

CEPT/ERC/RECOMMENDATION 12-09 (The Hague 1998, Stockholm 2004)

**RADIO FREQUENCY CHANNEL ARRANGEMENT FOR FIXED SERVICE SYSTEMS OPERATING
IN THE BAND 57.0 – 59.0 GHz WHICH DO NOT REQUIRE FREQUENCY PLANNING**

Revised Recommendation approved by the Working Group "Spectrum Engineering" (SE)

“The European Conference of Postal and Telecommunications Administrations,

considering

- 1) that CEPT should develop radio frequency channel arrangements in consultation with organisations developing standards for radio systems, in order to make the most effective use of the spectrum available;
- 2) that the propagation characteristics of the 57.0 – 59.0 GHz are ideally suited for use of short range radio links in high density networks;
- 3) that the high frequency reuse achievable in the oxygen absorption band reduces the requirement for frequency planning techniques and offers the possibility of deregulated telecommunications environment within CEPT for various low power, low cost and short range radio-relays;
- 4) that the uses envisaged in this band include digital and analogue systems;
- 5) that a number of new and existing systems could operate adequately on an unprotected basis in the range of 57.0 – 59.0 GHz, relieving congestion in the lower frequency bands,

noting

- a) that Radio Regulations allocate the band 57.0 – 58.2 GHz on a primary basis for Earth Exploration Satellite (passive), Fixed, Inter-Satellite, Mobile and Space Research services, and 58.2 – 59.0 GHz on a primary basis for Earth Exploration Satellite (passive), Fixed, Mobile and Space Research (passive) services;
- b) that in the frequency range of 57.0 – 59.0 GHz oxygen gas absorption attenuation is more than 10 dB/km at sea level;
- c) that the high attenuation effectively limits the achievable path length and interference level;
- d) that in the frequency range 57.0 – 59.0 GHz high antenna directivity is achievable even with small size antennas, further reducing the risk of intra-service co-channel interference and interference with other services;
- e) that limiting the use of the lowest and highest 100 MHz channels may improve the coexistence with services operating in adjacent bands;
- f) that equipment may listen for a free channel before transmission to recognise existing transmissions in order to minimise interference problems and to ensure continued operation of existing transmissions,

recommends

- 1) that the equipment operating in this frequency range should have only minimum restrictions for future technical enhancements, but the necessary requirements to ensure reliable operation;
- 2) that the CEPT Administrations should follow the recommended channel arrangements for the frequency range 57.0 – 59.0 GHz given in **Annex A, Table 1** and **Table 2**;
- 3) that channels within the frequency ranges 57.0 - 57.1 GHz and 58.9 – 59.0 GHz should only be used for temporary purposes or equipment alignment and propagation tests;
- 4) that the EIRP should be limited to +25 dBW;
- 5) that the maximum output power should be limited to +10 dBm;”

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 A

RADIO-FREQUENCY CHANNEL ARRANGEMENTS IN THE BAND 57.0 – 59.0 GHz

Let f_r be the reference frequency of 56 950 MHz,
 f_n be the centre frequency of a radio-frequency channel in the band 57.0 – 59.0 GHz,

then the centre frequencies of individual channels are expressed by the following relationships:

a) for systems with a channel separation of 100 MHz:

$$f_n = f_r + 100 n \quad \text{MHz}$$

where:
 $n = 1, 2, 3, \dots, 20$

b) for systems with a channel separation of 50 MHz:

$$f_n = f_r + 25 + 50 n \quad \text{MHz}$$

where:
 $n = 1, 2, 3, \dots, 40$

Calculated parameters according to ITU-R Rec. 746

TABLE 1

XS MHz	n	f1 MHz	f _n MHz	Z1S MHz	Z2S MHz
50	1,...40	57025	58975	25	25
100	1,...20	57050	58950	50	50

XS Separation between centre frequencies of adjacent channels

Z1S Separation between the lower band edge and the centre frequency of the first channel

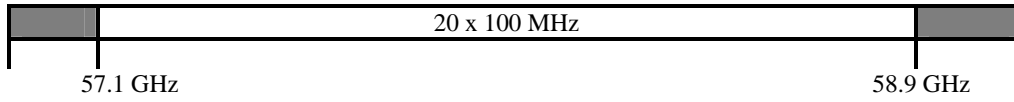
Z2S Separation between centre frequencies of the final channel and the upper band edge

Occupied spectrum: 57 to 59 GHz Band

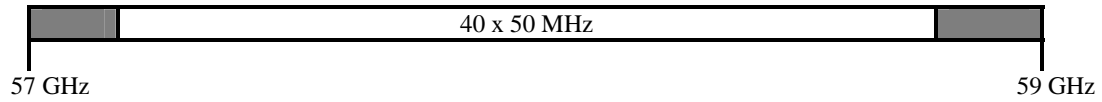
Figure 1

a) 100 MHz channels

*)



b) 50 MHz channels



*) Channels referred to in recommends 3