**3GPP TSG-RAN WG2 #127**

**Maastricht, Netherlands, Aug 19th – 23rd 2024**

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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:***  | Misc RRC corrections for feMob |
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| ***Source to WG:*** |  |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** | NR\_Mob\_enh2-Core |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** |  |  | ***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:*** | The CR addressed the following issues:* LS received in R1-2405671 where we are asked to clarify that some power control parameters in the ConfiguredGrantConfig do not apply to LTM
* Some handling of timers within the LTM cell switch execution is not correct as we don’t have exactly the same timer at the MN and SN
* The handling of the case on the the L2 reset fields are included by the network is not clear.
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| ***Summary of change:*** | Section 5.3.5.3- Clarified that for SCPAC configured in MN format, subsequent CPAC execution condition update is not applied for subsequentCondExecutionCondSection 5.3.5.13.8- Clarified that logged measurements configurations are not releasedSection 5.3.5.13.14- Editorial clarification to the procedural text.Section 5.3.5.18.6- Clarified which timer and counter applies to MCG and SCG- Clarified that the UE should replace the L2 reset ID in the UE variable only if the network configures such fields.- Clarified that logged measurements configurations are not released- Clarified that UE is not expected to continue UE-based TA measurements on the SpCell.Section 6.3.2- Clarified that the power control fields in the configured grant do not apply to LTM- Clarified that LTM-Config cannot be included within another LTM-Config.- Updated Conditional presence and field descriptions for several fields- Other small editorial changes.**Impact Analysis**Impacted 5G architecture options: NR SA, (NG)EN-DC, NE-DC,NR-DC Impacted functionality: LTMInter-operability:1. If the network is implemented according to the CR and the UE is not, the UE may:- apply timer and counter in a cell group for which the timers and counters should not be used;- Create a UE variable and save values of fields which are not configured by the network;- Apply power control parameters in a configured grant which should not be used for LTM.2. If the UE is implemented according to the CR and the network is not, the network may provide power control parameter for a configured grant at the UE which should not used for LTM. |
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| ***Consequences if not approved:*** | In the CR is not approved, the UE may:- apply timer and counter in a cell group for which the timers and counters should not be used;- Create a UE variable and save values of fields which are not configured by the network;- Apply power control parameters in a configured grant which should not be used for LTM. |
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| ***Clauses affected:*** | 5.3.5.13.4, 5.3.5.18.6, 6.3.2 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
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| ***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> 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> discard any application layer measurement reports which were not yet fully submitted to lower layers for transmission;

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> 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*:

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 *srs-PosResourceSetLinkedForAggBWList*:

2> if *srs-PosResourceSetLinkedForAggBWList* 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; 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;

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;

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;

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;

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:

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) or to the PCell (for PSCell addition or 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, DRBs, multicast MRB, and BH RLC channels for IAB-MT, and Uu Relay RLC channels for L2 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 *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:

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:

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) 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 (i.e. change of *sl-RxInterestedFreqList* or *sl-TxResourceReqList*) 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;

4> 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:

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

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

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

6> else:

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

5> else:

6> 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 *non-ServingCellMII*:

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*

##### 5.3.5.13.4 Conditional reconfiguration evaluation

The UE shall:

1> for each *condReconfigId* within the *VarConditionalReconfig*:

2> if the *RRCReconfiguration* within *condRRCReconfig* includes the *masterCellGroup* including the *reconfigurationWithSync*:

3> if the associated *condExecutionCondPSCell* is configured:

4> consider the cell which has a physical cell identity matching the value indicated in the *ServingCellConfigCommon* included in the *reconfigurationWithSync* within the *masterCellGroup* in the received *condRRCReconfig* to be applicable cell; and

4> consider the cell which has a physical cell identity matching the value indicated in the *ServingCellConfigCommon* included in the *reconfigurationWithSync* within the *secondaryCellGroup* within the *nr-SCG* within the received *condRRCReconfig* to be applicable cell;

3> else:

4> consider the cell which has a physical cell identity matching the value indicated in the *ServingCellConfigCommon* included in the *reconfigurationWithSync* within the *masterCellGroup* in the received *condRRCReconfig* to be applicable cell;

2> else if the *RRCReconfiguration* within *condRRCReconfig* includes the *secondaryCellGroup* including the *reconfigurationWithSync*:

