**3GPP TSG-RAN WG2 Meeting#124R2-231nnnn**

Chicago, November 13th – 17th 2023

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.331** | **CR** | **4452** | **rev** | **1** | **Current version:** | **17.6.0** |  |
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| *For* ***[HELP](http://www.3gpp.org/3G_Specs/CRs.htm" \l "_blank)*** *on using this form: comprehensive instructions can be found at  <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:*** | CR to 38331 for introducing SON/MDT features in Rel-18 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson, Huawei, ZTE | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_ENDC\_SON\_MDT\_enh2-Core | | | | |  | ***Date:*** | | | 2023-10-23 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Introduction of MRO functionalities for SON in Rel.18.  Introduction of MDT and NPN functionalities for SON in Rel.18.  Introduction of RACH report functionalities for SON in Rel.18. | | | | | | | | |
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| ***Summary of change:*** | | Implementation of agreements up to RAN2#124. | | | | | | | | |
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| ***Consequences if not approved:*** | | Rel.18 RRC specification does not include the new SON/MDT functionalities agreed for Rel.18 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3.3.4, 5.3.3.7, 5.3.5.3, 5.3.5.5.2, 5.3.5.9, 5.3.5.10, 5.3.7, 5.3.7.2, 5.3.7.4, 5.3.7.5, 5.3.8, 5.3.10.5, 5.3.13, 5.3.13.2, 5.3.13.4, 5.4.3, 5.4.3.4, 5.5a.1.3, 5.5a.3.2, 5.7.3.5, 5.7.9, 5.7.10.3, 5.7.10.4, 5.7.10.5, 5.7.10.6, 5.7.10.X, 6.2.2, 6.3.2, 6.3.4, 6.4, 7.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

FIRST CHANGE

#### 5.3.3.4 Reception of the *RRCSetup* by the UE

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

1> if the *RRCSetup* is received in response to an *RRCReestablishmentRequest*; or

1> if the *RRCSetup* is received in response to an *RRCResumeRequest* or *RRCResumeRequest1*:

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

3> instruct the MAC entity to stop the *cg-SDT-TimeAlignmentTimer*, if it is running;

3> instruct the MAC entity to start the *timeAlignmentTimer* associated with the PTAG*,* if it is not running;

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

3> instruct the MAC entity to stop the *inactivePosSRS-TimeAlignmentTimer*, if it is running;

2> discard any stored UE Inactive AS context and *suspendConfig*;

2> discard any current AS security context including the KRRCenc key, the KRRCint key, the KUPint key and the KUPenc key;

2> release radio resources for all established RBs except SRB0 and broadcast MRBs, including release of the RLC entities, of the associated PDCP entities and of SDAP;

2> release the RRC configuration except for the default L1 parameter values, default MAC Cell Group configuration, CCCH configuration and broadcast MRBs;

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

2> discard any application layer measurement reports which were not transmitted yet;

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

2> stop timer T380, if running;

1> perform the cell group configuration procedure in accordance with the received *masterCellGroup* and as specified in 5.3.5.5;

1> perform the radio bearer configuration procedure in accordance with the received *radioBearerConfig* and as specified in 5.3.5.6;

1> if stored, discard the cell reselection priority information provided by the *cellReselectionPriorities* or inherited from another RAT;

1> stop timer T300, T301, T319;

1> if T319a is running:

2> stop T319a;

2> consider SDT procedure is not ongoing;

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 T302 is running:

2> stop timer T302;

2> perform the actions as specified in 5.3.14.4;

1> stop timer T320, if running;

1> if the *RRCSetup* is received in response to an *RRCResumeRequest*, *RRCResumeRequest1* or *RRCSetupRequest*:

2> if T331 is running:

3> stop timer T331;

3> perform the actions as specified in 5.7.8.3;

2> enter RRC\_CONNECTED;

2> stop the cell re-selection procedure;

2> stop relay (re)selection procedure if any for L2 U2N Remote UE;

1> consider the current cell to be the PCell;

1> perform the L2 U2N Remote UE configuration procedure in accordance with the received *sl-L2RemoteUE-Config* as specified in 5.3.5.16;

1> perform the sidelink dedicated configuration procedure in accordance with the received *sl-ConfigDedicatedNR* as specified in 5.3.5.14;

1> 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*:

2> if *reconnectCellId* in *VarRLF-Report* is not set after failing to perform reestablishment and if this is the first *RRCSetup* received by the UE after declaring the failure:

3> if the UE supports RLF-Report for conditional handover and if *choCellId* in *VarRLF-Report* is set:

4> set *timeUntilReconnection* in *VarRLF-Report* to the time that elapsed since the radio link failure or handover failure experienced in the *failedPCellId* stored in *VarRLF-Report*;

3> else:

4> set *timeUntilReconnection* in *VarRLF-Report* to the time that elapsed since the last radio link failure or handover failure;

3> set *nrReconnectCellId* in *reconnectCellId* in *VarRLF-Report* to the global cell identity and the tracking area code of the PCell;

1> if the UE supports RLF report for inter-RAT MRO NR as defined in TS 36.306 [62], and if the UE has radio link failure or handover failure information available in *VarRLF-Report* of TS 36.331 [10] and if the RPLMN is included in *plmn-IdentityList* stored in *VarRLF-Report* of TS 36.331 [10]:

2> if *reconnectCellId* in *VarRLF-Report* of TS 36.331[10] is not set after failing to perform reestablishment and if this is the first *RRCSetup* received by the UE after declaring the failure:

3> set *timeUntilReconnection* in *VarRLF-Report* of TS 36.331[10] to the time that elapsed since the last radio link failure or handover failure in LTE;

3> set *nrReconnectCellId* in *reconnectCellId* in *VarRLF-Report* of TS 36.331[10] to the global cell identity and the tracking area code of the PCell;

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

2> if upper layers provide a 5G-S-TMSI:

3> if the *RRCSetup* is received in response to an *RRCSetupRequest*:

4> set the *ng-5G-S-TMSI-Value* to *ng-5G-S-TMSI-Part2*;

3> else:

4> set the *ng-5G-S-TMSI-Value* to *ng-5G-S-TMSI*;

2> if upper layers selected an SNPN or a PLMN and in case of PLMN UE is either allowed or instructed to access the PLMN via a cell for which at least one CAG ID is broadcast:

3> set the *selectedPLMN-Identity* from the *npn-IdentityInfoList*;

2> else:

3> set the *selectedPLMN-Identity* to the PLMN selected by upper layers from the *plmn-IdentityInfoList*;

2> if upper layers provide the 'Registered AMF':

3> include and set the *registeredAMF* as follows:

4> if the PLMN identity of the 'Registered AMF' is different from the PLMN selected by the upper layers:

5> include the *plmnIdentity* in the *registeredAMF* and set it to the value of the PLMN identity in the 'Registered AMF' received from upper layers;

4> set the *amf-Identifier* to the value received from upper layers;

3> include and set the *guami-Type* to the value provided by the upper layers;

2> if upper layers provide one or more S-NSSAI (see TS 23.003 [21]):

3> include the *s-NSSAI-List* and set the content to the values provided by the upper layers;

2> if upper layers provide onboarding request indication:

3> include the *onboardingRequest*;

2> set the *dedicatedNAS-Message* to include the information received from upper layers;

2> if connecting as an IAB-node:

3> include the *iab-NodeIndication*;

2> if the SIB1 contains *idleModeMeasurementsNR* and the UE has NR idle/inactive measurement information concerning cells other than the PCell available in *VarMeasIdleReport*; or

2> if the SIB1 contains *idleModeMeasurementsEUTRA* and the UE has E-UTRA idle/inactive measurement information available in *VarMeasIdleReport*:

3> include the *idleMeasAvailable*;

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

2> if the UE has logged measurements available for NR and if the current registered SNPN is included in *snpn-ConfigIDList* if stored in *VarLogMeasReport*:

3> include the *logMeasAvailable* in the *RRCSetupComplete* message;

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

4> include the *logMeasAvailableBT* in the *RRCSetupComplete* message;

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

4> include the *logMeasAvailableWLAN* in the *RRCSetupComplete* message;

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

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

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

4> set *sigLogMeasConfigAvailable* to *true* in the *RRCSetupComplete* message;

3> else:

4> if the UE has logged measurements:

5> set *sigLogMeasConfigAvailable* to *false* in the *RRCSetupComplete* message;

2> 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* or in at least one of the entries of *VarConnEstFailReportList*; or

2> if the UE supports multiple CEF report and if the UE has connection establishment failure information or connection resume failure information available in *VarConnEstFailReport* or *VarConnEstFailReportList* and if the current registered SNPN identity is equal to *snpn-identity* if stored in *VarConnEstFailReport* or any entry of *VarConnEstFailReportList*:

3> include *connEstFailInfoAvailable* in the *RRCSetupComplete* message;

2> 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

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

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

3> include *rlf-InfoAvailable* in the *RRCSetupComplete* message;

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

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

3> include *successHO-InfoAvailable* in the *RRCSetupComplete* message;

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

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

3> include *successPSCell-InfoAvailable* in the *RRCSetupComplete* message;

2> if the UE supports storage of mobility history information and the UE has mobility history information available in *VarMobilityHistoryReport*:

3> include the *mobilityHistoryAvail* in the *RRCSetupComplete* message;

2> if the UE supports uplink RRC message segmentation of *UECapabilityInformation*:

3> may include the *ul-RRC-Segmentation* in the *RRCSetupComplete* message;

2> if the *RRCSetup* is received in response to an *RRCResumeRequest*, *RRCResumeRequest1* or *RRCSetupRequest*:

3> if *speedStateReselectionPars* is configured in the *SIB2*:

4> include the *mobilityState* in the *RRCSetupComplete* message and set it to the mobility state (as specified in TS 38.304 [20]) of the UE just prior to entering RRC\_CONNECTED state;

1. submit the *RRCSetupComplete* message to lower layers for transmission, upon which the procedure ends.

NEXT CHANGE

#### 5.3.3.7 T300 expiry

The UE shall:

1> if timer T300 expires:

2> reset MAC, release the MAC configuration and re-establish RLC for all RBs that are established (except broadcast MRBs);

2> if the UE supports RRC Connection Establishment failure with temporary offset and the T300 has expired a consecutive *connEstFailCount* times on the same cell for which *connEstFailureControl* is included in *SIB1*:

3> for a period as indicated by *connEstFailOffsetValidity*:

4> use *connEstFailOffset* for the parameter *Qoffsettemp* for the concerned cell when performing cell selection and reselection according to TS 38.304 [20] and TS 36.304 [27];

NOTE 1: When performing cell selection, if no suitable or acceptable cell can be found, it is up to UE implementation whether to stop using *connEstFailOffset* for the parameter *Qoffsettemp* during *connEstFailOffsetValidity* for the concerned cell.

2> if the UE supports multiple CEF report:

3> if the UE is not registered in SNPN and if the UE has connection establishment failure information or connection resume failure information available in *VarConnEstFailReport* and if the RPLMN is equal to *plmn-identity* in *network-Identity* stored in *VarConnEstFailReport*; or

3> if the UE is registered in SNPN and if the UE has connection establishment failure information or connection resume failure information available in *VarConnEstFailReport* and if the registered SNPN identity is not equal to *network-Identity* stored in any entry of *VarConnEstFailReportList*:

4> if the cell identity of current cell is not equal to the cell identity stored in *measResultFailedCell* in *VarConnEstFailReport* and if the *maxCEFReport-r17* has not been reached:

5> append the VarConnEstFailReport as a new entry in the VarConnEstFailReportList;

2> if the UE has connection establishment failure information or connection resume failure information available in *VarConnEstFailReport* and if the RPLMN is not equal to *plmn-identity* stored in *VarConnEstFailReport*; or

2> if the cell identity of current cell is not equal to the cell identity stored in *measResultFailedCell* in *VarConnEstFailReport*:

3> reset the *numberOfConnFail* to 0;

2> if the UE supports multiple CEF report and if the UE has connection establishment failure information or connection resume failure information available in *VarConnEstFailReportList* and if the RPLMN is not equal to *plmn-identity* in *network-Identity* stored in any entry of *VarConnEstFailReportList;* or

2> if the UE supports multiple CEF report and if the UE has connection establishment failure information or connection resume failure information available in *VarConnEstFailReportList* and if the registered SNPN identity is not equal to *network-Identity* stored in any entry of *VarConnEstFailReportList*:

3> clear the content included in *VarConnEstFailReportList*;

2> clear the content included in *VarConnEstFailReport* except for the *numberOfConnFail*, if any;

2> store the following connection establishment failure information in the *VarConnEstFailReport* by setting its fields as follows:

3> if the UE is not in SNPN access mode:

4> set the *plmn-Identity* in *network-Identity* to the PLMN selected by upper layers (see TS 24.501 [23]) from the PLMN(s) included in the *plmn-IdentityInfoList* in *SIB1*;

3> else if the UE is in SNPN access mode:

4> set the *snpn-Identity* in *network-Identity* to include the SNPN identity selected by upper layers (see TS 24.501 [23]) from the list of SNPN(s) included in the *NPN-IdentityInfoList* in *SIB1*;

3> set the *measResultFailedCell* to include the global cell identity, tracking area code, the cell level and SS/PBCH block level RSRP, and RSRQ, and SS/PBCH block indexes, of the failed cell based on the available SSB measurements collected up to the moment the UE detected connection establishment failure;

3> if available, set the *measResultNeighCells*, in order of decreasing ranking-criterion as used for cell re-selection, to include neighbouring cell measurements for at most the following number of neighbouring cells: 6 intra-frequency and 3 inter-frequency neighbours per frequency as well as 3 inter-RAT neighbours, per frequency/ set of frequencies per RAT and according to the following:

4> for each neighbour cell included, include the optional fields that are available;

NOTE 2: The UE includes the latest results of the available measurements as used for cell reselection evaluation, which are performed in accordance with the performance requirements as specified in TS 38.133 [14].

3> if available, set the *locationInfo* as follows:

4> if available, set the *commonLocationInfo* to include the detailed location information;

4> if available, set the *bt-LocationInfo* to include the Bluetooth measurement results, in order of decreasing RSSI for Bluetooth beacons;

4> if available, set the *wlan-LocationInfo* to include the WLAN measurement results, in order of decreasing RSSI for WLAN APs;

4> if available, set the *sensor-LocationInfo* to include the sensor measurement results as follows;

5> if available, include the *sensor-MeasurementInformation*;

5> if available, include the *sensor-MotionInformation*;

NOTE 3: Which location information related configuration is used by the UE to make the *locationInfo* available for inclusion in the *VarConnEstFailReport* is left to UE implementation.

3> set *perRAInfoList* to indicate the performed random access procedure related information as specified in 5.7.10.5;

3> if the *numberOfConnFail* is smaller than 8:

4> increment the *numberOfConnFail* by 1;

2> inform upper layers about the failure to establish the RRC connection, upon which the procedure ends;

The UE may discard the connection establishment failure or connection resume failure information, i.e. release the UE variable *VarConnEstFailReport* and the UE variable *VarConnEstFailReportList*, 48 hours after the last connection establishment failure is detected.

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

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;

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

3> stop timer T350, if running;

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

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

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

3> stop timer T350, if running;

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

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

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

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

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

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

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

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

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

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

2> perform conditional reconfiguration as specified in 5.3.5.13;

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

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

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

2> else:

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

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

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

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

2> else:

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

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

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

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

2> else:

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

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

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

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

2> else:

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

3> stop timer T350, if running;

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

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

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

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

2> perform the L2 U2N 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> if the *RRCReconfiguration* message includes the *ue-TxTEG-RequestUL-TDOA-Config*:

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

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

2> else:

3> release the configuration of UE positioning assistance information;

1> 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*; or

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

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

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

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

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

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

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

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

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

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

4> else:

5> if the UE has logged measurements:

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

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

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

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

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

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

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

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

3> if the UE was configured with *successHO-Config* when connected to the source PCell; 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 supports logging the successful PSCell change or addition information, release *successPSCell-Config* configured by the source PCell, if available;

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

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

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

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

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

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

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 message (*RRCConnectionReconfiguration* or *RRCConnectionResume*) containing the *RRCReconfiguration* message:

4> perform SCG activation as specified in 5.3.5.13a;

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

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

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

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

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

5> else the procedure ends;

4> else the procedure ends;

3> else:

4> perform SCG deactivation as specified in 5.3.5.13b;

4> the procedure ends;

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

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

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

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

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

4> else the procedure ends;

3> else:

4> perform SCG deactivation as specified in 5.3.5.13b;

4> the procedure ends;

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

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

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

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

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

2> if the *RRCReconfiguration* is applied due to a conditional reconfiguration execution for CPC 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];

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

5> perform the actions for the successful PSCell change or addition report determination as specified in clause 5.7.10.X, upon successfully completing the Random Access procedure triggered for the *reconfigurationWithSync* in *spCellConfig* of the SCG;

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

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

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

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

4> else the procedure ends;

3> else the procedure ends;

2> else

3> perform SCG deactivation as specified in 5.3.5.13b;

3> the procedure ends;

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

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

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

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

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

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

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

6> if the UE was configured with *successPSCell-Config* by the PCell or by the source PSCell:

7> perform the actions for the successful PSCell change report determination as specified in clause 5.7.10.X, upon successfully completing the Random Access procedure triggered for the *reconfigurationWithSync* in *spCellConfig* of the SCG;

5> else:

6> the procedure ends;

4> else:

5> perform SCG deactivation as specified in 5.3.5.13b;

5> the procedure ends;

3> else:

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

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

6> perform SCG deactivation as specified in 5.3.5.13b;

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

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

3> if the UE was configured with *successPSCell-Config*:

4> perform the actions for the successful PSCell change report determination as specified in clause 5.7.10.X, upon successfully completing the Random Access procedure triggered for the *reconfigurationWithSync* in *spCellConfig* of the SCG;

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

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

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

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

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

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

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

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

4> perform SCG deactivation as specified in 5.3.5.13b;

3> else:

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

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

3> if *ta-Report* 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.

NEXT CHANGE

#### 5.3.5.5 Cell Group configuration

<<Text omitted>>

##### 5.3.5.5.2 Reconfiguration with sync

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

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

1> stop timer T430 if running;

1> if no DAPS bearer is configured:

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

1> if this procedure is executed for the MCG:

2> if timer T316 is running;

3> stop timer T316;

3>if the UE supports RLF-Report for fast MCG recovery procedure:

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

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

3> else:

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

2> resume MCG transmission, if suspended.

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

1> if *sl-PathSwitchConfig* is included:

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

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

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

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

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

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

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

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

2> if the *frequencyInfoDL* is included:

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

2> else:

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

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

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

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

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

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

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

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

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

2> If any DAPS bearer is configured:

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

3> for each DAPS bearer:

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

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

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

3> for each SRB:

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

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

3> suspend SRBs for the source cell group;

NOTE 3: Void

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

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

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

2> else:

3> reset the MAC entity of this cell group;

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

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

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

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

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

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

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

NEXT CHANGE

#### 5.3.5.9 Other configuration

The UE shall:

1> if the received *otherConfig* includes the *delayBudgetReportingConfig*:

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

3> consider itself to be configured to send delay budget reports in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to send delay budget reports and stop timer T342, if running.

1> if the received *otherConfig* includes the *overheatingAssistanceConfig*:

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

3> consider itself to be configured to provide overheating assistance information in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide overheating assistance information and stop timer T345, if running;

1> if the received *otherConfig* includes the *idc-AssistanceConfig*:

2> if *idc-AssistanceConfig* is set to *setup*:

3> consider itself to be configured to provide IDC assistance information in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide IDC assistance information;

1> if the received *otherConfig* includes the *drx-PreferenceConfig*:

2> if *drx-PreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on DRX parameters for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on DRX parameters for power saving for the cell group and stop timer T346a associated with the cell group, if running;

1> if the received *otherConfig* includes the *maxBW-PreferenceConfig*:

2> if *maxBW-PreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on the maximum aggregated bandwidth for power saving for the cell group in accordance with 5.7.4;

3> if *otherConfig* includes *maxBW-PreferenceConfigFR2-2*:

4> consider itself to be configured to provide its preference on the maximum aggregated bandwidth for FR2-2 for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on the maximum aggregated bandwidth for power saving for the cell group and stop timer T346b associated with the cell group, if running;

1> if the received *otherConfig* includes the *maxCC-PreferenceConfig*:

2> if *maxCC-PreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on the maximum number of secondary component carriers for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on the maximum number of secondary component carriers for power saving for the cell group and stop timer T346c associated with the cell group, if running;

1> if the received *otherConfig* includes the *maxMIMO-LayerPreferenceConfig*:

2> if *maxMIMO-LayerPreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on the maximum number of MIMO layers for power saving for the cell group in accordance with 5.7.4;

3> if *otherConfig* includes *maxMIMO-LayerPreferenceConfigFR2-2*:

4> consider itself to be configured to provide its preference on the maximum number of MIMO layers for FR2-2 for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on the maximum number of MIMO layers for power saving for the cell group and stop timer T346d associated with the cell group, if running;

1> if the received *otherConfig* includes the *minSchedulingOffsetPreferenceConfig*:

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

3> consider itself to be configured to provide its preference on the minimum scheduling offset for cross-slot scheduling for power saving for the cell group in accordance with 5.7.4;

3> if *otherConfig* includes *minSchedulingOffsetPreferenceConfigExt*:

4> consider itself to be configured to provide its preference on the minimum scheduling offset for 480 kHz SCS and/or 960 kHz SCS for cross-slot scheduling for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on the minimum scheduling offset for cross-slot scheduling for power saving for the cell group and stop timer T346e associated with the cell group, if running;

1> if the received *otherConfig* includes the *releasePreferenceConfig*:

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

3> consider itself to be configured to provide assistance information to transition out of RRC\_CONNECTED in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide assistance information to transition out of RRC\_CONNECTED and stop timer T346f, if running.

1> if the received *otherConfig* includes the *obtainCommonLocation*:

2> include available detailed location information for any subsequent measurement report or any subsequent RLF report and SCGFailureInformation;

NOTE 1: The UE is requested to attempt to have valid detailed location information available whenever sending a measurement report for which it is configured to include available detailed location information. The UE may not succeed e.g. because the user manually disabled the GPS hardware, due to no/poor satellite coverage. Further details, e.g. regarding when to activate GNSS, are up to UE implementation.

1> if the received *otherConfig* includes the *btNameList*:

2> if *btNameList* is set to *setup*, include available Bluetooth measurement results for any subsequent measurement report or any subsequent RLF report and SCGFailureInformation;

1> if the received *otherConfig* includes the *wlanNameList*:

2> if *wlanNameList* is set to *setup*, include available WLAN measurement results for any subsequent measurement report or any subsequent RLF report and SCGFailureInformation;

1> if the received *otherConfig* includes the *sensorNameList*:

2> if *sensorNameList* is set to *setup*, include available Sensor measurement results for any subsequent measurement report or any subsequent RLF report and SCGFailureInformation;

NOTE 2: The UE is requested to attempt to have valid Bluetooth measurements, WLAN measurements and Sensor measurements whenever sending a measurement report for which it is configured to include these measurements. The UE may not succeed e.g. because the user manually disabled the WLAN or Bluetooth or Sensor hardware. Further details, e.g. regarding when to activate WLAN or Bluetooth or Sensor, are up to UE implementation.

1> if the received *otherConfig* includes the *sl-AssistanceConfigNR*:

2> consider itself to be configured to provide configured grant assistance information for NR sidelink communication in accordance with 5.7.4;

1> if the received *otherConfig* includes the *referenceTimePreferenceReporting*:

2> consider itself to be configured to provide UE reference time assistance information in accordance with 5.7.4;

1> else:

2> consider itself not to be configured to provide UE reference time assistance information;

1> if the received *otherConfig* includes the *successHO-Config*:

2> consider itself to be configured to provide the successful handover information in accordance with 5.7.10.6;

1> else:

2> consider itself not to be configured to provide the successful handover information.

1> if the received *otherConfig* includes the *successPSCell-Config*:

2> consider itself to be configured by the corresponding cell group to provide the successful PSCell change or addition information in accordance with 5.7.10.X;

1> else:

2> consider itself not to be configured by the corresponding cell group to provide the successful PSCell change or addition information.

1> if the received *otherConfig* includes the *ul-GapFR2-PreferenceConfig*:

2> consider itself to be configured to provide its preference on FR2 UL gap in accordance with 5.7.4;

1> else:

2> consider itself not to be configured to provide its preference on FR2 UL gap;

1> if the received *otherConfig* includes the *musim-GapAssistanceConfig*:

2> if *musim-GapAssistanceConfig* is set to *setup*:

3> consider itself to be configured to provide MUSIM assistance information for gap preference in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide MUSIM assistance information for gap preference and stop timer T346h, if running;

1> if the received *otherConfig* includes the *musim-LeaveAssistanceConfig:*

2> if *musim-LeaveAssistanceConfig* is set to *setup*:

3> consider itself to be configured to provide MUSIM assistance information for leaving RRC\_CONNECTED in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide MUSIM assistance information for leaving RRC\_CONNECTED and stop timer T346g, if running.

1> if the received *otherConfig* includes the *rlm-RelaxationReportingConfig*:

2> if *rlm-RelaxationReportingConfig* is set to *setup*:

3> consider itself to be configured to report the relaxation state of RLM measurements in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to report the relaxation state of RLM measurements and stop timer T346j associated with the cell group, if running;

1> if the received *otherConfig* includes the *bfd-RelaxationReportingConfig*:

2> if *bfd-RelaxationReportingConfig* is set to *setup*:

3> consider itself to be configured to report the relaxation state of BFD measurements in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to report the relaxation state of BFD measurements and stop timer T346k associated with the cell group, if running;

1> if the received *otherConfig* includes the *scg-DeactivationPreferenceConfig*:

2> if the *scg-DeactivationPreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its SCG deactivation preference in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its SCG deactivation preference and stop timer T346i, if running.

1> if the received *otherConfig* includes the *propDelayDiffReportConfig*:

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

3> consider itself to be configured to provide service link propagation delay difference between serving cell and neighbour cell(s) in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide service link propagation delay difference between serving cell and neighbour cell(s).

1> if the received *otherConfig* includes the *rrm-MeasRelaxationReportingConfig*:

2> if the *rrm-MeasRelaxationReportingConfig* is set to *setup*:

3> consider itself to be configured to report the fulfilment of the criterion for relaxing RRM measurements in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to report the fulfilment of the criterion for relaxing RRM measurements.

NEXT CHANGE

#### 5.3.5.10 MR-DC release

The UE shall:

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

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

2> release *measConfig* associated with SCG;

2> if the UE is configured with NR SCG:

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

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

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

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

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

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

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

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

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

NEXT CHANGE

### 5.3.7 RRC connection re-establishment

<Text Omitted>

#### 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 while T301 is not running.

NOTE 0: It is up to UE implementation whether to initiate the procedure while T346g is running.

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

1> release *successPSCell-Config* by the PSCell, 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> if the UE is capable of L2 U2N Remote UE:

3> 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> perform cell selection in accordance with the cell selection process as specified in TS 38.304 [20].

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.

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; or

1> if the procedure was initiated due to mobility from NR failure as specified in 5.4.3.5 and if *voiceFallbackIndication* is included in the *MobilityFromNRCommand* message:

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-establish (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.

#### 5.3.7.5 Reception of the *RRCReestablishment* by the UE

The UE shall:

1> stop timer T301;

1> consider the current cell to be the PCell;

1> update the KgNB key based on the current KgNB key or the NH*,* using the received *nextHopChainingCount* value, as specified in TS 33.501 [11];

1> store the *nextHopChainingCount* value indicated in the *RRCReestablishment* message;

1> derive the KRRCenc and KUPenc keys associated with the previously configured *cipheringAlgorithm,* as specified in TS 33.501 [11];

1> derive the KRRCint and KUPint keys associated with the previously configured *integrityProtAlgorithm,* as specified in TS 33.501 [11].

1> request lower layers to verify the integrity protection of the *RRCReestablishment* message, using the previously configured algorithm and the KRRCint key;

1> if the integrity protection check of the *RRCReestablishment* message fails:

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

1> configure lower layers to resume integrity protection for SRB1 using the previously configured algorithm and the KRRCint key immediately, i.e., integrity protection shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

1> configure lower layers to resume ciphering for SRB1 using the previously configured algorithm and, the KRRCenc key immediately, i.e., ciphering shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

1> release the measurement gap configuration indicated by the *measGapConfig*, if configured;

1> release the MUSIM gap configuration indicated by the *musim-GapConfig*, if configured;

1> release the FR2 UL gap configuration indicated by the *ul-GapFR2-Config*, if configured;

1> perform the L2 U2N Remote UE configuration procedure in accordance with the received *sl-L2RemoteUE-Config* as specified in 5.3.5.16;

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

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

2> if the UE has logged measurements available for NR and if the current registered SNPN are included in *snpn-ConfigIDList* if stored in *VarLogMeasReport*:

3> include the *logMeasAvailable* in the *RRCReestablishmentComplete* message;

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

4> include the *logMeasAvailableBT* in the *RRCReestablishmentComplete* message;

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

4> include the *logMeasAvailableWLAN* in the *RRCReestablishmentComplete* message;

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

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

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

4> set *sigLogMeasConfigAvailable* to *true* in the *RRCReestablishmentComplete* message;

3> else:

4> if the UE has logged measurements:

5> set *sigLogMeasConfigAvailable* to *false* in the *RRCReestablishmentComplete* message;

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

2> if the UE supports multiple CEF report and if the UE has connection establishment failure information or connection resume failure information available in *VarConnEstFailReport* or *VarConnEstFailReportList* and if the registered SNPN identity is equal to *snpn-identity* if stored in *VarConnEstFailReport* or any entry of *VarConnEstFailReportList*:

3> include *connEstFailInfoAvailable* in the *RRCReestablishmentComplete* message;

2> 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

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

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

3> include *rlf-InfoAvailable* in the *RRCReestablishmentComplete* message;

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

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

3> include *successHO-InfoAvailable* in the *RRCReestablishmentComplete* message;

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

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

3> include *successPSCell-InfoAvailable* in the *RRCReestablishmentComplete* message;

1> submit the *RRCReestablishmentComplete* message to lower layers for transmission;

1> if *SIB21* is provided by the PCell:

2> if the UE initiated transmission of an *MBSInterestIndication*message during the last 1 second preceding detection of radio link failure:

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

1> the procedure ends.

NEXT CHANGE

### 5.3.8 RRC connection release

#### 5.3.8.1 General



Figure 5.3.8.1-1: RRC connection release, successful

The purpose of this procedure is:

- to release the RRC connection, which includes the release of the established radio bearers (except for broadcast MRBs), BH RLC channels, Uu Relay RLC channels, PC5 Relay RLC channels as well as all radio resources; or

- to suspend the RRC connection only if SRB2 and at least one DRB or multicast MRB or, for IAB, SRB2, are setup, which includes the suspension of the established radio bearers (except for broadcast MRBs).

#### 5.3.8.2 Initiation

The network initiates the RRC connection release procedure to transit a UE in RRC\_CONNECTED to RRC\_IDLE; or to transit a UE in RRC\_CONNECTED to RRC\_INACTIVE only if SRB2 and at least one DRB or multicast MRB or, for IAB, SRB2, is setup in RRC\_CONNECTED; or to transit a UE in RRC\_INACTIVE back to RRC\_INACTIVE when the UE tries to resume (for resuming a suspended RRC connection or for initiating SDT); or to transit a UE in RRC\_INACTIVE to RRC\_IDLE when the UE tries to resume (for resuming of a suspended RRC connection or for initiating SDT). The procedure can also be used to release and redirect a UE to another frequency.

#### 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> if the UE supports RLF-Report for fast MCG recovery procedure:

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

3> set the *pSCellId* to the global cell identity of the PSCell, if available, otherwise to the physical cell identity and carrier frequency of the PSCell;

2> else:

3> 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 (except those associated with broadcast MRBs) 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> if the UE is acting as L2 U2N Remote UE:

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

2> else:

3> 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;

NOTE 1c: *suspendConfig* is not stored as part of UE Inactive AS Context, except for the fields explicitly specified.

3> store any previously or subsequently received application layer measurement report containers 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 Uu Relay RLC channel(s), if configured;

2> release PC5 Relay RLC channel(s), if configured;

2> release the SRAP entity, if configured;

NOTE 2a: A L2 U2N Relay UE may re-establish the SL-RLC0, SL-RLC1 and SRAP entity after release.

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

NOTE 4: It is left to UE implementation whether to stop T430, if running, when going to RRC\_INACTIVE.

NEXT CHANGE

### 5.3.10 Radio link failure related actions <text omitted>

#### 5.3.10.5 RLF report content determination

The UE shall determine the content in the *VarRLF-Report* as follows:

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

1> if the UE is not in SNPN access mode, set the *plmn-IdentityList* to include the list of EPLMNs stored by the UE (i.e. includes the RPLMN);

1> else if the UE is in SNPN access mode, set the *snpn-IdentityList* to [FFS: include the registered SNPN], if available;

1> set the *measResultLastServCell* to include the cell level RSRP, RSRQ and the available SINR, of the source PCell (in case HO failure) or PCell (in case RLF) based on the available SSB and CSI-RS measurements collected up to the moment the UE detected failure;

1> if *measRSSI-ReportConfig* is configured for the frequency of the source PCell (in case HO failure) or PCell (in case of RLF), set the *measResultLastServCell-RSSI* to the linear average of the available RSSI sample value(s) provided by lower layers for the frequency of the source PCell (in case HO failure) or PCell (in case of RLF) up to the moment the UE detected the failure;

1> if the SS/PBCH block-based measurement quantities are available:

2> set the *rsIndexResults* in *measResultLastServCell* to include all the available measurement quantities of the source PCell (in case HO failure) or PCell (in case RLF), ordered such that the highest SS/PBCH block RSRP is listed first if SS/PBCH block RSRP measurement results are available, otherwise the highest SS/PBCH block RSRQ is listed first if SS/PBCH block RSRQ measurement results are available, otherwise the highest SS/PBCH block SINR is listed first, based on the available SS/PBCH block based measurements collected up to the moment the UE detected failure;

1> if the CSI-RS based measurement quantities are available:

2> set the *rsIndexResults* in *measResultLastServCell* to include all the available measurement quantities of the source PCell (in case HO failure) or PCell (in case RLF), ordered such that the highest CSI-RS RSRP is listed first if CSI-RS RSRP measurement results are available, otherwise the highest CSI-RS RSRQ is listed first if CSI-RS RSRQ measurement results are available, otherwise the highest CSI-RS SINR is listed first, based on the available CSI-RS based measurements collected up to the moment the UE detected failure;

1> for each of the configured *measObjectNR* in which measurements are available:

2> if the SS/PBCH block-based measurement quantities are available:

3> set the *measResultListNR* in *measResultNeighCells* to include all the available measurement quantities of the best measured cells, other than the source PCell (in case HO failure) or PCell (in case RLF), ordered such that the cell with highest SS/PBCH block RSRP is listed first if SS/PBCH block RSRP measurement results are available, otherwise the cell with highest SS/PBCH block RSRQ is listed first if SS/PBCH block RSRQ measurement results are available, otherwise the cell with highest SS/PBCH block SINR is listed first, based on the available SS/PBCH block based measurements collected up to the moment the UE detected failure;

4> for each neighbour cell included, include the optional fields that are available;

NOTE 0a: For the neighboring cells included in *measResultListNR* in *measResultNeighCells* ordered based on the SS/PBCH block measurement quantities, UE also includes the CSI-RS based measurement quantities, if available.

2> if the CSI-RS based measurement quantities are available:

3> set the *measResultListNR* in *measResultNeighCells* to include all the available measurement quantities of the best measured cells, other than the source PCell (in case HO failure) or PCell (in case RLF), ordered such that the cell with highest CSI-RS RSRP is listed first if CSI-RS RSRP measurement results are available, otherwise the cell with highest CSI-RS RSRQ is listed first if CSI-RS RSRQ measurement results are available, otherwise the cell with highest CSI-RS SINR is listed first, based on the available CSI-RS based measurements collected up to the moment the UE detected radio link failure;

4> for each neighbour cell included, include the optional fields that are available;

NOTE 0b: For ordering the neighboring cells based on the CSI-RS measurement quantities, UE includes measurements only for the cells not yet included in *measResultListNR* in *measResultNeighCells* to avoid overriding SS/PBCH block-based ordered measurements.

2> for each neighbour cell, if any, included in *measResultListNR* in *measResultNeighCells*:

3> if the UE supports RLF-Report for conditional handover and if the neighbour cell is one of the candidate cells for which the *reconfigurationWithSync* is included in the *masterCellGroup* in the MCG *VarConditionalReconfig* at the moment of the detected failure:

4> set *choConfig* in *MeasResult2NR* to the execution condition for each *measId* within *condTriggerConfig* associated to the neighbour cell within the MCG *VarConditionalReconfig*;

4> if the first entry of *choConfig* corresponds to a fulfilled execution condition at the moment of handover failure, or radio link failure; or

4> if the second entry of *choConfig*, if available, corresponds to a fulfilled execution condition at the moment of handover failure, or radio link failure:

5> set *firstTriggeredEvent* to the execution condition *condFirstEvent* corresponding to the first entry of *choConfig* or to the execution condition *condSecondEvent* corresponding to the second entry of *choConfig*, whichever execution condition was fulfilled first in time;

5> set *timeBetweenEvents* to the elapsed time between the point in time of fullfilling the condition in *choConfig* that was fulfilled first in time, and the point in time of fullfilling the condition in *choConfig* that was fulfilled second in time, if both the first execution condition corresponding to the first entry and the second execution condition corresponding to the second entry in the *choConfig* were fullfilled;

1> for each of the configured *measObjectNR* if *measRSSI-ReportConfig* is configured for the configured frequency:

2> set the *measResultNeighFreq-RSSI* in the *measResultNeighFreqList-RSSI* to the linear average of the available RSSI sample value(s) provided by lower layers for the frequencies other than the frequency of the source PCell (in case HO failure) or of the PCell (in case RLF), up to the moment the UE detected failure;

1> for each of the configured EUTRA frequencies in which measurements are available;

2> set the *measResultListEUTRA* in *measResultNeighCells* to include the best measured cells ordered such that the cell with highest RSRP is listed first if RSRP measurement results are available, otherwise the cell with highest RSRQ is listed first, and based on measurements collected up to the moment the UE detected failure;

3> for each neighbour cell included, include the optional fields that are available;

NOTE 1: The measured quantities are filtered by the L3 filter as configured in the mobility measurement configuration. The measurements are based on the time domain measurement resource restriction, if configured. Exclude-listed cells are not required to be reported.

