**3GPP TSG- Meeting #**

**, , - Aug, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *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 on LP-WUR requirements for FR2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_LPWUS-Core | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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:*** | | Introduction of FR2 requirements for LR and MR | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduced Rx beam sweeeping scaling factor for LR and measurement relaxation requirements for MR in FR2 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | FR2 requirements will be incomplete | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.x.2.2.2, 4.x.2.2.3, 4.x.2.3.1, 4.x.2.3.2, | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 Change1>>

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

The UE shall measure the LP-SSS-RSRP and LP-SSS-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

- [entry condition for LP-WUS monitoring]

- [entry condition for RRM relaxation]

- [entry condition for RRM offloading]

*-* 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**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **LO periodicity [s] Note 1** | **Scaling Factor (N1WUS)** | | | **Tevaluate-LP-WUR-PSS/SSS [s] (number of LO Cycles)** |
| **FR1** | **FR2** | |
| 0.32 | 1 | 8 | | 0.32 x 2 x **[y]** x N1WUS (2 x **[y]** x N1WUS) |
| 0.64 | 5 | | 0.64 x 2 x **[y]** x N1WUS (2 x **[y]** x N1WUS) |
| 1.28 | 4 | | 1.28 x 2 x **[y]** x N1WUS (2 x **[y]** x N1WUS) |
| 2.56 | 3 | | 2.56 x 2 x **[y]** x N1WUS (2 x **[y]** x N1WUS) |
| Note 1: The LO periodicity is the same as the configured DRX cycle length | | | | |

The UE shall evaluate and consider the corresponding entry criteria fulfilled within Tevaluate-LP-WUR-PSS/SSS, provided that the criteria is met by a margin of [±5.5 or ±6] dB in FR1 and by a margin of [±7 or ±7.5] dB in FR2 when SSB Ês/Iot ≥ -3dB

The UE shall evaluate and consider the corresponding exit criteria fulfilled within Tevaluate-LP-WUR- PSS/SSS, provided that the criteria is met by a margin of [±5.5 or ±6] dB in FR1 and by a margin of [±7 or ±7.5] dB in FR2 when SSB Ês/Iot ≥ -3dB.

Note: When a configured entry or exit condition is fulfilled, the UE shall perform corresponding actions as defined in clause XX in TS 38.304 [1].

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

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

- [entry condition for LP-WUS monitoring]

- [entry condition for RRM relaxation]

- [entry condition for RRM offloading]

*-* exit condition for LP-WUS monitoring

- exit condition for RRM offloading

The UE shall filter the LP-RSRP and LP-RSRQ 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]** | **Scaling Factor (N1WUS)** | | **Tevaluate-LP-WUR-LP-SS [s]**  **(number of LP-SS Cycles)** |
| **FR1** | **FR2** |
| 0.16 | 1 | 8 | 0.16 x 2 x **[x]** x N1WUS(2 x **[x]** x N1WUS) |
| 0.32 | 8 | 0.32 x 2 x **[x]** x N1WUS (2 x **[x]** x N1WUS) |

The UE shall evaluate and consider the corresponding entry criteria fulfilled within Tevaluate-LP-WUR-LP-SS, provided that the criteria is met by a margin of [±5.5 or ±6] dB in FR1 and by a margin of [±7 or ±7.5] dB in FR2 when LP-SS Ês/Iot ≥ -3dB

The UE shall evaluate and consider the corresponding exit criteria fulfilled within Tevaluate-LP-WUR- LP-SS, provided that the criteria is met by a margin of [±5.5 or ±6] dB in FR1 and by a margin of [±7 or ±7.5] dB in FR2 when LP-SS Ês/Iot ≥ -3dB.

Note: When a configured entry or exit condition is fulfilled, the UE shall perform corresponding actions as defined in clause XX in TS 38.304 [1].

