

RECOMMENDATION ITU-R F.701-2*

Radio-frequency channel arrangements for digital point-to-multipoint radio systems operating in frequency bands in the range 1 350 to 2 690 MHz (1.5, 1.8, 2.0, 2.2, 2.4 and 2.6 GHz)

(Question ITU-R 125/9)

(1990-1994-1997)

Scope

This Recommendation provides radio-frequency (RF) channel arrangements for point-to-multipoint (P-MP) fixed wireless systems operating in the frequency range between 1 350 and 2 690 MHz. An RF channel arrangement based on a homogeneous pattern with a 0.5 MHz channel separation is recommended for use in the bands 1 350-1 530 MHz, 1 700-1 900 MHz, 1 900-2 000 MHz, 2 100-2 300 MHz, 2 300-2 500 MHz and 2 500-2 690 MHz.

The ITU Radiocommunication Assembly,

considering

- a) that digital point-to-multipoint microwave systems are now widely used to provide wireless access to telephone and other telecommunication subscriber services in rural and remote areas of many countries;
- b) that many of these systems are operating in a number of specific frequency bands between 1.350 and 2.690 GHz as established by administrations;
- c) that some administrations permit sharing of certain of these frequency bands between point-to-point (P-P) and point-to-multipoint (P-MP) systems;
- d) that the radio-frequency (RF) channel arrangements for fixed radio systems are given in Recommendations ITU-R F.382, ITU-R F.746, ITU-R F.1098, ITU-R F.1242 and ITU-R F.1243;
- e) that efficient use of bands of different width can be achieved by RF channel arrangements matched to the width of the band available;
- f) that a high degree of compatibility between RF channels of different arrangements could be achieved by selecting all channel centre frequencies from a uniform basic pattern;
- g) that the centre gaps of the individual channel arrangements and the guard spacing at the edges of the band can be chosen by non-occupancy of a suitable number of RF-channel positions in a homogeneous basic pattern;
- h) that the uniform basic pattern spacing should not be unjustifiably small (i.e. the number of RF-channel positions too high) nor so large as to jeopardize efficient use of the available spectrum;

* Radiocommunication Study Group 9 made editorial amendments to this Recommendation in 2007 in accordance with Resolution ITU-R 44.

j) that the absolute frequencies of the basic pattern should be defined by a single reference frequency,

recommends

1 that the preferred RF channel arrangement for P-MP fixed wireless systems carrying a bit rate of 1 to 8 Mbit/s and operating in the frequency bands between 1.350 and 2.690 GHz should, if practicable, be the same as the corresponding arrangements for P-P fixed wireless systems;

2 that if it is not practicable to use the same channel arrangements as for P-P fixed wireless systems, the channel arrangements should be selected from a pattern with the following characteristics:

centre frequencies, f_n , of the radio-frequency channels within the basic pattern:

$$f_n = f_R - 0.5 m \quad \text{MHz}$$

where:

m : integer whose maximum value depends on the available frequency band

f_R : reference frequency;

