1330-1340

Station	Main Studio	Freq	Power	Date
CKLD	Thetford-Mines, QU	1330	10 kW/DA-1	6/24/76
CKKR	Rosetown, Saskatchewan	1330	10 kW/DA-1	9/10/65
NEW	Crescent City, FL	1330	1 kW/DA-D	11/9/79
KFAC	Los Angeles, CA	1330	5 kW/DA-N	5/27/66
KFH	Wichita, KS	1330	5 kW/DA-N	2/7/57
KGAK	Gallup, NM	1330	1/5 kW/DA-N	11/1/54
KHYT	South Tucson, AZ	1330	5/0.5 kW/DA-N	11/2/79
KLOM	Lompoc, CA	1330	1 kW/DA-D	11/11/60
KOVE	Lander, WY	1330	1/5 kW/DA-N	5/22/74
KOVE	Lander, WY	1330	1 kW/N-DA	6/11/54
KUPL	Portland, OR	1330	5 kW/DA-1	8/18/48
KVKM	Monahans, TX	1330	1/5 kW/DA-N	6/16/59
KVOL	Lafayette, LA	1330	1/5 kW/DA-N	3/28/66
KVOL	Lafayette, LA	1330	1 kW/N-DA	3/28/66
KWWL	Waterloo, IA	1330	1/5 kW/DA-2	6/8/49
WASA	Havre de Grace, MD	1330	0.5/5 kW/DA-N	8/30/78
WBTM	Danville, VA	1330	1/5 kW/DA-N	
WEAW	Evanston, IL	1330	5 kW/DA-D	5/8/61
WELW	Willoughby, OH	1330	0.5 kW/DA-D	2/61
WEVD	New York, NY	1330	5 kW/DA-2	7/28/66
WFBC	Greenville, SC	1330	5 kW/DA-N	5/27/65
WFTP	Fort Pierce, FL	1330	0.5/1 kW/DA-N	9/20/61
WHBL	Sheboygan, WI	1330	1/5 kW/DA-2	10/25/61
WDLW	Waltham, MA	1330	5 kW/DA-2	9/77
WHET	Waltham, MA	1330	5 kW/DA-2	8/19/57
WHET	Waltham, MA	1330	1/5 kW/DA-2	5/22/56

1330-1340

Station	Main Studio	Freq	Power	Date
WHOT	Campbell, OH	1330	1/0.5 kW/DA-2	4/10/61
WHOT	Campbell, OH	1330	5/0.5 kW/DA-N	8/30/78
WJPR	Greenville, MS	1330	0.5/1 kW/DA-N	9/26/51
WJPS	Evansville, IN	1330	1/5 kW/DA-N	2/28/70
WLAT	Conway, SC	1330	0.5/5 kW/DA-N	7/29/60
WLOL	Minneapolis, MN	1330	5 kW/DA-2	5/27/65
WLOL	Minneapolis, MN	1330	5 kW/DA-1	
WMLT	Dublin, GA	1330	0.5/5 kW/DA-N	4/28/66
WPOW	New York, NY	1330	5 kW/DA-1	10/1/75
WPRZ	Evanston, IL	1330	5 kW/DA-D	12/4/80
WRAM	Monmouth, IL	1330	1 kW/DA-D	11/28/55
WRIE	Erie, PA	1330	5 kW/DA-2	11/9/79
WRRR	Rockford, IL	1330	1 kW/DA-D	11/5/51
WRRR	Rockford, IL	1330	1 kW/N-DA	5/4/54
WTRE	Greensburg, IN	1330	0.5 kW/DA-D	6/28/66
WTRE	Greensburg, IN	1330	1 kW/N-DA	11/29/68
WTRX	Flint, MI	1330	1/5 kW/DA-2	9/12/80
WTRX	Flint, MI	1330	1 kW/N-DA	5/27/60
WYGO	Corbin, KY	1330	5 kW/DA-D	12/21/59
XEBO	Iraphuato, Gto	1340	1 kW/DA-N	8/54
NEW	Wetaskiwin, AB	1340	0.25/1 kW	6/16/67
NEW	Creston, BC	1340	0.25 kW	1/29/68
NEW	Grand Forks, BC	1340	0.25/1 kW	9/27/68
NEW	Elliot Lake, ON	1340	0.25 kW	11/29/66
NEW	Asbestos, PQ	1340	1/0.25 kW	4/14/72
NEW	Lac Megantic, PQ	1340	0.25/1 kW/DA-D	8/28/67

1330-1340

Station	Main Studio	Freq	Power	Date
NEW	Temiscaming, PQ	1340	0.25 kW/DA-2	1/29/68
NEW	Matane, QU	1340	1/0.25 kW/DA-2	9/28/67
CFGB	Goose Bay, NF	1340	1 kW	6/7/61
NEW	Whitehorse, Yukon	1340	1 kW	10/28/68
CFOM	Quebec, QU	1340	0.25 kW	5/10/96
CFSL	Weyborn, Saskatchewan	1340	1/0.25 kW	11/16/59
CFYK	Yellowknife, NWT	1340	1 kW	12/20/67
CHAD	Amos, PQ	1340	1/0.25 kW	2/28/69
CHRD	Drummondville, PQ	1340	0.25 kW	5/10/43
CJLS	Yarmouth, NS	1340	5/1 kW/DA-2	2/10/70
CJLS	Yarmouth, NS	1340	0.25 kW	5/10/83
CKAR	Huntesville, ON	1340	0.25 kW	1/29/60
CKCR	Revelstoke, BC	1340	1/0.25 kW	10/28/67
CKOX	Woodstock, ON	1340	0.25/1 kW/DA-D	1/11/71
CKRE	Red Lake, ON	1340	0.25 kW	9/7/83
KROC	Rochester, MN	1340	0.25/1 kW/DA-D	7/7/60
KTXL	San Angelo, TX	1340	0.25/N-DA	8/16/55
WBSE	Hillsdale, MI	1340	0.1 kW/N-DA	6/21/55
WEXL	Royal Oak, MI	1340	0.25/1 kW/DA-D	6/5/74
WKRZ	Oil City, PA	1340	0.25/1 kW/DA-D	11/29/66
WLEW	Bad Axe, MI	1340	0.25/1 kW/DA-D	11/9/79
WLVL	Lockport, NY	1340	0.25/1 kW/DA-D	10/26/70

