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

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

**Agenda item:** 8.42

**Source:** Moderator (Huawei, HiSilicon)

**Title:** Email discussion summary for [99-e][131]NR\_intra\_HPUE\_UL\_MIMO\_bands

**Document for:** Information

# Introduction

*Briefly introduce background, the scope of this email discussion (e.g. list of treated agenda items) and provide some guidelines for email discussion if necessary.*

Thread [131] include contributions under agenda 8.42, following topics will be discussed in this meeting:

1. Topic #1: Additional NR bands for UL-MIMO in Rel-17

*List of candidate target of email discussion for 1st round and 2nd round*

* 1st round: TBA
* 2nd round: TBA

# Topic #1: New NR bands for UL-MIMO

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2111444 | Huawei, HiSilicon | ***Observation 1: A-MPR requirement should be considered for NR bands supporting UL MIMO for power classes other than PC3, which is studied band by band***  ***Observation 2: Band specific A-MPR requirements for UL MIMO are considered additionally in clause 6.2.3 with A-MPR applicable to non-MIMO mode***  ***Proposal 1: A-MPR for UL MIMO can be specified additionally with other A-MPR requirements for the operating bands in the same sub-clause if needed.***  ***Observation 3: Specifically for band n40, there is no A-MPR requirements.*** |
| R4-2111445 | Huawei, HiSilicon | revised WID on Additional NR bands for UL-MIMO in Rel-17:   1. Revise ‘PC3’ in the WID title 2. Add indentifier 3. Remove ‘TDD’ in the objective |

## Open issues summary

*Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 1-1

*Sub-topic description:*

*Open issues and candidate options before e-meeting:*

**Issue 1-1: AMPR definition for UL MIMO Band**

* Proposals
  + AMPR needs to be study per band, but no AMPR for Band n40
* Recommended WF
  + TBA

**Issue 1-2: revised WID**

* Proposals
  + Option 1: Approve the revised WID in R4-2111445
  + Option 2: Other
* Recommended WF
  + TBA

## Companies views’ collection for 1st round

### Open issues

*One of the two formats, i.e. either example 1 or 2 can be used by moderators.*

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Nokia | Sub topic 1-1:  Better to wait for the outcome of TxD.  To Huawei: To understand better the situation, would you tell us what the technical reason that PC2 UL MIMO needs to revisit A-MPR but PC3 UL MIMO can use the same A-MPR with that for single NR operation is? |
| Qualcomm | Sub topic 1-1:  We also think it is better to wait for the outcome of TxD  It is also not clear why A-MPR needs to be revisited, the paper does not provide any technical explanation.  Sub-topic 1-2: revised WID can only be approved in the plenary. This paper can be presented in RAN4 for information. |
| Huawei | Sub topic 1-1:  A-MPR to be specified case by case is a general principle. For instance, if a band supports PC3 with UL MIMO has A-MPR requirement, definitely the A-MPR should be considered for PC2 in this band, even eventually the value could be the same, but that should also be studied.  As for n40, since there are no regulatory requirements for this band, we think no A-MPR can be concluded for this specific band. This is not related to TxD at all.  Sub-topic 1-2:  Revised WID is for information in RAN4, which will be submitted to the upcoming RAN plenary. |
| Apple | Whether A-MPR needs to be revisited or not depends on the PA power rating. If with 2 PC3 PAs, A-MPR would need to be revisited. If with 2 PC2 PAs, A-MPR probably can be reused. |

**Example 2**

Sub topic 1-1

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX |  |

Sub topic 1-2

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX |  |

### CRs/TPs comments collection

*For close-to-finalize WIs and maintenance work, comments collections can be arranged for TPs and CRs. For ongoing WIs, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **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:*  **Issue 1-1: A-MPR definition for UL MIMO Band**  No agreement in 1st round, further discuss in the 2nd round with WF.  **Issue 1-2: revised WID**  Revised WID is for information in RAN4, can be noted. |

### 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)

# Recommendations for Tdocs

## 1st round

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Comments** |
| WF on AMPR for UL MIMO | Huawei, HiSilicon |  |
| 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