



**GENERAL**  **ELECTRIC**  
**RADIO LOG**

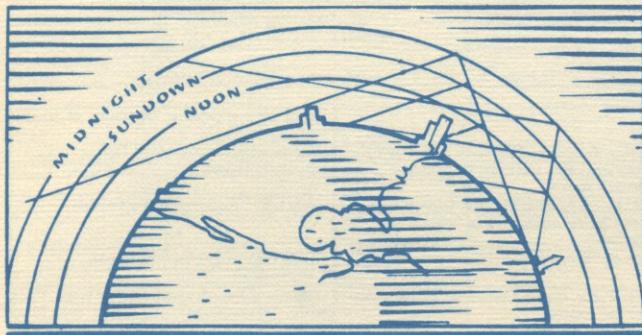
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# SHORT WAVES

## WHAT THEY ARE AND HOW THEY ACT

All radio waves travel at the same speed as light . . . 186,000 miles a second. Each complete radio wave is known as a cycle. The number of waves or cycles sent out each second by a station is called its frequency. "Kilo" means a thousand. Therefore, a kilocycle means a thousand waves, or cycles, a second.



### KILOCYCLES AND MEGACYCLES

In exploring the mysteries of short waves, you will sometimes find stations listed by frequency (kilocycles) and other times by wavelengths (meters). To convert kilocycles into meters, simply divide 300,000 by the figure you have. Thus, Station RV59, which sends out 6000 kilocycles per second, uses a wavelength of 50 meters ( $300,000 \div 6000 = 50$ ).

To reduce the size of the numbers used to indicate frequency, sometimes a station in the higher frequencies is listed in megacycles. A megacycle is simply a thousand kilocycles. The Moscow station with a frequency of 6000 kilocycles may be listed as 6 megacycles ( $6000 \div 1000 = 6$ ).

Tuning dials on all General Electric receivers are marked in kilocycles for the lower frequencies and in megacycles for the higher frequencies. To simplify tuning, the important short-wave channels and services are also indicated on the dials in meters.

### FREQUENCY RANGES

There are no definite frequency limits for what is commonly known as "short-wave" but it is generally understood that short waves, as such, are those represented by the frequencies extending from approximately 4000 kilocycles through 30,000 kilocycles. Between the end of the standard broadcast band, approximately 1500 kilocycles and the beginning of the short-wave band, are the police and some amateur transmissions, but these, strictly speaking are not "short-wave." All frequencies higher than 30,000 kilocycles are commonly known as ultra short waves and are reached by the 5-band all-wave General Electric receivers.

### BEHAVIOR OF SHORT WAVES

When short waves leave the station antenna they are in two divisions. One, called the ground wave,

travels close to the earth and is soon absorbed by buildings, metal deposits and natural screens. The other sets off into the air at an angle determined by the design of the antenna and the frequency of the transmitted wave and travels in a straight line until, at a point probably 75 to 125 miles up in the air, it encounters that region known as the Heaviside layer, which is thought to be an area of highly charged particles which cannot be penetrated by the short waves. This layer acts as a reflector and turns the wave back toward the earth. As a result, the waves which started away from the ground finally come back to the earth's surface many hundreds of miles from their starting point. The distance between the station and the point of return to the earth is called the "skip distance" and in this area it is not possible to hear the station with any degree of reliability. This explains why a short-wave station of relatively low power is often heard with good volume several thousands of miles away, whereas its signal may be completely missing only fifty miles or so from the transmitter.

### THE HEAVISIDE LAYER

The height of the Heaviside layer varies with the time of day and the season. Because of this, the signals change in strength as the hours pass from daylight to darkness. To overcome this objection, radio engineers have worked out charts which give the best wavelength to use at every hour of the day, and these charts are followed closely in selecting the frequency best suited for any particular broadcasting schedule.

For instance, the waves from 15 to 25 meters give best service during daylight hours but are practically useless after sundown. When the sun sets, the stations transfer their activities to the 30- to 50-meter waves and continue there until the sun is about to rise again.

### DR. E. F. W. ALEXANDERSON

Long before the general public took any interest in short waves, the leading scientists of the world were studying their action. Dr. E. F. W. Alexanderson of the General Electric Company erected a short-wave laboratory to study short waves. He devised a "directional antenna," which displayed remarkable ability in reaching remote points, and made possible the establishment of continuous contact with the first Byrd expedition to the Antarctic in 1929.

### DIRECTIONAL ANTENNA

These antennas are now in world-wide use, and by means of them, Germany and England and many other countries are able to send you fine programs with a volume and fidelity that sometimes equal those of programs from your local stations . . . provided you have a modern receiver, like the General Electric.

# S-W STATION IDENTIFICATION CHART

Call Letters	Address	Name	Announcement	Identifying Signals
CJRO, CJRX	James Richardson & Sons., Ltd., 155 Royal Alexandra Hotel, Winnipeg, Manitoba			Begins with "O Canada", Strikes 4 gongs
CNR	L'Inspecteur General, Directeur de L'Office des Postes, Rabat, Morocco	Radio-Maroc	"Tei Radio-Rabat dans Maroc"	Metronome between selections, finishes with "La Marseillaise"
COC	Short Wave Radio Station, COC, P.O. Box 98, Havana, Cuba		"Seh-O-Seh, Habana, Cooba." Sometimes in English	
COH	Calle B, No. 2, Vedado, Havana, Cuba		"Estacion de onda Corta Seh-O-acha," Spanish and English	
CP5, CP6, CP7	Compania Radio Boliviana, Calle Socabaya 231, La Paz, Bolivia	Radio Illimani	"Radio Illimani"	
CQN	Postmaster General, Macao, Asia			
CR6AA	Caixa Postal 118, Lobito, Angola, Port. W. Africa			
CR7AA	Gremio dos Radiofilos da Colonia de Mozambique, Portuguese, E. Africa		"Radio Lorenz Marques"	
CT1AA	Av. Duque de Avila, 86 r/c, Lisbon, Portugal	Radio Colonial	"CT1AA, Radio Colonial"	3 cuckoo calls
CT1CT	Oscar G. Lomelino, Rua Gomes Freire 79, Lisbon, Portugal			
CTIGO	Portuguese Radio Club, Parede, Portugal			
DFB	Reichspostzentralamt, Berlin, Germany			
DJA, DJB, DJC, DJD, DJN, DJQ	Reichsrundfunkgesellschaft, Haus des Rundfunks, Berlin-Charlottenburg, 9, Germany		"Dear Friends and listeners in North America," etc., German, English and Spanish spoken	Three tone whistle at beginning of transmission: D, C, G.
EAQ	Station EAQ, Apartado Correos 951, Madrid, Spain		"Akee Ay-Ah-Coo Madrid, Espana," Big Ben Chimes Announces in Spanish and English	Chimes—Eight notes of old German song, frequently repeated
FIQA	Dept. of Mail, Telegraph & Telephone, Tananarive, Madagascar		"Radio Tananarive."	Ends with "Rachmaninoff's Prelude"
FYA	Station Radio-Coloniale, 98 Bis. Boulevard Haussmann, Paris, (8e), France	Radio-Coloniale	"Ici Paree, Radio Coloniale," Does not use call letters	Opens with "Ramona," ends with "Marseillaise"
GSA, GSB, GSC, GSD, GSE, GSF, GSG, GSH	British Broadcasting Corp., Broadcasting House, London, W1, England		"This is London calling you"	Chimes of French clock, quarter hours. Ends with "Marseillaise" and "Bon soir Mes-dames, Bon soir Mesdemoiselles, Bon soir Messieurs"
G6RX	Mr. G. A. Struthers Rugby Radio Station, Hillmorton, England			Starts and Finishes with Big Ben's gong. Sometimes "God Save the King"
HAS, HAT	A. Magyar Kir Posta, Kiserleti Allomasa, Gyalu-ut 22, Budapest, IX, Hungary			
HBL-HBP	M. G. Gallarati, Information Section, League of Nations, Geneva, Switzerland	Radio Nations	"Radio Nations," Does not use call letters; speaks English, Spanish and French	
HCJB	Radio Station HCJB, Casilla 691, Quito, Ecuador	La Voz de los Andes	"La Voz de los Andes"	
HC2ET	Radiodifusora HC2EP, Box 249, Guayaquil, Ecuador	El Telegrafo		
HC2RL	Dr. Roberto Levi, Box 759, Guayaquil, Ecuador	Quinta Piedad	"Hello, America," Announce in English and Spanish	Ecuadorian Anthem
HIH	San Pedro de Macoris D.R. La Voz de Iguano	La voz de Iquano	Spanish and English every half hour: "HIH Santo Domingo, operating on a frequency of 6818 kc"	
HIZ	Secretaria de Estado, De Trabajo y Comunicaciones, Santo Domingo, Dominican Republic			
HI1A	Rafael Western, Box 423, Santiago de los Caballeros, Dominican Republic	La Voz del Yaque	"La Voz del Yaque"	Plays "Anchors Aweigh" at start and finish of program
HI4D	La Voz de Quisqueya, Santo Domingo D.R.			
AJ1ABB	Elias J. Pellet, Box 715, Barranquilla, Colombia	La Voz de Barranquilla	"La Voz de Barranquilla, Acha-hota-uno-ab-beh-beh," announces in Spanish and English	Chimes like NBC
HJ2ABA	Pompilio Sanchez C., Tunja Boyaca, Colombia	La Voz del Pais	"La Voz del Pais"	
HJ3ABD	Colombia Broadcasting, Calle 16, No. 5-40, Bogota, Colombia	Ecos de Calle	"Atcha-Kah-Effeh"	Gong
HJ4ABE	Cia. Radiodifusora de Medellin, Medellin, Colombia			
HJ4ABN	Manizales, Colombia	Ecos del Occidente	"Ecos del Occidente"	
HJ5ABC	R. Angulo Radiodifusora HJ5ABC, Cali, Colombia	La voz de Colombia		
HJ5ABD	Cali, Colombia		"Achay-jay-sinko-ah-bay-day"	
HP5B	Estacion Miramar, Box 910, Panama City, Station HVJ, Vatican City, Italy	The Voice of Panama	"Estacion Miramar", the voice of Panama	
HVJ		Laudetur Jesus Christus		
I2RO (2RO)	Ente Italiano Audizioni Radiofoniche, Via Montello No. 5, Rome, Italy	Prato Smeraldo	"Radio Roma Napoli." Lady announcer, sometimes a whole string of Italian cities; does not use complete call letters. During American hour from Rome a man announcer says "2 R. O, Rome"	Clock's ticks in studio. Announcer begins with "Pronto, pronto, Radio Vaticano," ends with "Laudetur Jesus Christus"
JES			"Osaki". Announcer speaks English and Japanese, announcer seems to be American	3 gongs—2 gongs, 1 pause, 1 gong, 1 pause then 1 chime
JVR	Kemikawa Sending Station, Kemikawa-Cho, Chiba-Ken, Japan			
LKJ1	Ministere du Commerce du Royaume de Norvege, Oslo, Norway		"Broadcasting Oslo"	
LSY	Transradio International, San Martin 329, Buenos Aires, Argentina			Begins with zylophone notes E, E, G sharp, A
OAX4B	Messrs Grellaut & Co., Apartado 1242, Lima, Peru			
OAX4D	D. U. S. A., All-American Cables, Inc., 835, Lima, Peru	La Voz de Peru	"Radio D. U. S. A., La Voz de Peru". In Spanish and English	
OER2	Oesterr. Radioverkehrs, A.G., Johannes-gasse 4b, Vienna, Austria		"Hallo, Hier Radio Wien"	Metronome can be heard
ORP, ORK, ORG	Regie des Telegraphes et des Telephones. Direction des Radiocommunications, Brussels, Belgium	Belradio	"Ici Bruxelles I. N. R. emission speciales pour" la Congo par la station de Ruysselede	Finishes with "La Brabanconne"

