**3GPP TSG-RAN WG4 Meeting #** **97-e R4-200xxxx**

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

**Agenda item:** 11.1

**Source:** Moderator (Ericsson)

**Title:** Email discussion summary for [97e][132] FS\_6425\_10500MHz \_NR

**Document for:** Information

# Introduction

ITU-R WP5D has sent LS to request parameters in a set of frequency ranges.

For frequency ranges below 6GHz, the LS reply has already be sent in last RAN4#95-e meeting and no contribution has been submitted in this meeting for this topic.

For 6.425-7.025GHz, 7.025-7.125 and 10.0-10.5 GHz, the request will be addressed via a new SI (RP-200513) to agree on associated parameters:

* Topic#1 is covering the last version of TR 38.921, plus some TPs to fix or clarify some issues in the last version.
* Topic#2 is covering the coexistence simulation results and the UE parameters challenged in last RAN4#96-e.
* Topic#3 is covering discussion on the BS and UE parameters which were not yet agreed.
* Topic#4 is covering discussion on additional information relevant for the sharing and compatibility studies.

The proposal is to:

* 1st round:
  + Comment the proposed TPs to TR.
  + Discuss and align on first the simulation results, and then corresponding UE/BS ACLR/ACS.
  + Align on indoor scenario consideration.
  + Discuss and possibly agree on the remaining parameters (BS and UE)
  + Discuss on the relevance of the additional information and decide on their inclusion in the LS reply
* 2nd round:
  + If not done, agree on the UE/BS ACLR/ACS limits and any other not yet agreed limits.

# Topic #1: TR 38.921 v 0.1.0

This topic is to collect any feedback on the latest TR version submitted for this meeting.

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| **TR** | | |
| R4-2015675 | Huawei | TR v 0.2.0 |
| **Draft LS Reply** | | |
| R4-2015681 | Huawei | Draft LS Reply |
| **TPs to TR – Maintenance (only)** | | |
| R4-2014475 | Nokia | Simulation Assumptions |
| R4-2014478 | Nokia | Antenna parameters update |
| R4-2014979 | Ericsson | Antenna parameters update |
| R4-2016132 | ZTE | Misc. topics |
| R4-206136 | ZTE | Uplink ACIR model |

## Open issues summary

### Sub-topic 1-1

Sub-topic description: A new revision of TR 38.921 is proposed to capture all agreements made

**Issue 1-1: TR 38.921 v0.2.0**

* Proposals
  + Option 1: Approve TR 38.921 v0.2.0
  + Option 2: Not approve TR 38.921 v0.2.0
* Recommended WF
  + If no comment, approve v0.2.0 as submitted

### Sub-topic 1-2

Sub-topic description: A draft LS Reply to ITU-R is proposed

**Issue 1-2: Draft LS Reply to ITU-R**

* Proposals
  + Option 1: Approve LS Reply
  + Option 2: Not approve LS Reply
* Recommended WF
  + This LS content should most likely discussed in the 2nd round, once parameters have been agreed.

### Sub-topic 1-3

Sub-topic description: Those TPs to TR 38.921 are proposing updates/fixes on previously agreed text captured in the TR.

Note that there are other TPs to TR 38.921, but they are proposing new text and are so managed in the other corresponding topics.

**Issue 1-3: TPs to TR 38.921**

* Recommended WF
  + Provide any comment to the TPs to TR here after and/or mention if they are agreeable.

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 1-1:  Sub topic 1-2:  Others: |
| ZTE | Sub topic 1-1: some corrections are needed which is proposed in R4-2016132.  Sub topic 1-2: we need to conclude the ACLR/ACS requirement firstly and UEM mask. |
| Ericsson | Sub topic 1-1: yes, could be approved, there are TPs to TR in this meeting to clarify some points.  Sub topic 1-2: option 2 for 1st round. |
| Qualcomm | Sub topic 1-1: Option 2. As we commented in the last meeting, NF of 9dB is difficult to implement for UE. 13dB makes more sense. Moreover, based on the simulation results in R4-2016236, the required ACIR for UE NF of 9dB and 13dB is marginal at 7GHz and 10GHz. Considering ITU cares more about the co-ex parameters, we suggest to adding one more option for UE NF of 13 in Table 4.2.8-1: Other simulation parameters.   |  |  |  |  | | --- | --- | --- | --- | | **UE Noise figure in dB** | 9 or 13 (Note 3) | 9 or 13 (Note 3) | Down-prioritized | | **Handover margin** | 3dB | 3dB | Down-prioritized | | Note 1 Same as the number of BS beam(s)  Note 2: 20dBm as optional case where CLx-ile should be reduced by 3dB  Note 3: 13dB as optional case considering UE implementation margin can vary. | | | |   For section 6.2.1, we suggest to adding the similar note “13dB as optional case considering UE implementation margin can vary”  Sub topic 1-2: Option 2. Need to wait for the conclusion for the parameters. |
| CMCC | Sub topic 1-1: option 1  Sub topic 1-2: we need to wait for the final agreement of ACLR/ACS and UEM |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| **TR** | |
| TR 38.921  V0.2.0 | ZTE: some corrections are needed which is proposed in R4-2016132. |
| Ericsson: yes, could be approved, there are TPs to TR in this meeting to clarify some points. |
|  |
| **Draft LS Reply** | |
| R4-2015681 | Huawei: we agree to return to the LS when the remaining parameters is agreed |
| ZTE:we need to conclude the ACLR/ACS requirement firstly and UEM mask. |
| Ericsson: To be reconsidered in the 2nd round. |
| **TP to TRs** | |
| R4-2014475 | *Clarification of system level simulation assumptions* |
| Huawei: in R4-2011827, it stated that “Results with 0.4km ISD at 10GHz can also be provided”, we think it should be somehow captured in the simulation assumptions, since some companies provide the simulation results based on it. |
| Company B |
| R4-2014478 | *Clarification of BS array antenna element peak gain* |
| Huawei: ok to the TP |
| Company B |
| R4-2014979 | *Correction to antenna parameter table in clause 3 and sub-clause 8.1* |
| Huawei: ok to the TP |
| Company B |
| R4-2016132 | *Maintenance* |
| Huawei: ok to the TP |
| ericsson: why removing the SINR section. We understand this is in the simulation assumptions already, but this will be also part of the answer to ITU-R, so we should clearly state we would reply to ITU-R with this. |
| Qualcomm: We had agreements on 3 scheduled UEs in UL simulation which aligns with LTE co-ex simulation in TR36.942. Only one scheduled UE in UL doesn’t make sense for 7 and 10GHz deployment. From the simulation results in R4-2016601, the number of scheduled UEs will have big impact on the final required ACIR. We prefer to keep the previous agreements of 3UEs in UL and check the impact of BF modeling on parameters submitted to ITU-R. |
| R4-2016136 | *uplink ACIR model* |
| Huawei: it is not needed since we take 1 UE in the UL simulation. |
| ZTE: if we all agree with 1 user, then two step ACIR model should be removed. |
| Ericsson: Same view as Huawei/ZTE.  Qualcomm: Prefer to keep two step ACIR model for 3UEs simulation. |

## 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: Simulations

This topic is focusing on the coexistence simulation results and the simulation assumptions challenged in last RAN4#96-e meeting.

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| **DL simulations** | | |
| R4-2014458 | CATT |  |
| R4-2014476 | Nokia |  |
| R4-2015978 | Huawei | **Observation 1: When downlink ACIR is set to 30.7dB at 7GHz, the urban macro scenario can be restricted to 5% DL throughput loss.**  **Observation 2: When downlink ACIR is set to 29.7dB at 10GHz, the urban macro scenario can be restricted to 5% DL throughput loss.**  **Proposal: It’s proposed to specify 36 dB ACLR for BS and 33dB ACS for UE on both 6.425-7.125GHz and 10.0-10.5GHz.** |
| R4-2015897 | Ericsson | **Observation 1: According to feasibility studies in the context of the 7-24GHz SI, BS ACLR should not exceed 38dB at 8GHz.**  **Observation 2: Antenna parameters for indoor were not discussed. Indoor scenario consideration would need further discussion.** |
| R4-2016134 | ZTE | ***Proposal 1: for 7GHz, the downlink throughput loss of the victim UE in the urban macro scenario can still be limited to 5% with downlink ACIR offsets of -1dB;***  ***Proposal 2: for 10GHz, the downlink throughput loss of the victim UE in the urban macro scenario can still be limited to 5% with downlink ACIR offsets of -3dB.*** |
| R4-2016236 | Qualcomm | **Observation 1: The required ACIR for UE NF of 9dB and 13dB is marginal at 7GHz and 10GHz.**  **Observation 2: When downlink ACIR is set to 30.9dB at 7GHz, DL throughput loss can be restricted to 5% with NF of 9dB&13dB.**  **Observation 3: When downlink ACIR is set to 30.5dB at 10GHz, DL throughput loss can be restricted to 5% with NF of 9dB&13dB.**  **Proposal 1: Consider the difficulty of implementing ACS in UE, RAN4 to split the DL ACIR based on the assumption of BS ACLR of 45dB.**  **Observation 4: Based on the DL co-existence simulation results, the UE ACS is ~31dB which is ONLY 2dB less than UE ACS requirements in FR1.**  **Proposal 2: RAN4 to mention the BS ACLR/UE ACS parameters in reply LS can apply for the assumptions of UE NF of 9dB and 13dB which can leave more flexibility for UE implementation.** |
| **UL simulations** | | |
| R4-2014459 | CATT |  |
| R4-2014477 | Nokia |  |
| R4-2015679 | Huawei | **Observation 1: When uplink ACIR is set to 27.9dB at 7GHz, the urban macro scenario can be restricted to 5% UL throughput loss.**  **Observation 2: When uplink ACIR is set to 25.9dB at 10GHz, the urban macro scenario can be restricted to 5% UL throughput loss.**  **Proposal: It’s proposed to specify 28 dB ACLR for UE and 46 dB ACS for BS on both 6.425-7.125GHz and 10.0-10.5GHz.** |
| R4-2015898 | Ericsson | **Observation: Antenna parameters for indoor were not discussed. Indoor scenario consideration would need further discussion.** |
| R4-2016135 | ZTE | **Observation 1: for 7GHz, the uplink throughput loss of the victim BS in the urban macro scenario can still be limited to 5% with uplink ACIR offsets of -2dB,;**  **Observation 2: for 10GHz, the uplink throughput loss of the victim BS in the urban macro scenario can still be limited to 5% with uplink ACIR offsets of -5dB;** |
| R4-2016601  (revised R4-2016237) | Qualcomm | **Observation 1: When uplink ACIR is set to 22dB at 7GHz with 23dBm UE max Tx power, UL throughput loss in the urban macro can be restricted to 5%.**  **Observation 2: When uplink ACIR is set to 22dB at 10GHz with 23dBm UE max Tx power, UL throughput loss in the urban macro can be restricted to 5%.**  **Observation 3: When uplink ACIR is set to 22dB at 7GHz with 20dBm UE max Tx power, UL throughput loss in the urban macro can be restricted to 5%.**  **Observation 4: When uplink ACIR is set to 21.5dB at 10GHz with 20dBm UE max Tx power, UL throughput loss in the urban macro can be restricted to 5%.**  **Proposal 1:** **Split the UL ACIR based on the assumption of BS ACS of 46dB. And the UE ACLR is 22dB for 7 and 10GHz with 23dBm Tx power.**  **Proposal 2:** **RAN4 to identify the UE parameters considering the UE max Tx power of 20dBm at 10GHz.**  **Proposal 3: RAN4 to submit the UE parameters considering the UE max Tx power of 23dBm and 20dBm.** |
| **Simulation assumptions** | | |
| R4-2015901 | Ericsson | **Observation 1: 20 and 23 dBm are realistic values for UE Tx maximum power at 7 and 10 GHz, as it has already been agreed.**  **Observation 2: UE noise figure of 9 dB is correct value for 7 and 10 GHz, as it has already been agreed.** |

## Open issues summary

### Sub-topic 2-1

Sub-topic description: Simulation assumptions. In last RAN4#96-e meeting, UE maximum output power was challenged, additional clarifications have been given for this meeting.

**Issue 2-1: UE maximum output power**

* From R4-2015901 and the proposals in R4-2016237, the 23 dBm UE output power assumption is confirmed for the simulations and following options are suggested:
  + Option 1:
    - Consider 20 dBm and 23 dBm for 6.425-7.125GHz in the LS to ITU-R.
    - Consider 20 dBm only for 10.0-10.5 GHz in the LS to ITU-R.
  + Option 2:
    - Consider 23 dBm for both 6.425-7.125 GHz and 10.0-10.5 GHz in the LS to ITU-R.
  + Option 3 (possible alternative):
    - Consider 20 dBm and 23 dBm for both 6.425-7.125 GHz and 10.0-10.5 GHz in the LS to ITU-R.
* Recommended WF
  + The 23 dBm UE output power assumption is confirmed for the simulations. Further discuss the different options. Note that option 3 was not suggested, but is an alternative proposed by the moderator.

### Sub-topic 2-2

Sub-topic description: Simulation assumptions. In last RAN4#96-e meeting, UE noise figure was challenged, additional clarifications have been given for this meeting.

**Issue 2-3: UE Noise figure for 6.425-7.125GHz and 10.0-10.5GHz**

* From R4-2015901 and the observations in R4-2016236, the 9dB noise figure assumption is confirmed for the simulations and following options are suggested:
  + Option 1: Consider 9dB only in the LS to ITU-R.
  + Option 2: Consider 9dB and 13dB in the LS to ITU-R.
* Recommended WF
  + Considering 9 or 13 dB UE noise figure would have minor impact on simulations results as shown in R4-2016236. The 9dB UE NF is confirmed for the simulations. Further discussed the 2 options for the reply to ITU-R.

### Sub-topic 2-3

Sub-topic description: No antenna parameter was agreed for indoor scenario, some agreement should be reached on how to consider this scenario for the simulations’ outcomes and the parameters in the LS Reply to ITU-R.

**Issue 2-3: Indoor scenario**

* Should the indoor scenario be considered in the LS Reply to ITU-R:
  + Option 1: Yes, antenna and BS/UE parameters should be defined for indoor.
  + Option 2: No, indoor scenario should not be addressed.
* Recommended WF
  + Choose one option giving some rationale for it. Note that RAN4 already replied with the BS antenna parameters to ITU-R without providing the indoor ones.

### Sub-topic 2-4

Sub-topic description: DL simulations results. Results here after summarize companies results. Values in [] are moderator’s understanding based on the provided results.

**Issue 2-4: DL simulations results**

* Based on simulation results, the average value is given table below. As the spread of results is still large, an average value is also given after removing highest and lower value (calculated on 4 results only then). From those inputs, following options are proposed to determine ACIR target value in DL:
  + Option 1: Suggested target value below in blue.
  + Option 2: Other values. Then propose another possible compromise.
* Recommended WF
  + We should here focus on urban macro scenario only, lacking of enough results for the other scenarios. Comment the simulation results when appropriate and select one of the 2 options below. When selecting option 2, propose any other possible compromise.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **ACIR (dB)** | | | | | |
| **Company** | **6.425-7.125GHz** | | | **10.0-10.5GHz** | | |
| **Urban macro uncoord.** | **Indoor** | **Dense Urban** | **Urban Macro uncoord.** | **Indoor** | **Dense Urban** |
| CATT | 29.5 |  |  | 28 |  |  |
| Nokia | 32.7 | 31.7 | 23.7 | 30.7 | 32.2 | 20.7 |
| Huawei | 30.7 |  |  | 29.7 |  |  |
| Ericsson | 30 |  |  | 29 |  |  |
| ZTE | 31.7 |  |  | 29.7 |  |  |
| Qualcomm | 30.9 |  |  | 30.5 |  |  |
| Average | 30.9 |  |  | 29.6 |  |  |
| Average after removing highest and lowest values | 30.9 |  |  | 29.5 |  |  |
| **Suggested target value** | **30.9** |  |  | **29.5** |  |  |

### Sub-topic 2-5

Sub-topic description: UL simulations results. Results here after summarize companies results. Values in [] are moderator’s understanding based on the provided results.

**Issue 2-5: UL simulations results**

* Based on simulation results, the average value is given table below. As the spread of results is still large, an average value is also given after removing highest and lower value (calculated on 4 results only then). From those inputs, following options are proposed to determine ACIR target value in UL:
  + Option 1: Suggested target value below in blue.
  + Option 2: Other values. Then propose any other possible compromise.
* Recommended WF
  + We should here focus on urban macro scenario only, lacking of enough results for the other scenarios. Comment the simulation results when appropriate and select one of the 2 options below. When selecting option 2, propose any other possible compromise.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **ACIR (dB)** | | | | | | |
| **Company** | **6.425-7.125GHz** | | | **10.0-10.5GHz** | | | |
| **Urban macro uncoord.** | **Indoor** | **Dense Urban** | **Urban Macro uncoord.** | **ISD** | **Indoor** | **Dense Urban** |
| CATT | 26 |  |  | 26.2 | ? |  |  |
| Nokia | UE ACLR: 27  BS ACS: 45  ACIR=26.9 | UE ACLR:30  BS ACS: 45 | UE ACLR: 21  BS ACS: 45 | UE ACLR: 26  BS ACS: 45  ACIR=25.9 | ? | UE ACLR: 29.5  BS ACS: 45 | Not conclusive |
| Huawei | 27.9 |  |  | 25.9 | ? |  |  |
| Ericsson | 27 |  |  | 23 | 400 |  |  |
| ZTE | 27.9 |  |  | 24.9 | ? |  |  |
| Qualcomm | 22 |  |  | 22 / 21.5(\*) | 400 |  |  |
| Average value | 26.8 |  |  | 24.3 |  |  |  |
| Average after removing highest and lowest values | 27.2 |  |  | 24.3 |  |  |  |
| **Suggested target value** | **26.5** |  |  | **24.6** |  |  |  |
| Note (\*): 22 with 23dBm and 21.5 with 20dBm | | | | | | | |

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 2-1:  Sub topic 2-2:  Sub topic 2-3:  Sub topic 2-4:  Sub topic 2-5:  Others: |
| Huawei | Sub topic 2-1: option 2, we concluded that 23 dBm is feasible hence should be used for simulation.  Sub topic 2-2: option 1, we concluded 9 dB NF is feasible hence should be used for simulation.  Sub topic 2-3:option 2 is preferred  Sub topic 2-4: Average value is ok to us. We would like to point out that in LTE simulation 5% CDF could have higher throughput loss than 5 % (TR 36.942). Hence required ACIR can be lower.  Sub topic 2-5: As 2-4, average value is ok to us. |
| ZTE | Sub topic 2-1: Fine with recommended WF.  Sub topic 2-2: Fine with recommended WF.  Sub topic 2-3: Fine with recommended WF.  Sub topic 2-4: fine with option 1  Sub topic 2-5: fine with option 1 |
| Ericsson | Sub topic 2-1: option 2 is preferred, but option 3 would also be fine.  Sub topic 2-2: option 1  Sub topic 2-3: option 2  Sub topic 2-4: option 1  Sub topic 2-5: option 1 |
| Qualcomm | Sub topic 2-1: Option 3. 20dBm is the current max UE Tx power assumption in NR-U discussion. It is helpful to submit the UE ACLR with the assumptions of both 20dBm and 23dBm assumptions to ITU-R to reflect the current status of industry  Sub topic 2-2: Option 2. The required ACIR for UE NF of 9dB and 13dB is marginal at 7GHz and 10GHz. We prefer to consider the both 9 and 13dB when submitting the BS ACLR and UE ACS to ITU which can provide more flexibility for UE implementation.  Sub topic 2-3: Option 2. RAN4 don’t have agreements on simulation assumptions such as antenna assumptions for Indoor scenario.  Sub topic 2-4: Average all the results from companies is preferred (not removing the highest and lowest results) considering the small sample number. Can Huawei clarify how much the margin is used in LTE co-ex? We should take this margin into account if any.  Sub topic 2-5: Option 2. The UL results are mostly based on the 1 scheduled UE for UL. Our simulation is based on the 3UEs and digital BF from AAS. If 3 UEs are assumed (which is more reasonable for deployment), the required ACIR will be different (2-5dB gap). We expect that different BF models such as digital, hybrid would not have big impact on the final ACIR requirements. Therefore, we believe the suggested target value is too stringent for UL. We need to derive the simulation results based on the 3 UL UEs or consider some margin to derive the final UL ACIR. |
| CATT | Sub topic 2-1: option 2, we have agreed to use 23 dBm.  Sub topic 2-2: Option 1. 9dB has been agreed for simulations.  Sub topic 2-3: Option 2. Indoor scenario is not the worst case from co-existence point of view.  Sub topic 2-4: It is ok for us to take averaged value. (Please note that CATT simulation results are updated.)  Sub topic 2-5: It is ok for us to take averaged value. (Please note that CATT simulation results are updated.) |
| CMCC | Sub topic 2-1: option 2. the 23 dBm UE output power assumption is confirmed for the simulations.  Sub topic 2-2: option 1. the 9dB UE NF is confirmed for the simulations. Although 9 or 13dB UE noise figure have minor impact on ACIR simulation results, the absolute throughputs are much different for the 9 and 13 dB respectively.  Sub topic 2-3: fine with the recommended WF  Sub topic 2-4: option 1. fine with suggested target value  Sub topic 2-5: option 1. fine with suggested target value |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| NA |  |
|  |
|  |

## 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: Remaining UE and BS parameters

This topic is focusing on the remaining BS and UE aspects not already agreed in the scope of the SI on IMT parameters (RP-200042).

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| **BS parameters** | | |
| R4-2014457 | CATT |  |
| R4-2014474 | Nokia |  |
| R4-2014738 | CMCC |  |
| R4-2015677 | Huawei | **TP to TR 38.921** |
| R4-2015678 | Huawei | **Proposal: It’s proposed to specify 36 dB ACLR for BS and 33dB ACS for UE on both 6.425-7.125GHz and 10.0-10.5GHz.** |
| R4-2015679 | Huawei | **Proposal: It’s proposed to specify 28 dB ACLR for UE and 46 dB ACS for BS on both 6.425-7.125GHz and 10.0-10.5GHz.** |
| R4-2015899 | Ericsson | **Proposal 1: We propose to specify a 37 dB BS ACLR for 6.425-7.125 GHz frequency range.**  **Proposal 2: We propose to specify a 40 dB BS ACS for 6.425-7.125 GHz frequency range.**  **Proposal 3: We propose to specify a 36 dB BS ACLR for 10.0-10.5 GHz frequency range.**  **Proposal 4: We propose to specify a 35 dB BS ACS for 10.0-10.5 GHz frequency range.** |
| R4-2016133 | ZTE | **TP to TR 38.921** |
| R4-2016236 | Qualcomm | **Proposal 1: Consider the difficulty of implementing ACS in UE, RAN4 to split the DL ACIR based on the assumption of BS ACLR of 45dB.**  **Observation 4: Based on the DL co-existence simulation results, the UE ACS is ~31dB which is ONLY 2dB less than UE ACS requirements in FR1.** |
| R4-2016237 | Qualcomm | **Proposal 1:** **Split the UL ACIR based on the assumption of BS ACS of 46dB. And the UE ACLR is 22dB for 7 and 10GHz with 23dBm Tx power.** |
| R4-2016369 | Ericsson |  |
| **UE parameters** | | |
| R4-2014456 | CATT |  |
| R4-2014473 | Nokia | **1) To keep the currently specified 33dB UE ACS below 6GHz for frequency ranges 6.425-7.125GHz and 10.0-10.5GHz.**  **2) To keep the currently specified 30dB UE ACLR below 6GHz for frequency ranges 6.425-7.125GHz and 10.0-10.5GHz.** |
| R4-2015676 | Huawei | **TP to TR 38.921** |
| R4-2015678 | Huawei | **Proposal: It’s proposed to specify 36 dB ACLR for BS and 33dB ACS for UE on both 6.425-7.125GHz and 10.0-10.5GHz.** |
| R4-2015679 | Huawei | **Proposal: It’s proposed to specify 28 dB ACLR for UE and 46 dB ACS for BS on both 6.425-7.125GHz and 10.0-10.5GHz.** |
| R4-2015900 | Ericsson | **Proposal 1: We propose to specify a 27 dB UE ACLR for 6.425-7.125 GHz frequency range.**  **Proposal 2: We propose to specify a 31 dB UE ACS for 6.425-7.125 GHz frequency range.**  **Proposal 3: We propose to specify a 25 dB UE ACLR for 10.0-10.5 GHz frequency range.**  **Proposal 4: We propose to specify a 30 dB UE ACS for 10.0-10.5 GHz frequency range.** |
| R4-2016236 | Qualcomm | **Proposal 1: Consider the difficulty of implementing ACS in UE, RAN4 to split the DL ACIR based on the assumption of BS ACLR of 45dB.**  **Observation 4: Based on the DL co-existence simulation results, the UE ACS is ~31dB which is ONLY 2dB less than UE ACS requirements in FR1.** |
| R4-2016237 | Qualcomm | **Proposal 1:** **Split the UL ACIR based on the assumption of BS ACS of 46dB. And the UE ACLR is 22dB for 7 and 10GHz with 23dBm Tx power.** |

## Open issues summary

### Sub-topic 3-1

**Issue 3-1: BS and UE - ACLR and ACS**

* Based on simulation results and associated companies’ proposals, below table captures the different options. Once the target ACIR values are agreed, BS/UE ACLR/ACS could be further discussed and compromised.
* Recommended WF
  + UL and DL ACIR target values should first be agreed, but companies are encouraged to early make compromised proposals in the 1st round.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **6.425-7.125 GHz** | | | | **10.0-10.5 GHz** | | | |
|  | **BS** **ACLR** | **UE ACS** | **BS ACS** | **UE ACLR** | **BS ACLR** | **UE ACS** | **BS ACS** | **UE ACLR** |
| **CATT** | 40 | 30 | 40 | 27 | 40 | 29 | 35-40 | 27 |
| **Ericsson** | 37 | 31 | 40 | 27 | 36 | 30 | 35 | 25 |
| **Huawei** | 36 | 33 | 46 | 28 | 36 | 33 | 46 | 28 |
| **Nokia** | 45(\*) | 33(\*) | 45(\*) | 30(\*) | 45(\*) | 33(\*) | 45(\*) | 30(\*) |
| **Qualcomm** | 45 | 31 | 46 | 22 | 45 | 31 | 46 | 22 |
| Note (\*): proposed values are considering urban macro and indoor scenarios | | | | | | | | |

