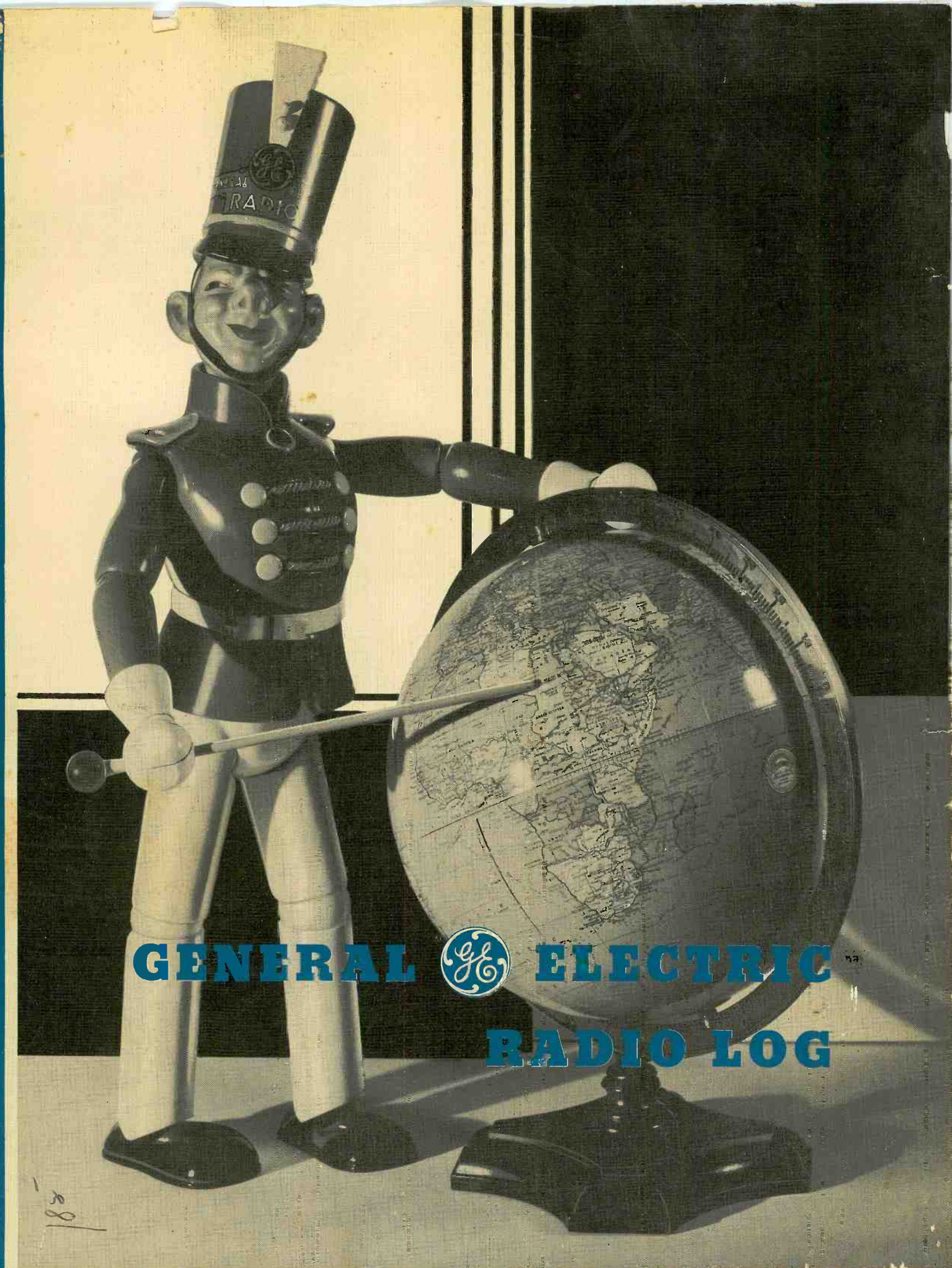


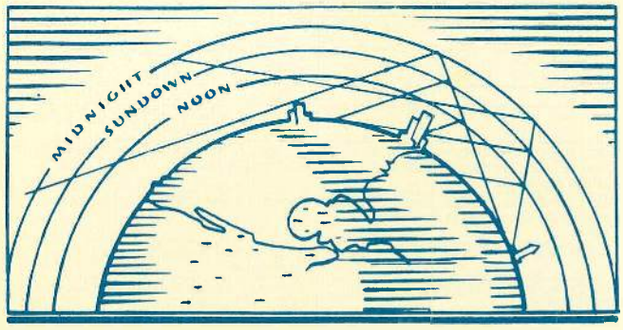
GENERAL ELECTRIC RADIO LOG

1936

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 ÷ 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 ÷ 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.

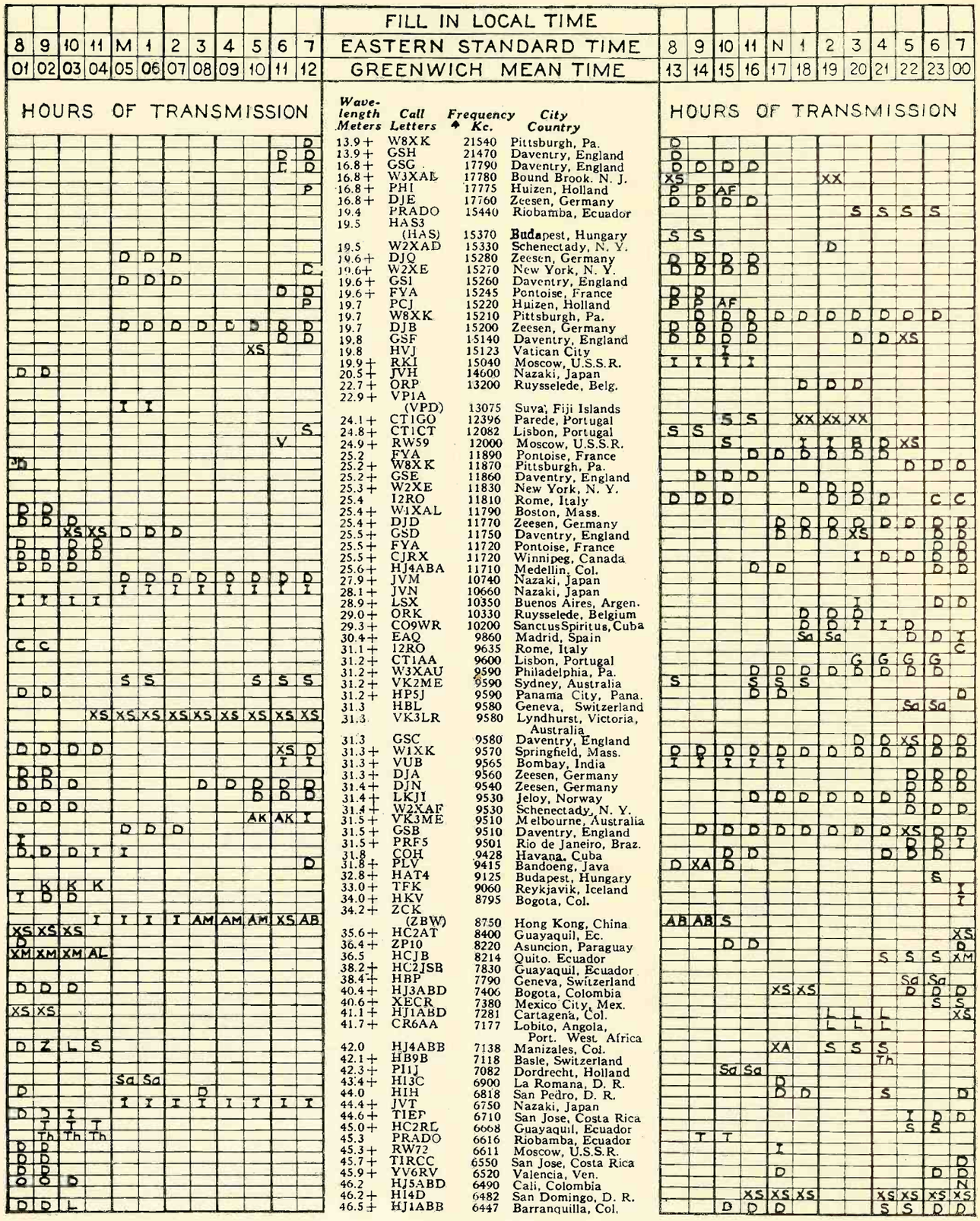
S-W STATION IDENTIFICATION CHART

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	"Ici 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 Lorenzo 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			
CT1GO	Portuguese Radio Club, Parede, Portugal			
DFB	Reichspostzentralamt, Berlin, Germany			Three tone whistle at beginning of transmission: D, C, G.
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	Chimes—Eight notes of old German song, frequently repeated
EAQ	Station EAQ, Apartado Correos 951, Madrid, Spain		"Akee Ay-Ah-Coo Madrid, Espana," Big Ben Chimes Announces in Spanish and English	Ends with "Rachmaninoff's Prelude"
FIQA	Dept. of Mail, Telegraph & Telephone, Tananarive, Madagascar		"Radio Tananarive."	Opens with "Ramona," ends with "Marseillaise"
FYA	Station Radio-Coloniale, 98 Bis. Boulevard Haussmann, Paris, (8e), France	Radio-Coloniale	"Ici Paree, Radio Coloniale," Does not use call letters	Chimes of French clock, quarter hours. Ends with "Marseillaise" and "Bon soir Mesdames, Bon soir Mesdemoiselles, Bon soir Messieurs"
GSA, GSB, GSC, GSD, GSE, GSF, GSG, GSH	British Broadcasting Corp., Broadcasting House, London, W1, England		"This is London calling you"	Starts and Finishes with Big Ben's gong. Sometimes "God Save the King"
G6RX	Mr. G. A. Struthers Rugby Radio Station, Hillmorton, England			
HAS, HAT	A. Magyar Kir Posta, Kiserleti Allomasa, Gyali-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"	Two tone chime, announces in Spanish and English
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 Vox del Yaque"	Plays "Anchors Aweigh" at start and finish of program
HI4D	La Voz de Quisueya, Santo Domingo D.R.			
HJ1ABB	Elias J. Pellet, Box 715, Barranquilla, Colombia	La Voz de Barranquilla	"LaVoz de Barranquilla, Acha-hota-uno-ah-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,	The Voice of Panama	"Estacion Miramar", the voice of Panama	
HVJ	Station HVJ, Vatican City, Italy	Laudetur Jesus Christus		Clock's ticks in studio. Announcer begins with "Pronto, pronto, Radio Vaticano," ends with "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"	
JES			"Osaki". Announcer speaks English and Japanese, announcer seems to be American	
JVR	Kemikawa Sending Station, Kemikawa-Cho, Chiba-Ken, Japan			3 gongs—2 gongs, 1 pause, 1 gong, 1 pause then 1 chime
LKJ1	Ministere du Commerce du Royaume de Norvege, Oslo, Norway		"Broadcasting Oslo"	
LSY	Transradio Internacional, 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., Johannesgasse 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"

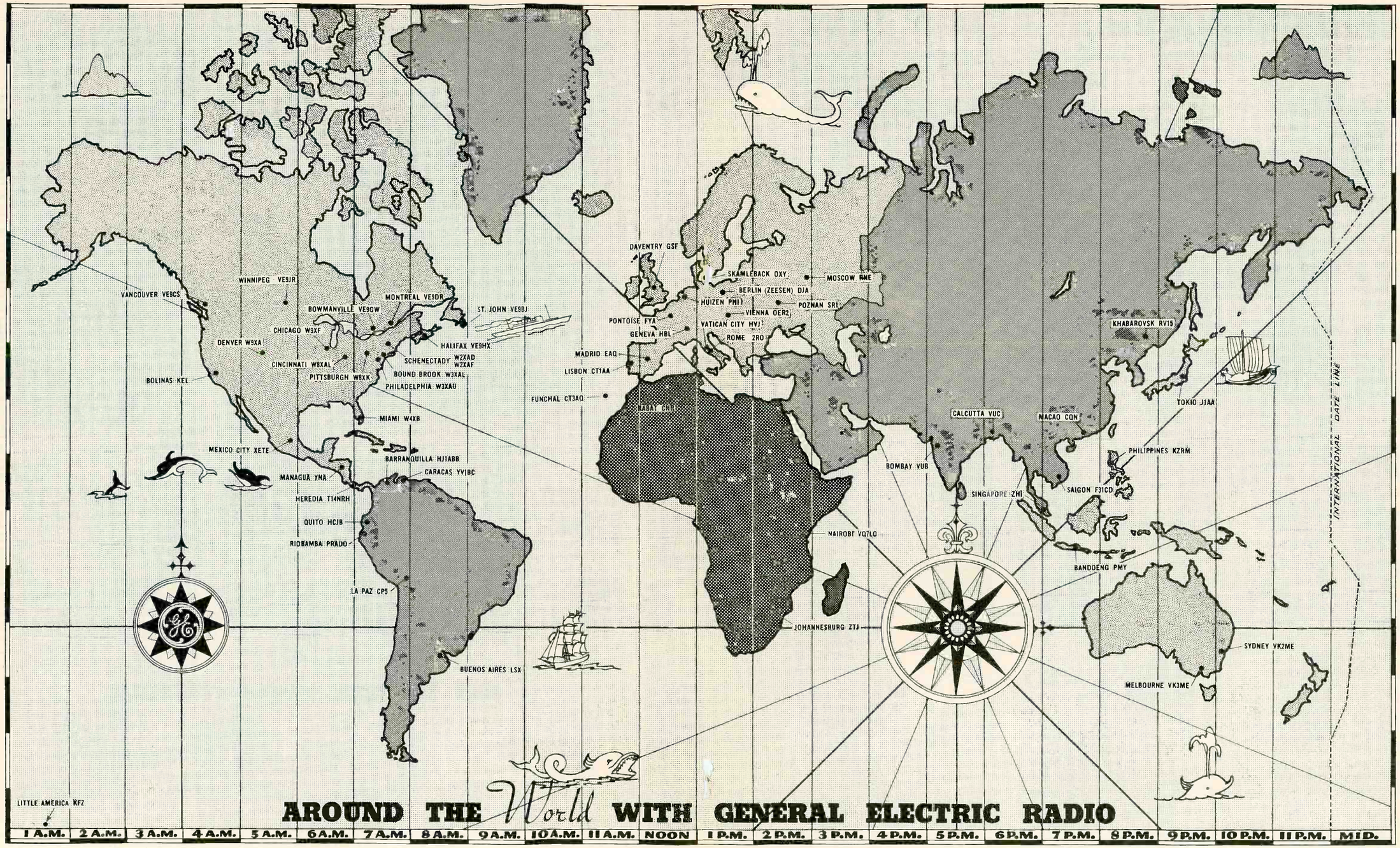
S-W STATION IDENTIFICATION CHART

Call Letters	*Address*	*Name*	*Announcement*	*Identifying Signals*
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. I.			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 Correos 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, Rrrio-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 Lucet 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"	
VE9CS	Radio Service Engineers, Ltd., 734 Davie Street, Vancouver, B. C., Canada			Sounds two bells between selections
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-2ME, 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. Sancristobal, 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, Johonnnesburg, Union of South Africa			

