**3GPP TSG-RAN4 Meeting # 116**-**bis *R4-2514376***

**Prague, CZ, October 13th – October 17th, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **DraftCR** | **rev** | **-** | **Current version:** | **19.2.0** |  |
|  | | | | | | | | |
| *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:*** | DraftCR to TS 38.133 on LP-WUR requirements | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_LPWUS-Core | | | | |  | ***Date:*** | | | 2025-10-03 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***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:*** | | Adding known condition part to applicability | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Draft CR corrects specification for LP-WUS / WUR | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Inaccurate requirements | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3.6, 4.x | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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>

### 3.6.22 Applicability of requirements for UE with LP-WUR

The requirements for LP-WUR and LP-WUS apply under the assumption that the LR LP-SS or PSS/SSS and the MR PSS/SSS are operating on the same carrier.

<End of Change 1>

<Start of Change 2>

## 4.8 IDLE mode measurement for LP-WUS operation

### 4.x.1 Introduction

The UE supporting *LP-WUS capability* in RRC\_IDLE shall be capable of:

* performing serving cell measurement based on LP-SS or SSB by LR.
* performing serving cell and neighbour cell measurement relaxation by MR when the configured MR relaxation conditions are fulfilled together with LP-SS or SSB based serving cell measurement by LR.

### 4.8.2 Requirements

#### 4.8.2.1 UE Measurement Capability

##### 4.8.2.1.1 LP-WUR measurement capability

UE LP-WUR shall be capable of monitoring one LP-SS or PSS/SSS at least on the serving cell carrier.

##### 4.8.2.1.2 MR measurement capability with LP-WUR

For the UE measurement capability, the requirements in clause 4.2.2.1 apply.

For the Redcap UE measurement capability, the requirements in clause 4.2B.2.1 apply.

<End of Change 2>

<Start of Change 3>

4.x.2.2 LP-WUR Serving cell measurement and evaluation requirement

4.x.2.2.1 General description

This sub-clause specifies the serving cell measurements and evaluation requirements for a UE with LP-WUR in RRC\_IDLE State.

The requirements apply for to a UE supporting *FG-62-1* or *FG-62-1a* and when the corresponding evaluation thresholds are configured by higher layers.

The requirements in this clause 4.x.2 apply when the LP-WUR is in ON state.

Before entering LP-WUS monitoring, RRM offloading or RRM relaxation mode and after exiting LP-WUS monitoring, RRM offloading and RRM relaxation mode, it is up to UE implementation when and how to turn the LP-WUR to ON state for serving cell measurement.

When LP-WUR is in the ON state, the UE may perform serving cell measurements based on LP-SS or PSS/SSS, where the requirements for LP-SS based measurements and evaluations in the clause 4.x.2 apply only if the LP-SS is configured and transmitted on the same carrier frequency as the serving cell.

The requirements in section 4.2 apply when the network has not configured thresholds for RRM measurement offloading or RRM measurement relaxation, or when the corresponding conditions are not fulfilled. If the UE applies RRM measurement offloading or RRM measurement relaxation, it shall perform measurements based on LP-SS or PSS/SSS following the requirements specified in section 4.x.2.2 or 4.x.2.3.

The requirements in this clause apply for Redcap UE supporting FG-62-1 or, FG-62-1a.

LP-WUR evaluation requirements specified in 4.x.2.2 and 4.x.2.3 apply to LP-WUR entry and exit criteria evaluation.

Prior to performing LP-WUR evaluation specified in 4.x.2.2 or 4.x.2.3, if configured, the UE shall meet the corresponding LR entry criteria at least once for:

- entry condition for LP-WUS monitoring

- entry condition for RRM relaxation

- entry condition for RRM offloading

4.x.2.2.2 LP-WUR measurement and evaluation requirements for PSS/SSS

Upon meeting the entry conditions for RRM offloading or RRM relaxation, the UE shall measure the SS-RSRP and SS-RSRQ level once every LO cycle and evaluate whether one or more of the following conditions defined in TS 38.304 [1], if configured, are met within Tevaluate-LP-WUR-PSS/SSS

*-* exit condition for LP-WUS monitoring

- exit condition for RRM offloading

- exit condition for RRM relaxation

The UE shall filter the SS-RSRP and SS-RSRQ measurements of the serving cell using at least 2 measurement samples. Within the set of measurements used for the filtering, at least two measurement samples shall be spaced by *LO-periodicity*/2.

