

AMENDMENT

FCC Form 302 Form Approved
 April 1953 Budget Bureau No. 52-R015.11
 Section I

United States of America
 Federal Communications Commission

APPLICATION FOR NEW BROADCAST STATION LICENSE

INSTRUCTIONS

- A. This form is to be used in all cases when applying for a Broadcast Station License. It consists of this part, Section I, and the following sections:
 Section II-A, License Application Engineering Data Standard Broadcast
 Section II-B, License Application Engineering Data FM Broadcast
 Section II-C, License Application Engineering Data Television Broadcast
- B. Prepare and file three copies of this form and all exhibits and swear to one copy. File with Federal Communications Commission, Washington 25, D. C.
- C. Number exhibits serially in the space provided in the body of the form and list each exhibit in the space provided on page 2 of this Section. Date each exhibit and each antenna pattern.
- D. The name of the applicant must be stated exactly as it appears on the construction permit which is being covered.
- E. Information called for by this application which is already on file with the Commission need not be refiled in this application provided (1) the information is now on file in another application or FCC form filed by or on behalf of this applicant; (2) the information is identified fully by reference to the file number (if any), the FCC form number, and the filing date of the application or other form containing the information and the page or paragraph referred to, and (3) after making the reference, the applicant states; "No change since date of filing." Any such reference will be considered to incorporate into this application all information, confidential or otherwise, contained in the application or other form referred to. The incorporated application or other form will thereafter, in its entirety, be open to the public.
- F. This application must be executed by applicant, if an individual; by a partner of applicant, if a partnership; by an officer of applicant, if a corporation or association; or by attorney of applicant only under conditions shown in Section 1.303, Rules Relating to Organization and Practice and Procedure, in which event satisfactory evidence of disability of applicant or his absence from the Continental United States and authority of attorney to act must be submitted with application.
- G. **BE SURE ALL NECESSARY INFORMATION IS FURNISHED AND ALL PARAGRAPHS ARE FULLY ANSWERED. IF ANY PORTIONS OF THE APPLICATION ARE NOT APPLICABLE, SPECIFICALLY SO STATE. DEFECTIVE OR INCOMPLETE APPLICATIONS MAY BE RETURNED WITHOUT CONSIDERATION.**

File No. **DL-6198**

Name and post office address of applicant (See Instruction D)

**Progressive Broadcasting Company
 P. O. Box 2187
 Sheridan Station
 Lawton, Oklahoma**

1310772374
 AUG 1956

Notices and communications with respect to this application are to be addressed to the following - named persons at the address indicated

**Dr. G. G. Downing, President
 (above address) and**

**A. Harry Becker
 1735 DeSales St., NW, Washington 6, D.C.**

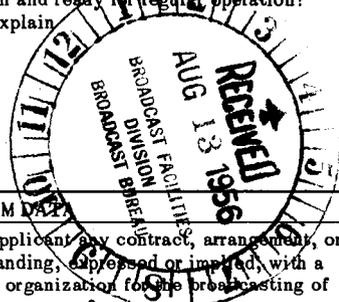
1. Facilities authorized by construction permit

Frequency	Channel No.	Power in kilowatts	
1050 KC		Night	Day
			.250
Hours of operation	Call letters		
Daytime	K C C O		

2. Construction permit covered by this application

File number	Date
BMP 6988	
Construction began	Construction completed
BMP 7099	February 16, 1956

Is the station now in satisfactory operating condition and ready for regular operation? Yes No
 If not, explain



PROGRAM DATA
 3. Has applicant any contract, arrangement, or understanding, expressed or implied, with a network organization for the broadcasting of network programs? Yes No

Does applicant, in the event this application is granted, propose to broadcast network programs? Yes No
 If network programs are to be broadcast, state as Exhibit No. arrangements under which they are to be obtained and attach copies of any contractual arrangement which may have been made. If the arrangement is based on an oral understanding, a written statement of the arrangement should be submitted.

FINANCIAL DATA

4. Give actual costs of making installation for which construction was authorized

Transmitter proper including tubes	Antenna system, including antenna - ground system, coupling equipment, transmission line	Frequency and modulation monitors	Studio technical equipment, microphones, transcription equipment, etc.
\$	\$	\$	\$
Acquiring land	Acquiring or constructing buildings	Other items, state nature	Total
\$	\$	\$	\$

FINANCIAL DATA (Continued)

5. (a) Attach a detailed balance sheet, as at the completion date of the authorized construction, showing applicant's financial position as Exhibit No. (b) If the actual cost of construction materially exceeds the original estimated cost of construction, attach as Exhibit No. a detailed statement showing the plan used to finance such construction. (If applicant is licensee of a broadcast station having on file with the Commission an Annual Financial Report (FCC Form 324) showing its financial position within the past 12 months and the request in this application is for a change in existing facilities, these exhibits need not be supplied provided that no substantial reduction in financial position has occurred.)

6. State changes, if any, in capitalization, and report any contracts affecting ownership not shown in the application for construction permit. (If none, so state)

7. Apart from the apparatus constructed, have all the terms, conditions, and obligations set forth in the above-described application for construction permit been fully met? If "No", state exceptions. Yes No

8. Is a request for authority to conduct program tests a part of this application? Yes No

The applicant waives any claim to the use of any particular frequency or of the ether as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests a station license in accordance with this application. (See Section 304 of the Communications Act of 1934)

The applicant represents that this application is not filed for the purpose of impeding, obstruction, or delaying determination on any other application with which it may be in conflict.

All the statements made in the application and attached exhibits are considered material representations, and all the exhibits are a material part hereof and are incorporated herein as if set out in full in the application.

The applicant, or the undersigned on the applicant's behalf, states that he has endeavored to supply full and correct information as to all matters which are relevant to this application and that he has done so as to all matters within his own knowledge.

Dated this 10th day of August, 19 56.

Progressive Broadcasting Co.
(Name of applicant)

By /s/ G.G. Downing
President
Title

Subscribed and sworn to before

/s/ Betty J. Holman
Notary Public

me this 10 day of August, 19 56
(SEAL)

(Notary public's seal must be affixed where the law of jurisdiction requires, otherwise state the law does not require seal.)

My commission expires July 2, 1957

EXHIBITS furnished as required by this form:

Exhibit No.	Section and Para. No. of Form	Name of officer or employee (1) by whom or (2) under whose direction exhibit was prepared (show which)	Official title

ENGINEER'S COPY

FCC Form 302
April 1953
Section I

Form Approved
Budget Bureau No. 52-R015.11

File No. **BL-6198**

United States of America
Federal Communications Commission

Name and post office address of applicant (See Instruction D)

APPLICATION FOR NEW BROADCAST STATION LICENSE

Progressive Broadcasting, Inc.
P. O. Box 2187
Sheridan Station
Lawton, Oklahoma

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Dr. G. G. Downing,
(above address) President



1. Facilities authorized by construction permit

Frequency	Channel No.	Power in kilowatts	
		Night	Day
1050			250 W
Hours of operation		Call letters	
Daytime		K C C O	

2. Construction permit covered by this application

File number BMP 6988 BMP 7099	Date February 18, '56
Construction begun Feb. 20, 1956	Construction completed April 21, 1956

Is the station now in satisfactory operating condition and ready for regular operation? Yes No

If not, explain

PROGRAM DATA

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If network programs are to be broadcast, state as Exhibit No. arrangements under which they are to be obtained and attach copies of any contractual arrangement which may have been made. If the arrangement is based on an oral understanding, a written statement of the arrangement should be submitted.

FINANCIAL DATA

4. Give actual costs of making installation for which construction was authorized

Transmitter proper including tubes \$7,927.55	Antenna system, including antenna - ground system, coupling equipment, transmission line \$5,369.72	Frequency and modulation monitors \$3,000.00	Studio technical equipment, microphones, transcription equipment, etc. \$2,000.00
Acquiring land Lease Expense \$141.00	Acquiring or constructing buildings \$1,435.37	Other items, state nature \$ None	Total \$21,873.64

FINANCIAL DATA (Continued)

5. (a) Attach a detailed balance sheet, as at the completion date of the authorized construction, showing applicant's financial position as Exhibit No. (b) If the actual cost of construction materially exceeds the original estimated cost of construction, attach as Exhibit No. a detailed statement showing the plan used to finance such construction. (If applicant is licensee of a broadcast station having on file with the Commission an Annual Financial Report (FCC Form 324) showing its financial position within the past 12 months and the request in this application is for a change in existing facilities, these exhibits need not be supplied provided that no substantial reduction in financial position has occurred.)

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Dated this 9th day of May, 19 56.

Progressive Broadcasting, Inc.
(Name of applicant)

By G. G. Downing
President Title

Subscribed and sworn to before

Betty Moran
Notary Public

me this 9th day of May, 19 56
(SEAL)

(Notary public's seal must be affixed where the law of jurisdiction requires, otherwise state the law does not require seal.)

My commission expires November 7, 1959

EXHIBITS furnished as required by this form:

Exhibit No.	Section and Para. No. of Form	Name of officer or employee (1) by whom or (2) under whose direction exhibit was prepared (show which)	Official title
1	Para. 5 (a)	G. G. Downing, M.D. (2)	President
Engineering Exhibit	II-A	G. G. Downing, M.D. (2)	President

9. Antenna resistance measurement

Attach as Exhibit No. _____ the following:

- a. ~~Site Proof of Performance~~ **Site Proof of Performance**
- b. Schematic diagram showing clearly all components of coupling circuits, point of resistance measurement, location of antenna ammeter, connections to and characteristics of all tower lighting isolation circuits, static drains, and any other fixtures, lines, etc., connected to or supported by the antenna, including other antennas and associated circuits.
- c. Full description of method used to make measurements.
- d. Manufacturer's name of each calibrated instrument used and manufacturer's rated accuracy.
- e. Date, accuracy, and by whom each instrument was last calibrated.
- f. Table of complete data taken.
- g. The graph drawn of 10 to 12 readings in a band 50 to 60 kilocycles wide with the operating frequency near the center.

10. Modulation monitor

Make **RCA** Type No. **WM-43A**

11. Frequency monitor

Make **RCA** Type No. **WF-48A**

By what method and how often will regular checks of the calibration of the frequency monitor be repeated?

Monthly by
International Crystal Company
Oklahoma City, Oklahoma

Give the following data on the checks of the frequency

Date and time	Name of checking agency or method used
1. _____	_____
2. 4:30pm Apr 29, '56	International Crystal Company
3. _____	_____
4. _____	_____

Frequency measured by such agency or method	Monitor reading high or low
1. _____	_____
2. 1049.994 KC	-6.0
3. _____	_____
4. _____	_____

12. Give method of varying power to compensate for variation of line voltage.

Reostat in series plate
supply or variable
loading coil.

13. In what respect, if any does the apparatus constructed differ from that described in the application for construction permit or in the permit?

No Change

14. Give reason for the change in antenna or common point resistance.

DOES NOT APPLY

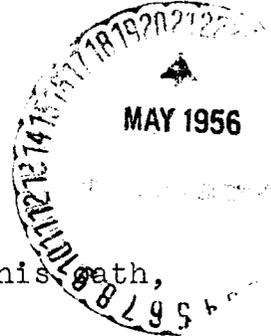
I certify that I am the Technical Director, Chief Engineer or Consulting Engineer for the applicant of the radio station for which this application is submitted and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief. (This signature may be omitted provided the engineer's original signed report of the data from which the information contained herein has been obtained is attached hereto.)

Benjamin O. Lanza
 Technical Director, Chief Engineer or Consulting
 Engineer

Date May 9, 1956

State of Oklahoma)
County of Grady)

SS



R. A. Van Lehn being first duly sworn upon his oath,
deposes and says:

1. That he is a qualified radio engineer with qualifications as follows:

He graduated from high school in 1942, and attended night classes at college until he joined the Marine Corps in December, 1942. He was in the Communications section, during his enlistment, to the time of his discharge in 1945.

He received his Radio Telephone Operator License, first class, in 1947.

He worked at KSWO and KRHD, broadcasting companys, until 1948.

He has been in radio communications work for the last eight years.



2. That he has been employed by the progressive broadcasting company to make proof of performance measurements on the KCCO directional antennae.

3. That he has made a portion of the field intensity measurements for this proof of performance and all measurements made by him are true and correct to the best of his knowledge and belief.

R. A. Van Lehn
R. A. Van Lehn

My commission expires 7-22-1957 John V. Cooper
Notary Public

Exhibit

DIRECTIONAL ANTENNA PROOF OF PERFORMANCE

Progressive Broadcasting Company

Radio Station KCCO - - - Lawton, Okla.

DESCRIPTION OF THE ARRAY:

The directional antenna consists of two elements oriented and spaced as shown on the antenna ground plot plan, Figure 3.

A detailed description is given below.

Elements:	Two
Manufacturer:	Utility
Top Loading:	None
Type:	Guyed, triangular, uniform cross section
Height of Vertical Leads:	225 feet
Over-all Height Above Ground:	230 feet
Over all Height Above Sea Level:	1362 feet
Orientation:	The towers are spaced 235 feet (90°) on a line bearing 52° True.
Ground System:	120 Copper radials of number 10 wire 235 feet long buried 6" deep about the base of each tower. Overlapping radials bonded to common copper strap.



Gates Radio Company M-3283 electrostatically shielded sampling loops are mounted on each tower by means of standoff insulators. The shield is grounded and two 360 foot RG-11U coaxial sampling lines of equal electrical length are terminated in the operating room by a Clarke Model 108E phase and ratio monitor.

The tower lights are connected through Gates M-3935 tower lighting chokes to provide effective isolation from ground.

The towers are painted and lighted in accordance with the terms of the construction permit and paragraphs 17.23 and 17.25 of the Rules and Regulations of the FCC.

ADJUSTMENT OF THE ARRAY:

The values of the circuit elements were calculated and set by means of an RF bridge.

The normal readings of the phase monitor, ratio meters and base current ammeters are as follows:

<u>Tower Number</u>	<u>Base Current</u> (Amperes)	<u>Ratio Meter</u>	<u>Phase Monitor</u> (Degrees)
1	1.98	53	0
2	1.38	37	±90°
Power at the common point:		270 Watts	
Final Plate Voltage:		1,550 Volts	
Final Plate Current:		0.235 Amperes	
Common Point Current:		1.91 Amperes	
Common Point Resistance:		.925 X 74.5 = 68.9	

METER TABLE

	Common Point	L ₁ in	L ₂ in	Tower 1	Tower 2
Manufacturer	Weston	Weston	Weston	Weston	Weston
Type	425	425	425	425	425
Calibrated	New	New	New	New	New
Full Scale	0 - 5.0	0-2.0	0-2.0	0-2.0	0-2.0
Operating Reading	1.91	1.85	0.55	1.98	1.38
Rated Accuracy	2%	2%	2%	2%	2%

IMPEDANCE MEASUREMENTS :

The self impedance of Tower 1 and the Common Point resistance was measured with a General Radio Type 916A RF Bridge using the procedure specified by the manufacturer. The serial number is 776 and the instrument was last calibrated July 17, 1946 by the manufacturer. At the time of the measurements a 2 watt carbon resistor which measured 75.46 ohms on a laboratory type wheatstone bridge, was measured at both points as 75.7 ohms by the bridge. The measuring equipment was grounded by a one inch copper strap and the bridge was so placed that the leads were moved very little when taking an initial balance.

The signal generator was calibrated just prior to making the measurements by heterodyning it with broadcast stations of known frequencies. After a normal warm-up period, it was found to have excellent frequency stability characteristics. Its output was from 5 to 10 volts in 300 ohms, which was ample to override interfering signals and static discharges. The generator was completely shielded and employed a line filter.

The detector was a Hallicrafter's SX-42 communications receiver. It is well shielded and employs a TRF stage.

All units were connected by coaxial cables.

Tabulations of these measurements are given below.

They are plotted in Figures 7 and 8.

Common Point Resistance

Frequency (KC)	Resistance (ohms)	Reactance (ohms)
1020	44	-j 7.0
1025	50	-j 2.0
1030	52	/j 3.6
1035	61.5	/j 3.0
1040	68	/j 2.8
1045	71	/j 0.9
1050	74	/j 0
1055	77.5	-j 2.0
1060	80	-j 8.0
1065	84.5	-j 8.0
1070	88	-j 13
1075	92	-j 20.1
1080	97	-j 31

The resistance at ^{1050 KC} 1390 is 74.5 ohms. $.925 \times 74.5 = 68.9$

$$\sqrt{\frac{250}{68.9}} = 1.91 \text{ amperes}$$

Tower 1 Impedance

Frequency (KC)	Resistance (ohms)	Reactance (ohms)
1020	43	/j 24
1025	41	/j 25
1030	42.5	/j 26
1035	43	/j 28
1040	43.5	/j 30
1045	44	/j 33
1050	45.5	/j 36
1055	45.5	/j 36
1060	46	/j 38
1065	47	/j 41
1070	47	/j 44
1075	48.5	/j 45
1080	50	/j 44

R = 45.0 ohms at 1050 KC

$$\sqrt{\frac{250}{45}} = 2.36 \text{ amperes}$$

METHOD OF PROVING PERFORMANCE

The resistance of Tower 1 was carefully measured with Tower 2 isolated and found to be 45.0 ohms. The common point resistance was carefully measured and found to be 74.5 ohms. 92.5 per cent of 74.5 ohms is 68.9 ohms.

Temporary antenna change over relays were installed and the array set to operate 40 seconds non-directional and 10 seconds directional by means of a motor driven switching mechanism. A relay in Tower 2 disconnected it from the circuit except for the tower lighting, which was isolated by a high reactance choke. See Figure 5. Tower 1 was fed 250 watts at 2.36 amperes and the common point was fed 270 watts at 1.91 amperes.

From May 3 through May 6, 1956 measurements were made along nine radials. Both non-directional and directional were taken at the same time at any one point. The locations of the measuring points are shown in Figure 6. All measurements were made between 6 a.m. and 7:30 p.m. No distant measurements were made during the early morning or late afternoon.

Two field meters were used.

(1) Federal 101C serial number 408108. Last calibrated October, 1946 by the manufacturer. Calibration checked April, 1956 by Ben O. Lange in electricity and magnetism laboratory of Texas Christian University and found to be within 4% of value given by manufacturer at 1000 KC.

(2) RCA type WX-2C serial number 942. Last calibrated August 15, 1952. Comparison measurements between the two meters showed them to be in close agreement.

Whenever possible all measurements were made in clear and open locations with power lines .05 to .10 miles away.

The measurements were tabulated and plotted on log-log graph paper with distance as the abscissa and field intensity in millivolts per meter as the ordinate. The non-directional measurements were fitted to the closest curves in the family in Appendix I, Graph 13 of the Standards of Good Engineering Practice of the Federal Communications Commission. The directional measurements were plotted and fitted to the conductivity curves determined by the non-directional measurements. Both non-directional and directional curves are plotted on the same sheet for each radial with the directional curves below the non-directional. In some cases the field intensity values in the ordinate column were altered from that normally printed on the ground wave paper, but they are plainly marked.

The one mile inverse distance field intensities are marked on the inverse distance curves, and the conductivities in E. M. U. $\times 10^{-14}$ are labeled below the curves.

An addition to the analysis of the directional measurements shown by the graphs, the directional to non-directional field ratios for each point are averaged. The average ratios are multiplied by the non-directional inverse distance field intensities.

The correlation between the values determined in this manner and those determined by the graphs is very good.

MEASUREMENTS ON KSWO

In order to prevent mutual currents from the KSWO array from flowing in the KCCO towers parallel traps tuned to 1380 KC were installed in series with the connections to the KCCO towers.

In order to determine if the KSWO directional antenna was affected, measurements were made at each of the monitoring points and at 3 or 4 points on each radial. These measurements are compared with those submitted in the KSWO performance proof in the table shown below. The KCCO array was automatically cycling on and off directional and non-directional during these tests so that its effect with and without carrier could be observed. There was no measurable difference.

RADIAL	DAY		NIGHT	
	1947	1956	1947	1956
N 26° E				
Point 5			√85.7	87
Point 6			√65.9	64
Point 7	√60	62	√35.1	36
Point 8			√28.5	29
N 56° E				
Point 10 MP			√19.6	17.2
Point 14			√12.8	12.6
Point 15	√38.5	40	√10.5	10.0
Point 16	√29.4	28	√8.6	8.3
N 90° E				
Point 1	√344	345	√351	350
Point 6	√130	133	√165	162
N 116° E				
Point 1	√399	375	√495	488
Point 3	√175.5	180	√227	225
Point 9	√88	87	√112.9	110

RADIAL	DAY		NIGHT	
	1947	1956	1947	1956
N 142° E				
Point 1	✓ 280	288	✓ 286	290
Point 11	✓ 89.4	88	✓ 84.2	87
Point 12			✓ 59.3	62
Point 13	✓ 47.5	44	✓ 44.7	43
N 168.9° E				
Point 1	✓ 153.8	148	✓ 27.8	29
Point 10	✓ 65.8	63	✓ 14.6	14.3
Point 11	✓ 41.7	40	✓ 6.55	7.2
Point 13	✓ 28.6	29	✓ 4.32	4.4
N 189° E				
Point 1			✓ 164.5	161
Point 8 MP	✓ 74.7	72	✓ 71.7	60
Point 12	✓ 41.0	39	✓ 35.7	33
N 230° E				
Point 1		<i>D. J. Fine</i>	✓ 90.9	93
Point 2			✓ 56.3	56
Point 3			✓ 45.6	42
Point 4			✓ 39.5	40
N 250° E				
Point 9 MP			✓ 19.0	16.0
Point 11			✓ 12.6	11.2
N 270° E				
Point 2	✓ 126.8	120	✓ 146.5	143
Point 8	✓ 84.4	83	✓ 95.2	92
Point 9	✓ 73.2	71	✓ 78.5	76
Point 10	✓ 63	59	✓ 69.5	70
N 289° E				
Point 1			✓ 287	281
Point 9	✓ 148	150	✓ 141	144
Point 13	✓ 99.5	93	✓ 105	107
N 316° E				
Point 7			✓ 126	127
Point 8	✓ 92.5	93	✓ 113	121
Point 9			✓ 127	112
Point 11	✓ 52.2	50	✓ 66.9	63
N 340° E				
Point 6	✓ 74.5	76		
Point 7 MP	✓ 44.5	44	✓ 29.5	23
Point 8	✓ 27.2	23	✓ 18.2	17
N 350.5° E				
Point 4	✓ 87.4	86		
Point 14	✓ 47	43	✓ 16.7	17.4
Point 15	✓ 38.4	39	✓ 12.8	11.3

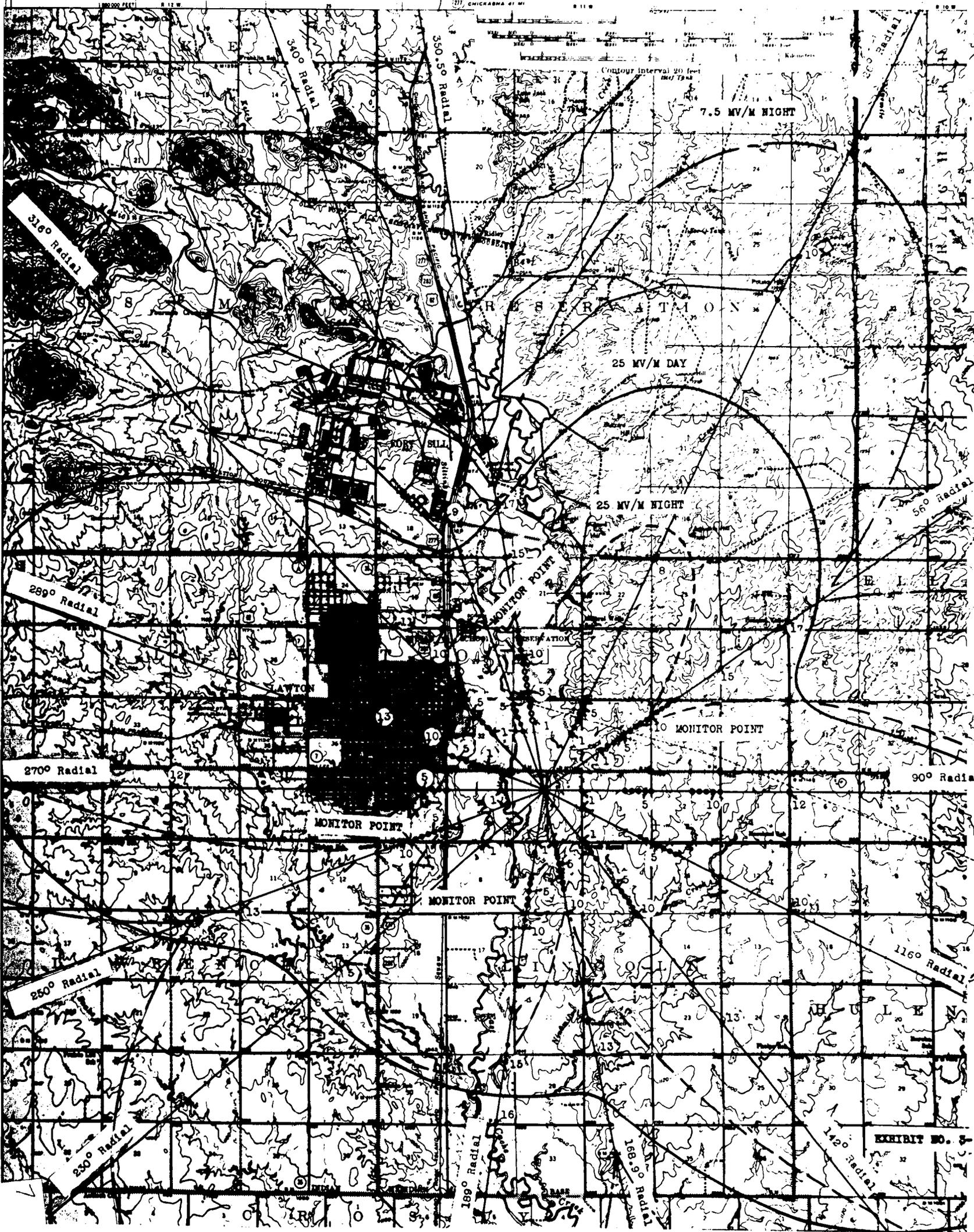


EXHIBIT NO. 3

PHOTO COPY OF KSWO LOCATION OF MEASURING POINTS MAP

The field intensities measured in most cases are in close agreement with those made in 1947 and indicate that no substantial changes have occurred in the KSWO array.

The construction permit further specifies that there be no cross modulation resulting from high radiation fields to and from KCCO and KSWO. Careful listening tests were made twice. Once at the Lawton Airport from 200 KC to 18 MC and from an open location north of Lawton from 550 KC to 40 MC. No spurious radiations of any sort were observed which followed the on-off pattern of KCCO or carried the program of KSWO. The receivers used were an army communications receiver and a Hallicrafters SX-42 communications receiver.

EQUIPMENT TESTS

Since the Commission often requires that an audio proof of performance be submitted when relicensing used equipment, the KCCO audio proof is added in this report.

1. Frequency Response: The frequency response at modulation levels of 25%, 50%, 85% and 100% are shown in Figure 9. The response was measured by connecting the output of a Jackson audio oscillator through a transmission set to an input microphone jack of the console. The meter on the RCA WM-43A modulation monitor was used to indicate output levels.

2. Distortion: Harmonic distortion in the overall system was measured by feeding the output of the Jackson audio oscillator into a microphone terminal. Some of the output of the final R. F. amplifier was coupled to a rectifier detector (6H6) and the audio output from the detector fed into a Barker and Williamson model 400 distortion meter. The results of these measurements are shown in Figure 10.