WORLD SHORT-WAVE TIME-TABLE



Wave-length Meters	Call Letters	Frequency Kc.	City Country
13.9+	W8XK	21540	Pittsburgh, Pa.
13.9+	GSH	21470	Daventry, England
16.8+	GSG	17790	Daventry, England
16.8+	W3XAL	17780	Bound Brook. N. J.
16.8+	PHI	17775	Huizen, Holland
16.8+	DJE	17760	Zeesen, Germany
19.4	PRADO	15440	Riobamba, Ecuador
19.5	HAS3 (HAS)	15370	Budapest, Hungary
19.5	W2XAD	15330	Schenectady, N. Y.
19.6+	DJQ	15280	Zeesen, Germany
19.6+	W2XE	15270	New York, N. Y.
19.6+	GSI	15260	Daventry, England
19.6+	FYA	15245	Pontoise, France
19.7	PCJ	15220	Huizen, Holland
19.7	W8XK	15210	Pittsburgh, Pa.
19.7	DJB	15200	Zeesen, Germany
19.8	GSF	15140	Daventry, England
19.8	HVJ	15123	Vatican City
19.9+	RKI	15040	Moscow, U.S.S.R.
20.5+	JVH	14600	Nazaki, Japan
22.7+	ORP	13200	Ruysselede, Belg.
22.9+	VP1A (VPD)	13075	Suva, Fiji Islands
24.1+	CT1GO	12396	Parede, Portugal
24.8+	CT1CT	12082	Lisbon, Portugal
24.9+	RW59	12000	Moscow, U.S.S.R.
25.2	FYA	11890	Pontoise, France
25.2+	W8XK	11870	Pittsburgh, Pa.
25.2+	GSE	11860	Daventry, England
25.3+	W2XE	11830	New York, N. Y.
25.4	I2RO	11810	Rome, Italy
25.4+	W1XAL	11790	Boston, Mass.
25.4+	DJD	11770	Zeesen, Germany
25.5+	GSD	11750	Daventry, England
25.5+	FYA	11720	Pontoise, France
25.5+	CJRX	11720	Winnipeg, Canada
25.6+	HJ4ABA	11710	Medellin, Col.
27.9+	JVM	10740	Nazaki, Japan
28.1+	JVN	10660	Nazaki, Japan
28.9+	LSX	10350	Buenos Aires, Argen.
29.0+	ORK	10330	Ruysselede, Belgium
29.3+	CO9WR	10200	Sanctus Spiritus, Cuba
30.4+	EAQ	9860	Madrid, Spain
31.1+	I2RO	9635	Rome, Italy
31.2+	CT1AA	9600	Lisbon, Portugal
31.2+	W3XAU	9590	Philadelphia, Pa.
31.2+	VK2ME	9590	Sydney, Australia
31.2+	HP5J	9590	Panama City, Pana.
31.3	HBL	9580	Geneva, Switzerland
31.3	VK3LR	9580	Lyndhurst, Victoria, Australia
31.3	GSC	9580	Daventry, England
31.3+	W1XK	9570	Springfield, Mass.
31.3+	VUB	9565	Bombay, India
31.3+	DJA	9560	Zeesen, Germany
31.4+	DJN	9540	Zeesen, Germany
31.4+	LKJ1	9530	Jeloy, Norway
31.4+	W2XAF	9530	Schenectady, N. Y.
31.5+	VK3ME	9510	Melbourne, Australia
31.5+	GSB	9510	Daventry, England
31.5+	PRF5	9501	Rio de Janeiro, Braz.
31.8	COH	9428	Havana, Cuba
31.8+	PLV	9415	Bandoeng, Java
32.8+	HAT4	9125	Budapest, Hungary
33.0+	TFK	9060	Reykjavik, Iceland
34.0+	HKV	8795	Bogota, Col.
34.2+	ZCK (ZBW)	8750	Hong Kong, China
35.6+	HC2AT	8400	Guayaquil, Ec.
36.4+	ZP10	8220	Asuncion, Paraguay
36.5	HCJB	8214	Quito. Ecuador
38.2+	HC2JSB	7830	Guayaquil, Ecuador
38.4+	HBP	7790	Geneva, Switzerland
40.4+	HJ3ABD	7406	Bogota, Colombia
40.6+	XECR	7380	Mexico City, Mex.
41.1+	HJ1ABD	7281	Cartagena, Col.
41.7+	CR6AA	7177	Lobito, Angola, Port. West Africa
42.0	HJ4ABB	7138	Manizales, Col.
42.1+	HB9B	7118	Basle, Switzerland
42.3+	PI1J	7082	Dordrecht, Holland
43.4+	HI3C	6900	La Romana, D. R.
44.0	HIH	6818	San Pedro, D. R.
44.4+	JVT	6750	Nazaki, Japan
44.6+	TIEP	6710	San Jose, Costa Rica
45.0+	HC2RL	6668	Guayaquil, Ecuador
45.3	PRADO	6616	Riobamba, Ecuador
45.3+	RW72	6611	Moscow, U.S.S.R.
45.7+	TIRCC	6550	San Jose, Costa Rica
45.9+	YV6RV	6520	Valencia, Ven.
46.2	HJ5ABD	6490	Cali, Colombia
46.2+	HI4D	6482	San Domingo, D. R.
46.5+	HJ1ABB	6447	Barranquilla, Col.



SIMPLIFIED BROADCASTING TIME-TABLE

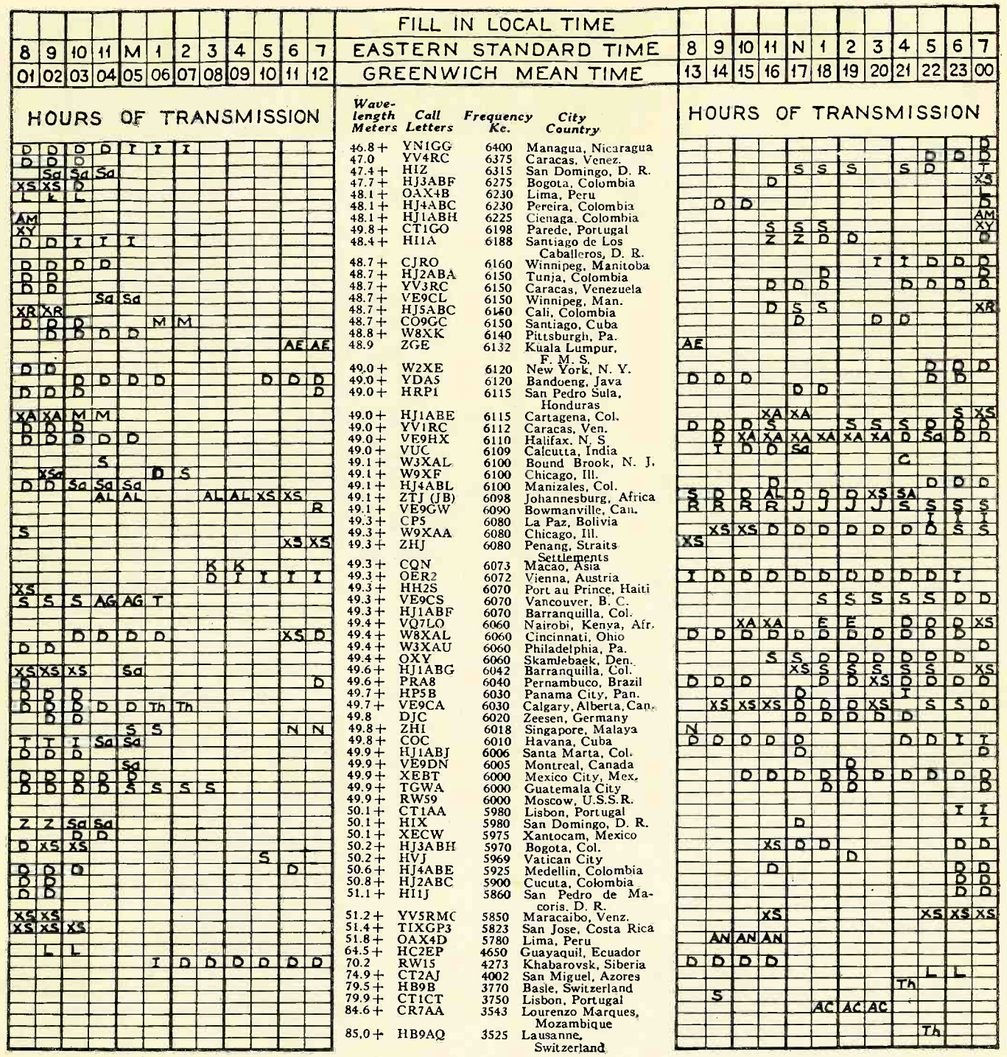
This map is divided into time belts by vertical black lines. Each belt removed from the one in which you are located indicates a time difference of one hour. To determine the time to tune in for a specified broadcast: when station is east of you, subtract from the scheduled broadcast time as many hours 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.
10.06	29,817	IAF	Fiumicino, Italy	5.0	Exp.
13.45	22,291	GBU	Rugby, England	....	Phone
13.91	21,550	XGBA	Shanghai, China	18.5	Broadcast
13.92	21,540	VK3LR	Lyndhurst, Australia	....	Broadcast
13.92	21,540	W8XK	Pittsburgh, Pa.	40.0	Broadcast; relays KDKA
13.93	21,530	GSJ	Daventry, England	15.0	Broadcast
13.96	21,470	GSH	Daventry, England	15.0	Broadcast
14.00	21,420	W2XDJ	Deal, N. J.	....	Exp.
14.00	21,420	WKK	Lawrenceville, N. J.	20.0	Phone to LSN
14.00	21,420	WLO	Lawrence, N. J.	....	Transatlantic phone
14.19	21,140	KBI	Manila, P. I.	10.0	Phone
14.24	21,060	WKA	Lawrenceville, N. J.	20.0	Phone to England
14.24	21,060	KWN	Dixon, Calif.	20.0	Phone
14.27	21,020	LSN	Buenos Aires, Argentine	....	Phone to WLO, 8 a.m.; 4 p.m.
14.27	21,020	OKI	Podebrady, Czechoslovakia	....	Phone
14.37	20,860	EBY	Madrid, Spain	7.5	Phone to Buenos Aires
14.40	20,820	KSS	Bolinas, Calif.	40.0	Phone
14.43	20,780	KMM	Bolinas, Calif.	40.0	Phone
14.48	20,700	LSY	Buenos Aires, Arg.	10.0	Phone
14.49	20,680	LSX	Buenos Aires, Arg.	....	Phone to USA
14.49	20,680	LSN	Buenos Aires, Arg.	....	Phone to Europe after 10:30 p.m.
14.57	20,580	PMB	Bandoeng, Java	60.0	Phone to FCK
14.71	20,380	GBA	Rugby, England	15.0	Phone to ships and LSN
14.88	20,140	DWG	Nauen, Germany	....	Phone to LSG
14.96	20,040	OPL	Leopoldville, Belgian Congo	....	Phone to ORG, morn.
14.97	20,028	DHQ	Nauen, Germany	7.2	Phone
15.01	19,980	KAX	Manila, P. I.	20.0	Phone to Dixon
15.03	19,950	DIH	Nauen, Germany	....	Phone
15.07	19,900	LSG	Buenos Aires, Arg.	7.0	Phone to France
15.10	19,850	WMI	Deal, N. J.	....	Phone
15.12	19,830	FTD	Ste Assise, France	....	Phone
15.13	19,820	WKN	Lawrenceville, N. J.	20.0	Phone to England, 8 a.m.—4 p.m.
15.21	19,720	EAQ	Madrid, Spain	10.0	Phone to Latin Am.
15.23	19,680	CEC	Santiago, Chile	4.0	Phone to LSR, HJY
15.49	19,345	PMA	Bandoeng, Java	40.0	Phone, sometimes broadcast
15.57	19,260	PPU	Rio de Janeiro, Brazil	13.6	Phone to France
15.58	19,240	DFA	Nauen, Germany	....	Phone to XDA
15.60	19,220	WKF	Lawrenceville, N. J.	20.0	Phone to England
15.61	19,200	ORG	Ruysselede, Belgium	8.0	Phone
15.74	19,050	JVC	Nazaki, Japan	....	Phone, sometimes broadcast
15.76	19,020	WKW-W2XBJ	Rocky Pt., N. Y.	....	Tests; mornings
15.87	18,892	WDS	Rocky Pt., N. Y.	....	Phone
15.87	18,890	ZSS	Klipheuvel, S. Africa	5.0	Phone to GAA
15.92	18,830	PLE	Bandoeng, Java	60.0	Phone to Dixon, Calif.
16.05	18,680	OCI	Lima, Peru	....	Phone
16.10	18,620	GBJ	Bodmin, Eng.	....	Phone to Montreal
16.10	18,620	GAU	Rugby, England	15.0	Phone to WMI, 6a.m.—2 p.m.
16.12	18,600	PDM	Kootwijk, Holland	....	Phone
16.27	18,440	HJY	Bogota, Colombia	....	Phone CEC, LSR
16.18	18,535	PCM	Kootwijk, Holland	....	Phone
16.29	18,400	PCK	Kootwijk, Holland	....	Phone
16.34	18,350	ZLW	Wellington, New Zealand	....	Phone to VK2ME
16.34	18,345	FZS3	Saigon, Indo China	15.0	Phone
16.33	18,340	WLA	Lawrenceville, N. J.	20.0	Phone 8 a.m.,—4 p.m.
16.38	18,295	YVQ	Maracay, Venezuela	....	Phone
16.43	18,240	FRO-FRE	Ste. Assise, France	30.0	Phone
16.45	18,220	KUS	Manila, P. I.	10.0	Phone
16.47	18,200	GAW	Rugby, England	15.0	Phone
16.53	18,135	PMC	Bandoeng, Java	40.0	Phone, sometimes broadcast
16.55	18,115	LSY3	Buenos Aires, Arg.	10.0	Phone, sometimes broadcast
16.56	18,100	GBK	Bodmin, England	....	Phone to CGA, 6 a.m. —2 p.m.
16.62	18,040	KQR	Bolinas, Calif.	40.0	Phone
16.64	18,020	KQJ	Bolinas, Calif.	40.0	Phone; transpacific
16.66	18,000	PLE	Bandoeng, Java	....	Phone
16.67	18,000	KQG	Bolinas, Calif.	40.0	Phone
16.69	17,980	KQZ	Bolinas, Calif.	40.0	Phone
16.78	17,870	OEV	Vienna, Austria	....	Phone
16.80	17,850	PLF	Bandoeng, Java	....	Phone
16.84	17,800	XGOX	Nanking, China	....	Broadcast
16.84	17,800	PCV	Kootwijk, Holland	40.0	Phone to Java, 6 a.m. —9 a.m.
16.85	17,790	XGBB	Shanghai, China	....	Phone
16.85	17,790	GSG	Daventry, England	15.0	Broadcast
16.86	17,780	W3XAL	Boundbrook, N. J.	15.0	Broadcast
16.86	17,780	W9XAA	Chicago, Illinois	0.5	Exp.
16.86	17,780	W8XK	Pittsburgh, Pa.	40.0	Broadcast; relays KDKA
16.87	17,775	PHI	Huizen, Holland	20.0	Broadcast, summer months
16.88	17,760	DJE	Koenigswusterhausen, Germany	8.0	Broadcast
16.89	17,750	IAC	Coltano, Italy	14.0	Phone; early mornings
16.90	17,740	HSP	Bangkok, Siam	20.0	Phone
16.93	17,713	HJ4ABA	Medellin, Colombia	....	Broadcast
17.00	17,640	GFWV	S.S. Majestic	....	Phone
		GLSQ	S.S. Olympic	....	Phone
		GDLJ	S.S. Homeric	....	Phone
		GTSD	S.S. Monarch of Bermuda	....	Phone
		GKFY	S.S. Minnetonka	....	Phone
		GMBJ	S.S. Empress of Britain	....	Phone
17.11	17,520	DFB	Nauen, Germany	7.2	Phone
17.11	17,510	VWY	Kirkee, India	....	Phone
17.23	17,400	JIAA	Kemikawa-Cho, Japan	....	Phone to Australia
17.33	17,310	W3XL	Boundbrook N. J.	20.0	Exp.
17.33	17,300	W6XAJ	Oakland, Calif.	....	Exp.
17.33	17,300	W8XL	Dayton, Ohio	....	Exp.
17.33	17,300	W2XCU	Ampere, N. J.	....	Exp.
17.33	17,300	VE9BY	London, Ont., Canada	....	Exp.; irr.
17.37	17,260	DAF	Norddeich, Germany	5.0	Phone; 9:15 a.m., irr.
17.50	17,122	HAS5	Szekesfehervar, Hungary	....	Broadcast
17.51	17,110	WOO	Ocean Gate, N. J.	20.0	Phone
17.55	17,080	GBC	Rugby, England	5.0	Phone
18.06	16,665	DAN	Norddeich, Germany	....	Tests with ships
18.36	16,330	VLK-VK2ME	Sydney, Australia	3.5	Phone
18.39	16,300	PCL	Kootwijk, Holland	....	Phone to Bandoeng
18.43	16,270	WLK	Lawrenceville, N. J.	20.0	Phone to England
18.47	16,240	KTO	Manila, P. I.	40.0	Phone
18.49	16,214	FZR3	Saigon, French Indo China	15.0	Phone
18.54	16,162	PSA	Rio de Janeiro, Brazil	....	Broadcast
18.55	16,160	GBX	Rugby, England	....	Phone to VK2ME, 4-11 p.m.
18.70	16,030	KKP	Kahuku, Hawaii	40.0	Phone to KWO, 2-7 p.m.
18.77	15,985	KQH	Kahuku, Hawaii	40.0	Phone
18.80	15,950	PLG	Bandoeng, Java	....	Phone; afternoons
18.88	15,880	FTK	Ste. Assise, France	30.0	Phone to Saigon
18.91	15,855	CEC	Santiago, Chile	0.8	Phone
19.03	15,760	JYT	Kemikawa-Cho, Japan	5.0	Relay broadcast and tests
19.14	15,670	LSF	Buenos Aires, Arg.	....	Phone
19.15	15,660	JVE	Nazaki, Japan	....	Phone; occasional broadcast
19.20	15,620	JES	Osaki, Japan	....	Phone; sometimes broadcast
19.20	15,620	JVF	Nazaki, Japan	....	Phone; sometimes be.
19.35	15,490	KEM	Bolinas, Calif.	40.0	Phone
19.37	15,475	KKL	Bolinas, Calif.	40.0	Phone
19.39	15,460	KKR	Bolinas, Calif.	40.0	Phone
19.40	15,454	....	Pontoise, France	....	Phone; 7-11 a.m.
19.42	15,440	PRADO	Riobamba, Ecuador	....	Phone
19.43	15,430	KWE	Bolinas, Calif.	40.0	Phone
19.45	15,410	KWO	Dixon, Calif.	20.0	Phone to Hawaii, 2-7 p.m.
19.51	15,370	HAS3	Budapest, Hungary	20.0	Broadcast
19.54	15,355	KWU	Dixon, Calif.	20.0	Phone to Hawaii, 2-7 p.m.
19.55	15,340	CT1AA	Lisbon, Portugal	....	Broadcast
19.55	15,340	DJR	Zeesen, Germany	50.0	Testing
19.56	15,330	W2XAD	Schenectady, N. Y.	20.0	Bc.; relays WGY
19.60	15,300	CP7	La Paz, Bolivia	1.0	Phone
19.60	15,300	OXY	Skamleb sek, Denmark	....	Exp.
19.62	15,280	DJQ	Zeesen, Germany	50.0	Broadcast
19.64	15,270	W2XE	Wayne, N. J.	15.0	Broadcast
19.65	15,260	GSI	Daventry, England	....	Broadcast
19.67	15,250	W1XAL	Boston, Mass.	5.0	Broadcast
19.67	15,243	FYA	Pontoise, France	12.0	Broadcast
19.70	15,220	PCJ	Eindhoven, Holland	12.0	Exp.
19.72	15,210	W8XK	Pittsburgh, Pa.	40.0	Bc.; relays KDKA
19.72	15,200	DJB	Zeesen, Germany	5.0	Broadcast
19.80	15,140	GSF	Daventry, England	15.0	Broadcast
19.82	15,130	VE9DN	Montreal, Que.	....	Broadcast
19.83	15,123	HVJ	Rome, Italy	10.0	Bc.; 5-5:15 a.m. daily
19.73	15,190	VE9BA	Montreal, Que.	....	Broadcast
19.85	15,110	DJL	Zeesen, Germany	....	Broadcast
19.86	15,104	RAU	Tashkent, U.S.S.R.	20.0	Phone
19.90	15,075	TI4NRH	Heredia, Costa Rica	....	Broadcast
19.91	15,055	WNC	Hialeah, Florida	0.4	Phone
19.93	15,040	RKI	Moscow, U.S.S.R.	20.0	Phone; morn., irr.
20.04	14,980	KAY	Manila, P. I.	40.0	Phone to Dixon, 8 a.m.
20.06	14,940	HJA3	Barranquilla, Colombia	....	Phone to Colombia, Panama, Costa, Rica; 6:30 a.m.—6:30 p.m.
20.08	14,830	HJB	Bogota, Colombia	....	Phone
20.27	14,830	WKU-W2XBJ	Rocky Pt., N. Y.	40.0	Tests; daytime
20.50	14,630	XDA	Mexico, D. F.	....	Phone
20.54	14,600	JVH	Nazaki, Japan	....	Phone
20.55	14,590	WMN	Lawrenceville, N. J.	20.0	Phone to England; daylight
20.63	14,535	HBJ	Geneva, Switzerland	20.0	Phone
20.64	14,530	LSN	Buenos Aires, Arg.	....	Phone
20.68	14,500	TIN	Cartago, Costa Rica	....	Phone to WNC
20.68	14,500	XGF	Guatemala City	....	Phone to WNC
20.69	14,490	LSN	Buenos Aires, Arg.	....	Phone irr.
20.70	14,485	HPF	Panama City	25.0	Phone to WNC
20.71	14,480	YNA	Managua, Nicaragua	....	Phone to WNC
20.76	14,440	GBW	Rugby, England	15.0	Phone
20.79	14,420	VPD	Suva, Fiji Is.	....	Phone
21.52	13,940	YOI	Bucharest, Roumania	....	Broadcast
21.53	13,925	WIK	Rocky Point, N. Y.	....	Phone
21.57	13,900	WQP	Rocky Point, N. Y.	....	Phone to RNE
21.62	13,870	WIY	Rocky Point, N. Y.	....	Tests, irr.
21.71	13,811	SUZ	Abu Zabal, Egypt	10.0	Phone
21.76	13,780	KKW	Bolinas, Calif.	....	Phone
21.79	13,740	CGA	Drummondville, Que.	....	Phone
21.90	13,690	KKZ	Bolinas, Calif.	40.0	Phone
21.90	13,685	HAT	Szekesfehervar, Hungary,	5.0	Broadcast
22.02	13,610	JYK	Kemikawa-Cho, Japan	....	Broadcast and tests
22.06	13,591	GBC	Rugby, England	....	Phone to CGA & ships
22.24	13,480	WAJ	Rocky Point, N. Y.	....	Exp.
22.29	13,450	GBQ	Rugby, England	15.0	Phone
22.34	13,420	TIEP	San Jose, Costa Rica	....	Broadcast
22.39	13,390	WMA	Lawrenceville, N. J.	20.0	Phone
22.47	13,340	CGA	Drummondville, Que.	....	Phone
22.47	13,340	YVQ	Maracay, Venezuela	....	Phone



