**3GPP TSG RAN WG1 #111 R1-221xxxx**

**Toulouse, France, November 14th – 18th, 2022**

**Agenda item:** 8.1

**Source:** Moderator (ZTE)

**Title:** Moderator Summary on Rel-17 FeMIMO maintenance for SRS in 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 is given below.

An initial assessment on each 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 week.

* *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 as follows:

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| **#** | **Issue (summary of CR proposal)** | **Companies** | **FL assessment** | **Company inputs (if any)** |
| 1 | **TS 38.214, draft CR on clarifying parameter restriction for SRS resource sets (R1-2211091)**  Two changes in total were raised in this CR, which are related to the configuration of aperiodic SRS set used for antenna switching.   * Change#1: When more than one aperiodic SRS set is used for antenna switching of xTyR and each SRS resource in the more than one SRS set includes a different UE antenna port or a different UE antenna port pair, the more than one SRS set should be associated with the same power parameter, the same aperiodic trigger state and different slot offsets. This feature is omitted in some cases and should be captured completely * Change#2: On top of Change#1, the more than one aperiodic SRS set may be located in the same slot even though each of them is configured with different slot offsets, which will negatively impact the performance of DL CSI acquisition and should be avoided.   FL note 1: This issue is essential correction, which shall be discussed in RAN1#111 meeting.  FL note 2: The issues have NOT been discussed before. | ZTE | H | Samsung:  Regarding Change#1, we are fine to discuss to capture omitted cases, including 4T8R which seems missed in TP.  Regarding Change#2, we can discuss further, whether to maintain the current specification sentence as “the value of the higher layer parameter *slotOffset* in each *SRS-ResourceSet* is different” with TP.  ZTE: Based on Samsung’s comments, we provide following update  **Updated change**  In the case that more than one aperiodic SRS set is configured or indicated in different slots and each SRS resource in the more than one aperiodic SRS set is associated with a different UE antenna port(s) for 1T2R, 1T4R, 1T6R , 1T8R,2T4R 2T6R, 2T8R,or 4T8R, the UE shall expect that the more than one set is configured with the same values of the higher layer parameters *alpha*, *p0*, *pathlossReferenceRS*, and *srs-PowerControlAdjustmentStates* in *SRS-ResourceSet*. The UE shall expect that the value of the higher layer parameter *aperiodicSRS-ResourceTrigger* or the value of an entry in *AperiodicSRS-ResourceTriggerList* in each *SRS-ResourceSet* is the same for the more than one set..  LGE: If our understanding is correct, the draft CR is to newly add unified paragraph for every aperiodic SRS cases with more than one SRS resource set, since the principle for the aperiodic SRS cases are omitted for some xTyR cases. So, we are fine to discuss, and we can further polish the wording.  Intel: Ok to discuss this issue. The text for spec change may need more discussion.  Apple: Okay to discuss it. However, we are not fine to remove the restriction about “in different slots” or “different slotOffset” since it impacts the legacy UE behavior.  QC: okay to discuss  E///: OK to discuss  OPPO: Fine to discuss. The wording can be refined.  CATT: Fine to discuss.  vivo: Fine to discuss. The first change seems needed, but more discussion is needed for the second one. We think legacy behavior shouldn’t be changed. |
| 2 | **TS 38.214, draft CR on SRS enhancement (R1-2211092)**  Three editorial changes in total were raised in this CR.   * Change#1: In the case of two aperiodic SRS sets are used for antenna switching of 1T2R, the two SRS sets should only include a different UE antenna port instead of a different UE antenna port pair. * Change#2: The more than one SRS set should be located in different slots based on slot offset and available slot offset, if any. * Change#3: Some editorial revisions should be made.   FL note 1: Noted that change#2 herein is the same to change#1 in R1-2211091 for 1T4R, these two can be discussed together. Change 1 and change 3 are editorial corrections. This issue can be discussed in RAN1#111 meeting.  FL note 2: The issue have NOT been discussed before. | ZTE | E(?) | Samsung: We are fine to discuss as “E”.  Regarding Change#2, we are fine to discuss in Issue 1.  ZTE: We are fine to discuss as ‘E’.  LGE: We are fine to discuss as “E”.  Intel: For Change #1, what’s the corresponding change? In the draft CR, looks there is no change on the 1T2R part.  Apple: We are fine to discuss as “E”  QC: okay to discuss  E///: Same view as Samsung.  OPPO: Same view as Samsung.  CATT: Fine to discuss.  vivo: Fine to discuss the 1st and 3rd changes as “E”. The 2nd change can be discussed together with the first issue. |
| 3 | **TS 38.212, draft CR on aperiodic SRS enhancement (R1-2211142)**  This CR is to change “*AvailableSlotOffset*” to “*availableSlotOffsetList*”, which is used to determine the entries/amount of available slots in TS 38.212, instead of the value of available slot.  FL note 1: This issue is direct and editorial correction, which shall be discussed in RAN1#111 meeting.  FL note 2: The issue have NOT been discussed before. | CATT | E | Samsung: We are fine to discuss as “E”  ZTE: We are fine to discuss as “E”  LGE: We are fine to discuss as “E”.  Intel: Ok to discuss as “E”.  Apple: We are fine to discuss as “E”  QC: fine to discuss as “E”  E///: OK to discuss as E  OPPO: Fine to discuss as E  CATT: Fine to discuss as “E”.  Vivo: Fine to discuss as “E” |
| 4 | **TS 38.214, draft CR on UE capability name alignment of SRS antenna switching (R1-2211940)**  This CR is to align the UE capability names of SRS antenna switching with that of TS 38.306, which include:   * Change#1: Replace undefined UE capability name “[maximum 2 semi-persistent and maximum 1 periodic SRS resource sets]” with correct UE capability parameter “srs-AntennaSwitching2SP-1Periodic-r17” from TS 38.306. * Change#2: Replace undefined UE capability name “[extension of aperiodic antenna switching SRS configuration]” with correct UE capability parameter “srs-ExtensionAperiodicSRS-r17” from TS 38.306. * Change#3: Replace undefined UE capability name “1 aperiodic SRS resource set for 1T4R” with correct UE capability parameter “srs-OneAP-SRS-r17” from TS 38.306. * Change#4: Remove “a capability for” in front of the UE capability name.   FL note 1: This issue is direct and editorial correction, which shall be discussed in RAN1#111 meeting.  FL note 2: The issue have NOT been discussed before. | ZTE | E | Samsung: We are fine to discuss as “E”  ZTE: We are fine to discuss as “E”  LGE: We are fine to discuss as “E”.  Intel: Ok to discuss as “E”.  Apple: We are fine to discuss as “E”  QC: fine to discuss as “E”  E///: Can discuss as ‘E’  OPPO: Fine to discuss as E.  CATT: Fine to discuss as “E”.  vivo: Fine to discuss as “E” |

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): ...
* 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): ...

# References

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| --- | --- | --- | --- |
| 1 | R1-2211091 | Draft CR on clarifying parameter restriction for SRS resource sets in TS 38.214 | ZTE |
| 2 | R1-2211092 | Draft editorial CR on SRS enhancement in TS 38.214 | ZTE |
| 3 | R1-2211142 | Draft CR on aperiodic SRS enhancement in TS 38.212 | CATT |
| 4 | R1-2211940 | Draft CR on UE capability name alignment of SRS antenna switching in TS 38.214 | ZTE |