**3GPP TSG-RAN WG2 Meeting #119-bis-e *R2-221xxxx***

**E-meeting, 10 – 19 Oct 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.331** | **CR** | **3549** | **rev** | **1** | **Current version:** | **17.2.0** |  |
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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:*** | Miscellaneous RRC CR for SL relay | | | | | | | | | |
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| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_SL\_Relay-Core | | | | |  | ***Date:*** | | | 2022-10-09 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
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| ***Reason for change:*** | | During RRC re-establishment procedure, upon selecting a suitable L2 U2N Relay UE, a L2 U2N Remote UE will establish SRAP as specified in 5.3.7.3a. So the establishment of SRAP in 5.3.7.4 related to transmission of *RRCReestablishmentRequest* is duplicated.  “Discovery” is missing in one bullet in 5.8.6.2.  [To be updated] | | | | | | | | |
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| ***Summary of change:*** | | In clause 5.3.7.4,   * Remove “establish the SRAP entity and”   In clause 5.8.6.2,   * Add “discovery” besides communication   [To be updated]  **Impact analysis**  Impacted 5G architecture options:  NR SA  Impacted functionality  SL relay  Inter-operability:  There is no inter-operability issue. [To be updated] | | | | | | | | |
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| ***Consequences if not approved:*** | | Duplication exists in the specification. | | | | | | | | |
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| ***Clauses affected:*** | | 5.3.7.4, 5.8.6.2[To be updated], 5.3.3.8 | | | | | | | | |
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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 ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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| START OF CHANGES |

#### 5.3.3.8 Abortion of RRC connection establishment

If upper layers abort the RRC connection establishment procedure, due to a NAS procedure being aborted as specified in TS 24.501 [23], while the UE has not yet entered RRC\_CONNECTED, the UE shall:

1> stop timer T300, if running;

1> reset MAC, release the MAC configuration and re-establish RLC for all RBs that are established.

The L2 U2N Relay UE either indicates to upper layers (to trigger PC5 unicast link release) or sends Notification message to the connected L2 U2N Remote UE(s) in accordance with 5.8.9.10.

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| NEXT CHANGE |

#### 5.3.5.2 Initiation

The Network may initiate the RRC reconfiguration procedure to a UE in RRC\_CONNECTED. The Network applies the procedure as follows:

- the establishment of RBs (other than SRB1, that is established during RRC connection establishment) is performed only when AS security has been activated;

- the establishment of BH RLC Channels for IAB is performed only when AS security has been activated;

- the establishment of Uu Relay RLC channels and PC5 Relay RLC channels (other than SL-RLC0 and SL-RLC1) for L2 U2N Relay UE is performed only when AS security has been activated, and the establishment of PC5 Relay RLC channels for L2 U2N Remote UE (other than SL-RLC0 and SL-RLC1) is performed only when AS security has been activated;

- the addition of Secondary Cell Group and SCells is performed only when AS security has been activated;

- the *reconfigurationWithSync* is included in *secondaryCellGroup* only when at least one RLC bearer or BH RLC channel is setup in SCG;

- the *reconfigurationWithSync* is included in *masterCellGroup* only when AS security has been activated, and SRB2 with at least one DRB or multicast MRB or, for IAB, SRB2, are setup and not suspended;

- the *conditionalReconfiguration* for CPC is included only when at least one RLC bearer is setup in SCG;

- the *conditionalReconfiguration* for CHO or CPA is included only when AS security has been activated, and SRB2 with at least one DRB or multicast MRB or, for IAB, SRB2, are setup and not suspended.

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| NEXT CHANGE |

5.3.5.3 Reception of an *RRCReconfiguration* by the UE

The UE shall perform the following actions upon reception of the *RRCReconfiguration,* or upon execution of the conditional reconfiguration (CHO, CPA or CPC):

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 within the MCG and the SCG *VarConditionalReconfig*, 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 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;

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 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;

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;

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

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;

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*:

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:

4> if T330 timer is running and the logged measurements configuration is for NR:

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

4> else:

5> if the UE has logged measurements available for NR:

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*:

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]:

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

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

3> 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:

4> 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;

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*:

4> include *successHO-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:

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;

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;

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 *RRCConnectionReconfiguration* message or E-UTRA *RRCConnectionResume* message 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 which is configured via *conditionalReconfiguration* contained in *nr-SCG* within *mrdc-SecondaryCellGroup*:

3> submit the *RRCReconfigurationComplete* message via the NR MCG 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> initiate the Random Access procedure on the PSCell, as specified in TS 38.321 [3];

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];

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> 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* 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 *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):

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

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

3> stop timer T420;

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

3> reset MAC used in the source cell;

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 *reconfigurationWithSync* was included in *spCellConfig* of an MCG; or

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

3> remove all the entries within the MCG and the SCG *VarConditionalReconfig*, 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> for the associated *reportConfigId*:

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*:

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, 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) or the leave without response timer for the MUSIM associated with the concerned UE assistance information with the timer value set to the value in corresponding configuration;

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;

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

3> if configured with application layer measurements and if application layer measurement report container has been received from upper layers for which the successful transmission of the message or at least one segment of the message has not been confirmed by lower layers:

4> re-submit the *MeasurementReportAppLayer* message or all segments of the *MeasurementReportAppLayer* message to lower layers for transmission via SRB4;

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

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.

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| NEXT CHANGE |

5.3.5.11 Full configuration

The UE shall:

1> release/ clear all current dedicated radio configurations except for the following:

- the MCG C-RNTI;

- the AS security configurations associated with the master key;

- the SRB1/SRB2 configurations and DRB/multicast MRB configurations as configured by *radioBearerConfig* or *radioBearerConfig2*.

NOTE 1: Radio configuration is not just the resource configuration but includes other configurations like *MeasConfig*. Radio configuration also includes the RLC bearer configurations as configured by *RLC-BearerConfig*, PC5 Relay RLC channel as configured by *SL-RLC-ChannelConfig*, and Uu Relay RLC channel as configured by *Uu-RelayRLC-ChannelConfig*. In case NR-DC or NE-DC is configured, this also includes the entire NR or E-UTRA SCG configuration which are released according to the MR-DC release procedure as specified in 5.3.5.10.

NOTE 1a: For NR sidelink communication/discovery, the radio configuration includes the sidelink RRC configuration received from the network, but does not include the sidelink RRC reconfiguration and sidelink UE capability received from other UEs via PC5-RRC. In addition, the UE considers the new NR sidelink configurations as full configuration, in case of state transition and change of system information used for NR sidelink communication/discovery.

NOTE 1b: To establish the RLC bearer of SRB(s) after release due to *fullConfig*, the network can include the *srb-Identity* within *srb-ToAddModList* (i.e. the UE applies RLC default configuration) and/or provide *rlc-BearerToAddModList* of concerned SRB(s) explicitly.

- the logged measurement configuration;

1> if the *spCellConfig* in the *masterCellGroup* includes the *reconfigurationWithSync*:

2> release/ clear all current common radio configurations;

2> use the default values specified in 9.2.3 for timers T310, T311 and constants N310, N311;

1> else (full configuration after re-establishment or during RRC resume):

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

3> use value for timer T311, as included in *ue-TimersAndConstants* received in *SIB1*

2> else:

3> use values for timers T301, T310, T311 and constants N310, N311, as included in *ue-TimersAndConstants* received in *SIB1*;

1> if no *measConfigAppLayerId* is included:

2> inform upper layers about the release of all application layer measurement configurations;

2> discard any received application layer measurement report from upper layers;

2> consider itself not to be configured to send application layer measurement report.

1> if the UE is not acting as L2 U2N Remote UE:

2> apply the default L1 parameter values as specified in corresponding physical layer specifications except for the following:

- parameters for which values are provided in *SIB1*;

2> apply the default MAC Cell Group configuration as specified in 9.2.22;

2> for each *srb-Identity* value included in the *srb-ToAddModList* (SRB reconfiguration):

3> establish an RLC entity for the corresponding SRB;

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

NOTE 2: This is to get the SRBs (SRB1 and SRB2 for reconfiguration with sync and SRB2 for resume and reconfiguration after re-establishment) to a known state from which the reconfiguration message can do further configuration.

1> for each *pdu-Session* that is part of the current UE configuration:

2> release the SDAP entity (clause 5.1.2 in TS 37.324 [24]);

2> release each DRB associated to the *pdu-Session* as specified in 5.3.5.6.4;

NOTE 3: This will retain the *pdu-Session* but remove the DRBs including *drb-identity* of these bearers from the current UE configuration. Setup of the DRBs within the AS is described in clause 5.3.5.6.5 using the new configuration. The *pdu-Session* acts as the anchor for associating the released and re-setup DRB. In the AS the DRB re-setup is equivalent with a new DRB setup (including new PDCP and logical channel configurations).

1> for each *mbs-SessionId* that is part of the current UE configuration:

2> release the SDAP entity (clause 5.1.2 in TS 37.324 [24]);

2> release each multicast MRB associated to the *mbs-SessionId* as specified in 5.3.5.6.6;

NOTE 4: This will retain the *mbs-SessionId* but remove the multicast MRBs including *mrb-identity* of these bearers from the current UE configuration. Setup of the multicast MRBs within the AS is described in clause 5.3.5.6.7 using the new configuration. The *mbs-SessionId* acts as the anchor for associating the released and re-setup multicast MRB. In the AS the multicast MRB re-setup is equivalent with a new multicast MRB setup (including new PDCP and logical channel configurations).

1> for each *pdu-Session* that is part of the current UE configuration but not added with same *pdu-Session* in the *drb-ToAddModList*:

2> if the procedure was triggered due to reconfiguration with sync:

3> indicate the release of the user plane resources for the *pdu-Session* to upper layers after successful reconfiguration with sync;

2> else:

3> indicate the release of the user plane resources for the *pdu-Session* to upper layers immediately;

1> for each *mbs-SessionId* that is part of the current UE configuration but not added with the same *mbs-SessionId* in the *mrb-ToAddModList*:

2> if the procedure was triggered due to reconfiguration with sync:

3> indicate the release of the user plane resources for the *mbs-SessionId* to upper layers after successful reconfiguration with sync;

2> else:

3> indicate the release of the user plane resources for the *mbs-SessionId* to upper layers immediately.

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| NEXT CHANGE |

#### 5.3.5.14 Sidelink dedicated configuration

Upon initiating the procedure, the UE shall:

1> if *sl-FreqInfoToReleaseList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> for each entry included in the received *sl-FreqInfoToReleaseList* that is part of the current UE configuration:

3> release the related configurations from the stored NR sidelink communication/discovery configurations;

1> if *sl-FreqInfoToAddModList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> if configured to receive NR sidelink communication:

3> use the resource pool(s) indicated by *sl-RxPool* for NR sidelink communication reception, as specified in 5.8.7;

2> if configured to transmit NR sidelink communication:

3> use the resource pool(s) indicated by *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling* or *sl-TxPoolExceptional* for NR sidelink communication transmission, as specified in 5.8.8;

2> if configured to receive NR sidelink discovery:

3> use the resource pool(s) indicated by *sl-DiscRxPool* or *sl-RxPool* for NR sidelink discovery reception, as specified in 5.8.13.2;

2> if configured to transmit NR sidelink discovery:

3> use the resource pool(s) indicated by *sl-DiscTxPoolSelected*, *sl-DiscTxPoolScheduling*, *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling* or *sl-TxPoolExceptional* for NR sidelink discovery transmission, as specified in 5.8.13.3;

2> perform CBR measurement on the transmission resource pool(s) indicated by *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling*, *sl-DiscTxPoolSelected, sl-DiscTxPoolScheduling* or *sl-TxPoolExceptional* for NR sidelink communication/discovery transmission, as specified in 5.5.3;

2> use the synchronization configuration parameters for NR sidelink communication/discovery on frequencies included in *sl-FreqInfoToAddModList*, as specified in 5.8.5;

1> if *sl-RadioBearerToReleaseList* or *sl-RLC-BearerToReleaseList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> perform sidelink DRB release as specified in 5.8.9.1a.1;

1> if *sl-RadioBearerToAddModList* or *sl-RLC-BearerToAddModList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> perform sidelink DRB addition/modification as specified in 5.8.9.1a.2;

1> if *sl-ScheduledConfig* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> configure the MAC entity parameters, which are to be used for NR sidelink communication/discovery, in accordance with the received *sl-ScheduledConfig*;

1> if *sl-UE-SelectedConfig* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> configure the parameters, which are to be used for NR sidelink communication/discovery, in accordance with the received *sl-UE-SelectedConfig*;

1> if *sl-MeasConfigInfoToReleaseList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> for each *SL-DestinationIndex* included in the received *sl-MeasConfigInfoToReleaseList* that is part of the current UE configuration:

3> remove the entry with the matching *SL-DestinationIndex* from the stored NR sidelink measurement configuration information;

1> if *sl-MeasConfigInfoToAddModList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> for each *sl-DestinationIndex* included in the received *sl-MeasConfigInfoToAddModList* that is part of the current stored NR sidelink measurement configuration:

3> reconfigure the entry according to the value received for this *sl-DestinationIndex* from the stored NR sidelink measurement configuration information;

2> for each *sl-DestinationIndex* included in the received *sl-MeasConfigInfoToAddModList* that is not part of the current stored NR sidelink measurement configuration:

3> add a new entry for this *sl-DestinationIndex* to the stored NR sidelink measurement configuration.

1> if *sl-DRX-ConfigUC-ToReleaseList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> for each *SL-DestinationIndex* included in the received *sl-DRX-ConfigUC-ToReleaseList* that is part of the current UE configuration:

3> remove the entry with the matching *SL-DestinationIndex* from the stored NR sidelink DRX configuration information;

1> if *sl-DRX-ConfigUC-ToAddModList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> for each *sl-DestinationIndex* included in the received *sl-DRX-ConfigUC-ToAddModList* that is part of the current stored NR sidelink DRX configuration:

3> reconfigure the entry according to the value received for this *sl-DestinationIndex* from the stored NR sidelink DRX configuration information;

2> for each *sl-DestinationIndex* included in the received *sl-DRX-ConfigUC-ToAddModList* that is not part of the current stored NR sidelink DRX configuration:

3> add a new entry for this *sl-DestinationIndex* to the stored NR sidelink DRX configuration.

1> if *sl-RLC-ChannelToReleaseList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> perform PC5 Relay RLC channel release as specified in 5.8.9.7.1;

1> if *sl-RLC-ChannelToAddModList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> perform PC5 Relay RLC channel addition/modification as specified in 5.8.9.7.2;

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| NEXT CHANGE |

5.3.5.15.3 L2 U2N Remote UE Addition/Modification

The L2 U2N Relay UE shall:

1> if no SRAP entity has been established:

2> establish a SRAP entity as specified in TS 38.351 [66];

1> for each *sl-L2IdentityRemote* value included in the *sl-RemoteUE-ToAddModList* that is not part of the current UE configuration (L2 U2N Remote UE Addition):

2> configure the parameters to SRAP entity in accordance with the *sl-SRAP-Config-Relay*;

2> if SRB1 is included in *sl-MappingToAddModList*, and either the dedicated PC5 Relay RLC channel configuration associated with SRB1 is released or no dedicated PC5 Relay RLC channel configuration associated with SRB1 included in the same *RRCReconfiguration* message,

3> apply the default configuration of SL-RLC1 as specified in clause 9.2.4 and associate it with the SRB1;

2> else if SRB1 is included in *sl-MappingToAddModList*, and dedicated PC5 Relay RLC channel configuration associated with SRB1 is included in the same *RRCReconfiguration* message:

3> release SL-RLC1 if established;

3> apply the dedicated configuration for the PC5 Relay RLC channel in accordance with 5.8.9.7.2 and associate it with SRB1;

1> for each *sl-L2IdentityRemote* value included in the *sl-RemoteUE-ToAddModList* that is part of the current UE configuration (L2 U2N Remote UE modification):

2> modify the configuration in accordance with the *sl-SRAP-Config-Relay*;

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| NEXT CHANGE |

#### 5.3.5.16 L2 U2N Remote UE configuration

The network configures the L2 U2N Remote UE with relay operation related configurations, e.g. SRAP configuration.

