3GPP TSG-RAN WG4 Meeting # 96-e R4-200xxxx

Electronic Meeting, 17-28 Aug., 2020

**Agenda item:** 7.4.2.1.1

**Source:** Moderator (CATT)

**Title:** Email discussion summary for [96e][308] NR\_IAB\_RF\_Part\_1

**Document for:** Information

# Introduction

The email discussion thread [95e][307] NR\_IAB\_RF\_Part\_1 discusses Tx Power related requirements. The contributions in agenda 7.4.2.1.1 and the related part in R4-2010912 are included in this thread. The targets of this email thread for 1st round and 2nd round are as follows,

* 1st round:
  + Collect the views for the open issues to see if there can be some agreements or WFs.
  + Collect the comments for the TPs.
* 2nd round:
  + Agree the WF for each topic.
  + Agree the TPs.

# Topic #1: LA IAB-MT maximum output power and scaling factor

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2009792**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2009792.zip) | CATT | Proposal 5: 24 dBm is agreed to be the LA IAB-MT TRP if 10 dB dynamic range is not revisited. |
| [**R4-2010147**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010147.zip) | Samsung | Conducted power cap for IAB-MT type 1-H:  Proposal 1: Prated,c,TABC for LA IAB-MT type 1-H is suggested to be defined as 38dBm.  Proposal 2: The scaling factor of basic limit for LA gNB type 1-H is applied for LA IAB-MT type 1-H.  IAB MT class Prated,c,sys Prated,c,TABC  Local Area IAB-MT ≤ 38 dBm +10log(NTXU,counted) ≤ 38 dBm  TRP upper limit for LA IAB-MT type 1-O:  Proposal 3: TRP upper limit for LA IAB-MT type 1-O is suggested to be defined as 47dBm.  Proposal 4: It is suggested to utilize scaling factor 8 of basic limit for IAB-MT type 1-O.  IAB MT class Prated,c,TRP  Local Area IAB-MT ≤ + 47 dBm |
| [**R4-2010293**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010293.zip) | Nokia, Nokia Shanghai Bell | Proposal 1: The rated maximum output power per TAB connector shall align with the BS local area requirement. i.e. ≤ 24 dBm |
| [**R4-2010950**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010950.zip) | ZTE Corporation | Proposal 1: to adopt both option 1 and option 2. (*Moderator: 38 dBm and 24 dBm*) Proposal 2: to adopt option 2. Proposal 3: to use the same scaling factor as IAB-MT 1-H for IAB-MT 1-O. |
| [**R4-2011032**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2011032.zip) | Ericsson | Proposal#1: Maximum TRP of 33dBm for IAB-MT of type 1-O for local area IAB-MT considering the coexisting of layout2 scenario.  Proposal#2: Maximum TRP of 24dBm per TAB connector for IAB-MT of type 1-H for local area IAB-MT considering the coexisting of layout2 scenario.  Proposal#3: Reuse the equation for scaling the TRP power of BS type 1-H to IAB of type 1-H. |

## Open issues summary

### Sub-topic 1-1: MOP fo LA IAB-MT type 1-H

There’re two options (24 dBm or 38 dBm) in the last meeting’s WF. There’re supporters for both options in this meeting. Considering 24 dBm has more supporter and the technical analysis in [R4-2009792](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2009792.zip) that IAB-MT Tx signal may block parent node’s Rx path with the small dynamic range, moderator suggests 24 dBm as the recommended WF.

* Proposals
  + Option 1: 24 dBm per TAB connector (CATT, Nokia, Ericsson, ZTE (proposed both) )
  + Option 2: 38 dBm per TAB connector (Samsung, ZTE (proposed both) )
* Recommended WF
  + Option 1

### Sub-topic 1-2: MOP fo LA IAB-MT type 1-O

The proposals from companies are based on the proposal for sub-topic 1-1 and 9 dB is used for the upper limit considering there could be maximum 8 Tx paths although smaller number Tx paths is allowed. Therefore, moderator suggest the recommended WF is the agreements in sub topic 1-1 + 9 dB as the agreements and companies don’t need to discuss this more.

