**3GPP TSG-RAN2 Meeting # 127  *R2-240***

**Masstricht, Netherlands, 19 – 23 August, 2024**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
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|  | 38.321 | **CR** | 1883 | **rev** | 2 | **Current version:** | 18.2.0 |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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|  |
| ***Title:***  | Rapporteur MAC CR for R18 positioning |
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| ***Source to WG:*** | Huawei, HiSIlicon |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | NR\_pos\_enh2 |  | ***Date:*** | 19-08-2024 |
|  |  |  |  |  |
| ***Category:*** | F |  | ***Release:*** | Rel-18 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
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| ***Reason for change:*** | 1/ section 5.26.1 should include the newly introduced SRS CA positioning MAC CE introduced in section 5.18.37========================================================During the meeting in RAN2#127, the following has been agreed:[R2-2406293](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406293%20Discussion%20on%20the%20remaining%20isues%20for%20MAC%20for%20R18%20POS.docx) Discussion on the remaining issues for MAC for R18 POS Huawei, HiSilicon discussion Rel-18 NR\_pos\_enh2* TP to be merged into rapporteur CR

[R2-2406376](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406376%20eLCID%20for%20SL-PRS%20Resource%20Request%20MAC%20CE.docx) eLCID for SL-PRS Resource Request MAC CE Intel Corporation draftCR Rel-18 38.321 18.2.0 NR\_pos\_enh2-Core* To be merged into rapporteur CR

[R2-2406404](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406404%20Correction%20on%20Tx%20carrier%20%28re-%29selection%20for%20SL-PRS%20transmission.docx) Correction on UE behavior of SL-PRS transmission vivo draftCR Rel-18 38.321 18.2.0 F FS\_NR\_pos\_enh2* Add a NOTE saying that for the carriers configured in SIB12 and for which SL-PRS transmission is allowed, the UE selects one carrier for SL-PRS from among the selected candidate data carriers, and which one it selects is up to UE implementation.

[R2-2406792](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406792%20Correction%20on%20SL%20pos%20in%20dedicated%20pool%20and%20SRS%20aggregation%20MAC%20CE%20in%20MAC%20spec.docx) Correction on SL pos in dedicated pool and SRS aggregation MAC CE in MAC spec ZTE Corporation draftCR Rel-18 38.321 18.2.0 F NR\_pos\_enh2* Changes 1 and 2 are merged into the rapporteur CR
* Change 4 and related issues to be discussed by email

[R2-2406855](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406855.docx) SL-PRS Resource Request MAC CE in the logical channel prioritization list Samsung CR Rel-18 38.321 18.2.0 1891 - F NR\_pos\_enh2* To be merged into rapporteur CR

[R2-2407296](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407296%20Corrections%20on%20SL-PRS_v1.docx) Corrections on SL-PRS ASUSTeK discussion NR\_pos\_enh2* Second change to be merged into rapporteur CR
* Intention of the third and fourth changes is agreeable, with details to be checked in the rapporteur CR discussion

=================UPDATE after RAN2#127====================The following has been agreed during the meeting on the editorial issues for SP Positioning SRS activation/deactivation requet MAC CE[R2-2406297](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406297%20Correction%20on%20SP%20positioning%20SRS%20MAC%20CE-r18.docx) Correction on SP positioning SRS MAC CE Huawei, HiSIlicon CR Rel-18 38.321 18.2.0 1878 - A NR\_pos-Core* Not pursued (but editorial changes can be captured as described below)

Agreement:Editorial changes from R2-2406297 can be merged into the Rel-18 MAC rapporteur CR. |
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| ***Summary of change:*** | 1/ add section 5.18.37 into the references for activated semi-persistent positoning SRSin section 5.26.1===========================================================UPDATE DURING R2 #127Change#6293: clarify on the field description of the field Spatial Relation for Resource IDiChange#6376: change the wrong reference for the MAC CE eLCID for SL-PRS Resource Request MAC CEChange#6404: add a NOTE clarifying on the carrier selection for SL-CA on shared resource poolChange#6792#01: Delete ‘as specified in clause 5.28.2’ in resource selection in SL-PRS dedicated poolChange#6792#02: In Ci field of the DL MAC CE, change ‘SRS-PosResourceSetAggBW-CombinationList’ to ‘SRS-PosResourceSetLinkedForAggBW-List; and change ‘SRS-PosRRC-AggBW-InactiveConfigList’ to ‘ SRS-InactivePosResourceSetLinkedForAggBW-List’.Change#6855: Capture the priority of SL-PRS Resource Request MAC CE in LCP procedure.Change#7296#01: Add the case for the dedicated resource poolChagne#7296#02: Add the description for Sidelink transmission information of SL-PRSChange#7296#03: Add the priority of the SR triggered for SL-PRS resource request MAC CE. |
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| ***Consequences if not approved:*** | 1/ The spec might not be clear and consisent in the references for activated SP positioning SRS because the activation command MAC CE in 5.18.37 is another way to activate SP positioning SRS**Inter-Operability analysis:**Impacted functionality:CA positioningInter-operability: There is no inter-operability issue for the CR. The correct UE behavior can be inferred from the other parts of the spec and other specs. =========================================================UPDATE DURING R2 #127Change#6293: it is not clear what does the field in the MAC CE indicates, which may lead to misunderstanding between the UE and the network. **Inter-Operability analysis:**Impacted functionality:CA positioningInter-operability: If the UE is implemented according to the CR while the network is not, or if the network is implementted according to the CR while the UE is not, the UE might misunderstand the meaning of the field Spatial Relation for Resource IDi, which leads to misunderstanidng between the UE and network on the indicated spatial relation.Change#6376: Wrong reference in the spec that is misleading to the readers**Inter-Operability analysis:**Impacted functionality:SL positioningInter-operability: There is no inter-operability issue for the CR. The correct UE behavior can be inferred from the other parts of the spec and other specs. Change#6404: How the SL positioning on shared resource pool in CA is not clear in the carrier selection perspective**Inter-Operability analysis:**Impacted functionality:SL positioningInter-operability: There is no inter-operability issue for the CR. The UE behavior is left to the UE’s implementation.Change#6792#01: it is contradictory to our previous agreement that DRX is not applied for SL-PRS transmission on dedicated pool. **Inter-Operability analysis:**Impacted functionality:Sidelink positioning Inter-operability: If the Tx UE is implemented according to this CR while the Rx UE is not, only a small set of Tx resource will be selected by Tx UE and received by Rx UE. If the Rx UE is implemented according to this CR while the Tx UE is not, there is no impact forseen. Change#6792#02: The name of the field is wrongly refered. **Inter-Operability analysis:**Impacted functionality:Aggregated SP Positioning SRS Activation/Deactivation MAC CE Inter-operability: - If the NW is implemented according to this CR while the UE is not, UE will wrongly activate/deactivate multiple SRS resource sets corresponding to different SRS resource set combinations;- If the UE is implemented according to this CR while the NW is not, there is no impact forseen, however NW will not know how to fill the Ci field considering UE’s capability can only support activation/deactivation withinin one SRS resource set combination.Change#7296#03: The priority of the SR triggered for SL-PRS resource request MAC CE is not corrected**Inter-Operability analysis:**Impacted functionality:SL positioningInter-operability: If the UE is implemented according to the CR while the network is not, there is no inter-operability issue.If the network is implemented according to the CR while the UE is not, the UE might not correctly request SL-PRS resource and network allocates the wrong SL-PRS resources to the UE.Change#6855: The priority of the MAC CE is not clearly specified, which may cause un-specified issues for LCP procedure**Inter-Operability analysis:**Impacted functionality:SL positioningInter-operability: If the UE is implemented according to the CR while the network is not, there is no inter-operability issue.If the network is implemented according to the CR while the UE is not, there is no inter-operability issue.Change#7296#01:SR prioritization with SL-PRS is not clearly specified when it collides with SL-PRS**Inter-Operability analysis:**Impacted functionality:SL positioningInter-operability: There is no inter-operability issue for the CR. The UE behavior is left to the UE’s implementation.Change#7296#02: the descirption of Sidelink Transmisison information for SL-PRS is missing, which might be misleading for the readers. **Inter-Operability analysis:**Impacted functionality:SL positioningInter-operability: There is no inter-operability issue for the CR. The UE behavior is left to the UE’s implementation. |
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| ***Clauses affected:*** | 5.4.3.1.3, 5.4.4, 5.2.1.1, 5.2.2.1.3.1, 5.22.1.5, 5.22.1.11, 5.26, 5.26.1, 6.1.3.74, 6.1.3.83 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

===================================CHANGE BEGINS====================================

##### 5.4.3.1.3 Allocation of resources

Before the successful completion of the Random Access procedure initiated for DAPS handover, the target MAC entity shall not select the logical channel(s) corresponding to non-DAPS DRB(s) for the uplink grant received in a Random Access Response or the uplink grant for the transmission of the MSGA payload. The source MAC entity shall select only the logical channel(s) corresponding to DAPS DRB(s) during DAPS handover.

The MAC entity shall, when a new transmission is performed:

1> allocate resources to the logical channels as follows:

2> logical channels selected in clause 5.4.3.1.2 for the UL grant with *Bj* > 0 are allocated resources in a decreasing priority order. If the PBR of a logical channel is set to *infinity*, the MAC entity shall allocate resources for all the data that is available for transmission on the logical channel before meeting the PBR of the lower priority logical channel(s);

2> decrement *Bj* by the total size of MAC SDUs served to logical channel *j* above;

2> if any resources remain, all the logical channels selected in clause 5.4.3.1.2 are served in a strict decreasing priority order (regardless of the value of *Bj*) until either the data for that logical channel or the UL grant is exhausted, whichever comes first. Logical channels configured with equal priority should be served equally.

NOTE 1: The value of *Bj* can be negative.

If the MAC entity is requested to simultaneously transmit multiple MAC PDUs, or if the MAC entity receives the multiple UL grants within one or more coinciding PDCCH occasions (i.e. on different Serving Cells), it is up to UE implementation in which order the grants are processed.

The UE shall also follow the rules below during the scheduling procedures above:

- the UE should not segment an RLC SDU (or partially transmitted SDU or retransmitted RLC PDU) if the whole SDU (or partially transmitted SDU or retransmitted RLC PDU) fits into the remaining resources of the associated MAC entity;

- if the UE segments an RLC SDU from the logical channel, it shall maximize the size of the segment to fill the grant of the associated MAC entity as much as possible;

- the UE should maximise the transmission of data;

- if the MAC entity is given a UL grant size that is equal to or larger than 8 bytes (when eLCID is not used) or 10 bytes (when eLCID is used) while having data available and allowed (according to clause 5.4.3.1) for transmission, the MAC entity shall not transmit only padding BSR and/or padding.

The MAC entity shall:

1> if the MAC entity is configured with *enhancedSkipUplinkTxDynamic* with value *true* and the grant indicated to the HARQ entity was addressed to a C-RNTI, or if the MAC entity is configured with *enhancedSkipUplinkTxConfigured* with value *true* and the grant indicated to the HARQ entity is a configured uplink grant:

2> if there is no UCI to be multiplexed on this PUSCH transmission as specified in TS 38.213 [6]; and

2> if there is no aperiodic CSI requested for this PUSCH transmission as specified in TS 38.212 [9]; and

2> if the MAC PDU includes zero MAC SDUs; and

2> if the MAC PDU includes only the periodic BSR and there is no data available for any LCG, or the MAC PDU includes only the padding BSR:

3> not generate a MAC PDU for the HARQ entity.

1> else if the MAC entity is configured with *skipUplinkTxDynamic* with value *true* and the grant indicated to the HARQ entity was addressed to a C-RNTI, or the grant indicated to the HARQ entity is a configured uplink grant:

2> if there is no aperiodic CSI requested for this PUSCH transmission as specified in TS 38.212 [9]; and

2> if the MAC PDU includes zero MAC SDUs; and

2> if the MAC PDU includes only the periodic BSR and there is no data available for any LCG, or the MAC PDU includes only the padding BSR:

3> not generate a MAC PDU for the HARQ entity.

