ELECTRONIC COMMUNICATIONS COMMITTEE

ECC Decision
of 27 June 2008

on the harmonisation of frequency bands
for the implementation of digital Public Protection and
Disaster Relief (PPDR) radio applications
in bands within the 380-470 MHz range

(ECC/DEC/(08)05)

EXPLANATORY MEMORANDUM

1 INTRODUCTION

This ECC Decision addresses the harmonisation of bands within the frequency range 380-470 MHz for the implementation of digital Public Protection and Disaster Relief (PPDR) narrow band and wide band radio applications in the mobile service (land mobile service).

The ITU-R report M.2033 defines the purpose of a PPDR radio system. Such a system includes two different uses. The first one is for Public Protection (PP) which covers radiocommunications used by responsible agencies and organizations dealing with maintenance of law and order, protection of life and property, and emergency situations. The second one is for Disaster Relief (DR) which covers radiocommunications used by agencies and organizations dealing with a serious disruption of the functioning of society, posing a significant, widespread threat to human life, health, property or the environment, whether caused by accident, nature or human activity, and whether developing suddenly or as a result of complex, long-term processes.

To provide PPDR narrow band applications, the trend is to implement wide area networks including digital trunked radio networks providing digital voice and low speed data applications (e.g. pre-defined status messages, data transmissions of forms and messages, access to databases). Report ITU-R M.2014 lists a number of technologies, with typical channel bandwidths up to 25 kHz, which are currently used to deliver narrow band PPDR applications.

It is expected that the wide band technologies will carry data rates of several hundred kilobits per second (e.g. in the range of 384-500 kbit/s). Systems for wide band applications to support PPDR are under development in various standards organisations. Many of these developments are referenced in Report ITU-R M.2014 and in Recommendations ITU-R M.1073, ITU-R M.1221 and ITU-R M.1457 and with channel bandwidths dependent on the use of spectrally efficient technologies. A wideband wireless system may be able to reduce response times of accessing the Internet and other information databases directly from the scene of an incident or emergency.

It has to be noted that a third class of PPDR applications is under development. Broadband technology could be seen as a natural evolutionary trend from wideband. Broadband applications enable an entirely new level of functionality with additional capacity to support higher speed data and higher resolution images. Nevertheless, this last class of PPDR applications is not covered by this decision.

2 BACKGROUND

This ECC Decision covers narrow band as well as wide band PPDR radio applications. Spectrum within the duplex bands 380-385 MHz/390-395 MHz, already identified by the former ERC/DEC/(96)01, should be designated for narrow band PPDR radio applications.

New standards for wide band PPDR radio applications have been developed and are being developed in various standards organisations. In Europe the ETSI standard TETRA, with its new TETRA Enhanced Data Service (TEDS) according to EN 302 561, is expected to be used to provide wide band data applications for Public Protection as well as Disaster Relief radiocommunications. TEDS standard supports radio channel widths 25 kHz, 50 kHz, 100 kHz, 150 kHz and allows user bit rates between 30 and 400 kbit/s depending on which bandwidth is being chosen and on the distance from the base station site.

The provisions of this ECC Decision regarding the wide band systems are based on a “tuning range” concept which provides flexibility for the administrations by implementing this Decision. The aim is to make radio spectrum available for wide band PPDR radio applications either in the 385-390 MHz/395-399.9 MHz band, in the 410-420 MHz/420-430 MHz band or in the 450-460 MHz/460-470 MHz band. Further information regarding spectrum requirements can be found in ECC Report 102. It is advantageous to identify the band 380-470 MHz as a tuning range for wide band PPDR within Europe. Within this tuning range the most suitable sub-band at the moment is 380-430 MHz, taking into account the technology currently available. The duplex band 380-385 MHz/390-395 MHz, which has been identified for narrow band PPDR radio applications (emergency services) since 1996, will consequently be available for those radio applications in the future.

It has been decided to implement narrow band as well as wide band PPDR radio applications in one single ECC Decision because wide band systems supplement narrow band systems and therefore both systems have to be considered together, also from a regulatory point of view.

For the time being, there are a number of existing ECC Decisions which are related to the use of PMR/PAMR in this frequency band:

- ⇒ The ECC/DEC/(04)06 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 which include some parts of the band 380-470 MHz, in particular the 410-430 MHz and 450-470 MHz bands.
- ⇒ The ECC Decision (06)06 on the availability of frequency bands for the introduction of Narrow Band Digital Land Mobile PMR/PAMR in the 80 MHz, 160 MHz and 400 MHz bands which include some parts of the band 380-470 MHz, in particular the 406.1-430 MHz and 440-470 MHz bands.

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 PPDR systems for which the compatibility and sharing studies are referenced in Annex to this Decision and which are using different channel bandwidths.

In line with the development of narrow band PPDR, the need for high-speed data and other additional services increases (as developed in the ITU-R Report M.2033). There is an identified requirement for services that cannot be delivered over traditional narrow band technology. This leads to the introduction of wideband and broadband systems.

3 REQUIREMENT FOR AN ECC DECISION

The allocation or designation of frequency bands for use by a service or a radio application under specified conditions in CEPT administrations is laid down by law, regulation or administration action. It is considered necessary to designate and implement frequency bands for digital Public Protection and Disaster Relief (PPDR) radio applications. Those radio applications may be based on narrow band or wide band systems. The harmonisation on a European basis would support the aims of *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*. A commitment by CEPT administrations to implement an ECC Decision will provide a clear indication that the required frequency bands will be made available on time.

