**3GPP TSG- Meeting #**

**, , -**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | DraftCR to TS 38.133 on LP-WUR requirements | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***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:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 3.6.20: Carrier applicability is moved to LP-WUR section  4.x.1: Introduction update to differentiate LP-SS and PSS/SSS  4.X.2.1: Measurement capability updated  4.x: Evaluation requirements updated  5.x: Proposal to streamline INACTIVE requirements  Tentative Agreements from RAN4#116:  **Issue 1-2-1-1: Detail on LR accuracy and side conditions requirements**  <Tentative Agreement>:  Use 2.5 dB as the RF impairment margin for LP-RSRP accuracy requirements*.*  *Based on P1 remove [] of the agreements in RAN4 114bis as*  For FR1:   * + - ±3.5 dB is used for core requirements for LP-RSRQ accuracy and ±6 dB is used for core requirements for LP-RSRP accuracy, under the side conditions Ês/Iot = -3 dB     - ±3.5 dB is used for core requirements of SSB based RSRQ accuracy and ±6 dB is used for core requirements for SSB based RSRP accuracy, under the side conditions Ês/Iot = -3 dB   **Issue 1-2-4-2-3: On how to define LR evaluation requirements**  <Tentative Agreement>:  *LR evaluation duration is [x1 samples]\*LP-SS (for OOK LR) or [y1 samples] \*LO (for SSB LR), assuming x or y samples are used to satisfy accuracy requirement and x1 > x and y1>y.*  *Agree* Using x1=2\*x and y1=2\*y for the evaluation requirement.*;*  *Agree y = 2;*  *For x, x= 3;*  No RAN4 RRM requirements for LP-WUR operation with eDRX with PTW window in Rel-19.  **Issue 1-1-15 LP-WUR operation with RedCap**  <Tentative Agreement>: Specify LP-WUR related idle/inactive requirements including requirement on serving cell offloading, RRM relaxation and higher priority frequency layer search for Redcap UE.   * Existing requirements for MR offloading, RRM relaxation and higher priority frequency layer search will be reused for Redcap UE   + Confirm the MR wake up delay will apply for 2 Rx Redcap   **Issue 1-2-11: RRM requirements for FR2**  <Tentative Agreement>:  For the SSB based LR FR2 requirement   |  |  | | --- | --- | | **LO periodicity [s] Note 1** | **FR2** | | 0.32 | 8 | | 0.64 | 5 | | 1.28 | 4 | | 2.56 | 3 |   No requirement for the FR2 LP-SS based LR | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | |  | | |
| ***affected:*** | |  |  | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**<Start of change>**

4.x.2.2 LP-WUR measurement and evaluation requirements for PSS/SSS

UE shall measure the SS-RSRP and SS-RSRQ level through LR 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 the corresponding entry criteria fulfilled within Tevaluate-LP-WUR-PSS/SSS, provided that the 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

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 ±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.

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

4.x.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

- 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 the corresponding entry criteria 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

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 ±6 dB for LP-RSRP and/or ±3.5 dB for LP-RSRQ in FR1 when LP-SS Ês/Iot ≥ -3dB.

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

**<End of change>**