**3GPP TSG-RAN2 Meeting 121** **R2-2302033**

**Athens, Greece, Feb. 27 – Mar. 3, 2023**

**Agenda item: 6.10.2**

**Source: LG**

**Title: Summary of [AT121][506][V2X/SL] R17 MAC corrections (LG)**

**Document for: Discussion and Decision**

1. Introduction

This is the summary of below offline discussion.

* [AT121][506][V2X/SL] R17 MAC corrections (LG)

**Scope:** Discuss corrections in R2-2300131 (including the corresponding proposal 3 in R2-2300130), 2nd change in R2-2300487, R2-2300839 (including the corresponding proposal 2 in R2-2300838), R2-2300895, R2-2300912, R2-2300913, R2-2301375, R2-2301531, R2-2301620, and R2-2301745. Note corrections on IUC in GC/BC should be aligned with RAN2 decision.

**Intended outcome:** 38.321 CR in R2-2302032 and discussion summary in R2-2302033.

**Deadline:** Comeback at 3/2 CB session

Contact list

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1. Discussion

## 2.1 For P3 in [R2-2300130](file:///D:\업무\표준화%20업무\3GPP\3GPP%20표준회의\Rel-18\RAN2\%23120_2022.11\TSGR2_120\docs\R2-2211646.zip).

**proposal**: RAN2 to discuss to align the priority derivation of IUC-info/IUC-request MAC CE in UL/SL prioritization as the priority derivation for SCI transmission, i.e., 1) rely on RRC parameter when configured, 2) rely on priority-field in the IUC-request (for IUC-info MAC-CE) or up to UE implementation (for IUC-request MAC-CE) when not configured.

**Rapporteur view**: From rapporteur point of view, UL/SL prioritization of IUC MAC CE in MAC can be performed based on the priority value (“1”) of LCP and the MAC priority order below in 5.22.1.4.1.3.

Logical channels shall be prioritised in accordance with the following order (highest priority listed first):

- data from SCCH;

- Sidelink CSI Reporting MAC CE;

- Sidelink Inter-UE Coordination Request MAC CE and Sidelink Inter-UE Coordination Information MAC CE;

- Sidelink DRX Command MAC CE;

- data from any STCH.

We can select an option among the below possible options.

- option 1. rely on RRC parameter (*sl-PriorityCoordInfoCondition, sl-PriorityCoordInfoExplicit*) when configured, and rely on priority-field in the IUC-request (for IUC-info MAC-CE) or up to UE implementation (for IUC-request MAC-CE) when RRC parameters are not configured

- option 2. Rely on the priority value (“1”) of LCP and the MAC priority order specified in 5.22.1.4.1.3

**Q1: Which option do you prefer for UL/SL prioritization of IUC-info/IUC-request MAC CE?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Option 2 | UL/SL prioritization of IUC MAC CE in MAC can be performed based on the priority value (“1”) of LCP and the MAC priority order below in 5.22.1.4.1.3.  Logical channels shall be prioritised in accordance with the following order (highest priority listed first):  - data from SCCH;  - Sidelink CSI Reporting MAC CE;  - Sidelink Inter-UE Coordination Request MAC CE and Sidelink Inter-UE Coordination Information MAC CE;  - Sidelink DRX Command MAC CE;  - data from any STCH. |
| Ericsson | Option 2 | There was no special handling regarding priority for the existing SL MAC CE. Use the fixed priority ‘1’ shall be sufficient. |
| CATT | Option 2 | Option 2 is RAN2’s agreement. |

## 2.2 For the second correction in [R2-2300131](file:///D:\업무\표준화%20업무\3GPP\3GPP%20표준회의\Rel-18\RAN2\%23120_2022.11\TSGR2_120\docs\R2-2211646.zip).

**Reason for change**: It has been agreed that the default SL DRX can be used DCR message. However, the current equation of the *sl-drx-StartOffset* and *sl-drx-SlotOffset* are limited to groupcast or broadcast, while **unicast**-based DCR message with default SL DRX is missing and should be added.

**Change**: In subclause 5.28.2, add the transmission of UC-based DCR message case for the use of the *sl-drx-StartOffset* and *sl-drx-SlotOffset* equation.

When the cast type is groupcast or broadcast as indicated by upper layer, or the cast type is unicast for the reception of Direct Link Establishment Request message [28] or ProSe Direct Link Establishment Request message [29] as indicated by upper layer, the *sl-drx-StartOffset* and *sl-drx-SlotOffset* are derived from the following equations:

*sl-drx-StartOffset* (ms) = Destination Layer-2 ID modulo *sl-DRX-GC-BC-Cycle* (ms).

*sl-drx-SlotOffset* (ms) = (Destination Layer-2 ID modulo the number of slots in one subframe)  
/ (the number of slots in one subframe) (ms).

**Rapporteur view**: proponent's observation is correct (unicast-based DCR message with default SL DRX is missing).

**Q2: Would your company agree to the second correction in R2-2300131?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Agree |  |
| Ericsson | agree |  |
| CATT | Agree | DCR can be unicast message. |

## 2.3 For the second correction in R2-2300487.

**Reason for change**: In RAN2#118e, it was agreed that “TX UE remains active for RRC reconfiguration complete/failure sidelink reception (only for initial RRC reconfiguration sidelink case). If TX UE already applies SL DRX configuration in the direction (RX UE -> TX UE), TX UE follows the current SL DRX configuration.”. However, the second half of this agreement is not covered by current spec, which should be added.

**Change**: In section 5.28.2, add a note to clarify the UE behaviour that the UE can already apply SL DRX configuration in the direction (RX UE -> TX UE), for non-initial sidelink RRC reconfiguration case.

NOTE: If the UE transmitting SL-SCH Data already applies SL DRX configuration in the direction from the UE receiving SL-SCH Data to the UE transmitting SL-SCH Data, the UE transmitting SL-SCH Data follows the current SL DRX configuration.

**Rapporteur view**: rapporteur agrees the proponent’s observation/intention.

We can hear from companie’s views whether to support the proposed correction.

**Q3: Would your company agree to the second correction in R2-2300487?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG |  |  |
| Ericsson | disagree | In RAN2#118e, it was agreed that “TX UE remains active for RRC reconfiguration complete/failure sidelink reception (only for initial RRC reconfiguration sidelink case). If TX UE already applies SL DRX configuration in the direction (RX UE -> TX UE), TX UE follows the current SL DRX configuration.”. the agreement was relevant to RRC complete message in non-initial phase. **Which has no spec impact**. |
| CATT | Follow majority view |  |

## 2.4 For the proposal 2 in R2-2300838.

**Proposal**:

Proposal 2: RAN2 agree to capture that UE performs random resource selection without considering non-preferred resource set when the UE does not have own sensing result and if only a non-preferred resource set is received.

**Related correction (in the R2-2300839)**:

1st change

3> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE does not have own sensing result as specified in clause 8.1.4 of TS 38.214 [7] and if a non-preferred resource set is received from a UE:

4> randomly select the time and frequency resources for one transmission opportunity from the resources pool, according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier.

2nd change

4> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE does not have own sensing result as specified in clause 8.1.4 of TS 38.214 [7] and if a non-preferred resource set is received from a UE; and

5> if there are available resources left in the resource pool for more transmission opportunities:

6> randomly select the time and frequency resources for one or more transmission opportunities from the available resources, according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9].

4> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE does not have own sensing result as specified in clause 8.1.4 of TS 38.214 [7] and if a non-preferred resource set is received from a UE; and

5> if there are available resources left in the resource pool for more transmission opportunities:

6> randomly select the time and frequency resources for one or more transmission opportunities from the available resources, according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9].

