Electronic Communications Committee (ECC)
within the European Conference of Postal and Telecommunications Administrations (CEPT)

ECC RECOMMENDATION (08)04

THE IDENTIFICATION OF FREQUENCY BANDS FOR THE IMPLEMENTATION OF BROAD BAND DISASTER RELIEF (BBDR) RADIO APPLICATIONS IN THE 5 GHz FREQUENCY RANGE

Recommendation adopted by the Working Group "Frequency Management" (WGFM)

INTRODUCTION

This ECC Recommendation addresses the identification of frequency bands within the 5 GHz frequency range for the implementation of Broad Band Disaster Relief (BBDR) radio applications.

Disaster Relief is a priority subject for the citizens, the governments and the CEPT countries, as well as European Union, and radio solutions are an essential element for public safety operations. For the purpose of this ECC Recommendation the term Disaster Relief (DR) radio applications refers to radiocommunications used by agencies and organisations 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.

There is a need for dedicated Broad Band Disaster Relief (BBDR) spectrum to support narrowband and wideband operational requirements. BBDR radiocommunication equipment for large events and large disaster situations is brought to the local area as required. BBDR equipment may or may not be linked with the existing Public Protection and Disaster Relief (PPDR) network infrastructure. Spectrum for narrowband and wideband digital Public Protection and Disaster Relief (PPDR) radio applications is already identified in sub-bands within the 380-470 MHz band by the ECC/DEC/(08)05. ETSI has described the needs for broadband applications in ETSI TR 102 485 (BBDR system reference document).

The frequency spectrum requirement of 50 MHz for BBDR, as requested in the ETSI TR 102 485, is derived from the Report ITU-R M.2033. In order to harmonise with the other regions it is to be noted that 50 MHz of spectrum has been identified in the USA and in some other countries within the Regions 2 and 3.

Broadband technology could be seen as a natural evolutionary trend from wideband technology. Broadband applications enable an entirely new level of functionality with additional capacity to support higher data rates and higher resolution images. Broadband applications could typically be tailored to service localised areas (e.g. 1 km^2 or less) providing voice, high-speed data, high quality digital real time video and multimedia (indicative data rates in range of 1-100 Mbit/s) with channel bandwidths dependent on the use of spectrally efficient technologies.

The ECC Report 110 addresses the compatibility and sharing issues between BBDR systems and other systems/ services identified within the frequency bands under consideration for BBDR: 4940-4990 MHz, 5150-5250 MHz, 5470-5725 MHz, 5725-5875 MHz and 5875-5925 MHz.

These studies have shown that the frequency band 5150-5250 MHz is the most suitable band for BBDR since compatibility was achieved in this band with existing services. Additional consideration was also given to compatibility issues with Aeronautical Mobile Telemetry systems (AMT) for flight testing recently allocated within ITU Region 1 by WRC-07. It was concluded in the Report 110 that some interference may occur between BBDR and AMT systems, but with low probability due to the temporary nature of both applications and the low number of locations of these AMT systems within Europe. According to the ECC Report 110, BBDR operation is not compatible with Fixed Service (FS) links and Radio Astronomy Service (RAS) stations in the frequency band 4940-4990 MHz. This Report 110 did not recommend using BBDR applications in the 4940-4990 MHz band in countries where FS links and/or RAS sites use this frequency band. Nevertheless, this frequency band could still be considered as an optional band for those countries, which do not foresee incompatibilities with active RAS sites or FS usage in this band. In the three upper candidate bands 5470-5725 MHz, 5725-5875 MHz and 5875-5925 MHz the operation of BBDR does not seem to be appropriate and require additional mitigation techniques to improve the compatibility with other services in those bands.

"The European Conference of Postal and Telecommunications Administrations,

considering

a) that ECC Report 102 on "*Public Protection and Disaster Relief spectrum requirements*" (January 2007) provides information regarding the existing situation and the expected future needs, taking into account the demand for Broad Band Disaster Relief (BBDR) radio applications;

b) 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;

c) that Definitions for BBDR are given in Report ITU-R M.2033 and ECC Report 102 (Annex E);

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

e) that spectrum for narrowband and wideband digital Public Protection and Disaster Relief (PPDR) radio applications have been identified in sub-bands within the 380-470 MHz band by ECC Decision (08)05;

f) that ETSI has developed a System Reference Document on BBDR by TR 102 485 V1.1.1 (2006-07): "*Technical characteristics for Broadband Disaster Relief applications (BBDR) for emergency services in disaster situations*";

g) that ECC Report 110 on "*compatibility studies between Broad Band Disaster Relief (BBDR) and other systems*" (September 2007) addresses compatibility and sharing issues between BBDR radio applications and the other systems/services identified within the possible frequency bands under consideration for BBDR;

h) that the frequency band 5150-5250 MHz has also been designated to WAS/RLANs according to ECC/DEC/(04)08 and Resolution 229 (WRC-03) using the primary Mobile allocation;

i) that the frequency band 5150-5250 MHz has also been allocated to fixed-satellite service (Earth-to-space), whereas Radio Regulations No. 5.447A limits this allocation to feeder links of non-geostationary-satellite systems in the mobile-satellite service;

j) that the frequency band 5150-5250 MHz is also allocated to the Aeronautical Mobile Service (AMT) on a primary basis by ITU Radio Regulations No. 5.444B (WRC-07), whereas this allocation is limited to aeronautical telemetry transmissions from aircraft stations;

k) that BBDR radio applications are used locally and temporarily which reduces the probability for causing or receiving interference from other radio systems significantly;

l) that ECC Report 110 recognises that the sub band 5150-5250 MHz is the most suitable band for BBDR because of its compatibility with existing services and low probability of interference with AMT;

m) that the frequency band 4940-4990 MHz has also been allocated to fixed (FS) and mobile service (MS) and radio astronomy according to ERC Report 25 ("*The European table of frequency allocations and utilisations in the frequency range 9 kHz to 1000 GHz*");

n) that the frequency band 4940-4990 MHz could still be considered as an optional band for those countries, which do not foresee incompatibilities with active RAS sites, FS or MS usage in this band;

o) that ETSI has produced a draft Harmonised European Standard EN 302 625 for 5 GHz Broadband Disaster Relief (BBDR) applications for emergency services in disaster situations";

recommends

1) that administrations should make available at least 50 MHz of spectrum for digital Broad Band Disaster Relief (BBDR) radio applications;

2) that spectrum within the frequency band 5150-5250 MHz should be the preferred option for the deployment of BBDR radio applications;

3) that spectrum within the frequency band 4940-4990 MHz should be the optional band in countries, which do not foresee incompatibilities with active RAS sites, FS or MS usage in this band;

4) that the usage of BBDR radio applications should not claim protection from nor cause interference to radio services in the frequency bands 4940-4990 MHz and 5150-5250 MHz.

5) that spectral power density should not exceed the values of 26 dBm/MHz e.i.r.p. for a BBDR Base Station (BS) and 13 dBm/MHz e.i.r.p. for BBDR User Equipment (UE)."

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