**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. |

### 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. |

### 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)** | Company A |
| Company B |
|  |
| **[R4-2104929](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104929.zip)** | Company A |
| Company B |
|  |
| **[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)** |  |

## 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 |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

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