**3GPP TSG-RAN WG2 Meeting #131 R2-25xxxx**

**India TBD, 25th – 29th Aug. 2025**

**Source: vivo**

**Title: Discussion summary and list of RRC open issue for LP-WUS WUR**

**Agenda Item: 8.4.1**

**Document for: Discussion and Decision**

1. Introduction

The following document includes a list of RRC open issues for LP-WUS/WUR according to the following email discussion:

* [Post130][210][LPWUS] Running CR for 38.331 (vivo)

Intended outcome: Updated and reviewed the CR for endorsement, update the open issue list if needed, can also discuss open issues to form proposals to the next meeting

Deadline: Long

Companies are invited to provide comments/additional issues in the below table by 31st July, 2025

# Discussion

* 1. Easily addressed open issues

**Open issue RRC-6 (essential): the value range of ThresholdPLP and ThresholdQLP for LR measurement based threshold**

In the current RRC running CR, there is an EN as below:

Editor’s NOTE: FFS on the value range of *ThresholdPLP* and *ThresholdQLP* for LR measurement based threshold for conditions for LP-WUS monitoring serving cell relaxation/offloading and neighboring cell relaxation.

Rapporteur understands the receiver sensitivities of LR and MR are roughly the same. Although the receiver hardware is degraded for LR, the number of information bits carried is smaller and the data rate is lower, which results in a similar overall sensitivity compared to MR. Thus, the value range for LR measurement thresholds should reuse the range corresponding to the absolute measured values for MR. With this, Rapporteur proposed the detailed value range is as below (as specified in the current running CR):

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| The IE *ThresholdLP* is used to indicate a measured RSRP threshold for LP-WUS. Actual value of threshold = field value \* 2 [dBm].  ThresholdP-LP ::= INTEGER (-80..0)  The IE *ThresholdQ-LP* is used to indicate a measured RSRQ threshold for LP-WUS. Actual value of threshold = field value [dB].  ThresholdQ-LP ::= INTEGER (-34..0) |

Besides, regarding the agreement made in RAN2#130 meeting as below,

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| * Full coverage for LP-WUS is not precluded, e.g., if there needs to be a threshold value so that the condition is always fulfilled for all LPWUS UEs. |

Rapporteur thinks the current value range for the MR based threshold or LR based threshold is low enough, i.e. full coverage for LP-WUS is naturally supported by configuring a low enough threshold.

**Companies are invited to provide comments on whether the above proposed value range for LR based threshold is enough. Otherwise, please provide your suggestion.**

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| **Company** | **Yes/No** | **Comments, if any** |
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**Summary:**

With this, Rapporteur suggests that:

**Proposal 1:**

**Open issue RRC-13 (essential): how to determine the cell quality for LR based measurement.**

In RAN2#129bis meeting, it was agreed that:

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| * Use existing Srxlev/Squal for all MR measurement based entry/exit condition evaluation. * Use measured value for all LR measurement based entry/exit condition evaluation. |

For MR measurement based entry/exit condition, it is obvious that how to derive the measurement quantity of a cell in multi-beam operations should follow the legacy MR measurement based Srelev/Squal, i.e. up to UE implementation, as in TS 38.304.

For LR measurement based entry/exit condition, how to derive the measurement quality of a cell in multi-beam operations should be determined. Rapporteur understands that the below LR measurement based RX level and cell quality value:

- Qrxlevmeas \_lr= current measured cell RX level value of the serving cell based on LR (RSRP).

- Qqualmeas \_lr = current measured cell quality value of the serving cell based on LR (RSRQ).

should be derived by UE implementation in multi-beam operations, i.e. no additional RRC parameters like *nrofSS-BlocksToAverage*, *absThreshSS-BlocksConsolidation* for LR measurement is needed.

**Companies are invited to provide comments on whether LR measurement based RX level and cell quality value should be derived by UE implementation in multi-beam operations.**

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| **Company** | **Yes/No** | **Comments, if any** |
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**Summary:**

With this, Rapporteur suggests that:

**Proposal 1:**

* 1. Other open issue list

**Rapporteur provides the list of open issues as below, and the corresponding suggestions on how to address them. Some of them could be further discussed based on contributions or resoved based on further progress. Companies are invited to provide comments on whether it is open issue and whether the suggestions from reapporteur is accuracy enough.**

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| **Company** | **Comments** |
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### Closed open issues

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| **Index** | **Issue description** | **Status** |
| RRC-1 | **whether whether RRM relaxation configuration is provided in SIB2** | **Closed** |
| RRC-2 | **whether entry/exit condition is mandatory or optional** | **Closed** |
| RRC-4 | **value range for offset UAI for LP-WUS monitoring for option 1-1 and option 1-2** | **Closed** |
| RRC-9 | **FFS on whether/how RRM relaxation is applicable for high priority frequency** | **Closed** |
| RRC-11 | **how to report the UAI for preferred time offset** | **Closed** |
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### LP-WUS in idle/inactive mode

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| **Index** | **Issue description** | **Rapporteur suggestion** |
| RRC-12 | **whether/how to enable/disable LP-WUS, e.g. by RRC/NAS** | **Issue Type:** not essential but important  **How to address it:** can be discussed based on companies’ contribution |

### LP-WUS in connected mode

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| **Index** | **Issue description** | **Rapporteur suggestion** |
| RRC-3 | **whether/how to support LP-WUS (including Option 1-1 and 1-2) and dual DRX group**  Editor’s NOTE: FFS on whether/how to support LP-WUS (including Option 1-1 and 1-2) and dual DRX group. | **Issue Type:** not essential but important  **How to address it:** can be discussed based on companies’ contribution |
| RRC-5 | **whether it is allowed to report an empty UAI on offset for LP-WUS monitoring for both option 1-1 and option 1-2**  Editor’s NOTE: There is no conclusion on whether it is allowed to report an empty UAI on offset for LP-WUS monitoring for both option 1-1 and option 1-2. | **Issue Type:** not essential  **How to address it:** can be discussed based on companies’ contribution |

### RRM relaxation/offloading

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| **Index** | **Issue description** | **Rapporteur suggestion** |
| RRC-7 | **FFS on exit condition for serving cell RRM relaxation**  Editor’s NOTE: FFS on exit condition for serving cell RRM relaxation, e.g., whether a separate exit condition other than ‘not fulfilling the entry condition’ is needed, or whether exit condition include MR and/or LR-based measurements. | **Issue Type:** not essential but important  **How to address it:** can be discussed based on companies’ contribution |
| RRC-8 | **FFS on whether/how to reduce the threshold number for LP-WUS/WUR**  Editor’s NOTE: FFS on the relationship between the thresholds for serving cell relaxation/offloading, neighboring cell relaxation and entry/exit condition of using LP-WUS, [and potential pre-condition between RRM relaxation/offloading criteria and entry/exit condition of using LP-WUS]. | **Issue Type:** not essential but important  **How to address it:** can be discussed based on companies’ contribution |
| RRC-10 | **FFS on low mobility criteria**  Editor’s NOTE: FFS on “low mobility” criteria. | **Issue Type:** not essential not important  **How to address it:** can be discussed based on companies’ contribution |

**Proposal 2: RAN2 to consider the above open issues related to RRC for LP-WUS/WUR.**

* 1. Others, please specify

Companies are invited to describe any other identified open issues not currently included within this document.

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| **Company** | **Other identified open issues? (please describe) or other comments** |
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# Conclusion

In this contribution, we discuss some open issues related to RRC running CR for LP-WUS and collect the open issues for LP-WUS in RRC. Based on the discussion, the following proposals have been achieved:

**Open issue RRC-6 (essential): the value range of ThresholdPLP and ThresholdQLP for LR measurement based threshold**

**Proposal 1:**

**Other open issues:**

**Proposal 2: RAN2 to consider the above open issues related to RRC for LP-WUS/WUR.**

# References

1. R2-25xxxx, RRC running CR for LP-WUS/WUR, vivo.