**3GPP TSG-RAN WG4 Meeting # 102-e R4-22XXXXX**

**Electronic Meeting, 21 February – 03 March 2022**

**Agenda item:** 9.4.2, 9.4.3

**Source:** Moderator (Huawei)

**Title:** Email discussion summary for [102-e][314] RAIL\_900\_1900MHz\_BSRF

**Document for:** Information

# Introduction

The following topics were identified:

* Remaining aspects for BS RF requirements
* TPs to TR 38.852 and TR 38.853
* CRs

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

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

# Topic #1: Remaining aspects for BS RF requirements

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2205138 | UIC, Ericsson, Nokia | Proposal 1: To allow the necessary flexibility for deployment along railway lines it is proposed to use the term of “maximum gain” (defined as antenna gain and losses) instead of “antenna gain”.  Proposal 3: Capture the revisions in CRs applicable for band n100 in 3GPP TS 38.104. |
| R4-2205139 | UIC, Ericsson, Nokia | TP 1900MHz RMR band – BS RF  Proposal 1: To allow the necessary flexibility for deployment along railway lines it is proposed to use the term of “maximum gain” (defined as antenna gain and losses) instead of “antenna gain”.  Proposal 3: Capture the revisions in CRs applicable for band n101 in 3GPP TS 38.104. |
| [R4-2205994](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205994.zip) | Huawei, HiSilicon | Interferer signal for the BS RF RX blocking requirement for RMR900  Proposal 1: send liason statement to ETSI RT, providing RAN4 work status on the BS RF requirements development for RMR 900, and asking for inputs and clarifications on the RMR900 BS Rx blocker characteristics (on top of the ECC decision (20)02 content).  Proposal 2: specify the Core requirement for RMR900 Rx blocking as per information contained in ECC, ERC Recommendation 70-03, and EU decision 2018/1538, i.e. consider SRD as blocker (i.e. 200 kHz, 500mW e.r.p, duty cycle ≤10%, etc.) for the Rx blocking requirement.  Proposal 3: Continue the analysis of the conformance testing aspects (including aspects of the Rx blocker signal configuration, TE capabilities, etc.) during the Performance part of Rel-17 timeframe, i.e. end of Q3 2022. |
| [R4-2205995](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205995.zip) | Huawei, HiSilicon | draft LS to ETSI TC RT on the interferer signal definition for the RMR900 BS Rx blocking requirement |

## Open issues summary

### Sub-topic 1-1: “maximum gain” terminology

The antenna gain of 17/18 dBi (RMR900/1900) corresponds to ECC Report 318 table 5 but internal losses in ECC Report 318 are considered and agreed as 4dB. As internal losses of Report 318 were not accounted in previous discussions, there is proposal to enable deployment flexibility by modifying the terminology used:

* Proposals
  + Option 1: To allow the necessary flexibility for deployment along railway lines it is proposed to use the term of “maximum gain” (defined as antenna gain and losses) instead of “antenna gain” (R4-2205138, R4-2205139)
  + Option 2: Other
* Recommended WF
  + TBA

Moderator: the outcome of the sub-topic needs to be accordingly reflected in the related CR to TS 38.104.

### Sub-topic 1-2: Interferer signal for the BS RF RX blocking requirement for RMR900

During previous RAN4#101bis-e meeting, the interferer signal characteristic for the RMR900 Rx blocking requirement was discussed in R4-2203095. WF was agreed in R4-2203062, capturing the following agreement on the interferer signal for the RX blocking requirement:

|  |
| --- |
| According to ECC Decision(20)02, the interferer should be a 200kHz signal but FFS what exact signal it is:   * Option 1: GSM * Option 2: 1 RB from 5MHz NR signal * Other |

Interferer for RMR900 needs to be decided.

* Proposals
  + Option 1: follow proposals in R4-2205994:
    - Proposal 2: specify the Core requirement for RMR900 Rx blocking as per information contained in ECC, ERC Recommendation 70-03, and EU decision 2018/1538, i.e. consider SRD as blocker (i.e. 200 kHz, 500mW e.r.p, duty cycle ≤10%, etc.) for the Rx blocking requirement.
    - Proposal 3: Continue the analysis of the conformance testing aspects (including aspects of the Rx blocker signal configuration, TE capabilities, etc.) during the Performance part of Rel-17 timeframe, i.e. end of Q3 2022.
  + Option 2: Other (including options from previous WF in R4-2203062)
* Recommended WF
  + TBA