# S-W STATION IDENTIFICATION CHART

<i>Call Letters</i>	<i>Address</i>	<i>Name</i>	<i>Announcement</i>	<i>Identifying Signals</i>
OXY	Statsradiofonien, Heibergsgade 7, Copenhagen, Denmark			Chimes from the Town Hall clock at 6 p. m. EST
PCJ	Philips Radio, Emmasingel 29, Eindhoven, Holland			
PHI	PHOHI Studios, Hilversum, Holland		Announces in Dutch, Malay, German, French, English, Spanish and Portuguese. "Hallo, Hallo PHI, Holland," also "This is Huizen"	Signs off with Dutch National Hymn
PLV, PMY, etc. Bandoeng Stations	Mr. H. van der Veen, Engineer in Charge, Java Wireless Stations, Bandoeng, Java, D. E. L.			PLV plays 3 records, starts calling on 4th record; PLF, PMC begin transmissions with 3 auto horn notes: F, D, C.
PRADO	Estacion Radiodifusora del Prado, Apartado de Correo 98, Riobamba, Ecuador	El Prado	"Estacion del PRADO, Riobamba, Ecuador." In Spanish and English	
PRF5	International Radio Co. of Brazil, Rio de Janeiro, Brazil	La Presse Nacional	"Short-wave Station PRF5, F for Friday, Rio-de-Janeiro, Brazil"	3 chimes—announces in Portuguese, French, English, and Spanish
RW15	Far East Radio Station, Khabarovsk, Siberia			
RW59	Radio Centre, Solianka 12, Moscow, USSR	Workers of the World	"Moscow Calling." Announces in German, French, Spanish, Hungarian, Swedish and English on different days of the week	Plays the "International" at beginning and end of transmissions
TGX	M. A. Mejicano Novales, El Liberal Progresista, Guatemala City, Guatemala			Two tone high frequency signals
TIEP, TI2EP	E. Pinto Hernandez, Apartado de Correos 257, San Jose, Costa Rica	La Voz del Tropico	"La Voz del Tropico"	
TI4NRH	Amando Cespedes Marin, Heredia, Costa Rica	Sol Luet Omnibus	English and Spanish spoken	Bugle calls and bird calls, finishes with March of Costa Rican Republic
VE9CA	Calgary, Alberta	Voice of the Prairie	"Voice of the Prairie"	Scuds two bells between selections
VE9CS	Radio Service Engineers, Ltd., 734 Davie Street, Vancouver, B. C., Canada			
VE9DR	Canadian Marconi Co., P. O. Box 1690, Montreal, Quebec, Canada			
VE9GW	R.R. No. 4, Bowmanville, Ont., Canada		"Canadian Radio Commission Station VE9GW at Bowmanville, Ontario, Canada"	Has that "empty hall" effect during announcements
VE9HX	The Maritime Broadcasting Co., Ltd., Box 998, Halifax, Nova Scotia, Canada	The Key Station of the Maritimes		4 strokes on gong at beginning of transmission
VK2ME	Amalgamated Wireless (Australasia) Ltd., Box 2516 BB G.P.O., Sydney, Australia	The Voice of Australia	"Vee-Ki-2-ME, Sydney Amalgamated Wireless of Australia"	Call of laughing notes of kookaburra bird Finishes with "God Save the King"
VK3ME	Melbourne, Australia		"Vee-Ki-3-ME, Melbourne Amalgamated Wireless of Australia"	Begins with clock chimes
VK3LR	Postmaster-General's Dept., Treasury Gardens, Melbourne C2, Victoria Australia			
VPD	Amalgamated Wireless (Australasia) Ltd., Suva, Fiji	Radio Suva		
VQ7LO	Cable and Wireless Ltd., P.O. Box 777, Nairobi, Kenya Colony, British East Africa			
VUB	Indian State Broadcasting Service, Irwin House, Sprott Road, Ballard Estate, Bombay, India			
W1XAL	World Wide Broadcasting Corp., 70 Brookline Ave., Boston, Massachusetts		"This is international S.W. Station W1XAL at Boston"	
W1XAZ	Radio Station W1XAZ, Bradford Hotel, Boston, Massachusetts		"Westinghouse Stations WBZ, WBZA and Short-Wave station W1XAZ"	
W2XAF-W2XAD	General Electric Co., Schenectady N. Y.	The voice of electricity	"This is WGY and W2XAF," or "This is WGY and W2XAD"	Begins each program with a discharge of 10 million volts
W2XE	Columbia Broadcasting System, 485 Madison Avenue, New York City		"This is the Columbia Broadcasting System SW Experimental station W2XE"—in various languages	
W3XAU	WCAU Broadcasting Co., 1622 Chestnut Street, Philadelphia, Pa.		"This is the Columbia Broadcasting System S.W. Station W3XAU at Philadelphia"	
W3XAL, W3XL	National Broadcasting Co., Rockefeller Plaza, New York City		"W3XAL, Bound Brook, New Jersey"	
W8XAL	Crosley Radio Corp., Cincinnati, Ohio	The Nation's Station	"The Nation's Station WLW and S.W. Station W8XAL"	
W8XK	Westinghouse Elec. Mfg. Co., Hotel William Penn, Pittsburgh, Pa.		"This is Westinghouse Station KDKA and its S.W. complement, W8XK"	NBC chimes
W9XAA	The Voice of Labor, 666 Lake Shore Drive, Chicago, Illinois	The Voice of Labor	"WCFL and W9XAA, The Voice of Labor"	
W9XF	National Broadcasting Co., Inc., Merchandise Mart, Chicago, Illinois		"W9XF, Chicago, 6100kc"	NBC chimes
XEBT	B. Sanristobal, Apartado 79-44, Mexico D.F., Mexico	El Buen Tono	Announce in Spanish and English	Blowing of automobile horn—like very fast "cuckoo" calls, repeated twice; sometimes a siren. Sign off with Ave Maria
XQAJ	80 Love Lane, Shanghai, China			
YNLF	Sr. M. Le Franc, 206 Calle 15 de Septiembre, Managua, Nicaragua	La Voz de Nicaragua	"La Voz de Nicaragua"	
YV2RC	Broadcasting Caracas, Apartado de Correos 290, Caracas, Venezuela	Broadcasting Caracas	"Ee-vay-dos-erray-seh broadcasting Caracas"	Chimes each quarter hour. Sign off with Venezuela Anthem
YV3RC	Caracas, Venezuela	Radiodifusora, Venezuela	Ee-vay-trays-erray-say	Plays bells on the hour. Two chimes, repeated, before announcement
YV5RMO	Sr. S. M. Vegas, Apartado de Correos 214 Maracaibo, Venezuela	Ecos del Caribe	"Ecos del Caribe"	Strikes gong before announcing
YV6RV	Valencia, Venezuela	La Voz de Carabobo	"La Voz de Carabobo, Ee-vay sez-erray-vay"	Strikes gong before announcement
ZGE	Secretary for Postal Affairs for S.S. and F.M.S., Kuala Lumpur, Federated Malay States			
ZHI	Radio Service Co. of Malaya, 2 Orchard Road, Singapore, Malaya			
ZTE	Malayan Amateur Society, Singapore, Malaya			
ZTJ	African Broadcasting Co., Ltd., Box 4559, Johannesburg, Union of South Africa			

# **WORLD SHORT-WAVE TIME-TABLE**

## **KEY TO TIME-TABLE SYMBOLS**

A—Sunday, Winter only  
 B—Sunday, Monday, Wednesday, Friday  
 C—Monday, Wednesday, Friday  
 D—Daily  
 E—Tuesday, Thursday  
 F—Tuesday, Thursday, Saturday  
 G—Irregularly  
 H—Thursday, Friday, Saturday, Sunday  
 I—Monday, Friday  
 J—Wednesday, Saturday

M—Monday  
N—Monday, Wednesday, Thursday  
O—Monday, Tuesday, Wednesday, Friday  
R—Except Tuesday, Wednesday  
R—Thursday, Friday, Saturday  
S—Sunday  
T—Tuesday  
Th—Thursday  
V—Wednesday, Sunday  
Z—Tuesday, Friday.

AB—Tuesday, Wednesday, Friday, Saturday  
AE—Monday, Thursday, Saturday  
AF—Tuesday, Friday, Sunday  
AG—Saturday, Sunday  
AK—Wednesday, Thursday, Friday,  
          Saturday  
AL—Except Monday, Sunday  
AM—Monday, Thursday

AN—Tuesday, Saturday  
Sa—Saturday  
XA—Except Saturday, Sunday  
XM—Except Monday  
XR—Except Thursday, Saturday  
XS—Except Sunday  
XSA—Except Saturday  
XX—Tuesday, Thursday, Friday  
XY—Except Tuesday, Sunday



This map is divided into time belts by vertical black lines. Each belt removed from the one in which you are located indicates a time difference of one hour. To determine the time to tune in for a specified broadcast: when station is east of you, subtract from the scheduled broadcast time as many hours as you are belts removed from the station; when station is west of you, add.

