**3GPP TSG-RAN WG1 meeting #118R1-24xxxxx**

Maastricht, NL, August 19th–23rd, 2024

**Title : Summary on mapping of beta\_offset indicator values to offset indexes**

**Source : Moderator (NEC)**

**Agenda item : 7**

**Document for : Decision**

1. **Introduction**

In RAN1#118, the following draft CR in R1-2406553 is submitted on mapping of beta\_offset indicator values to offset indexes.

R1-2406553 Draft CR on mapping of beta\_offset indicator values to offset indexes NEC

This contribution collects companies’ views on the issues and proposals discussed in the above Tdoc.

1. **Discussion**

In current TS 38.213, the following issues are identified, as in draft CRs.

1) The offset indexes for Part 1 CSI report and Part 2 CSI report are not indicated from their respective sets of indicator values;

2) The Part 1 CSI report offsets indexes for payload size up to 11 bits and the Part 2 CSI report offset indexes for payload size more than 11 bis are indicated in one set of indicator values;

3) The Part 1 CSI report offsets indexes for payload size more than 11 bits and the Part 2 CSI report offset indexes for payload size up to 11 bis are indicated in one set of indicator values,

These are inconsistent with “The beta\_offset indicator field indicates a  value, a  value and a  value from the respective sets of values, with the mapping defined in Table 9.3-3.”, as outlined in Clause 9.3.

In the draft CRs [1], NEC proposed to capture the following.

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| * 9.3 UCI reporting in physical uplink shared channel

Offset values are defined for a UE to determine a number of resources for multiplexing HARQ-ACK information and for multiplexing CSI reports in a PUSCH. The offset values are signalled to a UE either by a DCI format scheduling the PUSCH transmission or by higher layers.If DCI format 0\_0, or DCI format 0\_1 that does not include a beta\_offset indicator field, schedules the PUSCH transmission from the UE and the UE is provided *betaOffsets = 'semiStatic'*, the UE applies the , , and  values that are provided by *betaOffsets = 'semiStatic'* for the corresponding HARQ-ACK information, Part 1 CSI reports and Part 2 CSI reports.If the PUSCH transmission is with a configured grant and the UE is provided *CG-UCI-OnPUSCH= 'semiStatic'*, the UE applies the , , and  values that are provided by *CG-UCI-OnPUSCH = 'semiStatic'* for the corresponding HARQ-ACK information, Part 1 CSI reports and Part 2 CSI reports.If the PUSCH is scheduled by DCI format 0\_0 and the UE is provided *betaOffsets = 'dynamic'*, the UE applies the , , and  values that are determined from the first value of  *betaOffsets = 'dynamic'*.If the PUSCH is a configured grant Type 2 PUSCH activated by DCI format 0\_0 and the UE is provided *CG-UCI-OnPUSCH* =*'dynamic'*, the UE applies the , , and  values that are determined from the first value of *CG-UCI-OnPUSCH = 'dynamic'*.HARQ-ACK information offsets  are configured to values according to Table 9.3-1. The *betaOffsetACK-Index1*, *betaOffsetACK-Index2*, and *betaOffsetACK-Index3* respectively provide indexes , , and  for the UE to use if the UE multiplexes up to 2 HARQ-ACK information bits, more than 2 and up to 11 HARQ-ACK information bits, and more than 11 bits in the PUSCH, respectively.Part 1 CSI report and Part 2 CSI report offsets  and , respectively, are configured to values according to Table 9.3-2. The *betaOffsetCSI-Part1-Index1* and *betaOffsetCSI-Part2-Index1* respectively provide indexes  and  for the UE to use if the UE multiplexes up to 11 bits for Part 1 CSI reports or Part 2 CSI reports in the PUSCH. The *betaOffsetCSI-Part1-Index2* and *betaOffsetCSI-Part2-Index2* respectively provide indexes  or  for the UE to use if the UE multiplexes more than 11 bits for Part 1 CSI reports or Part 2 CSI reports in the PUSCH.If a DCI format 0\_1 schedules the PUSCH transmission from the UE and if DCI format 0\_1 includes a beta\_offset indicator field, as configured by *uci-OnPUSCH*, the UE is provided by each of {*betaOffsetACK-Index1*, *betaOffsetACK-Index2*, *betaOffsetACK-Index3*} a set of four  indexes, by each of {*betaOffsetCSI-Part1-Index1*, *betaOffsetCSI-Part1-Index2*} a set of four  indexes and by each of {*betaOffsetCSI-Part2-Index1*, *betaOffsetCSI-Part2-Index2*} a set of four  indexes from Table 9.3-1 and 9.3-2, respectively, for multiplexing HARQ-ACK information, Part 1 CSI reports, and Part 2 CSI reports, respectively, in the PUSCH transmission. The beta\_offset indicator field indicates a  value, a  value and a  value from the respective sets of values, with the mapping defined in Table 9.3-3. **Table 9.3-1: Mapping of beta\_offset values for HARQ-ACK information and the index signalled by higher layers**

|  |  |
| --- | --- |
|  **or  or**  |  |
| 0 | 1.000 |
| 1 | 2.000 |
| 2 | 2.500 |
| 3 | 3.125 |
| 4 | 4.000 |
| 5 | 5.000 |
| 6 | 6.250 |
| 7 | 8.000 |
| 8 | 10.000 |
| 9 | 12.625 |
| 10 | 15.875 |
| 11 | 20.000 |
| 12 | 31.000 |
| 13 | 50.000 |
| 14 | 80.000 |
| 15 | 126.000 |
| 16 | Reserved |
| 17 | Reserved |
| 18 | Reserved |
| 19 | Reserved |
| 20 | Reserved |
| 21 | Reserved |
| 22 | Reserved |
| 23 | Reserved |
| 24 | Reserved |
| 25 | Reserved |
| 26 | Reserved |
| 27 | Reserved |
| 28 | Reserved |
| 29 | Reserved |
| 30 | Reserved |
| 31 | Reserved |

**Table 9.3-2: Mapping of beta\_offset values for CSI and the index signalled by higher layers**

|  |  |
| --- | --- |
|  **or**  **or**  |  |
| 0 | 1.125 |
| 1 | 1.250 |
| 2 | 1.375 |
| 3 | 1.625 |
| 4 | 1.750 |
| 5 | 2.000 |
| 6 | 2.250 |
| 7 | 2.500 |
| 8 | 2.875 |
| 9 | 3.125 |
| 10 | 3.500 |
| 11 | 4.000 |
| 12 | 5.000 |
| 13 | 6.250 |
| 14 | 8.000 |
| 15 | 10.000 |
| 16 | 12.625 |
| 17 | 15.875 |
| 18 | 20.000 |
| 19 | Reserved |
| 20 | Reserved |
| 21 | Reserved |
| 22 | Reserved |
| 23 | Reserved |
| 24 | Reserved |
| 25 | Reserved |
| 26 | Reserved |
| 27 | Reserved |
| 28 | Reserved |
| 29 | Reserved |
| 30 | Reserved |
| 31 | Reserved |

**Table 9.3-3: Mapping of beta\_offset indicator values to offset indexes**

|  |  |
| --- | --- |
| **beta\_offset indicator** | **( or  or ), ( or), (or )** |
| '00' | 1st offset index provided by higher layers |
| '01' | 2nd offset index provided by higher layers |
| '10' | 3rd offset index provided by higher layers |
| '11' | 4th offset index provided by higher layers |

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1. **Collection of companies’ view**

**Q1: Do you agree on the changes of the draft CR [1].**

|  |  |  |
| --- | --- | --- |
| **Company** | **Y or N** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

1. **Conclusion**

According to companies’ input, it is proposed …

# **Reference**

1. R1-2406553, Draft CR on mapping of beta\_offset indicator values to offset indexes NEC