**3GPP TSG-RAN WG1 Meeting #110b-e**   **R1-22xxxxx**

**e-Meeting, October 10th – 19th, 2022**

**Title: Draft** Reply LS on active TCI state list for UL TCI

**Response to:** R4-2214972/R1-2208354

**Release:** Release 17

**Work Item:** NR\_feMIMO-Core

**Source:** RAN1

**To:** RAN4

**Cc:** RAN2

**Contact Person:**

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**1. Overall Description:**

RAN1 would like to thank RAN4 for the question in LS in R4-2214972 on active TCI state list for UL TC.

RAN1 has the following reply to the RAN4 questions:

**Question 1:** What is the relationship between $q\_{d}$ and active UL (or joint) TCI state list? How does network configure the RS resource indexes $q\_{d}$?

**Answer 1**: According to 38.213, “the RS index for obtaining the downlink pathloss estimate for PUSCH ,

PUCCH , and SRS transmission is provided by PL-RS associated with or included in the indicated TCIState or

UL-TCIstate except for SRS transmission that is not provided followUnifiedTCIstateSRS ”

[...]

”if followUnifiedTCIstateSRS is not provided for a SRS resource set and for a SRS resource from the SRS

resource set, [...] a RS index $q\_{d}$ for obtaining a pathloss estimate for the SRS transmission is provided by

PL-RS associated with or included in the TCIState or UL-TCIState of an SRS resource with

lowestSRS-ResourceId in the SRS resource set”

**Question 2**: Is UE expected to maintain the pathloss RSs of all the pathloss reference RS in the active UL (or

joint) TCI list?

**Answer 2**: A UE is expected to maintain the pathloss RSs of all active UL (or joint) TCI states. But the total

number of different path-loss RSs of all active UL (or joint) TCI states is not expected to be larger than 4.

**Question 3**: What is the UE behavior when number of active UL (or joint) TCI states is larger than 4 if

corresponding pathloss RSs need to be maintained?

**Answer 3**: The UE is not required to maintain more than 4 PL-RS. The same PL-RS can be used in

more than one UL or Joint TCI states.

**2. Actions:**

**To RAN4 group.**

**ACTION:** RAN1 requests RAN4 to kindly take the above information into account.

**3. Date of Next TSG-RAN WG1 Meeting:**

RAN1#111 November 14th – November 18th, 2022 Toulouse, FR

RAN1#112 February 27th – March 03rd, 2023 Athens, GR