**3GPP TSG RAN WG1 Meeting #101-E R1-** **200xxxx**

**e-Meeting, May 25th – June 5th, 2020**

**Source: Moderator (Intel Corporation)**

**Title: TPs based on outcome of [101-e-NR-5G\_V2X\_NRSL-Mode-2-03]**

**Agenda item: 7.2.4.2.2**

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

Introduction

The following agreements to be captured in RAN1 specifications were made in [101-e-NR-5G\_V2X\_NRSL-Mode-2-03].

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| Agreements:   * X% is is (pre-)configured per pool per L1 priority from a set of {20, 35, 50} %,   + - RSRP threshold adaptation triggering issue is not further discussed in Rel-16   Agreements:   * Confirm the following working assumption from RAN1#100bis-e with "shall”:  |  | | --- | | ~~Working assumption:~~ Agreements:   * The UE ~~should/~~shall indicate min(Nselected, N) first-in-time resources when setting the values of frequency resource assignment and time resource assignment in SCI format 0\_1, where   + Nselected is the number of resources selected by MAC within 32 slots (including the current one)   + N is the maximum number of resources that can be signalled in one SCI   + ~~To discuss and conclude “should vs. shall” in RAN1#101~~ |  * To also add the above agreements (without change marks) to the RAN2 LS, indicating that the agreement is not intended to be in conflict with the corresponding QoS requirements. If RAN2 sees any issues, please inform RAN1 accordingly. |

TP to 38.213 capturing SCI signalling of Nselected resources

In FL understanding, this is a signalling aspect and needs to be captured in 38.213, section 16.4 as follows:

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| 16.4 UE procedure for transmitting PSCCH A UE can be provided a number of symbols in a resource pool, by *timeResourcePSCCH*, starting from a second symbol that is available for SL transmissions in a slot, and a number of PRBs in the resource pool, by *frequencyResourcePSCCH*, for a PSCCH transmission with a SCI format 0\_1.  A UE that transmits a PSCCH with SCI format 0\_1 using sidelink resource allocation mode 1 [6, TS38.214]  - sets a value of a HARQ process ID field as indicated by higher layers  - for an initial transmission of a TB that is scheduled by a DCI format 3\_0 with CRC scrambled by SL-RNTI, the UE  - toggles the NDI field value in SCI format 0\_1, if the NDI field value in DCI format 3\_0 is toggled  - does not toggle the NDI field value in SCI format 0\_1, if the NDI field value in DCI format 3\_0 is not toggled  - for subsequent transmissions of the TB that are scheduled by the DCI format 3\_0 with CRC scrambled by SL-RNTI, the UE does not toggle the NDI field value in SCI format 0\_1.  A UE that transmits a PSCCH with SCI format 1-A using sidelink resource allocation mode 2 [6, TS 38.214]  - sets the values of the Frequency resource assignment field and the Time resource assignment field as described in clause 8.1.5 in [6, TS 38.214] to indicate the N resources from selected by higher layer as described in [11, TS 38.321] with N smallest slot indices , , …, such that , where:  - N = min(Nselected, *sl-MaxNumPerReserve*), where Nselected is the total number of resources selected by higher layer as described in [11, TS 38.321] and *sl-MaxNumPerReserve* is provided by higher layer.  - is a set of resources, each corresponding to contiguous sub-channels and a slot in a set of slots , where is the number of sub-channels to be used for the PSSCH/PSCCH transmission in a slot.  - denotes the set of slots which can belong to a sidelink resource pool and is defined in [TBD].  - corresponds to the slot in which the SCI format 1-A is transmitted. |

TP to 38.214 capturing (pre-)configured X%

Current section 8.1.4 needs to be updated to capture the configurability of X% threshold.

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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 In resource allocation mode 2, the higher layer can request the UE to determine a subset of resources from which the higher layer will select resources for PSSCH/PSCCH transmission. To trigger this procedure, in slot *n,* the higher layer provides the following parameters for this PSSCH/PSCCH transmission:  - the resource pool from which the resources are to be reported;  - L1 priority, ;  - the remaining packet delay budget;  - the number of sub-channels to be used for the PSSCH/PSCCH transmission in a slot, ;  - optionally, the resource reservation interval, , in units of ms.  The following higher layer parameters affect this procedure:  *- t2min\_SelectionWindow:* internal parameter is set to the corresponding value from higher layer parameter *t2min\_SelectionWindow* for the given value of .  *- SL-ThresRSRP\_pi\_pj*: this higher layer parameter provides an RSRP threshold for each combination , where is the value of the priority field in a received SCI format 0-1 and is the priority of the transmission of the UE selecting resources; for a given invocation of this procedure, .  *- RSforSensing* selects if the UE uses the PSSCH-RSRP or PSCCH-RSRP measurement, as defined in clause 8.4.2.1.  *- reservationPeriodAllowed*  *- t0\_SensingWindow*: internal parameter is defined as the number of slots corresponding to *t0\_SensingWindow* ms.  *- sl-RemainResourceRatio*: internal parameter for a given is defined as *sl-RemainResourceRatio()* converted from percentage to ratio  The resource reservation interval, , if provided, is converted from units of *ms* to units of logical slots, resulting in .  **<< UNCHANGED PARTS OMITTED >>**  7) 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. |

References

1. [R1-2003310](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2003310.zip) Remaining details of Resource Allocation Mode 2 Nokia, Nokia Shanghai Bell
2. [R1-2003379](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2003379.zip) Remaining issues on mode 2 resource allocation mechanism vivo
3. [R1-2003495](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2003495.zip) Remaining details of sidelink resource allocation mode 2 Huawei, HiSilicon
4. [R1-2003549](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2003549.zip) Remaining issues in Mode-2 ZTE, Sanechips
5. [R1-2003559](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2003559.zip) Remaining Issues on Sidelink Mode 2 Resource Allocation Panasonic Corporation
6. [R1-2003563](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2003563.zip) Discussion on resource allocation for Mode 2 LG Electronics
7. [R1-2003613](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2003613.zip) Remaining issues on Mode 2 resource allocation in NR V2X CATT
8. [R1-2003653](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2003653.zip) Remaining Issues on Resource Allocation in NR Sidelink Mode 2 ITRI
9. [R1-2003671](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2003671.zip) Sidelink mode-2 resource allocation MediaTek Inc.
10. [R1-2003703](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2003703.zip) Remaining issues for Mode 2 resource allocation in NR V2X ASUSTeK
11. [R1-2003735](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2003735.zip) Remaining details of Mode-2 NR V2X sidelink design Intel Corporation
12. [R1-2003807](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2003807.zip) Remaining details on mode-2 resource allocation Futurewei
13. [R1-2003874](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2003874.zip) On Mode 2 for NR Sidelink Samsung
14. [R1-2003991](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2003991.zip) Remaining issues in NR sidelink mode 2 resource allocation Spreadtrum Communications
15. [R1-2004043](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2004043.zip) Remaining details on mode 2 resource allocation for NR V2X Fujitsu
16. [R1-2004074](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2004074.zip) Discussion on remaining open issue for mode 2 OPPO
17. [R1-2004171](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2004171.zip) Resource allocation for NR sidelink Mode 2 TCL Communication Ltd.
18. [R1-2004217](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2004217.zip) Remaining Issues of Mode 2 Resource Allocation Apple
19. [R1-2004295](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2004295.zip) Remaining Issues on NR Sidelink Mode 2 Resource Allocation InterDigital, Inc.
20. [R1-2004310](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2004310.zip) Remaining issues on resource allocation Mode 2 NEC
21. [R1-2004328](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2004328.zip) Remaining issues on resource allocation mode 2 for NR sidelink Sharp
22. [R1-2004385](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2004385.zip) Remaining issues on resource allocation mechanism mode 2 NTT DOCOMO, INC.
23. [R1-2004452](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2004452.zip) Sidelink Resource Allocation Mode 2 Qualcomm Incorporated
24. [R1-2004531](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2004531.zip) Remain details on mode-2 resource allocation for NR V2X ITL
25. [R1-2004544](file:///C:\Users\wanshic\OneDrive%20-%20Qualcomm\Documents\Standards\3GPP%20Standards\Meeting%20Documents\TSGR1_101\Docs\R1-2004544.zip) Resource allocation Mode 2 for NR SL Ericsson