### Sub-topic 1-3: LS to ETSI TC RT

* Proposals
  + Option 1: send liason statement to ETSI RT, providing RAN4 work status on the BS RF requirements development for RMR 900, and asking for inputs and clarifications on the RMR900 BS Rx blocker characteristics (on top of the ECC decision (20)02 content) (R4-2205995)
  + Option 2: no LS needed (if so, provide the proposed conclusion on the RMR900 blocked in sub-topic 1-2)
* Recommended WF
  + TBA

## Companies views’ collection for 1st round

### Open issues



Sub topic 1-1:

|  |  |
| --- | --- |
| **Company** | **Comments** |
| UIC | In general, UIC agrees with the approach regarding harmonized standards.  In the consideration of RMR900 and RMR1900 antenna gains and losses have been assumed. According to our understanding, the ECC Report 318 contains the values regarding antenna gain and losses (see table 1 and table 5) which is the corresponding document to ECC Decision (20)02. The value given for the loss is shown as 4dB (ECC Report 318). Accordingly, exactly the 4dB loss must be taken into account when considering the rated output power and the reporting of emissions. If this is not taken into account accordingly, this can lead to more investment in the infrastructure across Europe, due to the low rated output power assumption, of up to 100M euros that would have to be raised by the taxpayer. Accordingly, the templates in 3GPP TR 38.852/3GPP TR 38.853 and the corresponding normative CR shall take the value of 4dB into account. |
| Nokia | Agree to use “maximum gain” term, we are also fine to proceed with 4dB loss proposal from UIC above. |
| Ericsson | Fine to use “maximum gain” instead and consider the 4dB loss, that’s still aligned with the initial intention of this proposal to transpose CEPT EIRP limits. |
| Huawei | Modification seems to be well justified. |

Sub topic 1-2:

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| --- | --- |
| **Company** | **Comments** |
| UIC | Alignment between ETSI TC RT and 3GPP is necessary in this context. UIC follows “proposal 1”in accordance with R4-2205994. The affected CR in R4-2205996 keeps the interferer values applicable for band n100 in square brackets. The next ETSI TC RT meeting ( RT#85) is planned for March 28th – April 1st 2022 targeting to finalize this subject in RAN4#103-e meeting. |
| Nokia | Agree to clarify further with ETSI TC RT on the blocking signal type. |
| Ericsson | It’s also ok to send LS to TC RT and keep the CEPT wording for the blocking interferer for the time being. |
| Huawei | Option 1 |

Sub topic 1-3:

|  |  |
| --- | --- |
| **Company** | **Comments** |
| UIC | Option 1 |
| Nokia | OK to send LS. |
| Ericsson | Option 1 |
| Huawei | Option 1 |
| UIC | Thanks for the draft LS proposal. The progress of the work in RAN4 is constantly monitored by ETSI TC RT. With respect to the work that has been done, the LS should mainly (only) address the aspect of necessary RMR 900 interferer definition. |

### CRs/TPs comments collection

## 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: TPs to TR 38.852 and TR 38.853

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2205138 | UIC, Ericsson, Nokia | TP 900MHz RMR band – BS RF  Proposal 2: Accordingly the approach in TR 38.853 need to be revised. |
| R4-2205139 | UIC, Ericsson, Nokia | TP 1900MHz RMR band – BS RF  Proposal 2: Accordingly the approach in TR 38.853 need to be revised. |

## Open issues summary

## Companies views’ collection for 1st round

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2205138 | Ericsson: this tdoc was initially ok but it should be revised to update with above agreement (if confirmed) on “maximum gain” . |
| Huawei: @Ericsson: our understanding of that TP was that proponents have already captured the intended information. Still, it may be worth to also capture information that the losses in the ECC Report 318 were assumed as 4dB. |
|  |
| R4-2205139 | Ericsson: this tdoc was initially ok but it should be revised to update with above agreement (if confirmed) on “maximum gain” . |
| Huawei: @Ericsson: our understanding of that TP was that proponents have already captured the intended information. Still, it may be worth to also capture information that the losses in the ECC Report 318 were assumed as 4dB. |
|  |

## 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 #3: CRs

Moderator: Endorsed draft CRs to AAS BS specifications were not resubmitted this meeting as formal CRs:

|  |  |
| --- | --- |
| **[R4-2203057](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201810.zip)** | Draft CR to TS 37.105: RMR implementation |
| **[R4-2202026](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2202026.zip)** | Draft CR to TS 37.145-1: RMR implementation |
| **[R4-2202027](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2202027.zip)** | Draft CR to TS 37.145-2: RMR implementation |

One draft CR was submitted to this meeting.

