3GPP TSG-RAN WG1 Meeting #103-e R1-20xxxxx

Online, October 26th – November 13th, 2020

Agenda Item: 7.2.4

Source: Moderator (Ericsson)

Title: Thread 3 on Maintenance for 5G V2X with NR sidelink – Mode 1

Document for: Discussion, Decision

# 1 List of issues for discussion

[103-e-NR-Rel-16-V2X-03] Email discussion/approval regarding toutstanding agreement from RAN1#102-e on the minimum gap between PSFCH and next SL retransmission.

* Issue M1-1-1: Conditions for applicability
* Issue M1-1-2: Value of delta
* Also include the issue of sl-DCI-ToSL-Trans for DCI 3-0

till 10/29, with a potential CR by 11/4 – Ricardo (Ericsson)

# Discussion

## M1-1 Outstanding agreement from RAN1#102-e

The following agreement was made in RAN1#102-e:

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| Agreements:  For Mode 1 when applicable:   * For the same TB, the minimum time between PSFCH reception and next scheduled PSCCH/PSSCH retransmission is Tprep +delta (ms)   + To conclude the value of delta>=0 during the e-Meeting   + A UE is not expected to be scheduled consecutive SL transmisions for the same TB such that the minimum time between PSFCH reception and next PSCCH/PSSCH retransmission can not be guaranteed * FFS the detailed conditions of the applicability |

### M1-1-1 Conditions for applicability

Regarding the conditions for applicability, the following proposal received more support than any other alternative in the contributions:

Proposal:

* The agreement from RAN1#102 applies when the grant is provided for a pool configured with PSFCH resources

Is the proposal acceptable. If not, please state your alternative proposal and clarify any potential impact to RAN2:

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| **Company** | **View** |
| NTT DOCOMO | Support |
| LG Electronics | Not support.  According the current RAN2 specification, since the mapping between “LCH with HARQ FB enabled/disabled” and “Mode 1 CG” is provided by RRC signaling, Mode 1 UE can clearly know which Mode 1 CG is configured to be used for “MAC PDU with HARQ FB enabled” transmission.  With this understanding, for the pool configured with PSFCH resources, we are not technically convinced why all the Mode 1 CGs should satisfy the minimum time gap between PSFCH reception and next scheduled PSCCH/PSSCH retransmission for the same TB. This restriction rather makes it difficult to support a service with low latency requirement in the pool configured with PSFCH resources. In other words, even for the pool configured with PSFCH resources, it should be allowed for gNB to configure Mode 1 CG not satisfying the minimum time gap mentioned above, and Mode 1 UE can know that such CG is allocated for “MAC PDU with HARQ FB disabled” transmission via receiving RRC signaling providing the mapping between “LCH with HARQ FB enabled/disabled” and “Mode 1 CG”.  Note that the above-mentioned restriction doesn’t exist for Mode 2. We think that it doesn’t need to specify/agree UE’s behavior for the error case. In summary, our suggestion is as below, and it doesn’t have any impact to RAN2.  *For a TB with HARQ feedback enabled, a UE doesn’t expect to receive Mode 1 SL grant such that the minimum time between PSFCH reception and next PSCCH/PSSCH retransmission is not guaranteed for the same TB.* |
| vivo | Disagree.  The proposal would incur unnecessary delay as explained by LG.  We think the presence of PUCCH is more suitable application condition as it implies that the gNB expects SL HARQ-ACK reporting.  When gNB does not provide a PUCCH but configures PSFCH, and SL data arrives with a higher priority and HARQ-ACK enabled, the UE just follows the existing behavior, i.e., sending a BSR to request new resource if none of the acquired grants meets the minimum time restriction. ***So using the presence of PUCCH as the pre-condition*** ***does not introduce any LCP modification***.   * The agreement from RAN1#102 applies when the grant is provided with PUCCH ~~for a pool configured with PSFCH resources~~   UE behaviour should be clarified, i.e., UE should transmit a TB with HARQ-ACK disabled on the resources if the resources do not meet the minimum time restriction Tprep +delta (ms)  The proposal could be changed as below:   * If the minimum time between a PSFCH reception and next scheduled PSCCH/PSSCH retransmission is less than Tprep +delta (ms), UE should use the scheduled resources for a TB with HARQ-ACK disabled |
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### M1-1-2 Value of delta

A few contributions expressed their position on the value of delta. Unfortunately, there is no clear majority

Proposal:

* The value of delta in the agreement from RAN1#102 is:
  + Option A: 0
  + Option B: 7 symbols
  + Option C: 0.5 ms

Please share your views:

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| **Company** | **View** |
| NTT DOCOMO | Either option A or Option C.  It seems unclear whether PSCCH/PSSCH preparation time is larger than PUCCH preparation time. |
| LG Electronics | No strong preference between Option B and Option C. |
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## sl-DCI-ToSL-Trans

The values of sl-DCI-ToSL-Trans have not been agreed so far. There are two contributions proposing different ranges:

Proposal:

* The configurable values for sl-DCI-ToSL-Trans are:
  + Option A: 0-7 slots
  + Option B: 0-31 slots

FL comment: given the agreed value for Tprep (cf. TS 38.214 Clause 8.6), it seems that configuring the value of 0 is not useful for any of the numerologies.

Please share your views on the range and whether it should start at 0 or some other value.

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| **Company** | **View** |
| NTT DOCOMO | Option B with removal of value 0. (or in addition max is 32 as K2.)  In NR, 0 is used for self-contained operation. SL is slot-based, so 0 would be unnecessary (unavailable). |
| LG Electronics | We are fine with “Option B with removing 0 value”. |
| vivo | Agree with DCM, the candidate values should be 1-32 slot. 0 is not needed as NR SL does not support self-contained scheduling.  BTW, I would like to ask for clarification: is it a common understanding in the group that the sl-DCI-ToSL-Trans represents a number of physical slots in SL SCS? |
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## Other comments

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