

5th SIP-adus WORKSHOP 2018

VC: CONNECTED VEHICLES SESSION

OVER VIEW ON C-ITS





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- **SCOOP PROJET STATUS**
- **EU STANDARTS**
- **EU POLITICAL and REGULATORY FRAMEWORK**

SCOP PROJÉT STATUS



Data types: 2 V2X messages

- CAM Cooperative Awareness Message
- DENM Decentralized Environmental Notification Message

Exchange principles :

- Broadcasted without receipt confirmation
- Completely anonymous with constantly changing pseudonyms (no traceability) delivered by a national PKI : 2 upgrades for security improvement
- No data storage in the car; project LOGs via RSU and TCU

Data ownership:

- Data access only for certified partners respecting the communication protocol specifications
- European directive: road safety data for free

- ⚠ The use of **cellular communication** will be deployed for:
 - PKI certificate management and LOG upload

Why SCOOP@F pilot ?



2018 Achievements

Conditions before a mass deployment

- ✓ **V2X applications social impacts have to be evaluated in naturalistic traffic conditions**
- ✓ **Global system capability & gouvernance have to be tested including:**
 - Security PKI governance, privacy protection
 - compliance assessments and/or certification process,
 - The local or central back office needed to supply relevant & consistent public and private information to the connected vehicles
- ✓ **Hybrid V2X communications mixing ITS-G5 & cellular (3G/ LTE) have to be tested on different high/low latency tolerant use cases**
- ✓ **V2X safety / mobility business cases have to be evaluated from a global point of view (infrastructure & OEM)**
- ✓ **First A-sample ITS-G5 components have to be validated / certified before their possible integration in multi-standards on-board radio systems**



Co-existence?
Combination?



SCOOP PROJECT STATUS : Renault achievements

Application of Eu C-ITS Platform Compliance assessment

- on desk,
- on track and
- on open roads in France and foreign countries



Mounting process

- in Renault's plant in Palencia / Spain



Sales and After-sales current processes

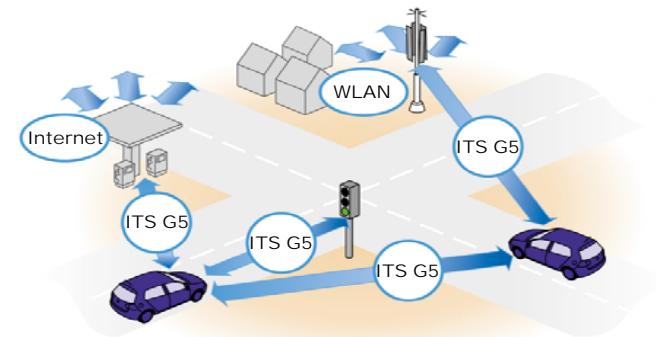
- same as for any other serial car



Ready for mass deployment

EU FRAMEWORK

- **Dedicated Short-Range Communication for exchanging messages between vehicles, and between vehicles and road-side units**
- **NO communication costs to access the frequency band with equal access**
- **In 5,9 GHz frequency band allocated in EU , 30 MHz for safety – study on additional 20 MHz shared with Urban Rail – CEPT study ongoing**
- **Enhancement of the IEEE 802.11 (802.11p) standard**
- **Standardized at ETSI (as ITS-G5)**
 - Short range: specifically tailored for cooperative safety
 - Communication latency < 5 ms
 - Information dissemination rates up to 10 times-per-second (10 Hz), rates of >50Hz, e.g. for platooning
 - Ad-hoc Sensor network – No repetitions – oversampling is used – ***never receiving when transmitting on a channel***
- ***C2C-CC is welcoming improvement of the access layer, either through technology upgrades and new technologies, as long as interoperability is ensured***



EU FRAMEWORK: C-Roads Platform

- **The C-Roads platform was setup by EU and member states to aid deployment of C-ITS**
- **The C-Roads Platform was set up with the aim of**
 - linking all C-ITS deployments develop, share and publish common technical specifications (including the common communication profiles), planning intensive cross-testing to verify interoperability, developing system tests based on the common communication profiles by focusing on hybrid communication mix, which is a combination of ETSI ITS G5 and operational cellular networks.
 - paving the ground for making Cooperative, Connected and Automated Driving a reality in Europe
- **C-Roads and C2C-CC signed an cooperation agreement during the European ITS Conference in June 2017**
- **Profiles from C-Roads are publicly available at www.c-roads.eu**

* Also the C2C-C profiles are publicly available : for an administrative subscription fee contact [@car-2-car.org](mailto:car-2-car.org)

- **Core Members 2016**

Austria

Belgium/Flanders

Czech Republic

France

Germany

Slovenia

The Netherlands

UK

- *Associated Members*

Ireland

Switzerland

- **Core Members 2017**

Belgium/Wallonia

Denmark

Finland

Hungary

Italy

Norway

Portugal

Spain

Sweden

Australia

New Zealand

EU POLITICAL AND REGULATORY FRAMEWORK

- ITS Directive in 2010 (Directive 2010/40/EU)
- Standardisation mandate M/453 for a set of **interoperable** standards which lead to current set of ETSI specification based on an access layer based on 802.11p
- 2014 EU Commission created the C-ITS Deployment platform. Report of phase 1 completed autumn 2016. Report of phase 2 completed autumn 2017
- November 2016 the EU Commission Communication COM(2016) 766 - *A European strategy on Cooperative Intelligent Transport Systems, a milestone towards cooperative, connected and automated mobility*
- March 2018: EU Parliament approves ITS report
- Delegated Act in the final process of adoption to regulate the Eu conditions for C-ITS deployment