3GPP TSG-RAN WG3 Meeting #128 R3-253601

**Malta, MT, 19 – 23 May, 2025**

Title: (TP for LTM BLCR for TS38.473): Discussion on intra-CU conditional LTM

Agenda Item: 13.3

Source: Huawei

Document for: Other

# 1 Introduction

This contribution contains a TP for LTM BLCR for TS38.473 for intra-CU conditional LTM.

# 2 Annex - TP for LTM BLCR for TS38.473

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## 8.3 UE Context Management procedures

### 8.3.1 UE Context Setup

#### 8.3.1.1 General

The purpose of the UE Context Setup procedure is to establish the UE Context including, among others, SRB, DRB, BH RLC channel, Uu Relay RLC channel, PC5 Relay RLC channel, and SL DRB configuration. The procedure uses UE-associated signalling.

#### 8.3.1.2 Successful Operation



Figure 8.3.1.2-1: UE Context Setup Request procedure: Successful Operation

The gNB-CU initiates the procedure by sending UE CONTEXT SETUP REQUEST message to the gNB-DU. If the gNB-DU succeeds to establish the UE context, it replies to the gNB-CU with UE CONTEXT SETUP RESPONSE. If no UE-associated logical F1-connection exists, the UE-associated logical F1-connection shall be established as part of the procedure. Except for RACH based SDT and UE configured with BWP specific ServingCellMO, the gNB-CU shall perform RRC Reconfiguration or RRC connection resume to send UE to the RRC\_CONNECTED state as described in TS 38.331 [8], and in this case, the *CellGroupConfig* IE shall transparently be signaled to the UE as specified in TS 38.331 [8]. In the cases of RACH based SDT procedure and UE configured with BWP specific ServingCellMO, the *CellGroupConfig* IE shall be ignored by the gNB-CU.

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If the *LTM Indicator* IE set to "true" is contained in the *LTM Information Setup* IEincluded in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, consider that the request concerns LTM for the included *SpCell ID* IE and shall include it as the *Requested Target Cell ID* IE in the UE CONTEXT SETUP RESPONSE message. The gNB-DU shall regard it as a reconfiguration with sync as defined in TS 38.331 [8].

If the *LTM Indicator* IE set to "C-LTM" is contained in the *LTM Information Setup* IEincluded in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, consider that the request concerns conditional LTM for the included *SpCell ID* IE and shall include it as the *Requested Target Cell ID* IE in the UE CONTEXT SETUP RESPONSE message.

If the *LTM Indicator* IE is set to "C-LTM" and the *Request for L1 Execution Condition Candidate Cell List* IE is present in the *LTM Information Setup* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall generate the L1 execution condition for the candidate cells in the *Request for L1 Execution Condition Candidate Cell List* IE .

If the *Request for Lower Layer Configuration* IE set to "true" is contained within the *Reference Configuration* IE in the *LTM Information Setup* IEincluded in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, provide the lower layer configuration in the *Reference Configuration Information* IE in the *LTM Configuration*IE in the UE CONTEXT SETUP RESPONSE message for the gNB-CU to generate the LTM reference configuration.

If the *Reference Configuration Information* IE is contained within the *Reference Configuration* IE in the *LTM Information Setup* IE included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account for generating the LTM lower layer configuration.

If the *CSI Resource Configuration* is contained in the *LTM Information Setup* IE included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it to generate the LTM CSI reporting configuration(s) in the *CellGroupConfig* IE for the requested LTM candidate cell.

If the *LTM Configuration ID Mapping List* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, consider this as the mapping information for the LTM candidate cell(s).

If the *Early Sync Information Request* IE isincluded in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, include the *Early Sync Information* IE of the accepted candidate cell for early TA acquisition (early UL synchronisation), in the UE CONTEXT SETUP RESPONSE message. If the *Early UL Sync Configuration* IE is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, consider it as the generated early UL sync information from the accepted candidate cell in the gNB-DU. If the *Early UL Sync Configuration for SUL* IE is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, consider it as the generated early UL sync information for SUL from the accepted candidate cell in the gNB-DU.

If the *LTM Configuration* IE is included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, consider it as the generated configuration for LTM from the accepted candidate cell in the candidate gNB-DU.

If the *Complete* *Candidate Configuration Indicator* IE set to "complete" is contained in the *LTM Configuration* IE included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, consider that the LTM candidate configuration is a complete candidate configuration.

If the *Direct Path Addition* IE is contained in the *Path Addition Information* IE which is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, consider that the request concerns the direct path addition for the included *SpCell ID* IE as specified in TS 38.401 [4] and regard it as a reconfiguration with sync as defined in TS 38.331 [8].

