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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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Special Regional Conference

(Geneva, 25 April - 14 May, 1960)

by Miroslav JOACHIM
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(Translation)

A Special Regional Radio Conference was held at the *Maison des Congrès* in Geneva from 25 April to 14 May, 1960. It was convened in accordance with number 250 of the Radio Regulations, Geneva, 1959, to solve the problems arising from the joint use of the 68-73 and 76-87.5 Mc/s bands by broadcasting and the fixed and mobile services.

Twenty-three countries Members of the International Telecommunication Union were represented at the conference. Of the countries concerned, which had expressed their desire to attend the conference, Finland and Tunisia were not represented. Belgium, however, expressed its interest in the work of the conference and was represented.

The first plenary meeting of the conference set up the following committees:

Committee 1. Steering

Chairman: Mr. KLEIN (Switzerland)
Vice-Chairman: Mr. FLIŠAK (People's Republic of Poland)

Committee 2. Credentials

Chairman: Mr. NICOTERA (Italy)
Vice-Chairman: Mr. STOYANOV (People's Republic of Bulgaria)

Committee 3. Finance

Chairman: Mr. DAKIĆ (Federal People's Republic of Yugoslavia)

Committee 4. Technical

Chairman: Mr. GEJER (Sweden)
Vice-Chairman: Mr. IONITA (Roumanian People's Republic)

Committee 5. Plan

Chairman: Mr. JOACHIM (Czechoslovak Socialist Republic)
Vice-Chairman: Mr. PRESSLER (Federal Republic of Germany)

Committee 6. Drafting

Chairman: Mr. PLACE (France)
Vice-Chairman: Mr. SOWTON (United Kingdom of Great Britain and Northern Ireland).

The work of the Technical Committee was, in principle, based on Recommendation No. 12 of the Ordinary Administrative Radio Conference, Geneva, 1959. Three working parties were set up to study technical questions:

Working Party 4 A.

Chairman: Mr. BOUCHIER (Belgium)

1. Propagation curves to be determined for the field strengths of the wanted and unwanted signals at distances up to and beyond 100 km, taking into account antenna heights.
2. Minimum field strength to be protected for different services, TV, FM broadcasting and fixed and mobile, taking into account the noise level.
3. Percentage of time for which protection is to be afforded.
4. Use of directional antennas and different polarizations.

Working Party 4 B.

Chairman: Mr. NIELSEN (Denmark)

1. Protection ratios between FM sound broadcasting and mobile and fixed services.
2. Protection ratio curves for various frequency separations between the wanted and unwanted signals, taking into account different receiver characteristics.

Working Party 4 C.

Chairman: Mr. SOWTON (United Kingdom)

1. Protection ratios between television broadcasting and mobile and fixed services.
2. Protection ratio curves for various frequency separations between the wanted and unwanted signals taking into account different receiver characteristics.

The technical Committee prepared the following documents:

Propagation curves were plotted for long and short distances (Annex 3 to the Geneva Agreement, 1960, figures 1 and 2). The curves of the Federal Communications Commission (FCC) were used as a basis for the short-distance curves and the curves in CCIR Recommendation No. 312 were used for the curves for distances beyond the horizon. To assess the field strength of the unwanted signal, the curves for 10 % of the time were used and the curves for 50 % of the time were taken as a basis for assessing the wanted signal field strength. The curves were prepared for different transmitting antenna heights (above average ground) and for a receiving antenna height of 10 metres. Other receiving antenna heights can be taken into consideration with the help of the nomogram reproduced in figure 3 of Annex 3 to the Geneva Agreement, 1960.

To assess the protection ratios of VHF MF broadcasting against interference from the fixed and mobile services, the curve of the International Broadcasting and Television Organization (OIRT) was adopted. For identical carrier frequencies, it gives the protection ratio of 31 db, reproduced in figure 4 of Annex 3 to the Geneva Agreement, 1960.

