

An Archivist's Note:

From KDKA

To International Short

Wave Broadcasting

In Ten Years; The

September 1930 *Radio-*

Craft SW Station List

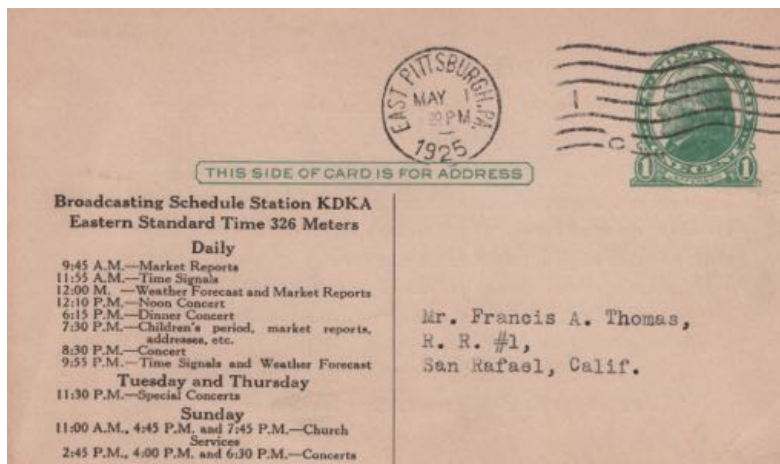
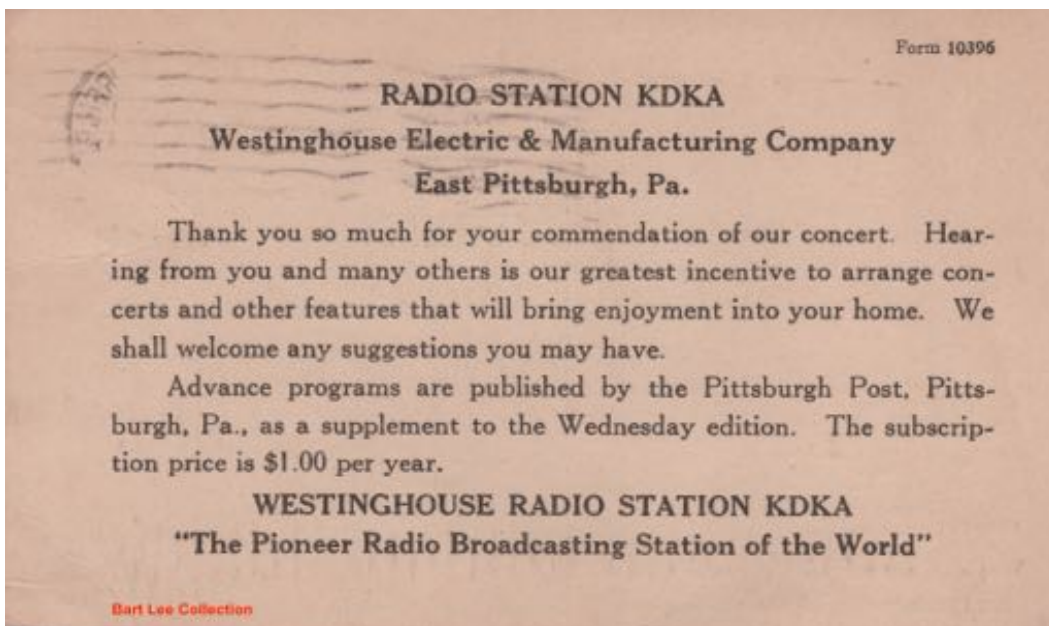
By Bart Lee, K6VK, CHRS Archivist

Short-Wave Stations of the World

(Continued from page 153)

