**3GPP TSG- RAN WG1 Meeting #108-e R1-** **22xxxxx**

**e-Meeting, Feb 21st – Mar 3rd, 2022**

Agenda Item: 5

Source: Moderator (Apple)

Title: Summary on [108-e-AI5-LS-03]

Document for: Discussion/Decision

# Introduction

In this contribution, we provide some discussion on email thread [108-e-AI5-LS-03].

# Original LS R1-2200896

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| **1. Overall Description:**RAN4 has been discussing the PL-RS configuration used for PUCCH transmission on target being-activated SCell during the activation procedure. RAN4 understand PL-RS assumption of PUCCH transmission for the active DL BWP of the carrier of the primary cell is specified RAN1 TS38.213 section 7.2.1; however, RAN4 is not sure whether or not such assumption could be applied for target being-activated PUCCH SCell during activation procedure, and what the UE behavior is to determine the PL-RS for PUCCH of target being activation SCell.Thus, RAN4 has made following working assumption and would like to kindly ask RAN1 to confirm/clarify:**Working assumption:*** RAN4 to agree that PL-RS assumptions defined in TS38.213 section 7.2.1 can be applied for the PUCCH of target being-activated SCell during the activation procedure. In FR2 if UE is not provided *pathlossReferenceRSs* but provided *PUCCH-SpatialRelationInfo* before receiving the PUCCH SCell activation command, as UE may not obtain MIB during activation procedure, UE shall use the associated DL-RS in *PUCCH-SpatialRelationInfo* as PL-RS.

[Question to RAN1]: Is the above working assumption in line with RAN1’s understanding? * + If the answer to above question is NO, how could UE determine the PL-RS for PUCCH of target being-activated SCell during the activation procedure for the following scenarios respectively:
		- if the UE is not provided *pathlossReferenceRSs* and is provided *PUCCH-SpatialRelationInfo* before receiving the PUCCH SCell activation command
		- If the UE is not provided *pathlossReferenceRSs*, and is not provided *PUCCH-SpatialRelationInfo* before receiving the PUCCH SCell activation command
		- If the UE is provided *pathlossReferenceRSs* and *PUCCH-SpatialRelationInfo* before receiving the PUCCH SCell activation command
		- If the UE is provided *pathlossReferenceRSs* and is not provided *PUCCH-SpatialRelationInfo* before receiving the PUCCH SCell activation command
		- If any case is missing in above combinations for PL-RS determination for PUCCH of target being-activated SCell during the activation procedure, please RAN1 indicates and explains the UE behavior of PL-RS determination for the missing case(s).

**2. Actions:****To: RAN1****ACTION:** RAN4 respectfully asks RAN1 to confirm RAN4 working assumption and answer the corresponding questions if needed. |

# Discussion

According to moderator’s understanding, it seems there is no problem to derive pathloss based on DL RS configured in spatial relation info when pathloss reference signal is not provided, as agreed by RAN4.

Moderator’s proposal response:

***RAN1 has not identified any issue on the working assumption agreed by RAN4.***

Companies’ view and comments (According to the question to RAN4, if the answer is no, please clarify the details on how to identify pathloss reference signal)

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| Company | View |
| LG | Support the proposed response. |
| CATT | We are OK with the proposed reply. |
| Nokia, NSB | Support the proposed response |
| ZTE | We don’t support this proposal.First, we don’t think the mentioned scenario that UE is not provided *pathlossReferenceRSs* but provided *PUCCH-SpatialRelationInfo* exists. Based on the 38.331 below, if *PUCCH-SpatialRelationInfo* is configured, *pathlossReferenceRSs* must be configured since it is not optional parameter. -- ASN1START-- TAG-PUCCH-SPATIALRELATIONINFO-STARTPUCCH-SpatialRelationInfo ::= SEQUENCE { pucch-SpatialRelationInfoId PUCCH-SpatialRelationInfoId, servingCellId ServCellIndex OPTIONAL, -- Need S referenceSignal CHOICE { ssb-Index SSB-Index, csi-RS-Index NZP-CSI-RS-ResourceId, srs PUCCH-SRS }, pucch-PathlossReferenceRS-Id PUCCH-PathlossReferenceRS-Id, p0-PUCCH-Id P0-PUCCH-Id, closedLoopIndex ENUMERATED { i0, i1 }}PUCCH-SpatialRelationInfoExt-r16 ::= SEQUENCE { pucch-SpatialRelationInfoId-v1610 PUCCH-SpatialRelationInfoId-v1610 OPTIONAL, -- Need S pucch-PathlossReferenceRS-Id-v1610 PUCCH-PathlossReferenceRS-Id-v1610 OPTIONAL, --Need R ...}PUCCH-SRS ::= SEQUENCE { resource SRS-ResourceId, uplinkBWP BWP-Id}-- TAG-PUCCH-SPATIALRELATIONINFO-STOP-- ASN1STOPFor the other mentioned scenarios, the UE behaviors are shown blow according to 38.213.* If the UE is not provided *pathlossReferenceRSs*, and is not provided *PUCCH-SpatialRelationInfo*, PL-RS is obtained from an SS/PBCH block with same SS/PBCH block index as the one the UE uses to obtain MIB.
* If the UE is provided *pathlossReferenceRSs* and *PUCCH-SpatialRelationInfo*, the DL RS indicated by the *PUCCH-PathlossReferenceRS* with RS ID configured in the *PUCCH-SpatialRelationInfo* is used.
* If the UE is provided *pathlossReferenceRS*s and is not provided *PUCCH-SpatialRelationInfo*, the DL RS indicated by the *PUCCH-PathlossReferenceRS* with reference RS ID 0 is used.
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| Samsung | Given the discussion, we tend to share a view with ZTE that "if *PUCCH-SpatialRelationInfo* is configured, *pathlossReferenceRSs* must be configured since it is not optional parameter”. In our view, one possible option is to send LS to RAN2 and then double-check to RAN2 about whether or not the concerned scenario from RAN4 exists in RAN2 signaling perspective. |