**3GPP TSG-RAN WG4 Meeting # 100-e R4-2115777**

**Electronic Meeting, 16th – 27th August 2021**

**Agenda item:** 6.1.2.2.1

**Source:** Moderator (Nokia)

**Title:** Email discussion summary for [100-e][305] NR\_IAB\_Maintenance\_Part1

**Document for:** Information

# Introduction

This email discussion focuses on IAB conformance test, part 1. Following sub-AIs are covered in this email discussion thread:

6.1.2.2.1 General [NR\_IAB-Perf]

6.1.2.2.2 Common test issues for conducted and radiated conformance testing [NR\_IAB-Perf]

6.1.2.2.2.1 Test Model with High PSD and narrow RBs allocation [NR\_IAB-Perf]

6.1.2.2.2.2 MU clean-up [NR\_IAB-Perf]

6.1.2.2.2.3 Others [NR\_IAB-Perf]

This email thread also includes 2 Tdocs (R4-2113678 and R4-2113679) submitted to AI 6.1.2.2.3 and 6.1.2.2.4, as other Tdocs on this topic was submitted to this agenda in this email thread. Thus, all papers on test efficiency optimization issue are treated here.

Additionally, Tdoc R4-2114159 was moved from email thread [306] to this email thread.

# Topic #1: Single RB with high PSD for test model

Last RAN4#99-e meeting a WF on single RB High PSD (R4-21085630) was agreed. For this meeting 2 discussion Tdocs and 2 draft CRs were submitted on this issue.

## Companies’ contributions summary

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| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2112266 | Nokia, Nokia Shanghai Bell | Title: Proposal on single RB with high PSD test model for IAB  Proposal: Also use test model with single RB allocation with a higher PSD declared by the vendor to be supported for single RB transmission at RF bandwidth edge at least for IAB-MT transmitter operating band unwanted emission and spurious emission tests. |
| R4-2112267 | Nokia, Nokia Shanghai Bell | Title: Draft CR to TS 38.176-1: Addition of test model with single RB allocation for transmitter operating band unwanted emission and spurious emission tests. |
| R4-2112268 | Nokia, Nokia Shanghai Bell | Title: Draft CR to TS 38.176-2: Addition of test model with single RB allocation for transmitter operating band unwanted emission and spurious emission tests. |
| R4-2114324 | Ericsson | Title: IAB with high PSD testing  Observation-1: Parent IAB-DU needs to dimension the backhaul link with high bandwidth to cope with peak traffic of the child IAB and thus PSD level should be set with high number of the RB case.  Observation-2: All rated carrier power allocated to single RB behaviour is not specified in TS 38.174.  Proposal: No need to continue discussion on high PSD power case. |

## Open issues summary

### Sub-topic 1-1

*Sub-topic description:*

There are 2 contributions submitted with discussions on single RB with high PSD for test model for IAB. There are also 2 draft CRs submitted with proposals of addition of test model with single RB allocation for transmitter operating band unwanted emission (OBUE) and spurious emission test for both TS 38.176-1 and TS 38.176-2.

There are two different views submitted on need for single RB and high PSD for test models for IAB.

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

**Issue 1-1: Single RB with high PSD for test model**

* Proposals
  + Option 1: To add to test model for IAB single RB allocation for transmitter OBUE and spurious emission tests (Nokia R4-2112266)
  + Option 2: To not change current test models for IAB (Ericsson R4-2114324)
* Recommended WF
  + TBA

## Companies views’ collection for 1st round

### Open issues

Sub topic 1-1

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Nokia (BG) | Issue 1-1: We presented in our contribution R4-2112266 based on some studies and measurements on the potential impact on IAB-MT unwanted emission for single RB transmission with different levels of power boosting compared to full RBs transmission, that the IM3 at PA output for single RB transmission with >6 dB power boosting is higher compared to full RBs transmission. This means the identified issue will happen even when the single RB is not transmitted with full power, it will happen when the single RB (or a few RBs) is transmitted with a certain dB of power boosting compared to full RBs transmission.  Therefore, if the IAB-MT radio hardware is designed and tested for 3GPP compliance with full RBs transmission, such radio hardware may not be able to meet the 3GPP unwanted emission limits with single RB transmission with a larger than certain level of power boosting, and thus would cause coexistence issue with other operators or services in the same geographical area. |
| Samsung | Our preference is still the same as before which is option2 |
| Ericsson | Option 2. |
| Huawei | We do not see the single RB as a valid use case for IAB so no need for the change, we support option 2. |
| CATT | Option 2 |
| Qualcomm | We understand the Nokia arguments. If Option 2 is preferred by most companies than the single RB transmission should somehow be disabled.  Question to Huawei: What happens if the IAB-MT has to transmit only PUCCH because it would not have data to transmit at some moment in time? |