The UE performs the following actions:

1> if the *sl-L2RemoteUE-Config* contains the *sl-SRAP-ConfigRemote:*

2> if no SRAP entity has been established:

3> establish a SRAP entity as specified in TS 38.351 [66];

2> configure the parameters to SRAP entity in accordance with the *sl-SRAP-ConfigRemote*;

2> if SRB1 is included in *sl-MappingToAddModList*, and dedicated PC5 Relay RLC channel configuration associated with SRB1 is included in the same *RRCReconfiguration* message:

3> release SL-RLC1 if established;

3> apply the dedicated configuration for the PC5 Relay RLC channel in accordance with 5.8.9.7.2 and associate it with SRB1;

1> if the *sl-L2RemoteUE-Config* contains the *sl-UEIdentityRemote:*

2> use the value of the *sl-UEIdentityRemote* as the C-RNTI in the PCell.

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| NEXT CHANGE |

5.3.7.2 Initiation

The UE initiates the procedure when one of the following conditions is met:

1> upon detecting radio link failure of the MCG and *t316* is not configured, in accordance with 5.3.10; or

1> upon detecting radio link failure of the MCG while SCG transmission is suspended, in accordance with 5.3.10; or

1> upon detecting radio link failure of the MCG while PSCell change or PSCell addition is ongoing, in accordance with 5.3.10; or

1> upon detecting radio link failure of the MCG while the SCG is deactivated, in accordance with 5.3.10; or

1> upon re-configuration with sync failure of the MCG, in accordance with clause 5.3.5.8.3; or

1> upon mobility from NR failure, in accordance with clause 5.4.3.5; or

1> upon integrity check failure indication from lower layers concerning SRB1 or SRB2, except if the integrity check failure is detected on the *RRCReestablishment* message; or

1> upon an RRC connection reconfiguration failure, in accordance with clause 5.3.5.8.2; or

1> upon detecting radio link failure for the SCG while MCG transmission is suspended, in accordance with clause 5.3.10.3 in NR-DC or in accordance with TS 36.331 [10] clause 5.3.11.3 in NE-DC; or

1> upon reconfiguration with sync failure of the SCG while MCG transmission is suspended in accordance with clause 5.3.5.8.3; or

1> upon SCG change failure while MCG transmission is suspended in accordance with TS 36.331 [10] clause 5.3.5.7a; or

1> upon SCG configuration failure while MCG transmission is suspended in accordance with clause 5.3.5.8.2 in NR-DC or in accordance with TS 36.331 [10] clause 5.3.5.5 in NE-DC; or

1> upon integrity check failure indication from SCG lower layers concerning SRB3 while MCG is suspended; or

1> upon T316 expiry, in accordance with clause 5.7.3b.5; or

1> upon detecting sidelink radio link failure by L2 U2N Remote UE in RRC\_CONNECTED, in accordance with clause 5.8.9.3; or

1> upon reception of *NotificationMessageSidelink* including *indicationType* by L2 U2N Remote UE in RRC\_CONNECTED, in accordance with clause 5.8.9.10; or

1> upon PC5 unicast link release indicated by upper layer at L2 U2N Remote UE in RRC\_CONNECTED.

Upon initiation of the procedure, the UE shall:

1> stop timer T310, if running;

1> stop timer T312, if running;

1> stop timer T304, if running;

1> start timer T311;

1> stop timer T316, if running;

1> if UE is not configured with *attemptCondReconfig*:

2> reset MAC;

2> release *spCellConfig*, if configured;

2> suspend all RBs, and BH RLC channels for IAB-MT, and Uu Relay RLC channels for L2 U2N Relay UE, except SRB0 and broadcast MRBs;

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

2> if MR-DC is configured:

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

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

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

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

2> release *btNameList*, if configured;

2> release *wlanNameList*, if configured;

2> release *sensorNameList*, if configured;

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

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

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

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

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

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

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

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

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

2> release *referenceTimePreferenceReporting*, if configured;

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

2> release *obtainCommonLocation*, if configured;

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

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

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

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

2> release *propDelayDiffReportConfig*, if configured;

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

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

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

2> release *minSchedulingOffsetPreferenceConfigExt*, if configured;

1> release *successHO-Config*, if configured;

1> if any DAPS bearer is configured:

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> release *sl-L2RelayUE-Config*, if configured;

1> release *sl-L2RemoteUE-Config*, if configured;

1> release the SRAP entity, if configured;

1> if the UE is acting as L2 U2N Remote UE:

2> if the PC5-RRC connection with the U2N Relay UE is determined to be released:

3> indicate upper layers to trigger PC5 unicast link release;

3> perform either cell selection in accordance with the cell selection process as specified in TS 38.304 [20], or relay selection as specified in clause 5.8.15.3, or both;

2> else (i.e., maintain the PC5 RRC connection):

3> consider the connected L2 U2N Relay UE as suitable and perform actions as specified in clause 5.3.7.3a;

NOTE 1: It is up to Remote UE implementation whether to release or keep the current PC5 unicast link.

1> else:

2> perform cell selection in accordance with the cell selection process as specified in TS 38.304 [20], or relay selection as specified in clause 5.8.15.3, or both.

NOTE 2: For L2 U2N Remote UE, if both a suitable cell and a suitable relay are available, the UE can select either one based on its implementation.

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| NEXT CHANGE |

#### 5.3.7.3a Actions following relay selection while T311 is running

Upon selecting a suitable L2 U2N Relay UE, the L2 U2N Remote UE shall:

1> indicate to upper layer to trigger the PC5 unicast link establishment with the selected L2 U2N Relay UE, if a new L2 U2N Relay UE is selected;

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

1> stop timer T311;

1> if T390 is running:

2> stop timer T390 for all access categories;

2> perform the actions as specified in 5.3.14.4;

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

1> start timer T301;

1> release the RLC entity for SRB0, if any;

1> establish a SRAP entity as specified in TS 38.351 [66], if no SRAP entity has been established;

1> apply the specified configuration of SL-RLC0 as specified in 9.1.1.4;

1> apply the SDAP configuration and PDCP configuration as specified in 9.1.1.2 for SRB0;

1> initiate transmission of the *RRCReestablishmentRequest* message in accordance with 5.3.7.4.

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| NEXT CHANGE |

5.3.7.4 Actions related to transmission of *RRCReestablishmentRequest* message

The UE shall set the contents of *RRCReestablishmentRequest* message as follows:

1> if the procedure was initiated due to radio link failure as specified in 5.3.10.3 or reconfiguration with sync failure as specified in 5.3.5.8.3:

2> set the *reestablishmentCellId* in the *VarRLF-Report* to the global cell identity of the selected cell;

1> set the *ue-Identity* as follows:

2> set the *c-RNTI* to the C-RNTI used in the source PCell (reconfiguration with sync or mobility from NR failure) or used in the PCell in which the trigger for the re-establishment occurred (other cases);

2> set the *physCellId* to the physical cell identity of the source PCell (reconfiguration with sync or mobility from NR failure) or of the PCell in which the trigger for the re-establishment occurred (other cases);

2> set the *shortMAC-I* to the 16 least significant bits of the MAC-I calculated:

3> over the ASN.1 encoded as per clause 8 (i.e., a multiple of 8 bits) *VarShortMAC-Input*;

3> with the KRRCint key and integrity protection algorithm that was used in the source PCell (reconfiguration with sync or mobility from NR failure) or of the PCell in which the trigger for the re-establishment occurred (other cases); and

3> with all input bits for COUNT, BEARER and DIRECTION set to binary ones;

1> set the *reestablishmentCause* as follows:

2> if the re-establishment procedure was initiated due to reconfiguration failure as specified in 5.3.5.8.2:

3> set the *reestablishmentCause* to the value *reconfigurationFailure*;

2> else if the re-establishment procedure was initiated due to reconfiguration with sync failure as specified in 5.3.5.8.3 (intra-NR handover failure) or 5.4.3.5 (inter-RAT mobility from NR failure):

3> set the *reestablishmentCause* to the value *handoverFailure*;

2> else:

3> set the *reestablishmentCause* to the value *otherFailure*;

1> re-establish PDCP for SRB1;

1> if the UE is acting as L2 U2N Remote UE:

2> establish or re-established (e.g. via release and add) SL RLC entity for SRB1;

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

2> apply the default configuration of PDCP as defined in 9.2.1 for SRB1;

2> apply the default configuration of SRAP as defined in 9.2.5 for SRB1;

1> else:

2> re-establish RLC for SRB1;

2> apply the default configuration defined in 9.2.1 for SRB1;

1> configure lower layers to suspend integrity protection and ciphering for SRB1;

NOTE: Ciphering is not applied for the subsequent *RRCReestablishment* message used to resume the connection. An integrity check is performed by lower layers, but merely upon request from RRC.

1> resume SRB1;

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

2> indicate TA report initiation to lower layers;

1> submit the *RRCReestablishmentRequest* message to lower layers for transmission.

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| NEXT CHANGE |

#### 5.3.8.3 Reception of the *RRCRelease* by the UE

The UE shall:

1> delay the following actions defined in this clause 60 ms from the moment the *RRCRelease* message was received or optionally when lower layers indicate that the receipt of the *RRCRelease* message has been successfully acknowledged, whichever is earlier;

1> stop timer T380, if running;

1> stop timer T320, if running;

1> if timer T316 is running;

2> stop timer T316;

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

1> stop timer T350, if running;

1> stop timer T346g, if running;

1> if theAS security is not activated:

2> ignore any field included in *RRCRelease* message except *waitTime*;

2> perform the actions upon going to RRC\_IDLE as specified in 5.3.11 with the release cause 'other' upon which the procedure ends;

1> if the *RRCRelease* message includes *redirectedCarrierInfo* indicating redirection to *eutra*:

2> if *cnType* is included:

3> after the cell selection, indicate the available CN Type(s) and the received *cnType* to upper layers;

NOTE 1: Handling the case if the E-UTRA cell selected after the redirection does not support the core network type specified by the *cnType,* is up to UE implementation.

2> if *voiceFallbackIndication* is included:

3> consider the RRC connection release was for EPS fallback for IMS voice (see TS 23.502 [43]);

1> if the *RRCRelease* message includes the *cellReselectionPriorities*:

2> store the cell reselection priority information provided by the *cellReselectionPriorities*;

2> if the *t320* is included:

3> start timer T320, with the timer value set according to the value of *t320*;

1> else:

2> apply the cell reselection priority information broadcast in the system information;

1> if *deprioritisationReq* is included and the UE supports RRC connection release with deprioritisation:

2> start or restart timer T325 with the timer value set to the *deprioritisationTimer* signalled;

2> store the *deprioritisationReq* until T325 expiry;

NOTE 1a: The UE stores the deprioritisation request irrespective of any cell reselection absolute priority assignments (by dedicated or common signalling) and regardless of RRC connections in NR or other RATs unless specified otherwise.

1> if the *RRCRelease* includes the *measIdleConfig*:

2> if T331 is running:

3> stop timer T331;

3> perform the actions as specified in 5.7.8.3;

2> if the *measIdleConfig* is set to *setup*:

3> store the received *measIdleDuration* in *VarMeasIdleConfig*;

3> start timer T331 with the value set to *measIdleDuration*;

3> if the *measIdleConfig* contains *measIdleCarrierListNR*:

4> store the received *measIdleCarrierListNR* in *VarMeasIdleConfig*;

3> if the *measIdleConfig* contains *measIdleCarrierListEUTRA*:

4> store the received *measIdleCarrierListEUTRA* in *VarMeasIdleConfig*;

3> if the *measIdleConfig* contains *validityAreaList*:

4> store the received *validityAreaList* in *VarMeasIdleConfig*;

1> if the *RRCRelease* includes *suspendConfig*:

2> reset MAC and release the default MAC Cell Group configuration, if any;

2> apply the received *suspendConfig* except the received *nextHopChainingCount*;

2> if the *sdt-Config* is configured:

3> for each of the DRB in the *sdt-DRB-List*:

4> consider the DRB to be configured for SDT;

3> if *sdt-SRB2-Indication* is configured:

4> consider the SRB2 to be configured for SDT;

3> for each RLC bearer that is not suspended:

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

3> for SRB2 (if it is resumed) and for SRB1:

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

3> if *sdt-MAC-PHY-CG-Config* is configured:

4> configure the PCell with the configured grant resources for SDT and instruct the MAC entity to start the *cg-SDT-TimeAlignmentTimer*;

2> if *srs-PosRRC-Inactive* is configured:

3> apply the configuration and instruct MAC to start the *inactivePosSRS-TimeAlignmentTimer*;

NOTE 1b: The Network should provide full configuration to UE for SRS for Positioning in RRC\_INACTIVE.

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

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

3> for the associated *reportConfigId*:

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

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

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

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

2> re-establish RLC entities for SRB1;

2> if the *RRCRelease* message with *suspendConfig* was received in response to an *RRCResumeRequest* or an *RRCResumeRequest1*:

3> stop the timer T319 if running;

3> in the stored UE Inactive AS context:

4> replace the KgNB and KRRCint keys with the current KgNB and KRRCint keys;

4> replace the *nextHopChainingCount* with the value of *nextHopChainingCount* received in the *RRCRelease* message*;*

4> replace the *cellIdentity* with the *cellIdentity* of the cell the UE has received the *RRCRelease* message;

4> if the *suspendConfig* contains the *sl-UEIdentityRemote* (i.e. the UE is a L2 U2N Remote UE):

5> replace the C-RNTI with the value of the *sl-UEIdentityRemote*;

5> replace the physical cell identitywith the value of the *sl-PhysCellId* in *sl-ServingCellInfo* contained in the discovery message received from the connected L2 U2N Relay UE;

4> else:

5> replace the C-RNTI with the C-RNTI used in the cell (see TS 38.321 [3]) the UE has received the *RRCRelease* message;

5> replace the physical cell identitywith the physical cell identity of the cell the UE has received the *RRCRelease* message;

3> replace the *nextHopChainingCount* with the value associated with the current KgNB;

3> stop the timer T319a if running and consider SDT procedure is not ongoing;

2> else:

3> store in the UE Inactive AS Context the *nextHopChainingCount* received in the *RRCRelease* message*,* the current KgNB and KRRCint keys, the ROHC state, the EHC context(s), the UDC state, the stored QoS flow to DRB mapping rules, the application layer measurement configuration, the C-RNTI used in the source PCell, the *cellIdentity* and the physical cell identity of the source PCell, the *spCellConfigCommon* within *ReconfigurationWithSync* of the NR PSCell (if configured) and all other parameters configured except for:

- parameters within *ReconfigurationWithSync* of the PCell;

- parameters within *ReconfigurationWithSync* of the NR PSCell, if configured;

- parameters within *MobilityControlInfoSCG* of the E-UTRA PSCell, if configured;

- *servingCellConfigCommonSIB*;

- *sl-L2RelayUE-Config*, if configured;

- *sl-L2RemoteUE-Config*, if configured;

3> store any previously or subsequently received application layer measurement reports for which no segment, or full message, has been submitted to lower layers for transmission;

NOTE 2: NR sidelink communication/discovery related configurations and logged measurement configuration are not stored as UE Inactive AS Context, when UE enters RRC\_INACTIVE.

2> suspend all SRB(s) and DRB(s) and multicast MRB(s), except SRB0 and broadcast MRBs;

2> indicate PDCP suspend to lower layers of all DRBs and multicast MRBs;

2> release the SRAP entity, if configured;

2> if the *t380* is included:

3> start timer T380, with the timer value set to *t380*;

2> if the *RRCRelease* message is including the *waitTime*:

3> start timer T302 with the value set to the *waitTime*;

3> inform upper layers that access barring is applicable for all access categories except categories '0' and '2';

2> if T390 is running:

3> stop timer T390 for all access categories;

3> perform the actions as specified in 5.3.14.4;

2> indicate the suspension of the RRC connection to upper layers;

2> if the UE is capable of L2 U2N Remote UE:

3> enter RRC\_ INACTIVE, and perform either cell selection as specified in TS 38.304 [20], or relay selection as specified in clause 5.8.15.3, or both;

2> else:

3> enter RRC\_INACTIVE and perform cell selection as specified in TS 38.304 [20];

1> else

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

NOTE: Whether to release the PC5 unicast link is left to L2 U2N Remote UE’s implementation.

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| NEXT CHANGE |

### 5.3.11 UE actions upon going to RRC\_IDLE

The UE shall:

1> reset MAC;

1> set the variable *pendingRNA-Update* to *false*, if that is set to *true*;

1> if going to RRC\_IDLE was triggered by reception of the *RRCRelease* message including a *waitTime*:

2> if T302 is running:

3> stop timer T302;

2> start timer T302 with the value set to the *waitTime*;

2> inform upper layers that access barring is applicable for all access categories except categories '0' and '2'.

1> else:

2> if T302 is running:

3> stop timer T302;

3> perform the actions as specified in 5.3.14.4;

1> if T390 is running:

2> stop timer T390 for all access categories;

2> perform the actions as specified in 5.3.14.4;

1> if the UE is leaving RRC\_INACTIVE:

2> if going to RRC\_IDLE was not triggered by reception of the *RRCRelease message*:

3> if stored, discard the cell reselection priority information provided by the *cellReselectionPriorities*;

3> stop the timer T320, if running;

1> stop all timers that are running except T302, T320, T325, T330, T331 and T400;

1> discard the UE Inactive AS context, if any;

1> release the *suspendConfig*, if configured;

1> remove all the entries within the MCG and the SCG *VarConditionalReconfig*, if any;

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

2> for the associated *reportConfigId*:

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

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

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

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

1> discard the KgNB key, the S-KgNB key, the S-KeNB key, the KRRCenc key, the KRRCint key, the KUPint key and the KUPenc key, if any;

1> release all radio resources, including release of the RLC entity, the BAP entity, the MAC configuration and the associated PDCP entity and SDAP for all established RBs (except for broadcast MRBs), BH RLC channels, Uu Relay RLC channels, PC5 Relay RLC channels and SRAP entity;

1> indicate the release of the RRC connection to upper layers together with the release cause;

1> inform upper layers about the release of all application layer measurement configurations;

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

1> discard any segments of segmented RRC messages stored according to 5.7.6.3;

1> except if going to RRC\_IDLE was triggered by inter-RAT cell reselection while the UE is in RRC\_INACTIVE or RRC\_IDLE or when selecting an inter-RAT cell while T311 was running or when selecting an E-UTRA cell for EPS fallback for IMS voice as specified in 5.4.3.5:

2> if the UE is capable of L2 U2N Remote UE:

3> enter RRC\_IDLE, and perform either cell selection as specified in TS 38.304 [20], or relay selection as specified in clause 5.8.15.3, or both;

2> else:

3> enter RRC\_IDLE and perform cell selection as specified in TS 38.304 [20];

NOTE: Whether to release the PC5 unicast link is left to L2 U2N Remote UE’s implementation.

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| NEXT CHANGE |

#### 5.5.3.1 General

An RRC\_CONNECTED UE shall derive cell measurement results by measuring one or multiple beams associated per cell as configured by the network, as described in 5.5.3.3. For all cell measurement results, except for RSSI, and CLI measurement results in RRC\_CONNECTED, the UE applies the layer 3 filtering as specified in 5.5.3.2, before using the measured results for evaluation of reporting criteria, measurement reporting or the criteria to trigger conditional reconfiguration execution. For cell measurements, the network can configure RSRP, RSRQ, SINR, RSCP or EcN0 as trigger quantity. For CLI measurements, the network can configure SRS-RSRP or CLI-RSSI as trigger quantity. For cell and beam measurements, reporting quantities can be any combination of quantities (i.e. only RSRP; only RSRQ; only SINR; RSRP and RSRQ; RSRP and SINR; RSRQ and SINR; RSRP, RSRQ and SINR; only RSCP; only EcN0; RSCP and EcN0), irrespective of the trigger quantity, and for CLI measurements, reporting quantities can be either SRS-RSRP or CLI-RSSI. For conditional reconfiguration execution, the network can configure up to 2 quantities, both using same RS type. The UE does not apply the layer 3 filtering as specified in 5.5.3.2 to derive the CBR measurements. The UE does not apply the layer 3 filtering as specified in 5.5.3.2 to derive the Rx-Tx time difference measurements.

The network may also configure the UE to report measurement information per beam (which can either be measurement results per beam with respective beam identifier(s) or only beam identifier(s)), derived as described in 5.5.3.3a. If beam measurement information is configured to be included in measurement reports, the UE applies the layer 3 beam filtering as specified in 5.5.3.2. On the other hand, the exact L1 filtering of beam measurements used to derive cell measurement results is implementation dependent.

The UE shall:

1> whenever the UE has a *measConfig*, perform RSRP and RSRQ measurements for each serving cell for which *servingCellMO* is configured as follows:

2> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains an *rsType* set to *ssb* and *ssb-ConfigMobility* is configured in the *measObject* indicated by the *servingCellMO*:

3> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport* and contains an *rsType* set to *ssb*:

4> derive layer 3 filtered RSRP and RSRQ per beam for the serving cell based on SS/PBCH block, as described in 5.5.3.3a;

3> derive serving cell measurement results based on SS/PBCH block, as described in 5.5.3.3;

2> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains an *rsType* set to *csi-rs* and *CSI-RS-ResourceConfigMobility* is configured in the *measObject* indicated by the *servingCellMO*:

3> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport* and contains an *rsType* set to *csi-rs*:

4> derive layer 3 filtered RSRP and RSRQ per beam for the serving cell based on CSI-RS, as described in 5.5.3.3a;

3> derive serving cell measurement results based on CSI-RS, as described in 5.5.3.3;

1> for each serving cell for which *servingCellMO* is configured, if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains SINR as trigger quantity and/or reporting quantity:

2> if the *reportConfig* contains *rsType* set to *ssb* and *ssb-ConfigMobility* is configured in the *servingCellMO*:

3> if the *reportConfig*contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport*:

4> derive layer 3 filtered SINR per beam for the serving cell based on SS/PBCH block, as described in 5.5.3.3a;

3> derive serving cell SINR based on SS/PBCH block, as described in 5.5.3.3;

2> if the *reportConfig* contains *rsType* set to *csi-rs* and *CSI-RS-ResourceConfigMobility* is configured in the *servingCellMO*:

3> if the *reportConfig*contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport*:

4> derive layer 3 filtered SINR per beam for the serving cell based on CSI-RS, as described in 5.5.3.3a;

3> derive serving cell SINR based on CSI-RS, as described in 5.5.3.3;

1> for each *measId* included in the *measIdList* within *VarMeasConfig*:

2> if the *reportType* for the associated *reportConfig* is set to *reportCGI* and timer T321 is running:

3> if *useAutonomousGaps* is configured for the associated *reportConfig*:

4> perform the corresponding measurements on the frequency and RAT indicated in the associated *measObject* using autonomous gaps as necessary;

3> else:

4> perform the corresponding measurements on the frequency and RAT indicated in the associated *measObject* using available idle periods;

3> if the cell indicated by *reportCGI* field for the associated *measObject* is an NR cell and that indicated cell is broadcasting *SIB1* (see TS 38.213 [13], clause 13):

4> try to acquire *SIB1* in the concerned cell;

3> if the cell indicated by *reportCGI* field is an E-UTRA cell:

4> try to acquire *SystemInformationBlockType1* in the concerned cell;

2> if the *ul-DelayValueConfig* is configured for the associated *reportConfig*:

3> ignore the *measObject;*

3> for each of the configured DRBs*,* configure the PDCP layer to perform corresponding average UL PDCP packet delay measurement per DRB;

2> if the *ul-ExcessDelayConfig* is configured for the associated *reportConfig*:

3> ignore the *measObject;*

3> for each of the configured DRBs*,* configure the PDCP layer to perform corresponding UL PDCP Excess Packet Delay delay measurement according to the configured threshold per DRB;

2> if the *reportType* for the associated *reportConfig* is *periodical*, *eventTriggered*; or

2> if the *reportType* for the associated *reportConfig* is *condTriggerConfig* and the *measId* is indicated in the *condExecutionCond* or in the *condExecutionCondSCG* associated to a *condReconfigId* in *VarConditionalReconfig*:

3> if a measurement gap configuration is setup, or

3> if the UE does not require measurement gaps to perform the concerned measurements:

4> if *s-MeasureConfig* is not configured, or

4> if *s-MeasureConfig* is set to *ssb-RSRP* and the NR SpCell RSRP based on SS/PBCH block, after layer 3 filtering, is lower than *ssb-RSRP,* or

4> if *s-MeasureConfig* is set to *csi-RSRP* and the NR SpCell RSRP based on CSI-RS, after layer 3 filtering, is lower than *csi-RSRP*:

5> if the *measObject* is associated to NR and the *rsType* is set to *csi-rs*:

6> if reportQuantityRS-Indexes and maxNrofRS-IndexesToReport for the associated reportConfig are configured:

7> derive layer 3 filtered beam measurements only based on CSI-RS for each measurement quantity indicated in *reportQuantityRS-Indexes*, as described in 5.5.3.3a;

6> derive cell measurement results based on CSI-RS for the trigger quantity and each measurement quantity indicated in *reportQuantityCell* using parameters from the associated *measObject*, as described in 5.5.3.3;

5> if the *measObject* is associated to NR and the *rsType* is set to *ssb*:

6> if reportQuantityRS-Indexes and maxNrofRS-IndexesToReport for the associated reportConfig are configured:

7> derive layer 3 beam measurements only based on SS/PBCH block for each measurement quantity indicated in *reportQuantityRS-Indexes*, as described in 5.5.3.3a;

6> derive cell measurement results based on SS/PBCH block for the trigger quantity and each measurement quantity indicated in *reportQuantityCell* using parameters from the associated *measObject*, as described in 5.5.3.3;

5> if the *measObject* is associated to E-UTRA:

6> perform the corresponding measurements associated to neighbouring cells on the frequencies indicated in the concerned *measObject*, as described in 5.5.3.2;

5> if the measObject is associated to UTRA-FDD:

6> perform the corresponding measurements associated to neighbouring cells on the frequencies indicated in the concerned *measObject*, as described in 5.5.3.2;

5> if the measObject is associated to L2 U2N Relay UE:

6> perform the corresponding measurements associated to candidate Relay UEs on the frequencies indicated in the concerned *measObject*, as described in 5.5.3.4;

4> if the *measRSSI-ReportConfig* is configured in the associated *reportConfig*:

5> perform the RSSI and channel occupancy measurements on the frequency indicated in the associated *measObject*;

2> if the *reportType* for the associated *reportConfig* is set to *reportSFTD* and the *numberOfReportsSent* as defined within the *VarMeasReportList* for this *measId* is less than one:

3> if the *reportSFTD-Meas* is set to *true:*

4> if the *measObject* is associated to E-UTRA:

5> perform SFTD measurements between the PCell and the E-UTRA PSCell;

5> if the *reportRSRP* is set to *true*;

6> perform RSRP measurements for the E-UTRA PSCell;

4> else if the *measObject* is associated to NR:

5> perform SFTD measurements between the PCell and the NR PSCell;

5> if the *reportRSRP* is set to *true*;

6> perform RSRP measurements for the NR PSCell based on SSB;

3> else if the *reportSFTD-NeighMeas* is included*:*

4> if the *measObject* is associated to NR:

5> if the *drx-SFTD-NeighMeas* is included:

6> perform SFTD measurements between the PCell and the NR neighbouring cell(s) detected based on parameters in the associated *measObject* using available idle periods;

5> else:

6> perform SFTD measurements between the PCell and the NR neighbouring cell(s) detected based on parameters in the associated *measObject*;

5> if the *reportRSRP* is set to *true*:

6> perform RSRP measurements based on SSB for the NR neighbouring cell(s) detected based on parameters in the associated *measObject*;

2> if the *reportType* for the associated *reportConfig* is *cli-Periodical* or *cli-EventTriggered*:

3> perform the corresponding measurements associated to CLI measurement resources indicated in the concerned *measObjectCLI*;

2> perform the evaluation of reporting criteria as specified in 5.5.4, except if *reportConfig* is *condTriggerConfig*.

The UE acting as a L2 U2N Remote UE whenever configured with *measConfig* shall:

1> perform the corresponding measurements associated to the serving L2 U2N Relay UE, as described in 5.5.3.4;

NOTE 1: The evaluation of conditional reconfiguration execution criteria is specified in 5.3.5.13.

The UE capable of Rx-Tx time difference measurement when configured with *measObjectRxTxDiff* shall:

1> perform the corresponding Rx-Tx time difference measurements associated with downlink reference signals indicated in the concerned *measObjectRxTxDiff*.

The UE capable of CBR measurement when configured to transmit NR sidelink communication/discovery shall:

1> If the frequency used for NR sidelink communication/discovery is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or includedin *sl-ConfigCommonNR* within *SIB12*:

2> if the UE is in RRC\_IDLE or in RRC\_INACTIVE:

3> if configured with NR sidelink communication and the cell chosen for NR sidelink communication provides *SIB12* which includes *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* forthe concerned frequency; or

3> if configured with NR sidelink discovery and the cell chosen for NR sidelink discovery provides *SIB12* which includes *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* but does not include *sl-DiscTxPoolSelected* forthe concerned frequency:

4> perform CBR measurement on pool(s) in *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* for the concerned frequency in *SIB12*;

3> if configured with NR sidelink discovery and the cell chosen for NR sidelink discovery provides *SIB12* which includes *sl-DiscTxPoolSelected* forthe concerned frequency:

4> perform CBR measurement on pools in *sl-DiscTxPoolSelected* and *sl-TxPoolExceptional* for the concerned frequency in *SIB12*;

2> if the UE is in RRC\_CONNECTED:

3> if *tx-PoolMeasToAddModList* is included in *VarMeasConfig*:

4> perform CBR measurements on each transmission resource pool indicated in the *tx-PoolMeasToAddModList*;

3> if *sl-DiscTxPoolSelected*, *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling* or *sl-TxPoolExceptional* is included in *sl-ConfigDedicatedNR* for the concerned frequency within *RRCReconfiguration*:

4> perform CBR measurement on pool(s) in *sl-DiscTxPoolSelected*, *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling* and *sl-TxPoolExceptional* if included in *sl-ConfigDedicatedNR* for the concerned frequency within *RRCReconfiguration*;

3> else:

4> if configured with NR sidelink communication and the cell chosen for NR sidelink communication provides *SIB12* which includes *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* forthe concerned frequency; or

4> if configured with NR sidelink discovery and the cell chosen for NR sidelink discovery provides *SIB12* which includes *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* but does not provide *sl-DiscTxPoolSelected* forthe concerned frequency:

5> perform CBR measurement on pool(s) in *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* for the concerned frequency in *SIB12*;

4> if configured with NR sidelink discovery and the cell chosen for NR sidelink discovery provides *SIB12* which includes *sl-DiscTxPoolSelected* forthe concerned frequency:

5> perform CBR measurement on pools in *sl-DiscTxPoolSelected* and *sl-TxPoolExceptional* for the concerned frequency in *SIB12*;

1> else:

2> if configured with NR sidelink communication and *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* is included in *SidelinkPreconfigNR* for the concerned frequency; or

2> if configured with NR sidelink discovery and *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* is included in *SidelinkPreconfigNR* but *sl-DiscTxPoolSelected* is not included in *SidelinkPreconfigNR* for the concerned frequency:

3> perform CBR measurement on pool(s) in *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* in *SidelinkPreconfigNR* for the concerned frequency.

2> if configured with NR sidelink discovery and *sl-DiscTxPoolSelected* is included in *SidelinkPreconfigNR* for the concerned frequency:

3> perform CBR measurement on pools in *sl-DiscTxPoolSelected* and *sl-TxPoolExceptional* if included in *SidelinkPreconfigNR*;

NOTE 2: In case the configurations for NR sidelink communication and CBR measurement are acquired via the E-UTRA, configurations for NR sidelink communication in *SIB12*, *sl-ConfigDedicatedNR* within *RRCReconfiguration* used in this clause are provided by the configurations in *SystemInformationBlockType28*, *sl-ConfigDedicatedForNR* within *RRCConnectionReconfiguration* as specified in TS 36.331[10], respectively.

NOTE 3: If a UE that is configured by upper layers to transmit V2X sidelink communication is configured by NR with transmission resource pool(s) and the measurement objects concerning V2X sidelink communication (i.e. by *sl-ConfigDedicatedEUTRA-Info*), it shall perform CBR measurement as specified in clause 5.5.3 of TS 36.331 [10], based on the transmission resource pool(s) and the measurement object(s) concerning V2X sidelink communication configured by NR.

NOTE 4: For V2X sidelink communication, each of the CBR measurement results is associated with a resource pool, as indicated by the *poolReportId* (see TS 36.331 [10]), that refers to a pool as included in *sl-ConfigDedicatedEUTRA-Info* or *SIB13*.

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| NEXT CHANGE |

#### 5.5.3.4 Derivation of L2 U2N Relay UE measurement results

A UE may be configured by network to derive NR sidelink measurement results of serving L2 U2N Relay UE or candidate L2 U2N Relay UEs associated to the measurement objects configured in the *measObjectRelay*.

The UE shall:

1> for each L2 U2N Relay UE measurement quantity to be derived:

2> derive the corresponding measurement quantity based on DMRS as described in TS 38.215 [9];

2> apply layer 3 filtering as described in 5.5.3.2;

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| NEXT CHANGE |

#### 5.8.3.2 Initiation

A UE capable of NR sidelink communication or NR sidelink discovery or NR sidelink U2N relay operation that is in RRC\_CONNECTED may initiate the procedure to indicate it is (interested in) receiving or transmitting NR sidelink communication or NR sidelink discovery or NR sidelink U2N relay operation in several cases including upon successful connection establishment or resuming, upon change of interest, upon changing QoS profiles, upon receiving *UECapabilityInformationSidelink* from the associated peer UE, upon RLC mode information updated from the associated peer UE or upon change to a PCell providing *SIB12* including *sl-ConfigCommonNR*. A UE capable of NR sidelink communication may initiate the procedure to request assignment of dedicated sidelink DRB configuration and transmission resources for NR sidelink communication transmission. A UE capable of NR sidelink communication may initiate the procedure to report to the network that a sidelink radio link failure or sidelink RRC reconfiguration failure has been declared. A UE capable of NR sidelink discovery may initiate the procedure to request assignment of dedicated resources for NR sidelink discovery transmission or NR sidelink discovery reception. A UE capable of U2N relay operation may initiate the procedure to report/update parameters for acting as U2N Relay UE or U2N Remote UE (including L2 Remote UE's source L2 ID).

A UE capable of NR sidelink operation that is in RRC\_CONNECTED may initiate the procedure to report the sidelink DRX configuration received from the associated peer UE for NR sidelink unicast reception, upon accepting the sidelink DRX configuration from the associated peer UE. A UE capable of NR sidelink communication that is in RRC\_CONNECTED and is performing sidelink unicast transmission with resource allocation mode 1 may initiate the procedure to report the sidelink DRX assistance information or the sidelink DRX configuration reject information received from the associated peer UE, upon receiving either of them from the associated peer UE. A UE capable of NR sidelink communication that is performing sidelink groupcast transmission may initiate the procedure to report the sidelink DRX on/off indication for the associated Destination Layer-2 ID.

A UE capable of NR sidelink operation that is in RRC\_CONNECTED may initiate the procedure to report the Destination Layer-2 ID and QoS profile associated with its interested services that sidelink DRX is applied, for NR sidelink groupcast or broadcast reception.

Upon initiating this procedure, the UE shall:

1> if *SIB12* including *sl-ConfigCommonNR* is provided by the PCell:

2> ensure having a valid version of *SIB12* for the PCell;

2> if configured by upper layers to receive NR sidelink communication on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell:

3> if the UE did not transmit a *SidelinkUEInformationNR* message since last entering RRC\_CONNECTED state; or

3> if since the last time the UE transmitted a *SidelinkUEInformationNR* message the UE connected to a PCell not providing *SIB12* including *sl-ConfigCommonNR*; or

3> if the last transmission of the *SidelinkUEInformationNR* message did not include *sl-RxInterestedFreqList*; or if the frequency configured by upper layers to receive NR sidelink communication on has changed since the last transmission of the *SidelinkUEInformationNR* message:

4> initiate transmission of the *SidelinkUEInformationNR* message to indicate the NR sidelink communication reception frequency of interest in accordance with 5.8.3.3;

2> else:

3> if the last transmission of the *SidelinkUEInformationNR* message included *sl-RxInterestedFreqList*:

4> initiate transmission of the *SidelinkUEInformationNR* message to indicate it is no longer interested in NR sidelink communication reception in accordance with 5.8.3.3;

2> if configured by upper layers to transmit non-relay NR sidelink communication on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell:

3> if the UE did not transmit a *SidelinkUEInformationNR* message since last entering RRC\_CONNECTED state; or

3> if since the last time the UE transmitted a *SidelinkUEInformationNR* message the UE connected to a PCell not providing *SIB12* including *sl-ConfigCommonNR*; or

3> if the last transmission of the *SidelinkUEInformationNR* message did not include *sl-TxResourceReqList*; or if the information carried by the *sl-TxResourceReqList* has changed since the last transmission of the *SidelinkUEInformationNR* message:

4> initiate transmission of the *SidelinkUEInformationNR* message to indicate the NR sidelink communication transmission resources required by the UE in accordance with 5.8.3.3;

2> else:

3> if the last transmission of the *SidelinkUEInformationNR* message included *sl-TxResourceReqList*:

4> initiate transmission of the *SidelinkUEInformationNR* message to indicate it no longer requires NR sidelink communication transmission resources in accordance with 5.8.3.3.

2> if configured by upper layer to receive NR sidelink non-relay discovery messages on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell including *sl-NonRelayDiscovery*:

3> if the UE did not transmit a *SidelinkUEInformationNR* message since last entering RRC\_CONNECTED state; or

3> if since the last time the UE transmitted a *SidelinkUEInformationNR* message the UE connected to a PCell not providing *SIB12* including *sl-ConfigCommonNR* or connected to a PCell providing *SIB12* but not including *sl-NonRelayDiscovery*; or

3> if the last transmission of the *SidelinkUEInformationNR* message did not include *sl-RxInterestedFreqListDisc*; or if the frequency configured by upper layers to receive NR sidelink L2 U2N relay discovery messages or NR sidelink L3 U2N relay discovery messages on has changed since the last transmission of the *SidelinkUEInformationNR* message:

4> initiate transmission of the *SidelinkUEInformationNR* message to indicate the NR sidelink discovery reception frequency of interest in accordance with 5.8.3.3;

2> else:

3> if the last transmission of the *SidelinkUEInformationNR* message included *sl-RxInterestedFreqListDisc*:

4> initiate transmission of the *SidelinkUEInformationNR* message to indicate it is no longer interested in NR sidelink discovery messages reception in accordance with 5.8.3.3;

2> if configured by upper layer to receive NR sidelink L2 U2N relay discovery messages on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell including *sl-L2U2N-Relay*; or if configured by upper layer to receive NR sidelink L3 U2N relay discovery messages on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell including *sl-L3U2N-RelayDiscovery*:

3> if the UE did not transmit a *SidelinkUEInformationNR* message since last entering RRC\_CONNECTED state; or

3> if since the last time the UE transmitted a *SidelinkUEInformationNR* message the UE connected to a PCell not providing *SIB12* including *sl-ConfigCommonNR* or connected to a PCell providing *SIB12* but not including *sl-L2U2N-Relay* in case of L2 U2N relay operation or connected to a PCell providing *SIB12* but not including *sl-L3U2N-RelayDiscovery* in case of L3 U2N relay operation; or

3> if the last transmission of the *SidelinkUEInformationNR* message did not include *sl-RxInterestedFreqListDisc*; or if the frequency configured by upper layers to receive NR sidelink discovery messages on has changed since the last transmission of the *SidelinkUEInformationNR* message:

4> if the UE is capable of U2N Relay UE, and if *SIB12* includes *sl-RelayUE-ConfigCommon*, and if the U2N Relay UE threshold conditions as specified in 5.8.14.2 are met; or

4> if the UE is selecting a U2N Relay UE / has a selected U2N Relay UE / configured with measurement object associated to L2 U2N Relay UEs, and if *SIB12* includes *sl-RemoteUE-ConfigCommon*, and if the U2N Remote UE threshold conditions as specified in 5.8.15.2 are met:

5> initiate transmission of the *SidelinkUEInformationNR* message to indicate the NR relay sidelink discovery reception frequency of interest in accordance with 5.8.3.3;

2> else:

3> if the last transmission of the *SidelinkUEInformationNR* message included *sl-RxInterestedFreqListDisc*:

4> initiate transmission of the *SidelinkUEInformationNR* message to indicate it is no longer interested in NR relay sidelink discovery messages reception in accordance with 5.8.3.3;

2> if configured by upper layer to transmit NR sidelink non-relay discovery messages on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell including *sl-NonRelayDiscovery*:

3> if the UE did not transmit a *SidelinkUEInformationNR* message since last entering RRC\_CONNECTED state; or

3> if since the last time the UE transmitted a *SidelinkUEInformationNR* message the UE connected to a PCell not providing *SIB12* including *sl-ConfigCommonNR* or connected to a PCell providing *SIB12* but not including *sl-NonRelayDiscovery*; or

3> if the last transmission of the *SidelinkUEInformationNR* message did not include *sl-TxResourceReqListDisc*; or if the information carried by the *sl-TxResourceReqListDisc* has changed since the last transmission of the *SidelinkUEInformationNR* message:

4> initiate transmission of the *SidelinkUEInformationNR* message to indicate the NR sidelink non-relay discovery messages resources required by the UE in accordance with 5.8.3.3;

2> else:

3> if the last transmission of the *SidelinkUEInformationNR* message included *sl-TxResourceReqListDisc*:

4> initiate transmission of the *SidelinkUEInformationNR* message to indicate it no longer requires NR sidelink non-relay discovery messages resources in accordance with 5.8.3.3;

2> if configured by upper layer to transmit NR sidelink L2 U2N relay discovery messages on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell including *sl-L2U2N-Relay*; or if configured by upper layer to transmit NR sidelink L3 U2N relay discovery messages on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell including *sl-L3U2N-RelayDiscovery*:

3> if the UE did not transmit a *SidelinkUEInformationNR* message since last entering RRC\_CONNECTED state; or

3> if since the last time the UE transmitted a *SidelinkUEInformationNR* message the UE connected to a PCell not providing *SIB12* including *sl-ConfigCommonNR* or connected to a PCell providing *SIB12* but not including *sl-L2U2N-Relay* in case L2 U2N relay operation or connected to a PCell providing *SIB12* but not including *sl-L3U2N-RelayDiscovery* in case of L3 U2N relay operation; or

3> if the last transmission of the *SidelinkUEInformationNR* message did not include *sl-TxResourceReqListDisc*; or if the information carried by the *sl-TxResourceReqListDisc* has changed since the last transmission of the *SidelinkUEInformationNR* message:

4> if the UE is capable of U2N Relay UE, and if *SIB12* includes *sl-RelayUE-ConfigCommon*, and if the U2N Relay UE threshold conditions as specified in 5.8.14.2 are met; or

4> if the UE is selecting a U2N Relay UE / has a selected U2N Relay UE, and if *SIB12* includes *sl-RemoteUE-ConfigCommon*, and if the U2N Remote UE threshold conditions as specified in 5.8.15.2 are met:

5> initiate transmission of the *SidelinkUEInformationNR* message to indicate the NR sidelink relay discovery messages resources required by the UE in accordance with 5.8.3.3;

2> else:

3> if the last transmission of the *SidelinkUEInformationNR* message included *sl-TxResourceReqListDisc*:

4> initiate transmission of the *SidelinkUEInformationNR* message to indicate it no longer requires NR sidelink relay discovery messages resources in accordance with 5.8.3.3;

2> if configured by upper layer to transmit NR sidelink L2 U2N relay communication on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell including *sl-L2U2N-Relay* or if configured by upper layer to transmit NR sidelink L3 U2N relay communication on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell including *sl-L3U2N-RelayDiscovery*:

3> if the UE did not transmit a *SidelinkUEInformationNR* message since last entering RRC\_CONNECTED state; or

3> if since the last time the UE transmitted a *SidelinkUEInformationNR* message the UE connected to a PCell not providing *SIB12* including *sl-ConfigCommonNR* or connected to a PCell providing *SIB12* but not including *sl-L2U2N-Relay* in case L2 U2N relay operation or connected to a PCell providing *SIB12* but not including *sl-L3U2N-RelayDiscovery* in case of L3 U2N relay operation; or

3> if the last transmission of the *SidelinkUEInformationNR* message did not include *sl-TxResourceReqL2U2N-Relay*; or if the information carried by the *sl-TxResourceReqL2U2N-Relay* has changed since the last transmission of the *SidelinkUEInformationNR* message; or if the last transmission of the *SidelinkUEInformationNR* message did not include *sl-TxResourceReqL3U2N-Relay*; or if the information carried by the *sl-TxResourceReqL3U2N-Relay* has changed since the last transmission of the *SidelinkUEInformationNR* message:

4> if the UE is capable of U2N Relay UE, and if *SIB12* includes *sl-RelayUE-ConfigCommon*, and if the U2N Relay UE threshold conditions as specified in 5.8.14.2 are met; or

4> if the UE is selecting a U2N Relay UE / has a selected U2N Relay UE, and if *SIB12* includes *sl-RemoteUE-ConfigCommon*, and if the U2N Remote UE threshold conditions as specified in 5.8.15.2 are met:

5> initiate transmission of the *SidelinkUEInformationNR* message to indicate the NR sidelink relay communication transmission resources required by the UE in accordance with 5.8.3.3;

2> else:

3> if the last transmission of the *SidelinkUEInformationNR* message included *sl-TxResourceReqL2U2N-Relay* or *sl-TxResourceReqL3U2N-Relay*:

4> initiate transmission of the *SidelinkUEInformationNR* message to indicate it no longer requires NR sidelink relay communication transmission resources in accordance with 5.8.3.3;

