**3GPP TSG-RAN WG2 Meeting #113 *R2-2102198***

**Online, 25 Jan. – 5 Feb. 2021**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  | **38.321** | **CR** | 1001 | **rev** | **2** | **Current version:** | **16.3.0** |  |
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| *For* [***HELP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

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| ***Title:***  | Correction on mode2 operation |
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| ***Source to WG:*** | OPPO(rapporteur) |
| ***Source to TSG:*** | R2 |
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| ***Work item code:*** | 5G\_V2X\_NRSL |  | ***Date:*** | 2020-03-1 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-16 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)Rel-12 (Release 12)Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | 1. RAN2 agreed that timing of trigger for re-evalution or pre-emption should be captured in MAC spec
2. RAN2 agreed that SL resource re-selection due to congestion control should be removed from MAC spec
3. RAN2 agreed that SL resource re-selection due to prioritization should be removed from MAC spec but leave it to UE’s implemenation
4. Some clarification is needed for UE’s behaviour on re-evaluation and pre-emption
5. RAN agreed to move UE’s behaviour on re-evaluation and pre-emption to a new section
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| ***Summary of change:*** | 1. To move text procedure of section 5.22.1.2 starting with “1> if a resource(s) of the selected sidelink grant which has not been identified by a prior SCI is indicated for re-evaluation by the physical layer as specified in clause 8.1.4 of TS 38.214 [7];” to a new section 5.22.1.2x. And clarify this new section is for mode 2 operation.
2. To add timing of trigger for re-evalution or pre-emption in section 5.22.1.2x
3. To remove the text on SL resource re-selection due to congestion control and prioritization in section 5.22.1.2x
4. To add Note X1, X3 and X4 for UE’s behaviour on re-evalution and pre-emption in section 5.22.1.2x

**Impact analysis**Impacted 5G NR SL:NR SAImpacted functionality:SL mode 2 operationInter-operability: If one UE is implemented according to this CR while the other UE is not, there is no inter-operability issueIf UE implements according to the CR and the network does not, there is no inter-operability issues since the operation has nothing to do with network.If the network implements according to the CR and the UE does not, there is no inter-operability issues since the operation has nothing to do with network. |
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| ***Consequences if not approved:*** | If the CR is not agreed, UE’s behaviour on mode 2 re-evaluation and pre-emption is not clear |
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| ***Clauses affected:*** | 5.22.1.2,5.22.1.2x |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ... |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** |  |
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| ***This CR's revision history:*** |  |

START OF THE CHANGE

#### 5.22.1.2 TX resource (re-)selection check

If the TX resource (re-)selection check procedure is triggered on the selected pool of resources for a Sidelink process according to clause 5.22.1.1, the MAC entity shall for the Sidelink process:

1> if *SL\_RESOURCE\_RESELECTION\_COUNTER* = 0 and when *SL\_RESOURCE\_RESELECTION\_COUNTER* was equal to 1 the MAC entity randomly selected, with equal probability, a value in the interval [0, 1] which is above the probability configured by RRC in *sl-ProbResourceKeep*; or

1> if the pool of resources is configured or reconfigured by RRC; or

1> if there is no selected sidelink grant on the selected pool of resources; or

1> if neither transmission nor retransmission has been performed by the MAC entity on any resource indicated in the selected sidelink grant during the last second; or

1> if *sl-ReselectAfter* is configured and the number of consecutive unused transmission opportunities on resources indicated in the selected sidelink grant is equal to *sl-ReselectAfter*; or

1> if the selected sidelink grant cannot accommodate a RLC SDU by using the maximum allowed MCS configured by RRC in *sl-MaxMCS-PSSCH* and the UE selects not to segment the RLC SDU; or

NOTE 1: If the selected sidelink grant cannot accommodate the RLC SDU, it is left for UE implementation whether to perform segmentation or sidelink resource reselection.

1> if transmission(s) with the selected sidelink grant cannot fulfil the latency requirement of the data in a logical channel according to the associated priority, and the MAC entity selects not to perform transmission(s) corresponding to a single MAC PDU:

NOTE 2: If the latency requirement is not met, it is left for UE implementation whether to perform transmission(s) corresponding to single MAC PDU or sidelink resource reselection.

NOTE 3: It is left for UE implementation whether to trigger the TX resource (re-)selection due to the latency requirement of the MAC CE triggered according to clause 5.22.1.7.

2> clear the selected sidelink grant associated to the Sidelink process, if available;

2> trigger the TX resource (re-)selection.

#### 5.22.1.2x Re-evaluation and Pre-emption

A resource(s) of the selected sidelink grant for a MAC PDU to transmit from multiplexing and assembly entity is re-evaluated by physical layer at *T3* before the slot where the SCI indicating the resource(s) is signalled at first time as specified in section 8.1.4 of TS 38.214 [7];

A resource(s) of the selected sidelink grant which has been indicated by a prior SCI for a MAC PDU to transmit from multiplexing and assembly entity could be checked for pre-emption by physical layer at *T3* before the slot where the resource(s) is located as specified in section 8.1.4 of TS 38.214 [7];

NOTE X1: It is up to UE implementation to re-evaluate or pre-empt before ‘m-$ T\_{3}$’ or after ‘m-$ T\_{3}$’ but before ‘m’. For re-evaluation, m is the slot where the SCI indicating the resource(s) is signalled at first time as specified in section 8.1.4 of TS 38.214. For pre-emption, m is the slot where the resource(s) is located as specified in section 8.1.4 of TS 38.214.

If the MAC entity has been configured with Sidelink resource allocation mode 2 to transmit using pool(s) of resources in a carrier as indicated in TS 38.331 [5] or TS 36.331 [21] based on sensing or random selection the MAC entity shall for each Sidelink process:

1> if a resource(s) of the selected sidelink grant which has not been identified by a prior SCI is indicated for re-evaluation by the physical layer as specified in clause 8.1.4 of TS 38.214 [7]; or

1> if any resource(s) of the selected sidelink grant which has been indicated by a prior SCI is indicated for pre-emption by the physical layer as specified in clause 8.1.4 of TS 38.214 [7]:

2> remove the resource(s) from the selected sidelink grant associated to the Sidelink process;

2> randomly select the time and frequency resource from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] for either the removed resource or the dropped resource, according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of either SL data available in the logical channel(s) by ensuring the minimum time gap between any two selected resources of the selected sidelink grant in case that PSFCH is configured for this pool of resources, and that a resource can be indicated by the time resource assignment of a SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9];

NOTE 4: If retransmission resource(s) cannot be selected by ensuring that the resource(s) can be indicated by the time resource assignment of a prior SCI, how to select the time and frequency resources for one or more transmission opportunities from the available resources is left for UE implementation by ensuring the minimum time gap between any two selected ‎resources in case that PSFCH is configured for this pool of ‎resources.

2> replace the removed or dropped resource(s) by the selected resource(s) for the selected sidelink grant.

NOTE 5: It is left for UE implementation to reselect any pre-selected but not reserved resource(s) during reselection triggered by re-evaluation or pre-emption indicated by the physical layer.

NOTE X3: It is up to UE implementation whether to set the resource reservation interval in the re-selected resource to replace pre-empted resource.

NOTE X4: It is up to UE implementation whether to trigger resource reselection due to deprioritization as specified in clause 16.2.4 of TS 38.213 [6], clause 5.14.1.2.2 of TS 36.321 [22] and clause 5.22.1.3.1a.

END OF THE CHANGE