3GPP TSG-RAN WG4 Meeting # 99-e R4-210XXXX

**Electronic Meeting, 19th – 27th May 2021**

**Agenda item:** 6.1.7.4

**Source:** Moderator (Huawei, HiSilicon)

**Title:** Email discussion summary for [99-e][322] NR\_unlic\_Demod\_BS

**Document for:** Information

# Introduction

The email discussion is for Rel-16 NR-U BS demodulation performance in Agenda 6.1.7.4. For the information, we focus on the simulation alignment for PUSCH, PUCCH and PRACH and draft CR checking

List of candidate target of email discussion for 1st round and 2nd round as follows:

* 1st round:
* Topic#1: PUSCH requirements
  + Sub-topic 1-1: CG-UCI bit pattern
  + Sub-topic 1-2: Simulation results alignment
  + Draft CR checking
* Topic#2: PUCCH requirements
  + Sub-topic 2-1: Simulation results alignment
  + Sub-topic 2-2: Bit pattern for PF3
  + Draft CR checking
* Topic#3: PRACH requirements
  + Sub-topic 3-1: Simulation results alignment
  + Draft CR checking
* 2nd round:
  + Further discuss each topic if needed and continue the draft CR checking.
  + Target to make all draft CR agreeable.

# Topic #1: PUSCH requirements

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2109286**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109286.zip) | Nokia, Nokia Shanghai Bell | 1. Define performance requirements for CG-UCI toggling NDI for every new transmission (Option 2).   Provides the simulation results for interlaced PUSCH and CG-UCI by setting: NDI: [c6] = toggle for every new transmission.  Random and fixed COT sharing information: same results. |
| [**R4-2109593**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109593.zip) | Ericsson | Provides the simulation results for interlaced PUSCH and CG-UCI by setting: NDI: [c6] = toggle for every new transmission, e.g. 0 for even transmissions and 1 for odd ones. |
| [**R4-2109795**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109795.zip) | Samsung | Provides the simulation results for interlaced PUSCH and CG-UCI by setting: NDI: [c6]=1 |
| [**R4-2110506**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110506.zip) | Huawei, HiSilicon | Provides the simulation results for interlaced PUSCH |
| [**R4-2110508**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110508.zip) | Huawei, HiSilicon | Proposal 1: Use NDI indication: [c6]=[1] |
| [**R4-2110509**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110509.zip) | Huawei, HiSilicon | Simulation results for CG-UCI |

## 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 NDI in CG-UCI bit pattern

*Agreement reached during RAN4#98-bis-e in R4-2106010:*

* *Pattern of CG-UCI information bits*
* *Use a bit pattern {c0,c1,…,c17} that consists of :*
  + *HARQ process number: [c0,c1,c2,c3] = [0 0 0 1]*
  + *RV sequence: [c4,c5] = [0 0]*
  + *NDI: [c6]*
    - *Option 1: [c6] = [1]*
    - *Option 2: [c6] = toggle for every new transmission, e.g. 0 for even transmissions and 1 for odd ones*
  + *COT sharing information field: [c7,c8,…c17] = [0,0,0,0,0,0,0,0,0,0,0]*

**Issue 1-1-1: NDI bit [c6] in CG-UCI bit pattern**

* Proposals
  + Option 1: toggle for every new transmission, e.g. 0 for even transmissions and 1 for odd ones (Nokia)
  + Option 2: Fix to 1 (Huawei,Ericsson)
* Recommended WF
  + TBA

*-------------GTW Note---------------*

*Huawei: For both NR and LTE, existing test cases use simiplified way ,such bits information not impact on TE side.*

*Agreement: Option 2*

### Sub-topic 1-2 Simulation results alignment

*Performance requirements for interlaced PUSCH are kept TBD in last RAN4#98-bis-e meeting due to expected further updated simulation results from companies for this RAN4#99-e meeting.*

*Simulation assumptions for CG-UCI multiplexed on PUSCH were agreed in R4-2106010.*

**Issue 1-2-1: Simulation results alignment for interlaced PUSCH**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SCS | Mapping  type | Huawei | | Ericsson | | Intel | | Nokia | | Samsung | |
| Ideal | Impairment | Ideal | Impairment | Ideal | Impairment | Ideal | Impairment | Ideal | Impairment |
| 15kHz | Type A | 10.4 | 11.9 | 9.5 | 12 | 9.5 | 12 | 9.9 | 12.4 | 10.9 | 13.4 |
| Type B | 10.4 | 11.9 | 9.5 | 12 | 9.5 | 12 | 9.9 | 12.4 | 10.8 | 13.3 |
| 30kHz | Type A | 10.4 | 11.9 | 9.4 | 11.9 | 9.3 | 11.8 | 9.8 | 12.3 | 10.9 | 13.4 |
| Type B | 10.4 | 11.9 | 9.4 | 11.9 | 9.3 | 11.8 | 9.8 | 12.3 | 10.8 | 13.3 |



* Recommended WF
* Moderator’s observation: Well aligned simulation results for interlaced PUSCH. The results in column ”38.104 Req” and ”38.141 Req” can be used for the final performance requirements definition and captured in the corresponding CRs in this meeting?

**Issue 1-2-2: Simulation results alignment for CG-UCI multiplexed on PUSCH**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SCS | Mapping  type | Huawei | | Ericsson | | Samsung | | Nokia | |
| Ideal | Impairment | Ideal | Impairment | Ideal | Impairment | Ideal | Impairment |
| 15kHz | Type A | 2.23 | 4.23 | 2.3 | 4.3 | 3.75 | 6.25 | 3.1 | 5.6 |
| Type B | 2.08 | 4.08 | 2.3 | 4.3 | 3.85 | 6.35 | 3.8 | 6.3 |
| 30kHz | Type A | 2.18 | 4.18 | 2.3 | 4.3 | 2.78 | 5.28 | 3.9 | 6.4 |
| Type B | 2.31 | 4.31 | 2.4 | 4.4 | 2.56 | 5.06 | 4.6 | 7.1 |



* Recommended WF
* Moderator’s observations:
  + Only one case with span of ideal results larger than 2dB, company is encouraged to further check the submitted results for this meeting
  + Other three cases: The results in collumn ”38.104 Req” and ”38.141 Req” can be used for the final performance requirements definition and captured in the corresponding CRs in this meeting

## Companies views’ collection for 1st round

### Open issues

*One of the two formats, i.e. either example 1 or 2 can be used by moderators.*

**Example 1**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Ericsson | **Issue 1-1-1: NDI bit [c6] in CG-UCI bit pattern**:  We agree with option 1 to set NDI bits as [1] because data part is not tested or even not transmitted in this test.  **Issue 1-2-1: Simulation results alignment for interlaced PUSCH**  We agree with WF  **Issue 1-2-2: Simulation results alignment for CG-UCI multiplexed on PUSCH**  We agree with WF. |

### CRs/TPs comments collection

*For close-to-finalize WIs and maintenance work, comments collections can be arranged for TPs and CRs. For ongoing WIs, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2110510  Introduction of NR-U PUSCH requirements for TS.38104 | Company A |
| Company B |
|  |
| R4-2110511  CR for TS.38.141-1: Introduction of conducted conformance test for interlaced PUSCH | Company A |
| Company B |
|  |
| R4-2110512  CR for TS.38.141-2: Introduction of radiated conformance test for interlaced PUSCH | Company A |
| Company B |
|  |
| R4-2110513  CR for TS 38.104: Introduction of performance requirements for CG-UCI multiplexing  on interlaced PUSCH. | Company A |
| Company B |
|  |
| R4-2109285  Performance requirements for CG-UCI multiplexed on PUSCH with interlaced allocation for TS 38.141-2 | Company A |
| Company B |
|  |
| R4-211xxxx  CG-UCI multiplexed on interlaced PUSCH for TS 38.141-1 | Moderator: This CR is not prepared before the meeting |
| Company B |
|  |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

