1310

Station	Main Studio	Freq	Power	Date
CFGM	Richmond Hill, ON	1310	50 kW/DA-2	4/7/67
CFGM	Richmond Hill, ON	1310	10/2.5 kW/DA-1	3/8/61
CHGB	La Pocatiere, QU	1310	10 kW/DA-N	9/11/75
CHGB	La Pocatiere, QU	1310	10/5 kW/DA-N	3/26/68
ClOK	St. Paul, AB	1310	10 kW/DA-N/ND-D	2/25/76
CKOY	Ottawa, ON	1310	50 kW/DA-2	12/21/62
NEW	Westlock, AB	1310	5 kW/DA-N	6/16/67
NEW	St. Paul, AB	1310	10 kW/DA-N	12/16/74
KBUC	San Antonio, TX	1310	5 kW/DA-D	11/29/68
KBUZ	Mesa, AZ	1310	0.5/5 kW/DA-N	5/27/66
KCRE	Crescent City, CA	1310	1 kW/DA-N	12/4/80
KDIA	Oakland, CA	1310	5 kW/DA-1	10/25/61
KDLS	Perry, IA	1310	0.5 kW/DA-D	8/26/70
KEIN	Great Falls, MT	1310	5 kW/ND	8/41
KEZM	Sulphur, LA	1310	0.5 kW/DA-D	10/28/71
KFKA	Greeley, CO	1310	1 kW/	4/18/47
KFSB	Joplin, MO	1310	1/5 kW/DA-2	11/2/79
KIOT	Barstow, CA	1310	5 kW/DA-D	3/29/67
KLIX	Twin Falls, ID	1310	1 kW/DA-1	12/49
KLIX	Twin Falls, ID	1310	1 kW/DA-2	11/51
KNOX	Grand Forks, ND	1310	5 kW/DA-N	10/24/51
KNPT	Newport, OR	1310	1 kW/DA-N	3/27/58
KOKX	Keokuk, IA	1310	0.5/1 kW/DA-N	7/2/74
KRBI	St. Peter, MN	1310	1 kW/DA-D	7/18/55
WAUC	Wauchula, FL	1310	5 kW/DA-D	11/2/79
WDOD	Chattanooga, TN	1310	5 kW/DA-N	2/22/71

1310

Station	Main Studio	Freq	Power	Date
WDXI	Jackson, TN	1310	1/5 kW/DA-N	7/29/49
WEEL	Fairfax, VA	1310	0.5/5 kW/DA-2	1/28/65
WEEL	Fairfax, VA	1310	0.5/1 kW/DA-N	1/8/59
WFAH	Alliance, OH	1310	1 kW/DA-D	2/27/52
WGH	Newport News, VA	1310	5 kW/DA-N	2/28/70
WGH	Newport News, VA	1310	5 kW/DA-1	11/54
WGSA	Ephrata, PA	1310	5 kW/DA-D	2/26/60
WIBA	Madison, WI	1310	5 kW/DA-N	1/42
WICH	Norwich, CT	1310	1/5 kW/DA-2	6/19/74
WICH	Norwich, CT	1310	1 kW/DA-1	3/54
WIFE	Indianapolis, IN	1310	1/5 kW/DA-N	5/26/76
WISE	Asheville, NC	1310	1/5 kW/DA-N	4/5/51
WISE	Asheville, NC	1310	1 kW/ND	1/21/52
WJLK	Asbury Park, NJ	1310	1/2.5 kW/DA-2	11/9/79
WJLK	Asbury Park, NJ	1310	0.25/1 kW/DA-D	1/29/64
WLOB	Portland, ME	1310	5 kW/DA-2	4/29/69
WNIC	Dearborn, MI	1310	1/5 kW/DA-2	10/27/49
WNIC	Dearborn, MI	1310	5 kW/DA-N	3/22/55
WORC	Worcester, MA	1310	1/5 kW/DA-2	5/8/58
WORC	Worcester, MA	1310	1/5 kW/ND	5/8/58
WPRJ	Parsippany-Troy Hills, NJ	1310	1 kW/DA-D	12/28/67
WRR	Dallas, TX	1310	5 kW	
WTIK	Durham, NC	1310	1/5 kW/DA-2	3/61
WTLB	Utica, NY	1310	0.5 kW/DA-N	11/10/48
WTTL	Madisonville, KY	1310	0.5/1 kW/DA-N	9/17/75
WTTL	Madisonville, KY	1310	0.5/1 kW/ND	2/24/65

1310

Station	Main Studio	Freq	Power	Date
WVIP	Mount Kisco, NY	1310	5 kW/DA-D	9/25/58
WVIP	Mount Kisco, NY	1310	5 kW/ND	4/27/62
NEW	St. Paul, MN	1310	10 kW/DA-2	8/27/71

1976 —

FIGURE A - STUDY OF LIMITATIONS FOR NIGHTTIME RADIATED FIELDS ON 1310 kHz FOR NO INTERFERENCE

1310

CALL	PRESENT LIMIT	LOWEST LIMIT MEMBER	MAXIMUM PERMITTED LIMIT
KBUZ	6.4537	3.2850	3.2268
KDIA	3.2143	2.2503	1.6071
KFKA	9.5413	4.4614	4.4614
KLIX	7.8795	3.8052	3.8052
WIFE	4.4253	2.0625	2.0625
KOKX	10.8828	10.8828	5.4414
WITL	6.8489	6.8489	3.4244
WLOB	13.3618	6.2700	6.2700
WORC (SITE)	5.6033	3.8427	2.8016
WORC #1	5.5648	3.8078	2.7824
WORC #2	5.6145	3.8546	2.8072
WNIC	7.9324	7.9324	3.9662
KFSB	5.8715	3.4673	2,9357
KEIN	2.4341	1.3519	1.2170
WJLK (SITE)	6.0478	3.2596	3.0239
WJLK #1	5.7993	3.3469	2.8996
WJLK #2	5.3315	3.1897	2.6657
WCAM (SITE)	4.9281	2.7956	2.4640
WCAM #1	5.1462	2.7398	2.5731
WCAM #2	4.6072	2.8739	2.3036
WTLB (SITE)	7.5971	3.9332	3.7985
WTLB #1	7.7556	3.9118	3.8778
WTLB #2	7.4209	3.3071	3.3071
WISE	9.2464	4.1715	4.1715
WTIK	10.1011	5.3979	5.0505
KNOX	16.8892	16.8892	8.4446
KNPT	8.3349	4.7495	4.1674
WDOD	2.7437	1.5301	1.3718
WDXI	6.0311	4.2141	3.0155
WRR	3.3680	1.6442	1.6442
WEEL	7.7553	3.5587	3.5587
WGH	7.6463	3.9784	3.8231
WIBA	2.6347	1.3268	1.3173
WICH	5.8598	4.1321	2.9298
CIOK	10.4375	6.9670	5.2187
CKOY	10.1997	5.0076	5.0076
CFGM	10.0632	5.9160	5.0316
CHGB	12.5905	7.7778	6.2952
HIBK	13.3416	6.8192	6.6708
HIAV	10.8800	10.8800	5.4400
HIUA	9.5949	5.7336	4.7974

FIGURE A, PAGE 2

CALL	PRESENT LIMIT	LOWEST LIMIT MEMBER	MAXIMUM PERMITTED LIMIT
XEAM	13.5363	13.5363	6.7681
XEBP	9.6932	9.6932	4.8466
XEC	5.8310	3.8315	2.9155
XEFH	10.0302	6.9871	5.0151
XEHIT	10.1006	10.1006	5.0503
XEHJ	7.5192	4.0954	3.7596
XEHV	6.6309	3.0224	3.0224
XEPO	8.9024	6.0702	4.4512
XERU	10.2151	10.2151	5.1075
XETIA	7.8778	4.3527	3.9389
XEVB	12.3926	12.3926	6.1963
XEUP	7.9478	4.0339	3.9739
CMHO	7.7212	3.4687	3.4687

CFGM

CORRECTED

DESCRIPTION SHEET
Directional Antenna System

Station: CFGM — Main Studio: Richmond Hill, Ontario

Frequency: 1310 kc/s — Power: 50 kw

Time: Unlimited — Class: III

Notification List No. 224 — Date: April 7, 1967

Geographic Location: 43° 34' 30" N. Latitude
79° 41' 05" W. Longitude

ANTENNA SYSTEM: Mode of Operation DA-2

HEIGHT: The array consist of 11 towers 250' (120° electrical) high with overall height of 255' for each tower.

SPACING: The array consists in part of two rows of 5 towers each. Spacing between towers in each row is 504' (241°) and between rows 167' (80°). The axis of the rows is on a bearing of 110° T and the tower pairs forming the rows lie on a bearing of 20° T. The 11th tower lies 167' (80°) on an azimuth 200° T from Tower No. 9.

TOWER PARAMETERS:

	Day		Night	
Tower	Current Ratio	Current Phase	Current Ratio	Current Phase
1			0.975	-102.726°
2	1.001	-74.323°	2.471	-111.470°
3	1.969	-93.554°	3.106	-114.984°
4	2.204	-93.772°	2.060	-117.239°
5	0.996	-108.555°	0.702	-115.398°
6			1.000	0.000°
7	0.980	33.900°	2.534	-8.744°
8	1.990	12.238°	3.186	-12.258°
9	2.366	19.978°	2.113	-14.513°
10	1.000	-0.194°	0.720	-12.672°
11	0.340	189.000°		

CFGM

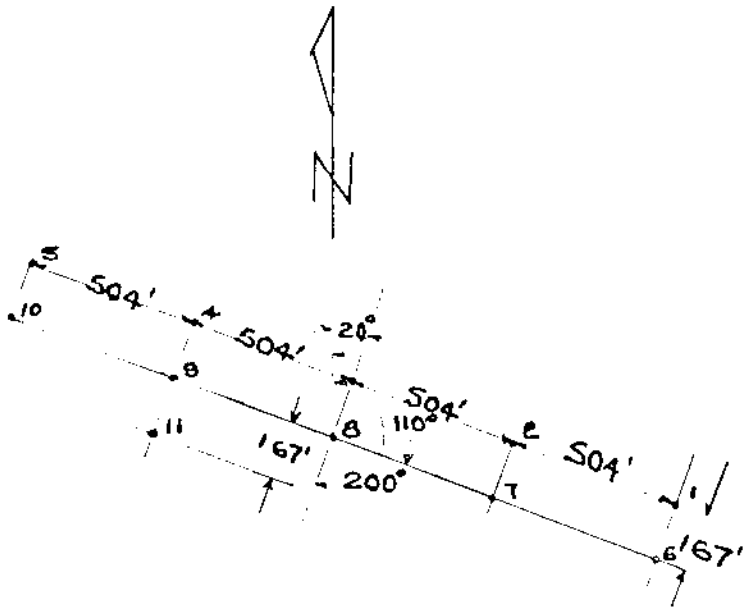
Station CFGM
Richmond Hill, Ontario

50kw,DA-2,U,Class III
1310 kc

GROUND SYSTEM: The ground system will consist of 120, 0.4λ radial No. 10 soft copper about each tower, shortened as required between towers.

PREDICTED FIELD: 1317 mv/m unattenuated at 1 mile for 50 kw

186 mv/m unattenuated at 1 mile for 1 kw



Note: Please retain the radiation patterns previously notified for this station and attach to this corrected description sheet. These revisions concern only a change in the location of one tower. The radiation patterns are not affected

#157

CFGM

Description Sheet (11-30-61ct) | Station CJRH, Richmond Hill, Ontario | 2.5kw,10kw-LS,DA-1,U, 1310 kc, Class III

CORRECTED

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: CJRH — Main Studio Richmond Hill, Ontario

Frequency: 1310 kc/s — Power: 10 D/2.5 N Class: III

Notification List No. 157 — Date March 8th, 1961

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:
North Latitude: 43° 49' 37"
West Longitude: 79° 22' 07"

ANTENNA CHARACTERISTICS

Mode of Operation: DA-1
Number of elements: 4
Type of elements: Guyed, uniform cross-section, series fed, no top loading.

TOWER:	#1(SW)	#2(NW)	#3(NE)	#4(SE)
HEIGHT ABOVE INSULATORS:	179'	179'(86°)	179'	179'
OVERALL HEIGHT:	182'	182'	182'	182'
SPACING:	#1 to #2=#4 to #3= 100°; #1 to #4=#2 to #3= 197°			
PHASING:	0°	-90	-90	0°
FIELD RATIO:	1.0	0.90	0.81	0.90

ORIENTATION: #1 to #2, #4 to #3 on a line bearing 332° (In parallelogram #1 to #4, #2 to #3 on a line bearing 62° array)

GROUND SYSTEM: 120 radials per tower of length varying from 225' to 360' of #10 AWG soft copper, buried approximately 8" below ground level. Radials are bonded together where they overlap, also bonded to a ring at the base of each tower.

Predicted effective field: 179 mv/m (for 1 kw)
277 " (for 2.5 kw)
393.4 " (for 10 kw)

NOTE: Please retain the antenna radiation patterns notified for station CJRH in Canadian Change List No. 157 and attach to this revised description sheet. This only concerns a correction in the location of the antenna system.

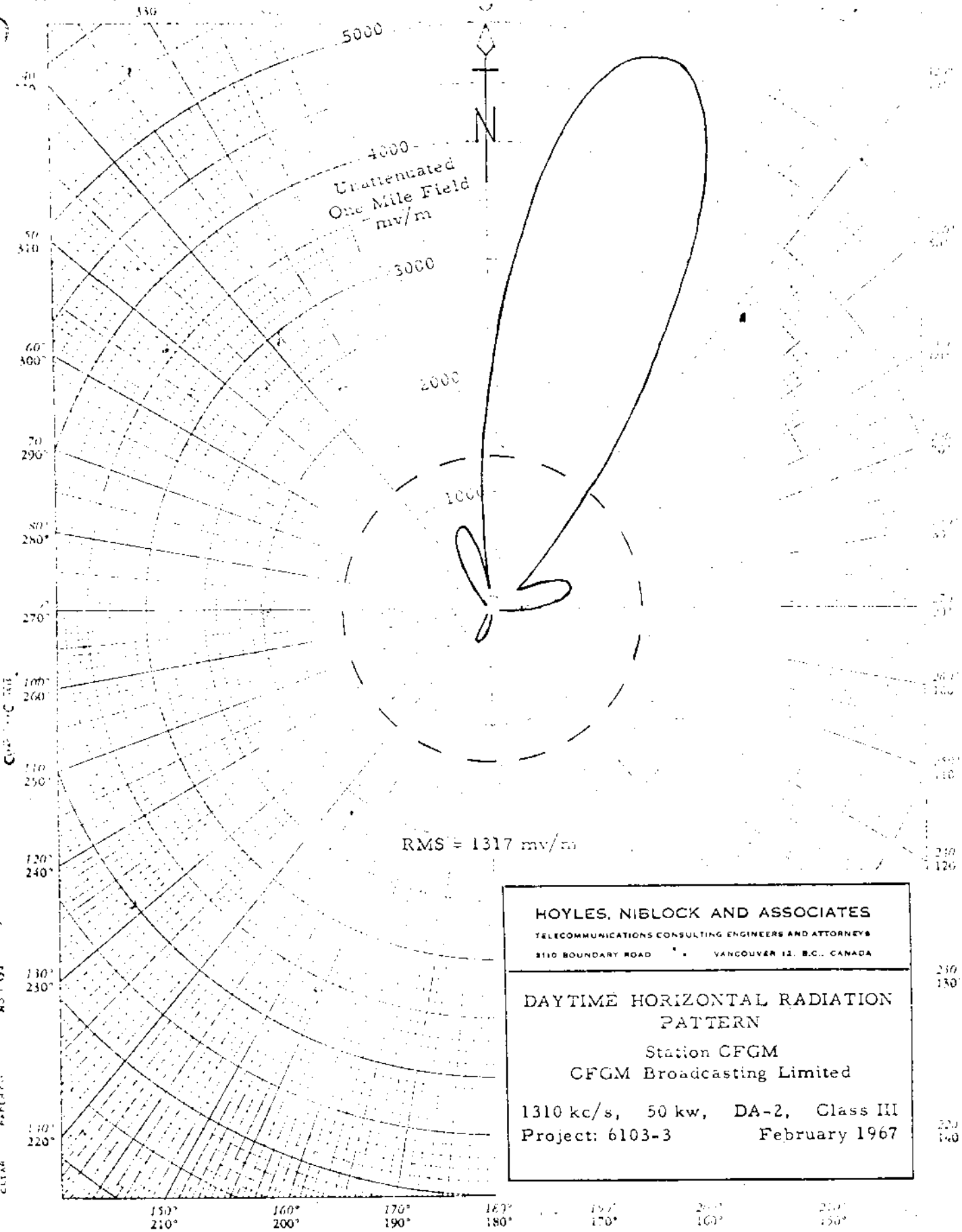
October 26, 1961.

CFGM

Proposed Day
(7-26-67ct)

Station CFGM
Richmond Hill, Ontario

50kw, DA-2, U, ClassIII
1310 kc



HOYLES, NIBLOCK AND ASSOCIATES
TELECOMMUNICATIONS CONSULTING ENGINEERS AND ATTORNEYS
2110 BOUNDARY ROAD • VANCOUVER 12, B.C., CANADA

DAYTIME HORIZONTAL RADIATION PATTERN

Station CFGM
CFGM Broadcasting Limited

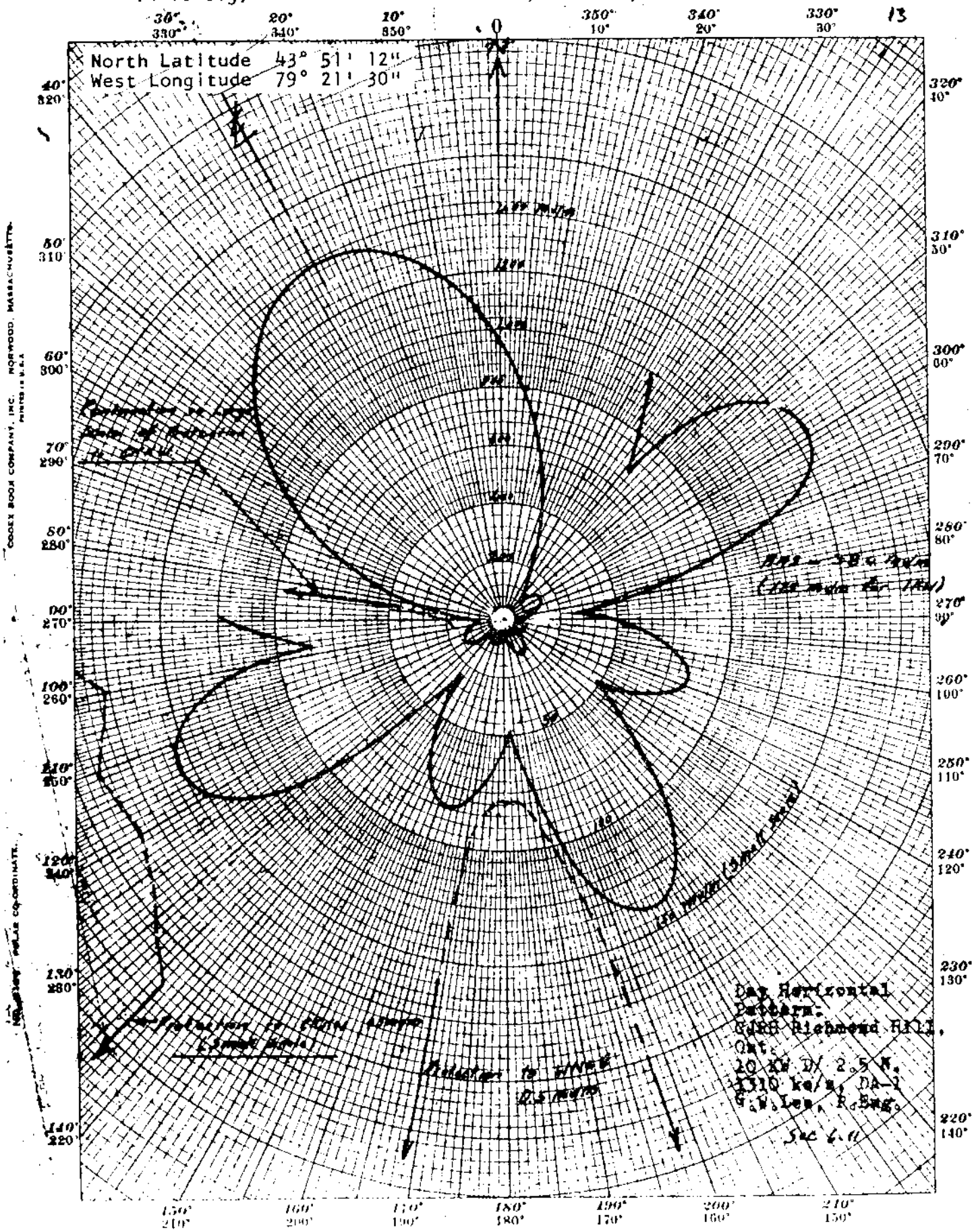
1310 kc/s, 50 kw, DA-2, Class III
Project: 6103-3 February 1967

#157

CFGM

PROPOSED DAY (4-10-61g)

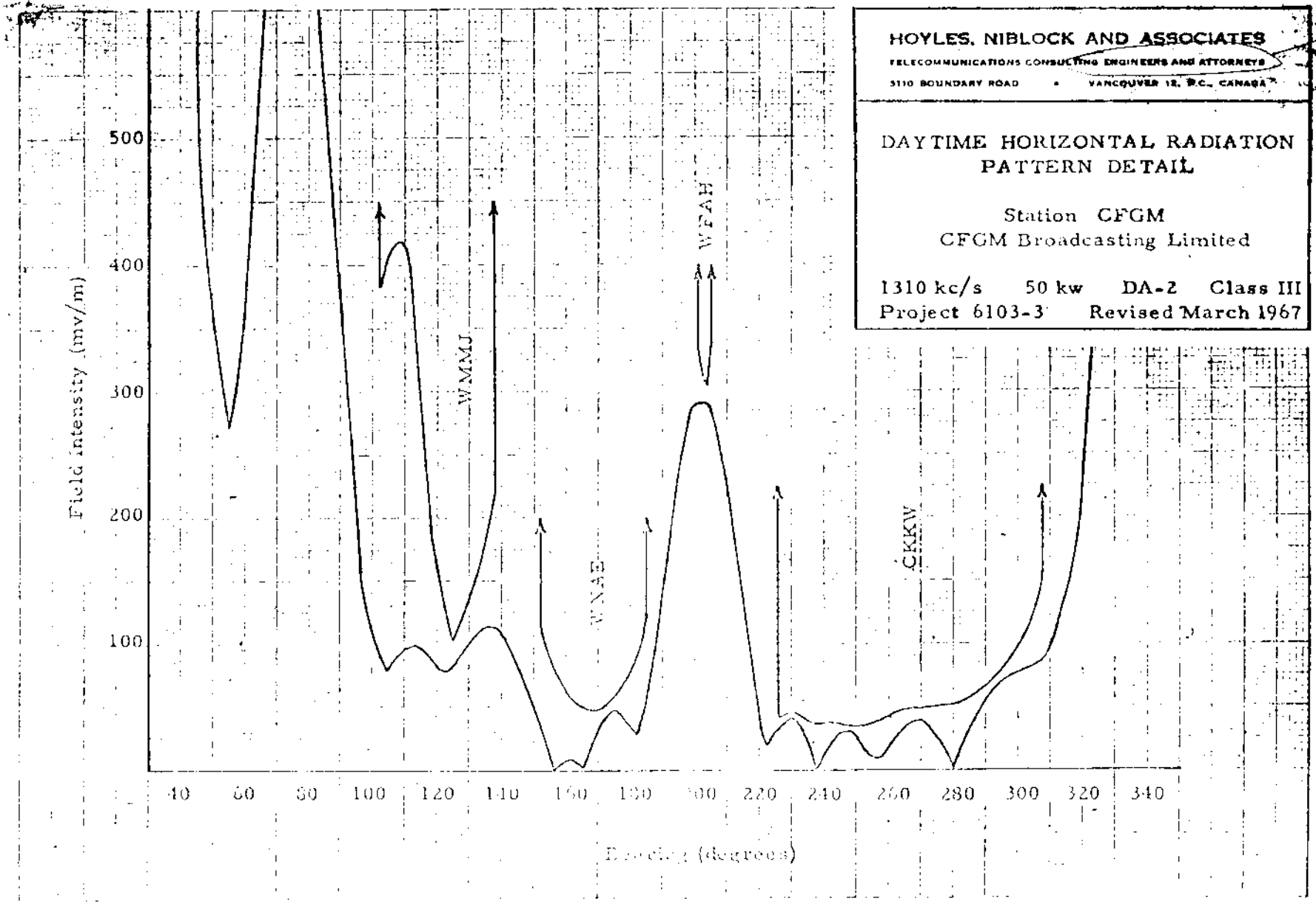
Station CJRH 2.5kw,10kw-LS,DA-1,U
Richmond Hill, Ontario, Canada 1310 KC



Proposed Day Nulls
(7-26-67ct)

Station CFGM
Richmond Hill, Ontario

50kw, DA-2, U, ClassIII
1310 kc



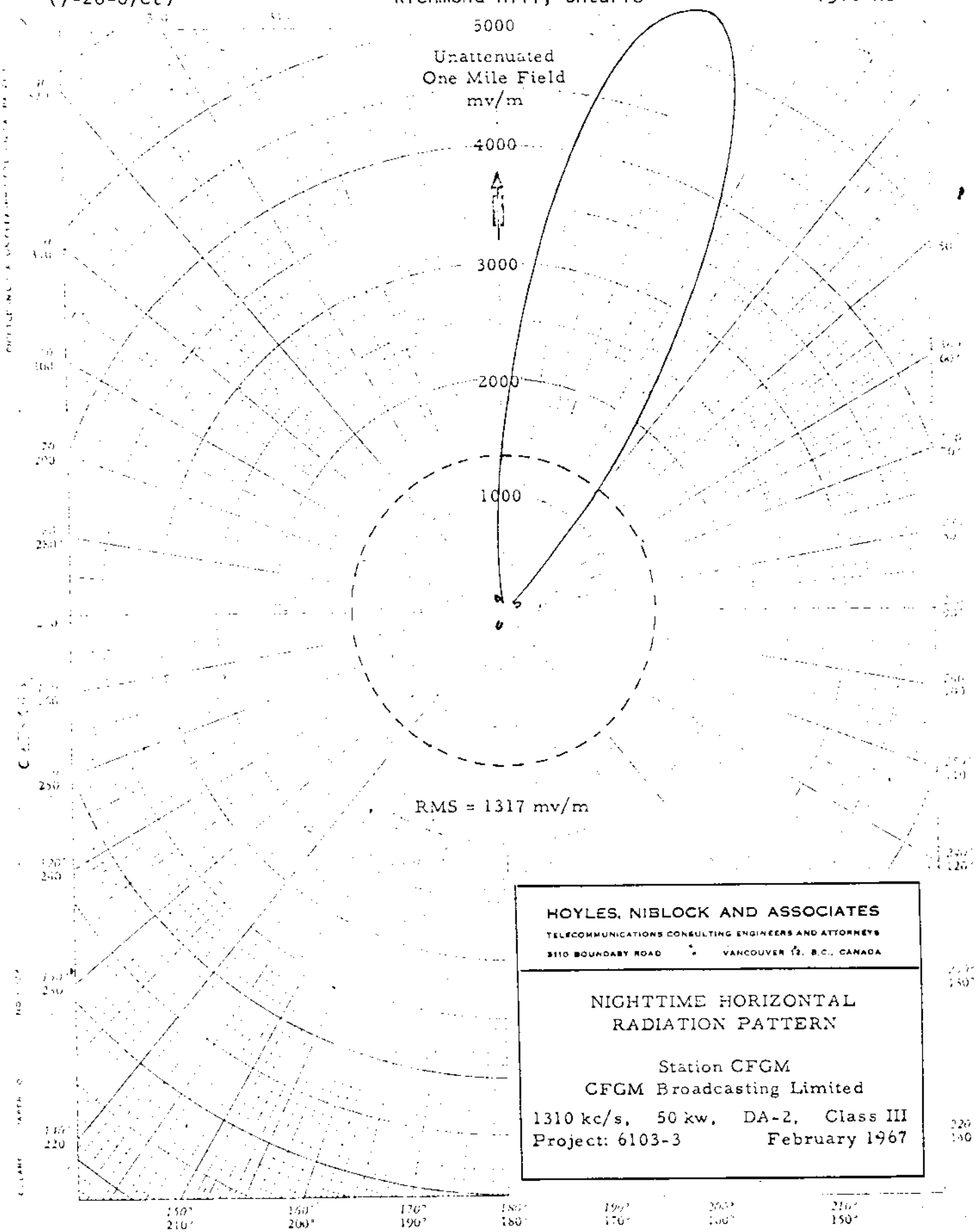
CFGM

CFGM

Proposed Night
(7-26-67ct)

Station CFGM
Richmond Hill, Ontario

50kw, DA-2, U, ClassIII
1310 kc



HOYLES, NIBLOCK AND ASSOCIATES
TELECOMMUNICATIONS CONSULTING ENGINEERS AND ATTORNEYS
3110 BOUNDARY ROAD • VANCOUVER 12, B.C., CANADA

NIGHTTIME HORIZONTAL
RADIATION PATTERN

Station CFGM
CFGM Broadcasting Limited

1310 kc/s, 50 kw, DA-2, Class III
Project: 6103-3 February 1967

157

CFGM

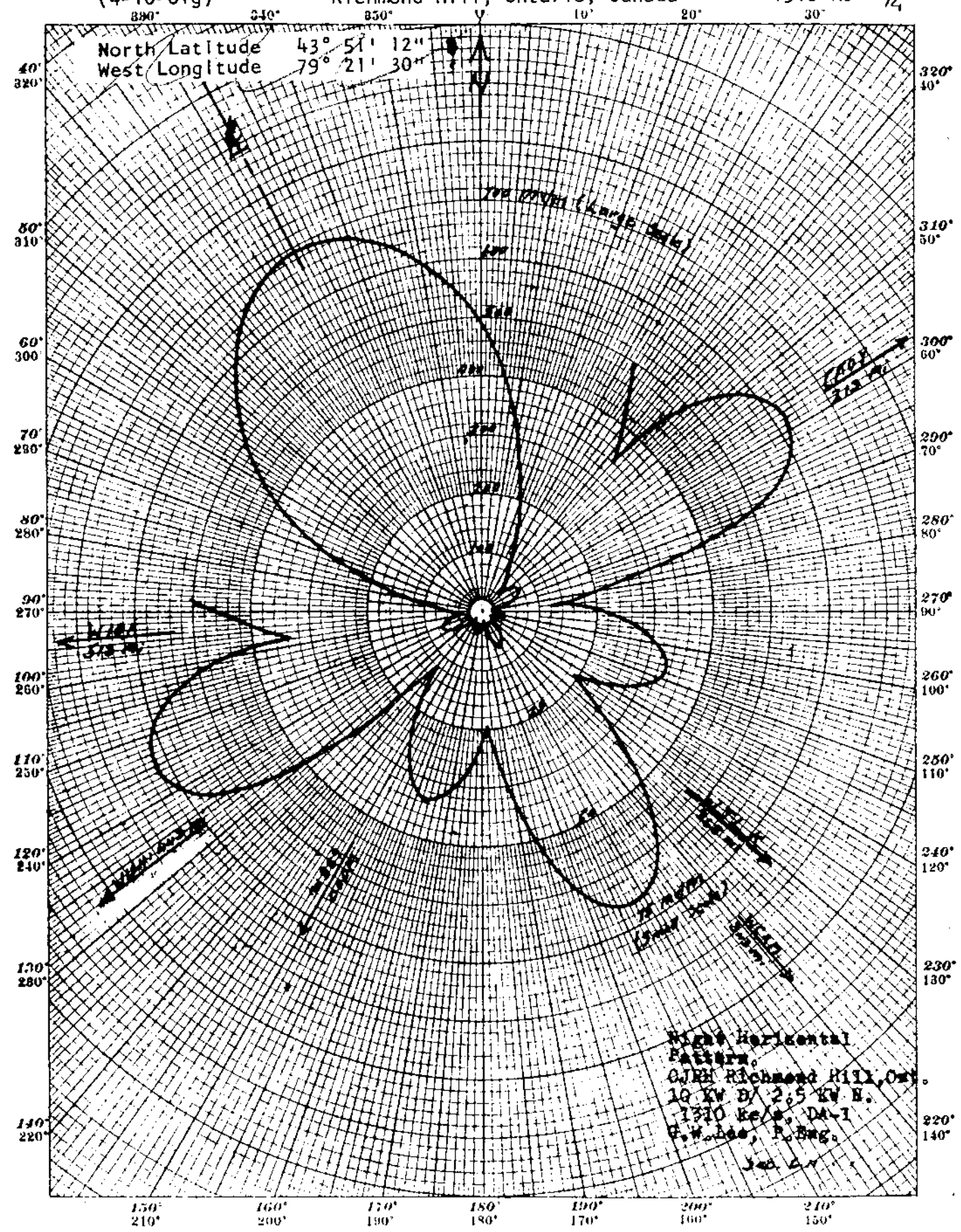
PROPOSED NIGHT (4-10-61g)

Station CJRH Richmond Hill, Ontario, Canada

2.5 kw, 10kw-LS, DA-1,U

1310 KC

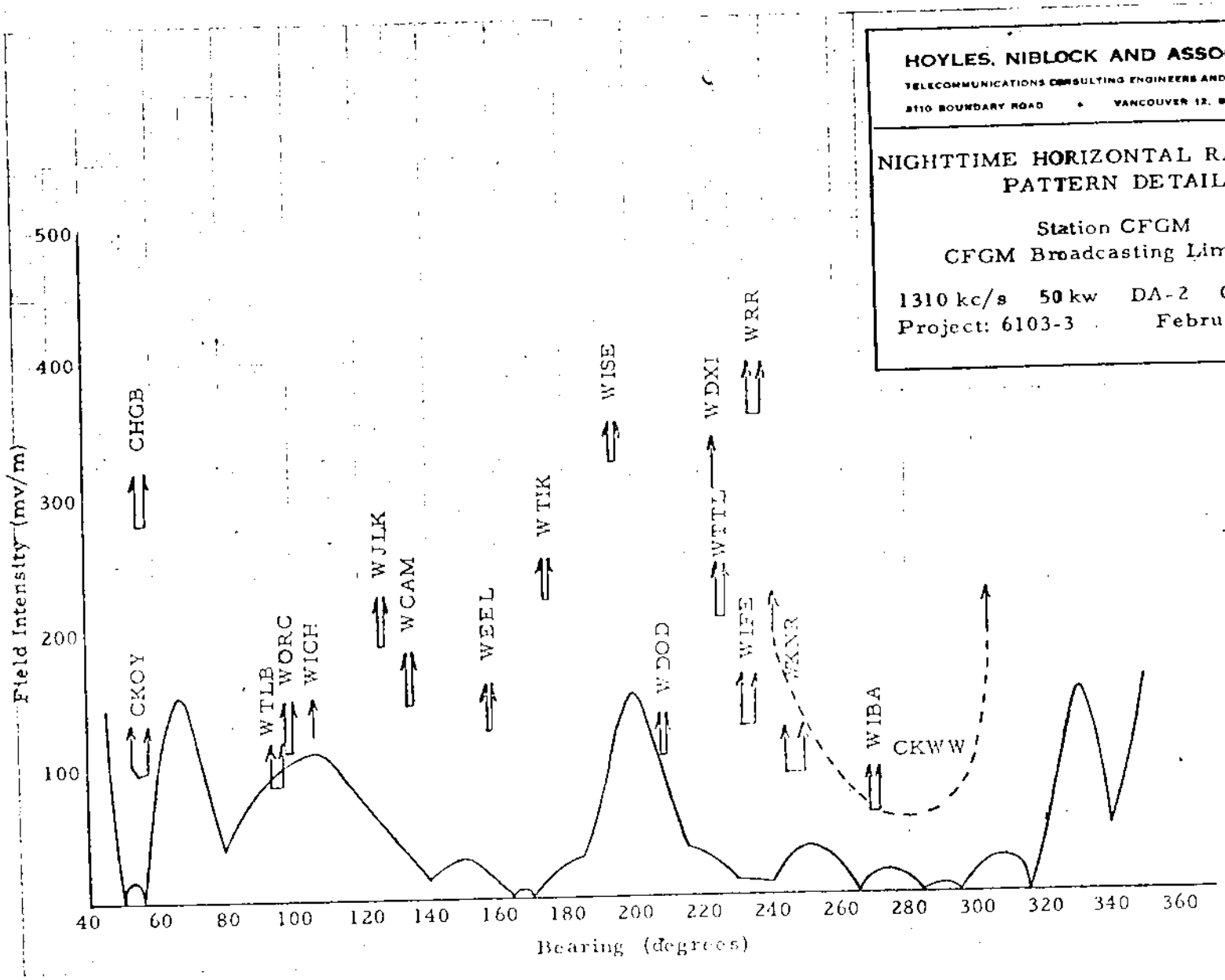
14



Proposed Night Nulls
(7-26-67ct)

Station CFGM
Richmond Hill, Ontario

50kw, DA-2, U, ClassIII
1310 kc



CFGM

CHGB

I - DESCRIPTION DU SYSTEME A ANTENNE DIRECTIONNELLE

1. LETTRES D'APPEL: CHGB.

2. EMPLACEMENT: La Pocatière, Qué.

3. FREQUENCE: 1310 KHz.

4. PUISSANCE: 10 KW jour et nuit.

5. CLASSE: III.

6. NOTIFICATION NO: 345 DATE: September 11, 1975

7. COORDONNEES: Latitude nord: 47° 20' 45"

Longitude ouest: 70° 05' 04"

8. SYSTEME D'ANTENNE: a) Fonctionnement: AD-N.

b) Type: deux (2) éléments de section carrée uniforme, haubanés et alimentés en série.

c) Mise à la terre: 120 fils #10 de cuivre solide, espacés également sur un [illegible] de 0.4λ max. centré sur chaque élément et enfouis à environ 12 pouces sous la surface.

9. MATS D'ANTENNE:

		#1 (SO)	#2 (NE)
Hauteur au-dessus de l'isolateur:		200' (96°)	200' (96°)
Orientation (Az):		Réf.	035.00°
Espacement:		Réf.	080.00° (180°)
Phasage:	Jour:	-	mât #2 (NE)
	Nuit:	000.00	-097.00°
Rapport d'intensité de champ:	Jour:	-	1.000
	Nuit:	1.000	1.247

10. EFFICACITE PREVUE: a) Jour: 606 mV/m pour 10 KW.

b) Nuit: 580.13 mV/m pour 10 KW.

YVES R. RANGEL
INGENIEUR-CONSEIL
3772 AVENUE KENT,
MONTREAL, QUE. H3S 1N3

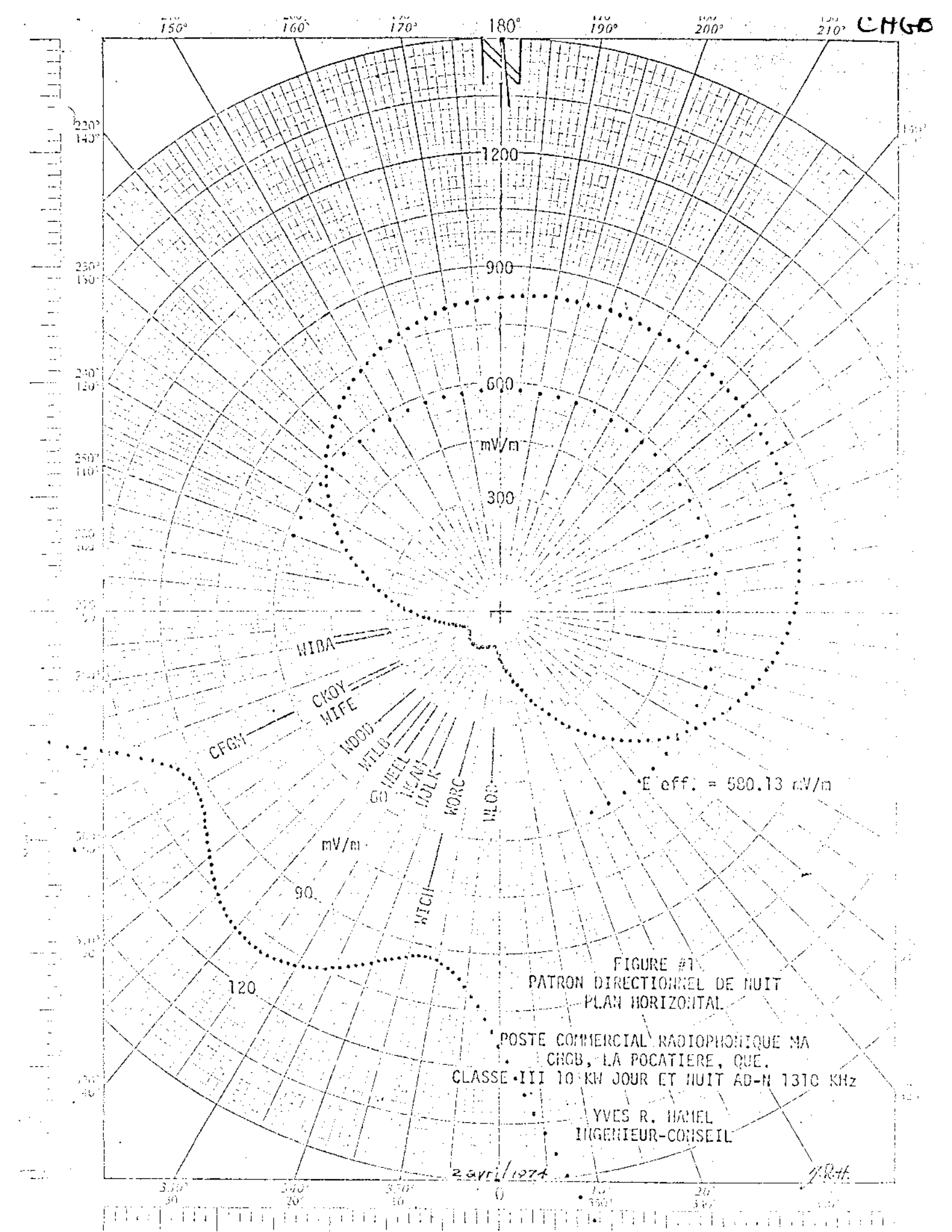


FIGURE #1
PATRON DIRECTIONNEL DE NUIT
PLAN HORIZONTAL

POSTE COMMERCIAL RADIOPHONIQUE MA
CHGB, LA POCATIERE, QUE.
CLASSE III 10 KW JOUR ET NUIT AD-N 1310 KHz

YVES R. HAMEL
INGENIEUR-CONSEIL

2 avril 1974

YRH

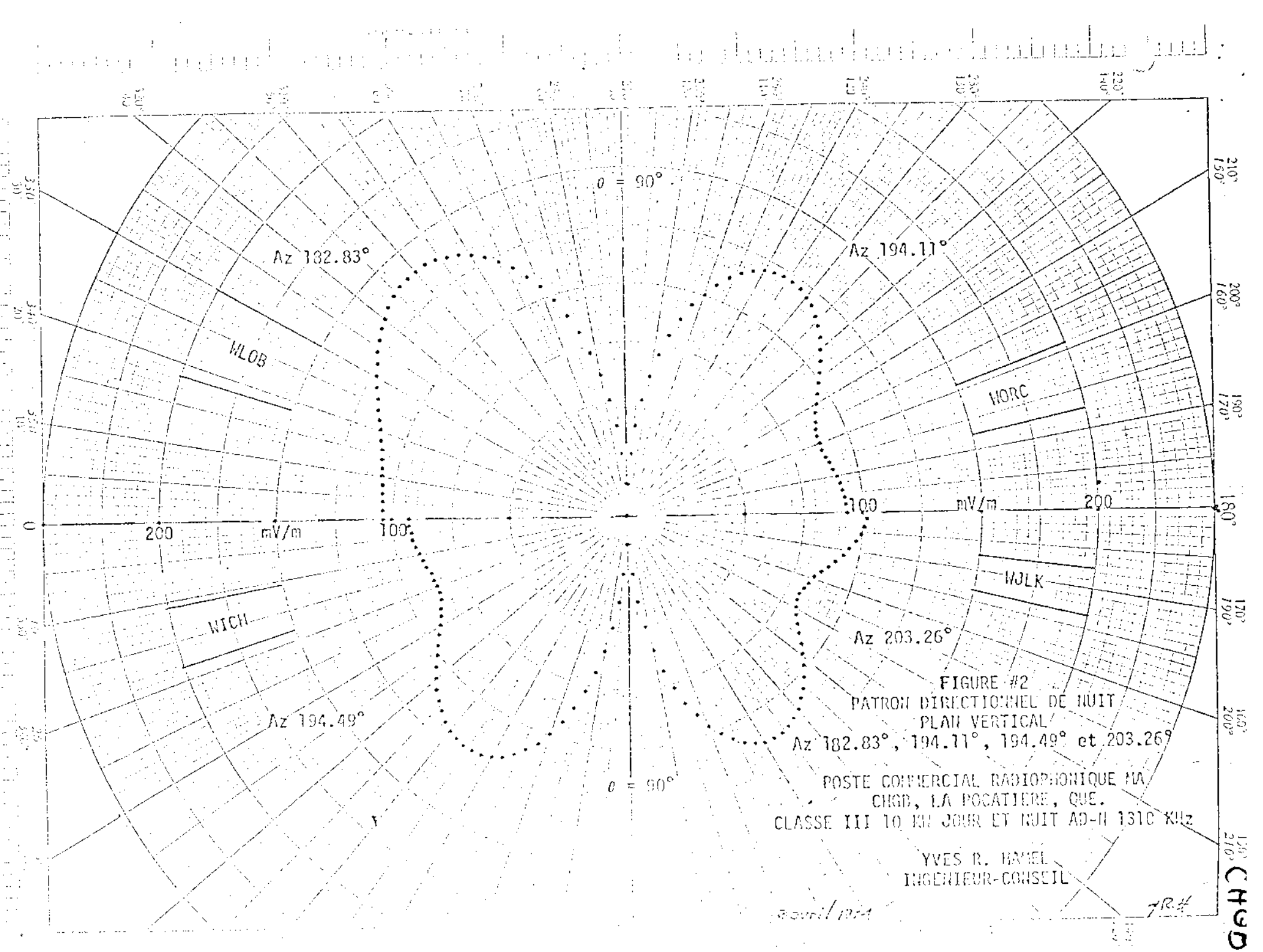


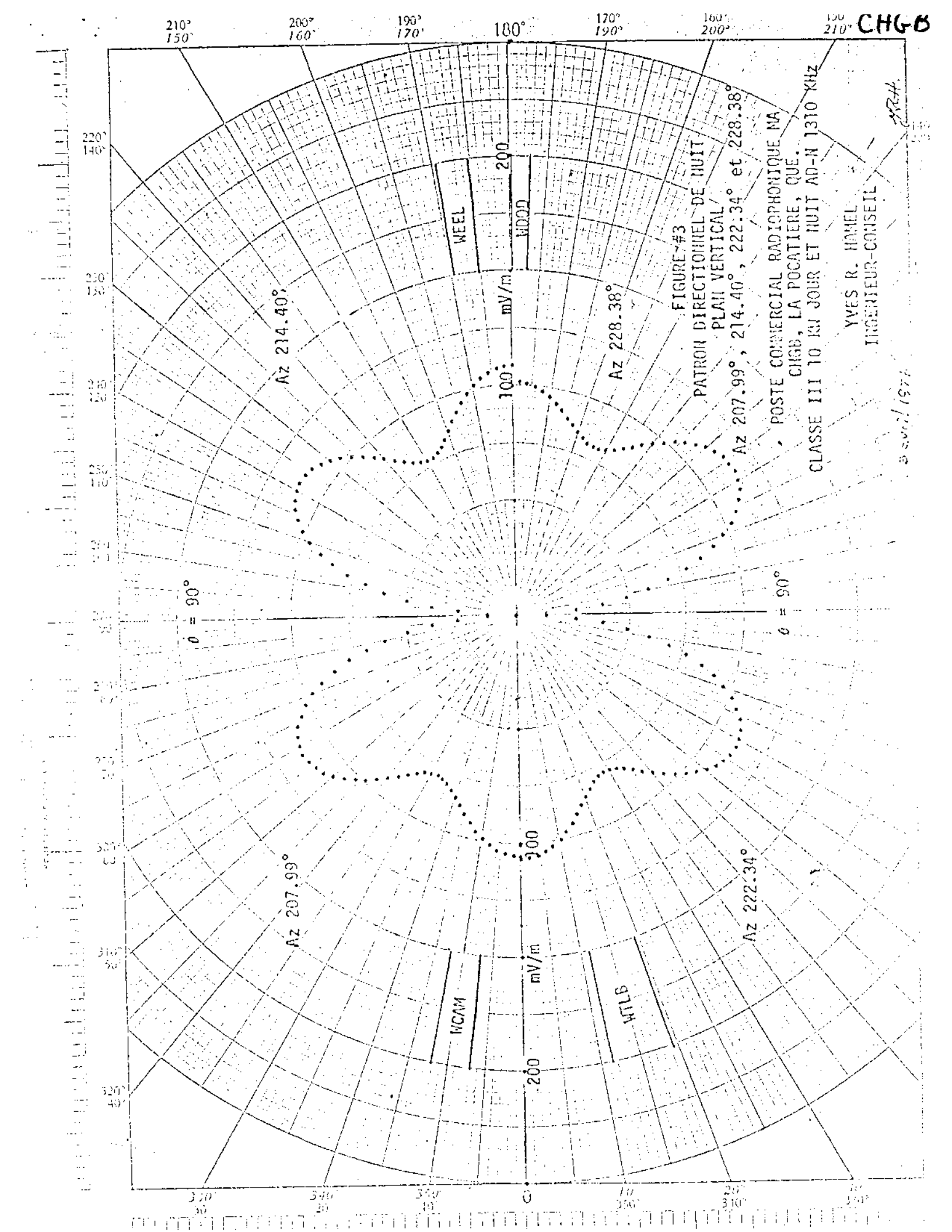
FIGURE #2
PATRON DIRECTIONNEL DE NUIT
PLAN VERTICAL
Az 182.83°, 194.11°, 194.49° et 203.26°

POSTE COMMERCIAL RADIOPHONIQUE MA
CHGB, LA POCATIERE, QUE.
CLASSE III 10 KW JOUR ET NUIT AD-N 1310 KHz

YVES R. RAMEL
INGENIEUR-CONSEIL

Avril 1954

CHGB


CHGB
FIGURE #3
PATRON DIRECTIONNEL DE NUIT
PLAN VERTICAL
POSTE COMMERCIAL RADIOPHONIQUE MA
CHGB, LA POCATIERE, QUE.
CLASSE III 10 KW JOUR ET NUIT AD-N 1310 KHz
YVES R. HAMEL
INGENIEUR-CONSEIL
WEEL
WDOD
WCAM
WTLB
Az 214.40°
Az 228.38°
Az 207.99°
Az 222.34°
mV/m
100
200
θ = 90°
180°

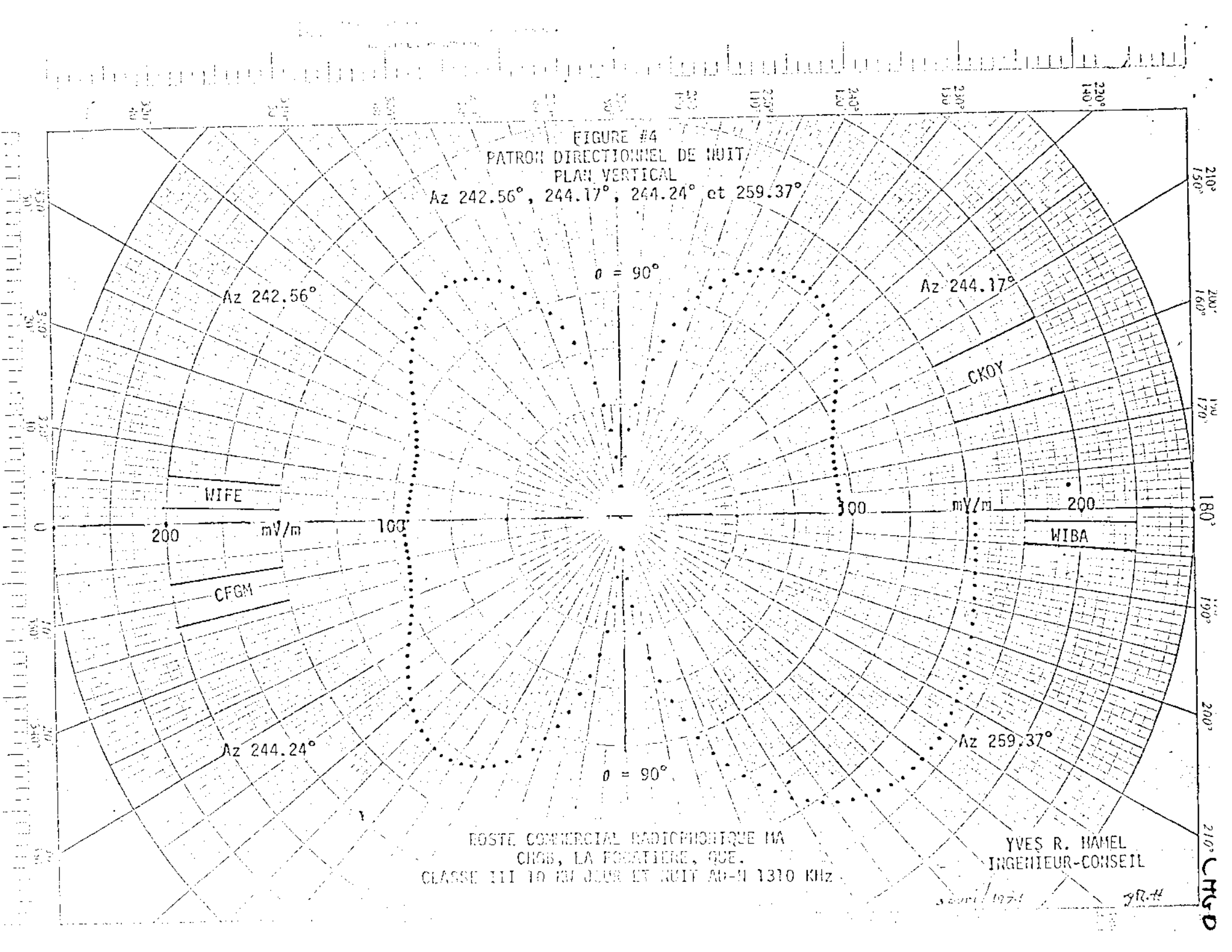


FIGURE #4
PATRON DIRECTIONNEL DE NUIT
PLAN VERTICAL
Az 242.56°, 244.17°, 244.24° et 259.37°
θ = 90°
Az 242.56°
Az 244.17°
CKOY
WIFE
200
mV/m
100
CFGM
100
mV/m
200
WIBA
Az 244.24°
Az 259.37°
θ = 90°
POSTE COMMERCIAL RADIOPHONIQUE MA
CHOS, LA POCATIERE, QUE.
CLASSE III 10 KW JOUR ET NUIT AM-N 1310 KHz
YVES R. HAMEL
INGENIEUR-CONSEIL

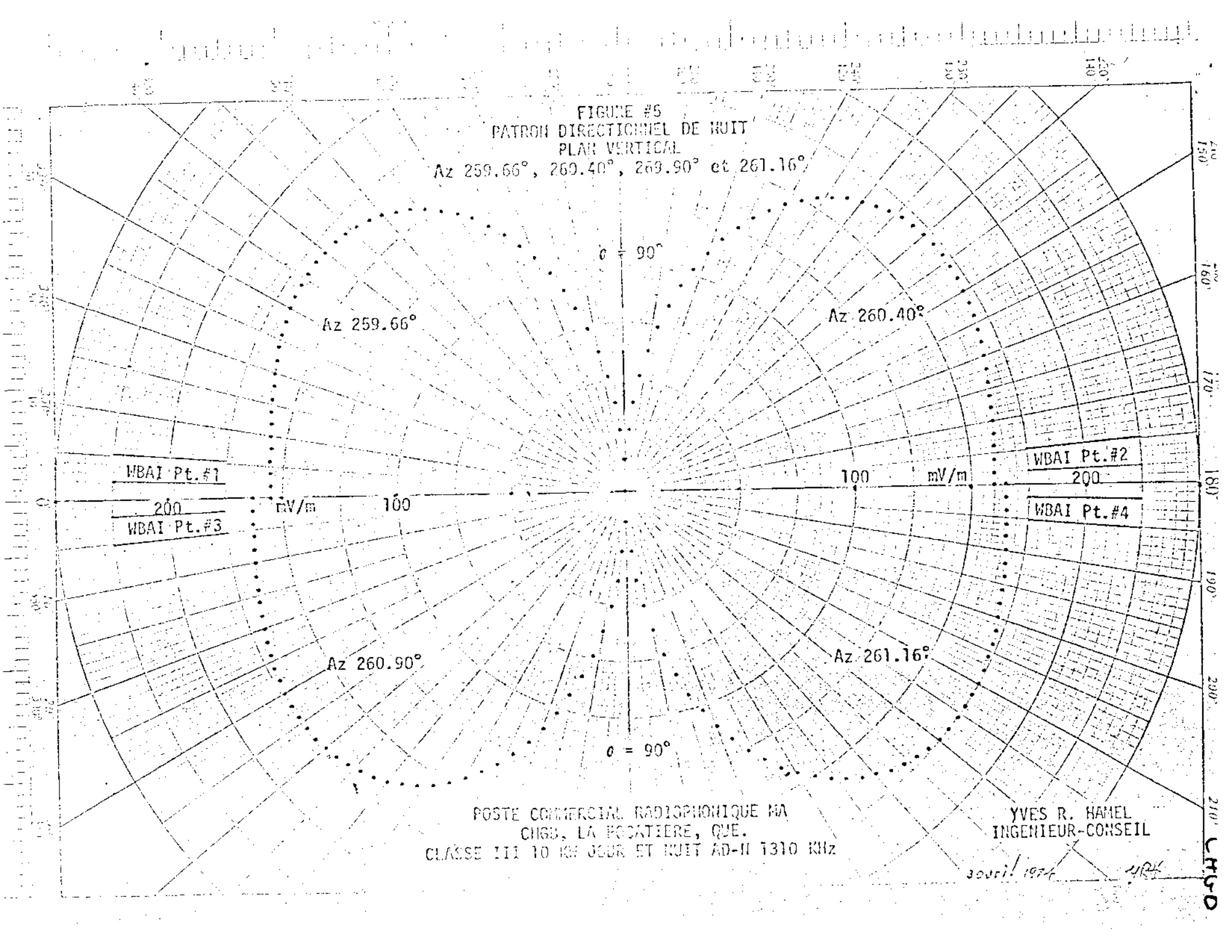


FIGURE #5
PATRON DIRECTIONNEL DE NUIT
PLAN VERTICAL
Az 259.66°, 260.40°, 260.90° et 261.16°
θ = 90°
Az 259.66°
Az 260.40°
WBAI Pt.#1
200
WBAI Pt.#3
mV/m
100
100
mV/m
WBAI Pt.#2
200
WBAI Pt.#4
Az 260.90°
Az 261.16°
θ = 90°
POSTE COMMERCIAL RADIOPHONIQUE MA
CHGB, LA POCATIERE, QUE.
CLASSE III 10 KW JOUR ET NUIT AD-N 1310 KHz
YVES R. HAMEL
INGENIEUR-CONSEIL
avril 1974

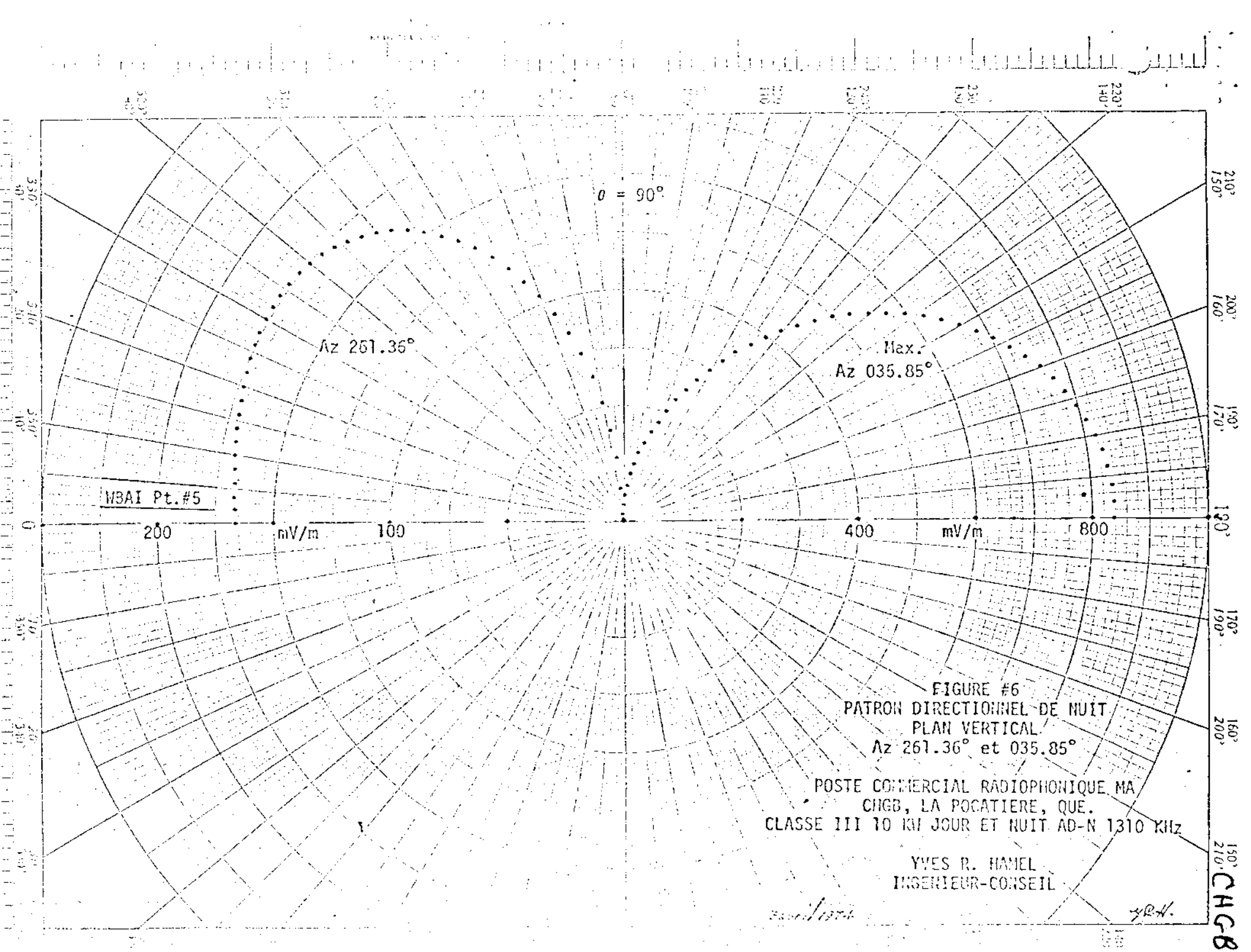


FIGURE #6
PATRON DIRECTIONNEL DE NUIT
PLAN VERTICAL
Az 261.36° et 035.85°

POSTE COMMERCIAL RADIOPHONIQUE MA
CHGB, LA POCATIERE, QUE.
CLASSE III 10 KW JOUR ET NUIT AD-N 1310 KHz

YVES R. HAMEL
INGENIEUR-CONSEIL

Y.R.H.

CHGB

Description Sheet
(10-28-68ct)

Station CHGB 5kw,10kw-LS,DA-N,U,Class III
Ste. Anne-de-la-Pocatiere, Quebec 1310 kc
CORRECTED

DESCRIPTION SHEET - DIRECTIONAL ARRAY

Station: CHGB Location: Ste. Anne-de-la-Pocatiere, Quebec.

Frequency: 1310 KHz Power: 10KW-D/5KW-N Class: III

Notification List No.: 241 Date: March 26, 1968

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM : 47° 20' 45" N. Latitude
70° 05' 04" W. Longitude.

ANTENNA CHARACTERISTICS: Mode of Operation - DA-N

No. of Elements - 2 (two)

Type of Elements - Series fed, guyed, uniform cross-section, base insulated, no top load.

Tower No.:	1 (NE)	2 (SW)
Height above Insulator :	200 ft. (96°)	200 ft.
Spacing:	186 ft. (90°)	
Phasing:	0°	+98.5°
Field Ratio:	1.25	1.0
Orientation:	35° East of True N.	
Ground System:	120 equiangularly spaced radials per tower of average length 300 ft (0.4λ) and minimum length 220 ft (0.3λ) with the exception of those joined along a common chord. Radials are buried 12" in ground.	

PREDICTED EFFECTIVE FIELD: (in mV/m at one mile)

For 1 KW: 192 - DAY 175 - NIGHT
For 5 KW: - 392
For 10 KW: 606 -

NOTE: Please retain the radiation patterns previously notified for this station and attach to this corrected description sheet. This concerns a change in the phasing of the southwest tower and pattern RMS Value.

CHGB

Description Sheet
(4-29-68ct)

Station CHGB 5kw,10kw-LS,DA-N,U,Class III
Ste. Anne-de-la Pocatiere, Quebec 1310 kc

DESCRIPTION SHEET - DIRECTIONAL ARRAY

Station Call: CHGB

Main Studio: Ste. Anne-de-la Pocatiere, Que.

Frequency: 1310 KHz

Mode: DA-N

Power: 10 D / 5 N

Class: III

Notification List No.: 241 Date: March 26, 1968.

Geographical Location of the Antenna System: 47° 20' 45" N. Lat.
70° 05' 04" W. Long.

Antenna Characteristics:

No. of Elements: 2

Type : Series fed, uniform cross-section, guyed, base insulated, no top loading

Tower No. : 1 (S.) 2 (N.)

Height above Insulator : 200 ft (90°)

Spacing : 186 ft (90°)

Phasing : 0° -93.5°

Field Ratio : 1 1.25

Orientation : 35° East of True North

Ground System: : 120 equally spaced radials per mast, of ave. length 300 ft (0.4λ) and minimum length 220 ft (0.3λ) with the exception of those joined along the common chord. Radials are buried approx. 12" in ground.

Predicted effective field (mV/m @ 1 mile):

	DAY	NIGHT
For 1 Kw :	192	194.3
For 5 Kw :	-	434
For 10 Kw	606	-

Note: Please retain the directional antenna radiation patterns for CHGB Ste. Anne de la Pocatiere, P.Q. notified in Change List No. 157, dated March 8, 1961 and attach to this revised description sheet.

#157

CHGB

DESCRIPTION SHEET
(4-10-61g)

Station CHGB 5kw, DA-N,U Class III
Ste. Anne de la Pocatiere, Quebec 1310 KC

DESCRIPTION SHEET

STATION: CHGB
FREQUENCY: 1310 kc
CLASS: III

MAIN STUDIO: Ste Anne de la Pocatiere. Quebec
POWER: 5 kw
MODE: DA-N

NOTIFICATION LIST NO. 157 DATE: March 8, 1961

ANTENNA LOCATION:

Latitude: 47°21' 20"N
Longitude: 70°04' 42"W

ANTENNA DESCRIPTION:

Number of Elements: Two
Type of Elements: Series fed, square, uniform cross-section, guyed steel tower, base insulated.

Towers:

	#1 (N.E.)	#2 (S.W.)
Height above insulators:	200' (96°)	200' (96°)
Spacing:	186'(90°)	
Phasing:	0o	+98-5°
Field Ratio:	1.25	1.00

Orientation: On a line bearing 035° East of True North.

Ground System.

120 equally spaced radials per mast, of average length 300 ft. (0.4 wavelength) and minimum length 220 ft. (0.3 wavelength), with the exception of those joined along the common chord. Radials are buried approximately 8"

Predicted effective field (mV/m at one mile):

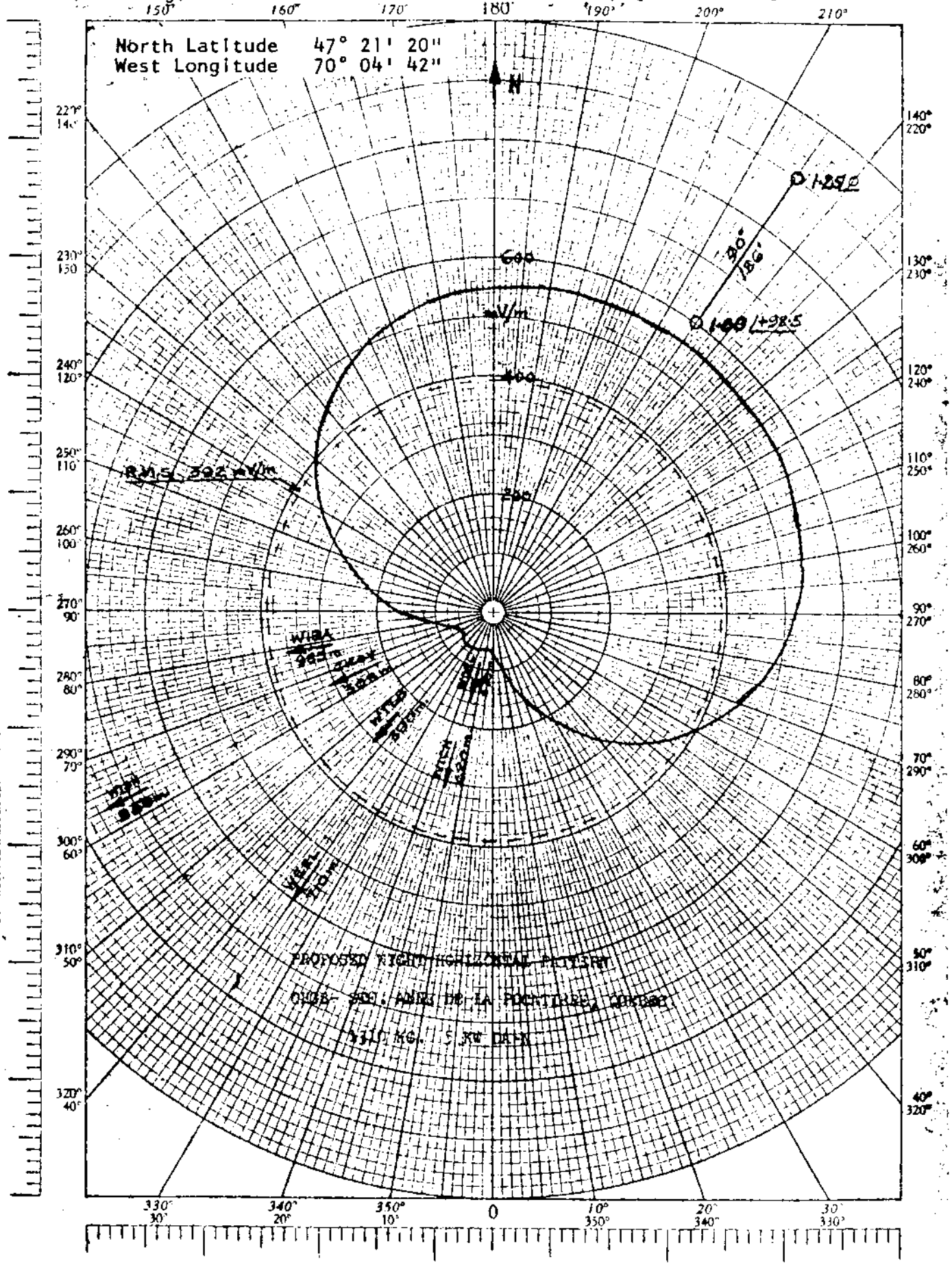
	day	night
For 1 kw radiated	200	175
For 5 kw radiated	447	392

#157

CHGB

PROPOSED NIGHT (4-10-61g)

Station CHGB 5kw, DA-N,U Class III
Ste. Anne de la Pocatierre, Quebec 1310 KC



CIOK

SUPPLEMENTAL DIRECTIONAL

ANTENNA DESCRIPTION SHEET

Station: CIOK

Location: St. Paul, Alberta

Frequency: 1310 kHz

Power: 10 kW, Class III

Notification List No.: 352

Date: February 25, 1976

Geographical Location of the Centre of the Antenna System:

North Latitude: 53° 59' 38"
West Longitude: 111° 13' 40"

Mode of Operation - DA-N
ND-D-190

Note: Please retain the description sheet and directional antenna radiation patterns notified for station CIOK in Canadian Change List Number 336 dated December 16, 1974 and attach to this supplemental description sheet. This notification is for the purpose of indicating only a correction in the geographical co-ordinates.

#175

CKOY

Description Sheet (3-30-63ct) | Station CKOY Ottawa, Ontario | 50kw,DA-2,U,ClassIII 1310 kc

2.4 Directional Antenna Description Sheet

Station: CKOY Main Studio: Ottawa, Ontario.

Frequency: 1310 Kc/s Power: 50 KW Class: III

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM: North Latitude: 45° 15' 36" N.

West Longitude: 75° 47 03" W.

NOTIFICATION LIST NO. 175 DATED: December 21, 1962

ANTENNA CHARACTERISTICS

Mode of Operation: DA-2
Number of elements: Five (5)
Type of elements: Guyed, uniform cross section base insulated, series fed, no top loading.

TOWER:	#1 South	#2 South-Centre	#3 Centre	#4 North-Centre	#5 North
HEIGHT ABOVE INSULATORS:	165'	165'	165'	165' (79°)	165'
OVERALL HEIGHT:	169'	169'	169'	169'	169'
SPACING:	100°	100°	100°	100°	100° (208.5')
PHASING: day:	not used	0°	80.°	not used	not used
night	0°	219°	75.8°	-67.7	151.5
FIELD RATIO: day:	not used	1.	.61	not used	not used
night:	1.0	2.57	3.48	2.57	1.0

ORIENTATION: Towers in a line bearing 10 degrees west of true north.

GROUND SYSTEM: 120 radials per tower of No. 10 AWG soft copper wire. Radials running between towers are bonded to No. 4 AWG stranded soft copper wire. Maximum length of radials is 300'. Equivalent length of ground system is 0.4 wavelengths.

Predicted effective field: Day: RMS 1310 mv/m (185 mv/m for 1 KW)
Night: RMS 1245 mv/m (176 mv/m for 1 KW)

* Minimum length of radials is 240'

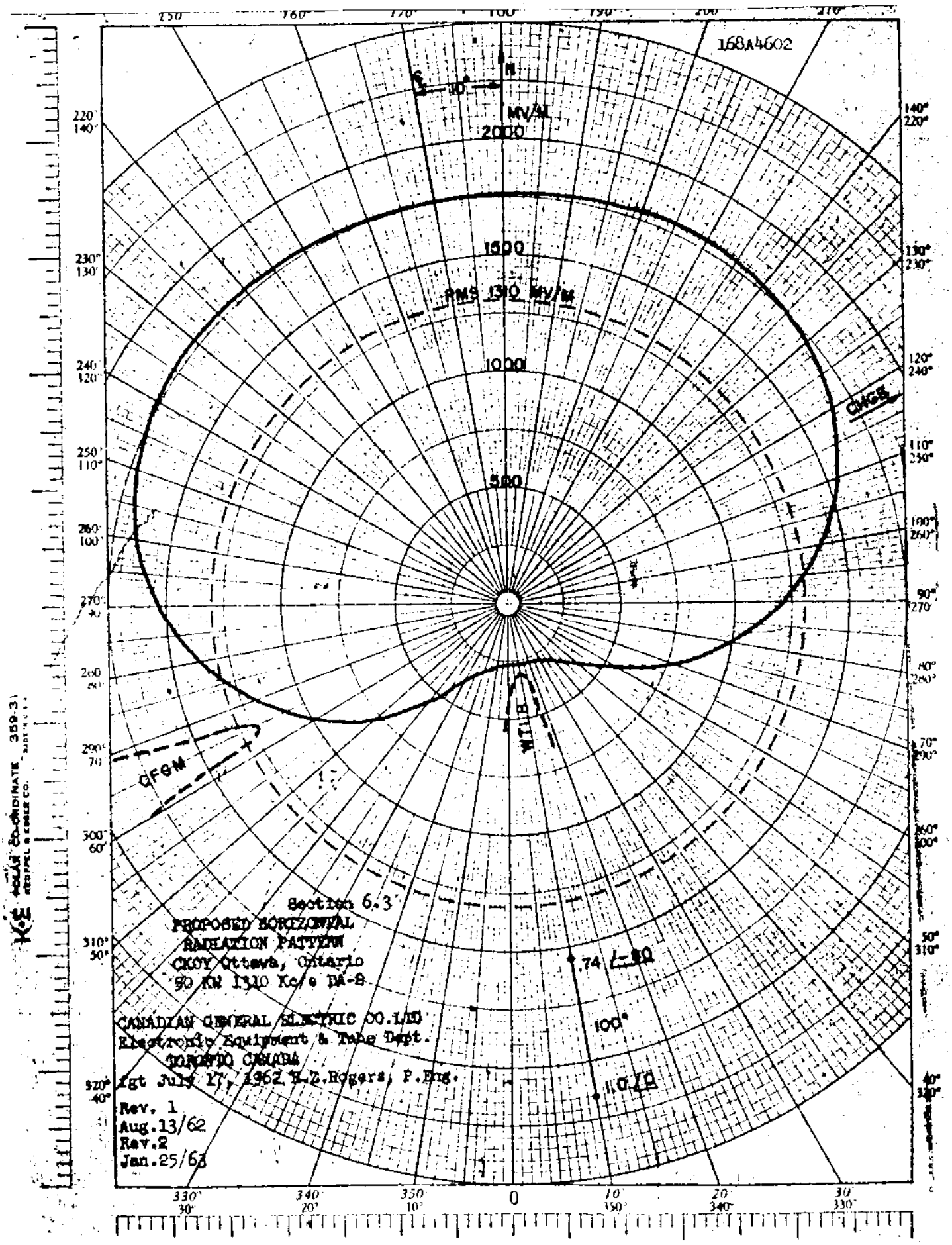
#175

CKOY

Proposed Day
(3-30-63ct)

Station CKOY
Ottawa, Ontario

50kw,DA-2,U,ClassIII
1310 kc



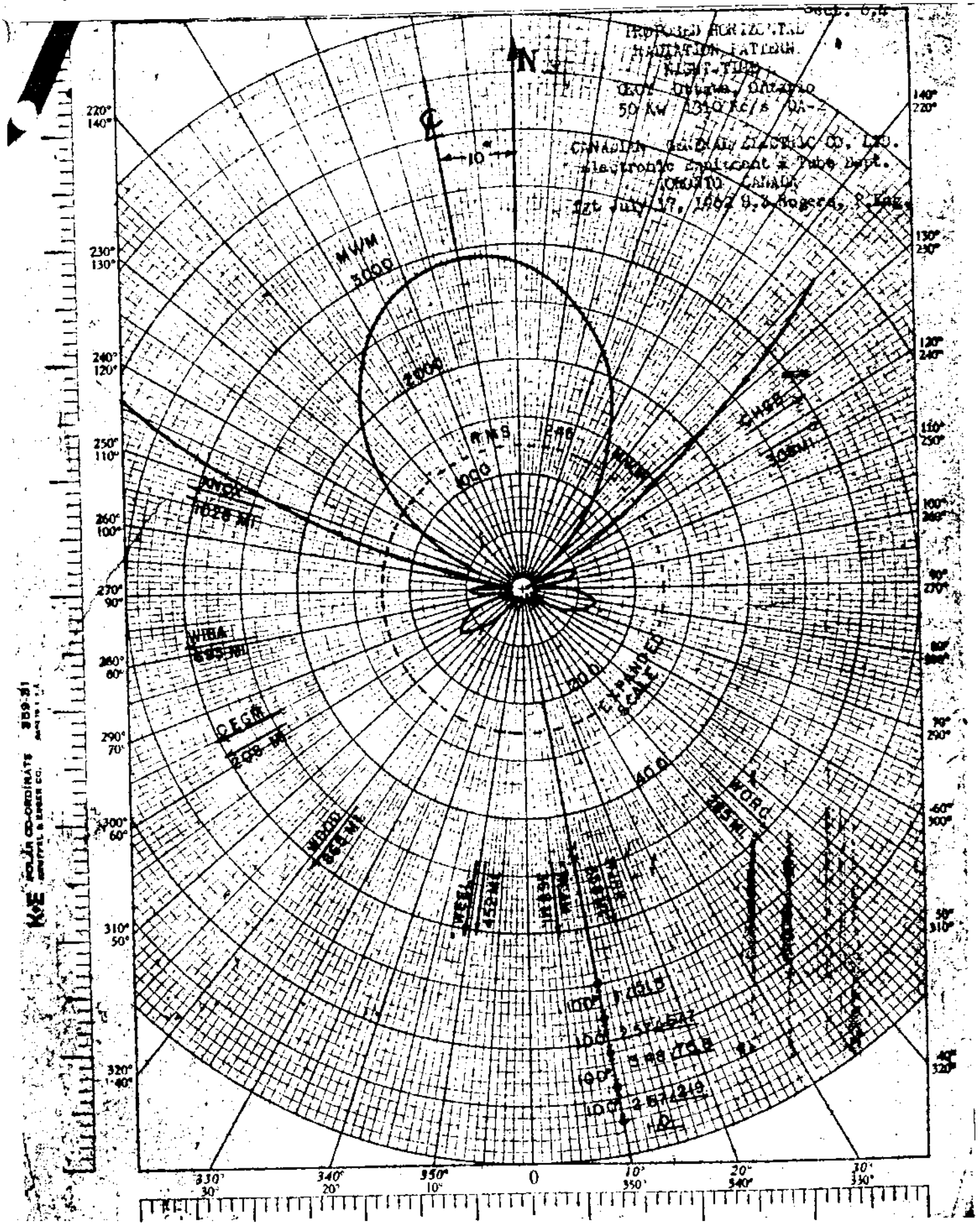
F.75

CKOY

Proposed Night
(3-30-63ct)

Station CKOY
Ottawa, Ontario

50kw,DA-2,U,ClassIII
1310 kc



DESCRIPTION SHEET

Station	New	Main Studio - Westlock, Alberta	
Power	5 kw.	Class III	
Frequency	1310 khz	Time Unlimited	
Notification Ref.	List #228	Dated June 16, 1967	
Location	Westlock, Alberta		
	North Latitude	54° 05' 22"	
	West Longitude	113° 52' 43"	
Antenna	Mode of operation DA-N	Number of Elements - 2	
Type of Elements:	Series fed, Square, Uniform Cross-section, guyed steel tower, base insulated.		

	#1 (SW)	#2 (NE)
Height above Insulators:	203' (97.3°)	203' (97.3°)
Spacing	250' (120°)	
Phasing	+84°	0°
Field Ratio	1.0	1.15

Orientation: On a line bearing 20° True, East of North

Ground System: 120 equally spaced radials per mast, of average length 300' or 0.4 wavelength and a minimum length of 220' or 0.3 wavelength, with the exception of those joined along the common chord. Radials to be buried approximately 8".

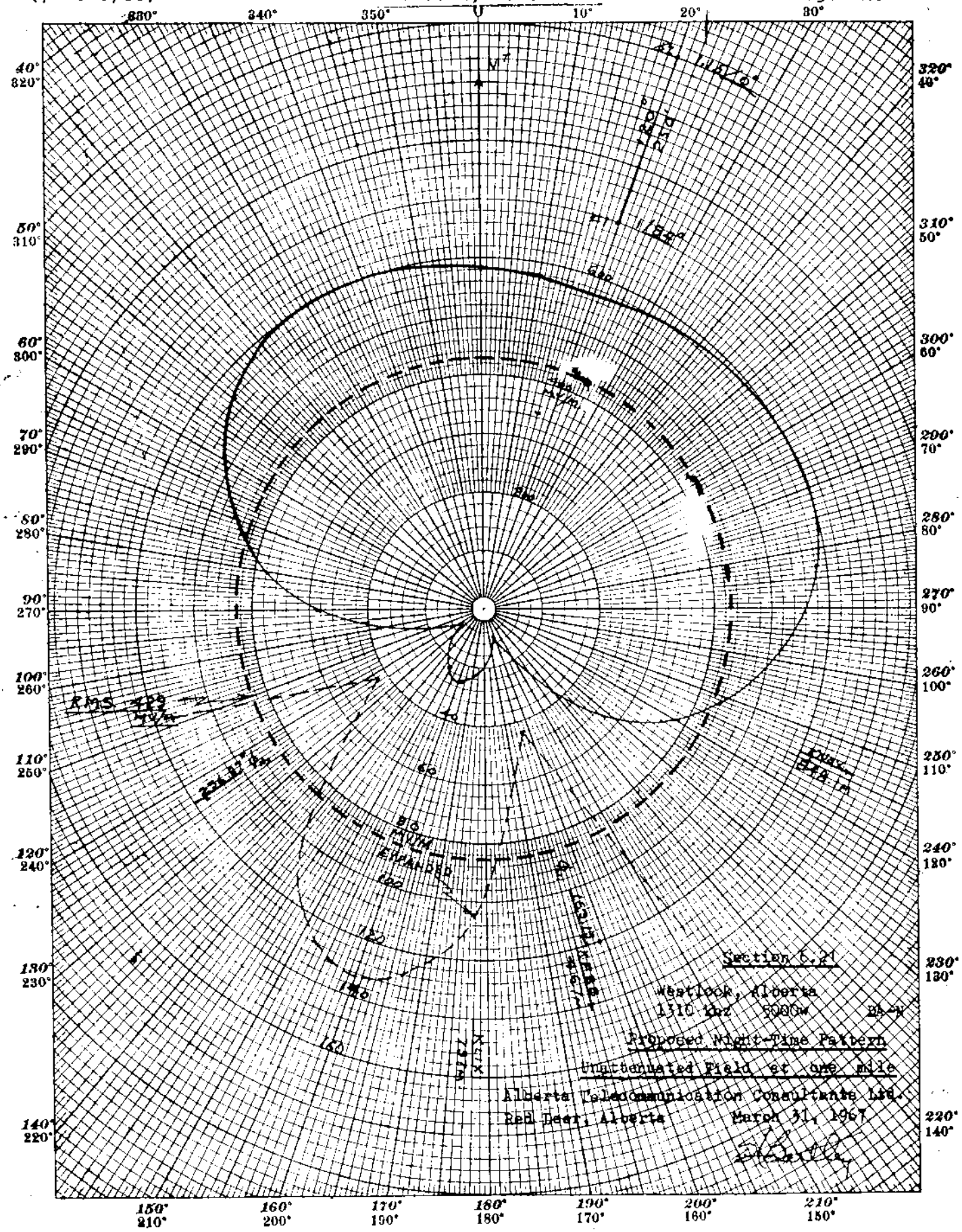
Predicted Effective Field (mv/m at one mile)

	Day	Night
For 5 kw. radiated	432 mv/m (omni)	429 mv/m

Proposed Night
(7-26-67ct)

New Station
Westlock, Alberta

5kw,DA-N,U,Class III
1310 kc



PROJECT #12305

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: NEW

MAIN STUDIO: St. Paul, Alberta

FREQUENCY: 1310 kHz

POWER: 10 kW

NOTIFICATION LIST: 336

DATE: December 16, 1974

GEOGRAPHICAL LOCATION:

Latitude 53° 59' 38" North
Longitude 111° 13' 18" West

ANTENNA CHARACTERISTICS:

Mode of Operation: DA-N

Number of Elements: 2 (Two)

Type of Elements: Guyed steel towers, uniform cross-section, base insulated for series feed

TOWER:

	#1 (South)	#2 (North)
Height above base insulator:	190' (91°)	190' (91°)
Overall height:	195'	195'
Ratio:	1.0	.97
Phasing:	0°	-100°

GROUND SYSTEM:

120 equally spaced radials per tower of #10 B & S gauge bare soft copper wire, buried approximately 8 inches.

The ground system radials have been adjusted so as to have an effective radial length of 0.4 wavelength. The minimum length of any radial, with the exception of those joined along the common chord, is 190 feet.

SPACING AND ORIENTATION:

Tower #2 is spaced 187.8' (90°) along a line bearing 339° True from Tower #1.