3> if the cell which has a physical cell identity matching the value indicated in the *ServingCellConfigCommon* included in the *reconfigurationWithSync* within the *secondaryCellGroup* within the received *condRRCReconfig* is not the PSCell:

4> if *subsequentCondReconfig* is not included for the *condReconfigId*; or

4> if *subsequentCondReconfig* is not included for the PSCell; or

4> if *subsequentCondReconfig* is included for the *condReconfigId* and there is a *subsequentCondReconfig* for the PSCell with a matching *condReconfigId* value in *condExecutionCondToAddModList*:

5> consider the cell to be applicable cell;

2> if *condExecutionCondSCG* is configured:

3> in the remainder of the procedure, consider each *measId* indicated in the *condExecutionCondSCG* as a *measId* in the *VarMeasConfig* associated with the SCG *measConfig*;

2> if the *condExecutionCondPSCell* is configured:

3> in the remainder of the procedure, consider each *measId* indicated in the *condExecutionCondPSCell* as a *measId* in the *VarMeasConfig* associated with the MCG *measConfig*;

2> if *condExecutionCond* is configured:

3> if it is configured via SRB3 or configured within *nr-SCG* or within *nr-SecondaryCellGroupConfig* (specified in TS 36.331[10]) via SRB1:

4> in the remainder of the procedure, consider each *measId* indicated in the *condExecutionCond* as a *measId* in the *VarMeasConfig* associated with the SCG *measConfig*;

3> else:

4> in the remainder of the procedure, consider each *measId* indicated in the *condExecutionCond* as a *measId* in the *VarMeasConfig* associated with the MCG *measConfig*;

2> for each *measId* included in the *measIdList* within *VarMeasConfig* which has a corresponding *measId* in the *condExecutionCond,* *condExecutionCondSCG,* or *condExecutionCondPSCell* of the *condReconfigId:*

3> if *condExecutionCond*, *condExecutionCondSCG*, and *subsequentCondReconfig* are included for the *condReconfigId*;

4> if *subsequentCondReconfig* is included for the *condReconfigId*:

5> ignore the *measId(s)* in the *condExecutionCond* of the *condReconfigId*;

3> if the *condTriggerConfig* is not configured with *nesEvent*:

4> if the *condEventId* is associated with *condEventT1*, and if the entry condition applicable for this event associated with the *condReconfigId*, i.e. the event corresponding with the *condEventId(s)* of the corresponding *condTriggerConfig* within *VarConditionalReconfig*, is fulfilled for the applicable cell; or

4> if the *condEventId* is associated with *condEventD1* or *condEventD2*, and if the entry conditions applicable for this event associated with the *condReconfigId*, i.e. the event corresponding with the *condEventId(s)* of the corresponding *condTriggerConfig* within *VarConditionalReconfig*, is fulfilled for the applicable cell during the corresponding *timeToTrigger* defined for this event within the *VarConditionalReconfig*; or

4> if the *condEventId* is associated with *condEventA3*, *condEventA4* or *condEventA5*, and if the entry condition(s) applicable for this event associated with the *condReconfigId*, i.e. the event corresponding with the *condEventId(s)* of the corresponding *condTriggerConfig* within *VarConditionalReconfig*, is fulfilled for the applicable cells for all measurements after layer 3 filtering taken during the corresponding *timeToTrigger* defined for this event within the *VarConditionalReconfig*:

5> consider the event associated to that *measId* to be fulfilled;

4> if the *measId* for this event associated with the *condReconfigId* has been modified; or

4> if the *condEventId* is associated with *condEventT1*, and if the leaving condition applicable for this event associated with the *condReconfigId*, i.e. the event corresponding with the *condEventId(s)* of the corresponding *condTriggerConfig* within *VarConditionalReconfig*, is fulfilled for the applicable cell; or

4>if the *condEventId* is associated with *condEventD1* or *condEventD2*, and if the leaving condition(s) applicable for this event associated with the *condReconfigId*, i.e. the event corresponding with the *condEventId(s)* of the corresponding *condTriggerConfig* within *VarConditionalReconfig*, is fulfilled for the applicable cell during the corresponding *timeToTrigger* defined for this event within the *VarConditionalReconfig*; or

