3GPP RAN #74
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On co-channel coexistence between DSRC & LTE-V2V in the same 5.9 GHz band

Qualcomm

Introduction

Observations on V2V/ITS coexistence work done so far in 3GPP

- As part of the LTE V2X study item, long term co-channel coexistence in the same 5.9GHz band between DSRC and LTE V2V was studied in RAN1
  - RAN1 sent a LS summarizing its finding in R1-1613574
- The idea underlying the conclusion is to allow UEs to switch technology or change channels based on detection of another technology
- No technical solution is being specified for the detection of another technology or for such switching behavior
- RAN1 **implicitly** concluded that harmonious coexistence is feasible
  - Only one company provided system level results

On the need for further work on harmonious coexistence

Additional technical work would be beneficial

- 802.11p is considered as “incumbent technology” in various circles
  - The burden on demonstrating coexistence is on LTE-V2V
- Europe:
  - Europe has stated a technology neutral approach
    - RSPG Statement (RSPG16-044): “The spectrum designation in 5875-5905 MHz **is technology neutral**. The RSPG **cannot take a view on the choice of technology** since this is not a matter of spectrum regulation. However, we note that **the co-existence between different ITS technologies is not guaranteed by the designation**. **There is a risk that the development of potentially competing technologies for ITS in the same band could impact on the robust and safe operation within 5875-5905 MHz**. It is important that **in-band** co-existence and cross-border operation of ITS is ensured, especially for safety-related ITS.”
  - The regulator may or may not specify the channelization for ITS technologies
  - As a result. coexistence mechanisms between technologies are important
- USA:
  - 802.11p may be deployed first & there may be the desire to introduce LTE-V2V later
  - As a result, coexistence mechanisms between technologies are useful for migration

Proposal

Work further on inter-tech coexistence mechanisms (LTE V2V & 802.11p)

- We propose to ask RAN1/RAN4 to specify the following for LTE-V2V
  - Signaling mechanism to enable detection of presence of other technologies
    - RAN4 can provide minimum performance requirements
  - Behavior when switching channels
- Simulation results generated as part of the work would demonstrate the feasibility of harmonious system level coexistence
- Work could be carried as part of the existing WI or in a new WI

Thank you

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