

RECOMMENDATION ITU-R F.1567

**Radio-frequency channel arrangement for digital fixed wireless systems
operating in the frequency band 406.1-450 MHz**

(Question ITU-R 136/9)

(2002)

The ITU Radiocommunication Assembly,

considering

- a) that according to Article 5 of the Radio Regulations (RR) the frequency bands 406.1-430 MHz and 440-450 MHz are allocated to the fixed service (FS) on a worldwide basis;
- b) that any emission capable of causing harmful interference to the low-power satellite emergency position-indicating radiobeacons of the mobile-satellite service in the band 406-406.1 MHz is prohibited (see RR Nos. 5.266 and 5.267);
- c) that FS systems in frequency bands below 1 GHz have been extensively used for many years in certain countries including developing countries;
- d) that most of these systems utilize analogue technologies;
- e) that administrations may wish to digitize such systems;
- f) that some administrations may wish to establish digital systems utilizing their existing FS stations;
- g) that interference both within digital and between digital and analogue fixed wireless systems (FWS) could be minimized by the coordination of radio-frequency (RF) channel arrangements;
- h) that FWS operating in the band 406.1 to 450 MHz profit from the enhanced propagation range, relative to higher frequencies deployment;
- j) that the FS in the band 420-450 MHz is allocated on a co-primary basis with the radiolocation service, and the band 430-440 MHz is allocated to the radiolocation service with the amateur service co-primary in Region 1 and secondary in Regions 2 and 3;
- k) that the FS frequency plans in the bands 406.1-450 MHz typically support point-to-point and point-to-multipoint systems with frequency utilization efficiency of 1 bit/s/Hz;
- l) that the FS in the bands 410-430 MHz and 440-450 MHz is co-primary with the mobile service (except aeronautical mobile service), and in certain administrations only part of the bands are available to the FS,

recognizing

a) that Resolution 727 (Rev.WRC-2000) invites ITU-R to study, as matter of urgency, emission criteria, specific sharing criteria and operational characteristics for active spaceborne sensors in the frequency band 420-470 MHz,

recommends

1 that administrations should consider the channel arrangement given in Annex 1 for FS system deployment in the frequency range 406.1-430 MHz and 440-450 MHz.

ANNEX 1

RF channel arrangement in the bands 406.1-430 MHz and 440-450 MHz

This Annex describes a digital RF channelling arrangement for the bands 406.1-430 MHz and 440-450 MHz. The arrangements provide some different channelling and capacities uses.

1 406.1-413.05 MHz paired with the 423.05-430 MHz frequency band

The RF channel arrangement for this band is based on an adjacent channel spacing from 50 kHz up to 600 kHz and is derived as follows:

Let f_n be the centre frequency of one RF channel in the lower half of the band (MHz)

f'_n be the centre frequency of one RF channel in the upper half of the band (MHz).

The systems utilizing time division duplex (TDD) techniques can use both bands.

1.1 Channelling with 50 kHz spacing between carriers, for systems with 50 kHz maximum bandwidth

A Main

$$f_n = 406.075 + 0.05 \times n \quad \text{MHz}$$

$$f'_n = 423.025 + 0.05 \times n \quad \text{MHz}$$

where:

$$n = 1, 2, 3, \dots, 133$$

B Interleaved

$$f_n = 406.100 + 0.05 \times n \quad \text{MHz}$$

$$f'_n = 423.050 + 0.05 \times n \quad \text{MHz}$$

where:

$$n = 1, 2, 3, \dots, 132$$

1.2 Channelling with 100 kHz spacing between carriers, for systems with 100 kHz maximum bandwidth**A Main**

$$f_n = 406.050 + 0.1 \times n \quad \text{MHz}$$

$$f'_n = 423.000 + 0.1 \times n \quad \text{MHz}$$

where:

$$n = 1, 2, 3, \dots, 66$$

B Interleaved

$$f_n = 406.100 + 0.1 \times n \quad \text{MHz}$$

$$f'_n = 423.050 + 0.1 \times n \quad \text{MHz}$$

where:

$$n = 1, 2, 3, \dots, 66$$

1.3 Channelling with 150 kHz spacing between carriers, for systems with 150 kHz maximum bandwidth**A Main**

$$f_n = 406.025 + 0.15 \times n \quad \text{MHz}$$

$$f'_n = 422.975 + 0.15 \times n \quad \text{MHz}$$

where:

$$n = 1, 2, 3, \dots, 44$$

B Interleaved

$$f_n = 406.100 + 0.15 \times n \quad \text{MHz}$$

$$f'_n = 423.050 + 0.15 \times n \quad \text{MHz}$$

where:

$$n = 1, 2, 3, \dots, 43$$