**3GPP TSG-RAN WG4 Meeting # 98-bis-e R4-210XXXX**

**Electronic Meeting, 12th – 20th April, 2021**

**Agenda item:** 12.2

**Source:** Moderator (Ericsson)

**Title:** Email discussion summary for [98-bis-e][328] LS\_reply\_ITU-R

**Document for:** Information

# Introduction

This e-mail thread covers two ongoing LS exchanges with different ITU-R WPs:

1. At last RAN plenary RAN4 was tasked (RP-210789) to consider a test signal proposed by ITU-R WP 1C in R4-2100004.
2. At last RAN4, antenna parameters were sent in LS to ITU-R WP 5D. In R4-2106354 additional information is provided to better reflect base stations deployed in networks. The intention is to send the information to ITU-R WP 5D.

This thread is split up into two corresponding topics:

1. Test signal
2. Antenna model extension

# Topic #1: Test signal

In R4-2100004, ITU-R WP 1C request RAN4 to consider the feasibility to introduce a test signal to facilitate in-filed OTA testing of unwanted emission.

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2106356 | Ericsson | The intention with this contribution is to initiate the discussion in RAN4 about the request from ITU-R. A collection of RAN4 aspects to consider before responding to ITU-R WP 1C is presented in the contribution. At the end on the contribution a draft LS is provided to stimulate the discussion.  |

## Open issues summary

### Sub-topic 1-1

Sub-topic description: Collect more relevant technical information required to better understand the test signal concept to be able to analyze the RAN4 impact.

**Issue 1-1: RAN4 specific issues related to proposed test signal**

* Identify any additional information to be requested from ITU-R WP 1C by RAN4, in order to better understand the test signal
	+ Comments are welcome
* Recommended WF
	+ Collect questions and open issued in a draft LS response.

### Sub-topic 1-2

Sub-topic description: In relation to the request from WP1C, some alternative solutions relevant for measuring unwanted emission are proposed in R4-2106356. The intention with this sub-topic is to collect feedback and maybe even more alternative approaches.

**Issue 1-2: Alternative approaches**

* Proposals
	+ Option 1: Normal operation
	+ Option 2: Normal operation and fixed measurement location
	+ Option 3: Proprietary test configuration
	+ Option 4: Provoking traffic
* Recommended WF
	+ Collect information in a draft LS response.

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 1-1: Sub topic 1-2:….Others: |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| XXX | Company A |
| Company B |
|  |
| YYY | Company A |
| Company B |
|  |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

|  |  |
| --- | --- |
|  | **Status summary**  |
| **Sub-topic #1** | *Tentative agreements:**Candidate options:**Recommendations for 2nd round:* |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provides recommendation on CRs/TPs Status update*

*Note: The tdoc decisions shall be provided in Section 3 and this table is optional in case moderators would like to provide additional information.*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

# Topic #2: Antenna model extension

At last RAN4 meeting antenna parameters was provided in LS to ITU-R WP 5D in R4-2103104. The antenna parameters do not reflect AAS base stations deployed in networks. Therefore, additional information has been provided in R4-2106354 with the intention to send an additional LS to ITU-R WP 5D with information more relevant for sharing studies.

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2106354 | Ericsson, Nokia, Qualcomm | Proposal 1: An extension to current antenna model is proposed to model antennas using sub-arraysProposal 2: A parameter set for an antenna using sub-arrays is proposed |

## Open issues summary

The current antenna model defined in TR 37.840 models only antennas with single element configurations. Now when ITU-R WP 5D is evaluating measurement results from real base stations there is a need to update the antenna model to better reflect AAS base station deployed in networks.

### Sub-topic 2-1

Sub-topic description: An antenna model extension is proposed in R4-2106354 to include the sub-array impact on the composite antenna pattern.

**Issue 2-1: Antenna model extension**

* Proposals
	+ Extend the antenna model to support sub-array geometries
* Recommended WF
	+ Send LS to ITU-R WP 5D with additional information relevant for AAS base station modelling

### Sub-topic 2-2

Sub-topic description: For sharing studies in ITU-R WP 5D relevant antenna parameters are required. A relevant and representable parameter set for wide area base station using sub-arrays have been presented.

**Issue 2-2: Antenna parameter set**

* Proposals
	+ Option 1: Model the sub-array antenna characteristics using provided parameters in R4-2106354
* Recommended WF
	+ Include parameters set in LS to WP 5D.

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 1-1: Sub topic 1-2:….Others: |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| XXX | Company A |
| Company B |
|  |
| YYY | Company A |
| Company B |
|  |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

|  |  |
| --- | --- |
|  | **Status summary**  |
| **Sub-topic#1** | *Tentative agreements:**Candidate options:**Recommendations for 2nd round:* |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provided recommendation on CRs/TPs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

*Moderator can provide summary of 2nd round here. Note that recommended decisions on tdocs should be provided in the section titled ”Recommendations for Tdocs”.*

# Recommendations for Tdocs

## 1st round

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Comments** |
| WF on … | YYY |  |
| LS on … | ZZZ | To: RAN\_X; Cc: RAN\_Y |
|  |  |  |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation**  | **Comments** |
| R4-210xxxx | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Notes:

1. Please include the summary of recommendations for all tdocs across all sub-topics incl. existing and new tdocs.
2. For the Recommendation column please include one of the following:
	1. CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued
	2. Other documents: Agreeable, Revised, Noted
3. For new LS documents, please include information on To/Cc WGs in the comments column
4. Do not include hyper-links in the documents

## 2nd round

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation**  | **Comments** |
| R4-210xxxx | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
| R4-210xxxx | WF on … | YYY | Agreeable, Revised, Noted |  |
| R4-210xxxx | LS on … | ZZZ | Agreeable, Revised, Noted |  |
|  |  |  |  |  |

Notes:

1. Please include the summary of recommendations for all tdocs across all sub-topics.
2. For the Recommendation column please include one of the following:
	1. CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued
	2. Other documents: Agreeable, Revised, Noted
3. Do not include hyper-links in the documents