4> if the *condEventId* is associated with *condEventA3*, *condEventA4* or *condEventA5*, and if the leaving condition(s) applicable for this event associated with the *condReconfigId*, i.e. the event corresponding with the *condEventId(s)* of the corresponding *condTriggerConfig* within *VarConditionalReconfig*, is fulfilled for the applicable cells for all measurements after layer 3 filtering taken during the corresponding *timeToTrigger* defined for this event within the *VarConditionalReconfig*:

5> consider the event associated to that *measId* to be not fulfilled;

3> else:

4> if NES mode indication is received from lower layers, indicating that the NES-specific CHO execution condition of the PCell is enabled; and

4> if the entry condition(s) applicable for this event associated with the *condReconfigId*, i.e. the event corresponding with the *condEventId(s)* of the corresponding *condTriggerConfig* within *VarConditionalReconfig*, is fulfilled for the applicable cells for all measurements after layer 3 filtering taken during the corresponding *timeToTrigger* defined for this event within the *VarConditionalReconfig*:

5> consider the event associated to that *measId* to be fulfilled;

4> if the *measId* for this event associated with the *condReconfigId* has been modified; or

4> if NES mode indication is received from lower layers, indicating that the NES-specific CHO execution condition of the PCell is disabled; or

4> if the leaving condition(s) applicable for this event associated with the *condReconfigId*, i.e. the event corresponding with the *condEventId(s)* of the corresponding *condTriggerConfig* within *VarConditionalReconfig*, is fulfilled for the applicable cells for all measurements after layer 3 filtering taken during the corresponding *timeToTrigger* defined for this event within the *VarConditionalReconfig*:

5> consider the event associated to that *measId* to be not fulfilled;

2> if *condExecutionCondPSCell* is not configured:

3> if event(s) associated to all *measId*(s) within *condTriggerConfig* for the applicable cell are fulfilled:

4> consider the applicable cell, associated to that *condReconfigId*, as a triggered cell;

4> initiate the conditional reconfiguration execution, as specified in 5.3.5.13.5;

2> else:

3> if event(s) associated to all *measId*(s), as indicated in the *condExecutionCond* and *condExecutionCondPSCell,* within *condTriggerConfig* for a target candidate cell within the stored *condRRCReconfig* are fulfilled:

4> consider the target candidate PCell within the stored *condRRCReconfig*, associated to that *condReconfigId*, as a triggered PCell;

4> consider the target candidate PSCell within the stored *condRRCReconfig*, associated to that *condReconfigId*, as a triggered PSCell;

4> initiate the conditional reconfiguration execution, as specified in 5.3.5.13.5.

2> if one of the events associated to the *measId*s within *condTriggerConfig* for the applicable cell within the stored *condRRCReconfig* is not configured with *nesEvent*, and the other event associated to the *measId*s within *condTriggerConfig* for the applicable cell within the stored *condRRCReconfig* is configured with *nesEvent*, and at least one of them is fulfilled:

3> consider the applicable cell within the stored *condRRCReconfig*, associated to that *condReconfigId*, as a triggered cell;

3> initiate the conditional reconfiguration execution, as specified in 5.3.5.13.5;

NOTE 1: Up to 2 *MeasId* can be configured for each *condReconfigId*, if *condExecutionCondPSCell* is not configured*.* The conditional reconfiguration event of the 2 *MeasId* may have the same or different event conditions, triggering quantity, time to trigger, and triggering threshold.

NOTE 2: Void.

NOTE 3: For CHO with candidate SCG(s), up to 2 *MeasId* can be configured for *condExecutionCond* andup to 2 *MeasId* can be configured for *condExecutionCondPSCell* for each *condReconfigId*.

*END OF CHANGES*

*START OF CHANGES*

##### 5.3.5.13.8 Subsequent CPAC execution

Upon the conditional reconfiguration execution for subsequent CPAC, the UE shall:

1> if the selected subsequent CPAC candidate configuration is stored in MCG *VarConditionalReconfig*:

2> for each SRB/DRB in current UE configuration:

- keep the associated RLC, PDCP and SDAP entities, their state variables, buffers and timers;

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

2> release/clear all current dedicated radio configuration except for the following:

- the MCG C-RNTI;

- the AS security configurations associated with the master key and the secondary key;

