3GPP TSG RAN WG1 Meeting #102-e R1-200xxxx

eMeeting, August 17 – 28, 2020

Agenda Item: 7.2.4.2.1

Source: Moderator (Ericsson)

Title: Resource allocation for NR sidelink Mode 1 – Thread 1

Document for: Discussion, Decision

# 1 List of issues for discussion

[102-e-NR-5G\_V2X\_NRSL-Mode-1-01] Email discussion/approval covering:

* Remaining issues for configured grant
  + Whether clarifications for the formula determining the granted slots are necessary and whether the issue should be left to RAN2.
  + Clarifications on signalling for number of retransmissions
  + Editorial corrections and clarifications for configured grant (if any).
* DCI aspects
  + Alignment of DCI format 3\_0 with other DCI formats.
  + Cells on which the UE monitors DCI formats 3\_0 and 3\_1, including discussion on PUCCH cell.
  + Editorial corrections and clarifications for DCI (if any).

By 8/20, followed by potential TPs by 8/25 – Ricardo (Ericsson)

# Discussion

## 1.1 Remaining issues for configured grant

### Issue 1.1-1 Clarifications on the formula for determining the granted slots

**Regarding the formula for determining the granted slots for a configured grant:**

1. **A correction is necessary (please provide details in your reply).**
2. **No correction is necessary in RAN1 (Note: RAN2 can determine whether a correction is necessary and apply it.)**

**(For other answers, please explain)**

|  |  |
| --- | --- |
| **Company** | **View** |
| Intel | B (tentative)  We are not yet aware of any corrections needed from RAN1 perspective. We are open to consider corrections if companies can highlight the issues. |
| OPPO | A.  1. *numberOfSLSlotsPerFrame* is not a constant value per frame. How many slots per 10ms can be used for SL is determined by TDD-UL-DL-ConfigCommon, which can configure two patterns within 20ms. The number of UL slot per 10ms is independently configurable.  2. The slot determined by the formula may not belong to the resource pool that the configured grant is associated to. Some specification is needed to specify how to deal with that case. |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

### Issue 1.1-2 Clarifications on signalling the number of retransmissions

**A few contributions discuss how to signal the number of retransmissions in Mode 1 and set the corresponding TDRA and FDRA fields in SCI (e.g., R1-2005797, R1-2006434). This does not seem to be covered in the specification, which currently refers only to Mode 2 (see TS 38.213, Clause 16.4).**

**For Mode-1, the following two agreements determine how to set the TDRA and FDRA fields in DCI/SCI.**

|  |
| --- |
| Agreements:   * For dynamic grant, DCI indicates the time-frequency resource allocation with the signalling format used for SCI.   + In addition, the starting sub-channel for initial transmission is signalled in DCI.   Agreements:   * At least the following parameters are part of a SL configured grant configuration:   + Configuration index of the CG   + Time offset (for type-1 only)   + Time-frequency allocation (for type-1 only)     - Using the same format as in DCI.   + Periodicity   + The configured grant is associated with a single transmit resource pool.   + RAN2 can add other parameters if deemed necessary by RAN2 * A UE in mode 1 is configured at least with one transmit resource pool * For type-2 CG, the time-frequency allocation and the configuration index of the CG are indicated in DCI.   + All parameters for CG type 2 for activation DCI re-use the same respective parameters configured for CG type 1, when applicable |

**Proposal:**

* **Capture how to set the TDRA and FRDA fields in the specification based on the above agreements.**

**(For other answers, please explain)**

|  |  |
| --- | --- |
| **Company** | **View** |
| NTT DOCOMO | Agree |
| Intel | Agree  We expect a UE is instructed to copy FDRA and TDRA fields from DCI 3\_0. |
| OPPO | Agree |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

## 1.2 DCI aspects

### Issue 1.2-1 Alignment of DCI format 3\_0 with other DCI formats

**In the past, RAN1 made the following agreement and WA**

|  |
| --- |
| Agreements:   * Existing DCI size budget is maintained when the UE is configured with SL * (working assumption): The size of the new DCI format and the size of one of the existing NR DCI formats are aligned. |

**Which DCI format should be used for size alignment of DCI format 3\_0?**

|  |  |
| --- | --- |
| **Company** | **View** |
| NTT DOCOMO | Basically DCI format 0\_1.  But the following two cases should be discussed:  - when DCI format 0\_1 is not configured  - when there is no DCI format configured with larger payload size than 3\_0 |
| Intel | First, we think there could be cases when the DCI budget is respected without alignment.  When alignment is necessary, we prefer the closest larger DCI format from 0\_x, 1\_x by zero-padding 3\_0 to the closest format.  If 3\_0 turns out the largest format itself   * + - * Option 1: UE does not expect such configuration       * Option 2: Align 0\_1 by zero-padding to 3\_0 |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

### Issue 1.2-2 Cells on which the UE monitors DCI formats 3\_0 and 3\_1

**One contribution proposes to clarify that the UE monitors DCI formats 3\_0/3\_1 (if configured) only in PCell** (**R1- 2006769). Another contribution discusses PUCCH cell as well (R1-2006694).**

**Proposal:**

* **DCI formats 3-0 and 3-1 are only monitored on PCell.**
* **PUCCH carrying SL HARQ-ACK reports is transmitted on PCell.**

|  |  |
| --- | --- |
| **Company** | **View** |
| NTT DOCOMO | For 1st bullet, we are not sure the restriction is needed.  - For example, if SL is operated on a shared carrier and the carrier is SCell, then it seems that SL scheduling from the same cell is more feasible.  For both bullets, we would like to clarify whether NR-CA with PUCCH SCell or NR-DC is considered for this discussion or not.  - If not considered, discussion on the 1st bullet is only above our comment and the 2nd bullet is unnecessary since PUCCH can be transmitted on PCell only.  - If considered, restriction on cross-FR/band/PUCCH-group scheduling shall be discussed since it would not be OK from UE implementation perspective. Otherwise, any scheduling combination among PDCCH/SL-resource/PUCCH is allowed, e.g. PDCCH is band X in FR1, SL is band Y in FR1, and PUCCH cell is FR2. Note that, PUCCH SCell or PSCell is the other candidate for PUCCH cell, in this case. So the 2nd bullet needs to be discussed.  - We believe that ‘NR-CA with PUCCH SCell or NR-DC’ should be considered in RAN1. Current RAN4 spec does not support, but would support in future. In the timing, time for RAN1 discussion is not guaranteed. |
| Intel | Neutral. If there is no much specification effort to support non-PCell scheduling and PUCCH, we are open. |
| OPPO | No necessary for this proposal.  For the first bullet, similar view as DOCOMO  For the second bullet, PUCCH in NR Uu can be transmitted in PCell or PScell. Follow existing PUCCH mechanism is enough. |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

## Other comments

NOTE: I will prepare TPs or list of TPs for editorial aspects. I will share it in a later iteration.

|  |  |
| --- | --- |
| **Company** | **View** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |