id-DownlinkS1cdma2000tunnelling

CRITICALITY ignore

}

uplinkS1cdma2000tunnelling S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UplinkS1cdma2000tunnelling

PROCEDURE CODE id-UplinkS1cdma2000tunnelling

CRITICALITY ignore

}

uEContextModification S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UEContextModificationRequest

SUCCESSFUL OUTCOME UEContextModificationResponse

UNSUCCESSFUL OUTCOME UEContextModificationFailure

PROCEDURE CODE id-UEContextModification

CRITICALITY reject

}

uECapabilityInfoIndication S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UECapabilityInfoIndication

PROCEDURE CODE id-UECapabilityInfoIndication

CRITICALITY ignore

}

uEContextRelease S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UEContextReleaseCommand

SUCCESSFUL OUTCOME UEContextReleaseComplete

PROCEDURE CODE id-UEContextRelease

CRITICALITY reject

}

eNBStatusTransfer S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE ENBStatusTransfer

PROCEDURE CODE id-eNBStatusTransfer

CRITICALITY ignore

}

mMEStatusTransfer S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE MMEStatusTransfer

PROCEDURE CODE id-MMEStatusTransfer

CRITICALITY ignore

}

deactivateTrace S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE DeactivateTrace

PROCEDURE CODE id-DeactivateTrace

CRITICALITY ignore

}

traceStart S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE TraceStart

PROCEDURE CODE id-TraceStart

CRITICALITY ignore

}

traceFailureIndication S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE TraceFailureIndication

PROCEDURE CODE id-TraceFailureIndication

CRITICALITY ignore

}

cellTrafficTrace S1AP-ELEMENTARY-PROCEDURE ::={

INITIATING MESSAGE CellTrafficTrace

PROCEDURE CODE id-CellTrafficTrace

CRITICALITY ignore

}

locationReportingControl S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE LocationReportingControl

PROCEDURE CODE id-LocationReportingControl

CRITICALITY ignore

}

locationReportingFailureIndication S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE LocationReportingFailureIndication

PROCEDURE CODE id-LocationReportingFailureIndication

CRITICALITY ignore

}

locationReport S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE LocationReport

PROCEDURE CODE id-LocationReport

CRITICALITY ignore

}

overloadStart S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE OverloadStart

PROCEDURE CODE id-OverloadStart

CRITICALITY ignore

}

overloadStop S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE OverloadStop

PROCEDURE CODE id-OverloadStop

CRITICALITY reject

}

writeReplaceWarning S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE WriteReplaceWarningRequest

SUCCESSFUL OUTCOME WriteReplaceWarningResponse

PROCEDURE CODE id-WriteReplaceWarning

CRITICALITY reject

}

eNBDirectInformationTransfer S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE ENBDirectInformationTransfer

PROCEDURE CODE id-eNBDirectInformationTransfer

CRITICALITY ignore

}

mMEDirectInformationTransfer S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE MMEDirectInformationTransfer

PROCEDURE CODE id-MMEDirectInformationTransfer

CRITICALITY ignore

}

eNBConfigurationTransfer S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE ENBConfigurationTransfer

PROCEDURE CODE id-eNBConfigurationTransfer

CRITICALITY ignore

}

mMEConfigurationTransfer S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE MMEConfigurationTransfer

PROCEDURE CODE id-MMEConfigurationTransfer

CRITICALITY ignore

}

privateMessage S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PrivateMessage

PROCEDURE CODE id-PrivateMessage

CRITICALITY ignore

}

pWSRestartIndication S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PWSRestartIndication

PROCEDURE CODE id-PWSRestartIndication

CRITICALITY ignore

}

kill S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE KillRequest

SUCCESSFUL OUTCOME KillResponse

PROCEDURE CODE id-Kill

CRITICALITY reject

}

downlinkUEAssociatedLPPaTransport S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE DownlinkUEAssociatedLPPaTransport

PROCEDURE CODE id-downlinkUEAssociatedLPPaTransport

CRITICALITY ignore

}

uplinkUEAssociatedLPPaTransport S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UplinkUEAssociatedLPPaTransport

PROCEDURE CODE id-uplinkUEAssociatedLPPaTransport

CRITICALITY ignore

}

downlinkNonUEAssociatedLPPaTransport S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE DownlinkNonUEAssociatedLPPaTransport

PROCEDURE CODE id-downlinkNonUEAssociatedLPPaTransport

CRITICALITY ignore

}

uplinkNonUEAssociatedLPPaTransport S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UplinkNonUEAssociatedLPPaTransport

PROCEDURE CODE id-uplinkNonUEAssociatedLPPaTransport

CRITICALITY ignore

}

uERadioCapabilityMatch S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UERadioCapabilityMatchRequest

SUCCESSFUL OUTCOME UERadioCapabilityMatchResponse

PROCEDURE CODE id-UERadioCapabilityMatch

CRITICALITY reject

}

e-RABModificationIndication S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE E-RABModificationIndication

SUCCESSFUL OUTCOME E-RABModificationConfirm

PROCEDURE CODE id-E-RABModificationIndication

CRITICALITY reject

}

uEContextModificationIndication S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UEContextModificationIndication

SUCCESSFUL OUTCOME UEContextModificationConfirm

PROCEDURE CODE id-UEContextModificationIndication

CRITICALITY reject

}

rerouteNASRequest S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE RerouteNASRequest

PROCEDURE CODE id-RerouteNASRequest

CRITICALITY reject

}

pWSFailureIndication S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE PWSFailureIndication

PROCEDURE CODE id-PWSFailureIndication

CRITICALITY ignore

}

uEContextSuspend S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UEContextSuspendRequest

SUCCESSFUL OUTCOME UEContextSuspendResponse

PROCEDURE CODE id-UEContextSuspend

CRITICALITY reject

}

uEContextResume S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UEContextResumeRequest

SUCCESSFUL OUTCOME UEContextResumeResponse

UNSUCCESSFUL OUTCOME UEContextResumeFailure

PROCEDURE CODE id-UEContextResume

CRITICALITY reject

}

connectionEstablishmentIndication S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE ConnectionEstablishmentIndication

PROCEDURE CODE id-ConnectionEstablishmentIndication

CRITICALITY reject

}

nASDeliveryIndication S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE NASDeliveryIndication

PROCEDURE CODE id-NASDeliveryIndication

CRITICALITY ignore

}

retrieveUEInformation S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE RetrieveUEInformation

PROCEDURE CODE id-RetrieveUEInformation

CRITICALITY reject

}

uEInformationTransfer S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UEInformationTransfer

PROCEDURE CODE id-UEInformationTransfer

CRITICALITY reject

}

eNBCPRelocationIndication S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE ENBCPRelocationIndication

PROCEDURE CODE id-eNBCPRelocationIndication

CRITICALITY reject

}

mMECPRelocationIndication S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE MMECPRelocationIndication

PROCEDURE CODE id-MMECPRelocationIndication

CRITICALITY reject

}

secondaryRATDataUsageReport S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE SecondaryRATDataUsageReport

PROCEDURE CODE id-SecondaryRATDataUsageReport

CRITICALITY ignore

}

uERadioCapabilityIDMapping S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE UERadioCapabilityIDMappingRequest

SUCCESSFUL OUTCOME UERadioCapabilityIDMappingResponse

PROCEDURE CODE id-UERadioCapabilityIDMapping

CRITICALITY reject

}

handoverSuccess S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE HandoverSuccess

PROCEDURE CODE id-HandoverSuccess

CRITICALITY ignore

}

eNBEarlyStatusTransfer S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE ENBEarlyStatusTransfer

PROCEDURE CODE id-eNBEarlyStatusTransfer

CRITICALITY reject

}

mMEEarlyStatusTransfer S1AP-ELEMENTARY-PROCEDURE ::= {

INITIATING MESSAGE MMEEarlyStatusTransfer

PROCEDURE CODE id-MMEEarlyStatusTransfer

CRITICALITY ignore

}

END

### 9.3.3 PDU Definitions

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

--

-- PDU definitions for S1AP.

--

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

S1AP-PDU-Contents {

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

eps-Access (21) modules (3) s1ap (1) version1 (1) s1ap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

--

-- IE parameter types from other modules.

--

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

IMPORTS

UEAggregateMaximumBitrate,

BearerType,

Cause,

CellAccessMode,

Cdma2000HORequiredIndication,

Cdma2000HOStatus,

Cdma2000OneXSRVCCInfo,

Cdma2000OneXRAND,

Cdma2000PDU,

Cdma2000RATType,

Cdma2000SectorID,

EUTRANRoundTripDelayEstimationInfo,

CNDomain,

ConcurrentWarningMessageIndicator,

CriticalityDiagnostics,

CSFallbackIndicator,

CSG-Id,

CSG-IdList,

CSGMembershipStatus,

Data-Forwarding-Not-Possible,

Direct-Forwarding-Path-Availability,

Global-ENB-ID,

EUTRAN-CGI,

ENBname,

ENB-StatusTransfer-TransparentContainer,

ENB-UE-S1AP-ID,

ExtendedRepetitionPeriod,

GTP-TEID,

GUMMEI,

GUMMEIType,

HandoverRestrictionList,

HandoverType,

Masked-IMEISV,

LAI,

LPPa-PDU,

ManagementBasedMDTAllowed,

MDTPLMNList,

MMEname,

MMERelaySupportIndicator,

MME-UE-S1AP-ID,

MSClassmark2,

MSClassmark3,

NAS-PDU,

NASSecurityParametersfromE-UTRAN,

NASSecurityParameterstoE-UTRAN,

OverloadResponse,

PagingDRX,

PagingPriority,

PLMNidentity,

ProSeAuthorized,

RIMTransfer,

RelativeMMECapacity,

RequestType,

E-RAB-ID,

E-RABLevelQoSParameters,

E-RABList,

RelayNode-Indicator,

Routing-ID,

SecurityKey,

SecurityContext,

ServedGUMMEIs,

SONConfigurationTransfer,

Source-ToTarget-TransparentContainer,

SourceBSS-ToTargetBSS-TransparentContainer,

SourceeNB-ToTargeteNB-TransparentContainer,

SourceRNC-ToTargetRNC-TransparentContainer,

SubscriberProfileIDforRFP,

SRVCCOperationNotPossible,

SRVCCOperationPossible,

SRVCCHOIndication,

SupportedTAs,

TAI,

Target-ToSource-TransparentContainer,

TargetBSS-ToSourceBSS-TransparentContainer,

TargeteNB-ToSourceeNB-TransparentContainer,

TargetID,

TargetRNC-ToSourceRNC-TransparentContainer,

TimeToWait,

TraceActivation,

TrafficLoadReductionIndication,

E-UTRAN-Trace-ID,

TransportLayerAddress,

UEIdentityIndexValue,

UEPagingID,

UERadioCapability,

UERadioCapabilityForPaging,

UE-RetentionInformation,

UE-S1AP-IDs,

UE-associatedLogicalS1-ConnectionItem,

UESecurityCapabilities,

S-TMSI,

MessageIdentifier,

SerialNumber,

WarningAreaList,

RepetitionPeriod,

NumberofBroadcastRequest,

WarningType,

WarningSecurityInfo,

DataCodingScheme,

WarningMessageContents,

BroadcastCompletedAreaList,

RRC-Establishment-Cause,

BroadcastCancelledAreaList,

PS-ServiceNotAvailable,

GUMMEIList,

Correlation-ID,

GWContextReleaseIndication,

PrivacyIndicator,

VoiceSupportMatchIndicator,

TunnelInformation,

KillAllWarningMessages,

TransportInformation,

LHN-ID,

UserLocationInformation,

AdditionalCSFallbackIndicator,

ECGIListForRestart,

TAIListForRestart,

EmergencyAreaIDListForRestart,

ExpectedUEBehaviour,

Paging-eDRXInformation,

Extended-UEIdentityIndexValue,

MME-Group-ID,

Additional-GUTI,

PWSfailedECGIList,

CellIdentifierAndCELevelForCECapableUEs,

AssistanceDataForPaging,

InformationOnRecommendedCellsAndENBsForPaging,

UE-Usage-Type,

UEUserPlaneCIoTSupportIndicator,

NB-IoT-DefaultPagingDRX,

NB-IoT-Paging-eDRXInformation,

CE-mode-B-SupportIndicator,

NB-IoT-UEIdentityIndexValue,

V2XServicesAuthorized,

DCN-ID,

ServedDCNs,

UESidelinkAggregateMaximumBitrate,

DLNASPDUDeliveryAckRequest,

Coverage-Level,

EnhancedCoverageRestricted,

DL-CP-SecurityInformation,

UL-CP-SecurityInformation,

SecondaryRATDataUsageRequest,

SecondaryRATDataUsageReportList,

HandoverFlag,

NRUESecurityCapabilities,

UE-Application-Layer-Measurement-Capability,

CE-ModeBRestricted,

Packet-LossRate,

UECapabilityInfoRequest,

SourceNgRanNode-ToTargetNgRanNode-TransparentContainer,

TargetNgRanNode-ToSourceNgRanNode-TransparentContainer,

EndIndication,

EDT-Session,

LTE-M-Indication,

AerialUEsubscriptionInformation,

PendingDataIndication,

WarningAreaCoordinates,

Subscription-Based-UE-DifferentiationInfo,

PSCellInformation,

NR-CGI,

ConnectedengNBList,

EN-DCSONConfigurationTransfer,

TimeSinceSecondaryNodeRelease,

AdditionalRRMPriorityIndex,

IAB-Authorized,

IAB-Node-Indication,

IAB-Supported,

DataSize,

Ethernet-Type,

NRV2XServicesAuthorized,

NRUESidelinkAggregateMaximumBitrate,

PC5QoSParameters,

IntersystemSONConfigurationTransfer,

UERadioCapabilityID,

NotifySourceeNB,

ENB-EarlyStatusTransfer-TransparentContainer,

WUS-Assistance-Information,

NB-IoT-PagingDRX,

SecurityIndication,

SecurityResult,

UserPlaneSecurityInformation

FROM S1AP-IEs

PrivateIE-Container{},

ProtocolExtensionContainer{},

ProtocolIE-Container{},

ProtocolIE-ContainerList{},

ProtocolIE-ContainerPair{},

ProtocolIE-ContainerPairList{},

ProtocolIE-SingleContainer{},

S1AP-PRIVATE-IES,

S1AP-PROTOCOL-EXTENSION,

S1AP-PROTOCOL-IES,

S1AP-PROTOCOL-IES-PAIR

FROM S1AP-Containers

id-AssistanceDataForPaging,

id-AerialUEsubscriptionInformation,

id-uEaggregateMaximumBitrate,

id-BearerType,

id-Cause,

id-CellAccessMode,

id-CellIdentifierAndCELevelForCECapableUEs,

id-cdma2000HORequiredIndication,

id-cdma2000HOStatus,

id-cdma2000OneXSRVCCInfo,

id-cdma2000OneXRAND,

id-cdma2000PDU,

id-cdma2000RATType,

id-cdma2000SectorID,

id-EUTRANRoundTripDelayEstimationInfo,

id-CNDomain,

id-ConcurrentWarningMessageIndicator,

id-CriticalityDiagnostics,

id-CSFallbackIndicator,

id-CSG-Id,

id-CSG-IdList,

id-CSGMembershipStatus,

id-Data-Forwarding-Not-Possible,

id-DefaultPagingDRX,

id-Direct-Forwarding-Path-Availability,

id-Global-ENB-ID,

id-EUTRAN-CGI,

id-eNBname,

id-eNB-StatusTransfer-TransparentContainer,

id-eNB-UE-S1AP-ID,

id-GERANtoLTEHOInformationRes,

id-GUMMEI-ID,

id-GUMMEIType,

id-HandoverRestrictionList,

id-HandoverType,

id-Masked-IMEISV,

id-InformationOnRecommendedCellsAndENBsForPaging,

id-InitialContextSetup,

id-Inter-SystemInformationTransferTypeEDT,

id-Inter-SystemInformationTransferTypeMDT,

id-LPPa-PDU,

id-NAS-DownlinkCount,

id-ManagementBasedMDTAllowed,

id-ManagementBasedMDTPLMNList,

id-MMEname,

id-MME-UE-S1AP-ID,

id-MSClassmark2,

id-MSClassmark3,

id-NAS-PDU,

id-NASSecurityParametersfromE-UTRAN,

id-NASSecurityParameterstoE-UTRAN,

id-OverloadResponse,

id-pagingDRX,

id-PagingPriority,

id-RelativeMMECapacity,

id-RequestType,

id-Routing-ID,

id-E-RABAdmittedItem,

id-E-RABAdmittedList,

id-E-RABDataForwardingItem,

id-E-RABFailedToModifyList,

id-E-RABFailedToReleaseList,

id-E-RABFailedtoSetupItemHOReqAck,

id-E-RABFailedToSetupListBearerSURes,

id-E-RABFailedToSetupListCtxtSURes,

id-E-RABFailedToSetupListHOReqAck,

id-E-RABFailedToBeReleasedList,

id-E-RABFailedToResumeListResumeReq,

id-E-RABFailedToResumeItemResumeReq,

id-E-RABFailedToResumeListResumeRes,

id-E-RABFailedToResumeItemResumeRes,

id-E-RABModify,

id-E-RABModifyItemBearerModRes,

id-E-RABModifyListBearerModRes,

id-E-RABRelease,

id-E-RABReleaseItemBearerRelComp,

id-E-RABReleaseItemHOCmd,

id-E-RABReleaseListBearerRelComp,

id-E-RABReleaseIndication,

id-E-RABSetup,

id-E-RABSetupItemBearerSURes,

id-E-RABSetupItemCtxtSURes,

id-E-RABSetupListBearerSURes,

id-E-RABSetupListCtxtSURes,

id-E-RABSubjecttoDataForwardingList,

id-E-RABToBeModifiedItemBearerModReq,

id-E-RABToBeModifiedListBearerModReq,

id-E-RABToBeModifiedListBearerModInd,

id-E-RABToBeModifiedItemBearerModInd,

id-E-RABNotToBeModifiedListBearerModInd,

id-E-RABNotToBeModifiedItemBearerModInd,

id-E-RABModifyListBearerModConf,

id-E-RABModifyItemBearerModConf,

id-E-RABFailedToModifyListBearerModConf,

id-E-RABToBeReleasedListBearerModConf,

id-E-RABToBeReleasedList,

id-E-RABReleasedList,

id-E-RABToBeSetupItemBearerSUReq,

id-E-RABToBeSetupItemCtxtSUReq,

id-E-RABToBeSetupItemHOReq,

id-E-RABToBeSetupListBearerSUReq,

id-E-RABToBeSetupListCtxtSUReq,

id-E-RABToBeSetupListHOReq,

id-E-RABToBeSwitchedDLItem,

id-E-RABToBeSwitchedDLList,

id-E-RABToBeSwitchedULList,

id-E-RABToBeSwitchedULItem,

id-E-RABtoReleaseListHOCmd,

id-ProSeAuthorized,

id-SecurityKey,

id-SecurityContext,

id-ServedGUMMEIs,

id-SONConfigurationTransferECT,

id-SONConfigurationTransferMCT,

id-Source-ToTarget-TransparentContainer,

id-Source-ToTarget-TransparentContainer-Secondary,

id-SourceMME-UE-S1AP-ID,

id-SRVCCOperationNotPossible,

id-SRVCCOperationPossible,

id-SRVCCHOIndication,

id-SubscriberProfileIDforRFP,

id-SupportedTAs,

id-S-TMSI,

id-TAI,

id-TAIItem,

id-TAIList,

id-Target-ToSource-TransparentContainer,

id-Target-ToSource-TransparentContainer-Secondary,

id-TargetID,

id-TimeToWait,

id-TraceActivation,

id-TrafficLoadReductionIndication,

id-E-UTRAN-Trace-ID,

id-UEIdentityIndexValue,

id-UEPagingID,

id-UERadioCapability,

id-UERadioCapabilityForPaging,

id-UTRANtoLTEHOInformationRes,

id-UE-associatedLogicalS1-ConnectionListResAck,

id-UE-associatedLogicalS1-ConnectionItem,

id-UE-RetentionInformation,

id-UESecurityCapabilities,

id-UE-S1AP-IDs,

id-V2XServicesAuthorized,

id-ResetType,

id-MessageIdentifier,

id-SerialNumber,

id-WarningAreaList,

id-RepetitionPeriod,

id-NumberofBroadcastRequest,

id-WarningType,

id-WarningSecurityInfo,

id-DataCodingScheme,

id-WarningMessageContents,

id-BroadcastCompletedAreaList,

id-BroadcastCancelledAreaList,

id-RRC-Establishment-Cause,

id-TraceCollectionEntityIPAddress,

id-AdditionalRRMPriorityIndex,

id-MDTConfigurationNR,

maxnoofTAIs,

maxnoofErrors,

maxnoofE-RABs,

maxnoofIndividualS1ConnectionsToReset,

maxnoofEmergencyAreaID,

maxnoofCellID,

maxnoofTAIforWarning,

maxnoofCellinTAI,

maxnoofCellinEAI,

id-ExtendedRepetitionPeriod,

id-PS-ServiceNotAvailable,

id-RegisteredLAI,

id-GUMMEIList,

id-SourceMME-GUMMEI,

id-MME-UE-S1AP-ID-2,

id-GW-TransportLayerAddress,

id-RelayNode-Indicator,

id-Correlation-ID,

id-MMERelaySupportIndicator,

id-GWContextReleaseIndication,

id-PrivacyIndicator,

id-VoiceSupportMatchIndicator,

id-Tunnel-Information-for-BBF,

id-SIPTO-Correlation-ID,

id-SIPTO-L-GW-TransportLayerAddress,

id-KillAllWarningMessages,

id-TransportInformation,

id-LHN-ID,

id-UserLocationInformation,

id-AdditionalCSFallbackIndicator,

id-ECGIListForRestart,

id-TAIListForRestart,

id-EmergencyAreaIDListForRestart,

id-ExpectedUEBehaviour,

id-Paging-eDRXInformation,

id-extended-UEIdentityIndexValue,

id-CSGMembershipInfo,

id-MME-Group-ID,

id-Additional-GUTI,

id-S1-Message,

id-PWSfailedECGIList,

id-PWSFailureIndication,

id-UE-Usage-Type,

id-UEUserPlaneCIoTSupportIndicator,

id-NB-IoT-DefaultPagingDRX,

id-NB-IoT-Paging-eDRXInformation,

id-CE-mode-B-SupportIndicator,

id-NB-IoT-UEIdentityIndexValue,

id-RRC-Resume-Cause,

id-DCN-ID,

id-ServedDCNs,

id-UESidelinkAggregateMaximumBitrate,

id-DLNASPDUDeliveryAckRequest,

id-Coverage-Level,

id-EnhancedCoverageRestricted,

id-UE-Level-QoS-Parameters,

id-DL-CP-SecurityInformation,

id-UL-CP-SecurityInformation,

id-SecondaryRATDataUsageRequest,

id-SecondaryRATDataUsageReportList,

id-HandoverFlag,

id-NRUESecurityCapabilities,

id-UE-Application-Layer-Measurement-Capability,

id-CE-ModeBRestricted,

id-DownlinkPacketLossRate,

id-UplinkPacketLossRate,

id-UECapabilityInfoRequest,

id-EndIndication,

id-EDT-Session,

id-LTE-M-Indication,

id-PendingDataIndication,

id-WarningAreaCoordinates,

id-Subscription-Based-UE-DifferentiationInfo,

id-PSCellInformation,

id-ConnectedengNBList,

id-ConnectedengNBToAddList,

id-ConnectedengNBToRemoveList,

id-EN-DCSONConfigurationTransfer-ECT,

id-EN-DCSONConfigurationTransfer-MCT,

id-TimeSinceSecondaryNodeRelease,

id-IAB-Authorized,

id-IAB-Node-Indication,

id-IAB-Supported,

id-DataSize,

id-Ethernet-Type,

id-NRV2XServicesAuthorized,

id-NRUESidelinkAggregateMaximumBitrate,

id-PC5QoSParameters,

id-IntersystemSONConfigurationTransferMCT,

id-IntersystemSONConfigurationTransferECT,

id-UERadioCapabilityID,

id-UERadioCapability-NR-Format,

id-NotifySourceeNB,

id-eNB-EarlyStatusTransfer-TransparentContainer,

id-WUS-Assistance-Information,

id-NB-IoT-PagingDRX,

id-SecurityIndication,

id-SecurityResult,

id-UserPlaneSecurityInformation

FROM S1AP-Constants;

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

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-- Common Container Lists

--

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

E-RAB-IE-ContainerList { S1AP-PROTOCOL-IES : IEsSetParam } ::= ProtocolIE-ContainerList { 1, maxnoofE-RABs, {IEsSetParam} }

E-RAB-IE-ContainerPairList { S1AP-PROTOCOL-IES-PAIR : IEsSetParam } ::= ProtocolIE-ContainerPairList { 1, maxnoofE-RABs, {IEsSetParam} }

ProtocolError-IE-ContainerList { S1AP-PROTOCOL-IES : IEsSetParam } ::= ProtocolIE-ContainerList { 1, maxnoofE-RABs, {IEsSetParam} }

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

--

-- HANDOVER PREPARATION ELEMENTARY PROCEDURE

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

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

--

-- Handover Required

--

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

HandoverRequired ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { HandoverRequiredIEs} },

...

}

HandoverRequiredIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

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

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

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

{ ID id-Direct-Forwarding-Path-Availability CRITICALITY ignore TYPE Direct-Forwarding-Path-Availability PRESENCE optional}|

{ ID id-SRVCCHOIndication CRITICALITY reject TYPE SRVCCHOIndication PRESENCE optional}|

{ ID id-Source-ToTarget-TransparentContainer CRITICALITY reject TYPE Source-ToTarget-TransparentContainer PRESENCE mandatory}|

{ ID id-Source-ToTarget-TransparentContainer-Secondary CRITICALITY reject TYPE Source-ToTarget-TransparentContainer PRESENCE optional}|

{ ID id-MSClassmark2 CRITICALITY reject TYPE MSClassmark2 PRESENCE conditional}|

{ ID id-MSClassmark3 CRITICALITY ignore TYPE MSClassmark3 PRESENCE conditional}|

{ ID id-CSG-Id CRITICALITY reject TYPE CSG-Id PRESENCE optional}|

{ ID id-CellAccessMode CRITICALITY reject TYPE CellAccessMode PRESENCE optional}|

{ ID id-PS-ServiceNotAvailable CRITICALITY ignore TYPE PS-ServiceNotAvailable PRESENCE optional},

...

}

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

--

-- Handover Command

--

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

HandoverCommand ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { HandoverCommandIEs} },

...

}

HandoverCommandIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

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

{ ID id-NASSecurityParametersfromE-UTRAN CRITICALITY reject TYPE NASSecurityParametersfromE-UTRAN PRESENCE conditional

-- This IE shall be present if *HandoverType* IE is set to value "LTEtoUTRAN" or "LTEtoGERAN" --}|

{ ID id-E-RABSubjecttoDataForwardingList CRITICALITY ignore TYPE E-RABSubjecttoDataForwardingList PRESENCE optional}|

{ ID id-E-RABtoReleaseListHOCmd CRITICALITY ignore TYPE E-RABList PRESENCE optional}|

{ ID id-Target-ToSource-TransparentContainer CRITICALITY reject TYPE Target-ToSource-TransparentContainer PRESENCE mandatory}|

{ ID id-Target-ToSource-TransparentContainer-Secondary CRITICALITY reject TYPE Target-ToSource-TransparentContainer PRESENCE optional}|

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

...

}

E-RABSubjecttoDataForwardingList ::= E-RAB-IE-ContainerList { {E-RABDataForwardingItemIEs} }

E-RABDataForwardingItemIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABDataForwardingItem CRITICALITY ignore TYPE E-RABDataForwardingItem PRESENCE mandatory },

...

}

E-RABDataForwardingItem ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

dL-transportLayerAddress TransportLayerAddress OPTIONAL,

dL-gTP-TEID GTP-TEID OPTIONAL,

uL-TransportLayerAddress TransportLayerAddress OPTIONAL,

uL-GTP-TEID GTP-TEID OPTIONAL,

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

...

}

E-RABDataForwardingItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

--

-- Handover Preparation Failure

--

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

HandoverPreparationFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { HandoverPreparationFailureIEs} },

...

}

HandoverPreparationFailureIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

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

...

}

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

--

-- HANDOVER RESOURCE ALLOCATION ELEMENTARY PROCEDURE

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

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

--

-- Handover Request

--

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

HandoverRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {HandoverRequestIEs} },

...

}

HandoverRequestIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

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

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

{ ID id-uEaggregateMaximumBitrate CRITICALITY reject TYPE UEAggregateMaximumBitrate PRESENCE mandatory}|

{ ID id-E-RABToBeSetupListHOReq CRITICALITY reject TYPE E-RABToBeSetupListHOReq PRESENCE mandatory}|

{ ID id-Source-ToTarget-TransparentContainer CRITICALITY reject TYPE Source-ToTarget-TransparentContainer PRESENCE mandatory}|

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

{ ID id-HandoverRestrictionList CRITICALITY ignore TYPE HandoverRestrictionList PRESENCE optional}|

{ ID id-TraceActivation CRITICALITY ignore TYPE TraceActivation PRESENCE optional}|

{ ID id-RequestType CRITICALITY ignore TYPE RequestType PRESENCE optional}|

{ ID id-SRVCCOperationPossible CRITICALITY ignore TYPE SRVCCOperationPossible PRESENCE optional}|

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

{ ID id-NASSecurityParameterstoE-UTRAN CRITICALITY reject TYPE NASSecurityParameterstoE-UTRAN PRESENCE conditional

-- This IE shall be present if the Handover Type IE is set to the value "UTRANtoLTE" or "GERANtoLTE" -- }|

{ ID id-CSG-Id CRITICALITY reject TYPE CSG-Id PRESENCE optional}|

{ ID id-CSGMembershipStatus CRITICALITY ignore TYPE CSGMembershipStatus PRESENCE optional}|

{ ID id-GUMMEI-ID CRITICALITY ignore TYPE GUMMEI PRESENCE optional}|

{ ID id-MME-UE-S1AP-ID-2 CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE optional}|

{ ID id-ManagementBasedMDTAllowed CRITICALITY ignore TYPE ManagementBasedMDTAllowed PRESENCE optional}|

{ ID id-ManagementBasedMDTPLMNList CRITICALITY ignore TYPE MDTPLMNList PRESENCE optional}|

{ ID id-Masked-IMEISV CRITICALITY ignore TYPE Masked-IMEISV PRESENCE optional}|

{ ID id-ExpectedUEBehaviour CRITICALITY ignore TYPE ExpectedUEBehaviour PRESENCE optional}|

{ ID id-ProSeAuthorized CRITICALITY ignore TYPE ProSeAuthorized PRESENCE optional}|

{ ID id-UEUserPlaneCIoTSupportIndicator CRITICALITY ignore TYPE UEUserPlaneCIoTSupportIndicator PRESENCE optional}|

{ ID id-V2XServicesAuthorized CRITICALITY ignore TYPE V2XServicesAuthorized PRESENCE optional}|

{ ID id-UESidelinkAggregateMaximumBitrate CRITICALITY ignore TYPE UESidelinkAggregateMaximumBitrate PRESENCE optional}|

{ ID id-EnhancedCoverageRestricted CRITICALITY ignore TYPE EnhancedCoverageRestricted PRESENCE optional}|

{ ID id-NRUESecurityCapabilities CRITICALITY ignore TYPE NRUESecurityCapabilities PRESENCE optional}|

{ ID id-CE-ModeBRestricted CRITICALITY ignore TYPE CE-ModeBRestricted PRESENCE optional}|

{ ID id-AerialUEsubscriptionInformation CRITICALITY ignore TYPE AerialUEsubscriptionInformation PRESENCE optional}|

{ ID id-PendingDataIndication CRITICALITY ignore TYPE PendingDataIndication PRESENCE optional}|

{ ID id-Subscription-Based-UE-DifferentiationInfo CRITICALITY ignore TYPE Subscription-Based-UE-DifferentiationInfo PRESENCE optional}|

{ ID id-AdditionalRRMPriorityIndex CRITICALITY ignore TYPE AdditionalRRMPriorityIndex PRESENCE optional }|

{ ID id-IAB-Authorized CRITICALITY reject TYPE IAB-Authorized PRESENCE optional}|

{ ID id-NRV2XServicesAuthorized CRITICALITY ignore TYPE NRV2XServicesAuthorized PRESENCE optional }|

{ ID id-NRUESidelinkAggregateMaximumBitrate CRITICALITY ignore TYPE NRUESidelinkAggregateMaximumBitrate PRESENCE optional }|

{ ID id-PC5QoSParameters CRITICALITY ignore TYPE PC5QoSParameters PRESENCE optional }|

{ ID id-UERadioCapabilityID CRITICALITY reject TYPE UERadioCapabilityID PRESENCE optional}, ...

}

E-RABToBeSetupListHOReq ::= E-RAB-IE-ContainerList { {E-RABToBeSetupItemHOReqIEs} }

E-RABToBeSetupItemHOReqIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABToBeSetupItemHOReq CRITICALITY reject TYPE E-RABToBeSetupItemHOReq PRESENCE mandatory },

...

}

E-RABToBeSetupItemHOReq ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

transportLayerAddress TransportLayerAddress,

gTP-TEID GTP-TEID,

e-RABlevelQosParameters E-RABLevelQoSParameters,

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

...

}

E-RABToBeSetupItemHOReq-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

{ ID id-Data-Forwarding-Not-Possible CRITICALITY ignore EXTENSION Data-Forwarding-Not-Possible PRESENCE optional}|

{ ID id-BearerType CRITICALITY reject EXTENSION BearerType PRESENCE optional}|

{ ID id-Ethernet-Type CRITICALITY ignore EXTENSION Ethernet-Type PRESENCE optional}|

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

...

}

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

--

-- Handover Request Acknowledge

--

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

HandoverRequestAcknowledge ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {HandoverRequestAcknowledgeIEs} },

...

}

HandoverRequestAcknowledgeIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-E-RABAdmittedList CRITICALITY ignore TYPE E-RABAdmittedList PRESENCE mandatory}|

{ ID id-E-RABFailedToSetupListHOReqAck CRITICALITY ignore TYPE E-RABFailedtoSetupListHOReqAck PRESENCE optional}|

{ ID id-Target-ToSource-TransparentContainer CRITICALITY reject TYPE Target-ToSource-TransparentContainer PRESENCE mandatory}|

{ ID id-CSG-Id CRITICALITY ignore TYPE CSG-Id PRESENCE optional}|

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

{ ID id-CellAccessMode CRITICALITY ignore TYPE CellAccessMode PRESENCE optional}|

{ ID id-CE-mode-B-SupportIndicator CRITICALITY ignore TYPE CE-mode-B-SupportIndicator PRESENCE optional},

...

}

E-RABAdmittedList ::= E-RAB-IE-ContainerList { {E-RABAdmittedItemIEs} }

E-RABAdmittedItemIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABAdmittedItem CRITICALITY ignore TYPE E-RABAdmittedItem PRESENCE mandatory },

...

}

E-RABAdmittedItem ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

transportLayerAddress TransportLayerAddress,

gTP-TEID GTP-TEID,

dL-transportLayerAddress TransportLayerAddress OPTIONAL,

dL-gTP-TEID GTP-TEID OPTIONAL,

uL-TransportLayerAddress TransportLayerAddress OPTIONAL,

uL-GTP-TEID GTP-TEID OPTIONAL,

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

...

}

E-RABAdmittedItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

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

...

}

E-RABFailedtoSetupListHOReqAck ::= E-RAB-IE-ContainerList { {E-RABFailedtoSetupItemHOReqAckIEs} }

E-RABFailedtoSetupItemHOReqAckIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABFailedtoSetupItemHOReqAck CRITICALITY ignore TYPE E-RABFailedToSetupItemHOReqAck PRESENCE mandatory },

...

}

E-RABFailedToSetupItemHOReqAck ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

cause Cause,

iE-Extensions ProtocolExtensionContainer { { E-RABFailedToSetupItemHOReqAckExtIEs} } OPTIONAL,

...

}

E-RABFailedToSetupItemHOReqAckExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

--

-- Handover Failure

--

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

HandoverFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { HandoverFailureIEs} },

...

}

HandoverFailureIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

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

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

...

}

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

--

-- HANDOVER NOTIFICATION ELEMENTARY PROCEDURE

--

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

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

--

-- Handover Notify

--

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

HandoverNotify ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { HandoverNotifyIEs} },

...

}

HandoverNotifyIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-EUTRAN-CGI CRITICALITY ignore TYPE EUTRAN-CGI PRESENCE mandatory}|

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

-- Extension for Release 11 to support BBAI --

{ ID id-Tunnel-Information-for-BBF CRITICALITY ignore TYPE TunnelInformation PRESENCE optional}|

{ ID id-LHN-ID CRITICALITY ignore TYPE LHN-ID PRESENCE optional}|

{ ID id-PSCellInformation CRITICALITY ignore TYPE PSCellInformation PRESENCE optional }|

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

...

}

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

--

-- PATH SWITCH REQUEST ELEMENTARY PROCEDURE

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

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

--

-- Path Switch Request

--

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

PathSwitchRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PathSwitchRequestIEs} },

...

}

PathSwitchRequestIEs S1AP-PROTOCOL-IES ::= {

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-E-RABToBeSwitchedDLList CRITICALITY reject TYPE E-RABToBeSwitchedDLList PRESENCE mandatory}|

{ ID id-SourceMME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-EUTRAN-CGI CRITICALITY ignore TYPE EUTRAN-CGI PRESENCE mandatory}|

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

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

{ ID id-CSG-Id CRITICALITY ignore TYPE CSG-Id PRESENCE optional}|

{ ID id-CellAccessMode CRITICALITY ignore TYPE CellAccessMode PRESENCE optional}|

{ ID id-SourceMME-GUMMEI CRITICALITY ignore TYPE GUMMEI PRESENCE optional}|

{ ID id-CSGMembershipStatus CRITICALITY ignore TYPE CSGMembershipStatus PRESENCE optional}|

-- Extension for Release 11 to support BBAI --

{ ID id-Tunnel-Information-for-BBF CRITICALITY ignore TYPE TunnelInformation PRESENCE optional}|

{ ID id-LHN-ID CRITICALITY ignore TYPE LHN-ID PRESENCE optional}|

{ ID id-RRC-Resume-Cause CRITICALITY ignore TYPE RRC-Establishment-Cause PRESENCE optional }|

{ ID id-NRUESecurityCapabilities CRITICALITY ignore TYPE NRUESecurityCapabilities PRESENCE optional}|

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

...

}

E-RABToBeSwitchedDLList ::= E-RAB-IE-ContainerList { {E-RABToBeSwitchedDLItemIEs} }

E-RABToBeSwitchedDLItemIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABToBeSwitchedDLItem CRITICALITY reject TYPE E-RABToBeSwitchedDLItem PRESENCE mandatory },

...

}

E-RABToBeSwitchedDLItem ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

transportLayerAddress TransportLayerAddress,

gTP-TEID GTP-TEID,

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

...

}

E-RABToBeSwitchedDLItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

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

...

}

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

--

-- Path Switch Request Acknowledge

--

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

PathSwitchRequestAcknowledge ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PathSwitchRequestAcknowledgeIEs} },

...

}

PathSwitchRequestAcknowledgeIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-uEaggregateMaximumBitrate CRITICALITY ignore TYPE UEAggregateMaximumBitrate PRESENCE optional}|

{ ID id-E-RABToBeSwitchedULList CRITICALITY ignore TYPE E-RABToBeSwitchedULList PRESENCE optional}|

{ ID id-E-RABToBeReleasedList CRITICALITY ignore TYPE E-RABList PRESENCE optional}|

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

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

{ ID id-MME-UE-S1AP-ID-2 CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE optional}|

{ ID id-CSGMembershipStatus CRITICALITY ignore TYPE CSGMembershipStatus PRESENCE optional}|

{ ID id-ProSeAuthorized CRITICALITY ignore TYPE ProSeAuthorized PRESENCE optional}|

{ ID id-UEUserPlaneCIoTSupportIndicator CRITICALITY ignore TYPE UEUserPlaneCIoTSupportIndicator PRESENCE optional}|

{ ID id-V2XServicesAuthorized CRITICALITY ignore TYPE V2XServicesAuthorized PRESENCE optional}|

{ ID id-UESidelinkAggregateMaximumBitrate CRITICALITY ignore TYPE UESidelinkAggregateMaximumBitrate PRESENCE optional}|

{ ID id-EnhancedCoverageRestricted CRITICALITY ignore TYPE EnhancedCoverageRestricted PRESENCE optional}|

{ ID id-NRUESecurityCapabilities CRITICALITY ignore TYPE NRUESecurityCapabilities PRESENCE optional}|

{ ID id-CE-ModeBRestricted CRITICALITY ignore TYPE CE-ModeBRestricted PRESENCE optional}|

{ ID id-AerialUEsubscriptionInformation CRITICALITY ignore TYPE AerialUEsubscriptionInformation PRESENCE optional}|

{ ID id-PendingDataIndication CRITICALITY ignore TYPE PendingDataIndication PRESENCE optional}|

{ ID id-Subscription-Based-UE-DifferentiationInfo CRITICALITY ignore TYPE Subscription-Based-UE-DifferentiationInfo PRESENCE optional}|

{ ID id-HandoverRestrictionList CRITICALITY ignore TYPE HandoverRestrictionList PRESENCE optional}|

{ ID id-AdditionalRRMPriorityIndex CRITICALITY ignore TYPE AdditionalRRMPriorityIndex PRESENCE optional }|

{ ID id-NRV2XServicesAuthorized CRITICALITY ignore TYPE NRV2XServicesAuthorized PRESENCE optional }|

{ ID id-NRUESidelinkAggregateMaximumBitrate CRITICALITY ignore TYPE NRUESidelinkAggregateMaximumBitrate PRESENCE optional }|

{ ID id-PC5QoSParameters CRITICALITY ignore TYPE PC5QoSParameters PRESENCE optional }|

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

...

}

E-RABToBeSwitchedULList ::= E-RAB-IE-ContainerList { {E-RABToBeSwitchedULItemIEs} }

E-RABToBeSwitchedULItemIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABToBeSwitchedULItem CRITICALITY ignore TYPE E-RABToBeSwitchedULItem PRESENCE mandatory },

...

}

E-RABToBeSwitchedULItem ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

transportLayerAddress TransportLayerAddress,

gTP-TEID GTP-TEID,

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

...

}

E-RABToBeSwitchedULItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

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

...

}

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

--

-- Path Switch Request Failure

--

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

PathSwitchRequestFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { PathSwitchRequestFailureIEs} },

...

}

PathSwitchRequestFailureIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

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

...

}

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

--

-- HANDOVER CANCEL ELEMENTARY PROCEDURE

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

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

--

-- Handover Cancel

--

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

HandoverCancel ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { HandoverCancelIEs} },

...

}

HandoverCancelIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

...

}

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

--

-- Handover Cancel Request Acknowledge

--

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

HandoverCancelAcknowledge ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { HandoverCancelAcknowledgeIEs} },

...

}

HandoverCancelAcknowledgeIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

...

}

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

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-- HANDOVER SUCCESS ELEMENTARY PROCEDURE

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

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

--

-- Handover Success

--

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

HandoverSuccess ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { HandoverSuccessIEs} },

...

}

HandoverSuccessIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory},

...

}

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

--

-- eNB EARLY STATUS TRANSFER ELEMENTARY PROCEDURE

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

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

--

-- eNB Early Status Transfer

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

ENBEarlyStatusTransfer ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {ENBEarlyStatusTransferIEs} },

...

}

ENBEarlyStatusTransferIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

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

...

}

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

--

-- MME EARLY STATUS TRANSFER ELEMENTARY PROCEDURE

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

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

--

-- MME Early Status Transfer

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

MMEEarlyStatusTransfer ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {MMEEarlyStatusTransferIEs} },

...

}

MMEEarlyStatusTransferIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

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

...

}

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

--

-- E-RAB SETUP ELEMENTARY PROCEDURE

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

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

--

-- E-RAB Setup Request

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

E-RABSetupRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {E-RABSetupRequestIEs} },

...

}

E-RABSetupRequestIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-uEaggregateMaximumBitrate CRITICALITY reject TYPE UEAggregateMaximumBitrate PRESENCE optional }|

{ ID id-E-RABToBeSetupListBearerSUReq CRITICALITY reject TYPE E-RABToBeSetupListBearerSUReq PRESENCE mandatory },

...

}

E-RABToBeSetupListBearerSUReq ::= SEQUENCE (SIZE(1.. maxnoofE-RABs)) OF ProtocolIE-SingleContainer { {E-RABToBeSetupItemBearerSUReqIEs} }

E-RABToBeSetupItemBearerSUReqIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABToBeSetupItemBearerSUReq CRITICALITY reject TYPE E-RABToBeSetupItemBearerSUReq PRESENCE mandatory },

...

}

E-RABToBeSetupItemBearerSUReq ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

e-RABlevelQoSParameters E-RABLevelQoSParameters,

transportLayerAddress TransportLayerAddress,

gTP-TEID GTP-TEID,

nAS-PDU NAS-PDU,

iE-Extensions ProtocolExtensionContainer { {E-RABToBeSetupItemBearerSUReqExtIEs} } OPTIONAL,

...

}

E-RABToBeSetupItemBearerSUReqExtIEs S1AP-PROTOCOL-EXTENSION ::= {

{ ID id-Correlation-ID CRITICALITY ignore EXTENSION Correlation-ID PRESENCE optional}|

{ ID id-SIPTO-Correlation-ID CRITICALITY ignore EXTENSION Correlation-ID PRESENCE optional}|

{ ID id-BearerType CRITICALITY reject EXTENSION BearerType PRESENCE optional}|

{ ID id-Ethernet-Type CRITICALITY ignore EXTENSION Ethernet-Type PRESENCE optional}|

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

...

}

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

--

-- E-RAB Setup Response

--

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

E-RABSetupResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {E-RABSetupResponseIEs} },

...

}

E-RABSetupResponseIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-E-RABSetupListBearerSURes CRITICALITY ignore TYPE E-RABSetupListBearerSURes PRESENCE optional }|

{ ID id-E-RABFailedToSetupListBearerSURes CRITICALITY ignore TYPE E-RABList PRESENCE optional }|

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

...

}

E-RABSetupListBearerSURes ::= SEQUENCE (SIZE(1.. maxnoofE-RABs)) OF ProtocolIE-SingleContainer { {E-RABSetupItemBearerSUResIEs} }

E-RABSetupItemBearerSUResIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABSetupItemBearerSURes CRITICALITY ignore TYPE E-RABSetupItemBearerSURes PRESENCE mandatory },

...

}

E-RABSetupItemBearerSURes ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

transportLayerAddress TransportLayerAddress,

gTP-TEID GTP-TEID,

iE-Extensions ProtocolExtensionContainer { {E-RABSetupItemBearerSUResExtIEs} } OPTIONAL,

...

}

E-RABSetupItemBearerSUResExtIEs S1AP-PROTOCOL-EXTENSION ::= {

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

...

}

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

--

-- E-RAB MODIFY ELEMENTARY PROCEDURE

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

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

--

-- E-RAB Modify Request

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

E-RABModifyRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {E-RABModifyRequestIEs} },

...

}

E-RABModifyRequestIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-uEaggregateMaximumBitrate CRITICALITY reject TYPE UEAggregateMaximumBitrate PRESENCE optional }|

{ ID id-E-RABToBeModifiedListBearerModReq CRITICALITY reject TYPE E-RABToBeModifiedListBearerModReq PRESENCE mandatory }|

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

...

}

E-RABToBeModifiedListBearerModReq ::= SEQUENCE (SIZE(1.. maxnoofE-RABs)) OF ProtocolIE-SingleContainer { {E-RABToBeModifiedItemBearerModReqIEs} }

E-RABToBeModifiedItemBearerModReqIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABToBeModifiedItemBearerModReq CRITICALITY reject TYPE E-RABToBeModifiedItemBearerModReq PRESENCE mandatory },

...

}

E-RABToBeModifiedItemBearerModReq ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

e-RABLevelQoSParameters E-RABLevelQoSParameters,

nAS-PDU NAS-PDU,

iE-Extensions ProtocolExtensionContainer { {E-RABToBeModifyItemBearerModReqExtIEs} } OPTIONAL,

...

}

E-RABToBeModifyItemBearerModReqExtIEs S1AP-PROTOCOL-EXTENSION ::= {

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

...

}

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

--

-- E-RAB Modify Response

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

E-RABModifyResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {E-RABModifyResponseIEs} },

...

}

E-RABModifyResponseIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-E-RABModifyListBearerModRes CRITICALITY ignore TYPE E-RABModifyListBearerModRes PRESENCE optional }|

{ ID id-E-RABFailedToModifyList CRITICALITY ignore TYPE E-RABList PRESENCE optional }|

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

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

...

}

E-RABModifyListBearerModRes ::= SEQUENCE (SIZE(1.. maxnoofE-RABs)) OF ProtocolIE-SingleContainer { {E-RABModifyItemBearerModResIEs} }

E-RABModifyItemBearerModResIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABModifyItemBearerModRes CRITICALITY ignore TYPE E-RABModifyItemBearerModRes PRESENCE mandatory},

...

}

E-RABModifyItemBearerModRes ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

iE-Extensions ProtocolExtensionContainer { {E-RABModifyItemBearerModResExtIEs} } OPTIONAL,

...

}

E-RABModifyItemBearerModResExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

--

-- E-RAB RELEASE ELEMENTARY PROCEDURE

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

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

--

-- E-RAB Release Command

--

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

E-RABReleaseCommand ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {E-RABReleaseCommandIEs} },

...

}

E-RABReleaseCommandIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-uEaggregateMaximumBitrate CRITICALITY reject TYPE UEAggregateMaximumBitrate PRESENCE optional }|

{ ID id-E-RABToBeReleasedList CRITICALITY ignore TYPE E-RABList PRESENCE mandatory }|

{ ID id-NAS-PDU CRITICALITY ignore TYPE NAS-PDU PRESENCE optional },

...

}

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

--

-- E-RAB Release Response

--

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

E-RABReleaseResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { E-RABReleaseResponseIEs } },

...

}

E-RABReleaseResponseIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-E-RABReleaseListBearerRelComp CRITICALITY ignore TYPE E-RABReleaseListBearerRelComp PRESENCE optional }|

{ ID id-E-RABFailedToReleaseList CRITICALITY ignore TYPE E-RABList PRESENCE optional }|

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

-- Extension for Release 12 to support User Location Information --

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

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

...

}

E-RABReleaseListBearerRelComp ::= SEQUENCE (SIZE(1.. maxnoofE-RABs)) OF ProtocolIE-SingleContainer { {E-RABReleaseItemBearerRelCompIEs} }

E-RABReleaseItemBearerRelCompIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABReleaseItemBearerRelComp CRITICALITY ignore TYPE E-RABReleaseItemBearerRelComp PRESENCE mandatory },

...

}

E-RABReleaseItemBearerRelComp ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

iE-Extensions ProtocolExtensionContainer { {E-RABReleaseItemBearerRelCompExtIEs} } OPTIONAL,

...

}

E-RABReleaseItemBearerRelCompExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

--

-- E-RAB RELEASE INDICATION ELEMENTARY PROCEDURE

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

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

--

-- E-RAB Release Indication

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

E-RABReleaseIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {E-RABReleaseIndicationIEs} },

...

}

E-RABReleaseIndicationIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-E-RABReleasedList CRITICALITY ignore TYPE E-RABList PRESENCE mandatory }|

-- Extension for Release 12 to support User Location Information --

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

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

...

}

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

--

-- INITIAL CONTEXT SETUP ELEMENTARY PROCEDURE

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

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

--

-- Initial Context Setup Request

--

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

InitialContextSetupRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {InitialContextSetupRequestIEs} },

...

}

InitialContextSetupRequestIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-uEaggregateMaximumBitrate CRITICALITY reject TYPE UEAggregateMaximumBitrate PRESENCE mandatory}|

{ ID id-E-RABToBeSetupListCtxtSUReq CRITICALITY reject TYPE E-RABToBeSetupListCtxtSUReq PRESENCE mandatory}|

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

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

{ ID id-TraceActivation CRITICALITY ignore TYPE TraceActivation PRESENCE optional}|

{ ID id-HandoverRestrictionList CRITICALITY ignore TYPE HandoverRestrictionList PRESENCE optional}|

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

{ ID id-SubscriberProfileIDforRFP CRITICALITY ignore TYPE SubscriberProfileIDforRFP PRESENCE optional}|

{ ID id-CSFallbackIndicator CRITICALITY reject TYPE CSFallbackIndicator PRESENCE optional}|

{ ID id-SRVCCOperationPossible CRITICALITY ignore TYPE SRVCCOperationPossible PRESENCE optional}|

{ ID id-CSGMembershipStatus CRITICALITY ignore TYPE CSGMembershipStatus PRESENCE optional}|

{ ID id-RegisteredLAI CRITICALITY ignore TYPE LAI PRESENCE optional}|

{ ID id-GUMMEI-ID CRITICALITY ignore TYPE GUMMEI PRESENCE optional}|

{ ID id-MME-UE-S1AP-ID-2 CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE optional}|

{ ID id-ManagementBasedMDTAllowed CRITICALITY ignore TYPE ManagementBasedMDTAllowed PRESENCE optional}|

{ ID id-ManagementBasedMDTPLMNList CRITICALITY ignore TYPE MDTPLMNList PRESENCE optional}|

{ ID id-AdditionalCSFallbackIndicator CRITICALITY ignore TYPE AdditionalCSFallbackIndicator PRESENCE conditional}|

{ ID id-Masked-IMEISV CRITICALITY ignore TYPE Masked-IMEISV PRESENCE optional}|

{ ID id-ExpectedUEBehaviour CRITICALITY ignore TYPE ExpectedUEBehaviour PRESENCE optional}|

{ ID id-ProSeAuthorized CRITICALITY ignore TYPE ProSeAuthorized PRESENCE optional}|

{ ID id-UEUserPlaneCIoTSupportIndicator CRITICALITY ignore TYPE UEUserPlaneCIoTSupportIndicator PRESENCE optional}|

{ ID id-V2XServicesAuthorized CRITICALITY ignore TYPE V2XServicesAuthorized PRESENCE optional}|

{ ID id-UESidelinkAggregateMaximumBitrate CRITICALITY ignore TYPE UESidelinkAggregateMaximumBitrate PRESENCE optional}|

{ ID id-EnhancedCoverageRestricted CRITICALITY ignore TYPE EnhancedCoverageRestricted PRESENCE optional}|

{ ID id-NRUESecurityCapabilities CRITICALITY ignore TYPE NRUESecurityCapabilities PRESENCE optional}|

{ ID id-CE-ModeBRestricted CRITICALITY ignore TYPE CE-ModeBRestricted PRESENCE optional}|

{ ID id-AerialUEsubscriptionInformation CRITICALITY ignore TYPE AerialUEsubscriptionInformation PRESENCE optional}|

{ ID id-PendingDataIndication CRITICALITY ignore TYPE PendingDataIndication PRESENCE optional}|

{ ID id-Subscription-Based-UE-DifferentiationInfo CRITICALITY ignore TYPE Subscription-Based-UE-DifferentiationInfo PRESENCE optional}|

{ ID id-AdditionalRRMPriorityIndex CRITICALITY ignore TYPE AdditionalRRMPriorityIndex PRESENCE optional }|

{ ID id-IAB-Authorized CRITICALITY ignore TYPE IAB-Authorized PRESENCE optional}|

{ ID id-NRV2XServicesAuthorized CRITICALITY ignore TYPE NRV2XServicesAuthorized PRESENCE optional }|

{ ID id-NRUESidelinkAggregateMaximumBitrate CRITICALITY ignore TYPE NRUESidelinkAggregateMaximumBitrate PRESENCE optional }|

{ ID id-PC5QoSParameters CRITICALITY ignore TYPE PC5QoSParameters PRESENCE optional }|

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

...

}

E-RABToBeSetupListCtxtSUReq ::= SEQUENCE (SIZE(1.. maxnoofE-RABs)) OF ProtocolIE-SingleContainer { {E-RABToBeSetupItemCtxtSUReqIEs} }

E-RABToBeSetupItemCtxtSUReqIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABToBeSetupItemCtxtSUReq CRITICALITY reject TYPE E-RABToBeSetupItemCtxtSUReq PRESENCE mandatory },

...

}

E-RABToBeSetupItemCtxtSUReq ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

e-RABlevelQoSParameters E-RABLevelQoSParameters,

transportLayerAddress TransportLayerAddress,

gTP-TEID GTP-TEID,

nAS-PDU NAS-PDU OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {E-RABToBeSetupItemCtxtSUReqExtIEs} } OPTIONAL,

...

}

E-RABToBeSetupItemCtxtSUReqExtIEs S1AP-PROTOCOL-EXTENSION ::= {

{ ID id-Correlation-ID CRITICALITY ignore EXTENSION Correlation-ID PRESENCE optional}|

{ ID id-SIPTO-Correlation-ID CRITICALITY ignore EXTENSION Correlation-ID PRESENCE optional}|

{ ID id-BearerType CRITICALITY reject EXTENSION BearerType PRESENCE optional}|

{ ID id-Ethernet-Type CRITICALITY ignore EXTENSION Ethernet-Type PRESENCE optional}|

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

...

}

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

--

-- Initial Context Setup Response

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

InitialContextSetupResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {InitialContextSetupResponseIEs} },

...

