**3GPP TSG-RAN WG2 Meeting #113-e *R2-210xxxx***

**Electronic Meeting, 25th Jan – 5th Feb 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **36.331** | **CR** | **4568** | **rev** | **1** | **Current version:** | **16.3.0** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:***  | Misc corrections for Rel-16 DCCA |
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| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | LTE\_NR\_DC\_CA\_enh-Core |  | ***Date:*** | 2021-02-02 |
|  |  |  |  |  |
| ***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 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | Miscellaneous minor corrections related to the enhanced DCCA work item. |
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| ***Summary of change:*** | * In 5.3.10.7, added procedural text for reception of *rlf-TimersAndConstantsMCG-Failure*.
* In 5.6.20.2, clarify that the UE includes the beam level measurement results only if it supports the beam level idle/inactive measurement and reporting capability
* In 5.6.20.3, the note is missing that the UE may have stopped T331 due to inter-RAT cell (re)selection to NR. If the UE then, based on UE implementation, continues the idle/inactive measurements these should then be performed according to configuration in NR system information (SIB11 and SIB4). This has been added to the note.
* The missing word “timer” has been added at one place in 5.6.20.4.

**Impact Analysis**Impacted 5G architecture options:NR SA, NR-DC, (NG)EN-DC, NE-DCImpacted functionality:Idle/inactive measurements, Fast MCG recovery Inter-operability:If the network is implemented according to the CR and the UE is not, there will not be inter-operability problems.If the UE is implemented according to the CR and the network is not, there will not be inter-operability problems. |
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| ***Consequences if not approved:*** | Miscellaneous minor errors remain in the specification. |
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| ***Clauses affected:*** | 5.3.10.7, 5.6.20  |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **x** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **x** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

*START OF CHANGE*

5.3.10.7 Radio Link Failure Timers and Constants reconfiguration

The UE shall:

1> if the received *rlf-TimersAndConstants* is set to release:

2> use values for timers T301, T310, T311 and constants N310, N311, as included in *ue-TimersAndConstants* received in *SystemInformationBlockType2*(or *SystemInformationBlockType2-NB* in NB-IoT);

1> else:

2> reconfigure the value of timers and constants in accordance with received *rlf-TimersAndConstants*;

NOTE: In case of a DAPS HO, the timer and constant values are to be applied in the target MCG after timer T304 has been stopped.

1> if the received *rlf-TimersAndConstantsSCG* is set to release:

2> stop timer T313, if running, and

2> release the value of timer *t313* as well as constants *n313* and *n314*;

1> else:

2> reconfigure the value of timers and constants in accordance with received *rlf-TimersAndConstantsSCG*;

1> if the received *rlf-TimersAndConstantsMCG-Failure* is set to release:

2> stop timer T316, if running, and

2> release the value of timer *t316*;

1> else:

2> reconfigure the value of the timer in accordance with received *rlf-TimersAndConstantsMCG-Failure*;

*NEXT CHANGE*

### 5.6.20 Idle/Inactive Measurements

#### 5.6.20.1 General

This procedure specifies the measurements to be performed and stored by a UE in RRC\_IDLE or RRC\_INACTIVE when it has an idle/inactive measurement configuration.

#### 5.6.20.1a Measurement configuration

The purpose of this procedure is to update the idle/inactive measurement configuration.

The UE initiates this procedure while T331 is running and one of the following conditions is met:

1> upon selecting a cell when entering RRC\_IDLE or RRC-INACTIVE from RRC\_CONNECTED; or

1> upon update of system information (*SIB5*, or *SIB24*), e.g. due to intra-RAT cell (re)selection;

While in RRC\_IDLE or RRC\_INACTIVE and T331 is running, the UE shall:

1> if *VarMeasIdleConfig* includes neither a *measIdleCarrierListEUTRA* nor a *measIdleCarrierListNR* received from the *RRCConnectionRelease* message:

2> if the UE is capable of idle/inactive measurements for E-UTRA:

3> if the *SIB5* includes the *measIdleConfigSIB*:

4> store or replace the *measIdleCarrierListEUTRA* of *measIdleConfigSIB* of *SIB5* within *VarMeasIdleConfig*;

3> else:

4> remove the *measIdleCarrierListEUTRA* in *VarMeasIdleConfig*, if stored;

2> if the UE is capable of idle/inactive measurements for NR:

3> if the *SIB5* includes the *measIdleConfigSIB-NR*:

4> store or replace the *measIdleCarrierListNR* of *measIdleConfigSIB-NR* of *SIB5* within *VarMeasIdleConfig*;

3> else:

4> remove the *measIdleCarrierListNR* in *VarMeasIdleConfig*, if stored;

1> for each entry in the *measIdleCarrierListNR* within *VarMeasIdleConfig* that does not contain an *ssb-MeasConfig* received from the *RRCConnectionRelease* message:

2> if there is an entry in *measIdleCarrierListNR* in *measIdleConfigSIB-NR* of *SIB5* that has the same carrier frequency and subcarrier spacing as the entry in the *measIdleCarrierListNR* within *VarMeasIdleConfig* and that contains *ssb-MeasConfig*:

3> delete the *ssb-MeasConfig* of the corresponding entry in the *measIdleCarrierListNR* within *VarMeasIdleConfig*;

3> store the SSB measurement configuration from *SIB5* into *maxRS-IndexCellQual*, *threshRS-Index*, *measTimingConfig*, *ssb-ToMeasure*, *deriveSSB-IndexFromCell*, and *ss-RSSI-Measurement* within *ssb-MeasConfig* of the corresponding entry in the *measIdleCarrierListNR* within *VarMeasIdleConfig*;

2> else if there is an entry in *carrierFreqListNR* of *SIB24* with the same carrier frequency and subcarrier spacing as the entry in *measIdleCarrierListNR* within *VarMeasIdleConfig*:

3> delete the *ssb-MeasConfig* of the corresponding entry in the *measIdleCarrierListNR* within *VarMeasIdleConfig*;

3> store the SSB measurement configuration from *SIB24* into *maxRS-IndexCellQual*, *threshRS-Index*, *measTimingConfig*, *ssb-ToMeasure*, *deriveSSB-IndexFromCell*, and *ss-RSSI-Measurement* within *ssb-MeasConfig* of the corresponding entry in *measIdleCarrierListNR* within *VarMeasIdleConfig*;

2> else:

3> remove the *ssb-MeasConfig* of the corresponding entry in the *measIdleCarrierListNR* within *VarMeasIdleConfig*, if stored;

#### 5.6.20.2 Performing measurements

When performing measurements on NR carriers according to this clause, the UE shall derive the cell quality as specified in 5.5.3.3 and consider the beam quality to be the value of the measurement results of the concerned beam, where each result is averaged as described in TS 38.215 [89].

While in RRC\_IDLE or RRC\_INACTIVE, and T331 is running, the UE shall:

1> perform the measurements in accordance with the following:

2> if the SIB2 contains *idleModeMeasurements*, for each entry in *measIdleCarrierListEUTRA* within *VarMeasIdleConfig*:

3> if UE supports carrier aggregation between serving carrier and the carrier frequency and bandwidth indicated by *carrierFreq* and *allowedMeasBandwidth* within the corresponding entry;

4> perform measurements in the carrier frequency and bandwidth indicated by *carrierFreq* and *allowedMeasBandwidth* within the corresponding entry;

NOTE 1: The fields *s-NonIntraSearch* in *SystemInformationBlockType3* do not affect the idle/inactive measurement procedures. How the UE performs the idle/inactive measurements is up to UE implementation as long as the requirements in TS 36.133 [16] are met for measurement reporting.

4> if the *reportQuantities* is set to *rsrq*:

5> consider RSRQ as the sorting quantity;

4> else:

5> consider RSRP as the sorting quantity;

4> if the *measCellList* is included:

5> consider cells identified by each entry within the *measCellList* to be applicable for idle /inactive measurement reporting;

4> else:

5> consider up to *maxCellMeasIdle* strongest identified cells, according to the sorting quantity, to be applicable for idle/inactive measurement reporting;

4> for all cells applicable for idle/inactive measurement reporting and for the serving cell, derive measurement results for the measurement quantities indicated by *reportQuantities;*

4> store the derived measurement result as indicated by *reportQuantities* for the serving cell within *measResultServingCell* in the *measReportIdle* in *VarMeasIdleReport*;

4> store the derived measurement results as indicated böy *reportQuantities* for cells applicable for idle/inactive measurement reporting within *measResultNeighCells* in the *measReportIdle* in *VarMeasIdleReport* in decreasing order of the sorting quantity, i.e. the best cell is included first, as follows:

5> if *qualityThreshold* is configured:

6> include the measurement results from the cells applicable for idle/inactive measurement reporting whose RSRP/RSRQ measurement results are above the value(s) provided in *qualityThreshold;*

5> else:

6> include the measurement results from all cells applicable for idle/inactive measurement reporting;

2> if the SIB2 contains *idleModeMeasurementsNR* and *VarMeasIdleConfig* includes the *measIdleCarrierListNR*:

3> for each entry in *measIdleCarrierListNR* within *VarMeasIdleConfig* that contains *ssb-MeasConfig*:

4> if UE supports (NG)EN-DC between serving carrier and the carrier frequency and subcarrier spacing indicated by *carrierFreqNR* and *subCarrierSpacingSSB* within the corresponding entry:

5> perform measurements in the carrier frequency and subcarrier spacing indicated by *carrierFreqNR* and *subCarrierSpacingSSB* within the corresponding entry;

5> if the *reportQuantitiesNR* is set to *rsrq*:

6> consider RSRQ as the cell sorting quantity;

5> else:

6> consider RSRP as the cell sorting quantity;

5> if the *measCellListNR* is included:

6> consider cells identified by each entry within the *measCellListNR* to be applicable for idle/inactive measurement reporting;

5> else:

6> consider up to *maxCellMeasIdle* strongest identified cells, according to the sorting quantity, to be applicable for idle/inactive measurement reporting;

5> for all cells applicable for idle/inactive measurement reporting, derive the cell measurement results for the measurement quantities indicated by *reportQuantitiesNR*;

5> store the derived measurement results as indicated by *reportQuantitiesNR* within the *measReportIdleNR* in *VarMeasIdleReport* in decreasing order of the cell sorting quantity, i.e. the best cell is included first, as follows:

6> if *qualityThresholdNR* is configured:

7> include the measurement results from the cells applicable for idle/inactive measurement reporting whose RSRP/RSRQ measurement results are above the value(s) provided in *qualityThresholdNR;*

6> else:

7> include the measurement results from all cells applicable for idle/inactive measurement reporting;

5> if *beamMeasConfigIdle* is included in the associated entry in *measIdleCarrierListNR* and if UE supports *nr-IdleInactiveBeamMeasFR1* or *nr-IdleInactiveBeamMeasFR2* for the FR of the carrier frequency indicated by *carrierFreqNR* within the associated entry, for each cell in the measurement results:

6> derive beam measurements based on SS/PBCH block for each measurement quantity indicated in *reportQuantityRS-IndexNR*, as described in TS 38.215 [89];

6> if the *reportQuantityRS*-*IndexNR* is set to *rsrq*:

7> consider RSRQ as the beam sorting quantity;

6> else:

7> consider RSRP as the beam sorting quantity;

6> set *resultRS-IndexList* to include up to *maxReportRS-Index* SS/PBCH block indexes in order of decreasing sorting quantity as follows:

7> include the index associated to the best beam for the sorting quantity and if *threshRS-Index* is included, the remaining beams whose sorting quantity is above *threshRS-Index*;

6> if the *reportRS-IndexResultsNR* is set to true:

7> include the beam measurement results as indicated by *reportQuantityRS*-*IndexNR*;

NOTE 2: The UE is not required to perform idle/inactive measurements on a given carrier if the SSB configuration of that carrier provided via dedicated signaling is different from the SSB configuration broadcasted in the serving cell, if any.

NOTE 3: How the UE prioritizes which frequencies to measure or report (in case it is configured with more frequencies than it can measure or report) is left to UE implementation.

#### 5.6.20.3 T331 expiry or stop

The UE shall:

1> if T331 expires or is stopped:

2> release the *VarMeasIdleConfig*;

NOTE: It is up to UE implementation whether to continue idle/inactive measurements according to SIB5 and SIB24 configuration or according to NR SIB11 and NR SIB4 configuration as specified in TS 38.331 [82] upon inter-RAT cell reselection to NR, after T331 has expired or stopped.

#### 5.6.20.4 Cell re-selection or selection while T331 is running

The UE shall:

1> if intra-RAT cell selection or reselection occurs while T331 is runing:

2> if *validityAreaList* is configured in *VarMeasIdleConfig*:

3> if the serving cell frequency does not match with the *carrierFreq* of any entry in the *validityAreaList*; or

3> if the serving frequency matches with the *carrierFreq* of an entry in the *validityAreaList*, the *validityCellList* is included in that entry, and the physical cell identity of the serving cell does not match with any entry in *validityCellList*:

4> stop timer T331;

4> perform the actions as specified in 5.6.20.3, upon which the procedure ends;

2> else if *validityArea* is configured in *VarMeasIdleConfig* and UE reselects to a serving cell whose physical cell identity does not match any entry in *validityArea* for the corresponding carrier frequency:

3> stop timer T331;

3> perform the actions as specified in 5.6.20.3, upon which the procedure ends;

1> if inter-RAT cell selection or reselection occurs while timer T331 is running;

2> stop timer T331;

2> perform the actions as specified in 5.6.20.3;

*END OF CHANGE*