### Sub-topic 3-2

**Issue 3-2: BS Spectral mask**

* Proposals
  + Option 1: Consider only CBW greater than 50MHz and so update existing FR1 OBUE (Huawei)

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | *Basic limits* (Note 1, 2) | *Measurement bandwidth* |

|  |  |  |  |
| --- | --- | --- | --- |
| 0 MHz ≤ Δf < 50 MHz | 0.05 MHz ≤ f\_offset < 50.05 MHz |  | 100 kHz |
| 50 MHz ≤ Δf <  min(100 MHz, Δfmax) | 5.05 MHz ≤ f\_offset <  min(10.05 MHz, f\_offsetmax) | -14 dBm | 100 kHz |
| 100 MHz ≤ Δf ≤ Δfmax | 100.5 MHz ≤ f\_offset < f\_offsetmax | -15 dBm (Note 3) | 1MHz |

* + Option 2: Further discuss once BS/UE ACLR/ACS have been agreed.
* Recommended WF
  + TBA

### Sub-topic 3-3

**Issue 3-3: BS in-band blocking**

* Proposals
  + Option 1: blocking level at 44 dB for 6.425-7.125 GHz and 40dB for 10.0-10.5 GHz (CATT).
  + Option 2: In-band blocking: Keep same as 38.104 for 6.425-7.125 GHz and 10.0-10.5 GHz (Nokia, Huawei)
  + Option 3: Further discuss once BS/UE ACLR/ACS have been agreed.
* Recommended WF
  + TBA

### Sub-topic 3-4

**Issue 3-4: BS out of band blocking**

* Proposals
  + Option 1: -15 dBm CW interferer applies from 1MHz to FUL,low – 200MHz and from FUL,high + 200MHz up to 12750 MHz (Huawei)
  + Option 2 (CMCC):
    - Change limits’ applicability

From 30MHz to FUL,low - ΔfOOB and from FUL,high + ΔfOOB up to 12.75GHz

With:

From 30MHz to FUL,low - ΔfOOB and from FUL,high + ΔfOOB up to 2nd harmonic of the upper frequency edge of the band.

* + - Limits: to be further discussed.
* Recommended WF
  + TBA

### Sub-topic 3-5

**Issue 3-5: BS spurious for 6.425-7.125 GHz**

* Proposals
  + Option 1 (CATT, Huawei):

TS 38.104, clause 6.6.5.2.1 and 9.7.5.2

|  |  |  |
| --- | --- | --- |
| Spurious frequency range | Basic limit | *Measurement bandwidth* |
| 9 kHz – 150 kHz | -36 dBm | *1 kHz* |
| 150 kHz – 30 MHz | *10 kHz* |
| 30 MHz – 1 GHz | *100 kHz* |
| 1 GHz – 12.75 GHz | -30 dBm | *1 MHz* |

|  |  |  |
| --- | --- | --- |
| 12.75 GHz – 5th harmonic of the upper frequency edge of the DL operating band in GHz |  | *1 MHz* |

* + Option 2 (CMCC, ZTE, Ericsson):

Conducted:

|  |  |  |
| --- | --- | --- |
| Spurious frequency range | Basic limit | *Measurement bandwidth* |
| 9 kHz – 150 kHz | -36 dBm | *1 kHz* |
| 150 kHz – 30 MHz | *10 kHz* |
| 30 MHz – 1 GHz | *100 kHz* |
| 1 GHz – 12.75 GHz | -30 dBm | *1 MHz* |
| 12.75 GHz – 26 GHz | *1 MHz* |

OTA – basic limits:

|  |  |  |
| --- | --- | --- |
| Spurious frequency range | Basic limit | *Measurement bandwidth* |
| 30 MHz – 1 GHz | -36 dBm | *100 kHz* |
| 1 GHz – 26 GHz | -30 dBm | *1 MHz* |

* Recommended WF
  + TBA

### Sub-topic 3-6

**Issue 3-6: BS spurious for 10.0-10.5 GHz**

* Proposals
  + Option 1 (CATT, Ericsson, ZTE)
    - 30MHz ≤ f ≤ 1 GHz: -36dBm/100kHz

1 GHz ≤ f ≤18GHz : -30dBm/1MHz

18GHz ≤ f ≤ 26 GHz: -20dBm/10MHz

* + - Should we also send LS to CEPT SE21 as there is no limit specified for those frequency ranges? (Ericsson)
  + Option 2 (Huawei)

TS 38.104, clause 6.6.5.2.1 and 9.7.5.2

|  |  |  |
| --- | --- | --- |
| Spurious frequency range | Basic limit | *Measurement bandwidth* |
| 9 kHz – 150 kHz | -36 dBm | *1 kHz* |
| 150 kHz – 30 MHz | *10 kHz* |
| 30 MHz – 1 GHz | *100 kHz* |
| 1 GHz – 12.75 GHz | -30 dBm | *1 MHz* |

|  |  |  |
| --- | --- | --- |
| 12.75 GHz – 5th harmonic of the upper frequency edge of the DL operating band in GHz |  | *1 MHz* |

* Recommended WF
  + If option 1 is preferred, answer also the question if a LS should be sent to CEPT SE21 to notify them no limit exist for those frequency range.

