**3GPP TSG-RAN WG2 Meeting #124 *R2-23xxxxx***

**Chicago, USA, 13 – 17 November 2023**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **36.331** | **CR** | **4973** | **rev** | **1** | **Current version:** | **17.6.0** |  |
|  |
| *For* ***[HE](http://www.3gpp.org/3G_Specs/CRs.htm%22%20%5Cl%20%22_blank)******[LP](http://www.3gpp.org/3G_Specs/CRs.htm%22%20%5Cl%20%22_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 36331 for introducing SON/MDT features in Rel-18 |
|  |  |
| ***Source to WG:*** | Huawei, Ericsson, ZTE |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | NR\_ENDC\_SON\_MDT\_enh2-Core |  | ***Date:*** | 2023-11-21 |
|  |  |  |  |  |
| ***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 canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | Some R18 SONMDT features have impacts to TS 36.331. |
|  |  |
| ***Summary of change:*** | Introduction of the following R18 SONMDT features:* Logged MDT enhancements
* SN RACH report
* MRO for inter-RAT HO for voice fallback
* MRO for Inter-RAT SHR
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| ***Consequences if not approved:*** | R18 SONMDT features are not supported in Rel-18. |
|  |  |
| ***Clauses affected:*** | 5.3.3.4, 5.3.11.3, 5.6.5.3, 5.6.6.3, 6.2.2, 6.4, 7.1 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 38.331 CR4452 |
| ***affected:*** |  | **X** |  Test specifications |  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications |  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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

NOTE 1: Prior to this, lower layer signalling is used to allocate a C-RNTI. For further details see TS 36.321 [6];

The UE shall:

1> except when the UE connected to 5GC is a BL UE or UE in CE, if the *RRCConnectionSetup* is received in response to an *RRCConnectionResumeRequest* from a suspended RRC connection:

2> if the UE is resuming an RRC connection after early security reactivation in accordance with conditions in 5.3.3.18:

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

2> release all radio resources, including release of the RLC entity, the MAC configuration and the associated PDCP entity for all established or suspended RBs, except for SRB0;

2> discard the stored UE AS context and *resumeIdentity*;

2> if stored, discard the stored *nextHopChainingCount*;

2> if stored, discard the stored *drb-ContinueROHC*;

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

1> if the *RRCConnectionSetup* is received in response to an *RRCConnectionResumeRequest* from RRC\_INACTIVE:

2> stop T380 if running;

2> discard the stored UE Inactive AS context;

2> release *rrc-InactiveConfig*, if configured;

1> if the UE connected to 5GC is a BL UE or UE in CE, and the *RRCConnectionSetup* is received in response to an *RRCConnectionResumeRequest* from a suspended RRC connection:

2> discard the stored UE AS context and *resumeIdentity*;

2> if stored, discard the stored *nextHopChainingCount*;

2> if stored, discard the stored *drb-ContinueROHC*;

1> if the *RRCConnectionSetup* is received in response to an *RRCConnectionResumeRequest* from RRC\_INACTIVE; or

1> if the UE connected to 5GC is a BL UE or UE in CE, and the *RRCConnectionSetup* is received in response to an *RRCConnectionResumeRequest* from a suspended RRC connection:

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, including release of the RLC entities, of the associated PDCP entities and of SDAP entities;

2> release the RRC configuration except for the default L1 parameter values, default MAC main configuration and CCCH;

2> apply the default NR PDCP configuration as specified in TS 38.331 [82], clause 9.2.1.1 for SRB1;

2> use NR PDCP for all subsequent messages received and sent by the UE via SRB1;

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

1> if the *RRCConnectionSetup* is received in response to an *RRCEarlyDataRequest* or *RRCConnectionResumeRequest* for transmission using PUR:

2> instruct the associated MAC entity to start *timeAlignmentTimer*;

1> perform the radio resource configuration procedure in accordance with the received *radioResourceConfigDedicated* and as specified in 5.3.10.0;

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

1> if stored, discard the *altFreqPriorities* provided by the *RRCConnectionRelease*;

1> if stored, discard the dedicated offset provided by the *redirectedCarrierOffsetDedicated*;

1> stop timer T300;

1> if T302 is running:

2> stop timer T302;

2> if the UE is connected to 5GC:

3> perform the actions as specified in 5.3.16.4;

1> stop timer T303, if running;

1> stop timer T305, if running;

1> stop timer T306, if running;

1> stop timer T308, if running;

1> perform the actions as specified in 5.3.3.7;

1> stop timer T320, if running;

1> stop timer T350, if running;

1> perform the actions as specified in 5.6.12.4;

1> release *rclwi-Configuration*, if configured, as specified in 5.6.16.2;

1> stop timer T360, if running;

1> stop timer T322, if running;

1> if timer T331 is running:

2> stop timer T331;

2> perform the actions as specified in 5.6.20.3;

1> stop timer T323, if running;

1> forward the *dedicatedInfoNAS,* if received, to the upper layers;

1> if T309 is running:

2> stop timer T309 for all access categories;

2> perform the actions as specified in 5.3.16.4.

1> enter RRC\_CONNECTED;

1> stop the cell re-selection procedure;

1> consider the current cell to be the PCell;

1> except for NB-IoT:

2> if the UE supports RLF report for inter-RAT MRO EUTRA as defined in TS 38.306 [87], and if the UE has radio link failure or handover failure information available in *VarRLF-Report* of TS 38.331 [82] and if the RPLMN is included in *plmn-IdentityList* stored in *VarRLF-Report* of TS 38.331 [82]:

3> if *reconnectCellId* in *VarRLF-Report* of TS 38.331 [82] is not set, and if the UE failed to perform reestablishment; or

3> if *reconnectCellId* in *VarRLF-Report* is not set, and if the UE selected the current PCell immediately after failure in performing *MobilityFromNRCommand*:

4> if the selected PCell is an acceptable cell as defined in TS 36.304 [4]:

5> set *timeUntilReconnection* in *VarRLF-Report* of TS 38.331 [82] to the time that elapsed since the *MobilityFromNRCommand* failure;

4> if the selected PCell is a suitable cell as defined in TS 36.304 [4]:

5> set *timeUntilReconnection* in *VarRLF-Report* of TS 38.331 [82] to the time that elapsed since the last radio link failure or handover failure;

5> set *eutraReconnectCellId* in *reconnectCellId* in *VarRLF-Report* of TS 38.331 [82] to the global cell identity and the tracking area code of the PCell;

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

3> if *reconnectCellId* in *VarRLF-Report* is not set, and if the UE failed to perform reestablishment:

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

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

1> set the content of *RRCConnectionSetup**Complete* message as follows:

2> if the *RRCConnectionSetup* is received in response to an *RRCConnectionResumeRequest*:

3> if upper layers provide an S-TMSI:

4> set the *s-TMSI* to the value received from upper layers;

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

4> if the UE is a NB-IoT UE:

5> set the *ng-5G-S-TMSI* to the value received from upper layers;

4> else:

5> set the *ng-5G-S-TMSI-Bits* to *ng-5G-S-TMSI* with the value received from upper layers;

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

3> except for NB-IoT, set the *ng-5G-S-TMSI-Bits* to *ng-5G-S-TMSI-Part2* to the leftmost 8 bits of 5G-S-TMSI received from upper layers;

2> set the *selectedPLMN-Identity* to the PLMN selected by upper layers (see TS 23.122 [11], TS 24.301 [35] for E-UTRA/EPC and TS 24.501 [95] for E-UTRA/5GC) from the PLMN(s) included in the *plmn-IdentityList* in *SystemInformationBlockType1* (or *SystemInformationBlockType1-NB* in NB-IoT);

2> if upper layers provide the 'Registered MME', include and set the *registeredMME* as follows:

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

4> include the *plmnIdentity* in the *registeredMME* and set it to the value of the PLMN identity in the 'Registered MME' received from upper layers;

3> set the *mmegi* andthe *mmec* to the value received from upper layers;

2> if upper layers provided the 'Registered MME':

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

2> if upper layers provide the 'Registered AMF', include and set the *registeredAMF* as follows:

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

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

3> set the *amf-Identifier* to AMF Identifier of the 'Registered AMF' received from upper layers;

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

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 [27]):

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

2> if the UE supports CIoT EPS optimisation(s):

3> include a*ttachWithoutPDN-Connectivity* if received from upper layers;

3> include *up-CIoT-EPS-Optimisation* if received from upper layers;

3> except for NB-IoT, include *cp-CIoT-EPS-Optimisation* if received from upper layers;

2> if the UE supports CIoT 5GS optimisation(s):

3> for NB-IoT, include *ng-U-DataTransfer* if received from upper layers;

3> except for NB-IoT, include *cp-CIoT-5GS-Optimisatoin* if received from upper layers;

2> if connecting as an RN:

3> include the *rn-SubframeConfigReq*;

2> if the *RRCConnectionSetup* is received in response to *RRCEarlyDataRequest*:

3> set the *dedicatedInfoNAS* to a zero-length octet string;

2> else:

3> set the *dedicatedInfoNAS* to include the information received from upper layers;

2> if the *RRCConnectionSetup* is not in response to transmission using PUR and the UE has a stored *pur-Config* including *pur-ConfigID*:

3> include the stored *pur-ConfigID*;

2> if the UE is connected to EPC:

3> except for NB-IoT:

4> include the *mobilityState* and set it to the mobility state (as specified in TS 36.304 [4]) of the UE just prior to entering RRC\_CONNECTED state;

4> if the UE has flight path information available:

5> include *flightPathInfoAvailable*;

3> for NB-IoT:

4> if the UE has radio link failure information available in *VarRLF-Report-NB* and if the RPLMN is included in *plmn-IdentityList* stored in *VarRLF-Report-NB*:

5> include *rlf-InfoAvailable*;

4> if the UE has ANR measurements information available in *VarANR-MeasReport-NB* and if the RPLMN is included in *plmn-IdentityList* stored in *VarANR-MeasReport-NB*:

5> include *anr-InfoAvailable*;

3> include *dcn-ID* if a DCN-ID value (see TS 23.401 [41]) is received from upper layers;

2> else (i.e. the UE is connected to 5GC):

3> if the UE is a BL UE:

4> include *lte-M*;

2> except for NB-IoT:

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*:

4> include *rlf-InfoAvailable*;

3> if the UE has MBSFN logged measurements available for E-UTRA and if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*:

4> include *logMeasAvailableMBSFN*;

3> if the UE has logged measurements available for E-UTRA and if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*:

4> include *logMeasAvailable*;

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

5> include *logMeasAvailableBT*;

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

5> include *logMeasAvailableWLAN*;

3> if the UE has connection establishment failure information available in *VarConnEstFailReport* and if the RPLMN is equal to *plmn-Identity* stored in *VarConnEstFailReport*:

4> include *connEstFailInfoAvailable*;

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

4> include the *mobilityHistoryAvail*;

3> if the SIB2 contains *idleModeMeasurements* and the UE has E-UTRA idle/inactive measurement information concerning cells other than the PCell available in *VarMeasIdleReport*; or

3> if the SIB2 contains *idleModeMeasurementsNR* and the UE has NR idle/inactive measurement information available in *VarMeasIdleReport*:

4> include the *idleMeasAvailable*;

3> if upper layers indicate that access to RLOS is initiated (see TS 23.401 [41] clause 4.3.8.3):

4> set *rlos-Request* to *true*;

2> if UE needs UL gaps during continuous uplink transmission:

3> include *ue-CE-NeedULGaps*;

2> for NB-IoT:

3> if the UE supports serving cell idle mode measurements reporting and *servingCellMeasInfo* is present in *SystemInformationBlockType2-NB*:

4> set the *measResultServCell* to include the measurements of the serving cell;

NOTE 2: The UE includes the latest results of the serving cell measurements as used for cell selection/ reselection evaluation, which are performed in accordance with the performance requirements as specified in TS 36.133 [16].