If the *Indirect Path Addition* IE is contained in the *Path Addition Information* IE which is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, consider that the request concerns the indirect path addition for the MP Remote UE using PC5 link and use it as specified in TS 38.401 [4].

If the *N3C* *Indirect Path Addition* IE is contained in the *Path Addition Information* IE, the gNB-DU shall, if supported, consider that the request concerns the indirect path addition for the MP Remote UE using N3C and use it as specified in TS 38.401 [4].

If the *S-CPAC Lower Layer Reference Config Request* IE set to "true" is contained in the *Conditional Inter-DU Mobility Information* IEincluded in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, provide the lower layer configuration in the *Reference Configuration Information* IE in the *S-CPAC Configuration* IE in the UE CONTEXT SETUP RESPONSE message for the gNB-CU to generate the S-CPAC reference configuration.

If the *Complete Candidate Configuration Indicator* IE set to "complete" is contained in the *S-CPAC Configuration* IE included in the UE CONTEXT SETUP RESPONSE message, the gNB-CU shall, if supported, consider that the S-CPAC candidate configuration is a complete candidate configuration.

If the *musim-CandidateBandList* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use it for temporary capability restriction.

If the *DL LBT Failure Information Request* IE is included in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, consider that the gNB- CU requests collection of DL LBT failure information for the analysis of the MRO events of the UE specified in TS 38.300 [6], and act as specified in TS 38.401 [4].

If the *Ranging and Sidelink Positioning Service Information* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account for the UE’s Ranging and Sidelink Positioning service.

**Interaction with UE Inactivity Notification procedure**

If the *SDT Volume Threshold* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use the information during an SDT transaction to inform the gNB-CU via the UE INACTIVITY NOTIFICATION message as specified in TS 38.401 [4].

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### 8.3.4 UE Context Modification (gNB-CU initiated)

#### 8.3.4.1 General

The purpose of the UE Context Modification procedure is to modify the established UE Context, e.g., establishing, modifying and releasing radio resources or sidelink resources. This procedure is also used to command the gNB-DU to stop data transmission for the UE for mobility (see TS 38.401 [4]). The procedure uses UE-associated signalling.

#### 8.3.4.2 Successful Operation



Figure 8.3.4.2-1: UE Context Modification procedure. Successful operation

The UE CONTEXT MODIFICATION REQUEST message is initiated by the gNB-CU.

Upon reception of the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall perform the modifications, and if successful reports the update in the UE CONTEXT MODIFICATION RESPONSE message.

If the *SpCell ID* IE is included in the UE CONTEXT MODIFICATION REQUEST message and neither the *LTM Information Modify* IE nor the *Conditional Intra-DU Mobility Information* IE is present, the gNB-DU shall replace any previously received value and regard it as a reconfiguration with sync as defined in TS 38.331 [8]. If the *ServCellIndex* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall take this into account for the indicated SpCell. If the *SpCell UL Configured* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall configure UL for the indicated SpCell accordingly. If the *servingCellMO* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall configure servingCellMO for the indicated SpCell accordingly. If the *servingCellMO List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, configure servingCellMO after determining the list of BWPs for the UE and include the list of servingCellMOs that have been encoded in *CellGroupConfig* IE as *ServingCellMO-encoded-in-CGC List* IE in theUE CONTEXT MODIFICATION RESPONSE message.

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If the *LTM Indicator* IE set to "true" is contained in the *LTM Information Modify* IEincluded in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, consider that the request concerns LTM for the included *SpCell ID* IE and shall include it as the *Requested Target Cell ID* IE in the UE CONTEXT MODIFICATION RESPONSE message. The gNB-DU shall regard it as a reconfiguration with sync as defined in TS 38.331 [8]. If the gNB-DU accepts the request for LTM for that *SpCell*, the gNB-DU shall generate and include the *CellGroupConfig* IE for the accepted LTM candidate cell in the UE CONTEXT MODIFICATION RESPONSE message.

If the *LTM Indicator* IE set to "C-LTM" is contained in the *LTM Information Modify* IEincluded in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, consider that the request concerns conditional LTM for the included *SpCell ID* IE and shall include it as the *Requested Target Cell ID* IE in the UE CONTEXT MODIFICATION RESPONSE message. If the gNB-DU accepts the request for conditional LTM for that *SpCell*, the gNB-DU shall generate and include the *CellGroupConfig* IE for the accepted LTM candidate cell in the UE CONTEXT MODIFICATION RESPONSE message.

