

Recommendation ITU-R SM.1539-2

(09/2024)

SM Series: Spectrum management

Variation of the boundary between the out-of-band and spurious domains required for the application of Recommendations ITU-R SM.1541 and ITU-R SM.329

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 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

(Also available online at <https://www.itu.int/publ/R-REC/en>)

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 SM.1539-2

**Variation of the boundary between the out-of-band and spurious domains
required for the application of Recommendations ITU-R SM.1541
and ITU-R SM.329**

(2001-2002-2024)

Scope

This Recommendation serves as a basis for the variation of the boundary between the out-of-band and spurious domains.

Keywords

Variation of the boundary, out-of-band domain, spurious domain, frequency separation, necessary bandwidth

The ITU Radiocommunication Assembly,

considering

- a) that Recommendations ITU-R SM.1541 and ITU-R SM.329 give the definitions of the terms “out-of-band domain” and “spurious domain”, but that these definitions do not precisely specify the boundary between the out-of-band (OoB) and spurious domains;
- b) that the boundary between the OoB and spurious domains is important for the application of both Recommendations ITU-R SM.1541 and ITU-R SM.329;
- c) that the boundary between the OoB and spurious domains is, in general, a function of the necessary bandwidth, but may be functions of different parameters other than the necessary bandwidth in certain applications;
- d) that the boundary between the OoB and spurious domains may require variations, in particular, for narrow-band and wideband transmissions, as well as for primary radars;
- e) that Report ITU-R SM.2421 contains useful information on the issue in application to digital radio systems,

recognizing

- a) that Recommendation ITU-R SM.1138, which is incorporated by reference into the Radio Regulations (RR), deals with the determination of necessary bandwidth for various emissions;
- b) that Recommendation ITU-R SM.853 and Report ITU-R SM.2048 present additional information concerning the determination of necessary bandwidth for certain emissions, including unmodulated and modulated pulse emissions and various types of digital modulation;
- c) that Recommendations ITU-R SM.1541 (*recommends* 2.3) and ITU-R SM.329 (*further recommends* 1.4 and 2.3) discuss the necessary bandwidth for certain emissions for the purpose of determining the boundary between the OoB and spurious domains,

noting

that, according to Recommendations ITU-R SM.1541 and ITU-R SM.329, normally the boundary between the OoB and spurious domains is the frequency separated from the centre frequency of the emission by 250% of the necessary bandwidth of the emission (see *recognizing* c)),