CKLD

I - DESCRIPTION DU SYSTEME A ANTENNE DIRECTIONNELLE

1. LETTRES D'APPEL: CKLD.

2. EMPLACEMENT: Thetford-Mines, Qué.

3. FREQUENCE: 1330 KHz.

4. PUISSANCE: 10 KW jour et nuit.

5. CLASSE: III.

6. NOTIFICATION NO: 357 DATE: June 24, 1976

7. COORDONNEES: Latitude nord: 46° 03' 55"
   Longitude ouest: 71° 23' 16"

8. SYSTEME D'ANTENNE:
   a) Fonctionnement: directionnel AD-1.
   b) Type: trois (3) éléments de section uniforme, haubanés et alimentés en série.
   c) Mise à la terre: 120 fils #10 par élément, espacés également, d'une longueur équivalente à 0,4λ et enfouis à environ 8 pouces sous la surface.

9. MATS D'ANTENNE:

	#1 (SO)	#2 (C)	#3 (NE)
Hauteur au-dessus de l'isolateur:	87.6°	87.6°	87.6° (180')
Orientation (Az): (réf. au centre)	263.3°	Réf.	65.9°
Espacement: (réf. au centre)	45°	Réf.	45°
Phasage:	123.1°	0.0°	-132.5°
Rapport d'intensité de champ:	0.352	1.000	0.801

