**3GPP TSG-RAN WG4 Meeting#113 R4-241xxxx**

**Orlando, US, 18-22 November 2024**

**Agenda item:** 8.4

**Source:** Moderator (Apple)

**Title:** Topic summary for [113][233] Reply\_LS

**Document for:** Information

# Introduction

This topic summary covers AI 8.3, including related topics for the following incoming LS.

* R4-2417507, LS on Relaxed measurement (R2-2409308)

# Topic #1: LS on Relaxed measurement (R2-2409308)

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

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| **T-doc number** | **Title** | **Company** | **Proposals / Observations** |
| [**R4-2417738**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_113/Docs/R4-2417738.zip) | Discussion on RAN2 LS on Relaxed measurement | CATT |  |
| [**R4-2418590**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_113/Docs/R4-2418590.zip) | Discussion on RAN2 LS on Relaxed measurement | Apple |  |
| [**R4-2418591**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_113/Docs/R4-2418591.zip) | [NR\_UE\_pow\_sav-Core] CR for relaxed measurement - R16 | Apple |  |
| R4-2418592 | [NR\_UE\_pow\_sav-Core] CR for relaxed measurement - R17 | Apple |  |
| R4-2418593 | [NR\_UE\_pow\_sav-Core] CR for relaxed measurement - R18 | Apple |  |
| [**R4-2418399**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_113/Docs/R4-2418399.zip) | Discussion on Rel-16 Relaxed measurement for RAN2 LS | LG Electronics Inc. |  |
| [**R4-2418401**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_113/Docs/R4-2418401.zip) | (NR\_UE\_pow\_sav-Core) CR on relaxed measurement in IDLE/INACTIVe mode | LG Electronics Inc., vivo |  |
| R4-2418402 | (NR\_UE\_pow\_sav-Core) CR on relaxed measurement in IDLE/INACTIVe mode | LG Electronics Inc., vivo |  |
| R4-2418404 | (NR\_UE\_pow\_sav-Core) CR on relaxed measurement in IDLE/INACTIVe mode | LG Electronics Inc., vivo |  |

## Open issues summary

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| **1. Overall Description:**RAN2 has discussed about the scenarios for the Rel-16 RRM relaxation in Idle/Inactive state during the RAN2#127bis meeting.As a conclusion, RAN2 has in-principle agreed the CR to TS38.304 [1], removing the description of conditions when measurements are relaxed and adding a reference to RAN4 specification. During the discussion, RAN2 noticed that RAN4 specification defines a behaviour for the condition “if the serving cell measurement is better than s-NonIntraSearch thresholds but the cell-edge criteria is not fulfilled”. From RAN2 point of view, the case “if UE measurements are better than s-NonIntraSearch threshold but the cell-edge criteria is not fulfilled” will not happen and cannot happen because of the following field description for ***s-SearchThresholdP*** and ***s-SearchThresholdQ*** in TS38.331.

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| ***s-SearchThresholdP, s-SearchThresholdP2***Parameters "SSearchThresholdP" and "SSearchThresholdP2" in TS 38.304 [20]. The network configures *s-SearchThresholdP* and *s-SearchThresholdP2* to be less than or equal to *s-IntraSearchP* and *s-NonIntraSearchP*. |
| ***s-SearchThresholdQ, s-SearchThresholdQ2***Parameters "SSearchThresholdQ" and "SSearchThresholdQ2" in TS 38.304 [20]. The network configures *s-SearchThresholdQ* and *s-SearchThresholdQ2* to be less than or equal to *s-IntraSearchQ* and *s-NonIntraSearchQ*. |

**2. Actions:****To RAN4.****ACTION:** RAN2 respectfully asks RAN4 to take the above into consideration and inform that RAN4 can update their part of their specs, if they see a need. |

### Sub-topic 1-1: FR2 NTN inclusion for RRM

**Issue 1-1-1: do you think RAN4 requirement in 38.133 need to be updated regarding the RAN2 LS?**

* Proposals
	+ Option 1: No updates are needed for RAN4 spec due to the impossible case “if UE measurements are better than s-NonIntraSearch threshold but the cell-edge criterion is not fulfilled”.
	+ Option 2: Yes.
		- 2a: Proposed changes as shown in R4-2418591,

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| If UE is only configured with *lowMobilityEvaluation* [2] criterion and *cellEdgeEvaluation* [2] criterion is not configured, and UE has fulfilled the *lowMobilityEvaluation* [2] criterion, when Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ:* If the UE is configured with *highPriorityMeasRelax* [2] then the UE shall search for inter-frequency layers of higher priority at least every K2\*Thigher\_priority\_search where Thigher\_priority\_search is described in clause 4.2.2.7 and, K2 = 60.
* Otherwise, the UE shall search for inter-frequency layers of higher priority at least every Thigher\_priority\_search where Thigher\_priority\_search is described in clause 4.2.2.7.
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* + - 2b: Proposed changes as shown in R4-2418401,

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| 4.2.2.10.2 Measurements for UE fulfilling low mobility criterion…If UE is only configured with *lowMobilityEvaluation* [2] criterion and UE has fulfilled the *lowMobilityEvaluation* [2] criterion, when Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ and the UE is configured with *highPriorityMeasRelax* [2] then the UE shall search for inter-frequency layers of higher priority at least every K2\*Thigher\_priority\_search where Thigher\_priority\_search is described in clause 4.2.2.7 and, K2 = 60. Otherwise, if the UE is not configured with *highPriorityMeasRelax* [2] then the UE shall search for inter-frequency layers of higher priority at least every Thigher\_priority\_search where Thigher\_priority\_search is described in clause 4.2.2.7.4.2.2.11.2 Measurements for UE fulfilling low mobility criterion…If UE is only configured with *lowMobilityEvaluation* [2] criterion and UE has fulfilled the *lowMobilityEvaluation* [2] criterion, when Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ and the UE is configured with *highPriorityMeasRelax* [2] then the UE shall search for E-UTRA inter-RAT frequency layers of higher priority at least every K2\*Thigher\_priority\_search seconds where Thigher\_priority\_search is described in clause 4.2.2.7 and, K2 = 60. Otherwise, if the UE is not configured with *highPriorityMeasRelax* [2] then the UE shall search for E-UTRA inter-RAT frequency layers of higher priority at least every Thigher\_priority\_search where Thigher\_priority\_search is described in clause 4.2.2.7. |

* Recommended WF
	+ Based on the discussion, decide whether spec changes are needed or not and using CR in R4-2418591/8592/9=8593 or CR in R4-2418401/8401/8403 as baseline.

**Issue 1-1-2: Do you think LS to RAN2 is needed or not?**

* Proposals
	+ Option 1: Yes.
		- 1a: use LS reply in R4-2417738 as the baseline.
		- 1b: use the LS reply in R4-2418590 as the baseline.
	+ Option 2: LS reply to RAN2 is not needed.
* Recommended WF
	+ To be discussed