Meters	Kilo-cycles	Station	Meters	Kilo-cycles	Station
49.17	6,065	—V99GW, Beamanville, Ontario, Canada. Daily, 1:45-5 a.m., noon to 7 p.m. Sundays, 5 a.m. to 7 p.m. Gooderham & Wets, Ltd.	97.53	3,076	—W9XL, Chicago, Ill.
49.26	6,099	...Copenhagen, Denmark.	98.95	3,030	...Motala, Sweden, 11:30 a.m.-noon, 4-10 p.m.
49.31	6,088	—W9CX, Newark, N. J. Relays WOR. —W9XAA, Chicago, Ill. (WCFL). —W9XAL, Westminster, Calif.	101.7	to 105.3	meters—2,850 to 2,950 kc. Television. —W9XN, Silver Springs, Md., 8 to 9 p.m. except Sundays; W9Y, Allwood, N. J.; —W9XR, New York, N. Y.; —W9XL, Board Brook, N. J.
49.40	6,079	—U9R2, Vienna, Austria, 5-7 a.m., 5-7 p.m. Tues. and Sat., 9-10 p.m. Thu.	104.4	3,870	...Milan, Italy. After 2 p.m.
49.45	6,045	—SAJ, Motala, Sweden, 6:30-7 a.m., 11 a.m.-4:30 p.m.	105.3	to 109.1	meters—2,750 to 2,850 kc. Television. —W9XBA, Newark, N. J., Tues. and Fri. 12 to 1 a.m.; —W9XCL, Brooklyn, N. Y.; —W9XAU, Pittsburgh, Pa.; —W9XB, Somerville, Mass.; —W9XAO, Portland, Ore.; —W9XAP, Chicago, Ill.; —W9XAP, Jersey City, N. J. —W9XCR, Jersey City, N. J. 8:15 and 9 p.m.
49.59	6,060	—W9XAL, Cincinnati, Ohio. Relays W9W. —W9XU, Council Bluffs, Iowa. Relays KOIL. —W9XAU, Hylberry, Pa. relays W9AU. —H9C, Bogota, Colombia, 9:15-11:30 p.m., Monday to Friday. Later on Sat.	109.1	to 113.1	meters—2,650 to 2,750 kc. Television—W9XR, Chicago, Ill.
49.67	6,044	—W9XAG, Chicago, Ill. (W9LAD). —W9XAL, New York.	110.2	2,722	—Aircraft.
49.80	6,020	—W9XF, Chicago, Ill.	113.5	2,645	—W9XBO, New York Central R.R. train, (Conn.)
49.97	6,000	—W9XBR, New York, N. Y. (WBNT). —ZL3ZC, Christchurch, New Zealand, 19 p.m.-midnight, Tuesdays, Thursdays and Fridays. —E9R25, Barcelona, Spain, Sat. 3 to 4 p.m. —R9N, Moscow, Russia, Tues., Thurs., Sat. 8 to 9 a.m. —Eiffel Tower, Paris, France Testing 6:30 to 6:45 a.m., 1:15 to 1:30, 5:15 to 5:45 p.m., around this wave.	114.2	2,410	—W9XP, Seattle, Wash., Police and Fire Dept.
51.40	5,833	—H9Z, Barranquilla, Colombia, 8:30 to 10:30 p.m., ex. Sun.	121.1	2,388	—W9XL, Chicago, Ill.; —W9XCU, Amperre, N. J.; —And other experimental stations.
52.00	5,778	—A9L, Berzsdorf, Germany.	128.0-129.8	—Aircraft.	
52.72-54.44	5,598-5,510	—Aircraft.	129.8	2,325	—W9XZ, Airplane Television.
54.02	5,550	—W9XJ, Columbus, Ohio.	133.8	2,220	...Stockholm, Sweden.
54.51	5,500	—W9XBN, Brooklyn, New York City (WBDC, W9JG).	137.3	2,185	—W9XBO, N. Y. C. R.R. (Exp.)
54.79	5,380	—A9J, Nassen, Germany. Occasionally after 7 p.m.	138.4	to 142.0	meters—2,100 to 2,190 kc. Television. W9XAU, Pittsburgh, Pa.; —W9XB, Somerville, Mass.; —W9XCW, Schenectady, N. Y.; —W9XAV, Boston, Mass., 4 p.m. W9XAV, Pittsburgh, 60 tubes, 1200 rpm. 1:30-2:30 p.m., Mon., Wed., Fri. Westinghouse Electric & Mfg. Co.
54.90	5,170	—G9IMPT, Prague, Czechoslovakia, 1 to 2:30 p.m., Tues. and Fri.	142.0	to 150	meters—2,000 to 2,100 kc. Television. —W9XCL, Brooklyn, N. Y. Mon., Wed., Fri. 9 to 10 p.m.; —W9XAA, Chicago, Ill.; —W9XBS, New York, N. Y., frame on lines open, 72 tubes, 1,500 H.P.M.; —W9XAE, Springfield, Mass.; —W9XAV, Pittsburgh, Pa.; —W9XAM, Los Angeles; —W9XBU, Beacon, N. Y.; —W9XAK, Board Brook, N. J.; —W9XN, Washington, D. C. Daily except Sun., 8 to 9 p.m.; —W9Y, Allwood, N. J.; —W9XU, Airplane. —W9XBO, Long Island City, N. Y.
59.00	4,950	—LL, Paris, France.	150	2,000	—RA7Z, Susslenk, USSR.
61.22	to 62.50	meters—4,800 to 4,500 kc. Television. —W9XK, Pittsburgh, Pa.; —W9XAY, Lexington, Mass.; —W9XBU, Beacon, N. Y.; —W9NR, Chicago, Ill.	149.0-174.5	—2,000-1,710—Amateur Telephony and Television.	
62.56	4,795	—W9XAM, Elgin, Ill. —W9XL, Chicago, Ill. —And other experimental stations.	175.2	1,712	—W9DU, Cincinnati, Ohio. (Police Dept.) —W9P, Framingham, Mass. 11 a.m., 1 and 5 p.m. daily. Music and police reports. —W9RH, Cleveland, O. (Police Dept.) —K9JX—Pasadena, Calif., (Police Dept.) —W9G, Quantin, France. —F9FY, Cannes, France, 5 p.m. Wed.; 6 a.m. Sunday.
62.69	4,782	—Aircraft.	176.5	1,700	...Orly, France.
62.70	4,780	—V9A, Drummondville, Canada.	178.1	1,684	—W9KX, New York, N. Y. (Police Dept.)
63.22	to 66.67	meters—4,500 to 4,000 kc. Television. —W9XC, Los Angeles, Calif.	180.4	1,667	...Michigan State Police.
67.65	4,430	—D9A, Doberitz, Germany, 6 to 7 p.m., 2 to 3 p.m., Mon., Wed., Fri.	186.6	1,608	—W9XAL, Chicago, Ill. (W9LAC) and Aircraft Television. —W9XY, Newark, N. J.
70.00	4,280	—G9K2, Vienna, Austria, Sun., first 15 minutes of hour from 1 to 7 p.m.	187.0	1,604	—W9XCU, Wired Radio, Amperre, N. J. —W9XCD, DeForest Radio Co., Passaic, N. J. 8-10 p.m. —...Ornskoldsvik, Sweden. —And other experimental stations.
70.20	4,273	—R9B18, Khabarovsk, Siberia, 5-7:30 a.m.	187.9	1,596	—W9RC, New York, N. Y. (Fire Dept.)
71.77-72.98	4,180-4,100	—Aircraft.	791	1,530	...Karlskrona, Sweden.
72.87	4,116	—W9D, Deal, N. J.	187.9	1,526	—W9DY, Detroit, Mich. (Fire Dept.)
74.72	4,100	—N9A, Arlington, Va. Time signals 8:25-9 a.m., 9:25-10 p.m.	187.9	1,526	—W9DY, Detroit, Mich. (Fire Dept.)
80.00	3,750	—F9KR, Constantine, Tunis, Africa, Mon. and Fri. —I9R0, Rome, Italy. (Testing)	187.9	1,526	—W9DY, Detroit, Mich. (Fire Dept.)
82.00	3,620	—D9A, Doberitz, Germany.	187.9	1,526	—W9DY, Detroit, Mich. (Fire Dept.)
84.24	3,500	—O97RL, Copenhagen, Denmark, Tuesday and Fri. after 6 p.m.	187.9	1,526	—W9DY, Detroit, Mich. (Fire Dept.)
84.66-85.66	3,550-3,500	—Amateur Telephony.	187.9	1,526	—W9DY, Detroit, Mich. (Fire Dept.)
86.50-88.00	3,300-3,400	—Aircraft.	187.9	1,526	—W9DY, Detroit, Mich. (Fire Dept.)
92.50	3,250	—W9XL, Chicago, Ill. —And other experimental stations.	187.9	1,526	—W9DY, Detroit, Mich. (Fire Dept.)
94.70	3,160	—W9CK, Detroit, Mich. (Police Dept.)	187.9	1,526	—W9DY, Detroit, Mich. (Fire Dept.)
95.18-97.71	3,145-3,070	—Aircraft.	187.9	1,526	—W9DY, Detroit, Mich. (Fire Dept.)
97.07	3,184	—W9D, Deal, N. J.	187.9	1,526	—W9DY, Detroit, Mich. (Fire Dept.)
97.15	3,088	—W9XZ, Airplane Television.	187.9	1,526	—W9DY, Detroit, Mich. (Fire Dept.)

