



## **Terrestrial Services Department**

### **HARMFUL INTERFERENCE (TERRESTRIAL SERVICES)**

#### **1 Introduction**

The rights and obligations concerning frequency spectrum usage are defined in the ITU Constitution and Convention and in the Radio Regulations.

ITU Member States must ensure compliance with the provisions of these instruments so that radiocommunication systems in their territory operate without experiencing harmful interference. In this regard, emphasis is laid on the importance of notifying the Radiocommunication Bureau of any frequency assignment that could cause harmful interference to a service of another administration.

This document relates to the measures for which the Constitution, the Convention and the Radio Regulations provide in order to prevent and resolve harmful interference.

#### **2 Measures against interference**

##### **2.1 Measures against interference foreseen under the Constitution**

Several provisions of the Constitution relate to measures that are incumbent on Member States in order to avoid harmful interference. These include Nos. 37, 38, 197 and 198.

No. 37 provides that: “The Member States are bound to abide by the provisions of this Constitution, the Convention and the Administrative Regulations in all telecommunication offices and stations established or operated by them which engage in international services or which are capable of causing harmful interference to radio services of other countries ...”.

No. 38 additionally provides that: “The Member States are also bound to take the necessary steps to impose the observance of the provisions of this Constitution, the Convention and the Administrative Regulations upon operating agencies authorized by them to establish and operate telecommunications and which engage in international services or which operate stations capable of causing harmful interference to the radio services of other countries.”

No. 197 stipulates that: “All stations, whatever their purpose, must be established and operated in such a manner as not to cause harmful interference to the radio services or communications of other Member States or of recognized operating agencies, or of other duly authorized operating agencies

which carry on a radio service, and which operate in accordance with the provisions of the Radio Regulations.”

This provision is supplemented by No. 198, which provides that: “Each Member State undertakes to require the operating agencies which it recognizes and the other operating agencies duly authorized for this purpose to observe the provisions of No. 197 above.”

## **2.2 Measures against interference provided for in the Radio Regulations**

The Radio Regulations (RR) likewise contain provisions to be applied with a view to minimizing the risk of interference.

No. **0.4** of the Preamble provides that “All stations, whatever their purpose, must be established and operated in such a manner as not to cause harmful interference to the radio services or communications of other Members or of recognized operating agencies, or of other duly authorized operating agencies which carry on a radio service, and which operate in accordance with the provisions of these Regulations”.

### **2.2.1 Technical characteristics of stations**

Article **3** deals with the technical specifications to be met by stations in order to avoid interference.

In this regard, it is to be noted that transmitting stations must conform to the frequency tolerances specified in Appendix **2** and to the maximum permitted power levels for spurious emissions specified in Appendix **3** (see Nos. **3.5** and **3.6**).

### **2.2.2 Assignment and use of frequencies**

Article **4** sets out the general rules to be applied in regard to the assignment and use of frequencies. These include the following:

- In assigning frequencies to stations which are capable of causing harmful interference to the stations of another country, Member States shall make such assignments in accordance with the Table of Frequency Allocations and other provisions of the RR (No. **4.2**).
- Any new assignment or modification of an existing assignment shall be made in such a way as to avoid causing harmful interference to stations using frequencies assigned in accordance with the RR and whose characteristics are recorded in the Master International Frequency Register (No. **4.3**).
- No assignment shall be made to any station in derogation of either the Table of Frequency Allocations or other provisions of the RR, except on the express condition that such a station, when using such a frequency assignment, shall not cause harmful interference to, and shall not claim protection from harmful interference caused by, a station operating in accordance with the provisions of the Constitution, the Convention and the RR (No. **4.4**). It is possible to notify such a non-conforming assignment and enter it in the Master Register, for information purposes; if, however, its use causes harmful interference to a conforming assignment, the administration concerned must, upon receipt of advice thereof, immediately eliminate the interference.
- No. **4.5** stipulates that “The frequency assigned to a station of a given service shall be separated from the limits of the band allocated to this service in such a way that, taking account of the frequency band assigned to a station, no harmful interference is caused to services to which frequency bands immediately adjoining are allocated”. This precaution has to be taken in order to avoid any overlapping with an assignment conforming to the Table of Frequency Allocations.

- Member States recognize that the safety aspects of radionavigation and other safety services require special measures to ensure their freedom from harmful interference (No. **4.10**).

### **2.2.3 Categories of services**

The RR contain provisions which define some hierarchy among the various services and which determine the priority that assignments of such services may have over other assignments (see Nos. **5.28** to **5.31**).

From these definitions, it follows that stations of a secondary service (No. **5.29**) shall not cause harmful interference to stations of a primary service, and that they cannot claim protection from harmful interference from stations of a primary service to which frequencies are assigned even at a later date; however they can claim protection from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date.

