**3GPP TSG RAN WG1 #101 R1-200xxxx**

**e-Meeting, May 25th– June 5th, 2020**

Agenda Item: 7.2.6.3

Source: Moderator (Apple)

Title: Feature Lead Summary on L1-SINR and SCell BFR email thread #2

Document for: Discussion/Decision

# Introduction

In this contribution, we provide a summary of issues on L1-SINR and SCell BFR email thread #2.

# Details for TPs

## Editorial Corrections

### Alignment between 38.213 and 38.331

Reason for changes

Align the RRC parameter for SCell BFR based on latest 38.331.

Summary of changes

Correct RRC parameter name for BFD and CBD related parameters.

Consequences if not approved

Misalignment between 38.331 and 38.213.

***TP 2.1.1 for 38.213***

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| 38.213 section 6A UE can be provided, for each BWP of a serving cell, a set  of periodic CSI-RS resource configuration indexes by *failureDetectionResources* and a set  of periodic CSI-RS resource configuration indexes and/or SS/PBCH block indexes by *candidateBeamRSList* or *candidateBeamRSSCellList-r16* for radio link quality measurements on the BWP of the serving cell. If the UE is not provided  by *failureDetectionResources* or *beamFailureDetectionResourceList* for a BWP of the serving cell, the UE determines the set  to include periodic CSI-RS resource configuration indexes with same values as the RS indexes in the RS sets indicated by *TCI-State* for respective CORESETs that the UE uses for monitoring PDCCH and, if there are two RS indexes in a TCI state, the set  includes RS indexes with QCL-TypeD configuration for the corresponding TCI states. The UE expects the set  to include up to two RS indexes. The UE expects single port RS in the set . The thresholds Qout,LR and Qin,LR correspond to the default value of *rlmInSyncOutOfSyncThreshold*, as described in [10, TS 38.133] for Qout, and to the value provided by *rsrp-ThresholdSSB* or *rsrp-ThresholdBFR-r16*, respectively. \*\*\* Unchanged text is omitted \*\*\*A UE can be provided, by *schedulingRequestID-BFR-SCell-r16*, a configuration for PUCCH transmission with a link recovery request (LRR) as described in Clause 9.2.4. The UE can transmit in a first PUSCH one MAC CE providing index(es) for at least corresponding SCell(s) with radio link quality worse than Qout,LR, indication(s) of presence of for corresponding SCell(s), and index(es) for a periodic CSI-RS configuration or for a SS/PBCH block provided by higher layers, as described in [11, TS 38.321], if any, for corresponding SCell(s). After 28 symbols from a last symbol of a PDCCH reception with a DCI format scheduling a PUSCH transmission with a same HARQ process number as for the transmission of the first PUSCH and having a toggled NDI field value, the UE |

**Companies view and comments**

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| Company | View |
| Ericsson | Support |
| Sony | Support |
| Nokia/NSB | Support |
| ZTE | Support |
| Apple | Support |
| CATT | Support |
| Intel | OK |
| Qualcomm | Support |
| OPPO | Ok |
| LG | OK |
| Samsung | OK |
| DOCOMO | Support |
| Lenovo, Motorola Mobility | Support |
| MediaTek | Support |
| Huawei, HiSilicon | Ok |

### clarification for new beam identification

Reason for changes

It has been agreed in RAN1#96b that new beam identification for SCell can be based on SSB and CSI-RS for beam management, with which CSI-RS for other purposes are not included. However the current spec allows for CSI-RS for other purposes, which is not aligned with the agreement.

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| **Agreement (RAN1#96b)**Downlink RS for new beam identification can be based on SSB and CSI-RS for BM |

Summary of changes

Capture the agreement that new beam identification for SCell can be based on SSB and CSI-RS for BM only.

Consequences if not approved

Missing agreement and extra UE complexity.

