

**EUROPEAN RADIOCOMMUNICATIONS COMMITTEE**

ERC Decision  
of 7 March 1996  
on the frequency bands for the introduction of the  
Trans European Trunked Radio System  
(TETRA)  
(ERC/DEC/(96)04)





## **EXPLANATORY MEMORANDUM**

### **1. INTRODUCTION**

The TETRA (Trans European Trunked Radio system), is a European standard for the mobile radio network system aimed at professional use. This system is based on digital technology and is intended to provide both voice and data services for private and public professional mobile radio applications with improved performance and spectrum efficiency over existing analogue technologies.

The European Radiocommunication Office (ERO) of the ERC has developed a report on TETRA civil applications, as a work requirement for the European Commission, gathering information from administrations and potential operators, manufacturers and users. The result has been a market evaluation of TETRA civil applications over the next 10 years, and based on this information an evaluation of spectrum requirements. This work has been of great value for the development of this decision.

### **2. BACKGROUND**

During the past few years, developments in mobile radio, especially in public networks have been rapid. New digital technologies have been developed and standardised, GSM being a good example of a pan European public cellular system.

In the Professional Mobile Radio (PMR) area, similar developments can be foreseen. Such development will be subject to the availability of standards and frequency bands in time to fulfil the market demand.

The European Commission has proposed in the Green Paper "A common approach in the field of mobile and personal communications in the European Union", that specific action should be taken on establishment of an ERC Decision for the allocation of harmonised bands and sufficient resources for the digital trunked mobile radio system TETRA.

The standardisation work for TETRA started in ETSI (European Telecommunications Standards Institute) in 1988 under the title MDTRS (Mobile Digital Trunked Radio System). Currently standards have been developed on TETRA Voice + Data (ETS 300 392) and TETRA Packet Data Optimised (PDO) (ETS 300 393).

In parallel with this standardisation activity, CEPT tried to find a common harmonised frequency band for TETRA. Due to the fact that such a band is not available at present, CEPT has approved Recommendation T/R 22-05 which indicates the possible frequency bands within which the requirements for this system could be met.

### **3. REQUIREMENT FOR AN ERC DECISION**

The allocation or designation of a frequency band for its use by a service or system under specified conditions in CEPT member countries is laid down by law, regulation or administrative action. The ERC recognises that for TETRA to be introduced successfully throughout Europe, manufacturers and operators must be given the confidence to make the necessary investment in this new radiocommunications system and service. Therefore ERC believes that it is necessary to designate a limited number of frequency bands to be used by the TETRA system under specified conditions. A commitment by CEPT member countries to implement an ERC Decision will provide a clear indication that the required frequency bands will be made available on time and on a European-wide basis.

Currently, it is recognised that due to the different and extensive uses of the candidate bands, it is not possible to accommodate the spectrum requirements for TETRA civil in a single harmonised band in CEPT countries. For this reason, a flexible approach with the identification of four frequency bands has been adopted in the decision, allowing room to adapt to specific national situations and needs, and giving firm guidelines to administrations, operators and manufacturers.

**ERC DECISION  
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The European Conference of Postal and Telecommunications Administrations,

*considering:*

- a) that the use of trunked systems can improve spectrum efficiency and increase the quality of service provided to users of mobile radio;
- b) that the introduction of new digital technology will allow the provision of a wide range of new services;
- c) that the use of harmonised frequency bands would ease frequency coordination between adjacent countries and with other radio services;
- d) that the spectrum below 1 GHz is already used intensively for many different radio services;
- e) that at present a single common harmonised frequency band is not available;
- f) that the availability of a small number of frequency bands within common tuning ranges should satisfy initial market demands and help to reduce the cost of equipment;
- g) that common tuning ranges would enable the possibility of mobile units to operate in more than one area or country;
- h) that spectrum requirements have been identified both in 400 MHz and in 900 MHz frequency bands;
- i) that compatibility between TETRA and systems in adjacent bands (such as e.g. UIC, GSM) has to be taken into account on a national basis;
- j) that ETSI has indicated advantages in the use of frequencies below 500 MHz;
- k) that the bands 380-385 MHz and 390-395 MHz have been identified as the frequency bands to accommodate the needs of digital land mobile systems for emergency services;
- l) that, in a number of countries, the use of the band 380-400 MHz for new services is subject to sharing conditions;
- m) that the studies undertaken by ERO have identified the probable expansion of TETRA systems leading to increasing requirements for spectrum in major conurbations of the order of 2x3 MHz by 1 January 1999, 2x4 MHz by 1 January 2001 and 2x11 MHz by 1 January 2006;
- n) that in a number of countries the bands 385-390/395-399.9 MHz are not available for civil use at present.

## DECIDES

1. that for the purpose of this Decision, the Trans European Trunked Radio System (TETRA) shall mean equipment complying with the European Telecommunications Standards for TETRA;
2. that the frequency requirements for TETRA civil systems shall be met within one or more of the bands 410-430 MHz, 870-876/915-921 MHz, 450-470 MHz and 385-390/395-399.9 MHz;
3. that the bands 410-430 MHz and/or 870-876/915-921 MHz should be used as preference bands. If these bands are not available or additional spectrum is required, the bands 450-470 MHz and/or 385-390/395-399.9 MHz should be used;
4. that at least 2x2 MHz within the bands identified in Decides 2 shall be made available for TETRA by 1 January 1997;
5. that the amount of spectrum requirements and dates of availability will be reviewed once TETRA civil has been introduced and some experience has been gained on practical operational requirements;
6. that this Decision shall enter into force by 1 July 1996;
7. that CEPT Member Administrations shall communicate the national measures implementing this Decision to the ERC chairman and the ERO when the Decision is nationally implemented.

### Note:

Please check the ERO web site ( [www.ero.dk](http://www.ero.dk) ) under “Documentation / Implementation” for the up to date position on the implementation of this and other ERC Decisions.