Wavelength Meters	Call Letters	Frequency Kc.	City Country
46.8+	YN1GG	6400	Managua, Nicaragua
47.0	YV4RC	6375	Caracas, Venez.
47.4+	HIZ	6315	San Domingo, D. R.
47.7+	HJ1ABF	6275	Bogota, Colombia
48.1+	OAX4B	6230	Lima, Peru
48.1+	HJ4ABC	6230	Pereira, Colombia
48.1+	HJ1ABH	6225	Cienaga, Colombia
49.8+	CT1GO	6198	Parede, Portugal
48.4+	HI1A	6188	Santiago de Los Caballeros, D. R.
48.7+	CJRO	6160	Winnipeg, Manitoba
48.7+	HJ2ABA	6150	Tunja, Colombia
48.7+	YV3RC	6150	Caracas, Venezuela
48.7+	VE9CL	6150	Winnipeg, Man.
48.7+	HJ5ABC	6150	Cali, Colombia
48.7+	CO9GC	6150	Santiago, Cuba
48.8+	W8XK	6140	Pittsburgh, Pa.
48.9	ZGE	6132	Kuala Lumpur, F. M. S.
49.0+	W2XE	6120	New York, N. Y.
49.0+	YDA5	6120	Bandoeng, Java
49.0+	HRP1	6115	San Pedro Sula, Honduras
49.0+	HJ1ABE	6115	Cartagena, Col.
49.0+	YV1RC	6112	Caracas, Ven.
49.0+	VE9HX	6110	Halifax, N. S.
49.0+	VUC	6109	Calcutta, India
49.1+	W3XAL	6100	Bound Brook, N. J.
49.1+	W9XF	6100	Chicago, Ill.
49.1+	HJ4ABL	6100	Manizales, Col.
49.1+	ZTJ (JB)	6098	Johannesburg, Africa
49.1+	VE9GW	6090	Bowmanville, Can.
49.3+	CP5	6080	La Paz, Bolivia
49.3+	W9XAA	6080	Chicago, Ill.
49.3+	ZHJ	6080	Penang, Straits Settlements
49.3+	CQN	6073	Macao, Asia
49.3+	OER2	6072	Vienna, Austria
49.3+	HH2S	6070	Port au Prince, Haiti
49.3+	VE9CS	6070	Vancouver, B. C.
49.3+	HJ1ABF	6070	Barranquilla, Col.
49.4+	VQ7LO	6060	Nairobi, Kenya, Afr.
49.4+	W8XAL	6060	Cincinnati, Ohio
49.4+	W3XAU	6060	Philadelphia, Pa.
49.4+	OXY	6060	Skamlebaek, Den.
49.6+	HJ1ABG	6042	Barranquilla, Col.
49.6+	PRA8	6040	Pernambuco, Brazil
49.7+	HP5B	6030	Panama City, Pan.
49.7+	VE9CA	6030	Calgary, Alberta, Can.
49.8	DJC	6020	Zeesen, Germany
49.8+	ZHI	6018	Singapore, Malaya
49.8+	COC	6010	Havana, Cuba
49.9+	HJ1ABJ	6006	Santa Marta, Col.
49.9+	VE9DN	6005	Montreal, Canada
49.9+	XEBT	6000	Mexico City, Mex.
49.9+	TGWA	6000	Guatemala City
49.9+	RW59	6000	Moscow, U.S.S.R.
50.1+	CT1AA	5980	Lisbon, Portugal
50.1+	HIX	5980	San Domingo, D. R.
50.1+	XECW	5975	Xantocam, Mexico
50.2+	HJ3ABH	5970	Bogota, Col.
50.2+	HVJ	5969	Vatican City
50.6+	HJ4ABE	5925	Medellin, Colombia
50.8+	HJ2ABC	5900	Cucuta, Colombia
51.1+	HI1J	5860	San Pedro de Macoris, D. R.
51.2+	YV5RMC	5850	Maracaibo, Venz.
51.4+	TIXGP3	5823	San Jose, Costa Rica
51.8+	OAX4D	5780	Lima, Peru
64.5+	HC2EP	4650	Guayaquil, Ecuador
70.2	RW15	4273	Khabarovsk, Siberia
74.9+	CT2AJ	4002	San Miguel, Azores
79.5+	HB9B	3770	Basle, Switzerland
79.9	CT1CT	3750	Lisbon, Portugal
84.6+	CR7AA	3543	Lourenzo Marques, Mozambique
85.0+	HB9AQ	3525	Lausanne, Switzerland

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K—Monday, Friday
L—Wednesday, Saturday
M—Monday
N—Monday, Wednesday, Thursday
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Th—Thursday
V—Wednesday, Sunday
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AC—Monday, Thursday, Saturday
AE—Tuesday, Friday, Sunday
AF—Saturday, Sunday
AG—Tuesday, 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

								FILL IN LOCAL TIME															
8	9	10	11	M	1	2	3	4	5	6	7	EASTERN STANDARD TIME	8	9	10	11	N	1	2	3	4	5	6	7
01	02	03	04	05	06	07	08	09	10	11	12	GREENWICH MEAN TIME	13	14	15	16	17	18	19	20	21	22	23	00

HOURS OF TRANSMISSION

Wave-length Meters	Call Letters	Frequency Kc.	City Country
46.8+	VN1GG	6400	Managua, Nicaragua
47.0	YV4RC	6375	Caracas, Venez.
47.4+	HIZ	6315	San Domingo, D. R.
47.7+	HJ3ABF	6275	Bogota, Colombia
48.1+	OAX4B	6230	Lima, Peru
48.1+	HJ4ABC	6230	Pereira, Colombia
48.1+	HJ1ABH	6225	Cienaga, Colombia
49.8+	CT1GO	6198	Parede, Portugal
48.4+	HI1A	6188	Santiago de Los Caballeros, D. R.
48.7+	CJRO	6160	Winnipeg, Manitoba
48.7+	HJ2ABA	6150	Tunja, Colombia
48.7+	YV3RC	6150	Caracas, Venezuela
48.7+	VE9CL	6150	Winnipeg, Man.
48.7+	HJ5ABC	6150	Cali, Colombia
48.7+	CO9GC	6150	Santiago, Cuba
48.8+	W8XK	6140	Pittsburgh, Pa.
48.9	ZGE	6132	Kuala Lumpur, F. M. S.
49.0+	W2XE	6120	New York, N. Y.
49.0+	YDA5	6120	Bandoeng, Java
49.0+	HRP1	6115	San Pedro Sula, Honduras
49.0+	HJ1ABE	6115	Cartagena, Col.
49.0+	YV1RC	6112	Caracas, Ven.
49.0+	VE9HX	6110	Halifax, N. S
49.0+	VUC	6109	Calcutta, India
49.1+	W3XAL	6100	Bound Brook, N. J.
49.1+	W9XF	6100	Chicago, Ill.
49.1+	HJ4ABL	6100	Manizales, Col.
49.1+	ZTJ (JB)	6098	Johannesburg, Africa
49.1+	VE9GW	6090	Bowmanville, Can.
49.3+	CP5	6080	La Paz, Bolivia
49.3+	W9XAA	6080	Chicago, Ill.
49.3+	ZHJ	6080	Penang, Straits Settlements
49.3+	CQN	6073	Macao, Asia
49.3+	OER2	6072	Vienna, Austria
49.3+	HH2S	6070	Port au Prince, Haiti
49.3+	VE9CS	6070	Vancouver, B. C.
49.3+	HJ1ABF	6070	Barranquilla, Col.
49.4+	VQ7LO	6060	Nairobi, Kenya, Afr.
49.4+	W8XAL	6060	Cincinnati, Ohio
49.4+	W3XAU	6060	Philadelphia, Pa.
49.4+	OXY	6060	Skamlebaek, Den.
49.6+	HJ1ABG	6042	Barranquilla, Col.
49.6+	PRA8	6040	Pernambuco, Brazil
49.7+	HP5B	6030	Panama City, Pan.
49.7+	VE9CA	6030	Calgary, Alberta, Can.
49.8	DJC	6020	Zeesen, Germany
49.8+	ZHI	6018	Singapore, Malaya
49.8+	COC	6010	Havana, Cuba
49.9+	HJ1ABJ	6006	Santa Marta, Col.
49.9+	VE9DN	6005	Montreal, Canada
49.9+	XEBT	6000	Mexico City, Mex.
49.9+	TGWA	6000	Guatemala City
49.9+	RW59	6000	Moscow, U.S.S.R.
50.1+	CT1AA	5980	Lisbon, Portugal
50.1+	HIX	5980	San Domingo, D. R.
50.1+	XECW	5975	Xantocam, Mexico
50.2+	HJ3ABH	5970	Bogota, Col.
50.2+	HVJ	5969	Vatican City
50.6+	HJ4ABE	5925	Medellin, Colombia
50.8+	HJ2ABC	5900	Cucuta, Colombia
51.1+	HI1J	5860	San Pedro de Macoris, D. R.
51.2+	YV5RMC	5850	Maracaibo, Venz.
51.4+	TIXGP3	5823	San Jose, Costa Rica
51.8+	OAX4D	5780	Lima, Peru
64.5+	HC2EP	4650	Guayaquil, Ecuador
70.2	RW15	4273	Khabarovsk, Siberia
74.9+	CT2AJ	4002	San Miguel, Azores
79.5+	HB9B	3770	Basle, Switzerland
79.9+	CT1CT	3750	Lisbon, Portugal
84.6+	CR7AA	3543	Lourenzo Marques, Mozambique
85.0+	HB9AQ	3525	Lausanne, Switzerland

