**3GPP TSG-RAN WG2 Meeting #113 electronic *R2-21xxxxx***

**Online, Jan 25 – Feb 5, 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.331** | **CR** | **2429** | **rev** | **1** | **Current version:** | **16.3.1** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Corrections on NR MDT and SON | | | | | | | | | |
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| ***Source to WG:*** | Huawei, Ericsson | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_SON\_MDT-Core | | | | |  | ***Date:*** | | | 2021-01-25 |
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| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | During RAN2#113-e meeting, it was agreed to catpure changes from the following CRs:  **R2-2100184 Corrections on mobility from NR failure for inter-RAT MRO EUTRA Samsung Electronics Co., Ltd**  1/ According to 38.306, the feature of inter-RAT MRO from NR to E-UTRA is defined as “Radio Link Failure Report for inter-RAT MRO EUTRA”. To avoid any ambiguity, the same term can be used in 38.331.  2/ Upon mobility from NR failure due to any reason, the UE should store handover failure information in VarRLF-Report if it concerned a failed inter-RAT handover from NR to E-UTRA (not for failed inter-RAT handover from NR to UTRA-FDD) and the UE supports Radio Link Failure Report for inter-RAT MRO EUTRA.  **R2-2100185 Corrections on Mobility History Information in 38.331 CATT**   1. In current specification, it seems not consist of PCell in RRC\_CONNECTED for EUTRA cell to NR or E-UTRA cell when record the mobility history information in 38.331 which case we think should be included.  |  | | --- | | 6 Agree the following TP related to MHI.  1> Upon change of cell, consisting of PCell in RRC\_CONNECTED or serving cell in RRC\_IDLE or RRC\_INACTIVE (for NR cell) or in RRC\_IDLE (for E-UTRA cell), to another NR or E-UTRA cell, or when entering out of service.  We should refer to ‘any cell Selection’ or ‘camp on any cell’ in NR and or ‘any cell Selection in LTE’ or ‘camp on any cell’ instead “out of service“ |  1. In RAN2#110-e meeting, the following agreement was made:   According to the agreement above, both “any cell selection” and “camp on any cell” should be used to instead of “out of service”, not just “any cell selection”.   1. Some editorial change.   **R2-2100197 Correction on periodical logging in any cell selection state Samsung Electronics Co., Ltd**  The following agreement in RAN2#108 meeting was made:  9: For periodical logged measurements, it is proposed to introduce the flag anyCellSelectionDetected as defined in LTE  But, the current procedural text is not allowed to perform periodical logged measurements when the UE is in any cell selection state.  **R2-2100187 Corrections on the Release of CEF/RLF/RA Report in 38.331 CATT (changes in R2-2100187 are discussed together with R2-2101688)**  **R2-2101099 Correction to MDT Google Inc.**   1. In section 5.3.5.8 in 36.331(as shown below), the UE does not release a logged measurement configuration in full configuration. The UE behaviour in LTE RRC should apply to NR RRC to simplify the UE implementation.  5.3.5.8 Radio Configuration involving full configuration option The UE shall:  1> if the UE is connected to EPC:  2> release/ clear all current dedicated radio configurations except for the following:  - the MCG C-RNTI,  - the MCG security configuration,  - the PDCP, RLC, logical channel configurations for the RBs,  - the logged measurement configuration;  If the UE in NR receives a new logged measurement configuration, the UE should release the old logged measurement configuration. However, this is not clearly described in section 5.5a.2.2.  **R2-2101688 Corrections on NR MDT and SON (Rapporteur CR) Huawei**  There are the following issues for MDT and SON:   * In NR, the UE will not discard CEF/RLF reports upon power off or deregistration, which may lead to problems, e.g. mismatch between UE and network because the UE may continue to use the reports for more logging * In TS 37.320, the UE continues T330 independent of state changes, RAT or RPLMN change, however, it has not been captured in stage-3 text   **R2-2101846 Corrections for RLF Report OPPO**  When T316 is stopped except the re-establishment case, the information included in *VarRLF-Report* should be cleared based on previous discussion. T316 will be stopped by the following four cases:   1. Upon receiving *RRCRelease*; 2. *RRCReconfiguration* with *reconfigurationwithSync* for the PCell; 3. *MobilityFromNRCommand*; 4. upon initiating the re-establishment procedure;   For the second case, the information included in *VarRLF-Report* is cleared twice, once in sub-clause 5.3.5.3, another in 5.3.5.5.2, so one of them should be deleted. | | | | | | | | |
