**3GPP TSG-RAN2 Meeting #121 *draft R2-2301970***

**Athens, Greece, 27 Feb – 03 Mar, 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.304** | **CR** | **0318** | **rev** | **1** | **Current version:** | **17.3.0** |  |
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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:*** | CR to 38.304 on relaxed measurements | | | | | | | | | |
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| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_NTN\_solutions-Core | | | | |  | ***Date:*** | | | 2023-03-01 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | RAN4 introduced relaxed measurements for GSO. In RAN2 #119bis-e, RAN2 has agreed to reuse the existing relaxed measurement configuration in SIB2 (parameter *relaxedMeasurement*). In RAN4 LS R4-2220741, RAN4 further clarified that for intra-frequency, relaxed measurement can only be configured by GSO serving cell, for inter-frequency, relaxed measurement can be configured by both GSO and NGSO serving cell. The relaxed measurements only apply to GSO neighbour cells.  In current TS 38.304, corresponding clauses in RAN4 spec (TS 38.133) are referenced, however, the clauses related to measurements of intra-frequency NR cells and inter-frequency NR cells for UE configured with relaxed measurement criterion are not mentioned. | | | | | | | | |
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| ***Summary of change:*** | | Add references to 4.2C.2.7 and 4.2C.2.8 of RAN4 spec.  **Impact analysis**  Impacted 5G architecture options:  NR SA  Impacted functionality:  Relaxed measurement in NTN  Inter-operability issues:  No inter-operability issues as this is only related to UE behaviors in RRC\_IDLE/RRC\_INACTIVE | | | | | | | | |
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| ***Consequences if not approved:*** | | Relaxed monitoring for GSO neighbour cells are not captured in RAN2 spec. | | | | | | | | |
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| ***Clauses affected:*** | | 5.2.4.9 | | | | | | | | |
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|  | | **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>

5.2.4.9 Relaxed measurement

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, 4.2.2.11, 4.2C.2.7 and 4.2C.2.8 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 and 4.2C.2.7 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, 4.2.2.11 and 4.2C.2.8 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, 4.2.2.11, 4.2C.2.7 and 4.2C.2.8 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, 4.2.2.11, 4.2C.2.7 and 4.2C.2.8 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, 4.2.2.11 and 4.2C.2.8 in TS 38.133 [8];

- if the UE is a RedCap UE; and

- 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 intra-frequency cells, NR inter-frequency cells, or inter-RAT frequency cells according to relaxation methods in clauses 4.2B.2.9, 4.2B.2.10, and 4.2B.2.11 in TS 38.133 [8];

- if the UE is a RedCap UE; and

- 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 intra-frequency cells, NR inter-frequency cells, or inter-RAT frequency cells according to relaxation methods in clauses 4.2B.2.9, 4.2B.2.10, and 4.2B.2.11 in TS 38.133 [8];

- 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 intra-frequency cells, NR inter-frequency cells, or inter-RAT frequency cells according to relaxation methods in clauses 4.2B.2.9, 4.2B.2.10, and 4.2B.2.11 in TS 38.133 [8];

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 Change>