A curve for the protection ratios required by the FM fixed and mobile services against an FM broadcast transmission with a maximum deviation of ± 50 kc/s. One of these curves is valid for receivers with 50 kc/s channel spacing and the other for 25 kc/s spacing. For identical carrier frequencies, a protection ratio of 6 db was adopted. The curves are reproduced in figure 5 of Annex 3 to the Geneva Agreement, 1960.

The other curves adopted show the protection ratio required for 625-line television (vision, OIRT standards) against an FM fixed or mobile transmission (Annex 3 to the Geneva Agreement, 1960, figure 6) and the protection ratios required by the fixed and mobile services against 625-line television (vision, OIRT standards) reproduced in figure 7 of Annex 3 to the Geneva Agreement, 1960.

A curve was also adopted showing the discrimination of television receiving antennas against interfering signals based on 90 % values of discrimination measured in built-up areas, as a function of the " off-beam " angle (Annex 3 to the Geneva Agreement, 1960, figure 8).

Among the other values adopted by the Technical Committee of the Conference, mention should be made of the minimum field strength to be protected for VHF FM broadcasting, i.e. :

- 0.25 mV/m in general,
- 1 mV/m in urban areas, and
- 3 mV/m in large cities.

The following values were adopted for television :

- 0.5 mV/m in rural areas, and
- 2 mV/m in urban areas and large cities.

For the fixed and mobile services :

- 5 μ V/m normally ; this figure is appropriate to rural areas where the level of industrial interference is low ;
- 10 μ V/m in rural and urban areas where industrial interference is high ;
- 20 μ V/m in urban areas and cities where industrial interference is very high.

It was admitted that, for all the services concerned, the use of cross-polarization gives an additional protection of 10 db in 90 % of receiving sites.

All the services concerned have been generally protected for 90 % of the time ; however, for specific cases, Administrations have agreed to adopt different figures.

On the basis of these technical data and other considerations concerning the orderly distribution of the bands under study, the Plan Committee began its work. The delegations of Denmark, Switzerland and

the Czechoslovak Socialist Republic, on the basis of the findings of the Technical Committee, prepared the practical planning instruments reproduced in Tables I to VIII. (*See Tables in the French part, pages 227f to 230f.*)

The delegates used these instruments in doing their planning.

The work of the Plan Committee was organized in geographical groups. The Southern group, under the chairmanship of Mr. IONITA (Roumanian People's Republic), discussed planning problems between Turkey, Greece, Italy and the Federal People's Republic of Yugoslavia, on the one hand, and the People's Republic of Bulgaria, the Roumanian People's Republic and the People's Republic of Albania, on the other. All the problems were solved among the latter countries and between Italy and the Federal People's Republic of Yugoslavia, whereas with Turkey and Greece, the People's Republic of Bulgaria succeeded in reaching only a provisional agreement.

The Central Group, under the chairmanship of Mr. JOACHIM (Czechoslovak Socialist Republic) concentrated its attention on planning between the Federal Republic of Germany and Austria, on the one hand, and the Hungarian People's Republic and the Czechoslovak Socialist Republic, on the other. Because of congestion in the spectrum in this area, the planning problem raised many technical difficulties. Nevertheless, mutual understanding led to full agreement on all problems.

The Northern group had Mr. GEJER (Sweden) in the chair. The problems here were comparatively less complicated, since the countries mainly concerned—Denmark, Sweden and the People's Republic of Poland—had discussed certain problems at a preliminary meeting in Warsaw.

An *ad hoc* group of the Plan Committee, under the direction of the Chairman of Committee 5, worked on the preparation of the text of the Agreement. This was, as a general rule, based on similar agreements produced by ITU conferences.

Annex 1 to the Agreement contains the Associated Agreement relating to the setting-up of new FM and TV broadcasting stations and new fixed and mobile stations (including changes to existing stations).