3rd change and 4th changes are corrections of a single MAC PDU part.

**Rapporteur view**: same view as proponent

.

**Q4: Would your company agree to the proposal 2 in R2-2300838?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Agree |  |
| Ericsson | No strong view |  |
| CATT | Agree |  |

**Q5: If you agree to the P2 in R2-2300838, do you agree to the related correction proposed in R2-2300839?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Agree |  |
| Ericsson | No strong view |  |
| CATT | Agree |  |

## 2.5 For the first correction in [R2-2300839](file:///D:\업무\표준화%20업무\3GPP\3GPP%20표준회의\Rel-18\RAN2\%23120_2022.11\TSGR2_120\docs\R2-2211646.zip).

**Reason for change**: The corresponding behaviour to stop, if any, ongoing Random Access procedure due to a pending SR for SL-DRX command under some conditions is missing in the current specification.

**Change**: In section 5.4.4, add the corresponding description that “The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for SL-DRX command” under some conditions.

The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for SL-BSR and/or SL-CSI reporting and/or SL-DRX command indication, which was initiated by the MAC entity prior to the sidelink MAC PDU assembly and which has no valid PUCCH resources configured, if:

- a MAC PDU is transmitted using a UL grant other than a UL grant provided by Random Access Response or a UL grant determined as specified in clause 5.1.2a for the transmission of the MSGA payload, and this PDU includes an SL-BSR MAC CE which contains buffer status up to (and including) the last event that triggered an SL-BSR (see clause 5.22.1.6) prior to the MAC PDU assembly; or

- the SL grant(s) can accommodate all pending data available and/or SL-CSI reporting MAC CE and/or SL-DRX command indication for transmission.

**Rapporteur view**: agree to the correction.

**Q6: Would your company agree to the first correction in R2-2300839?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Agree |  |
| Ericsson | agree |  |
| CATT | Agree |  |

## 2.6 For the third correction in [R2-2300839](file:///D:\업무\표준화%20업무\3GPP\3GPP%20표준회의\Rel-18\RAN2\%23120_2022.11\TSGR2_120\docs\R2-2211646.zip).

**Reason for change**: In this release, UE can create a selected sidelink grant on the pool of resources based on random selection, or partial sensing, or full sensing or any combination(s). However, the combination case is missing in NOTE 1.

**Change**: In section 5.22.1.1, add “any combinations” case in NOTE 1.

NOTE 1: If the MAC entity is configured with Sidelink resource allocation mode 2 to transmit using a pool of resources in a carrier as indicated in TS 38.331 [5] or TS 36.331 [21], the MAC entity can create a selected sidelink grant on the pool of resources based on random selection, or partial sensing, or full sensing or any combination(s) only after releasing configured sidelink grant(s), if any.

**Rapporteur view**: agree to the correction.

**Q7: Would your company agree to the third correction in R2-2300839?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Agree |  |
| Ericsson | agree |  |
| CATT | Agree |  |

## 2.7 For the correction in [R2-2300895](file:///D:\업무\표준화%20업무\3GPP\3GPP%20표준회의\Rel-18\RAN2\%23120_2022.11\TSGR2_120\docs\R2-2211646.zip).

**Reason for change**: In current RAN2 specification for SL Inter-UE Coordination Information MAC CE and Inter-UE Coordination Request MAC CE, some field, including RSL, LSIi, RCi and First resource locationi-1 for IUC Information MAC CE and RP, RSWL and Number of Subchannel for IUC Information Request MAC CE, are indicated as the codepoint value in SCI format. However, if the length of the field in SCI is shorter than the corresponding field length in MAC CE. In this case, the field in MAC CE will contain the field in SCI using the LSB bits, but how to set the other bits are not described in the spec. This should be clarified.

**Change**: In clause 6.1.3.53, for the field of RSL, LSIi, RCi and First resource locationi-1, clarify that the other bits which are not set as the field of SCI format 2C are set as zero. In clause 6.1.3.54, for the field of the RP, RSWL and Number of Subchannel, clarify that the other bits which are not set as the field of SCI format 2c are set as zero.

6.1.3.53 Inter-UE Coordination Information MAC CE

The Inter-UE Coordination Information MAC CE is identified by a MAC subheader with LCID as specified in Table 6.2.4-1. The priority of the Inter-UE Coordination Information MAC CE is fixed to '1'. It has a variable size with following fields:

- RT: This field indicates the resource set type, i.e., preferred resource set or non-preferred resource set, as the codepoint value of the SCI format 2-C *resourceSetType* field as specified in TS 38.212 [9].

- RSL: This field indicates the location of reference slot, as the codepoint value of the SCI format 2-C *referenceSlotLocation* field as specified in TS 38.212 [9]. The length of the field is 17 bits. If the length of *referenceSlotLocation* field in SCI format 2-C as specified in TS 38.212 [9] is shorter than 17 bit, this field contains *referenceSlotLocation* field using the LSB bits, the other bit(s) in this field is set to zero;

- LSIi: This field indicates lowest subchannel indices for the first resource location of each TRIV, as the codepoint value of the SCI format 2-C *lowestIndices* field as specified in TS 38.212 [9]. LSI0 indicates lowest subchannel indices for the first resource location of TRIV within the first resource combination, LSI1 indicates lowest subchannel indices for the first resource location of TRIV within the second resource combination and so on. The length of the field is 5 bits. If the length of *lowestIndices* field in SCI format 2-C as specified in TS 38.212 [9] is shorter than 5 bit, this field contains *lowestIndices* field using the LSB bits, the other bit(s) in this field is set to zero;

- RCi: This field indicates resource combination, as the codepoint value of the SCI format 2-C *resourceCombination* field as specified in TS 38.212 [9]. RC0 indicates the first resource combination, RC1 indicates the second resource combination and so on. The length of the field is 26 bits. If the length of *resourceCombination* field in SCI format 2-C as specified in TS 38.212 [9] is shorter than 26 bit, this field contains *resourceCombination* field using the LSB bits, the other bit(s) in this field is set to zero;

- First resource locationi-1: This field indicates first resource location, as the codepoint value of the SCI format 2-C *firstResourceLocation* field as specified in TS 38.212 [9]. First Resource Location0 indicates the first resource location for the second resource combination, First Resource Location1 indicates the first resource location for the third resource combination and so on. The length of the field is 13 bits. If the length of *firstResourceLocation* field in SCI format 2-C as specified in TS 38.212 [9] is shorter than 13 bit, this field contains *firstResourceLocation* field using the LSB bits, the other bit(s) in this field is set to zero;

- R: Reserved bit, set to 0.

6.1.3.54 Inter-UE Coordination Request MAC CE

The Inter-UE Coordination request MAC CE is identified by a MAC subheader with LCID as specified in Table 6.2.4-1. The priority of the Inter-UE Coordination Request MAC CE is fixed to '1'. It has a fixed size of 48 bits with following fields:

- RT: If the value of *sl-DetermineResourceType* (as specified in TS 38.331 [5] clause 6.3.5) is set to *ueb*, this field indicates the resource set type, i.e., preferred resource set or non-preferred resource set, as the codepoint value of the SCI format 2-C *resourceSetType* field as specified in TS 38.212 [9]. This field is ignored if the value of *sl-DetermineResourceType* is set to *uea*;

- RP: This field indicates the resource reservation period, as the codepoint value of the SCI format 2-C including *resourceReservationPeriod* field as specified in TS 38.212 [9]. The length of the field is 4 bits. If the length of *resourceReservationPeriod* field in SCI format 2-C as specified in TS 38.212 [9] is shorter than 4 bit, this field contains *resourceReservationPeriod* field using the LSB bits, the other bit(s) in this field is set to zero;

- Priority: This field indicates the priority, as the codepoint value of the SCI format 2-C *priority* field as specified in TS 38.212 [9]. The length of the field is 3 bits;

- RSWL: This field indicates resource selection window location, as the codepoint value of the SCI format 2-C *resourceSelectionWindowLocation* field as specified in TS 38.212 [9]. The length of the field is 34 bits. If the length of *resourceSelectionWindowLocation* field in SCI format 2-C as specified in TS 38.212 [9] is shorter than 34 bit, this field contains *resourceSelectionWindowLocation* field using the LSB bits, the other bit(s) in this field is set to zero;

- Number of Subchannel: This field indicates the number of subchannels, as the codepoint value of the SCI format 2-C *numberOfSubchannel* field as specified in TS 38.212 [9]. The length of the field is 5 bits. If the length of *numberOfSubchannel* field in SCI format 2-C as specified in TS 38.212 [9] is shorter than 5 bit, this field contains *numberOfSubchannel* field using the LSB bits, the other bit(s) in this field is set to zero;

- R: Reserved bit, set to 0.