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

- MAC CE for C-RNTI, or data from UL-CCCH;

- MAC CE for (Enhanced) BFR, or MAC CE for Configured Grant Confirmation, or MAC CE for Multiple Entry Configured Grant Confirmation;

- MAC CE for Sidelink Configured Grant Confirmation;

- MAC CE for LBT failure;

- MAC CE for SL LBT failure according to clause 5.31.2;

- MAC CE for Timing Advance Report;

- MAC CE for Delay Status Report;

- MAC CE for SL-BSR prioritized according to clause 5.22.1.6;

- MAC CE for SL-PRS Resource Request;

- MAC CE for (Extended) BSR, with exception of BSR included for padding;

- MAC CE for (Enhanced) Single Entry PHR, or MAC CE for (Enhanced) Multiple Entry PHR or MAC CE for Single Entry PHR with assumed PUSCH, or MAC CE for Multiple Entry PHR with assumed PUSCH, or MAC CE for Enhanced Single Entry PHR for multiple TRP or MAC CE for Enhanced Multiple Entry PHR for multiple TRP, or MAC CE for Enhanced Single Entry PHR for multiple TRP STx2P or MAC CE for Enhanced Multiple Entry PHR for multiple TRP STx2P;

- MAC CE for Positioning Measurement Gap Activation/Deactivation Request;

- MAC CE for the number of Desired Guard Symbols;

- MAC CE for Case-6 Timing Request;

- MAC CE for (Extended) Pre-emptive BSR;

- MAC CE for SL-BSR, with exception of SL-BSR prioritized according to clause 5.22.1.6 and SL-BSR included for padding;

- MAC CE for IAB-MT Recommended Beam Indication, or MAC CE for Desired IAB-MT PSD range, or MAC CE for Desired DL Tx Power Adjustment;

- data from any Logical Channel, except data from UL-CCCH;

- MAC CE for Recommended bit rate query;

- MAC CE for BSR included for padding;

- MAC CE for SL-BSR included for padding.

NOTE 2: Prioritization among MAC CEs of same priority is up to UE implementation.

The MAC entity shall prioritize any MAC CE listed in a higher order than 'data from any Logical Channel, except data from UL-CCCH' over NR sidelink transmission.

===============================NEXT CHANGE==========================================

### 5.4.4 Scheduling Request

The Scheduling Request (SR) is used for requesting UL-SCH resources for new transmission.

The MAC entity may be configured with zero, one, or more SR configurations. An SR configuration consists of a set of PUCCH resources for SR across different BWPs and cells. For a logical channel or for SCell beam failure recovery (see clause 5.17) and for consistent LBT failure recovery (see clause 5.21), at most one PUCCH resource for SR is configured per BWP. For a logical channel serving a radio bearer configured with SDT, PUCCH resource for SR is not configured for SDT. For beam failure recovery of BFD-RS set(s) of Serving Cell, up to two PUCCH resources for SR is configured per BWP. For positioning measurement gap activation/deactivation request, a dedicated SR configuration is configured.

Each SR configuration corresponds to one or more logical channels and/or to SCell beam failure recovery and/or to consistent LBT failure recovery and/or to beam failure recovery of a BFD-RS set and/or to positioning measurement gap activation/deactivation request. Each logical channel, SCell beam failure recovery, beam failure recovery of a BFD-RS set and consistent LBT failure recovery, may be mapped to zero or one SR configuration, which is configured by RRC. The SR configuration of the logical channel that triggered a BSR (clause 5.4.5) or a DSR (clause 5.4.9) or the SCell beam failure recovery or the beam failure recovery of a BFD-RS set or the consistent LBT failure recovery (clause 5.21) (if such a configuration exists) or positioning measurement gap activation/deactivation request (clause 5.25) is considered as corresponding SR configuration for the triggered SR. Any SR configuration may be used for an SR triggered by Pre-emptive BSR (clause 5.4.7) or Timing Advance reporting (clause 5.4.8).

RRC configures the following parameters for the scheduling request procedure:

- *sr-ProhibitTimer* (per SR configuration);

- *sr-TransMax* (per SR configuration).

The following UE variables are used for the scheduling request procedure:

- *SR\_COUNTER* (per SR configuration).

If an SR is triggered and there are no other SRs pending corresponding to the same SR configuration, the MAC entity shall set the *SR\_COUNTER* of the corresponding SR configuration to 0.

When an SR is triggered, it shall be considered as pending until it is cancelled.

All pending SR(s) for BSR triggered according to the BSR procedure (clause 5.4.5) prior to the MAC PDU assembly shall be cancelled and each respective *sr-ProhibitTimer* shall be stopped when the MAC PDU is transmitted and this PDU includes a Long, Refined Long or Short BSR MAC CE which contains buffer status up to (and including) the last event that triggered a BSR (see clause 5.4.5) prior to the MAC PDU assembly. All pending SR(s) for BSR triggered according to the BSR procedure (clause 5.4.5) shall be cancelled and each respective *sr-ProhibitTimer* shall be stopped when the UL grant(s) can accommodate all pending data available for transmission.

The MAC entity shall for each pending SR not triggered according to the BSR procedure (clause 5.4.5) for a Serving Cell:

1> if this SR was triggered by Pre-emptive BSR procedure (see clause 5.4.7) prior to the MAC PDU assembly and a MAC PDU containing the relevant Pre-emptive BSR MAC CE is transmitted; or

1> if this SR was triggered by beam failure recovery (see clause 5.17) of an SCell and a MAC PDU is transmitted and this PDU includes a MAC CE for BFR which contains beam failure recovery information for this SCell; or

1> if this SR was triggered by beam failure recovery (see clause 5.17) for a BFD-RS set of a Serving Cell and a MAC PDU is transmitted and this PDU includes an Enhanced BFR MAC CE or a Truncated Enhanced BFR MAC CE which contains beam failure recovery information for this BFD-RS set of the Serving Cell; or

1> if this SR was triggered by beam failure recovery (see clause 5.17) of an SCell and this SCell is deactivated (see clause 5.9); or

1> if this SR was triggered by beam failure recovery (see clause 5.17) for a BFD-RS set of an SCell and this SCell is deactivated (see clause 5.9); or

1> if the SR is triggered by positioning measurement gap activation/deactivation request (see clause 5.25) and the Positioning Measurement Gap Activation/Deactivation Request MAC CE that triggers the SR has already been cancelled; or

1> if this SR was triggered by consistent LBT failure recovery (see clause 5.21) of an SCell and a MAC PDU is transmitted and the MAC PDU includes an LBT failure MAC CE that indicates consistent LBT failure for this SCell; or

1> if this SR was triggered by consistent LBT failure recovery (see clause 5.21) of an SCell and all the triggered consistent LBT failure(s) for this SCell are cancelled; or

1> if this SR was triggered by Timing Advance reporting (see clause 5.4.8) and all the triggered Timing Advance reports are cancelled; or

1> if this SR was triggered by DSR procedure (see clause 5.4.9) and the DSR that triggered the SR has been cancelled:

2> cancel the pending SR and stop the corresponding *sr-ProhibitTimer*, if running.

Only PUCCH resources on a BWP which is active at the time of SR transmission occasion are considered valid.

As long as at least one SR is pending, the MAC entity shall for each pending SR:

1> if the MAC entity has no valid PUCCH resource configured for the pending SR; and

1> if there is no ongoing RACH-less LTM cell switch; and

1> if *rach-LessHO* is not configured:

2> initiate a Random Access procedure (see clause 5.1) on the SpCell and cancel the pending SR.

1> else, for the SR configuration corresponding to the pending SR:

2> when the MAC entity has an SR transmission occasion on the valid PUCCH resource for SR configured; and

2> if *sr-ProhibitTimer* is not running at the time of the SR transmission occasion; and

2> if the PUCCH resource for the SR transmission occasion does not overlap with a measurement gap:

3> if the PUCCH resource for the SR transmission occasion overlaps with neither a UL-SCH resource whose simultaneous transmission with the SR is not allowed by configuration of *simultaneousPUCCH-PUSCH* or *simultaneousPUCCH-PUSCH-SecondaryPUCCHgroup* or *simultaneousSR-PUSCH-diffPUCCH-Groups* or *simultaneousPUCCH-PUSCH-SamePriority* or *simultaneousPUCCH-PUSCH-SamePriority-SecondaryPUCCHgroup* nor an SL-SCH resource; or

3> if the MAC entity is able to perform this SR transmission simultaneously with the transmission of the SL-SCH resource; or

3> if the MAC entity is configured with *lch-basedPrioritization*, and the PUCCH resource for the SR transmission occasion does not overlap with the PUSCH duration of an uplink grant received in a Random Access Response or with the PUSCH duration of an uplink grant addressed to Temporary C-RNTI or with the PUSCH duration of a MSGA payload, and the PUCCH resource for the SR transmission occasion for the pending SR triggered as specified in clause 5.4.5 overlaps with any other UL-SCH resource(s), and the physical layer can signal the SR on one valid PUCCH resource for SR, and the priority of the logical channel that triggered SR is higher than the priority of the uplink grant(s) for any UL-SCH resource(s) where the uplink grant was not already de-prioritized and its simultaneous transmission with the SR is not allowed by configuration of *simultaneousPUCCH-PUSCH* or *simultaneousPUCCH-PUSCH-SecondaryPUCCHgroup* or *simultaneousSR-PUSCH-diffPUCCHgroups* or *simultaneousPUCCH-PUSCH-SamePriority* or *simultaneousPUCCH-PUSCH-SamePriority-SecondaryPUCCHgroup*, and the priority of the uplink grant is determined as specified in clause 5.4.1; or

3> if both *sl-PrioritizationThres* and *ul-PrioritizationThres* are configured and the PUCCH resource for the SR transmission occasion for the pending SR triggered as specified in clause 5.22.1.5 overlaps with any UL-SCH resource(s) carrying a MAC PDU, and the value of the priority of the triggered SR determined as specified in clause 5.22.1.5 is lower than *sl-PrioritizationThres* and the value of the highest priority of the logical channel(s) in the MAC PDU is higher than or equal to *ul-PrioritizationThres* and any MAC CE prioritized as described in clause 5.4.3.1.3 is not included in the MAC PDU and the MAC PDU is not prioritized by upper layer according to TS 23.287 [19]; or

3> if an SL-SCH resource overlaps with the PUCCH resource for the SR transmission occasion for the pending SR triggered as specified in clause 5.4.5, and the MAC entity is not able to perform this SR transmission simultaneously with the transmission of the SL-SCH resource, and either transmission on the SL-SCH resource is not prioritized as described in clause 5.22.1.3.1a or the priority value of the logical channel that triggered SR is lower than *ul-PrioritizationThres*, if configured; or

3> if an SL-SCH resource overlaps with the PUCCH resource for the SR transmission occasion for the pending SR triggered as specified in clause 5.22.1.5, and the MAC entity is not able to perform this SR transmission simultaneously with the transmission of the SL-SCH resource, and the priority of the triggered SR determined as specified in clause 5.22.1.5 is higher than the priority of the MAC PDU determined as specified in clause 5.22.1.3.1a for the SL-SCH resource; or

3> if an SL-PRS resource overlaps with the PUCCH resource for the SR transmission occasion for the pending SR triggered as specified in clause 5.4.5, and the MAC entity is not able to perform this SR transmission simultaneously with the transmission of the SL-PRS resource, and either transmission on the SL-PRS resource is not prioritized as described in clause 5.22.1.3.1a or in the clause 5.22.1.3.5, or the priority value of the logical channel that triggered SR is lower than *ul-PrioritizationThres*, if configured; or

3> if an SL-PRS resource overlaps with the PUCCH resource for the SR transmission occasion for the pending SR triggered as specified in clause 5.22.1.5, and the MAC entity is not able to perform this SR transmission simultaneously with the transmission of the SL-PRS resource, and the priority of the triggered SR determined as specified in clause 5.22.1.5 is higher than the priority of the MAC PDU and SL-PRS, if available, determined as specified in clause 5.22.1.3.1a or the SL-PRS resource in clause 5.22.1.3.5:

4> consider the SR transmission as a prioritized SR transmission.

4> consider the other overlapping uplink grant(s), if any, as a de-prioritized uplink grant(s), except for the overlapping uplink grant(s) whose simultaneous transmission is allowed by configuration of *simultaneousPUCCH-PUSCH* or *simultaneousPUCCH-PUSCH-SecondaryPUCCHgroup* or *simultaneousSR-PUSCH-diffPUCCH-Groups* or *simultaneousPUCCH-PUSCH-SamePriority* or *simultaneousPUCCH-PUSCH-SamePriority-SecondaryPUCCHgroup*;

4> if the de-prioritized uplink grant(s) is a configured uplink grant configured with *autonomousTx* whose PUSCH has already started:

5> stop the *configuredGrantTimer* for the corresponding HARQ process of the de-prioritized uplink grant(s);

5> stop the *cg-RetransmissionTimer* for the corresponding HARQ process of the de-prioritized uplink grant(s).

4> if *SR\_COUNTER* < *sr-TransMax*:

5> instruct the physical layer to signal the SR on one valid PUCCH resource for SR;

5> if LBT failure indication is not received from lower layers:

6> increment *SR\_COUNTER* by 1;

6> start the *sr-ProhibitTimer*.

5> else if *lbt-FailureRecoveryConfig* is not configured:

6> increment *SR\_COUNTER* by 1.

4> else:

5> notify RRC to release PUCCH for all Serving Cells;

5> notify RRC to release SRS for all Serving Cells;

5> clear any configured downlink assignments and uplink grants;

5> clear any PUSCH resources for semi-persistent CSI reporting;

5> if *rach-LessHO* is not configured and if there is no ongoing RACH-less LTM cell switch:

6> initiate a Random Access procedure (see clause 5.1) on the SpCell and cancel all pending SRs.

3> else:

4> consider the SR transmission as a de-prioritized SR transmission.

NOTE 1: Except for SR for SCell beam failure recovery, the selection of which valid PUCCH resource for SR to signal SR on when the MAC entity has more than one overlapping valid PUCCH resource for the SR transmission occasion is left to UE implementation.

NOTE 2: If more than one individual SR triggers an instruction from the MAC entity to the PHY layer to signal the SR on the same valid PUCCH resource, the *SR\_COUNTER* for the relevant SR configuration is incremented only once.

NOTE 3: When the MAC entity has pending SR for SCell beam failure recovery and the MAC entity has one or more PUCCH resources (other than PUCCH resources of pending SR for beam failure recovery of a BFD-RS set) overlapping with PUCCH resource for SCell beam failure recovery for the SR transmission occasion, the MAC entity considers only the PUCCH resource for SCell beam failure recovery as valid. When the MAC entity has pending SR for beam failure recovery of a BFD-RS set of Serving Cell and the MAC entity has one or more PUCCH resources (other than PUCCH resources of pending SR for beam failure recovery) overlapping with PUCCH resource for beam failure recovery of that BFD-RS set for the SR transmission occasion, the MAC entity considers only the PUCCH resource for beam failure recovery of that BFD-RS set as valid.

NOTE 4: For a UE operating in a semi-static channel access mode as described in TS 37.213 [18], PUCCH resources overlapping with the set of consecutive symbols where the UE does not transmit before the start of a next channel occupancy time are not considered valid.

NOTE 5: If the MAC entity is configured with *lch-basedPrioritization*, the MAC entity does not take UCI multiplexing according to the procedure specified in TS 38.213 [6] into account when determining whether the valid PUCCH resource for the SR transmission can be signalled by the physical layer and the SR transmission occasion overlaps with the PUSCH duration of an uplink grant of a MSGA payload.

NOTE 6: When the MAC entity has PUCCH resource for pending SR for SCell beam failure recovery overlapping with PUCCH resource for pending SR for beam failure recovery of a BFD-RS set for the SR transmission occasion, it's up to UE implementation to select PUCCH resource for SCell beam failure recovery or PUCCH resource for beam failure recovery of a BFD-RS set.

The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for BSR, which was initiated by the MAC entity prior to the 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 a BSR MAC CE which contains buffer status up to (and including) the last event that triggered a BSR (see clause 5.4.5) prior to the MAC PDU assembly; or

- the UL grant(s) can accommodate all pending data available for transmission.

The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for SL-BSR, 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 the ongoing Random Access procedure was initiated by the MAC entity prior to the MAC PDU assembly, 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 for transmission, and the ongoing Random Access procedure was initiated by the MAC entity prior to the sidelink MAC PDU assembly.

The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for SL-CSI reporting, which has no valid PUCCH resources configured, if:

- the SL grant can accommodate SL-CSI reporting MAC CE for transmission.

The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for SL-DRX command indication, which has no valid PUCCH resources configured, if:

- the SL grant can accommodate SL-DRX command indication for transmission.

The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for BFR of an SCell, 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 contains a MAC CE for BFR which includes beam failure recovery information of that SCell; or

- the SCell is deactivated (as specified in clause 5.9) and all triggered BFRs for SCells are cancelled.

The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for BFR of a BFD-RS set of a Serving Cell, 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 contains an Enhanced BFR MAC CE or a Truncated Enhanced BFR MAC CE which includes beam failure recovery information of that BFD-RS set of the Serving Cell.

The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for consistent LBT failure recovery, 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 LBT failure MAC CE that indicates consistent LBT failure for all the SCells that triggered consistent LBT failure; or

- all the SCells that triggered consistent LBT failure recovery are deactivated (see clause 5.9).

The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for Sidelink consistent LBT failure recovery, which has no valid PUCCH resources configured, if one of the following conditions is met:

- 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 LBT failure MAC CE that indicates Sidelink consistent LBT failure; or

- all the triggered Sidelink consistent LBT failure recovery are cancelled (see clause 5.31.2).

The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for positioning measurement gap activation/deactivation request, which has no valid PUCCH resources configured, if:

- the Positioning Measurement Gap Activation/Deactivation Request MAC CE that triggers the SR corresponding to the Random Access procedure has already been cancelled.

The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for Timing Advance report, 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 a Timing Advance Report MAC CE (see clause 5.4.8).

The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for DSR, 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 either a DSR MAC CE or

- all the PDCP SDUs associated with the DSR (see clause 5.4.9); or

- all the PDCP SDUs associated with the DSR have been discarded (see clause 5.4.9).

The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for SL-PRS Resource Request, 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 a SL-PRS Resource Request MAC CE (see clause 5.22.1.12).

==============================NEXT CHANGE=========================================

#### 5.22.1.1 SL Grant reception and SCI transmission

Sidelink grant is received dynamically on the PDCCH, configured semi-persistently by RRC or autonomously selected by the MAC entity. The MAC entity may have a sidelink grant on an active SL BWP to determine a set of PSCCH duration(s) in which transmission of SCI occurs and a set of PSSCH duration(s) in which transmission of SL-SCH associated with the SCI occurs. The MAC entity may have a sidelink grant on the Shared SL-PRS resource pool of an active BWP to determine a set of PSCCH durations(s) in which transmission of SCI occurs and a set of SL-PRS transmission occasion(s) and PSSCH duration(s) in which transmission of SL-PRS and SL-SCH associated with the SCI occur. The MAC entity may have a sidelink grant on the Dedicated SL-PRS resource pool of an active BWP to determine a set of PSCCH duration(s) in which transmission of SCI occurs and a set of SL-PRS transmission occasion(s) in which transmission of SL-PRS associated to the SCI occurs. A sidelink grant addressed to SL-CS-RNTI with NDI = 1 is considered as a dynamic sidelink grant. A sidelink grant addressed to SL-PRS-CS-RNTI with Activation/Release indication = 1 as in clause 7.3.1.4.3 in TS 38.212 [9] is considered as a dynamic sidelink grant*.*

If the MAC entity has been configured with Sidelink resource allocation mode 1 as indicated in TS 38.331 [5] or if the MAC entity has been configured with Sidelink resource allocation scheme 1 as indicated in TS 38.331 [5] and PDCCH is received for resource allocation on Shared SL-PRS resource pool, the MAC entity shall for each PDCCH occasion and for each grant received for this PDCCH occasion:

1> if a sidelink grant has been received on the PDCCH for the MAC entity's SL-RNTI:

2> if the NDI received on the PDCCH has not been toggled compared to the value in the previously received HARQ information for the HARQ Process ID:

3> use the received sidelink grant to determine PSCCH duration(s) and PSSCH duration(s) and SL-PRS transmission occasion(s), if available, for one or more retransmissions of a single MAC PDU for the corresponding Sidelink process according to clause 8.1.2 of TS 38.214 [7] and SL-PRS according to clause 8.1.4 of TS 38.214 [7].

2> else:

3> use the received sidelink grant to determine PSCCH duration(s) and PSSCH duration(s) and SL-PRS transmission occasion(s), if available, for initial transmission and, if available, retransmission(s) of a single MAC PDU and SL-PRS according to clause 8.1.2 of TS 38.214 [7].

NOTE 0: When SL-PRS is transmitted on Shared SL-PRS resource pool, the PSSCH duration(s) and SL-PRS transmission occasion(s) are determined only after the LCP procedure in clause 5.22.1.4.1.

1> else if a sidelink grant has been received on the PDCCH for the MAC entity's SL-CS-RNTI:

2> if PDCCH contents indicate retransmission(s) for the identified HARQ process ID that has been set for an activated configured sidelink grant identified by *sl-ConfigIndexCG*:

3> use the received sidelink grant to determine PSCCH duration(s) and PSSCH duration(s) and SL-PRS transmission occasion(s), if available, for one or more retransmissions of a single MAC PDU and SL-PRS according to clause 8.1.2 of TS 38.214 [7].

2> else if PDCCH contents indicate configured grant Type 2 deactivation for a configured sidelink grant:

3> trigger configured sidelink grant confirmation for the configured sidelink grant.

2> else if PDCCH contents indicate configured grant Type 2 activation for a configured sidelink grant:

3> trigger configured sidelink grant confirmation for the configured sidelink grant;

3> store the configured sidelink grant;

3> initialise or re-initialise the configured sidelink grant to determine the set of PSCCH durations and the set of PSSCH durations for transmissions of multiple MAC PDUs according to clause 8.1.2 of TS 38.214 [7] and the set of SL-PRS transmission occasions for transmission of multiple SL-PRS according to clause of 8.2.4 of TS 38.214 [7], if available.

1> if a dynamic sidelink grant is available for retransmission(s) of a MAC PDU which has been positively acknowledged as specified in clause 5.22.1.3.1a:

2> clear the PSCCH duration(s) and PSSCH duration(s) corresponding to retransmission(s) of the MAC PDU from the sidelink grant.

If the MAC entity has been configured with Sidelink resource allocation scheme 1 as in TS 38.331 [5] and PDCCH is received for resource allocation on Dedicated SL-PRS resource pool, the MAC entity shall for each PDCCH occasion:

1> if a sidelink grant has been received on the PDCCH for the MAC entity's SL-PRS-RNTI: (i.e., dynamic grant)

2> use the received sidelink grant to determine the PSCCH duration(s) and the corresponding SL-PRS occasion(s) for the transmission of SL-PRS.

1> else if a sidelink grant has been received on the PDCCH for MAC entity's SL-PRS-CS-RNTI: (i.e., configured sidelink grant type 2)

2> if the PDCCH content indicates the configured grant Type 2 activation for a configured sidelink grant:

3> store the configured sidelink grant;

3> trigger configured grant confirmation for the configured sidelink grant;

3> initialise or re-initialise the configured sidelink grant to determine the set of PSCCH duration(s) and the corresponding SL-PRS occasion for the transmission of SL-PRS.

2> else if the PDCCH content indicates the configured Type 2 deactivation for a configured sidelink grant:

3> trigger configured grant confirmation for the configured sidelink grant.

If the MAC entity has been configured with Sidelink resource allocation mode 2 to transmit or Sidelink resource allocation scheme 2 using pool(s) of resources in one carrier as indicated in TS 38.331 [5] or TS 36.331 [21] based on full sensing, or partial sensing, or random selection or any combination(s); Or if the MAC entity has been configured with Sidelink resource allocation mode 2 to transmit using pool(s) of resources in multiple carriers 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:

NOTE 0A: For SL-PRS transmission by Sidelink resource allocation scheme 2 on Dedicated SL-PRS resource pool, partial sensing is not supported.

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

NOTE 2: For each carrier configured by upper layers associated with the concerned sidelink logical channel, the MAC entity expects that PSFCH is always configured by RRC for at least one pool of resources in *sl-TxPoolSelectedNormal* and for the resource pool in *sl-TxPoolExceptional* in case that at least a logical channel configured with *sl-HARQ-FeedbackEnabled* is set to *enabled*.

NOTE 2A: For the transmission of Sidelink Inter-UE Coordination Request MAC CE, the MAC entity selects the TX pool of resource where the IUC resource set is required. For the transmission of Sidelink Inter-UE Coordination Information MAC CE, the MAC entity selects the TX pool of resource where the IUC resource set is located.

NOTE 2B: For dynamic co-channel coexistence of LTE sidelink and NR sidelink, when the same TB or different TBs are transmitted on the NR SL slots overlapping with the LTE SL subframe, it is up to UE implementation how to avoid transmitting NR PSCCH/PSSCH only in the subsequent NR SL slot overlapping with an LTE SL subframe for NR PSCCH/PSSCH transmissions of 30kHz SCS.

1> if the MAC entity has selected to create a selected sidelink grant corresponding to transmissions of multiple MAC PDUs, and SL data is available in a logical channel; or

1> if the MAC entity has selected to create a selected sidelink grant corresponding to transmission(s) of multiple SL-PRS(s), which have been triggered by the upper layer or by the reception of a SCI from a peer UE:

NOTE 2B1: The multiplicity/singularity of SL-PRS transmission and the reservation period for multiple SL-PRS transmission is determined by the UE's own upper layers by implementation within the service layer requirement for the Ranging/Sidelink positioning.

2> if the MAC entity has not selected a pool of resources allowed for the logical channel or SL-PRS transmission:

3> if single carrier frequency is configured:

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

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

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

5> else:

6> select any pool of resources among the configured pools of resources except for Dedicated SL-PRS resource pool, if configured.

4> else if SL data is available in the logical channel for BRID for A2X communication:

5> if *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X* is configured according to TS 38.331 [5]:

6> if resource pool(s) is configured with *sl-A2X-Service* indicating *brid* or *bridAndDAA*:

7> select any pool of resources among the resource pool(s) configured with *sl-A2X-Service* indicating *brid* or *bridAndDAA* in *sl-TxPoolSelectedNormal* configured in *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X* for the transmission of SL data for A2X communication.

