**3GPP TSG-RAN WG3 Meeting #119bis**

**Online, 17th – 26th April 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** | **1129** | **rev** | **2** | **Current version:** |  |  |
|  | | | | | | | | |
| *For* [***HELP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Introduction of Network Energy Saving | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | Netw\_Energy\_NR-Core | | | | |  | ***Date:*** | | | 2023-04-06 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | *Rel-18* |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The specification should support Rel 18 Network Energy Saving, objective 2 and objective 6. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | gNB-CU Configuration Update procedure is impacted to support Beam level activation;  gNB-DU Configuration and F1 Setup procedures are impacted to support Cell DTRX;  Paging procedure is impacted to support restricted paging in limited areas. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Not possible to support Rel 18 NES | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.7.1.2, 9.2.6, ASN.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

### 8.2.5 gNB-CU Configuration Update

#### 8.2.5.1 General

The purpose of the gNB-CU Configuration Update procedure is to update application level configuration data needed for the gNB-DU and gNB-CU to interoperate correctly on the F1 interface. This procedure does not affect existing UE-related contexts, if any. The procedure uses non-UE associated signalling.

#### 8.2.5.2 Successful Operation



Figure 8.2.5.2-1: gNB-CU Configuration Update procedure: Successful Operation

The gNB-CU initiates the procedure by sending a GNB-CU CONFIGURATION UPDATE message including the appropriate updated configuration data to the gNB-DU. The gNB-DU responds with a GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message to acknowledge that it successfully updated the configuration data. If an information element is not included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall interpret that the corresponding configuration data is not changed and shall continue to operate the F1-C interface with the existing related configuration data.

The updated configuration data shall be stored in the respective node and used as long as there is an operational TNL association or until any further update is performed.

If *Cells to be Activated List Item* IE is contained in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall activate the cell indicated by *NR CGI* IE and reconfigure the physical cell identity for which the *NR PCI* IE is included.

If *SSBs to be Activated List* IE is included in the *Cells to be Activated List Item* IE within the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall, if supported, only activate the SSBs indicated by *SSB to be Activated* IE.

If the Time Duration IE within *SSBs to be Activated List* IE is included in the *Cells to be Activated List Item* IE within the GNB-CU CONFIGURATION UPDATE message, the gNB-DU may deactivate the given SSB after the time duration.

If *Cells to be Deactivated List Item* IE is contained in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall deactivate the cell indicated by *NR CGI* IE.

If *Cells to be Activated List Item* IE is contained in the GNB-CU CONFIGURATION UPDATE message and the indicated cells are already activated, the gNB-DU shall update the cell information received in *Cells to be Activated List Item* IE.

If *Cells to be Activated List Item* IE is included in the GNB-CU CONFIGURATION UPDATE message, and the information for the cell indicated by the *NR CGI* IE includes the *IAB Info IAB-donor-CU* IE, the gNB-DU shall, if supported, apply the *IAB STC Info* IE therein to the indicated cell.

If the *gNB-CU System Information* IE is contained in the gNB-CU CONFIGURATION UPDATE message, the gNB-DU shall include the *Dedicated SI Delivery Needed UE List* IE in the GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message for UEs that are unable to receive system information from broadcast.

If *Dedicated SI Delivery Needed UE List* IE is contained in the GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-CU should take it into account when informing the UE of the updated system information via the dedicated RRC message.

If the *gNB-CU TNL Association To Add List* IE is contained in the gNB-CU CONFIGURATION UPDATE message, the gNB-DU shall, if supported, use it to establish the TNL association(s) with the gNB-CU. The gNB-DU shall report to the gNB-CU, in the gNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message, the successful establishment of the TNL association(s) with the gNB-CU as follows:

- A list of TNL address(es) with which the gNB-DU successfully established the TNL association shall be included in the gNB-CU *TNL Association Setup List* IE;

- A list of TNL address(es) with which the gNB-DU failed to establish the TNL association shall be included in the *gNB-CU TNL Association Failed To Setup List* IE.

If the GNB-CU CONFIGURATION UPDATE message includes *gNB-CU TNL Association To Remove List* IE, and the *Endpoint IP address* IE and the *Port Number* IE for both TNL endpoints of the TNL association(s) are included in the *gNB-CU TNL Association To Remove List* IE, the gNB-DU shall, if supported, initiate removal of the TNL association(s) indicated by both received TNL endpoints towards the gNB-CU. If the *Endpoint IP address* IE, or the *Endpoint IP address* IE and the *Port Number* IE for one or both of the TNL endpoints is included in the *gNB-CU TNL Association To Remove List* IE, the gNB-DU shall, if supported, initiate removal of the TNL association(s) indicated by the received endpoint IP address(es).

If the *gNB-CU TNL Association To Update List* IE is contained in the gNB-CU CONFIGURATION UPDATE message the gNB-DU shall, if supported, overwrite the previously stored information for the related TNL Association(s).

If in the gNB-CU CONFIGURATION UPDATE message the *TNL* *Association usage* IE is included in the *gNB-CU TNL Association To Add List* IE or the *gNB-CU TNL Association To Update List* IE, the gNB-DU node shall, if supported, use it as described in TS 38.472 [22].

For NG-RAN, the gNB-CU shall include the *gNB-CU System Information* IE in the GNB-CU CONFIGURATION UPDATE message. The *SIB type to Be Updated List* IE shall contain the full list of SIBs to be broadcast*.*

If *Protected E-UTRA Resources List* IE is contained in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall protect the corresponding resource of the cells indicated by *E-UTRA Cells* *List* IE for spectrum sharing between E-UTRA and NR.

