**3GPP TSG-RAN WG4 Meeting #94-e R4-20xxxxx**

**Electronic Meeting, Feb.24th – Mar.6th 2020**

**Agenda item:** 9.27

**Source:** Moderator (Dish Network)

**Title:** Email discussion summary for RAN4#94e\_#39\_NR\_R16\_Closed\_WI

**Document for:** Information

# Introduction

This email discussion thread is about Closed Release 16 WI’s. In addition, a few topics from Agenda item 14 are included in this thread.

All contributions in this thread are for agreement, and almost all of them are CR’s. Because this is among the last changes to get Release 16 WI’s 100% correct, special attention should be paid on the comments to ensure smooth progress in all topics.

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

* 1st round: All Tdocs under 9.27, and three Tdocs from AI 9.14:

|  |  |  |  |
| --- | --- | --- | --- |
| **TDoc** | **Title** | **Source** | **Contact** |
| [**R4-2000110**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_94_e/Docs/R4-2000110.zip) | Correction n91 and n93 UL channel BW | Qualcomm Incorporated | Ville Vintola |
| [**R4-2000123**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_94_e/Docs/R4-2000123.zip) | CR on SAR solution for TDD&TDD EN-DC PC2 UE | vivo | Hui Lin |
| [**R4-2000146**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_94_e/Docs/R4-2000146.zip) | Corrections to n65 | Dish Network | Antti Immonen |
| [**R4-2000412**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_94_e/Docs/R4-2000412.zip) | n41 and n90 network compatibility | Sprint Corporation | Bill Shvodian |
| [**R4-2000419**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_94_e/Docs/R4-2000419.zip) | CR for 38.101-1: Missing 70 MHz for NS\_01 | Sprint Corporation | Bill Shvodian |
| [**R4-2000814**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_94_e/Docs/R4-2000814.zip) | introduce n18 into TS38.133 | KDDI Corporation | XIAO SHAO |
| [**R4-2000852**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_94_e/Docs/R4-2000852.zip) | Maintenance on the UE BW for n92 and n94 | Huawei, HiSilicon | Meng Zhang |
| [**R4-2001038**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_94_e/Docs/R4-2001038.zip) | Maintenance on the Rx-Tx separation terms | Huawei, HiSilicon | Meng Zhang |
| [**R4-2001039**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_94_e/Docs/R4-2001039.zip) | Maintenance on the BS BW for n92 and n94 | Huawei, HiSilicon | Meng Zhang |
| [**R4-2001075**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_94_e/Docs/R4-2001075.zip) | CR for 38.101-1 to correct CA\_n8A-n75A REFSENS | Huawei, HiSilicon | Ye Liu |
| [**R4-2002116**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_94_e/Docs/R4-2002116.zip) | CR for 38.101-1: Mandatory support for n41 by UEs that support n90 | Sprint Corporation | Bill Shvodian |
| [**R4-2002139**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_94_e/Docs/R4-2002139.zip) | Correction to CA bandwidth class B | Qualcomm Incorporated | Gene Fong |
| [**R4-2002110**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_94_e/Docs/R4-2002110.zip) | Clarification on Rx image assumption for intra-band non-contiguous NR CA/EN-DC | NTT DOCOMO INC. | Yuta Oguma |
| [**R4-2000421**](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_94_e/Docs/R4-2000421.zip) | CR for 36.101: Missing Pcmax tolerance for 23-33 dBm in Table 6.2.5A-2 and Table 6.2.5B-1 | Sprint Corporation | Bill Shvodian |
| **R4-2000422** | Mirror CR for 36.101: Missing Pcmax tolerance for 23-33 dBm in Table 6.2.5A-2 and Table 6.2.5B-1 | Sprint Corporation | Bill Shvodian |

* 2nd round: TBA

# Topic #1: Correction n91 and n93 UL channel BW

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2000110 | Qualcomm Incorporated | Proposal 1: 5MHz uplink channel bandwidth is added to table 5.3.6-1 for n91 and n93  Observation 1: n91 and n93 UL channel BW in are inconsistent within the specification, especially between Table 5.3.5-1, Table 5.3.6-1 and Table 7.3.2-3 |

## 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

*Sub-topic description: Symmetric bandwidths in asymmetric bandwidth table*

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

**Issue 1-1: TBA**

* Proposals
  + Option 1: Add also symmetric bandwidths into asymmetric bandwidth table as per R4-2000110. If this option is pursued, we need to consider add symmetric bandwidths into asymmetric bandwidth table for consistency.
  + Option 2: List only asymmetric bandwidths in table 5.3.6-1 as has been the practice until now
* Recommended WF
  + TBA

### Sub-topic 1-2

*Sub-topic description*

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

**Issue 1-2: TBA**

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

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 1-1:  Sub topic 1-2:  ….  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** |
| R4-2000110 | 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:* |

*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: SAR solution for TDD&TDD EN-DC PC2 UE

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2000123 | Vivo | Proposal 1: Add “note5 : Both E-UTRA transmitter and NR transmitter support Power Class 3” in Table 6.2B.1.3-1. Other editorial additions.  Observation 1: The objective of WI ENDC\_UE\_PC2\_TDD\_TDD is LTE TDD PC3 + NR TDD PC3 which has not been captured in the spec. |

## 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: According to proponent, the objective of WI ENDC\_UE\_PC2\_TDD\_TDD is LTE TDD PC3 + NR TDD PC3 which has not been captured in the spec.*

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

**Issue 2-1: TBA**

* Proposals
  + Option 1: Add note 5 into table 6.2B.1.3-1 for applicable EN-DC combinations and make some editorial corrections as per R4-2000123.
  + Option 2: TBA
* Recommended WF
  + TBA

### Sub-topic 2-2

*Sub-topic description*

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

**Issue 2-2: TBA**

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

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Qualcomm | Issue 2-1: The proposed note 5 is too restrictive. It seems to disallow a UE that supports SA PC2 in the TDD-TDD EN-DC configurations. So long as the UE can meet the requirements, it should not be disallowed. Perhaps a note like “the UE is not required to support PC2 within each individual cell group” could be used as a general informative note, if a note is absolutely needed?  Sub topic 2-2:  ….  Others: |
| vivo | Issue 2-1: thanks QC for comments. The CR is needed to capture the status in R16. And we are fine with the proposed sentence “*the UE is not required to support PC2 within each individual cell group*”. If it is also acceptable to others we can make a revised CR to capture this sentence. |

### 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** |
| R4-2000123 | 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:* |

*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: Corrections to n65

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2000146 | Dish Network | Proposal 1: Adding NS\_05 and NS\_05U for n65. Removing erroneous UE protection requirement from UE Spurious emissions Co-existence table. Modifying B34 protection requirement to be applicable when the carrier is confined within 1920-1980MHz.  Observation 1:NS\_05 and NS\_05U are missing from n65 even it was agreed in the TR that NS\_05 and NS\_05U are included similar to band n1. The emission requirement associated with NS\_05 in currently included in UE Spurious emissions Co-existence table, which cannot be met as it should be associated with NS\_05. B34 protection requirement is ambiguous; it should be applicable when the NR carrier is confined within 1920-1980. |

## 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:* *NS\_05 and NS\_05U are missing from n65 even it was agreed in the TR that NS\_05 and NS\_05U are included similar to band n1. The emission requirement associated with NS\_05 in currently included in UE Spurious emissions Co-existence table, which cannot be met as it should be associated with NS\_05. B34 protection requirement is ambiguous; it should be applicable when the NR carrier is confined within 1920-1980.*

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

**Issue 2-1: TBA**

* Proposals
  + Option 1: Adding NS\_05 and NS\_05U for n65, removing erroneous UE protection requirement from UE Spurious emissions Co-existence table, and modifying B34 protection requirement to be applicable when the carrier is confined within 1920-1980MHz as per R4-2000146.
  + Option 2:
* Recommended WF
  + TBA

### Sub-topic 2-2

*Sub-topic description*

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

**Issue 2-2: TBA**

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

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 2-1:  Sub topic 2-2:  ….  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** |
| R4-2000146 | 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:* |

*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 #4: n41 and n90 network compatibility

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2000412 | Sprint Corporation | Proposal 1: Add an explicit requirement in 38.101-1 that UEs that support n90 also shall support n41.  Observation 1: It is not explicitly stated in 38.101-1 that UEs that support n90 shall also support n41.  Proposal 2: In order to maximize device compatibility and minimize ecosystem fragmentation, RAN4 should remove the SCS based rasters from n90, and mandate that n90 only be used with the 7.5 kHz UL shift.  Observation 1: SCS based channel raster is unnecessary for n90 under dynamic spectrum sharing  Observation 2: For DSS with LTE Band 41, n90 will need to use the 7.5 kHz UL shift and 100 kHz raster.  Observation 3: When DSS between NR and LTE Band 41 is not used in a network, the 7.5 kHz UL shift and 100 kHz raster would provide no benefit for an NR NR network, and would cause n41 UEs that do not support n90 to be incompatible with the network. |
| R4-2002116 | Sprint Corporation | CR: Adds the following to Note 5 in Table 5.2-1: A UE supporting Band n90 shall also support band n41. |

## 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: Support of n41 for a UE which supports n90*

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

**Issue 2-1: TBA**

* Proposals
  + Option 1: State explicitly that UE supporting n90 shall support also n41. There is a CR for this in R4-2002116
  + Option 2: TBA
* Recommended WF
  + TBA

### Sub-topic 2-2

*Sub-topic description: SCS based channel raster and mandatory 7.5kHz shift for n90*

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

**Issue 2-2: TBA**

* Proposals
  + Option 1: Remove the SCS based rasters from n90, and mandate that n90 only be used with the 7.5 kHz UL shift. If this approach is pursued, a CR is needed during Rel-16.
  + Option 2: TBA
* Recommended WF
  + TBA

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Qualcomm | Issue 2-1: With this note, then separate inserts in such as “The applicability of transmitter requirements for Band n90 is in accordance with that for Band n41; a UE supporting Band n90 shall meet the minimum requirements for Band n41.” in 6.1 and 7.1 could be removed. This would streamline the spec greatly. |

### 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** |
| R4-2000412 | KDDI: We disagree with proposal 2. We do not think current specification may cause ecosystem fragmentation. This issue came from ZTE’s proposal that says one band cannot have two types of channel raster. We decided to discuss this “two types of raster for one band” issue technically in RAN4#93 meeting. However, since there is no technical discussion paper submitted in this meeting, we propose to postpone this discussion. |
| Company B |
|  |
| R4-2002116 | 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 |  |  |

### 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 #5: Missing 70 MHz for NS\_01

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2000419 | Sprint Corporation | Proposal 1: Add 70 MHz for NS\_01 in Table 6.2.3.1-1.  Observation 1: 70 MHz is missing from the bandwidhts for NS\_01 in Table 6.2.3.1-1 |

## 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:* *70 MHz is missing from the bandwidths for NS\_01 in Table 6.2.3.1-1*

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

**Issue 2-1: TBA**

* Proposals
  + Option 1: Adding 70 MHz for NS\_01 in Table 6.2.3.1-1 as per R4-2000419
  + Option 2: TBA
* Recommended WF
  + TBA

### Sub-topic 2-2

*Sub-topic description*

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

**Issue 2-2: TBA**

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

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 2-1:  Sub topic 2-2:  ….  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** |
| R4-2000419 | 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:* |

*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 #6: introduce n18 into TS38.133

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2000814 | KDDI Corporation | Proposal 1: Introduce n18 into the specifications.  Observation 1: This is agreed in R4-1906307 at RAN4#91 and RP-191244 at RAN#84 but not implemented in the specification correctly. |

## 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: Introduction of n18 into TS38.133*

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

**Issue 2-1: TBA**

* Proposals
  + Option 1: Introduce n18 into TS38.133 as per R4-2000814.
  + Option 2: TBA
* Recommended WF
  + TBA

### Sub-topic 2-2

*Sub-topic description*

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

**Issue 2-2: TBA**

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

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 2-1:  Sub topic 2-2:  ….  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** |
| R4-2000814 | 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:* |

*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 #7: Maintenance on the BW for n92 and n94

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2000852 | Huawei, HiSilicon | Proposal 1: Delete note 3 (This UE channel bandwidth is applicable only to downlink) from n92 and n94 15Mhz and 20MHz bandwidths in table 5.3.5-1  Observation 1: This note was introduced unintentionally for 15MHz and 20MHz bandwidths of n92 and n94 which would prevent symmetric 15/15MHz and 20/20MHz operation |
| R4-2001039 | Huawei, HiSilicon | Proposal 1: Delete Note 4 in table 5.3.5-1. And other maintenance editorial changes are applied.  Observation 1: Band n92 and n94 support symmrtric DL/UL BW of 15M and 20MHz. But in table 5.3.5-1, it is incorrect that note4 states 15 and 20MHz are only for DL transmissions. |

## 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: Note 3 unintentionally applied for 15MHz and 20MHz bandwidths of bands n92 and n94 in TS38.101-1.*

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

**Issue 2-1: TBA**

* Proposals
  + Option 1: Delete note 3 from n92 and n94 in table 5.3.5-1 in TS38.101-1
  + Option 2: TBA
* Recommended WF
  + TBA

### Sub-topic 2-2

*Sub-topic description: Bands n92 and n94 support symmetric DL/UL BW of 15MHz and 20MHz. But in table 5.3.5-1 of TS38.104, it is incorrect that note4 states 15MHz and 20MHz are only for DL transmissions.*

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

**Issue 2-2: TBA**

* Proposals
  + Option 1: Delete Note 4 in table 5.3.5-1 and do other maintenance editorial changes in TS38.104
  + Option 2: TBA
* Recommended WF
  + TBA

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 2-1:  Sub topic 2-2:  ….  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** |
| R4-2000852 | Skyworks: If 15MHz and 20MHz are supported both for UL and DL in n92 and n94, don’t we also need to change/update Table 7.3.2-3 accordingly ? |
| Company B |
|  |
| R4-2001039 | 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 |  |  |

### 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 #8: Maintenance on the Rx-Tx separation terms

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2001038 | Huawei, HiSilicon | Proposal 1: Delete ‘default’ in 5.3.6 in order to be accurate.  Observation 1: The change was approved in RP-193148 but not implemented. |

## 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: The changes in approved CR RP-193148 are not completely implemented in 38101-1.*

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

**Issue 2-1: TBA**

* Proposals
  + Option 1: Delete ‘default’ in 5.3.6 in order to be accurate as per R4-2001038.
  + Option 2: TBA
* Recommended WF
  + TBA

### Sub-topic 2-2

*Sub-topic description*

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

**Issue 2-2: TBA**

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

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 2-1:  Sub topic 2-2:  ….  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** |
| R4-2001038 | 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:* |

*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 #9: CR for 38.101-1 to correct CA\_n8A-n75A REFSENS

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2001075 | Huawei, HiSilicon | Proposal 1: Align REFSENS of n8 in CA\_n8A-n75A with REFSENS of band n8.  Observation 1: Referring to current spec in sub-clause 7.3.2, the REFSENS for band n8 isn’t aligned with the REFSENS for CA\_n8A-n75A. Based on R4-1907955, the REFSENS for CA\_n8A-n75A should be modified. |

## 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: n8 REFSENS in CA\_n8A-n75A is not aligned with the REFSENS of n8*

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

**Issue 2-1: TBA**

* Proposals
  + Option 1: Based on R4-1907955, the REFSENS for CA\_n8A-n75A is modified as per R4-2001075
  + Option 2: TBA
* Recommended WF
  + TBA

### Sub-topic 2-2

*Sub-topic description*

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

**Issue 2-2: TBA**

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

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 2-1:  Sub topic 2-2:  ….  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** |
| R4-2001075 | 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:* |

*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 #10: Correction to CA bandwidth class B

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2002139 | Qualcomm Incorporated | Proposal 1: Lower limit should be 20 MHz in Table 5.3A.5-1  Observation 1: Bandwidth class B lower limit of aggregated bandwidth is incorrect. |

## 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: Incorrect Intra-band CA class B lower limit bandwidth*

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

**Issue 2-1: TBA**

* Proposals
  + Option 1: Lower limit for Intra-band CA Class B should be 20MHz instead of 220MHz as per R4-2002139
  + Option 2: TBA
* Recommended WF
  + TBA

### Sub-topic 2-2

*Sub-topic description*

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

**Issue 2-2: TBA**

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

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 2-1:  Sub topic 2-2:  ….  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** |
| R4-2002139 | 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:* |

*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 #11: Clarification on Rx image assumption for intra-band non-contiguous EN-DC

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2002110 | NTT DOCOMO, INC | Proposal 1: 25dBc Rx image rejection for FR1 intra-band non-contiguous NR CA and EN-DC should be assumed for power imbalance requirement for UE demodulation requirements.  Observation 1: This assumption is already agreed for intra-band contiguous NR CA and EN-DC |

## 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: RX Image assumption for Intra-band non-contiguous NR CA and EN-DC*

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

**Issue 2-1: TBA**

* Proposals
  + Option 1: Assume 25dBc RX Image for Intra-band non-contiguous CA and EN-DC
  + Option 2: TBA
* Recommended WF
  + TBA

### Sub-topic 2-2

*Sub-topic description*

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

**Issue 2-2: TBA**

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

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Ericsson | Sub-topic 2-1: How could a MCS requiring SNR > 25 dB be supported with a 25 dB image rejection requirement? |

### 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** |
| R4-2002110 | 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:* |

*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 #12: Missing Pcmax tolerance for 23-33 dBm in Table 6.2.5A-2 and Table 6.2.5B-1 in TS36.101

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2000421 | Sprint Corporation | Proposal 1: Add tolerances for Pcmax up to 33 dBm.  Observation 1: Maximum output power tolerance missing for Pcmax above 23 dBm for UL intra-band UL CA and for UL MIMO. |
| R4-2000422 | Sprint Corporation | Mirror CR of the above |

## 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:* *Maximum output power tolerance missing for Pcmax above 23 dBm for UL intra-band UL CA and for UL MIMO.*

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

**Issue 2-1: TBA**

* Proposals
  + Option 1: Add Pcmax tolerances for Intra-band UL CA and UL MIMO up to 33dBm as per R4-2000421
  + Option 2: TBA
* Recommended WF
  + TBA

### Sub-topic 2-2

*Sub-topic description*

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

**Issue 2-2: TBA**

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

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Ericsson | Sub topic 2-1:  The Pcmax should only be extended up to 31dBm (max for PC1). |

### 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** |
| R4-2000421 | Company A |
| Company B |
|  |
| R4-2000422 (Mirror CR, not uploaded yet) | 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 |  |  |

### 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”* |