- the *logicalChannelIdentity* and *logicalChannelIdentityExt* of RLC bearers configured in RLC-BearerConfig and the associated RLC entities, their state variables, buffers, and timers;

- the bh-*LogicalChannelIdentity* of BH RLC channels configured in *BH-RLC-ChannelConfig* and the associated RLC entities, their state variables, buffers, and timers;

- the UE variables *VarConditionalReconfig* and *VarServingSecurityCellSetID.*

- the logged measurement configuration;

2> release/clear all current common radio configuration;

2> apply the default MAC Cell Group configuration for MCG MAC and SCG MAC as specified in 9.2.2;

2> use the default values specified in 9.2.3 for timers T310, T311 and constants N310, N311, where T310, N310, and N311 are for both MCG and SCG, and T311 is only for the MCG;

2> apply the default L1 parameter values as specified in corresponding physical layer specifications for the MCG and SCG;

1> else:

2> for each SRB/DRB in current UE configuration:

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

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

2> release/clear all current dedicated radio configuration associated with the SCG except for the following:

- the AS security configurations associated with the secondary key;

- the UE variables *VarConditionalReconfig*.

2> release/clear all current common radio configuration associated with the SCG;

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

2> use the default values specified in 9.2.3 for timer T310 and constants N310 and N311 for the SCG ;

2> apply the default L1 parameter values as specified in corresponding physical layer specifications for the SCG;

1> if the *securityCellSetId* is included in the entry in *VarConditionalReconfig* containing the *RRCReconfiguration* message:

2> if *servingSecurityCellSetId* is not included within *VarServingSecurityCellSetID*; or

2> if the value of the *securityCellSetId* is not equal to the value of *servingSecurityCellSetId* within *VarServingSecurityCellSetID*:

3> consider the first *sk-Counter* value in the *sk-CounterList* associated with the *securityCellSetId* within the *VarConditionalReconfig* as the selected *sk-Counter* value, and perform security key update procedure as specified in 5.3.5.7;

3> remove the selected *sk-Counter* value from the *sk-CounterList* associated with the *securityCellSetId* within the *VarConditionalReconfig*;

3> if the current *VarServingSecurityCellSetID* includes *servingSecurityCellSetId*:

4> replace the value of *servingSecurityCellSetId* within *VarServingSecurityCellSetID* with the value of *securityCellSetId* associated with the selected cell;

3> else:

4> store the *servingSecurityCellSetId* within *VarServingSecurityCellSetID* with the value of *securityCellSetId* associated with the selected cell;

1> if the selected subsequent CPAC candidate configuration is stored in the SCG *VarConditionalReconfig*:

2> for each *drb-Identity* value included in each *RadioBearerConfig* in the selected subsequent CPAC candidate configuration that is part of the current UE configuration, the UE shall perform the following actions after the end of this procedure:

3> if the bearer is an AM DRB:

4> trigger the PDCP entity of the bearer to perform PDCP data recovery as specified in TS 38.323 [5];

3> re-establish the corresponding RLC entity as specified in TS 38.322 [4];

1> else:

2> for each *drb-Identity* value included in each *RadioBearerConfig* in the selected subsequent CPAC candidate configuration that is part of the current UE configuration, the UE shall perform the following actions after the end of this procedure:

3> if the *keyToUse* in the *RadioBearerConfig* is different from the *keyToUse* in the current UE configuration;or

3> if the bearer is associated with the secondary key (S-KgNB) as indicated by *keyToUse* in the current UE configuration and a new *sk-Counter* value has been selected due to the conditional reconfiguration execution for subsequent CPAC:

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 the 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 corresponding RLC entity as specified in TS 38.322 [4];

4> trigger the PDCP entity of the bearer to perform PDCP re-establishment as specified in TS 38.323 [5];

3> else:

4> if there is an associated SCG RLC bearer in the selected subsequent CPAC candidate configuration that is part of the current UE configuration:

5> re-establish the SCG RLC entity as specified in TS 38.322 [4];

4> if the RLC entity of the associated RLC bearer(s) is re-established; or

4> if an associated RLC bearer is released in the selected subsequent CPAC candidate configuration:

5> if the bearer is an AM DRB:

6> trigger the PDCP entity of the bearer to perform PDCP data recovery as specified in TS 38.323 [5];