# SHORT-WAVE STATION LIST

(Wavelength, Frequency, Call, Location, Power and Service)

All Time is Eastern Standard Time

Meters	Kc	Call	Location	Kw	Service, etc.	Meters	Kc	Call	Location	Kw	Service, etc.
10.06	29,817	IAF	Fiumicino, Italy	5.0	Exp.	17.33	17,300	W6XAJ	Oakland, Calif.	....	Exp.
13.45	22,291	GBU	Rugby, England	....	Phone	17.33	17,300	W8XL	Dayton, Ohio	....	Exp.
13.91	21,550	XGBA	Shanghai, China	18.5	Broadcast	17.33	17,300	W2XCU	Ampere, N.J.	....	Exp.
13.92	21,540	VK3LR	Lyndhurst, Australia	....	Broadcast	17.33	17,300	VE9BY	London, Ont., Canada	....	Exp.; irr.
13.92	21,540	W8XK	Pittsburgh, Pa.	40.0	Broadcast; relays	17.37	17,260	DAF	Norddeich, Germany	5.0	Phone; 9:15 a.m., irr.
					KDKA	17.50	17,122	HASS5	Szkesfehervar, Hungary	....	Broadcast
13.93	21,530	GSJ	Daventry, England	15.0	Broadcast	17.51	17,110	WOO	Ocean Gate, N.J.	20.0	Phone
13.96	21,470	GSH	Daventry, England	15.0	Broadcast	17.55	17,080	GBC	Rugby, England	5.0	Phone
14.00	21,420	W2XDJ	Deal, N.J.	....	Exp.	18.06	16,665	DAN	Norddeich, Germany	....	Tests with ships
14.00	21,420	WKK	Lawrenceville, N.J.	20.0	Phone to LSN	18.36	16,330	VLK-	Sydney, Australia	3.5	Phone
14.00	21,420	WLO	Lawrence, N.J.	....	Transatlantic phone	18.39	16,300	PCL	Kootwijk, Holland	....	Phone to Bandoeng
14.19	21,140	KBI	Manila, P.I.	10.0	Phone	18.43	16,270	WLK	Lawrenceville, N.J.	20.0	Phone to England
14.24	21,060	WKA	Lawrenceville, N.J.	20.0	Phone to England	18.47	16,240	KTO	Manila, P.I.	40.0	Phone
14.24	21,060	KWN	Dixon, Calif.	20.0	Phone	18.49	16,14	FZR3	Santiago, Chile	15.0	Phone
14.27	21,020	LSN	Buenos Aires, Argentine	....	Phone to WLO, 8 a.m.; 4 p.m.	18.54	16,162	FSA	Saigon, French Indo China	....	Broadcast
14.27	21,020	OKI	Podebrady, Czechoslovakia	....	Phone	18.55	16,150	GBX	Rugby, England	....	Phone to VK2ME, 4-11 p.m.
14.37	20,860	EHY	Madrid, Spain	7.5	Phone to Buenos Aires	18.70	16,030	KKP	Kahuku, Hawaii	40.0	Phone to KWO, 2-7 p.m.
14.40	20,820	KSS	Bolinis, Calif.	40.0	Phone	18.77	15,985	KQH	Kahuku, Hawaii	40.0	Phone
14.43	20,780	KMM	Bolinis, Calif.	40.0	Phone	18.80	15,950	PLG	Bandoeng, Java	30.0	Phone; afternoons
14.48	20,700	LSY	Buenos Aires, Arg.	10.0	Phone	18.88	15,880	FTK	Ste. Assise, France	0.8	Phone to Saigon
14.49	20,680	LSX	Buenos Aires, Arg.	....	Phone to Europe after 10:30 p.m.	18.91	15,855	CEC	....	Phone	
14.49	20,680	LSN	Buenos Aires, Arg.	....	Phone to USA	19.03	15,760	JYT	Kemikawa-Cho, Japan	5.0	Relay broadcast and tests
14.57	20,580	PMB	Bandoeng, Java	60.0	Phone to PCK	19.14	15,670	LSF	Buenos Aires, Arg.	....	Phone
14.71	20,380	GBA	Rugby, England	15.0	Phone to ships and LSN	19.15	15,660	JVE	Nazaki, Japan	....	Phone; occasional broadcast
14.88	20,140	DWG	Nauen, Germany	....	Phone to LSG	19.20	15,620	JVF	Nazaki, Japan	....	Phone; sometimes broadcast
14.96	20,040	OPL	Leopoldville, Belgian Congo	....	Phone to ORG, morn.	19.35	15,490	KEM	Bolinis, Calif.	40.0	Phone; sometimes bc.
14.97	20,028	DHO	Nauen, Germany	7.2	Phone	19.37	15,475	KKL	Bolinis, Calif.	40.0	Phone
15.01	19,980	KAX	Manila, P.I.	20.0	Phone to Dixon	19.39	15,460	KKR	Bolinis, Calif.	40.0	Phone
15.03	19,950	DIH	Nauen, Germany	....	Phone	19.40	15,454	Pontoise	Pontoise, France	....	Phone; 7-11 a.m.
15.07	19,900	LSG	Buenos Aires, Arg.	7.0	Phone to France	19.42	15,440	PRADO	Riobamba, Ecuador	....	Phone
15.10	19,850	WMI	Deal, N.J.	....	Phone	19.43	15,430	KWE	Bolinis, Calif.	40.0	Phone
15.12	19,830	FTD	Ste. Assise, France	....	Phone	19.45	15,410	KWO	Dixon, Calif.	20.0	Phone to Hawaii, 2-7 p.m.
15.13	19,820	WKN	Lawrenceville, N.J.	20.0	Phone to England, 8 a.m.—4 p.m.	19.51	15,370	HAS3	Budapest, Hungary	20.0	Broadcast
15.21	19,720	EAQ	Madrid, Spain	10.0	Phone to Latin Am.	19.54	15,355	KWU	Dixon, Calif.	20.0	Phone to Hawaii, 2-7 p.m.
15.23	19,680	CEC	Santiago, Chile	4.0	Phone to LSR, HJY	19.55	15,340	CT1AA	Lisbon, Portugal	....	Broadcast
15.49	19,345	PMA	Bandoeng, Java	40.0	Phone, sometimes broadcast	19.55	15,340	DJR	Zeesen, Germany	50.0	Testing
15.57	19,260	PPU	Rio de Janeiro, Brazil	13.5	Phone to France	19.56	15,330	W2XAD	Schenectady, N.Y.	20.0	Be.; relays WGY
15.58	19,240	DFA	Nauen, Germany	....	Phone to XDA	19.60	15,300	CP7	La Paz, Bolivia	1.0	Phone
15.60	19,220	WKF	Lawrenceville, N.J.	20.0	Phone to England	19.62	15,280	OXY	Skamleb iek, Denmark	....	Exp.
15.61	19,200	ORG	Ruyselede, Belgium	8.0	Phone	19.64	15,270	DQJ	Zeesen, Germany	50.0	Broadcast
15.74	19,050	JVC	Nazaki, Japan	....	Phone, sometimes broadcast	19.65	15,260	W2XE	Wayne, N.J.	15.0	Broadcast
15.76	19,020	WKW- W2XBJ	Rocky Pt., N.Y.	....	Tests; mornings	19.67	15,250	GS1	Daventry, England	....	Broadcast
15.87	18,892	WDS	Rocky Pt., N.Y.	....	Phone	19.69	15,240	WIXAL	Boston, Mass.	....	Broadcast
15.87	18,890	ZSS	Klipheuvel, S. Africa	5.0	Phone to GAA	19.70	15,220	FYA	Pontoise, France	12.0	Broadcast
15.92	18,830	PLE	Bandoeng, Java	60.0	Phone to Dixon, Calif.	19.72	15,210	PCJ	Eindhoven, Holland	12.0	Exp.
16.05	18,680	OCI	Lima, Peru	....	Phone	19.73	15,190	T14NRH	Pittsburgh, Pa.	40.0	Be.; relays KDKA
16.10	18,620	GBJ	Bedmin, Eng.	....	Phone to Montreal	19.74	15,180	RAU	Zeesen, Germany	5.0	Broadcast
16.10	18,620	GAU	Rugby, England	15.0	Phone to WMI, 6 a.m.—2 p.m.	19.75	15,170	W8XK	Daventry, England	15.0	Broadcast
16.12	18,600	PDM	Kootwijk, Holland	....	Phone	19.77	15,200	DJB	Montreal, Que.	....	Broadcast
16.27	18,440	HJY	Bogota, Colombia	....	Phone CEC, LSR	19.80	15,140	VE9DN	Rome, Italy	10.0	Be.; 5-5:15 a.m. daily
16.18	18,530	PCM	Kootwijk, Holland	....	Phone	19.82	15,130	W1XAL	Montreal, Que.	....	Broadcast
16.29	18,400	PCK	Kootwijk, Holland	....	Phone	19.83	15,123	HVJ	Montreal, Que.	....	Broadcast
16.34	18,350	ZLW	Wellington, New Zealand	....	Phone to VK2ME	19.85	15,110	DJL	Zeesen, Germany	....	Broadcast
16.33	18,345	FZS3	Saigon, Indo China	15.0	Phone	19.86	15,104	RAU	Tashkent, U.S.S.R.	20.0	Phone
16.38	18,295	YVQ	Lawrenceville, N.J.	20.0	Phone 8 a.m.—4 p.m.	19.90	15,075	T14NRH	Heredia, Costa Rica	....	Broadcast
16.43	18,240	FRO-FRE	Ste. Assise, France	30.0	Phone	19.91	15,055	WNC	Hialeah, Florida	0.4	Phone
16.45	18,220	KUS	Manila, P.I.	10.0	Phone	19.93	15,040	RKI	Moscow, U.S.S.R.	20.0	Phone; morn., irr.
16.47	18,200	GAW	Rugby, England	15.0	Phone	20.04	14,980	KAY	Manila, P.I.	40.0	Phone to Dixon, 8 a.m.
16.53	18,135	PMC	Bandoeng, Java	40.0	Phone, sometimes broadcast	20.06	14,940	HJA3	Barranquilla, Colombia	....	Phone to Colombia, Panama, Costa Rica; 6:30 a.m.—6:30 p.m.
16.55	18,115	LSY3	Buenos Aires, Arg.	10.0	Phone, sometimes broadcast	20.08	14,830	HJB	Bogota, Colombia	....	Phone
16.56	18,100	GBK	Bedmin, England	....	Phone to CGA, 6 a.m.—2 p.m.	20.27	14,830	W2XBJ	Rocky Pt., N.Y.	....	Tests; daytime
16.62	18,040	KQR	Bolinis, Calif.	40.0	Phone	20.50	14,830	XDA	Mexico, D.F.	....	Phone
16.64	18,020	KQJ	Bolinis, Calif.	40.0	Phone; transpacific	20.54	14,600	JVH	Nazaki, Japan	....	Phone
16.66	18,000	PLE	Bandoeng, Java	....	Phone	20.55	14,590	WMN	Lawrenceville, N.J.	20.0	Phone to England; daylight
16.67	18,000	KQG	Bolinis, Calif.	40.0	Phone	20.63	14,535	HBJ	Geneva, Switzerland	20.0	Phone
16.69	17,980	KQZ	Bolinis, Calif.	40.0	Phone	20.64	14,530	LSN	Buenos Aires, Arg.	....	Phone
16.78	17,870	OEV	Vienna, Austria	....	Phone	20.68	14,500	TIN	Cartago, Costa Rica	....	Phone to WNC
16.80	17,850	PLF	Bandoeng, Java	....	Broadcast	20.68	14,500	TGF	Guatemala City	....	Phone to WNC
16.84	17,800	XGOX	Nanking, China	....	Phone to Java, 6 a.m.—9 a.m.	20.69	14,490	LSN	Buenos Aires, Arg.	....	Phone irr.
16.84	17,800	PCV	Kootwijk, Holland	....	Phone	20.70	14,485	HPF	Panama City	25.0	Phone to WNC
16.85	17,790	XGBB	Shanghai, China	....	Phone	20.71	14,480	YNA	Managua, Nicaragua	....	Phone to WNC
16.85	17,790	GSG	Daventry, England	15.0	Broadcast	20.76	14,440	GBW	Rugby, England	15.0	Phone
16.86	17,780	W3XAL	Boundbrook, N.J.	15.0	Broadcast	20.79	14,420	VPD	Suva, Fiji Is.	....	Broadcast
16.86	17,780	W9XAA	Chicago, Illinois	0.5	Exp.	21.52	13,940	YOI	Bucharest, Roumania	....	Phone
16.86	17,780	W8XK	Pittsburgh, Pa.	40.0	Broadcast; relays	21.53	13,925	WIK	Rocky Point, N.Y.	....	Phone to RNE
16.87	17,775	PHI	Huizen, Holland	20.0	Broadcast, summer months	21.57	13,900	WQP	Rocky Point, N.Y.	....	Tests, irr.
16.88	17,760	DJE	Koenigswusterhausen, Germany	8.0	Broadcast	21.71	13,811	SUZ	Abu Zabal, Egypt	10.0	Phone
16.89	17,750	IAC	Coltano, Italy	14.0	Phone; early mornings	21.76	13,780	KKW	Bolinis, Calif.	....	Phone
16.90	17,740	HSP	Bangkok, Siam	20.0	Phone	21.79	13,740	CGA	Drummondville, Que.	....	Phone
16.93	17,713	HJ4ABA	Medellin, Colombia	....	Broadcast	21.90	13,690	KKZ	Bolinis, Calif.	40.0	Phone
17.00	17,640	GFWV	S.S. Majestic	....	Phone	21.90	13,635	HAT	Szkesfehervar, Hungary	5.0	Broadcast
		GLSQ	S.S. Olympic	....	Phone	22.02	13,610	JVK	Kemikawa-Cho, Japan	....	Broadcast and tests
		GDLJ	S.S. Homeric	....	Phone	22.06	13,591	GBC	Rugby, England	....	Phone to CGA & ships
		GTSD	S.S. Monarch of Bermuda	....	Phone	22.24	13,480	WAJ	Rocky Point, N.Y.	....	Exp.
		GKFY	S.S. Minnetonka	....	Phone	22.29	13,450	GBQ	Rugby, England	15.0	Phone
		GMBJ	S.S. Empress of Britain	....	Phone	22.34	13,420	TIEP	San Jose, Costa Rica	....	Broadcast
17.11	17,520	DFB	Nauen, Germany	7.2	Phone	22.39	13,390	WMA	Lawrenceville, N.J.	20.0	Phone
17.11	17,510	VWY	Kirkie, India	....	Phone	22.47	13,340	CGA	Drummondville, Que.	....	Phone
17.23	17,400	JIAA	Kemikawa-Cho, Japan	....	Phone to Australia	22.47	13,340	YVQ	Maracay, Venezuela	....	Phone
17.33	17,310	W3XL	Boundbrook N.J.	20.0	Exp.	22.47	13,340	YVQ	Maracay, Venezuela	....	Phone

