**3GPP TSG-RAN WG4 Meeting # 104-e R4-22xxxxx**

**Electronic Meeting, 15th-26th, Aug., 2022**

**Title:** WF on FeMIMO RRM impact for unified TCI state

**Agenda item:** 9.17.2

**Source:** Intel

**Document for:** Approval

# Way Forward on Unified TCI state

### Sub-topic 1-1 Active UL TCI state

**Issue1-1-1a Whether UE need to track UL time/frequency for UL TCI state activation when DL-RS is associated with serving cell**

* Proposal:
	+ Option 1:
		- No, UL timing for cell with different PCI if derived from DL timing of serving cell
	+ Proposal 2:
		- Depends on whether source RS in active UL TCI state is a subset of source RS in DL active TCI list

**Issue1-1-1b Whether UE need to track UL time/frequency for UL TCI state activation when DL-RS is associated with cell with different PCI**

* Proposal:
	+ Option 1:
		- No, UL timing for cell with different PCI if derived from DL timing of serving cell in Rel-17
	+ Proposal 2:
		- Depends on whether source RS in active UL TCI state is a subset of source RS in DL active TCI list

**Issue1-1-2 PL-RS maintenance for active TCI**

* Agreement
	+ LS is sent to RAN1 for clarification

**Issue1-1-3 The relation of active UL TCI state list with active DL TCI state list**

* Agreement
	+ Independent for separate UL/DL TCI state list indicated by dl-orJoint-TCI-ToAddModList for DL TCI state and ul-TCI-ToAddModList for UL TCI state . But for joint TCI state the same TCI is used for UL and DL indicated by dl-orJoint-TCI-ToAddModList

### Sub-topic 1-2 MAC CE based TCI state Switching delay requirements

 **Issue 1-2-1 Joint TCI switching delay requirement**

* Agreement:
	+ For UL TCI state switching,
		- In case of joint TCI state switch, UE is not expected to transmit on UL before UE completes the DL and UL TCI state switch.
* Proposal:
	+ For DL TCI state switching,
		- [In case of joint TCI state switch, UE is not expected to receive on DL before UE completes the DL and UL TCI state switch.]

**Issue 1-2-2 MAC-CE based UL TCI state switching delay when SSB is indicated as PL-RS in UL TCI state for FR2**

* Proposals
	+ Option 1:
		- Longer delay is expected.
	+ Option 2:
		- Reuse the existing delay requirement of MAC CE based UL TCI state switch.

**Issue 1-2-3 Wording Update of introduction for active DL/UL TCI state switch delay requirements**

* Agreement:
	+ Agreed in CR R4-2214631.

### Sub-topic 1-3 Common TCI state switching in CA case

**Issue 1-3-1 Known condition on shared RS in CA scenario**

* Agreement:
	+ The known condition will depend on the associated RS in common TCI state.

**Issue 1-3-2 Known condition on different RS in CA scenario**

* Agreement:
	+ Reuse the existing known condition. If the source RS is configured per CC, then the known condition is per CC.

**Issue 1-3-3 Common TCI state switching delay requirement**

* Proposals
	+ Option 1:
		- Define the requirement without differentiating the triggering signaling, e.g. unifiedTCI-StateRef or simultaneousU-TCI-UpdateList1/2/3/4-r17.
	+ Option 2:
		- Define the requirement indicated by IE simultaneousU-TCI-UpdateList1/2/3/4-r17.
	+ Option 3:
		- Other options are not precluded

### Sub-topic 1-4 TCI state list update delay

**Issue 1-4-1 Whether to consider unknown TCI state in the TCI state list**

* Proposals
	+ If one or more TCI states in the active TCI state list is unknown, active DL TCI state list update delay is FFS.

**Issue 1-4-2 MAC CE based TCI state list update delay for unknown TCI state**

* Depends on issue 1-4-1.

### Sub-topic 1-5 Clarification on the applicable TCI after DCI BWP switching

**Issue 1-5-1 Clarification on the applicable unified TCI after DCI BWP switching**

* Agreed in CR R4-2214594.