**3GPP TSG-RAN3 Meeting #108-e**  ***R3-204425***

**E-meeting, 1-11 June, 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **36.413** | **CR** | **1710** | **rev** | **10** | **Current version:** | **16.1.0** |  |
|  | | | | | | | | |
| *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:*** | Addition of SON features | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, CMCC, ZTE, Nokia, Nokia Shanghai Bell，CATT, Samsung, Ericsson, Qualcomm Incorporated, LG Electronics, NTT DOCOMO | | | | | | | | | |
| ***Source to TSG:*** | RAN3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_SON\_MDT | | | | |  | ***Date:*** | | | 2020-06-18 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories 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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Addition of SON features | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Addition of *Inter-system SON Configuration Transfer* IE to the eNB/MME CONFIGURATION TRANSFER  Addition of the Inter System Measurement Configuration in Source eNB to Target eNB Transparent Container | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | SON features not supported | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 8.4.2.2, 8.15.2.1, 8.16.2.1, 9.1.16, 9.1.17, 9.2.1.x1, 9.2.1.x2, 9.3.3, 9.3.4, 9.3.6 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **x** |  | Other core specifications | | | | TS 36.300 CR  TS 36.423 CR 1373  TS 38.300 CR  TS 38.401 CR 0116  TS 38.413 CR 0237  TS 38.420 CR 0019  TS 38.423 CR 0221  TS 38.460 CR 0031  TS 38.463 CR 0142  TS 38.470 CR 0064  TS 38.473 CR 0441 | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev1: Editorial update and added an FFS on scenario of an RLF report generated by NG-RAN RRC being sent from E-UTRAN to NG-RAN.  Rev2: resubmitted to RAN3#105b  Rev3: includes the agreed TP in R3-196156  Rev4: Resubmitted to RAN3#106  Rev5: includes the agreed TP in R3-197762  Rev6: Resubmitted to RAN3#107e  Rev7: includes the agreed TP in R3-201414 and some editorial corrections  Rev8: Updated towards latest spec version  Rev9: Resubmitted to RAN3#108e. Editorial: align with 38.413, using true/false instead of yes/no  Rev10: includes the agreed TP in R3-203233, R3-204105, Editorial | | | | | | | | |

*Start of the first change*

# 2 References

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

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

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

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

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

[2] 3GPP TS 36.401: "E-UTRAN Architecture Description".

[3] 3GPP TS 36.410: "S1 General Aspects and Principles".

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

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

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

[7] Void

[8] 3GPP TS 23.402: "Architecture enhancements for non-3GPP accesses".

[9] 3GPP TS 23.216: "Single Radio Voice Call Continuity (SRVCC)".

[10] 3GPP TS 32.422: "Trace control and configuration management".

[11] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for E-UTRAN access".

[12] 3GPP TS 36.414: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 data transport".

[13] 3GPP TS 23.203: "Policy and charging control architecture"

[14] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA), Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2".

[15] 3GPP TS 33.401: "Security architecture".

[16] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRAN); Radio Resource Control (RRC) Protocol Specification".

[17] 3GPP TS 23.272: "Circuit Switched Fallback in Evolved Packet System; Stage 2".

[18] 3GPP TS 48.018: "General Packet Radio Service (GPRS); BSS GPRS Protocol (BSSGP)".

[19] 3GPP TS 25.413: "UTRAN Iu interface RANAP signalling".

[20] 3GPP TS 36.304: "Evolved Universal Terrestrial Radio Access (E-UTRA), User Equipment (UE) procedures in idle mode".

[21] 3GPP TS 23.003: "Technical Specification Group Core Network and Terminals; Numbering, addressing and identification".

[22] 3GPP TS 36.423: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); X2 Application Protocol (X2AP)".

[23] 3GPP TS 48.008: "Mobile Switching Centre-Base Station System (MSC-BSS) interface; Layer 3 specification".

[24] 3GPP TS 24.301: "Non-Access Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3".

[25] 3GPP2 A.S0008-C: "Interoperability Specification (IOS) for High Rate Packet Data (HRPD) Radio Access Network Interfaces with Session Control in the Access Network".

[26] 3GPP TS 36.213: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures".

[27] 3GPP2 C.S0024-B: "cdma2000 High Rate Packet Data Air Interface Specification".

[28] 3GPP TS 22.220: "Service requirements for Home Node Bs and Home eNode Bs".

[29] 3GPP TS 23.041: "Technical realization of Cell Broadcast Service (CBS)".

[30] 3GPP TS 48.016: "General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN) interface; Network service".

[31] 3GPP TS 37.320: "Universal Terrestrial Radio Access (UTRA) and Evolved Universal Terrestrial Radio Access (E-UTRA); Radio measurement collection for Minimization of Drive Tests (MDT);Overall description; Stage 2".

[32] 3GPP TS 29.281: "General Packet Radio Service (GPRS); Tunnelling Protocol User Plane (GTPv1-U)".

[33] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core network protocols; Stage 3".

[34] 3GPP TS 36.455: "Evolved Universal Terrestrial Radio Access (E-UTRA); LTE Positioning Protocol A (LPPa)".

