**3GPP TSG-RAN WG4 Meeting # 102-e R4-2206430**

**Electronic Meeting, 21st Feb. – 03rd March, 2022**

**Agenda item:** 10.15.1, 10.15.2

**Source:** Moderator (LG Electronics)

**Title:** Email discussion summary for [102-e][130] NRSL\_enh\_Part1

**Document for:** Information

# Introduction

In this paper, RAN4 treats the SL\_enh\_part1 in Rel-17 for operating bands, system parameters, and UE transmitter/Receiver requirements for SL enhancement including advanced 5G V2X, Public safety usage and other commercial use cases with PC5 operation.

The provided technical docs list of email discussion are shown in the existing Tdocs in recommenations for Tdocs Part.

Candidate target of email discussion for 1st round is listed as follows.

* 1st round: Discuss NR SL enhancement UE RF requirements to support PS service and other SL operation.
	+ Topic #1: SL enhancement UE RF requirements
	+ Sub-Topic #1-1: TxD RF requirements
		- Sub-Topic #1-1-1: Frequency error for TxD
		- Sub-Topic #1-1-2: Revision of MPR for PC2 TxD in TS38.101-1
	+ Sub-Topic #1-2: n14 PS UE RF requirements
		- Sub-Topic #1-2-1: 5MHz CBW FRC Tables for PS UE in Annex 7
		- Sub-Topic #1-2-2: Merged big CR for Part1
	+ Sub-Topic #1-3: Other RF requirements
		- Sub-Topic #1-3-1: Updated TR 38.785 v1.0.0
	+ Sub-Topic #1-4: Configured Tx power for SL in Rel-16 (Maintenance issue)
		- Sub-Topic #1-4-1: PEMAX,c IE parameters (*sl-maxTxPower, sl-MaxTransPower, SL-TxPower*)
		- Sub-Topic #1-4-2: Serving cell associated issues in licensed band
* 2nd round: RAN4 further discuss on these papers

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| --- | --- | --- | --- | --- |
| Tdoc number | Title | Company | Recommendation | Note |
| R4-2204152 | TR38.785 v1.0.0 TR Update for SL enhancement in Rel-17 | LG Electronics France | Return to | To capture all approved TPs in 2nd round |
| Rev. of [**R4-2204154**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204154.zip) | Draft CR on FRC for 5MHz CBW for SL enhancement for public safety service in n14 | LG Electronics France | Revised to R4-2206522 | It was already uploaded in Revision of R4-2204154.docx |
| Rev. of [**R4-2204156**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204156.zip) | Draft big CR to merge the endorsed CRs for SL enhancement PS UE in Part1 | LG Electronics France | Revised to R4-2206523 | It was already uploaded in Revision of R4-2204156.docx |
| R4-2204157 | Formal big CR to introduce SL enhancements UE RF requirements in Rel-17 | LG Electronics France | Return to | It will be treated as e-mail approval post e-meeting |
| Rev. of [**R4-2205583**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205583.zip) | draft CR for TS 38.101-1: introduction of PC2 TxD for SL | Huawei, HiSilicon | Revised to R4-2206524 |  |
| R4-2204929 | Draft CR for TS 38.101-1, Correction on configured transmitted power for SL (Rel-16) | vivo | Return to | Reply LS from RAN1 was received during the meeting |
|  |  |  |  |  |

