

## RECOMMENDATION ITU-R SM.1050-2\*

**Tasks of a monitoring service**

(1994-2003-2004)

**Scope**

This Recommendation defines tasks of a monitoring service.

**Keywords**

Monitoring service, frequency assignments, spectrum utilization

The ITU Radiocommunication Assembly,

*considering*

- a) Article 16 of the ITU Radio Regulations (RR) which encourages development and implementation of national and international monitoring facilities;
- b) the importance of eliminating electromagnetic spectrum interference, whether on a local, regional or global scale, so that radio services and stations may exist compatibly, reducing and minimizing resources associated with installing and operating these telecommunication services;
- c) the economic benefit to a country's infrastructure having access to interference free, accessible telecommunications services, including PCS, IMT-2000, cellular, etc.;
- d) the need to have an acceptable interference level for radio services; in particular radio and television reception by the general public;
- e) the need to check radio station and radio network coverage areas;
- f) the overall value of monitoring data to an administration's electromagnetic spectrum management process;
- g) the value of monitoring data in special monitoring programmes organized by the Radiocommunication Bureau, for example in preparing reports to Radiocommunication Conferences or in seeking special assistance of administrations in eliminating harmful interference,

*noting*

- a) that the distribution of tasks within a national spectrum management organization may vary,

*recommends*

that monitoring data should be used in the development of decisions relating to the reallocation of frequency bands among radio services, the setting aside of operational frequency ranges for new applications, etc., and that tasks assigned to a monitoring service are to observe the use of the spectrum and include the following, as appropriate, for the spectrum management activity of the administration:

- 1** matters relating to verification of the correct use of frequency assignments issued and of station characteristics:
  - 1.1** monitoring and demodulation of transmissions to:
    - 1.1.1** assist in identifying sources of harmful interference;

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\* Radiocommunication Study Group 1 made editorial amendments to this Recommendation in the year 2019 in accordance with Resolution ITU-R 1.

**1.1.2** confirm compliance with national and international signal identification regulations, e.g. call signs;

**1.1.3** identify unauthorized transmitters;

**1.2** measurement of signal parameters and characteristics that may infringe on national or international standards or regulations:

**1.2.1** direction finding, position fixing or homing in order to locate sources of harmful interference or transmitting stations operating in non-compliance with national or international standards or regulations;

**1.2.2** frequency relative to frequency tolerance tables;

**1.2.3** occupied bandwidth relative to assigned bandwidth values;

**1.2.4** unwanted emission values relative to the limits in the spurious or out-of-band domain;

**1.2.5** frequency deviation of FM emissions relative to assigned deviation values;

**1.2.6** sub-carrier levels relative to assigned levels;

**1.2.7** class of emission to verify the modulation characteristics;

**1.2.8** special technical characteristics for a particular type of service, e.g. television broadcasting, wideband satellite transmissions, etc.;

**1.2.9** measurement of radiation levels to verify the continuing conformance with various technical standards such as those required for type approval of radiating equipment;

**1.2.10** either in conjunction with another national service or in its own right, conducting periodic inspection of radio installations to determine level of compliance with technical, operational and regulatory provisions established for spectrum management;

**2** matters relating to the preparation of data for use in the quantitative estimation of the spectrum utilization factor:

**2.1** field strength and power flux-density values to assist spectrum managers in verifying:

- propagation or frequency assignment studies,
- calculations of carrier-to-interference ratios,
- sharing criteria,
- interference prediction analyses, etc.;

**2.2** measurement of signal-to-interference protection ratios (including with their frequencies detuned and with different signal levels);

**2.3** determination of occupancy of frequency bands, including that of satellite transponder usage, within certain defined parameters to verify allocation or assignment usage and to support reallocation or reassignment principles; that these measurements should be repeated regularly in order to determine trends;

- 2.4** determination of the necessary frequency/geographical spacing between stations;
- 2.5** determination of the coverage area of a radio station and those radio stations comprised in a network;
- 3** matters relating to the preparation of special reports concerning the following main issues:
- 3.1** measurement of ambient radio noise, usually on a long-term basis to assist in spectrum management decisions such as broadcasting frequency assignments, etc.;
- 3.2** participation in the international monitoring system as appropriate under conditions specified in RR Article 16 with a view to the elimination of interference in general and of interference in safety and distress bands in particular, and with a view to furnishing information in preparation for Radiocommunication Conferences;
- 3.3** providing summary monitoring reports with a view to assisting spectrum managers in standardizing various emission parameters on an optimum and effective basis;
- 3.4** through formal, regularized, standard sampling techniques, identification of special problem areas for additional or more intensive monitoring emphasis;
- 3.5** based on experience gained in the monitoring service, recommend or propose practical steps and procedures for eliminating actual radio interference.
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