**3GPP TSG-RAN WG2 Meeting #124** **R2-2313847**

**Chicago, USA, 13th – 17th Nov., 2023**

**Title: Email discussion on the running MAC CR**

**Source: Huawei, HiSilicon**

**Agenda item: 7.2.2**

**Document for: Discussion and Decision**

# Background

The following post meeting email discussion has been planned during RAN2#123bis:

**[Post124][414][POS] Rel-18 positioning 38.321 CR (Huawei)**

Scope: Finalise and check the Rel-18 positioning 38.321 CR.

Intended outcome: Agreed CR

Deadline: Short (for RP)

This contribution intends to collect the comments on the running MAC CR for the different features in R18 positioning

# 2 Discussion

|  |  |  |
| --- | --- | --- |
| Company+index  (e,g, HW000) | Excerpted spec with issues | Comments |
| Intel | **SL#Change21:** Add SL-PRS delay budget to the spec | While SL-PRS delay budget has been added in the text, there is no definition added in section 3.1. In our understanding, RAN1 expects RAN2 to capture it, so it would be good to have the corresponding definition in the MAC spec (since the term is used quite frequently)  [Rapp] OK, added |
| Intel | In section 5.22.1.1, the “shall” has been changed to “may”:  Sidelink grant is received dynamically on the PDCCH, configured semi-persistently by RRC or autonomously selected by the MAC entity. The MAC entity ~~shall~~ may have a sidelink grant on an active SL BWP to determine a set of PSCCH duration(s) in which transmission of SCI occurs and a set of PSSCH duration(s) in which transmission of SL-SCH associated with the SCI occurs. | This seems to be a change to existing behavior (not directly for SL positioning). We are not clear which SL issue serves as the motivation for this change and more importantly, this seems like an NBC change  [Rapp] The reason is because in R18, SL grant can be used for SL-PRS transmission but is not used for determining PSCCH/PSSCH durations, e..g, in dedicated resource pool.  SO the change is made because of SL-PRS and hence, is a R18 change |
| Intel | In section 5.22.1.4.1.3, the wording has a typo:  the MAC PDU includes zero MAC SDUs and the MAC PDU is not associated with SL-PRS transmission on SL-PRS shared resource pool. | Typo: Should be "…not associated **with** SL-PRS…"  [Rapp] OK corrected |
| OPPO001 | In section 5.4.4  3> if an SL-PRS resource overlaps with the PUCCH resource for the SR transmission occasion for the pending SR triggered as specified in clause 5.22.1.5, and the MAC entity is not able to perform this SR transmission simultaneously with the transmission of the SL-PRS resource, and the priority of the triggered SR determined as specified in clause 5.22.1.5 is higher than the priority of the MAC PDU determined as specified in clause 5.22.1.3.1a for the SL-PRS resource: | In clause 5.22.1.3.1a, regarding the priority, we use the term Priority of a MAC PDU and SL-PRS, if available. For example, as quoted from the clause, ‘priority of a MAC PDU and SL-PRS, if available, is determined by the highest priority of the logical channel(s),MAC CE(s) in the MAC PDU or SL-PRS.’  We think that the description in section 5.4.4 should be aligned with 5.22.1.3.1a too:  ‘…… is higher than the priority of the MAC PDU **and SL/PRS, if available**, determined as specified in clause 5.22.1.3.1a for the SL-PRS resource:’  [Rapp] OK added |
| OPPO002 | In section 5.8.3  After a sidelink grant is configured for a configured grant Type 2, the MAC entity shall consider sequentially that the first slot of Sth sidelink grant occurs in the logical slot for which:  CURRENT\_slot = (*sl-StartSlotCG-Type2* + S × *PeriodicitySL*) modulo T'max  where *sl-StartSlotCG-Type2* refers to the logical slot of the first transmission opportunity of PSSCH where the configured sidelink grant was (re)initialised. | The IE ***sl-StartSlotCG-Type2*** may needs to be enhanced to embrace the dedicated resource pool case wherein PSSCH is not configured, but SL-PRS transmission occasion(s) should be considered.  [Rapp] Thanks for the comment. Yes, it is correct that this needs to be changed |
| OPPO003 | 5.22.1.2 TX resource (re-)selection check  If the TX resource (re-)selection check procedure is triggered on the selected pool of resources for a Sidelink process according to clause 5.22.1.1, the MAC entity shall for the Sidelink process:  1> except for SL-PRS transmission on SL-PRS dedicated resource pool, if PSCCH duration(s) and 2nd stage SCI on PSSCH for all transmissions of a MAC PDU of any selected sidelink grant(s) are not in SL DRX Active time as specified in clause 5.28.3 of the destination that has data to be sent; or  1> except for SL-PRS transmission on SL-PRS dedicated resource pool, if the selected sidelink grant cannot accommodate a RLC SDU by using the maximum allowed MCS configured by RRC in *sl-MaxMCS-PSSCH* associated with the selected MCS table and the UE selects not to segment the RLC SDU; | It seems no need to mention ‘except for SL-PRS transmission on SL-PRS dedicated resource pool’, since RAN1 has already agreed that dedicated resource pool cannot be used for transmission of PSSCH  Similar for the next modification in the clause, since the SL-PRS dedicated resource pool cannot accommodate RLC SDU naturally:  [Rapp] OK. I agree that this is in the if condition. If on dedeicated source pool, the condition will not be satisfied anyway. Good comment. |
| OPPO004 | 5.22.1.3.1a Sidelink process  1> if a positive acknowledgement to this transmission of the MAC PDU and SL-PRS, if avaliable, was received according to clause 5.22.1.3.2; or  1> if negative-only acknowledgement was enabled in the SCI and no negative acknowledgement was received for this transmission of the MAC PDU and SL-PRS, if avaliable, according to clause 5.22.1.3.2:  2> flush the HARQ buffer of the associated Sidelink process. | It seems adding the ‘SL-PRS’ has an implication that ack/nack on the SL-PRS is enabled, which is against RAN1 agreement that there is no ack/nack on the SL-PRS. Prefer the following modification:  1> if a positive acknowledgement to the MAC PDU of this transmission was received according to clause 5.22.1.3.2; or  1> if negative-only acknowledgement was enabled in the SCI and no negative acknowledgement was received for the MAC PDU of this transmission according to clause 5.22.1.3.2:  2> flush the HARQ buffer of the associated Sidelink process.  [Rapp] OK, removed |
| ZTE |  | In legacy (R16), Tx UE selects radio resources regardless of which Rx UE the resource is used for(i.e., destination UE).  SL-DRX is introduced in R17, so R17 Tx UE should select radio resources within Rx UE’s DRX active time.  However R18 SL dedicated pool will not work together with SL DRX. So R16 wording should be reused for R18 SL positioning rather than R17 wording. Following green part should be deleted.  5> else if the selected resource pool is SL-PRS dedicated resource pool:  6> randomly select the time and frequency resources for one transmission opportunity from the resource pool as specified in clause 5.28.2 of the destination UE selected, according to the remaining SL-PRS delay budget of the SL-PRS transmission(s).  BTW the core wording ‘the destination UE selected’ presents 5 times in tracking. All of these places should make the change.  [Rapp] OK, but only the part related to dedicated resource pool is removed. |
| ZTE |  | 5.22.1.3.xx Processing of sidelink grant on SL-PRS dedicated resource pool  5.22.1.3.xxa Sidelink process associated with SL-PRS dedicated resource pool  Sidelink process (with capital ‘S’) is for dedicated pool process, and sidelink process (lowercase ‘s’) is for SL data legacy process?  If so, suggest to clarify it in the begining of 5.22.1.3.1 Sidelink HARQ Entity  [Rapp] FFS |
| CATT | 5.8.3 Sidelink  - *sl-PRS-ResourceID*: SL-PRS configuration index for configured grant Type 1; | configuration needs to be specified in the SL grant reception  [Rapp] This note has been removed. Actually,, it is already in the SL grant reception |
| CATT | 5.26.2 TA validation for SRS transmission in RRC\_INACTIVE  2> if the UE is configured with SRS with validity area and the upper layer indicates the MAC to update the stored RSRP:  3> store the RSRP of the downlink pathloss reference with the current RSRP value of the downlink pathloss reference of the camped cell as specified in TS 38.331 [5]. | 3> update the stored RSRP of the downlink pathloss reference with the current RSRP value of the downlink pathloss reference of the camped cell as specified in TS 38.331 [5].  Because 2> is indicated to update, 3> will take actions on update.  [Rapp] OK changed. |
| vivo | SL-PRS-RNTI SL-PRS RNTI | The abbreviation seems redundant.  Can be revised as ‘Sidelink PRS RNTI’, if needed. |
| vivo | If the MAC entity has been configured with Sidelink resource allocation mode 1 as indicated in TS 38.331 [5] or if the MAC entity has been configured with Sidelink resource allocation scheme 1 as indicated in TS 38.331 [5] and PDCCH is received for resource allocation on SL-PRS shared resource pool, the MAC entity shall for each PDCCH occasion and for each grant received for this PDCCH occasion:  1> if a sidelink grant has been received on the PDCCH for the MAC entity's SL-RNTI: | The change is not needed, mode 1 and scheme 1 share the same meaning, and the PDCCH reception is captured in the following procedure. |
| vivo | If the MAC entity has been configured with Sidelink resource allocation mode 2 to transmit or Sidelink resource allocation scheme 2 using pool(s) of resources in a carrier as indicated in TS 38.331 [5] or TS 36.331 [21] based on full sensing, or partial sensing, or random selection or any combination(s), the MAC entity shall for each Sidelink process:  NOTE 1: If the MAC entity is configured with Sidelink resource allocation mode 2 or Sidelink resource allocation scheme 2 to transmit using a pool of resources in a carrier as indicated in TS 38.331 [5] or TS 36.331 [21] | Not needed, mode 2 and scheme 2 share the same meaning. |
| vivo | 3> if the selected resource pool is not SL-PRS dedicated resource pool:  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  ---skipped—  3> if the selected resource pool is not SL-PRS dedicated resource pool:  4> select an amount of frequency resources within the range, if configured by RRC, between *sl-MinSubChannelNumPSSCH* and *sl-MaxSubchannelNumPSSCH* | Those two procedures 4> can be merged under the same 3>. |
| vivo | The MAC entity shall for each PSCCH duration on SL-PRS dedicated resource pool:  1> if the MAC entity is not configured with multiple SL-PRS transmissions with Sidelink resource allocation scheme 2; or  1> if the MAC entity is configured with Sidelink resource allocation scheme 1:  2> set the resource reservation period to 0.  1> else if the MAC entity is configured with multiple SL-PRS transmission with Sidelink resource allocation scheme 2:  2> set the resource reservation period to the selected value.  1> if the configured sidelink grant has been activated and this PSSCH duration corresponds to the first PSSCH transmission opportunity within this *sl-PeriodCG* of the configured sidelink grant:  2> set the SL-PRS Process ID to the SL-PRS Process ID associated with this PSSCH duration and, if available, all subsequent PSSCH duration(s) occuring in this *sl-PeriodCG* for the configured sidelink grant;  2> determine that this PSSCH duration is used for initial transmission;  1> process the sidelink grant according to clause 5.22.1.3.xx with the corresponding SL-PRS transmission information. | No PSSCH for dedicated resource pool. |
| vivo | 5.22.1.3 Sidelink HARQ operation and SL-PRS transmission  5.22.1.3.xx Processing of sidelink grant on SL-PRS dedicated resource pool | The original section is about HARQ. As the SL-PRS does not support ACK/NACK, suggest to captured in a new section rather than merged in the HARQ section. |
| vivo | For configured sidelink grant on SL-PRS dedicated resource pool, the SL-PRS Process ID associated with the first slot of an SL transmission is derived from the following equation:  SL-PRS Process ID = [floor(CURRENT\_slot / *PeriodicitySL*)] modulo *[nrOfSL-PRSProc]* | Although we agree on the intention to introduce multiple parallel processes for SL-PRS transmission, the SL-PRS process ID has not been discussed. It is better to leave with an EN rather than directly capture as it currently presents. |
| vivo | 5.22.1.3.1a Sidelink process | The description in this clause is referred as MAC PDU, which is the form of SL-PRS in MAC layer. It is not necessary to add SL-PRS in parallel with MAC PDU. |
|  |  |  |

# 7 Summary

*NADA*