3. Carrier Shift: The carrier shift was measured on the RCA WM 43A modulation monitor.

Modulation:	25%	50%	85%	100%
	0.7	1.0	1,2	1.5

4. Noise Level: The residual carrier noise was measured on the B & W model 400 meter in the prescribed manner and found to be 52 D.B. below 100% modulation.

5. Radio Frequency Harmonics: Listening tests were made with a Hallicrafter SX 42 communications receiver for the 2nd through 6th harmonics and it was found that the suppression of harmonics is entirely adequate.

LOCATION OF MONITORING POINTS:

Point No. 1

From the junction Highway 277 and Highway 7 proceed 3.3 miles east on Highway 7. Turn north; the monitoring point located in road exactly 1.5 miles from highway. The distance to the transmitter is 2.05 miles on the Radial N 32° E. The field intensity at this point should not exceed 10.7 mv/m.

Point No. 2

From point 1 return 1.4 miles south. The monitoring point is about 750 feet away from highway. The distance to the transmitter is 1.15 miles on Radial N 72° E. The field intensity should not exceed 26.5 mv/m at this point.

RADIAL A

N 32° E

Point No.	Distance (miles)	Field		Ratio (DA/Non-DA)
		Non-DA (mv/m)	DA	
1	0.6	154	48	.312
2	0.8	116	36	.310
3	1.0	85	26	.306
4	1.2	56	13.4	.239
5	1.45	64	20	.313
6	1.7	43	14.5	.337
7	2.05	37.5	(9.8)	.261
8	2.4	32.5	10.4	.320
9	2.6	33.5	10.5	.314
10	3.9	33	10	.303
11	4.1	18	6.1	.339
12	7.2	11.7	3.7	.318
13	7.4	12.4	3.4	.274
14	8.6	9.7	2.9	.299
15	9.4	8.1	2.6	.321
16	9.7	7.0	2.1	.300
17	10.9	6.3	2.06	.327
18	11.3	7.2	2.3	.319
19	12.1	7.9	2.6	.329
20	13.3	5.2	1.7	.327
21	14.5	5.1	1.8	.353
22	15.7	4.3	1.4	.326
23	16.9	3.45	1.3	.377
24	18.7	2.8	0.93	.333
25	20.4	3.7	1.2	.324
7.881				
$7.881 \div 25 = .312$ $.312 \times 90 = 28.1 \text{ mv/m}$				

RADIAL BN 52° E

Point No.	Distance (miles)	Field		Ratio (DA/Non-DA)
		Non-DA	DA	
		(mv/m)		
1	0.4	238	63	.265
2	0.6	141	39	.277
3	1.2	67	21.5	.321
4	1.4	62	20	.323
5	1.6	47	14.4	.306
6	2.0	35	11	.314
7	2.65	29.5	10	.339
8	3.6	25.3	7.5	.294
9	5.2	13.3	3.8	.286
10	6.4	13.0	3.8	.292
11	6.8	12.3	3.4	.276
12	7.7	11	3.3	.300
13	8.5	8.8	2.5	.284
14	10.2	5.8	1.8	.311
15	11.5	6.8	1.9	.280
16	12.7	6.1	1.9	.312
17	14.9	4.2	1.2	.286
18	16.6	3.4	1.0	.296
19	18.2	3.8	1.1	.290
20	19.8	3.4	1.1	.324
21	21.6	2.8	0.8	.286
				6.262
$6.262 \div 21 = .298$ $.298 \times 90 = 26.8 \text{ mv/m}$				

RADIAL C

N 72° E

Point No.	Distance (miles)	Field		Ratio (DA/Non-DA)
		Non-DA (mv/m)	DA	
1	0.75	74	25	.324
2	0.95	103	33	.320
3	1.15	69	(23.5)	.341
4	1.35	73	23 ^{MP}	.315
5	2.20	42	14	.334
6	3.25	22.5	6.3	.280
7	4.0	13	5.4	.416
8	5.3	14.5	3.85	.266
9	7.2	8.2	2.4	.293
10	8.4	8.85	2.4	.271
11	9.5	6.95	2.05	.295
12	10.5	6.4	1.85	.289
13	11.6	6.4	1.8	.289
14	12.6	4.8	1.4	.292
15	13.7	7	1.9	.272
16	15.8	3.9	1.1	.282
17	17.9	3.0	.8	.267
18	20.0	1.9	.56	.295
19	20.9	3.2	.9	.281
20	23.0	2.6	.8	.308
				6.030
$6.030 \div 20 = .301$ $.301 \times 92 = 27.7 \text{ mv/m}$				

RADIAL D

N 116° E

Point No.	Distance (miles)	Field		Ratio (DA/Non-DA)
		Non-DA	DA	
		(mv/m)		
1	0.8	111	72	.649
2	1.0	83	54	.650
3	1.2	74	56	.757
4	1.4	67	44	.657
5	1.6	39	22	.564
6	2.3	39	26	.617
7	3.4	22.5	16.5	.733
8	3.9	18	13	.723
9	4.5	17.5	12.5	.714
10	5.6	13.5	9	.667
11	6.2	11	6.9	.628
12	7.9	10.5	6.75	.643
13	8.5	7.9	5.2	.659
14	9.0	8.1	5.3	.655
15	10.1	7.4	4.8	.648
16	10.7	6.8	4.3	.633
17	12.3	5.3	3.4	.642
18	13.1	4.95	3.05	.616
19	13.5	5.15	3.2	.622
20	15.2	4.6	2.85	.620
21	16.9	3.7	2.3	.622
22	19.7	2.25	1.4	.623
				14.342
$14.342 \div 22 = .652$ $.652 \times 91 = 59.4 \text{ mv/m}$				

RADIAL E

N 162° E

Point No.	Distance (miles)	Field		Ratio (DA/Non-DA)
		Non-DA (mv/m)	DA	
1	0.3	250	300	1.20
2	0.5	210	268	1.28
3	0.75	74	89	1.20
4	0.95	109	150	1.38
5	2.9	28.5	37.5	1.32
6	3.6	17	22	1.29
7	3.9	21.5	27.5	1.28
8	5.0	16.25	22.5	1.36
9	6.1	12.5	16.5	1.32
10	7.1	9.9	14	1.41
11	7.7	8.8	12	1.36
12	8.1	9.1	12.5	1.37
13	9.2	9.3	13	1.40
14	10.3	8.6	12	1.40
15	10.8	5.5	7.1	1.29
16	12.4	6.6	8.8	1.33
17	13.4	5.9	7.9	1.34
18	15.5	4	5.3	1.32
19	16.6	4.4	5.95	1.35
20	17.6	3.8	5.3	1.40
26.6				26.6
$26.6 \div 20 = 1.33$ $1.33 \times 92 = 117 \text{ mv/m}$				

RADIAL F

N 208° E

Point No.	Distance (miles)	Field		Ratio (DA/Non-DA)
		Non-DA	DA	
		(mv/m)		
1	0.35	288	467	1.62
2	0.55	170	241	1.42
3	0.75	68	98	1.44
4	0.95	114	179	1.57
5	1.9	35	51	1.46
6	3.0	16	23	1.44
7	4.0	12	17.5	1.46
8	4.3	20	29	1.45
9	5.4	13	20	1.54
10	6.1	8.3	12.5	1.51
11	6.5	11.5	17.0	1.48
12	7.6	8.2	13	1.59
13	8.8	7.5	12.5	1.67
14	9.7	7	10	1.43
15	11.1	6	9	1.50
16	13.4	4.3	6.4	1.49
17	15.6	3.5	5.5	1.57
18	19.9	2.6	4.1	1.58
				27.22
27.22 ÷ 18 = 1.51				
1.51 X 87 = 132 mv/m				

RADIAL G

N 253° E

Point No.	Distance (miles)	Field		Ratio (DA/Non-DA)
		Non-DA	DA	
		(mv/m)		
1	0.4	251	373	1.47
2	0.6	152	223	1.47
3	0.8	124	174	1.40
4	1.2	75	106	1.41
5	1.8	49	73	1.49
6	2.0	37	53	1.43
7	2.5	33.8	48.7	1.44
8	3.1	26.5	40	1.51
9	4.1	21	31	1.48
10	5.1	13	20	1.54
11	6.2	12.5	19	1.52
12	7.2	13	18.5	1.42
13	8.3	9.5	14.5	1.53
14	9.3	9	13.5	1.50
15	9.7	7.2	11	1.53
16	10.4	6.9	11.4	1.65
17	11.4	7	10.5	1.50
18	12.4	5.7	8.3	1.45
19	13.1	6.3	9.3	1.48
20	14.5	5.2	7.6	1.46
21	16.6	5.0	7.3	1.46
22	17.7	3.5	5.3	1.51
23	19.8	3.2	4.8	1.50
				34.15
$34.15 \div 23 = 1.48$				
$1.48 \times 93 = 138 \text{ mv/m}$				

RADIAL H

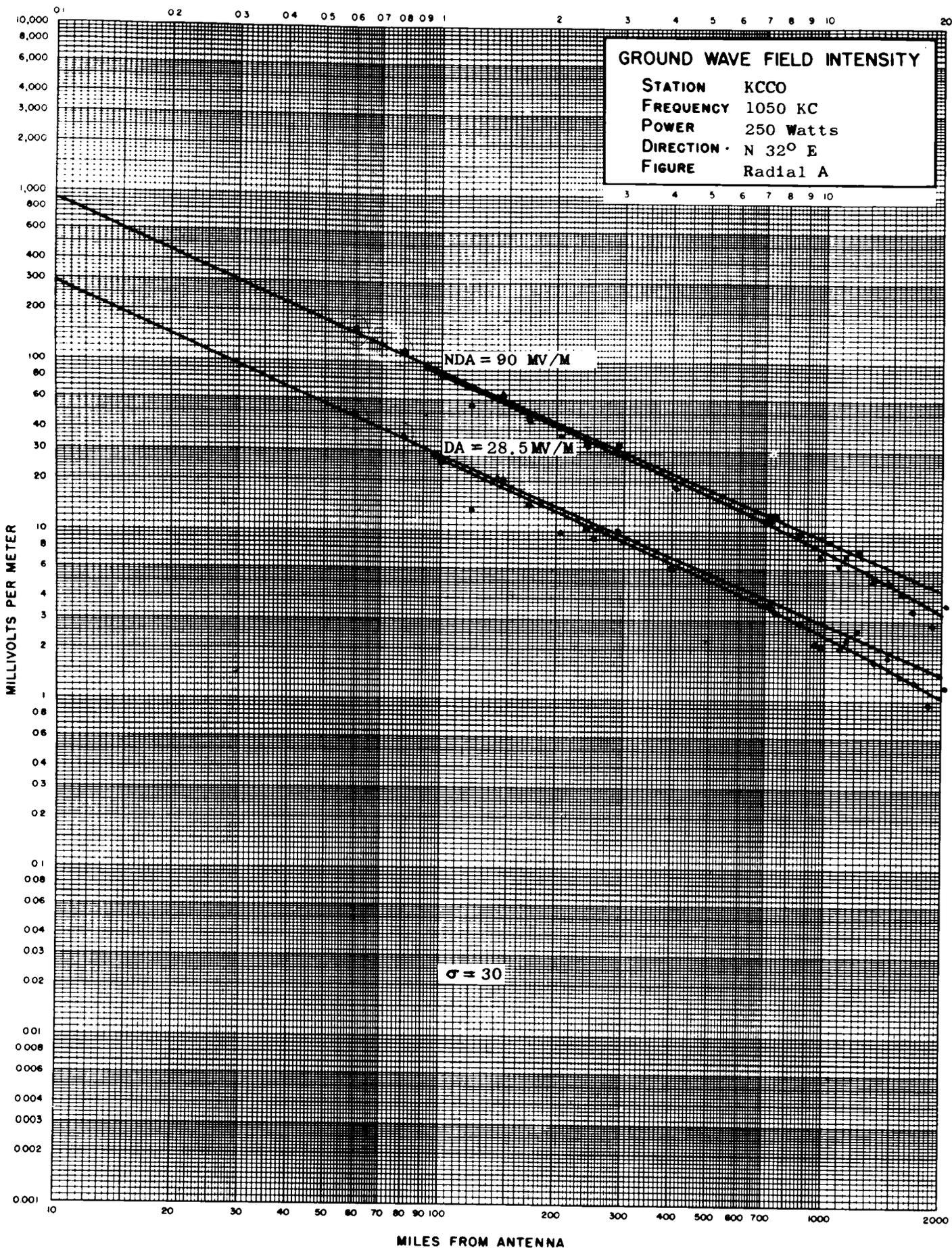
N 296° E

Point No.	Distance (miles)	Field		Ratio (DA/Non-DA)
		Non-DA (mv/m)	DA	
1	0.45	165	225	1.36
2	0.7	138	186	1.35
3	0.9	97	133	1.37
4	1.1	76	100	1.31
5	1.4	66	87	1.32
6	2.0	45	53	1.18
7	2.2	36	52	1.44
8	2.4	28	39	1.39
9	2.7	35	45	1.29
10	3.0	26	35	1.35
11	3.3	26.3	36.2	1.38
12	3.5	26	35	1.35
13	3.8	21	27	1.29
14	4.4	18.2	25	1.37
15	4.7	22	31	1.41
16	5.1	16	22.2	1.39
17	5.7	12.4	16.3	1.31
18	6.6	14.3	16	1.12
19	7.3	12.1	16.4	1.35
20	7.7	8.5	12.1	1.42
21	17.4	10.5	14	1.33
22	18.9	7	10	1.43
23	20.1	2.9	4.2	1.45
24	22.3	8.2	11.5	1.40
25	22.7	3.2	4.4	1.37
26	23.7	2.1	3.1	1.48
				35.21
$35.21 \div 26 = 1.35$ $1.35 \times 92 = 125 \text{ mv/m}$				

