**3GPP TSG RAN WG1 Meeting #118 R1-24xxxxx**

**Maastricht, Netherlands, August 19th – 23rd, 2024**

**Source: Moderator (Intel Corporation)**

**Title: FL summary #1 on SL positioning reference signal and Alignment CRs for Rel-18 Positioning**

**Agenda item: 8.1**

**Document for:** **Discussion and Decision**

1. Introduction

This document presents the Feature Lead (FL) summary of submitted contributions to AI 8.1 on maintenance of SL PRS design as part of maintenance of Rel-18 WI on expanded and improved NR positioning.

Based on the submitted contributions to RAN1 #118, there are two issues related to SL PRS to be discussed is listed in the table below.

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| Issue # | Tdoc reference  | Issue/Proposal |
| 1 | [6] R1-2406169, vivo,[16] R1-2406955, ZTE Corporation, Sanechips | Propose to add condition for SL pathloss based OLPC for SL PRS to TS 38.213, i.e., if a SCI format scheduling the SL PRS transmission includes a cast type indicator field indicating unicast, and if a is reported to the UE transmitting the SL PRS from the UE intended to receive the SL PRS. |
| 2 | [9] R1-2406334, CATT, CICTCI | Proposes to add associated SL PRS resource ID information to the mapping conditions for SL PRS resource mapping description in TS 38.211. |

In addition, comments are solicited for the draft alignment CRs.

Please follow the naming convention in this example:

* *SLPRS\_FLS -v000.docx*
* *SLPRS\_FLS -v001-CompanyA.docx*
* *SLPRS\_FLS -v002-CompanyA-CompanyB.docx*
* *SLPRS\_FLS -v003-CompanyB-CompanyC.docx*

If needed, you may “lock” a spreadsheet file for 30 minutes by creating a checkout file, as in this example:

* Assume CompanyC wants to update *SLPRS\_FLS-v002-CompanyA-CompanyB.docx*.
* CompanyC uploads an empty file named *SLPRS\_FLS-v003-CompanyB-CompanyC.checkout*
* CompanyC checks that no one else has created a checkout file simultaneously, and if there is a collision, CompanyC tries to coordinate with the company who made the other checkout (see, e.g., contact list below).
* CompanyC then has 30 minutes to upload *SLPRS\_FLS-v003-CompanyB-CompanyC.docx*
* If no update is uploaded in 30 minutes, other companies can ignore the checkout file.
* Note that the file timestamps on the server are in UTC time.

To avoid excessive email load on the RAN1 email reflector, please note that there is NO need to send an info email to the reflector just to inform that you have uploaded a new version of this document. Companies are invited to enter the contact info in the table below.

## FL1 Question 1-1

* *Please consider entering contact info below for the points of contact for this agenda item:*

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| **Company** | **Point of contact** | **Email address** |
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1. Discussion on Identified Issues
	1. Issue #1

Reference [6] R1-2406169, vivo proposes the following:

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| ***Reason for change:*** | Based on Rel-18 agreement, SL pathloss based OLPC for SL PRS should share the same principle as PSSCH power control. That is, SL pathloss based OLPC can only be used in unicast. |
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| ***Summary of change:*** | Add condition for SL pathloss based OLPC for SL PRS, ie., if a SCI format scheduling the SL PRS transmission includes a cast type indicator field indicating unicast, and if a is reported to the UE transmitting the SL PRS from the UE intended to receive the SL PRS |
|  |  |
| ***Consequences if not approved:*** | SL pathloss based OLPC for SL PRS is incomplete. |

