**3GPP TSG RAN WG1 Meeting #100bis-E R1-200xxxx**

**e-Meeting, April 20th – 30th, 2020**

**Source: Moderator (Intel Corporation)**

**Title: TP Email Discussion #6 [100b-e-NR-5G\_V2X\_NRSL-Mode-2-06]**

**Agenda item: 7.2.4.2.2**

**Document for:** **Discussion and Decision**

Introduction

This document provides discussion on TP as per the sixth email discussion on V2X Mode-2 during RAN1#100bis-e.

[100b-e-NR-5G\_V2X\_NRSL-Mode-2-06] Email approval of TPs to fix PSSCH RSRP and capture exclusion of TTIs in the same period / aperiodic reservations

till 4/23 (Intel, Sergey)

TP on PSSCH DMRS

In [8], the following TP is provided:

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| 8.4.2.1 RSRP for resource selection in sidelink resource allocation mode 2  In sidelink resource allocation mode 2, the UE measures RSRP for resource selection as follows:  - PSSCH-RSRP over the DM-RS resource elements for ~~the PSCCH carrying the received SCI format 0-1~~ the PSSCH according to the received SCI format 0-1 if higher layer parameter *RSforSensing* is set to “*PSSCH DM RS*”, and  - PSCCH-RSRP over the DM-RS resource elements for ~~the PSSCH according to the received SCI format 0-1~~ the PSCCH carrying the received SCI format 0-1 if higher layer parameter *RSforSensing* is set to “*PSCCH DM RS*”. |

In [21], the following TP is provided:

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| ===============start================  8.4.2.1 RSRP for resource selection in sidelink resource allocation mode 2  In sidelink resource allocation mode 2, the UE measures RSRP for resource selection as follows:  - PSSCH-RSRP over the DM-RS resource elements for the PSSCH according to the received SCI format 0-1 if higher layer parameter *sl-RS-ForSensing* is set to " *pssch* ", and  - PSCCH-RSRP over the DM-RS resource elements for the PSCCH carrying the received SCI format 0-1 if higher layer parameter *sl-RS-ForSensing* is set to " *pscch* ".  ===============end================ |

It seems both TPs fix the same issue in the same manner, while the TP from [21] also aligns the RRC parameter name to the latest RAN2 CR. Thus, this TP version is proposed to be captured:

--------------------------------------------- TP to 38.214, section 8.4.2.1 starts ---------------------------------------------------

8.4.2.1 RSRP for resource selection in sidelink resource allocation mode 2

In sidelink resource allocation mode 2, the UE measures RSRP for resource selection as follows:

- PSSCH-RSRP over the DM-RS resource elements for the PSSCH according to ~~PSCCH carrying~~ the received SCI format 0-1 if higher layer parameter *sl-RS-ForSensing~~RSforSensing~~* is set to "*pssch~~PSSCH DM RS~~*", and

- PSCCH-RSRP over the DM-RS resource elements for the ~~PSSCH according to~~ PSCCH carrying the received SCI format 0-1 if higher layer parameter *sl-RS-ForSensing~~RSforSensing~~*is set to "*pscch~~PSCCH DM RS~~*".

--------------------------------------------- TP to 38.214, section 8.4.2.1 ends ---------------------------------------------------

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TP on Exclusion of Same Period TTIs / Aperiodic Exclusion

There is one identified gap in current implementation of specification. It seems current specification may not clearly capture the case of aperiodic reservations.

In [24], the following TP is provided to fix the issue:

