



Recommendation ITU-R F.2005-1
(02/2022)

**Radio-frequency channel and block
arrangements for fixed wireless
systems operating in the 42 GHz
(40.5 to 43.5 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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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.2005-1

Radio-frequency channel and block arrangements for fixed wireless systems operating in the 42 GHz (40.5 to 43.5 GHz) band

(Question ITU-R 247-1/5)

(2012-2022)

Scope

This Recommendation provides radio-frequency channel arrangements for point-to-point (P-P) fixed wireless systems operating in the 42 GHz (40.5 to 43.5 GHz) band, which may be used for high, medium and low capacity systems. The preferred radio-frequency channel arrangements are based on multiples of basic channels of 7 MHz width merged to form higher channel widths up to 224 MHz. Additional option for block arrangement suitable for deployment of a variety of fixed wireless access (FWA) systems using multipoint technology as well as PP links for infrastructure and access purpose. Third option for a flexible mixed use of the above deployment methodology is also described.

Keywords

Fixed service, point to point, channel bandwidth, channel arrangement, 42 GHz

Abbreviations

BFWA	Broadband fixed wireless access
FDD	Frequency division duplex
FS	Fixed service
FSS	Fixed-satellite service
MP	Multipoint
MP-MP	Multipoint-to-multipoint
P-MP	Point-to-multipoint
P-P	Point-to-point
RAS	Radio astronomy service
RR	Radio Regulations
TDD	Time division duplex

Related ITU Recommendations and Reports

Recommendation ITU-R F.746 – Radio-frequency arrangements for fixed service systems

The ITU Radiocommunication Assembly,

considering

- a) that the 40.5 to 43.5 GHz band is allocated worldwide to the fixed service (FS) on a primary basis;
- b) that in the Radio Regulations (RR) the 40.5 to 43.5 GHz band is identified for high-density applications in the FS;
- c) that there is particular need for point-to-point (P-P) links for large data capacity transport, e.g. for mobile networks applications, the deployment of which is expected to rapidly grow;

- d) that the deployment of P-P links may result in greater spectrum efficiency when using conventional link-by-link coordination within a dedicated radio-frequency channel arrangement;
- e) that for the deployment of broadband services, it is most desirable to deploy in the 40.5 to 43.5 GHz band digital systems of high capacity, but need for medium and low capacity connection are not excluded;
- f) that multipoint (MP) systems (point-to-multipoint (P-MP) or multipoint-to-multipoint (MP-MP)) can provide broadband fixed wireless access (BFWA) services in the range 40.5-43.5 GHz including telephony, video, media streaming and data services;
- g) that, in some cases, it may be desirable to achieve flexible frequency assignment plans that can accommodate both frequency division duplex (FDD) and time division duplex (TDD) MP traffic requirements, as well as point-to-point (P-P) links, in particular for transport applications in BFWA networks and in mobile networks;
- h) that, when the FS needs, synthesized in *considering g*), are dominant, sufficient capacity and flexibility for deployment of multiple systems within a desired service area may be achieved by the aggregation of a variable number of contiguous frequency slots to form a block assignment;
- i) that the assignment of adjacent blocks to different BFWA operators may require setting general coexistence criteria in order to reduce the need for coordination between them; but coordination should nevertheless be encouraged in order to maximize the efficient use of the blocks;
- j) that with paired block assignment, both time division duplex (TDD) systems and frequency division duplex (FDD) MP systems could be indifferently accommodated, provided that appropriate coexistence criteria can be met;
- k) that, in order to enhance the efficient use of the assigned block(s), according to present and future available technology, the operator should freely define and modify suitable channel arrangement(s) within the block(s) according to the selected technology(ies);
- l) that when the higher spectrum efficiency of P-P links coordinated deployment within a channel arrangement and the higher flexibility of services permitted by a block assignment plan are both equally desirable, a flexible subdivision of the band between both methodologies is possible;
- m) that the radio astronomy service (RAS) is also allocated with a primary status in the range 42.5-43.5 GHz; in some locations appropriate measures will be needed in the planning and deployment of MP BFWA and P-P systems around radio astronomy stations to protect the radio astronomy service;
- n) that the transport capacity required for fixed wireless links is continuously growing,

recognizing

that Recommendation ITU-R SM.1540 provides guidelines for managing the unwanted emissions in the out-of-band domain falling into adjacent allocated bands,

noting

that the Radio Regulations identifies the 40.5 to 42 GHz band as being available in Region 2 also for high-density applications in the fixed-satellite service (FSS) and appropriate sharing should also be envisaged,