2> if connecting as an IAB-node:

3> include *iab-NodeIndication;*

2> if the UE is connected to NTN:

3> include *gnss-validityDuration* in accordance with the remaining time of the GNSS validity duration;

2> if UE supports uplink RRC Segmentation of *UECapabilityInformation*:

3> except for NB-IoT, may include *ul-RRC-Segmentation* if upper layers indicate that they are performing an Attach or TA Update;

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

1> for NB-IoT:

2> if the UE supports connected mode measurements and *connMeasConfig* is present in *SystemInformationBlockType3-NB*:

3> perform measurements as specified in 5.5.8.

1> the procedure ends.

*<Next modification>*

#### 5.3.11.3 Detection of radio link failure

The UE shall:

1> in case any DAPS bearer is configured, only the target PCell is considered in the following;

1> upon T310 expiry; or

1> upon T312 expiry; or

1> upon T318 expiry; or

1> upon random access problem indication from MCG MAC while neither T300, T301, T304 nor T311 is running; or

1> upon indication from MCG RLC, which is allowed to be send on PCell, that the maximum number of retransmissions has been reached for an SRB or DRB:

2> consider radio link failure to be detected for the MCG i.e. RLF;

2> discard any segments of segmented RRC messages received;

2> if the last *RRCConnectionReconfiguration* message including the *mobilityControlInfo* concerned a handover to E-UTRA from NR and if the UE supports successful handover report for Inter-RAT SHR NR and if the UE has successful handover related information available in *VarSuccessHO-Report* of TS 38.331 [82]:

3> set the *eutra-C-RNTI* in the *successHO-Report* in *VarSuccessHO-Report* of TS 38.331 [82] to the C-RNTI used in the PCell;

2> store the following radio link failure information in the *VarRLF-Report* (*VarRLF-Report-NB* in NB-IoT) by setting its fields as follows:

3> clear the information included in *VarRLF-Report* (*VarRLF-Report-NB* in NB-IoT), if any;

3> set the *plmn-IdentityList* to include the list of EPLMNs stored by the UE (i.e. includes the RPLMN);

3> set the *measResultLastServCell* to include the RSRP and RSRQ, if available, of the PCell based on measurements collected up to the moment the UE detected radio link failure;

3> except for NB-IoT, set the *measResultNeighCells* to include the best measured cells, other than the PCell, ordered such that the best cell is listed first, and based on measurements collected up to the moment the UE detected radio link failure, and set its fields as follows;

4> if the UE was configured to perform measurements for one or more EUTRA frequencies, include the *measResultListEUTRA*;

4> if the UE was configured to perform measurement reporting for one or more neighbouring UTRA frequencies, include the *measResultListUTRA*;

4> if the UE was configured to perform measurement reporting for one or more neighbouring GERAN frequencies, include the *measResultListGERAN*;

4> if the UE was configured to perform measurement reporting for one or more neighbouring CDMA2000 frequencies, include the *measResultsCDMA2000*;

4> if the UE was configured to perform measurement reporting, not related to NR sidelink communication, for one or more neighbouring NR frequencies, include the *measResultListNR*;

4> 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.

3> except for NB-IoT, if available, set the *logMeasResultListWLAN* to include the WLAN measurement results, in order of decreasing RSSI for WLAN APs;

3> except for NB-IoT, if available, set the *logMeasResultListBT* to include the Bluetooth measurement results, in order of decreasing RSSI for Bluetooth beacons;

3> if detailed location information is available, set the content of the *locationInfo* as follows:

4> include the *locationCoordinates*;

4> include the *horizontalVelocity*, if available;

3> set the *failedPCellId* to the global cell identity, if available, and otherwise , except for NB-IoT, to the physical cell identity and carrier frequency of the PCell where radio link failure is detected;

3> except for NB-IoT, set the *tac-FailedPCell* to the tracking area code, if available, of the PCell where radio link failure is detected;

3> except for NB-IoT, if an *RRCConnectionReconfiguration* message including the *mobilityControlInfo* was received before the connection failure:

4> if the last *RRCConnectionReconfiguration* message including the *mobilityControlInfo* concerned an intra E-UTRA handover:

5> include the *previousPCellId* and set it to the global cell identity of the PCell where the last *RRCConnectionReconfiguration* message including *mobilityControlInfo* was received;

5> set the *timeConnFailure* to the elapsed time since reception of the last *RRCConnectionReconfiguration* message including the *mobilityControlInfo*;

4> if the last *RRCConnectionReconfiguration* message including the *mobilityControlInfo* concerned a handover to E-UTRA from UTRA and if the UE supports Radio Link Failure Report for Inter-RAT MRO:

5> include the *previousUTRA-CellId* and set it to the physical cell identity, the carrier frequency and the global cell identity, if available, of the UTRA Cell in which the last *RRCConnectionReconfiguration* message including *mobilityControlInfo* was received;

5> set the *timeConnFailure* to the elapsed time since reception of the last *RRCConnectionReconfiguration* message including the *mobilityControlInfo*;

4> if the last *RRCConnectionReconfiguration* message including the *mobilityControlInfo* concerned a handover to E-UTRA from NR and if the UE supports Radio Link Failure Report for Inter-RAT MRO NR:

5> include the *previousNR-PCellId* and set it to the global cell identity of the PCell where the last *RRCConnectionReconfiguration* message including *mobilityControlInfo* was received embedded in NR RRC message *MobilityFromNRCommand* message as specified in TS 38.331 [82] clause 5.4.3.3;

5> set the *timeConnFailure* to the elapsed time since reception of the last *RRCConnectionReconfiguration* message including the *mobilityControlInfo* embedded in NR RRC message *MobilityFromNRCommand* message as specified in TS 38.331 [82] clause 5.4.3.3.

5> if *voiceFallbackIndication* is included in the *MobilityFromNRCommand*:

6> set *voiceFallbackHO* to *true*;

3> except for NB-IoT, if the UE supports QCI1 indication in Radio Link Failure Report and has a DRB for which QCI is 1:

4> include the *drb-EstablishedWithQCI-1*;

3> except for NB-IoT, set the *connectionFailureType* to *rlf*;

3> except for NB-IoT, set the *c-RNTI* to the C-RNTI used in the PCell;

3> except for NB-IoT, set the *rlf-Cause* to the trigger for detecting radio link failure;

2> if the UE is configured with (NG)EN-DC; and

2> if T316 is configured; and

2> if SCG transmission is not suspended; and

2> if the SCG is not deactivated; and

2> if neither NR PSCell change nor NR PSCell addition is ongoing (i.e. T304 for the NR PSCell is not running as specified in TS 38.331 [82], clause 5.3.5.5.2, in (NG)EN-DC):

3> initiate the MCG failure information procedure as specified in 5.6.26 to report MCG radio link failure;

2> else:

3> if AS security has not been activated:

4> if the UE is a NB-IoT UE:

5> if the UE is connected to EPC and the UE supports RRC connection re-establishment for the Control Plane CIoT EPS optimisation; or

5> if the UE is connected to 5GC, the UE supports RRC connection re-establishment for the Control Plane CIoT 5GS optimisation and the UE is configured with a truncated 5G-S-TMSI:

6> initiate the RRC connection re-establishment procedure as specified in 5.3.7;

5> else:

6> perform the actions upon leaving RRC\_CONNECTED as specified in 5.3.12, with release cause 'RRC connection failure';

4> else:

5> perform the actions upon leaving RRC\_CONNECTED as specified in 5.3.12, with release cause 'other';

3> else:

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

In case of DC or NE-DC, the UE shall:

1> upon T313 expiry; or

1> upon random access problem indication from SCG MAC; or

1> upon indication from SCG RLC, which is allowed to be sent on PSCell, that the maximum number of retransmissions has been reached for an SCG, for a split DRB or for a split SRB:

2> consider radio link failure to be detected for the SCG i.e. SCG-RLF;

2> if the UE is configured with DC; or

2> if the UE is configured with NE-DC and MCG transmission is not suspended:

3> initiate the SCG failure information procedure as specified in 5.6.13 to report SCG radio link failure;

2> else:

3> initiate the connection re-establishment procedure as specified in TS 38.331 [82], clause 5.3.7.

In case of CA PDCP duplication, the UE shall:

1> upon indication from an RLC entity, which is restricted to be sent on SCell only, that the maximum number of retransmissions has been reached:

2> initiate the failure information procedure as specified in 5.6.21 to report RLC failure of type duplication;

If any DAPS bearer is configured and T304 is running, the UE shall:

1> upon T310 expiry for the source PCell; or

1> upon random access problem indication from source MCG MAC; or

1> upon indication from source MCG RLC, which is allowed to be sent on source PCell, that the maximum number of retransmissions has been reached for an DRB:

2> consider radio link failure to be detected for the source MCG;

2> suspend the transmission of all DRBs in the source MCG;

2> reset MAC for the source MCG;

2> release the source connection;

The UE may discard the radio link failure information, i.e. release the UE variable *VarRLF-Report* (*VarRLF-Report-NB* in NB-IoT), 48 hours after the radio link failure is detected, upon power off or upon detach, and for NB-IoT, upon entering another RAT.

*<Next modification>*

#### 5.6.5.3 Reception of the *UEInformationRequest* message

Upon receiving the *UEInformationRequest* message, the UE shall, only after successful security activation:

1> if *rach-ReportReq* is set to *true*, set the contents of the *rach-Report* in the *UEInformationResponse* message as follows:

2> set the *numberOfPreamblesSent* to indicate the number of preambles sent by MAC for the last successfully completed random access procedure;

2> if contention resolution was not successful as specified in TS 36.321 [6] for at least one of the transmitted preambles for the last successfully completed random access procedure:

3> set the *contentionDetected* to *true*;

2> else:

3> set the *contentionDetected* to *false*;

2> if the UE is a BL UE or UE in CE:

3> set the *initialCEL* to indicate the initial CE level used for the last successfully completed random access procedure;

2> if the UE is a NB-IoT UE:

3> set the *initialNRSRP-Level* to indicate the NRSRP level of the NPRACH resource selected for the first preamble transmission for the last successfully completed random access procedure;

2> if the UE is a BL UE, UE in CE or NB-IoT UE:

3> if the last successfully completed random access procedure was initiated with EDT PRACH resource and succeeded after receiving EDT fallback indication from lower layers:

4> set the *edt-Fallback* to *true*;

3> else:

4> set the *edt-Fallback* to *false*;

1> if *rlf-ReportReq* is set to *true* and the UE has radio link failure information or handover failure information available in *VarRLF-Report* (*VarRLF-Report-NB* in NB-IoT) and if the RPLMN is included in *plmn-IdentityList* stored in *VarRLF-Report*:

2> for NB-IoT, if the global cell identity of the selected cell is the same as the *reestablishmentCellId* in the *VarRLF-Report-NB*:

3> remove the *reestablishmentCellId* from the *VarRLF-Report-NB*;

2> set *timeSinceFailure* in *VarRLF-Report* (*VarRLF-Report-NB* in NB-IoT) to the time that elapsed since the last radio link or handover failure in E-UTRA;

2> set the *rlf-Report* in the *UEInformationResponse* message to the value of *rlf-Report* in *VarRLF-Report* (*VarRLF-Report-NB* in NB-IoT);

2> discard the *rlf-Report* from *VarRLF-Report* (*VarRLF-Report-NB* in NB-IoT) upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> except for NB-IoT, if *connEstFailReportReq* is set to *true* and the UE has connection establishment failure information in *VarConnEstFailReport* and if the RPLMN is equal to *plmn-Identity* stored in *VarConnEstFailReport*:

2> set *timeSinceFailure* in *VarConnEstFailReport* to the time that elapsed since the last connection establishment failure in E-UTRA;

2> set the *connEstFailReport* in the *UEInformationResponse* message to the value of *connEstFailReport* in *VarConnEstFailReport*;