[35] 3GPP TS 29.060: "GPRS Tunnelling Protocol (GTP) across the Gn and Gp interface".

[36] 3GPP TS 29.274: "Evolved Packet System (EPS); Evolved General Packet Radio Service (GPRS) Tunnelling Protocol for Control plane (GTPv2-C); Stage 3".

[37] 3GPP TS 23.139: "3GPP system – fixed broadband access network interworking".

[38] 3GPP TS 23.007: "Technical Specification Group Core Network Terminals; Restoration procedures".

[39] 3GPP TS 36.104: "Base Station (BS) radio transmission and reception".

[40] 3GPP TR 25.921 (version.7.0.0): "Guidelines and principles for protocol description and error handling".

[41] 3GPP TS 36.306: "User Equipment (UE) radio access capabilities".

[42] IETF RFC 5905 (2010-06): "Network Time Protocol Version 4: Protocol and Algorithms Specification".

[43] 3GPP TS 26.247: "Transparent end-to-end Packet-switched Streaming Service (PSS); Progressive Download and Dynamic Adaptive Streaming over HTTP (3GP-DASH)".

[44] 3GPP TS 38.413: "NG Radio Access Network (NG-RAN); NG Application Protocol (NGAP)".

[45] 3GPP TS 38.300: "NR; Overall description; Stage-2".

[46] 3GPP TS 23.501: "System Architecture for the 5G System".

[47] 3GPP TS 37.340: "NR; Multi-connectivity; Overall description; Stage-2".

[r1] 3GPP TS 38.331: "NR; Radio Resource Control (RRC); Protocol specification".

*Start of the 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

The MME initiates the procedure by sending the HANDOVER REQUEST message to the target eNB. The HANDOVER REQUEST message may contain the *Handover Restriction List* IE, which contains roaming or access restrictions.

If the *Handover Restriction List* IE is contained in the HANDOVER REQUEST message, the target eNB shall store this information in the UE context. This information shall however not be considered whenever one of the handed over E-RABs has a particular ARP value (TS 23.401 [11]).

The target eNB shall use the information in *Handover Restriction List* IE if present in the HANDOVER REQUEST message to

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

- select a proper SCG during dual connectivity operation.

If the *Handover Restriction List* IE is not contained in the HANDOVER REQUEST message, the target eNB shall consider that no roaming and no access restriction apply to the UE.

Upon reception of the HANDOVER REQUEST message the eNB shall store the received *UE Security Capabilities* IE in the UE context and use it to prepare the configuration of the AS security relation with the UE.

If the *SRVCC Operation Possible* IE is included in the HANDOVER REQUEST message, the target eNB shall store the content of the received *SRVCC Operation Possible* IE in the UE context and, if supported, use it as defined in TS 23.216 [9].

Upon reception of the HANDOVER REQUEST message the eNB shall store the received *Security Context* IE in the UE context and the eNB shall use it to derive the security configuration as specified in TS 33.401 [15].

If the *Trace Activation* IE is included in the HANDOVER REQUEST message, the target eNB shall if supported, initiate the requested trace function as described in TS 32.422 [10]. In particular, the eNB shall, if supported:

- if the *Trace Activation* IE does not include the *MDT Configuration* IE, initiate the requested trace session as described in TS 32.422 [10];

- if the *Trace Activation* IE includes the *MDT Activation* IE, within the *MDT Configuration* IE, set to “Immediate MDT and Trace”, initiate the requested trace session and MDT session as described in TS 32.422 [10];

- if the *Trace Activation* IE includes the *MDT Activation* IE, within the *MDT Configuration* IE, set to “Immediate MDT Only”, “Logged MDT only” or “Logged MBSFN MDT”, initiate the requested MDT session as described in TS 32.422 [10] and the target eNB shall ignore *Interfaces To Trace* IE, and *Trace Depth* IE.

- if the *Trace Activation* IE includes the *MDT Location Information* IE, within the *MDT Configuration* IE, store this information and take it into account in the requested MDT session.

- if the *Trace Activation* IE includes the *Signalling based MDT PLMN List* IE, within the *MDT Configuration* IE, the eNB may use it to propagate the MDT Configuration as described in TS 37.320 [31].

- if the *Trace Activation* IE includes the *MBSFN-ResultToLog* IE, within the *MDT Configuration* IE, take it into account for MDT Configuration as described in TS 37.320 [31].

- if the *Trace Activation* IE includes the *MBSFN-AreaId* IE in the *MBSFN-ResultToLog* IE, within the *MDT Configuration* IE, take it into account for MDT Configuration as described in TS 37.320 [31].

- if the *Trace Activation* IE includes the *UE Application layer measurement configuration* IE, initiate the requested trace session and QoE Measurement Collection function as described in TS 36.300 [14].

- if the *Trace Activation* IE includes the *Bluetooth Measurement Configuration* IE, within the *MDT Configuration* IE, take it into account for MDT Configuration as described in TS 37.320 [31].

