**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:***  |  |
|  |  |
| ***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 canbe 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 section4.x.1: Introduction update to differentiate LP-SS and PSS/SSS4.X.2.1: Measurement capability updated4.x: Evaluation requirements updated5.x: Proposal to streamline INACTIVE requirementsTentative 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

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 the corresponding *entry* criteria is not fulfilled within Tevaluate-LP-WUR-PSS/SSS, provided that the criteria is not 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 is 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].

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

Editor’s Note: FG name will be replaced by corresponding IE name later.

4.x.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 the corresponding *entry* criteria is not fulfilled within Tevaluate-LP-WUR-LP-SS, provided that the criteria is not 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 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.

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].

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.

Editor’s Note: FG name will be replaced by corresponding IE name later.

**<End of change>**