Memorandum of Understanding

for OEMs
within the CAR 2 CAR Communication Consortium
on

Deployment Strategy for cooperative ITS in Europe

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Memorandum of Understanding for a harmonised Implementation and Deployment of cooperative ITS

The purpose of this Memorandum of understanding (MoU) is to agree on the harmonised implementation and deployment of Cooperative Intelligent Transport Systems (ITS) in Europe. The MoU is an expression of the individual and collective commitment of the signatories to work in partnership in order to realise a shared objective to the benefit of everyone.

1   Preamble

1.1   Rationale

Implementation of cooperative Intelligent Transport Systems will provide communication between vehicles, traffic infrastructure and service providers and by exchange of information improve road safety, traffic efficiency and sustainable driving.

There is an urgent need for general implementation and deployment of cooperative ITS in Europe and in the recent ITS Directive[1] political initiatives have been taken to coordinate harmonised implementation and deployment of ITS in Europe.

1.2   Definition and Scope of cooperative ITS

The CAR 2 CAR Communication Consortium (C2C-CC) defines "cooperative ITS" as a network of systems in which communication partners (vehicles, traffic infrastructure and service providers) exchange information as the basis for a new level of traffic safety and efficiency improvement.

Cooperative ITS communication is self organised real-time V2V and V2I information for driver assistance with the 5.9 GHz spectrum as a major enabler. The C2C-CC achieved a royalty free frequency band in the 5.9 GHz for safety related services which is aligned with a similar spectrum allocation in USA, Canada, Mexico and Australia.

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[1] Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010

1.3 Framework

This MoU creates a framework for the harmonised implementation and deployment of cooperative ITS in Europe by 2015 – addressing the public sector, the private sector and/or through public-private partnership. The aim of this MoU is to encourage co-operation between the vehicle manufacturers, infrastructure providers including road authorities and road operators, telecom operators and the EC together with other relevant industrial partners.
The MoU shall be signed by all relevant stakeholders and is cancelled again if this is not achieved.

2 Parties and Stakeholders

Moving forward with implementation of cooperative ITS requires parallel commitment and joint effort to work on common, co-ordinated implementation and supporting business plans from all Parties constituting the basic ITS service and value chain.

Such co-ordinated roll-out needs to include optimised technical solutions, quality standards, and co-ordinated road maps for deployment to ensure that installation of ITS equipment in vehicles is supported by similar infrastructure deployment in accordance with joint roadmaps.

This MoU is signed by vehicle manufacturers within the CAR 2 CAR Communication Consortium with the expectation that, infrastructure providers including road authorities and road operators, automotive and infrastructure suppliers, telecom operators as well as service providers and the European Commission contributes actively to a harmonised implementation and deployment of cooperative ITS in Europe.

3   Act and Deployment Strategy

The Parties signing this MoU will actively contribute to the development and agreement of feasible implementation and business plans conforming to the principles for a pan-European cooperative Intelligent Transport System as laid down in the ITS Directive[2].

The Parties agree to initiate deployment of cooperative ITS in Europe by 2015. This particular date fits with the ongoing activities on standardisation, validation and Field Operational Tests on a national and European basis. It is assumed that this MoU initiative between the OEMs will lead to a strong engagement on deployment from the infrastructure and national road authorities.

3.1 Deployment Strategy and Applications / Services to be provided

The parties of this MoU agree to develop technical specifications (including – but not limited to – message formats, message timing, and communication mechanisms) enabling the deployment of use cases based on the following phased approach.

Phase 1: Basic System enabling sustainable set of use cases with a manageable level of complexity
  * Vehicles/Infrastructure unites create messages enabling a set of day one cases
  * Cost-effective system for the mass market
  * Allows for warning/efficiency applications, no automated tasks

A detailed list of day-one use cases with information about required involvement of other stakeholders is provided in Annex 2.

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[2] Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010

Phase 2: More complex use cases (no or minor level of automation) for example
- Intersection Collision Warning
- Motorcycle approaching Warning

Phase 3: Automated assistance systems based on a combination of Car-to-X and environmental sensor information

Phase 4: Achieving the vision
- Seamless 'combination of use cases'

3.2 Roadmap for Deployment in 2015

Market Introduction

Initiation of market introduction in 2015 requires finalisation of a number of C2C–CC activities. This includes both the technical feasibility with system aspects and market development for the OEMs as well as for the suppliers.

The market introduction of cooperative ITS will be developed by each individual OEM while the timeline and scope of the deployment including use cases realised on the basis of certain messages (including the Cooperative Awareness Message (CAM), the Decentralized Environmental Notification Message (DENM)) are agreed within this MoU.

Technical Requirements

Finalisation of standardisation is expected by July 2012 within both ETSI TC ITS and CEN TC 278. Field Operational Tests such as simTD, SCORE@F and DRIVE C2X during 2011-2013 will provide sufficient feed back on the technical requirements to finalise the standards and the basis for validation and certification of equipment.

It is assumed that ITS equipment is available on the market from multiple vendors prior to deployment in 2015.

A detailed roadmap for technical availability of equipment is included together with the roadmap on market introduction mentioned above.

Security and Privacy

It is commonly agreed that security and privacy are integral parts of the CAR 2 CAR Communication Consortium framework. Security standards are under development within ETSI TC ITS. These standards are coordinated with the IEEE 1609.2 standards to achieve global security standards.

A profile for the C2C-CC security requirements has been developed and will be proposed as a profile of the international security standards based on the OEM requirements for security and privacy.

Infrastructure Requirements

OEMs agree that infrastructure facilities are needed for deployment even for some of the day-one use cases for which infrastructure contributions are essential. It is therefore expected that deployment coordination with infrastructure organisations and national road authorities be established beginning 2011 in order to agree on a detailed roadmap for deployment of infrastructure dependent implementation.

Infrastructure facilities comprise different categories of stations and systems and include organisations such as:

- Local or regional (national authorities / road operators)
- Road construction companies (authorities)
- Road services

Authorities' Involvement

Authorities are invited to cooperate to achieve the full benefit of cooperative ITS

- Emergency services / Police

All signing parties to this MoU shall support the intentions of the document and develop a shared roadmap.

4 Process

The Parties of this MoU agree to coordinate their activities prior to initiation of deployment in 2015 and to include other relevant stakeholders in the developments in order to ensure timely availability of the cooperative ITS with both vehicle and infrastructure systems.

4.1 Status of the Memorandum of Understanding

This MoU summarises the current intentions of the Parties signing the MoU. It will form the basis for action by each of the Parties according to their respective roles. However, nothing in this MoU legally obliges any Party to any other Party. Also, this MoU does not affect the rights (including intellectual property rights) of any Party to material or services supplied by them as part of the in-vehicle ITS system. This MoU recognises that all Parties carry their own risks and costs in providing, carrying and handling the ITS initiative.

4.2 Review of this MoU

For this MoU to provide an effective framework for co-operation active participation of all Parties is required. Progress on implementation and business planning by all Parties concerned will be reviewed when appropriate. However, first review should take place not later that after 12 months following the signature of the MoU. When appropriate the Parties, will consider the need for improvements in their co-ordination and make and introduce suitable proposals for modification or termination of this MoU.

Annexes

Annex 1: Background and Status of Activities towards Deployment
Annex 2: Detailed List of day-one Use Cases for cooperative ITS Deployment

Status of the C2C-CC Developments

The C2C-CC has jointly developed and initially tested prototype implementation of Cooperative Intelligent Transport Systems (ITS) based on ad hoc technology. The common vision is to develop and deploy ITS to the benefit of end users, the European Communities and the automotive industry.

The Consortium managed the regulatory activities to achieve a royalty free frequency band in the 5.9 GHz range for cooperative ITS and both the CEPT and the European Commission adopted binding Decisions to ensure common European implementation of the important frequency allocation.

The European spectrum regulation is similar to the FCC regulation within the USA and also other countries such as Canada, Mexico, and Australia have adopted similar regulation.

The C2C-CC includes nearly all European OEMs and major suppliers world wide and is with the joint activities influencing development of cooperative ITS towards deployment within a variety of European research projects and field operational tests. The consortium is strongly supported by the European Commission and thus influencing the development of cooperative ITS.

Status of Traffic Management and backend Networks

The C2C-CC cooperates with the traffic management authorities, road owners and authorities as well as infrastructure providers and telecom operators. Close cooperation with national road operators and authorities takes place within research projects and directly with road organisations. The OEMs within the C2C-CC also cooperates with road authorities in connection with European and national field operational tests such as the simTD and the SCORE@F.

Status of the technical Standardisation Activities for ITS

International standardisation activities are important to achieve global interoperability in deployment of cooperative ITS. The C2C-CC decided to contribute to standardisation within the European Telecommunication Standards Institute (ETSI) which is an industry, member driven organisation providing global standards for telecommunication including ITS activities. The C2C-CC is leading the standardisation activities within the ETSI Technical Committee ITS. The C2C-CC is also active within the standards organisations ISO/CEN which are based on

national standards organisation activities with focus on infrastructure and traffic management interests.

As part of the regulatory initiatives for deployment of ITS the European Commission has issued a standardisation mandate M/453 on cooperative ITS in order to provide a coherent set of standards for ITS and to ensure interoperability. CEN and ETSI have agreed on a split of responsibility for development of more than 65 standards (European Norms) prior to July 2012.

Regulatory Perspective in Europe

The European Commission has adopted an ITS action plan for development and deployment of ITS in Europe and is supporting research activities within the Framework Program 6 and 7. The C2C-CC is active in this area in order to influence the ITS development.

The European Commission, Council and parliament have adopted an ITS Directive with a wide range of activities in order to create a harmonised implementation and deployment in Europe. A number of activities are planned and a European wide ITS Committee has been established in order to ensure coordinated activities within member states.

The high level of activities from the European Commission calls for a strong coordination between the OEMs of their initiatives towards deployment of cooperative ITS.

The consortium has therefore taken a range of initiatives on cooperation with infrastructure, traffic management and road authorities as well as equipment suppliers in order to be prepared for ITS deployment that includes all aspects of cooperative ITS with safety, traffic efficiency, sustainability and infotainment.

Global Developments

The automotive industry is a global market player and it is realised that deployment of cooperative ITS will have to be coordinated globally. The C2C-CC and the OEMs are strongly influencing the global activities. Also the standards organisations have taken initiatives to coordinate the standardisation work and achieve the required global interoperability.

The US Department of Transportation has decided to make regulatory provisions for deployment of cooperative ITS publicly available in 2013 in order to achieve general deployment around 2015-16.

Use Case	Domain	Other Stakeholders required	Comm. Medium
Emergency Vehicle Warning	Safety	Essential	ITS G5
Emergency Brake Light	Safety	-	ITS G5
Stationary Vehicle Warning, V2X Rescue Signal	Safety	-	ITS G5
Traffic Jam Ahead Warning	Safety	-	ITS G5
In Vehicle Signage (speed management)	Safety	-	ITS G5
Hazardous Location Warning	Safety	Support	ITS G5
Contextual Speed Limit	Efficiency	Essential	ITS G5
Road Work Warning (stationary and moving)	Safety	Essential	ITS G5
Signal Violation Warning	Safety	Essential	ITS G5
Green Light Optimal Speed Advisory	Efficiency	Essential	ITS G5