**3GPP TSG-RAN WG3 Meeting #117bis-eR3-225984**

10 th– 18th Oct., 2022

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.423** | **CR** | **0908** | **rev** | **1** | **Current version:** | **17.2.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | The inclusion of the CCO Issue Detection over Xn signalling | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Samsung, Verizon, Ericsson | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_ENDC\_SON\_MDT\_enh | | | | |  | ***Date:*** | | | 2022-10-10 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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)*  *Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Currently, it is not possible for the peer node to know the reason for the CCO change and the detected issue at sending node. If the reason is cell edge problems, the receiving node may follow the change to take appropriate CCO measures. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add Coverage Modification Cause over Xn signalling.  Impact Analysis:  Impact assessment towards the previous version of the specification (same release):  This CR has isolated impact because the change only affects the CCO notification over Xn. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The problem of CCO still exists in the network. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.4.2.2, 9.1.3.4, 9.3.5, 9.3.7 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

<<<<<<<<<<<<<<<<<<<< Start of the First Change >>>>>>>>>>>>>>>>>>>>

#### 8.4.2.2 Successful Operation



Figure 8.4.2.2-1: NG-RAN node Configuration Update, successful operation

The NG-RAN node1 initiates the procedure by sending the NG-RAN NODE CONFIGURATION UPDATE message to a peer NG-RAN node2.

If Supplementary Uplink is configured at the NG-RAN node1, the NG-RAN node1 shall include in the NG-RAN NODE CONFIGURATION UPDATE message the *SUL Information* IE and the *Supported SUL band List* IE for each cell added in the *Served NR Cells To Add* IE and in the *Served NR Cells To Modify* IE.

If Supplementary Uplink is configured at the NG-RAN node2, the NG-RAN node2 shall include in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message the *SUL Information* IE and the *Supported SUL band List* IE for each cell added in the *Served NR Cells* IE if any.

If the *TAI Support List* IE is included in the NG-RAN NODE CONFIGURATION UPDATE message, the receiving node shall replace the previously provided *TAI Support List* IE by the received *TAI Support List* IE.

If the *Cell Assistance Information NR* IE is present, the NG-RAN node2 shall, if supported, use it to generate the *Served NR Cells* IE and include the list in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message.

If the *Cell Assistance Information E-UTRA* IE is present, the NG-RAN node2 shall, if supported, use it to generate the *Served E-UTRA Cells* IE and include the list in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message.

If the *Partial List Indicator NR* IE is included in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message and set to "partial" the NG-RAN node1 shall, if supported, assume that the *Served NR Cells* IE in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message includes a partial list of NR cells.

If the *Partial List Indicator E-UTRA* IE is included in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message and set to "partial" the NG-RAN node1 shall, if supported, assume that the *Served E-UTRA Cells* IE in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message includes a partial list of NR cells.

If the *Cell and Capacity Assistance Information NR* IE is present in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message from the candidate NG-RAN node2, the NG-RAN node1 shall, if supported, store the collected information to be used for future NG-RAN node interface management.

If the *Cell and Capacity Assistance Information E-UTRA* IE is present in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message from the candidate NG-RAN node2, the NG-RAN node1 shall, if supported, store the collected information to be used for future NG-RAN node interface management.

Upon reception of the NG-RAN NODE CONFIGURATION UPDATE message, NG-RAN node2 shall update the information for NG-RAN node1 as follows:

If case of network sharing with multiple cell ID broadcast with shared Xn-C signalling transport, as specified in TS 38.300 [9], the NG-RAN NODE CONFIGURATION UPDATE message and the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message shall include the *Interface Instance Indication* IE to identify the corresponding interface instance.

If the *TNL Configuration Info* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node2 shall take this IE into account for IPSec establishment.

If the *TNL Configuration Info* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message, the NG-RAN node1 shall take this IE into account for IPSec establishment.

If the *CSI-RS Transmission Indication* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node2 shall take this IE into account for neighbour cell’s CSI-RS measurement.

The NG-RAN NODE CONFIGURATION UPDATE message may contain for each cell served by NG-RAN node1 NPN related broadcast information. The NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message may contain for each cell served by NG-RAN node2 NPN related broadcast information.

