**3GPP TSG-RAN4 Meeting #116 *R4-2512212***

**Bengaluru, India, 25th – 29th August, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **DraftCR** | **rev** | **-** | **Current version:** | **19.1.0** |  |
|  | | | | | | | | |
| *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 |  | Core Network |  |

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| ***Title:*** | Draft CR for Measurements of inter-frequency NR cells for UE with LP-WUR | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | LG Electronics | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_LPWUS-Core | | | | |  | ***Date:*** | | | 2025-08-14 |
|  |  | | | |  | |  | | |  |
| ***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](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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Measurements requirements of inter-frequency NR cells for UE with LP-WUR requirements are introduced in Rel-19 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Measurements requirements of inter-frequency NR cells for UE with LP-WUR | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | No Measurements requirements of inter-frequency NR cells for UE with LP-WUR which introded in Rel-19 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.x.2.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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----------------------------**

#### 4.X.2.5 Measurements of inter-frequency NR cells for UE with LP-WUR

##### 4.X.2.5.1 Introduction

This clause contains the requirements for measurements on inter-frequency NR cells for UE with LP-WUR when the UE is configured with any of following measurement criteria:

- Relaxed measurement criterion for UE with LP-WUR defined in TS 38.304 [1],

- Serving cell measurement offloading criterion for UE with LP-WUR defined in TS 38.304 [1],

##### 4.X.2.5.2 Measurements for UE with LP-WUR fulfilling relaxed measurement criterion

The requirements for measurements on inter-frequency NR cells specified in this clause apply provided that:

- UE is configured with relaxed measurement [2] criterion and UE has fulfilled the relaxed measurement [2] criterion.

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

The requirements defined in clause 4.2.2.4 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,NR\_Inter, Tmeasure,NR\_Inter and Tevaluate,NR\_Inter for NR inter-frequency layers configure and not configured for idle mode CA/DC measurements specified in Table 4.2.2.4-1.

- When T331 is not running, for a UE not configured with eDRX\_IDLE, Tdetect,NR\_Inter\_Relax, Tmeasure,NR\_Inter\_Relax and Tevaluate,NR\_Inter\_Relax for NR inter-frequency layers not configured for idle mode CA/DC measurements and NR inter-frequency layers configured for idle mode CA/DC measurements and mobility measurement are as specified in table 4.X.2.5.2-1.

When Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ,

- When T331 is running, the UE shall search for NR inter-frequency layers configured for idle mode CA/DC measurements and inter-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-frequency layers of higher priority at least every K2\*Thigher\_priority\_search where Thigher\_priority\_search is described in clause 4.2.2.7 and, K2 = 60

Table 4.X.2.5.2-1: Tdetect,NR\_Inter\_Relax, Tmeasure,NR\_Inter\_Relax and Tevaluate,NR\_Inter\_Relax

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| DRX cycle length [s] | Scaling Factor (N1) | | Tdetect,NR\_Inter\_Relax [s] (number of DRX cycles) | Tmeasure,NR\_Inter\_Relax [s] (number of DRX cycles) | Tevaluate,NR\_Inter\_Relax [s] (number of DRX cycles) |
| FR1 | FR2-1Note1 |
| 0.32 | 1 | 8 | 11.52 x N1 x K1 x 1.5 (36 x N1 x K1 x 1.5) | 1.28 x N1 x K1x 1.5 (4 x N1 x K1 x 1.5) | 5.12 x N1 x K1x 1.5 (16 x N1 x K1 x 1.5) |
| 0.64 |  | 5 | 17.92x N1 x K1 (28 x N1 x K1) | 1.28 x N1 x K1 (2 x N1 x K1) | 5.12 x N1 x K1 (8 x N1 x K1) |
| 1.28 |  | 4 | 32 x N1 x K1 (25 x N1 x K1) | 1.28 x N1 x K1 (1 x N1 x K1) | 6.4 x N1 x K1 (5 x N1 x K1) |
| 2.56 |  | 3 | 58.88 x N1 x K1 (23 x N1 x K1) | 2.56 x N1 x K1 (1 x N1 x K1) | 7.68 x N1 x K1 (3 x N1 x K1) |
| NOTE 1: Applies for UE supporting FR2-1 power class 2&3&4. For UE supporting FR2-1 power class 1 or 5, N1 = 8 for all DRX cycle length.  NOTE 2: K1 = 16 is the measurement relaxation factor applicable for UE with LP-WUR fulfilling relaxed measurement criterion. | | | | | |

##### 4.X.2.5.3 Measurements for UE with LP-WUR fulfilling serving cell measurement offloading criterion

This clause contains requirements for measurements on inter-frequency NR cells provided that:

- Entry conditions for serving cell measurement offloading for UE with LP-WUR defined in clause 5.2.4.x.4 in 38.304 [1] are fulfilled.

- UE is configured with Rel-19 LP-WUR and UE has fulfilled serving cell measurement offloading criterion.

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

The requirements defined in clause 4.2.2.4 apply for this clause except that:

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

- When T331 is running, the UE shall search for inter-frequency layers of higher priority and inter-frequency NR layers configured for idle mode DC measurements at least every Thigher\_priority\_search where Thigher\_priority\_search is described in clause 4.2.2.7.

#### 4.X.2.5A Measurements of inter-frequency NR cells for Redcap with LP-WUR

##### 4.X.2.5A.1 Introduction

This clause contains the requirements for measurements on inter-frequency NR cells for Redcap with LP-WUR when the UE is configured with any of following relaxed measurement criteria:

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

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

When the relaxed measurement criterion is not met, or the serving cell measurement offloading criterion is not met or both the relaxed measurement and the serving cell measurement offloading criteria are not met, the requirements in clause 4.2B.2.4 apply for UE.

##### 4.X.2.5A.2 Measurements for UE with LP-WUR fulfilling relaxed measurement criterion

The requirements for measurements on inter-frequency NR cells specified in this clause apply provided that:

- UE is configured with relaxed measurement [2] criterion and UE has fulfilled the relaxed measurement [2] criterion.

The requirements defined in clause 4.2B.2.4 apply for this clause except that:

When Srxlev ≤ SnonIntraSearchP or Squal ≤ SnonIntraSearchQ:

- For a UE not configured with eDRX\_IDLE, Tdetect,NR\_Inter\_Relax, Tmeasure,NR\_Inter\_Relax and Tevaluate,NR\_Inter\_Relax are as specified in table 4.X.2.5.2-1.

When Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ:

- The UE shall search for inter-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.2.5A.3 Measurements for UE with LP-WUR fulfilling serving cell measurement offloading criterion

The requirements for measurements on inter-frequency NR cells specified in this clause apply provided that:

- UE is configured with serving cell measurement offloading [2] criterion and UE has fulfilled the serving cell measurement offloading [2] criterion.

The requirements defined in clause 4.2B.2.4 apply for this clause except that:

- The UE shall search for inter-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

**----------------------END OF CHANGE----------------------------**