



Recommendation ITU-R F.637-4
(03/2012)

**Radio-frequency channel arrangements for
fixed wireless systems operating
in the 21.2-23.6 GHz band**

F Series
Fixed service



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Foreword

The role of the Radiocommunication Sector is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including satellite services, and carry out studies without limit of frequency range on the basis of which Recommendations are adopted.

The regulatory and policy functions of the Radiocommunication Sector are performed by World and Regional Radiocommunication Conferences and Radiocommunication Assemblies supported by Study Groups.

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SA	Space applications and meteorology
SF	Frequency sharing and coordination between fixed-satellite and fixed service systems
SM	Spectrum management
SNG	Satellite news gathering
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Note: This ITU-R Recommendation was approved in English under the procedure detailed in Resolution ITU-R 1.

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RECOMMENDATION ITU-R F.637-4

**Radio-frequency channel arrangements for fixed wireless systems
operating in the 21.2-23.6 GHz band**

(Question ITU-R 247/5)

(1986-1992-1994-1999-2012)

Scope

This Recommendation provides radio-frequency (RF) channel arrangements for fixed wireless systems (FWS) operating in the 21.2-23.6 GHz band. The main text of this Recommendation presents RF channel arrangements based on the homogeneous patterns with channel separations of 2.5 and 3.5 MHz. Annexes 1 to 4 present example arrangements of these homogeneous patterns used in some countries.

The ITU Radiocommunication Assembly,

considering

- a) that the band 21.2-23.6 GHz is allocated to the fixed and other services;
- b) Resolution 525 of the World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-Torremolinos, 1992);
- c) that the band is used for differing applications by various administrations and that these applications may require different radio-frequency (RF) channel arrangements;
- d) that several types of service with various capacities may be in simultaneous use in this frequency band;
- e) that the band allocated to each service or even to each administration may vary from one country to another;
- f) that the applications in this frequency band may require differing channel bandwidth;
- g) that a high degree of compatibility between RF channels of different arrangements can be achieved by selecting all channel centre frequencies from a homogeneous basic pattern,

recommends

- 1 that RF channel arrangements for the band 21.2-23.6 GHz should be based on a homogeneous pattern;
- 2 that the homogeneous pattern with a preferred 3.5 MHz interval be defined by the relation:

$$f_p = f_r + 3.5 + 3.5 p$$

where:

$$1 \leq p \leq 685$$

f_r : reference frequency of the homogeneous pattern;

- 3 that the homogeneous pattern with a preferred 2.5 MHz interval be defined by the relation:

$$f_p = f_r + 4 + 2.5 p$$

where:

$$1 \leq p \leq 959$$

f_r : reference frequency of the homogeneous pattern;

4 that the reference frequency of the homogeneous pattern for international connections should be:

$$f_r = 21\,196 \text{ MHz}$$

other reference frequencies may be agreed by the administrations concerned;

5 that in each bidirectional link all go channels should be in one half of any band, and all return channels in the other;

6 that the channel spacings, XS , the centre gap, YS , and the distance to the lower and upper band limits, Z_1S and Z_2S , should be agreed by the administrations concerned, dependent on the application and channel capacity envisaged (see Recommendation ITU-R F.746 for definitions of XS , YS and ZS).

NOTE 1 – Examples of channel arrangements based on this Recommendation are described in Annexes 1, 2, 3 and 4.

NOTE 2 – Due regard has to be taken that, in certain countries, a 3.5 MHz homogeneous pattern, interleaved by 1.75 MHz from that referred in § 2, is used in conjunction with the main pattern.

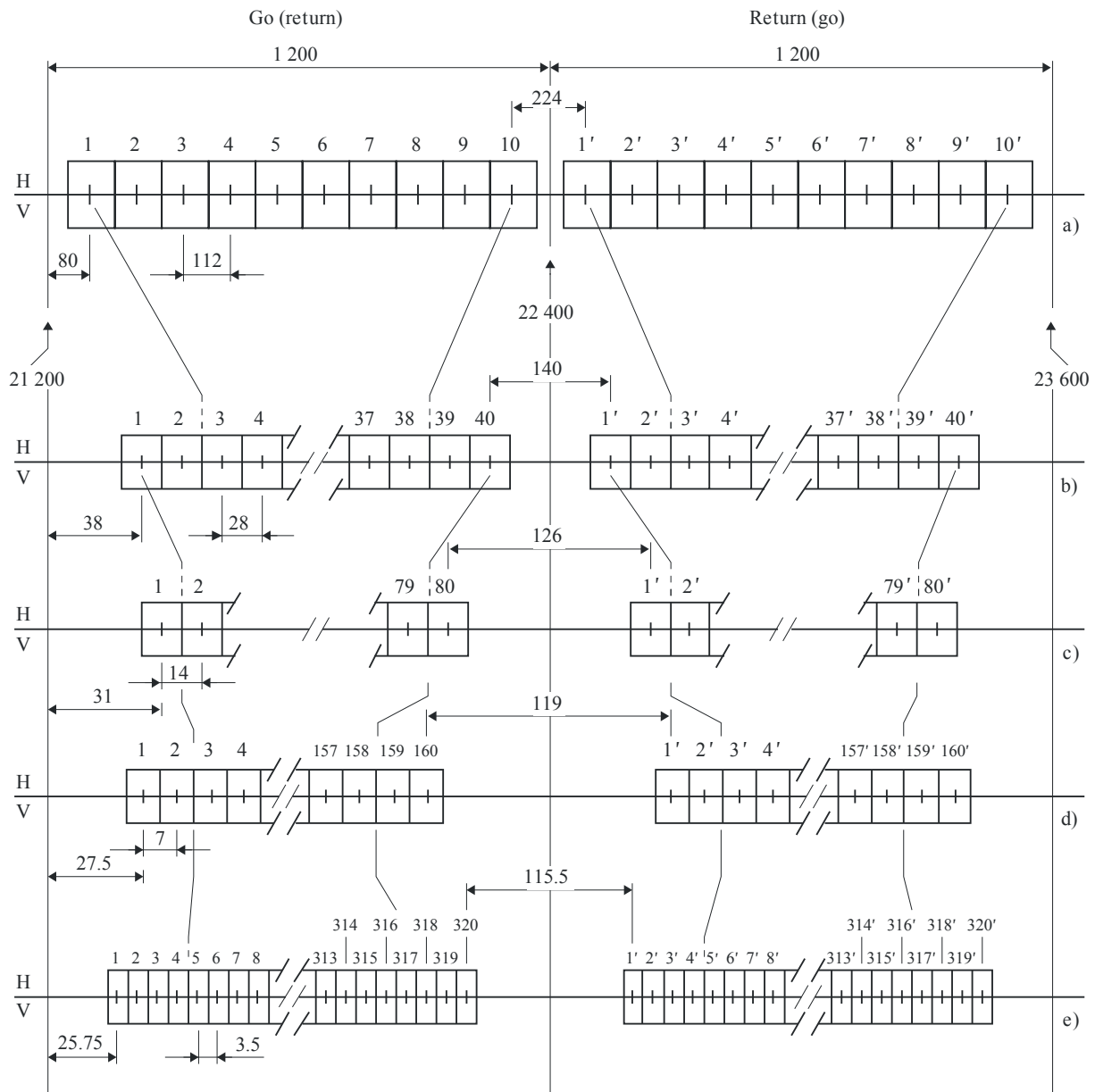
Annex 1

RF channel arrangements in the band 21.2-23.6 GHz used in some countries in accordance with *recommends 2*

The use of the band 21.2-23.6 GHz is based on a homogeneous 3.5 MHz frequency pattern. Various channel spacings are accommodated as shown in Fig. 1 and interleaved patterns are also used for the various spacings. In some applications, additional channels can be added in the edge and central guardbands using the homogeneous pattern.

FIGURE 1

**Radio-frequency channel arrangements for digital and analogue FWS
operating in the 21.2-23.6 GHz band**
(All frequencies in MHz)



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NOTE 1 – The RF channel arrangements of Fig. 1e) are derived by the use of carriers interleaved between those of the homogeneous pattern of *recommends 2*.