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(ITU) للاتصالات الدولي الاتحاد في والمحفوظات المكتبة قسم أجراه الضوئي بالمسح تصوير نتاج (PDF) الإلكترونية النسخة هذه والمحفوظات المكتبة قسم في المتوفرة الوثائق ضمن أصلية ورقية وثيقة من نقلاً.

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Activities of the International Frequency Registration Board

BEFORE the Second World War, any country could use, within certain limits, any frequency it required for any particular service, and all that was necessary, with respect to the International Telecommunication Union (ITU), was for the country concerned to notify its use of the frequency to the Bureau at Bern to be published in the Frequency List for the information of other countries.

After the war the situation in regard to the use of the radio spectrum became more chaotic, due to the enormous increase in the use of the radio spectrum by the increased number of countries of the world as a consequence of the birth of many independent countries, as well as to technical progress during the war. The situation was so confused that sometimes, for example, civil aircraft could not fly safely because the necessary ground-air communication could not be ensured, and broadcasting services became deteriorated by harmful interferences among them. To cope with this situation, the ITU Atlantic City Radio Conference held in 1947 created the International Frequency Registration Board (IFRB) and charged it:

- a) to maintain a register of all radio frequencies used for all purposes throughout the world and,
- b) to ensure that no new frequency is taken into use by any country if the use of this frequency causes interference to radio stations already in operation, in accordance with the provisions of the Radio Regulations.

The present Board consists of five independent members who are elected by a world administrative radio conference dealing with general radiocommunication matters, in a manner to provide wide geographical representation. The Board acts as a corporate body in which the individual members serve as "custodians of an international public trust".

The various activities and functions of the IFRB are listed in Article 13 of the

International Telecommunication Convention and in Article 8 of the Radio Regulations. In accordance with the above-mentioned texts, the essential duties of the IFRB are:

- a) the processing of frequency assignment notices received from administrations for recording in the Master International Frequency Register;
- b) the processing and co-ordination of seasonal schedules of high frequency broadcasting with a view to accommodating requirements of all administrations for that service;
- c) the compilation, for publication in suitable form, of frequency lists reflecting the data recorded in the Master International Frequency Register, as well as other material relating to the assignment and use of frequencies;
- d) the review of entries in the Master Frequency Register with a view to amending or eliminating, as appropriate, those which do not reflect actual frequency usage, in agreement with the administrations which notified the assignments concerned;
- e) the study, on a long-term basis, of the usage of the radio spectrum, with a view to making recommendations for its more effective use;
- f) the investigation, at the request of one or more of the interested administrations, of harmful interference and the formulation of recommendations with respect thereto;
- g) the provision of assistance to administrations in the field of radio spectrum utilization;
- h) the collection of such results of monitoring observations and their publication in suitable form;
- i) the formulation and reference to the CCIR of all general technical questions arising from the Board's examination of frequency assignments;

- j) the technical planning for radio conferences;
- k) the participation in an advisory capacity, upon invitation by the organizations or countries concerned, in conferences and meetings where questions relating to the assignment and utilization of frequencies are discussed;
- l) to perform any additional duties, concerned with the assignment and utilization of frequencies, prescribed by a competent conference of the Union, or by the Administrative Council.

Elaborating a little on what precedes, it can be said that one of the IFRB's main tasks is to examine whether the frequency assignments which countries assign to their stations are in accordance with the Convention and the Radio Regulations and whether the projected use of the frequencies concerned will, or will not, cause harmful interference to other countries' radio stations which are already in operation or ensured by international frequency plans, and to issue its findings on them. The duties performed by the Board are both legal and technical, a fact which demands absolute impartiality and thus explains its collegiate structure.

Master International Frequency Register

The IFRB keeps up to date the Master International Frequency Register which contains all frequency assignments to radio stations throughout the world notified by administrations. The frequency assignments recorded in this Register are reproduced and published periodically for the benefit of the Members of the Union in the International Frequency List.

Compilation of high frequency broadcasting schedules

The IFRB also compiles (from the seasonal schedules received from administrations)

and publishes each year four seasonal tentative high frequency broadcasting schedules. Each schedule contains an average of about 5000 assignments to broadcasting stations throughout the world operating in the high frequency bands allocated exclusively to the broadcasting service. The Board makes its technical examination of the tentative schedule and gives recommendations to administrations on the manner in which mutual harmful interference between transmissions can be reduced or eliminated. In the recommendations, the Board proposes changes, either in the frequencies used or in the technical characteristics of the stations, and helps administrations to find suitable frequencies for their broadcasting services.

International monitoring

The IFRB collects from monitoring stations, spread throughout the world, particulars of observations on the trans-

missions made by radio stations and publishes these in Summaries of Monitoring Information. It has also arranged a series of special monitoring programmes designed to ascertain the actual usage of certain frequency bands such as those allocated exclusively to the aeronautical mobile service, maritime mobile service, etc.

In cases of harmful interference from an unidentified source, the IFRB seeks the co-operation of administrations and monitoring centres in establishing the identity or location of the interfering station.

Preparation for conferences

Another important function of the Board is to carry out the technical preparation for conferences, assembling the necessary technical and other data which may be required by the conference for frequency planning or other purposes.

For this purpose, the Board assembles the relevant documentation and conducts preliminary studies, which include the analysis of data, formulation of conclusions based on this analysis, study of various alternatives and their implications on the matters to be treated by the conference. Preparation for a conference also involves the review of the existing Radio Regulations in the light of the Board's experience of their application as well as the proposals submitted by the administrations. It may involve keeping in touch with other specialized agencies, such as the International Civil Aviation Organization (ICAO), the Inter-Governmental Maritime Consultative Organization (IMCO) or other international or regional organizations, such as the Asian Broadcasting Union (ABU), the European Broadcasting Union (EBU), the International Radio and Television Organization (OIRT), the Union of National Radio and Television Organizations of Africa (URTNA), etc.



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The IFRB carries out the technical preparation for ITU radio conferences.

Our photograph: the Conference Vice-Chairman, Mr. Gabriel Tedros, Ethiopia (centre) discusses band III with the Liberian delegation during the African VHF/UHF Broadcasting Conference, Geneva, 1963. This Conference set up and adopted a plan for some 11 000 VHF/UHF sound and television broadcasting transmitters on the African continent

When a conference is convened to establish a frequency plan for a given service, the Board analyzes frequency requirements from the various administrations. The Board may also request administrations to monitor certain frequency bands with a view to presenting the data on frequency usage thus obtained to the conference in the appropriate form. This is done, particularly, in services dealing with the safety of human life, such as aeronautical and maritime services. The Board has made extensive use of the computer in the technical planning of conferences, especially where the examination of very wide frequency ranges was involved.

At the end of each conference the IFRB prepares circular letters to administrations, analyzing the decisions of the conference and providing guidance for the implementation of those decisions.

Long-term studies

In addition, the long-term study of radio spectrum usage is one of the most important functions assigned to the Board by the Radio Regulations.

The purpose of these long-term studies is the management and efficient utilization of the radio spectrum. To carry out these long-term studies effectively, the IFRB keeps in touch with similar work being done elsewhere and its members participate in conferences and meetings where questions relating to the utilization of frequencies come under discussion. It also participates very actively in the meetings of the CCIR with the same objective.

The studies carried out by the Board also help in improving the current technical standards of the Board for carrying out technical examinations for frequency assignment notices in accordance with the Radio Regulations.

Assistance in resolving problems of harmful interference

Harmful interference is one of the major problems in radio communication. As more and more administrations attempt to introduce new communication services in an already congested radio spectrum,

greater are the risks of harmful interference. This state of affairs is becoming more serious because, in addition to the rapid expansion of communications, countries which are becoming independent naturally wish to establish their own communication links with the outside world. New or developing countries find it increasingly important to have effective communication centres connected by direct circuits with the major world capitals. The establishment of those direct communications requires, in many cases, frequencies suitable for high power wide-band transmissions, usually in the most congested part of the radio frequency spectrum. By virtue of its responsibilities, the IFRB spends a considerable amount of time not only in trying to find frequencies for these new circuits, but also in finding solutions to the problems of actual harmful interference between existing services. The Board also assists administrations in seeking co-ordination and organizes seminars and training courses.