10. EFFICACITE PREVUE: 594.5 mV/m à 1 mille pour 10 KW.
    188.0 mV/m à 1 mille pour 1 KW.

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

CKLD

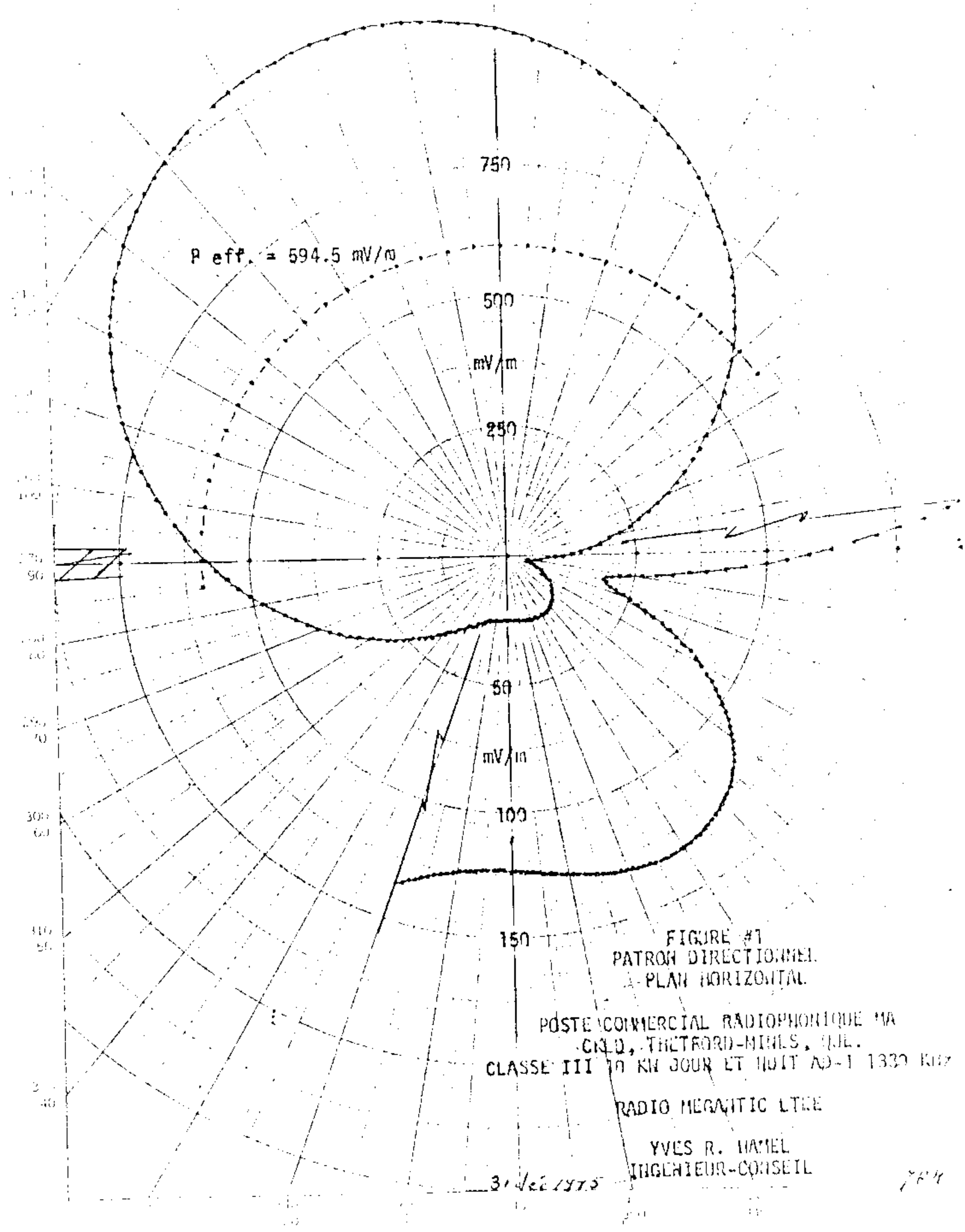


FIGURE #1
PATRON DIRECTIONNEL
A-PLAN HORIZONTAL

