

# COMMISSION OF THE EUROPEAN COMMUNITIES

COM(92)341 final SYN 441

Brussels, 23 July 1992

Proposal for a

## COUNCIL DIRECTIVE

on the frequency bands to be designated

for the coordinated introduction of

Road Transport Telematic Systems in the Community,

including Road Information and Route Guidance Systems

(presented by the Commission)

## EXPLANATORY MEMORANDUM

### 1. Introduction

The Council Resolution of 22 January 1990<sup>1</sup> concerning trans-European networks recognised that citizens, businesses and administrations must be able to use communication infrastructures which encourage free movement within the Community and avoid problems of interoperability and compatibility. One of the special priority areas concerned the development and interconnection of trans-European networks notably, inter alia, in the area of the transport infrastructure and telecommunications. This has been confirmed by the European Council of Maastricht as a general Treaty goal.

Communications systems using radio-frequencies will be an essential element of Europe's transport infrastructure. A vital feature of the integration of such European mobile communication systems is the transmission of a wide range of information in digital form. Not only is voice communication needed - restricted as it is to correspondents sharing a common language - but coded messages will fulfil a series of functions which involve either the activation of automatic equipment or the translation of messages into any chosen language in spoken or visual form. There must not be any restriction on the carriage and operation of such communication equipment throughout the Community. In order to achieve this, however, it is essential to have common frequency bands available throughout the Community. These common frequency bands must be associated with harmonised standards to ensure interoperability.

Only when there are common frequency bands available for equipment complying with related harmonised standards will it be possible to allow the free circulation of related mobile equipment in the Community, as otherwise there is a likelihood of harmful radio interference, and discontinuity of service.

The establishment of trans-European networks using radio frequencies therefore depends on common frequency bands and associated harmonised standards. Only then will it be possible for users to operate their equipment throughout the Community without restriction.

The Community Research and Development Programme DRIVE (Dedicated Road Infrastructure for Vehicle Safety in Europe) was adopted in 1988<sup>2</sup> with the objective of improving road safety, transport efficiency and environmental quality in the Community.

A number of Road Transport Telematic applications were identified including automatic road toll collection using radio transmission between interrogator beacons beside or above the road and passive or semi-passive transponders installed in vehicles. This avoids the need for an active transmitting device with on-board power control installed in vehicles.

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<sup>1</sup> Council Resolution 90/C27/05 concerning trans-European networks, OJ NO C27, 06.02.90, p. 8

<sup>2</sup> Council Decision 88/416/EEC on a Community programme in the field of road transport informatics and telecommunications (DRIVE), OJ NO L206, 30.07.1988, p. 1

DRIVE recognised that in order to produce commercially priced equipment in the near future common frequency bands needed to be designated both below 10 GHz and above 50 GHz.

The Commission therefore approached the European Radiocommunications Committee (ERC) with a request to identify suitable frequency bands which could be made available throughout Europe.

After careful consideration, including a survey of frequency availability in each European country, CEPT concluded that frequency bands should be designated for Road Transport Telematic systems ie., initially within the band 5.725-5.875 GHz, which is allocated by the International Telecommunications Union (ITU) Radio Regulations (RR) to Industrial, Scientific and Medical (ISM) applications within the ITU Region 1 which includes Europe, and within the bands 63-64 GHz and 76-77 GHz, which are allocated in the RR to Radiolocation within ITU Region 1, which includes radar and future Road Transport Telematic systems.

Road Transport Telematic systems operating within the band 5.725-5.875 GHz will need to co-exist with ISM applications, however, it is expected that the geographical location of Road Transport Telematic systems, their short operational range, and robust signalling protocols should enable satisfactory operation.

Initial Road Transport Telematic applications can be expected to start operation in some Community countries within the next two or three years, using common standards and requiring adherence to common frequency bands. In this way the interoperability of equipment and interconnection of services will be guaranteed, thus making a particular contribution to the effectiveness of the Trans-European networks. The part to be played by telematic services in reducing congestion and developing a high level of service to the road users is reflected in the text of the Commission's Proposal<sup>3</sup> of 10th June 1992 concerning the Trans-European road network.

It is therefore essential that common frequency bands are made available throughout the Community and a Council directive based on the ERC recommended frequency band is therefore proposed.

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<sup>3</sup> COM(92)231 final, Communication "Transport infrastructure" and proposal for the amendment of Council Regulation EEC n° 3359/90 of 20th November 1990, together with proposals for Council Decisions concerning the road and inland waterway networks.

## 2. Background

The provision of common frequency bands is a prerequisite for the free movement of mobile communications equipment and services in the Community.

For this reason the Commission recognised the essential requirement for Community legislation in this field and proposed a series of Council Directives designating common frequency bands for the three major initiatives in European public mobile communications: the digital cellular system, GSM<sup>4</sup>; the radio paging system, ERMES<sup>5</sup>; and the digital cordless telecommunications systems, DECT<sup>6</sup>.