### Sub-topic 3-7

**Issue 3-7:** fOBUE

* Proposals
  + Option 1: 40 MHz for 6.425-7.125GHz (CMCC).
  + Option 2: Keep FSS (Huawei)
* Recommended WF
  + TBA

### Sub-topic 3-8

**Issue 3-8: UE Spectral mask**

* Proposals
  + Option 1: Out of band emission in clause 6.5.2.2 of TS 38.101-1 for 6.425-7.125 GHz and 10.0-10.5 GHz (Huawei).
  + Option 2: Further discuss once BS/UE ACLR/ACS have been agreed.
* Recommended WF
  + TBA

### Sub-topic 3-9

**Issue 3-9: UE blocking**

* Proposals
  + Option 1: For 6.425-7.125 GHz and 10.0-10.5 GHz, same limits as in clause 7.6 in 38.101-1 (Huawei, CATT)
  + Option 2: Further discuss once BS/UE ACLR/ACS have been agreed.
* Recommended WF
  + TBA

### Sub-topic 3-10

Sub-topic description: Those TPs to TR 38.921 are new text proposals to capture UE and BS parameters.

**Issue 3-10: TPs to TR 38.921**

* Recommended WF
  + Provide any comment to the TPs to TR here after and/or mention if they are agreeable.

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 3-1:  Sub topic 3-2:  Sub topic 3-3:  Sub topic 3-4:  Sub topic 3-5:  Sub topic 3-6:  Sub topic 3-7:  Sub topic 3-8:  Sub topic 3-9:  Others: |
| Huawei | Sub topic 3-1: some principle on the trade-off should be discussed. We propose to keep the existing ACS values for both BS and UE since we do not find the implementation constrains to reuse existing FR1 ACS. While it is desired to adopt lower ACLR considering that lower power efficiency at higher frequency band and larger channel bandwidth.  Sub topic 3-2: option 1  Sub topic 3-3: option 2  Sub topic 3-4:option 1  Sub topic 3-5: ok with option 2  Sub topic 3-6:ok with option 1  Sub topic 3-7: option 2, 40 MHz may be not enough considering the larger number of T/R unites and larger transmission bandwidth will be used for the band.  Sub topic 3-8: Option 1  Sub topic 3-9: Option 1 |
| ZTE | Sub topic 3-1/2: we need to agreed ACIR firstly, then further discuss ACLR/ACS requirement.  Sub topic 3-3: prefer for option 3.  Sub topic 3-4: fine with -15dBm/MHz for OOBB and Foobb should be further discussed once filter responce and UEM/spurious requirements;  Sub topic 3-5: support option 2  Sub topic 3-6: support option 1  Sub topic 3-7: support option 2 as FFS  Sub topic 3-8: support option 2  Sub topic 3-9: support option 2 |
| Ericsson | Sub topic 3-1: to be discussed in the 2nd round, once we have converged on ACIR  Sub topic 3-2: May be 50MHz is a bit too high? This would be similar to FR2 bands which are at least 1 GHz large. Band 79 has even considered 40MHz, but we propose to come back on this proposal.  Sub topic 3-3: option 3  Sub topic 3-4:  Option 1: May be 200MHz is also a bit high? To be further discussed.  Option 2: should be ok, as long as the 2nd harmonic is greater than 12.75GHz, but we would like to come back on this after further investigations.  Sub topic 3-5: option 2  Sub topic 3-6: option 1 + LS to SE21 (The LS will be needed in order to inform ECC SE21 of the possible choice of Category B limits, since there are no limits presently for the 6-24.25 GHz range in ERC Recommendation 74-01).  Sub topic 3-7: option 2  Sub topic 3-8: option 2  Sub topic 3-9: option 2 |
| Qualcomm | Sub topic 3-7: option 2  Sub topic 3-8: Option 2  Sub topic 3-9: Option 2 |
| CATT | Sub topic 3-1: ACIR need to be discussed and find a converged value.(please CATT proposed value has been changed)  Sub topic 3-2: Prefer option 2.  Sub topic 3-3: Prefer option 3  Sub topic 3-4: Need more thinking.  Sub topic 3-5: Ok with option 2  Sub topic 3-6: Support option 1.  Sub topic 3-7: option 2  Sub topic 3-8: option 2  Sub topic 3-9: option 2 |
| CMCC | Sub topic 3-1: fine with the recommend WF.  Sub topic 3-2: option 2, we propose to take option 1 as the baseline for further discussion  Sub topic 3-3: option 3  Sub topic 3-4: we don’t have strong proposal, option 2 is preferred with further investigation and discussion. Considering we don’t have much time left before the deadline, option 1 is also OK.  Sub topic 3-5: option 2 with little format modification as following. For 6425-7125MHz, 12.75GHz is not a stop point anymore, we propose to delete the 12.75GHz point and then the highest frequency range changes to 1-26GHz.  Conducted:   |  |  |  | | --- | --- | --- | | **Spurious frequency range** | **Basic limit** | ***Measurement bandwidth*** | | 9 kHz – 150 kHz | -36 dBm | *1 kHz* | | 150 kHz – 30 MHz | *10 kHz* | | 30 MHz – 1 GHz | *100 kHz* | | 1 GHz – ~~12.75~~ 26 GHz | -30 dBm | *1 MHz* | | ~~12.75 GHz – 26 GHz~~ | *~~1 MHz~~* |     Sub topic 3-7: we don’t have strong proposal, option 2 is OK since we need further investigation  Sub topic 3-8: Option 2  Sub topic 3-9: Option 2 |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2015676 | *UE IMT technology related parameters* |
| Ericsson: to be reconsidered when UE parameters have been agreed  Qualcomm: Wait for the conclusion from above topics. |
| Company B |
| R4-2015677 | *BS remaining parameters* |
| Ericsson: to be reconsidered when BS parameters have been agreed |
| Company B |
| R4-2016133 | *BS spurious emission* |
| Ericsson: it would be good to elaborate on the rationale. |
| Company B |
| R4-2016369 | *Draft LS to ECC SE21 on Spurious emission limits for AAS BS in 6.425 – 7.125 GHz and 10-10.5 GHz* |
| Ericsson: ok |
| 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 #4: Relevant information for the sharing and compatibility studies

This topic is collecting any relevant information for the sharing and compatibility studies.

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2014978 | Ericsson | It is proposed to capture additional information from this contribution as a complement to the antenna array model and corresponding parameters to better describe typical base station spatial characteristics in the planned LS reply to ITU-R WP 5D. |
| R4-2015680 | Huawei | TP to TR 38.921 |

## Open issues summary

### Sub-topic 4-1

**Issue 4-1: Additional information to be captured in the LS Reply**

* Proposals: Include following information in the LS Reply to ITU-R:
  + - Steering Range
    - Coverage optimization
    - Adaptive beamforming
    - Array geometry
  + Option 1: Yes, all.
  + Option 2: Yes, partly. Mention which information should be added then.
  + Option 3: No
* Recommended WF
  + Select one of the 3 options, mentioning which information are relevant when selecting option 2.

### Sub-topic 4-2

Sub-topic description: Those TPs to TR 38.921 are new text proposals to capture UE and BS parameters.

**Issue 4-2: TPs to TR 38.921**

* Recommended WF

Provide any comment to the TPs to TR here after and/or mention if they are agreeable.

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 4-1:  Others: |
| Huawei | Issue 4-1: we support Option 1, all the information are relevant to sharing study to better understand the typical base station spatial characteristics. We think it also should be captured in the TR. |
| ZTE | Sub topic 4-1/2:  It’s nice to have such kind information to be shared with ITU, however this information is quite related with implementation which means ITU study cannot utilize that information without explicit recommendation |
| Ericsson | Sub topic 4-1: We support option 1, we need to work out some text to describe all possibilities. |
| Qualcomm | Sub topic 4-1&2: It seems the information depends on the implementation from vendors and it is not critical. Prefer not to submit that information to ITU. |
| CATT | Support option 1. But such information is seen only for information since it is quite implementation dependent. |
| CMCC | Sub topic 4-1: we support option1 to help ITU have a better understanding of the BS spatial characteristics |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2015680 | *on spatial emission and interference mitigation* |
| Ericsson: We have input to this too in R4-2014978. We need to capture some information in the TR. However, to declaration of emission going elsewhere is not really a mitigation method and we so need to put it in the TR. Instead we should capture what the model captures and who we build base stations. There are of cause a lot of beam shaping apporaches, array geometries to consider. We need to re-work the text proposal a bit and also include aspect from R4-2014978. |
| 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 #5: LS from ITU-R WP5D

This topic is related to the received LS from ITU-R WP5D

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2017799 | ITU-R WP5D | LS In |

## Open issues summary

### Sub-topic 5-1

Sub-topic description: ITU-R WP5D sent LS to RAN4 requesting RAN4 support to review and provid feedback on the revised Table 1.

**Issue 4-1: LS in from ITU-R WP5D**

* Proposals: Check the proposed update and identify any issue to be discussed below.
* Recommended WF
  + Bring any identified issue with the review of Table 1.

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 5-1:  Others: |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2017799 | Ericsson: Some preliminary comments to the proposed updated Table from WP5D:  - No 1) The duplex method is now given with reference only to M.1036. Since some bands in the 3GPP spec are note fully covered in that recommendation, we should add back the reference to the 3GPP spec, noting that the table refers to specification related parameters and should therefore reflect what is in the specifications.  - No 4.2) The references given are presently not given to the Category B levels in 6.6.4.2.2 for WA BS, only to Category A levels in 6.6.4.2.1.We should consider pointing this out, so that all types of limits are covered.  - No 4.4) The references given are presently not given to the Category B levels in Table 6.6.5.2.1-2, only to Category A levels in Table 6.6.5.2.1-2. We should consider pointing this out, so that all types of limits are covered.   - Reference [1] and [2]: We should propose to refer to the latest available version by January, which would be v16.6.0 at that time.  The LS should be further reviewed, in or der to prepare a consolidated response at the January meeting of RAN4. |
| 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”* |