- if the *Trace Activation* IE includes the *WLAN Measurement Configuration* IE, within the *MDT Configuration* IE, take it into account for MDT Configuration as described in TS 37.320 [31].

If the *CSG Id* IE is received in the HANDOVER REQUEST message, the eNB shall compare the received value with the CSG Id broadcast by the target cell.

If the *CSG Membership Status* IE is received in the HANDOVER REQUEST message and the *CSG Membership Status* is set to “member”, the eNB may provide the QoS to the UE as for member provided that the CSG Id received in the HANDOVER REQUEST messages corresponds to the CSG Id broadcast by the target cell.

If the *CSG Membership Status* IE and the *CSG Id* IE are received in the HANDOVER REQUEST message and the CSG Id does not correspond to the CSG Id broadcast by the target cell, the eNB may provide the QoS to the UE as for a non member and shall send back in the HANDOVER REQUEST ACKNOWLEDGE message the actual CSG Id broadcast by the target cell.

If the target cell is CSG cell or hybrid cell, the target eNB shall include the *CSG ID* IE in the HANDOVER REQUEST ACKNOWLEDGE message.

If the target eNB receives the *CSG Id* IE and the *CSG Membership Status* IE is set to “non member” in the HANDOVER REQUEST message and the target cell is a closed cell and at least one of the E-RABs has a particular ARP value (see TS 23.401 [11]), the eNB shall send back the HANDOVER REQUEST ACKNOWLEDGE message to the MME accepting those E-RABs and failing the other E-RABs.

If the *Subscriber Profile ID* *for RAT/Frequency priority* IE is contained in the *Source eNB to Target eNB Transparent Container* IE, the target eNB shall store the content of the received *Subscriber Profile ID for RAT/Frequency priority* IE in the UE context and use it as defined in TS 36.300 [14].

If the *Additional RRM Policy Index* IE is contained in the *Source eNB to Target eNB Transparent Container* IE, the target eNB shall, if supported, store it and use it as defined in TS 36.300 [14].

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

Upon reception of the *UE History Information from the UE* IE, which is included within the *Source eNB to Target eNB Transparent Container* IE in the HANDOVER REQUEST message, the target eNB shall, if supported, store the collected information, to be used for future handover preparations.

If the *Mobility Information* IE is included within the *Source eNB to Target eNB Transparent Container* IE in the HANDOVER REQUEST message, the target eNB shall, if supported, store this information and use it as defined in TS 36.300 [14].

If the *Expected UE Behaviour* IE is included in the HANDOVER REQUEST message, the eNB shall, if supported, store this information and may use it to determine the RRC connection time.

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

In case of inter-system handover from gNB with direct forwarding, if the target eNB receives the *UE Context Reference at Source* IE in the *Source eNB to Target eNB Transparent Container* IE, it may use it for internal forwarding as specified in TS 37.340 [47].

After all necessary resources for the admitted E-RABs have been allocated, the target eNB shall generate the HANDOVER REQUEST ACKNOWLEDGE message. The target eNB shall include in the *E-RABs Admitted List* IE the E-RABs for which resources have been prepared at the target cell. The E-RABs that have not been admitted in the target cell, if any, shall be included in the *E-RABs Failed to Setup List* IE.

If the HANDOVER REQUEST message contains the *Data Forwarding Not Possible* IE associated with a given E-RAB within the *E-RABs To Be Setup List* IE set to “Data forwarding not possible”, then the target eNB may decide not to include the *DL Transport Layer Address* IE and the *DL GTP-TEID* IE and for intra LTE handover the *UL Transport Layer Address* IE and the *UL GTP-TEID* IE within the *E-RABs Admitted List* IE of the HANDOVER REQUEST ACKNOWLEDGE message for that E-RAB.

For each bearer that target eNB has decided to admit and for which *DL forwarding* IE is set to “DL forwarding proposed”, the target eNB may include the *DL GTP-TEID* IE and the *DL Transport Layer Address* IE within the *E-RABs Admitted List* IE of the HANDOVER REQUEST ACKNOWLEDGE message indicating that it accepts the proposed forwarding of downlink data for this bearer.

If the HANDOVER REQUEST ACKNOWLEDGE message contains the *UL GTP-TEID* IE and the *UL Transport Layer Address* IE for a given bearer in the *E-RABs Admitted List* IE, then it means the target eNB has requested the forwarding of uplink data for this given bearer.

If the *Request Type* IE is included in the HANDOVER REQUEST message, then the target eNB should perform the requested location reporting functionality for the UE as described in subclause 8.11.

If the *UE Security Capabilities* IE included in the HANDOVER REQUEST message only contains the EIA0 algorithm as defined in TS 33.401 [15] and if this EIA0 algorithm is defined in the configured list of allowed integrity protection algorithms in the eNB (TS 33.401 [15]), the eNB shall take it into use and ignore the keys received in the *Security Context* IE.

The *GUMMEI* IE shall only be contained in the HANDOVER REQUEST message according to subclauses 4.6.2 and 4.7.6.6 of TS 36.300 [14]. If the *GUMMEI* IE is present, the target eNB shall store this information in the UE context and use it for subsequent X2 handovers.