### **2.2.4 Status of frequency assignments**

No. **8.1** provides that “The international rights and obligations of administrations in respect of their own and other administrations’ frequency assignments shall be derived from the recording of those assignments in the Master International Frequency Register (the Master Register) or from their conformity, where appropriate, with a plan ...”.

Any frequency assignment recorded in the Master Register with a favourable finding under No. **11.31** of the RR shall have the right to international recognition. This right means that other administrations shall take it into account when making their own assignments, in order to avoid harmful interference. In addition, frequency assignments in frequency bands subject to coordination or to a plan shall have a status derived from the application of the procedures relating to the coordination or associated with the plan (see No. **8.3**).

A frequency assignment that is not in accordance with the Table of Frequency Allocations or with other provisions of the RR shall be recorded for information purposes (No. **8.4**).

Consequently, any frequency assignment to a transmitting station and to its associated receiving stations except for those mentioned in Nos. **11.13** and **11.14** shall be notified to the Bureau if the use of that assignment is capable of causing harmful interference to any service of another administration (see Nos. **11.2** and **11.3**).

### **2.2.5 Specific provisions in RR Article 15**

Article **15** of the RR contains a certain number of specific provisions to be applied by stations with a view to avoiding interference (see Nos. **15.1** to **15.11**).

## **3 Procedure in case of harmful interference**

“It is essential that Member States exercise the utmost goodwill and mutual assistance in the application of the provisions of Article 45 of the Constitution and of this Section to the settlement of problems of harmful interference.” This introductory provision of Section VI of Article **15** of the RR (No. **15.22**), which deals with the procedure in case of harmful interference, sets the condition for the resolution of a problem of harmful interference.

The procedure described therein is based primarily on a direct approach between the parties concerned and, as far as practicable and subject to prior agreement between the administrations concerned, the first attempt to solve the problem should be made between the operating agencies concerned.

The cooperation of other administrations may also be requested by the administration having jurisdiction over the station suffering interference in order to facilitate the identification of the interfering station. In this respect, the provisions of Articles **15** and **16** provide for such assistance by other administrations. It is essential that the administration observing the interference communicates to the other administrations, in the framework of the international monitoring system, all available information concerning the interfered-with station as well as the interfering station, such as technical characteristics, hours of operation and periods of interference, in the format of the report provided for in Appendix **10**.

Particular attention is to be paid and prompt action is to be taken in the cases of harmful interference involving safety services. No. **15.28** of the RR prescribes that administrations “undertake to act immediately when their attention is drawn to any harmful interference caused to a distress or safety frequency”.

Insofar as infringement of the Constitution, Convention or RR by a radio station is concerned, administrations will take similar action by furnishing details of the infringement in the format of the report provided for in Appendix **9**. The administration concerned shall ascertain the facts, fix responsibility and take necessary action (see Nos. **15.19** to **15.21** of the RR).

A case of harmful interference may also be communicated to the Bureau either for information (No. **15.41**) or with a specific request for assistance in the case where action on a bilateral basis has been unsuccessful (No. **15.42**). All the details of the case should then be supplied in order to enable the Bureau to take the appropriate action.

In considering the study of the problem, the Bureau will take into account all relevant factors. The status of the two assignments involved, so far as international recognition is concerned, will naturally be the first matter to be examined. The Bureau will then investigate the causes of the interference. For this purpose the Bureau will review all the information available in the files containing the notices submitted for the assignments involved and the results of the examination carried out at that time with respect to these assignments. It will also take into account the facts communicated in support of the request for assistance and any further information received concerning the characteristics effectively used and the conditions of operation of the stations concerned. At the conclusion of its study, the Bureau will forward to the two administrations its findings and recommendations for the solution of the problem.

If, however, this approach proves unsuccessful, the Bureau, in accordance with Nos. **13.2** and **13.3** of the RR and No. 173 of the Convention, prepares a report for consideration by the Radio Regulations Board (RRB), including draft recommendations to the administrations concerned. Following the approval of those recommendations by RRB, the Bureau transmits them to the administrations concerned, inviting them to apply the recommendations in the interests of eliminating the interference in question.

#### **4 Conclusion**

It needs to be emphasized that it is essential for Member States to exercise the utmost goodwill and mutual assistance in the interests of settling problems of harmful interference.

A great part of the RR is devoted to provisions or procedures the application of which should permit efficient operation of radiocommunication services in any part of the world. All the provisions of Chapters I to VI of the RR are intended primarily to prevent harmful interference between stations. Member States are obliged to adhere strictly to the provisions of the RR for all stations under their responsibility.

While it is true that spectrum management is a sovereign matter for each Member State, the fact remains that radio waves are able to cross borders. Consequently, frequency management in border areas calls for special attention. It is essential that the use of frequencies in such areas be coordinated between neighbouring countries in order to avoid harmful interference.

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