



Recommendation ITU-R SM.1840
(12/2007)

**Test procedure for measuring
the sensitivity of radio
monitoring receivers using
analogue-modulated signals**

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.

Series of ITU-R Recommendations

(Also available online at <http://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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**Test procedure for measuring the sensitivity of radio monitoring receivers
using analogue-modulated signals**

(2007)

Scope

This Recommendation belongs to a set of Recommendations describing the test methods to determine technical parameters of radio monitoring receivers that are important for the users of these receivers. When the described methods are followed by manufacturers, comparing different receivers is made easier. This Recommendation provides the definition of a sensitivity test procedure for receivers. This test procedure definition is recommended to all the manufacturers, with the advantage for the users of such receivers, that an easier and more objective assessment of product quality is possible.

The ITU Radiocommunication Assembly,

considering

- a) that ITU-R has published the Typical recommended specifications for analogue and digital monitoring receivers in the Spectrum Monitoring Handbook (2002), but that nothing is said about the test procedures behind such specifications;
- b) that one of the specifications that most strongly depends on the test procedures applied is the sensitivity;
- c) that the sensitivity of a receiver is a measure of its ability to receive weak signals and to produce an output having a usable level and acceptable quality;
- d) that the sensitivity level specified in the data sheet of a receiver depends extremely on the test frequencies used, the modulation parameters, the IF filter bandwidth used, the signal-to-interference ratio including noise and distortion (SINAD) value and the ambient temperature prevailing during the tests;
- e) that due to the direct correlation with the noise figure the sensitivity characteristic has a direct influence on the suitability of a receiver as a monitoring device;
- f) that without a defined test procedure, the sensitivity specifications published by the manufacturers have to be made comparable by some kind of conversion and that this conversion might be complex or even impossible to perform;
- g) that a defined test procedure for the sensitivity must be independent of receiver design;
- h) that a well-defined test procedure for the sensitivity, if adopted by all the manufacturers of radio monitoring receivers, will have the advantage for the users of such receivers, that an easier and more objective assessment of product quality is possible, avoiding ambiguities;
- j) that supplementary information about these sensitivity measurements can be found in the Report ITU-R SM.2125 – Parameters of and measurement procedures on H/V/UHF monitoring receivers and stations,