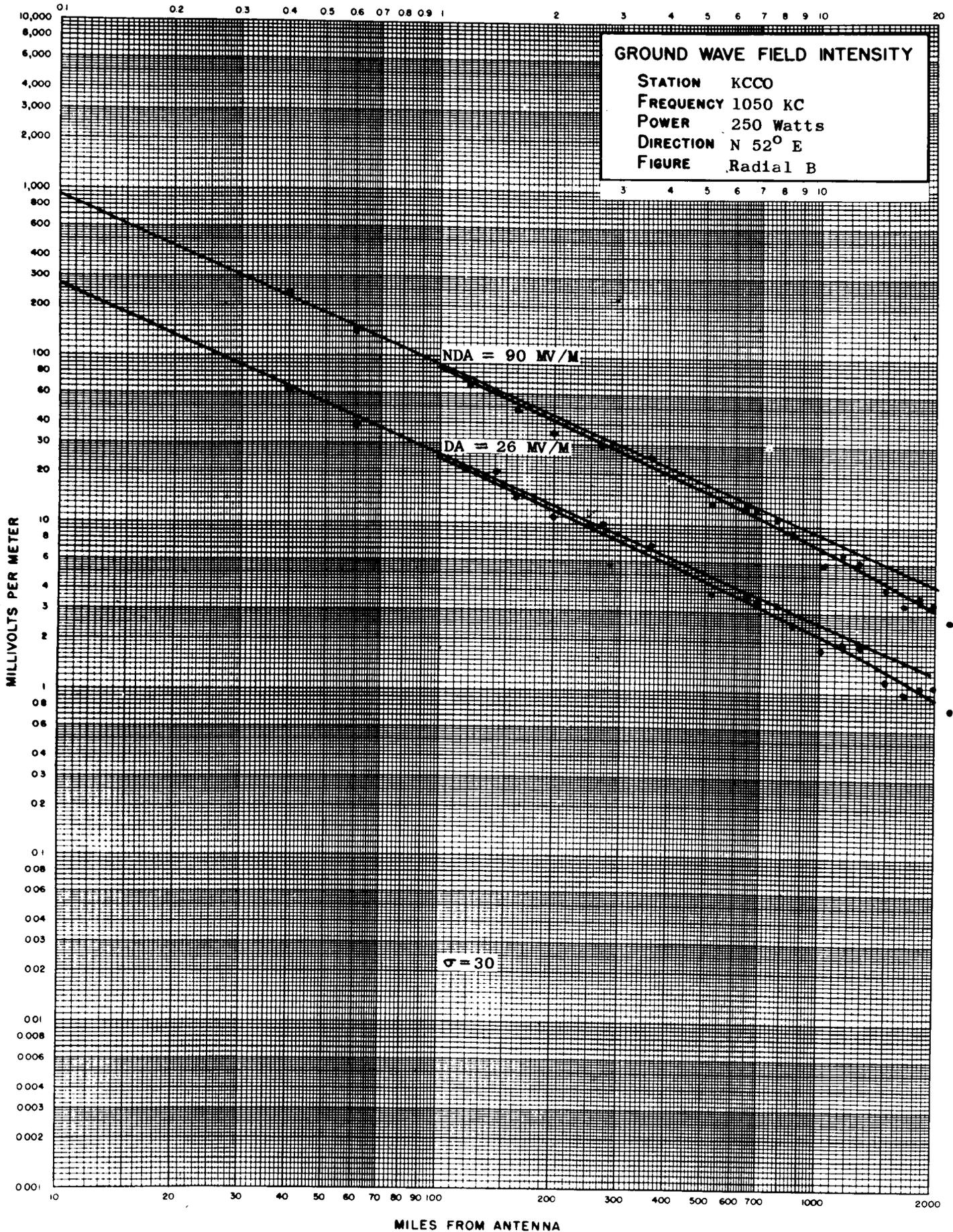
RADIAL IN 344.5° E

Point No.	Distance (miles)	Field		Ratio (DA/Non-DA)
		Non-DA (mv/m)	DA	
1	0.25	399	279	.720
2	0.45	196	159	.812
3	0.65	134	103	.769
4	1.1	78	60	.769
5	1.3	63	46	.730
6	1.5	63	44	.698
7	2.3	36.5	26	.712
8	3.4	26	19	.731
9	5.3	12.5	9.8	.785
10	6.4	8.1	6.4	.791
11	7.6	2.4	2.05	.854
12	8.7	3.55	2.85	.803
13	9.7	4.7	3.75	.798
14	10.7	4.3	3.35	.779
15	11.7	4.1	3.3	.805
16	13.8	3.35	2.65	.791
17	14.5	3.75	2.9	.773
18	14.9	2.35	1.95	.830
19	15.3	2.65	2.15	.812
20	15.9	2.7	2.2	.816
				15.477
$15.477 + 20 = .773$				
$.773 \times 90 = 69.6 \text{ mv/m}$				

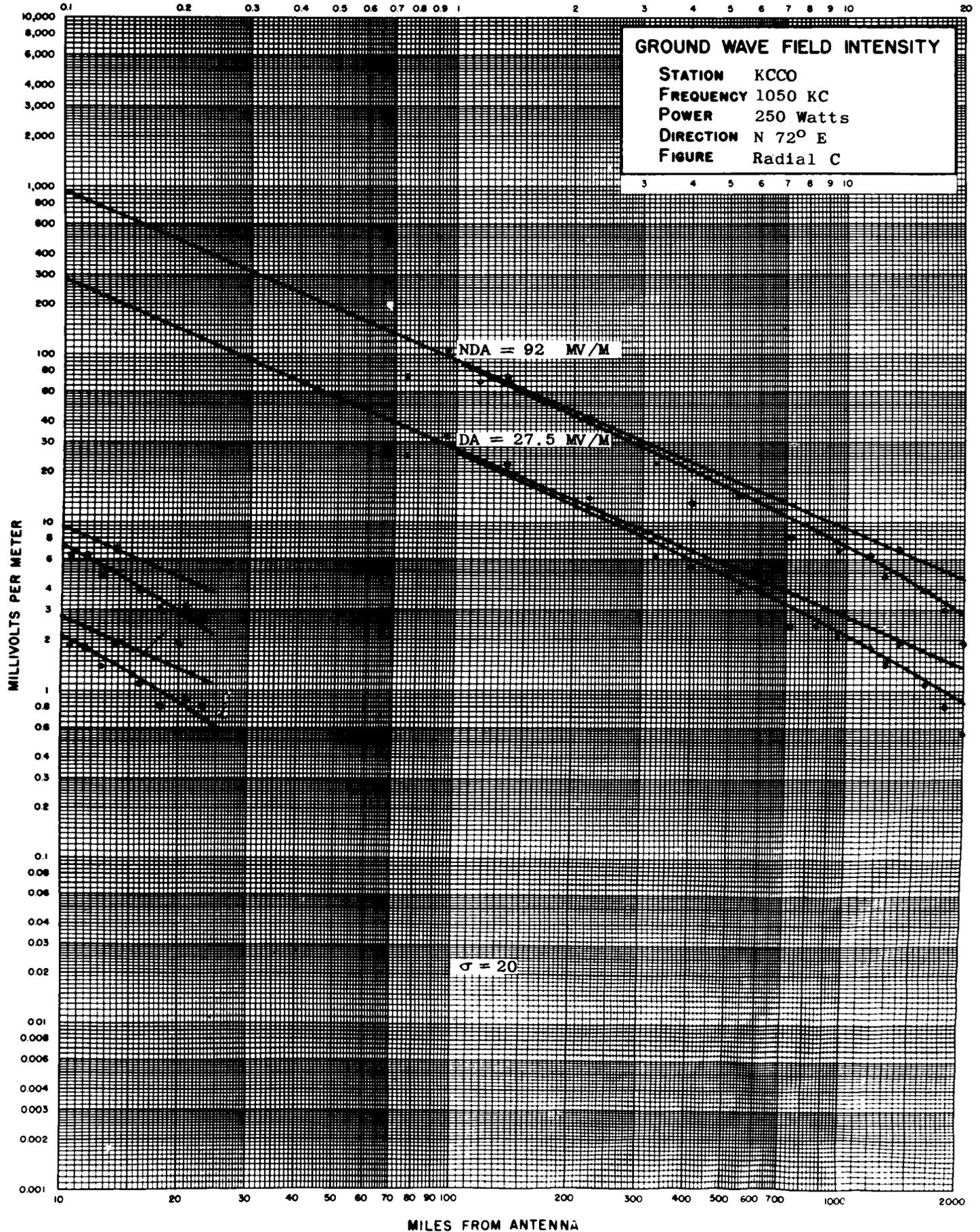
MILES FROM ANTENNA



MILES FROM ANTENNA

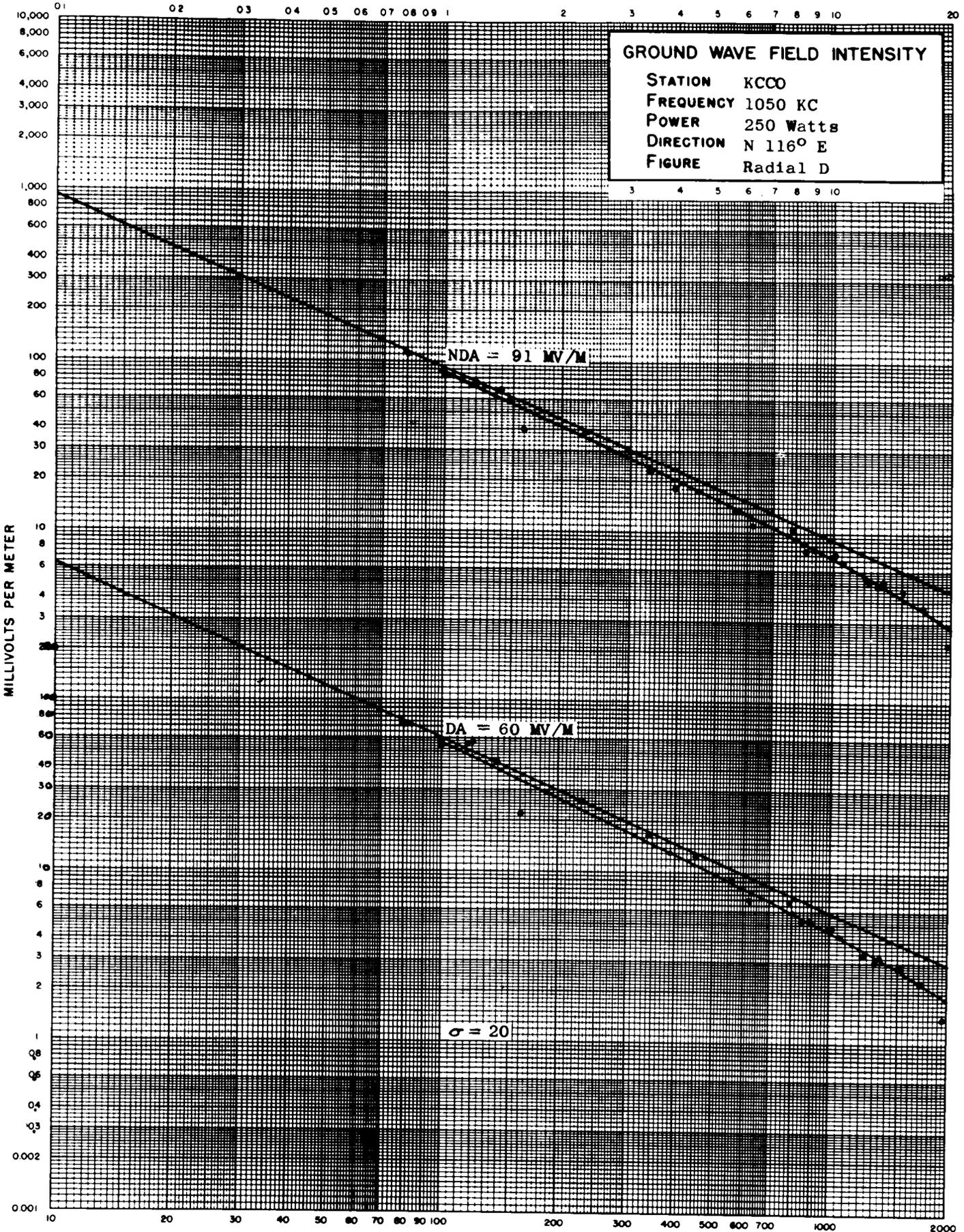


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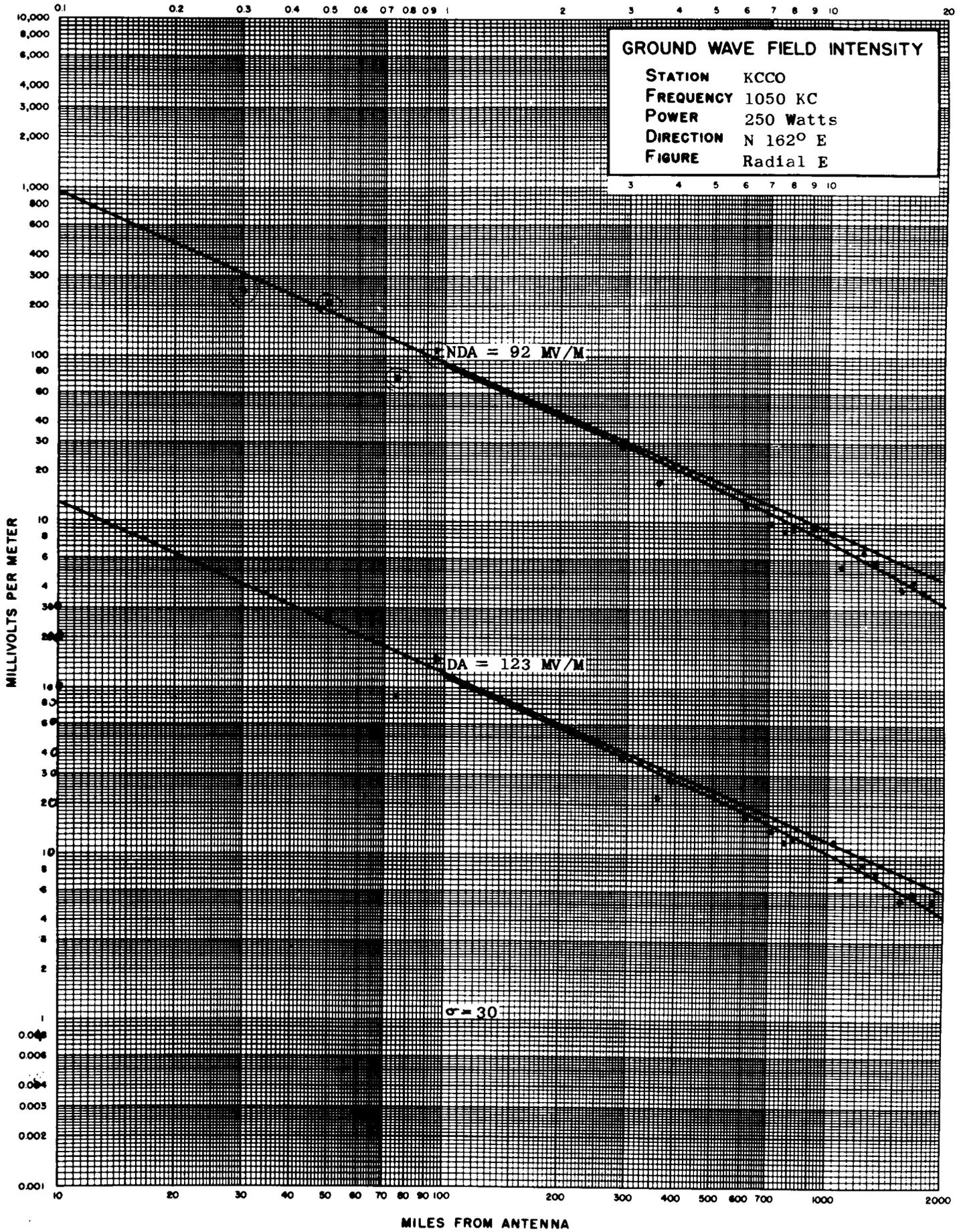


