**3GPP TSG-RAN WG4 Meeting #** **95-e R4-200XXXX**

**Electronic Meeting, 25 May – 5 June, 2020**

**Agenda item:** 4.5, 4.8, 6.5.4

**Source:** Moderator (ZTE Corporation)

**Title:** Email discussion summary for [95e] [304] NR\_EMC

**Document for:** Information

# Introduction

For the RAN4#95-e\_#304\_NR\_NewRAT\_EMC, the main topics are about BS and UE EMC including agenda item 4.5, 4.8 and 6.5.4, The discussion will separate into two parts:

Topic #1: NR EMC for agenda item 4.5

Topic #2: NR EMC for agenda item 4.8

Topic #3: IAB EMC for agenda item 6.5.4

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

* 1st round: TBA
* 2nd round: TBA

# Topic #1: UE EMC

23 tdocs have been submitted to finish the TS 38.124 Rel-15. As per Mr. Chairman announcement, the TS 38.124 belongs to the ITU submit and no [] and TBD should be remained after this meeting.

## Companies’ contributions summary

23 tdocs with 1 discussion paper and 22 CRs submitted. Most of the CR contain more than one topic

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [R4-2007060](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007060.zip) | Ericsson | 100MHz proposed as RX exclusion band. |
| [R4-2007061](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007061.zip) | Ericsson | Wired network port added. |
| [R4-2007062](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007062.zip) | Ericsson | Test methods and limits to complete subclause 8. |
| [R4-2007063](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007063.zip) | Ericsson | Wired network port definition added. |
| [R4-2007064](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007064.zip) | Ericsson | Test methods and limits to complete subclause 9. |
| [R4-2007065](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007065.zip) | Ericsson | New reference added as CISPR 32, TS 38.508 and TS 38.509. |
| [R4-2007066](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007066.zip) | Ericsson | Reuse the spurious emission limit of UE RF requirement. |
| [R4-2007444](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007444.zip) | Huawei | Part of correction are endorsed in RAN4#94-bis-e with some additional corrections added this meeting. |
| [R4-2007445](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007445.zip) | Huawei | DraftCR was endorsed in RAN4#94-bis-e. |
| [R4-2007446](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007446.zip) | Huawei | DraftCR was endorsed in RAN4#94-bis-e. |
| [R4-2007447](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007447.zip) | Huawei | DraftCR was endorsed in RAN4#94-bis-e. |
| [R4-2007448](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007448.zip) | Huawei | Part of correction are endorsed in RAN4#94-bis-e with some additional corrections added this meeting. |
| [R4-2007527](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007527.zip) | ZTE Corporation | To complete subclause 8 conducted emissions requirement. |
| [R4-2007528](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007528.zip) | ZTE Corporation | Test method and limits for CS. |
| [R4-2007529](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007529.zip) | ZTE Corporation | Test method and limits for voltage dips. |
| [R4-2007530](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007530.zip) | ZTE Corporation | Test method and limits for EFT. |
| [R4-2007531](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007531.zip) | ZTE Corporation | Test method and limits for ESD. |
| [R4-2007532](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007532.zip) | ZTE Corporation | Correction of references. |
| [R4-2007533](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007533.zip) | ZTE Corporation | Correction of RX exclusion band wording. |
| [R4-2007534](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007534.zip) | ZTE Corporation | CR to spurious emission which is aligned to 36.124. |
| [R4-2007535](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007535.zip) | ZTE Corporation | Test method and limits for Surge. |
| [R4-2007536](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007536.zip) | ZTE Corporation | Correction of test requirements of vehicular environment. |
| [R4-2007537](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007537.zip) | ZTE Corporation | Discussion of test requirements of vehicular environment to correct reference to the latest version as well as requirements. |

## Open issues summary

The CRs has multi-topic corrections, some big open issues are listed below, other detail correction discussion will be per CR basis and please provide further comments in subclause 1.3.

* RX exclusion band
* Radiated emission test
* Unfinished test methods and limits in sub-clause 8
* Unfinished test methods and limits in sub-clause 9
* Vehicular environment requirements and reference update
* Wired network port

### Sub-topic 1-1

*Sub-topic description:*

RX exclusion band of UE is provided with two options.

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

**Issue 1-1: RX exclusion band**

* Proposals
  + Option 1: 85MHz
  + Option 2: 100MHz
  + Option 3: Other value
* Recommended WF

### Sub-topic 1-2

*Sub-topic description:*

In current TS 38.124, radiated emission test refers to SM.329 while companies proposed to reuse radiated spurious requirement.

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

**Issue 1-2: Radiated emission test**

* Proposals
  + Option 1: Use ITU-R SM.329 requirement
  + Option 2: Use spurious emission requirement of UE RF
* Recommended WF

### Sub-topic 1-3

*Sub-topic description*

The applicability of emission test has listed full tests however, couple of them are not fully stated in the specification.

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

**Issue 1-3: Unfinished test methods and limits in sub-clause 8**

* Proposals
  + Option 1: Reuse the methods and requirements from TS 36.124
  + Option 2:
* Recommended WF
  + Agree option 1 and further discuss if detail correction is needed.

### Sub-topic 1-4

*Sub-topic description*

The immunity tests listed in subclause 9 haven’t finished yet with some of the test methods and requirements blank.

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

**Issue 1-4: Unfinished test methods and limits in sub-clause 9**

* Proposals
  + Option 1: Reuse the methods and requirements from TS 36.124
  + Option 2:
* Recommended WF
  + Agree option 1 and further discuss if detail correction is needed.

### Sub-topic 1-5

*Sub-topic description*

Vehicular environment requirements and reference update as the old ISO standard are not valid any more.

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

**Issue 1-5: Vehicular environment requirements and reference update**

* Proposals
  + Option 1: Apply the latest reference and the most updated requirement..
  + Option 2:
* Recommended WF
  + Agree option 1 and further discuss if detail correction is needed.

### Sub-topic 1-6

*Sub-topic description*

The wired network port has been added by Ericsson.

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

**Issue 1-6: Wired network port**

* Proposals
  + Option 1: Add the wired network port and the corresponding requirements.
  + Option 2: Do not include wired network port for UE.
* Recommended WF

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Ericsson | Sub-topic 1-1: Even though the 85 MHz value has been part of the UE EMC standard, ETSI is currently discussing to increase the Exclusion Band size proposing 100 MHz. This is an alignment with ETSI UE EMC spec. ETSI Part 52 considers the following  “NR FR1 SA and NSA Receiver exclusion band  As defined in clause 4.3.3 of ETSI EN 301 489-1 [1] where n=1 and Channel Width is as follows:  • NR Channel Width 100 MHz.  • E-UTRA Channel Width 20 MHz.  NOTE: For systems that support multiple channel widths, the Channel Width used should be the widest support by the EUT.  Sub-topic 1-2: Our approach is to use spurious emission requirement of UE RF. Again our preference would be to remove completely this requirement from the EMC spec, but if not possible, an alignment with existing agreements within 3GPP is our option.  Sub-topic 1-3 and 1-4: In both cases (immunity and emissions), we think the best option is reusing the methods and requirements defined in 36.124. Ericsson has submitted contributions covering these subtopics. We understand ZTE is proposing the same approach. If there is an agreement, we could discuss a split in the submission of final/corrected versions of the corresponding CRs.  Sub-topic 1-5: Open to discuss the update in the vehicular environment requirements. If there is an update that needs o be included in the standard, we don´t have any objection. We would like more context on this update.  Subtopic 1-6: The purpose is again to align the considerations of 3GPP standard as much as possible to the ones included in ETSI standard. |