### 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** |
| R4-2112267  Nokia, daft CR to 38.176-1 | ericsson: related to issue 1-1. |
| Company B |
|  |
| R4-2112268  Nokia, draft CR to 38.176-2 | Company A Ericsson: related to issue 1-1. |
| 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 #1-1** | *Out of the six companies who commented four supported option 2. Two out of six companies prefer option 1. One company commented that if option 2 is preferred by most companies than the single RB transmission should be disabled in some way.*  *Tentative agreements:*  *Candidate options:*  *Recommendations for 2nd round:*  *Continue discussion in 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)

### Open issues

Companies are encouraged to further discuss issue of high PSD single PRB for test model. As in one company commented in first round, single RB transmission disable for IAB-MT may be further discussed to avoid coexistence issues.

Sub topic 1-1

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Nokia | The issue we found and presented in our discussion paper R4-2112266 is not limited to only single RB, the IM3 will occur when power boosting is used for some RBs to enhance uplink coverage, e.g. we should see the same results with 1/4 of full RBs and 6dB power boosting, so what need to be clearly stated in TR/TS is that RB power boosting shall not be applied to IAB MT TX, single RB is only a worst case when all Tx power can be used on single RB.  We should somehow disable single RB transmission (as Qualcomm proposed) with high PSD if Option 2 is preferred by most companies. As companies do not see the single RB as a valid use case for IAB, disabling single RB transmission with high PSD should not be an issue.  Thus, we see 2 options to resolve the issue:  **Option 1: Addition of test model with high PSD single RB**  **Option 2: Disable in IAB core specification 38.174 of single RB transmission with high PSD** |
|  |  |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2112267  Nokia, daft CR to 38.176-1 |  |
|  |
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| R4-2112268  Nokia, draft CR to 38.176-2 |  |
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# Topic #2: Other updates to IAB test specifications

There are few Tdocs submitted with proposal to update or correct IAB test specification. These Tdocs are split for following:

Issue 2-1: Alignment for test models acronyms used in IAB test specifications

Issue 2-2: Test efficiency optimization update

Issue 2-3: IAB with Luant modem testing

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2113489 | Nokia, Nokia Shanghai Bell | Title: Draft CR to TS 38.176-1 – alignment for test models acronyms |
| R4-2113490 | Nokia, Nokia Shanghai Bell | Title: Draft CR to TS 38.176-2 – alignment for test models acronyms |
| R4-2113676 | Nokia, Nokia Shanghai Bell | Title: On test efficiency optimization  This contribution proposes changes for test efficiency optimization in TS 38.176-1 and TS 38.176-2 that have been discussed and clarified. Corresponding draft CRs are provided in CRs to TR 38.809, TS 38.176-1 and TS 38.176-2. |
| R4-2113677 | Nokia, Nokia Shanghai Bell | Title: Draft CR to TS 38.809: Test efficiency optimization  General description of test efficiency optimization is proposed to be added into the TR. |
| R4-2113678 | Nokia, Nokia Shanghai Bell | Title: Draft CR to TS 38.176-1: Test efficiency optimization |
| R4-2113679 | Nokia, Nokia Shanghai Bell | Title: Draft CR to TS 38.176-2: Test efficiency optimization |
| R4-2114325 | Ericsson | Title: IAB with Luant modem testing  Observation #1: The luant model specification is specified with reference point of BS antenna connector which is BS type 1-C  Proposal-1: Luant modem testing aspect should be removed from the IAB test specification. |
| R4-2114326 | Ericsson | Title: CR on removal of Luant modem in conducted performance specification  Draft CR to TS 38.176-1 |
| R4-2114327 | Ericsson | Title: CR on removal of Luant modem in radiated performance specification  Draft CR to TS 38.176-2 |
| R4-2114159 | ZTE Corporation | Title: Maintenance CR to TS 38.176-2  Summary of change:  - To keep the alignment between IAB and NR BS on integrated Iuant BS modem;  - 4.9.2.1 (‘NR’ corrected to ‘IAB’),  - 4.9.2.2 (reference update )  - 6.4.1.3.4 (test model acronyms update). |