16.2.3A SL PRSA UE determines a power for a SL PRS transmission on a resource pool in SL PRS transmission occasion on active SL BWP of carrier as:where,- is defined in [8-1, TS 38.101-1]- is determined by - if the resource pool is a shared SL PRS resource pool, a value of *sl-MaxTxPower* based on a priority level and a CBR range for a CBR measured in slot , where is the congestion control processing time [6, TS 38.214]; if *sl-MaxTxPower* is not provided, . The priority level is same for PSSCH and SL PRS - if the resource pool is a dedicated SL PRS resource pool, a value of *sl-PRS-MaxTx-Power* based on a priority level and a CBR range for a CBR measured in slot , where is the congestion control processing time [6, TS 38.214]; if *sl-PRS-MaxTx-Power* is not provided, . The priority level is for SL PRS- if a value for is provided- [dBm]- else- [dBm]where- if the resource pool is a shared SL PRS resource pool, is a value of *dl-P0-PSSCH-PSCCH* or *dl-P0-PSSCH-PSCCH-r17*; else, if the resource pool is a dedicated SL PRS resource pool, is a value of *dl-P0-SL-PRS*- if the resource pool is a shared SL PRS resource pool, is a value of *dl-Alpha-PSSCH-PSCCH*, if provided, and if *dl-Alpha-PSSCH-PSCCH* is not provided; else, if the resource pool is a dedicated SL PRS resource pool, is provided by *dl-Alpha-SL-PRS*, if provided, and if *dl-Alpha-SL-PRS* is not provided- when the active SL BWP is on a serving cell , as described in clause 7.1.1 except that- the RS resource is the one the UE uses for determining a power of a PUSCH transmission scheduled by a DCI format 0\_0 in serving cell when the UE is configured to monitor PDCCH for detection of DCI format 0\_0 in serving cell - the RS resource is the one corresponding to the SS/PBCH block the UE uses to obtain MIB when the UE is not configured to monitor PDCCH for detection of DCI format 0\_0 in serving cell - is a number of resource blocks for the SL PRS transmission occasion and is a SCS configuration for the SL PRS transmission- if a value for is provided, if a SCI format scheduling the SL PRS transmission includes a cast type indicator field indicating unicast, and if a is reported to the UE transmitting the SL PRS from the UE intended to receive the SL PRS.- [dBm]- else- [dBm]where- if the resource pool is a shared SL PRS resource pool, is a value of *sl-P0-PSSCH-PSCCH* or *sl-P0-PSSCH-PSCCH-r17*; else, if the resource pool is dedicated for SL PRS transmissions, is a value of *sl-P0-SL-PRS*- if the resource pool is a shared SL PRS resource pool, is a value of *sl-Alpha-PSSCH-PSCCH*, if provided and if *sl-Alpha-PSSCH-PSCCH* is not provided; else, if the resource pool is a dedicated SL PRS resource pool, is provided by *sl-Alpha-SL-PRS* if provided, and if *sl-Alpha-SL-PRS* is not provided*-* , where - is obtained- if the resource pool is a shared SL PRS resource pool, from a PSSCH transmit power per RE summed over the antenna ports of the UE and higher layer filtered across PSSCH transmission occasions using a filter configuration provided by *sl-FilterCoefficient*, - else, if the resource pool is a dedicated SL PRS resource pool, from a SL PRS transmit power per RE and higher layer filtered across SL PRS transmission occasions using a filter configuration provided by *sl-FilterCoefficient*- is a RSRP, as defined in [7, TS 38.215], that is reported to the UE from a UE receiving the SL PRS transmission and is obtained - if the resource pool is a shared SL PRS resource pool, from a PSSCH DM-RS using a filter configuration provided by *sl-FilterCoefficient*- else, if the resource pool is a dedicated SL PRS resource pool, from a SL PRS using a filter configuration provided by *sl-FilterCoefficient*- is a number of resource blocks for the SL PRS transmission occasion and is a SCS configuration for the SL PRS transmission<omitted text> |

Reference [16] R1-2406955, ZTE Corporation, Sanechips proposes the following:

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| ***Reason for change:*** | Based on RAN1’s agreement, SL pathloss based OLPC is supported for unicast. Filter RSRP is reported to a UE via PC5-RRC interface, wherein PC5-RRC interaction is only supported between UEs with unicast link. **Agreement**For SL pathloss-based OLPC for SL PRS in unicast, filtered RSRP is reported by a receiving UE. SL-MeasQuantityResult-r16 ::= SEQUENCE { sl-RSRP-r16 RSRP-Range OPTIONAL, ..., [[ sl-RSRP-DedicatedSL-PRS-RP-r18 SL-RSRP-Range-r16 OPTIONAL ]]}However, there is no such restriction on only supporting SL pathloss based OLPC for unicast in TS 38.213. Based on current spec, if a value for is provided and the SCI includes a cast type indicator field indicating broadcast or groupcast, [dBm], but the equation is **NOT** correct. |
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| ***Summary of change:*** | Reflect agreement “For SL pathloss-based OLPC for SL PRS in unicast, filtered RSRP is reported by a receiving UE.” in TS 38.213. |
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| ***Consequences if not approved:*** | The spec is not clear on whether SL pathloss-based OLPC for SL PRS is only supported for unicast.  |

16.2.3A SL PRSA UE determines a power for a SL PRS transmission on a resource pool in SL PRS transmission occasion on active SL BWP of carrier as:where,- is defined in [8-1, TS 38.101-1]- is determined by - if the resource pool is a shared SL PRS resource pool, a value of *sl-MaxTxPower* based on a priority level and a CBR range for a CBR measured in slot , where is the congestion control processing time [6, TS 38.214]; if *sl-MaxTxPower* is not provided, . The priority level is same for PSSCH and SL PRS - if the resource pool is a dedicated SL PRS resource pool, a value of *sl-PRS-MaxTx-Power* based on a priority level and a CBR range for a CBR measured in slot , where is the congestion control processing time [6, TS 38.214]; if *sl-PRS-MaxTx-Power* is not provided, . The priority level is for SL PRS- if a value for is provided- [dBm]- else- [dBm]where- if the resource pool is a shared SL PRS resource pool, is a value of *dl-P0-PSSCH-PSCCH* or *dl-P0-PSSCH-PSCCH-r17*; else, if the resource pool is a dedicated SL PRS resource pool, is a value of *dl-P0-SL-PRS*- if the resource pool is a shared SL PRS resource pool, is a value of *dl-Alpha-PSSCH-PSCCH*, if provided, and if *dl-Alpha-PSSCH-PSCCH* is not provided; else, if the resource pool is a dedicated SL PRS resource pool, is provided by *dl-Alpha-SL-PRS*, if provided, and if *dl-Alpha-SL-PRS* is not provided- when the active SL BWP is on a serving cell , as described in clause 7.1.1 except that- the RS resource is the one the UE uses for determining a power of a PUSCH transmission scheduled by a DCI format 0\_0 in serving cell when the UE is configured to monitor PDCCH for detection of DCI format 0\_0 in serving cell - the RS resource is the one corresponding to the SS/PBCH block the UE uses to obtain MIB when the UE is not configured to monitor PDCCH for detection of DCI format 0\_0 in serving cell - is a number of resource blocks for the SL PRS transmission occasion and is a SCS configuration for the SL PRS transmission- if a value for is provided, if a SCI format scheduling the SL PRS transmission includes a cast type indicator field indicating unicast, and if is reported using *sl-RSRP-DedicatedSL-PRS-RP* to the UE transmitting the SL PRS from the UE intended to receive the PSCCH-SL PRS transmission- [dBm]- else- [dBm]where- if the resource pool is a shared SL PRS resource pool, is a value of *sl-P0-PSSCH-PSCCH* or *sl-P0-PSSCH-PSCCH-r17*; else, if the resource pool is dedicated for SL PRS transmissions, is a value of *sl-P0-SL-PRS*- if the resource pool is a shared SL PRS resource pool, is a value of *sl-Alpha-PSSCH-PSCCH*, if provided and if *sl-Alpha-PSSCH-PSCCH* is not provided; else, if the resource pool is a dedicated SL PRS resource pool, is provided by *sl-Alpha-SL-PRS* if provided, and if *sl-Alpha-SL-PRS* is not provided*-* , where - is obtained- if the resource pool is a shared SL PRS resource pool, from a PSSCH transmit power per RE summed over the antenna ports of the UE and higher layer filtered across PSSCH transmission occasions using a filter configuration provided by *sl-FilterCoefficient*, - else, if the resource pool is a dedicated SL PRS resource pool, from a SL PRS transmit power per RE and higher layer filtered across SL PRS transmission occasions using a filter configuration provided by *sl-FilterCoefficient*- is a RSRP, as defined in [7, TS 38.215], that is reported to the UE from a UE receiving the SL PRS transmission and is obtained - if the resource pool is a shared SL PRS resource pool, from a PSSCH DM-RS using a filter configuration provided by *sl-FilterCoefficient*- else, if the resource pool is a dedicated SL PRS resource pool, from a SL PRS using a filter configuration provided by *sl-FilterCoefficient*- is a number of resource blocks for the SL PRS transmission occasion and is a SCS configuration for the SL PRS transmission |

***Moderator comments:***

* *The issue seems valid and requires correction.*
* *While both [6] and [16] propose essentially same text, there are some minor differences. The version from [6] is recommended below as it is better aligned with the existing similar text in earlier clauses in TS 38.213.*
	+ *Note that although “PSCCH-PSSCH” is used to refer to a “PSCCH-PSSCH transmission occasion” in Clause 16.2.1, in Clause 16.2.3A, the phrase “SL PRS transmission occasion” is used instead of “PSCCH-SL PRS transmission occasion”.*

### FL1 Proposal 2.1-1

* *Agree on TP#1 for TS 38.213, Clause 16.2.3A to address the missing conditions for applicability of SL pathloss-based OLPC for SL PRS transmissions.*