If the GNB-CU CONFIGURATION UPDATE message contains the *Protected E-UTRA Resource Indication* IE, the receiving gNB-DU should forward it to lower layers and use it for cell-level resource coordination. The gNB-DU shall consider the received *Protected E-UTRA Resource Indication* IE when expressing its desired resource allocation during gNB-DU Resource Coordination procedure. The gNB-DU shall consider the received *Protected E-UTRA Resource Indication* IE content valid until reception of a new update of the IE for the same gNB-DU.

If *Available PLMN List* IE, and optionally also *Extended Available PLMN List* IE, is contained in GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall overwrite the whole available PLMN list and update the corresponding system information.

If *Available SNPN ID List* IE is contained in GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall overwrite the whole available SNPN ID list and update the corresponding system information.

If *Cells Failed to be Activated Item* IE is contained in the GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-CU shall consider that the indicated cells are out-of-service as defined in TS 38.401 [4].

If the *Neighbour Cell Information List* IE is present in the GNB-CU CONFIGURATION UPDATE message, the receiving gNB-DU shall use the received information for Cross Link Interference management and/or NR-DC power coordination. The gNB-DU shall consider the received *Neighbour Cell Information List* IE content valid until reception of an update of the IE for the same cell(s). If the *Intended TDD DL-UL Configuration NR* IE is absent from the *Neighbour Cell Information List* IE, whereas the corresponding *NR CGI* IE is present, the receiving gNB-DU shall remove the previously stored *Neighbour Cell Information* IE corresponding to the NR CGI.

If the GNB-CU CONFIGURATION UPDATE message includes *Transport Layer Address Info* IE, the gNB-DU shall, if supported, take into account for IPSec tunnel establishment.

If the GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message includes *Transport Layer Address Info* IE, the gNB-CU shall, if supported, take into account for IPSec tunnel establishment.

If the GNB-CU CONFIGURATION UPDATE message contains the *Uplink BH Non-UP Traffic Mapping* IE, the gNB-DU shall, if supported, consider the information therein for mapping of non-UP uplink traffic.

If the *IAB Barred* IE is included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall, if supported, consider it as an indication of whether the cell allows IAB-node access or not.

If the *BAP Address* IE is included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU shall, if supported, store the received BAP address and use it as specified in TS 38.340 [30].

If the *CCO Assistance Information* IE is contained in the GNB-CU CONFIGURATION UPDATE message, and the *NR CGI* IE contained in the *Affected Cells and Beams* IE is served by the gNB-DU, the gNB-DU may use it to determine a new cell and/or beam configuration.

If the *CCO Assistance Information* IE is contained in the GNB-CU CONFIGURATION UPDATE message and the *NR CGI* IE contained in the *Affected Cells and Beams* IE is not served by the gNB-DU, the gNB-DU may use it to adjust coverage of its cells.

If the *Cells for SON* IE is present in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU may store or update this information and it behaves as follows:

- For each served cell indicated by the *NR CGI* IE included within the *Cells for SON Item* IE, the gNB-DU may adjust the PRACH configuration of this served cell.

- If the *Neighbour NR Cells for SON List* IE is present in the *Cells for SON Item* IE, the gNB-DU may take the PRACH configuration of neighbour cells included in the *Neighbour NR Cells for SON List* IE into consideration when adjusting the PRACH configuration of the served cell.

If the *gNB-CU Name* IE is included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU may store it or update this IE value if already stored, and use it as a human readable name of the gNB-CU. If the *Extended gNB-CU Name* IE is included in the GNB-CU CONFIGURATION UPDATE message, the gNB-DU may store it or update this IE value if already stored, and use it as a human readable name of the gNB-CU and shall ignore the *gNB-CU Name* IE if also included.

If *SSBs being Activated List* IE is contained in the GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE message, the gNB-CU shall consider that the SSBs indicated by *SSB Activated* IE as activated, and SSBs indicated by *SSB Activation Failed* IE as not activated.

#### 8.2.5.3 Unsuccessful Operation



Figure 8.2.5.3-1: gNB-CU Configuration Update: Unsuccessful Operation

If the gNB-DU cannot accept the update, it shall respond with a GNB-CU CONFIGURATION UPDATE FAILURE message and appropriate cause value.

If the GNB-CU CONFIGURATION UPDATE FAILURE message includes the *Time To Wait* IE, the gNB-CU shall wait at least for the indicated time before reinitiating the GNB-CU CONFIGURATION UPDATE message towards the same gNB-DU.

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### 8.7.1 Paging

#### 8.7.1.1 General

The purpose of the Paging procedure is used to provide the paging information to enable the gNB-DU to page a UE. The procedure uses non-UE associated signalling.

#### 8.7.1.2 Successful Operation



Figure 8.7.1.2-1: Paging procedure. Successful operation.

The gNB-CU initiates the procedure by sending a PAGING message.

The *Paging DRX* IE may be included in the PAGING message, and if present the gNB-DU may use it to determine the final paging cycle for the UE.

The *Paging Priority* IE may be included in the PAGING message, and if present the gNB-DU may use it according to TS 23.501 [21].

At the reception of the PAGING message, the gNB-DU shall perform paging of the UE in cells which belong to cells as indicated in the *Paging Cell List* IE.

The *Paging Origin* IE may be included in the PAGING message, and if present the gNB-DU shall transfer it to the UE.

The *RAN UE Paging DRX* IE may be included in the PAGING message, and if present the gNB-DU may use it according to TS 38.304 [24].

The *CN UE Paging DRX* IE may be included in the PAGING message, and if present the gNB-DU may use it according to TS 38.304 [24].