## 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 2-1

*Sub-topic description:*

There are 2 draft CR submitted to correct acronym used for test models. The reason is that some of acronyms used legacy NR test models, some used non-existing acronyms like IAB-FR1-TMx.x (without knowing if this is related to IAB-DU or IAB-MT) etc.

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

**Issue 2-1: Alignment for test models acronyms used in IAB test specifications**

* Proposals
  + Option 1: To align TMs acronyms and endorsed draft CRs: R4-2113489 and R4-2113490 and CR R4-2114159 (part of acronyms update).
  + Option 2: TBA
* Recommended WF
  + TBA

### Sub-topic 2-2

*Sub-topic description*

This contribution proposes changes for test efficiency optimization in TS 38.176-1 and TS 38.176-2 that have been discussed and clarified in R4-2113677. Corresponding draft CRs are provided in CRs to TR 38.809, TS 38.176-1 and TS 38.176-2.

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

**Issue 2-2: Test efficiency optimization update**

* Proposals
  + Option 1: To endorsed draft CRs: R4-2113677, R4-2113678, R4-2113679
  + Option 2: TBA
* Recommended WF
  + TBA
    1. Sub-topic 2-3

*Sub-topic description*

Current luant modem is specified for BS type 1-C and as the IAB does not include the type of 1-C it is proposed to remove it from IAB test specifications.

R4-2114159 proposes to remove from 38.176-2 in clause 4.5.4 sentence: “Spurious emissions according to clauses 6.6.5 and 7.6 shall be measured only for frequencies above 30 MHz with the integrated Iuant BS modem switched ON.”

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

**Issue 2-3: IAB with Luant modem testing**

* Proposals
  + Option 1: To removed luant from IAB specifications and endorsed draft CRs: R4-2114326 and R4-2114327
  + Option 2: To remove sentence on luant BS in clause 4.5.4 in 38.176-2 (CR R4-2114159)
* Recommended WF
  + TBA

