



Recommendation ITU-R SM.1723-2
(09/2011)

Mobile spectrum monitoring unit

SM Series
Spectrum management



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

(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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RECOMMENDATION ITU-R SM.1723-2

Mobile spectrum monitoring unit

(2005-2008-2011)

Scope

Following the approval of the ITU Handbook on Spectrum Monitoring (Edition 2011), it became apparent that Radiocommunication Study Group 1 should issue a Recommendation on the characteristics and functions of mobile spectrum monitoring covering the relevant information contained in the ITU Handbook on Spectrum Monitoring (Edition 2011), and ITU-R Recommendations. This Recommendation will facilitate the way in which administrations set up radio mobile monitoring systems on their national territories.

The ITU Radiocommunication Assembly,

considering

- a) that mobile spectrum monitoring systems are available to support the administrative, frequency assignment and monitoring activities of spectrum administrators;
- b) that the incorporation of mobile units into the monitoring and management system enables such a system to conduct measuring operations that cannot be effectively performed from fixed monitoring stations;
- c) that mobile units have a vital role to play where low transmitter power levels, high antenna directivity and specific propagation characteristics preclude measurement by fixed monitoring stations;
- d) that many administrations already have computerized systems from which information can be supplied to spectrum management and monitoring systems,

noting

- a) Recommendation ITU-R SM.1537 – Automation and integration of spectrum monitoring systems with automated spectrum management;
- b) the ITU-R Spectrum Monitoring Handbook, which provides guidelines on all aspects of radio emission monitoring;
- c) that the measurement and direction-finding data collected by mobile units enable spectrum managers to perform their tasks throughout the country;
- d) that the analysis of data from a mobile unit that has an automatic measurement and direction-finding system is vital to the proper operation of a national spectrum management system,

recommends

- 1 that administrations are encouraged, when procuring integrated and automated mobile units or multipurpose units that can be equipped according to the task to be performed, to use the information contained in Annex 1.

Annex 1

Mobile spectrum monitoring unit

1 Context

Each administration intending to define and to purchase a spectrum monitoring system should take into consideration mobile monitoring unit. In addition of a fixed system, mobile units provide a flexible spectrum monitoring support which is particularly suited to carry out measurements close to emitters which are characterized for example by low power level and/or high frequency emissions.

The flexibility in terms of measurement is in accordance with:

- the type of vehicle;
- measuring equipments which are boarded in the vehicle;
- specific facilities fitted out in the vehicle.

Moreover, a monitoring system using fixed stations is not usually dimensioned to provide total coverage of a country's territory, but is mainly set up taken into account user density (urban or high radio-density areas). With computerized and radiocommunication network arrangements, the mobile unit could be integrated in a fixed monitoring system to be used as an additional fixed spectrum monitoring station to improve temporarily the coverage area of the global system. Thus, coupling with spectrum management and monitoring facilities, the mobile unit could automatically use the data collected by the monitoring system and the license information included in the management database in order to detect unlicensed emissions and licensing violations (see Recommendation ITU-R SM.1537). In many cases, only by using mobile monitoring units in addition to fixed stations the spectrum manager's tasks can be performed efficiently, either on account of the nature of the values to be measured or of difficulties arising from the topography or from the spectrum congestion.

Hence, depending on equipment boarded in the vehicle, a mobile unit shall carry out measurements prescribed by ITU. Mobile units might be incorporated into a national spectrum monitoring system at two levels:

1. by attaching the mobile unit to a monitoring centre having fixed monitoring stations;
2. autonomous operation.

This contribution intends to provide some guidelines about the technical and operational specifications to define requirements which could be helpful to define and to purchase mobile spectrum monitoring units.

2 Mobile unit and spectrum monitoring

2.1 General concept of mobile unit

The mobile monitoring stations supplement the network of fixed stations. Practically mobile unit may perform measurements as a fixed monitoring station and could be installed easily almost anywhere in the country.