**3GPP TSG RAN WG1 #106-e R1-** **21xxxxx**

**e-Meeting, August 16th – 27th, 2021**

**Agenda Item: 8.8**

**Source: Moderator (China Telecom)**

**Title: [Post-106-e-Rel17-RRC-08] NR coverage enhancement**

**Document for: Discussion**

1. Introduction

As per Chair’s guidance, there are a number of email threads on Rel-17 RRC parameters. The email discussions on RRC parameters start from September 1 until September 10 (excluding the weekend). The purpose of these email discussions is to initiate preparations to send the first LS to RAN2 on Rel-17 RRC parameters in October (e.g. tabulate agreed RRC parameters so far and identify ones that RAN1 should discuss whether or not to define). Please note that RAN1 will NOT be making any decision with regards to the Rel-17 RRC parameters during the email discussions. The intention is to provide initial assessment on RRC parameters and collect company views.

This contribution is a summary of the following email discussion:

[Post-106-e-Rel17-RRC-08] NR coverage enhancement – to be moderated by Jianchi (China Telecom)

1. Email discussion (1st round)

Companies are encouraged to provide comments on RRC parameters for enhancements on PUSCH repetition type A.

|  |  |
| --- | --- |
| **Companies** | **Comments** |
| Huawei, HiSilicon | //Comment #1Row#2:Suggest to add parent IE *PUSCH-Allocation-r17* to row#2, |
| Samsung | A clarification for **row 7** (can be added in the comment column).For *PUSCH-Allocation-r17* (row 7) only the field *numberOfRepetitions-r16* is changed to *numberOfRepetitions-r17*. Other fields (*mappingType, startSymbolAndLength, startSymbol, length*) would be same as in Rel-16.  |
|  |  |

Companies are encouraged to provide comments on RRC parameters for TBoMS.

|  |  |
| --- | --- |
| **Companies** | **Comments** |
| Huawei, HiSilicon | //Comment #1**General issue:**To better shape the structure of RRC parameters, suggest to also discuss the parent IEs (column #E) for each parameters. For example, the parent IE for **row#9** is *PUSCH-Allocation-r17*, so are for **row#10 and row#2**.**//Comment#2**Row#10:Suggest to capture the following agreement into column#J as “the product of numberOfRepetitionsTBoMS and numberOfSlotsTBoMS is expected to be no larger than 32.” “*Note: M\*N is no more than the max number of repetitions agreed for repetition Type A enhancement in agenda 8.8.1.1*” |
| Samsung | For “*numberOfRepetitionsTBoMS-r17*”, this may not be needed for TBoMS as it could simply reuse that for normal TDRA repetition configuration for Type A repetition. |
|  |  |
|  |  |

Companies are encouraged to provide comments on RRC parameters for joint channel estimation for PUSCH.

|  |  |
| --- | --- |
| **Companies** | **Comments** |
| Huawei, HiSilicon | **//Comment#1**Row#11,:Since window length L is taken as a WA, a RRC parameter for it should be added. If this parameter is configured, then time domain window has been indicated as enabled. Additionally, it is fresh new parameter without any precedent, a postfix “-r17” is not necessary at least in RAN1. Therefore, changes are suggested as,PUSCH-TimeDomainWindow-r17 => PUSCH-TimeDomainWindowLengthENUMERATED {enabled, disable } => FFS IntegerSimilarly, a length L is expected to be configured for PUCCH as well, above changes are suggested to row#13 |
| Samsung | For the length of the configured time domain window, *PUSCH-TimeDomainWindow-r17* can indicate the integer value for the length of TDW. Agree also with previous comment that ‘-*r17*’ may not be needed. |
|  |  |

Companies are encouraged to provide comments on RRC parameters for PUCCH enhancements.

|  |  |
| --- | --- |
| **Companies** | **Comments** |
| Huawei, HiSilicon | **//Comment#1**Similar to our comment#1 for PUSCH, a length L is expected to be configured for PUCCH as well, similar changes are suggested to row#13**//Comment#2**Row#12:Parent IE can be PUCCH-ResourceSet where a list of repetition number per resource id is configured, i.e. each entry corresponds to the entry in *resourceList* of *PUCCH-ResourceSet*. It can provide better resource sharing between different resource sets comparing to the repetition number configured within IE *PUCCH-Resource*. For example, PUCCH-Resource#1 is shared by two resource-sets, set#1 and set#2. In set#2, the repetition number can be 4 for the PUCCH-Resource#1 while it can be 8 in set#1. |
| Samsung  | A clarification is added at the end of the description of **row 12**. Description: A new repetition parameter corresponding to Rel-17 dynamic PUCCH repetition factor indication. The new repetition parameter is configured per PUCCH resource **and should be in *PUCCH-Resource*.** |
|  |  |

For Msg3 repetition, it seems we haven’t identified any parameters needed at this moment based on the agreements so far.

Any other comments?

|  |  |
| --- | --- |
| **Companies** | **Comments** |
|  |  |
|  |  |
|  |  |

1. Email discussion (2nd round)

|  |  |
| --- | --- |
| **Companies** | **Comments** |
|  |  |
|  |  |
|  |  |