



# ECC Decision (04)06

The availability of frequency bands for the introduction of Wide Band Digital Land Mobile PMR/PAMR in the 400 MHz and 800/900 MHz bands

**approved 19 March 2004**

amended the Annex 27 June 2008

amended 26 June 2009

amended 9 December 2011

## EXPLANATORY MEMORANDUM

### 1 INTRODUCTION

This ECC Decision addresses the use of the bands 410-430 MHz, 450-470 MHz and 870-876/915-921 MHz, which are planned for applications within the land mobile service. Although the Decision does not specifically designate particular frequency subbands to be used in the introduction of Wide Band Digital Land Mobile PMR/PAMR systems the ECC Decision is linked to the general frequency strategies as outlined in the Strategic Plan for PMR/PAMR for the period until 2013 (ECC Report 25). This plan indicates a common long term goal to achieve European harmonisation in the use of the radio frequency spectrum for PMR/PAMR applications and has indicated subbands which could be used for wide band applications in Europe within the above frequency bands. The introduction of such strategies is, however, still based on national possibilities and national market demands and the indicated subbands may not be available in all CEPT countries. The term Wide Band Digital Land Mobile PMR/PAMR is intended to cover digital systems providing data rates of several hundred kilobits per second. These systems may be operated self provided, self used or third party provided. GSM-R within the bands 873-876 MHz / 918-921 MHz is considered as a subset of PMR/PAMR.

### 2 BACKGROUND

The existing PMR/PAMR market in Europe is to a large extent based on analogue technologies with 97 % analogue users in the year 2000. In 2001 around 60 % of new users, the majority being public safety and security applications were, however, based on digital technologies. Market surveys and information from industry organisations and users indicate that digital technologies are becoming dominant. Although analogue equipment will still be in use the vast majority of the new delivered equipment will be digital across all market segments. This ECC Decision has been developed in order to provide confidence to industry and potential users that the necessary frequency spectrum to meet the digital requirements will be provided in CEPT countries in accordance with the market developments. This Decision covers the PMR/PAMR systems for which the compatibility and sharing studies are referenced in Annex to this Decision and which are using different channel bandwidths. It is intended that this Decision provides for the frequency availability according to the market demand additional to the frequency bands already made available for Digital Land Mobile PMR/PAMR.

In line with the development of digital land mobile PMR/PAMR the need for high-speed data and other additional services increases. Already now there is an expressed requirement for services that cannot be delivered over traditional narrow band technology. In response, industry has already developed a number of systems, including for example TETRA TAPS and GSM-R using 200 kHz channel bandwidth, CDMA-PAMR using 1.25 MHz channel bandwidth and TETRA TEDS using different channel bandwidths from 25 kHz up to 150 kHz.

This ECC Decision covers exclusively the designation and especially the availability of frequency bands. This means the relevant bands should be designated in the national frequency usage tables and should be made available by the administrations according to the market demand. The current software controlled radio equipment technology offers the flexibility with regard to different frequency availability situations within the CEPT member countries, which facilitates European frequency planning. The harmonisation on a European basis would support 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.*

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

The allocation or designation of frequency bands for use by a service or system under specified conditions in CEPT member countries is laid down by law, regulation or administration action. It is considered beneficial to identify these frequency bands for Wide Band Digital Land Mobile PMR/PAMR according to market demand. Only the real indication of the availability of an appropriate amount of radio spectrum and not only the designation within the national frequency usage tables encourages manufacturers and operators to make the necessary investments in these radio communication technologies. A commitment by CEPT member countries to implement an ECC Decision will provide a clear indication that the required frequency bands 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.

**ECC DECISION OF 19 MARCH 2004, AMENDED 26 JUNE 2009 AND 9 DECEMBER 2011 ON THE AVAILABILITY OF FREQUENCY BANDS FOR THE INTRODUCTION OF WIDE BAND DIGITAL LAND MOBILE PMR/PAMR IN THE 400 MHz AND 800/900 MHz BANDS (ECC/DEC/(04)06)**

"The European Conference of Postal and Telecommunications Administrations,

*considering*

- a) that there is a need to harmonise spectrum for the introduction of wide band digital land mobile PMR/PAMR within CEPT;
- b) that frequency bands designated in this Decision on wide band systems have also been designated for narrow band systems according to ECC Decision (06)06;
- c) that narrow band systems are widely used in CEPT;
- d) that wide band digital systems can provide higher data rates than narrow band PMR/PAMR systems;
- e) that this ECC Decision also provides a possibility for a GSM-R extension into the bands 873-876 MHz and 918-921 MHz on a national basis;
- f) that ECC Report 162 on "Practical mechanism to improve the compatibility between GSM-R and public mobile networks and guidance on practical coordination" may be considered by administrations and/or operators to address interference cases between GSM-R and public mobile networks on a local/regional/national basis, taking into account the operational aspects;
- g) that additional compatibility studies may be needed between GSM-R and existing and new systems in the 873-876 / 918-921 MHz band and the adjacent bands, thus leading to possible adjustment to the annex of this ECC Decision;
- h) that availability of frequency bands for public land mobile networks (cellular systems) is not covered in this Decision;
- i) that PAMR operators aim to provide radio services to a large variety of closed user groups as opposed to Public Land Mobile Networks that are available to all subscribers;
- j) that multilateral/bilateral agreements on frequency coordination in border areas can have an influence on the availability of radio spectrum;
- k) that the duplex frequency band 870-876/915-921 MHz is also designated for defence systems in ERC Report 25: "The European table of frequency allocations and utilisations in the frequency range 9 kHz to 3000 GHz";
- l) that ECC Report 25 on the Strategic Plan for PMR/PAMR also provides definitions and descriptions of PMR and PAMR;
- m) that bi- or multilateral arrangements may be necessary for the coordination of frequencies for Wide Band Digital Land Mobile PMR/PAMR;
- n) that guard bands and frequency management constraints around the duplex transition frequencies, as mentioned in the ECC Reports listed in Annex, may require other mitigation techniques such as geographical distance, frequency separation and/or additional filtering;
- o) that administrations have the right to decide which of the Wide Band Digital Land Mobile PMR/PAMR systems contained in the Annex to this Decision can be introduced in their national

territories, with due respect to their international trade obligations and to European Community legislation as far as EU Member States are concerned;

