**3GPP TSG-RAN WG4 Meeting # 102-e draft R4-2207423**

**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:
* 2nd round:
  + Conclude on open issues 1-2-1 and 1-2-2 for the RMR900 blocking requirement treatment, and related blocker signal,
  + Conclude on TP revisions for the “maximum gain” terminology and related losses consideration,
  + Conclude on the LS text to ETSI TC RT,
  + Conclude on the remaining CRs.

# Topic #1: Remaining aspects for BS RF requirements

## Companies’ contributions summary

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| **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:

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| 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:

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| **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 |

Additional comments recorded after the first round deadline:

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| **Company** | **Comments** |
| Nokia | sub-topic 1-2: it is proposed to agree on proposal 1 but companies commented this needs to be clarified with ETSI TC RT first. Therefore, we do not agree with Option 1 and especially Proposal 2 to specify this signal before blocking signal type is clarified by ETSI TC RT. |
| UIC | UIC agrees with Nokia that ETSI TC RT has to respond first based on the LS and then alter on a new CR is required. Base on this the WID need to be extended. |
| Moderator | Thank you for the comments. Your feedback is changing the 1st round comments (“keeps the interferer values applicable for band n100 in square brackets”, “keep the CEPT wording for the blocking interferer for the time being.”). So far my assumption was that we aim to close the Core part on time before March. This is why Proposal2 was reusing the available ECC/ERC/EU information for the blocker specification in the CR – then the blocker would be updated based on feedback from TC RT.  *“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. ”*  Right now, it seems that you suggest that we may keep the blocker as FSS, and wait for the feedback from TC RT before concluding the Core spec (WI exception sheet required). Based on feedback from RAN4 leadership, it was encouraged to complete Core part and avoid exception sheets. As we are beyond the 1st round deadline, let me propose the following:  I will adjust the wording in the summary so that both options above are not precluded and we will continue the discussion on the RMR900 blocking requirement:  [draft R4-2207150 Summary\_314\_1st round\_v2.docx](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_102-e/Inbox/Drafts/%5B102-e%5D%5B314%5D%20RAIL_900_1900MHz_BSRF/Round%201/draft%20R4-2207150%20Summary_314_1st%20round_v2.docx) |
| Nokia | below are comments from the first round on this issue, as you can see we did not comment we support option 1 but rather seek for clarification from ETSI TC RT first. The following statement does not reflect discussion from the 1st round since only Huawei stated to follow option 1 according to my understanding:  “Based on the 1st round discussion, initially it was proposed to follow Option 1. After first round deadline, further comments were provided by companies. Therefore, it was suggested to continue the discussion during the second round.“ |
| UIC | I’m sorry, UIC is just following one of the proposals made by Huawei in R4-2205994. In close coordination with the TC RT chair, UIC's view was announced. I appreciate to get this clarified in the second round. |
| Moderator | @Iwo: Nokia comments was very general, and the initially proposed conclusion was not in any conflict with Nokia comment.  Besides, UIC comment was also supporting “proposal 1” (I assume it shall read as “option 1”). Ericsson comment was aligned with the proposal 2 of Option 1. So it was not only Huawei view…  Anyway, the aim here was to avoid exception sheet for this WI. Let’s continue during the second round as proposed in v2 summary. |
| Ericsson | Just to confirm what Michal wrote below regarding Ericsson’s position: we agreed with the WF proposed by Huawei, capturing the interferer as described in CEPT in a first step and waiting for TC RT’s feedback to update the interferer’s detailed description. I think this was a pragmatic approach to avoid WI extension.  But there is any concern with this, we could also revise all CRs removing the 900MHz related changes and come back on 900MHz CRs when we’ll receive TC RT’s LS. The 900MHz WI will then need an extension. |
| UIC | Thanks for your view! TC RT chair has been informed last week about the proposals in R4-2205994. It was the decision of the TC RT chair to discuss the interferer topic resulting from SRD in the upcoming RT#85 (end of March 2022) and then put it to normative. |

Sub topic 1-3:

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| **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

Summary of the open issues is provided below.

