**3GPP TSG-RAN WG2 #131bis**

**Prague, Czech Republic, 13th – 17th October 2025**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
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| *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 | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:***  | Corrections on RRC for mobility enhancements Phase 4 |
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| ***Source to WG:*** |  |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** | NR\_Mob\_Ph4-Core |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** |  |
|  | *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 canbe 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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
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| ***Reason for change:*** | This CR is to collect miscallenous correction about mobility enhancements Phase4.  |
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| ***Summary of change:*** | Following changes are done and following issues are fixed:- Upon inter-CU MCG LTM execution, SN key update is also needed for the case that SN terminated bearer configured with MCG RLC leg only- Wrong removal of report configuration associated with L3 based CLTM upon reconfiguration with sync- Clarified whether the UE should stop the LTM conditions evaluation based on L1 measurements and/or based on L3 measurements- Avoid stop CLTM evaluation for new configured CLTM conditions- Clarified that UE should stop the corresponding LTM conditions evaluation before release the ltm-ServingCellExecutionCondition- Correction on conditional LTM cell switch execution for only one triggered LTM candidate configuration- Added PDCP discard for SRBs according to the Rel-19 ID- Clarification on the sk-counter contained in the ltm-CandidateConfig for SCG LTM- Corrected wrong IE name- Added new RAN1 paramenters according to R1-2506622Additional changes from what have been agreed in RAN2#131bis are the following:- It is clarified in the procedural text that, upon the execution of an LTM cell switch procedure with security key change, the UE releases all RLC bearers (configurations and bearers itself).- The field ltm-CSI-ReportConfig-r19 within LTM-Candidate IE is changed to SetupRelease- Created a new UE variable to store the execution conditions and procedural text has been modified accordingly- Clarified in field description that ltm-CSI-ReportConfig can only be configured within ServingCellConfig of the SpCell- Added UE handling for the case when UE keeps two VarLTM-ServingCellNoSecurityChange- The network does not set mrdc-ReleaseAndAdd for MCG LTM with SCG configuration, and the UE autonomously release the SCG part of the current UE configuration upon LTM cell switch execution, i.e. follow the same actions as LTM cell switch triggered on the SCG- The fields ltm-ReferenceConfigurationSCG, ltm-Config, ltm-ReferenceConfigurationMCG are added the exeption list in section 11.2.3 of TS 38.331- Clarified for beam selection for L3-based RACH-less CLTM based on a configured threshold, the existing cg-RRC-RSRP-ThresholdSSB is re-used |
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| ***Consequences if not approved:*** | If CR is not approved, the specification for mobility enhancements phase4 may not work correctly |
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| ***Clauses affected:*** | 5.3.5.3, 5.3.5.5.2, 5.3.5.5.3, 5.3.5.10, 5.3.5.13.7, 5.3.5.18, 5.3.5.18.1, 5.3.5.18.1a, 5.3.5.18.6, 5.3.5.18.8, 5.3.5.18.10, 5.3.7.3, 6.2.2, 6.3.2, 7.4, 11.2.2, 11.2.3 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS XXX CR XXX |
| ***affected:*** |  | **X** |  Test specifications | TS XXX CR XXX  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications |   |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

*START OF CHANGES*

#### 5.3.5.3 Reception of an *RRCReconfiguration* by the UE

The UE shall perform the following actions upon reception of the *RRCReconfiguration,* upon execution of the conditional reconfiguration (CHO, CPA, CPC, or subsequent CPAC), or upon execution of an LTM cell switch:

1> if the *RRCReconfiguration* is applied due to a conditional reconfiguration execution upon cell selection performed while timer T311 was running, as defined in 5.3.7.3:

2> remove all the entries in the *condReconfigList* within the MCG and the SCG *VarConditionalReconfig* except for the entries in which *subsequentCondReconfig* is present, if any;

1> if the *RRCReconfiguration* includes the *daps-SourceRelease*:

2> reset the source MAC and release the source MAC configuration;

2> for each DAPS bearer:

3> release the RLC entity or entities as specified in TS 38.322 [4], clause 5.1.3, and the associated logical channel for the source SpCell;

3> reconfigure the PDCP entity to release DAPS as specified in TS 38.323 [5];

2> for each SRB:

3> release the PDCP entity for the source SpCell;

3> release the RLC entity as specified in TS 38.322 [4], clause 5.1.3, and the associated logical channel for the source SpCell;

2> release the physical channel configuration for the source SpCell;

2> discard the keys used in the source SpCell (the KgNB key, the KRRCenc key, the KRRCint key, the KUPint key and the KUPenc key), if any;

1> if the *RRCReconfiguration* is received while the timer T348 is running:

2> if the configuration does not exceed UE temporary capability restriction indicated via *musim-CapRestriction* included in the last transmission of *UEAssistanceInformation*:

3> stop the timer T348;

1> if the *RRCReconfiguration* is received via other RAT (i.e., inter-RAT handover to NR):

2> if the *RRCReconfiguration* does not include the *fullConfig* and the UE is connected to 5GC (i.e., delta signalling during intra 5GC handover):

3> re-use the source RAT SDAP and PDCP configurations if available (i.e., current SDAP/PDCP configurations for all RBs from source E-UTRA RAT prior to the reception of the inter-RAT HO *RRCReconfiguration* message);

1> else:

2> if the RRCReconfiguration includes the fullConfig:

3> perform the full configuration procedure as specified in 5.3.5.11;

1> if the *RRCReconfiguration* includes the *masterCellGroup*:

2> perform the cell group configuration for the received *masterCellGroup* according to 5.3.5.5;

1> if the *RRCReconfiguration* includes the *masterKeyUpdate*:

2> perform AS security key update procedure as specified in 5.3.5.7;

1> if the *RRCReconfiguration* includes the *sk-Counter*:

2> if this *RRCReconfiguration* message is applied due to an LTM cell switch execution procedure which requires an update of the master security key, according to clause 5.3.5.18.6:

4> perform security key update procedure as specified in 5.3.5.7;

2> else if this *RRCReconfiguration* message is not applied due to an LTM cell switch execution procedure:

3> perform security key update procedure as specified in 5.3.5.7;

1> if the *RRCReconfiguration* includes the *secondaryCellGroup*:

2> perform the cell group configuration for the SCG according to 5.3.5.5;

1> if the *RRCReconfiguration* includes the *mrdc-SecondaryCellGroupConfig:*

2> if the *mrdc-SecondaryCellGroupConfig* is set to *setup*:

3> if the *mrdc-SecondaryCellGroupConfig* includes *mrdc-ReleaseAndAdd*:

4> perform MR-DC release as specified in clause 5.3.5.10;

3> if the received *mrdc-SecondaryCellGroup* is set to *nr-SCG*:

4> perform the RRC reconfiguration according to 5.3.5.3 for the *RRCReconfiguration* message included in *nr-SCG*;

3> if the received *mrdc-SecondaryCellGroup* is set to *eutra-SCG*:

4> perform the RRC connection reconfiguration as specified in TS 36.331 [10], clause 5.3.5.3 for the *RRCConnectionReconfiguration* message included in *eutra-SCG*;

2> else (*mrdc-SecondaryCellGroupConfig* is set to *release*):

3> perform MR-DC release as specified in clause 5.3.5.10;

NOTE 00: If the UE receives, within an LTM candidate configuration, an *mrdc-SecondaryCellGroupConfig* set to *release* even if no SCG is currently configured at the UE, the UE does not consider this as an invalid configuration.

1> if the *RRCReconfiguration* message includes the *radioBearerConfig*:

2> perform the radio bearer configuration according to 5.3.5.6;

1> if the *RRCReconfiguration* message includes the *radioBearerConfig2*:

2> perform the radio bearer configuration according to 5.3.5.6;

1> if the *RRCReconfiguration* message includes the *measConfig*:

2> perform the measurement configuration procedure as specified in 5.5.2;

1> if the *RRCReconfiguration* message includes the *dedicatedNAS-MessageList*:

2> forward each element of the *dedicatedNAS-MessageList* to upper layers in the same order as listed;

1> if the *RRCReconfiguration* message includes the *dedicatedSIB1-Delivery*:

2> perform the action upon reception of *SIB1* as specified in 5.2.2.4.2;

NOTE 0: If this *RRCReconfiguration* is associated to the MCG and includes *reconfigurationWithSync* in *spCellConfig* and *dedicatedSIB1-Delivery*, the UE initiates (if needed) the request to acquire required SIBs, according to clause 5.2.2.3.5, only after the random access procedure or the LTM cell switch execution towards the target SpCell is completed.

1> if the *RRCReconfiguration* message includes the *dedicatedSystemInformationDelivery*:

2> perform the action upon reception of System Information as specified in 5.2.2.4;

2> if all the SIB(s) and/or posSIB(s) requested in *DedicatedSIBRequest* message have been acquired:

3> stop timer T350, if running;

1> if the *RRCReconfiguration* message includes the *dedicatedPosSysInfoDelivery*:

2> perform the action upon reception of the contained posSIB(s), as specified in clause 5.2.2.4.16;

2> if all the SIB(s) and/or posSIB(s) requested in *DedicatedSIBRequest* message have been acquired:

3> stop timer T350, if running;

1> if the *RRCReconfiguration* message includes the *otherConfig*:

2> perform the other configuration procedure as specified in 5.3.5.9;

1> if the *RRCReconfiguration* message includes the *bap-Config*:

2> perform the BAP configuration procedure as specified in 5.3.5.12;

1> if the *RRCReconfiguration* message includes the *iab-IP-AddressConfigurationList*:

2> if *iab-IP-AddressToReleaseList* is included:

3> perform release of IP address as specified in 5.3.5.12a.1.1;

2> if *iab-IP-AddressToAddModList* is included:

3> perform IAB IP address addition/update as specified in 5.3.5.12a.1.2;

1> if the *RRCReconfiguration* message includes the *conditionalReconfiguration*:

2> perform conditional reconfiguration as specified in 5.3.5.13;

1> if the *RRCReconfiguration* message includes the *needForGapsConfigNR*:

2> if *needForGapsConfigNR* is set to *setup*:

3> consider itself to be configured to provide the measurement gap requirement information of NR target bands;

2> else:

3> consider itself not to be configured to provide the measurement gap requirement information of NR target bands;

1> if the *RRCReconfiguration* message includes the *needForGapNCSG-ConfigNR*:

2> if *needForGapNCSG-ConfigNR* is set to *setup*:

3> consider itself to be configured to provide the measurement gap and NCSG requirement information of NR target bands;

2> else:

3> consider itself not to be configured to provide the measurement gap and NCSG requirement information of NR target bands;

1> if the *RRCReconfiguration* message includes the *needForGapNCSG-ConfigEUTRA*:

2> if *needForGapNCSG-ConfigEUTRA* is set to *setup*:

3> consider itself to be configured to provide the measurement gap and NCSG requirement information of E‑UTRA target bands;

2> else:

3> consider itself not to be configured to provide the measurement gap and NCSG requirement information of E‑UTRA target bands;

1> if the *RRCReconfiguration* message includes the *onDemandSIB-Request*:

2> if *onDemandSIB-Request* is set to *setup*:

3> consider itself to be configured to request SIB(s) or posSIB(s) in RRC\_CONNECTED in accordance with clause 5.2.2.3.5;

2> else:

3> consider itself not to be configured to request SIB(s) or posSIB(s) in RRC\_CONNECTED in accordance with clause 5.2.2.3.5;

3> stop timer T350, if running;

1> if the *RRCReconfiguration* message includes the *sl-ConfigDedicatedNR*:

2> perform the sidelink dedicated configuration procedure as specified in 5.3.5.14;

NOTE 0a: If the *sl-ConfigDedicatedNR* was received embedded within an E-UTRA *RRCConnectionReconfiguration* message, the UE does not build an NR *RRCReconfigurationComplete* message for the received *sl-ConfigDedicatedNR*.

1> if the *RRCReconfiguration* message includes the *sl-L2RelayUE-Config*:

2> perform the L2 U2N or U2U Relay UE configuration procedure as specified in 5.3.5.15;

1> if the *RRCReconfiguration* message includes the *sl-L2RemoteUE-Config*:

2> perform the L2 U2N or U2U Remote UE configuration procedure as specified in 5.3.5.16;

1> if the *RRCReconfiguration* message includes the *dedicatedPagingDelivery*:

2> perform the *Paging* message reception procedure as specified in 5.3.2.3;

1> if the *RRCReconfiguration* message includes the *sl-ConfigDedicatedEUTRA-Info*:

2> perform related procedures for V2X sidelink communication in accordance with TS 36.331 [10], clause 5.3.10 and clause 5.5.2;

1> if the *RRCReconfiguration* message includes the *ul-GapFR2-Config*:

2> perform the FR2 UL gap configuration procedure as specified in 5.3.5.13c;

1> if the *RRCReconfiguration* message includes the *musim-GapConfig*:

2> perform the MUSIM gap configuration procedure as specified in 5.3.5.9a;

1> if the *RRCReconfiguration* message includes the *appLayerMeasConfig*:

2> for each application layer measurement configuration with *appLayerIdleInactiveConfig* configured:

3> if the RPLMN is not included in *plmn-IdentityList* in *VarAppLayerPLMN-ListConfig*:

4> forward the *measConfigAppLayerId* and inform upper layers about the release of the application layer measurement configuration;

4> release the application layer measurement configuration including its fields in the UE variables *VarAppLayerIdleConfig* and *VarAppLayerPLMN-ListConfig*;

4> discard any application layer measurement reports which were not yet fully submitted to lower layers for transmission;

4> consider itself not to be configured to send application layer measurement report for the *measConfigAppLayerId*;

2> if *idleInactiveReportAllowed* is included in the *RRCReconfiguration* message:

3> if the UE is configured with at least one application layer measurement configuration with *appLayerIdleInactiveConfig* configured:

4> initiate the procedure in 5.7.16.2 after the *RRCReconfigurationComplete* has been transmitted;

2> else:

3> for each application layer measurement configuration with *appLayerIdleInactiveConfig* configured:

4> forward the *measConfigAppLayerId* and inform upper layers about the release of the application layer measurement configuration;

4> release the application layer measurement configuration including its fields in the UE variables *VarAppLayerIdleConfig* and *VarAppLayerPLMN-ListConfig*;

4> discard any application layer measurement reports which were not yet fully submitted to lower layers for transmission;

4> consider itself not to be configured to send application layer measurement reports for the *measConfigAppLayerId*;

2> perform the application layer measurement configuration procedure as specified in 5.3.5.13d;

1> if the *RRCReconfiguration* message includes the *ue-TxTEG-RequestUL-TDOA-Config*:

2> if *ue-TxTEG-RequestUL-TDOA-Config* is set to *setup*:

3> perform the UE positioning assistance information procedure as specified in 5.7.14;

2> else:

3> release the configuration of UE positioning assistance information;

1> if the *RRCReconfiguration* message includes the *aerial-Config*:

2> (re)configure the aerial parameters in accordance with the included *aerial-Config*;

1> if the *RRCReconfiguration* message includes the *sl-IndirectPathAddChange*:

2> perform the SL indirect path specific configuration procedure as specified in 5.3.5.17.2.2;

1> if the *RRCReconfiguration* message includes the *n3c-IndirectPathAddChange* or *n3c-ExtIndirectPathAddChange*:

2> perform configuration procedure for the remote UE part of N3C indirect path as specified in 5.3.5.17.3.2;

1> if the *RRCReconfiguration* message includes the *n3c-IndirectPathConfigRelay*:

2> perform the configuration procedure for the relay UE part of N3C indirect path as specified in 5.3.5.17.3.3;

1> if the *RRCReconfiguration* message includes the *ltm-Config*:

2> if the *ltm-Config* is set to *setup*:

3> perform the LTM configuration procedure as specified in 5.3.5.18.1;

2> else:

3> perform the LTM configuration release procedure as specified in clause 5.3.5.18.7;

1> if the *RRCReconfiguration* message includes the *ltm-ConfigNRDC*:

2> if the *ltm-ConfigNRDC* is set to *setup*:

3> if *ltm-ConfigNRDC* includes *ltm-ConfigurationSCG*:

4> perform the LTM configuration procedure as specified in clause 5.3.5.18.1;

3> if *ltm-ConfigNRDC* includes *ltm-SK-CounterConfigToReleaseList*:

4> perform the LTM sk-Counter configuration release as specified in clause 5.3.5.18.10;

3> if *ltm-ConfigNRDC* includes *ltm-SK-CounterConfigToAddModList*:

4> perform the LTM sk-Counter configuration addition/modification as specified in clause 5.3.5.18.9;

2> else:

3> perform the LTM configuration release procedure as specified in clause 5.3.5.18.7;

1> if the *RRCReconfiguration* message includes the *srs-PosResourceSetAggBW-CombinationList*:

2> if *srs-PosResourceSetAggBW-CombinationList* is set to *setup*:

3> perform the SRS for positioning transmission using bandwidth aggregation provided in configuration *SRS-PosResourceSetLinkedForAggBW* as specified in TS 38.211 [16];

2> else:

3> release all the configuration of *SRS-PosResourceSetLinkedForAggBW*;

1> set the content of the *RRCReconfigurationComplete* message as follows:

2> if the *RRCReconfiguration* includes the *masterCellGroup* containing the *reportUplinkTxDirectCurrent*:

3> include the *uplinkTxDirectCurrentList* for each MCG serving cell with UL;

3> include *uplinkDirectCurrentBWP-SUL* for each MCG serving cell configured with SUL carrier, if any, within the *uplinkTxDirectCurrentList*;

2> if the *RRCReconfiguration* includes the *masterCellGroup* containing the *reportUplinkTxDirectCurrentTwoCarrier*:

3> include in the *uplinkTxDirectCurrentTwoCarrierList* the list of uplink Tx DC locations for the configured intra-band uplink carrier aggregation in the MCG;

2> if the *RRCReconfiguration* includes the *masterCellGroup* containing the *reportUplinkTxDirectCurrentMoreCarrier*:

3> include in the *uplinkTxDirectCurrentMoreCarrierList* the list of uplink Tx DC locations for the configured intra-band uplink carrier aggregation in the MCG;

2> if the *RRCReconfiguration* includes the *secondaryCellGroup* containing the *reportUplinkTxDirectCurrent*:

3> include the *uplinkTxDirectCurrentList* for each SCG serving cell with UL;

3> include *uplinkDirectCurrentBWP-SUL* for each SCG serving cell configured with SUL carrier, if any, within the *uplinkTxDirectCurrentList*;

2> if the *RRCReconfiguration* includes the *secondaryCellGroup* containing the *reportUplinkTxDirectCurrentTwoCarrier*:

3> include in the *uplinkTxDirectCurrentTwoCarrierList* the list of uplink Tx DC locations for the configured intra-band uplink carrier aggregation in the SCG;

2> if the *RRCReconfiguration* includes the *secondaryCellGroup* containing the *reportUplinkTxDirectCurrentMoreCarrier*:

3> include in the *uplinkTxDirectCurrentMoreCarrierList* the list of uplink Tx DC locations for the configured intra-band uplink carrier aggregation in the SCG;

NOTE 0b: The UE does not expect that the *reportUplinkTxDirectCurrentTwoCarrier* or *reportUplinkTxDirectCurrentMoreCarrier* is received in both *masterCellGroup* and in *secondaryCellGroup*. Network only configures at most one of *reportUplinkTxDirectCurrent, reportUplinkTxDirectCurrentTwoCarrier* or *reportUplinkTxDirectCurrentMoreCarrier* in one RRC message*.*

2> if the *RRCReconfiguration* message includes the *mrdc-SecondaryCellGroupConfig* with *mrdc-SecondaryCellGroup* set to *eutra-SCG*:

3> include in the *eutra-SCG-Response* the E-UTRA *RRCConnectionReconfigurationComplete* message in accordance with TS 36.331 [10] clause 5.3.5.3;

2> if the *RRCReconfiguration* message includes the *mrdc-SecondaryCellGroupConfig* with *mrdc-SecondaryCellGroup* set to *nr-SCG*:

3> include in the *nr-SCG-Response* the SCG *RRCReconfigurationComplete* message;

3> if the *RRCReconfiguration* message is applied due to conditional reconfiguration execution and the *RRCReconfiguration* message does not include the *reconfigurationWithSync* in the *masterCellGroup*:

4> include in the *selectedCondRRCReconfig* the *condReconfigId* for the selected cell of conditional reconfiguration execution;

4> if a new *sk-Counter* value has been selected due to the conditional reconfiguration execution for subsequent CPAC:

5> include *selectedSK-Counter* and set its value to the selected *sk-Counter* value;

3> if the *RRCReconfiguration* message is applied due to conditional reconfiguration execution and *condExecutionCondPSCell* is configured for the selected PSCell:

4> include in the *selectedPSCellForCHO-WithSCG* and set it to the information of the selected PSCell;

2> if the *RRCReconfiguration* includes the *reconfigurationWithSync* in *spCellConfig* of an MCG:

3> if the UE has logged measurements available for NR and if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*; or

3> if the UE has logged measurements available for NR and if the current registered SNPN identity is included in *snpn-ConfigID-List* stored in the *VarLogMeasReport*:

4> include the *logMeasAvailable* in the *RRCReconfigurationComplete* message;

4> if Bluetooth measurement results are included in the logged measurements the UE has available for NR:

5> include the *logMeasAvailableBT* in the *RRCReconfigurationComplete* message;

4> if WLAN measurement results are included in the logged measurements the UE has available for NR:

5> include the *logMeasAvailableWLAN* in the *RRCReconfigurationComplete* message;

3> if the *sigLoggedMeasType* in *VarLogMeasReport* is included; or

3> if the UE supports the override protection of the signalling based logged MDT for inter-RAT (i.e. LTE to NR), and if the *sigLoggedMeasType* in *VarLogMeasReport* of TS 36.331 [10] is included:

4> if T330 timer is running (associated to the logged measurement configuration for NR or for LTE):

5> set *sigLogMeasConfigAvailable* to *true* in the *RRCReconfigurationComplete* message;

4> else:

5> if the UE has logged measurements in *VarLogMeasReport* or in *VarLogMeasReport* of TS 36.331 [10]:

6> set *sigLogMeasConfigAvailable* to *false* in the *RRCReconfigurationComplete* message;

3> if the UE has connection establishment failure or connection resume failure information available in *VarConnEstFailReport* or *VarConnEstFailReportList* and if the RPLMN is equal to *plmn-Identity* stored in *VarConnEstFailReport* orin at least one of the entries of *VarConnEstFailReportList*; or

3> if the UE has connection establishment failure information or connection resume failure information available in *VarConnEstFailReport* or *VarConnEstFailReportList* and if the registered SNPN identity is equal to *snpn-Identity* in *networkIdentity* stored in *VarConnEstFailReport* or any entry of *VarConnEstFailReportList*:

4> include *connEstFailInfoAvailable* in the *RRCReconfigurationComplete* message;

3> if the UE has radio link failure or handover failure information available in *VarRLF-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarRLF-Report*; or

3> if the UE has radio link failure or handover failure information available in *VarRLF-Report* of TS 36.331 [10] and if the UE is capable of cross-RAT RLF reporting and if the RPLMN is included in *plmn-IdentityList* stored in *VarRLF-Report* of TS 36.331 [10]; or

3> if the UE has radio link failure or handover failure information available in *VarRLF-Report* and if the current registered SNPN identity is included in *snpn-IdentityList* stored in *VarRLF-Report*:

4> include *rlf-InfoAvailable* in the *RRCReconfigurationComplete* message;

3> if the UE was configured with *successHO-Config* when connected to the source PCell:

4> if the applied *RRCReconfiguration* is not due to a conditional reconfiguration execution upon cell selection performed while timer T311 was running, as defined in 5.3.7.3, and the applied *RRCReconfiguration* is not due to an LTM cell switch execution upon cell selection performed while timer T311 was running, as defined in 5.3.7.3; or

4> if the applied *RRCReconfiguration* is not received when T316 was running:

5> perform the actions for the successful handover report determination as specified in clause 5.7.10.6, upon successfully completing the Random Access procedure triggered for the *reconfigurationWithSync* in *spCellConfig* of the MCG, or upon an indication from lower layer that the LTM cell switch execution has been successfully completed;

4> if applied *RRCReconfiguration* is received when T316 was running:

5> release *successHO-Config* configured by the source PCell and *thresholdPercentageT304* if configured by the target PCell;

3> if the UE has successful handover information available in *VarSuccessHO-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarSuccessHO-Report*; or

3> if the UE has successful handover information available in *VarSuccessHO-Report* and if the current registered SNPN identity is included in *snpn-IdentityList* stored in the *VarSuccessHO-Report*:

4> include *successHO-InfoAvailable* in the *RRCReconfigurationComplete* message;

3> release *successPSCell-Config* configured by the source PCell, if available;

3> if the UE has successful PSCell change or addition information available in *VarSuccessPSCell-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarSuccessPSCell-Report*; or

3> if the UE has successful PSCell change or addition information available in *VarSuccessPSCell-Report* and if the current registered SNPN identity is included in *snpn-IdentityList* stored in the *VarSuccessPSCell-Report*:

4> include *successPSCell-InfoAvailable* in the *RRCReconfigurationComplete* message;

3> if the *RRCReconfiguration* includes *retainLoggedMeasurements*:

4> if the UE has logged measurement entries available in *VarCSI-LogMeasReport*:

5> include *csi-LogMeasAvailable* in the *RRCReconfigurationComplete* message;

3> else:

4> discard the logged measurement entries included in *VarCSI-LogMeasReport,* if any;

2> if the *RRCReconfiguration* message was received via SRB1, but not within *mrdc-SecondaryCellGroup* or E-UTRA *RRCConnectionReconfiguration* or E-UTRA *RRCConnectionResume*:

3> if the UE is configured to provide the measurement gap requirement information of NR target bands:

4> if the *RRCReconfiguration* message includes the *needForGapsConfigNR*; or

4> if the *NeedForGapsInfoNR* information is changed compared to last time the UE reported this information; or

4> if the *RRCReconfiguration* message includes the *needForInterruptionConfigNR* and set it to *enabled*; or

4> if the *needForInterruptionConfigNR* is enabled and the *NeedForInterruptionInfoNR* information is changed compared to last time the UE reported this information:

5> include the *NeedForGapsInfoNR* and set the contents as follows:

6> include *intraFreq-needForGap* and set the gap requirement information of intra-frequency measurement for each NR serving cell;

6> if *requestedTargetBandFilterNR* is configured:

7> for each supported NR band that is also included in *requestedTargetBandFilterNR*, include an entry in *interFreq-needForGap* and set the gap requirement information for that band;

6> else:

7> include an entry in *interFreq-needForGap* and set the corresponding gap requirement information for each supported NR band;

5> if the *needForInterruptionConfigNR* is enabled:

6> include the *needForInterruptionInfoNR* and set the contents as follows:

7> include *intraFreq-needForInterruption* with the same number of entries, and listed in the same order, as in *intraFreq-needForGap*;

7> for each entry in *intraFreq-needForInterruption*:

8> include *interruptionIndication* and set the interruption requirement information if the corresponding entry in *intraFreq-needForGap* is set to *no-gap;*

7> include *interFreq-needForInterruption* with the same number of entries, and listed in the same order, as in *interFreq-needForGap*;

7> for each entry in *interFreq-needForInterruption*:

8> include *interruptionIndication* and set the interruption requirement information if the corresponding entry in *interFreq-needForGap* is set to *no-gap*;

3> if the UE is configured to provide the measurement gap and NCSG requirement information of NR target bands:

4> if the *RRCReconfiguration* message includes the *needForGapNCSG-ConfigNR*; or

4> if the *needForGapNCSG-InfoNR* information is changed compared to last time the UE reported this information:

5> include the *NeedForGapNCSG-InfoNR* and set the contents as follows:

6> include *intraFreq-needForNCSG* and set the gap and NCSG requirement information of intra-frequency measurement for each NR serving cell;

6> if *requestedTargetBandFilterNCSG-NR* is configured:

7> for each supported NR band included in *requestedTargetBandFilterNCSG-NR*, include an entry in *interFreq-needForNCSG* and set the NCSG requirement information for that band;

6> else:

7> include an entry for each supported NR band in *interFreq-needForNCSG* and set the corresponding NCSG requirement information;

3> if the UE is configured to provide the measurement gap and NCSG requirement information of E‑UTRA target bands:

4> if the *RRCReconfiguration* message includes the *needForGapNCSG-ConfigEUTRA*; or

4> if the *needForGapNCSG-InfoEUTRA* information is changed compared to last time the UE reported this information:

5> include the *NeedForGapNCSG-InfoEUTRA* and set the contents as follows:

6> if *requestedTargetBandFilterNCSG-EUTRA* is configured, for each supported E-UTRA band included in *requestedTargetBandFilterNCSG-EUTRA*, include an entry in *needForNCSG-EUTRA* and set the NCSG requirement information for that band; otherwise, include an entry for each supported E-UTRA band in *needForNCSG-EUTRA* and set the corresponding NCSG requirement information;

3> if the UE supports successful handover report for MCG LTM cell switch and if the UE has successful handover information available in *VarSuccessHO-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarSuccessHO-Report*; or

3> if the UE supports successful handover report for MCG LTM cell switch and if the UE has successful handover information available in *VarSuccessHO-Report* and if the current registered SNPN identity is included in *snpn-IdentityList* stored in the *VarSuccessHO-Report*:

4> include *successHO-InfoAvailable* in the *RRCReconfigurationComplete* message;

2> if the UE has (updated) flight path information available:

3> if the UE had not provided a flight path information since last entering RRC\_CONNECTED state; or

3> if at least one waypoint or a timestamp corresponding to a waypoint location that was not previously provided since last entering RRC\_CONNECTED state is available; or

3> if at least one upcoming waypoint or a timestamp corresponding to a waypoint location that was previously provided since last entering RRC\_CONNECTED state is to be removed; or

3> if *flightPathUpdateDistanceThr* is configured and, for at least one waypoint, the 3D distance between the previously provided location and the new location is more than the distance threshold configured by *flightPathUpdateDistanceThr*; or

3> if *flightPathUpdateTimeThr* is configured and, for at least one waypoint, the time difference between the previously provided timestamp and the new timestamp, if available, is more than the time threshold configured by *flightPathUpdateTimeThr*:

4> include *flightPathInfoAvailable*;

NOTE 0c: If neither *flightPathUpdateDistanceThr* nor *flightPathUpdateTimeThr* is configured, it is up to UE implementation whether to include *flightPathInfoAvailable* when updated flight path information is available.

2> if the UE has at least one stored application layer measurement configuration with *appLayerIdleInactiveConfig* configured which has not been successfully transmitted since entering RRC\_CONNECTED state:

3> include *measConfigReportAppLayerAvailable*;

2> if this *RRCReconfiguration* message is applied due to an LTM cell switch execution procedure according to clause 5.3.5.18.6:

3> include in the *appliedLTM-CandidateId* the *LTM-CandidateId* of the applied LTM candidate configuration;

3> if this *RRCReconfiguration* message was received via SRB1 but not within the *nr-SCG* within *mrdc-SecondaryCellGroup*:

4> if a new *sk-Counter* value has been selected due to the LTM cell switch execution procedure as specified in 5.3.5.18.6:

5> include *selectedSK-Counter* and set its value to the selected *sk-Counter* value;

2> if the UE is configured in this *RRCReconfiguration* message to provide location information for assisted SMTC configuration in RRC\_CONNECTED state:

3> include *referenceLocationReport*;

2> if, for at least one serving cell, the *RRCReconfiguration* message includes in *csi-ReportConfigToAddModList* at least one *CSI-ReportConfig* including *csi-InferencePrediction*, or including *reportQuantity-r19* set to *p-CRI-r19* or *p-SSB-Index-r19* or *p-CRI-RSRP-r19* or *p-SSB-Index-RSRP-r19*; or

2> if the *RRCReconfiguration* message includes at least one entry in *applicabilityConfigList* within *applicabilityReportConfig*; or

2> if, for at least one serving cell, the UE is configured with at least one *reportConfigId* associated to a *CSI-ReportConfig* including *csi-InferencePrediction*, or including *reportQuantity-r19* set to *p-CRI-r19* or *p-SSB-Index-r19* or *p-CRI-RSRP-r19* or *p-SSB-Index-RSRP-r19*, for which the applicability status has changed since the last transmission of a message containing *applicabilityReportList* (either in *RRCReconfigurationComplete* or *UEAssistanceInformation*); or

2> if the UE is configured with at least one entry in *applicabilitySetConfigList* for which the applicability status has changed since the last transmission of a message containing *applicabilityReportList* (either in *RRCReconfigurationComplete* or *UEAssistanceInformation*):

3> for each serving cell associated with any of the configurations above, include an entry in the *applicabilityReportList* and set the content as follows:

4> set the *applicabilityCellId* to the serving cell index of the cell;

4> for each configured *reportConfigId* associated to a *CSI-ReportConfig* including *csi-InferencePrediction*, or including *reportQuantity-r19* set to *p-CRI-r19* or *p-SSB-Index-r19* or *p-CRI-RSRP-r19* or *p-SSB-Index-RSRP-r19*, that is included in the *RRCReconfiguration* message or for which the applicability status has changed since the last transmission of a message containing *applicabilityReportList* (either *RRCReconfigurationComplete* or *UEAssistanceInformation*):

5> include an entry in the *applicabilityInfoReportList* and set the content as follows:

6> set the *csi-ReportConfigId* within *applicabilityInfoReportId* to the corresponding *reportConfigId*;

6> set the *applicabilityStatus* to the applicability status of the configuration corresponding to the *applicabilityInfoReportId*;

6> if the *applicabilityStatus* is set to inapplicable:

7> if the UE prefers to release the concerned *CSI-ReportConfig*, include *releaseConfigurationPreference*;

4> for each entry within *applicabilitySetConfigList* associated with the concerned serving cell, that is included in the *RRCReconfiguration* message or for which the applicability status has changed since the last transmission of a message containing *applicabilityReportList* (either *RRCReconfigurationComplete* or *UEAssistanceInformation*):

5> include an entry in the *applicabilityInfoReportList* and set the content as follows:

6> set the *applicabilitySetId* within *applicabilityInfoReportId* to the corresponding *applicabilitySetConfigId*;

6> set the *applicabilityStatus* to the applicability status of the configuration corresponding to the *applicabilityInfoReportId*;

6> if the *applicabilityStatus* is set to inapplicable:

7> if the UE prefers to release the concerned *ApplicabilitySetConfig*, include *releaseConfigurationPreference*;

1> if the UE is configured with E-UTRA *nr-SecondaryCellGroupConfig* (UE in (NG)EN-DC):

2> if the *RRCReconfiguration* message was received via E-UTRA SRB1 as specified in TS 36.331 [10]; or

2> if the *RRCReconfiguration* message was received via E-UTRA RRC message *RRCConnectionReconfiguration* within *MobilityFromNRCommand* (handover from NR standalone to (NG)EN-DC);

3> if the *RRCReconfiguration* is applied due to a conditional reconfiguration execution for CPC which is configured via *conditionalReconfiguration* contained in *nr-SecondaryCellGroupConfig* specified in TS 36.331 [10]:

4> submit the *RRCReconfigurationComplete* message via the E-UTRA MCG embedded in E-UTRA RRC message *ULInformationTransferMRDC* as specified in TS 36.331 [10], clause 5.6.2a.

3> else if the *RRCReconfiguration* message was included in E-UTRA *RRCConnectionResume* message:

4> submit the *RRCReconfigurationComplete* message via E-UTRA embedded in E-UTRA RRC message *RRCConnectionResumeComplete* as specified in TS 36.331 [10], clause 5.3.3.4a;

3> else:

4> submit the *RRCReconfigurationComplete* via E-UTRA embedded in E-UTRA RRC message *RRCConnectionReconfigurationComplete* as specified in TS 36.331 [10], clause 5.3.5.3/5.3.5.4/5.4.2.3;

3> if the *scg-State* is not included in the E-UTRA message (*RRCConnectionReconfiguration* or *RRCConnectionResume*) containing the *RRCReconfiguration* message:

4> perform SCG activation as specified in 5.3.5.13a;

4> if *reconfigurationWithSync* was included in *spCellConfig* of an SCG:

5> initiate the Random Access procedure on the PSCell, as specified in TS 38.321 [3];

4> else if the SCG was deactivated before the reception of the E-UTRA RRC message containing the *RRCReconfiguration* message:

5> if *bfd-and-RLM* was not configured to *true* before the reception of the E-UTRA *RRCConnectionReconfiguration* or *RRCConnectionResume* message containing the *RRCReconfiguration* message or if lower layers indicate that a Random Access procedure is needed for SCG activation:

6> initiate the Random Access procedure on the SpCell, as specified in TS 38.321 [3];

5> else the procedure ends;

4> else the procedure ends;

3> else:

4> perform SCG deactivation as specified in 5.3.5.13b;

4> the procedure ends;

2> if the *RRCReconfiguration* message was received within *nr-SecondaryCellGroupConfig* in *RRCConnectionReconfiguration* message received via SRB3 within *DLInformationTransferMRDC*:

3> submit the *RRCReconfigurationComplete* via E-UTRA embedded in E-UTRA RRC message *RRCConnectionReconfigurationComplete* as specified in TS 36.331 [10], clause 5.3.5.3/5.3.5.4;

3> if the *scg-State* is not included in the *RRCConnectionReconfiguration*:

4> if *reconfigurationWithSync* was included in *spCellConfig* of an SCG:

5> initiate the Random Access procedure on the SpCell, as specified in TS 38.321 [3];

4> else the procedure ends;

3> else:

4> perform SCG deactivation as specified in 5.3.5.13b;

4> the procedure ends;

NOTE 1: The order the UE sends the *RRCConnectionReconfigurationComplete* message and performs the Random Access procedure towards the SCG is left to UE implementation.

2> else (*RRCReconfiguration* was received via SRB3) but not within *DLInformationTransferMRDC*:

3> submit the *RRCReconfigurationComplete* message via SRB3 to lower layers for transmission using the new configuration;

NOTE 2: In (NG)EN-DC and NR-DC, in the case *RRCReconfiguration* is received via SRB1 or within *DLInformationTransferMRDC* via SRB3, the random access is triggered by RRC layer itself as there is not necessarily other UL transmission. In the case *RRCReconfiguration* is received via SRB3 but not within *DLInformationTransferMRDC*, the random access is triggered by the MAC layer due to arrival of *RRCReconfigurationComplete*.

1> else if the *RRCReconfiguration* message was received via SRB1 within the *nr-SCG* within *mrdc-SecondaryCellGroup* (UE in NR-DC, *mrdc-SecondaryCellGroup* was received in *RRCReconfiguration* or *RRCResume* via SRB1):

2> if the *RRCReconfiguration* is applied due to a conditional reconfiguration execution for CPC or subsequent CPAC which is configured via *conditionalReconfiguration* contained in *nr-SCG* within *mrdc-SecondaryCellGroup*; or

2> if the *RRCReconfiguration* is applied due to an LTM cell switch execution and is configured via an *LTM-Config* IE contained in *nr-SCG* within *mrdc-SecondaryCellGroup*:

3> submit the *RRCReconfigurationComplete* message via *SRB1* embedded in NR RRC message *ULInformationTransferMRDC* as specified in clause 5.7.2a.3.

2> if the *scg-State* is not included in the *RRCReconfiguration* or *RRCResume* message containing the *RRCReconfiguration* message:

3> perform SCG activation as specified in 5.3.5.13a;

3> if *reconfigurationWithSync* was included in *spCellConfig* in nr-SCG:

4> if the *RRCReconfiguration* message is not applied due to an LTM cell switch execution for which lower layer indicate to skip the Random Access procedure:

5> initiate the Random Access procedure on the PSCell, as specified in TS 38.321 [3];

4> if the UE was configured with *successPSCell-Config* when connected to the source PSCell (for PSCell change) or to the PCell (for PSCell addition or change):

5> perform the actions for the successful PSCell change or addition report determination as specified in clause 5.7.10.7, upon successfully completing the Random Access procedure triggered for the *reconfigurationWithSync* in *spCellConfig* of the SCG;

3> else if the SCG was deactivated before the reception of the NR RRC message containing the *RRCReconfiguration* message:

4> if *bfd-and-RLM* was not configured to *true* before the reception of the *RRCReconfiguration* or *RRCResume* message containing the *RRCReconfiguration* message; or

4> if lower layers indicate that a Random Access procedure is needed for SCG activation:

5> initiate the Random Access procedure on the PSCell, as specified in TS 38.321 [3];

4> else the procedure ends;

3> else the procedure ends;

2> else

3> perform SCG deactivation as specified in 5.3.5.13b;

3> the procedure ends;

NOTE 2a: The order in which the UE sends the *RRCReconfigurationComplete* message and performs the Random Access procedure towards the SCG is left to UE implementation.

1> else if the *RRCReconfiguration* message was received via SRB3 (UE in NR-DC):

2> if the *RRCReconfiguration* message was received within *DLInformationTransferMRDC*:

3> if the *RRCReconfiguration* message was received within the *nr-SCG* within *mrdc-SecondaryCellGroup* (NR SCG RRC Reconfiguration):

4> if the *scg-State* is not included in the *RRCReconfiguration* message containing the *RRCReconfiguration* message:

5> if *reconfigurationWithSync* was included in spCellConfig in nr-SCG:

6> initiate the Random Access procedure on the PSCell, as specified in TS 38.321 [3];

6> if the UE was configured with *successPSCell-Config* when connected to the source PSCell (for PSCell change) or to the PCell (for PSCell addition or change):

7> perform the actions for the successful PSCell change report determination as specified in clause 5.7.10.7, upon successfully completing the Random Access procedure triggered for the *reconfigurationWithSync* in *spCellConfig* of the SCG;

5> else:

6> the procedure ends;

4> else:

5> perform SCG deactivation as specified in 5.3.5.13b;

5> the procedure ends;

3> else:

4> if the *RRCReconfiguration* does not include the *mrdc-SecondaryCellGroupConfig*:

5> if the *RRCReconfiguration* includes the *scg-State*:

6> perform SCG deactivation as specified in 5.3.5.13b;

4> submit the *RRCReconfigurationComplete* message via SRB1 to lower layers for transmission using the new configuration;

2> else:

3> if the *RRCReconfiguration* includes the *reconfigurationWithSync* in *spCellConfig* for the SCG; and

3> if the UE was configured with *successPSCell-Config* when connected to the source PSCell (for PSCell change):

4> perform the actions for the successful PSCell change report determination as specified in clause 5.7.10.7, upon successfully completing the Random Access procedure triggered for the *reconfigurationWithSync* in *spCellConfig* of the SCG;

3> if the UE has successful PSCell change or addition information available in *VarSuccessPSCell-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarSuccessPSCell-Report*; or

3> if the UE has successful PSCell change or addition information available in *VarSuccessPSCell-Report* and if the current registered SNPN identity is included in *snpn-IdentityList* stored in the *VarSuccessPSCell-Report*:

4> include *successPSCell-InfoAvailable* in the *RRCReconfigurationComplete* message;

3> submit the *RRCReconfigurationComplete* message via SRB3 to lower layers for transmission using the new configuration;

1> else(*RRCReconfiguration* was received via SRB1):

2> if the UE is in NR-DC and;

2> if the *RRCReconfiguration* does not include the *mrdc-SecondaryCellGroupConfig*:

3> if the *RRCReconfiguration* includes the *scg-State*:

4> perform SCG deactivation as specified in 5.3.5.13b;

3> else:

4> perform SCG activation without SN message as specified in 5.3.5.13b1;

2> if the *reconfigurationWithSync* was included in *spCellConfig* of an MCG:

3> if *ta-Report* or *ta-ReportATG* is configured with value *enabled* and the UE supports TA reporting:

4> indicate TA report initiation to lower layers;

2> submit the *RRCReconfigurationComplete* message via SRB1 to lower layers for transmission using the new configuration;

2> if this is the first *RRCReconfiguration* message after successful completion of the RRC re-establishment procedure:

3> resume SRB2, SRB4, SRB6, DRBs, multicast MRB, and BH RLC channels for IAB-MT, and Uu Relay RLC channels for L2 U2N Relay UE in case of single hop or for L2 Last U2N Relay UE, that are suspended;

1> if *sl-IndirectPathAddChange* was included in *RRCReconfiguration* message:

2> if SRB1 is configured as split SRB and *pdcp-Duplication* is configured:

3> when successfully sending *RRCReconfigurationComplete* message via SL indirect path (i.e., PC5 RLC acknowledgement is received from target L2 U2N Relay UE):

4> stop timer T421;

2> else (i.e. split SRB1 with duplication is not configured):

3> when receiving *RRCReconfigurationCompleteSidelink* message from target L2 U2N Relay UE:

4> stop timer T421;

1> if *reconfigurationWithSync* was included in *spCellConfig* of an MCG or SCG and when MAC of an NR cell group successfully completes a Random Access procedure triggered above; or,

1> if *sl-PathSwitchConfig* was included in *reconfigurationWithSync* included in *spCellConfig* of an MCG, and when successfully sending *RRCReconfigurationComplete* message (i.e., PC5 RLC acknowledgement is received from target L2 U2N Relay UE); or,

1> if *rach-LessHO* was included in *reconfigurationWithSync* included in *spCellConfig* of an MCG, and upon indication from lower layers that the RACH-less handover has been successfully completed; or,

1> if *reconfigurationWithSync* was included in *spCellConfig* of an MCG or SCG and the *RRCReconfiguration* message is applied due to an LTM cell switch execution and upon an indication from lower layer that the LTM cell switch execution has been successfully completed:

2> stop timer T304 for that cell group if running;

2> if *rach-LessHO* was included in *reconfigurationWithSync* included in *spCellConfig* of an MCG, and upon indication from lower layers that the RACH-less handover has been successfully completed; or,

2> if *reconfigurationWithSync* was included in *spCellConfig* of an MCG or SCG and the *RRCReconfiguration* message is applied due to an LTM cell switch execution and upon an indication from lower layer that the LTM cell switch execution has been successfully completed:

3> release dedicated preambles provided in *rach-ConfigDedicated* within *reconfigurationWithSync*, if configured;

3> release dedicated msgA PUSCH resources provided in *rach-ConfigDedicated* within *reconfigurationWithSync*, if configured;

2> if *sl-PathSwitchConfig* was included in *reconfigurationWithSync*:

3> if the *sl-IndirectPathMaintain* is not included in *reconfigurationWithSync*:

4> stop timer T420;

4> release all radio resources, including release of the RLC entities and the MAC configuration at the source side;

4> reset MAC used in the source cell;

3> else (*sl-IndirectPathMaintain* is included):

4> release radio resources on the direct path, including release of the RLC entities and the MAC configuration;

4> reset MAC used in the source cell;

2> if *rach-LessHO* was included in *reconfigurationWithSync* and *cg-RRC-Configuration* was configured:

3> release the uplink grant configured for RACH-less handover;

NOTE 2b: PDCP and SDAP configured by the source prior to the path switch that are reconfigured and re-used by target when delta signalling is used, are not released as part of this procedure.