**Rapporteur view**: Rapporteur understand the proponent’s intention. We can hear companie’s views.

**Q8: Would your company agree to the correction in R2-2300895?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG |  |  |
| Ericsson | disagree | The changes are just editory. By default, the unused bits are set to zero. |
| CATT | Agree | The wording of “using LSB bits” are introduced for IUC information/request MAC CE, meanwhile, each bit(s) in MACCE need to have a clear definition. The correction make the specification is more accurate and clear. |

## 2.8 For the first correction in [R2-2300912](file:///D:\업무\표준화%20업무\3GPP\3GPP%20표준회의\Rel-18\RAN2\%23120_2022.11\TSGR2_120\docs\R2-2211646.zip).

**Reason for change**: Correct the specification reference for IUC.

**Change**: In clause 5.22.1.9 and 5.22.1.10, Correct the specification reference for IUC.

5.22.1.9 IUC-Request transmission

The Sidelink Inter-UE Coordination Request transmission procedure is used to trigger a peer UE to transmit Sidelink Inter-UE Coordination Information as specified in clause 8.4.1.3 of TS 38.212 [9].

**Rapporteur view**: agree to the correction.

**Q9: Would your company agree to the first correction in R2-2300912?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Agree |  |
| Ericsson | agree |  |
| CATT | Agree |  |

## 2.9 For the second correction in [R2-2300912](file:///D:\업무\표준화%20업무\3GPP\3GPP%20표준회의\Rel-18\RAN2\%23120_2022.11\TSGR2_120\docs\R2-2211646.zip).

**Reason for change**: According the the LS(R1-2212822) received from RAN1, cast type of IUC information needs to be clarified.

**Change**: In clause 5.22.1.10, add the description of supported cast type of IUC information.

5.22.1.10 IUC-Information Reporting

The Sidelink Inter-UE Coordination Information reporting procedure is used to provide a peer UE with inter-UE coordination information as specified in clause 8.1.4A of TS 38.214 [7]. The Sidelink Inter-UE Coordination reporting procedure can be triggered by Sidelink Inter-UE Coordination Request MAC CE or condition (See TS 38.331 [5] and TS 38.214 [7]). Unicast for preferred resource set and non-preferred resource set and Groupcast/Broadcast for non-preferred resource set are supported for inter-UE coordination information transmission triggered by a condition other than explicit request reception.

**Rapporteur view**: agree to the correction.

**Q10: Would your company agree to the second correction in R2-2300912?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Agree |  |
| Ericsson | No strong view |  |
| CATT | Agree |  |

## 2.10 For the correction in [R2-230091](file:///D:\업무\표준화%20업무\3GPP\3GPP%20표준회의\Rel-18\RAN2\%23120_2022.11\TSGR2_120\docs\R2-2211646.zip)3.

**Reason for change**: According to current spec, UE will take IUC information into account during selecting the transmission resource, i.e. select the intersection resource between preferred resource set and sensing result.

As far as we know, IUC information does not include the resource pool information. Resource pool information of IUC information is indicated implicitly. According to following agreement, from UE-A’s perspective, the IUC information is transmitting on the resource pool on which the IUC information is located.

\*\*RAN1 agreement\*\*

• For inter-UE coordination information triggered by an explicit request in Scheme 1,

− UE-A uses a TX resource pool used for UE-B’s request transmission to determine the set of resources and to transmit the set of resources to UE-B

• For inter-UE coordination information triggered by a condition rather than request reception in Scheme 1,

- UE-A transmitting in a resource pool provides inter-UE coordination information associated with the same resource pool

Then, from UE-B’s perspective, the IUC information is only used for the resource pool from which the IUC information is received. In other words, the IUC information can only be used when the UE selects the resource from the resource pool where the IUC information is received. However, current resource selection procedure does not capture such restriction. It is possible that the selected resource pool for communication is not the resource pool from which the IUC information is received. Then UE-B may apply the IUC information on wrong resource pool.

**Change**: In clause 5.22.1.1, add the restriction of using IUC information.

An example of the corrections in the [R2-230091](file:///D:\업무\표준화%20업무\3GPP\3GPP%20표준회의\Rel-18\RAN2\%23120_2022.11\TSGR2_120\docs\R2-2211646.zip)3

3> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and neither preferred resource set nor non-preferred resource set is received from a UE or if preferred resource set is received, and the preferred resource set is not received from the selected resource pool:

**Rapporteur view**: Rapporteur understands the motivation of the correction. However, I'm not sure if this restriction should be explicitly specified in the MAC specification. We can hear from companie’s views about the correction (i.e., add the restriction of using IUC information).

**Q11: Would your company agree to the correction in R2-2300913?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG |  |  |
| Ericsson | agree | The proposed changes can make the spec clearer regarding the UE behavior. |
| CATT | Disagree | If preferred resource set reveived from UE-A is not in the the selected resource pool of UE-B, there is no intersection between the received preferred resource set and the resources indicated by the physical layer. UE-B shall select resource from the resources indicated by the physical layer. |

## 2.11 For the first correction in R2-2301375.

This correction is handled by R2-2300912.

## 2.12 For the second correction in R2-2301375.

**Reason for change**: A RRC parameter sl-LatencyBoundIUC-Report has been introduced to indicate the latency bound of SL Inter-UE coordination report from the associated SL Inter-UE coordination explicit request triggering. However, the one-to-one mapping relationship between the request signalling and IUC signalling should is missed in the specification:

• After sending a request signaling, UE-B shall not send a new request signaling within the latency bound of IUC signaling transmission corresponding to the prior request, until it receives the IUC signaling form UE-A.

• After receiving a request signaling, UE-A shall not transmit an IUC signaling which is not corresponding to the request within the latency bound.

**Change**: Clarification on IUC related transmission based on latency bound is added.

5.22.1.9 IUC-Request transmission

The Sidelink Inter-UE Coordination Request transmission procedure is used to trigger a peer UE to transmit Sidelink Inter-UE Coordination Information as specified in clause 8.1.4 of TS 38.214 [7]. The Sidelink Inter-UE Coordination Request Information is transmitted when the condition as indicated by the higher layer parameter*sl-TriggerConditionRequest* is satisfied*.*

The UE that sent an explicit inter-UE coordination request to a peer UE is not allowed to trigger another inter-UE coordination information request for the same peer UE within the latency bound as indicated by *sl-LatencyBoundIUC-Report*, until the reception of the inter-UE coordination information report from the same peer UE.