## Companies views’ collection for 1st round

### Open issues

**Example 1**

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| --- | --- |
| **Company** | **Comments** |
| Nokia (BG) | Sub topic 2-1: We support option 1.  Sub topic 2-2: We support option 1.  Sub topic 2-3: In NR specs this section with luant is applied also for BS type 1-H and BS type 1-O so likely some alignment between all specs might be useful? RET is used to change cell coverage when needed, so whether this should continue to for IAB depends on deployment plan; also this clause is used in TS 37.145-2 and TS 38.141-2 for radiated conformance testing. So we think luant should be keep in IAB spec. |
| Samsung | **Issue 2-1:** Fine with suggested update  **Issue 2-2:** could proponent clarify the consideration to remove D.12 and D.23 in R4-2113678, D.18 in R4-2113679 for declaration on multi-band?  **Issue 2-3:** similar clarification question to option 1: whether the motivation to remove this for IAB is applicable for Gnb as well? |
| Ericsson | **Issue 2-1: Option 1 but there still “BS” in 6.4.1.3 in CR 3490Issue 2-2: Option 2. CR:es need revisions. For CR 3677, there is a term “novel approach” which I am not sure how to define “novel”. In chater 4.6, the first parameter, not sure I understand the “**While IAB architecture can consist of separate or shared hardware according to clause 4.5, the actual RF performance parameters can also be the same or different for IAB-MT and IAB-DU. This applies for both shared and separate IAB hardware.”, **we donot need mention sperate hardware case as test effiency only apply to shared archietecture.**  In second paragraph “For test efficiency optimization to apply, manufacturer needs to declare usage of same RF implementation, which can be using same or separate hardware” **what does this mean? Why separate hardware can be covered in test efficiency now? The same RF implemenation is not as strong as the same hardware, IAB-MT and IAB-DU must use the same hardware, e.g the RF branch can be the same RF implementation but IAB-MT and IAB-DU could use different RF branch which is not the same meaning of the shared hardware. The declaration of D.IAB-1 should align the definition with the shared architecture in TR 38.809. Ericsson has a TP (R4-2111181) for it las meeting, but not sure what the reason it is not agreed. Now the issue pops up again and may equally well to discuss it again.**  For CR 3678 and 3679. What is the reason to remove the “old” declarations if these parameter will be declared as the same as IAB-DU and IAB-MT? if they are declared differently, how can we make sure the same hardware is used between IAB-DU and IAB-MT? Adding the missing declaration is welcomed though.  **Issue 2-3: Option 1. The luant modem specification is only for BS antenna connector, which has not been specified for TAB connector. Mixing the specification is confusing. To Nokia, would you please clarify why luant modem specification also apply to BS 1-H and BS 1-O?** |
| ZTE | Sub topic 2-1: We support option 1.  Sub topic 2-3: we share similar view as Nokia since the motivation for RET of Iuant is clear, In addition, this feature is not coming from RAN4 instead from RAN3 mentioned by Huawei in Rel-15, please check the 38.141-2 and 37.145-2 spec. |
| Huawei | **Issue 2-1:** Changes ok – option 1  **Issue 2-2:** Comments on the CR’s in section 2.3.2 below  **Issue 2-3:** This section exists in the radiated requirements all be it with the IUANT switched OFF for the testing. Agree as modem is used for controlling RET can’t see the need for it in an OTA product but same applies to BS so maybe we should also discuss in BS maintenance? We see no harm in keeping it in IAB spec while it is aligned with BS. |
| Nokia | **Reply to Ericsson on issue 2-1**:  These “BS” are corrected in big editorial CR R4-2113502 (in thread [306]). This CR focuses on test model acronyms only.  **Reply to Ericsson on issue 2-2**:  We can revise the wording in 3677 to accommodate the comments on editorials, however our understanding of the agreed declaration D-IAB.1 is that “same RF implementation” also includes the case when separate HW is used. In case of separated HW there are just two realisations of the same RF implementation.    The clarifications on the declaration changes are provided in R4-2113676 and to put it shortly, the intention has been to make the conditions equivalent between conducted and radiated specifications.  **Reply to Ericsson on issue 2-3**:  Agree with Huawei and ZTE comments on issue 2-3. This discussion on luant should be continue in BS/AAS maintenance as both specs 37.145-2 and 38.141-2 include it. |
| Ericsson | **Thanks for Nokia reply.**  **Issue 2-1: ok, fine with option 1.**  **Issue 2-2: I think for test efficiency condition, it is important to have the same understanding on the meaning of the shared architecture. We have aligned the understanding in TR 38.809, why not just use that in D-IAB-1? For example, my understanding on the implementation is that design is the same but the mapping of the antenna elements may be different though it may end up the same declaration. The same RF implementation but with the same or separate hardware make me worries that we may not talk the same thing for test efficiency improvement the IAB-MT and IAB-DU is not use the same hardware.**  **Issue 2-3: The luant modem issue as we see it in its specification is that it only specifies for the BS 1-C with antenna connector. To have a RET in OTA product with the feeder cable in specification may not be relevant as we did not define it in architecture in TR 38.809, so removing it in OTA testing spec should be ok. If companies hesitate on BS Type 1-H, we can understand, companies could have more time to check.** |