ECC Decision
of 27 June 2008

on the harmonisation of frequency bands for the implementation of digital Public Protection and Disaster Relief (PPDR) radio applications in bands within the 380-470 MHz range

(ECC/DEC/(08)05)

"The European Conference of Postal and Telecommunications Administrations,

considering

a) that there is a need to identify spectrum for the implementation of Public Protection and Disaster Relief (PPDR) radio applications in the mobile service in Europe;

b) that in CEPT countries there are agreements between the military and the civil authorities to accommodate the emergency services in the frequency bands 380-385 / 390-395 MHz subject to certain conditions such as sharing;

c) that in many CEPT countries the frequency bands 380-385 / 390-395 MHz are already used by narrow band emergency systems;

d) that wide band digital PPDR radio applications provide higher data rates and supplement the features of narrow band PPDR radio applications (digital land mobile systems for the emergency services);

e) that ECC Report 102 on "*Public Protection and Disaster Relief spectrum requirements*" (January 2007) provides information regarding the demand for wide band radio applications;

f) that this ECC Report 102 recognises that the sub-band 380-430 MHz is the most suitable for the moment, but identifies the full band 380-470 MHz for wideband PPDR to provide flexibility;

g) that Report ITU-R M.2033 on "*Radiocommunication objectives and requirements for public protection and disaster relief*" (2003) was developed in preparation for WRC-03 and defines the public protection and disaster relief (PPDR) objectives and requirements for the implementation of future advanced solutions;

h) that Resolution 646 (WRC-03, Geneva) on "*Public Protection and Disaster Relief*" strongly recommends to use regionally harmonised bands for PPDR radio applications;

i) that frequency bands within the tuning range 380-470 MHz have also been designated to narrow band digital land mobile PMR/PAMR and to wide band digital land mobile PMR/PAMR by ECC/DEC/(04)06 and ECC/DEC/(06)06;

j) that in the European table of frequency allocations and utilisations covering the frequency range 9 kHz to 1000 GHz (ERC Report 25, revised in May 2007) the frequency bands 380-399.9 MHz, 410-430 MHz and 450-470 MHz are allocated to the mobile service on a primary basis, however the frequency range 225-399.9 MHz has also been identified for military applications;

k) that narrow band as well as wide band digital PPDR radio applications are expected to be large area or nation-wide networks to be used on a permanent basis;

l) that parts of the bands identified in this Decision are allocated to radio services other than the mobile service and the usage of these bands may be subject to agreements between neighbouring countries in accordance with the ITU Radio Regulations;

m) that WRC07 has identified the band 450-470 MHz for use by administrations wishing to implement International Mobile Telecommunications (IMT) noting that this identification does not preclude the use of this band by any application of the services to which it is allocated and does not establish priority in the Radio Regulation;

n) that there is a need for interoperability between PPDR radio applications, both nationally and for cross-border operations;

o) that ERC Recommendation T/R 25-08 provides recommended channelling arrangements including duplex spacing;

p) that bilateral or multilateral arrangements may be necessary for the coordination of frequencies for PPDR in the border areas and this may have an influence on the availability of radio spectrum;

q) that administrations have the right to decide which of the digital land mobile systems contained in the Annex to this Decision can be introduced for narrow band or wide band PPDR radio applications 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;

r) 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 the purpose of this Decision is to identify the frequency bands for digital Public Protection and Disaster Relief (PPDR) radio applications in the 380-470 MHz band using tuning ranges where necessary and to establish a common framework for the implementation of PPDR;

2 that this Decision for PPDR covers narrow and wide band digital land mobile systems listed in the Annex;

3 that sufficient amount of spectrum shall be made available

i) for narrow band digital PPDR radio applications using channel spacing up to 25 kHz within the duplex bands 380-385 MHz / 390-395 MHz that had been designated for use by emergency services

and/or

ii) for wide band digital PPDR radio applications using channel spacing of 25 kHz or more within available parts of the frequency range 380-470 MHz;

4 that additional systems can be added to the Annex to this Decision after respective sharing and compatibility studies have been conducted;

5 that the Decision replaces the ERC/DEC/(96)01 which is withdrawn;

6 that this Decision enters into force on 27 June 2008;

7 that the preferred date for implementation of this Decision shall be date 31 December 2008;

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:

1 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.

ANNEX

List of digital land mobile systems and related sharing and compatibility reports

A) Wide band digital land mobile systems

TETRA TAPS and other equivalent 200 kHz systems

i. 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*";
harmonised standards: EN 301 419, EN 301 502, EN 301 511.

CDMA-PAMR and other equivalent 1.25 MHz systems

i. ECC Report 39 on the "*Technical impact of introducing CDMA-PAMR on 12.5 /25 kHz PMR/PAMR technologies in the 410-430 MHz and 450-470 MHz bands*" investigates adjacent band compatibility between CDMA-PAMR and narrow band PMR/PAMR in the 400 MHz bands;
harmonised standards: EN 302 426, EN 301 449, EN 301 526.

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; harmonised standard: EN 302 561.

B) Narrow band digital land mobile systems

DMR (Digital Mobile Radio), TETRAPOL and other digital 12.5 kHz land mobile systems

i. Systems which comply with harmonised standard EN 300 113.

TETRA and other digital 25 kHz land mobile systems

i. Systems which comply with harmonised standards EN 300 113, EN 303 035-1, EN 303 035-2 or EN 302 561.