2> if configured by upper layers to perform NR sidelink reception on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell and if *sl-DRX-ConfigCommonGC-BC* is included in *SIB12-IEs*:

3> if the UE received a sidelink DRX configuration in the *RRCReconfigurationSidelink* message for NR sidelink unicast reception from the associated peer UE and the UE accepted the sidelink DRX configuration:

4> if the UE did not transmit a *SidelinkUEInformationNR* message since last entering RRC\_CONNECTED state; or

4> if since the last time the UE transmitted a *SidelinkUEInformationNR* message the UE connected to a PCell not providing *SIB12* including *sl-DRX-ConfigCommonGC-BC*; or

4> if the last transmission of the *SidelinkUEInformationNR* message did not include *sl-RxDRX-ReportList*; or if the information carried by *sl-RxDRX-ReportList* has changed since the last transmission of the *SidelinkUEInformationNR* message:

5> initiate transmission of the *SidelinkUEInformationNR* message to report the sidelink DRX configuration in accordance with 5.8.3.3;

3> else:

4> if the last transmission of the *SidelinkUEInformationNR* message included *sl-RxDRX-ReportList*:

5> initiate transmission of the *SidelinkUEInformationNR* message to indicate the sidelink DRX configuration is no longer used in accordance with 5.8.3.3;

3> if the UE is performing NR sidelink groupcast or broadcast reception and is interested in a service that sidelink DRX is applied:

4> if the UE did not transmit a *SidelinkUEInformationNR* message since last entering RRC\_CONNECTED state; or

4> if since the last time the UE transmitted a *SidelinkUEInformationNR* message the UE connected to a PCell not providing *SIB12* including *sl-DRX-ConfigCommonGC-BC*; or

4> if the last transmission of the *SidelinkUEInformationNR* message did not include *sl-RxInterestedGC-BC-DestList*; or if the information carried by *sl-RxInterestedGC-BC-DestList* has changed since the last transmission of the *SidelinkUEInformationNR* message:

5> initiate transmission of the *SidelinkUEInformationNR* message to report the Destination Layer-2 ID and QoS profile associated with the service in accordance with 5.8.3.3;

3> else:

4> if the last transmission of the *SidelinkUEInformationNR* message included *sl-RxInterestedGC-BC-DestList*:

5> initiate transmission of the *SidelinkUEInformationNR* message to indicate it is no longer interested in the service that sidelink DRX is applied in accordance with 5.8.3.3;

2> if configured by upper layers to perform NR sidelink transmission on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell and *if sl-DRX-ConfigCommonGC-BC* is included in *SIB12-IEs* andif the UE is configured with *sl-ScheduledConfig*:

3> if the UE received a sidelink DRX assistance information or a sidelink DRX configuration reject information from the associated peer UE for NR sidelink unicast transmission:

4> initiate transmission of the *SidelinkUEInformationNR* message to report the sidelink DRX assistance information or the sidelink DRX configuration reject information in accordance with 5.8.3.3;

3> if the UE is performing NR sidelink groupcast transmission:

4> initiate transmission of the *SidelinkUEInformationNR* message to report sidelink DRX on/off indication for the corresponding destination in accordance with 5.8.3.3;

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| NEXT CHANGE |

5.8.6.2 Selection and reselection of synchronisation reference

The UE shall:

1> if the frequency used for NR sidelink communication/discovery is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or includedin *sl-ConfigCommonNR* within *SIB12*, and *sl-SyncPriority* is configured for the concerned frequency and set to *gnbEnb*:

2> select a cell as the synchronization reference source as defined in 5.8.6.3:

1> else if the frequency used for NR sidelink communication/discovery is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or includedin *sl-ConfigCommonNR* within *SIB12*, and *sl-SyncPriority* for the concerned frequency is not configured or is set to *gnss*, and GNSS is reliable in accordance with TS 38.101-1 [15] and TS 38.133 [14]:

2> select GNSS as the synchronization reference source;

1> else if the frequency used for NR sidelink communication/discovery is included in *SL-PreconfigurationNR*, and *sl-SyncPriority* in *SidelinkPreconfigNR* is set to *gnss* and GNSS is reliable in accordance with TS 38.101-1 [15] and TS 38.133 [14]:

2> select GNSS as the synchronization reference source;

1> else:

2> perform a full search (i.e. covering all subframes and all possible SLSSIDs) to detect candidate SLSS, in accordance with TS 38.133 [14]

2> when evaluating the one or more detected SLSSIDs, apply layer 3 filtering as specified in 5.5.3.2 using the preconfigured *sl-filterCoefficient*, before using the PSBCH-RSRP measurement results;

2> if the UE has selected a SyncRef UE:

3> if the PSBCH-RSRP of the strongest candidate SyncRef UE exceeds the minimum requirement TS 38.133 [14] by *sl-SyncRefMinHyst* and the strongest candidate SyncRef UE belongs to the same priority group as the current SyncRef UE and the PSBCH-RSRP of the strongest candidate SyncRef UE exceeds the PSBCH-RSRP of the current SyncRef UE by *syncRefDiffHyst*; or

3> if the PSBCH-RSRP of the candidate SyncRef UE exceeds the minimum requirement TS 38.133 [14] by *sl-SyncRefMinHyst* and the candidate SyncRef UE belongs to a higher priority group than the current SyncRef UE; or

3> if GNSS becomes reliable in accordance with TS 38.101-1 [15] and TS 38.133 [14], and GNSS belongs to a higher priority group than the current SyncRef UE; or

3> if a cell is detected and gNB/eNB (if *sl-NbAsSync* is set to *true*) belongs to a higher priority group than the current SyncRef UE; or

3> if the PSBCH-RSRP of the current SyncRef UE is less than the minimum requirement defined in TS 38.133 [14]:

4> consider no SyncRef UE to be selected;

2> if the UE has selected GNSS as the synchronization reference for NR sidelink communication/discovery:

3> if the PSBCH-RSRP of the candidate SyncRef UE exceeds the minimum requirement defined in TS 38.133 [14] by *sl-SyncRefMinHyst* and the candidate SyncRef UE belongs to a higher priority group than GNSS; or

3> if GNSS becomes not reliable in accordance with TS 38.101-1 [15] and TS 38.133 [14]:

4> consider GNSS not to be selected;

2> if the UE has selected cell as the synchronization reference for NR sidelink communication/discovery:

3> if the PSBCH-RSRP of the candidate SyncRef UE exceeds the minimum requirement defined in TS 38.133 [14] by *sl-SyncRefMinHyst* and the candidate SyncRef UE belongs to a higher priority group than gNB/eNB; or

3> if the selected cell is not detected:

4> consider the cell not to be selected;

2> if the UE has not selected any synchronization reference:

3> if the UE detects one or more SLSSIDs for which the PSBCH-RSRP exceeds the minimum requirement defined in TS 38.133 [14] by *sl-SyncRefMinHyst* and for which the UE received the corresponding *MasterInformationBlockSidelink* message (candidate SyncRef UEs), or if the UE detects GNSS that is reliable in accordance with TS 38.101-1 [15] and TS 38.133 [14], or if the UE detects a cell, select a synchronization reference according to the following priority group order:

4> if *sl-SyncPriority* corresponding to the concerned frequency is set to *gnbEnb*:

5> UEs of which SLSSID is part of the set defined for in coverage, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *true*, starting with the UE with the highest PSBCH-RSRP result (priority group 1);

5> UE of which SLSSID is part of the set defined for in coverage, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCH-RSRP result (priority group 2);

5> GNSS that is reliable in accordance with TS 38.101-1 [15] and TS 38.133 [14] (priority group 3);

5> UEs of which SLSSID is 0, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *true,* or of which SLSSID is 0 and SLSS is transmitted on slot(s) indicated by *sl-SSB-TimeAllocation3*, starting with the UE with the highest PSBCH-RSRP result (priority group 4);

5> UEs of which SLSSID is 0 and SLSS is not transmitted on slot(s) indicated by *sl-SSB-TimeAllocation3*, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCH-RSRP result (priority group 5);

5> UEs of which SLSSID is 337 and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCH-RSRP result (priority group 5);

5> Other UEs, starting with the UE with the highest PSBCH-RSRP result (priority group 6);

4> if *sl-SyncPriority* corresponding to the concerned frequency is set to *gnss*, and *sl-NbAsSync* is set to *true:*

5> UEs of which SLSSID is 0, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *true*,or of which SLSSID is 0 and SLSS is transmitted on slot(s) indicated by *sl-SSB-TimeAllocation3*, starting with the UE with the highest PSBCH-RSRP result (priority group 1);

5> UEs of which SLSSID is 0 and SLSS is not transmitted on slot(s) indicated by *sl-SSB-TimeAllocation3*, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCHS-RSRP result (priority group 2);

5> UEs of which SLSSID is 337 and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCH-RSRP result (priority group 2);

5> the cell detected by the UE as defined in 5.8.6.3 (priority group 3);

5> UEs of which SLSSID is part of the set defined for in coverage, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *true*, starting with the UE with the highest PSBCH-RSRP result (priority group 4);

5> UE of which SLSSID is part of the set defined for in coverage, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCH-RSRP result (priority group 5);

5> Other UEs, starting with the UE with the highest S-RSRP result (priority group 6);

4> if *sl-SyncPriority* corresponding to the concerned frequency is set to *gnss*, and *sl-NbAsSync* is set to *false:*

5> UEs of which SLSSID is 0, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *true*, or of which SLSSID is 0 and SLSS is transmitted on slot(s) indicated by *sl-SSB-TimeAllocation3*, starting with the UE with the highest PSBCH-RSRP result (priority group 1);

5> UEs of which SLSSID is 0 and SLSS is not transmitted on slot(s) indicated by *sl-SSB-TimeAllocation3*, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCHS-RSRP result (priority group 2);

5> UEs of which SLSSID is 337 and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCH-RSRP result (priority group 2);

5> Other UEs, starting with the UE with the highest PSBCH-RSRP result (priority group 3);

NOTE: How the UE achieves subframe boundary alignment between V2X sidelink communication and NR sidelink communication/discovery (if both are performed by the UE) is as specified in TS 38.213, clause 16.7.

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| NEXT CHANGE |

##### 5.8.9.1.2 Actions related to transmission of *RRCReconfigurationSidelink* message

The UE shall set the contents of *RRCReconfigurationSidelink* message as follows:

1> for each sidelink DRB that is to be released, according to clause 5.8.9.1a.1.1, due to configuration by *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR* or by upper layers:

2> set the entryincluded in the *slrb-ConfigToReleaseList* corresponding to the sidelink DRB;

1> for each sidelink DRB that is to be established or modified, according to clause 5.8.9.1a.2.1, due to receiving *sl-ConfigDedicatedNR,* *SIB12* or *SidelinkPreconfigNR*:

2> set the *SLRB-Config* included in the *slrb-ConfigToAddModList*, according to the received *sl-RadioBearerConfig* and *sl-RLC-BearerConfig* corresponding to the sidelink DRB;

1> set the *sl-MeasConfig* as follows:

2> If the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or included in *sl-ConfigCommonNR* within SIB12:

3> if UE is in RRC\_CONNECTED:

4> set the *sl-MeasConfig* according to stored NR sidelink measurement configuration information for this destination;

3> if UE is in RRC\_IDLE or RRC\_INACTIVE:

4> set the *sl-MeasConfig* according to stored NR sidelink measurement configuration received from *SIB12*;

2> else:

3> set the *sl-MeasConfig* according to the *sl-MeasPreconfig* in *SidelinkPreconfigNR*;

1> set the *sl-LatencyBoundIUC-Report;*

1> start timer T400 for the destination;

1> set the *sl-CSI-RS-Config*;

1> set the *sl-LatencyBoundCSI-Report*;

1> set the *sl-ResetConfig*;

NOTE 1: Whether/how to set the parameters included in *sl-CSI-RS-Config*, *sl-LatencyBoundCSI-Report* and *sl-ResetConfig* is up to UE implementation.

1> set the *sl-DRX-ConfigUC-PC5* as follows:

2> If the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or included in *sl-ConfigCommonNR* within *SIB12*:

3> if UE is in RRC\_CONNECTED and if *sl-ScheduledConfig* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

4> set the *sl-DRX-ConfigUC-PC5* according to stored NR sidelink DRX configuration information for this destination.

NOTE 2: If UE is in RRC\_IDLE or in RRC\_INACTIVE or out of coverage, or in RRC\_CONNECTED and *sl-UE-SelectedConfig* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*, it is up to UE implementation to set the *sl-DRX-ConfigUC-PC5*.

1> for each PC5 Relay RLC channel that is to be released due to configuration by *sl-ConfigDedicatedNR*:

2> set the *SL-RLC-ChannelID* corresponding to the PC5 Relay RLC channel in the *sl-RLC-ChannelToReleaseListPC5*;

1> for each PC5 Relay RLC channel that is to be established or modified due to receiving *sl-ConfigDedicatedNR*:

2> set the *SL-RLC-ChannelConfigPC5* included in the *sl-RLC-ChannelToAddModListPC5* according to the received *SL-RLC-ChannelConfig* corresponding to the PC5 Relay RLC channel, including setting *sl-RLC-ChannelID-PC5* to the same value of *sl-RLC-ChannelID* received in *SL-RLC-ChannelConfig*;

The UE shall submit the *RRCReconfigurationSidelink* message to lower layers for transmission.

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| NEXT CHANGE |

##### 5.8.9.1.3 Reception of an *RRCReconfigurationSidelink* by the UE

The UE shall perform the following actions upon reception of the *RRCReconfigurationSidelink*:

1> if the *RRCReconfigurationSidelink* includes the *sl-ResetConfig*:

2> perform the sidelink reset configuration procedure as specified in 5.8.9.1.10;

1> if the *RRCReconfigurationSidelink* includes the *slrb-ConfigToReleaseList*:

2> for each entryvalue included in the *slrb-ConfigToReleaseList* that is part of the current UE sidelink configuration;

3> perform the sidelink DRB release procedure, according to clause 5.8.9.1a.1;

1> if the *RRCReconfigurationSidelink* includes the *slrb-ConfigToAddModList*:

2> for each *slrb-PC5-ConfigIndex* value included in the *slrb-ConfigToAddModList* that is not part of the current UE sidelink configuration:

3> if *sl-MappedQoS-FlowsToAddList* is included:

4> apply the *SL-PQFI* included in *sl-MappedQoS-FlowsToAddList*;

3> perform the sidelink DRB addition procedure, according to clause 5.8.9.1a.2;

2> for each *slrb-PC5-ConfigIndex* value included in the *slrb-ConfigToAddModList* that is part of the current UE sidelink configuration:

3> if *sl-MappedQoS-FlowsToAddList* is included:

4> add the *SL-PQFI* included in *sl-MappedQoS-FlowsToAddList* to the corresponding sidelink DRB;

3> if *sl-MappedQoS-FlowsToReleaseList* is included:

4> remove the *SL-PQFI* included in *sl-MappedQoS-FlowsToReleaseList* from the corresponding sidelink DRB;

3> if the sidelink DRB release conditions as described in clause 5.8.9.1a.1.1 are met:

4> perform the sidelink DRB release procedure according to clause 5.8.9.1a.1.2;

3> else if the sidelink DRB modification conditions as described in clause 5.8.9.1a.2.1 are met:

4> perform the sidelink DRB modification procedure according to clause 5.8.9.1a.2.2;

1> if the *RRCReconfigurationSidelink* message includes the *sl-MeasConfig*:

2> perform the sidelink measurement configuration procedure as specified in 5.8.10;

1> if the *RRCReconfigurationSidelink* message includes the *sl-CSI-RS-Config*:

2> apply the sidelink CSI-RS configuration;