If the *Additional Measurement Timing Configuration List* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node2 shall take this IE into account for neighbour cell’s CSI-RS measurement.

If the *Local NG-RAN Node Identifier* IE is present in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node2 shall, if supported, take this into account for future retrieval of the UE contexts from the NG-RAN node1.

If the *Local NG-RAN Node Identifier* IE is present in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message, the NG-RAN node1 shall, if supported, take this into account for future retrieval of the UE contexts from the NG-RAN node2.

If the *Neighbour NG-RAN Node List* IE is present in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node2 may take this into account for Local NG-RAN Node Identifierconflict detection.

If the *Neighbour NG-RAN Node List* IE is present in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message, the NG-RAN node1 may take this into account for Local NG-RAN Node Identifierconflict detection.

If the *Local NG-RAN Node Identifier Removal* IE is present in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node2 shall, if supported, discard it from its context and not use it for future retrieval of the UE contexts from the NG-RAN node1.

If the *Local NG-RAN Node Identifier Removal* IE is present in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message, the NG-RAN node1 shall, if supported, discard it from its context and not use it for future retrieval of the UE contexts from the NG-RAN node2.

If the *Served Cell Specific Info Request* IE is included in the NG-RAN NODE CONFIGURATION UPDATE message and if the NG-RAN node2 is a gNB, the NG-RAN node2 shall, if supported, include the *Additional Measurement Timing Configuration List* IE for the requested NR cells in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message.

If the *TAI NSAG Support List*IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node shall, if supported, take this IE into account for slice aware cell reselection.

**Update of Served Cell Information NR:**

- If *Served Cells NR To Add* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, NG-RAN node2 shall add cell information according to the information in the *Served Cell Information* *NR* IE.

- If *Served Cells NR To Modify* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, NG-RAN node2 shall modify information of cell indicated by *Old NR-CGI* IE according to the information in the *Served Cell Information* *NR* IE.

- When either served cell information or neighbour information of an existing served cell in NG-RAN node1 need to be updated, the whole list of neighbouring cells, if any, shall be contained in the *Neighbour Information NR* IE. The NG-RAN node2 shall overwrite the served cell information and the whole list of neighbour cell information for the affected served cell.

- If the *Deactivation Indication* IE is contained in the *Served Cells NR To Modify* IE, it indicates that the concerned cell was switched off to lower energy consumption.

- If *Served Cells NR To Delete* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, NG-RAN node2 shall delete information of cell indicated by *Old NR-CGI* IE.

- If the *Intended TDD DL-UL Configuration NR* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node2 should take this information into account for cross-link interference management and/or NR-DC power coordination with the NG-RAN node1. The NG-RAN node2 shall consider the received *Intended TDD DL-UL Configuration NR* IE content valid until reception of a new update of the IE for the same NG-RAN node2.

- If the *NR Cell PRACH Configuration* IE is contained in the *Served Cell Information NR* IE in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node receiving the IE may use this information for RACH optimisation.

- If the *SFN Offset* IE is contained in the *Served Cell Information NR* IE in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node receiving the IE shall, if supported, use this information to update the SFN0 time offset of the reported cell.

- If the *Supported MBS FSA ID List* IE is contained in the *Served Cell Information NR* IE in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node receiving the IE may use it according to TS 38.300 [9].

- If the *RedCap Broadcast Information* IE is contained in the *Served Cell Information NR* IE in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node2 may use this information to determine a suitable target in case of subsequent outgoing mobility involving RedCap UEs.

**Update of Served Cell Information** **E-UTRA:**

- If *Served Cells* *E-UTRA To Add* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, NG-RAN node2 shall add cell information according to the information in the *Served Cell Information* *E-UTRA* IE.

- If *Served Cells E-UTRA To Modify* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, NG-RAN node2 shall modify information of cell indicated by *Old ECGI* IE according to the information in the *Served Cell Information* *E-UTRA* IE.

