3GPP TSG-RAN WG1 Meeting #113 R1-23xxxxx

Incheon, Korea, May 22 – 26, 2023

Agenda Item: 9.17

Source: Ericsson

Title: Editor’s summary on draft CR 38.211 for NR\_MIMO\_evo\_DL\_UL-Core

Document for: Discussion, Decision

# 1 Introduction

This document is intended to facilitate the review process of the draft CR 38.211 for NR\_MIMO\_evo\_DL\_UL-Core.

# 2 Discussion – first round

Please provide your comments on **the latest version of the draft CR on 38.211** available in this folder.

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| --- | --- |
| **Company** | **Comment** |
| QC | We thank Stefan very much for putting together the CR for Rel-18 MIMO for 38.211. In the following, we share some comments/suggestions.1. Regarding “Table 6.3.1.5-8: Precoding matrix type A with 8 antenna groups for single-layer transmission using eight antenna ports. Up to 8 layers are supported with transform precoding disabled and up to one layer with transform precoding enabled”: the highlighted part seems inaccurate. Like the subsequent sentence explained, up to 8 layers can be supported with transform precoding disabled.
2. Regarding “Table 6.3.1.5-9: Precoding matrix type B with one antenna group for single-layer transmission using eight antenna ports with transform precoding disabled”: this table can be applied to single-layer transmission with transform precoding enabled, similar to Table 6.3.1.5-8. The same comment applies to Table 6.3.1.5-17.
3. In section 6.4.1.1.3 and Section 7.4.1.1.2, the following equation seems not working for enhanced type 1 and type 2, if I don’t miss anything.

For enhanced type 1 and 2, it looks to me that we need where . The reason we need double the scaling factor before n is because now the range of is doubled. Again, I may be wrong about the above. Please feel free to correct me.1. Regarding the following update in 6.4.1.4.2, we have two comments/questions.

The cyclic shift for antenna port if the higher-layer parameter XXX\_TDM is not configured is given as ,* 4.a) The equations seem not aligned with the agreement (or legacy equation in spec). In agreement , we have “For port , ” where . There are some differences between the above and the agreement, which might leads to different outcome from the equation in the agreement. Although I did not check, but it seems no reason to deviate from the agreement, unless I missed something.

4.b) Why the first equation (/4) is applied to ? If I recall correctly, 4 comb offsets, i.e., is agreed with comb-8 SRS, i.e., 8. With 8, should be 6. So, in my view, the first equation (with modification to take care of previous comment) should apply to . But again, maybe I missed something, Please feel free to correct me.  |
| **OPPO** | 1. The power scaling among TDMed SRS ports has been specified in 38.213. It is not needed to consider additional power boosting in 6.4.1.4.3 (Mapping to physical resources) for
2. For Table 6.4.1.1.3-5, when single symbol is configured, the antenna ports are {0-3, 8-11} for etype 1 DMRS and {0-5, 12-17} for etype 2 DMRS. The same for PDSCH DMRS.

**Table 6.4.1.1.3-5: PUSCH DM-RS frequency index and time index .**

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| --- | --- | --- | --- | --- |
| **DM-RS multiplexing**  | **DM-RS duration** |  |  | **Supported antenna ports**  |
| **Configuration type 1** | **Configuration type 2** |
| Basic | single-symbol DM-RS | 0, 1 | 0 | 0 – 3 | 0 – 5  |
| double-symbol DM-RS | 0, 1 | 0, 1 | 0 – 7  | 0 – 11 |
| Enhanced | single-symbol DM-RS | 0, 1, 2, 3 | 0 | 0 – 3, 8 - 11 | 0 – 5, 12 - 17 |
| double-symbol DM-RS | 0, 1, 2, 3 | 0, 1 | 0 – 15 | 0 – 23  |

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| CATT | Comment 1: In section 6.4.1.1.3 and section 7.4.1.1.2, mapping equation is not working for enhanced configuration type 1 and type 2, as mentioned by QC. Except for the modification from QC, taking CDM group 0 as an example, the equation should also ensure that DMRS occupies the 1st, 2nd, 7th, and 8th REs in one RB for enhanced configuration type 2. Therefore, the following modification is suggested. |
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