**3GPP TSG-RAN WG2 Meeting #126 R2-240**

**Fukuoka, Japan, May 20th – 24th, 2024**

**Agenda item:**

**Source: Huawei, HiSilicon**

**Title: Summary for [Post126][411][POS] Rel-18 positioning MAC CR (Huawei)**

**Document for: Discussion and Decision**

# Introduction

After RAN2#126, the following email discussion has been organized for reviewing the MAC CR after RAN2#126.

* [Post126][411][POS] Rel-18 positioning MAC CR (Huawei)

Scope: Update the CR in R2-2404762 in line with decisions of this meeting.

Intended outcome: Agreed CR in R2-2405888

Deadline: Short (for RP)

In this email discussion, we discuss on the issues have been presented in these papers

# Discussion

***Companies are invited to feedback the issues in the current draft CR under the following table***

|  |  |  |
| --- | --- | --- |
| Companies | Issue in the draft CR | Comments |
| ZTE | 6.1.3.xx  - Positioning SRS Aggregation ID: This field indicates one of the combinations of linked *srs-PosResourceSet* corresponding to *srs-PosResourceSetLinkedForAggBWList* specified in TS 38.331 [5]. Value 0 corresponds to the first entry within the list *srs-PosResourceSetLinkedForAggBWList*; value 1 corresponds to the second entry within the list *srs-PosResourceSetLinkedForAggBWList* and so on; | The yellow IE should be replaced by ‘SRS-PosResourceSetAggBWCombinationList and SRS-PosRRC-AggBW-InactiveConfigList’, since these two IEs are 32 combinations and 16 combinations, respectively  [Rapp] OK corrected |
|  | 6.1.3.xx  - C1, C2, C3: These fields indicate the activation/deactivation status of each *srs-PosResourceSet* that is linked for SRS for positioning bandwidth aggregation configured in *srs-PosResourceSetLinkedForAggBWList* specified in TS 38.331 [5]. C1 corresponds to the first entry in *srs-PosResourceSetLinkedForAggBWList*, C2 corresponds to the second one and so on.The Ci field is set to 1 to indicate that the *srs-PosResourceSet* corresponding to Ci shall be activated. The Ci field is set to 0 to indicate that the *srs-PosResourceSet* corresponding to Ci shall be de-activated; | The yellow IE is only for connected.  We agreed that   * The currently designed SRS BW aggregation MAC CE can be used for RRC\_CONNECTED and RRC\_INACTIVE.   So SRS-InactivePosResourceSetLinkedForAggBWList should be added after each yellow IE, too.  [Rapp] OK corrected |
| ZTE | 6.1.3.xx | The MAC CE does not contain C field:  - C: This field indicates whether the octets containing Resource Serving Cell ID field(s) and Resource BWP ID field(s) within the field Spatial Relation for Resource ID i are present, except for Spatial Relation Resource IDi with DL-PRS or SSB. When A/D is set to 1, if this field is set to 1, the octets containing Resource Serving Cell ID field(s) and Resource BWP ID field(s) in the field Spatial Relation for Resource IDi are present, otherwise if this field is set to 0, they are not present. When A/D is set to 0, this field is always set to 0 that they are not present;  Does it assume that the Resource Serving Cell ID field(s) and Resource BWP ID field(s) within the field Spatial Relation for Resource ID i should be always present?  [Rapp] Yes, the comment is valid. In the revised CR, i added the difference between connected and inactive to highlight the difference between RRC\_CONNECTED and INACTIVE.,  - C: This field indicates whether the octets containing Resource Serving Cell ID field(s) and Resource BWP ID field(s) within the field Spatial Relation for Resource ID i are present, except for Spatial Relation Resource IDi with DL-PRS or SSB. If the combination of the liked SRS resource sets is configured by the field *SRS-PosResourceSetAggBWCombinationList* and this field is set to 1, the octets containing Resource Serving Cell ID field(s) and Resource BWP ID field(s) in the field Spatial Relation for Resource IDi are present, otherwise if this field is set to 0, they are not present; if the combination of the liked SRS resource sets is configured by the field *SRS-PosRRC-AggBW-InactiveConfigList*, this field shall be set to 0 and the octets containing Resource Serving Cell ID field(s) and Resource BWP ID field(s) in the field Spatial Relation for Resource IDi are not present; |
