

Input to 3GPP RAN#102

RP-233802 Discussion on Rel-19 Sidelink evolution in RAN4

Agenda item 9.1.4.4

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Motivation

- This contribution proposes a continuation of the NR sidelink evolution work in Rel-19 to ensure future deployments with a complete set of features required for ITS direct communication and its successful large-scale deployment.
- During the Rel-19 workshop, multiple companies, across various industry sectors, have expressed their support for a continuation of the sidelink evolution (RWS-230020, RWS-230121, RWS-230138, RWS-230184, RWS-230199, RWS-230274, RWS-230278, RWS-230285, RWS-230383, RWS-230409, RWS-230476, RWS-230483).
- 5GAA, market representative partner, has also highlighted their interest in the NR sidelink evolution in Rel-19 (RP-232734, RWS-230164).
- The number and variety of contributions shows the relevance of sidelink communication in products and services across multiple industries.
- Companies in these industries, in particular automotive ones, are currently engaged in planning, implementing and testing solutions requiring sidelink. However, due to much longer product life and development cycles, as well as industry-specific challenges (e.g. regulation, certification), those products take much longer time as typically experienced by consumer-oriented ones.
 - Besides the above-mentioned reasons, delayed or missing features such as coexistence, CA, etc. may be additional reasons for yet missing large-scale deployments. It has been noted that some companies have been asking for the same specific sidelink features until they became part of a releases, if at all.
- Nevertheless, for V2X sidelink applications, multiple trials have been conducted over the last years (e.g. in 5GAA events) which have shown the usefulness and effectiveness of direct communications for V2X services.
- Finally, interested companies are currently engaged in several standardization and regulation organizations to enable the deployments worldwide (e.g. ETSI ITS, CEPT/ECC etc.).

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Objective on: Carrier aggregation

- In Europe, the ITS frequency spectrum in band n47 is fragmented due the deployment of non-3GPP technologies.
 - Only a few free, contiguous, 10MHz carriers (channels) are available.
- CA should enable a flexible use of the available channels in the ITS band n47.
- Rel-18 contains only a limited subset of CA functionalities.
- Enhancement of Rel-18 CA mechanism
 - Support of non-contiguous CA, intra-band (n47) + inter-band (n47 + unlicensed)
 - Consideration of mixed carrier bandwidths 20MHz + 10MHz, intra-band (n47) + inter-band (n47 + unlicensed)
 - CA in Rel-19 should support the features which have been introduced in Rel-16, Rel-17 and Rel-18

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Conclusion

- It is proposed to agree on a small normative work package in RAN4 on sidelink evolution to address features that companies had repeatedly proposed over the last releases:
 - Complete sidelink CA operation in Rel-19 as originally targeted for Rel-18 (RP-213678) to enable NR-V for use in the entire ITS Band (Band47) independently of any regional channelization schemes (e.g. multiples of 10MHz in 40MHz – 60MHz band) instead of just contiguous 2x10MHz.
- Stopping the sidelink evolution work sends a wrong signal to vertical industries, in particular from the automotive sector, as it may reduce the trust on the 3GPP support of the vertical requirements.