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| **------------------------------ TP#1: TS 38.213 -----------------------------------**16.2.3A SL PRSA UE determines a power for a SL PRS transmission on a resource pool in SL PRS transmission occasion on active SL BWP of carrier as:where,- is defined in [8-1, TS 38.101-1]- is determined by - if the resource pool is a shared SL PRS resource pool, a value of *sl-MaxTxPower* based on a priority level and a CBR range for a CBR measured in slot , where is the congestion control processing time [6, TS 38.214]; if *sl-MaxTxPower* is not provided, . The priority level is same for PSSCH and SL PRS - if the resource pool is a dedicated SL PRS resource pool, a value of *sl-PRS-MaxTx-Power* based on a priority level and a CBR range for a CBR measured in slot , where is the congestion control processing time [6, TS 38.214]; if *sl-PRS-MaxTx-Power* is not provided, . The priority level is for SL PRS- if a value for is provided- [dBm]- else- [dBm]where- if the resource pool is a shared SL PRS resource pool, is a value of *dl-P0-PSSCH-PSCCH* or *dl-P0-PSSCH-PSCCH-r17*; else, if the resource pool is a dedicated SL PRS resource pool, is a value of *dl-P0-SL-PRS*- if the resource pool is a shared SL PRS resource pool, is a value of *dl-Alpha-PSSCH-PSCCH*, if provided, and if *dl-Alpha-PSSCH-PSCCH* is not provided; else, if the resource pool is a dedicated SL PRS resource pool, is provided by *dl-Alpha-SL-PRS*, if provided, and if *dl-Alpha-SL-PRS* is not provided- when the active SL BWP is on a serving cell , as described in clause 7.1.1 except that- the RS resource is the one the UE uses for determining a power of a PUSCH transmission scheduled by a DCI format 0\_0 in serving cell when the UE is configured to monitor PDCCH for detection of DCI format 0\_0 in serving cell - the RS resource is the one corresponding to the SS/PBCH block the UE uses to obtain MIB when the UE is not configured to monitor PDCCH for detection of DCI format 0\_0 in serving cell - is a number of resource blocks for the SL PRS transmission occasion and is a SCS configuration for the SL PRS transmission- if a value for is provided, if a SCI format scheduling the SL PRS transmission includes a cast type indicator field indicating unicast, and if a is reported to the UE transmitting the SL PRS from the UE intended to receive the SL PRS- [dBm]- else- [dBm]where- if the resource pool is a shared SL PRS resource pool, is a value of *sl-P0-PSSCH-PSCCH* or *sl-P0-PSSCH-PSCCH-r17*; else, if the resource pool is dedicated for SL PRS transmissions, is a value of *sl-P0-SL-PRS*- if the resource pool is a shared SL PRS resource pool, is a value of *sl-Alpha-PSSCH-PSCCH*, if provided and if *sl-Alpha-PSSCH-PSCCH* is not provided; else, if the resource pool is a dedicated SL PRS resource pool, is provided by *sl-Alpha-SL-PRS* if provided, and if *sl-Alpha-SL-PRS* is not provided*-* , where - is obtained- if the resource pool is a shared SL PRS resource pool, from a PSSCH transmit power per RE summed over the antenna ports of the UE and higher layer filtered across PSSCH transmission occasions using a filter configuration provided by *sl-FilterCoefficient*, - else, if the resource pool is a dedicated SL PRS resource pool, from a SL PRS transmit power per RE and higher layer filtered across SL PRS transmission occasions using a filter configuration provided by *sl-FilterCoefficient*- is a RSRP, as defined in [7, TS 38.215], that is reported to the UE from a UE receiving the SL PRS transmission and is obtained - if the resource pool is a shared SL PRS resource pool, from a PSSCH DM-RS using a filter configuration provided by *sl-FilterCoefficient*- else, if the resource pool is a dedicated SL PRS resource pool, from a SL PRS using a filter configuration provided by *sl-FilterCoefficient*- is a number of resource blocks for the SL PRS transmission occasion and is a SCS configuration for the SL PRS transmission<omitted text> |

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| ***Reason for change:*** | Based on Rel-18 agreement, SL pathloss-based OLPC for SL PRS should share the same principle as PSSCH power control. That is, SL pathloss based OLPC can only be used in unicast and if a is reported to the UE transmitting the SL PRS from the UE intended to receive the SL PRS. |
| ***Summary of change:*** | Add condition for SL pathloss-based OLPC for SL PRS, ie., if a SCI format scheduling the SL PRS transmission includes a cast type indicator field indicating unicast, and if a is reported to the UE transmitting the SL PRS from the UE intended to receive the SL PRS. |
| ***Consequences if not approved:*** | Description of SL pathloss-based OLPC for SL PRS is incomplete. |

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| **Company** | **Yes/No** | **Comments** |
| Vivo | Yes |  |
| Nokia | Yes |  |
| Sharp | Yes |  |
| Huawei, HiSilicon | yes |  |
| ZTE | Yes |  |
| Qualcomm | Yes |  |
| CATT/CICTCI | Yes |  |
| Moderator |  | FL Proposal 2.1-1 is recommended for Tuesday GTW.A corresponding draft CR is available in drafts folder:<http://10.10.10.10/ftp/RAN/RAN1/Inbox/drafts/8.1%28NR_WI%29/Positioning/SL-PRS/R1-24xxxxx%20draftCR%20on%20Rel-18%20SLPRS%20TPC%20for%20TS%2038.213.docx> |

* 1. Issue #2

Reference [9] R1-2406334, CATT, CICTCI proposes the following:

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| ***Reason for change:*** | In clause 8.4.1.6.3 of TS 38.211, all the SL PRS resource configuration parameters such as *sl-PRS-CombSizeN-AndReOffset, sl-CombSize, sl-PRS-starting-symbol, mNumberOfSymbols, sl-NumberOfSymbols* are resource pool specific. However, a UE cannot determine a specific SL PRS resource based on these resource pool specific parameters only. The associated SL PRS resource ID should also be provided and combined with these parameters to identify a unique SL PRS resource. |
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| ***Summary of change:*** | Adding the associated SL PRS resource ID information to the mapping conditions. |
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| ***Consequences if not approved:*** | It is unclear for a UE how to determine the mapping physical resources for a SL PRS. |

8.4.1.6.3 Mapping to physical resourcesThe sequence shall be multiplied with the amplitude scaling factor in order to conform to the transmit power specified in [5, TS 38.213] and mapped to resources elements according to when the following conditions are fulfilled:- the resource element is within the common resource blocks occupied by the SL PRS resource which is associated with a given SL PRS resource ID, the SL PRS resource ID is indicated in the SCI format 2-D for a shared SL PRS resource pool and in the SCI format 1-B for a dedicated SL PRS resource pooland where- the comb size is provided by the higher layer parameter *sl-PRS-CombSizeN-AndReOffset* for a shared SL PRS resource pool and by the higher layer parameter *sl-CombSize* for a dedicated SL PRS resource pool- the resource-element offset - the frequency offset is given by Table 8.4.1.6.3-1- the starting symbol is provided by the higher-layer parameter *sl-PRS-starting-symbol* for a dedicated SL PRS resource pool, or is determined such that the symbols {} are mapped to the last consecutive symbols in the slot that can be used for SL PRS for a shared SL PRS resource pool as described in clause 8.2.4.1.1 in [6, TS38.214]- the number of symbols is provided by the higher-layer parameter *mNumberOfSymbols* for a shared resource pool and by the higher layer parameter *sl-NumberOfSymbols* for a dedicated resource pool and limited to combinations fulfilling - in a dedicated SL PRS resource pool: {1, 2}, {2, 2}, {2, 4}, {4, 4}, {6, 6}, and combinations with and where - in a shared SL PRS resource pool: {1, 1}, {1, 2}, {2, 1}, {2, 2}, {2, 4}, {4, 1}, {4, 2}, {4, 4}- the antenna port **<<< UNCHANGED PARTS OMITTED >>>** |

***Moderator comments:***

* *The proposed “correction” may not be necessary. The determination of SL PRS resource and how it relates to the SL PRS resource mapping-related parameters are part of UE behavior and described in Clause 8.2.4 in TS 38.214. The linkage to SL PRS resource ID does not need to be described in TS 38.211. The current description in TS 38.211 seems sufficient.*
* *Nevertheless, the proposal is tabled below as FL1 Question 2.1-2 to collect company feedback.*

### FL1 Question 2.1-2

* *Please indicate whether TP#2 for TS 38.211, Clause 8.4.1.6.3 should be agreed to include reference to a SL PRS ID and its determination in the context of mapping of SL PRS to physical resources.*

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| **------------------------------ TP#2: TS 38.211 -----------------------------------**8.4.1.6.3 Mapping to physical resourcesThe sequence shall be multiplied with the amplitude scaling factor in order to conform to the transmit power specified in [5, TS 38.213] and mapped to resources elements according to when the following conditions are fulfilled:- the resource element is within the common resource blocks occupied by the SL PRS resource which is associated with a given SL PRS resource ID, the SL PRS resource ID is indicated in the SCI format 2-D for a shared SL PRS resource pool and in the SCI format 1-B for a dedicated SL PRS resource pooland where- the comb size is provided by the higher layer parameter *sl-PRS-CombSizeN-AndReOffset* for a shared SL PRS resource pool and by the higher layer parameter *sl-CombSize* for a dedicated SL PRS resource pool- the resource-element offset - the frequency offset is given by Table 8.4.1.6.3-1- the starting symbol is provided by the higher-layer parameter *sl-PRS-starting-symbol* for a dedicated SL PRS resource pool, or is determined such that the symbols {} are mapped to the last consecutive symbols in the slot that can be used for SL PRS for a shared SL PRS resource pool as described in clause 8.2.4.1.1 in [6, TS38.214]- the number of symbols is provided by the higher-layer parameter *mNumberOfSymbols* for a shared resource pool and by the higher layer parameter *sl-NumberOfSymbols* for a dedicated resource pool and limited to combinations fulfilling - in a dedicated SL PRS resource pool: {1, 2}, {2, 2}, {2, 4}, {4, 4}, {6, 6}, and combinations with and where - in a shared SL PRS resource pool: {1, 1}, {1, 2}, {2, 1}, {2, 2}, {2, 4}, {4, 1}, {4, 2}, {4, 4}- the antenna port <omitted text> |

