DSRC STATUS

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WHAT’S NEW?

• 5GAA formed – 6/16
• FCC testing spectrum sharing approaches – 11/16
• NPRM signed – 1/17
• Ford joins 5GAA – 12/16
• MWC – Multiple 5G announcements, demonstrations, pilots
  • Qualcomm demonstrates video streaming between vehicles, overtake warning, obstacle alert via 5G
  • Ericsson demonstrates remote control of car with 5G
  • Audi/Vodafone gives live in-vehicle/on racetrack demo of 5G
• Cadillac launching 2017 CTS with DSRC – 3/17
V2V Connected Cadillac CTS with DSRC & GPS as Standard Equipment Soon

Posted on March 9, 2017 by Bryan Jonston

Up to 960 Ft (300 Meters)
Breakdown

- Annual Costs: $5 billion
- Annual Benefits: $71 billion
- Total Costs (in year 2060): $108 billion
- Per Vehicle Cost Increases: $288
- Annual Lives Saved (in 2051): 1,321
V2V/V2X

- Market development HIGHLY dependent upon mandates
- LTE/5G approaches can overcome these issues
  - Latency-critical applications should rely on on-board sensors
  - Yes, network coverage is not universal – but it is a lot wider than a dedicated automotive network could hope to be in any reasonable timeframe
  - 5G peer-to-peer capabilities will allow V2V even without network coverage
- Smartphones and apps
  - Speed to market; Consumer familiarity
  - Ubiquitous usage/device ownership
  - Global Mobile Alert, Haas Alert, Ridar Systems
Members: Qualcomm, Ericsson, PSA, Orange
Initial V2X work completed at RAN meeting in New Orleans
Further enhancements will support new V2X operational scenarios
Full specification expected to be included in Rel-14 next March

The 3GPP international cellular standards group has just announced that it has completed work on the initial cellular Vehicle-to-Everything (V2X) standard, for inclusion in the next LTE Release 14. The specification was completed last week during the 3GPP RAN meeting in New Orleans, with further enhancements to support additional V2X operational scenarios to follow, which should be ready with Rel-14 in March 2017.

“As part of the expansion of the LTE platform to new services, and to keep track with the increasing needs of the automotive industry, 3GPP is developing functionality to provide enhancements specifically for vehicular communications - both in terms of direct communication (between vehicles, vehicle to pedestrian and vehicle to infrastructure) and for cellular communications with networks,” explained Dino Flore, 3GPP RAN Chairman.

V2V communications are based on D2D communications defined as part of ProSe services in Release 12 and Release 13 of the LTE specification. A new D2D interface has been enhanced for vehicular use cases, specifically addressing high speed (up to 250km/h) and high density (thousands of nodes). The design is scalable for different bandwidths including 10MHz bandwidth and two high level deployment configurations are currently defined. Both configurations use a dedicated carrier for V2V communications and use GNSS satellites for time synchronization.
Volvo’s vision of V2V via LTE, 5G

Sample Use Cases

- Connected Safety.
- Autonomous Driving.
- Amazingly Robust Navigation Systems.
BMW’s vision of V2V via LTE, 5G

VMS to dashboard

SPAT to dashboard

At intersections where there are dedicated traffic signals for turns, the activation of the vehicle’s turn indicator tells the app of the driver’s intention to turn so that only the status of the relevant signal is displayed.

ConnectedDrive permits a regular automatic navigation map update. The data are transferred “over the air” using the mobile SIM card installed and there are no licence charges or transmission costs for the user.

Map updating, editing
DISRUPT CONNECTIVITY

Savari SmartCross app

HERE DTI

GM V2X via Smartphone

Providing safety and security to all road users

Vehicle-to-Pedestrian

Vehicle-to-Bicycle

Lane Hazard Avoidance and Auto Lane Change

Portable Road Side Unit for V2I Features

Wi-Fi Based Pedestrian Detection

Vehicle Communication using Wi-Fi or DSRC
THE NEW 2017 E-Class Sedan

More than a stroke of genius. A masterpiece of intelligence.

See Models
You can't see around corners. But your E-Class can.

World-first *Car-to-X* technology connects your E-Class to a central information resource, to send you in-car updates about driving conditions before you get to them. Your car can also report hazards, to help other E-Class drivers. [1]
Sometimes the future is just one lane away.

DRIVE PILOT takes intelligent cruise control in a new direction: sideways. It can stop and go with the flow, and help you stay between the lines, even in curves. And now you can change lanes with just a touch of the turn-signal lever. [3]
CONCLUSION

• GM is the only car maker currently committed to deploying DSRC
• Curiosity about and interest in DSRC among car makers in the U.S. is low-non-existent
• Ford – a founding member of CAMP (Collision Avoidance Metrics Partnership) – joining 5GAA is important
• European car companies are introducing cellular-based V-cloud-V solutions – as a precursor to 4.5G/5G V2V technology
• FCC testing of spectrum sharing ongoing
• DSRC security issues unresolved
• New U.S. administration not friendly to regulation and mandates
• DSRC outlook is clouded – optimistic scenario: Phase in could begin in 2021
• Some “just in case” RFQs from auto makers have been reported
ANY QUESTIONS?