The *MME UE S1AP ID 2* IE shall only be contained in the HANDOVER REQUEST message according to subclause 4.6.2 of TS 36.300 [14].If the *MME UE S1AP ID 2* IE is present, the target eNB shall store this information in the UE context and use it for subsequent X2 handovers.

If the *Management Based MDT Allowed* IE only or the *Management Based MDT Allowed* IE and the *Management Based MDT PLMN List* IE is contained in the HANDOVER REQUEST message, the target eNB shall, if supported, store the received information in the UE context, and use this information to allow subsequent selections of the UE for management based MDT defined in TS 32.422 [10].

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

If the HANDOVER REQUEST contains a *Target Cell ID* IE, as part of the *Source eNB to Target eNB Transparent Container* IE, for a cell which is no longer active, the eNB may respond with an HANDOVER REQUEST ACKNOWLEDGE in case the PCI of the deactivated cell is in use by another active cell.

If the *ProSe Authorized* IE is contained in the HANDOVER REQUEST message and it contains one or more IEs set to “authorized”, the eNB shall, if supported, consider that the UE is authorized for the relevant ProSe service(s).

If the *UE User Plane CIoT Support Indicator* IE is included in the HANDOVER REQUEST message and is set to "supported", the eNB shall, if supported, consider that User Plane CIoT EPS Optimisation as specified in TS 23.401 [11] is supported for the UE.

If the *CE-mode-B Support Indicator* IE is included in the HANDOVER REQUEST ACKNOWLEDGE message and set to "supported", the MME shall, if supported, take this information into account when setting NAS timer values for the UE as specified in TS 24.301[24].

If the *V2X Services Authorized* IE is contained in the HANDOVER REQUEST message and it contains one or more IEs set to “authorized”, the eNB shall, if supported, consider that the UE is authorized for the relevant service(s).

If the *UE Sidelink Aggregate Maximum Bit Rate* IE is included in the HANDOVER REQUEST message, the eNB shall, if supported, use the received value for the concerned UE’s sidelink communication in network scheduled mode for V2X services.

If the *Enhanced Coverage Restricted* IE is included in the HANDOVER REQUEST message, the eNB shall store this information in the UE context and use it as defined in TS 23.401 [11].

If the *CE-Mode-B Restricted* IE is included in the HANDOVER REQUEST message and the *Enhanced Coverage Restricted* IE is not set to *restricted* and the Enhanced Coverage Restricted information stored in the UE context is not set to *restricted*, the eNB shall store this information in the UE context and use it as defined in TS 23.401 [11].

If the *NR UE Security Capabilities* IE is included in the HANDOVER REQUEST message, the eNB shall, if supported, store this information in the UE context and use it as defined in TS 33.401 [15].

If the *Aerial UE subscription information* IE is included in the HANDOVER REQUEST message, the eNB shall, if supported, store this information in the UE context and use it as defined in TS 36.300 [14].

If the *Pending Data Indication* IE is included in the HANDOVER REQUEST message, the eNB shall use it as defined in TS 23.401 [11].

If the *Subscription Based UE Differentiation Information* IE is included in the HANDOVER REQUEST message, the eNB shall, if supported, store this information in the UE context for further use according to TS 23.401 [11].

If the *Additional RRM Policy Index* IE is contained in the HANDOVER REQUEST message, the eNB shall, if supported, store it and use it as defined in TS 36.300 [14].

If the HANDOVER REQUEST message is received for an handover originating from a source NG-RAN node, the list of E-RABs contained in the source eNB to target eNB Transparent Container which are not included in the HANDOVER REQUEST message shall be considered as not to be handed over and ignored.

If the *Inter-system measurement Configuration* IE is included within the *Source eNB to Target eNB Transparent Container* IE in the HANDOVER REQUEST message, the target eNB shall, if supported, use it as defined in TS 38.300 [45]. The *Inter System Measurement Configuration* IE shall contain at least one of the RSRP, RSRQ or SINR thresholds. If only one of the thresholds is present, the LTE eNB shall use the present threshold to compare against the measurement results received from the UE. If more than one thresholds are present, the received radio measurements must exceed all thresholds in order to satisfy the indicated radio conditions. The target eNB shall, if supported, report the measurement results to the source NR node by including the *Inter-System Handover Report* IE (defined in TS 38. 413 [44]) in the eNB CONFIGURATION TRANSFER message only if:

- there is either a single source NR related cell whose measurement results exceed the threshold(s) for the whole measurement duration, or a group of source NR associated cells wich together provide such coverage the receiving node; and

- the above is fulfilled for the whole measurement duration, in which case the *Early IRAT HO* IE contained in the *Inter-System Handover Report* IE (defined in TS 38. 413 [44]) shall be set to “false”, or the above is fulfilled until the UE is handed over back to NR within the measurement duration, in which case the *Early IRAT HO* IE contained in the *Inter-System Handover Report* IE (defined in TS 38. 413 [44]) shall be set to “true”.