The International Telecommunication Union considers the problem of harmful interference from the *legal, technical, operating and administrative* angles.

Legally, the position in this respect is defined in Article 48 of the International Telecommunication Convention (Montreux, 1965). This article requires Mem-

bers and Associate Members to ensure 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 and Associate Members or of recognized private operating agencies, or of other duly authorized operating agencies which carry on radio service, and which operate in accordance with the provisions of the Radio Regulations". The same article also states that Members and Associate Members must recognize the desirability of taking all practicable steps to prevent the operation of electrical apparatus and installations of all kinds from causing harmful interference to the radio services or communications mentioned above.

In accordance with the Radio Regulations administrations can seek the assistance of the IFRB when the direct inter-administration approach does not result in a satisfactory solution of cases of harmful interference. In such cases the Board conducts studies and makes recommendations, in accordance with Section VII of Article 9 of the Radio Regulations. In case of need the Board asks administrations of countries in suitable geographical positions to carry out monitoring operations to identify the interfering stations. The Board's task was facilitated by the prompt information and



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A computer is being used at ITU headquarters in order to help the IFRB, among many different tasks, to keep the Master International Frequency Register up to date.

assistance given by individual administrations and international organizations.

The role of the IFRB in resolving matters of harmful interference is outlined in No. 478 of the Radio Regulations, which stipulates "the investigation, at the request of one or more of the interested administrations, of harmful interference, and the formulation of recommendations with respect thereto".

Special assistance in cases of general problems of radio frequency management and in particular search or radio frequencies for specific circuits

The Administrative Radio Conference, Geneva, 1959, adopted a recommendation (Recommendation No. 35) inviting the IFRB "to provide administrations of countries in need of special assistance with the necessary information and technical data, including the detailed explanations of the Radio Regulations, which will permit these countries to choose and obtain proper frequency assignments for their operations".

The purpose of this recommendation is illustrated by a number of provisions introduced into the Radio Regulations. Under these provisions the Board shall conduct a study of the following problems of frequency utilization if requested and the circumstances appear to warrant:

- i) looking for alternative frequencies to avoid probable harmful interference;
- ii) searching additional frequencies within a specified portion of the radio spectrum;
- iii) cases where two or more frequencies in the same megacycle order are used due to harmful interference;
- iv) alleged contravention or non-observance of the Radio Regulations or harmful interference;
- v) computation of the increases in noise-temperature in space systems, preparation of diagrams showing co-ordination areas or any other assistance of a technical nature to complete the procedures of Article 9A.

The IFRB regularly receives requests for assistance from administrations attempting

to find suitable frequencies for their radio services. Some administrations seek the advice of the IFRB on general questions of national and international frequency co-ordination and management in all parts of the radio frequency spectrum. Apart from individual administrations, some international organizations such as the World Meteorological Organization (WMO), ICAO, the International Electrotechnical Commission (IEC), etc., also ask the Board for advice on problems of radio spectrum utilization.

Seminars on frequency management

During the 17th Session of the Administrative Council in 1962, the idea of organizing periodical seminars on frequency management and the use of the radio frequency spectrum was first accepted by the Council. The first seminar was held during March-May 1963. Since then, the IFRB has continued periodically to organize such seminars in Geneva and five more took place, one each in 1964, 1966, 1968, 1970 and 1972.

The purpose of these seminars is to familiarize administrations with frequency manage-

ment and the use of the radio frequency spectrum.

In order for the seminars to be as useful as possible to participants, they have always consisted of lectures on a variety of subjects covering the entire gamut of radio spectrum, including special problems pertaining to national frequency planning and management. The lectures were given by the members of the Board and the staff of its Specialized Secretariat. In addition, lectures on specific problems of radio-communications were given at each seminar by specialists from Member countries. These lectures were followed by discussions.

