**3GPP TSG-RAN WG4 Meeting # 101-e draft R4-2119938**

**Electronic Meeting, 01 – 12 November, 2021**

**Agenda item:** 10.8

**Source:** Moderator (Huawei)

**Title:** Email discussion summary for [101-e][138] LTE\_Upper\_700MHz

**Document for:** Information

# Introduction

This summary covers agenda items 10.8 for the LTE\_Upper\_700MHz work item.

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

* 1st round:
  + Aim for agreements on the General aspects.
  + Collect technical feedback on the co-existence requirements.
  + Collect comments and check if any of the initial TPs to TR are agreeable.
* 2nd round:
  + Conclude on the TR Skeleton
  + Conclude on the TP to TR
  + Conclude on the proposed WF on co-location and co-existence requirements

# Topic #1: General

General aspects are discussed in topic #1.

## Companies’ contributions summary

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| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2117054 | Puloli | 3GPP TR 36.779 V0.0.1 (2021-10): skeleton for Approval |
| R4-2119473 | Huawei | Proposal 3: it is proposed to update the TU allocation to account for the RAN4#101-bis-e meeting, by WID update at next RAN#94-e meeting. |
| R4-2119425 | Qualcomm Incorporated, Puloli | Proposal: Assign band number 100 for this band. |

## Open issues summary

### Sub-topic 1-1: TR skeleton

Based on the proposal in R4-2117054, handling of the TR 36.779 is to be discussed in sub-topic 1-1:

* Proposals
  + Option 1: Approve the 3GPP TR 36.779 skeleton (R4-2117054)
  + Option 2: Postpone approval of the skeleton till next RAN4 meeting
  + Option 3: Other
* Recommended WF
  + Aim for TR skeleton approval, subject to possible comments this meeting.

### Sub-topic 1-2: WI timeline

Based on the clarification proposal in R4-2119473, WI handling during the coming RAN4 meetings is to be discussed in sub-topic 1-2.

NOTE: WID revisions is RAN-level subject. Still, RAN4 may still clarify the understanding on the RAN4 meetings and calendar.

* Proposals
  + Option 1: RAN4 to confirm that LTE\_Upper\_700MHz WI to be handled also during the RAN4#101-bis-e meeting (as in R4-2119473).
  + Option 2: No action needed in RAN4. Leave it to RAN#94-e discussion.
* Recommended WF
  + Clarify if Option 1 is a common understanding in RAN4.

### Sub-topic 1-3: Band number

Based on proposal in R4-2119425, band number for the LTE\_Upper\_700MHz WI is to be discussed in sub-topic 1-3.

* Proposals
  + Option 1: Assign band number 100 for this band (R4-2119425).
  + Option 2: Rely on MCC to allocate the first available band number.
* Recommended WF
  + Consider Option 2 as baseline.

Moderator’s note: please note, that band number 100 was already considered for other WI during the previous RAN4 meeting.