Meters	Kc	Call	Location	Kw	Service, etc.	Meters	Kc	Call	Location	Kw	Service, etc.
22.56	13,285	CGA3	Montreal, Que.	15.0	Phone to ships	28.86	10,390	KER	Bolinas, Calif.	40.0	Phone
22.64	13,240	KBJ	Manila, P. I.	40.0	Phone	28.86	10,390	GBX	Rugby, England	...	Phone
22.66	13,230	GFWY	S.S. Majestic	...	Phone	28.88	10,380	WCG	Rocky Point, N. Y.	4.0	Phone; exp.
		GLSQ	S.S. Olympic	...	Phone	28.97	10,350	LSX	Buenos Aires, Arg.	12.0	Phone
		GDLJ	S.S. Homeric	...	Phone	29.01	10,335	ZFD	Hamilton, Bermuda	1.5	Phone
		GTSD	S.S. Monarch of Bermuda	...	Phone	29.03	10,330	ORK	Ruyselede, Belgium	11.0	Broadcast
		GKFY	S.S. Minnetonka	...	Phone	29.11	10,300	LSL	Buenos Aires, Arg.	5.0	Phone to Europe
		GMBJ	S.S. Empress of Britain	...	Phone	29.14	10,290	HPC	Panama City	...	Phone
22.71	13,200	ORP	Ruyselede, Belgium	...	Phone	29.14	10,290	DIQ	Nauen, Germany	...	Phone to Sydney
22.92	13,080	VPIA	Suva, Fiji Islands	...	Broadcast	29.22	10,260	PMN	Bandoeng, Java	...	Phone; occasional bc.
23.00	13,040	DDAC	S.S. Europa	...	Phone	29.34	10,220	PSH	Rio de Janeiro, Brazil	12.0	Phone
		DDAS	S.S. Bremen	...	Phone	29.39	10,200	CMHB	Sanctus Spiritus, Cuba	...	Broadcast
		DDBR	S.S. Berlin	...	Phone	29.50	10,160	DDAC	S.S. Europa	...	Phone
		DDCB	S.S. Columbus	...	Phone			DDAS	S.S. Bremen	...	Phone
		DDCG	S.S. Resolute	...	Phone			DDCB	S.S. Berlin	...	Phone
		DDCP	S.S. Cap Polonio	...	Phone			DDCG	S.S. Columbus	...	Phone
		DDDT	S.S. Deutschland	...	Phone			DDCP	S.S. Cap Polonio	...	Phone
		DDDX	S.S. Hamburg	...	Phone			DDDT	S.S. Deutschland	...	Phone
		DDEA	S.S. Cap Arcona	...	Phone			DDDX	S.S. Hamburg	...	Phone
		DDED	S.S. New York	...	Phone			DDEA	S.S. Cap Arcona	...	Phone
		DDFF	S.S. Reliance	...	Phone			DDED	S.S. New York	...	Phone
		DDFT	S.S. Oceana	...	Phone			DDFF	S.S. Reliance	...	Phone
		DDNY	S.S. Albert Ballin	...	Phone			DDFT	S.S. Oceana	...	Phone
23.10	12,980	DFC	Germany	...	Phone			DDNY	S.S. Albert Ballin	...	Phone
23.19	12,931	OEX	Vienna, Austria	...	Phone	28.57	10,140	OPM	Leopoldville, Belgian Congo	15.0	Phone to ORK
23.35	12,840	WOO	Ocean Gate, N. J.	20.0	Phone to ships	29.77	10,070	EHY	Madrid, Spain	10.0	Exp.
23.37	12,830	CNR	Rabat, Morocco	12.0	Broadcast; Sundays	29.84	10,055	ZFB	St. George, Bermuda	1.5	Phone to WNB
23.43	12,795	IAC	Coltana, Italy	52.0	Phone to Tripoli	29.84	10,055	SUV	Abu Zabal, Egypt	10.0	Phone to GAA
23.46	12,780	GBC	Rugby, England	5.0	Phone	29.89	10,033	OER	Vienna, Austria	...	Phone
23.51	12,745	DAF	Norddeich, Germany	5.0	Phone to ships	29.98	10,000		Belgrade, Yugoslavia	2.5	Broadcast
24.19	12,396	CTIGO	Paredo, Portugal	...	Broadcast	30.01	9,990	KAZ	Manila, P. I.	40.0	Phone to PLV, morn.
24.29	12,345	KNRA	Schooner Seth Parker	...	Phone	30.09	9,964	LSL	Buenos Aires, Arg.	...	Phone
24.39	12,295	ZLT	Wellington, New Zealand	1.0	Phone to Australia	30.10	9,960	IRS	Rome, Italy	15.0	Phone
24.39	12,295	PLM	Bandoeng, Java	...	Phone to VLK	30.13	9,950	GCU	Rugby, England	15.0	Phone
24.40	12,290	ZLW	Wellington, New Zealand	...	Phone	30.19	9,930	HKB	Bogota, Colombia	...	Phone
24.40	12,290	GBU	Rugby, England	...	Phone to WMI	30.19	9,930	YBF	Medan, Sumatra	1.0	Phone
24.46	12,260	FTN	Ste. Assise, France	30.0	Phone	30.19	9,930	HJV	Bogota, Colombia	...	Phone to OCI
24.48	12,250	GBS	Rugby, England	...	Phone	30.26	9,905	CGA5	Drummondville, Que.	...	Tests with Rugby
24.48	12,250	PLM	Bandoeng, Java	...	Phone to Holland	30.32	9,890	LSN2	Buenos Aires, Arg.	5.0	Phone to Europe and USA
24.60	12,190	YBJ	Medan, Sumatra	2.5	Phone						
24.69	12,150	GBS	Rugby, England	15.0	Phone to USA	30.38	9,870	WON	Lawrenceville, N. J.	20.0	Phone to England
24.69	12,150	FQO, FQE	Ste. Assise, France	...	Phone	30.41	9,860	EAQ	Madrid, Spain	20.0	Broadcast
24.74	12,120	SUV	Cairo, Egypt	...	Phone	30.47	9,840	JYS	Kemikawa-Chō, Japan	10.0	Broadcast and tests
24.78	12,100	CJA4	Drummondville, Que.	15.0	Tests with VIY- VK3ME	30.47	9,840	FTI	Ste. Assise, France	15.0	Phone
24.87	12,060	PDV	Kootwijk, Holland	60.0	Phone	30.50	9,830	LSI	Buenos Aires, Arg.	10.0	Phone; relays
24.90	12,045	NSS	Annapolis, Maryland	...	Time signals, 10 p.m.	30.53	9,820	IRM	Rome, Italy	25.0	IIRG occasionally
24.90	12,045	NAA	Arlington, Virginia	...	Time signals, noon						
24.93	12,030	HBO	Geneva, Switzerland	20.0	Phone	30.63	9,790	GCW	Rugby, England	15.0	Phone
24.93	12,028	CT1CT	Lisbon, Portugal	0.5	Broadcast	31.07	9,650	I2RO	Rome, Italy	...	Broadcast
24.95	12,020	VIY	VK3ME	...	Tests with CJA4	30.72	9,760	VLJ	Sydney, Australia	3.5	Phone
24.99	12,000	RW59	Moscow, U.S.S.R.	20.0	Broadcast, Sun.; Wed.	30.75	9,750	WOF	Lawrenceville, N. J.	20.0	Phone; evenings
		RNE	Moscow, U.S.S.R.	20.0	Phone	30.88	9,710	GCA	Rugby, England	...	Phone
25.01	11,991	FZS2	Saigon, French Indo China	15.0	Phone to FTK	30.91	9,700	WM1	Deal, N. J.	...	Phone
25.10	11,950	KKQ	Bolinas, Calif.	40.0	Phone	30.91	9,700	LQA	Buenos Aires, Arg.	...	Broadcast
25.12	11,950	FTA	Ste. Assise, France	30.0	Phone to Rabat	30.97	9,680	TI4NRH	Heredia, Costa Rica	...	Broadcast
25.20	11,900	XGOX	Nanking, China	...	Broadcast	31.10	9,640	HSP2	Bangkok, Siam	...	Phone to Egypt
25.22	11,891	FYA	Pontoise, France	...	Broadcast	31.17	9,620	DGU	Nauen, Germany	...	Broadcast
25.24	11,880	W9XF	Chicago, Illinois	...	B.C.; relays WENR	31.18	9,616	VQ7LO	Nairobi, Kenya, Brit. E. Africa	...	Phone
25.26	11,870	W8XX	Pittsburgh, Pa.	40.0	B.C.; relays KDKA	31.23	9,600	LQA	Buenos Aires, Arg.	...	Phone
25.26	11,870	VUC	Calcutta, India	3.0	Broadcast	31.23	9,600	CT1AA	Bergen, Norway	...	Phone
25.28	11,860	VE9CA	Calgary, Alta.	...	Broadcast	31.23	9,600	XETE	Lisbon, Portugal	2.0	Broadcast
25.28	11,860	GSE	Daventry, England	20.0	Broadcast	31.26	9,590	WJK	Mexico City, D. F.	...	Broadcast
25.31	11,855	DJP	Zeesen, Germany	50.0	Exp.	31.26	9,590	W3XAU	Rocky Point, N. Y.	...	Phone
25.33	11,840	KZRM	Manila, P. I.	6.0	Broadcast	31.26	9,590	VK2ME	Philadelphia, Pa.	1.0	B.C.; relays WCAU
25.34	11,835	VE9HX	Halifax, N. S.	...	B.C.; relays CHNS	31.26	9,590	HP5J	Lawrenceville, N. J.	20.0	Broadcast; Sundays
25.35	11,830	W9XAA	Chicago, Illinois	0.5	B.C.; relays WCFL	31.26	9,590	TIRA	Panama City	...	Broadcast
25.35	11,830	W2XE	Wayne, N. J.	5.0	B.C.; relays WABC	31.28	9,585	HBL	Cartago, Costa Rica	...	Broadcast
25.39	11,810	I2EO	Rome, Italy	9.0	Broadcast	31.30	9,580	XGBD	Geneva, Switzerland	18.0	Phone
25.39	11,810	VE9GW	Bowmanville, Ont.	0.5	Broadcast	31.30	9,580	VE9DR	Shanghai, China	18.5	Broadcast
25.41	11,801	OER3	Vienna, Austria	0.25	Broadcast	31.30	9,580	VK3LR	Montreal, Que.	...	Exp.
25.42	11,795	DJO	Zeesen, Germany	50.0	Exp.	31.32	9,572	LJK1	Daventry, England	20.0	Broadcast
25.43	11,790	WIXAL	Boston, Mass.	5.0	Broadcast	31.33	9,570	W1XK	Jeloy, Norway	20.0	Broadcast
25.43	11,790	T7TR	San Jose, Costa Rica	...	Broadcast	31.33	9,570	KZRM	Springfield, Mass.	10.0	B.C.; relays WBZ-WBZA
25.45	11,780	VE9DN	Drummondville, Que.	...	Broadcast	31.33	9,570	SRI	Manila, P. I.	6.0	Broadcast
25.45	11,780	VE9DR	Drummondville, Que.	...	Exp.	31.33	9,570	CPT	Pcznan, Poland	1.0	Broadcast
25.48	11,770	DJD	Zeesen, Germany	5.0	Broadcast	31.33	9,570	SUV	Cairo, Egypt	...	Broadcast
25.50	11,760	XDA	Daventry, England	...	Exp.	31.34	9,565	VUB	Bombay, India	...	Broadcast
25.52	11,750	GSD	Huizen, Holland	20.0	B.C.; winter months	31.36	9,560	DJA	Zeesen, Germany	5.0	Broadcast
25.56	11,730	PHI	Pontoise, France	20.0	B.C.; winter months	31.38	9,555	VE9DN	Drummondville, Que.	...	Broadcast
25.57	11,725	FYA	Medan, Sumatra	15.0	Broadcast	31.43	9,540	DJN	Zeesen, Germany	50.0	Broadcast
25.59	11,722	CJRX	Middlechurch, Man.	2.0	Broadcast	31.46	9,530	W2XAF	Schenectady, N. Y.	40.0	Be. re. WG5, 5-11 p.m.
25.61	11,712	HJ4ABA	Medellin, Colombia	0.05	Broadcast	31.49	9,520	OXY	Skamlebaek, Denmark	0.5	Broadcast
25.64	11,695	YV2RC	Caracas, Venezuela	...	Broadcast	31.53	9,510	GSB	Daventry, England	20.0	Broadcast
25.64	11,695	YVQ	Maracay y Venezuela	...	Phone	31.53	9,510	VK3ME	Melbourne, Australia	2.0	Be. Wed., Sat., 5-7 a.m.
25.67	11,680	KIO	Kahului, Hawaii	40.0	Phone to Bolinas	31.53	9,510	YV3RC	Caracas, Venezuela	...	Broadcast
25.70	11,670	PPQ	Rio de Janeiro, Brazil	5.0	Phone; irr., evenings	31.56	9,501	PRF5	Rio de Janeiro, Brazil	...	Broadcast
26.10	11,490	GBK	Bodmin, England	...	Phone	31.56	9,500	XGOX	Nanking, China	2.5	Broadcast
26.14	11,470	IBDK	S.S. Eletra, Marconi's Yacht	...	Phone:	31.56	9,500	HSP2	Bangkok, Siam	...	Broadcast
26.44	11,340	DAN	Norddeich, Germany	...	Time signals; 7 a.m., 7 p.m.	31.59	9,490	WEF	Rocky Point, N. Y.	40.0	Phone
26.80	11,187	XAM	Merida, Yucatan	...	Tests with XDA	31.61	9,485	PLW	Bandoeng, Java	...	Phone
26.82	11,180	CT3AQ	Funchal, Madeira	0.05	Broadcast	31.63	9,480	KET	Bolinas, Calif.	40.0	Phone
27.26	11,000	PLP	Bandoeng, Java	3.0	Phone, occa. be.	31.73	9,450	WES-			
27.29	10,990	ZLT	Wellington, N. Z.	...	Phone to Austra. morn.	31.80	9,428	COH	Rocky Point, N. Y.	40.0	Exp.
27.63	10,850	DFL	Nauen, Germany	...	Phone	31.84	9,415	PLV	Havana, Cuba	...	Broadcast
27.66	10,840	KWV	Dixon, Calif.	20.0	Phone to Hawaii	31.90	9,400	XDC	Bandoeng, Java	80.0	Phone; sometimes bc.
27.84	10,770	GBP	Rugby, England	15.0	Phone	31.96	9,380	CE32	Mexico City, D. F.	...	Exp.
27.92	10,740	JVM	Nazaki, Japan	...	Phone, occasional be.; relays JOAK	31.98	9,375	XDA	Los Andes, Chile	0.05	Phone
28.09	10,675	WNP	Lawrenceville, N. J.	0.5	Phone to Bermuda; day	31.98	9,375	EH9OC	Mexico City	...	Phone
28.10	10,670	CEC	Santiago, Chile	4.0	Phone	32.00	9,370	CT3AQ	Berne, Switzerland	...	Phone
28.12	10,660	JVN	Nazaki, Japan	...	Be.; relays JOAK	32.13	9,332	CJA2	Funchal, Madeira	...	Broadcast
28.20	10,630	PLR	Bandoeng, Java	...	Phone to Holland and France	32.24	9,300	CNR	Cartago, Costa Rica	15.0	Phone to England
28.23	10,620	WEF	Rocky Point, N. Y.	40.0	Phone to Europe	32.31	9,280	GCB	Rabat, Morocco	...	Broadcast; Sundays
28.23	10,613	EDN-EDX	Madrid, Spain	5.0	Phone	32.41	9,250	GBK	Rugby, England	15.0	Phone
28.25	10,610	WEA	Rocky Point, N. Y.	40.0	Exp.	32.66	9,180	YVR	Maracay, Venezuela	...	Phone to Europe
28.25	10,610	WEA	Rocky Point, N. Y.	40.0	Time signals at 5:26 a.m. and 6:26 p.m.	32.70	9,170	WNA	Lawrenceville, N. J.	20.0	Phone to England
28.32	10,578	FYB	Paris, France	...	...	32.80					

