China Academy of Telecommunication Technology

3GPP TSG RAN Meeting #93-e
Electronic Meeting, September 13th - 17th , 2021

RP-212260

Views on Rel-18 Sidelink enhancement

China Academy of Telecommunications Technology (CATT)

Views on Rel-18 Sidelink enhancement

- SL enhancement (in the order of priority)
  - Multi-carrier operation
  - Enhancement for FR2
  - Co-channel co-existence between LTE/NR -V2X
- SL relay (Sidelink Relay as a separate WI addressed in the companion contribution RP-212248)
  - U2U relay
  - Service continuity enhancement
  - Multi-paths

Rel-18 SL Enhancement

Motivations

Higher data rate and better reliability

- Higher throughput and reliability requirement for advanced V2X applications
- Solution for limited or fragmented dedicated spectrum

FR2 enhancement

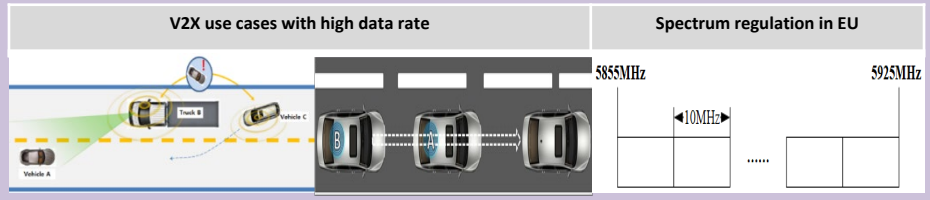
- Higher throughput and reliability requirement for advanced V2X applications
- Lack of beam management enhancement

Co-existence between LTE-V2X and NR-V2X

- Spectrum regulation in certain region: 20MHz(Basic safety V2X service)+10MHz

Main topics

Multi-carrier operation



- Multi-carrier operation in FR1, e.g., carrier aggregation/carrier selection, and PDCP duplication
- Multi-carrier operation in FR1+FR2 after completion of FR2 related enhancement

FR2 enhancement

- Potential operation scenario
- Sidelink beam management enhancement and multi-panel selection support

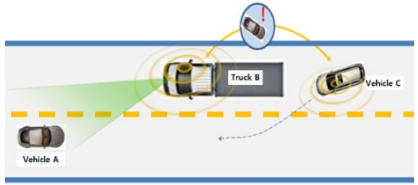
Co-existence between LTE-V2X and NR-V2X

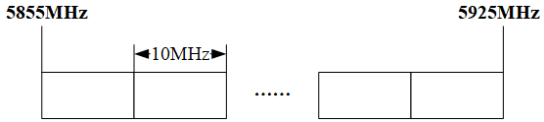
- Alt 1: semi-static sharing between LTE-V2X and NR-V2X, e.g. by separate resource pool.
- Alt 2: dynamic sharing between LTE-V2X and NR-V2X
  - Feasibility should be justified, considering the impacts on LTE-V2X performance degradation.

Multi-carrier operation in NR Sidelink

- Motivations
  - Higher throughput and reliability requirement for advanced V2X applications
  - Limited or fragmented dedicated spectrum for V2X
- Target scenarios/use cases

V2X use cases with high data rate	Spectrum regulation in EU

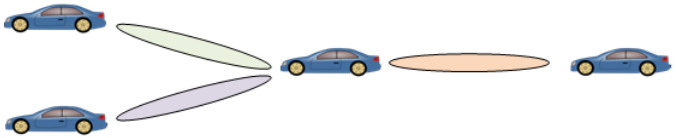




- Working area
  - Multi-carrier aggregation for licensed/ITS carriers in FR1 (intra-band and inter-band)
  - Multi-carrier operation in FR1+FR2 after completion of FR2 related enhancement

NR SL Enhancement in FR2

- Motivations
  - Higher throughput and reliability requirement for advanced V2X applications
  - Limited available spectrum in FR1
  - Only numerologies, SL-SSBs and PT-RS were designed for FR2 in R16, NR sidelink cannot effectively operate in FR2, e.g. beam-based operation was not supported in R16
- Target scenarios/Use cases



- Working area
  - Study potential operation scenario
  - Study sidelink beam management enhancement and multi-panel selection support

Co-channel co-existence between LTE/NR -V2X

- Motivations
  - Spectrum regulation in US: 20MHz(Basic safety V2X service)+10MHz
- Design principle
  - No impacts to LTE-V2X
  - Ensuring backward compatibility for R16/R17 NR-V2X
- Feasibility study on two alternatives:
  - Alt 1: Resource pool separation between the two RATs
  - Alt 2: Dynamic resource sharing using overlapping resource pools between the two RATs
    - Feasibility should be justified, considering the impacts on LTE-V2X performance degradation.

THANK YOU