3GPP TSG-RAN2 Meeting #118-e *draft* *R2-2206700*

eMeeting, 9-20 May 2022

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.304** | **CR** | **0248** | **rev** | **1** | **Current version:** | **17.0.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network | **x** | Core Network |  |

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| ***Title:*** | Addressing inconsistency for RRM measurement rules | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson, CATT | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_UE\_pow\_sav-Core | | | | |  | ***Date:*** | | | 2022-05-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **A** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In LS R4-2108230 and R4-2207038, RAN4 indicated that 38.304 is inconsistent with RAN4's specification with regards to relaxed measurements.  RAN4 indicates that according to RAN4 specifications for inter-frequency measurements/inter-RAT measurements for a UE fulfilling only low mobility criterion, the requirement is not that measurements are performed once per hour as suggested by current specification. To address this 38.304 can instead refer directly to the requirements defined in RAN4 specifications, namely 38.133 sections 4.2.2.9, 4.2.2.10 and 4.2.2.11.  A similar inconsistency exists for inter-frequency measurements/inter-RAT measurements when both low mobility criterion and not at cell edge criterion are fulfilled. To address this 38.304 can instead refer directly to the requirements defined in RAN4 specifications, namely 38.133 sections 4.2.2.9, 4.2.2.10 and 4.2.2.11. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Remove provisions in section 5.2.4.9.0 about how a UE fulfilling low mobility criterion in 5.2.4.9.1 is measuring intra-frequency, inter-frequency and inter-RAT frequencies. Instead say that the UE may choose to measure according to section 4.2.2.9, 4.2.2.10 and 4.2.2.11 in 38.133.  Remove provisions in section 5.2.4.9.0 about how a UE fulfilling low mobility criterion in 5.2.4.9.1 and not at cell edge criterion in 5.2.4.9.2 is measuring intra-frequency, inter-frequency and inter-RAT frequencies. Instead say that the UE may choose to measure according to section 4.2.2.9, 4.2.2.10 and 4.2.2.11 in 38.133.  Furthermore *highPriorityMeasRelax* parameter is removed from section 5.2.4.7.0 because it is no longer used in 38.304.  **Impact Analysis**  Impacted 5G architecture options: All  Impacted functionality: Relaxed RRM measurements  Inter-operability:  If the network implements this CR but the UE does not, the UE may not perform measurements which do not meet the requirements as expected by the network.  If the UE implements this CR but the network does not, the UE may not perform measurements which do not meet the requirements as expected by the network. | | | | | | | | |
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| ***Consequences if not approved:*** | | RAN2 specifications are not aligned with RAN4 specifications with regards to relaxed RRM measurements. | | | | | | | | |
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| ***Clauses affected:*** | | 5.2.4.7.0, 5.2.4.9.0 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **x** |  | Other core specifications | | | | TS/TR 38.331 CR 3190 | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**<End of modified section>**

##### 5.2.4.7.0 General reselection parameters

Editor's Note: Slice specific cell reselection parameters to be added here and aligned with TS 38.331.

Cell reselection parameters are broadcast in system information and are read from the serving cell as follows:

**absThreshSS-BlocksConsolidation**

This specifies the minimum threshold for beams which can be used for selection of the highest ranked cells, if *rangeToBestCell* is configured, and for beams used for derivation of cell measurement quantity. The parameter in *SIB2* applies to the current serving frequency and the parameter in *SIB4* applies to the corresponding inter-frequency.

**cellReselectionPriority**

This specifies the absolute priority for NR frequency or E-UTRAN frequency.

**cellReselectionSubPriority**

This specifies the fractional priority value added to cellReselectionPriority for NR frequency or E-UTRAN frequency.

**combineRelaxedMeasCondition**

This indicates when the UE needs to fulfil both low mobility criterion and not-at-cell-edge criterion to determine whether to relax measurement requirements.

**combineRelaxedMeasCondition2**

This indicates when a RedCap UE needs to fulfil both stationary criterion and not-at-cell-edge criterion to determine whether to relax measurement requirements.

**nrofSS-BlocksToAverage**

This specifies the number of beams which can be used for selection of the highest ranked cell, if *rangeToBestCell* is configured, and the number of beams used for derivation of cell measurement quantity. The parameter in *SIB2* applies to the current serving frequency and the parameter in *SIB4* applies to the corresponding inter-frequency.

**Qoffsets,n**

This specifies the offsetbetween the two cells.

**Qoffsetfrequency**

Frequency specific offset for equal priority NR frequencies.

**Qhyst**

This specifies the hysteresis value for ranking criteria.

**Qoffsettemp**

This specifies the additional offset to be used for cell selection and re-selection. It is temporarily used in case the RRC Connection Establishment fails on the cell as specified in TS 38.331 [3].