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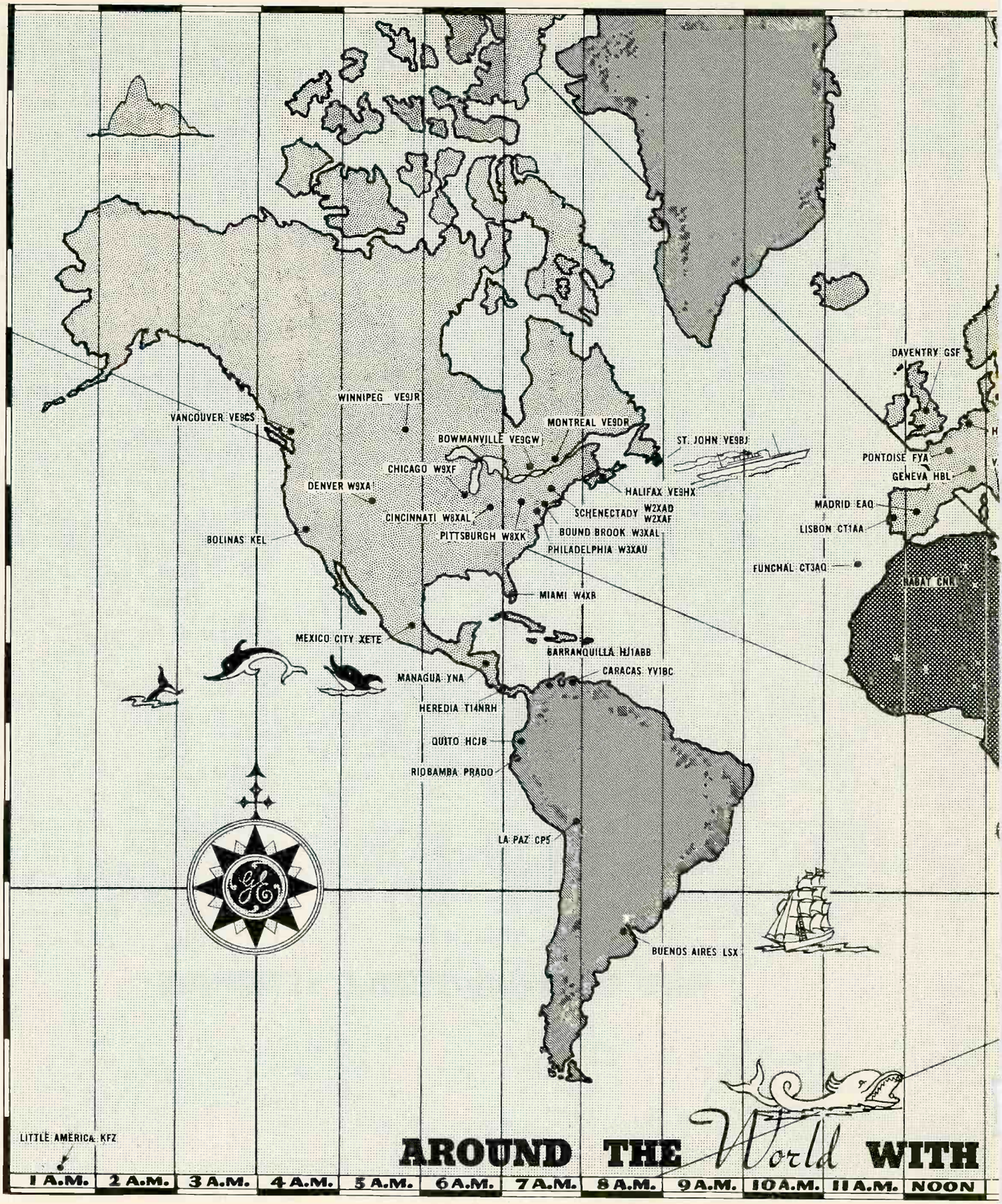
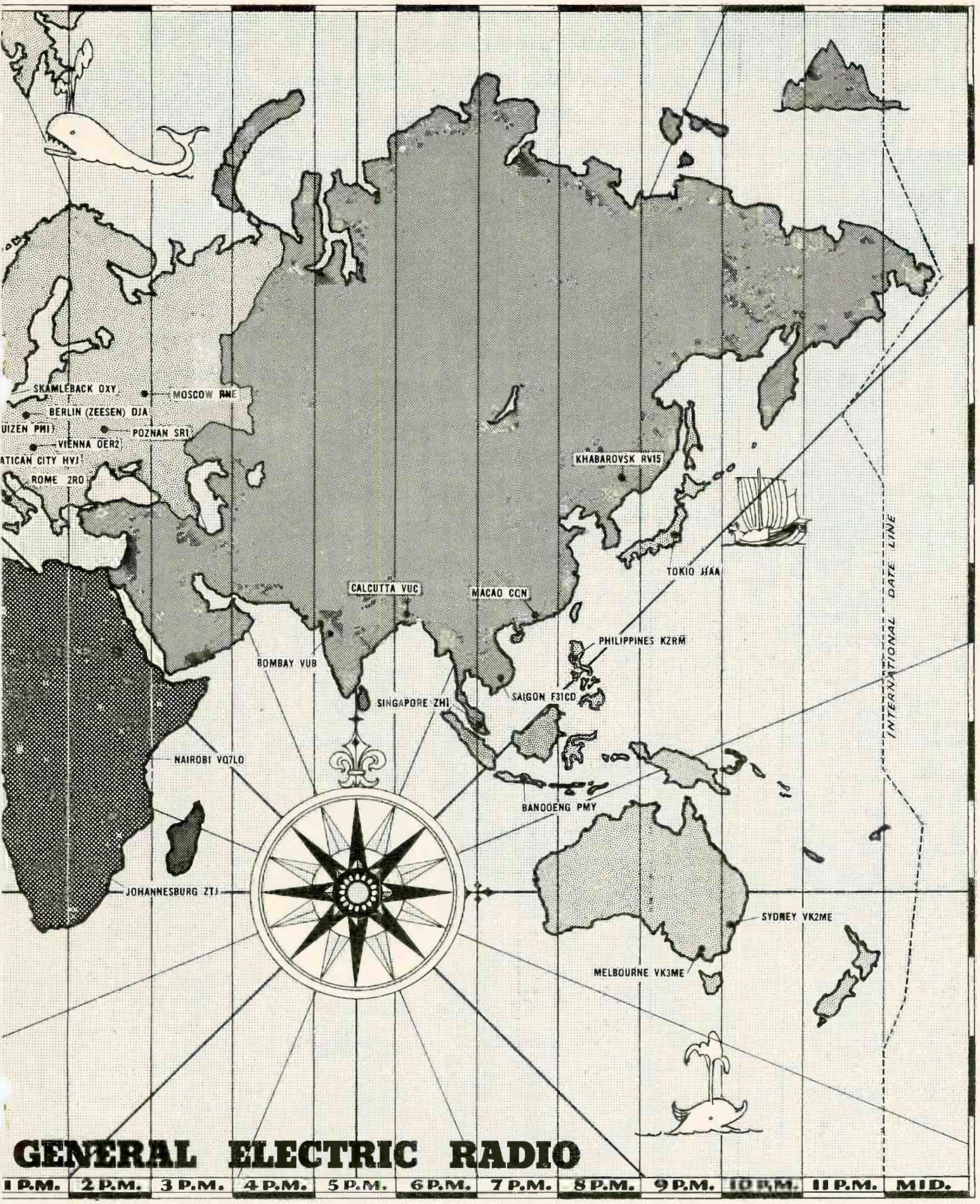
AM—Monday, Thursday
AN—Tuesday, Saturday
Sa—Saturday
XA—Except Saturday, Sunday
XM—Except Monday
XR—Except Thursday, Saturday
XS—Except Sunday
XSa—Except Saturday
XX—Tuesday, Thursday, Friday
XY—Except Tuesday, Sunday



SIMPLIFIED BROADCA

This map is divided into time belts by v
from the one in which you are located in
To determine the time to tune in for a sp
of you, subtract from the scheduled broa
belts removed from the station; when stat