* Proposals
  + Option 1: 33 dbm (Ericsson, Nokia)
  + Option 2: 47 dBm (Samsung)
* Recommended WF
  + （The agreements in Sub-topic 1-1）+ 9 dB

### Sub-topic 1-3: Scaling factor for IAB-MT 1-H

According to the discussion in last meeting, moderator’s understanding is that the proposals from [R4-2010147](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010147.zip), [R4-2010950](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010950.zip) and [R4-2011032](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2011032.zip) align each other. The difference is whether the proposal is for per cell or the total. Although there’s not much discussion if the IAB-MT can support a number of cells at the same time, reusing BS concept and approach may not have any harm that the BS approach also support one cell case. Therefore, moderator recommends reusing BS approach in the spec.

* Proposals
  + Option 1: NTXU,counted = min(NTXU,active , 8×Ncells) (Samsung, Ericsson, Nokia)
  + Option 2: N = min(NTXU,active , 8) (ZTE)
* Recommended WF
  + Option 1

### Sub-topic 1-4: emission scaling factor for IAB-MT 1-O

There’re two proposals for the scaling factor of IAB-MT 1-O, moderator’s understanding is that [R4-2010147](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010147.zip) proposes the scaling factor for the upper limit of output power but [R4-2010950](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010950.zip) proposes the emission scaling factor. In case there’s some misunderstanding from moderator, the two proposals are listed as following and the recommended WF uses the proposal in [R4-2010950](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010950.zip).

* Proposals
  + Option 1: use the same scaling factor as IAB-MT 1-H (ZTE, Nokia)
  + Option 2: 8 (Samsung, Ericsson (R4-2011033))
* Recommended WF
  + Option 1

## Companies views’ collection for 1st round

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| --- | --- |
| **Issues** | **Comments** |
| Sub-topic 1-1: MOP fo LA IAB-MT type 1-H   * Proposals   + Option 1: 24 dBm per TAB connector   + Option 2: 38 dBm per TAB connector * Recommended WF   + Option 1 | Company A:  Company B: |
| Sub-topic 1-2: MOP fo LA IAB-MT type 1-O   * Proposals   + Option 1: 33 dbm   + Option 2: 47 dBm * Recommended WF   + （The agreements in Sub-topic 1-1）+ 9 dB | Company A:  Company B: |
| Sub-topic 1-3: Scaling factor for IAB-MT 1-H   * Proposals   + Option 1: NTXU,counted = min(NTXU,active , 8×Ncells)   + Option 2: N = min(NTXU,active , 8) * Recommended WF   + Option 1 | Company A:  Company B: |
| Sub-topic 1-4: emission scaling factor for IAB-MT 1-O   * Proposals   + Option 1: use the same scaling factor as IAB-MT 1-H   + Option 2: 8 * Recommended WF   + Option 1 | 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:* |

*Recommendations on WF/LS assignment*

|  |  |  |
| --- | --- | --- |
|  | **WF/LS t-doc Title** | **Assigned Company,**  **WF or LS lead** |
| #1 |  |  |

## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

*Moderator tries to summarize discussion status for 2nd round and provided recommendation on CRs/TPs/WFs/LSs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation** |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