1> set the *c-RNTI* to the C-RNTI used in the source PCell (in case HO failure) or PCell (in case RLF);

1> if the failure is detected due to reconfiguration with sync failure as described in 5.3.5.8.3, set the fields in *VarRLF-report* as follows:

2> set the *connectionFailureType* to *hof*;

2> if the UE supports RLF-Report for DAPS handover and if any DAPS bearer was configured while T304 was running:

3> set *lastHO-Type* to *daps*;

3> if radio link failure was detected in the source PCell, according to clause 5.3.10.3:

4> set *timeConnSourceDAPS-Failure* to the time between the initiation of the DAPS handover execution and the radio link failure detected in the source PCell while T304 was running;

4> set the *rlf-Cause* to the trigger for detecting the source radio link failure in accordance with clause 5.3.10.4;

2> if the UE supports RLF-Report for conditional handover and if configuration of the conditional handover is available in the MCG *VarConditionalReconfig* at the moment of the handover failure:

3> if the UE executed a conditional handover toward target PCell according to the *condRRCReconfig* of the target PCell:

4> set *timeSinceCHO-Reconfig* to the time elapsed between the execution of the last *RRCReconfiguration* message including *reconfigurationWithSync* for the target PCell of the failed conditional handover, and the reception in the source PCell of the last *conditionalReconfiguration* including the *condRRCReconfig* of the target PCell of the failed conditional handover;

3> else:

4> set *timeSinceCHO-Reconfig* to the time elapsed between the execution of the last *RRCReconfiguration* message including *reconfigurationWithSync* for the target PCell of the failed handover, and the reception in the source PCell of the last *conditionalReconfiguration* including the *condRRCReconfig*;

3> set *choCandidateCellList* to include the global cell identity, if available, and otherwise to the physical cell identity and carrier frequency of each of the candidate target cells for conditional handover included in *condRRCReconfig* within the MCG *VarConditionalReconfig* at the time of the failed handover, excluding the candidate target cells included in *measResulNeighCells*;

2> if the UE supports RLF-Report for conditional handover and if the last executed *RRCReconfiguration* message including *reconfigurationWithSync* was concerning a conditional handover:

3> set *lastHO-Type* to *cho*;

2> set the *nrFailedPCellId* in *failedPCellId* to the global cell identity and tracking area code, if available, and otherwise to the physical cell identity and carrier frequency of the target PCell of the failed handover;

2> include *nrPreviousCell* in *previousPCellId* and set it to the global cell identity and tracking area code of the PCell where the last *RRCReconfiguration* message including *reconfigurationWithSync* was received;

2> set the *timeConnFailure* to the elapsed time since the execution of the last *RRCReconfiguration* message including the *reconfigurationWithSync*;

1> else if the failure is detected due to Mobility from NR failure as described in 5.4.3.5, set the fields in *VarRLF-report* as follows:

2> set the *connectionFailureType* to *hof*;

2> if last *MobilityFromNRCommand* concerned a failed inter-RAT handover from NR to E-UTRA and if the UE supports Radio Link Failure Report for Inter-RAT MRO EUTRA (NR to EUTRA):

3> set the *eutraFailedPCellId* in *failedPCellId* to the global cell identity and tracking area code, if available, and otherwise to the physical cell identity and carrier frequency of the target PCell of the failed handover;

2> include *nrPreviousCell* in *previousPCellId* and set it to the global cell identity and tracking area code of the PCell where the last *MobilityFromNRCommand* message was received;

2> set the *timeConnFailure* to the elapsed time since the initialization of the handover associated to the last *MobilityFromNRCommand* message;

2> if *voiceFallbackIndication* is included in the last *MobilityFromNRCommand*:

3> include the v*oiceFallbackHO;*

1> else if the failure is detected due to radio link failure as described in 5.3.10.3, set the fields in *VarRLF-report* as follows:

2> set the *connectionFailureType* to *rlf*;

2> set the *rlf-Cause* to the trigger for detecting radio link failure in accordance with clause 5.3.10.4;

2> set the *nrFailedPCellId* in *failedPCellId* to the global cell identity and the tracking area code, if available, and otherwise to the physical cell identity and carrier frequency of the PCell where radio link failure is detected;

2> if an *RRCReconfiguration* message including the *reconfigurationWithSync* was received before the connection failure:

3> if the last successfully executed *RRCReconfiguration* message including the *reconfigurationWithSync* concerned an intra NR handover and it was received while connected to the previous PCell to which the UE was connected before connecting to the PCell where radio link failure is detected; and

3> if T311 was not running before entering the PCell in which the radio link failure was detected:

4> include the *nrPreviousCell* in *previousPCellId* and set it to the global cell identity and the tracking area code of the PCell where the last executed *RRCReconfiguration* message including *reconfigurationWithSync* was received;

4> if the last executed *RRCReconfiguration* message including *reconfigurationWithSync* was concerning a DAPS handover:

5> set *lastHO-Type* to *daps*;

4> else if the last executed *RRCReconfiguration* message including *reconfigurationWithSync* was concerning a conditional handover:

5> set *lastHO-Type* to *cho*;

4> set the *timeConnFailure* to the elapsed time since the execution of the last *RRCReconfiguration* message including the *reconfigurationWithSync*;

3> else if the last *RRCReconfiguration* message including the *reconfigurationWithSync* concerned a handover to NR from E-UTRA and if the UE supports Radio Link Failure Report for Inter-RAT MRO EUTRA:

4> include the *eutraPreviousCell* in *previousPCellId* and set it to the global cell identity and the tracking area code of the E-UTRA PCell where the last *RRCReconfiguration* message including *reconfigurationWithSync* was received embedded in E-UTRA RRC message *MobilityFromEUTRACommand* message as specified in TS 36.331 [10] clause 5.4.3.3;

4> set the *timeConnFailure* to the elapsed time since reception of the last *RRCReconfiguration* message including the *reconfigurationWithSync* embedded in E-UTRA RRC message *MobilityFromEUTRACommand* message as specified in TS 36.331 [10] clause 5.4.3.3;

2> if configuration of the conditional handover is available in the MCG *VarConditionalReconfig* at the moment of declaring the radio link failure:

3> set *timeSinceCHO-Reconfig* to the time elapsed between the detection of the radio link failure, and the reception, in the source PCell, of the last *conditionalReconfiguration* including the *condRRCReconfig* message;

3> set *choCandidateCellList* to include the global cell identity if available, and otherwise to the physical cell identity and carrier frequency of each of all the candidate target cells for conditional handover included in *condRRCReconfig* within the MCG *VarConditionalReconfig* at the time of radio link failure, excluding the candidate target cells included in *measResulNeighCells*;

1> if *connectionFailureType* is *rlf* and the *rlf-Cause* is set to *randomAccessProblem* or *beamFailureRecoveryFailure*; or

1> if *connectionFailureType* is *rlf* and the *rlf-Cause* is set to *lbtFailure* and the radio link failure is detected during the random access procedure; or

1> if *connectionFailureType* is *hof* and if the failed handover is an intra-RAT handover:

2> set the *ra-InformationCommon* to include the random-access related information as described in clause 5.7.10.5;

1> if *connectionFailureType* is *rlf* and the *rlf-Cause* is set to *lbtFailure*, and the radio link failure is not detected during the random access procedure:

2> set the *locationAndBandwidth* and *subcarrierSpacing* in *bwpInfo* associated to the UL BWP in which the consistent uplink LBT failure was detected;

1> if the *rlf-Cause* is set to *t310-Expiry* or *t312-Expiry*:

2> set the *ssbRLMConfigBitmap* and/or *csi-rsRLMConfigBitmap* in *measResultLastServCell* to include the radio link monitoring configuration of the last serving cell, if available;

1> if the UE supports RLF-Report for fast MCG recovery procedure:

2> if the fast MCG recovery procedure fails due to expiry of timer T316:

3> set the *mcgRecoveryFailureCause* to *t316-expiry*;

2> else if SCG was deactivated before initiation of the fast MCG recovery procedure:

3> set the *mcgRecoveryFailureCause* to *scgDeactivated*;

Editor´s note: Whether to log PSCell ID when SCG was deactivated at the time of MCG failure.

2> else if SCG was failed while the timer T316 was running or before initiation of the fast MCG recovery procedure:

3> set the *pSCellId* to the global cell identity of the PSCell, if available, otherwise to the physical cell identity and carrier frequency of the PSCell;

3> set the *scgFailureCause* value according to 5.7.3.5;

3> if SCG was failed while the timer T316 was running, set the *elapsedTimeSCGFailure* to the time elapsed between SCG failure and the MCG failure;

1> if available, set the *locationInfo* as in 5.3.3.7.

The UE may discard the radio link failure information or handover failure information, i.e. release the UE variable *VarRLF-Report*, 48 hours after the radio link failure/handover failure is detected.

NOTE 2: In this clause, the term 'handover failure' has been used to refer to 'reconfiguration with sync failure'.

NEXT CHANGE

### 5.3.13 RRC connection resume

<Text Omitted>

#### 5.3.13.2 Initiation

The UE initiates the procedure when upper layers or AS (when responding to RAN paging, upon triggering RNA updates while the UE is in RRC\_INACTIVE, for NR sidelink communication/discovery/V2X sidelink communication as specified in clause 5.3.13.1a) requests the resume of a suspended RRC connection or requests the resume for initiating SDT as specified in clause 5.3.13.1b.

The UE shall ensure having valid and up to date essential system information as specified in clause 5.2.2.2 before initiating this procedure.

Upon initiation of the procedure, the UE shall:

1> if the resumption of the RRC connection is triggered by response to NG-RAN paging:

2> select '0' as the Access Category;

2> perform the unified access control procedure as specified in 5.3.14 using the selected Access Category and one or more Access Identities provided by upper layers;

3> if the access attempt is barred, the procedure ends;

1> else if the resumption of the RRC connection is triggered by upper layers:

2> if the upper layers provide an Access Category and one or more Access Identities:

3> perform the unified access control procedure as specified in 5.3.14 using the Access Category and Access Identities provided by upper layers;

4> if the access attempt is barred, the procedure ends;

2> if the upper layers provide NSAG information and one or more S-NSSAI(s) triggering the access attempt (TS 23.501 [32] and TS 24.501 [23]):

3> apply the NSAG with highest NSAG priority among the NSAGs that are included in *SIB1* (i.e., in *FeatureCombination* and/or in *RA-PrioritizationSliceInfo*), and that are associated with the S-NSSAI(s) triggering the access attempt, in the Random Access procedure (TS 38.321 [3], clause 5.1);

NOTE: If there are multiple NSAGs with the same highest NAS-provided NSAG priority identified for access attempt as above, it is left to UE implementation to select the NSAG to be applied in the Random Access procedure.

2> if the resumption occurs after release with redirect with *mpsPriorityIndication*:

3> set the *resumeCause* to *mps-PriorityAccess*;

2> else:

3> set the *resumeCause* in accordance with the information received from upper layers;

1> else if the resumption of the RRC connection is triggered due to an RNA update as specified in 5.3.13.8:

2> if an emergency service is ongoing:

NOTE 1: How the RRC layer in the UE is aware of an ongoing emergency service is up to UE implementation.

3> select '2' as the Access Category;

3> set the *resumeCause* to *emergency*;

2> else:

3> select '8' as the Access Category;

2> perform the unified access control procedure as specified in 5.3.14 using the selected Access Category and one or more Access Identities to be applied as specified in TS 24.501 [23];

3> if the access attempt is barred:

4> set the variable *pendingRNA-Update* to *true*;

4> the procedure ends;

NOTE 2: In case the L2 U2N Relay UE initiates RRC connection resume triggered by reception of message from a L2 U2N Remote UE via SL-RLC0 or SL-RLC1 as specified in 5.3.13.1a, the L2 U2N Relay UE sets the *resumeCause* by implementation, but it can only set the *emergency*, *mps-PriorityAccess*, or *mcs-PriorityAccess* as *resumeCause*, if the same cause value in the message received from the L2 U2N Remote UE via SL-RLC0.

1> if the UE is in NE-DC or NR-DC:

2> if the UE does not support maintaining SCG configuration upon connection resumption:

3> release the MR-DC related configurations (i.e., as specified in 5.3.5.10) from the UE Inactive AS context, if stored;

1> if the UE does not support maintaining the MCG SCell configurations upon connection resumption:

2> release the MCG SCell(s) from the UE Inactive AS context, if stored;

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

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

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

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

2> apply the default SRB1 configuration as specified in 9.2.1;

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

1> release *delayBudgetReportingConfig* from the UE Inactive AS context, if stored;

1> stop timer T342, if running;

1> release *overheatingAssistanceConfig* from the UE Inactive AS context, if stored;

1> stop timer T345, if running;

1> release *idc-AssistanceConfig* from the UE Inactive AS context, if stored;

1> release *drx-PreferenceConfig* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346a, if running;

1> release *maxBW-PreferenceConfig* and *maxBW-PreferenceConfigFR2-2* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346b, if running;

1> release *maxCC-PreferenceConfig* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346c, if running;

1> release *maxMIMO-LayerPreferenceConfig* and *maxMIMO-LayerPreferenceConfigFR2-2* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346d, if running;

1> release *minSchedulingOffsetPreferenceConfig* and *minSchedulingOffsetPreferenceConfigExt* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346e, if running;

1> release *rlm-RelaxationReportingConfig* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346j, if running;

1> release *bfd-RelaxationReportingConfig* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346k, if running;

1> release *releasePreferenceConfig* from the UE Inactive AS context, if stored;

1> release *wlanNameList* from the UE Inactive AS context, if stored;

1> release *btNameList* from the UE Inactive AS context, if stored;

1> release *sensorNameList* from the UE Inactive AS context, if stored;

1> release *obtainCommonLocation* from the UE Inactive AS context, if stored;

1> stop timer T346f, if running;

1> stop timer T346i, if running;

1> release *referenceTimePreferenceReporting* from the UE Inactive AS context, if stored;

1> release *sl-AssistanceConfigNR* from the UE Inactive AS context, if stored;

1> release *musim-GapAssistanceConfig* from the UE Inactive AS context, if stored and stop timer T346h, if running;

1> release *musim-GapConfig* from the UE Inactive AS context, if stored;

1> release *musim-LeaveAssistanceConfig* from the UE Inactive AS context, if stored;

1> release *propDelayDiffReportConfig* from the UE Inactive AS context, if stored;

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

1> release *rrm-MeasRelaxationReportingConfig* from the UE Inactive AS context, if stored;

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

2> apply the specified configuration of SL-RLC0 used for the delivery of RRC message over SRB0 as specified in 9.1.1.4;

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

1> else:

2> apply the CCCH configuration as specified in 9.1.1.2;

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

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

2> if the resume procedure is initiated in a cell that is different to the PCell in which the UE received the stored *sdt-MAC-PHY-CG-Config*:

3> release the stored *sdt-MAC-PHY-CG-Config*;

3> instruct the MAC entity to stop the *cg-SDT-TimeAlignmentTimer*, if it is running;

1> if *ncd-SSB-RedCapInitialBWP-SDT* is configured:

2> if the resume procedure is initiated in a cell that is different to the PCell in which the UE received the stored *ncd-SSB-RedCapInitialBWP-SDT*:

3> release the stored *ncd-SSB-RedCapInitialBWP-SDT;*

1> if conditions for initiating SDT in accordance with 5.3.13.1b are fulfilled:

2> consider the resume procedure is initiated for SDT;

2> start timer T319a when the lower layers first transmit the CCCH message;

2> consider SDT procedure is ongoing;

1> else:

2> start timer T319;

2> instruct the MAC entity to stop the *cg*-*SDT*-*TimeAlignmentTimer*, if it is running;

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

2> indicate TA report initiation to lower layers;

1> set the variable *pendingRNA-Update* to *false*;

1> release *successHO-Config* from the UE Inactive AS context, if stored;1> release *successPSCell-Config* configured by the PCell from the UE Inactive AS context, if stored;

1> release *successPSCell-Config* configured by the PSCell from the UE Inactive AS context, if stored;

1> initiate transmission of the *RRCResumeRequest* message or *RRCResumeRequest1* in accordance with 5.3.13.3.

NEXT CHANGE

#### 5.3.13.4 Reception of the *RRCResume* by the UE

The UE shall:

1> stop timer T319, if running;

1> stop timer T319a, if running and consider SDT procedure is not ongoing;

1> stop timer T380, if running;

1> if T331 is running:

2> stop timer T331;

2> perform the actions as specified in 5.7.8.3;

1> if the *RRCResume* includes the *fullConfig*:

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

1> else:

2> if the *RRCResume* does not include the *restoreMCG-SCells*:

3> release the MCG SCell(s) from the UE Inactive AS context, if stored;

2> if the *RRCResume* does not include the *restoreSCG*:

3> release the MR-DC related configurations (i.e., as specified in 5.3.5.10) from the UE Inactive AS context, if stored;

2> restore the *masterCellGroup, mrdc-SecondaryCellGroup*, if stored, and *pdcp-Config* from the UE Inactive AS context;

2> configure lower layers to consider the restored MCG and SCG SCell(s) (if any) to be in deactivated state;

1> discard the UE Inactive AS context;

1> store the used *nextHopChainingCount* value associated to the current KgNB;

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

2> instruct the MAC entity to stop the *cg-SDT-TimeAlignmentTimer*, if it is running;

2> instruct the MAC entity to start the *timeAlignmentTimer* associated with the PTAG*,* if it is not running;

1> if *srs-PosRRC-InactiveConfig* is configured:

2> instruct the MAC entity to stop *inactivePosSRS-TimeAlignmentTimer*, if it is running;

1> release the *suspendConfig* except the *ran-NotificationAreaInfo*;

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

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

1> if the *RRCResume* includes the *mrdc-SecondaryCellGroup:*

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

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

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

3> 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*;

1> if the *RRCResume* includes the *radioBearerConfig*:

2> perform the radio bearer configuration according to 5.3.5.6;

1> if the *RRCResume* message includes the *sk-Counter*:

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

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

2> perform the radio bearer configuration according to 5.3.5.6;

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

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

1> if the *RRCResume* message includes the *sl-L2RemoteUE-Config* (i.e. the UE is a L2 U2N Remote UE):

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

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

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

1> resume SRB2 (if suspended), SRB3 (if configured), SRB4 (if configured), all DRBs (that are suspended) and multicast MRBs;

NOTE 1: If the SCG is deactivated, resuming SRB3 and all DRBs does not imply that PDCP or RRC PDUs can be transmitted or received on SCG RLC bearers.

1> if stored, discard the cell reselection priority information provided by the *cellReselectionPriorities* or inherited from another RAT;

1> stop timer T320, if running;

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

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

1> resume measurements if suspended;

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 T302 is running:

2> stop timer T302;

2> perform the actions as specified in 5.3.14.4;

1> enter RRC\_CONNECTED;

1> indicate to upper layers that the suspended RRC connection has been resumed;

1> stop the cell re-selection procedure;

1> stop relay reselection procedure if any for L2 U2N Remote UE;

1> consider the current cell to be the PCell;

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

2> if the upper layer provides NAS PDU, set the *dedicatedNAS-Message* to include the information received from upper layers;

2> if upper layers provides a PLMN:

3> if the UE is either allowed or instructed to access the PLMN via a cell for which at least one CAG ID is broadcast:

4> set the *selectedPLMN-Identity* from the *npn-IdentityInfoList*;

3> else:

4> set the *selectedPLMN-Identity* to the PLMN selected by upper layers from the *plmn-IdentityInfoList*;

2> if the *masterCellGroup* contains 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 *masterCellGroup* contains the *reportUplinkTxDirectCurrentTwoCarrier*:

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

2> if the *masterCellGroup* contains the *reportUplinkTxDirectCurrentMoreCarrier*:

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

2> if the UE has idle/inactive measurement information concerning cells other than the PCell available in *VarMeasIdleReport*:

3> if the *idleModeMeasurementReq* is included in the *RRCResume* message:

4> set the *measResultIdleEUTRA* in the *RRCResumeComplete* message to the value of *measReportIdleEUTRA* in the *VarMeasIdleReport,* if available;

4> set the *measResultIdleNR* in the *RRCResumeComplete* message to the value of *measReportIdleNR* in the *VarMeasIdleReport*, if available;

4> discard the *VarMeasIdleReport* upon successful delivery of the *RRCResumeComplete* message is confirmed by lower layers;

3> else:

4> if the SIB1 contains *idleModeMeasurementsNR* and the UE has NR idle/inactive measurement information concerning cells other than the PCell available in *VarMeasIdleReport*; or

4> if the SIB1 contains *idleModeMeasurementsEUTRA* and the UE has E-UTRA idle/inactive measurement information available in *VarMeasIdleReport*:

5> include the *idleMeasAvailable*;

2> if the *RRCResume* message includes *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 *RRCResume* message includes *mrdc-SecondaryCellGroup* set to *nr-SCG*:

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

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

2> if the UE has logged measurements available for NR and if the current registered SNPN are included in *snpn-ConfigIDList* if stored in *VarLogMeasReport*:

3> include the *logMeasAvailable* in the *RRCResumeComplete* message*;*

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

4> include the *logMeasAvailableBT* in the *RRCResumeComplete* message;

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

4> include the *logMeasAvailableWLAN* in the *RRCResumeComplete* message;

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

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

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

4> set *sigLogMeasConfigAvailable* to *true* in the *RRCResumeComplete* message;

3> else:

4> if the UE has logged measurements:

5> set *sigLogMeasConfigAvailable* to *false* in the *RRCResumeComplete* message;

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

2> if the UE supports multiple CEF report and if the UE has connection establishment failure information or connection resume failure information available in *VarConnEstFailReport* or *VarConnEstFailReportList* and if the registered SNPN identity is equal to *snpn-identity* if stored in *VarConnEstFailReport* or any entry of *VarConnEstFailReportList*:

3> include *connEstFailInfoAvailable* in the *RRCResumeComplete* message;

2> 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

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

2> if the UE has radio link failure or handover failure information available in *VarRLF-Report* and if the current registered SNPN are included in *snpn-IdentityList* if stored in *VarRLF-Report*; or

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

3> include *rlf-InfoAvailable* in the *RRCResumeComplete* message;2> if the UE has successful PSCell change or addition related information available in *VarSuccessPSCell-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarSuccessPSCell-Report*; or

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

3> include *successPSCell-InfoAvailable* in the *RRCResumeComplete* message;

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

3> include *successHO-InfoAvailable* in the *RRCResumeComplete* message;

2> if the UE supports storage of mobility history information and the UE has mobility history information available in *VarMobilityHistoryReport*:

3> include the *mobilityHistoryAvail* in the *RRCResumeComplete* message;

2> if *speedStateReselectionPars* is configured in the *SIB2*:

3> include the *mobilityState* in the *RRCResumeComplete* message and set it to the mobility state (as specified in TS 38.304 [20]) of the UE just prior to entering RRC\_CONNECTED state;

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

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

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

4> if *requestedTargetBandFilterNR* is configured, 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; otherwise, include an entry in *interFreq-needForGap* and set the corresponding gap requirement information for each supported NR band;

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

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

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

4> if *requestedTargetBandFilterNCSG-NR* is configured:

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

4> else:

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

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

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

4> if *requestedTargetBandFilterNCSG-EUTRA* is configured:

5> 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;

4> else:

5> include an entry for each supported E-UTRA band in *needForNCSG-EUTRA* and set the corresponding NCSG requirement information;

1> submit the *RRCResumeComplete* message to lower layers for transmission;

1> the procedure ends.

NOTE 2: Network only configures at most one of *reportUplinkTxDirectCurrent, reportUplinkTxDirectCurrentTwoCarrier* or *reportUplinkTxDirectCurrentMoreCarrier* in one RRC message*.*

NEXT CHANGE

### 5.4.3 Mobility from NR

<Text Omitted>

#### 5.4.3.3 Reception of the *MobilityFromNRCommand* by the UE

The UE shall:

1> stop timer T310, if running;

1> stop timer T312, if running;

1> if T316 is running:

2> stop timer T316;

2> if the UE supports RLF-Report for fast MCG recovery procedure:

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

2> else:

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

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 *targetRAT-Type* is set to *eutra*:

2> consider inter-RAT mobility as initiated towards E-UTRA;

2> forward the *nas-SecurityParamFromNR* to the upper layers, if included;

1> else if the *targetRAT-Type* is set to *utra-fdd*:

2> consider inter-RAT mobility as initiated towards UTRA-FDD;

2> forward the *nas-SecurityParamFromNR* to the upper layers, if included;

1> if *successHO-Config* is configured:

2> consider itself to be configured to provide the successful handover information for inter-RAT handover in accordance with 5.7.10.6;

1> else:

2> consider itself not to be configured to provide the successful handover information for inter-RAT handover.

1> access the target cell indicated in the inter-RAT message in accordance with the specifications of the target RAT.

#### 5.4.3.4 Successful completion of the mobility from NR

Upon successfully completing the handover, at the source side the UE shall:

1> reset MAC;

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

1> release *ran-NotificationAreaInfo*, if stored;

1> release the AS security context including the KRRCenc key, the KRRCint key, the KUPint key and the KUPenc key, if stored;

1> release all radio resources, including release of the RLC entity and the MAC configuration;

1> release the associated PDCP entity and SDAP entity for all established RBs;

NOTE : PDCP and SDAP configured by the source RAT prior to the handover that are reconfigured and re-used by target RAT when delta signalling (i.e., during inter-RAT intra-system handover when *fullConfig* is not present) is used, are not released as part of this procedure.

1> if the UE was configured with *successHO-Config* when connected to the source PCell and the *targetRAT-Type* is set to *eutra*:

2> perform the actions for the successful handover report determination as specified in clause 5.7.10.6.

1> if the *targetRAT-Type* is set to *eutra* and the *nas-SecurityParamFromNR* is included: or

1> if the *targetRAT-Type* is set to *utra-fdd*:

2> indicate the release of the RRC connection to upper layers together with the release cause 'other'.

NEXT CHANGE

## 5.5a Logged Measurements

### 5.5a.1 Logged Measurement Configuration

#### 5.5a.1.1 General



Figure 5.5a.1.1-1: Logged measurement configuration

The purpose of this procedure is to configure the UE to perform logging of measurement results while in RRC\_IDLE and RRC\_INACTIVE. The procedure applies to logged measurements capable UEs that are in RRC\_CONNECTED.

NOTE: NG-RAN may retrieve stored logged measurement information by means of the UE information procedure.

#### 5.5a.1.2 Initiation

NG-RAN initiates the logged measurement configuration procedure to UE in RRC\_CONNECTED by sending the *LoggedMeasurementConfiguration* message.

#### 5.5a.1.3 Reception of the *LoggedMeasurementConfiguration* by the UE

Upon receiving the *LoggedMeasurementConfiguration* message the UE shall:

1> discard the logged measurement configuration as well as the logged measurement information as specified in 5.5a.2;

1> store the received *loggingDuration*, *reportType* and *areaConfiguration*, if included, in *VarLogMeasConfig*;

1> If the UE is registered in SNPN:

2> if the *LoggedMeasurementConfiguration* message includes *snpn-ConfigList*:

3> set the *snpn-ConfigIDList* in *VarLogMeasReport* to include the current registered SNPN ID as well as SNPN IDs in *snpn-ConfigList*;

2> else:

3> set the *snpn-ConfigIDList* in *VarLogMeasReport* to include the current registered SNPN ID;

1> else if the *LoggedMeasurementConfiguration* message includes *plmn-IdentityList* or *cag-ConfigList*:

2> set *plmn-IdentityList* in *VarLogMeasReport* to include the RPLMN as well as the PLMNs included in *plmn-IdentityList* and PLMNs included in *cag-ConfigList*;

1> else:

2> set *plmn-IdentityList* in *VarLogMeasReport* to include the RPLMN;

1> store the received *absoluteTimeInfo*, *traceReference,* *traceRecordingSessionRef*, and *tce-Id* in *VarLogMeasReport*;

1> store the received *bt-NameList*, if included, in *VarLogMeasConfig*;

1> store the received *wlan-NameList*, if included, in *VarLogMeasConfig*;

1> store the received *sensor-NameList*, if included, in *VarLogMeasConfig*;

1> start timer T330 with the timer value set to the *loggingDuration*;

1> store the received *sigLoggedMeasType,* if included, in *VarLogMeasReport*;

1> store the received *earlyMeasIndication,* if included, in *VarLogMeasConfig*;

#### 5.5a.1.4 T330 expiry

Upon expiry of T330 the UE shall:

1> release *VarLogMeasConfig*;

The UE is allowed to discard stored logged measurements, i.e. to release *VarLogMeasReport*, 48 hours after T330 expiry.

### 5.5a.2 Release of Logged Measurement Configuration

#### 5.5a.2.1 General

The purpose of this procedure is to release the logged measurement configuration as well as the logged measurement information.

#### 5.5a.2.2 Initiation

The UE shall initiate the procedure upon receiving a logged measurement configuration in same or another RAT. The UE shall also initiate the procedure upon power off or upon deregistration.

The UE shall:

1> stop timer T330, if running;

1> if stored, discard the logged measurement configuration as well as the logged measurement information, i.e. release the UE variables *VarLogMeasConfig* and *VarLogMeasReport*.

### 5.5a.3 Measurements logging

#### 5.5a.3.1 General

This procedure specifies the logging of available measurements by a UE in RRC\_IDLE and RRC\_INACTIVE that has a logged measurement configuration. The actual process of logging within the UE, takes place in RRC IDLE state could continue in RRC INACTIVE state or vice versa.

#### 5.5a.3.2 Initiation

While T330 is running and SDT procedure is not ongoing, the UE shall:

1> if measurement logging is suspended:

2> if during the last logging interval the IDC problems detected by the UE is resolved, resume measurement logging;

1> if not suspended, perform the logging in accordance with the following:

2> if the *reportType* is set to *periodical* in the *VarLogMeasConfig*:

3> if the UE is in any cell selection state (as specified in TS 38.304 [20]):

4> perform the logging at regular time intervals, as defined by the *loggingInterval* in the *VarLogMeasConfig*;

3> if the UE is in camped normally state on an NR cell and if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*; or

3> if the UE is in camped normally state on an NR cell and if the registered SNPN is included in *snpn-ConfigIDList* stored in *VarLogMeasReport*:

4> if areaConfiguration is not included in *VarLogMeasConfig*; or

4> if the serving cell is part of the area indicated by *areaConfig* in *areaConfiguration* in *VarLogMeasConfig*; or

4> if the serving cell is part of the area indicated by *cag-ConfigList* in *areaConfiguration* in *VarLogMeasConfig*; or

4> if the serving cell is part of the area indicated by *snpn-ConfigList* in *areaConfiguration* in *VarLogMeasConfig*:

5> perform the logging at regular time intervals, as defined by the *loggingInterval* in the *VarLogMeasConfig*;

2> else if the *reportType* is set to *eventTriggered*, and *eventType* is set to *outOfCoverage*:

3> perform the logging at regular time intervals as defined by the *loggingInterval* in *VarLogMeasConfig* only when the UE is in any cell selection state;

3> upon transition from any cell selection state to camped normally state in NR:

4> if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*, or if the registered SNPN is included in *snpn-ConfigIDList* stored in *VarLogMeasReport*; and

4> if *areaConfiguration* is not included in *VarLogMeasConfig* or if the current camping cell is part of the area indicated by *areaConfig* of *areaConfiguration* in *VarLogMeasConfig*, or if the current camping cell is part of the area indicated by *cag-ConfigList* of *areaConfiguration* in *VarLogMeasConfig,* or if the current camping cell is part of the area indicated by *snpn-ConfigList* of *areaConfiguration* in *VarLogMeasConfig*:

5> perform the logging;

2> else if the *reportType* is set to *eventTriggered* and *eventType* is set to *eventL1*:

3> if the UE is in camped normally state on an NR cell and if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*, or if the UE is in camped normally state on an NR cell and if the registered SNPN is included in *snpn-ConfigIDList* stored in *VarLogMeasReport*:

4> if *areaConfiguration* is not included in *VarLogMeasConfig*; or

4> if the serving cell is part of the area indicated by *areaConfig* in *areaConfiguration* in *VarLogMeasConfig*, or if the current camping cell is part of the area indicated by *cag-ConfigList* of *areaConfiguration* in *VarLogMeasConfig,* or if the current camping cell is part of the area indicated by *snpn-ConfigList* of *areaConfiguration* in *VarLogMeasConfig*;

5> perform the logging at regular time intervals as defined by the *loggingInterval* in *VarLogMeasConfig* only when the conditions indicated by the *eventL1* are met;

2> when performing the logging:

3> if *InterFreqTargetInfo* is configured and if the UE detected IDC problems on at least one of the frequencies included in *InterFreqTargetInfo* or any inter-RAT frequency during the last logging interval, or

3> if *InterFreqTargetInfo* is not configured and if the UE detected IDC problems during the last logging interval:

4> if *measResultServingCell* in the *VarLogMeasReport* is not empty:

5> include *inDeviceCoexDetected*;

5> suspend measurement logging from the next logging interval;

4> else:

5> suspend measurement logging;

3> set the *relativeTimeStamp* to indicate the elapsed time since the moment at which the logged measurement configuration was received;

3> if location information became available during the last logging interval, set the content of the *locationInfo* as in 5.3.3.7:

3> if the UE is in any cell selection state (as specified in TS 38.304 [20]):

4> set *anyCellSelectionDetected* to indicate the detection of no suitable or no acceptable cell found;

4> if the *reportType* is set to *eventTriggered* in the *VarLogMeasConfig*; and

4> if the RPLMN at the time of entering the any cell selection state is included in *plmn-IdentityList* stored in *VarLogMeasReport*; and

4> if *areaConfiguration* is not included in *VarLogMeasConfig* or if the last suitable cell that the UE was camping on is part of the area indicated by *areaConfig* of *areaConfiguration* in *VarLogMeasConfig*, or if last suitable cell that the UE was camping on is part of the area indicated by *cag-ConfigList* of *areaConfiguration* in *VarLogMeasConfig,* or if last suitable cell that the UE was camping on is part of the area indicated by *snpn-ConfigList* of *areaConfiguration* in *VarLogMeasConfig*:

5> set the *servCellIdentity* to indicate global cell identity of the last suitable cell that the UE was camping on;

5> set the *measResultServingCell* to include the quantities of the last suitable cell the UE was camping on;

4> else if the *reportType* is set to *periodical* in the *VarLogMeasConfig*:

5> set the *servCellIdentity* to indicate global cell identity of the last logged cell that the UE was camping on;

5> set the *measResultServingCell* to include the quantities of the last logged cell the UE was camping on;

3> else:

4> set the *servCellIdentity* to indicate global cell identity of the cell the UE is camping on;

4> set the *measResultServingCell* to include the quantities of the cell the UE is camping on;

3> if available, set the *measResultNeighCells*, in order of decreasing ranking-criterion as used for cell re-selection, to include measurements of neighbouring cell that became available during the last logging interval and according to the following:

4> include measurement results for at most 6 neighbouring cells on the NR serving frequency and for at most 3 cells per NR neighbouring frequency and for the NR neighbouring frequencies in accordance with the following:

5> if *interFreqTargetInfo* is included in *VarLogMeasConfig*:

6> if *earlyMeasIndication* is included in *VarLogMeasConfig*;

7> include measurement results for NR neighbouring frequencies that are included in both *interFreqTargetInfo* and either in *measIdleCarrierListNR* (within the *VarMeasIdleConfig*) or *SIB4*;

6> else:

7> include measurement results for NR neighbouring frequencies that are included in both *interFreqTargetInfo* and *SIB4*;

5> else:

6> if *earlyMeasIndication* is included in *VarLogMeasConfig*;

7> include measurement results for NR neighbouring frequencies that are included in either *measIdleCarrierListNR* (within the *VarMeasIdleConfig*) or *SIB4*;

6> else:

7> include measurement results for NR neighbouring frequencies that are included in *SIB4*;

4> include measurement results for at most 3 neighbours per inter-RAT frequency in accordance with the following:

5> if *earlyMeasIndication* is included in *VarLogMeasConfig*:

6> include measurement results for inter-RAT neighbouring frequencies that are included in either *measIdleCarrierListEUTRA* (within the *VarMeasIdleConfig*) or *SIB5*;

5> else:

6> include measurement results for inter-RAT frequencies that are included in *SIB5*;

4> for each neighbour cell included, include the optional fields that are available;

NOTE 1: The UE includes the latest results of the available measurements as used for cell reselection evaluation in RRC\_IDLE or RRC\_INACTIVE, which are performed in accordance with the performance requirements as specified in TS 38.133 [14].

NOTE 2: For logging the measurements on frequencies (indicated in *measIdleCarrierListNR/ measIdleCarrierListEUTRA*) in the logged measurement, the *qualityThreshold* in *measIdleConfig* should not be applied, and how the UE logs the measurements on the frequencies is left to the UE implementation.

2> when the memory reserved for the logged measurement information becomes full, stop timer T330 and perform the same actions as performed upon expiry of T330, as specified in 5.5a.1.4.