Ten years earlier, in 1920, according to a document in the FCC files (from an earlier agency, or post-1934 internal research) referring to KDKA in Pittsburgh, Pennsylvania: “A license issued to this station Oct. 27, 1920 for 1 year [which] authorized the use of radio telephone apparatus...” (see appendix transcription). Many say this is the beginning of broadcasting, at least in the United States. KDKA, as on its 1925 QSL verification-of-reception card below, certainly thought so, declaring itself to be: “The Pioneer Radio Broadcast Station of the World.”



Note the Northern California location of the lucky listener.

In the mid-1920s, some stations moved into the “short waves,” wavelengths of 200 meters and down, 1500 KHz and up. The solar sunspot cycle 16 peaked in 1928, just about when short wave radio was finding worldwide application, no doubt helped by favorable propagation. Russia claimed (on Radio Moscow in the 1980s) to have put the first international short wave broadcast station on the air in 1927, in order to further the Revolution.

On this 1930 list, stations on six continents and Oceania appear, representing many countries, mostly American, colonial powers and former colonies.

About sixty (60) broadcasting stations appear on 20 meters or a shorter wavelength, about 15 MHz, and *many more* on lower frequencies. Some utility stations such as LSN in Argentina appear for non-broadcast purposes, *e.g.*, in its case telephony. But within a few years, it too was broadcasting, as shown by its QSL card of 1935 (and as early as 1932):



A note on that appears on the List re 24 MHz and 12.48 meters (see W6AQ, below) recites that:

“Several experimental Stations are authorized to operate on non-exclusive waves of a series, both above this and down to 4 meters.”

Stations of Interest on the List:

Meters [m	Kilocycles KHz	[callsign]	Station and detail:]
12.48	24,000	W6AQ	San Mateo, Calif.
14.5	20,680	LSN	Monte Grande, Argentina... Telephony with Europe.
14.89	20,140	DGW	Nauen. Telephony to Buenos Aires.
15.50	19,350	VK2ME	Sydney, Australia. [1934 QSL:]

VK2ME "THE VOICE OF AUSTRALIA" Power - - 20 Kilowatts Wave-Length 31.28 Metres

A.W.A.
Owns and Operates

Beam Wireless Services to Great Britain, The Continent of Europe and North and South America.

Wireless Telephone Services to Great Britain, The Continent of Europe, North and South America, Java and New Zealand.

Coastal Radio Stations in Australia, Papua, New Guinea and Fiji.

Wireless Services on ships of the Australian Mercantile Marine.

Radio-Electric Works for the manufacture of every type of transmitting equipment and Radiola broadcast receivers.

Research and experimental laboratories.