***TP 2.1.2 for 38.213***

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| < Start of text proposal on TS 38.213 v16.1.0 Section 6>< Unchanged parts are omitted >A UE can be provided, for each BWP of a serving cell, a set  of periodic CSI-RS resource configuration indexes by *failureDetectionResources* or *beamFailureDetectionResourceList* and a set  of periodic CSI-RS resource configuration indexes associated with *NZP-CSI-RS-ResourceSet* configured with higher layer parameter *repetition,* and/or SS/PBCH block indexes by *candidateBeamRSList* or  *candidateBeamRSListExt-r16* for radio link quality measurements on the BWP of the serving cell. If the UE is not provided  by *failureDetectionResources* or *beamFailureDetectionResourceList* for a BWP of the serving cell, the UE determines the set  to include periodic CSI-RS resource configuration indexes with same values as the RS indexes in the RS sets indicated by *TCI-State* for respective CORESETs that the UE uses for monitoring PDCCH and, if there are two RS indexes in a TCI state, the set  includes RS indexes with QCL-TypeD configuration for the corresponding TCI states. The UE expects the set  to include up to two RS indexes. The UE expects single port RS in the set .< Unchanged parts are omitted >< End of text proposal on TS 38.213 v16.1.0 Section 6> |

**Companies view and comments**

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| Company | View |
| Ericsson | Do not support.Leads to unnecessary configuration overhead – what would be the technical effect of assigning these CSI-RS resources to a set? The intent of the agreement was to reuse the R15 rules. We would be OK to write single-port CSI-RS.  |
| Sony | Support. The TP strictly follows the Agreement that RAN1 made. In addition, from UE’s perspective, it can avoid unnecessary measurement, if *NZP-CSI-RS-ResourceSet* not configured with higher layer parameter *repetition*. |
| Nokia/NSB | Do not support.We don’t see that the agreement excludes other CSI-RS to be configured for new beam indication. We also have a concern to translate CSI-RS for BM as CSI-RS with repetition. As Ericsson suggested, ’single-port’ CSI-RS would be a sufficient description.  |
| ZTE | Regarding the first part related to ”repetition”, we share the same views with Ericsson. We do NOT introduce any further condition for Scell-BFR compared with Pcell-BFR.Regarding the second part, we can support it, which can be merged with the TP in issue 2.1.1. |
| Apple | Do not support the first part, okay with the second part.Two more things* As suggested by Ericsson, it would be good to clarify the single port CSI-RS
* *beamFailureDetectionResourceList* seems to be a wrong RRC IE. Below is 38.331

*failureDetectionResourcesToAddModList SEQUENCE (SIZE(1..maxNrofFailureDetectionResources)) OF RadioLinkMonitoringRS* *OPTIONAL, -- Need N* *failureDetectionResourcesToReleaseList SEQUENCE (SIZE(1..maxNrofFailureDetectionResources)) OF RadioLinkMonitoringRS-Id* |
| CATT | Do not support the first change as it’s leads to uncessary restriction. Fine with the second change. |
| Intel | Support TP |
| Qualcomm | Not support 1st part. But ok for the 2nd part.  |
| OPPO | Support the TP. It is good to clarify the CSI-RS is CSI-RS for BM |
| LG | Supportive on the motivation of the TP because it is intended to capture the agreement. On the other hand, Ericsson’s concern also makes sense. It may be also considerable to clarify the characteristic of CSI-RS for BM instead of using a resource set with ’repetition’ because these resources may not necessarily be grouped for a single beam report, therefore, it could be translated into the CSI-RS density, number of ports(1 or 2), ... for the BM. |
| Vivo | The second change is also covered by issue 2.1.1. |
| Samsung | Do not support. Agree with Ericsson’s and Nokia’s assessment. The agreement says that CSI-RS/SSB for BM can be used, but does not imply that ONLY CSI-RS/SSB for BM can be used. The proposed changes seem too restrictive. |
| DOCOMO | Agree with Ericsson/Nokia/Samsung.Not support the 1st part. We are fine for the 2nd part.  |
| Lenovo, Motorola Mobility | We do not agree with the first part regarding CSI-RS for the same reason of Ericsson. We are OK with the change regarding SSB.  |
| MediaTek | We don’t support the first part because this restriction is unnecessary. We support the second part. The second part can be merged into 2.1.1. Thus, we can have total 3 RRC parameters (2 for SpCell and 1 for Scell).  |
| Huawei, HiSilicon | Our intention is to capture the agreement as it is, and the agreement says CSI-RS for BM without saying it has to be 1-port. We did not intend to put these CSI-RS into one set, but instead to follow the agreement they should be linked with some CSI-RS resource set(s) with repetition. In this direction, we are fine to change the addition as "associated with NZP-CSI-RS-ResourceSet(s) configured with higher layer parameter repetition".We are also open to make a conclusion that previous agreement is reverted and any CSI-RS can be configured as candidate beam RS (or restricting to 1-port CSI-RS). |