

final acts

of the Regional Administrative
LF/MF Broadcasting Conference
(Regions 1 and 3)

Geneva, 1975



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REGIONAL AGREEMENT

Concerning the Use by the Broadcasting Service of Frequencies in the Medium Frequency Bands in Regions 1 and 3 and in the Low Frequency Bands in Region 1

Preamble

With the object of facilitating relations, mutual understanding and cooperation in the field of LF/MF broadcasting;

with a view to improving the use of the frequency bands allocated to the broadcasting service in order to ensure satisfactory reception of the broadcasting service for all countries;

recognizing that all countries large and small have equal rights and that the needs of all countries and in particular the needs of the developing countries shall be fulfilled as far as possible in the implementation of this Agreement;

the delegates of the following Members of the International Telecommunication Union, meeting in Geneva for a regional administrative conference convened under the provisions of the International Telecommunication Convention (Malaga-Torremolinos, 1973), have adopted, subject to the approval of their respective competent authorities, the following provisions relating to the broadcasting service in Regions 1 and 3 for the medium frequency bands and in Region 1 for the low frequency bands:

Republic of Afghanistan, Algeria (Algerian Democratic and Popular Republic), Federal Republic of Germany, Kingdom of Saudi Arabia, Australia, Austria, People's Republic of Bangladesh, Belgium, Byelorussian Soviet Socialist Republic, Republic of Botswana, People's Republic of Bulgaria, Republic of Burundi, United Republic of Cameroon, Central African Republic, People's Republic of China, Republic of Cyprus, Vatican City State, People's Republic of the Congo, Republic of Korea, Republic of the Ivory Coast, Republic of Dahomey, Denmark, Arab Republic of Egypt, United Arab Emirates, Spain, Ethiopia, Fiji, Finland, France, Gabon Republic, Republic of the Gambia, Ghana, Greece, Republic of Guinea, Republic of Upper Volta, Hungarian People's Republic, Republic of India, Republic of Indonesia, Iran, Ireland, Iceland, State of Israel, Italy, Japan, Hashemite Kingdom of Jordan, Republic of Kenya, State of Kuwait, Kingdom of Lesotho, Lebanon, Republic of Liberia, Libyan Arab Republic, Principality of Liechtenstein, Luxembourg, Malaysia, Malawi, Malagasy Republic, Republic of Mali, Kingdom of Morocco, Mauritius, Islamic Republic of Mauritania, Monaco, Mongolian People's Republic, People's Republic of Mozambique, Nepal, Republic of the Niger, Federal Republic of Nigeria, Norway, New Zealand, Republic of Uganda, Pakistan, Papua New Guinea, Kingdom of the Netherlands, Republic of the Philippines, People's Republic of Poland, Portugal, State of Qatar, Syrian Arab Republic, German Democratic Republic, Ukrainian Soviet Socialist Republic, Socialist Republic of Roumania, United Kingdom of Great Britain and Northern Ireland, Republic of the Senegal, Republic of Singapore, Democratic Republic of the Sudan, Republic of Sri Lanka (Ceylon), Sweden, Confederation of Switzerland, United Republic of Tanzania, Republic of the Chad, Czechoslovak Socialist Republic, Thailand, Togolese Republic, Tunisia, Turkey, Union of Soviet Socialist Republics, Yemen Arab Republic, People's Democratic Republic of Yemen, Socialist Federal Republic of Yugoslavia, Republic of Zaire, Republic of Zambia.

ARTICLE 1

Definitions

For the purposes of this Agreement, the following terms shall have the meanings defined below:

Union: The International Telecommunication Union;

Secretary-General: The Secretary-General of the Union;

I.F.R.B.: The International Frequency Registration Board;

C.C.I.R.: The International Radio Consultative Committee;

Convention: The International Telecommunication Convention;

Radio Regulations: The Radio Regulations annexed to the Convention;

Regions 1 and 3: The geographical areas defined in Nos. 126 and 128 to 132 of the Radio Regulations Geneva, 1959:

Agreement: The whole of this Agreement including its annexes:

Plan: The Plan and its appendices forming Annex 1 to this Agreement;

Contracting Member: Any Member of the Union which has approved or acceded to the Agreement:

Administration: Any governmental department or service responsible for discharging the obligations undertaken in the Convention and the Radio Regulations.

ARTICLE 2

Frequency Bands

The provisions of this Agreement apply to the frequency bands between 150 and 285 kHz and between 525 and 1 605 kHz allocated to the broadcasting service under Article 5 of the Radio Regulations, Geneva, 1959.

ARTICLE 3

Execution of the Agreement

1. The Contracting Members shall adopt, for their broadcasting stations operating in Regions 1 and 3 in the frequency bands referred to in the Agreement, the characteristics specified in the Plan.
2. The Contracting Members shall not bring assignments complying with the Plan into use, change the technical characteristics of stations specified in the Plan, or bring new stations into use, except under the conditions set out in Articles 4 and 5 of this Agreement (see also Resolution No. 7).
3. The Contracting Members shall endeavour to agree on the action required to reduce any harmful interference caused by the application of this Agreement.

ARTICLE 4

Procedure for Modifications to the Plan

1. When a Contracting Member proposes to make a modification to the Plan, i.e. either:
 - to change the characteristics of a frequency assignment to a broadcasting station shown in the Plan, whether or not the station has been brought into use, or
 - to bring into use an assignment to a broadcasting station not appearing in the Plan, or

- to change the characteristics of a frequency assignment to a broadcasting station for which the procedure in this Article has been successfully applied, whether or not the station has been brought into use, or
- to cancel a frequency assignment to a broadcasting station.

the following procedure shall be applied before any notification is made under the provisions of Article 9* of the Radio Regulations (see Article 5 of this Agreement).

2. In the remainder of the present Article, the term “assignment in accordance with the Agreement” means any frequency assignment appearing in the Plan or for which the procedure of this Article has been successfully applied.

3. *Proposed Changes in the Characteristics of an Assignment or the Bringing into Use of a new Assignment*

3.1 Any administration proposing a change in the characteristics of an assignment or the bringing into use of a new assignment shall seek the agreement of all the administrations having an assignment in accordance with the Agreement, in the same channel or an adjacent channel, which is considered to be affected (see 3.2.5 and 3.3.1).

3.2 *Channels other than Low-Power Channels*

3.2.1 An administration proposing to change the characteristics of an assignment or to bring a new assignment into use shall so inform the I.F.R.B. and furnish the characteristics of the modification or addition in the form adopted in the Plan and its appendices.

3.2.1.1 Where the proposed modification is within the limits defined in 3.2.9, the information shall contain a reference to that paragraph.

3.2.1.2 In all other cases, in order to arrive at the agreement referred to in 3.1, the administration shall notify to the I.F.R.B. the names of the administrations whose agreement it considers should be sought and of those with which agreement has been reached.

3.2.2 The I.F.R.B. shall determine on the basis of Annex 2 to the Agreement the administrations having frequency assignments in accordance with the Agreement which are considered to be affected within the meaning of 3.2.5. The results of these calculations shall be sent immediately by the I.F.R.B. to the administration proposing the modification to the Plan. The I.F.R.B. shall include the names of these administrations in the information received and shall publish the complete information in a special section of its weekly circular.

3.2.3 The I.F.R.B. shall send a telegram to the administrations listed in the special section of the weekly circular drawing their attention to the information it contains and shall also send to them the results of its calculations.

3.2.4 Any administration which considers that it should have been included in the list of administrations whose frequency assignments are considered to be affected may, giving its reasons for so doing, request the I.F.R.B. to include its name. A copy of the request shall be sent to the administration proposing the modifications to the Plan.

3.2.5 Any assignment may be considered affected when its usable field strength is increased by a value equal to or greater than 0.5 dB as a consequence of the proposed modification to the Plan. The usable field strength is calculated at any point on the boundary of the service area resulting from the first recording of the assignment in the Plan. When the original assignment in the Plan has been modified in accordance with the Agreement, the calculation shall take account of this modification. The increase in the usable field strength is calculated in accordance with Annex 2 to the Agreement.

3.2.6 An administration seeking agreement under 3.1 for daytime operation of a station may, by agreement with the affected administrations, use the simplified method of calculation defined in 3.3.4.3 or 3.4.3.3, as appropriate, of Annex 2 to the Agreement.

3.2.7 An administration may ask the administration proposing the modification for the additional information it considers necessary to calculate the increase of the usable field strength. Similarly, the administration proposing the modification may ask any administration whose agreement it seeks for the additional information it considers necessary. The administrations shall inform the I.F.R.B. of such requests.

* or the corresponding article of the Radio Regulations currently in force.

3.2.8 Comments from administrations on information published pursuant to 3.2.2 should be sent either directly to the administration proposing the modification or through the I.F.R.B. In any event the I.F.R.B. shall be informed that comments have been made.

3.2.9 The agreement mentioned in 3.1 is not required if the proposed modification either:

- entails no increase in effective monopole radiated power in any direction, or
- relates to a change in the site of the station, within the tolerances specified in 4.9 of Annex 2 to the Agreement.

In either case, the administration intending to modify the Plan may put its project into effect, subject to the application of the provisions of Article 9* of the Radio Regulations.

3.2.10 An administration which has not notified its comments either to the administration concerned or to the I.F.R.B. within a period of sixteen weeks following the date of the weekly circular referred to in 3.2.2 shall be understood to have agreed to the proposed change. This time limit may be extended by eight weeks in the case of an administration which has requested additional information pursuant to paragraph 3.2.7.

3.2.11 If in seeking agreement an administration makes changes in its initial proposal, it shall again apply the provisions of 3.2.1 and the consequent procedure.

3.2.12 If no comments have been received on expiry of the periods specified in 3.2.10, or if agreement has been reached with the administrations which have made comments, the administration proposing the modification may proceed with its project and shall inform the I.F.R.B. indicating the final characteristics of the assignment together with the names of the administrations with which agreement has been reached.

3.2.13 When the proposed modification to the Plan involves a developing country, administrations shall seek a solution conducive to economical development of the broadcasting system of the developing country, giving due consideration to the principles enunciated to this effect in the Preamble to this Agreement.

3.2.14 The I.F.R.B. shall publish in a special section of its weekly circular the information received under 3.2.12, together with the names of any administrations with which the provisions of this article have been successfully applied. With respect to Contracting Members, the assignment concerned shall enjoy the same status as those appearing in the Plan.

3.3 *Low-Power Channels*

3.3.1 Any administration proposing a change in the characteristics of a frequency assignment in a low-power channel or the bringing into use of a new station in such a channel shall seek the agreement of any other administration when the distance between the proposed station and the nearest point on the boundary of the territory of that other administration is less than the corresponding values given in 4.8.3 of Annex 2 to the Agreement.

3.3.2 After having obtained the agreement of the administrations concerned, the administration proposing the modification shall inform the I.F.R.B. indicating the characteristics of the station together with the names of the administrations with which agreement has been reached.

3.3.3 The I.F.R.B. shall publish this information in a special section of its weekly circular. With respect to Contracting Members the assignment concerned shall enjoy the same status as those appearing in the Plan.

3.3.4 The administration may then proceed with its project.

3.4 *Additional Provisions for Channels in shared Bands*

The provisions of this Article apply also to frequency assignments to broadcasting stations in frequency bands shared with other radiocommunication services. However, the special sections of the I.F.R.B. weekly circular mentioned in 3.2.2 and 3.2.3 which concern the proposed modifications shall be considered by these other services to be for information only (see also Resolution No. 7).

* or the corresponding article of the Radio Regulations currently in force.

3.5 *Provisions common to all Channels*

3.5.1 If no agreement is reached between the administrations concerned, the I.F.R.B. shall make any study that may be requested by these administrations; the Board shall inform them of the result of the study and shall make such recommendations it may be able to offer for the solution of the problem.

3.5.2 Any administration may at any stage in the procedure described, or before applying it, request the assistance of the I.F.R.B., particularly in seeking the agreement of another administration.

3.5.3 If, after application of the procedure described in this Article, the administrations concerned have been unable to reach agreement, they may resort to the procedure described in Article 50 of the Convention. Administrations may also agree to apply the Optional Additional Protocol to the Convention.

3.5.4 In any case, the relevant provisions of Article 9* of the Radio Regulations shall be applied when assignments are notified. When, no agreement having been reached, the I.F.R.B., following the notification of an assignment, records it in the Master International Frequency Register, the entry shall be accompanied by a symbol indicating that the entry has been made subject to the reservation that no harmful interference will be caused to frequency assignments in conformity with the Agreement.

3.5.5 The I.F.R.B. shall maintain an up-to-date master copy of the Plan, and of Appendix 1 relating to low-power channels, taking account of the application of the procedure specified in this Article; to this end the I.F.R.B. shall prepare a document listing the amendments to be made to the Plan and Appendix 1 as a result of modifications made in accordance with the procedure of this Article and of the addition of new assignments in conformity with the Agreement.

3.5.6 The Secretary-General shall be informed by the I.F.R.B. of these changes made in the Plan and shall publish an up-to-date version of the Plan in an appropriate form as and when the circumstances justify and in any case every three years.

4. *Cancellation of Assignments*

When an assignment in accordance with the Agreement is released, whether or not as a result of a modification (for instance a change of frequency), the administration concerned shall immediately so inform the I.F.R.B. The I.F.R.B. shall publish this information in a special section of its weekly circular.

ARTICLE 5

Notification of Frequency Assignments

1. Whenever an administration intends to put into use an assignment in conformity with the Agreement it shall notify this assignment to the I.F.R.B. in accordance with the provisions of Article 9* of the Radio Regulations. Any such assignment recorded in the Master Register as a result of the application of the provisions of Article 9* of the Radio Regulations, shall, in addition to a date in Column 2a or Column 2b, bear a special symbol in the Remarks column.

2. In relations between Contracting Members, all frequency assignments brought into use in conformity with the Agreement and recorded in the Master Register shall be considered to have the same status, irrespective of the dates entered in Column 2a or Column 2b for such assignments.

ARTICLE 6

Special Arrangements

In addition to the procedures provided for in Article 4 of the Agreement and to facilitate their application with a view to improving the utilization of the Plan, Contracting Members may conclude special arrangements in accordance with the pertinent provisions of the Convention and of the Radio Regulations.

* or the corresponding article of the Radio Regulations currently in force.

ARTICLE 7

Scope of Application of the Agreement

1. This Agreement shall bind Contracting Members in their relations with one another but does not bind those Members with respect to non-Contracting countries.
2. If a Member makes reservations with regard to any provision of this Agreement, other Members shall be free to disregard that provision in their relations with the Member which has made such reservations.

ARTICLE 8

Approval of the Agreement

Members shall notify their approval of this Agreement, as promptly as possible, to the Secretary-General, who shall at once inform the other Members of the Union.

ARTICLE 9

Accession to the Agreement

1. Any Member of the Union in Regions 1 and 3 which has not signed this Agreement may accede thereto at any time. Such accession shall extend to the Plan as amended at the time of the accession and shall be made without reservation. The Secretary-General shall be notified thereof and he shall inform the other Members of the Union.
2. Accession to the Agreement shall take effect on the date on which the notification of accession is received by the Secretary-General.
3. Any Member of the Union party to the Regional Agreement for the African Broadcasting Area (Geneva, 1966) which accedes to the present Agreement in conformity with paragraphs 1 and 2 of this Article, shall by this act of accession terminate its participation in the Regional Agreement for the African Broadcasting Area and the Plan annexed thereto.

ARTICLE 10

Termination of Participation in the Agreement

1. Any Contracting Member shall have the right at any time to terminate its participation in the Agreement by a notification sent to the Secretary-General who shall inform the other Members of the Union.
2. Such termination of participation shall take effect after a period of one year from the date of receipt, by the Secretary-General, of the said notification.

ARTICLE 11

Abrogation of the European Broadcasting Convention (Copenhagen, 1948) and annexed Copenhagen Plan

Additional Protocol I to the Final Acts of the Conference provides for the abrogation of the European Broadcasting Convention (Copenhagen, 1948) and the annexed Copenhagen Plan.

ARTICLE 12

Abrogation of the Regional Agreement for the African Broadcasting Area (Geneva, 1966) and the Plan annexed thereto

Additional Protocol II to the Final Acts of the Conference provides for the abrogation of the Regional Agreement for the African Broadcasting Area (Geneva, 1966) and the Plan annexed thereto.

ARTICLE 13

Effective Date of the Agreement

The Agreement shall enter into force on twenty-three November, one thousand nine hundred and seventy-eight at 0001 hours GMT.