2> stop timer T310 for source SpCell if running;

2> apply the parts of the CSI reporting configuration, the scheduling request configuration and the sounding RS configuration that do not require the UE to know the SFN of the respective target SpCell, if any;

2> apply the parts of the measurement and the radio resource configuration that require the UE to know the SFN of the respective target SpCell (e.g. measurement gaps, periodic CQI reporting, scheduling request configuration, sounding RS configuration), if any, upon acquiring the SFN of that target SpCell;

2> for each DRB configured as DAPS bearer, request uplink data switching to the PDCP entity, as specified in TS 38.323 [5];

2> if the *reconfigurationWithSync* was included in *spCellConfig* of an MCG:

3> if T390 is running:

4> stop timer T390 for all access categories;

4> perform the actions as specified in 5.3.14.4.

3> if T350 is running:

4> stop timer T350;

3> if *RRCReconfiguration* does not include *dedicatedSIB1-Delivery* and

3> if the active downlink BWP, which is indicated by the *firstActiveDownlinkBWP-Id* for the target SpCell of the MCG, has a common search space configured by *searchSpaceSIB1*:

4> acquire the *SIB1*, which is scheduled as specified in TS 38.213 [13], of the target SpCell of the MCG;

4> upon acquiring *SIB1*, perform the actions specified in clause 5.2.2.4.2;

2> if the *RRCReconfiguration* message is applied due to a conditional reconfiguration execution and the *RRCReconfiguration* message is contained in an entry in MCG *VarConditionalReconfig* that includes the *subsequentCondReconfig*:

3> for each entry in the *condReconfigList* within the MCG *VarConditionalReconfig*:

4> if there is an entry in *condExecutionCondToAddModList* within the *subsequentCondReconfig* that has *subsequentCondReconfigId* matching the *condReconfigId* in the entry of the *condReconfigList*:

5> if *subsequentCondExecutionCondSCG* is included in the entry of the *condExecutionCondToAddModList*:

6> store in the *condExecutionCondSCG* in the entry of the *condReconfigList* the value of *subsequentCondExecutionCondSCG* in the entry of the *condExecutionCondToAddModList*;

2> if the *RRCReconfiguration* message is applied due to a conditional reconfiguration execution and the *RRCReconfiguration* message is contained in an entry in SCG *VarConditionalReconfig* that includes the *subsequentCondReconfig*:

3> for each entry in the *condReconfigList* within the SCG *VarConditionalReconfig*:

4> if there is an entry in *condExecutionCondToAddModList* within the *subsequentCondReconfig* that has *subsequentCondReconfigId* matching the *condReconfigId* in the entry of the *condReconfigList*:

5> if *subsequentCondExecutionCond* is included in the entry of the *condExecutionCondToAddModList*:

6> store in the *condExecutionCond* in the entry of the *condReconfigList* the value of *subsequentCondExecutionCond* in the entry of the *condExecutionCondToAddModList*;

2> if the *reconfigurationWithSync* was included in *spCellConfig* of an MCG; or

2> if the *reconfigurationWithSync* was included in *spCellConfig* of an SCG and the CPA, CPC, or subsequent CPAC was configured:

3> remove all the entries in the *condReconfigList* within the MCG and the SCG *VarConditionalReconfig* except for the entries in which *subsequentCondReconfig* is present, if any;

3> remove all the entries within *VarConditionalReconfiguration* as specified in TS 36.331 [10], clause 5.3.5.9.6, if any;

3> for each *measId* of the MCG *measConfig*, if configured, and for each *measId* of the SCG *measConfig*, if configured, if the associated *reportConfig* has a *reportType* set to *condTriggerConfig*:

4> if the *reportConfigId* is not associated with any *measId* indicated by the *condExecutionCond* or the *condExecutionCondSCG* in an entry of *condReconfigList* in *VarConditionalReconfig* in which *subsequentCondReconfig* is included; and

4> if the *reportConfigId* is not associated with any *measId* indicated by the *LTM-ExecutionCondition* in an entry of *LTM-ExecutionConditionList*:

5> remove the entry with the matching *reportConfigId* from the *reportConfigList* within the *VarMeasConfig*;

4> if the associated *measObjectId* is only associated to a *reportConfig* with *reportType* set to *condTriggerConfig*; and

4> if the *measObjectId* is not associated with any *measId* indicated by the *condExecutionCond* or the *condExecutionCondSCG* in an entry of *condReconfigList* in *VarConditionalReconfig* in which *subsequentCondReconfig* is included; and

4> if the *measObjectId* is not associated with any *measId* indicated by the *LTM-ExecutionCondition* in an entry of *LTM-ExecutionConditionList*:

5> remove the entry with the matching *measObjectId* from the *measObjectList* within the *VarMeasConfig*;

4> remove the entry with the matching *measId* from the *measIdList* within the *VarMeasConfig*;

2> if *reconfigurationWithSync* was included in *masterCellGroup* or *secondaryCellGroup*:

3> if the UE initiated transmission of a *UEAssistanceInformation* message for the corresponding cell group during the last 1 second, and the UE is still configured to provide the concerned UE assistance information for the corresponding cell group; or

3> if the *RRCReconfiguration* message is applied due to a conditional reconfiguration execution or an LTM cell switch procedure, and the UE is configured to provide UE assistance information for the corresponding cell group, and the UE has initiated transmission of a *UEAssistanceInformation* message for the corresponding cell group since it was configured to do so in accordance with 5.7.4.2:

4> initiate transmission of a *UEAssistanceInformation* message for the corresponding cell group in accordance with clause 5.7.4.3 to provide the concerned UE assistance information;

4> start or restart the prohibit timer (if exists) associated with the concerned UE assistance information with the timer value set to the value in corresponding configuration;

4> start or restart the leave without response timer (if exists) with the timer value set to the value in the *musim-LeaveAssistanceConfig* or the wait timer (if exists) with the timer value set to the value in *musim-CapabilityRestrictionConfig*;

3> if *SIB12* is provided by the target PCell, and the UE initiated transmission of a *SidelinkUEInformationNR* message indicating a change of NR sidelink communication/discovery related parameters relevant in target PCell during the last 1 second preceding reception of the *RRCReconfiguration* message including *reconfigurationWithSync* in *spCellConfig* of an MCG; or

3> if the *RRCReconfiguration* message is applied due to a conditional reconfiguration execution and the UE is capable of NR sidelink communication/discovery and *SIB12* is provided by the target PCell, and the UE has initiated transmission of a *SidelinkUEInformationNR* message since it was configured to do so in accordance with 5.8.3.2:

4> initiate transmission of the *SidelinkUEInformationNR* message in accordance with 5.8.3.3;

3> if any application layer measurement report container has been received from upper layers for which the successful transmission of the *MeasurementReportAppLayer* message or at least one segment of the message via SRB4 (if *reconfigurationWithSync* was included in *masterCellGroup*) or SRB5 (if *reconfigurationWithSync* was included in *secondaryCellGroup*) has not been confirmed by lower layers:

4> if RRC segmentation was used for the *MeasurementReportAppLayer* message:

5> if RRC segmentation is enabled based on the field *rrc-SegAllowedSRB4* or *rrc-SegAllowedSRB5* for the *reportingSRB* (or SRB4 if *reportingSRB* is not configured):

6> re-submit all segments of the *MeasurementReportAppLayer* message to lower layers for transmission via the *reportingSRB* (or SRB4 if *reportingSRB* is not configured);

5> else:

6> discard all segments of the *MeasurementReportAppLayer* message;

4> else:

5> re-submit the *MeasurementReportAppLayer* message to lower layers for transmission via the *reportingSRB* (or SRB4 if *reportingSRB* is not configured);

2> if *reconfigurationWithSync* was included in *masterCellGroup* and SRB4 is configured in the target cell:

3> for each application layer measurement configuration in the UE:

4> if the *RRCReconfiguration* message is applied due to a conditional reconfiguration execution, if *transmissionOfSessionStartStop* is set to *true* for the application layer measurement configuration and if the session status has changed since the UE was configured with the conditional reconfiguration:

5> initiate transmission of a *MeasurementReportAppLayer* message including *appLayerSessionStatus*, via SRB4 for the application layer measurement in accordance with 5.7.16.2;

2> if *reconfigurationWithSync* was included in *masterCellGroup* and the target cell provides *SIB21* or provides *SIB1* including *nonServingCellMII*:

3> if the UE initiated transmission of an *MBSInterestIndication*message during the last 1 second preceding reception of this *RRCReconfiguration* message; or

3> if the *RRCReconfiguration* message is applied due to a conditional reconfiguration execution, and the UE has initiated transmission of an *MBSInterestIndication* message after having received this *RRCReconfiguration* message:

4> initiate transmission of an *MBSInterestIndication*message in accordance with clause 5.9.4;

2> the procedure ends.

NOTE 3: The UE is only required to acquire broadcasted *SIB1* if the UE can acquire it without disrupting unicast or MBS multicast data reception, i.e. the broadcast and unicast/MBS multicast beams are quasi co-located.

NOTE 4: The UE sets the content of *UEAssistanceInformation* according to latest configuration (i.e. the configuration after applying the *RRCReconfiguration* message) and latest UE preference. The UE may include more than the concerned UE assistance information within the *UEAssistanceInformation* according to 5.7.4.2. Therefore, the content of *UEAssistanceInformation* message might not be the same as the content of the previous *UEAssistanceInformation* message.

*END OF CHANGES*

*START OF CHANGES*

##### 5.3.5.5.2 Reconfiguration with sync

The UE shall perform the following actions to execute a reconfiguration with sync.

1> if the AS security is not activated, perform the actions upon going to RRC\_IDLE as specified in 5.3.11 with the release cause '*other*' upon which the procedure ends;

1> stop timer T430 if running;

1> if no DAPS bearer is configured:

2> stop timer T310 for the corresponding SpCell, if running;

1> if this procedure is executed for the MCG:

2> if timer T316 is running;

3> stop timer T316;

3> if the UE supports RLF-Report for fast MCG recovery procedure as specified in TS 38.306 [26]:

4> set the *elapsedTimeT316* in the *VarRLF-Report* to the value of the elapsed time of the timer T316;

4> set the *pSCellId* in the *VarRLF-Report* to the global cell identity of the PSCell, if available, otherwise to the physical cell identity and carrier frequency of the PSCell;

3> else:

4> clear the information included in *VarRLF-Report*, if any;

2> resume MCG transmission, if suspended.

1> stop timer T312 for the corresponding SpCell, if running;

1> if *sl-PathSwitchConfig* is included:

2> apply the value of the *newUE-Identity* as the C-RNTI;

2> if *sl-IndirectPathMaintain* is not included in *reconfigurationWithSync*:

3> if the UE is L2 U2N remote UE at source side:

4> indicate to upper layer to trigger PC5 unicast link release with the source L2 U2N Relay UE;

3> consider the target L2 U2N Relay UE to be the one indicated by the *targetRelayUE-Identity* in the *sl-PathSwitchConfig*;

3> start timer T420 for the corresponding target L2 U2N Relay UE with the timer value set to *t420*, as included in the *sl-PathSwitchConfig*;

3> indicate to upper layer (to trigger the PC5 unicast link establishment) with the target L2 U2N Relay UE indicated by the *targetRelayUE-Identity*;

3> apply the default configuration of SL-RLC1 as defined in 9.2.4 for SRB1;

2> else:

3> consider the connected L2 U2N Relay UE on the indirect path as the target L2 U2N relay UE, and maintain the PC5 connection with the L2 U2N Relay UE;

1> else (*sl-PathSwitchConfig* is not included):

2> if this procedure is executed for the MCG or if this procedure is executed for an SCG not indicated as deactivated in the E-UTRA or NR RRC message in which the *RRCReconfiguration* message is embedded:

3> start timer T304 for the corresponding SpCell with the timer value set to *t304*, as included in the *reconfigurationWithSync*;

2> if the *frequencyInfoDL* is included:

3> consider the target SpCell to be one on the SSB frequency indicated by the *frequencyInfoDL* with a physical cell identity indicated by the *physCellId*;

2> else:

3> consider the target SpCell to be one on the SSB frequency of the source SpCell with a physical cell identity indicated by the *physCellId*;

2> if this procedure is performed due to an LTM cell switch execution:

3> if UE is performing LTM cell switch conditions evaluation based on L1 measurements:

4> request lower layers to stop the LTM conditions evaluation based on L1 measurements for all the LTM candidate configurations;

3> if UE is performing LTM cell switch conditions evaluation based on L3 measurements:

4> stop the LTM cell switch conditions evaluation based on L3 measurements for all the LTM candidate configurations;

3> start synchronising to the DL of the indicated LTM candidate cell, if no DL synchronization for the indicated LTM candidate cell has been already acquired;

2> else:

3> if the target SpCell is different from current SpCell:

4> if UE is performing LTM cell switch conditions evaluation based on L1 measurements:

5> request lower layers to stop the LTM conditions evaluation based on L1 measurements for all the LTM candidate configurations;

4> if UE is performing LTM cell switch conditions evaluation based on L3 measurements:

5> stop the LTM cell switch conditions evaluation based on L3 measurements for all the LTM candidate configurations;

3> start synchronising to the DL of the target SpCell;

2> apply the specified BCCH configuration defined in 9.1.1.1 for the target SpCell;

2> acquire the *MIB* of the target SpCell, which is scheduled as specified in TS 38.213 [13];

2> if *NTN-Config* is configured for the target cell:

3> start timer T430 with the timer value set to *ntn-UlSyncValidityDuration* from the subframe indicated by *epochTime*, according to the target cell *NTN-Config*;

NOTE 1: The UE should perform the reconfiguration with sync as soon as possible following the reception of the RRC message triggering the reconfiguration with sync, which could be before confirming successful reception (HARQ and ARQ) of this message.

NOTE 2: The UE may omit reading the *MIB* if the UE already has the required timing information, or the timing information is not needed for random access, or if not needed for RACH-less initial UL transmission.

NOTE 2a: A UE with DAPS bearer does not monitor for system information updates in the source PCell.

2> If any DAPS bearer is configured:

3> create a MAC entity for the target cell group with the same configuration as the MAC entity for the source cell group;

3> for each DAPS bearer:

4> establish an RLC entity or entities for the target cell group, with the same configurations as for the source cell group;

4> establish the logical channel for the target cell group, with the same configurations as for the source cell group;

NOTE 2b: In order to understand if a DAPS bearer is configured, the UE needs to check the presence of the field *daps-Config* within the *RadioBearerConfig* IE received in *radioBearerConfig* or *radioBearerConfig2*.

3> for each SRB:

4> establish an RLC entity for the target cell group, with the same configurations as for the source cell group;

4> establish the logical channel for the target cell group, with the same configurations as for the source cell group;

3> suspend SRBs for the source cell group;

NOTE 3: Void

3> apply the value of the *newUE-Identity* as the C-RNTI in the target cell group;

3> configure lower layers for the target SpCell in accordance with the received s*pCellConfigCommon*;

3> configure lower layers for the target SpCell in accordance with any additional fields, not covered in the previous, if included in the received *reconfigurationWithSync.*

2> else:

3> reset the MAC entity of this cell group;

3> consider the SCell(s) of this cell group, if configured, that are not included in the *SCellToAddModList* in the *RRCReconfiguration* message, to be in deactivated state;

3> apply the value of the *newUE-Identity* as the C-RNTI for this cell group;

3> configure lower layers in accordance with the received s*pCellConfigCommon*;

3> if *rach-LessHO* is included:

4> configure lower layers in accordance with *rach-LessHO* for the target SpCell;

3> configure lower layers in accordance with any additional fields, not covered in the previous, if included in the received *reconfigurationWithSync.*

2> if the UE is acting as L2 U2N Remote UE at the source side:

3> if the *sl-IndirectPathMaintain* is not included in *reconfigurationWithSync*:

4> indicate upper layer to trigger PC5 unicast link release.

Upon L2 U2N Relay UE receiving *reconfigurationWithSync*, it either indicates to upper layers (to trigger PC5 unicast link release with its child UE(s)) or sends *NotificationMessageSidelink* message to the connected L2 U2N Remote UE(s) or to the child UE(s) in accordance with 5.8.9.10.

NOTE 4: The MP direct path release is realized by direct-to-indirect path switch procedure (i.e. *sl-PathSwitchConfig* and *sl-indirectPathMaintain* included in *RRCReconfiguration* message), where MP is configured in source side.

##### 5.3.5.5.3 RLC bearer release

The UE shall:

1> for each *logicalChannelIdentity/LogicalChannelIdentityExt* value included in the *rlc-BearerToReleaseList/rlc-BearerToReleaseListExt* that is part of the current UE configuration within the same cell group (LCH release); or

1> for each *logicalChannelIdentity* value that is to be released as the result of an SCG release according to 5.3.5.4; or

1> for each *logicalChannelIdentity* value that is to be released as the result of LTM cell switch execution according to 5.3.5.18.6:

2> release the RLC entity or entities as specified in TS 38.322 [4], clause 5.1.3;

2> release the corresponding logical channel.

*END OF CHANGES*

*START OF CHANGES*

#### 5.3.5.10 MR-DC release

The UE shall:

1> as a result of MR-DC release triggered by E-UTRA or NR:

2> release SRB3, if established, as specified in 5.3.5.6.2;

2> release SRB5, if established, as specified in 5.3.5.6.2;

2> release *measConfig* associated with SCG;

2> if the UE is configured with NR SCG:

3> release the SCG configuration as specified in clause 5.3.5.4;

3> if this procedure is initiated due to the reception of *mrdc-ReleaseAndAdd*:

4> release *otherConfig* associated with the SCG except the *successPSCell-Config* configured by the source PSCell, if configured;

3> else:

4> release *otherConfig* associated with the SCG, if configured;

4> release *successPSCell-Config* configured by the PCell in the *otherConfig*, if configured;

3> stop timers T346a, T346b, T346c, T346d, T346e, T346j and T346k associated with the SCG, if running;

3> release *bap-Config* associated with the SCG, if configured;

3> release the BAP entity as specified in TS 38.340 [47], if there is no configured *bap-Config*;

3> release *iab-IP-AddressConfigurationList* associated with the SCG, if configured;

3> if this procedure is not initiated due to applying an *RRCReconfiguration* message contained within the *LTM-Config* IE including *mrdc-ReleaseAndAdd* (i.e. for MCG LTM with SCG configuration):

4> perform the LTM configuration release procedure for the SCG as specified in clause 5.3.5.18.7;

2> else if the UE is configured with E-UTRA SCG:

3> release the SCG configuration as specified in TS 36.331 [10], clause 5.3.10.19 to release the E-UTRA SCG;

*END OF CHANGES*

*START OF CHANGES*

##### 5.3.5.13.7 sk-Counter configuration addition/modification/removal

The UE shall:

1> for each *securityCellSetId* received in the *sk-CounterConfigToAddModList* IE:

2> if an entry with the matching *securityCellSetId* exists in the *sk-CounterConfigToAddModList* within the *VarConditionalReconfig*:

3> replace the *sk-CounterList* within the *VarConditionalReconfig* with the *sk-CounterList* according to the received *securityCellSetId*;

2> else:

3> add a new entry for this *securityCellSetId* within the *VarConditionalReconfig*;

1> for each *securityCellSetId* value included in the *sk-CounterConfigToReleaseList* that is part of the current *sk-CounterConfigToAddModList* in *VarConditionalReconfig*:

2> remove the entry with the matching *securityCellSetId* from the *sk-CounterConfigToAddModList*;

*END OF CHANGES*

*START OF CHANGES*

#### 5.3.5.18 LTM configuration and execution

##### 5.3.5.18.1 LTM configuration

The network configures the UE with one or more LTM candidate configurations within the *LTM-Config* IE.

An *ltm-Config* included within an *RRCReconfiguration* message received via SRB1 is for LTM on the MCG. It may include an SCG configuration and/or *ltm-ServingCellNoSecurityChangeID*.

An *ltm-Config* included within an *RRCReconfiguration* message either received via SRB3, or embedded in an *RRCReconfiguration* message received via SRB1 is for LTM on the SCG. It does not include any MCG configuration and does not include *ltm-ServingCellNoSecurityChangeID*.

An *ltm-ConfigNRDC* included within an *RRCReconfiguration* message received via SRB1 is for LTM on the SCG. It includes the MCG configuration and may include *ltm-ServingCellNoSecurityChangeID.*

In NR-DC, the UE may be configured simultaneously with an *ltm-Config* for MCG LTM*,* and an *ltm-Config* for SCG LTM, or be configured simultaneously with an *ltm-Config* for MCG LTM*,* and an *ltm-ConfigNRDC* for SCG LTM.

In this case, the following principles apply:

- the UE maintains independently the two *ltm-Config,* or the *ltm-Config* and the *ltm-ConfigNRDC*;

- the UE maintains two independent *VarLTM-ServingCellNoResetID*, one associated with each *ltm-Config,* or one associated with the *ltm-Config* and one associated with the *ltm-ConfigNRDC*;

- the UE maintains two independent *VarLTM-ServingCellUE-MeasuredTA-ID*, one associated with each *ltm-Config,* or one associated with the *ltm-Config* and one associated with the *ltm-ConfigNRDC*;

- the UE maintains two independent *VarLTM-ServingCellNoSecurityChange*, one associated with the *ltm-Config* and one associated with the *ltm-ConfigNRDC* (if both are configured);

- the UE independently performs all the procedures in clause 5.3.5.18 for each *ltm-Config,* or an *ltm-Config* and an *ltm-ConfigNRDC,* and the associated *VarLTM-ServingCellNoResetID,* *VarLTM-ServingCellUE-MeasuredTA-ID*, and *VarLTM-ServingCellNoSecurityChange,* unless explicitly stated otherwise.

The UE shall perform the following actions based on the received *LTM-Config* IE:

1> if the received *LTM-Config* includes *ltm-ServingCellNoResetID*:

2> if the current *VarLTM-ServingCellNoResetID* includes an *ltm-ServingCellNoResetID*:

3> replace the *ltm-ServingCellNoResetID* value within *VarLTM-ServingCellNoResetID* with the received *ltm-ServingCellNoResetID*;

2> else:

3> store the received *ltm-ServingCellNoResetID* in *VarLTM-ServingCellNoResetID*;

1> if the received *LTM-Config* includes *ltm-ServingCellUE-MeasuredTA-ID*:

2> if the current *VarLTM-ServingCellUE-MeasuredTA-ID* includes an *ltm-ServingCellUE-MeasuredTA-ID*:

3> replace the *ltm-ServingCellUE-MeasuredTA-ID* value within *VarLTM-ServingCellUE-MeasuredTA-ID* with the received *ltm-ServingCellUE-MeasuredTA-ID*;

2> else:

3> store the received *ltm-ServingCellUE-MeasuredTA-ID* in *VarLTM-ServingCellUE-MeasuredTA-ID*;

1> if the received *LTM-Config* includes *ltm-ServingCellNoSecurityChangeID*:

2> if the current *VarLTM-ServingCellNoSecurityChange* includes an *ltm-ServingCellNoSecurityChangeID*:

3> replace the *ltm-ServingCellNoSecurityChangeID* value within *VarLTM-ServingCellNoSecurityChange* with the received *ltm-ServingCellNoSecurityChangeID*;

2> else:

3> store the received *ltm-ServingCellNoSecurityChangeID* in *VarLTM-ServingCellNoSecurityChange*;

1> if the received *LTM-Config* includes the *ltm-CandidateToReleaseList:*

2> perform the LTM candidate configuration release as specified in 5.3.5.18.2;

1> if the received *LTM-Config* includes the *ltm-CandidateToAddModList*:

2> perform the LTM candidate configuration addition or modification as specified in 5.3.5.18.3;

1> if the received *LTM-Config* includes the field *ltm-ServingCellExecutionCondition* set to *setup*:

2> perform LTM cell switch execution conditions modification as specified in 5.3.5.18.1a;

1> reconfigure the UE according to all other fields of the received LTM-Config IE.

##### 5.3.5.18.1a LTM cell switch execution conditions modification

The UE shall:

1> clear the entry in *VarLTM-ExecutionConditionList*;

1> if the UE is performing LTM cell switch conditions evaluation based on L1 measurements:

2> request lower layers to stop the LTM cell switch conditions evaluation based on L1 measurements for all the LTM candidate configurations;

1> if the UE is performing LTM cell switch conditions evaluation based on L3 measurements:

2> stop the LTM cell switch conditions evaluation based on L3 measurements for all the LTM candidate configurations as specified in 5.3.5.18.8;

1> if this procedure is triggered by LTM cell switch execution as specified in 5.3.5.18.6 and if *ltm-ExecutionCondition* is configured in the *LTM-Candidate* IE to which LTM cell switch is performed:

2> store *ltm-ExecutionCondition* in *VarLTM-ExecutionConditionList*;

1> else if this procedure is triggered by LTM configuration as specified in 5.3.5.18.1 and if *ltm-ServingCellExecutionCondition* is set to *setup*:

2> store *ltm-ServingCellExecutionCondition* in *VarLTM-ExecutionConditionList*;

1> for each *LTM-ExecutionCondition* in *VarLTM-ExecutionConditions*:

2> if *l3-Conditions* is included in the *LTM-ExecutionCondition*:

3> perform the LTM cell switch conditions evaluation based on L3 measurements as specified in 5.3.5.18.8 according to the *LTM-ExecutionCondition*;

2> else if *l1-Conditions* is included in the *LTM-ExecutionCondition*:

3> request lower layers to initiate the LTM cell switch conditions evaluation based on L1 measurements according to the *LTM-ExecutionCondition*.*END OF CHANGES*

*START OF CHANGES*

##### 5.3.5.18.6 LTM cell switch execution

Upon the indication by lower layers that an LTM cell switch procedure is triggered, or upon performing LTM cell switch following cell selection performed while timer T311 was running, as specified in 5.3.7.3, or upon the fulfilment of LTM cell switch execution conditions, the UE shall:

1> if this procedure is triggered due to fulfilment of LTM cell switch execution conditions:

2> if more than one LTM candidate configuration has triggered this procedure:

3> select one of the LTM candidate configurations as the selected cell for the LTM cell switch execution;

2> else:

3> consider the triggered LTM candidate configuration as the selected cell for the LTM cell switch execution;

1> if the LTM cell switch is triggered on the MCG; or

1> if the LTM cell switch is triggered on the SCG and the LTM candidate configuration to be applied is configured via *ltm-ConfigNRDC*:

2> release/clear all current dedicated and common radio configurations which have neither been received via SRB1 within *mrdc-SecondaryCellGroup*, nor via SRB3 except for the following:

- the radio bearer configuration (configured via *RadioBearerConfig*)

- the *logicalChannelIdentity* and *logicalChannelIdentityExt* of RLC bearers configured in *RLC-BearerConfig* and the associated RLC entities, their state variables, buffers, and timers, except for triggering the associated RLC entities to reset the variable RETX\_COUNT its initial value, as specified in TS 38.322 [4];

- the *bh-LogicalChannelIdentity* of BH RLC channels configured in *BH-RLC-ChannelConfig* and the associated RLC entities, their state variables, buffers, and timers, except for triggering the associated RLC entities to reset the variable RETX\_COUNT its initial value, as specified in TS 38.322 [4];

- the UE variables *VarLTM-ServingCellNoResetID* and *VarLTM-ServingCellUE-MeasuredTA-ID* associated with the *ltm-Config* for LTM on the MCG;

- the UE variable *VarLTM-ServingCellNoSecurityChange*;

- the *ltm-Config* and *ltm-ConfigNRDC* (if configured);

- the MCG C-RNTI;

- the AS security configurations associated with the master key;

- the logged measurement configuration;

- the *successHO-Config*;

3> if the LTM cell switch is triggered on the SCG and the LTM candidate configuration to be applied is configured via *ltm-ConfigNRDC*:

- the *ServingCellConfigCommon* of the PCell;

1> if the LTM cell switch is triggered on the SCG:

2> release/clear all current dedicated and common radio configurations which have been received either via SRB1 within *mrdc-SecondaryCellGroup*, or via SRB3 except for the following:

- the radio bearer configuration (configured via *RadioBearerConfig* IE)

- the *logicalChannelIdentity* and *logicalChannelIdentityExt* of RLC bearers configured in *RLC-BearerConfig* and the associated RLC entities, their state variables, buffers, and timers, except for triggering the associated RLC entities to reset the variable RETX\_COUNT its initial value, as specified in TS 38.322 [4];

- the *bh-LogicalChannelIdentity* of BH RLC channels configured in *BH-RLC-ChannelConfig* and the associated RLC entities, their state variables, buffers, and timers, except for triggering the associated RLC entities to reset the variable RETX\_COUNT its initial value, as specified in TS 38.322 [4];

- the UE variables *VarLTM-ServingCellNoResetID* and *VarLTM-ServingCellUE-MeasuredTA-ID*;

- the *ltm-Config*;

- the AS security configurations associated with the secondary key;

1> for each SRB/DRB in the current UE configuration:

2> if the LTM cell switch is triggered on the MCG and the SRB/DRB using the master key; or

2> if the LTM cell switch is triggered on the SCG and the SRB/DRB using the secondary key:

3> keep the associated PDCP and SDAP entities, their state variables, buffers and timers;

3> release all fields related to the SRB/DRB configuration except for *srb-Identity* and *drb-Identity*;

3> apply the default SRB configuration defined in 9.2.1 for the corresponding SRB;

NOTE 00: For all radio bearers and RLC bearers included in the LTM candidate configuration to be applied at an LTM cell switch execution (i.e., as derived from the LTM reference configuration and the LTM candidate configuration), even if those radio bearers and RLC bearers were configured before the LTM cell switch execution, the network includes fields as specified for the initial setup of radio bearers and RLC bearers and sets the values previously stored by the UE for the fields that cannot be modified according to presence conditions or field descriptions.

1> apply the default L1 parameter values as specified in corresponding physical layer specifications except for the parameters for which values are provided in SIB1;

1> use the default values specified in 9.2.3 for timers T310, T311 and constants N310, N311 associated with the cell group(s) for which the *RRCReconfiguration* message is applied due to the triggered LTM cell switch procedure, where T310, N310, and N311 are for both MCG and SCG, and T311 is only for the MCG;

1> apply the default MAC Cell Group configuration as specified in 9.2.2 for the cell group(s) for which the *RRCReconfiguration* message is applied due to the triggered LTM cell switch procedure;

1> if *ltm-ServingCellNoSecurityChange* within *VarLTM-ServingCellNoSecurityChange* is not empty and if the value of *ltm-NoSecurityChangeID* contained in the *LTM-Candidate* IE in *ltm-Config* or *ltm-ConfigNRDC* indicated by lower layers or for the selected cell in accordance with 5.3.7.3 is not equal to the value of *ltm-ServingCellNoSecurityChange* within *VarLTM-ServingCellNoSecurityChange*:

2> for each RLC bearer that is part of the current UE configuration for the cell group for which the LTM cell switch is procedure is triggered:

3> perform RLC bearer release procedure as specified in 5.3.5.5.3;

2> if the LTM cell switch is triggered on the MCG:

3> update the master security key by performing the AS security key update procedure as specified in 5.3.5.7;

2> else if the LTM cell switch is triggered on the SCG:

3> consider the first *sk-Counter* value in the *ltm-SK-Counters* within the *VarLTM-ServingCellNoSecurityChange* associated to the the field *ltm-NoSecurityChangeID* as the selected *sk-Counter* value, and update the secondary key by performing security key update procedure as specified in 5.3.5.7;

3> remove the selected *sk-Counter* value from the *ltm-SK-Counters* within the *VarLTM-ServingCellNoSecurityChange*;

2> at the end of the procedure, for each *drb-Identity* value that is part of the current UE configuration:

3> if the LTM cell switch is triggered on the MCG; or

3> if the LTM cell switch is triggered on the SCG and this DRB is using the secondary key; or

3> if the LTM cell switch is triggered on the SCG and the *keyToUse* for this DRB is changed:

4> if the PDCP entity of this DRB is not configured with *cipheringDisabled:*

5> configure the PDCP entity with the ciphering algorithm and KUPenc key associated with the master key (KgNB) or secondary key (S-KgNB), as indicated in *keyToUse*, i.e. the ciphering configuration shall be applied to all subsequent PDCP PDUs received and sent by the UE;

4> if the PDCP entity of this DRB is configured with *integrityProtection*:

5> configure the PDCP entity with the integrity protection algorithms according to *securityConfig* and apply the KUPint key associated with the master key (KgNB) or the secondary key (S-KgNB) as indicated in *keyToUse*;

4> if *drb-ContinueROHC* is included in *pdcp-Config*:

5> indicate to lower layer that *drb-ContinueROHC* is configured;

4> if *drb-ContinueEHC-DL* is included in *pdcp-Config*:

5> indicate to lower layer that *drb-ContinueEHC-DL* is configured;

4> if *drb-ContinueEHC-UL* is included in *pdcp-Config*:

5> indicate to lower layer that *drb-ContinueEHC-UL* is configured;

4> if *drb-ContinueUDC* is included in *pdcp-Config*:

5> indicate to lower layer that *drb-ContinueUDC* is configured;

4> re-establish the PDCP entity of this DRB as specified in TS 38.323 [5], clause 5.1.2;

3> else if LTM cell switch is triggered on the SCG and this DRB is using the master key:

4> if the RLC entity of an RLC bearer associated with this DRB is re-established or released during LTM cell switch execution:

5> if this DRB is an AM DRB:

6> after the end of this procedure, trigger the PDCP entity of this DRB to perform data recovery as specified in TS 38.323 [5], after applying the LTM configuration in *ltm-CandidateConfig* within *LTM-Candidate* IE in *ltm-Config* or *ltm-ConfigNRDC*;

2> at the end of the procedure, for each *srb-Identity* value that is part of the current UE configuration:

3> if the LTM cell switch is triggered on the MCG; or

3> if the LTM cell switch is triggered on the SCG and the SRB is using the secondary key:

4> configure the PDCP entity to apply the integrity protection algorithm and KRRCint key associated with the master key (KgNB) or the secondary key (S-KgNB), as indicated in *keyToUse*, i.e. the integrity protection configuration shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

4> configure the PDCP entity to apply the ciphering algorithm and KRRCenc key associated with the master key (KgNB) or the secondary key (S-KgNB) as indicated in *keyToUse*, i.e. the ciphering configuration shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

4> re-establish the PDCP entity of this SRB as specified in TS 38.323 [5];

3> else:

4> trigger the PDCP entity of SRB to perform SDU discard as specified in TS 38.323 [5];

2> replace the value of *ltm-ServingCellNoSecurityChangeID* in *VarLTM-ServingCellNoSecurityChange* with the value of *ltm-NoSecurityChangeID* in the *LTM-Candidate* in *ltm-Config* or *ltm-ConfigNRDC* indicated by lower layers or for the selected cell in accordance with 5.3.7.3;

1> else:

2> if the *LTM-Candidate* IE in *ltm-Config* or *ltm-ConfigNRDC* indicated by lower layers or for the selected cell in accordance with this procedure or clause 5.3.7.3 does not contain the field *ltm-NoResetID* and if the UE does not have any value stored of *ltm-ServingCellNoResetID* within *VarLTM-ServingCellNoResetID*; or

2> if the value of field *ltm-NoResetID* contained within the *LTM-Candidate* IE in *ltm-Config* or *ltm-ConfigNRDC* indicated by lower layers or for the selected cell in accordance with this procedure or clause 5.3.7.3 is not equal to the value of *ltm-ServingCellNoResetID* within *VarLTM-ServingCellNoResetID*:

3> for each *logicalChannelIdentity* and *logicalChannelIdentityExt* that is part of the current UE configuration for the cell group for which the LTM cell switch procedure is triggered:

4> if servedRadioBearer is set to drb-Identity:

5> after the end of this procedure, re-establish the corresponding RLC entity as specified in TS 38.322 [4], after applying the LTM configuration in *ltm-CandidateConfig* within the *LTM-Candidate* IE in *ltm-Config* or *ltm-ConfigNRDC*;

3> for each *bh-LogicalChannelIdentity* that is part of the current UE configuration for the cell group for which the LTM cell switch procedure is triggered:

4> after the end of this procedure, re-establish the corresponding RLC entity as specified in TS 38.322 [4], after applying the LTM configuration in *ltm-CandidateConfig* within the LTM-Candidate IE in *ltm-Config* or *ltm-ConfigNRDC*;

3> for each *drb-Identity* value that is part of the current UE configuration:

4> if this DRB is an AM DRB:

5> after the end of this procedure, trigger the PDCP entity of this DRB to perform data recovery as specified in TS 38.323 [5], after applying the LTM configuration in *ltm-CandidateConfig* within *LTM-Candidate* IE in *ltm-Config* or *ltm-ConfigNRDC*;

3> if the value of field *ltm-NoResetID* contained within the *LTM-Candidate* IE in *ltm-Config* or *ltm-ConfigNRDC* indicated by lower layers or for the selected cell in accordance with this procedure or clause 5.3.7.3 is not equal to the value of *ltm-ServingCellNoResetID* within *VarLTM-ServingCellNoResetID*:

4> replace the value of *ltm-ServingCellNoResetID* in *VarLTM-ServingCellNoResetID* with the value of *ltm-NoResetID* in the *LTM-Candidate* in *ltm-Config* or *ltm-ConfigNRDC* indicated by lower layers or for the selected cell in accordance with 5.3.5.18.8 or 5.3.7.3;

1> if the *LTM-Candidate* IE in *ltm-Config* or *ltm-ConfigNRDC* indicated by lower layers or for the selected cell in accordance with 5.3.5.18.8 or 5.3.7.3 contains the field *ltm-UE-MeasuredTA-ID*:

2> if the value of *ltm-UE-MeasuredTA-ID* is not equal to the value of *ltm-ServingCellUE-MeasuredTA-ID* within *VarLTM-ServingCellUE-MeasuredTA-ID*:

3> replace the value of *ltm-ServingCellUE-MeasuredTA-ID* in *VarLTM-ServingCellUE-MeasuredTA-ID* with the value received within *ltm-UE-MeasuredTA-ID*;

3> for each *LTM-Candidate* IE in *ltm-Config* or *ltm-ConfigNRDC* that includes the *LTM-Candidate* IE indicated by lower layers or for the selected cell in accordance with this procedure or clause 5.3.7.3:

4> if the value of *ltm-UE-MeasuredTA-ID* within *LTM-Candidate* IE is equal to the value of *ltm-ServingCellUE-MeasuredTA-ID* within *VarLTM-ServingCellUE-MeasuredTA-ID*:

5> inform lower layers that the UE is configured with UE-based TA measurements for the *LTM-Candidate*;

4> else:

5> inform lower layers that the UE is not configured with UE-based TA measurements for the *LTM-Candidate*;

NOTE 0: The UE is not expected to perform UE-based TA measurements for an SpCell.

1> if *ltm-ConfigComplete* is not included within the *LTM-Candidate* IE in *ltm-Config* or *ltm-ConfigNRDC* indicated by lower layers or for the selected cell in accordance with this procedure or clause 5.3.7.3:

2> consider *ltm-ReferenceConfiguration* in *ltm-Config* or *ltm-ConfigNRDC*, associated with the cell group for which the LTM cell switch procedure is triggered, to be the current UE configuration for the fields and configurations to be released by the actions above in this procedure;

2> if *measConfig* is included within *ltm-ReferenceConfiguration* in *ltm-Config* or *ltm-ConfigNRDC*;

3> perform the measurement configuration procedure as specified in clause 5.5.2 by considering the *measConfig* within *ltm-ReferenceConfiguration* in *ltm-Config* or *ltm-ConfigNRDC* as the received *measConfig*:

NOTE 1: When the UE considers the reference configuration to be the current UE configuration, the UE should store fields and configurations that are part of the reference configuration but should not execute any actions or procedures triggered by the reception of an *RRCReconfiguration* message which are described in clause 5.3.5.3, unless specified otherwise in this clause.

1> if the LTM cell switch is triggered by an indication from lower layers:

2> apply the *RRCReconfiguration* message in *ltm-CandidateConfig* within *LTM-Candidate* IE in *ltm-Config* or *ltm-ConfigNRDC* identified by the LTM candidate configuration identity received from lower layers according to clause 5.3.5.3;

1> else (LTM cell switch triggered upon cell selection performed while timer T311 was running or upon the fulfilment of LTM cell switch execution conditions (as specified in clause 5.3.5.18.8)):

2> apply the *RRCReconfiguration* message in *ltm-CandidateConfig* within *LTM-Candidate* IE in *ltm-Config* related to the LTM candidate configuration identity for the selected cell (i.e., in accordance with this procedure or clause 5.3.7.3) according to clause 5.3.5.3;

1> if the LTM cell switch is triggered on the MCG:

2> release the radio bearer(s) using the master key and the MCG logical channel(s) that were part of the UE configuration before this LTM cell switch procedure but not part of the LTM candidate configuration either indicated by lower layers or for the selected cell in accordance with this procedure or clause 5.3.7.3, or the LTM reference configuration (in case the LTM candidate configuration does not include *ltm-ConfigComplete*);

1> else, if the LTM cell switch is triggered on the SCG:

2> release the radio bearer(s) using the secondary key and the SCG logical channel(s) that were part of the UE configuration before this LTM cell switch procedure but not part of the LTM candidate configuration either indicated by lower layers or for the selected cell in accordance with 5.3.5.18.8 or 5.3.7.3, or the LTM reference configuration (in case the LTM candidate configuration does not include *ltm-ConfigComplete*);

1> if *VarLTM-ExecutionConditionList* is present and is not empty:

2> perform LTM cell switch execution conditions modification as specified in 5.3.5.18.1a.

NOTE 2: When *ltm-ConfigComplete* is not included for an LTM candidate configuration, before an LTM cell switch is triggered a UE implementation may generate and store an *RRCReconfiguration* message by applying the received LTM candidate configuration on top of the LTM reference configuration, and the stored *RRCReconfiguration* message is applied when the LTM cell switch is triggered. It is up to the UE to ensure that the RRC reconfiguration applied at the time of LTM cell switch is in accordance with the latest LTM reference configuration and LTM candidate configuration.

*END OF CHANGES*

*START OF CHANGES*

##### 5.3.5.18.8 LTM cell switch conditions evaluation based on L3 measurements

The UE shall:

1> for each entry in *Var-LTM-ExecutionConditionList* which has the *l3-Conditions* configured:

2> for each *measId* indicated in the *l3-Conditions* which has a corresponding *measId* in the *VarMeasConfig* associated with the MCG *measConfig*:

3> if the *condEventId* related to this *measId* is associated with *condEventA3* or *condEventA5*, and if the entry condition applicable for this event is fulfilled for the *ltm-CandidatePCI* related to the *ltm-CandidateId* for all measurements after layer 3 filtering taken during the corresponding *timeToTrigger* defined for this event:

4> consider the event associated to this *measId* to be fulfilled for the *ltm-CandidateId* associated to the *measId*;

3> if the *condEventId* related to this *measId* is associated with *condEventA3* or *condEventA5*, and if the leaving condition applicable for this event is fulfilled for the *ltm-CandidatePCI* related to the *ltm-CandidateId* for all measurements after layer 3 filtering taken during the corresponding *timeToTrigger* defined for this event:

4> consider the event associated to this *measId* to be not fulfilled for the *ltm-CandidateId* associated to the *measId*;

1> if event(s) associated with all *measId(s)* for an *ltm-CandidateId* within the *LTM-ExecutionConditionList* IE are fulfilled:

2> inform lower layers that an event based on L3 measurements to perform an LTM cell switch procedure is fulfilled;

2> perform the LTM cell switch procedure for the LTM candidate configuration associated to the *ltm-CandidateId* according to the actions specified in 5.3.5.18.6.

*END OF CHANGES*

*START OF CHANGES*

##### 5.3.5.18.10 LTM sk-Counter configuration release

The UE shall:

1> for each *ltm-NoSecurityChangeID* value included in the *ltm-SK-CounterConfigToReleaseList* that is part of the current *ltm-SK-Counters* in *VarLTM-ServingCellNoSecurityChange*:

2> remove the entry with the matching *ltm-NoSecurityChangeID* from the *ltm-SK-Counters* in *VarLTM-ServingCellNoSecurityChange.*

*END OF CHANGES*

*START OF CHANGES*

#### 5.3.7.3 Actions following cell selection while T311 is running

Upon selecting a suitable NR cell, the UE shall:

1> ensure having valid and up to date essential system information as specified in clause 5.2.2.2;

1> stop timer T311;

1> if T390 is running:

2> stop timer T390 for all access categories;

2> perform the actions as specified in 5.3.14.4;

1> stop the relay (re)selection procedure, if ongoing;

1> if the cell selection is triggered by detecting radio link failure of the MCG or re-configuration with sync failure of the MCG, except for an LTM cell switch procedure following cell selection performed while timer T311 was running, as specified in 5.3.7.3, or mobility from NR failure, and

1> if *attemptCondReconfig* is configured; and

1> if the selected cell is not configured with *CondEventT1*, or the selected cell is configured with *CondEventT1* and leaving condition has not been fulfilled; and

1> if the selected cell is one of the candidate cells for which the *reconfigurationWithSync* is included in the *masterCellGroup* in the MCG *VarConditionalReconfig* and the *condExecutionCondPSCell* is not configured for the corresponding *condReconfigId* in the MCG *VarConditionalReconfig*:

2> if the UE supports RLF-Report for conditional handover, set the *choCellId* in the *VarRLF-Report* to the global cell identity, if available, otherwise to the physical cell identity and carrier frequency of the selected cell;

2> apply the stored *condRRCReconfig* associated to the selected cell and perform actions as specified in 5.3.5.3;

NOTE 1: It is left to network implementation to how to avoid keystream reuse in case of CHO based recovery after a failed handover without key change.

1> if the cell selection is triggered by detecting radio link failure of the MCG or re-configuration with sync failure of the MCG for an LTM cell switch procedure triggered upon the indication by lower layers or fulfilment of LTM cell switch execution conditions as specified in clause 5.3.5.18.6; and

1> if *attemptLTM-Switch* is configured; and

1> if the selected cell is one of the LTM candidate cells in the *LTM-Candidate* IE within *ltm-Config* associated with the MCG; and

1> if at least one of the following conditions is fulfilled:

2> the selected cell does not have the field *ltm-NoSecurityChangeID* configured and the UE does not have any value stored of *ltm-ServingCellNoSecurityChangeID* within *VarLTM-ServingCellNoSecurityChange*; or

2> the cell selection is triggered by detecting radio link failure of the MCG and the selected cell has a *ltm-NoSecurityChangeID* configured with a value which is equal to the value of *ltm-ServingCellNoSecurityChangeID* within *VarLTM-ServingCellNoSecurityChange*; or

2> the cell selection is triggered by detecting re-configuration with sync failure of the MCG for an LTM cell switch procedure triggered upon the indication by lower layers as specified in clause 5.3.5.18.8 or 5.3.5.18.6 or upon fulfilment of LTM cell switch execution conditions, and the selected cell has a *ltm-NoSecurityChangeID* configured with a value which is equal to the value of *ltm-NoSecurityChangeID* configured within the LTM candidate configuration for which the re-configuration with sync failure is detected

3> if the UE supports RLF-Report for MCG LTM cell switch, set the *ltm-RecoveryCellId* in the *VarRLF-Report* to the global cell identity, if available, otherwise to the physical cell identity and carrier frequency of the selected cell;

3> perform the LTM cell switch procedure for the selected LTM candidate cell according to the actions specified in 5.3.5.18.6;

NOTE 2: In case both *attemptCondReconfig* and *attemptLTM-Switch* are configured, it is left to the UE implementation which procedure to execute.

1> else:

2> if UE is configured with *attemptCondReconfig*;or

2> if UE is configured with *attemptLTM-Switch*:

3> reset MAC;

3> release *spCellConfig*, if configured;

3> release the MCG SCell(s), if configured;

3> release *delayBudgetReportingConfig*, if configured and stop timer T342, if running;

3> release *overheatingAssistanceConfig* , if configured and stop timer T345, if running;

3> if MR-DC is configured:

4> perform MR-DC release, as specified in clause 5.3.5.10;

3> release *idc-AssistanceConfig*, if configured;

3> release *btNameList*, if configured;

3> release *wlanNameList*, if configured;

3> release *sensorNameList*, if configured;

3> release *drx-PreferenceConfig* for the MCG, if configured and stop timer T346a associated with the MCG, if running;

3> release *maxBW-PreferenceConfig* for the MCG, if configured and stop timer T346b associated with the MCG, if running;

3> release *maxCC-PreferenceConfig* for the MCG, if configured and stop timer T346c associated with the MCG, if running;

3> release *maxMIMO-LayerPreferenceConfig* for the MCG, if configured and stop timer T346d associated with the MCG, if running;

3> release *minSchedulingOffsetPreferenceConfig* for the MCG, if configured and stop timer T346e associated with the MCG, if running;

3> release *rlm-RelaxationReportingConfig* for the MCG, if configured and stop timer T346j associated with the MCG, if running;

3> release *bfd-RelaxationReportingConfig* for the MCG, if configured and stop timer T346k associated with the MCG, if running;

3> release *releasePreferenceConfig*, if configured and stop timer T346f, if running;

3> release *onDemandSIB-Request* if configured, and stop timer T350, if running;

3> release referenceTimePreferenceReporting, if configured;

3> release *sl-AssistanceConfigNR*, if configured;

3> release *obtainCommonLocation*, if configured;

3> release *scg-DeactivationPreferenceConfig*, if configured, and stop timer T346i, if running;

3> release *musim-GapAssistanceConfig*, if configured and stop timer T346h, if running;

3> release *musim-GapPriorityAssistanceConfig*, if configured;

3> release *musim-LeaveAssistanceConfig*, if configured;

3> release *musim-CapabilityRestrictionConfig*, if configured and stop timer T346n, if running;

3> release *propDelayDiffReportConfig*, if configured;

3> release *ul-GapFR2-PreferenceConfig*, if configured;

3> release *rrm-MeasRelaxationReportingConfig*, if configured;

3> release *maxBW-PreferenceConfigFR2-2*, if configured;

3> release *maxMIMO-LayerPreferenceConfigFR2-2*, if configured;

3> release *minSchedulingOffsetPreferenceConfigExt*, if configured;

3> release *aerial-FlightPathAvailabilityConfig*, if configured;

3> release *ul-TrafficInfoReportingConfig*, if configured, and stop all instances of timer T346l, if running;

3> release *gapOccasionCancelRatioReportConfig*, if configured, and stop timer T346o, if running;

3> release *loggedDataCollectionAssistanceConfig*, if configured;

3> discard the logged measurement entries included in *VarCSI-LogMeasReport,* if any;

3> release *applicabilityReportConfig*, if configured;

3> release *dataCollectionPreferenceConfig*, if configured;

3> release *assisted-SSB-MTC-Config*, if configured;

3> suspend all RBs, and BH RLC channels for the IAB-MT, except SRB0 and broadcast MRBs;

2> remove all the entries within the MCG *VarConditionalReconfig*, if any;

2> perform the LTM configuration release procedure for the MCG and the SCG as specified in clause 5.3.5.18.7;

2> for each *measId*, if the associated *reportConfig* has a *reportType* set to *condTriggerConfig*:

3> for the associated *reportConfigId*:

4> remove the entry with the matching *reportConfigId* from the *reportConfigList* within the *VarMeasConfig*;

3> if the associated *measObjectId* is only associated to a *reportConfig* with *reportType* set to *condTriggerConfig*:

4> remove the entry with the matching *measObjectId* from the *measObjectList* within the *VarMeasConfig*;

3> remove the entry with the matching *measId* from the *measIdList* within the *VarMeasConfig*;

2> remove the *servingSecurityCellSetId* within the *VarServingSecurityCellSetID*, if any;

2> release the PC5 RLC entity for SL-RLC0, if any;

2> start timer T301;

2> apply the default L1 parameter values as specified in corresponding physical layer specifications except for the parameters for which values are provided in *SIB1*;

2> apply the default MAC Cell Group configuration as specified in 9.2.2;

2> apply the CCCH configuration as specified in 9.1.1.2;

2> apply the *timeAlignmentTimerCommon* included in *SIB1*;

2> initiate transmission of the *RRCReestablishmentRequest* message in accordance with 5.3.7.4;

NOTE 2a: This procedure applies also if the UE returns to the source PCell.

NOTE 3: A L2 U2N Relay UE may re-establish (e.g. via release and establish) the SL-RLC0 and SL-RLC1 of the connected L2 U2N Remote UE(s) or child UE(s).

Upon selecting an inter-RAT cell, the UE shall:

1> perform the actions upon going to RRC\_IDLE as specified in 5.3.11, with release cause 'RRC connection failure'.

*END OF CHANGES*

*START OF CHANGES*

### 6.2.2 Message definitions

#### – *RRCReconfiguration*

The *RRCReconfiguration* message is the command to modify an RRC connection. It may convey information for measurement configuration, mobility control, radio resource configuration (including RBs, MAC main configuration and physical channel configuration) and AS security configuration.

Signalling radio bearer: SRB1 or SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*RRCReconfiguration message*

-- ASN1START

-- TAG-RRCRECONFIGURATION-START

RRCReconfiguration ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 rrcReconfiguration RRCReconfiguration-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

RRCReconfiguration-IEs ::= SEQUENCE {

 radioBearerConfig RadioBearerConfig OPTIONAL, -- Need M

 secondaryCellGroup OCTET STRING (CONTAINING CellGroupConfig) OPTIONAL, -- Cond SCG

 measConfig MeasConfig OPTIONAL, -- Need M

 lateNonCriticalExtension OCTET STRING (CONTAINING RRCReconfiguration-v15t0-IEs) OPTIONAL,

 nonCriticalExtension RRCReconfiguration-v1530-IEs OPTIONAL

}

-- Regular non-critical extensions:

RRCReconfiguration-v1530-IEs ::= SEQUENCE {

 masterCellGroup OCTET STRING (CONTAINING CellGroupConfig) OPTIONAL, -- Need M

 fullConfig ENUMERATED {true} OPTIONAL, -- Cond FullConfig

 dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message OPTIONAL, -- Cond nonHO

 masterKeyUpdate MasterKeyUpdate OPTIONAL, -- Cond MasterKeyChange

 dedicatedSIB1-Delivery OCTET STRING (CONTAINING SIB1) OPTIONAL, -- Need N

 dedicatedSystemInformationDelivery OCTET STRING (CONTAINING SystemInformation) OPTIONAL, -- Need N

 otherConfig OtherConfig OPTIONAL, -- Need M

 nonCriticalExtension RRCReconfiguration-v1540-IEs OPTIONAL

}

RRCReconfiguration-v1540-IEs ::= SEQUENCE {

 otherConfig-v1540 OtherConfig-v1540 OPTIONAL, -- Need M

 nonCriticalExtension RRCReconfiguration-v1560-IEs OPTIONAL

}

RRCReconfiguration-v1560-IEs ::= SEQUENCE {

 mrdc-SecondaryCellGroupConfig SetupRelease { MRDC-SecondaryCellGroupConfig } OPTIONAL, -- Need M

 radioBearerConfig2 OCTET STRING (CONTAINING RadioBearerConfig) OPTIONAL, -- Need M

 sk-Counter SK-Counter OPTIONAL, -- Need N

 nonCriticalExtension RRCReconfiguration-v1610-IEs OPTIONAL

}

RRCReconfiguration-v1610-IEs ::= SEQUENCE {

 otherConfig-v1610 OtherConfig-v1610 OPTIONAL, -- Need M

 bap-Config-r16 SetupRelease { BAP-Config-r16 } OPTIONAL, -- Need M

 iab-IP-AddressConfigurationList-r16 IAB-IP-AddressConfigurationList-r16 OPTIONAL, -- Need M

 conditionalReconfiguration-r16 ConditionalReconfiguration-r16 OPTIONAL, -- Need M

 daps-SourceRelease-r16 ENUMERATED{true} OPTIONAL, -- Need N

 t316-r16 SetupRelease {T316-r16} OPTIONAL, -- Need M

 needForGapsConfigNR-r16 SetupRelease {NeedForGapsConfigNR-r16} OPTIONAL, -- Need M

 onDemandSIB-Request-r16 SetupRelease { OnDemandSIB-Request-r16 } OPTIONAL, -- Need M

 dedicatedPosSysInfoDelivery-r16 OCTET STRING (CONTAINING PosSystemInformation-r16-IEs) OPTIONAL, -- Need N

 sl-ConfigDedicatedNR-r16 SetupRelease {SL-ConfigDedicatedNR-r16} OPTIONAL, -- Need M

 sl-ConfigDedicatedEUTRA-Info-r16 SetupRelease {SL-ConfigDedicatedEUTRA-Info-r16} OPTIONAL, -- Need M

 targetCellSMTC-SCG-r16 SSB-MTC OPTIONAL, -- Need S

 nonCriticalExtension RRCReconfiguration-v1700-IEs OPTIONAL

}

RRCReconfiguration-v1700-IEs ::= SEQUENCE {

 otherConfig-v1700 OtherConfig-v1700 OPTIONAL, -- Need M

 sl-L2RelayUE-Config-r17 SetupRelease { SL-L2RelayUE-Config-r17 } OPTIONAL, -- Need M

 sl-L2RemoteUE-Config-r17 SetupRelease { SL-L2RemoteUE-Config-r17 } OPTIONAL, -- Need M

 dedicatedPagingDelivery-r17 OCTET STRING (CONTAINING Paging) OPTIONAL, -- Cond PagingRelay

 needForGapNCSG-ConfigNR-r17 SetupRelease {NeedForGapNCSG-ConfigNR-r17} OPTIONAL, -- Need M

 needForGapNCSG-ConfigEUTRA-r17 SetupRelease {NeedForGapNCSG-ConfigEUTRA-r17} OPTIONAL, -- Need M

 musim-GapConfig-r17 SetupRelease {MUSIM-GapConfig-r17} OPTIONAL, -- Need M

 ul-GapFR2-Config-r17 SetupRelease { UL-GapFR2-Config-r17 } OPTIONAL, -- Need M

 scg-State-r17 ENUMERATED { deactivated } OPTIONAL, -- Need S

 appLayerMeasConfig-r17 AppLayerMeasConfig-r17 OPTIONAL, -- Need M

 ue-TxTEG-RequestUL-TDOA-Config-r17 SetupRelease {UE-TxTEG-RequestUL-TDOA-Config-r17} OPTIONAL, -- Need M

 nonCriticalExtension RRCReconfiguration-v1800-IEs OPTIONAL

}

RRCReconfiguration-v1800-IEs ::= SEQUENCE {

 needForInterruptionConfigNR-r18 ENUMERATED { disabled, enabled } OPTIONAL, -- Need M

 aerial-Config-r18 SetupRelease { Aerial-Config-r18 } OPTIONAL, -- Need M

 sl-IndirectPathAddChange-r18 SetupRelease { SL-IndirectPathAddChange-r18 } OPTIONAL, -- Need M

 n3c-IndirectPathAddChange-r18 SetupRelease { N3C-IndirectPathAddChange-r18 } OPTIONAL, -- Need M

 n3c-IndirectPathConfigRelay-r18 SetupRelease { N3C-IndirectPathConfigRelay-r18 } OPTIONAL, -- Need M

 otherConfig-v1800 OtherConfig-v1800 OPTIONAL, -- Need M

 srs-PosResourceSetAggBW-CombinationList-r18 SetupRelease { SRS-PosResourceSetAggBW-CombinationList-r18 } OPTIONAL, -- Need M

 ltm-Config-r18 SetupRelease {LTM-Config-r18} OPTIONAL, -- Need M

 nonCriticalExtension RRCReconfiguration-v1830-IEs OPTIONAL

}

RRCReconfiguration-v1830-IEs ::= SEQUENCE {

 otherConfig-v1830 OtherConfig-v1830 OPTIONAL, -- Need M

 nonCriticalExtension RRCReconfiguration-v1900-IEs OPTIONAL

}

RRCReconfiguration-v1900-IEs ::= SEQUENCE {

 n3c-ExtIndirectPathAddChange-r19 SetupRelease { N3C-ExtIndirectPathAddChange-r19 } OPTIONAL, -- Need M

 otherConfig-v1900 OtherConfig-v1900 OPTIONAL, -- Need M

 onDemandPosSIB-RequestCtrlParam-r19 ENUMERATED { enabled } OPTIONAL, -- Need R

 retainLoggedMeasurements-r19 ENUMERATED {true} OPTIONAL, -- Need N

 ltm-ConfigNRDC-r19 SetupRelease {LTM-ConfigNRDC-r19} OPTIONAL, -- Need M

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Late non-critical Rel-15 extensions:

RRCReconfiguration-v15t0-IEs ::= SEQUENCE {

 -- Following field is only to be used for late REL-15 extensions

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCReconfiguration-v16k0-IEs OPTIONAL

}

RRCReconfiguration-v16k0-IEs ::= SEQUENCE {

 sl-ConfigDedicatedNR-v16k0 SetupRelease {SL-ConfigDedicatedNR-v16k0} OPTIONAL, -- Need M

 nonCriticalExtension SEQUENCE{} OPTIONAL

}

MRDC-SecondaryCellGroupConfig ::= SEQUENCE {

 mrdc-ReleaseAndAdd ENUMERATED {true} OPTIONAL, -- Need N

 mrdc-SecondaryCellGroup CHOICE {

 nr-SCG OCTET STRING (CONTAINING RRCReconfiguration),

 eutra-SCG OCTET STRING

 }

}

BAP-Config-r16 ::= SEQUENCE {

 bap-Address-r16 BIT STRING (SIZE (10)) OPTIONAL, -- Need M

 defaultUL-BAP-RoutingID-r16 BAP-RoutingID-r16 OPTIONAL, -- Need M

 defaultUL-BH-RLC-Channel-r16 BH-RLC-ChannelID-r16 OPTIONAL, -- Need M

 flowControlFeedbackType-r16 ENUMERATED {perBH-RLC-Channel, perRoutingID, both} OPTIONAL, -- Need R

 ...

}

MasterKeyUpdate ::= SEQUENCE {

 keySetChangeIndicator BOOLEAN,

 nextHopChainingCount NextHopChainingCount,

 nas-Container OCTET STRING OPTIONAL, -- Cond securityNASC

 ...

}

OnDemandSIB-Request-r16 ::= SEQUENCE {

 onDemandSIB-RequestProhibitTimer-r16 ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30}

}

T316-r16 ::= ENUMERATED {ms50, ms100, ms200, ms300, ms400, ms500, ms600, ms1000, ms1500, ms2000}

IAB-IP-AddressConfigurationList-r16 ::= SEQUENCE {

 iab-IP-AddressToAddModList-r16 SEQUENCE (SIZE(1..maxIAB-IP-Address-r16)) OF IAB-IP-AddressConfiguration-r16 OPTIONAL, -- Need N

 iab-IP-AddressToReleaseList-r16 SEQUENCE (SIZE(1..maxIAB-IP-Address-r16)) OF IAB-IP-AddressIndex-r16 OPTIONAL, -- Need N

 ...

}

IAB-IP-AddressConfiguration-r16 ::= SEQUENCE {

 iab-IP-AddressIndex-r16 IAB-IP-AddressIndex-r16,

 iab-IP-Address-r16 IAB-IP-Address-r16 OPTIONAL, -- Need M

 iab-IP-Usage-r16 IAB-IP-Usage-r16 OPTIONAL, -- Need M

 iab-donor-DU-BAP-Address-r16 BIT STRING (SIZE(10)) OPTIONAL, -- Need M

...

}

SL-ConfigDedicatedEUTRA-Info-r16 ::= SEQUENCE {

 sl-ConfigDedicatedEUTRA-r16 OCTET STRING OPTIONAL, -- Need M

 sl-TimeOffsetEUTRA-List-r16 SEQUENCE (SIZE (8)) OF SL-TimeOffsetEUTRA-r16 OPTIONAL -- Need M

}

SL-TimeOffsetEUTRA-r16 ::= ENUMERATED {ms0, ms0dot25, ms0dot5, ms0dot625, ms0dot75, ms1, ms1dot25, ms1dot5, ms1dot75,

 ms2, ms2dot5, ms3, ms4, ms5, ms6, ms8, ms10, ms20}

UE-TxTEG-RequestUL-TDOA-Config-r17 ::= CHOICE {

 oneShot-r17 NULL,

 periodicReporting-r17 ENUMERATED { ms160, ms320, ms1280, ms2560, ms61440, ms81920, ms368640, ms737280 }

}

SRS-PosResourceSetAggBW-CombinationList-r18 ::= SEQUENCE (SIZE(1.. maxNrOfLinkedSRS-PosResSetComb-r18)) OF SRS-PosResourceSetLinkedForAggBW-List-r18

SRS-PosResourceSetLinkedForAggBW-List-r18 ::= SEQUENCE (SIZE(2..maxNrOfLinkedSRS-PosResourceSet-r18)) OF SRS-PosResourceSetLinkedForAggBW-r18

N3C-ExtIndirectPathAddChange-r19 ::= SEQUENCE (SIZE(1..maxNrofN3C-RelayUE-r19)) OF N3C-RelayUE-Info-r18

-- TAG-RRCRECONFIGURATION-STOP

-- ASN1STOP

|  |
| --- |
| *RRCReconfiguration-IEs* field descriptions |
| ***appLayerMeasConfig***This field is used to configure application layer measurements. This field is absent when the UE is configured to operate with shared spectrum channel access or if *sl-L2RemoteUE-Config-r17* is configured or not released. |
| ***bap-Config***This field is used to configure the BAP entity for IAB nodes. |
| ***bap-Address***Indicates the BAP address of an IAB-node. The BAP address of an IAB-node cannot be changed once configured for the cell group to the BAP entity. |
| ***conditionalReconfiguration***Configuration of candidate target SpCell(s) and execution condition(s) for conditional handover, conditional PSCell addition or conditional PSCell change. The field is absent if any DAPS bearer is configured, if the *sl-L2RemoteUE-Config* or *sl-L2RelayUE-Config* is configured, or if the *RRCReconfiguration* message is contained within *condRRCReconfig*. When the *masterCellGroup* and/or *secondaryCellGroup* includes *ReconfigurationWithSync*, if this field is present, it only includes configurations/fields specific to subsequent CPAC. The *RRCReconfiguration* message contained in *DLInformationTransferMRDC* cannot contain the field *conditionalReconfiguration* for conditional PSCell change or for conditional PSCell addition. The network does not include this field in an *RRCReconfiguration* message contained within a *LTM-Config* IE*.* |
| ***daps-SourceRelease***Indicates to UE that the source cell part of DAPS operation is to be stopped and the source cell part of DAPS configuration is to be released. |
| ***dedicatedNAS-MessageList***This field is used to transfer UE specific NAS layer information between the network and the UE. The RRC layer is transparent for each PDU in the list.  |
| ***dedicatedPagingDelivery***This field is used to transfer *Paging* message for the associated L2 U2N Remote UE or for the associated child UE to the L2 U2N Relay UE or to L2 Last U2N Relay UE in RRC\_CONNECTED. |
| ***dedicatedPosSysInfoDelivery***This field is used to transfer *SIBPos* to the UE in RRC\_CONNECTED. This field may contain multiple posSIB segments of the same posSIB type. When the number of segments of posSIB of the same posSIB type exceeds the maximum number of posSIBs of this field (i.e., 32), the posSIB segments of the same posSIB type may be delivered in multiple *RRCReconfiguration* messages. |
| ***dedicatedSIB1-Delivery***This field is used to transfer *SIB1* to the UE (including L2 U2N Remote UE). The field has the same values as the corresponding configuration in *servingCellConfigCommon*. |
| ***dedicatedSystemInformationDelivery***This field is used to transfer *SIB6*, *SIB7*, *SIB8, SIB19, SIB20, SIB21, SIB25, SIB26* to the UE with an active BWP with no common search space configured or the L2 U2N Remote UE in RRC\_CONNECTED. For UEs in RRC\_CONNECTED (including L2 U2N Remote UE), this field is also used to transfer the SIBs requested on-demand. |
| ***defaultUL-BAP-RoutingID***This field is used for IAB-node to configure the default uplink Routing ID, which is used by IAB-node during IAB-node bootstrapping*,* migration, IAB-MT RRC resume and IAB-MT RRC re-establishment for *F1-C* and *non-F1* traffic. The *defaultUL-BAP-RoutingID* can be (re-)configured when IAB-node IP address for *F1-C* related traffic changes. This field is mandatory only for IAB-node bootstrapping. |
| ***defaultUL-BH-RLC-Channel***This field is used for IAB-nodes to configure the default uplink BH RLC channel*,* which is used by IAB-nodeduring IAB-node bootstrapping*,* migration, IAB-MT RRC resume and IAB-MT RRC re-establishment *for F1-C and non-F1 traffic*. The *defaultUL-BH-RLC-Channel* can be (re-)configured when IAB-node IP address for *F1-C* related traffic changes, and the new IP address is anchored at a different IAB-donor-DU. This field is mandatory for IAB-node bootstrapping. If the IAB-MT is operating in EN-DC, the default uplink BH RLC channel is referring to an RLC channel on the SCG; Otherwise, it is referring to an RLC channel either on the MCG or on the SCG depending on whether the MN or the SN configures this field. |
| ***flowControlFeedbackType***This field is only used for IAB-node that support hop-by-hop flow control to configure the type of flow control feedback. Value *perBH-RLC-Channel* indicates that the IAB-node shall provide flow control feedback per BH RLC channel, value *perRoutingID* indicates that the IAB-node shall provide flow control feedback per routing ID, and value *both* indicates that the IAB-node shall provide flow control feedback both per BH RLC channel and per routing ID. |
| ***fullConfig***Indicates that the full configuration option is applicable for the *RRCReconfiguration* message for intra-system intra-RAT HO. For inter-RAT HO from E-UTRA to NR, *fullConfig* indicates whether or not delta signalling of SDAP/PDCP from source RAT is applicable. This field is absent if any DAPS bearer is configured or when the *RRCReconfiguration* message is transmitted on SRB3, and in an *RRCReconfiguration* message for SCG contained in another *RRCReconfiguration* message (or *RRCConnectionReconfiguration* message, see TS 36.331 [10]) transmitted on SRB1. |
| ***iab-IP-Address***This field is used to provide the IP address information for IAB-node. |
| ***iab-IP-AddressIndex***This field is used to identify a configuration of an IP address. |
| ***iab-IP-AddressToAddModList***List of IP addresses allocated for IAB-node to be added and modified. |
| ***iab-IP-AddressToReleaseList***List of IP address allocated for IAB-node to be released. |
| ***iab-IP-Usage***This field is used to indicate the usage of the assigned IP address. If this field is not configured, the assigned IP address is used for all traffic. |
| ***iab-donor-DU-BAP-Address***This field is used to indicate the BAP address of the IAB-donor-DU where the IP address is anchored. |
| ***keySetChangeIndicator***Indicates whether UE shall derive a new KgNB. If *reconfigurationWithSync* is included, value *true* indicates that a KgNB key is derived from a KAMF key taken into use through the latest successful NAS SMC procedure, or N2 handover procedure with KAMF change, as described in TS 33.501 [11] for KgNB re-keying. Value *false* indicates that the new KgNB key is obtained from the current KgNB key or from the NH as described in TS 33.501 [11]. |
| ***ltm-Config***The network does not configure this field in an *RRCReconfiguration* message within an *LTM-Config* IE and *ConditionalReconfiguration* IE. |
| ***ltm-ConfigNRDC***This field contains LTM candidate configurations associated with the SCG and the MCG configuration. The network does not configure this field in an *RRCReconfiguration* message contained in *nr-SCG* or transmitted on SRB3. The network does not configure this field in an *RRCReconfiguration* message within an *LTM-Config* IE and *ConditionalReconfiguration* IE. |
| ***masterCellGroup***Configuration of master cell group. |
| ***mrdc-ReleaseAndAdd***This field indicates that the current SCG configuration is released and a new SCG is added at the same time. The network always includes this field in an *mrdc-SecondaryCellGroup* set to *setup* which is included in an *RRCReconfiguration* message within an *LTM-Config* IE. |
| ***mrdc-SecondaryCellGroup***Includes an RRC message for SCG configuration in NR-DC or NE-DC.For NR-DC (nr-SCG), *mrdc-SecondaryCellGroup* contains the *RRCReconfiguration* message as generated (entirely) by SN gNB. In this version of the specification, the RRC message can only include fields *secondaryCellGroup, otherConfig, conditionalReconfiguration,* *ltm-Config,* *measConfig,* *bap-Config,* *IAB-IP-AddressConfigurationList* and *appLayerMeasConfig*.For NE-DC (eutra-SCG), *mrdc-SecondaryCellGroup* includes the E-UTRA *RRCConnectionReconfiguration* message as specified in TS 36.331 [10]. In this version of the specification, the E-UTRA RRC message can only include the field *scg-Configuration*. |
| ***mrdc-SecondaryCellGroupConfig***This field is used to configure and release an SCG in NR-DC and NE-DC. |
| ***musim-GapConfig***Indicates the MUSIM gap configuration and controls setup/release of MUSIM gaps. In this version of the specification, the network does not configure MUSIM gap together preconfigured measurement gap for positioning. For the UE supporting *musim-GapPriorityPreference*, the network can configure MUSIM gap together with concurrent measurement gap. Otherwise, the network does not configure MUSIM gap together with concurrent measurement gap. |
| ***n3c-ExtIndirectPathAddChange***This field indicates the configuration of one or more relay UEs via N3C link. The network does not configure this field together with *n3c-IndirectPathAddChange*. |
| ***nas-Container***This field is used to transfer UE specific NAS layer information between the network and the UE. The RRC layer is transparent for this field, although it affects activation of AS security after inter-system handover to NR. The content is defined in TS 24.501 [23]. |
| ***needForGapsConfigNR***Configuration for the UE to report measurement gap requirement information of NR target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. |
| ***needForGapNCSG-ConfigEUTRA***Configuration for the UE to report measurement gap and NCSG requirement information of E‑UTRA target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. |
| ***needForGapNCSG-ConfigNR***Configuration for the UE to report measurement gap and NCSG requirement information of NR target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. |
| ***needForInterruptionConfigNR***Indicates whether the UE shall report interruption requirement information of NR target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. The network sets this field to *enabled* only if the *needForGapsConfigNR* is configured. The network sets this field to *disabled* if the *needForGapsConfigNR* is released. |
| ***nextHopChainingCount***Parameter NCC: See TS 33.501 [11] |
| ***onDemandPosSIB-RequestCtrlParam***Indicates whether the UE is enabled to request periodic delivery of posSIB(s) while in RRC\_CONNECTED. This field can only be present when the field *onDemandSIB-Request* is present. |
| ***onDemandSIB-Request***Indicates that the UE is allowed to request SIB(s) on-demand while in RRC\_CONNECTED according to clause 5.2.2.3.5. |
| ***onDemandSIB-RequestProhibitTimer***Prohibit timer for requesting SIB(s) on-demand while in RRC\_CONNECTED according to clause 5.2.2.3.5. Value in seconds. Value s0 means prohibit timer is set to 0 seconds, value s0dot5 means prohibit timer is set to 0.5 seconds, value s1 means prohibit timer is set to 1 second and so on. |
| ***otherConfig***Contains configuration related to other configurations. When configured for the SCG, only fields *drx-PreferenceConfig, maxBW-PreferenceConfig, maxBW-PreferenceConfigFR2-2, maxCC-PreferenceConfig, maxMIMO-LayerPreferenceConfig*, *maxMIMO-LayerPreferenceConfigFR2-2*, *minSchedulingOffsetPreferenceConfig, minSchedulingOffsetPreferenceConfigExt, rlm-RelaxationReportingConfig, bfd-RelaxationReportingConfig, btNameList, wlanNameList, sensorNameList*, *obtainCommonLocation*, *idc-AssistanceConfig*, *multiRx-PreferenceReportingConfigFR2*, *ul-TrafficInfoReportingConfig*, *n3c-RelayUE-InfoReportConfig, successPSCell-Config,* *sn-InitiatedPSCellChange* and *gapOccasionCancelRatioReportConfig* can be included. |
| ***radioBearerConfig***Configuration of Radio Bearers (DRBs, SRBs, multicast MRBs) including SDAP/PDCP. In (NG)EN-DC this field may only be present if the *RRCReconfiguration* is transmitted over SRB3. SRB4 should not be configured if *sl-L2RemoteUE-Config-r17* is configured or not released. |
| ***radioBearerConfig2***Configuration of Radio Bearers (DRBs, SRBs) including SDAP/PDCP. This field can only be used if the UE supports NR-DC or NE-DC. |
| ***retainLoggedMeasurements***If present, it indicates that the UE shall retain the logged measurements available in *VarCSI-LogMeasReport* upon execution of this *RRCReconfiguration* message including the *reconfigurationWithSync*. |
| ***scg-State***Indicates that the SCG is in deactivated state.This field is not used- in an *RRCReconfiguration* message received:- within *mrdc-SecondaryCellGroup*, or- in an E-UTRA *RRCConnectionReconfiguration* message, or- in an E-UTRA *RRCConnectionResume* message or- in an *RRCReconfiguration* message received via SRB3, except if the *RRCReconfiguration* message is included in *DLInformationTransferMRDC*.The field is absent if CPA, CPC, or subsequent CPAC is configured for the UE, or if the *RRCReconfiguration* message is contained in *CondRRCReconfig,* or PSCell is configured with *tag2*, or if the *RRCReconfiguration* message is included within an *LTM-Config* IE. |
| ***sl-L2RelayUE-Config***Contains L2 U2N relay operation related configurations used by a UE acting as or to be acting as a L2 U2N Relay UE or L2 U2U relay operation related configuration used by a UE acting as a L2 U2U Relay UE. In case of L2 U2N relay operation, the field is absent if *conditionalReconfiguration* is configured for CHO. |
| ***sl-L2RemoteUE-Config***Contains L2 U2N relay operation related configurations used by a UE acting as or to be acting as a L2 U2N Remote UE or L2 U2U relay operation related configuration used by a UE acting as a L2 U2U Remote UE. In case of L2 U2N relay operation, the field is absent if *conditionalReconfiguration* is configured for CHO, or if *appLayerMeasConfig* or SRB4 is configured/not released. |
| ***secondaryCellGroup***Configuration of secondary cell group ((NG)EN-DC or NR-DC). |
| ***sk-Counter***A counter used upon initial configuration of S-KgNB or S-KeNB, as well as upon refresh of S-KgNB or S-KeNB. This field is always included either upon initial configuration of an NR SCG or upon configuration of the first RB with *keyToUse* set to *secondary*, whichever happens first. This field is absent if there is neither any NR SCG nor any RB with *keyToUse* set to *secondary*, or if the *RRCReconfiguration* message is contained in *condRRCReconfig* for subsequent CPAC, or if the *RRCReconfiguration* message is contained in *ltm-CandidateConfig* within *ltm-ConfigNRDC*. |
| ***sl-ConfigDedicatedEUTRA-Info***This field includes the E-UTRA *RRCConnectionReconfiguration* as specified in TS 36.331 [10]. In this version of the specification, the E-UTRA *RRCConnectionReconfiguration* can only includes sidelink related fields for V2X sidelink communication, i.e. *sl-V2X-ConfigDedicated*, *sl-V2X-SPS-Config*, *measConfig* and/or *otherConfig*. |
| ***sl-ConfigDedicatedNR***This field is used to provide the dedicated configurations for NR sidelink communication/discovery/positioning. |
| ***sl-TimeOffsetEUTRA***This field indicates the possible time offset to (de)activation of V2X sidelink transmission after receiving DCI format 3\_1 used for scheduling V2X sidelink communication. Value *ms0dpt75* corresponds to 0.75ms, *ms1* corresponds to 1ms and so on. The network includes this field only when *sl-ConfigDedicatedEUTRA* is configured. |
| ***srs-PosResourceSetAggBW-CombinationList***This field indicates the SRS resource sets across two or three carriers which are linked for SRS bandwidth aggregation in RRC\_CONNECTED state as defined in clause 6.2.1.4 of TS 38.214 [19]. |
| ***targetCellSMTC-SCG***The SSB periodicity/offset/duration configuration of target cell for NR PSCell addition and SN change. When UE receives this field, UE applies the configuration based on the timing reference of NR PCell for PSCell addition and PSCell change for the case of no reconfiguration with sync of MCG, and UE applies the configuration based on the timing reference of target NR PCell for the case of reconfiguration with sync of MCG. If both this field and the *smtc* in *secondaryCellGroup* -> *SpCellConfig* -> *reconfigurationWithSync* are absent, the UE uses the SMTC in the *measObjectNR* having the same SSB frequency and subcarrier spacing, as configured before the reception of the RRC message. |
| ***t316***Indicates the value for timer T316 as described in clause 7.1. Value *ms50* corresponds to 50 ms, value *ms100* corresponds to 100 ms and so on. This field can be configured only if the UE is configured with split SRB1 or SRB3. |
| ***ue-TxTEG-RequestUL-TDOA-Config***Configures the periodicity of UE reporting for the association between Tx TEG and SRS Positioning resources. When configured with *oneShot* UE reports the association only one time. When configured with *periodicReporting* UE reports the association periodically and the *periodicReporting* indicates the periodicity. Value *ms160* corresponds to 160ms, value *ms320* corresponds to 320ms and so on. |
| ***ul-GapFR2-Config***Indicates the FR2 UL gap configuration to UE. In EN-DC and NGEN-DC, the SN decides and configures the FR2 UL gap pattern. In NE-DC, the MN decides and configures the FR2 UL gap pattern. In NR-DC without FR2-FR2 band combination, the network entity which is configured with FR2 serving cell(s) decides and configures the FR2 UL gap pattern. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *nonHO* | The field is absent in case of reconfiguration with sync within NR or to NR; otherwise it is optionally present, need N. |
| *securityNASC* | This field is mandatory present in case of inter system handover. Otherwise the field is optionally present, need N. |
| *MasterKeyChange* | This field is mandatory present in case *masterCellGroup* includes *ReconfigurationWithSync* and *RadioBearerConfig* includes *SecurityConfig* with *SecurityAlgorithmConfig*, indicating a change of the AS security algorithms associated to the master key. If *ReconfigurationWithSync* is included for other cases, this field is optionally present, need N. If *ReconfigurationWithSync* is part of an *RRCReconfiguration* message within an *LTM-Config* IE associated with the MCG, the field is absent. Otherwise the field is absent. |
| *FullConfig* | The field is mandatory present in case of inter-system handover from E-UTRA/EPC to NR. It is optionally present, Need N, during a reconfiguration with sync which is not related to an LTM cell switch or subsequent CPAC, and also in first reconfiguration after reestablishment; or for intra-system handover from E-UTRA/5GC to NR. It is absent otherwise. |
| *SCG* | The field is mandatory present in:- an *RRCReconfiguration* message contained in an *RRCResume* message (or in an *RRCConnectionResume* message, see TS 36.331 [10]),- an *RRCReconfiguration* message contained in an *RRCConnectionReconfiguration* message, see TS 36.331 [10], which is contained in *DLInformationTransferMRDC* transmitted on SRB3 (as a response to *ULInformationTransferMRDC* including an *MCGFailureInformation*).The field is optional present, Need M, in:- an *RRCReconfiguration* message transmitted on SRB3,- an *RRCReconfiguration* message contained in another *RRCReconfiguration* message (or in an *RRCConnectionReconfiguration* message, see TS 36.331 [10]) transmitted on SRB1- an *RRCReconfiguration* message contained in another *RRCReconfiguration* message which is contained in *DLInformationTransferMRDC* transmitted on SRB3 (as a response to *ULInformationTransferMRDC* including an *MCGFailureInformation*).Otherwise, the field is absent. |
| *PagingRelay* | For L2 U2N Relay UE, the field is optionally present, Need N. Otherwise, it is absent. |

#### *– RRCReconfigurationComplete*

The *RRCReconfigurationComplete* message is used to confirm the successful completion of an RRC connection reconfiguration.

Signalling radio bearer: SRB1 or SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*RRCReconfigurationComplete message*

-- ASN1START

-- TAG-RRCRECONFIGURATIONCOMPLETE-START

RRCReconfigurationComplete ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 rrcReconfigurationComplete RRCReconfigurationComplete-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

RRCReconfigurationComplete-IEs ::= SEQUENCE {

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1530-IEs OPTIONAL

}

RRCReconfigurationComplete-v1530-IEs ::= SEQUENCE {

 uplinkTxDirectCurrentList UplinkTxDirectCurrentList OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1560-IEs OPTIONAL

}

RRCReconfigurationComplete-v1560-IEs ::= SEQUENCE {

 scg-Response CHOICE {

 nr-SCG-Response OCTET STRING (CONTAINING RRCReconfigurationComplete),

 eutra-SCG-Response OCTET STRING

 } OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1610-IEs OPTIONAL

}

RRCReconfigurationComplete-v1610-IEs ::= SEQUENCE {

 ue-MeasurementsAvailable-r16 UE-MeasurementsAvailable-r16 OPTIONAL,

 needForGapsInfoNR-r16 NeedForGapsInfoNR-r16 OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1640-IEs OPTIONAL

}

RRCReconfigurationComplete-v1640-IEs ::= SEQUENCE {

 uplinkTxDirectCurrentTwoCarrierList-r16 UplinkTxDirectCurrentTwoCarrierList-r16 OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1700-IEs OPTIONAL

}

RRCReconfigurationComplete-v1700-IEs ::= SEQUENCE {

 needForGapNCSG-InfoNR-r17 NeedForGapNCSG-InfoNR-r17 OPTIONAL,

 needForGapNCSG-InfoEUTRA-r17 NeedForGapNCSG-InfoEUTRA-r17 OPTIONAL,

 selectedCondRRCReconfig-r17 CondReconfigId-r16 OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1720-IEs OPTIONAL

}

RRCReconfigurationComplete-v1720-IEs ::= SEQUENCE {

 uplinkTxDirectCurrentMoreCarrierList-r17 UplinkTxDirectCurrentMoreCarrierList-r17 OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1800-IEs OPTIONAL

}

RRCReconfigurationComplete-v1800-IEs ::= SEQUENCE {

 needForInterruptionInfoNR-r18 NeedForInterruptionInfoNR-r18 OPTIONAL,

 flightPathInfoAvailable-r18 ENUMERATED {true} OPTIONAL,

 selectedPSCellForCHO-WithSCG-r18 SelectedPSCellForCHO-WithSCG-r18 OPTIONAL,

 selectedSK-Counter-r18 SK-Counter OPTIONAL,

 measConfigReportAppLayerAvailable-r18 ENUMERATED {true} OPTIONAL,

 appliedLTM-CandidateId-r18 LTM-CandidateId-r18 OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1900-IEs OPTIONAL

}

RRCReconfigurationComplete-v1900-IEs ::= SEQUENCE {

 applicabilityReportList-r19 ApplicabilityReportList-r19 OPTIONAL,

 csi-LogMeasAvailable-r19 ENUMERATED {true} OPTIONAL,

 referenceLocationReport-r19 BIT STRING (SIZE (6)) OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-RRCRECONFIGURATIONCOMPLETE-STOP

-- ASN1STOP

|  |
| --- |
| *RRCReconfigurationComplete-IEs* field descriptions |
| ***applicabilityReportList***The applicability reports related to prediction configurations and sets of parameters for prediction configurations. |
| ***csi-LogMeasAvailable***Indicates that the UE has logged CSI radio measurements for network-side data collection to be reported to the network. |
| ***measConfigReportAppLayerAvailable***Indication that the UE has at least one application layer measurement configuration with *appLayerIdleInactiveConfig* configured. |
| ***needForGapsInfoNR***This field is used to indicate the measurement gap requirement information of the UE for NR target bands. |
| ***needForGapNCSG-InfoEUTRA***This field is used to indicate the measurement gap and NCSG requirement information of the UE for E‑UTRA target bands. |
| ***needForGapNCSG-InfoNR***This field is used to indicate the measurement gap and NCSG requirement information of the UE for NR target bands. |
| ***needForInterruptionInfoNR***This field indicates whether interruption is needed while performing measurement on NR target bands without measurement gap. |
| ***referenceLocationReport***This field indicates the reference locations that are closest to the UE for assisted SMTC configuration in RRC\_CONNECTED state. The length of the bitmap is equal to the number of entries in the *refLocList* currently configured for the UE (either via *OtherConfig* or *SIB2*). The UE sets the bit at a given position to '1' if the reference location at the corresponding position in the *refLocList* is one of the closest locations, and to '0' otherwise. The first bit in the string corresponds to the first reference location in the list, and so on. |
| ***scg-Response***In case of NR-DC (*nr-SCG-Response*), this field includes the *RRCReconfigurationComplete* message. In case of NE-DC (*eutra-SCG-Response*), this field includes the E-UTRA *RRCConnectionReconfigurationComplete* message as specified in TS 36.331 [10]*.* |
| ***selectedCondRRCReconfig***This field indicates the ID of the selected conditional reconfiguration the UE applied upon the execution of CPA or inter-SN CPC or subsequent CPAC. |
| ***selectedPSCellForCHO-WithSCG***This field indicates the information of the selected target PSCell to target MN at execution of a conditional reconfiguration for CHO with candidate SCG(s). |
| ***selectedSK-Counter***This field includes the selected *sk-counter* value for security key update upon the execution of subsequent CPAC or SCG LTM. |
| ***uplinkTxDirectCurrentList***The Tx Direct Current locations for the configured serving cells and BWPs if requested by the NW (see *reportUplinkTxDirectCurrent* in *CellGroupConfig*). |
| ***uplinkTxDirectCurrentMoreCarrierList***The Tx Direct Current locations for the configured intra-band CA requested by *reportUplinkTxDirectCurrentMoreCarrier-r17*. |
| ***uplinkTxDirectCurrentTwoCarrierList***The Tx Direct Current locations for the configured uplink intra-band CA with two carriers if requested by the NW (see *reportUplinkTxDirectCurrentTwoCarrier-r16* in *CellGroupConfig*). |

 *END OF CHANGES*

*START OF CHANGES*

### 6.3.2 Radio resource control information elements

#### – *ConfiguredGrantConfig*

The IE *ConfiguredGrantConfig* is used to configure uplink transmission without dynamic grant according to two possible schemes. The actual uplink grant may either be configured via RRC (*type1*) or provided via the PDCCH (addressed to CS-RNTI) (*type2*). Multiple Configured Grant configurations may be configured in one BWP of a serving cell.

