



Report ITU-R SM.2210
(06/2011)

Impact of emissions from short-range devices on radiocommunication services

SM Series
Spectrum management



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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.

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***Note:** This ITU-R Report was approved in English by the Study Group under the procedure detailed in Resolution ITU-R 1.*

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1 Introduction

Resolution **953 (WRC-07)** describes short-range devices (SRDs) as radio transmitters or receivers or both that generate and use radio frequencies locally. The Resolution describes ultra-wideband technologies (UWB), radio frequency identification devices (RFID) and similar devices as short-range devices. The Resolution also recognizes that SRDs, in particular RFID, hold promise for an array of new applications that may provide benefits for users. The Resolution requests the ITU-R to study emissions from SRDs, in particular RFIDs, inside and outside the frequency bands designated in the Radio Regulations for ISM applications to ensure adequate protection of radiocommunication services.

2 Propagation models to be used

The following propagation models can be used for studying the emissions of short-range devices in specific bands:

- Recommendation ITU-R P.1238 – Propagation data and prediction methods for the planning of indoor radiocommunication systems and radio local area networks in the frequency range 900 MHz to 100 GHz.
- Recommendation ITU-R P.1411 – Propagation data and prediction methods for the planning of short-range outdoor radiocommunication systems and radio local area networks in the frequency range 300 MHz to 100 GHz.

3 Characteristics and protection criteria of radiocommunication services

Interference analyses between short-range devices and radiocommunication services require knowledge of the protection criteria and technical characteristics of potentially affected radiocommunication systems. In the case of studies on UWB technology, the relevant ITU-R Recommendations and Reports are listed in Attachment A8 of Report ITU-R SM.2057 (Studies related to the impact of devices using ultra-wideband technology on radiocommunication services). This attachment also contains technical characteristics and protection criteria of potential victim systems. The characteristics and criteria are intended to aid interference calculations of devices using ultra wide band technology; however, they are also applicable in the study of emissions of short-range devices.

The following Reports and Recommendations provide protection criteria, characteristics and service quality objectives for various services that should be considered in the study of emissions of short-range devices.

- Report ITU-R BS.2104 – FM modulator interference to broadcast services.
- Report ITU-R M.2039 – Characteristics of terrestrial IMT-2000 systems for frequency sharing/interference analyses.
- Report ITU-R SM.2057 – Studies related to the impact of devices using ultra-wideband technology on radiocommunication services.
- Report ITU-R SM.2153 – Technical and operating parameters and spectrum use for short-range radiocommunication devices.
- Recommendation ITU-R BO.1773 – Criterion to assess the impact of interference to the broadcasting-satellite service from emissions of devices without a corresponding frequency allocation in the Radio Regulations, that produce fundamental emissions in the frequency bands allocated to the broadcasting satellite service.
- Recommendations ITU-R BT.1895 and ITU-R BS.1895 – Protection criteria for terrestrial broadcasting systems.
- Recommendation ITU-R M.1739 – Protection criteria for wireless access systems, including radio local area networks, operating in the mobile service in accordance with Resolution 229 (WRC-03) in the bands 5 150-5 250 MHz, 5 250-5 350 MHz and 5 470-5 725 MHz.
- Recommendation ITU-R M.1767 – Protection of land mobile systems from terrestrial digital video and audio broadcasting systems in the VHF and UHF shared bands allocated on a primary basis.
- Recommendation ITU-R M.1823 – Technical and operational characteristics of digital cellular land mobile systems for use in sharing studies.