The cells that exceed the threshold in the first UE measurement report are included in the Inter-system Handover Report.

#### 8.4.2.3 Unsuccessful Operation



Figure 8.4.2.3-1: Handover resource allocation: unsuccessful operation

If the target eNB does not admit at least one non-GBR E-RAB, or a failure occurs during the Handover Preparation, it shall send the HANDOVER FAILURE message to the MME with an appropriate cause value.

If the target eNB does not receive the *CSG Membership Status* IE but does receive the *CSG Id* IE in the HANDOVER REQUEST message and the CSG Id does not correspond to the CSG Id of the target cell, the target eNB shall send the HANDOVER FAILURE message to the MME with an appropriate cause value.

If the target eNB receives a HANDOVER REQUEST message containing *RRC Container* IE that does not include required information as specified in TS 36.331 [16], the target eNB shall send the HANDOVER FAILURE message to the MME.

#### 8.4.2.4 Abnormal Conditions

If the target eNB receives a HANDOVER REQUEST message containing a *E-RAB Level QoS Parameters* IE which contains a *QCI* IE indicating a GBR bearer (as defined in TS 23.203 [13]), and which does not contain the *GBR QoS Information* IE, the target eNB shall not admit the corresponding E-RAB.

If the target eNB receives a HANDOVER REQUEST message containing several *E-RAB ID* IEs (in the *E-RABs To Be Setup List* IE) set to the same value, the target eNB shall not admit the corresponding E-RABs.

If the *Subscriber Profile ID* *for RAT/Frequency priority* IE is not contained in the *Source eNB to Target eNB Transparent Container* IE whereas available in the source eNB, the target eNB shall trigger a local error handling.

NOTE: It is assumed that the information needed to verify this condition is visible within the system, see subclause 4.1.

If the supported algorithms for encryption defined in the *Encryption Algorithms* IE in the *UE Security Capabilities* IE, plus the mandated support of EEA0 in all UEs (TS 33.401 [15]), do not match any allowed algorithms defined in the configured list of allowed encryption algorithms in the eNB (TS 33.401 [15]), the target eNB shall reject the procedure using the HANDOVER FAILURE message.

If the supported algorithms for integrity defined in the *Integrity Protection Algorithms* IE in the *UE Security Capabilities* IE, plus the mandated support of the EIA0 algorithm in all UEs (TS 33.401 [15]), do not match any allowed algorithms defined in the configured list of allowed integrity protection algorithms in the eNB (TS 33.401 [15]), the target eNB shall reject the procedure using the HANDOVER FAILURE message.

If the target eNB receives a HANDOVER REQUEST message which does not contain the *Handover Restriction List* IE, and the serving PLMN cannot be determined otherwise by the eNB, the target eNB shall reject the procedure using the HANDOVER FAILURE message.

If the target eNB receives a HANDOVER REQUEST message containing the *Handover Restriction List* IE, and the serving PLMN indicated is not supported by the target cell, the target eNB shall reject the procedure using the HANDOVER FAILURE message.

*Start of the next change*

## 8.15 eNB Configuration Transfer

### 8.15.1 General

The purpose of the eNB Configuration Transfer procedure is to transfer RAN configuration information from the eNB to the MME in unacknowledged mode. The MME does not interpret the transferred RAN configuration information.

This procedure uses non-UE associated signalling.

### 8.15.2 Successful Operation

#### 8.15.2.1 eNB Configuration Transfer



Figure 8.15.2.1-1: eNB Configuration Transfer procedure. Successful operation.

The procedure is initiated with an ENB CONFIGURATION TRANSFER message sent from the eNB to the MME.

If the MME receives the *SON Configuration Transfer* IE, it shall transparently transfer the *SON Configuration Transfer* IE towards the eNB indicated in the *Target eNB-ID* IE which is included in the *SON Configuration Transfer IE*.

If the MME receives the *EN-DC SON Configuration Transfer* IE, it shall transparently transfer the *EN-DC SON Configuration Transfer* IE either towards the eNB indicated in the *Target eNB-ID* IE or towards an eNB connected to the en-gNB indicated in the *Target en-gNB-ID* IE which is included in the *EN-DC SON Configuration Transfer* IE. The *EN-DC SON Configuration Transfer* IE may also contain, if available,

- the *Target eNB ID* IE,

- the *Associated TAI* IE,

- the *Broadcast* 5GS TAI IE,

for purposes described in TS 36.300 [14].

If the MME receives the *Inter-system SON Configuration Transfer* IE, it shall transparently transfer the *Inter-system SON Configuration Transfer* IE towards the AMF serving the NG-RAN Node indicated in the *Target gNB-ID* IE which is included in the *Inter-system SON Configuration Transfer* IE.

### 8.15.3 Abnormal Conditions

Not applicable.

*Start of the next change*

## 8.16 MME Configuration Transfer

### 8.16.1 General

The purpose of the MME Configuration Transfer procedure is to transfer RAN configuration information from the MME to the eNB in unacknowledged mode.

This procedure uses non-UE associated signalling.

### 8.16.2 Successful Operation

#### 8.16.2.1 MME Configuration Transfer



Figure 8.16.2.1-1: MME Configuration Transfer procedure. Successful operation.

The procedure is initiated with an MME CONFIGURATION TRANSFER message sent from the MME to the eNB.

If the eNB receives, in the *SON Configuration Transfer* IE or the *EN-DC SON Configuration Transfer* IE, the *SON Information* IE containing the *SON Information Request* IE, it may transfer back the requested information either towards the eNB indicated in the *Source eNB-ID* IE of the *SON Configuration Transfer* IE or towards the eNB indicated in the *Source eNB-ID* IE of the *EN-DC SON Configuration Transfer* IE by initiating the eNB Configuration Transfer procedure. If the *X2 TNL Configuration Info* IE contains the *eNB Indirect X2 Transport Layer Addresses* IE, the eNB may use it for the X2 TNL establishment, and may transfer back the received eNB Indirect X2 Transport Layer Addresses towards the eNB indicated inthe *Source eNB-ID* IE of the *SON Configuration Transfer* IE by initiating the eNB Configuration Transfer procedure or towards the eNB indicated inthe *Source eNB-ID* IE of the *EN-DC SON Configuration Transfer* IE by initiating the eNB Configuration Transfer procedure.

If the eNB receives, in the *SON Configuration Transfer* IE, the *X2 TNL Configuration Info* IE containing the *eNB X2 Extended Transport Layer Addresses* IE, it may use it as part of its ACL functionality configuration actions, if such ACL functionality is deployed.

If the eNB receives, in the *SON Configuration Transfer* IE or the *EN-DC SON Configuration Transfer* IE, the *SON Information* IE containing the *SON Information Reply* IE including the *X2 TNL Configuration Info* IE as an answer to a former request, it may use it to initiate the X2 TNL establishment. If the *X2 TNL Configuration Info* IE contains the *eNB Indirect X2 Transport Layer Addresses* IE, the eNB may use it for the X2 TNL establishment.

In case the *IP-Sec Transport Layer Address* IE is present and the *GTP Transport Layer Addresses* IE within the *eNB X2 Extended Transport Layer Addresses* IE is not empty, GTP traffic is conveyed within an IP-Sec tunnel terminated at the IP-Sec tunnel end point given in by the *IP-Sec Transport Layer Address* IE.

In case the *IP-Sec Transport Layer Address* IE is not present, GTP traffic is terminated at the end points given by the list of addresses in *eNB* *GTP Transport Layer Addresses* IE within the *eNB X2 Extended Transport Layer Addresses* IE.

In case the *eNB* *GTP Transport Layer Addresses* IE is empty and the *IP-Sec Transport Layer Address* IE is present, SCTP traffic is conveyed within an IP-Sec tunnel terminated at the IP-Sec tunnel end point given in the *IP-Sec Transport Layer Address* IE, within the *eNB X2 Extended Transport Layer Addresses* IE.

If the eNB is configured to use one IPsec tunnel for all S1 and X2 traffic (IPsec star topology) then the traffic to the peer eNB shall be routed through this IPsec tunnel and the IP-Sec Transport Layer Address IE shall be ignored.

If the eNB receives the *SON Information* IE containing the *SON Information Reply* IE including the *Time Synchronisation Info* IE as an answer to a former request, it may use it for over-the-air synchronisation by means of network listening and for triggering muting activation request.

If the eNB receives the *SON Information* IE containing the *SON Information Report* IE it may use it as specified in TS 36.300 [14].

If the eNB receives the *Inter-system* *SON Information* IE containing the *Inter-system SON Information Report* IE it may use it as specified in TS 38.300 [45] or in TS 36.300 [14].

If the eNB receives the *SON Information* IE containing the *SON Information Request* IE set to “Activate Muting”, the eNB should consider activating for over-the-air synchronisation by means of network listening, taking into account information on the selected source of synchronisation cell and the cells as indicated by the *Aggressor E-CGI List* IE. In case the *Aggressor E-CGI List* IE is not present, the eNB may consider the request applicable to all cells.

If the eNB receives the *SON Information* IE containing the *SON Information Reply* IE including the *Muting Pattern Information* IE as an answer to a former request, it may use it for over-the-air synchronisation by means of network listening. The *Muting Pattern Information* IE may apply to all cells that were requested to mute.

If the eNB receives the *SON Information* IE containing the *SON Information Request* IE set to “Deactivate Muting”, the eNB may consider deactivating muting for over-the-air synchronisation that was activated by a former muting request from the corresponding eNB.

### 8.16.3 Abnormal Conditions

Not applicable.

*Start of the next change*

### 9.1.16 eNB CONFIGURATION TRANSFER

This message is sent by the eNB in order to transfer RAN configuration information.

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 | ignore |
| SON Configuration Transfer | O |  | 9.2.3.26 |  | YES | ignore |
| EN-DC SON Configuration Transfer | O |  | 9.2.3.26a |  | YES | ignore |
| Inter-system SON Configuration Transfer | O |  | OCTET STRING | Contains the *Inter-system SON Configuration Transfer* IE as defined in TS 38.413 [44]. | YES | ignore |

### 9.1.17 MME CONFIGURATION TRANSFER

This message is sent by the MME in order to transfer RAN configuration information.