## Companies views’ collection for 1st round

### Open issues

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| **Company** | **Comments** |
| Nokia | Sub topic 1-1 (TR skeleton): Not sure why TR cannot be agreed in this meeting?  Sub topic 1-2 (WI timeline): It is RAN discussion.  Sub topic 1-3 (band number): Band 100 and 101 are already reserved for RMR bands. We propose to use Band 102. |
| Huawei | Sub topic 1-1 (TR skeleton): follow the recommended WF. Ok to proceed with the TR skeleton, but there are some issues to clarify:  - section 4: is it direct copy-paste from the WID?  - There are MSR related sections included in the TR. MSR aspects were not captured in the WID, and it is not clear what would be the motivation and scope for the MSR work. Some clarification needed.  Sub topic 1-2 (WI timeline): Option 1. Even if this is RAN-level discussion, common understanding on RAN4 calendar shall be clarified in RAN4 – this impacts the time-pressure for the WI completion.  Sub topic 1-3 (band number): Option 2 as baseline. |
| Puloli | Sub topic 1-1 (TR skeleton):  - Option 1: Approve the 3GPP TR 36.779 skeleton (R4-2117054)  We agree with Moderator’s Recommended WF, i.e., “Aim for TR skeleton approval, subject to possible comments this meeting”.  Sub topic 1-2 (WI timeline):  - Option 1: RAN4 to confirm that LTE\_Upper\_700MHz WI to be handled also during the RAN4#101-bis-e meeting (as in R4-2119473).  We agree with Moderator’s Recommended WF  Sub topic 1-3 (band number):  - Option 2: - Rely on MCC to allocate the first available band number.  We agree with Nokia’s proposal of band number 102 and request approval from MCC per Moderator’s Recommended WF |
| Puloli | Clarifications to Huawei’s questions are as follows:  Sub topic 1-1 (TR skeleton): follow the recommended WF. Ok to proceed with the TR skeleton, but there are some issues to clarify:  - section 4: is it direct copy-paste from the WID?  [Puloli: Yes, it is almost a direct copy from the WID with some minor editorial changes.]  - There are MSR related sections included in the TR. MSR aspects were not captured in the WID, and it is not clear what would be the motivation and scope for the MSR work. Some clarification needed.  [Puloli: We followed the example in TR 36.761 (Band 85) in which the conclusion is that “There are no specific MSR issues for the Band 85”. Please also refer to R4-1802013.] |
| Ericsson | Sub-topic 1-1: option 1  Sub-topic 1-2: option 2, this shall be done at RAN level anyway, RAN4 can’t decide on TU allocation.  Sub-topic 1-3: n100 and n101 numbers are already considered in various other threads (RMR900 and 1900MHz bands, new EU 6 GHz band, …) |
| Huawei | Further comments:  - For MSR aspects: we prefer to first have technical discussion and then capture any required conclusions in the TR, if needed. Possibly, WID revision update may be considered by the proponents, with proper motivation.  - band number: ok with the above proposal (n102, or just rely on MCC) |
| Baicells | Sub topic 1-1 (TR skeleton):  - Option 1, aiming TR skeleton approval help to facilitate the future discussion and TP drafting in next meeting.  Sub topic 1-2 (WI timeline):  - We agree with Moderator’s recommended WF, that Option 1 (LTE\_Upper\_700MHz WI to be handled during the RAN4#101-bis-e meeting) is the common understanding, while officially it should be noted that the TU planning update should be given contained in rapporteur’s Status Report for RAN#94-e.  Sub topic 1-3 (band number):  - Band number of [n100] and [n101] are taken already by other discussion before WI LTE\_Upper\_700MHz and seems [102] is likely to be the one for MCC to assign. Option 2 can be the baseline but the group can consider to agree on a WF for the band number [102] for easier handling TP and CR drafting for future meeting and also used as suggestion to MCC. |

## Summary for 1st round

### Open issues

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|  | **Status summary** |
| **Sub-topic 1-1: TR skeleton** | Candidate options:  Aim for TR skeleton approval, subject to possible comments this meeting.  **Recommendations for 2nd round**:  Aim for TR skeleton approval. R4-2117054 to be revised to remove the MSR aspects, which are not covered by the WID, nor those were not technically discussed.  Sub-topic 1-1 to be closed. During the second round, focus on the R4-2117054 revision. |
| **Sub-topic 1-2: WI timeline** | Candidate options:  Option 1: RAN4 to confirm that LTE\_Upper\_700MHz WI to be handled also during the RAN4#101-bis-e meeting (as in R4-2119473).  Option 2: No action needed in RAN4. Leave it to RAN#94-e discussion.  **Recommendations for 2nd round:**  Common understanding was confirmed in RAN4, i.e. LTE\_Upper\_700MHz WI will be handled also during the RAN4#101-bis-e.  No further discussion needed in RAN4. Sub-topic 1-2 to be closed. Rapporteur expected to update the WID at next RAN#94-e meeting. |
| **Sub-topic 1-3: Band number** | Candidate options:  Rely on MCC to allocate the first available band number.  **Recommendations for 2nd round:**  Allocate the next available LTE band number [102] is proposed to be allocated for LTE\_Upper\_700MHz WI, subject to MCC confirmation.  No further discussion expected under sub-topic 1-3, except the MCC feedback on the band number. |

