*e*Safety Forum

Communications Working Group

Discussion note 1

Frequency Allocation Task Force
and
Standardisation Task Force

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1 Introduction

The eSafety Forum Working Group on Communications (WG-C) was set up in autumn 2005 to identify the key issues for deployment of eSafety technologies and applications, from the point of view of wireless communications. From its Terms of Reference, it was to address amongst others the issue of:

- "Frequence allocation, working together with Intelligent Transportation Systems Steering Group (ITSSG) towards ETSI, CEN and ISO"

It should identify:

- "how a harmonised EU wide communication system for V2V and V2I could be established so that all stakeholders can develop business models based on common frequence in a common market"

and should:

- "identify optimum standards and spectrum requirements and promote these via the SG towards the relevant bodies."

Two focus areas were identified for further work in dedicated Task Forces, namely

- "Radio Spectrum Availability" (TFSp)
- "Communications Standards" (TFSt)

Task Force leaders were nominated at the WG-C meeting, and WG-C members were invited to join either or both Task Forces.

Both Task Forces will have their first meeting during the WG-C meeting on 6th April at BMW in Munich.

This discussion note sets out some questions to be answered before a final work programme can be defined for TFSt and TFSp, and identifies some first tasks to be done.

2 Ongoing activities on standardisation and frequency allocation issues for V2X communications

The purpose of the eSafety initiative is to accelerate the time to market and foster the growth of eSafety systems. These comprise a range of autonomous and cooperative systems and applications for advanced driver assistance, using the latest technologies for sensing, computing and mobile communications.

2.1 European Communications Committee

The Electronic Communications Committee (ECC) of the CEPT have started the work regarding frequencies for V2X communication systems based on the System reference document from ETSI ETSI TR 102 492-1 V1.1.1 (2005-06).

2.2 Standardisation activities within ETSI and ISO

2.3 Compatibility studies within SE24

The SE24 project team has initiated the compatibility studies regarding the two channels mentioned in the SRDoc 5885-5895 MHz as the control channel (same channel as in the USA) and the band 5875-5885 MHz as the other 10 MHz channel in order to provide two consecutive channels for the services. SE24 is investigating 5885-5905 MHz as proposed by the SRDoc and 5865-5875 MHz as requested by WG SRD/MG.

The compatibility studies in SE24 concentrate on

- The Fixed Satellite Service E/S (co primary with the mobile service) within the band 5725-6425 MHz and detailed studies are being carried out. For one of the parameters (additional noise rate 6%) it is important whether the ITS system is considered as a Mobile Service (co-primary allocation) in accordance with the Radio Regulations or as an (secondary service) unprotected short range device. This discussion will have to be continued within the Short Range Device Maintenance Group (SRD/MG) and in the FM WG together with the general issue of protection of the ITS services.

- The Fixed Service within the band 5850-5925 MHz. The relevant SE project team (WG SE19) (SE19) has indicated that there are no or very limited use of Fixed Service applications in Europe and generic studies on a European basis is therefore not considered by the CEPT. In a few countries including the UK the band is used for Outside-Broadcasting (OB ENG) links and those countries are invited by the SE WG to consider such sharing on a national basis.

- The SE24 has also prepared a liaison statement to SE21 and SE39 to obtain characteristics of radar systems operating below 5875 MHz (military services) for development of compatibility analses.