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 | ignore |
| SON Configuration Transfer | O |  | 9.2.3.26 |  | YES | ignore |
| EN-DC SON Configuration Transfer | O |  | 9.2.3.26a |  | YES | ignore |
| Inter-system SON Configuration Transfer | O |  | OCTET STRING | Contains the *Inter-system SON Configuration Transfer* IE as defined in TS 38.413 [44]. | YES | ignore |

*Start of the 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 |  | - |  |
| 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.x1 |  | YES | ignore |
| Source Node ID | O |  | 9.2.1.x2 |  | YES | ignore |

*Start of the next change*

9.2.1.x1 Inter System Measurement Configuration

The *Inter-System Measurement Configuration* IE contains information for instructing the incoming UE to continue measuring the cells of the NR RAT after a successful inter-system handover to LTE network.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| RSRP | O |  | INTEGER (0.. 127) | Threshold of RSRP. | - | - |
| RSRQ | O |  | INTEGER (0.. 127) | Threshold of RSRQ. | - | - |
| SINR | O |  | INTEGER  (0..127) | Threshold of SINR | - | - |
| **Inter-System Measurement Parameters** | M |  |  |  | - | - |
| >Measurement Duration | M |  | INTEGER  (1..100) | The period of time following the successful IRAT handover, during which the target RAT instructs the UE to measure cells of the source RAT. Unit: [second]. | - | - |
| **>Inter-System Measurement List** |  | *0..1* |  |  | EACH | reject |
| **>>Inter-System Measurement Item** |  | *1.. <maxnooffrequencies>* |  | List of inter-system measurements configured | YES | reject |
| >>>FreqBandIndicatorNR | M |  | INTEGER (1..1024) | The frequency band in which the *ssbFrequency* is located and according to which the UE shall perform the RRC measurements. |  |  |
| >>>SSB frequencies | M |  | INTEGER (0..maxNARFCN) | Designates the specific SSB frequencies i.e., ARFCN-ValueNR which the target RAT may instruct the UE to measure. | - | - |
| >>>SubcarrierSpacingSSB | M |  | ENUMERATED {kHz15, kHz30, kHz60, kHz120, kHz240, ...} | Subcarrier spacing of SSB according to TS 36.331 [16]. |  |  |
| >>>maxRS-IndexCellQual | O |  | INTEGER (1..maxRS-IndexCellQual) | Indicates the maximum number of RS indices to be considered/ averaged to derive the cell quality for RRM.Also defined in TS 36.331 [16] |  |  |
| >>>SMTC | O |  | OCTET STRING | Contains the MTC-SSB-NR-15 as defined in TS 36.331 [16]. |  |  |
| >>> threshRS-Index-r15 | O |  | OCTET STRING | threshRS-Index-r15as defined in TS 36.331 [16]，List of thresholds for consolidation of L1 measurements per RS index |  |  |
| >>>SSB-ToMeasure | O |  | OCTET STRING | Contains the IE SSB-ToMeasure as defined in TS 36.331 [16]. |  |  |
| >>>SS-RSSI-Measurements | O |  | OCTET STRING | Contains the IE SS-RSSI-Measurement as defined in TS 36.331 [16]. |  |  |
| >>> quantityConfigNR-R15 | O |  | OCTET STRING | Indicates the quantityConfigNR-R15 as defined in TS 36.331 [  16]. |  |  |
| >>>blackCellsToAddModList | O |  | OCTET STRING | List of cells to add/modify in the black list of cells. It applies only to SSB resources. As defined in TS 36.331 [16]. |  |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnooffrequencies | Maximum no. of frequencies. Value is 64. |
| maxNARFCN | Maximum value of NR carrier frequency, defined in TS 38.331 [r1]. Value is 3279165 |
| maxRS-IndexCellQual | Maximum number of RS indices averaged to derive cell quality for RRM, defined in TS 36.331 [16]. Value is 16 |
|  |  |

#### 9.2.1.x2 Source Node ID

The *Source Node ID* IE identifies the source for the handover.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *Source Node ID* | M |  |  |  |
| *>Source NG-RAN Node ID* |  |  |  |  |
| >>Global RAN Node ID | M |  | 9.2.1.131 |  |
| >>Selected TAI | M |  | 5GS TAI  9.2.3.52 |  |

*Start of the next change*

9.3 Message and Information Element Abstract Syntax (with ASN.1)

9.3.0 General

S1AP ASN.1 definition conforms to ITU-T Rec. X.691 [4], ITU-T Rec. X.680 [5] and ITU-T Rec. X.681 [6].

The ASN.1 definition specifies the structure and content of S1AP messages. S1AP messages can contain any IEs specified in the object set definitions for that message without the order or number of occurrence being restricted by ASN.1. However, for this version of the standard, a sending entity shall construct a S1AP message according to the PDU definitions module and with the following additional rules:

- IEs shall be ordered (in an IE container) in the order they appear in object set definitions.

- Object set definitions specify how many times IEs may appear. An IE shall appear exactly once if the presence field in an object has value "mandatory". An IE may appear at most once if the presence field in an object has value "optional" or "conditional". If in a tabular format there is multiplicity specified for an IE (i.e., an IE list) then in the corresponding ASN.1 definition the list definition is separated into two parts. The first part defines an IE container list where the list elements reside. The second part defines list elements. The IE container list appears as an IE of its own. For this version of the standard an IE container list may contain only one kind of list elements.

NOTE: In the above “IE” means an IE in the object set with an explicit ID. If one IE needs to appear more than once in one object set, then the different occurrences will have different IE IDs.

If a S1AP message that is not constructed as defined above is received, this shall be considered as Abstract Syntax Error, and the message shall be handled as defined for Abstract Syntax Error in subclause 10.3.6.

Subclause 9.3 presents the Abstract Syntax of S1AP protocol with ASN.1. In case there is contradiction between the ASN.1 definition in this subclause and the tabular format in subclause 9.1 and 9.2, the ASN.1 shall take precedence, except for the definition of conditions for the presence of conditional elements, where the tabular format shall take precedence.

9.3.1 Usage of private message mechanism for non-standard use

The private message mechanism for non-standard use may be used:

- for special operator- (and/or vendor) specific features considered not to be part of the basic functionality, i.e., the functionality required for a complete and high-quality specification in order to guarantee multivendor interoperability;

- by vendors for research purposes, e.g., to implement and evaluate new algorithms/features before such features are proposed for standardisation.

The private message mechanism shall not be used for basic functionality. Such functionality shall be standardised.

9.3.2 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

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

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

}

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

}

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

--

-- 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

}

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,

IntersystemSONConfigurationTransfer

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,

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-IntersystemSONConfigurationTransferMCT,

id-IntersystemSONConfigurationTransferECT

FROM S1AP-Constants;

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

--

-- 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

--

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

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

--

-- 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 },

...

}

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},

...

}

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

--

-- 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 ::= {

...

}

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 },

...

}

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

--

-- PATH SWITCH REQUEST ELEMENTARY PROCEDURE

--

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

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

--

-- 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 ::= {

...

}

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

--

-- 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 },

...

}

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 ::= {

...

}

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

--

-- 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 },

...

}

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

--

-- E-RAB SETUP ELEMENTARY PROCEDURE

--

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

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

--

-- E-RAB Setup Request

--

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

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},

...

}

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

--

-- 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 ::= {

...

}

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

--

-- E-RAB MODIFY ELEMENTARY PROCEDURE

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

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

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--

-- E-RAB Release Command

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

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

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

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 ::= {

...

}

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

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-- E-RAB RELEASE INDICATION ELEMENTARY PROCEDURE

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

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

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--

-- Initial Context Setup Request

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

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 },

...

}

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},

...

}

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

--

-- 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 ::= {

...

}

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

--

-- 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

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

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--

-- Paging

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

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},

...

}

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 ::= {

...

}

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

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-- UE CONTEXT RELEASE ELEMENTARY PROCEDURE

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

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--

-- UE Context Release Request

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

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

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

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

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--

-- UE Context Modification Request

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

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},

...

}

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

--

-- 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

--

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

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

--

-- 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 },

...

}

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

--

-- 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},

...

}

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

--

-- 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},

...

}

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

--

-- 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

--

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

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

--

-- 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},

...

}

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

--

-- 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},

...

}

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

--

-- 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

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

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

--

-- 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

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

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

--

-- 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

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

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

--

-- 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

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

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

--

-- 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

--

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

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

--

-- 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}

,

...

}

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

--

-- 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 },

...

}

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,

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,

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},

...

}

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

}

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

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

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))

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

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 ::= {

...

}

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},

...

}

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 ::= {

...

}

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,...))

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,

...

}

-- 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 ::= {

...

}

-- N

NAS-PDU ::= OCTET STRING

NASSecurityParametersfromE-UTRAN ::= OCTET STRING

NASSecurityParameterstoE-UTRAN ::= OCTET STRING

NB-IoT-DefaultPagingDRX ::= ENUMERATED {

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-UEIdentityIndexValue ::= BIT STRING (SIZE (12))

NextPagingAreaScope ::= ENUMERATED {

same,

changed,

...

}

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)

-- 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,

...

}

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)

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 ::= {

...

}

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 ::= {

...

}

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},

...

}

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 ::= {

...

}

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 },

...

}

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

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,

...

}

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,

...

}

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))

-- 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

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

--

-- 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

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-IntersystemSONConfigurationTransferMCT ProtocolIE-ID ::= 999 -- to be assigned by MCC

id-IntersystemSONConfigurationTransferECT ProtocolIE-ID ::= 998 -- to be assigned by MCC

id-IntersystemMeasurementConfiguration ProtocolIE-ID ::= 997 -- to be assigned by MCC

id-SourceNodeID ProtocolIE-ID ::= 996 -- to be assigned by MCC

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