If the *LTM Indicator* IE is set to "C-LTM" and the *Request for L1 Execution Condition Candidate Cell List* IE is present in the *LTM Information Modify* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall generate the L1 execution condition for the candidate cells in the *Request for L1 Execution Condition Candidate Cell List* IE .

If the *Request for Lower Layer Configuration* IE set to "true" is contained within the *Reference Configuration* IE in the *LTM Information Modify* IEincluded in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, include the *Reference Configuration Information* IE in the *LTM Configuration* IE in the UE CONTEXT MODIFICATION RESPONSE message to provide lower layer configuration for the gNB-CU to generate the LTM reference configuration.

If the *Reference Configuration Information* IE is contained within the *Reference Configuration* IE in the *LTM Information Modify* IE included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take it into account for generating the LTM lower layer configuration.

If the *CSI Resource Configuration* IEis contained in the *LTM Information Modify* IE included in the UE CONTEXT MODIFICATION REQUEST message and the *SpCell ID* IE is also included, the gNB-DU shall, if supported, use it to generate the LTM CSI reporting configuration in the *CellGroupConfig* IE for the requested LTM candidate cell identified by the *SpCell ID* IE.

If the *CSI Resource Configuration* IE is contained in the *LTM Information Modify* IE included in the UE CONTEXT MODIFICATION REQUEST message while the *SpCell ID* IE is absent, the gNB-DU shall, if supported, use it to generate the LTM CSI reporting configuration in the *CellGroupConfig* IE for the serving cell.

If the *LTM Configuration ID Mapping List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, consider this as the mapping information for the LTM candidate cell(s).

If the *Early Sync Information Request* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, include *Early Sync Information* IEof the accepted candidate cell for early TA acquisition (early UL synchronisation) in the UE CONTEXT MODIFICATION RESPONSE message. If the *Early UL Sync Configuration* IEis included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, consider it as the generated early UL sync information from the accepted candidate cell in the gNB-DU. If the *Early UL Sync Configuration* *for SUL* IEis included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, consider it as the generated early UL sync information for SUL from the accepted candidate cell in the gNB-DU.

If the *Early Sync Candidate Cell Information List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it as specified in TS 38.401 [4]. If the *UE Based TA Measurement Configuration* IE is contained in the *Early Sync Candidate Cell Information List* IE for some candidate cell, the gNB-DU shall, if supported, take them into account for UE based TA measurement during LTM cell switch as specified in TS 38.331 [8].

If the *Early Sync Serving Cell Information* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it as specified in TS 38.401 [4]. If the *UE Based TA Measurement Configuration* IE is contained in the *Early Sync Serving Cell Information* IE, the gNB-DU shall, if supported, take it into account for UE based TA measurement during LTM cell switch as specified in TS 38.331 [8].

If the *LTM CFRA Resource Config List* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it for the LTM cell switch command as specified in TS 38.321 [16].

If the *LTM Configuration* IE is included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, consider it as the generated configuration for LTM from the accepted candidate cell in the gNB-DU.

If the *LTM Cells to be Released List* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, release the configured candidate cells in the list.

If the *LTM Reset Information* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, take them into account for L2 reset (i.e., RLC re-establishment) during an intra-DU LTM cell switch as specified in TS38.331 [8].

If the *Complete Candidate Configuration Indicator* IE set to "complete" is contained in the *LTM Configuration* IE included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, consider that the LTM candidate configuration is a complete candidate configuration.

If the *Direct Path Addition* IE is contained in the *Path Addition Information* IE which is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, consider that the request concerns the direct path addition for the included *SpCell ID* IE as specified in TS 38.401 [4] and regard it as a reconfiguration with sync as defined in TS 38.331 [8]. If the *Indirect Path Addition* IE is contained in the *Path Addition Information* IE, the gNB-DU shall, if supported, consider that the request concerns the indirect path addition for the MP Remote UE using PC5 link and use it as specified in TS 38.401 [4]. If the *N3C* *Indirect Path Addition* IE is contained in the *Path Addition Information* IE, the gNB-DU shall, if supported, consider that the request concerns the indirect path addition for the MP Remote UE using N3C and use it as specified in TS 38.401 [4].

If the *S-NSSAI* IE is included within the *DRB to Be Modified Item* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, store the corresponding information and replace any existing information.

If the *S-CPAC Lower Layer Reference Config Request* IE set to "true" is contained in the *Conditional Intra-DU Mobility Information* IEincluded in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, provide the lower layer configuration in the *Reference Configuration Information* IE in the *S-CPAC Configuration* IE in the UE CONTEXT MODIFICATION RESPONSE message for the gNB-CU to generate the S-CPAC reference configuration.