### CRs/TPs comments collection

*Major close to finalize Wis and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going Wis, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| **R4-2113489**  Nokia, draft CR to 38.176-1 | Company A  Company B  Ericsson: Ok  Huawei: OK with changing the ID’s |
| **R4-2113490**  Nokia, draft CR to 38.176-2 | ericsson: still has some “BS” to be removed  Huawei: Ok with idea of changing the names, implementation seems ok |
| **R4-2113677**  Nokia, draft CR to TR 38.809 | ericsson: **For CR 3677, there is a term “novel approach” which I am not sure how to define “novel”. In chater 4.6, the first parameter, not sure I understand the “**While IAB architecture can consist of separate or shared hardware according to clause 4.5, the actual RF performance parameters can also be the same or different for IAB-MT and IAB-DU. This applies for both shared and separate IAB hardware.”, **we donot need mention sperate hardware case as test effiency only apply to shared archietecture.**  In second paragraph “For test efficiency optimization to apply, manufacturer needs to declare usage of same RF implementation, which can be using same or separate hardware” **what does this mean? Why separate hardware can be covered in test efficiency now? The same RF implemenation is not as strong as the same hardware, IAB-MT and IAB-DU must use the same hardware, e.g the RF branch can be the same RF implementation but IAB-MT and IAB-DU could use different RF branch which is not the same meaning of the shared hardware. The declaration of D.IAB-1 should align the definition with the shared architecture in TR 38.809. Ericsson has a TP (R4-2111181) for it las meeting, but not sure what the reason it is not agreed. Now the issue pops up again and may equally well to discuss it again.** |
| Huawei: This is TR not TS (cover sheet). Not sure about the idea of same RF implementation in separate hardware? My understanding is that shared HW used for IAB-DU or IAB-MT was the intention. Identical HW that can only do one or the other seems unnecessary as it can be tested to the appropriate type? |
|  |
| **R4-2113678**  Nokia, draft CR to TS 38.176-1 | ericsson: What is the reason to remove it if these parameter will be declared as the same as IAB-DU and IAB-MT? if they are declared differently, how can we make sure the same hardware is used between IAB-DU and IAB-MT? Adding the missing declaration is welcomed though. |
| Huawei: Why is the sentence about MU removed (maybe its not applicable?) however I think its still worthwhile to show the intent.  Declarations relating to multi-band seem to have been removed why? Better ty have to many declarations in this list than miss some I think. |
|  |
| **R4-2113679**  Nokia, draft CR to TS 38.176-2 | ericsson: What is the reason to remove it if these parameter will be declared as the same as IAB-DU and IAB-MT? if they are declared differently, how can we make sure the same hardware is used between IAB-DU and IAB-MT? Adding the missing declaration is welcomed though.  huawei: Again multi band declaration seem to be removed, despite the summary indicating they have been added? |
| **R4-2114326**  Ericsson, draft CR to TS 38.176-1 | nokia (BG): As in NR specs also this part with Luant is included. Should we align with NR specs?ericsson: NR spec including the BS type 1-C where luant modem specified for.  ZTE: To Ericsson, please double check 38.141-2 and 37.145-2 spec.  Huawei: as discussed in issue 2-3, The IUANT section is included in 37145-2 and 38.141-2 despite having similar argument against (and IUANT is off in these specs). It is perhaps justifiable to remove but as long as its in BS then we can leave here. |
| **R4-2114327**  Ericsson, draft CR to TS 38.176-2 | nokia (BG): See above for 4326.ZTE: To Ericsson, please double check 38.141-2 and 37.145-2 spec.  Huawei: Comments as 2326  Ericsson: Luant modem specification is reference to the feeder cable but IAB Type 1-O and 2-O does not include antenna connector but RIB interface, it is difficult to understand how it will impact emission of the IAB. |
| **R4-2114159**  ZTE, CR to TS 38.176-2 | nokia (BG):  - On test models acronyms in clause 6.4.1.3.4.2: very good findings, however it seems most of them are captured already in R4-2113490, also reference to NR spec 38.141-1 for IAB TMs should be removed in this section, as there is no IAB TMs in NR specs (although these IAB-DU TMs are based on NR TMs). Suggestion to keep this updates in R4-2113490 and remove from here.  - Clause 4.9.2.1 – agree  - Clause 4.9.2.2 – agree (the same is in R4-2113490)  - Clause 4.5.4 – agree  Company B  ZTE: fine to remove the test model acronyms and merge into Nokia’s CR.  Huawei: The IUANT mod is correct (it aligns with 38.141-2 at least). The test model names have been covered by the Nokia CR’s this should be perhaps modified to remove those changes and leave in Nokia CR’s |