### <<End of Change1>>

### <<Start of Change2>>

### 4.X.2.3 Measurement and evaluation of serving cell by MR

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

#### 4.X.2.3.1 Requirements for evaluation of cell selection criterion

When LP-WUS UE is not in [RRM relaxation mode] as defined in [1], the requirements in clause 4.2.2.2 shall apply.

When LP-WUS UE is in [RRM relaxation mode] as defined in [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 N1WUS\*16 DRX cycle.

The LP-WUS 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 8 DRX cycles.

If the LP-WUS 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 LP-WUS 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 LP-WUS 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 (N1WUS)** | | **Nserv [number of 16\* N1WUS\*DRX cycles]** |
| **FR1** | **FR2** |
|  |  |  |  |
| 0.32 | 1 | 8 | 4 |
| 0.64 | 5 | 4 |
| 1.28 | 4 | 2 |
| 2.56 | 3 | 2 |

#### 4.X.2.3.2 Requirements for evaluation of LP-WUS related conditions

When LP-WUS UE is not in [RRM relaxation mode] as defined in [1], the LP-WUS 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,

- [entry condition for LP-WUS monitoring]

- [entry condition for RRM relaxation]

- [entry condition for RRM offloading]

*- FFS: exit condition for RRM relaxation*

for the serving cell at least once every M1\*N1WUS DRX cycle; where:

- M1=2 if SMTC periodicity (TSMTC) > 20 ms and DRX cycle ≤ 0.64 second,

- otherwise M1=1.

The LP-WUS 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 DRX cycle/2.

If the LP-WUS UE has evaluated according to table 4.X.2.3.2-1 in Nserv consecutive DRX cycles that the serving cell fulfils the entry condition for [LP-WUR monitoring, RRM relaxation or RRM offloading], the LP-WUS UE shall perform corresponding actions as defined in clause XX in [1].

*FFS: If the UE has evaluated according to table 4.X.2.3.2-1 in Nserv consecutive DRX cycles that the serving cell fulfils the exit condition for [RRM relaxation], the UE shall perform corresponding actions as defined in clause YY in [1].*

**Table 4.X.2.3.2-1: Nserv When UE is not in [RRM relaxation mode]**

|  |  |  |  |
| --- | --- | --- | --- |
| **DRX cycle length [s]** | **Scaling Factor (N1WUS)** | | **Nserv [number of DRX cycles]** |
| **FR1** | **FR2** |
|  |  |  |  |
| 0.32 | 1 | 8 | M1\*4 |
| 0.64 | 5 | M1\*4 |
| 1.28 | 4 | 2 |
| 2.56 | 3 | 2 |

When LP-WUS UE is in [RRM relaxation mode] as defined in [1], the LP-WUS 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,

- [entry condition for LP-WUS monitoring]

- [entry condition for RRM offloading]

*- FFS: exit condition for RRM relaxation*

for the serving cell at least once every 16 DRX cycle.

The LP-WUS 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 8 DRX cycles.

If the LP-WUS UE has evaluated according to table 4.X.2.3.2-2 in 16\*Nserv consecutive DRX cycles that the serving cell fulfils the entry condition for [LP-WUR monitoring or RRM offloading], the LP-WUS UE shall perform corresponding actions as defined in clause XX in [1].

*FFS: If the* LP-WUS *UE has evaluated according to table 4.X.2.3.2-2 in 16\*Nserv consecutive DRX cycles that the serving cell fulfils the exit condition for [RRM relaxation], the* LP-WUS *UE shall perform corresponding actions as defined in clause YY in [1].*

**Table 4.X.2.3.2-2: Nserv when UE is in [RRM relaxation mode]**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **DRX cycle length [s]** | **Scaling Factor (N1WUS)** | | | **Nserv [number of 16\* N1WUS\*DRX cycles]** | |
| **FR1** | **FR2** | |
|  |  |  | |  | |
| 0.32 | 1 | 8 | | 4 | |
| 0.64 | 5 | | 4 | |
| 1.28 | 4 | | 2 | |
| 2.56 | 3 | | 2 | |

### <<End of Change2>>