If the *Complete Candidate Configuration Indicator* IE set to "complete" is contained in the *S-CPAC Configuration* IE included in the UE CONTEXT MODIFICATION RESPONSE message, the gNB-CU shall, if supported, consider that the S-CPAC candidate configuration is a complete candidate configuration.

If the *musim-CandidateBandList* IE is included in the *CU to DU RRC Information* IE in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use it for temporary capability restriction.

If the *DL LBT Failure Information Request* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, consider that the gNB-CU requests collection of DL LBT failure information for the analysis of the MRO events of the UE specified in TS 38.300 [6], , and act as specified in TS 38.401 [4].

If the *Ranging and Sidelink Positioning Service Information* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, update its service information for the UE accordingly. If the *Ranging and Sidelink Positioning Authorized* IE within the *Ranging and Sidelink Positioning Service Information* IE is set to "not authorized", the gNB-DU shall, if supported, initiate actions to ensure that the UE is no longer accessing the Ranging and Sidelink Positioning service.

If the *LTM Security Information* IE is included in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, store it and take it into account for supporting the UE’s AS security continuation during an inter-CU LTM cell switch and act as specified in TS 38.401 [4] and TS 38.321 [16].

**Interaction with UE Inactivity Notification procedure**

If the *SDT Volume Threshold* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use the information during an SDT transaction to inform the gNB-CU via the UE INACTIVITY NOTIFICATION message as specified in TS 38.401 [4].

**Interaction with UE Context Setup or UE Context Modification (gNB-CU initiated) procedures**

If the UE CONTEXT MODIFICATION REQUEST message is sent for a UE context set up for S-CPAC and contains the *Transmission Action Indicator* IE set to "stop", the gNB-DU shall, if supported, reset the UE context for the included *SpCell ID* IE, prepare for subsequent CPAC. The gNB-DU shall include the *SpCell ID* IE as the *Requested Target Cell ID* IE in the UE CONTEXT MODIFICATION RESPONSE message.

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## 9.2 Message Functional Definition and Content

### 9.2.2 UE Context Management messages

#### 9.2.2.1 UE CONTEXT SETUP REQUEST

This message is sent by the gNB-CU to request the setup of a UE context.

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 |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | O |  | 9.3.1.5 |  | YES | ignore |
| SpCell ID | M |  | NR CGI 9.3.1.12 | Special Cell as defined in TS 38.321 [16]. For handover case, this IE is considered as target cell. | YES | reject |
| ServCellIndex | M |  | INTEGER (0..31,...) |  | YES | reject |
| <skip unchanged part> | | | | | | |
| **LTM InformationSetup** |  | *0..1* |  |  | YES | reject |
| >LTM Indicator | M |  | ENUMERATED (true, C-LTM,…) |  | - |  |
| >LTM Configuration ID | M |  | INTEGER (1..8) | Corresponds to the *LTM-CandidateId* IE, as defined in TS 38.331 [8]. | - |  |
| >Request for L1 Execution Condition Candidate Cell List | O |  | 9.3.1.x |  |  |  |
| >Reference Configuration | O |  | 9.3.1.292 |  | - |  |
| >CSI Resource Configuration | O |  | 9.3.1.330 |  | - |  |
| LTM Configuration ID Mapping List | O |  | 9.3.1.294 |  | YES | reject |
| **Early Sync Information Request** |  | *0..1* |  |  | YES | ignore |
| >Request for RACH Configuration | O |  | ENUMERATED (true, …) |  | - |  |
| **>LTM gNB-DUs List** |  | *0..1* |  | This IE contains the IDs of the source gNB-DU and candidate gNB-DU(s). | YES | reject |
| **>>LTM gNB-DUs Item IEs** |  | *1..< maxnoofLTMgNBDUs>* |  |  |  |  |
| >>>LTM gNB-DU ID | M |  | gNB-DU ID  9.3.1.9 |  |  |  |
| >>>LTM gNB ID | O |  | Global gNB ID 9.3.1.305 |  | - |  |
| Path Addition Information | O |  | 9.3.1.296 | This IE contains either the *Indirect Path Addition* IE or the *N3C Indirect Path Addition* IE. | YES | reject |
| NR A2X Services Authorized | O |  | 9.3.1.323 |  | YES | ignore |
| LTE A2X Services Authorized | O |  | 9.3.1.324 |  | YES | ignore |
| NR UE Sidelink Aggregate Maximum Bit Rate for A2X | O |  | NR UE Sidelink Aggregate Maximum Bit Rate  9.3.1.119 | This IE applies only if the UE is authorized for NR A2X services. | YES | ignore |
| LTE UE Sidelink Aggregate Maximum Bit Rate for A2X | O |  | LTE UE Sidelink Aggregate Maximum Bit Rate  9.3.1.118 | This IE applies only if the UE is authorized for LTE A2X services. | YES | ignore |
| DL LBT Failure Information Request | O |  | ENUMERATED (inquiry, …) |  | YES | ignore |
| Ranging and Sidelink Positioning Service Information | O |  | 9.3.1.331 | This IE applies only if the UE is authorized for NR V2X services and/or 5G ProSe services. | YES | ignore |