2> discard the *connEstFailReport* from *VarConnEstFailReport* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> except for NB-IoT, if the *logMeasReportReq* is present and if the RPLMN is included in *plmn-IdentityList* 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 *logMeasResultListBT* is included in 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 *logMeasResultListWLAN* is included in 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> except for NB-IoT, if *mobilityHistoryReportReq* is set to *true*:

2> include the *mobilityHistoryReport* and set it to include entries from *VarMobilityHistoryReport*;

2> include in the *mobilityHistoryReport* an entry for the current cell, 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 cell:

3> set field *timeSpent* to the time spent in the current cell;

1> except for NB-IoT, 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 *measResultListIdle-r15* in the *UEInformationResponse* message to the value of *measReportIdle-r15* in the *VarMeasIdleReport*;

2> set the *measResultListExtIdle* in the *UEInformationResponse* message to the value of *measReportIdle-r16* in the *VarMeasIdleReport*, if available;

2> set the *measResultListIdleNR* 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> except for NB-IoT, if *flightPathInfoReq* field is present and the UE has flight path information available:

2> include the *flightPathInfoReport* and set it to include the list of waypoints along the flight path;

2> if the *includeTimeStamp* is set to TRUE:

3> set the field *timeStamp* to the time when UE intends to arrive to each waypoint if this information is available at the UE;

1> for NB-IoT, if *anr-ReportReq* is set to *true* and the UE has *measResultList* available in *VarANR-MeasReport-NB*:

2> set the *anr-MeasReport* in the *UEInformationResponse* message as follows:

3> if the global cell identity of the PCell is different from *servCellIdentity* in the *VarANR-MeasReport-NB*;

4> include the *servCellIdentity* and set it to the value of *servCellIdentity* in the *VarANR-MeasReport-NB*;

3> set *measResultServCell* to the value of *measResultServCell* in the *VarANR-MeasReport-NB*;

3> set *relativeTimeStamp* to the value of *relativeTimeStamp* in the *VarANR-MeasReport-NB*;

3> set *measResultList* to the value of *measResultList* in the *VarANR-MeasReport-NB*;

2> discard the *VarANR-MeasReport-NB* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> except for NB-IoT, if the *coarseLocationReq* is set to true:

2> if available, include the *coarseLocationInfo;*

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;

1> if *rach-ReportReqNR* is set to *true*, and if the UE has NR RACH report information available in *VarRA-Report* of TS 38.331 [82] that is stored when UE is in (NG)EN-DC and the RPLMN is included in *plmn-IdentityList* stored in VarRA-Report of TS 38.331 [82], set the content of *rach-ReportNR* in the *UEInformationResponse message* as below:

2> for each *RA-Report* of *ra-ReportList* in *VarRA-Report* of TS 38.331 [82], if it was stored when UE was in (NG)EN-DC:

3> inlcude it as part of *rach-ReportListNR*;

3> if the *pscellIdListNR* is not set or the *cellId* of *RA-Report* has not been included in *pscellIdListNR*:

4> add a new entry in *pscellIdListNR* and set the *pscellIdListNR* to the global cell identity including the tracking area code, if available, otherwise to the physical cell identity and carrier frequency, as indicated in the cellId of *RA-Report*;

2> discard the *RA-Report* that was included in *rach-ReportListNR* from *ra-ReportList* in *VarRA-Report* of TS 38.331[82] upon successful delivery of the *UEInformationResponse* message as confirmed by lower layers.

*<Next modification>*

#### 5.6.6.3 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 5.6.7;

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

1> if the *LoggedMeasurementConfiguration* message includes *plmn-IdentityList*:

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

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 *targetMBSFN-AreaList*, if included, in *VarLogMeasConfig*;

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

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

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

1> store the received *measUncomBarPre*, 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*;

*<Next modification>*

### 6.2.2 Message definitions

*<Partially omitted>*

#### – *LoggedMeasurementConfiguration*

The *LoggedMeasurementConfiguration* message is used by E-UTRAN to configure the UE to perform logging of measurement results while in RRC\_IDLE or to perform logging of measurement results for MBSFN while in both RRC\_IDLE and RRC\_CONNECTED. It is used to transfer the logged measurement configuration for network performance optimisation, see TS 37.320 [60].

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: E-UTRAN to UE

*LoggedMeasurementConfiguration message*

-- ASN1START

LoggedMeasurementConfiguration-r10 ::= SEQUENCE {

 criticalExtensions CHOICE {

 c1 CHOICE {

 loggedMeasurementConfiguration-r10 LoggedMeasurementConfiguration-r10-IEs,

 spare3 NULL, spare2 NULL, spare1 NULL

 },

 criticalExtensionsFuture SEQUENCE {}

 }

}

LoggedMeasurementConfiguration-r10-IEs ::= SEQUENCE {

 traceReference-r10 TraceReference-r10,

 traceRecordingSessionRef-r10 OCTET STRING (SIZE (2)),

 tce-Id-r10 OCTET STRING (SIZE (1)),

 absoluteTimeInfo-r10 AbsoluteTimeInfo-r10,

 areaConfiguration-r10 AreaConfiguration-r10 OPTIONAL, -- Need OR

 loggingDuration-r10 LoggingDuration-r10,

 loggingInterval-r10 LoggingInterval-r10,

 nonCriticalExtension LoggedMeasurementConfiguration-v1080-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1080-IEs ::= SEQUENCE {

 lateNonCriticalExtension-r10 OCTET STRING OPTIONAL,

 nonCriticalExtension LoggedMeasurementConfiguration-v1130-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1130-IEs ::= SEQUENCE {

 plmn-IdentityList-r11 PLMN-IdentityList3-r11 OPTIONAL, -- Need OR

 areaConfiguration-v1130 AreaConfiguration-v1130 OPTIONAL, -- Need OR

 nonCriticalExtension LoggedMeasurementConfiguration-v1250-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1250-IEs ::= SEQUENCE {

 targetMBSFN-AreaList-r12 TargetMBSFN-AreaList-r12 OPTIONAL, -- Need OP

 nonCriticalExtension LoggedMeasurementConfiguration-v1530-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1530-IEs ::= SEQUENCE {

 bt-NameList-r15 BT-NameList-r15 OPTIONAL, --Need OR

 wlan-NameList-r15 WLAN-NameList-r15 OPTIONAL, --Need OR

 nonCriticalExtension LoggedMeasurementConfiguration-v1700-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1700-IEs ::= SEQUENCE {

 loggedEventTriggerConfig-r17 LoggedEventTriggerConfig-r17 OPTIONAL, --Need OR

 measUncomBarPre-r17 ENUMERATED {true} OPTIONAL, --Need OR

 nonCriticalExtension LoggedMeasurementConfiguration-v1800-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1800-IEs ::= SEQUENCE {

 sigLoggedMeasType-r18 ENUMERATED {true} OPTIONAL, --Need OR

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

TargetMBSFN-AreaList-r12 ::= SEQUENCE (SIZE (0..maxMBSFN-Area)) OF TargetMBSFN-Area-r12

TargetMBSFN-Area-r12 ::= SEQUENCE {

 mbsfn-AreaId-r12 MBSFN-AreaId-r12 OPTIONAL, -- Need OR

 carrierFreq-r12 ARFCN-ValueEUTRA-r9,

 ...

}

LoggedEventTriggerConfig-r17 ::= SEQUENCE {

 eventType-r17 EventType-r17

}

EventType-r17 ::= CHOICE {

 outOfCoverage NULL,

 eventL1 SEQUENCE {

 l1-Threshold-r17 ThresholdEUTRA,

 hysteresis-r17 Hysteresis,

 timeToTrigger-r17 TimeToTrigger

 },

 ...

}

-- 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/ identities. |
| ***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. |
| ***measUncomBarPre***If configured, the UE attempts to perform the uncompensated Barometeric pressure measurement in RRC\_IDLE as defined in TS 37.355 [109]. |
| ***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 [60]). |
| ***targetMBSFN-AreaList***Used to indicate logging of MBSFN measurements and further restrict the area and frequencies for which the UE performs measurement logging for MBSFN. If both MBSFN area id and carrier frequency are present, a specific MBSFN area is indicated. If only carrier frequency is present, all MBSFN areas on that carrier frequency are indicated. If there is no entry in the list, any MBSFN area is indicated.  |
| ***tce-Id***Parameter Trace Collection Entity Id: See TS 32.422 [58]. |
| ***traceRecordingSessionRef***Parameter Trace Recording Session Reference: See TS 32.422 [58] |

*<Next modification>*

#### – *UEInformationRequest*

The *UEInformationRequest* is the command used by E-UTRAN to retrieve information from the UE.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: E‑UTRAN to UE

*UEInformationRequest message*

-- ASN1START

UEInformationRequest-r9 ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 c1 CHOICE {

 ueInformationRequest-r9 UEInformationRequest-r9-IEs,

 spare3 NULL, spare2 NULL, spare1 NULL

 },

 criticalExtensionsFuture SEQUENCE {}

 }

}

UEInformationRequest-r9-IEs ::= SEQUENCE {

 rach-ReportReq-r9 BOOLEAN,

 rlf-ReportReq-r9 BOOLEAN,

 nonCriticalExtension UEInformationRequest-v930-IEs OPTIONAL

}

UEInformationRequest-v930-IEs ::= SEQUENCE {

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension UEInformationRequest-v1020-IEs OPTIONAL

}

UEInformationRequest-v1020-IEs ::= SEQUENCE {

 logMeasReportReq-r10 ENUMERATED {true} OPTIONAL, -- Need ON

 nonCriticalExtension UEInformationRequest-v1130-IEs OPTIONAL

}

UEInformationRequest-v1130-IEs ::= SEQUENCE {

 connEstFailReportReq-r11 ENUMERATED {true} OPTIONAL, -- Need ON

 nonCriticalExtension UEInformationRequest-v1250-IEs OPTIONAL

}

UEInformationRequest-v1250-IEs ::= SEQUENCE {

 mobilityHistoryReportReq-r12 ENUMERATED {true} OPTIONAL, -- Need ON

 nonCriticalExtension UEInformationRequest-v1530-IEs OPTIONAL

}

UEInformationRequest-v1530-IEs ::= SEQUENCE {

 idleModeMeasurementReq-r15 ENUMERATED {true} OPTIONAL, -- Need ON

 flightPathInfoReq-r15 FlightPathInfoReportConfig-r15 OPTIONAL, -- Need ON

 nonCriticalExtension UEInformationRequest-v1710-IEs OPTIONAL

}

UEInformationRequest-v1710-IEs ::= SEQUENCE {

 coarseLocationReq-r17 ENUMERATED {true} OPTIONAL, -- Need ON

 nonCriticalExtension UEInformationRequest-v18xy-IEs OPTIONAL

}

UEInformationRequest-v18xy-IEs ::= SEQUENCE {

 rach-ReportReqNR-r18 ENUMERATED {true} OPTIONAL, -- Need ON

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

| *UEInformationRequest* field descriptions |
| --- |
| ***coarseLocationReq***This field is used to request UE to report coarse location information. |
| ***rach-ReportReq***This field is used to indicate whether the UE shall report information about the random access procedure. |
| ***rach-ReportReqNR***This field is used to indicate whether the UE shall report information about the the SgNB RACH information stored when UE was in (NG)EN-DC. |

#### – *UEInformationResponse*

The *UEInformationResponse* message is used by the UE to transfer the information requested by the E-UTRAN.

