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

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

**Agenda item:** 5.3.2.3, 5.3.2.4

**Source:** Moderator (Nokia)

**Title:** Email discussion summary for [98-bis-e][305] NR\_IAB\_Conformance\_Part2

**Document for:** Information

# Introduction

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

*5.3.2.3 Conducted conformance testing [NR\_IAB-Perf]*

*5.3.2.3.1 Transmitter characteristics [NR\_IAB-Perf]*

*5.3.2.3.2 Receiver characteristics [NR\_IAB-Perf]*

*5.3.2.3.3 Other test issues [NR\_IAB-Perf]*

*5.3.2.4 Radiated conformance testing [NR\_IAB-Perf]*

*5.3.2.4.1 Transmitter characteristics [NR\_IAB-Perf]*

*5.3.2.4.2 Receiver characteristics [NR\_IAB-Perf]*

*5.3.2.4.3 Other test issues [NR\_IAB-Perf]*

Some Tdocs from agenda 5.3.2.3 and 5.3.2.4 are moved to [98-bis-e][304] NR\_IAB\_Conformance\_Part1 email thread, to treat with other papers in that email thread.

From submitted contributions there are following groups of papers:

**Topic #1: Dynamic range and power control test**

Tdocs submitted in context of agreed last RAN4#98e meeting WF R4-2103977 discussing dynamic range and power control. Some of them include TPs to conducted and OTA test specifications.

**Topic #2: TPs for TS 38.176-1 conducted tests specification**

In this topic, TPs to conducted test specification TS 38.176-1 are collected for companies’ comments.

Under this topic some TPs drafting issues are included, that are both for conducted and OTA specification.

**Topic #3: TPs for TS 38.176-2 OTA tests specification**

In this topic, TPs to OTA test specification TS 38.176-2 are collected for companies’ comments.

*Briefly introduce background, the scope of this email discussion (e.g. list of treated agenda items) and provide some guidelines for email discussion if necessary.*

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

* 1st round:
  + To discuss and agree dynamic range and power control test
  + To collect views on some TP drafting issues.
  + To collect companie’s comments on TPs
* 2nd round: TBA

# Topic #1: Dynamic range and power control test

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2105038**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2105038.zip) | Samsung | Title: “View on Local Area IAB-MT power control testing”  **Observation 1**: Relative power accuracy can be verified in power dynamic range  **Observation 2**: Aggregated power accuracy can be verified in transmitted power.  From contribution:  “Our observation is that relative power accuracy and aggregated power accuracy can be verified by other transmitter requirements. However, it is not against to go with explicitly test case if detail agreement can achieved during Apr meeting. But if no conclusion on that direction within this meeting, considering the leftover meeting cycle for REL-16 IAB, it is suggested not to define dedicated test case for power control requirement for IAB-MT.” |
| [**R4-2107231**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107231.zip) | Ericsson | Title: “On IAB-MT dynamic range and power control test for conduct test”  **Observation-1**: Power control requirement rely on TX dynamic range to provide the output power adjustability.  **Observation-2**: Power control requirement allow the TX output power uncertainty due to the TX gain setting change.  **Observation-3**: Output power accuracy for RB change is +/- 4 dB in TS 38.521-1 not considering the TT (test tolerance).  **Observation-4**: Output power accuracy for RB change is +/- 0 dB in TS 38.141-1 not considering the TT (test tolerance).  **Proposal-1**: Reuse the TS 38.521-1 to define the output power accuracy for Tx dynamic range related to RB change (Y dB).  **Proposal-2**: Introduce additional test points for Tx dynamic test so test point 2 power accuracy can be defined.  **Proposal-3**: Use the table 3 as the Tx dynamic test requirement.  **Proposal-4**: relative power control test can be combined with Tx dynamic power test.  **Proposal-5**: Reflect the power control function in Tx dynamic range requirement so the combination of the power control and Tx dynamic range is logic.  *Moderator’s note: TP for subclause 6.3.3.4.2(procedure for dynamic range test is included in this Tdoc.* |
| [**R4-2107232**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107232.zip) | Ericsson | Title: “On IAB-MT dynamic range and power control test for OTA test”  **Observation-1**: Power control requirement rely on TX dynamic range to provide the output power adjustability.  **Observation-2**: Power control requirement allow the TX output power uncertainty due to the TX gain setting change.  **Observation-3**: Output power accuracy for RB change is +/- 9 dB in TS 38.521-2 not considering the TT (test tolerance).  **Observation-4**: Output power accuracy for RB change is +/- 0 dB in TS 38.141-2 not considering the TT (test tolerance).  **Proposal-1**: Reuse the TS 38.521-2 to define the output power accuracy for Tx dynamic range related to RB change (Y dB).  **Proposal-2**: Introduce additional test points for Tx dynamic test so test point 2 power accuracy can be defined.  **Proposal-3**: Use the table 3 as the Tx dynamic test requirement.  **Proposal-4**: relative power control test can be combined with Tx dynamic power test.  **Proposal-5**: Reflect the power control function in Tx dynamic range requirement so the combination of the power control and Tx dynamic range is logic.  **Proposal-6**: No need to test the IAB-MT aggregate power control requirement. |
| [**R4-2107098**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107098.zip) | Huawei | Title: “TP to TS 38.176-1 - Tx dynamic range, clause 6.3”  This TP provides content for the TX dynamic range clause in the conducted requirement. |
| [**R4-2107099**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107099.zip) | Huawei | Title: “TP to TS 38.176-2 - OTA Tx dynamic range, clause 6.3”  This TP provides content for the TX dynamic range clause in the OTA requirement. |

## Open issues summary*.*

Tdocs submitted in context of agreed last RAN4#98e meeting WF R4-2103977 discussing dynamic range and power control. Some of them include TPs to conducted and OTA test specifications.

Following on dynamic range for IAB-MT was agreed last RAN4#98e meeting in WF R4-2103977:

**Agreement**: Test point on power control requirement for IAB-MT is agreed as:

* + - Test points 1: Maximum output power with full RB allocation and maximum output power
    - Test points 2: single RB allocation with 5/10 dB lower PSD as used in test point 1)
    - Test point 1- test point 2 = X+Y （+/- uncertainty FFS ）

Following on power control for IAB-MT was agreed in WF R4-2103977:

**For relative power control accuracy** Agreements:

Option 3: Partial PRB allocation to be considered in Test model design if to reuse the similar test configuration as UE.”

**For aggregated power control accuracy agreements**:

NO detailed conformance test cases for this requirement, FFS whether can be jointly verified or covered by dynamic range conformance test cases.

**WF on two-way signal**: below agreement applied for power control requirement.

|  |
| --- |
| **Issue 1-1-2: Two-way communication in IAB-MT tests in [306]**  Two-way communication is not specified for RF conformance tests, specification shall not preclude DL signals to be used e.g. for timing and frequency reference purposes during the test.  Companies further work on the clarification notes to conformance specifications for topic 1-1. |

### Sub-topic 1-1

**Issue 1-1: Dynamic range**

* Proposals (Multiple choice possible)
  + Option 1: Reuse the TS 38.521-1 to define the output power accuracy for Tx dynamic range related to RB change (Y dB). (Ericsson R4-2107231, R4-2107232)
  + Option 2: Introduce additional test points for Tx dynamic test so test point 2 power accuracy can be defined. (Ericsson R4-2107231, R4-21007232)
  + Option 3: Use the table 1 as the Tx dynamic test requirement, for conductive (Ericsson R4-2107231):
* Table 1: Test requirement of the Tx dynamic range/power control for LA IAB-MT

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test point | RB allocation | PSD | Expected power step size (Down) | PUSCH (normal condition) | |
|  |  |  | ΔP [dB] | [dB] | |
| Test point 1 | Fixed = Maximum RB according to BW and SCS | Maximum PSD | 0 | Relative to the declared output power | f ≤ 3.0 GHz: ± 2.7 dB |
| 3.0 GHz < f ≤ 6.0 GHz: ± 3.0 dB |
| Test point 3 | 1RB | Maximum PSD | 10 log(Maximum RB) | Relative to the Test point 1 output power | 10 log(Maximum RB)+/- (4 + TT) |
| Test point 2 | 1RB | Maximum PSD - ΔP | 5 / 10 acc. to WA/LA IAB-MT Tx danymic range requirement | Relative to the Test point 2’ output power | 5.5 +/- TT |

* + Option 4: Use the table 2 as the Tx dynamic test requirement, for OTA (Ericsson R4-2107232).
* Table 2: Output power accuracy for test requirement of test point 1

|  |  |  |
| --- | --- | --- |
|  | Normal test environment | Extreme test environment |
| IAB-MT type 1-O | f  ≤ 3 GHz: ± 3.3 dB | f  ≤ 3 GHz: ± 5.2 dB |
|  | 3 GHz < f ≤ 6 GHz: ± 3.5 dB | 3 GHz < f ≤ 4.2 GHz: ± 5.3 dB |
|  |  | 4.2 GHz < f ≤ 6 GHz: ± 5.3 dB |
| IAB-MT type 2-O | 24.15 GHz < f ≤ 29.5 GHz: ± 5.1 dB  37 GHz < f ≤ 43.5 GHz: ± 5.4 dB  … | 24.15 GHz < f ≤ 29.5 GHz: ± 7.6 dB  37 GHz < f ≤ 43.5 GHz: ± 7.8 dB |

* Recommended WF
  + TBA

### Sub-topic 1-2

**Issue 1-2: Power control**

* Proposals (Multiple choice possible)
  + Option 1: Relative power control test can be combined with Tx dynamic power test (Ericsson R4-2107231, Samsung R4-2105038)
  + Option 2: Reflect the power control function in Tx dynamic range requirement so the combination of the power control and Tx dynamic range is logic. (Ericsson R4-2107231)
* Recommended WF
  + TBA

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 1-1:  Sub topic 1-2:  ….  Others: |
| CATT | **Issue 1-1: Dynamic range and Issue 1-2: Power control**  Maybe test point 1 and test point 2 can be ok? |

### 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.*

|  |  |
| --- | --- |
| **TP number** | **Comments collection** |
| XXX | Company A |
| Company B |
|  |
| YYY | Company A |
| 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** | *Tentative agreements:*  *Candidate options:*  *Recommendations for 2nd round:* |

### CRs/TPs

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

*Note: The tdoc decisions shall be provided in Section 3 and this table is optional in case moderators would like to provide additional information.*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation** |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

# Topic #2: TPs for TS 38.176-1 conducted tests specification

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

In this Topic #2, TPs to conducted test specification TS 38.176-1 are collected for companies’ comments. Please note that some of TP are moved to email thread [304] where some other Tdocs are submitted on the same issue (i.e. MUs/TTs, TS 38.176-1 skeleton).

## Companies’ contributions summary

|  |  |  |  |
| --- | --- | --- | --- |
| **T-doc number** | **Title** | **Company** | **Clause to TS 38.176-1** |
| [**R4-2107095**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107095.zip) | IAB conducted conformance specification skeleton  *Moderator note’s: This TS skeleton is moved to thread [304] to treat with OTA spec skeleton.* | Huawei | **-** |
| [**R4-2104787**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104787.zip) | TP for TS 38.176-1: Transmit ON/OFF power | CATT | 6.4 |
| [**R4-2104788**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104788.zip) | TP for TS 38.176-1: Transmitted signal quality | CATT | 6.5 |
| [**R4-2106315**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106315.zip) | TP to TS 38.176-1: Output power and Unwanted emission | Nokia, Nokia Shanghai Bell | 6.2, 6.6 |
| [**R4-2106597**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106597.zip) | TP to TS 38.xxx-1: TX IMD requirements | ZTE Corporation | 6.7 |
| [**R4-2107098**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107098.zip) | TP to TS 38.176-1 - Tx dynamic range, clause 6.3 | Huawei | 6.3 |
| [**R4-2106316**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106316.zip) | TP to TS 38.176-1 Annex A for IAB conducted test specification | Nokia, Nokia Shanghai Bell | Annex A |
| [**R4-2106599**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106599.zip) | TP to TS 38.xxx-1: RX IMD requirements | ZTE Corporation | 7.7 |
| [**R4-2106601**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106601.zip) | TP to TS 38.xxx-1: RX ICS requirements | ZTE Corporation | 7.8 |
| [**R4-2107100**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107100.zip) | TP to TS 38.176-1 - Sensitivity, clause 7.2 | Huawei | 7.2 |
| [**R4-2107102**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107102.zip) | TP to TS 38.176-1 - Rx dynamic range, clause 7.3 | Huawei | 7.3 |
| [**R4-2107235**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107235.zip) | TP for IBB, OBB and RX spurious of conducted receiver test | Ericsson | 7.4 |
| **[R4-2104789](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104789.zip)** | TP for TS 38.176-1: Annex B and C  *Moderator note’s: This TP is moved to thread [304] to treat with other MU related Tdocs.* | CATT | Annex B, Annex C |
| **[R4-2106314](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106314.zip)** | TP to TS 38.176-1 Clause 4.6 Declarations for IAB conducted test specification | Nokia, Nokia Shanghai Bell | 4.6 |
| [**R4-2107097**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107097.zip) | TP to TS 38.176-1 -Clause 4.1  *Moderator note’s: This TP is moved to thread [304] to treat with other MU related Tdocs.* | Huawei | 4.1 |

## 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:*

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

**Issue 2-1: Drafting issue**

Some drafting rules for TP for IAB test specifications, are capture in WF from last RAN4#98e meeting R4-2103856:

|  |
| --- |
| When TPs are provided, following guidelines are recommended to be followed:  1. Connection setup detail could be described in Annex which including both BS test equipment connection and UE test equipment connection, by doing so, there is no impact on the test case drafting.  2. Test configuration and test model needs to be agreed at least high level so the test case drafting may not be impacted by referring to the clause number.  3. The procedure for IAB-DU and IAB-MT preferably use different paragraph starting with “For IAB-DU…” and “For IAB-MT”.  4. The test requirement is written out in its own section with possible test tolerance reflected in the values |

However still there are some open (or not align between TPs) issues to be address, how to capture some details when drafting TP, these are listed in options below. These details are common for conductive and OTA specification, thus only discussion under this topic is needed. Definitely there are some specific issues related to given test, however some could be more universal.

* Open or not align between TPs drafting issues:
  + Issue 1: Usage of “IAB-DU/MT” form when text is for both IAB-DU and IAB-MT:
    1. use “IAB” or
    2. use “IAB-DU and IAB-MT”?
  + Issue 2: How to separate IAB-DU and IAB-MT requirements for respective test?
    1. Separate sections for IAB-DU and IAB-MT
    2. If yes, in all cases?
    3. Or, only when different requirements for IAB-DU and IAB-MT?
  + Issue 3: How to create reference to NR test specification?
    1. For IAB-DU reference to NR 38.141-1/-2 specifications
    2. Or copy directly 38.141-1/-2 text
  + Issue 4: Avoid double reference to NR core 38.104 specification
    1. When IAB core spec 38.174 has reference to NR core spec 38.104, copy respective part to IAB test spec?
  + Issue 5: Referencing to NR test models in test procedures (please note that IAB test models as such are discussed in [304])
  + Issue 6: Other companies’ views on TP drafting issues.
    1. TBD
* Recommended WF
  + TBA:

## Companies views’ collection for 1st round

### Open issues

**Example 1**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 1:  ….  Others: |
| CATT | * + Issue 1: Usage of “IAB-DU/MT” form when text is for both IAB-DU and IAB-MT:     1. use “IAB” or     2. use “IAB-DU and IAB-MT”?   CATT: We prefer b) as it’s clearer.   * + Issue 2: How to separate IAB-DU and IAB-MT requirements for respective test?     1. Separate sections for IAB-DU and IAB-MT     2. If yes, in all cases?     3. Or, only when different requirements for IAB-DU and IAB-MT?   CATT: Currently support c) if it’s clear enough.   * + Issue 3: How to create reference to NR test specification?     1. For IAB-DU reference to NR 38.141-1/-2 specifications     2. Or copy directly 38.141-1/-2 text   CATT: We slightly prefer b) but don’t have strong opinion.   * + Issue 4: Avoid double reference to NR core 38.104 specification     1. When IAB core spec 38.174 has reference to NR core spec 38.104, copy respective part to IAB test spec?   CATT: We prefer to direct to TS 38.174 because it’s IAB requirement.   * + Issue 5: Referencing to NR test models in test procedures (please note that IAB test models as such are discussed in [304])   CATT: Our understanding is that IAB test models will be defined in 176. |

### 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.*

Companies comments collection for submitted TPs to conducted test specification TS 38.176-1:

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| [**R4-2104787**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104787.zip)  CATT | Company A  Company B |
| [**R4-2104788**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104788.zip)  CATT | Company A  Company B |
| [**R4-2106315**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106315.zip)  Nokia |  |
| [**R4-2106597**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106597.zip)  ZTE |  |
| [**R4-2107098**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107098.zip)  Huawei | CATT: typo “IAB-MU”. Does the requirements in Table 6.3.2.1.5-1 take the RB number change into acount? |
| [**R4-2106316**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106316.zip)  Nokia |  |
| [**R4-2106599**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106599.zip)  ZTE | CATT: it’s related to the discussion of referring 141 or 174. |
| [**R4-2106601**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106601.zip)  ZTE | CATT: it’s related to the discussion of referring 141 or 174. |
| [**R4-2107100**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107100.zip)  Huawei |  |
| [**R4-2107102**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107102.zip)  Huawei | CATT: “BS” exists. |
| [**R4-2107235**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107235.zip)  Ericsson | CATT: need some discussion on referring 104 or 174? Some "BS" exist. |
| [**R4-2106314**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106314.zip)  Nokia | CATT: Need to clarify the contiguous and non-contiguous feature, TS 38.174 clasue 4.8 only includes IAB-DU. Our understanding is that 174 may need to be corrected. |

## 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** |
| 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)

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

# Topic #3: TPs for TS 38.176-2 OTA tests specification

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

## Companies’ contributions summary

In this Topic #3, TPs to conducted test specification TS 38.176-1 are collected for companies’ comments. Please note that some of TP are moved to email thread [304] where some other Tdocs are submitted on the same issue (i.e. MUs/TTs)

|  |  |  |  |
| --- | --- | --- | --- |
| **T-doc number** | **Title** | **Company** | **Clause to TS 38.176-2** |
| [**R4-2104790**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104790.zip) | TP for TS 38.176-2: OTA transmit ON/OFF power | CATT | 6.5 |
| [**R4-2104791**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104791.zip) | TP for TS 38.176-2: OTA transmitted signal quality | CATT | 6.6 |
| [**R4-2106319**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106319.zip) | TP to TS 38.176-2: Output power and Unwanted emission | Nokia, Nokia Shanghai Bell | 6.1, 6.2, 6.3, 6.7 |
| [**R4-2106598**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106598.zip) | TP to TS 38.xxx-2: TX IMD requirements | ZTE Corporation | 6.8 |
| [**R4-2107099**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107099.zip) | TP to TS 38.176-2 - OTA Tx dynamic range, clause 6.3 | Huawei | 6.4 |
| [**R4-2106317**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106317.zip) | TP to TS 38.176-2 Annex A for IAB OTA test specification | Nokia, Nokia Shanghai Bell | Annex A |
| [**R4-2106600**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106600.zip) | TP to TS 38.xxx-2: RX IMD requirements | ZTE Corporation | 7.8 |
| [**R4-2106602**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106602.zip) | TP to TS 38.xxx-2: RX ICS requirements | ZTE Corporation | 7.9 |
| [**R4-2107101**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107101.zip) | TP to TS 38.176-2 - OTA Sensitivity, clause 7.2, 7.3 | Huawei | 7.2, 7.3 |
| [**R4-2107103**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107103.zip) | TP to TS 38.176-2 - OTA Rx dynamic range, clause 7.3 | Huawei | 7.4 |
| [**R4-2107236**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107236.zip) | TP on IBB, OBB and RX spurious for OTA receiver characteristic test | Ericsson | 7.5 |
| **[R4-2104792](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104792.zip)** | TP for TS 38.176-2: Annex B and C  *Moderator note’s: This TP is moved to thread [304] to treat with other MU related Tdocs.* | CATT | Annex B and C |
| **[R4-2106318](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106318.zip)** | TP to TS 38.146-2 Clause 4.6 Declarations for IAB radiated test specification | Nokia, Nokia Shanghai Bell | 4.6 |
| [**R4-2107105**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107105.zip) | TP to TS 38.176-2 - Annex D&E | Huawei | Annex D and E |

## 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 3-1

*Sub-topic description:*

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

**Issue 2-1: TBA**

* Proposals
  + Option 1: TBA
  + Option 2: TBA
* Recommended WF
  + TBA

## Companies views’ collection for 1st round

### Open issues

Companies comments and views on submitted TPs are welcome in next subsection.

### 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.*

Companies comments collection for submitted TPs to OTA test specification TS 38.176-2:

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| [**R4-2104790**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104790.zip)  CATT | Company A  Company B |
| [**R4-2104791**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2104791.zip)  CATT | Company A  Company B |
| [**R4-2106319**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106319.zip)  Nokia | CATT: The title of 6.7.3.5.3 seems not correct. They’re LA IAB-MT requirements in that clause. |
| [**R4-2106598**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106598.zip)  ZTE |  |
| [**R4-2107099**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107099.zip)  Huawei | CATT: Does the requirements in Table 6.3.2.1.5-1 take the RB number change into acount?. |
| [**R4-2106317**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106317.zip)  Nokia |  |
| [**R4-2106600**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106600.zip)  ZTE | CATT: The requirements should refer 141 or 174? |
| [**R4-2106602**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106602.zip)  ZTE | CATT: The requirements should refer 141 or 174? |
| [**R4-2107101**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107101.zip)  Huawei | CATT: There're still some "BS" in the TP. |
| [**R4-2107103**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107103.zip)  Huawei |  |
| [**R4-2107236**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107236.zip)  Ericsson | CATT: Some "BS" and "base station" exist. |
| [**R4-2106318**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2106318.zip)  Nokia |  |
| [**R4-2107105**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107105.zip)  Huawei |  |

## 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** |
| 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)

*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** |
| R4-210xxxx | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Notes:

1. Please include the summary of recommendations for all tdocs across all sub-topics incl. existing and new tdocs.
2. For the Recommendation column please include one of the following:
   1. CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued
   2. Other documents: Agreeable, Revised, Noted
3. For new LS documents, please include information on To/Cc WGs in the comments column
4. Do not include hyper-links in the documents

## 2nd round

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
| R4-210xxxx | 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