**Table 4.x.2.2-1: Tevaluate-LP-WUR-PSS/SSS for FR1 and FR2**

|  |  |  |  |
| --- | --- | --- | --- |
| **LO periodicity [s] Note 1** | **Scaling Factor (NLP-WUS)** | | **Tevaluate-LP-WUR-PSS/SSS (number of LO Cycles [s])** |
| **FR1** | **FR2** |
| 0.32 | 1 | 8 | 0.32 x 4x NLP-WUS (1.28s x NLP-WUS) |
| 0.64 | 5 | 0.64 x 4 x NLP-WUS (2.56s x NLP-WUS) |
| 1.28 | 4 | 1.28 x 4 x NLP-WUS (5.12s x NLP-WUS) |
| 2.56 | 3 | 2.56 x 4 x NLP-WUS (10.24s x NLP-WUS) |
| Note 1: The LO periodicity is the same as the configured DRX cycle length | | | |

The UE shall evaluate and consider an *entry* or *exit* criteria is fulfilled within Tevaluate-LP-WUR-PSS/SSS, provided that the corresponding criteria is met by a margin of 6 dB for SS-RSRP and/or 3.5 dB for SS-RSRQ in FR1 and by a margin of 7.5 dB for SS-RSRP and/or 3.5 dB for SS-RSRQ in FR2 when SSB Ês/Iot ≥ -3dB

Upon fulfilling a configured entry or exit condition, the UE shall perform corresponding actions as defined in clause 5.2 in TS 38.304 [1].

The requirements in this clause apply for UE which supports FG 62-1a and measures PSS/SSS.

4.x.2.2.3 LP-WUR measurement and evaluation requirements for LP-SS

Upon meeting the entry conditions for RRM offloading or RRM relaxation, the UE shall measure the LP-RSRP and LP-RSRQ level once every LP-SS cycle and evaluate whether one or more of the following conditions defined in TS 38.304 [1] are met within Tevaluate-LP-WUR-LP-SS

- exit condition for LP-WUS monitoring

- exit condition for RRM offloading

The UE shall filter the LP-SS measurements of the serving cell using at least 2 measurement samples.

**Table 4.x.2.3-1: Tevaluate-LP-WUR-LP-SS**

|  |  |
| --- | --- |
| **LP-SS periodicity [s]** | **Tevaluate-LP-WUR-LP-SS**  **(number of LP-SS Cycles [s])** |
| 0.16 | 0.16 x 6(0.96s) |
| 0.32 | 0.32 x 6 (1.92s) |

The UE shall evaluate and consider an *entry* or *exit* criteria is fulfilled within Tevaluate-LP-WUR-LP-SS, provided that the criteria is met by a margin of 6 dB for LP-RSRP and/or 3.5 dB for LP-RSRQ in FR1 when LP-SS Ês/Iot ≥ -3dB

Upon fulfilling a configured entry or exit condition, the UE shall perform corresponding actions as defined in clause 5.2 in TS 38.304 [1].

The requirements in this clause apply for UE which supports FG 62-1, or UE which supports FG 62-1a-LP-SS and measures only LP-SS.

4.8.2.3 MR relaxed serving cell measurement and evaluation requirements with LR

The requirements in this clause apply for UE supporting *FG-62-1* or *FG-62-1a* and when the MR relaxation conditions specified in TS 38.304 [1] are fulfilled.

4.8.2.3.1 Relaxed requirements for evaluation of cell selection criterion

When the configured LP-WUS MR relaxation conditions are not the requirements in clause 4.2.2.2 shall apply.