POSTE COMMERCIAL RADIOPHONIQUE MA
CKLD, THETFORD-MINES, QUE.
CLASSE III 10 KW JOUR ET NUIT AD-1 1330 KHZ

RADIO MEGANTIC LTEE

YVES R. HAMEL
INGENIEUR-CONSEIL

31 déc 1975

CKLD

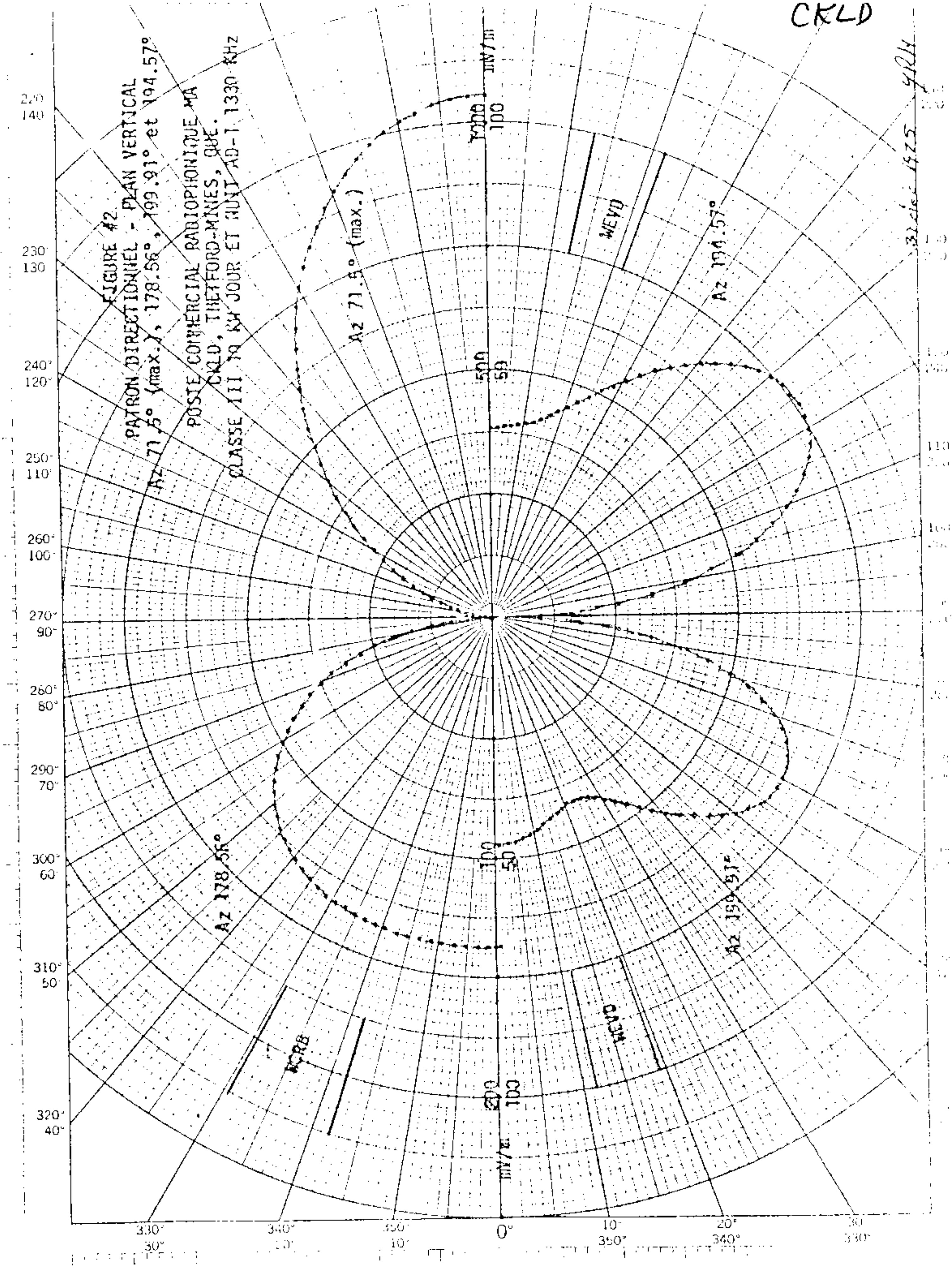
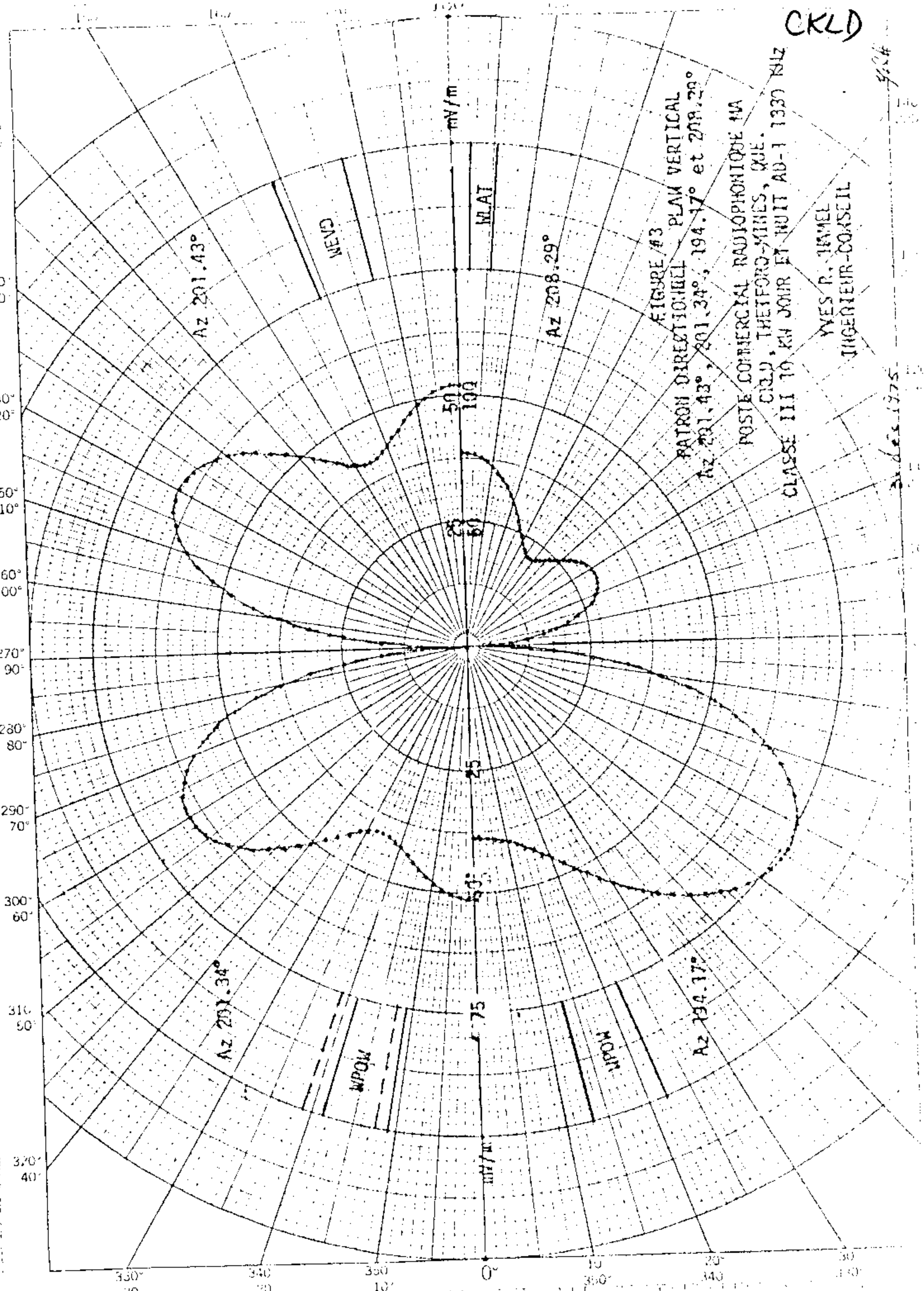


FIGURE #2
PATRON DIRECTIONNEL - PLAN VERTICAL
Az 71.5° (max.), 178.56°, 199.91° et 194.57°
POSTE COMMERCIAL RADIOPHONIQUE MA
CKLD, THETFORD-MINES, QUE.
CLASSE III 10 KW JOUR ET NUIT AD-T 1330 KHz
Az 71.5° (max.)
Az 194.57°
Az 178.56°
Az 199.91°
WEVD
WCRB
mV/m
1000
100
500
50
200
100

CKLD



46 4412

K+E POLAR CO-ORDINATE

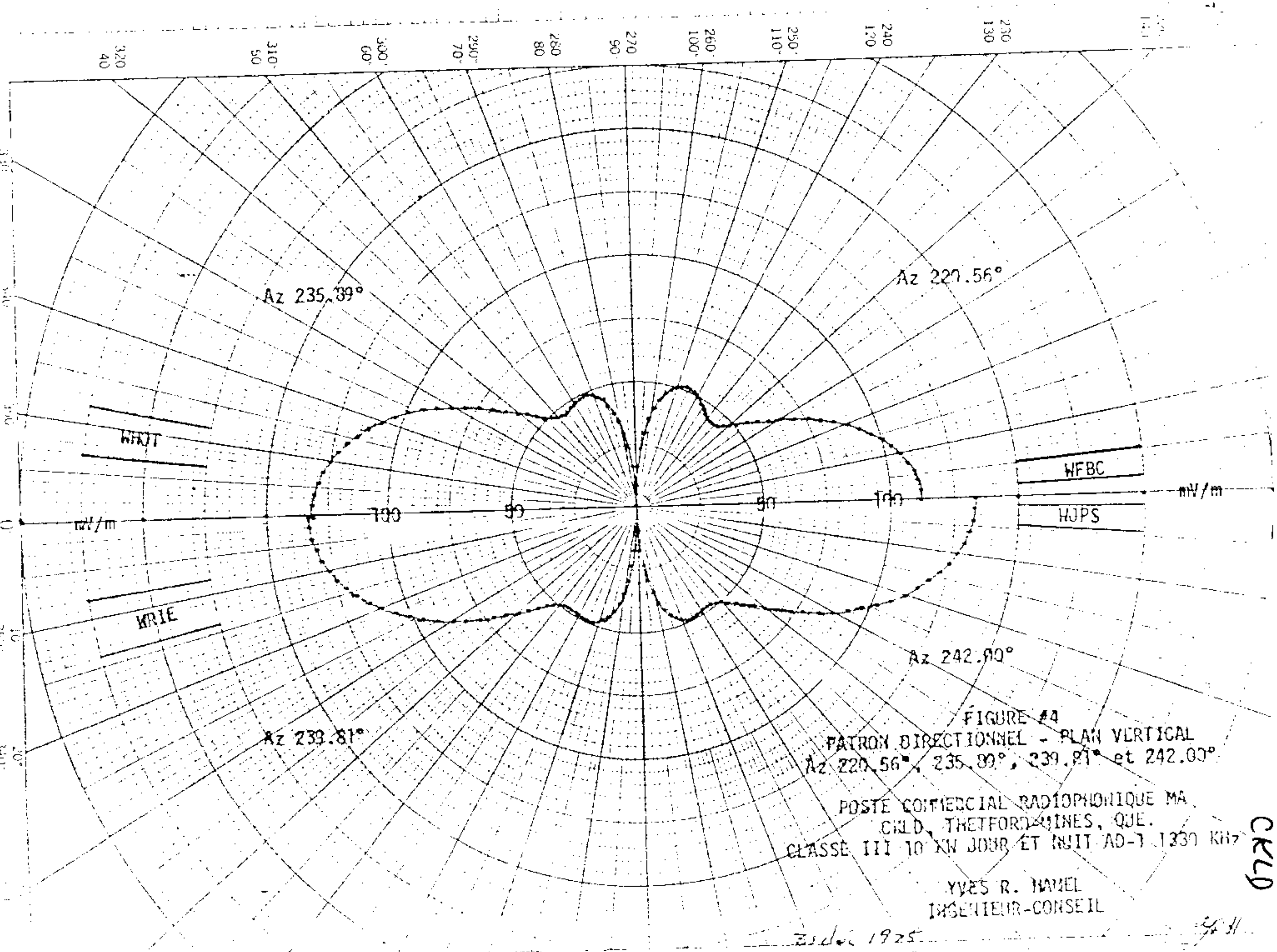


FIGURE #4
PATRON DIRECTIONNEL - PLAN VERTICAL
Az 220.56°, 235.39°, 239.81° et 242.00°

POSTE COMMERCIAL RADIOPHONIQUE MA
CKLD, THETFORD-MINES, QUE.
CLASSE III 10 KW JOUR ET NUIT AD-1 1330 KHz

YVES R. HAMEL
INGENIEUR-CONSEIL

CKLD

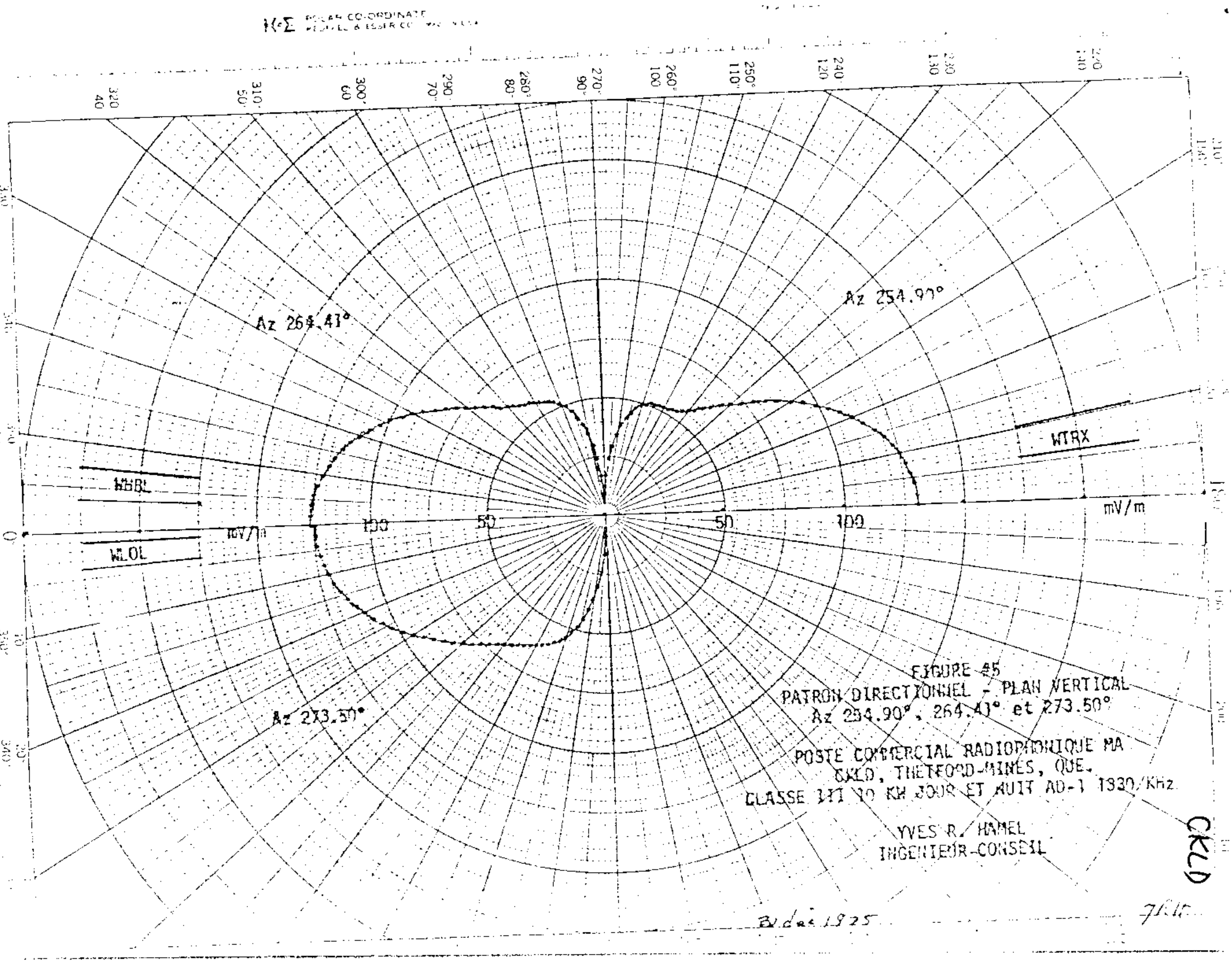


FIGURE 45
PATRON DIRECTIONNEL - PLAN VERTICAL
Az 254.90°, 264.41° et 273.50°

POSTE COMMERCIAL RADIOPHONIQUE MA
CKLD, THETFORD-MINES, QUE.
CLASSE III 10 KW JOUR ET NUIT AD-1 1330 KHz

YVES R. HAMEL
INGENIEUR-CONSEIL

i 20X

CKKR

Description Sheet (10-26-65ct)	New Station Rosetown, Sask.	10kw,DA-1,U,Class III 1330 kc

2.5 DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: NEW

Main Studio: Rosetown, Sask.

Frequency: 1330 Kc/s

Power: 10 KW, DA-1 Class III

Notification List No. 204

Date: September 10, 1965.

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:

North Latitude: 51° 27' 31" N
West Longitude: 107° 59' 37" W

ANTENNA CHARACTERISTICS:

Mode of Operation: DA-1
Number of Elements: 2
Type of Elements: guyed, base insulated, series fed, uniform cross section.

TOWER:	No. 1 South	No. 2 North
HEIGHT ABOVE INSULATORS:	123.5 (60°)	123.5
OVERALL HEIGHT:	128.5'	128.5'
SPACING:	123.5' (60°)	
PHASING:	0	220°
FIELD RATIO:	1	.9

ORIENTATION: Towers on a line bearing 12° east of True North.

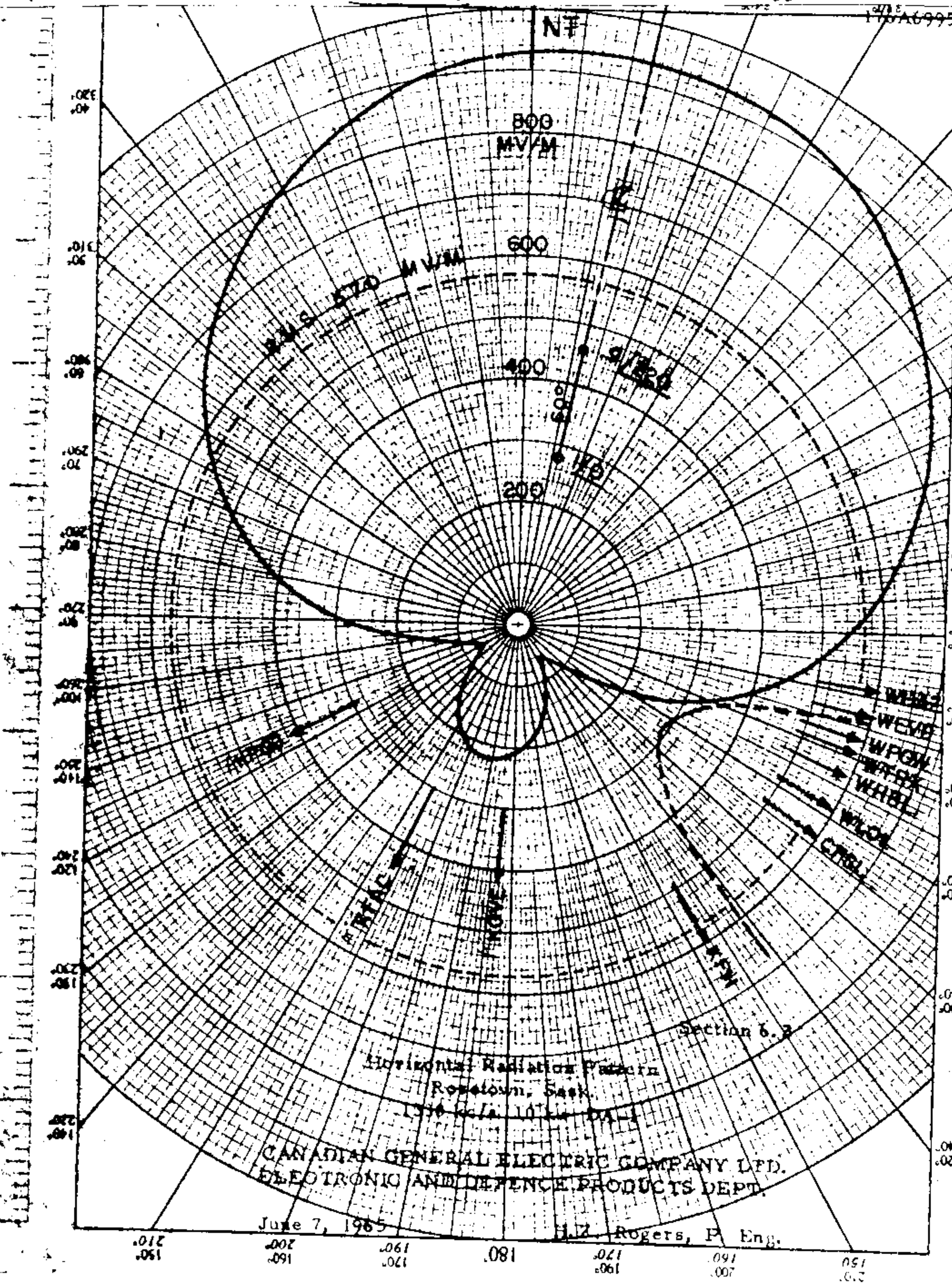
GROUND SYSTEM: 120 radials No. 10 AWG copper wire per tower. Radials from each tower bonded to No. 4 AWG bus at right angles midway between towers. Effective radial length .4λ (300')

Predicted Effective Filed 570 mv/m (180 mv/m for 1 Kw).

20X

CKKR

Proposed Day & Night (10-26-65ct) | New Station Rosetown, Sask. | 10kw,DA-1,U,Class III 1330 kc



NEW
1330kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: N E W
Main Studio: Crescent City, Florida

Frequency: 1330 kHz
Power: 1 kW Day

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

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 29° 25' 02"
West Longitude: 81° 32' 44"

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:	W	C	E
HEIGHT ABOVE INSULATORS:	185'	185'	185' (90°)
DAY PHASING:	0°	49.05°	152°
DAY FIELD RATIO:	1.0	2.541	1.0

SPACING AND ORIENTATION: Adjacent towers in a row are spaced 431.7' (210°) on a line bearing 55° true.

GROUND SYSTEM: 120-185' equally spaced copper radials plus a 24' square ground screen about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers.

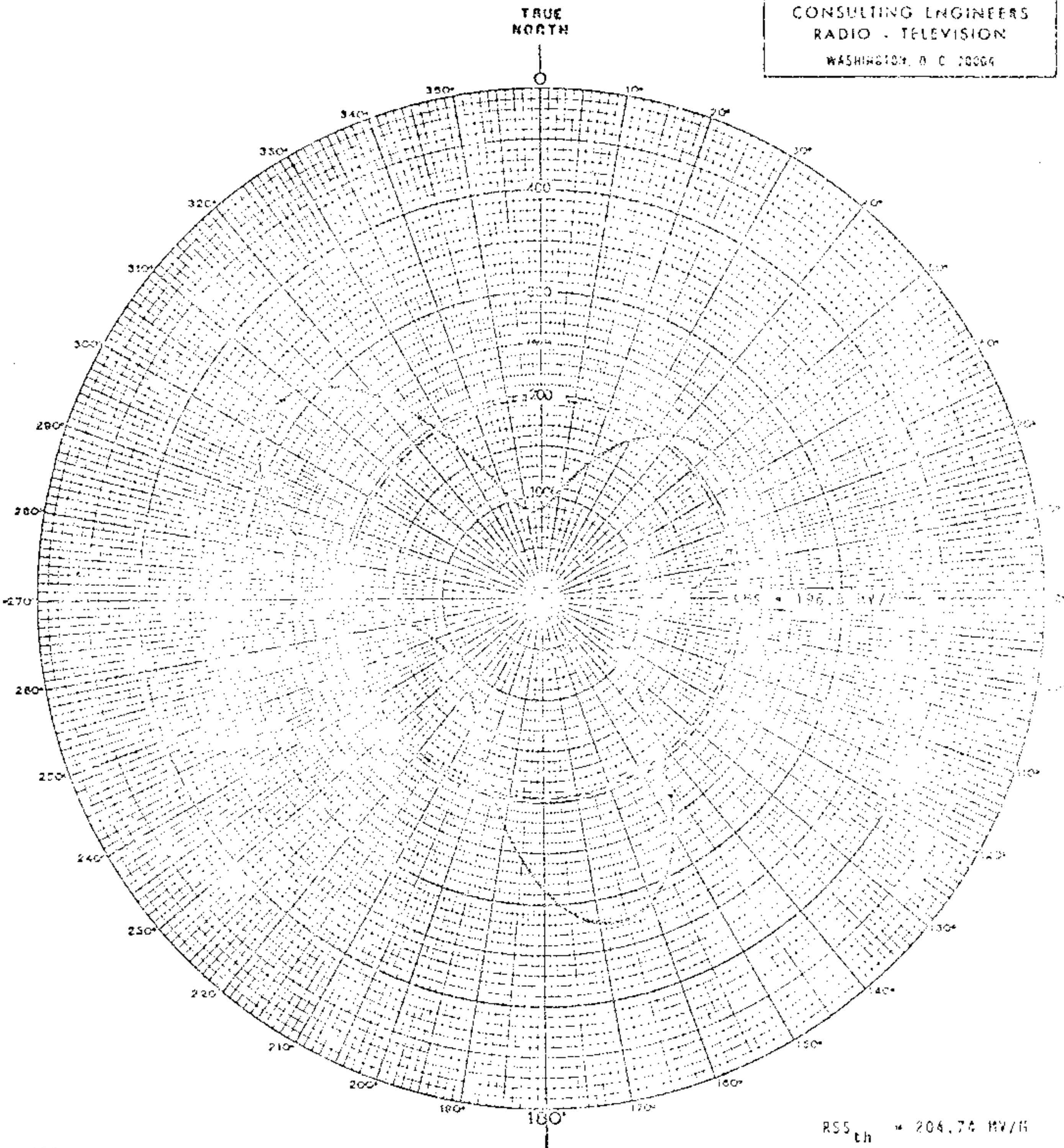
PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	187.36 mV/m	204.74 mV/m	196.8 mV/m

