3GPP TSG RAN WG1 #100bis R1-200xxxx

e-Meeting, April 20th – 30th, 2020

**Agenda item: 7.2.10.4**

**Source: Moderator (Nokia)**

**Title: Discussion summary on aperiodic CSI-RS triggering with different numerology between CSI-RS and triggering PDCCH**

**Document for: Discussion and Decision**

# 1 Introduction

This document is used to collect companies views for the issues identified for AI 7.2.10.4 email discussion thread:

[100b-e-NR- LTE\_NR\_DC\_CA-X-CC A-CSI-RS-01] Email approvals of the TPs based on the following issues #1/2/3/4 in R1-2002611 till 4/23 (Nokia, Karri).

# 2 Companies’ views on discussion topics

## 2.1 Issue #1

|  |  |
| --- | --- |
| **Description** | **Source** |
| Scaling of the beam switching timing *d* to the applied SCS is missing from three places | Huawei, vivo |

**FL proposal:** Adopt the TP proposed in R1-2001543 (same TP in both Huawei and Vivo doc) to TS38.214 subclause 5.2.1.5.1a

**Companies’ comments:**

|  |  |
| --- | --- |
| **Company** | **Comment** |
| MTK | We are fine to adopt the FL proposal. |
| OPPO | Support the proposal.  |
| Qualcomm | Agree to adopt the TP. |
| vivo | Support the FL proposal. |
| Intel | We are fine for the FL proposal |
| Huawei, HiSi | agree |

## 2.2 Issue #2

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| --- | --- |
| **Description** | **Source** |
| In agreements of RAN1 #100-e meeting, the value of beam switching timing *d* is added for cross-carrier aperiodic CSI-RS triggering. But the description of *d* value only is for the case that the scheduling offset is smaller than the threshold. The same description of d value can be supplemented for the case that the scheduling offset is equal to or greater than the threshold. | vivo |

**FL proposal:** Adopt the TP proposed in R1-2001690/Proposal 2 to TS38.214 subclause 5.2.1.5.1a

**Companies’ comments:**

|  |  |
| --- | --- |
| **Company** | **Comment** |
| MTK | We are fine to adopt the FL proposal. |
| OPPO | Support the proposal. |
| Qualcomm | Agree to adopt the TP.  |
| vivo | Suppor the FL proposal. |
| Intel | We are fine for the FL proposal |
| Huawei, HiSi | agree |

## 2.3 Issue #3

|  |  |
| --- | --- |
| **Description** | **Source** |
| Incorrect location for the RAN1#100e TP “including the case that the UE is not configured with [*minimumSchedulingOffset*] for any DL or UL BWP and all the associated trigger states do not have the higher layer parameter *qcl-Type* set to 'QCL-TypeD' in the corresponding TCI states”, introduced to 5.2.1.5.1 instead of the intended 5.2.1.5.1a. | Oppo, MTek, Ericsson |

**FL proposal:** Confirm that the text was introduced in a wrong location and move it according to the proposal in R1-2001737 from 5.2.1.5.1 to 5.2.1.5.1a of TS38.214 (essentially the same TP in all three Tdocs)

**Companies’ comments:**

|  |  |
| --- | --- |
| **Company** | **Comment** |
| MTK | We are fine to adopt the FL proposal. |
| OPPO | Support the proposal. |
| Qualcomm | Agree to adopt the TP. |
| vivo | Support the proposal. |
| Intel | We are fine for the FL proposal |
| Huawei, HiSi | agree |

## 2.4 Issue #4

|  |  |
| --- | --- |
| **Description** | **Source** |
| The agreement for default QCL assumption without configured CORESET is only captured in 5.2.1.5.1a for the case that PDCCH and the triggered aperiodic CSI-RS have different SCSs but not in 5.2.1.5.1 for the case that PDCCH and the triggered aperiodic CSI-RS have the same SCS. | Qualcomm |

**FL proposal:** Discuss if the Proposal 1 of R1-2002561 (below) is agreeable, and if so, if the corresponding TP to TS38.214 subclause 5.2.1.5.1 can be agreed:

**Proposal 1:** In case of same numerology A-CSI RS triggering, when the offset between A-CSI RS and triggering DCI is less than *beamSwitchTiming,* capture the default QCL agreement in specification. Adopt the proposed text proposal in 5.2.1.5.1 in TS 38.214

* If no CORESET configured on the carrier for receiving the A-CSI RS, UE receives the A-CSI RS by applying the QCL parameters of the activated PDSCH TCI state with lowest ID.
* else if the active BWP of the serving cell for receiving the aperiodic CSI-RS has configured *ControlResourceSet*, when receiving the aperiodic CSI-RS, the UE applies the QCL assumption used for the CORESET associated with a monitored search space with the lowest *controlResourceSetId* in the latest slot in which one or more CORESETs within the active BWP of the serving cell are monitored.;
* else, when receiving the aperiodic CSI-RS, the UE applies the QCL assumption of the lowest-ID activated TCI state applicable to the PDSCH within the active BWP of the cell in which the CSI-RS is to be received.

**Companies’ comments:**

|  |  |
| --- | --- |
| **Company** | **Comment** |
| MTK | In MR DC/CA UE features discussion, it is discussing * “whether FG[18-6a] for “Default QCL assumption for cross-carrier A-CSI-RS triggering” is kept (i.e., remove bracket) or removed (i.e., added in 18-6)“

If FG[18-6a] is kept, then we can agree on the Proposal. Else, we can not agree on the proposal for now.  |
| Qualcomm | We are fine to discuss this issue after UE feature discussion on FG 18-6a. |
| vivo | Support the TP from QC. |
| Intel | We support the TP from QC. The early agreement is generally applicable for cross-carrier scheduling with same and different numerology.  |
| Huawei, HiSi | Depend on the output of UE feature discussion. |

# 3 Moderator’s intermediate summary 23.4.2020

**Issue #1**: FL proposal unanimously agreeable:

* Adopt the TP proposed in R1-2001543 (same TP in both Huawei and Vivo doc) to TS38.214 subclause 5.2.1.5.1a

**Issue #2**: FL proposal unanimously agreeable:

* Adopt the TP proposed in R1-2001690/Proposal 2 to TS38.214 subclause 5.2.1.5.1a

**Issue #3**: FL proposal unanimously agreeable:

* Confirm that the text was introduced in a wrong location and move it according to the proposal in R1-2001737 from 5.2.1.5.1 to 5.2.1.5.1a of TS38.214 (essentially the same TP in all three Tdocs)

**Issue #4**: Postpone the issue until FG18-6a discussion is closed.

* Many companies note that this is dependent on the UE feature discussion FG18-6a and has to be postponed until the feature discussion is closed.

# References

1. R1-2001543 Remaining issues on the A-CSI RS triggering with different numerology Huawei, HiSilicon
2. R1-2001690 Remaining issues on aperiodic CSI-RS triggering vivo
3. R1-2001737 Text proposals for aperiodic CSI-RS triggering with different numerologies OPPO
4. R1-2001836 Remaining issues on X-carrier ACSI-RS triggering with different SCS MediaTek Inc.
5. R1-2002496 Correction to aperiodic CSI-RS triggering with mixed numerology Ericsson
6. R1-2002561 Remaining issues for aperiodic CSI-RS triggering with different numerology Qualcomm Incorporated
7. R1-2002611 FL summary on aperiodic CSI-RS triggering with different numerology between CSI-RS and triggering PDCCH Moderator (Nokia)
8. R1-2002612 FL summary #2 on aperiodic CSI-RS triggering with different numerology between CSI-RS and triggering PDCCH Moderator (Nokia)