## Discussion on 2nd round

### CRs/TPs comments collection

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| **CR/TP number** | **Comments collection** |
| R4-2120024  (TR skeleton) |  |
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Moderator: No discussion as the above tdoc was not shared during the 2nd round.

# Topic #2: RF requirements

## Companies’ contributions summary

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| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2119425 | Qualcomm Incorporated, Puloli | Proposal: Do not specify any UE coexistence requirements in 3GPP for this band, but instead focus only on the FCC emission requirements as needed.  Proposal: Apply NS\_04 for this the new NB-IoT 700 MHz band. |
| R4-2119473 | Huawei | Proposal 1: based on the analysis of co-lo / co-ex requirements for the 700MHz NAM bands in EUTRA spec, initiate the work to specify related requirements also for the new 700MHz band.  Proposal 2: confirm that co-lo / co-ex requirements are applicable to Upper\_700\_MHz\_A\_LTE band, so that [] can be removed from the WID during next RAN meeting. |

## Open issues summary

### Sub-topic 2-1: UE co-existance requirements

Referring to the WID (RP-212618), the following objective was defined:

* *Study the need for any applicable co-location and/or co-existence requirements for the 700MHz NB-IoT band, considering regional regulations, and if needed specify the co-existence requirements.*

As per proposal in R4-2119425, UE co-existence requirements are discussed in sub-topic 2-1.

* Proposals
  + Option 1: Do not specify any UE coexistence requirements in 3GPP for this band, but instead focus only on the FCC emission requirements as needed. (R4-2119425)
  + Option 2: Further consider other alternatives from R4-2119425, i.e.
    - Specify UE coexistence emission requirements of -50 dBm/MHz for the UE both to protect the new NB-IoT band as well as to protect other E-UTRA bands.
    - Specify -57 dBm/200 kHz requirement (bandwidth scaling from -50 dBm/MHz) from other bands to protect NB-IoT, and -50 dBm/MHz from NB-IoT to protect other bands.
    - Study the appropriate protection level for NB-IoT by means of coexistence simulations. Not preferred and potential impact to existing UE’s
  + Option 3: Other
* Recommended WF
  + Continue the discussion.

Moderator’s note: Conclusions on the co-existence requirements for both UE (sub-topic 2-1) and BS (sub-topic 2-2) are expected to be aligned.

### Sub-topic 2-2: Additional spurious emissions: NS signalling

As per proposal in R4-2119425, NS signalling aspects are discussed in sub-topic 2-1.

* Proposals
  + Option 1: Apply NS\_04 for this the new NB-IoT 700 MHz band (R4-2119425).
  + Option 2: Other
* Recommended WF
  + Continue the discussion.

### Sub-topic 2-3: BS co-existance requirements

Referring to the WID (RP-212618), the following objective was defined:

* *Study the need for any applicable co-location and/or co-existence requirements for the 700MHz NB-IoT band, considering regional regulations, and if needed specify the co-existence requirements.*

As per proposals 1 and 2 in R4-2119473, BS coexistence requirements are discussed in sub-topic 2-2.

* Proposals
  + Option 1: initiate the work to specify BS co-existence requirements for Upper\_700\_MHz\_A\_LTE WI (R4-2119473).
  + Option 2: Other
* Recommended WF
  + Continue the discussion.

Moderator’s note: Conclusions on the co-existence requirements for both UE (sub-topic 2-1) and BS (sub-topic 2-2) are expected to be aligned.

### Sub-topic 2-4: BS co-location requirements

Referring to the WID (RP-212618), the following objective was defined:

* *Study the need for any applicable co-location and/or co-existence requirements for the 700MHz NB-IoT band, considering regional regulations, and if needed specify the co-existence requirements.*

As per proposals 1 and 2 in R4-2119473, BS co-location requirements are discussed in sub-topic 2-3.

* Proposals
  + Option 1: initiate the work to specify BS co-location requirements for Upper\_700\_MHz\_A\_LTE WI (R4-2119473).
  + Option 2: Other
* Recommended WF
  + Continue the discussion.

## Companies views’ collection for 1st round

### Open issues

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| **Company** | **Comments** |
| Nokia | Sub topic 2-1 (UE co- existence): With respect to co-existence requirements and exceptions, we would assume the same process as for other bands.  Sub topic 2-2 (NS signaling):  Sub topic 2-3 (BS co-existence): See sub topic 2-1  Sub topic 2-4 (BS co-location): See sub topic 2-1 |
| Huawei | Sub topic 2-1 (UE co-existence): Option 2 as baseline. In general, co-ex requirements are to reflect the applicable regulatory limits. The existing 700MHz bands for NAM are considered as the starting point for analysis. For the other proposals:  - Co-ex simulations not preferred due to short timeline of this WID.  - Emissions limit scaling to -57dBm/MHz: it seems that such scaling was not applied to bands like 12, 13,14 etc. More time to check.  In case we adopt different than the usual approach for the new band, shall we also adopt it for other 700MHz NAM bands?  Sub topic 2-2 (NS signaling): checking internally; more time needed for analyses. Prefer to continue discussion in 2nd round.  Sub topic 2-3 (BS co-existence): Option 1 is business as usual: this requirement is to reflect regulatory limits. However, if approach different than for co-ex in bands 12,13,14 etc is to be applied, we need to clarify whether the existing 700MHz NAM limits are correct in the EUTRA spec.  Sub topic 2-4 (BS co-location): Option 1 was the default for many different bands. Still, co-location requirements are RAN4-driven, so we are ok to have more discussion on the alternative approaches. |
| Puloli | Sub topic 2-1 (UE co- existence):  - Option 1: Do not specify any UE coexistence requirements in 3GPP for this band, but instead focus only on the FCC emission requirements as needed. (R4-2119425)  Sub topic 2-2 (NBS signalling):  - Option 1: Apply NS\_04 for this the new NB-IoT 700 MHz band (R4-2119425).  This the approach adopted by RAN4 to meet the FCC emission requirements at the band edges for US bands.  Question to Huawei’s comment of:  “- Emissions limit scaling to -57dBm/MHz: it seems that such scaling was not applied to bands like 12, 13,14 etc. More time to check.”  Is “-57dBm/MHz” a typo of “-57dBm/200kHz”? |
| Ericsson | Sub-topic 2-1: Agree with Nokia, coexistence with other bands shall be studied as we usually did for any other bands. The time pressure to finalize this WI can’t be an argument to skip some steps, it’s key to make sure all bands could coexist properly.  Sub-topic 2-2: option 1 seems ok.  Sub-topic 2-3: same comment as for sub-topic 2-1.  Sub-topic 2-4: same comment as for sub-topic 2-1. |
| Huawei | Additional comments:  NS signaling: we would like to double-check this with UE experts during the 2nd round before we conclude.  @Puloli: -57dBm/200kHz scaling: indeed, that was typo. |
| Baicells | Sub topic 2-1 (UE co- existence):  - Option 1: generally speaking, we agree with the analysis in R4-2119473, especially considering the UE for this new upper 700MHz A block is expected to be NB-IoT dedicated usage (and without the possibility for E-UTRA usage), and the way of applying existing -50 dBm/MHz for UE coexistence requirement is no long justified for this NB-IoT narrowband operation’s emission.  Sub topic 2-2 (NS signaling):  - Option 1: to use NS\_04 is reasonable proposal for the similar situation of using the upper 700MHz block A as other US NB-IoT cases.  Sub topic 2-3 (BS co-existence):  - Different from Moderator’s suggestion, the handling of co-existence requirement for both UE (sub topic 2-1) and BS (sub topic 2-3) are not necessarily aligned. We would like to know more about the justification of this aligned handling. From our understanding, the E-UTRA band’s additional spurious emissions requirements (clause 6.6.4.3) should consider the co-existence with the new NB-IoT band.  Sub topic 2-4 (BS co-location):  - Option 1. Agree with option 1 for at least the co-location with other base stations in clause 6.6.4.4. should consider the protection to this new NB-IoT band. |
| Sequans | Sub topic 2-1 (UE co- existence): Agree with Qualcomm and Puloli, coexistence study is not necessary with the FCC emission requirements in place.  Sub topic 2-2 (NBS signalling): option 1 is OK |
| AT&T | Sub-topic 2-1: We also agree with Nokia. At a minimum, RAN4 needs to do the proper study based on this operating scenario. It may be possible that different co-existence requirements need to be defined for this NB-IoT case based on some of the comments from QC. RAN4 can further explore options for addressing impacts due to adding additional co-existence requirements to existing bands (perhaps, make the additional requirements apply only from the release introduced). Even though the use case is NB-IoT dedicated usage, there may be future implementations that allow for backup communication over other operating bands and there is still the possibility of co-existence with nearby UEs.  Sub-topic 2-2: option 1.  Sub-topic 2-3: Same comment as for sub-topic 2-1. In the case of BS, there is definitely co-location possibilities even if the use case for this band is NB-IoT dedicated usage.  Sub-topic 2-4: Same comment as for sub-topic 2-1. In the case of BS, there is definitely co-location possibilities even if the use case for this band is NB-IoT dedicated usage |