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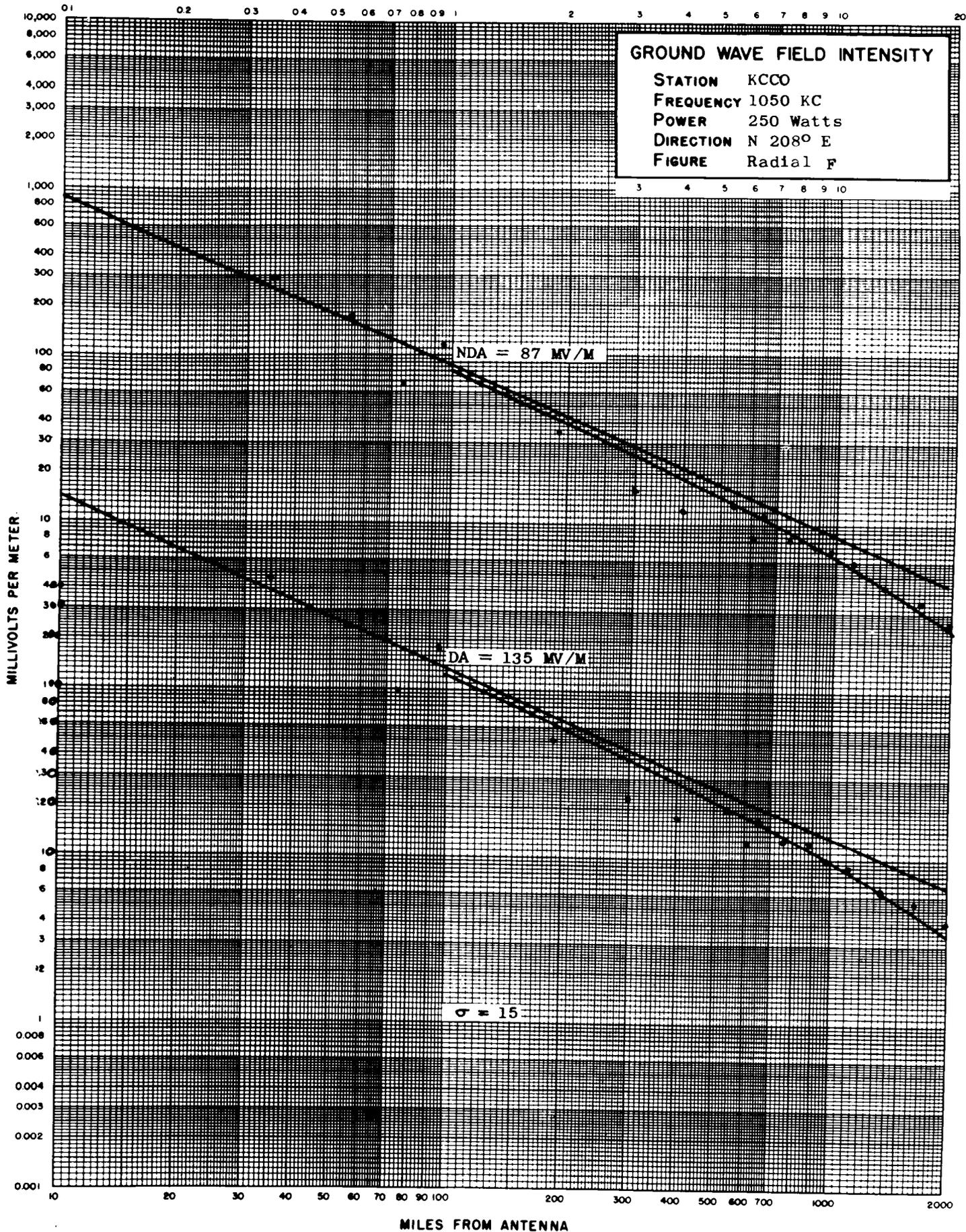
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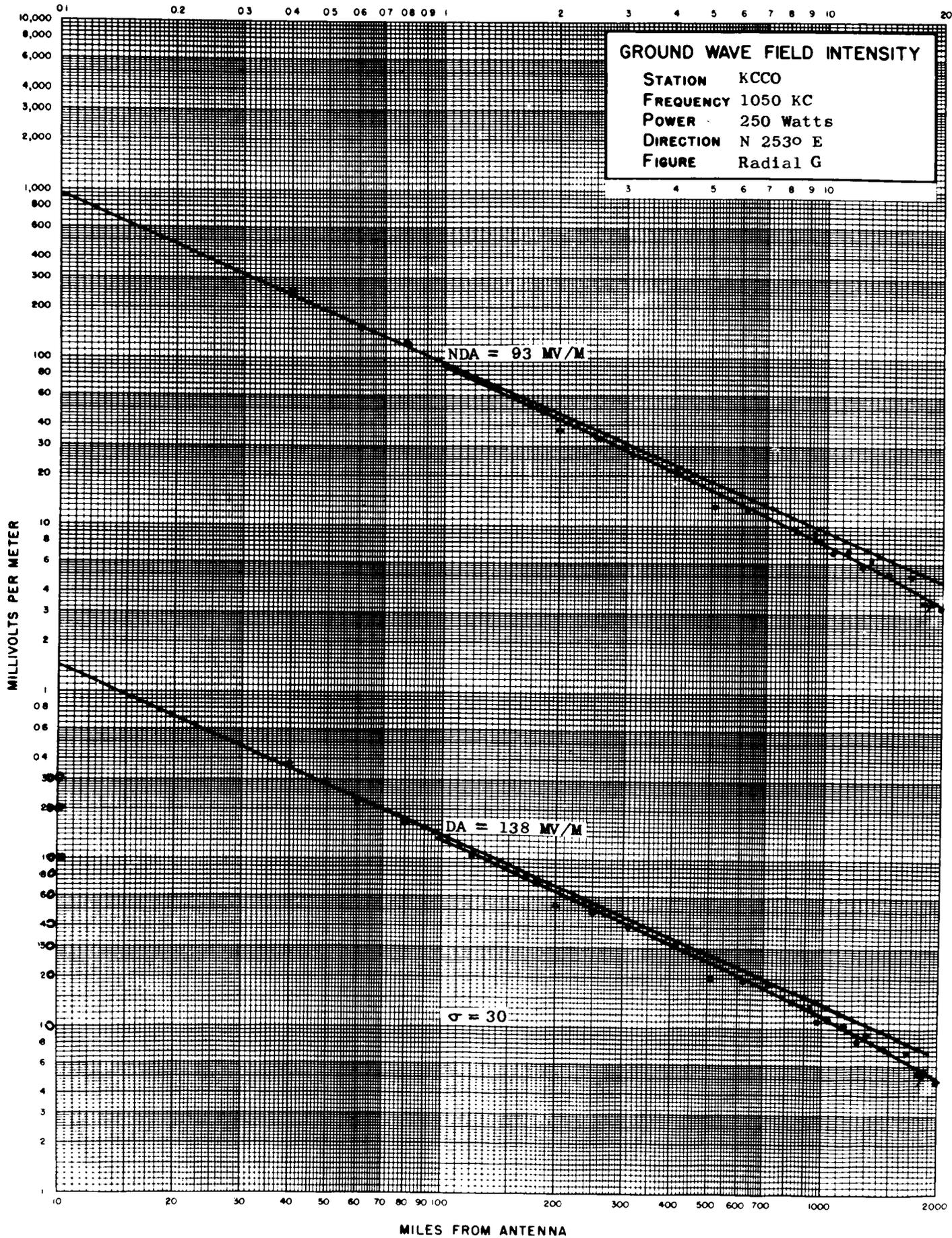
MILES FROM ANTENNA