# Topic #2: Pcmax related issues

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2009792**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2009792.zip) | CATT | Observation 1: The power control procedure to determine the output power for UE except the Pcmax part can be reused by IAB-MT.  Observation 2: If Pcmax for IAB-MT is defined in RAN4, the whole RAN1 UL power control procedure can be reused by IAB-MT.  Observation 3: If Pcmax for IAB-MT is defined in RAN4, the whole RAN1 PHR procedure can be reused by IAB-MT.  Proposal 1: Two power classes can be defined for both FR1 and FR2. One is corresponding to Wide Area IAB-MT class, the other is corresponding to Local Area IAB-MT class.  Proposal 2-4, the Power class and Pcmax definition for IAB type 1-H, type 1-O and type 2-O.  Observation 1: Tolerance of IAB-MT Power control is not need to be tested. |
| [**R4-2010111**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010111.zip) | CMCC | Observation 1: before the definition of Pcmax, it is necessary to identify whether to regulate IAB-MT’s maximum allowed output power by the network or in the RF requirements.  Observation 2: For fixed IAB, PEMAX,c(P-max) will be trivial as output power has already been adjusted at the original network planning phase to guarantee the regional regulation.  Observation 3: the definition of Pcmax including PEMAX,c is related to the tough definition of IAB-MT maximum output power.  Observation 4: Factor PPowerClass is related to the number of IAB-MT maximum output power categories.  Observation 5: Factor ΔPPowerClass is not applicable for the Pcmax definition.  Observation 6: the MPR structure for UE may be suitable to be reused by IAB-MT. The smaller dynamic power range parameter should be taken into consideration in the MPR calculation.  Observation 7: A-MPR could still be reserved for some specific regional requirements.  Observation 8: the main difference of Pcmax between two IAB-MT classes is the different value not the different definition. |
| [**R4-2010147**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010147.zip) | Samsung | Pcmax  it is accepted to have as simple method to define this requirement or merge the requirement in other existing requirements with further study on the impact on conformance testing details  Power control for LA IAB-MT:  Observation 1: Due to deployment scenario there is no strong necessity to define absolute power control for IAB-MT to verify open loop power control.  Observation 2: closed loop power control can be verified to some extend by dynamic range(X)-dynamic PSD with procedure proposed in this contribution.  Proposal 7: no explicit power control requirement to be defined in release 16 for fixed IAB-MT. |
| [**R4-2010293**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010293.zip) | Nokia, Nokia Shanghai Bell | Proposal 2: Local Area IAB-MT power control accuracy requirements to follow the UE requirement in FR1 (TS 38.101-1/2), i.e. Absolute, relative and aggregated power tolerance.  Proposal 3: MPR and A-MPR are not defined for IAB-MT  Proposal 4: Interband CA, SUL and SRS related relaxation factors are not defined for IAB-MT  Proposal 5: Consider adopting the below PCMAX boundaries for configured transmitted power requirement as for Local Area IAB-MT in FR1.  PCMAX\_L,f,c = MIN {PEMAX,c, (*Pdeclared -* ΔP) }  PCMAX\_H,f,c = MIN {PEMAX,c, (*Pdeclared +* ΔP) }  Proposal 6: Consider adopting the below PCMAX boundaries for configured transmitted power requirement as for Local Area IAB-MT in FR1.  PCMAX\_L,f,c = (*Pdeclared -* ΔP)  PCMAX\_H,f,c = (*Pdeclared +* ΔP)  Proposal 7: PHR is not included in PCMAX definition. |
| [**R4-2010912**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010912.zip) | Qualcomm Incorporated | Observation: Absolute power tolerance requirements for the LA IAB-MT are not needed.  Proposal 1: The UE relative power control requirements should be re-used for the LA IAB-MT.  Proposal 2: do not define MPR/A-MPR in the specifications. Power reduction should be declared if needed.  Proposal 3: Pemax should be enforced.  Proposal 4: Pcmax,f,c should follow the UE definition and include a power reduction factor and Pemax. |
| [**R4-2010950**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010950.zip) | ZTE Corporation | Proposal 4: to adopt option 1 for both WA and Local area IAB-MT with MPR and A-MPR up to vendors’ declaration;  Proposal 5: to use legacy UE absolute power accuracy as baseline for IAB-MT.  Proposal 6: to use legacy UE relative power tolerance as baseline for IAB-MT with some tailoring considering Tx dynamic range as 5dB for IAB-MT.  Proposal 7: to use legacy UE Aggregated power tolerance as baseline for IAB-MT. |

## Open issues summary

Pcmax definition is a little complicated for IAB-MT. The common understanding from last meeting is that Pcmax needs to be defined for IAB-MT but how to define them for different types (and different classs) needs more study.

### Sub-topic 2-1: Factors considered in Pcmax definition or not

The factors are discussed in some contributions, and the views for some factors are very divergent. The factors mentioned in the contributions may need to be discussed one by one. Moderator thinks for other factors not discussed in the contributions, we suppose they will not be considered in the definition. The factors mentioned in the contributions are the following.

|  |  |
| --- | --- |
| **Factors** | **Views in the contributions** |
| PPowerClass | Yes: CATT  No: Nokia  Other: CMCC: Factor PPowerClass is related to the number of IAB-MT maximum output power categories. |
| MPR/A-MPR | Yes: CMCC  No: CATT, Nokia  Other: QC: not define MPR, but include a power reduction factor (QC) |
| Pemax | Yes: QC, Nokia  No: CATT |
| ΔPPowerClass | Yes:  No: CATT, Nokia |
| PHR | Yes:  No: CATT, Nokia |
| Interband CA, SUL and SRS related factors | Yes:  No: CATT, Nokia |

Moderator’s observation is that only the power class, MPR/A-MPR and Pemax needs to be discussed further. Other factors can be agreed as not considered.

**Recommended WF:** The factors other than PPowerClass, MPR/A-MPR and Pemax are not considered in Pcmax definition.

For PPowerClass, MPR/A-MPR and Pemax, please input your comments if they should be included or related to the Pcmax definition.

### Sub-topic 2-2: Pcmax definition

There’re proposals from two companies (CATT and Nokia), companies can provide comments to the two proposals.

* CATT proposal:

**IAB-MT type 1-H:**

Pdeclared,c,sys ≤ PCMAX,f,c ≤ Prated,c,sys

**IAB-MT type 1-O:**

The configured UE maximum output power PCMAX,f,c for carrier *f* of a serving cell *c* shall be set such that the corresponding measured peak EIRP PUMAX,f,c is within the following bounds

PUMAX,f,c ≤ EIRPmax

while the corresponding measured total radiated power PTMAX,f,c is bounded by

PTMAX,f,c ≤ Prated,c,TRP

**IAB-MT type 2-O:**

The configured UE maximum output power PCMAX,f,c for carrier *f* of a serving cell *c* shall be set such that the corresponding measured peak EIRP PUMAX,f,c is within the following bounds

PUMAX,f,c ≤ EIRPmax

while the corresponding measured total radiated power PTMAX,f,c is bounded by

PTMAX,f,c ≤ Prated,c,TRP

* Nokia proposal

*Moderator note: The proposal for WA IAB-MT is not clear.*

Local Area IAB-MT in FR1

PCMAX\_L,f,c = MIN {PEMAX,c, (*Pdeclared -* ΔP) }

PCMAX\_H,f,c = MIN {PEMAX,c, (*Pdeclared +* ΔP) }

Local Area IAB-MT in FR2

PCMAX\_L,f,c = (*Pdeclared -* ΔP)

PCMAX\_H,f,c = (*Pdeclared +* ΔP)

### Sub-topic 2-3: Power class definition

There’re power class proposals from one company, companies can comment to the proposals.

* CATT proposal:

Proposal 1: Two power classes can be defined for both FR1 and FR2. One is corresponding to Wide Area IAB-MT class, the other is corresponding to Local Area IAB-MT class.

Proposal 2: Power classes for each IAB-MT type can be defined as following

Table 1: IAB-MT type 1-H Power classes

| *IAB-MT type 1-H* Power class | Prated,c,sys |
| --- | --- |
| Power class 1 | (Note 1) |
| Power class 2 | ≤ 24 dBm +10log(NTXU,counted) |
| NOTE 1: There is no upper limit for the Prated,c,sys for Power class 1.  NOTE 2: Power class 1 is corresponding to Wide Area IAB-MT, Power class 2 is corresponding to Local Area IAB-MT. | |

Table 2: *IAB-MT type 1-O* Power classes

|  |  |  |
| --- | --- | --- |
| *IAB-MT type 1-O* Power classes | Prated,c,TRP | Maximum EIRP level at beam peak direction |
| Power class 1 | Note 1 | Note 2 |
| Power class 2 | ≤ + 33 dBm | Note 2 |
| NOTE 1: There is no upper limit for the Prated,c,TRP for power class 1.  NOTE 2: The maximum EIRP level at beam peak direction EIRPmax is declared by the manufacturer.  NOTE 3: Power class 1 is corresponding to Wide Area IAB-MT, Power class 2 is corresponding to Local Area IAB-MT. | | |

Table 3: IAB-MT type 2-O Power classes

|  |  |  |
| --- | --- | --- |
| *IAB-MT type 1-O* Power classes | Prated,c,TRP | Maximum EIRP level at beam peak direction |
| Power class 1 | Note 1 | Note 2 |
| Power class 2 | Note 1 | Note 2 |
| NOTE 1: Prated,c,TRP is declared by the manufacturer.  NOTE 2: The maximum EIRP level at beam peak direction EIRPmax is declared by the manufacturer.  NOTE 3: Power class 1 is corresponding to Wide Area IAB-MT, Power class 2 is corresponding to Local Area IAB-MT. | | |

### Sub-topic 2-4: Power control test

The views on power control test are still different. Some proposals are the views to the whole power control test, some proposals are the views to the each tolerance test. In order not to make the discussion so divergent, the email discussion in this meeting focuses on if the specfic requirement is needed and the details can be discussed in future meetings. Moderator doesn’t have recomended WF for the issues in this topic.

Moderator’s another observation is that there’s not much discussion on if there’s some difference for WA and LA IAB-MT. The status can be summarized after the 1st round discussion to see if some WF can be reached.

Issue 2-4-1: Absolute power tolerance

* Proposals
  + Option 1: Yes (ZTE, Nokia)
  + Option 2: No (CATT, Samsung, QC )
* Recommended WF

Issue 2-4-2: Relative power tolerance

* Proposals
  + Option 1: Yes (ZTE, Nokia, QC)
  + Option 2: No (CATT, Samsung )
* Recommended WF

Issue 2-4-3: Aggregated power tolerance

* Proposals
  + Option 1: Yes (ZTE, Nokia)
  + Option 2: No (CATT, Samsung )
* Recommended WF

## Companies views’ collection for 1st round

|  |  |
| --- | --- |
| **Issues** | **Comments** |
| Sub-topic 2-1: Factors considered in Pcmax definition or not  **Recommended WF:** The factors other than PPowerClass,MPR/A-MPR and Pemax are not considered in Pcmax definition.  For PPowerClass, MPR/A-MPR and Pemax, please input your comments if they should be included or related to the Pcmax definition. | Company A:  Company B: |
| Sub-topic 2-2: Pcmax definition  Please provide comments to the two proposals from CATT ([R4-2009792](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2009792.zip)) and Nokia ([R4-2010293](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010293.zip)) | Company A:  Company B: |
| Sub-topic 2-3: Power class definition  Please provide comments to the proposals from CATT ([R4-2009792](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2009792.zip)) | Company A:  Company B: |
| Sub-topic 2-4: Power control test  Issue 2-4-1: Absolute power tolerance   * Proposals   + Option 1: Yes   + Option 2: No * Recommended WF   Issue 2-4-2: Relative power tolerance   * Proposals   + Option 1: Yes   + Option 2: No * Recommended WF   Issue 2-4-3: Aggregated power tolerance   * Proposals   + Option 1: Yes   + Option 2: No * Recommended WF | General comment if any:  Company A:  Company B:  Issue 2-5-1: Absolute power tolerance  Company A:  Company B:  Issue 2-5-2: Relative power tolerance  Company A:  Company B:  Issue 2-5-3: Aggregated power tolerance  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:* |

*Suggestion on WF/LS assignment*

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| --- | --- | --- |
|  | **WF/LS t-doc Title** | **Assigned Company,**  **WF or LS lead** |
| #1 |  |  |

## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

*Moderator tries to summarize discussion status for 2nd round and provided recommendation on CRs/TPs/WFs/LSs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation** |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