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|  | **Status summary** |
| **Sub-topic 1-1: “maximum gain” terminology** | Candidate options:  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)  Based on the 1st round discussion, consensus is achieved.  Recommendations for 2nd round: Option 1 is considered as agreeable. During the 2nd round, consider related modifications to TPs/CRs. No further discussion during the second round. Focus on related TPs/ CRs. |
| **Sub-topic 1-2: Interferer signal for the BS RF RX blocking requirement for RMR900** | Candidate options:  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.   Based on the 1st round discussion, initially it was proposed to follow Option 1. After first round deadline, further comments were provided by companies. Therefore, it was suggested to continue the discussion during the second round.  Recommendations for 2nd round: ~~Option 1 is considered as agreeable.~~ ~~No~~ further discussion during the second round. ~~For sake of formally capturing the above agreements (Proposal 2 and 3), it is proposed to reflect it in the LS text.~~ |
| **Sub-topic 1-3: LS to ETSI TC RT** | Candidate options:  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)  Based on the 1st round discussion, consensus is achieved.  Recommendations for 2nd round: Option 1 is considered as agreeable. No further discussion during the second round. Focus on LS text (new tdoc); no need to report the WI work progress in the LS – focus on technical aspects for the RMR900 blocker. |

### CRs/TPs

## Discussion on 2nd round

Sub topic 1-2: provide further feedback in relation to RMR900 blocking requirement, with the assumption that the LS to ETSI TC RT will be sent:

* 1-2-1: possibility to conclude Core requirement this meeting (based on existing ECC/ERM/EC information), to be further updated later this year based on ETSI TC RT feedback,
* 1-2-2: on the need for WI exception sheet in March RAN meeting.

Please note that WI exception sheets were discouraged, if possible.

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| **Company** | **Comments** |
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# Topic #2: TPs to TR 38.852 and TR 38.853

## Companies’ contributions summary

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| **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

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| **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. |
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| 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. |
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## Summary for 1st round

### CRs/TPs

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| **CR/TP number** | **CRs/TPs Status update recommendation** |
| R4-2205138 | To be revised – consider further TP refinements to reflect “maximum gain” terminology, and capture information that the losses in the ECC Report 318 were assumed as 4dB. |
| R4-2205139 | To be revised – consider further TP refinements to reflect “maximum gain” terminology, and capture information that the losses in the ECC Report 318 were assumed as 4dB. |

## Discussion on 2nd round

### CRs/TPs comments collection

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| **CR/TP number** | **Comments collection** |
| R4-22072767  (R4-2205138 revision) |  |
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| R4-2207272  (R4-2205139 revision) |  |

# Topic #3: CRs

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

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| [**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

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| **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 | Draft CR to TS 38.104: RX requirements (revision) |

## Open issues summary

### CRs/TPs comments collection

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| **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”. |
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| [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

All the CRs are revised. Some require only CR cover page correction. For detailed guidance, refer to section 4.1.

## Discussion on 2nd round

### CRs/TPs comments collection

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| **CR** | **Comments collection** |
| R4-2207263  (R4-2205064 revision) | CR to TS 38.104 - Tx requirements: RMR 900MHz and 1900MHz bands introduction  Huawei: I have one concern on the way the max antenna gain value and the losses are worded in that proposal – I think we are in-directly limiting implementations by silent assumption of 4dB losses.  I would suggest to reword related text in the following way (I am not implementing this in the CR as it affects multiple clauses):  *For band n100 in CEPT countries, Prated,c,AC shall not exceed 51.5 dBm/5MHz + (fDL-922.1) x 40/3 dB, with fDL being the centre frequency in MHz. This limit is derived from ECC Decision(20)02 [21] assuming a 13 dBi maximum antenna gain ~~(antenna gain~~ and 4 dB internal losses~~)~~.*  *For band n101 in CEPT countries, Prated,c,AC shall not exceed 51 dBm/10MHz or 48 dBm/5MHz. This limit is derived from ECC Decision(20)02 [21] assuming a 14 dBi maximum antenna gain ~~(antenna gain~~ and 4 dB internal losses~~)~~.*  *NOTE: in case of lower value of internal loses, higher value of the antenna gain may be considered as compensation, leading to appropriate offset (reduction) of the Prated,c,AC limit accordingly.*  Ericsson: I think you made a mistake in your proposal: the 13/14dBi is not the max gain of the antenna, but the max gain of (antenna + losses).  So if we want to explicitly mention the 4dB losses, we should also update the max antenna gain, adding 4dB to the proposed values 13 and 14.  [ms]: well, not necessarily – but long story short: I agree with your approach. Also it is better to stick to 17/18 dBi values taken from ECC references.  But I think your proposal is equivalent to the current one:  Either we say we have 14dB antenna gain and 4dB losses (as you propose), or we say we have 14dB max gain which includes antenna gain and losses (as currently in the CR).  [ms]: that “max gain” approach is not very clear. Market antennas will have various gains, as well as various losses. I think it is more transparent to keep both values (antenna gain, losses) explicitly. Then in the TR we can provide references where respective values were taken from.  *Huawei:* Two more comment below inline.  *For band n100 in CEPT countries, Prated,c,AC shall not exceed 51.5 dBm/5MHz + (fDL-922.1) x 40/3 dB, with fDL being the centre frequency in MHz. This limit is derived from ECC Decision(20)02 [21] assuming a 1~~3~~7 dBi ~~maximum~~ antenna gain ~~(antenna gain~~ and 4 dB internal losses~~)~~.*  *For band n101 in CEPT countries, Prated,c,AC shall not exceed 51 dBm/10MHz or 48 dBm/5MHz. This limit is derived from ECC Decision(20)02 [21] assuming a 1~~4~~8 dBi ~~maximum~~ antenna gain ~~(antenna gain~~ and 4 dB internal losses~~)~~.*  *NOTE: in case of lower value of internal loses, higher value of the antenna gain may be considered as compensation, leading to appropriate offset (reduction) of the Prated,c,AC limit accordingly.*  Ericsson: Would that be ok if we capture in the TR only, and not the TS, that the maximum again is equal to the max antenna gain (18dBi) + losses (4dBi)? Same for the note then?  Huawei: I don’t like this “maximum gain” thing. Another approach is to remove the whole derivation part from the TS (and keep only in TR):  *For band n100 in CEPT countries, Prated,c,AC shall not exceed 51.5 dBm/5MHz + (fDL-922.1) x 40/3 dB, with fDL being the centre frequency in MHz [TR reference]. ~~This limit is derived from ECC Decision(20)02 [21] assuming a 137 dBi maximum antenna gain (antenna gain and 4 dB internal losses).~~*  *For band n101 in CEPT countries, Prated,c,AC shall not exceed 51 dBm/10MHz or 48 dBm/5MHz [TR reference]. ~~This limit is derived from ECC Decision(20)02 [21] assuming a 148 dBi maximum antenna gain (antenna gain and 4 dB internal losses).~~*  *~~NOTE: in case of lower value of internal loses, higher value of the antenna gain may be considered as compensation, leading to appropriate offset (reduction) of the P~~~~rated,c,AC~~ ~~limit accordingly~~~~.~~*  UIC: The derivation part may remain in the TR only, but at least you should add “ in accordance with ECC Decision……”.  Ericsson: I don’t think it’s good idea to remove that from the TS: we will loose any opportunity for flexibility and will have to strictly stick to the specified limits, whatever antenna gain and losses will be used in deployment… and this is exactly what we would like to avoid…  Actually, those limits might even be false if the installed antenna gain + loss exceeds the 13/14dBi…  UIC: The last part of note is a bit confusing. To me internal losses and antenna gain may vary but within the limits of …..  UIC: I think then we might be back at the previous constellation in the corresponding TRs which are under revision. However, we could add the assumption derived in ECC report 318. Otherwise, to me it would come again a bit out the blue.  