3GPP TSG-RAN WG1 Meeting #101 Tdoc R1-20nnnn

eMeeting, May 25th – June 5th, 2020

Agenda Item: 7.2.6.5

Source: Moderator (Ericsson)

Title: FL summary 1 of low PAPR RS

Document for: Discussion

# 1 Introduction

This document contains the feature lead summary of critical issues related to maintenance of the low PAPR RS topic under Rel-16 eMIMO WI. Note that the number of low PAPR RS sub topics is restricted to two topics in this e-meeting.

Hence, the first phase discussion will be used to select two topics from the below list of six. In addition, if there are no objections, the editorial issues will be sent to the corresponding editors for inclusion in the next version of the specification.

# 2 Low PAPR RS maintenance issues

In the summary below, six identified issues are found plus one editorial. This low PAPR subtopic allows two issues/threads to be selected for the e-meeting discussions next week. Please share your views on the priority of these issues (1-6) by the following, using the first table below.  Please also indicate whether you are OK or not with the editorial issue 7, in which case there are no concerns, I will notify the spec editor(s) for inclusion in the next spec version.

* H- High priority
* M-Medium priority
* L-Low priority
* N-Not needed/disagree that this is an issue

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| --- | --- |
| **Company** | **Issue Index** |
| **1** | **2** | **3** | **4** | **5**  | **6** | **7 (editorial)** | **8 (editorial)** |
|  Ericsson | L | H | M | N | L | L |  OK |  |
| ZTE | L | H | H | N | L | L | should be 6.4.1.1.1.2 |  |
| Nokia/NSB | L | H | H | N | L | L | 6.4.1.1.1 is still OK, but also fine with 6.4.1.1.1.2 as ZTE indicated. |  |
| Samsung | L | H | M | N | L | L | OK with ZTE’s correction |  |
| OPPO | L | H | H | N | L | L | L | L |
| vivo | L | H | H | N | L | L | Agree with ZTE’s correction  |  |

Also, if you have comments, please use the table below:

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| --- | --- |
| **Company** | **Comment** |
| Ericsson | Issue 1,5 and 6 can be handled in company CR phase later. Issue 2 and 3 seem most useful for discussion. Issue 4 may be technically useful but is not an essential correction.  |
| ZTE | - Issue 3 has been raised in several meetings. We hope to close it in this meeting. Either to agree or reject it is fine for us. - We sympathize the issue 4 technically, but it is too late to further check the evaluation. - Issue 6 is nothing related with low PAPR RS. In addition, it is clear enough for the relationship between DMRS port and CDM group based on table 6.4.1.1.3-1 in 38.211. |
| Nokia/NSB | Issue 1 and 5 are fine but not so urgent. Issue 6 is clear enough with the current text, so we dont see it is required. Issue 2 and 3 shall be discused in thie meeting. Issue 4 is technically fine but not seems critical but ist complexity.In addition, in R1-2004268, there is one editorial correction to clarify the configured grant shall be „type 1“. If possible, it can be discussed with Issue 2.  |
| OPPO | Issue 1, 5, 6, 7, 8 can be regarded as editorial changes in some sense (Editorial change in R1-2004050 is missing. Thus I add it as Issue 8)Issue 2: The condition should be included Issue 3: It is prefered to capture the previous agreementIssue 4: Too late to discusison new optimization at the maintanence stage |
| vivo | Issue 2 and 3 should be discussed with high priority.Issue 1, 5, 6 can be left to next meeting.The intention of issue 7 is changing 6.4.1.1.1.1 to 6.4.1.1.1.2 for antenna ports field in DCI format 0\_1, which is algined with antenna ports field in DCI format 0\_2. |

## 2.1 Identified issues

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| Issue # | Description | Tdoc |
| 1 | For PUSCH, clarify in 38.211 that $n\_{SCID}$ is given by antenna ports field in DCI | R1-2003400 |
| 2 | In 38.214, there is a missing case for determining the $n\_{ID}^{RS}$: “the higher-layer parameter *dmrsUplinkTransformPrecoding-r16* is configured and π/2-BPSK modulation is not used for PUSCH”. | R1-2003534R1-2004268R1-2003707 |
| 3 | It was agreed that the PUCCH with pi/2-BPSK DMRS multiplexing capacity is a single port, the spec is missing the description  | R1-2003663R1-2004268 |
| 4 | Proposal to improve interference randomization for the case of length 12 and 24 CGS sequences for PUCCH.  | R1-2003744 |
| 5 | A sentence that the low-PAPR sequence of type 2 changes for different values of $α$ and $δ$ in Section 5.2.3 is incorrect and should be removed/replaced.  | R1-2004050 |
| 6 | RAN1 have introduced different DMRS sequence  on different DMRS ports associated with different CDM group $λ$ in Rel.16 PUSCH, The specification in 38.211, clause 6.4.1.2.1.1 does not clearly specify  for a PTRS port  or  is based on which CDM group | R1-2004466 |

## 2.2 Editorial issues

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| Issue # | Description | Tdoc |
| 7 | In 38.212, the reference to 38.211 is wrong, it should be Clause 6.4.1.1.2 instead of 6.4.1.1.1.  | R1-2003400 |
| 8 | In Section 7.4.1.1.1 of TS 38.211, *dmrsDownlink-r16* should be *dmrs-Downlink-r16* | R1-2004050 |