# Topic #1: SL enhancements UE RF requirements

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-1104017 | Qualcomm | **Frequency error merasurement period for NR SL MIMO and NR V2X TxD UE**Observation 1: The frequency error observation period for NR SL MIMO and NR V2X TxD is 0.5 ms Observation 2: The frequency error observation period for NR Uu UL MIMO and NR Uu TxD is 1.0ms **Proposal 1: The frequency error observation period for NR SL MIMO and NR V2X TxD should be revised to 1.0 ms to align with the Uu specifications** |
| [R4-2204154](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117402.zip) | LG Electronics | **Draft CR for TS 38.101-1, Include FRC Tables for 5MHz CBW for PS UE in Annex 7*** **See the detail proposals in R4-2204154**
 |
| R4-2204156 | LG Electronics | **Draft Big CR TS38.101-1: Merged the endorsed CRs for SL enhancements for PS UE in Part1**Endorsed Draft CRs* Add contents from R4-2202408 and R4-2204154
 |
| R4-2204157 | LG Electronics | **Big CR: CR to introduce SL enhancements UE RF requirements in Rel-17**Formal big CR to merge these endorsed big CRs in NRSL\_enh Part1/2/3. It will be reserved to capture the all draft CRs in TS38.101-1. |
| [R4-2](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2119536.zip)205583 | Huawei | **Draft CR for TS 38.101-1, update MOP and MPR requirements of PC2 TxD for SL UE**Table 6.2E.1.1-1: NR V2X UE Power Class for SL-MIMO

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NR band | Class 1 (dBm) | Tolerance (dB) | Class 2 (dBm) | Tolerance (dB) | Class 3 (dBm) | Tolerance (dB) | Class 4 (dBm) | Tolerance (dB) |
| n38 |  |  |  |  | 23 | +2/-3 |  |  |
| n47 |  |  | 26 | +2/-2 | 23 | +2/-3 |  |  |

Table 6.2E.2.2-2: Maximum Power Reduction (MPR) for power class 2 V2X (Contiguous PSCCH and PSSCH transmission)

|  |  |
| --- | --- |
| **Modulation** | **Channel bandwidth/MPR (dB)** |
| **Outer RB allocations** | **Inner RB allocations** |
| CP-OFDM  | QPSK | ≤ 5.5 | ≤ 2.5 |
| 16QAM |
| 64 QAM | ≤ 6.0 | ≤ 4.5 |
| 256 QAM | ≤ 7.0 |

Reuse MPR for PSFCH transmission of PC3 V2X TxD UE for PC2 V2X TxD UE.Reuse MPR for S-SSB transmission of PC3 V2X TxD UE for PC2 V2X TxD UE. |
| R4-2204929 | vivo | **Draft CR for TS38.101-1 in Rel-16: Update configured Tx power in clause 6.2E.4 in TS38.101-1**- PCMAX,f,*c* is configured for PSSCH\PSCCH and PSFCH, respectively;- For the total transmitted power PCMAX,PSSCH/PSCCH/PSFCH , PEMAX,c is the value given by IE *sl-MaxTransPower*, defined by TS 38.331.- For the total transmitted power PCMAX,S-SSB , PEMAX,c is not defined by TS 38.331. Thus, PCMAX\_L,f, *c* is still applicable for the lower bound of PCMAX,S-SSB; for the upper bound of PCMAX,S-SSB, it should be MIN {PPowerClass, PRegulatory}. |
| R4-2204152 | LG Electronics | TR38.785 v1.0.0 TR Update for SL enhancement in Rel-17It will be reserved to capture the all approved TPS and WF in this meeting |

## Open issues summary

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

Based on provided contributions, RAN4 discusses the detailed NR UE RF Tx/Rx requirements for SL enhancement service.

* + Topic #1: SL enhancement UE RF requirements
	+ Sub-Topic #1-1: TxD RF requirements
		- Sub-Topic #1-1-1: Frequency error for TxD
		- Sub-Topic #1-1-2: Revision of MPR for PC2 TxD in TS38.101-1
	+ Sub-Topic #1-2: n14 PS UE RF requirements
		- Sub-Topic #1-2-1: 5MHz CBW FRC Tables for PS UE in Annex 7
		- Sub-Topic #1-2-2: Merged big CR for Part1
	+ Sub-Topic #1-3: Other RF requirements
		- Sub-Topic #1-3-1: Updated TR 38.785 v1.0.0
	+ Sub-Topic #1-4: Configured Tx power for SL in Rel-16 (Maintenance issue)
		- Sub-Topic #1-4-1: PEMAX,c IE parameters (*sl-maxTxPower, sl-MaxTransPower, SL-TxPower*)
		- Sub-Topic #1-4-2: Serving cell associated issues in licensed band

### Sub-topic #1-1

*Sub-topic description:* **TxD RF requirements**

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

**Issue 1-1-1: Frequency error for TxD**

* Proposals
	+ Option 1: The frequency error observation period for NR SL MIMO and NR V2X TxD should be revised to 1.0 ms to align with the Uu specifications.
	+ Option 2: Keep the current 0.5ms for NR SL MIMO and V2X TxD UE.
* Recommended WF
	+ Option 1 is acceptable

**Issue 1-1-2: Revision of MPR for PC2 TxD in TS38.101-1**

* Proposals
	+ Option 1: Based on Huawei CR (R4-2205583), RAN4 can update the MOP and MPR requirements for PC3/PC2 V2X TxD UE.
	+ Option 2: In Table 6.2E.1.1-1, the PC2 tolerance should be aligned with NR UL-MIMO UE with +2/-3dB.
	+ Option 3: Need further clarification for the proposed contents in Huawei CR (R4-2205583)
* Recommended WF
	+ TBD

### Sub-topic #1-2

*Sub-topic description:* **n14 PS UE RF requirements**

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

**Issue 1-2-1: 5MHz CBW FRC Tables for PS UE in Annex 7**

* Proposals
	+ Option 1: Based on LGE CR (R4-2204154), RAN4 can update the FRC tables for 5MHz CBW for PS UE.
	+ Option 2: Need time to further check the FRC Tables.
* Recommended WF
	+ TBD.

**Issue 1-2-2: Merged big Draft CR for NRSL\_enh\_Part1**

* Proposals
	+ Option 1: Based on LGE CR (R4-2204156), RAN4 can complete SL enh. UE RF requirements for PS UE and other commercial usage with SL operation.
	+ Option 2: Need time to further check the contents.
* Recommended WF
	+ TBD.

### Sub-topic #1-3

*Sub-topic description:* **Other RF requirements**

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

**Issue 1-3-1: Updated TR 38.785 v1.0.0**

* Proposals
	+ Option 1: Updated TR will be treated in 2nd round to capture the approved TPs and complete the NRSL\_enh WI in Rel-17.
* Recommended WF
	+ Option 1 is acceptable

### Sub-topic #1-4

*Sub-topic description:* **Configured Tx power for SL in Rel-16 (Maintenance issue)**

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

**Issue 1-4-1: PEMAX,c IE parameters (*sl-maxTxPower, sl-MaxTransPower, SL-TxPower*)**

* Proposals
	+ Option 1: Based on vivo CR (R4-2204929), RAN4 can update the PEMAX,c is updated to use the IE *‘sl-MaxTransPower’* instead of the IE *‘slmaxTxPower’*.
	+ Option 2: Need to wait the formal reply LS from RAN1/RAN2.
* Recommended WF
	+ TBD

**Issue 1-4-2: Serving cell associated issues in licensed band**

**The following options are provided in the sent LS (R4-2120047)**

* Proposals
	+ Option 1: The parameter can be associated either with a serving cell or without a serving cell, and it can be configured separately with p-max for Uu.
	+ Option 2: The parameter can be associated either with a serving cell or without a serving cell, when the parameter is associated with a serving cell, PEMAX,c is the smaller value given by this parameter for SL and p-max for Uu of that serving cell.
	+ Option 3: When UE is associated with a serving cell on the NR V2X carrier, p-max is used for serving cell c; when the UE is not associated with a serving cell on the NR V2X carrier, the parameter given for SL in RAN2 specification is used.
* Recommended WF
	+ TBD

## 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.*

Sub topic 1-1: **TxD RF requirements**

**Issue 1-1-1: Frequency error for TxD**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| CATT | OK with the recommended WF. |
| Huawei | OK to align the observation period with Uu. |
| Qualcomm | Option 1. OK with the recommended WF |
| LGE | Option 1 |
| Xiaomi | OK with option 1. |
| OPPO | Option 1 |