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| ***Reason for change:*** | In clause 8.4.1.6.3 of TS 38.211, all the SL PRS resource configuration parameters such as *sl-PRS-CombSizeN-AndReOffset, sl-CombSize, sl-PRS-starting-symbol, mNumberOfSymbols, sl-NumberOfSymbols* are resource pool specific. However, a UE cannot determine a specific SL PRS resource based on these resource pool specific parameters only. The associated SL PRS resource ID should also be provided and combined with these parameters to identify a unique SL PRS resource. |
| ***Summary of change:*** | Adding the associated SL PRS resource ID information to the mapping conditions. |
| ***Consequences if not approved:*** | It is unclear for a UE how to determine the mapping physical resources for a SL PRS. |

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| **Company** | **Yes/No** | **Comments** |
| vivo | No | In our view, the resource element is according to the above equation other than the modification.  |
| Nokia | No | This does not look critical. The spec is clear when read in conjunction with TS 38.212. |
| Sharp | No | The association and corresponding indication has already been captured in other specs (214, 212). |
| Huawei, HiSilicon | No | This is not needed. 211 should be kept in general.  |
| ZTE | No | Same understanding as sharp, this CR is not needed. |
| Qualcom | No | This doesn’t appear to be needed |
| CATT/CICTCI | Yes | SL-PRS mapping rule is quite similar with PSSCH DMRS mapping, the description of PSSCH DMRS mapping has captured that the patterns used for the DMRS is indicated in the SCI (8.4.1.1.2 of TS 38.211). If only the resource pool level parameters (such as *sl-PRS-CombSizeN-AndReOffset, sl-CombSize, sl-PRS-starting-symbol, etc.*) are provided for SL PRS mapping, it’s just like only providing the *sl-PSSCH-DMRS-TimePatternList* (resource pool level) for PSSCH DMRS mapping. This kind of description is not enough for a UE to determine the SL PRS resource or PSSCH DMRS resource, so the restriction of “the SL PRS resource which is associated with a given SL PRS resource ID, the …” should be captured. |
| Moderator |  | Based on received feedback, all responding companies, except the proponent, does not see the proposed change as essential. In response to the above comment from CATT, *UE behavior to determine* a SL PRS resource is described in TS 38.214, and it is not necessary for TS 38.211 to capture the same.  |

1. Alignment CRs for TS 38.211

Please provide any feedback to the draft Alignment CR for TS 38.211 based on the following tdoc:

[8] R1-2406171 Draft CR on higher-layer parameter for SRS frequency hopping in TS 38.211 vivo

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| **Company** | **Comments** |
| vivo | Support |
| Huawei, HiSilicon | ok |
| ZTE | OK |
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1. Alignment CRs for TS 38.212

Please provide any feedback to the draft Alignment CR for TS 38.212 based on the following tdoc:

R1-2407171 Draft CR for correction to sidelink Positioning in 38.212 Ericsson

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| **Company** | **Comments** |
| vivo | We wonder why the NR SL PRS scheduling DCI needs to be refered to PSSCH resource allocation section, and prefer previous version. |
| Nokia | Not needed. The relevant reference for time domain resource allocation of SL PRS is clause 8.2.4.1.1, which in turn refers to 8.1.2.1.  |
| Huawei, HiSilicon | Not needed. Agree with Nokia for the reason. |
| ZTE | Do NOT support, the initial spec is correct. |
| Moderator | The above feedback highlights that the proposed changes for TS 38.212 may not be essential as currently cited clause eventually redirects to 8.1.2.1. Thus, this correction is not pursued further at this point. |

1. Alignment CRs for TS 38.213

Please provide any feedback to the draft Alignment CR for TS 38.213 based on the following tdocs:

[7] R1-2406170 Draft CR on higher-layer parameter for for SRS transmission with frequency hopping in TS 38.213 vivo

[24] R1-2407172 Draft CR for correction to SRS for positioning with tx hopping in 38.213 Ericsson

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| **Company** | **Comments** |
| vivo  | We slightly prefer the modification of [7] since “indication needs to be changed as “configuratiom” considering the other related description as follows

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| If a UE transmits SRS based on a configuration by *SRS-PosResourceSet* outside initial UL BWP of carrier *f* of serving cell *c* in RRC\_INACTIVE state, the active UL BWP *b* refers to the BWP configuration provided by *bwp-NUL* or *bwp-SUL* in *SRS-PosRRC-InactiveConfig* for the corresponding carrier.If a UE transmits SRS based on a configuration by *SRS-PosResourceSet* in *SRS-PosRRC-InactiveValidityAreaConfig* in RRC\_INACTIVE state [12, TS 38.331], the active UL BWP *b* refers to the BWP provided by *bwp* in *SRS-PosRRC-InactiveValidityAreaConfig*. If the UE is not provided *pathlossReferenceRS-Pos* in *SRS-PosResourceSet*, or if the UE is provided *pathlossReferenceRS-Pos* in *SRS-PosResourceSet* and the UE cannot accurately measure the pathloss RS provided in *pathlossReferenceRS-Pos*, the UE calculates using an RS resource from an SS/PBCH block with same index as the one the UE used to obtain *MIB*; otherwise, the UE uses the RS indicated by *pathlossReferenceRS-Pos* to calculate . |