}

InitialContextSetupResponseIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-E-RABSetupListCtxtSURes CRITICALITY ignore TYPE E-RABSetupListCtxtSURes PRESENCE mandatory }|

{ ID id-E-RABFailedToSetupListCtxtSURes CRITICALITY ignore TYPE E-RABList PRESENCE optional }|

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

...

}

E-RABSetupListCtxtSURes ::= SEQUENCE (SIZE(1.. maxnoofE-RABs)) OF ProtocolIE-SingleContainer { {E-RABSetupItemCtxtSUResIEs} }

E-RABSetupItemCtxtSUResIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABSetupItemCtxtSURes CRITICALITY ignore TYPE E-RABSetupItemCtxtSURes PRESENCE mandatory },

...

}

E-RABSetupItemCtxtSURes ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

transportLayerAddress TransportLayerAddress,

gTP-TEID GTP-TEID,

iE-Extensions ProtocolExtensionContainer { {E-RABSetupItemCtxtSUResExtIEs} } OPTIONAL,

...

}

E-RABSetupItemCtxtSUResExtIEs S1AP-PROTOCOL-EXTENSION ::= {

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

...

}

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

--

-- Initial Context Setup Failure

--

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

InitialContextSetupFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {InitialContextSetupFailureIEs} },

...

}

InitialContextSetupFailureIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

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

...

}

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

--

-- PAGING ELEMENTARY PROCEDURE

--

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

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

--

-- Paging

--

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

Paging ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{PagingIEs}},

...

}

PagingIEs S1AP-PROTOCOL-IES ::= {

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

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

{ ID id-pagingDRX CRITICALITY ignore TYPE PagingDRX PRESENCE optional}|

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

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

{ ID id-CSG-IdList CRITICALITY ignore TYPE CSG-IdList PRESENCE optional}|

{ ID id-PagingPriority CRITICALITY ignore TYPE PagingPriority PRESENCE optional}|

{ ID id-UERadioCapabilityForPaging CRITICALITY ignore TYPE UERadioCapabilityForPaging PRESENCE optional}|

-- Extension for Release 13 to support Paging Optimisation and Coverage Enhancement paging –-

{ ID id-AssistanceDataForPaging CRITICALITY ignore TYPE AssistanceDataForPaging PRESENCE optional}|

{ ID id-Paging-eDRXInformation CRITICALITY ignore TYPE Paging-eDRXInformation PRESENCE optional}|

{ ID id-extended-UEIdentityIndexValue CRITICALITY ignore TYPE Extended-UEIdentityIndexValue PRESENCE optional}|

{ ID id-NB-IoT-Paging-eDRXInformation CRITICALITY ignore TYPE NB-IoT-Paging-eDRXInformation PRESENCE optional}|

{ ID id-NB-IoT-UEIdentityIndexValue CRITICALITY ignore TYPE NB-IoT-UEIdentityIndexValue PRESENCE optional}|

{ ID id-EnhancedCoverageRestricted CRITICALITY ignore TYPE EnhancedCoverageRestricted PRESENCE optional}|

{ ID id-CE-ModeBRestricted CRITICALITY ignore TYPE CE-ModeBRestricted PRESENCE optional}|

{ ID id-DataSize CRITICALITY ignore TYPE DataSize PRESENCE optional}|

{ ID id-WUS-Assistance-Information CRITICALITY ignore TYPE WUS-Assistance-Information PRESENCE optional}|

{ ID id-NB-IoT-PagingDRX CRITICALITY ignore TYPE NB-IoT-PagingDRX PRESENCE optional},

...

}

TAIList::= SEQUENCE (SIZE(1.. maxnoofTAIs)) OF ProtocolIE-SingleContainer {{TAIItemIEs}}

TAIItemIEs S1AP-PROTOCOL-IES ::= {

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

...

}

TAIItem ::= SEQUENCE {

tAI TAI,

iE-Extensions ProtocolExtensionContainer { {TAIItemExtIEs} } OPTIONAL,

...

}

TAIItemExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

--

-- UE CONTEXT RELEASE ELEMENTARY PROCEDURE

--

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

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

--

-- UE Context Release Request

--

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

UEContextReleaseRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{UEContextReleaseRequest-IEs}},

...

}

UEContextReleaseRequest-IEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

{ ID id-GWContextReleaseIndication CRITICALITY reject TYPE GWContextReleaseIndication PRESENCE optional }|

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

...

}

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

--

-- UE Context Release Command

--

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

UEContextReleaseCommand ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{UEContextReleaseCommand-IEs}},

...

}

UEContextReleaseCommand-IEs S1AP-PROTOCOL-IES ::= {

{ ID id-UE-S1AP-IDs CRITICALITY reject TYPE UE-S1AP-IDs PRESENCE mandatory }|

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

...

}

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

--

-- UE Context Release Complete

--

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

UEContextReleaseComplete ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{UEContextReleaseComplete-IEs}},

...

}

UEContextReleaseComplete-IEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

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

-- Extension for Release 12 to support User Location Information --

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

-- Extension for Release 13 to support Paging Optimisation

{ ID id-InformationOnRecommendedCellsAndENBsForPaging CRITICALITY ignore TYPE InformationOnRecommendedCellsAndENBsForPaging PRESENCE optional}|

-- Extension for Release 13 to support coverage enhancement paging –

{ ID id-CellIdentifierAndCELevelForCECapableUEs CRITICALITY ignore TYPE CellIdentifierAndCELevelForCECapableUEs PRESENCE optional}|

{ ID id-SecondaryRATDataUsageReportList CRITICALITY ignore TYPE SecondaryRATDataUsageReportList PRESENCE optional }|

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

...

}

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

--

-- UE CONTEXT MODIFICATION ELEMENTARY PROCEDURE

--

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

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

--

-- UE Context Modification Request

--

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

UEContextModificationRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextModificationRequestIEs} },

...

}

UEContextModificationRequestIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-SecurityKey CRITICALITY reject TYPE SecurityKey PRESENCE optional}|

{ ID id-SubscriberProfileIDforRFP CRITICALITY ignore TYPE SubscriberProfileIDforRFP PRESENCE optional}|

{ ID id-uEaggregateMaximumBitrate CRITICALITY ignore TYPE UEAggregateMaximumBitrate PRESENCE optional}|

{ ID id-CSFallbackIndicator CRITICALITY reject TYPE CSFallbackIndicator PRESENCE optional}|

{ ID id-UESecurityCapabilities CRITICALITY reject TYPE UESecurityCapabilities PRESENCE optional}|

{ ID id-CSGMembershipStatus CRITICALITY ignore TYPE CSGMembershipStatus PRESENCE optional}|

{ ID id-RegisteredLAI CRITICALITY ignore TYPE LAI PRESENCE optional}|

{ ID id-AdditionalCSFallbackIndicator CRITICALITY ignore TYPE AdditionalCSFallbackIndicator PRESENCE conditional}|

{ ID id-ProSeAuthorized CRITICALITY ignore TYPE ProSeAuthorized PRESENCE optional}|

{ ID id-SRVCCOperationPossible CRITICALITY ignore TYPE SRVCCOperationPossible PRESENCE optional}|

{ ID id-SRVCCOperationNotPossible CRITICALITY ignore TYPE SRVCCOperationNotPossible PRESENCE optional}|

{ ID id-V2XServicesAuthorized CRITICALITY ignore TYPE V2XServicesAuthorized PRESENCE optional}|

{ ID id-UESidelinkAggregateMaximumBitrate CRITICALITY ignore TYPE UESidelinkAggregateMaximumBitrate PRESENCE optional}|

{ ID id-NRUESecurityCapabilities CRITICALITY ignore TYPE NRUESecurityCapabilities PRESENCE optional}|

{ ID id-AerialUEsubscriptionInformation CRITICALITY ignore TYPE AerialUEsubscriptionInformation PRESENCE optional}|

{ ID id-AdditionalRRMPriorityIndex CRITICALITY ignore TYPE AdditionalRRMPriorityIndex PRESENCE optional}|

{ ID id-IAB-Authorized CRITICALITY ignore TYPE IAB-Authorized PRESENCE optional}|

{ ID id-NRV2XServicesAuthorized CRITICALITY ignore TYPE NRV2XServicesAuthorized PRESENCE optional }|

{ ID id-NRUESidelinkAggregateMaximumBitrate CRITICALITY ignore TYPE NRUESidelinkAggregateMaximumBitrate PRESENCE optional }|

{ ID id-PC5QoSParameters CRITICALITY ignore TYPE PC5QoSParameters PRESENCE optional }|

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

...

}

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

--

-- UE Context Modification Response

--

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

UEContextModificationResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextModificationResponseIEs} },

...

}

UEContextModificationResponseIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

...

}

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

--

-- UE Context Modification Failure

--

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

UEContextModificationFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextModificationFailureIEs} },

...

}

UEContextModificationFailureIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

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

...

}

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

--

-- UE RADIO CAPABILITY MATCH ELEMENTARY PROCEDURE

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

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

--

-- UE Radio Capability Match Request

--

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

UERadioCapabilityMatchRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UERadioCapabilityMatchRequestIEs} },

...

}

UERadioCapabilityMatchRequestIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

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

...

}

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

--

-- UE Radio Capability Match Response

--

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

UERadioCapabilityMatchResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UERadioCapabilityMatchResponseIEs} },

...

}

UERadioCapabilityMatchResponseIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

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

...

}

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

--

-- NAS TRANSPORT ELEMENTARY PROCEDURES

--

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

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

--

-- DOWNLINK NAS TRANSPORT

--

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

DownlinkNASTransport ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{DownlinkNASTransport-IEs}},

...

}

DownlinkNASTransport-IEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-NAS-PDU CRITICALITY reject TYPE NAS-PDU PRESENCE mandatory}|

{ ID id-HandoverRestrictionList CRITICALITY ignore TYPE HandoverRestrictionList PRESENCE optional}|

{ ID id-SubscriberProfileIDforRFP CRITICALITY ignore TYPE SubscriberProfileIDforRFP PRESENCE optional}|

{ ID id-SRVCCOperationPossible CRITICALITY ignore TYPE SRVCCOperationPossible PRESENCE optional}|

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

{ ID id-DLNASPDUDeliveryAckRequest CRITICALITY ignore TYPE DLNASPDUDeliveryAckRequest PRESENCE optional}|

{ ID id-EnhancedCoverageRestricted CRITICALITY ignore TYPE EnhancedCoverageRestricted PRESENCE optional}|

{ ID id-NRUESecurityCapabilities CRITICALITY ignore TYPE NRUESecurityCapabilities PRESENCE optional}|

{ ID id-CE-ModeBRestricted CRITICALITY ignore TYPE CE-ModeBRestricted PRESENCE optional}|

{ ID id-UECapabilityInfoRequest CRITICALITY ignore TYPE UECapabilityInfoRequest PRESENCE optional}|

{ ID id-EndIndication CRITICALITY ignore TYPE EndIndication PRESENCE optional}|

{ ID id-PendingDataIndication CRITICALITY ignore TYPE PendingDataIndication PRESENCE optional}|

{ ID id-Subscription-Based-UE-DifferentiationInfo CRITICALITY ignore TYPE Subscription-Based-UE-DifferentiationInfo PRESENCE optional}|

{ ID id-AdditionalRRMPriorityIndex CRITICALITY ignore TYPE AdditionalRRMPriorityIndex PRESENCE optional}|

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

...

}

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

--

-- INITIAL UE MESSAGE

--

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

InitialUEMessage ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{InitialUEMessage-IEs}},

...

}

InitialUEMessage-IEs S1AP-PROTOCOL-IES ::= {

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-NAS-PDU CRITICALITY reject TYPE NAS-PDU PRESENCE mandatory}|

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

{ ID id-EUTRAN-CGI CRITICALITY ignore TYPE EUTRAN-CGI PRESENCE mandatory}|

{ ID id-RRC-Establishment-Cause CRITICALITY ignore TYPE RRC-Establishment-Cause PRESENCE mandatory}|

{ ID id-S-TMSI CRITICALITY reject TYPE S-TMSI PRESENCE optional}|

{ ID id-CSG-Id CRITICALITY reject TYPE CSG-Id PRESENCE optional}|

{ ID id-GUMMEI-ID CRITICALITY reject TYPE GUMMEI PRESENCE optional}|

{ ID id-CellAccessMode CRITICALITY reject TYPE CellAccessMode PRESENCE optional}|

{ ID id-GW-TransportLayerAddress CRITICALITY ignore TYPE TransportLayerAddress PRESENCE optional}|

{ ID id-RelayNode-Indicator CRITICALITY reject TYPE RelayNode-Indicator PRESENCE optional}|

{ ID id-GUMMEIType CRITICALITY ignore TYPE GUMMEIType PRESENCE optional}|

-- Extension for Release 11 to support BBAI --

{ ID id-Tunnel-Information-for-BBF CRITICALITY ignore TYPE TunnelInformation PRESENCE optional}|

{ ID id-SIPTO-L-GW-TransportLayerAddress CRITICALITY ignore TYPE TransportLayerAddress PRESENCE optional}|

{ ID id-LHN-ID CRITICALITY ignore TYPE LHN-ID PRESENCE optional}|

{ ID id-MME-Group-ID CRITICALITY ignore TYPE MME-Group-ID PRESENCE optional}|

{ ID id-UE-Usage-Type CRITICALITY ignore TYPE UE-Usage-Type PRESENCE optional}|

{ ID id-CE-mode-B-SupportIndicator CRITICALITY ignore TYPE CE-mode-B-SupportIndicator PRESENCE optional}|

{ ID id-DCN-ID CRITICALITY ignore TYPE DCN-ID PRESENCE optional}|

{ ID id-Coverage-Level CRITICALITY ignore TYPE Coverage-Level PRESENCE optional}|

{ ID id-UE-Application-Layer-Measurement-Capability CRITICALITY ignore TYPE UE-Application-Layer-Measurement-Capability PRESENCE optional}|

{ ID id-EDT-Session CRITICALITY ignore TYPE EDT-Session PRESENCE optional}|

{ ID id-IAB-Node-Indication CRITICALITY reject TYPE IAB-Node-Indication PRESENCE optional},

...

}

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

--

-- UPLINK NAS TRANSPORT

--

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

UplinkNASTransport ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{UplinkNASTransport-IEs}},

...

}

UplinkNASTransport-IEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-NAS-PDU CRITICALITY reject TYPE NAS-PDU PRESENCE mandatory}|

{ ID id-EUTRAN-CGI CRITICALITY ignore TYPE EUTRAN-CGI PRESENCE mandatory}|

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

{ ID id-GW-TransportLayerAddress CRITICALITY ignore TYPE TransportLayerAddress PRESENCE optional}|

{ ID id-SIPTO-L-GW-TransportLayerAddress CRITICALITY ignore TYPE TransportLayerAddress PRESENCE optional}|

{ ID id-LHN-ID CRITICALITY ignore TYPE LHN-ID PRESENCE optional}|

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

...

}

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

--

-- NAS NON DELIVERY INDICATION

--

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

NASNonDeliveryIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{NASNonDeliveryIndication-IEs}},

...

}

NASNonDeliveryIndication-IEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-NAS-PDU CRITICALITY ignore TYPE NAS-PDU PRESENCE mandatory }|

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

...

}

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

--

-- REROUTE NAS REQUEST

--

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

RerouteNASRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{RerouteNASRequest-IEs}},

...

}

RerouteNASRequest-IEs S1AP-PROTOCOL-IES ::= {

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE optional}|

{ ID id-S1-Message CRITICALITY reject TYPE OCTET STRING PRESENCE mandatory}|

{ ID id-MME-Group-ID CRITICALITY reject TYPE MME-Group-ID PRESENCE mandatory}|

{ ID id-Additional-GUTI CRITICALITY ignore TYPE Additional-GUTI PRESENCE optional}|

{ ID id-UE-Usage-Type CRITICALITY ignore TYPE UE-Usage-Type PRESENCE optional},

...

}

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

--

-- NAS DELIVERY INDICATION

--

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

NASDeliveryIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { NASDeliveryIndicationIEs} },

...

}

NASDeliveryIndicationIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory},

...

}

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

--

-- RESET ELEMENTARY PROCEDURE

--

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

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

--

-- Reset

--

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

Reset ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {ResetIEs} },

...

}

ResetIEs S1AP-PROTOCOL-IES ::= {

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

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

...

}

ResetType ::= CHOICE {

s1-Interface ResetAll,

partOfS1-Interface UE-associatedLogicalS1-ConnectionListRes,

...

}

ResetAll ::= ENUMERATED {

reset-all,

...

}

UE-associatedLogicalS1-ConnectionListRes ::= SEQUENCE (SIZE(1.. maxnoofIndividualS1ConnectionsToReset)) OF ProtocolIE-SingleContainer { { UE-associatedLogicalS1-ConnectionItemRes } }

UE-associatedLogicalS1-ConnectionItemRes S1AP-PROTOCOL-IES ::= {

{ ID id-UE-associatedLogicalS1-ConnectionItem CRITICALITY reject TYPE UE-associatedLogicalS1-ConnectionItem PRESENCE mandatory},

...

}

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

--

-- Reset Acknowledge

--

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

ResetAcknowledge ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {ResetAcknowledgeIEs} },

...

}

ResetAcknowledgeIEs S1AP-PROTOCOL-IES ::= {

{ ID id-UE-associatedLogicalS1-ConnectionListResAck CRITICALITY ignore TYPE UE-associatedLogicalS1-ConnectionListResAck PRESENCE optional }|

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

...

}

UE-associatedLogicalS1-ConnectionListResAck ::= SEQUENCE (SIZE(1.. maxnoofIndividualS1ConnectionsToReset)) OF ProtocolIE-SingleContainer { { UE-associatedLogicalS1-ConnectionItemResAck } }

UE-associatedLogicalS1-ConnectionItemResAck S1AP-PROTOCOL-IES ::= {

{ ID id-UE-associatedLogicalS1-ConnectionItem CRITICALITY ignore TYPE UE-associatedLogicalS1-ConnectionItem PRESENCE mandatory },

...

}

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

--

-- ERROR INDICATION ELEMENTARY PROCEDURE

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

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

--

-- Error Indication

--

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

ErrorIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ErrorIndicationIEs}},

...

}

ErrorIndicationIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE optional }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE optional }|

{ ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE optional }|

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

{ ID id-S-TMSI CRITICALITY ignore TYPE S-TMSI PRESENCE optional },

...

}

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

--

-- S1 SETUP ELEMENTARY PROCEDURE

--

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

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

--

-- S1 Setup Request

--

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

S1SetupRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {S1SetupRequestIEs} },

...

}

S1SetupRequestIEs S1AP-PROTOCOL-IES ::= {

{ ID id-Global-ENB-ID CRITICALITY reject TYPE Global-ENB-ID PRESENCE mandatory}|

{ ID id-eNBname CRITICALITY ignore TYPE ENBname PRESENCE optional}|

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

{ ID id-DefaultPagingDRX CRITICALITY ignore TYPE PagingDRX PRESENCE mandatory}|

{ ID id-CSG-IdList CRITICALITY reject TYPE CSG-IdList PRESENCE optional}|

{ ID id-UE-RetentionInformation CRITICALITY ignore TYPE UE-RetentionInformation PRESENCE optional}|

{ ID id-NB-IoT-DefaultPagingDRX CRITICALITY ignore TYPE NB-IoT-DefaultPagingDRX PRESENCE optional}|

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

...

}

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

--

-- S1 Setup Response

--

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

S1SetupResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {S1SetupResponseIEs} },

...

}

S1SetupResponseIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MMEname CRITICALITY ignore TYPE MMEname PRESENCE optional}|

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

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

{ ID id-MMERelaySupportIndicator CRITICALITY ignore TYPE MMERelaySupportIndicator PRESENCE optional}|

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

{ ID id-UE-RetentionInformation CRITICALITY ignore TYPE UE-RetentionInformation PRESENCE optional}|

{ ID id-ServedDCNs CRITICALITY ignore TYPE ServedDCNs PRESENCE optional}|

{ ID id-IAB-Supported CRITICALITY ignore TYPE IAB-Supported PRESENCE optional},

...

}

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

--

-- S1 Setup Failure

--

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

S1SetupFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {S1SetupFailureIEs} },

...

}

S1SetupFailureIEs S1AP-PROTOCOL-IES ::= {

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

{ ID id-TimeToWait CRITICALITY ignore TYPE TimeToWait PRESENCE optional }|

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

...

}

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

--

-- ENB CONFIGURATION UPDATE ELEMENTARY PROCEDURE

--

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

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

--

-- eNB Configuration Update

--

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

ENBConfigurationUpdate ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {ENBConfigurationUpdateIEs} },

...

}

ENBConfigurationUpdateIEs S1AP-PROTOCOL-IES ::= {

{ ID id-eNBname CRITICALITY ignore TYPE ENBname PRESENCE optional}|

{ ID id-SupportedTAs CRITICALITY reject TYPE SupportedTAs PRESENCE optional}|

{ ID id-CSG-IdList CRITICALITY reject TYPE CSG-IdList PRESENCE optional}|

{ ID id-DefaultPagingDRX CRITICALITY ignore TYPE PagingDRX PRESENCE optional}|

{ ID id-NB-IoT-DefaultPagingDRX CRITICALITY ignore TYPE NB-IoT-DefaultPagingDRX PRESENCE optional}|

{ ID id-ConnectedengNBToAddList CRITICALITY ignore TYPE ConnectedengNBList PRESENCE optional}|

{ ID id-ConnectedengNBToRemoveList CRITICALITY ignore TYPE ConnectedengNBList PRESENCE optional},

...

}

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

--

-- eNB Configuration Update Acknowledge

--

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

ENBConfigurationUpdateAcknowledge ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {ENBConfigurationUpdateAcknowledgeIEs} },

...

}

ENBConfigurationUpdateAcknowledgeIEs S1AP-PROTOCOL-IES ::= {

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

...

}

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

--

-- eNB Configuration Update Failure

--

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

ENBConfigurationUpdateFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {ENBConfigurationUpdateFailureIEs} },

...

}

ENBConfigurationUpdateFailureIEs S1AP-PROTOCOL-IES ::= {

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

{ ID id-TimeToWait CRITICALITY ignore TYPE TimeToWait PRESENCE optional }|

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

...

}

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

--

-- MME CONFIGURATION UPDATE ELEMENTARY PROCEDURE

--

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

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

--

-- MME Configuration Update

--

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

MMEConfigurationUpdate ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {MMEConfigurationUpdateIEs} },

...

}

MMEConfigurationUpdateIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MMEname CRITICALITY ignore TYPE MMEname PRESENCE optional }|

{ ID id-ServedGUMMEIs CRITICALITY reject TYPE ServedGUMMEIs PRESENCE optional }|

{ ID id-RelativeMMECapacity CRITICALITY reject TYPE RelativeMMECapacity PRESENCE optional }|

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

...

}

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

--

-- MME Configuration Update Acknowledge

--

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

MMEConfigurationUpdateAcknowledge ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {MMEConfigurationUpdateAcknowledgeIEs} },

...

}

MMEConfigurationUpdateAcknowledgeIEs S1AP-PROTOCOL-IES ::= {

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

...

}

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

--

-- MME Configuration Update Failure

--

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

MMEConfigurationUpdateFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {MMEConfigurationUpdateFailureIEs} },

...

}

MMEConfigurationUpdateFailureIEs S1AP-PROTOCOL-IES ::= {

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

{ ID id-TimeToWait CRITICALITY ignore TYPE TimeToWait PRESENCE optional }|

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

...

}

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

--

-- DOWNLINK S1 CDMA2000 TUNNELLING ELEMENTARY PROCEDURE

--

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

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

--

-- Downlink S1 CDMA2000 Tunnelling

--

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

DownlinkS1cdma2000tunnelling ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {DownlinkS1cdma2000tunnellingIEs} },

...

}

DownlinkS1cdma2000tunnellingIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-E-RABSubjecttoDataForwardingList CRITICALITY ignore TYPE E-RABSubjecttoDataForwardingList PRESENCE optional }|

{ ID id-cdma2000HOStatus CRITICALITY ignore TYPE Cdma2000HOStatus PRESENCE optional }|

{ ID id-cdma2000RATType CRITICALITY reject TYPE Cdma2000RATType PRESENCE mandatory }|

{ ID id-cdma2000PDU CRITICALITY reject TYPE Cdma2000PDU PRESENCE mandatory },

...

}

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

--

-- UPLINK S1 CDMA2000 TUNNELLING ELEMENTARY PROCEDURE

--

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

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

--

-- Uplink S1 CDMA2000 Tunnelling

--

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

UplinkS1cdma2000tunnelling ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {UplinkS1cdma2000tunnellingIEs} },

...

}

UplinkS1cdma2000tunnellingIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-cdma2000RATType CRITICALITY reject TYPE Cdma2000RATType PRESENCE mandatory }|

{ ID id-cdma2000SectorID CRITICALITY reject TYPE Cdma2000SectorID PRESENCE mandatory }|

{ ID id-cdma2000HORequiredIndication CRITICALITY ignore TYPE Cdma2000HORequiredIndication PRESENCE optional }|

{ ID id-cdma2000OneXSRVCCInfo CRITICALITY reject TYPE Cdma2000OneXSRVCCInfo PRESENCE optional }|

{ ID id-cdma2000OneXRAND CRITICALITY reject TYPE Cdma2000OneXRAND PRESENCE optional }|

{ ID id-cdma2000PDU CRITICALITY reject TYPE Cdma2000PDU PRESENCE mandatory }|

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

-- Extension for Release 9 to assist target HRPD access with the acquisition of the UE --

...

}

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

--

-- UE CAPABILITY INFO INDICATION ELEMENTARY PROCEDURE

--

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

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

--

-- UE Capability Info Indication

--

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

UECapabilityInfoIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UECapabilityInfoIndicationIEs} },

...

}

UECapabilityInfoIndicationIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

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

{ ID id-UERadioCapabilityForPaging CRITICALITY ignore TYPE UERadioCapabilityForPaging PRESENCE optional}|

{ ID id-UE-Application-Layer-Measurement-Capability CRITICALITY ignore TYPE UE-Application-Layer-Measurement-Capability PRESENCE optional}|

{ ID id-LTE-M-Indication CRITICALITY ignore TYPE LTE-M-Indication PRESENCE optional}|

{ ID id-UERadioCapability-NR-Format CRITICALITY ignore TYPE UERadioCapability PRESENCE optional},

...

}

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

--

-- eNB STATUS TRANSFER ELEMENTARY PROCEDURE

--

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

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

--

-- eNB Status Transfer

--

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

ENBStatusTransfer ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {ENBStatusTransferIEs} },

...

}

ENBStatusTransferIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-StatusTransfer-TransparentContainer CRITICALITY reject TYPE ENB-StatusTransfer-TransparentContainer PRESENCE mandatory},

...

}

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

--

-- MME STATUS TRANSFER ELEMENTARY PROCEDURE

--

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

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

--

-- MME Status Transfer

--

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

MMEStatusTransfer ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {MMEStatusTransferIEs} },

...

}

MMEStatusTransferIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-StatusTransfer-TransparentContainer CRITICALITY reject TYPE ENB-StatusTransfer-TransparentContainer PRESENCE mandatory},

...

}

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

--

-- TRACE ELEMENTARY PROCEDURES

--

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

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

--

-- Trace Start

--

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

TraceStart ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {TraceStartIEs} },

...

}

TraceStartIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

...

}

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

--

-- Trace Failure Indication

--

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

TraceFailureIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {TraceFailureIndicationIEs} },

...

}

TraceFailureIndicationIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-E-UTRAN-Trace-ID CRITICALITY ignore TYPE E-UTRAN-Trace-ID PRESENCE mandatory }|

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

...

}

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

--

-- DEACTIVATE TRACE ELEMENTARY PROCEDURE

--

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

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

--

-- Deactivate Trace

--

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

DeactivateTrace ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { DeactivateTraceIEs} },

...

}

DeactivateTraceIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-E-UTRAN-Trace-ID CRITICALITY ignore TYPE E-UTRAN-Trace-ID PRESENCE mandatory },

...

}

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

--

-- CELL TRAFFIC TRACE ELEMENTARY PROCEDURE

--

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

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

--

-- Cell Traffic Trace

--

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

CellTrafficTrace ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { CellTrafficTraceIEs } },

...

}

CellTrafficTraceIEs S1AP-PROTOCOL-IES ::= {

{ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ID id-E-UTRAN-Trace-ID CRITICALITY ignore TYPE E-UTRAN-Trace-ID PRESENCE mandatory }|

{ID id-EUTRAN-CGI CRITICALITY ignore TYPE EUTRAN-CGI PRESENCE mandatory }|

{ID id-TraceCollectionEntityIPAddress CRITICALITY ignore TYPE TransportLayerAddress PRESENCE mandatory }|

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

...

}

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

--

-- LOCATION ELEMENTARY PROCEDURES

--

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

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

--

-- Location Reporting Control

--

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

LocationReportingControl ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { LocationReportingControlIEs} },

...

}

LocationReportingControlIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

...