## Summary for 1st round

### Open issues

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|  | **Status summary** |
| **Sub-topic 2-1: UE co-existence requirements** | Candidate options:  - Option 1: Do not specify any UE coexistence requirements in 3GPP for this band, but instead focus only on the FCC emission requirements as needed. (R4-2119425)  - Option 2: Further consider other alternatives from R4-2119425.  **Recommendations for 2nd round:**  Different views were expressed during the discussion when it comes to the UE co-existence requirements, i.e. it was not agreeable not to specify such requirements, while the applicable limits require more technical discussion. Therefore the following is proposed:  For next meeting bring more technical analysis for the UE co-existence requirements, considering FCC regulations, as well as existing UE co-ex limits applicable for 700MHz bands in Region 2. Sub-topic 2-1 to be closed. |
| **Sub-topic 2-2: Additional spurious emissions: NS signaling** | Candidate options:  Option 1: Apply NS\_04 for this the new NB-IoT 700 MHz band.  **Recommendations for 2nd round:**  Option 1 is agreed, i.e. apply NS\_04 for NB-IoT 700 MHz band.  Sub-topic 2-2 to be closed. |
| **Sub-topic 2-3: BS co-existence requirements** | Candidate options:  Option 1: initiate the work to specify BS co-existence requirements for Upper\_700\_MHz\_A\_LTE WI.  **Recommendations for 2nd round:**  Option 1 is agreeable following the usual RAN4 procedures for new band introduction. Bring more technical analysis next meetings to define BS co-existence requirements for Upper\_700\_MHz\_A\_LTE WI. Sub-topic 2-3 to be closed. |
| **Sub-topic 2-4: BS co-location requirements** | Candidate options:  Option 1: initiate the work to specify BS co-location requirements for Upper\_700\_MHz\_A\_LTE WI.  **Recommendations for 2nd round:**  Option 1 is agreeable following the usual RAN4 procedures for new band introduction. Bring more technical analysis next meetings to define BS co-location requirements for Upper\_700\_MHz\_A\_LTE WI. Sub-topic 2-4 to be closed. |

