

RECOMMENDATION ITU-R F.1496-1

**Radio-frequency channel arrangements for fixed wireless systems
operating in the band 51.4-52.6 GHz**

(Question ITU-R 108/9)

(2000-2002)

The ITU Radiocommunication Assembly,

considering

- a) that the band 51.4-52.6 GHz is allocated to the fixed and mobile services on a primary basis;
- b) that No. 5.547 of the Radio Regulations (RR) identifies the 51.4-52.6 GHz band as being available for high-density applications in the fixed service (FS);
- c) that ITU-R should develop radio-frequency channel arrangements in order to make the most effective use of the spectrum available;
- d) that the propagation characteristics of the 51.4-52.6 GHz band are ideally suited for use of short-range digital point-to-point radio links in high-density applications in the FS networks;
- e) that in the frequency range a high antenna directivity is achievable even with small size antennas, increasing the density of equipment and further reducing risk of interference with same and other radio services;
- f) that differing applications licensed by various administrations may require different radio-frequency channel arrangements;
- g) that the applications in this frequency band may require differing channel bandwidths;
- h) that several radio services with various transmission signal characteristics and capacities may be in simultaneous use in this frequency band;
- j) that a high degree of compatibility between radio-frequency channels of different arrangements can be achieved by selecting channel centre frequencies within a homogeneous basic pattern,

recommends

- 1** that administrations should consider the channel arrangement given in Annex 1 for FS system deployment in the frequency range 51.4-52.6 GHz.

ANNEX 1

Radio-frequency channel arrangement in the band 51.4-52.6 GHz

The radio-frequency channel arrangement for channel separations of 56 MHz, 28 MHz, 14 MHz, 7 MHz and 3.5 MHz shall be derived as follows:

Let f_r be the reference frequency of 51 412 MHz,

f_n be the centre frequency (MHz) of the radio-frequency channel in the lower half of the band,

f'_n be the centre frequency (MHz) of the radio-frequency channel in the upper half of the band,

Tx/Rx separation = 616 MHz,

band separation = 112 MHz,

then the frequencies (MHz) of individual channels are expressed by the following relationships:

a) for systems with a channel separation of 56 MHz:

lower half of the band: $f_n = f_r + 56 n$

upper half of the band: $f'_n = f_r + 616 + 56 n$

where:

$$n = 1, 2, \dots 9$$

b) for systems with a channel separation of 28 MHz:

lower half of the band: $f_n = f_r + 14 + 28 n$

upper half of the band: $f'_n = f_r + 630 + 28 n$

where:

$$n = 1, 2, 3, \dots 18$$

c) for systems with a channel separation of 14 MHz:

lower half of the band: $f_n = f_r + 21 + 14 n$

upper half of the band: $f'_n = f_r + 637 + 14 n$

where:

$$n = 1, 2, 3, \dots 36$$

d) for systems with a channel separation of 7 MHz:

lower half of the band: $f_n = f_r + 24.5 + 7 n$

upper half of the band: $f'_n = f_r + 640.5 + 7 n$

where:

$$n = 1, 2, 3, \dots 72$$