**3GPP TSG-RAN WG2 Meeting #131R2-250xxxx**

**Bangalore, India, 25th – 29th Aug. 2025**

**Agenda item: 8.4.1**

**Source: CATT**

**Title: Discission of [Post130][211][LPWUS] Running CR for 38.304 (CATT)**

**Document for: Discussion and Decision**

# Introduction

This document is the report of the following discussion:

* [Post130][211][LPWUS] Running CR for 38.304 (CATT)

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

# Discussion

## Easily addressed open issues

### Open issue 38304-1: FFS on the terminology LP-WUS UE

In RAN2#130, we agreed:

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| On UE capabilities   * A UE indicating support of LP-WUS reception in IDLE/INACTIVE shall support UE-ID based subgrouping. * From R2 point of view, RRM measurement relaxation and RRM measurement fully offloading are defined as RAN2 capability without UE capability signalling. * UE supporting LP-WUS reception shall also support RRM measurement relaxation and RRM measurement fully offloading |

Based on the agreements on UE capabilities, the possible options for the FFS on the terminology LP-WUS UE can be:

* Option A: In the running CR, UE supporting LP-WUS reception is used instead of LP-WUS UE.
* Option B: LP-WUS UE is introduced in clause 3.1 in TS 38.304. E.g. LP-WUS UE: A UE with LP-WUS reception capability as specified in TS 38.306.

Companies are invited to provide their preference.

**Q1: Which option is preferred for the FFS on the terminology LP-WUS UE?**

* **Option A: In the running CR, UE supporting LP-WUS reception is used instead of LP-WUS UE.**
* **Option B: LP-WUS UE is introduced in clause 3.1 in TS 38.304. E.g. LP-WUS UE: A UE with LP-WUS reception capability as specified in TS 38.306.**

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| **Company** | **Preferred option (A or B)** | **Comments** |
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**Summary:**

### Open issue 38304-7: higher priority frequency

Open issue 38304-7: Whether Relaxed measurement and offloading measurement can be performed when there is NR inter-frequency and/or NR inter-RAT frequency with reselection priority higher than that of the camped frequency. (Same as the open issue in RRC, i.e., FFS on whether/how RRM relaxation is applicable for high priority frequency)

RAN2 discussed the open issue online without conclusion in RAN2#130.

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| R2-2504623 Remaining issues for LP-WUS RRM ZTE Corporation, Sanechips discussion Rel-19 NR\_LPWUS-Core   * Noted   *# existence of higher priority frequency*  *Proposal 8 RAN2 to discuss which threshold to be applied to RRM relaxation for high priority frequencies*  *1. Reuse the threshold for lower or equal priority frequency.*  *2. Reuse Offloading condition.*  Discussion  - OPPO think we can reuse offloading condition.  - vivo point out that in this meeting R4 agree for both case 1 and case 3.  - Ericsson fine to follow R4 conclusion and think these only applies when NW configure R19 RRM rlx/offloading.  - CATT suggest to take the new agreements from R4 into account in the post meeting email discussions. |

And in RAN4#115, the agreements on high priority frequency were:

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| * For case 1:   + MR is expected to perform relaxed higher priority frequency layer measurement with K2\*Thigher\_priority\_search and K2 = 60     - Note: RAN4 assumes Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ is always met for case 1. * For case 3:   + When Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ, MR is expected to perform relaxed higher priority frequency layer measurement with K2\*Thigher\_priority\_search and K2 = 60   + When the condition of Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ is NOT met, the same requirement for higher priority, equal priority and lower priority carriers:     - 16 times of Tdetect,NR\_Inter, Tmeasure,NR\_Inter and Tevaluate,NR\_Inter are applied |

According to RAN4 agreement, UE is expected to perform relaxed higher priority frequency layer measurements in both serving cell measurement offloading (i.e., Case 1) and relaxed serving cell/neighbouring cell measurements (i.e., Case 3).

General descriptions of serving cell measurement offloading (i.e., Case 1) and relaxed serving cell/neighbouring cell measurements (i.e., Case 3) have already been captured in 38.304 running CR for LP-WUS, as shown below:

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| 5.2.4.x.1 Relaxed measurement rules for LP-WUS UE LP-WUS UE may choose to perform relaxed serving cell and neighbouring cell measurements on MR according to requirements specified in TS 38.133 [8] if the entry condition for measurement relaxation in clause 5.2.4.x.2 is fulfilled.  //skip 5.2.4.x.3 Serving cell measurement offloading rules for LP-WUS UE LP-WUS UE may choose to perform serving cell measurement offloading (i.e., serving cell measurement fully offloaded to LR and no serving cell measurement via MR is required) according to requirements specified in TS 38.133 [8] if the entry condition for serving cell measurement offloading in clause 5.2.4.x.4 is fulfilled. LP-WUS UE is not required to perform serving cell measurement offloading according to requirements specified in TS 38.133 [8] if the exit condition for serving cell measurement offloading in clause 5.2.4.x.4 is fulfilled. |

Rapporteur understands general descriptions covers all cases of neighbouring cell measurements on MR. Considering the relaxed requirements are referred to TS 38.133 directly, we don’t need to specify anything on high priority frequency for serving cell measurement offloading or measurement relaxation with LP-WUS in 38.304 running CR.

