**3GPP TSG RAN WG1 #110bis-e R1-221xxxx**

**e-Meeting, October 10th – 19th, 2022**

**Agenda item:** 8.1

**Source:** Moderator (ZTE)

**Title:** Moderator Summary on Rel-17 FeMIMO maintenance for SRS: preparation phase

**Document for:** Discussion and Decision

1. Introduction

The moderator summary of the maintenance-related issues raised in the submitted contributions for Rel.17 NR\_FeMIMO maintenance is given below.

An initial assessment on each of the issues is given (but can be revised based on the outcome of the discussion during the preparation phase). The assessment will be used as a basis to select four issues (per chairman instruction) for further discussion in the upcoming weeks.

* *High priority (H):* this includes high-priority item (essential, pending issues, broken spec components) and proposed editorial changes that either enhance the clarity of the specs or correct mistakes
* *Non-essential (N)*: this includes all other purposes such as spec optimization and low priority issues
* *Editorial (E)*: this includes editorial issues that will be handled as editorial CRs
1. Maintenance issues

The issues are summarized in the following table:

**Table 1 Summary**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Issue (summary of CR proposal)** | **Companies** | **FL assessment**  | **Company inputs (if any)** |
| 1 | **TS 38.214, draft CR on available slot offset ‘t’ without configuration and the transmission timeline of aperiodic SRS (R1-2208764)**A total of three issues have been involved in this CR:Firstly, with regard to available slot offset ‘t’ for the SRS resource set without configured ‘t’ when at least another SRS resource set is configured with ‘t’, the current description in TS 38.214 deviates from the yellow highlighted parts in the following agreement which was reached in RAN1#106b-e meeting.

|  |
| --- |
| **Agreement**Bit width of SOI depends on the maximum number of “t” values configured for any of the aperiodic SRS resource sets (FFS: across all CCs or across a CC/BWP)* The SOI field is 0 bit if the maximum number of ‘t’ values is one
* If at least one resource set has “t” configured
	+ For the resource sets with “t” value configured, each of them is configured with K values of “t”, where 1<=K<=4
	+ t=0 applies for the resource set(s) without “t” configured in RRC
* If none of the resource sets is configured with “t” values, follow Rel-15 approach to determine slot offset.
 |

Secondly, the condition that “the UE receives the DCI triggering aperiodic SRS in slot *n* and none of the resource sets is configured with parameter *availableSlotOffset* across all configured BWPs in a component carrier, and if the UE is NOT configured with *ca-SlotOffset* for at least one of the triggered and triggering cell” cannot be captured accurately because the ambiguity of the current wording “otherwise” in TS 38.214.Thirdly, one editorial revision is pointed out additionally.FL note 1: This draft CR has been discussed in RAN1#110 meeting, most of companies were agreeable to endorse this draft CR but failed finally due to lack of time. It is worth to discuss it again and make decision on this.FL note 2: This issue has been discussed for 1 meeting. | ZTE | H | Samsung: Okay to discuss as editorial change.OPPO：Fine to discuss it as editorial CR.Intel: Fine to discuss.LGE: OK to discuss as E.Ericsson: OK to disucssLenovo: Fine to discussQC: Fine to discuss. We had some comments that communicated to the FL in Toulouse. Hope they are reflected in this CR version. Apple: Okay to discussZTE: support to discussNokia/NSB: Fine to discussFL: All companies support to discussion this issue, and majority agree this issue as H. |
| 2 | **TS 38.214, draft CR on inter-set guard period for SRS enhancement (R1-2209691)**This draft CR is to discuss whether/how to utilize inter-set GP to handle the case when the interval between SRS resources is larger than Y.FL note 1: This issue has been discussed several meetings, the outcome from RAN1#110 meeting is no conclusion and no further discussion of this issue.FL note 2: This issue has been discussed for > 2 meetings. | Samsung | N | Samsung: Okay to discuss this and prefer to have a spec text on the case when inter-set guard is larger than Y. If we don’t have any consensus, it is also okay to have a conclusion.OPPO：We don’t think further discussion is needed per RAN1#110 agreement. Intel: Seems no need for further discussion.Ericsson: Not needed, GP only between SRS and up to gNB how to schedule PUSCH (with expected performance degradation if using symbols adjacent to SRS). Offline conclusion from previous meeting is that no guard period is needed between non-adjacent SRS resource sets.Lenovo: No need for further discussion per RAN1#110 agreement.QC: Discussion is needed. Per RAN1 spec, regardless of inter-set guard period lengths, there is restriction on UL transmission. Apple: We do not think discussion is neededZTE: No need for further discussion. Nokia/NSB: We are fine to discuss it. From our viewpoint, the specification needs clarification regarding to case when interval between SRS resources is larger than Y. FL: Same situation as before. No conclusion and no further discussion. |
| 3 | **TS 38.214, draft CR on UL SRS Inter-slot GP time location for the first and/or last resource (R1-2210059)**This draft CR is similar to issue#2, which discuss whether/how to utilize inter-set GP to handle the case when the interval between SRS resources is larger than Y.FL note 1: Similar to issue#2, this has been discussed several meetings, the outcome from RAN1#110 meeting is no conclusion and no further discussion of this issue.FL note 2: This issue has been discussed for > 2 meetings. | Nokia | N | Samsung: Okay to discuss this and prefer to have a spec text on the case when inter-set guard is larger than Y. If we don’t have any consensus, it is also okay to have a conclusion.OPPO：We don’t think further discussion is needed per RAN1#110 agreement.Intel: Seems no need for further discussion.Ericsson: Not needed, GP only between SRS and up to gNB how to schedule PUSCH (with expected performance degradation if using symbols adjacent to SRS). Offline conclusion from previous meeting is that no guard period is needed between non-adjacent SRS resource sets.Lenovo: No need for further discussion per RAN1#110 agreement.QC: Discussion is needed. Per RAN1 spec, regardless of inter-set guard period lengths, there is restriction on UL transmission.Apple: We do not think discussion is neededZTE: No need for further discussion. Nokia/NSB: We are fine to discuss it. From our viewpoint, the specification needs clarification regarding to case when interval between SRS resources is larger than Y. FL: Same situation as before. No conclusion and no further discussion. |

1. Observation

From the inputs shared by participating companies during the preparation phase, the following **observation** can be made:

* The following issue can be handled as E (a part of editorial CR): ...
* The following issues can be designated as H (requiring discussion and additional agreements/conclusions): **issue#1**
* The following issues can be designated as N (non-essential) but can be discussed again in future meetings: ...
* The following issues can be designated as N (non-essential) and have been discussed in previous meeting(s): **issue#2, issue#3**

# References

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | R1-2208764 | Draft CR on SRS enhancement in TS 38.214 | ZTE |
| 2 | R1-2209691 | Draft CR on inter-set guard period for SRS enhancement | Samsung |
| 3 | R1-2210059 | Draft CR on UL SRS Inter-slot GP time location for the first and/or last resource | Nokia, Nokia Shanghai Bell |