3GPP TSG RAN Meeting #101
Bangalore, India, September 11-15, 2023
Agenda item: 8A.2.12.5 Sidelink (SL) Evolution

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Continual Sidelink evolution

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Overview of continual sidelink evolution

- Sidelink is attractive because it extends coverage of the cellular networks, provides connectivity for V2X, enables direct communications between AR/VR devices and so on.
- NR Sidelink features have been specified and enhanced in every release from Rel-16. There is a growing interest in the industry to expand the applicability of NR sidelink. In order to increase sidelink data rate and support new carrier frequencies for NR sidelink, 3GPP completed a study phase of SL FR2 and finished a scope-limited SL CA in Rel-18.
- We think it's worth to continue SL work based on our efforts in Rel-18. Additionally, we observed overwhelming support for SL FR2 (at least 14 proponents) and SL CA (at least 11 proponents) in Rel-19 workshop. Therefore, following topics should be further considered in Rel-19 from our perspective:
  - SL FR2
  - SL CA

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SL FR2

- Motivation
  - Study phase of sidelink operation on FR2 was completed in Rel-18 and the normative work can be started in Rel-19.
- Considerations for Rel-19 [RAN1, RAN2, RAN4]
  - Specify SL FR2 beam management including initial beam-pairing, beam maintenance, and beam failure recovery, etc.
    - Above objective should be assigned with higher priority because it had a study phase in Rel-18.
  - Specify necessary enhancements to resource allocation (both mode 1 and mode 2) considering the beam management impacts.
  - Specify SL FR2 for groupcast and broadcast communication.
  - Specify SL operation on FR2 unlicensed band.

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SL CA

- Motivation
  - SL CA is also one of the objectives in Rel-18 SL. However, it is extremely down scoped due to limited TU in RAN#99. Rel-19 SL should continue the work and target an integrated version.
- Considerations for Rel-19 [RAN2, RAN1, RAN4]
  - Support resource allocation mode 1, different SCS between carriers, cross-carrier HARQ-ACK, etc. which are removed in Rel-18.
  - Specify necessary enhancements related to SCI transmissions on PSCCH/PSSCH, PSFCH transmission, RSRP feedback, CSI feedback and congestion control.
  - Specify SL CA including unlicensed band.

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Proposal

- For Rel-19 sidelink evolution, a lightweight SL is expected. Therefore, we propose to include following topics:
  - Normative work of SL FR2 based on Rel-18 study work.
  - Normative work of SL CA to supplement the SL CA scope in Rel-18.

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