The *NR Paging eDRX Information* IE may be included in the PAGING message, and if present the gNB-DU may use it according to TS 38.304 [24].

The *NR Paging eDRX Information for RRC INACTIVE* IE may be included in the PAGING message, and if present the gNB-DU shall, if supported, use it according to TS 38.304 [24].

The *Paging Cause* IE may be included in the PAGING message. If present the gNB-DU shall, if supported, send it to UE according to TS 38.331 [8].

The *PEIPS Assistance Information* IE may be included in the PAGING message, and if present the gNB-DU shall, if supported, use it for paging subgrouping of the UE, as specified in TS 38.300 [6].

The *UEID Subgrouping Support Indication* IE may be included in *UE Paging Capability* IE in the PAGING message, and if present the gNB-DU shall, if supported, use it for paging subgrouping of the UE, as specified in TS 38.300 [6].

The *RedCap Indication* IE may be included in the *UE Paging Capability* IE in the PAGING message, and if present the gNB-DU shall, if supported, use it for paging of RedCap UEs.

The *Last Used Cell Indication* IE may be included in the *Paging Cell Item IEs* IE of the PAGING message, and if present the gNB-DU shall, if supported, consider the cell identified by the *NR CGI* IE as the last used cell of the paged UE, and use it as specified in TS 38.331 [8].

The *Last Used SSB Item* IE may be included in the *Paging Cell Item IEs* IE of the PAGING message, and if present the gNB-DU shall, if supported, consider the SSBs identified by the *Last Used SSB* IE as the last used SSBs of the paged UE, and use it to send the paging message.

The *PEI Subgrouping Support Indication* IE may be included in the *Paging Cell Item IEs* IE in the PAGING message, and if present the gNB-DU shall, if supported, consider that the cell identified by the *NR CGI* IE is supported by the UE to receive the paging early indication as described in TS 38.300 [6] and TS 38.304 [24].

The *UE Paging Capability* IE may be included in the PAGING message, and if present the gNB-DU shall, if supported, take it into account when paging the UE.

#### 8.7.1.3 Abnormal Conditions

Not applicable.

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### 9.2.6 Paging messages

#### 9.2.6.1 PAGING

This message is sent by the gNB-CU and is used to request the gNB-DU to page UEs.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| UE Identity Index value | M |  | 9.3.1.39 |  | YES | reject |
| CHOICE *Paging Identity* | M |  |  |  | YES | reject |
| *>RAN UE Paging identity* |  |  |  |  |  |  |
| >>RAN UE Paging identity | M |  | 9.3.1.43 |  | - |  |
| *>CN UE paging identity* |  |  |  |  |  |  |
| >>CN UE paging identity | M |  | 9.3.1.44 |  | - |  |
| Paging DRX | O |  | 9.3.1.40 | It is defined as the minimum between the RAN UE Paging DRX and CN UE Paging DRX | YES | ignore |
| Paging Priority | O |  | 9.3.1.41 |  | YES | ignore |
| **Paging Cell List** |  | *1* |  |  | YES | ignore |
| **>Paging Cell Item IEs** |  | *1 .. <maxnoofPagingCells>* |  |  | EACH | ignore |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>Last Used Cell Indication | O |  | ENUMERATED(true, …) |  | YES | ignore |
| >>PEI Subgrouping Support Indication | O |  | ENUMERATED(true, …) |  | YES | ignore |
| **>>****Last Used SSBs Items** |  | *0 .. <* *maxnoofSSBAreas >* |  |  | EACH | ignore |
| >>>Last Used SSB | O |  | INTEGER (0..63) | SSB Index | - |  |
| Paging Origin | O |  | 9.3.1.79 |  | YES | ignore | |
| RAN UE Paging DRX | O |  | Paging DRX  9.3.1.40 | This IE indicates the RAN paging cycle as defined in TS 38.304 [24]. | YES | ignore | |
| CN UE Paging DRX | O |  | Paging DRX  9.3.1.40 | This IE indicates the UE specific paging cycle as defined in TS 38.304 [24]. | YES | ignore | |
| NR Paging eDRX Information | O |  | 9.3.1.258 |  | YES | ignore | |
| NR Paging eDRX Information for RRC INACTIVE | O |  | 9.3.1.259 |  | YES | ignore | |
| Paging Cause | O |  | ENUMERATED(voice, …) | This IE indicates the paging cause is IMS voice, refer to TS 23.501[21]. | YES | ignore | |
| PEIPS Assistance Information | O |  | 9.3.1.269 |  | YES | ignore | |
| UE Paging Capability | O |  | 9.3.1.270 |  | YES | ignore | |

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| --- | --- |
| Range bound | Explanation |
| maxnoofPagingCells | Maximum no. of paging cells, the maximum value is 512. |

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#### 9.2.1.10 GNB-CU CONFIGURATION UPDATE

This message is sent by the gNB-CU to transfer updated information associated to an F1-C interface instance.

NOTE: If F1-C signalling transport is shared among several F1-C interface instances, this message may transfer updated information associated to several F1-C interface instances.