**Issue 1-1-2: Revision of MPR for PC2 TxD in TS38.101-1**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| CATT | Support this CR but the tolerance for PC2 should be aligned with NR UL-MIMO UE with +2/-3dB as presented in option 2. |
| Huawei | Ok to have the tolerance with +2/-3dB, the values are cited from the TR, if +2/-3dB is agreeable, the TR should also be updated.  |
| Qualcomm | The PC2 MPRs for PSFCH agreed in WF R4-2107873 and the the values proposed for PC2 in WF R4-220583 seem to be different. Also it seems that in 38.101-1 that UL MIMO is only defined for PC3. Furthermore, PC2 Uu TxD has different MPR tables for 2 Tx and 1 Tx. From reading this document it is not clear if the 1TX V2X PC3 and PC2 MPR tables are being proposed for both PC3 and PC2 SL-MIMO and TxD. We think that if we follow the Uu guidelines we need separate 2TX MPR tables for V2X PC2 TxD and a separate MPR table for PC2 SL MIMO. |
| LGE | Option 2 and option 3. For the separate MPR table for 2Tx and 1Tx V2X UE, RAN4 need to make common understanding for the RF architecture for TxD V2X UE. In our view, the 23+23 dBm 2Tx MPR is baseline to determine the PC2 TxD V2X UE. |
|  |  |

Sub topic 1-2: **n14 PS UE RF requirements**

**Issue 1-2-1: 5MHz CBW FRC Tables for PS UE in Annex 7**

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| --- | --- |
| **Company** | **Comments** |
| CATT | Option 1. |
| Qualcomm | The values for all modulations for SCS=30kHz, CBW=5MHz should be removed as this CBW does not support SCS=30kHz |
| LGE | Support option 1.To QC, the 5MHz CBW for SCS =30kHz in NR Uu shall supported in Table 5.3.2-1 in TS38.101-1 as follow To LGE: Our comment is based on the fact that a CBW of 30kHz does not support SCS of 30kHz. In R4-2204154 it is stated in note 3 that CBW=5MHz is for n14However, 38.101-1 table 5.3.5-3 gives the following:As can be seen in the above table a CBW=5MHz does not support 30k SCS. Furthermore, it seems that this is the case for most bands not only n14. What does mean not support the 5MHz CBW for SCS=30kHz ? |
| AT&T | We support the comment made by Qualcomm based on the UE channel BW per operating band identified in Table 5.3.5-1 in TS 38.101 which does not show 30kHz SCS for 5MHz CBW for all operating bands. Otherwise, we are OK with draft CR in R4-2204154. |
|  |  |

**Issue 1-2-2: Merged big Draft CR for NRSL\_enh\_Part1**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Qualcomm | In R4-2204156 the values for all modulations for SCS=30kHz, CBW=5MHz should be removed as this CBW does not support SCS=30kHzTo LGE : please see our comment for issue 1-2-1 |
| LGE | We need to QC view the clarification question in issue 1-2-1. |
| AT&T | We support Option 1 with a revision to LGE big CR in R4-2204156 to address the comment made for Issue 1-2-1 in order for RAN4 to complete SL enh. UE RF requirements for PS UE. |
| FirstNet | We support Option 1 as well with a revision to complete SL enh. UE RF requirements for PS UE. |
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|  |  |

Sub topic 1-3: **Other RF requirements**

**Issue 1-3-1: Updated TR 38.785 v1.0.0**

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| --- | --- |
| **Company** | **Comments** |
| LGE | OK with option 1 |
| AT&T | We support Option 1. |
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Sub topic 1-4: **Configured Tx power for SL in Rel-16**