1> if the *RRCReconfigurationSidelink* message includes the *sl-LatencyBoundCSI-Report*:

2> apply the configured sidelink CSI report latency bound;

1> if the *RRCReconfigurationSidelink* includes the *sl-RLC-ChannelToReleaseListPC5*:

2> for each *SL-RLC-ChannelID* value included in the *sl-RLC-ChannelToReleaseListPC5* that is part of the current UE sidelink configuration;

3> perform the PC5 Relay RLC channel release procedure, according to clause 5.8.9.7.1;

1> if the *RRCReconfigurationSidelink* includes the *sl-RLC-ChannelToAddModListPC5*:

2> for each *sl-RLC-ChannelID-PC5* value included in the *sl-RLC-ChannelToAddModListPC5* that is not part of the current UE sidelink configuration:

3> perform the PC5 Relay RLC channel addition procedure, according to clause 5.8.9.7.2;

2> for each *sl-RLC-ChannelID-PC5* value included in the *sl-RLC-ChannelToAddModListPC5* that is part of the current UE sidelink configuration:

3> perform the PC5 Relay RLC channel modification procedure according to clause 5.8.9.7.2;

1> if the *RRCReconfigurationSidelink* message includes the *sl-DRX-ConfigUC-PC5*, and

1> if the UE accepts the *sl-DRX-ConfigUC-PC5*:

2> configure lower layers to perform sidelink DRX operation according to *sl-DRX-ConfigUC-PC5* for the associated destination as defined in TS 38.321 [3];

1> if the *RRCReconfigurationSidelink* message includes the *sl-LatencyBoundIUC-Report*:

2> apply the configured sidelink IUC report latency bound;

1> if the UE is unable to comply with (part of) the configuration included in the *RRCReconfigurationSidelink* (i.e. sidelink RRC reconfiguration failure):

2> continue using the configuration used prior to the reception of the *RRCReconfigurationSidelink* message;

2> set the content of the *RRCReconfigurationFailureSidelink* message;

3> submit the *RRCReconfigurationFailureSidelink* message to lower layers for transmission;

1> else:

2> set the content of the *RRCReconfigurationCompleteSidelink* message;

3> if the UE rejects the sidelink DRX configuration *sl-DRX-ConfigUC-PC5* received from the peer UE:

4> include the *sl-DRX-ConfigReject* in the *RRCReconfigurationCompleteSidelink* message;

4> consider no sidelink DRX to be applied for the corresponding sidelink unicast communication;

3> submit the *RRCReconfigurationCompleteSidelink* message to lower layers for transmission;

NOTE 1: When the same logical channel is configured with different RLC mode by another UE, the UE handles the case as sidelink RRC reconfiguration failure.

NOTE 2: It is up to the UE whether or not to indicate the rejection to the peer UE for a received sidelink DRX configuration.

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| NEXT CHANGE |

#### 5.8.9.3 Sidelink radio link failure related actions

The UE shall:

1> upon indication from sidelink RLC entity that the maximum number of retransmissions for a specific destination has been reached; or

1> upon T400 expiry for a specific destination; or

1> upon indication from MAC entity that the maximum number of consecutive HARQ DTX for a specific destination has been reached; or

1> upon integrity check failure indication from sidelink PDCP entity concerning SL-SRB2 or SL-SRB3 for a specific destination:

2> consider sidelink radio link failure to be detected for this destination;

2> release the DRBs of this destination, according to clause 5.8.9.1a.1;

2> release the SRBs of this destination, according to clause 5.8.9.1a.3;

2> release the PC5 Relay RLC channels of this destination if configured, in according to clause 5.8.9.7.1;

2> discard the NR sidelink communication related configuration of this destination;

2> reset the sidelink specific MAC of this destination;

2> consider the PC5-RRC connection is released for the destination;

2> indicate the release of the PC5-RRC connection to the upper layers for this destination (i.e. PC5 is unavailable);

2> if UE is in RRC\_CONNECTED:

3> if the UE is acting as L2 U2N Remote UE for the destination:

4> initiate the RRC connection re-establishment procedure as specified in 5.3.7.

3> else:

4> perform the sidelink UE information for NR sidelink communication procedure, as specified in 5.8.3.3;

NOTE: It is up to UE implementation on whether and how to indicate to upper layers to maintain the keep-alive procedure [55].

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| NEXT CHANGE |

5.8.9.10.4 Actions related to reception of *NotificationMessageSidelink* message

Upon receiving the *NotificationMessageSidelink*, the U2N Remote UE shall:

1> if the *indicationType* is included:

2> if the UE is L2 U2N Remote UE in RRC\_CONNECTED:

3> if T301 is not running, initiate the RRC connection re-establishment procedure as specified in 5.3.7;

2> else (the UE is L3 U2N Remote UE, or L2 U2N Remote UE in RRC\_IDLE or RRC\_INACTIVE):

3> if the PC5-RRC connection with the U2N Relay UE is determined to be released:

4> indicate upper layers to trigger PC5 unicast link release;

3> else (i.e., maintain the PC5 RRC connection):

4> if the UE is L2 U2N Remote UE and the *indicationType* is *relayUE-HO or relayUE-CellReselection*:

5> consider cell re-selection occurs;

NOTE1: For L3 U2N Remote UE, or L2 U2N Remote UE in RRC\_IDLE or RRC\_INACTIVE, it is up to Remote UE implementation whether to release or keep the PC5 unicast link.

NOTE2: The L2 U2N Remote UE may ignore the *NotificationMessageSidelink* if it does not release the PC5 unicast link in source side yet during an indirect-to-direct path switch, i.e. T304 is running.

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| NEXT CHANGE |

5.8.13.3 NR sidelink discovery transmission

A UE capable of NR sidelink discovery that is configured by upper layer to transmit NR sidelink discovery message shall:

1> if the frequency used for NR sidelink discovery is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message; or if the frequency used for NR sidelink discovery is includedin *sl-FreqInfoList* within *SIB12*:

2> if the UE is in RRC\_CONNECTED and uses the frequency included in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message:

3> if the UE is acting as NR sidelink U2N Relay UE and *sl-DiscConfig* is included in *RRCReconfiguration*, and if the NR sidelink U2N Relay UE threshold conditions as specified in 5.8.14.2 are met based on *sl-RelayUE-Config*; or

3> if the UE is selecting NR sidelink U2N Relay UE / has a selected NR sidelink U2N Relay UE/ configured with measurement object associated to L2 U2N Relay UEs UEs and *sl-DiscConfig* is included in *RRCReconfiguration*, and if the NR sidelink U2N Remote UE threshold conditions as specified in 5.8.15.2 are met based on *sl-RemoteUE-Config*; or

3> if the UE is performing NR sidelink non-relay discovery:

4> if the UE is configured with *sl-ScheduledConfig*:

5> if T310 for MCG or T311 is running; and if *sl-TxPoolExceptional* is included in *sl-FreqInfoList* for the concerned frequency in *SIB12* or included in *sl-ConfigDedicatedNR* in *RRCReconfiguration*; or

5> if T301 is running and the cell on which the UE initiated RRC connection re-establishment provides *SIB12* including *sl-TxPoolExceptional* for the concerned frequency; or

5> if T304 for MCG is running and the UE is configured with *sl-TxPoolExceptional* included in *sl-ConfigDedicatedNR* for the concerned frequency in *RRCReconfiguration*:

6> configure lower layers to perform the sidelink resource allocation mode 2 based on random selection using the resource pool indicated by *sl-TxPoolExceptional* as defined in TS 38.321 [3];

5> else:

6> configure lower layers to perform the sidelink resource allocation mode 1 using the resource pool indicated by *sl-DiscTxPoolScheduling* or *sl-TxPoolScheduling* for NR sidelink discovery transmission on the concerned frequency in *RRCReconfiguration*;

5> if T311 is running, configure the lower layers to release the resources indicated by *rrc-ConfiguredSidelinkGrant* (if any);

4> if the UE is configured with *sl-UE-SelectedConfig*:

5> if the *sl-DiscTxPoolSelected* for NR sidelink discovery transmission on the concerned frequency is included in the *sl-ConfigDedicatedNR* within *RRCReconfiguration*, and if a result of full/partial sensing, if selected and is allowed by *sl-AllowedResourceSelectionConfig*, on the resources configured in *sl-DiscTxPoolSelected* for NR sidelink discovery transmission on the concerned frequency included in *sl-ConfigDedicatedNR* within *RRCReconfiguration* is not available in accordance with TS 38.214 [19]; or

5> if the *sl-DiscTxPoolSelected* for NR sidelink discovery transmission on the concerned frequency is not included in the *sl-ConfigDedicatedNR* within *RRCReconfiguration*, and a result of full/partial sensing, if selected and is allowed by *sl-AllowedResourceSelectionConfig*, on the resources configured in *sl-TxPoolSelectedNormal* for NR sidelink discovery transmission on the concerned frequency included in *sl-ConfigDedicatedNR* within *RRCReconfiguration* is not available in accordance with TS 38.214 [19];

6> if *sl-TxPoolExceptional* for the concerned frequency is included in *RRCReconfiguration*; or

6> if the PCell provides *SIB12* including *sl-TxPoolExceptional* in *sl-FreqInfoList* for the concerned frequency:

7> configure lower layers to perform the sidelink resource allocation mode 2 based on random selection using the resource pool indicated by *sl-TxPoolExceptional* as defined in TS 38.321 [3];

5> else, if the *sl-DiscTxPoolSelected* for NR sidelink discovery transmission on the concerned frequency is included in the *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

6> configure lower layers to perform the sidelink resource allocation mode 2 based on resource selection operation according to *sl-AllowedResourceSelectionConfig* (as defined in TS 38.321 [3] and TS 38.214 [19]) using the pools of resources indicated by *sl-DiscTxPoolSelected* for NR sidelink discovery transmission on the concerned frequency in *RRCReconfiguration*;

5> else, if the *sl-TxPoolSelectedNormal* for NR sidelink discovery transmission on the concerned frequency is included in the *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

6> configure lower layers to perform the sidelink resource allocation mode 2 based on resource selection operation according to *sl-AllowedResourceSelectionConfig* (as defined in TS 38.321 [3] and TS 38.214 [19]) using the pools of resources indicated by *sl-TxPoolSelectedNormal* for NR sidelink discovery transmission on the concerned frequency in *RRCReconfiguration*;

2> else if the cell chosen for NR sidelink discovery transmission provides *SIB12*:

3> if the UE is acting as NR sidelink U2N Relay UE and *sl-DiscConfigCommon* is included in *SIB12*, and if the NR sidelink U2N Relay UE threshold conditions as specified in 5.8.14.2 are met based on *sl-RelayUE-ConfigCommon* in *SIB12*; or

3> if the UE is selecting NR sidelink U2N Relay UE / has a selected NR sidelink U2N Relay UE and *sl-DiscConfigCommon* is included in *SIB12*, and if the NR sidelink U2N Remote UE threshold conditions as specified in 5.8.15.2 are met based on *sl-RemoteUE-ConfigCommon* in *SIB12*; or

3> if the UE is performing NR sidelink non-relay discovery:

4> if *SIB12* includes *sl-DiscTxPoolSelected* for NR sidelink discovery transmission on the concerned frequency,and a result of full/partial sensing, if selected and is allowed by *sl-AllowedResourceSelectionConfig*, on the resources configured in the *sl-DiscTxPoolSelected* for NR sidelink discovery transmission is available in accordance with TS 38.214 [19] or random selection, if allowed by *sl-AllowedResourceSelectionConfig*, is selected:

5> configure lower layers to perform the sidelink resource allocation mode 2 based on resource selection operation according to *sl-AllowedResourceSelectionConfig* using the pools of resources indicated by *sl-DiscTxPoolSelected* for NR sidelink discovery transmission on the concerned frequency in *SIB12* as defined in TS 38.321 [3];

4> else if *SIB12* includes *sl-TxPoolSelectedNormal* for NR sidelink discovery transmission on the concerned frequency,and a result of full/partial sensing, if selected and is allowed by *sl-AllowedResourceSelectionConfig*, on the resources configured in the *sl-TxPoolSelectedNormal* for NR sidelink discovery transmission is available in accordance with TS 38.214 [19] or random selection, if allowed by *sl-AllowedResourceSelectionConfig*, is selected:

5> configure lower layers to perform the sidelink resource allocation mode 2 based on resource selection operation according to *sl-AllowedResourceSelectionConfig* using the pools of resources indicated by *sl-TxPoolSelectedNormal* for NR sidelink discovery transmission on the concerned frequency in *SIB12* as defined in TS 38.321 [3];

4> else if *SIB12* includes *sl-TxPoolExceptional* for the concerned frequency:

5> from the moment the UE initiates RRC connection establishment or RRC connection resume, until receiving an *RRCReconfiguration* including *sl-ConfigDedicatedNR*, or receiving an *RRCRelease* or an *RRCReject*; or

5> if a result of full/partial sensing, if selected and is allowed by *sl-AllowedResourceSelectionConfig*, on the resources configured in *sl-DiscTxPoolSelected* for NR sidelink discovery transmission on the concerned frequency in *SIB12* is not available in accordance with TS 38.214 [19]; or

5> if *sl-DiscTxPoolSelected* for NR sidelink discovery transmission on the concerned frequency is not included in *SIB12* andif a result of full/partial sensing, if selected and is allowed by *sl-AllowedResourceSelectionConfig*, on the resources configured in *sl-TxPoolSelectedNormal* for NR sidelink discovery transmission on the concerned frequency in *SIB12* is not available in accordance with TS 38.214 [19]:

6> configure lower layers to perform the sidelink resource allocation mode 2 based on random selection (as defined in TS 38.321 [3]) using one of the pools of resources indicated by *sl-TxPoolExceptional* for the concerned frequency;

1> else if out of coverage on the concerned frequency for NR sidelink discovery:

2> if the UE is acting as L3 U2N Relay UE and if the NR sidelink U2N Relay UE threshold conditions as specified in 5.8.14.2 are met based on *sl-RelayUE-ConfigCommon* in *SidelinkPreconfigNR*; or

2> if the UE is selecting NR sidelink U2N Relay UE / has a selected NR sidelink U2N Relay UE and if the NR sidelink U2N Remote UE threshold conditions as specified in 5.8.15.2 are met based on *sl-RemoteUE-ConfigCommon* in *SidelinkPreconfigNR*; or

2> if the UE is performing NR sidelink non-relay discovery:

3> configure lower layers to perform the sidelink resource allocation mode 2 based on resource selection operation according to *sl-AllowedResourceSelectionConfig* (as defined in TS 38.321 [3] and TS 38.213 [13]) using the pools of resources indicated in *sl-DiscTxPoolSelected* or *sl-TxPoolSelectedNormal* for NR sidelink discovery transmission on the concerned frequency in *SidelinkPreconfigNR*.

NOTE: It is up to UE implementation to determine, in accordance with TS 38.321[3], which resource pool to use if multiple resource pools are configured, and which resource allocation scheme is used in the AS based on UE capability (for a UE in RRC\_IDLE/RRC\_INACTIVE) and the allowed resource schemes *sl-allowedResourceSelectionConfig* in the resource pool configuration.

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| NEXT CHANGE |

### 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 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 }

}

-- TAG-RRCRECONFIGURATION-STOP

-- ASN1STOP

|  |
| --- |
| ***RRCReconfiguration-IEs* field descriptions** |
| ***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 or if the *masterCellGroup* includes *ReconfigurationWithSync* or if the *sl-L2RemoteUE-Config* or *sl-L2RelayUE-Config* is configured. For conditional PSCell change, the field is absent if the *secondaryCellGroup* includes *ReconfigurationWithSync*. 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, SIB21* 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 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]. |
| ***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,* *measConfig,* *bap-Config* and *IAB-IP-AddressConfigurationList*.  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*. |
| ***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 with concurrent measurement gap or preconfigured measurement gap for positioning. |
| ***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. |
| ***nextHopChainingCount***  Parameter NCC: See TS 33.501 [11] |
| ***onDemandSIB-Request***  If the field is present, 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, btNameList, wlanNameList, sensorNameList* and *obtainCommonLocation* can be included. |
| ***radioBearerConfig***  Configuration of Radio Bearers (DRBs, SRBs, multicast MRBs) including SDAP/PDCP. In EN-DC this field may only be present if the *RRCReconfiguration* is transmitted over SRB3. |
| ***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 or CPC is configured for the UE, or if the *RRCReconfiguration* message is contained in *CondRRCReconfig*. |
| ***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. 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. 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*. |
| ***sl-ConfigDedicatedNR***  This field is used to provide the dedicated configurations for NR sidelink communication/discovery. |
| ***sl-ConfigDedicatedEUTRA-Info***  This field includes the E-UTRA *RRCConnectionReconfiguration* as specified in TS 36.331 [10]. In this version of the specification, the E-UTRA *RRCConnectionReconfiguration* can only includes sidelink related fields for V2X sidelink communication, i.e. *sl-V2X-ConfigDedicated*, *sl-V2X-SPS-Config*, *measConfig* and/or *otherConfig*. |
| ***sl-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. 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 reconfiguration with sync 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. |

|  |
| --- |
| NEXT CHANGE |

– *RRCReestablishment*

The *RRCReestablishment* message is used to re-establish SRB1.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

***RRCReestablishment* message**

-- ASN1START

-- TAG-RRCREESTABLISHMENT-START

RRCReestablishment ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

rrcReestablishment RRCReestablishment-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

RRCReestablishment-IEs ::= SEQUENCE {

nextHopChainingCount NextHopChainingCount,

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCReestablishment-v1700-IEs OPTIONAL

}

RRCReestablishment-v1700-IEs ::= SEQUENCE {

sl-L2RemoteUE-Config-r17 SetupRelease {SL-L2RemoteUE-Config-r17} OPTIONAL, -- Cond L2RemoteUE

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-RRCREESTABLISHMENT-STOP

-- ASN1STOP

|  |
| --- |
| ***RRCReestablishment-IEs* field descriptions** |
| ***sl-L2RemoteUE-Config***  Contains dedicated configurations used for L2 U2N relay related operation. The network configures only the SRAP configuration used for the SRB1 and local UE ID. |

|  |  |
| --- | --- |
| **Conditional Presence** | **Explanation** |
| *L2RemoteUE* | The field is mandatory present for L2 U2N Remote UE; otherwise it is absent. |

|  |
| --- |
| NEXT CHANGE |

– *RRCResume*

The *RRCResume* message is used to resume the suspended RRC connection.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

***RRCResume* message**

-- ASN1START

-- TAG-RRCRESUME-START

RRCResume ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

rrcResume RRCResume-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

RRCResume-IEs ::= SEQUENCE {

radioBearerConfig RadioBearerConfig OPTIONAL, -- Need M

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

measConfig MeasConfig OPTIONAL, -- Need M

fullConfig ENUMERATED {true} OPTIONAL, -- Need N

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCResume-v1560-IEs OPTIONAL

}

RRCResume-v1560-IEs ::= SEQUENCE {

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

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

nonCriticalExtension RRCResume-v1610-IEs OPTIONAL

}

RRCResume-v1610-IEs ::= SEQUENCE {

idleModeMeasurementReq-r16 ENUMERATED {true} OPTIONAL, -- Need N

restoreMCG-SCells-r16 ENUMERATED {true} OPTIONAL, -- Need N

restoreSCG-r16 ENUMERATED {true} OPTIONAL, -- Need N

mrdc-SecondaryCellGroup-r16 CHOICE {

nr-SCG-r16 OCTET STRING (CONTAINING RRCReconfiguration),

eutra-SCG-r16 OCTET STRING

} OPTIONAL, -- Cond RestoreSCG

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

nonCriticalExtension RRCResume-v1700-IEs OPTIONAL

}

RRCResume-v1700-IEs ::= SEQUENCE {

sl-ConfigDedicatedNR-r17 SetupRelease {SL-ConfigDedicatedNR-r16} OPTIONAL, -- Cond L2RemoteUE

sl-L2RemoteUE-Config-r17 SetupRelease {SL-L2RemoteUE-Config-r17} OPTIONAL, -- Cond L2RemoteUE

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

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

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

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

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-RRCRESUME-STOP

-- ASN1STOP

|  |
| --- |
| ***RRCResume-IEs* field descriptions** |
| ***idleModeMeasurementReq***  This field indicates that the UE shall report the idle/inactive measurements, if available, to the network in the *RRCResumeComplete* message |
| ***masterCellGroup***  Configuration of the master cell group. |
| ***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* (with at least *reconfigurationWithSync*)*,* *otherConfig* and *measConfig*.  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 only include the field *scg-Configuration* with at least *mobilityControlInfoSCG*. |
| ***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. |
| ***radioBearerConfig***  Configuration of Radio Bearers (DRBs, SRBs, multicast MRBs) including SDAP/PDCP. |
| ***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. |
| ***restoreMCG-SCells***  Indicates that the UE shall restore the MCG SCells from the UE Inactive AS Context, if stored. |
| ***restoreSCG***  Indicates that the UE shall restore the SCG configurations from the UE Inactive AS Context, if stored. |
| ***scg-State***  Indicates that the SCG is in deactivated state. |
| ***sk-Counter***  A counter used to derive S-KgNB or S-KeNB based on the newly derived KgNB during RRC Resume. The field is only included when there is one or more RB with *keyToUse* set to *secondary* *or mrdc-SecondaryCellGroup* is included. |
| ***sl-ConfigDedicatedNR***  This field is used to provide the dedicated configurations for NR sidelink communication/discovery used by L2 U2N Remote UE. |
| ***sl-L2RemoteUE-Config***  Contains L2 U2N relay operation related configurations used by L2 U2N Remote UE. The field is absent if *appLayerMeasConfig* or SRB4 is configured/not released. |

|  |  |
| --- | --- |
| **Conditional Presence** | **Explanation** |
| *L2RemoteUE* | The field is mandatory present for L2 U2N Remote UE; otherwise it is absent. |
| *RestoreSCG* | The field is mandatory present if *restoreSCG* is included. It is optionally present, Need M, otherwise. |

|  |
| --- |
| NEXT CHANGE |

– *RRCSetup*

The *RRCSetup* message is used to establish SRB1.

Signalling radio bearer: SRB0

RLC-SAP: TM

Logical channel: CCCH

Direction: Network to UE

***RRCSetup* message**

-- ASN1START

-- TAG-RRCSETUP-START

RRCSetup ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

rrcSetup RRCSetup-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

RRCSetup-IEs ::= SEQUENCE {

radioBearerConfig RadioBearerConfig,

masterCellGroup OCTET STRING (CONTAINING CellGroupConfig),

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCSetup-v1700-IEs OPTIONAL

}

RRCSetup-v1700-IEs ::= SEQUENCE {

sl-ConfigDedicatedNR-r17 SL-ConfigDedicatedNR-r16 OPTIONAL, -- Cond L2RemoteUE

sl-L2RemoteUE-Config-r17 SL-L2RemoteUE-Config-r17 OPTIONAL, -- Cond L2RemoteUE

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-RRCSETUP-STOP

-- ASN1STOP

|  |
| --- |
| ***RRCSetup-IEs* field descriptions** |
| ***masterCellGroup***  The network configures only the RLC bearer for the SRB1, *mac-CellGroupConfig*, *physicalCellGroupConfig* and *spCellConfig*. |
| ***radioBearerConfig***  Only SRB1 can be configured in RRC setup. |
| ***sl-ConfigDedicatedNR***  Contains dedicated configurations for NR sidelink communication. The network configures only the PC5 Relay RLC channel and *sl-PHY-MAC-RLC-Config* used for the SRB1. |
| ***sl-L2RemoteUE-Config***  Contains dedicated configurations used for L2 U2N relay related operation. The network configures only the SRAP configuration used for the SRB1 and local UE ID. |

|  |  |
| --- | --- |
| **Conditional Presence** | **Explanation** |
| *L2RemoteUE* | The field is mandatory present for L2 U2N Remote UE; otherwise it is absent. |

|  |
| --- |
| NEXT CHANGE |

– *MeasResults*

The IE *MeasResults* covers measured results for intra-frequency, inter-frequency, inter-RAT mobility and measured results for NR sidelink communication/discovery.

***MeasResults* information element**

-- ASN1START

-- TAG-MEASRESULTS-START

MeasResults ::= SEQUENCE {

measId MeasId,

measResultServingMOList MeasResultServMOList,

measResultNeighCells CHOICE {

measResultListNR MeasResultListNR,

...,

measResultListEUTRA MeasResultListEUTRA,

measResultListUTRA-FDD-r16 MeasResultListUTRA-FDD-r16,

sl-MeasResultsCandRelay-r17 OCTET STRING -- Contains PC5 SL-MeasResultListRelay-r17

} OPTIONAL,

...,

[[

measResultServFreqListEUTRA-SCG MeasResultServFreqListEUTRA-SCG OPTIONAL,

measResultServFreqListNR-SCG MeasResultServFreqListNR-SCG OPTIONAL,

measResultSFTD-EUTRA MeasResultSFTD-EUTRA OPTIONAL,

measResultSFTD-NR MeasResultCellSFTD-NR OPTIONAL

]],

[[

measResultCellListSFTD-NR MeasResultCellListSFTD-NR OPTIONAL

]],

[[

measResultForRSSI-r16 MeasResultForRSSI-r16 OPTIONAL,

locationInfo-r16 LocationInfo-r16 OPTIONAL,

ul-PDCP-DelayValueResultList-r16 UL-PDCP-DelayValueResultList-r16 OPTIONAL,

measResultsSL-r16 MeasResultsSL-r16 OPTIONAL,

measResultCLI-r16 MeasResultCLI-r16 OPTIONAL

]],

[[

measResultRxTxTimeDiff-r17 MeasResultRxTxTimeDiff-r17 OPTIONAL,

sl-MeasResultServingRelay-r17 OCTET STRING OPTIONAL,

-- Contains PC5 SL-MeasResultRelay-r17

ul-PDCP-ExcessDelayResultList-r17 UL-PDCP-ExcessDelayResultList-r17 OPTIONAL,

coarseLocationInfo-r17 OCTET STRING OPTIONAL

]]

}

MeasResultServMOList ::= SEQUENCE (SIZE (1..maxNrofServingCells)) OF MeasResultServMO

MeasResultServMO ::= SEQUENCE {

servCellId ServCellIndex,

measResultServingCell MeasResultNR,

measResultBestNeighCell MeasResultNR OPTIONAL,

...

}

MeasResultListNR ::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultNR

MeasResultNR ::= SEQUENCE {

physCellId PhysCellId OPTIONAL,

measResult SEQUENCE {

cellResults SEQUENCE{

resultsSSB-Cell MeasQuantityResults OPTIONAL,

resultsCSI-RS-Cell MeasQuantityResults OPTIONAL

},

rsIndexResults SEQUENCE{

resultsSSB-Indexes ResultsPerSSB-IndexList OPTIONAL,

resultsCSI-RS-Indexes ResultsPerCSI-RS-IndexList OPTIONAL

} OPTIONAL

},

...,

[[

cgi-Info CGI-InfoNR OPTIONAL

]] ,

[[

choCandidate-r17 ENUMERATED {true} OPTIONAL,

choConfig-r17 SEQUENCE (SIZE (1..2)) OF CondTriggerConfig-r16 OPTIONAL,

triggeredEvent-r17 SEQUENCE {

timeBetweenEvents-r17 TimeBetweenEvent-r17 OPTIONAL,

firstTriggeredEvent ENUMERATED {condFirstEvent, condSecondEvent} OPTIONAL

} OPTIONAL

]]

}

MeasResultListEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultEUTRA

MeasResultEUTRA ::= SEQUENCE {

eutra-PhysCellId PhysCellId,

measResult MeasQuantityResultsEUTRA,

cgi-Info CGI-InfoEUTRA OPTIONAL,

...

}

MultiBandInfoListEUTRA ::= SEQUENCE (SIZE (1..maxMultiBands)) OF FreqBandIndicatorEUTRA

MeasQuantityResults ::= SEQUENCE {

rsrp RSRP-Range OPTIONAL,

rsrq RSRQ-Range OPTIONAL,

sinr SINR-Range OPTIONAL

}

MeasQuantityResultsEUTRA ::= SEQUENCE {

rsrp RSRP-RangeEUTRA OPTIONAL,

rsrq RSRQ-RangeEUTRA OPTIONAL,

sinr SINR-RangeEUTRA OPTIONAL

}

ResultsPerSSB-IndexList::= SEQUENCE (SIZE (1..maxNrofIndexesToReport2)) OF ResultsPerSSB-Index

ResultsPerSSB-Index ::= SEQUENCE {

ssb-Index SSB-Index,

ssb-Results MeasQuantityResults OPTIONAL

}

ResultsPerCSI-RS-IndexList::= SEQUENCE (SIZE (1..maxNrofIndexesToReport2)) OF ResultsPerCSI-RS-Index

ResultsPerCSI-RS-Index ::= SEQUENCE {

csi-RS-Index CSI-RS-Index,

csi-RS-Results MeasQuantityResults OPTIONAL

}

MeasResultServFreqListEUTRA-SCG ::= SEQUENCE (SIZE (1..maxNrofServingCellsEUTRA)) OF MeasResult2EUTRA

MeasResultServFreqListNR-SCG ::= SEQUENCE (SIZE (1..maxNrofServingCells)) OF MeasResult2NR

MeasResultListUTRA-FDD-r16 ::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultUTRA-FDD-r16

MeasResultUTRA-FDD-r16 ::= SEQUENCE {

physCellId-r16 PhysCellIdUTRA-FDD-r16,

measResult-r16 SEQUENCE {

utra-FDD-RSCP-r16 INTEGER (-5..91) OPTIONAL,

utra-FDD-EcN0-r16 INTEGER (0..49) OPTIONAL

}

}

MeasResultForRSSI-r16 ::= SEQUENCE {

rssi-Result-r16 RSSI-Range-r16,

channelOccupancy-r16 INTEGER (0..100)

}

MeasResultCLI-r16 ::= SEQUENCE {

measResultListSRS-RSRP-r16 MeasResultListSRS-RSRP-r16 OPTIONAL,

measResultListCLI-RSSI-r16 MeasResultListCLI-RSSI-r16 OPTIONAL

}

MeasResultListSRS-RSRP-r16 ::= SEQUENCE (SIZE (1.. maxCLI-Report-r16)) OF MeasResultSRS-RSRP-r16

MeasResultSRS-RSRP-r16 ::= SEQUENCE {

srs-ResourceId-r16 SRS-ResourceId,

srs-RSRP-Result-r16 SRS-RSRP-Range-r16

}

MeasResultListCLI-RSSI-r16 ::= SEQUENCE (SIZE (1.. maxCLI-Report-r16)) OF MeasResultCLI-RSSI-r16

MeasResultCLI-RSSI-r16 ::= SEQUENCE {

rssi-ResourceId-r16 RSSI-ResourceId-r16,

cli-RSSI-Result-r16 CLI-RSSI-Range-r16

}

UL-PDCP-DelayValueResultList-r16 ::= SEQUENCE (SIZE (1..maxDRB)) OF UL-PDCP-DelayValueResult-r16

UL-PDCP-DelayValueResult-r16 ::= SEQUENCE {

drb-Id-r16 DRB-Identity,

averageDelay-r16 INTEGER (0..10000),

...