These Directives are based on the consensus developed in the ERC Committee of the Conference of European Posts and Telecommunications (CEPT) which produces recommendations on harmonisation of frequency spectrum usage. However since they are not binding, manufacturers and operators would not have the confidence to make the increasingly large investments necessary for the development of new systems, had there not been Community legislation to guarantee a Europe-wide market.

The Council recognised the importance of the strengthening of the Europe-wide coordination on radio frequencies with regard to pan-European services in the Council Resolution of 28 June 1990<sup>7</sup>.

The development of the standards for these systems is the responsibility of the European Telecommunications Standards Institute (ETSI). However the development of these standards requires an increasing commitment of resources by the manufacturers and operators participating in the ETSI work. In order to make the necessary investment of resources requires a certain level of confidence that a sufficiently large market will exist in which these costs can be recovered. This in turn mainly depends on the degree of certainty in the provision of the necessary frequency bands on a Europe-wide basis.

In June 1988 the Council adopted a Decision on a Community research and development programme in the field of Road Transport informatics and telecommunications (DRIVE)<sup>8</sup>. The purpose of DRIVE was to encourage and accelerate developments in information and communication technologies, whose application would improve road safety, maximise road transport efficiency and minimise the adverse environmental impact of transport. The rapid growth of road transport in Europe was recognised to be causing increasing problems of safety, leading to over 50.000 deaths annually in the Community; of congestion, estimated to result in economic costs of 50 billion ECU per annum; and of environmental conditions.

<sup>4</sup> Council Directive 87/372/EEC on the frequency bands to be reserved for the coordinated introduction of public pan-European cellular digital land-based mobile communications in the European Community, OJ.NO.L196, 17.07.1987, P. 85

<sup>5</sup> Council Directive 90/544/EEC on the frequency bands designated for the coordinated introduction of pan-European land-based public radio paging in the Community, OJ.NO.L310, 01.11.1990, p. 28

<sup>6</sup> Council Directive 91/287/EEC on the frequency bands to be designated for the coordinated introduction of Digital European Cordless Telecommunications (DECT) in the Community, OJ.NO.L144, 08.06.1991, p. 45

<sup>7</sup> Council Resolution 90/C 166/02 on the strengthening of the European-wide cooperation on radio frequencies in particular with regard to services with a pan-European dimension, OJ.NO.C166, 07.07.90, p. 4

<sup>8</sup> Council Decision 88/416/EEC on a Community programme in the field of road transport informatics and telecommunications (DRIVE), OJ.NO.L206, 30.07.1988, p. 1.

Innovations and cost reductions in information technology, telecommunications and broadcasting offer new effective means of achieving these objectives. If brought together integrated advanced communications, control and information systems will provide more flexible and responsive forms of road traffic management and safety systems.

### 3. The approach adopted

The work plan for DRIVE led to the support of projects with the aim of identifying the best choice of systems and strategy for their implementation ; the provision of directives and guide-lines to which industrial products and intelligent European road transport infrastructures should conform ; and the promotion of pilot schemes to assess the performance of equipment and systems.

Among the projects in DRIVE a microwave link was developed and demonstrated for data-communication between a moving vehicle and a fixed roadside station for non-stop automatic debiting applications such as road-tolling, road-use pricing and car parking, and for other information exchange functions. Many of the technical advances in Road Transport Telematic systems depend on this link which must be reliable, robust, secure and immune from interference.

The programme has identified that the provision of a common frequency band is essential for the introduction of Road Transport Telematic systems in Europe. A decision on a provision is expected to allow Road Transport Telematic systems to be introduced from 1993 onwards.

Recognizing the benefits which could accrue from better transport management using telematic systems, the Commission has proposed that the completion and functioning of the Trans-European road network should include the implementation of such systems and the development of traffic management measured based upon them<sup>9</sup>.

The lack of a firm commitment to the future provision of a common usable frequency band for the Road Transport Telematic systems is viewed as the major risk factor by the majority of organisations interested in developing these systems and providing transport telematic services. In cooperation with the DRIVE projects the European Radiocommunications Committee (ERC) has agreed a recommendation for common frequency bands for Road Transport Telematic systems throughout Europe.

It is therefore essential that common frequency bands are quickly established throughout the Community to allow the implementation of Road Transport Telematic systems from 1993.

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<sup>9</sup> COM(92)231 final, Communication "Transport infrastructure" and proposal for the amendment of Council Regulation EEC n° 3359/90 of 26th November 1990, together with proposals for Council Decisions concerning the road and inland waterway networks.

#### 4. Provisions of the Draft Directive

The allocation of frequencies in Member States is laid down by law, regulation or administrative action. Considering the above situation and the provision of radio frequencies as the most critical factor in the implementation of Road Transport Telematic systems, a Council Directive is necessary.

The Directive is proposed on the basis of Article 100a of the Treaty.