**Issue 1-4-1: PEMAX,c IE parameters (*sl-maxTxPower, sl-MaxTransPower, SL-TxPower*)**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| CATT | Prefer option 2 although we also think option 1 is technically correct. This issue should be discussed based on RAN1/RAN2 reply LS. As far as I know, both RAN1 and RAN2 are going to handle this issue in this meeting. |
| LGE | We are fine with option1 and also acceptable with option2 to wait the reply LS from RAN1/2 WG. Based on the feedback, RAN4 can revise the configured Tx power in TS38.101-1 for maintenance in Rel-16/17. |
| Huawei | Draft CR by vivo is ok for us. |
| Qualcomm | Prefer option 2. Though we think that option 1 is correct we believe that we should wait for the RAN1/RAN2 response to the LS that was sent. |
| Xiaomi | Currently both RAN1 and RAN2 is drafting the reply LS for this issue. So we should wait for the reply LS first and then make conclusion. |
| OPPO | Option 1 is ok, but the CR itself has more changes than changing Pemax,c IE from SL-maxTxPower, it also removes S-SSB from Pcmax,f,c definition but in the below it further mention the PCMAX,S-SSB requirements which seems contradicting each other (*below red line*).If PEMAX,c is not defined by TS 38.331 and not applied to S-SSB, then the clarification of lower bound and upper bound should be same (*current CR change use different language to handle lower bound and upper bound as below green line*). Easier changes could be just one clarification sentence saying the PEMAX,c is not defined by TS 38.331 and not applied to S-SSB. |
| vivo | Thank OPPO for the careful check.The reason we changed Pcmax for S-SSB is as follows (captured from our companion paper R1-2201040 in RAN1):*the parameter sl-MaxTransPower is defined per resource pool to indicate the maximum sidelink transmission power in the resource pool, thus it is intended to determine the PEMAX,c for PSCCH, PSSCH and PSFCH, but not for S-SSB because the last one is out of the resource pools. As a result, in NR sidelink, the maximum transmission power is determined separately for different physical channels. For PSCCH, PSSCH, and PSFCH transmissions in NR sidelink, the parameter PEMAX,c should be given by sl-MaxTransPower, while for S-SSB, PEMAX,c is not applicable (i.e., not configurable).*For OPPO’s suggestions, we don’t think only one clarification sentence can address that since the upper bound for Pcmax, S-SSB is different from Pcmax,f,c, which is why we clarify the upper bound for Pcmax, S-SSB specifically.Maybe the wording needs further improving, and we can wait RAN1/RAN2’s reply. |

**Issue 1-4-2: Serving cell associated issues in licensed band**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| CATT | This issue should be discussed based on RAN1/RAN2 reply LS. As far as I know, both RAN1 and RAN2 are going to handle this issue in this meeting. |
| Huawei | Our preference is option 1. If no timely response from RAN1/2, either agree the draft CR by vivo or keep the existing spec unchanged is ok for us. Later on, based on inputs from other WGs, we can correct the spec with maintenance CR. |
| Qualcomm | We think that we should wait for the RAN1/RAN2 LS reply before making a decision. However, our preference is option 3. |
| LGE | Support option 1 and acceptable to wait the reply LS from RAN1/2 WG. |
| Xiaomi | Currently both RAN1 and RAN2 is drafting the reply LS for this issue. So we should wait for the reply LS first and then make conclusion. |
| OPPO | RAN1 and RAN2 dependent. |
| vivo | Option 1. This parameter defined by RAN1/RAN2 does not consider whether or not associating with a serving cell. |

### 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** |
| **R4-2204154** |  Qualcomm : see our comments for issue 1-2-1 |
| LGE: Based on the decision in GTW session, we remove 5MHz CBW for SCS 30kHz in FRC Tables. The draft CR was reflected the all 1st round comments.  |
| … |
| **R4-2204156** |  Qualcomm : see our comments for issue 1-2-2 |
|  LGE: Based on the decision in GTW session, we remove 5MHz CBW for SCS 30kHz in FRC Tables. The draft big CR was reflected the all 1st round comments. |
| … |
| **R4-2205583** | Qualcomm : see our comments for issue 1-1-2 |
| LGE; the PC2 TxD MPR values are based on 1Tx RF architecture. So RAN4 can update the PC2 V2X UE MPR requirements to support both 2Tx and 1Tx UE RF architecture. |
| … |
| **R4-2204152** | Company A |
| Company B |
| … |
| **R4-2204157** | Company A |
| Company B |
| … |
| **R4-2204929 & R4-2204930 (Maintenance)** |  Qualcomm: see our comments to issue 1-4-1 |
|  OPPO: See comment in Issue 1-4-1 |
| … |

