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

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

**Agenda item:** 5.3.3.1, 5.3.3.2.2, 5.3.3.2.3, 5.3.3.2.4, 5.3.3.2.5

**Source:** Moderator (ZTE Corporation)

**Title:** Email discussion summary for [98-bis-e][203] NR IAB RRM

**Document for:** Information

# Introduction

TDocs submitted to the following agenda items will be treated:

- 5.3.3.1 General

- 5.3.3.2.2 RRC Connection Release with Redirection

- 5.3.3.2.3 IAB-MT transmit timing

- 5.3.3.2.4 RLM

- 5.3.3.2.5 Beam Failure Detection and Link Recovery

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

* 1st round: Companies provide comments on draft CRs and discuss open issues
* 2nd round: Finalize on the open issues. Check if revised draft CRs can be endorsed.

# Topic #1: General Discussions

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2104482**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104482.zip) | ZTE Corporation | Proposal 1: Do not define test cases for WA IAB-MTs.  Proposal 2: Do not define test cases of timing advance for both LA IAB-MTs and WA IAB-MTs. |
| [**R4-2106950**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106950.zip) | Huawei, HiSilicon | **Observation 1: The TA updating is rare for an IAB node without mobility.**  **Observation 2: Even for normal UE, some test cases are skipped though the core requirements are defined as they may not be typical cases.**  **Observation 3: Some cases considered for IAB are much rarer compared with the test cases which are skipped for normal UE.**  **Proposal 1: Not to have test cases for timing advance for both WA IAB-MT and LA IAB-MT.**  **Proposal 2: Not to have test cases for WA IAB-MT.** |
| [**R4-2106951**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106951.zip) | Huawei, HiSilicon | Draft CR on maintenance for IAB-MT RRM test cases  Summary of changes:  The changes are based on the endorsed CR R4-2103545. The new changes are proposed using “additional changes for RAN4#98-bis-e”   * Replace the reference to TS 38.104 with the corresponding clause in TS38.174. * Remove the fine/rough beam assumption in each test cases. |
| [**R4-2107133**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107133.zip) | Ericsson | Big CR: IAB-MT RRM test cases in 38.174 |
| [**R4-2107134**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107134.zip) | Ericsson | **Observation 1:** Minimum SSB\_RP is derived from the reference sensitivity (REFSENS).  **Observation 2:** Current minimum SSB\_RP for IAB-MT RRM requirement refers to the UE minimum SSB\_RP in TS 38.133.  **Observation 3:** IAB-MT REFSENS differs with UE REFSENS in the following aspects:   * IAB-MT REFSENS depends on IAB type: different for 1-H, 1-O and 2-O * IAB-MT REFSENS depends on IAB-MT class: different for LA and WA classes * IAB-MT REFSENS does not depend on the frequency band * IAB-MT REFSENS for IAB types 1-O and 2-O (OTA REFSENS) include a declarable parameters (ΔOTAREFSENS) which is the difference between conducted reference sensitivity and OTA REFSENS and include the antenna gain for different directions.   **Proposal 1:** Minimum SSB\_RP for IAB-MT RRM requirement is derived from the reference sensitivity (REFSENS) defined for LA and WA IAB-MT classes and for all IAB types (1-H, 1-O and 2-O). |
| [**R4-2107135**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107135.zip) | Ericsson | Side conditions for IAB-MT RRM requirements  Summary of changes:  IAB-MT side conditions in terms of SSB Es/Iot and min SSB\_RP are defined for following requirements for all IAB-MT classes and all IAB types:   * IAB-MT RRC connection re-establishment requirements * IAB-MT RRC connection release with redirection requirements |

## 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 Scope of test cases

*Sub-topic description:*

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

**Issue 1-1: Whether to specify test cases for WA IAB-MTs**

* Proposals
  + Option 1: No, Do not define test cases for WA IAB-MTs (ZTE, Huawei)
* Recommended WF
  + Can we go with Option 1?

**Issue 1-2: Whether to specify test cases for timing advance**

* Proposals
  + Option 1: Do not define test cases of timing advance for both LA IAB-MTs and WA IAB-MTs (ZTE, Huawei)
* Recommended WF
  + Can we go with Option 1?

