**3GPP TSG RAN WG1 #106-e R1-210xxxx**

**e-Meeting, August 16th – 27th, 2021**

**Agenda item:** 7.2.4

**Source:** Moderator (OPPO)

**Title:** Summary for email discussion [106-e-NR-5G\_V2X-01] Discussion on [R1-2107221](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_106-e/Docs/R1-2107221.zip): Correct a parameter name for PSSCH power control in TS 38.213

**Document for:** Discussion and Decision

# Introduction

This summary collects companies view on the draft CR of [R1-2107221](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_106-e/Docs/R1-2107221.zip).

# Discussion

## ***Related part in TS38.213***

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| \*\*\* Unchanged text is omitted \*\*\*16.2.1 PSSCHA UE determines a power $P\_{PSSCH,b,c}(i)$ for a PSSCH transmission on a resource pool in symbols where a corresponding PSCCH is not transmitted in PSCCH-PSSCH transmission occasion $i$ on active SL BWP $b$ of carrier $f$of serving cell $c$ as: $P\_{PSSCH}(i)=min\left(P\_{CMAX},P\_{MAX,CBR},min\left(P\_{PSSCH,D}\left(i\right),P\_{PSSCH,SL}(i)\right)\right)$ [dBm]where- $P\_{CMAX}$ is defined in [8-1, TS 38.101-1]- $P\_{MAX,CBR}$ is determined by a value of *sl-MaxTransPower* based on a priority level of the PSSCH transmission and a CBR range that includes a CBR measured in slot $i-N$ [6, TS 38.214]; if *sl-MaxTransPower-r16* is not provided, then $P\_{MAX,CBR}=P\_{CMAX}$;\*\*\* Unchanged text is omitted \*\*\* |

## ***Reason for change***

For PSSCH power control, the following is used to explain the parameter $P\_{MAX,CBR}$ used in the power control formula:

“$P\_{MAX,CBR}$ is determined by a value of *sl-MaxTransPower* based on a priority level of the PSSCH transmission and a CBR range that includes a CBR measured in slot $i-N$”.

While the pamameter ***sl-MaxTransPower*** is not related to CBR and priority. Another parameter ***sl-MaxTxPower-r16,*** which is defined in *SL-PSSCH-TxParameters-r16* and accordingly in *SL-CBR-PSSCH-TxConfig-r16*, is determined by CBR and priority.

## ***Corresponding modification***

The proposed CR in R1-2107221 is as follows:

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| \*\*\* Unchanged text is omitted \*\*\*16.2.1 PSSCHA UE determines a power $P\_{PSSCH,b,c}(i)$ for a PSSCH transmission on a resource pool in symbols where a corresponding PSCCH is not transmitted in PSCCH-PSSCH transmission occasion $i$ on active SL BWP $b$ of carrier $f$of serving cell $c$ as: $P\_{PSSCH}(i)=min\left(P\_{CMAX},P\_{MAX,CBR},min\left(P\_{PSSCH,D}\left(i\right),P\_{PSSCH,SL}(i)\right)\right)$ [dBm]where- $P\_{CMAX}$ is defined in [8-1, TS 38.101-1]- $P\_{MAX,CBR}$ is determined by a value of *sl-MaxTxPower* based on a priority level of the PSSCH transmission and a CBR range that includes a CBR measured in slot $i-N$ [6, TS 38.214]; if *sl-MaxTxPower* is not provided, then $P\_{MAX,CBR}=P\_{CMAX}$;\*\*\* Unchanged text is omitted \*\*\* |

## ***Consequences if not approved:***

The wrong parameter name will cause confusion when determining transmission power for PSSCH.

## ***Moderator’s view:***

From moderator’s view, this CR is necessary and essential.

The motivation of parameter “$P\_{MAX,CBR}$” is to configue the maximum transmission power of PSSCH based on CBR and priority in case of congestion control. While the parameter “*sl-MaxTransPower*” introduced in *SL-ResourcePool* configuration in TS38.331 is not related to CBR and priority.

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| – *SL-ResourcePool*The IE *SL-ResourcePool* specifies the configuration information for NR sidelink communication resource pool.\*\*\* Unchanged text is omitted \*\*\*SL-PowerControl-r16 ::= SEQUENCE { sl-MaxTransPower-r16 INTEGER (-30..33), sl-Alpha-PSSCH-PSCCH-r16 ENUMERATED {alpha0, alpha04, alpha05, alpha06, alpha07, alpha08, alpha09, alpha1} OPTIONAL, -- Need M dl-Alpha-PSSCH-PSCCH-r16 ENUMERATED {alpha0, alpha04, alpha05, alpha06, alpha07, alpha08, alpha09, alpha1} OPTIONAL, -- Need S sl-P0-PSSCH-PSCCH-r16 INTEGER (-16..15) OPTIONAL, -- Need S dl-P0-PSSCH-PSCCH-r16 INTEGER (-16..15) OPTIONAL, -- Need M dl-Alpha-PSFCH-r16 ENUMERATED {alpha0, alpha04, alpha05, alpha06, alpha07, alpha08, alpha09, alpha1} OPTIONAL, -- Need S dl-P0-PSFCH-r16 INTEGER (-16..15) OPTIONAL, -- Need M ...}

| *SL-PowerControl* field descriptions |
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| ***sl-MaxTransPower***Indicates the maximum value of the UE's sidelink transmission power on this resource pool. The unit is dBm. |

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The parameter “*sl-MaxTxPower-r16*” introduced in *SL-CBR-CommonTxConfigList* is to configure maximum transmission power of PSCCH/PSSCH in case of congestion control. Therefore, this parameter should be used/referred to in PSSCH power control formula, instead of the parameter “*sl-MaxTransPower*”.