Direction: gNB-CU → gNB-DU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **Cells to be Activated List** |  | *0..1* |  | List of cells to be activated or modified | YES | reject |
| **>Cells to be Activated List Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >> NR CGI | M |  | 9.3.1.12 |  | - |  |
| >> NR PCI | O |  | INTEGER (0..1007) | Physical Cell ID | - |  |
| >> gNB-CU System Information | O |  | 9.3.1.42 | RRC container with system information owned by gNB-CU | YES | reject |
| >>Available PLMN List | O |  | 9.3.1.65 |  | YES | ignore |
| >>Extended Available PLMN List | O |  | 9.3.1.76 | This is included if *Available PLMN List* IE is included and if more than 6 Available PLMNs is to be signalled. | YES | ignore |
| >>IAB Info IAB-donor-CU | O |  | 9.3.1.105 | IAB-related configuration sent by the IAB-donor-CU. | YES | ignore |
| >>Available SNPN ID List | O |  | 9.3.1.163 | Indicates the available SNPN ID list.  If this IE is included, the content of the *Available PLMN List* IE and *Extended Available PLMN List* IE if present in the *Cells to be Activated List Item* IE is ignored. | YES | ignore |
| >>MBS Broadcast Neighbour Cell List | O |  | 9.3.1.226 |  | YES | ignore |
| **>>****SSBs to be Activated List** |  | *0 .. <* *maxnoofSSBAreas >* |  | If present, only the listed SSBs are activated | EACH | reject |
| >>>SSB to be Activated | M |  | INTEGER (0..63) | SSB Index | - |  |
| >>>Time Duration | O |  | INTEGER (1..30, …) | Unit: 1 second | - |  |
| **Cells to be Deactivated List** |  | *0..1* |  | List of cells to be deactivated | YES | reject |
| **>Cells to be Deactivated List Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >> NR CGI | M |  | 9.3.1.12 |  | - |  |
| **gNB-CU TNL Association To Add List** |  | *0..1* |  |  | YES | ignore |
| **>gNB-CU TNL Association To Add Item IEs** |  | *1..<maxnoofTNLAssociations>* |  |  | EACH | ignore |
| >>TNL Association Transport Layer Information | M |  | CP Transport Layer Address  9.3.2.4 | Transport Layer Address of the gNB-CU. | - |  |
| >>TNL Association Usage | M |  | ENUMERATED (ue, non-ue, both, ...) | Indicates whether the TNL association is only used for UE-associated signalling, or non-UE-associated signalling, or both. For usage of this IE, refer to TS 38.472 [22]. | - |  |
| **gNB-CU TNL Association To Remove List** |  | *0..1* |  |  | YES | ignore |
| **>gNB-CU TNL Association To Remove Item IEs** |  | *1..<maxnoofTNLAssociation>* |  |  | EACH | ignore |
| >>TNL Association Transport Layer Address | M |  | CP Transport Layer Address  9.3.2.4 | Transport Layer Address of the gNB-CU. | - |  |
| >>TNL Association Transport Layer Address gNB-DU | O |  | CP Transport Layer Address  9.3.2.4 | Transport Layer Address of the gNB-DU. | YES | reject |
| **gNB-CU TNL Association To Update List** |  | *0..1* |  |  | YES | ignore |
| **>gNB-CU TNL Association To Update Item IEs** |  | *1..<maxnoofTNLAssociations>* |  |  | EACH | ignore |
| >>TNL Association Transport Layer Address | M |  | CP Transport Layer Address  9.3.2.4 | Transport Layer Address of the gNB-CU. | - |  |
| >>TNL Association Usage | O |  | ENUMERATED (ue, non-ue, both, ...) | Indicates whether the TNL association is only used for UE-associated signalling, or non-UE-associated signalling, or both. For usage of this IE, refer to TS 38.472 [22]. | - |  |
| **Cells to be barred List** |  | *0..1* |  | List of cells to be barred. | YES | ignore |
| **>Cells to be barred List Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | ignore |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>Cell Barred | M |  | ENUMERATED (barred, not-barred, ...) |  | - |  |
| >>IAB Barred | O |  | ENUMERATED (barred, not-barred, ...) |  | - |  |
| **Protected E-UTRA Resources List** |  | *0..1* |  | List of Protected E-UTRA Resources. | YES | reject |
| **>Protected E-UTRA Resources List Item** |  | *1.. <maxCellineNB>* |  |  | EACH | reject |
| >>Spectrum Sharing Group ID | M |  | INTEGER (1.. maxCellineNB) | Indicates the E-UTRA cells involved in resource coordination with the NR cells affiliated with the same Spectrum Sharing Group ID. | - |  |
| **>> E-UTRA Cells List** |  | *1* |  | List of applicable E-UTRA cells. | - |  |
| **>>> E-UTRA Cells List Item** |  | *1 .. <maxCellineNB>* |  |  | - |  |
| >>>>EUTRA Cell ID | M |  | BIT STRING (SIZE(28)) | Indicates the E-UTRAN Cell Identifier IE contained in the ECGI as defined in subclause 9.2.14 in TS 36.423 [9]. | - |  |
| >>>>Served E-UTRA Cell Information | M |  | 9.3.1.64 |  | - |  |
| **Neighbour Cell Information List** |  | *0..1* |  |  | YES | ignore |
| **>Neighbour Cell Information List Item** |  | *1 .. <maxCellingNBDU>* |  |  | EACH | ignore |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>Intended TDD DL-UL Configuration | O |  | 9.3.1.89 |  | - |  |
| Transport Layer Address Info | O |  | 9.3.2.5 |  | YES | ignore |
| Uplink BH Non-UP Traffic Mapping | O |  | 9.3.1.103 |  | YES | reject |
| BAP Address | O |  | 9.3.1.111 | Indicates a BAP address assigned to the IAB-donor-DU. | YES | ignore |
| CCO Assistance Information | O |  | 9.3.1.211 | Indicates CCO Assistance Information for cells and beams served by the gNB-DU of the same NG-RAN node or for cells and beams not served by the gNB-DU. | YES | Ignore |
| Cells for SON List | O |  | 9.3.1.214 |  | YES | ignore |
| gNB-CU Name | O |  | PrintableString(SIZE(1..150,...)) | Human readable name of the gNB-CU. | YES | ignore |
| Extended gNB-CU Name | O |  | 9.3.1.206 |  | YES | ignore |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxCellingNBDU | Maximum numbers of cells that can be served by a gNB-DU. Value is 512. |
| maxnoofTNLAssociations | Maximum numbers of TNL Associations between the gNB-CU and the gNB-DU. Value is 32. |
| maxCellineNB | Maximum no. cells that can be served by an eNB. Value is 256. |

#### 9.2.1.11 GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE

This message is sent by a gNB-DU to a gNB-CU to acknowledge update of information associated to an F1-C interface instance.

NOTE: If F1-C signalling transport is shared among several F1-C interface instance, this message may transfer updated information associated to several F1-C interface instances.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **Cells Failed to be Activated List** |  | *0..1* |  | List of cells which are failed to be activated | YES | reject |
| **>Cells Failed to be Activated Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >> NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>Cause | M |  | 9.3.1.2 |  | - |  |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |
| **gNB-CU TNL Association Setup List** |  | 0..1 |  |  | YES | ignore |
| **>gNB-CU TNL Association Setup Item IEs** |  | 1..<maxnoofTNLAssociations> |  |  | EACH | ignore |
| >>TNL Association Transport Layer Address | M |  | CP Transport Layer Address  9.3.2.4 | Transport Layer Address of the gNB-CU | - |  |
| **gNB-CU TNL Association Failed to Setup List** |  | 0..1 |  |  | YES | ignore |
| **>gNB-CU TNL Association Failed To Setup Item IEs** |  | 1..<maxnoofTNLAssociations> |  |  | EACH | ignore |
| >>TNL Association Transport Layer Address | M |  | CP Transport Layer Address  9.3.2.4 | Transport Layer Address of the gNB-CU | - |  |
| >>Cause | M |  | 9.3.1.2 |  | - |  |
| **Dedicated SI Delivery Needed UE List** |  | *0..1* |  | List of UEs unable to receive system information from broadcast | YES | ignore |
| **>Dedicated SI Delivery Needed UE List** |  | *1 .. <maxnoofUEIDs>* |  |  | EACH | ignore |
| >>gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | - | - |
| >>NR CGI | M |  | 9.3.1.12 |  | - | - |
| Transport Layer Address Info | O |  | 9.3.2.5 |  | YES | ignore |
| **SSBs being Activated List** |  | *0.. <maxCellingNBDU>* |  | Used when not all the beams are activated by gNB-CU | YES | reject |
| > NR CGI | M |  | 9.3.1.12 |  | - |  |
| >SSBs to be Activated List |  | *1 .. < maxnoofSSBAreas >* |  | If present, only the listed SSBs are activated | EACH | reject |
| >>SSB Activated | O |  | INTEGER (0..63) |  | - |  |
| >>SSB Activation Failed | O |  | INTEGER (0..63) |  | - |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |
| maxnoofTNLAssociations | Maximum no. of TNL Associations between the gNB-CU and the gNB-DU. Value is 32. |
| maxnoofUEIDs | Maximum no. of UEs that can be served by a gNB-DU. Value is 65536. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Skip the unchanged

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#### 9.3.1.10 Served Cell Information