## Summary for 2nd round

After the first round deadline, WF documents was requested. Below comments from companies are captured:

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| **Company** | **Comments** |
| Puloli | We would like to bring to your attention the Sub-topic 2-1, 2-3, and 2-4.  Recommendation from 1st round is to close these sub-topics.  As you know, the approved WID (RP-212618) calls for this WI to be completed by RAN#95-e (March 17, 2022).  That allows for only two more R4 meetings:  RAN4#101-bis-e (January 17, 2022)  RAN4#102-e (February 22, 2022)  Given that the schedule is so tight, in order to meet the March 2022 timeline, Puloli and Qualcomm are preparing a WF to help reach a resolution to Sub-topics 2-1, 2-3, and 2-4 in the current R4 meeting.  Therefore, we request you to kindly allow for further discussion on Sub-topics 2-1, 2-3, and 2-4 during Round 2. |
| Huawei | BS:  o   technically, this is in-line with our proposals.  o   We would like to have more time to verify the Notes for co-ex (where the bands are exempted from the requirement)  o   Band number 103 may be already used  o   36.104, as well as conformance spec 36.141 to be considered.  UE: proposal sounds as good starting point. We will provide more analyses for next meeting. |

# Topic #3: TPs to TR 36.779

A series of TPs to the TR were submitted to this meeting. In topic#3 technical content as well as the formal handling of those TPs is to be discussed.

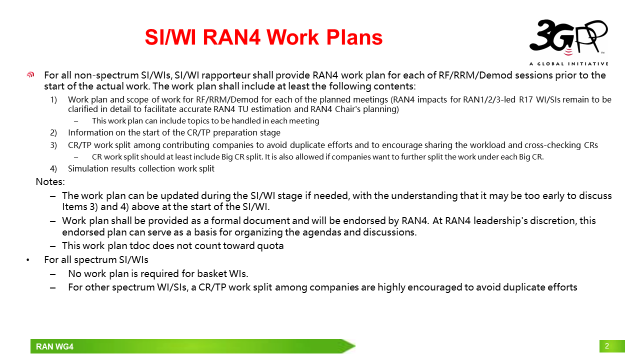
## Companies’ contributions summary

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| **T-doc number** | **Company** | **Proposals / Observations** |
| [R4-2117058](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117058.zip) | Puloli | TP of channel numbering to TR 36.779 |
| [R4-2117059](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117059.zip) | Puloli | TP of frequency band arrangement to TR 36.779 |
| [R4-2117060](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117060.zip) | Puloli | TP of FCC regulatory requirements to TR 36.779 |
| [R4-2117061](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117061.zip) | Puloli | TP of adjacent 3GPP bands to TR 36.779 |
| [R4-2117062](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117062.zip) | Puloli | TP of nearby non-3GPP services to TR 36.779 |
| [R4-2117063](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117063.zip) | Puloli | TP of list of band specific issues to TR 36.779 |

## Open issues summary

### Sub-topic 3-1: TP’s handling

As per RAN4 meeting arrangements and guidance in R4-2117001 and R4-2114691, TP shall follow the technical discussion and conclusion. Submission of TPs during the first meeting of the WI is not the usual procedure.



Still, for sake of progress, the following Moderator’s proposal is formulated based on multiple TPs submitted to this meeting:

* Moderator’s Proposals:
  + First round: collect technical comments to the TPs content, and check if the TPs may be aggregable.
  + Second round: aim for Approval of non-controversial TPs.
* Recommended WF
  + Consider the proposal as the baseline. Objecting companies shall express their concerns explicitly.