**Qqualmin**

This specifies the minimum required quality level in the cell in dB.

**Qrxlevmin**

This specifies the minimum required Rx level in the cell in dBm.

**Qrxlevminoffsetcell**

This specifies the cell specific Rx level offset in dB to Qrxlevmin.

**Qqualminoffsetcell**

This specifies the cell specific quality level offset in dB to Qqualmin.

**rangeToBestCell**

This specifies the R value range which the cells whose R value is within the range can be a candidate for the highest ranked cell. It is configured in SIB2 and used for intra-frequency and equal priority inter-frequency cell reselection and among the cells on the highest priority frequency(ies) for inter-frequency cell reselection within NR.

**SIntraSearchP**

This specifies the Srxlev threshold (in dB) for intra-frequency measurements.

**SIntraSearchQ**

This specifies the Squal threshold (in dB) for intra-frequency measurements.

**SnonIntraSearchP**

This specifies the Srxlev threshold (in dB) for NR inter-frequency and inter-RAT measurements.

**SnonIntraSearchQ**

This specifies the Squal threshold (in dB) for NR inter-frequency and inter-RAT measurements.

**SSearchDeltaP**

This specifies the threshold (in dB) on Srxlev variation for relaxed measurement.

**SSearchDeltaP-Stationary**

This specifies the threshold (in dB) on Srxlev variation to evaluate stationary criterion for relaxed measurement.

**SSearchThresholdP**

This specifies the Srxlev threshold (in dB) for relaxed measurement.

**SSearchThresholdP2**

This specifies the Srxlev threshold (in dB) to evaluate not-at-cell-edge-criterion for relaxed measurement.

**SSearchThresholdQ**

This specifies the Squal threshold (in dB) for relaxed measurement.

**SSearchThresholdQ2**

This specifies the Squal threshold (in dB) to evaluate not-at-cell-edge-criterion for relaxed measurement.

**TreselectionRAT**

This specifies the cell reselection timer value. For each target NR frequency and for each RAT other than NR, a specific value for the cell reselection timer is defined, which is applicable when evaluating reselection within NR or towards other RAT (i.e. TreselectionRAT for NR is TreselectionNR, for E-UTRAN TreselectionEUTRA).

NOTE: TreselectionRAT is not broadcast in system information but used in reselection rules by the UE for each RAT.

**TreselectionNR**

This specifies the cell reselection timer value TreselectionRAT for NR. The parameter can be set per NR frequency as specified in TS 38.331 [3].

**TreselectionEUTRA**

This specifies the cell reselection timer value TreselectionRAT for E-UTRAN.

**ThreshX, HighP**

This specifies the Srxlev threshold (in dB) used by the UE when reselecting towards a higher priority RAT/ frequency than the current serving frequency. Each frequency of NR and E-UTRAN might have a specific threshold.

**ThreshX, HighQ**

This specifies the Squal threshold (in dB) used by the UE when reselecting towards a higher priority RAT/ frequency than the current serving frequency. Each frequency of NR and E-UTRAN might have a specific threshold.

**ThreshX, LowP**

This specifies the Srxlev threshold (in dB) used by the UE when reselecting towards a lower priority RAT/ frequency than the current serving frequency. Each frequency of NR and E-UTRAN might have a specific threshold.

**ThreshX, LowQ**

This specifies the Squal threshold (in dB) used by the UE when reselecting towards a lower priority RAT/ frequency than the current serving frequency. Each frequency of NR and E-UTRAN might have a specific threshold.

**ThreshServing, LowP**

This specifies the Srxlev threshold (in dB) used by the UE on the serving cell when reselecting towards a lower priority RAT/ frequency.

**ThreshServing, LowQ**

This specifies the Squal threshold (in dB) used by the UE on the serving cell when reselecting towards a lower priority RAT/ frequency.

**TSearchDeltaP**

This specifies the time period over which the Srxlev variation is evaluated forrelaxed measurement.

**TSearchDeltaP-Stationary**

This specifies the time period over which the Srxlev variation is evaluated for stationary criterion forrelaxed measurement.