2> for each *srb-Identity* included in *RadioBearerConfig* that is part of the current UE configuration and if the radio bearer is SRB3 and SRB5, the UE shall perform the following actions after the end of this procedure:

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

4> configure the PDCP entity to apply the integrity protection algorithm and KRRCint key associated with 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 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> trigger the PDCP entity of SRB to perform PDCP re-establishment 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];

3> re-establish the corresponding RLC entity as specified in TS 38.322 [4];

1> if *scpac-ConfigComplete* is not included within the *VarConditionalReconfig* for the selected cell:

2> if the subsequent CPAC candidate cell configuration is stored in MCG *VarConditionalReconfig*:

3> consider *scpac-ReferenceConfiguration* in MCG *VarConditionalReconfig* to be the current UE configuration;

2> else:

3> consider *scpac-ReferenceConfiguration* in SCG *VarConditionalReconfig* to be the current SCG configuration;

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.

1> apply the stored *condRRCReconfig* of the selected cell(s) and perform the actions as specified in 5.3.5.3;

1> release the radio bearer(s) and the associated logical channel(s) that are part of the current UE configuration but not part of the subsequent CPAC candidate configuration for the selected cell, or the subsequent CPAC reference configuration (in case the subsequent CPAC candidate configuration does not include *scpac-ConfigComplete*).

NOTE 2: When *scpac-ConfigComplete* is not included for the selected cell, before a subsequent CPAC execution, a UE implementation may generate and store an RRC reconfiguration message by applying the received subsequent CPAC candidate configuration on top of the subsequent CPAC reference configuration, and the stored RRC reconfiguration message is applied for subsequent CPAC execution. The UE needs to ensure that the RRC reconfiguration applied at the time of subsequent CPAC execution is in accordance with the latest received *scpac-ReferenceConfiguration* and *condRRCReconfig* for the subsequent CPAC configuration.

*END OF CHANGES*

*START OF CHANGES*

##### 5.3.5.18.3 LTM candidate configuration addition/modification

The UE shall:

1> for each *ltm-CandidateId* valueincluded in the *ltm-CandidateToAddModList*:

2> if the current UE configuration contains an *LTM-Candidate* with the *ltm-CandidateId* value:

3> reconfigure the corresponding *LTM-Candidate* in accordance with the received *LTM-Candidate*;

2> else:

3> add the received *LTM-Candidate*;

2> if the *LTM-Candidate* with the received *ltm-CandidateId* value includes *ltm-UE-MeasuredTA-ID*:

3> if the value of *ltm-UE-MeasuredTA-ID* is equal to the value of *ltm-ServingCellUE-MeasuredTA-ID* within *VarLTM-ServingCellUE-MeasuredTA-ID*:

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

3> else:

4> inform lower layers that the UE is not configured with UE-based TA measurements for this *LTM-Candidate*.

2> else:

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

*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, the UE shall:

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

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*;

- the *ltm-Config*;

- the MCG C-RNTI;

- the AS security configurations associated with the master key;

- the logged measurement configuration;

1> else, 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*;

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 for which the LTM cell switch procedure is triggered, 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 for which the LTM cell switch procedure is triggered;

1> for each *srb-Identity* in the current UE configuration:

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

1> if the *LTM-Candidate* IEin *ltm-Config* indicated by lower layers or for the selected cell in accordance with 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

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

2> 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:

3> if *servedRadioBearer* is set to *drb-Identity*:

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* IEin *ltm-Config*;

2> 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:

3> 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*;

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

3> if this DRB is an AM DRB:

4> 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* IEin *ltm-Config*;

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

1> if the *LTM-Candidate* IEin *ltm-Config* indicated by lower layers or for the selected cell in accordance with 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*:

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

1> else if the *LTM-Candidate* IEin *ltm-Config* indicated by lower layers or for the selected cell in accordance with 5.3.7.3 does not contain the field *ltm-UE-MeasuredTA-ID*:

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

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

2> consider *ltm-ReferenceConfiguration* in *ltm-Config*, 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*;

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

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

1> release the radio bearer(s) and the logical channel(s) that were part of the UE configuration before of 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 5.3.7.3, or the LTM reference configuration (in case the LTM candidate configuration does not include *ltm-ConfigComplete*).