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

### CRs/TPs

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

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

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

## Discussion on 2nd round (if applicable)

# Topic #2: PUCCH requirements

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2109287**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109287.zip) | Nokia, Nokia Shanghai Bell | 1. PF0 and PF3 bit patterns are defined as all +0’s, and the test metric to define the performance requirements is ACK-missed detection. 2. Use bit patterns [1] and [1 1 1 1] for PF0 and PF3, respectively. |
| [**R4-2109594**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109594.zip) | Ericsson | Provides the simulation results for PUCCH |
| [**R4-2109796**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109796.zip) | Samsung | Provides the simulation results for PUCCH |
| [**R4-2110514**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110514.zip) | Huawei, HiSilicon | Provides the simulation results for PUCCH |

## 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 Information bit for PF0 for PF3

*Agreements reached during RAN4#98-bis-e in R4-2106010:*

* *Test metric for PF3*
  + *Prob(DTX->ACK)<=1% and Prob(ACK miss)<=1%*
* *Pattern of information bits*
  + *PF0: [0] including HARQ-ACK information only*
  + *PF1:[0 1] including HARQ-ACK information only*
  + *PF3: [0 0 0 0] including HARQ-ACK information only*
  + *Pattern of PF2 information bits: Random information bits selection*

**Issue 2-1: Information bit for PF0 for PF3**

* Proposals
  + Option 1: Bit pattern [1] (Nokia)
  + Option 2:
* Recommended WF
  + RAN4 figured out this issue during big CR email discussion after RAN4#98-bis-e and reminded this to RAN4 colleagues on RAN4 reflector:

*“Important reminder：*

*As per TS 38.213 section 9.1.*

*“For a HARQ-ACK information bit, a UE generates a positive acknowledgement (ACK) if the UE detects a DCI format that provides a SPS PDSCH release or correctly decodes a transport block, and generates a negative acknowledgement (NACK) if the UE does not correctly decode the transport block. A HARQ-ACK information bit value of 0 represents a NACK while a HARQ-ACK information bit value of 1 represents an ACK."*

*According to ACK miss detection definition in 38.104, “The ACK missed detection probability is the probability of not detecting an ACK when an ACK was sent." The information bit pattern for NR-U PF0 and PF3 need to change all “1”.*

*Considering this issue is figured out during the email approval, all interesting company agreed to keep the current agreement in WF R4-2106010 for NR-U BS demodulation requirements as it is, we can update this in next meeting. Here we would like to remind the interesting companies to use the new pattern of all ‘1’ for your simulation for next meeting.”*

* Pattern of information bits
  + PF0: [1] including HARQ-ACK information only
  + PF3: [1 1 1 1] including HARQ-ACK information only

----------------GTW Note----------------

Agreements:

* Pattern of information bits
  + PF0: [1] including HARQ-ACK information only
  + PF3: [1 1 1 1] including HARQ-ACK information only

### Sub-topic 2-2 Simulation results alignment

*Performance requirements for interlaced PUCCH are kept TBD in last RAN4#98-bis-e meeting due to expected further updated simulation results from companies for this RAN4#99-e meeting.*

*Updated simulation assumptions for interlaced PUCCH were agreed in R4-2106010.*

* Simulation results collected from companies are summarized as follows:
* PF0/PF1:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Format | SCS | Test metric | Huawei | | Ericsson | | Nokia | | Samsung | |
| Ideal | Impairment | Ideal | Impairment | Ideal | Impairment | Ideal | Impairment |
| PF0 | 15kHz | 1% ACK miss | -4.6 | -3.1 | -5.1 | -3.1 | -4.8 | -2.3 | -4.5 | -2.5 |
| 30kHz | 1% ACK miss | -3.9 | -2.4 | -5.2 | -3.2 | -3.7 | -1.2 | -3.5 | -1.5 |
| PF1 | 15kHz | 1% ACK miss | -17.2 | -15.7 | -16.3 | -14.3 | -16.4 | -13.9 | -15.9 | -13.9 |
| 0.1% NACK to ACK | -16.7 | -15.2 | -16.1 | -14.1 | -15.4 | -12.9 | -15.1 | -13.1 |
| 30kHz | 1% ACK miss | -17.1 | -15.6 | -16.4 | -14.4 | -15.6 | -13.1 | -15.2 | -13.2 |
| 0.1% NACK to ACK | -16.3 | -14.8 | -16.1 | -14.1 | -14.5 | -12.0 | -14.4 | -12.4 |