This IE contains cell configuration information of a cell in the gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| NR CGI | M |  | 9.3.1.12 |  | - |  |
| NR PCI | M |  | INTEGER (0..1007) | Physical Cell ID | - |  |
| 5GS TAC | O |  | 9.3.1.29 | 5GS Tracking Area Code | - |  |
| Configured EPS TAC | O |  | 9.3.1.29a |  | - |  |
| **Served PLMNs** |  | *1..<maxnoofBPLMNs>* |  | Broadcast PLMNs in SIB 1 associated to the NR Cell Identity in the *NR CGI* IE | - |  |
| >PLMN Identity | M |  | 9.3.1.14 |  | - |  |
| >TAI Slice Support List | O |  | Slice Support List  9.3.1.37 | Supported S-NSSAIs per PLMN or per SNPN. | YES | ignore |
| >NPN Support Information | O |  | 9.3.1.156 | Supported NPNs per PLMN. | YES | reject |
| >Extended TAI Slice Support List | O |  | Extended Slice Support List  9.3.1.165 | Additional Supported S-NSSAIs per PLMN or per SNPN. | YES | reject |
| >TAI NSAG Support List | O |  | 9.3.1.273 | NSAG information associated with the slices per TAC, per PLMN or per SNPN. | YES | ignore |
| CHOICE *NR-Mode-Info* | M |  |  |  | - |  |
| *>FDD* |  |  |  |  | - |  |
| **>>FDD Info** |  | *1* |  |  | - |  |
| >>>UL FreqInfo | M |  | NR Frequency Info  9.3.1.17 | This IE is ignored if the *Cell Direction* IE is included and set to “dl-only”. | - |  |
| >>>DL FreqInfo | M |  | NR Frequency Info  9.3.1.17 | This IE is ignored if the *Cell Direction* IE is included and set to “ul-only”. | - |  |
| >>>UL Transmission Bandwidth | M |  | Transmission Bandwidth  9.3.1.15 | This IE is ignored if the *Cell Direction* IE is included and set to “dl-only”. | - |  |
| >>>DL Transmission Bandwidth | M |  | Transmission Bandwidth  9.3.1.15 | This IE is ignored if the *Cell Direction* IE is included and set to “ul-only”. | - |  |
| >>>UL Carrier List | O |  | NR Carrier List  9.3.1.137 | If included, the *UL Transmission Bandwidth* IE shall be ignored. | YES | ignore |
| >>>DL Carrier List | O |  | NR Carrier List  9.3.1.137 | If included, the *DL Transmission Bandwidth* IE shall be ignored. | YES | ignore |
| *>TDD* |  |  |  |  | - |  |
| **>>TDD Info** |  | *1* |  |  | - |  |
| >>>NR FreqInfo | M |  | NR Frequency Info  9.3.1.17 |  | - |  |
| >>>Transmission Bandwidth | M |  | Transmission Bandwidth  9.3.1.15 |  | - |  |
| >>>Intended TDD DL-UL Configuration | O |  | 9.3.1.89 |  | YES | ignore |
| >>>TDD UL-DL Configuration Common NR | O |  | OCTET STRING | The *tdd-UL-DL-ConfigurationCommon* as defined in TS 38.331 [8] | YES | ignore |
| >>>Carrier List | O |  | NR Carrier List  9.3.1.137 | If included, the Transmission Bandwidth IE shall be ignored. | YES | ignore |
| >*NR-U* |  |  |  |  | YES | ignore |
| >>NR-U Channel Info List |  | *1..< maxnoofNR-UChannelIDs>* |  |  | - |  |
| >>>NR-U Channel Info Item |  |  |  |  | - |  |
| >>>>NR-U Channel ID | M |  | INTEGER (1.. maxnoofNR-UChannelIDs, …) | Index to uniquely identify the part of the NR-U Channel Bandwidth consisting of a contiguous set of resource blocks (RBs) on which a channel access procedure is performed in shared spectrum.  Value 1 represents the first part of the NR-U Channel Bandwidth on which a channel access procedure is performed. Value 2 represents the second part of the NR-U Channel Bandwidth on which a channel access procedure is performed, and so on. | - |  |
| >>>>NR-U ARFCN | M |  | INTEGER (0.. maxNRARFCN) | It represents the centre frequency of the NR-U Channel Bandwidth for NR bands restricted to operation with shared spectrum channel access, as defined in TS 37.213 [46]. Allowed values are specified in TS 38.101-1 [26] in Table 5.4.2.3-2, Table 5.4.2.3-3 and Table 5.4.2.3-4. | - |  |
| >>>>NR-U Channel Bandwidth | M |  | ENUMERATED (10MHz, 20MHz, 40MHz, 60 MHz, 80 MHz,. …) |  | - |  |
| Measurement Timing Configuration | M |  | OCTET STRING | Contains the *MeasurementTimingConfiguration* inter-node message defined in TS 38.331 [8]. | - |  |
| RANAC | O |  | RAN Area Code  9.3.1.57 |  | YES | ignore |
| **Extended Served PLMNs List** |  | *0..1* |  | This is included if more than 6 Served PLMNs is to be signalled. | YES | ignore |
| **>Extended Served PLMNs Item** |  | *1 ..<maxnoofExtendedBPLMNs>* |  |  | - |  |
| >>PLMN Identity | M |  | 9.3.1.14 |  | - |  |