5.22.1.10 IUC-Information Reporting

The Sidelink Inter-UE Coordination Information reporting procedure is used to provide a peer UE with inter-UE coordination information as specified in clause 8.1.4 of TS 38.214 [7]. The Sidelink Inter-UE Coordination reporting procedure can be triggered by Sidelink Inter-UE Coordination Request MAC CE or condition (See TS 38.331 [5] and TS 38.214 [7]).RRC configures the following parameter to control the SL-IUC Information reporting procedure:

- *sl-LatencyBoundIUC-Report*, which is maintained for each PC5-RRC connection.

If the UE is triggered to report sidelink inter-UE coordination information by an explicit request, the UE is not allowed to report another sidelink inter-UE coordination information based on a condition other than the explicit request reception from the same peer UE within the latency bound as indicated by *sl-LatencyBoundIUC-Report*.

**Rapporteur view**: The proponent's observation is correct, but I'd like to hear from the companie’s view if the correction is really necessary.

**Q12: Would your company agree to the second correction in R2-2301375?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Follow majority view |  |
| Ericsson | Tend to disagree | The proposed changes are over-specification. |
| CATT | Follow majority view |  |

## 2.13 For the correction in R2-2301531.

**Reason for change**: In MAC specification, how to set the priority field indicated in the IUC request MAC CE is not clear in the description. In RAN1#107 and 107bis, agreements were made that UE-B’s request includes Priority value, subchannels, and selection window to be used for PSCCH/PSSCH transmission:

\*\*RAN1 Agreements\*\*

For Scheme 1, at least following parameters are provided by UE-B’s request:

• Priority value to be used for PSCCH/PSSCH transmission

• Number of sub-channels to be used for PSSCH/PSCCH transmission in a slot

• Resource reservation interval

For Scheme 1, when the inter-UE coordination information transmission is triggered by UE-B’s explicit request,

• Starting/Ending time locations of resource selection window is provided by UE-B’s explicit request

o Starting/Ending time locations of resource selection window is a form of combination of DFN index and slot index

Therefore, it is necessary to specify how to set the priority field based on the RAN1 agreement, otherwise it would be unknown for the UE on how to set the field values, and similar changes should also be applied to description of RSWL and Number of Subchannel in the MAC CE.

**Change**: .

Clarify in the field description in the IUC request MAC CE that

* Priority field indicates the highest priority of the logical channel with SL data available to be transmitted to a peer UE.
* RSWL field indicates resource selection window location for SL data available to be transmitted to a peer UE.
* Number of Subchannel field indicates the number of subchannels for SL data available to be transmitted to a peer UE.

6.1.3.54 Inter-UE Coordination Request MAC CE

The Inter-UE Coordination request MAC CE is identified by a MAC subheader with LCID as specified in Table 6.2.4-1. The priority of the Inter-UE Coordination Request MAC CE is fixed to '1' for Logical Channel Prioritization (LCP) procedure. It has a fixed size of 48 bits with following fields:

- RT: If the value of *sl-DetermineResourceType* (as specified in TS 38.331 [5] clause 6.3.5) is set to *ueb*, this field indicates the resource set type, i.e., preferred resource set or non-preferred resource set, as the codepoint value of the SCI format 2-C *resourceSetType* field as specified in TS 38.212 [9]. This field is ignored if the value of *sl-DetermineResourceType* is set to *uea*;

- RP: This field indicates the resource reservation period, as the codepoint value of the SCI format 2-C *resourceReservationPeriod* field as specified in TS 38.212 [9]. The length of the field is 4 bits. If the length of *resourceReservationPeriod* field in SCI format 2-C as specified in TS 38.212 [9] is shorter than 4 bit, this field contains *resourceReservationPeriod* field using the LSB bits;

- Priority: This field indicates the highest priority of the logical channel with SL data available to be transmitted to a peer UE, as the codepoint value of the SCI format 2-C *priority* field as specified in TS 38.212 [9]. The length of the field is 3 bits;

- RSWL: This field indicates resource selection window location for SL data available to be transmitted to a peer UE, as the codepoint value of the SCI format 2-C *resourceSelectionWindowLocation* field as specified in TS 38.212 [9]. The length of the field is 34 bits. If the length of *resourceSelectionWindowLocation* field in SCI format 2-C as specified in TS 38.212 [9] is shorter than 34 bit, this field contains *resourceSelectionWindowLocation* field using the LSB bits;

- Number of Subchannel: This field indicates the number of subchannels for SL data available to be transmitted to a peer UE, as the codepoint value of the SCI format 2-C *numberOfSubchannel* field as specified in TS 38.212 [9]. The length of the field is 5 bits. If the length of *numberOfSubchannel* field in SCI format 2-C as specified in TS 38.212 [9] is shorter than 5 bit, this field contains *numberOfSubchannel* field using the LSB bits;

- R: Reserved bit, set to 0.

**Rapporteur view**: The text of the current MAC specification reflects the RAN1 agreement well enough and is clear. I don't think any further corrections related to the proposal are necessary.

**Q13: Would your company agree to the correction in R2-2301531?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Disagree | The text of the current MAC specification reflects the RAN1 agreement well enough and is clear. I don't think any further corrections related to the proposal are necessary. |
| Ericsson | disagree | Agree with LG, such details shall not be captured in the MAC spec. |
| CATT | Disagree |  |

## 2.14 For the correction in R2-2301620.

**Reason for change**: In Rel-16 only one MAC CE (i.e. Sidelink CSI Reporting MAC CE) was specified for transmission over NR sidelink, and, “a MAC CE” was used when stating whether the MAC CE is included in a MAC PDU. However, in Rel-17, more MAC CEs (e.g. IUC Information MAC CE) were specified for transmission over NR sidelink. Therefore, the above-mentioned wording needs to be updated accordingly.

**Change**: All occurrences of “a MAC CE” are changed to “MAC CE(s)” in clause 5.22 (SL-SCH Data transfer).

5.22.1.3.1 Sidelink HARQ Entity

4> determines Sidelink transmission information of the TB for the source and destination pair of the MAC PDU as follows:

[…]

5> set the priority to the value of the highest priority of the logical channel(s), if any, and MAC CE(s), if included, in the MAC PDU;

5.22.1.3.1a Sidelink process

~

Priority of a MAC PDU is determined by the highest priority of the logical channel(s) or MAC CE(s) in the MAC PDU.

~

1> if *sl-PrioritizationThres* is configured and if the value of the highest priority of logical channel(s) or MAC CE(s) in the MAC PDU is lower than *sl-PrioritizationThres*.

5.22.1.4.2 Multiplexing of MAC Control Elements and MAC SDUs

The MAC entity shall multiplex MAC CEs and MAC SDUs in a MAC PDU according to clauses 5.22.1.4.1 and 6.1.6.

~

**Rapporteur view**: agree to the correction.

**Q14: Would your company agree to the correction in R2-2301620?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | agree |  |
| Ericsson | agree |  |
| CATT | Agree |  |

## 2.15 For the second correction in R2-2301745.

**Reason for change**: According to the NOTE below of the current MAC specification, only DST ID is considered in MAC filtering for UC-related first TB.

- “NOTE: If this TB is associated to unicast and this TB is the first TB of a logical channel which associated LCID is equal to 0 or 1, and the DST field of the decoded MAC PDU subheader is equal to the 8 MSB of any of the Source Layer-2 ID(s) of the UE for which the 16 LSB are equal to the Destination ID in the corresponding SCI, deliver the decoded MAC PDU to the disassembly and demultiplexing entity. Whether the TB is the first TB can be determined based on the Source Layer-2 ID and Destination Layer-2 ID pair.”

However, in the current MAC specification, even if RX UE receives UC-related first TB, the RX UE checks **SRC ID**/DST ID to start Inactivity timer.

