**3GPP TSG-RAN WG1 Meeting #105-e R1-210xxxx**

**e-Meeting, May 10th – 27th, 2021**

**Agenda Item: 7.2.1**

**Source: Moderator (ZTE)**

**Title: Summary of email discussion for [105-e-NR-2step-RACH-01]**

**Document for: Discussion**

# Introduction

This document is intended to address the following corrections for 2-step RACH by email discussion.

[105-e-NR-2step-RACH-01] Discuss the potential LS to RAN2 on the description of RRC parameter p0-AlphaSets and whether 4-step RACH can be absent for any of the BWPs, till 5/24 – Li (ZTE)

# On the description of RRC parameter *p0-AlphaSets*

In R1-2103403, it is pointed out that the descriptions of *p0-AlphaSets* in RRC spec. are not aligned with what are described in 38.213 in following aspects:

* *p0-AlphaSets* is only for normal PUSCH according to 38.213, not for msgA PUSCH, while RRC spec. only says “except msg3”

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| ***p0-AlphaSets***configuration {p0-pusch, alpha} sets for PUSCH (except msg3), i.e., {{p0,alpha,index1}, {p0,alpha,index2},...} (see TS 38.213 [13], clause 7.1). When no set is configured, the UE uses the P0-nominal for msg3 PUSCH, P0-UE is set to 0 and alpha is set according to msg3-Alpha configured for msg3 PUSCH. |

***Proposal 1:***

* Inform RAN2 about the following change on the description of *p0-AlphaSets* parameter in RRC specification for Rel-16.

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| ***p0-AlphaSets***configuration {p0-pusch, alpha} sets for PUSCH (except msg3 and msgA), i.e., {{p0,alpha,index1}, {p0,alpha,index2},...} (see TS 38.213 [13], clause 7.1). When no set is configured, the UE uses the P0-nominal for msg3 PUSCH, P0-UE is set to 0 and alpha is set according to msg3-Alpha configured for msg3 PUSCH. |

## Comments to proposal 1

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# On the clarification of 2-step RACH only operation

In R1-2103403, it was further mentioned that in NR release 16, it is possible that msg3 is not configured in all BWPs. Therefore there could be some problem on the determination of P0-nominal, alpha, and waveform for the PUSCH.

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| ***p0-AlphaSets***configuration {p0-pusch, alpha} sets for PUSCH (except msg3), i.e., {{p0,alpha,index1}, {p0,alpha,index2},...} (see TS 38.213 [13], clause 7.1). When no set is configured, the UE uses the P0-nominal for msg3 PUSCH, P0-UE is set to 0 and alpha is set according to msg3-Alpha configured for msg3 PUSCH. |

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| ***transformPrecoder***The UE specific selection of transformer precoder for PUSCH (see TS 38.214 [19], clause 6.1.3). When the field is absent the UE applies the value of the field *msg3-transformPrecoder*. |

However, based on the discussion in the last meeting as well as the preparation phase of this meeting, companies have different views on whether the issue exists or not. Some companies though it would be a misconfiguration if 4-step RACH is not configured on any of the BWPs.

***Proposal 2:***

To achieve common understanding on one of the following alternatives. Ask RAN2 if this is not achievable in RAN1.

* Alt 1: 4-step RACH can be absent on all BWPs in Rel-16
* Alt 2: 4-step RACH should be configured at least on the initial BWP in Rel-16

## Comments to proposal 2

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# Summary

The draft LS are to be updated…

# References

1. R1-2105507 Discussion on corrections for 2-step RACH Ericsson