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| Huawei, HiSilicon | It seems redundant to repeat the same parameter twice. Suggeated as:If a RedCap UE transmits SRS with frequency hopping outside the active UL BWP of carrier of serving cell in RRC\_CONNECTED state based on a configuration by *SRS-PosResourceSet* , the active UL BWP refers to the BWP provided by *bwp* in *SRS-PosTx-Hopping*.If a RedCap UE transmits SRS with frequency hopping outside the initial UL BWP of carrier of serving cell in RRC\_INACTIVE state based on a configuration by *SRS-PosResourceSet*, the active UL BWP refers to the BWP provided by *bwp* in *SRS-PosTx-Hopping*. |
| ZTE | OK with HW’s modification. |
| Moderator | Based on above feedback, the draft CR is updated as suggested by Huawei, HiSilicon in **R1-2407259**in the Inbox. |
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1. Alignment CRs for TS 38.214

Please provide any feedback to the draft Alignment CR for TS 38.214 based on the following tdocs:

[5] R1-2406168 Draft CR on PRS for carrier phase positioning vivo

[11] R1-2406343 Correction on higher layer parameters for SL PRS resource selection in a dedicated SL PRS resource pool CATT, CICTCI

[12] R1-2406344 Correction on UE procedure for transmitting the physical sidelink shared channel CATT, CICTCI

[17] R1-2406956 Corrections on positioning in TS 38.214 ZTE Corporation, Sanechips

[25] R1-2407173 Draft CR for correction to sidelink Positioning in 38.214 Ericsson

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| **Company** | **Comments** |
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1. Proposals for Tuesday GTW

### FL1 Proposal 2.1-1

* *Agree on TP#1 for TS 38.213, Clause 16.2.3A to address the missing conditions for applicability of SL pathloss-based OLPC for SL PRS transmissions.*
1. List of Text Proposals for Tuesday GTW

### TP #1:

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| **------------------------------ TP#1: TS 38.213 -----------------------------------**16.2.3A SL PRSA UE determines a power for a SL PRS transmission on a resource pool in SL PRS transmission occasion on active SL BWP of carrier as:where,- is defined in [8-1, TS 38.101-1]- is determined by - if the resource pool is a shared SL PRS resource pool, a value of *sl-MaxTxPower* based on a priority level and a CBR range for a CBR measured in slot , where is the congestion control processing time [6, TS 38.214]; if *sl-MaxTxPower* is not provided, . The priority level is same for PSSCH and SL PRS - if the resource pool is a dedicated SL PRS resource pool, a value of *sl-PRS-MaxTx-Power* based on a priority level and a CBR range for a CBR measured in slot , where is the congestion control processing time [6, TS 38.214]; if *sl-PRS-MaxTx-Power* is not provided, . The priority level is for SL PRS- if a value for is provided- [dBm]- else- [dBm]where- if the resource pool is a shared SL PRS resource pool, is a value of *dl-P0-PSSCH-PSCCH* or *dl-P0-PSSCH-PSCCH-r17*; else, if the resource pool is a dedicated SL PRS resource pool, is a value of *dl-P0-SL-PRS*- if the resource pool is a shared SL PRS resource pool, is a value of *dl-Alpha-PSSCH-PSCCH*, if provided, and if *dl-Alpha-PSSCH-PSCCH* is not provided; else, if the resource pool is a dedicated SL PRS resource pool, is provided by *dl-Alpha-SL-PRS*, if provided, and if *dl-Alpha-SL-PRS* is not provided- when the active SL BWP is on a serving cell , as described in clause 7.1.1 except that- the RS resource is the one the UE uses for determining a power of a PUSCH transmission scheduled by a DCI format 0\_0 in serving cell when the UE is configured to monitor PDCCH for detection of DCI format 0\_0 in serving cell - the RS resource is the one corresponding to the SS/PBCH block the UE uses to obtain MIB when the UE is not configured to monitor PDCCH for detection of DCI format 0\_0 in serving cell - is a number of resource blocks for the SL PRS transmission occasion and is a SCS configuration for the SL PRS transmission- if a value for is provided, if a SCI format scheduling the SL PRS transmission includes a cast type indicator field indicating unicast, and if a is reported to the UE transmitting the SL PRS from the UE intended to receive the SL PRS- [dBm]- else- [dBm]where- if the resource pool is a shared SL PRS resource pool, is a value of *sl-P0-PSSCH-PSCCH* or *sl-P0-PSSCH-PSCCH-r17*; else, if the resource pool is dedicated for SL PRS transmissions, is a value of *sl-P0-SL-PRS*- if the resource pool is a shared SL PRS resource pool, is a value of *sl-Alpha-PSSCH-PSCCH*, if provided and if *sl-Alpha-PSSCH-PSCCH* is not provided; else, if the resource pool is a dedicated SL PRS resource pool, is provided by *sl-Alpha-SL-PRS* if provided, and if *sl-Alpha-SL-PRS* is not provided*-* , where - is obtained- if the resource pool is a shared SL PRS resource pool, from a PSSCH transmit power per RE summed over the antenna ports of the UE and higher layer filtered across PSSCH transmission occasions using a filter configuration provided by *sl-FilterCoefficient*, - else, if the resource pool is a dedicated SL PRS resource pool, from a SL PRS transmit power per RE and higher layer filtered across SL PRS transmission occasions using a filter configuration provided by *sl-FilterCoefficient*- is a RSRP, as defined in [7, TS 38.215], that is reported to the UE from a UE receiving the SL PRS transmission and is obtained - if the resource pool is a shared SL PRS resource pool, from a PSSCH DM-RS using a filter configuration provided by *sl-FilterCoefficient*- else, if the resource pool is a dedicated SL PRS resource pool, from a SL PRS using a filter configuration provided by *sl-FilterCoefficient*- is a number of resource blocks for the SL PRS transmission occasion and is a SCS configuration for the SL PRS transmission<omitted text> |