Therefore, the following NOTE statement can be added to match the MAC filtering procedure and the DRX timer procedure.

- NOTE: If a TB is associated to unicast and this TB is the first TB of a logical channel which associated LCID is equal to 0 or 1, start or restart *sl-drx-InactivityTimer* for the corresponding **Destination Layer-2 ID** in the first slot after SCI reception.

**Change**: Add a NOTE for an alignment between MAC filtering procedure and DRX inactivity timer procedure for first UC TB.

1> if an SL DRX is in Active Time:

2> monitor the SCI (i.e., 1st stage SCI and 2nd stage SCI) in this SL DRX.

2> if the SCI indicates a new SL transmission:

3> if Source Layer-1 ID of the SCI is equal to the 8 LSB of the intended Destination Layer-2 ID and Destination Layer-1 ID of the SCI is equal to the 16 LSB of the intended Source Layer-2 ID and the cast type indicator in the SCI is set to unicast:

4> start or restart *sl-drx-InactivityTimer* for the corresponding Source Layer-2 ID and Destination Layer-2 ID pair in the first slot after SCI reception.

NOTE: If a TB is associated to unicast and this TB is the first TB of a logical channel which associated LCID is equal to 0 or 1, start or restart *sl-drx-InactivityTimer* for the corresponding Destination Layer-2 ID in the first slot after SCI reception.

**Rapporteur view (proponent)**: agree to the correction. In the current MAC specification, even if RX UE receives **UC-related first TB**, the RX UE checks SRC ID/DST ID to start Inactivity timer. The text (e.g., NOTE) that the RX UE only checks for the DST ID should be specified in the specification.

**Q15: Would your company agree to the second correction in R2-2301745?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Agree (proponent) | In the current MAC specification, even if RX UE receives **UC-related first TB**, the RX UE checks SRC ID/DST ID to start Inactivity timer. The text (e.g., NOTE) that the RX UE only checks for the DST ID should be specified in the specification. |
| CATT | Disagree | Even for UC-related first TB, sl-drx-InactivityTimer should be start or restart for SRC ID/DST ID pair. |

## 2.16 For the third correction in R2-2301745.

**Reason for change**: According to the RAN1 agreement below, when re-evaluation/pre-emption/conflict indicator (IUC scheme 2) based resource re-selection is triggered, the MAC layer should perform the following two behaviours on the MAC specification.

- When resource re-selection is triggered, if there is a received preferred resource set, the MAC layer uses it to perform resource re-selection.

- When resource re-selection is triggered, the MAC layer provides the received non-preferred resource set information to the physical layer.

* *Agreement made in RAN1#106-e meeting:*
  + *In scheme 1, at least following UE-B’s behavior in its resource (re-)selection is supported when it receives inter-UE coordination information from UE-A:*
    - *For preferred resource set, the following two options are supported:*
      * *Option A): UE-B’s resource(s) to be used for its transmission resource (re-)selection is based on both UE-B’s sensing result (if available) and the received coordination information*
        + *UE-B uses in its resource (re-)selection, resource(s) belonging to the preferred resource set in combination with its own sensing result*

*UE-B uses in its resource (re-)selection, resource(s) not belonging to the preferred resource set when condition(s) are met*

*FFS: Details of condition(s)*

*This option is supported when UE-B performs sensing/resource exclusion*

*FFS: Other details (if any)*

* + - * *Option B): UE-B’s resource(s) to be used for its transmission resource (re-)selection is based only on the received coordination information*
        + *UE-B uses in its resource (re-)selection, resource(s) belonging to the preferred resource set*

*This option is supported at least when UE-B does not support sensing/resource exclusion*

*FFS: Whether the support is conditional or UE capability*

*FFS: Other details (if any)*

* + - * *FFS: Other option(s), and other details (if any)*
    - *For non-preferred resource set,* 
      * *UE-B’s resource(s) to be used for its transmission resource (re-)selection is based on both UE-B’s sensing result (if available) and the received coordination information* 
        + *UE-B excludes in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set*

*FFS: Details including*

*Whether/how UE-B can use in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set, definition of the overlap, and other details (if any)*

*When UE-B excludes in its resource (re-)selection, resource(s) overlapping with the non-preferred resource set*

* + - * + *FFS: UE-B reselects in its resource (re-)selection, resource(s) to be used for its transmission when the resource(s) are fully/partially overlapping with the non-preferred resource set*
      * *FFS: Other option(s), and other details (if any)*

According to our understanding, RAN1 made the above agreements to apply to all common cases (i.e., Scenarios in which resource re-selection based on pre-emption/re-evaluation/conflict indication occurs) where resource re-selection occurs. In other words, above RAN 1 agreements are not limited to a specific case where resource re-selection occurs.

**Change**: Add a normative text for IUC procedure (i.e., “IUC procedure when re-evaluation/pre-emption/conflict indicator (IUC scheme 2) based resource re-selection is triggered”)

5.22.1.2a 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 clause 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 clause 8.1.4 of TS 38.214 [7].

NOTE 1: It is up to UE implementation to re-evaluate or pre-empt before 'm – *T3*' or after 'm – *T3*' 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 clause 8.1.4 of TS 38.214. For pre-emption, m is the slot where the resource(s) is located as specified in clause 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 *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is not configured by RRC:

2> 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];

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

3> 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9];

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

2> 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]:

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

3> if one or multiple SL DRX is configured:

4> randomly select the time and frequency resource from the resources later than the resources for either the removed resource or the dropped resource indicated by a prior SCI, from the resource indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] which occur within the SL DRX active time as specified in clause 5.28.3 of the destination UE selected for indicating to the physical layer the SL DRX active time above, 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9].

3> else:

4> 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9].

NOTE 2: 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.

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

1> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE has own sensing result as specified in clause 8.1.4 of TS 38.214 [7]:

2> 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];

3> if a preferred resource set is received from a UE or if both preferred resource set and non-preferred resource are received from a UE or different UEs and the preferred resource set is to be used;

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

4> randomly select the time and frequency resource for one transmission opportunity within the intersection of the received preferred resource set and 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 for an SL-SCH data to be transmitted to the UE providing the preferred resource set, 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9];

4> if there are no time and frequency resources for the one transmission opportunity within the intersection that can be selected for either the removed resource or the dropped resource for an SL-SCH data to be transmitted to the UE providing the preferred resource set, 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9].

5> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7], 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9].

4> if more than one resource of the selected sidelink grant are indicated for re-evaluation by the physical layer as specified in clause 8.1.4 of TS 38.214 [7]:

5> if there are available resources left in the intersection of the received preferred resource set and the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] for more transmission opportunities:

6> randomly select the time and frequency resources for one or more transmission opportunities from the available resources within the intersection for either the removed resource or the dropped resource for a MAC PDU to be transmitted to the UE providing the preferred resource set, 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9];

5> if the number of time and frequency resources that has been maximally selected for one or more transmission opportunities from the available resources within the intersection is smaller than the number of the removed or dropped resources for the selected sidelink grant:

6> randomly select the time and frequency resources for the remaining transmission opportunities except for the selected resources within the intersection from the available resources outside the intersection but left in the resources indicated by the physical layer according to clause 8.1.4 of TS 38.214 [7] for either the removed resource or the dropped resource for a MAC PDU to be transmitted to the UE providing the preferred resource set, 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9].

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

3> if a non-preferred resource set is received from a UE;

4> indicate the received non-preferred resource set to physical layer.