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| \*\*\* Unchanged text is omitted \*\*\*– *SL-CBR-CommonTxConfigList*The IE *SL-CBR-CommonTxConfigList* indicates the list of PSSCH transmission parameters (such as MCS, sub-channel number, retransmission number, CR limit) in *sl-CBR-PSSCH-TxConfigList*, and the list of CBR ranges in *sl-CBR-RangeConfigList*, to configure congestion control to the UE for sidelink communicaition.*SL-CBR-CommonTxConfigList* information element-- ASN1START-- TAG-SL-CBR-COMMONTXCONFIGLIST-STARTSL-CBR-CommonTxConfigList-r16 ::= SEQUENCE { sl-CBR-RangeConfigList-r16 SEQUENCE (SIZE (1..maxCBR-Config-r16)) OF SL-CBR-LevelsConfig-r16 OPTIONAL, -- Need M sl-CBR-PSSCH-TxConfigList-r16 SEQUENCE (SIZE (1.. maxTxConfig-r16)) OF SL-CBR-PSSCH-TxConfig-r16 OPTIONAL -- Need M}SL-CBR-LevelsConfig-r16 ::= SEQUENCE (SIZE (1..maxCBR-Level-r16)) OF SL-CBR-r16SL-CBR-PSSCH-TxConfig-r16 ::= SEQUENCE { sl-CR-Limit-r16 INTEGER(0..10000) OPTIONAL, -- Need M sl-TxParameters-r16 SL-PSSCH-TxParameters-r16 OPTIONAL -- Need M}\*\*\* Unchanged text is omitted \*\*\*\*\*\* Unchanged text is omitted \*\*\*SL-PSSCH-TxParameters-r16 ::= SEQUENCE { sl-MinMCS-PSSCH-r16 INTEGER (0..27), sl-MaxMCS-PSSCH-r16 INTEGER (0..31), sl-MinSubChannelNumPSSCH-r16 INTEGER (1..27), sl-MaxSubchannelNumPSSCH-r16 INTEGER (1..27), sl-MaxTxTransNumPSSCH-r16 INTEGER (1..32), sl-MaxTxPower-r16 SL-TxPower-r16 OPTIONAL -- Cond CBR}\*\*\* Unchanged text is omitted \*\*\*

| *SL-PSSCH-TxConfigList* field descriptions |
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| ***sl-MaxTxPower***This field indicates the maximum transmission power for transmission on PSSCH and PSCCH. |

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## ***Companies view:***

Each company is encouraged to provide the views on the following questions.

Q1: Do you think the modification in R1-2107221 is necessary?

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| Company | Yes/No | Views |
| Intel |  | We are fine in principle.However, then it is unclear when/how *sl-MaxTransPower* is applied. If the intention that it is used for Pcmax derivation, then TS 38.101-1 does not use this parameter either. We see two ways: (1) assume RAN4 spec uses this parameter, and it is accounted in Pcmax, (2) update 213 to use *sl-MaxTransPower* when CBR-based configuration is not provided. |
| ZTE,Sanechips | Y |  |
| NEC | Y | Changes are necessary. |
| NTT DOCOMO | Yes | Similar comment to Intel. I checked RRC parameter list of R1-1913674 and found ‘maximumtransmitPower-SL’ in the list, but the purpose is still unclear... |
| Sharp | Yes | Agree with Intel that use of *sl-MaxTransPower* should also be discussed. In our view it is OK to not use it. |
| LG | Yes | Change is necessary. Whether or how to use ‘maximumtransmitPower-SL’ is a separate issue.  |
| CATT, GOHIGH | Yes |  |
| Apple | Yes | We share the similar view as Intel. The usage of parameter *sl-MaxTransPower* is unclear. We may first check where this parameter is used.  |

Q2: Do you agree with the modification in R1-2107221?

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| --- | --- | --- |
| Company | Yes/No | Views |
| Intel |  | Need to resolve questions asked in Q1 first |
| ZTE,Sanechips | Y | Fine with the change. |
| NEC | Y | We have same concerns with Intel. As we can see in TS 38.101-1, *sl-MaxTxPower* is assumed as the total transmitted power in 6.2E.4.1. However, as pointed out in the CR, this parameter is associated with CBR and priority. Hence, seems *sl-MaxTransPower* should be used in TS 38.101-1. Considering there are other parts in 213 using Pcmax, it’s better to fix it in 38.101-1 |
| NTT DOCOMO |  | Agree with Intel. |
| Sharp | Yes |  |
| LG | Yes |  |
| CATT, GOHIGH | Yes | Fine with the change.Regarding the parameter of *sl-MaxTransPower*, we share the similar views as NEC, it would be better to be fixed in 38.101-1 |
| Apple | Yes | Fine with the change, but we also prefer to clarify the usage of *sl-MaxTransPower*. |