RP-213429

Infotainment

Volkswagen AG
Views on Sidelink Enhancements for Rel-18

Agenda item 8.A1: New WI/SI proposals for REL-18 - RAN1-led proposals

Views on Sidelink Enhancements for Rel-18

Analysis:

It is appreciated that 3GPP considers further enhancements for the NR sidelink in Rel-18.

The draft WID (RP-212704) contains four main objectives:

1. Specify mechanism to support NR sidelink CA operation based on LTE sidelink CA operation
2. Study the support of sidelink on unlicensed spectrum for both mode 1 and mode 2 where Uu operation for mode 1 is limited to licensed spectrum only
3. Study enhanced sidelink operation on FR2 licensed spectrum
4. Study mechanism(s) to enable co-channel coexistence for LTE sidelink and NR sidelink including performance, necessity, feasibility, and potential specification impact if any

For the objectives with a study phase, RAN to determine in RAN#98 whether or not there is to be specification support in Rel-18 and if there is specification support, the scope of this work.

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On WID (RP-212704) objective 4

Background of objective 4:

The need and reasoning for LTE sidelink and NR sidelink co-channel coexistence had been expressed by multiple companies during the Rel-18 workshop and the subsequent email discussion. This coexistence scenario had also been listed as one of the priority topics of 5GAA (RWS-210360).
It is considered that advanced use cases, utilizing an NR-V2X sidelink, will be deployed in the same ITS frequency band as LTE-V2X based use cases. In order to utilize the limited spectrum in the ITS band n47 efficiently, it is important that Rel-18 contains LTE sidelink and NR sidelink co-channel coexistence methods.

Proposal for Rel-18 sidelink enhancements :

A clear framework for NR sidelink deployments is needed by the industry. Therefore it is encouraged to keep objective 4 in the WID and in addition to target a specification of the identified methods rather than postponing such decision to a later stage (eg. RAN#98).
It is reminded that in band n47 Mode 2 deployments (out-of-coverage) are expected to dominate.

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Proposal for additional objectives

Motivation:

NR sidelink adjacent-channel coexistence with non-3GPP technologies had been proposed in RWS-210432:
The available ITS frequency spectrum for C-V2X direct communication is small.

- In the US, the ITS spectrum in the 5.9GHz band will be surrounded by unlicensed operations (e.g. WiFi).
- In Europe ITS-G5 stations (802.11p) are operating in the 5.9GHz band and further the band is surrounded by non-3GPP technologies (e.g. CEN DSRC, WiFi).

It is a likely scenario that NR sidelink will also operate adjacent channel to non-3GPP technologies.
Such technologies are already deployed and in daily live usage. NR sidelink as the most recent technology can proof its flexibility by enabling a coexistence with already deployed non-3GPP technologies.

Proposal for additional Rel-18 work:

It is recommended to consider the identification and specification of mechanisms to provide a concurrent adjacent-channel sidelink operation of NR-V2X with non-3GPP technologies (e.g. Wifi, 802.11p) in order to facilitate advanced use cases which build upon NR sidelink.

Views on Sidelink Enhancements for Rel-18
General remarks

For consideration:

- Rel-16/17 NR sidelink devices should be able to communicate with Rel-18 NR sidelink devices and vice versa.
- Mode 2 operation (out-of-coverage) is expected to dominate band n47 deployments.
- If there are left-overs from previous releases on sidelink enhancements, then these topics should be part of the Rel-18 work and finalized before new topics are addressed.

Thank you!