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2205064 | Ericsson | CR to TS 38.104 - Tx requirements: RMR 900MHz and 1900MHz bands introduction |
| [R4-2205065](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205065.zip) | Ericsson | CR to TS 38.141-2: RMR 900MHz and 1900MHz bands introduction |
| [R4-2205066](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205066.zip) | Ericsson | CR to TS 36.104: RMR 900MHz and 1900MHz bands introduction |
| [R4-2205067](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205067.zip) | Ericsson | CR to TS 36.141: RMR 900MHz and 1900MHz bands introduction |
| [R4-2205943](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205943.zip) | Nokia, Nokia Shanghai Bell | CR to 37.104 on introduction of n100 and n101 co-existence requirements |
| [R4-2205945](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205945.zip) | Nokia, Nokia Shanghai Bell | CR to 37.141 on introduction of n100 and n101 co-existence requirements |
| [R4-2205948](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205948.zip) | Nokia, Nokia Shanghai Bell | CR to 38.104 on introduction of n100 and n101 (system parameters) |
| [R4-2205949](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205949.zip) | Nokia, Nokia Shanghai Bell | CR to 38.141-1 on introduction of n100 and n101 requirements |
| R4-2205996 | Huawei **Error! Unknown document property name.** | Draft CR to TS 38.104: RX requirements (revision) |

## Open issues summary

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR** | **Comments collection** |
| R4-2205064 | Moderator:  - update the CR cover page to add missing information on CR number of the “Other specs affected”.  - This CR is subject to topic 1-1. |
| Nokia: further updates needed in the co-ex table as in CR to 38.141-1 |
| Huawei: I think we have agreed not to use “uncoordinated” terminology in the TS. |
| [R4-2205065](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205065.zip) | Moderator: update the CR cover page to add missing information on CR number of the “Other specs affected”. |
| Company B |
|  |
| [R4-2205066](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205066.zip) | Moderator: update the CR cover page to add missing information on CR number of the “Other specs affected”. |
| [R4-2205067](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205067.zip) | Moderator: update the CR cover page to add missing information on CR number of the “Other specs affected”. |
| [R4-2205943](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205943.zip) | Moderator: update the CR cover page to add missing information on CR number of the “Other specs affected”. |
| [R4-2205945](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205945.zip) | Moderator: update the CR cover page to add missing information on CR number of the “Other specs affected”. |
| [R4-2205948](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205948.zip) | Moderator: update the CR cover page to add missing information on CR number of the “Other specs affected”. |
| [R4-2205949](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205949.zip) | Moderator:  - “Clauses affected” information on the cover page to be updated.  - update the CR cover page to add missing information on CR number of the “Other specs affected”.  Ericsson: As stated in the CR, it should be revised to align with 38.104 and consider possible agreement made in this meeting.  Huawei: reuse and align the blocking tables template from R4-2205996, due to issues identified in R4-2205996. |
| R4-2205996 | Moderator: this is draft CR. Formal CR shall have been submitted.  Nokia: different text is proposed in CR to 38.141-1 – to be discussed and aligned with this CR. For n101, shall it be additional OOBB (not IBB) requirement?  Huawei: blocking tables to be aligned among core and test specs. For the IBB vs OOBB: for the OOBB requirement we use CW signal as the interferer, while the n101 uses 5MHz LTE blocker. On the other hand, the interferers frequency range (1807-1877MHz) seems to be in the OOB region of the 1900-1910MHz operating band. So it seems to be OOBB indeed. Is that a common understanding? |

## Summary for 1st round

### Open issues

### CRs/TPs

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2205064 | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |
| [R4-2205065](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205065.zip) |  |
| [R4-2205066](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205066.zip) |  |
| [R4-2205067](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205067.zip) |  |
| [R4-2205943](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205943.zip) |  |
| [R4-2205945](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205945.zip) |  |
| [R4-2205948](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205948.zip) |  |
| [R4-2205949](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205949.zip) |  |
| R4-2205996 |  |

## Discussion on 2nd round (if applicable)

# 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** |
| R4-22xxxxx | 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** |
| R4-22xxxxx | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
| R4-22xxxxx | WF on … | YYY | Agreeable, Revised, Noted |  |
| R4-22xxxxx | 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

# Annex

Contact information

|  |  |  |
| --- | --- | --- |
| **Company** | **Name** | **Email address** |
| Huawei | Michal Szydelko | Michal.szydelko@huawei.com |

Note:

1. Please add your contact information in above table once you make comments on this email thread.
2. If multiple delegates from the same company make comments on single email thread, please add you name as suffix after company name when make comments i.e. Company A (XX, XX)