NEXT CHANGE

### 5.7.3 SCG failure information

<Text Omitted>

#### 5.7.3.5 Actions related to transmission of *SCGFailureInformation* message

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

1> if the UE initiates transmission of the *SCGFailureInformation* message due to T310 expiry:

2> set the *failureType* as *t310-Expiry*;

1> else if the UE initiates transmission of the *SCGFailureInformation* message due to T312 expiry:

2> set the *failureType* as *other* and set the *failureType-v1610* as *t312-Expiry*;

1> else if the UE initiates transmission of the *SCGFailureInformation* message to provide reconfiguration with sync failure information for an SCG:

2> set the *failureType* as *synchReconfigFailureSCG*;

1> else if the UE initiates transmission of the *SCGFailureInformation* message to provide random access problem indication from SCG MAC:

2> if the random access procedure was initiated for beam failure recovery:

3> set the *failureType* as *other* and set the *failureType-v1610* as *beamFailureRecoveryFailure*;

2> else:

3> set the *failureTyp*e as *randomAccessProblem*;

1> else if the UE initiates transmission of the *SCGFailureInformation* message to provide indication from SCG RLC that the maximum number of retransmissions has been reached:

2> set the *failureType* as *rlc-MaxNumRetx*;

1> else if the UE initiates transmission of the *SCGFailureInformation* message due to SRB3 IP check failure:

2> set the *failureType* as *srb3-IntegrityFailure*;

1> else if the UE initiates transmission of the *SCGFailureInformation* message due to Reconfiguration failure of NR RRC reconfiguration message:

2> set the *failureType* as *scg-reconfigFailure*;

1> else if the UE initiates transmission of the *SCGFailureInformation* message due to consistent uplink LBT failures:

2> set the *failureType* as *other* and set the *failureType-v1610* as *scg-lbtFailure*;

1> else if connected as an IAB-node and the *SCGFailureInformation* is initiated due to the reception of a BH RLF indication on BAP entity from the SCG:

2> set the *failureType* as *other* and set *failureType-v1610* as *bh-RLF*;

1> else if the UE initiates transmission of the *SCGFailureInformation* message due to beam failure of the PSCell while the SCG is deactivated:

2> set the *failureType* as *other* and set *failureType-v1610* as *beamFailure;*

1> include and set *MeasResultSCG*-Failure in accordance with 5.7.3.4;

1> for each *MeasObjectNR* configured by a *MeasConfig* associated with the MCG, and for which measurement results are available:

2> include an entry in *measResultFreqList*;

2> if there is a *measId* configured with the *MeasObjectNR* and a *reportConfig* which has *rsType* set to *ssb*:

3> set *ssbFrequency* in *measResultFreqList* to the value indicated by *ssbFrequency* as included in the *MeasObjectNR*;

2> if there is a *measId* configured with the *MeasObjectNR* and a *reportConfig* which has *rsType* set to *csi-rs*:

3> set *refFreqCSI-RS* in *measResultFreqList* to the value indicated by *refFreqCSI-RS* as included in the associated measurement object;

2> if a serving cell is associated with the *MeasObjectNR*:

3> set *measResultServingCell* in *measResultFreqList* to include the available quantities of the concerned cell and in accordance with the performance requirements in TS 38.133 [14];

2> set the *measResultNeighCellList* in *measResultFreqList* to include the best measured cells, ordered such that the best cell is listed first, and based on measurements collected up to the moment the UE detected the failure, and set its fields as follows;

3> ordering the cells with sorting as follows:

4> based on SS/PBCH block if SS/PBCH block measurement results are available and otherwise based on CSI-RS;

4> using RSRP if RSRP measurement results are available, otherwise using RSRQ if RSRQ measurement results are available, otherwise using SINR;

3> if the UE supports SCG failure information for mobility robustness optimization for conditional PSCell change or addition, for each neighbour cell, if any, included in *measResultListNR* in *measResultFreqList*:

4> if the neighbour cell is one of the candidate cells for which the *reconfigurationWithSync* is included in the *secondaryCellGroup* in the MCG *VarConditionalReconfig* (for CPA or MN-initiated inter-SN CPC in NR-DC) or SCG *VarConditionalReconfig* (for intra-SN CPC) at the moment of the detected SCG failure (radio link failure at PSCell or PSCell change or addition failure):

5> if the first entry of *choConfig* corresponds to a fulfilled execution condition at the moment of SCG failure; or

5> if the second entry of *choConfig*, if available, corresponds to a fulfilled execution condition at the moment of SCG failure:

6> set *firstTriggeredEvent* to the execution condition *condFirstEvent* corresponding to the first entry of *choConfig* or to the execution condition *condSecondEvent* corresponding to the second entry of *choConfig*, whichever execution condition was fulfilled first in time;

6> set *timeBetweenEvents* to the elapsed time between the point in time of fulfilling the condition in *choConfig* that was fulfilled first in time, and the point in time of fulfilling the condition in *choConfig* that was fulfilled second in time, if both the first execution condition corresponding to the first entry and the second execution condition corresponding to the second entry in the *choConfig* were fulfilled;

3> for each neighbour cell included:

4> include the optional fields that are available.

NOTE 1: The measured quantities are filtered by the L3 filter as configured in the mobility measurement configuration. The measurements are based on the time domain measurement resource restriction, if configured. Exclude-listed cells are not required to be reported.

NOTE 2: Field *measResultSCG-Failure* is used to report available results for NR frequencies the UE is configured to measure by SCG RRC signalling.

1> if available, set the *locationInfo* as in 5.3.3.7 according to the *otherConfig* associated with the NR MCG.

1> if the UE supports SCG failure for mobility robustness optimization:

2> if the *failureType* is set to *synchReconfigFailureSCG*; or

2> if the *failureType* is set to *randomAccessProblem* and the SCG failure was declared while T304 was running:

3> set *perRAInfoList* to indicate the performed random access procedure related information as specified in 5.7.10.5.

3> set the *failedPSCellId* to the physical cell identity and carrier frequency of the target PSCell of the failed PSCell change;

3> set the *previousPSCellId* to the physical cell identity and carrier frequency of the source PSCell associated to the last received *RRCReconfiguration* message including *reconfigurationWithSync* for the SCG;

3> set the *timeSCGFailure* to the elapsed time since the last execution of *RRCReconfiguration* message including the *reconfigurationWithSync* for the SCG until declaring the SCG failure;

2> else:

3> set the *failedPSCellId* to the physical cell identity and carrier frequency of the PSCell in which the SCG failure was declared;

3> if the last *RRCReconfiguration* message including the *reconfigurationWithSync* for the SCG was received to enter the PSCell in which the SCG failure was declared:

4> set the *timeSCGFailure* to the elapsed time since the last execution of *RRCReconfiguration* message including the *reconfigurationWithSync* for the SCG until declaring the SCG failure;

4> set the *previousPSCellId* to the physical cell identity and carrier frequency of the source PSCell associated to the last received *RRCReconfiguration* message including *reconfigurationWithSync* for the SCG;

1> release *successPSCell-Config* configured by the source PSCell, if available.

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

NEXT CHANGE

### 5.7.9 Mobility history information

#### 5.7.9.1 General

This procedure specifies how the mobility history information is stored by the UE, covering RRC\_IDLE, RRC\_INACTIVE and RRC\_CONNECTED and released by the UE upon deregistration.

#### 5.7.9.2 Initiation

If the UE supports storage of mobility history information, the UE shall:

1> If the UE supports PSCell mobility history information and upon addition of a PSCell:

2> include an entry in *visitedPSCellInfoList* in variable *VarMobilityHistoryReport* possibly after performing the following, if necessary:

3> if *visitedPSCellInfoListReport* is available in the *visitedCellInfoList* in variable *VarMobilityHistoryReport*:

4> for the oldest PCell entry in *visitedCellInfoList* including *visitedPSCellInfoListReport*;

5> remove the oldest entry in the *visitedPSCellInfoListReport*;

3> else:

4> remove the oldest entry in *visitedPSCellInfoList* in variable *VarMobilityHistoryReport*;

2> for the included entry:

3> set the field *timeSpent* of the entry according to following:

4> if this is the first PSCell entry for the current PCell since entering the current PCell in RRC\_CONNECTED:

5> include the entry as the time spent with no PSCell since entering the current PCell in RRC\_CONNECTED;

4> else:

5> include the time spent with no PSCell since last PSCell release since entering the current PCell in RRC\_CONNECTED;

1> If the UE supports PSCell mobility history information and upon change, or release of a PSCell while being connected to the current PCell:

2> include an entry in *visitedPSCellInfoList* of the variable *VarMobilityHistoryReport* possibly after performing the following, if necessary:

3> if *visitedPSCellInfoListReport* is available in the *visitedCellInfoList* in variable *VarMobilityHistoryReport*:

4> for the oldest PCell entry in *visitedCellInfoList* including *visitedPSCellInfoListReport*;

5> remove the oldest entry in the *visitedPSCellInfoListReport*;

3> else:

4> remove the oldest entry in *visitedPSCellInfoList* in variable *VarMobilityHistoryReport*;

2> for the included entry:

3> if the global cell identity of the previous PSCell is available:

4> include the global cell identity of that cell in the field *visitedCellId* of the entry;

3> else:

4> include the physical cell identity and carrier frequency of that cell in the field *visitedCellId* of the entry;

3> set the field *timeSpent* of the entry as the time spent in the previous PSCell while being connected to the current PCell;

1> Upon change of suitable cell, consisting of PCell in RRC\_CONNECTED (for NR or E-UTRA cell) or serving cell in RRC\_INACTIVE (for NR cell) or in RRC\_IDLE (for NR or E-UTRA cell), to another NR or E-UTRA cell, or when entering any cell selection' state from 'camped normally' state in NR or LTE or when entering 'any cell selection' state from a suitable cell in RRC\_CONNECTED state in NR or LTE:

2> include an entry in *visitedCellInfoList* of the variable *VarMobilityHistoryReport* possibly after removing the oldest entry, if necessary, according to following*:*

3> if the global cell identity of the previous PCell/serving cell is available:

4> include the global cell identity of that cell in the field *visitedCellId* of the entry;

3> else:

4> include the physical cell identity and carrier frequency of that cell in the field *visitedCellId* of the entry;

3> set the field *timeSpent* of the entry as the time spent in the previous PCell/serving cell;

3> if the UE supports PSCell mobility history information and if the UE continues to be connected to the same PSCell during the change of the PCell in RRC\_CONNECTED; or

3> if the UE supports PSCell mobility history information and if the UE changes PSCell at the same time as the change of the PCell in RRC\_CONNECTED; or

3> if the UE supports PSCell mobility history information and if the PSCell is released at the same time as the change of the PCell in RRC\_CONNECTED:

4> include an entry in *visitedPSCellInfoList* of the variable *VarMobilityHistoryReport* possibly after performing the following, if necessary:

5> if *visitedPSCellInfoListReport* is available in the *visitedCellInfoList* in variable *VarMobilityHistoryReport*:

6> for the oldest PCell entry in *visitedCellInfoList* including *visitedPSCellInfoListReport*;

7> remove the oldest entry in the *visitedPSCellInfoListReport*;

5> else:

6> remove the oldest entry in *visitedPSCellInfoList* in variable *VarMobilityHistoryReport*;

4> for the included entry:

5> if the global cell identity of the PSCell (in case the UE continues to be connected to the same PSCell) or the previous PSCell (in case the UE changes PSCell, or in case PSCell is released) is available:

6> include the global cell identity of that cell in the field *visitedCellId* of the entry;

5> else:

6> include the physical cell identity and carrier frequency of that cell in the field *visitedCellId* of the entry;

5> set the field *timeSpent* of the entry as the time spent in the PSCell, while being connected to previous PCell;

3> if the UE supports PSCell mobility history information and if the UE was not configured with a PSCell at the time of change of PCell in RRC\_CONNECTED:

4> include an entry in *visitedPSCellInfoList* after performing the following, if necessary;

5> if *visitedPSCellInfoListReport* is available in the *visitedCellInfoList* in variable *VarMobilityHistoryReport*:

6> for the oldest PCell entry in *visitedCellInfoList* including *visitedPSCellInfoListReport*;

7> remove the oldest entry in the *visitedPSCellInfoListReport*;

5> else:

6> remove the oldest entry in *visitedPSCellInfoList* in variable *VarMobilityHistoryReport*;

4> for the included entry:

5> set the field *timeSpent* of the entry as the time without PSCell according to the following:

6> if the UE experienced a PSCell release since entering the previous PCell in RRC\_CONNECTED:

7> include the time spent with no PSCell since last PSCell release since entering the previous PCell in RRC\_CONNECTED;

6> else:

7> include the time spent with no PSCell since entering the previous PCell in RRC\_CONNECTED;

3> if the UE supports PSCell mobility history information and if *visitedPSCellInfoList* exists in *VarMobilityHistoryReport*:

4> include *visitedPSCellInfoList* in *VarMobilityHistoryReport* in the *visitedPSCellInfoListReport* within the entry of the *visitedCellInfoList* associated to the latest PCell entry;

4> remove *visitedPSCellInfoList* from the variable *VarMobilityHistoryReport*;

1> if the UE supports PSCell mobility history information and upon entering 'camped normally' state in NR (in RRC\_IDLE or RRC\_INACTIVE) or E-UTRA (in RRC\_IDLE) while previously in RRC\_CONNECTED state NR or LTE while not connected to a PSCell:

2> include an entry in *visitedPSCellInfoList* after performing the following, if necessary;

3> if *visitedPSCellInfoListReport* is available in the *visitedCellInfoList* in variable *VarMobilityHistoryReport*:

4> for the oldest PCell entry in *visitedCellInfoList* including *visitedPSCellInfoListReport*;

5> remove the oldest entry in the *visitedPSCellInfoListReport*;

3> else:

4> remove the oldest entry in *visitedPSCellInfoList* in variable *VarMobilityHistoryReport*;

2> for the included entry:

3> set the field *timeSpent* of the entry as the time without PSCell according to the following:

4> if the UE experienced a PSCell release since entering the current PCell in RRC\_CONNECTED:

5> include the time spent with no PSCell since last PSCell release after entering the current PCell in RRC\_CONNECTED;

4> else:

5> include the time spent with no PSCell since entering the current PCell in RRC\_CONNECTED;

1> upon entering 'camped normally' state in NR (in RRC\_IDLE or RRC\_INACTIVE) or E-UTRA (in RRC\_IDLE) while previously in 'any cell selection' state or 'camped on any cell' state in NR or LTE:

2> include an entry in variable *VarMobilityHistoryReport* possibly after removing the oldest entry, if necessary, according to following:

3> set the field *timeSpent* of the entry as the time spent in 'any cell selection' state and/or 'camped on any cell' state in NR or LTE.

#### 5.7.9.3 Release of Mobility History Information

If the UE supports storage of mobility history information, the UE shall:

1> if stored, discard the mobility history information, i.e. release the UE variable *VarMobilityHistoryReport* upon deregistration from the network.

NEXT CHANGE

### 5.7.10 UE Information

<Text Omitted>

#### 5.7.10.3 Reception of the *UEInformationRequest* message

Upon receiving the *UEInformationRequest* message, the UE shall, only after successful security activation:

1> if the *idleModeMeasurementReq* is included in the *UEInformationRequest* and the UE has stored *VarMeasIdleReport* that contains measurement information concerning cells other than the PCell:

2> set the *measResultIdleEUTRA* in the *UEInformationResponse* message to the value of *measReportIdleEUTRA* in the *VarMeasIdleReport, if available*;

2> set the *measResultIdleNR* in the *UEInformationResponse* message to the value of *measReportIdleNR* in the *VarMeasIdleReport*, if available;

2> discard the *VarMeasIdleReport* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> if the *logMeasReportReq* is present and if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*, or if the current registered SNPN are included in *snpn-ConfigIDList* if stored in *VarLogMeasReport*:

2> if *VarLogMeasReport* includes one or more logged measurement entries, set the contents of the *logMeasReport* in the *UEInformationResponse* message as follows:

3> include the *absoluteTimeStamp* and set it to the value of *absoluteTimeInfo* in the *VarLogMeasReport*;

3> include the *traceReference* and set it to the value of *traceReference* in the *VarLogMeasReport*;

3> include the *traceRecordingSessionRef* and set it to the value of *traceRecordingSessionRef* in the *VarLogMeasReport;*

3> include the *tce-Id* and set it to the value of *tce-Id* in the *VarLogMeasReport*;

3> include the *logMeasInfoList* and set it to include one or more entries from the *VarLogMeasReport* starting from the entries logged first, and for each entry of the *logMeasInfoList* that is included, include all information stored in the corresponding *logMeasInfoList* entry in *VarLogMeasReport*;

3> if the *VarLogMeasReport* includes one or more additional logged measurement entries that are not included in the *logMeasInfoList* within the *UEInformationResponse* message:

4> include the *logMeasAvailable*;

4> if *bt-LocationInfo* is included in *locationInfo* of one or more of the additional logged measurement entries in *VarLogMeasReport* that are not included in the *logMeasInfoList* within the *UEInformationResponse* message:

5> include the *logMeasAvailableBT*;

4> if *wlan-LocationInfo* is included in *locationInfo* of one or more of the additional logged measurement entries in *VarLogMeasReport* that are not included in the *logMeasInfoList* within the *UEInformationResponse* message:

5> include the *logMeasAvailableWLAN*;

1> if *ra-ReportReq* is set to *true* and the UE has random access related information available in *VarRA-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarRA-Report*; or

1> if *ra-ReportReq* is set to *true* and the UE has random access related information available in *VarRA-Report* and if the registered SNPN is included in *snpn-IdentityList* stored in *VarRA-Report*:

2> set the *ra-ReportList* in the *UEInformationResponse* message to the value of *ra-ReportList* in *VarRA-Report*;

2> discard the *ra-ReportList* from *VarRA-Report* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> if *rlf-ReportReq* is set to *true*:

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

3> set *timeSinceFailure* in *VarRLF-Report* to the time that elapsed since the last radio link failure or handover failure in NR;

3> set the *rlf-Report* in the *UEInformationResponse* message to the value of *rlf-Report* in *VarRLF-Report*;

3> discard the *rlf-Report* from *VarRLF-Report* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

2> else if the UE is capable of cross-RAT RLF reporting as defined in TS 38.306 [26] and has radio link failure information or handover failure information available in *VarRLF-Report* of TS 36.331 [10] and if the RPLMN is included in *plmn-IdentityList* stored in *VarRLF-Report* of TS 36.331 [10]:

3> set *timeSinceFailure* in *VarRLF-Report* of TS 36.331 [10] to the time that elapsed since the last radio link failure or handover failure in EUTRA;

3> set failedPCellId-EUTRA in the *rlf-Report* in the *UEInformationResponse* message to indicate the PCell in which RLF was detected or the source PCell of the failed handover in the *VarRLF-Report* of TS 36.331 [10];

3> set the *measResult-RLF-Report-EUTRA* in the *rlf-Report* in the *UEInformationResponse* message to the value of *rlf-Report* in *VarRLF-Report* of TS 36.331 [10];

3> discard the *rlf-Report* from *VarRLF-Report* of TS 36.331 [10] upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

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

1> if *connEstFailReportReq* is set to *true* and if the UE supports multiple CEF report and if the UE has connection establishment failure information or connection resume failure information available in *VarConnEstFailReport* or *VarConnEstFailReportList* and if the registered SNPN identity is equal to *snpn-identity* if stored in *VarConnEstFailReport* or any entry of *VarConnEstFailReportList*:

2> set *timeSinceFailure* in *VarConnEstFailReport* to the time that elapsed since the last connection establishment failure or connection resume failure in NR;

2> set the *connEstFailReport* in the *UEInformationResponse* message to the value of *connEstFailReport* in *VarConnEstFailReport*;

2> if the UE supports multiple CEF report:

3> for each *connEstFailReport* in the *connEstFailReportList* in *VarConnEstFailReportList*:

4> set *timeSinceFailure* to the time that elapsed since the associated connection establishment failure or connection resume failure in NR;

2> for each *connEstFailReport* in the *connEstFailReportList* in the *UEInformationResponse* message, set the value to the value of *connEstFailReport* in *VarConnEstFailReport* in *VarConnEstFailReportList*;

2> discard the *connEstFailReport* from *VarConnEstFailReport* and *VarConnEstFailReportList* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> if the *mobilityHistoryReportReq* is set to *true*:

2> include the *mobilityHistoryReport* and set it to include *visitedCellInfoList* from *VarMobilityHistoryReport*;

2> include in the *mobilityHistoryReport* an entry for the current PCell, possibly after removing the oldest entry if required, and set its fields as follows:

3> set *visitedCellId* to the global cell identity or the physical cell identity and carrier frequency of the current PCell:

3> set field *timeSpent* to the time spent in the current PCell;

3> if the UE supports PSCell mobility history information and if *visitedPSCellInfoList* is present in *VarMobilityHistoryReport*:

4> for the newest entry of the PCell in the *mobilityHistoryReport*, include *visitedPSCellInfoList* from *VarMobilityHistoryReport*;

4> if the UE is configured with a PSCell:

5> for the newest entry of the PCell in the *mobilityHistoryReport*, include the current PSCell information in the *visitedPSCellInfoListReport,* possibly after removing the oldest PSCell entry of a PCell in the *mobilityHistoryReport*, if required, and set its fields as follows:

6> set *visitedCellId* to the global cell identity or the physical cell identity and carrier frequency of the current PSCell:

6> set field *timeSpent* to the time spent in the current PSCell while being connected to the current PCell;

4> else:

5> for the newest entry of the PCell in the *mobilityHistoryReport*, include a new entry in the *visitedPSCellInfoListReport,* possibly after removing the oldest PSCell entry of a PCell in the *mobilityHistoryReport*, if required, and set its fields as follows:

6> set field *timeSpent* to the time spent without PSCell in the current PCell since last PSCell release since connected to the current PCell in RRC\_CONNECTED;

3> else if the UE supports PSCell mobility history information:

4> if the UE is configured with a PSCell:

5> for the newest entry of the PCell in the *mobilityHistoryReport*, include the current PSCell information in the *visitedPSCellInfoListReport,* possibly after removing the oldest PSCell entry of a PCell in the *mobilityHistoryReport*, if required, and set its fields as follows:

6> set *visitedCellId* to the global cell identity or the physical cell identity and carrier frequency of the current PSCell:

6> set field *timeSpent* to the time spent in the current PSCell while being connected to the current PCell;

4> else:

5> for the newest entry of the PCell in the *mobilityHistoryReport*, include a new entry in the *visitedPSCellInfoListReport,* possibly after removing the oldest PSCell entry of a PCell in the *mobilityHistoryReport*, if required, and set its fields as follows:

6> set field *timeSpent* to the time spent without PSCell in the current PCell since connected to the current PCell in RRC\_CONNECTED;

1> if the *successHO-ReportReq* is set to *true* and if the UE has successful handover related information available in *VarSuccessHO-Report* and if the RPLMN is included in the *plmn-IdentityList* stored in *VarSuccessHO-Report*; or

1> if the *successHO-ReportReq* is set to *true* and if the UE has successful handover related information available in *VarSuccessHO-Report* and if the current registered SNPN is included in *snpn-IdentityList* if stored in the *VarSuccessHO-Report*:

2> if the *successHO-Report* in the *VarSuccessHO-Report* concerns a DAPS handover and if a PDCP PDU has been received from the source cell of the concerned HO and a non-duplicated PDCP PDU has been received from the target cell of the concerned HO:

3> set *upInterruptionTimeAtHO* in *VarSuccessHO-Report* to include the time elapsed between the time of arrival of the last PDCP PDU received from the source cell of the concerned handover and the time of arrival of the first non-duplicate PDCP PDU received from the target cell of the concerned handover, as measured at the time of arrival of the first non-duplicate PDCP PDU received from the target cell;

2> if the *successHO-Report* in the *VarSuccessHO-Report* concerns a *mobilityFromNRCommand*:

3> set *timeSinceSHR* in *VarSuccessHO-Report* to the time that elapsed since the execution of the associated *mobilityFromNRCommand*;

2> set the *successHO-Report* in the *UEInformationResponse* message to the value of *successHO-Report* in the *VarSuccessHO-Report*, if available;

2> discard the *VarSuccessHO-Report* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;1> if the *successPSCell-ReportReq* is set to *true* and if the UE has successful PSCell change or addition information available in *VarSuccessPSCell-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarSuccessPSCell-Report*; or

1> if the *successPSCell-ReportReq* is set to *true* and if the UE has successful PSCell change or addition information available in *VarSuccessPSCell-Report* and if the current registered SNPN is included in *snpn-IdentityList* if stored in the *VarSuccessPSCell-Report*:

2> set the *successPSCell-Report* in the *UEInformationResponse* message to the value of *successPSCell-Report* in the *VarSuccessPSCell-Report*;

2> discard the *VarSuccessPSCell-Report* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> if the *coarseLocationRequest* is set to *true*:

2> include *coarseLocationInfo,* if available;

1> if the *logMeasReport* is included in the *UEInformationResponse*:

2> submit the *UEInformationResponse* message to lower layers for transmission via SRB2;

2> discard the logged measurement entries included in the *logMeasInfoList* from *VarLogMeasReport* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> else:

2> submit the *UEInformationResponse* message to lower layers for transmission via SRB1.

NEXT CHANGE

#### **5.7.10.4 Actions** for the Random Access report determination

Upon successfully performing random-access procedure initialized with 4-step or 2-step RA type, or upon failed or successfully completed on-demand system information acquisition procedure in RRC\_IDLE or RRC\_INACTIVE state, or upon failed or successfully completed RA-SDT operation as specified in subclause 5.3.13.5, the UE shall:

1> if the RPLMN or the PLMN selected by upper layers (see TS24.501 [23]) from the PLMN(s) included in the *plmn-IdentityList* in *SIB1* is not included in *plmn-IdentityList* stored in a non-empty *VarRA-Report*:

1> if the registered SNPN or the SNPN selected by upper layers (see TS24.501 [23]) from the list of SNPN(s) included in the *NPN-IdentityInfoList* in *SIB1*is not included in *plmn-IdentityList* stored in a non-empty *VarRA-Report*:

2> clear the information included in *VarRA-Report*;

1> if the UE is not in SNPN mode and if the number of *RA-Report* entries stored in the *ra-ReportList* in *VarRA-Report* is less than *maxRAReport*:

2> if the number of PLMN entries in *plmn-IdentityList* stored in *VarRA-Report* is less than *maxPLMN*; or

2> if the number of PLMN entries in *plmn-IdentityList* stored in *VarRA-Report* is equal to *maxPLMN* and the list of EPLMNs is subset of or equal to the *plmn-IdentityList* stored in *VarRA-Report*:

3> append the following contents associated to the successfully completed random-access procedure or the failed or successfully completed on-demand system information acquisition procedure as a new entry in the *VarRA-Report*:

4> if the list of EPLMNs has been stored by the UE:

5> set the *plmn-IdentityList* to include the list of EPLMNs stored by the UE (i.e. includes the RPLMN) without exceeding the limit of *maxPLMN*;

4> else:

5> set the *plmn-Identity*, in *plmn-IdentityList*, to the PLMN selected by upper layers (see TS 24.501 [23]) from the PLMN(s) included in the *plmn-IdentityInfoList* in SIB1;

4> set the *cellId* to the global cell identity and the tracking area code, if available, otherwise to the physical cell identity and carrier frequency of the cell in which the corresponding random-access preamble was transmitted;

4> if the UE supports spCell ID indication:

5> if the corresponding random-access procedure was performed on an SCell of MCG:

6> set the *spCellId* to the global cell identity of the PCell;

5> if the corresponding random-access procedure was performed on an SCell of SCG:

6> set the *spCellId* to the global cell identity of the PSCell, if available, otherwise, set the *spCellId* to the global cell identity of the PCell;

5> if the corresponding random-access procedure was performed on PSCell:

6> if the *cellId* is not set to the global cell identity of the PSCell, set the *spCellId* to the global cell identity of the PCell;

4> set the *raPurpose* to include the purpose of triggering the random-access procedure;

4> set the *ra-InformationCommon* as specified in clause 5.7.10.5.

1> if the UE is in SNPN mode and if the number of *RA-Report* entries stored in the *ra-ReportList* in *VarRA-Report* is less than *maxRAReport*:

2> if the number of SNPN identity entries in *snpn-IdentityList* stored in *VarRA-Report* is less than *maxNPN*; or

2> if the number of SNPN identity entries in *snpn-IdentityList* stored in *VarRA-Report* is equal to *maxNPN* and the list of equivalent SNPN(s) is subset of or equal to the *snpn-IdentityList* stored in *VarRA-Report*:

3> append the following contents associated to the successfully completed random-access procedure or the failed or successfully completed on-demand system information acquisition procedure as a new entry in the *VarRA-Report*:

4> if the list of equivalent SNPN(s) has been stored by the UE:

5> set the *snpn-IdentityList* to include the list of equivalent SNPN(s) stored by the UE (i.e. includes the registered SNPN) without exceeding the limit of *maxNPN*;

4> else:

5> set the *snpn-Identity*, in *snpn-IdentityList*, to the SNPN identity selected by upper layers (see TS 24.501 [23]) from the SNPN identities included in the *NPN-IdentityInfoList* in SIB1;

4> set the *cellId* to the global cell identity and the tracking area code, if available, otherwise to the physical cell identity and carrier frequency of the cell in which the corresponding random-access preamble was transmitted;

4> if the UE supports spCell ID indication:

5> if the corresponding random-access procedure was performed on an SCell of MCG:

6> set the *spCellId* to the global cell identity of the PCell;

5> if the corresponding random-access procedure was performed on an SCell of SCG:

6> set the *spCellId* to the global cell identity of the PSCell, if available, otherwise, set the *spCellId* to the global cell identity of the PCell;

5> if the corresponding random-access procedure was performed on PSCell:

6> if the *cellId* is not set to the global cell identity of the PSCell, set the *spCellId* to the global cell identity of the PCell;

4> set the *raPurpose* to include the purpose of triggering the random-access procedure;

4> set the *ra-InformationCommon* as specified in clause 5.7.10.5.

The UE may discard the random access report information, i.e. release the UE variable *VarRA-Report*, 48 hours after the last successful random access procedure or the failed or successfully completed on-demand system information acquisition procedure or the failed or successfully completed RA-SDT procedure related information is added to the *VarRA-Report*.

NOTE 1: Void

#### **5.7.10.5 RA information determination**

The UE shall, for the last completed or last failed random-access procedure, set the content in *ra-InformationCommon* as follows:

1> set the *absoluteFrequencyPointA* to indicate the absolute frequency of the reference resource block associated to the random-access resources used in the random-access procedure;

1> set the *locationAndBandwidth* and *subcarrierSpacing* associated to the UL BWP of the random-access resources used in the random-access procedure;

1> if contention based random-access resources are used in the random-access procedure:

2> set the *msgA\_RO-FrequencyStart* and *msgA-RO-FDM* and *msgA-SubcarrierSpacing* associated to the 2 step random- access resources if used in the random-access procedure;

2> if *msgA-SubcarrierSpacing* associated to the 2 step random-access resources used in the random-access procedure is available:

3> set the *msgA-SubcarrierSpacing* associated to the 2 step random-access resources used in the random-access procedure;

2> else if only 2 step random-access resources are available in the UL BWP used in the random-access procedure:

3> set the *msgA-SCS-From-prach-ConfigurationIndex* to the subcarrier spacing as derived from the *msgA-PRACH-ConfigurationIndex* used in the 2-step random-access procedure;

2> else:

3> set the *msg1-SubcarrierSpacing* associated to the 4 step random-access resources used in the random-access procedure;

2> set the *msg1-FrequencyStart* associated to the 4 step random-access resources if used in the random-access procedure, and if its value is different from the value of *msgA-RO-FrequencyStart* if it is included in the *ra-InformationCommon*;

2> set the *msg1-FDM* associated to the 4 step random-access resources if used in the random-access procedure, and if its value is different from the value of *msgA-RO-FDMCFRA* if it is included in the *ra-InformationCommon;*

2> if *msg1-SubcarrierSpacing* associated to the 4 step random-access resources used in the random-access procedure is available, and if its value is different from the value of *msgA-SubcarrierSpacing* if it is included in the *ra-InformationCommon*:

3> set the *msg1-SubcarrierSpacing* associated to the 4 step random-access resources used in the random-access procedure;

2> else:

3> set the *msg1-SCS-From-prach-ConfigurationIndex* to the subcarrier spacing as derived from the *prach-ConfigurationIndex* used in the 4-step random-access procedure, and if its value is different from the value of *msgA-SCS-From-prach-ConfigurationIndex* if it is included in the *ra-InformationCommon*;

1> if contention free random-access resources are used in the random-access procedure:

2> set the *msg1-FrequencyStartCFRA* and *msg1-FDMCFRA* associated to the 4 step random-access resources if used in the random-access procedure;

2> if *msg1-SubcarrierSpacing* associated to the 4 step random-access resources used in the random-access procedure is available:

3> set the *msg1-SubcarrierSpacingCFRA* associated to the 4 step random-access resources used in the random-access procedure;

2> else:

3> set the *msg1-SCS-From-prach-ConfigurationIndexCFRA* to the subcarrier spacing as derived from the *prach-ConfigurationIndex* used in the 4 step random-access procedure;

2> set the *msgA-RO-FrequencyStartCFRA* and *msgA-RO-FDMCFRA* associated to the 2 step contention free random access resources if used in the random-access procedure;

2> set the *msgA-MCS*, the *nrofPRBs-PerMsgA-PO*, the *msgA-PUSCH-TimeDomainAllocation*, the *frequencyStartMsgA-PUSCH*, the *nrofMsgA-PO-FDM* associated to the 2 step random-access resources if used in the random-access procedure;

2> if *msgA-SubcarrierSpacing* associated to the 2 step random-access resources used in the random-access procedure is available:

3> set the *msgA-SubcarrierSpacing* associated to the 2 step random-access resources used in the random-access procedure;

2> else if only 2 step random-access resources are available in the UL BWP used in the random-access procedure:

3> set the *msgA-SCS-From-prach-ConfigurationIndex* to the subcarrier spacing as derived from the *msgA-PRACH-ConfigurationIndex* used in the 2-step random-access procedure;

2> else:

3> set the *msg1-SubcarrierSpacing* associated to the 4 step random-access resources used in the random-access procedure;

1> if the random access procedure is initialized with *RA\_TYPE* set to *2-stepRA* as described in TS 38.321 [3]:

2> set the *dlPathlossRSRP* to the measeured RSRP of the DL pathloss reference obtained at the time of *RA\_Type* selection stage of the initialization of the RA procedure as captured in TS 38.321 [3];

2> if the configuration for the random access *msgA-TransMax* was configured in *RACH-ConfigDedicated* for this random access procedure, and *raPurpose* is set to *reconfigurationWithSync*:

3> set *msgA-TransMax* to the value of *msgA-TransMax* in *RACH-ConfigDedicated*;

2> else if *msgA-TransMax* was configured in *RACH-ConfigCommonTwoStepRA*:

3> set *msgA-TransMax* to the value of *msgA-TransMax* in *RACH-ConfigCommonTwoStepRA*;

2> set the *msgA-PUSCH-PayloadSize* to the size of the overall payload available in the UE buffer at the time of initiating the 2 step RA procedure;

1> if the purpose of the random access procedure is to request on-demand system information (i.e., if the *raPurpose* is set to *requestForOtherSI* or *msg3RequestForOtherSI*):

2> set the *intendedSIBs* to indicate the SIB(s) the UE wanted to receive as a result of the SI request;

2> set the *ssbsForSI-Acquisition* to indicate the SSB(s) used to receive the SI message;

2> if the on-demand system information acquisition was successful:

3> set the *onDemandSISuccess* to *true*;

1> if one or more of the features including RedCap and/or Slicing and/or SDT and/or MSG3 repetition are applicable for this random-access procedure as specified in subclause 5.1.1b of TS 38.321[3]:

2> set the *triggeredFeatureCombination* to indicate all the features triggering this random-access procedure as below:

3> if this random-access procedure is triggered by RedCap, includes *redCap*;

3> if this random-access procedure is triggered by SDT, includes *smallData*;

3> if this random-access procedure is triggered by Msg3 repetition, includes *msg3-Repetitions*;

3> if this random-access procedure is triggered by slicing, set nsag to the NSAG applied in the random-access procedure and set the *triggered-S-NSSAI-List* to include all the *S-NSSAI(s)* associated to the slices triggering the access attempt in the random-access procedure;

2> if the value of used feature or combination of features is different from the *triggeredFeatureCombination*:

3> set the *usedFeatureCombination* to indicate one or more features of *FeatureCombination* associated to the random-access resource used in the random-access procedure as below:

4> if RedCap is part of the used *FeatureCombination*, includes *redCap*;

4> if SDT is part of the used *FeatureCombination*, includes *smallData*;

4> if Msg3 repetition is part of the used *FeatureCombination*, includes *msg3-Repetitions*;

4> if NSAG(s) is part of the used *FeatureCombination*, set *NSAG-List* to include the *NSAG-ID(s)* configured for the used *FeatureCombination*;

1> if the random-access procedure is initiated for SDT and the SDT transmission was failed:

3> includes the *sdtFailed*;

1> set the parameters associated to individual random-access attempt in the chronological order of attempts in the *perRAInfoList* as follows:

2> if the random-access resource used is associated to a SS/PBCH block, set the associated random-access parameters for the successive random-access attempts associated to the same SS/PBCH block for one or more random-access attempts as follows:

3> set the *ssb-Index* to include the SS/PBCH block index associated to the used random-access resource;

3> set the *numberOfPreamblesSentOnSSB* to indicate the number of successive random-access attempts associated to the SS/PBCH block;

3> if all preamble transmissions for the successive random-access attempts associated to this SS/PBCH block were blocked by LBT:

4> includes *allPreamblesBlocked*;

3> else:

4> if LBT failure indication was received from lower layers for the last random-access preamble transmission attempt in the SS/PBCH block associated to the *ssb-Index*, before changing the SS/PBCH block for random access preamble transmission:

5> includes *lbtDetected*;

3> for each random-access attempt performed on the random-access resource, except the random-access attempts for which LBT failure indication was received from lower layers, include the following parameters in the chronological order of the random-access attempt:

4> if the random-access attempt is performed on the contention based random-access resource and if *raPurpose* is not equal to '*requestForOtherSI*', include *contentionDetected* as follows:

5> if contention resolution was not successful as specified in TS 38.321 [6] for the transmitted preamble:

6> set the *contentionDetected* to *true*;

5> else:

6> set the *contentionDetected* to *false*;

4> if the random access attempt is a 2-step random access attempt:

5> if fallback from 2-step random access to 4-step random access occurred during the random access attempt:

6> set *fallbackToFourStepRA* to *true*;

4> if the random-access attempt is performed on the contention based random-access resource; or

4> if the random-access attempt is performed on the contention free random-access resource and if the random-access procedure was initiated due to the PDCCH ordering:

5> if the random access attempt is a 4-step random access attempt and the SS/PBCH block RSRP of the SS/PBCH block corresponding to the random-access resource used in the random-access attempt is above *rsrp-ThresholdSSB*; or

5> if the random access attempt is a 2-step random access attempt and the SS/PBCH block RSRP of the SS/PBCH block corresponding to the random-access resource used in the random-access attempt is above *msgA-RSRP-ThresholdSSB*:

6> set the *dlRSRPAboveThreshold* to *true*;

5> else:

6> set the *dlRSRPAboveThreshold* to *false*;

2> else if the random-access resource used is associated to a CSI-RS, set the associated random-access parameters for the successive random-access attempts associated to the same CSI-RS for one or more random-access attempts as follows:

3> set the *csi-RS-Index* to include the CSI-RS index associated to the used random-access resource;

3> set the *numberOfPreamblesSentOnCSI-RS* to indicate the number of successive random-access attempts associated to the CSI-RS;

3> if all preamble transmissions for the successive random-access attempts associated to this CSI-RS were blocked by LBT:

4> includes *allPreambleBlocked*;

3> else:

4> if LBT failure indication was received from lower layers for the last random-access preamble transmission attempt in the CSI-RS associated to the *csi-RS-Index*, before changing the CSI-RS for random access preamble transmission:

5> include *lbtDetected*;

1> if at least one LBT failure indication has been received from lower layers during the random-access procedure:

2> set the *numberOfLBTFailures* to indicate the total number of random-access attempts for which LBT failure indications have been received from lower layers in the random-access procedure.

The UE shall, for all the BWPs in which consistent LBT failures are triggered and not cancelled at the moment of successful RA completion or for all the BWPs in which consistent LBT failures are detected prior the RLF/HOF, set the below parameters in *attemptedBWPInfoList* in the chronological order of BWP selection:

1> set the *locationAndBandwidth* and *subcarrierSpacing* associated to the UL BWP.

NOTE 1: If *allPreamblesBlocked* is included it is left to UE implementation how to set the *numberOfPreamblesSentOnSSB-r16*, *numberOfPreamblesSentOnCSI-RS-r16* and the *perRAAttemptInfoList-r16*.

#### 5.7.10.6 Actions for the successful handover report determination

The UE shall for the PCell:

1> if the procedure is triggered due to successful completion of reconfiguration with sync, and if the ratio between the value of the elapsed time of the timer T304 and the configured value of the timer T304, included in the last applied *RRCReconfiguration* message including the *reconfigurationWithSync*, is greater than *thresholdPercentageT304* if included in the *successHO-Config* received before executing the last reconfiguration with sync; or

1> if the procedure is triggered due to successful completion of reconfiguration with sync*,* and if the ratio between the value of the elapsed time of the timer T310 and the configured value of the timer T310, configured while the UE was connected to the source PCell before executing the last reconfiguration with sync, is greater than *thresholdPercentageT310* included in the *successHO-Config* if configured by the source PCell before executing the last reconfiguration with sync; or

1> if the procedure is triggered due to successful completion of reconfiguration with sync, and if the T312 associated to the measurement identity of the target cell was running at the time of initiating the execution of the reconfiguration with sync procedure and if the ratio between the value of the elapsed time of the timer T312 and the configured value of the timer T312, configured while the UE was connected to the source PCell before executing the last reconfiguration with sync, is greater than *thresholdPercentageT312* included in the s*uccessHO-Config* if configured by the source PCell before executing the last reconfiguration with sync; or

1> if the procedure is triggered due to successful completion of reconfiguration with sync, and if *sourceDAPS-FailureReporting* is included in the *successHO-Config* before executing the last reconfiguration with sync and is set to *true* and if the last executed handover was a DAPS handover and if an RLF occurred at the source PCell during the DAPS handover while T304 was running; or

1> if the procedure is triggered due to successful completion of Mobility from NR to E-UTRA*,* and if the ratio between the value of the elapsed time of the timer T310 and the configured value of the timer T310, configured while the UE was connected to the source PCell before executing the last Mobility from NR to E-UTRA, is greater than *thresholdPercentageT310* included in the *successHO-Config* if configured by the source PCell before executing the last Mobility from NR to E-UTRA; or

1> if the procedure is triggered due to successful completion of Mobility from NR to E-UTRA, and if the T312 associated to the measurement identity of the target cell was running at the time of initiating the execution of the Mobility from NR to E-UTRA and if the ratio between the value of the elapsed time of the timer T312 and the configured value of the timer T312, configured while the UE was connected to the source PCell before executing the last Mobility from NR to E-UTRA, is greater than *thresholdPercentageT312* included in the s*uccessHO-Config* if configured by the source PCell before executing the last Mobility from NR to E-UTRA:

2> store the successful handover information in *VarSuccessHO-Report* and determine the content in *VarSuccessHO-Report* as follows:

3> clear the information included in *VarSuccessHO-Report*, if any;

3> if the UE is not in SNPN access mode, set the *plmn-IdentityList* to include the list of EPLMNs stored by the UE (i.e., includes the RPLMN);

3> else if the UE is in SNPN access mode, set the *snpn-IdentityList* to include the list of equivalent SNPNs stored by the UE (i.e., includes the registered SNPN), if available;

3> set the *c-RNTI* to the C-RNTI assigned by the target PCell of the handover;

3> if the procedure is triggered due to successful completion of reconfiguration with sync, for the source PCell in which the last *RRCReconfiguration* message including *reconfigurationWithSync* was applied; or

3> if the procedure is triggered due to successful completion of Mobility from NR to E-UTRA, for the source PCell in which the last *MobilityFromNRCommand* concerning an inter-RAT handover from NR to E-UTRA was applied:

4> set the *sourceCellID* in *sourceCellInfo* to the global cell identity and tracking area code, if available, of the source PCell;

4> set the *sourceCellMeas* in *sourceCellInfo* to include the cell level RSRP, RSRQ and the available SINR, of the source PCell based on the available SSB and CSI-RS measurements collected up to the moment the UE sends *RRCReconfigurationComplete* message if the procedure is triggered due to successful completion of reconfiguration with sync, or up to the moment the UE sends the EUTRA *RRCConnectionReconfigurationComplete* message if the procedure is triggered due to successful completion of Mobility from NR to E-UTRA*;*

4> set the *rsIndexResults* in *sourceCellMeas* to include all the available SSB and CSI-RS measurement quantities of the source PCell collected up to the moment the UE sends *RRCReconfigurationComplete* message if the procedure is triggered due to successful completion of reconfiguration with sync, or up to the moment the UE sends the EUTRA *RRCConnectionReconfigurationComplete* message if the procedure is triggered due to successful completion of Mobility from NR to E-UTRA;

4> if the last executed handover was a DAPS handover and if an RLF occurred at the source PCell during the DAPS handover while T304 was running:

5> set the *rlf-InSourceDAPS* in *sourceCellInfo* to *true*;

3> if the procedure is triggered due to successful completion of reconfiguration with sync, for the target PCell indicated in the last applied *RRCReconfiguration* message including *reconfigurationWithSync*:

4> set the *targetCellID* in *targetCellInfo* to the global cell identity and tracking area code, if available, of the target PCell;

4> set the *targetCellMeas* in *targetCellInfo* to include the cell level RSRP, RSRQ and the available SINR, of the target PCell based on the available SSB and CSI-RS measurements collected up to the moment the UE sends *RRCReconfigurationComplete* message;

4> set the *rsIndexResults* in *targetCellMeas* to include all the available SSB and CSI-RS measurement quantities of the target PCell collected up to the moment the UE sends *RRCReconfigurationComplete* message;

4> if the last applied *RRCReconfiguration* message including *reconfigurationWithSync* was included in the stored *condRRCReconfig*:

5> set the *timeSinceCHO-Reconfig* to the time elapsed between the initiation of the execution of conditional reconfiguration for the target PCell and the reception of the last *conditionalReconfiguration* including the *condRRCReconfig* of the target PCell in the source PCell;

3> if the procedure is triggered due to successful completion of Mobility from NR to E-UTRA, for the target PCell indicated in the last applied *MobilityFromNRCommand* concerning an inter-RAT handover from NR to E-UTRA:

4> set the *targetPCellId* in *eutraTargetCellInfo* to the global cell identity and tracking area code, if available, of the target PCell;

4> set the *targetCellMeas* in *eutraTargetCellInfo* to include the cell level RSRP, RSRQ and the available SINR, of the target PCell based on the available measurements collected up to the moment the UE sends *RRCConnectionReconfigurationComplete* message;

3> if the procedure is triggered due to successful completion of reconfiguration with sync and if the ratio between the value of the elapsed time of the timer T304 and the configured value of the T304 timer, included in the last applied *RRCReconfiguration* message including the *reconfigurationWithSync*, is greater than *thresholdPercentageT304* if included in the *successHO-Config* received before executing the last reconfiguration with sync:

4> set *t304-cause* in *shr-Cause* to *true*;

4> set the *ra-InformationCommon* to include the random-access related information associated to the random access procedure in the target PCell, as specified in clause 5.7.10.5;

3> if the ratio between the value of the elapsed time of the timer T310 and the configured value of the T310 timer, configured while the UE was connected to the source PCell before executing the last reconfiguration with sync or the last Mobility from NR to E-UTRA, is greater than *thresholdPercentageT310* included in the *successHO-Config* if configured by the source PCell before executing the last reconfiguration with sync or Mobility from NR to E-UTRA:

4> set *t310-cause* in *shr-Cause* to *true*;

3> if the T312 associated to the measurement identity of the target cell was running at the time of initiating the execution of the reconfiguration with sync procedure or Mobility from NR to E-UTRA, and if the ratio between the value of the elapsed time of the timer T312 and the configured value of the T312 timer, configured while the UE was connected to the source PCell before executing the last reconfiguration with sync or Mobility from NR to E-UTRA, is greater than *thresholdPercentageT312* included in the s*uccessHO-Config* if configured by the source PCell before executing the last reconfiguration with sync, or Mobility from NR to E-UTRA:

4> set *t312-cause* in *shr-Cause* to *true*;

3> if the procedure is triggered due to successful completion of reconfiguration with sync and if *sourceDAPS-FailureReporting* included in the *successHO-Config* if configured by the source PCell before executing the last reconfiguration with sync is set to *true*, and if the last executed handover was a DAPS handover and if an RLF occurred at the source PCell during the DAPS handover while T304 was running:

4> set *sourceDAPS-Failure* in *shr-Cause* to *true*;

3> if the procedure is triggered due to successful completion of reconfiguration with sync, for each of the *measObjectNR*, configured by the source PCell, in which the last *RRCReconfiguration* message including *reconfigurationWithSync* was applied; or

3> if the procedure is triggered due to successful completion of Mobility from NR to E-UTRA, for each of the *measObjectNR*, configured by the source PCell, in which the last *MobilityFromNRCommand* concerning an inter-RAT handover from NR to E-UTRA was applied:

4> if *measRSSI-ReportConfig* is configured for the frequency of the source PCell:

5> if the procedure is triggered due to successful completion of reconfiguration with sync:

6> set the *measResultServCell-RSSI* to the linear average of the available RSSI sample value(s) provided by lower layers for the frequency of the source PCell up to the moment the UE sends the *RRCReconfigurationComplete* message

5> else if the procedure is triggered due to successful completion of Mobility from NR to E-UTRA:

6> set the *measResultServCell-RSSI* to the linear average of the available RSSI sample value(s) provided by lower layers for the frequency of the source PCell up to the moment the UE sends the EUTRA *RRCConnectionReconfigurationComplete* message;

4> for each of the configured *measObjectNR* if *measRSSI-ReportConfig* is configured for the configured frequency:

5> if the procedure is triggered due to successful completion of reconfiguration with sync:

6> set the *measResultNeighFreq-RSSI* in the *measResultNeighFreqList-RSSI* to the linear average of the available RSSI sample value(s) provided by lower layers for the associated neighbouring frequency up to the moment the UE sends the *RRCReconfigurationComplete* message;

5> else if the procedure is triggered due to successful completion of Mobility from NR to E-UTRA:

6> set the *measResultNeighFreq-RSSI* in the *measResultNeighFreqList-RSSI* to the linear average of the available RSSI sample value(s) provided by lower layers for the associated neighbouring frequency up to the moment the UE sends the EUTRA *RRCConnectionReconfigurationComplete* message;

4> if measurements are available for the *measObjectNR*:

5> if the SS/PBCH block-based measurement quantities are available:

6> set the *measResultListNR* in *measResultNeighCells* to include all the available measurement quantities of the best measured cells, other than the source PCell or target PCell, ordered such that the cell with highest SS/PBCH block RSRP is listed first if SS/PBCH block RSRP measurement results are available, otherwise the cell with highest SS/PBCH block RSRQ is listed first if SS/PBCH block RSRQ measurement results are available, otherwise the cell with highest SS/PBCH block SINR is listed first, based on the available SS/PBCH block based measurements collected up to the moment the UE sends the *RRCReconfigurationComplete* message if the procedure is triggered due to successful completion of reconfiguration with sync, or up to the moment the UE sends the EUTRA *RRCConnectionReconfigurationComplete* message if the procedure is triggered due to successful completion of Mobility from NR to E-UTRA;

6> for each neighbour cell included, include the optional fields that are available;

NOTE 1: For the neighboring cells set included in *measResultListNR* in *measResultNeighCells* ordered based on the SS/PBCH block measurement quantities, the UE includes also the CSI-RS based measurement quantities, if available.

5> if the CSI-RS measurement quantities are available:

6> set the *measResultListNR* in *measResultNeighCells* to include all the available measurement quantities of the best measured cells, other than the source PCell and target PCell, ordered such that the cell with highest CSI-RS RSRP is listed first if CSI-RS RSRP measurement results are available, otherwise the cell with highest CSI-RS RSRQ is listed first if CSI-RS RSRQ measurement results are available, otherwise the cell with highest CSI-RS SINR is listed first, based on the available CSI-RS based measurements collected up to the moment the UE sends the *RRCReconfigurationComplete* message if the procedure is triggered due to successful completion of reconfiguration with sync, or up to the moment the UE sends the EUTRA *RRCConnectionReconfigurationComplete* message if the procedure is triggered due to successful completion of Mobility from NR to E-UTRA;

6> for each neighbour cell included, include the optional fields that are available;

NOTE 2: For the neighboring cells set ordered based on the CSI-RS measurement quantities, the UE includes measurements only for the cells not yet included in *measResultListNR* in *measResultNeighCells* to avoid overriding SS/PBCH block-based ordered measurements.

3> if the procedure is triggered due to successful completion of reconfiguration with sync, for each of the *measObjectEUTRA*, configured by the source PCell in which the last *RRCReconfiguration* message including *reconfigurationWithSync* was applied; or

3> if the procedure is triggered due to successful completion of Mobility from NR to E-UTRA, for each of the *measObjectEUTRA*, configured by the source PCell in which the last *MobilityFromNRCommand* concerning an inter-RAT handover from NR to E-UTRA was applied:

4> if measurements are available for the *measObjectEUTRA*:

5> set the *measResultListEUTRA* in *measResultNeighCells* to include the best measured cells ordered such that the cell with highest RSRP is listed first if RSRP measurement results are available, otherwise the cell with highest RSRQ is listed first, based on measurements collected up to the moment the UE sends the *RRCReconfigurationComplete* message if the procedure is triggered due to successful completion of reconfiguration with sync, or up to the moment the UE sends the EUTRA *RRCConnectionReconfigurationComplete* message if the procedure is triggered due to successful completion of Mobility from NR to E-UTRA;

5> for each neighbour cell included, include the optional fields that are available;

3> for each of the neighbour cells included in *measResultNeighCells*:

4> if the cell was a candidate target cell included in the *condRRCReconfig* within the *conditionalReconfiguration* configured by the source PCell, in which the last *RRCReconfiguration* message including *reconfigurationWithSync* was applied:

5> set the *choCandidate* to *true* in *measResultNR*;

3> if available, set the *locationInfo* as in 5.3.3.7;

1> release *successHO-Config* configured by the source PCell and *thresholdPercentageT304* if configured by the target PCell.

The UE may discard the successful handover information, i.e., release the UE variable *VarSuccessHO-Report*, 48 hours after the last successful handover information is added to the *VarSuccessHO-Report*.

NEXT CHANGE

#### 5.7.10.X Actions for the successful PSCell change or addition report determination

The UE shall for the PSCell:

1> if the ratio between the value of the elapsed time of the timer T304 and the configured value of the timer T304, included in the last applied *RRCReconfiguration* message for the SCG including the *reconfigurationWithSync*, is greater than *thresholdPercentageT304-SCG* if included in the *successPSCell-Config* received before executing the last reconfiguration with sync for the SCG; or

1> if *sn-InitiatedPSCellChange* is configured in the *RRCReconfiguration* including the last applied *RRCReconfiguration* with *reconfigurationWithSync* for the SCG and if the ratio between the value of the elapsed time of the timer T310 and the configured value of the timer T310, configured while the UE was connected to the source PSCell before executing the last reconfiguration with sync for the SCG, is greater than *thresholdPercentageT310-SCG* included in the *successPSCell-Config* if configured by the source PSCell before executing the last reconfiguration with sync; or

1> if *sn-InitiatedPSCellChange* is configured in the *RRCReconfiguration* including the last applied *RRCReconfiguration* with *reconfigurationWithSync* for the SCG and if the T312 associated to the measurement identity of the target PSCell was running at the time of initiating the execution of the reconfiguration with sync procedure for the SCG and if the ratio between the value of the elapsed time of the timer T312 and the configured value of the timer T312, configured while the UE was connected to the source PSCell before executing the last reconfiguration with sync, is greater than *thresholdPercentageT312-SCG* included in the s*uccessPSCell-Config* if configured by the source PSCell before executing the last reconfiguration with sync:

1> if *sn-InitiatedPSCellChange* is not configured in the *RRCReconfiguration* including the last applied *RRCReconfiguration* with *reconfigurationWithSync* for the SCG and if the ratio between the value of the elapsed time of the timer T310 and the configured value of the timer T310, configured while the UE was connected to the source PSCell before executing the last reconfiguration with sync for the SCG, is greater than *thresholdPercentageT310-SCG* included in the *successPSCell-Config* if configured by the PCell before executing the last reconfiguration with sync; or

1> if *sn-InitiatedPSCellChange* is not configured in the *RRCReconfiguration* including the last applied *RRCReconfiguration* with *reconfigurationWithSync* for the SCG and if the T312 associated to the measurement identity of the target PSCell was running at the time of initiating the execution of the reconfiguration with sync procedure for the SCG and if the ratio between the value of the elapsed time of the timer T312 and the configured value of the timer T312, configured while the UE was connected to the source PSCell before executing the last reconfiguration with sync, is greater than *thresholdPercentageT312-SCG* included in the s*uccessPSCell-Config* if configured by the PCell before executing the last reconfiguration with sync:

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

2> store the successful PSCell change or addition information in *VarSuccessPSCell-Report* and determine the content in *VarSuccessPSCell-Report* as follows:

3> if the UE is not in SNPN access mode, set the *plmn-IdentityList* to include the list of EPLMNs stored by the UE (i.e., includes the RPLMN);

3> else if the UE is in SNPN access mode, set the *snpn-IdentityList* to include the list of equivalent SNPNs stored by the UE (i.e., includes the registered SNPN), if available;

3> set the *pCellId* to the global cell identity and tracking area code, if available, of the PCell;

3> for the source PSCell in which the last *RRCReconfiguration* message for the SCG including *reconfigurationWithSync* was applied:

4> set the *sourcePSCellId* in *sourcePSCellInfo* to the global cell identity and tracking area code, of the source PSCell;

4> set the *sourcePSCellMeas* in *sourcePSCellInfo* to include the cell level RSRP, RSRQ and the available SINR, of the source PSCell based on the available SSB and CSI-RS measurements collected up to the moment the UE successfully completed the random access procedure for the SCG;

4> set the *rsIndexResults* in *sourceCellMeas* to include all the available SSB and CSI-RS measurement quantities of the source PSCell collected up to the moment the UE successfully completed the random access procedure for the SCG;

3> for the target PSCell indicated in the last applied *RRCReconfiguration* message for the SCG including *reconfigurationWithSync*:

4> set the *targetPSCellID* in *targetPSCellInfo* to the global cell identity and tracking area code, if available, and otherwise to the physical cell identity and carrier frequency of the target PSCell;

4> set the *targetPSCellMeas* in *targetPSCellInfo* to include the cell level RSRP, RSRQ and the available SINR, of the target PSCell based on the available SSB and CSI-RS measurements collected up to the moment the UE successfully completed the random access procedure for the SCG;

4> set the *rsIndexResults* in *targetCellMeas* to include all the available SSB and CSI-RS measurement quantities of the target PSCell collected up to the moment the UE successfully completed the random access procedure for the SCG;

4> if the last applied *RRCReconfiguration* message for the SCG including *reconfigurationWithSync* was included in the stored *condRRCReconfig*:

5> set the *timeSinceCPAC-Reconfig* to the time elapsed between the initiation of the execution of conditional reconfiguration for the target PSCell and the reception of the last *conditionalReconfiguration* for the SCG including the *condRRCReconfig* of the target PSCell;

3> if the ratio between the value of the elapsed time of the timer T304 and the configured value of the T304 timer, included in the last applied *RRCReconfiguration* message for the SCG including the *reconfigurationWithSync*, is greater than *thresholdPercentageT304-SCG* if included in the *successPSCell-Config* received before executing the last reconfiguration with sync for the SCG:

4> set *t304-cause* in *spr-Cause* to *true*;

4> set the *ra-InformationCommon* to include the random-access related information associated to the random access procedure in the target PSCell, as specified in clause 5.7.10.5;

3> if the ratio between the value of the elapsed time of the timer T310 and the configured value of the timer T310, configured while the UE was connected to the source PSCell before executing the last reconfiguration with sync for the SCG, is greater than *thresholdPercentageT310-SCG* included in the *successPSCell-Config* if configured before executing the last reconfiguration with sync:

4> set *t310-cause* in *spr-Cause* to *true*;

3> if the T312 associated to the measurement identity of the target PSCell was running at the time of initiating the execution of the reconfiguration with sync procedure for the SCG and if the ratio between the value of the elapsed time of the timer T312 and the configured value of the timer T312, configured while the UE was connected to the source PSCell before executing the last reconfiguration with sync, is greater than *thresholdPercentageT312-SCG* included in the s*uccessPSCell-Config* if configured before executing the last reconfiguration with sync:

4> set *t312-cause* in *spr-Cause* to *true*;

3> for each of the *measObjectNR* (configured by the cell initiating the PSCell change procedure, in case of PSCell change procedure):

4> if measurements are available for the *measObjectNR*:

5> if the SS/PBCH block-based measurement quantities are available:

6> include in the *measResultListNR* in *measResultNeighCells* all the available measurement quantities of the best measured cells, other than the source PCell or target PCell, ordered such that the cell with highest SS/PBCH block RSRP is listed first if SS/PBCH block RSRP measurement results are available, otherwise the cell with highest SS/PBCH block RSRQ is listed first if SS/PBCH block RSRQ measurement results are available, otherwise the cell with highest SS/PBCH block SINR is listed first, based on the available SS/PBCH block based measurements collected up to the moment the UE successfully completed the random access procedure;

6> for each neighbour cell included, include the optional fields that are available (including the CSI-RS based measurement quantities, if available);

5> if the CSI-RS measurement quantities are available for the cells not yet included in *measResultListNR* in *measResultNeighCells*:

6> include in the *measResultListNR* in *measResultNeighCells* all the available measurement quantities of the best measured cells, other than the source PCell and target PCell, ordered such that the cell with highest CSI-RS RSRP is listed first if CSI-RS RSRP measurement results are available, otherwise the cell with highest CSI-RS RSRQ is listed first if CSI-RS RSRQ measurement results are available, otherwise the cell with highest CSI-RS SINR is listed first, based on the available CSI-RS based measurements collected up to the moment the UE successfully completed the random access procedure;

6> for each neighbour cell included, include the optional fields that are available;

3> for each of the neighbour cells included in *measResultNeighCells*:

4> if the cell was a candidate target cell included in the *condRRCReconfig* within the *conditionalReconfiguration*, in which the last *RRCReconfiguration* message for the SCG including *reconfigurationWithSync* was applied:

5> set the *choCandidate* to *true* in *measResultNR*;

3> include *sn-InitiatedPSCellChange* if *sn-InitiatedPSCellChange* is included in the *RRCReconfiguration* including the applied *RRCReconfiguration* message with *reconfigurationWithSync* for the SCG;

3> if available, set the *locationInfo* as in 5.3.3.7;

3> if *sn-InitiatedPSCellChange* is configured in the *RRCReconfiguration* including the last applied *RRCReconfiguration* with *reconfigurationWithSync* for the SCG:

4> if available, set the *locationInfo* as in 5.3.3.7 7 according to the *otherConfig* associated with the source PSCell;

3> else:

4> if available, set the *locationInfo* as in 5.3.3.7 7 according to the *otherConfig* associated with the PCell;

1> release *successPSCell-Config* configured by the source PSCell if available and *thresholdPercentageT304* if configured by the target PSCell.

The UE may discard the successful PSCell change or addition information, i.e., release the UE variable *VarSuccessPSCell-Report*, 48 hours after the last successful PSCell change or addition information is added to the *VarSuccessPSCell-Report* or upon detaching from the network.

NEXT CHANGE

### 6.2.2 Message definitions

<Text Omitted>

#### – *LoggedMeasurementConfiguration*

The *LoggedMeasurementConfiguration* message is used to perform logging of measurement results while in RRC\_IDLE or RRC\_INACTIVE. It is used to transfer the logged measurement configuration for network performance optimisation.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*LoggedMeasurementConfiguration message*

-- ASN1START

-- TAG-LOGGEDMEASUREMENTCONFIGURATION-START

LoggedMeasurementConfiguration-r16 ::= SEQUENCE {

criticalExtensions CHOICE {

loggedMeasurementConfiguration-r16 LoggedMeasurementConfiguration-r16-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

LoggedMeasurementConfiguration-r16-IEs ::= SEQUENCE {

traceReference-r16 TraceReference-r16,

traceRecordingSessionRef-r16 OCTET STRING (SIZE (2)),

tce-Id-r16 OCTET STRING (SIZE (1)),

absoluteTimeInfo-r16 AbsoluteTimeInfo-r16,

areaConfiguration-r16 AreaConfiguration-r16 OPTIONAL, --Need R

plmn-IdentityList-r16 PLMN-IdentityList2-r16 OPTIONAL, --Need R

bt-NameList-r16 SetupRelease {BT-NameList-r16} OPTIONAL, --Need M

wlan-NameList-r16 SetupRelease {WLAN-NameList-r16} OPTIONAL, --Need M

sensor-NameList-r16 SetupRelease {Sensor-NameList-r16} OPTIONAL, --Need M

loggingDuration-r16 LoggingDuration-r16,

reportType CHOICE {

periodical LoggedPeriodicalReportConfig-r16,

eventTriggered LoggedEventTriggerConfig-r16,

...

},

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension LoggedMeasurementConfiguration-v1700-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1700-IEs ::= SEQUENCE {

sigLoggedMeasType-r17 ENUMERATED {true} OPTIONAL, -- Need R

earlyMeasIndication-r17 ENUMERATED {true} OPTIONAL, -- Need R

areaConfiguration-v1700 AreaConfiguration-v1700 OPTIONAL, --Need R

nonCriticalExtension LoggedMeasurementConfiguration-v1800-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1800-IEs ::= SEQUENCE {

areaConfiguration-v18xy AreaConfiguration-v18xy OPTIONAL, --Need R

nonCriticalExtension SEQUENCE {} OPTIONAL

}

LoggedPeriodicalReportConfig-r16 ::= SEQUENCE {

loggingInterval-r16 LoggingInterval-r16,

...

}

LoggedEventTriggerConfig-r16 ::= SEQUENCE {

eventType-r16 EventType-r16,

loggingInterval-r16 LoggingInterval-r16,

...

}

EventType-r16 ::= CHOICE {

outOfCoverage NULL,

eventL1 SEQUENCE {

l1-Threshold MeasTriggerQuantity,

hysteresis Hysteresis,

timeToTrigger TimeToTrigger

},

...

}

-- TAG-LOGGEDMEASUREMENTCONFIGURATION-STOP

-- ASN1STOP

| *LoggedMeasurementConfiguration* field descriptions |
| --- |
| ***absoluteTimeInfo***  Indicates the absolute time in the current cell. |
| ***areaConfiguration***  Used to restrict the area in which the UE performs measurement logging to cells broadcasting either one of the included cell identities or one of the included tracking area codes/ frequencies or one of the included PNI-NPN IDs or SNPN IDs. |
| ***earlyMeasIndication***  If included, the field indicates the UE is allowed to log measurements on early measurement related frequencies in logged measurements. |
| ***eventType***  The value outOfCoverage indicates the UE to perform logging of measurements when the UE enters any cell selection state, and the value eventL1 indicates the UE to perform logging of measurements when the triggering condition (similar as event A2 as specified in 5.5.4.3) as configured in the event is met for the camping cell in camped normally state. |
| ***plmn-IdentityList***  Indicates a set of PLMNs defining when the UE performs measurement logging as well as the associated status indication and information retrieval i.e. the UE performs these actions when the RPLMN is part of this set of PLMNs. |
| ***sigLoggedMeasType***  If included, the field indicates a signalling based logged measurement configuration (See TS 37.320 [61]). |
| ***tce-Id***  Parameter Trace Collection Entity Id: See TS 32.422 [52]. |
| ***traceRecordingSessionRef***  Parameter Trace Recording Session Reference: See TS 32.422 [52]. |
| ***reportType***  Parameter configures the type of MDT configuration, specifically Periodic MDT configuration or Event Triggerd MDT configuration. |

<Text Omitted>

#### – *MobilityFromNRCommand*

The *MobilityFromNRCommand* message is used to command handover from NR to E-UTRA/EPC, E-UTRA/5GC or UTRA-FDD.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*MobilityFromNRCommand* message

-- ASN1START

-- TAG-MOBILITYFROMNRCOMMAND-START

MobilityFromNRCommand ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

mobilityFromNRCommand MobilityFromNRCommand-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

MobilityFromNRCommand-IEs ::= SEQUENCE {

targetRAT-Type ENUMERATED { eutra, utra-fdd-v1610, spare2, spare1, ...},

targetRAT-MessageContainer OCTET STRING,

nas-SecurityParamFromNR OCTET STRING OPTIONAL, -- Cond HO-ToEPCUTRAN

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension MobilityFromNRCommand-v1610-IEs OPTIONAL

}

MobilityFromNRCommand-v1610-IEs ::= SEQUENCE {

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

nonCriticalExtension MobilityFromNRCommand-v18xy-IEs OPTIONAL

}

MobilityFromNRCommand-v18xy-IEs ::= SEQUENCE {

successHO-Config-r18 SetupRelease {SuccessHO-Config-r17} OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-MOBILITYFROMNRCOMMAND-STOP

-- ASN1STOP

|  |
| --- |
| *MobilityFromNRCommand-IEs* field descriptions |
| ***nas-SecurityParamFromNR***  If *targetRAT-Type* is *eutra*, this field is used to deliver the key synchronisation and Key freshness for the NR to LTE/EPC handovers and a part of the downlink NAS COUNT as specified in TS 33.501 [11] and the content of the parameter is defined in TS 24.501 [23]. If *targetRAT-Type* is *utra-fdd*, this field is used to deliver the key synchronisation and Key freshness for the NR to FDD UTRAN handover and a part of the downlink NAS COUNT as specified in TS 33.501 [11] and the content of the parameter is defined in TS 24.501 [23]. |
| ***targetRAT-MessageContainer***  The field contains a message specified in another standard, as indicated by the *targetRAT-Type*, and carries information about the target cell identifier(s) and radio parameters relevant for the target radio access technology. A complete message is included, as specified in the other standard. See NOTE 1 |
| ***targetRAT-Type***  Indicates the target RAT type. |
| ***voiceFallbackIndication***  Indicates the handover is triggered by EPS fallback for IMS voice as specified in TS 23.502 [43]. |

NOTE 1: The correspondence between the value of the *targetRAT-Type*, the standard to apply, and the message contained within the *targetRAT-MessageContainer* is shown in the table below:

|  |  |  |
| --- | --- | --- |
| targetRAT-Type | Standard to apply | targetRAT-MessageContainer |
| *eutra* | TS 36.331 [10] (clause 5.4.2) | *DL-DCCH-Message* including the *RRCConnectionReconfiguration* |
| *utra-fdd* | TS 25.331 [45] (clause 10.2.16a) | *Handover TO UTRAN command* |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *HO-ToEPCUTRAN* | This field is mandatory present in case of inter system handover to "EPC" or "FDD UTRAN". Otherwise it is absent. |

<Text Omitted>

#### – *RRCReconfiguration*

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

Signalling radio bearer: SRB1 or SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*RRCReconfiguration message*

-- ASN1START

-- TAG-RRCRECONFIGURATION-START

RRCReconfiguration ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

rrcReconfiguration RRCReconfiguration-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

RRCReconfiguration-IEs ::= SEQUENCE {

radioBearerConfig RadioBearerConfig OPTIONAL, -- Need M

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

measConfig MeasConfig OPTIONAL, -- Need M

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCReconfiguration-v1530-IEs OPTIONAL

}

RRCReconfiguration-v1530-IEs ::= SEQUENCE {

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

fullConfig ENUMERATED {true} OPTIONAL, -- Cond FullConfig

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

masterKeyUpdate MasterKeyUpdate OPTIONAL, -- Cond MasterKeyChange

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

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

otherConfig OtherConfig OPTIONAL, -- Need M

nonCriticalExtension RRCReconfiguration-v1540-IEs OPTIONAL

}

RRCReconfiguration-v1540-IEs ::= SEQUENCE {

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

nonCriticalExtension RRCReconfiguration-v1560-IEs OPTIONAL

}

RRCReconfiguration-v1560-IEs ::= SEQUENCE {

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

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

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

nonCriticalExtension RRCReconfiguration-v1610-IEs OPTIONAL

}

RRCReconfiguration-v1610-IEs ::= SEQUENCE {

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

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

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

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

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

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

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

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

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

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

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

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

nonCriticalExtension RRCReconfiguration-v1700-IEs OPTIONAL

}

RRCReconfiguration-v1700-IEs ::= SEQUENCE {

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

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

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

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

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

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

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

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

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

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

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

nonCriticalExtension RRCReconfiguration-v18xy-IEs OPTIONAL

}

RRCReconfiguration-v18xy-IEs ::= SEQUENCE {

otherConfig-v18xy OtherConfig-v18xy OPTIONAL -- Need M

}

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 |
| ***appLayerMeasConfig***  This field is used to configure application layer measurements. This field is absent when the UE is configured to operate with shared spectrum channel access or if *sl-L2RemoteUE-Config-r17* is configured or not released. |
| ***bap-Config***  This field is used to configure the BAP entity for IAB nodes. |
| ***bap-Address***  Indicates the BAP address of an IAB-node. The BAP address of an IAB-node cannot be changed once configured for the cell group to the BAP entity. |
| ***conditionalReconfiguration***  Configuration of candidate target SpCell(s) and execution condition(s) for conditional handover, conditional PSCell addition or conditional PSCell change. The field is absent if any DAPS bearer is configured 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, SIB20, 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 also used to transfer the SIBs requested on-demand. |
| ***defaultUL-BAP-RoutingID***  This field is used for IAB-node to configure the default uplink Routing ID, which is used by IAB-node during IAB-node bootstrapping*,* migration, IAB-MT RRC resume and IAB-MT RRC re-establishment for *F1-C* and *non-F1* traffic. The *defaultUL-BAP-RoutingID* can be (re-)configured when IAB-node IP address for *F1-C* related traffic changes. This field is mandatory only for IAB-node bootstrapping. |
| ***defaultUL-BH-RLC-Channel***  This field is used for IAB-nodes to configure the default uplink BH RLC channel*,* which is used by IAB-nodeduring IAB-node bootstrapping*,* migration, IAB-MT RRC resume and IAB-MT RRC re-establishment *for F1-C and non-F1 traffic*. The *defaultUL-BH-RLC-Channel* can be (re-)configured when IAB-node IP address for *F1-C* related traffic changes, and the new IP address is anchored at a different IAB-donor-DU. This field is mandatory for IAB-node bootstrapping. If the IAB-MT is operating in EN-DC, the default uplink BH RLC channel is referring to an RLC channel on the SCG; Otherwise, it is referring to an RLC channel either on the MCG or on the SCG depending on whether the MN or the SN configures this field. |
| ***flowControlFeedbackType***  This field is only used for IAB-node that support hop-by-hop flow control to configure the type of flow control feedback. Value *perBH-RLC-Channel* indicates that the IAB-node shall provide flow control feedback per BH RLC channel, value *perRoutingID* indicates that the IAB-node shall provide flow control feedback per routing ID, and value *both* indicates that the IAB-node shall provide flow control feedback both per BH RLC channel and per routing ID. |
| ***fullConfig***  Indicates that the full configuration option is applicable for the *RRCReconfiguration* message for intra-system intra-RAT HO. For inter-RAT HO from E-UTRA to NR, *fullConfig* indicates whether or not delta signalling of SDAP/PDCP from source RAT is applicable. This field is absent if any DAPS bearer is configured or when the *RRCReconfiguration* message is transmitted on SRB3, and in an *RRCReconfiguration* message for SCG contained in another *RRCReconfiguration* message (or *RRCConnectionReconfiguration* message, see TS 36.331 [10]) transmitted on SRB1. |
| ***iab-IP-Address***  This field is used to provide the IP address information for IAB-node. |
| ***iab-IP-AddressIndex***  This field is used to identify a configuration of an IP address. |
| ***iab-IP-AddressToAddModList***  List of IP addresses allocated for IAB-node to be added and modified. |
| ***iab-IP-AddressToReleaseList***  List of IP address allocated for IAB-node to be released. |
| ***iab-IP-Usage***  This field is used to indicate the usage of the assigned IP address. If this field is not configured, the assigned IP address is used for all traffic. |
| ***iab-donor-DU-BAP-Address***  This field is used to indicate the BAP address of the IAB-donor-DU where the IP address is anchored. |
| ***keySetChangeIndicator***  Indicates whether UE shall derive a new KgNB. If *reconfigurationWithSync* is included, value *true* indicates that a KgNB key is derived from a KAMF key taken into use through the latest successful NAS SMC procedure, or N2 handover procedure with KAMF change, as described in TS 33.501 [11] for KgNB re-keying. Value *false* indicates that the new KgNB key is obtained from the current KgNB key or from the NH as described in TS 33.501 [11]. |
| ***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, rlm-RelaxationReportingConfig, bfd-RelaxationReportingConfig, btNameList, wlanNameList, sensorNameList* and *obtainCommonLocation* can be included. |
| ***radioBearerConfig***  Configuration of Radio Bearers (DRBs, SRBs, multicast MRBs) including SDAP/PDCP. In (NG)EN-DC this field may only be present if the *RRCReconfiguration* is transmitted over SRB3. SRB4 should not be configured if *sl-L2RemoteUE-Config-r17* is configured or not released. |
| ***radioBearerConfig2***  Configuration of Radio Bearers (DRBs, SRBs) including SDAP/PDCP. This field can only be used if the UE supports NR-DC or NE-DC. |
| ***scg-State***  Indicates that the SCG is in deactivated state.  This field is not used  - in an *RRCReconfiguration* message received:  - within *mrdc-SecondaryCellGroup*, or  - in an E-UTRA *RRCConnectionReconfiguration* message, or  - in an E-UTRA *RRCConnectionResume* message or  - in an *RRCReconfiguration* message received via SRB3, except if the *RRCReconfiguration* message is included in *DLInformationTransferMRDC*.  The field is absent if CPA 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. |

<Text Omitted>

#### – *UEInformationRequest*

The *UEInformationRequest* message is used by the network to retrieve information from the UE.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*UEInformationRequest message*

-- ASN1START

-- TAG-UEINFORMATIONREQUEST-START

UEInformationRequest-r16 ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

ueInformationRequest-r16 UEInformationRequest-r16-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

UEInformationRequest-r16-IEs ::= SEQUENCE {

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

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

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

ra-ReportReq-r16 ENUMERATED {true} OPTIONAL, -- Need N

rlf-ReportReq-r16 ENUMERATED {true} OPTIONAL, -- Need N

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

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension UEInformationRequest-v1700-IEs OPTIONAL

}

UEInformationRequest-v1700-IEs ::= SEQUENCE {

successHO-ReportReq-r17 ENUMERATED {true} OPTIONAL, -- Need N

coarseLocationRequest-r17 ENUMERATED {true} OPTIONAL, -- Need N

nonCriticalExtension UEInformationRequest-v18xy-IEs OPTIONAL

}

UEInformationRequest-v18xy-IEs ::= SEQUENCE {

successPSCell-ReportReq-r18 ENUMERATED {true} OPTIONAL, -- Need N

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-UEINFORMATIONREQUEST-STOP

-- ASN1STOP

|  |
| --- |
| *UEInformationRequest-IEs* field descriptions |
| ***coarseLocationRequest***  This field is used to request UE to report coarse location information. |
| ***connEstFailReportReq***  This field is used to indicate whether the UE shall report information about the connection failure. |
| ***idleModeMeasurementReq***  This field indicates that the UE shall report the idle/inactive measurement information, if available, to the network in the *UEInformationResponse* message. |
| ***logMeasReportReq***  This field is used to indicate whether the UE shall report information about logged measurements. |
| ***mobilityHistoryReportReq***  This field is used to indicate whether the UE shall report information about mobility history information. |
| ***ra-ReportReq***  This field is used to indicate whether the UE shall report information about the random access procedure. |
| ***rlf-ReportReq***  This field is used to indicate whether the UE shall report information about the radio link failure. |
| ***successHO-ReportReq***  This field is used to indicate whether the UE shall report information about the successful handover report. |
| ***successPSCell-ReportReq***  This field is used to indicate whether the UE shall report information about the successful PSCell change or addition report. |

#### – *UEInformationResponse*

The *UEInformationResponse* message is used by the UE to transfer information requested by the network.