ASTING TIME-TABLE

ertical black lines. Each belt removed
ıdicates a time difference of one hour.
ecified broadcast: when station is east
ıdcast time as many hours as you are
ion 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.
10.06	29,817	IAF	Fiumicino, Italy	5.0	Exp.
13.45	22,291	GBU	Rugby, England	....	Phone
13.91	21,550	XGBA	Shanghai, China	18.5	Broadcast
13.92	21,540	VK3LR	Lyndhurst, Australia	....	Broadcast
13.92	21,540	W8XK	Pittsburgh, Pa.	40.0	Broadcast; relays KDKA
13.93	21,530	GSJ	Daventry, England	15.0	Broadcast
13.96	21,470	GSH	Daventry, England	15.0	Broadcast
14.00	21,420	W2XDJ	Deal, N. J.	....	Exp.
14.00	21,420	WKK	Lawrenceville, N. J.	20.0	Phone to LSN
14.00	21,420	WLO	Lawrence, N. J.	...	Transatlantic phone
14.19	21,140	KBI	Manila, P. I.	10.0	Phone
14.24	21,060	WKA	Lawrenceville, N. J.	20.0	Phone to England
14.24	21,060	KWN	Dixon, Calif.	20.0	Phone
14.27	21,020	LSN	Buenos Aires, Argentine	....	Phone to WLO, 8 a. m.; 4 p. m.
14.27	21,020	OKI	Podebrady, Czechoslovakia	....	Phone
14.37	20,860	EBY	Madrid, Spain	7.5	Phone to Buenos Aires
14.40	20,820	KSS	Bolinas, Calif.	40.0	Phone
14.43	20,780	KMM	Bolinas, Calif.	40.0	Phone
14.48	20,700	LSY	Buenos Aires, Arg.	10.0	Phone
14.49	20,680	LSX	Buenos Aires, Arg.	....	Phone to USA
14.49	20,680	LSN	Buenos Aires, Arg.	....	Phone to Europe after 10:30 p.m.
14.57	20,580	PMB	Bandoeng, Java	60.0	Phone to PCK
14.71	20,380	GBA	Rugby, England	15.0	Phone to ships and LSN
14.88	20,140	DWG	Nauen, Germany	....	Phone to LSG
14.96	20,040	OPL	Leopoldville, Belgian Congo	....	Phone to ORG, morn.
14.97	20,028	DHO	Nauen, Germany	7.2	Phone
15.01	19,980	KAX	Manila, P. I.	20.0	Phone to Dixon
15.03	19,950	DIH	Nauen, Germany	....	Phone
15.07	19,900	LSG	Buenos Aires, Arg.	7.0	Phone to France
15.10	19,850	WMI	Deal, N. J.	....	Phone
15.12	19,830	FTD	Ste Assise, France	....	Phone
15.13	19,820	WKN	Lawrenceville, N. J.	20.0	Phone to England, 8 a. m.—4 p. m.
15.21	19,720	EAQ	Madrid, Spain	10.0	Phone to Latin Am.
15.23	19,680	CEC	Santiago, Chile	4.0	Phone to LSR, HJY
15.49	19,345	PMA	Bandoeng, Java	40.0	Phone, sometimes broadcast
15.57	19,260	PPU	Rio de Janeiro, Brazil	13.5	Phone to France
15.58	19,240	DFA	Nauen, Germany	....	Phone to XDA
15.60	19,220	WKF	Lawrenceville, N. J.	20.0	Phone to England
15.61	19,200	ORG	Ruysselede, Belgium	8.0	Phone
15.74	19,050	JVC	Nazaki, Japan	....	Phone, sometimes broadcast
15.76	19,020	WKW-W2XBJ	Rocky Pt., N. Y.	....	Tests; mornings
15.87	18,892	WDS	Rocky Pt., N. Y.	....	Phone
15.87	18,890	ZSS	Klipheuvel, S. Africa	5.0	Phone to GAA
15.92	18,830	PLE	Bandoeng, Java	60.0	Phone to Dixon, Calif.
16.05	18,680	OCI	Lima, Peru	....	Phone
16.10	18,620	GBJ	Bodmin, Eng.	....	Phone to Montreal
16.10	18,620	GAU	Rugby, England	15.0	Phone to WMI, 6 a. m.—2 p. m.
16.12	18,600	PDM	Kootwijk, Holland	....	Phone
16.27	18,440	HJY	Bogota, Colombia	....	Phone CEC, LSR
16.18	18,535	PCM	Kootwijk, Holland	....	Phone
16.29	18,400	PCK	Kootwijk, Holland	....	Phone
16.34	18,350	ZLW	Wellington, New Zealand	....	Phone to VK2ME
16.34	18,345	FZS3	Saigon, Indo China	15.0.	Phone
16.33	18,340	WLA	Lawrenceville, N. J.	20.0	Phone 8 a. m.,—4 p. m.
16.38	18,295	YVQ	Maracay, Venezuela	....	Phone
16.43	18,240	FRO-FRE	Ste. Assise, France	30.0	Phone
16.45	18,220	KUS	Manila, P. I.	10.0	Phone
16.47	18,200	GAW	Rugby, England	15.0	Phone
16.53	18,135	PMC	Bandoeng, Java	40.0	Phone, sometimes broadcast
16.55	18,115	LSY3	Buenos Aires, Arg.	10.0	Phone; sometimes broadcast
16.56	18,100	GBK	Bodmin, England	....	Phone to CGA, 6 a. m. —2 p. m.
16.62	18,040	KQR	Bolinas, Calif.	40.0	Phone
16.64	18,020	KQJ	Bolinas, Calif.	40.0	Phone; transpacific
16.66	18,000	PLE	Bandoeng, Java	....	Phone
16.67	18,000	KQG	Bolinas, Calif.	40.0	Phone
16.69	17,980	KQZ	Bolinas, Calif.	40.0	Phone
16.78	17,870	OEV	Vienna, Austria	....	Phone
16.80	17,850	PLF	Bandoeng, Java	....	Phone
16.84	17,800	XGOX	Nanking, China	....	Broadcast
16.84	17,800	PCV	Kootwijk, Holland	40.0	Phone to Java, 6 a. m. —9 a. m.
16.85	17,790	XGBB	Shanghai, China	....	Phone
16.85	17,790	GSG	Daventry, England	15.0	Broadcast
16.86	17,780	W3XAL	Boundbrook, N. J.	15.0	Broadcast
16.86	17,780	W9XAA	Chicago, Illinois	0.5	Exp.
16.86	17,780	W8XK	Pittsburgh, Pa.	40.0	Broadcast; relays KDKA
16.87	17,775	PHI	Huizen, Holland	20.0	Broadcast, summer months
16.88	17,760	DJE	Koenigswusterhausen, Germany	8.0	Broadcast
16.89	17,750	IAC	Coltano, Italy	14.0	Phone; early mornings
16.90	17,740	HSP	Bangkok, Siam	20.0	Phone
16.93	17,713	HJ4ABA	Medellin, Colombia	....	Brcadcast
17.00	17,640	GFWV	S.S. Majestic	....	Phone
		GLSQ	S.S. Olympic	....	Phone
		GDLJ	S.S. Homeric	....	Phone
		GTSD	S.S. Monarch of Bermuda	....	Phone
		GKFY	S.S. Minnetonka	....	Phone
		GMBJ	S.S. Empress of Britain	....	Phone
17.11	17,520	DFB	Nauen, Germany	7.2	Phone
17.11	17,510	VWY	Kirkee, India	....	Phone
17.23	17,400	J1AA	Kemikawa-Cho, Japan	....	Phone to Australia
17.33	17,310	W3XL	Boundbrook N. J.	20.0	Exp.
17.33	17,300	W6XAJ	Oakland, Calif.	....	Exp.
17.33	17,300	W8XL	Dayton, Ohio	....	Exp.
17.33	17,300	W2XCU	Ampere, N. J.	....	Exp.
17.33	17,300	VE9BY	London, Ont., Canada	....	Exp.; irr.
17.37	17,260	DAF	Norddeich, Germany	5.0	Phone; 9:15 a. m., irr.
17.50	17,122	HAS5	Szekesfehervar, Hungary	....	Broadcast
17.51	17,110	WOO	Ocean Gate, N. J.	20.0	Phone
17.55	17,080	GBC	Rugby, England	5.0	Phone
18.06	16,665	DAN	Norddeich, Germany	....	Tests with ships
18.36	16,330	VLK-VK2ME	Sydney, Australia	3.5	Phone
18.39	16,300	PCL	Kootwijk, Holland	....	Phone to Bandoeng
18.43	16,270	WLK	Lawrenceville, N. J.	20.0	Phone to England
18.47	16,240	KTO	Manila, P. I.	40.0	Phone
18.49	16,214	FZR3	Saigon, French Indo China	15.0	Phone
18.54	16,162	PSA	Rio de Janeiro, Brazil	....	Broadcast
18.55	16,150	GBX	Rugby, England	....	Phone to VK2ME, 4-11 p. m.
18.70	16,030	KKP	Kahuku, Hawaii	40.0	Phone to KWO, 2-7 p.m.
18.77	15,985	KQH	Kahuku, Hawaii	40.0	Phone
18.80	15,950	PLG	Bandoeng, Java	....	Phone; afternoons
18.88	15,880	FTK	Ste. Assise, France	30.0	Phone to Saigon
18.91	15,855	CEC	Santiago, Chile	0.8	Phone
19.03	15,760	JYT	Kemikawa-Cho, Japan	5.0	Relay broadcast and tests
19.14	15,670	LSF	Buenos Aires, Arg.	....	Phone
19.15	15,660	JVE	Nazaki, Japan	....	Phone; occasional broadcast
19.20	15,620	JES	Osaki, Japan	....	Phone; sometimes brcadcast
19.20	15,620	JVF	Nazaki, Japan	....	Phone; sometimes bc.
19.35	15,490	KEM	Bolinas, Calif.	40.0	Phone
19.37	15,475	KKL	Bolinas, Calif.	40.0	Phone
19.39	15,460	KKR	Bolinas, Calif.	40.0	Phone
19.40	15,454	....	Pontoise, France	....	Phone; 7-11 a.m.
19.42	15,440	PRADO	Riobamba, Ecuador	....	Phone
19.43	15,430	KWE	Bolinas, Calif.	40.0	Phone
19.45	15,410	KWO	Dixon, Calif.	20.0	Phone to Hawaii, 2-7 p.m.
19.51	15,370	HAS3	Budapest, Hungary	20.0	Broadcast
19.54	15,355	KWU	Dixon, Calif.	20.0	Phone to Hawaii, 2-7 p.m.
19.55	15,340	CT1AA	Lisbon, Portugal	....	Broadcast
19.55	15,340	DJR	Zeesen, Germany	50.0	Testing
19.56	15,330	W2XAD	Schenectady, N. Y.	20.0	Bc.; relays WGY
19.60	15,300	CP7	La Paz, Bolivia	1.0	Phone
19.60	15,300	OXY	Skamleb æk, Denmark	....	Exp.
19.62	15,280	DJQ	Zeesen, Germany	50.0	Broadcast
19.64	15,270	W2XE	Wayne, N. J.	15.0	Broadcast
19.65	15,260	GSI	Daventry, England	....	Broadcast
19.67	15,250	W1XAL	Boston, Mass.	5.0	Broadcast
19.67	15,243	FYA	Pontoise, France	12.0	Broadcast
19.70	15,220	PCJ	Eindhoven, Holland	12.0	Exp.
19.72	15,210	W8XK	Pittsburgh, Pa.	40.0	Bc.; relays KDKA
19.72	15,200	DJB	Zeesen, Germany	5.0	Broadcast
19.80	15,140	GSF	Daventry, England	15.0	Broadcast
19.82	15,130	VE9DN	Montreal, Que.	....	Broadcast
19.83	15,123	HVJ	Rome, Italy	10.0	Bc.; 5-5:15 a.m. daily
19.73	15,190	VE9BA	Montreal, Que.	....	Broadcast
19.85	15,110	DJL	Zeesen, Germany	....	Broadcast
19.86	15,104	RAU	Tashkent, U.S.S.R.	20.0	Phone
19.90	15,075	TI4NRH	Heredia, Costa Rica	....	Broadcast
19.91	15,055	WNC	Hialeah, Florida	0.4	Phone
19.93	15,040	RKI	Moscow, U.S.S.R.	20.0	Phone; morn., irr.
20.04	14,980	KAY	Manila, P. I.	40.0	Phone to Dixon, 8 a.m.
20.06	14,940	HJA3	Barranquilla, Colombia	....	Phone to Colombia, Panama, Costa, Rica; 6:30 a.m.—6:30 p.m.
20.08	14,830	HJB	Bogota, Colombia	....	Phone
20.27	14,830	WKU-W2XBJ	Rocky Pt., N. Y.	40.0	Tests; daytime
20.50	14,630	XDA	Mexico, D. F.	....	Phone
20.54	14,600	JVH	Nazaki, Japan	....	Phone
20.55	14,590	WMN	Lawrenceville, N. J.	20.0	Phone to England; daylight
20.63	14,535	HBJ	Geneva, Switzerland	20.0	Phone
20.64	14,530	LSN	Buenos Aires, Arg.	....	Phone
20.68	14,500	TIN	Cartago, Costa Rica	....	Phone to WNC
20.68	14,500	TGF	Guatemala City	....	Phone to WNC
20.69	14,490	LSN	Buenos Aires, Arg.	....	Phone irr.
20.70	14,485	HPF	Panama City	25.0	Phone to WNC
20.71	14,480	YNA	Managua, Nicaragua	....	Phone to WNC
20.76	14,440	GBW	Rugby, England	15.0	Phone
20.79	14,420	VPD	Suva, Fiji Is.	....	Phone
21.52	13,940	YOI	Bucharest, Roumania	....	Broadcast
21.53	13,925	WIK	Rocky Point, N. Y.	....	Phone
21.57	13,900	WQP	Rocky Point, N. Y.	....	Phone to RNE
21.62	13,870	WIY	Rocky Point, N. Y.	....	Tests, irr.
21.71	13,811	SUZ	Abu Zabal, Egypt	10.0	Phone
21.76	13,780	KKW	Bolinas, Calif.	....	Phone
21.79	13,740	CGA	Drummondville, Que.	....	Phone
21.90	13,690	KKZ	Bolinas, Calif.	40.0	Phone
21.90	13,635	HAT	Szekesfehervar, Hungary,	5.0	Broadcast
22.02	13,610	JYK	Kemikawa-Cho, Japan	....	Broadcast and tests
22.06	13,591	GBC	Rugby, England	....	Phone to CGA & ships
22.24	13,480	WAJ	Rocky Point, N. Y.	....	Exp.
22.29	13,450	GBQ	Rugby, England	15.0	Phone
22.34	13,420	TIEP	San Jose, Costa Rica	....	Broadcast
22.39	13,390	WMA	Lawrenceville, N. J.	20.0	Phone
22.47	13,340	CGA	Drummondville, Que.	....	Phone
22.47	13,340	YVQ	Maracay, Venezuela	....	Phone