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#### 9.2.2.2 UE CONTEXT SETUP RESPONSE

This message is sent by the gNB-DU to confirm the setup of a UE context.

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 |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| DU To CU RRC Information | M |  | 9.3.1.26 |  | YES | reject |
| C-RNTI | O |  | 9.3.1.32 | C-RNTI allocated at the gNB-DU | YES | ignore |
| Resource Coordination Transfer Container | O |  | OCTET STRING | Includes the *SgNB Resource Coordination Information* IE as defined in subclause 9.2.117 of TS 36.423 [9] for EN-DC case or *MR-DC Resource Coordination Information* IE as defined in TS 38.423 [28] for NGEN-DC and NE-DC cases. | YES | ignore |
| Full Configuration | O |  | ENUMERATED (full, ...) |  | YES | reject |
| **DRB Setup List** |  | *0..1* |  | The List of DRBs which are successfully established. | YES | ignore |
| **>DRB Setup Item Iist** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | ignore |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| >>LCID | O |  | 9.3.1.35 | LCID for the primary path or for the split secondary path for fallback to split bearer if PDCP duplication is applied. | - |  |
| **>>DL UP TNL Information to be setup List** |  | *1* |  |  | - |  |
| **>>>DL UP TNL Information to Be Setup Item IEs** |  | *1 .. <maxnoofDLUPTNLInformation>* |  |  | - |  |
| >>>>DL UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs. | - |  |
| **>>Additional PDCP Duplication TNL List** |  | *0..1* |  |  | YES | ignore |
| **>>>Additional PDCP Duplication TNL Items** |  | *1 .. <maxnoofAdditionalPDCPDuplicationTNL>* |  |  | EACH | ignore |
| >>>>Additional PDCP Duplication UP TNL Information | M |  | UP Transport Layer Information  9.3.2.1 | gNB-DU endpoint of the F1 transport bearer. For delivery of DL PDUs. | - |  |
| >>>>BH Information | O |  | 9.3.1.114 | This IE is not used in this version of the specification. | YES | ignore |
| >>Current QoS Parameters Set Index | O |  | Alternative QoS Parameters Set Index  9.3.1.123 | Index to the currently fulfilled alternative QoS parameters set. | YES | ignore |
| >>TSC Traffic Characteristics Feedback | O |  | 9.3.1.302 |  | YES | ignore |
| >>ECN Marking or Congestion Information Reporting Status | O |  | 9.3.1.322 |  | YES | ignore |
| **SRB Failed to Setup List** |  | *0..1* |  |  | YES | ignore |
| **>SRB Failed to Setup Item** |  | *1 .. <maxnoofSRBs>* |  |  | EACH | ignore |
| >>SRB ID | M |  | 9.3.1.7 |  | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| **DRB Failed to Setup List** |  | *0..1* |  |  | YES | ignore |
| **>DRB Failed to Setup Item** |  | *1 .. <maxnoofDRBs>* |  |  | EACH | ignore |
| >>DRB ID | M |  | 9.3.1.8 |  | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| **SCell Failed To Setup List** |  | *0..1* |  |  | YES | ignore |
| **>SCell Failed to Setup Item** |  | *1 .. <maxnoofSCells>* |  |  | EACH | ignore |
| >>SCell ID | M |  | NR CGI 9.3.1.12 | SCell Identifier in gNB | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| Inactivity Monitoring Response | O |  | ENUMERATED (not-supported, ...) |  | YES | reject |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |
| **SRB Setup List** |  | *0..1* |  |  | YES | ignore |
| **>SRB Setup Item** |  | *1 .. <maxnoofSRBs>* |  |  | EACH | ignore |
| >>SRB ID | M |  | 9.3.1.7 |  | - |  |
| >>LCID | M |  | 9.3.1.35 | LCID for the primary path if PDCP duplication is applied | - |  |
| **BH RLC Channel Setup List** |  | *0..1* |  | The list of BH RLC channels which are successfully established. | YES | ignore |
| **>BH RLC Channel Setup Item** |  | *1 .. <maxnoofBHRLCChannels>* |  |  | EACH | ignore |
| >>BH RLC CH ID | M |  | BH RLC Channel ID  9.3.1.113 |  | - |  |
| **BH RLC Channel Failed to be Setup List** |  | *0..1* |  | The list of BH RLC channels whose setup has failed. | YES | ignore |
| **>BH RLC Channel Failed to be Setup Item** |  | *1 .. <maxnoofBHRLCChannels>* |  |  | EACH | ignore |
| >>BH RLC CH ID | M |  | BH RLC Channel ID  9.3.1.113 |  | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| **SL DRB Setup List** |  | *0..1* |  | The List of SL DRBs which are successfully established. | YES | ignore |
| **>SL DRB Setup Item IEs** |  | *1 .. <maxnoofSLDRBs>* |  |  | EACH | ignore |
| >>SL DRB ID | M |  | 9.3.1.120 |  | - |  |
| **SL DRB Failed To Setup List** |  | *0..1* |  |  | EACH | ignore |