Signalling radio bearer: SRB1 or SRB2 (when logged measurement information is included)

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to network

*UEInformationResponse message*

-- ASN1START

-- TAG-UEINFORMATIONRESPONSE-START

UEInformationResponse-r16 ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

ueInformationResponse-r16 UEInformationResponse-r16-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

UEInformationResponse-r16-IEs ::= SEQUENCE {

measResultIdleEUTRA-r16 MeasResultIdleEUTRA-r16 OPTIONAL,

measResultIdleNR-r16 MeasResultIdleNR-r16 OPTIONAL,

logMeasReport-r16 LogMeasReport-r16 OPTIONAL,

connEstFailReport-r16 ConnEstFailReport-r16 OPTIONAL,

ra-ReportList-r16 RA-ReportList-r16 OPTIONAL,

rlf-Report-r16 RLF-Report-r16 OPTIONAL,

mobilityHistoryReport-r16 MobilityHistoryReport-r16 OPTIONAL,

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension UEInformationResponse-v1700-IEs OPTIONAL

}

UEInformationResponse-v1700-IEs ::= SEQUENCE {

successHO-Report-r17 SuccessHO-Report-r17 OPTIONAL,

connEstFailReportList-r17 ConnEstFailReportList-r17 OPTIONAL,

coarseLocationInfo-r17 OCTET STRING OPTIONAL,

nonCriticalExtension UEInformationResponse-v18xy-IEs OPTIONAL

}

UEInformationResponse-v18xy-IEs ::= SEQUENCE {

successPSCell-Report-r18 SuccessPSCell-Report-r18 OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

LogMeasReport-r16 ::= SEQUENCE {

absoluteTimeStamp-r16 AbsoluteTimeInfo-r16,

traceReference-r16 TraceReference-r16,

traceRecordingSessionRef-r16 OCTET STRING (SIZE (2)),

tce-Id-r16 OCTET STRING (SIZE (1)),

logMeasInfoList-r16 LogMeasInfoList-r16,

logMeasAvailable-r16 ENUMERATED {true} OPTIONAL,

logMeasAvailableBT-r16 ENUMERATED {true} OPTIONAL,

logMeasAvailableWLAN-r16 ENUMERATED {true} OPTIONAL,

...

}

LogMeasInfoList-r16 ::= SEQUENCE (SIZE (1..maxLogMeasReport-r16)) OF LogMeasInfo-r16

LogMeasInfo-r16 ::= SEQUENCE {

locationInfo-r16 LocationInfo-r16 OPTIONAL,

relativeTimeStamp-r16 INTEGER (0..7200),

servCellIdentity-r16 CGI-Info-Logging-r16 OPTIONAL,

measResultServingCell-r16 MeasResultServingCell-r16 OPTIONAL,

measResultNeighCells-r16 SEQUENCE {

measResultNeighCellListNR MeasResultListLogging2NR-r16 OPTIONAL,

measResultNeighCellListEUTRA MeasResultList2EUTRA-r16 OPTIONAL

},

anyCellSelectionDetected-r16 ENUMERATED {true} OPTIONAL,

...,

[[

inDeviceCoexDetected-r17 ENUMERATED {true} OPTIONAL

]]

}

ConnEstFailReport-r16 ::= SEQUENCE {

measResultFailedCell-r16 MeasResultFailedCell-r16,

locationInfo-r16 LocationInfo-r16 OPTIONAL,

measResultNeighCells-r16 SEQUENCE {

measResultNeighCellListNR MeasResultList2NR-r16 OPTIONAL,

measResultNeighCellListEUTRA MeasResultList2EUTRA-r16 OPTIONAL

},

numberOfConnFail-r16 INTEGER (1..8),

perRAInfoList-r16 PerRAInfoList-r16,

timeSinceFailure-r16 TimeSinceFailure-r16,

...

}

ConnEstFailReportList-r17 ::= SEQUENCE (SIZE (1..maxCEFReport-r17)) OF ConnEstFailReport-r16

MeasResultServingCell-r16 ::= SEQUENCE {

resultsSSB-Cell MeasQuantityResults,

resultsSSB SEQUENCE{

best-ssb-Index SSB-Index,

best-ssb-Results MeasQuantityResults,

numberOfGoodSSB INTEGER (1..maxNrofSSBs-r16)

} OPTIONAL

}

MeasResultFailedCell-r16 ::= SEQUENCE {

cgi-Info CGI-Info-Logging-r16,

measResult-r16 SEQUENCE {

cellResults-r16 SEQUENCE{

resultsSSB-Cell-r16 MeasQuantityResults

},

rsIndexResults-r16 SEQUENCE{

resultsSSB-Indexes-r16 ResultsPerSSB-IndexList

}

}

}

RA-ReportList-r16 ::= SEQUENCE (SIZE (1..maxRAReport-r16)) OF RA-Report-r16

RA-Report-r16 ::= SEQUENCE {

cellId-r16 CHOICE {

cellGlobalId-r16 CGI-Info-Logging-r16,

pci-arfcn-r16 PCI-ARFCN-NR-r16

},

ra-InformationCommon-r16 RA-InformationCommon-r16 OPTIONAL,

raPurpose-r16 ENUMERATED {accessRelated, beamFailureRecovery, reconfigurationWithSync, ulUnSynchronized,

schedulingRequestFailure, noPUCCHResourceAvailable, requestForOtherSI,

msg3RequestForOtherSI-r17, lbtFailure-r18, spare7, spare6, spare5, spare4, spare3,

spare2, spare1},

...,

[[

spCellID-r17 CGI-Info-Logging-r16 OPTIONAL

]]

}

RA-InformationCommon-r16 ::= SEQUENCE {

absoluteFrequencyPointA-r16 ARFCN-ValueNR,

locationAndBandwidth-r16 INTEGER (0..37949),

subcarrierSpacing-r16 SubcarrierSpacing,

msg1-FrequencyStart-r16 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

msg1-FrequencyStartCFRA-r16 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

msg1-SubcarrierSpacing-r16 SubcarrierSpacing OPTIONAL,

msg1-SubcarrierSpacingCFRA-r16 SubcarrierSpacing OPTIONAL,

msg1-FDM-r16 ENUMERATED {one, two, four, eight} OPTIONAL,

msg1-FDMCFRA-r16 ENUMERATED {one, two, four, eight} OPTIONAL,

perRAInfoList-r16 PerRAInfoList-r16,

...,

[[

perRAInfoList-v1660 PerRAInfoList-v1660 OPTIONAL

]],

[[

msg1-SCS-From-prach-ConfigurationIndex-r16 ENUMERATED {kHz1dot25, kHz5, spare2, spare1} OPTIONAL

]],

[[

msg1-SCS-From-prach-ConfigurationIndexCFRA-r16 ENUMERATED {kHz1dot25, kHz5, spare2, spare1} OPTIONAL

]],

[[

msgA-RO-FrequencyStart-r17 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

msgA-RO-FrequencyStartCFRA-r17 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

msgA-SubcarrierSpacing-r17 SubcarrierSpacing OPTIONAL,

msgA-RO-FDM-r17 ENUMERATED {one, two, four, eight} OPTIONAL,

msgA-RO-FDMCFRA-r17 ENUMERATED {one, two, four, eight} OPTIONAL,

msgA-SCS-From-prach-ConfigurationIndex-r17 ENUMERATED {kHz1dot25, kHz5, spare2, spare1} OPTIONAL,

msgA-TransMax-r17 ENUMERATED {n1, n2, n4, n6, n8, n10, n20, n50, n100, n200} OPTIONAL,

msgA-MCS-r17 INTEGER (0..15) OPTIONAL,

nrofPRBs-PerMsgA-PO-r17 INTEGER (1..32) OPTIONAL,

msgA-PUSCH-TimeDomainAllocation-r17 INTEGER (1..maxNrofUL-Allocations) OPTIONAL,

frequencyStartMsgA-PUSCH-r17 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

nrofMsgA-PO-FDM-r17 ENUMERATED {one, two, four, eight} OPTIONAL,

dlPathlossRSRP-r17 RSRP-Range OPTIONAL,

intendedSIBs-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-Type-r17 OPTIONAL,

ssbsForSI-Acquisition-r17 SEQUENCE (SIZE (1..maxNrofSSBs-r16)) OF SSB-Index OPTIONAL,

msgA-PUSCH-PayloadSize-r17 BIT STRING (SIZE (5)) OPTIONAL,

onDemandSISuccess-r17 ENUMERATED {true} OPTIONAL

]],

[[

usedFeatureCombination-r18 ReportedFeatureCombination-r18 OPTIONAL,

triggeredFeatureCombination-r18 ReportedFeatureCombination-r18 OPTIONAL,

attemptedBWPInfoList-r18 SEQUENCE (SIZE (1..maxNrofBWPs)) OF AttemptedBWPInfo-r18 OPTIONAL,

numberOfLBTFailures-r18 INTEGER (1..128) OPTIONAL,

perRAInfoList-v18xx PerRAInfoList-v18xx OPTIONAL,

sdtFailed-r18 ENUMERATED {true} OPTIONAL

]]

}

AttemptedBWPInfo-r18 ::= SEQUENCE {

locationAndBandwidth-r18 INTEGER (0..37949),

subcarrierSpacing-r18 SubcarrierSpacing

}

ReportedFeatureCombination-r18 ::= SEQUENCE {

redCap-r18 ENUMERATED {true} OPTIONAL,

smallData-r18 ENUMERATED {true} OPTIONAL,

nsag-r18 NSAG-List-r17 OPTIONAL,

msg3-Repetitions-r18 ENUMERATED {true} OPTIONAL,

triggered-S-NSSAI-List-r18 SEQUENCE (SIZE (1..maxNrofS-NSSAI)) OF S-NSSAI OPTIONAL

}

PerRAInfoList-r16 ::= SEQUENCE (SIZE (1..200)) OF PerRAInfo-r16

PerRAInfoList-v1660 ::= SEQUENCE (SIZE (1..200)) OF PerRACSI-RSInfo-v1660

PerRAInfo-r16 ::= CHOICE {

perRASSBInfoList-r16 PerRASSBInfo-r16,

perRACSI-RSInfoList-r16 PerRACSI-RSInfo-r16

}

PerRAInfoList-v18xx ::= SEQUENCE (SIZE (1..200)) OF PerRAInfo-v18xx

PerRAInfo-v18xx ::= CHOICE {

perRASSBInfoList-v18xx PerRASSBInfo-v18xx,

perRACSI-RSInfoList-v18xx PerRACSI-RSInfo-v18xx

}

PerRASSBInfo-r16 ::= SEQUENCE {

ssb-Index-r16 SSB-Index,

numberOfPreamblesSentOnSSB-r16 INTEGER (1..200),

perRAAttemptInfoList-r16 PerRAAttemptInfoList-r16

}

PerRASSBInfo-v18xx ::= SEQUENCE {

allPreamblesBlocked ENUMERATED {true} OPTIONAL,

lbtDetected-r18 ENUMERATED {true} OPTIONAL,

...

}

PerRACSI-RSInfo-r16 ::= SEQUENCE {

csi-RS-Index-r16 CSI-RS-Index,

numberOfPreamblesSentOnCSI-RS-r16 INTEGER (1..200)

}

PerRACSI-RSInfo-v1660 ::= SEQUENCE {

csi-RS-Index-v1660 INTEGER (1..96) OPTIONAL

}

PerRACSI-RSInfo-v18xx ::= SEQUENCE {

allPreamblesBlocked ENUMERATED {true} OPTIONAL,

lbtDetected-r18 ENUMERATED {true} OPTIONAL,

...

}

PerRAAttemptInfoList-r16 ::= SEQUENCE (SIZE (1..200)) OF PerRAAttemptInfo-r16

PerRAAttemptInfo-r16 ::= SEQUENCE {

contentionDetected-r16 BOOLEAN OPTIONAL,

dlRSRPAboveThreshold-r16 BOOLEAN OPTIONAL,

...,

[[

fallbackToFourStepRA-r17 ENUMERATED {true} OPTIONAL

]]

}

SIB-Type-r17 ::= ENUMERATED {sibType2, sibType3, sibType4, sibType5, sibType9, sibType10-v1610, sibType11-v1610, sibType12-v1610,

sibType13-v1610, sibType14-v1610, spare6, spare5, spare4, spare3, spare2, spare1}

RLF-Report-r16 ::= CHOICE {

nr-RLF-Report-r16 SEQUENCE {

measResultLastServCell-r16 MeasResultRLFNR-r16,

measResultNeighCells-r16 SEQUENCE {

measResultListNR-r16 MeasResultList2NR-r16 OPTIONAL,

measResultListEUTRA-r16 MeasResultList2EUTRA-r16 OPTIONAL

} OPTIONAL,

c-RNTI-r16 RNTI-Value,

previousPCellId-r16 CHOICE {

nrPreviousCell-r16 CGI-Info-Logging-r16,

eutraPreviousCell-r16 CGI-InfoEUTRALogging

} OPTIONAL,

failedPCellId-r16 CHOICE {

nrFailedPCellId-r16 CHOICE {

cellGlobalId-r16 CGI-Info-Logging-r16,

pci-arfcn-r16 PCI-ARFCN-NR-r16

},

eutraFailedPCellId-r16 CHOICE {

cellGlobalId-r16 CGI-InfoEUTRALogging,

pci-arfcn-r16 PCI-ARFCN-EUTRA-r16

}

},

reconnectCellId-r16 CHOICE {

nrReconnectCellId-r16 CGI-Info-Logging-r16,

eutraReconnectCellId-r16 CGI-InfoEUTRALogging

} OPTIONAL,

timeUntilReconnection-r16 TimeUntilReconnection-r16 OPTIONAL,

reestablishmentCellId-r16 CGI-Info-Logging-r16 OPTIONAL,

timeConnFailure-r16 INTEGER (0..1023) OPTIONAL,

timeSinceFailure-r16 TimeSinceFailure-r16,

connectionFailureType-r16 ENUMERATED {rlf, hof},

rlf-Cause-r16 ENUMERATED {t310-Expiry, randomAccessProblem, rlc-MaxNumRetx,

beamFailureRecoveryFailure, lbtFailure-r16,

bh-rlfRecoveryFailure, t312-expiry-r17, spare1},

locationInfo-r16 LocationInfo-r16 OPTIONAL,

noSuitableCellFound-r16 ENUMERATED {true} OPTIONAL,

ra-InformationCommon-r16 RA-InformationCommon-r16 OPTIONAL,

...,

[[

csi-rsRLMConfigBitmap-v1650 BIT STRING (SIZE (96)) OPTIONAL

]],

[[

lastHO-Type-r17 ENUMERATED {cho, daps, spare2, spare1} OPTIONAL,

timeConnSourceDAPS-Failure-r17 TimeConnSourceDAPS-Failure-r17 OPTIONAL,

timeSinceCHO-Reconfig-r17 TimeSinceCHO-Reconfig-r17 OPTIONAL,

choCellId-r17 CHOICE {

cellGlobalId-r17 CGI-Info-Logging-r16,

pci-arfcn-r17 PCI-ARFCN-NR-r16

} OPTIONAL,

choCandidateCellList-r17 ChoCandidateCellList-r17 OPTIONAL

]],

[[

pSCellId-r18 CHOICE {

cellGlobalId-r18 CGI-Info-Logging-r16,

pci-arfcn-r18 PCI-ARFCN-NR-r16

} OPTIONAL,

mcgRecoveryFailureCause-r18 ENUMERATED {t316-Expiry, scgDeactivated, spare2, spare1} OPTIONAL,

scgFailureCause-r18 ENUMERATED {t310-Expiry, randomAccessProblem,

rlc-MaxNumRetx,

synchReconfigFailureSCG, scg-ReconfigFailure,

srb3-IntegrityFailure, scg-lbtFailure-r16, beamFailureRecoveryFailure-r16,

t312-Expiry-r16, bh-RLF-r16, beamFailure-r17, spare3, spare2, spare1 } OPTIONAL,

elapsedTimeSCGFailure-r18 ElapsedTimeSCGFailure-r18 OPTIONAL,

voiceFallbackHO-r18 ENUMERATED {true} OPTIONAL,

measResultLastServCell-RSSI-r18 RSSI-Range-r16 OPTIONAL,

measResultNeighFreqList-RSSI-r18 MeasResultNeighFreqList-RSSI-r18 OPTIONAL,

bwpInfo-r18 AttemptedBWPInfo-r18 OPTIONAL,

elapsedTimeT316-r18 ElapsedTimeT316-r18 OPTIONAL

]]

},

eutra-RLF-Report-r16 SEQUENCE {

failedPCellId-EUTRA CGI-InfoEUTRALogging,

measResult-RLF-Report-EUTRA-r16 OCTET STRING,

...,

[[

measResult-RLF-Report-EUTRA-v1690 OCTET STRING OPTIONAL

]]

}

}

SuccessHO-Report-r17 ::= SEQUENCE {

sourceCellInfo-r17 SEQUENCE {

sourcePCellId-r17 CGI-Info-Logging-r16,

sourceCellMeas-r17 MeasResultSuccessHONR-r17 OPTIONAL,

rlf-InSourceDAPS-r17 ENUMERATED {true} OPTIONAL

},

targetCellInfo-r17 SEQUENCE {

targetPCellId-r17 CGI-Info-Logging-r16,

targetCellMeas-r17 MeasResultSuccessHONR-r17 OPTIONAL

},

measResultNeighCells-r17 SEQUENCE {

measResultListNR-r17 MeasResultList2NR-r16 OPTIONAL,

measResultListEUTRA-r17 MeasResultList2EUTRA-r16 OPTIONAL

} OPTIONAL,

locationInfo-r17 LocationInfo-r16 OPTIONAL,

timeSinceCHO-Reconfig-r17 TimeSinceCHO-Reconfig-r17 OPTIONAL,

shr-Cause-r17 SHR-Cause-r17 OPTIONAL,

ra-InformationCommon-r17 RA-InformationCommon-r16 OPTIONAL,

upInterruptionTimeAtHO-r17 UPInterruptionTimeAtHO-r17 OPTIONAL,

c-RNTI-r17 RNTI-Value OPTIONAL,

...,

[[

eutraTargetCellInfo-r18 SEQUENCE {

targetPCellId-r18 CGI-InfoEUTRALogging,

targetCellMeas-r18 MeasQuantityResultsEUTRA OPTIONAL

} OPTIONAL,

measResultServCell-RSSI-r18 RSSI-Range-r16 OPTIONAL,

measResultNeighFreqList-RSSI-r118 MeasResultNeighFreqList-RSSI-r18 OPTIONAL,

eutra-C-RNTI-r18 EUTRA-C-RNTI OPTIONAL,

timeSinceSHR-r18 TimeSinceSHR-r18 OPTIONAL,

]]

}

SuccessPSCell-Report-r18 ::= SEQUENCE {

pCellId-r18 CGI-Info-Logging-r16,

sourcePSCellInfo-r18 SEQUENCE {

sourcePSCellId-r18 CGI-Info-Logging-r16,

sourcePSCellMeas-r18 MeasResultSuccessHONR-r17 OPTIONAL

},

targetPSCellInfo-r18 SEQUENCE {

targetPSCellId-r18 CHOICE {

cellGlobalId-r18 CGI-Info-Logging-r16,

pci-arfcn-r18 PCI-ARFCN-NR-r16

},

targetPSCellMeas-r18 MeasResultSuccessHONR-r17 OPTIONAL

},

measResultNeighCells-r18 SEQUENCE {

measResultListNR-r18 MeasResultList2NR-r16 OPTIONAL,

measResultListEUTRA-r18 MeasResultList2EUTRA-r16 OPTIONAL

} OPTIONAL,

spr-Cause-r18 SPR-Cause-r18 OPTIONAL,

timeSinceCPAC-Reconfig-r18 TimeSinceCPAC-Reconfig-r18 OPTIONAL,

locationInfo-r18 LocationInfo-r16 OPTIONAL,

ra-InformationCommon-r18 RA-InformationCommon-r16 OPTIONAL,

sn-InitiatedPSCellChange-r18 ENUMERATED {true} OPTIONAL,

...

}

MeasResultNeighFreqList-RSSI-r18 ::= SEQUENCE(SIZE (1..maxFreq)) OF measResultNeighFreq-RSSI-r18

MeasResultNeighFreq-RSSI-r18 ::= SEQUENCE {

ssbFrequency-r18 ARFCN-ValueNR OPTIONAL,

refFreqCSI-RS-r18 ARFCN-ValueNR OPTIONAL,

measResult-RSSI-r18 RSSI-Range-r16 OPTIONAL

}

MeasResultList2NR-r16 ::= SEQUENCE(SIZE (1..maxFreq)) OF MeasResult2NR-r16

MeasResultList2EUTRA-r16 ::= SEQUENCE(SIZE (1..maxFreq)) OF MeasResult2EUTRA-r16

MeasResult2NR-r16 ::= SEQUENCE {

ssbFrequency-r16 ARFCN-ValueNR OPTIONAL,

refFreqCSI-RS-r16 ARFCN-ValueNR OPTIONAL,

measResultList-r16 MeasResultListNR

}

MeasResultListLogging2NR-r16 ::= SEQUENCE(SIZE (1..maxFreq)) OF MeasResultLogging2NR-r16

MeasResultLogging2NR-r16 ::= SEQUENCE {

carrierFreq-r16 ARFCN-ValueNR,

measResultListLoggingNR-r16 MeasResultListLoggingNR-r16

}

MeasResultListLoggingNR-r16 ::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultLoggingNR-r16

MeasResultLoggingNR-r16 ::= SEQUENCE {

physCellId-r16 PhysCellId,

resultsSSB-Cell-r16 MeasQuantityResults,

numberOfGoodSSB-r16 INTEGER (1..maxNrofSSBs-r16) OPTIONAL

}

MeasResult2EUTRA-r16 ::= SEQUENCE {

carrierFreq-r16 ARFCN-ValueEUTRA,

measResultList-r16 MeasResultListEUTRA

}

MeasResultRLFNR-r16 ::= SEQUENCE {

measResult-r16 SEQUENCE {

cellResults-r16 SEQUENCE{

resultsSSB-Cell-r16 MeasQuantityResults OPTIONAL,

resultsCSI-RS-Cell-r16 MeasQuantityResults OPTIONAL

},

rsIndexResults-r16 SEQUENCE{

resultsSSB-Indexes-r16 ResultsPerSSB-IndexList OPTIONAL,

ssbRLMConfigBitmap-r16 BIT STRING (SIZE (64)) OPTIONAL,

resultsCSI-RS-Indexes-r16 ResultsPerCSI-RS-IndexList OPTIONAL,

csi-rsRLMConfigBitmap-r16 BIT STRING (SIZE (96)) OPTIONAL

} OPTIONAL

}

}

MeasResultSuccessHONR-r17::= SEQUENCE {

measResult-r17 SEQUENCE {

cellResults-r17 SEQUENCE{

resultsSSB-Cell-r17 MeasQuantityResults OPTIONAL,

resultsCSI-RS-Cell-r17 MeasQuantityResults OPTIONAL

},

rsIndexResults-r17 SEQUENCE{

resultsSSB-Indexes-r17 ResultsPerSSB-IndexList OPTIONAL,

resultsCSI-RS-Indexes-r17 ResultsPerCSI-RS-IndexList OPTIONAL

}

}

}

ChoCandidateCellList-r17 ::= SEQUENCE(SIZE (1..maxNrofCondCells-r16)) OF ChoCandidateCell-r17

ChoCandidateCell-r17 ::= CHOICE {

cellGlobalId-r17 CGI-Info-Logging-r16,

pci-arfcn-r17 PCI-ARFCN-NR-r16

}

SHR-Cause-r17 ::= SEQUENCE {

t304-cause-r17 ENUMERATED {true} OPTIONAL,

t310-cause-r17 ENUMERATED {true} OPTIONAL,

t312-cause-r17 ENUMERATED {true} OPTIONAL,

sourceDAPS-Failure-r17 ENUMERATED {true} OPTIONAL,

...

}

SPR-Cause-r18 ::= SEQUENCE {

t304-cause-r18 ENUMERATED {true} OPTIONAL,

t310-cause-r18 ENUMERATED {true} OPTIONAL,

t312-cause-r18 ENUMERATED {true} OPTIONAL,

...

}

TimeSinceFailure-r16 ::= INTEGER (0..172800)

MobilityHistoryReport-r16 ::= VisitedCellInfoList-r16

TimeUntilReconnection-r16 ::= INTEGER (0..172800)

TimeSinceCHO-Reconfig-r17 ::= INTEGER (0..1023)

TimeSinceCPAC-Reconfig-r18 ::= INTEGER (0.. 1023)

TimeConnSourceDAPS-Failure-r17 ::= INTEGER (0..1023)

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

ElapsedTimeT316-r18 ::= INTEGER (0..2000)

ElapsedTimeSCGFailure-r18 ::= INTEGER (0..1023)

TimeSinceSHR-r18 ::= INTEGER (0..172800)

-- TAG-UEINFORMATIONRESPONSE-STOP

-- ASN1STOP

|  |
| --- |
| *UEInformationResponse-IEs* field descriptions |
| ***coarseLocationInfo***  Parameter type 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. |
| ***connEstFailReport***  This field is used to provide connection establishment failure or connection resume failure information*.* |
| ***connEstFailReportList***  This field is used to provide the list of *connEstFailReport* that are stored by the UE for the past up to *maxCEFReport-r17.* |
| ***logMeasReport***  This field is used to provide the measurement results stored by the UE associated to logged MDT. |
| ***measResultIdleEUTRA***  EUTRA measurement results performed during RRC\_INACTIVE or RRC\_IDLE. |
| ***measResultIdleNR***  NR measurement results performed during RRC\_INACTIVE or RRC\_IDLE. |
| ***ra-ReportList***  This field is used to provide the list of RA reports that is stored by the UE for the past upto *maxRAReport-r16* number of successful random access procedures, or failed or successful completion of on-demand system information request procedure. |
| ***rlf-Report***  This field is used to indicate the RLF report related contents. |
| ***successHO-Report***  This field is used to provide the successful handover report if triggered based on the successful handover configuration. |
| ***successPSCell-Report***  This field is used to provide the successful PSCell change or addition report if triggered based on the successful PSCell change or addition report configuration. |

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| *LogMeasReport* field descriptions |
| ***absoluteTimeStamp***  Indicates the absolute time when the logged measurement configuration logging is provided, as indicated by NR within *absoluteTimeInfo*. |
| ***anyCellSelectionDetected***  This field is used to indicate the detection of *any cell selection* state, as defined in TS 38.304 [20]. The UE sets this field when performing the logging of measurement results in RRC\_IDLE or RRC\_INACTIVE and there is no suitable cell or no acceptable cell. |
| ***inDeviceCoexDetected***  Indicates that measurement logging is suspended due to IDC problem detection. |
| ***measResultServingCell***  This field refers to the log measurement results taken in the Serving cell. |
| ***numberOfGoodSSB***  Indicates the number of good beams (beams that are above *absThreshSS-BlocksConsolidation,* if configured by the network) associated to the cells within the R value range (which is configured by network for cell reselection) of the highest ranked cell as part of the beam level measurements. If the UE has no SSB of a neighbour cell whose measurement quantity is above the *absThreshSS-BlocksConsolidation* or if the network has not configured the *absThreshSS-BlocksConsolidation*, then the UE does not include *numberOfGoodSSB* for the corresponding neighbour cell. If the UE has no SSB of the serving cell whose measurement quantity is above the *absThreshSS-BlocksConsolidation* or if the network has not configured the *absThreshSS-BlocksConsolidation*, then the UE shall set the *numberOfGoodSSB* for the serving cell to one. |
| ***relativeTimeStamp***  Indicates the time of logging measurement results, measured relative to the *absoluteTimeStamp*. Value in seconds. |
| ***tce-Id***  Parameter Trace Collection Entity Id: See TS 32.422 [52]. |
| ***traceRecordingSessionRef***  Parameter Trace Recording Session Reference: See TS 32.422 [52]. |

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| *ConnEstFailReport* field descriptions |
| ***measResultFailedCell***  This field refers to the last measurement results taken in the cell, where connection establishment failure or connection resume failure happened. |
| ***measResultNeighCells***  This field refers to the neighbour cell measurements when connection establishment failure or connection resume failure happened. |
| ***numberOfConnFail***  This field is used to indicate the latest number of consecutive failed RRCSetup or RRCResume procedures in the same cell independent of RRC state transition. |
| ***timeSinceFailure***  This field is used to indicate the time that elapsed since the connection (establishment or resume) failure. Value in seconds. The maximum value 172800 means 172800s or longer. |

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| *RA-InformationCommon* field descriptions |
| ***absoluteFrequencyPointA***  This field indicates the absolute frequency position of the reference resource block (Common RB 0). |
| ***attemptedBWPInfoList***  This field indicates *locationAndBandwidth* and *subcarrierSpacing* of all the BWPs in which the consistent LBT failures are triggered and not cancelled at the moment of successful RA completion. |
| ***numberOfLBTFailures***  This field is used to indicate the total number of preamble transmission attempts for which LBT failure indication is received in the RA procedure. If the number of LBT failure indications received from lower layers during the RA procedure exceeds or equals to 128, UE sets the field to 128.This field is optional present when there is at least one preamble transmission attempt for which LBT failure indication is received during the RA procedure, otherwise it is absent. |
| ***locationAndBandwidth***  Frequency domain location and bandwidth of the bandwidth part associated to the random-access resources used by the UE. |
| ***perRAInfoList, perRAInfoList-v1660***  This field provides detailed information about each of the random access attempts in the chronological order of the random access attempts. If perRAInfoList-v1660 is present, it shall contain the same number of entries, listed in the same order as in perRAInfoList-r16. |
| ***subcarrierSpacing***  Subcarrier spacing used in the BWP associated to the random-access resources used by the UE. |
| ***sdtFailed***  This field is included when the RA report entry is included because of SDT and if the SDT transmission failed Otherwise, the field is absent. |
| ***usedFeatureCombination***  The feature or combination of features (e.g., *redCap*, *smallData*, *nsag* and *msg3-Repetitions*) associated to the used random-access resources as specified in TS 38.321[3]. |
| ***triggeredFeatureCombination***  One or more features (e.g., *RedCap*, *Slicing*, *SDT* and *MSG3 repetition)* that triggers the random-access procedure. When triggered feature is *Slicing*, UE includes all the S-NSSAIs associated to the slices triggering the access attempt in the random-access procedure. |
| ***allPreamblesBlocked***  This field is included when the all the preamble transmission attempts in the corresponding beam (SSB or CSI-RS) is blocked by LBT. Otherwise, the field is absent. |

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| *RA-Report* field descriptions |
| ***cellID***  This field indicates the CGI of the cell in which the associated random access procedure was performed. |
| ***contentionDetected***  This field is used to indicate that contention was detected for the transmitted preamble in the given random access attempt or not. This field is not included when the UE performs random access attempt is using contention free random-access resources or when the *raPurpose* is set to *requestForOtherSI* or when the RA attempt is a 2-step RA attempt and fallback to 4-step RA did not occur (i.e. *fallbackToFourStepRA* is not included). |
| ***csi-RS-Index, csi-RS-Index-v1660***  This field is used to indicate the CSI-RS index corresponding to the random access attempt.  If the random access procedure is for beam failure recovery, the field indicates the NZP-CSI-RS-ResourceId. For CSI-RS index larger than maxNrofCSI-RS-ResourcesRRM-1, the index value is the sum of csi-RS-Index (without suffix) and csi-RS-Index-v1660. |
| ***dlPathlossRSRP***  Measeured RSRP of the DL pathloss reference obtained at the time of *RA\_Type* selection stage of the RA procedure as captured in TS 38.321 [3]. |
| ***dlRSRPAboveThreshold***  In 4 step random access procedure, this field is used to indicate whether the DL beam (SSB) quality associated to the random access attempt was above or below the threshold *rsrp-ThresholdSSB* in *beamFailureRecoveryConfig* in UL BWP configuration of UL BWP selected for random access procedure initiated for beam failure recovery; Otherwise, if the UE has received *rsrp-ThresholdSSB* in *FeatureCombinationPreambles* used for the feature specific random access, the field is used to indicate whether DL beam (SSB) quality associated to the random access attempt was above or below this *rsrp-ThresholdSSB-r17*, else *rsrp-ThresholdSSB* in *rach-ConfigCommon* in UL BWP configuration of UL BWP selected for random access procedure.  In 2 step random access procedure, if the UE has received *msgA-RSRP-ThresholdSSB* in *FeatureCombinationPreambles* used for the feature specific random access, the field is used to indicate whetherDL beam (SSB) quality associated to the random access attempt was above or below this *rsrp-ThresholdSSB-r17*, else this field is used to indicate whether the DL beam (SSB) quality associated to the random access attempt was above or below the threshold *msgA-RSRP-ThresholdSSB* in *rach-ConfigCommonTwoStepRA* in UL BWP configuration of UL BWP selected for random access procedure. |
| ***fallbackToFourStepRA***  This field indicates if a fallback indication in MsgB is received (according to TS 38.321 [3]) for the 2-step random access attempt. |
| ***intendedSIBs***  This field indicates the SIB(s) the UE wanted to receive as a result of the on demand SI request (when the RA procedure is a used as a SI request) initiated by the UE. That is, it indicates the one(s) of the SIB(s) in the SI message(s) requested to be broadcast that the UE was interested in. |
| ***lbtDetected***  This field is included when there is at least one LBT failure indication received prior to change of beam for preamble transmission during RA procedure, otherwise this field is absent. |
| ***msg1-SCS-From-prach-ConfigurationIndex***  This field is set by the UE with the corresponding SCS for CBRA as derived from the *prach-ConfigurationIndex* in *RACH-ConfigGeneric* when the *msg1-SubcarrierSpacing* is absent; otherwise, this field is absent. |
| ***msg1-SCS-From-prach-ConfigurationIndexCFRA***  This field is set by the UE with the corresponding SCS for CFRA as derived from the *prach-ConfigurationIndex* in *RACH-ConfigGeneric* when the *msg1-SubcarrierSpacing* is absent; otherwise, this field is absent. |
| ***msgA-PUSCH-PayloadSize***  This field indicates the size of the overall payload available in the UE buffer at the time of initiating the 2 step RA procedure. The value refers to the index of TS 38.321 [3], table 6.1.3.1-1, corresponding to the UE buffer size. |
| ***msgA-RO-FDM***  This field indicates the number of msgA PRACH transmission occasions Frequency-Division Multiplexed in one time instance for the PRACH resources configured for 2-step CBRA.. |
| ***msgA-RO-FDMCFRA***  This field indicates the number of msgA PRACH transmission occasions Frequency-Division Multiplexed in one time instance for the PRACH resources configured for 2-step CFRA. |
| ***msgA-RO-FrequencyStart***  This field indicates the lowest resource block of the contention based random-access resources for 2-step CBRA in the random-access procedure. The indication has the form of the offset of the lowest PRACH transmissions occasion with respect to PRB 0 in the frequency domain. |
| ***msgA-RO-FrequencyStartCFRA***  This field indicates the lowest resource block of the contention free random-access resources for the 2-step CFRA in the random-access procedure. The indication has the form of the offset of the lowest PRACH transmissions occasion with respect to PRB 0 in the frequency domain. |
| ***msgA-SCS-From-prach-ConfigurationIndex***  This field is set by the UE with the corresponding SCS as derived from the *msgA-PRACH-ConfigurationIndex* in *RACH-ConfigGenericTwoStepRA* (see tables Table 6.3.3.1-1, Table 6.3.3.1-2, Table 6.3.3.2-2 and Table 6.3.3.2-3, TS 38.211 [16]) when the *msgA-SubcarrierSpacing* is absent and when only 2-step random-access resources are available in the UL BWP used in the random-access procedure; otherwise, this field is absent. |
| ***numberOfPreamblesSentOnCSI-RS***  This field is used to indicate the total number of successive RA preambles that were transmitted on the corresponding CSI-RS. |
| ***numberOfPreamblesSentOnSSB***  This field is used to indicate the total number of successive RA preambles that were transmitted on the corresponding SS/PBCH block. |
| ***onDemandSISuccess***  This field is set to *true* when the RA report entry is included because of either msg1 based on demand SI request or msg3 based on demand SI request and if the on-demand SI request is successful. Otherwise, the field is absent. |
| ***perRAAttemptInfoList***  This field provides detailed information about a random access attempt. |
| ***perRACSI-RSInfoList***  This field provides detailed information about the successive random access attempts associated to the same CSI-RS. |
| ***perRASSBInfoList***  This field provides detailed information about the successive random access attempts associated to the same SS/PBCH block. |
| ***ra-InformationCommon***  This field is used to provide information on random access attempts. This field is mandatory present. |
| ***raPurpose***  This field is used to indicate the RA scenario for which the RA report entry is triggered. The RA accesses associated to Initial access from RRC\_IDLE, RRC re-establishment procedure, transition from RRC-INACTIVE. The indicator *beamFailureRecovery* is used in case of successful beam failure recovery related RA procedure in the SpCell [3]. The indicator *reconfigurationWithSync* is used if the UE executes a reconfiguration with sync. The indicator *ulUnSynchronized* is used if the random access procedure is initiated in a SpCell by DL or UL data arrival during RRC\_CONNECTED when the timeAlignmentTimer is not running in the PTAG or if the RA procedure is initiated in a serving cell by a PDCCH order [3]. The indicator *schedulingRequestFailure* is used in case of SR failures [3]. The indicator *noPUCCHResourceAvailable* is used when the UE has no valid SR PUCCH resources configured [3]. The indicator *requestForOtherSI* is used for MSG1 based on demand SI request. The indicator *msg3RequestForOtherSI* is used in case of MSG3 based SI request. The indication *lbtFailure* is used when the UE initiates RACH in SpCell due to consistent uplink LBT failures [3]. The field can also be used for the SCG-related RA-Report when the *raPurpose* is set to *beamFailureRecovery*, *reconfigurationWithSync*, *ulUnSynchronized*, *schedulingRequestFailure* and *noPUCCHResourceAvailable*. |
| ***spCellID***  This field is used to indicate the CGI of the SpCell of the cell group associated to the SCell in which the associated random access procedure was performed. If the UE performs RA procedure on a SCell associated to the MCG, then this field is set to the CGI of the PCell and if the UE performs RA procedure on a SCell associated to the SCG, then this field is set to the CGI of the PSCell. If the CGI of the PSCell is not available at the UE for the RA procedure performed on a SCell associated to the SCG or for the RA procedure on the PSCell, this field is set to the CGI of the PCell. Otherwise, the field is absent. |
| ***ssb-Index***  This field is used to indicate the SS/PBCH index of the SS/PBCH block corresponding to the random access attempt. |
| ***ssbsForSI-Acquisition***  This field indicates the SSB(s) (in the form of SSB index(es)) that the UE used to receive the requested SI message(s). The field is present if the purpose of the random access procedure was to request on-demand SI (i.e. if the *raPurpose* is set to *requestForOtherSI* or *msg3RequestForOtherSI*). Otherwise, the field is absent. |

