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Views on Sidelink Positioning Enhancements for Rel-19

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NR Sidelink Positioning Enhancements for Rel-19

- Background
  - NR sidelink positioning features in Rel-18 Expanded and Improved NR Positioning (RP-230328):
    - SL PRS for support of sidelink positioning (SL PRS bandwidths of up to 100 MHz in FR1 spectrum. SL PRS transmission in FR2 is not precluded but no FR2 specific aspects will be specified.)
    - Measurements to support RTT-type solutions using SL, SL-AoA, and SL-TDOA
    - Resource allocation for SL PRS for shared and dedicated resource pools for Scheme 1 and Scheme 2
    - Procedures for transmit power control for SL PRS transmissions
    - Signalling and associated UE behavior for support of unicast, groupcast (not including many to one) and broadcast of SL PRS transmissions
    - Reporting signalling and procedures to facilitate support of SL positioning in all coverage scenarios and for PC5-only and joint PC5-Uu scenarios
    - Signalling to NG-RAN for sidelink positioning and ranging service authorizations
    - Corresponding new core requirements, as well as identifying and specify the impact on the existing RAN4 specification, including RRM measurements and procedures

- Motivation for Rel-19 NR sidelink positioning
  - Available bandwidth in FR1 V2X band is limited in some regions/countries. NR sidelink positioning on FR1 unlicensed bands and FR2 bands should be supported.
  - NR sidelink carrier-phase positioning would be beneficial to improve the positioning accuracy.
  - NR sidelink positioning with power saving features (e.g., DRX) should be supported for battery-limited devices (e.g., pedestrian devices).

Proposals for Rel-19 NR Sidelink Positioning Enhancements

- Proposal 1: NR sidelink positioning enhancements are included in Rel-19.

- Proposal 2: the following items are considered for Rel-19 NR sidelink positioning enhancements:
  - NR sidelink positioning on unlicensed bands (FR1 and FR2)
    - Channel access mechanisms and physical channel design for SL-PRS on unlicensed bands
  - NR sidelink positioning on FR2 bands
    - Sidelink beam management for SL-PRS
    - Beam-based sensing and resource (re-)selection procedures for SL-PRS
  - NR sidelink carrier-phase positioning
    - Physical layer measurements and signalling for sidelink carrier-phase positioning
  - NR sidelink positioning with power saving
    - Sidelink DRX for SL-PRS