| **>SL DRB Failed To Setup Item IE** |  | *1 .. <maxnoofSLDRBs>* |  |  | EACH | ignore |
| >>SL DRB ID | M |  | 9.3.1.120 |  | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| Requested Target Cell ID | O |  | NR CGI 9.3.1.12 | Special Cell indicated in the UE CONTEXT SETUP REQUEST message. | YES | reject |
| SCG Activation Status | O |  | 9.3.1.234 |  | YES | ignore |
| **Uu RLC Channel Setup List** |  | *0..1* |  | This IE is not used in this version of the specification. | YES | ignore |
| **>Uu RLC Channel Setup Item IEs** |  | *1 .. <maxnoofUuRLCChannels>* |  |  | - |  |
| >>Uu RLC Channel ID | M |  | 9.3.1.266 |  | - |  |
| **Uu RLC Channel Failed to be Setup List** |  | *0..1* |  | This IE is not used in this version of the specification. | YES | ignore |
| **>Uu RLC Channel Failed to be Setup Item IEs** |  | *1 .. <maxnoofUuRLCChannels>* |  |  | - |  |
| >>Uu RLC Channel ID | M |  | 9.3.1.266 |  | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| **PC5 RLC Channel Setup List** |  | *0..1* |  |  | YES | ignore |
| **>PC5 RLC Channel Setup Item IEs** |  | *1 .. <maxnoofPC5RLCChannels>* |  |  | - |  |
| >>PC5 RLC Channel ID | M |  | 9.3.1.265 |  | - |  |
| >>Remote UE Local ID | O |  | 9.3.1.267 | This IE is not used in this version of the specification. |  |  |
| **PC5 RLC Channel Failed to be Setup List** |  | *0..1* |  |  | YES | ignore |
| **>PC5 RLC Channel Failed to be Setup Item IEs** |  | *1 .. <maxnoofPC5RLCChannels>* |  |  | - |  |
| >>PC5 RLC Channel ID | M |  | 9.3.1.265 |  | - |  |
| >>Remote UE Local ID | O |  | 9.3.1.267 | This IE is not used in this version of the specification. | - |  |
| >>Cause | O |  | 9.3.1.2 |  | - |  |
| **ServingCellMO-encoded-in-CGC List** |  | *0..1* |  |  | YES | ignore |
| **>ServingCellMO-encoded-in-CGC Item IEs** |  | *1 .. <maxNrofBWPs>* |  | The servingCellMO which has been encoded in *CellGroupConfig* IE. | EACH | ignore |
| >>servingCellMO | M |  | INTEGER (1..64, ...) |  | - |  |
| >>BWP ID | M |  | INTEGER (0..4) |  | YES | ignore |
| **UE Multicast MRB Setup List** |  | *0..1* |  |  | YES | reject |
| **>UE Multicast MRB Setup Item IEs** |  | *1 .. <maxnoofMRBsforUE>* |  |  | EACH | reject |
| >>MRB ID | M |  | 9.3.1.224 | MRB ID for the UE. | - |  |
| >>Multicast F1-U Context Reference CU | M |  | 9.3.2.13 |  | - |  |
| Dedicated SI Delivery Indication | O |  | ENUMERATED (true, ...) |  | YES | ignore |
| **Configured BWP List** |  | 0..1 |  | This IE is present when the gNB-DU configures at least one BWP with NCD-SSB or without SSB. | YES | ignore |
| **>Configured BWP Item IEs** |  | *1 .. <maxNrofBWPs*> |  |  | EACH | ignore |
| >>BWP-Id | M |  | INTEGER (0..4) | The IE is used to refer to one BWP. | - |  |
| >>BWP Location And Bandwidth | M |  | INTEGER (0..37949) | The IE type range is the same as the *locationAndBandwidth* IE in *BWP* IE as specified in TS 38.331 [8]. | - |  |
| **Early Sync Information** |  | *0..1* |  |  | YES | ignore |
| >TCI States Configurations List | M |  | OCTET STRING | Includes the *LTM-TCI-Info*  IE, as defined in TS 38.331 [8]. | - |  |
| >Early UL Sync Configuration | O |  | 9.3.1.328 |  | - |  |
| >Early UL Sync Configuration for SUL | O |  | Early UL Sync Configuration  9.3.1.328 | This IE applies for SUL carrier. | - |  |
| **LTM Configuration** |  | *0..1* |  |  | YES | ignore |
| **>**SSB Information | M |  | 9.3.1.202 | Includes the SSB Information for the requested target cell. | - |  |
| >Reference Configuration Information | O |  | OCTET STRING | Includes the *CellGroupConfig* IE, as defined in TS 38.331 [8]. | - |  |
| >Complete Candidate Configuration Indicator | O |  | ENUMERATED (complete, ...) |  | - |  |
| >LTM CFRA Resource Configuration | O |  | OCTET STRING | Includes the *RACH-ConfigDedicated* IE, as defined in TS 38.331 [8]. | - |  |
| >LTM CFRA Resource Configuration for SUL | O |  | OCTET STRING | Includes the *RACH-ConfigDedicated* IE, as defined in TS 38.331 [8]. This IE applies for SUL carrier. | - |  |
| >L1 Execution Condition List | O |  | 9.3.1.XXX | The detailed definition of this IE is FFS. | - |  |
| >>TAT Value | O |  | FFS | This IE indicates the TA timer of the cell. | - |  |
| **S-CPAC Configuration** |  | *0..1* |  |  | YES | ignore |
| >Reference Configuration Information | O |  | OCTET STRING | Includes the *CellGroupConfig* IE, as defined in TS 38.331 [8]. | - |  |
| >Complete Candidate Configuration Indicator | O |  | ENUMERATED (complete, ...) |  | - |  |