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| 8.1.4 UE procedure for determining the subset of resources to be reported to higher layers in PSSCH resource selection in sidelink resource allocation mode 2  […]  The following steps are used:  […]  5) The UE shall exclude any candidate single-slot resource from the set if it meets all the following conditions:  - the UE has not monitored slot in Step 2.  - for any periodicity value allowed by the higher layer parameter *reservationPeriodAllowed* and a hypothetical SCI format 0-1 received in slot with "Resource reservation period" field set to that periodicity value and indicating all subchannels of the resource pool in this slot, condition c in step 6 would be met.  6) The UE shall exclude any candidate single-slot resource from the set if it meets all the following conditions:  a) the UE receives an SCI format 0-1 in slot , and "Resource reservation period" field, if present, and "Priority" field in the received SCI format 0-1 indicate the values and , respectively according to Clause [TBD] in [6, TS 38.213];  b) the RSRP measurement performed, according to clause 8.4.2.1 for the received SCI format 0-1, is higher than ;  c) the SCI format received in slot or the same SCI format which, if and only if the "Resource reservation period" field is present in the received SCI format 0-1, is assumed to be received in slot(s) determines according to clause [TBD] in [6, TS 38.213] the set of resource blocks and slots which overlaps with for *q*=1, 2, …, *Q* and *j=*0, 1, …, . Here, is converted to units of logical slots, if and , where if slot n belongs to the set , otherwise slot is the first slot after slot n belonging to the set ; otherwise . is FFS  7) The UE shall exclude any candidate single-slot resource from the set if it meets all the following conditions:  a) the UE receives an SCI format 0-1 in slot , and "Priority" field in the received SCI format 0-1 indicate the values and , respectively according to Clause [TBD] in [6, TS 38.213];  b) the RSRP measurement performed, according to clause 8.4.2.1 for the received SCI format 0-1, is higher than ;  c) the SCI format received in slot or the same SCI format is assumed to be received in slot(s) determines according to clause [8.1.5] the set of resource blocks and slots which overlaps with . Here, and are indicated by "Time resource assignment" field and "Frequency resource assignment" field in the SCI format, respectively.  ~~7~~8) If the number of candidate single-slot resources remaining in the set is smaller than , then is increased by 3 dB for each priority value and the procedure continues with step 4.  The UE shall report set to higher layers. |

In [27], the following TP is provided to fix the issue:

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| ----------------------------------------------------begin text proposal for 38.214----------------------------------------------------  8.1.4 UE procedure for determining the subset of resources to be reported to higher layers in PSSCH resource selection in sidelink resource allocation mode 2  <<<unchanged text omitted>>>  b) the RSRP measurement performed, according to clause 8.4.2.1 for the received SCI format 0-1, is higher than ;  c) the SCI format received in slot or the same SCI format which, if and only if the "Resource reservation period" field is present in the received SCI format 0-1, is assumed to be received in slot(s) determines according to clause [TBD] in [6, TS 38.213] the set of resource blocks and slots which overlaps with for *q*=0,1, 2, …, *Q* and *j=*0, 1, …, . Here, is converted to units of logical slots, if and , where if slot n belongs to the set , otherwise slot is the first slot after slot n belonging to the set ; otherwise . is FFS.  -----------------------------------------------------end text proposal for 38.214----------------------------------------------------- |

In FL understanding, TP in [24] may repeat already captured procedures, if the “[TBD] in [6, TS 38.213]” part in step 6c is updated to the actual clause 8.1.5 which instructs how time and frequency resources indicated in SCI are determined.

In FL understanding, TP in [27] may not fully solve the mentioned problem. It is preferred to clearly define that q and P\_rsrp\_RX is only applied in case of periodic indication in SCI 0-1. This version is proposed to be discussed/approved:

-----------------------------------------------------start text proposal for 38.214-----------------------------------------------------

8.1.4 UE procedure for determining the subset of resources to be reported to higher layers in PSSCH resource selection in sidelink resource allocation mode 2

<<<unchanged text omitted>>>

b) the RSRP measurement performed, according to clause 8.4.2.1 for the received SCI format 0-1, is higher than ;

c) the SCI format received in slot or the same SCI format which, if and only if the "Resource reservation period" field is present in the received SCI format 0-1, is assumed to be received in slot(s) determines according to clause 8.1.5 the set of resource blocks and slots which overlaps with for *j=*0, 1, …, . If and only if the "Resource reservation period" field is present in the received SCI format 0-1,*q*=1, 2, …, *Q* . Here, is converted to units of logical slots, if and , where if slot n belongs to the set , otherwise slot is the first slot after slot n belonging to the set ; otherwise . is FFS.

-----------------------------------------------------end text proposal for 38.214-----------------------------------------------------

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