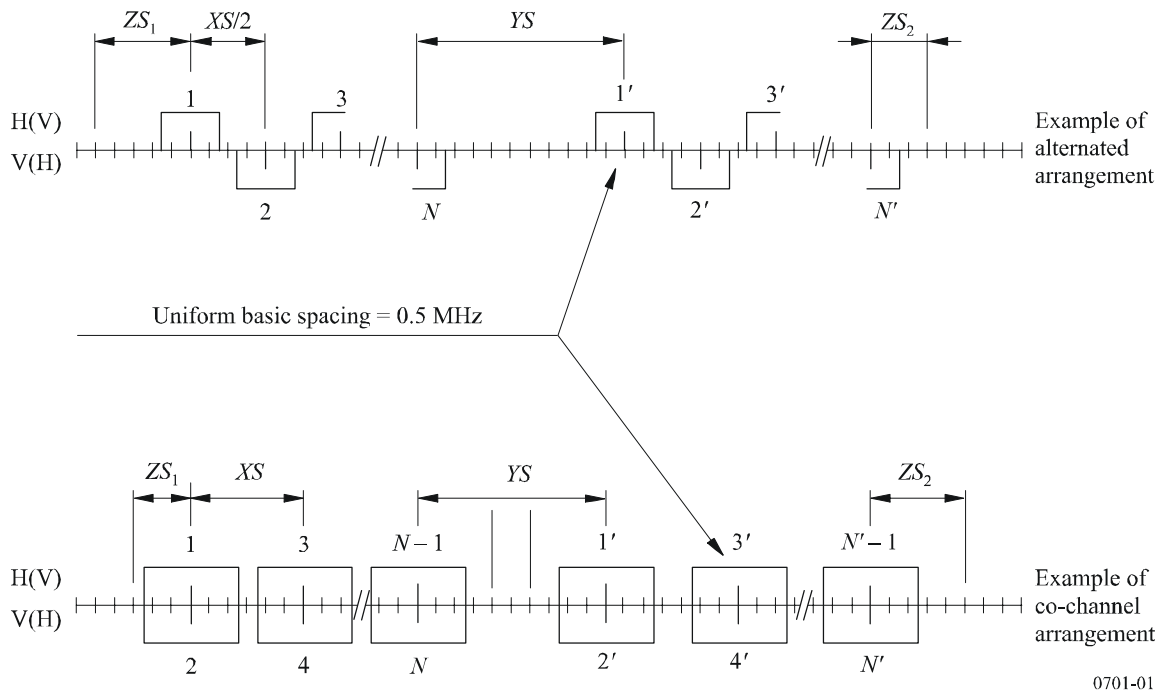
3 that these arrangements be applicable to the following frequency bands with the stated values of reference frequency f_R (see Notes 1 and 2):

Frequency band (MHz)	f_R (MHz)	Notes
1 350-1 530	1 530	4
1 700-1 900	1 900	5
1 900-2 100	2 100	5 and 6
2 100-2 300	2 300	5, 6 and 7
2 300-2 500	2 500	3, 7 and 8
2 500-2 690	2 690	7

4 that the channel spacing XS , the centre gap YS , the guard spaces ZS_1 and ZS_2 , and antenna polarization should preferably be chosen to allow P-MP radio systems to coexist with P-P systems operating on channel plans described in Recommendations ITU-R F.382, ITU-R F.746, ITU-R F.1098, ITU-R F.1242 and ITU-R F.1243, and should be agreed between the administrations concerned (see Note 1);

5 that the alternated or co-channel arrangement plan should be used, examples of which are shown in Fig. 1.

FIGURE 1
Examples of channel arrangements based on *recommends 2, 3 and 5*



NOTE 1 – It is recognized that some administrations have developed frequency channel arrangements that differ from this Recommendation inasmuch as ZS_1 , ZS_2 and YS were not always integer multiples of the channel spacing XS .

NOTE 2 – Some administrations have selected f_R to be a frequency other than those shown in *recommends 3*.

NOTE 3 – A frequency channel arrangement for fixed radio systems in this band is described in Recommendation ITU-R F.746.

NOTE 4 – Frequency channel arrangements for fixed radio systems in this range are described in Recommendation ITU-R F.1242.

NOTE 5 – Frequency channel arrangements for fixed radio systems in these bands are described in Recommendation ITU-R F.382.

NOTE 6 – Frequency channel arrangements for fixed radio systems in these bands are described in Recommendation ITU-R F.1098.

NOTE 7 – Frequency channel arrangements for fixed radio systems in these bands are described in Recommendation ITU-R F.1243.

NOTE 8 – The band 2400-2500 MHz (centre frequency 2450 MHz) is designated for industrial, scientific and medical (ISM) applications. Radio services in this band must accept harmful interference caused by these applications.