5G Automotive Association, pioneering digital digital transformation in the automotive industry

Maxime Flament, CTO 5GAA
5GAA brings together automotive, technology and telecommunications companies to work closely together to develop end-to-end solutions for future mobility and transportation services.

AUTOMOTIVE INDUSTRY
Vehicle Platform, Hardware and Software Solutions

TELECOMMUNICATIONS
Connectivity and Networking Systems, Devices and Technologies

End to end solutions for intelligent transportation, mobility systems and smart cities
September 2016

- “Audi, BMW Group, Daimler AG are teaming with Ericsson, Huawei, Intel, Nokia, and Qualcomm to create the 5G Automotive Association (5GAA), which will help develop, test, and promote 5G standards”

- “Scope of the alliance is focused on bringing connectivity solutions to market addressing technical, business, and regulatory challenges”

Q2 2018

- 5GAA unites 80+ members working together to:
  - Deliver innovation for road safety, connectivity and sustainability
  - Accelerate cooperative, connected, automated mobility
  - Develop 360° solutions for SMART mobility services
  - Pave the way towards 5G mobility
Looking 18 months back…

Establish 5GAA
Set up 5GAA - Our Organizational Structure

1. BOARD
   - WG1: Use Cases and Technical Requirements
   - WG2: System Architecture and Solution Development
   - WG3: Evaluation, Testbeds and Pilots
   - WG4: Standards and Spectrum
   - WG5: Business Models and Go-To-Market Strategies

2. EXECUTIVE COMMITTEE

3. GENERAL ASSEMBLY
Liaisons with regulators and organizations

- MoU with European Automotive Telecom Alliance (EATA) – Feb 2017
- MoU with Next Generation Mobile Networks (NGMN) – Feb 2017
- MoU with Alliance Global TD-LTE Initiative (GTI) – Feb 2017
- Market Representation Partner (MRP) in 3GPP – April 2017
- Round Table with Chinese Government during Mobile World Congress Shanghai – June 2017
- MoU with China IMT 2020 – November 2017
- Round Table with European Road Operators Munich – February 2018
- Round Table with Telematics Industry Application Alliance (TIAA) – March 2018
Looking 18 months back…

Establish 5GAA

Define C-V2X as 5GAA’s Basis
What is V2X (Vehicle to Everything)?

Comprehensive vehicle and traffic safety

Enabling autonomous driving

Allows vehicles to communicate with each other (V2V) and the wider transport ecosystem (V2N, V2P, V2I)
C-V2X is a unified technology platform including both:

- Short range direct communications (LTE-V2X PC5)
  - Low-latency, direct safety, communication to work without network coverage
  - Can operate without a SIM or network assistance
- Long range cellular network communications (LTE-V2X Uu)

Why Cellular-V2X (C-V2X)?
Timeline for deployment of C-V2X (V2V/V2I)

- **H1/2017**
  - 3GPP LTE Advanced Pro Release 14
  - Chipsets for tests

- **H2/2017**
  - Inter-operability tests

- **H1/2018**
  - Commercial availability of Mode 4 chips

- **H2/2018**
  - Integration, Validation and Testing with OEMs (EU, China, US)
  - Testing of traffic infrastructure (EU, China, US)

- **2019**
  - 5.9 GHz Spectrum Target Availability
  - China (spectrum for deployment)

- **2020**
  - US (spectrum for deployment)
  - EU: Final CEPT report
  - Start of vehicle deployment
  - C-V2X is real and ready with commercial chipsets set for 2018.
  - In-vehicle commercial deployment (i.e. type-approved vehicles) is foreseen at the latest by 2020 globally.

- **2021 ff**
Worldwide C-V2X Trials (May 2018)

- C-V2X Connected Car Technology Trials San Diego, USA
- V2V C-V2X radio performance tests Michigan, USA
- RACC track MWC 2017 Spain
- UK CITE UK
- Towards 5G France
- InOut C-V2X Demo France
- ConVeX (A9) Germany
- Mobilfunk (A9) Germany
- DT (A9) Germany
- Car2X (A9) Germany
- 5G-CM (A9) Germany
- MEC pilot project Germany
- C-V2X Performance Test @ SIAC China
- Car2X Wuzhen China
- ICV pilot projects China
- Wuxi City-wide LTE-V2X Project China
- C-V2X Trials Japan
- 5G and cellular communication showcase trials Korea

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Looking 18 Months Back…

Establish 5GAA

Define C-V2X as 5GAA’s Basis

First Region Defined C-V2X as “the” ITS – standard!
And now? – Accelerate!

“Accelerate!” – update long term Strategy

Establish 5GAA

Define C-V2X as 5GAA’s Basis
C-V2X and its evolution to 5G V2X will foster synergies between the automotive industry and other verticals which are moving to 5G.
Our updated Strategy

**New Radio**
“Define the next step” - accelerate definition of 5G-V2X based on 5G New Radio

**Push V2N**
Intense functional rollout of V2N based applications in order to reach broad penetration fast

**Joint Ecosystem**
Create a joint eco system car – smartphone - home

**Vehicle to Smart Device**
V2X-based vehicle interface for smartphone controlled functions

**Mobile Edge Computing**
Mobile Edge Computing as one of the key elements of the connected future

**Interoperability**
Make sure that cross-OEM cars and cross-operator networks can “speak” with each other
NEW: Safety of Life Study

• Aim: explore the impact of different technical solutions for Cooperative Intelligent Transport Systems (C-ITS) communication solutions on EU road safety over time.

• Compare impact of LTE-PC5, LTE-Uu, and 802.11p

• Two major potentially live saving services:
  • Red signal violation/intersection safety,
  • Vulnerable Road User (VRU) protection.

• Highest impact are on LTE-Uu with 114,066 avoided fatalities and serious injuries by 2040

• Combined deployment of PC5 and Uu is very likely

• 802.11p shows lower impact as VRU protection is most likely not supported through smartphones

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