## Companies views’ collection for 1st round

### 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.*

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| **CR/TP number** | **Comments collection** |
| R4-2117058 | Moderator: related to Sub-topic 1-3 on Band number. |
| Huawei: clarify the MSR aspects for section 9. If agreeable, aim for a single TP to TR for simplicity. |
| Puloli: We followed the example of TR 36.761 in which MSR is a separated section. |
| Ericsson: As already commented, band number might not be correct. |
| Baicells: suggest to use [102] for the band number, but some RAN4 level agreement for this proposal will be helpful before MCC confirmation. By the way, it should be the noted that the proposed channel number for EARFCN can be kept since the current [n100] and [n101] in agenda 7.3 and 7.4 are for NR usage only. |
| R4-2117059 | Moderator: related to Sub-topic 1-3 on Band number. |
| Huawei: entries in table 5-2 missing. Update, or remove. Prefer to aim for TP to section 5 with more details on the applicable regulatory aspects, including emission levels, etc. |
| Puloli: The reason why the entry of band [LTE\_Upper\_700MHz] is missing from Table 5-2 is that none of the standardized LTE band widths is applicable to this band. The total bandwidth is 1+1 MHz for the band. It is an NB-IoT only band; which is different from any existing LTE band. |
| Ericsson: As already commented, band number might not be correct. And please use track changes, that’s common RAN4 practice. |
| Baicells: Generally agree with the proposal here, but there are some detailed comments:  - Note-1 shall be added in Table 5-1  - E-UTRA channel bandwidth table is not necessarily needed, because the part (corresponding to TS36.101 clause 5.6 or similar clause in other specs) is only related to E-UTRA operation, while this new band is not intended for E-UTRA so no need to change clause 5.6. Instead, NB-IoT operation is given in clause 5.6F instead. |
| R4-2117060 | Huawei: is the referred ERP limit of 1000W really meaningful here?  What is the motivation to list emission limits for band 1559-1610MHz? |
| Puloli: The purpose of this TP is to introduce all applicable FCC regulatory requirements to this band.   1. Huawei: is the referred ERP limit of 1000W really meaningful here?   This is the limit specified by the FCC. In our BS TX section, we will specify a typical BS TX power of 43 dBm; which is well below the FCC limits.   1. What is the motivation to list emission limits for band 1559-1610MHz?   The emission limits for band 1559-1610MHz is specified by the FCC and the purpose is to protect Global Navigation Satellite System (GNSS), e.g., GPS, service. Just like band 13 and 14, the second harmonics of this band falls into the GNSS band. Hence the requirements are specified by the FCC. |
| Ericsson: Please use track changes, that’s common RAN4 practice. Referenced document ([1]?) are missing.  Also, all those information might not be needed, most of them (if not all) are already covered by existing requirements, it would be better to focus on specific limits for this frequency range only. |
| R4-2117061 | Huawei: suggest to extend it with the related co-ex limits already captured in the spec (UE and BS). |
| Ericsson: Please use track changes, that’s common RAN4 practice. |
| R4-2117062 | Moderator: Proper reference to the source information missing.  Huawei: prefer to check the reference beforehand; to clarify what are the referred figure 1 and 2. |
| Puloli: The references to the Figure 1 and 2 are in the TR Skeleton (R4-2117058). |
| Ericsson: Please use track changes, that’s common RAN4 practice.  We also thought the referenced figures (figure 1 and figure 2?) were also missing…thanks for the clarification.  Actually, the figures’ caption in the skeleton doesn’t follow the drafting rules, they should have been prefixed with figure 4.1-1, 4.1-2, .. |
| R4-2117063 | Huawei: this requires more technical analysis. What is the purpose to include such list into TR without motivation/understanding what is meant by those bullets? It should be rather called “list of open issues” as none of those was actually concluded. |
| Puloli: We followed the example of TR 36.761. Please refer to the corresponding section in TR 36.761 |
| Ericsson: Please use track changes, that’s common RAN4 practice.  This looks like a generic description of common topics to be investigated when introducing a new band, this is not needed in this TR. It’s better to focus on identified impacts and new limits justification. It’s true there is such list in TR 36.761, but I don’t think this is bringing much information. |

## Summary for 1st round

### CRs/TPs

It is not a usual practice to aim for TPs during the first meeting of the WI (please refer to the RAN4 meeting arrangement, as well as to Chair guidance). Nevertheless, no strong objection was received to proceed with the TPs content. Therefore, it is suggested to focus on the agreeable content of the TPs during the second round.