Meters	Kc	Call	Location	Kw	Service, etc.	Meters	Kc	Call	Location	Kw	Service, etc.
33.48	8,955	TGX	Guatemala City, Guatemala	....	Broadcast	43.80	6,845	VRO	Suva, Vili Levu, Fiji Is.	0.042	Exp.
33.50	8,950	WEL	W2XBJ	....	Exp.	43.83	6,840	VPF	Taveuni, Taveuni, Fiji Is.	0.042	Exp.
33.59	8,925	WEC	Rocky Point, N. Y.	....	Exp.	43.83	6,840	CFA	Bolinus, Calif.	40.0	Phone
33.69	8,900	ZLT	Wellington, New Zealand	1.0	Phone to Sydney	43.83	6,840	HAT2	Drummondville, Que.	....	Phone
33.80	8,870	NPO	Manila, P. I.	....	Time sig., 10 p.m.	44.00	6,814	HIH	Szekesfehervar, Hungary	20.0	Broadcast
33.92	8,840	KNRA	Schooner Seth Parker	....	Phone	44.38	6,755	WOA	San Pedro de Macoris, D. R.	0.015	Broadcast
33.95	8,830	GDLJ	S.S. Homerica	....	Phone	44.42	6,750	JVT	Lawrenceville, N. J.	20.0	Phone
		GFWV	S.S. Majestic	....	Phone	44.48	6,740	WEJ	Nazaki, Japan	....	Phone; bc.; re. JOAK
		GKFY	S.S. Minnetonka	....	Phone	44.62	6,720	WQO	Rocky Point, N. Y.	....	Exp.
		GLSQ	S.S. Olympic	....	Phone	44.64	6,716	KBK	Rocky Point, N. Y.	....	Phone
		GMBJ	S.S. Empress of Britain	....	Phone	44.68	6,710	TIEP	Manila, P. I.	40.0	Phone
		VTSX	S.S. Monarch of Bermuda	....	Phone	44.68	6,710	KEF	San Jose, Costa Rica	....	Broadcast
34.11	8,790	TIR	Cartago, Costa Rica	....	Phone to Guatemala, Colombia, Florida	44.71	6,705	WER	Bolinus, Calif.	40.0	Phone
34.17	8,775	PNI	Makassar, Celebes	3.0	Phone, oc. bc.	44.71	6,675	HBQ	Geneva, Switzerland	20.0	Phone
34.19	8,770	RSZ	Irkutsk, U.S.S.R.	....	Phone	44.94	6,672	YVQ	Maracay, Venezuela	....	Phone
34.50	8,690	W2XAC	Schenectady, N. Y.	....	Exp.	44.97	6,668	HC2RL	Guayaquil, Ecuador	0.2	Broadcast
34.54	8,680	GBC	Rugby, England	5.0	Phone to ships; after.	44.99	6,664	YNCRG	Granada, Nicaragua	....	Broadcast
34.66	8,650	VE9BY	London, Ont.	....	Exp.	45.02	6,660	KNRA	Schooner Seth Parker	....	Phone; relays programs to W2XBJ
34.66	8,650	W2XCU	Rocky Point, N. Y.	....	Exp.	45.09	6,650	TITE	San Jose, Costa Rica	....	Broadcast
34.74	8,630	W2XDO	Ocean Gate, N. J.	....	Exp.	45.09	6,650	IAC	Coltana, Italy	....	Phone
34.74	8,630	WOO	Deal, N. J.	....	Phone	45.32	6,616	PRADO	Riobamba, Ecuador	....	Broadcast, Thursday
34.98	8,570	WR15	Khabarovsk, Siberia	....	Broadcast	45.35	6,611	REN	....	....	
35.00	8,566	IBEJ	S.S. Conte Rosso	....	Phone	46.00	6,572	RW72	Moscow, U.S.S.R.	10.0	Broadcast
		ICEJ	S.S. Rex	....	Phone	46.02	6,550	YV6RV	Valencia, Venezuela	....	Broadcast
35.03	8,560	WOO	S.S. Conte di Savcia	20.0	Phone to ships	46.10	6,504	WOO	Dcal, N. J.	....	Phone
36.00	8,470	DAF	Norddeich, Germany	....	Phone to ships	46.20	6,490	HJ5ABD	San Jose, Costa Rica	....	Broadcast
35.48	8,450	PRAG	Porto Alegre, Brazil	....	Phone; occasional bc.	46.25	6,482	H14D	Cali, Colombia	0.25	Broadcast
35.69	8,400	HC2AT	Guayaquil, Ecuador	....	Broadcast	46.48	6,450	HJ1ABB	Santo Domingo, D. R.	....	Broadcast
35.78	8,380	IAC	Coltano, Italy	14.0	Phone	46.67	6,425	VE9AS	Barranquilla, Colombia	0.3	Broadcast
36.00	8,328	DDAC	S.S. Europa	....	Phone	46.67	6,425	VE9BY	Frederickton, N. B.	....	Broadcast
		DDAS	S.S. Bremen	....	Phone	46.67	6,425	W3XL	London, Ont.	18.0	Exp.
		DBBR	S.S. Berlin	....	Phone	46.70	6,420	RCAD	Minsk, U.S.S.R.	0.15	Phone
		DDCB	S.S. Columbus	....	Phone	46.73	6,416	HJA3	Barranquilla, Colombia	....	Phone
		DDCG	S.S. Resolute	....	Phone	46.85	6,000	YN1IGG	Managua, Nicaragua	....	Broadcast
		DDCP	S.S. Cap Polonio	....	Phone	46.99	6,380	YN1OP	Caracas, Venezuela	0.1	Broadcast
		DDDT	S.S. Deutschland	....	Pjone	47.04	6,375	YY4RC	Nazaki, Japan	10.0	Phone
		DDDX	S.S. Hamburg	....	Phone	47.36	6,330	JZG	Santo Domingo, D. R.	0.02	Broadcast
		DDEA	S.S. Cap Areona	....	Phone	47.48	6,315	HIZ	Bogota, Colombia	0.1	Broadcast
		DDEF	S.S. New York	....	Phone	47.78	6,275	HJ3ABF	San Domingo, D. R.	0.05	Broadcast
		DDFT	S.E. Reliance	....	Phone	47.80	6,272	HIIA	Bogota, Colombia	....	Phone
		DDNY	S.S. Oceana	....	Phone	47.82	6,270	HKC	....	....	
			S.S. Albert Ballin	....	Phone	47.97	6,250	OCI	Lima, Peru	....	Phone
36.63	8,185	PSK	Rio de Janeiro, Brazil	10.0	Phone; broadcast	48.13	6,230	OAX4B	Lima, Peru	....	Broadcast
36.70	8,170	RW50	Moscow, U.S.S.R.	20.0	Broadcast	48.13	6,230	HJ4ABC	Pereira, Colombia	....	Broadcast
36.92	8,120	KTP	Manila, P. I.	40.0	Phone to Dixon, Calif.	48.38	6,198	CTIGO	Parede, Portugal	....	Broadcast
36.90	8,125	PLW	Bandoeng, Java	60.0	Phone	48.45	6,188	IIA1	Santiago de los Caballeros, D. R.	0.05	Broadcast
36.90	8,120	KAZ	Manila, P. I.	20.0	Phone to Dixon, Calif.	48.67	6,160	CJRO	Winnipeg, Manitoba	....	Broadcast
36.98	8,108	HCBJ	Quite, Ecuador	0.15	Broadcast	48.83	6,140	KZRM	Manila, P. I.	6.0	Broadcast
37.01	8,100	EATH	Vienna, Austria	....	Phone	48.87	6,120	W8XX	Pittsburgh, Pa.	40.0	BC.; relays KDKA
37.01	8,100	HKF	Bogota, Colombia	....	Phone	48.90	6,132	ZGE	Kuala Lumpur, F. M. S.	0.18	Broadcast
37.32	8,035	CNR	Rabat, Morocco	10.0	Broadcast; Sundays	48.91	6,130	LKJ1	Jeloy, Norway	....	Broadcast
37.57	7,980	HJS	Bangkok, Siam	20.0	Phone	48.91	6,130	XETE	Mexico, D. F.	....	Broadcast
37.57	7,980	VLJ	Sydney, Australia	....	Phone to Java	48.91	6,130	VE9BA	Montreal, Que.	....	Broadcast
37.67	7,960	VLZ	Sydney, Australia	3.5	Phone	48.95	6,150	CSL	Johannesburg, So. Africa	5.0	Broadcast