- When either served cell information or neighbour information of an existing served cell in NG-RAN node1 need to be updated, the whole list of neighbouring cells, if any, shall be contained in the *Neighbour Information E-UTRA* IE. The NG-RAN node2 shall overwrite the served cell information and the whole list of neighbour cell information for the affected served cell.

- If the *Deactivation Indication* IE is contained in the *Served Cells E-UTRA To Modify* IE, it indicates that the concerned cell was switched off to lower energy consumption.

- If the *Served Cells E-UTRA To Delete* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, NG-RAN node2 shall delete information of cell indicated by *Old ECGI* IE.

- If the *Protected E-UTRA Resource Indication* IE is included into the NG-RAN NODE CONFIGURATION UPDATE (inside the *Served Cell Information* *E-UTRA* IE), the receiving gNB should take this into account for cell-level resource coordination with the ng-eNB. The gNB shall consider the received *Protected E-UTRA Resource Indication* IE content valid until reception of a new update of the IE for the same ng-eNB. The protected resource pattern indicated in the *Protected E-UTRA Resource Indication* IE is not valid in subframes indicated by the *Reserved Subframes* IE (contained in E-UTRA - NR CELL RESOURCE COORDINATION REQUEST messages), as well as in the non-control region of the MBSFN subframes i.e. it is valid only in the control region therein. The size of the control region of MBSFN subframes is indicated in the *Protected E-UTRA Resource Indication* IE.

- If the *PRACH Configuration* IE is contained in the *Served Cell Information E-UTRA* IE in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node receiving the IE may use this information for RACH optimisation.

- If the *NPRACH Configuration* IE is contained in the *Served Cell Information E-UTRA* IE in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node receiving the IE may use this information for RACH optimisation.

- If the *SFN Offset* IE is contained in *Served Cell Information E-UTRA* IE in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node receiving the IE shall, if supported, use this information to update the SFN0 time offset of the reported cell.

**Update of TNL addresses for SCTP associations:**

If the *TNL Association to Add List* IE is included in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node2 shall, if supported, use it to establish the TNL association(s) with the NG-RAN node1. The NG-RAN node2 shall report to the NG-RAN node1, in the NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message, the successful establishment of the TNL association(s) with the NG-RAN node1 as follows:

- A list of successfully established TNL associations shall be included in the *TNL Association Setup List* IE;

- A list of TNL associations that failed to be established shall be included in the *TNL Association Failed to Setup List* IE.

If the *TNL Association to Remove List* IE is included in the NG-RAN NODE CONFIGURATION UPDATE message the NG-RAN node2 shall, if supported, initiate removal of the TNL association(s) indicated by the received Transport Layer information towards the NG-RAN node1.

If the *TNL Association to Update List* IE is included in the NG-RAN NODE CONFIGURATION UPDATE message the NG-RAN node2 shall, if supported, update the TNL association(s) indicated by the received Transport Layer information towards the NG-RAN node1.

**Update of AMF Region Information:**

- If *AMF Region Information To Add* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node2 shall add the AMF Regions to its AMF Region List.

- If *AMF Region Information To Delete* IE is contained in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node2 shall remove the AMF Regions from its AMF Region List.

**Update of Cell Coverage:**

If the *Coverage Modification List* IE is present in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node2 may use the information in the *Cell Coverage State* IE to identify the cell deployment configuration enabled by the NG-RAN node1 and for configuring the mobility towards the cell(s) indicated by the *Global NG-RAN Cell Identity* IE, as described in TS 38.300 [9].

- If the *Cell Deployment Status Indicator* IE is present in the *Coverage Modification List* IE, the NG-RAN node2 shall consider the cell deployment configuration of the cell to be modified as the next planned configuration and shall remove any planned configuration stored for this cell.

- If the *Cell Deployment Status Indicator* IE is present and the *Cell Replacing Info* IE contains non-empty cell list, the NG-RAN node2 may use this list to avoid connection or re-establishment failures during the reconfiguration, e.g. consider the cells in the list as possible alternative handover targets.

- If the *Cell Deployment Status Indicator* IE is not present, the NG-RAN node2 shall consider the cell deployment configuration of cell to be modified as activated and replace any previous configuration for the cells indicated in the *Coverage Modification List* IE.