**<End of modified section>**

**<Start of modified section>**

##### 5.2.4.9.0 Relaxed measurement rules

When the UE is required to perform measurements of intra-frequency cells or NR inter-frequency cells or inter-RAT frequency cells according to the measurement rules in clause 5.2.4.2:

- if *lowMobilityEvaluation* is configured and *cellEdgeEvaluation* is not configured; and

- if the UE has performed normal intra-frequency, NR inter-frequency, or inter-RAT frequency measurements for at least TSearchDeltaP after (re-)selecting a new cell; and

- if the relaxed measurement criterion in clause 5.2.4.9.1 is fulfilled for a period of TSearchDeltaP:

- the UE may choose to perform relaxed measurements for intra-frequency cells, NR inter-frequency cells or inter-RAT frequency cells according to relaxation methods in clauses 4.2.2.9, 4.2.2.10, and 4.2.2.11 in TS 38.133 [8];

- if *cellEdgeEvaluation* is configured and *lowMobilityEvaluation* is not configured; and

- if the relaxed measurement criterion in clause 5.2.4.9.2 is fulfilled:

- the UE may choose to perform relaxed measurements for intra-frequency cells according to relaxation methods in clauses 4.2.2.9 in TS 38.133 [8];

- if the serving cell fulfils Srxlev ≤ SnonIntraSearchP or Squal ≤ SnonIntraSearchQ:

- the UE may choose to perform relaxed measurements for NR inter-frequency cells or inter-RAT frequency cells according to relaxation methods in clauses 4.2.2.10, and 4.2.2.11 in TS 38.133 [8];

- if both *lowMobilityEvaluation* and *cellEdgeEvaluation* are configured:

- if the UE has performed normal intra-frequency, NR inter-frequency, or inter-RAT frequency measurements for at least TSearchDeltaP after (re-)selecting a new cell; and

- if the relaxed measurement criterion in clause 5.2.4.9.1 is fulfilled for a period of TSearchDeltaP; and

- if the relaxed measurement criterion in clause 5.2.4.9.2 is fulfilled:

- the UE may choose to perform relaxed measurements for NR intra-frequency cells, inter-frequency cells or inter-RAT frequency cells according to relaxation methods in clauses 4.2.2.9, 4.2.2.10, and 4.2.2.11 in TS 38.133 [8];

- else:

- if the UE has performed normal intra-frequency, NR inter-frequency, or inter-RAT frequency measurements for at least TSearchDeltaP after (re-)selecting a new cell, and the relaxed measurement criterion in clause 5.2.4.9.1 is fulfilled for a period of TSearchDeltaP; or,

- if the relaxed measurement criterion in clause 5.2.4.9.2 is fulfilled:

- if *combineRelaxedMeasCondition* is not configured:

- the UE may choose to perform relaxed measurements for intra-frequency cells, NR inter-frequency cells of equal or lower priority, or inter-RAT frequency cells of lower priority according to relaxation methods in clauses 4.2.2.9, 4.2.2.10, and 4.2.2.11 in TS 38.133 [8];

- if the serving cell fulfils Srxlev ≤ SnonIntraSearchP or Squal ≤ SnonIntraSearchQ:

- the UE may choose to perform relaxed measurement for NR inter-frequency cells of higher priority, or inter-RAT frequency cells of higher priority according to relaxation methods in clauses 4.2.2.10, and 4.2.2.11 in TS 38.133 [8];

For a RedCap UE:

- if *stationaryMobilityEvaluation* is configured and *cellEdgeEvaluationWhileStationary* is not configured; and

- if the UE has performed normal intra-frequency, NR inter-frequency, or inter-RAT frequency measurements for at least TSearchDeltaP-Stationary after (re-)selecting a new cell; and

- if the relaxed measurement criterion in clause 5.2.4.9.3 is fulfilled for a period of TSearchDeltaP-Stationary:

- the UE may choose to perform relaxed measurements for [TBD] according to relaxation methods in clauses [TBD];

- if both *stationaryMobilityEvaluation* and *cellEdgeEvaluationWhileStationary* are configured:

- if the UE has performed normal intra-frequency, NR inter-frequency, or inter-RAT frequency measurements for at least TSearchDeltaP-Stationary after (re-)selecting a new cell; and

- if the relaxed measurement criterion in clause 5.2.4.9.4 is fulfilled:

- the UE may choose to perform relaxed measurements for [TBD] according to relaxation methods in clauses [TBD];

- else:

- if *combineRelaxedMeasCondition2* is not configured:

- if the UE has performed normal intra-frequency, NR inter-frequency, or inter-RAT frequency measurements for at least TSearchDeltaP-Stationary after (re-)selecting a new cell; and

- if the relaxed measurement criterion in clause 5.2.4.9.3 is fulfilled for a period of TSearchDeltaP-Stationary:

- the UE may choose to perform relaxed measurements for [TBD] according to relaxation methods in clauses [TBD];

NOTE 1: It is up to UE implementation when to start performing relaxed measurements in RRC Idle/Inactive if multiple methods are configured.

NOTE 2: It is up to UE implementation which relaxation method to perform based on the "allowed" cases as specified in TS 38.133 [8] for RRC Idle/Inactive if multiple methods are configured.

The above relaxed measurements and no measurement are not applicable for frequencies that are included in *VarMeasIdleConfig*, if configured and for which the UE supports dual connectivity or carrier aggregation between those frequencies and the frequency of the current serving cell.

**<End of modified section>**