}

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

--

-- Location Report Failure Indication

--

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

LocationReportingFailureIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { LocationReportingFailureIndicationIEs} },

...

}

LocationReportingFailureIndicationIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

...

}

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

--

-- Location Report

--

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

LocationReport ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { LocationReportIEs} },

...

}

LocationReportIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-EUTRAN-CGI CRITICALITY ignore TYPE EUTRAN-CGI PRESENCE mandatory }|

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

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

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

...

}

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

--

-- OVERLOAD ELEMENTARY PROCEDURES

--

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

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

--

-- Overload Start

--

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

OverloadStart ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {OverloadStartIEs} },

...

}

OverloadStartIEs S1AP-PROTOCOL-IES ::= {

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

{ ID id-GUMMEIList CRITICALITY ignore TYPE GUMMEIList PRESENCE optional }|

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

...

}

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

--

-- Overload Stop

--

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

OverloadStop ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {OverloadStopIEs} },

...

}

OverloadStopIEs S1AP-PROTOCOL-IES ::= {

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

...

}

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

--

-- WRITE-REPLACE WARNING ELEMENTARY PROCEDURE

--

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

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

--

-- Write-Replace Warning Request

--

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

WriteReplaceWarningRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {WriteReplaceWarningRequestIEs} },

...

}

WriteReplaceWarningRequestIEs S1AP-PROTOCOL-IES ::= {

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

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

{ ID id-WarningAreaList CRITICALITY ignore TYPE WarningAreaList PRESENCE optional }|

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

{ ID id-ExtendedRepetitionPeriod CRITICALITY reject TYPE ExtendedRepetitionPeriod PRESENCE optional }|

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

{ ID id-WarningType CRITICALITY ignore TYPE WarningType PRESENCE optional }|

{ ID id-WarningSecurityInfo CRITICALITY ignore TYPE WarningSecurityInfo PRESENCE optional }|

{ ID id-DataCodingScheme CRITICALITY ignore TYPE DataCodingScheme PRESENCE optional }|

{ ID id-WarningMessageContents CRITICALITY ignore TYPE WarningMessageContents PRESENCE optional }|

{ ID id-ConcurrentWarningMessageIndicator CRITICALITY reject TYPE ConcurrentWarningMessageIndicator PRESENCE optional }|

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

...

}

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

--

-- Write-Replace Warning Response

--

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

WriteReplaceWarningResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {WriteReplaceWarningResponseIEs} },

...

}

WriteReplaceWarningResponseIEs S1AP-PROTOCOL-IES ::= {

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

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

{ ID id-BroadcastCompletedAreaList CRITICALITY ignore TYPE BroadcastCompletedAreaList PRESENCE optional }|

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

...

}

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

--

-- eNB DIRECT INFORMATION TRANSFER ELEMENTARY PROCEDURE

--

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

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

--

-- eNB Direct Information Transfer

--

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

ENBDirectInformationTransfer ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ ENBDirectInformationTransferIEs}},

...

}

ENBDirectInformationTransferIEs S1AP-PROTOCOL-IES ::= {

{ ID id-Inter-SystemInformationTransferTypeEDT CRITICALITY reject TYPE Inter-SystemInformationTransferType PRESENCE mandatory },

...

}

Inter-SystemInformationTransferType ::= CHOICE {

rIMTransfer RIMTransfer,

...

}

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

--

-- MME DIRECT INFORMATION TRANSFER ELEMENTARY PROCEDURE

--

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

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

--

-- MME Direct Information Transfer

--

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

MMEDirectInformationTransfer ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ MMEDirectInformationTransferIEs}},

...

}

MMEDirectInformationTransferIEs S1AP-PROTOCOL-IES ::= {

{ ID id-Inter-SystemInformationTransferTypeMDT CRITICALITY reject TYPE Inter-SystemInformationTransferType PRESENCE mandatory },

...

}

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

--

-- eNB CONFIGURATION TRANSFER ELEMENTARY PROCEDURE

--

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

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

--

-- eNB Configuration Transfer

--

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

ENBConfigurationTransfer ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ ENBConfigurationTransferIEs}},

...

}

ENBConfigurationTransferIEs S1AP-PROTOCOL-IES ::= {

{ ID id-SONConfigurationTransferECT CRITICALITY ignore TYPE SONConfigurationTransfer PRESENCE optional }|

{ ID id-EN-DCSONConfigurationTransfer-ECT CRITICALITY ignore TYPE EN-DCSONConfigurationTransfer PRESENCE optional }|

{ ID id-IntersystemSONConfigurationTransferECT CRITICALITY ignore TYPE IntersystemSONConfigurationTransfer PRESENCE optional },

...

}

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

--

-- MME CONFIGURATION TRANSFER ELEMENTARY PROCEDURE

--

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

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

--

-- MME Configuration Transfer

--

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

MMEConfigurationTransfer ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ MMEConfigurationTransferIEs}},

...

}

MMEConfigurationTransferIEs S1AP-PROTOCOL-IES ::= {

{ ID id-SONConfigurationTransferMCT CRITICALITY ignore TYPE SONConfigurationTransfer PRESENCE optional }|

{ ID id-EN-DCSONConfigurationTransfer-MCT CRITICALITY ignore TYPE EN-DCSONConfigurationTransfer PRESENCE optional }|

{ ID id-IntersystemSONConfigurationTransferMCT CRITICALITY ignore TYPE IntersystemSONConfigurationTransfer PRESENCE optional },

...

}

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

--

-- PRIVATE MESSAGE ELEMENTARY PROCEDURE

--

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

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

--

-- Private Message

--

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

PrivateMessage ::= SEQUENCE {

privateIEs PrivateIE-Container {{PrivateMessageIEs}},

...

}

PrivateMessageIEs S1AP-PRIVATE-IES ::= {

...

}

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

--

-- KILL PROCEDURE

--

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

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

--

-- Kill Request

--

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

KillRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {KillRequestIEs} },

...

}

KillRequestIEs S1AP-PROTOCOL-IES ::= {

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

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

{ ID id-WarningAreaList CRITICALITY ignore TYPE WarningAreaList PRESENCE optional}|

{ ID id-KillAllWarningMessages CRITICALITY reject TYPE KillAllWarningMessages PRESENCE optional},

...

}

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

--

-- Kill Response

--

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

KillResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {KillResponseIEs} },

...

}

KillResponseIEs S1AP-PROTOCOL-IES ::= {

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

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

{ ID id-BroadcastCancelledAreaList CRITICALITY ignore TYPE BroadcastCancelledAreaList PRESENCE optional }|

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

...

}

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

--

-- PWS RESTART INDICATION PROCEDURE

--

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

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

--

-- PWS Restart Indication

--

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

PWSRestartIndication::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ PWSRestartIndicationIEs}},

...

}

PWSRestartIndicationIEs S1AP-PROTOCOL-IES ::= {

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

{ ID id-Global-ENB-ID CRITICALITY reject TYPE Global-ENB-ID PRESENCE mandatory}|

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

{ ID id-EmergencyAreaIDListForRestart CRITICALITY reject TYPE EmergencyAreaIDListForRestart PRESENCE optional},

...

}

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

--

-- PWS Failure Indication

--

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

PWSFailureIndication::= SEQUENCE {

protocolIEs ProtocolIE-Container {{ PWSFailureIndicationIEs}},

...

}

PWSFailureIndicationIEs S1AP-PROTOCOL-IES ::= {

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

{ ID id-Global-ENB-ID CRITICALITY reject TYPE Global-ENB-ID PRESENCE mandatory},

...

}

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

--

-- LPPA TRANSPORT ELEMENTARY PROCEDURES

--

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

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

--

-- DOWNLINK UE ASSOCIATED LPPA TRANSPORT

--

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

DownlinkUEAssociatedLPPaTransport ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{DownlinkUEAssociatedLPPaTransport-IEs}},

...

}

DownlinkUEAssociatedLPPaTransport-IEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

{ ID id-LPPa-PDU CRITICALITY reject TYPE LPPa-PDU PRESENCE mandatory },

...

}

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

--

-- UPLINK UE ASSOCIATED LPPA TRANSPORT

--

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

UplinkUEAssociatedLPPaTransport ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{UplinkUEAssociatedLPPaTransport-IEs}},

...

}

UplinkUEAssociatedLPPaTransport-IEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory }|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory }|

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

{ ID id-LPPa-PDU CRITICALITY reject TYPE LPPa-PDU PRESENCE mandatory },

...

}

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

--

-- DOWNLINK NON UE ASSOCIATED LPPA TRANSPORT

--

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

DownlinkNonUEAssociatedLPPaTransport ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{DownlinkNonUEAssociatedLPPaTransport-IEs}},

...

}

DownlinkNonUEAssociatedLPPaTransport-IEs S1AP-PROTOCOL-IES ::= {

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

{ ID id-LPPa-PDU CRITICALITY reject TYPE LPPa-PDU PRESENCE mandatory },

...

}

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

--

-- UPLINK NON UE ASSOCIATED LPPA TRANSPORT

--

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

UplinkNonUEAssociatedLPPaTransport ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{UplinkNonUEAssociatedLPPaTransport-IEs}},

...

}

UplinkNonUEAssociatedLPPaTransport-IEs S1AP-PROTOCOL-IES ::= {

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

{ ID id-LPPa-PDU CRITICALITY reject TYPE LPPa-PDU PRESENCE mandatory },

...

}

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

--

-- E-RAB MODIFICATION INDICATION ELEMENTARY PROCEDURE

--

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

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

--

-- E-RAB Modification Indication

--

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

E-RABModificationIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { E-RABModificationIndicationIEs} },

...

}

E-RABModificationIndicationIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-E-RABToBeModifiedListBearerModInd CRITICALITY reject TYPE E-RABToBeModifiedListBearerModInd PRESENCE mandatory}|

{ ID id-E-RABNotToBeModifiedListBearerModInd CRITICALITY reject TYPE E-RABNotToBeModifiedListBearerModInd PRESENCE optional}|

{ ID id-CSGMembershipInfo CRITICALITY reject TYPE CSGMembershipInfo PRESENCE optional}|

-- Extension for Release 11 to support BBAI --

{ ID id-Tunnel-Information-for-BBF CRITICALITY ignore TYPE TunnelInformation PRESENCE optional}|

{ ID id-SecondaryRATDataUsageReportList CRITICALITY ignore TYPE SecondaryRATDataUsageReportList PRESENCE optional }|

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

...

}

E-RABToBeModifiedListBearerModInd ::= E-RAB-IE-ContainerList { {E-RABToBeModifiedItemBearerModIndIEs} }

E-RABToBeModifiedItemBearerModIndIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABToBeModifiedItemBearerModInd CRITICALITY reject TYPE E-RABToBeModifiedItemBearerModInd PRESENCE mandatory},

...

}

E-RABToBeModifiedItemBearerModInd ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

transportLayerAddress TransportLayerAddress,

dL-GTP-TEID GTP-TEID,

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

...

}

E-RABToBeModifiedItemBearerModInd-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

E-RABNotToBeModifiedListBearerModInd ::= E-RAB-IE-ContainerList { {E-RABNotToBeModifiedItemBearerModIndIEs} }

E-RABNotToBeModifiedItemBearerModIndIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABNotToBeModifiedItemBearerModInd CRITICALITY reject TYPE E-RABNotToBeModifiedItemBearerModInd PRESENCE mandatory},

...

}

E-RABNotToBeModifiedItemBearerModInd ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

transportLayerAddress TransportLayerAddress,

dL-GTP-TEID GTP-TEID,

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

...

}

E-RABNotToBeModifiedItemBearerModInd-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

CSGMembershipInfo ::= SEQUENCE {

cSGMembershipStatus CSGMembershipStatus,

cSG-Id CSG-Id,

cellAccessMode CellAccessMode OPTIONAL,

pLMNidentity PLMNidentity OPTIONAL,

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

...

}

CSGMembershipInfo-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

--

-- E-RAB Modification Confirm

--

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

E-RABModificationConfirm ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {E-RABModificationConfirmIEs} },

...

}

E-RABModificationConfirmIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-E-RABModifyListBearerModConf CRITICALITY ignore TYPE E-RABModifyListBearerModConf PRESENCE optional}|

{ ID id-E-RABFailedToModifyListBearerModConf CRITICALITY ignore TYPE E-RABList PRESENCE optional}|

{ ID id-E-RABToBeReleasedListBearerModConf CRITICALITY ignore TYPE E-RABList PRESENCE optional}|

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

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

...

}

E-RABModifyListBearerModConf ::= SEQUENCE (SIZE(1.. maxnoofE-RABs)) OF ProtocolIE-SingleContainer { {E-RABModifyItemBearerModConfIEs} }

E-RABModifyItemBearerModConfIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABModifyItemBearerModConf CRITICALITY ignore TYPE E-RABModifyItemBearerModConf PRESENCE mandatory},

...

}

E-RABModifyItemBearerModConf ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

iE-Extensions ProtocolExtensionContainer { {E-RABModifyItemBearerModConfExtIEs} } OPTIONAL,

...

}

E-RABModifyItemBearerModConfExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

--

-- UE CONTEXT MODIFICATION INDICATION ELEMENTARY PROCEDURE

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

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

--

-- UE Context Modification Indication

--

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

UEContextModificationIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextModificationIndicationIEs} },

...

}

UEContextModificationIndicationIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-CSGMembershipInfo CRITICALITY reject TYPE CSGMembershipInfo PRESENCE optional},

...

}

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

--

-- UE Context Modification Confirm

--

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

UEContextModificationConfirm ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {UEContextModificationConfirmIEs} },

...

}

UEContextModificationConfirmIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-CSGMembershipStatus CRITICALITY ignore TYPE CSGMembershipStatus PRESENCE optional}|

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

...

}

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

--

-- UE CONTEXT SUSPEND ELEMENTARY PROCEDURE

--

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

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

--

-- UE Context Suspend Request

--

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

UEContextSuspendRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextSuspendRequestIEs} },

...

}

UEContextSuspendRequestIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-InformationOnRecommendedCellsAndENBsForPaging CRITICALITY ignore TYPE InformationOnRecommendedCellsAndENBsForPaging PRESENCE optional}|

{ ID id-CellIdentifierAndCELevelForCECapableUEs CRITICALITY ignore TYPE CellIdentifierAndCELevelForCECapableUEs PRESENCE optional}|

{ ID id-SecondaryRATDataUsageReportList CRITICALITY ignore TYPE SecondaryRATDataUsageReportList PRESENCE optional }|

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

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

...

}

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

--

-- UE Context Suspend Response

--

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

UEContextSuspendResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {UEContextSuspendResponseIEs} },

...

}

UEContextSuspendResponseIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

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

{ ID id-SecurityContext CRITICALITY reject TYPE SecurityContext PRESENCE optional},

...

}

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

--

-- UE CONTEXT RESUME ELEMENTARY PROCEDURE

--

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

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

--

-- UE Context Resume Request

--

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

UEContextResumeRequest ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextResumeRequestIEs} },

...

}

UEContextResumeRequestIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-E-RABFailedToResumeListResumeReq CRITICALITY reject TYPE E-RABFailedToResumeListResumeReq PRESENCE optional}|

{ ID id-RRC-Resume-Cause CRITICALITY ignore TYPE RRC-Establishment-Cause PRESENCE optional},

...

}

E-RABFailedToResumeListResumeReq ::= E-RAB-IE-ContainerList { {E-RABFailedToResumeItemResumeReqIEs} }

E-RABFailedToResumeItemResumeReqIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABFailedToResumeItemResumeReq CRITICALITY reject TYPE E-RABFailedToResumeItemResumeReq PRESENCE mandatory},

...

}

E-RABFailedToResumeItemResumeReq ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

cause Cause,

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

...

}

E-RABFailedToResumeItemResumeReq-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

--

-- UE Context Resume Response

--

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

UEContextResumeResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextResumeResponseIEs} },

...

}

UEContextResumeResponseIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-E-RABFailedToResumeListResumeRes CRITICALITY reject TYPE E-RABFailedToResumeListResumeRes PRESENCE optional}|

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

{ ID id-SecurityContext CRITICALITY reject TYPE SecurityContext PRESENCE optional}|

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

...

}

E-RABFailedToResumeListResumeRes ::= E-RAB-IE-ContainerList { {E-RABFailedToResumeItemResumeResIEs} }

E-RABFailedToResumeItemResumeResIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABFailedToResumeItemResumeRes CRITICALITY reject TYPE E-RABFailedToResumeItemResumeRes PRESENCE mandatory},

...

}

E-RABFailedToResumeItemResumeRes ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

cause Cause,

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

...

}

E-RABFailedToResumeItemResumeRes-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

--

-- UE Context Resume Failure

--

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

UEContextResumeFailure ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEContextResumeFailureIEs} },

...

}

UEContextResumeFailureIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

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

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

...

}

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

--

-- Connection Establishment Indication

--

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

ConnectionEstablishmentIndication::= SEQUENCE {

protocolIEs ProtocolIE-Container { {ConnectionEstablishmentIndicationIEs} },

...

}

ConnectionEstablishmentIndicationIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

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

{ ID id-EnhancedCoverageRestricted CRITICALITY ignore TYPE EnhancedCoverageRestricted PRESENCE optional }|

{ ID id-DL-CP-SecurityInformation CRITICALITY ignore TYPE DL-CP-SecurityInformation PRESENCE optional }|

{ ID id-CE-ModeBRestricted CRITICALITY ignore TYPE CE-ModeBRestricted PRESENCE optional}|

{ ID id-EndIndication CRITICALITY ignore TYPE EndIndication PRESENCE optional}|

{ ID id-Subscription-Based-UE-DifferentiationInfo CRITICALITY ignore TYPE Subscription-Based-UE-DifferentiationInfo PRESENCE optional}|

{ ID id-UE-Level-QoS-Parameters CRITICALITY ignore TYPE E-RABLevelQoSParameters PRESENCE optional}|

{ ID id-UERadioCapabilityID CRITICALITY reject TYPE UERadioCapabilityID PRESENCE optional}

,

...

}

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

--

-- Retrieve UE Information

--

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

RetrieveUEInformation ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { RetrieveUEInformationIEs} },

...

}

RetrieveUEInformationIEs S1AP-PROTOCOL-IES ::= {

{ ID id-S-TMSI CRITICALITY reject TYPE S-TMSI PRESENCE mandatory},

...

}

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

-- UE Information Transfer

--

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

UEInformationTransfer ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UEInformationTransferIEs} },

...

}

UEInformationTransferIEs S1AP-PROTOCOL-IES ::= {

{ ID id-S-TMSI CRITICALITY reject TYPE S-TMSI PRESENCE mandatory}|

{ ID id-UE-Level-QoS-Parameters CRITICALITY ignore TYPE E-RABLevelQoSParameters PRESENCE optional}|

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

{ ID id-Subscription-Based-UE-DifferentiationInfo CRITICALITY ignore TYPE Subscription-Based-UE-DifferentiationInfo PRESENCE optional}|

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

...

}

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

--

-- eNB CP Relocation Indication

--

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

ENBCPRelocationIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { ENBCPRelocationIndicationIEs} },

...

}

ENBCPRelocationIndicationIEs S1AP-PROTOCOL-IES ::= {

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-S-TMSI CRITICALITY reject TYPE S-TMSI PRESENCE mandatory}|

{ ID id-EUTRAN-CGI CRITICALITY ignore TYPE EUTRAN-CGI PRESENCE mandatory}|

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

{ ID id-UL-CP-SecurityInformation CRITICALITY reject TYPE UL-CP-SecurityInformation PRESENCE mandatory},

...

}

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

--

-- MME CP Relocation Indication

--

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

MMECPRelocationIndication ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { MMECPRelocationIndicationIEs} },

...

}

MMECPRelocationIndicationIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY reject TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY reject TYPE ENB-UE-S1AP-ID PRESENCE mandatory},

...

}

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

--

-- Secondary RAT Data Usage Report

--

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

SecondaryRATDataUsageReport ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { SecondaryRATDataUsageReportIEs} },

...

}

SecondaryRATDataUsageReportIEs S1AP-PROTOCOL-IES ::= {

{ ID id-MME-UE-S1AP-ID CRITICALITY ignore TYPE MME-UE-S1AP-ID PRESENCE mandatory}|

{ ID id-eNB-UE-S1AP-ID CRITICALITY ignore TYPE ENB-UE-S1AP-ID PRESENCE mandatory}|

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

{ ID id-HandoverFlag CRITICALITY ignore TYPE HandoverFlag PRESENCE optional}|

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

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

...

}

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

--

-- UE RADIO CAPABILITY ID MAPPING PROCEDURE

--

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

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

--

-- UE Radio Capability ID Mapping Request

--

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

UERadioCapabilityIDMappingRequest::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UERadioCapabilityIDMappingRequestIEs} },

...

}

UERadioCapabilityIDMappingRequestIEs S1AP-PROTOCOL-IES ::= {

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

...

}

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

--

-- UE Radio Capability ID Mapping Response

--

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

UERadioCapabilityIDMappingResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { { UERadioCapabilityIDMappingResponseIEs} },

...

}

UERadioCapabilityIDMappingResponseIEs S1AP-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 },

...

}

END

### 9.3.4 Information Element Definitions

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

--

-- Information Element Definitions

--

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

S1AP-IEs {

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

eps-Access (21) modules (3) s1ap (1) version1 (1) s1ap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

id-E-RABInformationListItem,

id-E-RABItem,

id-GUMMEIType,

id-Bearers-SubjectToStatusTransfer-Item,

id-Time-Synchronisation-Info,

id-x2TNLConfigurationInfo,

id-eNBX2ExtendedTransportLayerAddresses,

id-MDTConfiguration,

id-Time-UE-StayedInCell-EnhancedGranularity,

id-HO-Cause,

id-M3Configuration,

id-M4Configuration,

id-M5Configuration,

id-MDT-Location-Info,

id-SignallingBasedMDTPLMNList,

id-MobilityInformation,

id-ULCOUNTValueExtended,

id-DLCOUNTValueExtended,

id-ReceiveStatusOfULPDCPSDUsExtended,

id-eNBIndirectX2TransportLayerAddresses,

id-Muting-Availability-Indication,

id-Muting-Pattern-Information,

id-NRrestrictioninEPSasSecondaryRAT,

id-NRrestrictionin5GS,

id-Synchronisation-Information,

id-uE-HistoryInformationFromTheUE,

id-LoggedMBSFNMDT,

id-SON-Information-Report,

id-RecommendedCellItem,

id-RecommendedENBItem,

id-ProSeUEtoNetworkRelaying,

id-ULCOUNTValuePDCP-SNlength18,

id-DLCOUNTValuePDCP-SNlength18,

id-ReceiveStatusOfULPDCPSDUsPDCP-SNlength18,

id-M6Configuration,

id-M7Configuration,

id-RAT-Type,

id-extended-e-RAB-MaximumBitrateDL,

id-extended-e-RAB-MaximumBitrateUL,

id-extended-e-RAB-GuaranteedBitrateDL,

id-extended-e-RAB-GuaranteedBitrateUL,

id-extended-uEaggregateMaximumBitRateDL,

id-extended-uEaggregateMaximumBitRateUL,

id-SecondaryRATDataUsageReportItem,

id-E-RABUsageReportItem,

id-UEAppLayerMeasConfig,

id-serviceType,

id-UnlicensedSpectrumRestriction,

id-CNTypeRestrictions,

id-DownlinkPacketLossRate,

id-UplinkPacketLossRate,

id-BluetoothMeasurementConfiguration,

id-WLANMeasurementConfiguration,

id-LastNG-RANPLMNIdentity,

id-PSCellInformation,

id-IMSvoiceEPSfallbackfrom5G,

id-RequestTypeAdditionalInfo,

id-AdditionalRRMPriorityIndex,

id-ContextatSource,

id-IntersystemMeasurementConfiguration,

id-SourceNodeID,

id-NB-IoT-RLF-Report-Container,

id-MDTConfigurationNR,

id-DAPSRequestInfo,

id-DAPSResponseInfoList,

id-DAPSResponseInfoItem,

id-Bearers-SubjectToEarlyStatusTransfer-Item,

id-TraceCollectionEntityURI,

id-EmergencyIndicator,

id-SecurityIndication,

maxnoofCSGs,

maxnoofE-RABs,

maxnoofErrors,

maxnoofBPLMNs,

maxnoofPLMNsPerMME,

maxnoofTACs,

maxnoofEPLMNs,

maxnoofEPLMNsPlusOne,

maxnoofForbLACs,

maxnoofForbTACs,

maxnoofCellsinUEHistoryInfo,

maxnoofCellID,

maxnoofDCNs,

maxnoofEmergencyAreaID,

maxnoofTAIforWarning,

maxnoofCellinTAI,

maxnoofCellinEAI,

maxnoofeNBX2TLAs,

maxnoofeNBX2ExtTLAs,

maxnoofeNBX2GTPTLAs,

maxnoofRATs,

maxnoofGroupIDs,

maxnoofMMECs,

maxnoofTAforMDT,

maxnoofCellIDforMDT,

maxnoofMDTPLMNs,

maxnoofCellsforRestart,

maxnoofRestartTAIs,

maxnoofRestartEmergencyAreaIDs,

maxnoofMBSFNAreaMDT,

maxEARFCN,

maxnoofCellsineNB,

maxnoofRecommendedCells,

maxnoofRecommendedENBs,

maxnooftimeperiods,

maxnoofCellIDforQMC,

maxnoofTAforQMC,

maxnoofPLMNforQMC,

maxnoofBluetoothName,

maxnoofWLANName,

maxnoofConnectedengNBs,

maxnoofPC5QoSFlows,

maxnooffrequencies,

maxNARFCN,

maxRS-IndexCellQual

FROM S1AP-Constants

Criticality,

ProcedureCode,

ProtocolIE-ID,

TriggeringMessage

FROM S1AP-CommonDataTypes

ProtocolExtensionContainer{},

S1AP-PROTOCOL-EXTENSION,

ProtocolIE-SingleContainer{},

S1AP-PROTOCOL-IES

FROM S1AP-Containers;

-- A

Additional-GUTI::= SEQUENCE {

gUMMEI GUMMEI,

m-TMSI M-TMSI,

iE-Extensions ProtocolExtensionContainer { {Additional-GUTI-ExtIEs} } OPTIONAL,

...

}

Additional-GUTI-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

AdditionalRRMPriorityIndex ::= BIT STRING (SIZE(32))

AerialUEsubscriptionInformation ::= ENUMERATED {

allowed,

not-allowed,

...

}

AreaScopeOfMDT ::= CHOICE {

cellBased CellBasedMDT,

tABased TABasedMDT,

pLMNWide NULL,

...,

tAIBased TAIBasedMDT

}

AreaScopeOfQMC ::= CHOICE {

cellBased CellBasedQMC,

tABased TABasedQMC,

tAIBased TAIBasedQMC,

pLMNAreaBased PLMNAreaBasedQMC,

...

}

AllocationAndRetentionPriority ::= SEQUENCE {

priorityLevel PriorityLevel,

pre-emptionCapability Pre-emptionCapability,

pre-emptionVulnerability Pre-emptionVulnerability,

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

...

}

AllocationAndRetentionPriority-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

AssistanceDataForCECapableUEs ::= SEQUENCE {

cellIdentifierAndCELevelForCECapableUEs CellIdentifierAndCELevelForCECapableUEs,

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

...

}

InformationForCECapableUEs-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

AssistanceDataForPaging ::= SEQUENCE {

assistanceDataForRecommendedCells AssistanceDataForRecommendedCells OPTIONAL,

assistanceDataForCECapableUEs AssistanceDataForCECapableUEs OPTIONAL,

pagingAttemptInformation PagingAttemptInformation OPTIONAL,

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

...

}

AssistanceDataForPaging-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

AssistanceDataForRecommendedCells ::= SEQUENCE {

recommendedCellsForPaging RecommendedCellsForPaging,

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

...

}

AssistanceDataForRecommendedCells-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

-- B

Bearers-SubjectToStatusTransferList ::= SEQUENCE (SIZE(1.. maxnoofE-RABs)) OF ProtocolIE-SingleContainer { { Bearers-SubjectToStatusTransfer-ItemIEs } }

Bearers-SubjectToStatusTransfer-ItemIEs S1AP-PROTOCOL-IES ::= {

{ ID id-Bearers-SubjectToStatusTransfer-Item CRITICALITY ignore TYPE Bearers-SubjectToStatusTransfer-Item PRESENCE mandatory },

...

}

Bearers-SubjectToStatusTransfer-Item ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

uL-COUNTvalue COUNTvalue,

dL-COUNTvalue COUNTvalue,

receiveStatusofULPDCPSDUs ReceiveStatusofULPDCPSDUs OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {Bearers-SubjectToStatusTransfer-ItemExtIEs} } OPTIONAL,

...