Meters	Kc	Call	Location	Kw	Service, etc.
22.56	13,285	CGA3	Montreal, Que.	15.0	Phone to ships
22.64	13,240	KBJ	Manila, P. I.	40.0	Phone
22.66	13,230	GFWV	S.S. Majestic	....	Phone
		GLSQ	S.S. Olympic	....	Phone
		GDLJ	S.S. Homeric	....	Phone
		GTSD	S.S. Monarch of Bermuda	....	Phone
		GKFY	S.S. Minnetonka	....	Phone
		GMBJ	S.S. Empress of Britain	....	Phone
22.71	13,200	ORP	Ruysselede, Belgium	....	Phone
22.92	13,080	VP1A	Suva, Fiji Islands	....	Broadcast
23.00	13,040	DDAC	S.S. Europa	....	Phone
		DDAS	S.S. Bremen	....	Phone
		DDBR	S.S. Berlin	....	Phone
		DDCB	S.S. Columbus	....	Phone
		DDCG	S.S. Resolute	....	Phone
		DDCP	S.S. Cap Polonio	....	Phone
		DDDT	S.S. Deutschland	....	Phone
		DDDX	S.S. Hamburg	....	Phone
		DDEA	S.S. Cap Arcona	....	Phone
		DDED	S.S. New York	....	Phone
		DDFF	S.S. Reliance	....	Phone
		DDFT	S.S. Oceana	....	Phone
		DDNY	S.S. Albert Ballin	....	Phone
23.10	12,980	DFC	Germany	....	Phone
23.19	12,931	OEX	Vienna, Austria	....	Phone
23.35	12,840	WOO	Ocean Gate, N. J.	20.0	Phone to ships
23.37	12,830	CNR	Rabat, Morocco	12.0	Broadcast; Sundays
23.43	12,795	IAC	Coltana, Italy	52.0	Phone to Tripoli
23.46	12,780	GBC	Rugby, England	5.0	Phone
23.51	12,745	DAF	Norddeich, Germany	5.0	Phone to ships
24.19	12,396	CT1GO	Parede, Portugal	....	Broadcast
24.29	12,345	KNRA	Schooner Seth Parker	....	Phone
24.39	12,295	ZLT	Welllington, New Zealand	1.0	Phone to Australia
24.39	12,295	PLM	Bandoeng, Java	....	Phone to VLK
24.40	12,290	ZLW	Welington, New Zealand	....	Phone
24.40	12,290	GBU	Rugby, England	....	Phone to WMI
24.46	12,260	FTN	Ste. Assise, France	30.0	Phone
24.48	12,250	GBS	Rugby, England	....	Phone
24.48	12,250	PLM	Bandoeng, Java	....	Phone to Holland
24.60	12,190	YBJ	Medan, Sumatra	2.5	Phone
24.69	12,150	GBS	Rugby, England	15.0	Phone to USA
24.69	12,150	FQO, FQE	Ste. Assise, France	....	Phone
24.74	12,120	SUV	Cairo, Egypt	....	Phone
24.78	12,100	CJA4	Drummondville, Que.	15.0	Tests with VIY-VK3ME
24.87	12,060	PDV	Kootwijk, Holland	60.0	Phone
24.90	12,045	NSS	Annapolis, Maryland	....	Time signals, 10 p.m.
24.90	12,045	NAA	Arlington, Virginia	....	Time signals, noon
24.93	12,030	HBO	Geneva, Switzerland	20.0	Phone
24.93	12,028	CT1CT	Lisbon, Portugal	0.5	Broadcast
24.95	12,020	VIY VK3ME	Melbourne, Australia	....	Tests with CJA4 Drummondville
24.99	12,000	RW59	Moscow, U.S.S.R.	20.0	Broadcast, Sun.; Wed.
		RNE	Mcscow, U.S.S.R.	20.0	Phone
25.01	11,991	FZS2	Saigon, French Indo China	15.0	Phone to FTK
25.10	11,950	KKQ	Bolinas, Calif.	40.0	Phone
25.12	11,950	FTA	Ste. Assise, France	30.0	Phone to Rabat
25.20	11,900	XGOX	Nanking, China	....	Broadcast
25.22	11,891	FYA	Pontoise, France	....	Broadcast
25.24	11,880	W9XF	Chicago, Illinois	....	Bc.; relays WENR
25.26	11870,	W8XK	Pittsburgh, Pa.	40.0	Bc.; relays KDKA
25.26	11,870	VUC	Calcutta, India	3.0	Broadcast
25.28	11,860	VE9CA	Calgary, Alta.	....	Broadcast
25.28	11,860	GSE	Daventry, England	20.0	Broadcast
25.31	11,855	DJP	Zeesen, Germany	50.0	Exp.
25.33	11,840	KZRM	Manila, P. I.	6.0	Broadcast
25.34	11,835	VE9HX	Halifax, N. S.	....	Bc.; relays CHNS
25.35	11,830	W9XAA	Chicago, Illinois	0.5	Bc.; relays WCFL
25.35	11,830	W2XE	Wayne, N. J.	5.0	Bc.; relays WABC
25.39	11,810	J2RO	Rome, Italy	9.0	Broadcast
25.39	11,810	VE9GW	Bowmanville, Ont.	0.5	Broadcast
25.41	11,801	OER3	Vienna, Austria	0.25	Broadcast
25.42	11,795	DJO	Zeesen, Germany	50.0	Exp.
25.43	11,790	W1XAL	Boston, Mass.	5.0	Broadcast
25.43	11,790	TiTR	San Jose, Costa Rica	....	Broadcast
25.45	11,780	VE9DN	Drummondville, Que.	....	Broadcast
25.45	11,780	VE9DR	Drummondville, Que	....	Exp.
25.48	11,770	DJD	Zeesen, Germany	5.0	Broadcast
25.50	11,760	XDA	Mexico, D. F.	....	Exp.
25.52	11,750	GSD	Daventry, England	....	Broadcast
25.56	11,730	PHI	Huizen, Holland	20.0	Bc.; winter months
25.57	11,725	FYA	Pontoise, France	15.0	Broadcast
25.59	11,720	CJRX	Middlechurch, Man.	2.0	Broadcast
25.61	11,712	HJ4ABA	Medellin, Colombia	0.05	Broadcast
25.64	11,695	YV2RC	Caracas, Venezuela	....	Broadcast
25.64	11,695	YVQ	Maracay Venezuela	....	Phone
25.67	11,680	KIO	Kahuhu, Hawaii	40.0	Phone to Bolinas
25.70	11,670	PPQ	Rio de Janeiro, Brazil	5.0	Exp.; irr., evenings
26.10	11,490	GBK	Bodmin, England	....	Phone
26.14	11,470	IBDK	S.S. Elettra, Marconi's Yacht	....	Exp:
26.44	11,340	DAN	Norddeich, Germany	....	Time signals; 7 a.m., 7 p.m.
26.80	11,187	XAM	Merida, Yucatan	....	Tests with XDA
26.82	11,180	CT3AQ	Funchal, Madeira	0.05	Broadcast
27.26	11,000	PLP	Bandoeng, Java	3.0	Phone, occa. bc.
27.29	10,990	ZLT	Wellington, N. Z.	....	Phone to Austra. morn.
27.63	10,850	DFL	Nauen, Germany	....	Phone
27.66	10,840	KWV	Dixon, Calif.	20.0	Phone to Hawaii
27.84	10,770	GBP	Rugby, England	15.0	Phone
27.92	10,740	JVM	Nazaki, Japan	....	Phone, occasional bc.; relays JOAK
28.09	10,675	WNP	Lawrenceville, N. J.	0.5	Phone to Bermuda; day
28.10	10,670	CEC	Santiago, Chile	4.0	Phone
28.12	10,660	JVN	Nazaki, Japan	....	Bc.; relays JOAK
28.20	10,630	PLR	Bandoeng, Java	....	Phone to Holland and France
28.23	10,620	WEF	Rocky Point, N. Y.	40.0	Phone to Europe
28.23	10,613	EDN-EDX	Madrid, Spain	5.0	Phone
28.25	10,610	WEA	Rocky Point, N. Y.	40.0	Exp.
28.32	10,578	FYB	Paris, France	....	Time signals at 5:26 a.m. and 6:26 p.m.
28.42	10,550	WOK	Lawrenceville, N. J.	20.0	Phone
28.44	10,525	VLK	Sydney. Australia	....	Phone
28.75	10,430	YBG	Medan, Sumatra	3.0	Phone, occasional bc.
28.77	10,420	XGW	Shanghai, China	20.0	Phone
28.79	10,415	PDK	Kootwijk, Holland	60.0	Phone
28.80	10,410	KES	Bolinas, Calif.	40.0	Phone
28.80	10,410	LSY	Buenos Aires, Arg.	....	Phone
28.83	10,400	KEZ	Dixon, Calif.	40.0	Phone; irr. early morn.
28.86	10,390	KER	Bolinas, Calif.	40.0	Phone
28.86	10,390	GBX	Rugby, England	....	Phone
28.88	10,380	WCG	Rocky Point, N. Y.	4.0	Phone; exp.
28.97	10,350	LSX	Buenos Aires, Arg.	12.0	Phone
29.01	10,335	ZFD	Hamilton, Bermuda	1.5	Phone
29.03	10,330	ORK	Ruysselede, Belgium	11.0	Broadcast
29.11	10,300	LSL	Buenos Aires, Arg.	5.0	Phone to Europe
29.14	10,290	HPC	Panama City	....	Phone
29.14	10,290	DIQ	Nauen, Germany	....	Phone to Sydney
29.22	10,260	PMN	Bandoeng, Java	....	Phone; occasional bc.
29.34	10,220	PSH	Rio de Janeiro, Brazil	12.0	Phone
29.39	10,200	CMHB	Sanctus Spiritus, Cuba	....	Broadcast
29.50	10,160	DDAC	S.S. Europa	....	Phone
		DDAS	S.S. Bremen	....	Phone
		DDBR	S.S. Berlin	....	Phone
		DDCB	S.S. Columbus	....	Phone
		DDCG	S.S. Resolute	....	Phone
		DDCP	S.S. Cap Polonio	....	Phone
		DDDT	S.S. Deutschland	....	Phone
		DDDX	S.S. Hamburg	....	Phone
		DDEA	S.S. Cap Arcona	....	Phone
		DDED	S.S. New York	....	Phone
		DDFF	S.S. Reliance	....	Phone
		DDFT	S.S. Oceana	....	Phone
		DDNY	S.S. Albert Ballin	....	Phone
29.57	10,140	OPM	Leopoldville, Belgian Congo	15.0	Phone to ORK
29.77	10,070	EHY	Madrid, Spain	10.0	Exp.
29.84	10,055	ZFB	St. George, Bermuda	1.5	Phone to WNB
29.84	10,055	SUV	Abu Zabal, Egypt	10.0	Phone to GAA
29.89	10,033	OER	Vienna, Austria	....	Phone
29.98	10,000	....	Belgrade, Yugoslavia	2.5	Broadcast
30.01	9,990	KAZ	Manila, P. I.	40.0	Phone to PLV, morn.
30.09	9,964	LSL	Buenos Aires, Arg.	....	Phone
30.10	9,960	IRS	Rome, Italy	15.0	Phone
30.13	9,950	GCU	Rugby, England	15.0	Phone
30.19	9,930	HKB	Bogota, Colombia	....	Phone
30.19	9,930	YBF	Medan, Sumatra	1.0	Phone
30.19	9,930	HJY	Bogota, Colombia	....	Phone to OCI
30.26	9,905	CGA5	Drummondville, Que.	....	Tests with Rugby
30.32	9,890	LSN2	Buenos Aires, Arg.	5.0	Phone to Europe and USA
30.38	9,870	WON	Lawrenceville, N. J.	20.0	Phone to England
30.41	9,860	EAQ	Madrid, Spain	20.0	Broadcast
30.47	9,840	JYS	Kemikawa-Cho, Japan	10.0	Broadcast and tests
30.47	9,840	FTI	Ste. Assise, France	15.0	Phone
30.50	9,830	LSI	Buenos Aires, Arg.	10.0	Phone
30.53	9,820	IRM	Rome, Italy	25.0	Phone; relays I1RO occasionally
30.63	9,790	GCW	Rugby, England	15.0	Phone
31.07	9,650	I2RO	Rome, Italy	....	Broadcast
30.72	9,760	VLJ	Sydney, Australia	3.5	Phone
30.75	9,750	WOF	Lawrenceville, N. J.	20.0	Phone
30.88	9,710	GCA	Rugby, England	10.0	Phone; evenings
30.91	9,700	WMI	Deal, N. J	....	Phone
30.91	9,700	LQA	Buenos, Aires, Arg.	....	Phone
30.97	9,680	TI4NRH	Heredia, Costa Rica	....	Broadcast
31.10	9,640	HSP2	Bangkok, Siam	....	Broadcast
31.17	9,620	DGU	Nauen, Germany	....	Phone to Egypt
31.18	9,616	VQ7LO	Nairobi Kenya, Brit. E. Africa	....	Broadcast
31.23	9,600	LQA	Buenos Aires, Arg.	....	Phone
31.23	9,600	LGN	Bergen, Norway	....	Phone
31.23	9,600	CT1AA	Lisbon, Portugal	2.0	Broadcast
31.23	9,600	XETE	Mexico City, D. F.	....	Broadcast
31.26	9,590	WKJ	Rocky Point, N. Y.	....	Phone
31.26	9,590	W3XAU	Philadelphia, Pa.	1.0	Bc.; relays WCAU
31.26	9,590	VK2ME	Sydney, Australia	20.0	Broadcast; Sundays
31.26	9,590	HP5J	Panama City	....	Broadcast
31.26	9,590	TIRA	Cartago, Costa Rica	....	Broadcast
31.28	9,585	HBL	Geneva, Switzerland	18.0	Broadcast
31.30	9,580	XGBD	Shanghai, China	18.5	Broadcast
31.30	9,580	VE9DR	Montreal, Que.	....	Exp.
31.30	9,580	GSC	Daventry, England	20.0	Broadcast
31.30	9,580	VK3LR	Lyndhurst, Vic., Australia	20.0	Broadcast
31.32	9,572	LKJ1	Jeloy, Norway	....	Exp.
31.33	9,570	W1XK	Springfield, Mass.	10.0	Bc.; relays WBZ-WBZA
31.33	9,570	KZRM	Manila, P. I.	6.0	Broadcast
31.33	9,570	SRI	Poznan, Poland	1.0	Broadcast
31.33	9,570	SUV	Cairo, Egypt	....	Broadcast
31.34	9,565	VUB	Bombay, India	....	Broadcast
31.36	9,560	DJA	Zeesen, Germany	5.0	Broadcast
31.38	9,555	VE9DN	Drummondville, Que.	....	Broadcast
31.43	9,540	DJN	Zeesen, Germany	50.0	Broadcast
31.46	9,530	W2XAF	Schenectady, N. Y.	40.0	Bc. re. WGY, 5-11 p.m.
31.49	9,520	OXY	Skamlebaek, Denmark	0.5	Broadcast
31.53	9,510	GSB	Daventry, England	20.0	Broadcast
31.53	9,510	VK3ME	Melbourne, Australia	2.0	Bc. Wed., Sat., 5-7 a.m.
31.53	9,510	YV3RC	Caracas, Venezuela	....	Broadcast
31.56	9,501	PRF5	Rio de Janeiro, Brazil	....	Broadcast
31.56	9,500	XGOX	Nanking, China	....	Broadcast
31.56	9,500	HSP2	Bangkok, Siam	2.5	Broadcast
31.59	9,490	WEF	Rocky Point, N. Y.	40.0	Phone
31.59	9,490	KEI	Bolinas, Calif.	20.0	Phone
31.61	9,485	PLW	Bandoeng, Java	....	Phone
31.63	9,480	KET	Bolinas, Calif.	40.0	Phone
31.73	9,450	WES-W2XBJ	Rocky Point, N. Y.	40.0	Exp.
31.80	9,428	COH	Havana, Cuba	....	Broadcast
31.84	9,415	PLV	Bandoeng, Java	80.0	Phone; sometimes bc.
31.90	9,400	XDC	Mexico City, D. F.	....	Exp.
31.96	9,380	CE32	Los Andes, Chile	0.05	Phone
31.98	9,375	XDA	Mexico City	....	Phone
31.98	9,375	EH9OC	Berne, Switzerland	....	Phone
32.00	9,370	CT3AQ	Funchal, Madeira	....	Broadcast
32.13	9,332	CJA2	Drummondville, Que.	15.0	Phone to England
32.24	9,300	CNR	Rabat, Morocco	....	Broadcast; Sundays
32.31	9,280	GCB	Rugby, England	15.0	Phone
32.41	9,250	GBK	Bodmin, England	....	Phone to Drummondville
32.66	9,180	YVR	Maracay, Venezuela	....	Phone to Europe
32.70	9,170	WNA	Lawrenceville, N. J.	20.0	Phone to England
32.86	9,125	HAT4	Budapest, Hungary	20.0	Broadcast
32.88	9,120	CP6	La Paz, Bolivia	....	Broadcast
32.93	9,104	LST	Olivos, Arg.	....	Phone
33.13	9,050	TFK	Reykjavik, Iceland	....	Broadcast
33.24	9,020	GCS	Rugby, England	15.0	Phone
33.28	9,010	KEJ	Bolinas, Calif.	40.0	Phone; relays NBC programs for KGBM
33.40	8,975	VWY	Kirkee, India	....	Phone to England; mornings