*ConfiguredGrantConfig* information element

-- ASN1START

-- TAG-CONFIGUREDGRANTCONFIG-START

ConfiguredGrantConfig ::= SEQUENCE {

 frequencyHopping ENUMERATED {intraSlot, interSlot} OPTIONAL, -- Need S

 cg-DMRS-Configuration DMRS-UplinkConfig,

 mcs-Table ENUMERATED {qam256, qam64LowSE} OPTIONAL, -- Need S

 mcs-TableTransformPrecoder ENUMERATED {qam256, qam64LowSE} OPTIONAL, -- Need S

 uci-OnPUSCH SetupRelease { CG-UCI-OnPUSCH } OPTIONAL, -- Need M

 resourceAllocation ENUMERATED { resourceAllocationType0, resourceAllocationType1, dynamicSwitch },

 rbg-Size ENUMERATED {config2} OPTIONAL, -- Need S

 powerControlLoopToUse ENUMERATED {n0, n1},

 p0-PUSCH-Alpha P0-PUSCH-AlphaSetId,

 transformPrecoder ENUMERATED {enabled, disabled} OPTIONAL, -- Need S

 nrofHARQ-Processes INTEGER(1..16),

 repK ENUMERATED {n1, n2, n4, n8},

 repK-RV ENUMERATED {s1-0231, s2-0303, s3-0000} OPTIONAL, -- Need R

 periodicity ENUMERATED {

 sym2, sym7, sym1x14, sym2x14, sym4x14, sym5x14, sym8x14, sym10x14, sym16x14, sym20x14,

 sym32x14, sym40x14, sym64x14, sym80x14, sym128x14, sym160x14, sym256x14, sym320x14, sym512x14,

 sym640x14, sym1024x14, sym1280x14, sym2560x14, sym5120x14,

 sym6, sym1x12, sym2x12, sym4x12, sym5x12, sym8x12, sym10x12, sym16x12, sym20x12, sym32x12,

 sym40x12, sym64x12, sym80x12, sym128x12, sym160x12, sym256x12, sym320x12, sym512x12, sym640x12,

 sym1280x12, sym2560x12

 },

 configuredGrantTimer INTEGER (1..64) OPTIONAL, -- Need R

 rrc-ConfiguredUplinkGrant SEQUENCE {

 timeDomainOffset INTEGER (0..5119),

 timeDomainAllocation INTEGER (0..15),

 frequencyDomainAllocation BIT STRING (SIZE(18)),

 antennaPort INTEGER (0..31),

 dmrs-SeqInitialization INTEGER (0..1) OPTIONAL, -- Need R

 precodingAndNumberOfLayers INTEGER (0..63),

 srs-ResourceIndicator INTEGER (0..15) OPTIONAL, -- Need R

 mcsAndTBS INTEGER (0..31),

 frequencyHoppingOffset INTEGER (1.. maxNrofPhysicalResourceBlocks-1) OPTIONAL, -- Need R

 pathlossReferenceIndex INTEGER (0..maxNrofPUSCH-PathlossReferenceRSs-1),

 ...,

 [[

 pusch-RepTypeIndicator-r16 ENUMERATED {pusch-RepTypeA,pusch-RepTypeB} OPTIONAL, -- Need M

 frequencyHoppingPUSCH-RepTypeB-r16 ENUMERATED {interRepetition, interSlot} OPTIONAL, -- Cond RepTypeB

 timeReferenceSFN-r16 ENUMERATED {sfn512} OPTIONAL -- Need S

 ]],

 [[

 pathlossReferenceIndex2-r17 INTEGER (0..maxNrofPUSCH-PathlossReferenceRSs-1) OPTIONAL, -- Need R

 srs-ResourceIndicator2-r17 INTEGER (0..15) OPTIONAL, -- Need R

 precodingAndNumberOfLayers2-r17 INTEGER (0..63) OPTIONAL, -- Need R

 timeDomainAllocation-v1710 INTEGER (16..63) OPTIONAL, -- Need M

 timeDomainOffset-r17 INTEGER (0..40959) OPTIONAL, -- Need R

 cg-SDT-Configuration-r17 CG-SDT-Configuration-r17 OPTIONAL -- Need M

 ]],

 [[

 srs-ResourceSetId-r18 SRS-ResourceSetId OPTIONAL, -- Need R

 cg-LTM-Configuration-r18 CG-RRC-Configuration-r18 OPTIONAL, -- Cond LTM

 cg-SDT-PeriodicityExt-r18 ENUMERATED {

 sym1x14x1280, sym2x14x1280, sym4x14x1280 , sym8x14x1280, sym16x14x1280,

 sym32x14x1280, sym48x14x1280, sym64x14x1280, sym96x14x1280, sym128x14x1280,

 sym192x14x1280, sym240x14x1280, sym256x14x1280, sym384x14x1280, sym472x14x1280,

 sym480x14x1280, sym512x14x1280, sym768x14x1280, sym944x14x1280, sym960x14x1280,

 sym1408x14x1280, sym1536x14x1280, sym1888x14x1280, sym1920x14x1280,

 sym2816x14x1280, sym3072x14x1280, sym3776x14x1280, sym5632x14x1280,

 sym6144x14x1280, sym7552x14x1280, sym7680x14x1280, sym11264x14x1280,

 sym15104x14x1280, sym15360x14x1280, sym22528x14x1280, sym30208x14x1280,

 sym45056x14x1280, sym60416x14x1280, sym90112x14x1280, sym180224x14x1280,

 sym4x12x1280, sym8x12x1280, sym16x12x1280, sym32x12x1280, sym192x12x1280,

 sym384x12x1280, sym960x12x1280, sym1888x12x1280, sym3776x12x1280,

 sym5632x12x1280, sym11264x12x1280, spare13, spare12, spare11, spare10, spare9,

 spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1

 } OPTIONAL, -- Cond CG-SDT1

 timeReferenceHyperSFN-r18 INTEGER (0..1023) OPTIONAL, -- Cond CG-SDT2

 cg-RRC-Configuration-r18 CG-RRC-Configuration-r18 OPTIONAL, -- Cond RACH-LessHO

 applyIndicatedTCI-State-r18 ENUMERATED {first, second, both, spare1} OPTIONAL -- Need R

 ]],

 [[

 sbfd-Config2-PUSCH-RB-Offset-r19 INTEGER (0..maxNrofPhysicalResourceBlocks) OPTIONAL, -- Need R

 symbolType-r19 ENUMERATED {sbfd, non-sbfd} OPTIONAL, -- Need R

 frequencyHoppingOffset-SBFD-r19 INTEGER (1.. maxNrofPhysicalResourceBlocks-1) OPTIONAL, -- Need R

 pusch-MutingResources-r19 PUSCH-MutingResources-r19 OPTIONAL, -- Need R

 occ-LengthAndSequenceIndex-r19 CHOICE {

 length2 INTEGER(0..1),

 length4 INTEGER(0..3)

 } OPTIONAL -- Need R

 ]]

 } OPTIONAL, -- Need R

 ...,

 [[

 cg-RetransmissionTimer-r16 INTEGER (1..64) OPTIONAL, -- Need R

 cg-minDFI-Delay-r16 ENUMERATED

 {sym7, sym1x14, sym2x14, sym3x14, sym4x14, sym5x14, sym6x14, sym7x14, sym8x14,

 sym9x14, sym10x14, sym11x14, sym12x14, sym13x14, sym14x14,sym15x14, sym16x14

 } OPTIONAL, -- Need R

 cg-nrofPUSCH-InSlot-r16 INTEGER (1..7) OPTIONAL, -- Need R

 cg-nrofSlots-r16 INTEGER (1..40) OPTIONAL, -- Need R

 cg-StartingOffsets-r16 CG-StartingOffsets-r16 OPTIONAL, -- Need R

 cg-UCI-Multiplexing-r16 ENUMERATED {enabled} OPTIONAL, -- Need R

 cg-COT-SharingOffset-r16 INTEGER (1..39) OPTIONAL, -- Need R

 betaOffsetCG-UCI-r16 INTEGER (0..31) OPTIONAL, -- Need R

 cg-COT-SharingList-r16 SEQUENCE (SIZE (1..1709)) OF CG-COT-Sharing-r16 OPTIONAL, -- Need R

 harq-ProcID-Offset-r16 INTEGER (0..15) OPTIONAL, -- Need M

 harq-ProcID-Offset2-r16 INTEGER (0..15) OPTIONAL, -- Need M

 configuredGrantConfigIndex-r16 ConfiguredGrantConfigIndex-r16 OPTIONAL, -- Cond CG-List

 configuredGrantConfigIndexMAC-r16 ConfiguredGrantConfigIndexMAC-r16 OPTIONAL, -- Cond CG-IndexMAC

 periodicityExt-r16 INTEGER (1..5120) OPTIONAL, -- Need R

 startingFromRV0-r16 ENUMERATED {on, off} OPTIONAL, -- Need R

 phy-PriorityIndex-r16 ENUMERATED {p0, p1} OPTIONAL, -- Need R

 autonomousTx-r16 ENUMERATED {enabled} OPTIONAL -- Cond LCH-BasedPrioritization

 ]],

 [[

 cg-betaOffsetsCrossPri0-r17 SetupRelease { BetaOffsetsCrossPriSelCG-r17 } OPTIONAL, -- Need M

 cg-betaOffsetsCrossPri1-r17 SetupRelease { BetaOffsetsCrossPriSelCG-r17 } OPTIONAL, -- Need M

 mappingPattern-r17 ENUMERATED {cyclicMapping, sequentialMapping} OPTIONAL, -- Cond SRSsets

 sequenceOffsetForRV-r17 INTEGER (0..3) OPTIONAL, -- Need R

 p0-PUSCH-Alpha2-r17 P0-PUSCH-AlphaSetId OPTIONAL, -- Need R

 powerControlLoopToUse2-r17 ENUMERATED {n0, n1} OPTIONAL, -- Need R

 cg-COT-SharingList-r17 SEQUENCE (SIZE (1..50722)) OF CG-COT-Sharing-r17 OPTIONAL, -- Need R

 periodicityExt-r17 INTEGER (1..40960) OPTIONAL, -- Need R

 repK-v1710 ENUMERATED {n12, n16, n24, n32} OPTIONAL, -- Need R

 nrofHARQ-Processes-v1700 INTEGER(17..32) OPTIONAL, -- Need M

 harq-ProcID-Offset2-v1700 INTEGER (16..31) OPTIONAL, -- Need R

 configuredGrantTimer-v1700 INTEGER(33..288) OPTIONAL, -- Need R

 cg-minDFI-Delay-v1710 INTEGER (238..3584) OPTIONAL -- Need R

 ]],

 [[

 harq-ProcID-Offset-v1730 INTEGER (16..31) OPTIONAL, -- Need R

 cg-nrofSlots-r17 INTEGER (1..320) OPTIONAL -- Need R

 ]],

 [[

 disableCG-RetransmissionMonitoring-r18 ENUMERATED {true} OPTIONAL, -- Need R

 nrofSlotsInCG-Period-r18 INTEGER (2..32) OPTIONAL, -- Need R

 uto-UCI-Config-r18 SEQUENCE {

 nrofBitsInUTO-UCI-r18 INTEGER (3..8),

 betaOffsetUTO-UCI-r18 INTEGER (0..31),

 ...

 } OPTIONAL -- Need R

 ]],

 [[

 precodingAndNumberOfLayers-v1850 INTEGER (64..1023) OPTIONAL, -- Need R

 srs-ResourceIndicator-v1850 INTEGER (16..255) OPTIONAL -- Need R

 ]]

}

CG-UCI-OnPUSCH ::= CHOICE {

 dynamic SEQUENCE (SIZE (1..4)) OF BetaOffsets,

 semiStatic BetaOffsets

}

CG-COT-Sharing-r16 ::= CHOICE {

 noCOT-Sharing-r16 NULL,

 cot-Sharing-r16 SEQUENCE {

 duration-r16 INTEGER (1..39),

 offset-r16 INTEGER (1..39),

 channelAccessPriority-r16 INTEGER (1..4)

 }

}

CG-COT-Sharing-r17 ::= CHOICE {

 noCOT-Sharing-r17 NULL,

 cot-Sharing-r17 SEQUENCE {

 duration-r17 INTEGER (1..319),

 offset-r17 INTEGER (1..319)

 }

}

CG-StartingOffsets-r16 ::= SEQUENCE {

 cg-StartingFullBW-InsideCOT-r16 SEQUENCE (SIZE (1..7)) OF INTEGER (0..6) OPTIONAL, -- Need R

 cg-StartingFullBW-OutsideCOT-r16 SEQUENCE (SIZE (1..7)) OF INTEGER (0..6) OPTIONAL, -- Need R

 cg-StartingPartialBW-InsideCOT-r16 INTEGER (0..6) OPTIONAL, -- Need R

 cg-StartingPartialBW-OutsideCOT-r16 INTEGER (0..6) OPTIONAL -- Need R

}

BetaOffsetsCrossPriSelCG-r17 ::= CHOICE {

 dynamic-r17 SEQUENCE (SIZE (1..4)) OF BetaOffsetsCrossPri-r17,

 semiStatic-r17 BetaOffsetsCrossPri-r17

}

CG-SDT-Configuration-r17 ::= SEQUENCE {

 cg-SDT-RetransmissionTimer INTEGER (1..64) OPTIONAL, -- Need R

 sdt-SSB-Subset-r17 CHOICE {

 shortBitmap-r17 BIT STRING (SIZE (4)),

 mediumBitmap-r17 BIT STRING (SIZE (8)),

 longBitmap-r17 BIT STRING (SIZE (64))

 } OPTIONAL, -- Need S

 sdt-SSB-PerCG-PUSCH-r17 ENUMERATED {oneEighth, oneFourth, half, one, two, four, eight, sixteen} OPTIONAL, -- Need M

 sdt-P0-PUSCH-r17 INTEGER (-16..15) OPTIONAL, -- Need M

 sdt-Alpha-r17 ENUMERATED {alpha0, alpha04, alpha05, alpha06, alpha07, alpha08, alpha09, alpha1} OPTIONAL, -- Need M

 sdt-DMRS-Ports-r17 CHOICE {

 dmrsType1-r17 BIT STRING (SIZE (8)),

 dmrsType2-r17 BIT STRING (SIZE (12))

 } OPTIONAL, -- Need M

 sdt-NrofDMRS-Sequences-r17 INTEGER (1..2) OPTIONAL -- Need M

}

CG-RRC-Configuration-r18 ::= SEQUENCE {

 cg-RRC-RetransmissionTimer-r18 INTEGER (1..288) OPTIONAL, -- Need R

 cg-RRC-RSRP-ThresholdSSB-r18 RSRP-Range OPTIONAL, -- Need R

 rrc-SSB-Subset-r18 CHOICE {

 shortBitmap-r18 BIT STRING (SIZE (4)),

 mediumBitmap-r18 BIT STRING (SIZE (8)),

 longBitmap-r18 BIT STRING (SIZE (64))

 } OPTIONAL, -- Need S

 rrc-SSB-PerCG-PUSCH-r18 ENUMERATED {oneEighth, oneFourth, half, one, two, four, eight, sixteen} OPTIONAL, -- Need M

 rrc-P0-PUSCH-r18 INTEGER (-16..15) OPTIONAL, -- Need M

 rrc-Alpha-r18 ENUMERATED {alpha0, alpha04, alpha05, alpha06, alpha07, alpha08, alpha09, alpha1} OPTIONAL, -- Need M

 rrc-DMRS-Ports-r18 CHOICE {

 dmrsType1-r18 BIT STRING (SIZE (8)),

 dmrsType2-r18 BIT STRING (SIZE (12))

 } OPTIONAL, -- Need M

 rrc-NrofDMRS-Sequences-r18 INTEGER (1..2) OPTIONAL, -- Need M

 ...

}

-- TAG-CONFIGUREDGRANTCONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *ConfiguredGrantConfig* field descriptions |
| ***antennaPort***Indicates the antenna port(s) to be used for this configuration, and the maximum bitwidth is 5. See TS 38.214 [19], clause 6.1.2, and TS 38.212 [17], clause 7.3.1. The UE ignores this field in case of CG-SDT or if *cg-RRC-Configuration* is configured. |
| ***applyIndicatedTCI-State***This field indicates, for PUSCH transmission(s) corresponding a Type1-CG configuration, if UE applies the first, the second or both "indicated" UL only TCI or joint TCI as specified in TS 38.214 [19], clause 6.1. Network does not configure this field if *cg-RRC-Configuration* is configured. |
| ***autonomousTx***If this field is present, the Configured Grant configuration is configured with autonomous transmission, see TS 38.321 [3]. |
| ***betaOffsetCG-UCI***Beta offset for CG-UCI in CG-PUSCH, see TS 38.213 [13], clause 9.3 |
| ***betaOffsetUTO-UCI***Beta offset value for UTO-UCI multiplexing on CG PUSCH, see TS 38.213 [13], clause 9.3. |
| ***cg-betaOffsetsCrossPri0, cg-betaOffsetsCrossPri1***Selection between and configuration of dynamic and semi-static beta-offset for multiplexing HARQ-ACK in CG-PUSCH with different priorities.The field *cg-betaOffsetsCrossPri0* indicates multiplexing LP HARQ-ACK in HP CG-PUSCH. This field is configured only if *phy-PriorityIndex-r16* is configured with value *p1*.The field *cg-betaOffsetsCrossPri1* indicates multiplexing HP HARQ-ACK in LP CG-PUSCH. This field is configured only if *phy-PriorityIndex-r16* is configured with value *p0*. |
| ***cg-COT-SharingList***Indicates a table for COT sharing combinations (see 37.213 [48], clause 4.1.3). One row of the table can be set to noCOT-Sharing to indicate that there is no channel occupancy sharing. If the *cg-RetransmissionTimer-r16* is configured and the UE operates as an initiating device in semi-static channel access mode (see TS 37.213 [48], clause 4.3), then c*g-COT-SharingList-r16* is configured*.* |
| ***cg-COT-SharingOffset***Indicates the offset from the end of the slot where the COT sharing indication in UCI is enabled where the offset in symbols is equal to 14\*n, where n is the signaled value for *cg-COT-SharingOffset*. Applicable when *ul-toDL-COT-SharingED-Threshold-r16* is not configured (see 37.213 [48], clause 4.1.3). |
| ***cg-DMRS-Configuration***DMRS configuration (see TS 38.214 [19], clause 6.1.2.3). |
| ***cg-minDFI-Delay***Indicates the minimum duration (in unit of symbols) from the ending symbol of the PUSCH to the starting symbol of the PDCCH containing the downlink feedback indication (DFI) carrying HARQ-ACK for this PUSCH. The HARQ-ACK received before this minimum duration is not considered as valid for this PUSCH (see TS 38.213 [13], clause 10.5). The following minimum duration values are supported, depending on the configured subcarrier spacing [symbols]:15 kHz: 7, m\*14, where m = {1, 2, 3, 4}30 kHz: 7, m\*14, where m = {1, 2, 3, 4, 5, 6, 7, 8}60 kHz: 7, m\*14, where m = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16}120 kHz: 7, m\*14, where m = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32}480 kHz: m\*14, where m = {2, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 92, 96, 100, 104, 108, 112, 116, 120, 124, 128}960 kHz: m\*14, where m = {4, 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96, 104, 112, 120, 128, 136, 144, 152, 160, 168, 176, 184, 192, 200, 208, 216, 224, 232, 240, 248, 256} |
| ***cg-nrofPUSCH-InSlot***Indicates the number of consecutive PUSCH configured to CG within a slot where the SLIV indicating the first PUSCH and additional PUSCH appended with the same length (see TS 38.214 [19], clause 6.1.2.3). The network can only configure this field if *cg-RetransmissionTimer* is configured. |
| ***cg-nrofSlots***Indicates the number of allocated slots in a configured grant periodicity following the time instance of configured grant offset (see TS 38.214 [19], clause 6.1.2.3). *cg-nrofSlots-r17* is only applicable for operation with shared spectrum channel access in FR2-2. When *cg-nrofSlots-r17* is configured, the UE shall ignore *cg-nrofSlots-r16*. The network can only configure this field if *cg-RetransmissionTimer* is configured. |
| ***cg-RetransmissionTimer***Indicates the initial value of the configured retransmission timer (see TS 38.321 [3]) in multiples of *periodicity*. The value of *cg-RetransmissionTimer* is always less than or equal to the value of *configuredGrantTimer.* This field is always configured together with *harq-ProcID-Offset*. This field is not configured for operation in licensed spectrum or simultaneously with *harq-ProcID-Offset2.* The network does not configure this field for CG-SDT. |
| ***cg-SDT-PeriodicityExt***This field is used to calculate the periodicity for UL transmission without UL grant for type 1 (see TS 38.321 [3], clause 5.8.2) for extended CG-SDT periodicities. If this field is present, the fields *periodicity* and periodicityExt are ignored.The following periodicities are supported depending on the configured subcarrier spacing [symbols]:15 kHz: n\*14\*1280, where n={1, 2, 4, 8, 48, 96, 240, 472, 944, 1408, 2816}30 kHz: n\*14\*1280, where n={2, 4, 8, 16, 96, 192, 480, 944, 1888, 2816, 5632}60 kHz with normal CP n\*14\*1280, where n={4, 8, 16, 32, 192, 384, 960, 1888, 3776, 5632,11264}60 kHz with ECP: n\*12\*1280, where n={4, 8, 16, 32, 192, 384, 960, 1888, 3776, 5632,11264}120 kHz: n\*14\*1280, where n={8, 16, 32, 64, 384, 768, 1920, 3776, 7552, 11264, 22528}480 kHz: n\*14\*1280, where n={32, 64, 128, 256, 1536, 3072, 7680, 15104, 30208, 45056, 90112}960 kHz: n\*14\*1280, where n={64, 128, 256, 512, 3072, 6144, 15360, 30208, 60416, 90112, 180224} |
| ***cg-StartingOffsets***This field is not applicable for a UE which is allowed to operate as an initiating device in semi-static channel access mode, i.e., not applicable for a UE configured with UE FFP parameters (e.g. period, offset) regardless whether the UE would initiate its own COT or would share gNB's COT. |
| ***cg-UCI-Multiplexing***If present, this field indicates that in the case of PUCCH overlapping with CG-PUSCH(s) including CG-UCI within a PUCCH group, HARQ-ACK is multiplexed on the CG-PUSCH including CG-UCI (see TS 38.213 [13], clause 9). |
| ***configuredGrantConfigIndex***Indicates the index of the Configured Grant configurations within the BWP. |
| ***configuredGrantConfigIndexMAC***Indicates the index of the Configured Grant configurations within the MAC entity. |
| ***disableCG-RetransmissionMonitoring***When this field is configured, the UE does not start the *drx-HARQ-RTT-TimerUL* for PUSCH transmissions using configured uplink grants corresponding to this *ConfiguredGrantConfig*. See TS 38.321 [3], clause 5.7. |
| ***configuredGrantTimer***Indicates the initial value of the configured grant timer (see TS 38.321 [3]) in multiples of periodicity. When *cg-RetransmissonTimer* is configured, if HARQ processes are shared among different configured grants on the same BWP, *configuredGrantTimer \* periodicity* is set to the same value for the configurations that share HARQ processes on this BWP. The value of the extension *configuredGrantTimer* is 2 times the configured value. |
| ***dmrs-SeqInitialization***The network configures this field if *transformPrecoder* is disabled or when the value of *sdt-NrofDMRS-Sequences* is set to 1. Otherwise, the field is absent. |
| ***frequencyDomainAllocation***Indicates the frequency domain resource allocation, see TS 38.214 [19], clause 6.1.2, and TS 38.212 [17], clause 7.3.1). |
| ***frequencyHopping***The value *intraSlot* enables 'Intra-slot frequency hopping' and the value *interSlot* enables 'Inter-slot frequency hopping'. If the field is absent, frequency hopping is not configured. The field *frequencyHopping* applies to configured grant for 'pusch-RepTypeA' (see TS 38.214 [19], clause 6.3.1). |
| ***frequencyHoppingOffset***Frequency hopping offset used when frequency hopping is enabled (see TS 38.214 [19], clause 6.1.2 and clause 6.3). |
| ***frequencyHoppingOffset-SBFD***Configures the frequency hopping offset for Type 1 configured grant PUSCH in SBFD symbols (see TS 38.214 [19], 6). |
| ***frequencyHoppingPUSCH-RepTypeB***Indicates the frequency hopping scheme for Type 1 CG when *pusch-RepTypeIndicator* is set to 'pusch-RepTypeB' (see TS 38.214 [19], clause 6.1). The value *interRepetition* enables 'Inter-repetition frequency hopping', and the value *interSlot* enables 'Inter-slot frequency hopping'. If the field is absent, the frequency hopping is not enabled for Type 1 CG. |
| ***harq-ProcID-Offset***For operation with shared spectrum channel access configured with *cg-RetransmissionTimer-r16*, this configures the range of HARQ process IDs which can be used for this configured grant where the UE can select a HARQ process ID within [*harq-procID-offset, ..,* (*harq-procID-offset + nrofHARQ-Processes* – 1)]. *harq-ProcID-Offset-v1730* is only applicable for operation with shared spectrum channel access in FR2-2*.* If the field *harq-ProcID-Offset-v1730* is present, the UE shall ignore the *harq-ProcID-Offset-r16*. The network does not configure this field for CG-SDT. |
| ***harq-ProcID-Offset2***Indicates the offset used in deriving the HARQ process IDs, see TS 38.321 [3], clause 5.4.1. This field is not configured together with *cg-RetransmissionTimer-r16*. If the field *harq-ProcID-Offset2-v1700* is present, the UE shall ignore the *harq-ProcID-Offset2-r16*. |
| ***mappingPattern***Indicates whether the UE should follow Cyclical mapping pattern or Sequential mapping pattern when two SRS resource sets are configured in *srs-ResourceSetToAddModList* or *srs-ResourceSetToAddModListDCI-0-2* with usage 'codebook' or 'noncodebook' for PUSCH transmission with a Type 1 configured grant and/or a Type 2 configured grant as described in clause 6.1.2.3 of TS 38.214 [19] |
| ***mcs-Table***Indicates the MCS table the UE shall use for PUSCH without transform precoding. If the field is absent the UE applies the value *qam64*. |
| ***mcs-TableTransformPrecoder***Indicates the MCS table the UE shall use for PUSCH with transform precoding. If the field is absent the UE applies the value *qam64*. |
| ***mcsAndTBS***The modulation order, target code rate and TB size (see TS 38.214 [19], clause 6.1.2). The NW does not configure the values 28~31 in this version of the specification. |
| ***nrofBitsInUTO-UCI***Indicates the number of bits in the UTO-UCI bitmap (see TS 38.212 [17], clause 6.2.7, 6.3.2, TS 38.213 [13], clause 9.3.1, TS 38.214 [19], clause 5.2.3). When this field is configured, UTO-UCI is enabled for the UE. |
| ***nrofHARQ-Processes***The number of HARQ processes configured. It applies for both Type 1 and Type 2. See TS 38.321 [3], clause 5.4.1. If the UE is configured with *nrofHARQ-Processes-v1700, the* UE shall ignore *nrofHARQ-Processes (without suffix)*. The network sets the value of this field to 1 when *cg-LTM-Configuration* is configured. |
| ***nrofSlotsInCG-Period***Number of consecutive slots for CG PUSCH transmission occasions in a period of a single CG PUSCH configuration, see TS 38.214 [19], clause 6.1. The network does not configure this field for operation on shared spectrum. |
| ***occ-LengthAndSequenceIndex***Indicates the inter-slot OCC length and sequence index for a Type 1 CG configuration, see TS 38.214 [19]. |
| ***pathlossReferenceIndex***Indicates the reference signal index used as PUSCH pathloss reference (see TS 38.213 [13], clause 7.1.1). In case of CG-SDT or if *cg-RRC-Configuration* is configured or if *enablePL-RS-UpdateForType1CG-PUSCH* is configured or if *unifiedTCI-StateType* is configured, the UE ignores this field. |
| ***pathlossReferenceIndex2***Indicates the reference signal used as PUSCH pathloss reference for the second SRS resource set. When this field is present, pathlossReferenceIndex indicates the reference signal used as PUSCH pathloss reference for the first SRS resource set. Network does not configure this field if *cg-RRC-Configuration* is configured. |
| ***p0-PUSCH-Alpha***Index of the *P0-PUSCH-AlphaSet* to be used for this configuration. If *unifiedTCI-StateType* is configured, the UE ignores this field. |
| ***p0-PUSCH-Alpha2***Index of the *P0-PUSCH-AlphaSet* to be used for second SRS resource set. If this field is present, the *p0-PUSCH-Alpha* provides index for the P0-PUSCH-AlphaSet to be used for first SRS resource set. |
| ***periodicity***Periodicity for UL transmission without UL grant for type 1 and type 2 (see TS 38.321 [3], clause 5.8.2).The following periodicities are supported depending on the configured subcarrier spacing [symbols]:15 kHz: 2, 7, n\*14, where n={1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 128, 160, 320, 640}30 kHz: 2, 7, n\*14, where n={1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 128, 160, 256, 320, 640, 1280}60 kHz with normal CP 2, 7, n\*14, where n={1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 128, 160, 256, 320, 512, 640, 1280, 2560}60 kHz with ECP: 2, 6, n\*12, where n={1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 128, 160, 256, 320, 512, 640, 1280, 2560}120 kHz: 2, 7, n\*14, where n={1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 128, 160, 256, 320, 512, 640, 1024, 1280, 2560, 5120}480 and 960 kHz: n\*14, where n={1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 128, 160, 256, 320, 512, 640, 1024, 1280, 2560, 5120}In case of SDT, the network does not configure periodicity values less than 5ms. |
| ***periodicityExt***This field is used to calculate the periodicity for UL transmission without UL grant for type 1 and type 2 (see TS 38.321 [3], clause 5.8.2). If this field is present, the UE shall ignore field *periodicity* (without suffix). Network does not configure *periodicityExt-r17* together with *periodicityExt-r16*.The following periodicites are supported depending on the configured subcarrier spacing [symbols]:15 kHz: *periodicityExt*\*14, where *periodicityExt* has a value between 1 and 640.30 kHz: *periodicityExt*\*14, where *periodicityExt* has a value between 1 and 1280.60 kHz with normal CP: *periodicityExt*\*14, where *periodicityExt* has a value between 1 and 2560.60 kHz with ECP: *periodicityExt*\*12, where *periodicityExt* has a value between 1 and 2560.120 kHz: *periodicityExt*\*14, where *periodicityExt* has a value between 1 and 5120.480 kHz: *periodicityExt*\*14, where *periodicityExt* has a value between 1 and 20480.960 kHz: *periodicityExt*\*14, where *periodicityExt* has a value between 1 and 40960.In case of SDT, the network does not configure periodicity values less than 5ms. |
| ***phy-PriorityIndex***Indicates the PHY priority of CG PUSCH at least for PHY-layer collision handling. Value *p0* indicates low priority and value *p1* indicates high priority. The network does not configure this for CG-SDT. |
| ***powerControlLoopToUse***Closed control loop to apply (see TS 38.213 [13], clause 7.1.1). If *unifiedTCI-StateType* is configured, the UE ignores this field. |
| ***powerControlLoopToUse2***Closed control loop to apply to second SRS resource set (see TS 38.213 [13], clause 7.1.1). If this field is present, the *powerControlLoopToUse* applies to the first SRS resource set. |
| ***precodingAndNumberOfLayers, precodingAndNumberOfLayers-v1850***Indicates the precoding and number of layers (see TS 38.212 [17], clause 7.3.1.1.2, and TS 38.214 [19], clause 6.1.2.3). In case of CG-SDT or if *cg-RRC-Configuration* is configured, network sets this field to 1. Field *precodingAndNumberOfLayers-v1850* is only configured when *nrofSRS-Ports-n8* is configured. If the network configures *precodingAndNumberOfLayers-v1850*, the UE shall ignore *precodingAndNumberOfLayers* (without suffix). |
| ***precodingAndNumberOfLayers2***Indicates the precoding and number of layers for the second SRS resource set. When this field is present, *precodingAndNumberOfLayers* indicated the precoding and number of layers for the first SRS resource set. Network does not configure this field if *cg-RRC-Configuration* is configured. |
| ***pusch-MutingResources***Used to configure the time location and frequency location of UL muting resources for Type 1 configured grant PUSCH transmission, see clause 6 in TS 38.211 [16] and clause 6 in TS 38.214 [19]. |
| ***pusch-RepTypeIndicator***Indicates whether UE follows the behavior for PUSCH repetition type A or the behavior for PUSCH repetition type B for each Type 1 configured grant configuration. The value *pusch-RepTypeA* enables the 'PUSCH repetition type A' and the value *pusch-RepTypeB* enables the 'PUSCH repetition type B' (see TS 38.214 [19], clause 6.1.2.3). The value *pusch-RepTypeB* is not configured simultaneously with *nrofSlotsInCG-Period-r18*. The network does not configure this field if *cg-RetransmissionTimer-r16* is configured for CG operation with shared spectrum channel access. |
| ***rbg-Size***Selection between configuration 1 and configuration 2 for RBG size for PUSCH. The UE does not apply this field if *resourceAllocation* is set to *resourceAllocationType1*. Otherwise, the UE applies the value *config1* when the field is absent. Note: *rbg-Size* is used when the *transformPrecoder* parameter is disabled. |
| ***repK-RV***The redundancy version (RV) sequence to use. See TS 38.214 [19], clause 6.1.2. The network configures this field if repetitions are used, i.e., if *repK* is set to *n2*, *n4* or *n8*. This field is not configured when *cg-RetransmissionTimer* is configured. Otherwise, the field is absent. |
| ***repK***Number of repetitions K, see TS 38.214 [19]. If the field *repK-v1710* is present, the UE shall ignore the *repK* (without suffix). |
| ***resourceAllocation***Configuration of resource allocation type 0 and resource allocation type 1. For Type 1 UL data transmission without grant, *resourceAllocation* should be *resourceAllocationType0* or *resourceAllocationType1*. |
| ***rrc-ConfiguredUplinkGrant***Configuration for "configured grant" transmission with fully RRC-configured UL grant (Type1). If this field is absent the UE uses UL grant configured by DCI addressed to CS-RNTI (Type2). |
| ***sbfd-Config2-PUSCH-RB-Offset***Indicates the RB offset to determine the starting PRB for Type1 configured grant PUSCH transmissions in SBFD symbols when the transmissions can be in SBFD symbols and non-SBFD symbols in different slots for the UL BWP. (see TS 38.214 [19], clause 6). |
| ***sequenceOffsetForRV***Configures the RV offset for the starting RV for the first repetition (first actual repetition in PUSCH repetition Type B) towards the second 'SRS resource set' for PUSCH configured in either *srs-ResourceSetToAddModList* or *srs-ResourceSetToAddModListDCI-0-2* with usage 'codebook' or 'noncodebook'. |
| ***srs-ResourceSetId***Indicates the associated SRS resource set for PUSCH+PUSCH simultaneous uplink transmsision for CG-type 1 PUSCH. Network does not configure this field if *cg-RRC-Configuration* is configured. |
| ***srs-ResourceIndicator, srs-ResourceIndicator-v1850***Indicates the SRS resource to be used (see TS 38.212 [17], clause 7.3.1.1.2, and TS 38.214 [19], clause 6.1.2.3). The network does not configure this for CG-SDT or if *cg-RRC-Configuration* is configured. Field *srs-ResourceIndicator-v1850* is only configured when 8 antenna ports are configured (see TS 38.214 [19], clause 6.1.1.2). The network does not configure both *srs-ResourceIndicator* and *srs-ResourceIndicator-v1850*. |
| ***srs-ResourceIndicator2***Indicates the SRS resource to be used for the second SRS resource set. When this field is present, the srs-ResourceIndicator is used for the first SRS resource set. Network does not configure this field if *cg-RRC-Configuration* is configured. |
| ***startingFromRV0***This field is used to determine the initial transmission occasion of a transport block for a given RV sequence, see TS 38.214 [19], clause 6.1.2.3.1. The network does not configure this field if *cg-RetransmissionTimer-r16* is configured for CG operation. |
| ***symbolType***Configures the valid symbol type for Type 1 CG PUSCH when the transmissions are restricted to SBFD symbols only or non-SBFD symbols only. The network does not configure this field if the transmissions can be in SBFD symbols and non-SBFD symbols in different slots for the UL BWP. (see TS 38.214 [19], clause 6) |
| ***timeDomainAllocation, timeDomainAllocation-v1710***Indicates a combination of start symbol and length and PUSCH mapping type, see TS 38.214 [19], clause 6.1.2 and TS 38.212 [17], clause 7.3.1.If the field *timeDomainAllocation-v1710* is present, the UE shall ignore *timeDomainAllocation* field (without suffix). |
| ***timeDomainOffset***Offset related to the reference SFN indicated by *timeReferenceSFN*, see TS 38.321 [3], clause 5.8.2. *timeDomainOffset-r17* is only applicable to 480 kHz and 960 kHz. If *timeDomainOffset-r17* is present, the UE shall ignore *timeDomainOffset* (without suffix). |
| ***timeReferenceHyperSFN***Indicates H-SFN used for determination of the offset of a resource in time domain. The UE uses the closest H-SFN with the indicated number preceding the reception of the configured grant configuration, see TS 38.321 [3], clause 5.8.2. If the field *timeReferenceHyperSFN* is not present, the reference hyper SFN is 0. |
| ***timeReferenceSFN***Indicates SFN used for determination of the offset of a resource in time domain. The UE uses the closest SFN with the indicated number preceding the reception of the configured grant configuration, see TS 38.321 [3], clause 5.8.2. If the field *timeReferenceSFN* is not present, the reference SFN is 0. |
| ***transformPrecoder***Enables or disables transform precoding for *type1* and *type2*. If the field is absent, the UE enables or disables transform precoding in accordance with the field *msg3-transformPrecoder* in *RACH-ConfigCommon* from *rach-ConfigCommon* included directly within BWP configuration (i.e., not included in *additionalRACH-ConfigList*), see TS 38.214 [19], clause 6.1.3. |
| ***uci-OnPUSCH***Selection between and configuration of dynamic and semi-static beta-offset. For Type 1 UL data transmission without grant, *uci-OnPUSCH* should be set to *semiStatic.* The network does not configure this for CG-SDT. |

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| *CG-COT-Sharing* field descriptions |
| ***channelAccessPriority***Indicates the Channel Access Priority Class that the gNB can assume when sharing the UE initiated COT (see 37.213 [48], clause 4.1.3). |
| ***duration***Indicates the number of DL transmission slots within UE initiated COT (see 37.213 [48], clause 4.1.3). |
| ***offset***Indicates the number of DL transmission slots from the end of the slot where CG-UCI is detected after which COT sharing can be used (see 37.213 [48], clause 4.1.3). |

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| *CG-StartingOffsets* field descriptions |
| ***cg-StartingFullBW-InsideCOT***A set of configured grant PUSCH transmission starting offsets (see TS 38.211[16], Table 5.3.1-2) which indicates the length of a CP extension of the first symbol that is located before the configured resource when frequency domain resource allocation includes all interlaces in the allocated RB set(s) and the CG PUSCH resource is inside gNB COT (see TS 38.214 [19], clause 6.1.2.3). |
| ***cg-StartingFullBW-OutsideCOT***A set of configured grant PUSCH transmission starting offset indices (see TS 38.211[16], Table 5.3.1-2) which indicates the length of a CP extension of the first symbol that is located before the configured resource when frequency domain resource allocation includes all interlaces in the allocated RB set(s) and the CG PUSCH resource is outside gNB COT (see TS 38.214 [19], clause 6.1.2.3). |
| ***cg-StartingPartialBW-InsideCOT***A set of configured grant PUSCH transmission starting offset index (see TS 38.211[16], Table 5.3.1-2) which indicates the length of a CP extension of the first symbol that is located before the configured resource when frequency domain resource allocation does not include all interlaces in the allocated RB set(s) and the CG PUSCH resource is inside gNB COT (see TS 38.214 [19], clause 6.1.2.3). |
| ***cg-StartingPartialBW-OutsideCOT***A set of configured grant PUSCH transmission starting offset index (see TS 38.211[16], Table 5.3.1-2) which indicates the length of a CP extension of the first symbol that is located before the configured resource when frequency domain resource allocation does not include all interlaces in the allocated RB set(s) and the CG PUSCH resource is outside gNB COT (see TS 38.214 [19], clause 6.1.2.3). |

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| *CG-SDT-Configuration* and *CG-RRC-Configuration* field descriptions |
| ***cg-RRC-RSRP-ThresholdSSB***An RSRP threshold configured for SSB selection for the CG as specified in TS 38.321 [3]. This field is absent in *cg-LTM-Configuration* in case the the field *ltm-ExecutionCondition* or *ltm-ServingCellExecutionCondition* is not configured. |
| ***cg-SDT-RetransmissionTimer, cg-RRC-RetransmissionTimer***Indicates the initial value of the configured grant retransmission timer used for the initial transmission of CG with CCCH (for CG-SDT) or DCCH message (see TS 38.321 [3]) in multiples of *periodicity*. The field *cg-RRC-RetransmissionTimer* is not configured together with the field *harq-ProcID-Offset* for operations in unlicensed spectrum. |
| ***sdt-DMRS-Ports, rrc-DMRS-Ports***Indicates the set of DMRS ports for SSB to PUSCH mapping (see TS 38.213 [13]). The first (left-most / most significant) bit corresponds to DMRS port 0, the second most significant bit corresponds to DMRS port 1, and so on. A bit set to 1 indicates that this DMRS port is used for mapping. In case of an RedCap-specific initial downlink BWP that is associated with NCD-SSB, the SSB is the NCD-SSB. Otherwise, the SSB is the CD-SSB. |
| ***sdt-NrofDMRS-Sequences, rrc-NrofDMRS-Sequences***Indicates the number of DMRS sequences for SSB to PUSCH mapping (see TS 38.213 [13]). In case of an RedCap-specific initial downlink BWP that is associated with NCD-SSB, the SSB is the NCD-SSB. Otherwise, the SSB is the CD-SSB. |
| ***sdt-SSB-Subset, rrc-SSB-Subset***Indicates SSB subset for SSB to CG PUSCH mapping within one CG configuration. The first/leftmost bit corresponds to SS/PBCH block index 0, the second bit corresponds to SS/PBCH block index 1, and so on. Value 0 in the bitmap indicates that the corresponding SS/PBCH block is not included in the SSB subset for SSB to CG PUSCH mapping while value 1 indicates that the corresponding SS/PBCH block is included in SSB subset for SSB to CG PUSCH mapping. If this field is absent, UE assumes the SSB set includes all actually transmitted SSBs. In case of an RedCap-specific initial downlink BWP that is associated with NCD-SSB, the SSB is the NCD-SSB. Otherwise, the SSB is the CD-SSB. |
| ***sdt-SSB-PerCG-PUSCH, rrc-SSB-PerCG-PUSCH***The number of SSBs per CG PUSCH (see TS 38.213 [13]). Value *one* corresponds to 1 SSBs per CG PUSCH, value *two* corresponds to 2 SSBs per CG PUSCH and so on. In case of an RedCap-specific initial downlink BWP that is associated with NCD-SSB, the SSB is the NCD-SSB. Otherwise, the SSB is the CD-SSB. |
| ***sdt-P0-PUSCH, rrc-P0-PUSCH***Indicates P0 value for PUSCH in steps of 1dB (see TS 38.213 [13]). When this field is configured, the UE ignores the *p0-PUSCH-Alpha*. This field is absent in *cg-LTM-Configuration*. |
| ***sdt-Alpha, rrc-Alpha***Indicates alpha value for PUSCH. *alpha0* indicates value 0 is used, *alpha04* indicates value 4 is used and so on (see TS 38.213 [13]). When this field is configured, the UE ignores the *p0-PUSCH-Alpha*. This field is absent in *cg-LTM-Configuration*. |

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| Conditional Presence | Explanation |
| *LCH-BasedPrioritization* | This field is optionally present, Need R, if *lch-BasedPrioritization* is configured in the MAC entity. It is absent otherwise. |
| *RACH-LessHO* | The field is optionally present, Need N, if *rach-LessHO* is present in *reconfigurationWithSync*. It is absent otherwise. |
| *RepTypeB* | The field is optionally present if pusch-RepTypeIndicator is set to pusch-RepTypeB, Need S, and absent otherwise. |
| *CG-List* | The field is mandatory present when included in *configuredGrantConfigToAddModList-r16*, otherwise the field is absent. |
| *CG-IndexMAC* | The field is mandatory present if at least one configured grant is configured by *configuredGrantConfigToAddModList-r16* in any BWP of this MAC entity, otherwise it is optionally present, need R. |
| *CG-SDT1* | This field is optionally present, Need R, if *cg-SDT-Configuration* is configured, otherwise it is absent. |
| *CG-SDT2* | This field is optionally present, Need S, if *cg-SDT-PeriodicityExt* is configured, otherwise it is absent. |
| *LTM* | The field is optionally present, Need R, in an *RRCReconfiguration* message within the *LTM-Config* IE. Otherwise, the field is absent. |
| *SRSsets* | This field is mandatory present when UE is configured with two SRS sets configured in either *srs-ResourceSetToAddModList* or *srs-ResourceSetToAddModListDCI-0-2* with usage codebook or non-codebook and none of *multipanelSchemeSDM* or *multipanelSchemeSFN* or *sTx-2Panel* is configured. Otherwise it is absent, Need R |

#### – *CQI-Table*

The IE *CQI-Table* is used for CQI calculation (see TS 38.214 [19], clause 5.2.2.1). For an (e)RedCap UE, CQI table 2 is only supported if the UE indicates support of 256QAM for PDSCH.