6> else:

7> select any pool of resources among the configured pools of resources except the pool(s) in *sl-BWP-PoolConfigA2X*, *sl-BWP-PoolConfigCommonA2X*, *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon*, if configured or Dedicated SL-PRS resource pool, if configured.

5> else:

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

4> else if SL data is available in the logical channel for DAA for A2X communication:

5> if *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X* is configured according to TS 38.331 [5]:

6> if resource pool(s) is configured with *sl-A2X-Service* indicating *daa* or *bridAndDAA*:

7> select any pool of resources among the resource pool(s) configured with *sl-A2X-Service* indicating *daa* or *bridAndDAA* in *sl-TxPoolSelectedNormal* configured in *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X* for the transmission of SL data for A2X communication.

6> else:

7> select any pool of resources among the configured pools of resources except the pool(s) in *sl-BWP-PoolConfigA2X*, *sl-BWP-PoolConfigCommonA2X*, *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon*, if configured or Dedicated SL-PRS resource pool, if configured.

5> else:

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

NOTE 2C: The MAC entity identifies the logical channel(s) for BRID or DAA based on the QoS information associated to BRID or DAA, i.e. PQI(s), from upper layers.

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

5> select any pool of resources configured with PSFCH resources among the pools of resources except the pool(s) in *sl-BWP-DiscPoolConfig*, *sl-BWP-DiscPoolConfigCommon*, *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X*, if configured or Dedicated SL-PRS resource pool, if configured.

4> else if SL-PRS is pending for transmission:

5> select any resource pool among the resource pool(s) allowing for SL-PRS transmission.

4> else:

5> select any pool of resources among the pools of resources except the pool(s) in *sl-BWP-DiscPoolConfig*, *sl-BWP-DiscPoolConfigCommon*, *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X*, if configured or Dedicated SL-PRS resource pool, if configured.

3> else (i.e. multiple carrier frequencies are configured):

4> trigger the TX carrier (re-)selection procedure as specified in clause 5.22.1.11.

2> if Sidelink consistent LBT failure is detected as specified in clause 5.31.2 in all RB sets of the selected resource pool, if single carrier frequency is configured:

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 and the pool(s) in which all RB sets had Sidelink consistent LBT failure detected and not cancelled.

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 and the pool(s) in which all RB sets had Sidelink consistent LBT failure detected and not cancelled.

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

NOTE 2D: It is up to UE implementation how to select a resource pool that has at least one RB set in which Sidelink consistent LBT failure was either not detected or detected but cancelled.

NOTE 3: The MAC entity continuously performs the TX resource (re-)selection check until the corresponding pool of resources is released by RRC or the MAC entity decides to cancel creating a selected sidelink grant corresponding to transmissions of multiple MAC PDUs.

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

3> if *sl-lbt-FailureRecoveryConfig* is configured in the SL BWP:

4> indicate to the physical layer RB set information for which Sidelink consistent LBT failure was detected and not cancelled as specified in clause 5.31.2.

3> if the TX carrier (re-)selection procedure was triggered in above and one or more carriers have been (re-)selected in the TX carrier (re-)selection according to clause 5.22.1.11:

4> determine the order of the (re-)selected carriers, according to the decreasing order based on the highest priority of logical channels which are allowed on each (re-)selected carrier, and perform the resource selection procedure as specified in this clause for each Sidelink process on each (re-)selected carrier according to the order.

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.

NOTE 3A: The MAC entity selects a value for the resource reservation interval which is larger than the remaining PDB of SL data available in the logical channel or remaining SL-PRS delay budget. The value of the SL-PRS delay budget is provided by the UE's own upper layers by implementation.

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 $\left[5×\left⌈\frac{100}{max\left(20, P\_{rsvp\\_TX}\right)}\right⌉,15×\left⌈\frac{100}{max\left(20, P\_{rsvp\\_TX}\right)}\right⌉\right] $ for the resource reservation interval lower than 100ms and set *SL\_RESOURCE\_RESELECTION\_COUNTER* to the selected value;

3> if the selected resource pool is not Dedicated SL-PRS resource pool:

4> select one of the allowed values configured by RRC in *sl-ResourceReservePeriodList* and set the resource reservation interval, *P*rsvp\_TX, with the selected value;

4> 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) and pending SL-PRS transmission(s), if available, 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 or the corresponding *sl-DefaultCBR-PartialSensing* configured by RRC if partial sensing is selected and CBR measurement results are not available, or the corresponding *sl-DefaultCBR-RandomSelection* configured by RRC if random selection is selected and CBR measurement results are not available in case the *sl-TxPoolExceptional* is not used;

NOTE 3A0: The priority of SL-PRS is provided by the UE's own upper layers by implementation within the service layer requirement of the Ranging/Sidelink Positioning.

NOTE 3Aa: For Multi-consecutive slots transmission as specified in clause 8.1.4 of TS 38.214 [7], during resource (re)selection, leave it to UE implementation, regarding whether to calculate the number of HARQ retransmissions from the allowed numbers based on the number of MCSt transmissions, or the number of slot(s) within Multi-consecutive slots transmission.

NOTE 3Aa0: When transmission is performed on Shared SL-PRS resource pool, the selected number of HARQ retransmissions also corresponds to the number of SL-PRS transmissions.

4> 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) and pending SL-PRS transmission(s), if available, 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 or the corresponding *sl-DefaultCBR-PartialSensing* configured by RRC if partial sensing is selected and CBR measurement results are not available, or the corresponding *sl-DefaultCBR-RandomSelection* configured by RRC if random selection is selected and CBR measurement results are not available in case the *sl-TxPoolExceptional* is not used;

3> else if the selected resource pool is Dedicated SL-PRS resource pool:

4> select one of the allowed values configured by RRC in *sl-PRS-ResourceReservePeriodList* and set the resource reservation interval, $P\_{rsvp\\_TX}$, with the selected value;

4> select the number of SL-PRS retransmissions from the allowed numbers, if configured by RRC, in *sl-PRS-MaxNum-Transmissions* included in *sl-CBR-SL-PRS-TxConfigList*.

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> if the selected resource pool is not Dedicated SL-PRS resource pool:

6> randomly select the time and frequency resources for one transmission opportunity from the resource 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, and the pool(s) in which all RB sets had Sidelink consistent LBT failure detected and not cancelled and the resources of which the lowest sub-channel includes intra cell guard band PRBs if *sl-transmissionStructureForPSCCHandPSSCH* is set to 'contiguousRB' are excluded, if configured, according to the amount of selected frequency resources, the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, allowed on the carrier.

NOTE 3Ab: When there are both SL data available in the logical channel(s) and SL-PRS pending for transmission, the resources are selected based on the shorter one of the corresponding remaining PDB and the corresponding remaining SL-PRS delay budget.

5> else if the selected resource pool is Dedicated SL-PRS resource pool:

6> randomly select the time and frequency resources for one transmission opportunity from the resource pool, according to the remaining SL-PRS delay budget of the SL-PRS transmission(s).

4> else:

5> if *sl-NRPSSCH-EUTRA-ThresRSRP-List* is configured by the RRC:

6> when SCS of NR SL is (pre-)configured as *μ* = 0:

7> 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.

6> when SCS of NR SL is (pre-)configured as *μ* = 1:

7> randomly select the time and frequency resources in the first of NR SL slots overlapping with an LTE SL subframe 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.

5> else if the selected resource pool is not Dedicated SL-PRS resource pool:

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] 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 remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, allowed on the carrier.

5> else if the selected resource pool is Dedicated SL-PRS resource pool:

6> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by physical layer as clasue 8.2.4 of TS 38.214 [7], according to the remaining SL-PRS delay budget of the SL-PRS transmission(s).

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

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

5> if the selected resource pool is not Dedicated SL-PRS resource pool:

6> randomly select the time and frequency resources for one transmission opportunity from the resources pool excluding all RB sets had Sidelink consistent LBT failure detected and not cancelled and the resources of which the lowest sub-channel includes intra cell guard band PRBs if *sl-transmissionStructureForPSCCHandPSSCH* is set to 'contiguousRB' are excluded, if configured, according to the amount of selected frequency resources, the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, allowed on the carrier.

5> else if the selected resource pool is Dedicated SL-PRS resource pool:

6> randomly select the time and frequency resources for one transmission opportunity from the resource pool, according to the remaining SL-PRS delay budget of the SL-PRS transmission(s).

4> else:

5> if the selected resource pool is not Dedicated SL-PRS resource pool:

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, the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, allowed on the carrier.

5> else if the selected resource pool is Dedicated SL-PRS resource pool:

6> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by physical layer as clause 8.2.4 of TS 38.214 [7], according to the remaining SL-PRS delay budget of the SL-PRS 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 does not have its 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 if the selected resource pool is not Dedicated SL-PRS resource pool:

4> randomly select the time and frequency resources for one transmission opportunity from the 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 and the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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 has its 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 if the selected resource pool is not Dedicated SL-PRS resource pool:

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 an SL-SCH data to be transmitted to the UE providing the preferred resource set, according to the amount of selected frequency resources, the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, allowed on the carrier.

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, the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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, PSSCH and SL-PRS corresponding to the number of transmission opportunities of MAC PDUs or SL-PRSs determined in TS 38.214 [7].

3> if one or more SL-PRS retransmissions are selected and the selected resource pool is Dedicated SL-PRS resource pool:

4> randomly select the time and frequency resources for one or more transmission opportunities from the available resources, according to the selected number of retransmissions and the remaining SL-PRS delay budget 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 SL-PRS corresponding to the number of retransmission opportunities of SL-PRS;

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 if one or more HARQ retransmissions are selected and the selected resource pool is not Dedicated SL-PRS resource pool:

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> if *sl-NRPSSCH-EUTRA-ThresRSRP-List* is configured by the RRC:

7> when SCS of NR SL is (pre-)configured as *μ* = 0:

8> 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].

7> when SCS of NR SL is (pre-)configured as *μ* = 1:

8> randomly select the time and frequency resources in the second of NR SL slots of NR SL slots overlapping with an LTE SL subframe to which the selected transmission resources belongs, or select the time and frequency resources in the first of NR SL slots overlapping with an LTE SL subframe 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].

6> else:

7> 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, and the pool(s) in which all RB sets with Sidelink consistent LBT failure detected and not cancelled and the resources of which the lowest sub-channel includes intra cell guard band PRBs if *sl-transmissionStructureForPSCCHandPSSCH* is set to 'contiguousRB' are excluded, if configured, according to the amount of selected frequency resources, the selected number of HARQ retransmissions, the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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 preferred resource set is not 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 excluding all RB sets had Sidelink consistent LBT failure detected and not cancelled and the resources of which the lowest sub-channel includes intra cell guard band PRBs if *sl-transmissionStructureForPSCCHandPSSCH* is set to 'contiguousRB' are excluded, if configured according to the amount of selected frequency resources, the selected number of HARQ retransmissions, the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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, the remaining PDB of SL data available in the logical channel(s) , and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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, the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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, the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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, PSSCH, if available and SL-PRS, if available corresponding to the number of retransmission opportunities of the MAC PDUs determined in TS 38.214 [7] or SL-PRS(s);

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 and the set of SL-PRS transmission occasion(s), if available, according to TS 38.214 [7] if the selected resource pool is not Dedicated SL-PRS resource pool or to determine the set of PSCCH durations and SL-PRS transmission occasion(s) if the selected resource pool is Dedicated SL-PRS resource pool 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 $\left[5×\left⌈\frac{100}{max\left(20, P\_{rsvp\\_TX}\right)}\right⌉,15×\left⌈\frac{100}{max\left(20, P\_{rsvp\\_TX}\right)}\right⌉\right] $ 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 or SL-PRS(s) determined in TS 38.214 [7] with the resource reservation interval to determine the set of PSCCH durations, the set of PSSCH durations, and the pending SL-PRS transmission(s), if available, 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; or

1> if the MAC entity has selected to create a selected sidelink grant corresponding to transmission of a single SL-PRS, which has been triggered by the upper layer or by the reception of a SCI from a peer UE:

2> if single carrier frequency is configured:

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

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

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

4> else:

5> select any pool of resources among the configured pools of resources except for Dedicated SL-PRS resource pool, if configured.

3> else if SL data is available in the logical channel for BRID for A2X communication:

4> if *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X* is configured according to TS 38.331 [5]:

5> if resource pool(s) is configured with *sl-A2X-Service* indicating *brid* or *bridAndDAA*:

6> select any pool of resources among the resource pool(s) configured with *sl-A2X-Service* indicating *brid* or *bridAndDAA* in *sl-TxPoolSelectedNormal* configured in *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X* for the transmission of SL data for A2X communication.

5> else:

6> select any pool of resources among the configured pools of resources except the pool(s) in *sl-BWP-PoolConfigA2X*, *sl-BWP-PoolConfigCommonA2X*, *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon*, if configured or Dedicated SL-PRS resource pool, if configured.

4> else:

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

3> else if SL data is available in the logical channel for DAA for A2X communication:

4> if *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X* is configured according to TS 38.331 [5]:

5> if resource pool(s) is configured with *sl-A2X-Service* indicating *daa* or *bridAndDAA*:

6> select any pool of resources among the resource pool(s) configured with *sl-A2X-Service* indicating *daa* or *bridAndDAA* in *sl-TxPoolSelectedNormal* configured in *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X* for the transmission of SL data for A2X communication.

5> else:

6> select any pool of resources among the configured pools of resources except the pool(s) in *sl-BWP-PoolConfigA2X*, *sl-BWP-PoolConfigCommonA2X*, *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon*, if configured or Dedicated SL-PRS resource pool, if configured.

4> else:

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

NOTE 3Ac: The MAC entity identifies the logical channel(s) for BRID or DAA based on the QoS information associated to BRID or DAA, i.e. PQI(s), from upper layers.

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

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

5> select any pool of resources configured with PSFCH resources among the pools of resources except the pool(s) in *sl-BWP-DiscPoolConfig*, *sl-BWP-DiscPoolConfigCommon*, *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X*, if configured or Dedicated SL-PRS resource pool, if configured.

4> else:

5> select any pool of resources among the pools of resources except the pool(s) in *sl-BWP-DiscPoolConfig*, *sl-BWP-DiscPoolConfigCommon*, *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X*, if configured or Dedicated SL-PRS resource pool, if configured.

3> else if SL-PRS is pending for transmission:

4> select any resource pool among the resource pool(s) allowing for SL-PRS transmission.

3> 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:

4> select any pool of resources among the pools of resources except the pool(s) in *sl-BWP-DiscPoolConfig*, *sl-BWP-DiscPoolConfigCommon*, *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X*, if configured or Dedicated SL-PRS resource pool, if configured.

2> else (i.e. multiple carrier frequencies are configured):

3> trigger the TX carrier (re-)selection procedure as specified in clause 5.22.1.11.

2> if Sidelink consistent LBT Failure is detected as specified in clause 5.31.2 in all RB sets of the selected resource pool for the logical channel, if single carrier frequency is configured:

3> clear the selected sidelink grant on the selected pool of resources.

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 and the pool(s) including all RB sets for which Sidelink consistent LBT failures were detected and not cancelled.

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 and the pool(s) including all RB sets for which Sidelink consistent LBT failures were detected and not cancelled.

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 *sl-lbt-FailureRecoveryConfig* is configured in the SL BWP:

4> indicate to the physical layer RB set information for which Sidelink consistent LBT failure was detected and not cancelled as specified in clause 5.31.2.

3> if the TX carrier (re-)selection procedure was triggered in above and one or more carriers have been (re-)selected in the Tx carrier (re-)selection according to clause 5.22.1.11:

4> determine the order of the (re-)selected carriers, according to the decreasing order based on the highest priority of logical channels which are allowed on each (re-)selected carrier, and perform the resource selection procedure as specified in this clause for each Sidelink process on each (re-)selected carrier according to the order.

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> if the selected resource pool is not Dedicated SL-PRS resource pool:

4> 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) and pending SL-PRS transmission(s), if available 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 or the corresponding *sl-DefaultCBR-PartialSensing* configured by RRC if partial sensing is selected and CBR measurement results are not available, or the corresponding *sl-DefaultCBR-RandomSelection* configured by RRC if random selection is selected and CBR measurement results are not available in case the *sl-TxPoolExceptional* is not used;

NOTE 3Ad: For Multi-consecutive slots transmission as specified in clause 8.1.4 of TS 38.214 [7], during resource (re)selection, leave it to UE implementation, regarding whether to calculate the number of HARQ retransmissions from the allowed numbers based on the number of MCSt transmissions, or the number of slot(s) within Multi-consecutive slots transmission.

4> 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) and pending SL-PRS transmission(s), if available 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 or the corresponding *sl-DefaultCBR-PartialSensing* configured by RRC if partial sensing is selected and CBR measurement results are not available, or the corresponding *sl-DefaultCBR-RandomSelection* configured by RRC if random selection is selected and CBR measurement results are not available in case the *sl-TxPoolExceptional* is not used;

3> if the selected resource pool is Dedicated SL-PRS resource pool:

4> select the number of SL-PRS retransmissions from the allowed numbers, if configured by RRC, in *sl-PRS-MaxNum-Transmissions* included in *sl-CBR-SL-PRS-TxConfigList*.

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> if the selected resource pool is not Dedicated SL-PRS resource pool:

6> 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, and the pool(s) in which all RB sets had Sidelink consistent LBT failure detected and not cancelled and the resources of which the lowest sub-channel includes intra cell guard band PRBs if *sl-transmissionStructureForPSCCHandPSSCH* is set to 'contiguousRB' are excluded, if configured, according to the amount of selected frequency resources, the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, allowed on the carrier, and the latency requirement of the triggered SL-CSI reporting.

5> if the selected resource pool is Dedicated SL-PRS resource pool:

6> randomly select the time and frequency resources for one transmission opportunity from the resource pool, according to the remaining SL-PRS delay budget of the SL-PRS transmission.

4> else:

5> if *sl-NRPSSCH-EUTRA-ThresRSRP-List* is configured by the RRC:

6> when SCS of NR SL is (pre-)configured as μ = 0:

7> 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.

6> when SCS of NR SL is (pre-)configured as *μ* = 1:

7> randomly select the time and frequency resources in the first of NR SL slots overlapping with an LTE SL subframe 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.

5> else if the selected resource pool is not Dedicated SL-PRS resource pool:

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] 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 remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, allowed on the carrier, and/or the latency requirement of the triggered SL-CSI reporting.

5> if the selected resource pool is Dedicated SL-PRS resource pool:

6> randomly select the time and frequency resources for one transmission opportunity from the resources indicated by physical layer as clasue 8.2.4 of TS 38.214 [7], according to the remaining SL-PRS delay budget of the SL-PRS transmission.

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

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

5> if the selected resource pool is not Dedicated SL-PRS resource pool:

6> randomly select the time and frequency resources for one transmission opportunity from the resources pool excluding all RB sets had Sidelink consistent LBT failure detected and not cancelled and the resources of which the lowest sub-channel includes intra cell guard band PRBs if *sl-transmissionStructureForPSCCHandPSSCH* is set to 'contiguousRB' are excluded, if configured according to the amount of selected frequency resources and the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, allowed on the carrier, and/or the latency requirement of the triggered SL-CSI reporting.

4> else:

5> if the selected resource pool is not Dedicated SL-PRS resource pool:

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, the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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 and if the selected resource pool is not Dedicated SL-PRS resource pool:

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, the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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 and if the selected resource pool is not Dedicated SL-PRS resource pool:

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, the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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, the remaining PDB of SL data available in the logical channel(s), and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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 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 reporting and the latency requirement of the Sidelink Inter-UE Coordination Information transmission, and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available.

3> if one or more SL-PRS retransmissions are selected and the selected resource pool is Dedicated SL-PRS resource pool:

4> randomly select the time and frequency resources for one or more transmission opportunities from the available resources, according to the selected number of retransmissions and the remaining SL-PRS delay budget 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> 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 if one or more HARQ retransmissions are selected and the selected resource pool is not Dedicated SL-PRS resource pool:

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> if *sl-NRPSSCH-EUTRA-ThresRSRP-List* is configured by the RRC:

7> when SCS of NR SL is (pre-)configured as *μ* = 0:

8> 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 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].

7> when SCS of NR SL is (pre-)configured as *μ* = 1:

8> randomly select the time and frequency resources in the second of NR SL slots of NR SL slots overlapping with an LTE SL subframe to which the selected transmission resources belongs, or select the time and frequency resources in the first of NR SL slots overlapping with an LTE SL subframe 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 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> else:

7> 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, and the pool(s) in which all RB sets with Sidelink consistent LBT failure detected and not cancelled and the resources of which the lowest sub-channel includes intra cell guard band PRBs if *sl-transmissionStructureForPSCCHandPSSCH* is set to 'contiguousRB' are excluded, if configured, 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 reporting, and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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 preferred resource set is not 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 excluding all RB sets had Sidelink consistent LBT failure detected and not cancelled and the resources of which the lowest sub-channel includes intra cell guard band PRBs if *sl-transmissionStructureForPSCCHandPSSCH* is set to 'contiguousRB' are excluded, if configured 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 reporting, and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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 reporting, and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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 reporting, and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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 reporting, and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available, 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 determines the resources for Sidelink Inter-UE Coordination Information transmission upon explicit request from a UE:

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 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 and the latency requirement of the Sidelink Inter-UE Coordination Information transmission, and the remaining SL-PRS delay budget of the SL-PRS transmission(s), if available.

4> consider a transmission opportunity which comes first in time as the initial transmission opportunity and other transmission opportunities as the retransmission opportunities;

4> consider all the transmission 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 PSCCH duration(s) and PSSCH duration(s) and the SL-PRS transmission occasion(s), if available, according to TS 38.214 [7] if the selected resource pool is not Dedicated SL-PRS resource pool or to determine the PSCCH duration(s) and SL-PRS transmission occasion(s) if the selected resource pool is Dedicated SL-PRS resource pool according to TS 38.214 [7].

NOTE 3Ae: MAC entity, based on UE implementation, decides whether to indicate the number of consecutive slots for Multi-consecutive slots transmission as specified in clause 8.1.4 of TS 38.214 [7] larger than 1.

NOTE 3Af: MAC entity, based on UE implementation, decides the value of the number of consecutive slots for Multi-consecutive slots transmission if it decides the number of consecutive slots for Multi-consecutive slots transmission larger than 1, as long as it meets the CAPC maximum COT duration requirement as specified in TS 37.213 [18].

NOTE 3Ag: When the MAC entity selects the time and frequency resources from the resources indicated by the physical layer as specified in clause 8.1.4 of TS 38.214 [7], it is up to the UE implementation whether to randomly select resources for transmission opportunities from the resources indicated by the physical layer or to select resources in consecutive slots by UE implementation from the resources indicated by the physical layer.

NOTE 3Ah: For a resource pool configured with PSFCH resource, UE cannot select consecutive slots for SL transmissions of a single TB for Multi-consecutive slots transmission.

NOTE 3Ai: UE may avoid selection of N consecutive resource(s) before a reserved resource of its own, where the selection of N is up to UE implementation from {0,1,2}. UE may avoid selection of M consecutive resource(s) after a reserved resource of its own, where the selection of M is up to UE implementation (at least including 0).

NOTE 3Aj: If configured, UE may avoid selection of N consecutive resource(s) before a reserved resource of other UE when the L1 SL priority value for the transmission is higher than the L1 SL priority value of the reserved resource, where the selection of N is up to UE implementation from {0,1,2}. UE may avoid selection of M consecutive resource(s) after a reserved resource of other UE when the transmitting symbols of the reserved resource overlap with LBT of its own selected resource, where the selection of M is up to UE implementation from {0,1,2}. It is up to UE implementation how the physical layer reports detected reserved resources to MAC layer.

NOTE 3Ak: If configured, if transmission in slot(s) at least $T\_{proc,0}^{SL}$ before a reserved resource of other UE is able to share its initiated COT to the reservation, UE may prioritize/select resource(s) in the slot(s) for transmission. It is up to UE implementation how the physical layer reports detected reserved resources to MAC layer.

NOTE 3Al: MAC entity, based on UE implementation, decides how to determine COT sharing cast type, COT sharing additional ID and remaining COT duration specified in TS 37.213 [18].

NOTE 3A1: If *sl-InterUE-CoordinationScheme1* enabling reception/transmission of preferred resource set and non-preferred resource set is configured by RRC and if multiple preferred resource sets are received from the same UE, it is up to UE implementation to use one or multiple of them in its resource (re)selection.

NOTE 3B1: 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.

NOTE 3B2: When the UE receives both a single preferred resource set and a single non-preferred resource set from the same peer UE or different peer UEs, when the UE has own sensing results, it is up to the UE implementation to use the preferred resource set in its resource (re)selection for transmissions to the peer UE providing the preferred resource set.

NOTE 3B3: The UE is not required to use any resource from the preferred resource set in its resource (re-)selection if that resource is earlier than ($T\_{proc,0}^{SL}$+$T\_{proc,1}^{SL}$+$T\_{proc,2}^{SL}$) after the resource of Inter-UE Coordination Information transmission, where $T\_{proc,2}^{SL}$ is equal to ($T\_{proc,0}^{SL}$+$T\_{proc,1}^{SL}$) when only MAC CE is used for inter-UE Coordination Information transmission, or $T\_{proc,2}^{SL}$ is equal to $T\_{proc,0}^{SL}$ when MAC CE and SCI format 2-C are both used for Inter-UE Coordination Information transmission. The case when $T\_{proc,2}^{SL}$ is equal to $T\_{proc,0}^{SL}$ is assuming that SCI format 2-C is received. $T\_{proc,0}^{SL}$ and $T\_{proc,1}^{SL}$ are specified in clause 8.1.4 of TS 38.214 [7].

NOTE 3B4: For Inter-UE Coordination Information triggered by an explicit Inter-UE Coordination Request in Scheme 1, whether or not to transmit the Inter-UE Coordination Information upon the Inter-UE Coordination Request reception is determined by UE implementation subject to Release-16 procedure of UL/SL prioritization, LTE SL/NR SL prioritization, and congestion control.

NOTE 3B5: If configured by RRC, *sl-IUC-Explicit* set to *enabled* and an SL-IUC request is received for the Source Layer-2 ID and Destination Layer-2 ID pair of a unicast, MAC layer indicates to physical layer the resource selection window, resource set type (i.e., preferred resource set), L1 priority, the number of sub-channels to be used for the PSSCH/PSCCH transmission and the resource reservation period for preferred resource set. If configured by RRC, *sl-IUC-Explicit* set to *enabled* and an SL-IUC request is received for the Source Layer-2 ID and Destination Layer-2 ID pair of a unicast, MAC layer indicates to physical layer resource set type (i.e., non-preferred resource set) and the resource selection window for non-preferred resource set.

NOTE 3B6: If either *sl-IUC-Explicit* or *sl-IUC-Condition* is configured as *enabled*,UE considers the reception of preferred and non-preferred resource is enabled.

NOTE 3B7: When *sl-TriggerConditionCoordInfo* is set to value 0, for groupcast or broadcast of Inter-UE Coordination Information triggered by a condition in Scheme 1, which Destination Layer-2 ID (and the corresponding cast-type) a UE selects among Destination Layer-2 IDs that are already used or interested in NR sidelink transmission is up to the UE implementation.

1> if a selected sidelink grant is available for retransmission(s) of a MAC PDU which has been positively acknowledged as specified in clause 5.22.1.3.1a, except a positive acknowledgement to Multi-consecutive slots transmission (i.e., multiple TBs case) of the MAC PDU and there is remaining slot(s) for this MAC PDU:

2> clear the PSCCH duration(s) and PSSCH duration(s) corresponding to retransmission(s) of the MAC PDU from the selected sidelink grant.

NOTE 3C: How the MAC entity determines the remaining PDB of SL data is left to UE implementation.

For a selected sidelink grant, the minimum time gap between any two selected resources comprises:

- For SL operation without shared spectrum channel access, a time gap between the end of the last symbol of a PSSCH transmission of the first resource and the start of the first symbol of the corresponding PSFCH reception determined by *sl-MinTimeGapPSFCH* and *sl-PSFCH-Period* for the pool of resources; and

- For SL operation with shared spectrum channel access, the time gap between the end of the last symbol of a PSSCH transmission of the first resource and the start of the first symbol of the last corresponding PSFCH reception occasion determined by *sl-MinTimeGapPSFCH*, *sl-NumPSFCH-Occasions* and *sl-PSFCH-Period* for the pool of resources; and

- a time required for PSFCH reception and processing plus sidelink retransmission preparation including multiplexing of necessary physical channels and any TX-RX/RX-TX switching time.

NOTE 4: How to determine the time required for PSFCH reception and processing plus sidelink retransmission preparation is left to UE implementation.

NOTE 4A: For the minimum time gap requirement on shared SL-PRS resource pool, the last symbol of a PSSCH transmission might be mapped to SL-PRS.

The MAC entity shall for each PSSCH duration not on Dedicated SL-PRS resource pool:

1> for each sidelink grant occurring in this PSSCH duration:

2> select a MCS table allowed in the pool of resource which is associated with the sidelink grant;

NOTE 4a: MCS table selection is up to UE implementation if more than one MCS table is configured.

2> if the MAC entity has been configured with Sidelink resource allocation mode 1 or Sidelink resource allocation Scheme 1 for SL-PRS transmission on Shared SL-PRS resource pool:

3> select a MCS which is, if configured, within the range that is configured by RRC between *sl-MinMCS-PSSCH* and *sl-MaxMCS-PSSCH* associated with the selected MCS table included in *sl-ConfigDedicatedNR*;

3> set the resource reservation interval to 0ms.

2> else if the MAC entity has been configured with Sidelink resource allocation mode 2 or Sidelink resource allocation Scheme 2 for SL-PRS transmission on Shared SL-PRS resource pool:

3> select a MCS which is, if configured, within the range, if configured by RRC, between *sl-MinMCS-PSSCH* and *sl-MaxMCS-PSSCH* associated with the selected MCS table included in *sl-PSSCH-TxConfigList* and, if configured by RRC, overlapped between *sl-MinMCS-PSSCH* and *sl-MaxMCS-PSSCH* associated with the selected MCS table indicated in *sl-CBR-PriorityTxConfigList* for the highest priority of the sidelink logical channel(s) in the MAC PDU or pending SL-PRS transmission(s), if available, 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 or the corresponding *sl-DefaultCBR-PartialSensing* configured by RRC if partial sensing is selected and CBR measurement results are not available, or the corresponding *sl-DefaultCBR-RandomSelection* configured by RRC if random selection is selected and CBR measurement results are not available in case the *sl-TxPoolExceptional* is not used;

3> if the MAC entity decides not to use the selected sidelink grant for the next PSSCH duration corresponding to an initial transmission opportunity:

4> set the resource reservation interval to 0ms.

3> else:

4> set the resource reservation interval to the selected value.

NOTE 5: MCS selection is up to UE implementation if the MCS or the corresponding range is not configured by RRC.

2> if the configured sidelink grant has been activated and this PSSCH duration corresponds to the first PSSCH transmission opportunity within this *sl-PeriodCG* of the configured sidelink grant:

3> set the HARQ Process ID to the HARQ Process ID associated with this PSSCH duration and, if available, all subsequent PSSCH duration(s) occuring in this *sl-PeriodCG* for the configured sidelink grant;

3> determine that this PSSCH duration is used for initial transmission;

3> flush the HARQ buffer of Sidelink process associated with the HARQ Process ID.

2> deliver the sidelink grant, the selected MCS, and the associated HARQ information to the Sidelink HARQ Entity for this PSSCH duration.

The MAC entity shall for each PSCCH duration on Dedicated SL-PRS resource pool:

1> if the MAC entity is not configured with multiple SL-PRS transmissions with Sidelink resource allocation scheme 2; or

1> if the MAC entity is configured with Sidelink resource allocation scheme 1:

2> set the resource reservation period to 0.

1> else if the MAC entity is configured with multiple SL-PRS transmission with Sidelink resource allocation scheme 2:

2> set the resource reservation period to the selected value.

1> if the configured sidelink grant has been activated and this PSSCH duration corresponds to the first PSSCH transmission opportunity within this *sl-PeriodCG* of the configured sidelink grant:

2> set the SL-PRS Process ID to the SL-PRS Process ID associated with this PSSCH duration and, if available, all subsequent SL-PRS transmission occasion(s) occuring in this *sl-PeriodCG* for the configured sidelink grant;

2> determine that this SL-PRS transmission occasion is used for initial transmission.

1> process the sidelink grant according to clause 5.22.1.3.4 with the corresponding SL-PRS transmission information.

For configured sidelink grants not on Dedicated SL-PRS resource pool, the HARQ Process ID associated with the first slot of an SL transmission is derived from the following equation:

 HARQ Process ID = [floor(CURRENT\_slot / *PeriodicitySL*)] modulo *sl-NrOfHARQ-Processes*
 + *sl-HARQ-ProcID-offset*

For configured sidelink grant on Dedicated SL-PRS resource pool, the SL-PRS Process ID associated with the first slot of an SL transmission is derived from the following equation:

 SL-PRS Process ID = [floor(CURRENT\_slot / *PeriodicitySL*)] modulo *[nrOfSL-PRSProc]*

where CURRENT\_slot refers to current logical slot in the associated resource pool, and *PeriodicitySL* is defined in clause 5.8.3.

====================================NEXT CHANGE====================================

##### 5.22.1.3.1 Sidelink HARQ Entity

The MAC entity is configured by upper layers to transmit using pool(s) of resources on one or more carriers as indicated in clause 5.8.8 of TS 38.331 [5]. For each carrier, the MAC entity includes at most one Sidelink HARQ entity for transmission on SL-SCH, which maintains a number of parallel Sidelink processes.

The maximum number of transmitting Sidelink processes associated with the Sidelink HARQ Entity is 16. A sidelink process may be configured for transmissions of multiple MAC PDUs. For transmissions of multiple MAC PDUs with Sidelink resource allocation mode 2, the maximum number of transmitting Sidelink processes associated with the Sidelink HARQ Entity is 4.

A delivered sidelink grant and its associated Sidelink transmission information are associated with a Sidelink process. Each Sidelink process supports one TB.

NOTE: For SL-PRS transmission on Dedicated SL-PRS resource pool, the maximum number of SL-PRS the UE should support is left to UE implementation.

For each sidelink grant, the Sidelink HARQ Entity shall:

1> if the MAC entity determines that the sidelink grant is used for initial transmission as specified in clause 5.22.1.1; or

1> if the sidelink grant is a configured sidelink grant and no MAC PDU has been obtained in an *sl-PeriodCG* of the configured sidelink grant; or

1> if the sidelink grant is a dynamic sidelink grant or selected sidelink grant and no MAC PDU has been obtained in the previous sidelink grant when PSCCH duration(s) and 2nd stage SCI on PSSCH of the previous sidelink grant is not in SL DRX Active time as specified in clause 5.28.3 of any destination that has data to be sent:

NOTE 1: Void.

2> (re-)associate a Sidelink process to this grant, and for the associated Sidelink process:

2> if all PSCCH duration(s) and PSSCH duration(s) for initial transmission of a MAC PDU of the dynamic sidelink grant or the configured sidelink grant is not in SL DRX Active time as specified in clause 5.28.3 of the destination that has data to be sent:

3> ignore the sidelink grant.

NOTE 1A: The Sidelink HARQ Entity will associate the selected sidelink grant to the Sidelink process determined by the MAC entity.

2> else:

3> obtain the MAC PDU and SL-PRS, if any, to transmit from the Multiplexing and assembly entity, if any;

3> if a MAC PDU to transmit has been obtained:

4> if a HARQ Process ID has been set for the sidelink grant:

5> (re-)associate the HARQ Process ID corresponding to the sidelink grant to the Sidelink process.

NOTE 1a: There is one-to-one mapping between a HARQ Process ID and a Sidelink process in the MAC entity configured with Sidelink resource allocation mode 1.

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

5> set the Source Layer-1 ID to the 8 LSB of the Source Layer-2 ID of the MAC PDU;

5> set the Destination Layer-1 ID to the 16 LSB of the Destination Layer-2 ID of the MAC PDU;

5> (re-)associate the Sidelink process to a Sidelink process ID;

NOTE 1b: How UE determine Sidelink process ID in SCI is left to UE implementation for NR sidelink.

5> consider the NDI to have been toggled compared to the value of the previous transmission corresponding to the Sidelink identification information and the Sidelink process ID of the MAC PDU and set the NDI to the toggled value;

NOTE 2: The initial value of the NDI set to the very first transmission for the associated Sidelink process is left to UE implementation.

NOTE 3: Void.

5> if the MAC PDU is for NR sidelink discovery:

6> set the cast type indicator to broadcast.

5> else:

6> if the MAC PDU includes only Sidelink MAC CE(s):

7> if the MAC PDU includes only Sidelink Inter-UE Coordination Information MAC CE indicating non-preferred resource set and triggered by a condition other than the explicit request:

8> set the cast type indicator to one of broadcast, groupcast and unicast.

7> else:

8> set the cast type indicator to unicast.

6> else:

7> set the cast type indicator to one of broadcast, groupcast and unicast as indicated by upper layers.

5> if HARQ feedback has been enabled for the MAC PDU according to clause 5.22.1.4.2;

6> set the HARQ feedback enabled/disabled indicator to *enabled*.

5> else:

6> set the HARQ feedback enabled/disabled indicator to *disabled*.

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 and SL-PRS, if any;

NOTE 3A: When determining Sidelink transmission information, the priority of the Sidelink Inter-UE Coordination Information MAC CE is the value configured in RRC parameters *sl-PriorityCoordInfoCondition* when triggered by a condition, or *sl-PriorityCoordInfoExplicit* when triggered by an explicit request. When determining Sidelink transmission information, the priority of the Sidelink Inter-UE Coordination Request MAC CE is the value configured in RRC parameter *sl-PriorityRequest*. When determining Sidelink transmission information, the priority of the Sidelink Inter-UE Coordination Information MAC CE is the value indicated in Priority field in the Sidelink Inter-UE Coordination Request MAC CE provided by the UE when triggered by an explicit request, if *sl-PriorityCoordInfoExplicit-r17* is not configured. When determining Sidelink transmission information for performing sensing and candidate resource selections in PHY, the priority value of the Sidelink Inter-UE Coordination Information MAC CE triggered under a condition is up to UE implementation, if *sl-PriorityCoordInfoCondition-r17* is not configured. When determining Sidelink transmission information for performing sensing and candidate resource selections in PHY, the priority value of Sidelink Inter-UE Coordination Request MAC CE is the same as that of a TB to be transmitted by the UE, if *sl-PriorityRequest-r17* is not configured.

5> if HARQ feedback is enabled for groupcast:

6> if both a group size and a member ID are provided by upper layers and the group size is not greater than the number of candidate PSFCH resources in a slot associated with this sidelink grant:

7> select either positive-negative acknowledgement or negative-only acknowledgement.

NOTE 4: Selection of positive-negative acknowledgement or negative-only acknowledgement is up to UE implementation.

6> else:

7> select negative-only acknowledgement.

NOTE 5: UE operating in SL unlicensed does not use negative-only acknowledgement for groupcast HARQ feedback.

6> if negative-only acknowledgement is selected, UE's location information is available, and *sl-TransRange* has been configured for a logical channel in the MAC PDU, and *sl-ZoneConfig* is configured as specified in TS 38.331 [5]:

7> set the communication range requirement to the value of the longest communication range of the logical channel(s) in the MAC PDU;

7> determine the value of *sl-ZoneLength* corresponding to the communication range requirement and set Zone\_id to the value of Zone\_id calculated using the determined value of *sl-ZoneLength* as specified in TS 38.331 [5].

5> set the Redundancy version to the selected value.

5> if the upper layers triggers the SL-PRS transmission of the peer UE identified by the Destination layer-2 ID:

6> set the SL-PRS request to *request*.

5> set the SL-PRS resource ID, if SL-PRS is available, within Sidelink transmission information.

NOTE 6: The SL-PRS resource ID(s) for initial transmission and retransmission(s) are determined by the UE's own upper layers by implementation.

4> deliver the MAC PDU, the SL-PRS, if available, the sidelink grant and the Sidelink transmission information of the TB and/or the SL-PRS to the associated Sidelink process;

4> instruct the associated Sidelink process to trigger a new transmission.

3> else:

4> flush the HARQ buffer of the associated Sidelink process.

1> else (i.e. retransmission):

2> if the HARQ Process ID corresponding to the sidelink grant received on PDCCH, the configured sidelink grant or the selected sidelink grant is associated to a Sidelink process of which HARQ buffer is empty; or

2> if the HARQ Process ID corresponding to the sidelink grant received on PDCCH is not associated to any Sidelink process; or

2> if PSCCH duration(s) and PSSCH duration(s) for one or more retransmissions of a MAC PDU of the dynamic sidelink grant or the configured sidelink grant is not in SL DRX Active time as specified in clause 5.28.3 of the destination that has data to be sent:

3> ignore the sidelink grant.

2> else:

3> identify the Sidelink process associated with this grant, and for the associated Sidelink process:

4> set the SL-PRS resource ID, if SL-PRS is available, within Sidelink transmission information;

4> deliver the sidelink grant and the Sidelink transmission information of the MAC PDU and the SL-PRS, if available, to the associated Sidelink process;

4> instruct the associated Sidelink process to trigger a retransmission.

=================================NEXT CHANGE======================================

#### 5.22.1.5 Scheduling Request

In addition to clause 5.4.4, the Scheduling Request (SR) is also used for requesting SL-SCH resources for new transmission when triggered by the Sidelink BSR (clause 5.22.1.6) or the SL-CSI reporting (clause 5.22.1.7) or SL-DRX Command indication. The Scheduling Request (SR) is also used for requesting SL-PRS resources for new transmission when triggered by SL-PRS resource request (clause 6.1.3.74). If configured, the MAC entity performs the SR procedure as specified in this clause unless otherwise specified in clause 5.4.4. For a sidelink logical channel or for SL-CSI reporting or for SL-DRX Command indication or for Sidelink consistent LBT failure recovery or for SL-PRS Resource Request, at most one PUCCH resource for SR is configured per UL BWP.

The SR configuration of the logical channel that triggered the Sidelink BSR (clause 5.22.1.6) is also considered as corresponding SR configuration for the triggered SR (clause 5.4.4). The value of the priority of the triggered SR corresponds to the value of priority of the logical channel that triggered the SR.

Each sidelink logical channel and Sidelink consistent LBT failure recovery may be mapped to zero or one SR configuration, which is configured by RRC. If the SL-CSI reporting procedure is enabled by RRC, the SL-CSI reporting is mapped to one SR configuration for all PC5-RRC connections. The SR configuration of the SL-CSI reporting triggered according to 5.22.1.7 is considered as corresponding SR configuration for the triggered SR (clause 5.4.4). The value of the priority of the triggered SR triggered by SL-CSI reporting corresponds to the value of the priority of the Sidelink CSI Reporting MAC CE. The SR configuration of the SL-CSI reporting is considered as corresponding SR configuration for the triggered SR of SL-DRX Command indication triggered according to 5.28.3. The value of the priority of the triggered SR triggered by SL-DRX Command indication corresponds to the value of the priority of the Sidelink DRX Command MAC CE. The SR configuration of the Sidelink consistent LBT failure recovery triggered according to 5.31.2 is considered as corresponding SR configuration for the triggered SR (clause 5.4.4). The value of the priority of the triggered SR triggered by Sidelink consistent LBT failure recovery corresponds to the value of the priority of the SL LBT failure MAC CE. SL-PRS resource request may be mapped to zero or one SR configuration, which is configured by RRC. The value of the priority of the triggered SR triggered by SL-PRS resource request corresponds to the lowest value of the priority of all SL-PRS(s) indicated in the SL-PRS Resource Request MAC CE.

All pending SR(s) triggered according to the Sidelink BSR procedure (clause 5.22.1.6) prior to the MAC PDU assembly shall be cancelled and each respective *sr-ProhibitTimer* shall be stopped when the MAC PDU is transmitted and this PDU includes an SL-BSR MAC CE which contains buffer status up to (and including) the last event that triggered a Sidelink BSR (see clause 5.22.1.4) prior to the MAC PDU assembly.

All pending SR(s) triggered according to the Sidelink consistent LBT failure recovery (clause 5.31.2) shall be cancelled and each respective *sr-ProhibitTimer* shall be stopped when the MAC PDU is transmitted and this PDU includes an SL LBT failure MAC CE that indicates Sidelink consistent LBT failure or when all the triggered Sidelink consistent LBT failure(s) for an SL BWP is cancelled.

All pending SR(s) triggered according to the Sidelink BSR procedure (clause 5.22.1.6) shall be cancelled and each respective *sr-ProhibitTimer* shall be stopped when the SL grant(s) can accommodate all pending data available for transmission in sidelink.

If there is pending SR triggered by Sidelink consistent LBT failure recovery which has no corresponding SR configuration, MAC entity initiate a Random Access procedure (see clause 5.1) on the Serving Cell and cancel the pending SR.

The pending SR triggered according to the SL-CSI reporting for a destination shall be cancelled and each respective *sr-ProhibitTimer* shall be stopped when the SL grant(s) can accommodate the Sidelink CSI Reporting MAC CE when the SL-CSI reporting that has been triggered but not cancelled or when the triggered SL-CSI reporting is cancelled due to latency non-fulfilment as specified in 5.22.1.7. The pending SR triggered according to the SL-DRX Command indication for a destination shall be cancelled and each respective *sr-ProhibitTimer* shall be stopped when the SL grant(s) can accommodate the Sidelink DRX Command MAC CE when the SL-DRX Command indication that has been triggered but not cancelled. All pending SR(s) triggered by either Sidelink BSR or Sidelink CSI report or Sidelink DRX Command indication shall be cancelled, when RRC configures Sidelink resource allocation mode 2.

All pending SR(s) triggered according to the SL-PRS Resource Request procedure (clause 5.22.1.12) prior to the MAC PDU assembly shall be cancelled and each respective *sr-ProhibitTimer* shall be stopped when the MAC PDU is transmitted and this PDU includes an SL-PRS Resource Request MAC CE which contains status of the pending SL-PRS transmission(s) up to (and including) the last event that triggered a SL-PRS Resource Request (see clause 5.22.1.12) prior to the MAC PDU assembly.

All pending SR(s) triggered according to the SL-PRS Resource Request procedure (clause 5.22.1.12) shall be cancelled and each respective *sr-ProhibitTimer* shall be stopped when the SL grant(s) can accommodate the all the pending SL-PRS transmission(s).

=================================NEXT CHANGE======================================

#### 5.22.1.11 TX carrier (re-)selection

The MAC entity shall consider a CBR of a carrier to be one measured by lower layers according to TS 38.215 [24] if CBR measurement results are available, or the corresponding *sl-DefaultTxConfigIndex* configured by upper layers if CBR measurement results are not available.

If the TX carrier (re-)selection is triggered for a Sidelink process according to clause 5.22.1.1, 5.22.1.2 or 5.22.1.3.3, the MAC entity shall:

1> if there is no selected sidelink grant on any carrier allowed for the sidelink logical channel where data is available as indicated by upper layers (TS 38.331 [5] and TS 23.287 [19]):

2> for each carrier configured by upper layers associated with the concerned sidelink logical channel:

3> if the CBR of the carrier is below *sl-threshCBR-FreqReselection* associated with the priority of the sidelink logical channel:

NOTE 1: In the case of multiple resource pools configured on a carrier, which specific resource pool is used to determine the CBR of this carrier is up to UE implementation, taking into account of *sl-HARQ-FeedbackEnabled* for the sidelink logical channel.

4> consider the carrier as a candidate carrier for TX carrier (re-)selection for the concerned sidelink logical channel.

1> else:

2> for each sidelink logical channel, if any, where data is available and that are allowed on the carrier for which Tx carrier (re-)selection is triggered according to clause 5.22.1.1, if the CBR of the carrier is below *sl-threshCBR-FreqKeeping* associated with priority of the sidelink logical channel, for each sidelink logical channel, if any, where data is available and that are allowed on the carrier for which Tx carrier (re-)selection is triggered according to clause 5.22.1.1:

3> select the carrier and the associated pool of resources.

2> else:

3> for each carrier configured by upper layers on which the sidelink logical channel is allowed, if the CBR of the carrier is below *sl-threshCBR-FreqReselection* associated with the priority of the sidelink logical channel:

4> consider the carrier as a candidate carrier for TX carrier (re-)selection, for each carrier configured by upper layers on which the sidelink logical channel is allowed.

NOTE 2: For the carriers configured in *SIB12* and for which SL-PRS transmission is allowed, the UE selects one carrier for SL-PRS among the selected carriers per above procedure, and which one the UE selects is up to UE implementation.

The MAC entity shall select a carrier on which the SL-CSI Request was received as a carrier for transmission of a Sidelink CSI Reporting MAC CE. The MAC entity shall for the Sidelink CSI Reporting MAC CE select any pool of resources among the pools of resources except the pool(s) in *sl-BWP-DiscPoolConfig*, *sl-BWP-DiscPoolConfigCommon*, *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X*, if configured or Dedicated SL-PRS resource pool, if configured.

The MAC entity shall select a carrier on which a Sidelink Inter-UE Coordination Request was received as a carrier for transmission of a Sidelink Inter-UE Coordination Information MAC CE. The MAC entity shall for the Sidelink Inter-UE Coordination Information MAC CE select any pool of resources among the pools of resources except the pool(s) in *sl-BWP-DiscPoolConfig*, *sl-BWP-DiscPoolConfigCommon*, *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X*, if configured or Dedicated SL-PRS resource pool, if configured.

The MAC entity shall:

1> if one or more carriers are considered as the candidate carriers for TX carrier (re-)selection:

2> if Tx carrier (re-)selection is triggered, for each sidelink logical channel allowed on the carrier where data is available:

3> select one or more carrier(s) among the candidate carriers with increasing order of CBR from the lowest CBR, and select the associated pool(s) of resources:

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

5> select one pool of resources configured with PSFCH resources among the pools of resources except the pool(s) in *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon*, *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X*, if configured or Dedicated SL-PRS resource pool, if configured.

4> else:

5> select any pool of resources among the pools of resources except the pool(s) in *sl-BWP-DiscPoolConfig* or *sl-BWP-DiscPoolConfigCommon*, *sl-BWP-PoolConfigA2X* or *sl-BWP-PoolConfigCommonA2X*, if configured or Dedicated SL-PRS resource pool, if configured.

NOTE 3: It is left to UE implementation how many carriers to select based on UE capability.

NOTE 4: It is left to UE implementation to determine the sidelink logical channels among the sidelink logical channels where data is available and that are allowed on the carrier for which Tx carrier (re-) selection is triggered.

NOTE 5: It is left to UE implementation to determine whether the resource pool for CBR measurement is reused as the resource pool for SL grant creation.

NOTE 6: For the transmission of Sidelink Inter-UE Coordination Request MAC CE, the MAC entity selects the TX pool of resource where the IUC resource set is required. For the transmission of Sidelink Inter-UE Coordination Information MAC CE, the MAC entity selects the TX pool of resource where the IUC resource set is located.

===================================NEXT CHANGE=====================================

## 5.26 Positioning SRS transmission in RRC\_INACTIVE

### 5.26.1 General

Periodic and semi-persistent Positioning SRS with or without positioning SRS bandwidth aggregation can be configured for Positioning SRS transmission in RRC\_INACTIVE.

SRS for positioning Tx frequency hopping as in clause 5.32 can also be configured for Positioning SRS transmission in RRC\_INACTIVE.

The MAC entity shall,

1> if the TA of the configured Positioning SRS is valid according to clause 5.26.2, and the conditions for positioning SRS transmission in clause 7.3.1 of TS 38.213 [6] and clause 6.2.1.4 of TS 38.214 [7] are satisfied:

2> if the UE is configured with UTW and the *UplinkTimeWindowTimer* is running according to clause 5.32; or

2> if the UE is not configured with UTW:

3> instruct to the lower layer according to TS 38.214 [7] to transmit Positioning Periodic SRS or Semi-Persistent SRS that is activated according to clause 5.18.17 or clause 5.18.37.

===================================NEXT CHANGE====================================

#### 6.1.3.36 SP Positioning SRS Activation/Deactivation MAC CE

The SP Positioning SRS Activation/Deactivation MAC CE is identified by a MAC subheader with eLCID as specified in Table 6.2.1-1b. It has a variable size with following fields:

- A/D: This field indicates whether to activate or deactivate indicated SP Positioning SRS resource set. The field is set to 1 to indicate activation, otherwise it indicates deactivation;

- Positioning SRS Resource Set's Cell ID: This field indicates the identity of the Serving Cell, which contains activated/deactivated SP Positioning SRS Resource Set. If the C field is set to 0, this field also indicates the identity of the Serving Cell which contains all resources indicated by the Spatial Relation for Resource IDi fields, if present. The length of the field is 5 bits;

- Positioning SRS Resource Set's BWP ID: This field indicates a UL BWP as the codepoint of the DCI *bandwidth part indicator* field as specified in TS 38.212 [9], which contains activated/deactivated SP Positioning SRS Resource Set. If the C field is set to 0, this field also indicates the identity of the BWP which contains all resources indicated by the Spatial Relation for Resource IDi fields, if present. The length of the field is 2 bits;

- C: This field indicates whether the octets containing Resource Serving Cell ID field(s) and Resource BWP ID field(s) within the field Spatial Relation for Resource ID i are present, except for Spatial Relation Resource IDi with DL-PRS or SSB. When A/D is set to 1, if this field is set to 1, the octets containing Resource Serving Cell ID field(s) and Resource BWP ID field(s) in the field Spatial Relation for Resource IDi are present, otherwise if this field is set to 0, they are not present. When A/D is set to 0, this field is always set to 0 that they are not present;

- SUL: This field indicates whether the MAC CE applies to the NUL carrier or SUL carrier configuration. This field is set to 1 to indicate that it applies to the SUL carrier configuration, and it is set to 0 to indicate that it applies to the NUL carrier configuration;

- Positioning SRS Resource Set ID: This field indicates the SP Positioning SRS Resource Set identified by *SRS-PosResourceSetId* as specified in TS 38.331 [5], which is to be activated or deactivated. The length of the field is 4 bits;

- Spatial Relation for Resource IDi: The field Spatial Relation for Resource IDi is only present if MAC CE is used for activation, i.e. the A/D field is set to 1. M is the total number of Positioning SRS resource(s) configured under the SP Positioning SRS resource set indicated by the field Positioning SRS Resource Set ID. There are 4 types of Spatial Relation for Resource IDi, which is indicated by the F (F0 and F1) field within. The fields within Spatial Relation for Resource IDi are shown in Figures 6.1.3.36-2 to 6.1.3.36-5 for the 4 types of Spatial Relations for Resource IDi;

- S: This field indicates whether the fields Spatial Relation for Resource IDi for the positioning SRS resource i within the positioning SRS resource set are present. If the field is set to 1, the fields Spatial Relation for Resource IDi are present; otherwise, they are absent;

- R: Reserved bit, set to 0.



Figure 6.1.3.36-1: SP Positioning SRS Activation/Deactivation MAC CE



Figure 6.1.3.36-2: Spatial Relation for Resource IDi with NZP CSI-RS



Figure 6.1.3.36-3: Spatial Relation for Resource IDi with SSB



Figure 6.1.3.36-4: Spatial Relation for Resource IDi with SRS



Figure 6.1.3.36-5: Spatial Relation for Resource IDi with DL-PRS

The field Spatial Relation for Resource IDi consists of the following fields:

- F0: This field indicates the type of a resource used as a spatial relation for the ith Positioning SRS resource within the Positioning SRS Resource Set indicated with the field Positioning SRS Resource Set ID. The field is set to 00 to indicate NZP CSI-RS resource index is used; it is set to 01 to indicate SSB index is used; it is set to 10 to indicate SRS resource index is used; it is set to 11 to indicate DL-PRS index is used. The length of the field is 2 bits;

- F1: This field indicates the type of SRS resource used as spatial relation for the ith Positioning SRS resource within the SP Positioning SRS Resource Set indicated with the field Positioning SRS Resource Set ID when F0 is set to 10. The field is set to 0 to indicate SRS resource index *SRS-ResourceId* as defined in TS 38.331 [5] is used; the field is set to 1 to indicate Positioning SRS resource index *SRS-PosResourceId* as defined in TS 38.331 [5] is used;

- NZP CSI-RS Resource ID: This field contains an index of *NZP-CSI-RS-ResourceID*, as specified in TS 38.331 [5], indicating the NZP CSI-RS resource, which is used to derive the spatial relation for the positioning SRS. The length of the field is 8 bits;

- SSB index: This field contains an index of SSB *SSB-Index* as specified in TS 38.331 [5] and/or TS 37.355 [23]. The length of the field is 6 bits;

- PCI: This field contains physical cell identity *PhysCellId* as specified in TS 38.331 [5] and/or TS 37.355 [23]. The length of the field is 10 bits;

- SRS resource ID: When F1 is set to 0, the field indicates an index for SRS resource *SRS-ResourceId* as defined in TS 38.331 [5]; When F1 is set to 1, the field indicates an index for Positioning SRS resource *SRS-PosResourceId* as defined in TS 38.331 [5]. The length of the field is 5 bits representing the index from 0 to 31;

- E: This field indicates the extension of SRS resource ID as the MSB of SRS resource ID. The total length of the extended SRS resource ID is 6 bits. If E bit is set to 1, the SRS resource ID value is 5-bit SRS resource ID field + 32;

- DL-PRS Resource Set ID: This field contains an index for DL-PRS Resource Set *nr-DL-PRS-ResourceSetId* as defined in TS 37.355 [23]. The length of the field is 3 bits;

- DL-PRS Resource ID: This field contains an index for DL-PRS resource *nr-DL-PRS-Resource-Id* as defined in TS 37.355 [23]. The length of the field is 6 bits;

- DL-PRS ID: This field contains an identity for DL-PRS resource *dl-PRS-ID* as defined in TS 37.355 [23]. The length of the field is 8 bits;

- PI: This field indicates whether the field DL-PRS resource ID is present within the Spatial Relation for Resource IDi with DL-PRS. If the field is set to 1, the octet containing the field DL-PRS resource ID is present; otherwise, the octet is omitted;

- SI: This field indicates whether the field SSB index is present within the Spatial Relation for Resource IDi with SSB. If the field is set to 1, the octet containing the field SSB index is present; otherwise, the octet is omitted;

- Resource Serving Cell IDi: This field indicates the identity of the Serving Cell on which the resource used for spatial relationship derivation for the ith Positioning SRS resource is located. The length of the field is 5 bits;

- Resource BWP IDi: This field indicates a UL BWP as the codepoint of the DCI *bandwidth part indicator* field as specified in TS 38.212 [9], on which the resource used for spatial relationship derivation for the ith Positioning SRS resource is located. The length of the field is 2 bits.

=====================================NEXT CHANGE===================================

#### 6.1.3.74 SL-PRS Resource Request MAC CE

The SL-PRS Resource Request MAC CE is identified by a MAC subheader with eLCID as specified in Table 6.2.1-2b. It has the following fields:

- Destination index: The Destination Index field identifies the destination. The length of this field is 5 bits. The value is set to one index corresponding to SL destination identity associated to same destination reported in *sl-PosTxResourceReqList* if present. The value is indexed sequentially from 0 in the same ascending order of SL destination identity in *sl-PosTxResourceReqList* as specified in TS 38.331 [5]. When multiple lists are reported, the value is indexed sequentially across all the lists in the same order as presented in *SidelinkUEInformaitonNR* message;

- SL-PRS priority: Priority of pending SL-PRS transmission. The length of this field is 3 bits;

- SL-PRS Bandwidth: Requested minimum bandwidth of pending SL-PRS transmission. The length of this field is 5 bits. Encoding of this field is the same as *sl-PRS-Bandwidth* in IE *SL-PRS-QoS-Info* as specified in TS 38.331 [5] that codepoint value 0 corresponds to the value "mhz5" of the field *sl-PRS-Bandwidth*, codepoint value 1 corresponds to the value "mhz10" of the field *sl-PRS-Bandwidth*, and so on;

- R: Reserved bit, set to 0.



Figure 6.1.3.74-1: SL-PRS Resource Request MAC control element

====================================NEXT CHANGE====================================

#### 6.1.3.83 Aggregated SP Positioning SRS Activation/Deactivation MAC CE

The Aggregated SP Positioning SRS Activation/Deactivation MAC CE is identified by a MAC subheader with eLCID as specified in Table 6.2.1-1b. It has a variable size with following fields:

- Positioning SRS Aggregation ID: This field indicates one of the combinations of linked Positioning SRS Resource Sets corresponding to *SRS-PosResourceSetAggBW-CombinationList* or *SRS-PosRRC-AggBW-InactiveConfigList* specified in TS 38.331 [5]. Value 0 corresponds to the first entry within the list *SRS-PosResourceSetAggBW-CombinationList* or *SRS-PosRRC-AggBW-InactiveConfigList*; value 1 corresponds to the second entry within the list *SRS-PosResourceSetAggBW-CombinationList* or *SRS-PosRRC-AggBW-InactiveConfigList* and so on;

- C1, C2, C3: These fields indicate the activation/deactivation status of each Positioning SRS Resource Set that is linked for SRS for positioning bandwidth aggregation configured in *PosResourceSetLinkedForAggBW-List* or *SRS-InactivePosResourceSetLinkedForAggBW-List* specified in TS 38.331 [5]. C1 corresponds to the first entry in *PosResourceSetLinkedForAggBW-List* or *SRS-InactivePosResourceSetLinkedForAggBW-List*, C2 corresponds to the second one and so on.The Ci field is set to 1 to indicate that the Positioning SRS Resource Set corresponding to Ci shall be activated. The Ci field is set to 0 to indicate that the Positioning SRS Resource Set corresponding to Ci shall be de-activated;

- S: This field indicates whether the fields Spatial Relation for Resource IDi are present. If the field is set to 1, the fields Spatial Relation for Resource IDi are present; otherwise, they are absent;

- Spatial Relation for Resource IDi: The field Spatial Relation for Resource IDi is only present if MAC CE is used for activation, i.e. at least one of the C1, C2, and C3 is set to 1. There can be as many as 16 entries of Spatial Relation for Resource IDi depending on the RRC configuration. There are 4 types of Spatial Relation for Resource IDi, which is indicated by the F (F0 and F1) field within, defined as in Figure 6.1.3.36-2 to 6.1.3.36-5 in clause 6.1.3.36. Spatial Relation for Resource IDi corresponds to the spatial relation of theith SRS resource of the SRS resources within the first activated carrier indicated by the fields C1, C2 and C3, that is aggregated with SRS resources from the other aggregated carriers according to TS 38.214 [7];

- C: This field indicates whether the octets containing Resource Serving Cell ID field(s) and Resource BWP ID field(s) within the field Spatial Relation for Resource ID i are present, except for Spatial Relation Resource IDi with DL-PRS or SSB. If the combination of the linked SRS resource sets is configured by the field *SRS-PosResourceSetAggBW-CombinationList* and this field is set to 1, the octets containing Resource Serving Cell ID field(s) and Resource BWP ID field(s) in the field Spatial Relation for Resource IDi are present, otherwise if this field is set to 0, they are not present; if the combination of the linked SRS resource sets is configured by the field *SRS-PosRRC-AggBW-InactiveConfigList*, this field shall be set to 0 and the octets containing Resource Serving Cell ID field(s) and Resource BWP ID field(s) in the field Spatial Relation for Resource IDi are not present;

- R: Reserved bit, set to 0.



Figure 6.1.3.83-1: Aggregated SP Positioning SRS Activation/Deactivation MAC CE

====================================CHANGE ENDS====================================