38.00	7,890	VPD	Suva, Fiji Islands	....	Phone	48.98	6,122	ZTJ	Cartagena, Colombia	0.05	Broadcast
38.05	7,880	JYR	Kemikawa-Chu, Japan	5.0	Broadcast	48.98	6,120	HJ1ABE	Halifax, N. S.	....	Broadcast
38.06	7,867	SUX	Cairo, Egypt	10.0	Phone	48.99	6,120	W2XE	Wayne, N. J.	5.0	BC.; relays WABC
38.10	7,870	RXC	Panama City	....	Phone	48.99	6,120	PKYDA2	Bandoeng, Java	....	Broadcast
38.29	7,830	PGA	Kootwijk, Holland	60.0	Phone	48.99	6,120	YV9HX	Caracas, Venezuela	0.2	Broadcast
38.34	7,820	OA4C	Lima, Peru	20.0	Broadcast	48.99	6,120	VE9CG	Halifax, N. S.	0.2	BC.; relays CHNS
38.49	7,790	HBP	Geneva, Switzerland	20.0	Broadcast	48.99	6,122	ZTJ	Calcutta, India	2.0	Broadcast
38.50	7,788	YNLF	Managua, Nicaragua	....	Broadcast	48.99	6,120	HJ1ABE	Calgary, Alberta	....	Broadcast
38.59	7,770	FTE	Ste. Assise, France	....	Phone	48.99	6,120	VE9HK	Daventry, England	....	Broadcast
38.79	7,730	PDL	Kootwijk, Holland	20.0	Phone	48.99	6,120	W9XAA	Cartagena, Colombia	0.025	Broadcast
38.86	7,715	KEE	Bolinus, Calif.	40.0	Phone; relays NBC programs for KGMB	49.05	6,112	YV2RC	Boundbrook, N. J.	0.2	BC.; relays WJZ
				....	Broadcast	49.07	6,110	VE9HX	Chicago, Ill.	5.0	BC.; relays WENR
38.94	7,700	HC2JSB	Guayaquil, Ecuador	....	Phone	49.07	6,110	VE9JZ	Bowmanville, Ontario	0.5	Broadcast
39.28	7,632	OEJ	Vienna, Austria	20.0	Phone to RKI, 6-8:15	49.07	6,110	VE9CG	Rome, Italy	....	Broadcast
39.31	7,626	RIM	Tashkent, U.S.S.R.	....	a.m.	49.10	6,106	GSL	Cartagena, Colombia	0.25	Broadcast
39.40	7,610	KWX	Dixen, Calif.	20.0	Phone to Hawaii, nights	49.15	6,100	HJ1ABD	Manizales, Colombia	0.3	Broadcast
39.63	7,565	KWF	Dixon, Calif.	20.0	Phone	49.15	6,100	HJ4ABL	Boundbrook, N. J.	....	Broadcast
39.86	7,522	HJA3	Barranquilla, Colombia	....	Phone; 6:30 a.m.-	49.15	6,100	W3XAL	Chicago, Ill.	0.05	Broadcast
39.87	7,520	KKH	Kahuku, Hawaii	40.0	Phone	49.15	6,100	VE9CF	Baltimore, Md.	....	Broadcast
39.92	7,510	JVP	Nazaki, Japan	20.0	Phone	49.23	6,090	VE9BJ	Berlin, Germany	0.5	Exp.
39.98	7,500	RKI	Moscow, U.S.S.R.	20.0	Phone to RIM, 6-8:15	49.23	6,090	VE9GW	Macao, Asia	0.5	Broadcast
40.14	7,470	JVQ	Nazaki, Japan	10.0	Phone	49.31	6,080	TIRA	Penang, Straits Settlements	....	Broadcast
40.14	7,470	HJP	Barranquilla, Colombia	....	p.m.	49.31	6,080	W9XAA	Vienna, Austria	0.25	Broadcast
40.14	7,470	HJP	Bogota, Colombia	....	Phone	49.31	6,080	CP5	Vancouver, B. C.	0.01	Broadcast
40.28	7,444	HQB	Geneva, Switzerland	....	Broadcast	49.37	6,073	DJM	Barranquilla, Colombia	....	Broadcast
40.43	7,415	WEG	Rocky Point, N. Y.	40.0	Phone	49.37	6,073	CQN	Philadelphia, Pa.	1.0	BC.; relays WCAU
40.48	7,400	HJ3ABD	Bogota, Colombia	0.2	Broadcast	49.37	6,072	ZHJ	Skamlebaek, Denmark	0.05	Broadcast
40.52	7,400	XEPR	Mexico City	....	Broadcast	49.37	6,072	OER2	Nairobi, Kenya, Africa	1.25	Broadcast
40.52	7,400	WEM	W2XBJ	40.0	Phone; exp.	49.39	6,070	VE9CS	Cincinnati, Ohio	10.0	BC.; relays WLW
40.52	7,400	WEN	Rocky Point, N. Y.	40.0	Phone	49.48	6,060	W3XAU	Havana, Cuba	0.02	Broadcast
40.57	7,390	ZLT	Wellington, New Zealand	0.15	Phone to Sydney; morn.	49.48	6,060	OXY	Wellington, New Zealand	....	Broadcast
40.68	7,370	KEQ	Kahuku, Hawaii	40.0	Phone	49.48	6,060	VQ7LO	Halifax, N. S.	....	Broadcast
40.96	7,320	ZTJ	Johannesburg, S. Africa	....	Broadcast	49.48	6,060	W3XAL	Bogota, Colombia	0.05	Broadcast
41.18	7,281	HJ1ABD	Cartagena, Colombia	....	Broadcast	49.48	6,060	CMCI	Daventry, England	....	Broadcast
41.42	7,238	T12EP	San Jose, Costa Rica	....	Amateur	49.48	6,060	ZL2ZX	Barranquilla, Colombia	0.1	Broadcast
41.47	7,230	DOA	Doeberitz, Germany	....	Phone	49.48	6,050	VE9CF	Boston, Mass.	5.0	Broadcast
41.60	7,207	EA8AB	Tenerife, Canary Islands	0.5	Broadcast	49.56	6,050	HJ3ABI	Pernambuco, Brazil	....	Broadcast
41.78	7,177	CR6AA	Lobito, Angola, Port. W. Africa	....	Broadcast	49.56	6,050	GSA	Miami Beach, Fla.	2.5	Broadcast
41.82	7,170	YV2AM	Granada, Nicaragua	....	Broadcast	49.64	6,040	W1XAL	Bandeeng, Java	3.0	Broadcast
41.98	7,142	YV2AM	Maracaibo, Venezuela	....	Broadcast	49.64	6,040	PR48	Calgary, Alta.	....	BC.; relays CFCN
41.99	7,140	OA4R	Lima, Peru	....	Broadcast	49.64	6,040	W4XB	Panama City	....	Broadcast
42.00	7,138	HJ4ABB	Manizales, Colombia	1.0	Broadcast	49.64	6,040	HP5PB	Mexico City	....	Broadcast
42.12	7,118	HB9B	Basle, Switzerland	....	Broadcast	49.72	6,030	VE9CA	Zeesen, Germany	8.0	Broadcast
42.23	7,100	M2A	Penhishu, Manchuria	0.015	Exp.; broadcast	49.72	6,030	W1XAL	Bogota, Colombia	....	Broadcast
42.29	7,090	HKE	Bogota, Colombia	0.138	Broadcast	49.72	6,030	HP5PB	Singapore, F. M. S.	0.09	Broadcast
42.35	7,080	LU5CZ	Buenos Aires, Arg.	....	Amateur; some-times bc.	49.78	6,023	XEW	San Pedro Sula, Honduras	....	Broadcast
42.35	7,079	PI1J	Dordrecht, Holland	....	Amateur; some-times bc.	49.82	6,018	HJ3ABH	Wolfville, N. S.	....	Broadcast
42.71	7,020	EAR125	Madrid, Spain	....	Broadcast	49.82	6,018	ZHI	Avalanche, Cuba	0.25	Broadcast
42.89	6,990	LKJ1	Jelcy, Norway	1.0	Broadcast	49.85	6,015	HRP1	Havana, Cuba	0.25	Broadcast
42.98	6,976	EAR110	Madrid, Spain	....	Broadcast	49.85	6,015	VE9CX	Mexico, D. F.	....	Broadcast
43.45	6,900	H13C	La Romana, D. R.	....	Broadcast	49.89	6,010	COC	Philadelphia, Pa.	....	Broadcast