To reduce the workload for companies, it is suggested to aim for a single TP new TP, with the initial submissions being Noted. Sourcing company is asked to apply all the comments received during the first round.

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| **CR/TP number** | **CRs/TPs Status update recommendation** |
| R4-2117058 | To be Noted |
| R4-2117059 | To be Noted |
| R4-2117060 | To be Noted |
| R4-2117061 | To be Noted |
| R4-2117062 | To be Noted |
| R4-2117063 | To be Noted |

## Discussion on 2nd round

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2120023  “TP to TR 36.779 on general and regulatory aspects” |  |
|  |
|  |

Moderator: No discussion as the above tdoc was not shared during the 2nd round.

# Recommendations for Tdocs

## 1st round

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Comments** |
| TP to TR 36.779 on general and regulatory aspects | Puloli | One TP to collect agreeable aspects from TPs in [R4-2117058](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117058.zip) – 63. |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
| R4-2117054 | TR Skeleton for TR 36.8xx "Introduction of upper 700MHz A block E-UTRA band for the US" | Puloli | Revised |  |
| R4-2119473 | Initial discussion on the BS RF requirements | Huawei | Noted |  |
| R4-2119425 | UE coexistence and emission requirements for 700 MHz NB-IoT | Qualcomm Incorporated, Puloli | Noted |  |
| [R4-2117058](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117058.zip) | TP of channel numbering to TR 36.779 | Puloli | Noted |  |
| [R4-2117059](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117059.zip) | TP of frequency band arrangement to TR 36.779 | Puloli | Noted |  |
| [R4-2117060](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117060.zip) | TP of FCC regulatory requirements to TR 36.779 | Puloli | Noted |  |
| [R4-2117061](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117061.zip) | TP of adjacent 3GPP bands to TR 36.779 | Puloli | Noted |  |
| [R4-2117062](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117062.zip) | TP of nearby non-3GPP services to TR 36.779 | Puloli | Noted |  |
| [R4-2117063](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117063.zip) | TP of list of band specific issues to TR 36.779 | Puloli | Noted |  |

## 2nd round

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
| R4-2120024 | TR Skeleton for TR 36.8xx "Introduction of upper 700MHz A block E-UTRA band for the US" | Puloli | To be Withdrawn  (unless Chair would exceptionally agree to shift them to the e-mail approval process) | Moderator: Tdoc not shared nor uploaded during the 2nd round |
| R4-2120023 | TP to TR 36.779 on general and regulatory aspects | Puloli | To be Withdrawn  (unless Chair would exceptionally agree to shift them to the e-mail approval process) | Moderator: Tdoc not shared nor uploaded during the 2nd round |
| R4- 2120051 | WF for coexistence and colocation requirements for Upper\_700\_MHz\_A\_LTE band | Qualcomm Incorporated, Puloli | To be Noted | Moderator:  WF requested after the first round deadline.  WF shared after the deadline (2nd round initial drafts & revisions (deadline for new tdoc# request) Tue, 17:00 UTC). |

In order to improve progress on this tightly scheduled WI, the following is suggested by the Moderator:

* The goal is to conclude the co-existence/co-location requirements discussion during the January RAN4 meeting;
* The proposed WF content in R4- 2120051 is to be used as baseline for January RAN4 meeting with the proposed co-location and co-existence requirements being considered as default ones, subject to further technical discussion at January 2022 RAN4 meeting.

Please note, that after the 2nd round discussion deadline, one company has requested to approve the WF document (based on draft R4- 2120051). It is left to Chair to take the decision on the above request. Comments provided by one company were not included into the updated/final version of the WF.

# Annex

Contact information

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| --- | --- | --- |
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