### Sub-topic 1-2 Side conditions

*Sub-topic description*

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

**Issue 1-3: Side conditions**

* Proposals
  + Option 1: Minimum SSB\_RP for IAB-MT RRM requirement is derived from the reference sensitivity (REFSENS) defined for LA and WA IAB-MT classes and for all IAB types (1-H, 1-O and 2-O). (Ericsson)
* Recommended WF
  + Can we go with Option 1?

## 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.*

**Example 1**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Issue 1-1:  Issue 1-2:  Issue 1-3: |
| ZTE | Issue 1-1: Option 1. No clear benefits for specifying extra TCs.  Issue 1-2: Option 1. No clear benefits for specifying extra TCs. |
| Huawei | Issue 1-1: We support option 1. We believe the current requirement defined for WA IAB is not frequent happening in typical deployment, then there is no need to have such test cases for WA IAB.  Issue 1-2: We support option 1. Similar reason as issue 1-1. The TA adjustment is also unusual for Rel-16 IAB without mobility.  Issue 1-3: We are fine with option 1. |

### 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** |
| [**R4-2106951**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106951.zip) | Company A |
| Company B |
|  |
| [**R4-2107133**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107133.zip)  (Moderator: this is the Big CR) | Company A |
| Company B |
|  |
| [**R4-2107135**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107135.zip) |  |
|  |
|  |

## 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** |
| [**R4-2106951**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106951.zip) | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |
| [**R4-2107133**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107133.zip)  (Moderator: this is the Big CR) |  |
| [**R4-2107135**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107135.zip) |  |

## Discussion on 2nd round (if applicable)

# Topic #2: Test cases

This clause contains basically draft CRs. Please provide your feedback on the draft CRs.

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2104928**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104928.zip) | ZTE Corporation | [draft CR] Test cases for Beam Failure Detection and Link Recovery with CSI-RS in FR1 |
| [**R4-2104929**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104929.zip) | ZTE Corporation | [draft CR] Test cases for Beam Failure Detection and Link Recovery with SSB in FR1 |
| [**R4-2104930**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104930.zip) | ZTE Corporation | [draft CR] Test cases for timing for IAB-MT |
| [**R4-2106952**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106952.zip) | Huawei, HiSilicon | Draft CR on test cases for RRC release with redirection for IAB-MT |
| [**R4-2106953**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106953.zip) | Huawei, HiSilicon | Draft CR to introduce test cases for BFD and LR based on SSB in FR2 for IAB-MT |
| [**R4-2107136**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107136.zip) | Ericsson | * **Observation 1:** The OOS/IS evaluation periods for FR2 are shorter than those for FR1. This is counterintuitive given that in FR2 the IAB-MT needs to perform beam sweeping before measurement sampling. * **Observation 2:** The beam sweeping factor (N) is missing for TEvaluate\_out\_CSI-RS and TEvaluate\_in\_CSI-RS for FR2 in the CSI-RS based RLM core requirements in TS 38.174. * **Proposal 1:** The CSI-RS RLM tests for IAB-MT are based on the same methodology used in corresponding CSI-RS based RLM tests defined for the UE in TS 38.133. * **Proposal 2:** The test times CSI-RS RLM tests for IAB-MT are kept TBD until the core requirements for FR2 are clarified. |
| [**R4-2107137**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107137.zip) | Ericsson | CSI-RS based RLM tests for LA IAB-MT in TS 38.174 |
| [**R4-2107220**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107220.zip) | Nokia, Nokia Shanghai Bell | draftCR on test cases for CSI-RS based BFD and LR for IAB-MTs |

## 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 CSI-RS based RLM

*Sub-topic description:*

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

**Issue 2-1: CSI-RS based RLM for IAB-MTs**

* Proposals
  + Option 1: The CSI-RS RLM tests for IAB-MT are based on the same methodology used in corresponding CSI-RS based RLM tests defined for the UE in TS 38.133. (Ericsson)
* Recommended WF
  + Can we agree Option 1?