Meters	Kc	Call	Location	Kw	Service, etc.	Meters	Kc	Call	Location	Kw	Service, etc.
49.97	6,000	FIQA	Tananarive, Madagascar	0.4	Broadcast	62.53	4,795	VE9BY	London, Ont.	...	Broadcast
49.97	6,000		St. Denis, Reunion	0.09	Broadcast	62.60	4,785	CZA	Drummondville, Que	10.0	Phone to ships
49.97	6,000	EAJ25	Barcelona, Spain	...	Broadcast	62.86	4,770	ZL2XX	Wellington, New Zealand	...	Phone
49.97	6,000	ZL2ZC	Christchurch, New Zealand	0.25	Broadcast	63.10	4,752	WOO	Ocean Gate, N. J.	20.0	Phone
49.97	6,000	RW59	Moscow, U.S.S.R.	20.0	Broadcast	63.10	4,752	WOY	Lawrenceville, N. J.	20.0	Phone to England
49.97	6,000	YV4BSG	Caracas, Venezuela	...	Broadcast	64.48	4,650	HC2EP	Guayaquil, Ecuador	...	Broadcast
						66.45	4,512	ZFS	Nassau, Bahama Is.	...	Phone
						67.07	4,470	YID	Bagdad, Iraq	...	Broadcast
50.00	5,996	PRA8	Pernambuco, Brazil	0.5	Broadcast	67.68	4,430	DOA	Doeberitz, Germany	...	Phone
50.11	5,984	TGX	Guatemala City, Guatemala	...	Broadcast	68.61	4,370	...	Semarang, Java	0.2	Broadcast
50.10	5,984	YV4RC	Caracas, Venezuela	0.1	Broadcast	69.24	4,330	...	Batavia, Java	0.15	Broadcast
50.14	5,980	CT1AA	Lisbon, Portugal	...	Broadcast	69.44	4,320	GDB	Rugby, England	15.0	Exp.
50.14	5,980	XECW	Xantocam, Mexico	0.01	Broadcast	69.46	4,316	YNLF	Managua, Nicaragua	...	Broadcast
50.14	5,980	HIX	San Domingo, D. R.	...	Broadcast	69.81	4,295	WTDX	St. John, Virgin Islands	0.25	Exp.
50.14	5,980	HJ3ABH	Bogota, Colombia	0.25	Broadcast	69.81	4,295	WTDV	St. Thomas, Virgin Islands	0.25	Exp.
50.22	5,970	YNLF	Managua, Nicaragua	0.1	Broadcast	69.81	4,295	WTDW	St. Croix, Virgin Islands	0.25	Exp.
50.23	5,969	HVJ	Vatican City	10.0	Broadcast	70.00	4,283	IBEJ	S.S. Conte Rosso	...	Phone
50.47	5,940	HJ1ABJ	Santa Marta, Colombia	0.25	Broadcast				S.S. Rex	...	Phone
50.56	5,930	HJ4ABE	Medellin, Colombia	0.1	Broadcast; evenings				S.S. Conte di Savoia	...	Phone
50.90	5,890	JIC	Taihoku, Formosa	...	Phone				IDLI	...	Phone
51.08	5,870	HJ2ABC	Cucuta, Colombia	...	Broadcast	70.17	4,273	RW15	Khabarovsk, U.S.S.R.	20.0	Broadcast
51.16	5,860	XDA	Mexico, D. F.	...	Phone	70.55	4,250	HJA3	Barranquilla, Colombia	...	Phone
51.23	5,852	WNB	Lawrenceville, N. J.	...	Phone	71.78	4,177	GFWV	S.S. Majestic	...	Phone
51.25	5,850	YV5RMO	Maracaibo, Venezuela	0.3	Broadcast				GLSQ	...	Phone
51.29	5,845	KRO	Kahului, Hawaii	40.0	Phone				GDLJ	...	Phone
51.64	5,805	CSN	Rossland, B. C.	...	Phone				GTSD	...	Phone
51.69	5,800	VK3LR	Lyndhurst, Vic, Australia	...	Exp.				GKFY	...	Phone
51.69	5,800	TI4NHR	Heredia, Costa Rica	...	Broadcast				GMBJ	...	Phone
51.87	5,780	OAX4D	Lima, Peru	20.0	Broadcast				DDAC	...	Phone
51.90	5,777	TIIXGP3	San Jose, Costa Rica	...	Broadcast				DDAS	...	Phone
51.97	5,769	XAM	Merida, Yucatan	...	Phone				DDBR	...	Phone
52.47	5,714	CFU	Rossland, B. C.	...	Phone				DDCB	...	Phone
52.47	5,714	HJCJB	Quito, Ecuador	...	Broadcast				DDCG	...	Phone
52.67	5,692	FIQA	Tananarive, Madagascar	0.5	Broadcast				DDCP	...	Phone
52.67	5,660	XQAJ	Shanghai, China	...	Broadcast				DDDT	...	Phone
55.52	5,400	HJA7	Cucuta, Colombia	0.4	Phone				DDDX	...	Phone
55.52	5,400	HAT	Budapest, Hungary	20.0	Broadcast				SS. Hamburg	...	Phone
57.00	5,260	WQN	Rocky Point, N. Y.	40.0	Exp.				SS. Cap Arcona	...	Phone
58.17	5,154	PMY	Bandoeng, Java	2.0	Phone; occasional bc.				SS. New York	...	Phone
52.27	5,145	OK1MPT	Prague, Czechoslovakia	0.5	Broadcast				SS. Reliance	...	Phone
58.67	5,110	KIKB	Bolinas, Calif.	40.0	Phone				SS. Oceanus	...	Phone
58.71	5,105	KEC	Bolinas, Calif.	40.0	Phone	72.95	4,110	HCJB	S.S. Albert Ballin	...	Phone
58.79	5,100	KIKA	Bolinas, Calif.	1.0	Phone	73.13	4,100	LCL	Quito, Ecuador	0.15	Broadcast
59.05	5,077	WCN	Lawrenceville, N. J.	20.0	Phone to England	73.13	4,100	WND	Jeloy, Norway	...	Exp.
59.67	5,025	ZFA	Bermuda, Bermuda	1.5	Phone	74.92	4,002	CT2AJ	Hialeah, Florida	0.4	Phone
59.96	5,000	WWV	Beltsville, Md.	...	Standard frequency trans.; Tue., Fri., 2.30-3.30	79.53	3,770	HB9B	San Miguel, Azores	...	Broadcast
60.26	4,975	GBC	Rugby, England	5.0	Phone to ships	79.95	3,750	CT1CT	Basle, Switzerland	...	Broadcast
60.33	4,970	G6RX	Rugby, England	...	Exp.	79.95	3,750	I2RO	Lisbon, Portugal	0.5	Broadcast
60.94	4,920	LCL	Jeloy, Norway	...	Exp.	82.82	3,620	DOA	Doeberitz, Germany	...	Phone
61.63	4,865	HJA3	Barranquilla, Colombia	...	Phone	84.63	3,543	CR7AA	Lourenzo Marques, Mozambique, Port. E. Africa	...	Broadcast
62.20	4,820	GDW	Rugby, England	...	Phone to US	88.81	3,376	HJA3	Switzerland	...	Broadcast
									Barranquilla, Colombia	...	Phone