*CQI-Table* information element

-- ASN1START

-- TAG-CQI-TABLE-START

cqi-Table ::= ENUMERATED {table1, table2, table3, table4-r17}

-- TAG-CQI-TABLE-STOP

-- ASN1STOP

#### – *CSI-MeasConfig*

The IE *CSI-MeasConfig* is used to configure CSI-RS (reference signals) belonging to the serving cell in which *CSI-MeasConfig* is included, channel state information reports to be transmitted on PUCCH on the serving cell in which *CSI-MeasConfig* is included and channel state information reports on PUSCH triggered by DCI received on the serving cell in which *CSI-MeasConfig* is included. See also TS 38.214 [19], clause 5.2.

*CSI-MeasConfig* information element

-- ASN1START

-- TAG-CSI-MEASCONFIG-START

CSI-MeasConfig ::= SEQUENCE {

 nzp-CSI-RS-ResourceToAddModList SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-Resources)) OF NZP-CSI-RS-Resource OPTIONAL, -- Need N

 nzp-CSI-RS-ResourceToReleaseList SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-Resources)) OF NZP-CSI-RS-ResourceId OPTIONAL, -- Need N

 nzp-CSI-RS-ResourceSetToAddModList SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourceSets)) OF NZP-CSI-RS-ResourceSet

 OPTIONAL, -- Need N

 nzp-CSI-RS-ResourceSetToReleaseList SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourceSets)) OF NZP-CSI-RS-ResourceSetId

 OPTIONAL, -- Need N

 csi-IM-ResourceToAddModList SEQUENCE (SIZE (1..maxNrofCSI-IM-Resources)) OF CSI-IM-Resource OPTIONAL, -- Need N

 csi-IM-ResourceToReleaseList SEQUENCE (SIZE (1..maxNrofCSI-IM-Resources)) OF CSI-IM-ResourceId OPTIONAL, -- Need N

 csi-IM-ResourceSetToAddModList SEQUENCE (SIZE (1..maxNrofCSI-IM-ResourceSets)) OF CSI-IM-ResourceSet OPTIONAL, -- Need N

 csi-IM-ResourceSetToReleaseList SEQUENCE (SIZE (1..maxNrofCSI-IM-ResourceSets)) OF CSI-IM-ResourceSetId OPTIONAL, -- Need N

 csi-SSB-ResourceSetToAddModList SEQUENCE (SIZE (1..maxNrofCSI-SSB-ResourceSets)) OF CSI-SSB-ResourceSet OPTIONAL, -- Need N

 csi-SSB-ResourceSetToReleaseList SEQUENCE (SIZE (1..maxNrofCSI-SSB-ResourceSets)) OF CSI-SSB-ResourceSetId OPTIONAL, -- Need N

 csi-ResourceConfigToAddModList SEQUENCE (SIZE (1..maxNrofCSI-ResourceConfigurations)) OF CSI-ResourceConfig

 OPTIONAL, -- Need N

 csi-ResourceConfigToReleaseList SEQUENCE (SIZE (1..maxNrofCSI-ResourceConfigurations)) OF CSI-ResourceConfigId

 OPTIONAL, -- Need N

 csi-ReportConfigToAddModList SEQUENCE (SIZE (1..maxNrofCSI-ReportConfigurations)) OF CSI-ReportConfig OPTIONAL, -- Need N

 csi-ReportConfigToReleaseList SEQUENCE (SIZE (1..maxNrofCSI-ReportConfigurations)) OF CSI-ReportConfigId

 OPTIONAL, -- Need N

 reportTriggerSize INTEGER (0..6) OPTIONAL, -- Need M

 aperiodicTriggerStateList SetupRelease { CSI-AperiodicTriggerStateList } OPTIONAL, -- Need M

 semiPersistentOnPUSCH-TriggerStateList SetupRelease { CSI-SemiPersistentOnPUSCH-TriggerStateList } OPTIONAL, -- Need M

 ...,

 [[

 reportTriggerSizeDCI-0-2-r16 INTEGER (0..6) OPTIONAL -- Need R

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 [[

 sCellActivationRS-ConfigToAddModList-r17 SEQUENCE (SIZE (1..maxNrofSCellActRS-r17)) OF SCellActivationRS-Config-r17 OPTIONAL, -- Need N

 sCellActivationRS-ConfigToReleaseList-r17 SEQUENCE (SIZE (1..maxNrofSCellActRS-r17)) OF SCellActivationRS-ConfigId-r17 OPTIONAL -- Need N

 ]],

 [[

 ltm-CSI-ReportConfigToAddModList-r18 SEQUENCE (SIZE (1..maxNrofLTM-CSI-ReportConfigurations-r18)) OF LTM-CSI-ReportConfig-r18

 OPTIONAL, -- Need N

 ltm-CSI-ReportConfigToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofLTM-CSI-ReportConfigurations-r18)) OF LTM-CSI-ReportConfigId-r18

 OPTIONAL -- Need N

 ]],

 [[

 cli-RSSI-MeasResourceToAddModList-r19 SEQUENCE (SIZE (1..maxNrofCLI-RSSI-MeasResources-r19)) OF CLI-RSSI-MeasResource-r19

 OPTIONAL, -- Need N

 cli-RSSI-MeasResourceToReleaseList-r19 SEQUENCE (SIZE (1..maxNrofCLI-RSSI-MeasResources-r19)) OF CLI-RSSI-MeasResourceId-r19

 OPTIONAL, -- Need N

 cli-RSSI-MeasResourceSetToAddModList-r19 SEQUENCE (SIZE (1..maxNrofCLI-RSSI-MeasResourceSets-r19)) OF CLI-RSSI-MeasResourceSet-r19

 OPTIONAL, -- Need N

 cli-RSSI-MeasResourceSetToReleaseList-r19 SEQUENCE (SIZE (1..maxNrofCLI-RSSI-MeasResourceSets-r19)) OF CLI-RSSI-MeasResourceSetId-r19

 OPTIONAL, -- Need N

 srs-RSRP-MeasResourceToAddModList-r19 SEQUENCE (SIZE (1..maxNrofSRS-RSRP-MeasResources-r19)) OF SRS-RSRP-MeasResource-r19

 OPTIONAL, -- Need N

 srs-RSRP-MeasResourceToReleaseList-r19 SEQUENCE (SIZE (1..maxNrofSRS-RSRP-MeasResources-r19)) OF SRS-RSRP-MeasResourceId-r19

 OPTIONAL, -- Need N

 srs-RSRP-MeasResourceSetToAddModList-r19 SEQUENCE (SIZE (1..maxNrofSRS-RSRP-MeasResourceSets-r19)) OF SRS-RSRP-MeasResourceSet-r19

 OPTIONAL, -- Need N

 srs-RSRP-MeasResourceSetToReleaseList-r19 SEQUENCE (SIZE (1..maxNrofCLI-RSSI-MeasResourceSets-r19)) OF SRS-RSRP-MeasResourceSetId-r19

 OPTIONAL, -- Need N

 csi-LoggedMeasurementConfigToAddModList-r19 SEQUENCE (SIZE (1..maxNrofLoggedMeasurementConfigurations-r19)) OF CSI-LoggedMeasurementConfig-r19

 OPTIONAL, -- Need N

 csi-LoggedMeasurementConfigToReleaseList-r19 SEQUENCE (SIZE (1..maxNrofLoggedMeasurementConfigurations-r19)) OF CSI-LoggedMeasurementConfigId-r19

 OPTIONAL -- Need N

 ]]

}

-- TAG-CSI-MEASCONFIG-STOP

-- ASN1STOP

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| *CSI-MeasConfig* field descriptions |
| ***aperiodicTriggerStateList***Contains trigger states for dynamically selecting one or more aperiodic and semi-persistent reporting configurations and/or triggering one or more aperiodic CSI-RS resource sets for channel and/or interference measurement (see TS 38.214 [19], clause 5.2.1). |
| ***cli-RSSI-MeasResourceToAddModList***Pool of CLI-RSSI-MeasResource for CLI RSSI measurement. |
| ***cli-RSSI-MeasResourceSetToAddModList***Pool of CLI-RSSI-MeasResourceSet for CLI RSSI measurement. |
| ***csi-IM-ResourceSetToAddModList***Pool of *CSI-IM-ResourceSet* which can be referred to from *CSI-ResourceConfig* or from MAC CEs. |
| ***csi-IM-ResourceToAddModList***Pool of *CSI-IM-Resource* which can be referred to from *CSI-IM-ResourceSet*. |
| ***csi-LoggedMeasurementConfigToAddModList***Configured CSI logged measurements for network-side data collection. |
| ***csi-ReportConfigToAddModList***Configured CSI report settings as specified in TS 38.214 [19] clause 5.2.1.1. |
| ***csi-ResourceConfigToAddModList***Configured CSI resource settings as specified in TS 38.214 [19] clause 5.2.1.2. |
| ***csi-SSB-ResourceSetToAddModList***Pool of CSI-SSB-ResourceSet which can be referred to from *CSI-ResourceConfig*. |
| ***ltm-CSI-ReportConfigToAddModList***Configured CSI report settings for LTM as specified in TS 38.214 [19]. This field can only be configured for an SpCell. |
| ***nzp-CSI-RS-ResourceSetToAddModList***Pool of *NZP-CSI-RS-ResourceSet* which can be referred to from *CSI-ResourceConfig* or from MAC CEs. |
| ***nzp-CSI-RS-ResourceToAddModList***Pool of *NZP-CSI-RS-Resource* which can be referred to from *NZP-CSI-RS-ResourceSet*. |
| ***reportTriggerSize, reportTriggerSizeDCI-0-2***Size of CSI request field in DCI (bits) (see TS 38.214 [19], clause 5.2.1.5.1). The field *reportTriggerSize* applies to DCI format 0\_1 and the field *reportTriggerSizeDCI-0-2* applies to DCI format 0\_2 (see TS 38.214 [19], clause 5.2.1.5.1). |
| ***scellActivationRS-ConfigToAddModList***Configured RS for fast SCell activation as specified in TS 38.214 [19] clause 5.2.1.5.3. |
| ***srs-RSRP-MeasResourceSetToAddModList***Pool of *SRS-RSRP-MeasResourceSet* for SRS RSRP measurement. |
| ***srs-RSRP-MeasResourceToAddModList***Pool of *SRS-RSRP-MeasResource* for SRS RSRP measurement. |

#### – *CSI-ReportConfig*

The IE *CSI-ReportConfig* is used to configure a periodic or semi-persistent report sent on PUCCH on the cell in which the *CSI-ReportConfig* is included, or to configure a semi-persistent or aperiodic report sent on PUSCH triggered by DCI received on the cell in which the *CSI-ReportConfig* is included (in this case, the cell on which the report is sent is determined by the received DCI). The IE *CSI-ReportConfig* is also used to configure UE initiated CSI reporting. See TS 38.214 [19], clause 5.2.1.

*CSI-ReportConfig* information element

-- ASN1START

-- TAG-CSI-REPORTCONFIG-START

CSI-ReportConfig ::= SEQUENCE {

 reportConfigId CSI-ReportConfigId,

 carrier ServCellIndex OPTIONAL, -- Need S

 resourcesForChannelMeasurement CSI-ResourceConfigId,

 csi-IM-ResourcesForInterference CSI-ResourceConfigId OPTIONAL, -- Need R

 nzp-CSI-RS-ResourcesForInterference CSI-ResourceConfigId OPTIONAL, -- Need R

 reportConfigType CHOICE {

 periodic SEQUENCE {

 reportSlotConfig CSI-ReportPeriodicityAndOffset,

 pucch-CSI-ResourceList SEQUENCE (SIZE (1..maxNrofBWPs)) OF PUCCH-CSI-Resource

 },

 semiPersistentOnPUCCH SEQUENCE {

 reportSlotConfig CSI-ReportPeriodicityAndOffset,

 pucch-CSI-ResourceList SEQUENCE (SIZE (1..maxNrofBWPs)) OF PUCCH-CSI-Resource

 },

 semiPersistentOnPUSCH SEQUENCE {

 reportSlotConfig ENUMERATED {sl5, sl10, sl20, sl40, sl80, sl160, sl320},

 reportSlotOffsetList SEQUENCE (SIZE (1.. maxNrofUL-Allocations)) OF INTEGER(0..32),

 p0alpha P0-PUSCH-AlphaSetId

 },

 aperiodic SEQUENCE {

 reportSlotOffsetList SEQUENCE (SIZE (1..maxNrofUL-Allocations)) OF INTEGER(0..32)

 }

 },

 reportQuantity CHOICE {

 none NULL,

 cri-RI-PMI-CQI NULL,

 cri-RI-i1 NULL,

 cri-RI-i1-CQI SEQUENCE {

 pdsch-BundleSizeForCSI ENUMERATED {n2, n4} OPTIONAL -- Need S

 },

 cri-RI-CQI NULL,

 cri-RSRP NULL,

 ssb-Index-RSRP NULL,

 cri-RI-LI-PMI-CQI NULL

 },

 reportFreqConfiguration SEQUENCE {

 cqi-FormatIndicator ENUMERATED { widebandCQI, subbandCQI } OPTIONAL, -- Need R

 pmi-FormatIndicator ENUMERATED { widebandPMI, subbandPMI } OPTIONAL, -- Need R

 csi-ReportingBand CHOICE {

 subbands3 BIT STRING(SIZE(3)),

 subbands4 BIT STRING(SIZE(4)),

 subbands5 BIT STRING(SIZE(5)),

 subbands6 BIT STRING(SIZE(6)),

 subbands7 BIT STRING(SIZE(7)),

 subbands8 BIT STRING(SIZE(8)),

 subbands9 BIT STRING(SIZE(9)),

 subbands10 BIT STRING(SIZE(10)),

 subbands11 BIT STRING(SIZE(11)),

 subbands12 BIT STRING(SIZE(12)),

 subbands13 BIT STRING(SIZE(13)),

 subbands14 BIT STRING(SIZE(14)),

 subbands15 BIT STRING(SIZE(15)),

 subbands16 BIT STRING(SIZE(16)),

 subbands17 BIT STRING(SIZE(17)),

 subbands18 BIT STRING(SIZE(18)),

 ...,

 subbands19-v1530 BIT STRING(SIZE(19))

 } OPTIONAL -- Need S

 } OPTIONAL, -- Need R

 timeRestrictionForChannelMeasurements ENUMERATED {configured, notConfigured},

 timeRestrictionForInterferenceMeasurements ENUMERATED {configured, notConfigured},

 codebookConfig CodebookConfig OPTIONAL, -- Need R

 dummy ENUMERATED {n1, n2} OPTIONAL, -- Need R

 groupBasedBeamReporting CHOICE {

 enabled NULL,

 disabled SEQUENCE {

 nrofReportedRS ENUMERATED {n1, n2, n3, n4} OPTIONAL -- Need S

 }

 },

 cqi-Table CQI-Table OPTIONAL, -- Need R

 subbandSize ENUMERATED {value1, value2},

 non-PMI-PortIndication SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourcesPerConfig)) OF PortIndexFor8Ranks OPTIONAL, -- Need R

 ...,

 [[

 semiPersistentOnPUSCH-v1530 SEQUENCE {

 reportSlotConfig-v1530 ENUMERATED {sl4, sl8, sl16}

 } OPTIONAL -- Need R

 ]],

 [[

 semiPersistentOnPUSCH-v1610 SEQUENCE {

 reportSlotOffsetListDCI-0-2-r16 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..32) OPTIONAL, -- Need R

 reportSlotOffsetListDCI-0-1-r16 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..32) OPTIONAL -- Need R

 } OPTIONAL, -- Need R

 aperiodic-v1610 SEQUENCE {

 reportSlotOffsetListDCI-0-2-r16 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..32) OPTIONAL, -- Need R

 reportSlotOffsetListDCI-0-1-r16 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..32) OPTIONAL -- Need R

 } OPTIONAL, -- Need R

 reportQuantity-r16 CHOICE {

 cri-SINR-r16 NULL,

 ssb-Index-SINR-r16 NULL

 } OPTIONAL, -- Need R

 codebookConfig-r16 CodebookConfig-r16 OPTIONAL -- Need R

 ]],

 [[

 cqi-BitsPerSubband-r17 ENUMERATED {bits4} OPTIONAL, -- Need R

 groupBasedBeamReporting-v1710 SEQUENCE {

 nrofReportedGroups-r17 ENUMERATED {n1, n2, n3, n4}

 } OPTIONAL, -- Need R

 codebookConfig-r17 CodebookConfig-r17 OPTIONAL, -- Need R

 sharedCMR-r17 ENUMERATED {enable} OPTIONAL, -- Need R

 csi-ReportMode-r17 ENUMERATED {mode1, mode2} OPTIONAL, -- Need R

 numberOfSingleTRP-CSI-Mode1-r17 ENUMERATED {n0, n1, n2} OPTIONAL, -- Need R

 reportQuantity-r17 CHOICE {

 cri-RSRP-Index-r17 NULL,

 ssb-Index-RSRP-Index-r17 NULL,

 cri-SINR-Index-r17 NULL,

 ssb-Index-SINR-Index-r17 NULL

 } OPTIONAL -- Need R

 ]],

 [[

 semiPersistentOnPUSCH-v1720 SEQUENCE {

 reportSlotOffsetList-r17 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..128) OPTIONAL, -- Need R

 reportSlotOffsetListDCI-0-2-r17 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..128) OPTIONAL, -- Need R

 reportSlotOffsetListDCI-0-1-r17 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..128) OPTIONAL -- Need R

 } OPTIONAL, -- Need R

 aperiodic-v1720 SEQUENCE {

 reportSlotOffsetList-r17 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..128) OPTIONAL, -- Need R

 reportSlotOffsetListDCI-0-2-r17 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..128) OPTIONAL, -- Need R

 reportSlotOffsetListDCI-0-1-r17 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..128) OPTIONAL -- Need R

 } OPTIONAL -- Need R

 ]],

 [[

 codebookConfig-v1730 CodebookConfig-v1730 OPTIONAL -- Need R

 ]],

 [[

 groupBasedBeamReporting-v1800 SEQUENCE {

 reportingMode-r18 ENUMERATED {jointULDL, onlyUL}

 } OPTIONAL, -- Need R

 reportQuantity-r18 TDCP-r18 OPTIONAL, -- Need R

 codebookConfig-r18 CodebookConfig-r18 OPTIONAL, -- Need R

 csi-ReportSubConfigToAddModList-r18 SEQUENCE (SIZE (1..maxNrofCSI-ReportSubconfigPerCSI-ReportConfig-r18)) OF CSI-ReportSubConfig-r18

 OPTIONAL, -- Need N

 csi-ReportSubConfigToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofCSI-ReportSubconfigPerCSI-ReportConfig-r18)) OF CSI-ReportSubConfigId-r18

 OPTIONAL -- Need N

 ]],

 [[

 nrofReportedRS-v1900 ENUMERATED {n6, n8} OPTIONAL, -- Need R

 reportQuantity-r19 ReportQuantity-r19 OPTIONAL, -- Need R

 predictionConfiguration-r19 CHOICE {

 csi-InferencePrediction-r19 ENUMERATED {true},

 configurationForChannelPrediction-r19 SEQUENCE {

 resourcesForChannelPrediction-r19 CSI-ResourceConfigId OPTIONAL, -- Need R

 associatedIdForChannelPrediction-r19 AssociatedId-r19 OPTIONAL, -- Need R

 associatedIdForChannelMeasurement-r19 AssociatedId-r19 OPTIONAL, -- Need R

 nrofReportedPredicted-RS-r19 ENUMERATED {n1, n2, n3, n4} OPTIONAL, -- Need R

 nrofTimeInstance-r19 ENUMERATED {n1, n2, n4, n8} OPTIONAL, -- Need R

 timeGap-r19 ENUMERATED {ms10, ms20, ms40, ms80, ms160, spare3, spare2, spare1} OPTIONAL, -- Need R

 ...

 },

 configurationForChannelMonitoring-r19 SEQUENCE {

 refToPredictionConfig-r19 CSI-ReportConfigId,

 nrofBestBeamForMonitoring-r19 ENUMERATED {n1, n2} OPTIONAL, -- Need R

 nrofTransmissionOccasion-r19 ENUMERATED {n1, n3, n7, n15} OPTIONAL, -- Need R

 timeInstanceFor-RS-PAI-r19 ENUMERATED {n1, n2, n8, spare1} OPTIONAL, -- Need R

 mappingToResourcesForChannelPrediction-r19 BIT STRING (SIZE (1..maxNrofNZP-CSI-RS-ResourcesPerSet)) OPTIONAL, -- Need R

 timeInstanceFor-SGCS-r19 ENUMERATED {n1, spare3, spare2, spare1} OPTIONAL, -- Need R

 ...

 }

 } OPTIONAL, -- Need R

 codebookConfig-r19 CodebookConfig-r19 OPTIONAL, -- Need R

 portMappingMethod-r19 ENUMERATED {method1, method2} OPTIONAL, -- Cond codebookBased

 valueOfM-r19 INTEGER(1..4) OPTIONAL, -- Need R

 reportQuantity1-r19 CHOICE {

 cjtc-Dd-r19 NULL,

 cjtc-F-r19 NULL,

 cjtc-P-r19 NULL,

 cjtc-Dd-F-r19 NULL

 } OPTIONAL, -- Need R

 csi-ReportCJTC-r19 CSI-ReportCJTC-r19 OPTIONAL, -- Need R

 csi-ReportSubConfigToAddModListExt-r19 SEQUENCE (SIZE (1..maxNrofCSI-ReportSubconfigPerCSI-ReportConfig-r18)) OF CSI-ReportSubConfig-v1900

 OPTIONAL, -- Need N

 csi-ReportUE-IBR-r19 CSI-ReportUE-IBR-r19 OPTIONAL, -- Need R

 linkedCJTC-Report-r19 CSI-ReportConfigId OPTIONAL, -- Need R

 nrofReportedCLImeasResources-r19 ENUMERATED {n1, n2, n3, n4} OPTIONAL, -- Need R

 pucch-CSI-ResourceListExt-r19 SEQUENCE (SIZE (1..maxNrofBWPs)) OF PUCCH-CSI-ResourceExt-v1900 OPTIONAL, -- Need R

 reportQuantity2-r19 CHOICE {

 cli-RSSI NULL,

 cli-SRS-RSRP NULL

 } OPTIONAL, -- Need R

 symbolType-r19 ENUMERATED {sbfd, non-sbfd} OPTIONAL -- Need R

 ]]

}

PortIndexFor8Ranks ::= CHOICE {

 portIndex8 SEQUENCE{

 rank1-8 PortIndex8 OPTIONAL, -- Need R

 rank2-8 SEQUENCE(SIZE(2)) OF PortIndex8 OPTIONAL, -- Need R

 rank3-8 SEQUENCE(SIZE(3)) OF PortIndex8 OPTIONAL, -- Need R

 rank4-8 SEQUENCE(SIZE(4)) OF PortIndex8 OPTIONAL, -- Need R

 rank5-8 SEQUENCE(SIZE(5)) OF PortIndex8 OPTIONAL, -- Need R

 rank6-8 SEQUENCE(SIZE(6)) OF PortIndex8 OPTIONAL, -- Need R

 rank7-8 SEQUENCE(SIZE(7)) OF PortIndex8 OPTIONAL, -- Need R

 rank8-8 SEQUENCE(SIZE(8)) OF PortIndex8 OPTIONAL -- Need R

 },

 portIndex4 SEQUENCE{

 rank1-4 PortIndex4 OPTIONAL, -- Need R

 rank2-4 SEQUENCE(SIZE(2)) OF PortIndex4 OPTIONAL, -- Need R

 rank3-4 SEQUENCE(SIZE(3)) OF PortIndex4 OPTIONAL, -- Need R

 rank4-4 SEQUENCE(SIZE(4)) OF PortIndex4 OPTIONAL -- Need R

 },

 portIndex2 SEQUENCE{

 rank1-2 PortIndex2 OPTIONAL, -- Need R

 rank2-2 SEQUENCE(SIZE(2)) OF PortIndex2 OPTIONAL -- Need R

 },

 portIndex1 NULL

}

PortIndex8::= INTEGER (0..7)

PortIndex4::= INTEGER (0..3)

PortIndex2::= INTEGER (0..1)

TDCP-r18 ::= SEQUENCE {

 delayDSetofLengthY-r18 SEQUENCE (SIZE (1.. maxNrofdelayD-r18)) OF DelayD,

 phaseReporting-r18 ENUMERATED {enable} OPTIONAL -- Need R

}

DelayD ::= ENUMERATED { symb4, slot1, slot2, slot3, slot4, slot5, slot6, slot10 }

CSI-ReportSubConfig-r18 ::= SEQUENCE {

 reportSubConfigId-r18 CSI-ReportSubConfigId-r18,

 reportSubConfigParams-r18 CHOICE {

 a1-parameters SEQUENCE {

 codebookSubConfig-r18 CodebookConfig OPTIONAL, -- Need R

 portSubsetIndicator-r18 CHOICE {

 p2 BIT STRING (SIZE (2)),

 p4 BIT STRING (SIZE (4)),

 p8 BIT STRING (SIZE (8)),

 p12 BIT STRING (SIZE (12)),

 p16 BIT STRING (SIZE (16)),

 p24 BIT STRING (SIZE (24)),

 p32 BIT STRING (SIZE (32))

 } OPTIONAL, -- Need R

 non-PMI-PortIndication-r18 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourcesPerConfig)) OF PortIndexFor8Ranks

 OPTIONAL -- Need R

 },

 a2-parameters SEQUENCE {

 nzp-CSI-RS-ResourceList-r18 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourcesPerSet)) OF NZP-CSI-RS-ResourceIndex-r18

 }

 } OPTIONAL, -- Need R

 powerOffset-r18 INTEGER(0..23) OPTIONAL -- Need R

}

NZP-CSI-RS-ResourceIndex-r18 ::= INTEGER (0..maxNrofNZP-CSI-RS-ResourcesPerSet-1-r18)

ReportQuantity-r19 ::= CHOICE {

 none-BM-r19 NULL,

 none-CSI-r19 NULL,

 p-CRI-r19 NULL,

 p-SSB-Index-r19 NULL,

 p-CRI-RSRP-r19 NULL,

 p-SSB-Index-RSRP-r19 NULL,

 rs-PAI-r19 NULL,

 sgcs-r19 NULL

}

CSI-ReportCJTC-r19 ::= SEQUENCE {

--Editor’s note: associatedSRS-ResourceSet can be updated based on further RAN1 discussion.

 associatedSRS-ResourceSet-r19 SEQUENCE {

 srs-ResourceSetId-r19 SRS-ResourceSetId,

 srs-ResourceId-r19 SRS-ResourceId,

 referenceAntennaPort-r19 INTEGER (1..8) OPTIONAL -- Need R

 } OPTIONAL, -- Need R

 valueOfAD-r19 ENUMERATED {dot5, one} OPTIONAL, -- Need R

 valueOfMD-r19 ENUMERATED {n32, n64, n128, n256} OPTIONAL, -- Need R

 valueOfAFO-r19 ENUMERATED {zeroDot1, zeroDot2} OPTIONAL, -- Need R

 valueOfMFO-r19 ENUMERATED {n16, n32, n256 } OPTIONAL, -- Need R

 valueOfMPhi-r19 ENUMERATED {n16, n32} OPTIONAL, -- Need R

 subbandSizeCJTC-r19 ENUMERATED {n1, n2, n4, n8, n16, wideband} OPTIONAL, -- Need R

 nrofSubbandsPO-r19 SEQUENCE (SIZE (1..16)) OF INTEGER (1..275) OPTIONAL -- Need R

}

CSI-ReportSubConfig-v1900 ::= SEQUENCE {

 reportSubConfigParams-v1900 SEQUENCE {

 a1-Parameters-v1900 SEQUENCE {

 portSubsetIndicator-v1900 CHOICE {

 p48 BIT STRING (SIZE (48)),

 p64 BIT STRING (SIZE (64)),

 p128 BIT STRING (SIZE (128))

 } OPTIONAL -- Need R

 }

 },

...

}

CSI-ReportUE-IBR-r19 ::= SEQUENCE {

 eventTypeUE-IBR-r19 CHOICE {

 event1-r19 SEQUENCE {

 eventThreshold-r19 RSRP-Range

 },

 event2-r19 SEQUENCE {

 eventThreshold-r19 INTEGER (0..31)

 },

 event7-r19 SEQUENCE {

 eventThreshold-r19 INTEGER (0..31),

 valueOfQ-r19 INTEGER (1..8)

 }

 },

 reportTransmissionMode-r19 CHOICE {

 modeA-r19 NULL,

 modeB-r19 SEQUENCE {

 pusch-ResourceOfModeB-r19 SEQUENCE {

 configuredGrantConfigIndex-r19 ConfiguredGrantConfigIndex-r16,

 ul-BWP-Id-r19 BWP-Id,

 servCellIndex-r19 ServCellIndex

 },

 minimumPucch-PuschOffset-r19 ENUMERATED { symb0, symb1, symb2, symb4, symb8, symb16, symb32, symb64, symb128, symb256, symb512}

--Editor’s note: minimumPucch-PuschOffset can be updated based on further RAN1 discussion.

 }

 },

 nrofReportedRS-UE-IBR-r19 ENUMERATED {n1, n2, n3, n4},

 tci-ServCellIndex-r19 ServCellIndex OPTIONAL, -- Need R

 currentBeamReport-r19 ENUMERATED {enabled} OPTIONAL, -- Need R

 conditionFulfillmentIndicator-r19 ENUMERATED {enabled} OPTIONAL, -- Need R

 eventCountWindow-r19 SEQUENCE {

 eventInstanceCount-r19 INTEGER (2..16),

 eventDetectionTimeWindow-r19 ENUMERATED {ms4, ms5, ms8, ms10, ms16, ms20, ms40, ms80, ms160, ms320, ms640, ms1280}

 } OPTIONAL, -- Need R

 pucch-Resource-r19 SEQUENCE {

 periodicityAndOffset CHOICE {

 sym2 NULL,

 sym6or7 NULL,

 sl1 NULL, -- Recurs in every slot

 sl2 INTEGER (0..1),

 sl4 INTEGER (0..3),

 sl5 INTEGER (0..4),

 sl8 INTEGER (0..7),

 sl10 INTEGER (0..9),

 sl16 INTEGER (0..15),

 sl20 INTEGER (0..19),

 sl40 INTEGER (0..39),

 sl80 INTEGER (0..79),

 sl160 INTEGER (0..159),

 sl320 INTEGER (0..319),

 sl640 INTEGER (0..639)

 },

 resource PUCCH-ResourceId,

 ul-BWP-Id-r19 BWP-Id,

 pucch-Cell-r19 ENUMERATED {spCell, pucch-Scell}

 }

}

-- TAG-CSI-REPORTCONFIG-STOP

-- ASN1STOP

Editor's Note: FFS the value range of the fields *nrofTimeInstance-r19, timeGap-r19, timeInstanceFor-RS-PAI-r19,* and *timeInstanceFor-SGCS-r19*, based on RAN1 progress.

Editor's Note: FFS whether/how to group the parameters (and whether/how to update the field descriptions) for prediction, monitoring, and UE-side data collection based on the beam management and CSI prediction use cases.

|  |
| --- |
| *CSI-ReportConfig* field descriptions |
| *associatedIdForChannelMeasurement*Indicates that the UE may assume the similar properties of a DL Tx beam or beam set/list associated with the same *associatedIdForChannelMeasurement* or with the same *associatedIdForChannelPrediction*. This field is absent if *resourcesForChannelPrediction* is not configured or if *resourcesForChannelMeasurement* is equal to or a subset of *resourcesForChannelPrediction*. |
| *associatedIdForChannelPrediction*Indicates that the UE may assume the similar properties of a DL Tx beam or beam set/list associated with the same *associatedIdForChannelMeasurement* or with the same *associatedIdForChannelPrediction*. This field is absent if *resourcesForChannelPrediction* is not configured. |
| ***carrier***Indicates in which serving cell the *CSI-ResourceConfig* indicated below are to be found. If the field is absent, the resources are on the same serving cell as this report configuration. |
| ***codebookConfig***Codebook configuration for Type-1 or Type-2 including codebook subset restriction. Network can only configure one of *codebookConfig*, *codebookConfig-r16,* *codebookConfig-r17,* *codebookConfig-r18* or *codebookConfig-r19* in a *CSI-ReportConfig*. The network includes *codebookConfig-v1730* only if *codebookConfig-r17* is configured. |
| ***cqi-BitsPerSubband***This field can only be present if *cqi-FormatIndicator* is set to *subbandCQI*. If the field is configured with *bits4*, the UE uses 4-bit sub-band CQI. If the field is not present and *cqi-FormatIndicator* is set to *subbandCQI*, the UE uses 2-bit sub-band differential CQI. |
| ***cqi-FormatIndicator***Indicates whether the UE shall report a single (wideband) or multiple (subband) CQI (see TS 38.214 [19], clause 5.2.1.4). |
|  |
| ***csi-IM-ResourcesForInterference***CSI IM resources for interference measurement. *csi-ResourceConfigId* of a *CSI-ResourceConfig* included in the configuration of the serving cell indicated with the field "carrier" above. The *CSI-ResourceConfig* indicated here contains only CSI-IM resources. The *bwp-Id* in that *CSI-ResourceConfig* is the same value as the *bwp-Id* in the *CSI-ResourceConfig* indicated by *resourcesForChannelMeasurement*. |
| ***csi-InferencePrediction***Indicates whether the UE reports predicted CSI based on inference. |
| ***csi-ReportingBand***Indicates a contiguous or non-contiguous subset of subbands in the bandwidth part which CSI shall be reported for. Each bit in the bit-string represents one subband in order of frequency position in the BWP. The right-most bit in the bit string represents the lowest subband with the lowest frequency position in the BWP. The choice determines the number of subbands (subbands3 for 3 subbands, subbands4 for 4 subbands, and so on) (see TS 38.214 [19], clause 5.2.1.4). This field is absent if there are less than 24 PRBs (no sub band) and present otherwise (see TS 38.214 [19], clause 5.2.1.4).NOTE: In TS 38.212 [17] clause 6.3.1.1.2 and TS 38.214 [19] clause 5.2.1.4, only subbands to be reported are numbered, e.g. subband #0 is the subband corresponding to the right-most bit set to 1. |
| ***csi-ReportCJTC***Configures parameters used for CJT calibration. |
| ***csi-ReportMode***Configures the CSI report modes Mode1 or Mode 2 (see TS 38.214 [19], clause 5.2.1.4.2) |
| ***csi-ReportSubConfigToAddModList, csi-ReportSubConfigToAddModListExt***List of CSI-ReportSubConfiguration(s) in a CSI report configuration to add or modify. No simultaneous configuration of *portSubsetIndicator* and a list of *nzp-CSI-RS-resources* in a same CSI report sub-configuration. The number of elements in a list is at least 2. If the network includes *csi-ReportSubConfigToAddModListExt*, it includes the same number of entries, and listed in the same order, as in *csi-ReportSubConfigToAddModList*. |
| ***csi-ReportSubConfigToReleaseList***List of CSI-ReportSubConfiguration(s) in a CSI report configuration to release. |
| ***csi-ReportUE-IBR***Configures parameters used for the UE initiated CSI reporting. When this field is configured, the UE ignores *reportConfigType*. When this field is set to *event1*, *eventThreshold* can only be configured with values from 14 to 113. |
| ***dummy***This field is not used in the specification. If received it shall be ignored by the UE. |
| ***groupBasedBeamReporting***Turning on/off group beam based reporting (see TS 38.214 [19], clause 5.2.1.4). If *groupBasedBeamReporting* (without suffix) is set to disabled, *groupBasedBeamReporting-v1710* and *groupBasedBeamReporting-v1800* is absent. |
| ***mappingToResourcesForChannelPrediction***If configured, this field indicates the resources included in *resourcesForChannelMeasurement* to be used for monitoring the channel predictions in the resources *resourcesForChannelPrediction* included within the linked prediction report configuration indicated by *refToPredictionConfig.* This field indicates Y non-zero bits, where Y is the size of the resource set for monitoring in *resourcesForChannelMeasurement*. The x-th MSB of the bitmap corresponds to x-th resource in *resourcesForChannelPrediction* in the linked prediction report configuration indicated by *refToPredictionConfig*. The y-th nonzero bit of the bitmap corresponds to the y-th entry of associated nzp-CSI-RS-Resources or *csi-SSB-ResourceList* in the *resourcesForChannelMeasurement* set for monitoring, 1≤y≤Y. This field is mandatory present only if the size of *resourcesForChannelMeasurement* is smaller than the size of *resourcesForChannelPrediction* in the linked prediction report configuration indicated by *refToPredictionConfig*. This field is present only if *reportQuantity-r19* is set to'rs-PAI-r19'. |
| ***linkedCJTC-Report***This field is used in clause 5.2.1.4 in TS 38.214 [19]. |
| ***non-PMI-PortIndication***Port indication for RI/CQI calculation. For each CSI-RS resource in the linked ResourceConfig for channel measurement, a port indication for each rank R, indicating which R ports to use. Applicable only for non-PMI feedback (see TS 38.214 [19], clause 5.2.1.4.2).The first entry in *non-PMI-PortIndication* corresponds to the NZP-CSI-RS-Resource indicated by the first entry in *nzp-CSI-RS-Resources* in the *NZP-CSI-RS-ResourceSet* indicated in the first entry of *nzp-CSI-RS-ResourceSetList* of the *CSI-ResourceConfig* whose *CSI-ResourceConfigId* is indicated in a CSI-MeasId together with the above *CSI-ReportConfigId*; the second entry in *non-PMI-PortIndication* corresponds to the NZP-CSI-RS-Resource indicated by the second entry in *nzp-CSI-RS-Resources* in the *NZP-CSI-RS-ResourceSet* indicated in the first entry of *nzp-CSI-RS-ResourceSetList* of the same *CSI-ResourceConfig*, and so on until the NZP-CSI-RS-Resource indicated by the last entry in *nzp-CSI-RS-Resources* in the in the *NZP-CSI-RS-ResourceSet* indicated in the first entry of *nzp-CSI-RS-ResourceSetList* of the same *CSI-ResourceConfig*. Then the next entry corresponds to the NZP-CSI-RS-Resource indicated by the first entry in *nzp-CSI-RS-Resources* in the *NZP-CSI-RS-ResourceSet* indicated in the second entry of *nzp-CSI-RS-ResourceSetList* of the same *CSI-ResourceConfig* and so on. |
| ***nrofBestBeamForMonitoring***Indicates the number of best M beam(s) based on L1-RSRP measurements of the resource set(s) for monitoring for performance metric calculation. This field is present only if the field *reportQuantity-r19* is set to'rs-PAI-r19'. |
| ***nrofReportedGroups***Number of reported resource groups per CSI-report. Value *n1* means one resource group, *n2* means 2 resource groups, and so on. If *nrofReportedGroups* is configured, the UE ignores groupBasedBeamReporting (without suffix). |
| ***nrofReportedRS***The number (N) of measured RS resources to be reported per report setting in a non-group-based report. N <= N\_max, where N\_max is either 2 or 4 depending on UE capability.(see TS 38.214 [19], clause 5.2.1.4) When the field is absent the UE applies the value 1. Network does not configure *nrofReportedRS-v1900* at the same time as *nrofReportedRS* (without suffix). |
| ***nrofTimeInstance***Indicates the number of future time instance(s) N for prediction to be reported per report setting. This field is present only if *reportQuantity-r19* is set to'p-CRI-r19', 'p-SSB-Index’-r19, 'p-CRI-RSRP-r19', 'p-SSB-Index-RSRP-r19' or 'none-BM-r19'and if *timeGap* is configured. |
| ***nrofTransmissionOccasion***Indicates the number of (N) latest transmission occasion(s) of monitoring resources for performance metric calculation. This field is present only if the field *reportQuantity-r19* is set to'rs-PAI-r19'. |
| ***numberOfSingleTRP-CSI-Mode1***Configures the number of reported X CSIs when *csi-ReportMode* is set to 'Mode 1' as described in TS 38.214 [19], clause 5.2.1.4.2. The field is present only if csi-ReportMode configures Mode 1. |
| ***nzp-CSI-RS-ResourcesForInterference***NZP CSI RS resources for interference measurement. *csi-ResourceConfigId* of a *CSI-ResourceConfig* included in the configuration of the serving cell indicated with the field "carrier" above. The *CSI-ResourceConfig* indicated here contains only NZP-CSI-RS resources. The *bwp-Id* in that *CSI-ResourceConfig* is the same value as the *bwp-Id* in the *CSI-ResourceConfig* indicated by *resourcesForChannelMeasurement*. |
| ***p0alpha***Index of the p0-alpha set determining the power control for this CSI report transmission (see TS 38.214 [19], clause 6.2.1.2). |
| ***pdsch-BundleSizeForCSI***PRB bundling size to assume for CQI calculation when *reportQuantity* is CRI/RI/i1/CQI. If the field is absent, the UE assumes that no PRB bundling is applied (see TS 38.214 [19], clause 5.2.1.4.2). |
| ***pmi-FormatIndicator***Indicates whether the UE shall report a single (wideband) or multiple (subband) PMI. (see TS 38.214 [19], clause 5.2.1.4). |
| ***portMappingMethod***Indicates the mapping from CSI-RS resource index/port index per resource to port index for CSI/PMI calculation (see TS 38.214 [19], clause 5.2.1.4). |
| ***pucch-CSI-ResourceList***Indicates which PUCCH resource to use for reporting on PUCCH. |
| ***refToPredictionConfig***Indicates the linked *CSI-ReportConfigId* corresponding to a prediction report configuration. |
| ***reportConfigType***Time domain behavior of reporting configuration. |
| ***reportFreqConfiguration***Reporting configuration in the frequency domain. (see TS 38.214 [19], clause 5.2.1.4). |
| ***reportQuantity***The CSI related quantities to report. see TS 38.214 [19], clause 5.2.1. If the field *reportQuantity-r16,* *reportQuantity-r17, reportQuantity-r18* or *reportQuantity-r19* is present, UE shall ignore *reportQuantity* (without suffix). Network does not configure *reportQuantity-r16, reportQuantity-r17,* *reportQuantity-r18 or reportQuantity-r19* simultaneously*.* |
| ***reportingMode***Configures the UE with reporting mode for group based reporting.(see TS 38.214 [19] clause 5.2.1.4). |
| ***reportSlotConfig***Periodicity and slot offset (see TS 38.214 [19], clause 5.2.1.4). If the field *reportSlotConfig-v1530* is present, the UE shall ignore the value provided in *reportSlotConfig* (without suffix). |
| ***reportSlotOffsetList, reportSlotOffsetListDCI-0-1***, ***reportSlotOffsetListDCI-0-2***Timing offset Y for semi persistent reporting using PUSCH. This field lists the allowed offset values. This list must have the same number of entries as the *pusch-TimeDomainAllocationList* in *PUSCH-Config*. A particular value is indicated in DCI. The network indicates in the DCI field of the UL grant, which of the configured report slot offsets the UE shall apply. The DCI value 0 corresponds to the first report slot offset in this list, the DCI value 1 corresponds to the second report slot offset in this list, and so on. The first report is transmitted in slot n+Y, second report in n+Y+P, where P is the configured periodicity.Timing offset Y for aperiodic reporting using PUSCH. This field lists the allowed offset values. This list must have the same number of entries as the *pusch-TimeDomainAllocationList* in *PUSCH-Config*. A particular value is indicated in DCI. The network indicates in the DCI field of the UL grant, which of the configured report slot offsets the UE shall apply. The DCI value 0 corresponds to the first report slot offset in this list, the DCI value 1 corresponds to the second report slot offset in this list, and so on (see TS 38.214 [19], clause 6.1.2.1).The field *reportSlotOffsetListDCI-0-1* applies to DCI format 0\_1 and the field *reportSlotOffsetListDCI-0-2* applies to DCI format 0\_2 (see TS 38.214 [19], clause 6.1.2.1).The fields *reportSlotOffsetList-r17*, *reportSlotOffsetListDCI-0-1-r17* and *reportSlotOffsetListDCI-0-2-r17* are only applicable for SCS 480 kHz and 960 kHz and if they are configured, the UE shall ignore the fields *reportSlotOffsetList* (without suffix), *reportSlotOffsetListDCI-0-1* (without suffix) and *reportSlotOffsetListDCI-0-2* (without suffix) for SCS 480 kHz and 960 kHz. |
| ***resourcesForChannelMeasurement***Resources for channel measurement. *csi-ResourceConfigId* of a *CSI-ResourceConfig* included in the configuration of the serving cell indicated with the field "carrier" above. The *CSI-ResourceConfig* indicated here contains only NZP-CSI-RS resources and/or SSB resources. This *CSI-ReportConfig* is associated with the DL BWP indicated by *bwp-Id* in that *CSI-ResourceConfig*. |
| ***resourcesForChannelPrediction***Indicates resources to be predicted based on measurements performed on *resourcesForChannelMeasurement*. The UE is not expected to measure the resources to be predicted, unless the *reportQuantity-r19* is set to 'none-BM-r19'. This field is present only if *reportQuantity-r19* is set to'p-CRI-r19', 'p-SSB-Index’-r19, 'p-CRI-RSRP-r19', 'p-SSB-Index-RSRP-r19' or 'none-BM-r19'. |
| ***sharedCMR***Enables sharing of channel measurement resources between different CSI measurement hypotheses when (1) *csi-ReportMode* is set to 'Mode1' and *numberOfSingleTRP-CSI-Mode1* is set to 1 or 2; or (2) *csi-ReportMode* is set to 'Mode2' (see TS 38.214 [19], clause 5.2.1.4.2). |
| ***subbandSize***Indicates one out of two possible BWP-dependent values for the subband size as indicated in TS 38.214 [19], table 5.2.1.4-2 . If *csi-ReportingBand* is absent, the UE shall ignore this field. |
| ***symbolType***Configures the symbol type of periodic/semi-persistent CSI-RS resources for CSI derivation for a CSI report associated with periodic/semi-persistent CSI-RS (see TS 38.214 [19], clause 5).  |
| ***timeGap***Indicates the time gap between the reference time and the first future time instance for prediction, if *nrofTimeInstance-r19* is set to 1. Indicates the time gap between two consecutive future time instances for prediction, if *nrofTimeInstance-r19* is set to >1. This field is present only if *resourcesForChannelPrediction-r19* and *nrofTimeInstance-r19* are configured. |
| ***timeInstanceFor-RS-PAI***Indicates the f-th time instance is used for the performance metric calculation. This field is present only if *reportQuantity-r19* is set to'rs-PAI-r19'. |
| ***timeInstanceFor-SGCS***Indicates the f-th doppler domain unit is used for the performance metric calculation for N4>1. This field is present only if *reportQuantity-r19* is set to'sgcs-r19'. |
| ***timeRestrictionForChannelMeasurements***Time domain measurement restriction for the channel (signal) measurements (see TS 38.214 [19], clause 5.2.1.1). |
| ***timeRestrictionForInterferenceMeasurements***Time domain measurement restriction for interference measurements (see TS 38.214 [19], clause 5.2.1.1). |
| ***valueOfM***This field is used in clause 5.1, 5.2 and 5.4 in TS 38.214 [19]. This field is configured up to value 4 if *codebookType* is set to *typeI-SinglePanel* and up to value 2 if *codebookType* is set to *typeII-r16*. |

