**3GPP TSG-RAN WG3 Meeting #111-e *R3-211194***

**E-meeting, 25 Jan – 5 Feb 2021**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.413** | **CR** | **1803** | **rev** | **1** | **Current version:** | **16.4.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

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

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Supported RATs of the MME | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, CMCC, Vodafone, Telecom Italia, China Telecom, Deutsche Telekom, China Unicom | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NB\_IOTenh3-Core | | | | |  | ***Date:*** | | | 2021-02-01 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The supported RATs of the RAN node and CN nodes changes from release to release, to avoid potential IoT issues such as UE access failure/reroute and Core network resource waste in case of misconfiguration, to ease the OAM efforts to configure or update the configuration of the CN supported RATs to RAN, it is needed to include the supported RATs of the CN to RAN in S1 SETUP RESPONSE and MME CONFIGURATION UPDATE messages. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Include the supported RATs of the CN to RAN in S1 SETUP RESPONSE and MME CONFIGURATION UPDATE messages. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Potential IOT issue will occur, for example:  If RAN support RAT 1 and 2, CN only support RAT 1, if the RAN does not aware of that, the RAT 2 UE access towards this CN will be failed or has to be rerouted. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.7.3.2, 8.7.5.2, 9.1.8.5, 9.1.8.10, 9.2.33.xx (new), 9.3.3, 9.3.4, 9.3.6 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

***--------Start of the First Change------***

### 8.7.3 S1 Setup

#### 8.7.3.1 General

The purpose of the S1 Setup procedure is to exchange application level data needed for the eNB and the MME to correctly interoperate on the S1 interface. This procedure shall be the first S1AP procedure triggered after the TNL association has become operational. The procedure uses non-UE associated signalling.

This procedure erases any existing application level configuration data in the two nodes and replaces it by the one received and clears MME overload state information at the eNB. If the eNB and MME do not agree on retaining the UE Contexts this procedure also re-initialises the E-UTRAN S1AP UE-related contexts (if any) and erases all related signalling connections in the two nodes like a Reset procedure would do. If the eNB initiating the S1 Setup procedure supports a CSG cell, the procedure shall report the CSG ID(s) of the supported CSGs.

#### 8.7.3.2 Successful Operation



Figure 8.7.3.2-1: S1 Setup procedure: Successful Operation.

The eNB initiates the procedure by sending a S1 SETUP REQUEST message including the appropriate data to the MME. The MME responds with a S1 SETUP RESPONSE message including the appropriate data.

The exchanged data shall be stored in respective node and used for the duration of the TNL association. When this procedure is finished, the S1 interface is operational and other S1 messages can be exchanged.

If the eNB initiating the S1 SETUP procedure supports one (or more) CSG cell(s), the S1 SETUP REQUEST message shall contain the CSG ID(s) of the supported CSG(s).

If the S1 SETUP REQUEST message contains the *eNB Name* IE the MME may use this IE as a human readable name of the eNB.

If the S1 SETUP RESPONSE message contains the *MME Name* IE the eNB may use this IE as a human readable name of the MME.

If the *MME Relay Support Indicator* IE is included in the S1 SETUP RESPONSE message, the eNB shall consider this information when selecting an appropriate MME for the Relay Node.

If the *UE Retention Information* IE set to “ues-retained“ was included in the S1 SETUP REQUEST message, then the MME may accept the proposal to retain the existing UE related contexts and signalling connections by including the *UE Retention Information* IE set to “ues-retained“ in the S1 SETUP RESPONSE message.

If the *NB-IoT Default Paging DRX* IE is included in the S1 SETUP REQUEST message, the MME will take it into account as specified in TS36.300 [14].

If the *Connected en-gNB List* IE is included in the S1 SETUP REQUEST message, the MME shall take it into account as specified in TS 36.300 [14].

If the S1 SETUP RESPONSE message contains the *ServedDCNs* IE then the eNB shall, if supported, use it as defined in TS 23.401 [11].

If the S1 SETUP RESPONSE message contains the *GUMMEI Type* IE then the eNB shall, if supported, use it to route the UE to the correct MME as specified in TS 23.401 [11].

If the MME supports IAB, the MME shall include the *IAB Supported* IE in the S1 SETUP RESPONSE message.

If the *Supported RATs* IE is included in the S1 SETUP RESPONSE message, the eNB node shall consider that the MME supports the indicated RAT(s).

***--------Start of the Next Change------***

#### 8.7.3.4 Abnormal Conditions

If the eNB initiates the procedure by sending a S1 SETUP REQUEST message including the *PLMN Identity* IEs and none of the PLMNs provided by the eNB is identified by the MME, then the MME shall reject the eNB S1 Setup Request procedure with the appropriate cause value, e.g., “Unknown PLMN”.

If the eNB initiates the procedure by sending a S1 SETUP REQUEST message including the *RAT Type* IEs, and none of the RATs provided by the eNB is supported by the MME, then the MME shall fail the S1 Setup procedure with an appropriate cause value.

***--------Start of the Next Change------***

### 8.7.5 MME Configuration Update

#### 8.7.5.1 General

The purpose of the MME Configuration Update procedure is to update application level configuration data needed for the eNB and MME to interoperate correctly on the S1 interface. This procedure does not affect existing UE-related contexts, if any.

#### 8.7.5.2 Successful Operation



Figure 8.7.5.2-1: MME Configuration Update procedure: Successful Operation.

The MME initiates the procedure by sending an MME CONFIGURATION UPDATE message including the appropriate updated configuration data to the eNB. The eNB responds with an MME CONFIGURATION UPDATE ACKNOWLEDGE message to acknowledge that it successfully updated the configuration data. If information element(s) is/are not included in the MME CONFIGURATION UPDATE message, the eNB shall interpret that the corresponding configuration data is not changed and shall continue to operate the S1 with the existing related configuration data.

If the served PLMNs is/are to be updated, the eNB shall overwrite the whole list of PLMNs.

If the MME CONFIGURATION UPDATE message contains the *MME Name* IE, the eNB may use this IE as a human readable name of the MME.

The updated configuration data shall be stored in the respective node and used for the duration of the TNL association or until any further update is performed from the MME.

The MME may initiate a further MME Configuration Update procedure only after a previous MME Configuration Update procedure has been completed.

If the MME CONFIGURATION UPDATE message contains the *ServedDCNs* IE then the eNB shall, if supported, use it as defined in TS 23.401 [11].

If the MME CONFIGURATION UPDATE message contains the *GUMMEI Type* IE then the eNB shall, if supported, use it to route the UE to the correct MME as specified in TS 23.401 [11].

If the *Supported RATs* IE is included in the MME CONFIGURATION UPDATE message, the eNB shall consider that the MME supports the indicated RAT(s).

***--------Start of the Next Change------***

#### 9.1.8.5 S1 SETUP RESPONSE

This message is sent by the MME to transfer information for a TNL association.

Direction: MME → eNB

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.1.1 |  | YES | reject |
| MME Name | O |  | PrintableString(SIZE(1..150,…)) |  | YES | ignore |
| **Served GUMMEIs** |  | *1..<maxnoofRATs>* |  | The LTE related pool configuration is included on the first place in the list. | GLOBAL | reject |
| **>Served PLMNs** |  | 1..<maxnoofPLMNsPerMME> |  |  | - |  |
| >>PLMN Identity | M |  | 9.2.3.8 |  | - |  |
| **>Served GroupIDs** |  | *1..<maxnoofGroupIDs>* |  |  | - |  |
| >>MME Group ID | M |  | OCTET STRING (SIZE(2)) |  | - |  |
| **>Served MMECs** |  | *1..<maxnoofMMECs>* |  |  | - |  |
| >>MME Code | M |  | 9.2.3.12 |  | - |  |
| >GUMMEI Type | O |  | ENUMERATED (native, mapped, …, mappedFrom5G) |  | - | ignore |
| Relative MME Capacity | M |  | 9.2.3.17 |  | YES | ignore |
| MME Relay Support Indicator | O |  | 9.2.1.82 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.2.1.21 |  | YES | ignore |
| UE Retention Information | O |  | 9.2.1.112 |  | YES | ignore |
| **Served DCNs** |  | *0..<maxnoofDCNs>* |  |  | GLOBAL | ignore |
| >Served DCNs Items | M |  | 9.2.1.121 |  | - |  |
| IAB Supported | O |  | ENUMERATED (true, ...) | Indication of support for IAB. | YES | ignore |
| Supported RATs | O |  | 9.2.3.xx | Indication of the supported RATs. | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPLMNsPerMME | Maximum no. of PLMNs per MME. Value is 32. |
| maxnoofRATs | Maximum no. of RATs. Value is 8. |
| maxnoofGroupIDs | Maximum no. of GroupIDs per node per RAT. Value is 65535. |
| maxnoofMMECs | Maximum no. of MMECs per node per RAT. Value is 256. |
| maxnoofDCNs | Maximum no. of DCNs servered by one MME. Value is 32. |

***--------Start of the Next Change------***

#### 9.1.8.10 MME CONFIGURATION UPDATE

This message is sent by the MME to transfer updated information for a TNL association.

Direction: MME → eNB

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.1.1 |  | YES | reject |
| MME Name | O |  | PrintableString(SIZE(1..150,…)) |  | YES | ignore |
| Served GUMMEIs |  | *0..<maxnoofRATs>* |  | The LTE related pool configuration is included on the first place in the list. | GLOBAL | reject |
| **>Served PLMNs** |  | *1..<maxnoofPLMNsPerMME>* |  |  | - |  |
| >>PLMN Identity | M |  | 9.2.3.8 |  | - |  |
| **>Served GroupIDs** |  | *1..<maxnoofGroupIDs>* |  |  | - |  |
| >>MME GroupID | M |  | OCTET STRING (SIZE(2)) |  | - |  |
| **>Served MMECs** |  | *1..<maxnoofMMECs>* |  |  | - |  |
| >>MME Code | M |  | 9.2.3.12 |  | - |  |
| >GUMMEI Type | O |  | ENUMERATED (native, mapped, …, mappedFrom5G) |  | - | ignore |
| Relative MME Capacity | O |  | 9.2.3.17 |  | YES | reject |
| **Served DCNs** |  | *0..<maxnoofDCNs>* |  |  | GLOBAL | ignore |
| >Served DCNs Items | M |  | 9.2.1.121 |  | - |  |
| Supported RATs | O |  | 9.3.3.xx | Indication of the supported RATs. | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPLMNsPerMME | Maximum no. of PLMNs per MME. Value is 32. |
| maxnoofRATs | Maximum no. of RATs. Value is 8. |
| maxnoofGroupIDs | Maximum no. of GroupIDs per node per RAT. Value is 65535. |
| maxnoofMMECs | Maximum no. of MMECs per node per RAT. Value is 256. |
| maxnoofDCNs | Maximum no. of DCNs servered by one MME. Value is 32. |

***--------Start of the Next Change------***

#### 9.2.3.55 Pending Data Indication

This IE indicates that the MME is aware of pending signalling or data in the network for the UE, or that the MME expects a response from the UE.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Pending Data Indication | M |  | ENUMERATED (true, …) |  |

#### 9.2.3.xx Supported RATs

This IE provides supported RATs of the MME.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Supported RATs | MO |  | BIT STRING {  e-UTRA (0), NB-IoT(1)}  (SIZE(8, …)) | Each position in the bitmap represents a RAT.  If a bit is set to "1", the respective RAT is supported by the MME.  If a bit is set to "0", the respective RAT is not supported by the MME.  Bits 2-7 reserved for future use. |

***--------Start of the Next Change------***

### 9.3.3 PDU Definitions

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

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-- PDU definitions for S1AP.

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

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,

***//skip the unchanged part***

IAB-Supported,

DataSize,

Ethernet-Type,

NRV2XServicesAuthorized,

NRUESidelinkAggregateMaximumBitrate,

PC5QoSParameters,

IntersystemSONConfigurationTransfer,

UERadioCapabilityID,

NotifySourceeNB,

ENB-EarlyStatusTransfer-TransparentContainer,

WUS-Assistance-Information,

NB-IoT-PagingDRX,

SupportedRATs

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,

***//skip the unchanged part***

id-UERadioCapabilityID,

id-UERadioCapability-NR-Format,

id-NotifySourceeNB,

id-eNB-EarlyStatusTransfer-TransparentContainer,

id-WUS-Assistance-Information,

id-NB-IoT-PagingDRX,

id-SupportedRATs

FROM S1AP-Constants;

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

--

-- Common Container Lists

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

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} }

***//skip the unchanged part***

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

--

-- S1 Setup Response

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

S1SetupResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {S1SetupResponseIEs} },

...

}

S1SetupResponseIEs S1AP-PROTOCOL-IES ::= {

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

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

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

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

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

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

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

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

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

...

}

***//skip the unchanged part***

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

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-- MME Configuration Update

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

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 }|

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

...

}

***--------Start of the Next Change------***

### 9.3.4 Information Element Definitions

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

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-- Information Element Definitions

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

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,

***//skip the unchanged part***

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 ::= {

...

}

SupportedRATs ::= BIT STRING (SIZE(8, ...))

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},

...

}

***--------Start of the Next Change------***

### 9.3.6 Constant Definitions

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

--

-- Constant definitions

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

S1AP-Constants {

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

eps-Access (21) modules (3) s1ap (1) version1 (1) s1ap-Constants (4) }

***//skip the unchanged part***

id-UERadioCapability-NR-Format ProtocolIE-ID ::= 315

id-MDTConfigurationNR ProtocolIE-ID ::= 316

id-DAPSRequestInfo ProtocolIE-ID ::= 317

id-DAPSResponseInfoList ProtocolIE-ID ::= 318

id-DAPSResponseInfoItem ProtocolIE-ID ::= 319

id-NotifySourceeNB ProtocolIE-ID ::= 320

id-eNB-EarlyStatusTransfer-TransparentContainer ProtocolIE-ID ::= 321

id-Bearers-SubjectToEarlyStatusTransfer-Item ProtocolIE-ID ::= 322

id-WUS-Assistance-Information ProtocolIE-ID ::= 323

id-NB-IoT-PagingDRX ProtocolIE-ID ::= 324

id-TraceCollectionEntityURI ProtocolIE-ID ::= 325

id-SupportedRATs ProtocolIE-ID ::= xxx

END

***--------End of the Changes------***