World Wide Broadcasting Service

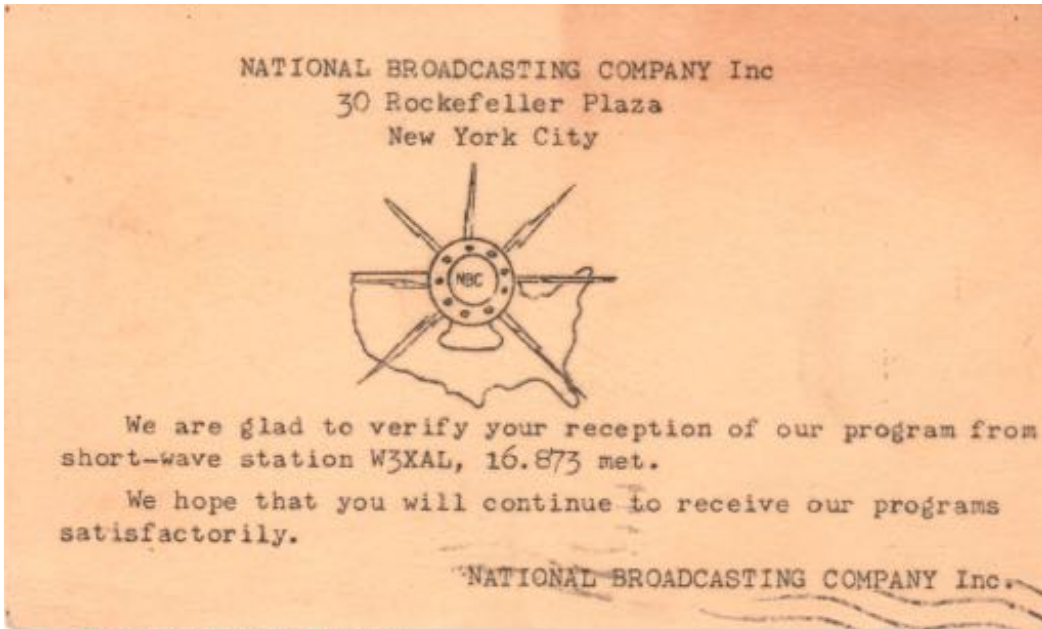
AMALGAMATED WIRELESS (A/SIA) LTD.
AUSTRALIA'S NATIONAL WIRELESS ORGANISATION

AWA

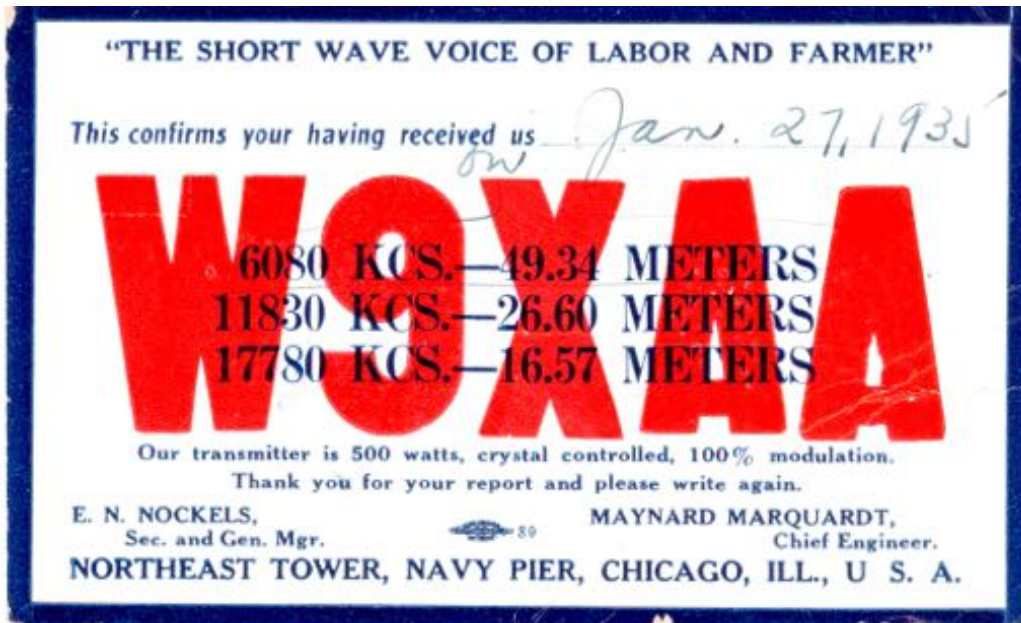
Bart Lee Collection

15.94	18,820	PLE	Bandoeng, Java Broadcasts [and] Telephony ... with Amsterdam.
16.38	18,310	GBS	Rugby, England. Telephony with New York.
16.61	18,050	KQJ	Bolinas, Calif.
16.88	17,770	PHI	Huizen, Holland. "Beam station to Dutch Colonies."
17.34	17,300	W2XK	Schenectady, N.Y. General Electric Co.
		W6XN	Oakland, Calif.
		W6AJ	Oakland, Calif.
			"... and other experimental stations."
18.00	16,660	G2GN	S.S. "Olympic."
		G2IV	S.S. "Majestic."
18.10	15,560	G2AA	"ship phone." [likely radio-telephone to ships at sea]
18.37	16,320	VLK	Sydney, Australia. Phone to England.
18.40	16,300	WLO	Lawrence, N.J. [likely radio-telephone to ships at sea]
19.56	15,340	W2XAD	Schenectady, N.Y. [broadcasts during the week, and] "besides relaying WGY's evening programs..." General Electric Co.
19.71	15,220	W8XK	(KDKA) Pittsburgh, Pa. [four days a week] 8 a.m. to Noon.

