**3GPP TSG RAN WG1 #110bis-e R1-220xxxx**

**e-Meeting, October 10th – 19th, 2022**

**Source: Moderator (Intel Corporation)**

**Title: Moderator Summary for Rel. 17 NR FeMIMO –**

**Maintenance on HST-SFN (Round 0)**

**Agenda item: 8.1**

**Document for: Discussion and Decision**

# Introduction

A moderator summary of maintenance issues related to Rel-17 FeMIMO HST-SFN based on contributions submitted to RAN1#110bis-e is provided below. A total of xx issues have been identified. Along with the issue summaries, an initial moderator assessment on which topics should be discussed in RAN1#110bis-e is also provided. The initial assessment is based on discussions from previous meetings, if any, and can be further updated based on company inputs.

Since there is no preparation phase in RAN1#110bis-e as per Mr. Chairman’s guidance, companies are requested to **provide their inputs on Issues 1-4 by Oct 12, 2022, UTC 10:00.** Based on the inputs, the issues to be treated in RAN1#110bis-e can be finalized.

# Maintenance Issues

* 1. Issue 1: CORESET#0 associated with SS#0 in Type 0/0A/2 CSS

Two companies LGE [1], Lenovo [2] have provided draft CRs to capture the following agreement from RAN1-110 in TS 38.213.

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| **Agreement**  UE does not expect CORESET#0 to be activated with two TCI states when it is associated with SS#0 for Type 0/0A/2 CSS |

Table 1: Summary of Issue 1

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| --- | --- | --- |
| **Issue (summary of CR proposal)** | **Initial FL assessment** | **Company inputs (if any)** |
| In RAN1#110, potential UE behavior for monitoring Type0/0A/2-PDCCH CSS when two TCI states are activated for CORESET 0 was discussed and it was agreed that UE does not expect CORESET#0 to be activated with two TCI states when it is associated with SS#0 for Type 0/0A/2 CSS.  **Summary of change:** The agreement should be captured in Section 10.1 of TS38.213 | Discuss in RAN1#110bis-e | * **Discuss:** * **Not Discuss:** |

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| --- | --- |
| **Company Name** | **Company inputs (if any)** |
| Mod | This is a valid issue, and the CR is needed to capture the agreement from RAN1-110. Both CRs provide almost identical corrections and either one can be selected. Therefore, initial FL assessment is to treat and conclude this issue in RAN1-110bis-e. Companies can provide further comments. |
| Samsung | We are fine to discuss and support to capture the above agreement. |
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* 1. Issue 2: Default QCL Assumption

One company, ZTE, has provided a draft CR on default QCL assumptions for prioritizing PDCCH reception when associated CORESET overlaps with SFN-PDSCH [3] regardless of whether one or two TCI states are configured for CORESET. The summary of proposed changes is provided below.

Table 2: Summary of Issue 2

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| **Issue (summary of CR proposal)** | **Initial FL assessment** | **Company inputs (if any)** |
| Draft CR for TS 38.214 Section 5.1.5 provided in [3]:  **Summary of change**: In the case of SFN based transmission is configured for PDCCH and not configured for PDSCH, the reception of PDCCH should have higher priority, regardless of ‘with single active TCI state’ or not. Then, one editorial typo is corrected. | Discuss in RAN1#110bis-e | * **Discuss:** * **Not Discuss:** |

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| --- | --- |
| **Company Name** | **Company inputs (if any)** |
| Mod | A CR on this issue was endorsed in RAN1-110 in R1-2208092. The current proposal from ZTE is based on this CR and proposes to change the wording “CORESET with single active TCI state” to “CORESET”.  Initial FL assessment is to discuss this issue in RAN1-110bis-e. Companies can provide further comments to clarify if they think this is an essential correction. |
| Samsung | We are fine to discuss and support in principle since there can be overlapping case between CORESET with two TCI states and PDSCH with default beam. |
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* 1. Issue 3: SFN Dynamic Switching Terminology in 38.214

A joint draft CR from Ericsson and Qualcomm has been submitted to align terminology of TS 38.214 with UE capability parameters in TS 38.306 [4]. The summary of proposed changes is provided below.

Table 3: Summary of Issue 3

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| **Issue (summary of CR proposal)** | **Initial FL assessment** | **Company inputs (if any)** |
| Draft CR for TS 38.214 Section 5.1.5 provided in [4]:  **Summary of change**:  Change 1: Replace undefined terminology and acronym “SFN PDSCH and non-SFN PDSCH” with correct UE capability parameters from 38.306.  Change 2: Replace undefined UE capability “[dynamicSFN]” with correct UE capability parameters from 38.306.  Change 3: Add UE capability parameter sfn-DefaultDL-BeamSetup-r17 before “DCI scheduling without TCI field” to clarify the related UE capability. | **Editorial** - Discuss in RAN1#110bis-e | * **Discuss:** * **Not Discuss:** |

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| **Company Name** | **Company inputs (if any)** |
| Mod | This is a valid issue and should be editorial in nature. Initial FL assessment is to discuss this issue in RAN1#110bis-e |
| Samsung | We are fine to discuss. |
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* 1. Issue 4: Default UL beam setup for SFN PDCCH

One company, Ericsson, has submitted a draft CR on default UL beam setup for SFN-PDCCH in [5]. The summary of changes is provided in Table 4.

Table 4: Summary of Issue 4

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| **Issue (summary of CR proposal)** | **Initial FL assessment** | **Company inputs (if any)** |
| Draft CR for TS 38.214 Sections 6.1 and 6.2.1 provided in [5]:  **Summary of change**:  Change 1: Replace undefined UE capability “[*DefaultBeamPL-ForPUSCH-SfnPdcch*]” with related UE capability parameter from 38.306.  Change 2: Replace undefined UE capability “[*DefaultBeamPL-ForSRS-SfnPdcch*]” with correct UE capability parameter from 38.306. | **Editorial** - Discuss in RAN1#110bis-e | * **Discuss:** * **Not Discuss:** |

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| --- | --- |
| **Company Name** | **Company inputs (if any)** |
| Mod | This is a valid issue and should be editorial in nature. Initial FL assessment is to discuss this issue in RAN1#110bis-e |
| Samsung | We are fine to discuss and can be treated as editorial. |
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# References

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|  | R1-2208890 | Draft CR on Type0/0A/2 PDCCH CSS for HST-SFN | LG Electronics |
|  | R1-2208755 | Draft CR on not activating two TCI states for CORESET#0 associated with SS#0 for Type 0/0A/2 CSS to TS38.213 | Lenovo |
|  | R1-2208760 | Draft CR on default QCL assumption in HST-SFN in TS 38.214 | ZTE |
|  | R1-2210076 | Draft CR on SFN dynamic switching | Ericsson, Qualcomm |
|  | R1-2210077 | Draft CR on default UL beam setup for SFN PDCCH | Ericsson |