If the *SSB Coverage Modification List* IE is present in the *Coverage Modification List* IE, the NG-RAN node2 may use the information in the *SSB Coverage State* IE to identify the SSB beam deployment configuration enabled by the NG-RAN node1 and for configuring the mobility towards the beam(s) indicated by the *SSB Index* IE, as described in TS 38.300 [9].

If the *Coverage Modification Cause* IE is present in the NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node2 may use the information for deducing the CCO issue detected at NG-RAN node1 and forconfiguring coverage state of its served cell(s).

**Interactions with other procedures:**

If the NG-RAN node1 receives a NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message containing a Local NG-RAN Node Identifier identical to the Local NG-RAN Node Identifier included in the corresponding NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node1 may initiate the NG-RAN node Configuration Update procedure including in the NG-RAN NODE CONFIGURATION UPDATE message a new Local NG-RAN Node Identifier, different from the Local NG-RAN Node Identifierof each of its neighbour NG-RAN Nodes.

If the NG-RAN node1 receives a NG-RAN NODE CONFIGURATION UPDATE ACKNOWLEDGE message containing a Local NG-RAN Node Identifierwithin the *Neighbour NG-RAN Node List* IE identical to the Local NG-RAN Node Identifier included in the corresponding NG-RAN NODE CONFIGURATION UPDATE message, the NG-RAN node1 may initiate the NG-RAN node Configuration Update procedure including in the NG-RAN NODE CONFIGURATION UPDATE message a new Local NG-RAN Node Identifier, different from the Local NG-RAN Node Identifierof each of its neighbour NG-RAN Nodes.

<<<<<<<<<<<<<<<<<<<< End of the First Change >>>>>>>>>>>>>>>>>>>>

<<<<<<<<<<<<<<<<<<<< Start of the Second Change >>>>>>>>>>>>>>>>>>>>

#### 9.1.3.4 NG-RAN NODE CONFIGURATION UPDATE

This message is sent by a NG-RAN node to a neighbouring NG-RAN node to transfer updated information for an Xn-C interface instance.