PREDICTED EFFECTIVE FIELD:

Day

601 mV/m at 1 mile for 10 kW
190 mV/m at 1 mile for 1 kW

Night

590 mV/m at 1 mile for 10 kW
186 mV/m at 1 mile for 1 kW

January 16, 1974
Revised March 14, 1974

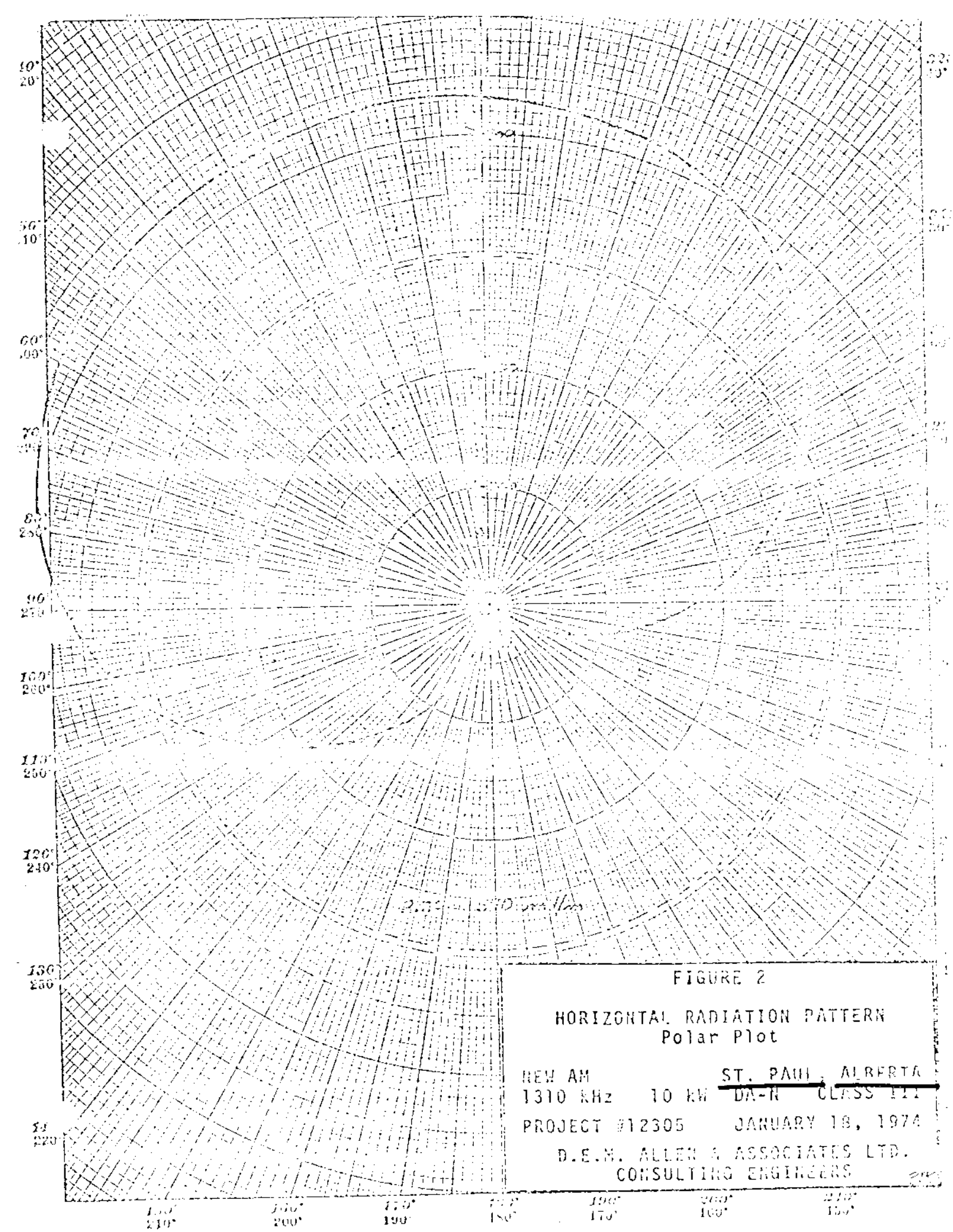


FIGURE 2

HORIZONTAL RADIATION PATTERN
Polar Plot

NEW AM ST. PAUL, ALBERTA
1310 kHz 10 kW DA-N CLASS III

PROJECT #12305 JANUARY 18, 1974

D.E.N. ALLEN & ASSOCIATES LTD.
CONSULTING ENGINEERS

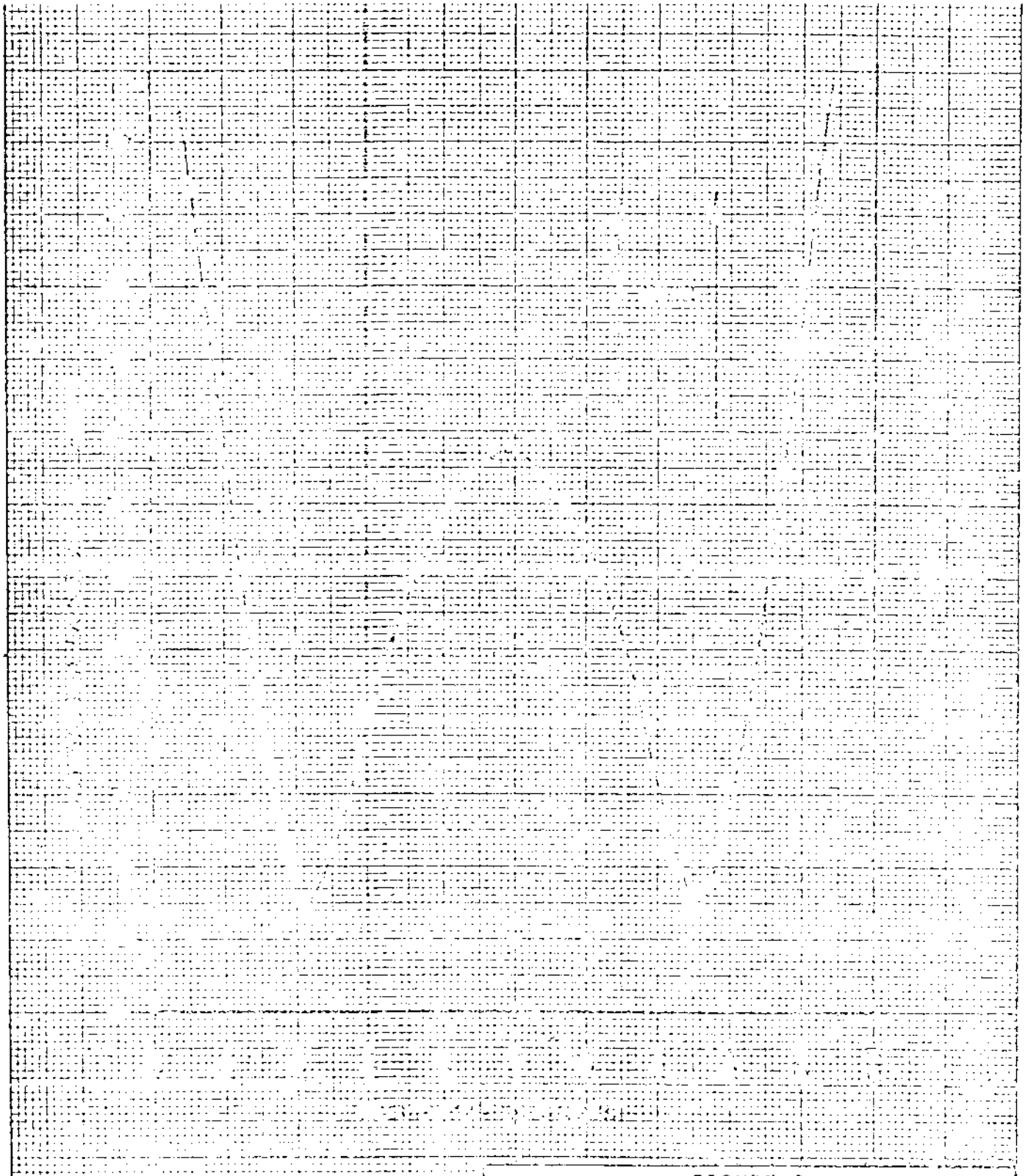


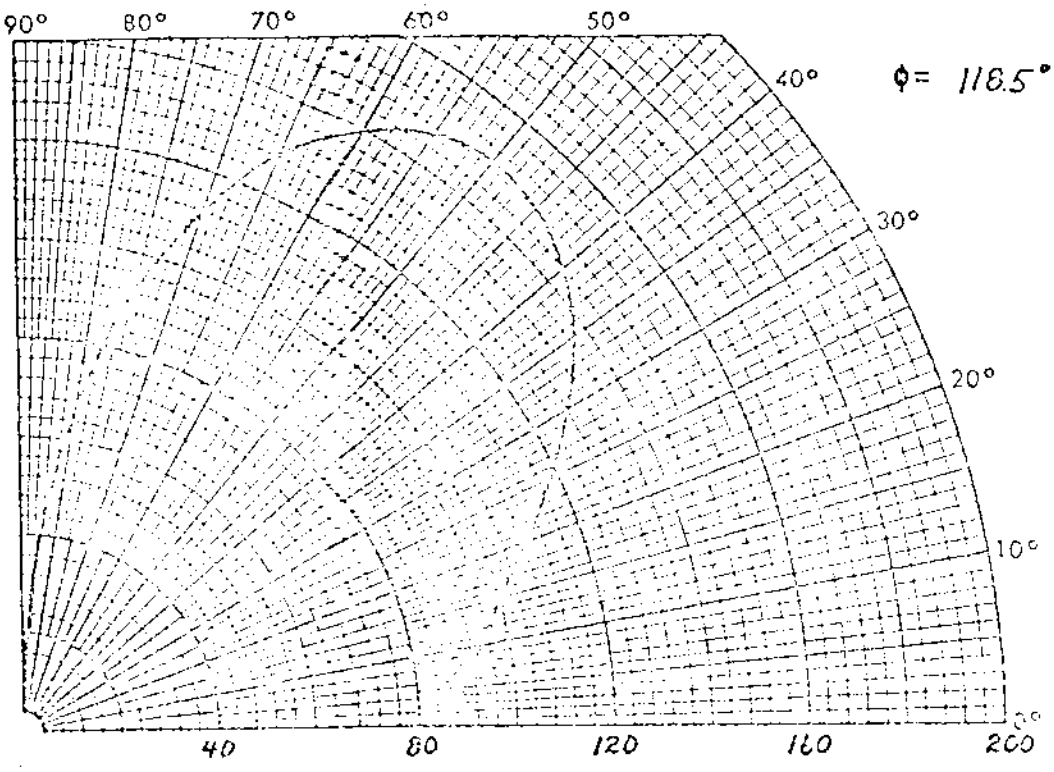
FIGURE 3

HORIZONTAL RADIATION PATTERN
Expanded Plot

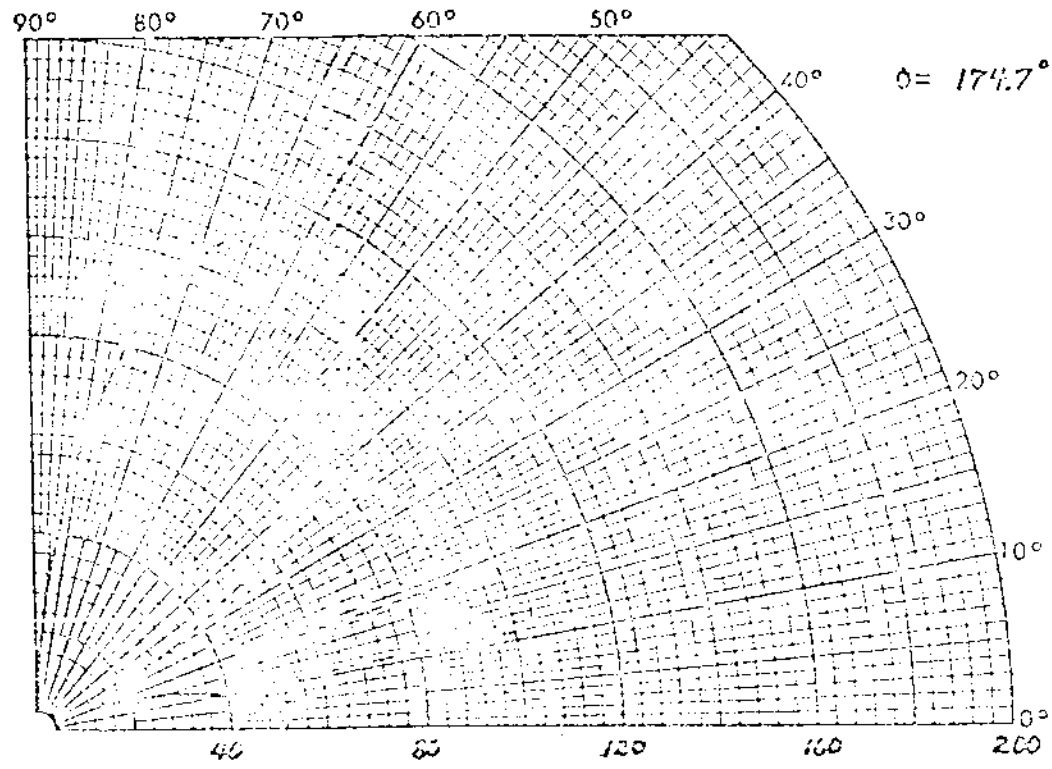
NEW AM ST. PAUL, ALBERTA
1310 kHz 10 kW DA-N CLASS III

PROJECT #12305 JANUARY 18, 1974

D.E.M. ALLEN & ASSOCIATES LTD.
CONSULTING ENGINEERS



UNATTENUATED (MV/M) 1 MILE FIELD

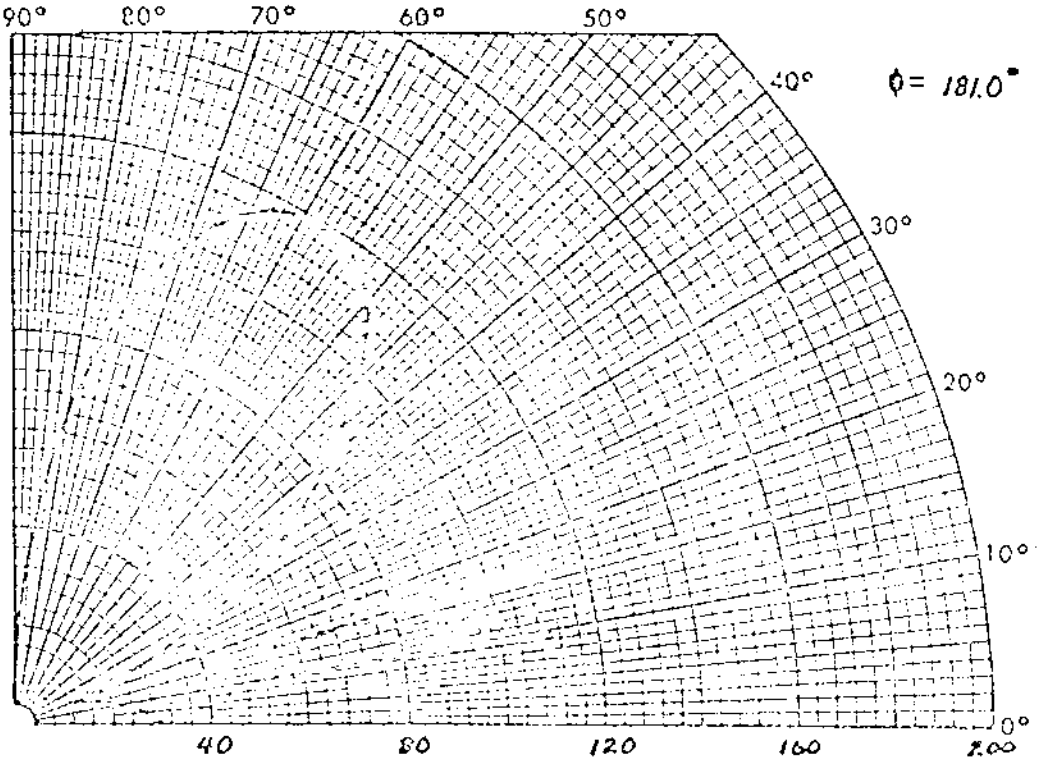


UNATTENUATED (MV/M) 1 MILE FIELD

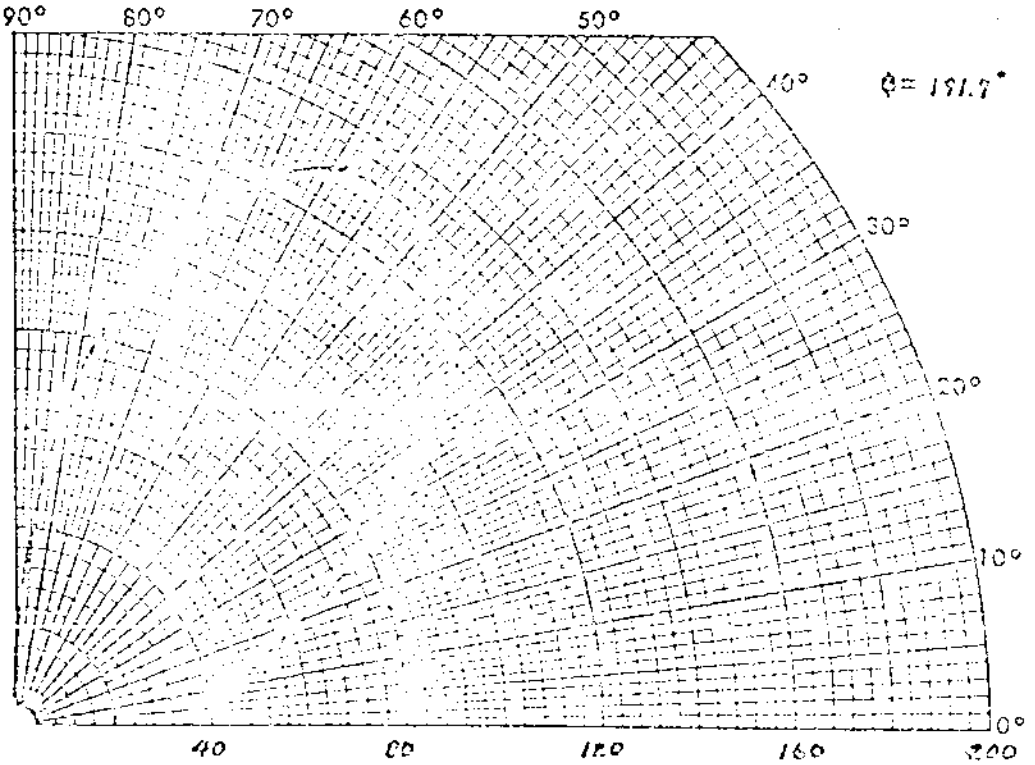
VERTICAL RADIATION PATTERNS

FIGURE 4

NEW AM
1310 kHz 10 kW DA-N
ST. PAUL, ALBERTA
CLASS III
PROJECT #12305
JANUARY 18, 1974
D.E.M. ALLEN & ASSOCIATES LTD., CONSULTING ENGINEERS



UNATTENUATED (MV/M) 1 MILE FIELD

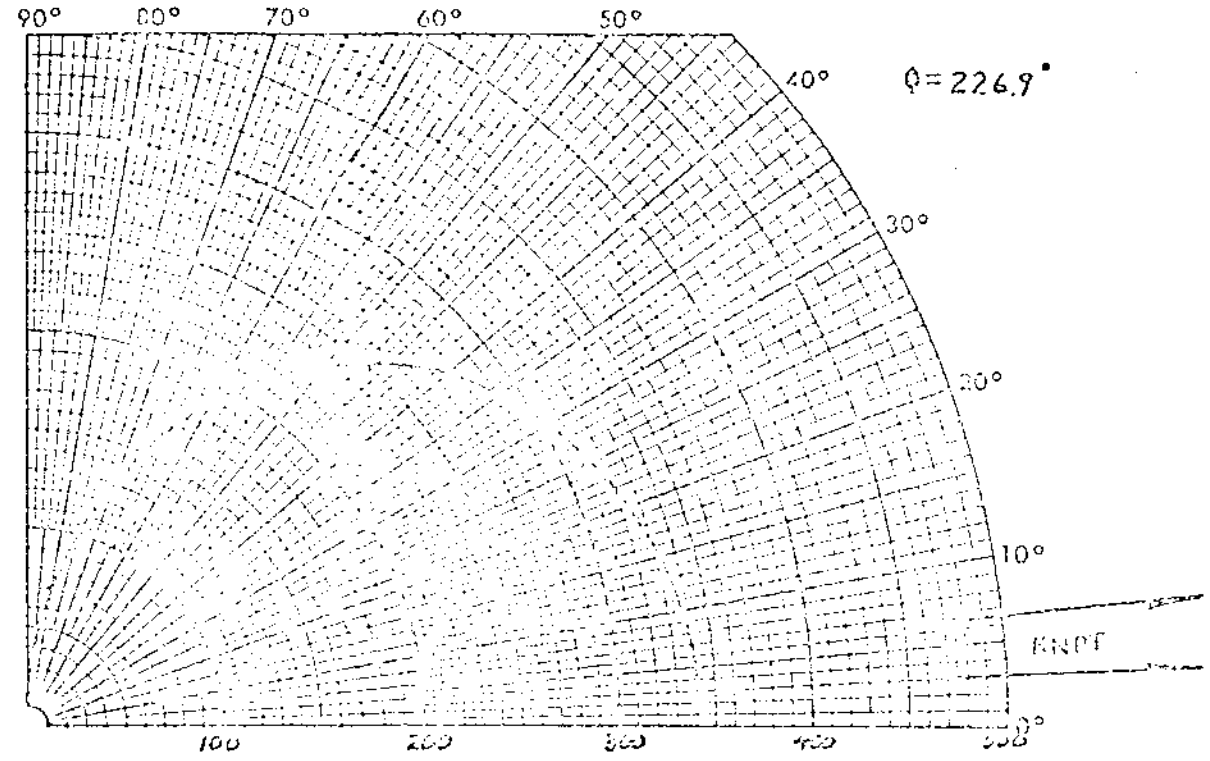


UNATTENUATED (MV/M) 1 MILE FIELD

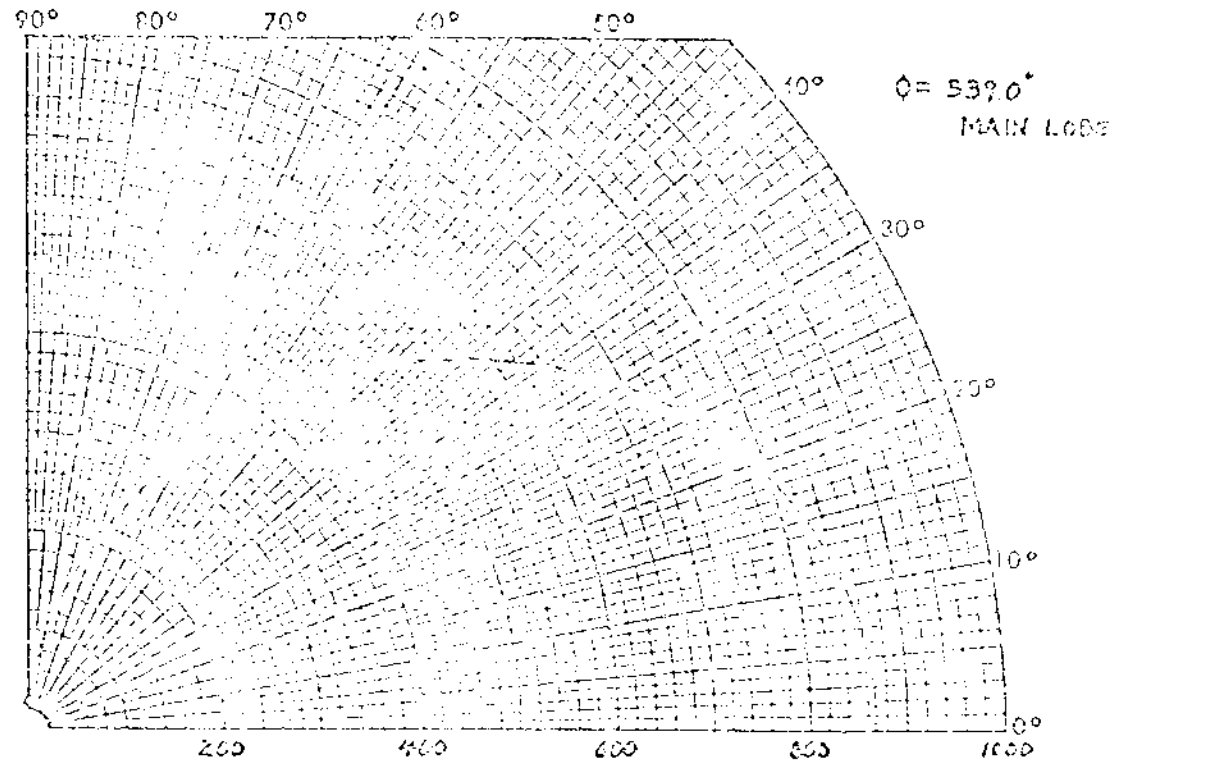
VERTICAL RADIATION PATTERNS

FIGURE 5

NEW AM
1310 kHz 10 kW DA-N ST. PAUL, ALBERTA CLASS III
PROJECT #12305
JANUARY 18,1974
D.E.M. ALLEN & ASSOCIATES LTD., CONSULTING ENGINEERS



UNATTENUATED (MV/M) 1 MILE FIELD



UNATTENUATED (MV/M) 1 MILE FIELD

VERTICAL RADIATION PATTERNS

FIGURE 6

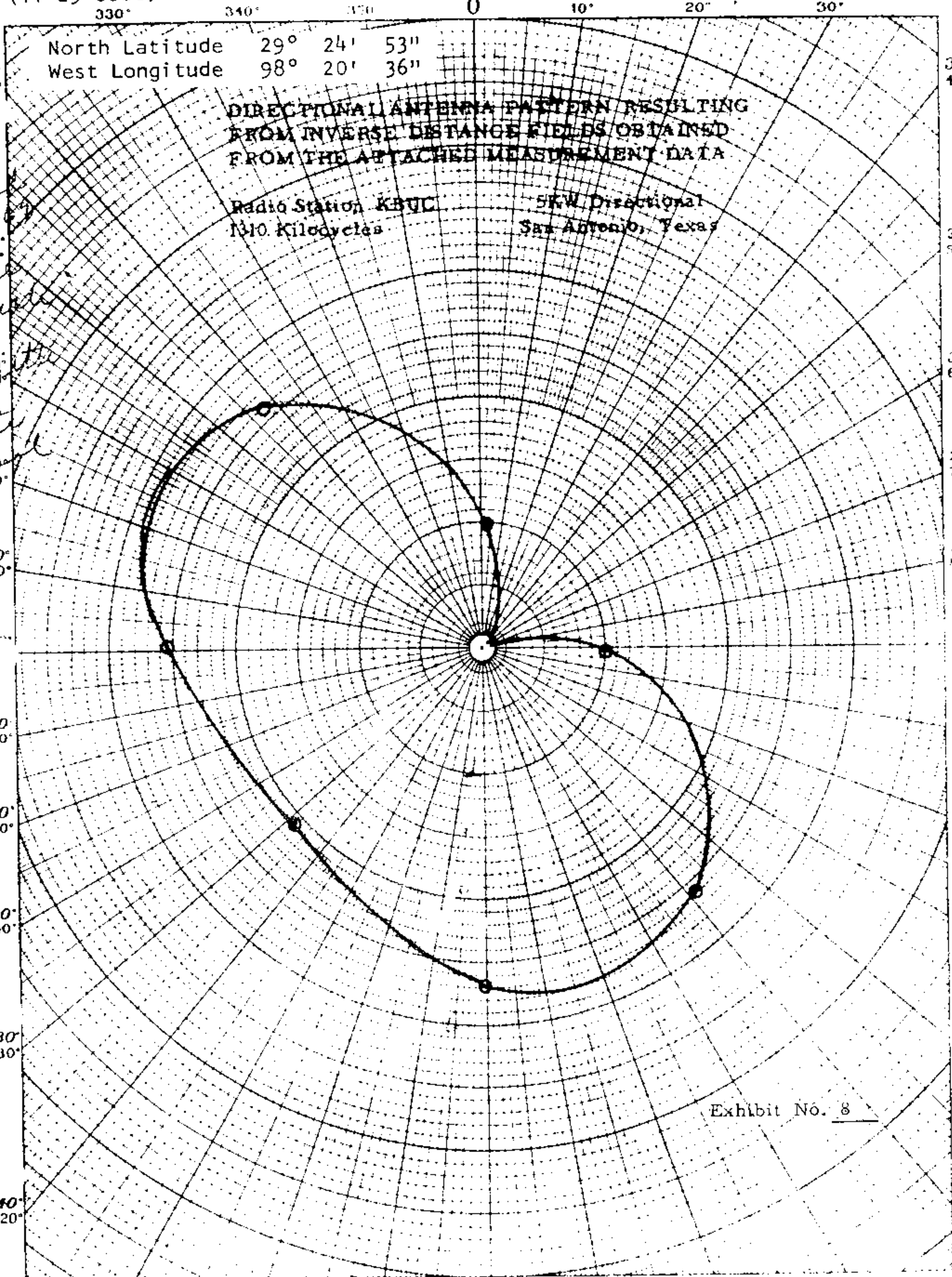
NEW AM
1310 kHz 10 kW DA-N ST. PAUL, ALBERTA
PROJECT #12305 CLASS III
JANUARY 18, 1974
D.E.M. ALLEN & ASSOCIATES LTD., CONSULTING ENGINEERS

KBUC

Measured Day
(11-29-68ct)

Station KBUC
San Antonio, Texas

5kw, DA-D, D
1310 kc



BRC-3297 Granted (4-21-69) lod. license to operate main transmitter by remote control

FCC File No. BRC-3297
Accepted 11-15-68

Station KBUC
San Antonio, Texas

1310 kc

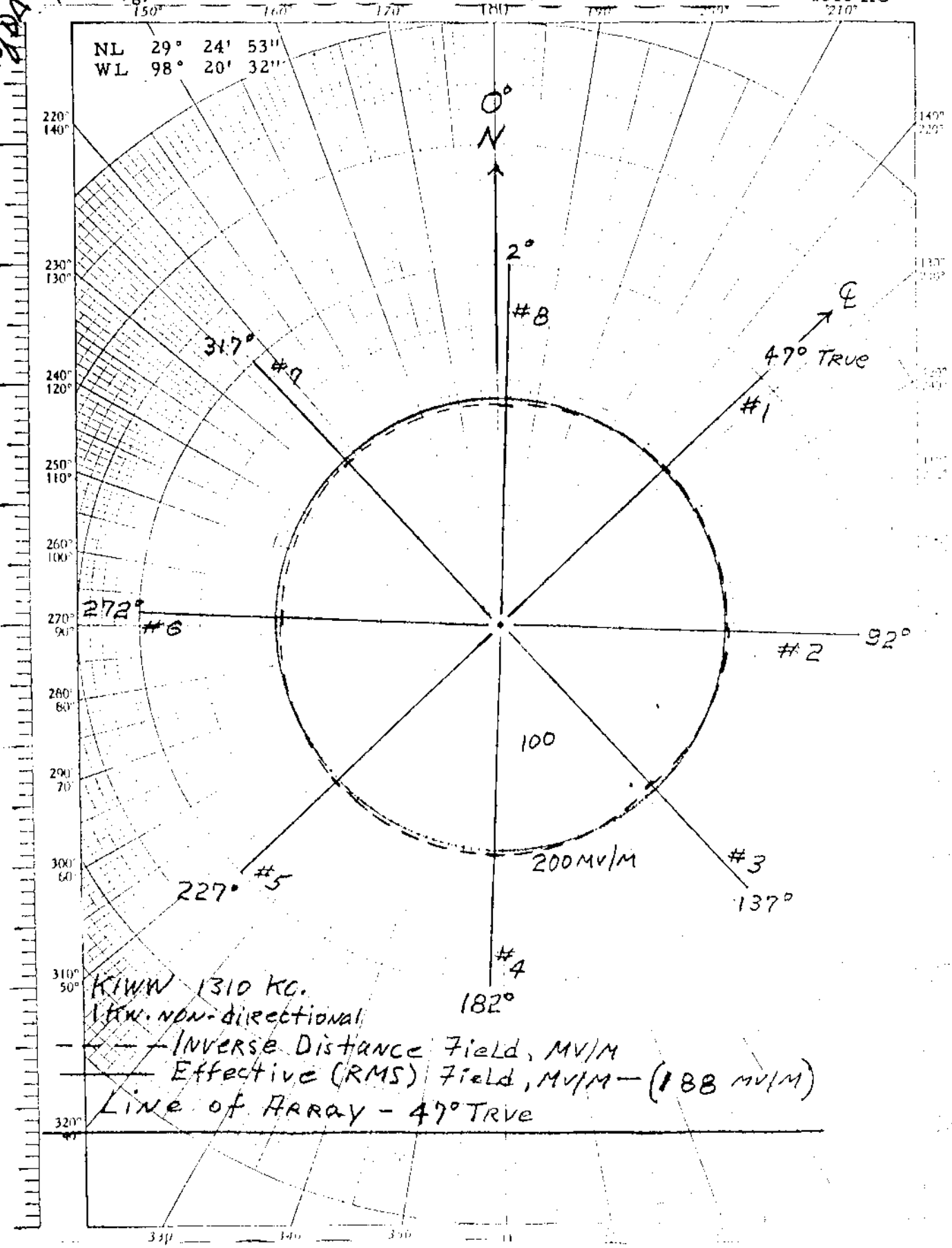
KBUC

MEASURED NON-DA
(7-8-59g)

Station KIWW
San Antonio, Texas

5kw, DA-D, D
1310 KC

Granted L for change in Ele. and installation of DA (11-13-59)



FCC File No. BL-7504
Accepted 6-29-59

KIWW
San Antonio, Texas

1310 KC

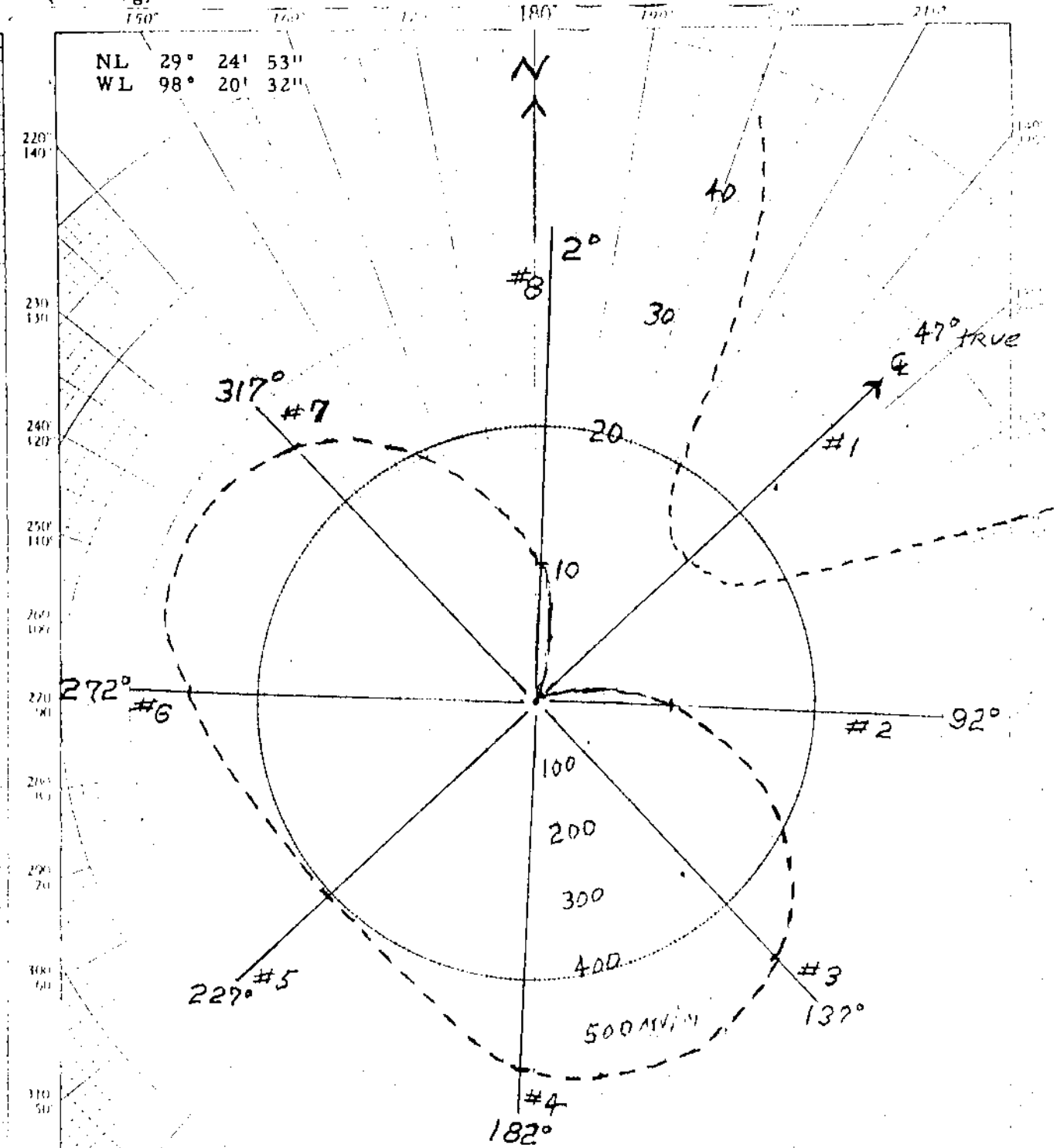
KBUC

MEASURED DAY
(7-8-59g)

Station KIWW
San Antonio, Texas

•5kw, DA-D, D
1310 KC

granted 4 hour change in fac. and installation of DA, (11-13-59)



KIWW 1310 Kc.
5 Kw. Directional
– – – Inverse Distance field mv/m @ 1 mile
——— Effective (RMS) " " " " (410 mv/m)
Line of Array – 47° true

FCC File No. BL-7504
Accepted 6-29-59

KIWW
San Antonio, Texas

1310 KC

Granted (5/7/58) change in freq. & install. of DA system

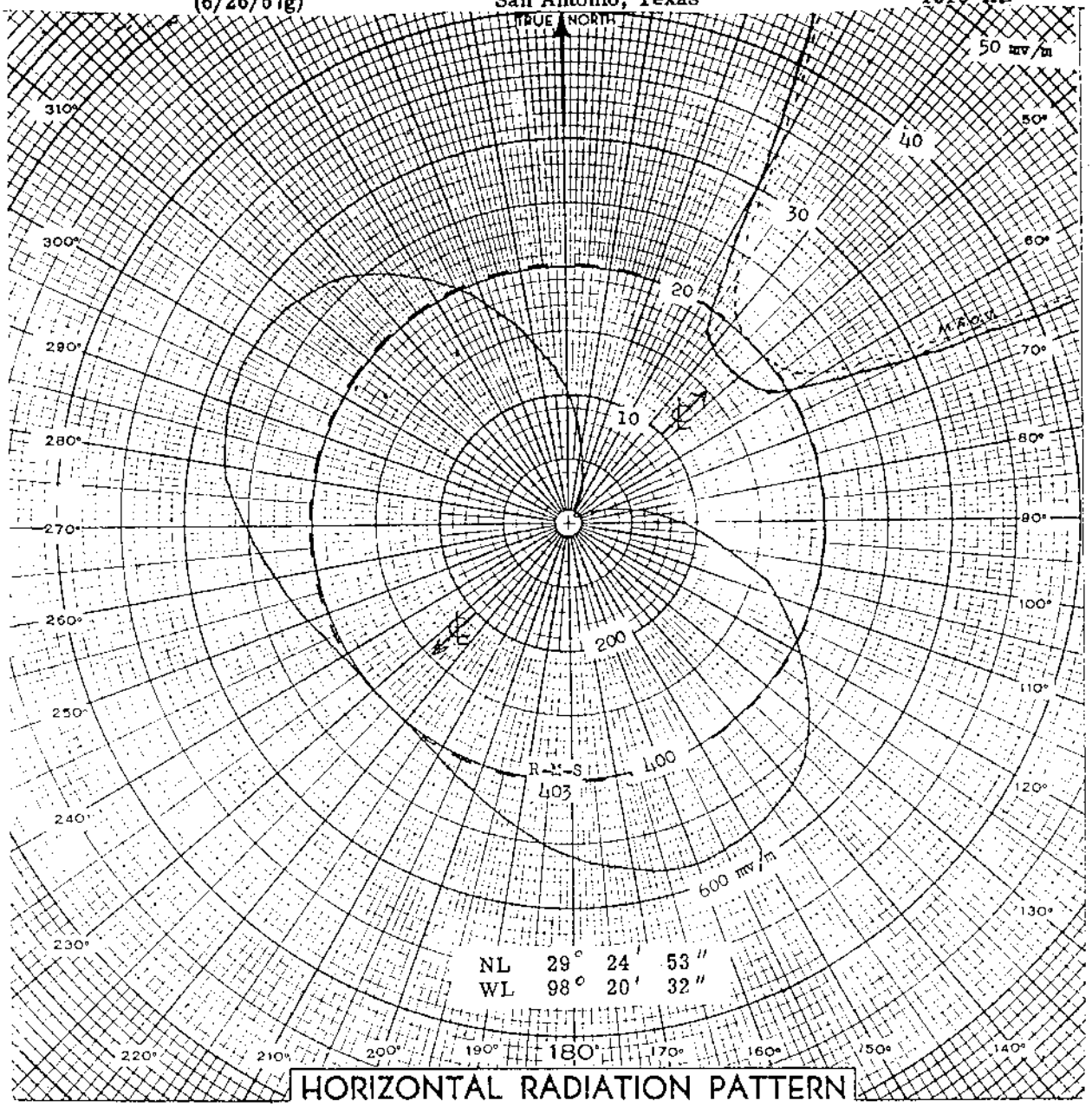
KBUC

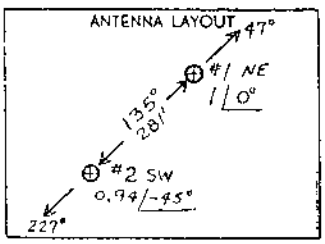
PROPOSED DAY
(6/26/57g)

Station KIWW
San Antonio, Texas

5kw, DA-D,D
1310 KC

granted 7504 11-13-59





KIWW	SAN ANTONIO, TEXAS		
Station		Location	
1310 kc	5000 w.	403 mv/m (180/kw)	
Frequency	Power	R-M-S Field	
2	140 ft., 0.187 λ		
No. of Elements	Height of Antenna		
MEASURED ☐	CALCULATED ☒	570521.1	
Pattern		No.	
DAYTIME PATTERN			
Remarks			

GUY C. HUTCHESON
CONSULTING RADIO ENGINEER
ARLINGTON, TEXAS

FCC File No. BP-11,328
Accepted 6/17/57

KIWW
San Antonio, Texas

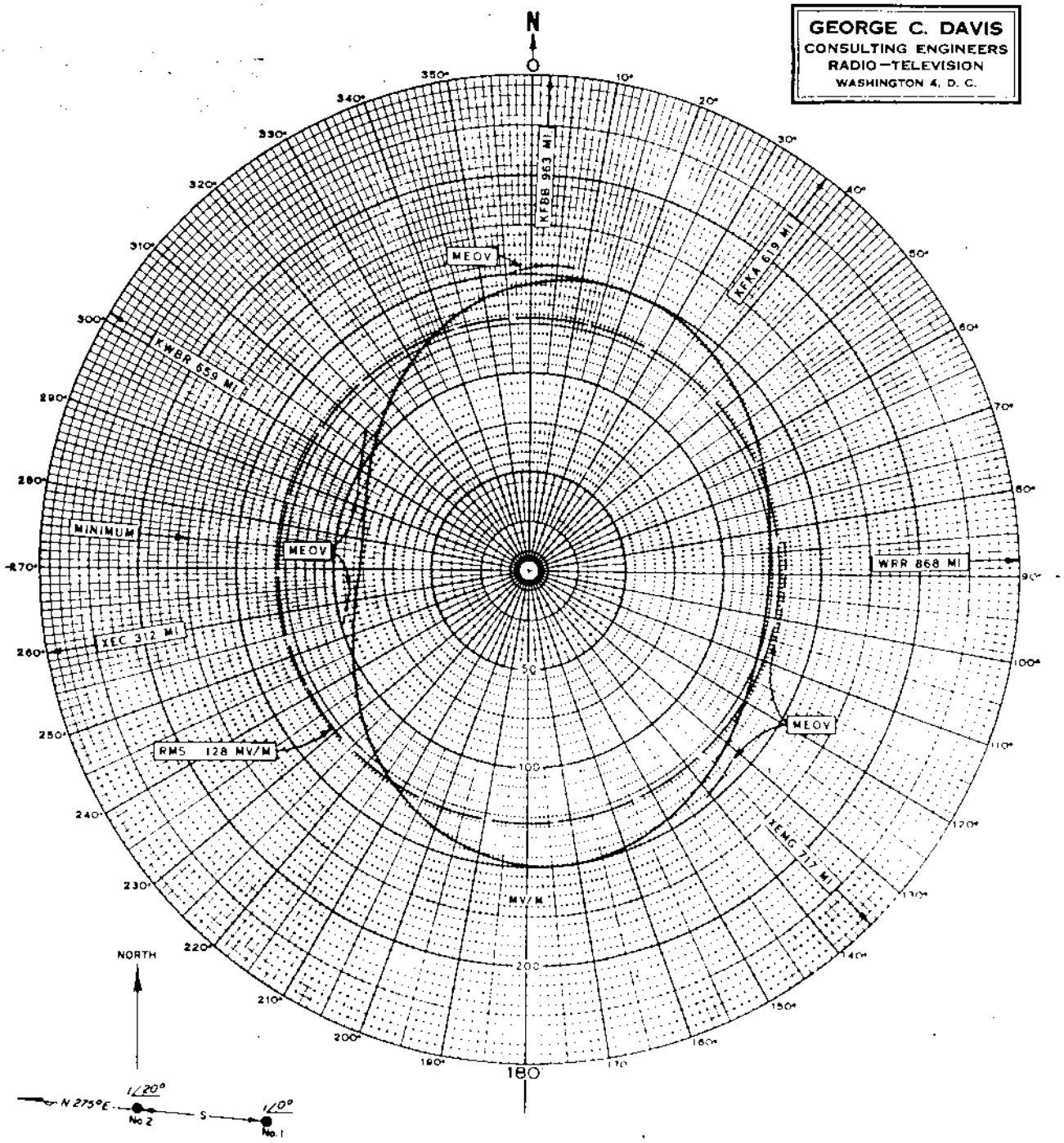
1310 KC

KBUZ

Proposed Night
(5-27-66ct)

Station KBUZ
Mesa, Arizona

500w, 5kw-LS, DA-N, U
1310 kc



S = 90° : 187.7'
M_1 = 90° : 187.7'
M_2 = 74° : 154'

CALCULATED NIGHTTIME HORIZONTAL PLANE PATTERN
RETHERFORD BROADCASTING, INC.
MESA, ARIZONA
1310 KC - 0.5 KW/5 KW - LS DA-N
(REDRAWN FOR CLARITY FROM ORIGINAL PROPOSAL)
MARCH 1966

NORTH LATITUDE 33° 26' 23"
WEST LONGITUDE 111° 50' 09"

FCC File No. BP-17218
Accepted 5-24-66

Station KBUZ
Mesa, Arizona

1310 kc

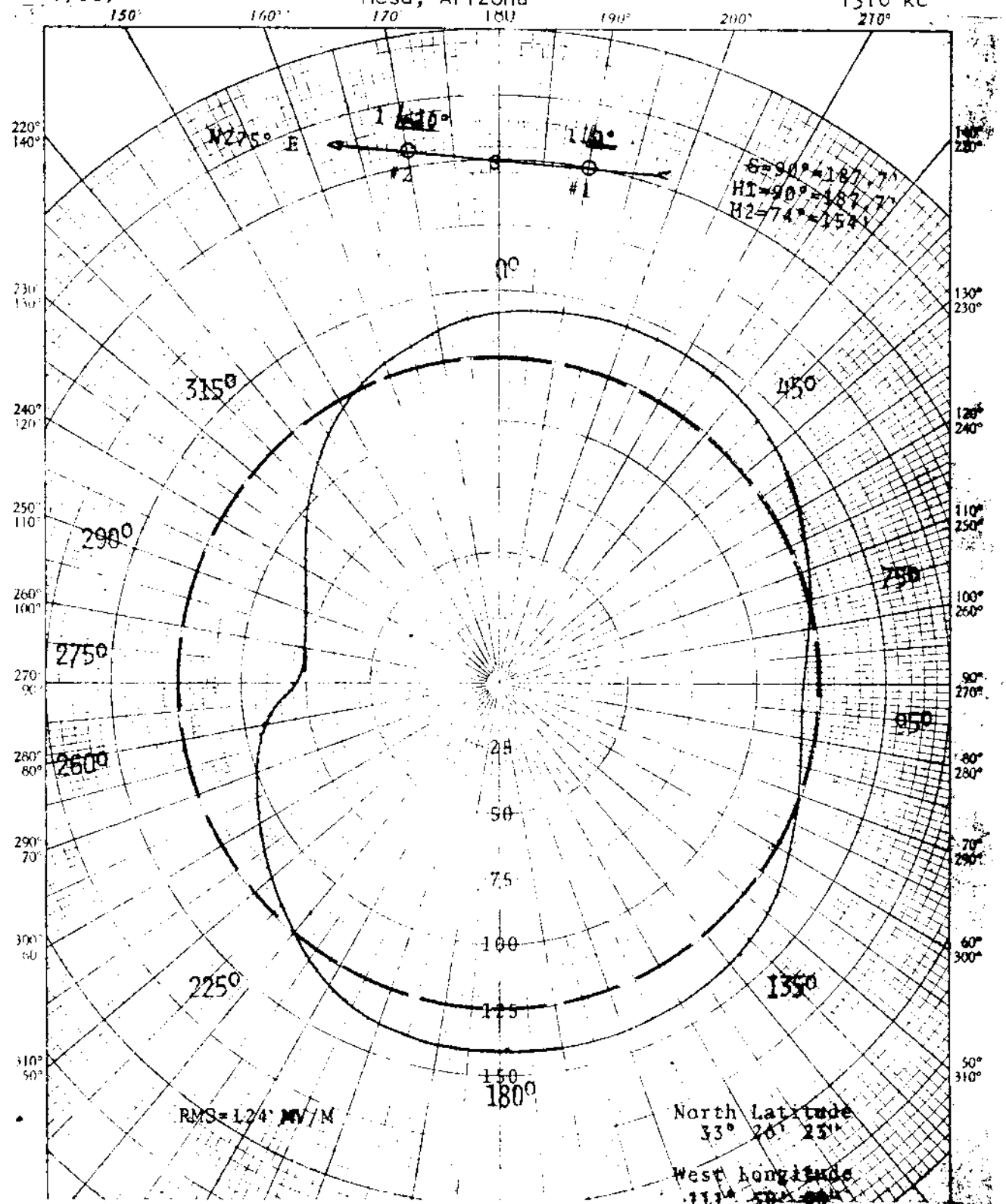
KBUZ

BL-11680
Gr. (1-14-70) granted license to cover
CP to change ANT. & XMTR Loc and ANT. SYSTEM

Measured Night
(7-26-67ct)

Station KBUZ
Mesa, Arizona

500w, 5kw-LS, DA-N, U
1310 kc



M.S. POLAR CO-ORDINATE 46 4413 KEUFFEL & ESSER CO.

FCC Applications Modifications Station Construction EUGENE D. BRADLEY Consulting Radio Engineer 532 EAST GENEVA - TEMPE, ARIZONA 85281 - PH 967-9322	MEASURED HORIZ PATTERN KBUZ 500 W. DA-N April 1967

FCC File No. BL-11680
Accepted 7-10-67

Station KBUZ
Mesa, Arizona

1310 kc

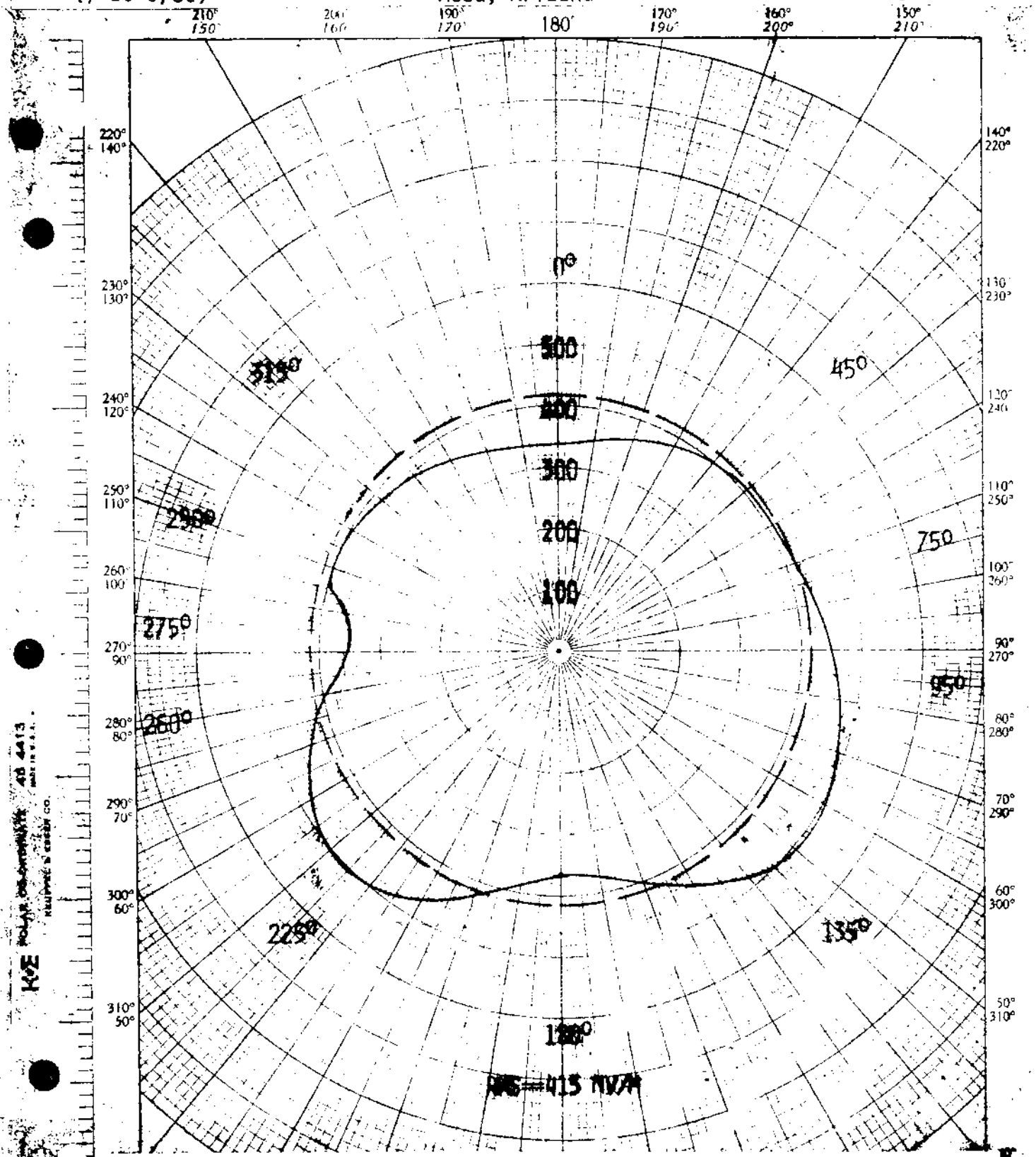
KBUZ

BL-11680
GR. (1-14-70) License covering
CP to change ~~number~~ ANT-XMTR LOCATION AND ANT. SYSTEM

Measured Non-DA
(7-26-67ct)

Station KBUZ
Mesa, Arizona

500w, 5kw-LS, DA-N, U
1310 kc



FCC Applications | Measurements | Station Construction

EUGENE D. BRADLEY Consulting Radio Engineer

532 EAST GENEVA - TEMPE, ARIZONA 85281 - PH. 967-9322

MEASURED HORIZ PATTERN
KBUZ 5 Kw. Non-DA
April 1967

FCC File No. BL-11680
Accepted 7-10-67

Station KBUZ
Mesa, Arizona

1310 kc

KCRE
1310 KHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KCRE

Main Studio: Crescent City, California

Frequency: 1310 kHz

Power: 1kw Night 1kw Day

Notirfication List No. 1790

Date: December 4, 1980 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTNNA SYSTEM:

North Latitude: 41° 45' 34"
West Longitude: 124° 09' 49"

ANTENNA CHARACTERISTICS

Authorized for Nighttime operation. (DA-N)
Number of elements: 2
Type of elements: Series excited, uniform cross-section, guyed, Shunt excited, Self supporting, tapered, vertical steel towers.

TOWER:	W(#1)	E(#2)
HEIGHT ABOVE INSULATORS:	200'	200' (95.9°)
NIGHT PHASING:	0°	+162°
NIGHT FIELD RATIO:	1	0.98

SPACING AND ORIENTATION: Towers in a row are spaced 93.9' (45°) on a line bearing 91° true.

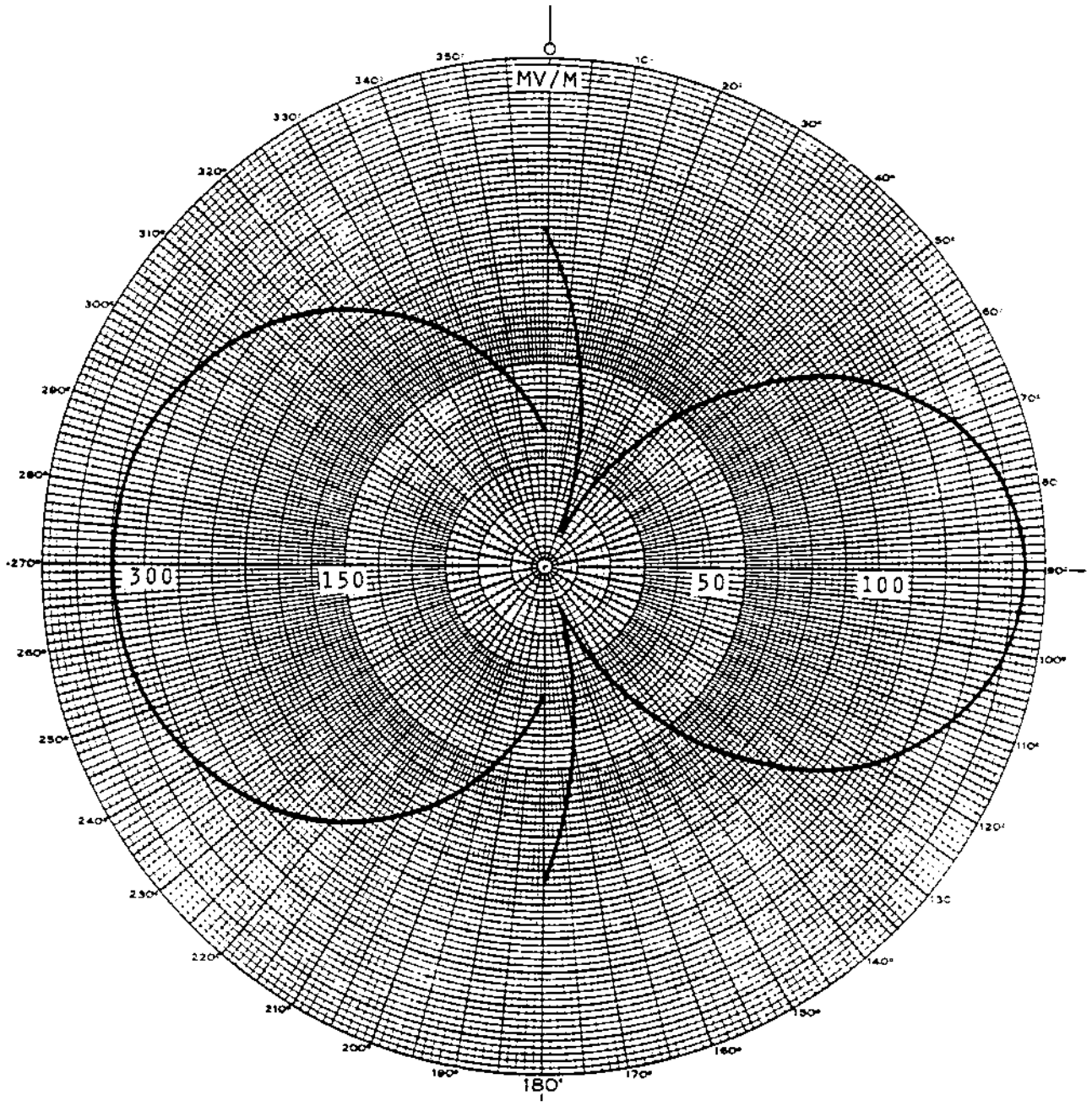
GROUND SYSTEM: 120 - 200' equally spaced copper radials plus a 24' square ground screen about each tower Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	193 mv/m		
Night	181.6 mv/m	416.3 mv/m	191.0 mv/m

Note: This notification concerns on the addition of the Nighttime operation of the station with Daytime operation continued as previously notified.

KCRE
1310kHz



RADIO STATION KCRE

Crescent City, California

APPLICATION FOR NIGHTTIME FACILITIES

August 1979 — 1 KW DA-N

D. C. WILLIAMS & ASSOCIATES

A CALIFORNIA CORPORATION

EXHIBIT 16

HORIZONTAL STANDARD PATTERN 1 KW

ASSUMED 7.58 OHM LOSS AT COMMON INPUT

KDIA

PROPOSED DAY & NIGHT (10-25-61ct) | Station KDIA Oakland, California | 5kw,DA-1,U 1310 kc

1-24-63 Granted CP to increase power from 1 kw to 5 kw DA-1

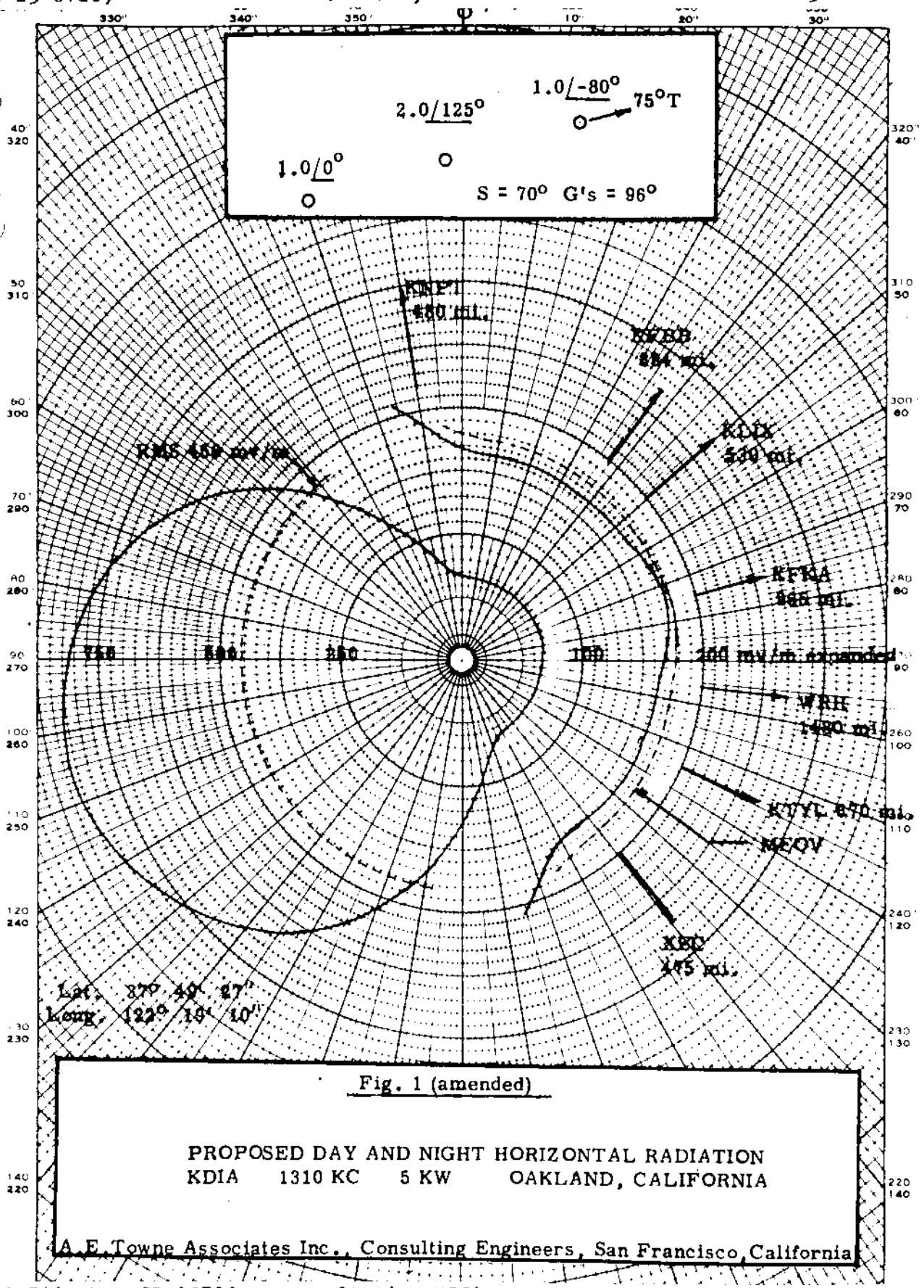


Fig. 1 (amended)

PROPOSED DAY AND NIGHT HORIZONTAL RADIATION
KDIA 1310 KC 5 KW OAKLAND, CALIFORNIA

A. E. Towne Associates Inc., Consulting Engineers, San Francisco, California

FCC File No. BP-13723 Accepted 9-26-61 Amended | Station KDIA Oakland, California | 1310 kc

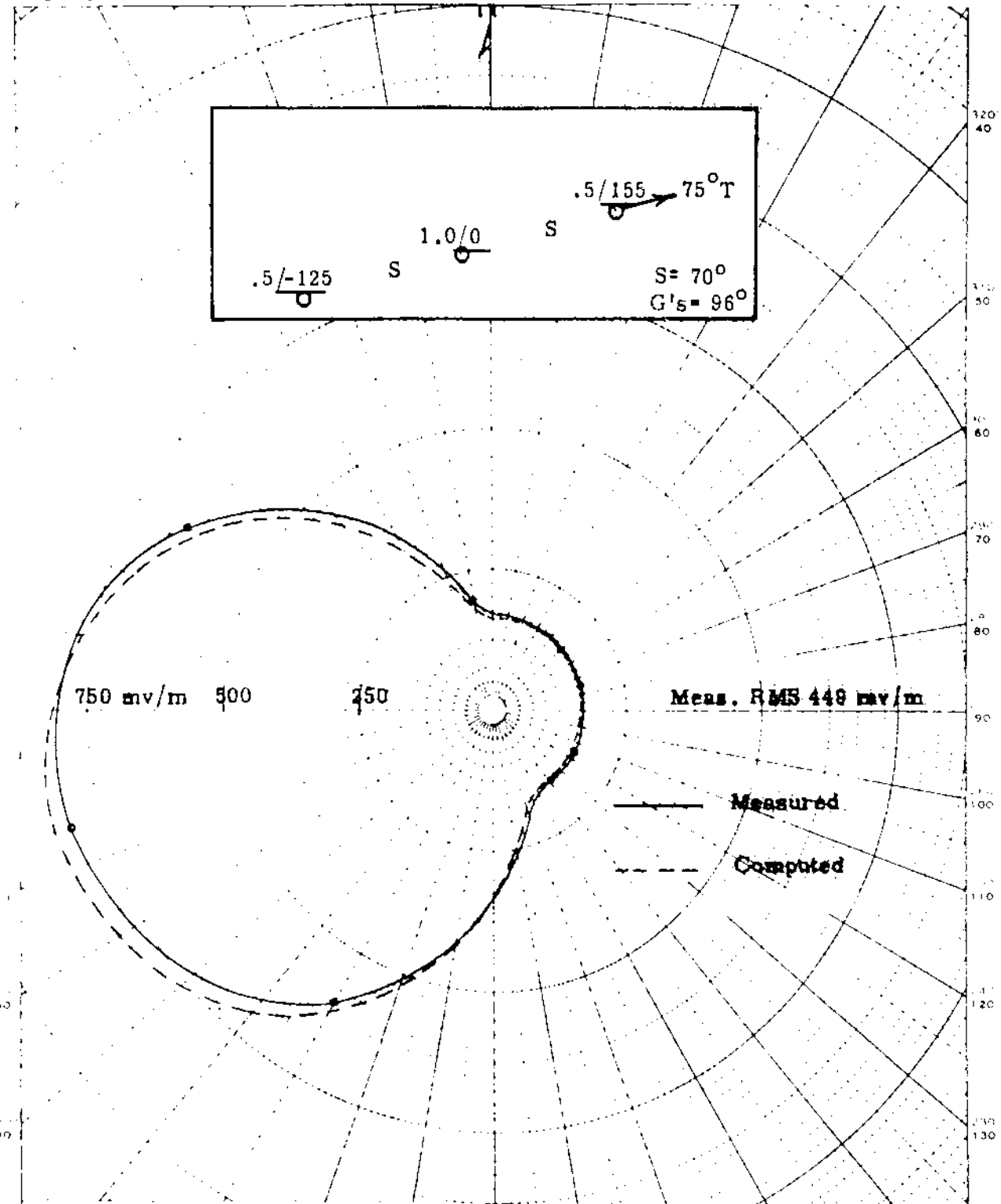
KDIA

Measured Day & Night
(6-28-65ct)

Station KDIA
Oakland, California

5kw, DA-1, U
1310 kc

-IC, 6-30-65
INC, PWR, DA



N. Latitude 37° 49' 27"
W. Longitude 122° 19' 10"

FIG. 1

MEASURED DAY AND NIGHT HORIZONTAL RADIATION
KDIA 1310 KC 5 KW OAKLAND, CALIFORNIA

A.E.Towne Associates Inc., Consulting Engineers, San Francisco, California

FCC File No. BL-10932
Accepted 6-11-65

Station KDIA
Oakland, California

1310 kc

KDIA

Measured Non-DA
(6-28-65ct)

Station KDIA
Oakland, California

5kw, DA-1, U
1310 kc

-IC, 6-30-65
INC, PWR, DA

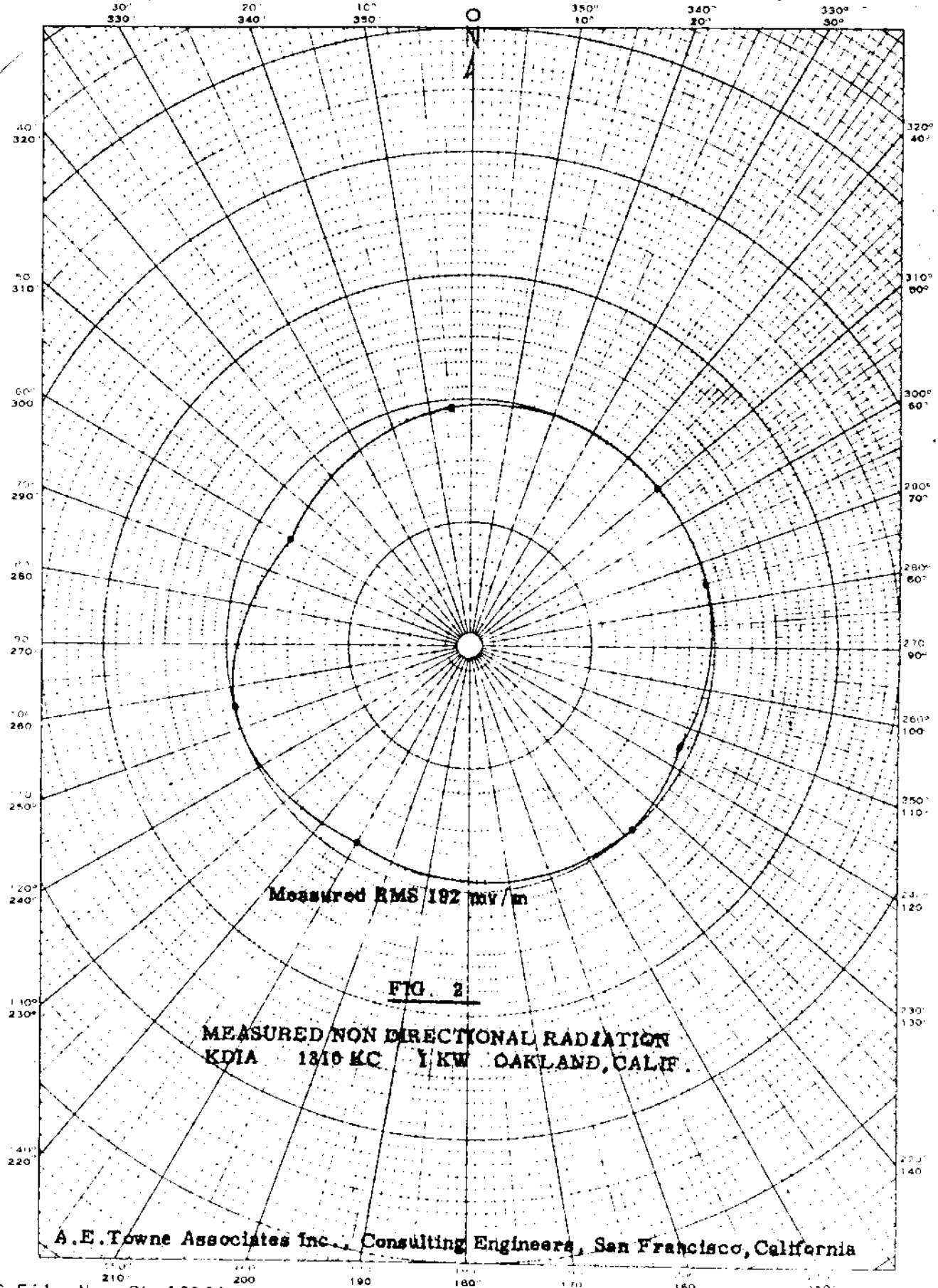


FIG. 2

MEASURED NON DIRECTIONAL RADIATION
KDIA 1310 KC 1 KW OAKLAND, CALIF.

A.E. Towne Associates Inc., Consulting Engineers, San Francisco, California

FCC File No. BL-10932
Accepted 6-11-65

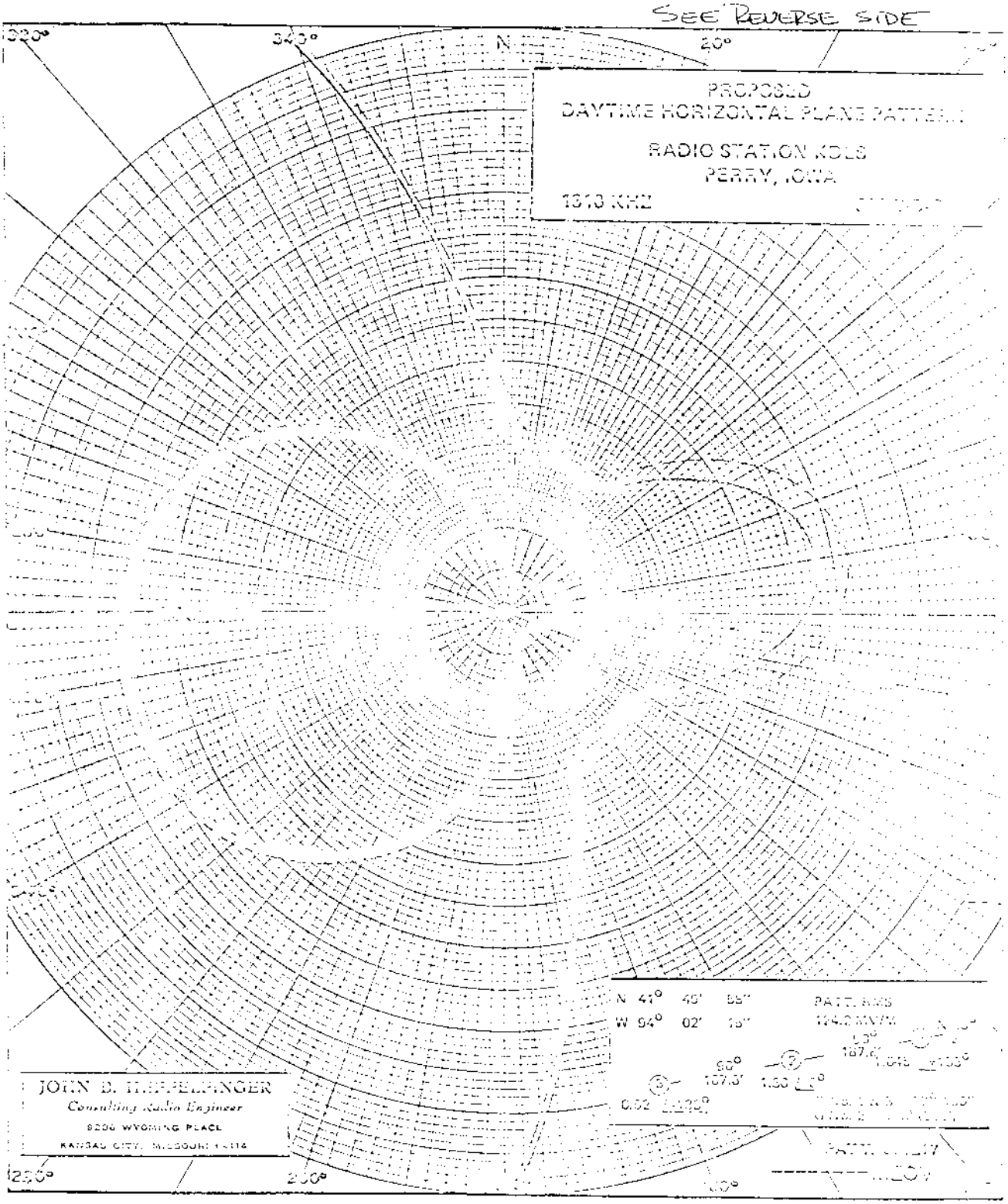
Station KDIA
Oakland, California

1310 kc

Proposed Day
(8-26-70ct)

Station KDLS
Perry, Iowa

KDLS
500w,DA-D,D
1310 kc

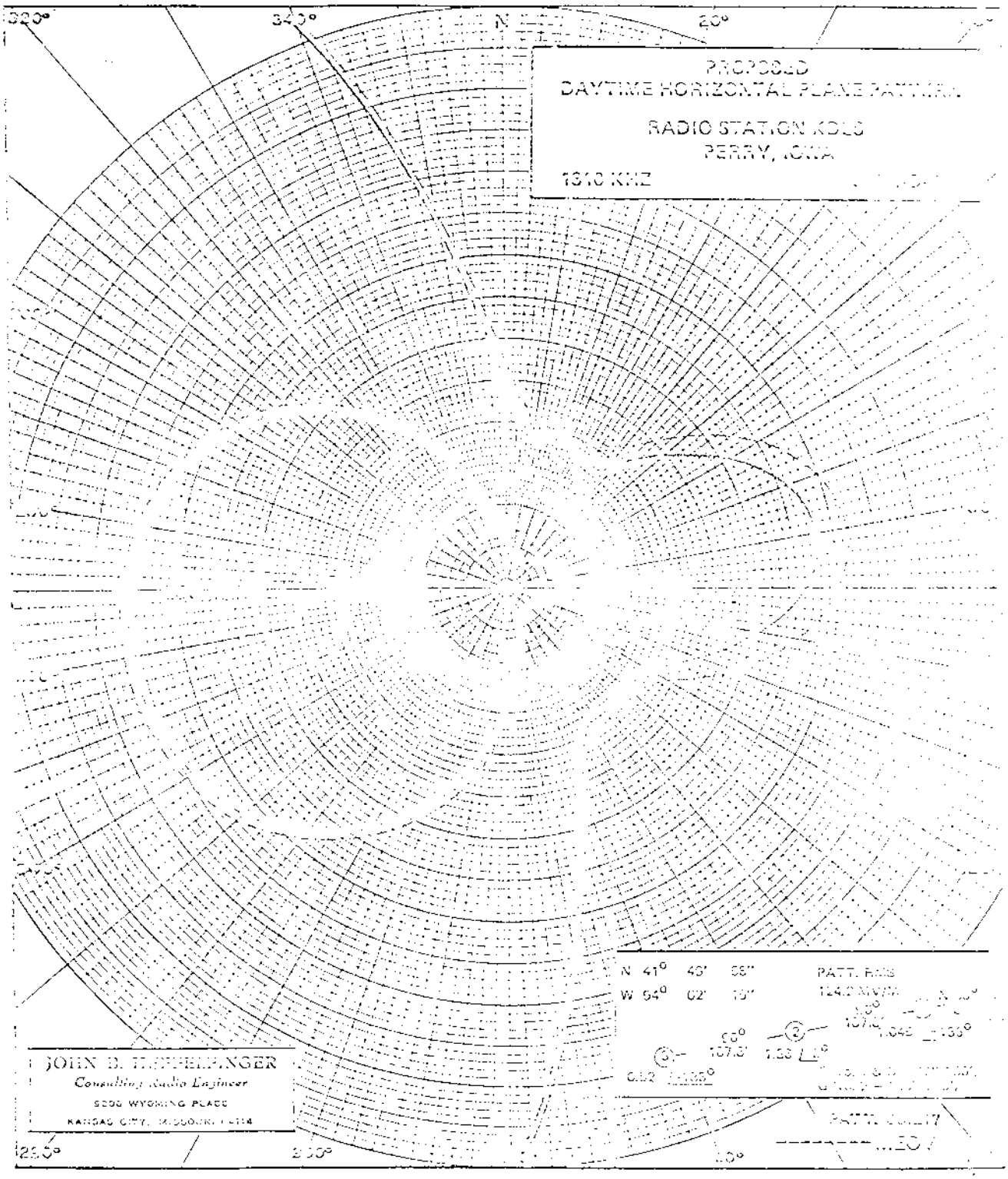


FCC File No.BP-18818
Accepted 8-7-70

Station KDLS
Perry, Iowa

1310 kc

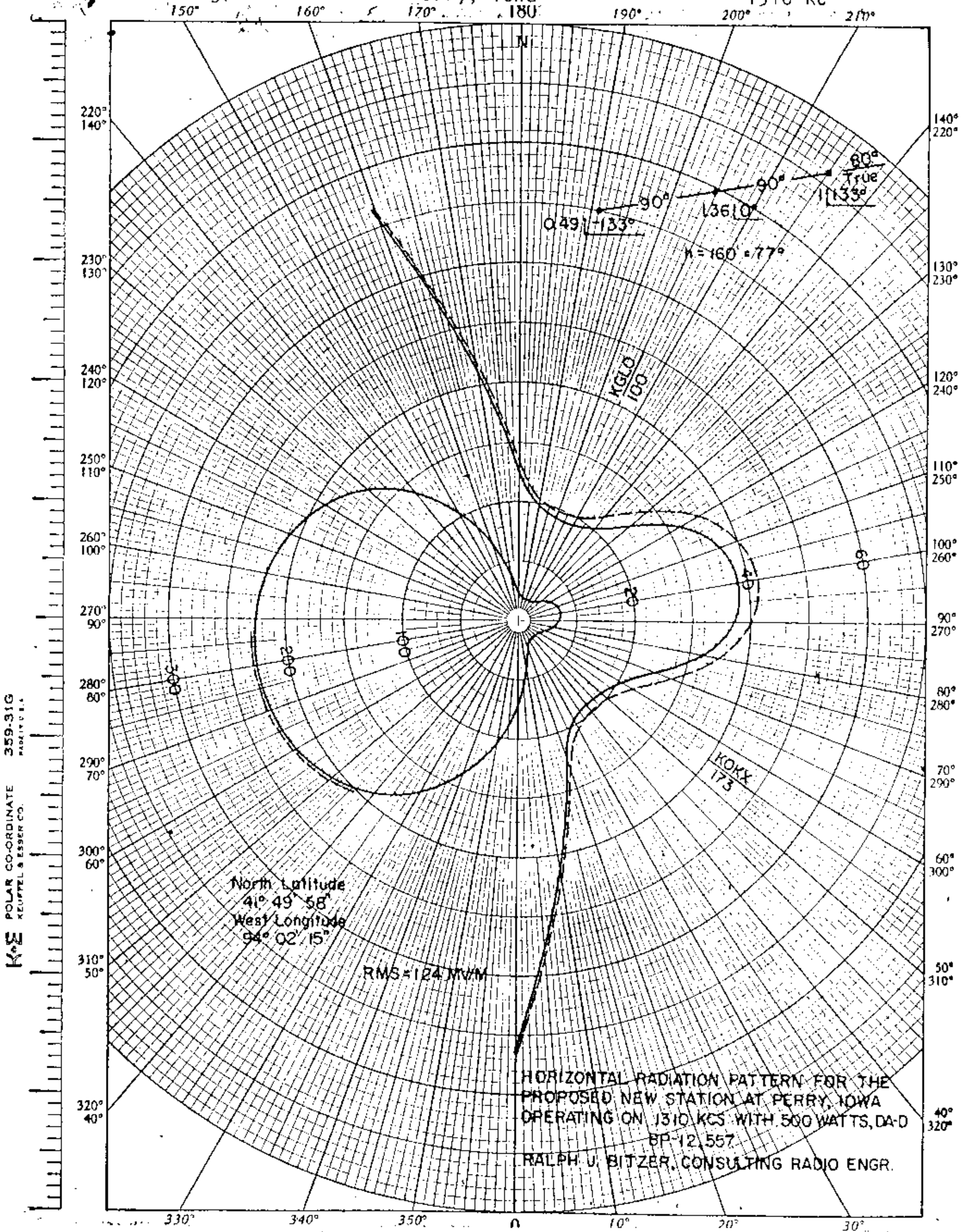
SEE REVERSE SIDE



KDLS

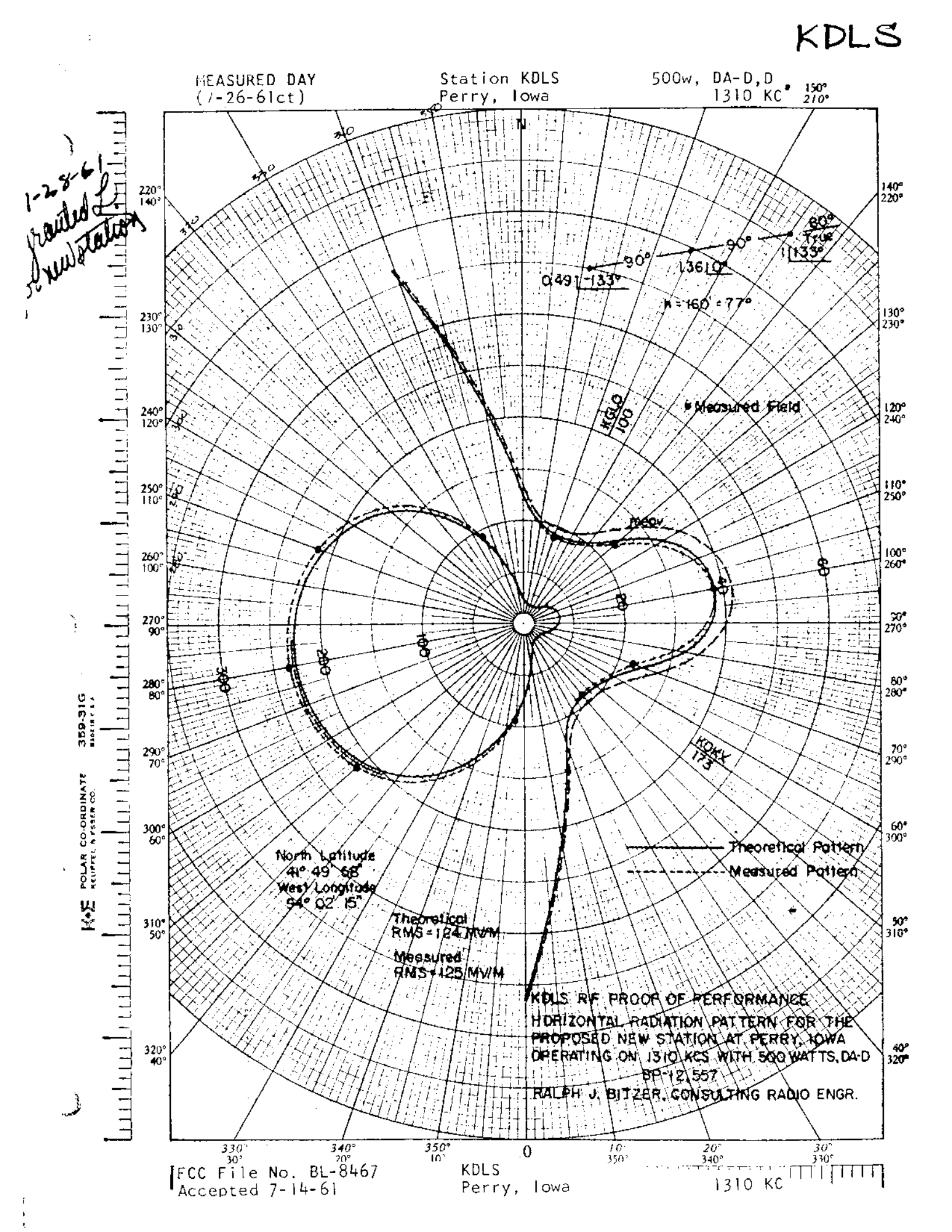
9-7-60 granted CP for new station

PROPOSED DAY (12-15-60g) Station KDLS 500w, DA-D,D
Perry, Iowa 1310 KC



FCC File No. BMP-9169 KDLS
Accepted 11-8-60 Perry, Iowa 1310 KC

KDLS



FCC File No. BL-8467
Accepted 7-14-61

KDLS
Perry, Iowa

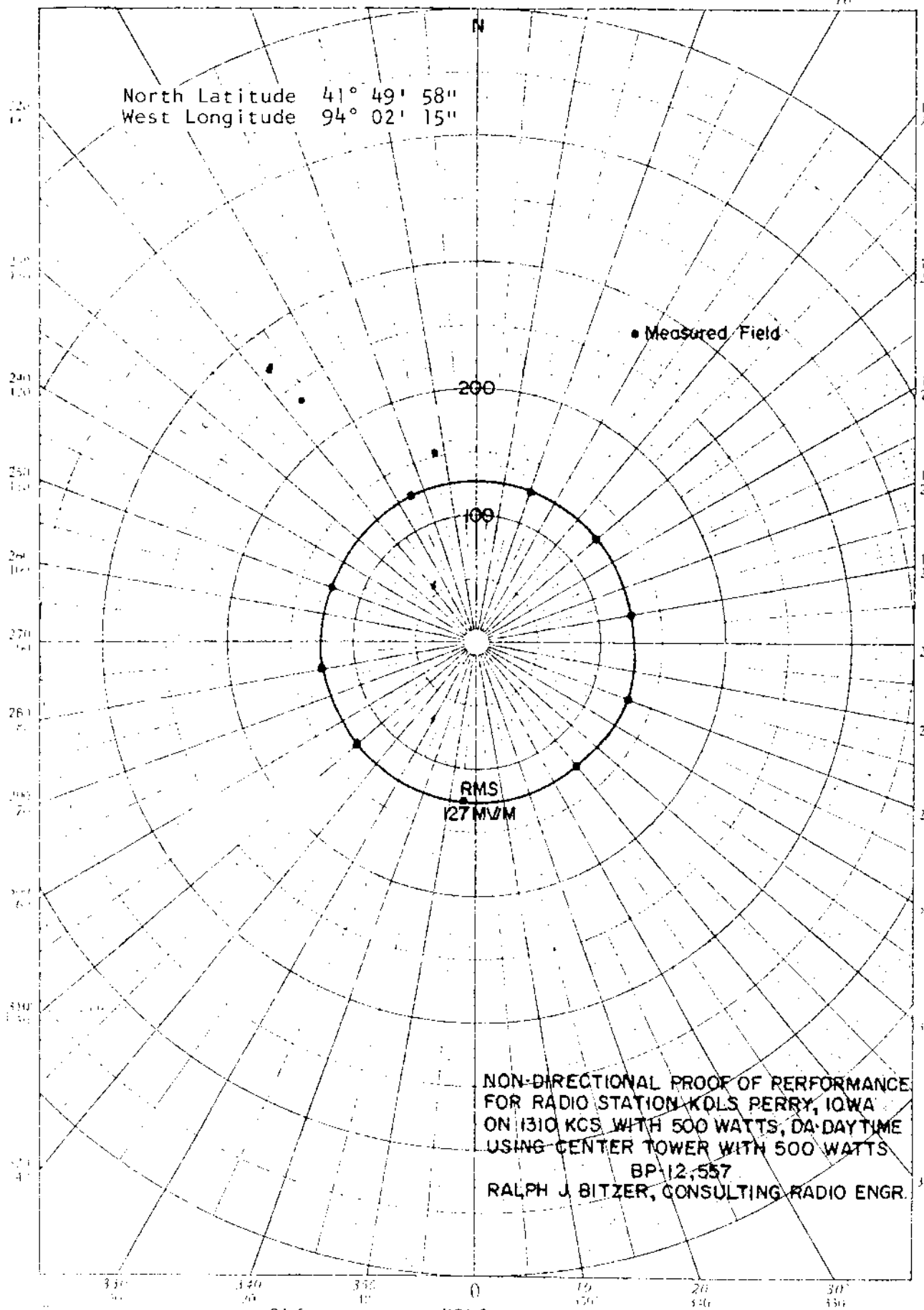
1310 KC

KDLS

MEASURED NON-DA
(7-26-61ct)

Station KDLS
Perry, Iowa

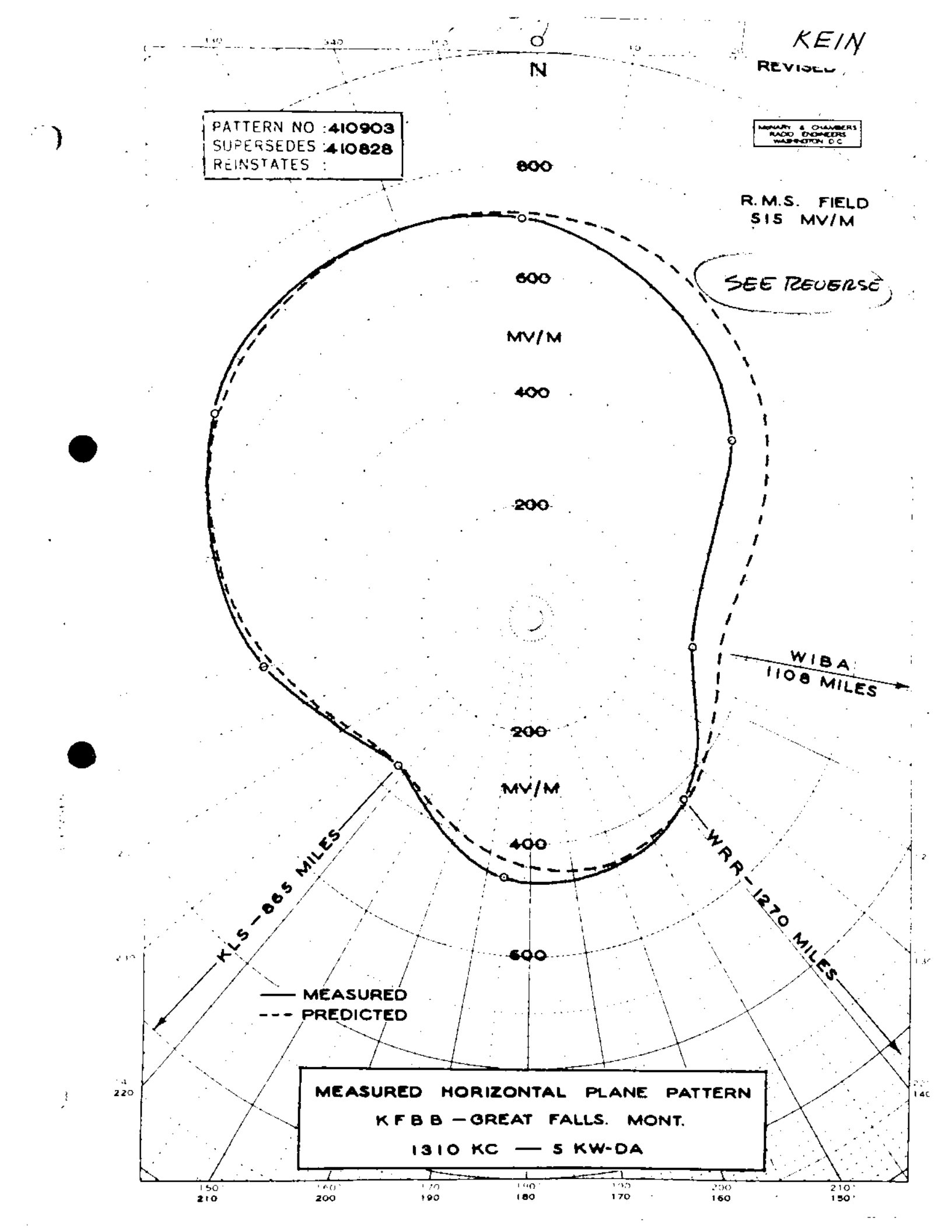
500w, DA-D,D
1310 KC

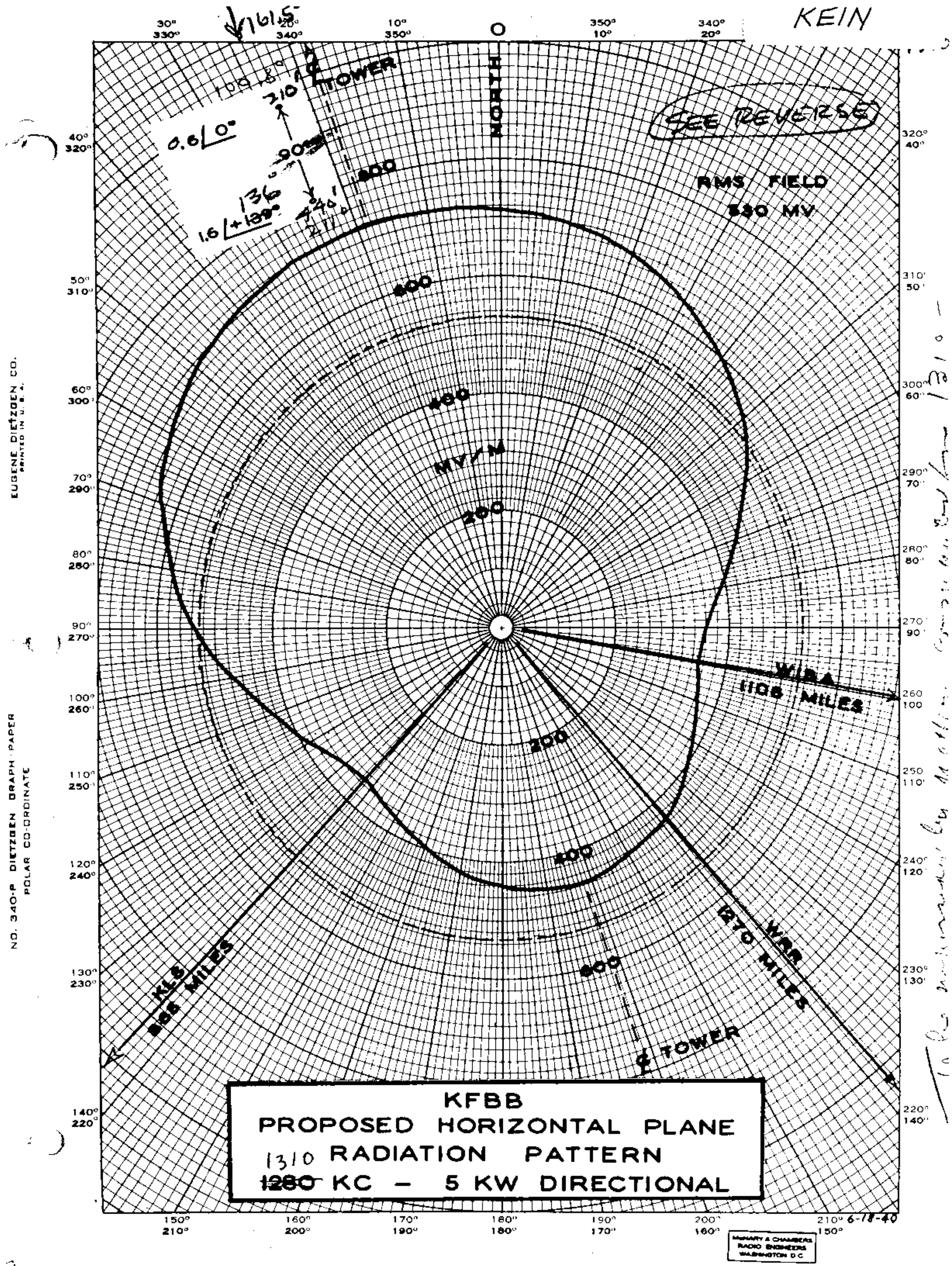


FCC File No. BL-8467
Accepted 7-14-61

KDLS
Perry, Iowa

1310 KC


KEIN
REVISED
PATTERN NO : 410903
SUPERSEDES : 410828
REINSTATES :
MOFFATT & CHAMBERS RADIO ENGINEERS WASHINGTON D.C.
R.M.S. FIELD
515 MV/M
SEE REVERSE
N
800
600
MV/M
400
200
200
MV/M
400
600
WIBA
1108 MILES
KLS - 665 MILES
WRR - 1270 MILES
MEASURED
PREDICTED
MEASURED HORIZONTAL PLANE PATTERN
KFBB — GREAT FALLS. MONT.
1310 KC — 5 KW-DA
150 210
160 200
170 190
180
190 170
200 160
210 150


KEIN
SEE REVERSE
KFBB
PROPOSED HORIZONTAL PLANE
RADIATION PATTERN
1310
1280 KC — 5 KW DIRECTIONAL
RMS FIELD
530 MV
MV/M
NORTH
TOWER
0.6 /0°
1.6 /+139°
90°
WIRA
1105 MILES
KLS
866 MILES
1270 WRR
MILES
℄ TOWER
6-18-40
EUGENE DIETZGEN CO.
PRINTED IN U.S.A.
NO. 340-P DIETZGEN GRAPH PAPER
POLAR CO-ORDINATE
McNARY & CHAMBERS
RADIO ENGINEERS
WASHINGTON D.C.

