**3GPP TSG-RAN WG4 Meeting #116 *R4-2509286***

**Bengaluru , IN, 25th – 29th Aug, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **Draft** | **rev** | **-** | **Current version:** | **19.1.0** |  |
|  | | | | | | | | |
| *For* ***HE******LP*** *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 |  | Core Network |  |

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| ***Title:*** | Draft CR to TS 38.133 on measurements of inter-RAT E-UTRAN cells for UE with LP-WUR | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | CATT | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_LPWUS-Core | | | | |  | ***Date:*** | | | 2025-08-15 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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. | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The requirements for measurements of inter-RAT E-UTRAN cells for both nomral UE and RedCap UE with LP-WUR need to be introduced. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add measurements of inter-RAT E-UTRAN cells for both normal UE and RedCap UE with LP-WUR core requirements in clause 4.X.2.6 and 4.X.2.6A. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The requirements for measurements of inter-RAT E-UTRAN cells for both UE and RedCap UE with LP-WUR would be missed for R19 LP-WUS. | | | | | | | | |
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| ***Clauses affected:*** | | (new) 4.X.2.6, (new) 4.X.2.6A. | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 1>

#### 4.X.2.6     Measurements of inter-RAT E-UTRAN cells for UE with LP-WUR

##### 4.X.2.6.1 Introduction

This clause contains the requirements for measurements on inter-RAT E-UTRAN cells performed by MR when the UE with LP-WUR is configured with any of the following relaxed measurement criteria:

- Relaxed measurement criteria for UE with LP-WUR defined in clause 5.2.4.x.2 in [1],

- Serving cell measurement offloading criteria for UE with LP-WUR defined in clause 5.2.4.x.4 in [1].

##### 4.X.2.6.2 Measurements for UE fulfilling relaxed measurement criteria

This clause contains requirements for measurements on inter-RAT E-UTRAN cells provided that:

- Relaxed measurement criteria for UE with LP-WUR defined in clause 5.2.4.x.2 in [1] are fulfilled.

The UE shall not relax measurements on inter-RAT E-UTRAN carriers configured for idle mode CA/DC measurements (defined in clause 4.4) while T331 is running.

The requirements defined in clause 4.2.2.5 apply for this clause except that:

- When Srxlev ≤ SnonIntraSearchP or Squal ≤ SnonIntraSearchQ, then

- when T331 is running, for a UE not configured with eDRX\_IDLE, Tdetect,EUTRAN\_Relax, Tmeasure,EUTRAN\_Relax and Tevaluate,EUTRAN\_Relax for inter-RAT E-UTRAN carriers configure and not configured for idle mode CA/DC measurements are specified in Table 4.2.2.5-1.

- when T331 is not running, for a UE not configured with eDRX\_IDLE, Tdetect,EUTRAN\_Relax, Tmeasure,EUTRAN\_Relax and Tevaluate,EUTRAN\_Relax for inter-RAT E-UTRAN layers not configured for idle mode CA/DC measurements and inter-RAT E-UTRAN configured for idle mode CA/DC measurements and mobility measurement are as specified in table 4.X.2.6.2-1.

- When Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ the requirements are defined as follows:

- when T331 is running, the UE shall search for inter-RAT E-UTRAN configured for idle mode CA/DC measurements and inter-RAT E-UTRAN frequency layers of higher priority at least every Thigher\_priority\_search where Thigher\_priority\_search is specified in clause 4.2.2.7.

- when T331 is not running, the UE shall search for inter-RAT E-UTRAN frequency layers of higher priority at least every K2\*Thigher\_priority\_search where Thigher\_priority\_search is specified in clause 4.2.2.7 and, K2 = 60.