Like W2XAD (GE; above) some broadcast band stations relayed their programs on short wave. For example, W3XAL (NBC, NY) relayed on about 17 meters wavelength at about 17.768 MHz in 1938.



Bart Lee Collection; postmark Feb. 25, 1938



Bart Lee Collection

This populist station relayed Chicago's WCFL, the Chicago Federation of Labor. As "The Short Wave Voice of Labor and Farmer" it wanted a more than local reach, well into the farm country all around it for many hundreds of miles. Short Wave radio gave it that reach. This station also experimented with television in 1928.

Notable stations on lower frequencies include:

22.38 13,400 WND Deal Beach, N.J. "Transatlantic telephony" [A.T.&T.]

24.46 12,250 FTN "...France. Works Buenos Aires, Indochina and Java...."

24.89 12,045 NAA Arlington, Va. Time Signals, 8:55 - 9 a.m., 9:55 - 10 p.m.

THIS CARD WILL VERIFY THE RECEPTION OF STATION

NAA on 25 January 1934
(Date)

By Derek Wharton
(Name)

John R. Rogers
Lieutenant-Commander, U.S. Navy.
Communication Officer.

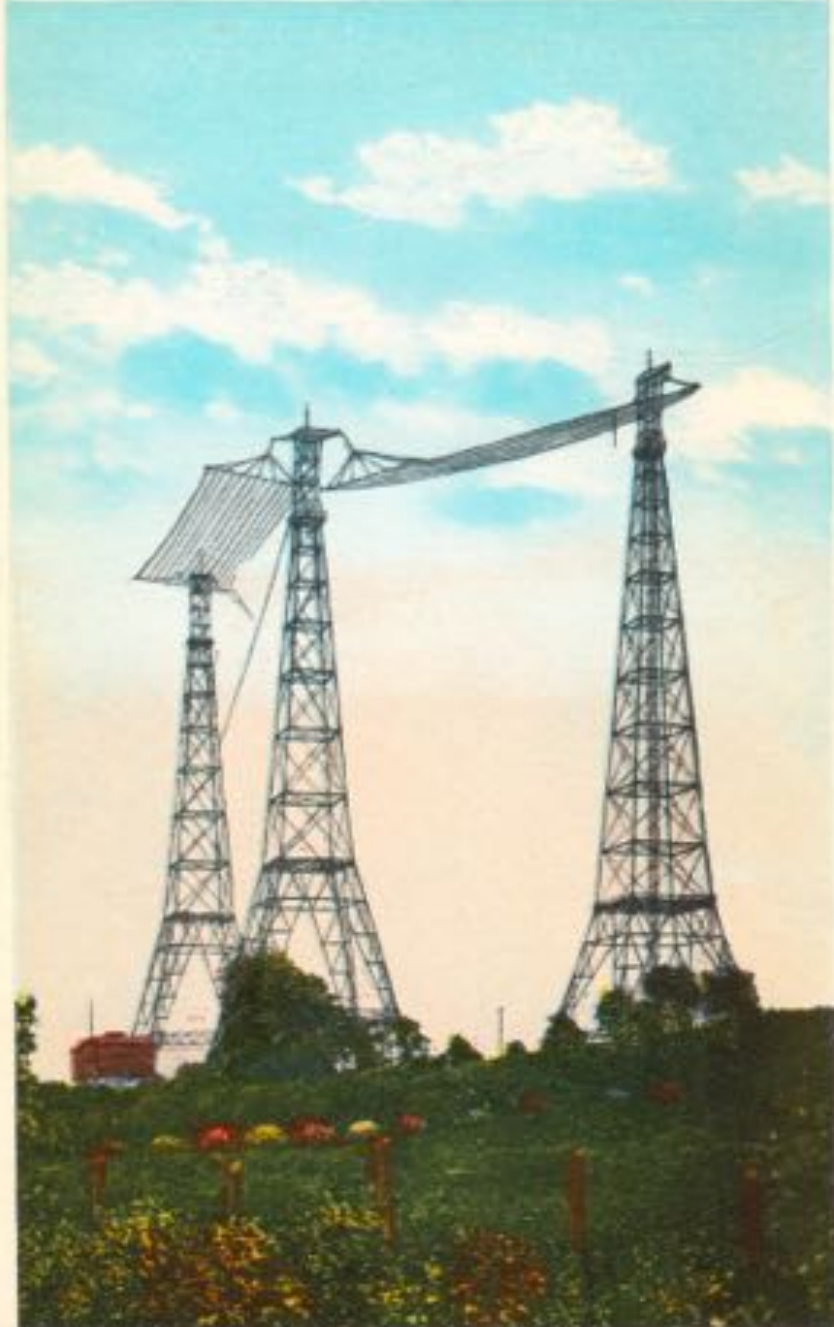
2 February 1934
(Date)

