

Gates

716.0

NATIONAL BUREAU OF STANDARDS REPORT

2915

CATALOG OF AVAILABLE TROPOSPHERIC FIELD STRENGTH DATA

By

J. W. Herbstreit, P. L. Rice and P. J. Short

DOCUMENT

RESEARCH
SOUTHWEST INSTITUTE
SAN ANTONIO



U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

U. S. DEPARTMENT OF COMMERCE

Sinclair Weeks, Secretary

NATIONAL BUREAU OF STANDARDS

A. V. Astin, Director



THE NATIONAL BUREAU OF STANDARDS

The scope of activities of the National Bureau of Standards is suggested in the following listing of the divisions and sections engaged in technical work. In general, each section is engaged in specialized research, development, and engineering in the field indicated by its title. A brief description of the activities, and of the resultant reports and publications, appears on the inside of the back cover of this report.

Electricity. Resistance Measurements. Inductance and Capacitance. Electrical Instruments. Magnetic Measurements. Applied Electricity. Electrochemistry.

Optics and Metrology. Photometry and Colorimetry. Optical Instruments. Photographic Technology. Length. Gage.

Heat and Power. Temperature Measurements. Thermodynamics. Cryogenics. Engines and Lubrication. Engine Fuels. Cryogenic Engineering.

Atomic and Radiation Physics. Spectroscopy. Radiometry. Mass Spectrometry. Solid State Physics. Electron Physics. Atomic Physics. Neutron Measurements. Infrared Spectroscopy. Nuclear Physics. Radioactivity. X-Rays. Betatron. Nucleonic Instrumentation. Radiological Equipment. Atomic Energy Commission Instruments Branch.

Chemistry. Organic Coatings. Surface Chemistry. Organic Chemistry. Analytical Chemistry. Inorganic Chemistry. Electrodeposition. Gas Chemistry. Physical Chemistry. Thermochemistry. Spectrochemistry. Pure Substances.

Mechanics. Sound. Mechanical Instruments. Aerodynamics. Engineering Mechanics. Hydraulics. Mass. Capacity, Density, and Fluid Meters.

Organic and Fibrous Materials. Rubber. Textiles. Paper. Leather. Testing and Specifications. Polymer Structure. Organic Plastics. Dental Research.

Metallurgy. Thermal Metallurgy. Chemical Metallurgy. Mechanical Metallurgy. Corrosion.

Mineral Products. Porcelain and Pottery. Glass. Refractories. Enamelled Metals. Concrete Materials. Constitution and Microstructure. Chemistry of Mineral Products.

Building Technology. Structural Engineering. Fire Protection. Heating and Air Conditioning. Floor, Roof, and Wall Coverings. Codes and Specifications.

Applied Mathematics. Numerical Analysis. Computation. Statistical Engineering. Machine Development.

Electronics. Engineering Electronics. Electron Tubes. Electronic Computers. Electronic Instrumentation.

Radio Propagation. Upper Atmosphere Research. Ionospheric Research. Regular Propagation Services. Frequency Utilization Research. Tropospheric Propagation Research. High Frequency Standards. Microwave Standards.

Ordnance Development. These three divisions are engaged in a broad program of research and development in advanced ordnance. Activities include basic and applied research, engineering, pilot production, field testing, and evaluation of a wide variety of ordnance matériel. Special skills and facilities of other NBS divisions also contribute to this program. The activity is sponsored by the Department of Defense.

Missile Development. Missile research and development: engineering, dynamics, intelligence, instrumentation, evaluation. Combustion in jet engines. These activities are sponsored by the Department of Defense.

● Office of Basic Instrumentation

● Office of Weights and Measures.

NATIONAL BUREAU OF STANDARDS REPORT

NBS PROJECT

NBS REPORT

1406-30-6803

October 28, 1953

2915

CATALOG OF AVAILABLE TROPOSPHERIC FIELD STRENGTH DATA

By

J. W. Herbstreit, P. L. Rice and P. J. Short

Tropospheric Propagation Research Section
Central Radio Propagation Laboratory

The work represented in this report was sponsored in part by the U. S. Army Signal Corps under Contract PR/C No. 53-ELE/R-1507.



The publication, reprinting
unless permission is obtained
from the National Institute of
Standards and Technology,
25, D. C. Such permission
is not necessary if the
report was specifically prepared
for that agency.

Approved for public release by the
Director of the National Institute of
Standards and Technology (NIST) on
October 9, 2015.

It is prohibited
to reproduce, distribute,
or disseminate this
report, in whole or in part,
for any purpose other than
its own use.



CATALOG
OF
AVAILABLE TROPOSPHERIC FIELD STRENGTH DATA

By

J. W. Herbstreit, P. L. Rice and P. J. Short
National Bureau of Standards
Boulder, Colorado

ABSTRACT

At frequencies above 50 Mc climate, meteorological conditions in the troposphere, and the shape of terrain irregularities play the principal roles in determining the strength and distance that a signal will be propagated. A catalog of tropospheric propagation radio field strength data covering approximately 200 propagation paths for distances from 33 to 616 miles and frequencies from 41 to 1046 Mc is presented in order to disseminate the information available at the National Bureau of Standards.

* * * * *

The Central Radio Propagation Laboratory of the National Bureau of Standards was established at the close of World War II to centralize and coordinate radio propagation research which was being conducted throughout the United States in the entire frequency spectrum. As a result of the War, the development of techniques and applications for the portion of the radio frequency spectrum above approximately 50 Mc was tremendously accelerated. New applications included radar, communications with aircraft, navigational and guidance systems for aircraft, ground-to-ground radio relay and communications systems, a new system of broadcasting using frequency modulation, television, and many others. The centralization and coordination of propagation research efforts in one agency lend themselves readily to attacking the propagation aspects of these new applications of the radio frequency spectrum in a coordinated, systematic manner for the many users of radio propagation information.

In the standard broadcast band electrical characteristics of the soil and conditions of the lower ionospheric regions play the dominant roles in determining the strength and distance that

a signal will be propagated, while in the international band below 50 Mc, the condition of the ionosphere alone is the dominant factor. At frequencies above 50 Mc, climate, meteorological conditions in the troposphere, and the shape of terrain irregularities play the principal roles, and every different climatological and terrain situation influences the radio wave propagation characteristics. It has been determined that propagation data which will have useful application under the various conditions of climate and terrain encountered throughout the world must be obtained from a variety of geographical locations and over extended periods of time. In general it has been found desirable to record field strength over particular paths for a period of one year at least to determine the seasonal factors. Recordings for much shorter periods of time are also of value. Many such recordings are listed in this catalog. Measurements made with mobile equipment are desirable to study terrain factors affecting propagation and it is expected to later include a listing of such measurements.

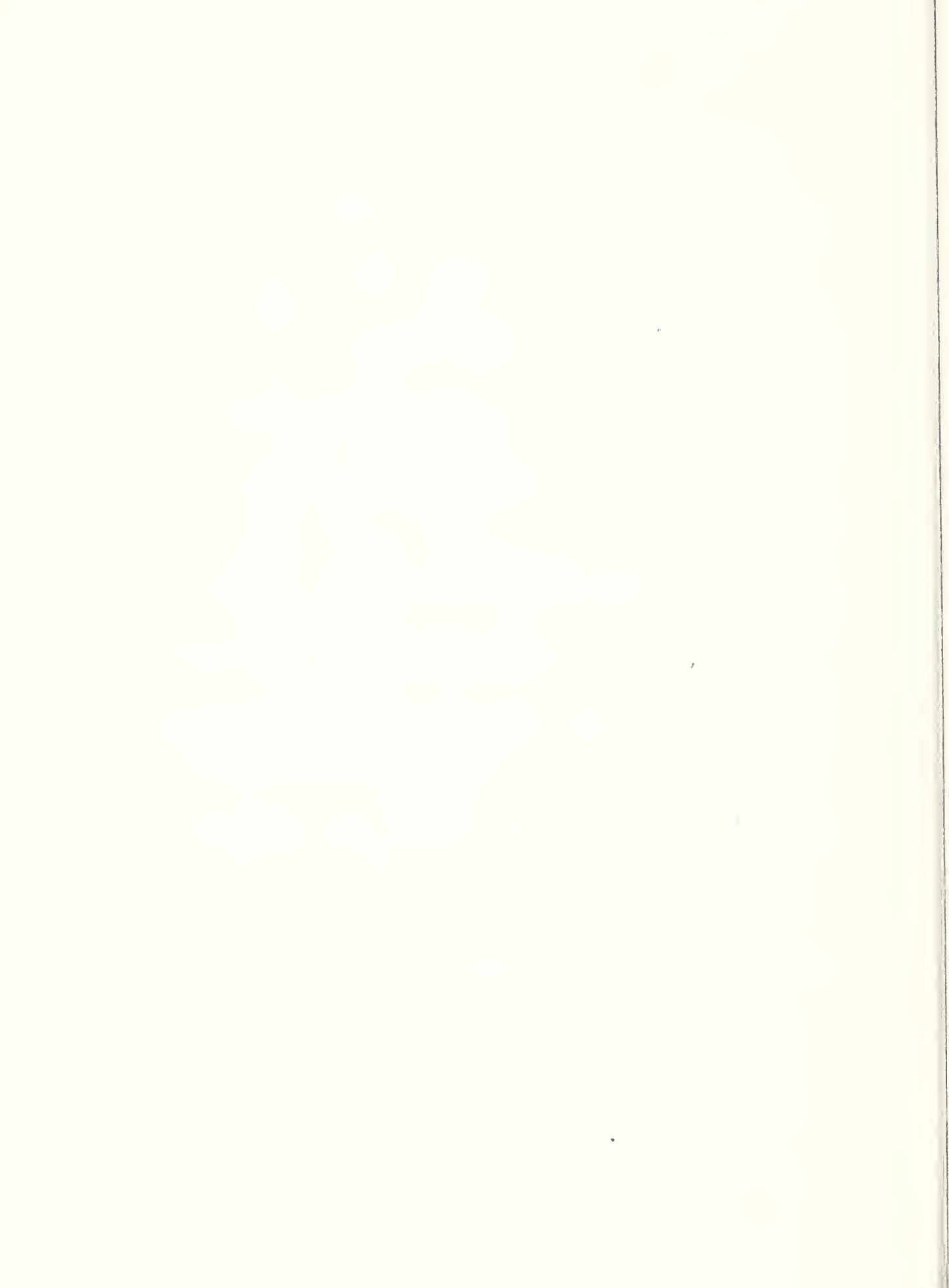
Tropospheric radio propagation data presently available have been cataloged. This report is to supersede NBS Report 2011. There has been a number of recordings added to the catalog as well as a large number of corrections especially to the data which are of interest to the NBS at the present.