Table 4.X.2.6.2-1: Tdetect,EUTRAN\_Relax, Tmeasure,EUTRAN\_Relax, and Tevaluate,EUTRAN\_Relax for UE with LP-WUR

|  |  |  |  |
| --- | --- | --- | --- |
| DRX cycle length [s] | Tdetect,EUTRAN\_Relax [s] (number of DRX cycles) | Tmeasure,EUTRAN\_Relax [s] (number of DRX cycles) | Tevaluate,EUTRAN\_Relax  [s] (number of DRX cycles) |
| 0.32 | 11.52 x K1 (36 x K1) | 1.28 x K1 (4 x K1) | 5.12 x K1 (16 x K1) |
| 0.64 | 17.92 x K1 (28 x K1) | 1.28 x K1 (2 x K1) | 5.12 x K1 (8 x K1) |
| 1.28 | 32 x K1 (25 x K1) | 1.28 x K1 (1 x K1) | 6.4 x K1 (5 x K1) |
| 2.56 | 58.88 x K1 (23 x K1) | 2.56 x K1 (1 x K1) | 7.68 x K1 (3 x K1) |
| NOTE 1: K1 = 16 is the measurement relaxation factor applicable for UE with LP-WUR fulfilling relaxed measurement criterion. | | | |

##### 4.X.2.6.3 Measurements for UE fulfilling serving cell measurement offloading entry criteria

This clause contains requirements for measurements on inter-RAT E-UTRAN cells provided that:

- Entry conditions for serving cell measurement offloading for UE with LP-WUR defined in clause 5.2.4.x.4 in [1] are fulfilled.

The UE shall not relax measurements on inter-RAT E-UTRAN carriers configured for idle mode CA/DC measurements (defined in clause 4.4) while T331 is running.

The requirements defined in clause 4.2.2.5 apply for this clause except that:

- The UE shall perform full serving cell measurement offloading to LR and turn off MR.

- when T331 is not running, the UE shall search for inter-RAT E-UTRAN layers of higher priority at least every K2\*Thigher\_priority\_search where Thigher\_priority\_search is specified in clause 4.2.2.7 and, K2 = 60.

- when T331 is running, the UE shall search for inter-RAT E-UTRAN layers of higher priority and inter-RAT E-UTRAN layers configured for idle mode DC measurements at least every Thigher\_priority\_search where Thigher\_priority\_search is specified in clause 4.2.2.7.

Note: RAN4 assumes Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ is always met when the entry conditions for serving cell measurement offloading are met.

#### 4.X.2.6A   Measurements of inter-RAT E-UTRAN cells for RedCap with LP-WUR

##### 4.X.2.6A.1 Introduction

This clause contains the requirements for measurements on inter-RAT E-UTRAN cells performed by RedCap UE when the UE with LP-WUR is configured with any of the following relaxed measurement criteria:

- Relaxed measurement criteria for UE with LP-WUR defined in clause 5.2.4.x.2 in [1],

- Serving cell measurement offloading criteria for UE with LP-WUR defined in clause 5.2.4.x.4 in [1].

##### 4.X.2.6A.2 Measurements for UE fulfilling relaxed measurement criteria

This clause contains requirements for measurements on inter-RAT E-UTRAN cells provided that:

- Relaxed measurement criteria for UE with LP-WUR defined in clause 5.2.4.x.2 in [1] are fulfilled:

The requirements defined in clause 4.2B.2.5 apply for this clause except that:

- When Srxlev ≤ SnonIntraSearchP or Squal ≤ SnonIntraSearchQ:

- For a UE not configured with eDRX\_IDLE, Tdetect,EUTRAN\_Relax, Tmeasure,EUTRAN\_Relax and Tevaluate,EUTRAN\_Relax are specified in Table 4.2B.2.5-1.

- When Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ the requirements are defined as follows

- The UE shall search for inter-RAT E-UTRAN frequency layers of higher priority at least every K2\*Thigher\_priority\_search where Thigher\_priority\_search is specified in clause 4.2.2.7 and, K2 = 60.

##### 4.X.2.6A.3 Measurements for UE fulfilling serving cell measurement offloading entry criteria

This clause contains requirements for measurements on inter-RAT E-UTRAN cells provided that:

- Entry conditions for serving cell measurement offloading for UE with LP-WUR defined in clause 5.2.4.x.4 in [1] are fulfilled.

The requirements defined in clause 4.2B.2.5 apply for this clause except that:

- The UE shall perform full serving cell measurement offloading to LR and turn off MR.

- The UE shall search for inter-RAT E-UTRAN layers of higher priority at least every K2\*Thigher\_priority\_search where Thigher\_priority\_search is specified in clause 4.2.2.7 and, K2 = 60.

Note: RAN4 assumes Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ is always met when the entry conditions for serving cell measurement offloading are met.

<End of Change 1>