* PF2/PF3:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Format | SCS | Test metric | Huawei | | Ericsson | | Nokia | | Samsung | |
| Ideal | Impairment | Ideal | Impairment | Ideal | Impairment | Ideal | Impairment |
| PF2 | 15kHz | 1% UCI BLER | 1.3 | 2.8 | 1.3 | 3.3 | 1.2 | 3.7 | 2.3 | 4.3 |
| 30kHz | 1% UCI BLER | 1.9 | 3.4 | 1.2 | 3.2 | 2.2 | 4.7 | 2.3 | 4.3 |
| PF3 | 15kHz | 1% ACK miss | -5.6 | -4.1 | -7.9 | -5.9 | -5.1 | -2.6 | -7.7 | -5.7 |
| 30kHz | 1% ACK miss | -4.9 | -3.4 | -7.9 | -5.9 | -4.2 | -1.7 | -7.6 | -5.6 |



* Recommended WF
  + Well aligned results for PUCCH format 0, 1 and 2, the results in column ”38.104 Req” and ”38.141 Req” can be used for the final performance requirements definition and captured in the corresponding CRs in this meeting?
  + Still larger span than 2dB for PUCCH format 3 for both 15kHz and 30kHz SCS, further alignment among companies is needed during this meeting.

## Companies views’ collection for 1st round

### Open issues

**Example 1**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Ericsson | **Issue 2-1: Information bit for PF0 for PF3**  Agree with updated bit pattern.  Sub topic 2-2: Simulation results alignment  We updated ePF3 results but there is still a large span. We agree to continue checking the simulation during the meeting. |

### 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** |
| R4-2109596  Draft CR for TS38.104 Introduction of interlaced PUCCH format 0 and format 1 demodulation requirements | Company A |
|  | Company B |
|  |  |
| R4-2109597  Draft CR for TS38.141-1 Introduction of interlaced PUCCH format 0 and format 1 demodulation requirements | Company A |
|  | Company B |
|  |  |
| R4-210xxxx draft CR for TS 38.141-2 for interlaced PF0 and PF1 demodulation requirements | Moderator: this draft CR is not prepared before the meeting |
|  |  |
|  |  |
| R4-2109798  draft CR on PUCCH format2 and format3 performance requirement for TS 38.104 | Company A |
|  | Company B |
|  |  |
| R4-2109799  draft CR on PUCCH format2 and format3 performance requirement for TS 38.141-1 | Company A |
|  | Company B |
|  |  |
| R4-2109800  CR on PUCCH format2 and format3 performance requirement for TS 38.141-2 | Company A |
|  | Company B |
|  |  |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

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

### CRs/TPs

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

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

## Discussion on 2nd round (if applicable)

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

# Topic #2: PRACH requirements

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2109595**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109595.zip) | Ericsson | Provides the simulation results for PRACH |
| [**R4-2109797**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109797.zip) | Samsung | Provides the simulation results for PRACH |
| [**R4-2110515**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110515.zip) | Huawei, HiSilicon | Provides the simulation results for PRACH |

## Open issues summary

*Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 3-1 Simulation results alignment

*Performance requirements for interlaced PUCCH are kept TBD in last RAN4#98-bis-e meeting due to expected further updated simulation results from companies for this RAN4#99-e meeting.*