Huawei: I am fine with Ingo’s proposal. Let me update again:  *For band n100 in CEPT countries, Prated,c,AC shall not exceed 51.5 dBm/5MHz + (fDL-922.1) x 40/3 dB (with fDL being the centre frequency in MHz) in accordance with ECC Decision (20)02 [x]. ~~This limit is derived from ECC Decision(20)02 [21] assuming a 137 dBi maximum antenna gain (antenna gain and 4 dB internal losses).~~*  *For band n101 in CEPT countries, Prated,c,AC shall not exceed 51 dBm/10MHz or 48 dBm/5MHz, in accordance with ECC Decision (20)02 [x]. ~~This limit is derived from ECC Decision(20)02 [21] assuming a 148 dBi maximum antenna gain (antenna gain and 4 dB internal losses).~~*  *~~NOTE: in case of lower value of internal loses, higher value of the antenna gain may be considered as compensation, leading to appropriate offset (reduction) of the P~~~~rated,c,AC~~ ~~limit accordingly~~~~.~~*  *NOTE: for more details on the maximum limit derivation, refer to TR [TR reference].*  There is number of CRs (also from Nokia) impacted in multiple places by this wording modifications above, so it would be good to converge on this before we start drafting “final draft” versions of CRs.  Nokia: I agree with Dominique to keep this text to allow for flexibility (with different antenna gain and losses having in mind ECC requirements are met) as discussed in previous meetings. We do not agree to have just one conducted limit (on the basis of specific antenna gain and losses) without additional text on possibility for other deployment scenarios.  Huawei: I would be fine with Ingo’s proposal, but then based on Nokia and Ericsson comment we are back to previous step.  The whole story here started to avoid any limitations and not to restrict implementations – so we agree on that.  Can we conclude then to keep both values (antenna gain, losses) which is facts driven and based on ECC references (in order to avoid the “maximum gain” approach, which is not well established)? The previous Note is modified to capture TR reference.  *For band n100 in CEPT countries, Prated,c,AC shall not exceed 51.5 dBm/5MHz + (fDL-922.1) x 40/3 dB, with fDL being the centre frequency in MHz. This limit is derived from ECC Decision(20)02 [21] assuming a 1~~3~~7 dBi ~~maximum~~ antenna gain ~~(antenna gain~~ and 4 dB internal losses~~)~~.*  *For band n101 in CEPT countries, Prated,c,AC shall not exceed 51 dBm/10MHz or 48 dBm/5MHz. This limit is derived from ECC Decision(20)02 [21] assuming a 1~~4~~8 dBi ~~maximum~~ antenna gain ~~(antenna gain~~ and 4 dB internal losses~~)~~.*  *NOTE: for more details on the maximum level derivation, refer to TR 38.xxx [x].*  Ericsson: Even if very late, it might be ok but why “internal” losses?  It might be from cable losses, right?  Regarding the note, I’m still not sure we need it… I would propose to keep it in [] and only add it in the max power limits, not in every table.  Huawei: Fine to stick “~~internal~~ losses”  Also fine to put the note in []. The note is not needed in multiple places, but the “maximum gain” correction is required wherever that “13/14 dBi” limit appeared.  Nokia: Fine with suggestions but would like to keep the note in each requirement where these assumptions were used. |
| R4-2207271  (R4-2205949 revision) | CR to 38.141-1 on introduction of n100 and n101 requirements  Company A:  Company B: |
| R4-2207273 | LS to ETSI TC RT on the interferer signal definition for the RMR900 BS Rx blocking requirement  Company A:  Company B: |
| R4-2207274 | CR to TS 37.105: RMR implementation  Company A:  Company B: |
| R4-2207275 | CR to TS 37.145-1: RMR implementation  Company A:  Company B: |
| R4-2207276 | CR to TS 37.145-2: RMR implementation  Company A:  Company B: |
| R4-2207277 | CR to TS 38.104: RX requirements  Nokia:  I am not sure if there is any confusion since the requirement is known, I suggest we do not introduce more text on when OOBB is applicable as well as there is a difference of requirement since this is clear from the table. Currently the table below is proposed by there is no information about the frequency of the interfering signal, I suggest to keep column on centre frequency of interfering signal since it is related to ECC Decision.  Table 7.5.5-1: Additional out-of-band blocking requirement for RMR BS operating in n101   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | ~~Operating band~~ | BS channel bandwidth of the lowest/highest carrier received (MHz) | Wanted signal mean power (dBm) | Interfering signal mean power (dBm) | ~~Centre frequency of interfering signal (MHz)~~ | ~~Interfering signal centre frequency minimum offset from the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap (MHz)~~ | Type of interfering signal | | ~~n101~~ | 5, 10 | PREFSENS + 3 dB | Wide Area BS: -20 | ~~1807.5 - 1877.5~~ | ~~±7.5~~ | 5 MHz LTE signal |   Company B: |

# Recommendations for Tdocs

## 1st round

**New tdocs**

Based on the agreement, formal LS to ETSI TC RT was agreed to be drafted based on the draft LS in R4-2205995, and further comments.

3 new CRs are needed for AAS BS specifications to formally Agree on the technical content endorsed last meeting (R4-2203057, R4-2202026, R4-2202027).

Additionally, one draft CR was submitted this meeting in R4-2205996 – related formal CR is requested, while R4-2205996 is to be marked as not pursued.

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| **Title** | **Source** | **Comments** |
| LS to ETSI TC RT on the interferer signal definition for the RMR900 BS Rx blocking requirement | Huawei, HiSilicon | To: ETSI TC RT;  Cc: RAN |
| CR to TS 37.105: RMR implementation | Huawei, HiSilicon | Formal CR mirroring the draft CR which was Endorsed last meeting in R4-2203057. |
| CR to TS 37.145-1: RMR implementation | Huawei, HiSilicon | Formal CR mirroring the draft CR which was Endorsed last meeting in R4-2202026. |
| CR to TS 37.145-2: RMR implementation | Huawei, HiSilicon | Formal CR mirroring the draft CR which was Endorsed last meeting in R4-2202027. |
| CR to TS 38.104: RX requirements | Huawei, HiSilicon | Formal CR based on R4-2205996 (Draft CR to TS 38.104: RX requirements (revision)) content. Related draft CR marked as Not pursued.  Technical comment to R4-2205996 to be addressed in this CR. |

**Existing tdocs**

The following guidance is proposed for CRs, depending on the required corrections:

1. CRs with technical comments received during the 1st round, we follow the regular way, i.e. revisions to be discussed during the second round.

2. CRs with CR cover page issues only, the following is proposed to reduce the workload during the 2nd round:

* Revise CR (please remember to indicate the revision field “rev” by 1),
* Proponents to correct the CR cover page, as per comments received during the first round,
* Other specs affected: for completeness and easier spec updates tracking in future, it is suggested by the Moderator to capture related CR numbers irrespective of core, or test specification.
* Formal revised CR to be uploaded to the Inbox WITHOUT further discussion during the 2nd round.

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
| [R4-2205064](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205064.zip) | CR to TS 38.104 - Tx requirements: RMR 900MHz and 1900MHz bands introduction | Ericsson | Revised | Technical comments, CR cover corrections |
| [R4-2205065](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205065.zip) | CR to TS 38.141-2: RMR 900MHz and 1900MHz bands introduction | Ericsson | Revised | CR cover corrections only |
| [R4-2205066](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205066.zip) | CR to TS 36.104: RMR 900MHz and 1900MHz bands introduction | Ericsson | Revised | CR cover corrections only |
| [R4-2205067](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205067.zip) | CR to TS 36.141: RMR 900MHz and 1900MHz bands introduction | Ericsson | Revised | CR cover corrections only |
| [R4-2205138](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205138.zip) | TP BS RF conducted requirements for n100 | Union Inter. Chemins de Fer | Revised |  |
| [R4-2205943](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205943.zip) | CR to 37.104 on introduction of n100 and n101 co-existence requirements | Nokia, Nokia Shanghai Bell | Revised | CR cover corrections only |
| [R4-2205945](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205945.zip) | CR to 37.141 on introduction of n100 and n101 co-existence requirements | Nokia, Nokia Shanghai Bell | Revised | CR cover corrections only |
| [R4-2205948](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205948.zip) | CR to 38.104 on introduction of n100 and n101 (system parameters) | Nokia, Nokia Shanghai Bell | Revised | CR cover corrections only |
| [R4-2205949](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205949.zip) | CR to 38.141-1 on introduction of n100 and n101 requirements | Nokia, Nokia Shanghai Bell | Revised | Technical comments, CR cover corrections |
| [R4-2205139](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205139.zip) | TP BS RF conducted requirements for n101 | Union Inter. Chemins de Fer | Revised |  |
| [R4-2205994](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205994.zip) | Interferer signal for the BS RF RX blocking requirement for RMR900 | Huawei, HiSilicon | Noted |  |
| [R4-2205995](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205995.zip) | draft LS to ETSI TC RT on the interferer signal definition for the RMR900 BS Rx blocking requirement | Huawei, HiSilicon | Noted | Related formal LS requested. |
| [R4-2205996](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205996.zip) | Draft CR to TS 38.104: RX requirements (revision) | Huawei, HiSilicon | Not pursued | Related formal CR requested; content of the draft CR to be reused. |

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

As there is RAN4 leadership preference to keep separate CRs for RMR900 and RMR1900 WI’s (previously we have merged them to safe the effort), we will follow offline Chair proposal as below:

* Endorse formal CRs if agreeable during the meeting,
* Assign new CRs for post-meeting email approval with only 1900MHz included.

RMR900 WI will require extension due to Rx blocker technical discussion, which requires inputs from ETSI TC RT.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
| R4-2207263 | CR to TS 38.104 - Tx requirements: RMR 900MHz and 1900MHz bands introduction | Ericsson | Endorsed |  |
| R4-2207264 | CR to TS 38.141-2: RMR 900MHz and 1900MHz bands introduction | Ericsson | Endorsed |  |
| R4-2207265 | CR to TS 36.104: RMR 900MHz and 1900MHz bands introduction | Ericsson | Endorsed |  |
| R4-2207266 | CR to TS 36.141: RMR 900MHz and 1900MHz bands introduction | Ericsson | Endorsed |  |
| R4-22072767 | TP BS RF conducted requirements for n100 | Union Inter. Chemins de Fer | Approved |  |
| R4-2207268 | CR to 37.104 on introduction of n100 and n101 co-existence requirements | Nokia, Nokia Shanghai Bell | Endorsed |  |
| R4-2207269 | CR to 37.141 on introduction of n100 and n101 co-existence requirements | Nokia, Nokia Shanghai Bell | Endorsed |  |
| R4-2207270 | CR to 38.104 on introduction of n100 and n101 (system parameters) | Nokia, Nokia Shanghai Bell | Endorsed |  |
| R4-2207271 | CR to 38.141-1 on introduction of n100 and n101 requirements | Nokia, Nokia Shanghai Bell | Endorsed |  |
| R4-2207272 | TP BS RF conducted requirements for n101 | Union Inter. Chemins de Fer | Approved |  |
| R4-2207273 | LS to ETSI TC RT on the interferer signal definition for the RMR900 BS Rx blocking requirement | Huawei, HiSilicon | Agreeable |  |
| R4-2207274 | CR to TS 37.105: RMR implementation | Huawei, HiSilicon | Endorsed |  |
| R4-2207275 | CR to TS 37.145-1: RMR implementation | Huawei, HiSilicon | Endorsed |  |
| R4-2207276 | CR to TS 37.145-2: RMR implementation | Huawei, HiSilicon | Endorsed |  |
| R4-2207277 | CR to TS 38.104: RX requirements | Huawei, HiSilicon | Endorsed |  |

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

|  |  |  |
| --- | --- | --- |
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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)