}

UL-PDCP-ExcessDelayResultList-r17 ::= SEQUENCE (SIZE (1..maxDRB)) OF UL-PDCP-ExcessDelayResult-r17

UL-PDCP-ExcessDelayResult-r17 ::= SEQUENCE {

drb-Id-r17 DRB-Identity,

excessDelay-r17 INTEGER (0..31),

...

}

TimeBetweenEvent-r17 ::= INTEGER (0..1023)

-- TAG-MEASRESULTS-STOP

-- ASN1STOP

|  |
| --- |
| ***MeasResultEUTRA* field descriptions** |
| ***eutra-PhysCellId***  Identifies the physical cell identity of the E-UTRA cell for which the reporting is being performed. The UE reports a value in the range 0..503, other values are reserved. |

|  |
| --- |
| ***MeasResultNR* field descriptions** |
| ***averageDelay***  Indicates average delay for the packets during the reporting period, as specified in TS 38.314 [53]. Value 0 corresponds to 0 millisecond, value 1 corresponds to 0.1 millisecond, value 2 corresponds to 0.2 millisecond, and so on. |
| ***cellResults***  Cell level measurement results. |
| ***choCandidate***  This field indicates whether the associated cell is a candidate target cell for conditional handover. This field may be included only in the *SuccessHO-Report* within *UEInformationResponse* message. |
| ***choConfig***  If the associated cell is a candidate target cell for conditional handover, this field indicates the conditional handover execution condition for each *measId* within *condTriggerConfig* associated to the cell. This field may be included only in the *rlf-report* within *UEInformationResponse* message. |
| ***drb-Id***  Indicates DRB value for which uplink PDCP delay ratio or value is provided, according to TS 38.314 [53]. |
| ***firstTriggeredEvent***  This field is set to *condFirstEvent* if the execution condition associated to the first entry of *choConfig* was fulfilled first in time. This field is set to *condSecondEvent* if the execution condition associated to the second entry of *choConfig* was fulfilled first in time. This field may be included only in *rlf-report* within *UEInformationResponse* message. |
| ***locationInfo***  Positioning related information and measurements. |
| ***physCellId***  The physical cell identity of the NR cell for which the reporting is being performed. |
| ***resultsSSB-Cell***  Cell level measurement results based on SS/PBCH related measurements. |
| ***resultsSSB-Indexes***  Beam level measurement results based on SS/PBCH related measurements. |
| ***resultsCSI-RS-Cell***  Cell level measurement results based on CSI-RS related measurements. |
| ***resultsCSI-RS-Indexes***  Beam level measurement results based on CSI-RS related measurements. |
| ***rsIndexResults***  Beam level measurement results. |
| ***timeBetweenEvents***  Indicates the time elapsed between fulfilling the conditional execution conditions included in *choConfig*. Value in milliseconds. The maximum value 1023 means 1023ms or longer. This field may be included only in the reports associated to *UEInformationResponse* message, e.g., *rlf-Report*. |

|  |
| --- |
| ***MeasResultUTRA-FDD* field descriptions** |
| ***physCellId***  The physical cell identity of the UTRA-FDD cell for which the reporting is being performed. |
| ***utra-FDD-EcN0***  According to CPICH\_Ec/No in TS 25.133 [46] for FDD. |
| ***utra-FDD-RSCP***  According to CPICH\_RSCP in TS 25.133 [46] for FDD. |

| ***MeasResults* field descriptions** |
| --- |
| ***coarseLocationInfo***  This field indicates the coarse location information reported by the UE. This field is coded as the *Ellipsoid-Point* defined in TS 37.355 [49]. The first/leftmost bit of the first octet contains the most significant bit. The least significant bits of *degreesLatitude* and *degreesLongitude* are set to 0 to meet the accuracy requirement corresponds to a granularity of approximately 2 km.  It is up to UE implementation how many LSBs are set to 0 to meet the accuracy requirement |
| ***excessDelay***  Indicates the ratio of packets in UL per DRB exceeding the configured delay threshold among the UL PDCP SDUs, according to the UL PDCP Excess Packet Delay per DRB mapping table, as defined in TS 38.314 [53], Table 4.3.1.e-1. |
| ***measId***  Identifies the measurement identity for which the reporting is being performed. |
| ***measQuantityResults***  The value sinr is not included when it is used for *LogMeasReport-r16*. |
| ***measResultCellListSFTD-NR***  SFTD measurement results between the PCell and the NR neighbour cell(s) in NR standalone. |
| ***measResultCLI***  CLI measurement results. |
| ***measResultEUTRA***  Measured results of an E-UTRA cell. |
| ***measResultForRSSI***  Includes measured RSSI result in dBm (see TS 38.215 [9]) and *channelOccupancy* which is the percentage of samples when the RSSI was above the configured *channelOccupancyThreshold* for the associated *reportConfig*. |
| ***measResultListEUTRA***  List of measured results for the maximum number of reported best cells for an E-UTRA measurement identity. |
| ***measResultListNR***  List of measured results for the maximum number of reported best cells for an NR measurement identity. |
| ***measResultListUTRA-FDD***  List of measured results for the maximum number of reported best cells for a UTRA-FDD measurement identity. |
| ***measResultNR***  Measured results of an NR cell. |
| ***measResultServFreqListEUTRA-SCG***  Measured results of the E-UTRA SCG serving frequencies: the measurement result of PSCell and each SCell, if any, and of the best neighbouring cell on each E-UTRA SCG serving frequency. |
| ***measResultServFreqListNR-SCG***  Measured results of the NR SCG serving frequencies: the measurement result of PSCell and each SCell, if any, and of the best neighbouring cell on each NR SCG serving frequency. |
| ***measResultServingMOList***  Measured results of measured cells with reference signals indicated in the serving cell measurement objects including measurement results of SpCell, configured SCell(s) and best neighbouring cell within measured cells with reference signals indicated in on each serving cell measurement object. If the sending of the *MeasurementReport* message is triggered by a measurement configured by the field *sl-ConfigDedicatedForNR* received within an E-UTRA *RRCConnectionReconfiguration* message (i.e. CBR measurements), this field is not applicable and its contents is ignored by the network. |
| ***measResultSFTD-EUTRA***  SFTD measurement results between the PCell and the E-UTRA PScell in NE-DC. |
| ***measResultSFTD-NR***  SFTD measurement results between the PCell and the NR PScell in NR-DC. |
| ***measResultsSL***  CBR measurements results for NR sidelink communication/discovery. |
| ***measResultUTRA-FDD***  Measured result of a UTRA-FDD cell. |
| ***sl-MeasResultsCandRelay***  Measurement result(s) of candiate L2 U2N relay UE(s). |
| ***sl-MeasResultServingRelay***  Measurement result of serving L2 U2N relay UE. |

|  |
| --- |
| NEXT CHANGE |

# 9 Specified and default radio configurations

9.1.1.4 SCCH configuration

Parameters that are specified for unicast of NR sidelink communication, which is used for the sidelink signalling radio bearer of PC5-RRC message. The SL-SRB using this SCCH configuration is named as SL-SRB3.

| **Name** | **Value** | **Semantics description** | **Ver** |
| --- | --- | --- | --- |
| PDCP configuration |  |  |  |
| *>t-Reordering* | Undefined | Selected by the receiving UE, up to UE implementation |  |
| *>pdcp-SN-Size* | 12 |  |  |
| RLC configuration |  | AM RLC |  |
| *>sn-FieldLength* | 12 |  |  |
| *>t-Reassembly* | Undefined | Selected by the receiving UE, up to UE implementation |  |
| *>t-PollRetransmit* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>pollPDU* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>pollByte* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>maxRetxThreshold* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>t-StatusProhibit* | Undefined | Selected by the receiving UE, up to UE implementation |  |
| *>logicalChannelIdentity* | 3 |  |  |
| MAC configuration |  |  |  |
| *>priority* | 1 |  |  |
| *>prioritisedBitRate* | infinity |  |  |
| *>logicalChannelGroup* | 0 |  |  |
| >*schedulingRequestId* | 0 | The scheduling request configuration with this value is applicable for this SCCH if configured by the network. |  |
| >*sl-HARQ-FeedbackEnabled* | Undefined | Selected by the transmitting UE, up to UE implementation |  |

Parameters that are specified of NR sidelink communication, which is used for the sidelink signalling radio bearer of unprotected PC5-S message (e.g. Direct Link Establishment Request, TS 24.587 [57]). The SL-SRB using this SCCH configuration is named as SL-SRB0.

| **Name** | **Value** | **Semantics description** | **Ver** |
| --- | --- | --- | --- |
| PDCP configuration |  |  |  |
| *>t-Reordering* | Undefined | Selected by the receiving UE, up to UE implementation |  |
| *>pdcp-SN-Size* | 12 |  |  |
| RLC configuration |  | UM RLC |  |
| *>sn-FieldLength* | 6 |  |  |
| *>t-Reassembly* | Undefined | Selected by the receiving UE, up to UE implementation |  |
| *>logicalChannelIdentity* | 0 |  |  |
| MAC configuration |  |  |  |
| *>priority* | 1 |  |  |
| *>prioritisedBitRate* | infinity |  |  |
| *>logicalChannelGroup* | 0 |  |  |
| >*schedulingRequestId* | 0 | The scheduling request configuration with this value is applicable for this SCCH if configured by the network. |  |
| >*sl-HARQ-FeedbackEnabled* | Undefined | Selected by the transmitting UE, up to UE implementation |  |

Parameters that are specified for unicast of NR sidelink communication, which is used for the sidelink signalling radio bearer of PC5-S message establishing PC5-S security (e.g. Direct Link Security Mode Command and Direct Link Security Mode Complete, TS 24.587 [57]). The SL-SRB using this SCCH configuration is named as SL-SRB1.

| **Name** | **Value** | **Semantics description** | **Ver** |
| --- | --- | --- | --- |
| PDCP configuration |  |  |  |
| *>t-Reordering* | Undefined | Selected by the receiving UE, up to UE implementation |  |
| *>pdcp-SN-Size* | 12 |  |  |
| RLC configuration |  | AM RLC |  |
| *>sn-FieldLength* | 12 |  |  |
| *>t-Reassembly* | Undefined | Selected by the receiving UE, up to UE implementation |  |
| *>t-PollRetransmit* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>pollPDU* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>pollByte* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>maxRetxThreshold* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>t-StatusProhibit* | Undefined | Selected by the receiving UE, up to UE implementation |  |
| *>logicalChannelIdentity* | 1 |  |  |
| MAC configuration |  |  |  |
| *>priority* | 1 |  |  |
| *>prioritisedBitRate* | infinity |  |  |
| *>logicalChannelGroup* | 0 |  |  |
| >*schedulingRequestId* | 0 | The scheduling request configuration with this value is applicable for this SCCH if configured by the network. |  |
| >*sl-HARQ-FeedbackEnabled* | Undefined | Selected by the transmitting UE, up to UE implementation |  |

Parameters that are specified for unicast of NR sidelink communication, which is used for the sidelink signalling radio bearer of protected PC5-S message except Direct Link Security Mode Complete. The SL-SRB using this SCCH configuration is named as SL-SRB2.

| **Name** | **Value** | **Semantics description** | **Ver** |
| --- | --- | --- | --- |
| PDCP configuration |  |  |  |
| *>t-Reordering* | Undefined | Selected by the receiving UE, up to UE implementation |  |
| *>pdcp-SN-Size* | 12 |  |  |
| RLC configuration |  | AM RLC |  |
| *>sn-FieldLength* | 12 |  |  |
| *>t-Reassembly* | Undefined | Selected by the receiving UE, up to UE implementation |  |
| *>t-PollRetransmit* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>pollPDU* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>pollByte* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>maxRetxThreshold* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>t-StatusProhibit* | Undefined | Selected by the receiving UE, up to UE implementation |  |
| *>logicalChannelIdentity* | 2 |  |  |
| MAC configuration |  |  |  |
| *>priority* | 1 |  |  |
| *>prioritisedBitRate* | infinity |  |  |
| *>logicalChannelGroup* | 0 |  |  |
| >*schedulingRequestId* | 0 | The scheduling request configuration with this value is applicable for this SCCH if configured by the network. |  |
| >*sl-HARQ-FeedbackEnabled* | Undefined | Selected by the transmitting UE, up to UE implementation |  |

Parameters that are specified for NR sidelink discovery, which is used for the sidelink signalling radio bearer of NR sidelink discovery messages (e.g., Announcement message, Solicitation message and Response message, see TS 23.304 [65]). The SL-SRB using this SCCH configuration is named as SL-SRB4.

| **Name** | **Value** | **Semantics description** | **Ver** |
| --- | --- | --- | --- |
| PDCP configuration |  |  |  |
| *>*t-Reordering | Undefined | Selected by the receiving UE, up to UE implementation |  |
| *>*pdcp-SN-Size | 12 |  |  |
| RLC configuration |  | UM RLC |  |
| *>sn-FieldLength* | 6 |  |  |
| *>*t-Reassembly | Undefined | Selected by the receiving UE, up to UE implementation |  |
| *>*logicalChannelIdentity | 58 |  |  |
| MAC configuration |  |  |  |
| *>priority* | 1 |  |  |
| *>prioritisedBitRate* | infinity |  |  |
| *>logicalChannelGroup* | 0 |  |  |
| >*schedulingRequestId* | 0 | The scheduling request configuration with this value is applicable for this SCCH if configured by the network. |  |
| >*sl-HARQ-FeedbackEnabled* | disabled | HARQ feedback is not supported for NR sidelink discovery transmission |  |

Parameters that are specified for NR sidelink L2 U2N Relay operations, which is used for the PC5 Relay RLC channel for Remote UE's SRB0 message transmission/receiption. The PC5 Relay RLC channel using this configuration is named as SL-RLC0.

| **Name** | **Value** | **Semantics description** | **Ver** |
| --- | --- | --- | --- |
| RLC configuration |  | AM |  |
| *>sn-FieldLength* | 12 |  |  |
| *>t-Reassembly* | Undefined | Selected by the receving UE, up to UE implementation |  |
| *>t-PollRetransmit* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>pollPDU* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>pollByte* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>maxRetxThreshold* | Undefined | Selected by the transmitting UE, up to UE implementation |  |
| *>t-StatusProhibit* | Undefined | Selected by the receiving UE, up to UE implementation |  |
| *>logicalChannelIdentity* | 56 |  |  |
| MAC configuration |  |  |  |
| *>priority* | 1 |  |  |
| *>proritisedBitRate* | Inifinity |  |  |
| *>logicalChannelGroup* | 0 |  |  |
| >*schedulingRequestId* | 0 | The scheduling request configuration with this value is applicable for this SCCH if configured by the network. The scheduling request configuration is not applicable to L2 U2N Remote UE. |  |
| >*sl-HARQ-FeedbackEnabled* | Undefined | Selected by the transmitting UE, up to UE implementation |  |

|  |
| --- |
| NEXT CHANGE |

### 9.2.5 Default SRAP configurations

Parameters that are used for reception of Remote UE's *RRCResume*, *RRCRelease* in response to an *RRCResumeRequest*, and *RRCReestablishment* messages.

| Name | Value | Semantics description | Ver |
| --- | --- | --- | --- |
| SL SRAP Config |  |  |  |
| *> sl-LocalIdentity* | Undefined | SRAP PDUs with any local Identity will be submitted to the SRB1 PDCP entity. |  |
| *>* *sl-RemoteUE-RB-Identity* | SRB1 |  |  |

|  |
| --- |
| END OF CHANGES |