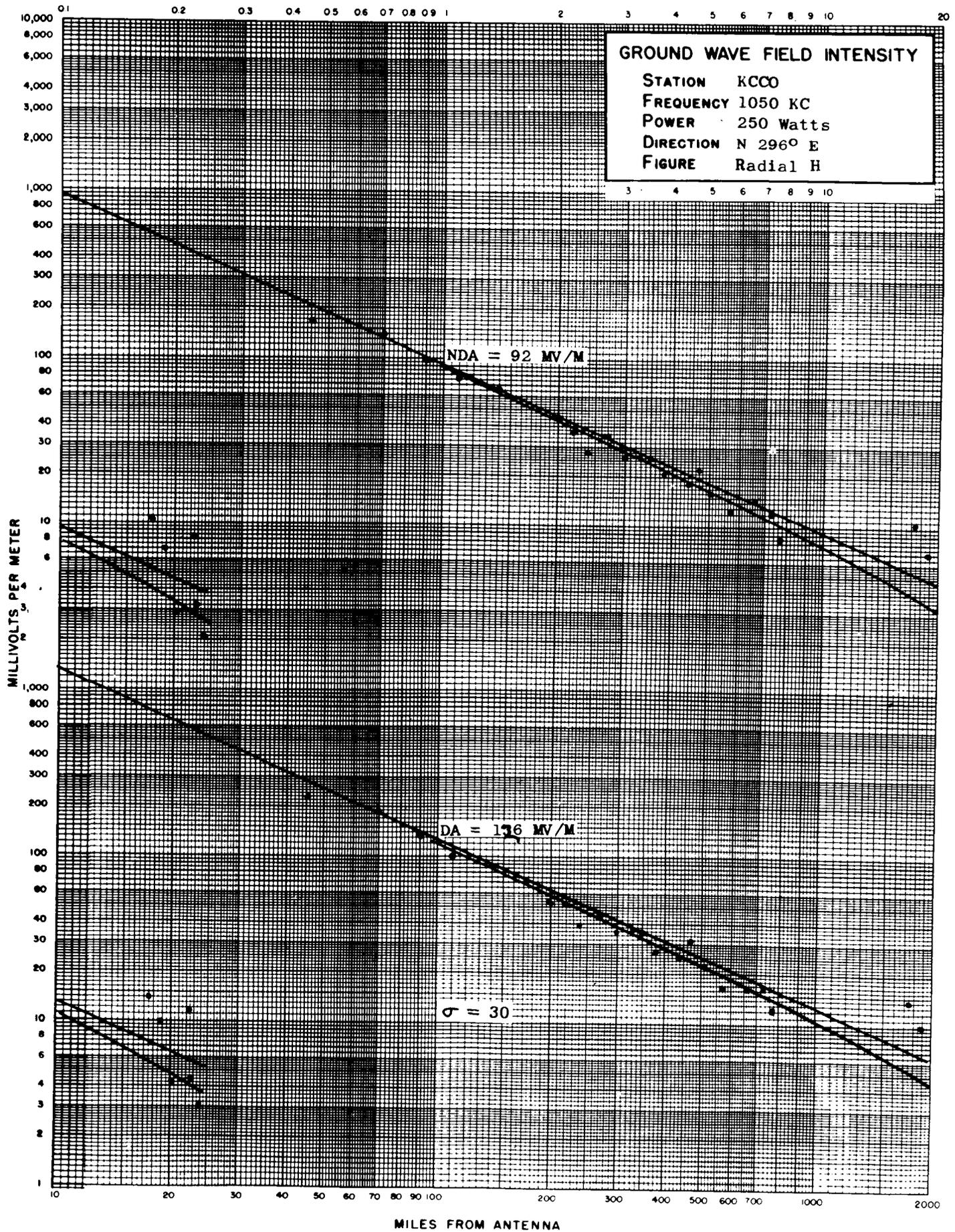
MILES FROM ANTENNA



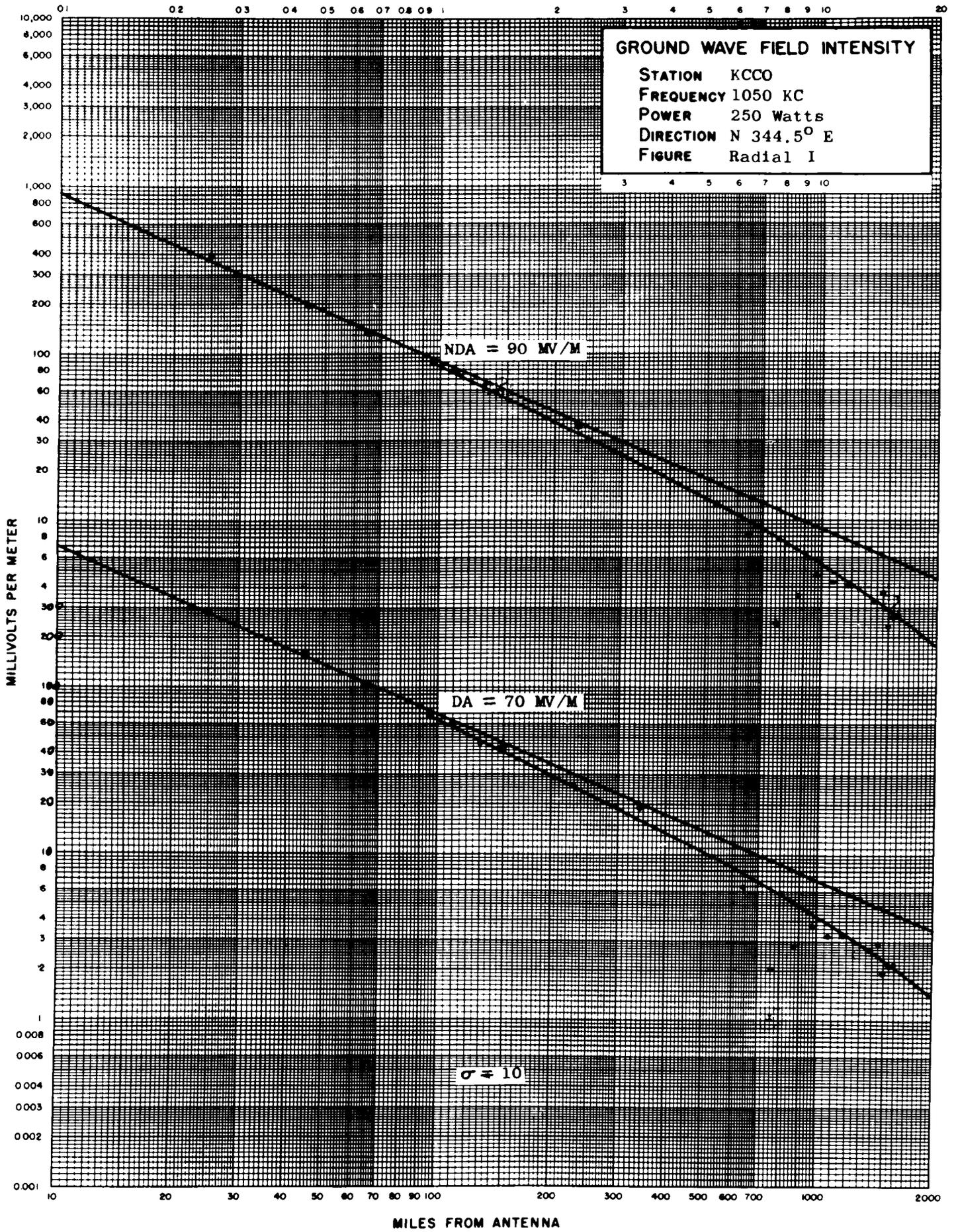
MILES FROM ANTENNA



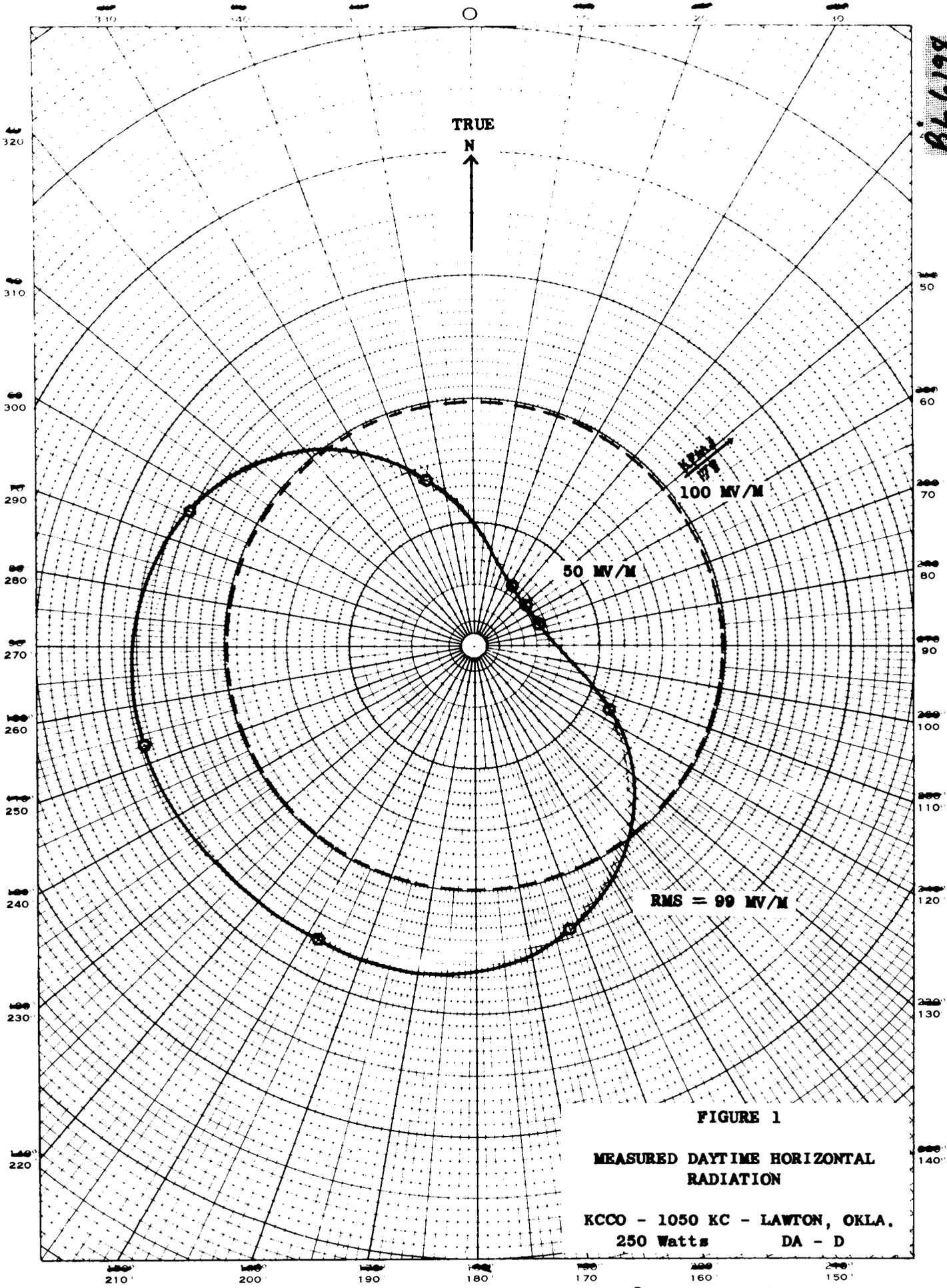
MILES FROM ANTENNA



MILES FROM ANTENNA



NO. 340R P. DIETZGEN GRAPH PAPER
POLAR CO-ORDINATE



BL 6198
M-D

FIGURE 1

MEASURED DAYTIME HORIZONTAL RADIATION

KCCO - 1050 KC - LAWTON, OKLA.
250 Watts DA - D

BL 6198

NO. 340R - P. DIETZGEN COMPANY PAPER
POLAR CO-ORDINATE

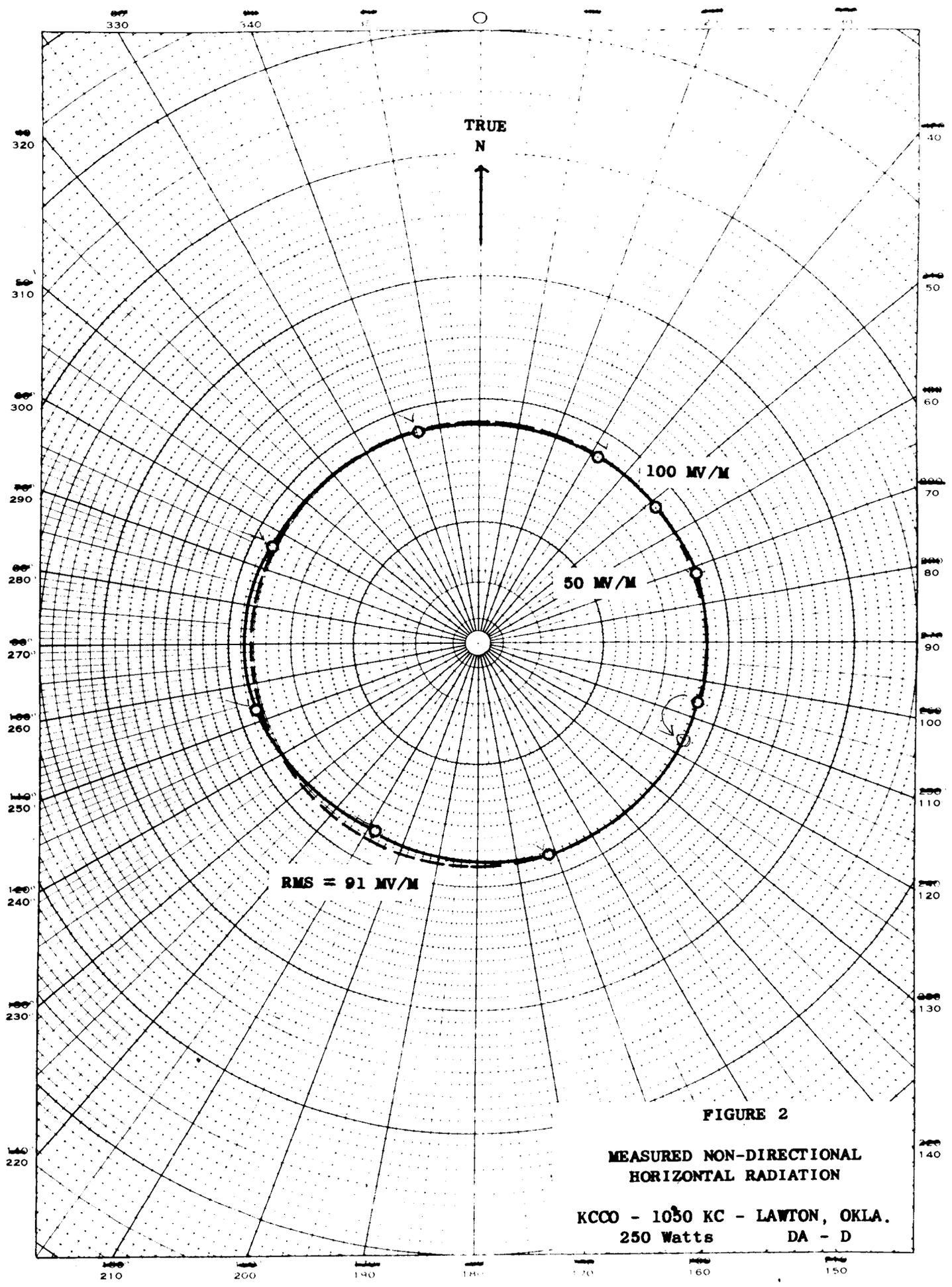


FIGURE 2

MEASURED NON-DIRECTIONAL
HORIZONTAL RADIATION

KCCO - 1050 KC - LAWTON, OKLA.
250 Watts DA - D

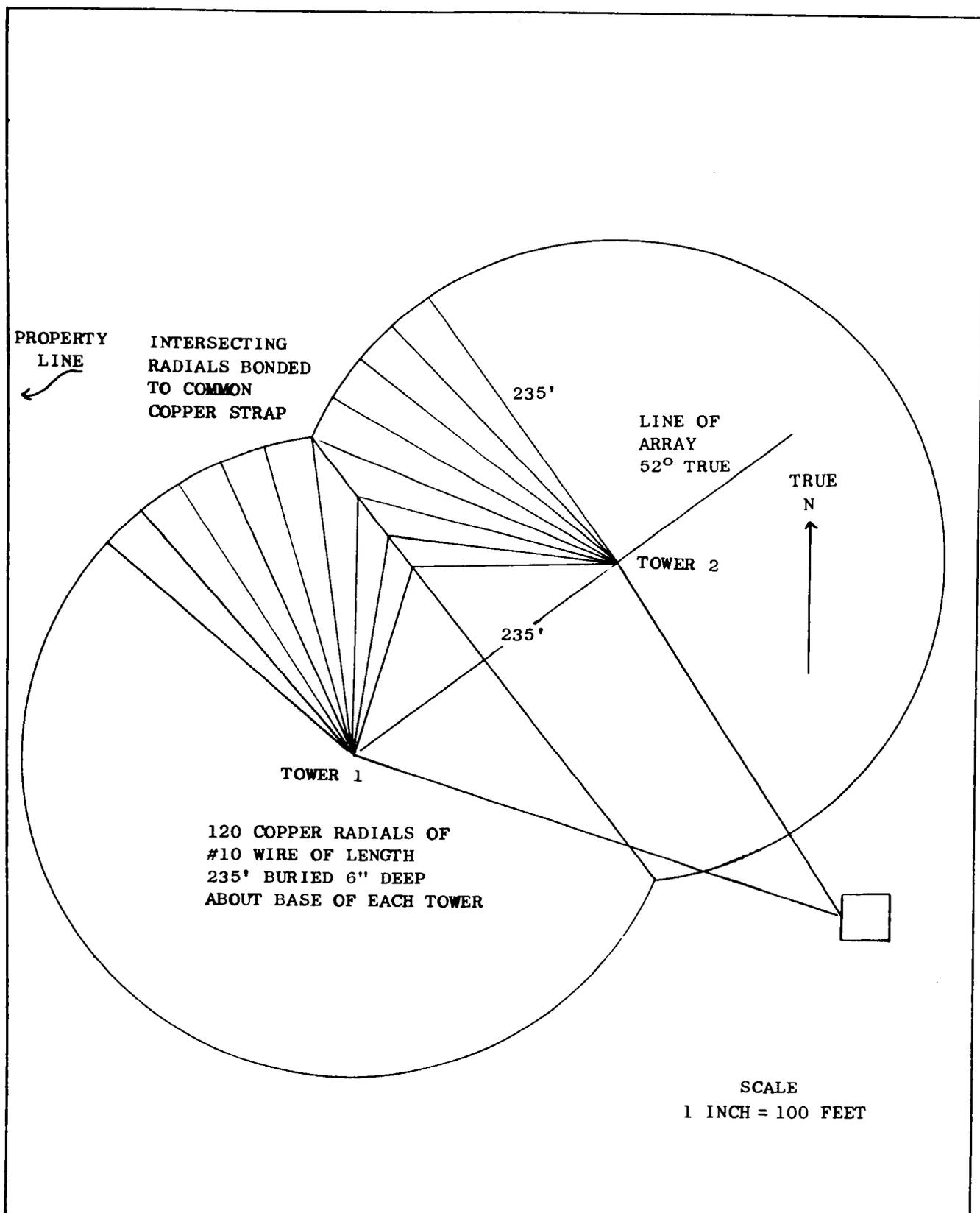


FIGURE 3

ANTENNA GROUND PLOT PLAN

KCCO - 1050 KC - LAWTON, OKLA.

250 Watts

DA - D

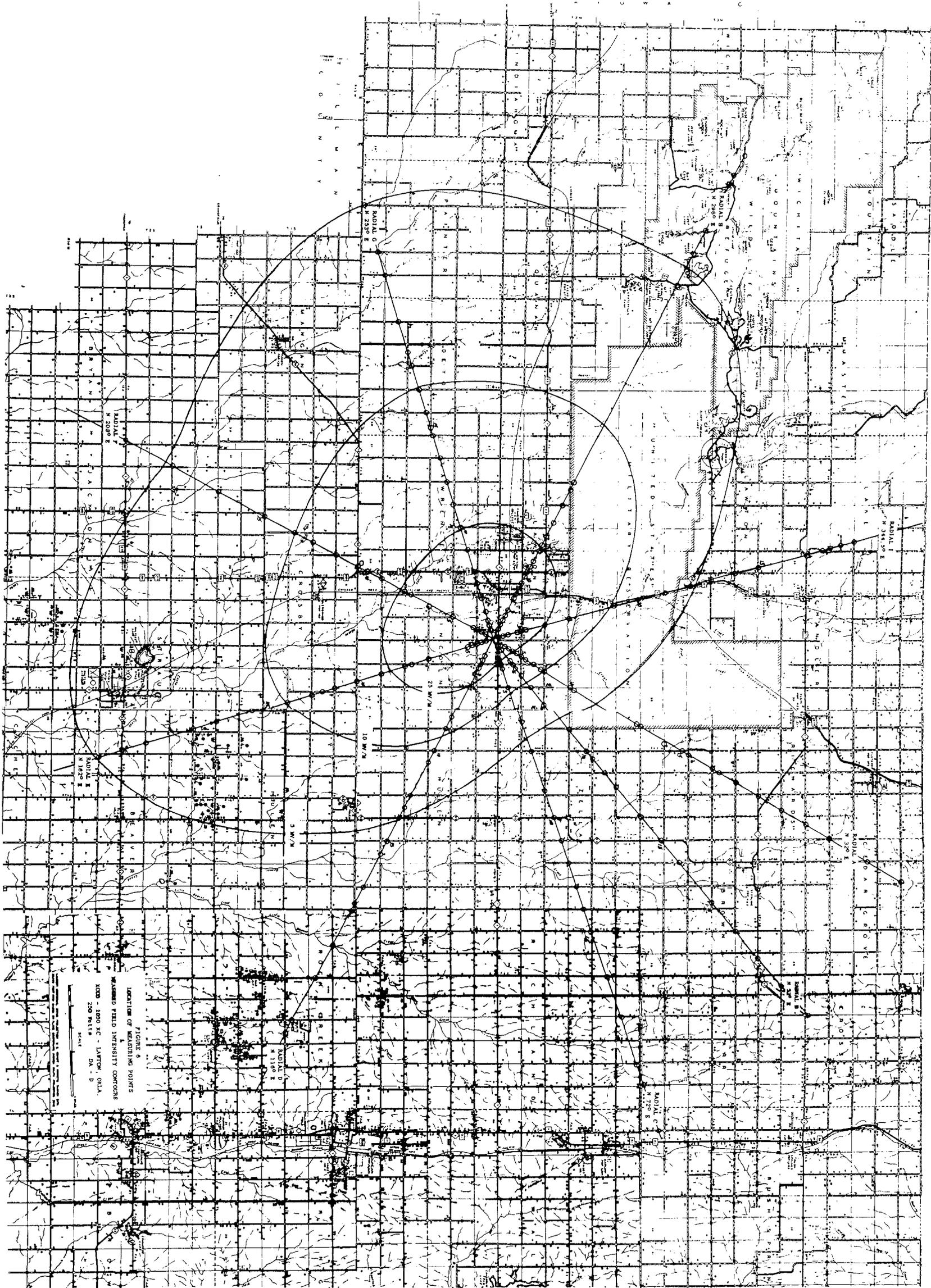


FIGURE 6
 LOCATION OF MEASURING POINTS
 MEASURED FIELD INTENSITY CONTOURS
 1800 KC - LAYTON, OKLA.
 250 Miles
 SCALE

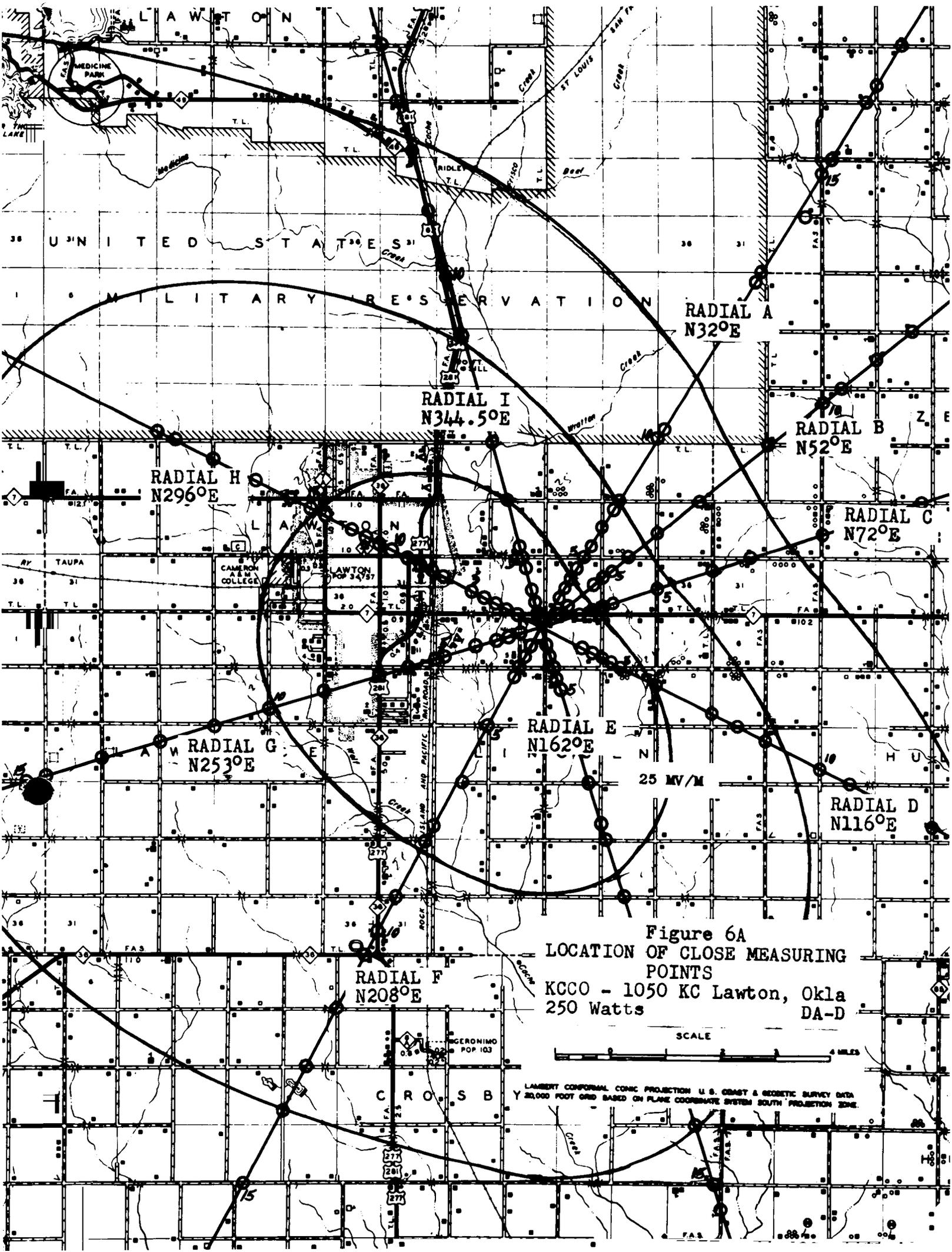


Figure 6A
 LOCATION OF CLOSE MEASURING
 POINTS
 KCCO - 1050 KC Lawton, Okla
 250 Watts
 DA-D



LAMBERT CONFORMAL CONIC PROJECTION U.S. COAST & GEODETIC SURVEY DATA
 20,000 FOOT GRID BASED ON PLANE COORDINATE SYSTEM SOUTH PROJECTION ZONE

- RADIAL A N32°E
- RADIAL B N52°E
- RADIAL C N72°E
- RADIAL D N116°E
- RADIAL E N162°E
- RADIAL F N208°E
- RADIAL G N253°E
- RADIAL H N296°E
- RADIAL I N344.5°E

25 MV/M

CROSSBAY

UNITED STATES
 MILITARY RESERVATION

LAWTON
 CAMERON A&M COLLEGE

CROSSBAY

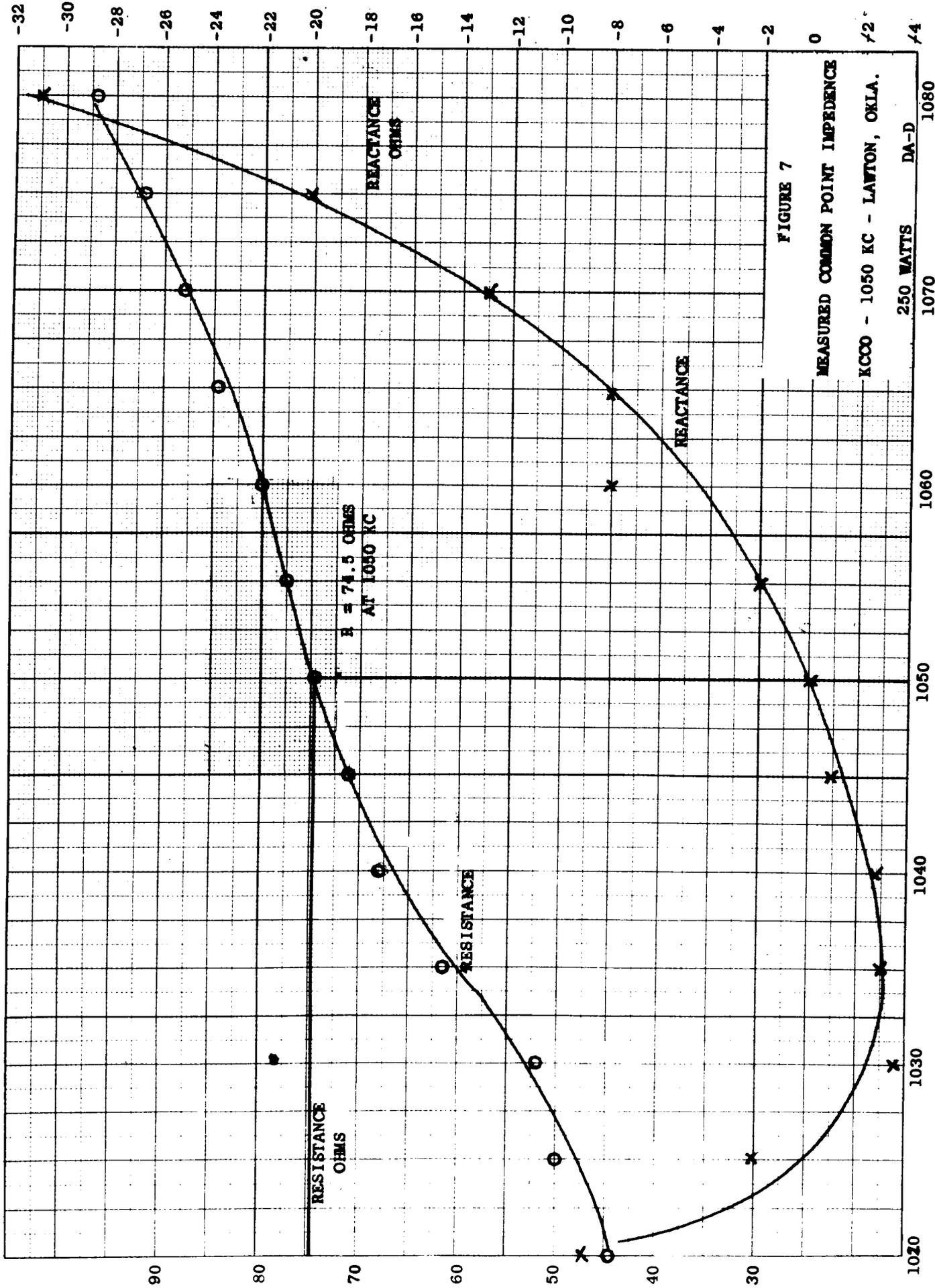


FIGURE 7

MEASURED COMMON POINT IMPEDENCE
KCCO - 1050 KC - LAWTON, OKLA.