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*

### 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 OPTIONAL,

 nonCriticalExtension RRCReconfiguration-v1530-IEs OPTIONAL

}

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 N

 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 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

-- 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. |
| ***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 to the L2 U2N Relay UE in RRC\_CONNECTED. |
| ***dedicatedPosSysInfoDelivery***This field is used to transfer *SIBPos* to the UE in RRC\_CONNECTED. |
| ***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* 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 configure this field in case the *RRCReconfiguration* message is part of an *LTM-Candidate* 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. |
| ***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. In case the *RRCReconfiguration* message is part of an *LTM-Candidate* IE associated with the MCG, if this field is present its value can only be set to *release*. |
| ***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 not supporting *musim-GapPriorityPreference*, the network does not configure MUSIM gap together with concurrent measurement gap. |
| ***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] |
| ***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* and *sn-InitiatedPSCellChange* 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. |
| ***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. |
| ***sl-ConfigDedicatedNR***This field is used to provide the dedicated configurations for NR sidelink communication/discovery/positioning. |
| ***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*. |
| ***srs-PosResourceSetLinkedForAggBWList***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]. |
| ***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. |
| ***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 *LTM-Candidate* 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. |

*END OF CHANGES*

*START OF CHANGES*

### 6.3.2 Radio resource control information elements

#### – *CandidateTCI-State*

The IE *CandidateTCI-State* defines a TCI states configuration which associate one or more reference signal with a corresponding quasi-colocation (QCL) type.

*CandidateTCI-State* information element

-- ASN1START

-- TAG-CANDIDATETCI-STATE-START

CandidateTCI-State-r18 ::= SEQUENCE {

 tci-StateId-r18 TCI-StateId,

 qcl-Type1-r18 LTM-QCL-Info-r18,

 qcl-Type2-r18 LTM-QCL-Info-r18 OPTIONAL, -- Need R

 pathlossReferenceRS-Id-r18 PathlossReferenceRS-Id-r17 OPTIONAL, -- Need Joint

 tag-Id-ptr-r18 ENUMERATED {n0,n1} OPTIONAL, -- Cond 2TA

 ul-PowerControl-r18 Uplink-powerControlId-r17 OPTIONAL, -- Need R

 ...

}

LTM-QCL-Info-r18 ::= SEQUENCE {

 referenceSignal-r18 CHOICE {

 ssb-Index SSB-Index,

 csi-RS-Index NZP-CSI-RS-ResourceId

 },

 qcl-Type-r18 ENUMERATED {typeA, typeB, typeC, typeD},

 ...

}

-- TAG-CANDIDATETCI-STATE-STOP

-- ASN1STOP

|  |
| --- |
| *CandidateTCI-State* field descriptions |
| ***pathlossReferenceRS-Id***Indicates a *PathlossReferenceRS* of the candidate that includes this *CandidateTCI-State* and it refers to one of the *PathlossReferenceRS* configured within *LTM-TCI-Info*. In this version of the specification only SSB can be included as reference signal when *PathlossReferenceRS* is included within a *CandidateTCI-State* IE. |
| ***qcl-Type1, qcl-Type2***QCL information for the TCI state. |
| ***tci-StateId***The ID number of the TCI state. |
| ***ul-PowerControl***Indicates the UL power control parameters for PUSCH, PUCCH, and SRS of the candidate that includes this *CandidateTCI-State*. The field is present only if *ul-powerControl* is not configured in any *BWP-Uplink-Dedicated* of the *SpCellConfig* in *ltm-CandidateConfig*. |

|  |
| --- |
| *LTM-QCL-Info field descriptions* |
| ***referenceSignal***The field *csi-RS-Index* refers to one of the *NZP-CSI-RS-Resource* configured within *LTM-TCI-Info*. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *2TA* | This field is mandatory present if *tag2* is present in the *SpCellConfig* in *ltm-CandidateConfig* and *unifiedTCI-StateType* in the *ltm-TCI-Info* in the *ltm-CandidateConfiguration* is set to *joint*. It is absent, Need R, otherwise. |
| *Joint* | This field is mandatory present, if *unifiedTCI-StateType* in the *ltm-TCI-Info* in the *ltm-CandidateConfiguration* *is* set to *joint*. It is absent, Need R, otherwise. |
| *Joint2* | This field is optionally present, Need R, if *unifiedTCI-StateType* in the *ltm-TCI-Info* in the *ltm-CandidateConfiguration* *is* set to *joint*. It is absent, otherwise. |

#### – *CandidateTCI-UL-State*

The IE *CandidateTCI-UL-State* defines an uplink TCI states configuration.