SULPHUR, LOUISIANA KEZM

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KIKS Main Studio: Sulphur, Louisiana

Frequency: 1310 kHz Power: 0.5 kw

Notification List No. 1448 Date: October 28, 1971 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:
North Latitude: 30° 13' 27"
West Longitude: 93° 22' 44"

ANTENNA CHARACTERISTICS

Authorized for Daytime operation. (DA-D)
Number of elements: 2
Type of elements: Series-excited, uniform cross-section, guyed, vertical steel towers.

TOWER:	SW(#1)	NE(#2)
HEIGHT ABOVE INSULATORS:	165'	165' (79.1°)
PHASING:	+110°	0°
FIELD RATIO:	1	1

SPACING AND ORIENTATION: Elements are spaced 166.85' (80°) on a line bearing 30° true.

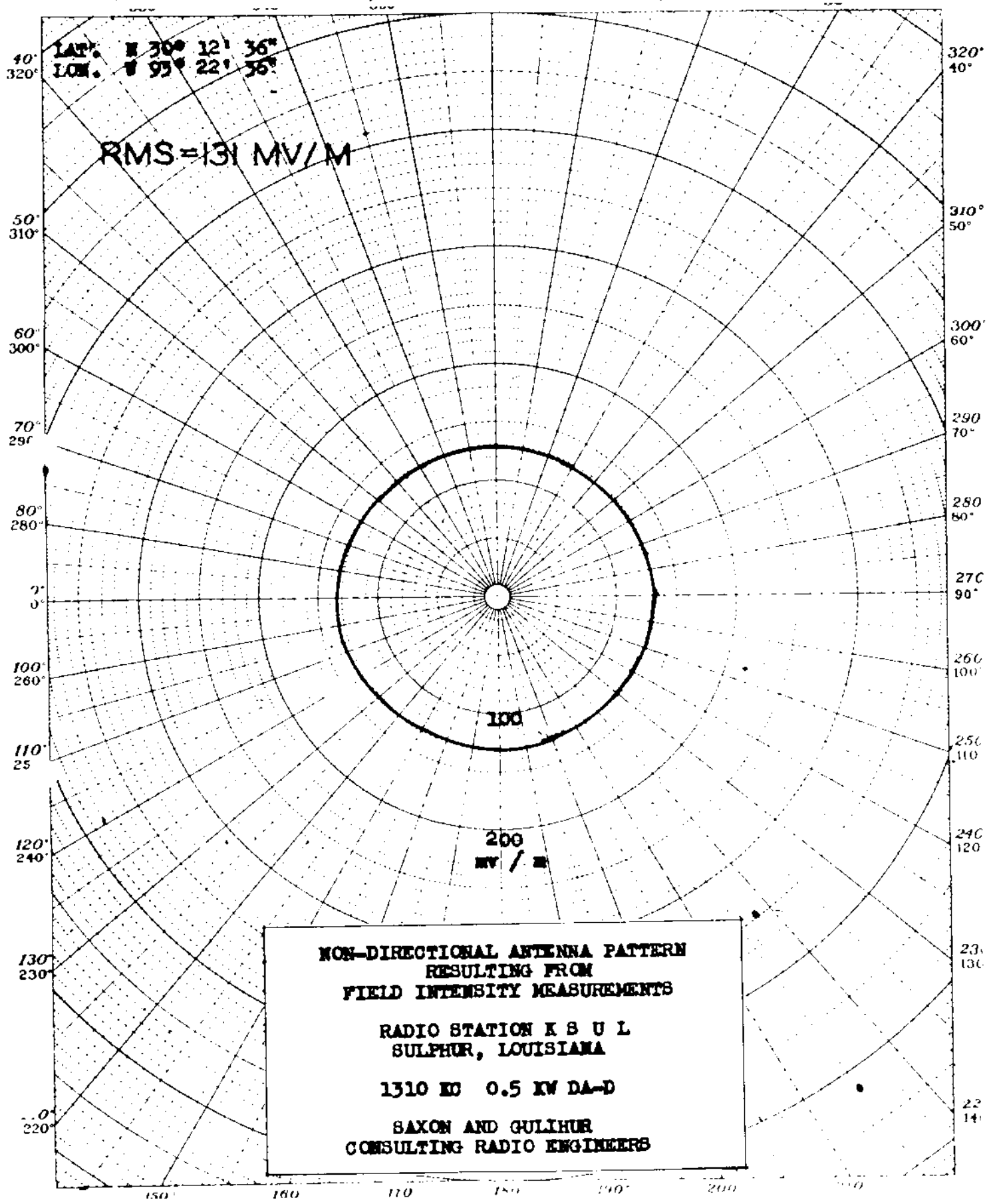
GROUND SYSTEM: 120 - 84' to 290' equally spaced copper radials plus a 24' square ground screen about each tower. Radials are bonded to a transverse strap along intersections between towers.

Predicted effective Field: 125 mv/m at rated power.

Note: This notification concerns only a minor change in mcovs of radiation in the directional antenna radiation pattern.

KEZM #1

MEASURED NON-DIRECTIONAL (11-28-55G) STATION KSUL, SULPHUR, LOUISIANA 500W DA-D, D 1310 KC



FILE NO. BL-5868 ACCEPTED 10-14-55 FCC KSUL, Sulphur, La. 1310 KC

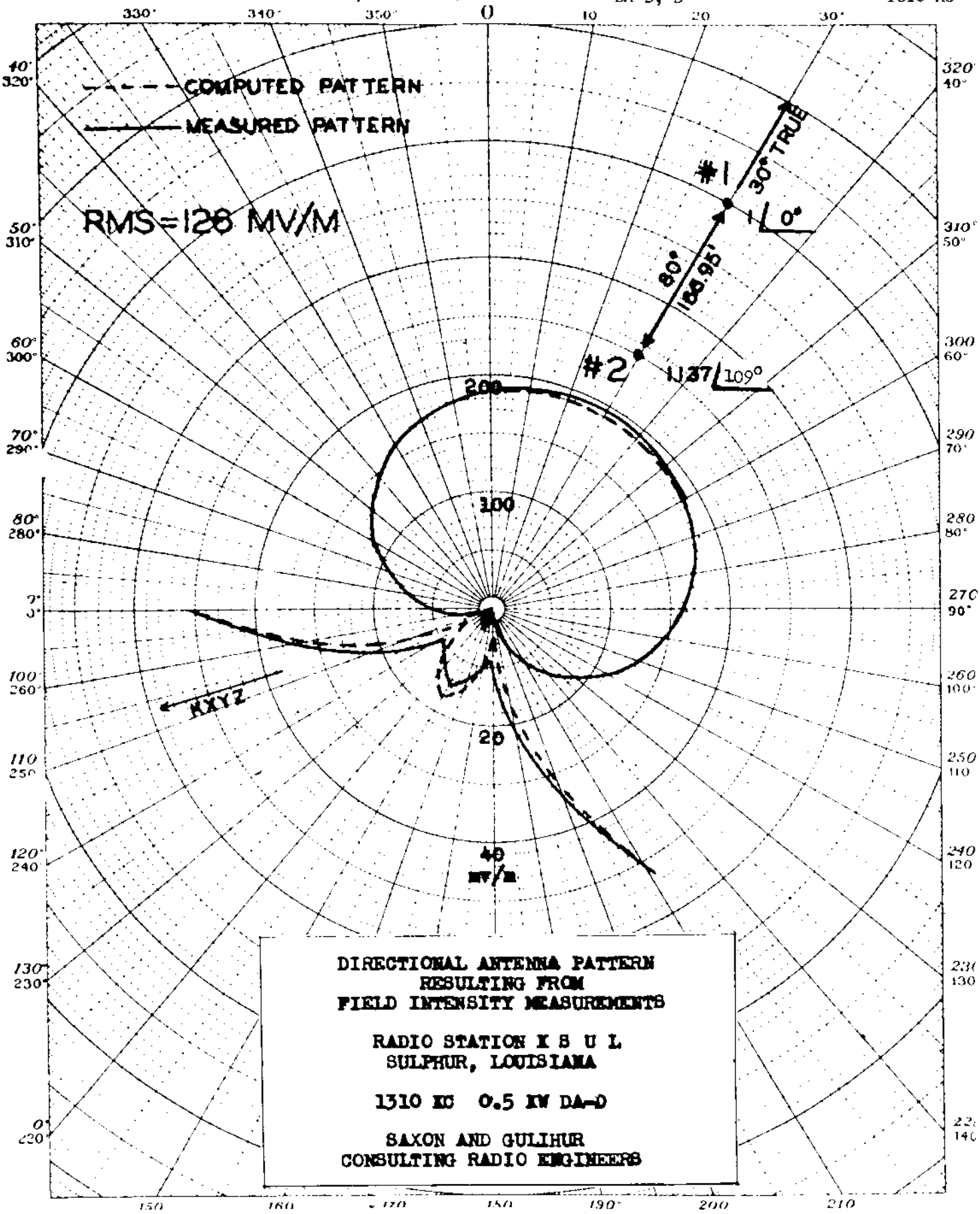
KEZM KSUL

MEASURED DAY
(11/28/55G)

STATION KSUL
SULPHUR, LOUISIANA

500W
DA-D, D

1310 KC



DIRECTIONAL ANTENNA PATTERN
RESULTING FROM
FIELD INTENSITY MEASUREMENTS

RADIO STATION K S U L
SULPHUR, LOUISIANA

1310 KC 0.5 KW DA-D

SAXON AND GULIHUR
CONSULTING RADIO ENGINEERS

FILE NO. BL-5868

ACCEPTED 10-14-55 FCC

KSUL, Sulphur, La.

1310 KC

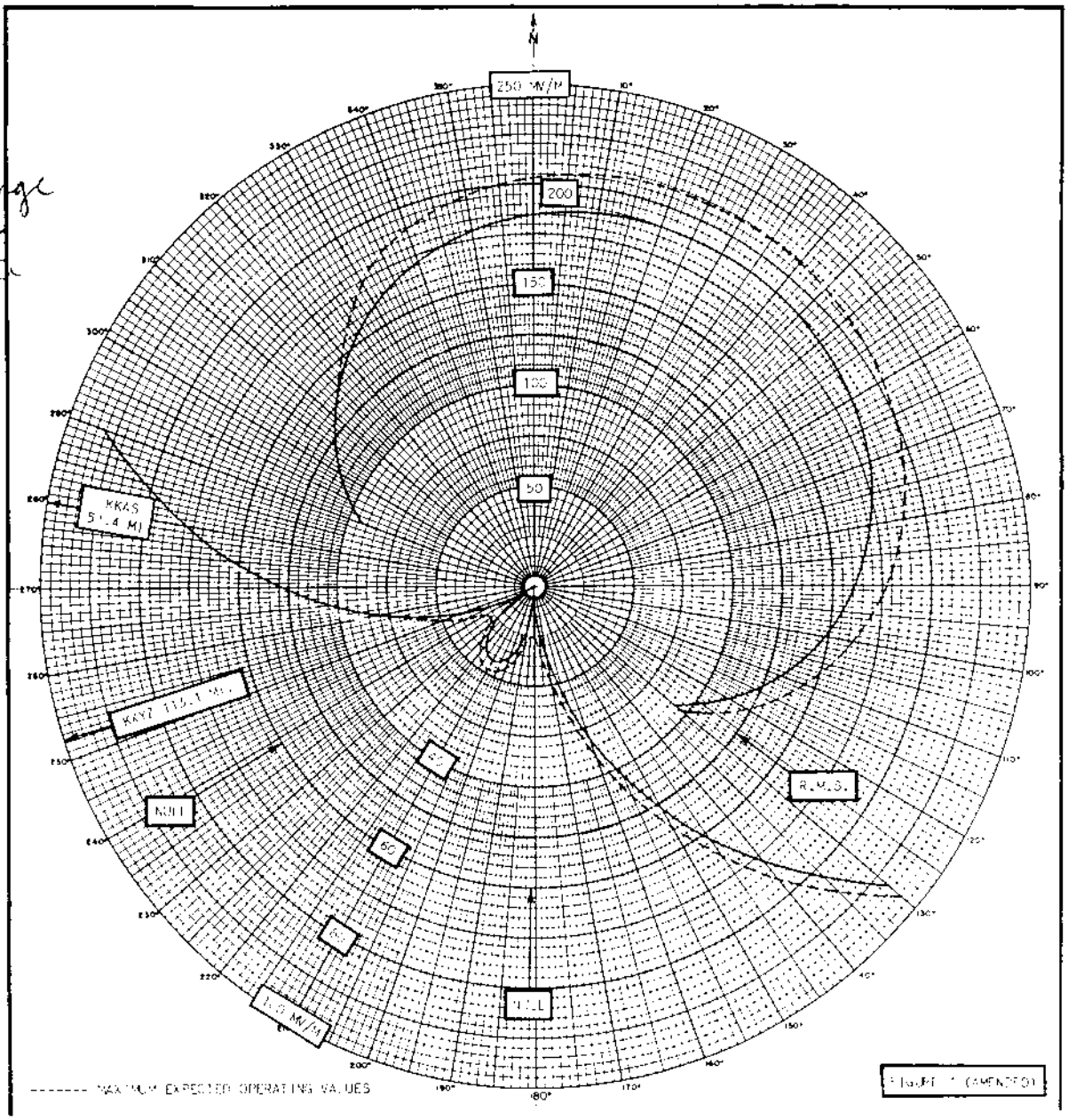
KEZM

Proposed Day
(8-22-69ct)

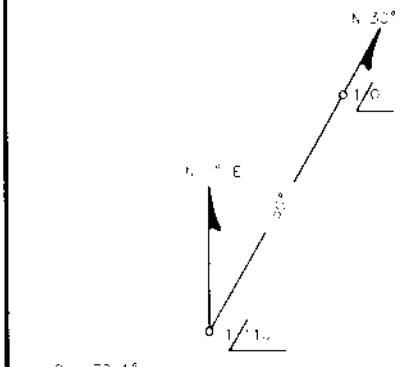
Station KIKS
Sulphur, Louisiana

500W,DA-D,D
1310 kc

BP-18610
Granted
8-18-69
CP to change
antenna-
transmitter
location
SEE OTHER
FAILED
FOR NEOV



HORIZONTAL RADIATION PATTERN



APPLICANT	VICTOR RADIO COMPANY, INC.
LOCATION	SULPHUR, LOUISIANA
FREQUENCY	1310 KC/S
POWER	500 WATTS
LATITUDE	30 DEG 13 MIN 27 SEC
LONGITUDE	93 DEG 22 MIN 46 SEC
WHEN USED	DAYTIME
R.M.S. FIELD	125 MV/M
DATE	JUNE 1969

SILLIMAN, MOFFET & KOWALSKI
CONSULTING RADIO ENGINEERS
WASHINGTON, D.C.

FCC File No.BP-18610
Accepted 8-8-69

Station KIKS
Sulphur, Louisiana

1310 kc

SULPHUR, LOUISIANA

KEZM

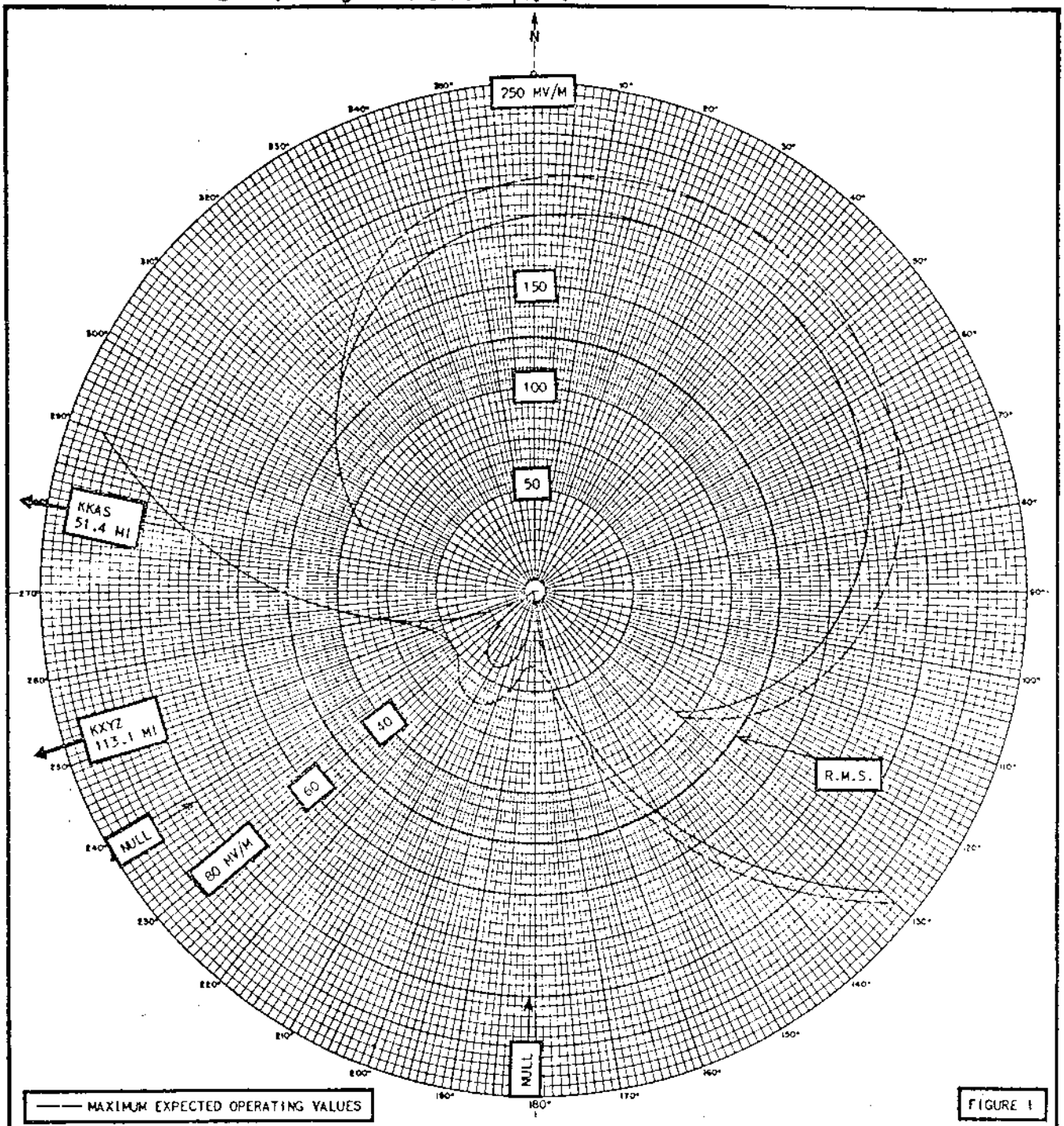
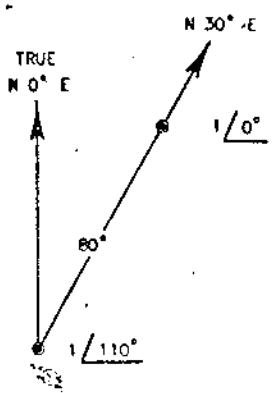


FIGURE 1

HORIZONTAL RADIATION PATTERN



G = 79.1°

APPLICANT	: VICTOR RADIO COMPANY, INC.
LOCATION	: SULPHUR, LOUISIANA
FREQUENCY	: 1310 KC/S
POWER	: 500 WATTS
LATITUDE	: 30 DEG. 13 MIN. 27 SEC.
LONGITUDE	: 93 DEG. 22 MIN. 44 SEC.
WHEN USED	: DAYTIME
R.M.S. FIELD	: 125 MV/M
DATE	: OCTOBER 1970

SILLIMAN, MOFFET & KOWALSKI

CONSULTING RADIO ENGINEERS

WASHINGTON, D.C.

KEZM

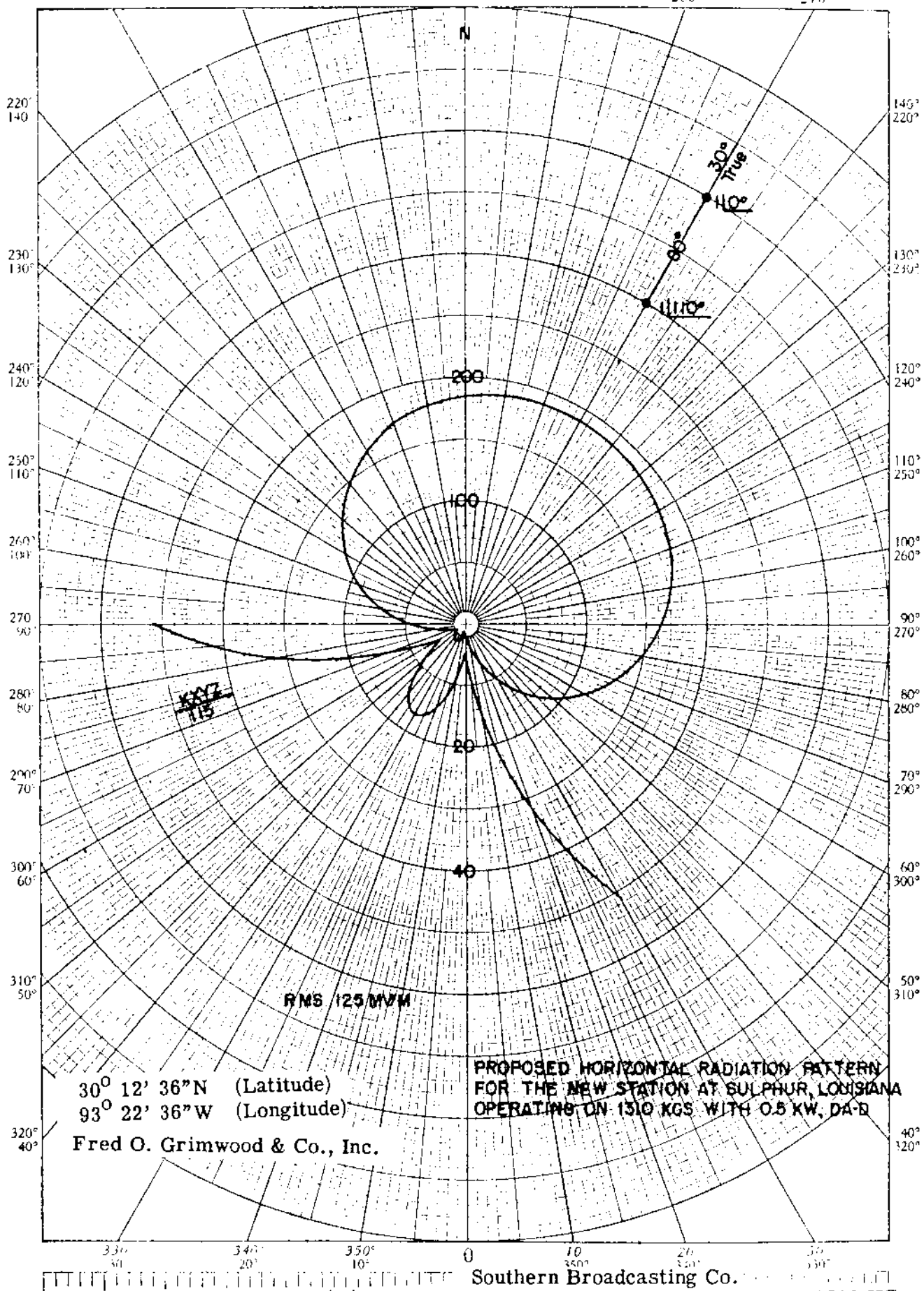
Station KIKS

PROPOSED DAY (12/17/54G)

Southern Broadcasting Co.
Sulphur, Louisiana

500 W
DA-D

1310 KC



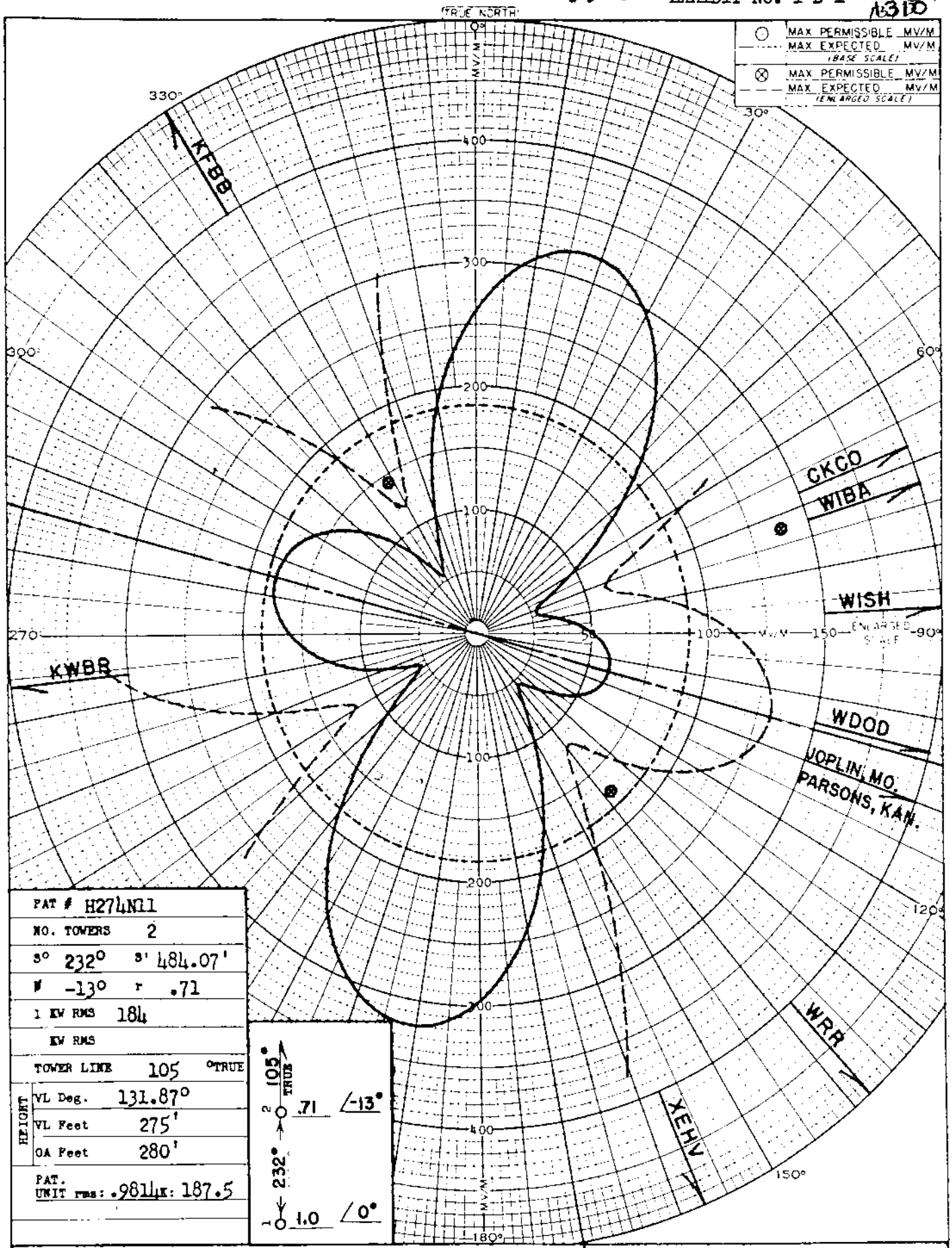
Southern Broadcasting Co.
Sulphur, Louisiana

1310 KC

File No. BP-9571

Accepted 12/7/54

over EXHIBIT NO. I-D-1 KFKA 1310



PAT #	H274N11
NO. TOWERS	2
S° 232°	S' 484.07'
Ø -13°	r .71
1 KW RMS	184
KW RMS	
TOWER LINE	105 °TRUE
HEIGHT VL Deg.	131.87°
HEIGHT VL Feet	275'
HEIGHT OA Feet	280'
PAT. UNIT rms: .9814	E: 187.5

COMMERCIAL RADIO EQUIPMENT CO.

RADIO ENGINEERING CONSULTANTS

KANSAS CITY WASHINGTON, D.C. HOLLYWOOD

PATTERN H274N11 Proposed Nighttime

FOR KFKA, GREELEY, COLORADO

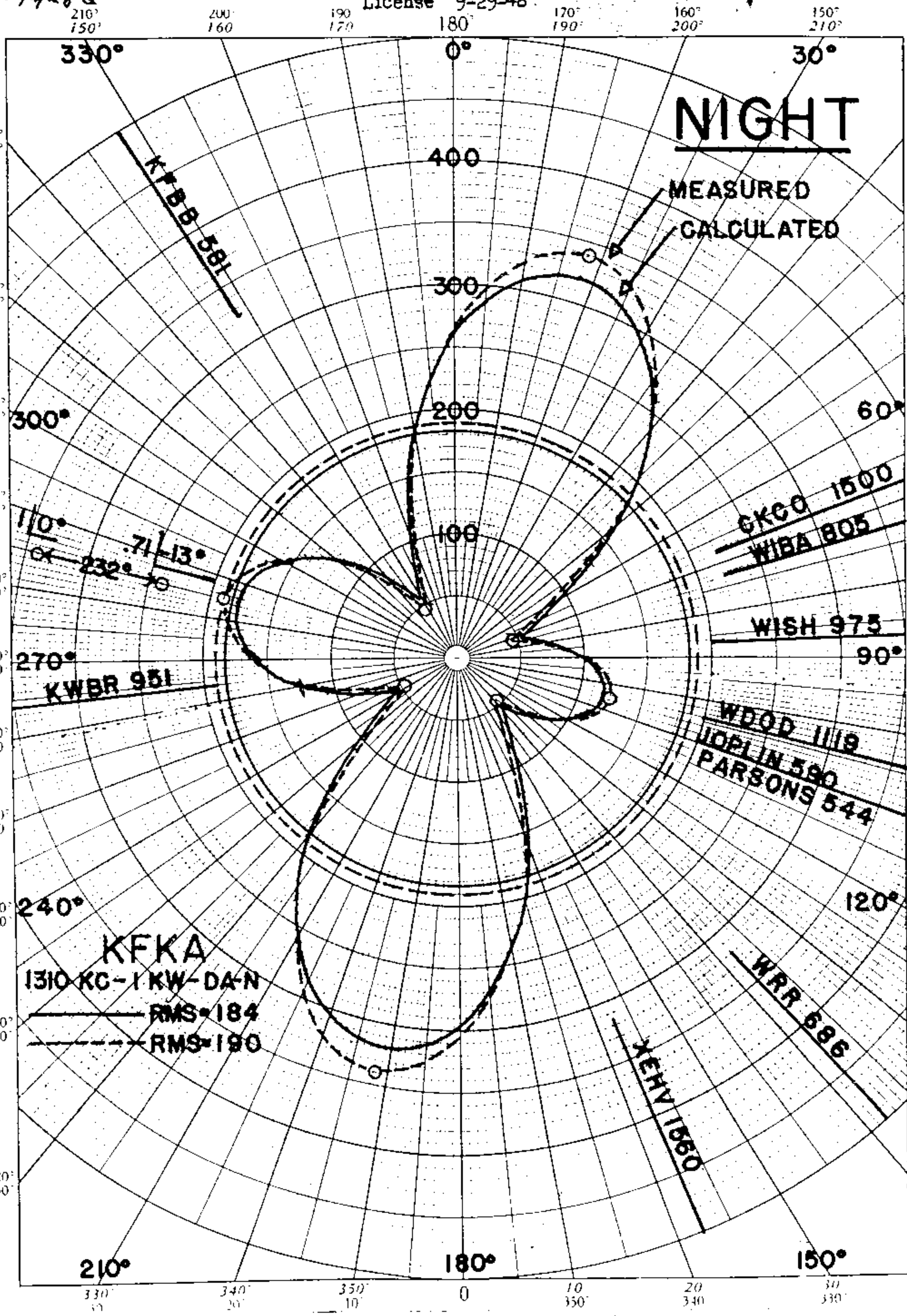
POWER 1000 WATTS FREQ. 1310 KCS.

DATE 4/18/47

KFKA
1310

1/4/48 G

License 9-29-48



4-23-63 granted CP to increase day power from 1 to 5 kw

6/29/64 [illegible] increase day power (non DA)

KFSB
1310kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KFSB

Main Studio: Joplin, Missouri

Frequency: 1310 kHz

Power: 1kw Night 5kw Day

Notification List No. 1783

Date: November 2, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 37° 07' 03"
West Longitude: 94° 32' 41"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2)
Number of elements: 3
Type of elements: Series excited, uniform cross-section, guyed, vertical stell towers.

TOWER:	C(#1)	E(#2)	W(#3)
HEIGHT ABOVE INSULATORS:	203'	203'	203' (97°)
NIGHT PHASING:	0°	-15.4°	24.6°
NIGHT FIELD RATIO:	1.00	0.55	0.55
DAY PHASING:	0°	+44°	---
DAY FIELD RATIO:	1.00	0.538	---

SPACING AND ORIENTATION: The two end towers E(#2) and W(#3) are spaced 992' (476°) on a line bearing 67.5° true. The center (#1) tower is spaced 22.94' (11°) west of the mid point between the E(#2) and w(#3) towers on a line bearing 265° true.

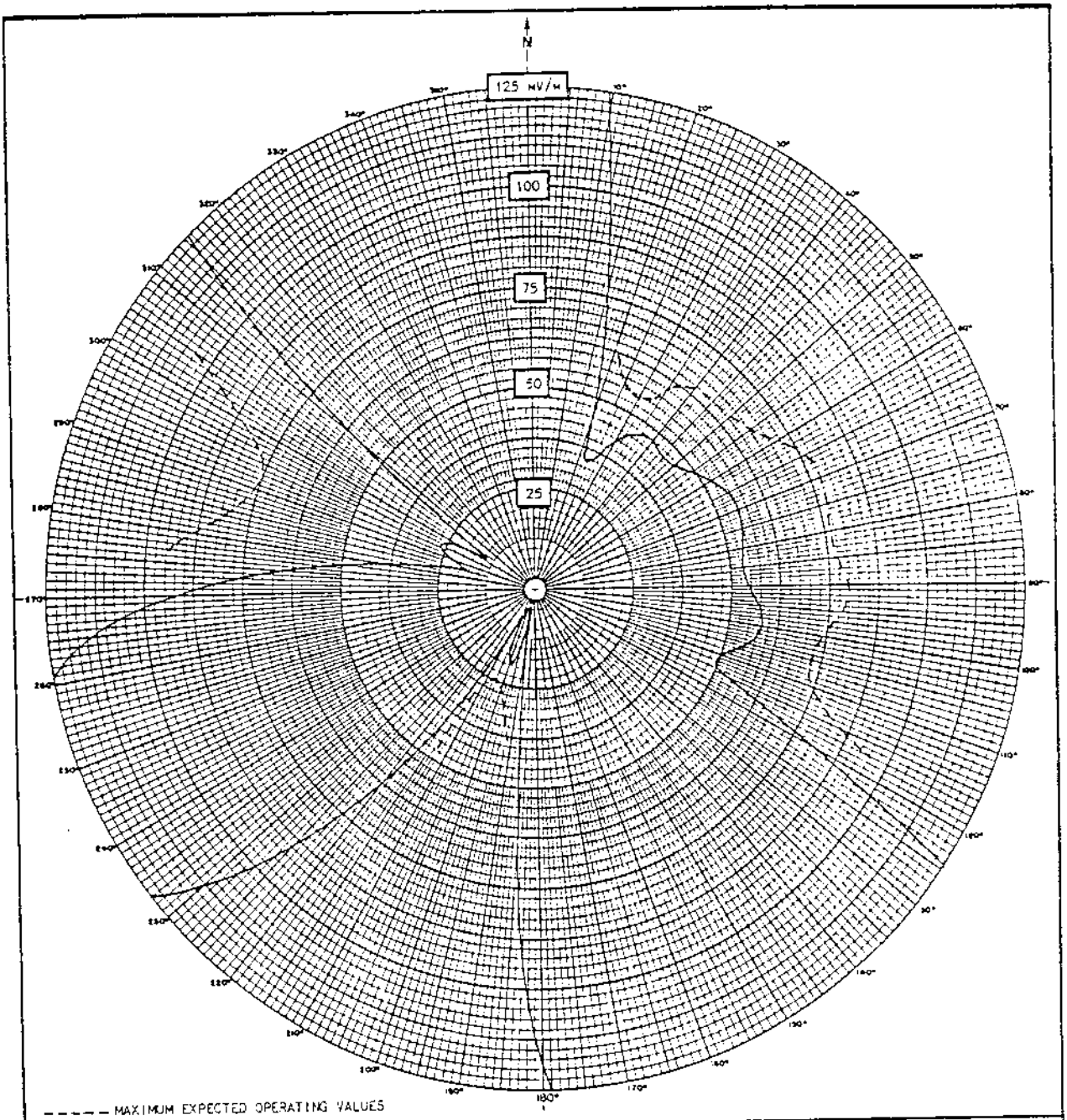
GROUND SYSTEM: 120-188' equally spaced copper radials plus a 40' square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	406 mv/m		
Night	185 mv/m		

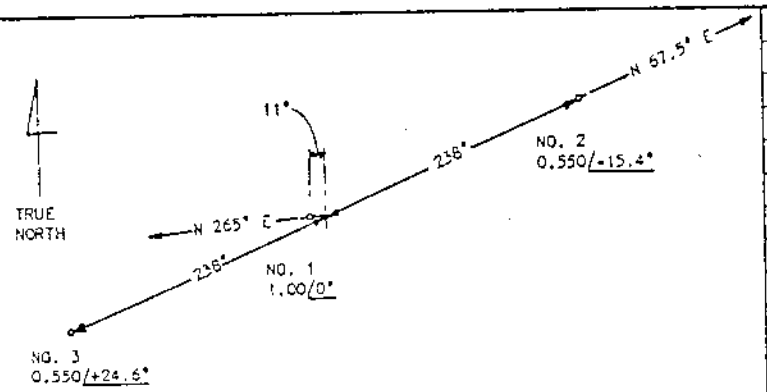
Note: Please retain the Daytime directional antenna radiation pattern notifed for Station KFSB in United States Change List Number 396 dated March 14, 1951, and attach to this Revised Description Sheet and Nighttime pattern. This notification concerns only a change in the Nighttime operation of the station with Daytime operation continued as previously notified.

KFSB
1310kHz



HORIZONTAL RADIATION PATTERN

FIGURE 1



ELECTRICAL HEIGHT (G) ALL TOWERS = 97°

APPLICANT	J.S. BROADCASTING CO. (KFSB)
LOCATION	JOPLIN, Missouri
FREQUENCY	1310 KC/S
POWER	5 KW-D, 1 KW-N(DA-2)
LATITUDE	37 DEG. 07 MIN. 02.9 SEC.
LONGITUDE	94 DEG. 32 MIN. 40.6 SEC.
WHEN USED	NIGHTTIME
R.M.S. FIELD	185 MV/M
DATE	JANUARY 1979

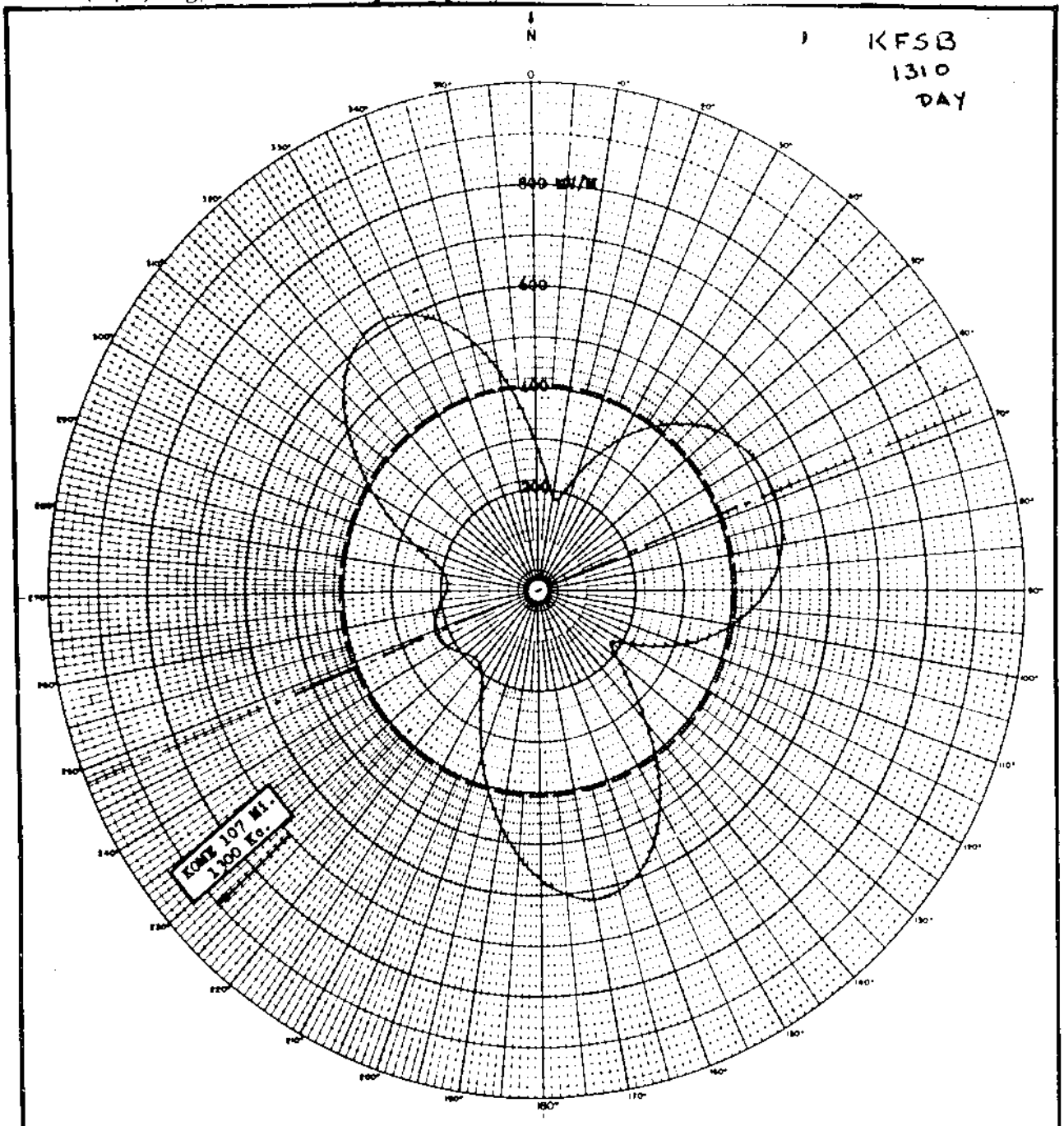
SILLIMAN, MOFFET & KOWALSKI
CONSULTING RADIO ENGINEERS

KFSB

PROPOSED DAY
(2/7/57g)

Station KFSB
Joplin, Missouri

1KW,5KW-LS, DA-2,U
1310KC



KFSB

HORIZONTAL RADIATION PATTERN

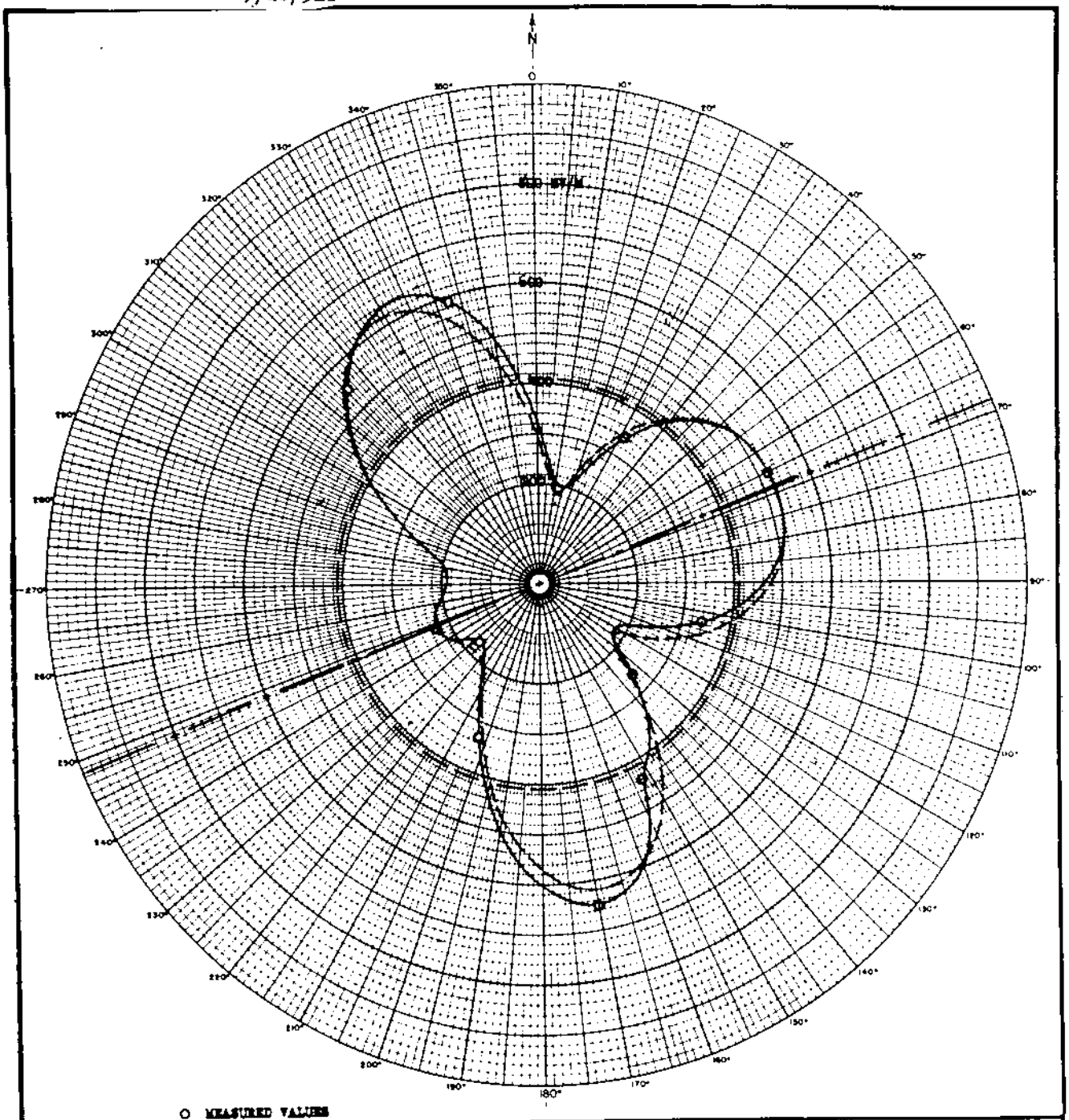
ANTENNA	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
PHASE DEG.	0°	44°				
HEIGHT DEG.	97°	97°				
FIELD RATIO	1.00	0.538				
NON-DA ANT.						

FREQUENCY	1310 KC
ASSIGNMENT	5 KW-LS, 1 KW-N (DA-2)
LONGITUDE	94 DEG 32 MIN 39 SEC
LATITUDE	37 DEG 07 MIN 04 SEC
WHEN USED	DAYTIME
RMS FIELD	406 MV/M
DATE	JUNE 1950

ROBERT M. SILLIMAN
CONSULTING RADIO ENGINEERS
WASHINGTON, D. C.

KFSB

MEASURED DAY | KFSB, JOPLIN, MO. 9/26/51G | 1 kw, 5kw-LS, U, DA-2 | 1310 KC



○ MEASURED VALUES

KFSB

HORIZONTAL RADIATION PATTERN

CALCULATED — — — MEASURED ———

	CENTER	N.E.	S.W.			
ANTENNA	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
PHASE DEG	0°	44°				
HEIGHT DEG	97°	97°				
FIELD RATIO	1.00	0.538				
NON-DA ANT						

FREQUENCY:	1310 KC.
ASSIGNMENT:	5 Kw-LS, 1 Kw-N (DA-2)
LONGITUDE:	94 DEG. 32 MIN. 39 SEC.
LATITUDE:	37 DEG. 07 MIN. 04 SEC.
WHEN USED:	Daytime
R.M.S. FIELD:	410 MV/M (Measured)
DATE:	September 1951

ROBERT M. SILLIMAN

CONSULTING RADIO ENGINEERS

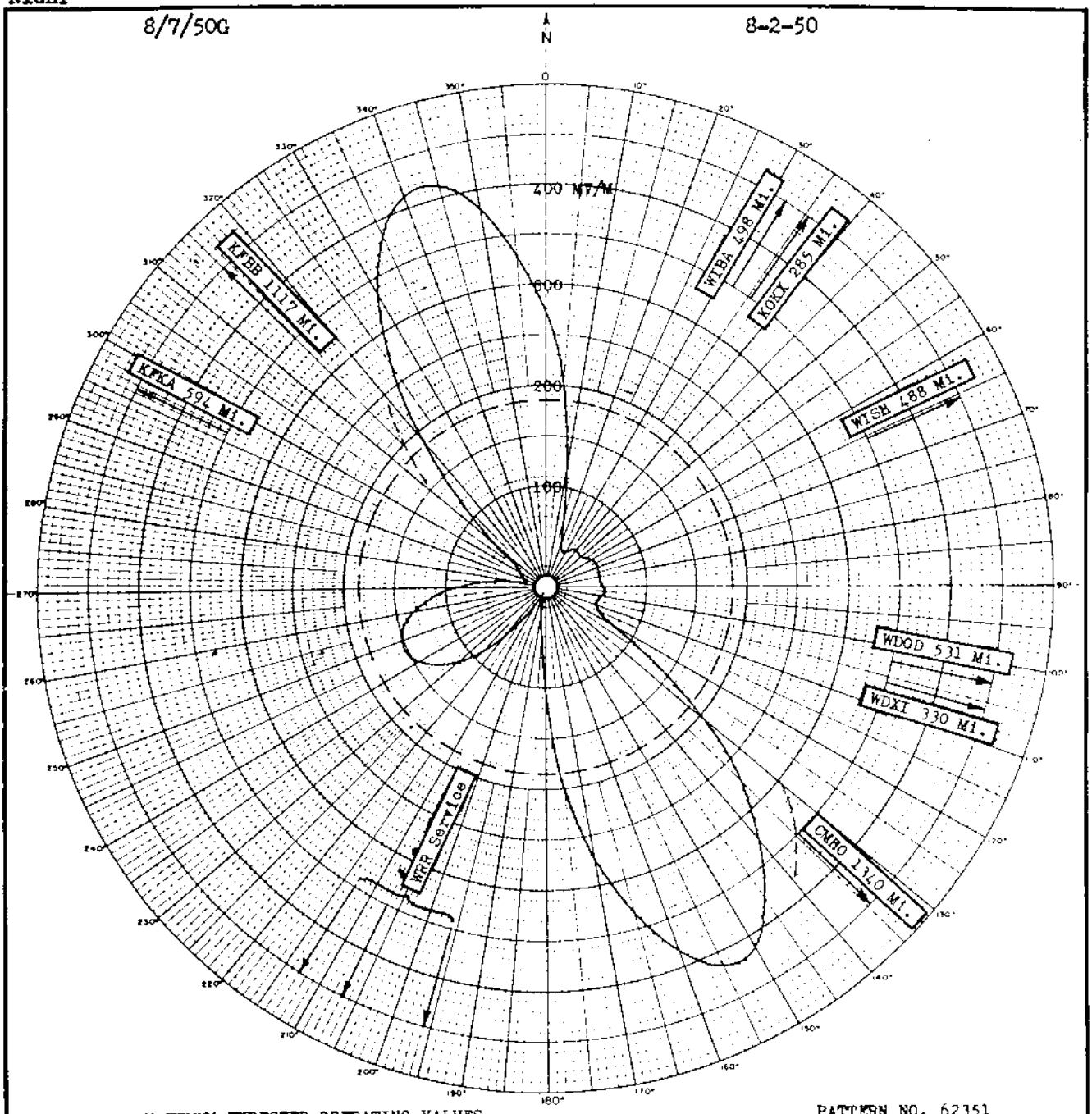
WASHINGTON, D. C.

APPL RECD FCC 9/14/51 BL-4541 KFSB, JOPLIN, MISSOURI 1310 KC

KFSB

PROPOSED NIGHT KFSB, JOPLIN, MO. 1kw,5kw-LS,DA-2 1310 kc

8/7/50G 8-2-50



— — — — MAXIMUM EXPECTED OPERATING VALUES

PATTERN NO. 62351

KFSB

HORIZONTAL RADIATION PATTERN

	CENTER	N.E.	S.W.			
ANTENNA	NO 1	NO 2	NO 3	NO 4	NO 5	NO 6
PHASE DEG	~~-46~~	-20	20			
HEIGHT DEG	97°	97°	97°			
FIELD RATIO	1.00	0.55	0.55			
NON-DA ANT						

FREQUENCY	1310 KC
ASSIGNMENT	5 Kw-LS, 1 Kw-N (DA-2)
LONGITUDE	94 DEG. 32 MIN. 39 SEC.
LATITUDE	37 DEG. 07 MIN. 04 SEC.
WHEN USED	Nighttime
RMS FIELD	185 MV/M
DATE	June 1950

ROBERT M. SILLIMAN

CONSULTING RADIO ENGINEERS

WASHINGTON, D. C.

KFSB, Joplin, Mo. 1310 kc

KFSB

PROPOSED NIGHT NULLS

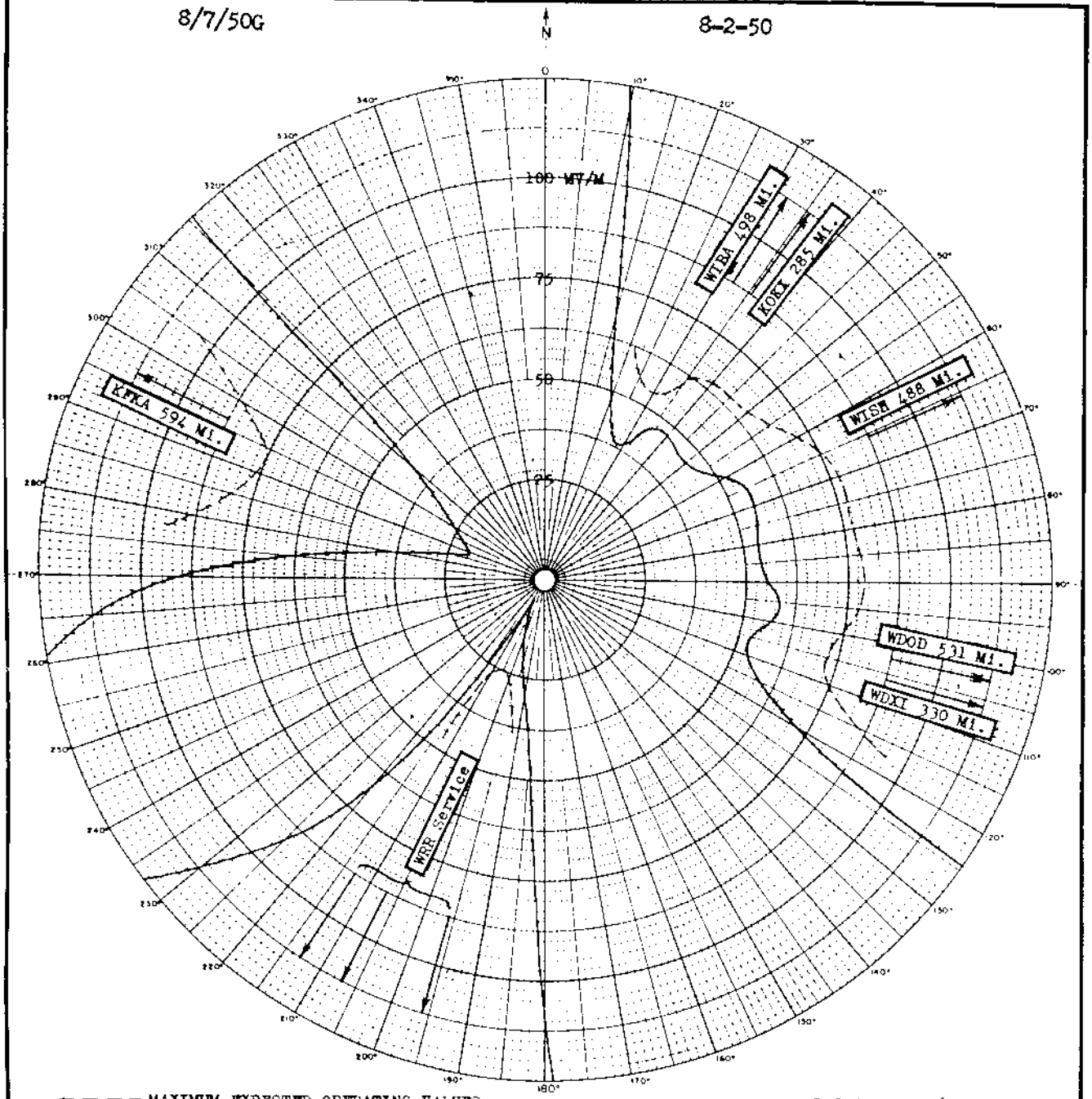
KFSB, JOPLIN, MO.

1kw, 5kw-LS, DA-2

1310 kc

8/7/50G

8-2-50



– – – – MAXIMUM EXPECTED OPERATING VALUES

PATTERN NO. 62351

KFSB

HORIZONTAL RADIATION PATTERN

ENLARGED VIEW

CENTER N.E. S.W.

From a reference point one-half way between 2 end towers
Tower #1 is spaced 22.94' (11°) on line bearing 265° True
Tower #2 is spaced 496' (238°) on line bearing 67.5° True
Tower #3 is spaced 496' (238°) on line bearing ~~238°~~ 247.5° True

NON-DA ANT

FREQUENCY:	1310 KC
ASSIGNMENT:	5 Kw-LS, 1 Kw-N (DA-2)
LONGITUDE:	94 DEG 32 MIN 39 SEC.
LATITUDE:	37 DEG. 07 MIN. 04 SEC.
WHEN USED:	Nightime
RMS FIELD:	185 MV/M
DATE:	June 1950

ROBERT M. SILLIMAN

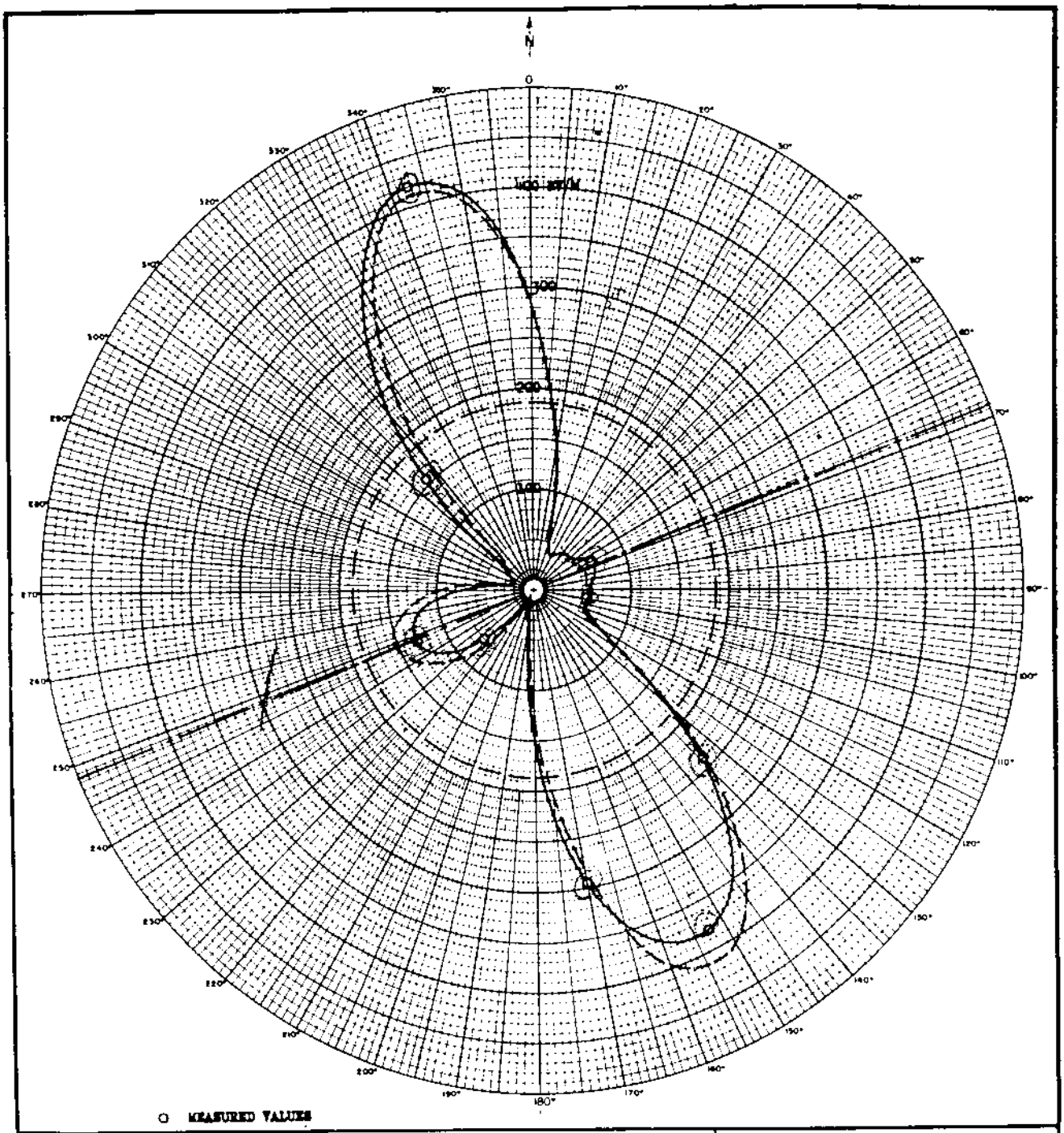
CONSULTING RADIO ENGINEERS

WASHINGTON, D. C.

KFSB, Joplin, Mo. 1310 kc

KFSB

MEASURED NIGHT | KFSB, JOPLIN, MO. 9/26/51G | 1 kw, 5kw-LS, U, DA-2 | 1310 KC



O MEASURED VALUES

KFSB

HORIZONTAL RADIATION PATTERN

CALCULATED — — — MEASURED ———

	CENTER	N.E.	S.W.			
ANTENNA	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
PHASE DEG.	-4.6°	-20°	420°			
HEIGHT DEG.	97°	97°	97°			
FIELD RATIO	1.00	0.55	0.55			
NON-DA ANT						

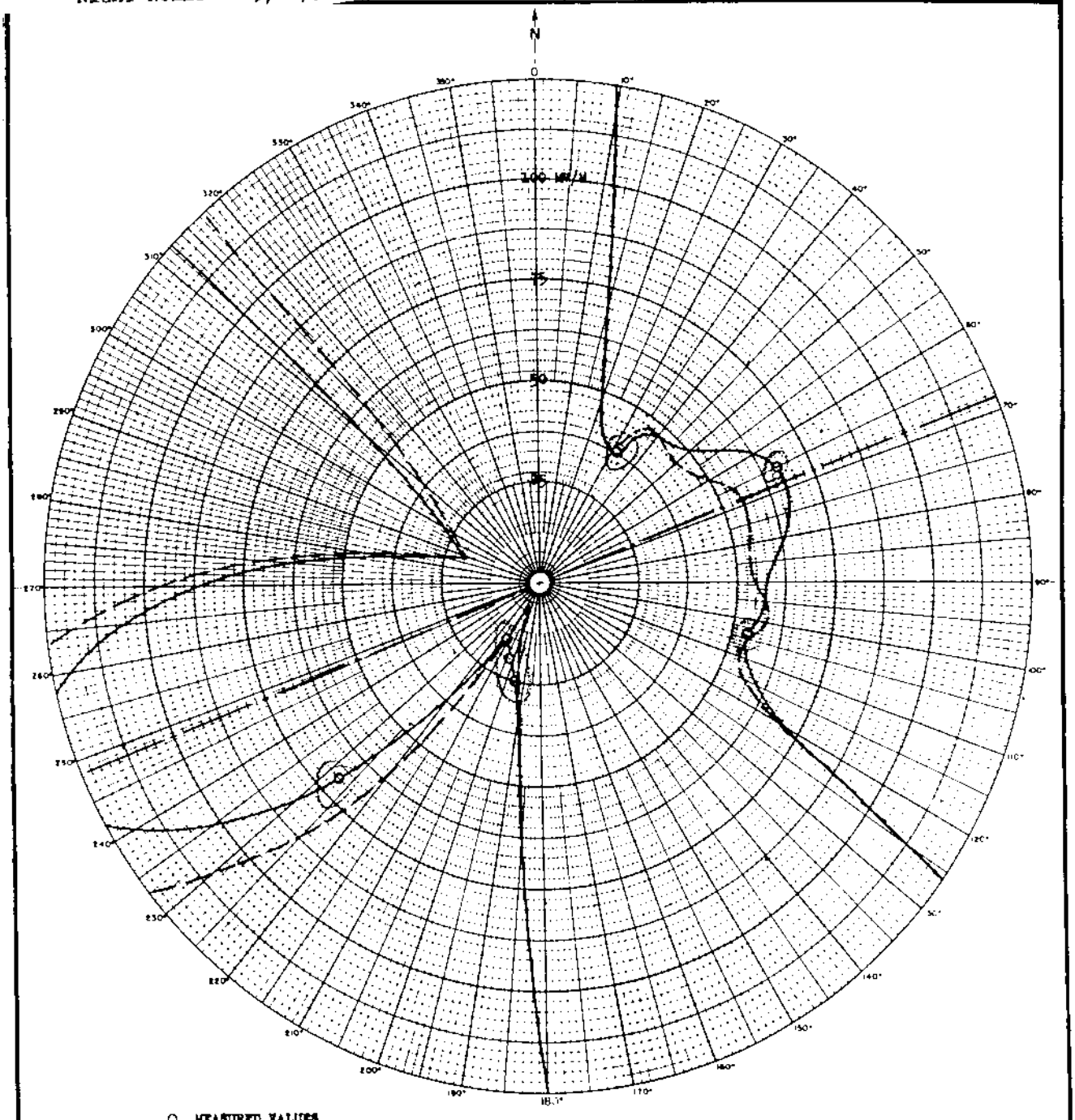
FREQUENCY:	1310 KC
ASSIGNMENT:	5 Kw-LS, 1 Kw-N (DA-2)
LONGITUDE:	94 DEG. 32 MIN. 39 SEC.
LATITUDE:	37 DEG. 07 MIN. 04 SEC.
WHEN USED:	Nighttime
R.M.S. FIELD:	166 MV/M (Measured)
DATE:	September 1951

ROBERT M. SILLIMAN
CONSULTING RADIO ENGINEERS
WASHINGTON, D. C.

APPL RECD FCC 9/14/51 BL-4541 KFSB, JOPLIN, MISSOURI 1310 KC

KFSB

MEASURED NIGHT NULLS KFSB, JOPLIN, MO. 9/26/51G 1 kw, 5kw-LS, U, DA-2 1310 KC



○ MEASURED VALUES

KFSB

HORIZONTAL RADIATION PATTERN

ENLARGED VIEW

	CENTER	N.E.	S.W.			
ANTENNA	NO 1	NO 2	NO 3	NO 4	NO 5	NO 6
PHASE DEG	-4.6°	-20°	+20°			
HEIGHT DEG	97°	97°	97°			
FIELD RATIO	1.00	0.55	0.55			
NON-DA ANT.						

FREQUENCY	1310 KC
ASSIGNMENT	5 Kw-LS, 1 Kw-N (DA-2)
LONGITUDE	94 DEG 32 MIN 39 SEC.
LATITUDE	37 DEG 07 MIN 04 SEC
WHEN USED	Nighttime
RMS FIELD	186 MV/M (Measured)
DATE	September 1951

ROBERT M. SILLIMAN

CONSULTING RADIO ENGINEERS

WASHINGTON, D. C.

APPL RECD FCC 9/14/51 BL-4541 KFSB, JOPLIN, MISSOURI 1310 KC

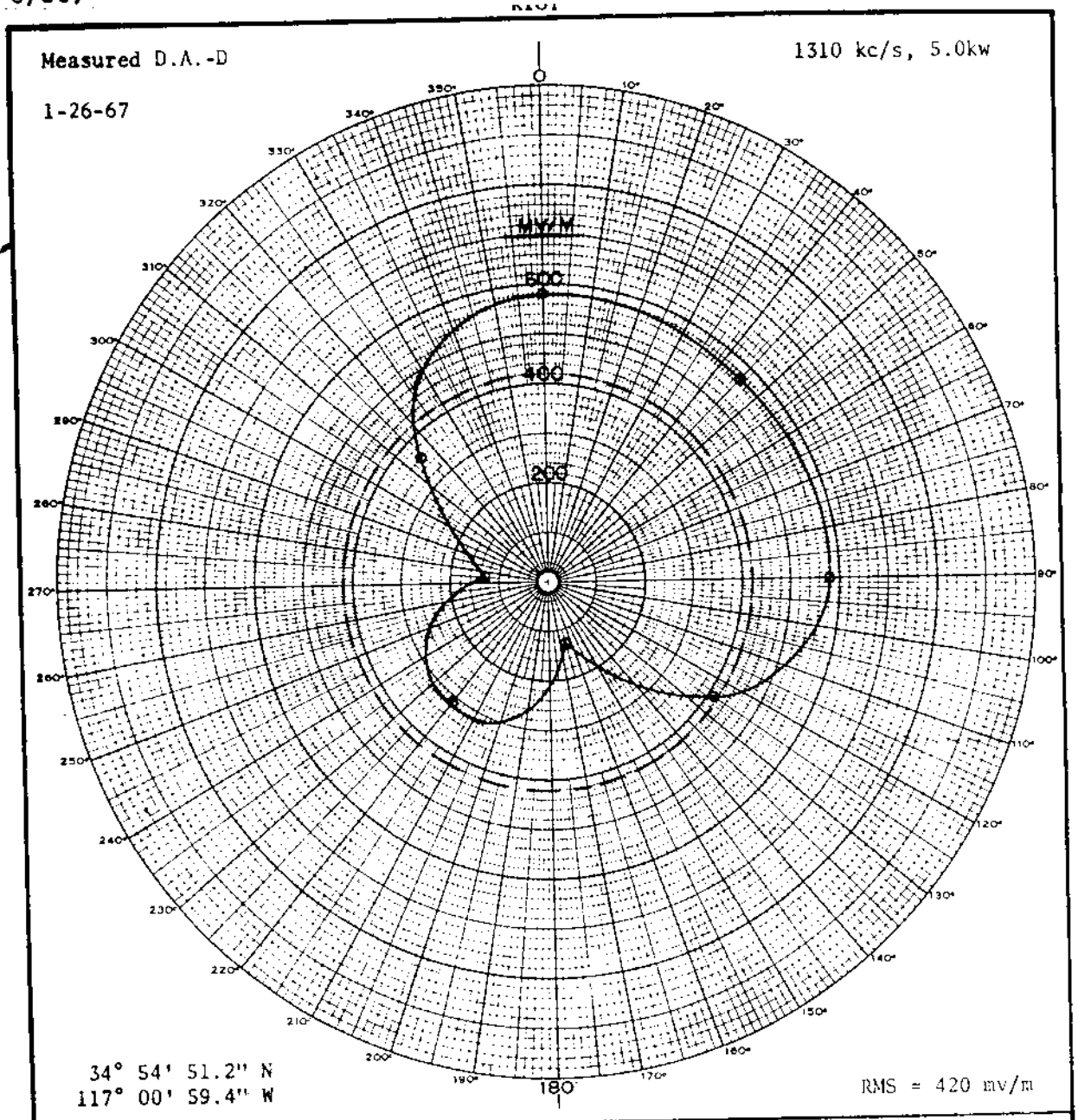
KIOT

Measured Day
(3-29-67ct)

Station KIOT
Barstow, California

5kw, DA-D, D
1310 kc

BL-11576
6-7-67
GRANTED
LICENSE
FOR DA-D



Operating Parameters

NO. 2 (NE) Δ 0.685/-108°

135°

N40°E

NO. 1 (SW) Δ 1.0/0°

$G_1 = G_2 = 80°$

FIGURE 21

Measured Directional Antenna Pattern
KIOT 1310 kc.

Floyd Hall, E.E. *Radio Engineering Consultant*

FCC File No. BL-11576
Accepted 3-10-67

Station KIOT
Barstow, California

1310 kc

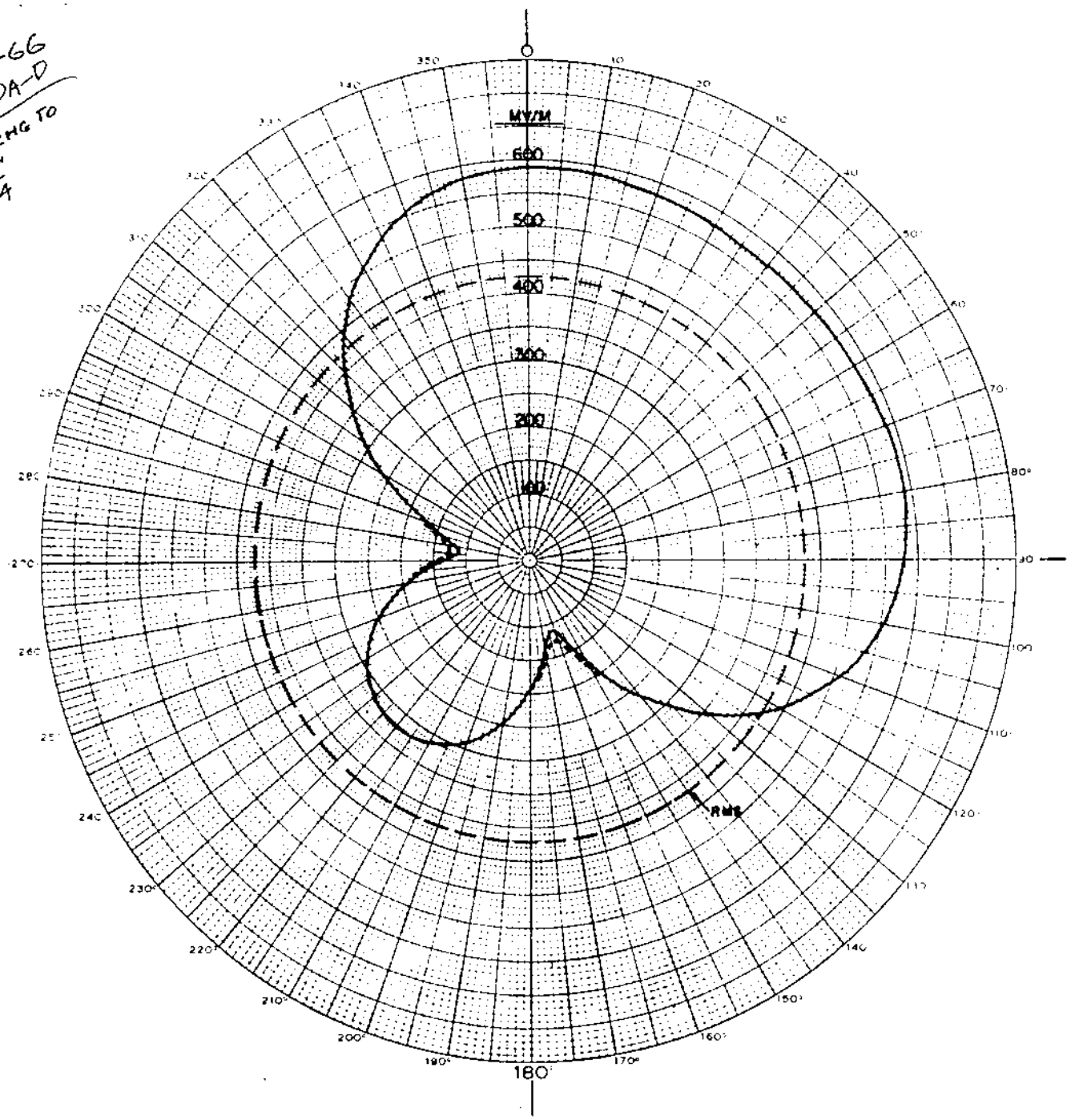
KIOT

Proposed Day
(9-28-65ct)

Station KIOT
Barstow, California

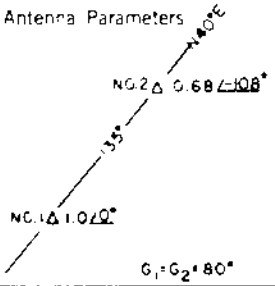
5kw, DA-D, D
1310 kc

CP 5-23-66
5 KW, DA-D
APPL. ACC. CHG TO
34° 54' 51.2"
117 00 59.4
BMP 11856
8-10-66



HORIZONTAL RADIATION PATTERN—FIGURE No. 4

Antenna Parameters



Floyd Hall
Radio Engineering
Consultant

Applicant: KIOT, BEAM BROADCASTING CO., INC.
Location: BARSTOW, CALIFORNIA
Freq.: 1310 KC. Power: 5.0 KW
Lat.: 34° 53' 43.7" N Long.: 117° 04' 27.5" W
Hours of operation: DAYTIME HOURS
Type of antenna: DA-D
RMS (1 mi): 423.0 MV/M
Pattern No.: 640802 Supersedes:
Date: Aug 16 66 By: FH

FCC File No. BP-16657
Accepted 8-26-65

Station KIOT
Barstow, California

1310 kc

KIOT

Measured Non-DA
(3-29-67ct)

Station KIOT
Barstow, California

5kw,DA-D,D
1310 kc

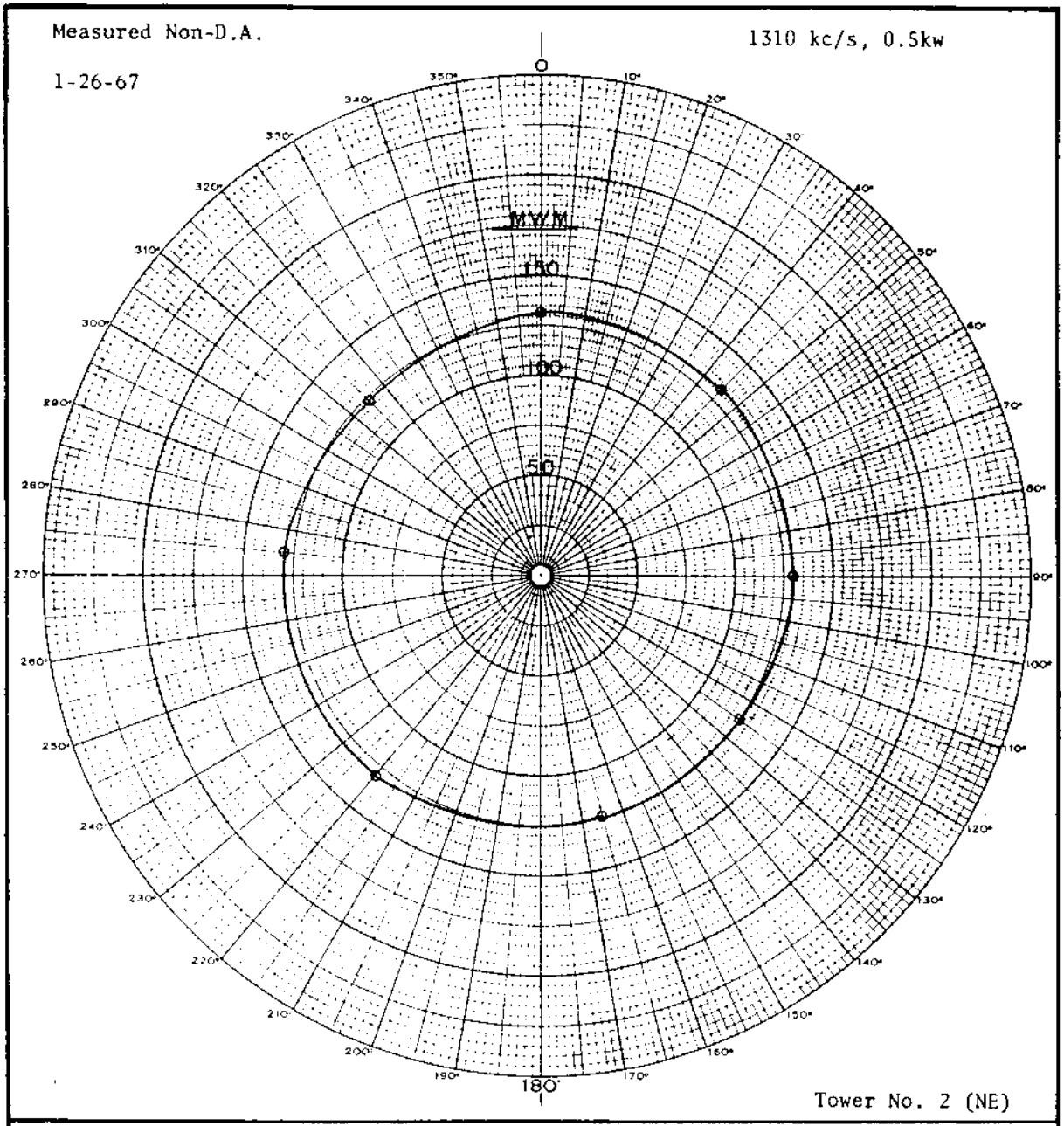


FIGURE 20

Measured Non-Directional Antenna Pattern
KIOT 1310 kc.