#### 9.2.2.7 UE CONTEXT MODIFICATION REQUEST

This message is sent by the gNB-CU to provide UE Context information changes to the gNB-DU.

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 |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| SpCell ID | O |  | NR CGI 9.3.1.12 | Special Cell as defined in TS 38.321 [16]. For handover case, this IE is considered as target cell. | YES | ignore |
| <skip unchanged part> | | | | | | |
| **LTM Information Modify** |  | *0..1* |  |  | YES | reject |
| >LTM Indicator | M |  | ENUMERATED (true, C-LTM,…) |  | - |  |
| >Reference Configuration | O |  | 9.3.1.292 |  | - |  |
| >CSI Resource Configuration | O |  | 9.3.1.330 |  | - |  |
| >Requst for L1 Execution Condition Candidate Cell List | O |  | 9.3.1.x |  |  |  |
| **LTM CFRA Resource Config List** |  | *0..1* |  |  | YES | ignore |
| **>LTM CFRA Resource Config Item IEs** |  | *1 .. <maxnoofLTMCells>* |  |  | EACH | ignore |
| >>Cell ID | M |  | NR CGI  9.3.1.12 |  | - |  |
| >>LTM CFRA Resource Configuration | O |  | OCTET STRING | Includes the *RACH-ConfigDedicated* IE, as defined in TS 38.331 [8]. | - |  |
| >>LTM CFRA Resource Configuration for SUL | O |  | OCTET STRING | Includes the *RACH-ConfigDedicated* IE, as defined in TS 38.331 [8]. This IE applies for SUL carrier. | - |  |
| LTM Configuration ID Mapping List | O |  | 9.3.1.294 |  | YES | reject |
| **Early Sync Information Request** |  | *0..1* |  |  | YES | ignore |
| >Request for RACH Configuration | M |  | ENUMERATED (true, …) |  | - |  |
| **>LTM gNB-DUs ID List** |  | *1* |  | This IE contains the IDs of the source gNB-DU and candidate gNB-DU(s). | YES | reject |
| **>>LTM gNB-DUs Item IEs** |  | *1..< maxnoofLTMgNBDUs>* |  |  | - |  |
| >>>LTM gNB-DU ID | M |  | gNB-DU ID  9.3.1.9 |  | - |  |
| >>>LTM gNB ID | O |  | Global gNB ID 9.3.1.305 |  | - |  |
| **Early Sync Candidate Cell Information List** |  | *0..1* |  |  | YES | ignore |
| **>Early Sync Candidate Cell Information Item IEs** |  | *1 .. <maxnoofLTMCells>* |  |  | EACH | ignore |
| >>Cell ID | M |  | NR CGI  9.3.1.12 |  | - |  |
| >>TCI States Configurations List | O |  | OCTET STRING | Includes the *LTM-TCI-Info*  IE, as defined in TS 38.331 [8]. | - |  |
| >>Early UL Sync Configuration | O |  | 9.3.1.328 |  | - |  |
| >>Early UL Sync Configuration for SUL | O |  | Early UL Sync Configuration  9.3.1.328 | This IE applies for SUL carrier. | - |  |
| >>TA Assistance Information | O |  | ENUMERATED (zero, …) | The value "zero" corresponds to TA value of the cell being equal to zero. | - |  |
| >>UE Based TA Measurement Configuration | O |  | OCTET STRING | Includes the *ltm-UE-MeasuredTA-ID* contained in the *LTM-Candidate* IE, as defined in TS 38.331 [8], for the LTM candidate cell identified by the *Cell ID* IE. | - |  |
| >>SSB Positions In Burst | C-ifEarlyUL |  | 9.3.1.138 | This IE applies to early TA acquisition. | YES | ignore |
