



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

ECC RECOMMENDATION (04)06

GUIDELINES FOR BLOCK ALLOCATION FOR FIXED WIRELESS SYSTEMS IN THE BAND 31.8-33.4 GHz

Recommendation adopted by the Working Group "Spectrum Engineering "

INTRODUCTION

The band 31.8-33.4 GHz is allocated on a primary basis to the Fixed Service, available for high density applications in the fixed service in accordance with the ITU Radio Regulations (RR 5.547). In 2001, ERC has adopted ERC Recommendation ERC/REC(01)02, which provides the preferred channel arrangement for digital fixed service systems operating in this band.

In order to answer the increasing demand for different applications of the fixed service and mobile technologies (including 3G applications), this Recommendation provides guidelines for block allocation of fixed wireless systems in the 31.8-33.4 GHz band for both point-to-point and point-to-multipoint systems. The recommendation may be used for fixed wireless access systems and infrastructure support. This will provide the desirable flexibility for the use of the band, taking into account the sharing conditions between FS and RNS studied in this band in the ITU-R/REC F.1571.

"The European conference of Postal and Telecommunications Administrations,

considering

- a) that the band 31.8-33.4 GHz has been allocated on a world-wide primary basis to the Fixed Service (FS) at WRC-2000, available for High-Density applications in the Fixed Service (HDFS) (see RR 5.547);
- b) that recommendation ERC/REC 01-02 provides the preferred channel arrangements for the FS in the band 31.8-33.4 GHz;
- c) that CEPT has a long term objective to harmonise the use of frequencies throughout Europe to benefit from technical and economic advantages;
- d) that sharing in the 31.8-33.4 GHz band between Fixed Service and Radionavigation Service (RNS) is considered as feasible (footnote 5.547A) taking into account ITU-R Recommendation F.1571;
- e) that FS technologies derived from the frequency bands 23 GHz, 26 GHz, 28 GHz and 38 GHz could economically be deployed in the 31.8-33.4 GHz band for both infrastructure support and access applications;
- f) that sufficient capacity and flexibility for deployment of multiple systems within a desired service area can be achieved by the aggregation of contiguous frequency slots from an homogeneous pattern;
- g) that it would be beneficial if such a homogeneous pattern can be made compatible with the channel plan proposed in ERC-Recommendation 01-02 for FS;
- h) that the slot size considered for the deployment of fixed wireless access (FWA) in order to satisfy the needs of the operators is 28 MHz in each duplex sub-band, which would be in line with ERC-Recommendation 01-02;

- i) that operators may advantageously deploy equipment with a variety of central frequencies and bandwidths within their block assignment of one or more 28 MHz slots to meet their operational needs of fixed wireless systems (FWS);
- j) that both point-to-point (P-P) and point-to-multipoint (P-MP) systems could be accommodated within the assigned blocks;
- k) that to ensure coexistence between systems operating in the same area and in the adjacent frequency blocks, guard bands could have to be introduced between neighbouring FWS (see Annex), also taking into account that both PP and PMP systems may be deployed within the blocks;
- l) that guidance material is available to assist administrations for assessing the spectrum requirements on the FS to provide infrastructure to support the UMTS/IMT-2000 networks (see ECC Report 19);
- m) that for both PP and PMP systems, the estimated size of the guard band needed is equal to the greater channel used by the two neighbouring systems and through appropriate regulations and co-operation between neighbouring operators the size of the guard bands could be reduced;
- n) that guidance material is available to assist administrations with the assignment of frequency blocks to operators for PMP systems (see ERC Reports 99 and 97);

noting

- a) that within CEPT some administrations have adopted other assignment regimes in this band in accordance with ERC Recommendation 01-02;
- b) that ITU-R Recommendation F.1520 (Annex 2) provides an example of radio frequency block arrangement in the band 31.8-33.4 GHz, using block size increments of 56 MHz;

recommends

- 1 that those administrations planning to implement block allocation to FWS in the band 31.8-33.4 GHz, or parts of this band, should assign frequency blocks comprising slots aligned with the 28 MHz channel raster identified in ERC Recommendation 01-02;
- 2 that administrations should allow both P-P and P-MP systems in this band, used for both infrastructure support and FWA;
- 3 that for Frequency Division Duplex (FDD) P-MP systems, and P-P systems using a central hub station (star configuration), the systems are designed to transmit from Central Stations in the lower half of the band while the Terminal Stations transmit in the upper half of the band;
- 4 that in the case of FWS operating in adjacent frequency blocks in the same area, where national inter-operator coordination guidelines or procedures have not been defined by the administration, adequate inter-assignment protection may be ensured through the introduction of guard bands between neighbouring block assignments or, included within such blocks;
- 5 that in the case described in recommends 4, the size of the guard bands to ensure adequate inter-assignment protection of FDD systems should be at least equal to 28 MHz; the guard band may consist of one unused slot of frequency, or of slots used only with one polarisation, adjacent to slots used on the opposite polarisation (see Figures 1 and 2 in the Annex);
- 6 that in the case described in recommends 4, for deployment of TDD systems alongside TDD or FDD systems, the guard band should be 2x28 MHz; if TDD systems are accommodated with the size of guard band 1x28MHz, TDD hub stations must be located at least 500 m from any other hub station;
- 7 that those administrations intending to leave to neighbouring operators the responsibility of the inter-operator protection required by Recommends 5 or 6 should consider adequate increased spectrum requirements (as specified in Recommends 4) within the assigned blocks (see figures 3 and 4 in the Annex);
- 8 that in the case of FWS operating in the same frequency block in neighbouring geographic areas within national borders, where national inter-operator coordination guidelines or procedures have not been defined by the administration, adequate inter-assignment protection may be ensured through introduction of reasonable protection distance between the boundaries of the closest areas where the same frequency block has been assigned. The size of such protection distance should be chosen so that there is a minimum distance of 20 km between central stations and terminals (incl. PP stations) and 40 km between central

stations of neighbouring systems (for further information on required and reasonable guard distances see section 5 of the ERC Report 99);

- 9 that administrations encourage co-operation between operators assigned the same frequency block in neighbouring areas or adjacent frequency blocks in the same area, to take advantage of co-ordinated deployment with benefits of using any specific topographic or operational circumstances.”