| >>TAI Slice Support List | O |  | Slice Support List  9.3.1.37 | Supported S-NSSAIs per PLMN or per SNPN. | - |  |
| >>NPN Support Information | O |  | 9.3.1.156 | Supported NPNs per PLMN. | YES | reject |
| >>Extended TAI Slice Support List | O |  | Extended Slice Support List  9.3.1.165 | Additional Supported S-NSSAIs per PLMN or per SNPN. | YES | reject |
| >TAI NSAG Support List | O |  | 9.3.1.273 | NSAG information associated with the slices per TAC, per PLMN or per SNPN. | YES | ignore |
| Cell Direction | O |  | 9.3.1.78 |  | YES | ignore |
| **Broadcast PLMN Identity Info List** |  | *0..<maxnoofBPLMNsNR>* |  | This IE corresponds to the *PLMN-IdentityInfoList* IE and the *NPN-IdentityInfoList* IE (if available) in *SIB1* as specified in TS 38.331 [8]. All PLMN Identities and associated information contained in the *PLMN-IdentityInfoList* IE and NPN identities and associated information contained in the *NPN-IdentityInfoList* IE (if available) are included and provided in the same order as broadcast in SIB1.  NOTE: In case of NPN-only cell, the PLMN Identities and associated information contained in the *PLMN-IdentityInfoList* IE are not included. | YES | ignore |
| Cell Type | O |  | 9.3.1.87 |  | YES | ignore |
| >PLMN Identity List | M |  | Available PLMN List  9.3.1.65 | Broadcast PLMN IDs in SIB1 associated to the *NR Cell Identity* IE | - |  |
| >Extended PLMN Identity List | O |  | Extended Available PLMN List  9.3.1.76 |  | - |  |
| >5GS-TAC | O |  | OCTET STRING (3) |  | - |  |
| >NR Cell Identity | M |  | BIT STRING (36) |  | - |  |
| >RANAC | O |  | RAN Area Code  9.3.1.57 |  | - |  |
| >Configured TAC Indication | O |  | 9.3.1.87a | NOTE: This IE is associated with the 5GS TAC in the *Broadcast PLMN Identity Info List* IE | YES | ignore |
| >NPN Broadcast Information | O |  | 9.3.1.157 | If this IE is included the content of the *PLMN Identity List* IE and *Extended PLMN Identity List* IE if present in the *Broadcast PLMN Identity Info List* IE is ignored. | YES | reject |
| Configured TAC Indication | O |  | 9.3.1.87a | NOTE: This IE is associated with the 5GS TAC on top-level of the *Served Cell Information* IE | YES | ignore |
| Aggressor gNB Set ID | O |  | 9.3.1.93 | This IE indicates the associated aggressor gNB Set ID of the cell | YES | ignore |
| Victim gNB Set ID | O |  | 9.3.1.93 | This IE indicates the associated Victim gNB Set ID of the cell | YES | ignore |
| IAB Info IAB-DU | O |  | 9.3.1.106 |  | YES | ignore |
| SSB Positions In Burst | O |  | 9.3.1.138 |  | YES | ignore |
| NR PRACH Configuration | O |  | 9.3.1.139 |  | YES | ignore |
| SFN Offset | O |  | 9.3.1.208 |  | YES | ignore |
| NPN Broadcast Information | O |  | 9.3.1.157 |  | YES | reject |
| Supported MBS FSA ID List |  | *0..<maxnoofMBSFSAs>* |  | Shall contain all MBS Frequency Selection Area Identities associated with the NR CGI. | YES | ignore |
| >MBS Frequency Selection Area Identity | M |  | OCTET STRING(3) |  | – |  |
| RedCap Broadcast Information | O |  | BIT STRING (SIZE(8)) | The presence of this IE indicates that the intraFreqReselectionRedCap IE is broadcast in SIB1 of the corresponding cell, see TS 38.331 [8].  Each position in the bitmap indicates which RedCap UEs are allowed access, according to the setting of RedCap barring indicators in SIB1, see TS 38.331 [8].  First bit = 1Rx, second bit = 2Rx,  third bit = halfDuplex,  other bits reserved for future use. Value '1' indicates 'access allowed'. Value '0' indicates 'access not allowed”. | YES | ignore |
| Cell DTRX Information | O |  | FFS | Indicate the Cell DTRX configuration to gNB-CU. | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofBPLMNs | Maximum no. of Broadcast PLMN Ids. Value is 6. |
| maxnoofExtendedBPLMNs | Maximum no. of Extended Broadcast PLMN Ids. Value is 6. |
| maxnoofBPLMNsNR | Maximum no. of PLMN Ids.broadcast in an NR cell. Value is 12. |
| maxnoofNR-UChannelIDs | Maximum no. NR-U Channel IDs in a cell. Value is 16. |
| maxnoofMBSFSAs | Maximum no. of MBS FSAs by a cell. Value is 256. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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### 9.4.5 Information Element Definitions