}

Bearers-SubjectToStatusTransfer-ItemExtIEs S1AP-PROTOCOL-EXTENSION ::= {

{ ID id-ULCOUNTValueExtended CRITICALITY ignore EXTENSION COUNTValueExtended PRESENCE optional}|

{ ID id-DLCOUNTValueExtended CRITICALITY ignore EXTENSION COUNTValueExtended PRESENCE optional}|

{ ID id-ReceiveStatusOfULPDCPSDUsExtended CRITICALITY ignore EXTENSION ReceiveStatusOfULPDCPSDUsExtended PRESENCE optional}|

{ ID id-ULCOUNTValuePDCP-SNlength18 CRITICALITY ignore EXTENSION COUNTvaluePDCP-SNlength18 PRESENCE optional}|

{ ID id-DLCOUNTValuePDCP-SNlength18 CRITICALITY ignore EXTENSION COUNTvaluePDCP-SNlength18 PRESENCE optional}|

{ ID id-ReceiveStatusOfULPDCPSDUsPDCP-SNlength18 CRITICALITY ignore EXTENSION ReceiveStatusOfULPDCPSDUsPDCP-SNlength18 PRESENCE optional},

...

}

Bearers-SubjectToEarlyStatusTransferList ::= SEQUENCE (SIZE(1.. maxnoofE-RABs)) OF ProtocolIE-SingleContainer { { Bearers-SubjectToEarlyStatusTransfer-ItemIEs } }

Bearers-SubjectToEarlyStatusTransfer-ItemIEs S1AP-PROTOCOL-IES ::= {

{ ID id-Bearers-SubjectToEarlyStatusTransfer-Item CRITICALITY ignore TYPE Bearers-SubjectToEarlyStatusTransfer-Item PRESENCE mandatory},

...

}

Bearers-SubjectToEarlyStatusTransfer-Item ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

dLCOUNT-PDCP-SNlength DLCOUNT-PDCP-SNlength,

iE-Extensions ProtocolExtensionContainer { {Bearers-SubjectToEarlyStatusTransfer-ItemExtIEs} } OPTIONAL,

...

}

Bearers-SubjectToEarlyStatusTransfer-ItemExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

BearerType ::= ENUMERATED {

non-IP,

...

}

BitRate ::= INTEGER (0..10000000000)

BluetoothMeasurementConfiguration ::= SEQUENCE {

bluetoothMeasConfig BluetoothMeasConfig,

bluetoothMeasConfigNameList BluetoothMeasConfigNameList OPTIONAL,

bt-rssi ENUMERATED {true, ...} OPTIONAL,

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

...

}

BluetoothMeasurementConfiguration-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

BluetoothMeasConfigNameList ::= SEQUENCE (SIZE(1..maxnoofBluetoothName)) OF BluetoothName

BluetoothMeasConfig::= ENUMERATED {setup,...}

BluetoothName ::= OCTET STRING (SIZE (1..248))

BPLMNs ::= SEQUENCE (SIZE(1.. maxnoofBPLMNs)) OF PLMNidentity

BroadcastCancelledAreaList ::= CHOICE {

cellID-Cancelled CellID-Cancelled,

tAI-Cancelled TAI-Cancelled,

emergencyAreaID-Cancelled EmergencyAreaID-Cancelled,

...

}

BroadcastCompletedAreaList ::= CHOICE {

cellID-Broadcast CellID-Broadcast,

tAI-Broadcast TAI-Broadcast,

emergencyAreaID-Broadcast EmergencyAreaID-Broadcast,

...

}

-- C

CancelledCellinEAI ::= SEQUENCE (SIZE(1..maxnoofCellinEAI)) OF CancelledCellinEAI-Item

CancelledCellinEAI-Item ::= SEQUENCE {

eCGI EUTRAN-CGI,

numberOfBroadcasts NumberOfBroadcasts,

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

...

}

CancelledCellinEAI-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

CancelledCellinTAI ::= SEQUENCE (SIZE(1..maxnoofCellinTAI)) OF CancelledCellinTAI-Item

CancelledCellinTAI-Item ::= SEQUENCE{

eCGI EUTRAN-CGI,

numberOfBroadcasts NumberOfBroadcasts,

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

...

}

CancelledCellinTAI-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

Cause ::= CHOICE {

radioNetwork CauseRadioNetwork,

transport CauseTransport,

nas CauseNas,

protocol CauseProtocol,

misc CauseMisc,

...

}

CauseMisc ::= ENUMERATED {

control-processing-overload,

not-enough-user-plane-processing-resources,

hardware-failure,

om-intervention,

unspecified,

unknown-PLMN,

...

}

CauseProtocol ::= ENUMERATED {

transfer-syntax-error,

abstract-syntax-error-reject,

abstract-syntax-error-ignore-and-notify,

message-not-compatible-with-receiver-state,

semantic-error,

abstract-syntax-error-falsely-constructed-message,

unspecified,

...

}

CauseRadioNetwork ::= ENUMERATED {

unspecified,

tx2relocoverall-expiry,

successful-handover,

release-due-to-eutran-generated-reason,

handover-cancelled,

partial-handover,

ho-failure-in-target-EPC-eNB-or-target-system,

ho-target-not-allowed,

tS1relocoverall-expiry,

tS1relocprep-expiry,

cell-not-available,

unknown-targetID,

no-radio-resources-available-in-target-cell,

unknown-mme-ue-s1ap-id,

unknown-enb-ue-s1ap-id,

unknown-pair-ue-s1ap-id,

handover-desirable-for-radio-reason,

time-critical-handover,

resource-optimisation-handover,

reduce-load-in-serving-cell,

user-inactivity,

radio-connection-with-ue-lost,

load-balancing-tau-required,

cs-fallback-triggered,

ue-not-available-for-ps-service,

radio-resources-not-available,

failure-in-radio-interface-procedure,

invalid-qos-combination,

interrat-redirection,

interaction-with-other-procedure,

unknown-E-RAB-ID,

multiple-E-RAB-ID-instances**,**

encryption-and-or-integrity-protection-algorithms-not-supported,

s1-intra-system-handover-triggered,

s1-inter-system-handover-triggered,

x2-handover-triggered,

...,

redirection-towards-1xRTT,

not-supported-QCI-value,

invalid-CSG-Id,

release-due-to-pre-emption,

n26-interface-not-available,

insufficient-ue-capabilities,

up-integrity-protection-not-possible

}

CauseTransport ::= ENUMERATED {

transport-resource-unavailable,

unspecified,

...

}

CauseNas ::= ENUMERATED {

normal-release,

authentication-failure,

detach,

unspecified,

...,

csg-subscription-expiry

}

CellAccessMode ::= ENUMERATED {

hybrid,

...

}

CellIdentifierAndCELevelForCECapableUEs ::= SEQUENCE {

global-Cell-ID EUTRAN-CGI,

cELevel CELevel,

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

...

}

CellIdentifierAndCELevelForCECapableUEs-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

-- Coverage Enhancement level encoded according to TS 36.331 [16] --

CELevel ::= OCTET STRING

CE-mode-B-SupportIndicator ::= ENUMERATED {

supported,

...

}

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

CellID-Broadcast ::= SEQUENCE (SIZE(1..maxnoofCellID)) OF CellID-Broadcast-Item

CellID-Broadcast-Item ::= SEQUENCE {

eCGI EUTRAN-CGI,

iE-Extensions ProtocolExtensionContainer { {CellID-Broadcast-Item-ExtIEs} } OPTIONAL,

...

}

CellID-Broadcast-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

CellID-Cancelled::= SEQUENCE (SIZE(1..maxnoofCellID)) OF CellID-Cancelled-Item

CellID-Cancelled-Item ::= SEQUENCE {

eCGI EUTRAN-CGI,

numberOfBroadcasts NumberOfBroadcasts,

iE-Extensions ProtocolExtensionContainer { {CellID-Cancelled-Item-ExtIEs} } OPTIONAL,

...

}

CellID-Cancelled-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

CellBasedMDT::= SEQUENCE {

cellIdListforMDT CellIdListforMDT,

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

...

}

CellBasedMDT-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

CellIdListforMDT ::= SEQUENCE (SIZE(1..maxnoofCellIDforMDT)) OF EUTRAN-CGI

CellBasedQMC::= SEQUENCE {

cellIdListforQMC CellIdListforQMC,

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

...

}

CellBasedQMC-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

CellIdListforQMC ::= SEQUENCE (SIZE(1..maxnoofCellIDforQMC)) OF EUTRAN-CGI

Cdma2000PDU ::= OCTET STRING

Cdma2000RATType ::= ENUMERATED {

hRPD,

onexRTT,

...

}

Cdma2000SectorID ::= OCTET STRING

Cdma2000HOStatus ::= ENUMERATED {

hOSuccess,

hOFailure,

...

}

Cdma2000HORequiredIndication ::= ENUMERATED {

true,

...

}

Cdma2000OneXSRVCCInfo ::= SEQUENCE {

cdma2000OneXMEID Cdma2000OneXMEID,

cdma2000OneXMSI Cdma2000OneXMSI,

cdma2000OneXPilot Cdma2000OneXPilot,

iE-Extensions ProtocolExtensionContainer { {Cdma2000OneXSRVCCInfo-ExtIEs} } OPTIONAL,

...

}

Cdma2000OneXSRVCCInfo-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

Cdma2000OneXMEID ::= OCTET STRING

Cdma2000OneXMSI ::= OCTET STRING

Cdma2000OneXPilot ::= OCTET STRING

Cdma2000OneXRAND ::= OCTET STRING

Cell-Size ::= ENUMERATED {verysmall, small, medium, large, ...}

CellType ::= SEQUENCE {

cell-Size Cell-Size,

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

...

}

CellType-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

CGI ::= SEQUENCE {

pLMNidentity PLMNidentity,

lAC LAC,

cI CI,

rAC RAC OPTIONAL,

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

...

}

CGI-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

CI ::= OCTET STRING (SIZE (2))

CNDomain ::= ENUMERATED {

ps,

cs

}

CNTypeRestrictions::= SEQUENCE (SIZE(1.. maxnoofEPLMNsPlusOne)) OF CNTypeRestrictions-Item

CNTypeRestrictions-Item ::= SEQUENCE {

pLMN-Identity PLMNidentity,

cNType CNType,

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

...

}

CNTypeRestrictions-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

CNType ::= ENUMERATED {

fiveGCForbidden,

...,

epc-Forbiddden

}

ConcurrentWarningMessageIndicator ::= ENUMERATED {

true

}

ConnectedengNBList ::= SEQUENCE (SIZE(1..maxnoofConnectedengNBs)) OF ConnectedengNBItem

ConnectedengNBItem ::= SEQUENCE {

en-gNB-ID En-gNB-ID,

supportedTAs SupportedTAs,

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

...

}

ConnectedengNBItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

ContextatSource ::= SEQUENCE {

sourceNG-RAN-node-ID Global-RAN-NODE-ID,

rAN-UE-NGAP-ID RAN-UE-NGAP-ID,

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

...

}

ContextatSource-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

Correlation-ID ::= OCTET STRING (SIZE (4))

CSFallbackIndicator ::= ENUMERATED {

cs-fallback-required,

...,

cs-fallback-high-priority

}

AdditionalCSFallbackIndicator ::= ENUMERATED {

no-restriction,

restriction,

...

}

CSG-Id ::= BIT STRING (SIZE (27))

CSG-IdList ::= SEQUENCE (SIZE (1.. maxnoofCSGs)) OF CSG-IdList-Item

CSG-IdList-Item ::= SEQUENCE {

cSG-Id CSG-Id,

iE-Extensions ProtocolExtensionContainer { {CSG-IdList-Item-ExtIEs} } OPTIONAL,

...

}

CSG-IdList-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

CSGMembershipStatus ::= ENUMERATED {

member,

not-member

}

COUNTvalue ::= SEQUENCE {

pDCP-SN PDCP-SN,

hFN HFN,

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

...

}

COUNTvalue-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

COUNTValueExtended ::= SEQUENCE {

pDCP-SNExtended PDCP-SNExtended,

hFNModified HFNModified,

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

...

}

COUNTValueExtended-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

COUNTvaluePDCP-SNlength18 ::= SEQUENCE {

pDCP-SNlength18 PDCP-SNlength18,

hFNforPDCP-SNlength18 HFNforPDCP-SNlength18,

iE-Extensions ProtocolExtensionContainer { {COUNTvaluePDCP-SNlength18-ExtIEs} } OPTIONAL,

...

}

COUNTvaluePDCP-SNlength18-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

Coverage-Level ::= ENUMERATED {

extendedcoverage,

...

}

CriticalityDiagnostics ::= SEQUENCE {

procedureCode ProcedureCode OPTIONAL,

triggeringMessage TriggeringMessage OPTIONAL,

procedureCriticality Criticality OPTIONAL,

iEsCriticalityDiagnostics CriticalityDiagnostics-IE-List OPTIONAL,

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

...

}

CriticalityDiagnostics-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

CriticalityDiagnostics-IE-List ::= SEQUENCE (SIZE (1.. maxnoofErrors)) OF CriticalityDiagnostics-IE-Item

CriticalityDiagnostics-IE-Item ::= SEQUENCE {

iECriticality Criticality,

iE-ID ProtocolIE-ID,

typeOfError TypeOfError,

iE-Extensions ProtocolExtensionContainer {{CriticalityDiagnostics-IE-Item-ExtIEs}} OPTIONAL,

...

}

CriticalityDiagnostics-IE-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

-- D

DAPSRequestInfo ::= SEQUENCE {

dAPSIndicator ENUMERATED {dAPS-HO-required, ...},

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

...

}

DAPSRequestInfo-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

DAPSResponseInfoList ::= SEQUENCE (SIZE(1.. maxnoofE-RABs)) OF ProtocolIE-SingleContainer { { DAPSResponseInfoListIEs } }

DAPSResponseInfoListIEs S1AP-PROTOCOL-IES ::= {

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

...

}

DAPSResponseInfoItem ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

dAPSResponseInfo DAPSResponseInfo,

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

...

}

DAPSResponseInfoItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

DAPSResponseInfo ::= SEQUENCE {

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

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

...

}

DAPSResponseInfo-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

DataSize ::= INTEGER(1..4095, ...)

DCN-ID ::= INTEGER (0..65535)

ServedDCNs ::= SEQUENCE (SIZE(0..maxnoofDCNs)) OF ServedDCNsItem

ServedDCNsItem ::= SEQUENCE {

dCN-ID DCN-ID,

relativeDCNCapacity RelativeMMECapacity,

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

...

}

ServedDCNsItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

DL-CP-SecurityInformation ::= SEQUENCE {

dl-NAS-MAC DL-NAS-MAC,

iE-Extensions ProtocolExtensionContainer { { DL-CP-SecurityInformation-ExtIEs} } OPTIONAL,

...

}

DL-CP-SecurityInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

DL-Forwarding ::= ENUMERATED {

dL-Forwarding-proposed,

...

}

DL-NAS-MAC ::= BIT STRING (SIZE (16))

DLCOUNT-PDCP-SNlength ::= CHOICE {

dLCOUNTValuePDCP-SNlength12 COUNTvalue,

dLCOUNTValuePDCP-SNlength15 COUNTValueExtended,

dLCOUNTValuePDCP-SNlength18 COUNTvaluePDCP-SNlength18,

...

}

Direct-Forwarding-Path-Availability ::= ENUMERATED {

directPathAvailable,

...

}

Data-Forwarding-Not-Possible ::= ENUMERATED {

data-Forwarding-not-Possible,

...

}

DLNASPDUDeliveryAckRequest ::= ENUMERATED {

requested,

...

}

-- E

EARFCN ::= INTEGER(0..maxEARFCN, ...)

ECGIList ::= SEQUENCE (SIZE(1..maxnoofCellID)) OF EUTRAN-CGI

PWSfailedECGIList ::= SEQUENCE (SIZE(1..maxnoofCellsineNB)) OF EUTRAN-CGI

EDT-Session ::= ENUMERATED {

true,

...

}

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

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

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

EmergencyAreaID-Broadcast-Item ::= SEQUENCE {

emergencyAreaID EmergencyAreaID,

completedCellinEAI CompletedCellinEAI,

iE-Extensions ProtocolExtensionContainer { {EmergencyAreaID-Broadcast-Item-ExtIEs} } OPTIONAL,

...

}

EmergencyAreaID-Broadcast-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

EmergencyAreaID-Cancelled-Item ::= SEQUENCE {

emergencyAreaID EmergencyAreaID,

cancelledCellinEAI CancelledCellinEAI,

iE-Extensions ProtocolExtensionContainer { {EmergencyAreaID-Cancelled-Item-ExtIEs} } OPTIONAL,

...

}

EmergencyAreaID-Cancelled-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

CompletedCellinEAI ::= SEQUENCE (SIZE(1..maxnoofCellinEAI)) OF CompletedCellinEAI-Item

CompletedCellinEAI-Item ::= SEQUENCE {

eCGI EUTRAN-CGI,

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

...

}

CompletedCellinEAI-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

ECGI-List ::= SEQUENCE (SIZE(1..maxnoofCellsineNB)) OF EUTRAN-CGI

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

EmergencyIndicator ::= ENUMERATED {

true,

...

}

ENB-EarlyStatusTransfer-TransparentContainer ::= SEQUENCE {

bearers-SubjectToEarlyStatusTransferList Bearers-SubjectToEarlyStatusTransferList,

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

...

}

ENB-EarlyStatusTransfer-TransparentContainer-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

ENB-ID ::= CHOICE {

macroENB-ID BIT STRING (SIZE(20)),

homeENB-ID BIT STRING (SIZE(28)),

... ,

short-macroENB-ID BIT STRING (SIZE(18)),

long-macroENB-ID BIT STRING (SIZE(21))

}

En-gNB-ID ::= BIT STRING (SIZE(22..32, ...))

GERAN-Cell-ID ::= SEQUENCE {

lAI LAI,

rAC RAC,

cI CI,

iE-Extensions ProtocolExtensionContainer { { GERAN-Cell-ID-ExtIEs} } OPTIONAL,

...

}

GERAN-Cell-ID-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

Global-ENB-ID ::= SEQUENCE {

pLMNidentity PLMNidentity,

eNB-ID ENB-ID,

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

...

}

GlobalENB-ID-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

Global-en-gNB-ID ::= SEQUENCE {

pLMNidentity PLMNidentity,

en-gNB-ID En-gNB-ID,

iE-Extensions ProtocolExtensionContainer { {Global-en-gNB-ID-ExtIEs} } OPTIONAL,

...

}

Global-en-gNB-ID-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

GUMMEIList::= SEQUENCE (SIZE (1.. maxnoofMMECs)) OF GUMMEI

ENB-StatusTransfer-TransparentContainer ::= SEQUENCE {

bearers-SubjectToStatusTransferList Bearers-SubjectToStatusTransferList,

iE-Extensions ProtocolExtensionContainer { {ENB-StatusTransfer-TransparentContainer-ExtIEs} } OPTIONAL,

...

}

ENB-StatusTransfer-TransparentContainer-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

ENB-UE-S1AP-ID ::= INTEGER (0..16777215)

ENBname ::= PrintableString (SIZE (1..150,...))

ENBX2TLAs ::= SEQUENCE (SIZE(1.. maxnoofeNBX2TLAs)) OF TransportLayerAddress

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

EN-DCSONConfigurationTransfer ::= SEQUENCE {

transfertype EN-DCSONTransferType,

sONInformation SONInformation,

x2TNLConfigInfo X2TNLConfigurationInfo OPTIONAL,

-- This IE shall be present if the SON Information IE contains the SON Information Request IE and the SON Information Request IE is set to “X2TNL Configuration Info” --

iE-Extensions ProtocolExtensionContainer { {EN-DCSONConfigurationTransfer-ExtIEs} } OPTIONAL,

...

}

EN-DCSONConfigurationTransfer-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

EN-DCSONTransferType ::= CHOICE {

request EN-DCTransferTypeRequest,

reply EN-DCTransferTypeReply,

...

}

EN-DCTransferTypeRequest ::= SEQUENCE {

sourceeNB EN-DCSONeNBIdentification,

targetengNB EN-DCSONengNBIdentification,

targeteNB EN-DCSONeNBIdentification OPTIONAL,

associatedTAI TAI OPTIONAL,

broadcast5GSTAI FiveGSTAI OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {EN-DCTransferTypeRequest-ExtIEs} } OPTIONAL,

...

}

EN-DCTransferTypeRequest-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

EN-DCTransferTypeReply ::= SEQUENCE {

sourceengNB EN-DCSONengNBIdentification,

targeteNB EN-DCSONeNBIdentification,

iE-Extensions ProtocolExtensionContainer { {EN-DCTransferTypeReply-ExtIEs} } OPTIONAL,

...

}

EN-DCTransferTypeReply-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

EN-DCSONeNBIdentification ::= SEQUENCE {

globaleNBID Global-ENB-ID,

selectedTAI TAI,

iE-Extensions ProtocolExtensionContainer { {EN-DCSONeNBIdentification-ExtIEs} } OPTIONAL,

...

}

EN-DCSONeNBIdentification-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

EN-DCSONengNBIdentification ::= SEQUENCE {

globalengNBID Global-en-gNB-ID,

selectedTAI TAI,

iE-Extensions ProtocolExtensionContainer { {EN-DCSONengNBIdentification-ExtIEs} } OPTIONAL,

...

}

EN-DCSONengNBIdentification-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

EndIndication ::= ENUMERATED {

no-further-data,

further-data-exists,

...

}

EnhancedCoverageRestricted ::= ENUMERATED {

restricted,

...

}

CE-ModeBRestricted ::= ENUMERATED {

restricted,

not-restricted,

...

}

EPLMNs ::= SEQUENCE (SIZE(1..maxnoofEPLMNs)) OF PLMNidentity

EventType ::= ENUMERATED {

direct,

change-of-serve-cell,

stop-change-of-serve-cell,

...

}

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

E-RABInformationList ::= SEQUENCE (SIZE (1.. maxnoofE-RABs)) OF ProtocolIE-SingleContainer { { E-RABInformationListIEs } }

E-RABInformationListIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABInformationListItem CRITICALITY ignore TYPE E-RABInformationListItem PRESENCE mandatory },

...

}

E-RABInformationListItem ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

dL-Forwarding DL-Forwarding OPTIONAL,

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

...

}

E-RABInformationListItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

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

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

...

}

E-RABList ::= SEQUENCE (SIZE(1.. maxnoofE-RABs)) OF ProtocolIE-SingleContainer { {E-RABItemIEs} }

E-RABItemIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABItem CRITICALITY ignore TYPE E-RABItem PRESENCE mandatory },

...

}

E-RABItem ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

cause Cause,

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

...

}

E-RABItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

E-RABLevelQoSParameters ::= SEQUENCE {

qCI QCI,

allocationRetentionPriority AllocationAndRetentionPriority,

gbrQosInformation GBR-QosInformation OPTIONAL,

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

...

}

E-RABUsageReportList ::= SEQUENCE (SIZE(1..maxnooftimeperiods)) OF ProtocolIE-SingleContainer { {E-RABUsageReportItemIEs} }

E-RABUsageReportItemIEs S1AP-PROTOCOL-IES ::= {

{ ID id-E-RABUsageReportItem CRITICALITY ignore TYPE E-RABUsageReportItem PRESENCE mandatory },

...

}

E-RABUsageReportItem ::= SEQUENCE {

startTimestamp OCTET STRING (SIZE(4)),

endTimestamp OCTET STRING (SIZE(4)),

usageCountUL INTEGER (0..18446744073709551615),

usageCountDL INTEGER (0..18446744073709551615),

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

...

}

E-RABUsageReportItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

E-RABQoSParameters-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

-- Extended for introduction of downlink and uplink packet loss rate for enhanced Voice performance –-

{ ID id-DownlinkPacketLossRate CRITICALITY ignore EXTENSION Packet-LossRate PRESENCE optional}|

{ ID id-UplinkPacketLossRate CRITICALITY ignore EXTENSION Packet-LossRate PRESENCE optional},

...

}

Ethernet-Type ::= ENUMERATED {

true,

...

}

EUTRAN-CGI ::= SEQUENCE {

pLMNidentity PLMNidentity,

cell-ID CellIdentity,

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

...

}

EUTRAN-CGI-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

EUTRANRoundTripDelayEstimationInfo ::= INTEGER (0..2047)

ExpectedUEBehaviour ::= SEQUENCE {

expectedActivity ExpectedUEActivityBehaviour OPTIONAL,

expectedHOInterval ExpectedHOInterval OPTIONAL,

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

...

}

ExpectedUEBehaviour-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

ExpectedUEActivityBehaviour ::= SEQUENCE {

expectedActivityPeriod ExpectedActivityPeriod OPTIONAL,

expectedIdlePeriod ExpectedIdlePeriod OPTIONAL,

sourceofUEActivityBehaviourInformation SourceOfUEActivityBehaviourInformation OPTIONAL,

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

...

}

ExpectedUEActivityBehaviour-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

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

SourceOfUEActivityBehaviourInformation ::= ENUMERATED {

subscription-information,

statistics,

...

}

ExpectedHOInterval ::= ENUMERATED {

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

...

}

ExtendedBitRate ::= INTEGER (10000000001..4000000000000, ...)

ExtendedRNC-ID ::= INTEGER (4096..65535)

ExtendedRepetitionPeriod ::= INTEGER (4096..131071)

Extended-UEIdentityIndexValue ::= BIT STRING (SIZE (14))

-- F

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

FiveGSTAI ::= SEQUENCE {

pLMNidentity PLMNidentity,

fiveGSTAC FiveGSTAC,

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

...

}

FiveGSTAI-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

FiveQI ::= INTEGER (0..255, ...)

ForbiddenInterRATs ::= ENUMERATED {

all,

geran,

utran,

cdma2000,

...,

geranandutran,

cdma2000andutran

}

ForbiddenTAs ::= SEQUENCE (SIZE(1.. maxnoofEPLMNsPlusOne)) OF ForbiddenTAs-Item

ForbiddenTAs-Item ::= SEQUENCE {

pLMN-Identity PLMNidentity,

forbiddenTACs ForbiddenTACs,

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

...

}

ForbiddenTAs-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

ForbiddenTACs ::= SEQUENCE (SIZE(1..maxnoofForbTACs)) OF TAC

ForbiddenLAs ::= SEQUENCE (SIZE(1..maxnoofEPLMNsPlusOne)) OF ForbiddenLAs-Item

ForbiddenLAs-Item ::= SEQUENCE {

pLMN-Identity PLMNidentity,

forbiddenLACs ForbiddenLACs,

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

...

}

ForbiddenLAs-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

ForbiddenLACs ::= SEQUENCE (SIZE(1..maxnoofForbLACs)) OF LAC

-- G

GBR-QosInformation ::= SEQUENCE {

e-RAB-MaximumBitrateDL BitRate,

e-RAB-MaximumBitrateUL BitRate,

e-RAB-GuaranteedBitrateDL BitRate,

e-RAB-GuaranteedBitrateUL BitRate,

iE-Extensions ProtocolExtensionContainer { { GBR-QosInformation-ExtIEs} } OPTIONAL,

...

}

GBR-QosInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

-- Extension for maximum bitrate > 10G bps --

{ ID id-extended-e-RAB-MaximumBitrateDL CRITICALITY ignore EXTENSION ExtendedBitRate PRESENCE optional}|

{ ID id-extended-e-RAB-MaximumBitrateUL CRITICALITY ignore EXTENSION ExtendedBitRate PRESENCE optional}|

{ ID id-extended-e-RAB-GuaranteedBitrateDL CRITICALITY ignore EXTENSION ExtendedBitRate PRESENCE optional}|

{ ID id-extended-e-RAB-GuaranteedBitrateUL CRITICALITY ignore EXTENSION ExtendedBitRate PRESENCE optional},

...}

GTP-TEID ::= OCTET STRING (SIZE (4))

GUMMEI ::= SEQUENCE {

pLMN-Identity PLMNidentity,

mME-Group-ID MME-Group-ID,

mME-Code MME-Code,

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

...

}

GUMMEI-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

GUMMEIType ::= ENUMERATED {

native,

mapped,

...,

mappedFrom5G

}

GWContextReleaseIndication ::= ENUMERATED {

true,

...

}

-- H

HandoverFlag ::= ENUMERATED {

handoverPreparation,

...

}

HandoverRestrictionList ::= SEQUENCE {

servingPLMN PLMNidentity,

equivalentPLMNs EPLMNs OPTIONAL,

forbiddenTAs ForbiddenTAs OPTIONAL,

forbiddenLAs ForbiddenLAs OPTIONAL,

forbiddenInterRATs ForbiddenInterRATs OPTIONAL,

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

...

}

HandoverRestrictionList-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

{ ID id-NRrestrictioninEPSasSecondaryRAT CRITICALITY ignore EXTENSION NRrestrictioninEPSasSecondaryRAT PRESENCE optional}|

{ ID id-UnlicensedSpectrumRestriction CRITICALITY ignore EXTENSION UnlicensedSpectrumRestriction PRESENCE optional}|

{ ID id-CNTypeRestrictions CRITICALITY ignore EXTENSION CNTypeRestrictions PRESENCE optional}|

{ ID id-NRrestrictionin5GS CRITICALITY ignore EXTENSION NRrestrictionin5GS PRESENCE optional}|

{ ID id-LastNG-RANPLMNIdentity CRITICALITY ignore EXTENSION PLMNidentity PRESENCE optional},

...

}

HandoverType ::= ENUMERATED {

intralte,

ltetoutran,

ltetogeran,

utrantolte,

gerantolte,

...,

eps-to-5gs,

fivegs-to-eps

}

HFN ::= INTEGER (0..1048575)

HFNModified ::= INTEGER (0..131071)

HFNforPDCP-SNlength18 ::= INTEGER (0..16383)

-- I

Masked-IMEISV ::= BIT STRING (SIZE (64))

ImmediateMDT ::= SEQUENCE {

measurementsToActivate MeasurementsToActivate,

m1reportingTrigger M1ReportingTrigger,

m1thresholdeventA2 M1ThresholdEventA2 OPTIONAL,

-- Included in case of event-triggered, or event-triggered periodic reporting for measurement M1

m1periodicReporting M1PeriodicReporting OPTIONAL,

-- Included in case of periodic or event-triggered periodic reporting

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

...

}

ImmediateMDT-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

{ ID id-M3Configuration CRITICALITY ignore EXTENSION M3Configuration PRESENCE conditional}|

{ ID id-M4Configuration CRITICALITY ignore EXTENSION M4Configuration PRESENCE conditional}|

{ ID id-M5Configuration CRITICALITY ignore EXTENSION M5Configuration PRESENCE conditional}|

{ ID id-MDT-Location-Info CRITICALITY ignore EXTENSION MDT-Location-Info PRESENCE optional}|

{ ID id-M6Configuration CRITICALITY ignore EXTENSION M6Configuration PRESENCE conditional}|

{ ID id-M7Configuration CRITICALITY ignore EXTENSION M7Configuration PRESENCE conditional}|

{ ID id-BluetoothMeasurementConfiguration CRITICALITY ignore EXTENSION BluetoothMeasurementConfiguration PRESENCE optional}|

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

...

}

IMSI ::= OCTET STRING (SIZE (3..8))

InformationOnRecommendedCellsAndENBsForPaging ::= SEQUENCE {

recommendedCellsForPaging RecommendedCellsForPaging,

recommendENBsForPaging RecommendedENBsForPaging,

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

...

}

InformationOnRecommendedCellsAndENBsForPaging-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

IntegrityProtectionIndication ::= ENUMERATED {

required,

preferred,

not-needed,

...

}

IntegrityProtectionResult ::= ENUMERATED {

performed,

not-performed,

...

}

IntendedNumberOfPagingAttempts ::= INTEGER (1..16, ...)

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

IntersystemMeasurementConfiguration ::= SEQUENCE {

rSRP INTEGER (0.. 127) OPTIONAL,

rSRQ INTEGER (0.. 127) OPTIONAL,

sINR INTEGER (0.. 127) OPTIONAL,

interSystemMeasurementParameters InterSystemMeasurementParameters,

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

...

}

IntersystemMeasurementConfiguration-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

InterSystemMeasurementParameters ::= SEQUENCE {

measurementDuration INTEGER (1..100),

interSystemMeasurementList InterSystemMeasurementList OPTIONAL,

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

...

}

InterSystemMeasurementParameters-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

InterSystemMeasurementList ::= SEQUENCE (SIZE(1.. maxnooffrequencies)) OF InterSystemMeasurementItem

InterSystemMeasurementItem ::= SEQUENCE {

freqBandIndicatorNR INTEGER (1..1024),

sSBfrequencies INTEGER (0..maxNARFCN),

subcarrierSpacingSSB ENUMERATED {kHz15, kHz30, kHz60, kHz120, kHz240, ...},

maxRSIndexCellQual INTEGER (1..maxRS-IndexCellQual) OPTIONAL,

sMTC OCTET STRING OPTIONAL,

threshRS-Index-r15 OCTET STRING OPTIONAL,

sSBToMeasure OCTET STRING OPTIONAL,

sSRSSIMeasurement OCTET STRING OPTIONAL,

quantityConfigNR-R15 OCTET STRING OPTIONAL,

blackCellsToAddModList OCTET STRING OPTIONAL,

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

}

InterSystemMeasurementItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

IntersystemSONConfigurationTransfer ::= OCTET STRING

IMSvoiceEPSfallbackfrom5G ::= ENUMERATED {

true,

...

}

IAB-Authorized ::= ENUMERATED {

authorized,

not-authorized,

...

}

IAB-Node-Indication ::= ENUMERATED {

true,

...

}

IAB-Supported ::= ENUMERATED {

true,

...

}

-- J

-- K

KillAllWarningMessages ::= ENUMERATED {true}

-- L

LAC ::= OCTET STRING (SIZE (2))

LAI ::= SEQUENCE {

pLMNidentity PLMNidentity,

lAC LAC,

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

...

}

LAI-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

LastVisitedCell-Item ::= CHOICE {

e-UTRAN-Cell LastVisitedEUTRANCellInformation,

uTRAN-Cell LastVisitedUTRANCellInformation,

gERAN-Cell LastVisitedGERANCellInformation,

...,

nG-RAN-Cell LastVisitedNGRANCellInformation

}

LastVisitedEUTRANCellInformation ::= SEQUENCE {

global-Cell-ID EUTRAN-CGI,

cellType CellType,

time-UE-StayedInCell Time-UE-StayedInCell,

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

...

}

LastVisitedEUTRANCellInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

-- Extension for Rel-11 to support enhanced granularity for time UE stayed in cell --

{ ID id-Time-UE-StayedInCell-EnhancedGranularity CRITICALITY ignore EXTENSION Time-UE-StayedInCell-EnhancedGranularity PRESENCE optional}|

{ ID id-HO-Cause CRITICALITY ignore EXTENSION Cause PRESENCE optional},

...

}

LastVisitedNGRANCellInformation ::= OCTET STRING

LastVisitedUTRANCellInformation ::= OCTET STRING

LastVisitedGERANCellInformation ::= CHOICE {

undefined NULL,

...

}

L3-Information ::= OCTET STRING

-- This is a dummy IE used only as a reference to the actual definition in relevant specification.

LPPa-PDU ::= OCTET STRING

LHN-ID ::= OCTET STRING(SIZE (32..256))

Links-to-log ::= ENUMERATED {uplink, downlink, both-uplink-and-downlink, ...}

ListeningSubframePattern ::= SEQUENCE {

pattern-period ENUMERATED {ms1280, ms2560, ms5120, ms10240, ...},

pattern-offset INTEGER (0..10239, ...),

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

...

}

ListeningSubframePattern-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

LoggedMDT ::= SEQUENCE {

loggingInterval LoggingInterval,

loggingDuration LoggingDuration,

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

...

}

LoggedMDT-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

{ ID id-BluetoothMeasurementConfiguration CRITICALITY ignore EXTENSION BluetoothMeasurementConfiguration PRESENCE optional}|

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

...

}

LoggingInterval ::= ENUMERATED {ms128, ms256, ms512, ms1024, ms2048, ms3072, ms4096, ms6144}

LoggingDuration ::= ENUMERATED {m10, m20, m40, m60, m90, m120}

LoggedMBSFNMDT ::= SEQUENCE {

loggingInterval LoggingInterval,

loggingDuration LoggingDuration,

mBSFN-ResultToLog MBSFN-ResultToLog OPTIONAL,

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

...

}

LoggedMBSFNMDT-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

LTE-M-Indication ::= ENUMERATED {lte-m, ... }

-- M

M3Configuration ::= SEQUENCE {

m3period M3period,

iE-Extensions ProtocolExtensionContainer { { M3Configuration-ExtIEs} } OPTIONAL,

...

}

M3Configuration-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

M3period ::= ENUMERATED {ms100, ms1000, ms10000, ...,ms1024, ms1280, ms2048, ms2560, ms5120, ms10240, min1 }

M4Configuration ::= SEQUENCE {

m4period M4period,

m4-links-to-log Links-to-log,

iE-Extensions ProtocolExtensionContainer { { M4Configuration-ExtIEs} } OPTIONAL,

...

}

M4Configuration-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

M4period ::= ENUMERATED {ms1024, ms2048, ms5120, ms10240, min1, ... }

M5Configuration ::= SEQUENCE {

m5period M5period,

m5-links-to-log Links-to-log,

iE-Extensions ProtocolExtensionContainer { { M5Configuration-ExtIEs} } OPTIONAL,

...

}

M5Configuration-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

M5period ::= ENUMERATED {ms1024, ms2048, ms5120, ms10240, min1, ... }

M6Configuration ::= SEQUENCE {

m6report-Interval M6report-Interval,

m6delay-threshold M6delay-threshold OPTIONAL,

-- This IE shall be present if the M6 Links to log IE is set to “uplink” or to “both-uplink-and-downlink” --

m6-links-to-log Links-to-log,

iE-Extensions ProtocolExtensionContainer { { M6Configuration-ExtIEs} } OPTIONAL,

...

}

M6Configuration-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

M6report-Interval ::= ENUMERATED { ms1024, ms2048, ms5120, ms10240, ... }

M6delay-threshold ::= ENUMERATED { ms30, ms40, ms50, ms60, ms70, ms80, ms90, ms100, ms150, ms300, ms500, ms750, ... }

M7Configuration ::= SEQUENCE {

m7period M7period,

m7-links-to-log Links-to-log,

iE-Extensions ProtocolExtensionContainer { { M7Configuration-ExtIEs} } OPTIONAL,

...

}

M7Configuration-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

M7period ::= INTEGER(1..60, ...)

MDT-Activation ::= ENUMERATED {

immediate-MDT-only,

immediate-MDT-and-Trace,

logged-MDT-only,

...,

logged-MBSFN-MDT

}

MDT-Location-Info ::= BIT STRING (SIZE (8))

MDT-Configuration ::= SEQUENCE {

mdt-Activation MDT-Activation,

areaScopeOfMDT AreaScopeOfMDT,

mDTMode MDTMode,

iE-Extensions ProtocolExtensionContainer { { MDT-Configuration-ExtIEs} } OPTIONAL,

...

}

MDT-Configuration-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

{ ID id-SignallingBasedMDTPLMNList CRITICALITY ignore EXTENSION MDTPLMNList PRESENCE optional },

...

}

ManagementBasedMDTAllowed ::= ENUMERATED {allowed, ...}

MBSFN-ResultToLog ::= SEQUENCE (SIZE(1..maxnoofMBSFNAreaMDT)) OF MBSFN-ResultToLogInfo

MBSFN-ResultToLogInfo ::= SEQUENCE {

mBSFN-AreaId INTEGER (0..255) OPTIONAL,

carrierFreq EARFCN,

iE-Extensions ProtocolExtensionContainer { { MBSFN-ResultToLogInfo-ExtIEs} } OPTIONAL,

...

}

MBSFN-ResultToLogInfo-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

MDTPLMNList ::= SEQUENCE (SIZE(1..maxnoofMDTPLMNs)) OF PLMNidentity

PrivacyIndicator ::= ENUMERATED {

immediate-MDT,

logged-MDT,

...

}

MDTMode ::= CHOICE {

immediateMDT ImmediateMDT,

loggedMDT LoggedMDT,

...,

mDTMode-Extension MDTMode-Extension

}

MDTMode-Extension ::= ProtocolIE-SingleContainer {{ MDTMode-ExtensionIE }}

MDTMode-ExtensionIE S1AP-PROTOCOL-IES ::= {

{ ID id-LoggedMBSFNMDT CRITICALITY ignore TYPE LoggedMBSFNMDT PRESENCE mandatory}

}

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

MeasurementThresholdA2 ::= CHOICE {

threshold-RSRP Threshold-RSRP,

threshold-RSRQ Threshold-RSRQ,

...

}

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

MobilityInformation ::= BIT STRING (SIZE(32))

MMEname ::= PrintableString (SIZE (1..150,...))

MMEPagingTarget ::= CHOICE {

global-ENB-ID Global-ENB-ID,

tAI TAI,

...

}

MMERelaySupportIndicator ::= ENUMERATED {true, ...}

MME-Group-ID ::= OCTET STRING (SIZE (2))

MME-Code ::= OCTET STRING (SIZE (1))

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

M-TMSI ::= OCTET STRING (SIZE (4))

MSClassmark2 ::= OCTET STRING

MSClassmark3 ::= OCTET STRING

MutingAvailabilityIndication ::= ENUMERATED {

available,

unavailable,

...

}

MutingPatternInformation ::= SEQUENCE {

muting-pattern-period ENUMERATED {ms0, ms1280, ms2560, ms5120, ms10240, ...},

muting-pattern-offset INTEGER (0..10239, ...) OPTIONAL,

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

...

}

MutingPatternInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

MDT-ConfigurationNR ::= OCTET STRING

-- N

NAS-PDU ::= OCTET STRING

NASSecurityParametersfromE-UTRAN ::= OCTET STRING

NASSecurityParameterstoE-UTRAN ::= OCTET STRING

NB-IoT-DefaultPagingDRX ::= ENUMERATED {

v128,

v256,

v512,

v1024,

...

}

NB-IoT-PagingDRX ::= ENUMERATED { v32, v64, v128, v256, v512, v1024,...}

NB-IoT-Paging-eDRXInformation ::= SEQUENCE {

nB-IoT-paging-eDRX-Cycle NB-IoT-Paging-eDRX-Cycle,

nB-IoT-pagingTimeWindow NB-IoT-PagingTimeWindow OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { NB-IoT-Paging-eDRXInformation-ExtIEs} } OPTIONAL,

...

}

NB-IoT-Paging-eDRXInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

NB-IoT-Paging-eDRX-Cycle ::= ENUMERATED{hf2, hf4, hf6, hf8, hf10, hf12, hf14, hf16, hf32, hf64, hf128, hf256, hf512, hf1024, ...}

NB-IoT-PagingTimeWindow ::= ENUMERATED{s1, s2, s3, s4, s5, s6, s7, s8, s9, s10, s11, s12, s13, s14, s15, s16, ...}

NB-IoT-RLF-Report-Container ::= OCTET STRING

NB-IoT-UEIdentityIndexValue ::= BIT STRING (SIZE (12))

NextPagingAreaScope ::= ENUMERATED {

same,

changed,

...

}

NotifySourceeNB ::= ENUMERATED {

notifySource,

...

}

NRCellIdentity ::= BIT STRING (SIZE(36))

NR-CGI ::= SEQUENCE {

pLMNIdentity PLMNidentity,

nRCellIdentity NRCellIdentity,

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

...

}

NR-CGI-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

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

NRrestrictioninEPSasSecondaryRAT ::= ENUMERATED {

nRrestrictedinEPSasSecondaryRAT,

...

}

NRrestrictionin5GS ::= ENUMERATED {

nRrestrictedin5GS,

...

}

NRUESecurityCapabilities ::= SEQUENCE {

nRencryptionAlgorithms NRencryptionAlgorithms,

nRintegrityProtectionAlgorithms NRintegrityProtectionAlgorithms,

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

...

}

NRUESecurityCapabilities-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

NumberofBroadcastRequest ::= INTEGER (0..65535)

NumberOfBroadcasts ::= INTEGER (0..65535)

NRV2XServicesAuthorized ::= SEQUENCE {

vehicleUE VehicleUE OPTIONAL,

pedestrianUE PedestrianUE OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {NRV2XServicesAuthorized-ExtIEs} } OPTIONAL,

...

}

NRV2XServicesAuthorized-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

NRUESidelinkAggregateMaximumBitrate ::= SEQUENCE {

uEaggregateMaximumBitRate BitRate,

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

...

}

NRUESidelinkAggregateMaximumBitrate-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

-- O

OldBSS-ToNewBSS-Information ::= OCTET STRING

-- This is a dummy IE used only as a reference to the actual definition in relevant specification.

OverloadAction ::= ENUMERATED {

reject-non-emergency-mo-dt,

reject-rrc-cr-signalling,

permit-emergency-sessions-and-mobile-terminated-services-only,

...,

permit-high-priority-sessions-and-mobile-terminated-services-only,

reject-delay-tolerant-access,

permit-high-priority-sessions-and-exception-reporting-and-mobile-terminated-services-only,

not-accept-mo-data-or-delay-tolerant-access-from-CP-CIoT

}

OverloadResponse ::= CHOICE {

overloadAction OverloadAction,

...

}

-- P

Packet-LossRate ::= INTEGER(0..1000)

PagingAttemptInformation ::= SEQUENCE {

pagingAttemptCount PagingAttemptCount,

intendedNumberOfPagingAttempts IntendedNumberOfPagingAttempts,

nextPagingAreaScope NextPagingAreaScope OPTIONAL,

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

...

}

PagingAttemptInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

PagingAttemptCount ::= INTEGER (1..16, ...)

Paging-eDRXInformation ::= SEQUENCE {

paging-eDRX-Cycle Paging-eDRX-Cycle,

pagingTimeWindow PagingTimeWindow OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { Paging-eDRXInformation-ExtIEs} } OPTIONAL,

...

}

Paging-eDRXInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

Paging-eDRX-Cycle ::= ENUMERATED{hfhalf, hf1, hf2, hf4, hf6, hf8, hf10, hf12, hf14, hf16, hf32, hf64, hf128, hf256, ...}

PagingTimeWindow ::= ENUMERATED{s1, s2, s3, s4, s5, s6, s7, s8, s9, s10, s11, s12, s13, s14, s15, s16, ...}

PagingDRX ::= ENUMERATED {

v32,

v64,

v128,

v256,

...

}

PagingPriority ::= ENUMERATED {

priolevel1,

priolevel2,

priolevel3,

priolevel4,

priolevel5,

priolevel6,

priolevel7,

priolevel8,

...

}

PagingProbabilityInformation ::= ENUMERATED {p00, p05, p10, p15, p20, p25, p30, p35, p40, p45, p50, p55, p60, p65, p70, p75, p80, p85, p90, p95, p100, ...}

PC5QoSParameters ::= SEQUENCE {

pc5QoSFlowList PC5QoSFlowList,

pc5LinkAggregatedBitRates BitRate OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { PC5QoSParameters-ExtIEs} } OPTIONAL,

...

}

PC5QoSParameters-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

PC5QoSFlowList ::= SEQUENCE (SIZE(1..maxnoofPC5QoSFlows)) OF PC5QoSFlowItem

PC5QoSFlowItem::= SEQUENCE {

pQI FiveQI,

pc5FlowBitRates PC5FlowBitRates OPTIONAL,

range Range OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { PC5QoSFlowItem-ExtIEs} } OPTIONAL,

...

}

PC5QoSFlowItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

PC5FlowBitRates ::= SEQUENCE {

guaranteedFlowBitRate BitRate,

maximumFlowBitRate BitRate,

iE-Extensions ProtocolExtensionContainer { { PC5FlowBitRates-ExtIEs} } OPTIONAL,

...

}

PC5FlowBitRates-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

PDCP-SN ::= INTEGER (0..4095)

PDCP-SNExtended ::= INTEGER (0..32767)

PDCP-SNlength18 ::= INTEGER (0..262143)

PendingDataIndication ::= ENUMERATED {

true,

...

}

M1PeriodicReporting ::= SEQUENCE {

reportInterval ReportIntervalMDT,

reportAmount ReportAmountMDT,

iE-Extensions ProtocolExtensionContainer { { M1PeriodicReporting-ExtIEs} } OPTIONAL,

...

}

M1PeriodicReporting-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

PLMNidentity ::= TBCD-STRING

PLMNAreaBasedQMC ::= SEQUENCE {

plmnListforQMC PLMNListforQMC,

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

...

}

PLMNAreaBasedQMC-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

PLMNListforQMC ::= SEQUENCE (SIZE(1..maxnoofPLMNforQMC)) OF PLMNidentity

Port-Number ::= OCTET STRING (SIZE (2))

Pre-emptionCapability ::= ENUMERATED {

shall-not-trigger-pre-emption,

may-trigger-pre-emption

}

Pre-emptionVulnerability ::= ENUMERATED {

not-pre-emptable,

pre-emptable

}

PriorityLevel ::= INTEGER { spare (0), highest (1), lowest (14), no-priority (15) } (0..15)

ProSeAuthorized ::= SEQUENCE {

proSeDirectDiscovery ProSeDirectDiscovery OPTIONAL,

proSeDirectCommunication ProSeDirectCommunication OPTIONAL,

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

...

}

ProSeAuthorized-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

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

...

}

ProSeDirectDiscovery ::= ENUMERATED {

authorized,

not-authorized,

...

}

ProSeUEtoNetworkRelaying ::= ENUMERATED {

authorized,

not-authorized,

...

}

ProSeDirectCommunication ::= ENUMERATED {

authorized,

not-authorized,

...

}

PS-ServiceNotAvailable ::= ENUMERATED {

ps-service-not-available,

...

}

PSCellInformation ::= SEQUENCE {

nCGI NR-CGI,

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

...

}

PSCellInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

-- Q

QCI ::= INTEGER (0..255)

-- R

RAN-UE-NGAP-ID ::= INTEGER (0..4294967295)

Range ::= ENUMERATED {m50, m80, m180, m200, m350, m400, m500, m700, m1000, ...}

ReceiveStatusofULPDCPSDUs ::= BIT STRING (SIZE(4096))

ReceiveStatusOfULPDCPSDUsExtended ::= BIT STRING (SIZE(1..16384))

ReceiveStatusOfULPDCPSDUsPDCP-SNlength18 ::= BIT STRING (SIZE(1..131072))

RecommendedCellsForPaging ::= SEQUENCE {

recommendedCellList RecommendedCellList,

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

...

}

RecommendedCellsForPaging-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

RecommendedCellList ::= SEQUENCE (SIZE(1.. maxnoofRecommendedCells)) OF ProtocolIE-SingleContainer { { RecommendedCellItemIEs } }

RecommendedCellItemIEs S1AP-PROTOCOL-IES ::= {

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

...

}

RecommendedCellItem::= SEQUENCE {

eUTRAN-CGI EUTRAN-CGI,

timeStayedInCell INTEGER (0..4095) OPTIONAL,

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

...

}

RecommendedCellsForPagingItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

RecommendedENBsForPaging ::= SEQUENCE {

recommendedENBList RecommendedENBList,

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

...

}

RecommendedENBsForPaging-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

RecommendedENBList::= SEQUENCE (SIZE(1.. maxnoofRecommendedENBs)) OF ProtocolIE-SingleContainer { { RecommendedENBItemIEs } }

RecommendedENBItemIEs S1AP-PROTOCOL-IES ::= {

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

...

}

RecommendedENBItem ::= SEQUENCE {

mMEPagingTarget MMEPagingTarget,

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

...

}

RecommendedENBItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

RelativeMMECapacity ::= INTEGER (0..255)

RelayNode-Indicator ::= ENUMERATED {

true,

...

}

RAC ::= OCTET STRING (SIZE (1))

RAT-Type ::= ENUMERATED {

nbiot,

...

}

ReportAmountMDT ::= ENUMERATED{r1, r2, r4, r8, r16, r32, r64, rinfinity}

ReportIntervalMDT ::= ENUMERATED {ms120, ms240, ms480, ms640, ms1024, ms2048, ms5120, ms10240, min1, min6, min12, min30, min60}

M1ReportingTrigger ::= ENUMERATED{

periodic,

a2eventtriggered,

...,

a2eventtriggered-periodic

}

RequestType ::= SEQUENCE {

eventType EventType,

reportArea ReportArea,

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

...

}

RequestType-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

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

...

}

RequestTypeAdditionalInfo ::= ENUMERATED {

includePSCell,

...

}

RIMTransfer ::= SEQUENCE {

rIMInformation RIMInformation,

rIMRoutingAddress RIMRoutingAddress OPTIONAL,

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

...

}

RIMTransfer-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

RIMInformation ::= OCTET STRING

RIMRoutingAddress ::= CHOICE {

gERAN-Cell-ID GERAN-Cell-ID,

...,

targetRNC-ID TargetRNC-ID,

eHRPD-Sector-ID OCTET STRING (SIZE(16))

}

ReportArea ::= ENUMERATED {

ecgi,

...

}

RepetitionPeriod ::= INTEGER (0..4095)

RLFReportInformation ::= SEQUENCE {

uE-RLF-Report-Container UE-RLF-Report-Container,

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

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

...

}

RLFReportInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

{ID id-NB-IoT-RLF-Report-Container CRITICALITY ignore EXTENSION NB-IoT-RLF-Report-Container PRESENCE optional},

...

}

RNC-ID ::= INTEGER (0..4095)

RRC-Container ::= OCTET STRING

RRC-Establishment-Cause ::= ENUMERATED {

emergency,

highPriorityAccess,

mt-Access,

mo-Signalling,

mo-Data,

...,

delay-TolerantAccess,

mo-VoiceCall,

mo-ExceptionData

}

ECGIListForRestart ::= SEQUENCE (SIZE(1..maxnoofCellsforRestart)) OF EUTRAN-CGI

Routing-ID ::= INTEGER (0..255)

-- S

SecurityKey ::= BIT STRING (SIZE(256))

SecurityContext ::= SEQUENCE {

nextHopChainingCount INTEGER (0..7),

nextHopParameter SecurityKey,

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

...

}

SecurityContext-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

SecondaryRATType ::= ENUMERATED {

nR,

...,

unlicensed

}

SecondaryRATDataUsageRequest ::= ENUMERATED {

requested,

...

}

SecondaryRATDataUsageReportList ::= SEQUENCE (SIZE(1.. maxnoofE-RABs)) OF ProtocolIE-SingleContainer { {SecondaryRATDataUsageReportItemIEs} }

SecondaryRATDataUsageReportItemIEs S1AP-PROTOCOL-IES ::= {

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

...

}

SecondaryRATDataUsageReportItem ::= SEQUENCE {

e-RAB-ID E-RAB-ID,

secondaryRATType SecondaryRATType,

e-RABUsageReportList E-RABUsageReportList,

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

...

}

SecondaryRATDataUsageReportItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

SecurityIndication ::= SEQUENCE {

integrityProtectionIndication IntegrityProtectionIndication,

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

...

}

SecurityIndication-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

SecurityResult ::= SEQUENCE {

integrityProtectionResult IntegrityProtectionResult,

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

...

}

SecurityResult-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

ServiceType ::= ENUMERATED{

qMC-for-streaming-service,

qMC-for-MTSI-service,

...

}

SONInformation ::= CHOICE{

sONInformationRequest SONInformationRequest,

sONInformationReply SONInformationReply,

...,

sONInformation-Extension SONInformation-Extension

}

SONInformation-Extension ::= ProtocolIE-SingleContainer {{ SONInformation-ExtensionIE }}

SONInformation-ExtensionIE S1AP-PROTOCOL-IES ::= {

{ ID id-SON-Information-Report CRITICALITY ignore TYPE SONInformationReport PRESENCE mandatory}

}

SONInformationRequest ::= ENUMERATED {

x2TNL-Configuration-Info,

...,

time-Synchronisation-Info,

activate-Muting,

deactivate-Muting}

SONInformationReply ::= SEQUENCE {

x2TNLConfigurationInfo X2TNLConfigurationInfo OPTIONAL,

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

...

}

SONInformationReply-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

-- Extension for Release 9 to transfer Time synchronisation information --

{ID id-Time-Synchronisation-Info CRITICALITY ignore EXTENSION TimeSynchronisationInfo PRESENCE optional},

...,

{ID id-Muting-Pattern-Information CRITICALITY ignore EXTENSION MutingPatternInformation PRESENCE optional}

}

SONInformationReport ::= CHOICE{

rLFReportInformation RLFReportInformation,

...

}

SONConfigurationTransfer ::= SEQUENCE {

targeteNB-ID TargeteNB-ID,

sourceeNB-ID SourceeNB-ID,

sONInformation SONInformation,

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

...

}

SONConfigurationTransfer-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

-- Extension for Release 10 to transfer the IP addresses of the eNB initiating the ANR action --

{ID id-x2TNLConfigurationInfo CRITICALITY ignore EXTENSION X2TNLConfigurationInfo PRESENCE conditional

-- This IE shall be present if the SON Information IE contains the SON Information Request IE and the SON Information Request IE is set to “X2TNL Configuration Info” --}|

-- Extension for Release 12 to transfer information concerning the source cell of synchronisation and the aggressor cell --

{ID id-Synchronisation-Information CRITICALITY ignore EXTENSION SynchronisationInformation PRESENCE conditional

-- This IE shall be present if the SON Information IE contains the SON Information Request IE set to “ Activate Muting ” --},

...

}

SynchronisationInformation ::= SEQUENCE {

sourceStratumLevel StratumLevel OPTIONAL,

listeningSubframePattern ListeningSubframePattern OPTIONAL,

aggressoreCGI-List ECGI-List OPTIONAL,

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

...

}

SynchronisationInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

Source-ToTarget-TransparentContainer ::= OCTET STRING

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

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

SourceBSS-ToTargetBSS-TransparentContainer ::= OCTET STRING

-- This is a dummy IE used only as a reference to the actual definition in relevant specification.

SourceeNB-ID ::= SEQUENCE {

global-ENB-ID Global-ENB-ID,

selected-TAI TAI,

iE-Extensions ProtocolExtensionContainer { {SourceeNB-ID-ExtIEs} } OPTIONAL

}

SourceeNB-ID-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

SRVCCOperationNotPossible ::= ENUMERATED {

notPossible,

...

}

SRVCCOperationPossible ::= ENUMERATED {

possible,

...

}

SRVCCHOIndication ::= ENUMERATED {

pSandCS,

cSonly,

...

}

SourceNodeID ::= CHOICE {

sourceNgRanNode-ID SourceNgRanNode-ID,

sourceNodeID-Extension SourceNodeID-Extension

}

SourceNodeID-Extension ::= ProtocolIE-SingleContainer {{ SourceNodeID-ExtensionIE }}

SourceNodeID-ExtensionIE S1AP-PROTOCOL-IES ::= {

...

}

SourceeNB-ToTargeteNB-TransparentContainer ::= SEQUENCE {

rRC-Container RRC-Container,

e-RABInformationList E-RABInformationList OPTIONAL,

targetCell-ID EUTRAN-CGI,

subscriberProfileIDforRFP SubscriberProfileIDforRFP OPTIONAL,

uE-HistoryInformation UE-HistoryInformation,

iE-Extensions ProtocolExtensionContainer { {SourceeNB-ToTargeteNB-TransparentContainer-ExtIEs} } OPTIONAL,

...

}

SourceeNB-ToTargeteNB-TransparentContainer-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

{ID id-MobilityInformation CRITICALITY ignore EXTENSION MobilityInformation PRESENCE optional}|

{ID id-uE-HistoryInformationFromTheUE CRITICALITY ignore EXTENSION UE-HistoryInformationFromTheUE PRESENCE optional}|

{ID id-IMSvoiceEPSfallbackfrom5G CRITICALITY ignore EXTENSION IMSvoiceEPSfallbackfrom5G PRESENCE optional}|

{ID id-AdditionalRRMPriorityIndex CRITICALITY ignore EXTENSION AdditionalRRMPriorityIndex PRESENCE optional}|

{ID id-ContextatSource CRITICALITY ignore EXTENSION ContextatSource PRESENCE optional}|

{ID id-IntersystemMeasurementConfiguration CRITICALITY ignore EXTENSION IntersystemMeasurementConfiguration PRESENCE optional}|

{ID id-SourceNodeID CRITICALITY ignore EXTENSION SourceNodeID PRESENCE optional}|

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

...

}

SourceNgRanNode-ID ::= SEQUENCE {

global-RAN-NODE-ID Global-RAN-NODE-ID,

selected-TAI FiveGSTAI,

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

...

}

SourceNgRanNode-ID-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

SourceRNC-ToTargetRNC-TransparentContainer ::= OCTET STRING

-- This is a dummy IE used only as a reference to the actual definition in relevant specification.

SourceNgRanNode-ToTargetNgRanNode-TransparentContainer ::= OCTET STRING

-- This is a dummy IE used only as a reference to the actual definition in relevant specification.

ServedGUMMEIs ::= SEQUENCE (SIZE (1.. maxnoofRATs)) OF ServedGUMMEIsItem

ServedGUMMEIsItem ::= SEQUENCE {

servedPLMNs ServedPLMNs,

servedGroupIDs ServedGroupIDs,

servedMMECs ServedMMECs,

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

...

}

ServedGUMMEIsItem-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

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

...

}

ServedGroupIDs ::= SEQUENCE (SIZE(1.. maxnoofGroupIDs)) OF MME-Group-ID

ServedMMECs ::= SEQUENCE (SIZE(1.. maxnoofMMECs)) OF MME-Code

ServedPLMNs ::= SEQUENCE (SIZE(1.. maxnoofPLMNsPerMME)) OF PLMNidentity

SubscriberProfileIDforRFP ::= INTEGER (1..256)

Subscription-Based-UE-DifferentiationInfo ::= SEQUENCE {

periodicCommunicationIndicator ENUMERATED {periodically, ondemand, ...} OPTIONAL,

periodicTime INTEGER (1..3600, ...) OPTIONAL,

scheduledCommunicationTime ScheduledCommunicationTime OPTIONAL,

stationaryIndication ENUMERATED {stationary, mobile, ...} OPTIONAL,

trafficProfile ENUMERATED {single-packet, dual-packets, multiple-packets, ...} OPTIONAL,

batteryIndication ENUMERATED {battery-powered, battery-powered-not-rechargeable-or-replaceable, not-battery-powered, ...} OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { Subscription-Based-UE-DifferentiationInfo-ExtIEs} } OPTIONAL,

...

}

Subscription-Based-UE-DifferentiationInfo-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

ScheduledCommunicationTime ::= SEQUENCE {

dayofWeek BIT STRING (SIZE(7)) OPTIONAL,

timeofDayStart INTEGER (0..86399, ...) OPTIONAL,

timeofDayEnd INTEGER (0..86399, ...) OPTIONAL,

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

...

}

ScheduledCommunicationTime-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

SupportedTAs ::= SEQUENCE (SIZE(1.. maxnoofTACs)) OF SupportedTAs-Item

SupportedTAs-Item ::= SEQUENCE {

tAC TAC,

broadcastPLMNs BPLMNs,

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

...

}

SupportedTAs-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

-- Extension for Release 13 to transfer RAT-Type per TAC --

{ID id-RAT-Type CRITICALITY reject EXTENSION RAT-Type PRESENCE optional},

...

}

StratumLevel ::= INTEGER (0..3, ...)

SynchronisationStatus ::= ENUMERATED { synchronous, asynchronous, ... }

TimeSynchronisationInfo ::= SEQUENCE {

stratumLevel StratumLevel,

synchronisationStatus SynchronisationStatus,

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

...

}

TimeSynchronisationInfo-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

-- Extension for Release 12 to transfer Muting Availability Indication --

{ID id-Muting-Availability-Indication CRITICALITY ignore EXTENSION MutingAvailabilityIndication PRESENCE optional},

...

}

S-TMSI ::= SEQUENCE {

mMEC MME-Code,

m-TMSI M-TMSI,

iE-Extensions ProtocolExtensionContainer { {S-TMSI-ExtIEs} } OPTIONAL,

...

}

S-TMSI-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

-- T

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

TAIBasedMDT ::= SEQUENCE {

tAIListforMDT TAIListforMDT,

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

...

}

TAIBasedMDT-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

TAIListforMDT ::= SEQUENCE (SIZE(1..maxnoofTAforMDT)) OF TAI

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

TAI ::= SEQUENCE {

pLMNidentity PLMNidentity,

tAC TAC,

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

...

}

TAI-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

TAI-Broadcast-Item ::= SEQUENCE {

tAI TAI,

completedCellinTAI CompletedCellinTAI,

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

...

}

TAI-Broadcast-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

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

TAI-Cancelled-Item ::= SEQUENCE {

tAI TAI,

cancelledCellinTAI CancelledCellinTAI,

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

...

}

TAI-Cancelled-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

TABasedMDT ::= SEQUENCE {

tAListforMDT TAListforMDT,

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

...

}

TABasedMDT-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

TAListforMDT ::= SEQUENCE (SIZE(1..maxnoofTAforMDT)) OF TAC

TABasedQMC ::= SEQUENCE {

tAListforQMC TAListforQMC,

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

...

}

TABasedQMC-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

TAListforQMC ::= SEQUENCE (SIZE(1..maxnoofTAforQMC)) OF TAC

TAIBasedQMC ::= SEQUENCE {

tAIListforQMC TAIListforQMC,

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

...

}

TAIBasedQMC-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

TAIListforQMC ::= SEQUENCE (SIZE(1..maxnoofTAforQMC)) OF TAI

CompletedCellinTAI ::= SEQUENCE (SIZE(1..maxnoofCellinTAI)) OF CompletedCellinTAI-Item

CompletedCellinTAI-Item ::= SEQUENCE{

eCGI EUTRAN-CGI,

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

...

}

CompletedCellinTAI-Item-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

TBCD-STRING ::= OCTET STRING (SIZE (3))

TargetID ::= CHOICE {

targeteNB-ID TargeteNB-ID,

targetRNC-ID TargetRNC-ID,

cGI CGI,

...,

targetgNgRanNode-ID TargetNgRanNode-ID

}

TargeteNB-ID ::= SEQUENCE {

global-ENB-ID Global-ENB-ID,

selected-TAI TAI,

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

...

}

TargeteNB-ID-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

TargetRNC-ID ::= SEQUENCE {

lAI LAI,

rAC RAC OPTIONAL,

rNC-ID RNC-ID,

extendedRNC-ID ExtendedRNC-ID OPTIONAL,

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

...

}

TargetRNC-ID-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

TargetNgRanNode-ID ::= SEQUENCE {

global-RAN-NODE-ID Global-RAN-NODE-ID,

selected-TAI FiveGSTAI,

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

...

}

TargetNgRanNode-ID-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

Global-RAN-NODE-ID::= CHOICE {

gNB GNB,

ng-eNB NG-eNB,

...

}

GNB ::= SEQUENCE {

global-gNB-ID Global-GNB-ID,

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

...

}

GNB-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

Global-GNB-ID ::= SEQUENCE {

pLMN-Identity PLMNidentity,

gNB-ID GNB-Identity,

iE-Extensions ProtocolExtensionContainer { { Global-GNB-ID-ExtIEs} } OPTIONAL,

...

}

Global-GNB-ID-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

GNB-Identity ::= CHOICE {

gNB-ID GNB-ID,

...

}

NG-eNB ::= SEQUENCE {

global-ng-eNB-ID Global-ENB-ID,

iE-Extensions ProtocolExtensionContainer { { NG-eNB-ExtIEs} } OPTIONAL,

...

}

NG-eNB-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

GNB-ID ::= BIT STRING (SIZE(22..32))

TargeteNB-ToSourceeNB-TransparentContainer ::= SEQUENCE {

rRC-Container RRC-Container,

iE-Extensions ProtocolExtensionContainer { {TargeteNB-ToSourceeNB-TransparentContainer-ExtIEs} } OPTIONAL,

...

}

TargeteNB-ToSourceeNB-TransparentContainer-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

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

...

}

Target-ToSource-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 coded according to the specifications of the target system.

TargetRNC-ToSourceRNC-TransparentContainer ::= OCTET STRING

-- This is a dummy IE used only as a reference to the actual definition in relevant specification.

TargetBSS-ToSourceBSS-TransparentContainer ::= OCTET STRING

-- This is a dummy IE used only as a reference to the actual definition in relevant specification.

TargetNgRanNode-ToSourceNgRanNode-TransparentContainer ::= OCTET STRING

-- This is a dummy IE used only as a reference to the actual definition in relevant specification.

M1ThresholdEventA2 ::= SEQUENCE {

measurementThreshold MeasurementThresholdA2,

iE-Extensions ProtocolExtensionContainer { { M1ThresholdEventA2-ExtIEs} } OPTIONAL,

...

}

M1ThresholdEventA2-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

Threshold-RSRP ::= INTEGER(0..97)

Threshold-RSRQ ::= INTEGER(0..34)

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

Time-UE-StayedInCell ::= INTEGER (0..4095)

Time-UE-StayedInCell-EnhancedGranularity ::= INTEGER (0..40950)

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

TransportInformation ::= SEQUENCE {

transportLayerAddress TransportLayerAddress,

uL-GTP-TEID GTP-TEID,

...

}

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

TraceActivation ::= SEQUENCE {

e-UTRAN-Trace-ID E-UTRAN-Trace-ID,

interfacesToTrace InterfacesToTrace,

traceDepth TraceDepth,

traceCollectionEntityIPAddress TransportLayerAddress,

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

...

}

TraceActivation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

-- Extension for Rel-10 to support MDT --

{ ID id-MDTConfiguration CRITICALITY ignore EXTENSION MDT-Configuration PRESENCE optional }|

-- Extension for Rel-15 to support QMC –

{ ID id-UEAppLayerMeasConfig CRITICALITY ignore EXTENSION UEAppLayerMeasConfig PRESENCE optional }|

{ ID id-MDTConfigurationNR CRITICALITY ignore EXTENSION MDT-ConfigurationNR PRESENCE optional }|

{ ID id-TraceCollectionEntityURI CRITICALITY ignore EXTENSION URI-Address PRESENCE optional },

...

}

TraceDepth ::= ENUMERATED {

minimum,

medium,

maximum,

minimumWithoutVendorSpecificExtension,

mediumWithoutVendorSpecificExtension,

maximumWithoutVendorSpecificExtension,

...

}

E-UTRAN-Trace-ID ::= OCTET STRING (SIZE (8))

TrafficLoadReductionIndication ::= INTEGER (1..99)

TunnelInformation ::= SEQUENCE {

transportLayerAddress TransportLayerAddress,

uDP-Port-Number Port-Number OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {Tunnel-Information-ExtIEs} } OPTIONAL,

...

}

Tunnel-Information-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

TypeOfError ::= ENUMERATED {

not-understood,

missing,

...

}

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

-- U

UEAggregateMaximumBitrate ::= SEQUENCE {

uEaggregateMaximumBitRateDL BitRate,

uEaggregateMaximumBitRateUL BitRate,

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

...

}

UEAggregate-MaximumBitrates-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

-- Extension for maximum bitrate > 10G bps --

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

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

...

}

UEAppLayerMeasConfig ::= SEQUENCE {

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

areaScopeOfQMC AreaScopeOfQMC,

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

...

}

UEAppLayerMeasConfig-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

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

...

}

UECapabilityInfoRequest ::= ENUMERATED {

requested,

...

}

UE-RetentionInformation ::= ENUMERATED {

ues-retained,

...}

UE-S1AP-IDs ::= CHOICE{

uE-S1AP-ID-pair UE-S1AP-ID-pair,

mME-UE-S1AP-ID MME-UE-S1AP-ID,

...

}

UE-S1AP-ID-pair ::= SEQUENCE{

mME-UE-S1AP-ID MME-UE-S1AP-ID,

eNB-UE-S1AP-ID ENB-UE-S1AP-ID,

iE-Extensions ProtocolExtensionContainer { {UE-S1AP-ID-pair-ExtIEs} } OPTIONAL,

...

}

UE-S1AP-ID-pair-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

UE-associatedLogicalS1-ConnectionItem ::= SEQUENCE {

mME-UE-S1AP-ID MME-UE-S1AP-ID OPTIONAL,

eNB-UE-S1AP-ID ENB-UE-S1AP-ID OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { UE-associatedLogicalS1-ConnectionItemExtIEs} } OPTIONAL,

...

}

UE-associatedLogicalS1-ConnectionItemExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

UEIdentityIndexValue ::= BIT STRING (SIZE (10))

UE-HistoryInformation ::= SEQUENCE (SIZE(1..maxnoofCellsinUEHistoryInfo)) 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 [16]

UEPagingID ::= CHOICE {

s-TMSI S-TMSI,

iMSI IMSI,

...

}

UERadioCapability ::= OCTET STRING

UERadioCapabilityForPaging ::= OCTET STRING

UERadioCapabilityID ::= OCTET STRING

UE-RLF-Report-Container ::= OCTET STRING

-- This IE is a transparent container and shall be encoded as the rlf-Report-r9 field contained in the UEInformationResponse message as defined in TS 36.331 [16]

UE-RLF-Report-Container-for-extended-bands ::= OCTET STRING

-- This IE is a transparent container and shall be encoded as the rlf-Report-v9e0 contained in the UEInformationResponse message as defined in TS 36.331 [16]

UESecurityCapabilities ::= SEQUENCE {

encryptionAlgorithms EncryptionAlgorithms,

integrityProtectionAlgorithms IntegrityProtectionAlgorithms,

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

...

}

UESecurityCapabilities-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

UESidelinkAggregateMaximumBitrate ::= SEQUENCE {

uESidelinkAggregateMaximumBitRate BitRate,

iE-Extensions ProtocolExtensionContainer { {UE-Sidelink-Aggregate-MaximumBitrates-ExtIEs} } OPTIONAL,

...

}

UE-Sidelink-Aggregate-MaximumBitrates-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

UE-Usage-Type ::= INTEGER (0..255)

UL-CP-SecurityInformation ::= SEQUENCE {

ul-NAS-MAC UL-NAS-MAC,

ul-NAS-Count UL-NAS-Count,

iE-Extensions ProtocolExtensionContainer { { UL-CP-SecurityInformation-ExtIEs} } OPTIONAL,

...

}

UL-CP-SecurityInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

UL-NAS-MAC ::= BIT STRING (SIZE (16))

UL-NAS-Count ::= BIT STRING (SIZE (5))

UnlicensedSpectrumRestriction ::= ENUMERATED {

unlicensed-restricted,

...

}

URI-Address ::= VisibleString

UserLocationInformation ::= SEQUENCE {

eutran-cgi EUTRAN-CGI,

tai TAI,

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

...

}

UserLocationInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

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

...

}

UEUserPlaneCIoTSupportIndicator ::= ENUMERATED {

supported,

...

}

UserPlaneSecurityInformation ::= SEQUENCE {

securityResult SecurityResult,

securityIndication SecurityIndication,

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

...

}

UserPlaneSecurityInformation-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

UE-Application-Layer-Measurement-Capability ::= BIT STRING (SIZE (8))

-- First bit: QoE Measurement for streaming service

-- Second bit: QoE Measurement for MTSI service

-- Note that undefined bits are considered as a spare bit and spare bits shall be set to 0 by the transmitter and shall be ignored by the receiver.

-- V

VoiceSupportMatchIndicator ::= ENUMERATED {

supported,

not-supported,

...

}

V2XServicesAuthorized ::= SEQUENCE {

vehicleUE VehicleUE OPTIONAL,

pedestrianUE PedestrianUE OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {V2XServicesAuthorized-ExtIEs} } OPTIONAL,

...

}

V2XServicesAuthorized-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

VehicleUE ::= ENUMERATED {

authorized,

not-authorized,

...

}

PedestrianUE ::= ENUMERATED {

authorized,

not-authorized,

...

}

-- W

WarningAreaCoordinates ::= OCTET STRING (SIZE(1..1024))

WarningAreaList ::= CHOICE {

cellIDList ECGIList,

trackingAreaListforWarning TAIListforWarning,

emergencyAreaIDList EmergencyAreaIDList,

...

}

WarningType ::= OCTET STRING (SIZE (2))

WarningSecurityInfo ::= OCTET STRING (SIZE (50))

WarningMessageContents ::= OCTET STRING (SIZE(1..9600))

WLANMeasurementConfiguration ::= SEQUENCE {

wlanMeasConfig WLANMeasConfig,

wlanMeasConfigNameList WLANMeasConfigNameList OPTIONAL,

wlan-rssi ENUMERATED {true, ...} OPTIONAL,

wlan-rtt ENUMERATED {true, ...} OPTIONAL,

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

...

}

WLANMeasurementConfiguration-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

WLANMeasConfigNameList ::= SEQUENCE (SIZE(1..maxnoofWLANName)) OF WLANName

WLANMeasConfig::= ENUMERATED {setup,...}

WLANName ::= OCTET STRING (SIZE (1..32))

WUS-Assistance-Information ::= SEQUENCE {

pagingProbabilityInformation PagingProbabilityInformation,

iE-Extensions ProtocolExtensionContainer { { WUS-Assistance-Information-ExtIEs } } OPTIONAL,

...

}

WUS-Assistance-Information-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

-- X

X2TNLConfigurationInfo ::= SEQUENCE {

eNBX2TransportLayerAddresses ENBX2TLAs,

iE-Extensions ProtocolExtensionContainer { { X2TNLConfigurationInfo-ExtIEs} } OPTIONAL,

...

}

X2TNLConfigurationInfo-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

-- Extension for Release 10 to transfer the IPsec and U-plane addresses during ANR action --

{ID id-eNBX2ExtendedTransportLayerAddresses CRITICALITY ignore EXTENSION ENBX2ExtTLAs PRESENCE optional}|

-- Extension for Release 12 to transfer the IP addresses of the X2 GW --

{ID id-eNBIndirectX2TransportLayerAddresses CRITICALITY ignore EXTENSION ENBIndirectX2TransportLayerAddresses PRESENCE optional},

...

}

ENBX2ExtTLAs ::= SEQUENCE (SIZE(1.. maxnoofeNBX2ExtTLAs)) OF ENBX2ExtTLA

ENBX2ExtTLA ::= SEQUENCE {

iPsecTLA TransportLayerAddress OPTIONAL,

gTPTLAa ENBX2GTPTLAs OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { ENBX2ExtTLA-ExtIEs} } OPTIONAL,

...

}

ENBX2ExtTLA-ExtIEs S1AP-PROTOCOL-EXTENSION ::= {

...

}

ENBX2GTPTLAs ::= SEQUENCE (SIZE(1.. maxnoofeNBX2GTPTLAs)) OF TransportLayerAddress

ENBIndirectX2TransportLayerAddresses ::= SEQUENCE (SIZE(1..maxnoofeNBX2TLAs)) OF TransportLayerAddress

-- Y

-- Z

END

### 9.3.5 Common Definitions

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

--

-- Common definitions

--

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

S1AP-CommonDataTypes {

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

eps-Access (21) modules (3) s1ap (1) version1 (1) s1ap-CommonDataTypes (3) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

Criticality ::= ENUMERATED { reject, ignore, notify }

Presence ::= ENUMERATED { optional, conditional, mandatory }

PrivateIE-ID ::= CHOICE {

local INTEGER (0..65535),

global OBJECT IDENTIFIER

}

ProcedureCode ::= INTEGER (0..255)

ProtocolExtensionID ::= INTEGER (0..65535)

ProtocolIE-ID ::= INTEGER (0..65535)

TriggeringMessage ::= ENUMERATED { initiating-message, successful-outcome, unsuccessfull-outcome }

END

### 9.3.6 Constant Definitions

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

--

-- Constant definitions

--

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

S1AP-Constants {

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

eps-Access (21) modules (3) s1ap (1) version1 (1) s1ap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

--

-- IE parameter types from other modules.

--

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

IMPORTS

ProcedureCode,

ProtocolIE-ID

FROM S1AP-CommonDataTypes;