Note:

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

ANNEX
EXAMPLE BLOCK ARRANGEMENTS

- A possible arrangement for the guard band, with or without using Cross Polar Discrimination (XPD) protection, is shown in figure 1.

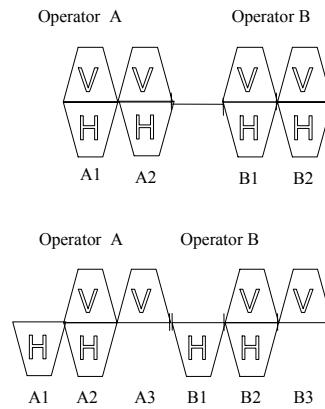


Figure 1

- A possible frequency allocation example with guard bands outside the blocks is shown in figure 2.

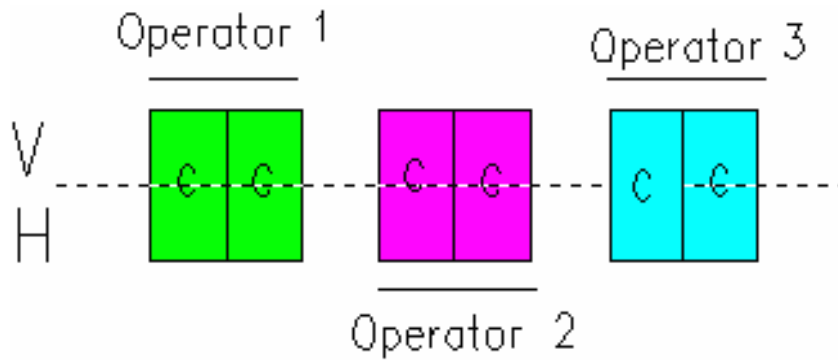


Figure 2

- A possible frequency allocation example with guard bands inside the blocks is shown in figure 3.

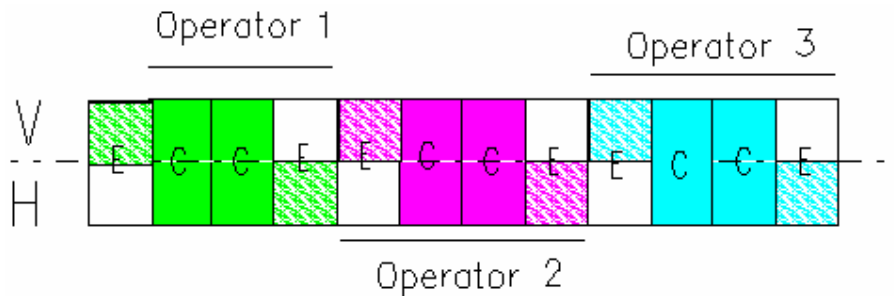


Figure 3

Where: E = edge slot; C = centre slot.

Notes:

- In this case each operator has 2x28MHz “interference-free” slots (C) plus 2x28MHz edge slots (E);
- Operators are required to find a degree of co-ordination needed in order to fully or partially utilise the “edge (E)” frequency slots;
- Operators have the flexibility to start deployment using the “interference-free” frequency slots C first and then to choose the best co-operation solution within edge slots E, with no constraints and without time pressure.

- Another example of possible re-use of the guard band is shown in figure 4.

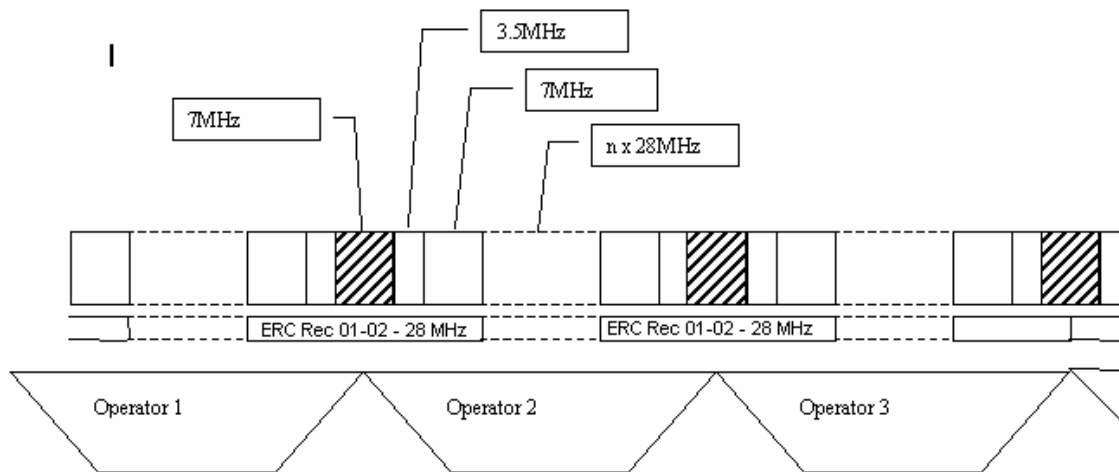


Figure 4