Direction: NG-RAN node1 🡪 NG-RAN node2.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | | M |  | 9.2.3.1 |  | YES | reject |
| TAI Support List | | O |  | 9.2.3.20 | List of supported TAs and associated characteristics. | GLOBAL | reject |
| CHOICE *Initiating NodeType* | | M |  |  |  | YES | ignore |
| *>gNB* | |  |  |  |  |  |  |
| >>Served Cells To Update NR | | O |  | 9.2.2.15 |  | YES | ignore |
| >>Cell Assistance Information NR | | O |  | 9.2.2.17 |  | YES | ignore |
| >>Cell Assistance Information E-UTRA | | O |  | 9.2.2.43 |  | YES | ignore |
| >>Served Cell Specific Info Request | | O |  | 9.2.2.102 |  | YES | ignore |
| *>ng-eNB* | |  |  |  |  |  |  |
| >>Served Cells to Update E-UTRA | | O |  | 9.2.2.16 |  | YES | ignore |
| >>Cell Assistance Information NR | | O |  | 9.2.2.17 |  | YES | ignore |
| >>Cell Assistance Information E-UTRA | | O |  | 9.2.2.43 |  | YES | ignore |
| **TNLA To Add List** |  | | *0..1* |  |  | YES | ignore |
| **>TNLA To Add Item** |  | | *1..<maxnoofTNLAssociations>* |  |  | – |  |
| >>TNLA Transport Layer Information | M | |  | CP Transport Layer Information  9.2.3.31 | CP Transport Layer Information of NG-RAN node1 | – |  |
| >> TNL Association Usage | M | |  | 9.2.3.84 |  | – |  |
| **TNLA To Update List** |  | | *0..1* |  |  | YES | ignore |
| **>TNLA To Update Item** |  | | *1..<maxnoofTNLAssociations>* |  |  | – |  |
| >>TNLA Transport Layer Information | M | |  | CP Transport Layer Information  9.2.3.31 | CP Transport Layer Information of NG-RAN node1 | – |  |
| >> TNL Association Usage | O | |  | 9.2.3.84 |  | – |  |
| **TNLA To Remove List** |  | | *0..1* |  |  | YES | ignore |
| **>TNLA To Remove Item** |  | | *1..<maxnoofTNLAssociations>* |  |  | – |  |
| >>TNLA Transport Layer Information | M | |  | CP Transport Layer Information  9.2.3.31 | CP Transport Layer Information of NG-RAN node1 | – |  |
| Global NG-RAN Node ID | O | |  | 9.2.2.3 |  | YES | reject |
| AMF Region Information To Add | O | |  | AMF Region Information 9.2.3.83 | List of all added AMF Regions to which the NG-RAN node belongs. | YES | reject |
| AMF Region Information To Delete | O | |  | AMF Region Information 9.2.3.83 | List of all deleted AMF Regions to which the NG-RAN node belongs. | YES | reject |
| Interface Instance Indication | O | |  | 9.2.2.39 |  | YES | reject |
| TNL Configuration Info | O | |  | 9.2.3.96 |  | YES | ignore |
| **Coverage Modification List** |  | | *0 .. 1* |  | List of cells with modified coverage. | GLOBAL | reject |
| **>Coverage Modification Item** |  | | *0 .. <maxnoofCellsinNG-RAN node>* |  |  | – |  |
| >>Global NG-RAN Cell Identity | M | |  | Global NG-RAN Cell Identity  9.2.2.27 | NG-RAN Cell Global Identifier of the cell to be modified. | – |  |
| >>Cell Coverage State | M | |  | INTEGER (0..63, …) | Value '0' indicates that the cell is inactive. Other values Indicates that the cell is active and also indicates the coverage configuration of the concerned cell. | – |  |
| >>Cell Deployment Status Indicator | O | |  | ENUMERATED(pre-change-notification, ...) | Indicates the Cell Coverage State is planned to be used at the next reconfiguration. | – |  |
| **>>Cell Replacing Info** | *C-ifCellDeploymentStatusIndicatorPresent* | |  |  |  | – |  |
| **>>>Replacing Cells** |  | | *0 .. <maxnoofCellsinNG-RAN node>* |  |  | – |  |
| >>>>Global NG-RAN Cell Identity |  | |  | Global NG-RAN Cell Identity  9.2.2.27 | NG-RAN Cell Global Identifier of a cell that may replace all or part of the coverage of the cell to be modified. | – |  |
| **>>SSB Coverage Modification List** |  | | 0.. 1 |  | List of SSB beams with modified coverage. | – |  |
| **>>>SSB Coverage Modification Item** |  | | *0..<maxnoofSSBAreas>* |  |  | – |  |
| >>>>SSB Index | M | |  | INTEGER (0..63) | Identifier of the SSB beam to be modified. | – |  |
| >>>>SSB Coverage State | M | |  | INTEGER (0..15, …) | Value '0' indicates that the SSB beam is inactive. Other values Indicates that the SSB beam is active and also indicates the coverage configuration of the concerned SSB beam. | – |  |
| >> Coverage Modification Cause | O | |  | ENUMERATED (coverage, cell edge capacity, ...) | Indicates the reason for the coverage modification in NG-RAN node1. | – |  |
| Local NG-RAN Node Identifier | O | |  | 9.2.2.101 |  | YES | ignore |
| **Neighbour NG-RAN Node List** |  | | *0..<maxnoofNeighbourNG-RAN nodes>* |  |  | YES | ignore |
| *>*Global NG-RAN Node ID | M | |  | 9.2.2.3 |  | – |  |
| >Local NG-RAN Node Identifier | M | |  | 9.2.2.101 |  | – |  |
| Local NG-RAN Node Identifier Removal | O | |  | Local NG-RAN Node Identifier  9.2.2.101 |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofTNLAssociations | Maximum numbers of TNL Associations between the NG RAN nodes. Value is 32. |
| maxnoofCellsinNG-RAN node | Maximum no. cells that can be served by a NG-RAN node. Value is 16384. |
| maxnoofSSBAreas | Maximum no. SSB Areas that can be served by a cell. Value is 64. |
| maxnoofNeighbourNG-RAN nodes | Maximum no. of neighbour NG-RAN nodes. Value is 256. |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifCellDeploymentStatusIndicatorPresent | This IE shall be present if the *Cell Deployment Status Indicator* IE is present. |

