**3GPP TSG-RAN WG1 Meeting #106-e R1-210xxxx**

**e-Meeting, Aug 17th – 28th, 2021**

**Agenda Item: 7.2.1**

**Source: Moderator (ZTE)**

**Title: FL summary on the maintenance of 2-step RACH**

**Document for: Discussion**

# Introduction

This document contains the summary of issues related to the maintenance of Rel-16 2-step RACH WI in RAN1#106-e meeting.

# Preparation phase discussion

The following 2 CRs are submitted to the maintenance of Rel-16 2-step RACH in RAN1#106-e.

|  |  |  |  |
| --- | --- | --- | --- |
| Issue # | Description | Affected spec | TDoc # |
| 1 | Editorial correction on the DMRS port of MsgA PUSCH | TS38.214 | R1-2107009 |
| 2 | Spatial domain transmission filter for PUCCH | TS38.213 | R1-2107261 |

To share the views on the necessity of the above issues, please fill in ‘Yes/No/Editorial’ to the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| Company | Issue #1 | Issue #2 | Comments |
| CATT | Editorial | Yes | Issue#1 is editorial issue and both issues can be discussed during this meeting. |
| Intel | Editorial | No | Editorial change for issue#1.  For issue#2, in Section 8.2A, spatial filter for PUCCH transmission during 2-step RACH procedure was clearly defined as follows. It is not clear to us the proposed change is needed.  - the PUCCH transmission is with a same spatial domain transmission filter and in a same active UL BWP as a last PUSCH transmission |
| Nokia, Nokia Shanghai Bel | Editorial | No | For issue #2 the needed text has already been captured in section 8.2A of 38.213. |
| vivo | Editorial | No | We share the same view as Intel that Spatial domain transmission filter for PUCCH has been already specified in the spec. |
| Samsung | Editorial | No (but a new one could be discussed) | Agree with intel’s assessment on issue#2.  In addition, we may find the cited text by [2] was also questionable, i.e., “The UE transmits the PUCCH using the same spatial domain transmission filter as for a PUSCH transmission scheduled by a RAR UL grant as described in Clause 8.3.” Since Msg.3 could be scheduled by DCI as re-transmission, and the beam for msg3 initial and re-transmission is up to UE; so is it correct to always use RAR scheduled msg3 beam (i.e., initial msg3 transmission) for PUCCH? Or it is too late to change since R15 is specified like this. |

The scope for the email discussion will be updated later based on companies’ comments.

# Email discussions

# Summary

The outcome of email discussion will be updated later.

Any other comments?

|  |  |
| --- | --- |
| Company | Comment |
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# References

1. R1-2107009 Editorial correction on the DMRS port of MsgA PUSCH ZTE
2. R1-2107261 Draft CR on spatial domain transmission filter for PUCCH OPPO

# Appendix

List of proposals in the submitted contributions.

|  |  |
| --- | --- |
| TDoc | Proposals |
| R1-2107009, ZTE | ***Reason for change:*** Misalignment of higher-layer parameter name between 38.214 and 38.331.  ***Summary of change:*** Alignment of higher-layer parameter name.  ***Consequences if not approved:*** Implementation error may occur due to the misalignment of the parameter name.  ========CR to TS38.214======= 6.2.2 UE DM-RS transmission procedure < Unchanged parts are omitted >  For MsgA PUSCH transmission, if the UE is not configured with *msgA-PUSCH-NrofPorts,* the UEshall assume that 4 ports are configured per DM-RS CDM group for double-symbol DM-RS. Otherwise, *msgA-PUSCH-NrofPorts* with value of 0 indicates the first port per DM-RS CDM group, while a value of 1 indicates the first two ports per DM-RS CDM group.  < Unchanged parts are omitted > |
| R1-2107261, OPPO | ***Reason for change:***  In current spec, regardless of random access scheme, spatial domain transmission filter for PUCCH is always the same as PUSCH transmission scheduled by a RAR UL grant.  However, when 2-step RACH is applied, there is no PUSCH transmission scheduled by a RAR UL grant. The spatial domain transmission filter for PUCCH can be not be determined.  In 2-step RACH procedure, PUSCH for Type-2 random access procedure has similar function and transmission parameter as PUSCH scheduled by a RAR UL grant in legacy random access procedure. So, it is straightforward to apply the same spatial domain transmission filter for PUCCH as PUSCH for Type-2 random access procedure when 2-step RACH is applied.  ***Summary of change:***  PUCCH uses the same spatial domain transmission filter as for PUSCH for Type-2 random access procedure.  ***Consequences if not approved:***  Spatial domain transmission filter determination for PUCCH is missed when 2-step RACH is applied.  ========CR to TS38.213======= 9.2.1 PUCCH Resource Sets <Unchanged part omitted>  The UE transmits the PUCCH using the same spatial domain transmission filter as for a PUSCH transmission scheduled by a RAR UL grant as described in Clause 8.3 or PUSCH for Type-2 random access procedure as described in Clause 8.1A  <Unchanged part omitted> |