The revised version of the catalog represents a considerable improvement over the previous edition; however, it is far from being completed. It is hoped that more information of this type will be brought to the attention of the compilers.

Interested individuals or organizations are invited to supply corrections to this catalog.

TABLE OF PARAMETERS INCLUDED
IN CATALOG OF TROPOSPHERIC FIELD STRENGTH DATA

<u>Parameter</u>	<u>Unit</u>	<u>Symbol</u>
Distance from transmitter to receiver	Statute miles	
Frequency	Megacycles	
Transmitter power output	Decibels above one watt	P_t
Transmission line losses at transmitter	Decibels	L_t
Transmitting antenna gain	Decibels above an isotropic antenna	G_t
Receiving antenna gain	Decibels above an isotropic antenna	G_r
Effective radiated power in direction of receiver	Decibels above one watt	ERP
Transmitting antenna height	Feet	h_t
Receiving antenna height	Feet	h_r



Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
4 mi	Mosseberg, Sweden	1/49 - 6/49		horn	
29979 Mc	Swedish Tech. Research Council, Backa, Sweden	24 hrs/day		horn	
8.4 mi	Mosseberg, Sweden	1/49 - 6/49		paraboloid	
2998 Mc	Swedish Tech. Research Council, Backa, Sweden	24 hrs/day		paraboloid	
8.4 mi	Mosseberg, Sweden	1/49 - 6/49		horn	
9993 Mc	Swedish Tech. Research Council, Kärna, Sweden	24 hrs/day		horn	

* Height of antenna above 2-10 mile average terrain in the direction of the other antenna.
 ** Height of antenna above 2-10 mile average surrounding terrain.
 *** Height of antenna above ground.
 **** Height of antenna above mean sea level.
 X Transmitting antenna greater than or equal to this figure. Given in db above an isotropic antenna.

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
15.7 mi	Gunma Prefectural Office, Maebashi, Japan	1949 - 1950			
31.5 Mc	Manba, Japan				
16.2 mi	Gunma Prefectural Office, Maebashi, Japan	1949 - 1950			
31.5 Mc	Manba, Japan				
16.3 mi	Bell Labs.	1934 - 1935		horizontal polarization	
17.3, 34.6, 75, 51.4, 100, 150 Mc	Bell Labs., Deal, New Jersey	Various		horizontal polarization	82.0! *** 78.7! ***
17.4 mi	Gunma Prefectural Office, Maebashi, Japan				
31.5 Mc	Manba, Japan				

Distance in Miles	Transmitter and Location	Months Recorded	ERF in DB		
			P_t in DB above 1 watt	G_t in DB	
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	$(P_t + G_t - L_t) - 2.15$
					h_t in feet h_r in feet
18 mi	Gunma Prefectural Office, Maebashi, Japan	1949-1950			
31.5 Mc	Manba, Japan				
18 mi	Charing, England	Feb. 16, 1942 - Feb. 18, 1942			
32.6 Mc	Leith Hill, England				
20 mi	(CRPL) Silver Hill, Md.	April 5, 1951 - April 12, 1951			
4350 Mc	(CRPL) La Plata, Maryland				425! **** 295! ****
20.4 mi	Gunma Prefectural Office, Maebashi, Japan	1949-1950			
31.5 Mc	Gunma Prefectural Office, Maebashi, Japan				

Distance in Miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
20.5 mi	Bordentown, Pa.		-10.00	32.15	
	Ten Mile Run, Pa.				106! ***** 106! *****
20.5 mi	New York, N. Y.	November, 1943	-16.02		
4612 Mc	Plainfield, Pa.				500! ***** 50! *****

Distance in Miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h in feet $\frac{h}{1.1}$ in feet
21.2 mi	Georgia Institute of Technology, Atlanta, Georgia	August, 1949 - September, 1949		35.15	
9404 Mc	Georgia Institute of Technology, Lost Mt., Georgia	Various		35.15	60' *** 13' ***
21.2 mi	Georgia Institute of Technology, Atlanta, Georgia	August, 1949 - September, 1949		28.15	
2860 Mc	Georgia Institute of Technology, Lost Mt., Georgia	Various		28.15	60' *** 13' ***
21.2 mi	Georgia Institute of Technology, Atlanta, Georgia	August, 1949 - September, 1949		23.15	
1310 Mc	Georgia Institute of Technology, Lost Mt., Georgia	Various		23.15	60' *** 13' ***
21.3 mi	Georgia Institute of Technology, Atlanta, Georgia	August, 1949 - September, 1949		35.15	
9404 Mc	Georgia Institute of Technology, Lost Mt., Georgia	Various		35.15	60' *** 13' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
21.3 mi	Georgia Institute of Technology, Atlanta, Georgia	August, 1949 - September, 1949		28.15	
2860 Mc	Georgia Institute of Technology, Lost Mt., Georgia	Various		28.15	60' *** 131' ***
21.3 mi	Georgia Institute of Technology, Atlanta, Georgia	August, 1949 - September, 1949		23.15	
1310 Mc	Georgia Institute of Technology, Lost Mt., Georgia	Various		23.15	60' *** 131' ***
22.8 mi	Murray Hill, New Jersey	Summer, 1949			
19916 Mc	Crawford Hill, New Jersey				646' *** 385' ***
23.6 mi	(CRPL) Ft. Meade, Maryland	March 20, 1951 - March 24, 1951			
4350 Mc	(CRPL) Silver Hill, Maryland				370' *** 425' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L in DB	G in DB	h_t in feet h_r in feet
26.1 mi	Gunma Prefectural Office, Maebashi, Japan	1949-1950			
31.5 Mc	Manba, Japan				
26.7 mi	(USN) Gila Bend, Arizona	1946-1947		horizontal and vertical polarization	
25,63,170,520, 1000, 3300, 24,000 Mc	(USN) Sentinel, Arizona	24 hrs. per day		horizontal and vertical polarization	Various
27 mi.	Charing, England	February 16, 1942-February 18, 1942			
32.6 Mc	Leith Hill, England				
27.7 mi	Bell Labs., Inc.	1934-1935		horizontal polarization	
34.6, 51.4, 75 Mc	Bell Labs., Inc., Deal, New Jersey	Various		horizontal polarization	157.5' *** 78.7' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	ht in feet h_r in feet
31 mi	(CRPL) Quirauch Mt., Maryland	February 6, 1951- February 19, 1951			
4350 Mc	(CRPL) Sugar Loaf Mt., Maryland				2200! **** 13 50! ****
32.5 mi	KC2XAK Stratford, Connecticut	January, 1950- November, 1951	26.99	14.53	38.39
534.75 Mc	RCA Riverhead, New York	0900-2300	0.98	19.65	330! *** 30! ***
33 mi	W2XBN New York, New York	August 3, 1936- October 5, 1936			
95 Mc	RCA New Brunswick, New Jersey	24 hrs. per day (600 hours)			555! ** 75! ***
33.5 mi	Nagatsudo Relay Station, Japan	1949-1950		vertical polariza- tion	
59.02 Mc	Motohakone, Japan			vertical polariza- tion	6.6! *** 6.6! ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
33.7 mi	Nagatsudo Relay Station, Japan	1949-1950		vertical polar- ization	
59.02 Mc	Motohakone, Japan			vertical polar- ization	6.6' *** 6.6' ***
36 mi	W3XAP Arnex's Point, New Jersey	August, 1936 - June, 1937			
94.5 Mc	RCA New Brunswick, New Jersey	24 hours per day (2100 hrs)			335' ** 145' ***
36 mi	Charing, England	February 16, 1942 - February 18, 1942			
32.6 Mc	Leith Hill, New Jersey				
37.5 mi	(CRPL) Sugar Loaf Mt., Maryland	February 28, 1951 - March 11, 1951			
4350 Mc	(CRPL) Silver Hill, Maryland				1350' *** 425' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
37.5 mi	Ten Mile Run, Pennsylvania		-10.00	32.15	
	New York, New York				106' ***** 390' *****
38.1 mi	KGO-TV San Francisco, California	April, 1951 - September 21, 1952	33.98	10.21	41.00
179.75 Mc	FCC Livermore, California	1000-2300	1.04	2.15	1310' * 30' *****
39.1 mi	Bell Labs., Inc., McCatharn's Hill, New Jersey	January 1, 1938 December 31, 1938			
150 Mc	Bell Labs., Inc., Beer's Hill, New Jersey	24 hours per day (8500 hrs)			600' ** 300' ***
39.5 mi	Bell Labs., Inc. Beer's Hill, New Jersey	1934-1935			
25.7, 34.6, 51.4, 69.3, 102.8, 140, 160, 180 Mc	Bell Labs., Inc., Lebanon, New Jersey				(52' *** (817' *****

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	$P_t + G_t - L_t - 2.15$ h_t in feet h_r in feet
40.1 mi	Bell Labs., Inc., New York, N. Y.	July, 1943 - February, 1945	-16.02		
4612 Mc	Bell Labs., Inc., Neshanic, New Jersey				500! **** 50! ****
40.1 mi	Bell Labs., Inc. New York, N. Y.	September, 1943 - February, 1945	-16.02		
9368 Mc	Bell Labs., Inc., Neshanic, New Jersey				500! **** 50! ****
40.1 mi	Bell Labs., Inc., New York, N. Y.	September, 1943 - August, 1944 not continuous	-16.02		
2998 Mc	Bell Labs., Inc., Neshanic, New Jersey				500! **** 50! ****
40.1 mi	Bell Labs., Inc., New York, N. Y.	August, 1944 October, 1944	-16.02		
714 Mc	Bell Labs., Inc. Neshanic, New Jersey				500! **** 50! ****