Signalling radio bearer: SRB1 or SRB2 (when logged measurement information is included)

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to E-UTRAN

*UEInformationResponse message*

-- ASN1START

UEInformationResponse-r9 ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 c1 CHOICE {

 ueInformationResponse-r9 UEInformationResponse-r9-IEs,

 spare3 NULL, spare2 NULL, spare1 NULL

 },

 criticalExtensionsFuture SEQUENCE {}

 }

}

UEInformationResponse-r9-IEs ::= SEQUENCE {

 rach-Report-r9 RACH-Report-r16 OPTIONAL,

 rlf-Report-r9 RLF-Report-r9 OPTIONAL,

 nonCriticalExtension UEInformationResponse-v930-IEs OPTIONAL

}

-- Late non critical extensions

UEInformationResponse-v9e0-IEs ::= SEQUENCE {

 rlf-Report-v9e0 RLF-Report-v9e0 OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Regular non critical extensions

UEInformationResponse-v930-IEs ::= SEQUENCE {

 lateNonCriticalExtension OCTET STRING (CONTAINING UEInformationResponse-v9e0-IEs) OPTIONAL,

 nonCriticalExtension UEInformationResponse-v1020-IEs OPTIONAL

}

UEInformationResponse-v1020-IEs ::= SEQUENCE {

 logMeasReport-r10 LogMeasReport-r10 OPTIONAL,

 nonCriticalExtension UEInformationResponse-v1130-IEs OPTIONAL

}

UEInformationResponse-v1130-IEs ::= SEQUENCE {

 connEstFailReport-r11 ConnEstFailReport-r11 OPTIONAL,

 nonCriticalExtension UEInformationResponse-v1250-IEs OPTIONAL

}

UEInformationResponse-v1250-IEs ::= SEQUENCE {

 mobilityHistoryReport-r12 MobilityHistoryReport-r12 OPTIONAL,

 nonCriticalExtension UEInformationResponse-v1530-IEs OPTIONAL

}

UEInformationResponse-v1530-IEs ::= SEQUENCE {

 measResultListIdle-r15 MeasResultListIdle-r15 OPTIONAL,

 flightPathInfoReport-r15 FlightPathInfoReport-r15 OPTIONAL,

 nonCriticalExtension UEInformationResponse-v1610-IEs OPTIONAL

}

UEInformationResponse-v1610-IEs ::= SEQUENCE {

 rach-Report-v1610 RACH-Report-v1610 OPTIONAL,

 measResultListExtIdle-r16 MeasResultListExtIdle-r16 OPTIONAL,

 measResultListIdleNR-r16 MeasResultListIdleNR-r16 OPTIONAL,

 nonCriticalExtension UEInformationResponse-v1710-IEs OPTIONAL

}

UEInformationResponse-v1710-IEs ::= SEQUENCE {

 coarseLocationInfo-r17 OCTET STRING OPTIONAL, nonCriticalExtension UEInformationResponse-v18xy-IEs OPTIONAL

}

UEInformationResponse-v18xy-IEs ::= SEQUENCE {

 rach-Report-r18 RACH-Report-r18 OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

RACH-Report-r16 ::= SEQUENCE {

 numberOfPreamblesSent-r16 NumberOfPreamblesSent-r11,

 contentionDetected-r16 BOOLEAN

}

RACH-Report-v1610 ::= SEQUENCE {

 initialCEL-r16 INTEGER (0..3),

 edt-Fallback-r16 BOOLEAN

}

RACH-Report-r18 ::= SEQUENCE {

numberOfPreamblesSent-r16 NumberOfPreamblesSent-r11 OPTIONAL,

contentionDetected-r16 BOOLEAN OPTIONAL,

 rach-ReportNR-r18 RACH-ReportNR-r18 OPTIONAL

}

RACH-ReportNR-r18 ::= SEQUENCE {

 rach-ReportListNR-r18 OCTET STRING,

 pscellIdListNR-r18 PSCellIdListNR-r18

}

PSCellIdListNR-r18 ::= SEQUENCE (SIZE (1..maxCellRAReportNR-r18)) OF PSCellIdNR-r18

PSCellIdNR-r18 ::= CHOICE {

 cellGlobalId-r18 CellGlobalIdNR-r16,

 pci-arfcn-r18 SEQUENCE {

 physCellId-r18 PhysCellIdNR-r15,

 carrierFreq-r18 ARFCN-ValueNR-r15

 }

}

RLF-Report-r9 ::= SEQUENCE {

 measResultLastServCell-r9 SEQUENCE {

 rsrpResult-r9 RSRP-Range,

 rsrqResult-r9 RSRQ-Range OPTIONAL

 },

 measResultNeighCells-r9 SEQUENCE {

 measResultListEUTRA-r9 MeasResultList2EUTRA-r9 OPTIONAL,

 measResultListUTRA-r9 MeasResultList2UTRA-r9 OPTIONAL,

 measResultListGERAN-r9 MeasResultListGERAN OPTIONAL,

 measResultsCDMA2000-r9 MeasResultList2CDMA2000-r9 OPTIONAL

 } OPTIONAL,

 ...,

 [[ locationInfo-r10 LocationInfo-r10 OPTIONAL,

 failedPCellId-r10 CHOICE {

 cellGlobalId-r10 CellGlobalIdEUTRA,

 pci-arfcn-r10 SEQUENCE {

 physCellId-r10 PhysCellId,

 carrierFreq-r10 ARFCN-ValueEUTRA

 }

 } OPTIONAL,

 reestablishmentCellId-r10 CellGlobalIdEUTRA OPTIONAL,

 timeConnFailure-r10 INTEGER (0..1023) OPTIONAL,

 connectionFailureType-r10 ENUMERATED {rlf, hof} OPTIONAL,

 previousPCellId-r10 CellGlobalIdEUTRA OPTIONAL

 ]],

 [[ failedPCellId-v1090 SEQUENCE {

 carrierFreq-v1090 ARFCN-ValueEUTRA-v9e0

 } OPTIONAL

 ]],

 [[ basicFields-r11 SEQUENCE {

 c-RNTI-r11 C-RNTI,

 rlf-Cause-r11 ENUMERATED {

 t310-Expiry, randomAccessProblem,

 rlc-MaxNumRetx, t312-Expiry-r12},

 timeSinceFailure-r11 TimeSinceFailure-r11

 } OPTIONAL,

 previousUTRA-CellId-r11 SEQUENCE {

 carrierFreq-r11 ARFCN-ValueUTRA,

 physCellId-r11 CHOICE {

 fdd-r11 PhysCellIdUTRA-FDD,

 tdd-r11 PhysCellIdUTRA-TDD

 },

 cellGlobalId-r11 CellGlobalIdUTRA OPTIONAL

 } OPTIONAL,

 selectedUTRA-CellId-r11 SEQUENCE {

 carrierFreq-r11 ARFCN-ValueUTRA,

 physCellId-r11 CHOICE {

 fdd-r11 PhysCellIdUTRA-FDD,

 tdd-r11 PhysCellIdUTRA-TDD

 }

 } OPTIONAL

 ]],

 [[ failedPCellId-v1250 SEQUENCE {

 tac-FailedPCell-r12 TrackingAreaCode

 } OPTIONAL,

 measResultLastServCell-v1250 RSRQ-Range-v1250 OPTIONAL,

 lastServCellRSRQ-Type-r12 RSRQ-Type-r12 OPTIONAL,

 measResultListEUTRA-v1250 MeasResultList2EUTRA-v1250 OPTIONAL

 ]],

 [[ drb-EstablishedWithQCI-1-r13 ENUMERATED {qci1} OPTIONAL

 ]],

 [[ measResultLastServCell-v1360 RSRP-Range-v1360 OPTIONAL

 ]],

 [[ logMeasResultListBT-r15 LogMeasResultListBT-r15 OPTIONAL,

 logMeasResultListWLAN-r15 LogMeasResultListWLAN-r15 OPTIONAL

 ]],

 [[ measResultListNR-r16 MeasResultCellListNR-r15 OPTIONAL,

 previousNR-PCellId-r16 CellGlobalIdNR-r16 OPTIONAL,

 failedNR-PCellId-r16 CHOICE {

 cellGlobalId CellGlobalIdNR-r16,

 pci-arfcn SEQUENCE {

 physCellId-r16 PhysCellIdNR-r15,

 carrierFreq-r16 ARFCN-ValueNR-r15

 }

 } OPTIONAL,

 reconnectCellId-r16 CHOICE {

 nrReconnectCellId CellGlobalIdNR-r16,

 eutraReconnectCellId SEQUENCE {

 cellGlobalId-r16 CellGlobalIdEUTRA,

 trackingAreaCode-EPC-r16 TrackingAreaCode OPTIONAL,

 trackingAreaCode-5GC-r16 TrackingAreaCode-5GC-r15 OPTIONAL

 }

 } OPTIONAL,

 timeUntilReconnection-r16 TimeUntilReconnection-r16 OPTIONAL

 ]],

 [[ measResultListNR-v1640 SEQUENCE {

 carrierFreqNR-r16 ARFCN-ValueNR-r15

 } OPTIONAL,

 measResultListExtNR-r16 MeasResultFreqListNR-r16 OPTIONAL

 ]],

 [[

 voiceFallbackHO-r18 ENUMERATED {true} OPTIONAL

 ]]

}

RLF-Report-v9e0 ::= SEQUENCE {

 measResultListEUTRA-v9e0 MeasResultList2EUTRA-v9e0

}

MeasResultList2EUTRA-r9 ::= SEQUENCE (SIZE (1..maxFreq)) OF MeasResult2EUTRA-r9

MeasResultList2EUTRA-v9e0 ::= SEQUENCE (SIZE (1..maxFreq)) OF MeasResult2EUTRA-v9e0

MeasResultList2EUTRA-v1250 ::= SEQUENCE (SIZE (1..maxFreq)) OF MeasResult2EUTRA-v1250

MeasResult2EUTRA-r9 ::= SEQUENCE {

 carrierFreq-r9 ARFCN-ValueEUTRA,

 measResultList-r9 MeasResultListEUTRA

}

MeasResult2EUTRA-v9e0 ::= SEQUENCE {

 carrierFreq-v9e0 ARFCN-ValueEUTRA-v9e0 OPTIONAL

}

MeasResult2EUTRA-v1250 ::= SEQUENCE {

 rsrq-Type-r12 RSRQ-Type-r12 OPTIONAL

}

MeasResultList2UTRA-r9 ::= SEQUENCE (SIZE (1..maxFreq)) OF MeasResult2UTRA-r9

MeasResult2UTRA-r9 ::= SEQUENCE {

 carrierFreq-r9 ARFCN-ValueUTRA,

 measResultList-r9 MeasResultListUTRA

}

MeasResultList2CDMA2000-r9 ::= SEQUENCE (SIZE (1..maxFreq)) OF MeasResult2CDMA2000-r9

MeasResult2CDMA2000-r9 ::= SEQUENCE {

 carrierFreq-r9 CarrierFreqCDMA2000,

 measResultList-r9 MeasResultsCDMA2000

}

LogMeasReport-r10 ::= SEQUENCE {

 absoluteTimeStamp-r10 AbsoluteTimeInfo-r10,

 traceReference-r10 TraceReference-r10,

 traceRecordingSessionRef-r10 OCTET STRING (SIZE (2)),

 tce-Id-r10 OCTET STRING (SIZE (1)),

 logMeasInfoList-r10 LogMeasInfoList-r10,

 logMeasAvailable-r10 ENUMERATED {true} OPTIONAL,

 ...,

 [[ logMeasAvailableBT-r15 ENUMERATED {true} OPTIONAL,

 logMeasAvailableWLAN-r15 ENUMERATED {true} OPTIONAL

 ]]

}

LogMeasInfoList-r10 ::= SEQUENCE (SIZE (1..maxLogMeasReport-r10)) OF LogMeasInfo-r10

LogMeasInfo-r10 ::= SEQUENCE {

 locationInfo-r10 LocationInfo-r10 OPTIONAL,

 relativeTimeStamp-r10 INTEGER (0..7200),

 servCellIdentity-r10 CellGlobalIdEUTRA,

 measResultServCell-r10 SEQUENCE {

 rsrpResult-r10 RSRP-Range,

 rsrqResult-r10 RSRQ-Range

 },

 measResultNeighCells-r10 SEQUENCE {

 measResultListEUTRA-r10 MeasResultList2EUTRA-r9 OPTIONAL,

 measResultListUTRA-r10 MeasResultList2UTRA-r9 OPTIONAL,

 measResultListGERAN-r10 MeasResultList2GERAN-r10 OPTIONAL,

 measResultListCDMA2000-r10 MeasResultList2CDMA2000-r9 OPTIONAL

 } OPTIONAL,

 ...,

 [[ measResultListEUTRA-v1090 MeasResultList2EUTRA-v9e0 OPTIONAL

 ]],

 [[ measResultListMBSFN-r12 MeasResultListMBSFN-r12 OPTIONAL,

 measResultServCell-v1250 RSRQ-Range-v1250 OPTIONAL,

 servCellRSRQ-Type-r12 RSRQ-Type-r12 OPTIONAL,

 measResultListEUTRA-v1250 MeasResultList2EUTRA-v1250 OPTIONAL

 ]],

 [[ inDeviceCoexDetected-r13 ENUMERATED {true} OPTIONAL

 ]],

 [[ measResultServCell-v1360 RSRP-Range-v1360 OPTIONAL

 ]],

 [[ logMeasResultListBT-r15 LogMeasResultListBT-r15 OPTIONAL,

 logMeasResultListWLAN-r15 LogMeasResultListWLAN-r15 OPTIONAL

 ]],

 [[ anyCellSelectionDetected-r15 ENUMERATED {true} OPTIONAL

 ]],

 [[ measResultListNR-r16 MeasResultCellListNR-r15 OPTIONAL

 ]],

 [[ measResultListNR-v1640 SEQUENCE {

 carrierFreqNR-r16 ARFCN-ValueNR-r15

 } OPTIONAL,

 measResultListExtNR-r16 MeasResultFreqListNR-r16 OPTIONAL

 ]],

 [[ uncomBarPreMeasResult-r17 OCTET STRING OPTIONAL

 ]]

}

MeasResultListMBSFN-r12 ::= SEQUENCE (SIZE (1..maxMBSFN-Area)) OF MeasResultMBSFN-r12

MeasResultMBSFN-r12 ::= SEQUENCE {

 mbsfn-Area-r12 SEQUENCE {

 mbsfn-AreaId-r12 MBSFN-AreaId-r12,

 carrierFreq-r12 ARFCN-ValueEUTRA-r9

 },

 rsrpResultMBSFN-r12 RSRP-Range,

 rsrqResultMBSFN-r12 MBSFN-RSRQ-Range-r12,

 signallingBLER-Result-r12 BLER-Result-r12 OPTIONAL,

 dataBLER-MCH-ResultList-r12 DataBLER-MCH-ResultList-r12 OPTIONAL,

 ...

}

DataBLER-MCH-ResultList-r12 ::= SEQUENCE (SIZE (1.. maxPMCH-PerMBSFN)) OF DataBLER-MCH-Result-r12

DataBLER-MCH-Result-r12 ::= SEQUENCE {

 mch-Index-r12 INTEGER (1..maxPMCH-PerMBSFN),

 dataBLER-Result-r12 BLER-Result-r12

}

BLER-Result-r12 ::= SEQUENCE {

 bler-r12 BLER-Range-r12,

 blocksReceived-r12 SEQUENCE {

 n-r12 BIT STRING (SIZE (3)),

 m-r12 BIT STRING (SIZE (8))

 }

}

BLER-Range-r12 ::= INTEGER(0..31)

MeasResultList2GERAN-r10 ::= SEQUENCE (SIZE (1..maxCellListGERAN)) OF MeasResultListGERAN

MeasResultFreqListNR-r16::= SEQUENCE (SIZE (1..maxFreq-1-r16)) OF MeasResultFreqFailNR-r15

ConnEstFailReport-r11 ::= SEQUENCE {

 failedCellId-r11 CellGlobalIdEUTRA,

 locationInfo-r11 LocationInfo-r10 OPTIONAL,

 measResultFailedCell-r11 SEQUENCE {

 rsrpResult-r11 RSRP-Range,

 rsrqResult-r11 RSRQ-Range OPTIONAL

 },

 measResultNeighCells-r11 SEQUENCE {

 measResultListEUTRA-r11 MeasResultList2EUTRA-r9 OPTIONAL,

 measResultListUTRA-r11 MeasResultList2UTRA-r9 OPTIONAL,

 measResultListGERAN-r11 MeasResultListGERAN OPTIONAL,

 measResultsCDMA2000-r11 MeasResultList2CDMA2000-r9 OPTIONAL

 } OPTIONAL,

 numberOfPreamblesSent-r11 NumberOfPreamblesSent-r11,

 contentionDetected-r11 BOOLEAN,

 maxTxPowerReached-r11 BOOLEAN,

 timeSinceFailure-r11 TimeSinceFailure-r11,

 measResultListEUTRA-v1130 MeasResultList2EUTRA-v9e0 OPTIONAL,

 ...,

 [[ measResultFailedCell-v1250 RSRQ-Range-v1250 OPTIONAL,

 failedCellRSRQ-Type-r12 RSRQ-Type-r12 OPTIONAL,

 measResultListEUTRA-v1250 MeasResultList2EUTRA-v1250 OPTIONAL

 ]],

 [[ measResultFailedCell-v1360 RSRP-Range-v1360 OPTIONAL

 ]],

 [[ logMeasResultListBT-r15 LogMeasResultListBT-r15 OPTIONAL,

 logMeasResultListWLAN-r15 LogMeasResultListWLAN-r15 OPTIONAL

 ]],

 [[ measResultListNR-r16 MeasResultCellListNR-r15 OPTIONAL

 ]],

 [[ measResultListNR-v1640 SEQUENCE {

 carrierFreqNR-r16 ARFCN-ValueNR-r15

 } OPTIONAL,

 measResultListExtNR-r16 MeasResultFreqListNR-r16 OPTIONAL

 ]]

}

NumberOfPreamblesSent-r11::= INTEGER (1..200)

TimeSinceFailure-r11 ::= INTEGER (0..172800)

TimeUntilReconnection-r16 ::= INTEGER (0..172800)

MobilityHistoryReport-r12 ::= VisitedCellInfoList-r12

FlightPathInfoReport-r15 ::= SEQUENCE {

 flightPath-r15 SEQUENCE (SIZE (1..maxWayPoint-r15)) OF WayPointLocation-r15 OPTIONAL,

 dummy SEQUENCE {} OPTIONAL

}

WayPointLocation-r15 ::= SEQUENCE {

 wayPointLocation-r15 LocationInfo-r10,

 timeStamp-r15 AbsoluteTimeInfo-r10 OPTIONAL

}

-- ASN1STOP

| *UEInformationResponse* field descriptions |
| --- |
| ***absoluteTimeStamp***Indicates the absolute time when the logged measurement configuration logging is provided, as indicated by E-UTRAN within *absoluteTimeInfo*. |
| ***anyCellSelectionDetected***This field is used to indicate the detection of *any cell selection* state, as defined in TS 36.304 [4]. The UE sets this field when performing the logging of measurement results in RRC\_IDLE and there is no suitable cell or no acceptable cell. |
| ***bler***Indicates the measured BLER value. The coding of BLER value is defined in TS 36.133 [16]. |
| ***blocksReceived***Indicates total number of MCH blocks, which were received by the UE and used for the corresponding BLER calculation, within the measurement period as defined in TS 36.133 [16]. |
| ***carrierFreq***In case the UE includes *carrierFreq-v9e0* and/ or *carrierFreq-v1090*, the UE shall set the corresponding entry of *carrierFreq-r9* and/ or *carrierFreq-r10* respectively to *maxEARFCN*. For E-UTRA and UTRA frequencies, the UE sets the ARFCN according to the band used when obtaining the concerned measurement results. |
| ***carrierFreqNR***In case the UE includes *measResultListNR*, the UE uses this field to indicate the ARFCN value according to the band used when obtaining the concrned measurement results |
| ***connectionFailureType***This field is used to indicate whether the connection failure is due to radio link failure or handover failure. |
| ***contentionDetected***This field is used to indicate that contention was detected for at least one of the transmitted preambles, see TS 36.321 [6].  |
| ***coarseLocationInfo***This field indicates the coarse location information reported by the UE. This field is coded as the *Ellipsoid-Point* IE defined in TS 37.355 [109]. 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 which corresponds to a granularity of approximately 2 km.It is up to UE implementation as to how many LSBs are set to 0 to meet the accuracy requirement. |
| ***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. |
| ***dataBLER-MCH-ResultList***Includes a BLER result per MCH on subframes using *dataMCS*, with the applicable MCH(s) listed in the same order as in *pmch-InfoList* within *MBSFNAreaConfiguration*. |
| ***drb-EstablishedWithQCI-1***This field is used to indicate the radio link failure occurred while a bearer with QCI value equal to 1 was configured, see TS 24.301 [35]. |
| ***dummy***This field is not used in the specification. It shall not be sent by the UE. |
| ***edt-Fallback***Value TRUE indicates the last successfully completed random access procedure was initiated with EDT PRACH resource and succeeded after receiving EDT fallback indication from lower layers. |
| ***failedCellId***This field is used to indicate the cell in which connection establishment failed. |
| ***failedPCellId***This field is used to indicate the PCell in which RLF is detected or the target PCell of the failed handover. The UE sets the EARFCN according to the band used for transmission/ reception when the failure occurred. |
| ***inDeviceCoexDetected***Indicates that measurement logging is suspended due to IDC problem detection. |
| ***initialCEL***Indicates the initial CE level used for the last successfully completed random access procedure for BL UEs and UEs in CE. |
| ***logMeasResultListBT***This field refers to the Bluetooth measurement results. |
| ***logMeasResultListWLAN***This field refers to the WLAN measurement results. |
| ***maxTxPowerReached***This field is used to indicate whether or not the maximum power level was used for the last transmitted preamble, see TS 36.321 [6]. |
| ***mch-Index***Indicates the MCH by referring to the entry as listed in *pmch-InfoList* within *MBSFNAreaConfiguration*. |
| ***measResultFailedCell***This field refers to the last measurement results taken in the cell, where connection establishment failure happened. For UE supporting CE Mode B, when CE mode B is not restricted by upper layers, *measResultFailedCell-v1360* is reported if the measured RSRP is less than -140 dBm. |
| ***measResultLastServCell***This field refers to the last measurement results taken in the PCell, where radio link failure or handover failure happened. For BL UEs or UEs in CE, when operating in CE Mode B, *measResultLastServCell-v1360* is reported if the measured RSRP is less than -140 dBm. |
| ***measResultListEUTRA***If *measResultListEUTRA-v9e0*, *measResultListEUTRA-v1090* or *measResultListEUTRA-v1130* is included, the UE shall include the same number of entries, and listed in the same order, as in *measResultListEUTRA-r9*, *measResultListEUTRA-r10* and/ or *measResultListEUTRA-r11* respectively. |
| ***measResultListEUTRA-v1250***If included in *RLF-Report-r9* the UE shall include the same number of entries, and listed in the same order, as in *measResultListEUTRA-r9*.If included in *LogMeasInfo-r10* the UE shall include the same number of entries, and listed in the same order, as in *measResultListEUTRA-r10*.If included in *ConnEstFailReport-r11* the UE shall include the same number of entries, and listed in the same order, as in *measResultListEUTRA-r11*. |
| ***measResultListIdle***This field indicates the E-UTRA measurement results done during RRC\_IDLE and RRC\_INACTIVE at network request. |
| ***measResultListIdleNR***This field indicates the NR measurement results done during RRC\_IDLE and RRC\_INACTIVE at network request. |
| ***measResultListNR, measResultListExtNR***Includes NR measurement results, with *measResultListNR* including results of a first NR frequency and *measResultListExtNR* including results of additinal NR frequencies, if available. |
| ***measResultServCell***This field refers to the log measurement results taken in the Serving cell. For UE supporting CE Mode B, when CE mode B is not restricted by upper layers, *measResultServCell-v1360* is reported if the measured RSRP is less than -140 dBm. |
| ***mobilityHistoryReport***This field is used to indicate the time of stay in 16 most recently visited E-UTRA cells or of stay out of E-UTRA. |
| ***numberOfPreamblesSent***This field is used to indicate the number of RACH preambles that were transmitted. Corresponds to parameter PREAMBLE\_TRANSMISSION\_COUNTER in TS 36.321 [6]. |
| ***previousPCellId***This field is used to indicate the source PCell of the last handover (source PCell when the last *RRCConnectionReconfiguration* message including *mobilityControlInfo* was received). |
| ***previousUTRA-CellId***This field is used to indicate the source UTRA cell of the last successful handover to E-UTRAN, when RLF occurred at the target PCell. The UE sets the ARFCN according to the band used for transmission/ reception on the concerned cell. |
| ***pscellIdListNR***This field is used to indicate the unique NR PScell identities of the RA procedure information stored in *RA-ReportList* IE, which is specified in TS 38.331 [82]. |
| ***rach-ReportListNR***This field is used to indicate the *NR RA-ReportList* IE，which is specified in TS 38.331 [82]. |
| ***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 or to indicate the cell in which the UE comes back to connnected as part of cell selection after *MobilityFromNRCommand* execution failure. This field is absent if the selected cell after *MobilityFromNRCommand* execution failure is an acceptable cell. 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***This field is used to indicate the cell in which the re-establishment attempt was made after connection failure. |
| ***relativeTimeStamp***Indicates the time of logging measurement results, measured relative to the *absoluteTimeStamp*. Value in seconds. |
| ***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. |
| ***selectedUTRA-CellId***This field is used to indicate the UTRA cell that the UE selects after RLF is detected, while T311 is running. The UE sets the ARFCN according to the band selected for transmission/ reception on the concerned cell. |
| ***signallingBLER-Result***Includes a BLER result of MBSFN subframes using *signallingMCS*.  |
| ***tac-FailedPCell***This field is used to indicate the Tracking Area Code of the PCell in which RLF is detected. |
| ***tce-Id***Parameter Trace Collection Entity Id: See TS 32.422 [58]. |
| ***timeConnFailure***This field is used to indicate the time elapsed since the last HO initialization until connection failure. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |
| ***timeSinceFailure***This field is used to indicate the time that elapsed since the connection (establishment) failure. Value in seconds. The maximum value 172800 means 172800s or longer. |
| ***timeStamp***Includes time stamps for the waypoints that describe planned locations for the UE. |
| ***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 or after cell selection after *MobilityFromNRCommand* execution failure including fallback indication. Value in seconds. The maximum value 172800 means 172800s or longer. |
| ***traceRecordingSessionRef***Parameter Trace Recording Session Reference: See TS 32.422 [58]. |
| ***voiceFallbackHO***This field is set if the radio link failure occured after a successful mobility from NR, and the *voiceFallbackIndication* was included in the *MobilityFromNRCommand* message in TS 38.331 [82]. |
| ***uncomBarPreMeasResult***This field provides barometric pressure measurements as *Sensor-MeasurementInformation* defined in TS 37.355 [109]. The first/leftmost bit of the first octet contains the most significant bit. |
| ***wayPointLocation***Includes location coordinates for a UE for Aerial UE operation. The waypoints describe planned locations for the UE. |