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| *CSI-ReportCJTC* field descriptions |
| ***associatedSRS-ResourceSet***This field is used in clause 5.2.1.4 in TS 38.214 [19]. |
| ***nrOfSubbandsPO***This field is used in clause 5.2.1.4 in TS 38.214 [19]. |
| ***referenceAntennaPort***This field is used in clause 5.2.1.4 in TS 38.214 [19]. |
| ***subbandSizeCJTC***This field is used in clause 5.2.1.4 in TS 38.214 [19]. |
| ***valueOfAD***This field is used in clause 5.2.1.4 in TS 38.214 [19]. Value *dot5* corresponds to 0.5 CP and value *one* corresponds to 1 CP. |
| ***valueOfAFO***This field is used in clause 5.2.1.4 in TS 38.214 [19]. Value *zeroDot1* corresponds to 0.1 ppm and value *zeroDot2* corresponds to 0.2 ppm. |
| ***valueOfMD***This field is used in clause 5.2.1.4 in TS 38.214 [19]. |
| ***valueOfMFO***This field is used in clause 5.2.1.4 in TS 38.214 [19]. |
| ***valueOfMPhi***This field is used in clause 5.2.1.4 in TS 38.214 [19]. |

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| *CSI-ReportSubConfig* field descriptions |
| ***codebookSubConfig***Applicable codebook parameters for the ports indicated by *portSubsetIndicator*. Applicable value ranges for codebook subset restriction, rank restriction, N1, N2, and Ng and twoTX-CodebookSubsetRestriction follow existing specification according to the *codebookConfig* configured within the *CSI-ReportConfig*, and apply for the number of ports determined by *portSubsetIndicator* (see TS 38.214 [19], clause 5.2.1.4.2). In this field, the network always sets the *codebookType* to *type1*. When *reportQuantity* is set to *'cri-RI-i1-CQI'*, the parameter *typeISinglePanel-codebookSubsetRestriction-i2* is mandatory to be configured in the *codebookSubConfig* for each sub-configuration that includes *portSubsetIndicator*. |
| ***non-PMI-PortIndication***Port indication for RI/CQI calculation applicable only for non-PMI feedback. The field shall be configured only if the *portSubsetIndicator-r18* is configured.For each CSI-RS resource in the linked *CSI-ResourceConfig* for channel measurement, a port indication for each rank R, indicating which R ports out of P ports to use within the sub-configuration. P corresponds to the number of bits with value 1 in the bitmap *portSubsetIndicator-r18.* |
| ***nzp-CSI-RS-ResourceList***List of NZP CSI RS resources for the sub-configuration that is a (sub)set of NZP CSI-RS resource(s) of the CSI-RS resource set for channel measurement associated with the sub-configuration in the CSI report configuration. Value 0 refers to the first NZP CSI RS resource of the CSI-RS resource set, value 1 refers to the second NZP CSI RS resource of the CSI-RS resource set, and so on. |
| ***portSubsetIndicator, portSubsetIndicator-v1900***Indicates the (sub)set of CSI-RS antenna ports used for CSI calculation of the sub-configuration. In the bit string, each bit corresponds to an antenna port. When a bit is set to 1, the corresponding port is enabled for CSI calculation corresponding to the sub-configuration. When the bit is set to zero, the corresponding port is not enabled for CSI calculation corresponding to the sub-configuration. The size of the bit string equals P bits, where P=2/4/8/12/16/24/32/48/64/128 represents the number of ports of the NZP CSI-RS resource(s) in the resource set for channel measurement associated with the *CSI-ReportConfig*. The network does not configure *portSubsetIndicator* and *portSubsetIndicator-v1900* simultaneously. |
| ***powerOffset***When *powerControlOffset* is configured in NZP CSI-RS resources in the resource set for channel measurement associated with the *CSI-ReportConfig*, the power offset of PDSCH EPRE to NZP CSI-RS EPRE is equal to *powerControlOffset* - *powerOffset*. |
| ***reportSubConfigParams, reportSubConfigParams-v1900***Indicates the parameters to be used for the CSI report sub-configuration, which includes either *a1-parameters* that contain the antenna port subset and the associated parameters relevant to the sub-configuration or *a2-parameters* that contain the list of NZP CSI-RS resources for the sub-configuration (see TS 38.214 [19], clause 5.2.1.4.2).  |

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| *CSI-ReportUE-IBR* field descriptions |
| ***conditionFulfillmentIndicator***If configured, the UE includes an indication whether or not each reported RS fulfilled the event condition. This parameter is only configured if *eventDetectionTimeWindow* is configured and *nrofReportedRS* is not set to *n1*. |
| ***currentBeamReport***If configured, the UE includes measurements of the current beam in the UE initiated CSI reporting. |
| ***eventDetectionTimeWindow***Indicates the time window length for triggering event determination (see TS 38.214 [19], clause 5.2). Value *ms4* corresponds to 4 milliseconds, value *ms5* corresponds to 5 milliseconds and so on. |
| ***eventInstanceCount***Indicates the minimum number of event instances for one same new beam within a configured time window that the UE can initiate UEIBM report (see TS 38.214 [19], clause 5.2.1.5.4.1). This field is only configured if *eventDetectionTimeWindow* is configured. |
| ***eventTypeUE-IBR***Indicates the event type for UE initiated CSI reporting and associated fields as specified in clause 5.2.1.5.4 of TS 38.214 [19]. |
| ***minimumPucch-PuschOffset***Indicates the time offset in number of symbols for determining available transmission occasion of PUSCH in Mode-B from the PUCCH. Value *symb0* corresponds to 0, value *symb1* corresponds to 1 and so on. |
| ***pucch-Resource***Indicates the periodic PUCCH resource for the UE initiated CSI reporting indicator for both mode-A and mode-B UE initated CSI reporting:- to request dynamically scheduled PUSCH to carry UE-initiated/event-driven beam report for mode-A;- to notify the network of a Type-1 CG PUSCH to carry UE-initiated/event-driven beam report for mode-B. |
| ***nrofReportedRS-UE-IBR***The number of reported RS in the UE initiated CSI reporting. Value *n1* corresponds to 1 reported RS, value *n2* corresponds to 2 reported RSs and so on. |
| ***reportTransmissionMode***Indicates the transmission mode for UE initiated CSI reporting. Value *modeA* indicates transmission of UE initiated CSI reporting in a dynamically scheduled uplink grant and value *modeB* indicates transmission of UE initiated CSI reporting in a pre-configured type-1 configured uplink grant. |
| ***pusch-ResourceOfModeB***Indicates Type-1 CG PUSCH resource for the UE initiated CSI reporting in mode-B. |
| ***tci-ServCellIndex***Indicates the serving cell on which the indicated TCI state used to determine the current beam RS is applied (see TS 38.214 [19], clause 5.2.1.5.4). |

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| *PortIndexFor8Ranks* field descriptions |
| ***portIndex8***Port-Index configuration for up to rank 8. If present, the network configures port indexes for at least one of the ranks. |
| ***portIndex4***Port-Index configuration for up to rank 4. If present, the network configures port indexes for at least one of the ranks. |
| ***portIndex2***Port-Index configuration for up to rank 2. If present, the network configures port indexes for at least one of the ranks. |
| ***portIndex1***Port-Index configuration for rank 1. |

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| *TDCP* field descriptions |
| ***delayDSetofLengthY***Configures a set of Y delay values for TDCP reporting, see reference TS 38.214 clause 5.2.1.4. The *symb4* denotes 4 symbols, the *slot1* denotes 1 slot, the *slot2* denotes 2 slots and so on. The value *slot10* is applicable only to SCS >=30kHz. The parameter Y, see reference TS38.214 clause 5.2.1.4, is given by the length of the set of D values. |
| ***phaseReporting***Configures the UE for phase reporting for TDCP reporting see reference TS 38.214 clause 5.2.1.4 |

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| Conditional Presence | Explanation |
| *codebookBased* | This field is optionally present, Need R, if *codebookConfig-r19* is configured. It is absent otherwise. |

#### – *LTM-Candidate*

The IE *LTM-Candidate* concerns a LTM candidate configuration to add or modify.

*LTM-Candidate* information element

-- ASN1START

-- TAG-LTM-CANDIDATE-START

LTM-Candidate-r18 ::= SEQUENCE {

 ltm-CandidateId-r18 LTM-CandidateId-r18,

 ltm-CandidatePCI-r18 PhysCellId OPTIONAL, -- Need M

 ltm-SSB-Config-r18 LTM-SSB-Config-r18 OPTIONAL, -- Need M

 ltm-CandidateConfig-r18 OCTET STRING (CONTAINING RRCReconfiguration) OPTIONAL, -- Need M

 ltm-ConfigComplete-r18 ENUMERATED {true} OPTIONAL, -- Need R

 ltm-EarlyUL-SyncConfig-r18 OCTET STRING (CONTAINING EarlyUL-SyncConfig-r18) OPTIONAL, -- Need R

 ltm-EarlyUL-SyncConfigSUL-r18 OCTET STRING (CONTAINING EarlyUL-SyncConfig-r18) OPTIONAL, -- Need R

 ltm-TCI-Info-r18 LTM-TCI-Info-r18 OPTIONAL, -- Need M

 ltm-NoResetID-r18 INTEGER (1..maxNrofLTM-Configs-plus1-r18) OPTIONAL, -- Need M

 ltm-UE-MeasuredTA-ID-r18 INTEGER (1..maxNrofLTM-Configs-plus1-r18) OPTIONAL, -- Need M

 ...,

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 ltm-NoSecurityChangeID-r19 LTM-NoSecurityChangeId-r19 OPTIONAL, -- Need M

 ltm-ExecutionCondition-r19 SetupRelease {LTM-ExecutionConditionList-r19} OPTIONAL, -- Need M

 ltm-NZP-CSI-RS-ResourceToAddModList-r19 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-Resources)) OF NZP-CSI-RS-Resource

 OPTIONAL, -- Need N

 ltm-NZP-CSI-RS-ResourceToReleaseList-r19 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-Resources)) OF NZP-CSI-RS-ResourceId

 OPTIONAL, -- Need N

 ltm-NZP-CSI-RS-ResourceSetToAddModList-r19 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourceSets)) OF NZP-CSI-RS-ResourceSet

 OPTIONAL, -- Need N

 ltm-NZP-CSI-RS-ResourceSetToReleaseList-r19 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourceSets)) OF NZP-CSI-RS-ResourceSetId

 OPTIONAL, -- Need N

 ltm-CSI-ReportConfig-r19 SetupRelease {LTM-CSI-ReportConfig-r18} OPTIONAL, -- Need M

 ltm-CSI-IM-ResourceToAddModList-r19 SEQUENCE (SIZE (1..maxNrofCSI-IM-Resources)) OF CSI-IM-Resource

 OPTIONAL, -- Need N

 ltm-CSI-IM-ResourceToReleaseList-r19 SEQUENCE (SIZE (1..maxNrofCSI-IM-Resources)) OF CSI-IM-ResourceId

 OPTIONAL, -- Need N

 ltm-CSI-IM-ResourceSetToAddModList-r19 SEQUENCE (SIZE (1..maxNrofCSI-IM-ResourceSets)) OF CSI-IM-ResourceSet

 OPTIONAL, -- Need N

 ltm-CSI-IM-ResourceSetToReleaseList-r19 SEQUENCE (SIZE (1..maxNrofCSI-IM-ResourceSets)) OF CSI-IM-ResourceSetId

 OPTIONAL -- Need N

 ]]

}

LTM-SSB-Config-r18 ::= SEQUENCE {

 ssb-Frequency-r18 ARFCN-ValueNR,

 subcarrierSpacing-r18 SubcarrierSpacing,

 ssb-Periodicity-r18 ENUMERATED {ms5, ms10, ms20, ms40, ms80, ms160, spare2, spare1} OPTIONAL, -- Need S

 ssb-PositionsInBurst-r18 CHOICE {

 shortBitmap BIT STRING (SIZE (4)),

 mediumBitmap BIT STRING (SIZE (8)),

 longBitmap BIT STRING (SIZE (64))

 } OPTIONAL, -- Need R

 ss-PBCH-BlockPower-r18 INTEGER (-60..50) OPTIONAL, -- Need R

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}

LTM-NoSecurityChangeId-r19 ::= INTEGER (1..maxNrofLTM-Configs-plus1-r18)

-- TAG-LTM-CANDIDATE-STOP

-- ASN1STOP

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| *LTM-Candidate* field descriptions |
| ***ltm-CandidateConfig***This field includes an RRCReconfiguration message used to configure an LTM candidate configuration. |
| ***ltm-CandidatePCI***This field identifies the PCI of the SpCell of the LTM candidate configuration contained in *ltm-CandidateConfig*. |
| ***ltm-EarlyUL-SyncConfig, ltm-EarlyUL-SyncConfigSUL***A configuration used to perform the early UL synchronization procedure over an UL or SUL carrier. |
| ***ltm-ExecutionCondition***This field can only be included in an *ltm-Config* associated with the MCG. |
| ***ltm-NoResetID***If the network configures this field for one LTM candidate configuration, the network configures also for all LTM candidate configurations within *ltm-CandidateToAddModList* in *LTM-Config* and ensures that the UE has stored a value for *ltm-ServingCellNoResetID* within *VarLTM-ServingCellNoResetID*. |
| ***ltm-NoSecurityChangeID***If the network configures this field for one LTM candidate configuration, the network configures also for all LTM candidate configurations within *ltm-CandidateToAddModList* in *LTM-Config* and ensures that the UE has stored a value for *ltm-ServingCellNoSecurityChangeID* within *VarLTM-ServingCellNoSecurityChange*. |
| ***ltm-UE-MeasuredTA-ID***If the network configures this field for one LTM candidate configuration, the network configures also for all LTM candidate configurations within *ltm-CandidateToAddModList* in *LTM-Config* and ensures that the UE has stored a value for *ltm-ServingCellUE-MeasuredTA-ID* within *VarLTM-ServingCellUE-MeasuredTA-ID*. This field is absent if *tag2* is present for this LTM candidate configuration. |

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| *LTM-SSB-Config* field descriptions |
| ***ssb-Periodicity***The SSB periodicity in ms. If the field is absent, the UE applies the value *ms5*. (see TS 38.213 [13], clause 4.1). |
| ***ssb-PositionsInBurst***For operation in licensed spectrum, indicates the time domain positions of the transmitted SS-blocks in a half frame with SS/PBCH blocks as defined in TS 38.213 [13], clause 4.1. The first/leftmost bit corresponds to SS/PBCH block index 0, the second bit corresponds to SS/PBCH block index 1, and so on. Value 0 in the bitmap indicates that the corresponding SS/PBCH block is not transmitted while value 1 indicates that the corresponding SS/PBCH block is transmitted. The network always includes this field if *ltm-SSB-Config* is configured. |
| ***ss-PBCH-BlockPower***Average EPRE of the resources elements that carry secondary synchronization signals in dBm that the NW used for SSB transmission, see TS 38.213 [13], clause 7. The network always includes this field if *ltm-SSB-Config* is configured. |

#### – *LTM-Config*

The IE *LTM-Config* is used to provide LTM configurations.

*LTM-Config* information element

-- ASN1START

-- TAG-LTM-CONFIG-START

LTM-Config-r18 ::= SEQUENCE {

 ltm-ReferenceConfiguration-r18 SetupRelease {ReferenceConfiguration-r18} OPTIONAL, -- Need M

 ltm-CandidateToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofLTM-Configs-r18)) OF LTM-CandidateId-r18 OPTIONAL, -- Need N

 ltm-CandidateToAddModList-r18 SEQUENCE (SIZE (1..maxNrofLTM-Configs-r18)) OF LTM-Candidate-r18 OPTIONAL, -- Need N

 ltm-ServingCellNoResetID-r18 INTEGER (1..maxNrofLTM-Configs-plus1-r18) OPTIONAL, -- Need N

 ltm-CSI-ResourceConfigToAddModList-r18 SEQUENCE (SIZE (1..maxNrofLTM-CSI-ResourceConfigurations-r18)) OF LTM-CSI-ResourceConfig-r18

 OPTIONAL, -- Need N

 ltm-CSI-ResourceConfigToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofLTM-CSI-ResourceConfigurations-r18)) OF LTM-CSI-ResourceConfigId-r18

 OPTIONAL, -- Need N

 attemptLTM-Switch-r18 ENUMERATED {true} OPTIONAL, -- Cond LTM-MCG

 ltm-ServingCellUE-MeasuredTA-ID-r18 INTEGER (1..maxNrofLTM-Configs-plus1-r18) OPTIONAL, -- Need N

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 ltm-ServingCellNoSecurityChangeID-r19 LTM-NoSecurityChangeId-r19 OPTIONAL, -- Need N

 ltm-ServingCellExecutionCondition-r19 SetupRelease {LTM-ExecutionConditionList-r19} OPTIONAL -- Need M

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}

-- TAG-LTM-CONFIG-STOP

-- ASN1STOP

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| *LTM-Config* field descriptions |
| ***ltm-ServingCellExecutionCondition***This field can can only be included in an *ltm-Config* associated with the MCG. |

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| Conditional Presence | Explanation |
| *LTM-MCG* | This field is optional present for the MCG, Need R, if the UE is configured with at least one LTM candidate configuration in an *ltm-Config* associated with the MCG. Otherwise, the field absent. |

#### – *LTM-ConfigNRDC*

The IE *LTM-ConfigNRDC* is used to provide LTM configurations in NR-DC.

*LTM-ConfigNRDC* information element

-- ASN1START

-- TAG-LTM-CONFIGNRDC-START

LTM-ConfigNRDC-r19 ::= SEQUENCE {

 ltm-ConfigurationSCG-r19 LTM-Config-r18 OPTIONAL, -- Need M

 ltm-SK-CounterConfigToAddModList-r19 SEQUENCE (SIZE (1..maxSecurityCellSet-r18)) OF SK-CounterConfigLTM-r19 OPTIONAL, -- Need N

 ltm-SK-CounterConfigToReleaseList-r19 SEQUENCE (SIZE (1..maxSecurityCellSet-r18)) OF LTM-NoSecurityChangeId-r19 OPTIONAL, -- Need N

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}

-- TAG-LTM-CONFIGNRDC-STOP

-- ASN1STOP

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#### – *LTM-CSI-ReportConfig*

The IE *LTM-CSI-ReportConfig* is used to configure gNB-scheduled measurement report on the cell in which the *LTM-CSI-ReportConfig* is included when the field *ltm-ReportConfigType* is configured as *periodic*, *semi-persistentOnPUCCH*, or *semi-persistentOnPUSCH/aperiodic*.

The IE *LTM-CSI-ReportConfig* is also used to configure events for the conditional execution of an LTM cell switch procedure.

The IE *LTM-CSI-ReportConfig* is also used to configure event-triggered measurement report when the field *ltm-ReportConfigType* is configured as *eventTriggered*, within which the criteria for triggering measurement report by MAC CE as in TS 38.321 [3] is specified.

Event LTM2: Beam of SpCell becomes worse than absolute threshold;

Event LTM3: Beam of candidate cell becomes amount of offset better than the beam of SpCell;

Event LTM4: Beam of candidate cell becomes better than absolute threshold;

Event LTM5: Beam of SpCell becomes worse than absolute threshold1 AND Beam of candidate cell becomes better than another absolute threshold2.

*LTM-CSI-ReportConfig* information element

-- ASN1START

-- TAG-LTM-CSI-REPORTCONFIG-START

LTM-CSI-ReportConfig-r18 ::= SEQUENCE {

 ltm-CSI-ReportConfigId-r18 LTM-CSI-ReportConfigId-r18,

 ltm-ResourcesForChannelMeasurement-r18 LTM-CSI-ResourceConfigId-r18,

 ltm-ReportConfigType-r18 CHOICE {

 periodic-r18 SEQUENCE {

 reportSlotConfig-r18 CSI-ReportPeriodicityAndOffset,

 pucch-CSI-ResourceList-r18 SEQUENCE (SIZE (1..maxNrofBWPs)) OF PUCCH-CSI-Resource

 },

 semiPersistentOnPUCCH-r18 SEQUENCE {

 reportSlotConfig-r18 CSI-ReportPeriodicityAndOffset,

 pucch-CSI-ResourceList-r18 SEQUENCE (SIZE (1..maxNrofBWPs)) OF PUCCH-CSI-Resource

 },

 semiPersistentOnPUSCH-r18 SEQUENCE {

 reportSlotConfig-r18 CSI-ReportPeriodicityAndOffset,

 reportSlotOffsetList-r18 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER (0..128),

 reportSlotOffsetListDCI-0-2-r18 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER (0..128),

 reportSlotOffsetListDCI-0-1-r18 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER (0..128),

 p0alpha-r18 P0-PUSCH-AlphaSetId

 },

 aperiodic-r18 SEQUENCE {

 reportSlotOffsetList-r18 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER (0..128),

 reportSlotOffsetListDCI-0-2-r18 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER (0..128),

 reportSlotOffsetListDCI-0-1-r18 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER (0..128)

 },

 ...,

 eventTriggered-r19 SEQUENCE {

 eventId-r19 CHOICE {

 eventLTM2-r19 SEQUENCE {

 ltm2-Threshold-r19 MeasTriggerQuantity,

 hysteresis-r19 Hysteresis,

 timeToTrigger-r19 TimeToTrigger,

 ...

 },

 eventLTM3-r19 SEQUENCE {

 ltm3-Offset-r19 MeasTriggerQuantityOffset,

 hysteresis-r19 Hysteresis,

 timeToTrigger-r19 TimeToTrigger,

 ...

 },

 eventLTM4-r19 SEQUENCE {

 ltm4-Threshold-r19 MeasTriggerQuantity,

 hysteresis-r19 Hysteresis,

 timeToTrigger-r19 TimeToTrigger,

 ...

 },

 eventLTM5-r19 SEQUENCE {

 ltm5-Threshold1-r19 MeasTriggerQuantity,

 ltm5-Threshold2-r19 MeasTriggerQuantity,

 hysteresis-r19 Hysteresis,

 timeToTrigger-r19 TimeToTrigger,

 ...

 },

 ...

 },

 ltm-CandidateReportConfigList-r19 SEQUENCE (SIZE (1..maxNrofLTM-Configs-r18)) OF LTM-CandidateReportConfig-r19

 OPTIONAL, -- Need R

 ltm-EventTriggeredReportContent-r19 LTM-EventTriggeredReportContent-r19 OPTIONAL, -- Need R

 reportOnLeave-r19 ENUMERATED {enabled} OPTIONAL, -- Need R

 ltm-EventTriggeredPeriodicReport-r19 LTM-EventTriggeredPeriodicReport-r19 OPTIONAL, -- Need S

 servingSpecificOffset-r19 MeasTriggerQuantityOffset OPTIONAL, -- Cond onlyLTM3

 ...

 }

 },

 ltm-ReportContent-r18 LTM-ReportContent-r18,

 ...,

 [[

 ltm-ReportContent-v1900 LTM-ReportContent-v1900 OPTIONAL, -- Need R

 ltm-ResourceForInterferenceMeasurements-r19 LTM-CSI-ResourceConfigId-r18 OPTIONAL, -- Need R

 ltm-CondebookConfig-r19 LTM-CodebookConfig-r19 OPTIONAL, -- Need R

 ltm-cqi-Table-r19 CQI-Table OPTIONAL -- Need R

 ]]

}

LTM-ReportContent-r18 ::= SEQUENCE {

 nrOfReportedCells-r18 ENUMERATED {n1,n2,n3,n4},

 nrOfReportedRS-PerCell-r18 ENUMERATED {n1,n2,n3,n4},

 spCellInclusion-r18 ENUMERATED {true} OPTIONAL -- Need R

}

LTM-EventTriggeredPeriodicReport-r19 ::= SEQUENCE {

 reportInterval-r19 ReportInterval,

 reportAmount-r19 ENUMERATED {r2, r4, r8, r16, r32, r64, infinity, spare1},

 ...

}

LTM-EventTriggeredReportContent-r19 ::= SEQUENCE {

 maxNumberOfReportedBeams-r19 INTEGER (1..16),

 allowReportAnyBeam-r19 ENUMERATED {enabled} OPTIONAL, -- Need R

 reportCurrentBeam-r19 ENUMERATED {enabled} OPTIONAL, -- Cond LTM2

 ...

}

LTM-CandidateReportConfig-r19 ::= SEQUENCE {

 ltm-CandidateReportConfigId-r19 LTM-CandidateId-r18,

 candidateSpecificOffset-r19 MeasTriggerQuantityOffset OPTIONAL, -- Cond notEventLTM2

 ...

}

LTM-ReportContent-v1900 ::= SEQUENCE {

 reportQuantity-r19 ENUMERATED {cri-RSRP, ssb-index-RSRP, cri-RI-PMI-CQI, value1},

 ...

}

LTM-CodebookConfig-r19 ::= CHOICE {

 cri-RSRP NULL,

 ssb-Index-RSRP NULL,

 cri-RI-PMI-CQI NULL,

 ...

}

-- TAG-LTM-CSI-REPORTCONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *LTM-CandidateReportConfig* field descriptions |
| ***ltm-CandidateReportConfigId***LTM candidate cell ID for which the UE is required to measure reference signal and perform LTM event evaluation as specified in TS 38.321 [3]. |
| ***candidateSpecificOffset***Offset for event condition that is applicable for all the reference signals belonging to the candidate cell with the candidate cell ID *ltm-CandidateReportConfigId*. If the field is absent, the value '0dB' is applied.  |
|  |

|  |
| --- |
| *LTM-CSI-ReportConfig* field descriptions |
| *eventId*Type of LTM event for triggering event-triggered measurement report as specified in TS 38.321 [3]. |
| ***hysteresis***Hysteresis when evaluating the entering/leaving conditions for an LTM event. |
| ***ltm-CandidateReportConfigList***List of report configurations for LTM candidate IDs. If the field is absent the UE shall measure all the LTM candidate cells associated to the field *ltm-ResourcesForChannelMeasurement.* |
| ***ltm-CodebookConfig***Codebook configuration for LTM CSI report. Network can only set *codebookType* to *typeI-SinglePanel* for LTM CSI acquisition. |
| ***ltm-EventTriggeredPeriodicReport***This field indicates when an LTM event is triggered, whether the event-triggered measurement report is sent periodically. If the field is absent, the event-triggered measurement report is sent once, as specified in TS 38.321 [3]. |
| ***ltm-EventTriggeredReportContent***This field indicates what to include in a measurement report when an LTM event is triggered. When this field is absent, the field *ltm-ReportConfigType* is set to *eventTriggered*, and the corresponding *LTM-CSI-ReportConfigId* is part of an *LTM-ExecutionConditionList* IE, when the associated LTM event is fulfilled, the UE triggers an LTM cell switch procedure instead of an event-triggered measurement report, as specified in TS 38.321 [3].  |
| ***ltm-ReportConfigType***This field specifies how the UE shall report the measurement results for LTM either by gNB-scheduled measurement report or by event-triggered measurement report by MAC CE. The UE shall ignore this field if *LTM-CSI-ReportConfig* is configured in a *LTM-Candidate* IE. |
| ***ltm-ReportContent***This field defines the content of the LTM L1 measurement report. The UE shall ignore this field if the field *ltm-ReportConfigType* is set to *eventTriggered*. |
| ***ltm-ResourcesForChannelMeasurement, ltm-ResourceForInterferenceMeasurements***This field indicates the index of SSB or CSI-RS in the field *LTM-CSI-ResourceConfig*. |
| ***ltm2-Threshold, ltm4-Threshold, ltm5-Threshold1, ltm5-Threshold2***Thresholds defined in the entering/leaving conditions for different LTM events. |
| ***ltm3-Offset***Offset for the entering/leaving condition for event LTM3. The actual value is field value \* 0.5 dB. |
| ***reportOnLeave***Indicates whether the event-triggered measurement report by MAC CE shall be triggered when leaving condition is satisfied, as specified in TS 38.321 [3]. |
| ***reportSlotConfig***Periodicity and slot offset (see TS 38.214 [19], clause 5.2.1.4). The UE shall ignore the offset provided by this field in case *semiPersistentOnPUSCH* is configured. |
| ***reportSlotOffsetList, reportSlotOffsetListDCI-0-1***, ***reportSlotOffsetListDCI-0-2***Timing offset Y for semi persistent reporting using PUSCH and aperiodic reporting. |
| ***servingSpecificOffset***Offset for event condition that is applicable for all the reference signals belonging to serving cell. If the field is absent, the value '0dB' is applied.  |

|  |
| --- |
| *LTM-ReportContent field descriptions* |
| ***nrOfReportedCells***This field defines how many cells are reported within a single L1 measurement report instance. |
| ***nrOfReportedRS-PerCell***This field defines how many RSs per cell are reported within a single L1 measurement report instance. |
| ***spCellInclusion***This field indicates whether the UE shall include a L1 measurement report associated to the current SpCell. This field can only be configured if the current SpCell is configured as an SpCell of an LTM candidate configuration and the *LTM-CSI-ResourceConfig* IE associated to the *LTM-CSI-ReportConfig* IE includes resources for the current SpCell. |
| ***reportQuantity***Indicates the report quantity for the CSI report. |

|  |
| --- |
| *LTM-EventTriggeredReportContent* field descriptions |
| ***allowReportAnyBeam***Indicates whether the UE can report the measurement results for the beams not satisfying the conditions of the events at least for the time duration configured by *timeToTrigger* as specified in TS 38.321 [3]. |
| ***maxNumberOfReportedBeams***This field defines maximum number of beams whose measurements results can be reported in the event-triggered measurement report by MAC CE as specified in TS 38.321 [3].  |
| *reportCurrentBeam*Indicates whether the UE is required to report the measurement result of the current beam as specified in TS 38.321 [3]. |

|  |
| --- |
| *LTM-EventTriggeredPeriodicReport* field descriptions |
| ***reportInterval***This field defines the periodicity of the event-triggered periodic measurement report as specified in TS 38.321 [3]. |
| ***reportAmount***Number of measurement reports needs to be transmitted after the event is triggered as specified in TS 38.321 [3]. Value 'r2' means the report is sent twice, ’r3’ means the report is sent three times, and so on. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *LTM2* | This field is mandatory in case the *eventId* is configured as *eventLTM2.* Otherwise, it is optionally present, need R. |
| *notEventLTM2* | This field is not present when the *eventId* is configured as *eventLTM2*. Otherwise, it is optionally present, need S. |
| *onlyLTM3* | This fiels is optionally present, need S, when *eventId* is configured as *eventLTM3*. Otherwise, it is absent. |

#### – *LTM-CSI-ResourceConfig*

The IE *LTM-CSI-ResourceConfig* defines a group of one or more CSI resources for one or more LTM candidate configurations.

*LTM-CSI-ResourceConfig* information element

-- ASN1START

-- TAG-LTM-CSI-RESOURCECONFIG-START

LTM-CSI-ResourceConfig-r18 ::= SEQUENCE {

 ltm-CSI-ResourceConfigId-r18 LTM-CSI-ResourceConfigId-r18,

 ltm-SSB-ResourceSet-r18 LTM-SSB-ResourceSet-r18,

 ...,

 [[

 ltm-NZP-CSI-RS-ResourceSet-r19 LTM-NZP-CSI-RS-ResourceSet-r19 OPTIONAL, -- Need R

 ltm-CSI-IM-ResourceSet-r19 LTM-CSI-IM-ResourceSet-r19 OPTIONAL, -- Need R

 resourceType-r19 ENUMERATED {periodic, semiPersistent} OPTIONAL -- Cond NoSSB

 ]]

}

LTM-SSB-ResourceSet-r18 ::= SEQUENCE {

 ltm-SSB-ResourceList-r18 SEQUENCE (SIZE (1..maxNrofLTM-CSI-ResourcesPerSet-r18)) OF SSB-Index,

 ltm-CandidateIdList-r18 SEQUENCE (SIZE (1..maxNrofLTM-CSI-ResourcesPerSet-r18)) OF LTM-CandidateId-r18,

 ...

}

LTM-NZP-CSI-RS-ResourceSet-r19 ::= SEQUENCE {

 ltm-CSI-RS-ResourceList-r19 SEQUENCE (SIZE (1..maxNrofLTM-CSI-ResourcesPerSet-r18)) OF NZP-CSI-RS-ResourceId,

 ltm-CandidateIdList-r19 SEQUENCE (SIZE (1..maxNrofLTM-CSI-ResourcesPerSet-r18)) OF LTM-CandidateId-r18,

 repetition ENUMERATED {off} OPTIONAL, -- Need R

 ...

}

LTM-CSI-IM-ResourceSet-r19 ::= SEQUENCE {

 ltm-CSI-IM-ResourceSetId-r19 CSI-IM-ResourceSetId,

 ltm-CandidateId-r19 LTM-CandidateId-r18,

 ...

}

-- TAG-LTM-CSI-RESOURCECONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *LTM-CSI-ResourceConfig* field descriptions |
| ***ltm-CSI-IM-ResourceSet***This field indicates the resource set for LTM interference measurements. This field is absent if *ltm-NZP-CSI-RS-ResourceSet* is configured. When the field is present, the UE shall ignore the field *ltm-SSB-ResourceSet*. |
| ***ltm-NZP-CSI-RS-ResourceSet***This field indicates the resource set for LTM measuremenet based on CSI-RS. When the field is present, the UE shall ignore the field *ltm-SSB-ResourceSet*.  |
| ***ltm-SSB-ResourceSet***This field indicates the resource set for LTM measurement based on SSB. |
| ***resourceType***Time domain behavior of LTM CSI resource (see TS 38.214 [19], clause 5.2.1.2). . |

|  |
| --- |
| *LTM-SSB-ResourceSet* field descriptions |
| ***ltm-CandidateIdList***This field indicates the LTM candidate configuration IDs related to the SSBs in the *ltm-SSB-ResourceList*. The list has the same number of entries as *ltm-SSB-ResourceList*. The first entry in this list shall be associated to the first entry in *ltm-SSB-ResourceList*, the second entry of this list shall be associated to the second entry in *ltm-SSB-ResourceList*, and so on. |
| ***ltm-SSB-ResourceList***This field is used to indicate on SS/PBCH block resources from one or more LTM candidate cells. |

|  |
| --- |
| *LTM-NZP-CSI-RS-ResourceSet* field descriptions |
| ***ltm-NZP-CSI-RS-ResourceList***This field is used to indicate on NZP CSI-RS resources from one or more LTM candidate cells. If the resource type of the NZP-CSI-RS resource is *semi-persistent,* the *ltm-ReportConfigType* within *LTM-CSI-ReportConfig* that this resource set is associated with cannot be configured as *eventTriggered*. |
| ***repetition***Indicates that repetition is off for the indicated NZP CSI-RS resources. This field can only be configured for LTM CSI-RS resource sets which are associated with *LTM-CSI-ReportConfig* with report of L1 RSRP. This field is not present in case *LTM-NZP-CSI-RS-ResourceSet* is associated with a *LTM-CSI-ReportConfig* which has the field *reportQuantity* set to *cri-RI-PMI-CQI*. If this field is present, the UE may not assume that the NZP-CSI-RS resources within the resource set are transmitted with the same downlink spatial domain transmission filter (see TS 38.214 [19], clauses 5.2.2.3.1 and 5.1.6.1.2). |

|  |
| --- |
| *LTM-CSI-IM-ResourceSet* field descriptions |
| ***ltm-CSI-IM-ResourceSetId***This field is used to indicate on CSI-IM resources from one or more LTM candidate cells. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *NoSSB* | This field is mandatory present, Need R, if the field *ltm-NZP-CSI-RS-ResourceSet* or *ltm-CSI-IM-ResourceSet* is configured. Otherwise, it is absent. |

#### – *ReferenceConfiguration*

The IE *ReferenceConfiguration* is used provide a configuration that is common to all configured non-complete candidate configurations.

*ReferenceConfiguration* information element

-- ASN1START

-- TAG-REFERENCECONFIGURATION-START

ReferenceConfiguration-r18 ::= OCTET STRING (CONTAINING RRCReconfiguration)

-- TAG-REFERENCECONFIGURATION-STOP

-- ASN1STOP

#### – *ReportConfigNR*

The IE *ReportConfigNR* specifies criteria for triggering of an NR measurement reporting event or of a CHO, CPA or CPC event or of an L2 U2N relay measurement reporting event. For events labelled AN with N equal to 1, 2 and so on, measurement reporting events and CHO, CPA or CPC events are based on cell measurement results, which can either be derived based on SS/PBCH block or CSI-RS.

Event A1: Serving becomes better than absolute threshold;

Event A2: Serving becomes worse than absolute threshold;

Event A3: Neighbour becomes amount of offset better than PCell/PSCell;

Event A4: Neighbour becomes better than absolute threshold;

Event A5: PCell/PSCell becomes worse than absolute threshold1 AND Neighbour/SCell becomes better than another absolute threshold2;

Event A6: Neighbour becomes amount of offset better than SCell;

Event D1: Distance between UE and a reference location *referenceLocation1* becomes larger than configured threshold *distanceThreshFromReference1* and distance between UE and a reference location *referenceLocation2* becomes shorter than configured threshold *distanceThreshFromReference2*;

Event D2: Distance between UE and the serving cell moving reference location determined based on *movingReferenceLocation* and its corresponding satellite ephemeris and epoch time broadcast in *SIB19* becomes larger than configured threshold *distanceThreshFromReference1* and distance between UE and a moving reference location determined based on *referenceLocation* and its corresponding satellite ephemeris and epoch time for the neighbor cell provided in the associated *MeasObjectNR* becomes shorter than configured threshold *distanceThreshFromReference2*;

CondEvent A3: Conditional reconfiguration candidate or LTM candidate cell becomes amount of offset better than PCell/PSCell;

CondEvent A4: Conditional reconfiguration candidate becomes better than absolute threshold where *condEventA4* can also be used for current PSCell (i.e., in case it is configured as candidate PSCell for CondEvent A4 evaluation) for CHO with candidate SCG(s) case;

CondEvent A5: PCell/PSCell becomes worse than absolute threshold1 AND Conditional reconfiguration candidate or LTM candidate cell becomes better than another absolute threshold2;

CondEvent D1: Distance between UE and a reference location *referenceLocation1* becomes larger than configured threshold *distanceThreshFromReference1* and distance between UE and a reference location *referenceLocation2* of conditional reconfiguration candidate becomes shorter than configured threshold *distanceThreshFromReference2*;

CondEvent D2: Distance between UE and the serving cell moving reference location determined based on *movingReferenceLocation* and its corresponding satellite ephemeris and epoch time broadcast in *SIB19* becomes larger than configured threshold *distanceThreshFromReference1* and distance between UE and a moving reference location determined based on *referenceLocation* and its corresponding satellite ephemeris and epoch time for the conditional reconfiguration candidate provided in the associated *MeasObjectNR* becomes shorter than configured threshold *distanceThreshFromReference2*;

CondEvent T1: Time measured at UE becomes more than configured threshold *t1-Threshold* but is less than *t1-Threshold + duration*;

CondEvent A3H1: Conditional reconfiguration candidate becomes offset better than SpCell and the Aerial UE altitude becomes higher than a threshold;

CondEvent A3H2: Conditional reconfiguration candidate becomes offset better than SpCell and the Aerial UE altitude becomes lower than a threshold;

CondEvent A5H1: SpCell becomes worse than threshold1 and conditional reconfiguration candidate becomes better than threshold2 and the Aerial UE altitude becomes higher than a threshold3;

CondEvent A5H2: SpCell becomes worse than threshold1 and conditional reconfiguration candidate becomes better than threshold2 and the Aerial UE altitude becomes lower than a threshold3.

Event X1: Serving L2 U2N Relay UE becomes worse than absolute threshold1 AND NR Cell becomes better than another absolute threshold2;

Event X2: Serving L2 U2N Relay UE becomes worse than absolute threshold;

For event I1, measurement reporting event is based on CLI measurement results, which can either be derived based on SRS-RSRP or CLI-RSSI.

Event I1: Interference becomes higher than absolute threshold;

The reporting events concerning Aerial UE altitude are labelled H*N* with *N* equal to 1 and 2. Additionally, the reporting events concerning Aerial UE altitude and the neighboring cell measurements simultaneously are labelled A*M*H*N* with *M* equal to 3, 4, 5 and *N* equal to 1, 2.

Event H1: Aerial UE altitude becomes higher than a threshold;

Event H2: Aerial UE altitude becomes lower than a threshold;

Event A3H1: Neighbour becomes offset better than SpCell and the Aerial UE altitude becomes higher than a threshold;

Event A3H2: Neighbour becomes offset better than SpCell and the Aerial UE altitude becomes lower than a threshold;

Event A4H1: Neighbour becomes better than threshold1 and the Aerial UE altitude becomes higher than a threshold2;

Event A4H2: Neighbour becomes better than threshold1 and the Aerial UE altitude becomes lower than a threshold2;

Event A5H1: SpCell becomes worse than threshold1 and neighbour becomes better than threshold2 and the Aerial UE altitude becomes higher than a threshold3;

Event A5H2: SpCell becomes worse than threshold1 and neighbour becomes better than threshold2 and the Aerial UE altitude becomes lower than a threshold3.

*ReportConfigNR* information element

-- ASN1START

-- TAG-REPORTCONFIGNR-START

ReportConfigNR ::= SEQUENCE {

 reportType CHOICE {

 periodical PeriodicalReportConfig,

 eventTriggered EventTriggerConfig,

 ...,

 reportCGI ReportCGI,

 reportSFTD ReportSFTD-NR,

 condTriggerConfig-r16 CondTriggerConfig-r16,

 cli-Periodical-r16 CLI-PeriodicalReportConfig-r16,

 cli-EventTriggered-r16 CLI-EventTriggerConfig-r16,

 rxTxPeriodical-r17 RxTxPeriodical-r17,

 reportOnScellActivation-r18 ReportOnScellActivation-r18

 }

}

ReportCGI ::= SEQUENCE {

 cellForWhichToReportCGI PhysCellId,

 ...,

 [[

 useAutonomousGaps-r16 ENUMERATED {setup} OPTIONAL -- Need R

 ]]

}

ReportSFTD-NR ::= SEQUENCE {

 reportSFTD-Meas BOOLEAN,

 reportRSRP BOOLEAN,

 ...,

 [[

 reportSFTD-NeighMeas ENUMERATED {true} OPTIONAL, -- Need R

 drx-SFTD-NeighMeas ENUMERATED {true} OPTIONAL, -- Need R

 cellsForWhichToReportSFTD SEQUENCE (SIZE (1..maxCellSFTD)) OF PhysCellId OPTIONAL -- Need R

 ]]

}

CondTriggerConfig-r16 ::= SEQUENCE {

 condEventId CHOICE {

 condEventA3 SEQUENCE {

 a3-Offset MeasTriggerQuantityOffset,

 hysteresis Hysteresis,

 timeToTrigger TimeToTrigger

 },

 condEventA5 SEQUENCE {

 a5-Threshold1 MeasTriggerQuantity,

 a5-Threshold2 MeasTriggerQuantity,

 hysteresis Hysteresis,

 timeToTrigger TimeToTrigger

 },

 ...,

 condEventA4-r17 SEQUENCE {

 a4-Threshold-r17 MeasTriggerQuantity,

 hysteresis-r17 Hysteresis,

 timeToTrigger-r17 TimeToTrigger

 },

 condEventD1-r17 SEQUENCE {

 distanceThreshFromReference1-r17 INTEGER(0.. 65525),

 distanceThreshFromReference2-r17 INTEGER(0.. 65525),

 referenceLocation1-r17 ReferenceLocation-r17,

 referenceLocation2-r17 ReferenceLocation-r17,

 hysteresisLocation-r17 HysteresisLocation-r17,

 timeToTrigger-r17 TimeToTrigger

 },

 condEventT1-r17 SEQUENCE {

 t1-Threshold-r17 INTEGER (0..549755813887),

 duration-r17 INTEGER (1..6000)

 },

 condEventD2-r18 SEQUENCE {

 distanceThreshFromReference1-r18 INTEGER(0.. 65535),

 distanceThreshFromReference2-r18 INTEGER(0.. 65535),

 hysteresisLocation-r18 HysteresisLocation-r17,

 timeToTrigger-r18 TimeToTrigger

 },

 condEventA3H1-r19 SEQUENCE {

 a3-Offset-r19 MeasTriggerQuantityOffset,

 hysteresis-r19 Hysteresis,

 timeToTrigger-r19 TimeToTrigger,

 h1-Threshold-r19 Altitude-r18,

 h1-Hysteresis-r19 HysteresisAltitude-r18

 },

 condEventA3H2-r19 SEQUENCE {

 a3-Offset-r19 MeasTriggerQuantityOffset,

 hysteresis-r19 Hysteresis,

 timeToTrigger-r19 TimeToTrigger,

 h2-Threshold-r19 Altitude-r18,

 h2-Hysteresis-r19 HysteresisAltitude-r18

 },

 condEventA5H1-r19 SEQUENCE {

 a5-Threshold1-r19 MeasTriggerQuantity,

 a5-Threshold2-r19 MeasTriggerQuantity,

 hysteresis-r19 Hysteresis,

 timeToTrigger-r19 TimeToTrigger,

 h1-Threshold-r19 Altitude-r18,

 h1-Hysteresis-r19 HysteresisAltitude-r18

 },

 condEventA5H2-r19 SEQUENCE {

 a5-Threshold1-r19 MeasTriggerQuantity,

 a5-Threshold2-r19 MeasTriggerQuantity,

 hysteresis-r19 Hysteresis,

 timeToTrigger-r19 TimeToTrigger,

 h2-Threshold-r19 Altitude-r18,

 h2-Hysteresis-r19 HysteresisAltitude-r18

 }

 },

 rsType-r16 NR-RS-Type,

 ...,

 [[

 nesEvent-r18 ENUMERATED {true} OPTIONAL -- Need R

 ]]

}

EventTriggerConfig ::= SEQUENCE {

 eventId CHOICE {

 eventA1 SEQUENCE {

 a1-Threshold MeasTriggerQuantity,

 reportOnLeave BOOLEAN,

 hysteresis Hysteresis,

 timeToTrigger TimeToTrigger

 },

 eventA2 SEQUENCE {

 a2-Threshold MeasTriggerQuantity,

 reportOnLeave BOOLEAN,

 hysteresis Hysteresis,

 timeToTrigger TimeToTrigger

 },

 eventA3 SEQUENCE {

 a3-Offset MeasTriggerQuantityOffset,

 reportOnLeave BOOLEAN,

 hysteresis Hysteresis,

 timeToTrigger TimeToTrigger,

 useAllowedCellList BOOLEAN

 },

 eventA4 SEQUENCE {

 a4-Threshold MeasTriggerQuantity,

 reportOnLeave BOOLEAN,

 hysteresis Hysteresis,

 timeToTrigger TimeToTrigger,

 useAllowedCellList BOOLEAN

 },

 eventA5 SEQUENCE {

 a5-Threshold1 MeasTriggerQuantity,

 a5-Threshold2 MeasTriggerQuantity,

 reportOnLeave BOOLEAN,

 hysteresis Hysteresis,

 timeToTrigger TimeToTrigger,

 useAllowedCellList BOOLEAN

 },

 eventA6 SEQUENCE {

 a6-Offset MeasTriggerQuantityOffset,

 reportOnLeave BOOLEAN,

 hysteresis Hysteresis,

 timeToTrigger TimeToTrigger,

 useAllowedCellList BOOLEAN

 },

 ...,

 [[

 eventX1-r17 SEQUENCE {

 x1-Threshold1-Relay-r17 SL-MeasTriggerQuantity-r16,

 x1-Threshold2-r17 MeasTriggerQuantity,

 reportOnLeave-r17 BOOLEAN,

 hysteresis-r17 Hysteresis,

 timeToTrigger-r17 TimeToTrigger,

 useAllowedCellList-r17 BOOLEAN

 },

 eventX2-r17 SEQUENCE {

 x2-Threshold-Relay-r17 SL-MeasTriggerQuantity-r16,

 reportOnLeave-r17 BOOLEAN,

 hysteresis-r17 Hysteresis,

 timeToTrigger-r17 TimeToTrigger

 },

 eventD1-r17 SEQUENCE {

 distanceThreshFromReference1-r17 INTEGER(1.. 65525),

 distanceThreshFromReference2-r17 INTEGER(1.. 65525),

 referenceLocation1-r17 ReferenceLocation-r17,

 referenceLocation2-r17 ReferenceLocation-r17,

 reportOnLeave-r17 BOOLEAN,

 hysteresisLocation-r17 HysteresisLocation-r17,

 timeToTrigger-r17 TimeToTrigger

 }

 ]],

 [[

 eventH1-r18 SEQUENCE {

 h1-Threshold-r18 Altitude-r18,

 h1-Hysteresis-r18 HysteresisAltitude-r18,

 reportOnLeave-r18 BOOLEAN,

 timeToTrigger-r18 TimeToTrigger,

 includeAltitudeUE-r18 BOOLEAN,

 simulMultiTriggerSingleMeasReport-r18 BOOLEAN

 },

 eventH2-r18 SEQUENCE {

 h2-Threshold-r18 Altitude-r18,

 h2-Hysteresis-r18 HysteresisAltitude-r18,

 reportOnLeave-r18 BOOLEAN,

 timeToTrigger-r18 TimeToTrigger,

 includeAltitudeUE-r18 BOOLEAN,

 simulMultiTriggerSingleMeasReport-r18 BOOLEAN

 },

 eventA3H1-r18 SEQUENCE {

 a3-Offset-r18 MeasTriggerQuantityOffset,

 reportOnLeave-r18 BOOLEAN,

 a3-Hysteresis-r18 Hysteresis,

 timeToTrigger-r18 TimeToTrigger,

 useAllowedCellList-r18 BOOLEAN,

 h1-Threshold-r18 Altitude-r18,

 h1-Hysteresis-r18 HysteresisAltitude-r18,

 includeAltitudeUE-r18 BOOLEAN,

 simulMultiTriggerSingleMeasReport-r18 BOOLEAN

 },

 eventA3H2-r18 SEQUENCE {

 a3-Offset-r18 MeasTriggerQuantityOffset,

 reportOnLeave-r18 BOOLEAN,

 a3-Hysteresis-r18 Hysteresis,

 timeToTrigger-r18 TimeToTrigger,

 useAllowedCellList-r18 BOOLEAN,

 h2-Threshold-r18 Altitude-r18,

 h2-Hysteresis-r18 HysteresisAltitude-r18,

 includeAltitudeUE-r18 BOOLEAN,

 simulMultiTriggerSingleMeasReport-r18 BOOLEAN

 },

 eventA4H1-r18 SEQUENCE {

 a4-Threshold-r18 MeasTriggerQuantity,

 reportOnLeave-r18 BOOLEAN,

 a4-Hysteresis-r18 Hysteresis,

 timeToTrigger-r18 TimeToTrigger,

 useAllowedCellList-r18 BOOLEAN,

 h1-Threshold-r18 Altitude-r18,

 h1-Hysteresis-r18 HysteresisAltitude-r18,

 includeAltitudeUE-r18 BOOLEAN,

 simulMultiTriggerSingleMeasReport-r18 BOOLEAN

 },

 eventA4H2-r18 SEQUENCE {

 a4-Threshold-r18 MeasTriggerQuantity,

 reportOnLeave-r18 BOOLEAN,

 a4-Hysteresis-r18 Hysteresis,

 timeToTrigger-r18 TimeToTrigger,

 useAllowedCellList-r18 BOOLEAN,

 h2-Threshold-r18 Altitude-r18,

 h2-Hysteresis-r18 HysteresisAltitude-r18,

 includeAltitudeUE-r18 BOOLEAN,

 simulMultiTriggerSingleMeasReport-r18 BOOLEAN

 },

 eventA5H1-r18 SEQUENCE {

 a5-Threshold1-r18 MeasTriggerQuantity,

 a5-Threshold2-r18 MeasTriggerQuantity,

 reportOnLeave-r18 BOOLEAN,

 a5-Hysteresis-r18 Hysteresis,

 timeToTrigger-r18 TimeToTrigger,

 useAllowedCellList-r18 BOOLEAN,

 h1-Threshold-r18 Altitude-r18,

 h1-Hysteresis-r18 HysteresisAltitude-r18,

 includeAltitudeUE-r18 BOOLEAN,

 simulMultiTriggerSingleMeasReport-r18 BOOLEAN

 },

 eventA5H2-r18 SEQUENCE {

 a5-Threshold1-r18 MeasTriggerQuantity,

 a5-Threshold2-r18 MeasTriggerQuantity,

 reportOnLeave-r18 BOOLEAN,

 a5-Hysteresis-r18 Hysteresis,

 timeToTrigger-r18 TimeToTrigger,

 useAllowedCellList-r18 BOOLEAN,

 h2-Threshold-r18 Altitude-r18,

 h2-Hysteresis-r18 HysteresisAltitude-r18,

 includeAltitudeUE-r18 BOOLEAN,

 simulMultiTriggerSingleMeasReport-r18 BOOLEAN

 },

 eventD2-r18 SEQUENCE {

 distanceThreshFromReference1-r18 INTEGER(1.. 65535),

 distanceThreshFromReference2-r18 INTEGER(1.. 65535),

 reportOnLeave-r18 BOOLEAN,

 hysteresisLocation-r18 HysteresisLocation-r17,

 timeToTrigger-r18 TimeToTrigger

 }

 ]]

 },

 rsType NR-RS-Type,

 reportInterval ReportInterval,

 reportAmount ENUMERATED {r1, r2, r4, r8, r16, r32, r64, infinity},

 reportQuantityCell MeasReportQuantity,

 maxReportCells INTEGER (1..maxCellReport),

 reportQuantityRS-Indexes MeasReportQuantity OPTIONAL, -- Need R

 maxNrofRS-IndexesToReport INTEGER (1..maxNrofIndexesToReport) OPTIONAL, -- Need R

 includeBeamMeasurements BOOLEAN,

 reportAddNeighMeas ENUMERATED {setup} OPTIONAL, -- Need R

 ...,

 [[

 measRSSI-ReportConfig-r16 MeasRSSI-ReportConfig-r16 OPTIONAL, -- Need R

 useT312-r16 BOOLEAN OPTIONAL, -- Need M

 includeCommonLocationInfo-r16 ENUMERATED {true} OPTIONAL, -- Need R

 includeBT-Meas-r16 SetupRelease {BT-NameList-r16} OPTIONAL, -- Need M

 includeWLAN-Meas-r16 SetupRelease {WLAN-NameList-r16} OPTIONAL, -- Need M

 includeSensor-Meas-r16 SetupRelease {Sensor-NameList-r16} OPTIONAL -- Need M

 ]],

 [[

 coarseLocationRequest-r17 ENUMERATED {true} OPTIONAL, -- Need R

 reportQuantityRelay-r17 SL-MeasReportQuantity-r16 OPTIONAL -- Need R

 ]],

 [[

 numberOfTriggeringCells-r18 INTEGER (2..maxCellReport) OPTIONAL, -- Need R

 cellIndividualOffsetList-r18 SEQUENCE (SIZE (1..maxNrofCellMeas)) OF CellIndividualOffsetList-r18 OPTIONAL, -- Need R

 eventX1-SD-Threshold1-r18 SL-MeasTriggerQuantity-r16 OPTIONAL, -- Need S

 eventX2-SD-Threshold-r18 SL-MeasTriggerQuantity-r16 OPTIONAL, -- Need S

 reportOnBestCellChange-r18 ENUMERATED {n1, n2} OPTIONAL, -- Need R

 enteringLeavingReport-r18 ENUMERATED {true} OPTIONAL -- Need R

 ]]

}

PeriodicalReportConfig ::= SEQUENCE {

 rsType NR-RS-Type,

 reportInterval ReportInterval,

 reportAmount ENUMERATED {r1, r2, r4, r8, r16, r32, r64, infinity},

 reportQuantityCell MeasReportQuantity,

 maxReportCells INTEGER (1..maxCellReport),

 reportQuantityRS-Indexes MeasReportQuantity OPTIONAL, -- Need R

 maxNrofRS-IndexesToReport INTEGER (1..maxNrofIndexesToReport) OPTIONAL, -- Need R

 includeBeamMeasurements BOOLEAN,

 useAllowedCellList BOOLEAN,

 ...,

 [[

 measRSSI-ReportConfig-r16 MeasRSSI-ReportConfig-r16 OPTIONAL, -- Need R

 includeCommonLocationInfo-r16 ENUMERATED {true} OPTIONAL, -- Need R

 includeBT-Meas-r16 SetupRelease {BT-NameList-r16} OPTIONAL, -- Need M

 includeWLAN-Meas-r16 SetupRelease {WLAN-NameList-r16} OPTIONAL, -- Need M

 includeSensor-Meas-r16 SetupRelease {Sensor-NameList-r16} OPTIONAL, -- Need M

 ul-DelayValueConfig-r16 SetupRelease { UL-DelayValueConfig-r16 } OPTIONAL, -- Need M

 reportAddNeighMeas-r16 ENUMERATED {setup} OPTIONAL -- Need R

 ]],

 [[

 ul-ExcessDelayConfig-r17 SetupRelease { UL-ExcessDelayConfig-r17 } OPTIONAL, -- Need M

 coarseLocationRequest-r17 ENUMERATED {true} OPTIONAL, -- Need R

 reportQuantityRelay-r17 SL-MeasReportQuantity-r16 OPTIONAL -- Need R

 ]]

}

NR-RS-Type ::= ENUMERATED {ssb, csi-rs}

MeasReportQuantity ::= SEQUENCE {

 rsrp BOOLEAN,

 rsrq BOOLEAN,

 sinr BOOLEAN

}

MeasRSSI-ReportConfig-r16 ::= SEQUENCE {

 channelOccupancyThreshold-r16 RSSI-Range-r16 OPTIONAL -- Need R

}

CLI-EventTriggerConfig-r16 ::= SEQUENCE {

 eventId-r16 CHOICE {

 eventI1-r16 SEQUENCE {

 i1-Threshold-r16 MeasTriggerQuantityCLI-r16,

 reportOnLeave-r16 BOOLEAN,

 hysteresis-r16 Hysteresis,

 timeToTrigger-r16 TimeToTrigger

 },

 ...

 },

 reportInterval-r16 ReportInterval,

 reportAmount-r16 ENUMERATED {r1, r2, r4, r8, r16, r32, r64, infinity},

 maxReportCLI-r16 INTEGER (1..maxCLI-Report-r16),

 ...

}

CLI-PeriodicalReportConfig-r16 ::= SEQUENCE {

 reportInterval-r16 ReportInterval,

 reportAmount-r16 ENUMERATED {r1, r2, r4, r8, r16, r32, r64, infinity},

 reportQuantityCLI-r16 MeasReportQuantityCLI-r16,

 maxReportCLI-r16 INTEGER (1..maxCLI-Report-r16),

 ...

}

RxTxPeriodical-r17 ::= SEQUENCE {

 rxTxReportInterval-r17 RxTxReportInterval-r17 OPTIONAL, -- Need R

 reportAmount-r17 ENUMERATED {r1, infinity, spare6, spare5, spare4, spare3, spare2, spare1},

 ...

}

RxTxReportInterval-r17 ::= ENUMERATED {ms80,ms120,ms160,ms240,ms320,ms480,ms640,ms1024,ms1280,ms2048,ms2560,ms5120,spare4,spare3,spare2,spare1}

MeasTriggerQuantityCLI-r16 ::= CHOICE {

 srs-RSRP-r16 SRS-RSRP-Range-r16,

 cli-RSSI-r16 CLI-RSSI-Range-r16

}

MeasReportQuantityCLI-r16 ::= ENUMERATED {srs-rsrp, cli-rssi}

ReportOnScellActivation-r18 ::= SEQUENCE {

 rsType-r18 NR-RS-Type,

 reportQuantityRS-Indexes-r18 MeasReportQuantity,

 maxNrofRS-IndexesToReport-r18 INTEGER (1..maxNrofIndexesToReport),

 includeBeamMeasurements-r18 BOOLEAN

}

CellIndividualOffsetList-r18 ::= SEQUENCE {

 physCellId-r18 PhysCellId,

 cellIndividualOffset-r18 Q-OffsetRangeList,

 ssbFrequency-r18 ARFCN-ValueNR OPTIONAL -- Need R

}

-- TAG-REPORTCONFIGNR-STOP

-- ASN1STOP

|  |
| --- |
| *CondTriggerConfig* field descriptions |
| ***a3-Offset***Offset value(s) to be used in NR conditional reconfiguration or CLTM triggering condition for cond event a3. The actual value is field value \* 0.5 dB. |
| ***a4-Threshold***Threshold value associated to the selected trigger quantity (e.g. RSRP, RSRQ, SINR) per RS Type (e.g. SS/PBCH block, CSI-RS) to be used in NR conditional reconfiguration triggering condition for cond event a4. |
| ***a5-Threshold1/ a5-Threshold2***Threshold value associated to the selected trigger quantity (e.g. RSRP, RSRQ, SINR) per RS Type (e.g. SS/PBCH block, CSI-RS) to be used in NR conditional reconfiguration or CLTM triggering condition for cond event a5. In the same *condeventA5*, the network configures the same quantity for the *MeasTriggerQuantity* of the *a5-Threshold1* and for the *MeasTriggerQuantity* of the *a5-Threshold2*. |
| ***condEventId***Choice of NR conditional reconfiguration event triggered criteria. |
| ***distanceThreshFromReference1, distanceThreshFromReference2***Distance from a fixed reference location configured with *referenceLocation1* or *referenceLocation2* for *condEventD1*. Distance from a moving reference location determined by the UE based on the serving cell *movingReferenceLocation* broadcast in *SIB19* or *referenceLocation* and the corresponding epoch time and satellite ephemeris configured within the *MeasObjectNR* associated to the event for *condEventD2*. Each step represents 50m. |
| ***duration***This field is used for defining the leaving condition T1-2 for conditional HO event *condEventT1*. Each step represents 100ms. |
| ***nesEvent***Indicates the event is a NES-specific CHO event and the event is only considered to be satisfied if indication from lower layers is received indicating the applicability of NES-specific CHO event and the related entry condition(s) is fulfilled. This field can only be configured for *condEventA3*, *condEventA4* or *condEventA5*. This field cannot be configured for CPAC. |
| ***referenceLocation1, referenceLocation2***The r*eferenceLocation1* is associated to serving cell and *referenceLocation2* is associated to candidate target cell. |
| ***t1-Threshold***The field counts the number of UTC seconds in 10 ms units since 00:00:00 on Gregorian calendar date 1 January, 1900 (midnight between Sunday, December 31, 1899 and Monday, January 1, 1900). |
| ***timeToTrigger***Time during which specific criteria for the event needs to be met in order to execute the conditional reconfiguration evaluation. |

|  |
| --- |
| *ReportConfigNR* field descriptions |
| ***reportType***Type of the configured measurement report. In MR-DC, network does not configure report of type *reportCGI* using SRB3. The *condTriggerConfig is* used for CLTM, CHO, CPA or CPC configuration. |

|  |
| --- |
| *ReportCGI* field descriptions |
| ***useAutonomousGaps***Indicates whether or not the UE is allowed to use autonomous gaps in acquiring system information from the NR neighbour cell. When the field is included, the UE applies the corresponding value for T321. |

|  |
| --- |
| *EventTriggerConfig* field descriptions |
| ***a3-Offset/a6-Offset***Offset value(s) to be used in NR measurement report triggering condition for event a3/a6. The actual value is field value \* 0.5 dB. |
| ***aN-ThresholdM***Threshold value associated to the selected trigger quantity (e.g. RSRP, RSRQ, SINR) per RS Type (e.g. SS/PBCH block, CSI-RS) to be used in NR measurement report triggering condition for event number aN. If multiple thresholds are defined for event number aN, the thresholds are differentiated by M. In the same *eventA5*, *eventA5H1, eventA5H2,* the network configures the same quantity for the *MeasTriggerQuantity* of the *a5-Threshold1* and for the *MeasTriggerQuantity* of the *a5-Threshold2*. |
| ***channelOccupancyThreshold***RSSI threshold which is used for channel occupancy evaluation. |
| ***coarseLocationRequest***This field is used to request UE to report coarse location information. |
| ***distanceThreshFromReference1, distanceThreshFromReference2***Distance from a fixed reference location configured with *referenceLocation1* or *referenceLocation2* for *eventD1*. Distance from a moving reference location determined by the UE based on the serving cell *movingReferenceLocation* broadcast in *SIB19* or *referenceLocation* and the corresponding epoch time and satellite ephemeris configured within the *MeasObjectNR* associated to the event for *eventD2*. Each step represents 50m. |
| ***eventId***Choice of NR event triggered reporting criteria. |
| ***eventXN-SD-Threshold***Indicates the SD-RSRP threshold value for the serving L2 U2N Relay UE in event *XN* (*N* equals 1 or 2). If this field is not included, the UE considers the SD-RSRP threshold value equals to the one indicated by *x1-Threshold1-Relay*/ *x2-Threshold-Relay*. |
| ***includeAltitudeUE***This field is used to request UE to report altitude information. |
| ***maxNrofRS-IndexesToReport***Max number of RS indexes to include in the measurement report for A1-A6 events. |
| ***maxReportCells***Max number of non-serving cells to include in the measurement report. |
| ***numberOfTriggeringCells***Indicates the number of cells detected that are required to fulfill an event for a measurement report to be triggered. This field is applicable only for the events concerning neighbor cells, i.e. *eventA3*, *eventA4, eventA5, eventA3H1, eventA3H2, eventA4H1, eventA4H2, eventA5H1, eventA5H2*. |
| ***referenceLocation1, referenceLocation2***The *referenceLocation1* is associated to serving cell and *referenceLocation2* is associated to neighbour cell. |
| ***reportAddNeighMeas***Indicates that the UE shall include the best neighbour cells per serving frequency. |
| ***reportAmount***Number of measurement reports applicable for *eventTriggered* as well as for *periodical* report types. |
| ***reportOnBestCellChange***Indicates whether the UE shall only send measurement report if the measured best cell (when configured to *n1*) or two best cells (when configured to *n2*) have changed. In this release of the specification, this field is applicable only for the events concerning neighbor cells. This field can only be configured when the value of the field *reportAmount* is set to any other value than *r1*. |
| ***reportOnLeave***Indicates whether or not the UE shall initiate the measurement reporting procedure when the leaving condition is met for a cell in *cellsTriggeredList* or for a L2 U2N Relay UE in *relaysTriggeredList*, as specified in 5.5.4.1.Indicates whether or not the UE shall initiate the measurement reporting procedure when the leaving condition is met if configured in *eventD1*, *eventD2*, *eventH1*, *eventH2* as specified in 5.5.4.1. |
| ***reportQuantityCell***The cell measurement quantities to be included in the measurement report. |
| ***reportQuantityRS-Indexes***Indicates which measurement information per RS index the UE shall include in the measurement report. |
| ***simulMultiTriggerSingleMeasReport***Indicates when multiple events with the same *eventID* satisfy the measurement report triggering condition(s), whether to consider only the event with the smallest value between the altitude of the UE and the configured altitude threshold. |
| ***timeToTrigger***Time during which specific criteria for the event needs to be met in order to trigger a measurement report. |
| ***useAllowedCellList***Indicates whether only the cells included in the allow-list of the associated measObject are applicable as specified in 5.5.4.1. |
| ***useT312***If value *TRUE* is configured, the UE shall use the timer T312 with the value *t312* as specified in the corresponding *measObjectNR*. If value FALSE is configured, the timer T312 is considered as disabled. Network configures value *TRUE* only if *reportType* is set to *eventTriggered*. |
| ***xN-ThresholdM***Threshold value associated to the selected trigger quantity (e.g. RSRP, RSRQ, SINR) per RS Type (e.g. SS/PBCH block, CSI-RS) to be used in NR measurement report triggering condition for event xN. If multiple thresholds are defined for event number xN, the thresholds are differentiated by M. *x1-Threshold1* and *x2-Threshold* indicates the threshold value for the serving L2 U2N Relay UE, *x1-Threshold2* indicates the threshold value for the NR Cells. |

|  |
| --- |
| *CLI-EventTriggerConfig* field descriptions |
| ***i1-Threshold***Threshold value associated to the selected trigger quantity (e.g. SRS-RSRP, CLI-RSSI) to be used in CLI measurement report triggering condition for event i1. |
| ***eventId***Choice of CLI event triggered reporting criteria. |
| ***maxReportCLI***Max number of CLI measurement resource to include in the measurement report. |
| ***reportAmount****Number* of measurement reports. |
| ***reportOnLeave***Indicates whether or not the UE shall initiate the measurement reporting procedure when the leaving condition is met for a CLI measurement resource in *srsTriggeredList* or *rssiTriggeredList*, as specified in 5.5.4.1. |
| ***timeToTrigger***Time during which specific criteria for the event needs to be met in order to trigger a measurement report. |

|  |
| --- |
| *CLI-PeriodicalReportConfig* field descriptions |
| ***maxReportCLI***Max number of CLI measurement resource to include in the measurement report. |
| ***reportAmount****Number* of measurement reports. |
| ***reportQuantityCLI***The CLI measurement quantities to be included in the measurement report. |

|  |
| --- |
| *PeriodicalReportConfig* field descriptions |
| ***coarseLocationRequest***This field is used to request UE to report coarse location information. |
| ***maxNrofRS-IndexesToReport***Max number of RS indexes to include in the measurement report. |
| ***maxReportCells***Max number of non-serving cells to include in the measurement report. |
| ***reportAddNeighMeas***Indicates that the UE shall include the best neighbour cells per serving frequency. |
| ***reportAmount****Number* of measurement reports applicable for *eventTriggered* as well as for *periodical* report types |
| ***reportQuantityCell***The cell measurement quantities to be included in the measurement report. |
| ***reportQuantityRS-Indexes***Indicates which measurement information per RS index the UE shall include in the measurement report. |
| ***ul-DelayValueConfig***Indicates that the UE shall perform the actual UL PDCP Packet Average Delay measurement per DRB as specified in TS 38.314 [53] and the UE shall ignore the fields *reportQuantityCell* and *maxReportCells*. The applicable values for the corresponding *reportInterval* are (one of the) {ms120, ms240, ms480, ms640, ms1024, ms2048, ms5120, ms10240, ms20480, ms40960, min1,min6, min12, min30}. The *reportInterval* indicates the periodicity for performing and reporting of UL PDCP Packet Average Delay per DRB measurement as specified in TS 38.314 [53]. |
| ***ul-ExcessDelayConfig***Indicates that the UE shall perform the actual UL PDCP Excess Packet Delay per DRB measurement as specified in TS 38.314 [53] and the UE shall ignore the fields *reportQuantityCell* and *maxReportCells*. The applicable values for the corresponding *reportInterval* are (one of the) {ms120, ms240, ms480, ms640, ms1024, ms2048, ms5120, ms10240, ms20480, ms40960, min1,min6, min12, min30}. The *reportInterval* indicates the periodicity for performing and reporting of UL PDCP Excess Packet Delay per DRB measurement as specified in TS 38.314 [53]. |
| ***useAllowedCellList***Indicates whether only the cells included in the allow-list of the associated measObject are applicable as specified in 5.5.4.1. |

|  |
| --- |
| *ReportSFTD-NR* field descriptions |
| ***cellForWhichToReportSFTD***Indicates the target NR neighbour cells for SFTD measurement between PCell and NR neighbour cells. |
| ***drx-SFTD-NeighMeas***Indicates that the UE shall use available idle periods (i.e. DRX off periods) for the SFTD measurement in NR standalone. The network only includes *drx-SFTD-NeighMeas* field when *reprtSFTD-NeighMeas* is set to true. |
| ***reportSFTD-Meas***Indicates whether UE is required to perform SFTD measurement between PCell and NR PSCell in NR-DC. |
| ***reportSFTD-NeighMeas***Indicates whether UE is required to perform SFTD measurement between PCell and NR neighbour cells in NR standalone. The network does not include this field if *reportSFTD-Meas* is set to *true*. |
| ***reportRSRP***Indicates whether UE is required to include RSRP result of NR PSCell or NR neighbour cells in SFTD measurement result, derived based on SSB. If it is set to true, the network should ensure that *ssb-ConfigMobility* is included in the measurement object for NR PSCell or NR neighbour cells. |

|  |
| --- |
| *RxTxPeriodical field descriptions* |
| ***reportAmount***This field indicates the number of UE Rx-Tx time difference measurement reports. If configured to *r1,* the network does not configure *rxTxReportInterval* and only one measurement is reported. If configured to *infinity*, UE periodically reports measurements according to the periodicity configured by *rxTxReportInterval*. |
| ***rxTxReportInterval***This field indicates the measurement reporting periodicity of UE Rx-Tx time difference. |

|  |
| --- |
| otherfield descriptions |
| ***MeasTriggerQuantity***SINR is applicable only for CONNECTED mode events. |

|  |
| --- |
| *ReportOnScellActivation* field descriptions |
| ***rsType***Indicates which RS is used to provide the measurement result. Only value *ssb* can be set in this release. |
| ***reportQuantityRS-Indexes***Indicates which measurement information per RS index is used to sort the reported measurement results and is included in the measurement report. |
| ***maxNrofRS-IndexesToReport***Max number of RS indexes to include in the measurement report. |
| ***includeBeamMeasurements***Indicates whether to include the measurement result per RS index in the measurement report. |

|  |
| --- |
| *CellIndividualOffsetList* field descriptions |
| ***cellIndividualOffset***Cell individual offsets applicable to a specific measurement event. If this field is present, the UE, for the same cell, shall ignore the cell individual offset configured within the *MeasObjectNR* of the *measID* associated with this *ReportConfigNR*. |
| ***physCellId***Physical cell identity of a cell in the cell list. |
| ***ssbFrequency***Indicates the NR frequency of SS for which *cellIndividualOffset* is applicable. If the field is not configured, the NR frequency of SS indicated by *ssbFrequency* indicated within the *MeasObjectNR* of the *measID* associated with this *ReportConfigNR* applies. |

#### – *ReportInterval*

The IE *ReportInterval* indicates the interval between periodical reports. The *ReportInterval* is applicable if the UE performs periodical reporting (i.e. when *reportAmount* exceeds 1) when *reportType* is set to either *eventTriggered*, *periodical*, *cli-EventTriggered* or *cli-Periodical*. Value *ms120* corresponds to 120 ms, value *ms240* corresponds to 240 ms and so on, while value *min1* corresponds to 1 min, *min6* corresponds to 6 min and so on.

*ReportInterval* information element

-- ASN1START

-- TAG-REPORTINTERVAL-START

ReportInterval ::= ENUMERATED {ms120, ms240, ms480, ms640, ms1024, ms2048, ms5120, ms10240, ms20480, ms40960,

 min1,min6, min12, min30 }

ReportInterval-r19 ::= ENUMERATED {ms20, ms60, ms120, ms240, ms480, ms640, ms1024, ms2048, ms5120, ms10240,

 ms20480, ms40960, min1,min6, min12, min30 }

-- TAG-REPORTINTERVAL-STOP

-- ASN1STOP

*END OF CHANGES*

*START OF CHANGES*

## 7.4 UE variables

#### – VarLTM-ExecutionConditionList

The UE variable *VarLTM-ExecutionConditionList* is used to store the LTM execution conditions for MCG LTM currently used by the UE.

*VarLTM-ExecutionConditionList* UE variable

-- ASN1START

-- TAG-VARLTM-EXECUTIONCONDITIONLIST-START

VarLTM-ExecutionConditionList-r19 ::= SEQUENCE {

 ltm-ExecutionConditionList-r19 LTM-ExecutionConditionList-r19

}

-- TAG-VARLTM-EXECUTIONCONDITIONLIST-STOP

-- ASN1STOP

#### – *VarLTM-ServingCellNoResetID*

The IE *VarLTM-ServingCellNoResetID* is used to store the ID associated with the serving cell based on which the UE determines whether a L2 reset is needed or not upon an LTM cell switch procedure which does not involve security key change.

*VarLTM-ServingCellNoResetID* UE variable

-- ASN1START

-- TAG-VARLTM-SERVINGCELLNORESETID-START

VarLTM-ServingCellNoResetID-r18 ::= SEQUENCE {

 ltm-ServingCellNoResetID-r18 INTEGER (1..maxNrofLTM-Configs-plus1-r18) OPTIONAL

}

-- TAG-VARLTM-SERVINGCELLNORESETID-STOP

-- ASN1STOP

*END OF CHANGES*

*START OF CHANGES*

### 11.2.2 Message definitions

*CG-ConfigInfo* message

-- ASN1START

-- TAG-CG-CONFIG-INFO-START

CG-ConfigInfo ::= SEQUENCE {

 criticalExtensions CHOICE {

 c1 CHOICE{

 cg-ConfigInfo CG-ConfigInfo-IEs,

 spare3 NULL, spare2 NULL, spare1 NULL

 },

 criticalExtensionsFuture SEQUENCE {}

 }

}

CG-ConfigInfo-IEs ::= SEQUENCE {

 ue-CapabilityInfo OCTET STRING (CONTAINING UE-CapabilityRAT-ContainerList) OPTIONAL,-- Cond SN-AddMod

 candidateCellInfoListMN MeasResultList2NR OPTIONAL,

 candidateCellInfoListSN OCTET STRING (CONTAINING MeasResultList2NR) OPTIONAL,

 measResultCellListSFTD-NR MeasResultCellListSFTD-NR OPTIONAL,

 scgFailureInfo SEQUENCE {

 failureType ENUMERATED { t310-Expiry, randomAccessProblem,

 rlc-MaxNumRetx, synchReconfigFailure-SCG,

 scg-reconfigFailure,

 srb3-IntegrityFailure},

 measResultSCG OCTET STRING (CONTAINING MeasResultSCG-Failure)

 } OPTIONAL,

 configRestrictInfo ConfigRestrictInfoSCG OPTIONAL,

 drx-InfoMCG DRX-Info OPTIONAL,

 measConfigMN MeasConfigMN OPTIONAL,

 sourceConfigSCG OCTET STRING (CONTAINING RRCReconfiguration) OPTIONAL,

 scg-RB-Config OCTET STRING (CONTAINING RadioBearerConfig) OPTIONAL,

 mcg-RB-Config OCTET STRING (CONTAINING RadioBearerConfig) OPTIONAL,

 mrdc-AssistanceInfo MRDC-AssistanceInfo OPTIONAL,

 nonCriticalExtension CG-ConfigInfo-v1540-IEs OPTIONAL

}

CG-ConfigInfo-v1540-IEs ::= SEQUENCE {

 ph-InfoMCG PH-TypeListMCG OPTIONAL,

 measResultReportCGI SEQUENCE {

 ssbFrequency ARFCN-ValueNR,

 cellForWhichToReportCGI PhysCellId,

 cgi-Info CGI-InfoNR

 } OPTIONAL,

 nonCriticalExtension CG-ConfigInfo-v1560-IEs OPTIONAL

}

CG-ConfigInfo-v1560-IEs ::= SEQUENCE {

 candidateCellInfoListMN-EUTRA OCTET STRING OPTIONAL,

 candidateCellInfoListSN-EUTRA OCTET STRING OPTIONAL,

 sourceConfigSCG-EUTRA OCTET STRING OPTIONAL,

 scgFailureInfoEUTRA SEQUENCE {

 failureTypeEUTRA ENUMERATED { t313-Expiry, randomAccessProblem,

 rlc-MaxNumRetx, scg-ChangeFailure},

 measResultSCG-EUTRA OCTET STRING

 } OPTIONAL,

 drx-ConfigMCG DRX-Config OPTIONAL,

 measResultReportCGI-EUTRA SEQUENCE {

 eutraFrequency ARFCN-ValueEUTRA,

 cellForWhichToReportCGI-EUTRA EUTRA-PhysCellId,

 cgi-InfoEUTRA CGI-InfoEUTRA

 } OPTIONAL,

 measResultCellListSFTD-EUTRA MeasResultCellListSFTD-EUTRA OPTIONAL,

 fr-InfoListMCG FR-InfoList OPTIONAL,

 nonCriticalExtension CG-ConfigInfo-v1570-IEs OPTIONAL

}

CG-ConfigInfo-v1570-IEs ::= SEQUENCE {

 sftdFrequencyList-NR SFTD-FrequencyList-NR OPTIONAL,

 sftdFrequencyList-EUTRA SFTD-FrequencyList-EUTRA OPTIONAL,

 nonCriticalExtension CG-ConfigInfo-v1590-IEs OPTIONAL

}

CG-ConfigInfo-v1590-IEs ::= SEQUENCE {

 servFrequenciesMN-NR SEQUENCE (SIZE (1.. maxNrofServingCells-1)) OF ARFCN-ValueNR OPTIONAL,

 nonCriticalExtension CG-ConfigInfo-v1610-IEs OPTIONAL

}

CG-ConfigInfo-v1610-IEs ::= SEQUENCE {

 drx-InfoMCG2 DRX-Info2 OPTIONAL,

 alignedDRX-Indication ENUMERATED {true} OPTIONAL,

 scgFailureInfo-r16 SEQUENCE {

 failureType-r16 ENUMERATED { scg-lbtFailure-r16, beamFailureRecoveryFailure-r16,

 t312-Expiry-r16, bh-RLF-r16,

 beamFailure-r17, spare3, spare2, spare1},

 measResultSCG-r16 OCTET STRING (CONTAINING MeasResultSCG-Failure)

 } OPTIONAL,

 dummy1 SEQUENCE {

 failureTypeEUTRA-r16 ENUMERATED { scg-lbtFailure-r16, beamFailureRecoveryFailure-r16,

 t312-Expiry-r16, spare5,

 spare4, spare3, spare2, spare1},

 measResultSCG-EUTRA-r16 OCTET STRING

 } OPTIONAL,

 sidelinkUEInformationNR-r16 OCTET STRING (CONTAINING SidelinkUEInformationNR-r16) OPTIONAL,

 sidelinkUEInformationEUTRA-r16 OCTET STRING OPTIONAL,

 nonCriticalExtension CG-ConfigInfo-v1620-IEs OPTIONAL

}

CG-ConfigInfo-v1620-IEs ::= SEQUENCE {

 ueAssistanceInformationSourceSCG-r16 OCTET STRING (CONTAINING UEAssistanceInformation) OPTIONAL,

 nonCriticalExtension CG-ConfigInfo-v1640-IEs OPTIONAL

}

CG-ConfigInfo-v1640-IEs ::= SEQUENCE {

 servCellInfoListMCG-NR-r16 ServCellInfoListMCG-NR-r16 OPTIONAL,

 servCellInfoListMCG-EUTRA-r16 ServCellInfoListMCG-EUTRA-r16 OPTIONAL,

 nonCriticalExtension CG-ConfigInfo-v1700-IEs OPTIONAL

}

CG-ConfigInfo-v1700-IEs ::= SEQUENCE {

 candidateCellListCPC-r17 CandidateCellListCPC-r17 OPTIONAL,

 twoPHRModeMCG-r17 ENUMERATED {enabled} OPTIONAL,

 lowMobilityEvaluationConnectedInPCell-r17 ENUMERATED {enabled} OPTIONAL,

 nonCriticalExtension CG-ConfigInfo-v1730-IEs OPTIONAL

}

CG-ConfigInfo-v1730-IEs ::= SEQUENCE {

 fr1-Carriers-MCG-r17 INTEGER (1..32) OPTIONAL,

 fr2-Carriers-MCG-r17 INTEGER (1..32) OPTIONAL,

 nonCriticalExtension CG-ConfigInfo-v1800-IEs OPTIONAL

}

CG-ConfigInfo-v1800-IEs ::= SEQUENCE {

 musim-GapConfigInfo-r18 MUSIM-GapConfig-r17 OPTIONAL,

 musim-CapRestrictionInfo-r18 SEQUENCE {

 musim-CapRestriction-r18 MUSIM-CapRestriction-r18 OPTIONAL,

 musim-CandidateBandList-r18 MUSIM-CandidateBandList-r18 OPTIONAL

 } OPTIONAL,

 scpac-ReferenceConfiguration-r18 ReferenceConfiguration-r18 OPTIONAL,

 subsequentCPAC-Candidates-r18 CandidateCellListCPC-r17 OPTIONAL,

 nonCriticalExtension CG-ConfigInfo-v1900-IEs OPTIONAL

}

CG-ConfigInfo-v1900-IEs ::= SEQUENCE {

 measResultReportCGI-EUTRA-v1900 SEQUENCE {

 hsdn-Cell-r19 ENUMERATED {true}

 } OPTIONAL,

 ltm-ReferenceConfigurationMCG-r19 ReferenceConfiguration-r18 OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

ServCellInfoListMCG-NR-r16 ::= SEQUENCE (SIZE (1.. maxNrofServingCells)) OF ServCellInfoXCG-NR-r16

ServCellInfoListMCG-EUTRA-r16 ::= SEQUENCE (SIZE (1.. maxNrofServingCellsEUTRA)) OF ServCellInfoXCG-EUTRA-r16

SFTD-FrequencyList-NR ::= SEQUENCE (SIZE (1..maxCellSFTD)) OF ARFCN-ValueNR

SFTD-FrequencyList-EUTRA ::= SEQUENCE (SIZE (1..maxCellSFTD)) OF ARFCN-ValueEUTRA

ConfigRestrictInfoSCG ::= SEQUENCE {

 allowedBC-ListMRDC BandCombinationInfoList OPTIONAL,

 powerCoordination-FR1 SEQUENCE {

 p-maxNR-FR1 P-Max OPTIONAL,

 p-maxEUTRA P-Max OPTIONAL,

 p-maxUE-FR1 P-Max OPTIONAL

 } OPTIONAL,

 servCellIndexRangeSCG SEQUENCE {

 lowBound ServCellIndex,

 upBound ServCellIndex

 } OPTIONAL, -- Cond SN-AddMod

 maxMeasFreqsSCG INTEGER(1..maxMeasFreqsMN) OPTIONAL,

 dummy INTEGER(1..maxMeasIdentitiesMN) OPTIONAL,

 ...,

 [[

 selectedBandEntriesMNList SEQUENCE (SIZE (1..maxBandComb)) OF SelectedBandEntriesMN OPTIONAL,

 pdcch-BlindDetectionSCG INTEGER (1..15) OPTIONAL,

 maxNumberROHC-ContextSessionsSN INTEGER(0.. 16384) OPTIONAL

 ]],

 [[

 maxIntraFreqMeasIdentitiesSCG INTEGER(1..maxMeasIdentitiesMN) OPTIONAL,

 maxInterFreqMeasIdentitiesSCG INTEGER(1..maxMeasIdentitiesMN) OPTIONAL

 ]],

 [[

 p-maxNR-FR1-MCG-r16 P-Max OPTIONAL,

 powerCoordination-FR2-r16 SEQUENCE {

 p-maxNR-FR2-MCG-r16 P-Max OPTIONAL,

 p-maxNR-FR2-SCG-r16 P-Max OPTIONAL,

 p-maxUE-FR2-r16 P-Max OPTIONAL

 } OPTIONAL,

 nrdc-PC-mode-FR1-r16 ENUMERATED {semi-static-mode1, semi-static-mode2, dynamic} OPTIONAL,

 nrdc-PC-mode-FR2-r16 ENUMERATED {semi-static-mode1, semi-static-mode2, dynamic} OPTIONAL,

 maxMeasSRS-ResourceSCG-r16 INTEGER(0..maxNrofCLI-SRS-Resources-r16) OPTIONAL,

 maxMeasCLI-ResourceSCG-r16 INTEGER(0..maxNrofCLI-RSSI-Resources-r16) OPTIONAL,

 maxNumberEHC-ContextsSN-r16 INTEGER(0..65536) OPTIONAL,

 allowedReducedConfigForOverheating-r16 OverheatingAssistance OPTIONAL,

 maxToffset-r16 T-Offset-r16 OPTIONAL

 ]],

 [[

 allowedReducedConfigForOverheating-r17 OverheatingAssistance-r17 OPTIONAL,

 maxNumberUDC-DRB-r17 INTEGER(0..2) OPTIONAL,

 maxNumberCPCCandidates-r17 INTEGER(0..maxNrofCondCells-1-r17) OPTIONAL

 ]],

 [[

 allowedResourceConfigNRDC-r17 ResourceConfigNRDC-r17 OPTIONAL

 ]],

 [[

 allowedAggregatedBandwidthSNList-r17 AllowedAggregatedBandwidthSNList-r17 OPTIONAL

 ]],

 [[

 maxNumberLTM-CandidatesSCG-r18 INTEGER(0..maxNrofLTM-Configs-r18) OPTIONAL

 ]],

 [[

 allowedL1-MeasConfigNRDC-r18 L1-MeasConfigNRDC-r18 OPTIONAL

 ]],

 [[

 allowedLTM-ResourceConfigNRDC-r18 LTM-ResourceConfigNRDC-r18 OPTIONAL

 ]],

 [[

 allowedInterSN-LTM-r19 ENUMERATED{allowed} OPTIONAL

 ]]

}

SelectedBandEntriesMN ::= SEQUENCE (SIZE (1..maxSimultaneousBands)) OF BandEntryIndex

BandEntryIndex ::= INTEGER (0.. maxNrofServingCells)

PH-TypeListMCG ::= SEQUENCE (SIZE (1..maxNrofServingCells)) OF PH-InfoMCG

PH-InfoMCG ::= SEQUENCE {

 servCellIndex ServCellIndex,

 ph-Uplink PH-UplinkCarrierMCG,

 ph-SupplementaryUplink PH-UplinkCarrierMCG OPTIONAL,

 ...,

 [[

 twoSRS-PUSCH-Repetition-r17 ENUMERATED{enabled} OPTIONAL

 ]],

 [[

 twoSRS-MultipanelScheme-r18 ENUMERATED{enabled} OPTIONAL

 ]]

}

PH-UplinkCarrierMCG ::= SEQUENCE{

 ph-Type1or3 ENUMERATED {type1, type3},

 ...

}

BandCombinationInfoList ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombinationInfo

BandCombinationInfo ::= SEQUENCE {

 bandCombinationIndex BandCombinationIndex,

 allowedFeatureSetsList SEQUENCE (SIZE (1..maxFeatureSetsPerBand)) OF FeatureSetEntryIndex

}

FeatureSetEntryIndex ::= INTEGER (1.. maxFeatureSetsPerBand)

DRX-Info ::= SEQUENCE {

 drx-LongCycleStartOffset CHOICE {

 ms10 INTEGER(0..9),

 ms20 INTEGER(0..19),

 ms32 INTEGER(0..31),

 ms40 INTEGER(0..39),

 ms60 INTEGER(0..59),

 ms64 INTEGER(0..63),

 ms70 INTEGER(0..69),

 ms80 INTEGER(0..79),

 ms128 INTEGER(0..127),

 ms160 INTEGER(0..159),

 ms256 INTEGER(0..255),

 ms320 INTEGER(0..319),

 ms512 INTEGER(0..511),

 ms640 INTEGER(0..639),

 ms1024 INTEGER(0..1023),

 ms1280 INTEGER(0..1279),

 ms2048 INTEGER(0..2047),

 ms2560 INTEGER(0..2559),

 ms5120 INTEGER(0..5119),

 ms10240 INTEGER(0..10239)

 },

 shortDRX SEQUENCE {

 drx-ShortCycle ENUMERATED {

 ms2, ms3, ms4, ms5, ms6, ms7, ms8, ms10, ms14, ms16, ms20, ms30, ms32,

 ms35, ms40, ms64, ms80, ms128, ms160, ms256, ms320, ms512, ms640, spare9,

 spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1 },

 drx-ShortCycleTimer INTEGER (1..16)

 } OPTIONAL

}

DRX-Info2 ::= SEQUENCE {

 drx-onDurationTimer CHOICE {

 subMilliSeconds INTEGER (1..31),

 milliSeconds ENUMERATED {

 ms1, ms2, ms3, ms4, ms5, ms6, ms8, ms10, ms20, ms30, ms40, ms50, ms60,

 ms80, ms100, ms200, ms300, ms400, ms500, ms600, ms800, ms1000, ms1200,

 ms1600, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1 }

 }

}

MeasConfigMN ::= SEQUENCE {

 measuredFrequenciesMN SEQUENCE (SIZE (1..maxMeasFreqsMN)) OF NR-FreqInfo OPTIONAL,

 measGapConfig SetupRelease { GapConfig } OPTIONAL,

 gapPurpose ENUMERATED {perUE, perFR1} OPTIONAL,

 ...,

 [[

 measGapConfigFR2 SetupRelease { GapConfig } OPTIONAL

 ]],

 [[

 interFreqNoGap-r16 ENUMERATED {true} OPTIONAL

 ]]

}

MRDC-AssistanceInfo ::= SEQUENCE {

 affectedCarrierFreqCombInfoListMRDC SEQUENCE (SIZE (1..maxNrofCombIDC)) OF AffectedCarrierFreqCombInfoMRDC,

 ...,

 [[

 overheatingAssistanceSCG-r16 OCTET STRING (CONTAINING OverheatingAssistance) OPTIONAL

 ]],

 [[

 overheatingAssistanceSCG-FR2-2-r17 OCTET STRING (CONTAINING OverheatingAssistance-r17) OPTIONAL

 ]],

 [[

 affectedCarrierFreqRangeCombList-r18 AffectedCarrierFreqRangeCombList-r18 OPTIONAL,

 affectedCarrierFreqCombList-r18 AffectedCarrierFreqCombList-r16 OPTIONAL,

 idc-TDM-Assistance-r18 IDC-TDM-Assistance-r18 OPTIONAL

 ]]

}

AffectedCarrierFreqCombInfoMRDC ::= SEQUENCE {

 victimSystemType VictimSystemType,

 interferenceDirectionMRDC ENUMERATED {eutra-nr, nr, other, utra-nr-other, nr-other, spare3, spare2, spare1},

 affectedCarrierFreqCombMRDC SEQUENCE {

 affectedCarrierFreqCombEUTRA AffectedCarrierFreqCombEUTRA OPTIONAL,

 affectedCarrierFreqCombNR AffectedCarrierFreqCombNR

 } OPTIONAL

}

VictimSystemType ::= SEQUENCE {

 gps ENUMERATED {true} OPTIONAL,

 glonass ENUMERATED {true} OPTIONAL,

 bds ENUMERATED {true} OPTIONAL,

 galileo ENUMERATED {true} OPTIONAL,

 wlan ENUMERATED {true} OPTIONAL,

 bluetooth ENUMERATED {true} OPTIONAL

}

AffectedCarrierFreqCombEUTRA ::= SEQUENCE (SIZE (1..maxNrofServingCellsEUTRA)) OF ARFCN-ValueEUTRA

AffectedCarrierFreqCombNR ::= SEQUENCE (SIZE (1..maxNrofServingCells)) OF ARFCN-ValueNR

CandidateCellListCPC-r17 ::= SEQUENCE (SIZE (1..maxFreq)) OF CandidateCellCPC-r17

CandidateCellCPC-r17 ::= SEQUENCE {

 ssbFrequency-r17 ARFCN-ValueNR,

 candidateCellList-r17 SEQUENCE (SIZE (1..maxNrofCondCells-r16)) OF PhysCellId

}

AllowedAggregatedBandwidthSNList-r17 ::= SEQUENCE (SIZE (1..maxBandComb)) OF AllowedAggregatedBandwidth-r17

AllowedAggregatedBandwidth-r17 ::= SEQUENCE {

 bandCombinationIndex-r17 BandCombinationIndex,

 allowedAggBW-FDD-DL-r17 SupportedAggBandwidth-r17 OPTIONAL,

 allowedAggBW-FDD-UL-r17 SupportedAggBandwidth-r17 OPTIONAL,

 allowedAggBW-TDD-DL-r17 SupportedAggBandwidth-r17 OPTIONAL,

 allowedAggBW-TDD-UL-r17 SupportedAggBandwidth-r17 OPTIONAL,

 allowedAggBW-TotalDL-r17 SupportedAggBandwidth-r17 OPTIONAL,

 allowedAggBW-TotalUL-r17 SupportedAggBandwidth-r17 OPTIONAL

}

-- TAG-CG-CONFIG-INFO-STOP

-- ASN1STOP

|  |
| --- |
| *CG-ConfigInfo* field descriptions |
| ***affectedCarrierFreqCombList***This field is signalled upon MN not addressing IDC issue and contains the list of NR carrier frequency combinations reported by UE to MN for IDC problem caused by the NR-DC frequency combination. |
| ***affectedCarrierFreqRangeCombList***This field is signalled upon MN not addressing IDC issue and contains the list of NR carrier frequency range combinations reported by UE to MN for IDC problem caused by the NR-DC frequency combination. |
| ***alignedDRX-Indication***This field is signalled upon MN triggered CGI reporting by the UE that requires aligned DRX configurations between the MCG and the SCG (i.e. same DRX cycle and on-duration configured by MN completely contains on-duration configured by SN). |
| ***allowedAggregatedBandwidthSNList***A list of allowed maximum aggregated bandwidth at the SN side for the band combination included in the *allowedBC-ListMRDC.* This field is only used in NR-DC. |
| ***allowedBC-ListMRDC***A list of indices referring to band combinations in MR-DC capabilities from which SN is allowed to select the SCG band combination. Each entry refers to:- a band combination numbered according to *supportedBandCombinationList* and *supportedBandCombinationList-UplinkTxSwitch* in the *UE-MRDC-Capability* (in case of (NG)EN-DC), or according to *supportedBandCombinationList* and *supportedBandCombinationListNEDC-Only* in the *UE-MRDC-Capability* (in case of NE-DC), or according to *supportedBandCombinationList* in the UE-NR-Capability (in case of NR-DC),- and the Feature Sets allowed for each band entry. All MR-DC band combinations indicated by this field comprise the MCG band combination, which is a superset of the MCG band(s) selected by MN. |
| ***allowedInterSN-LTM***Used to indicate whether the SCG can configure inter-SN LTM candidate configuration. If the field is absent the SN is not allowed to configure inter-SN LTM candidate configurations. This field is only used in NR-DC. |
| ***allowedL1-MeasConfigNRDC***Used to indicate the maximum number of allowed resources for L1 measurements to be configured for LTM at the SCG. This field is only used in NR-DC. |
| ***allowedLTM-ResourceConfigNRDC***Used to indicate the maximum number of allowed resources for configuring LTM at the SCG. This field is only used in NR-DC. |
| ***allowedReducedConfigForOverheating***Indicates the reduced configuration that the SCG is allowed to configure.*reducedMaxCCs* in *allowedReducedConfigForOverheating* indicates the maximum number of downlink/uplink PSCell/SCells that the SCG is allowed to configure. This field is used in (NG)EN-DC and NR-DC.*reducedMaxBW-FR1* and *reducedMaxBW-FR2* in *allowedReducedConfigForOverheating* indicates the maximum aggregated bandwidth across all downlink/uplink carriers of FR1 and FR2-1, respectively that the SCG is allowed to configure. *reducedMaxBW-FR2-2* in *allowedReducedConfigForOverheating-r17* indicates the maximum aggregated bandwidth across all downlink/uplink carriers of FR2-2 that the SCG is allowed to configure. This field is only used in NR-DC.*reducedMaxMIMO-LayersFR1* and *reducedMaxMIMO-LayersFR2* in *allowedReducedConfigForOverheating* indicates the maximum number of downlink/uplink MIMO layers of each serving cell operating on FR1 and FR2-1, respectively that the SCG is allowed to configure. *reducedMaxMIMO-LayersFR2-2* in *allowedReducedConfigForOverheating-r17* indicates the maximum number of downlink/uplink MIMO layers of each serving cell operating on FR2-2 that the SCG is allowed to configure. This field is only used in NR-DC. |
| ***allowedResourceConfigNRDC***Used to indicate the maximum number of resources reserved for the SCG. This field is only used in NR-DC. |
| ***candidateCellInfoListMN***, ***candidateCellInfoListSN***Contains information regarding cells that the master node or the source node suggests the target gNB or DU to consider configuring. In case of MN initiated CPA, CPC or CHO with candidate SCG(s), the field *candidateCellInfoListMN* contains information regarding cells that the MN suggests the candidate target secondary node to consider configuring for MN initiated CPA, CPC, CHO with candidate SCG(s), or subsequent CPAC.For (NG)EN-DC, including CSI-RS measurement results in *candidateCellInfoListMN* is not supported in this version of the specification. For NR-DC, including SSB and/or CSI-RS measurement results in *candidateCellInfoListMN* is supported. |
| ***candidateCellInfoListMN-EUTRA***, ***candidateCellInfoListSN-EUTRA***Includes the *MeasResultList3EUTRA* as specified in TS 36.331 [10]. Contains information regarding cells that the master node or the source node suggests the target secondary eNB to consider configuring. These fields are only used in NE-DC. |
| ***candidateCellListCPC***Contains information regarding cells that the source secondary node suggests the candidate target secondary node to consider configuring for SN initiated Conditional PSCell Change (CPC) or SN initiated inter-SN subsequent CPAC. |
| ***configRestrictInfo***Includes fields for which SgNB is explicitly indicated to observe a configuration restriction. |
| ***drx-ConfigMCG***This field contains the complete DRX configuration of the MCG. This field is only used in NR-DC. |
| ***drx-InfoMCG***This field contains the DRX long and short cycle configuration of the MCG. This field is used in (NG)EN-DC and NE-DC. |
| ***drx-InfoMCG2***This field contains the *drx-onDurationTimer* configuration of the MCG. This field is only used in (NG)EN-DC. |
| ***dummy, dummy1***These fields are not used in the specification and SN ignores the received value(s). |
| ***fr-InfoListMCG***Contains information of FR information of serving cells that include PCell and SCell(s) configured in MCG. |
| ***fr1-Carriers-MCG, fr2-Carriers-MCG***Indicates the number of FR1 or FR2 serving cells configured in MCG. |
| ***hsdn-Cell***Used by MN to provide SN with *hsdn-Cell* for the cell reported in *measResultReportCGI-EUTRA* as per SN′s request. In this version of the specification, this field is used only for NE-DC. |
| ***idc-TDM-Assistance***This field is signalled upon MN not addressing IDC issue and contains IDC TDM assistance information reported by UE to MN for IDC problem. |
| ***interFreqNoGap***Indicates that the field *interFrequencyConfig-NoGap-r16* has been included within the *MeasConfig* IE generated by the MN. |
| ***lowMobilityEvaluationConnectedInPCell***Indicates if low mobility criterion has been configured in NR PCell. |
| ***ltm-ReferenceConfigurationMCG***The field contains the LTM reference configuration to be used at the SCG. This field is only used in NR-DC. |
| ***maxInterFreqMeasIdentitiesSCG***Indicates the maximum number of allowed measurement identities that the SCG is allowed to configure for inter-frequency measurement. The maximum value for this field is 10. If the field is absent, the SCG is allowed to configure inter-frequency measurements up to the maximum value. This field is only used in NR-DC. |
| ***maxIntraFreqMeasIdentitiesSCG***Indicates the maximum number of allowed measurement identities that the SCG is allowed to configure for intra-frequency measurement on each serving frequency. The maximum value for this field is 9 (in case of (NG)EN-DC or NR-DC) or 10 (in case of NE-DC). If the field is absent, the SCG is allowed to configure intra-frequency measurements up to the maximum value on each serving frequency. |
| ***maxMeasCLI-ResourceSCG***Indicates the maximum number of CLI RSSI resources that the SCG is allowed to configure. |
| ***maxMeasFreqsSCG***Indicates the maximum number of NR inter-frequency carriers the SN is allowed to configure with PSCell for measurements. |
| ***maxMeasSRS-ResourceSCG***Indicates the maximum number of SRS resources that the SCG is allowed to configure for CLI measurement. |
| ***maxNumberCPCCandidates***Indicates the maximum numbers of conditional reconfigurations the SN is allowed to configure for SN initiated CPC. Value 0 indicates that the SN is not allowed to configure SN initiated CPC. If the field is absent, the SN is allowed to configure up to *maxNrofCondCells-r16* conditional reconfigurations for SN-initiated CPC. |
| ***maxNumberEHC-ContextsSN***Indicates the maximum number of EHC contexts allowed to the SN terminated bearer. The field indicates the number of contexts in addition to CID = "all zeros", as specified in TS 38.323 [5]. |
| ***maxNumberLTM-CandidatesSCG***Indicates the maximum number of LTM candidate configurations that the SN is allowed to configure. If the field is absent the SN is not allowed to configure LTM candidate configurations. This field is only used in NR-DC. |
| ***maxNumberROHC-ContextSessionsSN***Indicates the maximum number of ROHC context sessions allowed to SN terminated bearer, excluding context sessions that leave all headers uncompressed. |
| ***maxNumberUDC-DRB***Indicates the maximum number of UDC DRBs allowed to SN terminated bearer. This field is used in NGEN-DC, NR-DC and NE-DC. |
| ***maxToffset***Indicates the maximum Toffset value the SN is allowed to use for scheduling SCG transmissions (see TS 38.213 [13]). This field is used in NR-DC only when the fields *nrdc-PC-mode-FR1-r16* or *nrdc-PC-mode-FR2-r16* are set to dynamic. Value *ms0dot5* corresponds to 0.5 ms, value *ms0dot75* corresponds to 0.75 ms, value *ms1* corresponds to 1 ms and so on. |
| ***measuredFrequenciesMN***Used by MN to indicate a list of frequencies measured by the UE. |
| ***measGapConfig***Indicates the FR1 and perUE measurement gap configuration configured by MN. |
| ***measGapConfigFR2***Indicates the FR2 measurement gap configuration configured by MN. |
| ***mcg-RB-Config***Contains all of the fields in the IE *RadioBearerConfig* used in MN, used by the SN to support delta configuration to UE (i.e. when MN does not use full configuration option), for bearer type change between MN terminated bearer with NR PDCP to SN terminated bearer. It is also used to indicate the PDCP duplication related information for MN terminated split bearer (whether duplication is configured and if so, whether it is initially activated) in SN Addition/Modification procedure. Otherwise, this field is absent. |
| ***measResultReportCGI, measResultReportCGI-EUTRA***Used by MN to provide SN with CGI-Info for the cell as per SN′s request. In this version of the specification, the *measResultReportCGI* is used for (NG)EN-DC and NR-DC and the *measResultReportCGI-EUTRA* is used only for NE-DC. |
| ***measResultSCG-EUTRA***This field includes the *MeasResultSCG-FailureMRDC* IE as specified in TS 36.331 [10]. This field is only used in NE-DC. |
| ***measResultSFTD-EUTRA***SFTD measurement results between the PCell and the E-UTRA PScell in NE-DC. This field is only used in NE-DC. |
| ***mrdc-AssistanceInfo***Contains the IDC assistance information for MR-DC reported by the UE (see TS 36.331 [10]). |
| ***musim-CapRestrictionInfo***Indicates the UE's preference on SCell(s) or PSCell to be released, serving cell(s) with restricted capability, band(s) or combination(s) of bands with restricted capability, or band(s) or band combination(s) to be avoided for UE temporary capabilities restriction purpose with the *musim-candidateBandList-r18* only for *musim-AffectedBandsList-r18* and *musim-AvoidedBandsList-r18*. All fields in *musim-CapRestriction-r18* can be sent from MN to SN, i.e., it is up to MN implementation to decide which field(s) need to be sent. |
| ***musim-GapConfigInfo***Indicates the MUSIM gap configuration configured by MN. |
| ***nrdc-PC-mode-FR1***Indicates the uplink power sharing mode that the UE uses in NR-DC FR1 (see TS 38.213 [13], clause 7.6). |
| ***nrdc-PC-mode-FR2***Indicates the uplink power sharing mode that the UE uses in NR-DC FR2 (see TS 38.213 [13], clause 7.6). |
| ***overheatingAssistanceSCG***Contains the UE's preference on reduced configuration for NR SCG to address overheating. This field is only used in (NG)EN-DC. |
| ***overheatingAssistanceSCG-FR2-2***Contains the UE's preference on reduced configuration for NR SCG on FR2-2 to address overheating. This field is only used in (NG)EN-DC. |
| ***p-maxEUTRA***Indicates the maximum total transmit power to be used by the UE in the E-UTRA cell group (see TS 36.104 [33]). This field is used in (NG)EN-DC and NE-DC. |
| ***p-maxNR-FR1***For (NG)EN-DC and NE-DC, the field indicates the maximum total transmit power to be used by the UE in the NR cell group across all serving cells in frequency range 1 (FR1) (see TS 38.104 [12]). For NR-DC, it indicates the maximum total transmit power to be used by the UE in the NR cell group across all serving cells in frequency range 1 (FR1) (see TS 38.104 [12]) the UE can use in NR SCG. |
| ***p-maxUE-FR1***Indicates the maximum total transmit power to be used by the UE across all serving cells in frequency range 1 (FR1). |
| ***p-maxNR-FR1-MCG***Indicates the maximum total transmit power to be used by the UE in the NR cell group across all serving cells in frequency range 1 (FR1) (see TS 38.104 [12]) the UE can use in NR MCG. This field is only used in NR-DC. |
| ***p-maxNR-FR2-SCG***Indicates the maximum total transmit power to be used by the UE in the NR cell group across all serving cells in frequency range 2 (FR2) (see TS 38.104 [12]) the UE can use in NR SCG. |
| ***p-maxUE-FR2***Indicates the maximum total transmit power to be used by the UE across all serving cells in frequency range 2 (FR2). |
| ***p-maxNR-FR2-MCG***Indicates the maximum total transmit power to be used by the UE in the NR cell group across all serving cells in frequency range 2 (FR2) (see TS 38.104 [12]) the UE can use in NR MCG. |
| ***pdcch-BlindDetectionSCG***Indicates the maximum value of the reference number of cells for PDCCH blind detection allowed to be configured for the SCG. |
| ***ph-InfoMCG***Power headroom information in MCG that is needed in the reception of PHR MAC CE in SCG. |
| ***ph-SupplementaryUplink***Power headroom information for supplementary uplink. For UE in (NG)EN-DC, this field is absent. |
| ***ph-Type1or3***Type of power headroom for a serving cell in MCG (PCell and activated SCells). *type1* refers to type 1 power headroom, *type3* refers to type 3 power headroom. (See TS 38.321 [3]).  |
| ***ph-Uplink***Power headroom information for uplink. |
| ***powerCoordination-FR1***Indicates the maximum power that the UE can use in FR1. |
| ***powerCoordination-FR2***Indicates the maximum power that the UE can use in frequency range 2 (FR2). This field is only used in NR-DC. |
| ***scgFailureInfo***Contains SCG failure type and measurement results. In case the sender has no measurement results available, the sender may include one empty entry (i.e. without any optional fields present) in *measResultPerMOList*. This field is used in (NG)EN-DC and NR-DC. |
| ***scg-RB-Config***Contains all of the fields in the IE RadioBearerConfig used in SN, used to allow the target SN to use delta configuration to the UE, e.g. during SN change. The field is signalled upon change of SN unless MN uses full configuration option. Otherwise, the field is absent. |
| ***scpac-ReferenceConfiguration***Includes the reference configuration associated with the SCG for the candidate supporting subsequent CPAC. |
| ***selectedBandEntriesMNList***A list of indices referring to the position of a band entry selected by the MN, in each band combination entry in *allowedBC-ListMRDC* IE. *BandEntryIndex* 0 identifies the first band in the *bandList* of the *BandCombination*, *BandEntryIndex* 1 identifies the second band in the *bandList* of the *BandCombination*, and so on. This *selectedBandEntriesMNList* includes the same number of entries, and listed in the same order as in *allowedBC-ListMRDC*. The SN uses this information to determine which bands out of the NR band combinations in *allowedBC-ListMRDC* it can configure in SCG in NR-DC. The SN can use this information to determine for which band pair(s) it should check *SimultaneousRxTxPerBandPair*. |
| ***servCellIndexRangeSCG***Range of serving cell indices that SN is allowed to configure for SCG serving cells. |
| ***servCellInfoListMCG-EUTRA***Indicates the carrier frequency and the transmission bandwidth of the serving cell(s) in the MCG in intra-band (NG)EN-DC. The field is needed when MN and SN operate serving cells in the same band for either contiguous or non-contiguous intra-band band combination or LTE NR inter-band band combinations where the frequency range of the E-UTRA band is a subset of the frequency range of the NR band (as specified in Table 5.5B.4.1-1 of TS 38.101-3 [34]) in (NG)EN-DC. |
| ***servCellInfoListMCG-NR***Indicates the frequency band indicator, carrier center frequency, UE specific channel bandwidth and SCS of the serving cell(s) in the MCG in intra-band NE-DC. The field is needed when MN and SN operate serving cells in the same band for either contiguous or non-contiguous intra-band band combination or LTE NR inter-band band combinations where the frequency range of the E-UTRA band is a subset of the frequency range of the NR band (as specified in Table 5.5B.4.1-1 of TS 38.101-3 [34]) in NE-DC. |
| ***servFrequenciesMN-NR***Indicates the frequency of all serving cells that include PCell and SCell(s) with SSB configured in MCG. This field is only used in NR-DC. servFrequenciesMN-NR indicates absoluteFrequencySSB. |
| ***sftdFrequencyList-NR***Includes a list of SSB frequencies. Each entry identifies the SSB frequency of a PSCell, which corresponds to one *MeasResultCellSFTD-NR* entry in the *MeasResultCellListSFTD-NR*. |
| ***sftdFrequencyList-EUTRA***Includes a list of E-UTRA frequencies. Each entry identifies the carrier frequency of a PSCell, which corresponds to one *MeasResultSFTD-EUTRA* entry in the *MeasResultCellListSFTD-EUTRA*. |
| ***sidelinkUEInformationEUTRA***This field contains the E-UTRA *SidelinkUEInformation* message as specified in TS 36.331 [10]. |
| ***sidelinkUEInformationNR***This field contains the NR *SidelinkUEInformationNR* message. |
| ***sourceConfigSCG***Includes all of the current SCG configurations used by the target SN to build delta configuration to be sent to UE, e.g. during SN change. The field contains the *RRCReconfiguration* message which may include *secondaryCellGroup,* *measConfig*, and *conditionalReconfiguration*. The field is signalled upon change of SN, unless MN uses full configuration option. Otherwise, the field is absent. |
| ***sourceConfigSCG-EUTRA***Includes the E-UTRA *RRCConnectionReconfiguration* message as specified in TS 36.331 [10]. In this version of the specification, the E-UTRA RRC message can only include the field *scg-Configuration.* In this version of the specification, this field is absent when master gNB uses full configuration option. This field is only used in NE-DC. |
| ***subsequentCPAC-Candidates***Includes the subsequent CPAC candidate PSCells that the UE has stored in MCG *VarConditionalReconfig*. |
| ***twoPHRModeMCG***Indicates if the power headroom for MCG shall be reported as two PHRs (each PHR associated with a SRS resource set) is enabled or not. |
| ***twoSRS-PUSCH-Repetition***Indicates whether the indicated serving cell is configured for PUSCH repetition corresponding to two SRS resource sets configured in either *srs-ResourceSetToAddModList* or *srs-ResourceSetToAddModListDCI-0-2* with usage 'codebook' or 'noncodebook'. |
| ***twoSRS-MultipanelScheme***Indicates whether the indicated serving cell is configured with multiple panel simultaneous uplink transmission schemes of multipanelSchemeSDM or multipanelSchemeSFN corresponding to two SRS resource sets configured in either *srs-ResourceSetToAddModList* or *srs-ResourceSetToAddModListDCI-0-2* with usage 'codebook' or 'noncodebook'. |
| ***ueAssistanceInformationSourceSCG***Includes for each UE assistance feature associated with the SCG, the information last reported by the UE in the NR *UEAssistanceInformation* message for the source SCG, if any. |
| ***ue-CapabilityInfo***Contains the IE *UE-CapabilityRAT-ContainerList* supported by the UE (see NOTE 3). A gNB that retrieves MRDC related capability containers ensures that the set of included MRDC containers is consistent w.r.t. the feature set related information. |

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| *BandCombinationInfo* field descriptions |
| ***allowedFeatureSetsList***Defines a subset of the entries in a *FeatureSetCombination*. Each index identifies a position in the *FeatureSetCombination*, which corresponds to one *FeatureSetUplink*/*Downlink* for each band entry in the associated band combination. |
| ***bandCombinationIndex***In case of NR-DC, this field indicates the position of a band combination in the *supportedBandCombinationList*. In case of NE-DC, this field indicates the position of a band combination in the *supportedBandCombinationList* and/or *supportedBandCombinationListNEDC-Only*. In case of (NG)EN-DC, this field indicates the position of a band combination in the *supportedBandCombinationList* and/or *supportedBandCombinationList-UplinkTxSwitch*. Band combination entries in *supportedBandCombinationList* are referred by an index which corresponds to the position of a band combination in the *supportedBandCombinationList*. Band combination entries in *supportedBandCombinationListNEDC-Only* are referred by an index which corresponds to the position of a band combination in the *supportedBandCombinationListNEDC-Only* increased by the number of entries in *supportedBandCombinationList*. Band combination entries in *supportedBandCombinationList-UplinkTxSwitch* are referred by an index which corresponds to the position of a band combination in the *supportedBandCombinationList-UplinkTxSwitch* increased by the number of entries in *supportedBandCombinationList*. |

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| *AllowedAggregatedBandwidth* field descriptions |
| ***AllowedAggregatedBandwidth***Indicates the allowed maximum aggregated bandwidth at the SN side.- *allowedAggBW-FDD-DL/UL-r17* indicates the allowed maximum aggregated bandwidth across FDD DL/UL CCs in SCG;- *allowedAggBW-TDD-DL/UL-r17* indicates the allowed maximum aggregated bandwidth across TDD DL/UL CCs in SCG;- *allowedAggBW-TotalDL/UL-r17* indicates the allowed maximum aggregated bandwidth across all DL/UL CCs in SCG. |
| ***bandCombinationIndex***This field indicates the position of a band combination in the *supportedBandCombinationList*. Band combination entries in *supportedBandCombinationList* are referred by an index which corresponds to the position of a band combination in the *supportedBandCombinationList*. Band combination entries in *supportedBandCombinationList-UplinkTxSwitch* are referred by an index which corresponds to the position of a band combination in the *supportedBandCombinationList-UplinkTxSwitch* increased by the number of entries in *supportedBandCombinationList*. |

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| Conditional Presence | Explanation |
| *SN-AddMod* | The field is mandatory present upon SN addition and SN change. It is optionally present upon SN modification and inter-MN handover without SN change. Otherwise, the field is absent. |

NOTE 3: The following table indicates per MN RAT and SN RAT whether RAT capabilities are included or not in *ue-CapabilityInfo*.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| MN RAT | SN RAT | NR capabilities | E-UTRA capabilities | MR-DC capabilities |
| E-UTRA | NR | Need not be included if the UE Radio Capability ID as specified in 23.502 [43] is used. Included otherwise | Not included | Need not be included if the UE Radio Capability ID as specified in 23.502 [43] is used. Included otherwise |
| NR | E-UTRA | Not included | Need not be included if the UE Radio Capability ID as specified in 23.502 [43] is used. Included otherwise | Need not be included if the UE Radio Capability ID as specified in 23.502 [43] is used. Included otherwise |
| NR | NR | Need not be included if the UE Radio Capability ID as specified in 23.502 [43] is used. Included otherwise | Not included | Not included |

 *END OF CHANGES*

 *START OF CHANGES*

### 11.2.3 Mandatory information in inter-node RRC messages

For the *AS-Config* transferred within the *HandoverPreparationInformation*:

- The source node shall include all fields necessary to reflect the current AS configuration of the UE, except for the fields *sourceSCG-NR-Config*, *sourceSCG-EUTRA-Config* and *sourceRB-SN-Config*, which can be omitted in case the source MN did not receive the latest configuration from the source SN. For *RRCReconfiguration* included in the field *rrcReconfiguration*, *ReconfigurationWithSync* is included with only the mandatory subfields (e.g. *newUE-Identity* and *t304*) and *ServingCellConfigCommon*;

- Need codes or conditions specified for subfields according to IEs defined in clause 6 do not apply. I.e. some fields shall be included regardless of the "Need" or "Cond" e.g. *discardTimer*;

- Based on the received AS configuration, the target node can indicate the delta (difference) to the current AS configuration (as included in *HandoverCommand*)to the UE. The fields *newUE-Identity* and *t304* included in *ReconfigurationWithSync* are not used for delta configuration purpose.

The *candidateCellInfoListSN*(-*EUTRA*) in *CG-Config* and the *candidateCellInfoListMN*(*-EUTRA*)/*candidateCellInfoListSN*(-*EUTRA*) in *CG-ConfigInfo* need not be included in procedures that do not involve a change of node.

For fields *scg-CellGroupConfig, scg-CellGroupConfigEUTRA* and *scg-RB-Config* in *CG-Config* (sent upon SN initiated SN change or other conditions as specified in field descriptions) and fields *mcg-RB-Config*, *scg-RB-Config* and *sourceConfigSCG* in *CG-ConfigInfo* (sent upon change of SN):

- The source node shall include all fields necessary to reflect the current AS configuration of the UE, unless stated otherwise in the field description. For *RRCReconfiguration* included in the field *scg-CellGroupConfig in CG-Config*, *ReconfigurationWithSync* is included with only the mandatory subfields (e.g. *newUE-Identity* and *t304*) and *ServingCellConfigCommon*;

- Need codes or conditions specified for subfields according to IEs defined in clause 6 do not apply;

- Based on the received AS configuration, the target node can indicate the delta (difference) as compared to the current AS configuration to the UE. The fields *newUE-Identity* and *t304* in *ReconfigurationWithSync* are always included by the target node, i.e. they are not used for delta configuration purpose to UE.

For fields in *CG-Config* and *CG-ConfigInfo* listed below, absence of the field means that the receiver maintains the values informed via the previous message. Note that every time there is a change in the configuration covered by a listed field, the MN or SN shall include the field and it shall provide the full configuration provided by that field unless stated otherwise. Otherwise, if there is no change, the field can be omitted:

- *configRestrictInfo*;

- *gapPurpose;*

- *measGapConfig* (for which delta signaling applies);

*- measGapConfigFR2* (for which delta signaling applies);

- *measResultCellListSFTD*;

*- measResultSFTD-EUTRA*;

- *sftdFrequencyList-EUTRA*;

*- sftdFrequencyList-NR;*

- *ue-CapabilityInfo;*

*- servFrequenciesMN-NR;*

*- musim-GapConfigInfo-r18;*

- *musim-CapRestrictionInfo-r18;*

*- ltm-ReferenceConfigurationSCG-r19;*

*- ltm-Config-r19;*

*- ltm-ReferenceConfigurationMCG-r19.*

For other fields in CG-Config and CG-ConfigInfo, the sender shall always signal the appropriate value even if same as indicated in the previous inter-node message, unless explicitly stated otherwise.

 *END OF CHANGES*

 *START OF CHANGES*

## 11.3 Inter-node RRC information element definitions

#### *–* *L1-MeasConfigNRDC*

The IE *L1-MeasConfigNRDC* is used to indicate or request a maximum value that can be used by the SN in NR-DC to configure L1 measurement related to LTM at the SCG. Each value is equal to or lower than the value of the corresponding field in the UE capability, as reported by the UE, unless specified otherwise. The value indicated by each field is applicable to all BCs within the field *allowedBC-ListMRDC*.

*L1-MeasConfigNRDC* information element

-- ASN1START

-- TAG-L1-MEASCONFIGNRDC-START

L1-MeasConfigNRDC-r18 ::= SEQUENCE {

 maxL1-MeasNoGapSCG-r18 INTEGER(0..maxNrofL1-MeasNoGap-r18) OPTIONAL,

 maxL1-MeasWithGapSCG-r18 INTEGER(0..maxNrofL1-MeasWithGap-r18) OPTIONAL,

 maxCellsL1-MeasNoGapSCG-r18 INTEGER(0..maxNrofCellsL1-MeasNoGap-r18) OPTIONAL,

 maxCellsL1-MeasWithGapSCG-r18 INTEGER(0..maxNrofCellsL1-MeasWithGap-r18) OPTIONAL,

 maxTotalCellsL1-MeasNoGapSCG-r18 INTEGER(0..maxNrofTotalCellsL1-MeasNoGap-r18) OPTIONAL,

 maxSSBsL1-MeasNoGapSCG-r18 INTEGER(0..maxNrofSSBsL1-MeasNoGap-r18) OPTIONAL,

 maxSSBsL1-MeasWithGapSCG-r18 INTEGER(0..maxNrofSSBsL1-MeasWithGap-r18) OPTIONAL,

 maxTotalSSBsL1-MeasNoGapSCG-r18 INTEGER(0..maxNrofTotalSSBsL1-MeasNoGap-r18) OPTIONAL,

 maxCellsL1-MeasIntraFreqSCG-r18 INTEGER(0..maxNrofSSBsL1-MeasIntraFreq-r18) OPTIONAL,

 maxCellsL1-MeasInterFreqSCG-r18 INTEGER(0..maxNrofSSBsL1-MeasInterFreq-r18) OPTIONAL,

 maxReportConfigsAperiodic-r18 INTEGER(0..maxNrofReportConfigsAperiodic-r18) OPTIONAL,

 maxReportConfigsPeriodic-r18 INTEGER(0..maxNrofReportConfigsPeriodic-r18) OPTIONAL,

 maxReportConfigsSemiPersistent-r18 INTEGER(0..maxNrofReportConfigsSemiPersistent-r18) OPTIONAL,

 ...,

 [[

 maxSSBsL1-MeasNoGapSCGExt-r18 INTEGER(0..maxNrofSSBsL1-MeasNoGapExt-r18) OPTIONAL

 ]]

}

-- TAG-L1-MEASCONFIGNRDC-STOP

-- ASN1STOP

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| *L1-MeasConfigNRDC* field descriptions |
| ***maxCellsL1-MeasInterFreqSCG***Indicates the maximum number of RRC configured LTM candidate cells for intra- and inter-frequency L1 measurement. |
| ***maxCellsL1-MeasIntraFreqSCG***Indicates the maximum number of RRC configured LTM candidate cells for intra-frequency L1 measurement. |
| ***maxCellsL1-MeasNoGapSCG***Indicates the maximum number of neighbour cells UE can measure per frequency layer for intra-frequency or inter-frequency L1 measurements without measurement gaps. |
| ***maxCellsL1-MeasWithGapSCG***Indicates the maximum number of neighbour cells UE can measure per frequency layer for inter-frequency L1 measurements with measurement gaps. |
| ***maxL1-MeasNoGapSCG***Indicates the maximum number of frequency layers UE can measure for intra- and inter-frequency L1 measurements without measurement gaps. |
| ***maxL1-MeasWithGapSCG***Indicates the maximum number of frequency layers UE can measure for inter-frequency L1 measurements with measurement gaps. |
| ***maxReportConfigsAperiodic***Indicates the maximum number of aperiodic LTM CSI report configurations. |
| ***maxReportConfigsPeriodic***Indicates the maximum number of periodic LTM CSI report configurations. |
| ***maxReportConfigsSemiPersistent***Indicates the maximum number of semi-persistent LTM CSI report configurations. |
| ***maxSSBsL1-MeasNoGapSCG, maxSSBsL1-MeasNoGapSCGExt***Indicates the maximum number of SSB resources UE can measure per frequency layer for intra-frequency or inter-frequency L1 measurements without measurement gaps. If the field *maxSSBsL1-MeasNoGapSCGExt* is included, the field *maxSSBsL1-MeasNoGapSCG* is not present. |
| ***maxSSBsL1-MeasWithGapSCG***Indicates the maximum number of SSB resources UE can measure per frequency layer for inter-frequency L1 measurements with measurement gaps. |
| ***maxTotalCellsL1-MeasNoGapSCG***Indicates the maximum total number of cells, including serving cells and neighboring cells, across all frequency layers of intra-frequency and inter-frequency L1 measurements, UE can measure without measurement gaps. |
| ***maxTotalSSBsL1-MeasNoGapSCG***Indicates the maximum total number of SSB resources, including serving cells and neighboring cells, across all frequency layers of intra-frequency and inter-frequency L1 measurements, UE can measure without measurement gaps. |

 *END OF CHANGES*