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

--

-- Elementary Procedures

--

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

id-HandoverPreparation ProcedureCode ::= 0

id-HandoverResourceAllocation ProcedureCode ::= 1

id-HandoverNotification ProcedureCode ::= 2

id-PathSwitchRequest ProcedureCode ::= 3

id-HandoverCancel ProcedureCode ::= 4

id-E-RABSetup ProcedureCode ::= 5

id-E-RABModify ProcedureCode ::= 6

id-E-RABRelease ProcedureCode ::= 7

id-E-RABReleaseIndication ProcedureCode ::= 8

id-InitialContextSetup ProcedureCode ::= 9

id-Paging ProcedureCode ::= 10

id-downlinkNASTransport ProcedureCode ::= 11

id-initialUEMessage ProcedureCode ::= 12

id-uplinkNASTransport ProcedureCode ::= 13

id-Reset ProcedureCode ::= 14

id-ErrorIndication ProcedureCode ::= 15

id-NASNonDeliveryIndication ProcedureCode ::= 16

id-S1Setup ProcedureCode ::= 17

id-UEContextReleaseRequest ProcedureCode ::= 18

id-DownlinkS1cdma2000tunnelling ProcedureCode ::= 19

id-UplinkS1cdma2000tunnelling ProcedureCode ::= 20

id-UEContextModification ProcedureCode ::= 21

id-UECapabilityInfoIndication ProcedureCode ::= 22

id-UEContextRelease ProcedureCode ::= 23

id-eNBStatusTransfer ProcedureCode ::= 24

id-MMEStatusTransfer ProcedureCode ::= 25

id-DeactivateTrace ProcedureCode ::= 26

id-TraceStart ProcedureCode ::= 27

id-TraceFailureIndication ProcedureCode ::= 28

id-ENBConfigurationUpdate ProcedureCode ::= 29

id-MMEConfigurationUpdate ProcedureCode ::= 30

id-LocationReportingControl ProcedureCode ::= 31

id-LocationReportingFailureIndication ProcedureCode ::= 32

id-LocationReport ProcedureCode ::= 33

id-OverloadStart ProcedureCode ::= 34

id-OverloadStop ProcedureCode ::= 35

id-WriteReplaceWarning ProcedureCode ::= 36

id-eNBDirectInformationTransfer ProcedureCode ::= 37

id-MMEDirectInformationTransfer ProcedureCode ::= 38

id-PrivateMessage ProcedureCode ::= 39

id-eNBConfigurationTransfer ProcedureCode ::= 40

id-MMEConfigurationTransfer ProcedureCode ::= 41

id-CellTrafficTrace ProcedureCode ::= 42

id-Kill ProcedureCode ::= 43

id-downlinkUEAssociatedLPPaTransport ProcedureCode ::= 44

id-uplinkUEAssociatedLPPaTransport ProcedureCode ::= 45

id-downlinkNonUEAssociatedLPPaTransport ProcedureCode ::= 46

id-uplinkNonUEAssociatedLPPaTransport ProcedureCode ::= 47

id-UERadioCapabilityMatch ProcedureCode ::= 48

id-PWSRestartIndication ProcedureCode ::= 49

id-E-RABModificationIndication ProcedureCode ::= 50

id-PWSFailureIndication ProcedureCode ::= 51

id-RerouteNASRequest ProcedureCode ::= 52

id-UEContextModificationIndication ProcedureCode ::= 53

id-ConnectionEstablishmentIndication ProcedureCode ::= 54

id-UEContextSuspend ProcedureCode ::= 55

id-UEContextResume ProcedureCode ::= 56

id-NASDeliveryIndication ProcedureCode ::= 57

id-RetrieveUEInformation ProcedureCode ::= 58

id-UEInformationTransfer ProcedureCode ::= 59

id-eNBCPRelocationIndication ProcedureCode ::= 60

id-MMECPRelocationIndication ProcedureCode ::= 61

id-SecondaryRATDataUsageReport ProcedureCode ::= 62

id-UERadioCapabilityIDMapping ProcedureCode ::= 63

id-HandoverSuccess ProcedureCode ::= 64

id-eNBEarlyStatusTransfer ProcedureCode ::= 65

id-MMEEarlyStatusTransfer ProcedureCode ::= 66

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

--

-- Extension constants

--

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

maxPrivateIEs INTEGER ::= 65535

maxProtocolExtensions INTEGER ::= 65535

maxProtocolIEs INTEGER ::= 65535

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

--

-- Lists

--

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

maxnoofCSGs INTEGER ::= 256

maxnoofE-RABs INTEGER ::= 256

maxnoofTAIs INTEGER ::= 256

maxnoofTACs INTEGER ::= 256

maxnoofErrors INTEGER ::= 256

maxnoofBPLMNs INTEGER ::= 6

maxnoofPLMNsPerMME INTEGER ::= 32

maxnoofEPLMNs INTEGER ::= 15

maxnoofEPLMNsPlusOne INTEGER ::= 16

maxnoofForbLACs INTEGER ::= 4096

maxnoofForbTACs INTEGER ::= 4096

maxnoofIndividualS1ConnectionsToReset INTEGER ::= 256

maxnoofCellsinUEHistoryInfo INTEGER ::= 16

maxnoofCellsineNB INTEGER ::= 256

maxnoofTAIforWarning INTEGER ::= 65535

maxnoofCellID INTEGER ::= 65535

maxnoofDCNs INTEGER ::= 32

maxnoofEmergencyAreaID INTEGER ::= 65535

maxnoofCellinTAI INTEGER ::= 65535

maxnoofCellinEAI INTEGER ::= 65535

maxnoofeNBX2TLAs INTEGER ::= 2

maxnoofeNBX2ExtTLAs INTEGER ::= 16

maxnoofeNBX2GTPTLAs INTEGER ::= 16

maxnoofRATs INTEGER ::= 8

maxnoofGroupIDs INTEGER ::= 65535

maxnoofMMECs INTEGER ::= 256

maxnoofCellIDforMDT INTEGER ::= 32

maxnoofTAforMDT INTEGER ::= 8

maxnoofMDTPLMNs INTEGER ::= 16

maxnoofCellsforRestart INTEGER ::= 256

maxnoofRestartTAIs INTEGER ::= 2048

maxnoofRestartEmergencyAreaIDs INTEGER ::= 256

maxEARFCN INTEGER ::= 262143

maxnoofMBSFNAreaMDT INTEGER ::= 8

maxnoofRecommendedCells INTEGER ::= 16

maxnoofRecommendedENBs INTEGER ::= 16

maxnooftimeperiods INTEGER ::= 2

maxnoofCellIDforQMC INTEGER ::= 32

maxnoofTAforQMC INTEGER ::= 8

maxnoofPLMNforQMC INTEGER ::= 16

maxnoofBluetoothName INTEGER ::= 4

maxnoofWLANName INTEGER ::= 4

maxnoofConnectedengNBs INTEGER ::= 256

maxnoofPC5QoSFlows INTEGER ::= 2048

maxnooffrequencies INTEGER ::= 64

maxNARFCN INTEGER ::= 32

maxRS-IndexCellQual INTEGER ::= 16

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

--

-- IEs

--

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

id-MME-UE-S1AP-ID ProtocolIE-ID ::= 0

id-HandoverType ProtocolIE-ID ::= 1

id-Cause ProtocolIE-ID ::= 2

id-SourceID ProtocolIE-ID ::= 3

id-TargetID ProtocolIE-ID ::= 4

id-eNB-UE-S1AP-ID ProtocolIE-ID ::= 8

id-E-RABSubjecttoDataForwardingList ProtocolIE-ID ::= 12

id-E-RABtoReleaseListHOCmd ProtocolIE-ID ::= 13

id-E-RABDataForwardingItem ProtocolIE-ID ::= 14

id-E-RABReleaseItemBearerRelComp ProtocolIE-ID ::= 15

id-E-RABToBeSetupListBearerSUReq ProtocolIE-ID ::= 16

id-E-RABToBeSetupItemBearerSUReq ProtocolIE-ID ::= 17

id-E-RABAdmittedList ProtocolIE-ID ::= 18

id-E-RABFailedToSetupListHOReqAck ProtocolIE-ID ::= 19

id-E-RABAdmittedItem ProtocolIE-ID ::= 20

id-E-RABFailedtoSetupItemHOReqAck ProtocolIE-ID ::= 21

id-E-RABToBeSwitchedDLList ProtocolIE-ID ::= 22

id-E-RABToBeSwitchedDLItem ProtocolIE-ID ::= 23

id-E-RABToBeSetupListCtxtSUReq ProtocolIE-ID ::= 24

id-TraceActivation ProtocolIE-ID ::= 25

id-NAS-PDU ProtocolIE-ID ::= 26

id-E-RABToBeSetupItemHOReq ProtocolIE-ID ::= 27

id-E-RABSetupListBearerSURes ProtocolIE-ID ::= 28

id-E-RABFailedToSetupListBearerSURes ProtocolIE-ID ::= 29

id-E-RABToBeModifiedListBearerModReq ProtocolIE-ID ::= 30

id-E-RABModifyListBearerModRes ProtocolIE-ID ::= 31

id-E-RABFailedToModifyList ProtocolIE-ID ::= 32

id-E-RABToBeReleasedList ProtocolIE-ID ::= 33

id-E-RABFailedToReleaseList ProtocolIE-ID ::= 34

id-E-RABItem ProtocolIE-ID ::= 35

id-E-RABToBeModifiedItemBearerModReq ProtocolIE-ID ::= 36

id-E-RABModifyItemBearerModRes ProtocolIE-ID ::= 37

id-E-RABReleaseItem ProtocolIE-ID ::= 38

id-E-RABSetupItemBearerSURes ProtocolIE-ID ::= 39

id-SecurityContext ProtocolIE-ID ::= 40

id-HandoverRestrictionList ProtocolIE-ID ::= 41

id-UEPagingID ProtocolIE-ID ::= 43

id-pagingDRX ProtocolIE-ID ::= 44

id-TAIList ProtocolIE-ID ::= 46

id-TAIItem ProtocolIE-ID ::= 47

id-E-RABFailedToSetupListCtxtSURes ProtocolIE-ID ::= 48

id-E-RABReleaseItemHOCmd ProtocolIE-ID ::= 49

id-E-RABSetupItemCtxtSURes ProtocolIE-ID ::= 50

id-E-RABSetupListCtxtSURes ProtocolIE-ID ::= 51

id-E-RABToBeSetupItemCtxtSUReq ProtocolIE-ID ::= 52

id-E-RABToBeSetupListHOReq ProtocolIE-ID ::= 53

id-GERANtoLTEHOInformationRes ProtocolIE-ID ::= 55

id-UTRANtoLTEHOInformationRes ProtocolIE-ID ::= 57

id-CriticalityDiagnostics ProtocolIE-ID ::= 58

id-Global-ENB-ID ProtocolIE-ID ::= 59

id-eNBname ProtocolIE-ID ::= 60

id-MMEname ProtocolIE-ID ::= 61

id-ServedPLMNs ProtocolIE-ID ::= 63

id-SupportedTAs ProtocolIE-ID ::= 64

id-TimeToWait ProtocolIE-ID ::= 65

id-uEaggregateMaximumBitrate ProtocolIE-ID ::= 66

id-TAI ProtocolIE-ID ::= 67

id-E-RABReleaseListBearerRelComp ProtocolIE-ID ::= 69

id-cdma2000PDU ProtocolIE-ID ::= 70

id-cdma2000RATType ProtocolIE-ID ::= 71

id-cdma2000SectorID ProtocolIE-ID ::= 72

id-SecurityKey ProtocolIE-ID ::= 73

id-UERadioCapability ProtocolIE-ID ::= 74

id-GUMMEI-ID ProtocolIE-ID ::= 75

id-E-RABInformationListItem ProtocolIE-ID ::= 78

id-Direct-Forwarding-Path-Availability ProtocolIE-ID ::= 79

id-UEIdentityIndexValue ProtocolIE-ID ::= 80

id-cdma2000HOStatus ProtocolIE-ID ::= 83

id-cdma2000HORequiredIndication ProtocolIE-ID ::= 84

id-E-UTRAN-Trace-ID ProtocolIE-ID ::= 86

id-RelativeMMECapacity ProtocolIE-ID ::= 87

id-SourceMME-UE-S1AP-ID ProtocolIE-ID ::= 88

id-Bearers-SubjectToStatusTransfer-Item ProtocolIE-ID ::= 89

id-eNB-StatusTransfer-TransparentContainer ProtocolIE-ID ::= 90

id-UE-associatedLogicalS1-ConnectionItem ProtocolIE-ID ::= 91

id-ResetType ProtocolIE-ID ::= 92

id-UE-associatedLogicalS1-ConnectionListResAck ProtocolIE-ID ::= 93

id-E-RABToBeSwitchedULItem ProtocolIE-ID ::= 94

id-E-RABToBeSwitchedULList ProtocolIE-ID ::= 95

id-S-TMSI ProtocolIE-ID ::= 96

id-cdma2000OneXRAND ProtocolIE-ID ::= 97

id-RequestType ProtocolIE-ID ::= 98

id-UE-S1AP-IDs ProtocolIE-ID ::= 99

id-EUTRAN-CGI ProtocolIE-ID ::= 100

id-OverloadResponse ProtocolIE-ID ::= 101

id-cdma2000OneXSRVCCInfo ProtocolIE-ID ::= 102

id-E-RABFailedToBeReleasedList ProtocolIE-ID ::= 103

id-Source-ToTarget-TransparentContainer ProtocolIE-ID ::= 104

id-ServedGUMMEIs ProtocolIE-ID ::= 105

id-SubscriberProfileIDforRFP ProtocolIE-ID ::= 106

id-UESecurityCapabilities ProtocolIE-ID ::= 107

id-CSFallbackIndicator ProtocolIE-ID ::= 108

id-CNDomain ProtocolIE-ID ::= 109

id-E-RABReleasedList ProtocolIE-ID ::= 110

id-MessageIdentifier ProtocolIE-ID ::= 111

id-SerialNumber ProtocolIE-ID ::= 112

id-WarningAreaList ProtocolIE-ID ::= 113

id-RepetitionPeriod ProtocolIE-ID ::= 114

id-NumberofBroadcastRequest ProtocolIE-ID ::= 115

id-WarningType ProtocolIE-ID ::= 116

id-WarningSecurityInfo ProtocolIE-ID ::= 117

id-DataCodingScheme ProtocolIE-ID ::= 118

id-WarningMessageContents ProtocolIE-ID ::= 119

id-BroadcastCompletedAreaList ProtocolIE-ID ::= 120

id-Inter-SystemInformationTransferTypeEDT ProtocolIE-ID ::= 121

id-Inter-SystemInformationTransferTypeMDT ProtocolIE-ID ::= 122

id-Target-ToSource-TransparentContainer ProtocolIE-ID ::= 123

id-SRVCCOperationPossible ProtocolIE-ID ::= 124

id-SRVCCHOIndication ProtocolIE-ID ::= 125

id-NAS-DownlinkCount ProtocolIE-ID ::= 126

id-CSG-Id ProtocolIE-ID ::= 127

id-CSG-IdList ProtocolIE-ID ::= 128

id-SONConfigurationTransferECT ProtocolIE-ID ::= 129

id-SONConfigurationTransferMCT ProtocolIE-ID ::= 130

id-TraceCollectionEntityIPAddress ProtocolIE-ID ::= 131

id-MSClassmark2 ProtocolIE-ID ::= 132

id-MSClassmark3 ProtocolIE-ID ::= 133

id-RRC-Establishment-Cause ProtocolIE-ID ::= 134

id-NASSecurityParametersfromE-UTRAN ProtocolIE-ID ::= 135

id-NASSecurityParameterstoE-UTRAN ProtocolIE-ID ::= 136

id-DefaultPagingDRX ProtocolIE-ID ::= 137

id-Source-ToTarget-TransparentContainer-Secondary ProtocolIE-ID ::= 138

id-Target-ToSource-TransparentContainer-Secondary ProtocolIE-ID ::= 139

id-EUTRANRoundTripDelayEstimationInfo ProtocolIE-ID ::= 140

id-BroadcastCancelledAreaList ProtocolIE-ID ::= 141

id-ConcurrentWarningMessageIndicator ProtocolIE-ID ::= 142

id-Data-Forwarding-Not-Possible ProtocolIE-ID ::= 143

id-ExtendedRepetitionPeriod ProtocolIE-ID ::= 144

id-CellAccessMode ProtocolIE-ID ::= 145

id-CSGMembershipStatus ProtocolIE-ID ::= 146

id-LPPa-PDU ProtocolIE-ID ::= 147

id-Routing-ID ProtocolIE-ID ::= 148

id-Time-Synchronisation-Info ProtocolIE-ID ::= 149

id-PS-ServiceNotAvailable ProtocolIE-ID ::= 150

id-PagingPriority ProtocolIE-ID ::= 151

id-x2TNLConfigurationInfo ProtocolIE-ID ::= 152

id-eNBX2ExtendedTransportLayerAddresses ProtocolIE-ID ::= 153

id-GUMMEIList ProtocolIE-ID ::= 154

id-GW-TransportLayerAddress ProtocolIE-ID ::= 155

id-Correlation-ID ProtocolIE-ID ::= 156

id-SourceMME-GUMMEI ProtocolIE-ID ::= 157

id-MME-UE-S1AP-ID-2 ProtocolIE-ID ::= 158

id-RegisteredLAI ProtocolIE-ID ::= 159

id-RelayNode-Indicator ProtocolIE-ID ::= 160

id-TrafficLoadReductionIndication ProtocolIE-ID ::= 161

id-MDTConfiguration ProtocolIE-ID ::= 162

id-MMERelaySupportIndicator ProtocolIE-ID ::= 163

id-GWContextReleaseIndication ProtocolIE-ID ::= 164

id-ManagementBasedMDTAllowed ProtocolIE-ID ::= 165

id-PrivacyIndicator ProtocolIE-ID ::= 166

id-Time-UE-StayedInCell-EnhancedGranularity ProtocolIE-ID ::= 167

id-HO-Cause ProtocolIE-ID ::= 168

id-VoiceSupportMatchIndicator ProtocolIE-ID ::= 169

id-GUMMEIType ProtocolIE-ID ::= 170

id-M3Configuration ProtocolIE-ID ::= 171

id-M4Configuration ProtocolIE-ID ::= 172

id-M5Configuration ProtocolIE-ID ::= 173

id-MDT-Location-Info ProtocolIE-ID ::= 174

id-MobilityInformation ProtocolIE-ID ::= 175

id-Tunnel-Information-for-BBF ProtocolIE-ID ::= 176

id-ManagementBasedMDTPLMNList ProtocolIE-ID ::= 177

id-SignallingBasedMDTPLMNList ProtocolIE-ID ::= 178

id-ULCOUNTValueExtended ProtocolIE-ID ::= 179

id-DLCOUNTValueExtended ProtocolIE-ID ::= 180

id-ReceiveStatusOfULPDCPSDUsExtended ProtocolIE-ID ::= 181

id-ECGIListForRestart ProtocolIE-ID ::= 182

id-SIPTO-Correlation-ID ProtocolIE-ID ::= 183

id-SIPTO-L-GW-TransportLayerAddress ProtocolIE-ID ::= 184

id-TransportInformation ProtocolIE-ID ::= 185

id-LHN-ID ProtocolIE-ID ::= 186

id-AdditionalCSFallbackIndicator ProtocolIE-ID ::= 187

id-TAIListForRestart ProtocolIE-ID ::= 188

id-UserLocationInformation ProtocolIE-ID ::= 189

id-EmergencyAreaIDListForRestart ProtocolIE-ID ::= 190

id-KillAllWarningMessages ProtocolIE-ID ::= 191

id-Masked-IMEISV ProtocolIE-ID ::= 192

id-eNBIndirectX2TransportLayerAddresses ProtocolIE-ID ::= 193

id-uE-HistoryInformationFromTheUE ProtocolIE-ID ::= 194

id-ProSeAuthorized ProtocolIE-ID ::= 195

id-ExpectedUEBehaviour ProtocolIE-ID ::= 196

id-LoggedMBSFNMDT ProtocolIE-ID ::= 197

id-UERadioCapabilityForPaging ProtocolIE-ID ::= 198

id-E-RABToBeModifiedListBearerModInd ProtocolIE-ID ::= 199

id-E-RABToBeModifiedItemBearerModInd ProtocolIE-ID ::= 200

id-E-RABNotToBeModifiedListBearerModInd ProtocolIE-ID ::= 201

id-E-RABNotToBeModifiedItemBearerModInd ProtocolIE-ID ::= 202

id-E-RABModifyListBearerModConf ProtocolIE-ID ::= 203

id-E-RABModifyItemBearerModConf ProtocolIE-ID ::= 204

id-E-RABFailedToModifyListBearerModConf ProtocolIE-ID ::= 205

id-SON-Information-Report ProtocolIE-ID ::= 206

id-Muting-Availability-Indication ProtocolIE-ID ::= 207

id-Muting-Pattern-Information ProtocolIE-ID ::= 208

id-Synchronisation-Information ProtocolIE-ID ::= 209

id-E-RABToBeReleasedListBearerModConf ProtocolIE-ID ::= 210

id-AssistanceDataForPaging ProtocolIE-ID ::= 211

id-CellIdentifierAndCELevelForCECapableUEs ProtocolIE-ID ::= 212

id-InformationOnRecommendedCellsAndENBsForPaging ProtocolIE-ID ::= 213

id-RecommendedCellItem ProtocolIE-ID ::= 214

id-RecommendedENBItem ProtocolIE-ID ::= 215

id-ProSeUEtoNetworkRelaying ProtocolIE-ID ::= 216

id-ULCOUNTValuePDCP-SNlength18 ProtocolIE-ID ::= 217

id-DLCOUNTValuePDCP-SNlength18 ProtocolIE-ID ::= 218

id-ReceiveStatusOfULPDCPSDUsPDCP-SNlength18 ProtocolIE-ID ::= 219

id-M6Configuration ProtocolIE-ID ::= 220

id-M7Configuration ProtocolIE-ID ::= 221

id-PWSfailedECGIList ProtocolIE-ID ::= 222

id-MME-Group-ID ProtocolIE-ID ::= 223

id-Additional-GUTI ProtocolIE-ID ::= 224

id-S1-Message ProtocolIE-ID ::= 225

id-CSGMembershipInfo ProtocolIE-ID ::= 226

id-Paging-eDRXInformation ProtocolIE-ID ::= 227

id-UE-RetentionInformation ProtocolIE-ID ::= 228

id-UE-Usage-Type ProtocolIE-ID ::= 230

id-extended-UEIdentityIndexValue ProtocolIE-ID ::= 231

id-RAT-Type ProtocolIE-ID ::= 232

id-BearerType ProtocolIE-ID ::= 233

id-NB-IoT-DefaultPagingDRX ProtocolIE-ID ::= 234

id-E-RABFailedToResumeListResumeReq ProtocolIE-ID ::= 235

id-E-RABFailedToResumeItemResumeReq ProtocolIE-ID ::= 236

id-E-RABFailedToResumeListResumeRes ProtocolIE-ID ::= 237

id-E-RABFailedToResumeItemResumeRes ProtocolIE-ID ::= 238

id-NB-IoT-Paging-eDRXInformation ProtocolIE-ID ::= 239

id-V2XServicesAuthorized ProtocolIE-ID ::= 240

id-UEUserPlaneCIoTSupportIndicator ProtocolIE-ID ::= 241

id-CE-mode-B-SupportIndicator ProtocolIE-ID ::= 242

id-SRVCCOperationNotPossible ProtocolIE-ID ::= 243

id-NB-IoT-UEIdentityIndexValue ProtocolIE-ID ::= 244

id-RRC-Resume-Cause ProtocolIE-ID ::= 245

id-DCN-ID ProtocolIE-ID ::= 246

id-ServedDCNs ProtocolIE-ID ::= 247

id-UESidelinkAggregateMaximumBitrate ProtocolIE-ID ::= 248

id-DLNASPDUDeliveryAckRequest ProtocolIE-ID ::= 249

id-Coverage-Level ProtocolIE-ID ::= 250

id-EnhancedCoverageRestricted ProtocolIE-ID ::= 251

id-UE-Level-QoS-Parameters ProtocolIE-ID ::= 252

id-DL-CP-SecurityInformation ProtocolIE-ID ::= 253

id-UL-CP-SecurityInformation ProtocolIE-ID ::= 254

id-extended-e-RAB-MaximumBitrateDL ProtocolIE-ID ::= 255

id-extended-e-RAB-MaximumBitrateUL ProtocolIE-ID ::= 256

id-extended-e-RAB-GuaranteedBitrateDL ProtocolIE-ID ::= 257

id-extended-e-RAB-GuaranteedBitrateUL ProtocolIE-ID ::= 258

id-extended-uEaggregateMaximumBitRateDL ProtocolIE-ID ::= 259

id-extended-uEaggregateMaximumBitRateUL ProtocolIE-ID ::= 260

id-NRrestrictioninEPSasSecondaryRAT ProtocolIE-ID ::= 261

id-UEAppLayerMeasConfig ProtocolIE-ID ::= 262

id-UE-Application-Layer-Measurement-Capability ProtocolIE-ID ::= 263

id-SecondaryRATDataUsageReportList ProtocolIE-ID ::= 264

id-SecondaryRATDataUsageReportItem ProtocolIE-ID ::= 265

id-HandoverFlag ProtocolIE-ID ::= 266

id-E-RABUsageReportItem ProtocolIE-ID ::= 267

id-SecondaryRATDataUsageRequest ProtocolIE-ID ::= 268

id-NRUESecurityCapabilities ProtocolIE-ID ::= 269

id-UnlicensedSpectrumRestriction ProtocolIE-ID ::= 270

id-CE-ModeBRestricted ProtocolIE-ID ::= 271

id-LTE-M-Indication ProtocolIE-ID ::= 272

id-DownlinkPacketLossRate ProtocolIE-ID ::= 273

id-UplinkPacketLossRate ProtocolIE-ID ::= 274

id-UECapabilityInfoRequest ProtocolIE-ID ::= 275

id-serviceType ProtocolIE-ID ::= 276

id-AerialUEsubscriptionInformation ProtocolIE-ID ::= 277

id-Subscription-Based-UE-DifferentiationInfo ProtocolIE-ID ::= 278

id-EndIndication ProtocolIE-ID ::= 280

id-EDT-Session ProtocolIE-ID ::= 281

id-CNTypeRestrictions ProtocolIE-ID ::= 282

id-PendingDataIndication ProtocolIE-ID ::= 283

id-BluetoothMeasurementConfiguration ProtocolIE-ID ::= 284

id-WLANMeasurementConfiguration ProtocolIE-ID ::= 285

id-WarningAreaCoordinates ProtocolIE-ID ::= 286

id-NRrestrictionin5GS ProtocolIE-ID ::= 287

id-PSCellInformation ProtocolIE-ID ::= 288

id-LastNG-RANPLMNIdentity ProtocolIE-ID ::= 290

id-ConnectedengNBList ProtocolIE-ID ::= 291

id-ConnectedengNBToAddList ProtocolIE-ID ::= 292

id-ConnectedengNBToRemoveList ProtocolIE-ID ::= 293

id-EN-DCSONConfigurationTransfer-ECT ProtocolIE-ID ::= 294

id-EN-DCSONConfigurationTransfer-MCT ProtocolIE-ID ::= 295

id-IMSvoiceEPSfallbackfrom5G ProtocolIE-ID ::= 296

id-TimeSinceSecondaryNodeRelease ProtocolIE-ID ::= 297

id-RequestTypeAdditionalInfo ProtocolIE-ID ::= 298

id-AdditionalRRMPriorityIndex ProtocolIE-ID ::= 299

id-ContextatSource ProtocolIE-ID ::= 300

id-IAB-Authorized ProtocolIE-ID ::= 301

id-IAB-Node-Indication ProtocolIE-ID ::= 302

id-IAB-Supported ProtocolIE-ID ::= 303

id-DataSize ProtocolIE-ID ::= 304

id-Ethernet-Type ProtocolIE-ID ::= 305

id-NRV2XServicesAuthorized ProtocolIE-ID ::= 306

id-NRUESidelinkAggregateMaximumBitrate ProtocolIE-ID ::= 307

id-PC5QoSParameters ProtocolIE-ID ::= 308

id-IntersystemSONConfigurationTransferMCT ProtocolIE-ID ::= 309

id-IntersystemSONConfigurationTransferECT ProtocolIE-ID ::= 310

id-IntersystemMeasurementConfiguration ProtocolIE-ID ::= 311

id-SourceNodeID ProtocolIE-ID ::= 312

id-NB-IoT-RLF-Report-Container ProtocolIE-ID ::= 313

id-UERadioCapabilityID ProtocolIE-ID ::= 314

id-UERadioCapability-NR-Format ProtocolIE-ID ::= 315

id-MDTConfigurationNR ProtocolIE-ID ::= 316

id-DAPSRequestInfo ProtocolIE-ID ::= 317

id-DAPSResponseInfoList ProtocolIE-ID ::= 318

id-DAPSResponseInfoItem ProtocolIE-ID ::= 319

id-NotifySourceeNB ProtocolIE-ID ::= 320

id-eNB-EarlyStatusTransfer-TransparentContainer ProtocolIE-ID ::= 321

id-Bearers-SubjectToEarlyStatusTransfer-Item ProtocolIE-ID ::= 322

id-WUS-Assistance-Information ProtocolIE-ID ::= 323

id-NB-IoT-PagingDRX ProtocolIE-ID ::= 324

id-TraceCollectionEntityURI ProtocolIE-ID ::= 325

id-EmergencyIndicator ProtocolIE-ID ::= 326

id-SecurityIndication ProtocolIE-ID ::= 327

id-SecurityResult ProtocolIE-ID ::= 328

id-UserPlaneSecurityInformation ProtocolIE-ID ::= 329

END

### 9.3.7 Container Definitions

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

--

-- Container definitions

--

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

S1AP-Containers {

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

eps-Access (21) modules (3) s1ap (1) version1 (1) s1ap-Containers (5) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

--

-- IE parameter types from other modules.

--

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

IMPORTS

Criticality,

Presence,

PrivateIE-ID,

ProtocolExtensionID,

ProtocolIE-ID

FROM S1AP-CommonDataTypes

maxPrivateIEs,

maxProtocolExtensions,

maxProtocolIEs

FROM S1AP-Constants;

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

--

-- Class Definition for Protocol IEs

--

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

S1AP-PROTOCOL-IES ::= CLASS {

&id ProtocolIE-ID UNIQUE,

&criticality Criticality,

&Value,

&presence Presence

}

WITH SYNTAX {

ID &id

CRITICALITY &criticality

TYPE &Value

PRESENCE &presence

}

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

--

-- Class Definition for Protocol IEs

--

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

S1AP-PROTOCOL-IES-PAIR ::= CLASS {

&id ProtocolIE-ID UNIQUE,

&firstCriticality Criticality,

&FirstValue,

&secondCriticality Criticality,

&SecondValue,

&presence Presence

}

WITH SYNTAX {

ID &id

FIRST CRITICALITY &firstCriticality

FIRST TYPE &FirstValue

SECOND CRITICALITY &secondCriticality

SECOND TYPE &SecondValue

PRESENCE &presence

}

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

--

-- Class Definition for Protocol Extensions

--

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

S1AP-PROTOCOL-EXTENSION ::= CLASS {

&id ProtocolExtensionID UNIQUE,

&criticality Criticality,

&Extension,

&presence Presence

}

WITH SYNTAX {

ID &id

CRITICALITY &criticality

EXTENSION &Extension

PRESENCE &presence

}

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

--

-- Class Definition for Private IEs

--

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

S1AP-PRIVATE-IES ::= CLASS {

&id PrivateIE-ID,

&criticality Criticality,

&Value,

&presence Presence

}

WITH SYNTAX {

ID &id

CRITICALITY &criticality

TYPE &Value

PRESENCE &presence

}

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

--

-- Container for Protocol IEs

--

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

ProtocolIE-Container {S1AP-PROTOCOL-IES : IEsSetParam} ::=

SEQUENCE (SIZE (0..maxProtocolIEs)) OF

ProtocolIE-Field {{IEsSetParam}}

ProtocolIE-SingleContainer {S1AP-PROTOCOL-IES : IEsSetParam} ::=

ProtocolIE-Field {{IEsSetParam}}

ProtocolIE-Field {S1AP-PROTOCOL-IES : IEsSetParam} ::= SEQUENCE {

id S1AP-PROTOCOL-IES.&id ({IEsSetParam}),

criticality S1AP-PROTOCOL-IES.&criticality ({IEsSetParam}{@id}),

value S1AP-PROTOCOL-IES.&Value ({IEsSetParam}{@id})

}

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

--

-- Container for Protocol IE Pairs

--

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

ProtocolIE-ContainerPair {S1AP-PROTOCOL-IES-PAIR : IEsSetParam} ::=

SEQUENCE (SIZE (0..maxProtocolIEs)) OF

ProtocolIE-FieldPair {{IEsSetParam}}

ProtocolIE-FieldPair {S1AP-PROTOCOL-IES-PAIR : IEsSetParam} ::= SEQUENCE {

id S1AP-PROTOCOL-IES-PAIR.&id ({IEsSetParam}),

firstCriticality S1AP-PROTOCOL-IES-PAIR.&firstCriticality ({IEsSetParam}{@id}),

firstValue S1AP-PROTOCOL-IES-PAIR.&FirstValue ({IEsSetParam}{@id}),

secondCriticality S1AP-PROTOCOL-IES-PAIR.&secondCriticality ({IEsSetParam}{@id}),

secondValue S1AP-PROTOCOL-IES-PAIR.&SecondValue ({IEsSetParam}{@id})

}

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

--

-- Container Lists for Protocol IE Containers

--

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

ProtocolIE-ContainerList {INTEGER : lowerBound, INTEGER : upperBound, S1AP-PROTOCOL-IES : IEsSetParam} ::=

SEQUENCE (SIZE (lowerBound..upperBound)) OF

ProtocolIE-SingleContainer {{IEsSetParam}}

ProtocolIE-ContainerPairList {INTEGER : lowerBound, INTEGER : upperBound, S1AP-PROTOCOL-IES-PAIR : IEsSetParam} ::=

SEQUENCE (SIZE (lowerBound..upperBound)) OF

ProtocolIE-ContainerPair {{IEsSetParam}}

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

--

-- Container for Protocol Extensions

--

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

ProtocolExtensionContainer {S1AP-PROTOCOL-EXTENSION : ExtensionSetParam} ::=

SEQUENCE (SIZE (1..maxProtocolExtensions)) OF

ProtocolExtensionField {{ExtensionSetParam}}

ProtocolExtensionField {S1AP-PROTOCOL-EXTENSION : ExtensionSetParam} ::= SEQUENCE {

id S1AP-PROTOCOL-EXTENSION.&id ({ExtensionSetParam}),

criticality S1AP-PROTOCOL-EXTENSION.&criticality ({ExtensionSetParam}{@id}),

extensionValue S1AP-PROTOCOL-EXTENSION.&Extension ({ExtensionSetParam}{@id})

}

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

--

-- Container for Private IEs

--

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

PrivateIE-Container {S1AP-PRIVATE-IES : IEsSetParam } ::=

SEQUENCE (SIZE (1.. maxPrivateIEs)) OF

PrivateIE-Field {{IEsSetParam}}

PrivateIE-Field {S1AP-PRIVATE-IES : IEsSetParam} ::= SEQUENCE {

id S1AP-PRIVATE-IES.&id ({IEsSetParam}),

criticality S1AP-PRIVATE-IES.&criticality ({IEsSetParam}{@id}),

value S1AP-PRIVATE-IES.&Value ({IEsSetParam}{@id})

}

END