Floyd Hall, E.E. *Radio Engineering Consultant*

FCC File No.BL-11576
Accepted 3-10-67

Station KIOT
Barstow, California

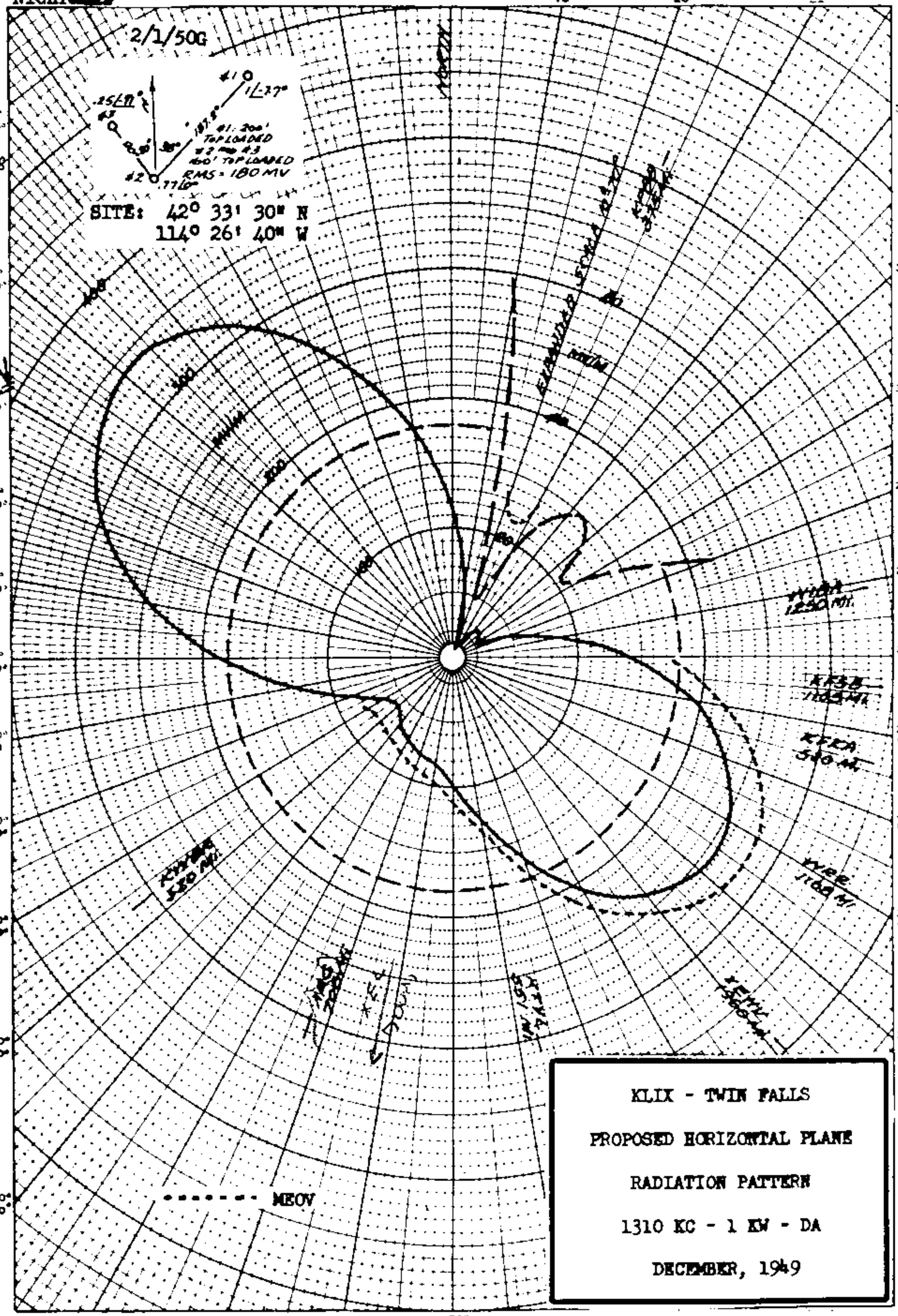
1310 kc

KLIX

PROPOSED NIGHT KLIX, TWIN FALLS, IDAHO 1kW, DA-1 1310 kc

Granted CP 11/25/68 for increase of day power to 5KW + [illegible] from DA-2 to DA-N

Granted L for increase in day power and DA-N



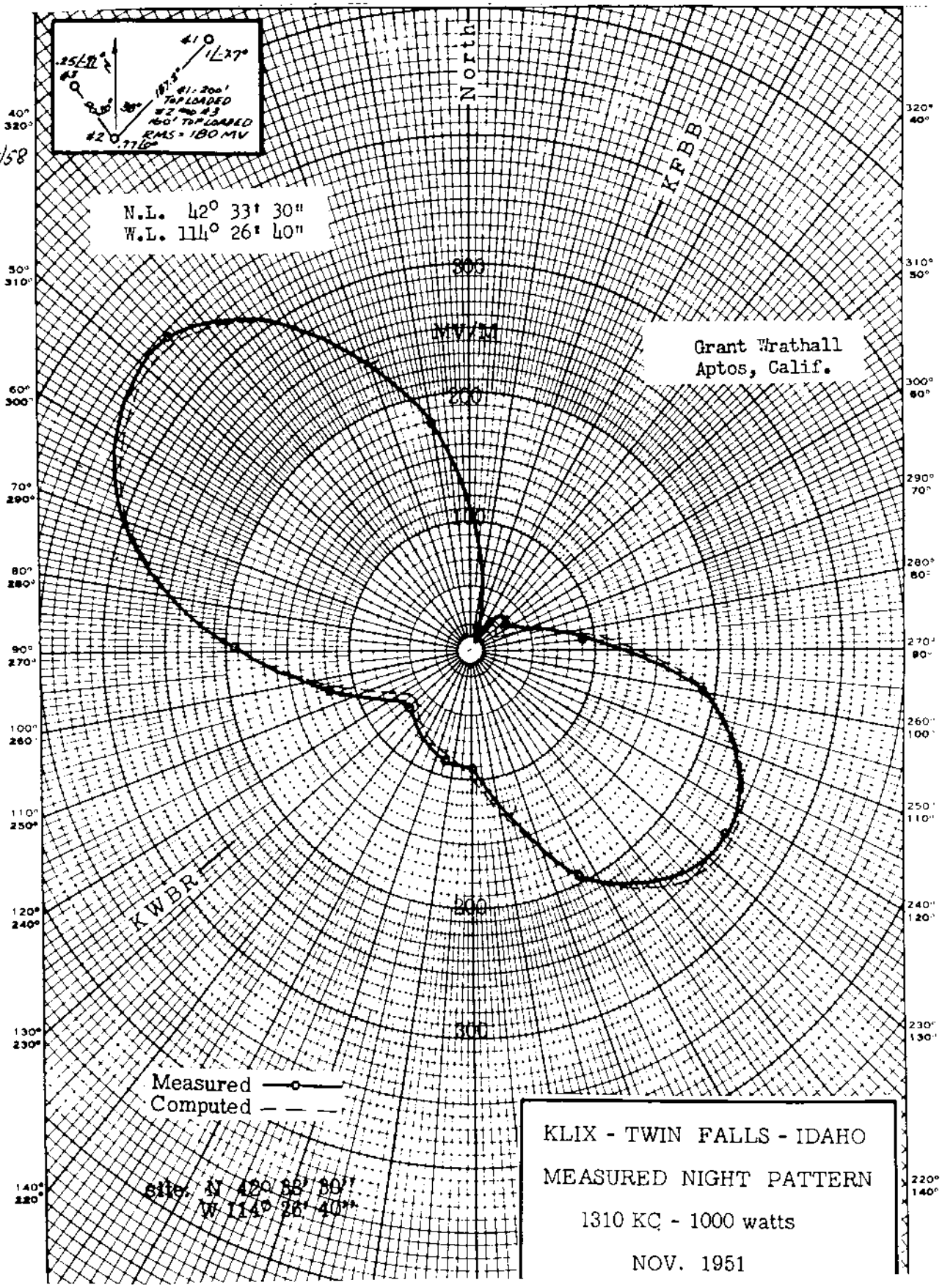
AMENDMENT RECD 1-26-50 P-6882

KLIX, Twin Falls, Idaho 1310 kc

EXHIBIT V-1a

KLIX

MEASURED NIGHT — KLIX, TWIN FALLS, IDAHO — 1 KW, U, DA-2 — 1310 KC
1/31/52G



Granted CP 11/25/58 to 5-D + from 2A-2 to 2A-N

KLIX - TWIN FALLS - IDAHO
MEASURED NIGHT PATTERN
1310 KC - 1000 watts
NOV. 1951

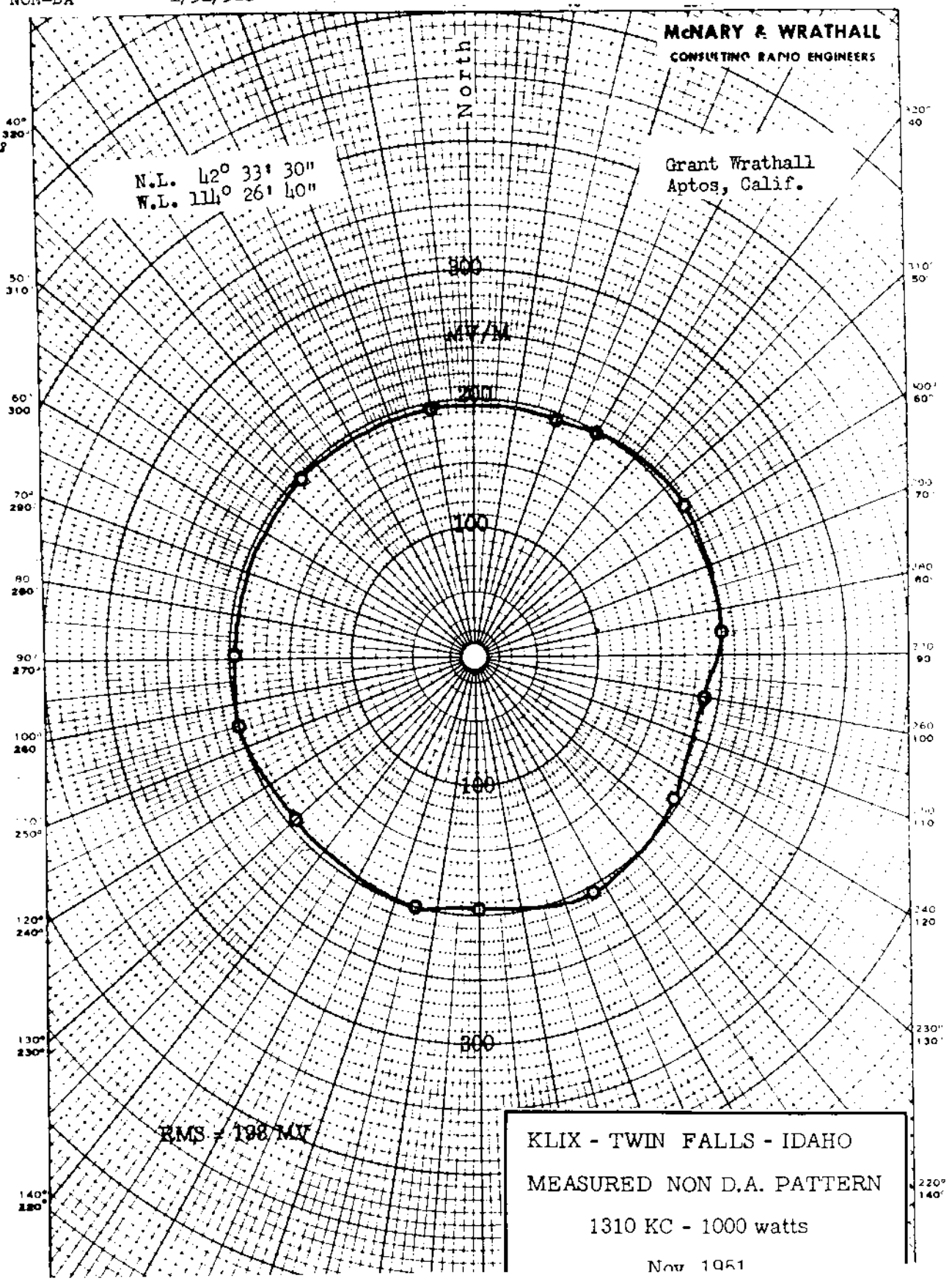
RECD FCC 12/7/51 ACC 1/25/52 BL-4654 — KLIX, TWIN FALLS, IDAHO — 1310 KC

Part of Exhibit # 4

KLIX

MEASURED NON-DA | KLIX, TWIN FALLS, IDAHO 1/31/52G | 1 KW, U, DA-2 | 1310 KC

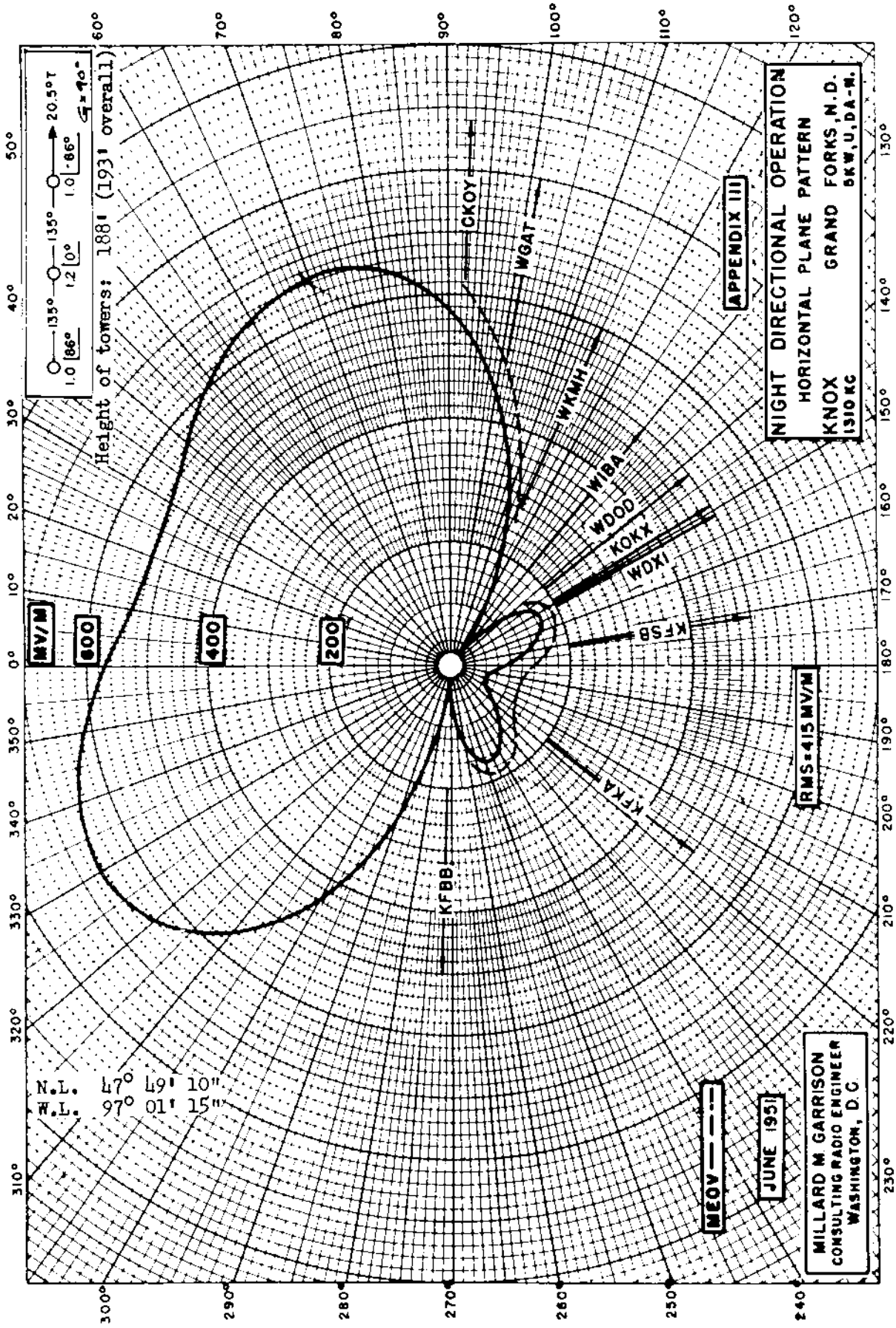
Granted CP 11/25/68 to 5-D & from DA-2 to DA-N



RECD FCC 12/7/51 ACC 1/25/52 BL-4654 | KLIX, TWIN FALLS, IDAHO 1310 KC | Part of Exhibit # 4

KNOX

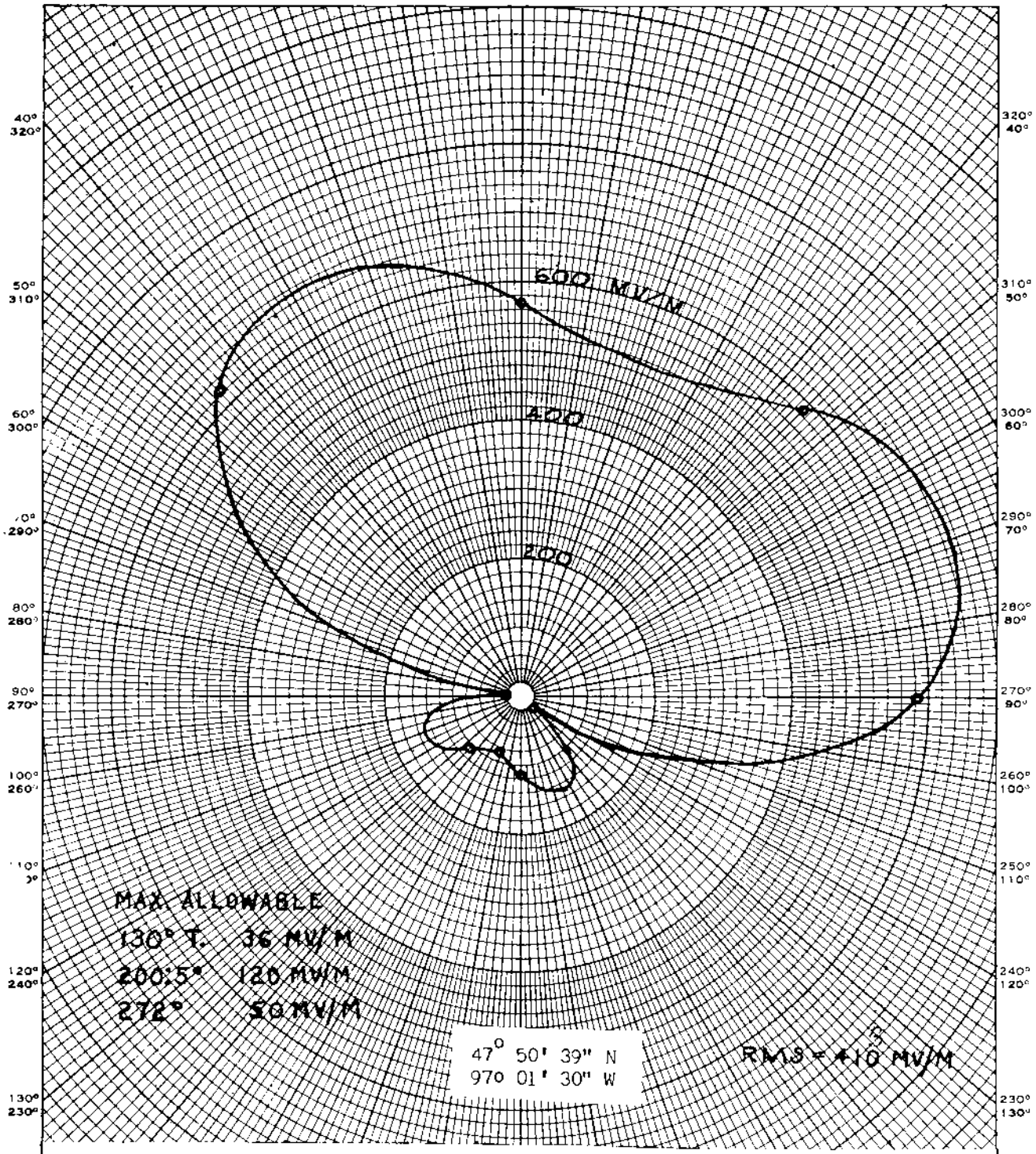
PROPOSED NIGHT — KNOX, GRAND FORKS, N. D. 10/24/51G — 5 KW, U, DA-N — 1310 KC



APPL RECD 8/1/51 BP-7945 Amended — KNOX, GRAND FORKS, N. D. — 1310 KC

KNOX

MEASURED KNOX 5KW DA-N, U.
NIGHT (7/26/54G) GRAND FORKS, NORTH DAKOTA 1310 kc



MEASURED DIRECTIONAL RADIATION

C.J. THOMFORDE
GRAND FORKS, N.D.
JUNE, 1954

KNOX - 1310 KC
GRAND FORKS
N. DAK.

FIGURE 17

FCC FILE NO. BP-5364 DATE ACCEPTED 7--20-54 1310 kc

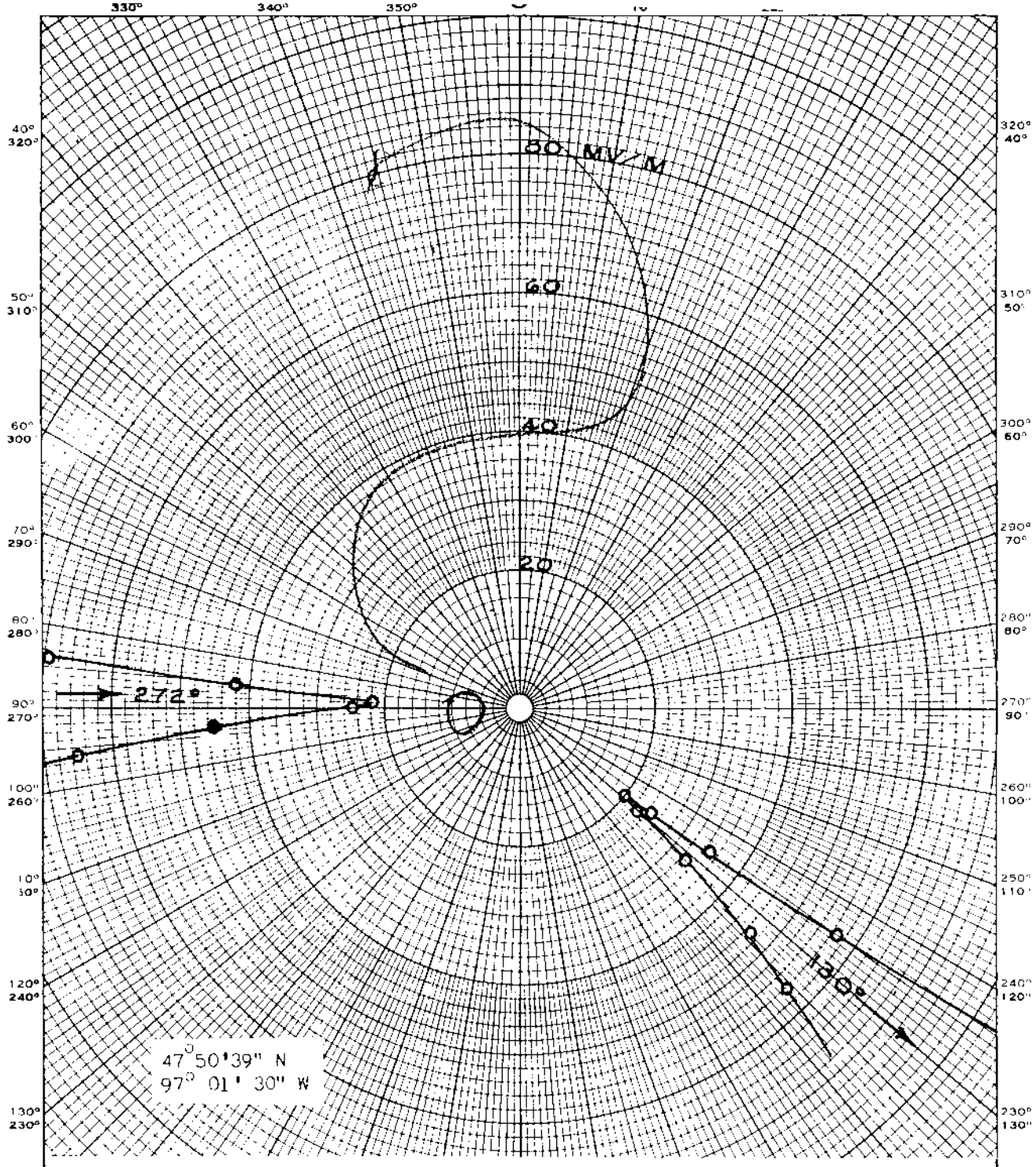
KNOX

MEASURED NIGHT NULLS (7/26/54G)

KNOX
GRAND FORKS, NORTH DAKOTA

5KW DA-N,U.

1310kc



ENLARGED SCALE OF DIRECTIONAL PATTERN

C.J. THOMFORDE
GRAND FORKS, N.D.
JUNE, 1954

KNOX - 1310 KC
GRAND FORKS
NO. DAK.

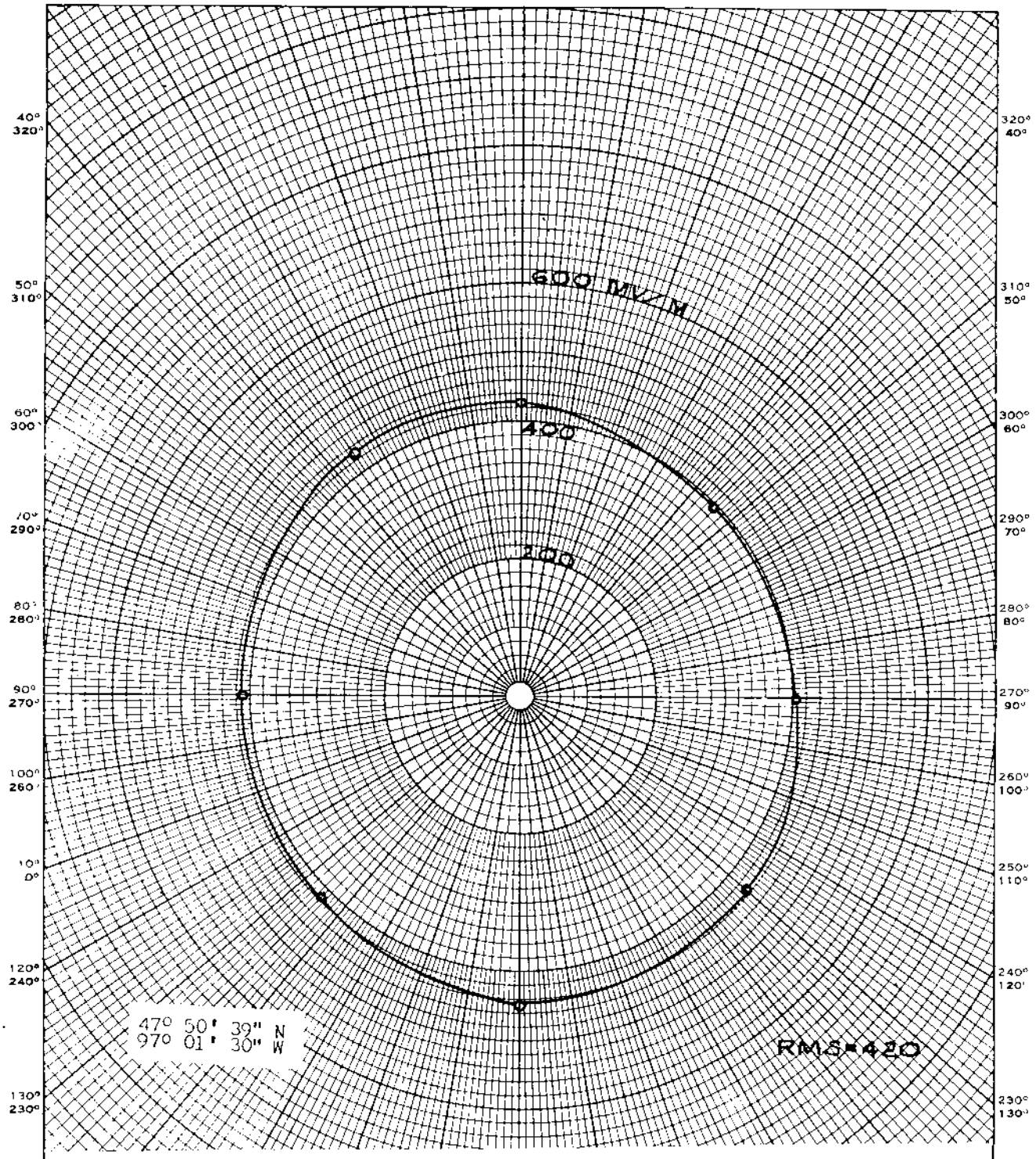
FIGURE 18

FCC FILE NO. BP-5364 DATE ACCEPTED 7-20-54

1310kc

KNOX

MEASURED KNOX 5KW DA-N, U.
DAY (7/26/54G) GRAND FORKS, NORTH DAKOTA 1310kc



MEASURED DAYTIME RADIATION

C.J. THOMFORDE
GRAND FORKS, N.D.
JUNE , 1954

KNOX -1310 KC
GRAND FORKS
N. DAK.

FIGURE 16

FCC FILE NO. BP-5364 DATE ACCEPTED 7-20-54 1310kc

Granted increase 3/27/58 in day power (non DA) to 5 KW.

KNPT

PROPOSED NIGHT — KNPT, NEWPORT, ORE. — E 1kw, DAN — 1310 kc

EXHIBIT E-3

2/21/50G

2-17-50

300 mv/m

200

100

RMS - 190 MV/M

KFBB 647 mi.

KGOV

KLIX 502 mi.

KWBR 485 mi.

1/93.2° - 135° - .65/0° — 118°T
(281')

Height - 200'

SITE: 44° 39' 29" N
124° 03' 06" W

REGISTERED PROFESSIONAL ENGINEER 1803 OREGON SEPT. 11, 1936 HAROLD C. SINGLETON

KNPT
NEWPORT, OREGON
1310 KC 1 KW

JAN. 1950

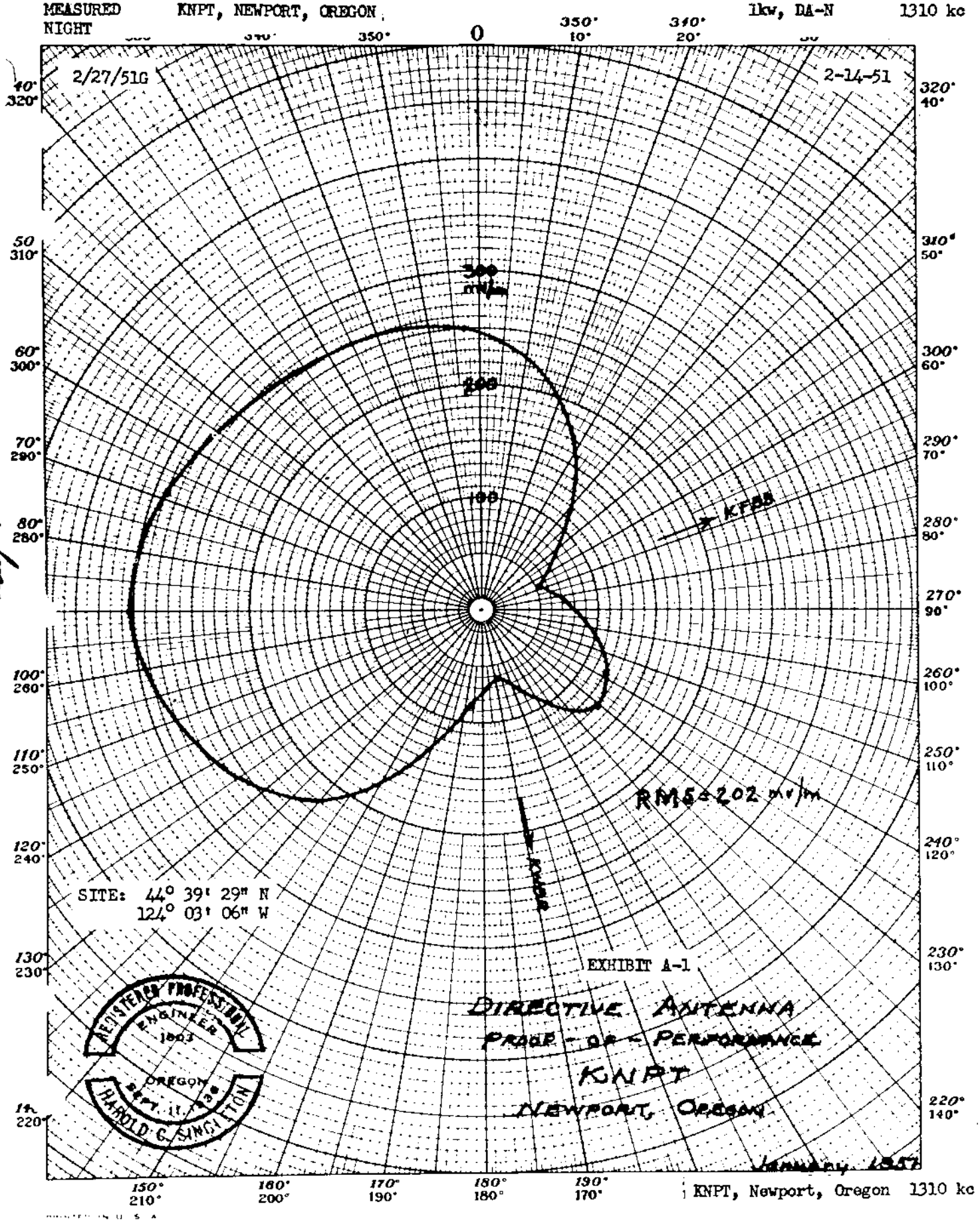
KNPT, Newport, Ore. 1310 kc

1-13-51 - Increase night power to 5 KW

Granted increase (3/27/51) in day power (non-DA) to 5 KW

KNPT

MEASURED NIGHT — KNPT, NEWPORT, OREGON — 1kw, DA-N — 1310 kc



Daytime KW TO 5KW

KNPT, Newport, Oregon 1310 kc

KOKX

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KOKX — Main Studio: Keokuk, Iowa

Frequency: 1310 kHz — Power: 0.5 kW Night 1 kW Day

Notification List No. 1587 — Date: July 2, 1974 — Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:
North Latitude: 40° 22' 50"
West Longitude: 91° 21' 09"

ANTENNA CHARACTERISTICS

Authorized for Nighttime operation. (DA-N)
Number of elements: 3
Type of elements: Series-excited, uniform cross-section, guyed, vertical steel towers.

TOWER:	NW(#3)	C(#2)	SE(#1)
HEIGHT ABOVE INSULATORS:	230'	332'(159°)	230'(110°)
PHASING:	-133°	0°	+139°
FIELD RATIO:	0.586	1.0	0.725

SPACING AND ORIENTATION: Adjacent elements are spaced 230'(110°) on a line bearing 299° true.

GROUND SYSTEM: 120-230' equally spaced copper radials plus 120-50' inter-spaced radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

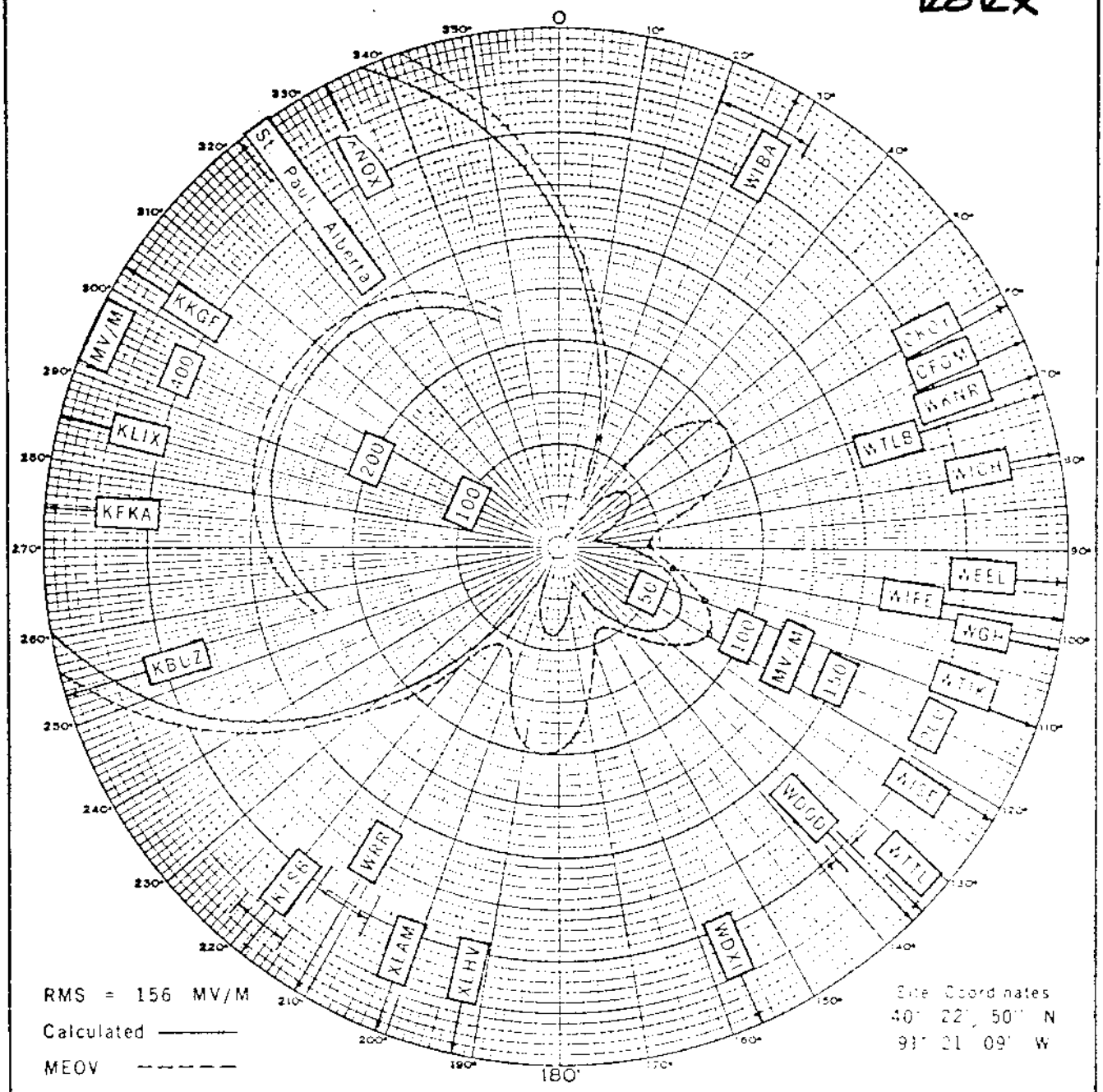
Predicted effective Night Field: 156 mv/m at rated power.

Predicted effective Day Field: (omnidirectional tower #2) 222 mv/m at rated power.

Note: This notification concerns only changes in MEOV's of radiation in the directional antenna pattern with Daytime operation continued as previously notified.

CTR NO 30513A4

KOKX



RMS = 156 MV/M

Calculated ———

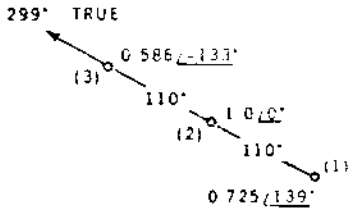
MEOV – – – – –

Site Coordinates
40° 22' 50" N
91° 21' 09" W

CALCULATED DIRECTIONAL HORIZONTAL PLANE RADIATION PATTERN

G1 = G3 = 110°
G2 = 159°

299° TRUE



KOKX, INC.

KEOKUK, IOWA

Jules Cohen & Associates
Consulting Electronics Engineers

RADIO STATION KOKX
1310 KHZ
0.5 KW, 1 KW LS
U DA-N

NOVEMBER 1973

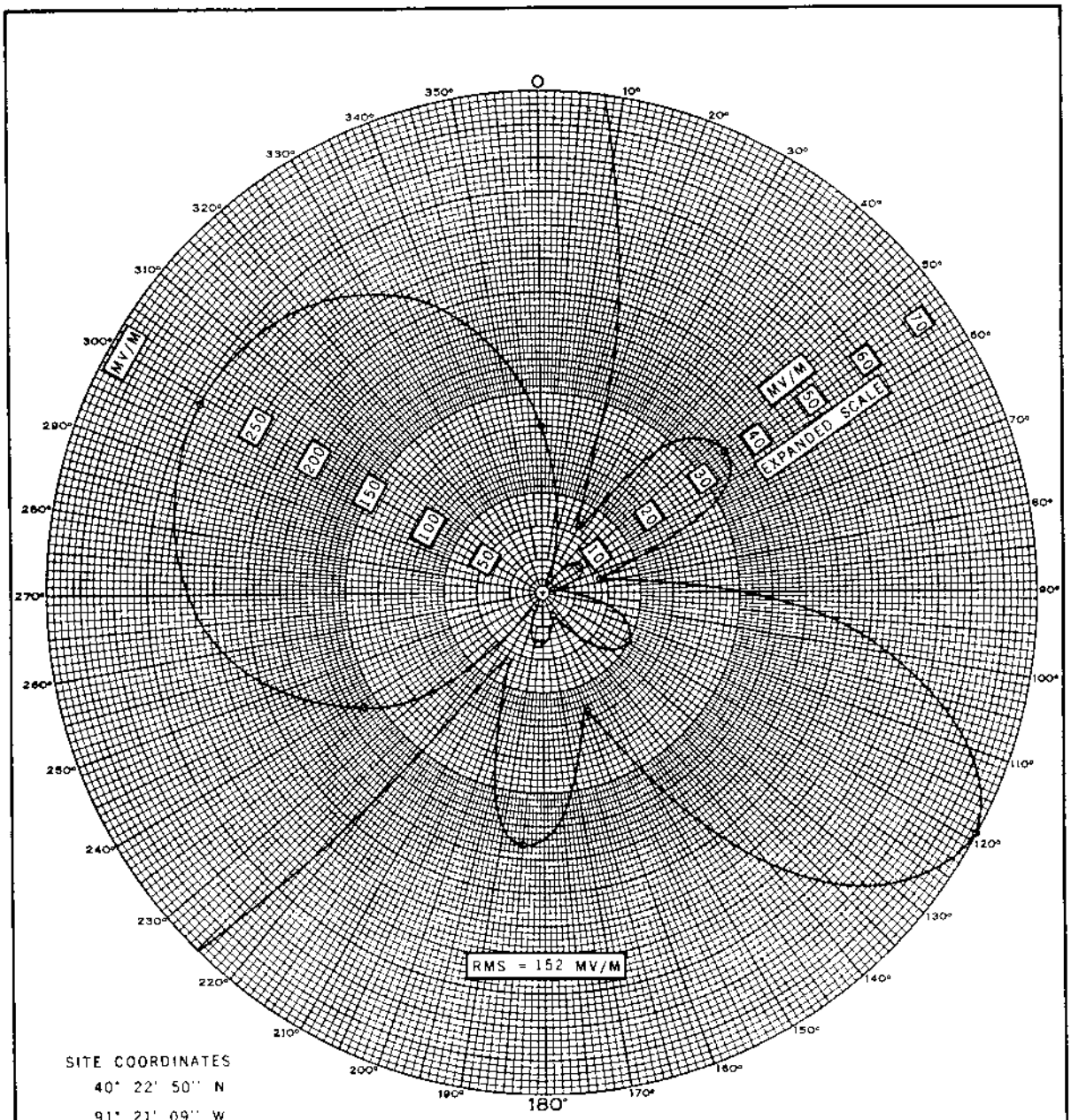
KOKX

Measured Night
(4-29-68ct)

Station KOKX
Keokuk, Iowa

500w, 1kw-LS, DA-N, U
1310 kc

Figure 9



MEASURED DIRECTIONAL HORIZONTAL PLANE RADIATION PATTERN

299° TRUE
0.586/-133°
(3)
110°
1.0/0°
(2)
110°
0.725/139°
(1)
G1 = G3 = 110°
G2 = 159°

KOKX, INC.
KEOKUK, IOWA

Jules Cohen & Associates
Consulting Electronics Engineers

RADIO STATION KOKX
1310 KHZ
0.5 KW, 1 KW-LS U DA-N
OCTOBER 1967

FCC File No. BZ-6803
Accepted 4-23-68

Station KOKX
Keokuk, Iowa

1310 kc

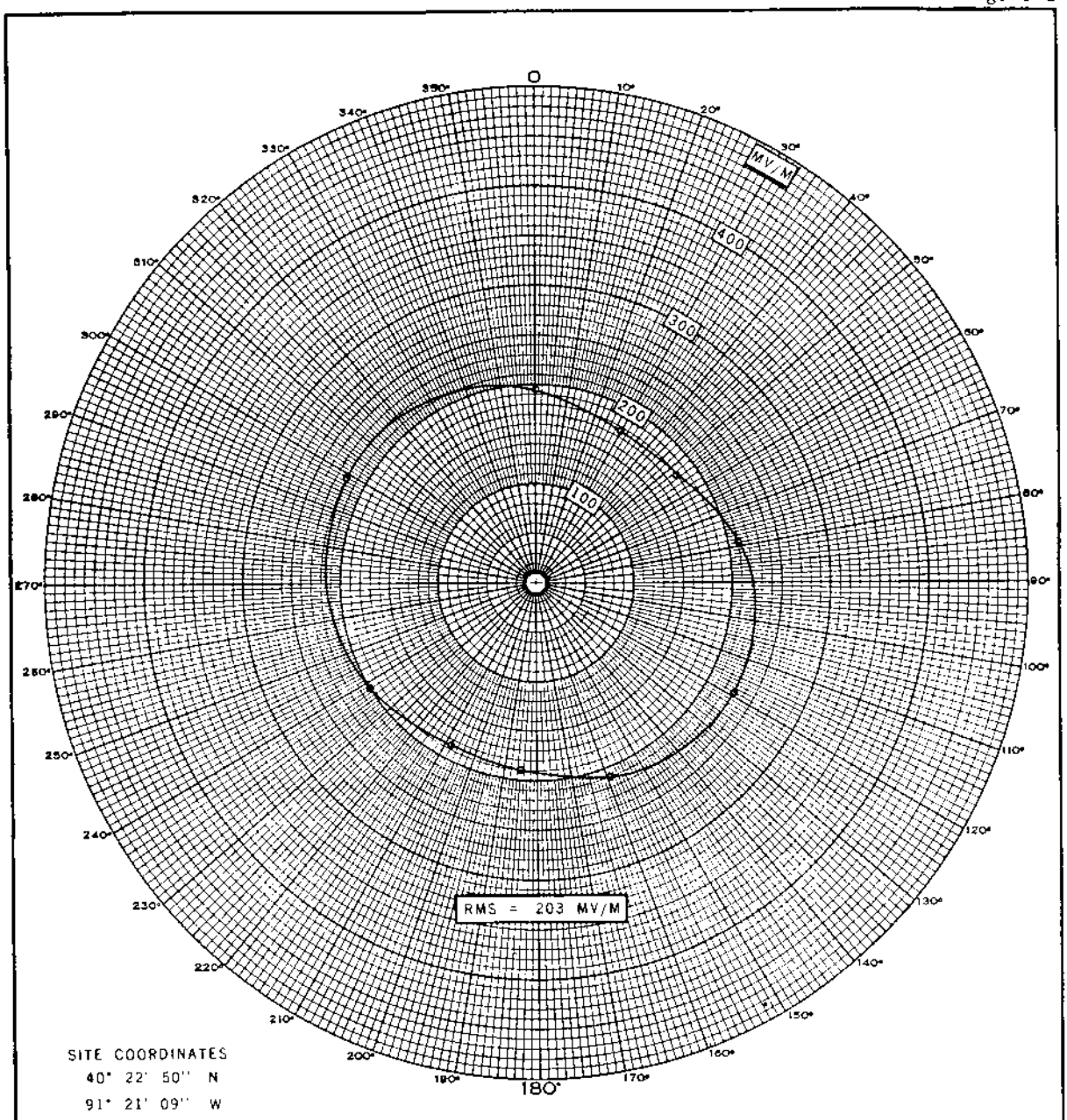
KOKX

Measured Non-DA
(4-29-68ct)

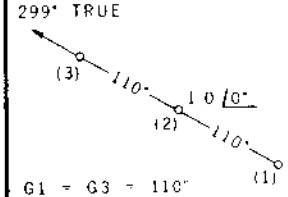
Station KOKX
Keokuk, Iowa

500w, 1kw-LS, DA-N, U
1310 kc

Figure 8



MEASURED NONDIRECTIONAL HORIZONAL PLANE RADIATION PATTERN



KOKX, INC.
KEOKUK, IOWA

Jules Cohen & Associates
Consulting Electronics Engineers

RADIO STATION KOKX
1310 KHZ
0.5 KW, 1 KW-LS U DA-N
OCTOBER 1967

FCC File No. BZ-6803
Accepted 4-23-68

Station KOKX
Keokuk, Iowa

1310 kc

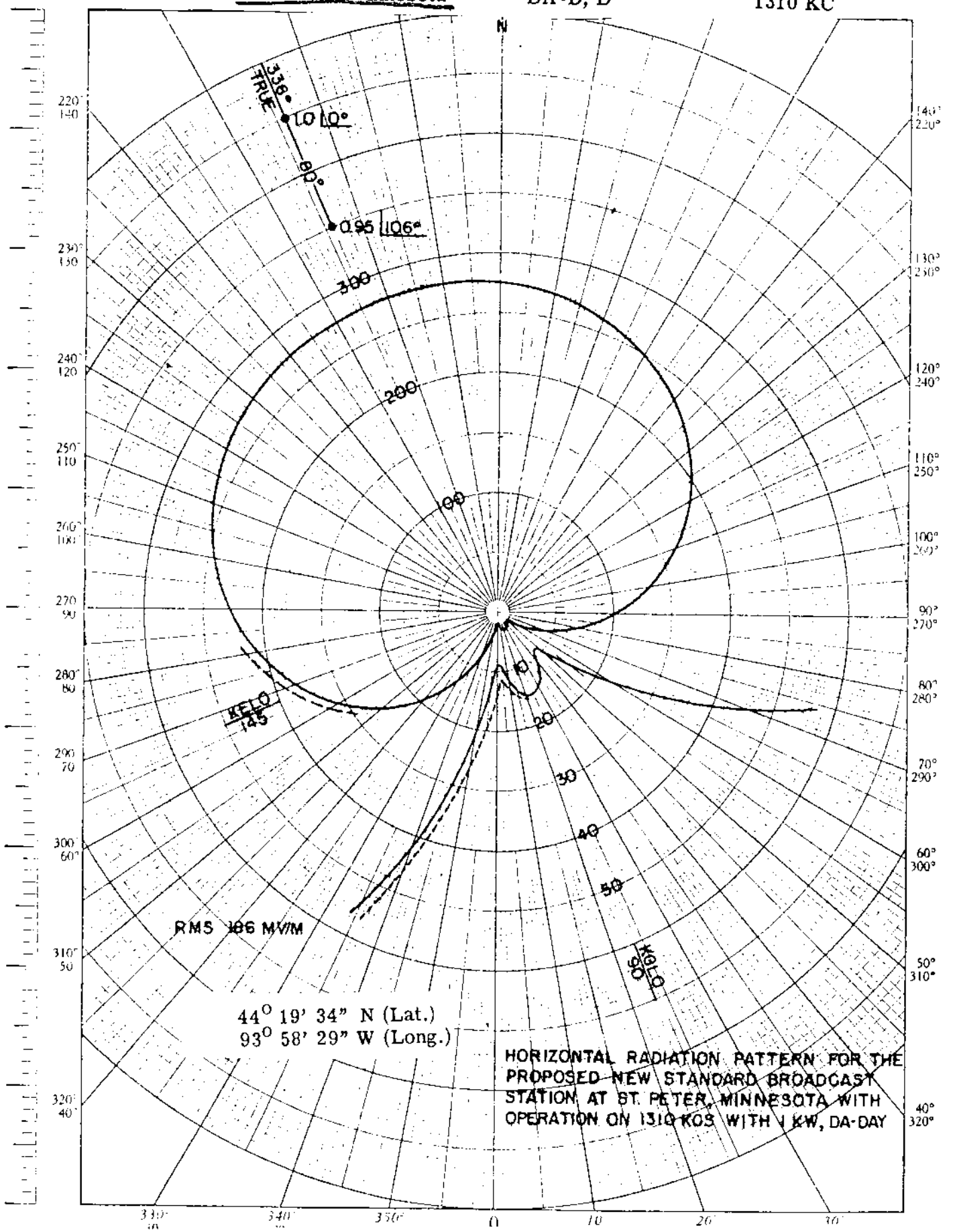
KRBI ~~KGAC~~

PROPOSED
DAY (7-18-55G)

Gustavus Adolphus College
St. Peter, Minnesota

1 KW
DA-D, D

1310 KC



File BP-9955 Accepted 7-6-55 FCC

Gustavus Adolphus College
St. Peter, Minnesota

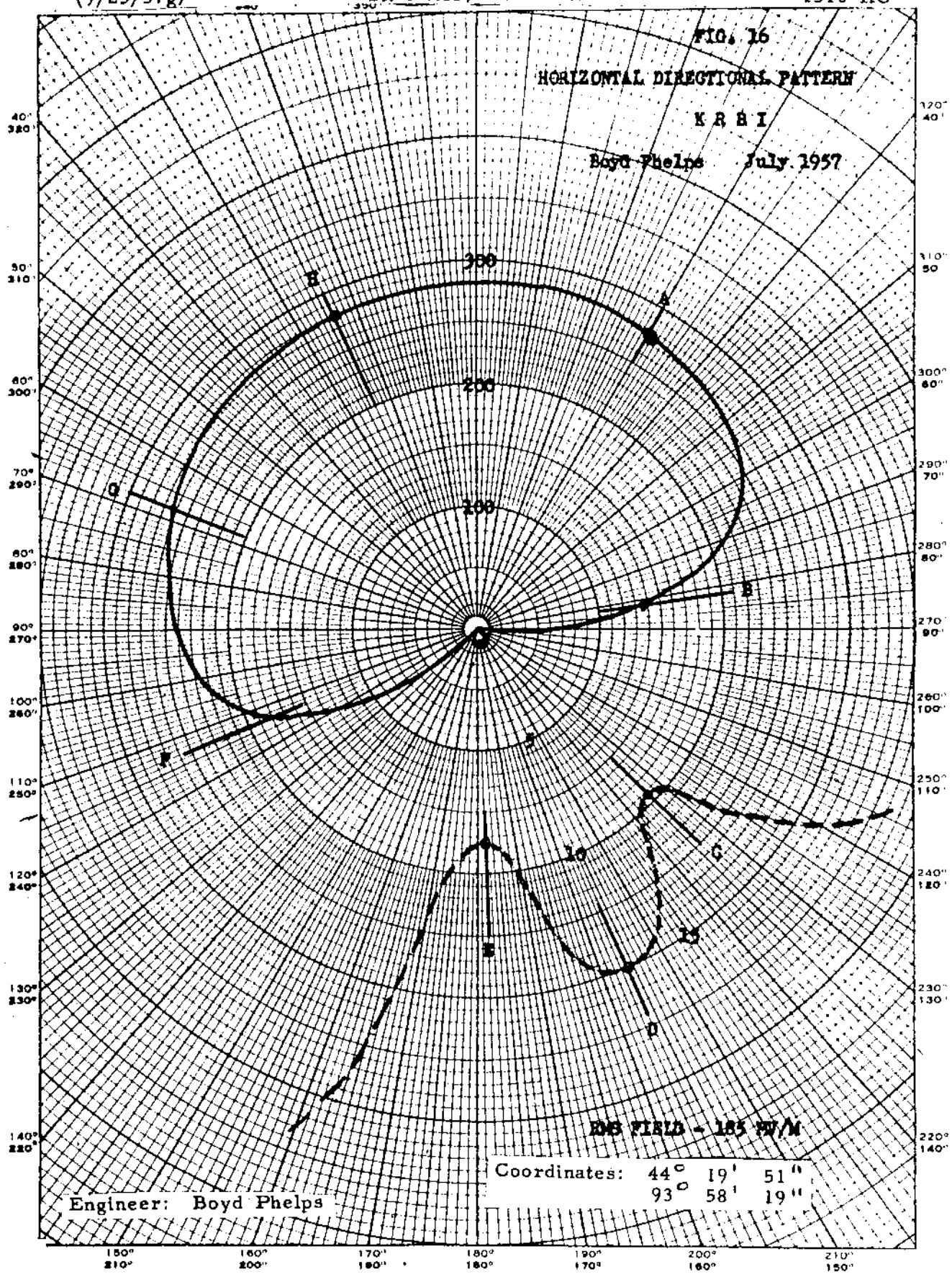
1310 KC

KRBI

MEASURED DAY (9/25/57g)

Station KRBI
St. Peter, Minnesota

1kw, DA-D, D
1310 KC



FCC File No. BL-6742
Accepted 9/17/57

KRBI
St. Peter, Minnesota

1310 KC

WAUC
1310 kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WAUC

Main Studio: Wauchula, Florida

Frequency: 1310 kHz

Power: 5kw Day

Notification List No. 1783

Date: November 2, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 27° 31' 48"
West Longitude: 81° 49' 08"

ANTENNA CHARACTERISTICS

Authorized for Daytime operation (DA-D)
Number of elements: 3
Type of elements: Series excited, uniform cross-section, guyed, vertical steel towers.

TOWER:	N(#1)	C(#2)	S(#3)
HEIGHT ABOVE INSULATORS:	136'	136'	136' (65°)
PHASING:	0°	+117.90°	-118.10°
FIELD RATIO:	1.0	0.979	0.305

SPACING AND ORIENTATION: Towers in a row are spaced 198' (70°) on a line bearing 310° true.

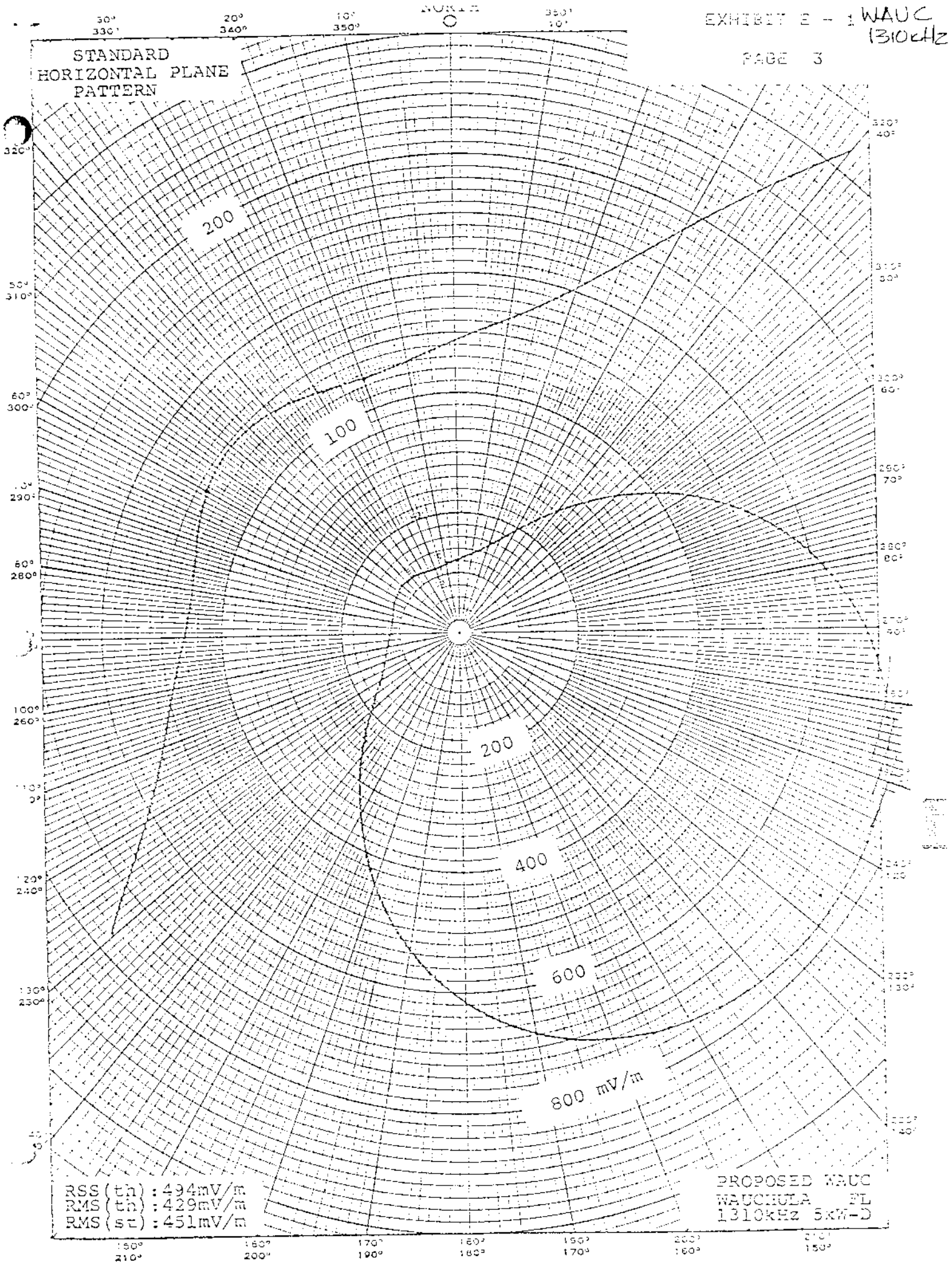
GROUND SYSTEM: 120 - 188' equally spaced copper radials about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	429 mv/m	494 mv/m	451 mv/m

EXHIBIT E - 1 WAUC 1310kHz

PAGE 3



WDOD

Description Sheet (2-22-71ct) | Station WDOD Chattanooga, Tennessee | 5kw, DA-N, U 1310 kc

SPECIFICATIONS OF WDOD DIRECTIONAL ARRAY

No. and type of elements: Three tapered, self-supporting, series excited, vertical steel radiators.

Height above insulators:	North tower (1)	Center tower(2)	So. tower(3)
	205'	328'	205'
Overall height above ground:	211'	335'	211'

Spacing and orientation: 187.5' (90°) between adjacent towers. Line of towers bears 159° true.

Non-directional antenna: Center tower used with end towers floating.

Ground system: Consists of 120 radials 200' long under each tower, buried approximately 6", plus a 32' square ground screen under each tower.

Theoretical specifications:	North tower(1)	Center tower(2)	So. tower(3)
Phasing:	0°	123.6°	252° CHECK PATTERN?
Field:	0.56	1.22	1.0

Operating specifications: -

Phase as indicated on Nems-Clark type 112 phase monitor -

Phase indication:	0°	-137.0°	-68°
Antenna base currents:	3.97 amps	1.41 amps	4.47 amps
Antenna base current ratios:	.888	.315	1.0

Phase monitor sample currents as indicated on Nems-Clark type 112 monitor -

Sample currents:	70.0	27.0	100
Sample current ratios:	.70	.27	0

PLATE INPUT POWER

Directional operation:		Non-directional operation-	
Plate voltage:	5300	Plate voltage:	5300
Plate current:	1.40 amps	Plate current:	1.38 amps
Common input current:	9.95	Antenna current:	3.37 amps
Common input impedence:	50.12*	Antenna resistance:	440 ohms

When the field intensity measurements were taken, the directional array was adjusted to the specifications as shown above.

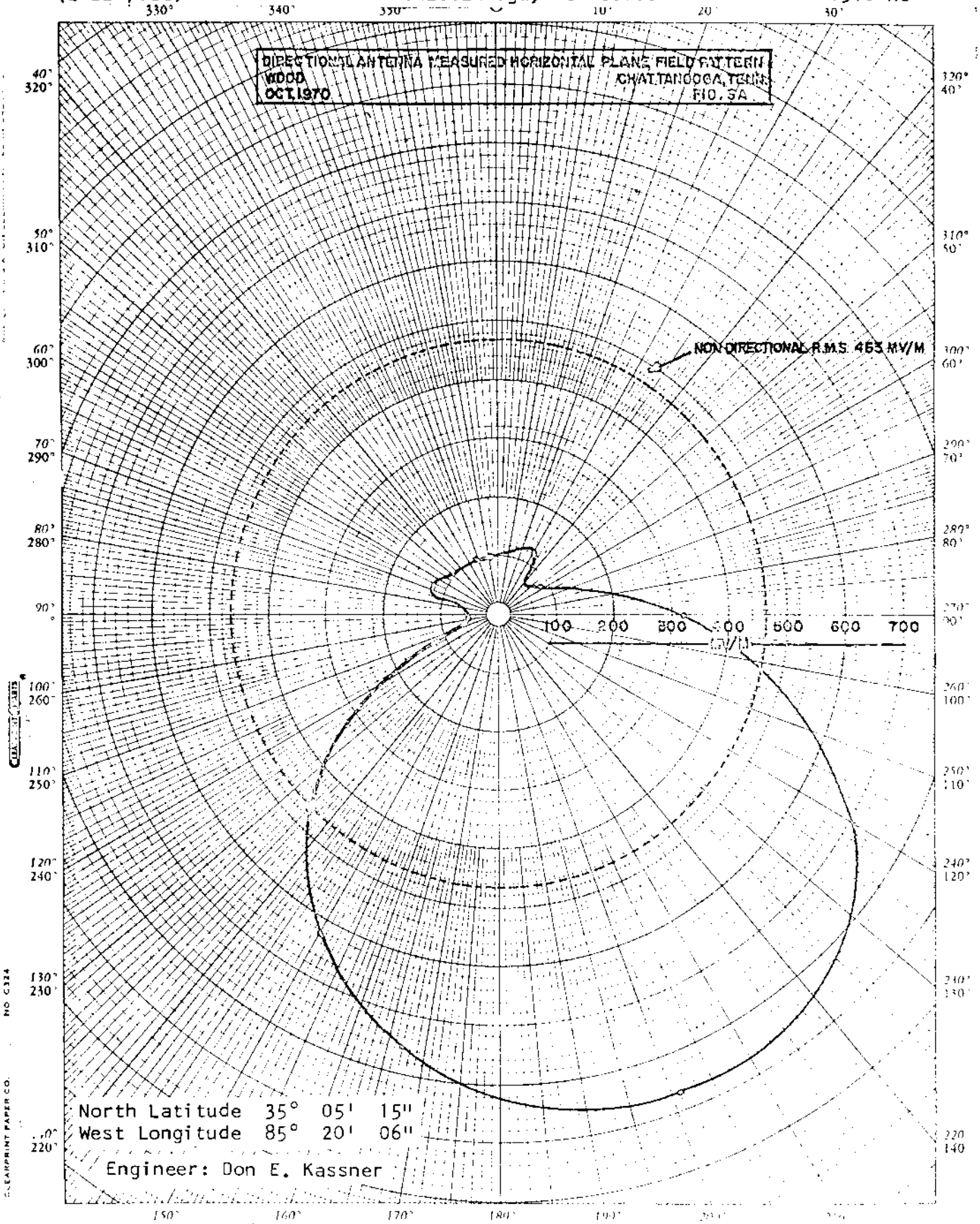
*Bridge measurement of common input was 54.2 ohms. 92.5% of measurement = 50.12 ohms.

WDOD

Measured Night
(2-22-71ct)

Station WDOD
Chattanooga, Tennessee

5kw, DA-N, U
1310 kc



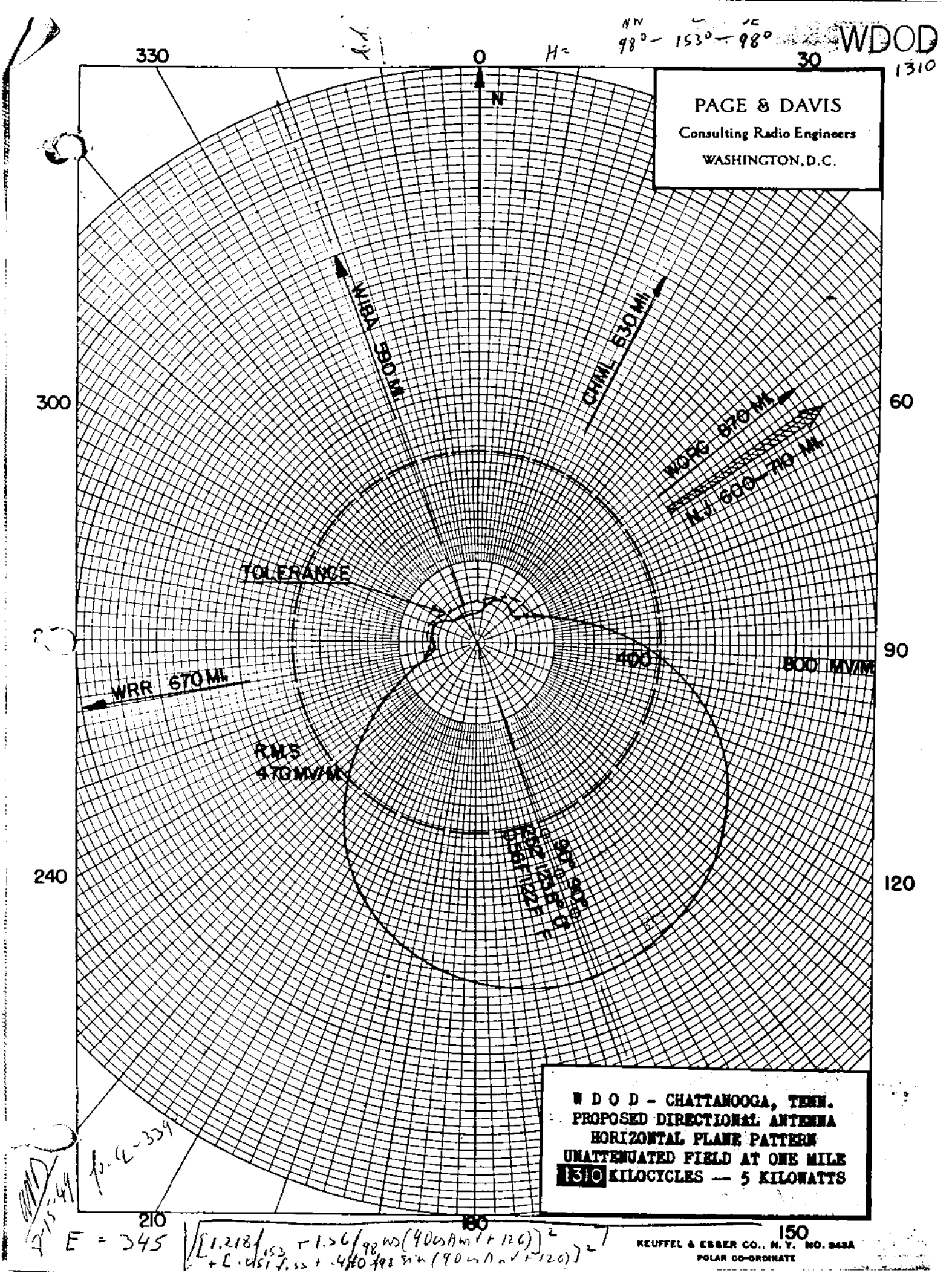
North Latitude 35° 05' 15"
West Longitude 85° 20' 06"

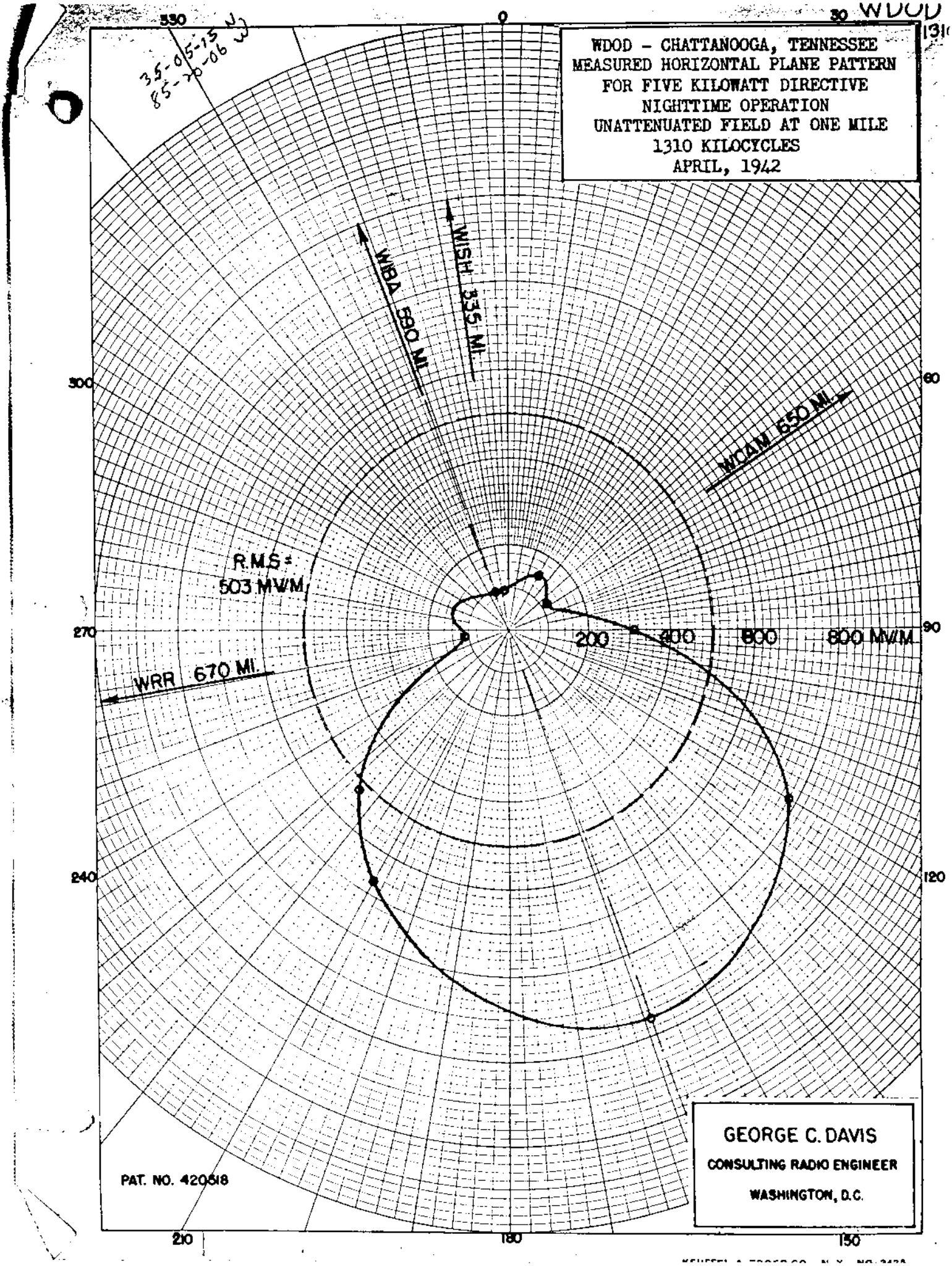
Engineer: Don E. Kassner

FCC File No. BZ-7742
Accepted 1-27-71

Station WDOD
Chattanooga, Tennessee

1310 kc


330
0
30
300
60
240
120
210
180
150
N
PAGE & DAVIS
Consulting Radio Engineers
WASHINGTON, D.C.
WJBA 590 MI.
CHML 630 MI.
WORC 870 MI.
KLJ 600—710 MI.
TOLERANCE
WRR 670 MI.
RMS
470 MV/M
400
800 MV/M
90
WDOD - CHATTANOOGA, TENN.
PROPOSED DIRECTIONAL ANTENNA
HORIZONTAL PLANE PATTERN
UNATTENUATED FIELD AT ONE MILE
1310 KILOCYCLES — 5 KILOWATTS
KEUFFEL & ESSER CO., N. Y. NO. 848A
POLAR CO-ORDINATE


WDOD - CHATTANOOGA, TENNESSEE
MEASURED HORIZONTAL PLANE PATTERN
FOR FIVE KILOWATT DIRECTIVE
NIGHTTIME OPERATION
UNATTENUATED FIELD AT ONE MILE
1310 KILOCYCLES
APRIL, 1942
35-05-13 N
85-20-06 W
WDOD
330
0
30
300
60
270
90
240
120
210
180
150
WBA 590 MI.
WISH 335 MI.
WCAM 650 MI.
WRR 670 MI.
R.M.S.=
503 MV/M.
200
400
600
800 MV/M.
PAT. NO. 420818
GEORGE C. DAVIS
CONSULTING RADIO ENGINEER
WASHINGTON, D.C.

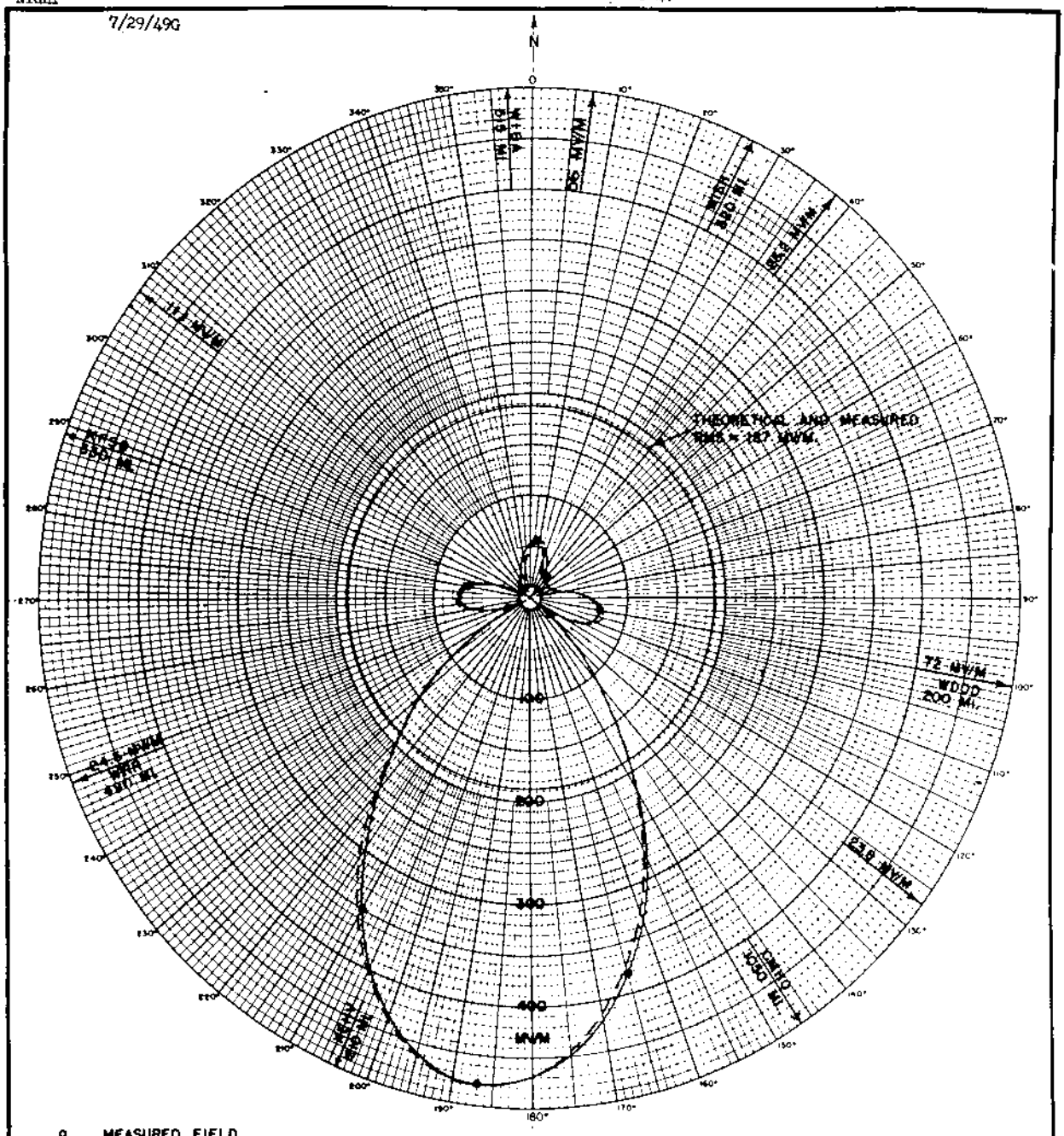
WDXI

Prop +

MEASURED NIGHT

WDXI, JACKSON, TENN. 7-25-49 1kw, 5kw-LS, DAN 1310 kc

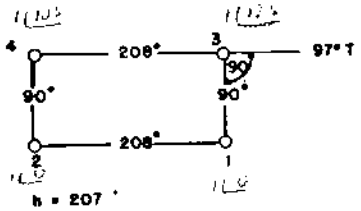
7/29/49G



o MEASURED FIELD

- - - - - THEORETICAL PATTERN

——— MEASURED PATTERN



LATITUDE 35° 39' 50"
LONGITUDE 88° 49' 20"

ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG
1	SEE DIAGRAM	SEE DIAGRAM	0	1	192	99
2			0	1	192	99
3			+ 103	1	192	99
4			+ 103	1	192	99

MEASURED
HORIZONTAL PLANE PATTERN
RADIO STATION WDXI
JACKSON, TENNESSEE
1310 KC 1KW, 5KW-LS U, DA-N

KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D. C.

490718 ST-7937

WDXI

Drop +

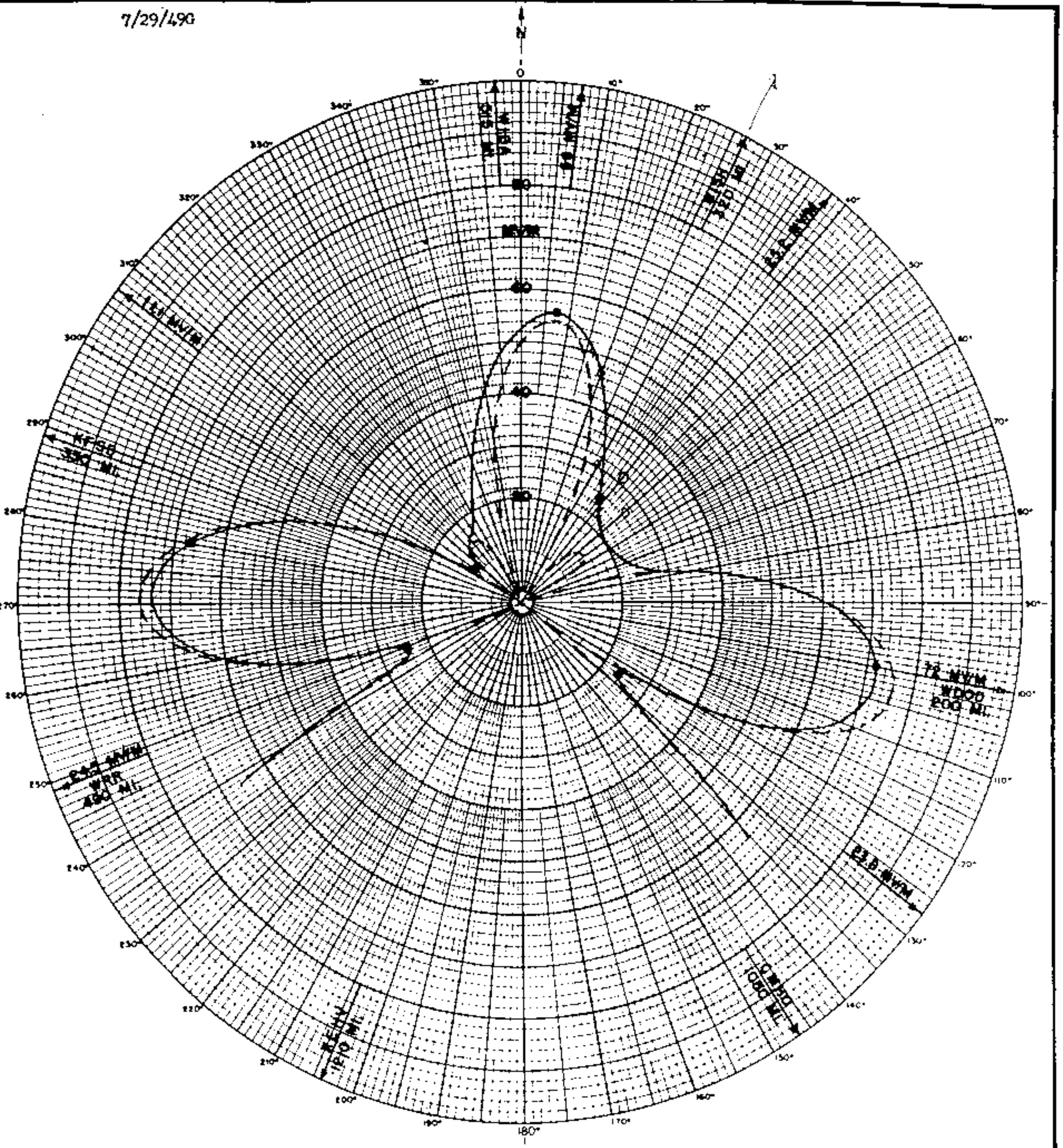
MEASURED
NIGHT NULLS

WDXI, JACKSON, TENN.

7-25-49

1kw, 5kw-LS, DAN   1310 kc .

7/29/49G



LATITUDE
LONGITUDE

ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG

EXPANDED SCALE
MEASURED
HORIZONTAL PLANE PATTERN
RADIO STATION WDXI
JACKSON , TENNESSEE
1310 KC IKW,5KW - LS U,DA-N

KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D. C.

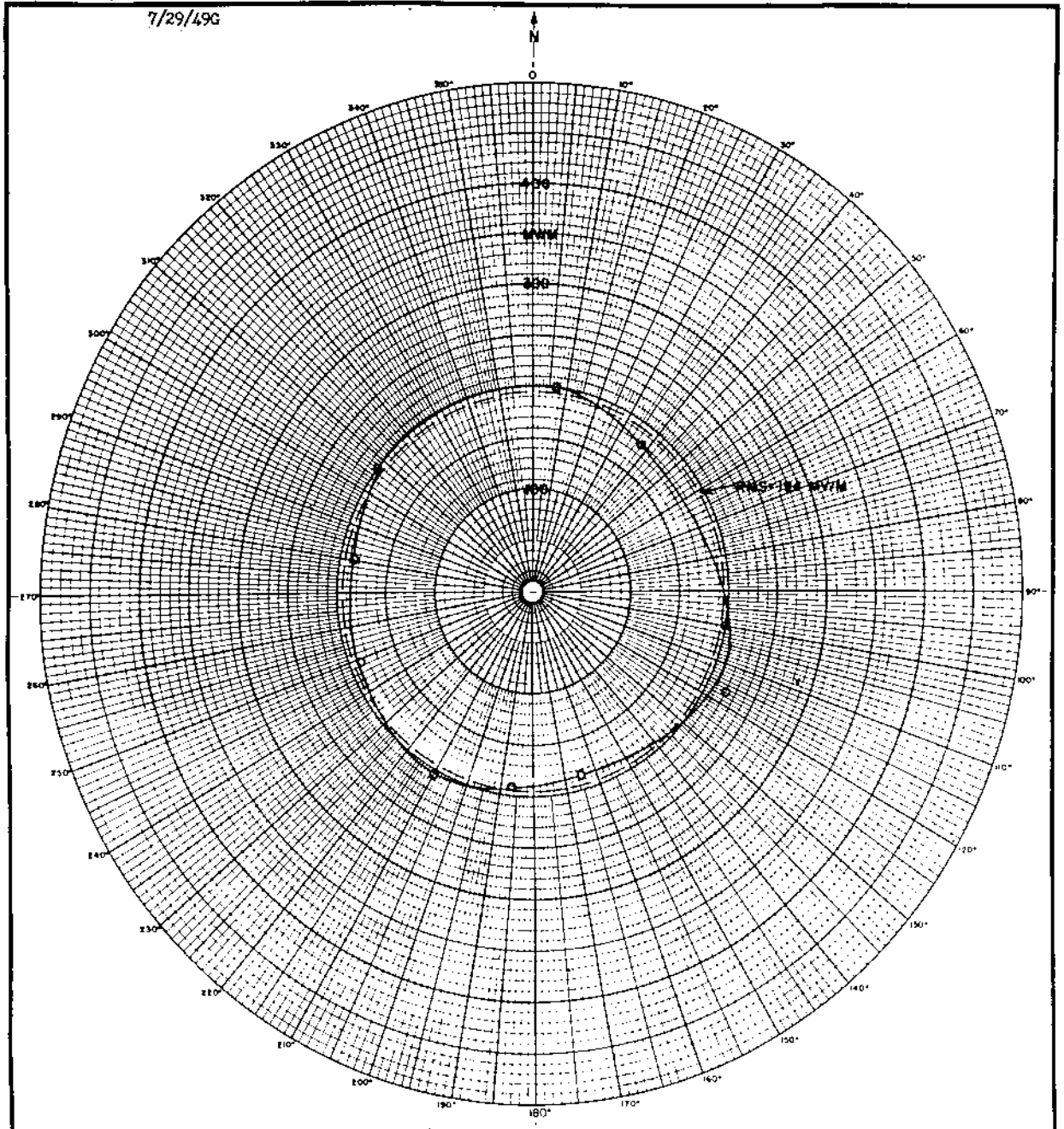
490718

WDXI, Jackson, Tenn. 1310 kc

WDXI

MEASURED DAY (non-DA) 1KW | WDXI, JACKSON, TENN. | 7-25-49 | 1kw, .5kw-LS, DAN | 1310 kc

7/29/49G



○ MEASURED FIELD

LATITUDE
LONGITUDE

ANTENNA NUMBER	AZIMUTH DEG.	SPACING DEG.	PHASING DEG.	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG.