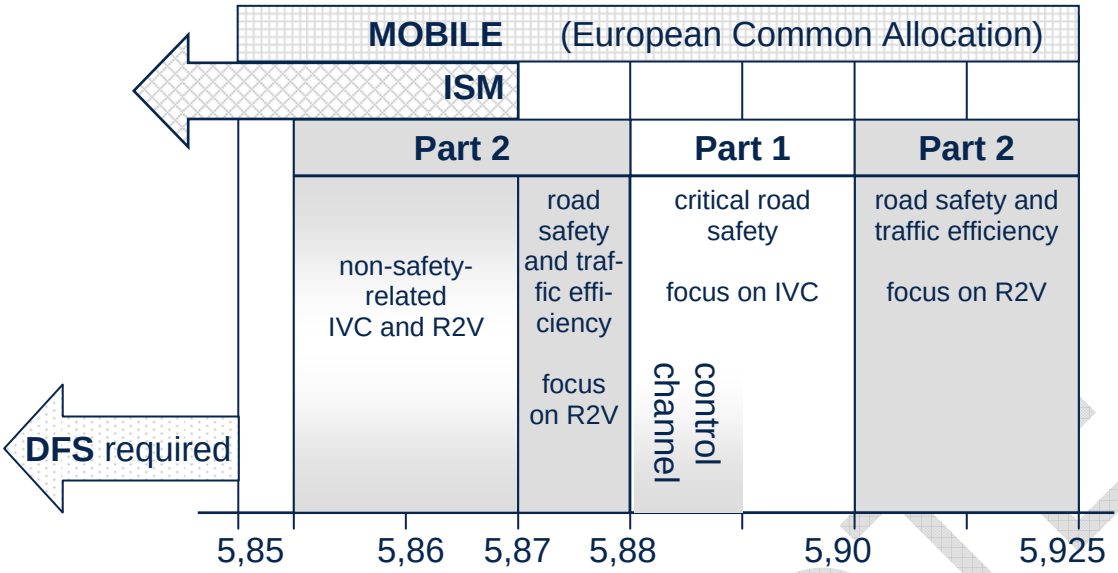

Figure 1: Frequence spectrum overview for the related eSafety services

Short Range Device Maintenance Group (SRD/MG) has suggested the channel 5865-5875 MHz in the upper part of the ISM band (5725-5875 MHz) as the 2nd channel for ITS. This band is already used for (non specific) SRD applications with 25 mW e.i.r.p. on a non protection and non interference basis. It is also used for Road Transport and Traffic Telematic Systems (RTTT) for Toll Control.

Considering ITS as a normal SRD application would make any kind of protection of the ITS systems difficult and might create a difficult interference situation with the SRD applications for which chip sets are now available in the European market. We could expect millions of SRD equipment within a few years and a compatibility study may be needed as background for the argument not to use the ISM band for ITS.

So far all 3 sub bands are being considered in the compatibility studies but the protection requirements for ITS equipment need to be observed.

The SE WG at its meeting 6-10 February 2006 is considering a progress report form the SE24.

2.4 European Commission

As the eSafety projects are official European Union policies the European Commission would normally expect to issue a Mandate under the Radio Spectrum Decision. Such a mandate calls on the CEPT to provide a detailed report on the results of the compatibility issues as well as regulatory issues including the specific choice of frequency bands.

The decision on a Mandate will be done by the Radio Spectrum Committee. The next meetings are 8-9 March and 29-30 June 2006. A Mandate might not be agreed at the March meeting dependent on the potential problems but the Mandate process could be developed in parallel with the ongoing compatibility work within the CEPT.

The advantage of a Mandate is that a binding Commission Decision is normally a conclusion of a Mandate. Thus the results of the regulatory conclusions expressed in a non-binging ECC decision developed by the CEPT will have binding elements in a Commission Decision. (ECC decision or recommendation is relevant for all 46 member states, but it might take a long time until all countries implement the ECC decision. An EC decision must be implemented typically in between 6 month by the members of the EU, which are 25 countries.)

The Commission Decision is normally based on ECC conclusions and is therefore developed and decided after the ECC Decision. Furthermore the knowledge by administrations about a Mandate and a potential Commission Decision might delay the developments and make consensus within the CEPT more difficult.

With the current developments on compatibility studies I would however, suggest that the C2C Consortium and the COMeSafety suggest a Commission Decision as the objective for this work. This idea was promoted at the commission workshop 28 February 2006.

3 Objectives and Issues for the Task Force

3.1 Priority eSafety systems

The eSafety Forum Working Group on Implementation Roadmaps has listed its ranking of the top priority eSafety systems, in terms of their expected impact on road safety, that are currently on the market, under development or expected in the future. These are:

Autonomous Vehicle Systems:

- Electronic Stability Programme (ESP)
- Blind spot monitoring
- Adaptive head lights
- Obstacle and collision warning
- Lane departure warning

Infrastructure- and vehicle-related Systems

- eCall
- Extended environmental information (extended FCD)
- Real-time Traffic and Travel Information
- Dynamic traffic management
- Local danger warning
- Speed Alert

The WG looked at various issues affecting the implementation of these priority systems, but standardisation and spectrum was not one of them. It therefore falls to WG-C to identify the standardisation and spectrum requirements, and we therefore focus on the group of infrastructure and vehicle-related systems as these depend on mo-

bile communications. A number of important eSafety applications are under development in the SAFESPOT, CVIS and related projects that are not included in the above list of priority systems, and we shall consider these also.