* Simulation results collected from companies are summarized as follows:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Format | LRA | Propagation  Conditions | Huawei | | Nokia | | Ericsson | | Intel | | Samsung | |
| Ideal | Impairment | Ideal | Impairment | Ideal | Impairment | Ideal | Impairment | Ideal | Impairment |
| A2 | 1151 | AWGN | -23.36 | -21.86 | -23.6 | -21.1 | -24.2 | -21.7 | -22.9 | -20.4 | -23.46 | -21.46 |
| TDLA30-10 | -18.3 | -16.8 | -17.5 | -15 | -17.1 | -14.6 | -16.4 | -13.9 | -17.26 | -15.26 |
| 571 | AWGN | -20.34 | -18.84 | -20.6 | -18.1 | -21.3 | -18.8 | -19.9 | -17.4 | -20.36 | -18.36 |
| TDLA30-10 | -14.7 | -13.2 | -13.7 | -11.2 | -14.6 | -12.1 | -13.2 | -10.7 | -14.22 | -12.22 |
| B4 | 1151 | AWGN | -27.02 | -25.52 | -27.3 | -24.8 | -28.1 | -26.1 | -26.5 | -24 | -27.81 | -25.81 |
| TDLA30-10 | -21.1 | -19.6 | -21.1 | -18.6 | -19.8 | -17.8 | -19.7 | -17.2 | -20.63 | -18.63 |
| 571 | AWGN | -24 | -22.5 | -24.5 | -22 | -25.3 | -23.3 | -23.4 | -20.9 | -24.63 | -22.63 |
| TDLA30-10 | -18.4 | -16.9 | -17.4 | -14.9 | -18.1 | -16.1 | -16.5 | -14 | -18.16 | -16.16 |
| C2 | 1151 | AWGN | -23.7 | -22.2 | -23.3 | -20.8 | -24.2 | -21.7 | -22.9 | -20.4 | -23.48 | -21.48 |
| TDLA30-10 | -18.35 | -16.85 | -17.4 | -14.9 | -17.1 | -14.6 | -16.4 | -13.9 | -17.27 | -15.27 |
| 571 | AWGN | -20.6 | -19.1 | -20.6 | -18.1 | -21.3 | -18.8 | -19.9 | -17.4 | --20.37 | -18.37 |
| TDLA30-10 | -14.83 | -13.33 | -13.6 | -11.1 | -14.6 | -12.1 | -13.2 | -10.7 | -14.22 | -12.22 |



* Recommended WF
  + Well aligned results for all agreed PRACH formats. The results in column ”38.104 Req” and ”38.141 Req” can be used for the final performance requirements definition and captured in the corresponding CRs in this meeting?

## Companies views’ collection for 1st round

### Open issues

**Example 1**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Ericsson | Sub topic 3-1: Simulation results alignment  We updated simulation results for B4, and companies can check the corresponding requirement changing. |

### 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** |
| R4-2109288  DraftCR NR-U BS demod PRACH performance requirements 38.104 | Company A |
|  | Company B |
|  |  |
| R4-2109289  DraftCR NR-U BS demod PRACH conducted performance requirements 38.141-1 | Company A |
|  | Company B |
|  |  |
| R4-2109290  DraftCR NR-U BS demod PRACH radiated performance requirements 38.141-2 | Company A |
|  | Company B |
|  |  |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

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

### CRs/TPs

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

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

## Discussion on 2nd round (if applicable)

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

# Recommendations for Tdocs

## 1st round

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Comments** |
| WF on … | YYY |  |
| LS on … | ZZZ | To: RAN\_X; Cc: RAN\_Y |
|  |  |  |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
| R4-210xxxx | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Notes:

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

## 2nd round

|  |  |  |  |  |
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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
| R4-210xxxx | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
| R4-210xxxx | WF on … | YYY | Agreeable, Revised, Noted |  |
| R4-210xxxx | LS on … | ZZZ | Agreeable, Revised, Noted |  |
|  |  |  |  |  |

Notes:

1. Please include the summary of recommendations for all tdocs across all sub-topics.
2. For the Recommendation column please include one of the following:
   1. CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued
   2. Other documents: Agreeable, Revised, Noted
3. Do not include hyper-links in the documents