### 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** |
| [R4-2007060](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007060.zip) | Ericsson:We provide a EB value aligned with new ETSI definition |
| [R4-2007061](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007061.zip) | Ericsson:We include the wired network port to the immunity applicability table and correcting the frequency range limit for RI test. |
| [R4-2007062](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007062.zip) | Ericsson: In this CR, missing emission methods and parameters are included in the UE EMC spec (including wired port). We also add the interpretation of the measurement results. |
| [R4-2007063](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007063.zip) | Ericsson: Adding the definition of the wired network port as written in ETSI standard. In this CR we also suggest a correction to the UE definition according to ETSI. |
| [R4-2007064](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007064.zip) | Ericsson: In this CR, missing immunity methods and parameters are included in the UE EMC spec. We see a difference in the vehicular environment section presented by ZTE. |
| [R4-2007065](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007065.zip) | Ericsson: Editorial CR adding the corresponding references to a text proposed by Huawei in the previous meeting. We see Huawei in R4-2007444 updated these references |
| [R4-2007066](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007066.zip) | Ericsson: Proposing to reuse the spurious emissions limits defined in the UE RF spec. |
| [R4-2007444](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007444.zip) | Ericsson: OK |
| [R4-2007445](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007445.zip) | Ericsson: Similar to our contribution [R4-2007066](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007066.zip) |
| [R4-2007446](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007446.zip) | Ericsson: Similar to our contribution R4-2007060 but we extend the EB to 100 MHz. |
| [R4-2007447](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007447.zip) | Ericsson: OK |
| [R4-2007448](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007448.zip) | Ericsson: OK |
| [R4-2007527](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007527.zip) | Ericsson: Similar to our contribution R4-2007062, difference we declare the wired network port and include tables with some limits. |
| [R4-2007528](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007528.zip) | Ericsson: Similar to our contribution R4-2007064 |
| [R4-2007529](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007529.zip) | Ericsson: Similar to our contribution R4-2007064 |
| [R4-2007530](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007530.zip) | Ericsson: Similar to our contribution R4-2007064 |
| [R4-2007531](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007531.zip) | Ericsson: Similar to our contribution R4-2007064 |
| [R4-2007532](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007532.zip) | Ericsson: Adjustment in the references OK. Important to see the impact on other CRs. |
| [R4-2007533](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007533.zip) | Ericsson: OK |
| [R4-2007534](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007534.zip) | Ericsson: It differs from our approach. |
| [R4-2007535](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007535.zip) | Ericsson: Similar to our contribution R4-2007064 |
| [R4-2007536](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007536.zip) | Ericsson: We are open to discuss the source of this update. |

## 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 |  |  |

### CRs/TPs

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

|  |  |
| --- | --- |
| **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)

## 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: BS EMC

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2007058 | Ericsson | Proposal 1: To agree in using only TC 21 and 22 defined in TS 37.141 [3] for EMC testing of MSR BS as presented in this contribution. |
| R4-2007449 | Huawei | **Proposal 1**: agree on the introduction of the direct field strength measurement for the EMC Radiated Emissions requirements of the *BS type 1-C* and *BS type 1-H* in TS 38.113. |

## Open issues summary

The open issue are summarized as:

* Test configuration reduction
* Direct field strength measurement test method

### Sub-topic 2-1

*Sub-topic description:*

Test configuration reduction is proposed by Ericsson.

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

**Issue 2-1: Test configuration reduction.**

* Proposals
  + Option 1: To agree in using only TC 21 and 22 defined in TS 37.141 [3] for EMC testing of MSR BS as presented in this contribution
  + Option 2:
* Recommended WF

### Sub-topic 2-2

*Sub-topic description*

Direct field strength measurement test method has been proposed by Huawei.

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

**Issue 2-2: Direct field strength measurement test method**

* Proposals
  + Option 1: To agree the introduction of the direct field strength measurement for the EMC Radiated Emissions requirements of the *BS type 1-C* and *BS type 1-H* in TS 38.113.
* Recommended WF

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Ericsson | Sub topic 2-2: To use EM field strength measurement as an alternative to substitution method is a commonly used praxis today (test labs, ANSI). It seems ok. |

### 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** |
| R4-2007059 | Ericsson contribution endorsed in the previous meeting. |
|  |
|  |
| R4-2007450 | Ericsson: We are OK with the CR. |
|  |
|  |
| R4-2007547 | Moderator: Need to add Ericsson as co-source |
| Ericsson: We are OK with the CR. |
|  |
| R4-2007549 | Moderator: Need to add Ericsson as co-source |
| Ericsson: It would be important to clarify that the RC applies only when no spatial exclusion is considered as was done in R4-2007547. |
|  |