MEASURED 1000 WATT
NON-DIRECTIONAL PATTERN
ANTENNA NO. 4
RADIO STATION WDXI
JACKSON, TENNESSEE
1310 KC 1KW, 5KW-LS U, DA-N

KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D. C

490718

PROPOSED DAY
~~Measured Non-DA~~
(1-28-65ct)

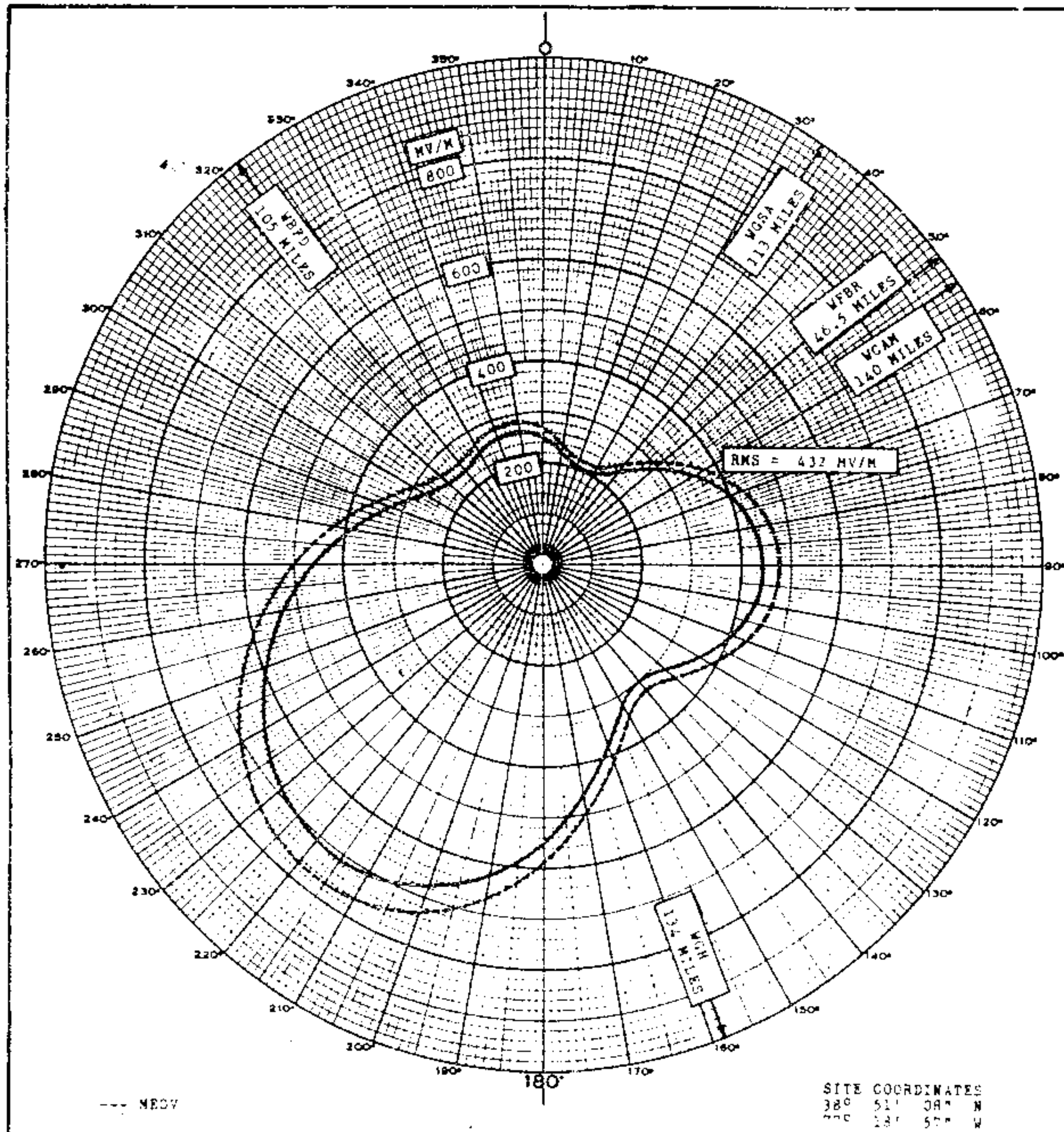
3-25-64
APP 1 TO 5 KW
DAN TO DA-2
-15-64 I.D.
.IC. 5-28-65
NCR. PWR, DAY
DA-2

WEEL

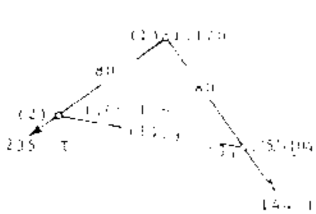
Station WEEL
Fairfax, Virginia

500w, 5kw-LS, DA-2, U
1310 kc

Figure 14



CALCULATED DAYTIME HORIZONTAL PLANE RADIATION PATTERN

	O. K. BROADCASTING CORPORATION FAIRFAX, VIRGINIA Jules Cohen & Associates Consulting Electronics Engineers	RADIO STATION WEEL 1310 KC 0.5 KW, 5 KW-LS, U, DA-2 Pattern 610515

FCC File No. BL-10739
Accepted 1-19-65

Station WEEL
Fairfax, Virginia

1310 kc

WEEL

PROPOSED NIGHT
(1-8-59g)

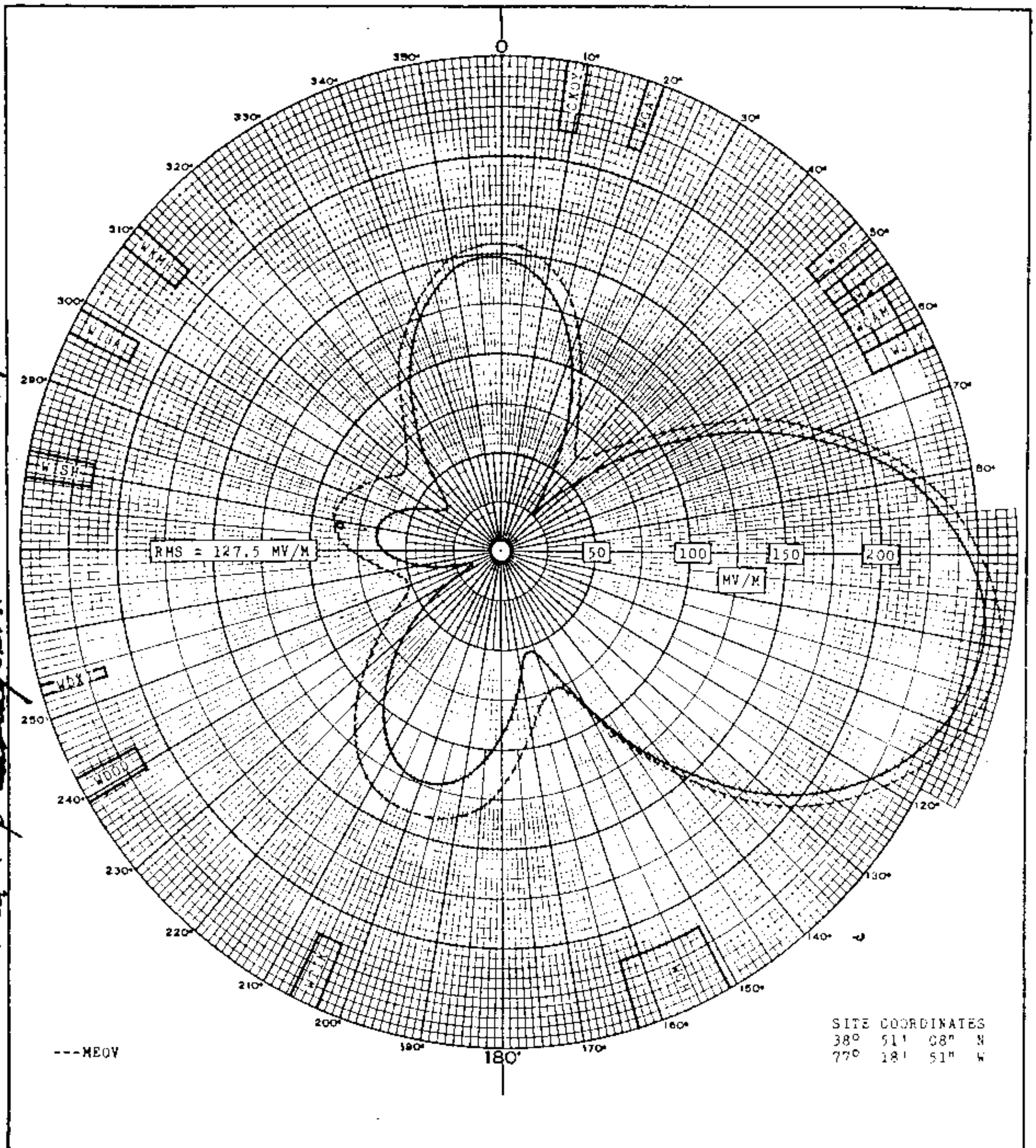
Station ~~WFCR~~
Fairfax, Virginia

500w, 1kw-LS, DA-N, U
1310 KC

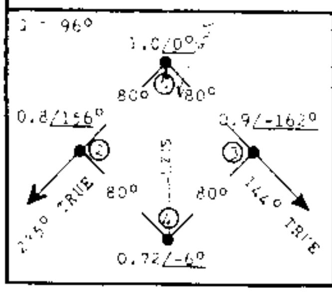
Figure 1

Granted Mod of CP 12/22/58 to change 2N pattern

M.C.P. accepted to increase height of 4 antennas by 35' 200 ft/208 ft overall - granted - BMP 8567 - 8-31-57 [illegible] BMP 8696 9-11-59



PROPOSED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN



O. K. BROADCASTING CORPORATION
FAIRFAX, VIRGINIA

Vandivere and Cohen
Consulting Electronic Engineers

PROPOSED OPERATION
~~WFCR~~
1310 KC
1 KW-LS, 0.5 KW-N, DA-N
DECEMBER 10, 1958

FCC File No. BMP-8354
Accepted 12-23-58

WFCR
Fairfax, Virginia

1310 KC

WEEL

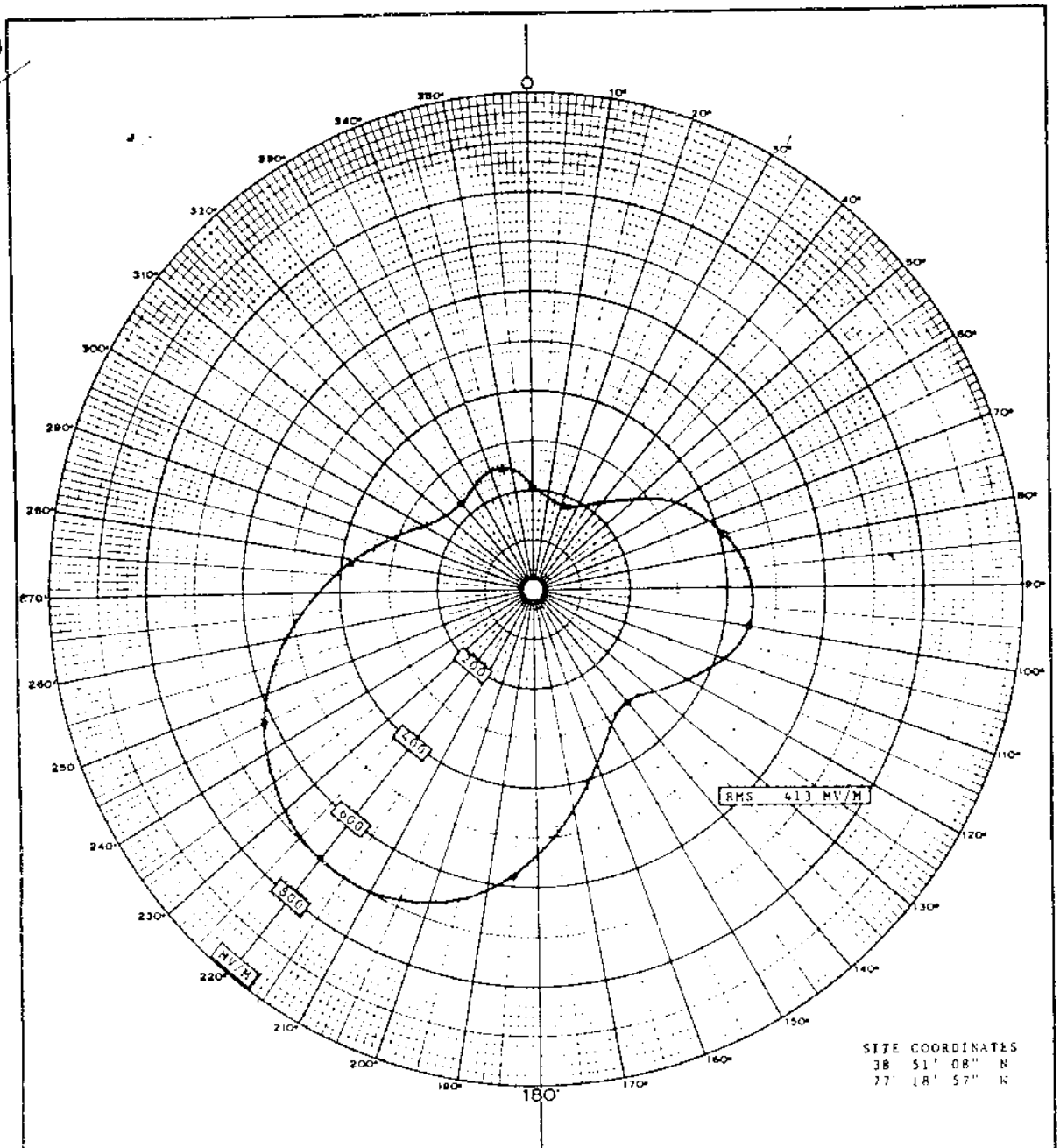
Measured Day
(1-28-65ct)

Station WEEL
Fairfax, Virginia

500w, 5kw-LS, DA-2, U
1310 kc

-IC, 5-28-65
INCR. DAY PWR.)
DA-2

Figure 15



FCC File No. BL-10739
Accepted 1-19-65

Station WEEL
Fairfax, Virginia

1310 kc

WEEL

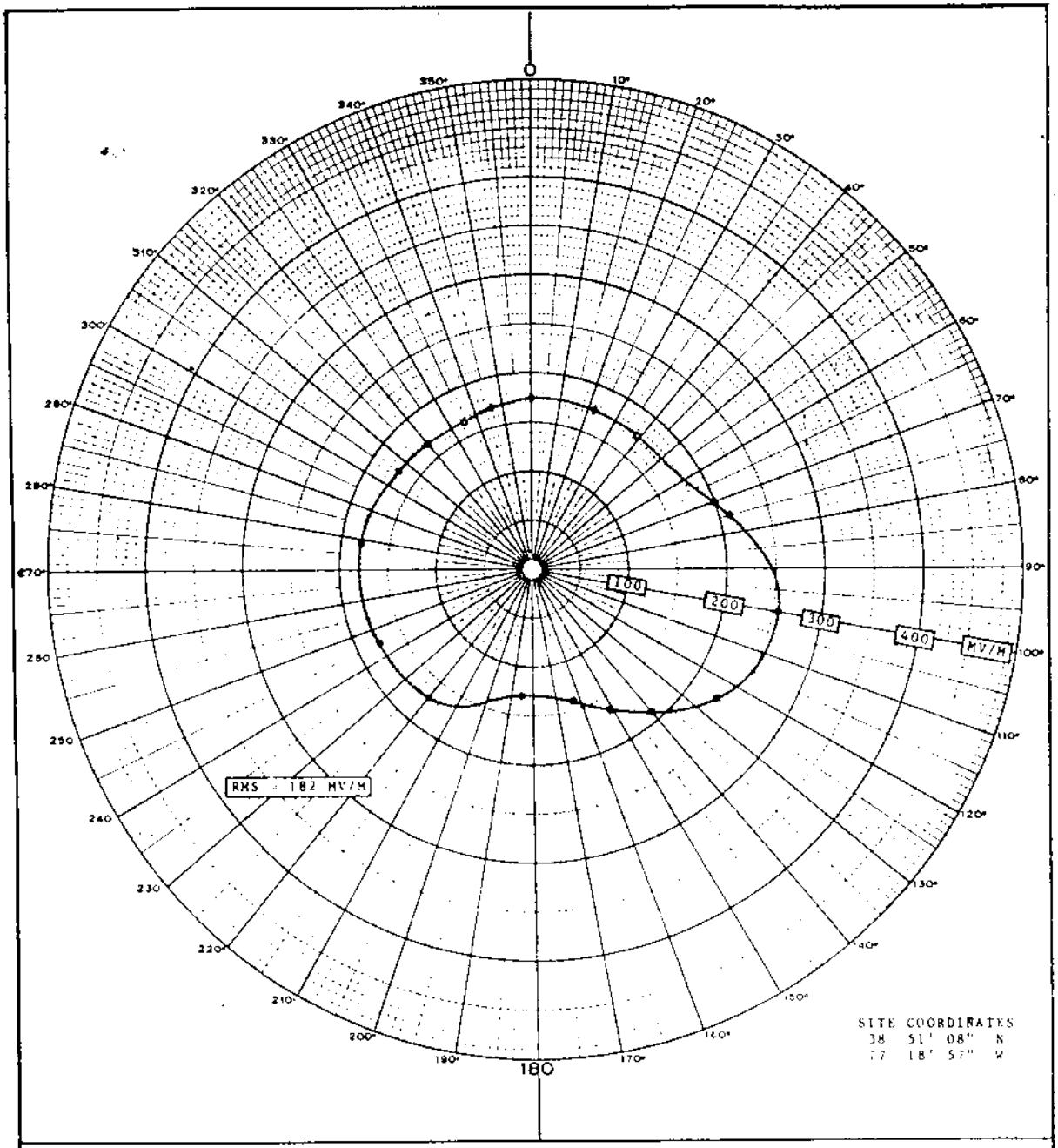
Measured Non-DA
(1-28-65ct)

Station WEEL
Fairfax, Virginia

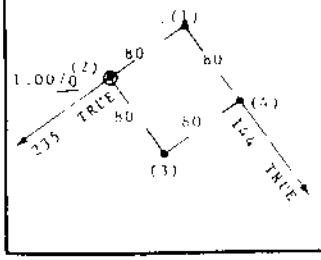
500w, 5kw-LS, DA-2, U
1310 kc

Figure 6

LIC 5-28-65
INCR. DAY PWR.
DA-2



MEASURED NONDIRECTIONAL HORIZONTAL PLANE RADIATION PATTERN



O. K. BROADCASTING CORPORATION
FAIRFAX, VIRGINIA

Jules Cohen & Associates
Consulting Electronics Engineers

RADIO STATION WEEL
1310 KC
0.5 KW, 5 KW LS, U, DA-2
Pattern #60412

FCC File No. BL-10739
Accepted 1-19-65

Station WEEL
Fairfax, Virginia

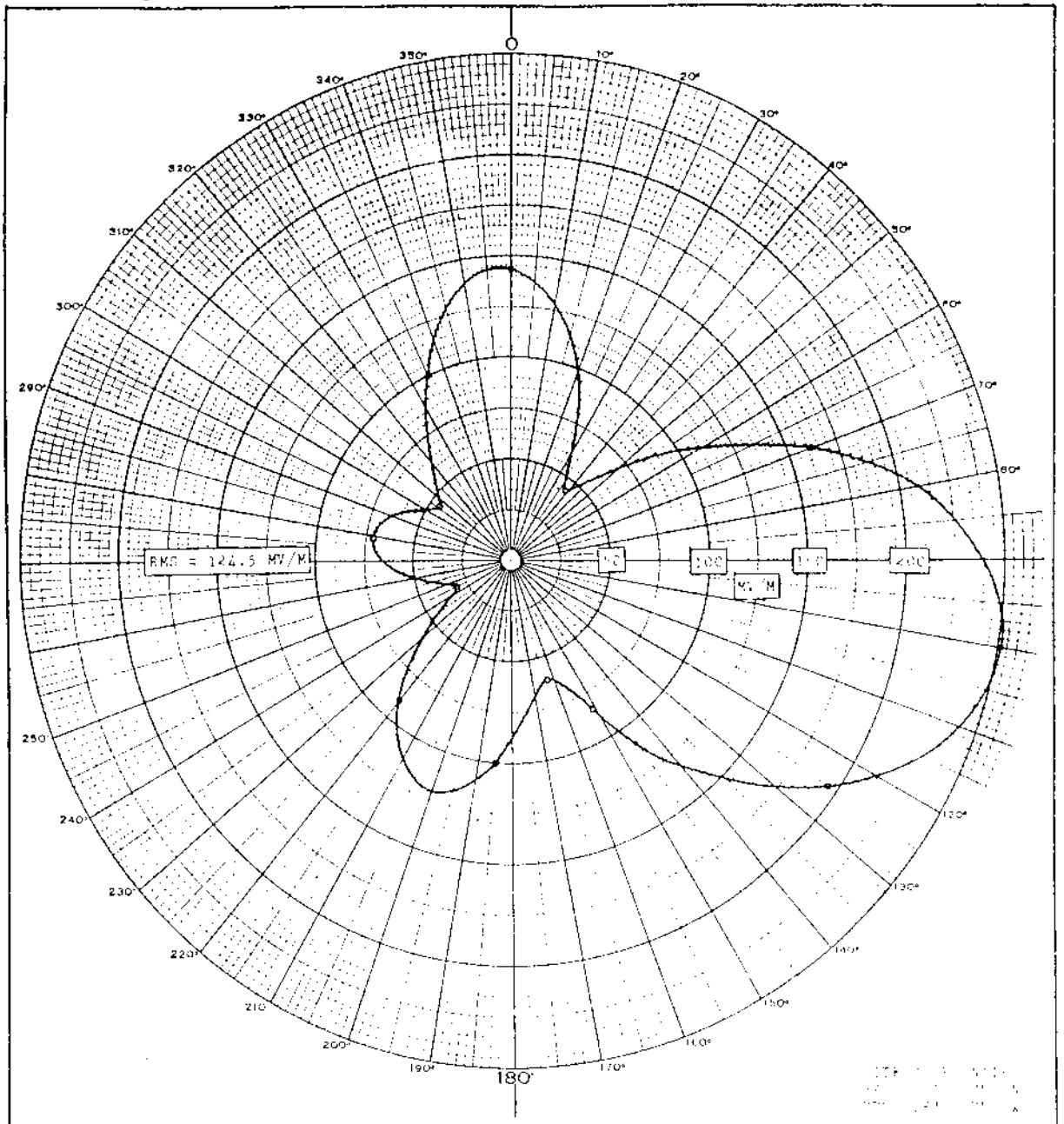
1310 kc

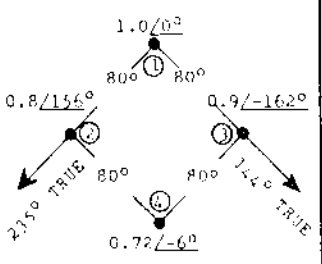
WEEL

MEASURED NIGHT
(12-21-59g)

Station WEEL 6.9
Fairfax, Virginia

500w, 1kw-LS, DA-N,U
1310 KC





FCC File No. BL-7652
Accepted 11-9-59

WEEL
Fairfax, Virginia

1310 KC

granted 5-27-60 to change to minimal time with DA N

WFAH

Station WFAH

PROPOSED DAY | NEW, ALLIANCE, OHIO 2/27/52G | 1 KW, Day, DA-D The Review Publishing Co. | 1310 KC

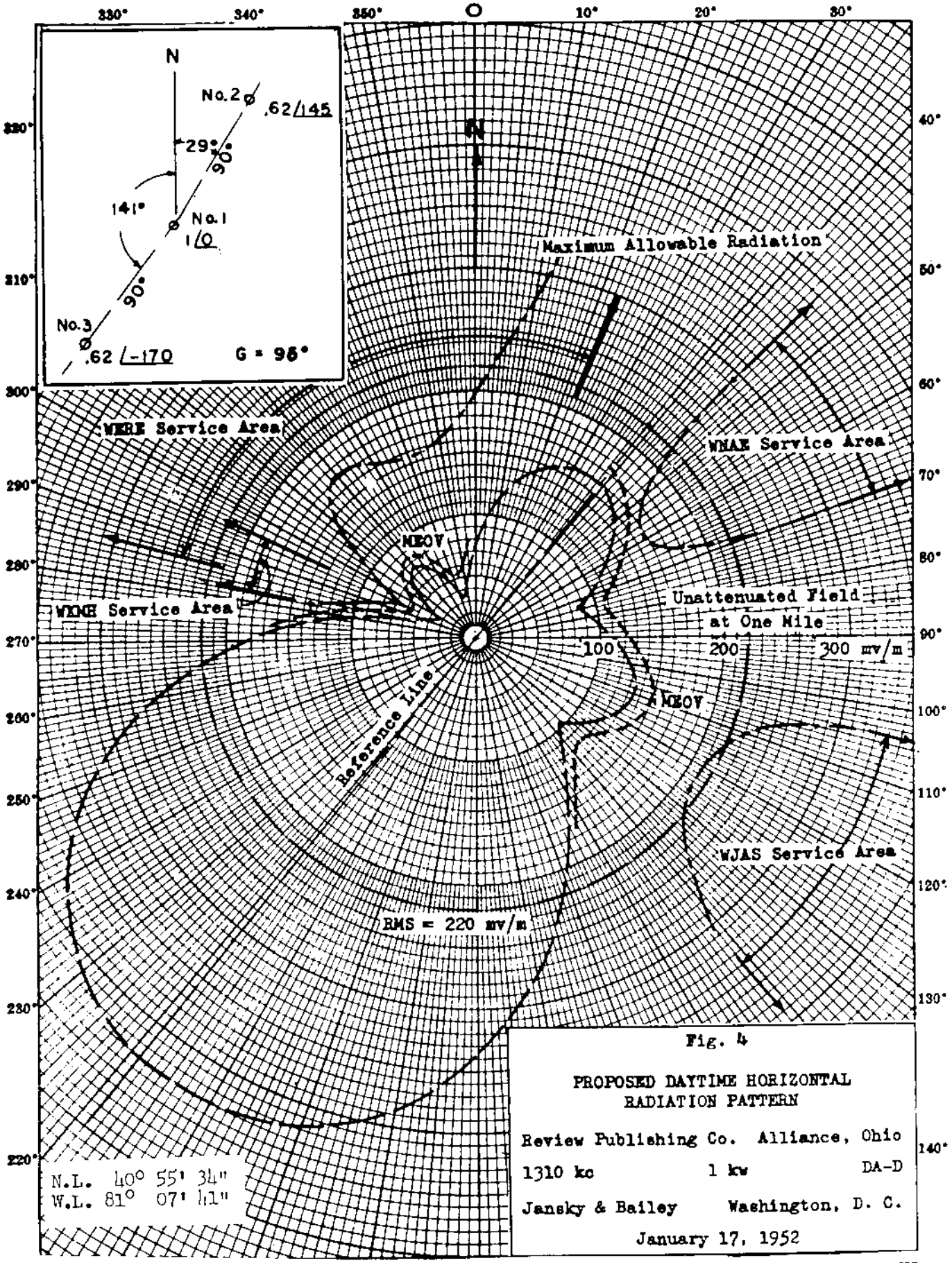


Fig. 4

PROPOSED DAYTIME HORIZONTAL RADIATION PATTERN

Review Publishing Co. Alliance, Ohio

1310 kc 1 kw DA-D

Jansky & Bailey Washington, D. C.

January 17, 1952

APPL RECD FCC 2/11/52 ACC 2/20/52 BP-8398 | NEW, ALLIANCE, OHIO The Review Publishing Co. | 1310 KC

WFAH

Station WFAH

PROPOSED DAY NULLS | NEW, ALLIANCE, OHIO The Review Publishing Co. | 1 KW, Day, DA-D 2/27/52G | 1310 KC

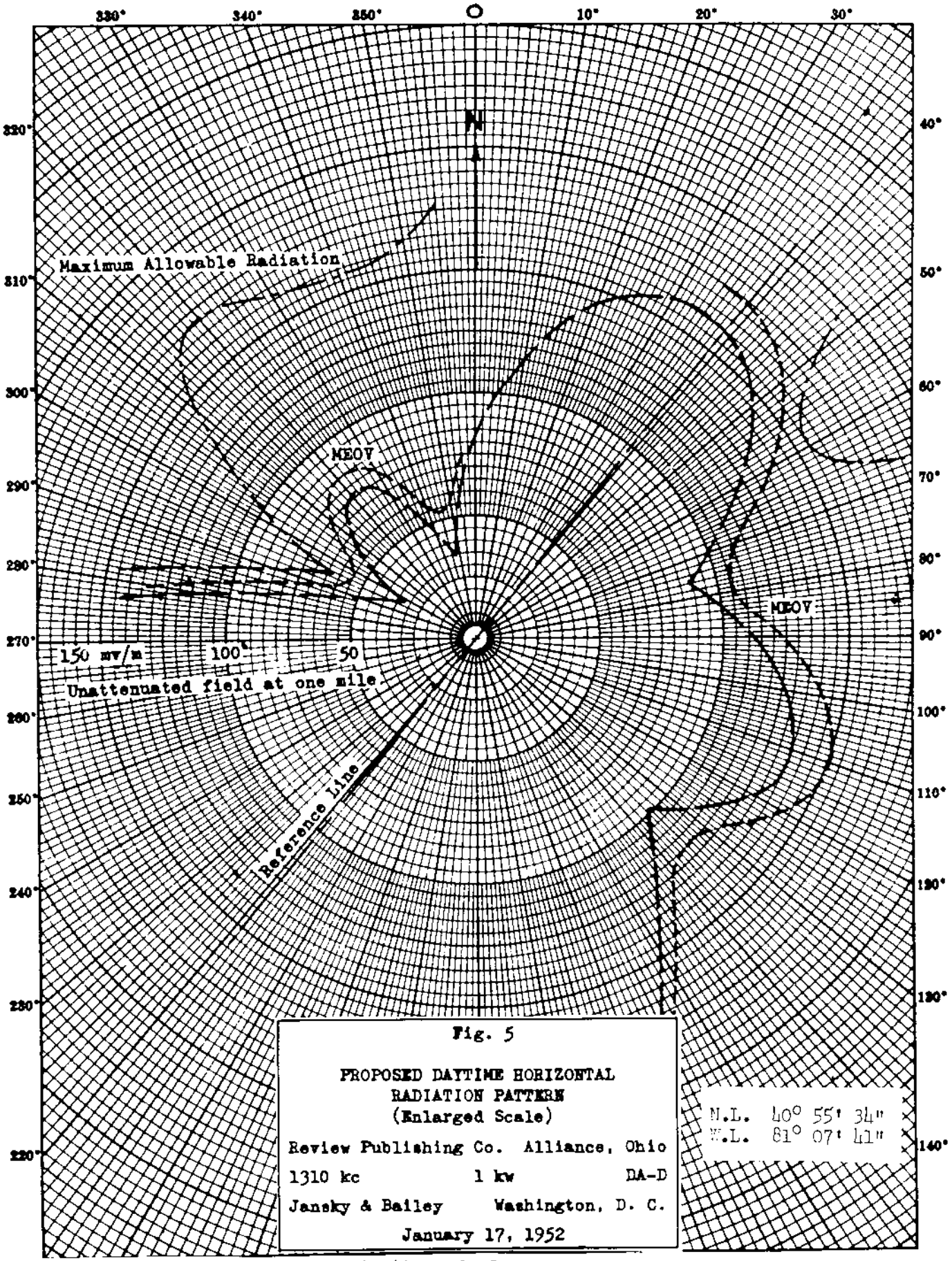


Fig. 5

PROPOSED DAYTIME HORIZONTAL RADIATION PATTERN
(Enlarged Scale)

Review Publishing Co. Alliance, Ohio
1310 kc 1 kw DA-D
Jansky & Bailey Washington, D. C.
January 17, 1952

APPL RECD FCC 2/11/52 ACC 2/20/52 BP-8398 | NEW, ALLIANCE, OHIO The Review Publishing Co. | 1310 KC

MEASURED DAY (2/5/54G) WFAH, ALLIANCE, OHIO 1KW, D, DA-D 1310 kc

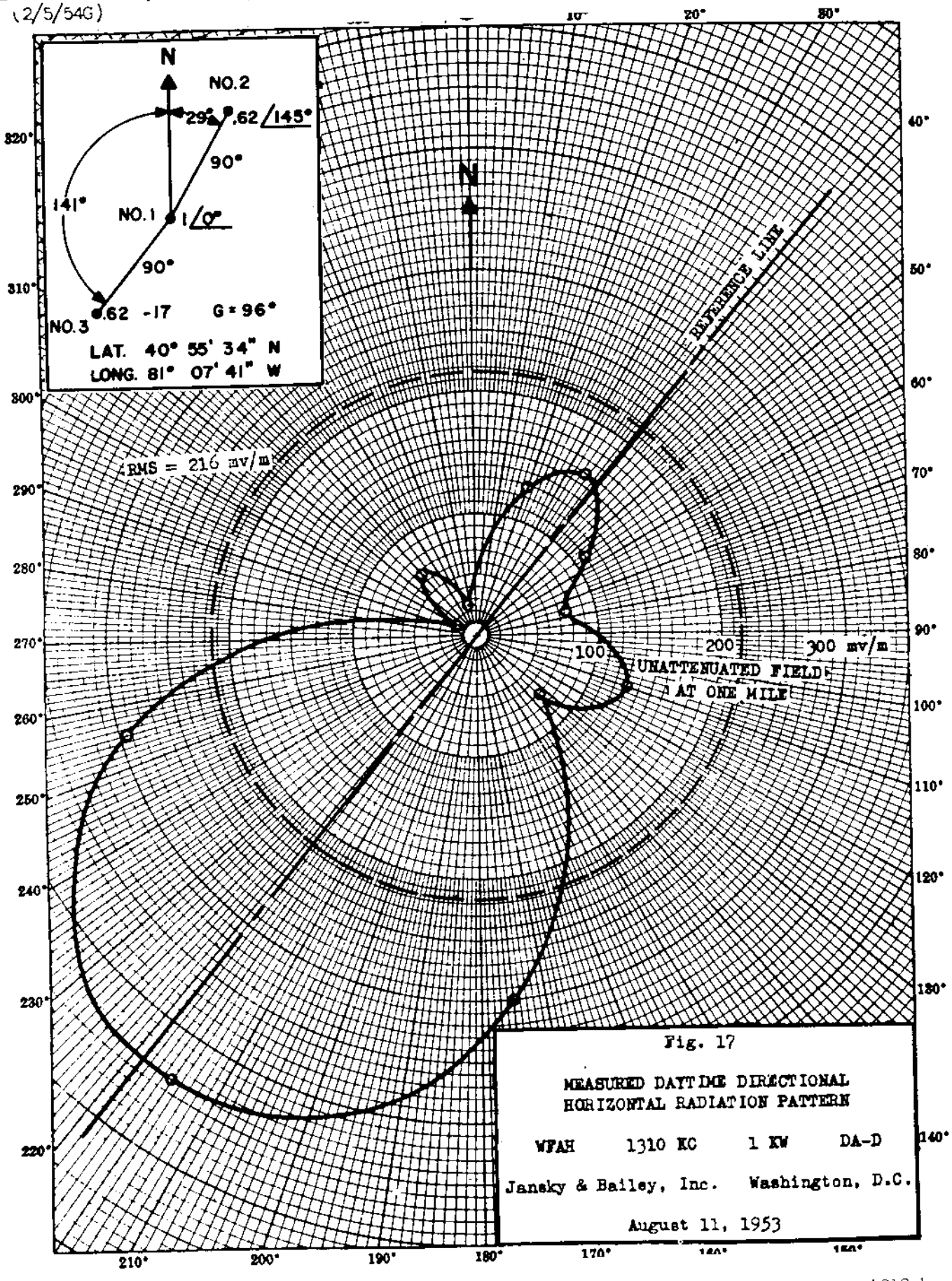


Fig. 17

MEASURED DAYTIME DIRECTIONAL HORIZONTAL RADIATION PATTERN

WFAH 1310 KC 1 KW DA-D

Jansky & Bailey, Inc. Washington, D.C.

August 11, 1953

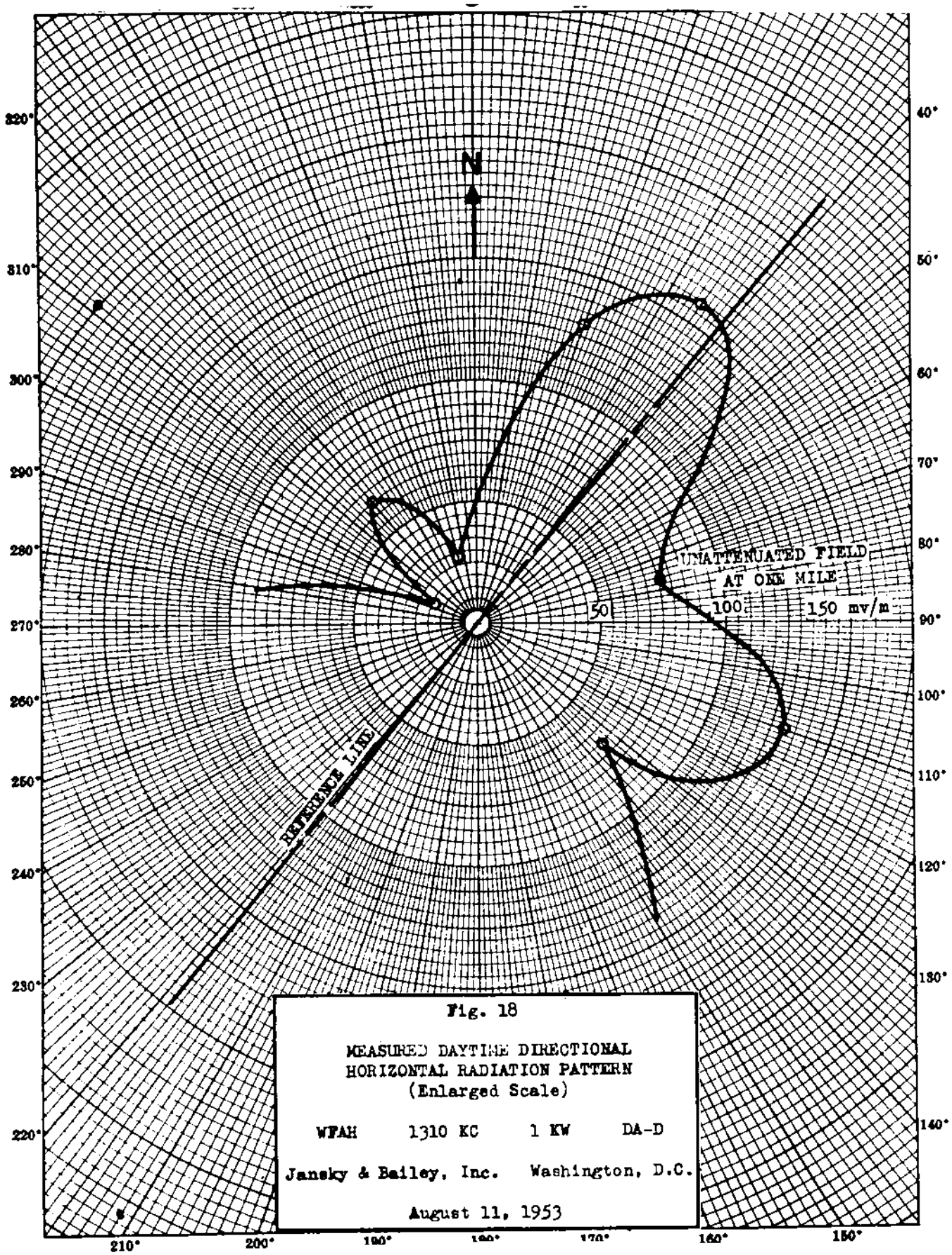


Fig. 18

MEASURED DAYTIME DIRECTIONAL HORIZONTAL RADIATION PATTERN (Enlarged Scale)

WFAH 1310 KC 1 KW DA-D

Jansky & Bailey, Inc. Washington, D.C.

August 11, 1953

MEASURED WFAH, ALLIANCE, OHIO 1KW, D, DA-D 1310 kc
NON-DA(2/5/54G)

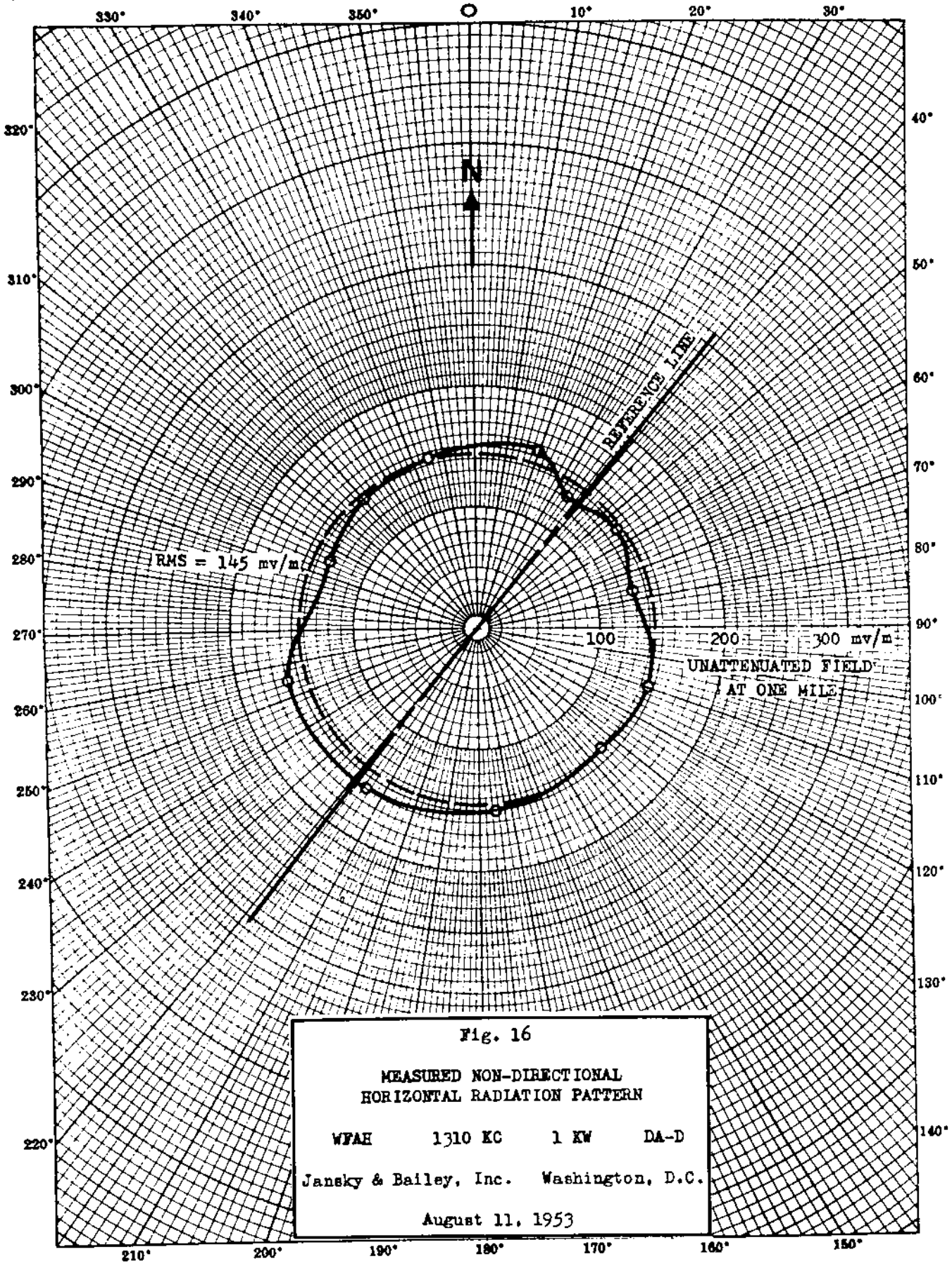


Fig. 16

MEASURED NON-DIRECTIONAL
HORIZONTAL RADIATION PATTERN

WFAH 1310 KC 1 KW DA-D

Jansky & Bailey, Inc. Washington, D.C.

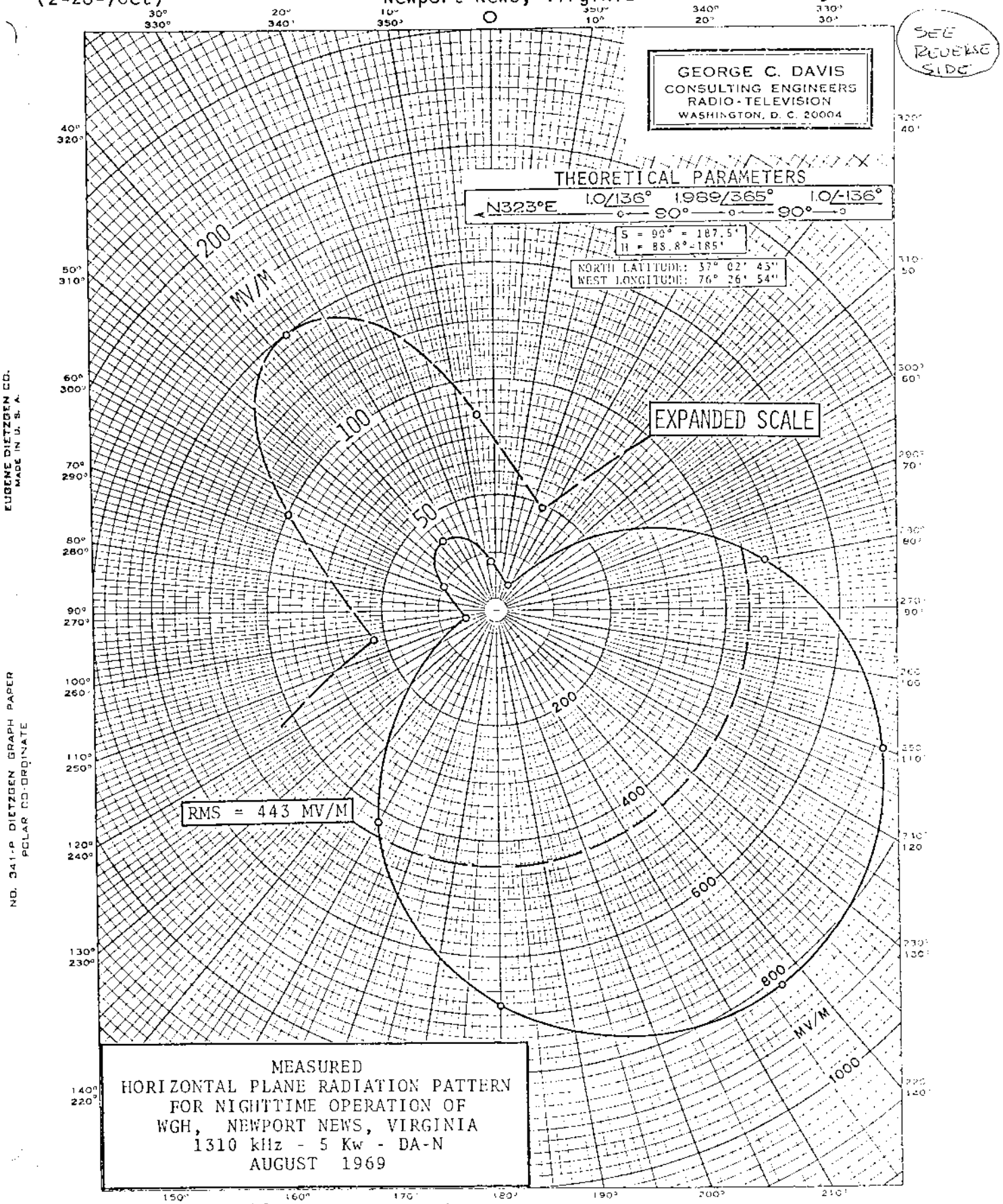
August 11, 1953

WGH

Measured Night
(2-28-70ct)

Station WGH
Newport News, Virginia

5kw, DA-N, U
1310 kc



EUGENE DIETZGEN CO.
MADE IN U. S. A.

NO. 341-P DIETZGEN GRAPH PAPER
POLAR CO-ORDINATE

FCC File No. BL-12483
Accepted 2-3-70

Station WGH
Newport News, Virginia

1310 kc

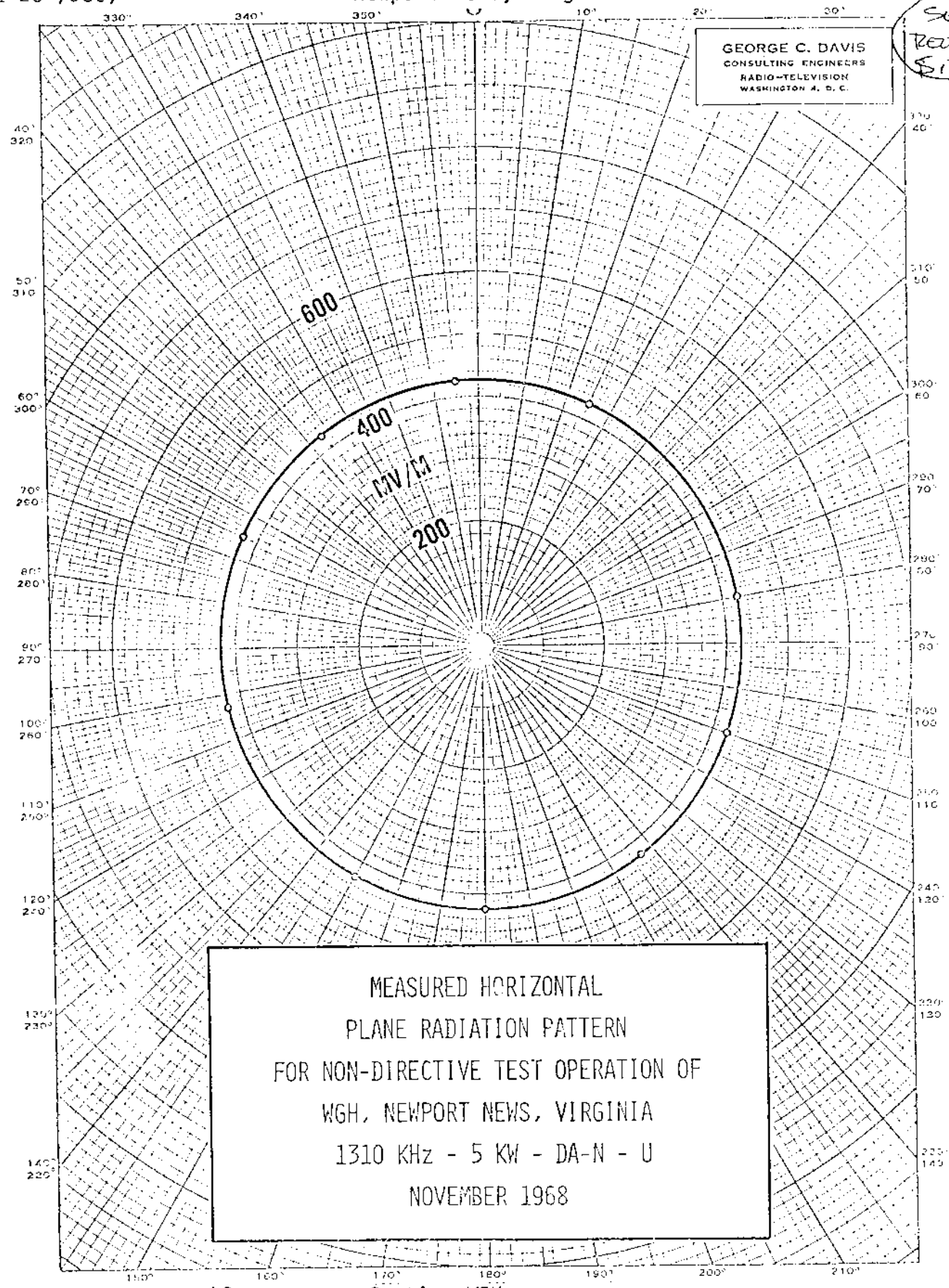
WGH

Measured Non-DA
(2-28-70ct)

Station WGH
Newport News, Virginia

5kw, DA-N, U
1310 kc

SEE REVERSE SIDE



MEASURED HORIZONTAL
PLANE RADIATION PATTERN
FOR NON-DIRECTIVE TEST OPERATION OF
WGH, NEWPORT NEWS, VIRGINIA
1310 KHz - 5 KW - DA-N - U
NOVEMBER 1968

FCC File No. BL-12483
Accepted 2-3-70

Station WGH
Newport News, Virginia

1310 kc

WGH

Proposed Night
(6-27-69ct)

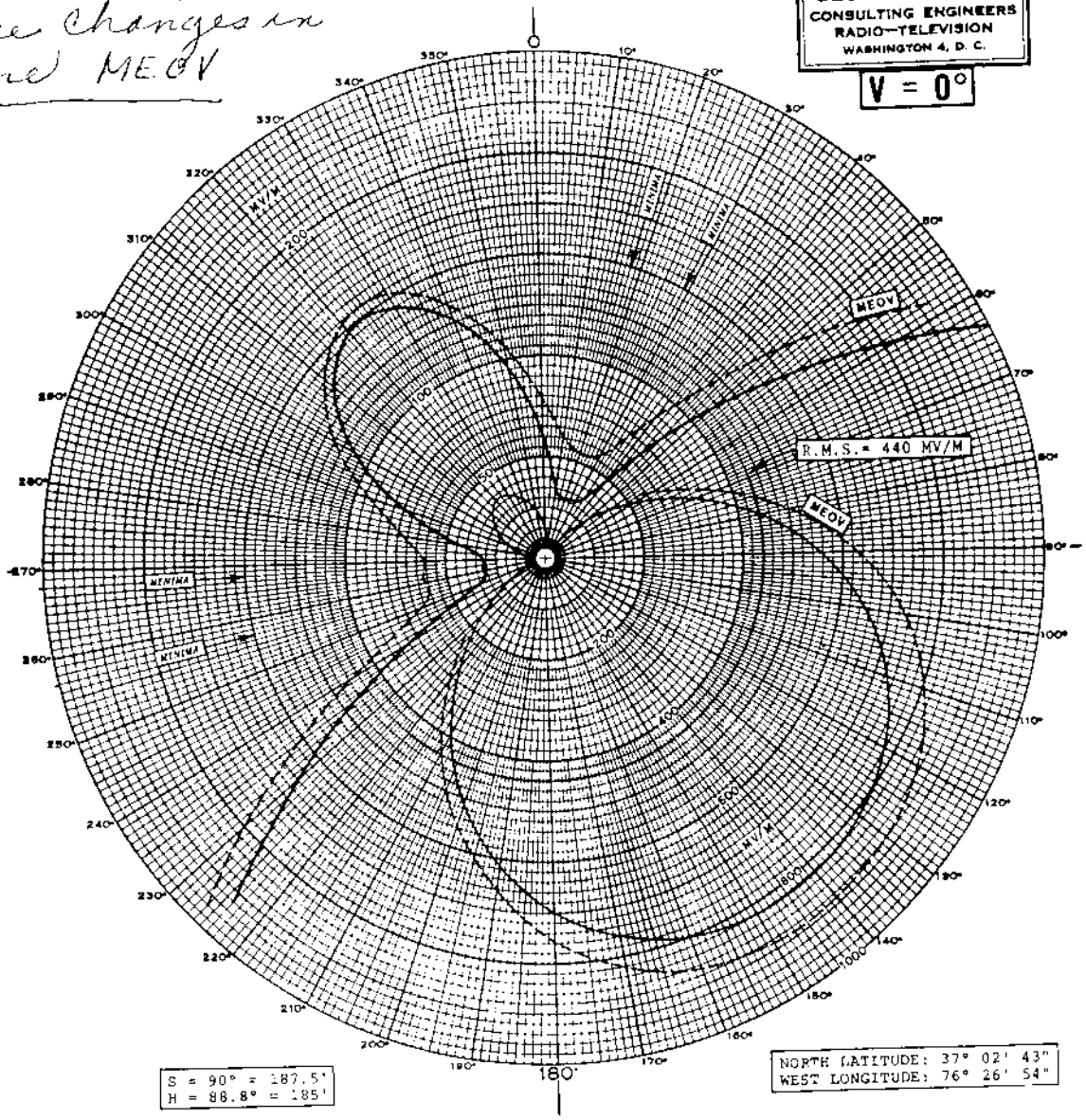
Station WGH
Newport News, Virginia

5kw, DA-N, U
1310 kc

BP-18566 Granted 6/2/69
to make changes in
nighttime MEOV

GEORGE C. DAVIS
CONSULTING ENGINEERS
RADIO—TELEVISION
WASHINGTON 4, D. C.

V = 0°



S = 90° = 187.5'
H = 88.8° = 185'

NORTH LATITUDE: 37° 02' 43"
WEST LONGITUDE: 76° 26' 54"

N323°E 1.0/136° 1.989/3.65° 90° 1.0/-136° 90°

COMPUTED HORIZONTAL
PLANE RADIATION PATTERN
FOR PROPOSED NIGHTTIME OPERATION OF
WGH, NEWPORT NEWS, VIRGINIA
1310 kHz - 5 KW - DA-N U
SHOWING PROPOSED MEOV
APRIL 1969

FCC File No. BP18566
Accepted 5-28-69

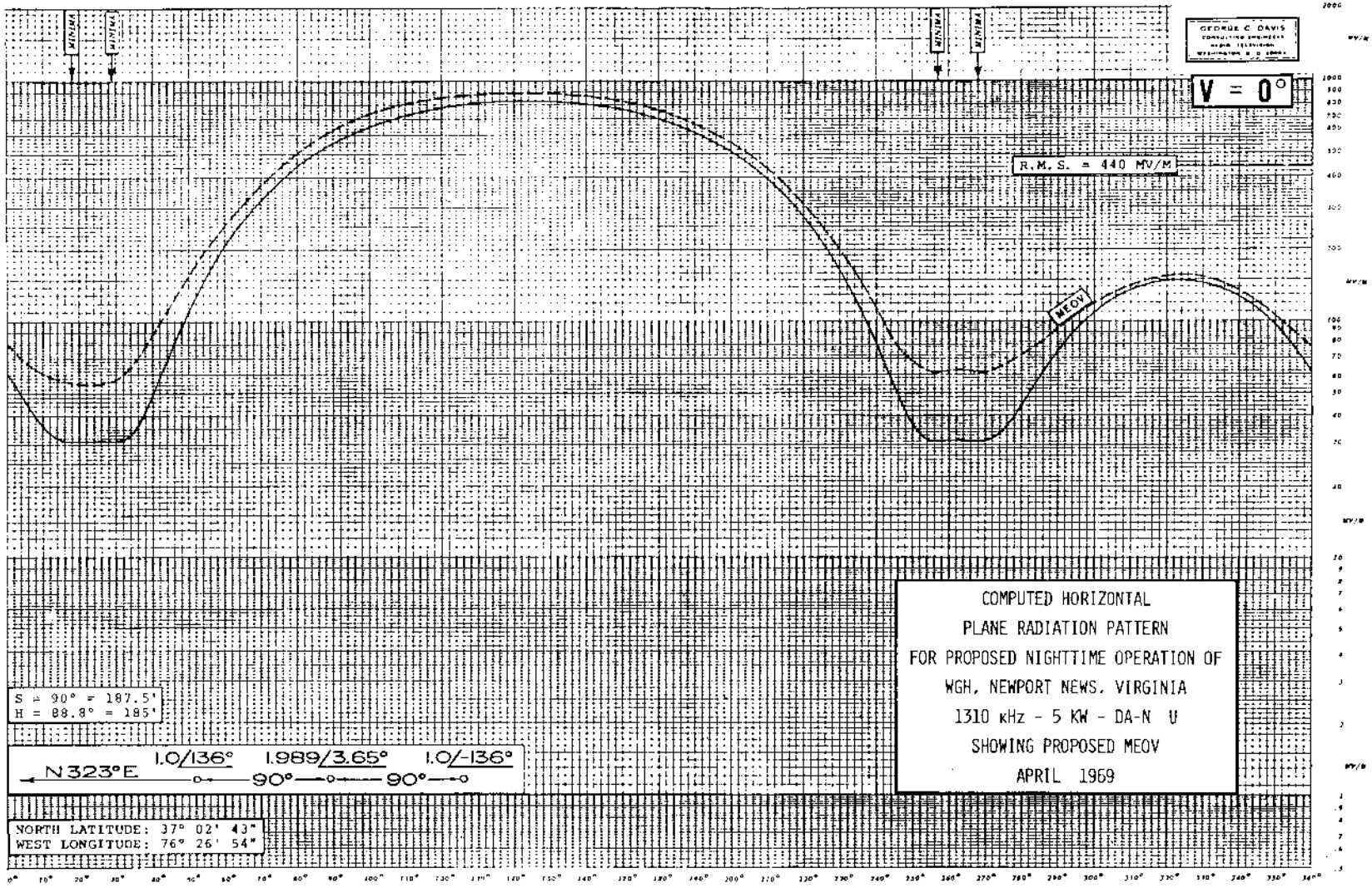
Station WGH
Newport News, Virginia

1310 kc

Proposed Night Nulls
(6-27-69ct)

Station WGH
Newport News, Virginia

5kw, DA-N, U
1310 kc



FCC File No. BP-18566
Accepted 5-28-69

Station WGH
Newport News, Virginia

1310 kc

BP-18566 Granted 6/2/69
Opto make changes in
nighttime MEOV

WGH

WGH

Proposed Night
(12-27-68ct)

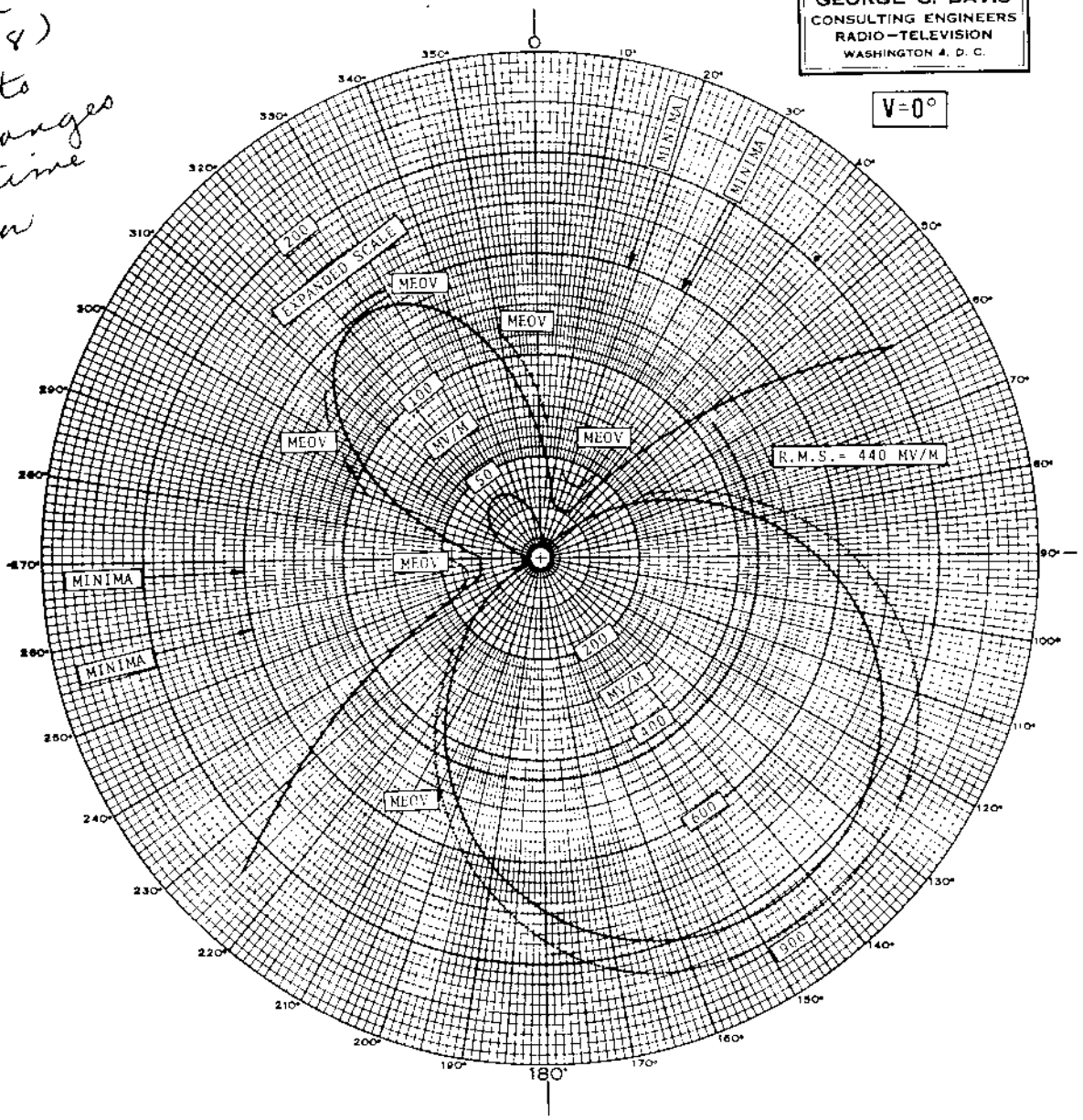
Station WGH
Newport News, Virginia

5kw,DA-N,U
1310 kc

BMP-12590
Granted
(12-26-68)
Mod. CP to
make changes
in nighttime
DA pattern

GEORGE C. DAVIS
CONSULTING ENGINEERS
RADIO—TELEVISION
WASHINGTON 4, D. C.

V=0°



N323°E 1.0/136° 1.989/365° 1.0/-136°
90° 90°

COMPUTED HORIZONTAL
PLANE RADIATION PATTERN
FOR PROPOSED NIGHTTIME OPERATION OF
WGH, NEWPORT NEWS, VIRGINIA
1310 KHz - 5 KW - DA N U
SHOWING PROPOSED MEOV
NOVEMBER 1968

S = 90° = 187.5'
H = 88.8°=185'

NORTH LATITUDE: 37° 02' 43"
WEST LONGITUDE: 76° 26' 54"

FCC File No.BMP-12590
Accepted 12-17-68

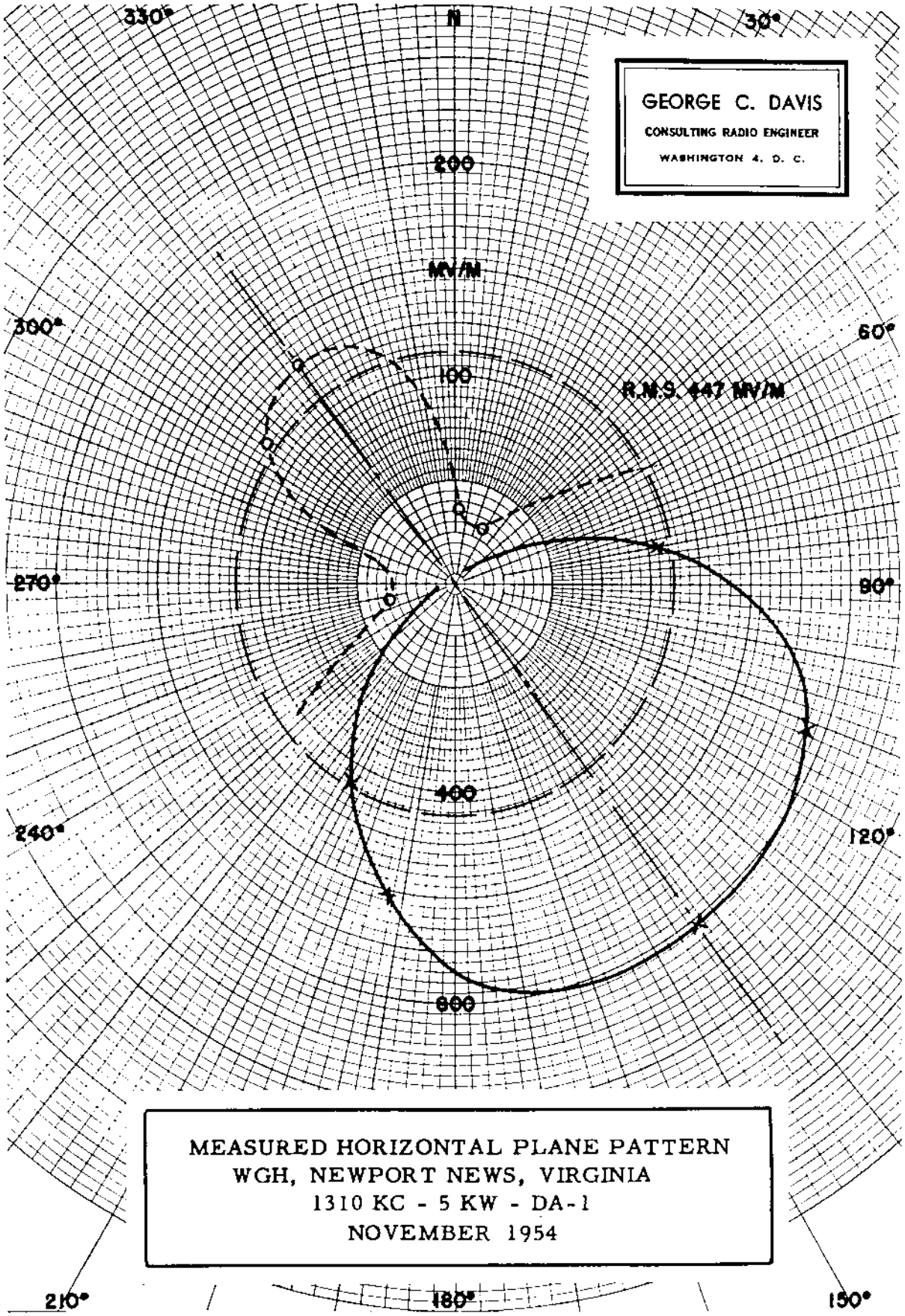
Station WGH
Newport News, Virginia

1310 kc

granted CP 5/29/57 to change from DA-1 to DA-N operation

granted license 7/30/58 to change from DA-1 to DA-N

WGH



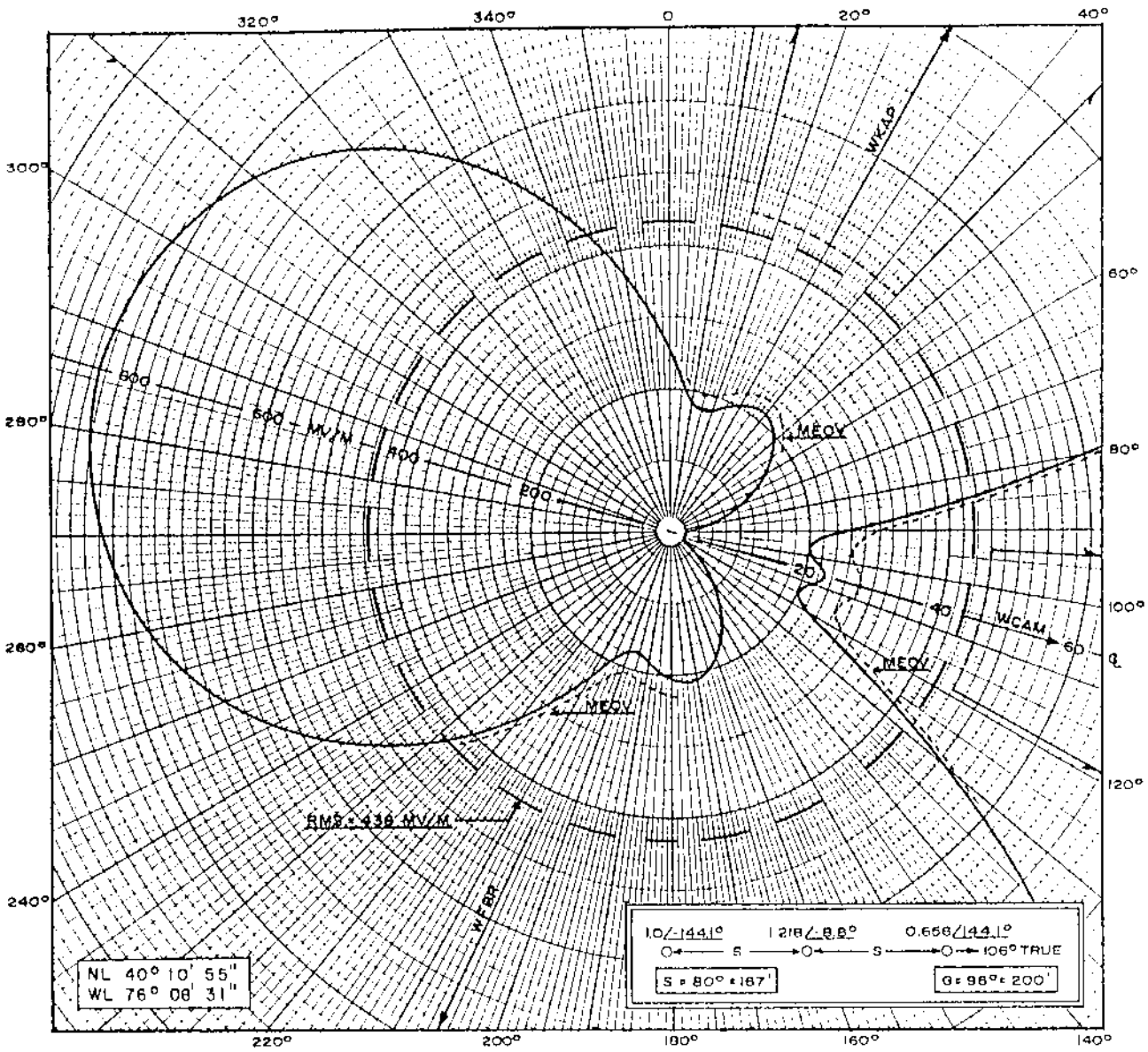
MEASURED HORIZONTAL PLANE PATTERN
WGH, NEWPORT NEWS, VIRGINIA
1310 KC - 5 KW - DA-1
NOVEMBER 1954

WGSA

PROPOSED DAY
(2-26-60g)

Station WGSA
Ephrata, Pennsylvania

5kw, DA-D,D
1310 KC



8-10-61
granted CP to increase power to 5 kw.

DAYTIME HORIZONTAL PLANE RADIATION
WGSA - EPHRATA, PENNSYLVANIA
1310 KC - 5 KW - DA-D

Pattern No. 600111

GAUTNEY & JONES
RADIO ENGINEERS WASHINGTON, D. C.
January, 1960

FCC File No. BP-13890
Accepted 2-23-60

WGSA
Ephrata, Pennsylvania

1310 KC

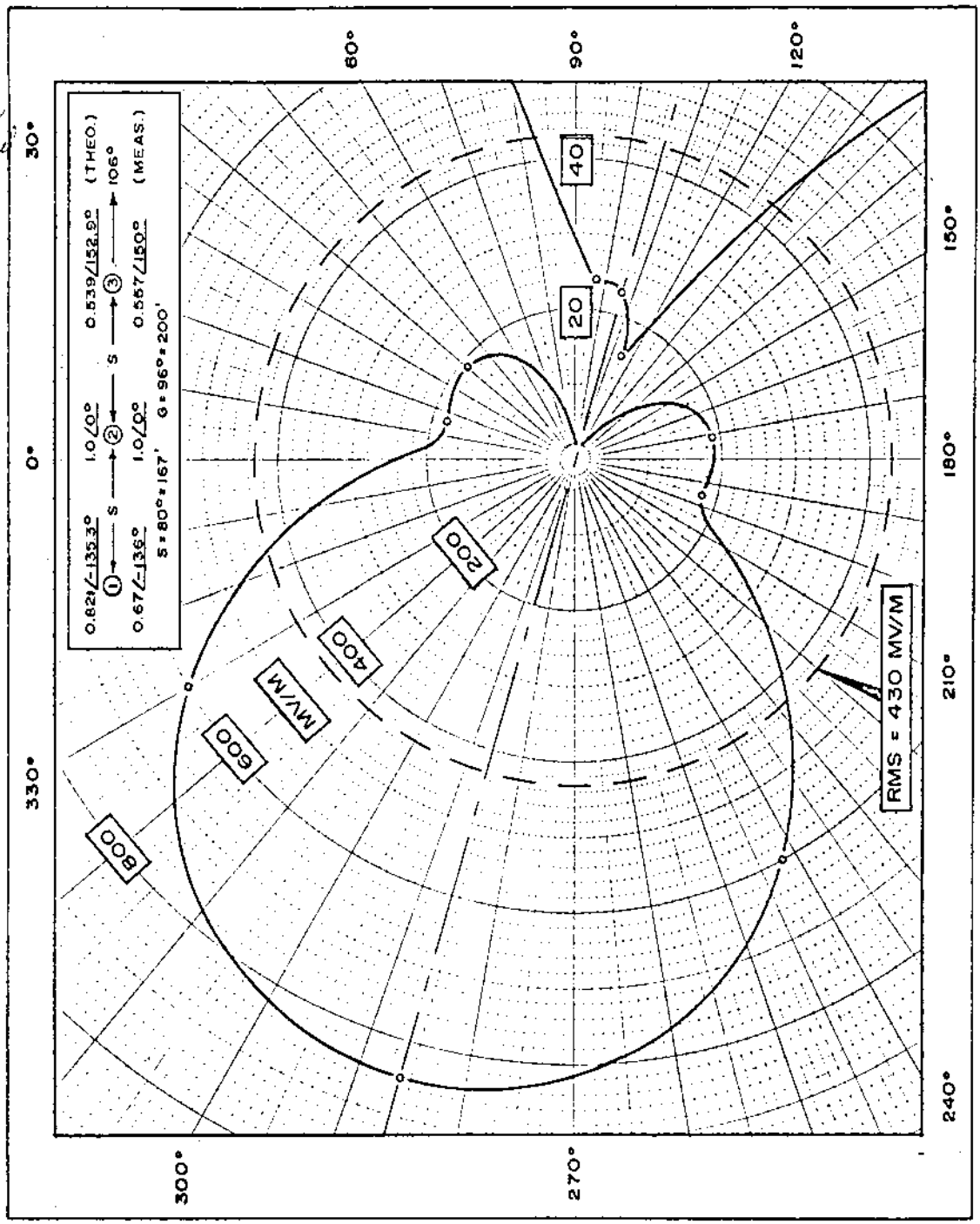
WGSA

Measured Day
(1-30-63ct)

Station WGSA
Ephrata, Pennsylvania

5kw,DA-D,D
1310 kc

4-25-63 granted license using power increase, changes DA system and minor change in A-T location



MEASURED 5 KW DIRECTIONAL ANTENNA PATTERN
WGSA - EPHRATA, PENNSYLVANIA
1310 KC - 5 KW - DA-D

GAUTNEY & JONES
RADIO ENGINEERS WASHINGTON, D. C.
August, 1962

FCC File No. BL-9675
Accepted 1-15-63

Station WGSA
Ephrata, Pennsylvania

1310 kc

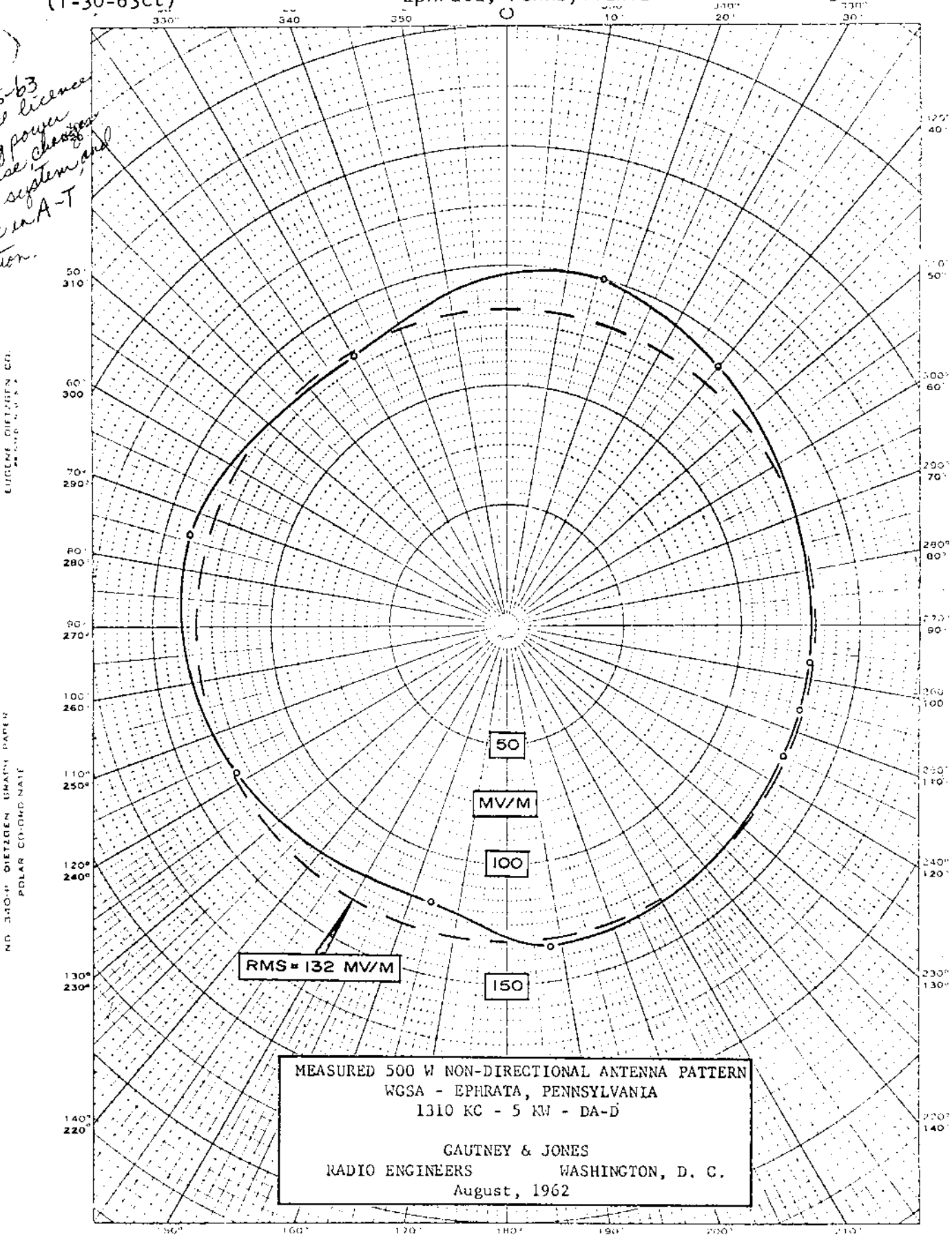
WGSA

Measured Non-DA
(1-30-63ct)

Station WGSA
Ephrata, Pennsylvania

5kw,DA-D,D
1310 kc

4-25-63
ented licence
using power
crease, change
DA system, and
ange in A-T
cation.



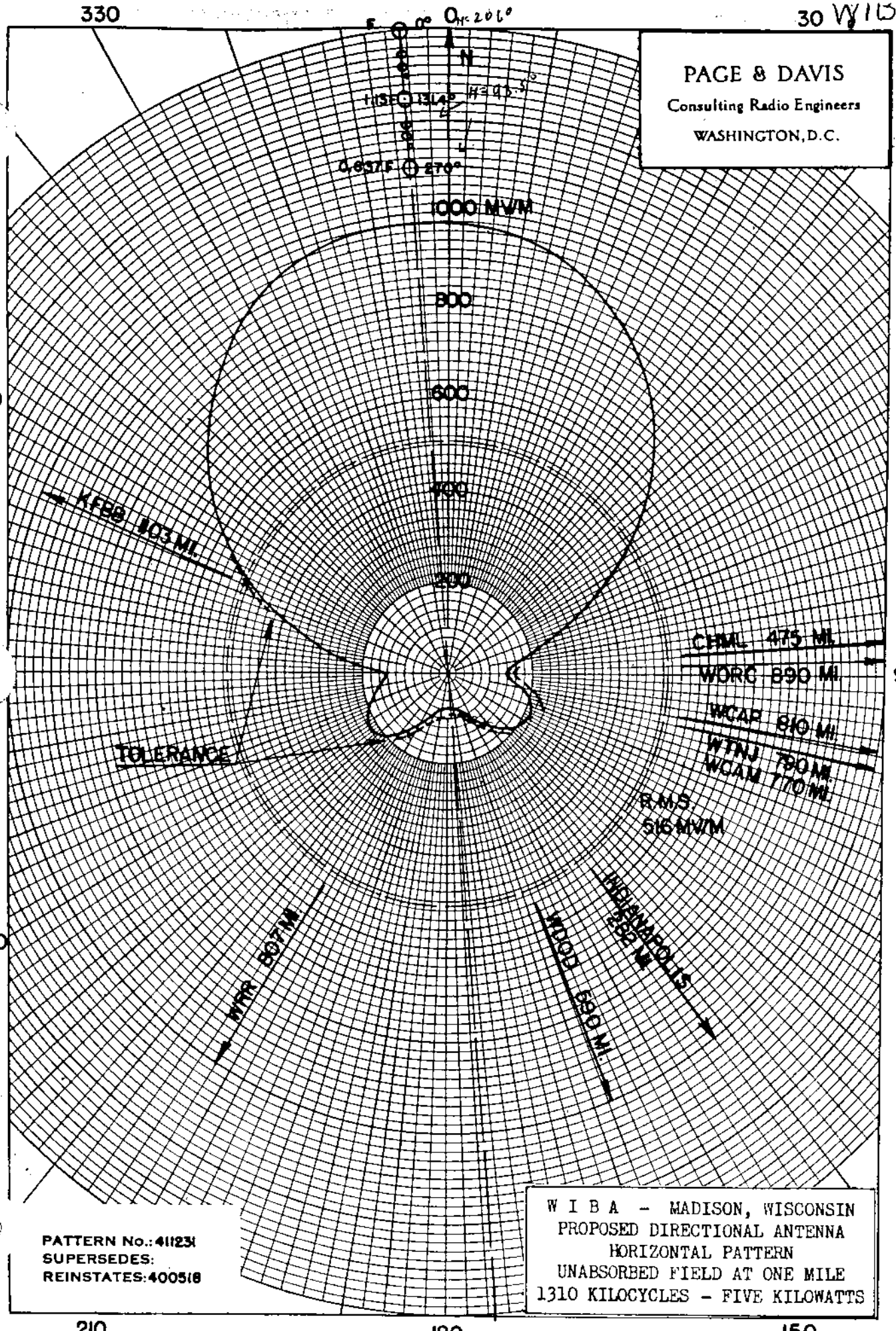
MEASURED 500 W NON-DIRECTIONAL ANTENNA PATTERN
WGSA - EPHRATA, PENNSYLVANIA
1310 KC - 5 KW - DA-D

GAUTNEY & JONES
RADIO ENGINEERS WASHINGTON, D. C.
August, 1962

FCC File No.BL-9675
Accepted 1-15-63

Station WGSA
Ephrata, Pennsylvania

1310 kc



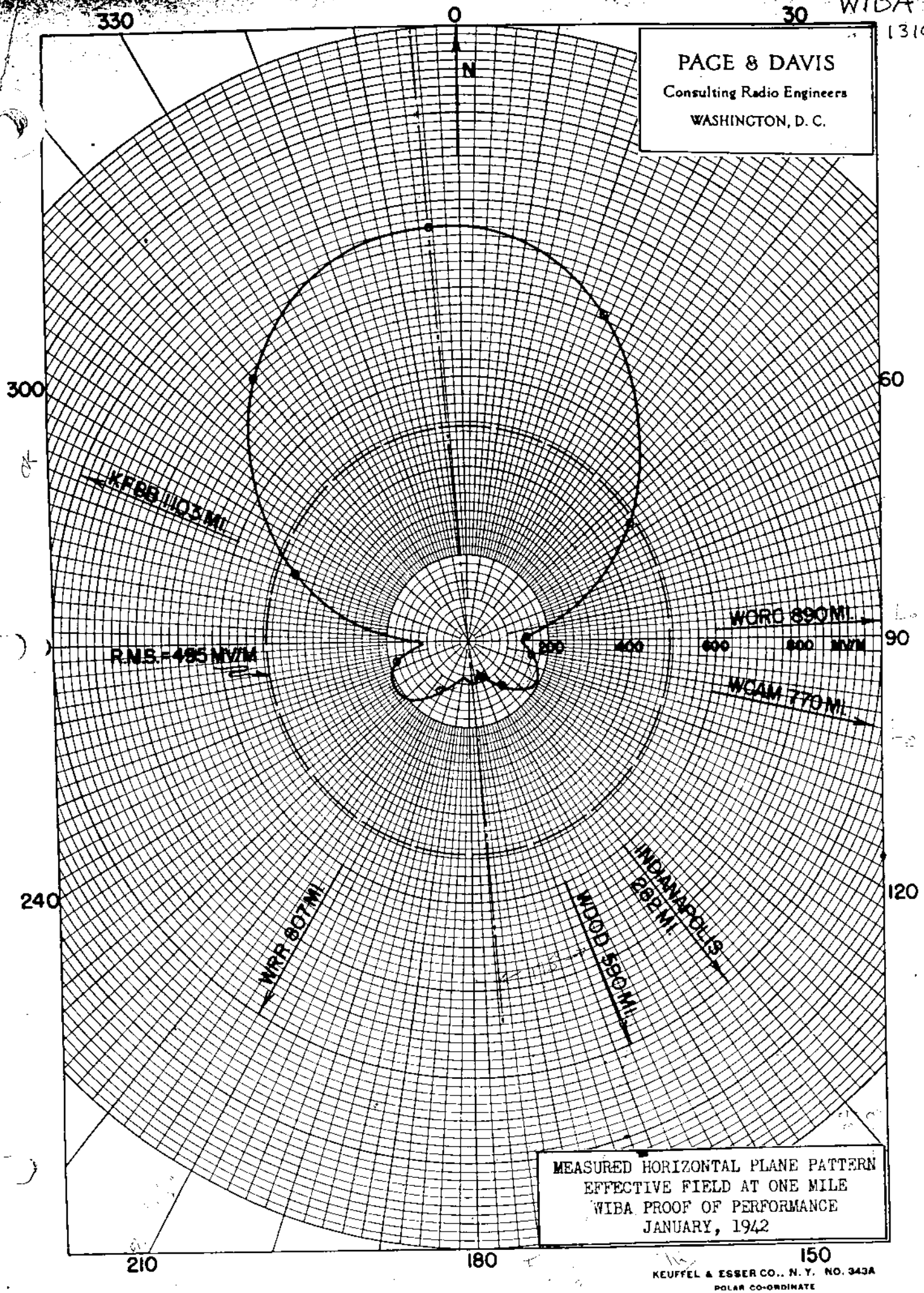
PAGE & DAVIS
Consulting Radio Engineers
WASHINGTON, D.C.

PATTERN No.: 41123I
SUPERSEDES:
REINSTATES: 40051B

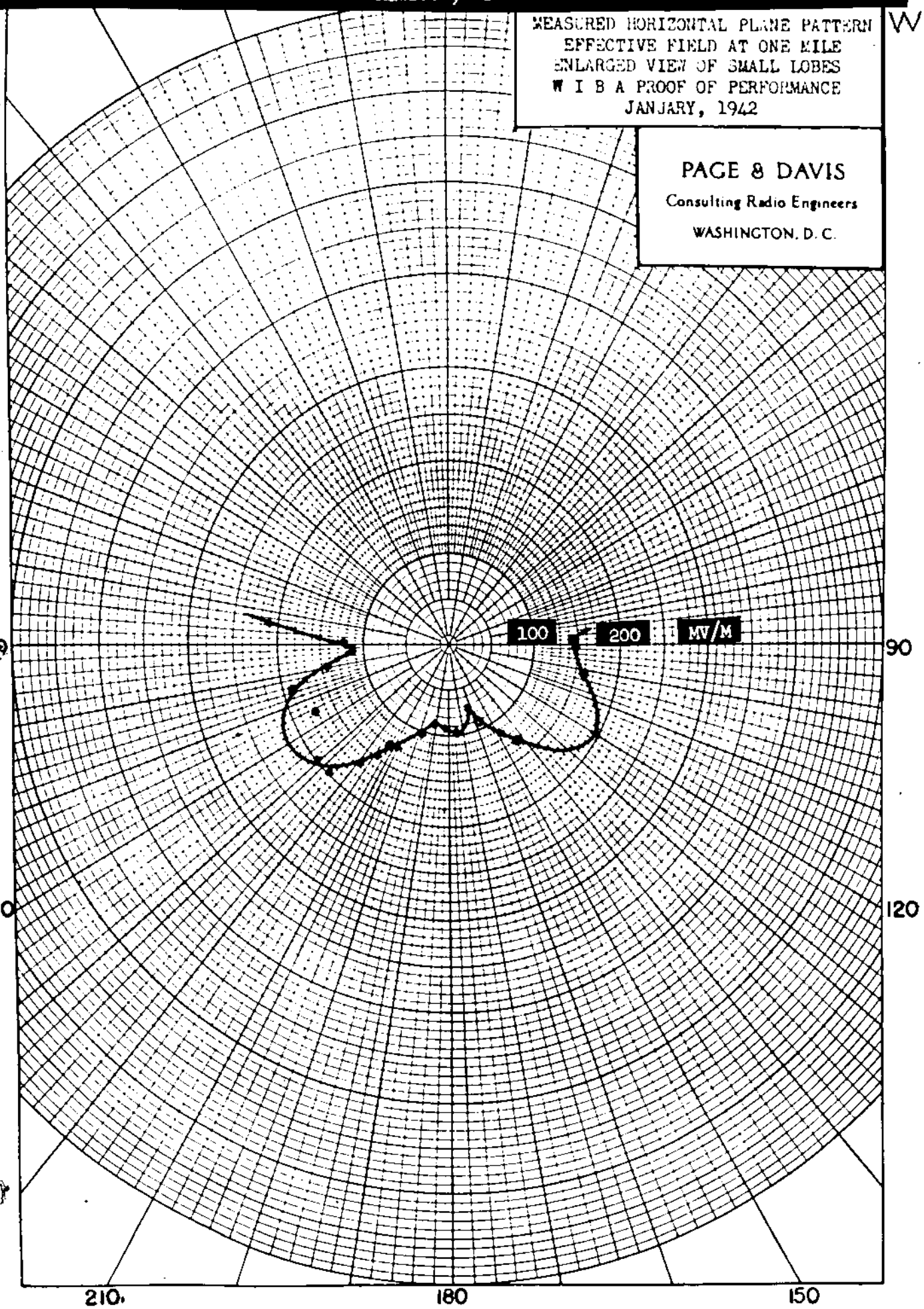
W I B A - MADISON, WISCONSIN
PROPOSED DIRECTIONAL ANTENNA
HORIZONTAL PATTERN
UNABSORBED FIELD AT ONE MILE
1310 KILOCYCLES - FIVE KILOWATTS

KEUFFEL & ESSER CO., N.Y. NO. 343A
POLAR CO-ORDINATE

WIBA
1310


0
N
30
60
90
120
150
180
210
240
300
330
PAGE & DAVIS
Consulting Radio Engineers
WASHINGTON, D. C.
KFBB 1103 Mi.
R.M.S.=495 MV/M
WORC 890 Mi.
200
400
600
800 MV/M
WCAM 770 Mi.
INDIANAPOLIS 292 Mi.
WOOD 580 Mi.
WRR 807 Mi.
MEASURED HORIZONTAL PLANE PATTERN
EFFECTIVE FIELD AT ONE MILE
WIBA PROOF OF PERFORMANCE
JANUARY, 1942
KEUFFEL & ESSER CO., N. Y. NO. 343A
POLAR CO-ORDINATE

MEASURED NIGHT NULLS | Station WIBA, Madison, Wisconsin | 5kw, DA-N,U, 1310 KC



DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WICH Main Studio: Norwich, Connecticut

Frequency: 1310 kHz Power: 1 kW Night 5 kW Day

Notification List No. 1585 Date: June 19, 1974 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:
North Latitude: 41° 33' 10"
West Longitude: 72° 04' 34"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2) STANDARD PATTERNS
Number of elements: 3
Type of elements: Series-excited, uniform cross-section, guyed, vertical steel towers.

TOWER:	NW(#1)	C(#2)	SE(#3)	
HEIGHT ABOVE INSULATORS:	351.2'	351.2'	351.2'	(168°)
NIGHT PHASING:	0°	+231°	+102°	
NIGHT FIELD RATIO:	1	1.351	0.645	
DAY PHASING:	0°	-147°	-294°	
DAY FIELD RATIO:	1	1.575	0.722	

SPACING AND ORIENTATION: Adjacent elements are spaced 187.8'(90°) on a line bearing 127° true.

GROUND SYSTEM: 120-300' equally spaced copper radials plus 120-25' interspaced radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers. Centers of systems are bonded together.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Daytime	533.2 mv/m.	823.93 mv/m.	560.3 mv/m.
Nighttime	235.01 mv/m.	298.98 mv/m.	246.88 mv/m.