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| ***Reason for change:*** | Based on Rel-18 agreement, SL pathloss-based OLPC for SL PRS should share the same principle as PSSCH power control. That is, SL pathloss based OLPC can only be used in unicast and if a is reported to the UE transmitting the SL PRS from the UE intended to receive the SL PRS. |
| ***Summary of change:*** | Add condition for SL pathloss-based OLPC for SL PRS, ie., if a SCI format scheduling the SL PRS transmission includes a cast type indicator field indicating unicast, and if a is reported to the UE transmitting the SL PRS from the UE intended to receive the SL PRS. |
| ***Consequences if not approved:*** | Description of SL pathloss-based OLPC for SL PRS is incomplete. |

# References

1. R1-2406019 Corrections to TS 38.214 on SRS for positioning with frequency hopping Intel Corporation
2. R1-2406165 Draft CR on bandwidth part considering SRS frequency hopping for positioning vivo
3. R1-2406166 Draft CR on DCI format 3\_2 for SL PRS scheduling vivo
4. R1-2406167 Draft CR on DL PRS measurement in RRC\_IDLE mode vivo
5. R1-2406168 Draft CR on PRS for carrier phase positioning vivo
6. R1-2406169 Draft CR on SL PRS power control based on SL pathloss vivo
7. R1-2406170 Draft CR on higher-layer parameter for for SRS transmission with frequency hopping in TS 38.213 vivo
8. R1-2406171 Draft CR on higher-layer parameter for SRS frequency hopping in TS 38.211 vivo
9. R1-2406334 Draft CR on SL PRS mapping to the physical resources CATT, CICTCI
10. R1-2406335 Discussion on the higher layer parameters in a dedicated SL PRS resource pool CATT, CICTCI
11. R1-2406343 Correction on higher layer parameters for SL PRS resource selection in a dedicated SL PRS resource pool CATT, CICTCI
12. R1-2406344 Correction on UE procedure for transmitting the physical sidelink shared channel CATT, CICTCI
13. R1-2406351 Correction on SRS frequency hopping for positioning CATT
14. R1-2406953 Draft CR for collision handling of positioning SRS with Tx hopping in TDD system ZTE Corporation, Sanechips
15. R1-2406954 Draft CR for staircase pattern for SRS Tx hopping in TS 38.211 ZTE Corporation, Sanechips
16. R1-2406955 Correction on SL PRS power control in TS 38.213 ZTE Corporation, Sanechips
17. R1-2406956 Corrections on positioning in TS 38.214 ZTE Corporation, Sanechips
18. R1-2406957 Draft CR for DL PRS measurement in TS 38.214 ZTE Corporation, Sanechips
19. R1-2406958 Draft CR for measurement window in TS 38.214 ZTE Corporation, Sanechips
20. R1-2407099 Correction on SRS frequency hopping for positioning Nokia
21. R1-2407169 Draft CR for correction to SRS for positioning with tx hopping in 38.211 Ericsson
22. R1-2407170 Draft CR for correction to SRS for positioning with tx hopping in 38.214 Ericsson
23. R1-2407171 Draft CR for correction to sidelink Positioning in 38.212 Ericsson
24. R1-2407172 Draft CR for correction to SRS for positioning with tx hopping in 38.213 Ericsson
25. R1-2407173 Draft CR for correction to sidelink Positioning in 38.214 Ericsson
26. R1-2407174 Draft CR for the support of multiple Rx ARP measurements on SL-PRS Ericsson
27. 3GPP TR 38.859, Study on expanded and improved NR positioning (Release 18)”, December 2022.
28. R1-2401828, RAN1 agreements for Rel-18 WI on Expanded and Improved NR Positioning Rapporteur (Intel Corporation), RAN1 #116bis, April 2024.