**3GPP TSG RAN WG1 #117 R1-24xxxxx R1-24xxxxx**

Fukuoka, Japan, May20th – May 25th, 2024

**Source: Moderator (CATT)**

**Title:** **Summary of discussion on Correction on default beam for UL transmission in unified TCI framework**

**Agenda Item:** **7**

**Release: 17**

**WI code: NR\_FeMIMO-Core**

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

1. **Introduction**

This contribution summarizes companies’view about draft CR on Correction on default beam for UL transmission in unified TCI framework.

**Relevant contribution**

R1-2404363 Correction on default beam for UL transmission in unified TCI framework CATT

**Reason for the change:**

In TS 38.214, on the condition of applying default beam for the transmission of dynamic-grant and configured-grant based PUSCH or PUCCH, or SRS, it says the higher layer configuration of *dl-OrJointTCI-StateList* can be configured with more than one *TCI-State* or more than one *TCI-UL-State*. That is incorrect as *TCI-UL-State* is not configured in *dl-OrJointTCI-StateList*.

**Summary of the change:**

Change “After a UE receives a higher layer configuration of *dl-OrJointTCI-StateList* with more than one *TCI-State* or more than one *TCI-UL-State*” to “After a UE receives a higher layer configuration of *dl-OrJointTCI-StateList* with more than one *TCI-State* or *ul-TCI-StateList* with more than one *TCI-UL-State*” in TS38.214.

**The proposed change:**

### 5.1.5 Antenna ports quasi co-location

< Unchanged parts are omitted >

After a UE receives an initial higher layer configuration of *dl-OrJointTCI-StateList* with more than one *TCI-State* or *ul-TCI-StateList* with more than one *TCI-UL-State* and before application of an indicated TCI state from the configured TCI states:

- The UE assumes that the UL TX spatial filter, if applicable, for dynamic-grant and configured-grant based PUSCH and PUCCH, and for SRS applying the indicated TCI state, is the same as that for a PUSCH transmission scheduled by a RAR UL grant or a MsgA PUSCH transmission during the initial access procedure

After a UE receives a higher layer configuration of *dl-OrJointTCI-StateList* with more than one *TCI-State* as part of a Reconfiguration with sync procedure as described in [12, TS 38.331]and before applying an indicated TCI state from the configured TCI states:

- The UE assumes that DM-RS of PDSCH and DM-RS of PDCCH, and the CSI-RS applying the indicated TCI state are quasi co-located with the SS/PBCH block or the CSI-RS resource the UE identified during the random access procedure initiated by the Reconfiguration with sync procedure as described in [12, TS 38.331].

After a UE receives a higher layer configuration of *dl-OrJointTCI-StateList* with more than one *TCI-State* or *ul-TCI-StateList* with more than one *TCI-UL-State* as part of a Reconfiguration with sync procedure as described in [12, TS 38.331] and before applying an indicated TCI state from the configured TCI states:

- The UE assumes that the UL TX spatial filter, if applicable, for dynamic-grant and configured-grant based PUSCH and PUCCH, and for SRS applying the indicated TCI state, is the same as that for a PUSCH transmission scheduled by a RAR UL grant or a MsgA PUSCH transmission during random access procedure initiated by the Reconfiguration with sync procedure as described in [12, TS 38.331].

If a UE receives a higher layer configuration of *dl-OrJointTCI-StateList* with a single TCI-State, that can be used as an indicated TCI state, the UE obtains the QCL assumptions from the configured TCI state for DM-RS of PDSCH and DM-RS of PDCCH, and the CSI -RS applying the indicated TCI state.

If a UE receives a higher layer configuration of *dl-OrJointTCI-StateList* with a single TCI-State or *ul-TCI-StateList* with a single *TCI-UL-State*, that can be used as an indicated TCI state, the UE determines an UL TX spatial filter, if applicable, from the configured TCI state for dynamic-grant and configured-grant based PUSCH and PUCCH, and SRS applying the indicated TCI state.

< Unchanged parts are omitted >

1. **Discussion**

**Question 1:** Are you fine with the change proposed in [1]? If you have a concern, please explain. Do you have specific comments or revisions to the draft CR in [1]?

Please provide your comments on the proposal to the table below

|  |  |
| --- | --- |
| Company | Comments |
| ZTE | With some further check, we are open to the CR. Because it is a editorial change, we prefer to capture it as an alignment CR. |
| Moderator | Thanks ZTE for being flexible. |
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1. **Conclusion**

Based on the input, the following TP is proposed:

### 5.1.5 Antenna ports quasi co-location

< Unchanged parts are omitted >

After a UE receives an initial higher layer configuration of *dl-OrJointTCI-StateList* with more than one *TCI-State* or *ul-TCI-StateList* with more than one *TCI-UL-State* and before application of an indicated TCI state from the configured TCI states:

- The UE assumes that the UL TX spatial filter, if applicable, for dynamic-grant and configured-grant based PUSCH and PUCCH, and for SRS applying the indicated TCI state, is the same as that for a PUSCH transmission scheduled by a RAR UL grant or a MsgA PUSCH transmission during the initial access procedure

After a UE receives a higher layer configuration of *dl-OrJointTCI-StateList* with more than one *TCI-State* as part of a Reconfiguration with sync procedure as described in [12, TS 38.331]and before applying an indicated TCI state from the configured TCI states:

- The UE assumes that DM-RS of PDSCH and DM-RS of PDCCH, and the CSI-RS applying the indicated TCI state are quasi co-located with the SS/PBCH block or the CSI-RS resource the UE identified during the random access procedure initiated by the Reconfiguration with sync procedure as described in [12, TS 38.331].

After a UE receives a higher layer configuration of *dl-OrJointTCI-StateList* with more than one *TCI-State* or *ul-TCI-StateList* with more than one *TCI-UL-State* as part of a Reconfiguration with sync procedure as described in [12, TS 38.331] and before applying an indicated TCI state from the configured TCI states:

- The UE assumes that the UL TX spatial filter, if applicable, for dynamic-grant and configured-grant based PUSCH and PUCCH, and for SRS applying the indicated TCI state, is the same as that for a PUSCH transmission scheduled by a RAR UL grant or a MsgA PUSCH transmission during random access procedure initiated by the Reconfiguration with sync procedure as described in [12, TS 38.331].

If a UE receives a higher layer configuration of *dl-OrJointTCI-StateList* with a single TCI-State, that can be used as an indicated TCI state, the UE obtains the QCL assumptions from the configured TCI state for DM-RS of PDSCH and DM-RS of PDCCH, and the CSI -RS applying the indicated TCI state.

If a UE receives a higher layer configuration of *dl-OrJointTCI-StateList* with a single TCI-State or *ul-TCI-StateList* with a single *TCI-UL-State*, that can be used as an indicated TCI state, the UE determines an UL TX spatial filter, if applicable, from the configured TCI state for dynamic-grant and configured-grant based PUSCH and PUCCH, and SRS applying the indicated TCI state.

< Unchanged parts are omitted >

1. **References**

[1] R1-2404363 Correction on default beam for UL transmission in unified TCI framework CATT