## 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.*

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| --- | --- |
|  | **Status summary**  |
| **Sub-topic#1-1:****TxD RF requirements** | **Issue 1-1-1: Frequency error for TxD***- Tentative agreements** Option 1: The frequency error observation period for NR SL MIMO and NR V2X TxD should be revised to 1.0 ms to align with the Uu specifications.

*- Recommendations for 2nd round:* **Option 1 is approved in GTW session. There is no further discussion in 2nd round.** |
| **Issue 1-1-2: Revision of MPR for PC2 TxD in TS38.101-1***- Tentative agreements** The PC2 TxD MPR requirements will be updated in 2nd round for 1Tx & 2Tx MPR requirements.

*- Recommendations for 2nd round:* **RAN4 will further discuss and decide the detail MPR values for 1Tx and 2Tx MPR requirements to complete NRSL\_enh WI in Rel-17.** |
| **Sub-Topic#1-2:** **n14 PS UE RF requirements** | **Issue 1-2-1: 5MHz CBW FRC Tables for PS UE in Annex 7***- Tentative agreements** Based on LGE draftCR (R4-2204154), RAN4 can include additional FRC tables for 5MHz CBW for PS UE except 30kHz SCS for 5MHz CBW.

*- Recommendations for 2nd round:* **The tentative agreements was agreed in GTW session. The revised draft CR will be endorsed and there is no further discussion in 2nd round.** |
| **Issue 1-2-2: Merged big Draft CR for NRSL\_enh\_Part1***All companies support the draft big CR with the revised 5MHz FRC Tables in TS38.101-1.**- Tentative agreements** Based on LGE CR (R4-2204156), RAN4 can complete SL enh. UE RF requirements for PS UE and other commercial usage with SL operation. The 5MHz FRC for 30kHz SCS was removed in the revised draft big CR.

*- Recommendations for 2nd round:* **The revised draft big CR was shared in 1st round. The revised draft big CR will be endorsed and there is no further discussion in 2nd round.** |
| **Sub-topic#1-3:****Other RF requirements** | **Issue 1-3-1: Updated TR38.785 v1.0.0***- Tentative agreements** Option 1: Updated TR will be treated in 2nd round to capture the approved TPs and complete the NRSL\_enh WI in Rel-17.

*- Recommendations for 2nd round:* **The updated TR38.785 v1.0.0 will be captured all approved TPs and conclusion part. It will be further discussed in 2nd round.** |
| **Sub-topic#1-4:****Configured Tx power for SL in Rel-16 (Maintenance issue)** | **Issue 1-4-1: PEMAX,c IE parameters (*sl-maxTxPower, sl-MaxTransPower, SL-TxPower*)**There was no majority view. RAN4 can wait the formal reply LS from other WGs to finalize the Pemax IE parameters.*- Tentative agreements** Option 2: Need to wait the formal reply LS from RAN1/RAN2.

*- Recommendations for 2nd round:* **RAN4 do not have any further discussion for the PEMAX,c IE parameters (*sl-maxTxPower, sl-MaxTransPower, SL-TxPower*) until RAN4 receive the formal reply LS from other WGs. It will be treated as Rel-16 Maintenance issues in 5G V2X WI.** |
| **Issue 1-4-2: Serving cell associated issues in licensed band****It is related RAN4 sent LS issues as same in Issue 1-4-1. We can apply the same principle for this issue.***- Tentative agreements** Need to wait the formal reply LS from RAN1/RAN2.