## 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.*

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| --- | --- |
|  | **Status summary** |
| **Sub-topic#2-1** | *After discussions all companies are OK with option 1.*  *Tentative agreements:*  *To endorsed draft CRs R4-2113489 and R4-2113490.*  *To revised R4-2114159 other corrections than test model acronyms. Also R4-2114159 is pending on luant discussion in issue 2-3.*  *Candidate options:*  *Recommendations for 2nd round:*  *To revised R4-2114159.* |
| **Sub-topic#2-2** | *Discussion is ongoing, still some questions needs to be address by proponents. Draft CRs would need to be revised to accommodate issues.*  *Tentative agreements:*  *Candidate options:*  *Recommendations for 2nd round:*  *Continue discussion in 2nd round.* |
| **Sub-topic#2-3** | *Discussion is ongoing, still some questions needs to be address by proponents. Draft CRs would need to be revised to accommodate issues.*  *Tentative agreements:*  *Candidate options:*  *Recommendations for 2nd round:*  *Continue discussion in 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)

*Companies are encouraged to continue discussion on issue 2-2 and 2-3.*

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Nokia | Issue 2-2:  Reply to Samsung comments and question: “Issue 2-2: could proponent clarify the consideration to remove D.12 and D.23 in R4-2113678, D.18 in R4-2113679 for declaration on multi-band?”  This is explained in the discussion document R4-2113676, basically the declarations in conducted and radiated specifications are not exactly the same and the aim has been to have equivalent conditions to enable test efficiency optimization independent of whether product conforms to radiated or conducted requirements. For more details please refer to R4-2113676.  Issue 2-3:  As discussed in first round, we think we should keep luant in IAB specification as long as it is in NR spec, and possible removal should be discus together with NR and IAB.  OK to remove sentence on luant as proposed in R4-2114159. |
|  |  |

### CRs/TPs comments collection

*Major close to finalize Wis and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going Wis, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| **R4-2115705**  **(rev. of R4-2114159)**  **Maintenance CR to TS 38.176-2** |  |
| **R4-2115706**  **(Rev. of R4-2113677)**  **Draft CR to TS 38.809: Test efficiency optimization** |  |
| **R4-2115708**  **(Rev. of R4-2113678)**  **Draft CR to TS 38.176-1: Test efficiency optimization** |  |
| **R4-2115707**  **(Rev. of R4-2113679)**  **Draft CR to TS 38.176-2: Test efficiency optimization** |  |
| **R4-2114326**  **CR on removal of Luant modem in conducted performance specification** |  |
| **R4-2114327**  **CR on removal of Luant modem in radiated performance specification** |  |

# 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** |
|  |  |  |  |  |
| R4-2112266 | Proposal on single RB with high PSD test model for IAB | Nokia, Nokia Shanghai Bell | Noted |  |
| R4-2112267 | Draft CR to TS 38.176-1: Addition of test model with single RB allocation for transmitter operating band unwanted emission and spurious emission tests | Nokia, Nokia Shanghai Bell | Return to |  |
| R4-2112268 | Draft CR to TS 38.176-2: Addition of test model with single RB allocation for transmitter operating band unwanted emission and spurious emission tests. | Nokia, Nokia Shanghai Bell | Return to |  |
| R4-2114324 | IAB with high PSD testing | Ericsson | Noted |  |
| R4-2113489 | Draft CR to TS 38.176-1 – alignment for test models acronyms | Nokia, Nokia Shanghai Bell | Agreeable |  |
| R4-2113490 | Draft CR to TS 38.176-2 – alignment for test models acronyms | Nokia, Nokia Shanghai Bell | Agreeable |  |
| R4-2114159 | Maintenance CR to TS 38.176-2 | ZTE Corporation | Revised |  |
| R4-2113676 | On test efficiency optimization | Nokia, Nokia Shanghai Bell | Noted |  |
| R4-2113677 | Draft CR to TS 38.809: Test efficiency optimization | Nokia, Nokia Shanghai Bell | Revised |  |
| R4-2113678 | Draft CR to TS 38.176-1: Test efficiency optimization | Nokia, Nokia Shanghai Bell | Revised |  |
| R4-2113679 | Draft CR to TS 38.176-2: Test efficiency optimization | Nokia, Nokia Shanghai Bell | Revised |  |
| R4-2114325 | IAB with Luant modem testing | Ericsson | Return to |  |
| R4-2114326 | CR on removal of Luant modem in conducted performance specification | Ericsson | Return to |  |
| R4-2114327 | CR on removal of Luant modem in radiated performance specification | Ericsson | Return to |  |

Notes:

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## 2nd round

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Notes:

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# Annex

Contact information

|  |  |  |
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