



Recommendation ITU-R F.383-9
(02/2013)

**Radio-frequency channel arrangements
for high-capacity fixed wireless
systems operating in the lower
6 GHz (5 925 to 6 425 MHz) 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.

Policy on Intellectual Property Right (IPR)

ITU-R policy on IPR is described in the Common Patent Policy for ITU-T/ITU-R/ISO/IEC referenced in Annex 1 of Resolution ITU-R 1. Forms to be used for the submission of patent statements and licensing declarations by patent holders are available from <http://www.itu.int/ITU-R/go/patents/en> where the Guidelines for Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC and the ITU-R patent information database can also be found.

Series of ITU-R Recommendations

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Series	Title
BO	Satellite delivery
BR	Recording for production, archival and play-out; film for television
BS	Broadcasting service (sound)
BT	Broadcasting service (television)
F	Fixed service
M	Mobile, radiodetermination, amateur and related satellite services
P	Radiowave propagation
RA	Radio astronomy
RS	Remote sensing systems
S	Fixed-satellite service
SA	Space applications and meteorology
SF	Frequency sharing and coordination between fixed-satellite and fixed service systems
SM	Spectrum management
SNG	Satellite news gathering
TF	Time signals and frequency standards emissions
V	Vocabulary and related subjects

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.383-9

**Radio-frequency channel arrangements for high-capacity
fixed wireless systems operating in the lower 6 GHz
(5 925 to 6 425 MHz) band**

(Question ITU-R 247/5)

(1959-1963-1966-1982-1986-1990-1992-1999-2001-2007-2013)

Scope

This Recommendation provides radio-frequency (RF) channel arrangements for high-capacity fixed wireless systems (FWSs) operating in the 5 925 to 6 425 MHz band, which may also be used for low- and medium-capacity systems through high-capacity channel subdivision. The main text of as well as Annexes 1 to 3 to this Recommendation present a number of RF arrangements with channel separation of 5, 10, 20, 28, 29.65, 40 and 80 MHz in this frequency band.

The ITU Radiocommunication Assembly,

considering

- a) that it is desirable to interconnect fixed wireless systems (FWSs) on international links in the 6 GHz band at radio frequencies (RF);
- b) that many interfering effects can be substantially reduced by a carefully planned arrangement of the radio frequencies in FWS employing several RF channels;
- c) that the use of digital modulation permits the use of the RF channel arrangements, originally defined for 1 800 telephone channel systems, for the transmission of digital channels with a bit rate of the order of 140 Mbit/s or synchronous digital hierarchy bit rates;
- d) that for these digital radio systems, further economies are possible by accommodating go and return channels on a single antenna;
- e) that digital techniques such as cross-polar interference cancellers (XPIC) may significantly contribute to the cross-polar discrimination improvement factor (XIF, defined in Recommendation ITU-R F.746), thus counteracting multipath propagation-induced depolarization;
- f) that when very high-capacity links (e.g. twice STM-1, Synchronous Transfer Mode-1) are required, further economy may be achieved using system bandwidths wider than the recommended channel separation, associated to high efficient modulation formats;
- g) that some administrations may need to deploy also low- and medium-capacity systems,

recommends

- 1** that the preferred RF channel arrangement for up to eight go and return channels with each channel accommodating a capacity of the order of 140 Mbit/s, or synchronous digital hierarchy bit rates and operating at frequencies in the lower 6 GHz band (Note 5), should be as shown in Figs 1A, 1B or 1C and should be derived as follows:

Let f_0 be the frequency (MHz) of the centre of the band of frequencies occupied;

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

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