250 WATTS DA-D

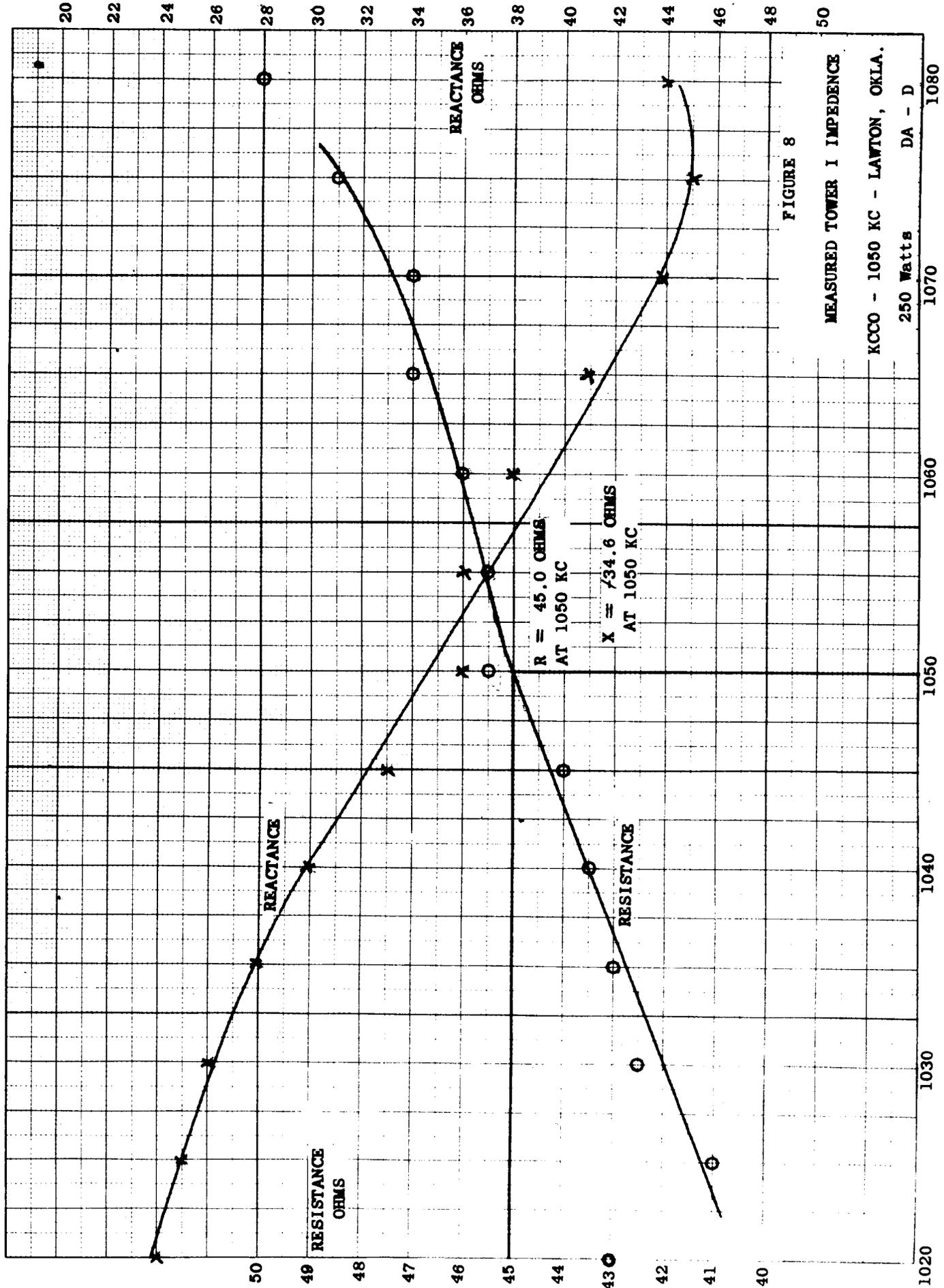


FIGURE 8
MEASURED TOWER I IMPEDENCE
KCCO - 1050 KC - LAWTON, OKLA.
250 Watts DA - D

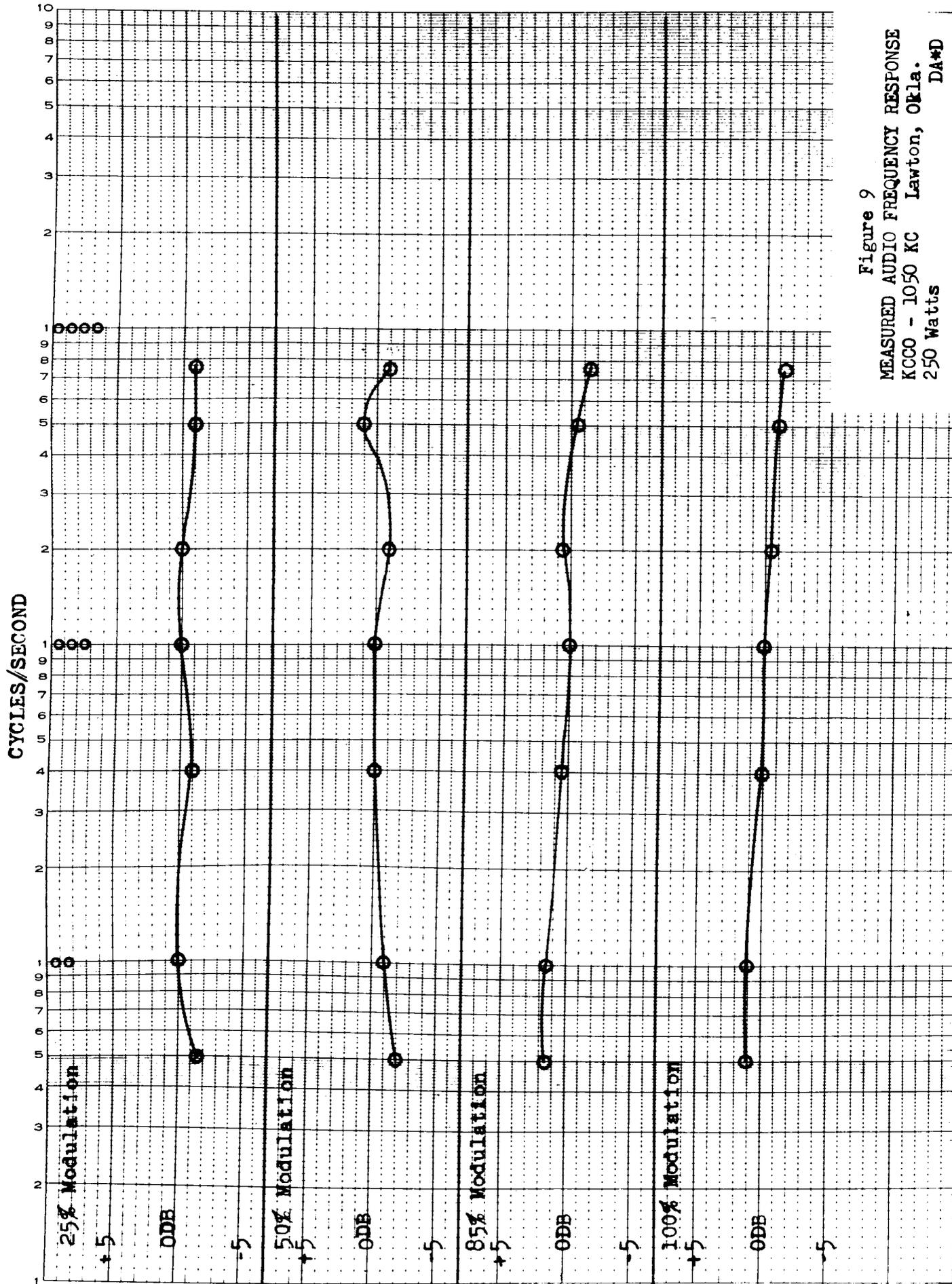


Figure 9
MEASURED AUDIO FREQUENCY RESPONSE
KCCC - 1050 KC Lawton, Okla.
250 Watts
DA#D

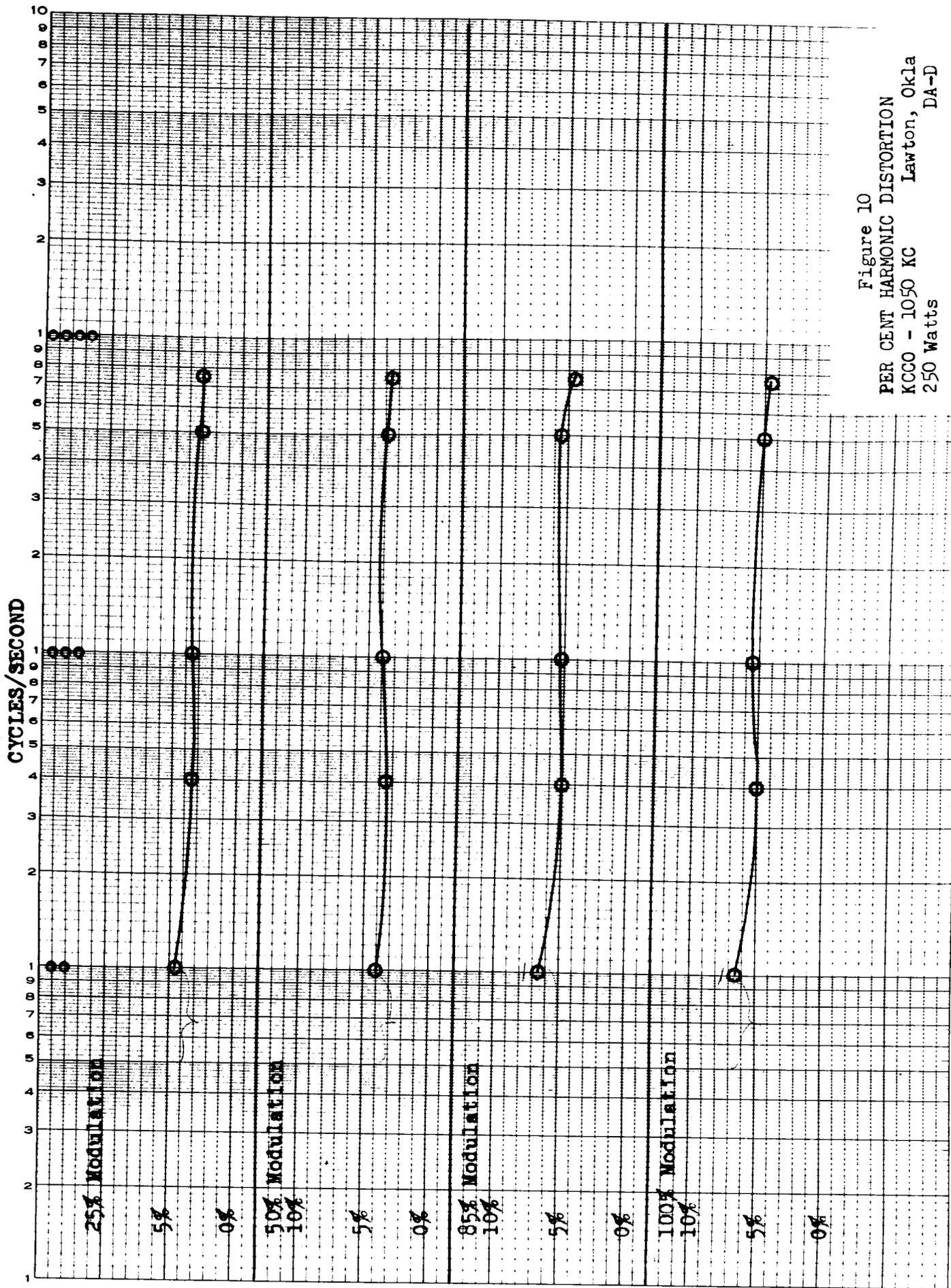


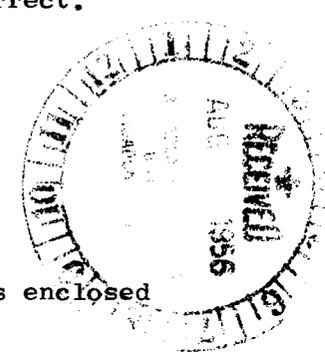
Figure 10
PER CENT HARMONIC DISTORTION
KCCC - 1050 KC Lawton, Okla
250 Watts DA-D

ENGINEERING AMENDMENT
KCCO LICENSE APPLICATION



In regard to 8841:

- 1) The correct directional inverse distance field intensity for Radial H is 126 mv/m. This is the value indicated by the unattenuated line at one mile on the ground wave field intensity vs distance graph and it is the value shown in the direction N 296° E in figure 1. The label on the graph which says 136 mv/m is a typographical error and is incorrect.
- 2) A corrected Figure 2 is enclosed.
- 3) Photographs of the monitoring points are enclosed.
- 4) A map of the best route to the monitoring points is enclosed as Figure 11.
- 5) Measurements made on the KSWO monitoring points are enclosed.



In accordance with the recommendations of Inspector Marion E. Apple of the Dallas office, monitoring point number one is changed. The new directions are as follows:

Point No. 1 (No. 9 on radial A in Figure 6A)

From the junction of Highway 277 and Highway 7 proceed 3.3 miles east on Highway 7. Turn north and continue exactly 2.0 miles. Turn east 0.3 miles. The monitoring point is at the top of a small rise by a little tree on the south side of the road. The distance to the transmitter is 2.6 miles on the radial N 32° E. The field intensity at this point should not exceed 11.1 mv/m.

Point No. 2 (No. 3 on radial C in Figure 6A)

From Point 1 return 0.3 miles west. Turn south for 1.86 miles. The monitoring point is about 300 feet south of a small telephone line and about 750 feet north of Highway 7. The distance to the transmitter is 1.15 miles on Radial N 72° E. The field intensity should not exceed 26.5 mv/m at this point.

POINT NO. 2

JUL • 56



LOOKING NORTH

JUL • 56



POINT NO. 1

JUL • 56



LOOKING WEST

JUL • 56



LOOKING EAST