| ZTE | 6.1.3.XX  - Spatial Relation for Resource IDi: The field Spatial Relation for Resource IDi is only present if MAC CE is used for activation, i.e. at least one of the C1, C2, and C3 is set to 1. There can be as many as 16 entries of Spatial Relation for Resource IDi depending on the RRC configuration. There are 4 types of Spatial Relation for Resource IDi, which is indicated by the F (F0 and F1) field within, defined as in Figure 6.1.3.36-2 to 6.1.3.36-5 in clause 6.1.3.36. Spatial Relation for Resource ID1 corresponds to the spatial relation of the first aggregated SRS resource *[ffs what is the first aggregated SRS resource]*; | The agreement is:   * In the IE description of Spatial Relation for Resource IDi field, clarify that the SRS resource ID of the spatial relation comes from the first linked SRS resource set in this MAC CE. Other Spatial Relation for Resource IDi field design should remain as legacy.   So we suggest to update the yellow part as:  Spatial Relation for Resource ID1 corresponds to the spatial relation of the first pair of aggregated SRS resources in the first aggregated SRS resource set which is indicated by Positioning SRS Aggregation ID*[ffs what is the first aggregated SRS resource]*;  [Rapp] Change is made with some slight difference in the wording. Please check |
| vivo | 5.22.1.4.1.2  1> select the logical channels satisfying all the following conditions among the logical channels belonging to the selected Destination when the UL grant is not associated to a sidelink grant on Dedicated SL-PRS resource pool: | The second step of LCP after destination selection is LCH selection, where the SL grant is not expected to be on dedicated SL-PRS resource pool, which has nothing to do with UL grant. Might be a typo.  Change “the UL grant” into “the new transmission” aligning with the former part of the chapter.  [Rapp] OK |
| vivo | 5.22.1.4.1.3  The MAC entity shall for each sidelink grant associated with Shared SL-PRS resource pool:  1> if there is SL-PRS pending for transmission for the selected destination; and  2> derive Transport Block Size for a new transmission for SL-SCH assuming SL-PRS can be transmitted in the sidelink grant according to clause 8.1.3.2 in TS 38.214 [7].  2> if all the SL-SCH data within logical channel with lower priority value than that of the SL-PRS can be allocated with resources when SL-PRS is transmitted:  3> determine that the pending SL-PRS can be transmitted in the sidelink grant.  2> derive the Transport Block Size for a new transmission for SL-SCH according to clause 8.1.3.2 in TS 38.214 [7]. | Confused about the first and third “2>”.  As agreed in 123bis meeting, “When the destination of the shared resource pool is already selected when there are both SL-PRS and data pending for transmission, SL PRS is transmitted when there is remaining resources for SL-PRS after the SL-SCH with higher priority has already been allocated; if there is no higher priority data, SL-PRS can be transmitted.”  In our understanding, after derivation of the TBS assuming SL-PRS can be transmitted, UE should firstly check if data in LCH with higher priority can be satisfied with obtained resources in the current grant; IF NOT, UE should derive TBS based on the calculation formula in TS38.214 again on condition that no SL-PRS is transmitted. Therefore, the above behaviors should be divided into two branches rather than a sequential one.  Besides, the description about priority in other chapter using “priority” rather than “priority value”. It is better to keep alignment to avoid misunderstanding.  Suggested modifications are as follow:  1> if there is SL-PRS pending for transmission for the selected destination:  2> derive Transport Block Size for a new transmission for SL-SCH assuming SL-PRS can be transmitted in the sidelink grant according to clause 8.1.3.2 in TS 38.214 [7].  2> if all the SL-SCH data within logical channel with higher priority than that of the SL-PRS can be allocated with resources:  3> determine that the pending SL-PRS can be transmitted in the sidelink grant.  2> else:  3> determine that the pending SL-PRS cannot be transmitted in the sidelink grant;  3> derive the Transport Block Size for a new transmission for SL-SCH with no SL-PRS according to clause 8.1.3.2 in TS 38.214 [7].  [Rapp] OK with the propose clarification. Although i think it expresses the same meaning as the previous text ;] |
| ASUSTeK | * 5.22.1.3.1 Sidelink HARQ Entity   …  5> if the sidelink grant is associated with request from the upper layers for triggering the SL-PRS transmission of the peer UE identified by the Destination layer-2 ID:  6> set the SL-PRS request to *request*.  …  5.22.1.3.4 Processing of sidelink grant on Dedicated SL-PRS resource pool  For each sidelink grant, the MAC entity shall:  …  2> if the upper layer triggers SL-PRS transmission of the peer UE identified by the Destination layer-2 ID:  3> set the SL-PRS request to *request*; | We suggest to align these two conditions because there is no such association between SL grant and the request of SL-PRS.  [Rapp] Corrected |
| ASUSTeK |  | It seems missing to capture that  After a TB with SL-PRS has been acknowledged by HARQ feedback, a Tx UE continues to perform SL-PRS re-transmissions if it has been provided with multiple resources for (re-)transmission by the MAC layer until the maximum number of SL-PRS re-transmissions.  Reference: RAN1 LS (R1-2401552)  [RRapp]I think the current spec can already support the intended UE behavior based on the RAN1’s LS. When the data is acked, the HARQ buffer is flushed. But the UE should keep the PSSCH durations in order to transmit the 2nd stage SCI.  SO no change is needed for the current CR. |
| ASUSTeK | 6.1.3.74 SL-PRS Resource Request MAC CE …  - SL-PRS Bandwidth: Requested minimum bandwidth of pending SL-PRS transmission. The length of this field is 5 bits. Encoding of this field is the same as *sl-PRS-Bandwidth* in IE *SL-PRS-QoS-Info* as specified in TS 38.331 [5] that codepoint value 0 corresponds to the value "mhz5" of the field *sl-PRS-Bandwidth*, codepoint value 1 corresponds to the value "mhz10" of the field *sl-PRS-Bandwidth*, and so on;  - R: Reserved bit, set to 0.    Figure 6.1.3.74-1: SL-PRS Resource Request MAC control element | The figure seems not to reflect 5 bits for SL-PRS Bandwidth.  [Rapp] OK changed |
| ASUSTeK | 5.22.1.1 SL Grant reception and SCI transmission …  3> if the selected resource pool is not Dedicated SL-PRS resource pool:  4> select one of the allowed values configured by RRC in *sl-ResourceReservePeriodList* and set the resource reservation interval, *P*rsvp\_TX, with the selected value;  4> select the number of HARQ retransmissions from the allowed numbers, if configured by RRC, in *sl-MaxTxTransNumPSSCH* included in *sl-PSSCH-TxConfigList* and, if configured by RRC, overlapped in *sl-MaxTxTransNumPSSCH* indicated in *sl-CBR-PriorityTxConfigList* for the highest priority of the logical channel(s) and pending SL-PRS transmission(s), if available, allowed on the …  …  3> else if the selected resource pool is Dedicated SL-PRS resource pool:  4> select one of the allowed values configured by RRC in *sl-PRS-ResourceReservePeriodList* and set the resource reservation interval, , with the selected value;  4> select the number of SL-PRS retransmissions from the allowed numbers, if configured by RRC, in *sl-PRS-MaxNum-Transmissions* included in *sl-CBR-SL-PRS-TxConfigList*.  … | It’s missing to capture the number of SL-PRS retransmissions for Shared SL-PRS resource pool (i.e. not Dedicated SL-PRS resource pool).  [Rapp] I can add a NOTE to clarify this |

# Conclusion