Besides the seminars organized by the IFRB itself, the Board provided lecturers for other seminars organized by the ITU or by administrations in which questions of radio frequency utilization and management were discussed.

Trainees sent by administrations

Apart from seminar participants, who stay on after seminars to familiarize themselves with the work of the IFRB, the Board has regularly received visits of many trainees who wish to study the procedures used for



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The 1970 Geneva IFRB seminar, one of the six seminars on frequency management organized by the IFRB since 1963

processing frequency assignment notices and to receive advice about frequency assignments suited to their countries' communication systems. Visits of this sort have proved to be an effective means of helping administration officials to familiarize themselves with frequency management procedures, the use of the radio spectrum and the work of the Board. In the last few years the Board has developed a special programme for these trainees within the framework of the IFRB's activities.

The foregoing paragraphs give a bird's-eye view of the IFRB activities and it may now be of interest to present a list of publications prepared by the IFRB:

1. IFRB Weekly Circulars
2. International Frequency List
3. List of Fixed Stations operating International Circuits

4. List of Stations in the Space Radio-communication Services and in the Radio Astronomy Service
5. List of Broadcasting Stations operating in Bands below 5 950 kHz
6. High Frequency Broadcasting Schedules
7. List of Broadcasting Stations operating in Bands between 5 950 and 26 100 kHz
8. Annual High Frequency Broadcasting List
9. Summaries of Monitoring Information
10. IFRB Technical Standards
11. List of Stations using Special Means of Identification
12. Rules of Procedure of the IFRB.

Pursuant to Recommendation No. 37 of the Panel of Experts, the Board prepared

the "Handbook of Recommended Techniques for the Better Utilization and Reduction of Congestion of the High Frequency Radio Spectrum", based on contributions from several administrations.

Finally the following point should be emphasized: when the IFRB was created, the main radio frequency spectrum of its special concern was below 28 MHz, but as space radiocommunication services have become widely used and as a consequence of the coming into effect of the decisions of the World Administrative Radio Conference for Space Telecommunications held in 1971, the radio frequency spectrum above 28 MHz has also become very complicated in the international frequency management. The IFRB is also ready to assist developing countries in this radiocommunication field, in accordance with the Radio Regulations.

Some of the publications prepared by the IFRB



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NOMENCLATURE DES STATIONS DU SERVICE SPATIAL ET DU SERVICE DE RADIOASTRONOMIE
 LIST OF STATIONS IN THE SPACE SERVICE AND IN THE RADIO ASTRONOMY SERVICE
 NOMENCLATOR DE LAS ESTACIONES DE LOS SERVICIOS ESPACIAL Y DE RADIOASTRONOMIA

NOMENCLATURE DES STATIONS DE RADIODIFFUSION FONCTIONNANT DANS LES BANDES AU-DESSUS DE 500 KHz
 LIST OF BROADCASTING STATIONS OPERATING IN BANDS BELOW 500 kHz
 NOMENCLATOR DE LAS ESTACIONES DE RADIODIFUSION QUE FUNCIONAN EN LAS BANDAS INFERIORES A 500 kHz

177
 Résumé des renseignements recueillis au contrôle des émissions reçues par l'I.T.R.S.
 Summary of Monitoring Information received by the I.T.R.S.
 Resumen de la información de supervisión recibida por la I.T.R.S.

NOMENCLATURE DES STATIONS FIXES DU REGISTRE DES LIGNES INTERNATIONALES
 LIST OF FIXED STATIONS OPERATING INTERNATIONAL CIRCUITS
 NOMENCLATOR DE ESTACIONES FIJAS DE LINEAS A CIRCUITOS INTERNACIONALES

5 EDITION
 LISTE ANNUELLE DES FREQUENCES DE RADIODIFFUSION A ONDES DECAMETRIQUES
 ANNUAL HIGH FREQUENCY BROADCASTING FREQUENCY LIST
 LISTA ANUAL DE LAS FRECUENCIAS DE RADIODIFUSION POR ONDAS DECAMETRICAS