

**ELECTRONIC COMMUNICATIONS COMMITTEE**

ECC Decision  
of 28 October 2005  
on harmonised frequencies, technical  
characteristics, exemption from individual  
licensing and free carriage and use of  
digital PMR 446 applications operating in the  
frequency band 446.1- 446.2 MHz

(ECC/DEC/(05)12)



## EXPLANATORY MEMORANDUM

### 1 INTRODUCTION

The success of PMR 446 analogue radio is obvious as it corresponds to user needs for short-range communications in peer-to-peer mode. Digital PMR 446 applications are specifically targeted at the small-scale PMR systems in all areas. Digital PMR 446 applications should be interpreted in this ECC Decision as referring to equipment satisfying the spectrum management considerations and market-sector requirements addressed by this Decision.

The transition to digital technology in all sectors of radio communications is vital in order to meet the user expectations whilst improving spectrum efficiency. To date, this market sector of low cost digital PMR handheld equipment has not been addressed. Digital PMR 446 applications will be crucial to the future of the low-end mobile radio market. Digital PMR 446 applications typically have a simplified functionality that should be treated in a similar manner as the analogue PMR 446 equivalent with a limited set of channels and a specification that allows usage to be exempted from individual licensing (or covered by a general authorization to use the equipment).

Industry research has indicated that provision of a small number of key features would increase the value that the users can derive from the equipment, and a significant increase in demand could therefore be expected.

Some of these key features are:

1. Improved audio quality.
2. Improved battery performance.
3. Improved quality of service extending out to the range limit (rather than greater absolute range).
4. Data communication, typically short message.

Finally, it is important that the corresponding frequencies are harmonised throughout Europe. A pan-European harmonised frequency designation would give the economy of scale required to produce terminals at a price that can compete with analogue technology and further encourage users towards early adoption.

### 2 BACKGROUND

The frequency band 446.0-446.1 MHz has been designated for PMR 446 by CEPT/ERC Decision (98)25 of 23 November 1998. PMR 446 is intended for short range voice communications based on analogue 12.5 kHz systems. CEPT/ERC Decisions (98)26 and (98)27 provide provisions on "*Exemption from individual licensing*" and "*Free circulation and use*" of PMR 446 equipment.

License exempt digital PMR 446 applications within the band 446.1-446.2 MHz are envisaged as complementing the current analogue PMR 446 applications by providing additional features. The handheld terminals with integral antennas are suitable for simplex, digital peer-to-peer voice and data communications with low bit rates. Initially two variants for low cost handheld digital PMR 446 equipment with integral antenna are under consideration in order to provide solutions optimised for business and consumer user market segments. These are both FDMA systems using either a 12.5 kHz bandwidth according to ETSI TR 102 335-1 V1.1.2 (2004-10), or using 6.25 kHz bandwidth according to ETSI TR 102 433. In the future there may possibly be other systems covering digital PMR 446 applications.

ETSI has already developed the harmonised European standards EN 300 113-2 (12.5 kHz bandwidth) and EN 301 166-2 (6.25 kHz bandwidth) for radio conformance purposes.

The spectrum within 446-446.2 MHz is considered sufficient for low cost, short range communications. Other parts of the radio spectrum in the VHF and UHF ranges are used for the professional market

offering repeater mode or trunked mode. The spectrum 446.1 - 446.2 MHz is currently used for licensed systems in some countries and these licences will continue to be valid for several years. Hence digital PMR 446 users have to accept interferences in those areas where incumbent systems are still used.

This ECC Decision describes the spectrum management requirements of, and intends to provide for exemption from individual licensing and free carriage and use for digital PMR 446 applications.

### **3 REQUIREMENT FOR AN ECC DECISION**

The allocation or designation of frequencies for use by a radio application or system under specified conditions within CEPT is laid down by law, regulation or administrative action. ECC Decisions are required for radio spectrum harmonisation, to deal with licence related matters. The aim is to obtain free circulation and use of equipment in support of the *Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity*.

ECC recognises that for digital PMR 446 applications to pursue its successful development throughout Europe, manufacturers must be encouraged to make the appropriate investments in these radiocommunication systems. It is therefore considered necessary to designate a frequency band within which Digital PMR 446 can be operated under specified conditions.

ERC Recommendation 01-07, revised in 2004, listed harmonised criteria for the administrations to decide whether an exemption from individual license should be applied. The aim of this Decision is also to exempt digital PMR 446 equipment from individual licensing as it fulfils the criteria for exemption listed in ERC/REC 01-07 and to allow the carriage and use of the equipment within CEPT countries.

A commitment by CEPT administrations to implement an ECC Decision will provide a clear indication that the required frequency band(s) will be made available on time and on a European-wide basis. The amount of spectrum requirements and dates of availability will be reviewed from time to time. ERO should collect and make publicly available information from administrations about the implementation of this ECC Decision.

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"The European Conference of Postal and Telecommunications Administrations,

*considering*

- a) that increasing demand for the use of simplified digital land mobile radio justifies the harmonisation of frequencies and regulations for digital PMR 446 applications;
- b) that licence exempted digital PMR 446 applications cannot claim protection from nor cause interference to other radio applications, however, issuing new individual licences in the frequency band 446.1 - 446.2 MHz should be avoided;
- c) that the process of refarming the band 446.1 - 446.2 MHz for the use of digital PMR 446 applications may take some time in some CEPT countries; i.e. it is envisaged that in these countries channels may be released for digital PMR 446 applications only after they become available;
- d) that ETSI has developed ETSI Technical Specification TS 102 361-1 for digital PMR 446 equipment with 12.5 kHz channel spacing and TS 102 490 for digital PMR 446 equipment with 6.25 kHz channel spacing;
- e) that ERC Recommendation T/R 25-08 provides a recommended channelling arrangement for the band 440-450 MHz;

DECIDES

1. that this Decision designates the frequency band 446.1 - 446.2 MHz for the implementation of digital PMR 446 applications
2. that in EU/EFTA countries the use of such equipment referred to in decides 1 shall comply with the R&TTE Directive. Conformity with the essential requirements in its Article 3(2) may be demonstrated by compliance with harmonised standards EN 300 113 – 2 or EN 301 166 – 2 or equivalent technical specifications;
3. that the following technical characteristics shall be applied for digital PMR 446 applications in order to reduce the risk of harmful interference:

Maximum e.r.p.	Channel spacing <sup>1</sup>	Maximum transmitter time-out time	Radio equipment	Antenna
500 mW	6.25 kHz or 12.5 kHz	180 seconds	Hand portable only	Integral antenna only

<sup>1</sup> The centre frequency of the first channel is at a distance of channel spacing / 2 from the lower band edge

4. that digital PMR 446 equipment covered by this Decision shall be exempted from individual licensing;
5. that administrations shall allow the free carriage and use of digital PMR 446 within CEPT countries under the same conditions, in the same form and following the same procedures as laid down in ERC Decision (95)01;
6. that this Decision enters into force on 28 October 2005;
7. that the preferred\* date for implementation of this Decision shall be 1February 2006;
8. that CEPT administrations shall communicate the national measures implementing this Decision to the ECC Chairman and the Office when the Decision is nationally implemented."

Notes:

Note 1: France has a derogation to implement this Decision until 01.01.2011.

Note 2\* Please check the Office web site (<http://www.ero.dk>) for the up to date position on the implementation of this and other ECC Decisions.