*CandidateTCI-UL-State* information element

-- ASN1START

-- TAG-CANDIDATETCI-UL-STATE-START

CandidateTCI-UL-State-r18 ::= SEQUENCE {

 tci-UL-StateId-r18 TCI-UL-StateId-r17,

 referenceSignal-r18 CHOICE {

 ssb-Index SSB-Index,

 csi-RS-Index NZP-CSI-RS-ResourceId

 },

 pathlossReferenceRS-Id-r18 PathlossReferenceRS-Id-r17 OPTIONAL, -- Need R

 tag-Id-ptr-r18 ENUMERATED {n0,n1} OPTIONAL, -- Cond 2TA

 ul-PowerControl-r18 Uplink-powerControlId-r17 OPTIONAL, -- Need R

 ...

}

-- TAG-CANDIDATETCI-UL-STATE-STOP

-- ASN1STOP

|  |
| --- |
| *CandidateTCI-UL-State* field descriptions |
| ***csi-RS-Index***Indicates an *NZP-CSI-RS-Resource* of the LTM candidate that includes this *CandidateTCI-UL-State*. |
| ***pathlossReferenceRS-Id***Indicates a *PathlossReferenceRS* of the LTM candidate that includes this *CandidateTCI-UL-State* and it refers to one of the *PathlossReferenceRS* configured within *LTM-TCI-Info*. In this version of the specification only SSB can be included as reference signal when *PathlossReferenceRS* is included within a *CandidateTCI-State* IE. |
| ***referenceSignal***Reference signal with which spatial relation information is provided. The field *csi-RS-Index* refers to one of the *NZP-CSI-RS-Resource* configured within *LTM-TCI-Info*. |
| ***ssb-Index***The index of a SSB/PBCH block as indicated in *ltm-SSB-Config* of the LTM candidate that includes this *CandidateTCI-UL-State*. |
| ***tci-UL-StateID***The ID number of the uplink TCI state. |
| ***ul-PowerControl***Indicates the UL power control parameters for PUSCH, PUCCH, and SRS of the candidate that includes this *CandidateTCI-State*. The field is present only if *ul-powerControl* is not configured in any *BWP-Uplink-Dedicated* of the *SpCellConfig* in *ltm-CandidateConfig*. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *2TA* | This field is mandatory present if *tag2* is present in the *SpCellConfig* in *ltm-CandidateConfiguration*. It is absent, Need R, otherwise. |

#### – *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, -- Need R

 timeReferenceHyperSFN-r18 INTEGER (0..1023) OPTIONAL, -- Need R

 cg-RRC-Configuration-r18 CG-RRC-Configuration-r18 OPTIONAL, -- Cond RACH-LessHO

 applyIndicatedTCI-State-r18 ENUMERATED {first, second, both, spare1} 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

 ]]

}

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***Indicates that the UE shall disable waking-up to monitor possible grants for retransmissions corresponding to this *ConfiguredGrantConfig* when DRX is configured. 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). |
| ***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)*. |
| ***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. |
| ***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, the UE does not use 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. |
| ***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). |
| ***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***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. |
| ***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-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). |
| ***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***Indicates the SRS resource to be used. The network does not configure this for CG-SDT or if *cg-RRC-Configuration* is configured. |
| ***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. |
| ***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. |
| ***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 case *CG-RRC-Configuration* IE is received as part of an LTM-Candidate IE. |
| ***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 case *CG-RRC-Configuration* IE is received as part of an *LTM-Candidate* IE. |
| ***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 case *CG-RRC-Configuration* IE is received as part of an *LTM-Candidate* IE. |

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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. |
| *LTM* | The field is optionally present, Need R, if the UE is configured with at least an LTM candidate configuration. 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. Otherwise it is absent, Need R |

#### – *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

 ...

}

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 R

 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

 ...

}

-- TAG-LTM-CANDIDATE-STOP

-- ASN1STOP

|  |
| --- |
| *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-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*. |
| ***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*. This field is absent if *tag2* is present for this LTM candidate configuration. |

#### – *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

 ...