Meters	Kc	Call	Location	Kw	Service, etc.
33.48	8,955	TGX	Guatemala City, Guatemala	....	Broadcast
33.50	8,950	WEL-W2XBJ	Rocky Point, N. Y.	....	Exp.
33.59	8,925	WEC	Rocky Point, N. Y.	....	Exp.
33.69	8,900	ZLT	Wellington, New Zealand	1.0	Phone to Sydney
33.80	8,870	NPO	Manila, P. I.	....	Time sig., 10 p.m.
33.92	8,840	KNRA	Schooner Seth Parker	....	Phone
33.95	8,830	GDLJ	S.S. Homeric	....	Phone
		GFWV	S.S. Majestic	....	Phone
		GKFY	S.S. Minnetonka	....	Phone
		GLSQ	S.S. Olympic	....	Phone
		GMBJ	S.S. Empress of Britain	....	Phone
		VTSX	S.S. Monarch of Bermuda	....	Phone
34.11	8,790	TIR	Cartago, Costa Rica	....	Phone to Guatemala, Colombia, Florida
34.17	8,775	PNI	Makassar, Celebes	3.0	Phone, cc. bc.
34.19	8,770	RSZ	Irkutsk, U.S.S.R.	....	Phone
34.50	8,690	W2XAC	Schenectady, N. Y.	....	Exp.
34.54	8,680	GBC	Rugby, England	5.0	Phone to ships; after.
34.66	8,650	VE9BY	London, Ont.	....	Exp.
34.66	8,650	W2XCU	Rocky Point, N. Y.	....	Exp.
34.74	8,630	W2XDO	Ocean Gate, N. J.	....	Exp.
34.74	8,630	WOO	Deal, N. J.	....	Phone
34.98	8,570	RW15	Khabarovsk, Siberia	....	Broadcast
35.00	8,566	IBEJ	S.S. Conte Rosso	....	Phone
		ICEJ	S.S. Rex	....	Phone
		IDLI	S.S. Conte di Savcia	....	Phone
35.03	8,560	WOO	Ocean Gate, N. J.	20.0	Phone to ships
36.00	8,470	DAF	Norddeich, Germany	....	Phone to ships
35.48	8,450	PRAG	Porto Alegre, Brazil	....	Phone; occasional bc.
35.69	8,400	HC2AT	Guayaquil, Ecuador	....	Broadcast
35.78	8,380	IAC	Coltano, Italy	14.0	Phone
36.00	8,328	DDAC	S.S. Europa	....	Phone
		DDAS	S.S. Bremen	....	Phone
		DDBR	S.S. Berlin	....	Phone
		DDCB	S.S. Columbus	....	Phone
		DDCG	S.S. Resolute	....	Phone
		DDCP	S.S. Cap Polonio	....	Phone
		DDDT	S.S. Deutschland	....	Phone
		DDDX	S.S. Hamburg	....	Phone
		DDFA	S.S. Cap Arcona	....	Phone
		DDED	S.S. New York	....	Phone
		DDFF	S.S. Reliance	....	Phone
		DDFT	S.S. Oceana	....	Phone
		DDNY	S.S. Albert Ballin	....	Phone
36.63	8,185	PSK	Rio de Janeiro, Brazil	10.0	Phone; broadcast
36.70	8,170	RW50	Moscow, U.S.S.R.	20.0	Broadcast
36.92	8,120	KTP	Manila, P. I.	40.0	Phone to Dixon, Calif.
36.90	8,125	PLW	Bandoeng, Java	60.0	Phone
36.90	8,120	KAZ	Manila, P. I.	20.0	Phone to Dixon, Calif.
36.98	8,108	HCJB	Quito, Ecuador	0.15	Broadcast
37.01	8,100	EATH	Vienna, Austria	....	Phone
37.01	8,100	HKF	Bogota, Colombia	....	Phone
37.32	8,035	CNR	Rabat, Morocco	10.0	Broadcast; Sundays
37.57	7,980	HSJ	Bangkok, Siam	20.0	Phone
37.57	7,980	VLJ	Sydney, Australia	....	Phone to Java
37.67	7,960	VLZ	Sydney, Australia	3.5	Phone
38.00	7,890	VPD	Suva, Fiji Islands	....	Phone
38.05	7,880	JYR	Kemikawa-Cho, Japan	5.0	Broadcast
38.06	7,867	SUX	Cairo, Egypt	10.0	Phone
38.10	7,870	RXC	Panama City	....	Phone
38.29	7,830	PGA	Kootwijk, Holland	60.0	Phone
38.34	7,820	OA4C	Lima, Peru	20.0	Broadcast
38.49	7,790	HBP	Geneva, Switzerland	20.0	Broadcast
38.50	7,788	YNLF	Managua, Nicaragua	....	Broadcast
38.59	7,770	FTE	Ste. Assise, France	....	Phone
38.79	7,730	PDL	Kootwijk, Holland	20.0	Phone
38.86	7,715	KEE	Bolinas, Calif.	40.0	Phone; relays NBC programs for KGMB
38.94	7,700	HC2JSB	Guayaquil, Ecuador	....	Broadcast
39.28	7,632	OEJ	Vienna, Austria	....	Phone
39.31	7,626	RIM	Tashkent, U.S.S.R.	20.0	Phone to RKI, 6-8:15 a.m.
39.40	7,610	KWX	Dixon, Calif.	20.0	Phone to Hawaii, nights
39.63	7,565	KWY	Dixon, Calif.	20.0	Phone
39.86	7,522	HJA3	Barranquilla, Colombia	....	Phone; 6:30 a.m.-6:30 p.m.
39.87	7,520	KKH	Kahuku, Hawaii	40.0	Phone
39.92	7,510	JVP	Nazaki, Japan	20.0	Phone
39.98	7,500	RKI	Moscow, U.S.S.R.	20.0	Phone to RIM, 6-8:15 a.m.
40.14	7,470	JVQ	Nazaki, Japan	10.0	Phone
40.14	7,470	HJA3	Barranquilla, Colombia	....	Phone, 6:30 a.m.-6:30 p.m.
40.14	7,470	HJP	Bogota, Colombia	....	Phone
40.28	7,444	HBQ	Geneva, Switzerland	....	Broadcast
40.43	7,415	WEG	Rocky Point, N. Y.	40.0	Phone
40.48	7,406	HJ3ABD	Bogota, Colombia	0.2	Broadcast
40.52	7,400	XEPR	Mexico City	....	Broadcast
40.52	7,400	WEM-W2XBJ	Rocky Point, N. Y.	40.0	Phone; exp.
40.52	7,400	WEN	Rocky Point, N. Y.	40.0	Phone
40.57	7,390	ZLT	Wellington, New Zealand	0.15	Phone to Sydney; morn.
40.68	7,370	KEQ	Kahuku, Hawaii	40.0	Phone
40.96	7,320	ZTJ	Johannesburg, S. Africa	....	Broadcast
41.18	7,281	HJ1ABD	Cartagena, Colombia	....	Broadcast
41.42	7,238	TI2EP	San Jose, Costa Rica	....	Amateur
41.47	7,230	DOA	Doeberitz, Germany	....	Phone
41.60	7,207	EA8AB	Tenerife, Canary Islands	0.5	Broadcast
41.78	7,177	CR6AA	Lobito, Angola, Port. W. Africa	....	Broadcast
41.82	7,170	YNCRD	Granada, Nicaragua	....	Broadcast
41.98	7,142	YV2AM	Maracaibo, Venezuela	....	Broadcast
41.99	7,140	OA4R	Lima, Peru	....	Broadcast
42.00	7,138	HJ4ABB	Manizales, Colombia	1.0	Broadcast
42.12	7,118	HB9B	Basle, Switzerland	....	Broadcast
42.23	7,100	M2A	Penhishu, Manchuria	0.015	Exp.; broadcast
42.29	7,090	HKE	Bogota, Colombia	0.138	Broadcast
42.35	7,080	LU5CZ	Buenos Aires, Arg.	....	Amateur; sometimes bc.
42.35	7,079	PI1J	Dordrecht, Holland	....	Amateur; sometimes bc.
42.71	7,020	EAR125	Madrid, Spain	....	Broadcast
42.89	6,990	LKJ1	Jelcy, Norway	1.0	Broadcast
42.98	6,976	EAR110	Madrid, Spain	....	Broadcast
43.45	6,900	HI3C	La Romana, D. R.	....	Broadcast
43.42	6,905	GDS	Rugby, England	15.0	Phone
43.52	6,890	KEB	Bolinas, Calif.	40.0	Phone
43.71	6,860	KEL	Bolinas, Calif.	40.0	Phone
43.77	6,850	VPE	Labasa, Vanua Levu, Fiji Is.	0.042	Exp.
		VQL	Savu Savu, Vanua Levu, Fiji Is.	0.042	Exp.
		VRO	Suva, Vili Levu, Fiji Is.	0.042	Exp.
		VPF	Taveuni, Taveuni, Fiji Is.	0.042	Exp.
43.80	6,845	KEN	Bolinas, Calif.	40.0	Phone
43.83	6,840	CFA	Drummondville, Que.	....	Phone
43.83	6,840	HAT2	Szekesfehervar, Hungary	20.0	Broadcast
44.00	6,814	HIH	San Pedro de Macoris, D. R.	0.015	Broadcast
44.38	6,755	WOA	Lawrenceville, N. J.	20.0	Phone
44.42	6,750	JVT	Nazaki, Japan	....	Phone; bc.; re. JOAK
44.48	6,740	WEJ-W2XBJ	Rocky Point, N. Y.	....	Exp.
44.62	6,720	WQO	Rocky Point, N. Y.	....	Phone
44.64	6,716	KBK	Manila, P. I.	40.0	Phone
44.68	6,710	TIEP	San Jose, Costa Rica	....	Broadcast
44.68	6,710	KEF	Bolinas, Calif.	40.0	Phone
44.71	6,705	WER	Rocky Point, N. Y.	....	Phone
44.81	6,675	HBQ	Geneva, Switzerland	20.0	Exp.
44.84	6,672	YVQ	Maracay, Venezuela	....	Phone
44.87	6,668	HC2RL	Guayaquil, Ecuador	0.2	Broadcast
44.99	6,664	YNCRG	Granada, Nicaragua	....	Broadcast
45.02	6,660	KNRA	Schooner Seth Parker	....	Phone; relays programs to W2XBJ
45.09	6,650	TITE	San Jose, Costa Rica	....	Broadcast
45.09	6,650	IAC	Coltana, Italy	....	Phone
45.32	6,616	PRADO	Riobamba, Ecuador	....	Broadcast, Thursday
45.35	6,611	REN RW72	Moscow, U.S.S.R.	10.0	Broadcast
45.98	6,520	YV6RV	Valencia, Venezuela	....	Broadcast
46.02	6,515	WOO	Deal, N. J.	....	Phone
46.10	6,504	TPK	San Jose, Costa Rica	....	Broadcast
46.20	6,490	HJ5ABD	Cali, Colombia	0.25	Broadcast
46.25	6,482	HI4D	Santo Domingo, D. R.	....	Broadcast
46.48	6,450	HJ1ABB	Barranquilla, Colombia	0.3	Broadcast
46.67	6,425	VE9AS	Fredericton, N. B.	....	Broadcast
46.67	6,425	VE9BY	London, Ont.	....	Broadcast
46.67	6,425	W3XL	Boundbrook, N. J.	18.0	Exp.
46.70	6,420	RCAD	Minsk, U.S.S.R.	0.15	Phone
46.73	6,416	HJA3	Barranquilla, Colombia	....	Phone
46.85	6,400	YN1GG	Managua, Nicaragua	....	Broadcast
46.99	6,380	YN1OP	Managua, Nicaragua	....	Broadcast
47.04	6,375	YV4RC	Caracas, Venezuela	0.1	Broadcast
47.30	6,330	JZG	Nazaki, Japan	10.0	Phone
47.48	6,315	HIZ	Santo Domingo, D. R.	0.02	Broadcast
47.78	6,275	HJ3ABF	Bogota, Colombia	0.1	Broadcast
47.80	6,272	HI1A	San Domingo, D. R.	0.05	Broadcast
47.82	6,270	HKC	Bogota, Colombia	....	Phone
47.97	6,250	OCI	Lima, Peru	....	Phone
48.13	6,230	OAX4B	Lima, Peru	....	Broadcast
48.13	6,230	HJ4ABC	Pereira, Colombia	....	Broadcast
48.38	6,198	CT1GO	Parede, Portugal	....	Broadcast
48.45	6,188	HI1A	Santiago de los Caballeros, D. R.	0.05	Broadcast
48.67	6,160	CJRO	Winnipeg, Manitoba	....	Broadcast
48.67	6,160	KNRA	Schooner Seth Parker	....	Phone
48.75	6,150	CO9GC	Santiago, Cuba	....	Broadcast
48.75	6,150	HJ2ABA	Tunja, Colombia	0.05	Broadcast
48.75	6,150	YV3RC	Caracas, Venezuela	....	Broadcast
48.75	6,150	VE9CL	Winnipeg, Manitoba	....	Broadcast
48.75	6,150	CSL	Lisbon, Portugal	....	Broadcast
48.83	6,140	KZRM	Manila, P. I.	6.0	Broadcast
48.83	6,140	W8XK	Pittsburgh, Pa.	40.0	Bc.; relays KDKA
48.90	6,132	ZGE	Kuala Lumpur, F. M. S.	0.18	Broadcast
48.91	6,130	LKJ1	Jeloy, Norway	....	Broadcast
48.91	6,130	XETE	Mexico, D. F.	....	Broadcast
48.91	6,130	VE9BA	Montreal, Que.	....	Broadcast
48.98	6,122	ZTJ	Johannesburg, So. Africa	5.0	Broadcast
48.99	6,120	HJ1ABE	Cartagena, Colombia	0.05	Broadcast
48.99	6,120	VE9HK	Halifax, N. S.	....	Broadcast
48.99	6,120	W2XE	Wayne, N. J.	5.0	Bc.; relays WABC
48.99	6,120	PKYDA2	Bandoeng, Java	....	Broadcast
49.05	6,112	YV2RC	Caracas, Venezuela	0.2	Broadcast
49.07	6,110	VE9HX	Halifax, N. S.	0.2	Bc.; relays CHNS
49.07	6,110	VUC	Calcutta, India	2.0	Broadcast
49.07	6,110	VE9CG	Calgary, Alberta	....	Broadcast
49.10	6,106	GSL	Daventry, England	....	Broadcast
49.15	6,100	HJ1ABD	Cartagena, Colombia	0.025	Broadcast
49.15	6,100	HJ4ABL	Manizales, Colombia	0.2	Broadcast
49.15	6,100	W3XAL	Boundbrook, N. J.	....	Bc.; relays WJZ
49.15	6,100	W9XF	Chicago, Ill.	5.0	Bc.; relays WENR
49.15	6,100	VE9CF	Halifax, N. S.	....	Broadcast
49.23	6,090	VE9BJ	St. John, N. B.	0.1	Broadcast
49.23	6,090	VE9GW	Bowmanville, Ontario	0.5	Broadcast
49.26	6,085	12RO	Rome, Italy	....	Broadcast
49.31	6,080	TIRA	Cartago, Costa Rica	....	Broadcast
49.31	6,080	VE9EH	Charlottetown, P. E. I.	....	Broadcast
49.31	6,080	W9XAA	Chicago, Ill.	0.5	Bc., relays WCFL
49.31	6,080	CP5	La Paz, Bolivia	....	Broadcast
49.37	6,073	DJM	Berlin, Germany	....	Exp.
49.37	6,073	CQN	Macao, Asia	0.5	Broadcast
49.37	6,072	ZHJ	Penang, Straits Settlements	....	Broadcast
49.37	6,072	OER2	Vienna, Austria	0.25	Broadcast
49.39	6,070	VE9CS	Vancouver, B. C.	0.01	Broadcast
49.39	6,070	HJ1ABF	Barranquilla, Colombia	....	Broadcast
49.48	6,060	W3XAU	Philadelphia, Pa.	1.0	Bc.; relays WCAU
49.48	6,060	OXY	Skamlebaek, Denmark	.05	Broadcast
49.48	6,060	VQ7LO	Nairobi, Kenya, Africa	1.25	Broadcast
49.48	6,060	W8XAL	Cincinnati, Ohio	10.0	Bc.; relays WLW
49.48	6,060	CMCI	Havana, Cuba	0.02	Broadcast
49.48	6,060	ZL2ZX	Wellington, New Zealand	....	Broadcast
49.56	6,050	VE9CF	Halifax, N. S.	....	Broadcast
49.56	6,050	HJ3ABI	Bogota, Colombia	0.05	Broadcast
49.56	6,050	GSA	Daventry, England	....	Broadcast
49.62	6,042	HJ1ABG	Barranquilla, Colombia	0.1	Broadcast
49.64	6,040	W1XAL	Boston, Mass.	5.0	Broadcast
49.64	6,040	PRA8	Pernambuco, Brazil	....	Broadcast
49.64	6,040	W4XB	Miami Beach, Fla.	2.5	Broadcast
49.64	6,040	....	Bandoeng, Java	3.0	Broadcast
49.72	6,030	VE9CA	Calgary, Alta.	....	Bc.; relays CFCN
49.72	6,030	HP5B	Panama City	....	Broadcast
49.78	6,023	XEW	Mexico City, D. F.	....	Broadcast
49.80	6,020	DJC	Zeesen, Germany	8.0	Broadcast
49.82	6,018	HJ3ABH	Bogota, Colombia	....	Broadcast
49.82	6,018	ZHI	Singapore, F. M. S.	0.09	Broadcast
49.85	6,015	HRP1	San Pedro Sula, Honduras	....	Broadcast
49.85	6,015	VE9CX	Wolfville, N. S.	....	Broadcast
49.89	6,010	COC	Havana, Cuba	0.25	Broadcast
49.89	6,010	XEBT	Mexico, D. F.	....	Broadcast
49.93	6,005	VE9DR	Drummondville, Que.	0.05	Bc.; relays CFCF
49.93	6,005	VE9DN	Montreal, Que.	4.0	Broadcast
49.93	6,005	VE9CU	Calgary, Alta.	....	Broadcast
49.97	6,000	YQI	Bucharest, Rumania	0.3	Broadcast
49.97	6,000	XGOX	Nanking, China	....	Broadcast