*- Recommendations for 2nd round:* **RAN4 do not have any further discussion for the serving cell associated issues in licensed band until RAN4 receive the formal reply LS from other WGs. It will be treated as Rel-16 Maintenance issues in 5G V2X WI.** |

### 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**  |
| **R4-2204154****5MHz FRC** | The draft CR will be revised based on 1st round comments |
| **R4-2204156****Draft Big CR** | The draft big CR will be revised based on 1st round comments |
| **R4-2205583****TxD CR** | The draft CR will be revised based on 1st round comments |
| **R4-2204152** | TR38.785 v1.0.0. It will be treated in 2nd round |
| **R4-2204157** | Formal big CR will be treated as e-mail approval after 2nd round |
| **R4-2204929 (Maintenance)** | Not pursed.Maintenance Draft CR to update PEmax,c IE in TS38.101-1 Rel-16 |
| **R4-2204930** | Withdrawn.Mirror CR of R4-2204929 in TS38.101-1 Rel-17 |
|  |  |
|  |  |

## Discussion on 2nd round (if applicable)

### Open issues (if applicable)

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| R4-2204152 | LGE: Draft TR 1.0.0 was uploaded and it reflected all the approved TPs and add conclusion part. We can agree the updated TR version to complete NRSL\_enh WICompany 2: |
| R4-2206522 (Rev. of R4-2204154) | LGE: Support the draft CR to add 5MHz CBW in n14Company 2: |
| R4-2206523 (Rev. of R4-2204156) | LGE: The draft big CR was uploaded and reflect the all endorsed draft CRs in Part1. We support the draft big CRCompany 2: |
| R4-2204157 | LGE: We can treat the big formal CR as e-mail approvalCompany 2: |
| R4-2206524 (Rev. of R4-2205583) | LGE: Support the update TxD RF requirements.Company 2: |
| R4-2204929 | **Issue 1-4-1: PEMAX,c IE parameters (*sl-maxTxPower, sl-MaxTransPower, SL-TxPower*)*** Proposals
	+ Option 1: Based on vivo CR (R4-2204929), RAN4 can update the PEMAX,c is updated to use the IE *‘sl-MaxTransPower’* instead of the IE *‘slmaxTxPower’*.
	+ Option 2: Need to wait the formal reply LS from RAN1/RAN2.
* Recommended WF
	+ Option 1 is aligned with the reply LS from RAN1 (R1-2202736)

***Companies view for issue 1-4-1***- Qualcomm: we support option 1: sl-maxTransPower- LGE : Support option1**Issue 1-4-2: Serving cell associated issues in licensed band****The following options are provided in the sent LS (R4-2120047)*** Proposals
	+ Option 1: The parameter can be associated either with a serving cell or without a serving cell, and it can be configured separately with p-max for Uu.
	+ Option 2: The parameter can be associated either with a serving cell or without a serving cell, when the parameter is associated with a serving cell, PEMAX,c is the smaller value given by this parameter for SL and p-max for Uu of that serving cell.
	+ Option 3: When UE is associated with a serving cell on the NR V2X carrier, p-max is used for serving cell c; when the UE is not associated with a serving cell on the NR V2X carrier, the parameter given for SL in RAN2 specification is used.
* Recommended WF
	+ Option 1 is aligned with the reply LS from RAN1 (R1-2202736)

***Companies view for issue 1-4-1***- LGE: Support option1. it is aligned with other WGs- Xiaomi: V2X UE can be configured separately with p-max for Uu in serving cell. In this case, how to treat the problem for different values of p-max and sl-maxtranspower when UE is associated with a serving cell? I cannot find the solution from RAN1 response. Also this issue is not finalized within RAN4, too |