U. S. GOVERNMENT PRINTING OFFICE: 1932 117384

ARLINGTON, VA.
1030W.

Bart Lee Collection

U. S. WIRELESS STATION FORT MYER VA



Call on S. S. D. 1005 - 1011 - 1012 - 1013 - 1014 - 1015 - 1016 - 1017 - 1018 - 1019 - 1020

Bart Lee Collection

24.98 12,000 FZG Saigon, Indochina. Time Signals...

25.10 11,945 KKQ Bolinas, Calif.

25.68 11,670 KIO Kahuho, Hawaii

26.70 11,230 IBDK "S.S. 'Elettra,' Marconi's yacht."

26.70 11,230 WSBN "S.S. 'Leviathan' and A.T.&T. Telephone connection."

28.50 10,510 RDRL Leningrad, U.S.S.R. (Russia)

32.50 9,230 FL Paris, France (Eiffel Tower) Time Signals ...[starting about 1910]



33.81 8,872 NPO Cavite (Manila) Philippine Islands. Time Signals...

47.35 6,335 W10XZ "Airplane Television" [several listings for Jenkins Laboratories]

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Aircraft communications frequencies are noted at:

37.43 m and 8,015 KHz

52.72 - 54.44 m and 5,690 - 55,510 KHz

6.269m and 4,785 KHz

86.50 - 86.00m and 3,490 - 3,460 KHz

95.48 - 97.71m and 3,242 - 3,460 KHz

110.2m and 2,722 KHz

CHRS displays several aviation radios, as employed in aircraft, in the Hall of Communications. Member V S Rajesh (“Raj”) has restored one of the receivers.



Amateur telephony bands are listed at:

5 meters, 20 meters, 80 meters and 160 meters (then 2,000 KHz to 1,715 KHz).

W2AX

DATE <i>3 25</i>	W9DLZ	YEAR <i>1931</i>
<i>40</i>	METERS	<i>3⁰⁰ pm CST</i>
YOUR <i>file</i> SIG. REG. O. S. A. <i>4</i> R. <i>6</i>		
RECEIVER	REMARKS	TRANSMITTER
<i>Reg</i>	<i>Sorry I understand u</i>	<i>MOPA</i>
<i>det r 200g</i>	<i>to be very at first</i>	<i>245 000</i>
<i>at own</i>	<i>hope for a long 000</i>	<i>2-210 PA</i>
<i>design</i>	<i>from time you're a</i>	<i>Rae pour</i>
	<i>Qd 24 0 10</i>	
	<i>again please L</i>	
Opr. W. S. LAWSON	<i>735</i>	SHONN, KY.

WU 10/33

Bart Lee Collection

This amateur station could transmit radio-telephone signals by means of its Modulated Oscillator Power Amplifier (MOPA) in 1931. At the time, almost all ‘ham’ stations used CW Morse code; spark had died out. Radio-telephone required more expertise, but became more popular as the technology improved.

Very few ham QSL cards of the period show ‘phone’ operation. 9DUG does:

RADIO STATION 9DUG, 823 EAST SHERMAN ST.

Hutchinson, Kansas. 12-7 1923

Radio 9CCV Your 9CCV Signals 12-7-1923

Audibility 9CCV Character 9CCV Wave 9CCV

Receiving equipment—Regenerative Tuner and two Stage Amplifier, Baldwin Phones and Magnavox.

Transmitters:—

1 K. W. Acme-Benwood Spark.
 100 Watt Straight C. W.. 60 Cycles. DX-4500m
 10 Watt CW-ICW and Phone. DX-6600m

Transmitting Antenna—"L," 70-40 ft. High, 60 ft. Long.