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| ***Summary of change:*** | | **Change#1 from R2-2100184:**  1/ Align the term of feature in 38.331 to in 38.306.  2/ Update the procedural text to store handover failure information in VarRLF-Report if the targetRAT-Type in the received MobilityFromNRCommand is set to eutra and the UE supports Radio Link Failure Report for Inter-RAT MRO EUTRA due to any failed reason.  **Change#2 from R2-2100185:**   1. Add the case of PCell in RRC\_CONNECTED for EUTRA cell to NR or E-UTRA cell when record the mobility history information in 5.7.9.2. 2. Add the case of entering “camped on any cell” state from “camped normally” state in NR or LTE. 3. Minor editorial change.   **Change#3 from R2-2100197:**  Add the procedural text to perform periodical logged measurements when the UE is in any cell selection state  **Change#4 from R2-2101099:**   1. The UE does not release a logged measurement configuration in full configuration. 2. The UE initiates the release of logged measurement configuration procedure upon receiving a logged measurement configuration in NR.   **Change#5 from R2-2100688 and R2-2100187:**  The following changes are made for MDT and SON:   * Change#1: the UE will discard CEF/RLF report upon power off or deregistration in NR * Change#2: the UE does not stop T330 upon the inter-RAT mobility   **Change#6 from R2-2101846:**  Delete the following text in sub-clause 5.3.5.3:  2> if the *RRCReconfiguration* message was received in response to the *MCGFailureInformation* message:  3> clear the information included in *VarRLF-Report,* if any;  **Impact analysis**  **Change#1:**  Architecture options  NR SA, NR-DC, NE-DC  Impacted functionality  Storage of handover failure information upon mobility from NR failure  Inter-operability  1/ If the UE is implemented according to the CR while the network is not, there is no inter-operability issue  2/ If the network is implemented according to the CR while the UE is not, there is no inter-operability issue but the UE does not store handover failure information in some cases upon inter-RAT HO failure from NR to E-UTRA.  **Change#2:**  Architecture options  NR SA, (NG)EN-DC, NE-DC, and NR-DC  Impacted functionality:  Mobility History Information  Inter-operability:  If only the network is implemented according to the CR and the UE is not, the UE will not record the mobility history information when PCell in RRC\_CONNECTED for EUTRA cell to NR or E-UTRA cell or when enter “camped on any cell” state from “camped normally” state in NR or LTE.  If only the UE is implemented according to the CR and the network is not, no interoperability problems are foreseen.  **Change#3:**  Architecture options  NR SA  Impacted functionality  Periodical logged measurement  Inter-operability  This CR is the change only to UE behavior and thereby no inter-operability issues are foreseen.  **Change#4:**  Impacted functionality:  MDT  Inter-operability:  The change is only on the UE. Therefore, no inter-operability issue between the UE and network is foreseen.  **Change#5:**  Impacted 5G architecutre options:  NR SA  Impacted functionality:  NR MDT and SON  Inter-operability:  For change#1 and #2:  There are no inter-operability problems as the changes only impact UE.  **Change#6:**  Impacted 5G architecture options:  Standalone&MR-DC  Impacted functionality:  SON&MDT  Inter-operability:   1. If the network is implemented according to the CR and the UE is not, UE will excute some redundant action in 5.3.5.3 or 5.3.5.5.2 for RLF report. 2. If the UE is implemented according to the CR and the network is not, no impact is forseen. | | | | | | | | |
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| ***Consequences if not approved:*** | | **Change#1:**  Inter-RAT MRO from NR to E-UTRA may not work properly which will deteriorate user experience and waste network resources  **Change#2:**  There are some cases will not be recorded in the mobility history information.  **Change#3:**  UE may not perform periodical logged measurements when the UE is in any cell selection state so logged measurements may be inaccurate.  **Change#4:**   1. NR UE behavior differs from LTE UE behavior, which complicates the UE implementation.   The specification is not clear.  **Change#5:**  The UE may continue to use the CEF/RLF reports after power off and deregistration, so there may be a mismatch between UE and network.  The UE will stop T330 upon the inter-RAT mobility, so the UE may discard the logged measurements.  **Change#6:**  UE will excute some redundant action in 5.3.5.3 or 5.3.5.5.2 for RLF report | | | | | | | | |
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| ***Clauses affected:*** | | 5.3.3.7, 5.3.5.3, 5.3.5.11, 5.3.10.3, 5.3.10.5, 5.3.13.5, 5.4.3.5, 5.5a.2.2, 5.5a.3.2, 5.7.9, 5.7.9.2, 5.7.10.4 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
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| ***Other comments:*** | |  | | | | | | | | |
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| ***This CR's revision history:*** | |  | | | | | | | | |

5.3.3.7 T300 expiry

*<Partially omitted>*

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

*<Next modification>*

#### 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 or CPC):

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

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

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

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

2> for each DAPS bearer:

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

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

2> for each SRB:

3> release the PDCP entity for the source SpCell;

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

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

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

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

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

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

1> else:

2> if the RRCReconfiguration includes the fullConfig:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2> perform the radio bearer configuration according to 5.3.5.6;

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

2> perform the radio bearer configuration according to 5.3.5.6;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2> perform conditional reconfiguration as specified in 5.3.5.13;

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

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

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

2> else:

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

1> if the *RRCReconfiguration* message includes the *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-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> 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 *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* 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 *RRCReconfigurationComplete* message;

2> if the *RRCReconfiguration* message was included in an *RRCResume* message:

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

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

3> include the *RRCReconfigurationComplete* message in the E-UTRA MCG RRC message *RRCConnectionResumeComplete* in accordance with TS 36.331 [10], clause 5.3.3.4a;

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

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

3> if Bluetooth measurement results are included in the logged measurements the UE has available for NR and if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*:

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

3> if WLAN measurement results are included in the logged measurements the UE has available for NR and if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*:

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

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

3> include *connEstFailInfoAvailable* in the *RRCReconfigurationComplete* 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]:

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

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

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

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

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

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

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

6> if *requestedTargetBandFilterNR* is configured, 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;

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*;

3> if the *RRCReconfiguration* is applied due to a conditional reconfiguration execution:

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:

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 *reconfigurationWithSync* was included in *spCellConfig* of an SCG:

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

3> else:

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 *reconfigurationWithSync* was included in *spCellConfig* of an SCG:

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

3> else:

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:

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 *reconfigurationWithSync* was included in *spCellConfig* in *nr-SCG*:

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

2> else

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 *reconfigurationWithSync* was included in *spCellConfig* in *nr-SCG*:

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

4> else:

5> the procedure ends;

3> else:

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

2> else:

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

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

2> 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 and DRBs 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:

2> stop timer T304 for that cell group;

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 CPC was configured

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

3> for each *measId* of the source SpCell configuration, 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*; and

2> 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:

3> 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;

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

2> if *SIB12* is provided by the target PCell; and the UE initiated transmission of a *SidelinkUEInformationNR* message indicating a change of NR sidelink communication 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:

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

2> the procedure ends.

NOTE 3: The UE is only required to acquire broadcasted *SIB1* if the UE can acquire it without disrupting unicast data reception, i.e. the broadcast and unicast 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 modification>*

### 5.3.5.11 Full configuration

The UE shall:

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

- the MCG C-RNTI;

- the AS security configurations associated with the master key;

NOTE 1: Radio configuration is not just the resource configuration but includes other configurations like *MeasConfig*. In case NR-DC or NE-DC is configured, this also includes the entire NR or E-UTRA SCG configuration which are released according to the MR-DC release procedure as specified in 5.3.5.10. The radio configuration does not include SRB1/SRB2 configurations and DRB configurations as configured by *radioBearerConfig* or *radioBearerConfig2*.

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

- the logged measurement configuration;

1> if the *spCellConfig* in the *masterCellGroup* includes the *reconfigurationWithSync* (i.e., SpCell change):

2> release/ clear all current common radio configurations;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2> else:

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

*<Next modification>*

#### 5.3.10.3 Detection of radio link failure

*<Partially omitted>*

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

*<Next modification>*

5.3.10.5 RLF report content determination

*<Partially omitted>*

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, upon power off or upon deregistration.

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

*<Next modification>*

#### 5.3.13.5 T319 expiry or Integrity check failure from lower layers while T319 is running

*<Partially omitted>*

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

*<Next modification>*

#### 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 T330, 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 *targetRAT-Type* is set to *eutra* and the *nas-SecurityParamFromNR* is included:

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

*<Next modification>*

#### 5.4.3.5 Mobility from NR failure

The UE shall:

1> if the UE does not succeed in establishing the connection to the target radio access technology:

2> if the *targetRAT-Type* in the received *MobilityFromNRCommand* is set to *eutra* and the UE supports Radio Link Failure Report for Inter-RAT MRO EUTRA:

3> store handover failure information in *VarRLF-Report* according to 5.3.10.5;

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

3> attempt to select an E-UTRA cell:

4> if a suitable E-UTRA cell is selected:

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

4> else:

5> revert back to the configuration used in the source PCell;

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

2> else:

3> revert back to the configuration used in the source PCell;

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

1> else if the UE is unable to comply with any part of the configuration included in the *MobilityFromNRCommand* message; or

1> if there is a protocol error in the inter RAT information included in the *MobilityFromNRCommand* message, causing the UE to fail the procedure according to the specifications applicable for the target RAT:

2> if the *targetRAT-Type* in the received *MobilityFromNRCommand* is set to *eutra* and the UE supports Radio Link Failure Report for Inter-RAT MRO EUTRA:

3> store handover failure information in *VarRLF-Report* according to 5.3.10.5;

2> revert back to the configuration used in the source PCell;

2> initiate the connection re-establishment procedure as specified in subclause 5.3.7.

*<Next modification>*

5.5a.2.2 Initiation

The UE shall initiate the procedure upon receiving a logged measurement configuration in NR 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*.

*<Next modification>*

#### 5.5a.3.2 Initiation

While T330 is running, the UE shall:

1> 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]); or

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* and, if the cell is part of the area indicated by *areaConfiguration* if configured in *VarLogMeasConfig*:

4> 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> perform the logging immediately upon transitioning from the any cell selection state to the camped normally state;

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* and, if the cell is part of the area indicated by *areaConfiguration* if configured in *VarLogMeasConfig*;

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

3> if detailed 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> set the *servCellIdentity* to indicate global cell identity of the last logged cell that the UE was camping on;

4> 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;

4> if available, set the *measResultNeighCells*, in order of decreasing ranking-criterion as used for cell re-selection, to include neighbouring cell measurements that became available during the last logging interval 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 per RAT and according to the following:

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

NOTE: 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].

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 modification>*

### 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.

#### 5.7.9.2 Initiation

If the UE supports storage of mobility history information, the UE shall:

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 or 'camped on any cell' state from 'camped normally' state in NR or LTE:

2> include an entry in 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;

1> upon entering 'camped normally' state in NR (in RRC\_IDLE, RRC\_INACTIVE or RRC\_CONNECTED) or E-UTRA (in RRC\_IDLE or RRC\_CONNECTED) 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.

*<Next modification>*

#### 5.7.10.4 Actions upon successful completion of random-access procedure

Upon successfully performing 4 step random access procedure, the UE shall:

1> 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 as a new entry in the *VarRA-Report*:

4> if the list of EPLMNs has been stored by the UE:

5> if the RPLMN is included in *plmn-IdentityList* stored in *VarRA-Report*:

6> 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*;

5> else:

6> clear the information included in *VarRA-Report*;

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

4> else:

5> set the *plmn-Identity*, in *plmn-IdentityList*, to the PLMN selected by upper layers from the PLMN(s) included in the *plmn-IdentityList* 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> set the *raPurpose* to include the purpose of triggering the random-access procedure;

4> set the *ra-InformationCommon-r16* as specified in subclause 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 related information is added to the *VarRA-Report*, upon power off or upon deregistration.

NOTE 1: The UE does not log the RA information in the RA report if the triggering event of the random access is consistent UL LBT on SpCell as specified in TS 38.321 [6].