3GPP TSG RAN WG2#128 R2-24xxxxx

Orlando, US, November 18th - 22nd, 2024

**Title: [Draft] LS on differentiation of sDCI mTRP, mDCI mTRP and sTRP**

**Response to:**

**Release: Release 18**

**Work Item: NR\_MIMO\_evo\_DL\_UL-Core**

**Source: CATT [to be RAN2]**

**To: RAN1**

**Cc:**

**Contact Person:**

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**Attachments:** **None**

# 1 Overall description

In RAN2#124 meeting (RAN1#115 meeting), RAN2 received the reply LS on MIMOevo from RAN1 (R1-2312371). In the reply LS, for the issue about simultaneous unified TCI state(s) update for a list of cells, RAN1 gave the answer as following.

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| Question 2b:  Is there any restrictions in configuring the serving cells of one list for sDCI mTRP, mDCI mTRP or sTRP operation?  Answer 2b:  It has been agreed in RAN1 that cells operated as sDCI mTRP, mDCI mTRP and sTRP should not be configured in the same list, i.e., they should be configured with separate lists for simultaneous unified TCI state(s) update. Other than this, there is no further/other restriction(s). |

In RAN2, how to capture the RAN1 agreed restriction was discussed and the solutions were proposed to separate the cells operated as sDCI mTRP, mDCI mTRP and sTRP. For the proposed solutions, RAN2 has following questions would like to check RAN1’s understanding.

1. sDCI mTRP/sTRP vs mDCI mTRP

In RAN2 current understanding, the number of the configured *coresetPoolIndexes* which is configured per BWP can be used to separate the cells operated as mDCI mTRP from the cells operated as sDCI mTRP/sTRP. With the understanding, the field description of the field *simultaneousU-TCI-UpdateListx* which is configured per cell group can be changed as follows.

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| ***simultaneousU-TCI-UpdateList1, simultaneousU-TCI-UpdateList2, simultaneousU-TCI-UpdateList3, simultaneousU-TCI-UpdateList4***  List of serving cells for which the Unified TCI States Activation/Deactivation MAC CE applies simultaneously, as specified in TS 38.321 [3] clause 6.1.3.47. The different lists shall not contain same serving cells. Network only configures in these lists serving cells that are configured with *unifiedTCI-StateType*. Network should not configure serving cells that are configured with a BWP with different number of *coresetPoolIndexes* in the same list. |

The above highlight sentence also implies that, for each BWP of a serving cell included in one of the above lists, the number of *coreSetPoolIndex* values is the same in every BWP of the serving cell.

**Question 1a:** RAN2 would like to ask if RAN1 has any concern on the above highlight sentence?

**Question 1b:** If there is any concern on Question 1a, what’s RAN1’s suggestion on how to separate the cells operated as sDCI mTRP/sTRP and mDCI mTRP?

1. sTRP vs sDCI mTRP

To separate the cells operated as sTRP and sDCI mTRP, it is proposed to add the following highlight sentence.

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| ***imultaneousU-TCI-UpdateList1, simultaneousU-TCI-UpdateList2, simultaneousU-TCI-UpdateList3, simultaneousU-TCI-UpdateList4***  List of serving cells for which the Unified TCI States Activation/Deactivation MAC CE applies simultaneously, as specified in TS 38.321 [3] clause 6.1.3.47. The different lists shall not contain same serving cells. Network only configures in these lists serving cells that are configured with *unifiedTCI-StateType*. Network should not configure serving cells that are configured with a BWP with different number of *coresetPoolIndexes* in the same list. For each list, the network ensures that either applyIndicatedTCI-State is configured for all ControlResourceSets in all BWPs of all serving cells or applyIndicatedTCI-State is not configured in any ControlResourcesSet of any BWP of any serving cell. |

But some companies understand that *applyIndicateTCI-State* with value “none” configured for *ControlResourceSet* indicates sTRP operation and different channels on a BWP may operate differently.

**Question 2a:** RAN2 would like to ask if RAN1 has any concern on the above highlight sentence?

**Question 2b:** If there is any concern on Question 2a, what’s RAN1’s suggestion on how to separate the cells operated as sTRP and sDCI mTRP?

# 2 Actions

**To RAN1**

**ACTION:** RAN2 respectfully asks RAN1 to discuss and provide answers to the Questions above.

# 3 Dates of next TSG RAN WG2 meetings

TSG-RAN2 Meeting #129 17 - 21 February 2025 Athens, GR

TSG-RAN2 Meeting #129bis 07 - 11 April 2025 China, CN