<<<<<<<<<<<<<<<<<<<< End of the Second Change >>>>>>>>>>>>>>>>>>>>

<<<<<<<<<<<<<<<<<< Start of the Third Change >>>>>>>>>>>>>>>>>>>>

### 9.3.5 Information Element definitions

-- ASN1START

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-- Information Element Definitions

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

XnAP-IEs {

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

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

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* skip unchanged part \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

id-Redcap-Bcast-Information,

id-UESliceMaximumBitRateList,

id-PositioningInformation,

id-ServedCellSpecificInfoReq-NR,

id-TAINSAGSupportList,

id-earlyMeasurement,

id-BeamMeasurementsReportConfiguration,

id-CoverageModificationCause,

maxEARFCN,

maxnoofAllowedAreas,

maxnoofAMFRegions,

maxnoofAoIs,

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* skip unchanged part \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

CauseMisc ::= ENUMERATED {

control-processing-overload,

hardware-failure,

o-and-M-intervention,

not-enough-user-plane-processing-resources,

unspecified,

...

}

CoverageModificationCause ::= ENUMERATED {

coverage,

cell-edge-capacity,

...}

CellAssistanceInfo-NR ::= CHOICE {

limitedNR-List SEQUENCE (SIZE(1..maxnoofCellsinNG-RANnode)) OF NR-CGI,

full-List ENUMERATED {all-served-cells-NR, ...},

choice-extension ProtocolIE-Single-Container { {CellAssistanceInfo-NR-ExtIEs} }

}

CellAssistanceInfo-NR-ExtIEs XNAP-PROTOCOL-IES ::= {

...

}

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* skip unchanged part \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Coverage-Modification-List ::= SEQUENCE (SIZE (0..maxnoofCellsinNG-RANnode)) OF Coverage-Modification-List-Item

Coverage-Modification-List-Item ::= SEQUENCE {

globalNG-RANCell-ID GlobalCell-ID,

cellCoverageState INTEGER (0..63, ...),

cellDeploymentStatusIndicator CellDeploymentStatusIndicator OPTIONAL,

cellReplacingInfo CellReplacingInfo OPTIONAL,

-- Included in case the Cell Deployment Status Indicator IE is present

sSB-Coverage-Modification-List SSB-Coverage-Modification-List,

iE-Extension ProtocolExtensionContainer { { Coverage-Modification-Item-ExtIEs} } OPTIONAL,

...

}

Coverage-Modification-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

{ ID id-CoverageModificationCause CRITICALITY ignore EXTENSION CoverageModificationCause PRESENCE optional}, ...

}

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* skip unchanged part \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.3.7 Constant definitions

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* skip unchanged part \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

id-PEIPSassistanceInformation ProtocolIE-ID ::= 357

id-UESliceMaximumBitRateList ProtocolIE-ID ::= 358

id-S-NG-RANnodeUE-Slice-MBR ProtocolIE-ID ::= 359

id-PositioningInformation ProtocolIE-ID ::= 360

id-UEAssistantIdentifier ProtocolIE-ID ::= 361

id-ManagementBasedMDTPLMNModificationList ProtocolIE-ID ::= 362

id-F1-terminatingIAB-donorIndicator ProtocolIE-ID ::= 363

id-TAINSAGSupportList ProtocolIE-ID ::= 364

id-SCGreconfigNotification ProtocolIE-ID ::= 365

id-earlyMeasurement ProtocolIE-ID ::= 366

id-BeamMeasurementsReportConfiguration ProtocolIE-ID ::= 367

id-CoverageModificationCause

ProtocolIE-ID ::= xxx

END

-- ASN1STOP

<<<<<<<<<<<<<<<<<<<< End of the Third Change >>>>>>>>>>>>>>>>>>>>