2> 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];

3> if a preferred resource set is received from a UE or if both preferred resource set and non-preferred resource are received from a UE or different UEs and the preferred resource set is to be used;

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

4> randomly select the time and frequency resource for one transmission opportunity within the intersection of the received preferred resource set and 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 for an SL-SCH data to be transmitted to the UE providing the preferred resource set, 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9];

4> if there are no time and frequency resources for the one transmission opportunity within the intersection that can be selected for either the removed resource or the dropped resource for an SL-SCH data to be transmitted to the UE providing the preferred resource set, 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9].

5> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7], 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9].

4> if more than one resource of the selected sidelink grant are indicated for pre-emption by the physical layer as specified in clause 8.1.4 of TS 38.214 [7]:

5> if there are available resources left in the intersection of the received preferred resource set and the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] for more transmission opportunities:

6> randomly select the time and frequency resources for one or more transmission opportunities from the available resources within the intersection for either the removed resource or the dropped resource for a MAC PDU to be transmitted to the UE providing the preferred resource set, 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9];

5> if the number of time and frequency resources that has been maximally selected for one or more transmission opportunities from the available resources within the intersection is smaller than the number of the removed or dropped resources for the selected sidelink grant:

6> randomly select the time and frequency resources for the remaining transmission opportunities except for the selected resources within the intersection from the available resources outside the intersection but left in the resources indicated by the physical layer according to clause 8.1.4 of TS 38.214 [7] for either the removed resource or the dropped resource for a MAC PDU to be transmitted to the UE providing the preferred resource set, 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9].

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

3> if a non-preferred resource set is received from a UE;

4> indicate the received non-preferred resource set to physical layer.

5.22.1.2b Re-selection for using a received resource conflict indication

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] based on full sensing, or partial sensing or random selection or any combination(s), the MAC entity shall for each Sidelink process:

1> if *sl-interUE-CoordinationScheme2* enabling reception/transmission of a resource conflict indication is configured by RRC and *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is not configured by RRC; and

1> if the next resource of the selected sidelink grant which has been indicated by a prior SCI is overlapped with conflict resource(s) indicated by the physical layer as specified in clause 16.3.1 of TS 38.213 [6]:

2> remove the resource 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] excluding the conflict resource(s) for the removed 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9];

NOTE 1: If retransmission resource cannot be selected by ensuring that the resource can be indicated by the time resource assignment of a prior SCI, how to select the time and frequency resource for 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 resource by the selected resource for the selected sidelink grant.

1> if *sl-interUE-CoordinationScheme2* enabling reception/transmission of a resource conflict indication is configured by RRC and *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC; and

1> if the next resource of the selected sidelink grant which has been indicated by a prior SCI is overlapped with conflict resource(s) indicated by the physical layer as specified in clause 8.1.4B of TS 38.214 [7]:

2> if a preferred resource set is received from a UE or if both preferred resource set and non-preferred resource are received from a UE or different UEs and the preferred resource set is to be used;

3> remove the resource from the selected sidelink grant associated to the Sidelink process;

3> randomly select the time and frequency resource for one transmission opportunity within the intersection of the received preferred resource set and the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] excluding the conflict resource(s) for the removed resource for an SL-SCH data to be transmitted to the UE providing the preferred resource set, 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9];

3> if there are no time and frequency resources for the one transmission opportunity within the intersection that can be selected for the removed resource for an SL-SCH data to be transmitted to the UE providing the preferred resource set, 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9].

4> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] excluding the conflict resource(s) for the removed 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 an SCI for a retransmission according to clause 8.3.1.1 of TS 38.212 [9].

3> replace the removed resource by the selected resource for the selected sidelink grant.

2> if a non-preferred resource set is received from a UE;

3> indicate the received non-preferred resource set to physical layer.

**Rapporteur view (proponent)**: agree to the correction

**Q16: Would your company agree to the third correction in R2-2301745?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Agree (proponent) |  |
| Ericsson | disagree | At least this change  3> if a non-preferred resource set is received from a UE;  4> indicate the received non-preferred resource set to physical layer.  Is not aligned with the RAN2 agreement  Proposal 1: TS 38.321 only specifies the generic UE behaviour of “passing non-preferred resource set to PHY” w/o exhausting all resource selection scenarios to handle non-preferred resource set. |
| CATT | Follow majority view |  |

## 2.17 For the fourth correction in R2-2301745.

**Reason for change**: According to the RAN1 agreement below when UE-B receives both a preferred resource set and a non-preferred resource set from the same or different UE-A, the resource selection procedure (i.e., Resource selection procedure when UE-B decide to use the preferred resource set) should be additionally captured in the MAC specification.

* *Agreement made in RAN1#109-e meeting:*
  + *When UE-B receives both a single preferred resource set and a single non-preferred resource set from the same UE-A or different UE-As, when UE-B has own sensing results*
    - *No RAN1 specification change to TS 38.214 is deemed necessary on how it uses the non-preferred resource set in its resource (re)selection*
    - *It is up to UE-B implementation to use the preferred resource set in its resource (re)selection for transmissions to the UE A providing the preferred resource set*

**Change**: Add a normative text for IUC procedure (i.e., “Resource selection procedure when UE-B receives both the preferred resource set and the non-preferred resource set and decides to use the preferred resource set”).

5.22.1.1 SL Grant reception and SCI transmission

3> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE has its own sensing result as specified in clause 8.1.4 of TS 38.214 [7] and if only a non-preferred resource set is received from a UE or if both preferred resource set and non-preferred resource are received from a UE or different:

4> indicate the received non-preferred resource set to physical layer.

4> if preferred resource set is to be used:

5> randomly select the time and frequency resources for one transmission opportunity within the intersection of the received preferred resource set and the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] for an SL-SCH data to be transmitted to the UE providing the preferred resource set, according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier.

5> if there are no resources within the intersection that can be selected as the time and frequency resources for the one transmission opportunity according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier.

6> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7], according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier.

4> if only the non-preferred resource set is to be used:

5> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7], according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier.

3> use the randomly selected resource to select a set of periodic resources spaced by the resource reservation interval for transmissions of PSCCH and PSSCH corresponding to the number of transmission opportunities of MAC PDUs determined in TS 38.214 [7].

3> if one or more HARQ retransmissions are selected:

4> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is not configured by RRC:

5> if transmission based on full sensing or partial sensing is configured by upper layers and there are available resources left in the resources indicated by the physical layer according to clause 8.1.4 of TS 38.214 [7] for more transmission opportunities; or

5> if transmission based on random selection is configured by upper layers and there are available resources left in the resource pool for more transmission opportunities:

6> randomly select the time and frequency resources for one or more transmission opportunities from the available resources which occur within the SL DRX Active time if configured as specified in clause 5.28.2 of the destination UE selected for indicating to the physical layer the SL DRX Active time above, according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9].

4> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and neither preferred resource set nor non-preferred resource set is received from a UE:

5> if transmission based on full sensing or partial sensing is configured by upper layers and there are available resources left in the resources indicated by the physical layer according to clause 8.1.4 of TS 38.214 [7] for more transmission opportunities; or

5> if transmission based on random selection is configured by upper layers and there are available resources left in the resource pool for more transmission opportunities:

6> randomly select the time and frequency resources for one or more transmission opportunities from the available resources, according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9].

4> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE has own sensing result as specified in clause 8.1.4 of TS 38.214 [7] and if a preferred resource set is received from a UE:

5> if there are available resources left in the intersection of the received preferred resource set and the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] for more transmission opportunities:

6> randomly select the time and frequency resources for one or more transmission opportunities from the available resources within the intersection for SL-SCH data to be transmitted to the UE providing the preferred resource set, according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9].

5> if the number of time and frequency resources that has been maximally selected for one or more transmission opportunities from the available resources within the intersection is smaller than the selected number of HARQ retransmissions and there are available resources left in the resources indicated by the physical layer for more transmission opportunities:

6> randomly select the time and frequency resources for the remaining transmission opportunities except for the selected resources within the intersection from the available resources outside the intersection but left in the resources indicated by the physical layer according to clause 8.1.4 of TS 38.214 [7], according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9].

4> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE does not have own sensing result as specified in clause 8.1.4 of TS 38.214 [7] and if a preferred resource set is received from a UE; and

4> if there are available resources left in the received preferred resource set for more transmission opportunities:

5> randomly select the time and frequency resources for one or more transmission opportunities from the available resources belonging to the received preferred resource set for SL-SCH data to be transmitted to the UE providing the preferred resource set, according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9].

4> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE has its own sensing result as specified in clause 8.1.4 of TS 38.214 [7] and if only a non-preferred resource set is received from a UE or if both preferred resource set and non-preferred resource are received from a UE or different:

5> indicate the received non-preferred resource set to physical layer;

5> if preferred resource set is to be used:

6> if there are available resources left in the intersection of the received preferred resource set and the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] for more transmission opportunities:

7> randomly select the time and frequency resources for one or more transmission opportunities from the available resources within the intersection for a MAC PDU to be transmitted to the UE providing the preferred resource set, according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL-CSI by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9];

6> if the number of time and frequency resources that has been maximally selected for one or more transmission opportunities from the available resources within the intersection is smaller than the selected number of HARQ retransmissions:

7> randomly select the time and frequency resources for the remaining transmission opportunities except for the selected resources within the intersection from the available resources outside the intersection but left in the resources indicated by the physical layer according to clause 8.1.4 of TS 38.214 [7], according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL-CSI by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9].

5> if only the non-preferred resource set is to be used and there are available resources left in the resources indicated by the physical layer for more transmission opportunities:

6> randomly select the time and frequency resources for one or more transmission opportunities from the available resources, according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9].

4> use the randomly selected resource to select a set of periodic resources spaced by the resource reservation interval for transmissions of PSCCH and PSSCH corresponding to the number of retransmission opportunities of the MAC PDUs determined in TS 38.214 [7];

4> consider the first set of transmission opportunities as the initial transmission opportunities and the other set(s) of transmission opportunities as the retransmission opportunities;

4> consider the sets of initial transmission opportunities and retransmission opportunities as the selected sidelink grant.

3> else:

4> consider the set as the selected sidelink grant.

3> use the selected sidelink grant to determine the set of PSCCH durations and the set of PSSCH durations according to TS 38.214 [7].

2> else 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 less than or equal to the probability configured by RRC in *sl-ProbResourceKeep*:

3> clear the selected sidelink grant, if available;

3> randomly select, with equal probability, an integer value in the interval [5, 15] for the resource reservation interval higher than or equal to 100ms or in the interval for the resource reservation interval lower than 100ms and set *SL\_RESOURCE\_RESELECTION\_COUNTER* to the selected value;

3> reuse the previously selected sidelink grant for the number of transmissions of the MAC PDUs determined in TS 38.214 [7] with the resource reservation interval to determine the set of PSCCH durations and the set of PSSCH durations according to TS 38.214 [7].

1> if the MAC entity has selected to create a selected sidelink grant corresponding to transmission(s) of a single MAC PDU, and if SL data is available in a logical channel, or an SL-CSI reporting is triggered, or a Sidelink DRX Command indication is triggered or a Sidelink Inter-UE Coordination Information reporting is triggered, or a Sidelink Inter-UE Coordination Request is triggered:

2> if SL data is available in the logical channel for NR sidelink discovery:

3> if *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon* is configured according to TS 38.331 [5]:

4> select the *sl-DiscTxPoolSelected* configured in *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon* for the transmission of NR sidelink discovery message.

3> else:

4> select any pool of resources among the configured pools of resources.

2> else if SL data for NR sidelink communication is available in the logical channel:

3> if *sl-HARQ-FeedbackEnabled* is set to *enabled* for the logical channel:

4> select any pool of resources configured with PSFCH resources among the pools of resources except the pool(s) in *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon*, if configured.

3> else:

4> select any pool of resources among the pools of resources except the pool(s) in *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon*, if configured.

2> else if an SL-CSI reporting or a Sidelink DRX Command or a Sidelink Inter-UE Coordination Request or a Sidelink Inter-UE Coordination Information is triggered:

3> select any pool of resources among the pools of resources except the pool(s) in *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon*, if configured.

2> perform the TX resource (re-)selection check on the selected pool of resources as specified in clause 5.22.1.2;

2> if the TX resource (re-)selection is triggered as the result of the TX resource (re-)selection check:

3> if one or multiple SL DRX(s) is configured in the destination UE(s) receiving SL-SCH data:

4> indicate to the physical layer SL DRX Active time in the destination UE(s) receiving SL-SCH data, as specified in clause 5.28.2.

3> select the number of HARQ retransmissions from the allowed numbers, if configured by RRC, in *sl-MaxTxTransNumPSSCH* included in *sl-PSSCH-TxConfigList* and, if configured by RRC, overlapped in *sl-MaxTxTransNumPSSCH* indicated in *sl-CBR-PriorityTxConfigList* for the highest priority of the logical channel(s) allowed on the carrier and the CBR measured by lower layers according to clause 5.1.27 of TS 38.215 [24] if CBR measurement results are available or the corresponding *sl-defaultTxConfigIndex* configured by RRC if CBR measurement results are not available;

3> select an amount of frequency resources within the range, if configured by RRC, between *sl-MinSubChannelNumPSSCH* and *sl-MaxSubChannelNumPSSCH* included in *sl-PSSCH-TxConfigList* and, if configured by RRC, overlapped between *sl-MinSubChannelNumPSSCH* and *sl-MaxSubChannelNumPSSCH* indicated in *sl-CBR-PriorityTxConfigList* for the highest priority of the logical channel(s) allowed on the carrier and the CBR measured by lower layers according to clause 5.1.27 of TS 38.215 [24] if CBR measurement results are available or the corresponding *sl-defaultTxConfigIndex* configured by RRC if CBR measurement results are not available;

3> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is not configured by RRC:

4> if transmission based on random selection is configured by upper layers:

5> randomly select the time and frequency resources for one transmission opportunity from the resources pool which occur within the SL DRX Active time if configured as specified in clause 5.28.2 of the destination UE selected for indicating to the physical layer the SL DRX Active time above, according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and the latency requirement of the triggered SL CSI reporting.

4> else:

5> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] which occur within the SL DRX Active if configured time as specified in clause 5.28.2 of the destination UE selected for indicating to the physical layer the SL DRX Active time above, according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL-CSI reporting.

3> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and neither preferred resource set nor non-preferred resource set is received from a UE:

4> if transmission based on random selection is configured by upper layers:

5> randomly select the time and frequency resources for one transmission opportunity from the resources pool, according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL CSI reporting.

4> else:

5> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7], according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL CSI reporting.

3> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE does not have own sensing result as specified in clause 8.1.4 of TS 38.214 [7] and if a preferred resource set is received from a UE:

4> randomly select the time and frequency resources for one transmission opportunity from the resources belonging to the received preferred resource set for a MAC PDU to be transmitted to the UE providing the preferred resource set, according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL CSI reporting.

3> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE has own sensing result as specified in clause 8.1.4 of TS 38.214 [7] and if a preferred resource set is received from a UE:

4> randomly select the time and frequency resources for one transmission opportunity within the intersection of the received preferred resource set and the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] for a MAC PDU to be transmitted to the UE providing the preferred resource set, according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL CSI reporting;

4> if there are no resources within the intersection that can be selected as the time and frequency resources for the one transmission opportunity according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier.

5> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7], according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL CSI reporting.

3> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE has own sensing result as specified in clause 8.1.4 of TS 38.214 [7] and if only a non-preferred resource set is received from a UE or if both preferred resource set and non-preferred resource are received from a UE or different UEs:

4> indicate the received non-preferred resource set to physical layer;

4> if a preferred resource set is to be used:

5> randomly select the time and frequency resources for one transmission opportunity within the intersection of the received preferred resource set and the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] for an SL-SCH data to be transmitted to the UE providing the preferred resource set, according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier.

5> if there are no resources within the intersection that can be selected as the time and frequency resources for the one transmission opportunity according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier.

6> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7], according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier.

4> if only the non-preferred resource set is to be used:

5> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7], according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier.

3> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE determines the resources for Sidelink Inter-UE Coordination Information transmission upon explicit request from a UE:

4> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7], according to the amount of selected frequency resources, the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL-CSI and the latency requirement of the Sidelink Inter-UE Coordination Information transmission.

3> if one or more HARQ retransmissions are selected:

4> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is not configured by RRC:

5> if transmission based on full sensing or partial sensing is configured by upper layers and there are available resources left in the resources indicated by the physical layer according to clause 8.1.4 of TS 38.214 [7] for more transmission opportunities; or

5> if transmission based on random selection is configured by upper layers and there are available resources left in the resources pool for more transmission opportunities:

6> randomly select the time and frequency resources for one or more transmission opportunities from the available resources which occur within the SL DRX Active time if configured as specified in clause 5.28.2 of the destination UE selected for indicating to the physical layer the SL DRX Active time above, according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL-CSI by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources, and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9];

4> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and neither preferred resource set nor non-preferred resource set is received from a UE:

5> if transmission based on sensing is configured by upper layers and there are available resources left in the resources indicated by the physical layer according to clause 8.1.4 of TS 38.214 [7] for more transmission opportunities; or

5> if transmission based on random selection is configured by upper layers and there are available resources left in the resource pool for more transmission opportunities:

6> randomly select the time and frequency resources for one or more transmission opportunities from the available resources, according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL-CSI by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9].

4> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE has own sensing result as specified in clause 8.1.4 of TS 38.214 [7] and if a preferred resource set is received from a UE:

5> if there are available resources left in the intersection of the received preferred resource set and the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] for more transmission opportunities:

6> randomly select the time and frequency resources for one or more transmission opportunities from the available resources within the intersection for a MAC PDU to be transmitted to the UE providing the preferred resource set, according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL-CSI by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9].

5> if the number of time and frequency resources that has been maximally selected for one or more transmission opportunities from the available resources within the intersection is smaller than the selected number of HARQ retransmissions and there are available resources left in the resources indicated by the physical layer for more transmission opportunities:

6> randomly select the time and frequency resources for the remaining transmission opportunities except for the selected resources within the intersection from the available resources outside the intersection but left in the resources indicated by the physical layer according to clause 8.1.4 of TS 38.214 [7], according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL-CSI by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9].

4> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE does not have own sensing result as specified in clause 8.1.4 of TS 38.214 [7] and if a preferred resource set is received from a UE; and

4> if there are available resources left in the received preferred resource set for more transmission opportunities:

5> randomly select the time and frequency resources for one or more transmission opportunities from the available resources belonging to the received preferred resource set for a MAC PDU to be transmitted to the UE providing the preferred resource set, according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL-CSI by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9].

4> if *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and when the UE has own sensing result as specified in clause 8.1.4 of TS 38.214 [7] and if only a non-preferred resource set is received from a UE or if both preferred resource set and non-preferred resource are received from a UE or different UEs:

5> indicate the received non-preferred resource set to physical layer;

5> if a preferred resource set is to be used:

6> if there are available resources left in the intersection of the received preferred resource set and the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7] for more transmission opportunities:

7> randomly select the time and frequency resources for one or more transmission opportunities from the available resources within the intersection for a MAC PDU to be transmitted to the UE providing the preferred resource set, according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL-CSI by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9];

6> if the number of time and frequency resources that has been maximally selected for one or more transmission opportunities from the available resources within the intersection is smaller than the selected number of HARQ retransmissions:

7> randomly select the time and frequency resources for the remaining transmission opportunities except for the selected resources within the intersection from the available resources outside the intersection but left in the resources indicated by the physical layer according to clause 8.1.4 of TS 38.214 [7], according to the amount of selected frequency resources, the selected number of HARQ retransmissions and the remaining PDB of SL data available in the logical channel(s) allowed on the carrier, and/or the latency requirement of the triggered SL-CSI by ensuring the minimum time gap between any two selected resources in case that PSFCH is configured for this pool of resources and that a retransmission resource can be indicated by the time resource assignment of a prior SCI according to clause 8.3.1.1 of TS 38.212 [9].

**Rapporteur view (proponent)**: agree to the correction

**Q17: Would your company agree to the fourth correction in R2-2301745?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Agree (proponent) |  |
| CATT | Follow majority view |  |

## 2.18 Note corrections on IUC in GC/BC should be aligned with RAN2 decision.

**RAN2 agreement for supporting the IUC GC/BC**:

[Selection of cast type and/or L2 destination id]:

When there is no data to send in GC/BC:

* Option 1: Cast type and L2 destination id selection are up to UE implementation (P1 in R2-2300130)
* Option 2: Dedicated L2 destination id for IUC is (pre)configured (R2-2300503)
* Option 3: IUC for every GC/BC L2 id(s) configured (P2 in R2-2300757)
* Option 4: Need coordination with SA2 on higher layer impact (P1 in R2-2300838)
* Option 5: IUC in GC/BC is not supported in RAN2 point of view (R2-2300896)
* Option 1 is agreed. IUC in GC/BC can be supported with option1.
* We will have a note in MAC. Detailed wordings be handled in MAC CR email discussion.

**Rapporteur view**: detail wording will be discussed in phase-2 discussion (CR discussion)

When there is data to send in GC/BC:

* Option 1: Up to UE implementation
* Option 2: IUC can be sent with the data with the corresponding L2 destination id (Proposal 1 in R2-2300757)
* Continue the discussion whether we need to capture for a case when there is data to send in GC/BC in separate in a note as part of email discussion [AT121][506].

**Rapporteur view**: Both option 1 and option 2 are applicable options. However, from the MAC CR rapporteur point of view, I prefer to apply a common solution in both scenarios (i.g., 1. When there is no data to send in GC/BC. 2. When there is data to send in GC/BC) with minimal impact on the current spec. So I think Option 1 approach is the preferred option.

We can select an option among the below possible options when **there is data** to send in GC/BC.

- option 1. Up to UE implementation

- option 2. IUC can be sent with the data with the corresponding L2 destination id (Proposal 1 in R2-2300757)

**Q18: Which option do you prefer for IUC GC/BC (i.e., selection of L2 destination id and IUC GC/BC transmission) when there is data to send in GC/BC?**

|  |  |  |
| --- | --- | --- |
| Company | Agree/Disagree | Further comments |
| LG | Option 1 | Both option 1 and option 2 are applicable options. However, from the MAC CR rapporteur point of view, I prefer to apply a common solution in both scenarios (i.g., 1. When there is no data to send in GC/BC. 2. When there is data to send in GC/BC) with minimal impact on the current spec. So I think Option 1 approach is the preferred option. |
| Ericsson | Option 1 | Agree with the Rapp |
| CATT | Option 1 | UE should select cast type and L2 destination id based on UE implementation. Then UE sends IUC with/without data of the selected cast type and L2 destination id. Therefore, UE can select any cast type and L2 destination id for IUC transmission no matter there is data or not. |

1. Conclusion