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	$P_t + G_t - L_t - 2.15$ h_t in feet h_r in feet
40.1 mi	Bell Labs., Inc., New York, N. Y.	August, 1945 - September, 1945	-16.02		
199.16 Mc	Bell Labs., Inc., Neshanic, New Jersey				500' **** 50' ***
40.5 mi	KE2WCC Alpine, New Jersey	August, 1949 - November, 1950			46.99
93.1 Mc	RCA Hauppauge, New York	1600 - 2300 1500 - 2200		2.15	795' ** 30' ***
42.5 mi	W2XWG New York, N. Y.	August, 1943 and February, 1944			
45.1 Mc	RCA Hauppauge, New York	1300 - 2100 (1400 hours)			1270' ** 60' ***
42.5 mi	RCA New York, N. Y.	August, 1943 and February, 1944	$5.15 \leq P_t \leq 12.46$		
474 Mc	RCA Hauppauge, New York	24 hours per day (4000 hours)			1270' ** 100' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	$P_t + G_t - L_t - 2.15$ h_t in feet h_r in feet
42.5 mi	RCA New York, N. Y.	September 18, 1946 - November 25, 1946			34.5
288 Mc	RCA Hauppauge, New York	Daylight (168 hrs)			1260' ** 100' ***
42.5 mi	RCA New York, N. Y.	1943-1944	$1.55 \leq P \leq 6.23$	horn	
2800 Mc	RCA Hauppauge, New York			horn	90' ***
42.5 mi	W2XWG New York, N. Y.	1943-1944			18.75
45.1 Mc	RCA Hauppauge, New York				82' ***
44.3 mi	W2XKH New York, N. Y.	October, 1944 - May, 1946			
116.25 Mc	RCA Hauppauge, New York	24 hours per day (20,000 hrs)			600' ** 127' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
44.3 mi	RCA New York, N. Y.	October 29, 1941 - January 5, 1942			
156.225 Mc	RCA Hauppauge, New York	24 hours per day (1500 hours)			600' ** 127' ***
44.9 mi	WKBN-FM Youngstown, Ohio	August 3, 1950 - November 7, 1952	38.20	7.65	42.55
98.9 Mc	UBC Hudson, Ohio	1500 - 0100	1.15	2.15	520' *** 30' ***
45 mi	W2XCT New York, N. Y.	June 3, 1946 - September 12, 1946		dipole and re- flector	28.13
700 Mc	FCC Princeton, New Jersey	0815 - 2345			909' * 50' ***
45 mi	WBAM New York, N. Y.	June 1, 1946 - May 21, 1947	37.85 ^X	2.15	40.00
47.1 Mc	FCC Princeton, New Jersey	0800 - 2400		2.15	600' * 50' ***

Distance , in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_f + G_f - L_f - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
45 mi	WBAM New York, N. Y.	June 1, 1946 - May 21, 1947	26.45 ^X	2.15	28.60
106.5 Mc	FCC Princeton, New Jersey	0800 - 2400		2.15	600' * 50' ***
45 mi	WBAM New York, N. Y.	October 12, 1946 - January 13, 1947	28.60 ^X	21.18	47.63
106.5 Mc	FCC Princeton, New Jersey	0800 - 2400		2.15	600' * 50' ***
45 mi	WBAM New York, N. Y.	January 14, 1947 - May 21, 1947	26.45 ^X	2.15	28.60
106.5 Mc	FCC Princeton, New Jersey	0800 - 2400		2.15	600' * 50' ***
45 mi	WABC - FM New York, N. Y.	August 1, 1945 - September 20, 1945			
46.7 Mc	RCA Princeton, New Jersey	0400 - 1500 0800 - 2100 (400 hours)			780' ** 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	$P_t + G_t - L_t - 2.15$ h_t in feet h_r in feet
45 mi	WZLRA New York, N. Y.	August 8, 1945 - September 24, 1945			
107 Mc	RCA Princeton, New Jersey	1700 - 2300 (200 hours)			714' ** 30' ***
45 mi	WDRG-FM Meriden, Conn.	January 16, 1941- June 28, 1942			
46.5 Mc	RCA Riverhead, New York	1400 - 2200 (3500 hours)			824' ** 60' ***
45.0 mi	Bell Labs., Inc.	1934 - 1935		horizontal polarization	
17.3, 34.6, 51.4, 75 Mc	Bell Labs., Inc., Deal, New Jersey	Various		horizontal polarization	157.5' *** 78.7' ***
45 mi	(MIT) Great Blue Hill, Massachusetts	September, 1929- October, 1943		paraboloid	
3000 Mc	(MIT) Mt. Wachusett, Massachusetts			paraboloid	50' **** 2000' *****

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	$P_t + G_t - L_t - 2.15$ h_t in feet h_r in feet
45.7 mi	WFMJ-FM Youngstown, Ohio	November 11, 1952- June 30, 1953	40.00	7.86	46.99
105.1 Mc	UBC Hudson, Ohio	0600 - 0100	0.87	2.15	330! ** 30! ***
46 mi	WABD New York, N. Y.	August 1, 1945 - September 21, 1945			
83.75 Mc	RCA Princeton, New Jersey	0400 - 2200 (700 hours)			647! ** 30! ***
46.3 mi	(USN) Gila Bend, Arizona	1946 - 1947		horizontal and vertical polar- ization	
25, 63, 170, 520, 1000, 3300, 24000 Mc	(USN) Dateland, Arizona	24 hours per day		horizontal and vertical polar- ization	Various Various
46.7 mi	Georgia Institute of Technology, Atlanta, Georgia	12/14/48-12/21/48 1/24/49 - 1/29/49		35.15	
9404 Mc	Georgia Institute of Technology, Potts Mt., Georgia	Various		35.15	60! *** 13! ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
46.7 mi	Georgia Institute of Technology, Atlanta, Georgia	12/14/48 - 12/21/48		28.15	
2860 Mc	Georgia Institute of Technology, Potts Mt., Georgia	1/24/49 - 1/29/49		28.15	60' *** 13' ***
46.7 mi	Georgia Institute of Technology, Atlanta, Georgia	12/14/48 - 12/21/48		23.15	
1310 Mc	Georgia Institute of Technology, Potts Mt., Georgia	1/24/49 - 1/29/49		23.15	60' *** 13' ***
47.3 mi	Georgia Institute of Technology, Atlanta, Georgia	8/25/48 - 9/6/48 11/16/48 - 11/22/48 12/10/48 - 12/13/48		35.15	
9404 Mc	Georgia Institute of Technology, Rich Mt., Georgia	Various		35.15	60' *** 13' ***
47.3 mi	Georgia Institute of Technology, Atlanta, Georgia	8/25/48 - 9/6/48 11/16/48 - 11/22/48 12/10/48 - 12/13/48		28.15	
2860 Mc	Georgia Institute of Technology, Rich Mt., Georgia	Various		28.15	60' *** 13' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
47.3 mi	Georgia Institute of Technology, Atlanta, Georgia	8/25/48 - 9/6/48 11/16/48 - 11/22/48 12/10/48 - 12/13/48		23.15	
1310 Mc	Georgia Institute of Technology, Rich Mt., Georgia	Various		23.15	60' *** 131' ***
47.5 mi	Georgia Institute of Technology, Atlanta, Georgia	10/9/48 - 10/18/48 11/10/48 - 11/15/48 1/16/49 - 1/21/48		35.15	
9404 Mc	Georgia Institute of Technology, Tolen Mt., Georgia	Various		35.15	60' *** 131' ***
47.5 mi	Georgia Institute of Technology, Atlanta, Georgia	10/9/48 - 10/18/48 11/10/48 - 11/15/48 1/16/49 - 1/21/49		28.15	
2860 Mc	Georgia Institute of Technology, Tolen Mt., Georgia	Various		28.15	60' *** 131' ***
47.5 mi	Georgia Institute of Technology, Atlanta, Georgia	10/9/48 - 10/18/48 11/10/48 - 11/15/48 1/16/49 - 1/21/49		23.15	
1310 Mc	Georgia Institute of Technology, Tolen Mt., Georgia	Various		23.15	60' *** 131' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
48 mi	KC2XAK Straford, Connecticut	8/50 - 6/50	26.99	14.53	38.39
534.75 Mc	NBC Lynbrook, New York	0800 - 2400	0.98	dipole and reflector	330' ** 48' ***
49 mi	Georgia Institute of Technology, Atlanta, Georgia	5/15/47-5/28/47		18.15	
9404 Mc	Georgia Institute of Technology, Mt. Oglethorpe, Ga.	Various		18.15	60' *** 13' ***
49 mi	Georgia Institute of Technology, Atlanta, Georgia	7/1/47 - 8/9/48		35.15	
9404 Mc	Georgia Institute of Technology, Mt. Oglethorpe, Ga.	Various		35.15	60' *** 13' ***
49 mi	Georgia Institute of Technology, Atlanta, Georgia	7/1/47 - 8/9/48		28.15	
2860 Mc	Georgia Institute of Technology, Mt. Oglethorpe, Ga.	Various		28.15	60' *** 13' ***

Distance in Miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
49 mi	Georgia Institute of Technology, Atlanta, Georgia	7/1/47 - 8/9/48		23.15	
1310 Mc	Georgia Institute of Technology, Mt. Oglethorpe, Ga.	Various		23.15	60! *** 13! ***
49.3 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 2/29/52	36.021	26.000	61.806
1046 Mc	(CRPL) Kendrick, Colorado	24 hrs/day	0.215	2.15	8800! **** 42.67! ***
49.3 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 3/31/52	33.010	10.400	43.106
192.8 Mc	(CRPL) Kendrick, Colorado	24 hrs/day	0.304	2.15	8800! *** 17.50! ***
49.3 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 3/31/52	33.010	9.980	42.886
100 Mc	(CRPL) Kendrick, Colorado	24 hrs/day	0.104	2.15	8800! **** 18.75! ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h in feet h_t in feet h_r
49.4 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 3/7/52	33.010	9.250	42.171
92 Mc	(CRPL) Kendrick, Colorado	24 hrs/day	0.089	2.15	7700! **** 36.75! ***
49.4 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 3/7/52	33.010	10.600	43.425
210.4 Mc	(CRPL) Kendrick, Colorado	24 hrs/day	0.185	2.15	7700! **** 35.50! ***
50 mi	WLTV Atlanta, Georgia	10/23/51 - 12/31/51			43.80
98.5 Mc	Atlanta News, Inc. Atlanta, Georgia	1000 - 2300 1500 - 2300			30! ***
50 mi	WSB-TV Atlanta, Georgia	10/30/51 - 12/31/51			46.99
98.5 Mc	Atlanta News, Inc. Atlanta, Georgia	0900 - 2400			30! ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
51 mi	Charing, England	2/16/42 - 2/18/42			
32.6 Mc	Leith Hill, England				
52.8 mi	KC2XAK Stratford, Connecticut	2/50 - 6/50	26.99	14.53	38.39
534.75 Mc	NBC New York, New York	0800 - 2400	0.98	Parabola 19.65	330' *** 864' ****
61-64 mi	Beachy Head, England	3/16/42 - 3/17/42			
32.6 Mc	Isle of Wight, England				
61.94 mi	KXOA-FM Sacramento, California		34.77	9.53	40.97
107.9 Mc	FCC Livermore, California		1.18		187' * 30' ****

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
62 mi	KC2XAK Stratford, Connecticut		26.99	14.53	38.39
534.75 Mc	FCC, Storrs, Connecticut	0800 - 2400	00.98		330' ***
63.8 Mc	KCRA-FM Sacramento, California		34.77	6.72	40.41
96.1 Mc	FCC Livermore, California		1.08		392' * 30' ***
64 mi	WABD, New York, New York	6/48 - 10/48			41.54
83.75 Mc	Dumont Oxford, Connecticut			6.90	680' ***** 80' ***
65.1 mi	Davenport, England	4/48 - 8/49			23.01
90.9 Mc	Teddington, England	1000 - 2200			93.21' *** 11.2' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
66 mi	W2XMN Alpine, New Jersey	9/8/39 - 9/28/39 2/5/40 - 4/8/40			
42.8 Mc	RCA Riverhead, New York	1600 - 2300 (600 hrs)			770' *** 508' *****
51.4 mi	Bell Labs., Inc., Beer's Hill, New Jersey	1934-1935			
25.7, 34.3, 51.4, 89.3, 102.8, 140, 160, 180 Mc	Bell Labs., Inc., Lebanon, New Jersey				(52' *** (817' *****
66 mi	W2XMN Alpine, New Jersey	6/12/47 - 11/4/47			
44.1 Mc	RCA Riverhead, New York	1500 - 2300 (507 hrs)			(770' ** (880' ***** 60' ****
66 mi	W2XMN Alpine, New Jersey	6/12/47 - 11/4/47			
44.1 Mc	RCA Riverhead, New York	1500 - 2300 (511 hrs)			770' ** 30' ****

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
66 mi	W2XEA Alpine, New Jersey	6/12/47 - 11/4/47			
92.1 Mc	RCA Riverhead, New York	1500 - 2300 (124 hrs)			770' ** 30' ***
66 mi	W2XEA Alpine, New Jersey	6/12/47 - 11/4/47			
92.1 Mc	RCA Riverhead, New York	1500 - 2300 (522 hrs)			770' ** 30' ***
67 mi	W2XMN Alpine, New Jersey	9/47 and 10/47			
44.1 Mc	E. H. Armstrong Westhampton Beach, New York				770' ** 40' ***
67 mi	W2XEA Alpine, New Jersey	9/47 and 10/47			
92.1 Mc	E. H. Armstrong Westhampton Beach, New York				770' ** 40' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
67.2 mi	KE2XCC Alpine, New Jersey	6/49 - 12/50			46.99
93.1 Mc	RCA Riverhead, New York	1600 - 2300 1500 - 2200			795' ** 30' ***
68 mi	W2XCT New York, New York	5/10/46 - 9/14/46		dipole and reflector	28.13
700 Mc	FCC Southampton, Pennsylvania	0815 - 2345		dipole and horn	909' * 30' ***
68 mi	WBAM New York, New York	5/10/46 - 11/20/46	37.85 X	2.15	40.00
47.1 Mc	FCC Southampton, Pennsylvania	0800 - 2400		2.15	600' * 30' ***
68 mi	WBAM New York, New York	5/10/46 - 10/11/46	26.45 X	2.15	28.60
106.5 Mc	FCC Southampton, Pennsylvania	0800 - 2400		2.15	600' * 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
68 mi	WBAM New York, New York	10/12/46 - 11/20/46	28.60 ^X	21.18	47.63
106.5 Mc	FCC Southampton, Pennsylvania	0800 - 2400		2.15	600' * 30' ***
70 mi	W2XRA New York, New York	8/8/45 - 9/24/45			
107 Mc	FCC Andalusia, Pennsylvania	1700 - 2300 (200 hrs)			714' ** 30' ***
70 mi	W2XWG New York, New York	2/12/41 - 6/8/42 6/1/43 - 9/30/43 1/1/44 - 2/29/44			
45.1 Mc	RCA Riverhead, New York	1300 - 2100 (3500 hrs)			1270' ** 60' ***
70 mi	WABC-FM New York, New York	8/1/45 - 9/20/45			
46.7 Mc	FCC Andalusia, Pennsylvania	0400 - 1500 0800 - 2100 (392 hrs)			780' ** 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
70 mi	W2XBS New York, New York	8/4/39 - 8/4/40			
49.75 Mc	RCA Riverhead, New York	1330 - 2130 (2500 hrs)			1270' ** 60' ***
70 mi	WNBC-FM New York, New York	6/1/47 - 10/22/47			
97.3 Mc	RCA Riverhead, New York	1500 - 2330 (1240 hrs)			1270' ** 60' ***
70 mi	W2XKH New York, New York	9/46 - 5/46			
116.25 Mc	RCA Riverhead, New York	24 hrs/day (20,000 hrs)			600' ** 132' ***
70.1 mi	RCA New York New York	8/43 and 2/44	$6.13 \leq P_t \leq 12.46$		
474 Mc	RCA Riverhead, New York	24 hrs/day (1400 hrs)			1260' ** 124' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
70.1 mi	W2XWG New York, New York	1943-1944			18.75
45.1 Mc	RCA Riverhead, New York				132! ***
70.1 mi	RCA Riverhead, New York	1943-1944	$1.55 \leq P_t \leq 6.23$	horn	
2800 Mc	RCA Riverhead, New York			horn	68! ***
70.1 mi	RCA New York, New York	8/21/46 - 11/15/46			34.50
288 Mc	RCA Riverhead, New York	daylight (243 hrs)			1260! *** 70! ***
70.2 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 3/7/52	33.010	9.25	42.171
92 Mc	(CRPL) Karval, Colorado	24 hrs/day	0.089	2.15	7700! **** 36.75! ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
70.2 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 3/31/52	33.010	9.980	42.886
100 Mc	(CRPL) Karval, Colorado	24 hrs/day	0.104	2.15	8800! **** 18.75! ****
70.2 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 3/31/52	33.010	10.400	43.106
192.8 Mc	(CRPL) Karval, Colorado	24 hrs/day	0.304	2.15	8800! **** 17.50! ****
70.2 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 2/29/52	36.021	26.000	61.806
1046 Mc	(CRPL) Karval, Colorado	24 hrs/day	0.215	2.15	8800! **** 42.69! ****
71 mi	WABD New York, New York	8/1/45 - 9/21/45			
83.75 Mc	FCC Andalusia, Pennsylvania	0400 - 2200 (716 hrs)			647! ** 30! ****

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
71.8 mi	KFMB-TV San Diego California	11/51 - 6/30/53	33.98	10.34	41.37
185.75 Mc	FCC Santa Ana California	1000 - 2400	6.80	2.15	989' * 30' ***
74.1 mi	KTSA-FM San Antonio, Texas	4/28/50 - 10/24-50	34.77	9.31	41.17
101.5 Mc	Univ. of Texas, Austin, Texas	1500 - 2200	0.76	2.15	216' * 32' ***
76 mi	WABX-FM Harrisburg, Pennsylvania	3/9/51 - 8/28/51	28.13	4.02 ^X	30.00
100.9 Mc	FCC Laurel, Maryland	1400 - 2000		2.15	-105' * 30' ***
76.3 mi	W9XG Milwaukee, Wisconsin	7/20/45 - 9/21/45	$26.13 \leq P_t \leq 32.15$	10.00	$33.98 \leq P_r \leq 40.00$
91 Mc	Zenith Deerfield, Illinois	1100 - 2300 (600 hrs)		2.15	350' ** 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
76.3 mi	WMFM Milwaukee, Wisconsin	7/20/45 - 9/21/45	44.76	3.05	45.44
45.5 Mc	Zenith Deerfield, Illinois	1100 - 2300 (600 hrs)	0.22		390' ** 30' ***
78.3 mi	KTSA-FM San Antonio, Texas	11/1/49 - 4/27/50	34.77	16.40	48.26
101.5 Mc	Univ. of Texas, Austin, Texas	1500 - 2200	0.76	2.15	216' * 32' ***
78.3 mi	KYFM San Antonio, Texas	4/18/49 - 8/31/49	34.77	16.40	48.26
101.5 Mc	Univ. of Texas, Austin, Texas	1100 - 2200 1000 - 2300	0.76	2.15	460' * 22' ***
78.3 mi	KYFM/KTSA-FM San Antonio, Texas	9/1/49 - 10/31/49	34.77	16.40	48.26
101.5 Mc	Univ. of Texas, Austin, Texas	1400 - 2100	0.76	2.15	460' ** 32' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
80 mi	W2XMN Alpine, New Jersey	2/49 and 3/49			
44.1 Mc	E. H. Armstrong, Mt. Holly, New Jersey				800' ** 40' ***
80 mi	W2XEA Alpine, New Jersey	2/49 and 3/49			
93.1 Mc	E. H. Armstrong, Mt. Holly, New Jersey				800' ** 40' ***
80.6 mi	WTIC-FM Hartford, Connecticut	4/51 - 7/31/52	33.01	9.55	39.03
96.5 Mc	FCC Millis, Massachusetts	0500 - 0100 0700 - 0100	1.38	2.15	875' * 30' ***
84.2 mi	KFSD-FM San Diego, California	2/51 - 6/30/53	39.34	9.93	45.19
94.1 Mc	FCC Santa Ana, California	1500 - 2100	1.93	2.15	465' * 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
86.1 mi	Collins Cedar Rapids, Iowa	12/5/49 - 12/13/49	32.67	14.5	43.80
412 Mc	Collins Mitchellville, Iowa	24 hrs/day	1.22	21.46	41' *** 10' ***
86.1 mi	Collins Cedar Rapids, Iowa	12/16/49 - 12/21/49	32.85	14.5	43.98
412 Mc	Collins Mitchellville, Iowa	24 hrs/day	1.22	21.46	41' *** 10' ***
86.1 mi	Collins Cedar Rapids, Iowa	1/6/50 - 1/12/50	32.67	14.50	43.80
412 Mc	Collins Mitchellville, Iowa	24 hrs/day	1.22	21.46	41' *** 10' ***
86.1 mi	Collins Cedar Rapids, Iowa	1/23/50 - 1/30/50	32.58	14.50	43.71
412 Mc	Collins Mitchellville, Iowa	24 hrs/day	1.22	21.46	41' *** 10' ***

Distance in miles	Frequency in Mc	Transmitter and Location	Months Recorded	P _t in DB above 1 watt	G _t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
		Recording Agency and Location	Hours Recorded	L _t in DB	G _r in DB	h_t in feet h_r in feet
86.1 mi		Collins Cedar Rapids, Iowa	11/16/49 - 11/23/49	32.85	14.50	43.98
410 Mc		Collins Mitchellville, Iowa	24 hrs/day	1.22	21.46	41' *** 10' ***
86.1 mi		Collins Cedar Rapids, Iowa	2/6/50 - 2/20/50	32.23	14.50	43.36
412 Mc		Collins Mitchellville, Iowa	24 hrs/day	1.22	21.46	41' *** 10' ***
86.1 mi		Collins Cedar Rapids, Iowa	3/50	32.49	14.50	43.62
412 Mc		Collins Mitchellville, Iowa	24 hrs/day	1.22	21.46	41' *** 10' ***
90.9 mi		WHDL-FM Olean, New York	5/16/51 - 6/30/53	39.03	9.93	46.33
95.7 Mc		Pa. State College, State College, Pennsylvania	0700 - 2300	0.48	2.15	830' ** 63' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
91.5 mi	KC2XXAK Stratford, Connecticut		26.99	14.53	38.39
534.75 Mc	FCC N. Scitante, Rhode Island	0800 -- 2400	0.98		3301**
92.1 mi	USN San Pedro, California	8/29/44 - 10/4/44			
547 Mc	USN San Diego, California	24 hrs/day (888 hrs)			1001 ** 1001 ***
93.2 mi	KFOR-FM Lincoln, Nebraska	2/51 - 8/31/52	34.77	11.29	43.42
102.9 Mc	FCC Grand Island, Nebraska	1500 - 2400	0.49	2.15	2541 * 451 ***
95.6 mi	WEFU-FM Reading, Pennsylvania	9/5/51 - 3/17/52 6/1/52 - 11/30/52	33.80	8.12	39.54
92.9 Mc	FCC Laurel, Maryland	1400 - 2100	0.23	2.15	6651 * 301 ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
96 mi	WEWS-FM Cleveland, Ohio	10/48 - 5/49	34.77	8.17	40.13
102.1 Mc	E. C. Page Detroit, Michigan	0700 - 2400 (1740 hrs)	0.66	2.15	640' * 30' ***
96.6 mi	WCOD Richmond, Virginia	6/10/47 - 8/8/47			
96.3 Mc	(CRPL) Washington, D. C.	0700 - 1300 (1000 hrs)			376' ** 85' ***
96.6 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 3/31/52	33.010	9.980	42.886
100 Mc	(CRPL) Haswell, Colorado	24 hrs/day	0.104	2.15	8800' **** 18.75' ***
96.6 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 3/31/52	33.010	10.400	43.106
192.8 Mc	(CRPL) Haswell, Colorado	24 hrs/day	0.304	2.15	8800' **** 17.50' ****

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	$P_t + G_t - L_t - 2.15$ h_t in feet h_r in feet
96.6 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 2/29/52	36.021	26.00	61.806
1046 Mc	(CRPL) Haswell, Colorado	24 hrs/day	0.215	2.15	8800! **** 42.67! ***
96.78 mi	KDKA-FM Pittsburgh, Pennsylvania	2/25/52 - 6/30/53	34.15	8.38	39.64
92.9 Mc	UBC Hudson, Ohio	1000 - 2400	0.74	2.15	670! ** 30! ***
96.8 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 3/7/52	33.010	9.25	42.171
92 Mc	(CRPL) Haswell, Colorado	24 hrs/day	0.089	2.15	7700! **** 36.75! ***
96.8 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colo.	1/20/52 - 3/7/52	33.010	10.60	43.425
210.4 Mc	(CRPL) Haswell, Colorado	24 hrs/day	0.185	2.15	7700! **** 35.50! ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
97 mi	WJW-FM Cleveland, Ohio	10/48 - 1/49	38.32	4.83 ^X	41.00
104.1 Mc	E. C. Page Detroit, Michigan	0700 - 1500 (646 hrs)		2.15	730' ** 30' ***
97.5 mi	WHK-FM Cleveland, Ohio	6/14/49 - 7/20/49	37.71	5.05 ^X	40.61
100.7 Mc	E. C. Page Detroit, Michigan	0500 - 2400		2.15	670' ** 30' ***
98 mi	Collins Cedar Rapids, Iowa	10/27/49 - 11/3/49	42.50	5.00	44.15
410 Mc	Collins Waukon, Iowa	24 hrs/day	1.2	21.46	40' *** 10' ***
98 mi	KC2XAK Stratford, Connecticut	4/50	26.99	14.53	38.39
534.75 Mc	RCA Princeton, New Jersey	0800 - 2400	0.98		330' *** 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
98 mi	P. O. Eng. Dept., Coldfield, England	12/19/49 - 6/30/50			
58.25 Mc	P. O. Eng. Dept., Castleton, England			9.30	700' *** 50' ***
99.4 mi	WENR-FM Chicago, Illinois	3/51 - 7/15/52	36.43	9.93	43.98
94.7 Mc	FCC Allegan, Michigan	1430 - 2100	0.23	2.15	618' * 30' ***
99.4 mi	Alexandra Palace	12/46, 10/47, 1/48, 5/48, 9/48	38.00 X	4.15	40.00
45 Mc	Malvern, England				55.9' *** 13.0' ***
103 mi	WBKB Chicago, Illinois	10/2/41 - 1/12/42			
65.75 Mc	FCC Allegan, Michigan				390' ** 50' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
103 mi	WGTR Paxton, Massachusetts	9/28/39 - 11/10/39			
43 Mc	RCA Riverhead, New York	Evening Hours			613' ** 60' ***
103.9 mi	WCAU-TV Philadelphia, Pennsylvania	2/3/51 - 6/30/53	33.98	10.54	41.46
197.75 Mc	FCC Laurel, Maryland	0800 - 0130 0930 - 0100	0.91	2.15	700' * 30' ***
104 mi	KYW - FM Philadelphia, Pennsylvania	2/43 - 9/43			
45.7 Mc	FCC Laurel, Maryland	1500 - 2000 1500 - 2200 (993 hrs)			346' ** 30' ***
104.2 mi	WIP - FM Philadelphia, Pennsylvania	3/9/51 - 10/10/52	36.13	9.87	43.01
93.3 Mc	FCC Laurel, Maryland	0900 - 2400	0.84	2.15	477' * 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
108 mi	WPTZ Philadelphia, Pennsylvania	3/44 - 7/44			
71.75 Mc	FCC Laurel, Maryland	181 hours			286' ** 30' ***
111.8 mi	WXYZ-TV Detroit, Michigan	4/50 - 6/30/53	33.98	10.21	41.43
179.75 Mc	UBC Hudson, Ohio	0700 - 0100	0.61	2.15	485' ** 33' ***
112.7 mi	WJR-FM Detroit, Michigan	6/1/50 - 6/30/53	36.33	9.93	43.80
96.3 Mc	UBC Hudson, Ohio	0700 - 2400	0.31	2.15	480' ** 31' ***
115 mi	FCC Dans' Rock Maryland	4/14/49 - 10/31/49			
400 Mc	FCC Laurel, Maryland	Various (4800 hrs)			2250' ** 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P _t in DB above 1 watt	G _t in DB	ERP in DB above 1 watt
Frequency in Mc	Recording Agency and Location	Hours Recorded	L _t in DB	G _r in DB	$P_t + G_t - L_t - 2.15$ h _t in feet h _r in feet
115.7 mi	KC2XAK Stratford, Connecticut	7/15/50 - 9/10/50 3/51 - 8/23/52	26.99	14.53	38.39
534.75 Mc	FCC Millis, Massachusetts	0800 - 2400	0.98	dipole and re- flector	345' * 35' ***
117.1 mi	WJAS-FM Pittsburgh, Pennsylvania	6/20/51 - 6/30/53	39.44	6.92	43.80
99.7 Mc	Pa. State College, State College, Pennsylvania	0800 - 0100	0.41	2.15	470' ** 63' ***
118.7 mi	KMJ-FM Fresno, California	9/24/52 - 6/30/53	34.77		38.63
97.9 Mc	FCC Livermore, California				663' * 30' ***
118.8 mi	WVCO Columbus, Ohio	4/51	40.00	9.94	47.16
94.7 Mc	UBC Hudson, Ohio	1200 -- 2300	0.63	2.15	220' ** 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
120 mi	WDSU-TV New Orleans, Louisiana	9/5/49 - 10/3/49	36.99	8.85	41.87
87.75 Mc	E. C. Page Lafayette, Louisiana	1200 - 2400	1.82	2.15	390' ** 30' ***
121.2 mi	WCOL-FM Columbus, Ohio	4/15/50 - 6/30/53	40.00	8.42	45.25
92.3 Mc	UBC Hudson, Ohio	0700 - 0300 0900 - 0100	1.02	2.15	380' ** 30' ***
121.2 + 5 mi	WCOL-FM Columbus, Ohio	7/9/51 - 6/30/53	40.00	8.42	45.25
92.3 Mc	UBC Hudson, Ohio	0600 - 0100	1.02	biconical (mobile)	380' ** 30' ***
121.7 mi	KARM-FM Fresno, California	4/17/51 - 6/30/53	34.77	7.75	38.69
101.9 Mc	FCC Livermore, California	1400 - 2100	1.68	2.15	390' * 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	$E_{i,P}$ in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
121.8 mi	WAFM-TV Birmingham, Alabama	7/49 - 6/30/53	33.98	10.66	41.14
215.75 Mc	FCC Powder Springs, Georgia	0900 - 2330 1200 - 2330	1.35	2.15	808' ** 30' ***
122 mi	WFMF Milwaukee, Wisconsin	10/43 - 8/44			
45.5 Mc	FCC Allegan, Michigan	1100 - 2300 (3140 hrs)			711' * 50' ***
124.9 mi	WHKC-FM Columbus, Ohio	4/28/50 - 6/30/53	39.24	9.03	44.77
98.7 Mc	UBC Hudson, Ohio	0600 - 0100	1.35	hor. di. #1 2.15	560' ** 30' **
124.9 mi	WHKC-FM Columbus, Ohio	1/30/52 - 2/25/52	39.24	9.03	44.77
98.7 Mc	UBC Hudson, Ohio	0600 - 0100	1.35	hor. di. #2 2.15	560' ** 30' ***

Distance in miles	Transmitter and Location	Months Recorded	F_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
124.9 mi	WHKC Columbus, Ohio	11/6/51 - 6/30/53	39.24	9.03	44.77
98.7 Mc	UBC Hudson, Ohio	0600 - 0100	1.35	Yagi 5.8	560' ** 31' ***
124.9 mi	WHKC-FM Columbus, Ohio	4/50 - 6/30/53	39.24	9.03	44.77
98.7 Mc	UBC Hudson, Ohio	0600 - 0100	1.35	vert. di. 2.15	560' ** 30' ***
124.9 + 5 mi	WHKC-FM Columbus, Ohio	7/9/51 - 6/30/53	39.24	9.03	44.77
98.7 Mc	UBC Hudson, Ohio	0600 - 0100	1.35	biconical (mobile)	560' ** 30' ***
124.9 mi	WHKC-FM Columbus, Ohio	1/1/50 - 2/51	39.24	9.03	44.77
98.7 Mc	UBC Hudson, Ohio	0600 - 0100	1.35	8.98	560' ** 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
124.9 mi	WHKC-FM Columbus, Ohio	2/51 - 1/21/52	39.24	9.03	44.77
98.7 Mc	UBC Hudson, Ohio	0600-0100	1.35	9.5 helical	560' ** 30' ***
125.5 mi	KC2XAK Stratford, Connecticut		26.99	14.53	38.39
534.75 Mc	Philco Meadowbrook, Pennsylvania	0800 - 2400	0.98		420' **** 330' **
126 mi	WMBI-FM Chicago, Illinois	8/18/51 - 7/1/52	40.00	2.88	46.23
95.5 Mc	Univ. of Illinois, Urbana, Illinois	0600 - 2200	1.50	2.15	440' ** 90' ****
126 mi	WMBI Chicago, Illinois	7/16/50 - 8/17/51	40.00	10.28	46.63
95.5 Mc	Univ. of Illinois Urbana, Illinois	0600 - 2200	1.50	2.15	440' ** 90' ****

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
126 mi	WNBC Chicago, Illinois	9/50 - 9/51	33.98	9.39	40.90
81.75 Mc	Univ. of Illinois Urbana, Illinois	0800 - 2400	0.32	2.15	595' **
126 mi	BBC TV Service Alexandra Palace, London, England	10/47 - 3/49	34.77 ^X	2.15	34.77
41.5 Mc	P. O. Radio Lab., Castleton, England	1100 - 1200 1500 - 1600 2100 - 2200			600' **** 350' ****
127 mi	WBKB-TV Chicago, Illinois	5/17/51 - 8/7/51			38.75
77.75 Mc	Univ. of Illinois Urbana, Illinois	0800 - 0100	0.24	2.15	595' ** 90' ****
127 mi	WENR-TV Chicago, Illinois	7/1/51 - 6/30/53	33.89	10.25	41.46
179.75 Mc	Univ. of Illinois Urbana, Illinois	1000 - 2200 0900 - 2400	0.53		660' **

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
127 mi	WBKB-TV Chicago, Illinois	8/7/51 - 6/30/53			41.00
71.75 Mc	Univ. of Illinois Urbana, Illinois	0800 - 0100	0.24	2.15	595' ** 90' ***
127 mi	WGN-TV Chicago, Illinois	8/50 - 3/51			41.43
191.75 Mc	Univ. of Illinois Urbana, Illinois	0900 - 0100			537' *** 72.5' ***
127 mi	WGN-TV Chicago, Illinois	7/1/51 - 8/3/51			38.63
191.75 Mc	Univ. of Illinois Urbana, Illinois	0900 - 0100			537' *** 72.4' ***
127 mi	WGN-TV Chicago, Illinois	8/4/51 - 6/30/53			41.61
191.75 Mc	Univ. of Illinois Urbana, Illinois	0900 - 0100			537' *** 72.4' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
127 mi	WGN-TV Chicago, Illinois	9/1/51 - 6/30/53			41.61
191.75 Mc	Univ. of Illinois Urbana, Illinois	0900 -- 0100			537' *** 97.8' ***
127 mi	WGN-TV Chicago, Illinois	7/1/51 - 8/3/51			38.63
191.75 Mc	Univ. of Illinois Urbana, Illinois	0900 - 0100			537' *** 122.9' ***
127 mi	WGN-TV Chicago, Illinois	8/4/51 - 6/30/53			41.61
191.75 Mc	Univ. of Illinois Urbana, Illinois	0900 - 0100			537' *** 122.9' ***
127 mi	WFME Chicago, Illinois		37.59	9.83	45.19
100.3	Univ. of Illinois Urbana, Illinois		0.08		540' **

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
115 mi	WGN-TV Chicago, Illinois	9/11/51			41.61
191.75 Mc	Univ. of Illinois Urbana, Illinois	0900 -- 0100		2.15	53.71 *** 72.41 ***
127.3 mi	WBZ-FM Boston, Massachusetts	7/49 - 12/50	39.40	5.76 X	43.01
92.9 Mc	RCA Riverhead, New York	0900 - 2200 0800 - 2100			49.51 *** 30.1 ***
127.45 mi	WCAC Anderson, South Carolina	4/51 - 1/8/52 7/10/52 -	40.00	8.85	46.13
101.1 Mc	FCC Powder Springs, Georgia	0600 - 2400	0.57	2.15	44.81 * 30.1 ***
127.45 mi	WCAC Anderson, South Carolina	1/9/52 - 9/22/52	30.00	18.85	46.13
101.1 Mc	FCC Powder Springs, Georgia	0600 - 2400	0.57	2.15	44.81 * 30.1 ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
130 mi	KOAD Omaha, Nebraska	10/19/47 - 2/27/50			48.75
92.9 Mc	FCC Grand Island, Nebraska	0700 - 2300			514' ** 45' ***
130.6 mi	WOW-TV Omaha, Nebraska	4/3/51 -	33.98	8.15	39.29
87.75 Mc	FCC Grand Island, Nebraska	0930 - 2400 0930 - 2430 1300 - 2400	0.69	2.15	570' * 30' ***
130.6 mi	WOW-TV Omaha, Nebraska	- 6/30/53	33.98	8.40	39.54
87.75 Mc	FCC Grand Island, Nebraska	0930 - 2400 0930 - 2430 1300 - 2400	0.69	2.15	570' * 30' ***
131 mi	KMAR Bakersfield, California	4/20/51 - 6/30/53	34.77	4.10 ^X	36.72
92.5 Mc	FCC Santa Ana, California	1500 - 2100		2.15	578' * 30' **

Distance in miles	Frequency in Mc	Transmitter and Location	Months Recorded	ERP in DB	
				P_t in DB above 1 watt	G_t in DB
		Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB
131.4 mi		KMTV Omaha, Nebraska	4/13/51 - 6/30/53	33.98	7.70
65.75 Mc		FCC Grand Island, Nebraska	1000 - 2300 0900 - 2300	0.50	2.15
133.9 mi		Collins, Cedar Rapids, Iowa	4/14/50 - 4/30/50	$32.60 \leq P_t \leq 33.84$	14.50
412 Mc		Collins, Quincy, Illinois	24 hrs/day	1.96	21.46
133.9 mi		Collins, Cedar Rapids, Iowa	5/11/50 - 5/28/50	$32.60 \leq P_t \leq 33.84$	14.50
412 Mc		Collins, Quincy, Illinois	24 hrs/day	1.96	21.46
135.5 mi		KRFM - FM Fresno, California	8/13/52 - 6/30/53	40.00	10.74
93.7 Mc		FCC Livermore, California		0.14	

ERP in DB
above 1 watt
 $P_t + G_t - L_t - 2.15$

h_t in feet
 h_r in feet

39.03
570' *
30' ***

$42.99 \leq P_r \leq 44.23$

41' ***
10' ***

$42.99 \leq P_r \leq 44.23$

41' ***
10' ***

48.45
2570' *
30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	$P_t + G_t - L_t - 2.15$ h_t in feet h_r in feet
134.3 mi	WTOP-FM Washington, D.C.	8/2/51 - 4/17/52	38.13	7.47	43.01
96.3 Mc	Pa. State College, State College, Pennsylvania	0500 - 0200	0.44	2.15	390' ** 63' ***
136.8 mi	WTOP-FM Washington, D.C.	4/17/52 - 6/30/53	38.13	7.47	43.01
96.3 Mc	Pa. State College State College, Pennsylvania	0500 - 0200	0.44	2.15	500' ** 63' ***
138.5	KVCI Chico, California	4/51 - 8/12/52	34.77	8.35	39.91
101.1 Mc	FCC Livermore, California	0700 - 2400	1.06	2.15	429' * 30' ***
139 mi	WCSI-FM Columbus, Indiana	7/16/50 - 6/30/53	40.00	11.08	48.51
93.7 Mc	Univ. of Illinois Urbana, Illinois	0600 - 2300	0.41	2.15	250' **

Distance in miles	Frequency in Mc	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
		Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
139.3 mi		WEST-FM Easton, Pennsylvania	7/31/51 - 6/30/53	34.77	8.23	40.41
107.9 Mc		Pa. State College State College, Pennsylvania	0600 - 2400	0.44	2.15	50' ** 63' ***
139.5 mi		WDET-FM Detroit, Michigan	8/26/52 - 6/30/53	38.80	10.5 X	47.16
101.9 Mc		FCC Allegan, Michigan				312' * 30' ***
142.2 mi		WOAI-TV San Antonio, Texas	3/17/53 - 6/30/53	40.41	9.40	46.90
71.75 Mc		Univ. of Texas Austin, Texas		0.67		480' **
142.2 mi		WOAI-TV San Antonio, Texas	9/27/52 - 3/16/53	33.98	9.40	40.33
71.75 Mc		Univ. of Texas Austin, Texas		0.90		480' **

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
142.6 mi	KPRC-TV Houston, Texas	3/2/51 - 7/17/52	33.98	7.37	38.75
59.75 Mc	Univ. of Texas Austin, Texas	1100 - 2400 1200 - 2400	0.45	2.15	500' ** 321' ***
142.6 mi	KPRC-TV Houston Texas	7/18/52 -- 6/15/53	33.98	7.37	38.75
59.75 Mc	Univ. of Texas Austin, Texas	0700 - 2400 1000 - 2400	0.45	2.15	500' ** 321' ***
144.1 mi	WJBK-TV Detroit, Michigan	9/25/52 - 6/30/53	33.99	7.91	39.19
59.75 Mc	FCC Allegan, Michigan		0.56		481' * 30' ***
144.9 mi	KING-FM Seattle, Washington	8/49 - 6/30/53	34.77	9.37	41.76
98.1 Mc	FCC Portland, Oregon	1400 - 2300	0.23	2.15	425' * 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
145 mi	WGRS-FM Greenwood, South Carolina	8/11/48 - 1/31/49	34.77	6.72 ^X	39.34
95.7 Mc	FCC Powder Springs, Georgia	1900 - 2300		2.15	435' ** 30' ***
145 mi	WMRC-FM Greenville, South Carolina	8/10/48 - 1/31/49			48.98
94.9 Mc	FCC Powder Springs, Georgia	0700 - 2300		2.15	1220' * 30' ***
146 mi	KXOK-FM St. Louis, Missouri	7/1/51 - 6/30/53	40.00	11.24	48.51
93.7 Mc	Univ. of Illinois Urbana, Illinois	0600 - 2300	0.58	2.15	550' **
147.1 mi	KPRC-FM Houston, Texas	4/7/49 - 6/13/51	40.00	9.93	47.56
102.9 Mc	Univ. of Texas Austin, Texas	0600 - 2200	0.22	2.15	305' * 32' ***

Distance
in miles

Frequency
in Mc

Transmitter and
Location

Months Recorded

P_t in DB
above 1 watt

G_t in DB

ERP in DB
above 1 watt
 $P_t + G_t - L_t - 2.15$

Recording Agency
and Location

Hours Recorded

L_t in DB

G_r in DB

h_t in feet
 h_r in feet

147.2 mi	KXYZ-FM Houston, Texas	6/13/51 - 12/31/52	39.85	3.92	41.46
96.5 Mc	Univ. of Texas Austin, Texas	0700 - 2200 0700 - 2300	0.16	2.15	440' ** 32' ***
149.9 mi	KOIN-FM Portland, Oregon	6/23/51 - 6/30/53	40.00	8.96	45.91
101.1 Mc	Univ. of Washington Seattle, Washington	24 hrs/day	0.90	2.15	1390' ** 94' ***
150.4 mi	WBZ-FM Boston, Massachusetts	8/49 - 11/50	39.40	5.75 ^X	43.01
92.9 Mc	RCA Hauppauge, New York	0900 - 2200 0800 - 2100			495' ** 30' ***
151.4 mi	WMRC-FM Greenville, South Carolina	12/25/51			48.98
94.9 Mc	FCC Powder Springs, Georgia	0700 - 2300		2.15	1220' * 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
152 mi	WCAP-FM Portsmouth, Virginia	4/30/48 - 7/16/49			50.00
99.7 Mc	CRPL Washington, D. C.	0500 - 0100		Yagi 9.3	360' * 82' ***
160 mi	WLTW Atlanta, Georgia	10/26/51 - 12/31/51			43.80
98.5 Mc	Atlanta News, Inc. Atlanta, Georgia	1000 - 2300 1500 - 2300			30' ***
160 mi	WSB-TV Atlanta, Georgia	10/30/51 - 12/31/51			46.99
98.5 Mc	Atlanta News, Inc. Atlanta, Georgia	0900 -- 2400			30' ***
167 mi	W2XMN Alpine, New Jersey	2/45 - 1/46			46.99
42.8 Mc	MIT Needham, Massachusetts	1600 - 2300 (2555 ars)			647' ** 50' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
167.8 mi	Moorside Edge, England	6/47 - 11/48	43.02 ^X	5.15	46.02
91.5 Mc	Teddington, England	0900 - 1030 (1400 hrs)		11.15	976' *** 11.2' ***
168.1 mi	WEVD-FM New York, New York	9/18/52 - 6/30/53	36.53	9.93	43.01
107.5 Mc	FCC Millis, Massachusetts		1.30		340' * 30' ***
169.6 mi	WPRO-FM Fremont, Ohio	3/51 - 8/25/52	23.42	9.52	30.00
99.3 Mc	FCC Allegan, Michigan	0730 - 2100	0.79	2.15	215' * 30' ***
174.2 mi	WFAA-FM Dallas, Texas	8/5/49 - 8/31/50			46.33
97.9 Mc	Univ. of Texas Austin, Texas	0700 - 2200 1500 - 2200		2.15	525' * 32' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB	
					$P_t + G_t$ - L_t - 2.15	above 1 watt
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet	
175.1 mi	WFAA-TV Dallas, Texas	4/25/51 - 6/15/53	33.98	10.37	41.30	
185.75 Mc	Univ. of Texas Austin, Texas	Various	0.9	2.15	350' ** 321' ***	
175.6 mi	KRBC-FM Abilene, Texas	4/14/50 - 6/10/50			46.63	
96.9 Mc	Univ. of Texas Austin, Texas	1500 - 2100		2.15	592' ** 321' ***	
175.8 mi	KIXL-FM Dallas, Texas	6/13/50 - 6/30/53	$39.03 \leq P_t \leq 39.40$	8.87	$44.91 \leq P_r \leq 45.05$	
104.5 Mc	Univ. of Texas Austin, Texas	23 hrs/day	0.66	2.15	449' * 321' ***	
179.8 mi	WATV Newark, New Jersey	11/27/51 - 6/30/53	33.98	10.75	44.84	
215.75 Mc	FCC Millis, Massachusetts		0.35		717' * 301' ***	

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
185.7 mi	WDAE-FM Tampa, Florida	8/7/52-6/30/53	40.00	10.88	48.13
100.7 Mc	FCC Ft. Lauderdale, Florida		0.60		390' **
185.8 mi	WHCC-FM Orlando, Florida	10/13/52-6/30/53	40.00	11.74	47.71
96.5 Mc	FCC Ft. Lauderdale, Florida		1.88		
186 mi	W2XCT New York, New York	5/1/46-6/25/46 7/23/46-9/14/46		dipole and reflector	28.13
700 Mc	FCC Laurel, Maryland			dipole and horn	509' *** 30' ***
186 mi	WBAM New York, New York	5/10/46-6/14/46 7/22/46-5/30/47	37.85 ^X	2.15	40.00
47.1 Mc	FCC Laurel, Maryland			2.15	600' * 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
186 mi	WBAM New York, New York	5/17/46 - 6/26/46 7/22/46 - 10/11/46	26.45 ^X	2.15	28.60
106.5 Mc	FCC Laurel, Maryland	0800 - 2400		2.15	600' * 30' ***
186 mi	WBAM New York, New York	10/12/46 - 1/13/47	28.60 ^X	21.18	47.63
106.5 Mc	FCC < Laurel, Maryland	0800 - 2400		2.15	600' * 30' ***
186 mi	WBAM, New York, New York	1/14/47 - 5/30/47	26.45 ^X	2.15	28.60
106.5 Mc	FCC Laurel, Maryland	0800 - 2400		2.15	600' * 30' ***
186 mi	FCC New York, New York	5/10/46 - 9/14/46			
700 Mc	FCC Laurel, Maryland	0815 - 2315 (1200 hrs)			909' ** 30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
194 mi	WDSU-TV New Orleans, Louisiana	9/5/49 - 10/3/49	36.99	8.85	41.87
87.75 Mc	E. C. Page Lake Charles, Louisiana	1200 - 2400	1.82	2.15	390' ** 34.5' ***
186 mi	WABC-FM Princeton, New Jersey	8/1/45 - 9/20/45			
46.7 Mc	FCC Laurel, Maryland	0400 - 1500 0800 - 2100 (464 hrs)			780' ** 50' ***
187 mi	WABD New York, New York	8/1/45 - 9/21/45			
83.75 Mc	FCC Laurel, Maryland	0400 - 2200 (612 hrs)			647' ** 50' ***
188.8 mi	KDKA Pittsburgh, Pennsylvania	12/24/52 - 6/30/53	34.15	8.38	39.64
92.9 Mc	FCC Laurel, Maryland	1000 - 2400	0.74		670' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
190.7 mi	WMIT-FM Clingman's Peak, North Carolina	1/16/52 - 6/30/53	46.43	10.49 ^X	54.77
106.9 Mc	FCC Powder Springs, Georgia				3050' * 30' ***
191.1 mi	WJAS-FM Pittsburgh, Pennsylvania	11/24/52 - 6/30/53	39.44	6.92	43.80
99.7 Mc	FCC Laurel, Maryland		0.41		417' * 30' ***
198 mi	W2XMN Alpine, New Jersey	2/43 - 1/44			
42.8 Mc	FCC Laurel, Maryland	1600 - 2200 (2268 hrs)			900' *** 30' ***
204.9 mi	WNBFF-TV Binghamton, New York		36.99	13.39	47.20
209.75 Mc	FCC Laurel, Maryland		1.03	2.15	30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
205.6 mi	WKTV Utica, New York	11/51 - 6/30/53			38.13
215.75 Mc	FCC Millis, Massachusetts	1100 - 2400			830' ** 30' ***
221.4 mi	KPRC-FM Houston, Texas	9/2/52 - 6/30/53	40.00	9.93	47.56
102.9 Mc	FCC Kingsville, Texas		0.22		317' **
225 mi	WSB-TV Atlanta, Georgia	11/1/51 - 12/31/51			46.99
98.5 Mc	Atlanta News Inc. Atlanta, Georgia	0900 - 2400			30' ***
225 mi	WLTW Atlanta, Georgia	10/51 - 12/51			43.80
98.5 Mc	Atlanta News Inc. Atlanta, Georgia	1000 - 2300 1500 - 2300			30' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
225 mi	Collins Cedar Rapids, Iowa	8/15/48 - 8/21/48			
412 Mc	Collins New London Iowa	Various (110 hrs)			40' to 100' *** 10' ***
226.5 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 3/31/52	33.010	9.98	41.886
100 Mc	(CRPL) Garden City, Kansas	24 hrs/day	0.104 0.74	2.15	8800' ***** 18.75' ***
226.5 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 3/31/52	33.010	10.40	43.106
192.8 Mc	(CRPL) Garden City, Kansas	24 hrs/day	0.304 1.14	2.15	8800' ***** 1750' ***
226.5 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	2/23/52 - 2/25/52	36.021	26.00	61.806
1046 Mc	(CRPL) Garden City, Kansas	24 hrs/day	0.215 1.87	2.15	8800' ***** 42.67' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
226.6 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	1/20/52 - 3/7/52	33.010	9.25	42.171
92 Mc	(CRPL) Garden City, Kansas	24 hrs/day	0.089 0.97	2.15	7700! **** 36.75! ***
227.1 mi	KLTI-FM Longview, Texas	6/13/50 - 12/31/52	34.77	7.69	39.91
105.9 Mc	Univ. of Texas, Austin, Texas	15 hrs 12 hrs/day	0.40	2.15	425! ** 32! ***
252.7 mi	WKRC-TV Cincinnati, Ohio	4/15/51 - 10/22/52	33.85	10.55	40.90
203.75 Mc	FCC Allegan, Michigan	0800 - 2400	1.35	2.15	605! * 30! ***
252.7 mi	WKRC-TV Cincinnati, Ohio	10/27/52 - 6/30/53			40.97
209.75 Mc	FCC Allegan, Michigan	0800 - 2400		2.15	605! * 30! ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
267.9 mi	WHO-FM Des Moines, Iowa		46.99	12.64	56.02
100.3 Mc	FCC Grand Island, Nebraska		1.46		647' * 30' ***
270 mi	WBNY Buffalo, New York	3/17/52 - 6/14/52			46.83
92.9 Mc	FCC Laurel Maryland	(1576 hrs)		2.15	30' ***
277.3 mi	KWKH-FM Shreveport, Louisiana	8/1/51 - 6/15/53	34.77	96.9	41.30
94.5 Mc	Univ. of Texas Austin, Texas	0600 - 0100 0500 - 0100	1.01	2.15	393' *** 321' ***
291.2 mi	WABB-FM Mobile, Alabama	9/22/52 - 6/30/53	40.21	9.77	47.08
102.1 Mc	FCC Powder Springs, Georgia		0.75		285' **

Distance in Miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
295.5 mi	KC2XAX Cedar Rapids, Iowa	7/17/51 - 6/30/53			
49.8 Mc	FCC Allegan, Michigan				
313.8 mi	WDSU-TV New Orleans, Louisiana	2/29/52 - 6/21/52	36.99	8.85	41.87
87.75 Mc	FCC Houston, Texas	0900 - 2400	1.82	2.15	390' ** 30' ***
317.7 mi	WDSU-TV New Orleans, Louisiana	3/1/51 - 2/28/52	36.99	8.85	41.87
87.75 Mc	FCC Houston, Texas	0900 - 2400	1.82	2.15	390' ** 30' ***
320 mi	WDSU-TV New Orleans, Louisiana	1/20/50 - 4/27/50	36.99	8.85	41.87
87.75 Mc	FCC Houston, Texas	0700 - 2200	1.82	2.15	390' ** 60' ***

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
337 mi	WGTR Paxton, Massachusetts	2/43 - 1/44			
44.3 Mc	FCC Laurel, Maryland	0400 - 2200 (6884 hrs)			737' ** 30' ***
393.5 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	2/5/52 - 2/7/52	33.010	9.25	42.171
92 Mc	(CRPL) Anthony, Kansas	Intermittent periods	0.089	12.15	7700' ***** 39,000' *****
393.5 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	2/5/52 - 3/11/52	33.010	9.98	42.886
100 Mc	(CRPL) Anthony, Kansas	Intermittent periods	0.104	12.15	8800' ***** 39,000' *****
393.5 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	2/5/52 - 3/11/52	33.010	9.98	42.886
100 Mc	(CRPL) Anthony, Kansas	Intermittent periods	0.104	15.55	8800' ***** 39,000' *****

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	$P_t + G_t - L_t - 2.15$ h_t in feet h_r in feet
393.5 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	2/5/52 - 2/18/52	33.010	10.40	43.106
192.8 Mc	(CRPL) Anthony, Kansas	Intermittent periods	0.304	13.25	8800' **** 39.00' ****
393.5 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	2/5/52 - 2/20/52	36.021	26.00	61.806
1046 Mc	(CRPL) Anthony, Kansas	Intermittent periods	0.215	26.15	8800' **** 30.00' ****
440 mi	WABB-FM Mobile, Alabama	6/25/52 - 7/25/52	40.21	9.77	47.08
102.1 Mc	FCC Houston, Texas		0.75		285' **
616.3 mi	(CRPL) Cheyenne Mt., Colo. Springs, Colorado	2/21/52 - 2/24/52	33.010	9.98	42.886
100 Mc	(CRPL) Fayetteville, Arkansas	Intermittent periods	0.104	15.55	8800' **** 38.00' ****

Distance in miles	Transmitter and Location	Months Recorded	P _t in DB above 1 watt	G _t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L _t in DB	G _r in DB	h_t in feet h_r in feet
632.7 mi	WABB-FM Mobile, Alabama	9/2/52 - 6/30/53	40.21	9.77	47.08
102.1 Mc	FCC Kingsville, Texas		0.75		285' **
760 mi	WBAM New York, New York	5/16/46 - 2/26/47	37.85 ^X	2.15	40.00
47.1 Mc	FCC Powder Springs, Georgia	0800 - 2400		2.15	570' *** 30' ****
760 mi	WBAM New York, New York	5/16/46	26.45 ^X	2.15	28.60
106.5 Mc	FCC Powder Springs, Georgia	0800 - 2400		2.15	570' *** 30' ****
760 mi	WBAM New York, New York	10/12/46 - 1/13/46	28.60 ^X	21.18	47.63
106.5 Mc	FCC Powder Springs, Georgia	0800 - 2400		2.15	570' *** 30' ****

Distance in miles	Transmitter and Location	Months Recorded	P_t in DB above 1 watt	G_t in DB	ERP in DB above 1 watt $P_t + G_t - L_t - 2.15$
Frequency in Mc	Recording Agency and Location	Hours Recorded	L_t in DB	G_r in DB	h_t in feet h_r in feet
760 mi	WBAM New York, New York	1/14/47 - 1/17/47	26.45 ^X	2.15	28.60
106.5 Mc	FCC Powder Springs, Georgia	0800 - 2400		2.15	570' *** 30' ***
773.6 mi	Collins Cedar Rapids, Iowa		43.62	20.15	$P_r < 61.62$
49.8 Mc	(CRPL) Sterling, Virginia			20.15	41.2' *** 41.2' ***



THE NATIONAL BUREAU OF STANDARDS

Functions and Activities

The functions of the National Bureau of Standards are set forth in the Act of Congress, March 3, 1901, as amended by Congress in Public Law 619, 1950. These include the development and maintenance of the national standards of measurement and the provision of means and methods for making measurements consistent with these standards; the determination of physical constants and properties of materials; the development of methods and instruments for testing materials, devices, and structures; advisory services to Government Agencies on scientific and technical problems; invention and development of devices to serve special needs of the Government; and the development of standard practices, codes, and specifications. The work includes basic and applied research, development, engineering, instrumentation, testing, evaluation, calibration services, and various consultation and information services. A major portion of the Bureau's work is performed for other Government Agencies, particularly the Department of Defense and the Atomic Energy Commission. The scope of activities is suggested by the listing of divisions and sections on the inside of the front cover.

Reports and Publications

The results of the Bureau's work take the form of either actual equipment and devices or published papers and reports. Reports are issued to the sponsoring agency of a particular project or program. Published papers appear either in the Bureau's own series of publications or in the journals of professional and scientific societies. The Bureau itself publishes three monthly periodicals, available from the Government Printing Office: The Journal of Research, which presents complete papers reporting technical investigations; the Technical News Bulletin, which presents summary and preliminary reports on work in progress; and Basic Radio Propagation Predictions, which provides data for determining the best frequencies to use for radio communications throughout the world. There are also five series of nonperiodical publications: The Applied Mathematics Series, Circulars, Handbooks, Building Materials and Structures Reports, and Miscellaneous Publications.

Information on the Bureau's publications can be found in NBS Circular 460, Publications of the National Bureau of Standards (\$1.00). Information on calibration services and fees can be found in NBS Circular 483, Testing by the National Bureau of Standards (25 cents). Both are available from the Government Printing Office. Inquiries regarding the Bureau's reports and publications should be addressed to the Office of Scientific Publications, National Bureau of Standards, Washington 25, D. C.