}

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 R

 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

 ...

}

-- TAG-LTM-CANDIDATE-STOP

-- ASN1STOP

|  |
| --- |
| *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-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*. |
| ***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. |

#### – *LTM-CSI-ReportConfig*

The IE *LTM-CSI-ReportConfig* is used to configure report on the cell in which the *LTM-CSI-ReportConfig* is included.

*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 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)

 },

 ...

 },

 ltm-ReportContent-r18 LTM-ReportContent-r18,

 ...

}

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

}

-- TAG-LTM-CSI-REPORTCONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *LTM-CSI-ReportConfig* field descriptions |
| ***ltm-ReportContent***This field defines the content of the LTM L1 measurement report. |
| ***reportSlotConfig***Periodicity and slot offset (see TS 38.214 [19], clause 5.2.1.4). |
| ***reportSlotOffsetList, reportSlotOffsetListDCI-0-1***, ***reportSlotOffsetListDCI-0-2***Timing offset Y for semi persistent reporting using PUSCH and aperiodic reporting. |

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| --- |
| *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 if the LTM-CSI-ReportConfig IE includes SpCell resources. |

#### – *LTM-TCI-Info*

The IE *LTM-TCI-Info* is used to configure TCI related information for an LTM candidate configuration to be used during activation of TCI state(s) and/or upon the reception of the LTM Cell Switch procedure.

*LTM-TCI-Info* information element

-- ASN1START

-- TAG-LTM-TCI-INFO-START

LTM-TCI-Info-r18 ::= SEQUENCE {

 ltm-DL-OrJointTCI-StateToAddModList-r18 SEQUENCE (SIZE (1..maxNrofCandidateTCI-State-r18)) OF CandidateTCI-State-r18

 OPTIONAL, -- Need N

 ltm-DL-OrJointTCI-StateToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofCandidateTCI-State-r18)) OF TCI-StateId

 OPTIONAL, -- Need N

 ltm-UL-TCI-StateToAddModList-r18 SEQUENCE (SIZE (1..maxNrofCandidateUL-TCI-r18)) OF CandidateTCI-UL-State-r18

 OPTIONAL, -- Need N

 ltm-UL-TCI-StateToReleaseList-r18 SEQUENCE (SIZE (1.. maxNrofCandidateUL-TCI-r18)) OF TCI-UL-StateId-r17

 OPTIONAL, -- Need N

 ltm-NZP-CSI-RS-ResourceToAddModList-r18 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-Resources)) OF NZP-CSI-RS-Resource

 OPTIONAL, -- Need N

 ltm-NZP-CSI-RS-ResourceToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-Resources)) OF NZP-CSI-RS-ResourceId

 OPTIONAL, -- Need N

 ltm-NZP-CSI-RS-ResourceSetToAddModList-r18 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourceSets)) OF NZP-CSI-RS-ResourceSet

 OPTIONAL, -- Need N

 ltm-NZP-CSI-RS-ResourceSetToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourceSets)) OF NZP-CSI-RS-ResourceSetId

 OPTIONAL, -- Need N

 pathlossReferenceRS-ToAddModList-r18 SEQUENCE (SIZE (1..maxNrofPathlossReferenceRSs-r17)) OF PathlossReferenceRS-r17

 OPTIONAL, -- Need N

 pathlossReferenceRS-ToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofPathlossReferenceRSs-r17)) OF PathlossReferenceRS-Id-r17

 OPTIONAL, -- Need N

 unifiedTCI-StateType-r18 ENUMERATED {separate, joint} OPTIONAL, -- Need R

 ...

}

-- TAG-LTM-TCI-INFO-STOP

-- ASN1STOP

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| --- |
| *LTM-TCI-Info* field descriptions |
| ***unifiedTCI-StateType***Indicates the unified TCI states type the UE is configured for this LTM candidate configuration. The value *separate* means this LTM candidate configuration is configured with *ltm-DL-OrJointTCI-StateToAddModList* for DL TCI states and *ltm-UL-TCI-StateToAddModList* for UL TCI states. The value *joint* means this LTM candidate configuration is configured with *ltm-DL-OrJointTCI-StateToAddModList* for joint TCI states for UL and DL operation. In this version of the specification, the network always configures this field. |

*END OF CHANGES*