When UE has fulfilled the entry criteria for relaxed measurement mode as defined in TS 38.304 [1], the UE shall measure the SS-RSRP and SS-RSRQ level of the serving cell and evaluate the cell selection criterion S defined in TS 38.304 [1] for the serving cell at least once every N1\*16 DRX cycle.

The UE shall filter the SS-RSRP and SS-RSRQ measurements of the serving cell using at least 2 measurements. Within the set of measurements used for the filtering, at least two measurements shall be spaced by either 8 DRX cycles or DRX cycle/2.

If the UE has evaluated according to table 4.X.2.3.1-1 in 16\*Nserv consecutive DRX cycles that the serving cell does not fulfil the cell selection criterion S, the LP-WUS UE shall initiate the measurements of all neighbour cells indicated by the serving cell, regardless of the measurement rules currently limiting LP-WUS UE measurement activities.

If the UE in RRC\_IDLE has not found any new suitable cell based on searches and measurements using the intra-frequency, inter-frequency and inter-RAT information indicated in the system information during the time T, the UE shall initiate cell selection procedures for the selected PLMN as defined in TS 38.304 [1], where T= 10s.

**Table 4.X.2.3.1-1: Nserv**

|  |  |  |  |
| --- | --- | --- | --- |
| **DRX cycle length [s]** | **Scaling Factor (N1)** | | **Nserv [number of 16\*DRX cycles]** |
| **FR1** | **FR2-1Note1** |
| 0.32 | 1 | 8 | N1\*4 |
| 0.64 | 5 | N1\*4 |
| 1.28 | 4 | N1\*2 |
| 2.56 | 3 | N1\*2 |
| 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. | | | |

4.8.2.3.2 MR Relaxation exit condition evaluation during LR operation

When UE has fulfilled the entry criteria for relaxed measurement mode as defined in TS 38.304 [1], the UE shall measure the SS-RSRP and SS-RSRQ level of the serving cell and evaluate the following LP-WUR related conditions defined in TS 38.304 [1], if configured, for the serving cell at least once every N1\*16 DRX cycle.

*-* exit condition for relaxed measurement mode

The UE shall filter the SS-RSRP and SS-RSRQ measurements of the serving cell using at least 2 measurements. Within the set of measurements used for the filtering, at least two measurements shall be spaced by either 8 DRX cycles or DRX cycle/2.

If the UE has evaluated according to table 4.X.2.3.2-1 in 16\*Nserv consecutive DRX cycles that the serving cell fulfils the exit condition for relaxed measurement mode, the UE shall perform corresponding actions as defined in clause 5.2.4.x in [1].

**Table 4.X.2.3.2-1: Nserv when UE is in relaxed measurement mode**

|  |  |  |  |
| --- | --- | --- | --- |
| **DRX cycle length [s]** | **Scaling Factor (N1)** | | **Nserv [number of 16\*DRX cycles]** |
| **FR1** | **FR2-1Note1** |
| 0.32 | 1 | 8 | N1\*4 |
| 0.64 | 5 | N1\*4 |
| 1.28 | 4 | N1\*2 |
| 2.56 | 3 | N1\*2 |
| 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. | | | |

4.8.2.3A Measurement and evaluation of serving cell by RedCap UE

The requirements in this clause apply for RedCap UE measurement and evaluation of serving cell using MR, when the RedCap UE is not in serving cell measurement offloading mode as defined in [1].

Requirements defined in clause 4.2B.1 shall apply.

4.8.2.3A.1 Requirements for evaluation of cell selection criterion for RedCap UE

Requirements in clause 4.x.2.3.1 shall apply, except that clause 4.2.2.2 is replaced with 4.2B.2.2.

4.8.2.3A.2 Requirements for evaluation of LP-WUS related conditions for RedCap UE

Requirements defined in clause 4.x.2.3.2 shall apply.

<End of Change 3>