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| *RLF-Report* field descriptions |
| ***bwpInfo***  This field is used to indicate the BWP information in which the UE detected consistent uplink LBT failure. This field is set only when the detected consistent uplink LBT failure did not trigger the random access procedure. |
| ***choCandidateCellList***  This field is used to indicate the list of candidate target cells for conditional handover included in *condRRCReconfig* at the time of connection failure. The field does not include the candidate target cells included in *measResultNeighCells*. |
| ***choCellId***  This field is used to indicate the candidate target cell for conditional handover included in *condRRCReconfig* that the UE selected for CHO based recovery while T311 is running. |
| ***connectionFailureType***  This field is used to indicate whether the connection failure is due to radio link failure or handover failure. |
| ***csi-rsRLMConfigBitmap,csi-rsRLMConfigBitmap-v1650***  These fields are used to indicate the CSI-RS indexes configured in the RLM configurations for the active BWP when the UE declares RLF or HOF. The UE first fills in the *csi-rsRLMConfigBitmap-r16* to indicate the first 96 CSI-RS indexes and then *csi-rsRLMConfigBitmap-v1650* to indicate the latter 96 CSI-RS indexes. The first/leftmost bit in *csi-rsRLMConfigBitmap-r16* corresponds to CSI-RS index 0, the second bit corresponds to CSI-RS index 1. The first/leftmost bit in *csi-rsRLMConfigBitmap-v1650* corresponds to CSI-RS index 96, the second bit corresponds to CSI-RS index 97. These fields are included only if the *RadioLinkMonitoringConfig* for the respective BWP is configured. |
| ***c-RNTI***  This field indicates the C-RNTI used in the PCell upon detecting radio link failure or the C-RNTI used in the source PCell upon handover failure. |
| **elapsedTimeSCGFailure**  This field is used to indicate the time elapsed between the SCG failure and the MCG failure. The maximum value 1023 means 1023ms or longer. |
| ***elapsedTimeT316***  This field is used to indicate the time elapsed between the initiation of the MCGFailureInformation and the reception of the *RRCReconfiguration* or *RRCRelease* or *MobilityFromNRCommand* messages. |
| ***failedPCellId***  This field is used to indicate the PCell in which RLF is detected or the target PCell of the failed handover. For intra-NR handover *nrFailedPCellId* is included and for the handover from NR to EUTRA *eutraFailedPCellId* is included. The UE sets the ARFCN according to the frequency band used for transmission/ reception when the failure occurred. |
| ***failedPCellId-EUTRA***  This field is used to indicate the PCell in which RLF is detected or the source PCell of the failed handover in an E-UTRA RLF report. |
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| ***lastHO-Type***  This field is used to indicate the type of the last executed handover before the last detected connection failure. The field is set to *cho* if the last executed handover was initiated by a conditional reconfiguration execution. The field is set to *daps* if the last executed handover was a DAPS handover. |
| ***mcgRecoveryFailureCause***  This field is used to indicate the cause of the fast MCG recovery failure. |
| ***measResultListEUTRA***  This field refers to the last measurement results taken in the neighboring EUTRA Cells, when the radio link failure or handover failure happened. |
| ***measResultListNR***  This field refers to the last measurement results taken in the neighboring NR Cells, when the radio link failure or handover failure happened. |
| ***measResultLastServCell***  This field refers to the log measurement results taken in the PCell upon detecting radio link failure or the source PCell upon handover failure. |
| ***measResultLastServCell-RSSI***  This field refers to the log RSSI measurement results in dBm (see TS 38.215 [9]) taken for the frequency of the PCell upon detecting radio link failure or handover failure. |
| ***measResultNeighFreqList-RSSI***  This field is used to log the RSSI measurement results in dBm (see TS 38.215 [9]) taken for the neighbouring frequencies upon detecting radio link failure or handover failure, when UE operates in unlicensed spectrum. |
| ***measResult-RLF-Report-EUTRA***  Includes the E-UTRA *RLF-Report-r9* IE as specified in TS 36.331 [10]. |
| ***measResult-RLF-Report-EUTRA-v1690***  Includes the E-UTRA *RLF-Report-v9e0* IE as specified in TS 36.331 [10]. |
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| ***noSuitableCellFound***  This field is set by the UE when the T311 expires. |
| ***previousPCellId***  This field is used to indicate the source PCell of the last handover (source PCell when the last executed *RRCReconfiguration* message including *reconfigurationWithSync* was received). For intra-NR handover *nrPreviousCell* is included and for the handover from EUTRA to NR *eutraPreviousCell* is included. |
| ***pSCellId***  This field is used to indicate the PSCell in which the UE failed to perform fast MCG recovery procedure or the UE successfully performed fast MCG recovery procedure. |
| ***ra-InformationCommon***  This field is optionally included when c*onnectionFailureType* is set to 'hof' or when *connectionFailureType* is set to 'rlf' and the *rlf-Cause* equals to 'randomAccessProblem' or 'beamRecoveryFailure'; otherwise this field is absent. |
| ***reconnectCellId***  This field is used to indicate the cell in which the UE comes back to connected after connection failure and after failing to perform reestablishment. If the UE comes back to RRC CONNECTED in an NR cell then *nrReconnectCellID* is included and if the UE comes back to RRC CONNECTED in an LTE cell then *eutraReconnectCellID* is included |
| ***reestablishmentCellId***  If the UE was not configured with *conditionalReconfiguration* at the time of re-establishment attempt, or if the cell selected for the re-establishment attempt is not a candidate target cell for conditional reconfiguration, this field is used to indicate the cell in which the re-establishment attempt was made after connection failure. |
| ***rlf-Cause***  This field is used to indicate the cause of the last radio link failure that was detected. In case of handover failure information reporting (i.e., the *connectionFailureType* is set to '*hof*'), the UE is allowed to set this field to any value, except for the case in which a radio link failure was detected in the source PCell while performing a DAPS handover. |
| ***ssbRLMConfigBitmap***  This field is used to indicate the SS/PBCH block indexes configured in the RLM configurations for the active BWP when the UE declares RLF or HOF.The first/leftmost bit corresponds to SSB index 0, the second bit corresponds to SSB index 1. This field is included only if the *RadioLinkMonitoringConfig* for the respective BWP is configured. |
| ***timeConnFailure***  This field is used to indicate the time elapsed since the last HO execution until connection failure. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |
| ***timeConnSourceDAPS-Failure***  This field is used to indicate the time that elapsed between the last DAPS handover execution and the radio link failure detected in the source cell while T304 is running. Value in milliseconds. The maximum value 1023 means 1023ms or longer. |
| ***timeSinceFailure***  This field is used to indicate the time that elapsed since the connection (radio link or handover) failure. Value in seconds. The maximum value 172800 means 172800s or longer. In the case of failure(s) (either at source or at target or at both) associated to DAPS handover, this field indicates the time elapsed since the latest connection (radio link or handover) failure. |
| *timeSinceCHO-Reconfig*  In case of handover failure, this field is used to indicate the time elapsed between the initiation of the last handover execution towards the target cell and the reception of the latest conditional reconfiguration. In case of radio link failure, this field is used to indicate the time elapsed between the radio link failure and the reception of the latest conditional reconfiguration while connected to the source PCell. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |
| ***timeUntilReconnection***  This field is used to indicate the time that elapsed between the connection (radio link or handover) failure and the next time the UE comes to RRC CONNECTED in an NR or EUTRA cell, after failing to perform reestablishment. Value in seconds. The maximum value 172800 means 172800s or longer. |
| ***voiceFallbackHO***  This field is set if for the failed mobility from NR, the *voiceFallbackIndication* was included in the *MobilityFromNRCommand* message. |

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| *SuccessHO-Report* field descriptions |
| ***c-RNTI***  This field indicates the C-RNTI assigned by the target PCell of the handover for which the successful HO report was generated. |
| ***eutraTargetCellInfo***  This field is used to indicate the target EUTRA PCell and the last measurement results of the target PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***eutra-C-RNTI***  This field indicates the C-RNTI assigned by the E-UTRA target PCell of the mobility from NR command for which the successful HO report was generated. |
| ***measResultListNR***  This field refers to the last measurement results taken in the neighboring NR Cells when a successful handover is executed. |
| ***measResultServCell-RSSI***  This field refers to the log RSSI measurement results in dBm (see TS 38.215 [9]) taken for the frequency of the source PCell upon successful handover execution. |
| ***measResultNeighFreqList-RSSI***  This field is used to log the RSSI measurement results in dBm (see TS 38.215 [9]) taken for the neighbouring frequencies upon successful handover execution. |
| *rlf-InSourceDAPS*  This field indicates whether a radio link failure occurred at the source cell while T304 was running. |
| ***shr-Cause***  This field is used to indicate the cause of the successful HO report. |
| ***sourceCellMeas***  This field refers to the last measurement results taken in the source PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***sourcePCellId***  This field is used to indicate the source PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***targetPCellId***  This field is used to indicate the target PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***targetCellMeas***  This field refers to the last measurement results taken in the target PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***timeSinceCHO-Reconfig***  This field is used to indicate the time elapsed between the initiation of the last conditional reconfiguration execution towards the target cell and the reception of the latest conditional reconfiguration for this target cell. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |
| ***timeSinceSHR***  This field is used to indicate the time elapsed since the execution of the last MobilityFromNRCommand towards the target EUTRA cell. Value in seconds. The maximum value 172800 means 172800s or longer. |
| ***upInterruptionTimeAtHO***  This field is used to indicate the time elapsed between the time of arrival of the last PDCP PDU received from the source cell for any data radio bearer and the time of arrival of the first non-duplicate PDCP PDU received from the target cell for any data radio bearer, and it is measured at the time of arrival of the first non-duplicate PDCP PDU received from the target cell for any data radio bearer. The field is set only in case of DAPS handover. Value in milliseconds. The maximum value 1023 means 1023ms or longer. |

NEXT CHANGE

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| *SuccessPSCell-Report* field descriptions |
| ***measResultListNR***  This field refers to the last measurement results taken in the neighboring NR Cells when a successful PSCell change/addition is executed. |
| ***spr-Cause***  This field is used to indicate the cause of the successful PSCell change or addition report. |
| ***pCellId***  This field is used to indicate the PCell to which the UE was connected when the successful PSCell change or addition triggers the *SuccessPSCell-Report*. |
| ***sn-InitiatedPSCellChange***  This field indicates whether the PSCell change procedure for which the successful PSCell change report is logged is SN initiated or not. |
| ***sourcePSCellMeas***  This field refers to the last measurement results taken in the source PSCell of a PSCell change in which the successful PSCell change triggers the *SuccessPSCell-Report*. |
| ***sourcePSCellId***  This field is used to indicate the source PSCell of a PSCell change in which the successful PSCell change triggers the *SuccessPSCell-Report*. |
| ***targetPSCellId***  This field is used to indicate the target PSCell of a PSCell change/addition in which the successful PSCell change or addition triggers the *SuccessPSCell-Report*. |
| ***targetPSCellMeas***  This field refers to the last measurement results taken in the target PSCell of a PSCell change/addition in which the successful PSCell change or addition triggers the *SuccessPSCell-Report*. |
| ***timeSinceCPAC-Reconfig***  This field is used to indicate the time elapsed between the initiation of the last conditional reconfiguration execution towards the target PSCell and the reception of the latest conditional reconfiguration for this target PSCell. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |
|  |

NEXT CHANGE

### 6.3.2 Radio resource control information elements

<Text Omitted>

#### – *EUTRA-C-RNTI*

The IE *EUTRA-C-RNTI* identifies a UE having a RRC connection within an E-UTRA cell.

*EUTRA-C-RNTI* information element

-- ASN1START

EUTRA-C-RNTI ::= BIT STRING (SIZE (16))

-- ASN1STOP

#### – *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 or conditional PSCell change or addition. This field may be included only in the *SuccessHO-Report* or *SuccessPSCell-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 in *rlf-report* within *UEInformationResponse* message or in *SCGFailureInformation* 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 in the reports associated to *UEInformationResponse* message, e.g., *rlf-Report* or in the *SCGFailureInformation* message. |

NEXT CHANGE

### 6.3.4 Other information elements

<Text Omitted>

#### – *AreaConfiguration*

The *AreaConfiguration* indicates area for which UE is requested to perform measurement logging. If not configured, measurement logging is not restricted to specific cells or tracking areas but applies as long as the RPLMN is contained in *plmn-IdentityList* stored in *VarLogMeasReport*.

*AreaConfiguration* information element

-- ASN1START

-- TAG-AREACONFIGURATION-START

AreaConfiguration-r16 ::= SEQUENCE {

areaConfig-r16 AreaConfig-r16,

interFreqTargetList-r16 SEQUENCE(SIZE (1..maxFreq)) OF InterFreqTargetInfo-r16 OPTIONAL -- Need R

}

AreaConfiguration-v1700 ::= SEQUENCE {

areaConfig-r17 AreaConfig-r16 OPTIONAL, -- Need R

interFreqTargetList-r17 SEQUENCE(SIZE (1..maxFreq)) OF InterFreqTargetInfo-r16 OPTIONAL -- Need R

}

AreaConfiguration-v18xy ::= SEQUENCE {

cag-ConfigList-r18 CAG-ConfigList-r18 OPTIONAL, -- Need R

snpn-ConfigList-r18 SNPN-ConfigList-r18 OPTIONAL -- Need R

}

AreaConfig-r16 ::= CHOICE {

cellGlobalIdList-r16 CellGlobalIdList-r16,

trackingAreaCodeList-r16 TrackingAreaCodeList-r16,

trackingAreaIdentityList-r16 TrackingAreaIdentityList-r16

}

InterFreqTargetInfo-r16 ::= SEQUENCE {

dl-CarrierFreq-r16 ARFCN-ValueNR,

cellList-r16 SEQUENCE (SIZE (1..32)) OF PhysCellId OPTIONAL -- Need R

}

CellGlobalIdList-r16 ::= SEQUENCE (SIZE (1..32)) OF CGI-Info-Logging-r16

TrackingAreaCodeList-r16 ::= SEQUENCE (SIZE (1..8)) OF TrackingAreaCode

TrackingAreaIdentityList-r16 ::= SEQUENCE (SIZE (1..8)) OF TrackingAreaIdentity-r16

TrackingAreaIdentity-r16 ::= SEQUENCE {

plmn-Identity-r16 PLMN-Identity,

trackingAreaCode-r16 TrackingAreaCode

}

CAG-ConfigList-r18 ::= SEQUENCE (SIZE (1..maxNPN-r16)) OF CAG-Config-r18

CAG-Config-r18 ::= SEQUENCE {

plmn-Identity-r18 PLMN-Identity,

cag-IdentityList-r18 SEQUENCE (SIZE (1..maxNPN-r16)) OF CAG-IdentityInfo-r16

}

SNPN-ConfigList-r18 ::= CHOICE {

snpn-ConfigCellIdList-r18 SNPN-ConfigCellIdList-r18,

snpn-ConfigTAIList-r18 SNPN-ConfigTAIList-r18,

snpn-ConfigIDList-r18 SNPN-ConfigIDList-r18

}

SNPN-ConfigCellIdList-r18 ::= SEQUENCE (SIZE (1..maxSNPN-ConfigCellId-r18)) OF SNPN-ConfigCellId-r18

SNPN-ConfigCellId-r18 ::= SEQUENCE {

cgi-Identity-r18 CGI-Info-Logging-r16,

nid-IdentityList-r18 SEQUENCE (SIZE (1..maxNPN-r16)) OF NID-r16

}

SNPN-ConfigTAIList-r18 ::= SEQUENCE (SIZE (1..maxSNPN-ConfigTAI-r18)) OF SNPN-ConfigTAI-r18

SNPN-ConfigTAI-r18 ::= SEQUENCE {

tai-Identity-r18 TrackingAreaIdentity-r16,

nid-IdentityList-r18 SEQUENCE (SIZE (1..maxNPN-r16)) OF NID-r16

}

SNPN-ConfigIDList-r18 ::= SEQUENCE (SIZE (1..maxSNPN-ConfigID-r18)) OF SNPN-ConfigID-r18

SNPN-ConfigID-r18 ::= SEQUENCE {

plmn-Identity-r18 PLMN-Identity,

nid-IdentityList-r18 SEQUENCE (SIZE (1..maxNPN-r16)) OF NID-r16

}

-- TAG-AREACONFIGURATION-STOP

-- ASN1STOP

| *AreaConfiguration* field descriptions |
| --- |
| ***InterFreqTargetInfo***  If configured, it indicates the neighbouring frequency and cells for which UE is requested to perform measurement logging. It can include sync raster or non-sync raster frequencies. |
| ***cag-IdentityList***  The *cag-IdentityList* contains one or more CAG IDs. All CAG IDs associated to the same PLMN ID are listed in the same *cag-IdentityList* entry*.* |
| ***nid-IdentityList***  The *nid-IdentityList* contains one or more NID. All NIDs associated to the same PLMN ID are listed in the same *nid-IdentityList* entry*.* |

<Text Omitted>

#### – *OtherConfig*

The IE *OtherConfig* contains configuration related to miscellaneous other configurations.

*OtherConfig* information element

-- ASN1START

-- TAG-OTHERCONFIG-START

OtherConfig ::= SEQUENCE {

delayBudgetReportingConfig CHOICE{

release NULL,

setup SEQUENCE{

delayBudgetReportingProhibitTimer ENUMERATED {s0, s0dot4, s0dot8, s1dot6, s3, s6, s12, s30}

}

} OPTIONAL -- Need M

}

OtherConfig-v1540 ::= SEQUENCE {

overheatingAssistanceConfig SetupRelease {OverheatingAssistanceConfig} OPTIONAL, -- Need M

...

}

OtherConfig-v1610 ::= SEQUENCE {

idc-AssistanceConfig-r16 SetupRelease {IDC-AssistanceConfig-r16} OPTIONAL, -- Need M

drx-PreferenceConfig-r16 SetupRelease {DRX-PreferenceConfig-r16} OPTIONAL, -- Need M

maxBW-PreferenceConfig-r16 SetupRelease {MaxBW-PreferenceConfig-r16} OPTIONAL, -- Need M

maxCC-PreferenceConfig-r16 SetupRelease {MaxCC-PreferenceConfig-r16} OPTIONAL, -- Need M

maxMIMO-LayerPreferenceConfig-r16 SetupRelease {MaxMIMO-LayerPreferenceConfig-r16} OPTIONAL, -- Need M

minSchedulingOffsetPreferenceConfig-r16 SetupRelease {MinSchedulingOffsetPreferenceConfig-r16} OPTIONAL, -- Need M

releasePreferenceConfig-r16 SetupRelease {ReleasePreferenceConfig-r16} OPTIONAL, -- Need M

referenceTimePreferenceReporting-r16 ENUMERATED {true} OPTIONAL, -- Need R

btNameList-r16 SetupRelease {BT-NameList-r16} OPTIONAL, -- Need M

wlanNameList-r16 SetupRelease {WLAN-NameList-r16} OPTIONAL, -- Need M

sensorNameList-r16 SetupRelease {Sensor-NameList-r16} OPTIONAL, -- Need M

obtainCommonLocation-r16 ENUMERATED {true} OPTIONAL, -- Need R

sl-AssistanceConfigNR-r16 ENUMERATED{true} OPTIONAL -- Need R

}

OtherConfig-v1700 ::= SEQUENCE {

ul-GapFR2-PreferenceConfig-r17 ENUMERATED {true} OPTIONAL, -- Need R

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

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

successHO-Config-r17 SetupRelease {SuccessHO-Config-r17} OPTIONAL, -- Need M

maxBW-PreferenceConfigFR2-2-r17 ENUMERATED {true} OPTIONAL, -- Cond maxBW

maxMIMO-LayerPreferenceConfigFR2-2-r17 ENUMERATED {true} OPTIONAL, -- Cond maxMIMO

minSchedulingOffsetPreferenceConfigExt-r17 ENUMERATED {true} OPTIONAL, -- Cond minOffset

rlm-RelaxationReportingConfig-r17 SetupRelease {RLM-RelaxationReportingConfig-r17} OPTIONAL, -- Need M

bfd-RelaxationReportingConfig-r17 SetupRelease {BFD-RelaxationReportingConfig-r17} OPTIONAL, -- Need M

scg-DeactivationPreferenceConfig-r17 SetupRelease {SCG-DeactivationPreferenceConfig-r17} OPTIONAL, -- Cond SCG

rrm-MeasRelaxationReportingConfig-r17 SetupRelease {RRM-MeasRelaxationReportingConfig-r17} OPTIONAL, -- Need M

propDelayDiffReportConfig-r17 SetupRelease {PropDelayDiffReportConfig-r17} OPTIONAL -- Need M

}

OtherConfig-v18xy ::= SEQUENCE {

successPSCell-Config-r18 SetupRelease {SuccessPSCell-Config-r18} OPTIONAL, -- Need M

sn-InitiatedPSCellChange-r18 ENUMERATED {true} OPTIONAL --Need M

}

CandidateServingFreqListNR-r16 ::= SEQUENCE (SIZE (1..maxFreqIDC-r16)) OF ARFCN-ValueNR

MUSIM-GapAssistanceConfig-r17 ::= SEQUENCE {

musim-GapProhibitTimer-r17 ENUMERATED {s0, s0dot1, s0dot2, s0dot3, s0dot4, s0dot5, s1, s2, s3, s4, s5, s6, s7, s8, s9, s10}

}

MUSIM-LeaveAssistanceConfig-r17 ::= SEQUENCE {

musim-LeaveWithoutResponseTimer-r17 ENUMERATED {ms10, ms20, ms40, ms60, ms80, ms100, spare2, spare1}

}

SuccessHO-Config-r17 ::= SEQUENCE {

thresholdPercentageT304-r17 ENUMERATED {p40, p60, p80, spare5, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

thresholdPercentageT310-r17 ENUMERATED {p40, p60, p80, spare5, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

thresholdPercentageT312-r17 ENUMERATED {p20, p40, p60, p80, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

sourceDAPS-FailureReporting-r17 ENUMERATED {true} OPTIONAL, --Need R

...

}

SuccessPSCell-Config-r18 ::= SEQUENCE {

thresholdPercentageT304-SCG-r18 ENUMERATED {p40, p60, p80, spare5, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

thresholdPercentageT310-SCG-r18 ENUMERATED {p40, p60, p80, spare5, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

thresholdPercentageT312-SCG-r18 ENUMERATED {p20, p40, p60, p80, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

...

}

OverheatingAssistanceConfig ::= SEQUENCE {

overheatingIndicationProhibitTimer ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

s60, s90, s120, s300, s600, spare3, spare2, spare1}

}

IDC-AssistanceConfig-r16 ::= SEQUENCE {

candidateServingFreqListNR-r16 CandidateServingFreqListNR-r16 OPTIONAL, -- Need R

...

}

DRX-PreferenceConfig-r16 ::= SEQUENCE {

drx-PreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

MaxBW-PreferenceConfig-r16 ::= SEQUENCE {

maxBW-PreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

MaxCC-PreferenceConfig-r16 ::= SEQUENCE {

maxCC-PreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

MaxMIMO-LayerPreferenceConfig-r16 ::= SEQUENCE {

maxMIMO-LayerPreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

MinSchedulingOffsetPreferenceConfig-r16 ::= SEQUENCE {

minSchedulingOffsetPreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

ReleasePreferenceConfig-r16 ::= SEQUENCE {

releasePreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, infinity, spare1},

connectedReporting ENUMERATED {true} OPTIONAL -- Need R

}

RLM-RelaxationReportingConfig-r17 ::= SEQUENCE {

rlm-RelaxtionReportingProhibitTimer ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

s60, s90, s120, s300, s600, infinity, spare2, spare1}

}

BFD-RelaxationReportingConfig-r17 ::= SEQUENCE {

bfd-RelaxtionReportingProhibitTimer ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

s60, s90, s120, s300, s600, infinity, spare2, spare1}

}

SCG-DeactivationPreferenceConfig-r17 ::= SEQUENCE {

scg-DeactivationPreferenceProhibitTimer-r17 ENUMERATED {

s0, s1, s2, s4, s8, s10, s15, s30,

s60, s120, s180, s240, s300, s600, s900, s1800}

}

RRM-MeasRelaxationReportingConfig-r17 ::= SEQUENCE {

s-SearchDeltaP-Stationary-r17 ENUMERATED {dB2, dB3, dB6, dB9, dB12, dB15, spare2, spare1},

t-SearchDeltaP-Stationary-r17 ENUMERATED {s5, s10, s20, s30, s60, s120, s180, s240, s300, spare7, spare6, spare5,

spare4, spare3, spare2, spare1}

}

PropDelayDiffReportConfig-r17 ::= SEQUENCE {

threshPropDelayDiff-r17 ENUMERATED {ms0dot5, ms1, ms2, ms3, ms4, ms5, ms6 ,ms7, ms8, ms9, ms10, spare5,

spare4, spare3, spare2, spare1} OPTIONAL, -- Need M

neighCellInfoList-r17 SEQUENCE (SIZE (1..maxCellNTN-r17)) OF NeighbourCellInfo-r17 OPTIONAL -- Need M

}

NeighbourCellInfo-r17 ::= SEQUENCE {

epochTime-r17 EpochTime-r17,

ephemerisInfo-r17 EphemerisInfo-r17

}

-- TAG-OTHERCONFIG-STOP

-- ASN1STOP

| *OtherConfig* field descriptions |
| --- |
| ***bfd-RelaxationReportingConfig***  Configuration for the UE to report the relaxation state of BFD measurements. |
| ***btNameList***  Configuration for the UE to report measurements from specific Bluetooth beacons. NG-RAN configures the field if *includeBT-Meas* is configured for one or more measurements. |
| ***candidateServingFreqListNR***  Indicates for each candidate NR serving cells, the center frequency around which UE is requested to report IDC issues. |
| ***connectedReporting***  Indicates that the UE can report a preference to remain in RRC\_CONNECTED state following a report to leave RRC\_CONNECTED state. If absent, the UE cannot report a preference to stay in RRC\_CONNECTED state. |
| ***delayBudgetReportingProhibitTimer***  Prohibit timer for delay budget reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot4* means prohibit timer is set to 0.4 seconds, and so on. |
| ***drx-PreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's DRX preferences for power saving. |
| ***drx-PreferenceProhibitTimer***  Prohibit timer for DRX preferences assistance information reporting. 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. |
| ***idc-AssistanceConfig***  Configuration for the UE to report assistance information to inform the gNB about UE detected IDC problem. |
| ***maxBW-PreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred bandwidth for power saving. |
| ***maxBW-PreferenceProhibitTimer***  Prohibit timer for preferred bandwidth assistance information reporting. 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. |
| ***maxCC-PreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred number of carriers for power saving. |
| ***maxBW-PreferenceConfigFR2-2***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred bandwidth for power saving for FR2-2. |
| ***maxCC-PreferenceProhibitTimer***  Prohibit timer for preferred number of carriers assistance information reporting. 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. |
| ***maxMIMO-LayerPreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred number of MIMO layers for power saving. |
| ***maxMIMO-LayerPreferenceConfigFR2-2***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred number of MIMO layers for power saving for FR2-2. |
| ***maxMIMO-LayerPreferenceProhibitTimer***  Prohibit timer for preferred number of number of MIMO layers assistance information reporting. 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. |
| ***minSchedulingOffsetPreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred *minimumSchedulingOffset* value for cross-slot scheduling for power saving. |
| ***minSchedulingOffsetPreferenceConfigExt***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred *minimumSchedulingOffset* value for cross-slot scheduling for power saving for SCS 480 kHz and/or 960 kHz. |
| ***minSchedulingOffsetPreferenceProhibitTimer***  Prohibit timer for preferred *minimumSchedulingOffset* assistance information reporting. 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. |
| ***musim-GapAssistanceConfig***  Configuration for the UE to report assistance information for gap preference. |
| ***musim-GapProhibitTimer***  Prohibit timer for MUSIM assistance information reporting for gap preference. |
| ***musim-LeaveAssistanceConfig***  Configuration for the UE to report assistance information for leaving RRC\_CONNECTED for MUSIM purpose. |
| ***musim-LeaveWithoutResponseTimer***  Indicates the timer for the UE to enter RRC\_IDLE for MUSIM purpose as defined in clause 5.3.8.6. |
| ***obtainCommonLocation***  Requests the UE to attempt to have detailed location information available using GNSS. NR configures the field if *includeCommonLocationInfo* is configured for one or more measurements. |
| ***overheatingAssistanceConfig***  Configuration for the UE to report assistance information to inform the gNB about UE detected internal overheating. |
| ***sn-InitiatedPSCellChange***  This field indicates whether the PSCell change procedure included in the *RRCReconfiguration* message is SN initiated or not. |
| ***propDelayDiffReportConfig***  Configuration for the UE to report service link propagation delay difference between serving cell and neighbour cell(s). |
| ***referenceTimePreferenceReporting***  If present, the field indicates the UE is configured to provide reference time assistance information. |
| ***releasePreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preference to leave RRC\_CONNECTED state. |
| ***rlm-RelaxationReportingConfig***  Configuration for the UE to report the relaxation state of RLM measurements. |
| ***releasePreferenceProhibitTimer***  Prohibit timer for release preference assistance information reporting. 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. Value *infinity* means that once a UE has reported a release preference, the UE cannot report a release preference again during the RRC connection. |
| ***s-SearchDeltaP-Stationary***  Parameter "SSearchDeltaP-StationaryConnected" in 5.7.4.4. Value dB2 corresponds to 2 dB, dB3 corresponds to 3 dB and so on. |
| ***scg-DeactivationPreferenceConfig***  Configuration of the UE to indicate its preference for SCG deactivation. |
| ***scg -StatePreferenceProhibitTimer***  Prohibit timer for UE indication of its preference for SCG deactivation. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***sensorNameList***  Configuration for the UE to report measurements from specific sensors. NG-RAN configures the field if *includeSensor-Meas* is configured for one or more measurements. |
| ***sl-AssistanceConfigNR***  Indicate whether UE is configured to provide configured grant assistance information for NR sidelink communication. |
| ***sourceDAPS-FailureReporting***  This field indicates whether the UE shall generate the SHR upon successfully completing the DAPS handover to the target cell and if a radio link failure was experienced in the source PCell while executing the DAPS handover. This field is set in the *otherConfig* configured by the source cell of the DAPS handover. |
| ***successHO-Config***  Configuration for the UE to report the successful handover information to the network. |
| ***successPSCell-Config***  Configuration for the UE to report the successful PSCell change or addition information to the network. |
| ***t-SearchDeltaP-Stationary***  Parameter "TSearchDeltaP-StationaryConnected" in 5.7.4.4. Value in seconds. Value s5 means 5 seconds, value s10 means 10 seconds and so on. |
| ***thresholdPercentageT304***  This field indicates the threshold for the ratio in percentage between the elapsed T304 timer and the configured value of the T304 timer. Value *p40* corresponds to 40%, value *p60* corresponds to 60% and so on. This field is set in the *otherConfig* configured by the target cell of the handover. |
| ***thresholdPercentageT310***  This field indicates the threshold for the ratio in percentage between the elapsed T310 timer and the configured value of the T310 timer. Value *p40* corresponds to 40%, value *p60* corresponds to 60% and so on. This field is set in the *otherConfig* configured by the source cell of the handover. |
| ***thresholdPercentageT312***  This field indicates the threshold for the ratio in percentage between the elapsed T312 timer and the configured value(s) of the T312 timer. Value *p20* corresponds to 20%, value *p40* corresponds to 40% and so on. This field is set in the *otherConfig* configured by the source cell of the handover. |
| ***thresholdPercentageT304-SCG***  This field indicates the threshold for the ratio in percentage between the elapsed T304 timer associated to the target PSCell and the configured value of the T304 timer. Value *p40* corresponds to 40%, value *p60* corresponds to 60% and so on. This field is set in the *otherConfig* configured by the target PSCell of the PSCell change or addition. |
| ***thresholdPercentageT310-SCG***  This field indicates the threshold for the ratio in percentage between the elapsed T310 timer associated to the source PSCell and the configured value of the T310 timer. Value *p40* corresponds to 40%, value *p60* corresponds to 60% and so on. This field is set in the *otherConfig* configured by the source PSCell of the PSCell change, or in the *otherConfig* configured by the PCell for the PSCell change. |
| ***thresholdPercentageT312-SCG***  This field indicates the threshold for the ratio in percentage between the elapsed T312 timer associated to the measurement identity of the target PSCell and the configured value of the T312 timer. Value *p20* corresponds to 20%, value *p40* corresponds to 40% and so on. This field is set in the *otherConfig* configured by the source PSCell of the PSCell change, or in the *otherConfig* configured by the PCell for the PSCell change. |
| ***threshPropDelayDiff***  Threshold for one-way service link propagation delay difference report as specified in 5.7.4.2. |
| ***ul-GapFR2-PreferenceConfig***  Indicates whether UE is configured to request for FR2 UL gap activation/deactivation and preferred FR2 UL gap pattern. |
| ***wlanNameList***  Configuration for the UE to report measurements from specific WLAN APs. NG-RAN configures the field if *includeWLAN-Meas* is configured for one or more measurements. |

NEXT CHANGE

#### – *UE-MeasurementsAvailable*

The IE *UE-MeasurementsAvailable* is used to indicate all relevant available indicators for UE measurements.

*UE-MeasurementsAvailable* information element

-- ASN1START

-- TAG-UE-MeasurementsAvailable-START

UE-MeasurementsAvailable-r16 ::= SEQUENCE {

logMeasAvailable-r16 ENUMERATED {true} OPTIONAL,

logMeasAvailableBT-r16 ENUMERATED {true} OPTIONAL,

logMeasAvailableWLAN-r16 ENUMERATED {true} OPTIONAL,

connEstFailInfoAvailable-r16 ENUMERATED {true} OPTIONAL,

rlf-InfoAvailable-r16 ENUMERATED {true} OPTIONAL,

...,

[[

successHO-InfoAvailable-r17 ENUMERATED {true} OPTIONAL,

sigLogMeasConfigAvailable-r17 BOOLEAN OPTIONAL

]],

[[

successPSCell-InfoAvailable-r18 ENUMERATED {true} OPTIONAL

]]

}

-- TAG-UE-MeasurementsAvailable-STOP

-- ASN1STOP

NEXT CHANGE

## 6.4 RRC multiplicity and type constraint values

### – Multiplicity and type constraint definitions

-- ASN1START

-- TAG-MULTIPLICITY-AND-TYPE-CONSTRAINT-DEFINITIONS-START

maxAdditionalRACH-r17 INTEGER ::= 256 -- Maximum number of additional RACH configurations.

maxAI-DCI-PayloadSize-r16 INTEGER ::= 128 --Maximum size of the DCI payload scrambled with ai-RNTI

maxAI-DCI-PayloadSize-1-r16 INTEGER ::= 127 --Maximum size of the DCI payload scrambled with ai-RNTI minus 1

maxBandComb INTEGER ::= 65536 -- Maximum number of DL band combinations

maxBandsUTRA-FDD-r16 INTEGER ::= 64 -- Maximum number of bands listed in UTRA-FDD UE caps

maxBH-RLC-ChannelID-r16 INTEGER ::= 65536 -- Maximum value of BH RLC Channel ID

maxBT-IdReport-r16 INTEGER ::= 32 -- Maximum number of Bluetooth IDs to report

maxBT-Name-r16 INTEGER ::= 4 -- Maximum number of Bluetooth name

maxCAG-Cell-r16 INTEGER ::= 16 -- Maximum number of NR CAG cell ranges in SIB3, SIB4

maxTwoPUCCH-Grp-ConfigList-r16 INTEGER ::= 32 -- Maximum number of supported configuration(s) of {primary PUCCH group

-- config, secondary PUCCH group config}

maxTwoPUCCH-Grp-ConfigList-r17 INTEGER ::= 16 -- Maximum number of supported configuration(s) of {primary PUCCH group

-- config, secondary PUCCH group config} for PUCCH cell switching

maxCBR-Config-r16 INTEGER ::= 8 -- Maximum number of CBR range configurations for sidelink communication

-- congestion control

maxCBR-Config-1-r16 INTEGER ::= 7 -- Maximum number of CBR range configurations for sidelink communication

-- congestion control minus 1

maxCBR-Level-r16 INTEGER ::= 16 -- Maximum number of CBR levels

maxCBR-Level-1-r16 INTEGER ::= 15 -- Maximum number of CBR levels minus 1

maxCellExcluded INTEGER ::= 16 -- Maximum number of NR exclude-listed cell ranges in SIB3, SIB4

maxCellGroupings-r16 INTEGER ::= 32 -- Maximum number of cell groupings for NR-DC

maxCellHistory-r16 INTEGER ::= 16 -- Maximum number of visited PCells reported

maxPSCellHistory-r17 INTEGER ::= 16 -- Maximum number of visited PSCells across all reported PCells

maxCellInter INTEGER ::= 16 -- Maximum number of inter-Freq cells listed in SIB4

maxCellIntra INTEGER ::= 16 -- Maximum number of intra-Freq cells listed in SIB3

maxCellMeasEUTRA INTEGER ::= 32 -- Maximum number of cells in E-UTRAN

maxCellMeasIdle-r16 INTEGER ::= 8 -- Maximum number of cells per carrier for idle/inactive measurements

maxCellMeasUTRA-FDD-r16 INTEGER ::= 32 -- Maximum number of cells in FDD UTRAN

maxCellNTN-r17 INTEGER ::= 4 -- Maximum number of NTN neighbour cells for which assistance information is

-- provided

maxCarrierTypePairList-r16 INTEGER ::= 16 -- Maximum number of supported carrier type pair of (carrier type on which

-- CSI measurement is performed, carrier type on which CSI reporting is

-- performed) for CSI reporting cross PUCCH group

maxCellAllowed INTEGER ::= 16 -- Maximum number of NR allow-listed cell ranges in SIB3, SIB4

maxEARFCN INTEGER ::= 262143 -- Maximum value of E-UTRA carrier frequency

maxEUTRA-CellExcluded INTEGER ::= 16 -- Maximum number of E-UTRA exclude-listed physical cell identity ranges

-- in SIB5

maxEUTRA-NS-Pmax INTEGER ::= 8 -- Maximum number of NS and P-Max values per band

maxFeatureCombPreamblesPerRACHResource-r17 INTEGER ::= 256 -- Maximum number of feature combination preambles.

maxLogMeasReport-r16 INTEGER ::= 520 -- Maximum number of entries for logged measurements

maxMultiBands INTEGER ::= 8 -- Maximum number of additional frequency bands that a cell belongs to

maxNARFCN INTEGER ::= 3279165 -- Maximum value of NR carrier frequency

maxNR-NS-Pmax INTEGER ::= 8 -- Maximum number of NS and P-Max values per band

maxFreqIdle-r16 INTEGER ::= 8 -- Maximum number of carrier frequencies for idle/inactive measurements

maxNrofServingCells INTEGER ::= 32 -- Max number of serving cells (SpCells + SCells)

maxNrofServingCells-1 INTEGER ::= 31 -- Max number of serving cells (SpCells + SCells) minus 1

maxNrofAggregatedCellsPerCellGroup INTEGER ::= 16

maxNrofAggregatedCellsPerCellGroupMinus4-r16 INTEGER ::= 12

maxNrofDUCells-r16 INTEGER ::= 512 -- Max number of cells configured on the collocated IAB-DU

maxNrofAppLayerMeas-r17 INTEGER ::= 16 -- Max number of simultaneous application layer measurements

maxNrofAppLayerMeas-1-r17 INTEGER ::= 15 -- Max number of simultaneous application layer measurements minus 1

maxNrofAvailabilityCombinationsPerSet-r16 INTEGER ::= 512 -- Max number of AvailabilityCombinationId used in the DCI format 2\_5

maxNrofAvailabilityCombinationsPerSet-1-r16 INTEGER ::= 511 -- Max number of AvailabilityCombinationId used in the DCI format 2\_5 minus 1

maxNrofIABResourceConfig-r17 INTEGER ::= 65536 -- Max number of IAB-ResourceConfigID used in MAC CE

maxNrofIABResourceConfig-1-r17 INTEGER ::= 65535 -- Max number of IAB-ResourceConfigID used in MAC CE minus 1

maxNrofSCellActRS-r17 INTEGER ::= 255 -- Max number of RS configurations per SCell for SCell activation

maxNrofSCells INTEGER ::= 31 -- Max number of secondary serving cells per cell group

maxNrofCellMeas INTEGER ::= 32 -- Maximum number of entries in each of the cell lists in a measurement object

maxNrofCRS-IM-InterfCell-r17 INTEGER ::= 8 -- Maximum number of LTE interference cells for CRS-IM per UE

maxNrofRelayMeas-r17 INTEGER ::= 32 -- Maximum number of L2 U2N Relay UEs to measure for each measurement object

-- on sidelink frequency

maxNrofCG-SL-r16 INTEGER ::= 8 -- Max number of sidelink configured grant

maxNrofCG-SL-1-r16 INTEGER ::= 7 -- Max number of sidelink configured grant minus 1

maxSL-GC-BC-DRX-QoS-r17 INTEGER ::= 16 -- Max number of sidelink DRX configurations for NR

-- sidelink groupcast/broadcast communication

maxNrofSL-RxInfoSet-r17 INTEGER ::= 4 -- Max number of sidelink DRX configuration sets in sidelink DRX assistant

-- information

maxNrofSS-BlocksToAverage INTEGER ::= 16 -- Max number for the (max) number of SS blocks to average to determine cell measurement

maxNrofCondCells-r16 INTEGER ::= 8 -- Max number of conditional candidate SpCells

maxNrofCondCells-1-r17 INTEGER ::= 7 -- Max number of conditional candidate SpCells minus 1

maxNrofCSI-RS-ResourcesToAverage INTEGER ::= 16 -- Max number for the (max) number of CSI-RS to average to determine cell measurement

maxNrofDL-Allocations INTEGER ::= 16 -- Maximum number of PDSCH time domain resource allocations

maxNrofDL-AllocationsExt-r17 INTEGER ::= 64 -- Maximum number of PDSCH time domain resource allocations for multi-PDSCH

-- scheduling

maxNrofPDU-Sessions-r17 INTEGER ::= 256 -- Maximum number of PDU Sessions

maxNrofSR-ConfigPerCellGroup INTEGER ::= 8 -- Maximum number of SR configurations per cell group

maxLCG-ID INTEGER ::= 7 -- Maximum value of LCG ID

maxLCG-ID-IAB-r17 INTEGER ::= 255 -- Maximum value of LCG ID for IAB-MT

maxLC-ID INTEGER ::= 32 -- Maximum value of Logical Channel ID

maxLC-ID-Iab-r16 INTEGER ::= 65855 -- Maximum value of BH Logical Channel ID extension

maxLTE-CRS-Patterns-r16 INTEGER ::= 3 -- Maximum number of additional LTE CRS rate matching patterns

maxNrofTAGs INTEGER ::= 4 -- Maximum number of Timing Advance Groups

maxNrofTAGs-1 INTEGER ::= 3 -- Maximum number of Timing Advance Groups minus 1

maxNrofBWPs INTEGER ::= 4 -- Maximum number of BWPs per serving cell

maxNrofCombIDC INTEGER ::= 128 -- Maximum number of reported MR-DC combinations for IDC

maxNrofSymbols-1 INTEGER ::= 13 -- Maximum index identifying a symbol within a slot (14 symbols, indexed from 0..13)

maxNrofSlots INTEGER ::= 320 -- Maximum number of slots in a 10 ms period

maxNrofSlots-1 INTEGER ::= 319 -- Maximum number of slots in a 10 ms period minus 1

maxNrofPhysicalResourceBlocks INTEGER ::= 275 -- Maximum number of PRBs

maxNrofPhysicalResourceBlocks-1 INTEGER ::= 274 -- Maximum number of PRBs minus 1

maxNrofPhysicalResourceBlocksPlus1 INTEGER ::= 276 -- Maximum number of PRBs plus 1

maxNrofControlResourceSets INTEGER ::= 12 -- Max number of CoReSets configurable on a serving cell

maxNrofControlResourceSets-1 INTEGER ::= 11 -- Max number of CoReSets configurable on a serving cell minus 1

maxNrofControlResourceSets-1-r16 INTEGER ::= 15 -- Max number of CoReSets configurable on a serving cell extended in minus 1

maxNrofCoresetPools-r16 INTEGER ::= 2 -- Maximum number of CORESET pools

maxCoReSetDuration INTEGER ::= 3 -- Max number of OFDM symbols in a control resource set

maxNrofSearchSpaces-1 INTEGER ::= 39 -- Max number of Search Spaces minus 1

maxNrofSearchSpacesLinks-1-r17 INTEGER ::= 39 -- Max number of Search Space links minus 1

maxNrofBFDResourcePerSet-r17 INTEGER ::= 64 -- Max number of reference signal in one BFD set

maxSFI-DCI-PayloadSize INTEGER ::= 128 -- Max number payload of a DCI scrambled with SFI-RNTI

maxSFI-DCI-PayloadSize-1 INTEGER ::= 127 -- Max number payload of a DCI scrambled with SFI-RNTI minus 1

maxIAB-IP-Address-r16 INTEGER ::= 32 -- Max number of assigned IP addresses

maxINT-DCI-PayloadSize INTEGER ::= 126 -- Max number payload of a DCI scrambled with INT-RNTI

maxINT-DCI-PayloadSize-1 INTEGER ::= 125 -- Max number payload of a DCI scrambled with INT-RNTI minus 1

maxNrofRateMatchPatterns INTEGER ::= 4 -- Max number of rate matching patterns that may be configured

maxNrofRateMatchPatterns-1 INTEGER ::= 3 -- Max number of rate matching patterns that may be configured minus 1

maxNrofRateMatchPatternsPerGroup INTEGER ::= 8 -- Max number of rate matching patterns that may be configured in one group

maxNrofCSI-ReportConfigurations INTEGER ::= 48 -- Maximum number of report configurations

maxNrofCSI-ReportConfigurations-1 INTEGER ::= 47 -- Maximum number of report configurations minus 1

maxNrofCSI-ResourceConfigurations INTEGER ::= 112 -- Maximum number of resource configurations

maxNrofCSI-ResourceConfigurations-1 INTEGER ::= 111 -- Maximum number of resource configurations minus 1

maxNrofAP-CSI-RS-ResourcesPerSet INTEGER ::= 16

maxNrOfCSI-AperiodicTriggers INTEGER ::= 128 -- Maximum number of triggers for aperiodic CSI reporting

maxNrofReportConfigPerAperiodicTrigger INTEGER ::= 16 -- Maximum number of report configurations per trigger state for aperiodic reporting

maxNrofNZP-CSI-RS-Resources INTEGER ::= 192 -- Maximum number of Non-Zero-Power (NZP) CSI-RS resources

maxNrofNZP-CSI-RS-Resources-1 INTEGER ::= 191 -- Maximum number of Non-Zero-Power (NZP) CSI-RS resources minus 1

maxNrofNZP-CSI-RS-ResourcesPerSet INTEGER ::= 64 -- Maximum number of NZP CSI-RS resources per resource set

maxNrofNZP-CSI-RS-ResourceSets INTEGER ::= 64 -- Maximum number of NZP CSI-RS resource sets per cell

maxNrofNZP-CSI-RS-ResourceSets-1 INTEGER ::= 63 -- Maximum number of NZP CSI-RS resource sets per cell minus 1

maxNrofNZP-CSI-RS-ResourceSetsPerConfig INTEGER ::= 16 -- Maximum number of resource sets per resource configuration

maxNrofNZP-CSI-RS-ResourcesPerConfig INTEGER ::= 128 -- Maximum number of resources per resource configuration

maxNrofZP-CSI-RS-Resources INTEGER ::= 32 -- Maximum number of Zero-Power (ZP) CSI-RS resources

maxNrofZP-CSI-RS-Resources-1 INTEGER ::= 31 -- Maximum number of Zero-Power (ZP) CSI-RS resources minus 1

maxNrofZP-CSI-RS-ResourceSets-1 INTEGER ::= 15

maxNrofZP-CSI-RS-ResourcesPerSet INTEGER ::= 16

maxNrofZP-CSI-RS-ResourceSets INTEGER ::= 16

maxNrofCSI-IM-Resources INTEGER ::= 32 -- Maximum number of CSI-IM resources

maxNrofCSI-IM-Resources-1 INTEGER ::= 31 -- Maximum number of CSI-IM resources minus 1

maxNrofCSI-IM-ResourcesPerSet INTEGER ::= 8 -- Maximum number of CSI-IM resources per set

maxNrofCSI-IM-ResourceSets INTEGER ::= 64 -- Maximum number of NZP CSI-IM resource sets per cell

maxNrofCSI-IM-ResourceSets-1 INTEGER ::= 63 -- Maximum number of NZP CSI-IM resource sets per cell minus 1

maxNrofCSI-IM-ResourceSetsPerConfig INTEGER ::= 16 -- Maximum number of CSI IM resource sets per resource configuration

maxNrofCSI-SSB-ResourcePerSet INTEGER ::= 64 -- Maximum number of SSB resources in a resource set

maxNrofCSI-SSB-ResourceSets INTEGER ::= 64 -- Maximum number of CSI SSB resource sets per cell

maxNrofCSI-SSB-ResourceSets-1 INTEGER ::= 63 -- Maximum number of CSI SSB resource sets per cell minus 1

maxNrofCSI-SSB-ResourceSetsPerConfig INTEGER ::= 1 -- Maximum number of CSI SSB resource sets per resource configuration

maxNrofCSI-SSB-ResourceSetsPerConfigExt INTEGER ::= 2 -- Maximum number of CSI SSB resource sets per resource configuration

-- extended

maxNrofFailureDetectionResources INTEGER ::= 10 -- Maximum number of failure detection resources

maxNrofFailureDetectionResources-1 INTEGER ::= 9 -- Maximum number of failure detection resources minus 1

maxNrofFailureDetectionResources-1-r17 INTEGER ::= 63 -- Maximum number of the enhanced failure detection resources minus 1

maxNrofFreqSL-r16 INTEGER ::= 8 -- Maximum number of carrier frequency for NR sidelink communication

maxNrofSL-BWPs-r16 INTEGER ::= 4 -- Maximum number of BWP for NR sidelink communication

maxFreqSL-EUTRA-r16 INTEGER ::= 8 -- Maximum number of EUTRA anchor carrier frequency for NR sidelink communication

maxNrofSL-MeasId-r16 INTEGER ::= 64 -- Maximum number of sidelink measurement identity (RSRP) per destination

maxNrofSL-ObjectId-r16 INTEGER ::= 64 -- Maximum number of sidelink measurement objects (RSRP) per destination

maxNrofSL-ReportConfigId-r16 INTEGER ::= 64 -- Maximum number of sidelink measurement reporting configuration(RSRP) per destination

maxNrofSL-PoolToMeasureNR-r16 INTEGER ::= 8 -- Maximum number of resource pool for NR sidelink measurement to measure for

-- each measurement object (for CBR)

maxFreqSL-NR-r16 INTEGER ::= 8 -- Maximum number of NR anchor carrier frequency for NR sidelink communication

maxNrofSL-QFIs-r16 INTEGER ::= 2048 -- Maximum number of QoS flow for NR sidelink communication per UE

maxNrofSL-QFIsPerDest-r16 INTEGER ::= 64 -- Maximum number of QoS flow per destination for NR sidelink communication

maxNrofObjectId INTEGER ::= 64 -- Maximum number of measurement objects

maxNrofPageRec INTEGER ::= 32 -- Maximum number of page records

maxNrofPCI-Ranges INTEGER ::= 8 -- Maximum number of PCI ranges

maxPLMN INTEGER ::= 12 -- Maximum number of PLMNs broadcast and reported by UE at establishment

maxTAC-r17 INTEGER ::= 12 -- Maximum number of Tracking Area Codes to which a cell belongs to

maxNrofCSI-RS-ResourcesRRM INTEGER ::= 96 -- Maximum number of CSI-RS resources per cell for an RRM measurement object

maxNrofCSI-RS-ResourcesRRM-1 INTEGER ::= 95 -- Maximum number of CSI-RS resources per cell for an RRM measurement object

-- minus 1.

maxNrofMeasId INTEGER ::= 64 -- Maximum number of configured measurements

maxNrofQuantityConfig INTEGER ::= 2 -- Maximum number of quantity configurations

maxNrofCSI-RS-CellsRRM INTEGER ::= 96 -- Maximum number of cells with CSI-RS resources for an RRM measurement object

maxNrofSL-Dest-r16 INTEGER ::= 32 -- Maximum number of destination for NR sidelink communication and discovery

maxNrofSL-Dest-1-r16 INTEGER ::= 31 -- Highest index of destination for NR sidelink communication and discovery

maxNrofSLRB-r16 INTEGER ::= 512 -- Maximum number of radio bearer for NR sidelink communication per UE

maxSL-LCID-r16 INTEGER ::= 512 -- Maximum number of RLC bearer for NR sidelink communication per UE

maxSL-SyncConfig-r16 INTEGER ::= 16 -- Maximum number of sidelink Sync configurations

maxNrofRXPool-r16 INTEGER ::= 16 -- Maximum number of Rx resource pool for NR sidelink communication and

-- discovery

maxNrofTXPool-r16 INTEGER ::= 8 -- Maximum number of Tx resource pool for NR sidelink communication and

-- discovery

maxNrofPoolID-r16 INTEGER ::= 16 -- Maximum index of resource pool for NR sidelink communication and

-- discovery

maxNrofSRS-PathlossReferenceRS-r16 INTEGER ::= 64 -- Maximum number of RSs used as pathloss reference for SRS power control.

maxNrofSRS-PathlossReferenceRS-1-r16 INTEGER ::= 63 -- Maximum number of RSs used as pathloss reference for SRS power control

-- minus 1.

maxNrofSRS-ResourceSets INTEGER ::= 16 -- Maximum number of SRS resource sets in a BWP.

maxNrofSRS-ResourceSets-1 INTEGER ::= 15 -- Maximum number of SRS resource sets in a BWP minus 1.

maxNrofSRS-PosResourceSets-r16 INTEGER ::= 16 -- Maximum number of SRS Positioning resource sets in a BWP.

maxNrofSRS-PosResourceSets-1-r16 INTEGER ::= 15 -- Maximum number of SRS Positioning resource sets in a BWP minus 1.

maxNrofSRS-Resources INTEGER ::= 64 -- Maximum number of SRS resources.

maxNrofSRS-Resources-1 INTEGER ::= 63 -- Maximum number of SRS resources minus 1.

maxNrofSRS-PosResources-r16 INTEGER ::= 64 -- Maximum number of SRS Positioning resources.

maxNrofSRS-PosResources-1-r16 INTEGER ::= 63 -- Maximum number of SRS Positioning resources minus 1.

maxNrofSRS-ResourcesPerSet INTEGER ::= 16 -- Maximum number of SRS resources in an SRS resource set

maxNrofSRS-TriggerStates-1 INTEGER ::= 3 -- Maximum number of SRS trigger states minus 1, i.e., the largest code point.

maxNrofSRS-TriggerStates-2 INTEGER ::= 2 -- Maximum number of SRS trigger states minus 2.

maxRAT-CapabilityContainers INTEGER ::= 8 -- Maximum number of interworking RAT containers (incl NR and MRDC)

maxSimultaneousBands INTEGER ::= 32 -- Maximum number of simultaneously aggregated bands

maxULTxSwitchingBandPairs INTEGER ::= 32 -- Maximum number of band pairs supporting dynamic UL Tx switching in a band

-- combination.

maxNrofSlotFormatCombinationsPerSet INTEGER ::= 512 -- Maximum number of Slot Format Combinations in a SF-Set.

maxNrofSlotFormatCombinationsPerSet-1 INTEGER ::= 511 -- Maximum number of Slot Format Combinations in a SF-Set minus 1.

maxNrofTrafficPattern-r16 INTEGER ::= 8 -- Maximum number of Traffic Pattern for NR sidelink communication.

maxNrofPUCCH-Resources INTEGER ::= 128

maxNrofPUCCH-Resources-1 INTEGER ::= 127

maxNrofPUCCH-ResourceSets INTEGER ::= 4 -- Maximum number of PUCCH Resource Sets

maxNrofPUCCH-ResourceSets-1 INTEGER ::= 3 -- Maximum number of PUCCH Resource Sets minus 1.

maxNrofPUCCH-ResourcesPerSet INTEGER ::= 32 -- Maximum number of PUCCH Resources per PUCCH-ResourceSet

maxNrofPUCCH-P0-PerSet INTEGER ::= 8 -- Maximum number of P0-pucch present in a p0-pucch set

maxNrofPUCCH-PathlossReferenceRSs INTEGER ::= 4 -- Maximum number of RSs used as pathloss reference for PUCCH power control.

maxNrofPUCCH-PathlossReferenceRSs-1 INTEGER ::= 3 -- Maximum number of RSs used as pathloss reference for PUCCH power control

-- minus 1.

maxNrofPUCCH-PathlossReferenceRSs-r16 INTEGER ::= 64 -- Maximum number of RSs used as pathloss reference for PUCCH power control

-- extended.

maxNrofPUCCH-PathlossReferenceRSs-1-r16 INTEGER ::= 63 -- Maximum number of RSs used as pathloss reference for PUCCH power control

-- minus 1 extended.

maxNrofPUCCH-PathlossReferenceRSs-1-r17 INTEGER ::= 7 -- Maximum number of RSs used as pathloss reference for PUCCH power control

-- minus 1.

maxNrofPUCCH-PathlossReferenceRSsDiff-r16 INTEGER ::= 60 -- Difference between the extended maximum and the non-extended maximum

maxNrofPUCCH-ResourceGroups-r16 INTEGER ::= 4 -- Maximum number of PUCCH resources groups.

maxNrofPUCCH-ResourcesPerGroup-r16 INTEGER ::= 128 -- Maximum number of PUCCH resources in a PUCCH group.

maxNrofPowerControlSetInfos-r17 INTEGER ::= 8 -- Maximum number of PUCCH power control set infos

maxNrofMultiplePUSCHs-r16 INTEGER ::= 8 -- Maximum number of multiple PUSCHs in PUSCH TDRA list

maxNrofP0-PUSCH-AlphaSets INTEGER ::= 30 -- Maximum number of P0-pusch-alpha-sets (see TS 38.213 [13], clause 7.1)

maxNrofP0-PUSCH-AlphaSets-1 INTEGER ::= 29 -- Maximum number of P0-pusch-alpha-sets minus 1 (see TS 38.213 [13], clause 7.1)

maxNrofPUSCH-PathlossReferenceRSs INTEGER ::= 4 -- Maximum number of RSs used as pathloss reference for PUSCH power control.

maxNrofPUSCH-PathlossReferenceRSs-1 INTEGER ::= 3 -- Maximum number of RSs used as pathloss reference for PUSCH power control

-- minus 1.

maxNrofPUSCH-PathlossReferenceRSs-r16 INTEGER ::= 64 -- Maximum number of RSs used as pathloss reference for PUSCH power control

-- extended

maxNrofPUSCH-PathlossReferenceRSs-1-r16 INTEGER ::= 63 -- Maximum number of RSs used as pathloss reference for PUSCH power control

-- extended minus 1

maxNrofPUSCH-PathlossReferenceRSsDiff-r16 INTEGER ::= 60 -- Difference between maxNrofPUSCH-PathlossReferenceRSs-r16 and

-- maxNrofPUSCH-PathlossReferenceRSs

maxNrofPathlossReferenceRSs-r17 INTEGER ::= 64 -- Maximum number of RSs used as pathloss reference for PUSCH, PUCCH, SRS

-- power control for unified TCI state operation

maxNrofPathlossReferenceRSs-1-r17 INTEGER ::= 63 -- Maximum number of RSs used as pathloss reference for PUSCH, PUCCH, SRS

-- power control for unified TCI state operation minus 1

maxNrofNAICS-Entries INTEGER ::= 8 -- Maximum number of supported NAICS capability set

maxBands INTEGER ::= 1024 -- Maximum number of supported bands in UE capability.

maxBandsMRDC INTEGER ::= 1280

maxBandsEUTRA INTEGER ::= 256

maxCellReport INTEGER ::= 8

maxDRB INTEGER ::= 29 -- Maximum number of DRBs (that can be added in DRB-ToAddModList).

maxFreq INTEGER ::= 8 -- Max number of frequencies.

maxFreqLayers INTEGER ::= 4 -- Max number of frequency layers.

maxFreqPlus1 INTEGER ::= 9 -- Max number of frequencies for Slicing.

maxFreqIDC-r16 INTEGER ::= 128 -- Max number of frequencies for IDC indication.

maxCombIDC-r16 INTEGER ::= 128 -- Max number of reported UL CA for IDC indication.

maxFreqIDC-MRDC INTEGER ::= 32 -- Maximum number of candidate NR frequencies for MR-DC IDC indication

maxNrofCandidateBeams INTEGER ::= 16 -- Max number of PRACH-ResourceDedicatedBFR in BFR config.

maxNrofCandidateBeams-r16 INTEGER ::= 64 -- Max number of candidate beam resources in BFR config.

maxNrofCandidateBeamsExt-r16 INTEGER ::= 48 -- Max number of PRACH-ResourceDedicatedBFR in the CandidateBeamRSListExt

maxNrofPCIsPerSMTC INTEGER ::= 64 -- Maximum number of PCIs per SMTC.

maxNrofQFIs INTEGER ::= 64

maxNrofResourceAvailabilityPerCombination-r16 INTEGER ::= 256

maxNrOfSemiPersistentPUSCH-Triggers INTEGER ::= 64 -- Maximum number of triggers for semi persistent reporting on PUSCH

maxNrofSR-Resources INTEGER ::= 8 -- Maximum number of SR resources per BWP in a cell.

maxNrofSlotFormatsPerCombination INTEGER ::= 256

maxNrofSpatialRelationInfos INTEGER ::= 8

maxNrofSpatialRelationInfos-plus-1 INTEGER ::= 9

maxNrofSpatialRelationInfos-r16 INTEGER ::= 64

maxNrofSpatialRelationInfosDiff-r16 INTEGER ::= 56 -- Difference between maxNrofSpatialRelationInfos-r16 and maxNrofSpatialRelationInfos

maxNrofIndexesToReport INTEGER ::= 32

maxNrofIndexesToReport2 INTEGER ::= 64

maxNrofSSBs-r16 INTEGER ::= 64 -- Maximum number of SSB resources in a resource set.

maxNrofSSBs-1 INTEGER ::= 63 -- Maximum number of SSB resources in a resource set minus 1.

maxNrofS-NSSAI INTEGER ::= 8 -- Maximum number of S-NSSAI.

maxNrofTCI-StatesPDCCH INTEGER ::= 64

maxNrofTCI-States INTEGER ::= 128 -- Maximum number of TCI states.

maxNrofTCI-States-1 INTEGER ::= 127 -- Maximum number of TCI states minus 1.

maxUL-TCI-r17 INTEGER ::= 64 -- Maximum number of TCI states.

maxUL-TCI-1-r17 INTEGER ::= 63 -- Maximum number of TCI states minus 1.

maxNrofAdditionalPCI-r17 INTEGER ::= 7 -- Maximum number of additional PCI

maxMPE-Resources-r17 INTEGER ::= 64 -- Maximum number of pooled MPE resources

maxNrofUL-Allocations INTEGER ::= 16 -- Maximum number of PUSCH time domain resource allocations.

maxQFI INTEGER ::= 63

maxRA-CSIRS-Resources INTEGER ::= 96

maxRA-OccasionsPerCSIRS INTEGER ::= 64 -- Maximum number of RA occasions for one CSI-RS

maxRA-Occasions-1 INTEGER ::= 511 -- Maximum number of RA occasions in the system

maxRA-SSB-Resources INTEGER ::= 64

maxSCSs INTEGER ::= 5

maxSecondaryCellGroups INTEGER ::= 3

maxNrofServingCellsEUTRA INTEGER ::= 32

maxMBSFN-Allocations INTEGER ::= 8

maxNrofMultiBands INTEGER ::= 8

maxCellSFTD INTEGER ::= 3 -- Maximum number of cells for SFTD reporting

maxReportConfigId INTEGER ::= 64

maxNrofCodebooks INTEGER ::= 16 -- Maximum number of codebooks supported by the UE

maxNrofCSI-RS-ResourcesExt-r16 INTEGER ::= 16 -- Maximum number of codebook resources supported by the UE for eType2/Codebook combo

maxNrofCSI-RS-ResourcesExt-r17 INTEGER ::= 8 -- Maximum number of codebook resources for fetype2R1 and fetype2R2

maxNrofCSI-RS-Resources INTEGER ::= 7 -- Maximum number of codebook resources supported by the UE

maxNrofCSI-RS-ResourcesAlt-r16 INTEGER ::= 512 -- Maximum number of alternative codebook resources supported by the UE

maxNrofCSI-RS-ResourcesAlt-1-r16 INTEGER ::= 511 -- Maximum number of alternative codebook resources supported by the UE minus 1

maxNrofSRI-PUSCH-Mappings INTEGER ::= 16

maxNrofSRI-PUSCH-Mappings-1 INTEGER ::= 15

maxSIB INTEGER::= 32 -- Maximum number of SIBs

maxSI-Message INTEGER::= 32 -- Maximum number of SI messages

maxSIB-MessagePlus1-r17 INTEGER::= 33 -- Maximum number of SIB messages plus 1

maxPO-perPF INTEGER ::= 4 -- Maximum number of paging occasion per paging frame

maxPEI-perPF-r17 INTEGER ::= 4 -- Maximum number of PEI occasion per paging frame

maxAccessCat-1 INTEGER ::= 63 -- Maximum number of Access Categories minus 1

maxBarringInfoSet INTEGER ::= 8 -- Maximum number of access control parameter sets

maxCellEUTRA INTEGER ::= 8 -- Maximum number of E-UTRA cells in SIB list

maxEUTRA-Carrier INTEGER ::= 8 -- Maximum number of E-UTRA carriers in SIB list

maxPLMNIdentities INTEGER ::= 8 -- Maximum number of PLMN identities in RAN area configurations

maxDownlinkFeatureSets INTEGER ::= 1024 -- (for NR DL) Total number of FeatureSets (size of the pool)

maxUplinkFeatureSets INTEGER ::= 1024 -- (for NR UL) Total number of FeatureSets (size of the pool)

maxEUTRA-DL-FeatureSets INTEGER ::= 256 -- (for E-UTRA) Total number of FeatureSets (size of the pool)

maxEUTRA-UL-FeatureSets INTEGER ::= 256 -- (for E-UTRA) Total number of FeatureSets (size of the pool)

maxFeatureSetsPerBand INTEGER ::= 128 -- (for NR) The number of feature sets associated with one band.

maxPerCC-FeatureSets INTEGER ::= 1024 -- (for NR) Total number of CC-specific FeatureSets (size of the pool)

maxFeatureSetCombinations INTEGER ::= 1024 -- (for MR-DC/NR)Total number of Feature set combinations (size of the pool)

maxInterRAT-RSTD-Freq INTEGER ::= 3

maxGIN-r17 INTEGER ::= 24 -- Maximum number of broadcast GINs

maxHRNN-Len-r16 INTEGER ::= 48 -- Maximum length of HRNNs

maxNPN-r16 INTEGER ::= 12 -- Maximum number of NPNs broadcast and reported by UE at establishment

maxSNPN-ConfigCellId-r18 INTEGER ::= 32 -- Maximum number of Cell ID subject for SNPNS for MDT scope.

maxSNPN-ConfigID-r18 INTEGER ::= 16 -- Maximum number of SNPNs in the MDT SNPN list.

maxSNPN-ConfigTAI-r18 INTEGER ::= 8 -- Maximum number of TA subject for MDT scope.

maxNrOfMinSchedulingOffsetValues-r16 INTEGER ::= 2 -- Maximum number of min. scheduling offset (K0/K2) configurations

maxK0-SchedulingOffset-r16 INTEGER ::= 16 -- Maximum number of slots configured as min. scheduling offset (K0)

maxK2-SchedulingOffset-r16 INTEGER ::= 16 -- Maximum number of slots configured as min. scheduling offset (K2)

maxK0-SchedulingOffset-r17 INTEGER ::= 64 -- Maximum number of slots configured as min. scheduling offset (K0)

maxK2-SchedulingOffset-r17 INTEGER ::= 64 -- Maximum number of slots configured as min. scheduling offset (K2)

maxDCI-2-6-Size-r16 INTEGER ::= 140 -- Maximum size of DCI format 2-6

maxDCI-2-7-Size-r17 INTEGER ::= 43 -- Maximum size of DCI format 2-7

maxDCI-2-6-Size-1-r16 INTEGER ::= 139 -- Maximum DCI format 2-6 size minus 1

maxNrofUL-Allocations-r16 INTEGER ::= 64 -- Maximum number of PUSCH time domain resource allocations

maxNrofP0-PUSCH-Set-r16 INTEGER ::= 2 -- Maximum number of P0 PUSCH set(s)

maxOnDemandSIB-r16 INTEGER ::= 8 -- Maximum number of SIB(s) that can be requested on-demand

maxOnDemandPosSIB-r16 INTEGER ::= 32 -- Maximum number of posSIB(s) that can be requested on-demand

maxCI-DCI-PayloadSize-r16 INTEGER ::= 126 -- Maximum number of the DCI size for CI

maxCI-DCI-PayloadSize-1-r16 INTEGER ::= 125 -- Maximum number of the DCI size for CI minus 1

maxUu-RelayRLC-ChannelID-r17 INTEGER ::= 32 -- Maximum value of Uu Relay RLC channel ID

maxWLAN-Id-Report-r16 INTEGER ::= 32 -- Maximum number of WLAN IDs to report

maxWLAN-Name-r16 INTEGER ::= 4 -- Maximum number of WLAN name

maxRAReport-r16 INTEGER ::= 8 -- Maximum number of RA procedures information to be included in the RA report

maxTxConfig-r16 INTEGER ::= 64 -- Maximum number of sidelink transmission parameters configurations

maxTxConfig-1-r16 INTEGER ::= 63 -- Maximum number of sidelink transmission parameters configurations minus 1

maxPSSCH-TxConfig-r16 INTEGER ::= 16 -- Maximum number of PSSCH TX configurations

maxNrofCLI-RSSI-Resources-r16 INTEGER ::= 64 -- Maximum number of CLI-RSSI resources for UE

maxNrofCLI-RSSI-Resources-1-r16 INTEGER ::= 63 -- Maximum number of CLI-RSSI resources for UE minus 1

maxNrofCLI-SRS-Resources-r16 INTEGER ::= 32 -- Maximum number of SRS resources for CLI measurement for UE

maxCLI-Report-r16 INTEGER ::= 8

maxNrofCC-Group-r17 INTEGER ::= 16 -- Maximum number of CC groups for DC location report

maxNrofConfiguredGrantConfig-r16 INTEGER ::= 12 -- Maximum number of configured grant configurations per BWP

maxNrofConfiguredGrantConfig-1-r16 INTEGER ::= 11 -- Maximum number of configured grant configurations per BWP minus 1

maxNrofCG-Type2DeactivationState INTEGER ::= 16 -- Maximum number of deactivation state for type 2 configured grants per BWP

maxNrofConfiguredGrantConfigMAC-1-r16 INTEGER ::= 31 -- Maximum number of configured grant configurations per MAC entity minus 1

maxNrofSPS-Config-r16 INTEGER ::= 8 -- Maximum number of SPS configurations per BWP

maxNrofSPS-Config-1-r16 INTEGER ::= 7 -- Maximum number of SPS configurations per BWP minus 1

maxNrofSPS-DeactivationState INTEGER ::= 16 -- Maximum number of deactivation state for SPS per BWP

maxNrofPPW-Config-r17 INTEGER ::= 4 -- Maximum number of Preconfigured PRS processing windows per DL BWP

maxNrofPPW-ID-1-r17 INTEGER ::= 15 -- Maximum number of Preconfigured PRS processing windows minus 1

maxNrOfTxTEGReport-r17 INTEGER ::= 256 -- Maximum number of UE Tx Timing Error Group Report

maxNrOfTxTEG-ID-1-r17 INTEGER ::= 7 -- Maximum number of UE Tx Timing Error Group ID minus 1

maxNrofPagingSubgroups-r17 INTEGER ::= 8 -- Maximum number of paging subgroups per paging occasion

maxNrofPUCCH-ResourceGroups-1-r16 INTEGER ::= 3

maxNrofReqComDC-Location-r17 INTEGER ::= 128 -- Maximum number of requested carriers/BWPs combinations for DC location

-- report

maxNrofServingCellsTCI-r16 INTEGER ::= 32 -- Maximum number of serving cells in simultaneousTCI-UpdateList

maxNrofTxDC-TwoCarrier-r16 INTEGER ::= 64 -- Maximum number of UL Tx DC locations reported by the UE for 2CC uplink CA

maxNrofRB-SetGroups-r17 INTEGER ::= 8 -- Maximum number of RB set groups

maxNrofRB-Sets-r17 INTEGER ::= 8 -- Maximum number of RB sets

maxNrofEnhType3HARQ-ACK-r17 INTEGER ::= 8 -- Maximum number of enhanced type 3 HARQ-ACK codebook

maxNrofEnhType3HARQ-ACK-1-r17 INTEGER ::= 7 -- Maximum number of enhanced type 3 HARQ-ACK codebook minus 1

maxNrofPRS-ResourcesPerSet-r17 INTEGER ::= 64 -- Maximum number of PRS resources for one set

maxNrofPRS-ResourcesPerSet-1-r17 INTEGER ::= 63 -- Maximum number of PRS resources for one set minus 1

maxNrofPRS-ResourceOffsetValue-1-r17 INTEGER ::= 511

maxNrofGapId-r17 INTEGER ::= 8 -- Maximum number of measurement gap ID is FFS

maxNrofPreConfigPosGapId-r17 INTEGER ::= 16 -- Maximum number of preconfigured positioning measurement gap

maxNrOfGapPri-r17 INTEGER ::= 16 -- Maximum number of gap priority level

maxCEFReport-r17 INTEGER ::= 4 -- Maximum number of CEF reports by the UE

maxNrofMultiplePDSCHs-r17 INTEGER ::= 8 -- Maximum number of PDSCHs in PDSCH TDRA list

maxSliceInfo-r17 INTEGER ::= 8 -- Maximum number of NSAGs

maxCellSlice-r17 INTEGER ::= 16 -- Maximum number of cells supporting the NSAG

maxNrofTRS-ResourceSets-r17 INTEGER ::= 64 -- Maximum number of TRS resource sets

maxNrofSearchSpaceGroups-1-r17 INTEGER ::= 2 -- Maximum number of search space groups minus 1

maxNrofRemoteUE-r17 INTEGER ::= 32 -- Maximum number of connected L2 U2N Remote UEs

maxDCI-4-2-Size-r17 INTEGER ::= 140 -- Maximum size of DCI format 4-2

maxFreqMBS-r17 INTEGER ::= 16 -- Maximum number of MBS frequencies reported in MBSInterestIndication

maxNrofDRX-ConfigPTM-r17 INTEGER ::= 64 -- Max number of DRX configuration for PTM provided in MBS broadcast in a

-- cell

maxNrofDRX-ConfigPTM-1-r17 INTEGER ::= 63 -- Max number of DRX configuration for PTM provided in MBS broadcast in a

-- cell minus 1

maxNrofMBS-ServiceListPerUE-r17 INTEGER ::= 16 -- Maximum number of services which the UE can include in the MBS interest

-- indication

maxNrofMBS-Session-r17 INTEGER ::= 1024 -- Maximum number of MBS sessions provided in MBS broadcast in a cell

maxNrofMTCH-SSB-MappingWindow-r17 INTEGER ::= 16 -- Maximum number of MTCH to SSB beam mapping pattern

maxNrofMTCH-SSB-MappingWindow-1-r17 INTEGER ::= 15 -- Maximum number of MTCH to SSB beam mapping pattern minus 1

maxNrofMRB-Broadcast-r17 INTEGER ::= 4 -- Maximum number of broadcast MRBs configured for one MBS broadcast service

maxNrofPageGroup-r17 INTEGER ::= 32 -- Maximum number of paging groups in a paging message

maxNrofPDSCH-ConfigPTM-r17 INTEGER ::= 16 -- Maximum number of PDSCH configuration groups for PTM

maxNrofPDSCH-ConfigPTM-1-r17 INTEGER ::= 15 -- Maximum number of PDSCH configuration groups for PTM minus 1

maxG-RNTI-r17 INTEGER ::= 16 -- Maximum number of G-RNTI that can be configured for a UE.

maxG-RNTI-1-r17 INTEGER ::= 15 -- Maximum number of G-RNTI that can be configured for a UE minus 1.

maxG-CS-RNTI-r17 INTEGER ::= 8 -- Maximum number of G-CS-RNTI that can be configured for a UE.

maxG-CS-RNTI-1-r17 INTEGER ::= 7 -- Maximum number of G-CS-RNTI that can be configured for a UE minus 1.

maxMRB-r17 INTEGER ::= 32 -- Maximum number of multicast MRBs (that can be added in MRB-ToAddModLIst)

maxFSAI-MBS-r17 INTEGER ::= 64 -- Maximum number of MBS frequency selection area identities

maxNeighCellMBS-r17 INTEGER ::= 8 -- Maximum number of MBS broadcast neighbour cells

maxNrofPdcch-BlindDetectionMixed-1-r16 INTEGER ::= 7 -- Maximum number of combinations of mixed Rel-16 and Rel-15 PDCCH

-- monitoring capabilities minus 1

maxNrofPdcch-BlindDetection-r17 INTEGER ::= 16 -- Maximum number of combinations of PDCCH blind detection monitoring

-- capabilities

-- TAG-MULTIPLICITY-AND-TYPE-CONSTRAINT-DEFINITIONS-STOP

-- ASN1STOP

### – End of NR-RRC-Definitions

-- ASN1START

END

-- ASN1STOP

NEXT CHANGE

## 7.4 UE variables

NOTE: To facilitate the specification of the UE behavioural requirements, UE variables are represented using ASN.1. Unless explicitly specified otherwise, it is however up to UE implementation how to store the variables. The optionality of the IEs in ASN.1 is used only to indicate that the values may not always be available.

#### – *NR-UE-Variables*

This ASN.1 segment is the start of the NR UE variable definitions.

-- ASN1START

-- NR-UE-VARIABLES-START

NR-UE-Variables DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

AreaConfiguration-v1700,

ARFCN-ValueNR,

CellIdentity,

EUTRA-PhysCellId,

maxCEFReport-r17,

MeasId,

MeasIdToAddModList,

MeasIdleCarrierEUTRA-r16,

MeasIdleCarrierNR-r16,

MeasResultIdleEUTRA-r16,

MeasResultIdleNR-r16,

MeasObjectToAddModList,

PhysCellId,

RNTI-Value,

ReportConfigToAddModList,

RSRP-Range,

SL-MeasId-r16,

SL-MeasIdList-r16,

SL-MeasObjectList-r16,

SL-ReportConfigList-r16,

SL-QuantityConfig-r16,

Tx-PoolMeasList-r16,

QuantityConfig,

maxNrofCellMeas,

maxNrofMeasId,

maxFreqIdle-r16,

PhysCellIdUTRA-FDD-r16,

ValidityAreaList-r16,

CondReconfigToAddModList-r16,

ConnEstFailReport-r16,

LoggingDuration-r16,

LoggingInterval-r16,

LogMeasInfoList-r16,

LogMeasInfo-r16,

RA-Report-r16,

RLF-Report-r16,

TraceReference-r16,

WLAN-Identifiers-r16,

WLAN-NameList-r16,

BT-NameList-r16,

PLMN-Identity,

maxNrofRelayMeas-r17,

maxPLMN,

RA-ReportList-r16,

VisitedCellInfoList-r16,

AbsoluteTimeInfo-r16,

LoggedEventTriggerConfig-r16,

LoggedPeriodicalReportConfig-r16,

Sensor-NameList-r16,

SL-SourceIdentity-r17,

SuccessHO-Report-r17,

PLMN-IdentityList2-r16,

AreaConfiguration-r16,

maxNrofSL-MeasId-r16,

maxNrofFreqSL-r16,

maxNrofCLI-RSSI-Resources-r16,

maxNrofCLI-SRS-Resources-r16,

RSSI-ResourceId-r16,

SRS-ResourceId,

VisitedPSCellInfoList-r17,

SuccessPSCell-Report-r18,

maxNPN-r16,

SNPN-ConfigIDList-r18,

AreaConfiguration-v18xy,

NID-r16

FROM NR-RRC-Definitions;

-- NR-UE-VARIABLES-STOP

-- ASN1STOP

<Text Omitted>

#### – *VarConnEstFailReport*

The UE variable *VarConnEstFailReport* includes the connection establishment failure and/or connection resume failure information.

*VarConnEstFailReport* UE variable

-- ASN1START

-- TAG-VARCONNESTFAILREPORT-START

VarConnEstFailReport-r16 ::= SEQUENCE {

connEstFailReport-r16 ConnEstFailReport-r16,

network-Identity-r18 CHOICE {

plmn-Identity-r18 PLMN-Identity,

snpn-Identity-r18 SNPN-Identity-r18

}

}

SNPN-Identity-r18 ::= SEQUENCE {

plmn-Identity-r18 PLMN-Identity,

nid-List-r18 SEQUENCE (SIZE (1..maxNPN-r16)) OF NID-r16

}

-- TAG-VARCONNESTFAILREPORT-STOP

-- ASN1STOP

#### – *VarConnEstFailReportList*

The UE variable *VarConnEstFailReportList* includes a list of the connection establishment failure and/or connection resume failure information.

*VarConnEstFailReportList* UE variable

-- ASN1START

-- TAG-VARCONNESTFAILREPORTLIST-START

VarConnEstFailReportList-r17 ::= SEQUENCE {

connEstFailReportList-r17 SEQUENCE (SIZE (1..maxCEFReport-r17)) OF VarConnEstFailReport-r16

}

-- TAG-VARCONNESTFAILREPORTLIST-STOP

-- ASN1STOP

<Text Omitted>

#### – *VarLogMeasConfig*

The UE variable *VarLogMeasConfig* includes the configuration of the logging of measurements to be performed by the UE while in RRC\_IDLE, RRC\_INACTIVE, covering intra-frequency, inter-frequency and inter-RAT mobility related measurements. The UE performs logging of measurements only while in RRC\_IDLE and RRC\_INACTIVE.

*VarLogMeasConfig* UE variable

-- ASN1START

-- TAG-VARLOGMEASCONFIG-START

VarLogMeasConfig-r16-IEs ::= SEQUENCE {

areaConfiguration-r16 AreaConfiguration-r16 OPTIONAL,

bt-NameList-r16 BT-NameList-r16 OPTIONAL,

wlan-NameList-r16 WLAN-NameList-r16 OPTIONAL,

sensor-NameList-r16 Sensor-NameList-r16 OPTIONAL,

loggingDuration-r16 LoggingDuration-r16,

reportType CHOICE {

periodical LoggedPeriodicalReportConfig-r16,

eventTriggered LoggedEventTriggerConfig-r16

},

earlyMeasIndication-r17 ENUMERATED {true} OPTIONAL,

areaConfiguration-v1700 AreaConfiguration-v1700 OPTIONAL,

areaConfiguration-v18xy AreaConfiguration-v18xy OPTIONAL

}

-- TAG-VARLOGMEASCONFIG-STOP

-- ASN1STOP

#### – *VarLogMeasReport*

The UE variable *VarLogMeasReport* includes the logged measurements information.

*VarLogMeasReport* UE variable

-- ASN1START

-- TAG-VARLOGMEASREPORT-START

VarLogMeasReport-r16 ::= SEQUENCE {

absoluteTimeInfo-r16 AbsoluteTimeInfo-r16,

traceReference-r16 TraceReference-r16,

traceRecordingSessionRef-r16 OCTET STRING (SIZE (2)),

tce-Id-r16 OCTET STRING (SIZE (1)),

logMeasInfoList-r16 LogMeasInfoList-r16,

sigLoggedMeasType-r17 ENUMERATED {true},

identityList-r18 CHOICE {

plmn-IdentityList-r18 PLMN-IdentityList2-r16,

snpn-ConfigIDList-r18 SNPN-ConfigIDList-r18

}

}

-- TAG-VARLOGMEASREPORT-STOP

-- ASN1STOP

<Text Omitted>

#### – *VarRA-Report*

The UE variable *VarRA-Report* includes the random-access related information.

*VarRA-Report* UE variable

-- ASN1START

-- TAG-VARRA-REPORT-START

VarRA-Report-r16 ::= SEQUENCE {

ra-ReportList-r16 RA-ReportList-r16,

identityList-r18 CHOICE {

plmn-IdentityList-r18 PLMN-IdentityList2-r16,

snpn-IdentityList-r18 SEQUENCE (SIZE (1..maxNPN-r16)) OF SNPN-Identity-r18

}

}

-- TAG-VARRA-REPORT-STOP

-- ASN1STOP

<Text Omitted>

#### – *VarRLF-Report*

The UE variable *VarRLF-Report* includes the radio link failure information or handover failure information.

*VarRLF-Report* UE variable

-- ASN1START

-- TAG-VARRLF-REPORT-START

VarRLF-Report-r16 ::= SEQUENCE {

rlf-Report-r16 RLF-Report-r16,

identityList-r18 CHOICE {

plmn-IdentityList-r18 PLMN-IdentityList2-r16,

snpn-IdentityList-r18 SEQUENCE (SIZE (1..maxNPN-r16)) OF SNPN-Identity-r18

}

}

-- TAG-VARRLF-REPORT-STOP

-- ASN1STOP

<Text Omitted>

#### – *VarSuccessHO-Report*

The UE variable *VarSuccessHO-Report* includes the successful handover information.

*VarSccessHO-Report* variable

-- ASN1START

-- TAG-VARSUCCESSHO-Report-START

VarSuccessHO-Report-r17-IEs ::= SEQUENCE {

successHO-Report-r17 SuccessHO-Report-r17,

identityList-r18 ::= CHOICE {

plmn-IdentityList-r18 PLMN-IdentityList2-r16,

snpn-IdentityList-r18 SEQUENCE (SIZE (1..maxNPN-r16)) OF SNPN-Identity-r18

}

}

-- TAG-VARSUCCESSHO-Report-STOP

-- ASN1STOP

#### – *VarSuccessPSCell-Report*

The UE variable *VarSuccessPSCell-Report* includes the successful PSCell change or addition information.

*VarSuccessPSCell-Report* variable

-- ASN1START

-- TAG-VARSUCCESSPSCELL-Report-START

VarSuccessPSCell-Report-r18-IEs ::= SEQUENCE {

successPSCell-Report-r18 SuccessPSCell-Report-r18,

identityList-r18 ::= CHOICE {

plmn-IdentityList-r18 PLMN-IdentityList2-r16,

snpn-IdentityList-r18 SEQUENCE (SIZE (1..maxNPN-r16)) OF SNPN-Identity-r18

}

}

-- TAG-VARSUCCESSPSCELL-Report-STOP

-- ASN1STOP

END OF CHANGE

# Agreements

In the following are listed the RAN2 agreements. Following colors are used for the agreements that were implemented in the current version of the running CR:

* Implemented agreements associated to SPR
* Implemented agreements associated to voiceFallback
* Implemented agreements associated to Inter-RAT SHR
* Implemented agreements for MRO for DC (SCGFailureInformation and MCGFailureInformation and RLF)
* Implemented agreements for NR-U
* Implemented agreements for NPN

## RAN2#119-e

### 1.1 Data collection for MRO for MR DC SCG failure and Inter-system handover for voice fallback.

Agreements:

1 RAN2 to include an indication regarding voice fallback in the RLF report.

FFS: implicit or explicit flag and other details.

2 RAN2 discuss the following scenarios:

Suitable EUTRA cell found after MobilityFromNR failure

No suitable EUTRA cell found after MobilityFromNR failure

Agreement:

For CPAC failure relevant MRO, RAN2 prioritize the discussion on NR-DC, while other scenarios can be further discussed if time permits.

### 1.2 Miscellaneous SON MDT enhancements

Agreements

MR-DC CPAC

1 For MR-DC CPAC, NR-NR DC scenario is prioritized, and other MR-DC scenarios can be discussed later.

NPN

1 The support of SON/MDT enhancement in both SNPN and PNI-NPN scenarios are considered.

2 RAN2 to use R16 NPN functionality as baseline for R18 SONMDT.

RACH report

1 RAN2 to discuss RACH partitioning for RACH report enhancements.

2 RAN2 is asked to discuss the support of (NG)EN-DC and NE-DC scenarios for SN RACH report. Only focus on the leftover issues for completing the whole work which partly done in R17 in RAN3. Draft LS to RAN3 ask for clarification. (Ericsson)

Agreement:

1 RAN2 to prioritize (at least in the beginning of the discussion) the following scenarios for potential enhancement on existing SON signaling reports, e.g. the RA-Report/RA-Information, the RLF-Report (for RLF and HOF), the SHR.

### 1.3 Other

Agreement:

1 RAN2 confirms the valid scenario for Rel-18 inter-RAT scenario for signalling based logged MDT override protection is set by the WID:

a. Logged MDT is configured in E-UTRAN, the UE reselects to NR.

2 Rel-17 mechanism for signalling based logged MDT override protection in intra-NR scenario is the baseline for Rel-18 inter-RAT scenario.

## 2. RAN2#119-bis

### 2.1 MRO for inter-system handover for voice fallback

Agreements:

1 An explicit indication is included in RLF-report when mobility from NR fails and the corresponding MobilityFromNRCommand includes voiceFallbackIndication

2 The below content is included in RLF-report when reestablishment procedure is initiated due to mobility From NR failure.

a. reestablishmentCellID

### 2.2 MDT override

=> RAN2 will investigate UE and NW impacts due to EUTRA MDT configuration override protection in inter-RAT scenario realized by simultaneous LTE and NR configuration in the UE.

=> FFS if the extension of the LTE LoggedMeasurementConfiguration (with Logged MDT type indication) is needed.

=> FFS Cross-RAT reporting for Logged MDT results (i.e. UE reports E-UTRAN logged MDT results in NR) is whether supported in R18.

=> Intra-EUTRA case will not be considered.

### 2.3 SHR and SPCR

Agreements

1 RAN2 confirms the scenarios for SPR for NR-DC, including:

• SN- and MN-initiated classic PSCell change / CPC

• Intra-SN classic PSCell change / CPC

• Classic Addition / CPA

1a RAN2 will discuss HO with SN change later, after the basic solution for SPR is known

2 Given that PSCell addition is proposed by all companies, SPR is used as the abbreviations to use for the feature.

3 RAN2 confirm to prioritize NR-DC scenario for SPR.

4 SHR solution is taken as baseline for the SPR in terms of configuration and reporting at high level. Details of the configuration and report need to be tailored/customized/new message per use case.

5 Network configures SPR configuration IE for the UE, with at least the following triggering conditions:

• T310 triggering condition

• T312 triggering condition

• T304 triggering condition

5a: Other triggering conditions are FFS

5b: Values of the triggering conditions are FFS

5c: Which node configures the triggering condition is FFS.

6 RAN2 agree to the following:

A. SPR configuration is configured by network through otherConfig

B. SPR is fetched via UE Information Request/Response procedure

7 UE logs at least the following information and measurements in the SPR IE (other information and measurements are FFS).

a) Source PSCell info (cell ID, measurement result)

b) Target PScell info (cell ID, measurement result)

c) Neighbour Cells info (cell ID, measurement result, CPAC Candidate cells flag)

d) Success PSCell change/addition cause value (e.g., t304, t310, t312 cause, etc.)

f) The time elapsed between the CPAC execution towards the target cell and the corresponding latest CPAC configuration received for the selected target cell

7a: FFS on whether to reuse CHO candidate cell flag for the CPAC candidate cells or define a new flag to indicate CPAC candidate cell.

7b: FFS on whether to include or on conditional inclusion of random access related information.

7c: FFS on Location Information

### 2.4 SON for NR-U

Agreements:

1 The UE will log information of multiple RA procedures related to consistent LBT failures. FFS details.

Agreements:

1 Introduce a new raPurpose in the RA-Report to indicate that the RA was initiated following a “consistent LBT failures” in the SpCell.

2 RAN2 agree to log kind of “the number of LBT failures” in the RA report.

LBT failure is the failure to access the channel before transmission.

The definition of “the number of LBT failures” should be clarified.

FFS how to log the number of LBT failures in the RA report.

=> FFS: how to fulfil RAN3 request in logging RSSI.

### 2.5 RACH enhancement

Agreements:

For RACH report about RACH partitioning information

1 Agree to add the following parameters into RACH report for RACH partitioning:

- Feature or the combination of features that triggered the RACH

- Used feature combination

### 2.6 SON/MDT enhancements for Non-Public Networks

Agreements:

1 SNPN ID (e.g.,NID ID) checking is needed before sending the availability indication for corresponding SON and MDT report. The details can be discussed case by case. FFS PNI-NPN ID checking.

2 Include the NPN ID into SON/MDT report, whether SNPN ID or PNI-NPN ID related info should be included can be discussed per use case.

3 RAN2 prioritizes the use cases of RLF report and logged MDT enhancement for NPN.

## 3. RAN2#120

### 3.1 SHR and SPCR

Agreements:

1 For Q5 in R2-2211160, RAN2 confirms the support for the parameters for inter-RAT SHR from NR to LTE when T310 and T312 are configured as triggering condition.

2 T304 trigger for inter-RAT SHR from NR to LTE is not supported.

3 Only MN can retrieve the SPR from the UE.

4 For Q8, RAN2 agree following options: depends on which of nodes initiates SPR, i.e.:

For the MN-initiated PSCell Change/Addition, MN sends the SPR config to the UE

For the SN-initiated PSCell Change, the source-SN sends the Successful PSCell Change configuration within the container through MN.

T304 trigger needs to be configured by the target SN node.

Agreements:

1 UE stores both SPCR and SHR configuration (one for each type at most) if received from NW.

2 UE can send the (stored) SPR to gNB. FFS how long UE keeping SPR is FFS.

3 Only the latest successful PSCell change/addition is reported by the UE.

4 Random access related information is included in SPR at least when the SPR is triggered due to T304 exceeds the configured threshold. Other conditions are FFS.

5 UE records/reports PCell SHR and PSCell SPR separately

### 3.2 RACH enhancement

Agreements:

1 For RACH report for RACH partitioning, RAN2 to agree to include NSAG ID when the applicable feature is slicing.

2 RACH report enhancements required for NE-DC are de-prioritized.

3 For EN-DC and NG-EN-DC, the UE collects SN RA report container (for NR) and reports to the LTE MN. FFS on whether and which PSCell identity UE should report outside the RACH report.

4 UE includes RA and SDT information in RA report when an SDT operation fails.

FFS: Include Msg3 repetition number configured and applied for the RA procedure.

FFS: For RACH report for RACH partitioning, RAN2 to discuss whether to include NAS provided NSAG priority (or ifnormation) when the applicable feature is slicing.

### 3.3 SON/MDT enhancements for Non-Public Networks

Agreements:

1 PNI-NPN (CAG) ID checking is NOT performed before sending the RLF/HOF report availability indication related to a PNI-NPN network.

2 PNI-NPN (CAG) ID checking is NOT performed before sending the logged MDT availability indication related to a PNI-NPN network.

3 Details of the checking of NPN IDs (e.g., Proposal 1 of R2-2211354) are FFS.

4 Introduce SPNP ID (e.g., NID) to RLF/HOF report. Details of how to introduce it are FFS.

Postponed:

Proposal 3.1: Introduce SPNP ID (e.g., NID) into logged MDT configuration. Details of logged MDT configurations for SNPNs are FFS.

Proposal 3.2: Introduce CAG ID into logged MDT configuration. Details of logged MDT configurations with CAG IDs are FFS.

FFS:Introduce SPNP ID to logged MDT report.

FFS: Introduce PNI-NPN ID to RLF/HOF report. Details of how to introduce it are FFS .

FFS: Introduce PNI-NPN ID (e.g., CAG ID) to logged MDT report. Details of how to introduce it are FFS.

FFS: Discuss whether to introduce of new NPN specific variables for PNI-NPNs.

FFS: Discuss whether to introduce of new NPN specific variables for SNPNs.

### 3.4 Other

Agreements

1 For fast MCG recovery MRO, prioritize NR-DC scenario. if time allows, study whether the same solution can be extended for others DC scenarios.

2 Consider at least below scenarios for fast MCG recovery MRO:

a. T316 expiry

b. SCG failure/deactivation during fast MCG recovery (i.e., running of T316). The “upon fast MCG recovery case” is FFS.

3 RLF report is enhanced to support fast MCG recovery MRO.

4 Fast MCG recovery failure cause shall be included for fast MCG recovery optimization. FFS details

Agreements:

1 RAN2 confirms the CPA/CPC scenarios agreed by RAN3 and discuss corresponding UE impacts.

2 SCGFailureInformation is enhanced to support CPAC MRO (i.e, no need to introduce new reports/message).

FFS: For CPAC MRO, information to differentiate CAPC from conventional SCG failure is needed (ffs by implicit or explicit indication).

## 4. RAN2#121

### 4.1 MDT override

Agreements:

Solution 1: Override protection for logged MDT by simultaneous LTE and NR configuration for logged MDT.

Solution 2: Override protection by cross-RAT signaling but no cross-RAT reporting of LTE logged MDT report from NR to LTE.

Solution 3: Both solution 1 and 2 are supported for different UE implementation.

=> Solution 2 is chosen for further specification work.

Agreements For solution 2:

1 Extend the LTE LoggedMeasurementConfiguration to include Logged MDT type indication information

2 NR signaling is needed to inform the gNB that signaling based MDT is configured by E-UTRA.

3 Try to reuse R17 NR signaling by the UE to inform gNB whether signaling based MDT is configured even when it is configured by E-UTRA.

=> FFS in RAN3 the details and the Need of differentiating the RAT type. Further discuss whether priority handling for signalling logged MDT configuration between different RAT types is needed or not.

### 4.2 SHR and SPCR

Inter-RAT SHR:

Agreement:

1: For Q1 in the LS R2-2211160, RAN2 agrees to reduce/avoid the impact on LTE specification to support inter-RAT SHR.

2: For handover from NR to LTE,UE generates the NR SHR when SHR for inter-RAT mobility is triggered due to T310 or T312 trigger threshold is fulfilled.

3: For HO from NR to LTE, UE records the SHR for inter-RAT mobility in the VarSuccessHO-Report.

4: For inter-RAT SHR, below parameters is stored, reuse the existing IEs defined in Rel-17 for intra-NR SHR:

a. Source NR cell information

c. Measurement results for source, target and neighbours

d. Cause to indicate which inter-RAT SHR triggering condition was met

e. UE location Information

5: A new EUTRA target cell CGI is introduced in inter-RAT SHR.

6: For HO from NR to LTE, the T310 and T312 threshold is provided to the UE by source gNB in the otherConfig.

7: For handover from NR to LTE, cross-RAT reporting is not supported, i.e., UE reports the SHR report to the network when it comes back to NR.

8: RAN2 further discuss if below content is needed for inter-RAT SHR when HO from NR to LTE:

a. C-RNTI (FFS target or source)

c. FFS: Time between report generating and fetching

Agreement

1: UE includes available location information in SPR .

2: UE stores SPR at most 48 hours after the last successful PSCell addition/PSCell change report is stored at UE if not fetched.

3: At least the following options are needed for releasing SPR report:

a. New SPR is initiated

b. Upon retrieval of SPR

c. Detach is initiated.

4: In SPR, reuse CHO candidate cell flag to indicate whether a neighbor cell is CPAC candidate cell or not.

### 4.3 SON for NR-U

Agreements:

1: Log the last successful RA procedure related information in the RA report. Only some information to be logged for multiple successive RA procedures failed due to LBT issue. FFS what information.

### 4.4 RACH enhancement

Agreements:

1: To have “a list of SN RA report entries as a single NR container (i.e. NR RA-ReportList)”.

### 4.5 Others (SCGFailureInfo and Fast MCG Recovery)

From RAN3 LS (R3-230908)

In the scope of MRO for CPC and CPA, RAN3 has agreed that if there are multiple events configured for CPA/CPC, it is beneficial if the UE reports:

* the type of the first triggered CPAC event, and
* the time duration between the two triggered CPAC events.

In the scope of MRO for the fast MCG recovery, RAN3 has agreed that it is beneficial if the UE reports at least:

* PSCell where SCG failure happened, and
* the cause of the fast MCG recovery failure containing at least:
  + T316 expiry,
  + SCG failure, and
  + SCG was deactivated or other cases where SCG is not available
* SCG failure type (at least t310-Expiry, randomAccessProblem, rlc-MaxNumRetx) if the cause of the fast MCG recovery is SCG failure

## 5 RAN2#121-bis

### 5.1 MRO voice fallback

**Agreements:**

1 RAN2 to support the scenario of “after RLF occurs shortly after successful HO from NR to E-UTRAN for voice fallback, a suitable E-UTRA cell is selected, and the UE tries RRC connection setup procedure for the voice service in the E-UTRA cell, which is agreed in RAN3”.

2 FFS: Introduce an indication for the scenario of RLF after successful voice fallback HO in the LTE RLF report regarding voice fallback.

3 UE logs the agreed indication regarding voice fallback in the NR RLF report.

4 FFS: RAN2 agree to differentiate an acceptable E-UTRA cell from a suitable E-UTRA cell in the RLF report in case of voiceFallback HOF. FFS explicit or implicit indications.

### 5.2 RACH

=> 1 FFS: Include the actual number of msg3 repetitions in RA report.

2 FFS: Include NSAG priority in RA report.

3b FFS: UE reports NSAG IDs which are associated with the S-NSSAI(s) that triggered the random access attempt or NSAG IDs which associated with the S-NSSAI(s) triggering the access attempt and that are included in SIB1.

3c FFS: Include S-NSSAI(s) in RA report.

## 6 RAN2#122

### 6.1 MRO voice fallback

**Agreements**:

1 Introduce a new indication in the LTE RLF report for the case an RLF occurs shortly after successful HO from NR to E-UTRAN for voice fallback.

2 UE to log the time until reconnection during RRC connection establishment to the acceptable cell and reconnection cell ID in is absent, which will reuse the legacy field.

### 6.2 RACH

Agreements:

RACH Partitioning

1 RAN2 confirms agreed “used feature combination” is all the features configured in the FeatureCombination applied for the RACH procedure.

2 Feature specific RACH information is included in RA-InformationCommon and is also included for RLF report and CEF report.

Msg3 repetition

3 Not include the number of Msg3 repetition applied in RACH procedure in RA report.

SN RACH Report

4 When reporting SN NR RA-report to LTE BS, the unique PSCell identities (i.e. if a PSCell occurs more than once in NR RA-ReportList, it is recorded only once in the list of PSCell identities) are included outside the NR RA report container.

5 Revert the agreement that UE does not support reporting NR RA report to LTE when it is in standalone LTE mode i.e., eNB may fetch the NR RA report irrespective to whether the UE is in single connectivity or dual connectivity.

6 No need to introduce availability bit to notify LTE BS there are available NR RA report for fetching.

7 Enhance the LTE UE information Request procedure with NR RA-Report request flag to fetch the NR RA-Report in LTE.

8 For NR RACH report, UE performs RPLMN checking before sending the NR RACH report to LTE BS.

9 A new UE capability is introduced to indicate whether UE supports NR RACH Report in LTE.

### 6.3 SHR and SPR

=> intra-NR SHR and Inter-RAT SHR from LTE to NR will be deprioritized in RAN2 for R18.

=> SPR except the critical issues will not be further enhanced from this meeting until the end of R18.

=> Send LS RAN3 the above conclusion is acceptable for RAN3 (Huawei# 579).

Agreements:

SPR

1 For values of triggering conditions of SPR, Percentage based threshold variables for SHR (T310/T312/T304) can be reused for SPR is applied.

### 6.4 Other (SCGFailureInfo and Fast MCG Recovery)

Agreements:

1 RAN2 confirms scenario of near failure fast MCG recovery.

2 RAN2 confirms scenario f1, i.e., SCG fails or is deactivated before the UE sends the MCGFailureInformation. FFS RAN2 impact.

### 6.5 SON for NR-U

Agreements:

1 Only the preamble transmission attempts for which LBT was successful are represented in the “per RA attempt info list” for a given beam.

2 On how to represent the preamble transmission attempts blocked by LBT,

Introduce a field (or reusing the existing field) that counts the number of preamble transmissions blocked by LBT per RA procedure, and a flag indicating transmission failures experienced right before beam switching. Details can FFS.

3 For the RA-Report, the enhancements on the handling of the “per RA attempt info list” (i.e. as per Proposal 1) apply only to the last RA procedure in the last BWP prior to the random access success.

4 For the other BWPs in which the UE experienced the consistent LBT failure, the UE logs in the RA-InformationCommon:

a. The locationAndBandwidth information of the BWP

b. The subcarrierSpacing information of the BWP

c. The absoluteFrequencyPointA information of the BWP ( How to log once for all the BWPs of the cell is FFS)

5 As baseline, RAN2 assumes the following:

a. Enhancements discussed for the RA-InformationCommon for the RA-Report are applicable also to the RLF-Report

b. The detailed “per RA attempt info” are only reported in the RLF-Report for the last RA procedure before RLF/HOF, FFS whereas limited information are reported for the other BWPs in which consistent LBT failure is detected

c. The above bullets may be revisited case by case depending on future agreements.

6 The UE logs RA-InformationCommon including LBT info in the RLF-Report, in case of HOF and when the RLF cause is randomAccessProblem or beamFailureRecoveryFailure (as in legacy).

7 The UE logs the available RSSI measurement in the RLF-Report. FFS in which case.

8 The UE should log the following RSSI values in the RLF-Report:

a. For RLF, the latest measured RSSI of the NR-U channel of the last serving cell if measRSSI-ReportConfig is configured for the corresponding frequency.

b. FFS: For HOF, the latest measured RSSI of the NR-U channel of the source cell, and the latest measured RSSI of the NR-U channel of the target cell, if measRSSI-ReportConfig is configured for the corresponding frequency.

## 7 RAN2#123

### 7.1 MDT override

=> EUTRA signalling based logged MDT report to NR is not supported.

=> No need to introduce assisting information to identify the RAT type of the signalling based MDT configuration/reports stored, when UE report availability of signalling based MDT reports/configuration to NR base station.

### 7.2 SHR and SPCR

Agreements:

1 UE clears SPR configurations if one of the following conditions is met:

- Initiate RRC connection re-establishment

- Initiate RRC connection resume

- Reception of SCG Release

2 Clearing of the SPR configurations for the following scenarios. FFS which configuration (e.g., MCG or SCG based on configuration) will be cleared.

- Successful PSCellAddition or PSCellChange

- SCG failure

- Reconfiguration with synch on PCell

### 7.3 RACH

Agreements:

1 At least the NSAG ID that is assigned to the S-NSSAI triggering the RA attempt and belongs to the NSAG ID of the feature combination used to select the RA configuration should be reported.

2 Addition of an indication in RA report whether RA-SDT procedure is successful or not. Details of the indication and whether it is a single flag or further differentiation of the failure scenarios are needed are FFS.

### 7.4 NPN

Agreements:

1 Include SNPN ID (list) in the logged MDT area configuration following RAN3 agreement to align with the future NPN evolution.

2 No new UE variables will be introduced for PNI-NPNs.

3 UE performs SNPN ID checking before transmitting the information for corresponding SON and MDT reports, upon the network requests for it.

4 Assuming ESNPN is supported, include a list of SNPN IDs in the logged MDT report.

### 7.5 NR-U

Agreements:

1 Introduce a new field that counts the number of preamble transmissions blocked by LBT for the last BWP selected for the RA procedure. FFS how to solve the issue of no preamble transmission attempts transmitted in a selected beam due to LBT blockage.

2 All the BWPs (including the first one) in which the UE experienced the consistent UL LBT failure, prior to the successful completion of the RA, are included in the RA-Report.

3 UE log the RA-InformationCommon in the RLF-Report when the RLF cause is lbtFailure and the UE was performing random access at the moment of RLF.

4 The UE logs the following information in the SHR:

a. The ra-InformationCommon including the new Rel.18 information (i.e. the number of UL LBT failures during HO, the info on the multiple BWPs in which consistent UL LBT failures was triggered), if T304 triggering conditions is fulfilled.

b. FFS: The RSSI measurements of the frequencies associated to the source/target/neighbouring cells, if the measRSSI-ReportConfig is configured for those frequencies.

5 BWPs information included in the RA-Report can be included, within the list of attempted BWP(s), in chronological order of BWP selection.

### 7.6 Others (SCGFailureInfo and Fast MCG Recovery)

Agreements:

1 UE reports the elapsed T316 between the transmission of MCGFailureInformation and receiving RRC reconfiguration or RRC release message.

2 No T316 related triggering threshold is introduced.

3 Reuse existing RLF report to capture fast MCG recovery related information.

Agreements:

1 RAN2 confirms the “SCG deactivation during fast MCG recovery” is not a valid scenario, therefore would not be considered in fast MCG MRO.

2 UE logs the new information for fast MCG link recovery optimziation, only when AS security has been activated.

3 For CPAC MRO, UE logs the below information in SCGFailureInformation:

the type of the first triggered CPAC event if multiple events are configured

the time duration between the two triggered CPAC events if multiple events are configured

4 For CPAC MRO, RAN2 discuss which of below measurement information is included in SCGFailureInformation (should further check whether something is already existed):

Latest radio measurements of neighbour cell(s) if available, reusing existing fields.

Source PSCell info (cell ID, measurement result) if available, reusing existing fields.

Target PScell info (cell ID, measurement result) if available, reusing existing fields.

## 7 RAN2#123bis

### 7.1 SHR and SPCR

Agreements:

1 The target C-RNTI is included in inter-RAT SHR to enable the correlation of the SHR and RLF report.

2 UE should be allowed to store two SPR configurations configured by MN and SN respectively. UE only monitors the SPR configuration configured by the node that initiated the PSCell change.

3 The NW indicates that a PSCell change is MN-initiated or SN-initiated if UE support SPR, and UE includes this information in the SPR.

4 Mechanism (other than indicating it in RRCReconfigurationComplete message) to indicate SPR availability to the network is needed for SRB1.

For the following scenarios which SP configuration(s) the UE should clear:

1 At successful PSCellAddition, only T304 threshold configured by target SN is released.

2 At successful PSCellChange, the UE clears the SPR configuration provided by source SN.

3 At SCG failure, the UE clears the SPR configuration provided by SN upon SCGFailureInformation SPR configuration provided by SN.

4 At Reconfiguration with synch on PCell, the UE clears the SPR configuration provided by MN

### 7.2 RACH

Agreements:

1 Include the slice IDs (S-NSSAIs) that triggered the RA procedure in the RA report.

2 Include a single flag indicating whether the SDT was failed or not.

### 7.3 NPN

=> Consider MHI, CEF and RA report enhancements for NPN networks in Rel-18. Similar conclusions should be reached rapidly and repetitive discussions should be avoided.

=> RAN2 to send the decision to RAN3 in the reply LS (CATT)

=> Consider to introduce enhancements for OOC analysis involving NPN network.

Agreement:

1 Not introducing any enhancements to address the loss issue of logged MDT report when UE switches between SNPN and PN due to limited time.

### 7.4 NR-U

Agreements:

1 Introduce a field to indicate that all preambles transmitted in a selected beam were blocked by LBT. FFS how to set the numberOfPreamblesSentOnSSB-r16/numberOfPreamblesSentOnCSI-RS-r16 and the perRAAttemptInfoList.

2 If all preambles transmitted in a selected beam were blocked by LBT, the already agreed “lbtDetected” flag is not included in the perRAInfo.

3 All the BWPs (same as for the RA-Report) in which the UE experienced the consistent UL LBT failure, prior the RLF/HOF, are included in the RLF-Report.

4 For the HOF, the RSSI measurement results of the serving and neighbouring frequencies should be included in the RLF-Report, if the measRSSI-ReportConfig is configured for those frequencies and if available.

5 For the RLF, the RSSI measurement results of the neighbouring frequencies should be included in the RLF-Report, if the measRSSI-ReportConfig is configured for those frequencies and if available.

6 The RSSI measurements of the serving/neighboring frequencies should be included in the SHR, if the measRSSI-ReportConfig is configured for those frequencies and if available.

### 7.5 Others (SCGFailureInfo and Fast MCG Recovery)

1 UE includes following time information in RLF report for fast MCG link recovery optimization: Time between MCG failure (or transmitting MCGFailureInformation, only for case a) and SCG failure for case a and f1.

2 Upon MCG recovery failure due to SCG failure all possible SCG failure types (that in legacy may be included in the SCGFailureInformation) can be logged for MCG recovery failure cause in the RLF report. Details can be further discussed through running CR.

## 7 RAN2#124

### 7.1 SHR and SPCR

Agreements:

In case the T310/T312 SPR triggering configuration is provided to the UE before the SN-initiated PSCell change, the existing RRCReconfiguration from SN to UE (in SRB1/SRB3) can be used.

If RAN2 agrees to support the case the T310/T312 SPR triggering configuration is provided to the UE at the time of the SN-initiated PSCell change, a new IE in the CG-Config is needed (FFS if there is a new UE behavior).

Agreements

RAN2 does not support differentiating of the emergency calls from normal voice call in the RLF report in this release

Include the time between HO execution and report retrieval in SHR

For the location information in the SPR the UE logs what is configured by the network (MN or SN) and as per the network node initiating the change

For measurement objects (configured by the PCell or by PSCell) report measurements associated with the configuration from the node that triggered the change

UE logs PCI and ARFCN of the target PSCell if the CGI of the corresponding cell is not available

In addition to SRB1 (to MN), support SPR availability indication over SRB3 (RRCReconfigurationComplete), no other mechanisms are supported in this release

UE can report this PSCell identity also in the successful Fast MCG Recovery case, IE renaming can be discussed in CR implementation.

### 7.2 RACH

### 7.3 NPN

Agreements

Include NPN related area scopes with a non critical extension, i.e. AreaConfiguration-v18xy

Before signalling availability and before reporting (as in legacy) UE shall check SNPN ID for MHI, CEF, RA reports, SHR, SPR (all SON reports)

NID is not included in SON reports

When moving from NPN to PLMN (or vice versa) UE discards all stored MHI, RA report, and CEF

### 7.4 NR-U

Agreements

UE report all available NR RACH report based on request from LTE BS

For the case the UE indicates in a flag all preamble transmissions were blocked by LBT it is left to UE implementation how to set the numberOfPreamblesSentOnSSB-r16 ,numberOfPreamblesSentOnCSI-RS-r16 and the perRAAttemptInfoList and the network ignores the information transferred in these IEs

### 7.5 Others (SCGFailureInfo and Fast MCG Recovery)