ACTION: representatives of relevant RTD projects to identify eSafety applications & systems that may need standardisation support.

3.2 Questions and issues for the Task Force on radio spectrum (WG-C/TFSp)

We would expect that a number of administrations interested in ITS services would attend the eSafety Forum WG Communications workshop in Munich.

We suggest the following headlines:

1. The objectives of ITS services and the need for spectrum and regulation.
2. Short overview of services to be provided by ITS. (See 3.1)
3. Requirements for spectrum
    a. Frequency bands and the 802.11p standard
    b. Ongoing compatibility studies
    c. ITS s Mobile Service
    d. Protection of spectrum to ensure development of services *(protection ???)*
    e. Availability of spectrum and regulatory issues including licensing.
4. Status of the ETSI standard
5. Timescales for operational implementation
6. EC Mandate to ensure regulatory certainty and binding agreements

The purpose of the eSafety initiative is to allocate spectrum and standards to market and foster the growth of eSafety systems (support allocation of spectrum and standardization). These comprise a range of autonomous and cooperative systems and applications for advanced driver assistance, using the latest technologies for sensing, computing and mobile communications.

3.3 Questions and issues for Task Force on Standardisation (WG-C/TFSt)

Before TFSt can sensibly begin to work, its tasks must be defined. That means that the communications standardisation needs must be identified for a number of eSafety systems that will be the focus of the TF's activities. Since standardisation is always a lengthy and complex process, standards will only be developed where truly necessary. So how can we approach this task?

We could begin by asking some questions:

- What is the work programme of European and global standardisation bodied concerning communications for eSafety?
- Is the eSafety community fully aware of/engaged in work on standardisation of communications relevant for eSafety systems?
- In general, what is lacking or not working today concerning standards relating to eSafety communications?
- For which eSafety systems is a lack of communications standards an obstacle to implementation?
- For each of the priority eSafety systems, what are the communication requirements, and what is the need for related standards?
- Who is demanding these standards, and who should be/is willing to contribute to their creation?
- What are the next steps to resolving these needs?

Once these questions are answered, the task will be to draft standardisation Work Items, each of which should lead to the creation of one or more standards in an appropriate standardisation body.

We would suggest that it should be the task of this WG to identify needed standards, and to draft work items for standardisation. It should also identify the actors who should and are willing to work on the drafting of the standards, and support the process of the actual drafting. This could be by an unpaid ad-hoc group or via a funded project team. We would not, however, expect that the WG-C itself or its Task Forces should carry out the standards drafting work itself. WG-C should stimulate and support the standardisation process.

Comprising members from national and European governments, and from the eSafety industry, WG-C could thus serve as the focal point for the political and industrial effort needed to ensure that standards come into being.

4 Summary of communications standardisation and frequnecy allocation activities

In this section we summarise the work on communications standards and frequency relevant to eSafety that is carried out in Europe and globally.

4.1 Europe

4.1.1 CEN TC/278 Road Traffic & Transport Telematics

4.1.2 ETSI TG 37

4.1.3 UN ECE WG29

4.2 Global

4.2.1 ISO TC/204

WG 16 CALM

WG 15 DSRC

4.2.2 IEEE

802.11p

802.21

802.16e

1609

4.2.3 Japan

5 Requirements of eSafety systems

Please use following requirements notification ID approach:

Standardisation Requiremments:

ST = Standardisation
WGC = eSafety Forum Work Group Communication
999 = sequential number

5.1 Standardisation requirements of eSafety systems

Seq-No.:	Short Name of the Reqirement	Description	Related eSafety application	Issued from
STWGC001				
STWGC002				
STWGC003				

5.2 Radio Frequence requirements of eSafety systems

Please use following requirements notification ID approach:

Spectrum Requiremments:

SP = Spectrum

WGC = eSafety Forum Work Group Communication

999 = sequential number

Seq-No.:	Short Name of the Reqirement	Description	Related eSafety application	Issued from
SPWGC001				
SPWGC002				
SPWGC003				

System Characteristic	eCall	X-FCD	RTTI	Dynamic traffic manage-ment (VMS)	Local danger warning	Speed Alert
Comms used						

6 Work programme for WG-C & next steps

[t.b.c.]