**NOTE:** Due to climatic and seasonal changes, and the experimental nature of much short-wave broadcasting, the above information is subject to change without notice.

# **FACTS ABOUT SHORT-WAVE RECEPTION**



A fair appreciation of short-wave reception, with a knowledge of its limitations, only adds to the attractiveness of this newest branch of radio.

ception impossible. Weather conditions have a great deal to do with the character of the waves as they reach your ears through the loudspeaker of your short-wave receiver. Infrequently, fading becomes so pronounced that the signals disappear for seconds and even minutes, only to reappear and build up again.



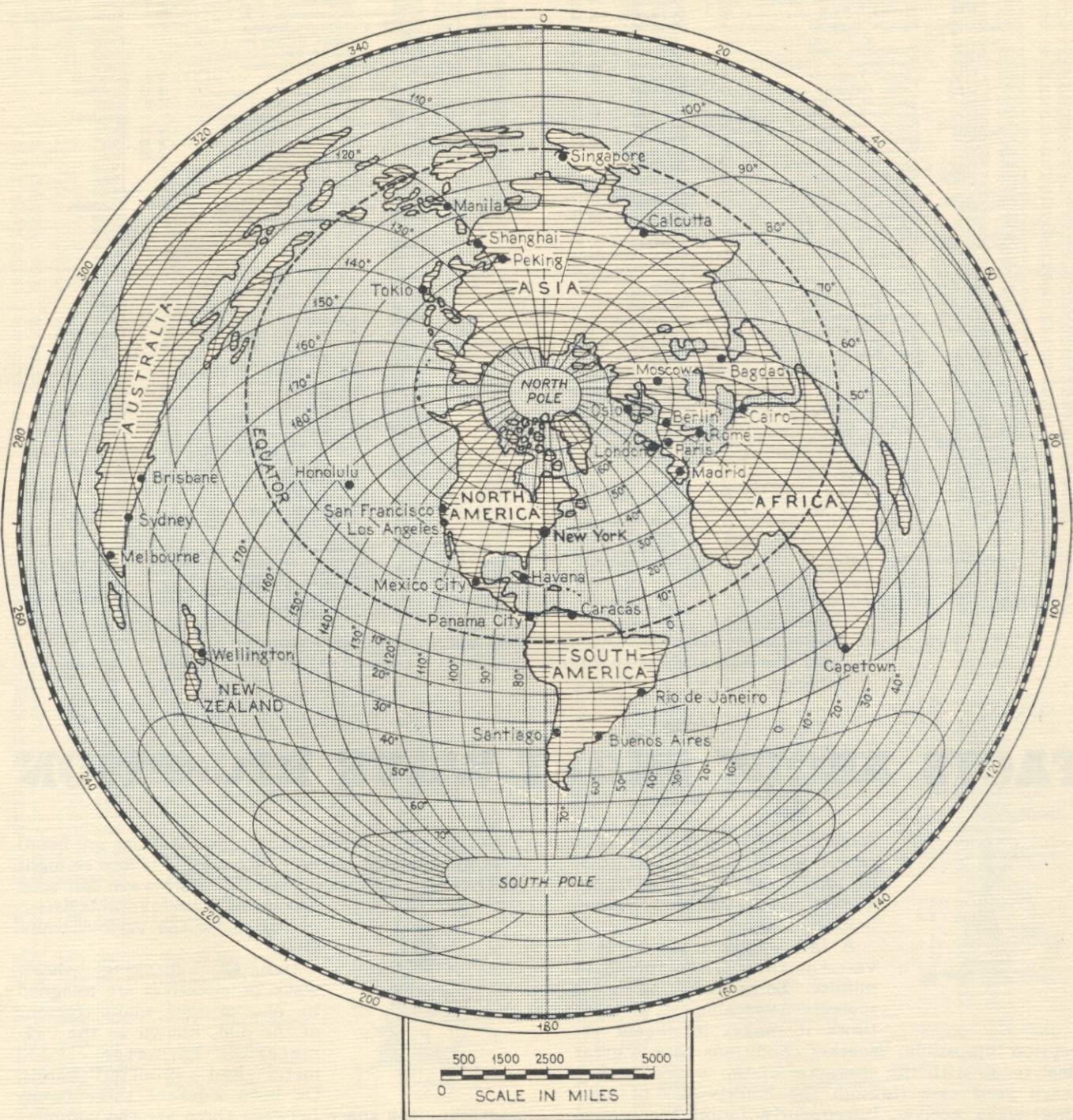
various parts of the world complicates short-wave reception. For instance, when it is evening in the eastern part of the United States, it is midnight in Europe.

For the same reason, Australian stations are heard here in the early morning although it is late at night in Oceania. By experience, the short-wave fan soon



On both sides of these bands and filling the space between them are the commercial radio-phone and radio-telegraph stations, amateurs who talk by both code and voice, and the airplanes which get their orders and weather reports from headquarters.

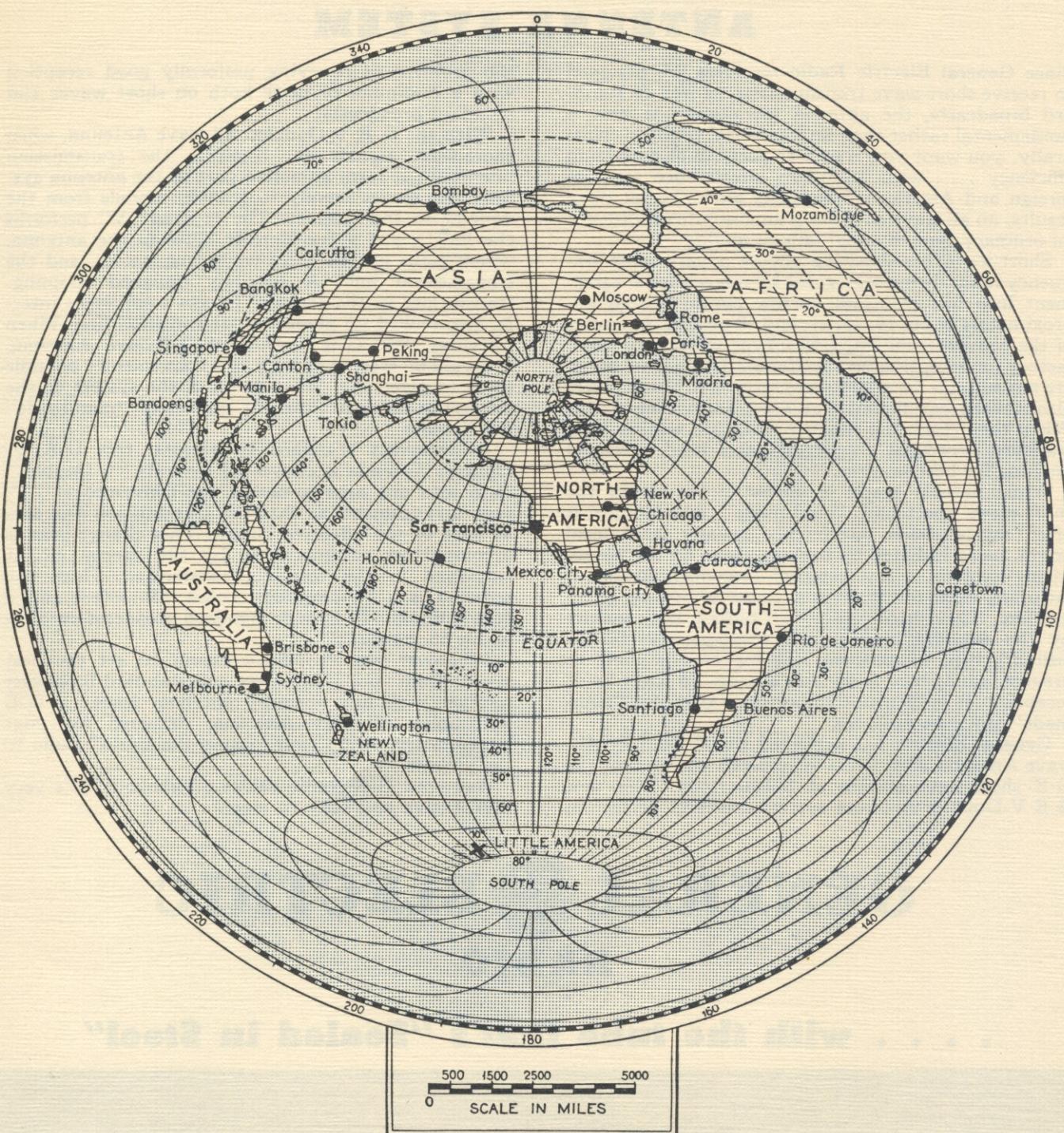
Short-wave stations necessarily are close together. Exceedingly fine tuning is therefore required. With General Electric receivers, short-wave tuning is made easier through the use of a fast- and slow-speed vernier tuning control, making it possible to tune sharply with ease . . . a most important requirement in a short-wave receiver.



## WORLD DISTANCE CHARTS

### New York

Measurements can be made accurately from any spot within the dotted circle to any point on earth. Simply lay a ruler connecting the point within the circle to any other location and refer this distance to the scale in miles.



## WORLD DISTANCE CHARTS

### San Francisco

This will give the actual great-circle distance. Use the map centered around the city nearest you, adding or deducting the distance you are from that city.

# SHORT-WAVE AND STANDARD BROADCAST RECEIVERS REQUIRE AN ALL-WAVE ANTENNA SYSTEM

Since General Electric Radio receivers are designed to receive short-wave transmissions, as well as standard broadcasts, the antenna installation is now a fundamental rather than an incidental problem. Naturally, you want your radio to perform at maximum efficiency . . . with minimum interference . . . on foreign and American broadcasts alike. To get these results, an all-wave antenna is an absolute necessity—an ordinary type of aerial fails to qualify.

Short-wave broadcasting covers a very wide frequency range, being segregated by international agreement into five principal narrow bands located approximately at 16, 19, 25, 31, and 49 meters. Antennas of the conventional single-wire type while very satisfactory for reception on the standard broadcast band, are not suitable for short-wave reception. Short waves also travel great distances on low transmitting power. When they reach the receiver, they are weaker than standard broadcast frequencies and need a special antenna for best results.

While natural static is almost negligible in the short-wave spectrum, "man-made" interference is often severe. Such interference usually is of local origin, being radiated by flashing signs, by the house-wiring system or by external electrical apparatus including even the ignition systems of passing automobiles. This interference is "picked up" mainly by the antenna lead-in, and consequently, in the ordinary type of antenna, nothing can be done to prevent annoyance from this source. In short-wave reception, it is of prime importance that this "man-made" static be excluded.

General Electric has perfected the V-Doublet All-wave Antenna after years of research and trial at the G-E short-wave station at Schenectady. This new G-E V-Doublet Antenna system solves to perfection

the problem of receiving uniformly good reception with a minimum of noise both on short waves and standard broadcasts.

With the G-E V-Doublet All-wave Antenna, when short-wave signals are received, the transmission line does not form an active part of the antenna system, but serves merely to transfer signals from the doublet to the receiver. The tapered "V" performs the function of a transformer between the antenna, which picks up the short-wave frequencies, and the transmission line. A specially designed coupling-transformer in the receiver rejects completely interference picked up along the transmission line. When installing the G-E V-Doublet All-wave Antenna, it should be erected as high as is conveniently possible so as to place the "V" portion of the system at the maximum distance from the sources of "man-made" interference.

In receiving standard broadcasts, this G-E V-Doublet Antenna is converted from its "V-Doublet" form into one approximating the conventional "T" type arrangement, so that the transmission line acts as part of the effective length. This change-over is accomplished automatically by the special circuit employed in the coupling-transformer. Thus, the antenna is a "V-Doublet" below 55 meters and a conventional "T" type or standard broadcast antenna above 55 meters.

Whatever you do—don't expect to get the best results from your short-wave and standard broadcast receiver with any ordinary antenna. Install a G-E V-Doublet All-wave Antenna, designed for your purpose, and enjoy your "round-the-world" radio to the utmost.

Ask your G-E Radio dealer all about it. It's very inexpensive and easy to erect.

**GENERAL  ELECTRIC**  
**RADIO**

. . . . with the tube that's "Sealed in Steel"