*<Next modification>*

## 6.4 RRC multiplicity and type constraint values

### – Multiplicity and type constraint definitions

-- ASN1START

maxAccessCat-1-r15 INTEGER ::= 63 -- Maximum number of Access Categories - 1

maxACDC-Cat-r13 INTEGER ::= 16 -- Maximum number of ACDC categories (per PLMN)

maxAvailNarrowBands-r13 INTEGER ::= 16 -- Maximum number of narrowbands

maxAvailNarrowBands-1-r16 INTEGER ::= 15 -- Maximum number of narrowbands minus one

maxBandComb-r10 INTEGER ::= 128 -- Maximum number of band combinations.

maxBandComb-r11 INTEGER ::= 256 -- Maximum number of additional band combinations.

maxBandComb-r13 INTEGER ::= 384 -- Maximum number of band combinations in Rel-13

maxBandCombSidelinkNR-r16 INTEGER ::= 512 -- Maximum number of NR sidelink band combinations

maxBands INTEGER ::= 64 -- Maximum number of bands listed in EUTRA UE caps

maxBandsNR-r15 INTEGER ::= 1024 -- Maximum number of NR bands listed in EUTRA UE caps

maxBandsENDC-r16 INTEGER ::= 10 -- Maximum number of NR bands from across all the PLMNs

 -- sharing the serving cell in EN-DC for the forwarding

 -- of *upperLayerIndication*.

maxBandwidthClass-r10 INTEGER ::= 16 -- Maximum number of supported CA BW classes per band

maxBandwidthCombSet-r10 INTEGER ::= 32 -- Maximum number of bandwidth combination sets per

 -- supported band combination

maxBarringInfoSet-r15 INTEGER ::= 8 -- Maximum number of UAC barring information sets

maxBT-IdReport-r15 INTEGER ::= 32 -- Maximum number of Bluetooth IDs to report

maxBT-Name-r15 INTEGER ::= 4 -- Maximum number of Bluetooth name

maxCBR-Level-r14 INTEGER ::= 16 -- Maximum number of CBR levels

maxCBR-Level-1-r14 INTEGER ::= 15

maxCBR-Report-r14 INTEGER ::= 72 -- Maximum number of CBR results in a report

maxCDMA-BandClass INTEGER ::= 32 -- Maximum value of the CDMA band classes

maxCE-Level-r13 INTEGER ::= 4 -- Maximum number of CE levels

maxExcludedCell INTEGER ::= 16 -- Maximum number of exclude-listed physical cell identity

 -- ranges listed in SIB type 4 and 5

maxCellHistory-r12 INTEGER ::= 16 -- Maximum number of visited EUTRA cells reported

maxCellInfoGERAN-r9 INTEGER ::= 32 -- Maximum number of GERAN cells for which system in-

 -- formation can be provided as redirection assistance

maxCellInfoUTRA-r9 INTEGER ::= 16 -- Maximum number of UTRA cells for which system

 -- information can be provided as redirection

 -- assistance

maxCellMeasIdle-r15 INTEGER ::= 8 -- Maximum number of neighbouring inter-frequency

 -- cells per carrier measured in RRC\_IDLE and RRC\_INACTIVE

maxCellNR-r17 INTEGER ::= 8 -- Maximum number of NR cells

maxCombIDC-r11 INTEGER ::= 128 -- Maximum number of reported UL CA or

 -- MR-DC combinations

maxCSI-IM-r11 INTEGER ::= 3 -- Maximum number of CSI-IM configurations

 -- (per carrier frequency)

maxCSI-IM-r12 INTEGER ::= 4 -- Maximum number of CSI-IM configurations

 -- (per carrier frequency)

minCSI-IM-r13 INTEGER ::= 5 -- Minimum number of CSI IM configurations from which

 -- REL-13 extension is used

maxCSI-IM-r13 INTEGER ::= 24 -- Maximum number of CSI-IM configurations

 -- (per carrier frequency)

maxCSI-IM-v1310 INTEGER ::= 20 -- Maximum number of additional CSI-IM configurations

 -- (per carrier frequency)

maxCSI-Proc-r11 INTEGER ::= 4 -- Maximum number of CSI processes (per carrier

 -- frequency)

maxCSI-RS-NZP-r11 INTEGER ::= 3 -- Maximum number of CSI RS resource

 -- configurations using non-zero Tx power

 -- (per carrier frequency)

minCSI-RS-NZP-r13 INTEGER ::= 4 -- Minimum number of CSI RS resource from which

 -- REL-13 extension is used

maxCSI-RS-NZP-r13 INTEGER ::= 24 -- Maximum number of CSI RS resource

 -- configurations using non-zero Tx power

 -- (per carrier frequency)

maxCSI-RS-NZP-v1310 INTEGER ::= 21 -- Maximum number of additional CSI RS resource

 -- configurations using non-zero Tx power

 -- (per carrier frequency)

maxCSI-RS-ZP-r11 INTEGER ::= 4 -- Maximum number of CSI RS resource

 -- configurations using zero Tx power(per carrier

 -- frequency)

maxCQI-ProcExt-r11 INTEGER ::= 3 -- Maximum number of additional periodic CQI

 -- configurations (per carrier frequency)

maxFreqUTRA-TDD-r10 INTEGER ::= 6 -- Maximum number of UTRA TDD carrier frequencies for

 -- which system information can be provided as

 -- redirection assistance

maxCellInter INTEGER ::= 16 -- Maximum number of neighbouring inter-frequency

 -- cells listed in SIB type 5

maxCellIntra INTEGER ::= 16 -- Maximum number of neighbouring intra-frequency

 -- cells listed in SIB type 4

maxCellListGERAN INTEGER ::= 3 -- Maximum number of lists of GERAN cells

maxCellMeas INTEGER ::= 32 -- Maximum number of entries in each of the

 -- cell lists in a measurement object

maxCellReport INTEGER ::= 8 -- Maximum number of reported cells/CSI-RS resources

maxCellSFTD INTEGER ::= 3 -- Maximum number of cells for SFTD reporting

maxCellAllowedNR-r16 INTEGER ::= 16 -- Maximum number of allowlisted NR cells in SIB24

maxCondConfig-r16 INTEGER ::= 8 -- Maximum number of conditional configurations

maxConfigSPS-r14 INTEGER ::= 8 -- Maximum number of simultaneous SPS configurations

maxConfigSPS-r15 INTEGER ::= 6 -- Maximum number of simultaneous SPS configurations

 -- configured with SPS C-RNTI

maxCSI-RS-Meas-r12 INTEGER ::= 96 -- Maximum number of entries in the CSI-RS list

 -- in a measurement object

maxDRB INTEGER ::= 11 -- Maximum number of Data Radio Bearers

maxDRBExt-r15 INTEGER ::= 4 -- Maximum number of additional DRBs

maxDRB-r15 INTEGER ::= 15 -- Highest value of extended maximum number of DRBs

maxDS-Duration-r12 INTEGER ::= 5 -- Maximum number of subframes in a discovery signals

 -- occasion

maxDS-ZTP-CSI-RS-r12 INTEGER ::= 5 -- Maximum number of zero transmission power CSI-RS for

 -- a serving cell concerning discovery signals

maxEARFCN INTEGER ::= 65535 -- Maximum value of EUTRA carrier frequency

maxEARFCN-Plus1 INTEGER ::= 65536 -- Lowest value extended EARFCN range

maxEARFCN2 INTEGER ::= 262143 -- Highest value extended EARFCN range

maxEPDCCH-Set-r11 INTEGER ::= 2 -- Maximum number of EPDCCH sets

maxFBI INTEGER ::= 64 -- Maximum value of fequency band indicator

maxFBI-NR-r15 INTEGER ::= 1024 -- Highest value FBI range for NR.

maxFBI-Plus1 INTEGER ::= 65 -- Lowest value extended FBI range

maxFBI2 INTEGER ::= 256 -- Highest value extended FBI range

maxFeatureSets-r15 INTEGER ::= 256 -- Total number of feature sets (size of pool)

maxPerCC-FeatureSets-r15 INTEGER ::= 32 -- Total number of CC-specific feature sets

 -- (size of the pool)

maxFreq INTEGER ::= 8 -- Maximum number of carrier frequencies

maxFreq-1-r16 INTEGER ::= 7 -- Maximum number of carrier frequencies

maxFreqIDC-r11 INTEGER ::= 32 -- Maximum number of carrier frequencies that are

 -- affected by the IDC problems

maxFreqIdle-r15 INTEGER ::= 8 -- Maximum number of carrier frequencies for

 -- IDLE mode measurements configured by eNB

maxFreqMBMS-r11 INTEGER ::= 5 -- Maximum number of carrier frequencies for which an

 -- MBMS capable UE may indicate an interest

maxFreqNBIOT-r16 INTEGER ::= 8 -- Maximum number of NB-IoT carrier frequencies that can

 -- be provided as assistance information for inter-RAT

 -- cell selection

maxFreqNR-r15 INTEGER ::= 5 -- Maximum number of NR carrier frequencies for

 -- which a UE may provide measurement results upon

 -- NR SCG failure

maxFreqSL-NR-r16 INTEGER ::= 8 -- Maximum number of NR anchor carrier frequencies on

 -- which configurations for V2X sidelink communication

 -- are provided

maxFreqV2X-r14 INTEGER ::= 8 -- Maximum number of carrier frequencies for which V2X

 -- sidelink communication can be configured

maxFreqV2X-1-r14 INTEGER ::= 7 -- Highest index of frequencies

maxGERAN-SI INTEGER ::= 10 -- Maximum number of GERAN SI blocks that can be

 -- provided as part of NACC information

maxGNFG INTEGER ::= 16 -- Maximum number of GERAN neighbour freq groups

maxGWUS-Groups-1-r16 INTEGER ::= 31 -- Maximum number of groups minus one for each

 -- probability group

maxGWUS-Resources-r16 INTEGER ::= 4 -- Maximum number of GWUS resources for each group

maxGWUS-ProbThresholds-r16 INTEGER ::= 3 -- Maximum number of paging probability thresholds

maxIdleMeasCarriers-r15 INTEGER ::= 3 -- Maximum number of neighbouring inter-

 -- frequency carriers measured in RRC\_IDLE and RRC\_INACTIVE

maxIdleMeasCarriersExt-r16 INTEGER ::= 5 --Additional number of neighbouring inter-

 -- frequency carriers measured in RRC\_IDLE and RRC\_INACTIVE

maxIdleMeasCarriers-r16 INTEGER ::= 8 -- Maximum number of neighbouring inter-

 -- frequency/inter-RAT carriers measured in RRC\_IDLE and RRC\_INACTIVE

maxLCG-r13 INTEGER ::= 4 -- Maximum number of logical channel groups

maxLogMeasReport-r10 INTEGER ::= 520 -- Maximum number of logged measurement entries

 -- that can be reported by the UE in one message

maxMBSFN-Allocations INTEGER ::= 8 -- Maximum number of MBSFN frame allocations with

 -- different offset

maxMBSFN-Area INTEGER ::= 8

maxMBSFN-Area-1 INTEGER ::= 7

maxMBMS-ServiceListPerUE-r13 INTEGER ::= 15 -- Maximum number of services which the UE can

 -- include in the MBMS interest indication

maxMeasId INTEGER ::= 32

maxMeasId-Plus1 INTEGER ::= 33

maxMeasId-r12 INTEGER ::= 64

maxMultiBands INTEGER ::= 8 -- Maximum number of additional frequency bands

 -- that a cell belongs to

maxMultiBandsNR-r15 INTEGER ::= 32 -- Maximum number of additional NR frequency bands

 -- that a cell belongs to

maxMultiBandsNR-1-r15 INTEGER ::= 31

maxNS-Pmax-r10 INTEGER ::= 8 -- Maximum number of NS and P-Max values per band

maxNAICS-Entries-r12 INTEGER ::= 8 -- Maximum number of supported NAICS combination(s)

maxNeighCell-r12 INTEGER ::= 8 -- Maximum number of neighbouring cells in NAICS

 -- configuration (per carrier frequency)

maxNeighCell-SCPTM-r13 INTEGER ::= 8 -- Maximum number of SCPTM neighbour cells

maxNrofPCI-PerSMTC-r16 INTEGER ::= 64 -- Maximum number of PCIs per SMTC

maxNrofS-NSSAI-r15 INTEGER ::= 8 -- Maximum number of S-NSSAI

maxObjectId INTEGER ::= 32

maxObjectId-Plus1-r13 INTEGER ::= 33

maxObjectId-r13 INTEGER ::= 64

maxP-a-PerNeighCell-r12 INTEGER ::= 3 -- Maximum number of power offsets for a neighbour cell

 -- in NAICS configuration

maxPageRec INTEGER ::= 16 --

maxPhysCellIdRange-r9 INTEGER ::= 4 -- Maximum number of physical cell identity ranges

maxPLMN-r11 INTEGER ::= 6 -- Maximum number of PLMNs

maxPLMN-1-r14 INTEGER ::= 5 -- Maximum number of PLMNs minus one

maxPLMN-r15 INTEGER ::= 8 -- Maximum number of PLMNs for RNA configuration

maxPLMN-NR-r15 INTEGER ::= 12 -- Maximum number of NR PLMNs

maxPNOffset INTEGER ::= 511 -- Maximum number of CDMA2000 PNOffsets

maxPMCH-PerMBSFN INTEGER ::= 15

maxPSSCH-TxConfig-r14 INTEGER ::= 16 -- Maximum number of PSSCH TX configurations

maxQuantSetsNR-r15 INTEGER ::= 2 -- Maximum number of NR quantity configuration sets

maxCellRAReportNR-r18 INTEGER ::= 8 -- Maximum number of unique PSCells identities of

 -- RA reports included in the NR RA report container

maxQCI-r13 INTEGER ::= 6 -- Maximum number of QCIs

maxRAT-Capabilities INTEGER ::= 8 -- Maximum number of interworking RATs (incl EUTRA)

maxRE-MapQCL-r11 INTEGER ::= 4 -- Maximum number of PDSCH RE Mapping configurations

 -- (per carrier frequency)

maxReportConfigId INTEGER ::= 32

maxReservationPeriod-r14 INTEGER ::= 16 -- Maximum number of resource reservation periodicities

 -- for sidelink V2X communication

maxRS-Index-r15 INTEGER ::= 64 -- Maximum number of RS indices

maxRS-Index-1-r15 INTEGER ::= 63 -- Highest value of RS index as used to identify

 -- RS index in RRM reports.

maxRS-IndexCellQual-r15 INTEGER ::= 16 -- Maximum number of RS indices averaged to derive

 -- cell quality for RRM.

maxRS-IndexReport-r15 INTEGER ::= 32 -- Maximum number of RS indices for RRM.

maxRSTD-Freq-r10 INTEGER ::= 3 -- Maximum number of frequency layers for RSTD

 -- measurement

maxSAI-MBMS-r11 INTEGER ::= 64 -- Maximum number of MBMS service area identities

 -- broadcast per carrier frequency

maxSat-r17 INTEGER ::= 4 -- Maximum number of satellites

maxSCell-r10 INTEGER ::= 4 -- Maximum number of SCells

maxSCell-r13 INTEGER ::= 31 -- Highest value of extended number range of SCells

maxSCellGroups-r15 INTEGER ::= 4 -- Maximum number of SCell common parameter groups

maxSC-MTCH-r13 INTEGER ::= 1023 -- Maximum number of SC-MTCHs in one cell

maxSC-MTCH-BR-r14 INTEGER ::= 128 -- Maximum number of SC-MTCHs in one cell for feMTC

maxSL-CommRxPoolNFreq-r13 INTEGER ::= 32 -- Maximum number of individual sidelink communication

 -- Rx resource pools on neighbouring freq

maxSL-CommRxPoolPreconf-v1310 INTEGER ::= 12 -- Maximum number of additional preconfigured

 -- sidelink communication Rx resource pool entries

maxSL-TxPool-r12Plus1-r13 INTEGER ::= 5 -- First additional individual sidelink

 -- Tx resource pool

maxSL-TxPool-v1310 INTEGER ::= 4 -- Maximum number of additional sidelink

 -- Tx resource pool entries

maxSL-TxPool-r13 INTEGER ::= 8 -- Maximum number of individual sidelink

 -- Tx resource pools

maxSL-CommTxPoolPreconf-v1310 INTEGER ::= 7 -- Maximum number of additional preconfigured

 -- sidelink Tx resource pool entries

maxSL-Dest-r12 INTEGER ::= 16 -- Maximum number of sidelink destinations

maxSL-DiscCells-r13 INTEGER ::= 16 -- Maximum number of cells with similar sidelink

 -- configurations

maxSL-DiscPowerClass-r12 INTEGER ::= 3 -- Maximum number of sidelink power classes

maxSL-DiscRxPoolPreconf-r13 INTEGER ::= 16 -- Maximum number of preconfigured sidelink

 -- discovery Rx resource pool entries

maxSL-DiscSysInfoReportFreq-r13 INTEGER ::= 8 -- Maximum number of frequencies to include in a

 -- SidelinkUEInformation for SI reporting

maxSL-DiscTxPoolPreconf-r13 INTEGER ::= 4 -- Maximum number of preconfigured sidelink

 -- discovery Tx resource pool entries

maxSL-GP-r13 INTEGER ::= 8 -- Maximum number of gap patterns that can be requested

 -- for a frequency or assigned

maxSL-PoolToMeasure-r14 INTEGER ::= 72 -- Maximum number of TX resource pools for CBR

 -- measurement and report

maxSL-Prio-r13 INTEGER ::= 8 -- Maximum number of entries in sidelink priority list

maxSL-RxPool-r12 INTEGER ::= 16 -- Maximum number of individual sidelink Rx resource pools

maxSL-Reliability-r15 INTEGER ::= 8 -- Maximum number of entries in sidelink reliability list

maxSL-SyncConfig-r12 INTEGER ::= 16 -- Maximum number of sidelink Sync configurations

maxSL-TF-IndexPair-r12 INTEGER ::= 64 -- Maximum number of sidelink Time Freq resource index

 -- pairs

maxSL-TxPool-r12 INTEGER ::= 4 -- Maximum number of individual sidelink Tx resource pools

maxSL-V2X-RxPool-r14 INTEGER ::= 16 -- Maximum number of RX resource pools for

 -- V2X sidelink communication

maxSL-V2X-RxPoolPreconf-r14 INTEGER ::= 16 -- Maximum number of RX resource pools for

 -- V2X sidelink communication

maxSL-V2X-TxPool-r14 INTEGER ::= 8 -- Maximum number of TX resource pools for

 -- V2X sidelink communication

maxSL-V2X-TxPoolPreconf-r14 INTEGER ::= 8 -- Maximum number of TX resource pools for

 -- V2X sidelink communication

maxSL-V2X-SyncConfig-r14 INTEGER ::= 16 -- Maximum number of sidelink Sync configurations

 -- for V2X sidelink communication

maxSL-V2X-CBRConfig-r14 INTEGER ::= 4 -- Maximum number of CBR range configurations

 -- for V2X sidelink communication congestion

 -- control

maxSL-V2X-CBRConfig-1-r14 INTEGER ::= 3

maxSL-V2X-TxConfig-r14 INTEGER ::= 64 -- Maximum number of TX parameter configurations

 -- for V2X sidelink communication congestion

 -- control

maxSL-V2X-TxConfig-1-r14 INTEGER ::= 63

maxSL-V2X-CBRConfig2-r14 INTEGER ::= 8 -- Maximum number of CBR range configurations in

 -- pre-configuration for V2X sidelink

 -- communication congestion control

maxSL-V2X-CBRConfig2-1-r14 INTEGER ::= 7

maxSL-V2X-TxConfig2-r14 INTEGER ::= 128 -- Maximum number of TX parameter

 -- configurations in pre-configuration for V2X

 -- sidelink communication congestion control

maxSL-V2X-TxConfig2-1-r14 INTEGER ::= 127

maxSTAG-r11 INTEGER ::= 3 -- Maximum number of STAGs

maxServCell-r10 INTEGER ::= 5 -- Maximum number of Serving cells

maxServCell-r13 INTEGER ::= 32 -- Highest value of extended number range of Serving cells

maxServCellNR-r15 INTEGER ::= 16 -- Maximum number of NR serving cells

maxServiceCount INTEGER ::= 16 -- Maximum number of MBMS services that can be included

 -- in an MBMS counting request and response

maxServiceCount-1 INTEGER ::= 15

maxSessionPerPMCH INTEGER ::= 29

maxSessionPerPMCH-1 INTEGER ::= 28

maxSIB INTEGER ::= 32 -- Maximum number of SIBs

maxSIB-1 INTEGER ::= 31

maxSI-Message INTEGER ::= 32 -- Maximum number of SI messages

maxSimultaneousBands-r10 INTEGER ::= 64 -- Maximum number of simultaneously aggregated bands

maxSubframePatternIDC-r11 INTEGER ::= 8 -- Maximum number of subframe reservation patterns

 -- that the UE can simultaneously recommend to the

 -- E-UTRAN for use.

maxTAC-r17 INTEGER ::= 12 -- Maximum number of Tracking Area Codes

 -- broadcast in a cell

maxTrafficPattern-r14 INTEGER ::= 8 -- Maximum number of periodical traffic patterns

 -- that the UE can simultaneously report to the

 -- E-UTRAN.

maxUTRA-FDD-Carrier INTEGER ::= 16 -- Maximum number of UTRA FDD carrier frequencies

maxUTRA-TDD-Carrier INTEGER ::= 16 -- Maximum number of UTRA TDD carrier frequencies

maxWayPoint-r15 INTEGER ::= 20 -- Maximum number of flight path information waypoints

maxWLAN-Id-r12 INTEGER ::= 16 -- Maximum number of WLAN identifiers

maxWLAN-Bands-r13 INTEGER ::= 8 -- Maximum number of WLAN bands

maxWLAN-Id-r13 INTEGER ::= 32 -- Maximum number of WLAN identifiers

maxWLAN-Channels-r13 INTEGER ::= 16 -- maximum number of WLAN channels used in

-- WLAN-CarrierInfo

maxWLAN-CarrierInfo-r13 INTEGER ::= 8 -- Maximum number of WLAN Carrier Information

maxWLAN-Id-Report-r14 INTEGER ::= 32 -- Maximum number of WLAN IDs to report

maxWLAN-Name-r15 INTEGER ::= 4 -- Maximum number of WLAN name

-- ASN1STOP

NOTE: The value of maxDRB aligns with SA2.

*<Next modification>*

## 7.1 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.

#### – *EUTRA-UE-Variables*

This ASN.1 segment is the start of the E‑UTRA UE variable definitions.

-- ASN1START

EUTRA-UE-Variables DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

 AbsoluteTimeInfo-r10,

 AreaConfiguration-r10,

 AreaConfiguration-v1130,

 ARFCN-ValueNR-r15,

 BT-NameList-r15,

 CarrierFreqGERAN,

 CellIdentity,

 CellList-r15,

 CondReconfigurationToAddModList-r16,

 ConnEstFailReport-r11,

 EUTRA-CarrierList-r15,

 SpeedStateScaleFactors,

 C-RNTI,

 LoggedEventTriggerConfig-r17,

 LoggingDuration-r10,

 LoggingInterval-r10,

 LogMeasInfo-r10,

 MeasCSI-RS-Id-r12,

 MeasId,

 MeasId-v1250,

 MeasIdToAddModList,

 MeasIdToAddModListExt-r12,

 MeasIdToAddModList-v1310,

 MeasIdToAddModListExt-v1310,

 MeasObjectToAddModList,

 MeasObjectToAddModList-v9e0,

 MeasObjectToAddModListExt-r13,

 MeasResultListExtIdle-r16,

 MeasResultListIdle-r15,

 MeasResultListIdleNR-r16,

 MeasScaleFactor-r12,

 MobilityStateParameters,

 NeighCellConfig,

 NR-CarrierList-r16,

 PhysCellId,

 PhysCellIdCDMA2000,

 PhysCellIdGERAN,

 PhysCellIdUTRA-FDD,

 PhysCellIdUTRA-TDD,

 PLMN-Identity,

 PLMN-IdentityList3-r11,

 QuantityConfig,

 ReportConfigToAddModList,

 RLF-Report-r9,

 TargetMBSFN-AreaList-r12,

 TraceReference-r10,

 Tx-ResourcePoolMeasList-r14,

 VisitedCellInfoList-r12,

 maxCellMeas,

 maxCSI-RS-Meas-r12,

 maxMeasId,

 maxMeasId-r12,

 maxRS-Index-r15,

 PhysCellIdNR-r15,

 RS-IndexNR-r15,

 UL-DelayConfig-r13,

 ValidityAreaList-r16,

 WLAN-CarrierInfo-r13,

 WLAN-Identifiers-r12,

 WLAN-Id-List-r13,

 WLAN-NameList-r15,

 WLAN-Status-r13,

 WLAN-Status-v1430,

 WLAN-SuspendConfig-r14

FROM EUTRA-RRC-Definitions;

-- ASN1STOP

#### – *VarConditionalReconfiguration*

The UE variable *VarConditionalReconfiguration* includes the accumulated configuration of conditional reconfigurations (i.e. conditional handovers, conditional PSCell addition or inter-SN conditional PSCell change) including the configurations of triggering conditions to be monitored and the stored *RRCConnectionReconfiguration* per target candidate, to be applied upon the fulfilment of the associated triggering conditions.

*VarConditionalReconfiguration* UE variable

-- ASN1START

VarConditionalReconfiguration ::= SEQUENCE {

 -- Conditional reconfigurations list

 condReconfigurationList-r16 CondReconfigurationToAddModList-r16

 OPTIONAL

}

-- ASN1STOP

#### – *VarConnEstFailReport*

The UE variable *VarConnEstFailReport* includes the connection establishment failure information.

*VarConnEstFailReport* UE variable

-- ASN1START

VarConnEstFailReport-r11 ::= SEQUENCE {

 connEstFailReport-r11 ConnEstFailReport-r11,

 plmn-Identity-r11 PLMN-Identity

}

-- ASN1STOP

#### – *VarLogMeasConfig*

The UE variable *VarLogMeasConfig* includes the configuration of the logging of measurements to be performed by the UE while in RRC\_IDLE, covering intra-frequency, inter-frequency, inter-RAT mobility and MBSFN related measurements. If MBSFN logging is configured, the UE performs logging of measurements while in both RRC\_IDLE and RRC\_CONNECTED. Otherwise, the UE performs logging of measurements only while in RRC\_IDLE.

*VarLogMeasConfig* UE variable

-- ASN1START

VarLogMeasConfig-r10 ::= SEQUENCE {

 areaConfiguration-r10 AreaConfiguration-r10 OPTIONAL,

 loggingDuration-r10 LoggingDuration-r10,

 loggingInterval-r10 LoggingInterval-r10

}

VarLogMeasConfig-r11 ::= SEQUENCE {

 areaConfiguration-r10 AreaConfiguration-r10 OPTIONAL,

 areaConfiguration-v1130 AreaConfiguration-v1130 OPTIONAL,

 loggingDuration-r10 LoggingDuration-r10,

 loggingInterval-r10 LoggingInterval-r10

}

VarLogMeasConfig-r12 ::= SEQUENCE {

 areaConfiguration-r10 AreaConfiguration-r10 OPTIONAL,

 areaConfiguration-v1130 AreaConfiguration-v1130 OPTIONAL,

 loggingDuration-r10 LoggingDuration-r10,

 loggingInterval-r10 LoggingInterval-r10,

 targetMBSFN-AreaList-r12 TargetMBSFN-AreaList-r12 OPTIONAL

}

VarLogMeasConfig-r15 ::= SEQUENCE {

 areaConfiguration-r10 AreaConfiguration-r10 OPTIONAL,

 areaConfiguration-v1130 AreaConfiguration-v1130 OPTIONAL,

 loggingDuration-r10 LoggingDuration-r10,

 loggingInterval-r10 LoggingInterval-r10,

 targetMBSFN-AreaList-r12 TargetMBSFN-AreaList-r12 OPTIONAL,

 bt-NameList-r15 BT-NameList-r15 OPTIONAL,

 wlan-NameList-r15 WLAN-NameList-r15 OPTIONAL

}

VarLogMeasConfig-r17 ::= SEQUENCE {

 areaConfiguration-r10 AreaConfiguration-r10 OPTIONAL,

 areaConfiguration-v1130 AreaConfiguration-v1130 OPTIONAL,

 loggingDuration-r10 LoggingDuration-r10,

 loggingInterval-r10 LoggingInterval-r10,

 targetMBSFN-AreaList-r12 TargetMBSFN-AreaList-r12 OPTIONAL,

 bt-NameList-r15 BT-NameList-r15 OPTIONAL,

 wlan-NameList-r15 WLAN-NameList-r15 OPTIONAL,

 loggedEventTriggerConfig-r17 LoggedEventTriggerConfig-r17 OPTIONAL,

 measUncomBarPre-r17 ENUMERATED {true} OPTIONAL

}

-- ASN1STOP

#### – *VarLogMeasReport*

The UE variable *VarLogMeasReport* includes the logged measurements information.

*VarLogMeasReport* UE variable

-- ASN1START

VarLogMeasReport-r10 ::= SEQUENCE {

 traceReference-r10 TraceReference-r10,

 traceRecordingSessionRef-r10 OCTET STRING (SIZE (2)),

 tce-Id-r10 OCTET STRING (SIZE (1)),

 plmn-Identity-r10 PLMN-Identity,

 absoluteTimeInfo-r10 AbsoluteTimeInfo-r10,

 logMeasInfoList-r10 LogMeasInfoList2-r10

}

VarLogMeasReport-r11 ::= SEQUENCE {

 traceReference-r10 TraceReference-r10,

 traceRecordingSessionRef-r10 OCTET STRING (SIZE (2)),

 tce-Id-r10 OCTET STRING (SIZE (1)),

 plmn-IdentityList-r11 PLMN-IdentityList3-r11,

 absoluteTimeInfo-r10 AbsoluteTimeInfo-r10,

 logMeasInfoList-r10 LogMeasInfoList2-r10,

 sigLoggedMeasType-r18 ENUMERATED {true}

}

LogMeasInfoList2-r10 ::= SEQUENCE (SIZE (1..maxLogMeas-r10)) OF LogMeasInfo-r10

-- ASN1STOP

#### – *VarMeasConfig*

The UE variable *VarMeasConfig* includes the accumulated configuration of the measurements to be performed by the UE, covering intra-frequency, inter-frequency and inter-RAT mobility related measurements.

NOTE: The amount of measurement configuration information, which a UE is required to store, is specified in clause 11.1. If the number of frequencies configured for a particular RAT exceeds the minimum performance requirements specified in TS 36.133 [16], it is up to UE implementation which frequencies of that RAT are measured. If the total number of frequencies for all RATs provided to the UE in the measurement configuration exceeds the minimum performance requirements specified in TS 36.133 [16], it is up to UE implementation which frequencies/RATs are measured.

*VarMeasConfig* UE variable

-- ASN1START

VarMeasConfig ::= SEQUENCE {

 -- Measurement identities

 measIdList MeasIdToAddModList OPTIONAL,

 measIdListExt-r12 MeasIdToAddModListExt-r12 OPTIONAL,

 measIdList-v1310 MeasIdToAddModList-v1310 OPTIONAL,

 measIdListExt-v1310 MeasIdToAddModListExt-v1310 OPTIONAL,

 -- Measurement objects

 measObjectList MeasObjectToAddModList OPTIONAL,

 measObjectListExt-r13 MeasObjectToAddModListExt-r13 OPTIONAL,

 measObjectList-v9i0 MeasObjectToAddModList-v9e0 OPTIONAL,

 -- Reporting configurations

 reportConfigList ReportConfigToAddModList OPTIONAL,

 -- Other parameters

 quantityConfig QuantityConfig OPTIONAL,

 measScaleFactor-r12 MeasScaleFactor-r12 OPTIONAL,

 s-Measure INTEGER (-140..-44) OPTIONAL,

 speedStatePars CHOICE {

 release NULL,

 setup SEQUENCE {

 mobilityStateParameters MobilityStateParameters,

 timeToTrigger-SF SpeedStateScaleFactors

 }

 } OPTIONAL,

 allowInterruptions-r11 BOOLEAN OPTIONAL

}

-- ASN1STOP