| **Early Sync Serving Cell Information** |  | *0..1* |  |  | YES | ignore |
| >UE Based TA Measurement Configuration | O |  | OCTET STRING | Includes the *ltm-ServingCellUE-MeasuredTA-ID* contained in the *LTM-Config* IE, as defined in TS 38.331 [8], for the current serving cell. | - |  |
| LTM Cells To Be Released List | O |  | 9.3.1.291 |  | YES | reject |
| Path Addition Information | O |  | 9.3.1.296 |  | YES | reject |
| NR A2X Services Authorized | O |  | 9.3.1.323 |  | YES | ignore |
| LTE A2X Services Authorized | O |  | 9.3.1.324 |  | YES | ignore |
| NR UE Sidelink Aggregate Maximum Bit Rate for A2X | O |  | NR UE Sidelink Aggregate Maximum Bit Rate  9.3.1.119 | This IE applies only if the UE is authorized for NR A2X services. | YES | ignore |
| LTE UE Sidelink Aggregate Maximum Bit Rate for A2X | O |  | LTE UE Sidelink Aggregate Maximum Bit Rate  9.3.1.118 | This IE applies only if the UE is authorized for LTE A2X services. | YES | ignore |
| DL LBT Failure Information Request | O |  | ENUMERATED (inquiry, …) |  | YES | ignore |
| Ranging and Sidelink Positioning Service Information | O |  | 9.3.1.331 | This IE applies only if the UE is authorized for NR V2X services and/or 5G ProSe services. | YES | ignore |
| Non-Integer DRX Cycle | O |  | 9.3.1.344 |  | YES | ignore |
| LTM Reset Information | O |  | 9.3.1.346 |  | YES | ignore |

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next change\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

#### 9.3.1.x Request for L1 Execution Condition Candidate Cell List

This IE indicates the list of LTM candidate cells requesting for L1 execution condition..

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| **Request for L1 Execution Condition Candidate Cell List Item IEs** |  | *1..< maxnoofLTMCells>* |  |  | - |  |
| >Candidate Cell ID | M |  | NR CGI 9.3.1.12 |  | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofLTMCells | Maximum no. of Cells configured LTM allowed towards one UE, the maximum value is 8. |

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next change\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

#### 9.3.1.XXX L1 Execution Condition List

This IE indicates the list of conditional LTM execution conditions to be used by the UE.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| **L1 Execution Condition Item IEs** |  | *1..< maxnoofLTMCells>* |  |  | - |  |
| >LTM Cell ID | M |  | NR CGI 9.3.1.12 |  | - |  |
| >Execution Condition | M |  | OCTET STRING | Includes the *LTM-CSI-ReportConfigId-r18* IE as defined in subclause 6.3.2 in TS 38.331 [8].  FFS:to be checked in RRC running CR. | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofLTMCells | Maximum no. of Cells configured LTM allowed towards one UE, the maximum value is 8. |

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*End of changes\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/