ARTICLE 14

Duration of the Agreement

1. The Agreement and the annexed Plan have been established with a view to meeting the requirements of the broadcasting services in the bands concerned for a period of eleven years from the date of entry into force of the Agreement.
2. The Agreement shall remain in force until it is revised by a competent conference of the Members of the Union in Regions 1 and 3.

IN WITNESS WHEREOF, the Delegates of the Members of the Union mentioned above have, on behalf of their respective competent authorities, signed this Agreement in a single copy in the Chinese, English, French, Russian and Spanish languages, in which, in case of dispute, the French text shall prevail. This copy shall remain deposited in the archives of the Union. The Secretary-General shall forward one certified true copy to each Member in Regions 1 and 3.

Done at Geneva, 22 November 1975.

For the Republic of Afghanistan:

S. M. N. ALAWI

K. D. KAMRAN

For Algeria (Algerian Democratic and Popular Republic):

HARBI

SAÏD

BELAKHDAR

ABOUDI

BENACER

For the Federal Republic of Germany:

KUPPER

VENHAUS

For the Kingdom of Saudi Arabia:

ABDUL RAHMAN DAGHISTANI

ALI MOHAMED ALBABTAIN

For Australia:

D. M. ROWELL

C. G. ELWORTHY

F. M. SHEPHERD

V. F. KENNA

J. SANDHAM

H. F. HAAGENSEN

For Austria:

Dr ALFRED BÖNISCH

For the People's Republic of Bangladesh:

B. M. ADHIKARI

SAIF UDDIN MALLIK

For Belgium:

P. BOUCHIER

M. GEWILLIG

For the Byelorussian Soviet Socialist Republic:

P. V. AFANASIEV

For the Republic of Botswana:

POTLAKE MOLEFHE

S. M. NKWE

For the People's Republic of Bulgaria:

IGNATOV

For the Republic of Burundi:

NZOBAKENGA ROMAIN

For the United Republic of Cameroon:

MAURICE KAMDEM
FISSOSSOE A KEEDI ISAAC

For the Central African Republic:

JACQUES M'BILO
MBAYE MARTIN

For the People's Republic of China:

LU KE-CHIN
HO TA-CHUNG

For the Republic of Cyprus:

CHRISTOFIDES ANDREAS
ASTREOS PAUL
MICHAELIDES ANDREAS

For the Vatican City State:

SABINO MAFFEO
PIER VINCENZO GIUDICI

For the People's Republic of the Congo:

KOUBATIKA DENIS
POUEBA PAUL ALBERT

For the Republic of Korea:

EUN MO SHIM
NAI SUNG KIM
YOUNG HAN LEE

For the Republic of the Ivory Coast:

CHRISTOPHE NOGBOU
FRANÇOIS KACOU
GASTON BLÉ YAO

For the Republic of Dahomey:

A. D'OLIVEIRA
M. DETIEN-HONVO
L. MARTIN

For Denmark:

I. LØNBERG
P. V. LARSEN
J. A. HEEGAARD
H. C. JØRGENSEN

For the Arab Republic of Egypt:

M. ARAFA ZAYAN
N. H. ANTAR

For the United Arab Emirates:

ALY A. M. ABU-KANDEEL

For Spain:

JOSÉ MARIA ARTO MADRAZO

For Ethiopia:

TESFATSION SEBHATU
GESSESE ABAI

For Fiji:

EMORI NAQOVA

For Finland:

K. TERÄSVUO
R. SVENSSON

For France:

JEAN DE LA GRANDVILLE
MARIE HUET
HENRI BERTHOD
STEPHANE LACHARNAY
HENRI DE FRANCE

For the Gabon Republic:

N'GUEMA SAMUEL PARFAIT

For the Republic of the Gambia:

AMADOU DODOU JOBE
EMMANUEL ALEXANDER NYING

For Ghana:

Dr B. A. OPPONG
R. E. APPIAH
O. A. KWAWUKUME

For Greece:

ANDREAS METAXAS
APOSTOLOS CASMAS
GEORGES KASTANAS
THEOFANIS KOKKOSSIS
Prof. MICHEL ANASTASSIADES

For the Republic of Guinea:

MAMADOU SALIOU DIALLO
SIDIKI TOURE

For the Republic of Upper Volta:

PIERRE CLAVER SONGRÉ
KABA YOUSSEF

For the Hungarian People's Republic:

HORN DEZSŐ

For the Republic of India:

M. K. BASU
S. N. MITRA
M. K. RAO
C. S. R. RAO
O. P. KHUSHU

For the Republic of Indonesia:

TH. A. PRATOMO
ISKANDAR ARFAN

For Iran:

N. MADANI

For Ireland:

ITA MEEHAN
J. MALONE

For Iceland:

G. ARNAR

For the State of Israel:

M. SHAKKÉD
J. NITSAN

For Italy:

A. PETTI

For Japan:

TERUO ISHIKAWA
SHINZABURO TANAKA
MASAKI SEO

For the Hashemite Kingdom of Jordan:

SALEH KABARITI

For the Republic of Kenya:

SIMEON NDIRITU MACHARIA
JAMES PETER KIMANI

For the State of Kuwait:

JAWAD A. ALMAZEEDI

For the Kingdom of Lesotho:

F. L. LETELE

For Lebanon:

JOSEPH ROHAYEM

For the Republic of Liberia:

S. RICHELIEU WATKINS

For the Libyan Arab Republic:

AMER SALEM OUN
WALED ADEB OMAR
MUHAMMED SALEH ALSABEY

For the Principality of Liechtenstein:

MARIO COMTE DE LEDEBUR

For Luxembourg:

CHARLES REICHLING

For Malaysia:

D. S. VARIYAN
LAI WING HIN
MOHAMMAD ALI ISMAIL

For Malawi:

OVERTON CHRISTIE MANDALASI

For the Malagasy Republic:

RANDRIAMBOLOLONA PASCAL
RANDRIANARIVELO PAUL

For the Republic of Mali:

OUMAR SIDIBE

For the Kingdom of Morocco:

TANANE

For Mauritius:

RAMBERT J. M. H. N.
SODHOU G.

For the Islamic Republic of Mauritania:

LÔ MEDOUNE
MANGASSOUBA ALIOU

For Monaco:

SOLAMITO CÉSAR CHARLES
AUVRAY G. G.

For the Mongolian People's Republic:

D. GARAM-OTCHIR

For the People's Republic of Mozambique:

VALERIANO FERRÃO

For Nepal:

KRISHNA BAHADUR KHATRY

For the Republic of the Niger:

DIALLO MOCTAR

For the Federal Republic of Nigeria:

O. O. KUFORJI
R. O. IFIDON
N. A. NZE
D. J. AWONIYI

For Norway:

OLE J. HAGA
L. GRIMSTVEIT
KNUT N. STOKKE
TORE ØVENSEN

For New Zealand:

DEREK C. ROSE
ROBERT JOHN BUNDLE
JOHN PATERSON CARTER
GEORGE HUGH RAILTON

For the Republic of Uganda:

F. X. B. KATENDE

For Pakistan:

IRFAN ULLAH
IMAD UDDIN

For Papua New Guinea:

I. EDONI
R. T. PEARSON
S. KULUPI

For the Kingdom of the Netherlands:

DIRK VAN DEN BERG
F. R. NEUBAUER

For the Republic of the Philippines:

Z. C. CARLOS
L. B. QUINTOS
C. V. ESPEJO
G. P. ORDOÑA
R. N. DIZON JR.

For the People's Republic of Poland:

KONRAD KOZLOWSKI
HALINA SMOLENSKA

For Portugal:

ADRIANO DE CARVALHO
DOMINGOS ANTONIO PIRES FRANCO
VITO RIBEIRO DE OLIVEIRA
CELSO JOÃO DE ALBUQUERQUE

For the State of Qatar:

ABDULRAHMAN HAMAD ALATTYIA
ABDUL MALIK MAQSOOD

For the Syrian Arab Republic:

BARA MICHEL

For the German Democratic Republic:

BRUNO CZERWINSKI

For the Ukrainian Soviet Socialist Republic:

SAVANTCHOUK V.

For the Socialist Republic of Roumania:

C. CEAUŢESCU

For the United Kingdom of Great Britain and
Northern Ireland:

JOLYON DROMGOOLE
THOMAS KILVINGTON
ARTHUR CARTER
ROBERT A. DILWORTH

For the Republic of the Senegal:

IBRAHIMA DIOP
ABOUBAKARY NDIONGUE

For the Republic of Singapore:

R. G. RAJASINGAM
SEBASTIAN C. H. TAN

For the Democratic Republic of the Sudan:

ABDULLA SIRAGELDIN HAGAHMED

For the Republic of Sri Lanka (Ceylon):

D. BUELL

For Sweden:

PER ÅKERLIND
NISSE UHLÉN

For the Confederation of Switzerland:

H. R. PROBST
W. EBERT
E. SCHWARZ

For the United Republic of Tanzania:

P. A. SOZIGWA
P. I. MHUMBIRA

For the Republic of the Chad:

HAMID KANTE

For the Czechoslovak Socialist Republic:

JÍRA JIŘÍ

For Thailand:

V. MENASVETA
E. KANCHANINDU
K. PORNSUTEE

For the Togolese Republic:

NENONENE SETH KOUMA

For Tunisia:

SLAHEDDINE BEN HAMIDA
SALAH HADIJI
TAÏEB BEN YOUSSEF

For Turkey:

D. ERDEN
Y. ERTEM
H. H. ESEN

For the Union of Soviet Socialist Republics:

V. CHAMCHINE

For the Yemen Arab Republic:

AL-NONO HUSSEIN

For the People's Democratic Republic of Yemen:

MOHAMED ALI AZZANI

For the Socialist Federal Republic of Yugoslavia:

ENVER HUMO

For the Republic of Zaire:

YEMBI NSAMPALA
YAMUSANGIE MAHUMBU

For the Republic of Zambia:

J. D. KALISILIRA
PETER LANDAN MUSUBA

ANNEX 1

Plan for the Assignment of Frequencies to Broadcasting Stations in the Medium Frequency Bands (other than to Stations using Low-Power Channels) in Regions 1 and 3 and in the Low Frequency Bands in Region 1

Document Reference: ITU-R RRC.3 1976

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INFORMATION INCLUDED IN THE COLUMNS OF THE PLAN

- Column 1 : *Assigned channel frequency (kHz).*
Channel number; this number is shown in brackets.
- Column 2 : *Name of transmitting station.* The symbol S appearing to the left of the dotted line indicates that the station forms part of a synchronized network, the other stations of which bear the same symbol (see Definitions, Chapter 1 of Annex 2 to the Regional Agreement).
- Column 3 : *Symbol designating the country* or the geographical area in which the station is located (see Table No. 1 of the Preface to the International Frequency List).
- Column 4 : *Geographical coordinates of the transmitting station* in degrees and minutes.
- Column 5 : *Necessary bandwidth (kHz)*; the value in kHz is preceded by the symbol A, B, C or D indicating the adjacent channel protection ratio that is to be employed in calculating the usable field strength. The cases corresponding to these symbols are listed in 4.4.2 of Annex 2 to the Agreement.
- Column 6 : *Carrier power (kW).*
- Column 7 : *Maximum radiation* in dB relative to a c.m.f. of 300 V or an e.m.r.p. of 1 kW, determined from the nominal power of the transmitter and the theoretical gain of the antenna without allowing for miscellaneous losses.
- Column 8 : *Azimuth of maximum radiation* in degrees (clockwise) from True North.
- Column 9 : *Azimuths defining the sector of limited radiation* in degrees (clockwise) from True North.
- Column 10: *Maximum agreed radiation in the sector*, in dB relative to a c.m.f. of 300 V or an e.m.r.p. of 1 kW determined from the nominal power of the transmitter and the theoretical gain of the antenna without allowing for miscellaneous losses.
- Column 11: *Type of antenna.* The symbol A indicates a simple vertical base-fed antenna and the symbol B any other type of antenna described in Appendix 2 to the Plan.
- Column 12: *Height of antenna* (metres) for a simple vertical antenna only.
- Column 13: *Ground conductivity.* The numbers 1 to 9 appearing in this column refer to Figures 1 to 9 in Chapter 2 of Annex 2 to the Regional Agreement (page 341 of the Final Acts of the Conference). The number 1 denotes Figure 1, 2 denotes Figure 2, etc.
- Column 14: *Hours of operation* (GMT) in hours and minutes, e.g., 0730-1800, 0000-2400, 0500-0230.
- Column 15: *Remarks* indicated by symbols which are explained in the following pages.

EXPLANATION OF SYMBOLS USED IN THE “REMARKS” COLUMN

(COLUMN 15 OF THE PLAN AND COLUMN 11 OF THE APPENDIX 1 TO THE PLAN)

1. (Not used)
- 2.* During the period of the year between the two dates following a symbol, the assignment is used as shown in the schedule in Column 14.
3. This assignment is to be coordinated.
- 4./... This assignment has been coordinated with /...
Coordination has still to be effected with other countries.
- 5./... This assignment is to be coordinated with /...
6. French assignment for a station operating in the Federal Republic of Germany.
7. This assignment is used within the daytime limits shown in Figure 20 of Annex 2 to this Agreement.
8. The azimuth of maximum radiation may be modified by agreement with the Administration of Czechoslovakia; the latter requests that the gain should be restricted to –8 dB in the sector 320° to 340°.
9. The Polish Administration will adopt additional technical measures to reduce the level of interference in the service area of the station Rhodos operating on 1 260 kHz so that the contribution of the Polish synchronized network to the usable field strength of that station does not exceed 85 dB (µV/m). Final coordination will be effected bilaterally between Greece and Poland.
10. The level of the transmitter power indicated in the Plan is subject to mutual agreement between the Administrations of Cyprus and of the United Kingdom.
- 11./... The entry of this assignment in the Plan has been requested by/...
12. This station will cease operation on this frequency when Osaka starts to operate on 1 179 kHz.
13. This station will not operate on this frequency before 14 May 1977.
14. (Not used)
15. Daytime hours of operation are based on the considerations in 3.3.4.2 of Annex 2 to the Agreement and shall not exceed 0900-1600 GMT in midwinter except by agreement between the administrations concerned.
16. If the administration considers it necessary, this assignment can be coordinated with those of the other administrations concerned in accordance with paragraph 3 of Resolution No. 3.
- 17./... Discussions concerning this assignment did not result in an agreement with the Administrations of/...
- 18./... Discussions concerning this assignment did not result in a satisfactory agreement with the Administrations of/...
However, the administrations concerned agreed to continue the discussions with a view to reaching a satisfactory agreement.
19. The audio-frequency bandwidth is fixed at 4.5 kHz using, in addition, a high degree of modulation compression (Case D in paragraph 4.4.2.1 of Chapter 4 of Annex 2) provided that the transmitters of other countries operating in adjacent channels which may produce interference also use the technique indicated in Case D.
20. The French Administration, in conjunction with the competent administration for Andorra, will seek practical means of installing a directional antenna at the Sud-Radio station to reduce the radiation from that station in the directions of Warsaw (sector between azimuths 45° and 55°) and Rabat (sector between azimuths 210° and 225°). The administrations concerned will study possible arrangements with a view to reaching agreement.

* Followed by two groups of four digits separated by an oblique stroke and each representing a date.

21. (Not used)
22. 1 467 kHz night-time;
594 kHz day-time.
- 23./... It was not possible for one reason or another to coordinate this assignment during the Conference with the Administrations of/...
However, the administrations concerned propose jointly to seek the basis for a satisfactory agreement.
24. Discussions about this assignment could not take place with the Administration of Israel because the administration which requested this assignment does not recognize that Administration. The provisions of Article 9 of the Radio Regulations shall therefore be applied to this assignment with respect to the assignments of the other administration.
25. This assignment is used in the day-time within the operational limits shown in the dotted lines in Figure 21 of Annex 2 to the Agreement.
- 26./... The hours of operation of this assignment are to be coordinated with the Administration of/...on the basis of Figure 20 of Annex 2 to the Agreement.
27. The Administrations of the Kingdom of Saudi Arabia and the Socialist Federal Republic of Yugoslavia have agreed on the following hours of operation of the transmitter Guriat (612 kHz):

1 April to 31 October from 0300-1600 GMT
1 November to 31 March from 0500-1400 GMT.

The two Administrations are willing to cooperate in seeking a better solution meeting the needs of both parties in a satisfactory manner.
28. After negotiation the Administrations of Greece and Libya have agreed that when the Libyan stations are brought into use their contribution to interference in Greece shall not exceed 79 dB.
29. Operation of this station will cease on 14 May 1977.
30. The Polish delegation has expressed a reservation concerning the undesirable interference caused to reception of the Polish synchronized network, operating on the frequency 1 206 kHz, on the territory of the People's Republic of Poland by the station Munchen-Ismaning, and considers it necessary to effect further coordination on a bilateral basis.
31. This assignment will no longer be used within the day-time limits shown in Figure 20 of Annex 2 to this Agreement when station Mocimboa (MOZ) is brought into service on frequency 1 224 kHz.
32. The values indicated in Columns 7, 8, 9 and 10 are provisional and subject to agreement between the Administrations of Syria and the Federal Republic of Germany.
33. Discussions about this assignment could not take place because the Administrations of Algeria, Saudi Arabia, Egypt, the United Arab Emirates, Jordan, Kuwait, Lebanon, Libya, Morocco, Mauritania, Qatar, Sudan, Tunisia, the Yemen A.R., the P.D.R. of Yemen, do not recognize the Administration which requested this assignment. The provisions of Article 9 of the Radio Regulations shall therefore apply to this assignment with respect to assignments of the foregoing Administrations.

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APPENDIX 1 TO THE PLAN

Frequency Assignments to Stations in the Low-Power Channels

(See also Resolution No. 2)

**INFORMATION INCLUDED IN THE COLUMNS OF THE TABLE IN
APPENDIX 1 TO THE PLAN**

- Column 1 : *Assigned channel frequency* (kHz).
Channel number; this number is shown in brackets.
- Column 2 : *Name of transmitting station*. The symbol S appearing to the left of the dotted line indicates that the station forms part of a synchronized network, the other stations of which bear the same symbol (see Definitions, Chapter 1 of Annex 2 to the Regional Agreement).
- Column 3 : *Symbol designating the country*, or the geographical area in which the station is located (see Table No. 1 of the Preface to the International Frequency List).
- Column 4 : *Geographical coordinates of the transmitting station* in degrees and minutes.
- Column 5 : *Necessary bandwidth* (kHz); the value in kHz is preceded by the symbol A, B, C or D indicating the adjacent channel protection ratio that is to be employed in calculating the usable field strength. The cases corresponding to these symbols are listed in 4.4.2 of Annex 2 to the Agreement.
- Column 6 : *Carrier power* (kW).
- Column 7 : *Effective monopole radiated power (e.m.r.p.)* (kW).
- Column 8 : *Height of antenna* (metres).
- Column 9 : *Ground conductivity*. The numbers 1 to 9 appearing in this column refer to Figures 1 to 9 in Chapter 2 of Annex 2 to the Regional Agreement (page 341 of the Final Acts of the Conference). The number 1 denotes Figure 1, 2 denotes Figure 2, etc.
- Column 10: *Hours of operation* (GMT) in hours and minutes, e.g., 0730-1800, 0000-2400, 0500-0230.
- Column 11: *Remarks* indicated by symbols which have the following meaning:
3. This assignment is to be coordinated.
4./... This assignment has been coordinated with /...
Coordination has still to be effected with other countries.

... ..

APPENDIX 2 TO THE PLAN

Antenna Gain (dB) for different Azimuths and Angles of Elevation

**INFORMATION CONCERNING THE RADIATION CHARACTERISTICS OF
TRANSMITTING ANTENNAE OTHER THAN SIMPLE VERTICAL
BASE-FED ANTENNAE**

Column 1 : *Symbol designating the country* or the geographical area in which the station is located (see Table No. 1 of the Preface to the International Frequency List).

Column 2 : *Assigned channel frequency* (kHz).

Column 3 : *Name of transmitting station*.

Column 4 : *Angle of elevation*.

Note. – The azimuths and angles of elevation are expressed in tens of degrees with related values in dB.

ANNEX 2

Technical Data used in the Preparation of the Plan and to be used in the Application of the Agreement

Document ID: ITU-R RRC.3 1976

ANNEX 2

Technical Data used in the Preparation of the Plan and to be used in the Application of the Agreement

CHAPTER 1

Definitions

Channel (in AM broadcasting)

Part of the frequency spectrum, the width of which is equal to the necessary bandwidth of the AM broadcasting emission, and which is characterized by the nominal value of the carrier frequency.

Low-power channel (LPC)

Channel used by medium frequency broadcasting stations employing a maximum e.m.r.p. of 1 kW (c.m.f. of 300 V).

Audio-frequency signal-to-interference ratio

Ratio between the values of the voltage of the wanted signal and the voltage of the interference, measured under specified conditions, at the audio-frequency output of the receiver.

This ratio is generally expressed in dB and corresponds closely to the difference in volume of sound (expressed in dB) between the wanted programme and the interference.

Audio-frequency protection ratio

Agreed minimum value of the audio-frequency signal-to-interference ratio considered necessary to achieve a subjectively defined reception quality.

This ratio may have different values according to the type of service desired.

Radio-frequency wanted-to-interfering signal ratio

Ratio between the values of the radio-frequency voltage of the wanted signal and the interfering signal, measured at the input of the receiver under specified conditions.

This ratio is generally expressed in dB.

Radio-frequency protection ratio

Value of the radio-frequency wanted-to-interfering signal ratio that enables, under specified conditions, the audio-frequency protection ratio to be obtained at the output of a receiver.

These specified conditions include such diverse parameters as spacing of the wanted and interfering carrier, emission characteristics (type of modulation, modulation depth, etc.), receiver input and output levels as well as the receiver characteristics (selectivity and susceptibility to cross-modulation, etc.).

Usable field strength (E_u)

The minimum value of the field strength necessary to permit satisfactory reception, under specified conditions, in the presence of natural noise, man-made noise and interference in a practical situation (or in one resulting from a frequency plan).

Nominal usable field strength (E_{nom})

The agreed minimum value of the field strength necessary to permit satisfactory reception, under specified conditions, in the presence of natural noise, man-made noise and interference from other transmitters.

The value of the nominal usable field strength is taken as a reference for planning purposes.

Service area (of a broadcasting transmitter)

The area in which the field strength of a transmitter is equal to or greater than the usable field strength.

Cymomotive force (c.m.f.) (in a given direction)

(See C.C.I.R. Report 618, 1974)

The product formed by multiplying the electric field strength at a given point in space, due to a transmitting station, by the distance of the point from the antenna. This distance must be sufficient for the reactive components of the field to be negligible; moreover the finite conductivity of the ground is supposed to have no effect on propagation.

The c.m.f. is a vector; when necessary it may be expressed in terms of components along axes perpendicular to the direction of propagation.

The c.m.f. is expressed in volts; it corresponds numerically to the field strength in mV/m at a distance of 1 km.

Effective monopole radiated power (e.m.r.p.)

(See C.C.I.R. Report 618, 1974)

The power supplied to an antenna multiplied by its gain in a given direction referred to that of a short vertical antenna in the horizontal plane.

Gain of an antenna (in a given direction) *referred to a short vertical antenna*

The radiation is expressed either as effective monopole radiated power (e.m.r.p.) or as cymomotive force (c.m.f.). To define the gain of an antenna, in a given direction, referred to a short vertical antenna either of the two following definitions should be adopted:

- the ratio between the c.m.f. of the actual antenna in a given direction and the c.m.f. in the horizontal plane of a short vertical antenna without losses on a perfectly conducting plane, the two antennae being supplied with the same power;
- the ratio of the power required at the input of a short vertical antenna without losses situated on a perfectly conducting horizontal plane to produce the reference e.m.r.p. of 1 kW (c.m.f. of 300 V) in the horizontal direction, to the power supplied to the actual antenna to produce the same e.m.r.p. (c.m.f.) in the given direction.

The ratio, expressed in dB, is the same for the two definitions.

Synchronized network

A group of transmitters whose carrier frequencies are identical (or differ only slightly, usually by a fraction of a Hz), and which broadcast the same programme.

CHAPTER 2

Ground-Wave Propagation

2.1 The value of the ground-wave field strength is given by the curves in Figures 1 to 9 taken from C.C.I.R. Recommendation 368-2.

The following points are to be especially noted with regard to them:

- 2.1.1 they refer to a smooth homogeneous earth;
- 2.1.2 no account is taken of tropospheric effects in the frequency bands concerned;
- 2.1.3 the curves refer to the following conditions:
 - they are calculated for the vertical component of electric field from the rigorous analysis of Van der Pol and Bremmer;
 - the transmitter is an ideal Hertzian vertical electric dipole to which a vertical antenna shorter than one quarter wavelength is nearly equivalent;
 - the dipole moment is chosen so that the dipole would radiate 1 kW if the Earth were a perfectly conducting infinite plane under which conditions the radiation field at a distance of 1 km would be $3 \times 10^5 \mu\text{V/m}$.

- the curves are drawn for distances measured around the curved surface of the Earth;
- the inverse-distance curve A shown in the figures, to which the curves are asymptotic at short distances, passes through the field value of $3 \times 10^5 \mu\text{V/m}$ at a distance of 1 km;

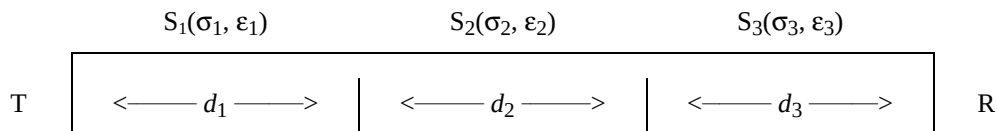
2.1.4 the propagation loss defined in C.C.I.R. Recommendation 341 (1974) for ground waves may be determined from the values of the field strength in dB relative to $1 \mu\text{V/m}$, given in the attached curves, by the use of equation (19) of C.C.I.R. Report 112 (1974);

2.1.5 the curves should, in general, be used to determine field strength, only when it is known that ionospheric reflections at the frequency under consideration will be negligible in amplitude – for example, propagation in daylight between 150 kHz and 2 MHz and for distances of less than about 2,000 km.

2.2 Mixed path

2.2.1 The curves in Figures 1 to 9 may be used for the determination of propagation over mixed paths (inhomogeneous smooth earth) as follows.

Such paths may be made up of sections S_1, S_2, S_3 , etc. of lengths d_1, d_2, d_3 , etc. having conductivity and dielectric constant $\sigma_1, \epsilon_1; \sigma_2, \epsilon_2; \sigma_3, \epsilon_3$ etc. shown below for three sections:



There are various semi-empirical methods of determining the propagation over such paths, of which that due to Millington (1949) is the most accurate and has been made to satisfy the reciprocity condition. The method assumes that curves are available for the different types of terrain in the sections S_1, S_2, S_3 etc. assumed to be individually homogeneous, all drawn for the same source T defined, for instance, by a given inverse-distance curve. The values may then finally be scaled up for any other source.

For a given frequency, the curve appropriate to the section S_1 , is chosen and the field $E_1(d_1)$ in dB ($1 \mu\text{V/m}$) at the distance d_1 is then noted. The curve for the section S_2 is then used to find the fields $E_2(d_1)$ and $E_2(d_1 + d_2)$ and, similarly, with the curve for the section S_3 , the fields $E_3(d_1 + d_2)$ and $E_3(d_1 + d_2 + d_3)$ are found, and so on.

A received field strength E_R is then defined by

$$E_R = E_1(d_1) - E_2(d_1) + E_2(d_1 + d_2) - E_3(d_1 + d_2) + E_3(d_1 + d_2 + d_3)$$

The procedure is then reversed, and by calling R the transmitter and T the receiver, a field E_T is obtained, given by

$$E_T = E_3(d_3) - E_2(d_3) + E_2(d_3 + d_2) - E_1(d_3 + d_2) + E_1(d_3 + d_2 + d_1)$$

The required field is given by $\frac{1}{2}(E_R + E_T)$, the extension to more sections being obvious.

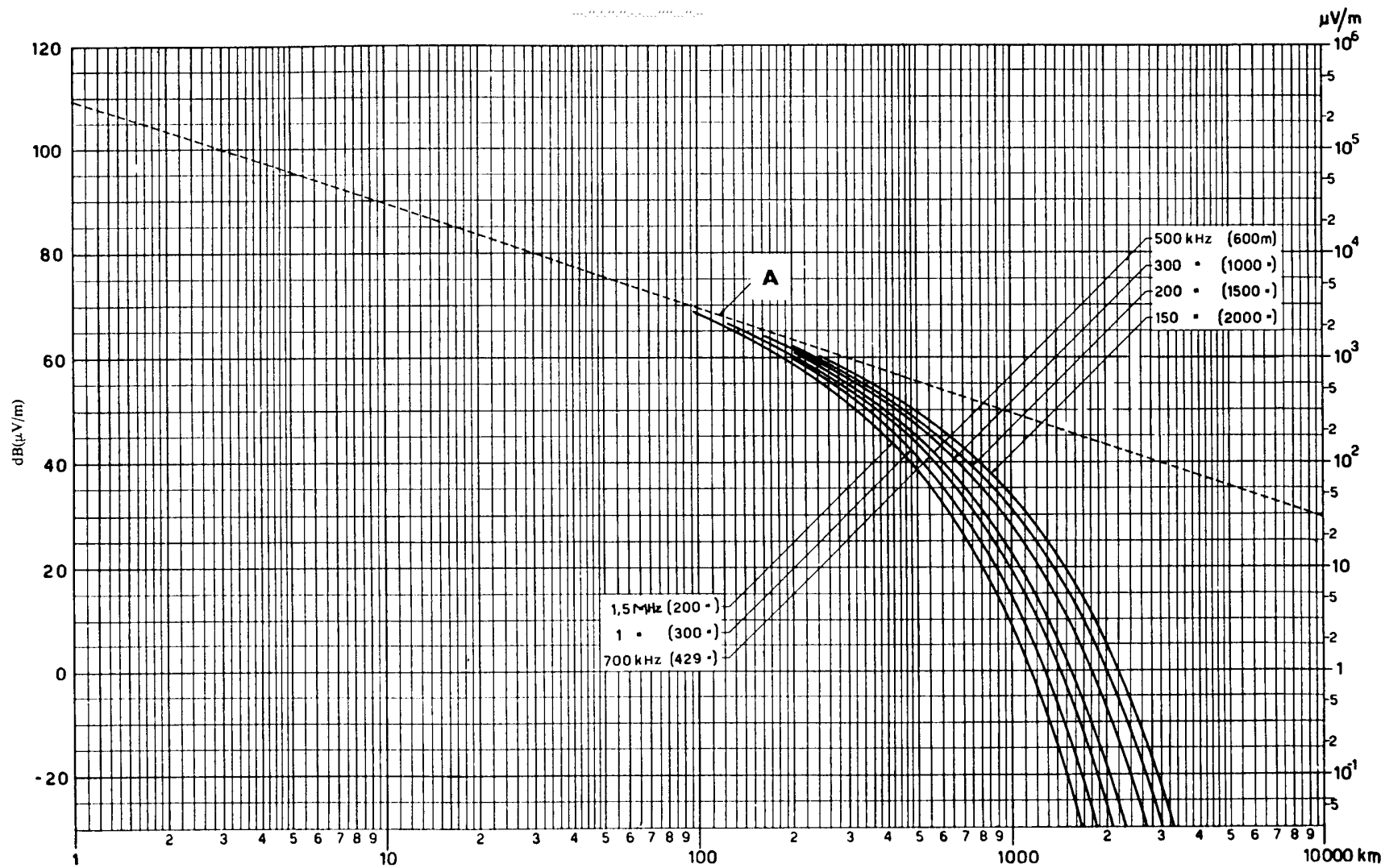


FIGURE 1

Courbes de propagation de l'onde de sol;
Mer, $\sigma = 4$ S/m, $\epsilon = 80$

A: Inverse de la distance

FIGURE 1

Ground-Wave Propagation Curves;
Sea, $\sigma = 4$ S/m, $\epsilon = 80$

A: Inverse distance curve

FIGURA 1

Curvas de propagación de la onda de superficie;
Mar, $\sigma = 4$ S/m, $\epsilon = 80$

A: Inversa de la distancia

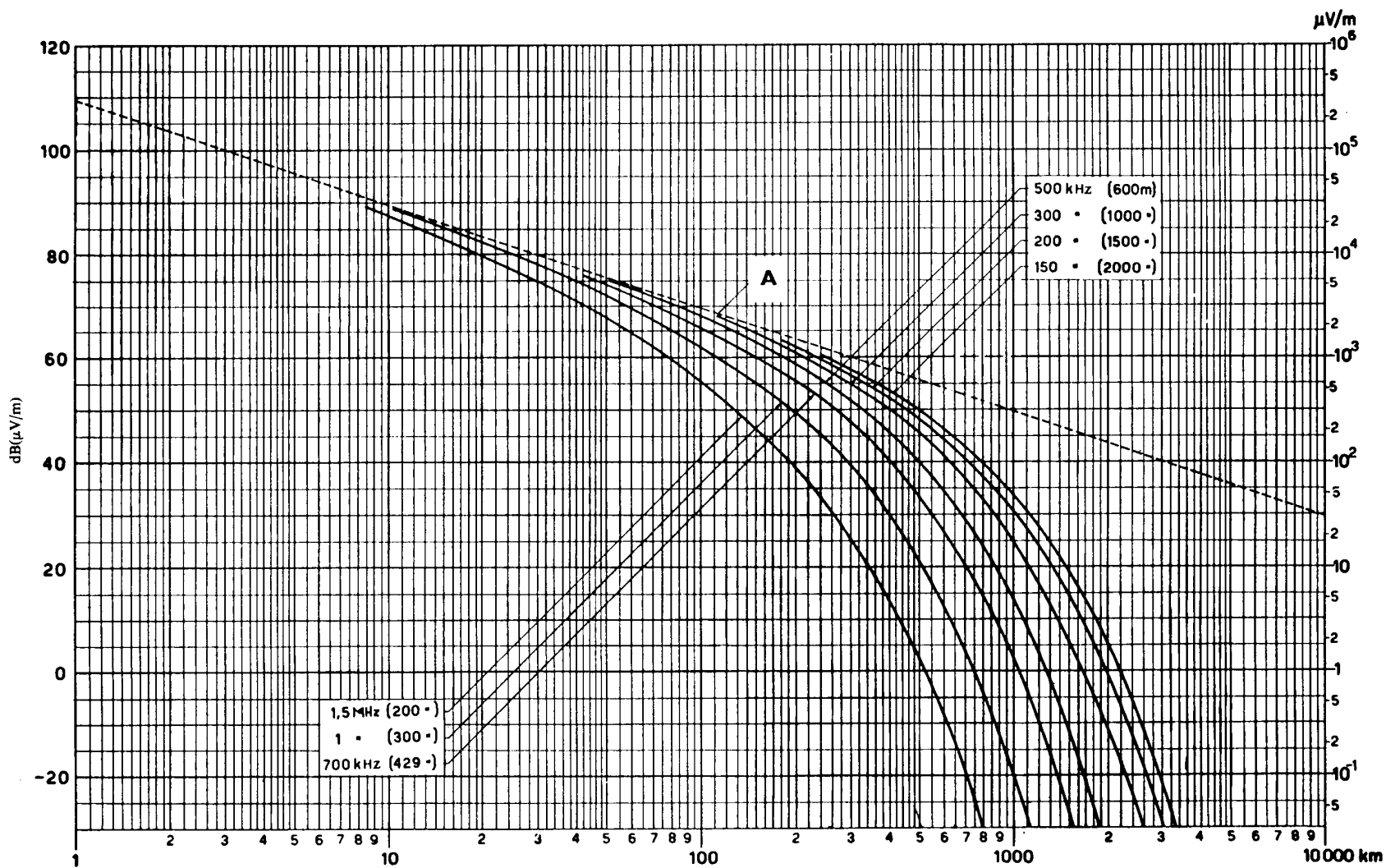


FIGURE 2

*Courbes de propagation de l'onde de sol;
Terre, $\sigma = 3 \times 10^{-2} \text{ S/m}$, $\epsilon = 4$*

A: Inverse de la distance

FIGURE 2

*Ground-Wave Propagation Curves;
Earth, $\sigma = 3 \times 10^{-2} \text{ S/m}$, $\epsilon = 4$*

A: Inverse distance curve

FIGURA 2

*Curvas de propagación de la onda de superficie;
Tierra, $\sigma = 3 \times 10^{-2} \text{ S/m}$, $\epsilon = 4$*

A: Inversa de la distancia

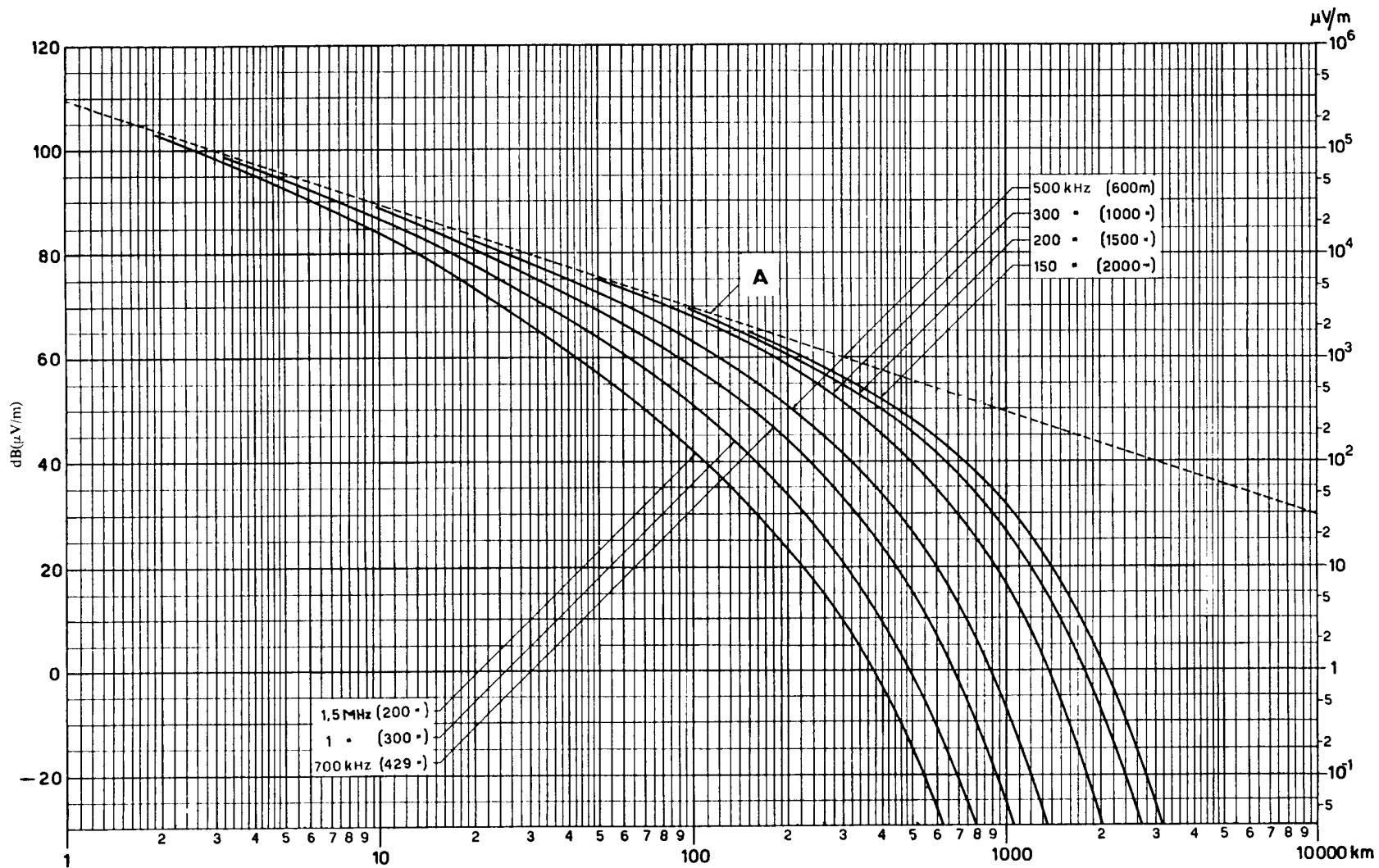


FIGURE 3

Courbes de propagation de l'onde de sol;
Terre, $\sigma = 10^{-2} \text{ S/m}$, $\epsilon = 4$

A: Inverse de la distance

FIGURE 3

Ground-Wave Propagation Curves;
Earth, $\sigma = 10^{-2} \text{ S/m}$, $\epsilon = 4$

A: Inverse distance curve

FIGURA 3

Curvas de propagación de la onda de superficie;
Tierra, $\sigma = 10^{-2} \text{ S/m}$, $\epsilon = 4$

A: Inversa de la distancia

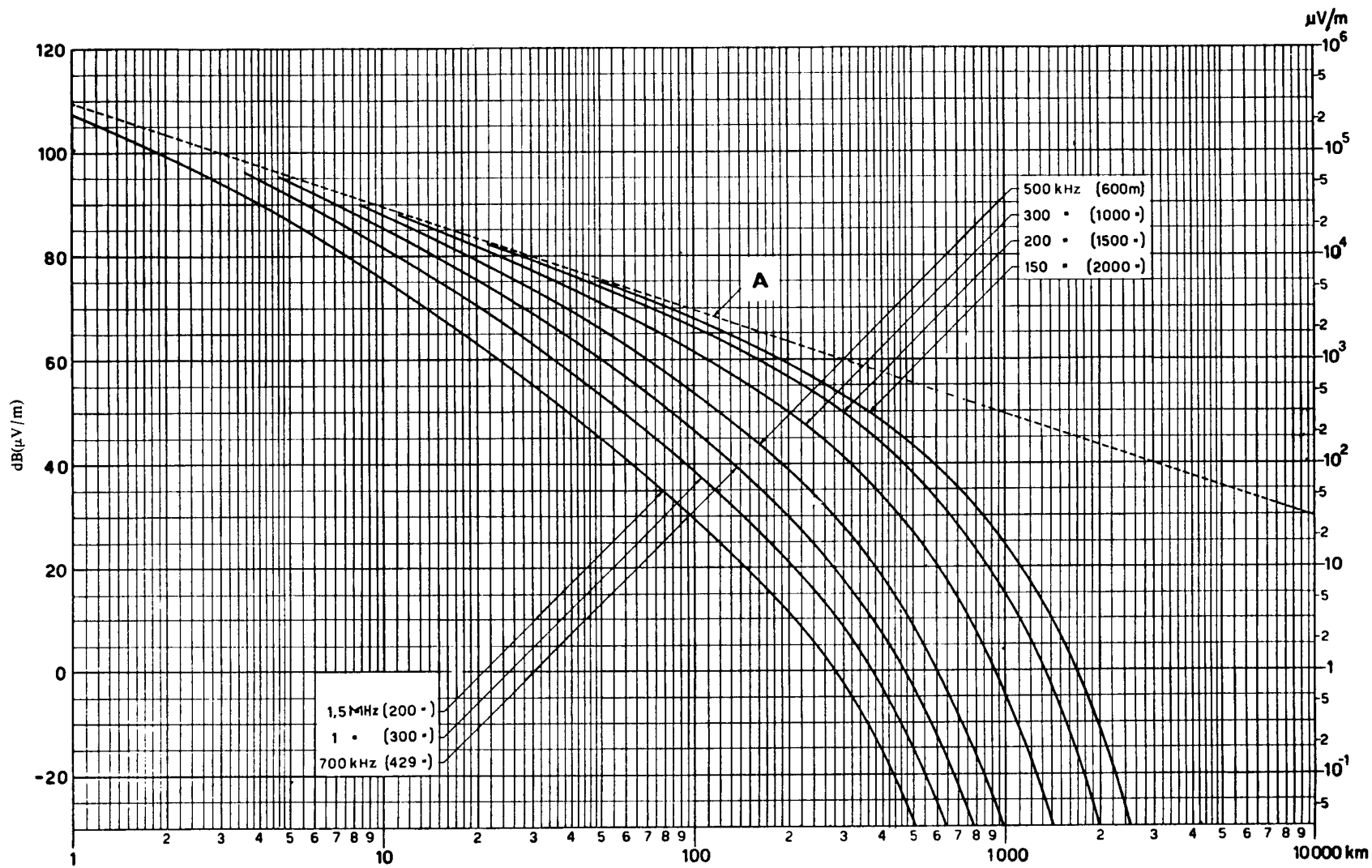


FIGURE 4

*Courbes de propagation de l'onde de sol;
Terre, $\sigma = 3 \times 10^{-3}$ S/m, $\epsilon = 4$*

A: Inverse de la distance

FIGURE 4

*Ground-Wave Propagation Curves;
Earth, $\sigma = 3 \times 10^{-3}$ S/m, $\epsilon = 4$*

A: Inverse distance curve

FIGURA 4

*Curvas de propagación de la onda de superficie;
Tierra, $\sigma = 3 \times 10^{-3}$ S/m, $\epsilon = 4$*

A: Inversa de la distancia

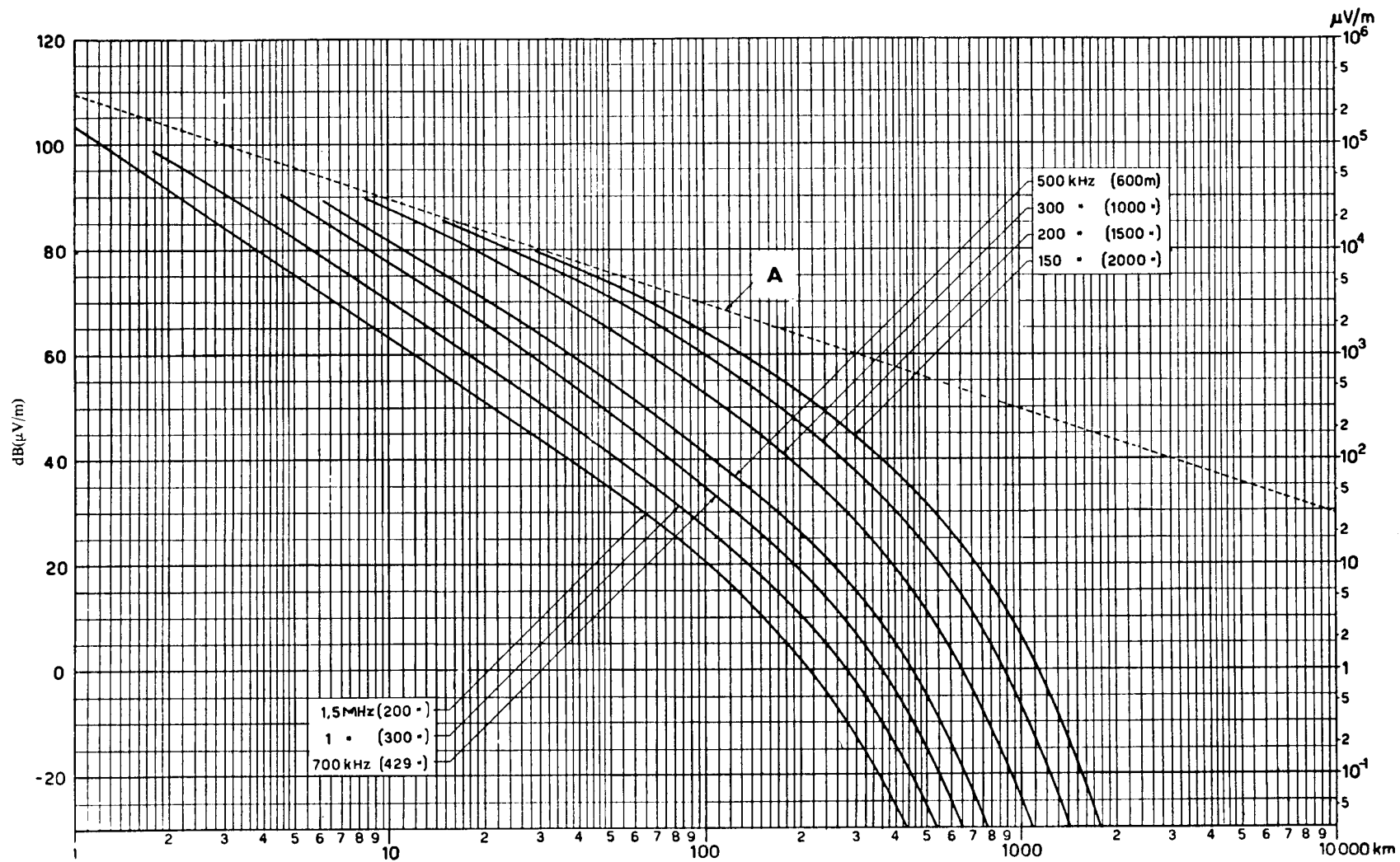


FIGURE 5

Courbes de propagation de l'onde de sol;
Terre, $\sigma = 10^{-3}$ S/m, $\epsilon = 4$

A: Inverse de la distance

FIGURE 5

Ground-Wave Propagation Curves;
Earth, $\sigma = 10^{-3}$ S/m, $\epsilon = 4$

A: Inverse distance curve

FIGURA 5

Curvas de propagación de la onda de superficie;
Tierra, $\sigma = 10^{-3}$ S/m, $\epsilon = 4$

A: Inversa de la distancia