# Topic #3: Dynamic range defintion details

## Companies’ contributions summary

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| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2010147**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010147.zip) | Samsung | Dynamic range:  Proposal 5: it is suggested to refer to gNB total power dynamic range for IAB-MT constant PSD dynamic range and refer to UE MOP&min Tx power test for IAB-MT dynamic PSD dynamic range verification  Proposal 6: It’s suggested to consider reference conditions presented in this contribution for IAB-MT dynamic range FR2. |
| [**R4-2010912**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010912.zip) | Qualcomm Incorporated | The dynamic PSD should be guaranteed for higher order modulations that are more likely to be used by the IAB-MT (at least 16QAM or even 64QAM). |
| [**R4-2011293**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2011293.zip) | Huawei | the variable Y discussed in the WF does not need to be defined or used in the core specification as Y will only change if the specified reference condition changes. |

## Open issues summary

The side conditions and how to capture them in the spec are the open issues for dynamic range. Moderator doesn’t have recommended WF for the two issues before the 1st round.

### Sub-topic 3-1: Should dynamic range Y be captured in core spec

* Proposals
  + Option 1: Yes
  + Option 2: No ( Huawei )
* Recommended WF

### Sub-topic 3-2: Side conditions for dynamic range

There’re proposals from two companies (Samsung and QC), companies can provide comments to the two proposals.

* Samsung proposal:

Proposal 5: it is suggested to refer to gNB total power dynamic range for IAB-MT constant PSD dynamic range and refer to UE MOP&min Tx power test for IAB-MT dynamic PSD dynamic range verification

Proposal 6: It’s suggested to consider reference conditions presented in this contribution for IAB-MT dynamic range FR2.

* QC proposal:

The dynamic PSD should be guaranteed for higher order modulations that are more likely to be used by the IAB-MT(at least 16QAM or even 64QAM).

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Sub topics** | **Comments** |
| Sub-topic 3-1: Should dynamic range Y be captured in core spec   * Proposals   + Option 1: Yes   + Option 2: No * Recommended WF | Company A:  Company B: |
| Sub-topic 3-2: Side conditions for dynamic range  There’re proposals from two companies (Samsung and QC), companies can provide comments to the two proposals.   * Samsung proposal:   Proposal 5: it is suggested to refer to gNB total power dynamic range for IAB-MT constant PSD dynamic range and refer to UE MOP&min Tx power test for IAB-MT dynamic PSD dynamic range verification  Proposal 6: It’s suggested to consider reference conditions presented in this contribution for IAB-MT dynamic range FR2.   * QC proposal:   The dynamic PSD should be guaranteed for higher order modulations that are more likely to be used by the IAB-MT(at least 16QAM or even 64QAM). | 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.*

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

*Suggestion on WF/LS assignment*

|  |  |  |
| --- | --- | --- |
|  | **WF/LS t-doc Title** | **Assigned Company,**  **WF or LS lead** |
| #1 |  |  |

## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

*Moderator tries to summarize discussion status for 2nd round and provided recommendation on CRs/TPs/WFs/LSs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation** |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

# Topic #4: TP review

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2010293**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010293.zip) | Nokia, Nokia Shanghai Bell | TP to TR 38.809 Completing IAB-MT power related requirements |
| [**R4-2010724**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010724.zip) | Nokia, Nokia Shanghai Bell | TP to TS 38.174: Output power requirements |
| [**R4-2011293**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2011293.zip) | Huawei | TP to TS 38.174 -IAB TX dynamic range |

## Open issues summary

3 TPs are provided. [R4-2011293](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2011293.zip) is related to the discussion of Sub-topic 3-1. Companies can comment the issues except Sub-topic 3-1.

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **TPs** | **Comments** |
| [**R4-2010293**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010293.zip) | Company A:  Company B: |
| [**R4-2010724**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2010724.zip) | Company A:  Company B: |
| [**R4-2011293**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2011293.zip) | 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:* |

*Suggestion on WF/LS assignment*

|  |  |  |
| --- | --- | --- |
|  | **WF/LS t-doc Title** | **Assigned Company,**  **WF or LS lead** |
| #1 |  |  |

## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

*Moderator tries to summarize discussion status for 2nd round and provided recommendation on CRs/TPs/WFs/LSs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation** |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |