**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”:

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| ~~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~~
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* 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.
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Endorsed TP to TS 38.213

Coversheet information:

* Reason for change
	+ Implementation of agreements related to outcome of discussion [101-e-NR-5G\_V2X\_NRSL-Mode-2-03]
* Summary of changes
	+ Procedure of signalling resources in SCI 1-A from a given set provided by higher layers is specified
* Specs/sections impacted
	+ TS 38.213, section 16.4
* Consequences if not approved
	+ How UE decides to signal resources from the set provided by higher layer is left up to UE implementation.

Approved TP goes here

Endorsed TP to Ts 38.214

Coversheet information:

* Reason for change
	+ Implementation of agreements related to outcome of discussion [101-e-NR-5G\_V2X\_NRSL-Mode-2-03]
* Summary of changes
	+ Ratio of resource in the set SA to the total number of candidate resources in the selection window is made configurable instead of fixing to 20%.
* Specs/sections impacted
	+ TS 38.214, section 8.1.4
* Consequences if not approved
	+ Ratio of resource in the set SA to the total number of candidate resources in a selection window is fixed to 20% potentially limiting NR V2X Mode-2 performance in cases when 20% is not optimal.

Approved TP goes here

Discussion on 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 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 the set $\left\{R\_{y}\right\}$ selected by higher layer as described in [11, TS 38.321] with N smallest slot indices $y\_{i}$ for $0\leq i\leq N-1$ such that $y\_{0}<y\_{1}<…<y\_{N-1}\leq y\_{0}+31$, where:- N = min(Nselected, *sl-MaxNumPerReserve*), where Nselected is the number of resources in the set $\left\{R\_{y}\right\}$ selected by higher layer as described in [11, TS 38.321] with slot indices $y\_{j}$ for $0\leq j\leq Nselected-1$ such that $y\_{0}<y\_{1}<…<y\_{Nselected-1}\leq y\_{0}+31$, and *sl-MaxNumPerReserve* is provided by higher layer.- $\left\{R\_{y}\right\}$ is a set of resources, each corresponding to $L\_{subCH}$ contiguous sub-channels and a slot in a set of slots $\{t\_{y}^{SL}\}$, where $L\_{subCH}$ is the number of sub-channels to be used for the PSSCH/PSCCH transmission in a slot.- $\left(t\_{0}^{SL},t\_{1}^{SL},t\_{2}^{SL},...\right)$ denotes the set of slots which can belong to a sidelink resource pool and is defined in [TBD].- $y\_{0}$ is the index of the slot in which the SCI format 1-A is transmitted. |

Discussion on 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 2In 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, $prio\_{TX}$;- the remaining packet delay budget;- the number of sub-channels to be used for the PSSCH/PSCCH transmission in a slot, $L\_{subCH}$;- optionally, the resource reservation interval, $P\_{rsvp\\_TX}$, in units of ms.The following higher layer parameters affect this procedure:*- t2min\_SelectionWindow:* internal parameter $T\_{2min}$ is set to the corresponding value from higher layer parameter *t2min\_SelectionWindow* for the given value of $prio\_{TX}$.*- SL-ThresRSRP\_pi\_pj*: this higher layer parameter provides an RSRP threshold for each combination $\left(p\_{i}, p\_{j}\right)$, where $p\_{i}$ is the value of the priority field in a received SCI format 0-1 and $p\_{j}$ is the priority of the transmission of the UE selecting resources; for a given invocation of this procedure, $p\_{j} = prio\_{TX}$.*- 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 $T\_{0}$ is defined as the number of slots corresponding to *t0\_SensingWindow* ms.*- sl-xPercentage*: internal parameter $X$ for a given $prio\_{TX}$ is defined as *sl-xPercentage(*$prio\_{TX}$*)* converted from percentage to ratioThe resource reservation interval, $P\_{rsvp\\_TX}$, if provided, is converted from units of *ms* to units of logical slots, resulting in $P\_{rsvp\\_TX}^{'}$.**<< UNCHANGED PARTS OMITTED >>**7) If the number of candidate single-slot resources remaining in the set $S\_{A}$ is smaller than $0.2X⋅M\_{total}$, then $Th(p\_{i})$ is increased by 3 dB for each priority value $Th(p\_{i})$ and the procedure continues with step 4.The UE shall report set $S\_{A}$ to higher layers. |

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