1. **R2-2406554**

This document makes the following proposals

1. It is suggested to explicitly mention that for unicast, carrier selection is also performed at MAC layer, in TS 38.300
2. Proposal 2 It is suggested to adopt the TP in the annex

|  |
| --- |
| TP1  16.9.10 Sidelink CA  Carrier aggregation (CA) in sidelink is supported for mode 2 and in V2X case only. It applies to both in coverage UEs and out of coverage UEs. Each resource pool (pre)configured for sidelink is associated to a single carrier. A UE using mode 2 resource allocation performs carrier (re)selection and may select one or more carriers used for sidelink.  The carrier(s) that can be used for transmitting data are provided by the V2X layer per QoS flow, and LCP ensures that data from a SLRB is transmitted on a carrier for which all mapped QoS flows are allowed to use the carrier.  For groupcast and broadcast, when the V2X layer provides multiple carriers in QoS flow to carrier mapping information to the AS, TX profile is used to indicate whether the transmission corresponding to the QoS flow is backward compatible or not. When backward compatibility is needed, the TX UE uses only the legacy carrier without PDCP duplication, or uses PDCP duplication with at least the legacy carrier. A UE assumes backward compatibility is needed for the QoS flow if there is no associated TX profile.  For groupcast and broadcast, carrier selection is performed at MAC layer, depending on the CBR of the configured carriers and logical channel priority. In order to avoid frequent switching across different carriers, the UE may keep using a carrier already selected for transmission, if the measured CBR on this carrier is lower than a (pre)configured threshold. For a UE using mode 2 resource allocation, logical channel prioritization is performed for a sidelink resource on a carrier depending on the CBR measured on the carrier and the logical channel priority, as specified in TS 38.321 [6]. For unicast, SL CA related capability is exchanged between the TX UE and RX UE, and the TX UE delivers the carrier configuration to the RX UE in PC5-RRC. For unicast, carrier selection and logical channel prioritization is performed at MAC layer, similar to groupcast and broadcast among the carriers configured in the carrier configuration. SL CA for unicast is not applied until the carrier configuration signalling is complete. When the TX UE detects carrier failure on a specific carrier, carrier (re)selection is performed by excluding the failed carrier, as specified in TS 38.321 [6] and a new carrier configuration is sent to the RX UE as specified in TS 38.331 [12].  Sidelink packet duplication is supported for sidelink CA and is performed at PDCP layer. For sidelink packet duplication for transmission, a PDCP PDU is duplicated at the PDCP entity. The duplicated PDCP PDUs of the same PDCP entity are submitted to two different RLC entities and associated to two different sidelink logical channels respectively. The duplicated PDCP PDUs of the same PDCP entity are only allowed to be transmitted on different sidelink carriers. For a SL DRB, sidelink packet duplication is either (pre)configured in the bearer configuration if the TX profile indicates backward compatibility is not needed, or is decided by the TX UE if the TX profile indicates backward compatibility is needed. For applicable SL SRBs, whether to use duplication is decided by the TX UE. In unicast, the TX UE sends the duplication configuration to the RX UE in PC5-RRC.  There are specified logical channel identities which apply to the sidelink logical channel used for sidelink packet duplication exclusively as specified in TS 38.321 [6]. |

In rapporteur’s understanding, the sentence “For unicast, carrier selection and logical channel prioritization is performed similar to groupcast and broadcast among the carriers configured in the carrier configuration.” means that carrier selection and LCP for unicast is done similar to groupcast/broadcast. This includes that these operations are being done in the MAC layer for all cast types.

Rapporteur believes that this CR is not needed and the text is already clear.

|  |  |  |
| --- | --- | --- |
| **Company Name** | **Is R2-2406554 needed?** | **Comments** |
| InterDigital | Not needed. | See rapporteur comments above. |
| Huawei, HiSilicon | Maybe not critical to change, there are texts "similar to groupcast and broadcast" seems to restrict already that the carrier selection and LCP is done at MAC layer. Can follwo majority view. |  |
| vivo | Not necessary. |  |
| Lenovo | Agree with rapp’s comments, not needed |  |
| Apple | No. Agree with rapporteur |  |

**Conclusion: R2-2406554 is not needed.**

1. **R2-2407388**

In this document, the following cause for change is given:

“Duplication is now supported in SL CA over PC5 interface, and the corresponding change needs to be made in the description of the PDCP service.”

The proposed change to section 16.9.2.4 is shown below.

#### 16.9.2.4 PDCP

The services and functions of the PDCP sublayer as specified in clause 6.4.1 are supported for sidelink with some restrictions:

- Out-of-order delivery is supported only for unicast transmission;

|  |  |  |
| --- | --- | --- |
| **Company Name** | **Is R2-2407388 needed?** | **Comments** |
| InterDigital | Yes | The current sentence that duplication is not supported is incorrect. |
| Huawei, HiSilicon | Yes |  |
| vivo | Yes |  |
| Lenovo | Yes |  |
| Apple | Yes |  |

**Conclusion: R2-2407388 is needed.**