Counterpoise—5 Wires 12-7 ft. Long.

Remarks: after all my efforts - sent 7335

Sincerely Yours,

A. R. R. L. 7335

Bart Lee Collection

Note: "10 Watt CW-ICW and Phone."

So for the vast majority of radio listeners who did not know Morse code, many amateur conversations could still be made out on radio-telephone. Marine radio-telephone, and point-to-point radio-telephone conversations may have been far more interesting.

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Television stations appear on many frequencies mostly below ~ 3 MHz (= 3,000 KHz; 100 meters wavelength). Almost all are Eastern U.S. stations. A note at the bottom of the list says:

"(Standard Television Scanning, 48 Lines, 900 R.P.M.)"

The list shows several bands for television, *e.g.*:

61.22 to 62.50 meters and 4,800 to 4,900 kc [= KHz]

101.7 to 105.3 meters — 2.850 to 2,950 kc [= KHz],

down to:

142.9 to 150 meters — 2,000 to 2,200 kc [KHz];

including in this band: W6XAM, Los Angeles.*

Some 30 televisions stations are listed by callsign and location in the approximately one megahertz of bandwidth between about three MHz and two MHz.

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Police and Fire Department stations appear just above the broadcast band, then up to 1.5 MHz. The highest frequency for these stations is 1.712 MHz (175.2 m), including:

KGJX — Pasadena, Calif. (Police Dept.)

In the midst of these utility stations, appears:

187 [m] 1,604 [KHz] W2XCD, DeForest Radio Co.,
Passaic, N.J. 8 - 10 p.m.

... and a few broadcast stations, *e.g.*, Russia, France, and Sweden.

* Listed to one R.S. McGlashan, but not known to have broadcasted.
https://www.earlytelevision.org/mechanical_stations.html

The lowest frequency for a utility station is:

187.9 [m] 1,596 [KHz] WKDT, Detroit, Mich. (Fire Dept.)

These utility stations are the stations that appear on the “Police” band just above the AM broadcast band on 1930s radios.



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Radio-Craft adds this note:

“This list is compiled from many sources, all of which are not in agreement, and which show greater or less discrepancies; in view of the fact that most schedules and many wavelengths are still in an experimental stage; that daylight time introduces confusion and that wavelengths are calculated differently in many schedules. In addition to this, one experimental station may operate on any of several wave-lengths which are assigned to a group of stations in common....”

From *Radio-Craft*, September 1930, at pages 153 and 188.

[Appendix: CHRS Archives Transcript of an early typewritten list annotated in handwriting “FCC” and its title, researched by Al Jones *circa* 1990 in Washington]

“LIST OF FIRST STATIONS LICENSED FOR BROADCASTING”

“*A license issued to this station [KDKA] Oct. 27, 1920 for 1 year authorized the use of radio telephone apparatus, however, the license of Nov. 7, 1921, was the first one issued expressly for b/c service.” [“FCC” note]

Call Letters	Licensee	Location of Station	W/L Meters	Power watts	Date Issued
WBZ	Westinghouse Elec. & Mfg. Co.	625 Page Bldg., Springfield, Mass.	360	1500	9/15/21
WDY	Radio Corp. of America	Roselle Park, N.J.	360	1000	9/19/21
WCJ	The A. C. Gilbert Co.	493 Blatchley Ave., New Haven, Conn.	360	Not Spec.	9/29/21
WJZ	Westinghouse Elec. & Mfg. Co.	95 Orange St., Newark, N.J.	360	3000	9/30/21
WJX	DeForest-Radio Telephone & Telegraph Co.	1391 Sedgwick Ave., N.Y., N.Y.	360	500	10/13/21
WWJ	The Detroit News	615 Lafayette St., Detroit, Mich.	360	2000	10/13/21
KQL	Arno A. Kluge	1045 S. Bixel St., Los Angeles, Calif.	360	Not Spec.	10/13/21
KDKA*	Westinghouse Elec. Mfg. Co.	East Pittsburgh, Pa.	360	2000	11/7/21

[Etc.; only the first page here. Source: Al Jones, Ye Olde Transmitting Tube Museum, Crescent City California, to Bart Lee, CHRS (1990s), transcribed 2021 (v2)]

(20 IV '22, v3.1, de K6VK) ##