CTR NO 30930A4

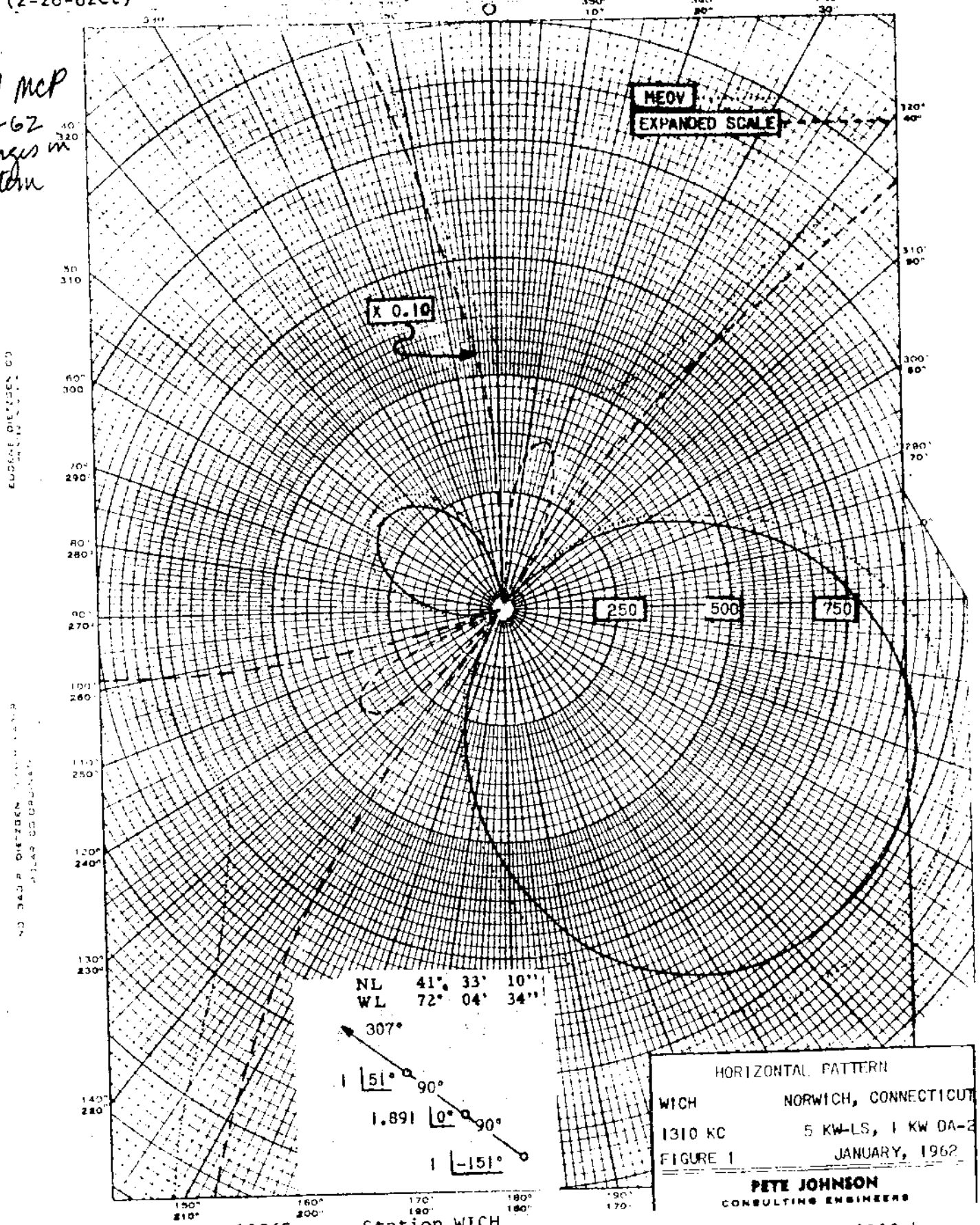
WICH

Proposed Day
(2-28-62ct)

Station WICH
Norwich, Connecticut

1kw,5kw-LS,DA-2,U
1310 kc

granted MCP
1-30-62
w/ changes in
DA pattern

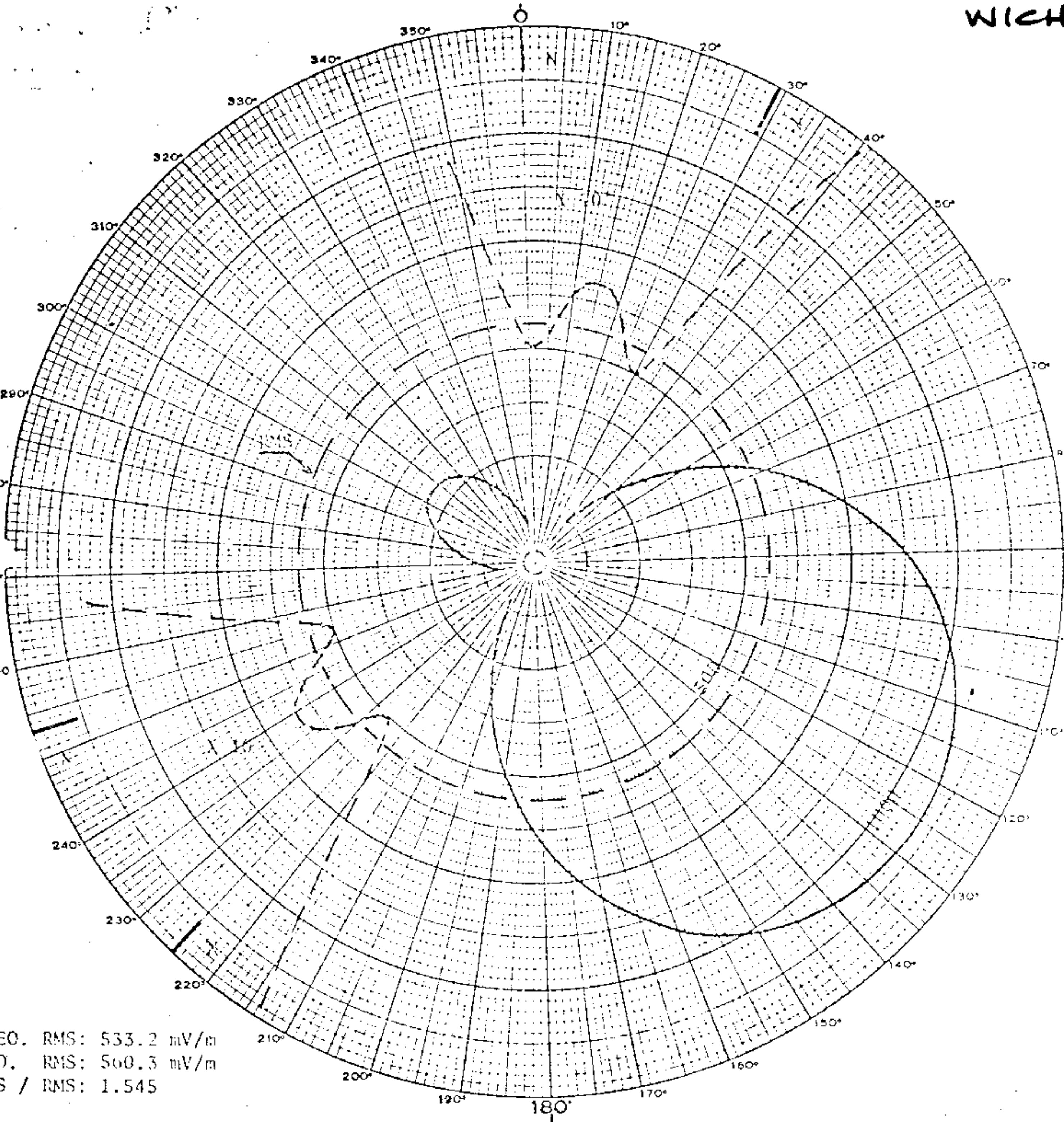


FCC File No.BMP-10065
Accepted 1-22-62

Station WICH
Norwich, Connecticut

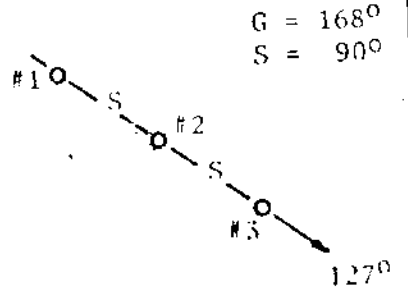
1310 kc

WICH



THEO. RMS: 533.2 mV/m
STD. RMS: 560.3 mV/m
RSS / RMS: 1.545

TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

TOWER No.	ELECTRICAL HEIGHT G°	SPACING S°	PHASING ψ°	FIELD RATIO F
1			0	1.
2			-147	1.575
3			-294	0.722
4				
5				
6				

FIGURE 12

DAY

STANDARD
HORIZONTAL
PLANE
PATTERN

θ° 0

STATION DATA

CALL WICH
FREQ 1310 kHz
POWER 5 KW
TYPE DA-2
TIME Unlimited
LAT. [illegible]
LONG. [illegible]

E.H.MUNN,JR.
RADIO ENGINEER
COLDWATER, MICH.

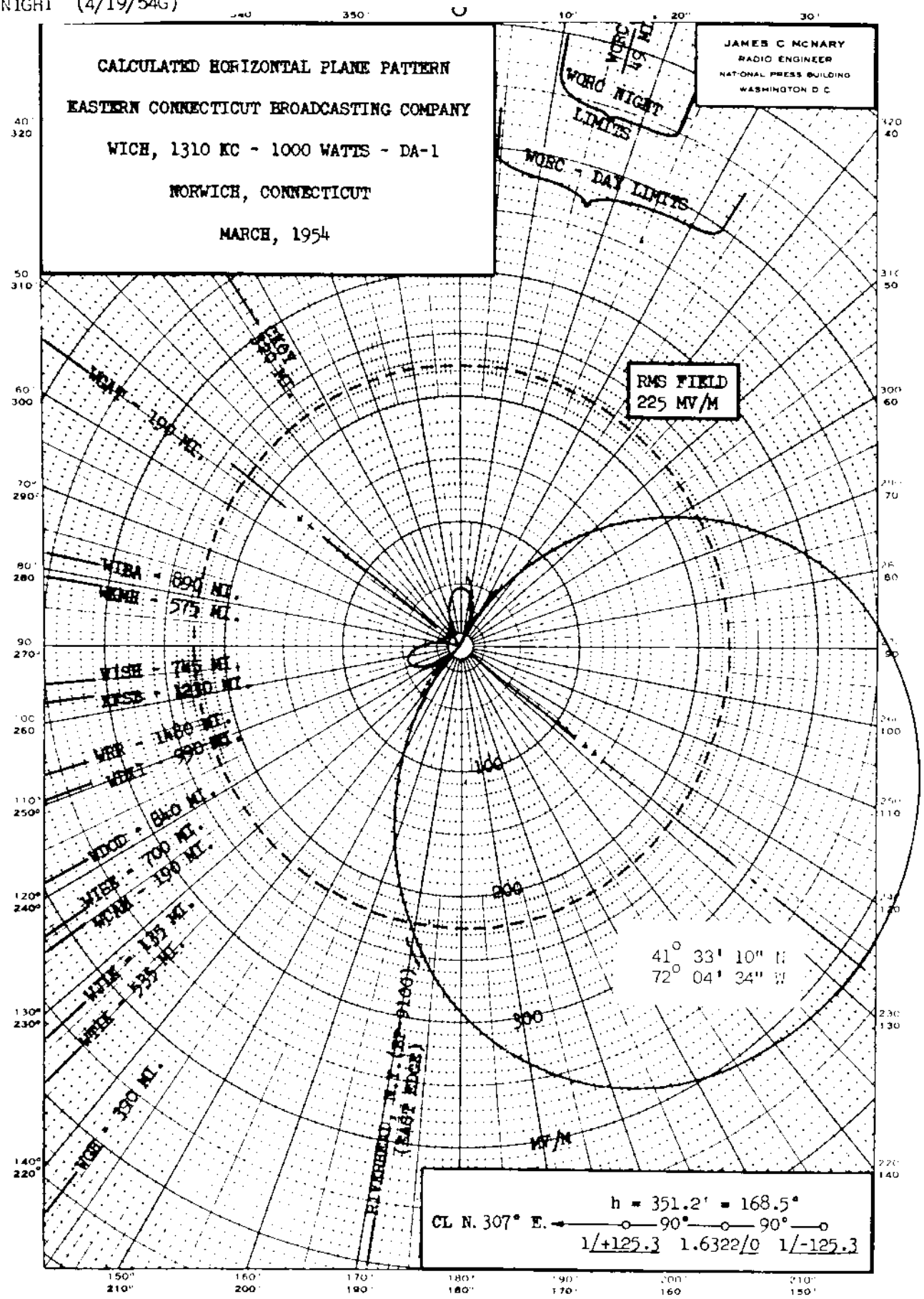
21

WICH

PROPOSED
DAY & NIGHT (4/19/54G)

WICH, Norwich, Conn. 1kw, U, DA-1

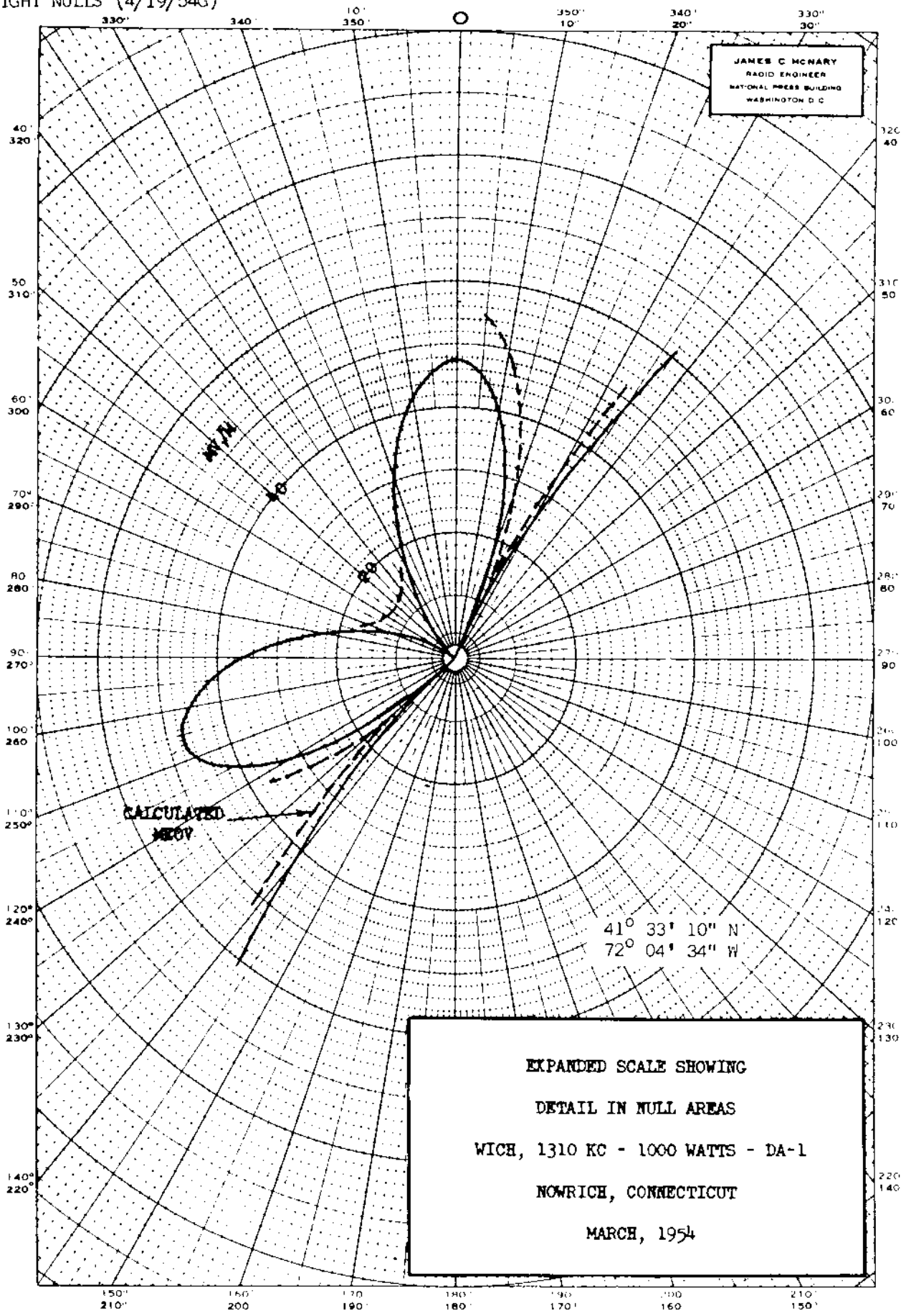
1310 kc



FCC File No. BP-9232 Accepted 4/9/54 WICH, Norwich, Conn. 1310 kc

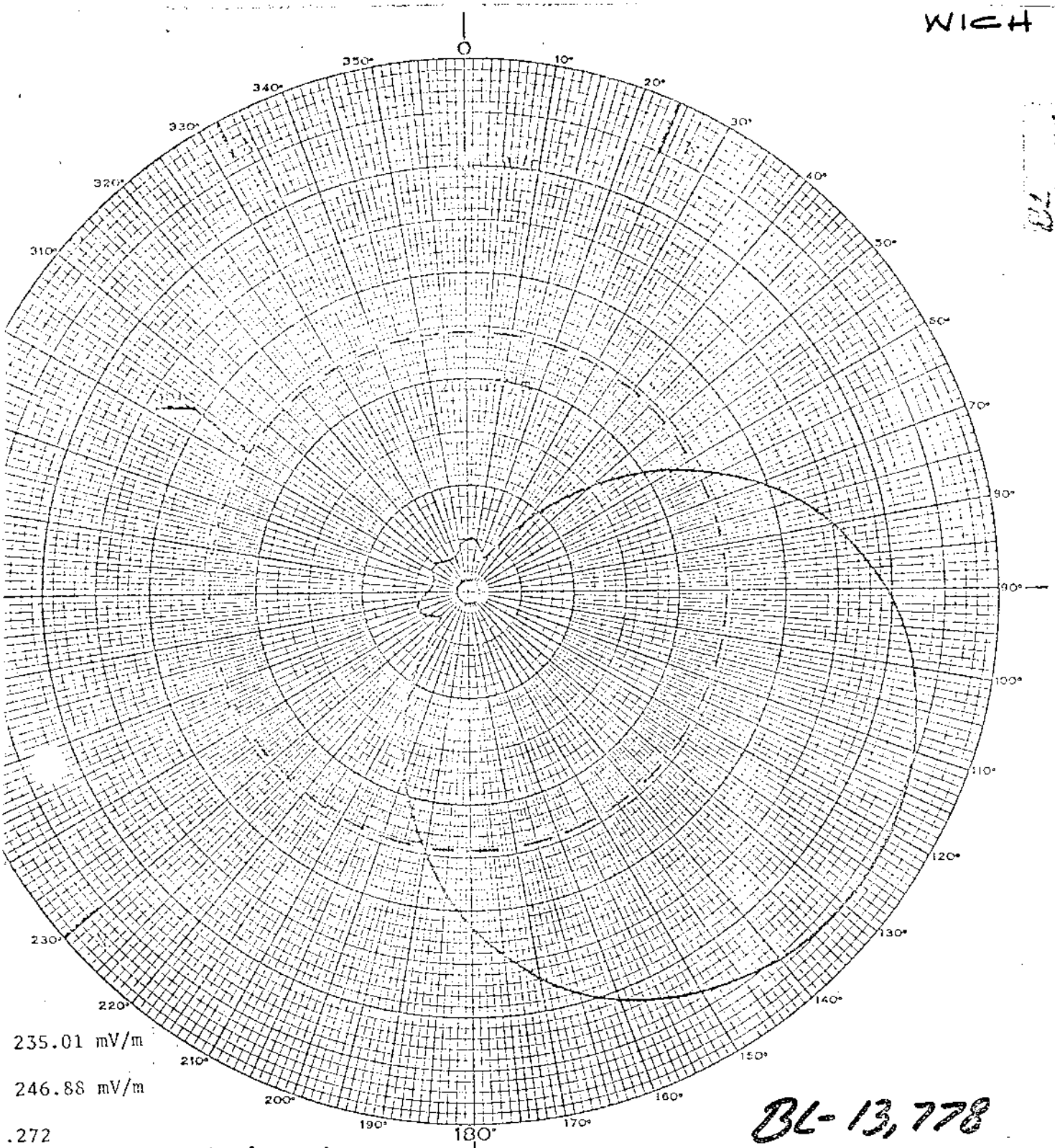
WICH

PROPOSED WICH, Norwich, Conn. 1KW, U, DA-1 1310 kc
DAY & NIGHT NULLS (4/19/54G)



FCC File No. BP-9232 Accepted 4/9/54 WHICH, Norwich, Conn. 1310 kc

WICH



235.01 mV/m

246.88 mV/m

.272

BL-13,778

WICH

ER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 3	STATION DATA
#1 G = 168° S = 90° #2 S #3 127°T.	TOWER No.	ELECTRICAL HEIGHT G°	SPACING S°	PHASING V°	FIELD RATIO F	NIGHTIME	CALL WICH FREQ 1310 kHz POWER 1.0 kW TYPE DA-2 TIME Unlimited LAT. N41°55'10" LONG. W72°04'54"
	1			0°	1.0	STANDARD HORIZONTAL PLANE PATTERN	
	2			231°	1.351		
	3			102°	0.645		
	4					NOVEMBER, 1973	E.H.MUNN, JR. RADIO ENGINEER COLDWATER, MICH.
	5						
	6					$\theta^\circ = 0$	
	DAYTIME OPERATION ☐ NIGHTIME OPERATION ☒						

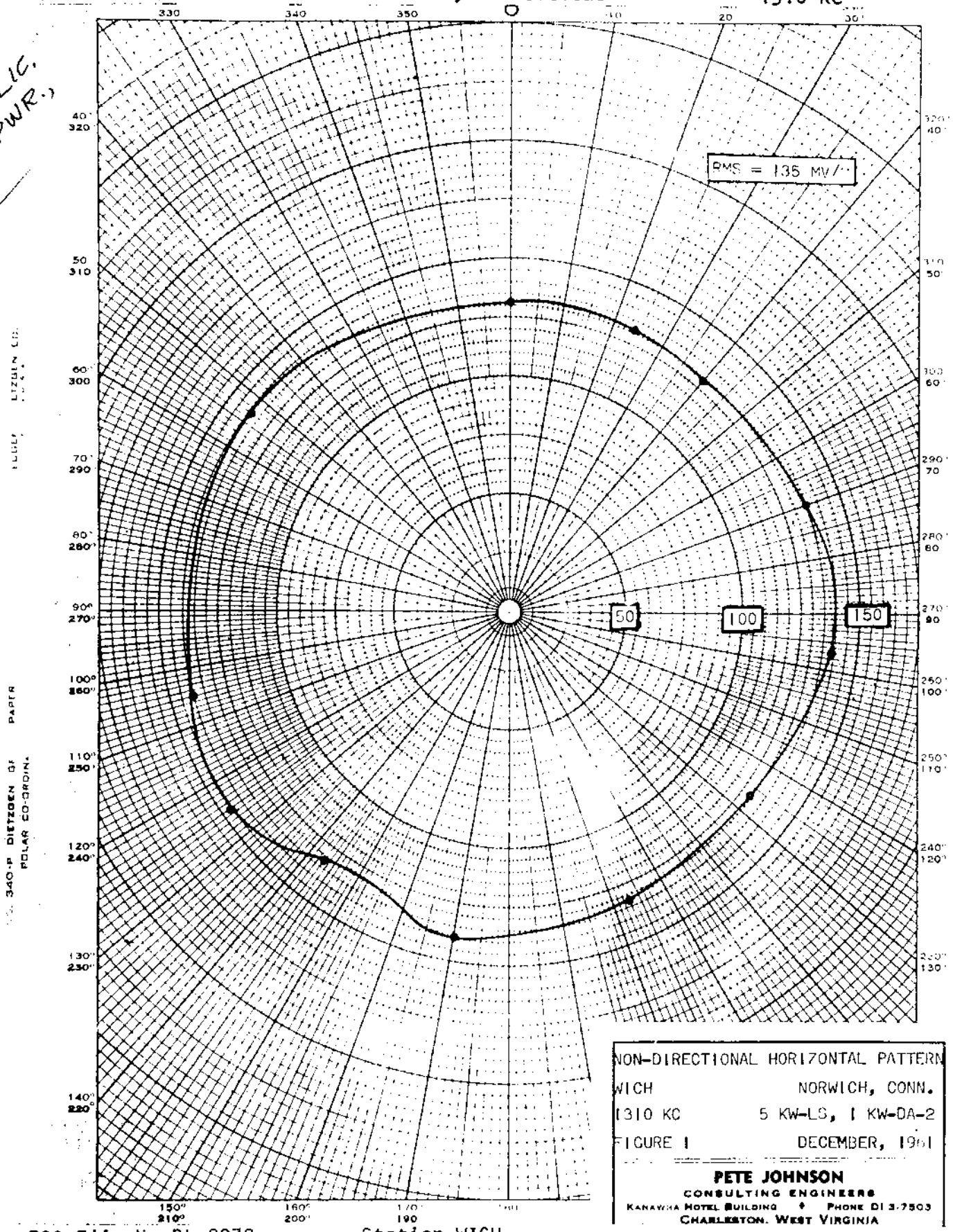
WICH

Measured Non-DA
(4-27-62ct)

Station WICH
Norwich, Connecticut

1kw, 5kw-LS, DA-2, U
1310 kc

BL 9070
4-15-65 LIC.
INCR. DAY PWR.,
CHG. DA



NON-DIRECTIONAL HORIZONTAL PATTERN
WICH — NORWICH, CONN.
1310 KC — 5 KW-LS, 1 KW-DA-2
FIGURE 1 — DECEMBER, 1961

PETE JOHNSON
CONSULTING ENGINEERS
KANAWHA HOTEL BUILDING • PHONE DI 3-7503
CHARLESTON, WEST VIRGINIA

FCC File No. BL-9070
Accepted 4-6-62

Station WICH
Norwich, Connecticut

1310 kc

WICH

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station : WICH

Main Studio: Norwich, Connecticut

Frequency : 1310 kHz

Power : 5kw

Notification List No.: 1752

Date : October 5, 1977 Class: I

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 41° 33' 10"
West Longitude: 72° 04' 34"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2)
Number of elements: 3
Type of elements : Series excited, uniform cross-section, guyed, vertical steel towers.

TOWER :	NW(#1)	C(#2)	SE(#3)	
HEIGHT ABOVE INSULATORS :	351.2'	351.2'	351.2'	(168°)
NIGHT PHASING:	0°	+232.37°	+104.74°	
NIGHT FIELD RATIO :	1.000	2.134	1.562	
DAY PHASING :	0°	-147°	294 °	
DAY FIELD RATIO :	1	1.575	0.722	

SPACING AND ORIENTATION: Adjacent towers are spaced 187.8' (90°) on a line bearing 127° true.

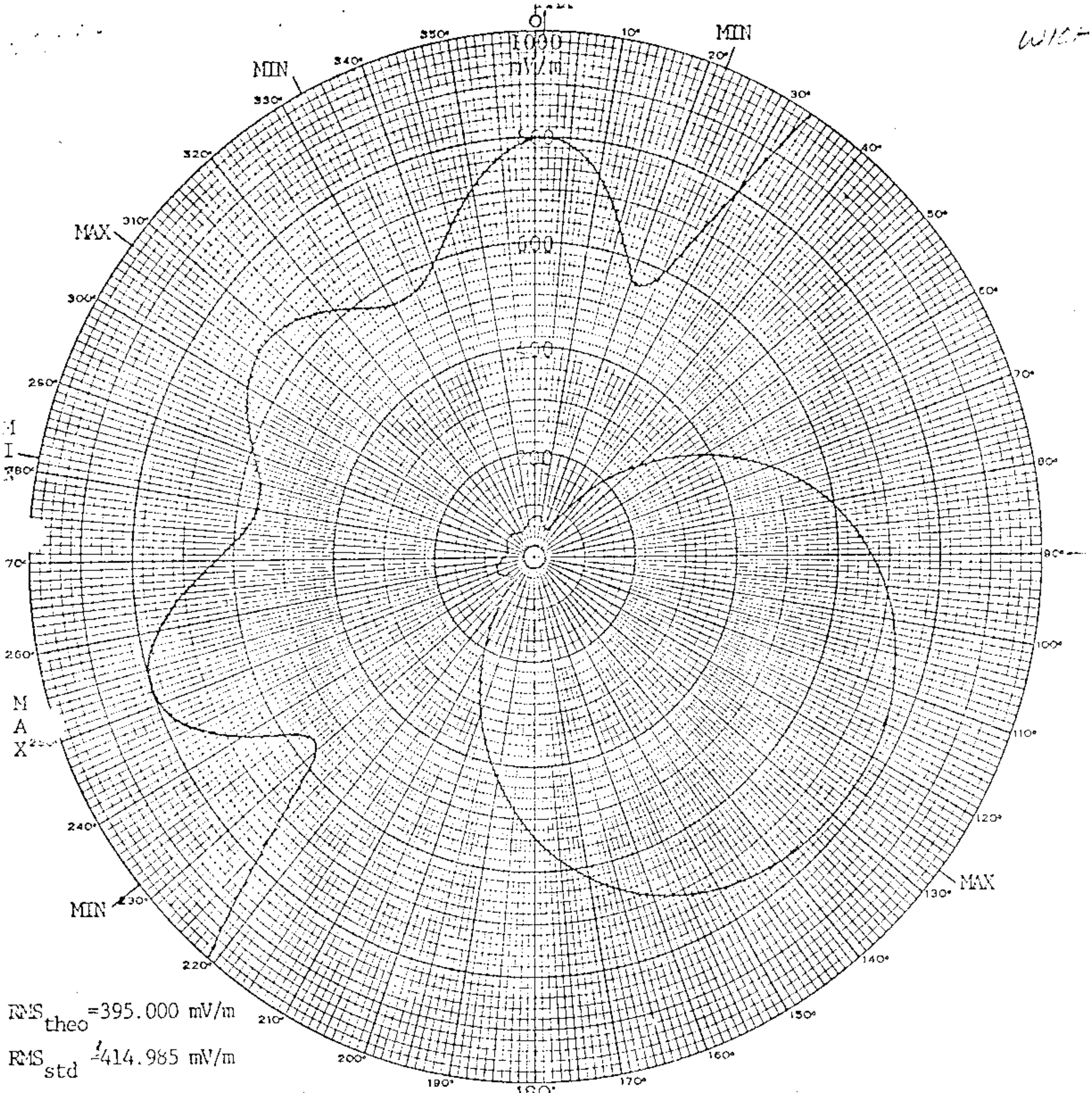
GROUND SYSTEM: 120-300' equally spaced copper about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL		STANDARD
	RMS	RSS	RMS
Day	533.2 mv/m	823.9 mv/m	560.3 mv/m
Night 1/	395.0 mv/m	495.3 mv/m	415.0 mv/m

1/ By adjustment of input power.

Note: Please retain the Daytime directional antenna radiation pattern notified for Station WICH in United States Change List Number 1585 dated June 19, 1974 and attach to this Revised Description Sheet and Nighttime pattern. This notification concerns only a change in the Nighttime operation of the station with Daytime operation continued as previously notified.



WICH

RMS$_{theo}$=395.000 mV/m

RMS$_{std}$ =414.985 mV/m

RSS$_{theo}$=495.269 mV/m

10X EXPANSION

TOWER PLACEMENT SKETCH

G's=168°
S = 90°

#1 — S — #2 — S — #3 → 127° T.

PATTERN PARAMETERS

TOWER No	ELECTRICAL HEIGHT G°	SPACING S°	PHASING ψ°	FIELD RATIO r
1			0	1.000
2			232.371	2.134
3			104.743	1.562
4				
5				
6				

DAYTIME OPERATION [ ] NIGHTTIME OPERATION [X]

FIGURE 3

PROPOSED
NIGHTTIME
STANDARD
PATTERN

WICH

NORWICH, CONN.

$\theta^{o} = 0$

STATION DATA

CALL WICH
FREQ 1310 kHz
POWER 5.0 kW
TYPE DA-2
TIME UNLIMITED
LAT. N41-33-10
LONG. W72-04-34

E.H.MUNN, JR.
RADIO ENGINEER
COLDWATER, MICH.

WIFE

SUPPLEMENTAL DIRECTIONAL ANTENNA
DESCRIPTION SHEET

Station: WIFE — Main Studio: Indianapolis, Indiana

Frequency: 1310 kHz — Power: 1 kW Night 5 kW Day

Notification List No. 1686 — Date: May 26, 1976 — Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 39° 43' 08"
West Longitude: 86° 10' 33"

Authorized for Nighttime operation (DA-N).

Predicted effective Day Field: (omnidirectional) 610 mv/m at rated power.

Predicted effective Night Field: 267 mv/m at rated power.

Note: Please retain the description sheet and horizontal directional antenna radiation patterns notified for station WIFE in United States Change List Number 1351, dated December 17, 1969, and the vertical angle directional antenna radiation patterns notified for WIFE in List Number 1066 dated June 24, 1964, and attach to this supplemental Description Sheet. This notification is for the purpose of cancelling the proposed change in transmitter location notified in List Number 1516 dated February 14, 1973.

CTR NO 30982A4

WIFE

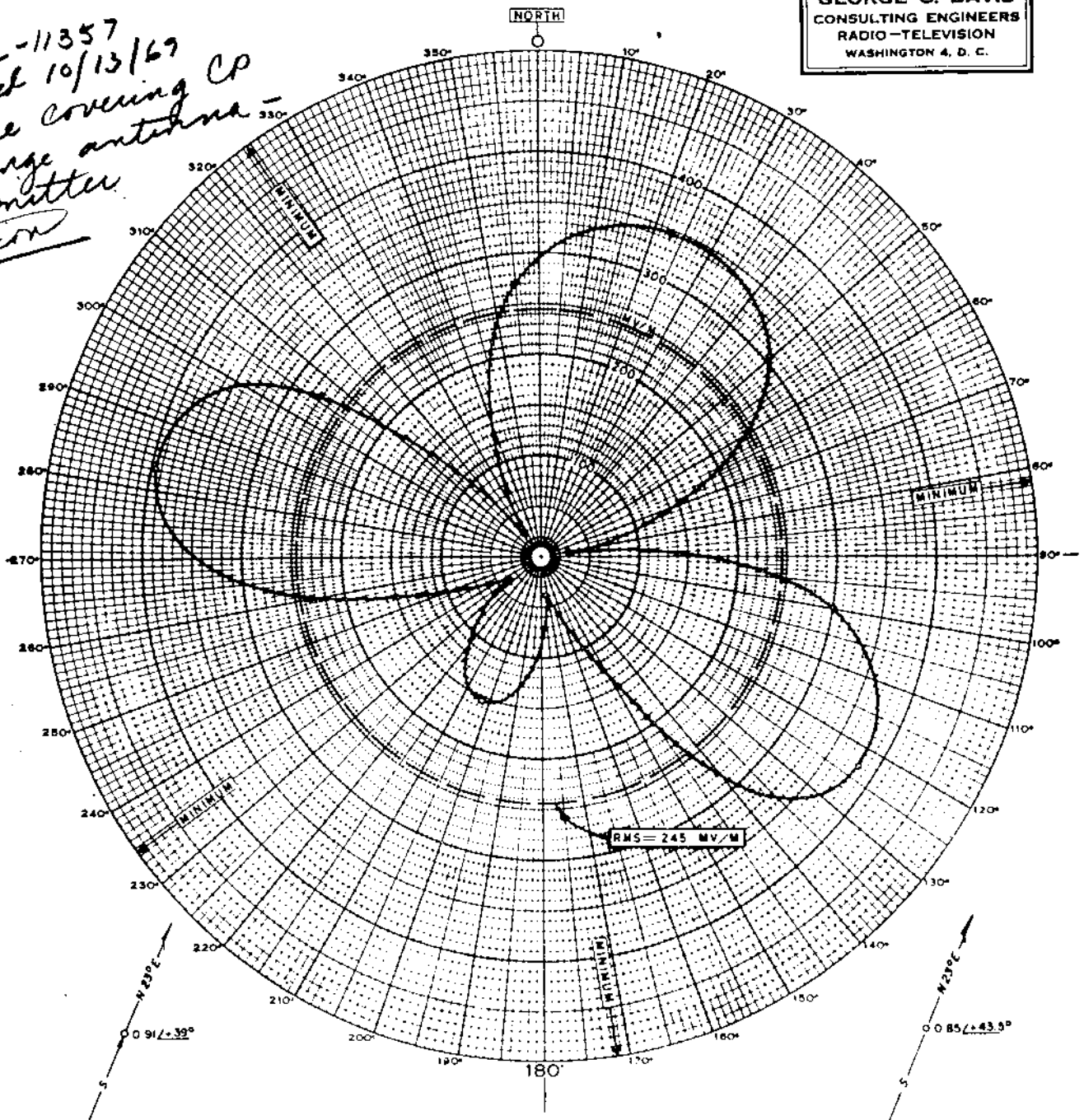
Measured Night
(8-26-66ct)

Station WIFE
Indianapolis, Indiana

1kw, 5kw-LS, DA-N, U
1310 kc

BL-11357
Granted 10/13/67
License covering CP
to change antenna-
transmitter
location

GEORGE C. DAVIS
CONSULTING ENGINEERS
RADIO—TELEVISION
WASHINGTON 4, D. C.



N 23°E
0.91∠+.39°
S
0.10∠0°
MEASURED

H = 221° = 460'
S = 262° = 544'

N 23°E
0.85∠+43.5°
S
0.10∠0°
THEORETICAL

H = 221° = 460'
S = 262° = 544'

NORTH LATITUDE 39° 43' 08"
WEST LONGITUDE 86° 10' 33"

MEASURED HORIZONTAL PLANE RADIATION PATTERN FOR NIGHTTIME OPERATION OF WIFE, INDIANAPOLIS, INDIANA 1310 KC - 1/5 KW - DA-N JUNE 1965

FCC File No. BL-11357
Accepted 8-9-66

Station WIFE
Indianapolis, Indiana

1310 kc

WIFE

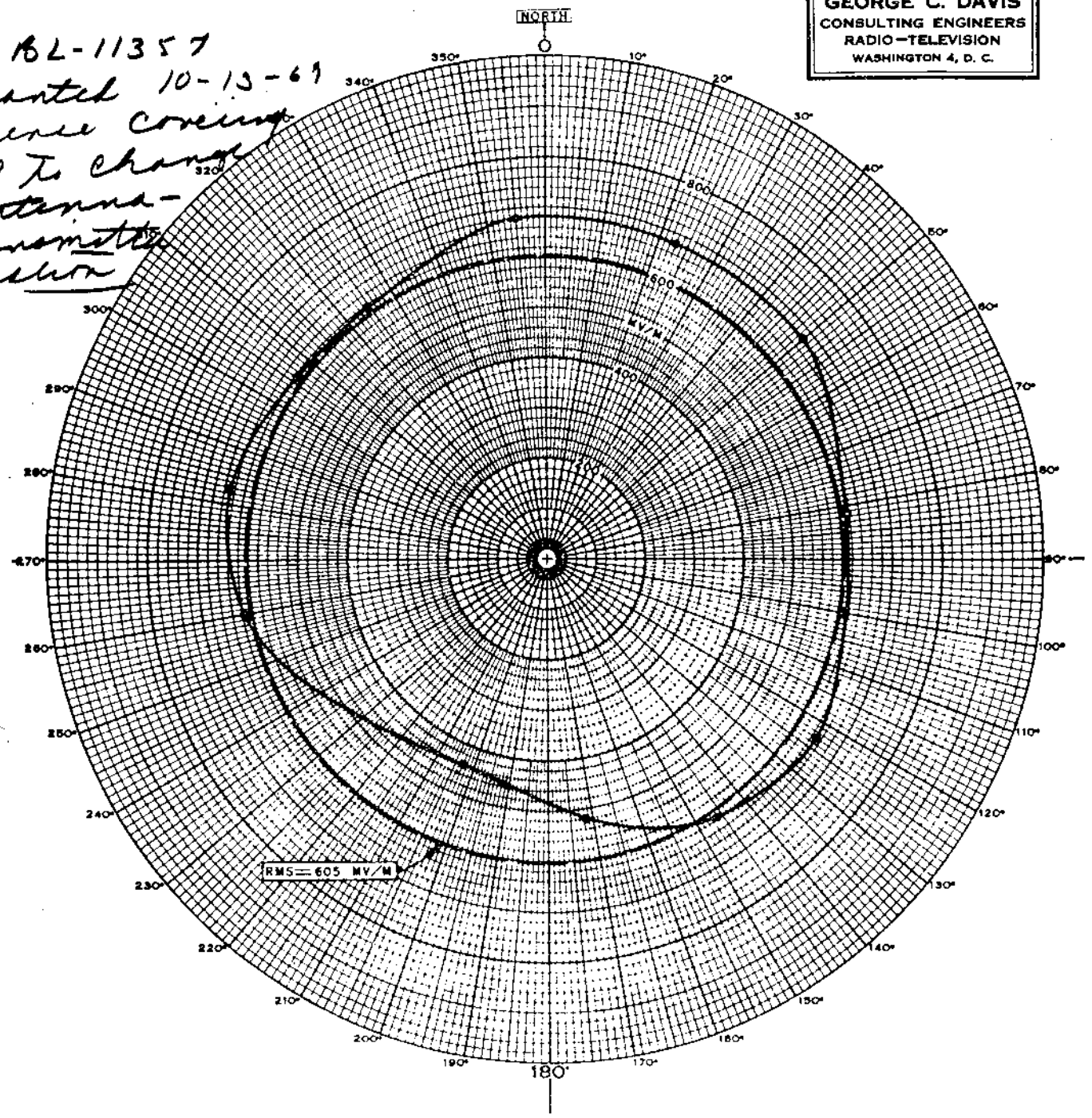
Measured Non-DA
(8-26-66ct)

Station WIFE
Indianapolis, Indiana

1kw, 5kw-LS, DA-N, U
1310 kc

GEORGE C. DAVIS
CONSULTING ENGINEERS
RADIO—TELEVISION
WASHINGTON 4, D. C.

BL-11357
Granted 10-13-65
license covering
CP to change
antenna-
transmitter
location



NON-DIRECTIONAL
UNATTENUATED FIELD INTENSITY
AT ONE MILE FOR
WIFE, INDIANAPOLIS, INDIANA
1310 KC - 1/5 KW - DA-N
JUNE 1965

FCC File No. BL-11357
Accepted 8-9-66

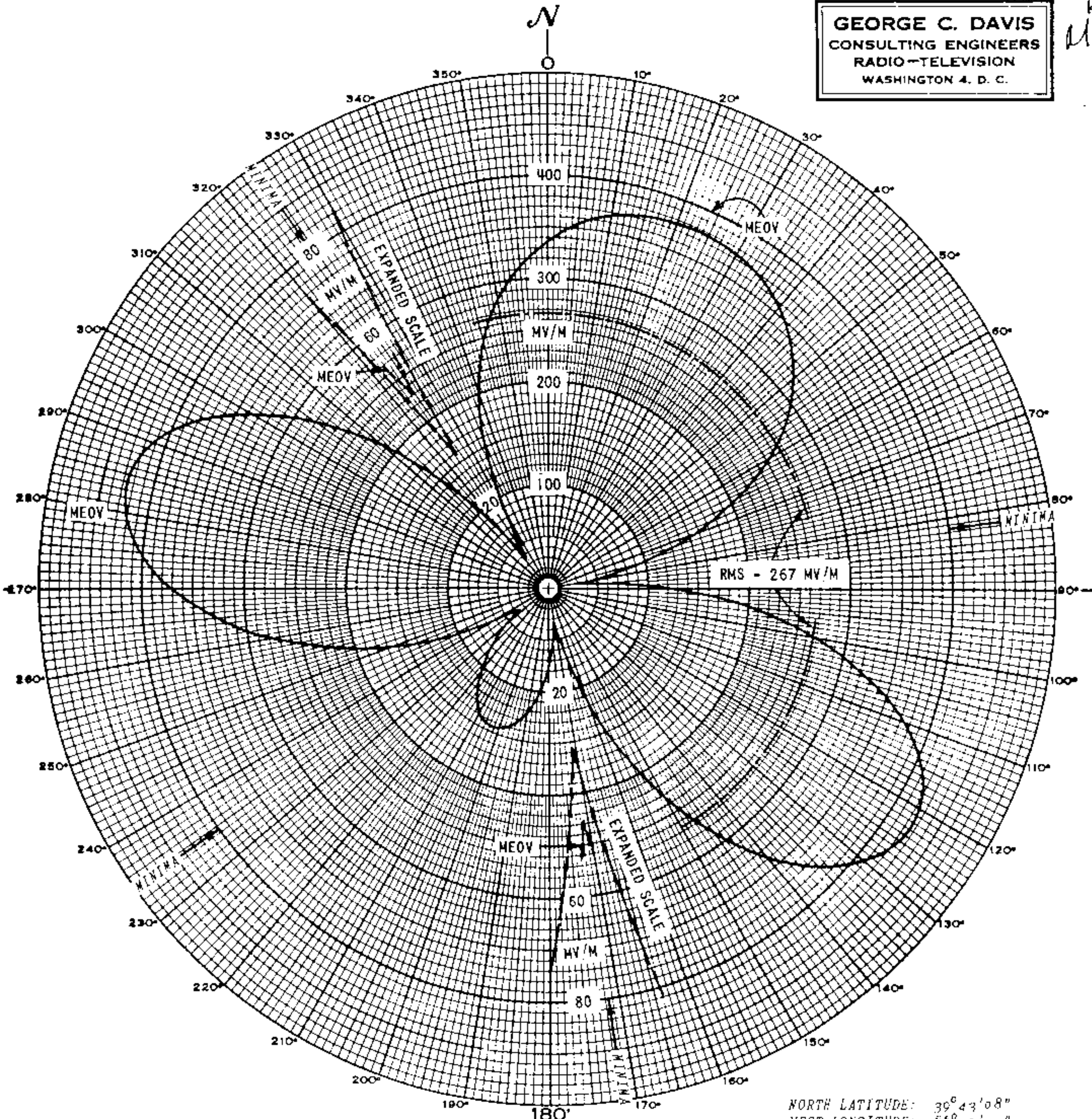
Station WIFE
Indianapolis, Indiana

1310 kc

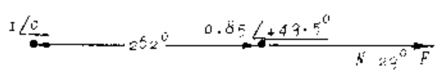
WIFE

ADDITIONAL INFORMATION RE MEOV

GEORGE C. DAVIS
CONSULTING ENGINEERS
RADIO—TELEVISION
WASHINGTON 4, D. C.



NORTH LATITUDE: 39°43'08"
WEST LONGITUDE: 86°10'33"



N - 221° - 460'
S - 252° - 544'

COMPUTED HORIZONTAL
PLANE RADIATION PATTERN
FOR THE NIGHTTIME OPERATION OF
WIFE, INDIANAPOLIS, INDIANA
1310 KHz 1/5 KW DA-N U
DECEMBER 1969

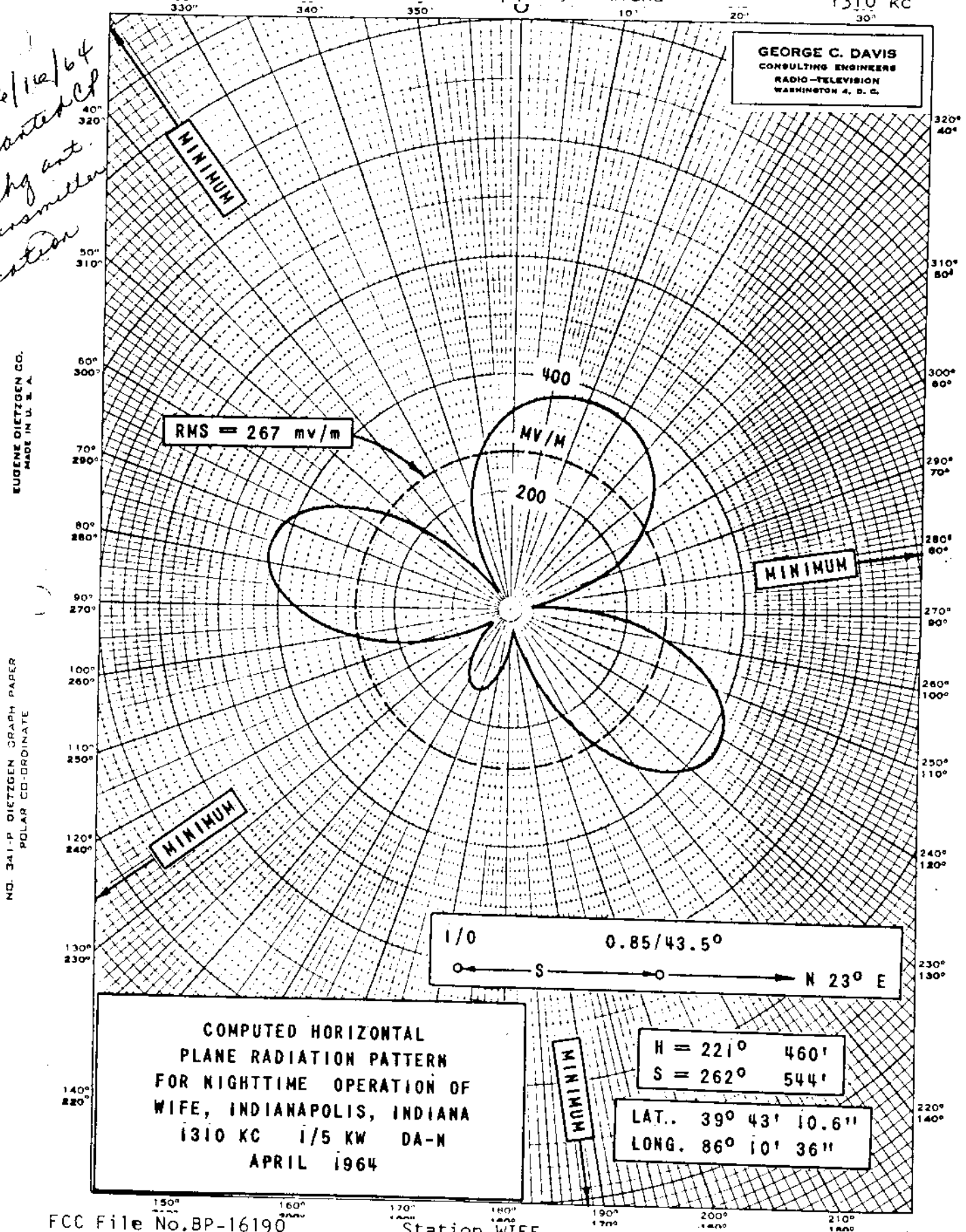
WIFE

Proposed Night
(5-28-64ct)

Station WIFE
Indianapolis, Indiana

1kw, 5kw-LS, DA-N, U
1310 kc

6/1/64
granted cp
to chg ant.
transmitter
location



FCC File No. BP-16190
Accepted 5-20-64

Station WIFE
Indianapolis, Indiana

1310 kc

WIFE

Proposed Night
(2-28-70ct)

New; Indianapolis Bcstg, Inc.
Indianapolis, Indiana

1kw,5kw-LS,DA-N,U
1310 kc

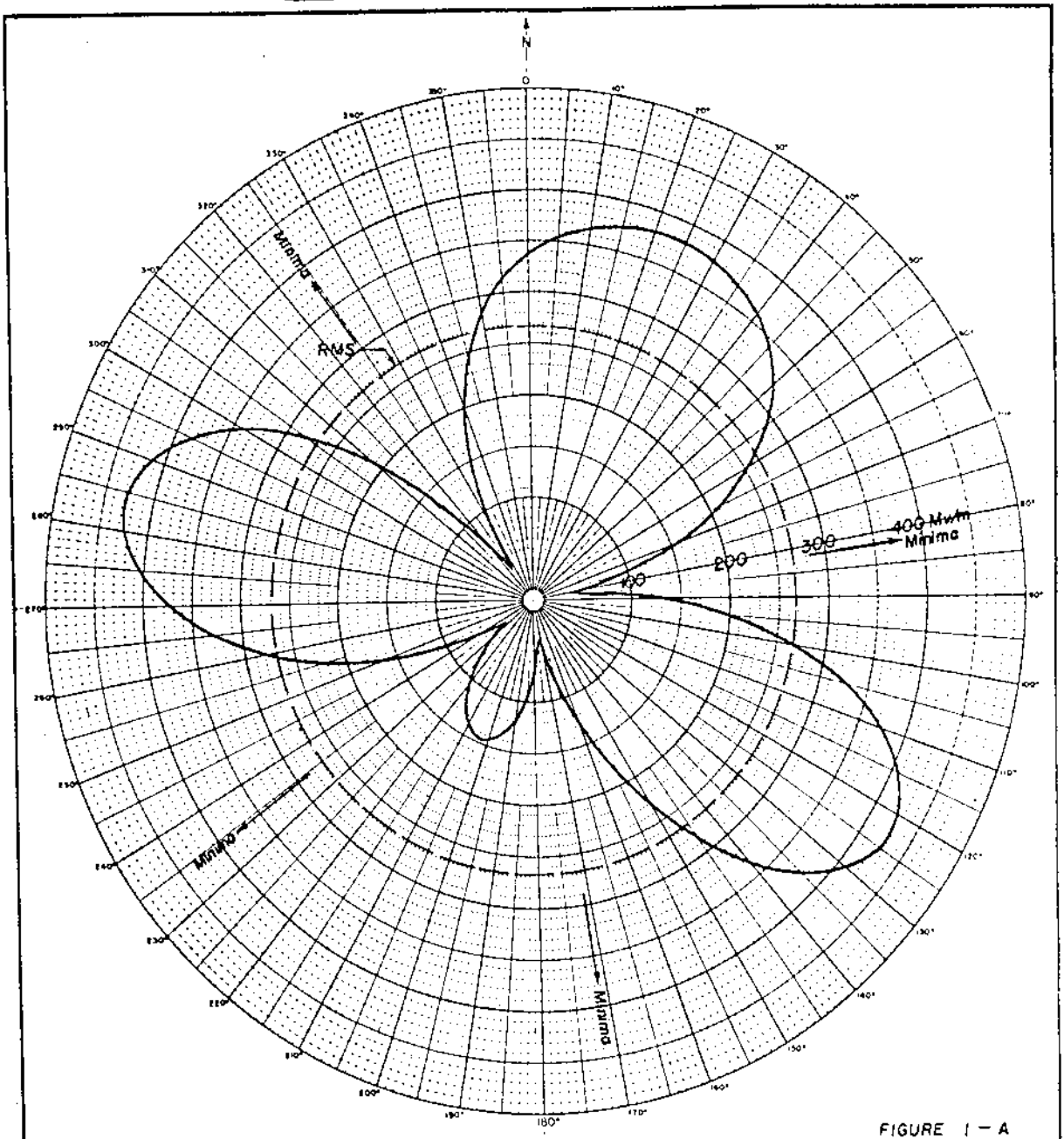
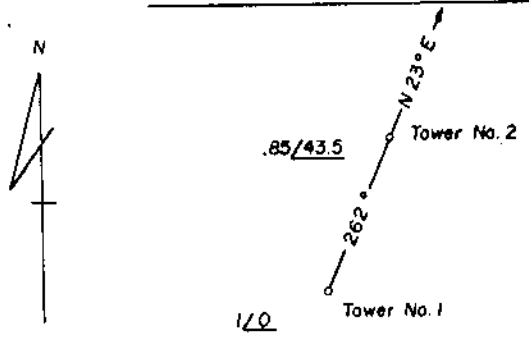


FIGURE 1 – A

HORIZONTAL RADIATION PATTERN

SPACING AND ORIENTATION OF TOWERS



G = 221°

APPLICANT	INDIANAPOLIS B/C, INC.,
LOCATION	INDIANAPOLIS, INDIANA
FREQUENCY	1310 KC/S
POWER	1 KW
LATITUDE	39 DEG 42 MIN 46 SEC
LONGITUDE	86 DEG 10 MIN 33 SEC
WHEN USED	NIGHTTIME
RMS FIELD	268
DATE	JANUARY 1970

RAYMOND E. ROHRER & ASSOCIATES
CONSULTING RADIO ENGINEERS
WASHINGTON, D. C.

FCC File No.BP-18706
Accepted 2-20-70

New; Indianapolis Bcstg, Inc.
Indianapolis, Indiana

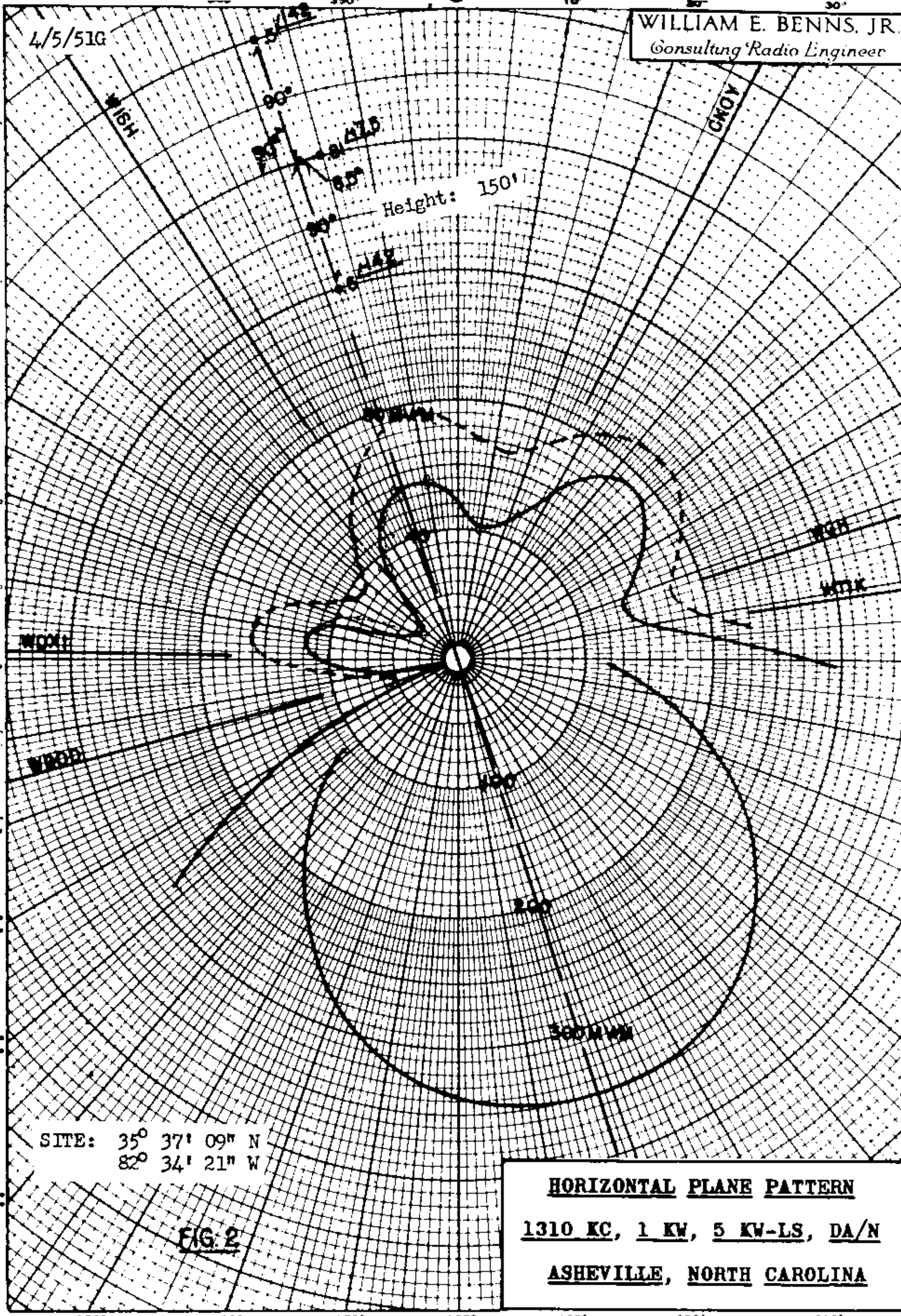
1310 kc

WISE

PROPOSED
NIGHT

WISE, ASHEVILLE, N. C.

1kw, 5kw-LS, DA-N   1310 kc



HORIZONTAL PLANE PATTERN

1310 KC, 1 KW, 5 KW-LS, DA/N

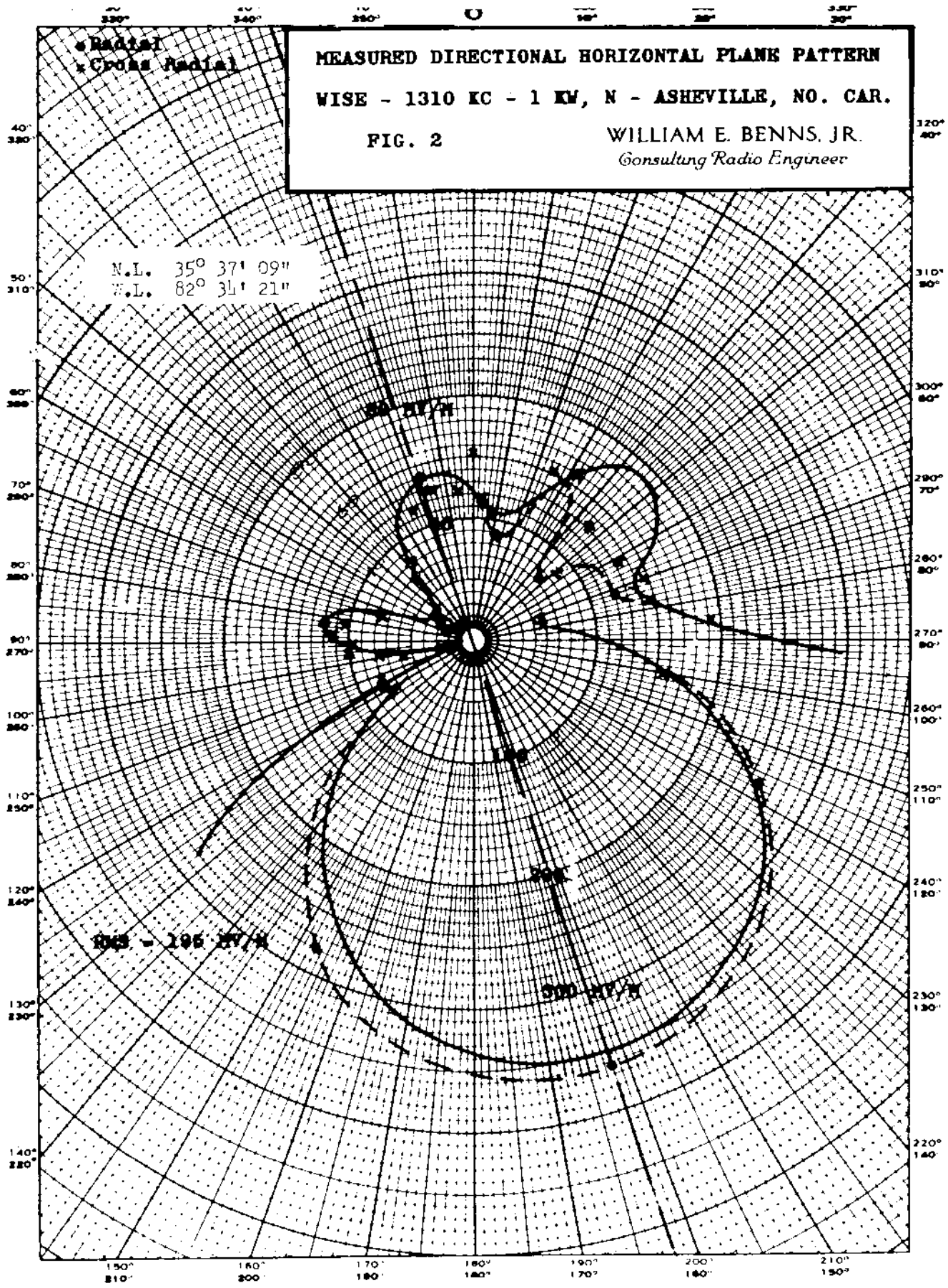
ASHEVILLE, NORTH CAROLINA

AMENDMENT RECD 3/20/51 ACC 3/30/51 BP-7132

WISE, Asheville, N. C. 1310 kc

WISE

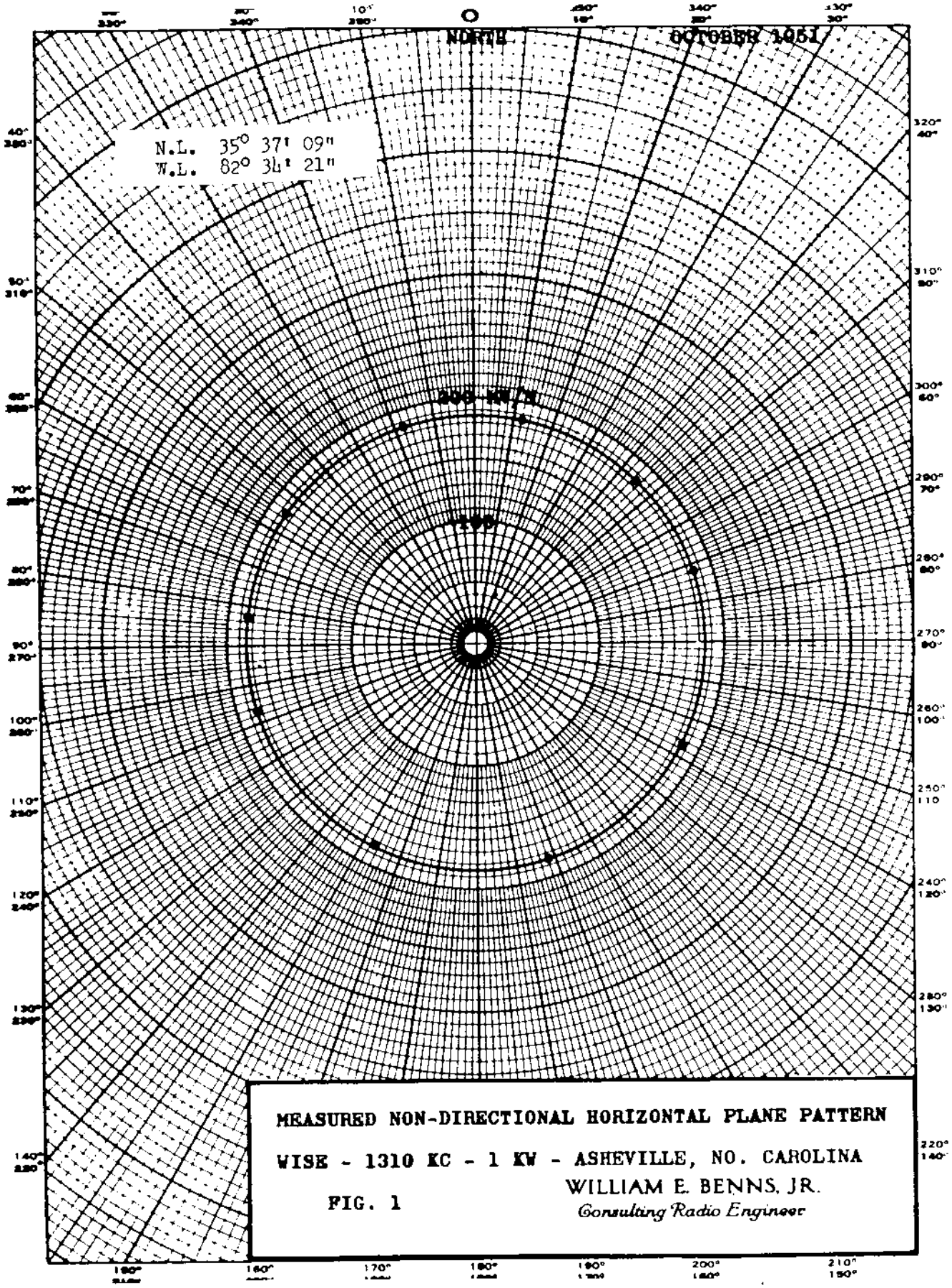
MEASURED NIGHT | WISE, ASHEVILLE, N. C. 1/21/52G | 1KW, 5KW-LS, U, DA-N | 1310 KC



APPL RECD 12/28/51 ACC 1/15/52 BL-1616 | WISE, ASHEVILLE, N. C. | 1310 KC

WISE

MEASURED WISE, ASHEVILLE, N. C. 1KW, 5KW-LS, U, DA-N 1310 KC
NON-DA 1/21/52G



MEASURED NON-DIRECTIONAL HORIZONTAL PLANE PATTERN

WISE - 1310 KC - 1 KW - ASHEVILLE, NO. CAROLINA

FIG. 1

WILLIAM E. BENNS, JR.
Consulting Radio Engineer

APPL RECD 12/28/51 ACC 1/15/52 BL-4644 WISE, ASHEVILLE, N. C. 1310 KC

WJLK
1310KHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: W J L K — Main Studio: Asbury Park, New Jersey

Frequency: 1310 kHz — Power: 1 kW Night 2.5 kW Day

Notification List No. 1784 — Date: November 9, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:
North Latitude: 40° 13' 47"
West Longitude: 74° 05' 27"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2)
Number of elements: 5
Type of elements: Series excited, uniform cross-section, guyed, vertical steel towers.

TOWER:	#1	#2	#3	#4	#5
HEIGHT ABOVE INSULATORS:	296' (141.86°)	187.8' (90°)	187.8' (90°)	187.8' (90°)	187.8' (90°)
NIGHT PHASING:	58°	197°	0°	-	-
NIGHT FIELD RATIO:	1	1.6	1	-	-
DAY PHASING:	0°	139°	-	245°	128°
DAY FIELD RATIO:	1	1	-	1	1

SPACING AND ORIENTATION: Day: With reference tower #1; tower #2 is spaced 90° on a line bearing 310°; tower #4 is spaced 183.6° on a line bearing 336°, tower #5 is spaced 110° on a line bearing 357°.
Night: Three tower in line on a line bearing 130° T spaced 90° apart.

GROUND SYSTEM: 120-188' equally spaced copper radials plus 120-50' inter-spaced radials about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers.

WJLK
1310 kHz

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

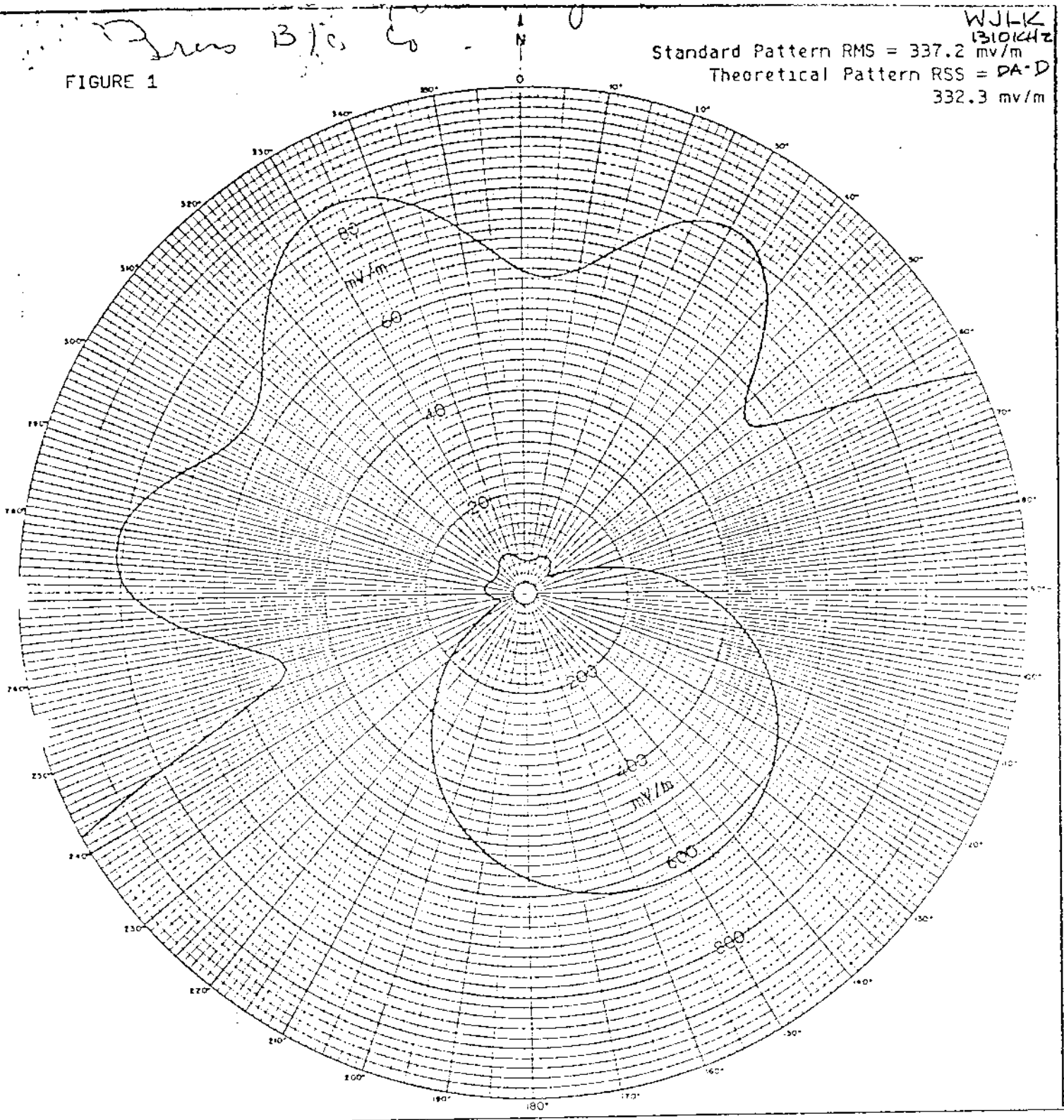
	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	321 mV/m	332.3 mV/m	337.2 mV/m
Night	211 mV/m	330 mV/m	221.7 mV/m

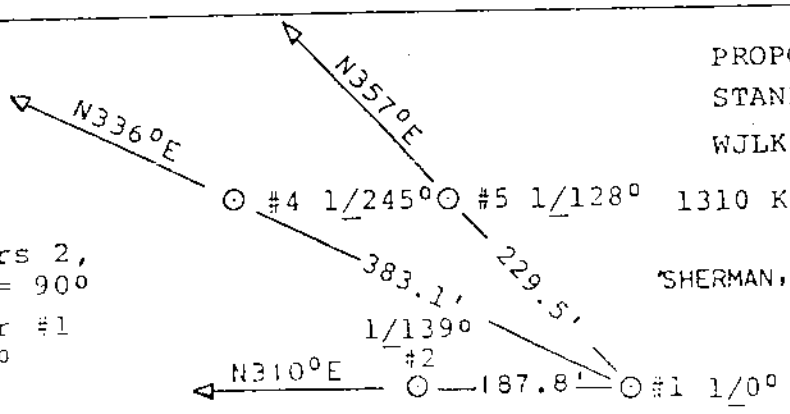
Bros B/C Co -

FIGURE 1

WJLK
1310KHz

Standard Pattern RMS = 337.2 mv/m
Theoretical Pattern RSS = DA-D
332.3 mv/m





PROPOSED DAYTIME HORIZONTAL
STANDARD RADIATION PATTERN
WJLK ASBURY PARK, NEW JERSEY

1310 Khz. 1/2.5 KW-LS DA-2 U
October, 1978

SHERMAN, OLKOWSKI & BEVERAGE ASSOC., INC.

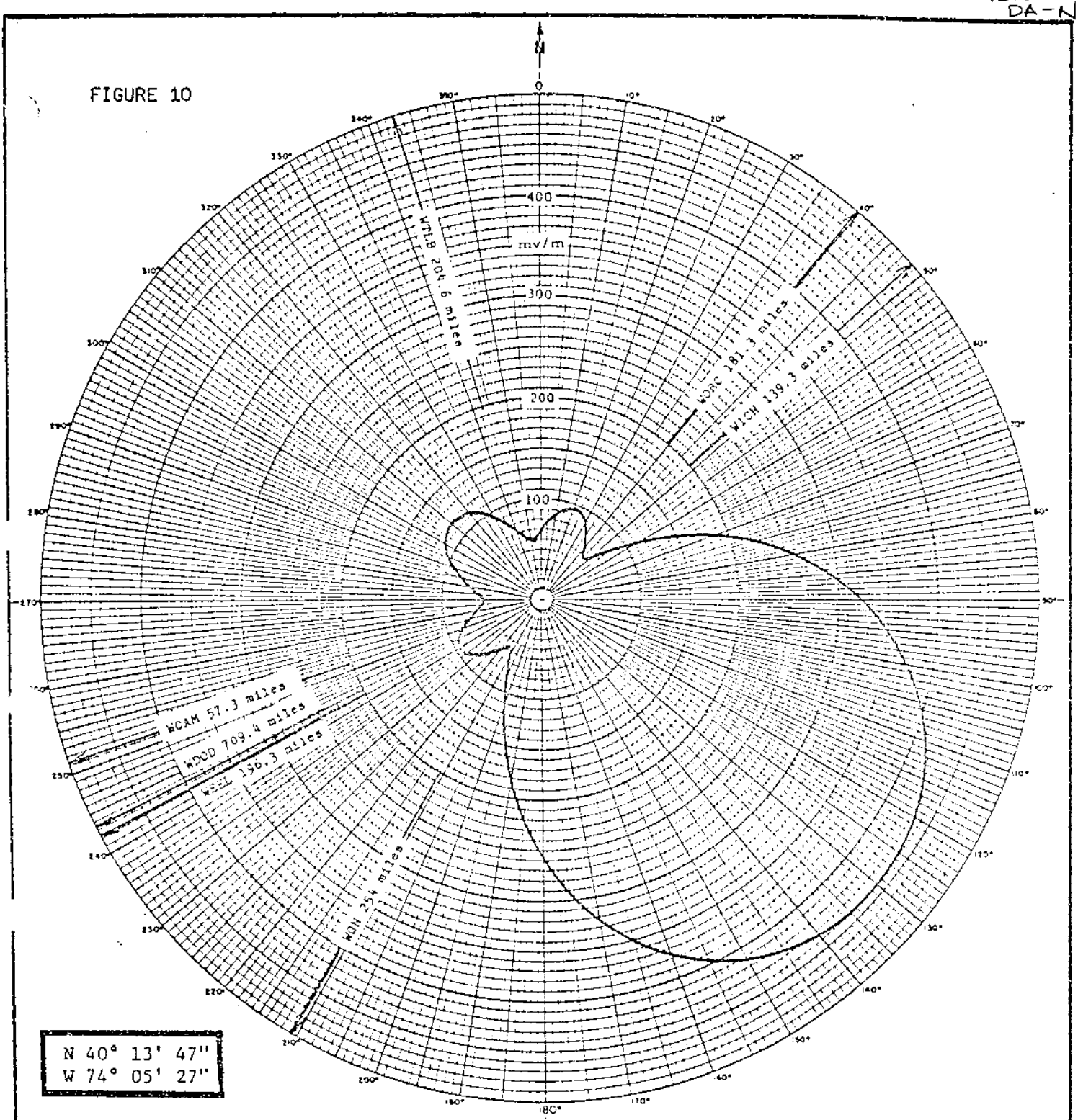
N 40° 13' 47"
W 74° 05' 27"

Pat. towers 2, and 5 = 90°

Ht. tower #1 = 141.86°

WJLK
1310 KHz
DA-N

FIGURE 10



Ht.= 90° 1/0°

90°

Ht.= 90° 1.6/197°

90°

Ht.= 141.86° 1/58°

N130°E

Theoretical Pattern RMS = 211 mv/m
Theoretical Pattern RSS = 350 mv/m
Standard Pattern RMS = 221.7 mv/m

Figure 11
Proposed Nighttime Horizontal
Standard Radiation Pattern
WJLK Asbury Park, New Jersey
1310 kHz. 1/2.5 KW-LS DA-2 U
March, 1978
SHERMAN, OLKOWSKI & BEVERAGE ASSOC., INC.

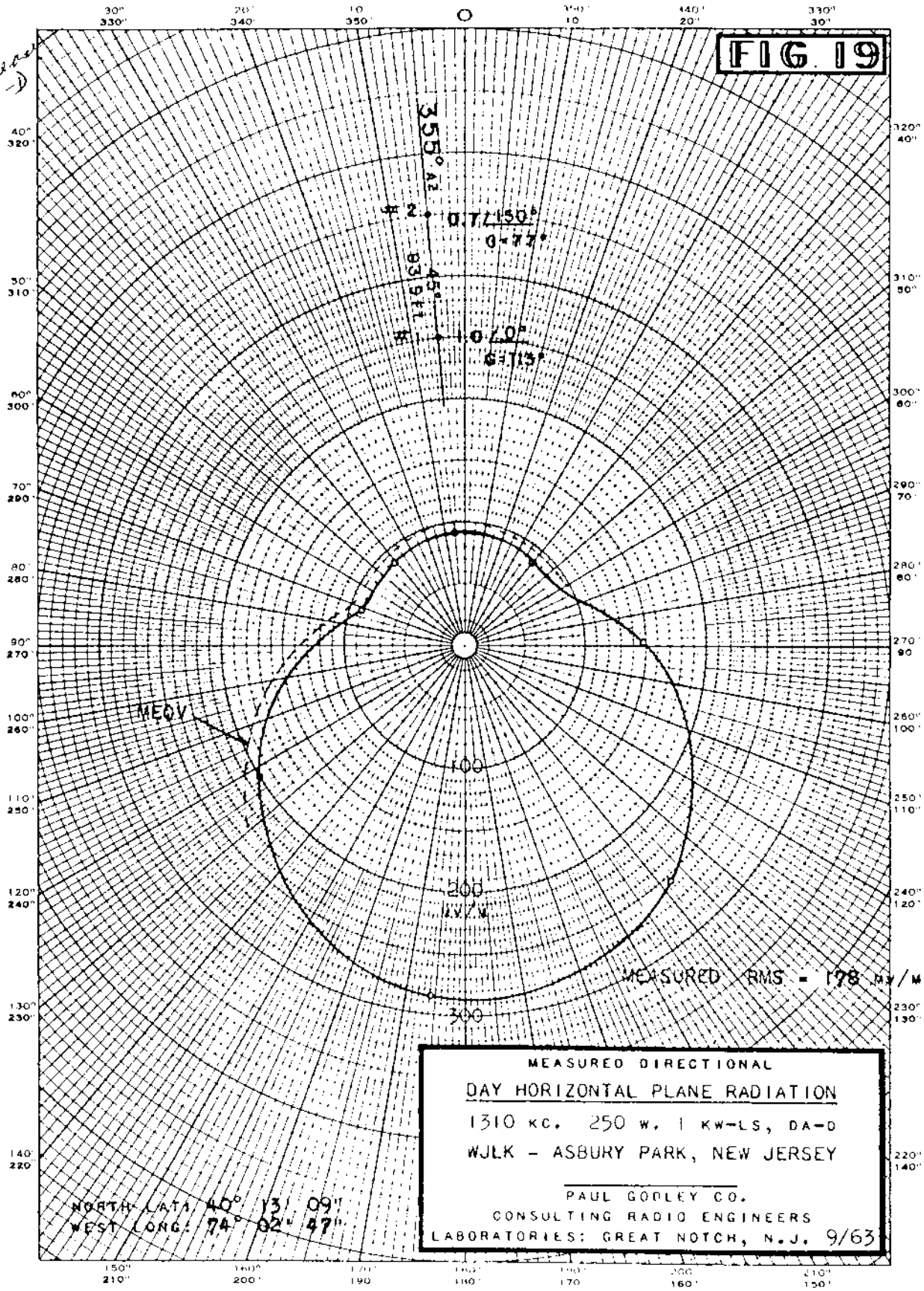
WJLK

Measured Day
(1-29-64ct)

Station WJLK
Asbury Park, New Jersey

250w, 1kw-LS, DA-D, U
1310 kc

3-16-64
LB for increase
w/ power & DA-D



FCC File No.BL-10351
Accepted 1-15-64

Station WJLK
Asbury Park, New Jersey

1310 kc

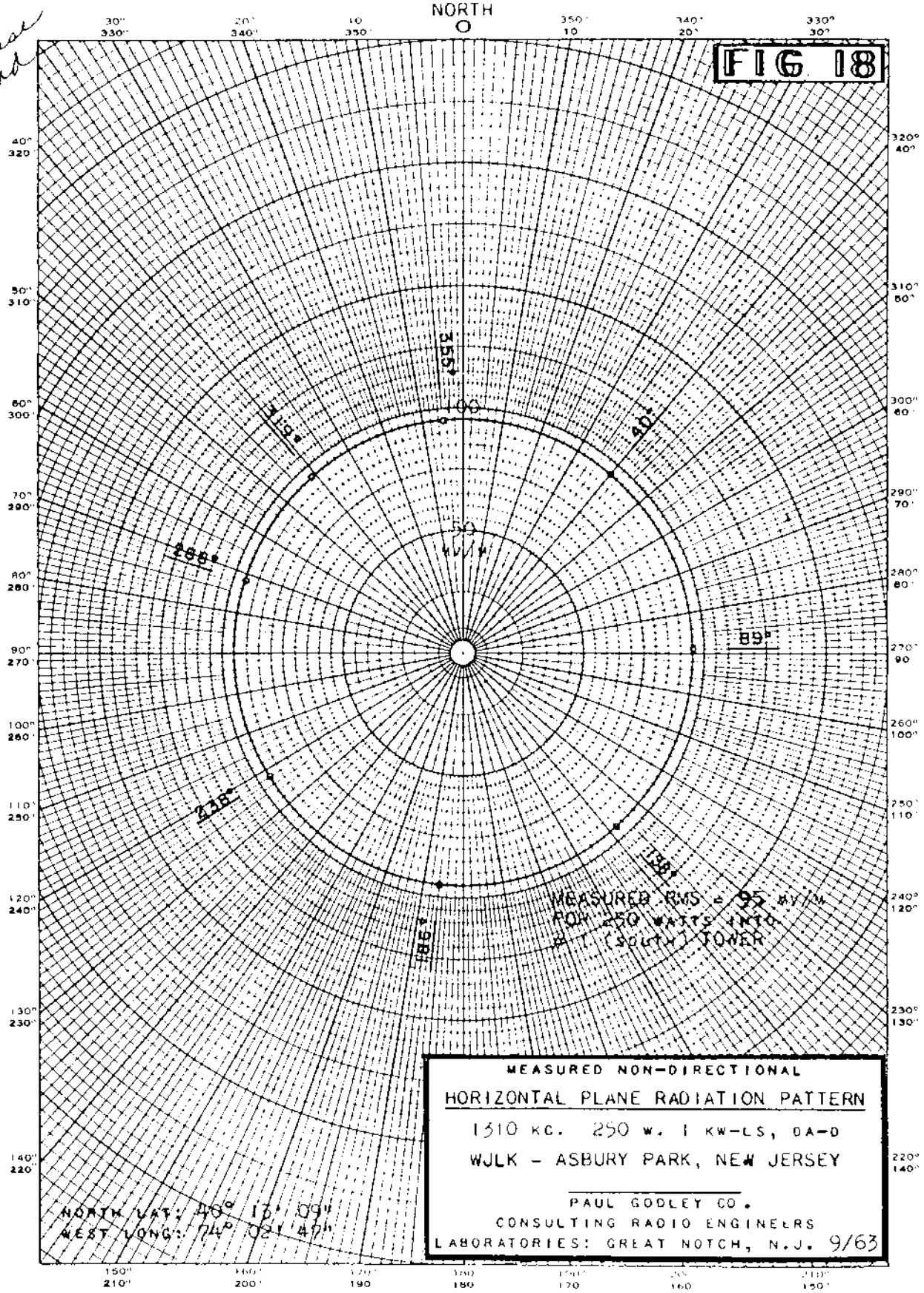
WJLK

Measured Non-DA
(1-29-64ct)

Station WJLK
Asbury Park, New Jersey

250w, 1kw-LS, DA-D, U
1310 kc

1-16-64
for increase
power and
DH-D.



FCC File No. BL-10351
Accepted 1-15-64

Station WJLK
Asbury Park, New Jersey

1310 kc

WJLK

2-11-63 granted CP to increase day power to 1 KW DAD

PROPOSED DAY
(12-15-60g)

Station WJLK 250w, 1kw-LS, DA-D,U
Asbury Park, New Jersey 1310 KC

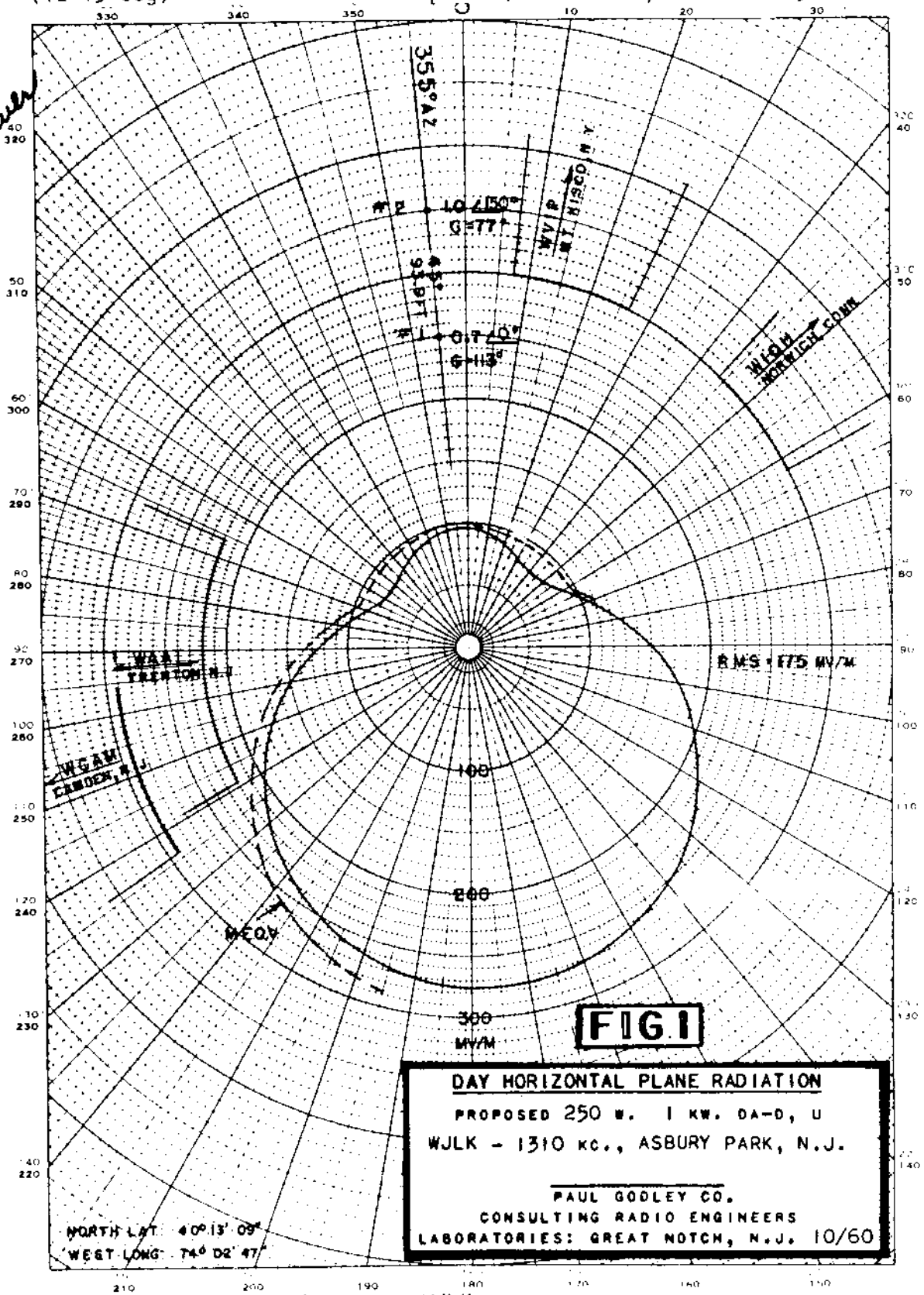


FIG 1

DAY HORIZONTAL PLANE RADIATION
PROPOSED 250 W. 1 KW. DA-D, U
WJLK - 1310 KC., ASBURY PARK, N.J.

PAUL GODLEY CO.
CONSULTING RADIO ENGINEERS
LABORATORIES: GREAT NOTCH, N.J. 10/60

NORTH LAT. 40° 13' 09"
WEST LONG. 74° 02' 47"

FCC File No. ~~BP-11469~~
Accepted 11-25-60

WJLK
Asbury Park, New Jersey 1310 KC

BP-10351

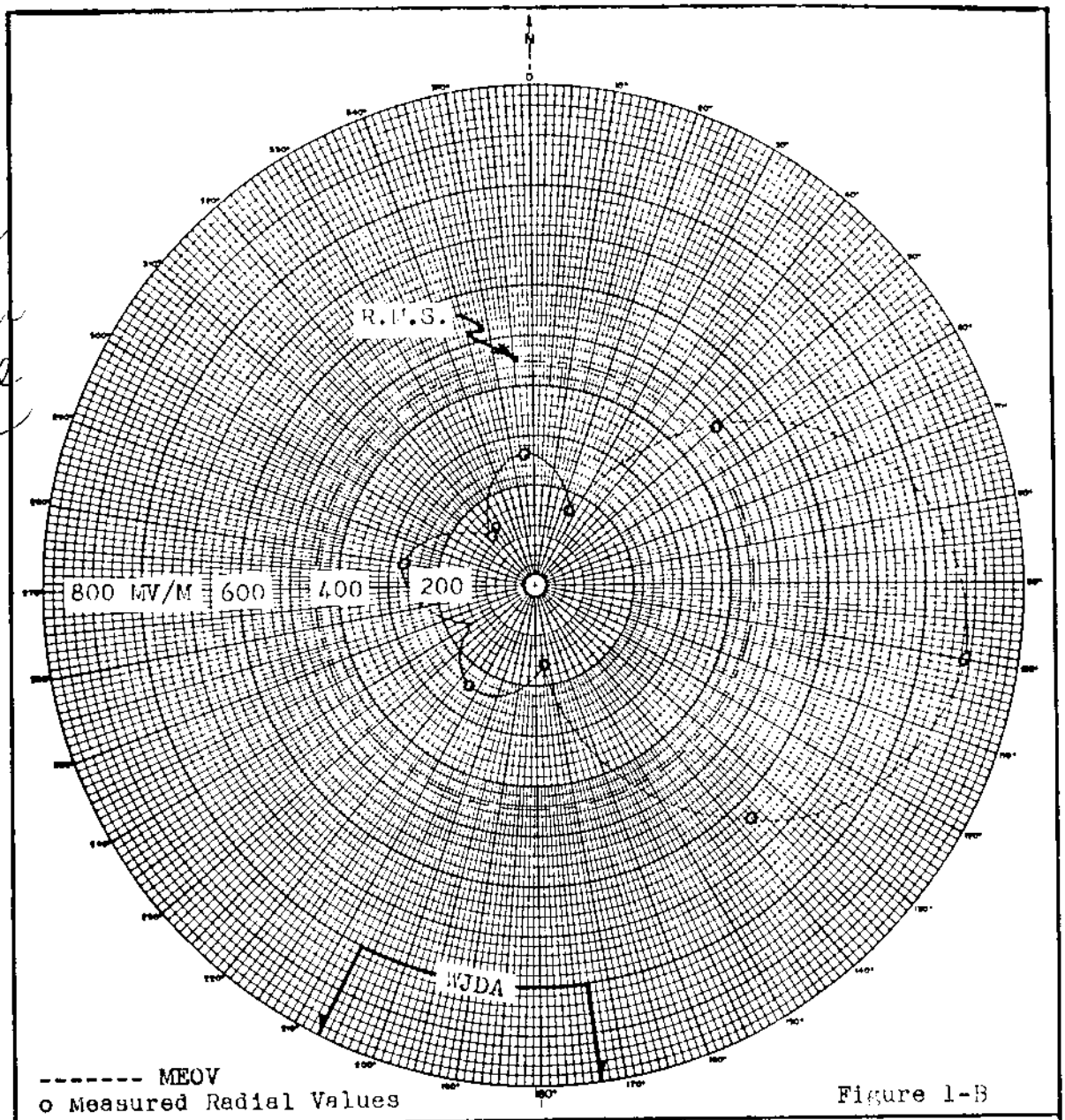
WLOB

Measured Day
(4-29-69ct)

Station WLOB
Portland, Maine

5kw, DA-2, U
1310 kc

BL-12317
Granted
8/26/69
license
covering
CP for
change in
directional
antenna



------- MEOV
o Measured Radial Values

Figure 1-B

HORIZONTAL RADIATION PATTERN

Spacing and Orientation

N 280° E — N 0° E

#1 — .5/157.2° — 90° — #2 — .719/15.5° — 90° — #3 — .5/-157.2°

G (All Towers) = 90°

APPLICANT	WLOB
LOCATION	Portland, Me.
FREQUENCY	1310 KH/Z
POWER	5 KW - U DA-2
LATITUDE	43° 41' 22"
LONGITUDE	70° 20' 06"
WHEN USED	Daytime
RMS FIELD	450 MV/M
DATE	December 1968

C A Service
CONSULTANT ASSOCIATES
CONSULTING ENGINEERS TO THE GREAT NORTHEAST
AM - FM BROADCAST ENGINEERING
14 LEWIS STREET, SPRINGFIELD, VT.

FCC File No. BL-12317
Accepted 4-3-69

Station WLOB
Portland, Maine

1310 kc

WLOB

Measured Night
(4-29-69ct)

Station WLOB
Portland, Maine

5kw,DA-2,U
1310 kc

BL-12317
Granted
8/26/69
license
owing
to for change
in directional
antenna

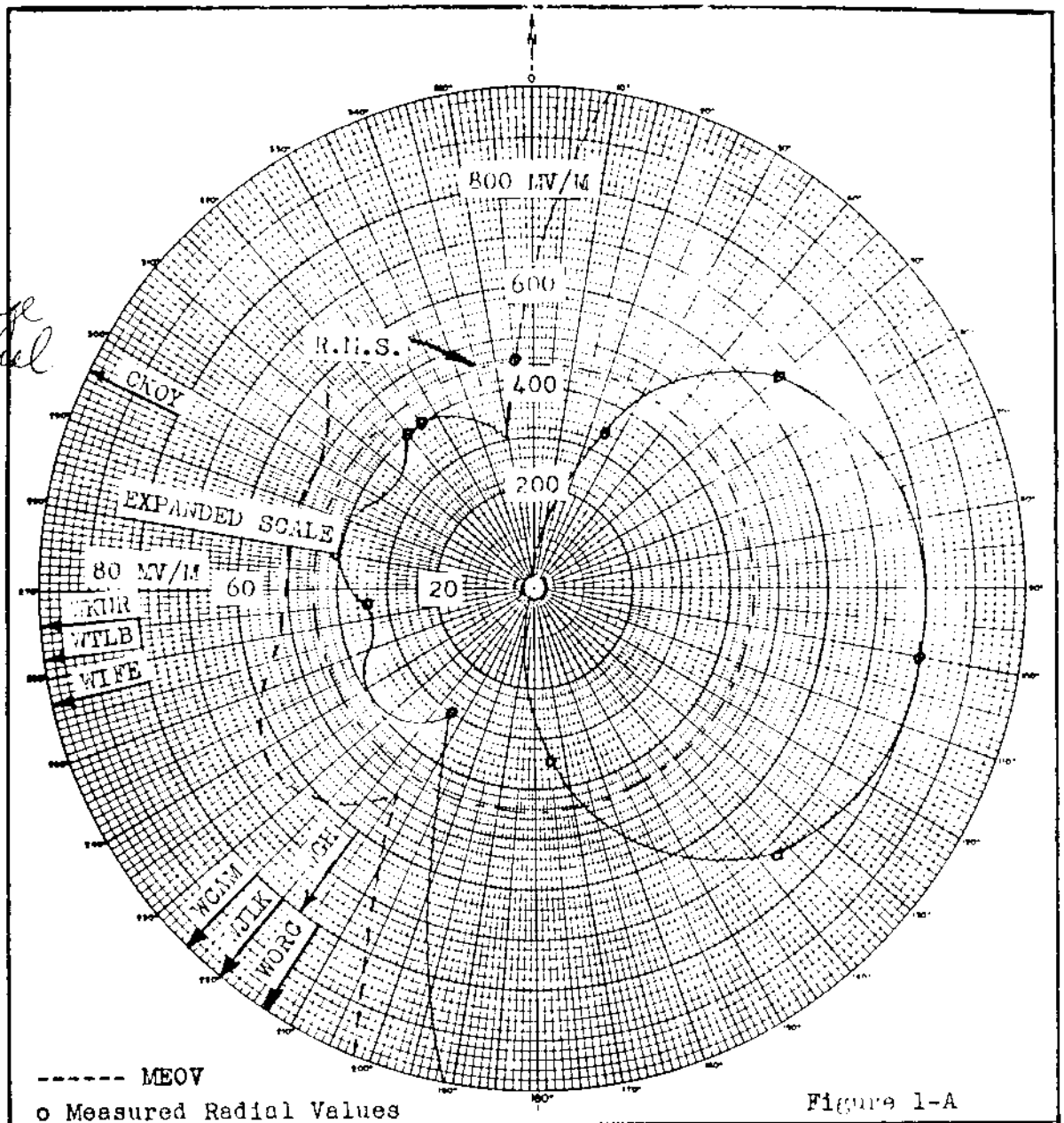
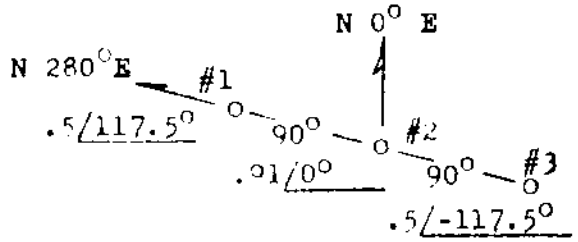


Figure 1-A

HORIZONTAL RADIATION PATTERN

Spacing and Orientation



G (All Towers) = 90°

APPLICANT	WLOB
LOCATION	Portland, Me.
FREQUENCY	1310 KHZ
POWER	5 KW - U DA-2
LATITUDE	43° 41' 22"
LONGITUDE	70° 20' 06"
WHEN USED	Nighttime
R.M.S. FIELD	450 MV/M
DATE	December 1968

C A Service
CONSULTANT ASSOCIATES
AM - FM BROADCAST ENGINEERING
14 LEWIS STREET, SPRINGFIELD, VT.

FCC File No.BL-12317
Accepted 4-3-69

Station WLOB
Portland, Maine

1310 kc

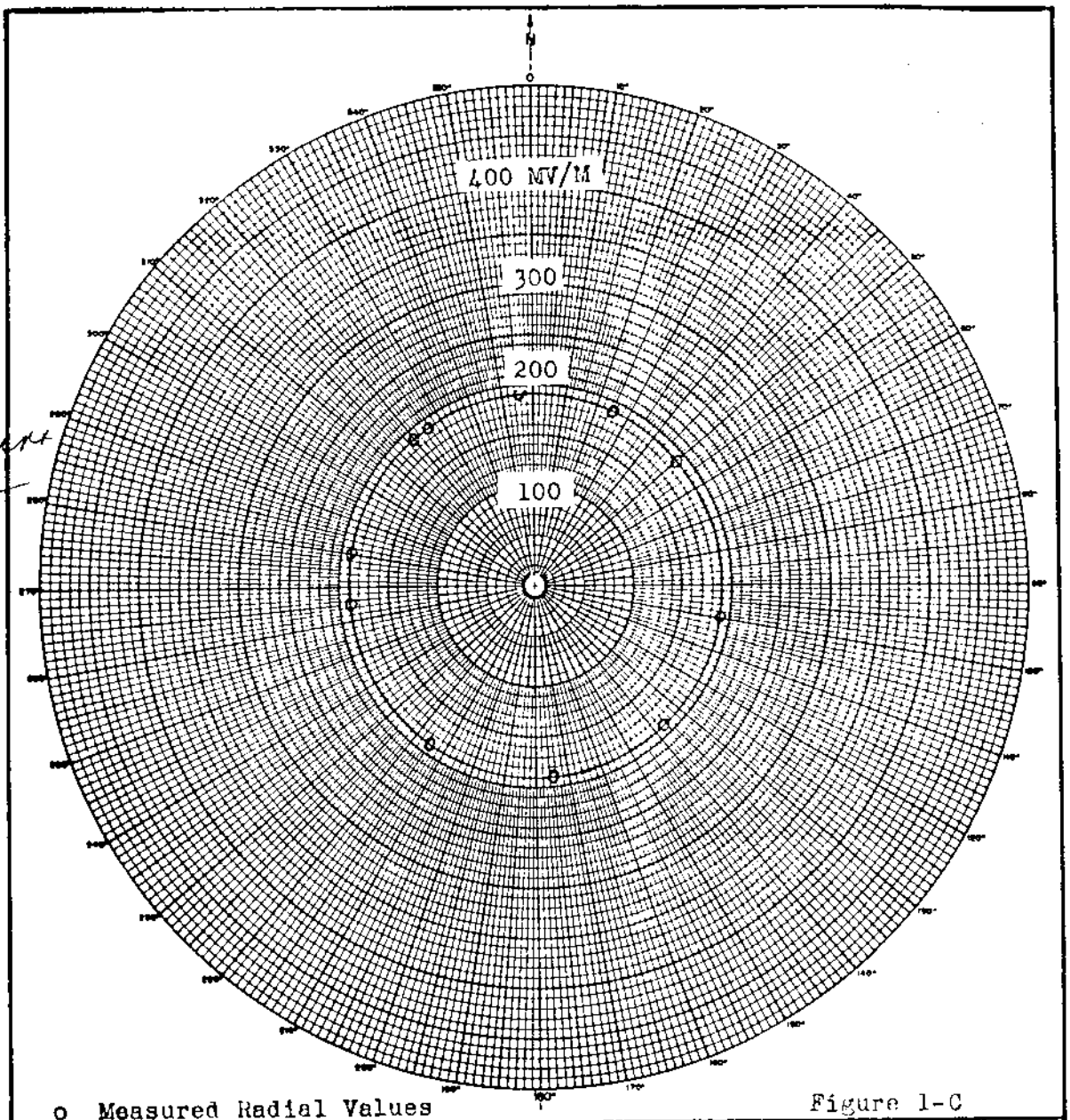
WLOB

Measured Non-DA
(4-29-69ct)

Station WLOB
Portland, Maine

5kw, DA-2, U
1310 kc

BL-12317
Granted
8/26/69
License
covering
CP for
change
in direct-
ional antenna



o Measured Radial Values

Figure 1-C

HORIZONTAL RADIATION PATTERN

NON-DIRECTIONAL SURVEY

APPLICANT	WLOB
LOCATION	Portland, Me.
FREQUENCY	1310 KHZ
POWER	5 KW - U DA-2
LATITUDE	43° 41' 22"
LONGITUDE	70° 20' 06"
WHEN USED	N-D Survey
R.M.S. FIELD	190 MV/M
DATE	December 1968

C A Service
CONSULTANT ASSOCIATES
CONSULTING ENGINEERS TO THE GREAT NORTHEAST
AM - FM BROADCAST ENGINEERING
14 LEWIS STREET, SPRINGFIELD, VT.

FCC File No.BL-12317
Accepted 4-3-69

Station WLOB
Portland, Maine

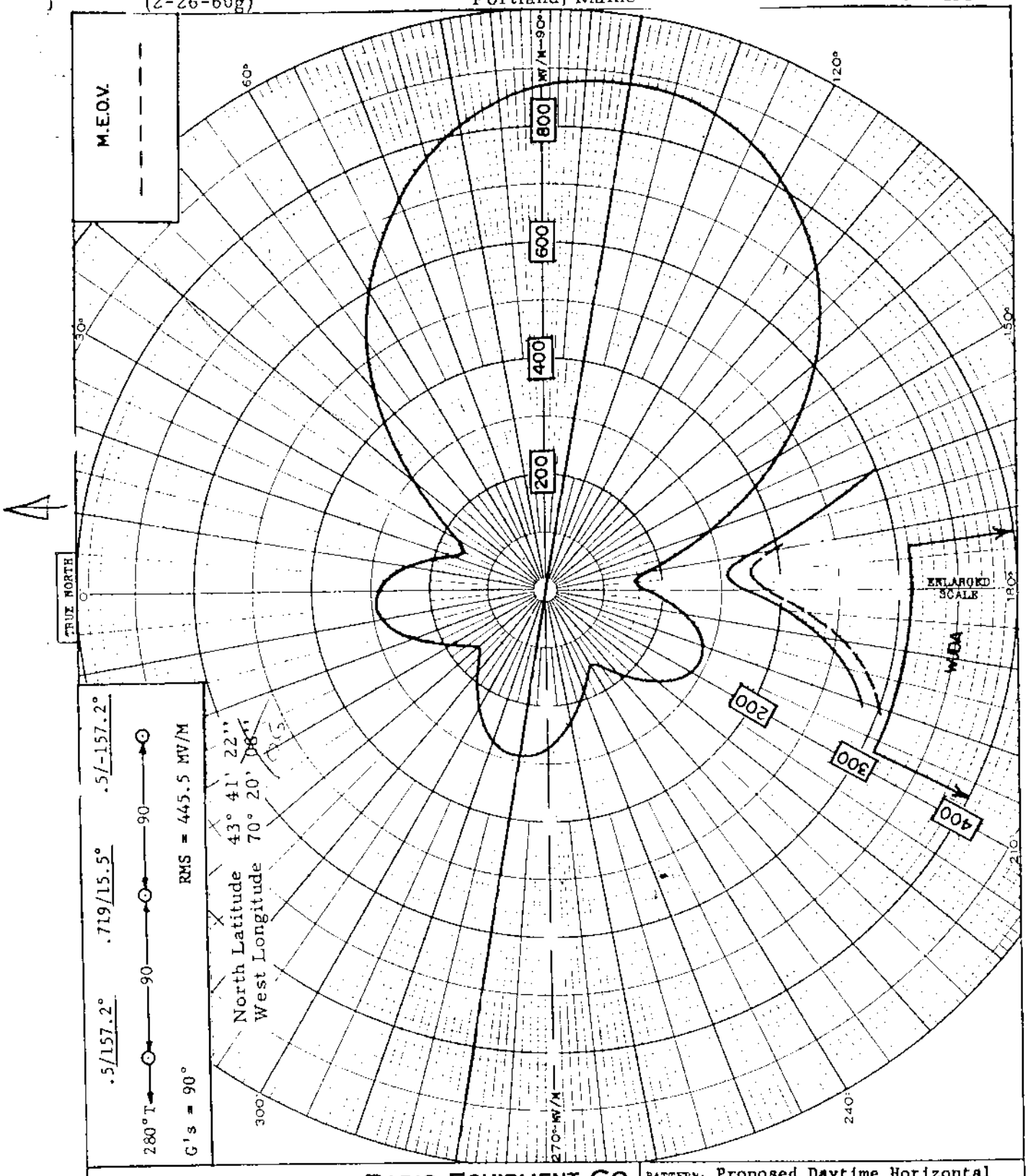
1310 kc

WLOB

PROPOSED DAY
(2-26-60g)

Station WLOB
Portland, Maine

5kw, DA-2,U
1310 KC



COMMERCIAL RADIO EQUIPMENT CO.
RADIO ENGINEERING CONSULTANTS
WASHINGTON, D. C.

PATTERN: Proposed Daytime Horizontal
FOR: WLOB, Portland, Maine
POWER: 5 KW FREQ: 1310 KC
DATE: 12/29/59

FCC File No. BP-13814
Accepted 1-27-60

WLOB
Portland, Maine

1310 KC

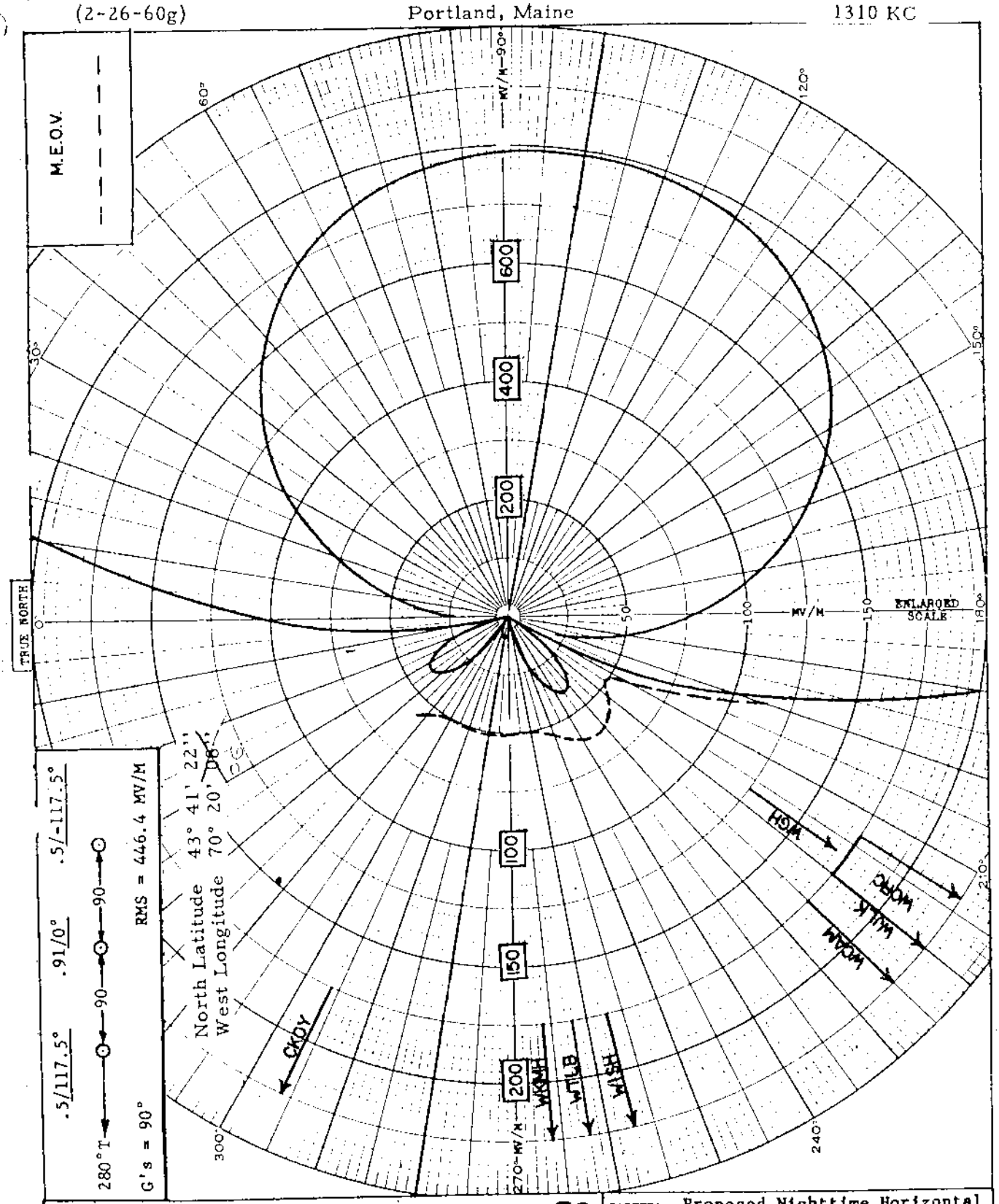
2-14-60 granted CP for DA-2

WLOB

PROPOSED NIGHT
(2-26-60g)

Station WLOB
Portland, Maine

5kw, DA-2,U
1310 KC



COMMERCIAL RADIO EQUIPMENT CO.
RADIO ENGINEERING CONSULTANTS
WASHINGTON, D. C.

PATTERN: Proposed Nighttime Horizontal
FOR: WLOB, Portland, Maine
POWER: 5 KW FREQ: 1310 KC
DATE: 12/29/59

FCC File No. BP-13814
Accepted 1-27-60

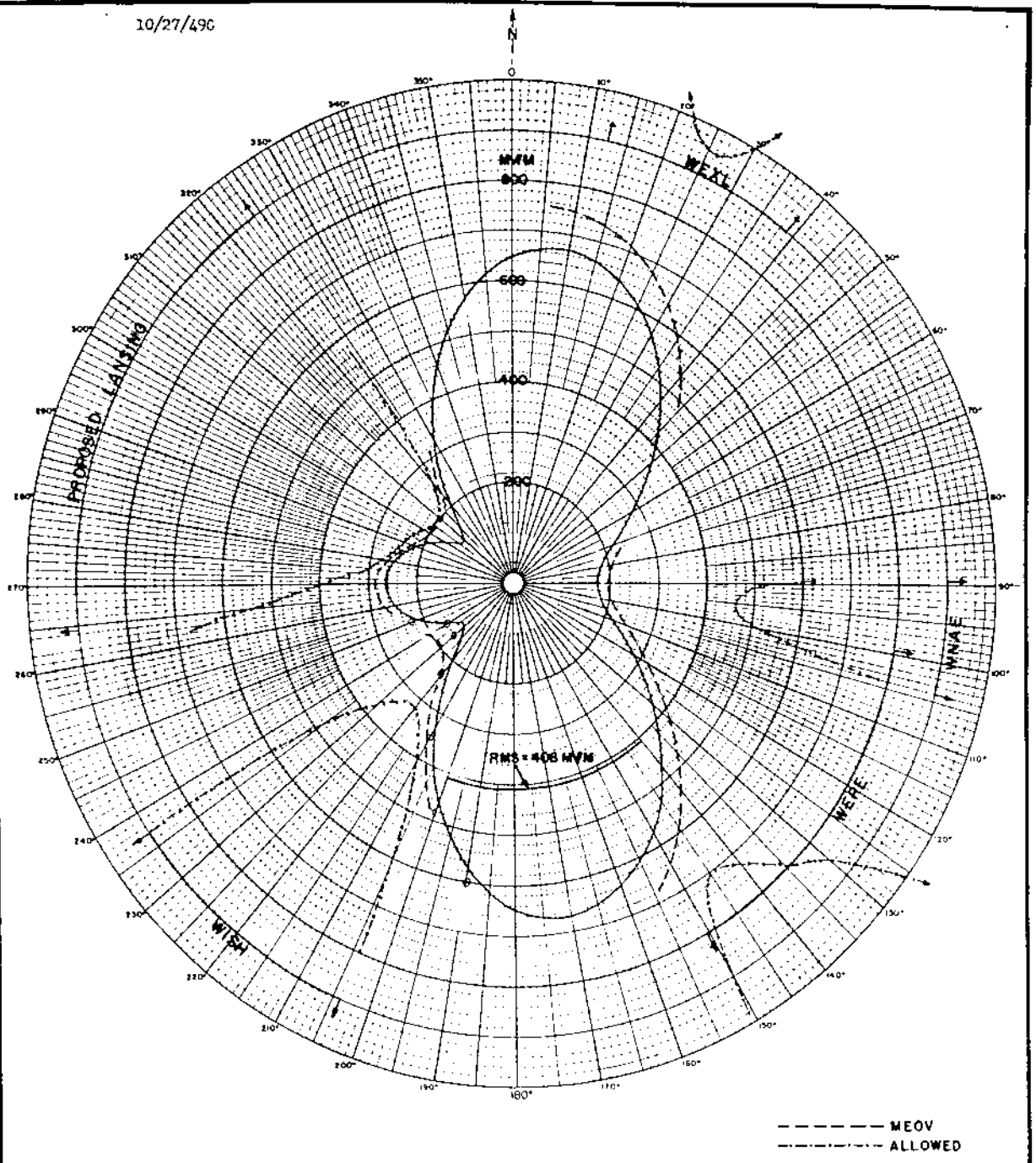
WLOB
Portland, Maine

1310 KC

WNIC

PROPOSED DAY WKMH, DEARBORN, MICH. 10-25-49 1kw, 5kw-LS, DA-2 1310 kc

10/27/490



(1) —— 191° —— (2) —— 90°

LATITUDE 42° 15' 50"
LONGITUDE 83° 15' 11"

ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG
1	—	—	30	1.5	195	105.5
2	90	191	0	1.0	195	118.5

CALCULATED DAYTIME
HORIZONTAL PLANE PATTERN
PROPOSED WKMH
DEARBORN, MICHIGAN
1310 KC. 1 KW, 5KW-LS U, DA-2

KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D. C.

490922

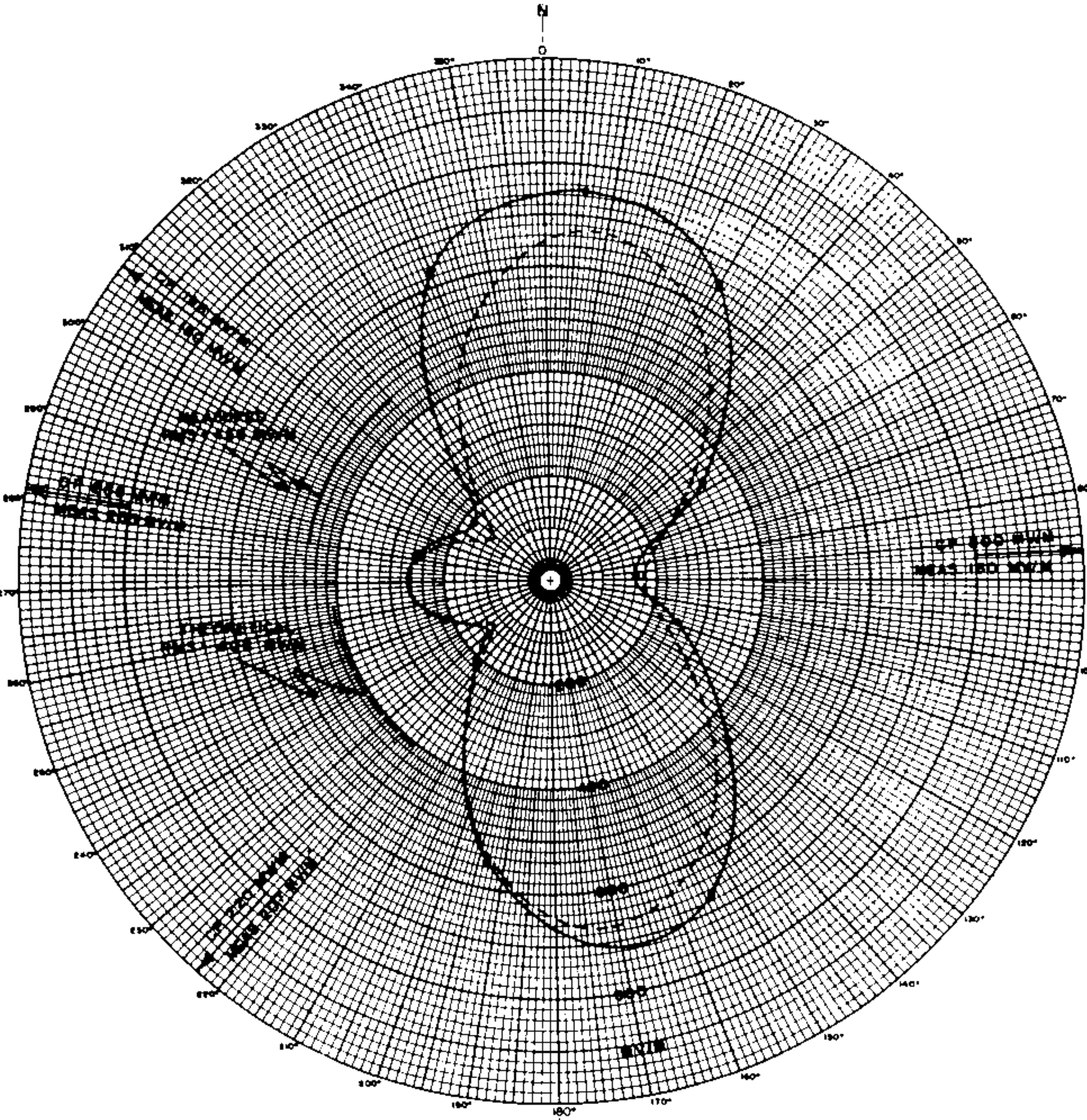
WNIC

MEASURED DAY
(4-17-56G)

STATION WKMH
DEARBORN, MICHIGAN

5KW-N, 5KW-D
DA-2, U

1310 KC



——— MEASURED PATTERN
O MEASURED POINTS
- - - - - THEORETICAL PATTERN

(1) O—— 191° ——O (2) ——→ 90° T

LATITUDE	42°	15'	50"			
LONGITUDE	83°	15'	14"			
ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG
1	—	—	30	1.5	196	105.6
2	90	191	0	1.0	195	105.5

MEASURED DAYTIME
HORIZONTAL PLANE PATTERN
FOR
W K M H
DEARBORN, MICHIGAN
1310 KC. 5 KW. U, DA-2
5 6 0 3 1 9

KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D.C.

FILE NO. BL-6108

ACCEPTED 4-13-56 FCC

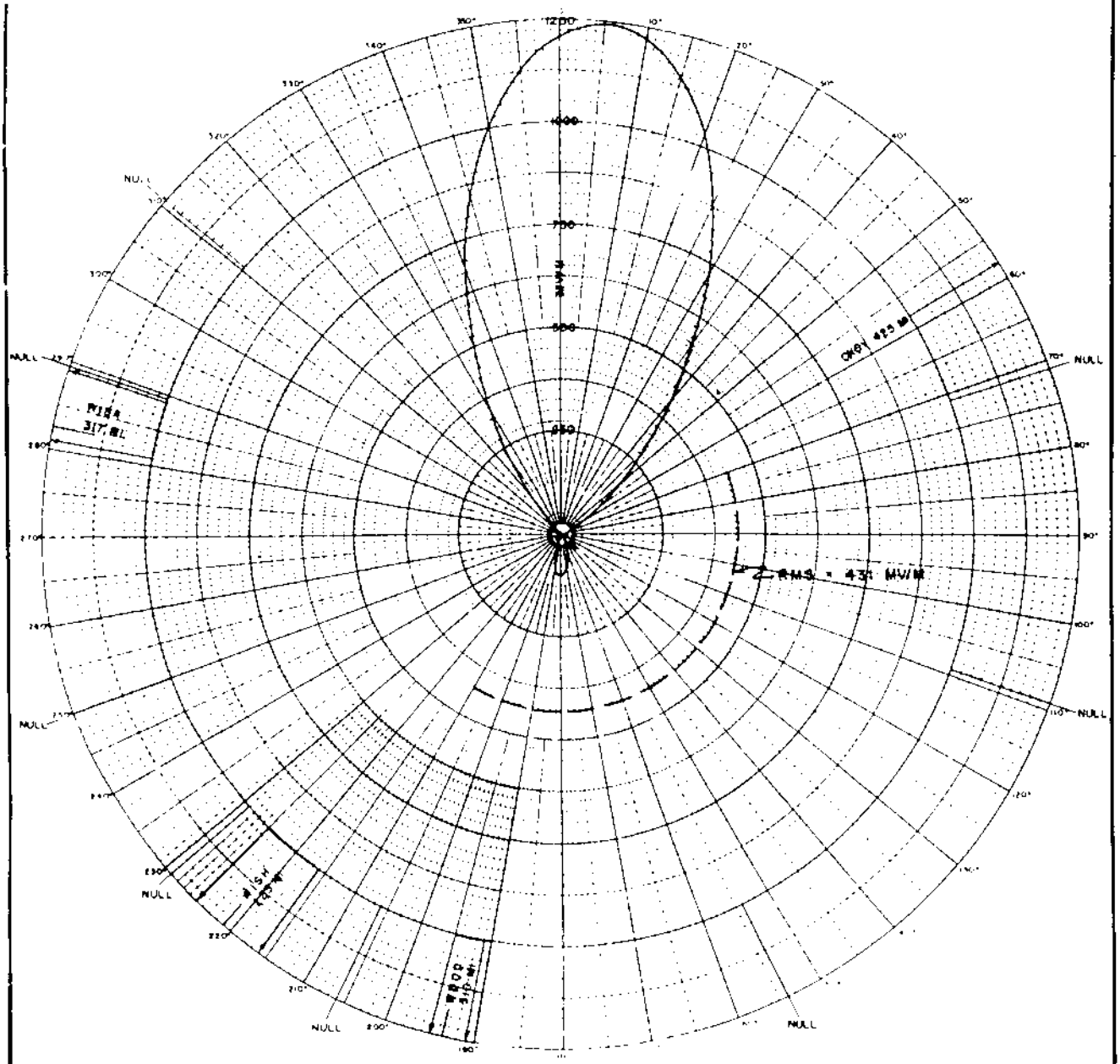
WNIC

PROPOSED NIGHT
(3/22/55G)

STATION WKMH,
DEARBORN, MICHIGAN

5KW
DA-N, U

1310 KC



FILE BP-9567 (Amended) Accepted 3/9/55 FCC WKMH, Dearborn, Michigan 1310 KC

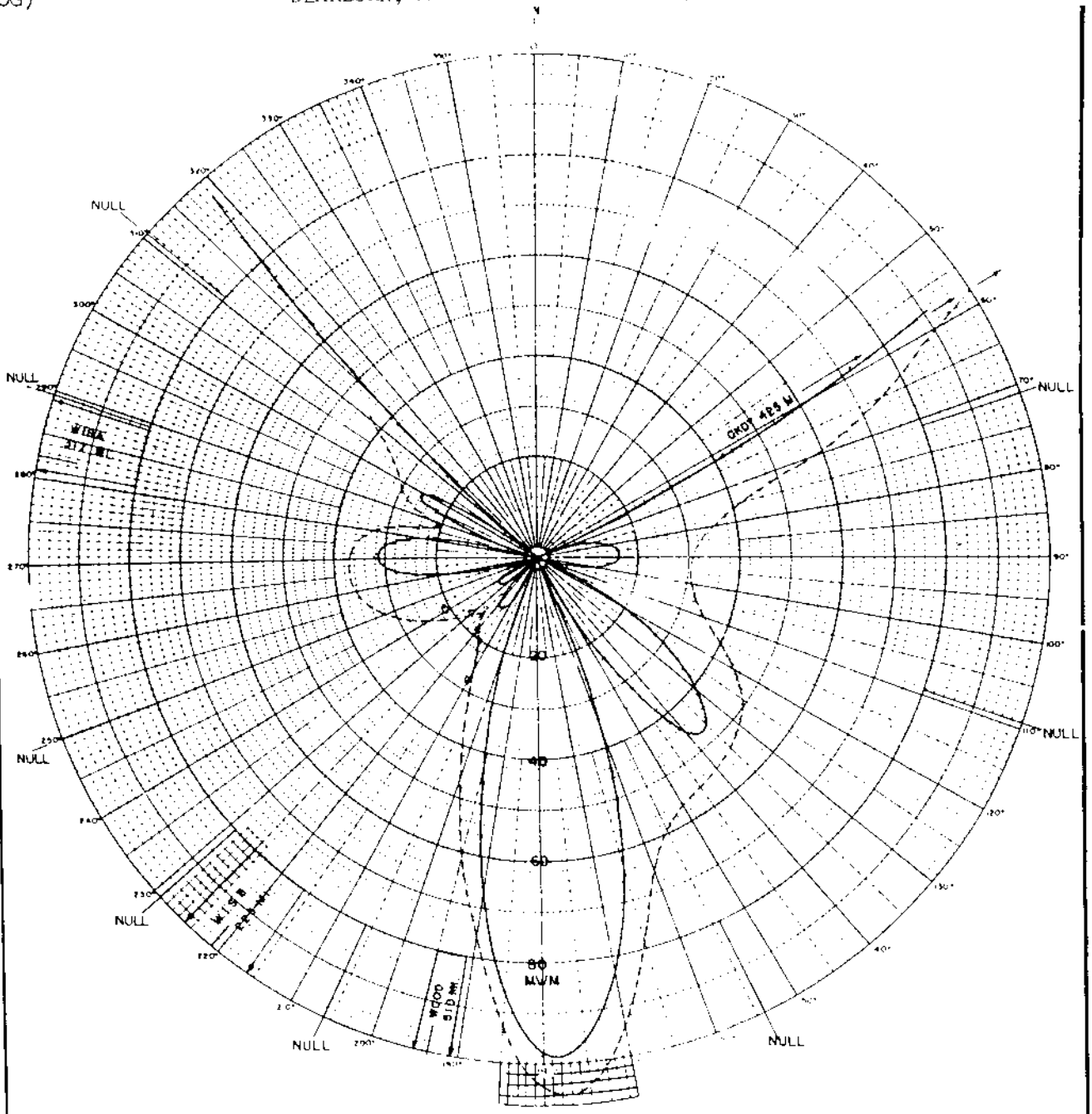
WNIC

PROPOSED NIGHT NULLS
(3/22/55G)

STATION WKMH
DEARBORN, MICHIGAN

5 KW
DA-N, U

1310 KC



0° T

(5)	191°	(1)	191°	(2)
90°		90°		90°
(6)	191°	(3)	191°	(4)

191° = 398.5'
90° = 187.7'

LATITUDE 42° 15' 50"
LONGITUDE 83° 15' 14"

ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG
1	SEE DIAGRAM	SEE DIAGRAM	0	1.91	196.5	105.5
2			-17.6	1.0	196.5	118.5
3			+99.2	1.91	196.5	105.5
4			+81.6	1.0	196.5	105.5
5			+17.6	1.0	196.5	105.5
6			+116.8	1.0	196.5	105.5

EXPANDED SCALE
CALCULATED NIGHTTIME
HORIZONTAL PLANE PATTERN
FOR
PROPOSED WKMH
DEARBORN, MICHIGAN
1310KC 5 KW U,DA-2
550201

KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D.C.

FILE BP-9567 (Amended) Accepted 3/9/55 FCC WKMH, Dearborn, Michigan 1310 KC

WNIC

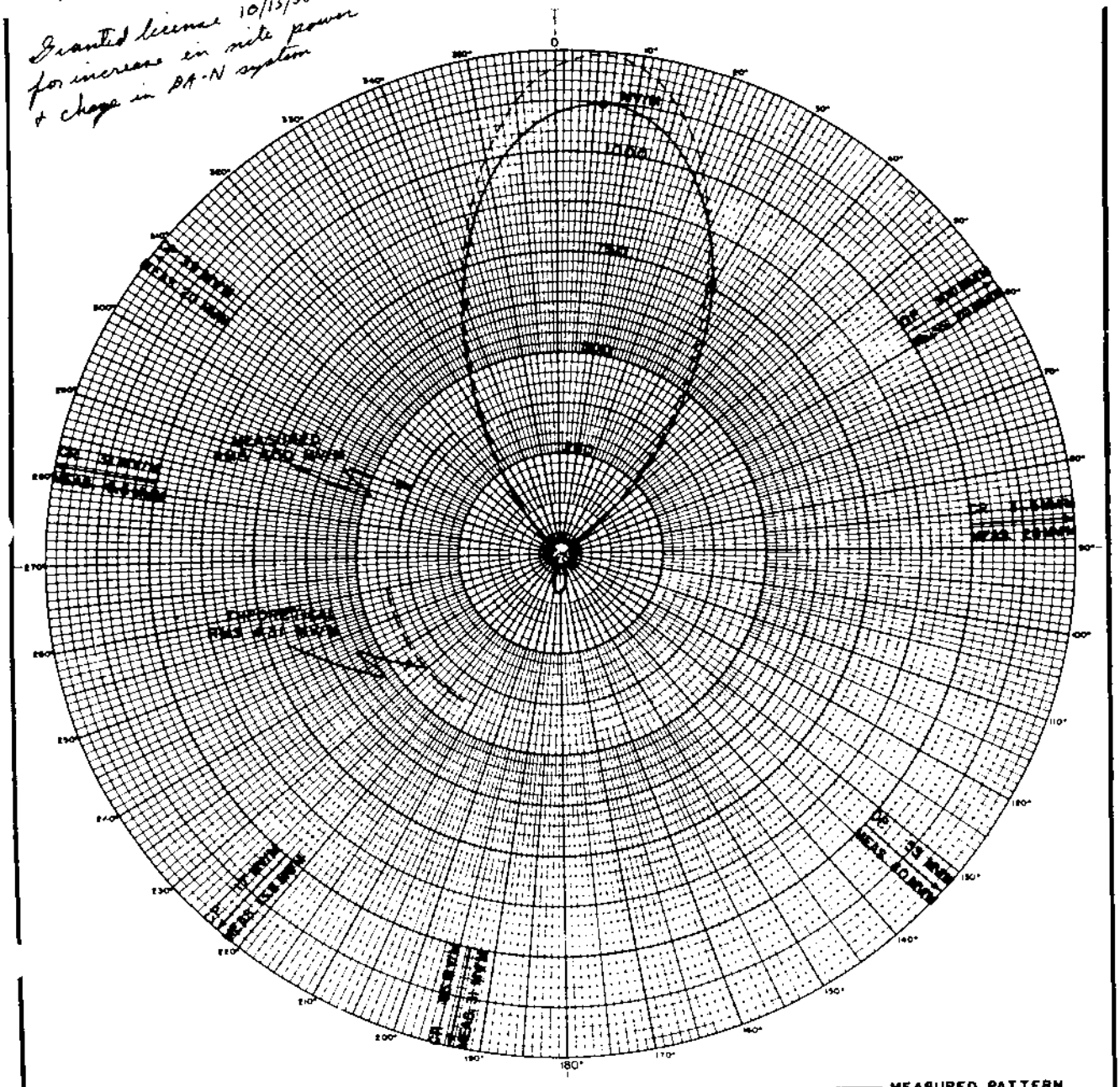
MEASURED NIGHT
(4-17-56G)

STATION WKMH
DEARBORN, MICHIGAN

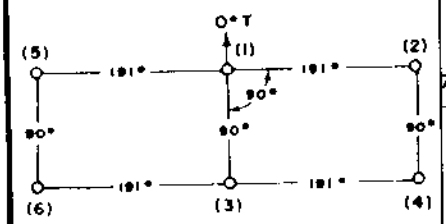
5KW-N, 5KW-D
DA-2, U

1310 KC

Granted license 10/15/58 for increase in nite power + chage in DA-N system



——— MEASURED PATTERN
O MEASURED POINTS
– – – – – THEORETICAL PATTERN



191° = 398.5'
90° = 187.7'

LATITUDE 42° 15' 50"
LONGITUDE 83° 15' 14"

ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG
1	SEE DIAGRAM	SEE DIAGRAM	0	1.91	196.5	105.5
2			-17.6	1.0	196.5	105.5
3			+99.2	1.91	196.5	105.5
4			+81.6	1.0	196.5	105.5
5			+17.6	1.0	196.5	105.5
6			+116.8	1.0	196.5	105.5

MEASURED NIGHTTIME
HORIZONTAL PLANE PATTERN
FOR
WKMH
DEARBORN, MICHIGAN
1310 KC. 5 KW. U, DA-2
560319

KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D. C.

FILE NO. BL-6108

ACCEPTED 4-13-56 FCC

WKMH, Dearborn, Mich. 1310 KC

WNIC

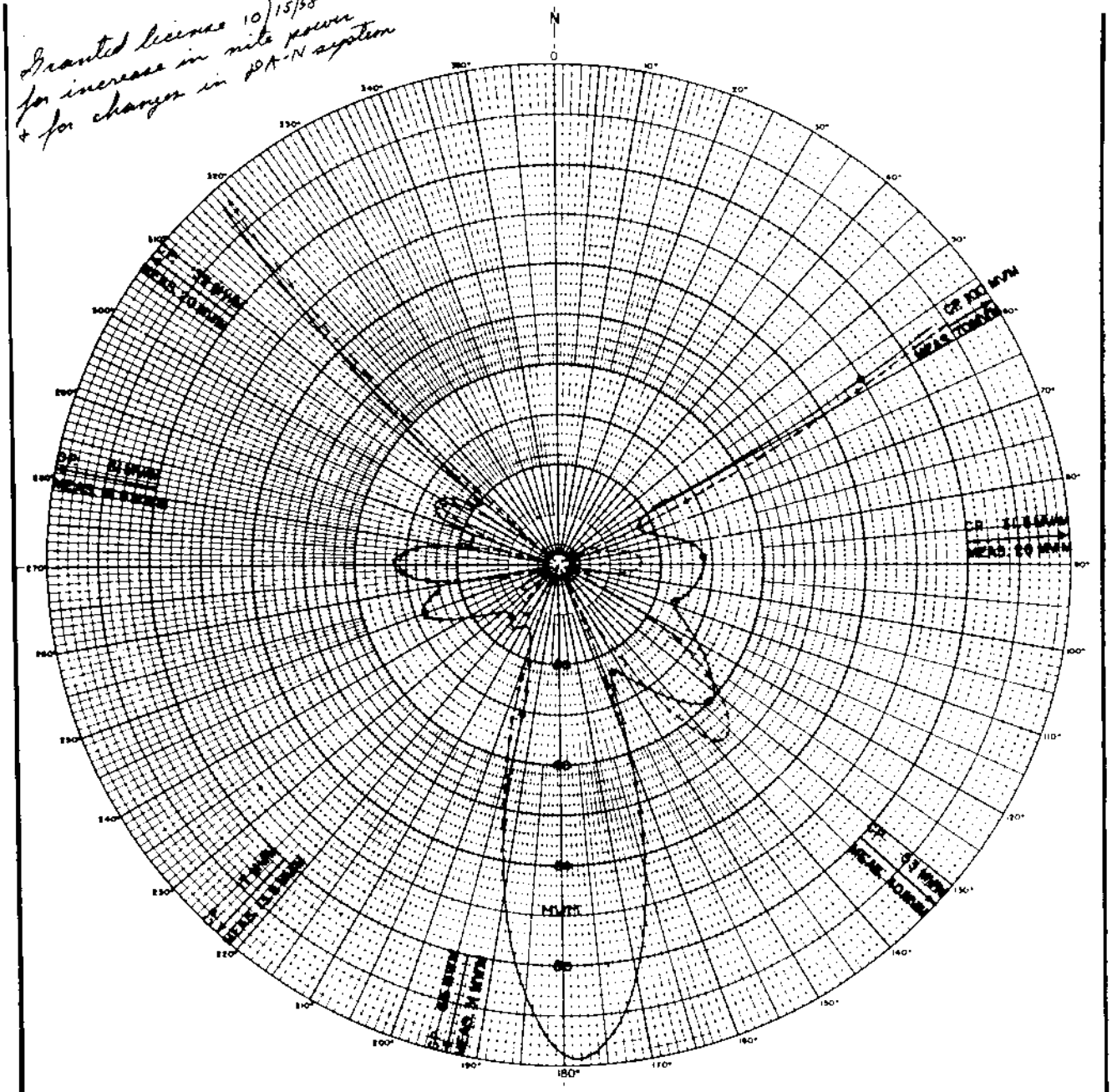
MEASURED NIGHT NULLS (4-17-56G)

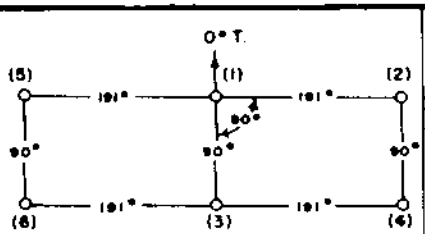
STATION WKMH
DEARBORN, MICHIGAN

5KW-N, 5KW-D
Da-2, U

1310 KC

Granted license 10/15/58 for increase in nite power + for changes in DA-N system





LATITUDE 42° 15' 50"
LONGITUDE 83° 15' 14"

ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG
1	SEE DIAGRAM	SEE DIAGRAM	0	1.91	196.5	105.5
2			-17.6	1.0	196.5	105.5
3			+99.2	1.91	196.5	105.5
4			+81.6	1.0	196.5	105.5
5			+17.6	1.0	196.5	105.5
6			+116.8	1.0	196.5	105.5

EXPANDED SCALE
MEASURED NIGHTTIME
HORIZONTAL PLANE PATTERN
FOR
WKMH
DEARBORN, MICHIGAN
1310 KC. 5 KW. U, DA-2
560319

KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D. C.

FILE NO. BL-6108

ACCEPTED 4-13-56 FCC

WKMH, Dearborn, Mich. 1310 KC

WNIC 1

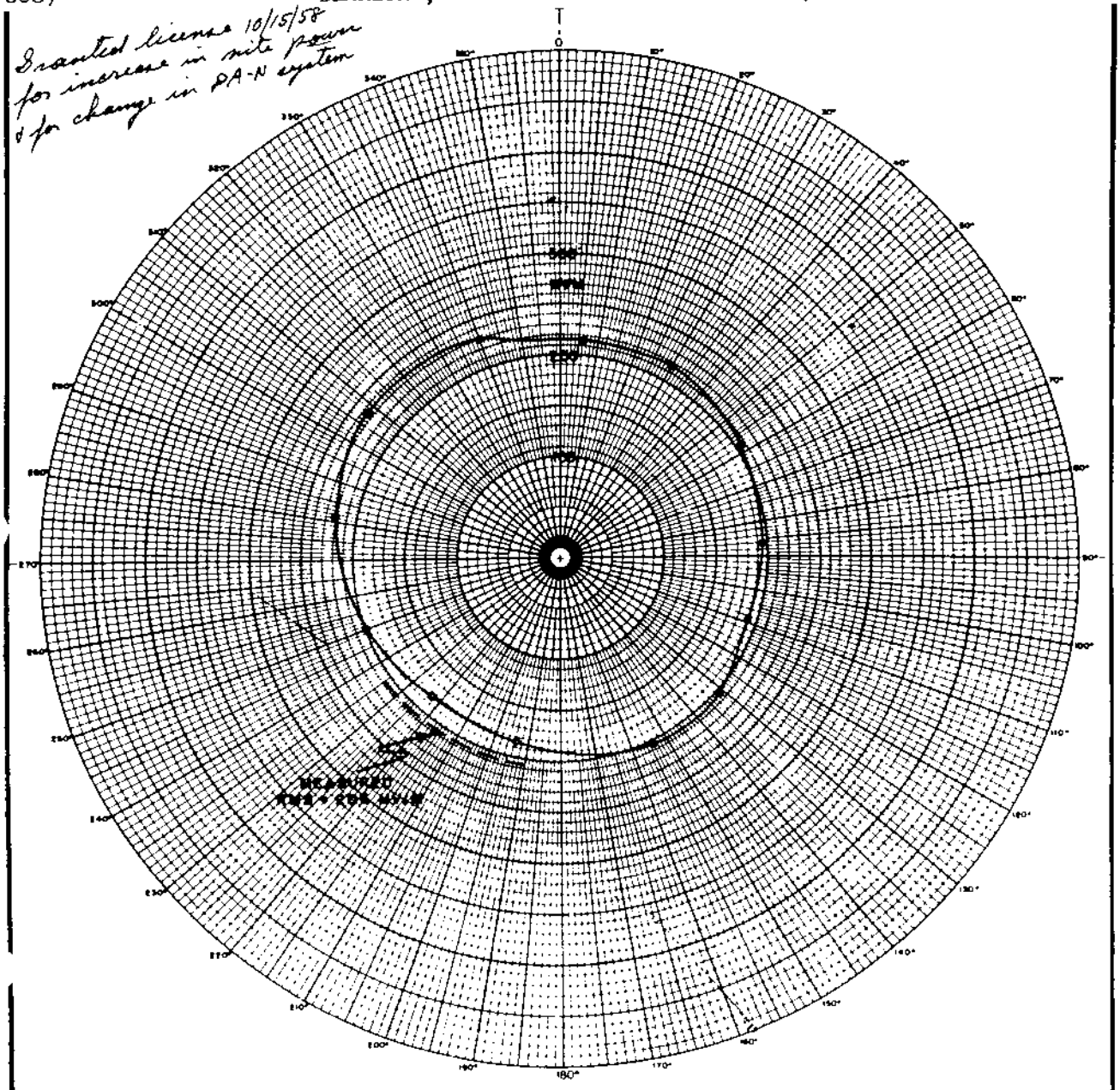
MEASURED NON-DIRECTIONAL (4-17-56G)

STATION WKMH
DEARBORN, MICHIGAN

5KW-N, 5KW-D
DA-2, U

1310 KC

Granted license 10/15/58 for increase in site power & for change in DA-N system



LATITUDE 42° 15' 50"
LONGITUDE 83° 15' 14"

ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG

MEASURED
NON-DIRECTIONAL HORIZONTAL PATTERN
TOWER NO.1, 1000 WATTS
WKMH
DEARBORN, MICHIGAN
1310 KC. 5 KW. U, DA-2
560319

KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D. C.

FILE NO. BL-6108

ACCEPTED 4-13-56 FCC

WKMH, Dearborn, Mich. 1310 KC

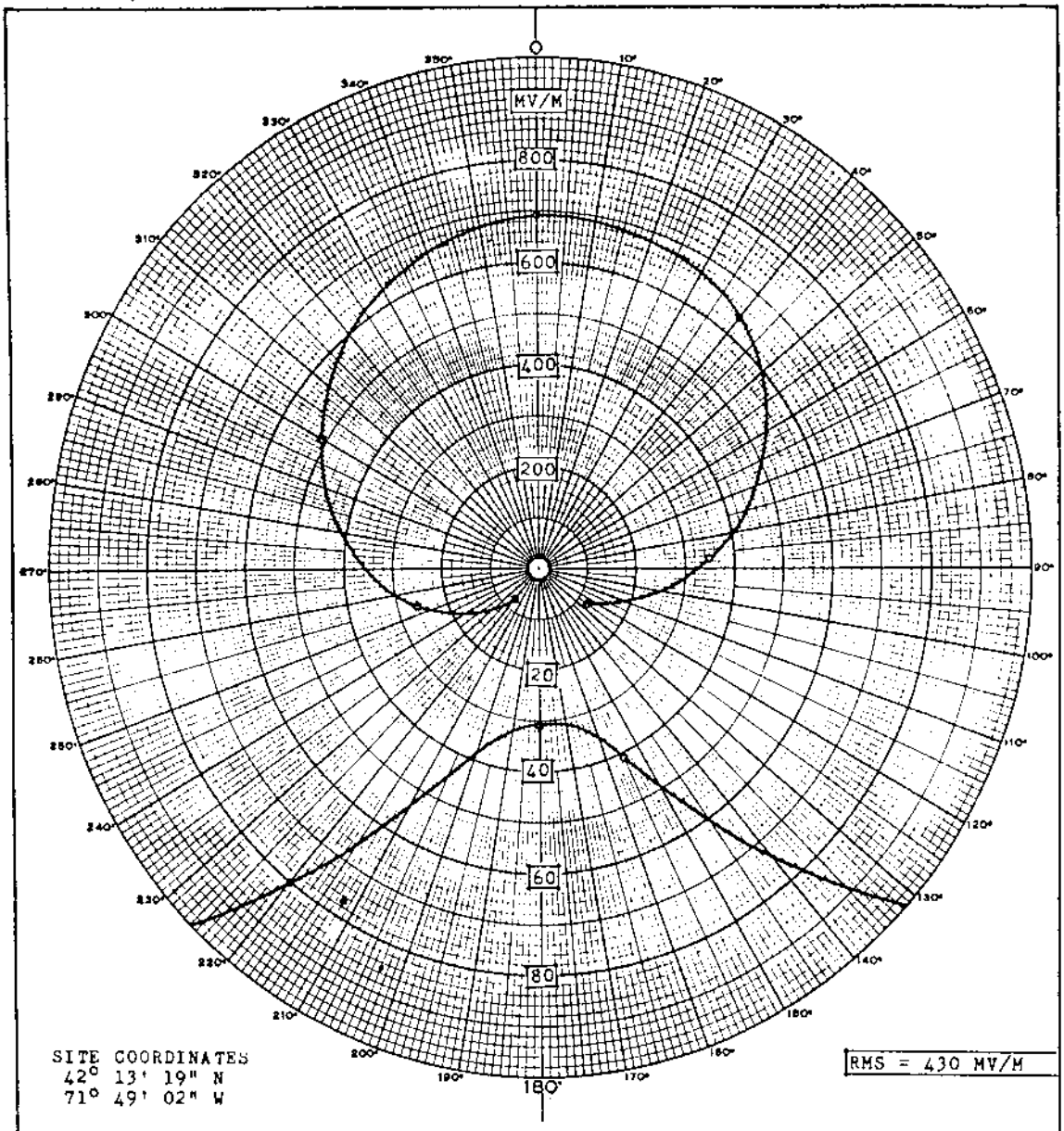
WORC

Granted license 9/23/58 for increase in DA-D power & for change in DA-N pattern

MEASURED DAY (5-8-58g)

Station WORC Worcester, Massachusetts

1kw,5kw-LS, DA-2,U **1310 KC**



MEASURED DAYTIME HORIZONTAL PLANE RADIATION PATTERN

40°T (1) (Not used) 92° (2) 1.08/-120° 60° (3) 1.0/0° 180°T 0=120°	WORC, INC. WORCESTER, MASSACHUSETTS VANDIVERE and COHEN CONSULTING ELECTRONIC ENGINEERS WASHINGTON, D. C.	WORC, INC. 1310 KC 1.0 KW 5 KW-LS DA-2 MARCH, 1958

FCC File No. BL-7087
Accepted 4-22-58

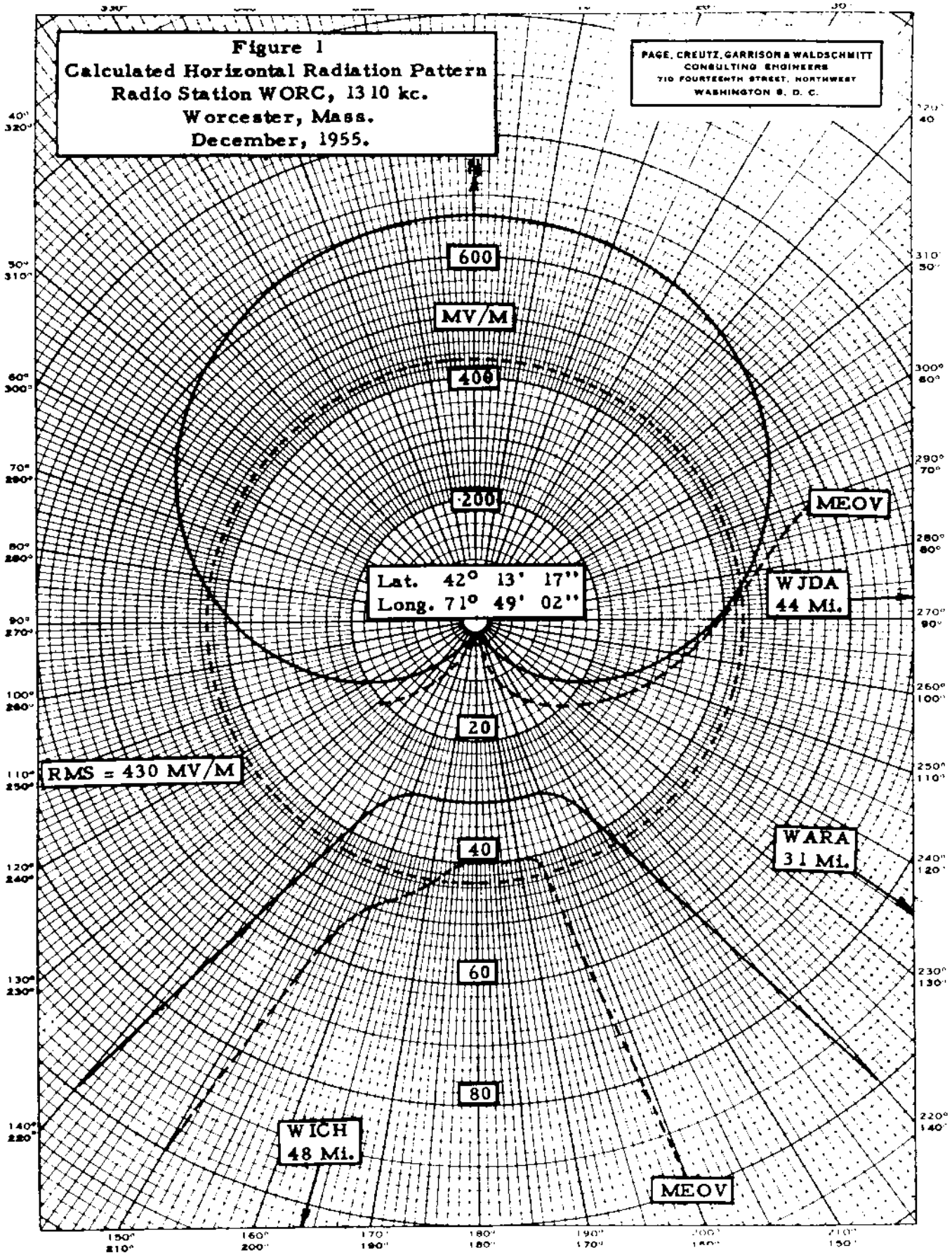
WORC
Worcester, Massachusetts

1310 KC

WORC

PROPOSED DAY (2/21/56G) | STATION WORC WORCESTER, MASS. | 1 KW,-5 KW-LS DA-2, U | 1310 KC

Granted CP



FCC File No. BP-10,303 Accepted 1-26-56 WORC, Worcester, Mass. 1310 KC

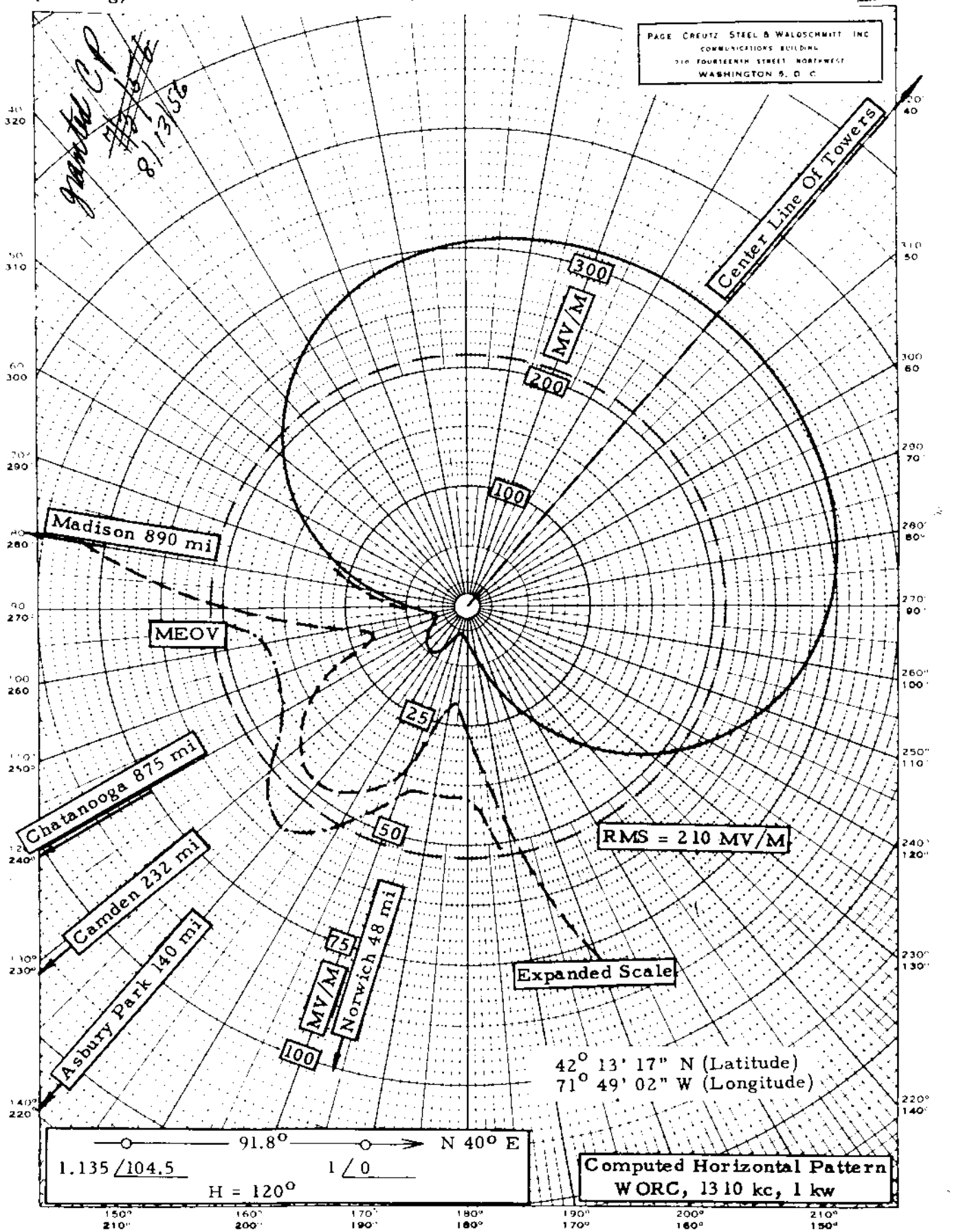
WORC

PROPOSED
NIGHT (7-3-56g)

STATION WORC
WORCESTER, MASS.

1 KW -DA
DA-2, U

1310 KC



FCC File No. BMP-7256 Accepted 6-26-56 WORC, Worcester, Mass. 1310

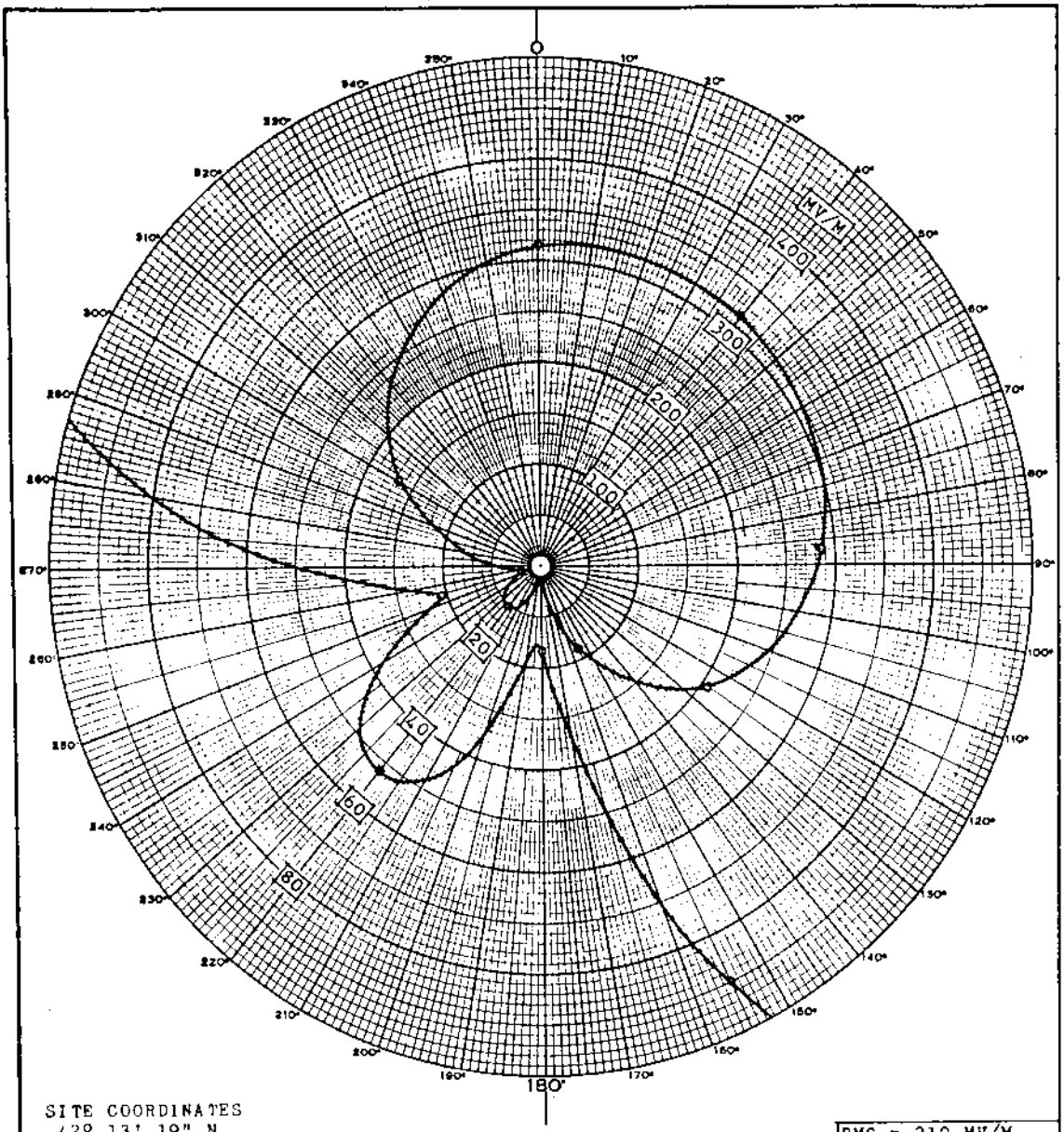
WORC

MEASURED NIGHT (5-8-58g)

Station WORC Worcester, Massachusetts

1kw,5kw-LS, DA-2,U 1310 KC

Granted license 9/23/58 for increase in DA-2 power + for change in DA-N pattern



SITE COORDINATES
42° 13' 19" N
71° 49' 02" W

RMS = 210 MV/M

MEASURED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

40°T
(1) 1.0/0°
92°
(2) 1.2/104°
60°
(3) (Not used)
180°T
0=120°

WORC, INC.
WORCESTER, MASSACHUSETTS

VANDIVERE and COHEN
CONSULTING ELECTRONIC ENGINEERS
WASHINGTON, D. C.

WORC, INC.
1310 KC
1.0 KW 5 KW-LS DA-2
MARCH, 1958

FCC File No. BL-7087
Accepted 4-22-58

WORC
Worcester, Massachusetts

1310 KC

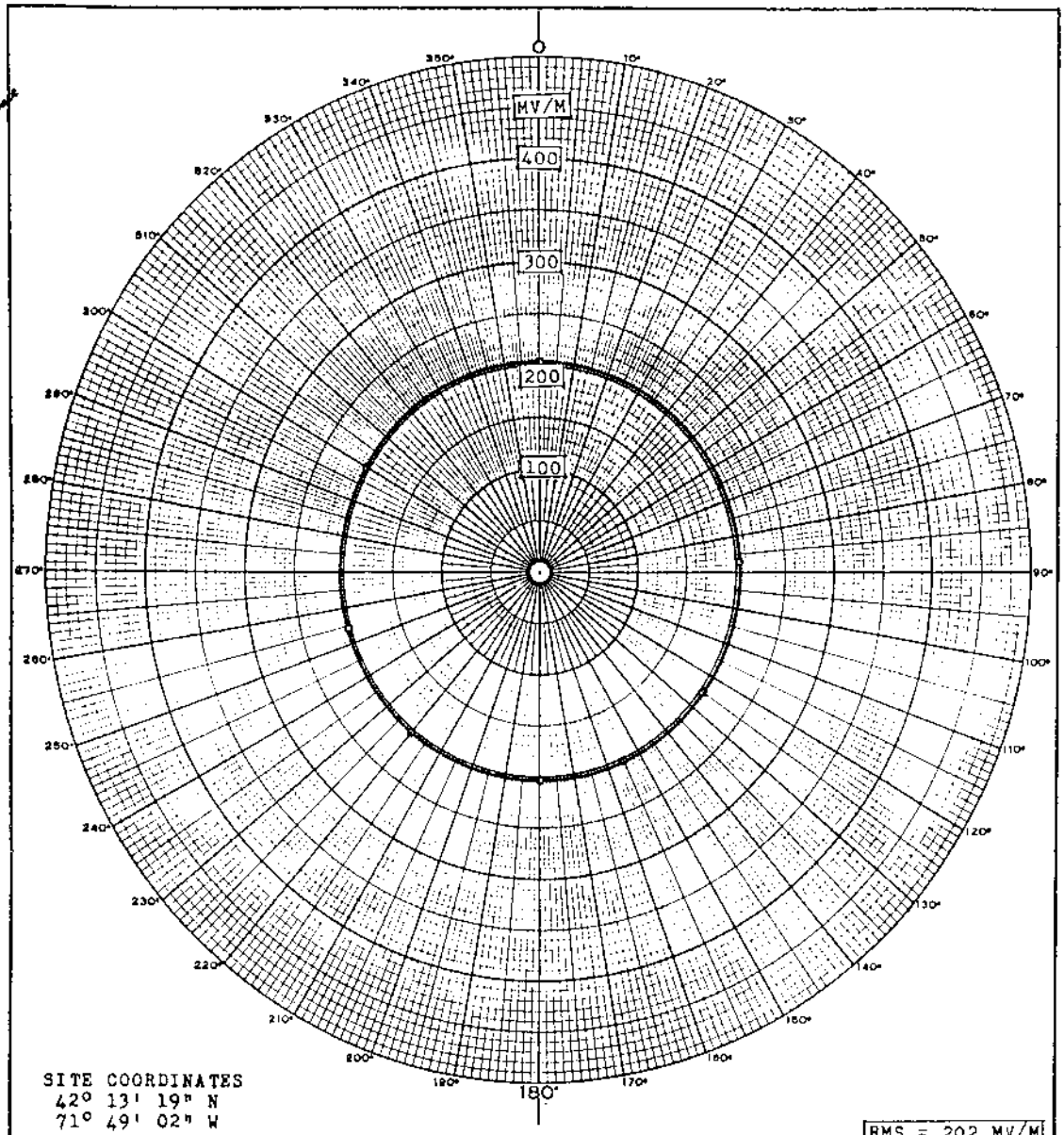
WORC

MEASURED NON-DA (5-8-58g)

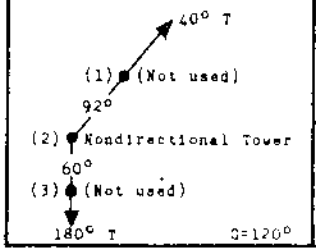
Station WORC
Worcester, Massachusetts

1kw,5kw-LS, DA-2,U
1310 KC

Granted license 9/23/58 for increase in DA-D power & for change in DA-N pattern



MEASURED NONDIRECTIONAL HORIZONTAL PLANE RADIATION PATTERN



WORC, INC.
WORCESTER, MASSACHUSETTS

VANDIVERE and COHEN
CONSULTING ELECTRONIC ENGINEERS
WASHINGTON, D. C.

WORC, INC.
1310 KC
1.0 KW 5 KW-LS DA-2
MARCH, 1958

FCC File No. BL-7087
Accepted 4-22-58

WORC
Worcester, Massachusetts

1310 KC

WPRJ

Proposed Day
(12-28-67ct)

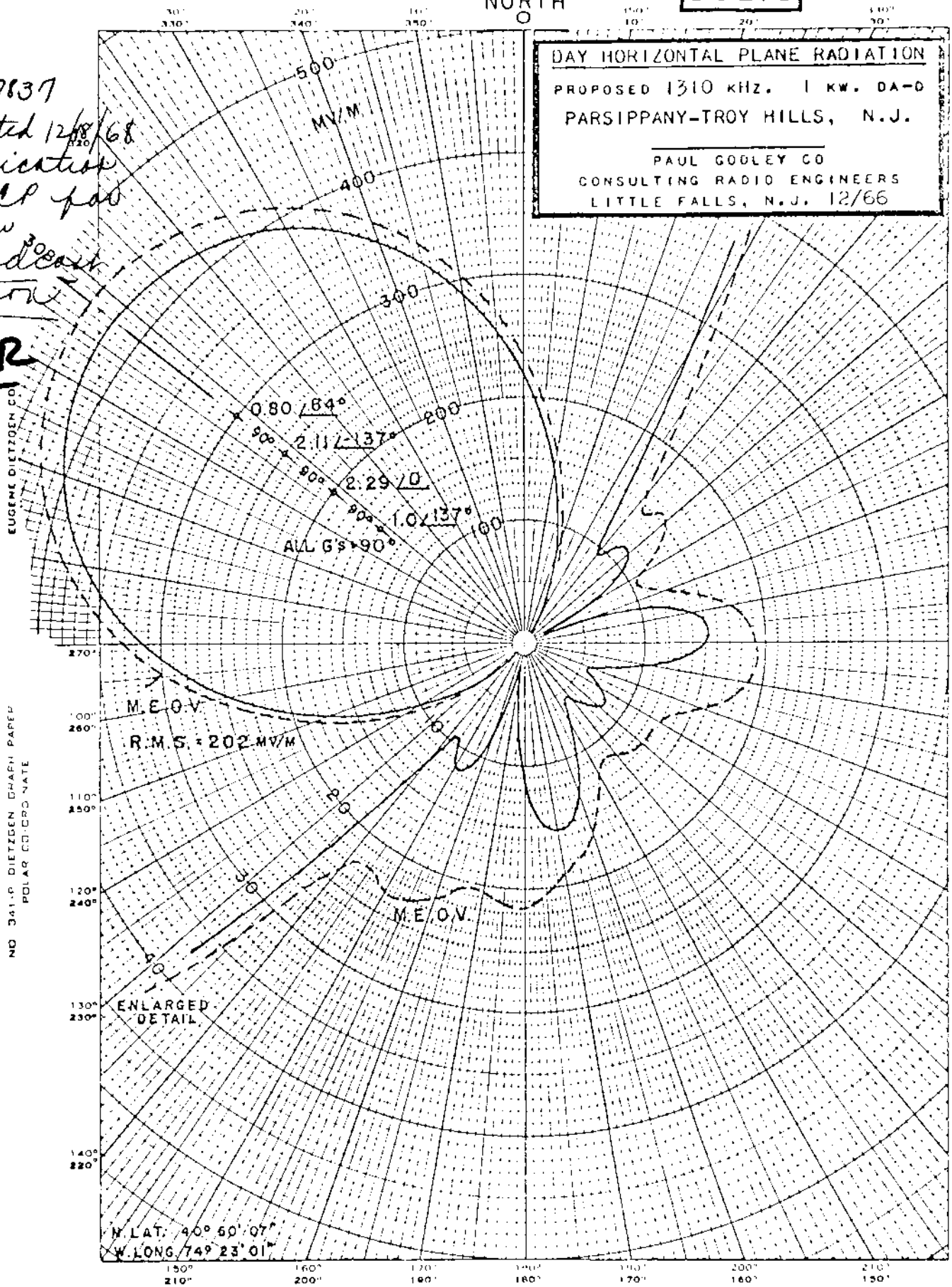
New; Percypeny Radio
Parsippany-Troy Hills, New Jersey

1kw, DA-D, D
1310 kc

FIG. 1

BP 17837
Granted 12/28/68
application for CP for
new broadcast
station

OVER



FCC File No. BP-17837
Accepted 12-21-67

New; Percypeny Radio
Parsippany-Troy Hills, New Jersey

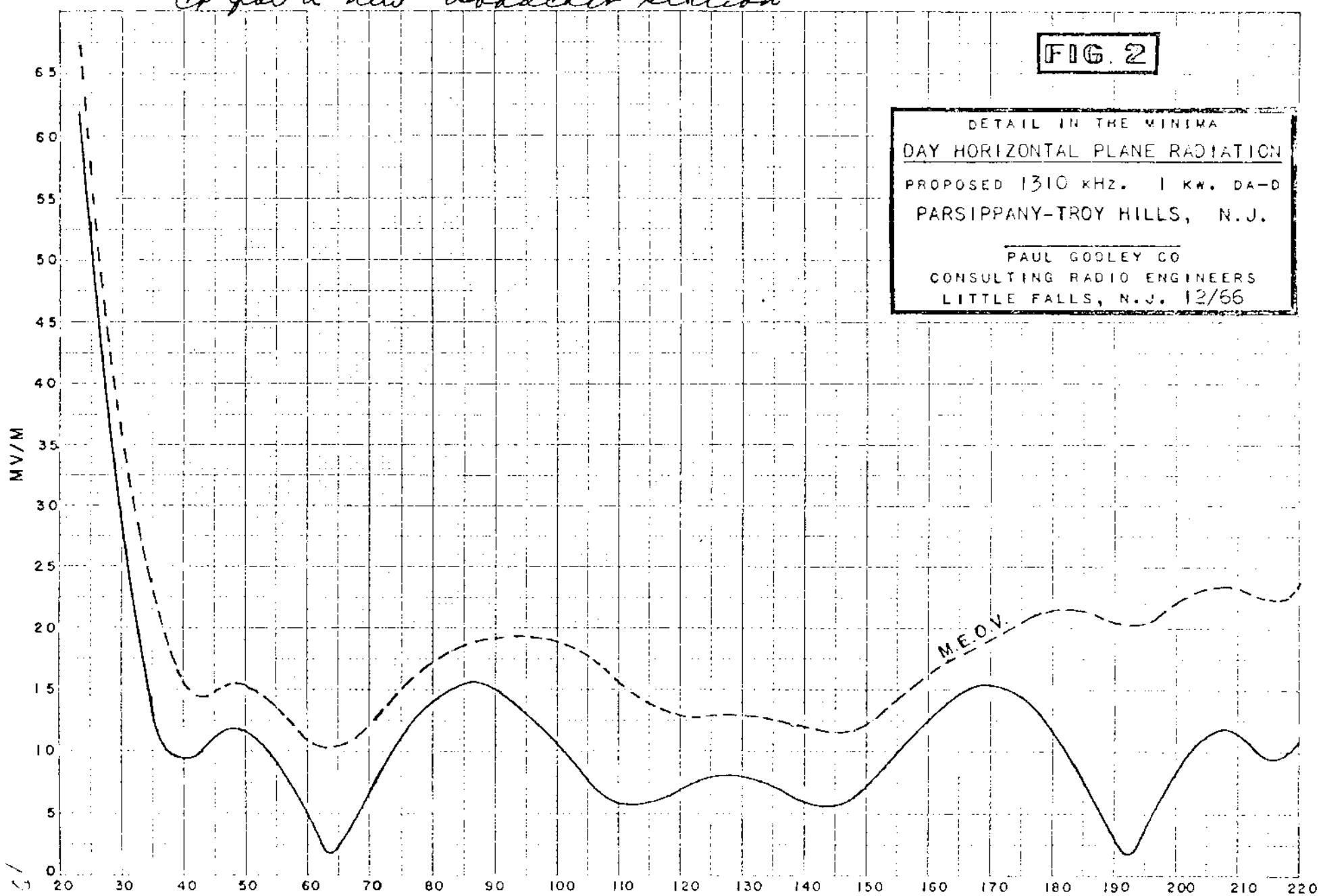
1310 kc

Proposed Day Nulls
(12-28-67ct)

New; Percypen Radio
Parsippany-Tro, Hills, New Jersey

1kw, DA-D, D
1310 kc

BP-17837 Granted 12-18-68 application for CP for a new broadcast station

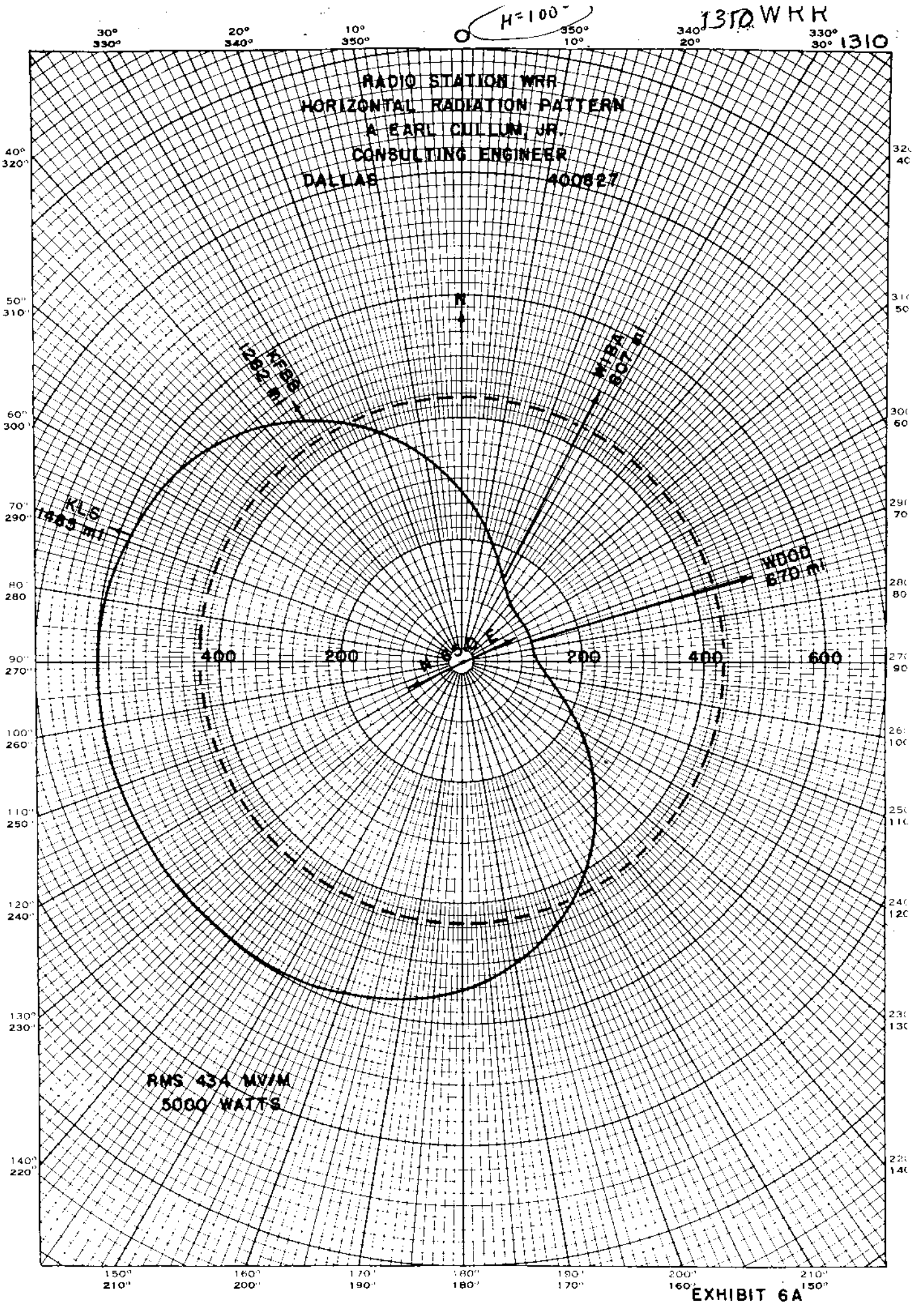


WPRJ

FCC File No. BP-17837
Accepted 12-21-67

New; Percypeny Radio
Parsippany-Troy Hills, New Jersey

1310 kc


H=100'
1310 WRR
1310
RADIO STATION WRR
HORIZONTAL RADIATION PATTERN
A. EARL CULLUM, JR.
CONSULTING ENGINEER
DALLAS
400627
N
KFBC
1282 mi
WIBA
807 mi
KLS
1483 mi
WOOD
670 mi
400
200
0
200
400
600
RMS 434 MV/M
5000 WATTS
EXHIBIT 6A

WRR
1310

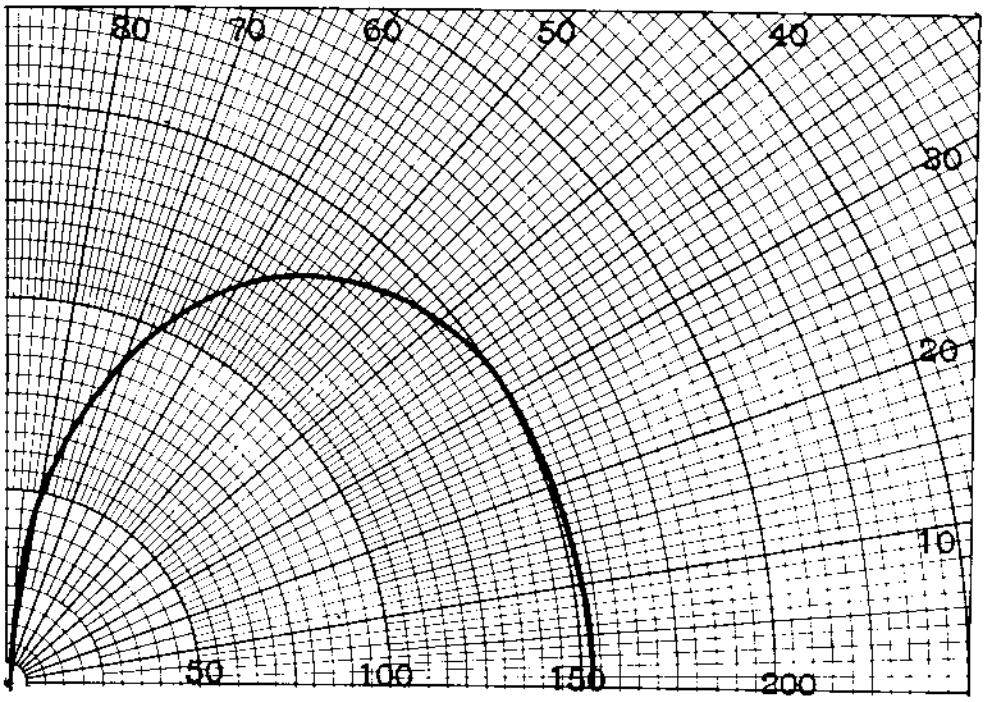
A. EARL CULLUM, JR.
CONSULTING RADIO ENGINEER
HIGHLAND PARK VILLAGE
DALLAS, TEXAS

WRR DIRECTIVE ARRAY

VERTICAL RADIATION PATTERN

IN PLANE N 27.0 E

TOWARD MADISON, WISCONSIN



P 5000 Φ -38.0

Θ	$F_1(E)$	$F_X(E)$	E_{5000}
00	0.423	1.000	153.0
10	0.433	0.978	153.0
20	0.461	0.912	152.5
30	0.514	0.812	151.0
40	0.590	0.685	146.2
50	0.690	0.547	136.5
60	0.807	0.407	119.0
70	0.934	0.265	89.5
80	1.065	0.130	50.1
90	-.---	0.000	00.0

Θ WIBA APPROX. 6.6 DEGREES WITH DISTANCE 807 MILES.

EXHIBIT 7A

WRR
1310

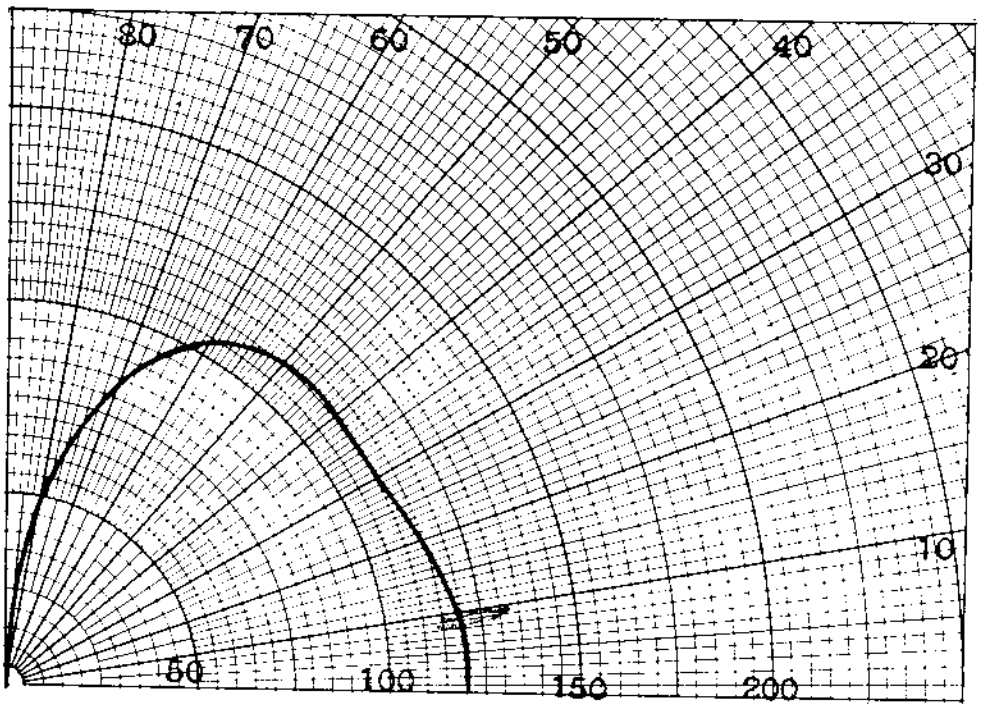
A. EARL CULLUM, JR.
CONSULTING RADIO ENGINEER
HIGHLAND PARK VILLAGE
DALLAS, TEXAS

WRR DIRECTIVE ARRAY

VERTICAL RADIATION PATTERN

IN PLANE N 73.5 E

TOWARD CHATTANOOGA, TENNESSEE AND NULLS



P 5000 Φ 9.0

Θ	$F_1(E)$	$F_X(E)$	E_{5000}
00	0.336	1.000	121.6
10	0.336	0.978	118.9
20	0.345	0.912	114.0
30	0.377	0.812	110.7
40	0.447	0.685	110.7
50	0.559	0.547	110.6
60	0.703	0.407	103.6
70	0.865	0.265	83.0
80	1.031	0.130	48.5
90	-.---	0.000	00.0

Θ WDOD APPROX. 9.0 DEGREES WITH DISTANCE 670 MILES.

