**3GPP TSG RAN Meeting #93-e RP-21xxxx**

**Electronic Meeting, September 13 - 17, 2021**

**Agenda item:** 9.3.4.1

**Source:** RAN4 Vice-Chair (Samsung)

**Title:** Moderator's summary for email discussion [93e-24-MIMO-OTA-WI]

**Document for:** Discussion & Decision

# Introduction

This document provides as summary of the following email discussion during RAN#93-e:

[93e-24-MIMO-OTA-WI]

Goal: Seek for the conclusion on the proposals of NR MIMO OTA WID update

Input contributions covered: RP-212028, RP-212080, RP-212122

# Background

The following summarizes proposals from different contributions

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| --- | --- | --- |
| T-doc | Author | Observations and proposals |
| RP-212028 | vivo  | **Proposal 1: Update the NR MIMO OTA WID to add FR1 MU assessment working scope.** The proposed changes as following:**“**- Potential optimization of test methods for FR1 and FR2 is not precluded: e.g. * Further work is suggested to illustrate the DUT rotations
* For FR2, further work to check if test points rotations are to be implemented per channel model to compensate for channel model rotations
* For FR2, re-positioning of the NR MIMO probes to align the probes with NR FR2 RRM probe configurations.
* For FR2, alternative probe configurations (different locations and different number of probes) regardless of probe implementation.

- Develop the preliminary MU assessment for FR1 MIMO OTA * Example expanded uncertainty for test method should be defined

During the course of this work item, ongoing communication with 3GPP RAN WG5, CTIA OTA Working Group (MOSG, 5G mm-wave OTA Sub-Working group and MUSG), and CCSA TC9 WG1 shall be maintained to ensure industry coordination on this topic.” |
| RP-212122RP-212080 (revised WID) | CAICT | Background:In 3GPP RAN4#100-e meeting, the issue of MU assessment for FR1 MIMO OTA has been discussed and the agreements captured in the WF [R4-2115756] are as follows. * RAN4 should discuss the preliminary MU assessment for FR1 MIMO OTA including example expanded uncertainty, final MU and TT will be decided by RAN5.
* WID is suggested to update in Sep RAN plenary meeting, to reflect this working scope extension, for easy tracing the progress in the status report of WI.

Based on the RAN4#100e meeting outcome, it is proposed to make modifications into the WID to reflect the working scope extension on FR1 MIMO OTA MU assessment with the changes as highlight following:“The Measurement Uncertainty (MU) aspects, RAN WG4 should discuss the preliminary MU assessment for FR1 MIMO OTA including example expanded uncertainty. During the course of this work item, ongoing communication with 3GPP RAN WG5, CTIA OTA Working Group (MOSG, 5G mm-wave OTA Sub-Working group and MUSG), and CCSA TC9 WG1 shall be maintained to ensure industry coordination on this topic.“ |

# Initial round

## Open issues

Issue 1: Do we need to update the NR MIMO WID to reflect the working scope extension on FR1 MU assessment based on latest RAN4 agreements and suggestions

* + Option 1: Yes, the detailed update as proposed in RP-212028 (vivo)
	+ Option 2: Yes, the detailed update as proposed in RP-212080 (CAICT)

## Collection of company views

Note: Please share your views whether we need to update the NR MIMO WID with working scope extension or not and also please provide your preference or suggestions on the proposed changes.

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Apple | We see similarities between the proposals in the two options and encourage the proponents to merge the proposed WID revision. In general, we support the RAN4 recommendation to update the WID scope in regards to MIMO OTA preliminary MU assessment. |
| OPPO | Prefer Option 2, and maybe also keep the original statement of RAN5 responsibility “including potentially test tolerances, and test procedures will be handled in RAN WG5” would be better since it can provide the information of what the RAN4 and RAN5 responsibilities are in this WI.Suggest as below to align with the agreed WF:The preliminary Measurement Uncertainty (MU) aspects for FR1 MIMO OTA including example expanded uncertainty will be discussed in RAN4, final MU and TT ~~including potentially test tolerances, and test procedures~~ will be handled in RAN WG5. |
| Qualcomm | 1). In Rel-15 Testability SI, the preliminary MU was defined in RAN4. But when the final MU was specified in RAN5, the back and forth discussion happened and finally there is a gap between preliminary MU in RAN4 and final MU in RAN5. Given the lesson learnt from prior experience, we’d suggest RAN4 and RAN5 work together on the MU analysis which is the most efficient way. With that, we propose to add RAN5 as the secondary responsibility WG. Then RAN5 could provide the input via LS.In addition, MU for FR2 MIMO OTA is missing in the revised WID. Both FR1 and FR2 are in the scope of this WI. So FR2 preliminary MU shall be analyzed as well. 2). We need to discuss which spec to capture the MU work. Our option is to capture the MU analysis in TR38827. With that, we propose to add TR38827 in the impacted existing TS/TR table.3). Clarifications on the wording for other aspects in WID. In the WID, it says” Define the pass/fail criteria for channel model validation, both FR1 and FR2”. Does it mean to define the pass/fail limt for FR1 and FR2 channel model validation? If so, clarifications in revised WID are needed.  |

## Summary and recommendation for further discussion

# Intermediate round

## Open issues

## Collection of company views

## Summary and recommendation for further discussion

# Final round

## Open issues

## Collection of company views

## Summary and recommendation for further discussion

## Final comments

# Conclusion

**Moderator Recommendations:**