**Q2: Do companies agree that nothing is needed on high priority frequency for serving cell measurement offloading or measurement relaxation with LP-WUS in 38.304 running CR? And if it is needed to specify something for high priority frequency in 38.304 running CR, please provide your suggestion.**

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| **Company** | **Yes/No** | **Comments** |
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### Open issue 38304-11: FFS on the determination of RRM measurement relaxation/offloading conditions if UE supports both measurement types

In RAN2#130, it was agreed:

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| * It is up to UE implementation to choose whether SSB measurement based or OOK LP-SS measurement based conditions are used for LP-WUS monitoring entry/exit condition, if UE support both measurement types. |

In RAN2#129bis, it was agreed:

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| * RAN2 assumes for the entry/ exit conditions of serving cell measurement offloading and serving cell RRM measurement relaxation: separate MR thresholds (according to RAN1 agreement)/LR thresholds can be configured for different types of LP WUR if a cell supports both types of LRs (can revisit based on RAN1 and RAN 4 progress, if any). |

Rapporteur wonders if the above agreement in RAN2#130 can be applied to conditions of serving cell measurement offloading and serving cell & neighbouring cell measurement relaxation, i.e. it is up to UE implementation to choose whether SSB measurement based or OOK LP-SS measurement based are used for RRM relaxation/offloading conditions, if UE supports both measurement types. Or do RAN2 need to clarify that the same measurement type is used for conditions of LP-WUS monitoring and RRM relaxation/offloading?

Companies are invited to provide their preference.

**Q3: Which option is preferred if UE support both measurement types?**

* **Option A: Same as LP-WUS monitoring, it is up to UE implementation to choose whether SSB measurement based or OOK LP-SS measurement based are used for RRM relaxation/offloading conditions if UE supports both measurement types.**
* **Option B: It is clarified that the same measurement type is used for conditions of LP-WUS monitoring and RRM relaxation/offloading if UE supports both measurement types.**

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| **Company** | **Preferred option (A or B)** | **Comments** |
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**Summary:**

## Comments on TS 38.304 running CR

Companies can provide comments and suggestions to the uploaded running CR in this table. Please do not add changes, suggestions, or comments directly to the draft CR document.

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| Company + Issue Number (e.g., C001) | Detailed comments | Rapporteur response |
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## Open issue list

### Closed open issue

**RRM relaxation/offloading**

Open issue 38304-4: FFS relaxed measurement criteria/RRM offloading criteria is different from LP-WUS monitoring criteria. (Same as the open issue in RRC, i.e., FFS on whether/how to reduce the threshold number for LP-WUS/WUR)

**LP-WUS in idle/inactive mode**

Open issue 38304-5: FFS the UEs expecting MBS group notification should monitor its PO to receive the MBS group notification regardless of LP-WUS.

### Remaining open issues on LP-WUS in idle/inactive mode

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| **Index** | **Issue description** | **Rapporteur suggestion** |
| 38304-8 | Whether LP-WUS is only used in the last used cell or in any cell | **Issue Type:** not essential not important  **How to address it:** can be discussed based on companies’ contribution |
| 38304-9 | FFS the SubgroupID for LP-WUS used outside CN PTW in RRC\_INACTIVE state with CN configured PTW  Note: the open issue was discussed online in RAN2#130 (R2-2504677) without conclusion. | **Issue Type:** not essential not important  **How to address it:** can be discussed based on companies’ contribution |
| 38304-10 | FFS whether/how LP-WUS with SDT is supported  Note: the open issue was discussed online in RAN2#130 (R2-2504264) without conclusion. | **Issue Type:** not essential not important  **How to address it:** can be discussed based on companies’ contribution |

### Remaining open issues on RRM relaxation/offloading

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| **Index** | **Issue description** | **Rapporteur suggestion** |
| 38304-1 | FFS on the terminology LP-WUS UE | **Issue Type:** not essential not important  **How to address it:** can be discussed in clause 2.1 as an easily addressed open issue. |
| 38304-2 | FFS (if needed) on enhancements based on R16 criteria (e.g., based on the LR measurements) for the case when MR serving cell measurement results are not available. | **Issue Type:** not essential not important  **How to address it:** can be discussed based on companies’ contribution |
| 38304-3 | 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. (Same as the open issue in RRC, i.e., FFS on exit condition for serving cell RRM relaxation) | **Issue Type:** not essential but important  **How to address it:** can be discussed based on companies’ contribution |
| 38304-6 | Whether UE low mobility criterion or stationary criterion should be considered for RRM relaxation/offloading. (Same as the open issue in RRC, i.e., FFS on low mobility criteria) | **Issue Type:** not essential not important  **How to address it:** can be discussed based on companies’ contribution |
| 38304-7 | Whether Relaxed measurement and offloading measurement can be performed when there is NR inter-frequency and/or NR inter-RAT frequency with reselection priority higher than that of the camped frequency. (Same as the open issue in RRC, i.e., FFS on whether/how RRM relaxation is applicable for high priority frequency) | **Issue Type:** not essential but important  **How to address it:** can be discussed in clause 2.1 as an easily addressed open issue. |
| 38304-11 | FFS on the determination of RRM measurement relaxation/offloading conditions if UE supports both measurement types | **Issue Type:** not essential not important  **How to address it:** can be discussed in clause 2.1 as an easily addressed open issue |

### Other open issues

In addition to the above open issues, please provide your comments on any other RAN2 open issues of 38.304 running CR for LP-WUS, and Rapporteur will response.

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| **Company** | **Open issue** | **Rapporteur response** |
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**Summary:**

# Conclusion

According to feedback on clause 2.1, we propose:

And the following stage 3 open issues of 38.304 running CR for LP-WUS are identified: