**3GPP TSG-RAN WG4 Meeting #97-e R4-2016631**

**Electronic Meeting, 2nd – 13th November, 2020**

**Agenda item:** 10.26, 10.27

**Source:** Moderator (CMCC)

**Title:** Email discussion summary for [97e] [129] NR\_SUL\_bands

**Document for:** Information

# Introduction

WID on introduction of 1880-1920MHz SUL band (RP-201363) and 2300-2400MHz SUL band (RP-201364) for NR were approved in RAN#88-e meeting.

This email discussion includes contributions in agenda 10.26 and 10.27, the targets of email discussion based on companies’ contributions submitted in this e-meeting are as below:

* 1st round:
  + How to introduce the clarification note to indicate that there is no co-existence issue.
* 2nd round:
  + Strive to approve CRs.

# Topic #1: Introduction of 1880-1920MHz SUL band for NR

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2015290**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2015290.zip) | Huawei, HiSilicon | **Proposal 1: Introduce the new SUL band for 1880 – 1920MHz as band n98.**  **Proposal 2: Specify UE RF requirements for the new SUL band n98 following band n39.** |
| [**R4-2015291**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2015291.zip) | Huawei, HiSilicon | **Proposal 1: Proposal: Specify BS spurious emissions requirements for the new SUL band n98 in all the BS specs such as TS 38.104, 38.141-1/-2, 36.104, 36.141, 37.104, 37.141, 37.105, 37.145-1/-2, whenever necessary.** |
| [**R4-2014330**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014330.zip) | CMCC | **Introduction of 1880-1920MHz SUL band into Rel-17 TS 38.101-1** |
| [**R4-2014331**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014331.zip) | CMCC | **Introduction of 1880-1920MHz SUL band into Rel-17 TS 38.104** |
| [**R4-2014332**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014332.zip) | CMCC, Huawei, HiSilicon | **Introduction of 1880-1920MHz SUL band into Rel-17 TS 36.104** |
| [**R4-2014333**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014333.zip) | CMCC, Huawei, HiSilicon | **Introduction of 1880-1920MHz SUL band into Rel-17 TS 36.141** |
| [**R4-2014334**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014334.zip) | CMCC, Huawei, HiSilicon | **Introduction of 1880-1920MHz SUL band into Rel-17 TS 37.104** |
| [**R4-2014335**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014335.zip) | CMCC, Huawei, HiSilicon | **Introduction of 1880-1920MHz SUL band into Rel-17 TS 37.105** |
| [**R4-2014336**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014336.zip) | CMCC, Huawei, HiSilicon | **Introduction of 1880-1920MHz SUL band into Rel-17 TS 37.141** |
| [**R4-2014337**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014337.zip) | CMCC, Huawei, HiSilicon | **Introduction of 1880-1920MHz SUL band into Rel-17 TS 37.145-1** |
| [**R4-2014338**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014338.zip) | CMCC, Huawei, HiSilicon | **Introduction of 1880-1920MHz SUL band into Rel-17 TS 37.145-2** |
| [**R4-2014339**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014339.zip) | CMCC, Huawei, HiSilicon | **Introduction of 1880-1920MHz SUL band into Rel-17 TS 38.141-1** |
| [**R4-2014340**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014340.zip) | CMCC, Huawei, HiSilicon | **Introduction of 1880-1920MHz SUL band into Rel-17 TS 38.141-2** |

## 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 Band definition

**Issue 1-1: How to introduce the clarification note to indicate that there is no co-existence issue with Band 39.**

* Proposals
  + Note：The requirements for this band are applicable only where no other NR or E-UTRA TDD operating band(s) are used within the frequency range of this band in the same geographical area. For scenarios where other NR or E-UTRA TDD operating band(s) are used within the frequency range of this band in the same geographical area, special co-existence requirements may apply that are not covered by the 3GPP specifications.
* Recommended WF
  + TBA. Collect companies’ view in 1st round

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Huawei | Issue 1-1-1: in general the note is OK to us. The only thing is that for the below statement, it is not needed in the UE spec. The UE is not required to have anything since the deployment is always transparent.  *For scenarios where other NR or E-UTRA TDD operating band(s) are used within the frequency range of this band in the same geographical area, special co-existence requirements may apply that are not covered by the 3GPP specifications.*  Issue 1-1-2:  ….  Others: |
| Nokia | Issue 1-1: We suggest to keep the note in 38.101-1 due to the following reason:   1. Consistency between all relevant specifications 2. Clarification defined requirements are under specific conditions |
| ZTE | Issue 1-1:  We tend to keep the note in the specs to avoid confusion and indicate the condition on no co-existing issue. |

### 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** |
| [**R4-2014330**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014330.zip) | Huawei: remove the sentence in the note since it is not needed in UE spec: *~~For scenarios where other NR or E-UTRA TDD operating band(s) are used within the frequency range of this band in the same geographical area, special co-existence requirements may apply that are not covered by the 3GPP specifications~~* |
| Nokia: suggest to keep the note |
|  |
| [**R4-2014331**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014331.zip) | Company A |
| Company B |
|  |
| [**R4-2014332**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014332.zip) | Company A |
| Company B |
|  |
| [**R4-2014333**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014332.zip) | Company A |
| Company B |
|  |
| [**R4-2014334**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014332.zip) | Company A |
| Company B |
|  |
| [**R4-2014335**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014332.zip) | Company A |
| Company B |
|  |
| [**R4-2014336**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014332.zip) | Company A |
| Company B |
|  |
| [**R4-2014336**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014332.zip) | Company A |
| Company B |
|  |
| [**R4-2014338**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014332.zip) | Company A |
| Company B |
|  |
| [**R4-2014339**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014332.zip) | Company A |
| Company B |
|  |
| [**R4-2014340**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014332.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:* |

*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: Introduction of 2300-2400MHz SUL band for NR

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2015288**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2015288.zip) | Huawei, HiSilicon | **Proposal 1: Introduce the new SUL band for 2300 – 2400MHz as band n97.**  **Proposal 2: Specify UE RF requirements for the new SUL band n97 following band n40.** |
| [**R4-2015289**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2015289.zip) | Huawei, HiSilicon | **Proposal: Specify BS spurious emissions requirements for the new SUL band n97 in all the BS specs such as TS 38.104, 38.141-1/-2, 36.104, 36.141, 37.104, 37.141, 37.105, 37.145-1/-2, whenever necessary.** |
| [**R4-2014341**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014341.zip) | CMCC | **Introduction of 2300-2400MHz SUL band into Rel-17 TS 38.101-1** |
| [**R4-2014342**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014342.zip) | CMCC | **Introduction of 2300-2400MHz SUL band into Rel-17 TS 38.104** |
| [**R4-2014343**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014343.zip) | CMCC, Huawei, HiSilicon | **Introduction of 2300-2400MHz SUL band into Rel-17 TS 36.104** |
| [**R4-2014344**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014344.zip) | CMCC, Huawei, HiSilicon | **Introduction of 2300-2400MHz SUL band into Rel-17 TS 36.141** |
| [**R4-2014345**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014345.zip) | CMCC, Huawei, HiSilicon | **Introduction of 2300-2400MHz SUL band into Rel-17 TS 37.104** |
| [**R4-2014346**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014346.zip) | CMCC, Huawei, HiSilicon | **Introduction of 2300-2400MHz SUL band into Rel-17 TS 37.105** |
| [**R4-2014347**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014347.zip) | CMCC, Huawei, HiSilicon | **Introduction of 2300-2400MHz SUL band into Rel-17 TS 37.141** |
| [**R4-2014348**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014348.zip) | CMCC, Huawei, HiSilicon | **Introduction of 2300-2400MHz SUL band into Rel-17 TS 37.145-1** |
| [**R4-2014349**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014349.zip) | CMCC, Huawei, HiSilicon | **Introduction of 2300-2400MHz SUL band into Rel-17 TS 37.145-2** |
| [**R4-2014350**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014350.zip) | CMCC, Huawei, HiSilicon | **Introduction of 2300-2400MHz SUL band into Rel-17 TS 38.141-1** |
| [**R4-2014355**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014355.zip) | CCMCC, Huawei, HiSilicon | **Introduction of 2300-2400MHz SUL band into Rel-17 TS 38.141-2** |

## 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 Band definition

**Issue 2-1: How to introduce the clarification note to indicate that there is no co-existence issue with Band 40.**

* Proposals
  + Note：The requirements for this band are applicable only where no other NR or E-UTRA TDD operating band(s) are used within the frequency range of this band in the same geographical area. For scenarios where other NR or E-UTRA TDD operating band(s) are used within the frequency range of this band in the same geographical area, special co-existence requirements may apply that are not covered by the 3GPP specifications.
* Recommended WF
  + TBA. Collect companies’ view in 1st round

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Issue 1-1-1: Same comments as those in sub-topic 1-1  Issue 1-1-2:  ….  Others: |
| Nokia | Issue 2-1: We suggest to keep the note in 38.101-1 due to the following reason:   1. Consistency between all relevant specifications   Clarification defined requirements are under specific conditions |
| ZTE | Same comment as Issue 1-1 |

### 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** |
| [**R4-2014341**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014341.zip) | Huawei: remove the sentence in the note since it is not needed in UE spec: *~~For scenarios where other NR or E-UTRA TDD operating band(s) are used within the frequency range of this band in the same geographical area, special co-existence requirements may apply that are not covered by the 3GPP specifications~~* |
| Nokia: suggest to keep the note |
|  |
| [**R4-2014342**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014341.zip) | Company A |
| Company B |
|  |
| [**R4-2014343**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014341.zip) | Company A |
| Company B |
|  |
| [**R4-2014344**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014341.zip) | Company A |
| Company B |
|  |
| [**R4-2014345**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014341.zip) | Company A |
| Company B |
|  |
| [**R4-2014346**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014341.zip) | Company A |
| Company B |
|  |
| [**R4-2014347**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014341.zip) | Company A |
| Company B |
|  |
| [**R4-2014348**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014341.zip) | Company A |
| Company B |
|  |
| [**R4-2014349**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014341.zip) | Company A |
| Company B |
|  |
| [**R4-2014350**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014341.zip) | Company A |
| Company B |
|  |
| [**R4-2014355**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_97_e/Docs/R4-2014341.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:* |

*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”* |