## 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 |  |  |

### 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)

## 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: IAB EMC

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2007054 | Ericsson | Proposal 1: The applicable requirements for EMC conducted emissions of IAB nodes are the ones defined for NR BS in TS 38.113.  Proposal 2: The radiated emission requirements defined for IAB should reuse the ones defined for NR BS.  Proposal 3: For OTA IAB nodes the same principle applied for the radiated emissions (the radiated emission is covered by radiated spurious emission requirement in TS 38.104 [6], conforming to the test requirement in TS 38.141-2 [7]) and reflected in TS 38.113 [11] shall be applied.  Proposal 4: Frequency range for the application of RI testing shall go from 80 Mhz to 6GHz.  Proposal 5: For Radiated Immunity test, the BS requirements should be applied to each enclosure while the tests should be linked at each time. |
| R4-2007538 | ZTE Corporation | Proposal 1: Apply BS radiated emission requirement to “one enclosure TDM IAB”.  Proposal 2: For FDM and SDM IAB-node with only one enclosure, radiated emission should be tested with combined requirement as shown in table 3.  Proposal 3: Apply BS radiated emission requirement to each enclosure for different enclosure case and disregarding the duplex model.  With the above proposals, it can be seen that a combined limit applies for one enclosure FDM/SDM IAB, and for other cases, BS radiated emission requirement apply to each enclosure of the IAB. |
| R4-2007539 | ZTE Corporation | Proposal 1: BS RI test level is applicable to all cases of IAB nodes.  Proposal 2: The principle of choosing exclusion band is as for MT, use the delta foob of MT in the RF specification while for DU, use the delta foob of DU in the RF specification.  Proposal 3: RI exclusion band should be chosen of the wider one of DU and MT.  Proposal 4: For different enclosure case, RI exclusion band is chosen for DU and MT respectively.  Based on the proposals above, it can be concluded as:  -For one enclosure case, use 3V/m requirement from 80MHz--6000MHz and the exclusion band is chosen as the wider one of DU and MT.  -For different enclosure case, use 3V/m requirement from 80MHz--6000MHz and the exclusion band is chosen respectively for DU and MT  -The principle of choosing exclusion band is as for MT, use the delta foob of MT in the RF specification while for DU, use the delta foob of DU in the RF specification. |
| R4-2007540 | ZTE Corporation | Observation 1:Many differences of EMC core requirement will occur for IAB-node when comparing to base station.  Observation 2: The IAB EMC core requirement will differ from different duplex.  Observation 3: The IAB node EMC requirement will differ from enclosure perspective.  Observation 4: There are a lot of potential difference for test set-up and configuration as well as performance criteria for an IAB-node.  Proposal 1: To have a new TS for IAB EMC. |

## Open issues summary

The open issue are summarized as:

* Radiated emission requirement
* Conducted emission requirement
* Radiated immunity requirement
* Radiated immunity exclusion band
* How to capture the IAB EMC requirement

### Sub-topic 3-1

*Sub-topic description:*

It is agreed in the RAN4#94-bis-e meeting as to discuss the EMC requirement of IAB in 4 cases with enclosure difference and multiplex difference. Hence the requirement is discussed separately and combined together in the last as some the requirements are the same for different cases.

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

**Issue 3-1: Radiated emission requirement for IAB**

* Proposals
  + Option 1: a combined limit applies for one enclosure FDM/SDM IAB, and for other cases, BS radiated emission requirement apply to each enclosure of the IAB.
  + Option 2: The radiated emission requirements defined for IAB should reuse the ones defined for NR BS
* Recommended WF
  + To agree option 1 as it follows the general discussion method agreed in the WF in RAN4#94-bis-e and discuss all the situation fully.

**Issue 3-2: Radiated emission requirement for type 1-O IAB and type 2-O IAB**

* Proposals
  + Option 1: For OTA IAB nodes the same principle applied for the radiated emissions (the radiated emission is covered by radiated spurious emission requirement in TS 38.104 [6], conforming to the test requirement in TS 38.141-2 [7]) and reflected in TS 38.113 [11] shall be applied.
* Recommended WF

### Sub-topic 3-2

*Sub-topic description*

The conducted emission requirements are quite converged as reuse BS requirements..

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

**Issue 3-3: Conducted emission for IAB**

* Proposals
  + Option 1: Reuse the Base station requirement for IAB for conducted emission requirements
* Recommended WF
  + To agree option 1

### Sub-topic 3-3

*Sub-topic description*

For the test requirements, both ZTE and Ericsson have submitted discussion papers and it is quite converged to reuse base station requirements for IAB.

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

**Issue 3-4: Radiated immunity test requirements**

* Proposals
  + Option 1: use 3V/m requirement from 80MHz--6000MHz
* Recommended WF
  + To agree option 1

### Sub-topic 3-4

*Sub-topic description*

The exclusion band is discussed in ZTE’s paper.

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

**Issue 3-5: Radiated immunity exclusion bands**

* Proposals
  + Option 1:

-For one enclosure case, the exclusion band is chosen as the wider one of DU and MT.

-For different enclosure case, the exclusion band is chosen respectively for DU and MT

-The principle of choosing exclusion band is as for MT, use the delta foob of MT in the RF specification while for DU, use the delta foob of DU in the RF specification.

* Recommended WF
  + To agree option 1

### Sub-topic 3-5

*Sub-topic description*

As this is the meeting before June plenary, it is recommended companies to have final conclusion of the method to capture the IAB requirement.

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

**Issue 3-6: How to capture the IAB EMC requirement**

* Proposals
  + Option 1: To have a new TS for IAB EMC requirement.
  + Option 2: To capture the IAB EMC requirement in TS 38.113.
* Recommended WF
  + To agree option 1.

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Ericsson | Sub topic 3-1: On Radiated emission requirement our position is to use a limit the mode that produces the highest emission, this is one consideration that CISPR 32 also mentions. We do not think it will be easy to convince regulators about a potential relaxation in the limits, so it would be better to stay in a safe and well-known zone (the limits already defined for the BS). On the second issue (OTA), we think that the general agreement reached for OTA BS in NR can be extended to the IAB discussion.  Sub topic 3-2: We agree with option 1, reusing the conducted emission requirements set for the BS.  Sub topic 3-3: We agree with setting in 3 V/m the limit for Radiated Immunity testing. It is also discussed in our contribution that the frequency range should go from 80 MHz to 6000 MHz.  Sub topic 3-4: We do not have for this meeting a formal position regarding the size of the exclusion band. We can come with a contribution next meeting.  Sub topic 3-5: Looking at the convergence in reusing most of the BS requirements in the IAB context, we support the idea of extending the scope of TS 38.113 to cover IAB requirements.  ….  Others: |

### 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** |
| R4-2007055 | Ericsson: This TP proposes to reach agreements on the radiated emission limits (reusing BS requirements) and the way to handle this requirement for OTA IAB. It also proposes a text on a potential agreement on how conducted emissions will be handled. |
| Company B |
|  |
| R4-2007056 | Ericsson: This TP proposes to reach agreements on the way immunity testing can be handled. We propose to use the frequency range 80 MHz – 6GHz radiated emission limits (reusing BS requirements) and the way to handle this requirement for OTA IAB. It also proposes a text on a potential agreement on how conducted emissions will be handled. |
| Company B |
|  |
| R4-2007057 | Ericsson: This TP presents a summary of the potential agreements reached in the EMC IAB area, |
| Company B |
|  |
| R4-2007541 | Ericsson: Our main concern is on the definition of the Radiated Emission limits. We propose to reuse the BS existing ones. This TP does not include any mention on the way to handle OTA cases. |
| Company B |
|  |
| R4-2007542 | Ericsson: We agree on the RI frequency range and the interferer level. Still for discussion the analysis on the exclusion bands. |
| 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 |  |  |

### 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)

## 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”* |