-- ASN1START

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

--

-- Information Element Definitions

--

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

F1AP-IEs {

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

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

id-gNB-CUSystemInformation,

id-HandoverPreparationInformation,

id-TAISliceSupportList,

id-RANAC,

id-BearerTypeChange,

id-Cell-Direction,

id-Cell-Type,

id-CellGroupConfig,

id-AvailablePLMNList,

id-PDUSessionID,

id-ULPDUSessionAggregateMaximumBitRate,

id-DC-Based-Duplication-Configured,

id-DC-Based-Duplication-Activation,

id-Duplication-Activation,

id-DLPDCPSNLength,

id-ULPDCPSNLength,

id-RLC-Status,

id-MeasurementTimingConfiguration,

id-DRB-Information,

id-QoSFlowMappingIndication,

id-ServingCellMO,

id-RLCMode,

id-ExtendedServedPLMNs-List,

id-ExtendedAvailablePLMN-List,

id-DRX-LongCycleStartOffset,

id-SelectedBandCombinationIndex,

id-SelectedFeatureSetEntryIndex,

id-Ph-InfoSCG,

id-latest-RRC-Version-Enhanced,

id-RequestedBandCombinationIndex,

id-RequestedFeatureSetEntryIndex,

id-DRX-Config,

id-UEAssistanceInformation,

id-PDCCH-BlindDetectionSCG,

id-Requested-PDCCH-BlindDetectionSCG,

id-BPLMN-ID-Info-List,

id-NotificationInformation,

id-TNLAssociationTransportLayerAddressgNBDU,

id-portNumber,

id-AdditionalSIBMessageList,

id-IgnorePRACHConfiguration,

id-CG-Config,

id-Ph-InfoMCG,

id-AggressorgNBSetID,

id-VictimgNBSetID,

id-MeasGapSharingConfig,

id-systemInformationAreaID,

id-areaScope,

id-IntendedTDD-DL-ULConfig,

id-QosMonitoringRequest,

id-BHInfo,

id-IAB-Info-IAB-DU,

id-IAB-Info-IAB-donor-CU,

id-IAB-Barred,

id-SIB12-message,

id-SIB13-message,

id-SIB14-message,

id-UEAssistanceInformationEUTRA,

id-SL-PHY-MAC-RLC-Config,

id-SL-ConfigDedicatedEUTRA-Info,

id-AlternativeQoSParaSetList,

id-CurrentQoSParaSetIndex,

id-CarrierList,

id-ULCarrierList,

id-FrequencyShift7p5khz,

id-SSB-PositionsInBurst,

id-NRPRACHConfig,

id-TDD-UL-DLConfigCommonNR,

id-CNPacketDelayBudgetDownlink,

id-CNPacketDelayBudgetUplink,

id-ExtendedPacketDelayBudget,

id-TSCTrafficCharacteristics,

id-AdditionalPDCPDuplicationTNL-List,

id-RLCDuplicationInformation,

id-AdditionalDuplicationIndication,

id-mdtConfiguration,

id-TraceCollectionEntityURI,

id-NID,

id-NPNSupportInfo,

id-NPNBroadcastInformation,

id-AvailableSNPN-ID-List,

id-SIB10-message,

id-RequestedP-MaxFR2,

id-DLCarrierList,

id-ExtendedTAISliceSupportList,

id-E-CID-MeasurementQuantities-Item,

id-ConfiguredTACIndication,

id-NRCGI,

id-SFN-Offset,

id-TransmissionStopIndicator,

id-SrsFrequency,

id-EstimatedArrivalProbability,

id-Supported-MBS-FSA-ID-List,

id-TRPType,

id-SRSSpatialRelationPerSRSResource,

id-MBS-Broadcast-NeighbourCellList,

id-PDCPTerminatingNodeDLTNLAddrInfo,

id-ENBDLTNLAddress,

id-PRS-Resource-ID,

id-LocationMeasurementInformation,

id-SliceRadioResourceStatus,

id-CompositeAvailableCapacity-SUL,

id-NR-U,

id-NR-U-Channel-List,

id-MIMOPRBusageInformation,

id-IngressNonF1terminatingTopologyIndicator,

id-NonF1terminatingTopologyIndicator,

id-EgressNonF1terminatingTopologyIndicator,

id-rBSetConfiguration,

id-frequency-Domain-HSNA-Configuration-List,

id-child-IAB-Nodes-NA-Resource-List,

id-Parent-IAB-Nodes-NA-Resource-Configuration-List,

id-uL-FreqInfo,

id-uL-Transmission-Bandwidth,

id-dL-FreqInfo,

id-dL-Transmission-Bandwidth,

id-uL-NR-Carrier-List,

id-dL-NR-Carrier-List,

id-nRFreqInfo,

id-transmission-Bandwidth,

id-nR-Carrier-List,

id-permutation,

id-M5ReportAmount,

id-M6ReportAmount,

id-M7ReportAmount,

id-SurvivalTime,

id-PDCMeasurementQuantities-Item,

id-OnDemandPRS,

id-AoA-SearchWindow,

id-ZoAInformation,

id-ARPLocationInfo,

id-ARP-ID,

id-MultipleULAoA,

id-UL-SRS-RSRPP,

id-SRSResourcetype,

id-ExtendedAdditionalPathList,

id-LoS-NLoSInformation,

id-NumberOfTRPRxTEG,

id-NumberOfTRPRxTxTEG,

id-TRPTxTEGAssociation,

id-TRPTEGInformation,

id-TRPRx-TEGInformation,

id-TRPBeamAntennaInformation,

id-Redcap-Bcast-Information,

id-NR-TADV,

id-SDT-MAC-PHY-CG-Config,

id-CG-SDTindicatorSetup,

id-CG-SDTindicatorMod,

id-SDTRLCBearerConfiguration,

id-SRBMappingInfo,

id-DRBMappingInfo,

id-LastUsedCellIndication,

id-LastUsedSSBItem,

id-SIB17-message,

id-MUSIM-GapConfig,

id-SIB20-message,

id-pathPower,

id-DU-RX-MT-RX-Extend,

id-DU-TX-MT-TX-Extend,

id-DU-RX-MT-TX-Extend,

id-DU-TX-MT-RX-Extend,

id-TAINSAGSupportList,

id-SL-RLC-ChannelToAddModList,

id-SIB15-message,

id-InterFrequencyConfig-NoGap,

id-MBSInterestIndication,

id-L571Info,

id-L1151Info,

id-SCS-480,

id-SCS-960,

id-SRSPortIndex,

id-PEISubgroupingSupportIndication,

id-NeedForGapsInfoNR,

id-NeedForGapNCSGInfoNR,

id-NeedForGapNCSGInfoEUTRA,

id-Source-MRB-ID,

id-RedCapIndication,

id-UL-GapFR2-Config,

id-ConfigRestrictInfoDAPS,

id-MulticastF1UContextReferenceCU,

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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-- P

PacketDelayBudget ::= INTEGER (0..1023, ...)

PacketErrorRate ::= SEQUENCE {

pER-Scalar PER-Scalar,

pER-Exponent PER-Exponent,

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

...

}

PacketErrorRate-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

PER-Scalar ::= INTEGER (0..9, ...)

PER-Exponent ::= INTEGER (0..9, ...)

PagingCell-Item ::= SEQUENCE {

nRCGI NRCGI ,

iE-Extensions ProtocolExtensionContainer { { PagingCell-ItemExtIEs } } OPTIONAL

}

PagingCell-ItemExtIEs F1AP-PROTOCOL-EXTENSION ::= {

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

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

{ ID id-LastUsedSSBItem CRITICALITY ignore EXTENSION LastUsedSSBItem-List PRESENCE optional },

...

}

LastUsedSSBItem-List ::= SEQUENCE (SIZE(1.. maxnoofSSBAreas)) OF LastUsedSSBItem-List-Item

LastUsedSSBItem-List-Item::= SEQUENCE {

lastUsedSSBs INTEGER (0..13) OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { LastUsedSSBItem-List-Item-ExtIEs} } OPTIONAL

}

LastUsedSSBItem-List-Item-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

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### 9.4.7 Constant Definitions

-- ASN1START

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

--

-- Constant definitions

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

F1AP-Constants {

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

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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id-UplinkTxDirectCurrentTwoCarrierListInfo ProtocolIE-ID ::= 684

id-UE-MulticastMRBs-ToBeSetup-atModify-List ProtocolIE-ID ::= 685

id-UE-MulticastMRBs-ToBeSetup-atModify-Item ProtocolIE-ID ::= 686

id-MC-PagingCell-List ProtocolIE-ID ::= 687

id-MC-PagingCell-Item ProtocolIE-ID ::= 688

id-SRSPosRRCInactiveQueryIndication ProtocolIE-ID ::= 689

id-LastUsedSSBItem ProtocolIE-ID ::= 6xx

END

-- ASN1STOP