**Issue 2-2: Test cases for CSI-RS based RLM for IAB-MTs**

* Proposals
  + Option 1: The test times CSI-RS RLM tests for IAB-MT are kept TBD until the core requirements for FR2 are clarified. (Ericsson)
* Recommended WF
  + Can we agree Option 1?

## Companies views’ collection for 1st round

### Open issues

**Example 1**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Issue 2-1:  Issue 2-2: |
| ZTE | Issue 2-1 & Issue 2-2: So I think the motivation for these proposals was that it was observed that in CSI-RS based RLM for IAB-MTs, the beam sweeping factor N was missing. Actually, when drafting the spec with TPs, N was omitted since in TS 38.133, N = 1. If you check the previous WF this was also captured. |
| Huawei | Issue 2-1 & 2-2, similar views as ZTE. Maybe more clarifications are needed. |

### 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** |
| [**R4-2104928**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104928.zip) | Huawei: We suggest to remove the configuration about TDD and PRACH as it is stated at the very beginning that these are left for implementation and they will not impact the test requirements. |
| Company B |
|  |
| [**R4-2104929**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104929.zip) | Huawei: We suggest to remove the configuration about TDD and PRACH as it is stated at the very beginning that these are left for implementation and they will not impact the test requirements. |
| Company B |
|  |
| [**R4-2104930**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104930.zip) | Huawei: The TDD and fine/rough assumption shall be removed as it is the requirements for UE. |
| [**R4-2106952**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106952.zip) |  |
| [**R4-2106953**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106953.zip) |  |
| [**R4-2107137**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107137.zip) |  |
| [**R4-2107220**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107220.zip) | Huawei: We suggest to remove the configuration about TDD as it is stated at the very beginning that it is left for implementation and it will not impact the test requirements. |

## Summary for 1st round

### Open issues

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

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

### CRs/TPs

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

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation** |
| [**R4-2104928**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104928.zip) | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |
| [**R4-2104929**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104929.zip) |  |
| [**R4-2104930**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104930.zip) |  |
| [**R4-2106952**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106952.zip) |  |
| [**R4-2106953**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106953.zip) |  |
| [**R4-2107137**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107137.zip) |  |
| [**R4-2107220**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107220.zip) |  |

## Discussion on 2nd round (if applicable)

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

# Recommendations for Tdocs

## 1st round

**New tdocs**

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

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
| [**R4-2106951**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106951.zip) | Draft CR on maintenance for IAB-MT RRM test cases | Huawei, HiSilicon | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
| [**R4-2107133**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107133.zip)  (Moderator: this is the Big CR) | Big CR: IAB-MT RRM test cases in 38.174 | Ericsson |  |  |
| [**R4-2107135**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107135.zip) | Side conditions for IAB-MT RRM test cases in TS 38.174 | Ericsson |  |  |
| [**R4-2104928**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104928.zip) | [draft CR] Test cases for Beam Failure Detection and Link Recovery with CSI-RS in FR1 | ZTE Corporation |  |  |
| [**R4-2104929**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104929.zip) | [draft CR] Test cases for Beam Failure Detection and Link Recovery with SSB in FR1 | ZTE Corporation |  |  |
| [**R4-2104930**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104930.zip) | [draft CR] Test cases for timing for IAB-MT | ZTE Corporation |  |  |
| [**R4-2106952**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106952.zip) | Draft CR on test cases for RRC release with redirection for IAB-MT | Huawei, HiSilicon |  |  |
| [**R4-2106953**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106953.zip) | Draft CR to introduce test cases for BFD and LR based on SSB in FR2 for IAB-MT | Huawei, HiSilicon |  |  |
| [**R4-2107137**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107137.zip) | CSI-RS based RLM tests for LA IAB-MT in TS 38.174 | Ericsson |  |  |
| [**R4-2107220**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107220.zip) | draftCR on test cases for CSI-RS based BFD and LR for IAB-MTs | Nokia, Nokia Shanghai Bell |  |  |

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 |  |
|  |  |  |  |  |
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|  |  |  |  |  |

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