**3GPP TSG-RAN4 Meeting #116 *R4-2510658***

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | xxxx | **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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network |  | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | draftCR on MR measurement requirements for serving cell in IDLE | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon, vivo | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_LPWUS-Core | | | | |  | ***Date:*** | | | 2025-08-05 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | According to email discussion in RAN4#114-bis, requirements for MR serving cell measurement and evaluation requirements in IDLE are needed. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduce requirements for MR serving cell measurement and evaluation requirements in IDLE. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Essential requirements for LP-WUR operation are missing. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.X.2.3 (new), 4.X.2.3A (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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.2.3 Measurement and evaluation of serving cell by MR

The requirements in this claue 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 claue 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 N1\*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 (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.X.2.3.2 Requirements for evaluation of LP-WUS related conditions

When LP-WUS UE is not in relaxed measurement 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 relaxed measurement

- entry condition for serving cell measurement offloading

*- exit condition for relaxed measurement*

for the serving cell at least once every M1\*N1 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 5.2.4.x in [1], if the LP-WUR based entry condition for LP-WUR monitoring, relaxed measurement or serving cell measurement offloading, if configured, is also met.

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 forrelaxed measurement, 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 not in relaxed measurement mode**

|  |  |  |  |
| --- | --- | --- | --- |
| **DRX cycle length [s]** | **Scaling Factor (N1)** | | **Nserv [number of DRX cycles]** |
| **FR1** | **FR2-1Note1** |
| 0.32 | 1 | 8 | M1\*N1\*4 |
| 0.64 | 5 | M1\*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. | | | |

When LP-WUS UE is in relaxed measurement 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 serving cell measurement offloading

*-* exit condition for relaxed measurement mode

for the serving cell at least once every N1\*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], if the LP-WUR based entry condition for [LP-WUR monitoring or RRM offloading], if configured, is also met.

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 relaxed measurement mode, 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 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.X.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 [RRM offloading mode] as defined in [1].

Requirements defined in clause 4.2B.1 shall apply.

4.X.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.X.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 1>