Meters	Kc	Call	Location	Kw	Service, etc.
49.97	6,000	FIQA	Tananarive, Madagascar	0.4	Broadcast
49.97	6,000	....	St. Denis, Reunion	0.09	Broadcast
49.97	6,000	EAJ25	Barcelona, Spain	....	Broadcast
49.97	6,000	ZL3ZC	Christchurch, New Zealand	0.25	Broadcast
49.97	6,000	RW59	Moscow, U.S.S.R.	20.0	Broadcast
49.97	6,000	YV4BSG	Caracas, Venezuela	....	Broadcast
50.00	5,996	PRA8	Pernambuco, Brazil	0.5	Broadcast
50.11	5,984	TGX	Guatemala City, Guatemala	....	Broadcast
50.10	5,984	YV4RC	Caracas, Venezuela	0.1	Broadcast
50.14	5,980	CT1AA	Lisbon, Portugal	....	Broadcast
50.14	5,980	XECW	Xantocam, Mexico	0.01	Broadcast
50.14	5,980	HIX	San Domingo, D. R.	....	Broadcast
50.14	5,980	HJ3ABH	Bogota, Colombia	0.25	Broadcast
50.22	5,970	YNLF	Managua, Nicaragua	0.1	Broadcast
50.23	5,969	HVJ	Vatican City	10.0	Broadcast
50.47	5,940	HJ1ABJ	Santa Marta, Colombia	0.25	Broadcast
50.56	5,930	HJ4ABE	Medellin, Colombia	0.1	Broadcast; evenings
50.90	5,890	JIC	Taihoku, Formosa	....	Phone
51.08	5,870	HJ2ABC	Cucuta, Colombia	....	Broadcast
51.16	5,860	XDA	Mexico, D. F.	....	Phone
51.23	5,852	WNB	Lawrenceville, N. J.	....	Phone
51.25	5,850	YV5RMO	Maracaibo, Venezuela	0.3	Broadcast
51.29	5,845	KRO	Kahuku, Hawaii	40.0	Phone
51.64	5,805	CSN	Rossland, B. C.	....	Phone
51.69	5,800	VK3LR	Lyndhurst, Vic, Australia	....	Exp.
51.69	5,800	TI4NRH	Heredia, Costa Rica	....	Broadcast
51.87	5,780	OAX4D	Lima, Peru	20.0	Broadcast
51.90	5,777	TIXGP3	San Jose, Costa Rica	....	Broadcast
51.97	5,769	XAM	Merida, Yucatan	....	Phone
52.47	5,714	CFU	Rossland, B. C.	....	Phone
52.47	5,714	HCJB	Quito, Ecuador	....	Broadcast
52.67	5,692	FIQA	Tananarive, Madagascar	0.5	Broadcast
52.67	5,660	XQAJ	Shanghai, China	....	Broadcast
55.52	5,400	HJA7	Cucuta, Colombia	0.4	Phone
55.52	5,400	HAT	Budapest, Hungary	20.0	Broadcast
57.00	5,260	WQN	Rocky Point, N. Y.	40.0	Exp.
58.17	5,154	PMY	Bandoeng, Java	2.0	Phone; occasional bc.
52.27	5,145	OK1MPT	Prague, Czechoslovakia	0.5	Broadcast
58.67	5,110	KIKB	Bolinas, Calif.	40.0	Phone
58.71	5,105	KEC	Bolinas, Calif.	40.0	Phone
58.79	5,100	KIKA	Bolinas, Calif.	1.0	Phone
59.05	5,077	WCN	Lawrenceville, N. J.	20.0	Phone to England
59.67	5,025	ZFA	Bermuda, Bermuda	1.5	Phone
59.96	5,000	WWV	Beltsville, Md.	....	Standard frequency trans.; Tue., Fri., 2.30-3.30
60.26	4,975	GBC	Rugby, England	5.0	Phone to ships
60.33	4,970	G6RX	Rugby, England	....	Exp.
60.94	4,920	LCL	Jeloy, Norway	....	Exp.
61.63	4,865	HJA3	Barranquilla, Colombia	....	Phone
62.20	4,820	GDW	Rugby, England	....	Phone to US
62.53	4,795	VE9BY	London, Ont.	....	Broadcast
62.60	4,785	CZA	Drummondville, Que	10.0	Phone to ships
62.86	4,770	ZL2XX	Wellington, New Zealand	....	Phone
63.10	4,752	WOO	Ocean Gate, N. J.	20.0	Phone
63.10	4,752	WOY	Lawrenceville, N. J.	20.0	Phone to England
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
67.68	4,430	DOA	Doeberitz, Germany	....	Phone
68.61	4,370	....	Semarang, Java	0.2	Broadcast
69.24	4,330	....	Batavia, Java	0.15	Broadcast
69.44	4,320	GDB	Rugby, England	15.0	Exp.
69.46	4,316	YNLF	Managua, Nicaragua	....	Broadcast
69.81	4,295	WTDX	St. John, Virgin Islands	0.25	Exp.
69.81	4,295	WTDV	St. Thomas, Virgin Islands	0.25	Exp.
69.81	4,295	WTDW	St. Croix, Virgin Islands	0.25	Exp.
70.00	4,283	IBEJ	S.S. Conte Rosso	....	Phone
		ICEJ	S.S. Rex	....	Phone
		IDLI	S.S. Conte di Savoia	....	Phone
70.17	4,273	RW15	Khabarovsk, U.S.S.R.	20.0	Broadcast
70.55	4,250	HJA3	Barranquilla, Colombia	....	Phone
71.78	4,177	GFWV	S.S. Majestic	....	Phone
		GLSQ	S.S. Olympic	....	Phone
		GDLJ	S.S. Homeric	....	Phone
		GTSD	S.S. Monarch of Bermuda	....	Phone
		GKFY	S.S. Minnetonka	....	Phone
		GMBJ	S.S. Empress of Britain	....	Phone
		DDAC	S.S. Europa	....	Phone
		DDAS	S.S. Bremen	....	Phone
		DDBR	S.S. Berlin	....	Phone
		DDCB	S.S. Columbus	....	Phone
		DDCG	S.S. Resclute	....	Phone
		DDCP	S.S. Cap Polonio	....	Phone
		DDDT	S.S. Deutschland	....	Phone
		DDDX	S.S. Hamburg	....	Phone
		DDDE	S.S. Cap Arcona	....	Phone
		DDED	S.S. New York	....	Phone
		DDFF	S.S. Reliance	....	Phone
		DDFT	S.S. Oceana	....	Phone
		DDNY	S.S. Albert Ballin	....	Phone
72.95	4,110	HCJB	Quito, Ecuador	0.15	Broadcast
73.13	4,100	LCL	Jeloy, Norway	....	Exp.
73.13	4,100	WND	Hialeah, Florida	0.4	Phone
74.92	4,002	CT2AJ	San Miguel, Azores	....	Broadcast
79.53	3,770	HB9B	Basle, Switzerland	....	Broadcast
79.95	3,750	CT1CT	Lisbon, Portugal	0.5	Broadcast
79.95	3,750	I2RO	Rome, Italy	12.0	Broadcast
82.82	3,620	DOA	Doeberitz, Germany	....	Phone
84.63	3,543	CR7AA	Lourenzo Marques, Mozambique, Port. E. Africa	....	Broadcast
85.06	3,525	HB9AQ	Switzerland	....	Broadcast
88.81	3,376	HJA3	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.

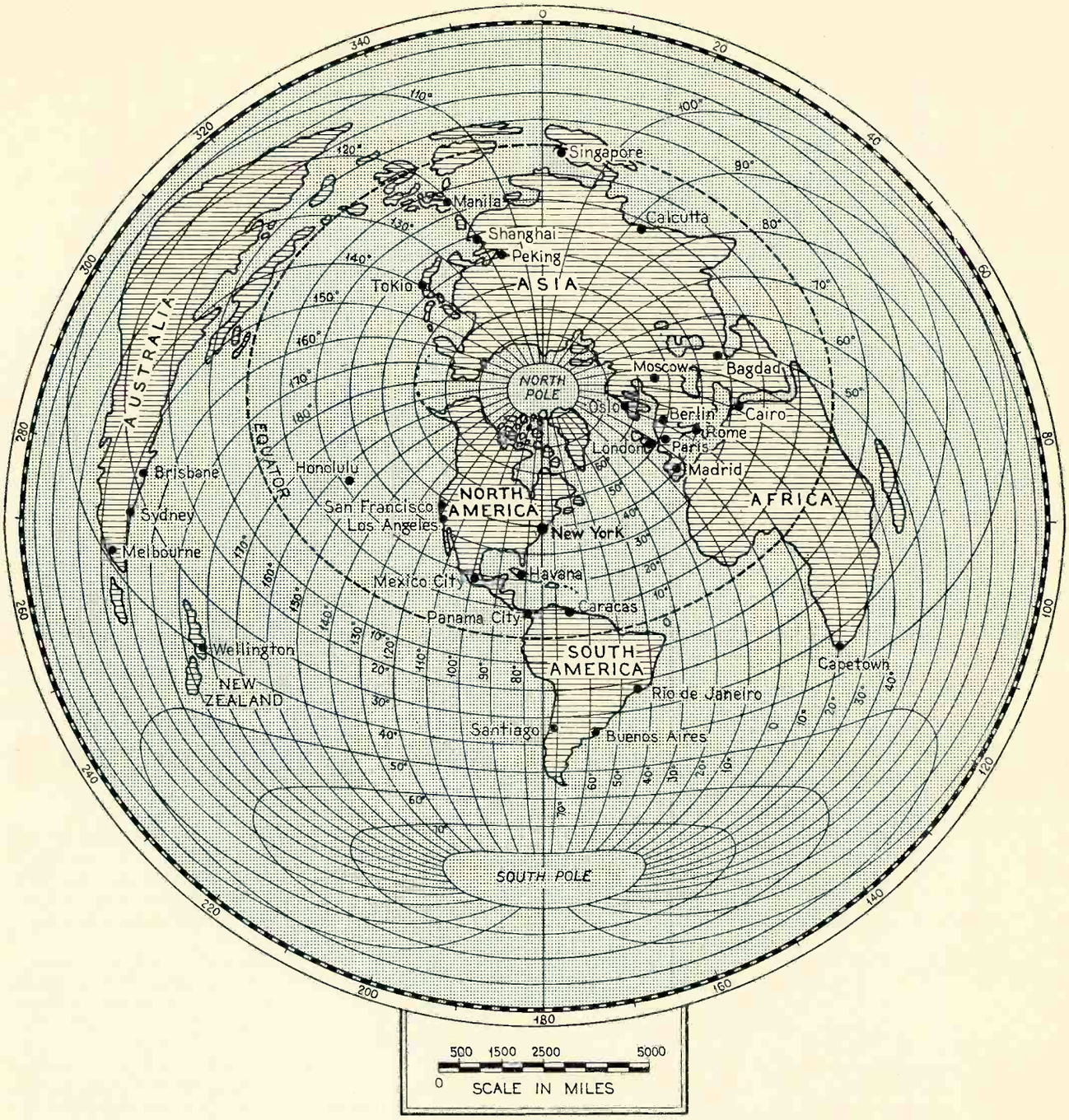
A fading signal is one that varies in strength from minute to minute. Sometimes fading is scarcely noticeable . . . at other times it makes intelligent reception impossible. Weather conditions have a great deal to do with the character of the waves as they reach your ears through the loudspeaker of your short-wave receiver. Infrequently, fading becomes so pronounced that the signals disappear for seconds and even minutes, only to reappear and build up again to their original strength. As one season passes into another, the period of fading may lengthen until the station is silent as far as your locality is concerned, although listeners in other parts of the world may be tuning to the same station.

The difference in time between 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 learns the most favorable listening times for the various countries.

Generally speaking, short-wave broadcasters are assigned to one of four main sections of the dial, known as the "19-meter," "25-meter," "31-meter" and "49-meter" bands. 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.

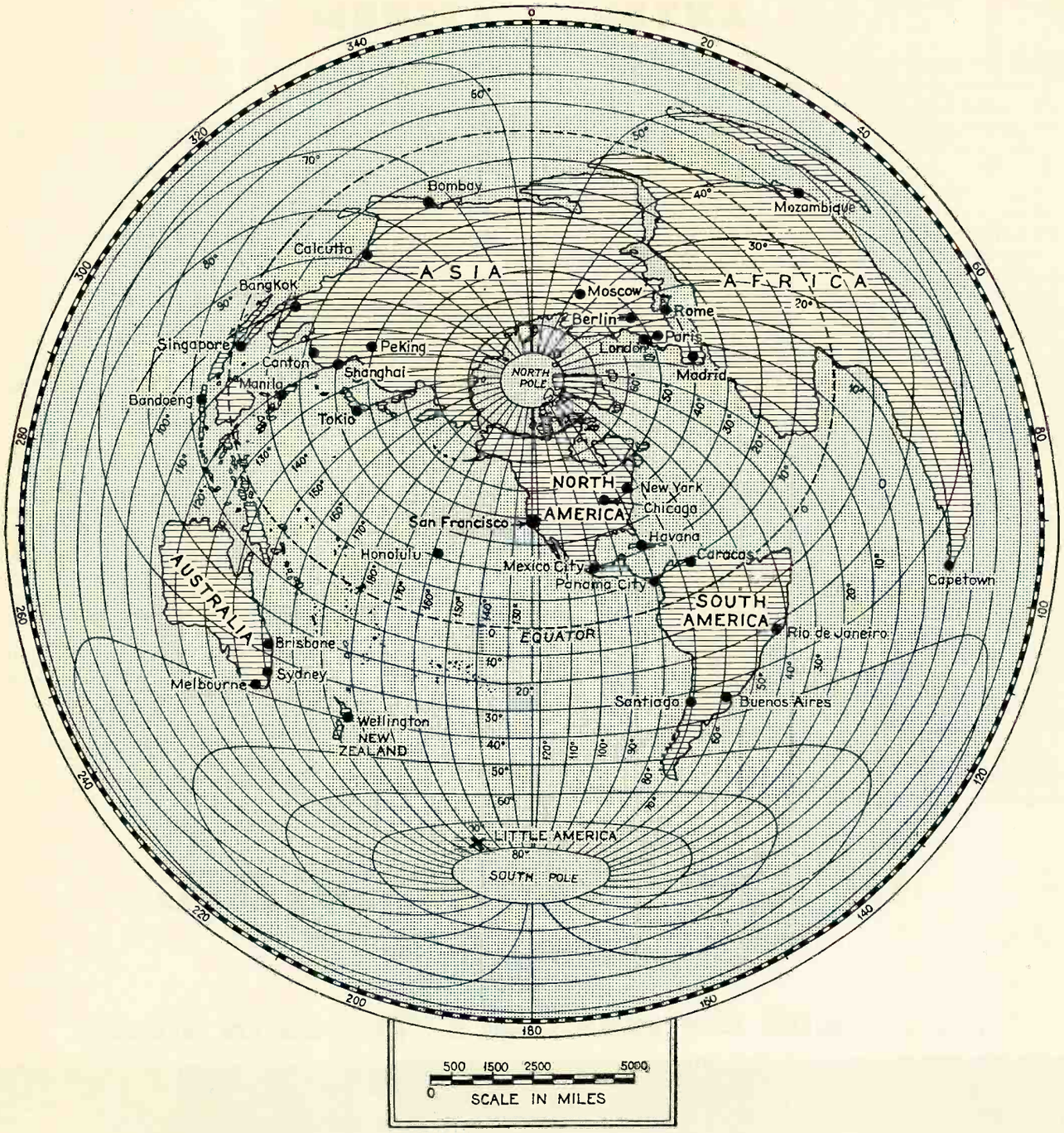
Short-wave stations necessarily are close together. Exceedingly fine tuning is therefore required. With General Electric receivers, short-wave tuning is made easier through the use of a fast- and slow-speed vernier tuning control, making it possible to tune sharply with ease . . . a most important requirement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

Station list, time table, identification chart and distance maps reproduced by courtesy of "Radio News."

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"