### 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*

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Reccomandation** |
| R4-2204152 | TR38.785 v1.0.0 TR Update for SL enhancement in Rel-17 | LG Electronics France | To be approved |
| R4-2206522 (Rev. of [R4-2204154](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204154.zip)) | Draft CR on FRC for 5MHz CBW for SL enhancement for public safety service in n14 | LG Electronics France | To be endorsed |
| R4-2206523 (Rev. of [R4-2204156](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204156.zip)) | Draft big CR to merge the endorsed CRs for SL enhancement PS UE in Part1 | LG Electronics France | To be endorsed |
| R4-2204157 | Formal big CR to introduce SL enhancements UE RF requirements in Rel-17 | LG Electronics France | E-mail Approval after e-meeting |
| R4-2206524 (Rev. of [R4-2205583](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205583.zip)) | draft CR for TS 38.101-1: introduction of PC2 TxD for SL | Huawei, HiSilicon | To be endorsed |
| R4-2204929 | Draft CR for TS 38.101-1, Correction on configured transmitted power for SL (Rel-16) | vivo | Not pursed |
| R4-2204930 | Draft CR for TS 38.101-1, Correction on configured transmitted power for SL (Rel-17) | vivo | Withdrawn |

# Recommendations for Tdocs

## 1st round

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation**  | **Comments** |
| [**R4-2204017**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204017.zip) | Frequency error measurement period for NR SL MIMO and NR V2X TxD | Qualcomm Incorporated | Noted | The contents are technically endorsed |
| R4-2204152 | TR38.785 v1.0.0 TR Update for SL enhancement in Rel-17 | LG Electronics France | Return to |  |
| [**R4-2204154**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204154.zip) | Draft CR on FRC for 5MHz CBW for SL enhancement for public safety service in n14 | LG Electronics France | Revised to R4-2206522 |  |
| [**R4-2204156**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204156.zip) | Draft big CR to merge the endorsed CRs for SL enhancement PS UE in Part1 | LG Electronics France | Revised to R4-2206523 |  |
| R4-2204157 | Formal big CR to introduce SL enhancements UE RF requirements in Rel-17 | LG Electronics France | Return to |  |
| [**R4-2204929**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204929.zip) | Draft CR for TS 38.101-1, Correction on configured transmitted power for SL (Rel-16) | vivo | Not pursed |  |
| R4-2204930 | Draft CR for TS 38.101-1, Correction on configured transmitted power for SL (Rel-17) | vivo | Withdrawn  |  |
| [**R4-2205583**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205583.zip) | draft CR for TS 38.101-1: introduction of PC2 TxD for SL | Huawei, HiSilicon | Revised to R4-2206524 |  |
|  |  |  |  |  |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation**  | **Comments** |
| R4-2204152 | TR38.785 v1.0.0 TR Update for SL enhancement in Rel-17 | LG Electronics France | To be approved | TR38.785 v1.0.0 |
| R4-2206522 (Rev. of [R4-2204154](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204154.zip)) | Draft CR on FRC for 5MHz CBW for SL enhancement for public safety service in n14 | LG Electronics France | To be endorsed | Draft CR |
| R4-2206523 (Rev. of [R4-2204156](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204156.zip)) | Draft big CR to merge the endorsed CRs for SL enhancement PS UE in Part1 | LG Electronics France | To be endorsed | Draft CR |
| R4-2204157 | Formal big CR to introduce SL enhancements UE RF requirements in Rel-17 | LG Electronics France | E-mail Approval after e-meeting |  |
| R4-2206524 (Rev. of [R4-2205583](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205583.zip)) | draft CR for TS 38.101-1: introduction of PC2 TxD for SL | Huawei, HiSilicon | To be endorsed | Draft CR |
| R4-2204929 | Draft CR for TS 38.101-1, Correction on configured transmitted power for SL (Rel-16) | vivo | Not pursed | Maintenance issue for 5G V2X WI in Rel-16 |
| R4-2204930 | Draft CR for TS 38.101-1, Correction on configured transmitted power for SL (Rel-17) | vivo | Withdrawn | Draft mirror CR of R4-2204929. |

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

# Annex

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|  |  |  |
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Note:

1. Please add your contact information in above table once you make comments on this email thread.
2. If multiple delegates from the same company make comments on single email thread, please add you name as suffix after company name when make comments i.e. Company A (XX, XX)