- p) that administrations have the right to exercise spectrum/frequency management which may affect the number of service suppliers, in conformity with their international trade obligations and to European Community legislation as far as EU Member States are concerned;
- q) that in EU/EFTA countries the radio equipment that is under the scope of this Decision shall comply with the R&TTE Directive (1999/5/EC). Conformity with the essential requirements of the R&TTE Directive may be demonstrated by compliance with the applicable harmonised European standard(s) or by using the other conformity assessment procedures set out in the R&TTE Directive.

### *DECIDES*

1. that this Decision covers Wide Band Digital Land Mobile PMR/PAMR systems using different channel bandwidths;
2. that the frequency requirements for Wide Band Digital Land Mobile PMR/PAMR systems referred to in the Annex to this Decision shall be met within the bands:
  - a) 410-430 MHz and/or 450-470 MHz with 10 MHz duplex spacing between the transmit frequencies of mobile stations (410-420 MHz and 450-460 MHz) and the transmit frequencies of base stations (420-430 MHz and 460-470 MHz), and/or
  - b) 870-876 MHz paired with 915-921 MHz with 45 MHz duplex spacing between the transmit frequencies of mobile stations (870-876 MHz) and the transmit frequencies of bases stations (915-921 MHz);
3. that a sufficient amount of spectrum within one or more of the bands 410-430 MHz, 450-470 MHz and 870-876 MHz paired with 915-921 MHz shall be made available for Wide Band Digital Land Mobile PMR/PAMR in response to market demand;
4. that additional systems can be added to the Annex to this Decision;
5. that possible further spectrum requirements and dates of availability should be considered once Wide Band Digital Land Mobile PMR/PAMR systems have been introduced and some experience has been gained on practical operational requirements;
6. that this Decision enter into force on 9 December 2011;
7. that CEPT administrations shall communicate the national measures implementing this Decision to the ECC Chairman and the Office when the Decision is nationally implemented.”

### *Note:*

*Please check the Office documentation database <http://www.ecodocdb.dk> for the up to date position on the implementation of this and other ECC Decisions.*

## **ANNEX: LIST OF WIDE BAND DIGITAL PMR/PAMR SYSTEMS AND RELATED SHARING AND COMPATIBILITY REPORTS**

### **TETRA TAPS, GSM-R and other equivalent 200 kHz systems**

- i. ECC Report 5 on "*Adjacent band compatibility between GSM and TETRA mobile services at 915 MHz*" is concerned with adjacent band compatibility issues relating to TETRA, TETRA TAPS and GSM at the frequency boundary at 915 MHz;
- ii. ECC Report 13 on "*Adjacent band compatibility between TETRA TAPS mobile services at 870 MHz*" is concerned with adjacent band compatibility issues relating to TETRA TAPS above 870 MHz and Short Range Devices below 870 MHz;
- iii. ECC Report 14 on "*Adjacent band compatibility of UIC<sup>1</sup> Direct Mode with TETRA Advanced Packet Data Service (TAPS)*" investigates adjacent band compatibility between TAPS and UIC DMO around 876 MHz;
- iv. ECC Report 22 on "The technical impact of introducing TAPS on 12.5/25 kHz PMR/PAMR technologies in 380-400 MHz, 410-430 MHz and 450-470 MHz bands"

### **CDMA-PAMR and other equivalent 1.25 MHz systems**

- i. ECC Report 38 on "*Adjacent band compatibility of UIC<sup>1</sup> Direct Mode with CDMA-PAMR*" investigates adjacent band compatibility between CDMA-PAMR and UIC DMO around 876 MHz;
- ii. ECC Report 39 on the "*Technical impact of introducing CDMA-PAMR on 12.5 /25 kHz PMR/PAMR technologies in the 410-430 and 450-470 MHz bands*" investigates adjacent band compatibility between CDMA-PAMR and narrow band PMR/PAMR in the 400 MHz bands;
- iii. ECC Report 40 on "*Adjacent band compatibility between CDMA-PAMR mobile services at 870 MHz*" is concerned with adjacent band compatibility issues relating to CDMA-PAMR above 870 MHz and Short Range Devices below 870 MHz;
- iv. ECC Report 41 on "*Adjacent band compatibility between GSM and CDMA-PAMR mobile services at 915 MHz*" is concerned with adjacent band compatibility issues relating to CDMA-PAMR and GSM at the frequency boundary at 915 MHz;

### **TETRA TEDS and other equivalent systems**

- i. ECC Report 99 on "*TETRA Enhanced Data Services (TEDS): Impact on existing PMR/PAMR and Air Ground Air (AGA) systems in the 400 MHz band*" (February 2007) provides information on the impact of TEDS on existing PMR/PAMR systems in the frequency range 380-470 MHz and on military radio applications below 400 MHz.

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<sup>1</sup> UIC: "Union Internationale des Chemins de Fer" (the world wide association of railways)