This Associated Agreement is based on the principle that broadcasting stations can be set up without prior agreement between the administrations concerned, provided that the field strength at the nearest point of the frontier calculated from the propagation curves established and for the same polarization planes of the different services concerned is less than 2.5 μ V/m for 90 % of the time. Fixed and mobile stations can also be set up without prior agreement on condition that, in accordance with the technical factors adopted by the conference, they provide the necessary protection in the reception areas of the

broadcasting stations appearing in the Plans or set up in accordance with the Agreement.

The Agreement was signed by twenty delegations of the countries taking part. The United Kingdom, the Netherlands and Belgium, for reasons specified by their delegations, did not sign it. The Agreement will come into force at the same time as the Radio Regulations, Geneva, 1959, i.e. on 1 May, 1961.

One of the major subjects discussed at the conference was the possible participation of representatives of the German Democratic Republic.

Since this country is situated in the middle of the region concerned, a great many participants considered that, from the technical standpoint, the presence at the conference of experts from the German Democratic Republic would have been useful, especially in the Plan Committee. However, in spite of

the efforts made by the Chairman of the Conference, it was not possible to find a solution acceptable to all.

Consequently, a number of questions concerning coordination of frequencies with the German Democratic Republic remained unsolved.

The *Geneva Plan* covers 215 FM broadcasting stations and 17 television stations.

The Special Regional Conference Agreement is a step forward towards the solution of the problems involved in the coordinated use of the radio spectrum. Thanks to the mutual cooperation displayed in most of the problems studied, the Geneva Special Regional Conference will remain in the annals of the ITU as an important stage in the accomplishment of the decisions of the Administrative Radio Conference, Geneva, 1959.

M. Joachim

Electronic Translation of Languages

by ROBERT CHAPUIS

(Translation)

I. Introduction

The international conference organized by UNESCO on the numerical treatment of information (Paris, July 1959) revealed the spectacular progress made in the course of the past few years in automatic translation. From a limited field of study confined to a few specialists only seven or eight years ago, electronic translation, known as *machine translation* (abbreviated to MT in this article) has now become a branch of science of paramount importance. In nearly all the most developed countries research is being carried on in this field with the co-operation of engineers specializing in electronic computers and teachers of languages and professional translators.

In Geneva, a lively interest is being shown at present in electronic translation: the Organizations belonging to the United Nations family (European Office of the United Nations), the International Labour Office (ILO), the World Health Organization (WHO) and other international governmental organizations such as the European Centre for Nuclear Research (CERN), or non-governmental organizations such as the International Electrotechnical Commission (IEC), as well as industrial research laboratories (Battelle Memorial Institute) are becoming aware of the possibilities offered by electronic translation.

The interest in MT shown in Geneva may be attributed to:

the setting up in Geneva of a local ATALA (*Association for Automatic Translation and Applied Linguistics*) committee;

the recent appearance of a book by E. Delavenay entitled *La machine à traduire* (The translation machine).

This book, a popular version intended for the layman, explains in far greater detail than is possible in the present article, the problems arising out of MT. Its author, Mr. E. Delavenay, a University professor with many years of service in international organizations, is at the present time Head of the UNESCO documents service.¹

II. Background of work on mechanical translation

The first attempt at automatic translation dates back to 1933. At that time, a Russian engineer, Mr. Trojanski, applied in Moscow for a patent for a translation machine with a mechanical tabulator. His attempt, premature and still-born, was not followed up either in his country or elsewhere.

It was after the Second World War when the first electronic computers began to make their appearance and when, following the Nuremberg trials, simultaneous interpretation became an indispensable part of all international meetings that an American, Warrep Weaver, and an Englishman, A. D. Booth, suggested that linguists should make use of electronic machines to produce what they called "Machine Translation." The name remained and the process continues to be

¹ The author is indebted for much of the material of this article to Mr. Delavenay's book, as well as to personal talks with him. For this, as well as for the active part which he has latterly played in the establishment of ATALA, the author would like to convey his thanks to Mr. Delavenay.