EXHIBIT 78

WRR
1310

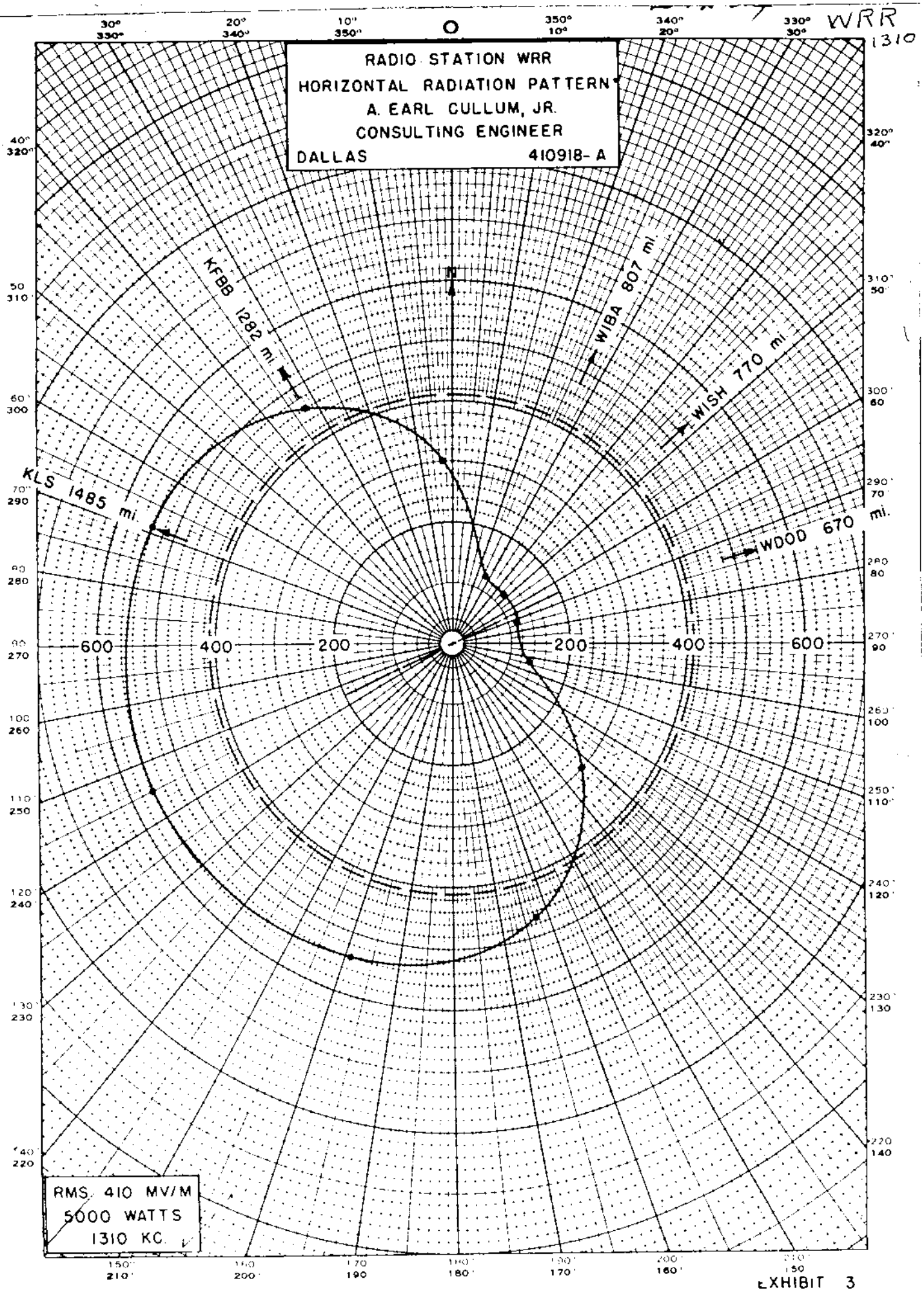


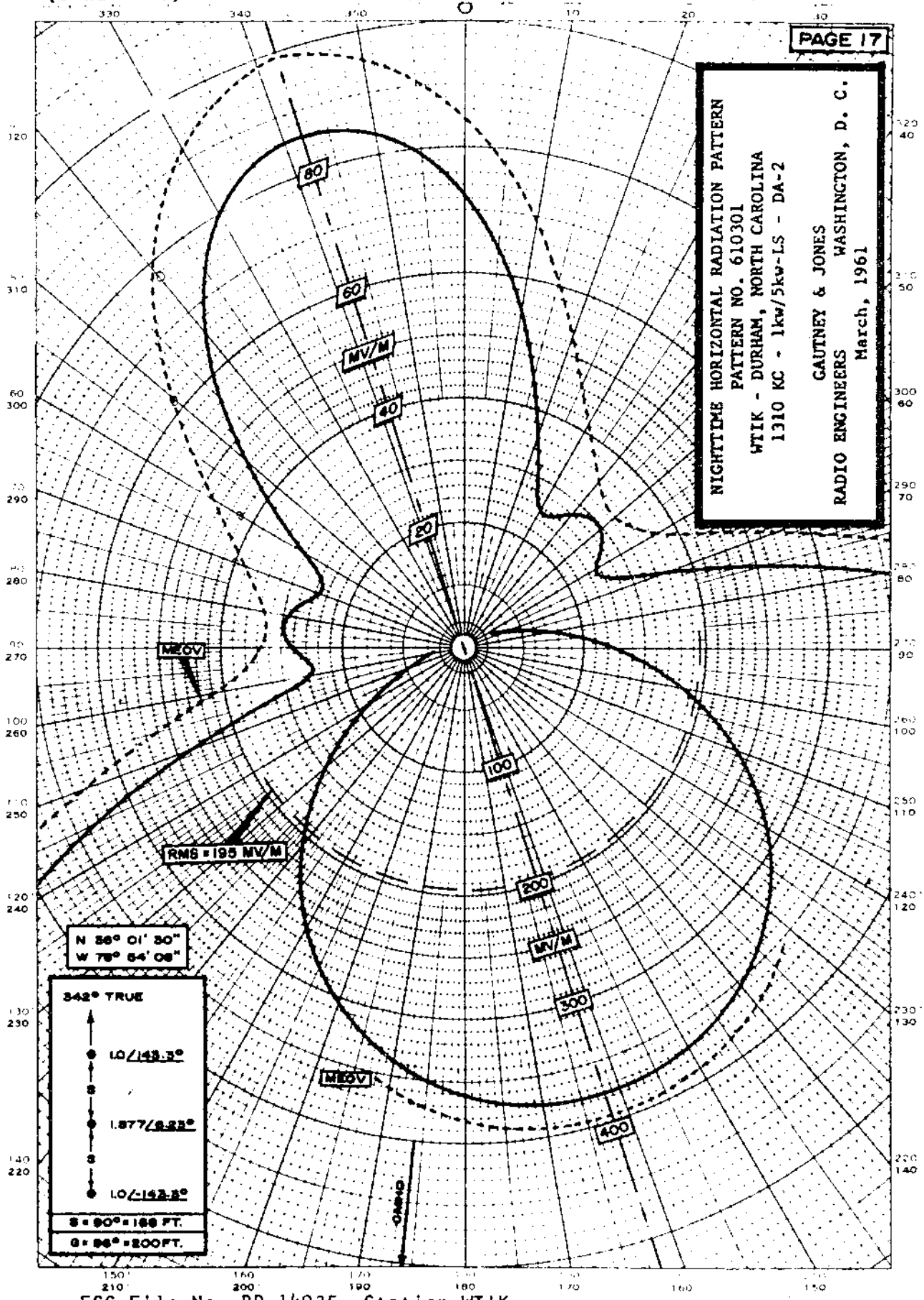
EXHIBIT 3

WTIK

PROPOSED NIGHT
(8-22-61ct)

Station WTIK
Durham, North Carolina

1kw, 5kw-LS, DA-2
1310 KC

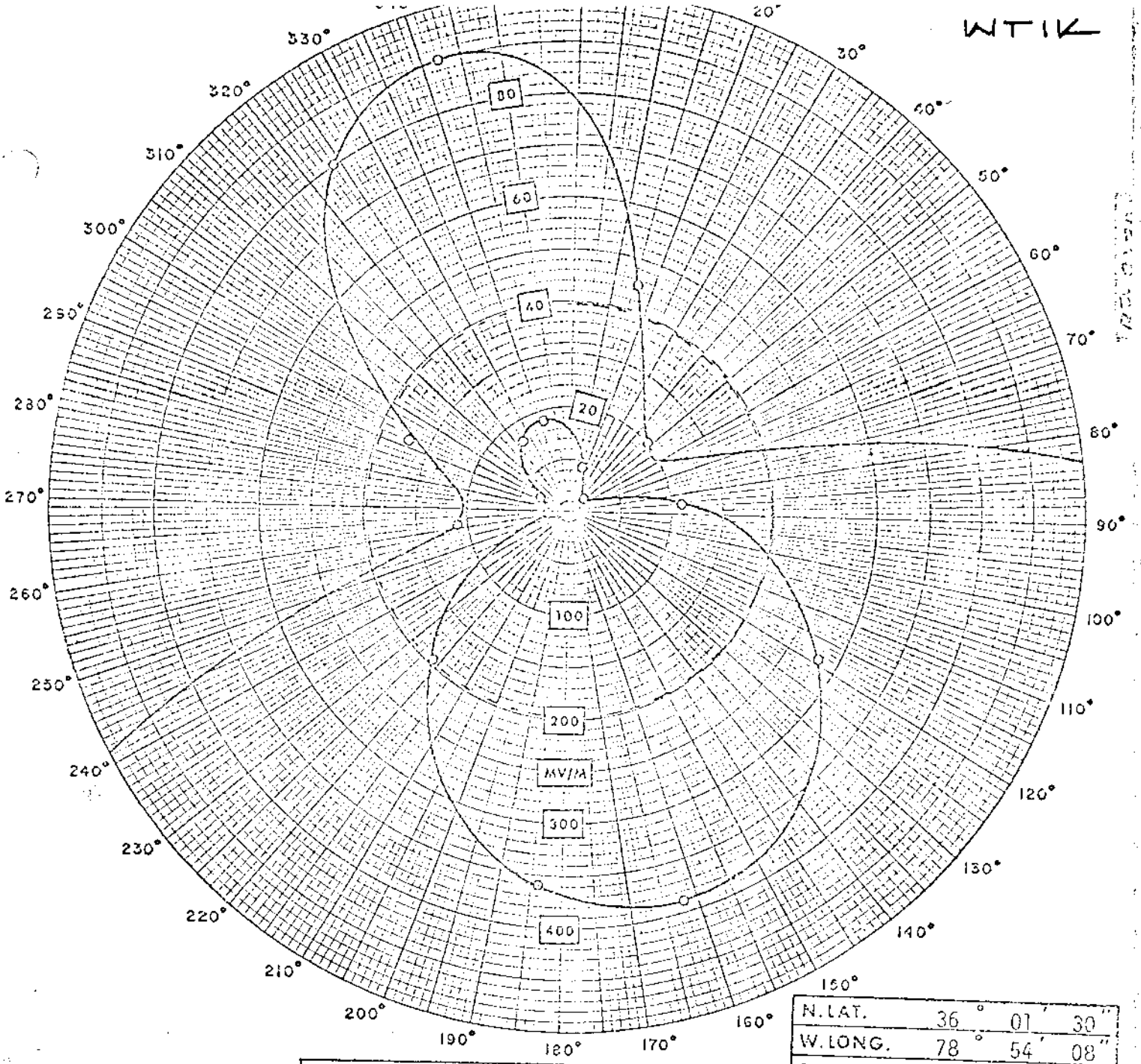


FCC File No. BP-14935
Accepted 7-26-61

Station WTIK
Durham, North Carolina

1310 KC

WTIK



N. LAT.	36 °	01 ′	30 ″
W. LONG.	78 °	54 ′	08 ″
RMS	198	mv/m	

THEORETICAL NIGHT			
ANTENNA NO.	1	2	3
FIELD	0.5328	1.0000	0.5328
PHASE	+143.3°	+6.23°	-143.3°

BZ-8839
WTIK

MEASURED NIGHTTIME PATTERN
WTIK - DURHAM, NORTH CAROLINA
1310 kHz - 1 KW/5 KW-LS - DA-2

FEBRUARY, 1975

GAUTNEY & JONES—CONSULTING ENGINEERS

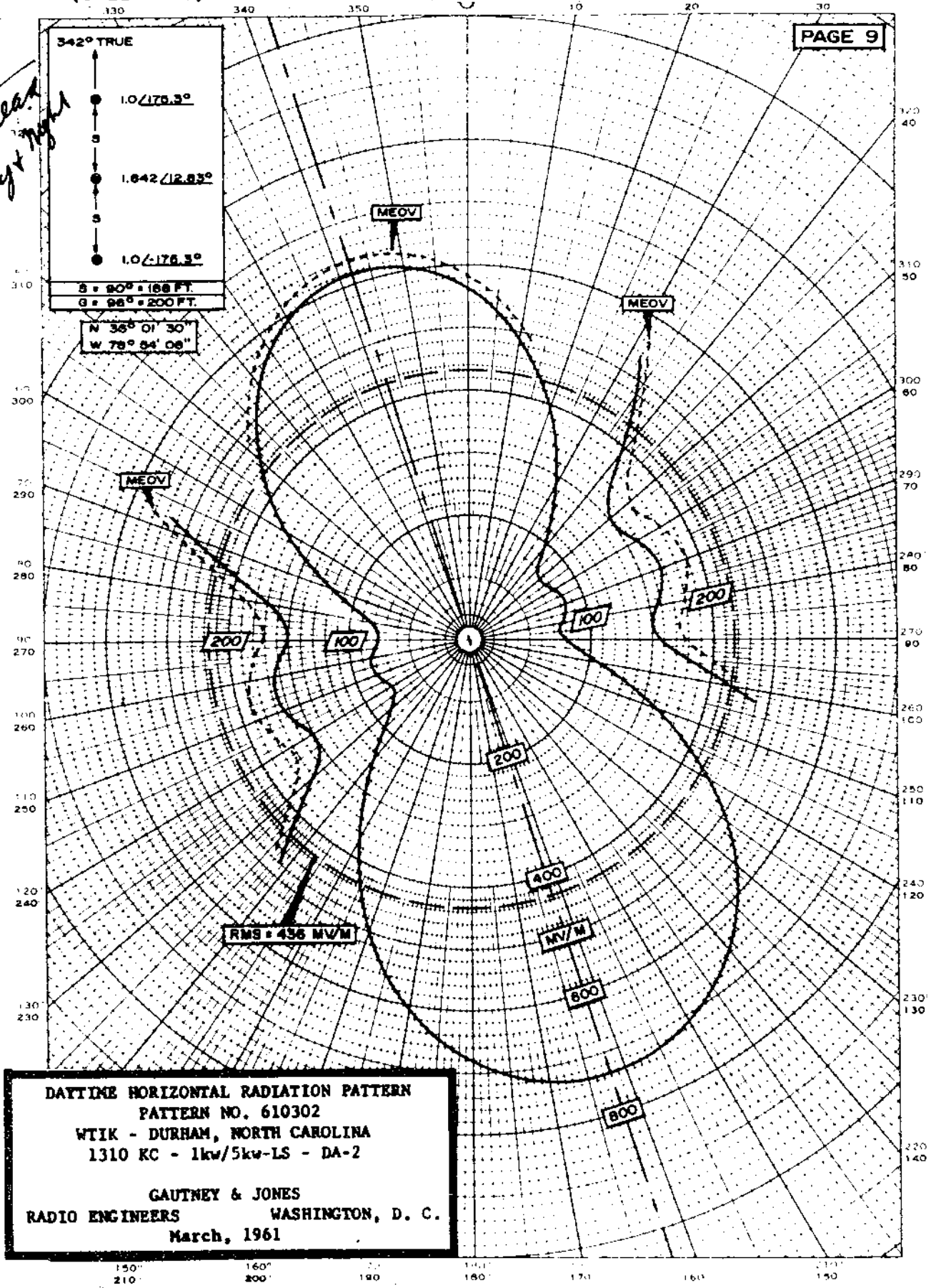
WTIK

PROPOSED DAY
(8-22-61ct)

Station WTIK
Durham, North Carolina

1kw,5kw-LS,DA-2
1310 KC

2-13-63
granted increase
in power Day night
DA 2

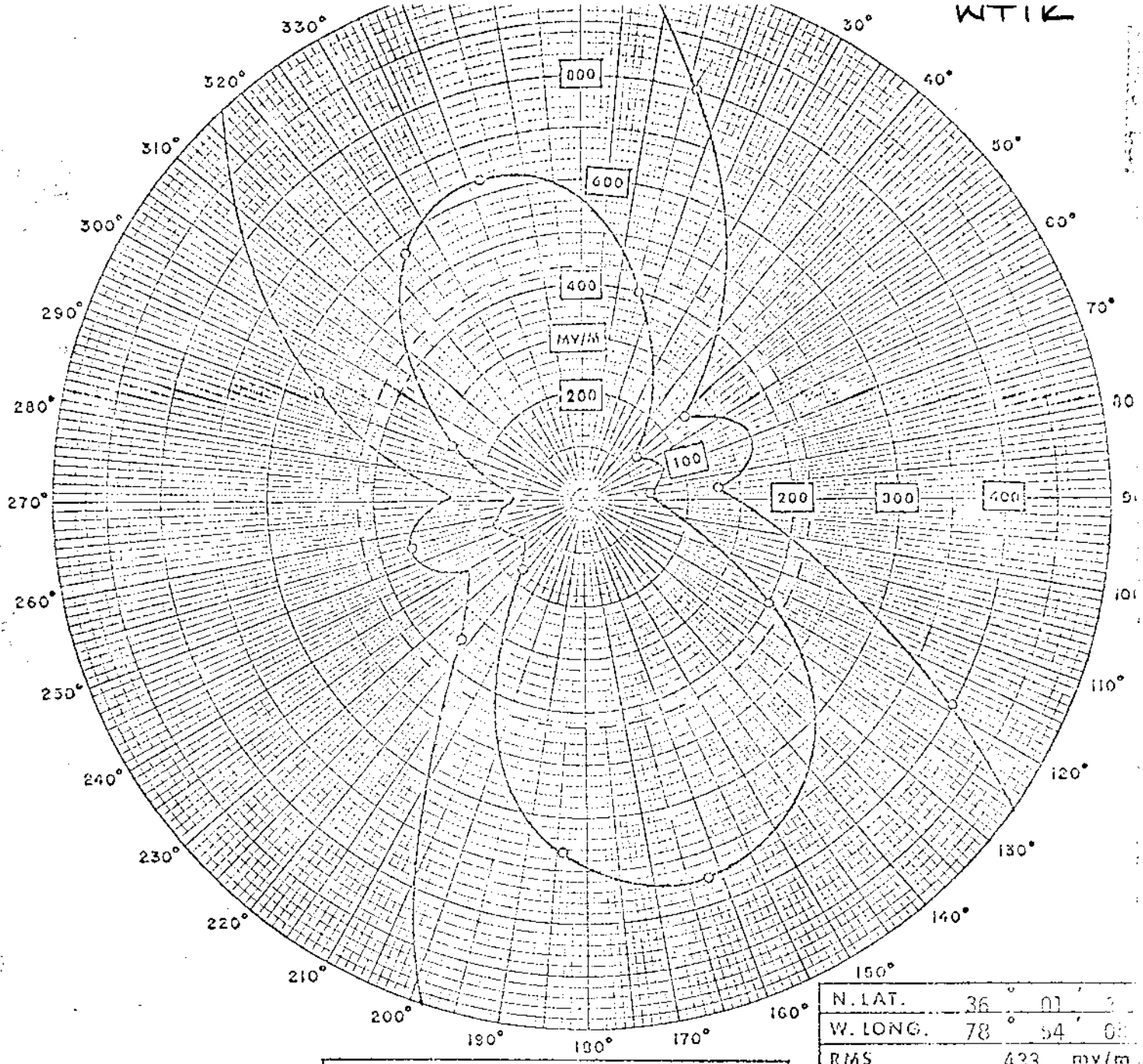


DAYTIME HORIZONTAL RADIATION PATTERN
PATTERN NO. 610302
WTIK - DURHAM, NORTH CAROLINA
1310 KC - 1kw/5kw-LS - DA-2

GAUTNEY & JONES
RADIO ENGINEERS WASHINGTON, D. C.
March, 1961

FCC File No. BP-14935 Station WTIK
Accepted 7-26-61 Durham, North Carolina 1310 KC

WTIK



N. LAT.	36	° 01	' 3
W. LONG.	78	° 54	' 08
RMS	433	mv/m	

THEORETICAL DAY			
ANTENNA NO	1	2	3
FIELD	0.5429	1.0000	0.5429
PHASE	+175.30	+12.83°	-175.3°

BZ-8839

MEASURED DAYTIME PATTERN
WTIK - DURHAM, NORTH CAROLINA
1310 kHz - 1 KW/5 KW-LS - DA-2

FEBRUARY, 1975

GAUTNEY & JONES—CONSULTING ENGINEERS

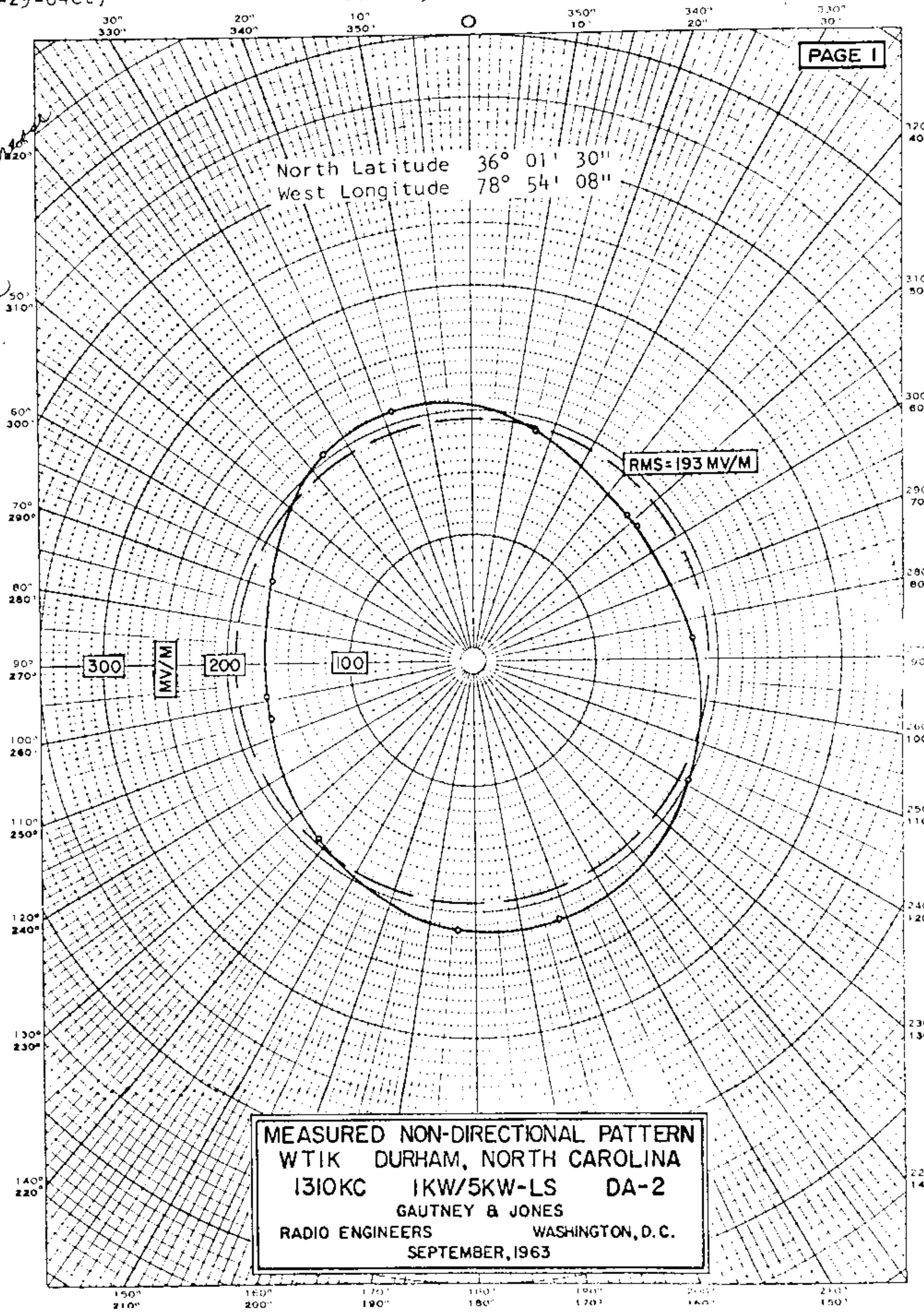
WTIK

Measured Non-DA
(1-29-64ct)

Station WTIK
Durham, North Carolina

1kw,5kw-LS,DA-2,U
1310 kc

4/12/64 FG for increase in power & changes in antenna system.



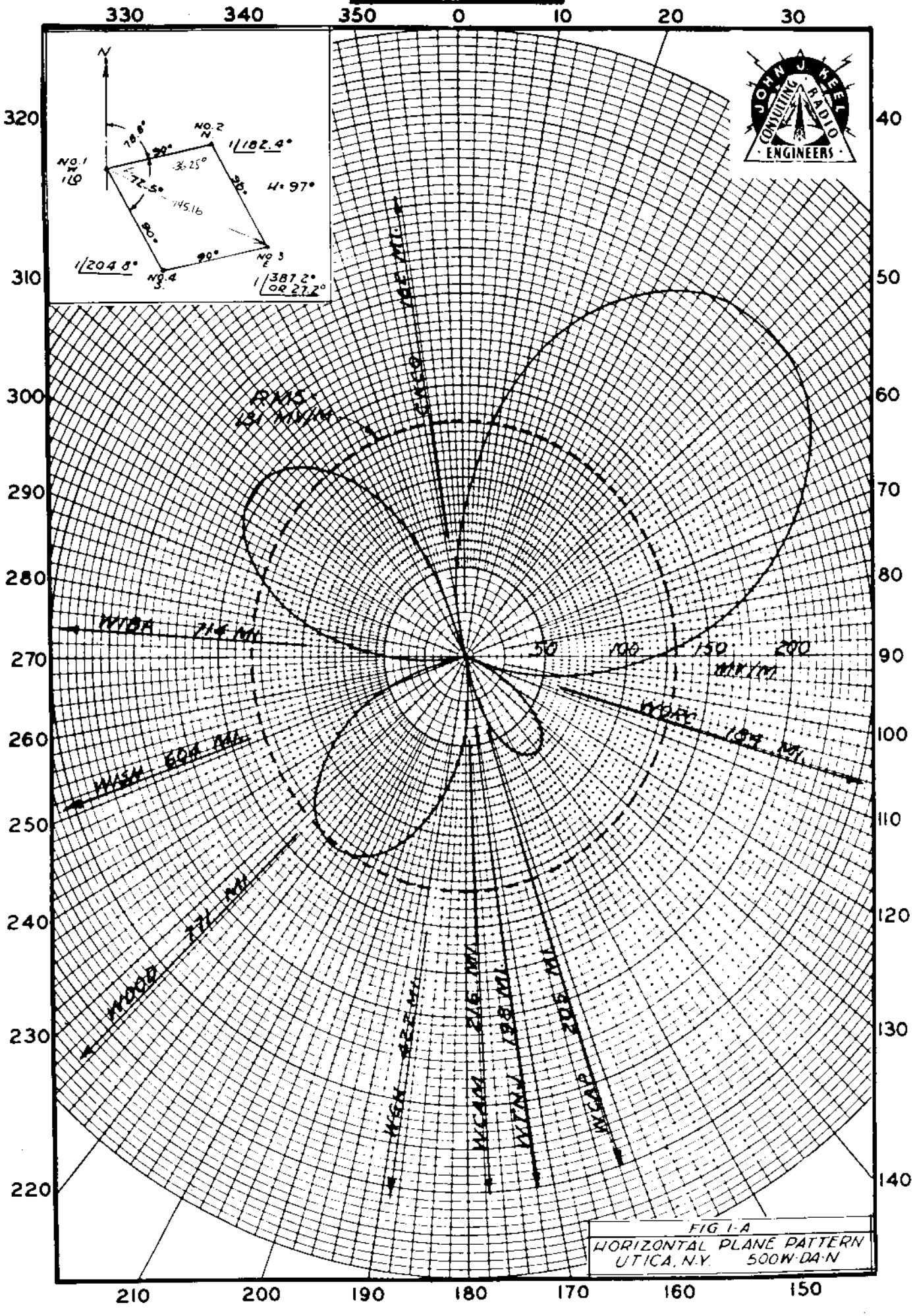
FCC File No. BL-10355
Accepted 1-15-64

Station WTIK
Durham, North Carolina

1310 kc

PATTERN No.: 91847
SUPERSEDES: ~~WGAE~~

WVLC
UTICA, N.Y. 1310 KC



JOHN J. KEEL CONSULTING RADIO ENGINEERS

FIG 1-A
HORIZONTAL PLANE PATTERN
UTICA, N.Y. 500W-DA-N

PATTERN No: 91847
SUPERSEDES:

~~WGAI~~

WILD
1310 KC

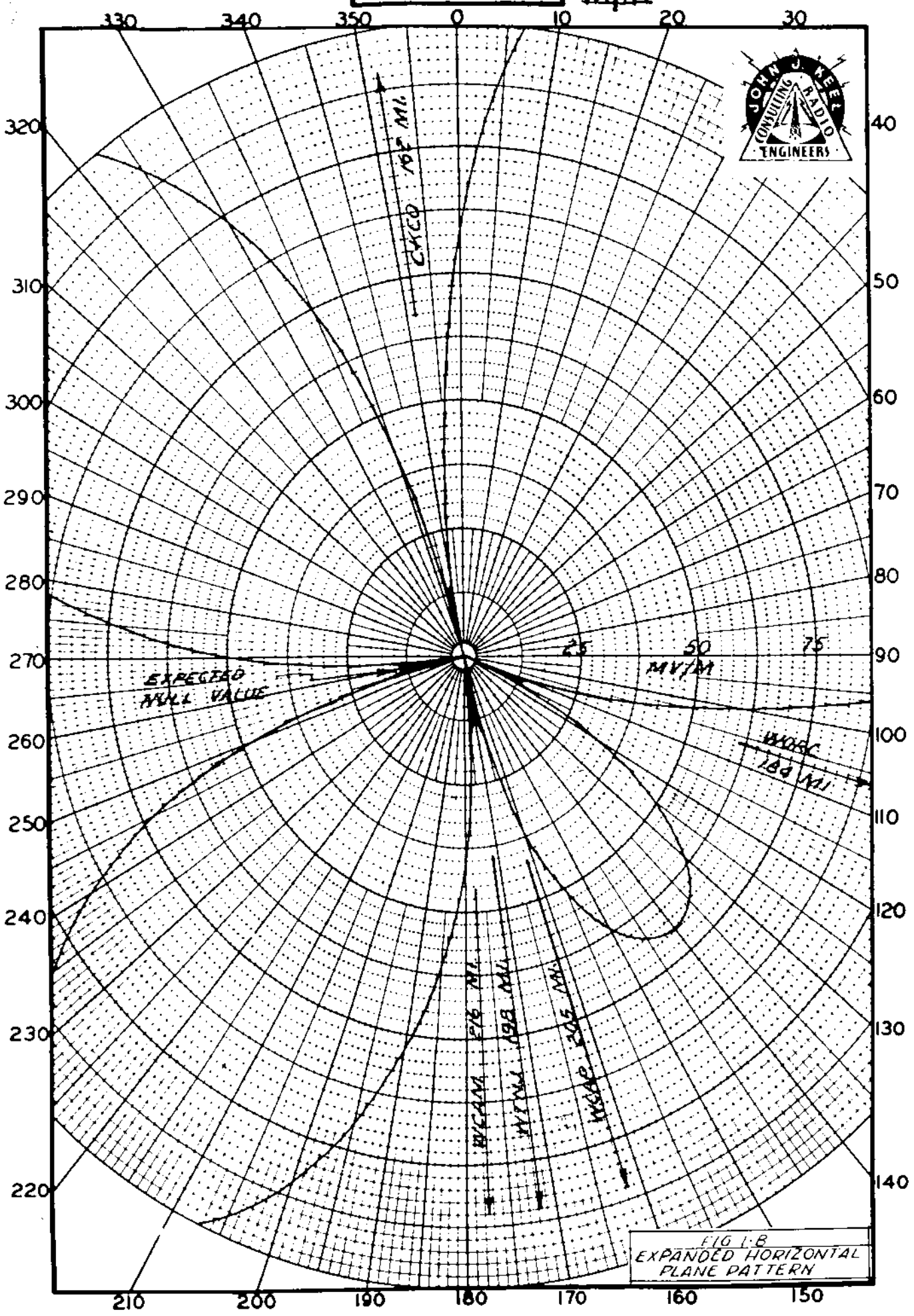
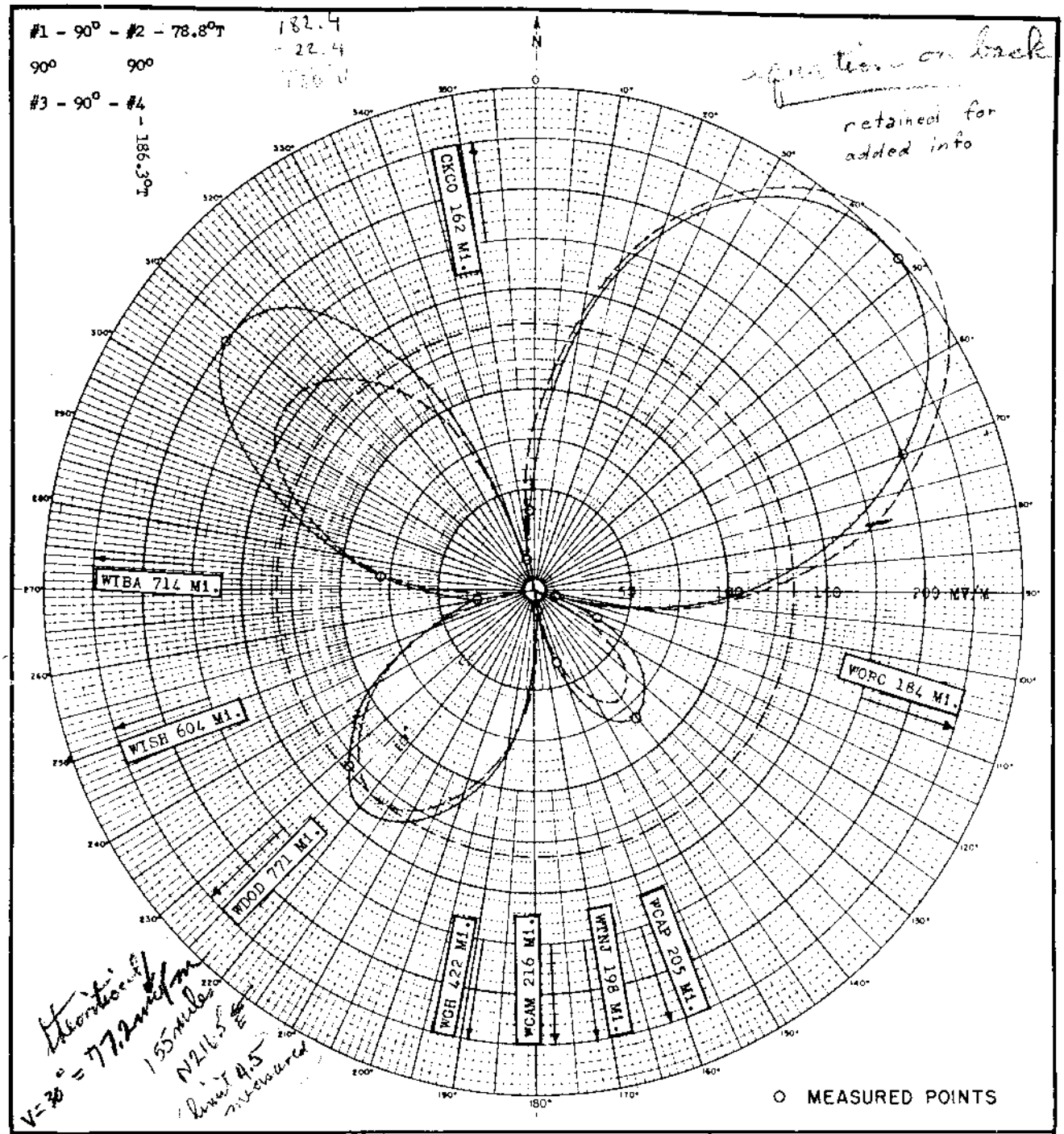


FIG 1-B
EXPANDED HORIZONTAL PLANE PATTERN

MEASURED NIGHT WGAT UTICA, NY 11/10/48G 500w, 1kw-LS, DAN ~~WGAT~~ WTLB 1310kc



W G A T

HORIZONTAL RADIATION PATTERN

CALCULATED - - - - MEASURED ——

ANTENNA	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
PHASE DEG.	0.0	182.4°	-22.4°	-208.4°		
HEIGHT DEG	97°	97°	97°	97°		
FIELD RATIO	1.00	1.00	1.00	1.00		
NON-DA ANT.	*					

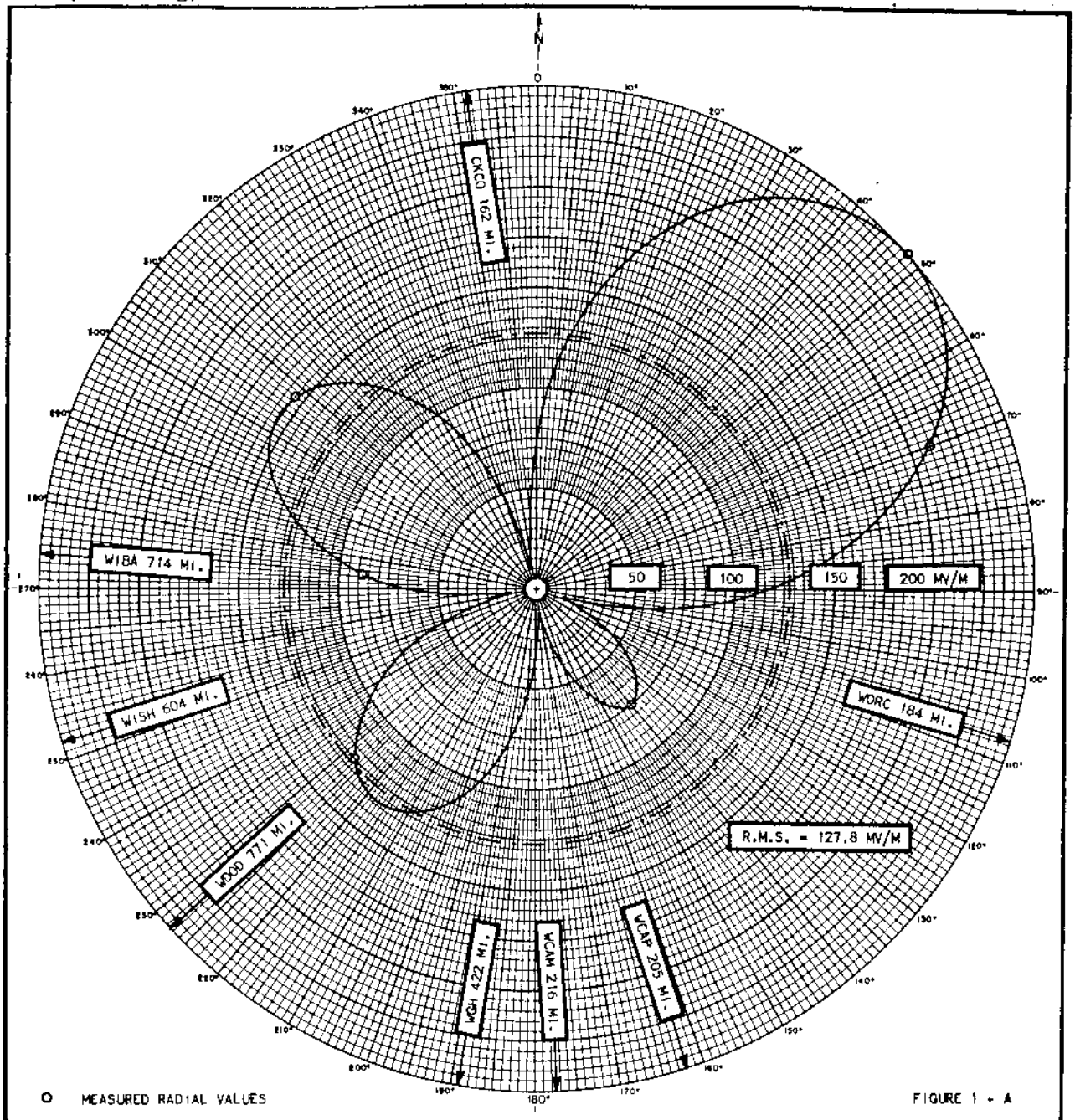
FREQUENCY:	1310 KC.
ASSIGNMENT:	1000-LS 500N(DA)
LONGITUDE:	75 DEG. 17 MIN. 36 SEC. W.
LATITUDE:	43 DEG. 3 MIN. 29 SEC. N.
WHEN USED:	NIGHT
R.M.S. FIELD:	133 MV/M
DATE:	OCTOBER, 1948

ROBERT M. SILLIMAN
CONSULTING RADIO ENGINEERS
WASHINGTON, D. C.

Amendment Rec'd 11-9-48 BMP-4136

WTLB

MEASURED NIGHT (9-25-58g) | Station WTLB Utica, New York | 500w,1kw-LS, DA-N,U 1310 KC

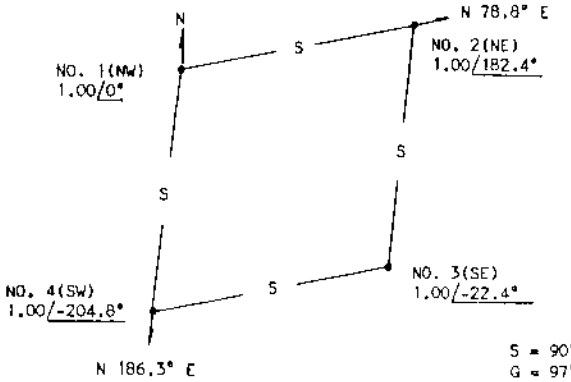


O MEASURED RADIAL VALUES

FIGURE 1 - A

HORIZONTAL RADIATION PATTERN

ORIENTATION AND SPACING OF ANTENNA SYSTEM



S = 90° (188')
G = 97° (202')

APPLICANT	: STAR BCSTG. CO., INC. (WTLB)
LOCATION	: UTICA, NEW YORK
FREQUENCY	: 1310 KC/S
POWER	: 1000-LS, 500-N(DA)
LATITUDE	: 43 DEG. 03 MIN. 24 SEC.
LONGITUDE	: 75 DEG. 16 MIN. 42 SEC.
WHEN USED	: NIGHTTIME
R.M.S. FIELD	: 127.8 MV/M (MEASURED)
DATE	: JUNE 1958

ROBERT M. SILLIMAN & ASSOCIATES
CONSULTING RADIO ENGINEERS
WASHINGTON, D.C.

FCC File No. BZ-4033 | WTLB | 1310 KC
Accepted 9-15-58 | Utica, New York

WTLB

MEASURED NON - DA (9-25-58g) | Station WTLB Utica, New York | 500w, 1kw-LS, DA-N,U 1310 KC

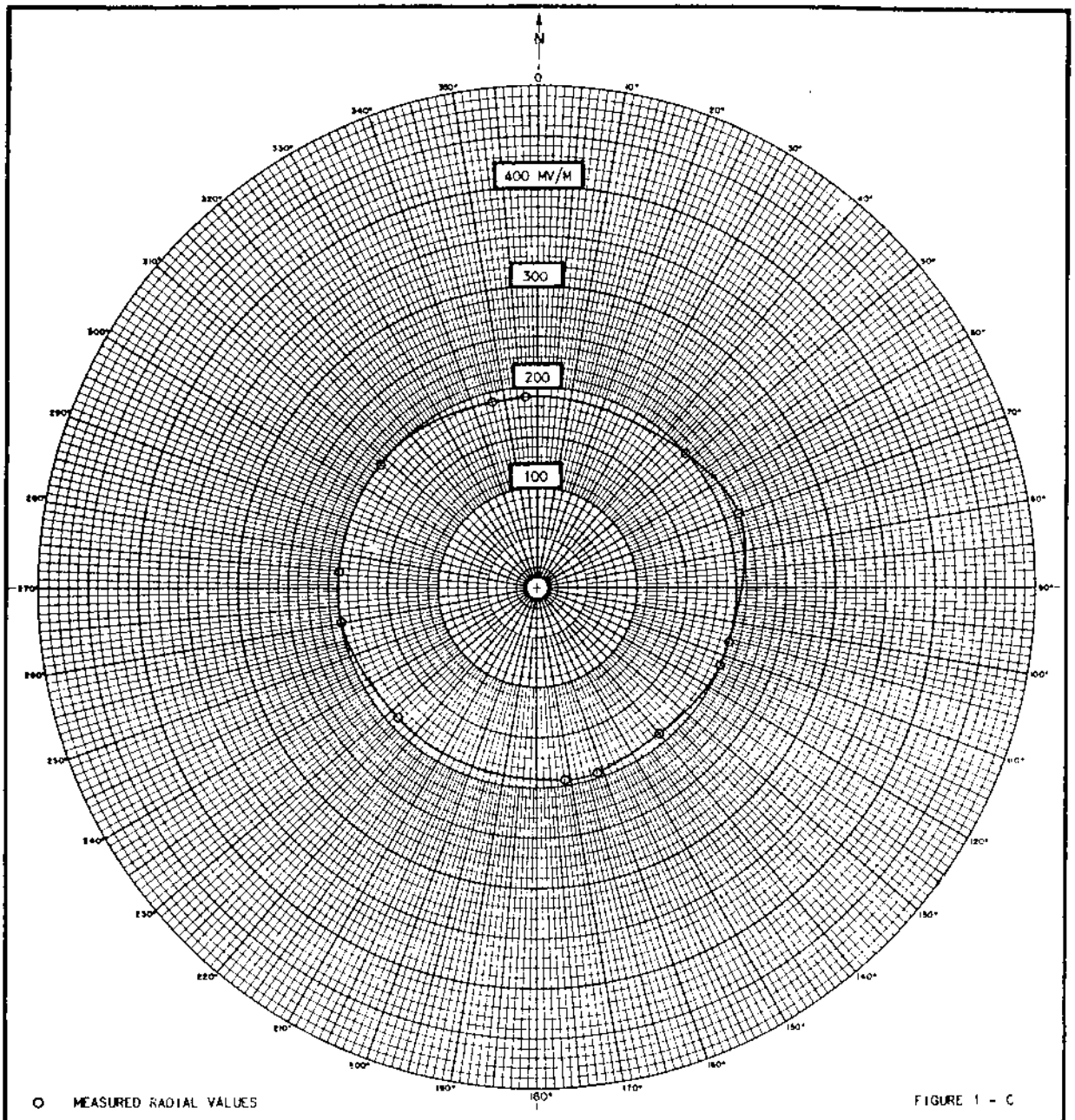


FIGURE 1 - C

HORIZONTAL RADIATION PATTERN

NON - DIRECTIONAL

APPLICANT	STAR BCSTG CO., INC. (WTLB)
LOCATION	UTICA, NEW YORK
FREQUENCY	1310 KC/S
POWER	1000-LS, 500-N(DA)
LATITUDE	43 DEG 03 MIN. 24 SEC.
LONGITUDE	75 DEG. 16 MIN. 42 SEC
WHEN USED	DAYTIME
R.M.S FIELD	196.6 MV/M (MEASURED)
DATE	JUNE 1958

ROBERT M. SILLIMAN & ASSOCIATES
CONSULTING RADIO ENGINEERS
WASHINGTON, D.C.

FCC File No. BZ-4033 | WTLB Utica, New York | 1310 KC

WTTL

SUPPLEMENTAL DIRECTIONAL
ANTENNA DESCRIPTION SHEET

Station: WTTL

Main Studio: Madisonville, Kentucky

Frequency: 1310 kHz

Power: 0.5 kW Night 1 kW Day

Notification List No. 1650

Date: September 17, 1975 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 37° 20' 12"
West Longitude: 87° 32' 41"

Authorized for Night operation (DA-N).

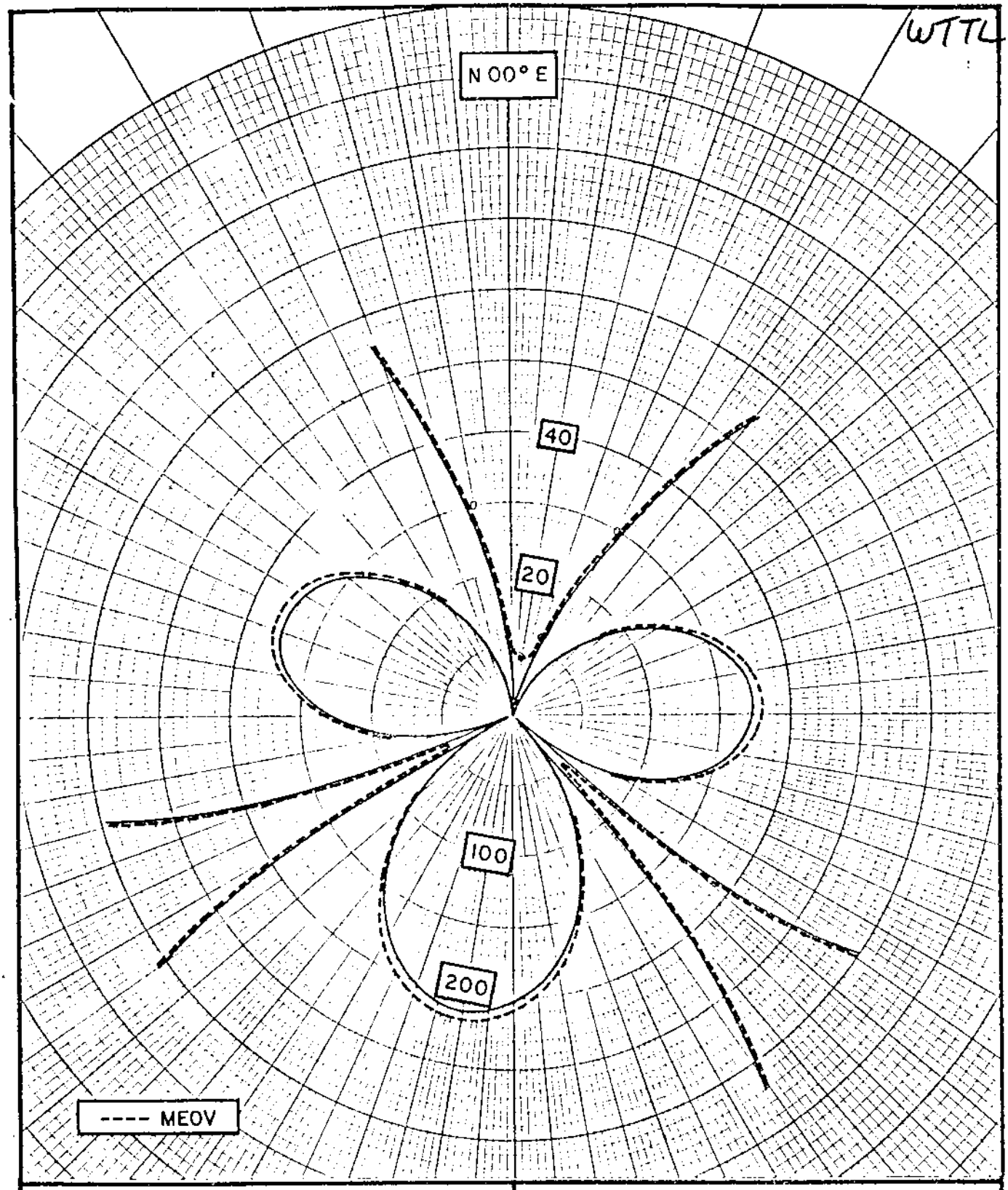
Predicted effective Day Field: (omnidirectional) 184 mv/m at rated power by adjustment of input power.

Predicted effective Night Field: 124 mv/m at rated power by adjustment of input power.

Note: Please retain the description sheet and vertical angle directional antenna radiation patterns notified for station WTTL in United States Change List Number 1047, dated February 12, 1964 and attach to this supplemental Description Sheet and horizontal directional antenna radiation pattern. This notification is for the purpose of indicating only a change in the geographical coordinates of the center of the antenna system.

CTR NO 30983A4

WTTL



N. LAT. 37° 20' 12"
W. LONG. 87° 32' 41"

N10°E

1.00 ∠-13°

60°

Erms = 124 MV/M

1.36 ∠180°

60°

1.00 ∠+13°

GROUND: 120 RADIALS PER TOWER, 86° IN LENGTH
TOWERS: BASE FED, UNIFORM SECTION, GUYED, 186°

RADIO STATION WTTL
1310 KHz, 1 Kw - LS, 0.5 Kw - DAN
MADISONVILLE, KENTUCKY

THEORETICAL NIGHT PATTERN

ARTHUR K. PETERS
CONSULTING ENGINEERS
GAINESVILLE, FLORIDA

750115

FIGURE 6

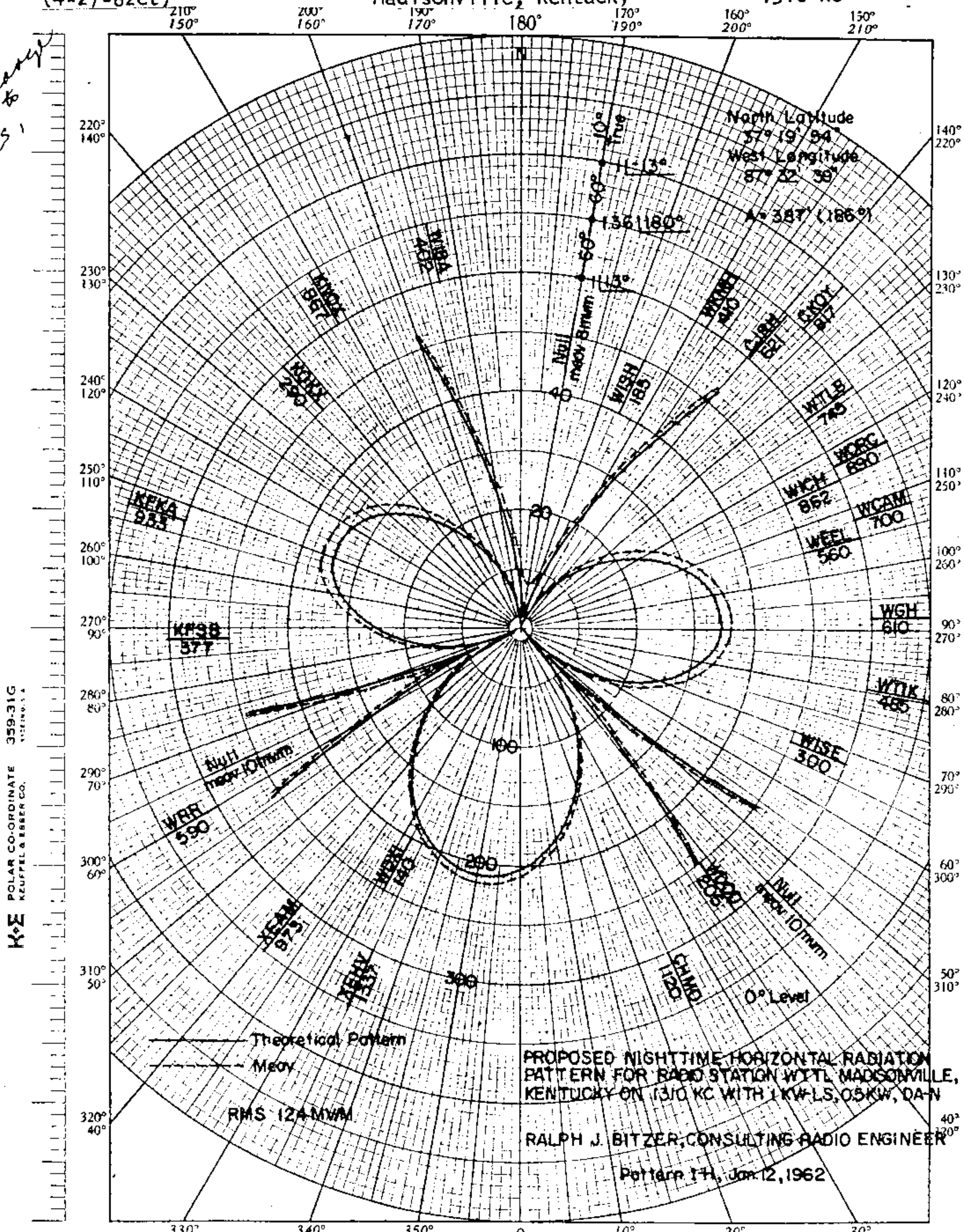
WTTL

Proposed Night
(4-27-62ct)

Station WTTL
Madisonville, Kentucky

500w, 1kw-LS, DA-N, U
1310 kc

2-12-64 rental change on 500w D to 500w/1kw-LS, DA-N, U.



FCC File No. BP-15393
Accepted 4-10-62

Station WTTL
Madisonville, Kentucky

1310 kc

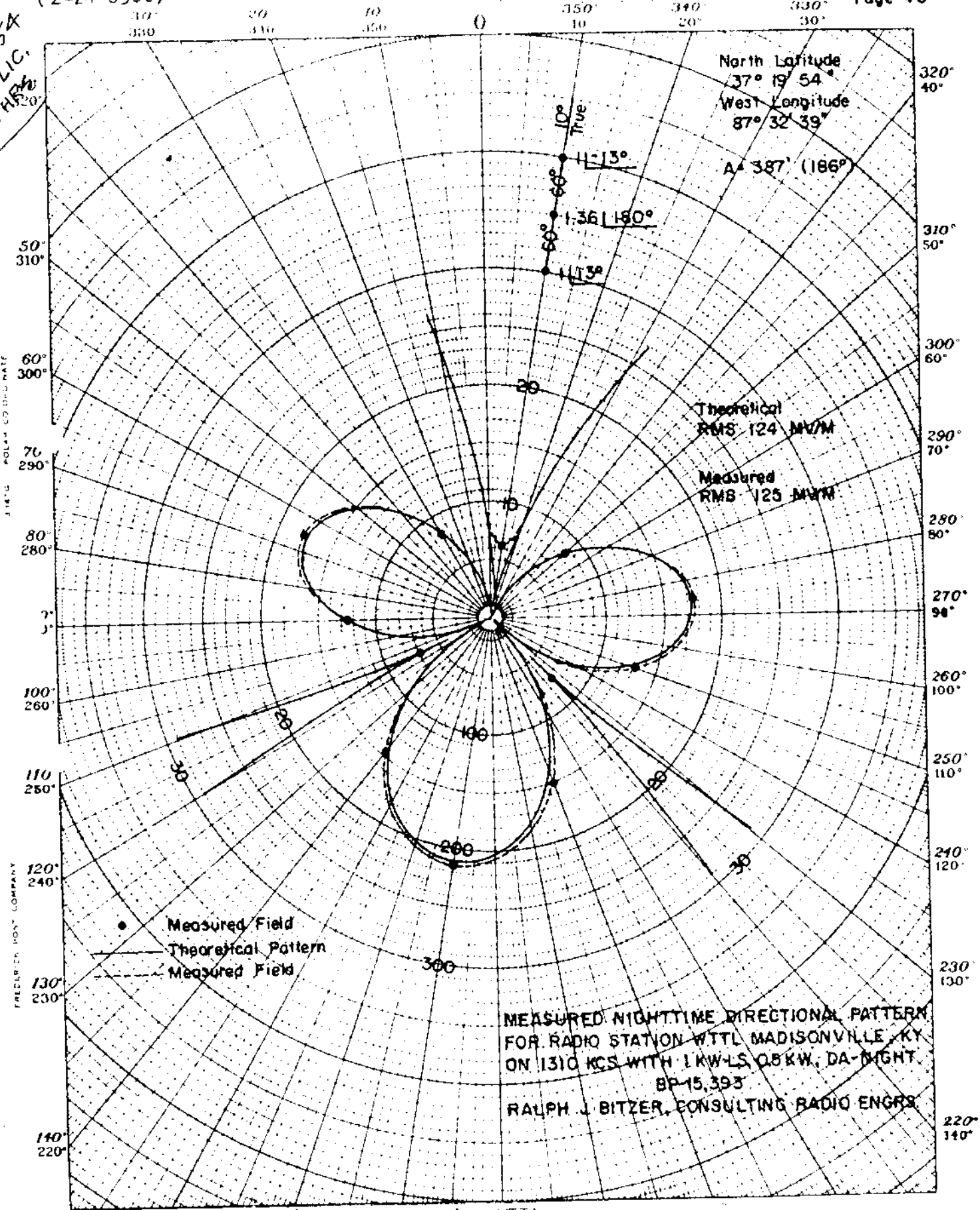
WTTL

Measured Night
(2-24-65ct)

Station WTTL
Madisonville, Kentucky

500w, 1kw-LS, DA-N, U
1310 kc

BL-10754
2-1-65 LIC.
DA-N, CH6 HRS



FCC File No. BL-10754
Accepted 2-9-65

Station WTTL
Madisonville, Kentucky

1310 kc

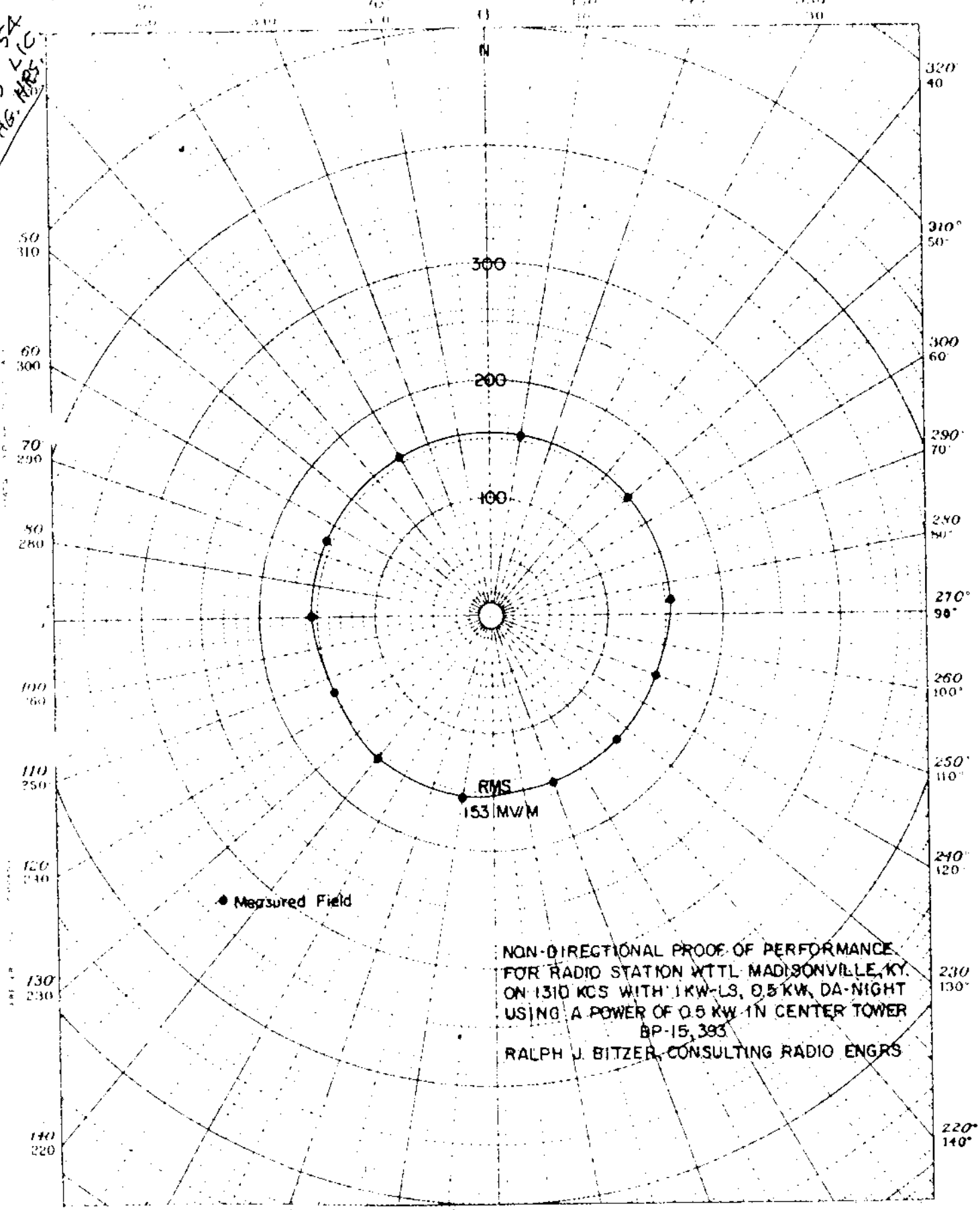
WTTL

Measured Non-DA
(2-24-65ct)

Station WTTL
Madisonville, Kentucky

500w, 1kw-LS, DA-N, U
1310 kc

-10754
-1-65 LIC
DA-N, CHG. HRS.



FCC File No. BL-10754
Accepted 2-9-65

Station WTTL
Madisonville, Kentucky

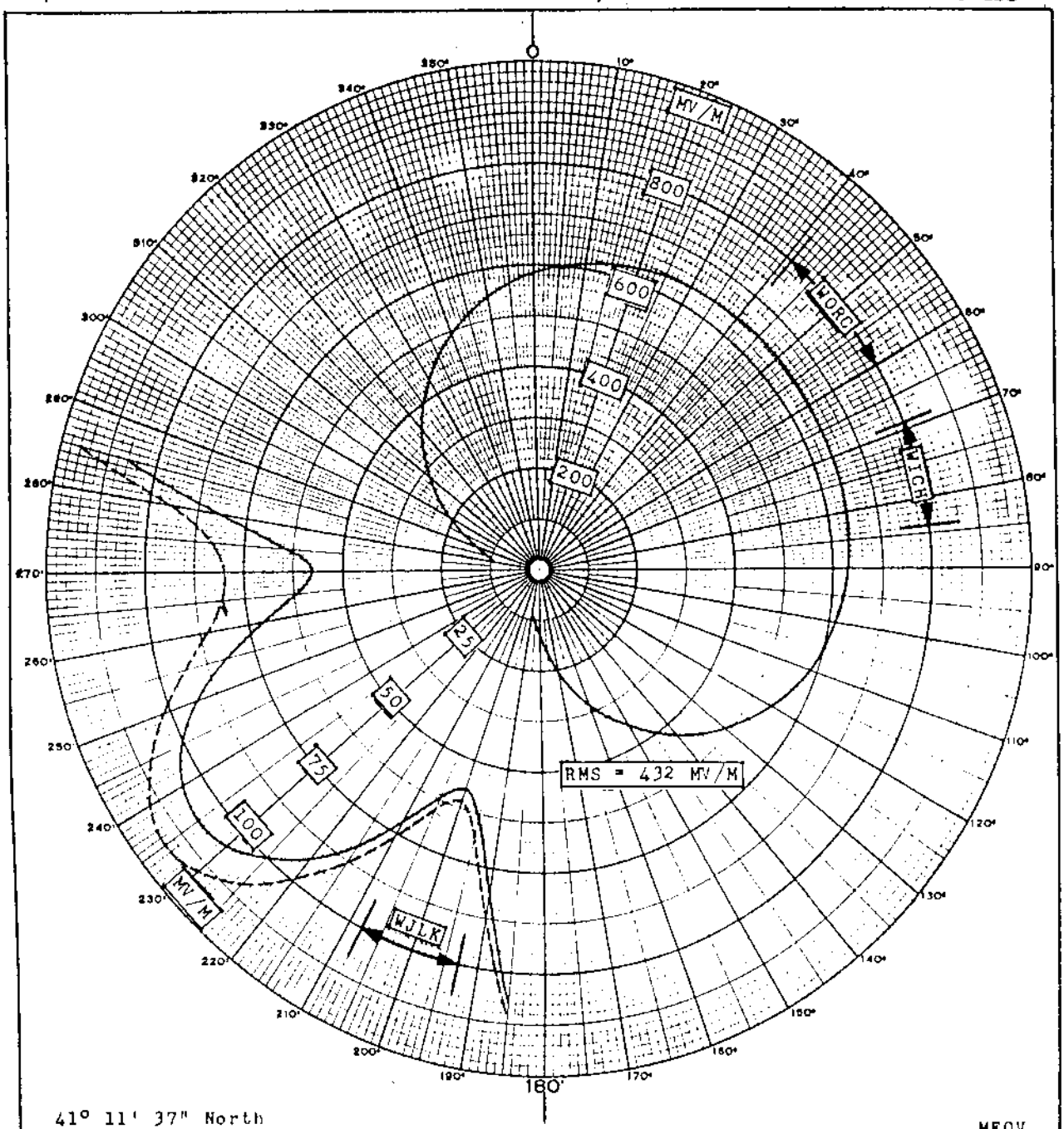
1310 kc

WVIP

PROPOSED DAY
(9-25-58g)

Station WVIP
Mount Kisco, New York

5kw, DA-D,D
1310 KC



41° 11' 37" North
73° 44' 22" West

--- MEOV

PROPOSED HORIZONTAL PLANE RADIATION PATTERN

0.84/-106°	RADIO STATION WVIP RADIO MOUNT KISCO, INC. MOUNT KISCO NEW YORK	PROPOSED OPERATION 1310 KC 5 KW I DA
	Jansky and Bailey Consulting Electronic Engineers	JULY, 1958

FCC File No. BP-12,258
Accepted 9-15-58

WVIP
Mount Kisco, New York

1310 KC

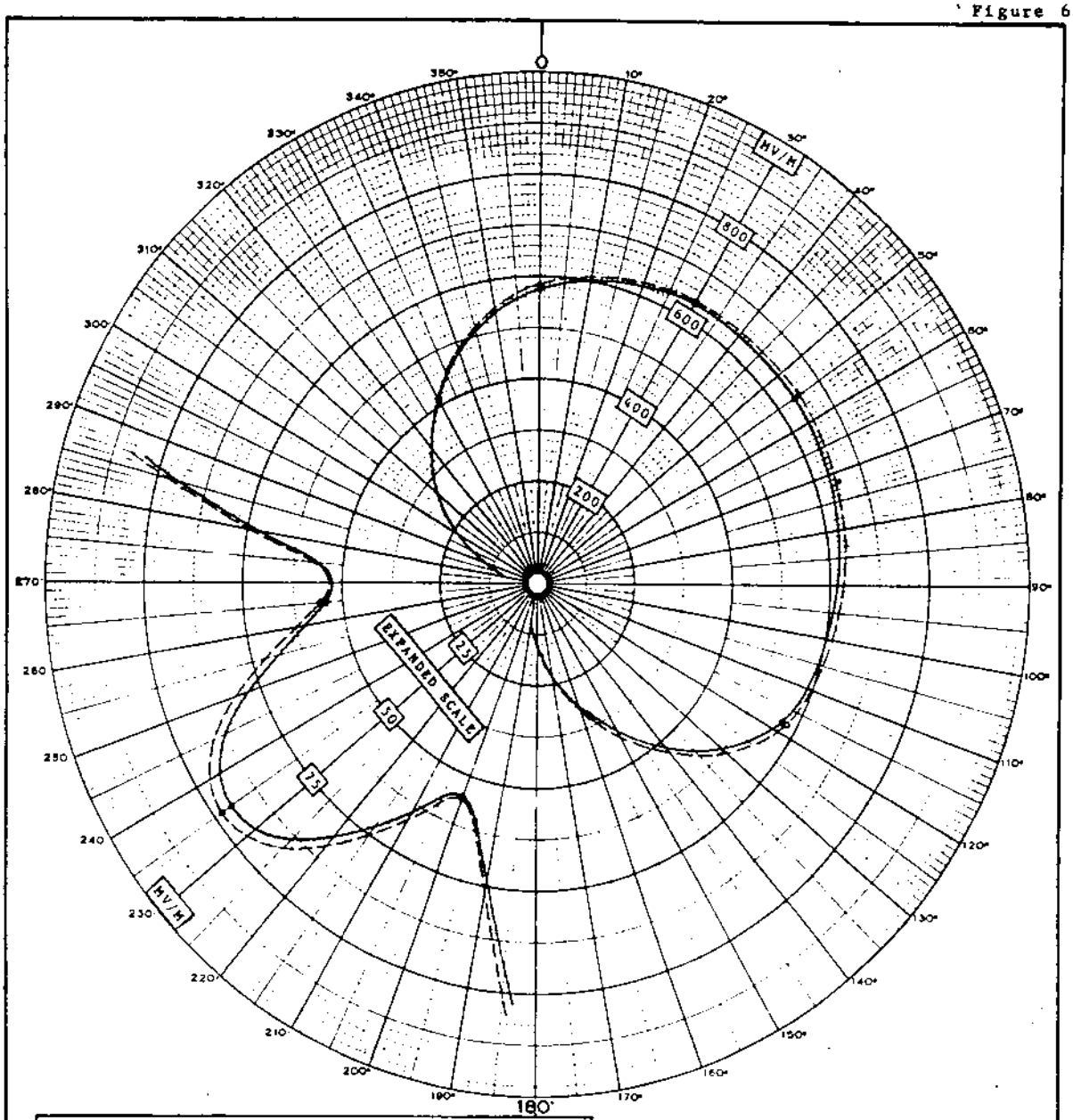
WVIP

Measured Day
(6-28-63ct)

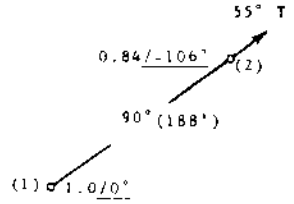
Station WVIP
Mount Kisco, New York

5kw,DA-D,D
1310 kc

Figure 6



DIRECTIONAL HORIZONTAL PLANE RADIATION PATTERN



SUBURBAN BROADCASTING COMPANY, INC.
MOUNT KISCO, NEW YORK

Jules Cohen
Consulting Electronic Engineer

RADIO STATION WVIP
1310 KC
5.0 KW D DA

FCC File No.BZ-4923
Accepted 6-13-63

Station WVIP
Mount Kisco, New York

1310 kc

WVIP

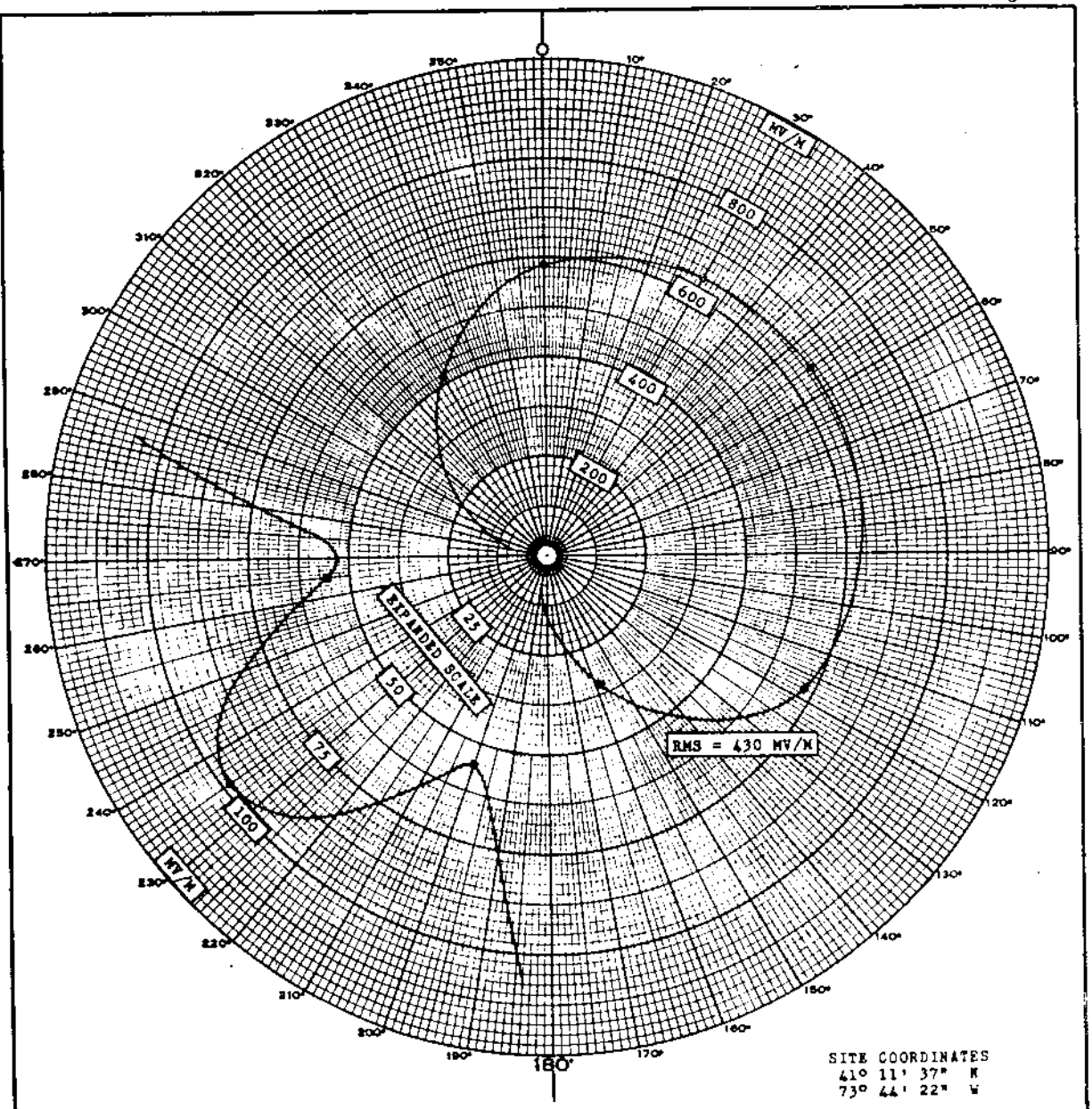
Measured Day
(4-27-62ct)

Station WVIP
Mount Kisco, New York

5kw, DA-D, D
1310 kc

Figure 9

BL 9105 - 2-2-62 - granted for increase in day DA power and change in DA pattern



MEASURED DIRECTIONAL HORIZONTAL PLANE RADIATION PATTERN

55°T 0.84/-106° (2) 90°(188') (1) 1.0/0°	SUBURBAN BROADCASTING COMPANY, INC. MOUNT KISCO, NEW YORK	RADIO STATION WVIP 1310 KC 5.0 KW D DA Pattern 620115
	Jules Cohen Consulting Electronic Engineer	

FCC File No. BL-9105
Accepted 4-6-62

Station WVIP
Mount Kisco, New York

1310 kc

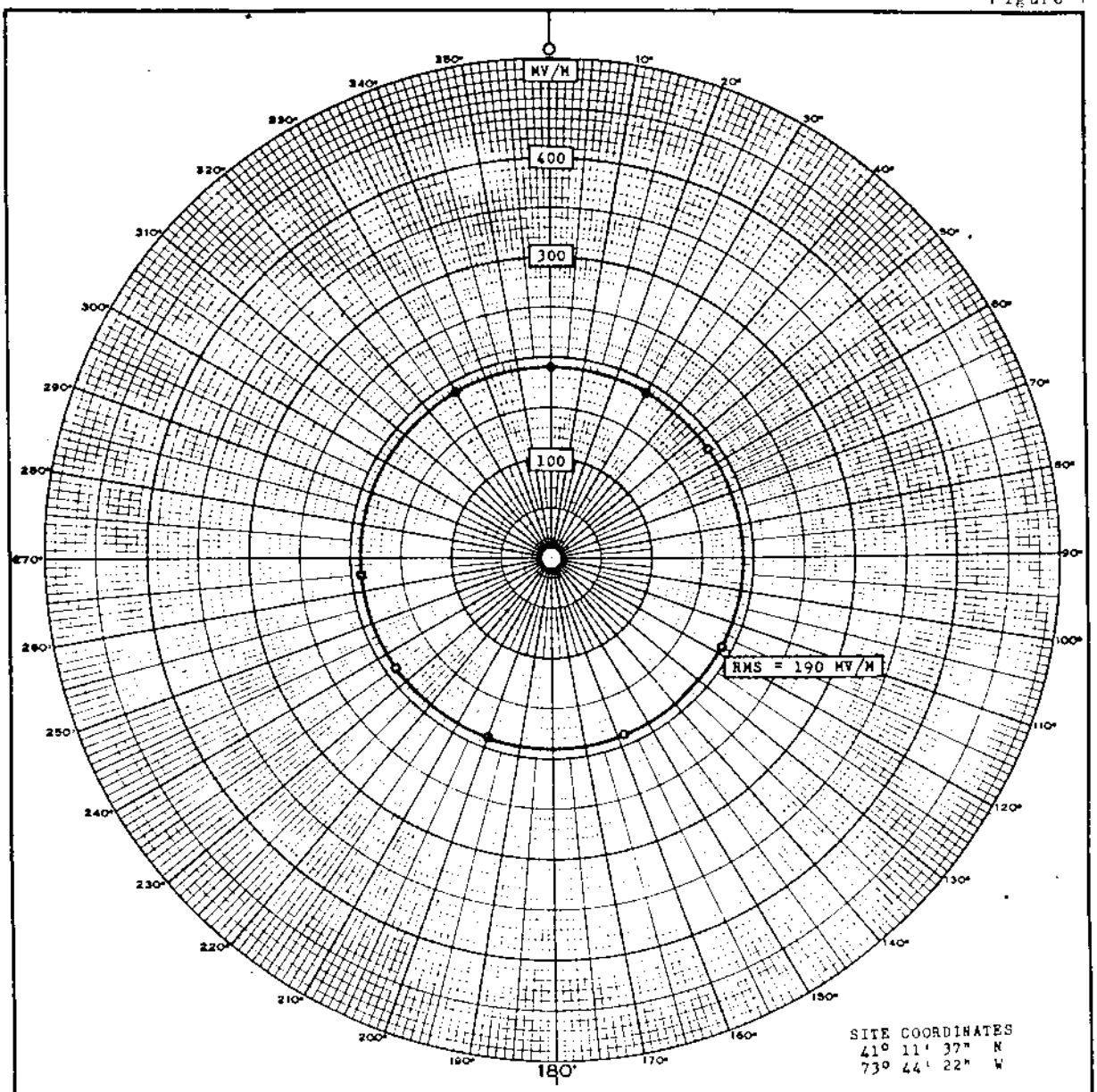
WVIP

Measured Non-DA
(4-27-62ct)

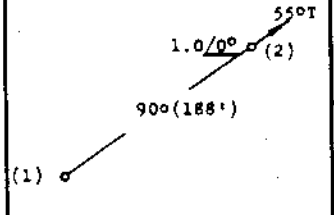
Station WVIP
Mount Kisco, New York

5kw,DA-D,D
1310 kc

Figure 7



MEASURED NONDIRECTIONAL HORIZONTAL PLANE RADIATION PATTERN



SUBURBAN BROADCASTING COMPANY, INC.
MOUNT KISCO, NEW YORK

Jules Cohen
Consulting Electronic Engineer

RADIO STATION WVIP
1310 KC
5.0 KW D DA
January 15, 1962

FCC File No.BL-9105
Accepted 4-6-62

Station WVIP
Mount Kisco, New York

1310 kc

ST. PAUL, ALBERTA

DESCRIPTION SHEET

STATION: NEW

MAIN STUDIO: St. Paul, Alberta

FREQUENCY: 1310 KHz.

POWER: 10 kw

TIME: UNLIMITED

DATE: July, 1970

NOTIFICATION LIST NO: 282

DATE: August 27, 1971.

GEOGRAPHIC LOCATION:

N. 53° 53' 29"
W. 111° 30' 0"

ANTENNA SYSTEM:

Mode of Operation: DA-2

Elements - Three (3) guyed towers. Uniform cross section. Series fed, base insulated.

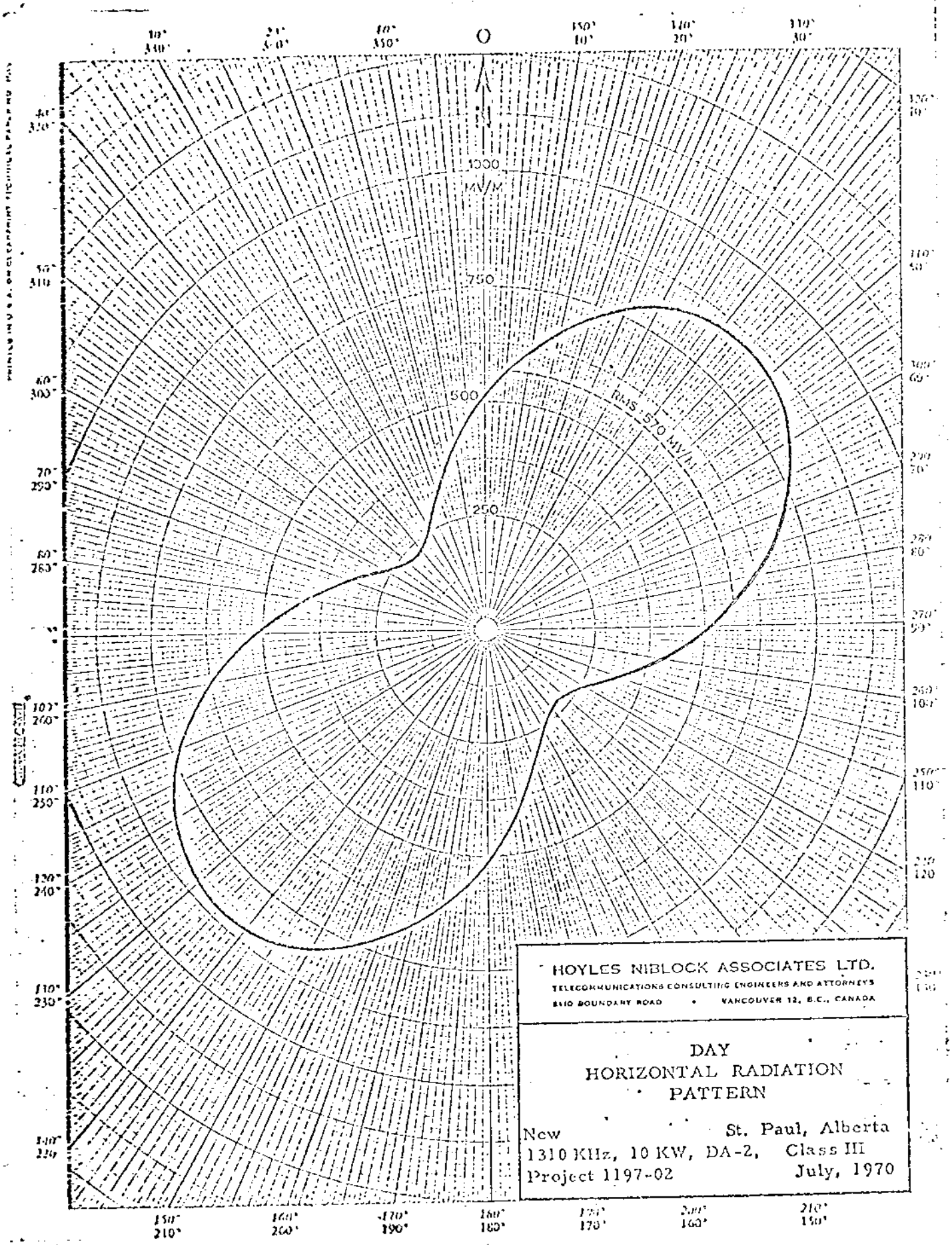
Towers:	1 (N)	2 (C)	3 (S)
Height above insulator	188'	188'	188'
Height overall	192'	192'	192'
Height electrical	90°	90°	90°
Night Field - Phase	0	60	146
Night Field - Ratio	1	1.93	1
Day Field - Phase	not used	0	0
Day Field - Ratio	not used	1.0	0.8
Spacing	REF.	170° (355')	320° (688')
Orientation	REF.	148°	142°

Ground System: The ground system shall consist of 120 copper radials uniformly spaced about each tower base at least 8" below grade. The area covered is equivalent to a 0.4λ length system.

Night Predicted Effective Field: 560 mv/m at 1 mile for 10 kw.
(177 mv/m at 1 mile for 1 kw.)

Day Predicted Effective Field: 570 mv/m at 1 mile for 10 kw.
(180 mv/m at 1 mile for 1 kw.)

ST. PAUL, ALBERTA

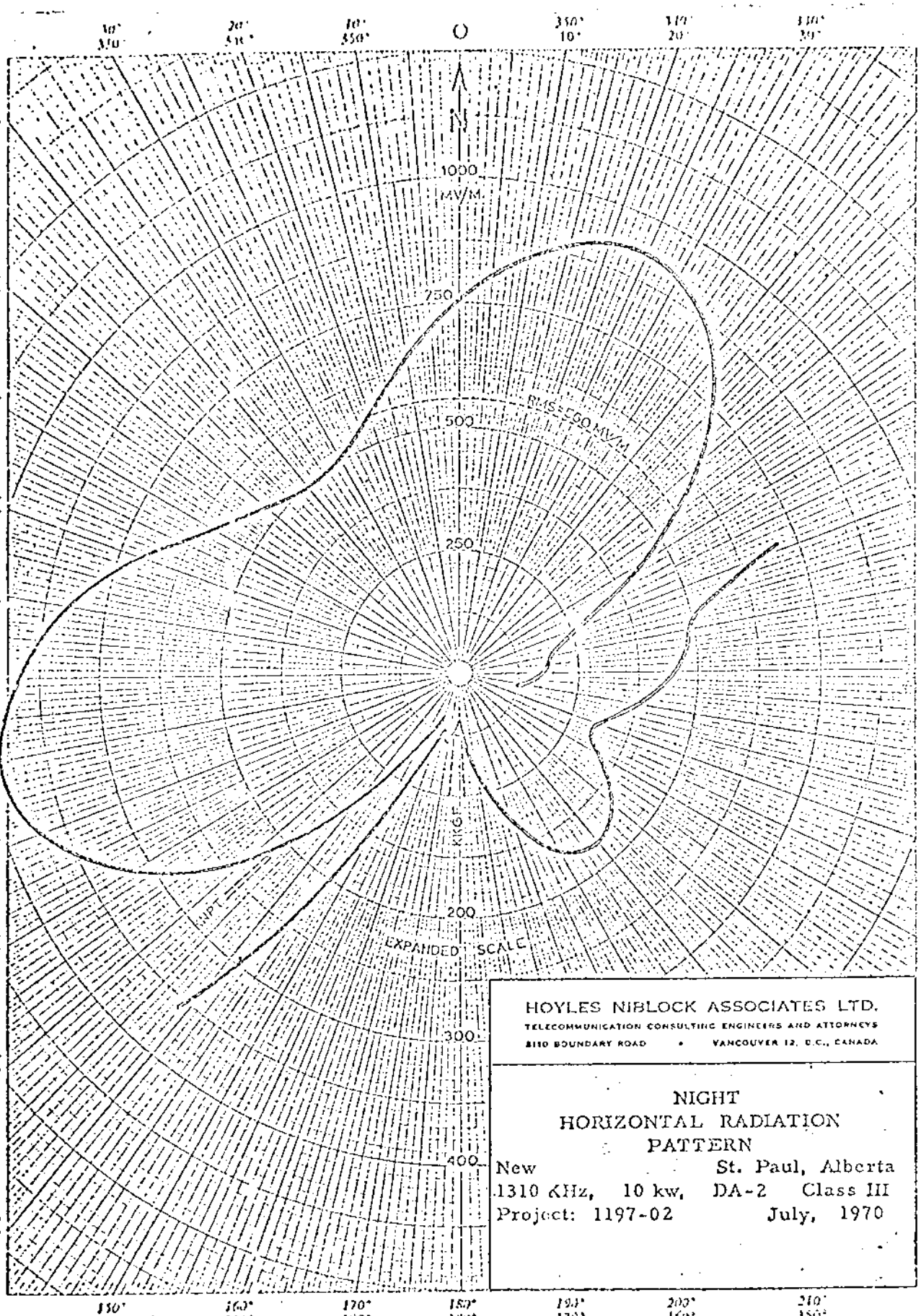


HOYLES NIBLOCK ASSOCIATES LTD.
TELECOMMUNICATIONS CONSULTING ENGINEERS AND ATTORNEYS
8410 BOUNDARY ROAD • VANCOUVER 12, B.C., CANADA

DAY
HORIZONTAL RADIATION
PATTERN

New St. Paul, Alberta
1310 KHz, 10 KW, DA-2, Class III
Project 1197-02 July, 1970

ST. PAUL, ALBERTA



HOYLES NIBLOCK ASSOCIATES LTD.
TELECOMMUNICATION CONSULTING ENGINEERS AND ATTORNEYS
8130 BOUNDARY ROAD • VANCOUVER 12, B.C., CANADA

NIGHT
HORIZONTAL RADIATION
PATTERN

New St. Paul, Alberta
1310 KHz, 10 kw, DA-2 Class III
Project: 1197-02 July, 1970