The articles of the Directive are briefly explained hereunder:

**Article 1** defines the Road Transport Telematic Systems;

**Article 2** designates the frequency bands to be available for the Road Transport Telematic systems.

**Article 3** deals with the implementation of the Directive.

**Article 4** establishes a reporting procedure on the implementation of the Directive.

#### 5. Conclusion

The objective of the attached Directive is therefore to make available the necessary frequency bands as a prerequisite to the coordinated introduction of Road Transport Telematic systems in the Community as an essential element in the establishment of an efficient trans-European road network.

The Commission invites the Council to adopt the attached proposal for a Directive.

Proposal for a  
**COUNCIL DIRECTIVE**

**on the frequency bands to be designated for the coordinated introduction of road transport telematic systems in the Community including road information and route guidance systems**

**THE COUNCIL OF THE EUROPEAN COMMUNITIES**

Having regard to the treaty establishing the European Economic Community, in particular Article 100a thereof,

Having regard to the proposal from the Commission<sup>10</sup>,

In co-operation with the European Parliament,<sup>11</sup>

Having regard to the opinion of the Economic and Social Committee,<sup>12</sup>

Whereas Council Resolution 90/C 27/05<sup>13</sup> calls for special priority to be given to the development and interconnection of trans-European networks notably, inter alia, in the area of telecommunications and transport ;

Whereas the Community's Research and Development Programme DRIVE<sup>14</sup> (Dedicated Road Infrastructure for Vehicle Safety in Europe) has identified a need for Road Transport Telematic Systems and the relevant requirements for standardisation ;

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<sup>13</sup> Council Resolution 90/C 27/05 concerning trans-European networks, OJ NO.C 27, 06.02.90, p. 8

<sup>14</sup> Council Decision 88/416/EEC on a Community Programme in the field of road transport informatics and telecommunications (DRIVE), OJ NO L 296, 30.07.1988, p. 1

Whereas services depending on telematic equipment interoperable throughout Europe could play an important part in reducing traffic congestion and raising the level of service to users ; Whereas their application could make an important contribution towards the management of road traffic and fulfilling the other aims of Community transport policy ;

Whereas the Community-wide operation of such systems will depend upon the provision of common frequency bands and associated harmonised standards;

Whereas an early decision on Community-wide frequency bands for Road Transport Telematic systems is essential to avoid delay in the development and implementation of these systems ;

Whereas for technical and commercial reasons, allocations both below 10 GHz and above 50 GHz are required ;

Whereas initial Road Transport Telematic applications, in particular road toll systems will require 10 MHz of bandwidth, whereas an additional 10 MHz may be necessary to meet the requirements of multi-lane roads in some countries ;

Whereas the European Radiocommunications Committee has identified 5.795-5.805 GHz with a possible expansion in the band 5.805-5.815 GHz, taking account of national situations, as the most suitable frequency band for the initial Road Transport Telematic systems in Europe ;

Whereas additionally the European Radiocommunications Committee has identified the bands 63-64 GHz and 76-77 GHz for radar and future Road Transport Telematic systems ;

Whereas such allocations are in line with the allocations of use foreseen in the radio regulations of the International Telecommunications Union (ITU) ;

Whereas the Road Transport Telematic standards must take account of the safety of users and the need for Europe-wide interoperability ;



Whereas the Road Transport Telematic standards must take account of the safety of users and the need for Europe-wide interoperability ;

Whereas Council Directive 89/336/EEC<sup>15</sup> of 3 May 1989 on the approximation of the laws of Member States relating to electromagnetic compatibility is applicable, and particular attention must be taken to avoid harmful electromagnetic interference ;

Whereas the progressive availability of the full range of the frequency bands set out above will be indispensable for the establishment of Road Transport Telematic Systems on a Europe-wide basis ;

Whereas the 5 GHz allocation falls within a band allocated for use by industrial, scientific and medical (ISM) applications ;

Whereas it is not possible for Member States to fully protect the Road Transport Telematic system from ISM interference ;

Whereas however, with careful design Road Transport Telematic systems should be capable of frequency sharing with other systems and services ;

Whereas the establishment of Road Transport Telematic Systems on a pan-European basis requires the allocation of common frequency bands; whereas this allocation would not be sufficiently achieved on an individual basis by the Member States and therefore for reasons of effectiveness could be better achieved at Community level;

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<sup>15</sup> Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility, OJ NO. L139, 23.05.1989, p. 19

**HAS ADOPTED THIS DIRECTIVE**

**Article 1**

For the purpose of this Directive, Road Transport Telematic systems are defined as systems requiring data communication between road vehicles and between vehicles and the road infrastructure for various information-based travel and transport applications.

**Article 2**

Member States shall designate by 1st January 1993 for Road Transport Telematic systems the frequency bands 5.795-5.805 GHz (with possible extension to 5.815 GHz), 63-64 GHz and 76-77 GHz.

**Article 3**

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive within 12 months of its notification. They shall forthwith inform the Commission thereof.
2. When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such reference shall be laid down by Member States.

**Article 4**

The Commission shall report to the Council on the implementation of this Directive not later than the end of 1995.

**Article 5**

This Directive is addressed to Member States.

Done at Brussels

For the Council

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The President

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# DOCUMENTS

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