Standard Pattern

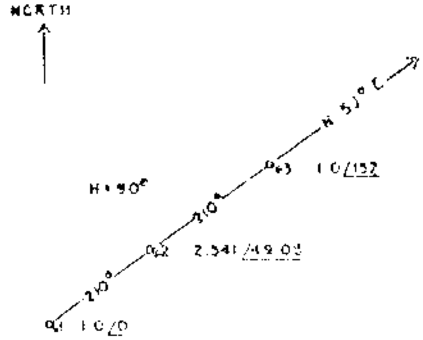
1330KHz

COHEN AND DIPPELL, P.C.
CONSULTING ENGINEERS
RADIO - TELEVISION
WASHINGTON, D. C. 20004



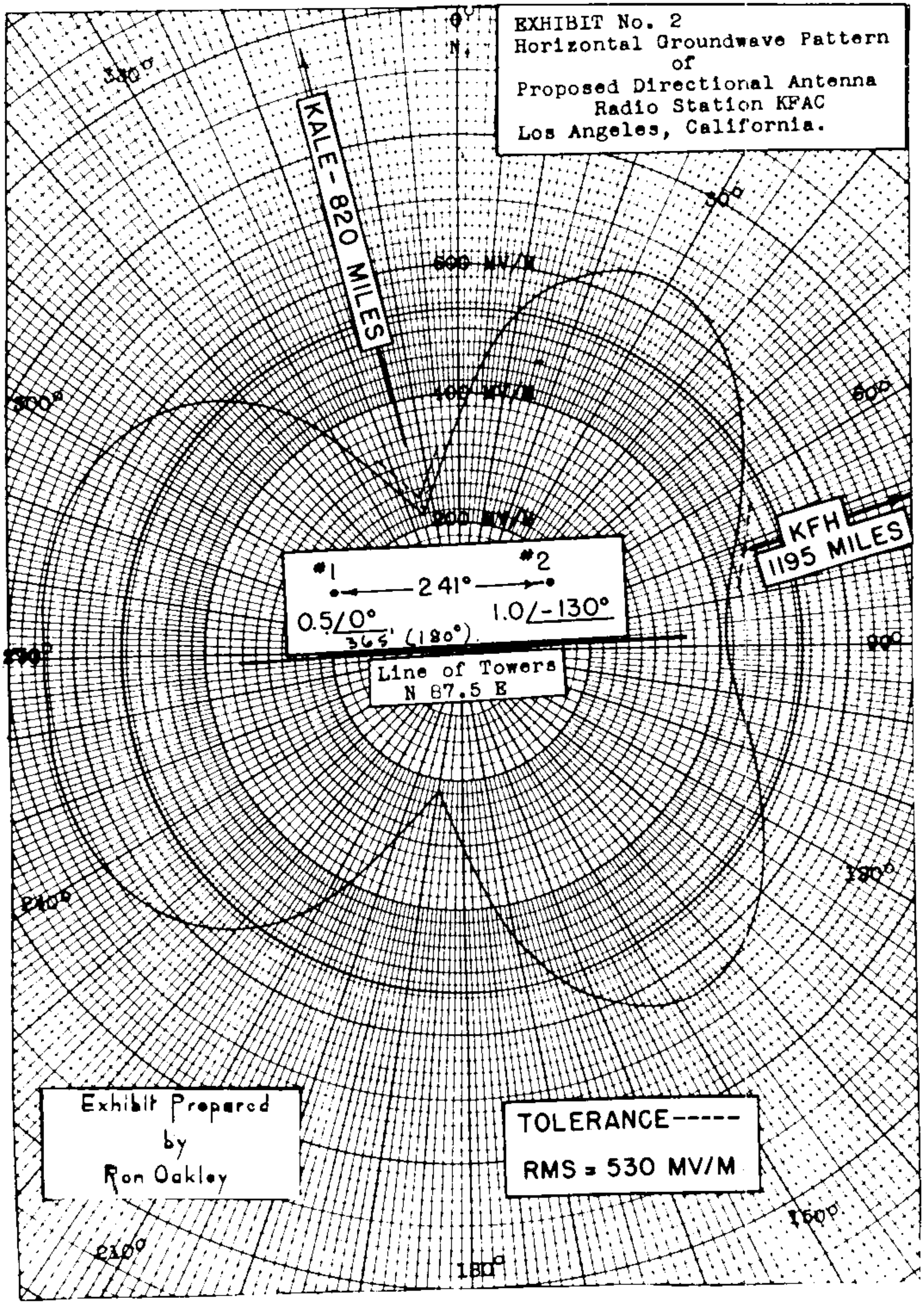
RSS$_{th}$ = 206.74 MV/M
RMS$_{th}$ = 187.36 MV/M
RSS/ RMS = 1.09

29°25'02.5"
81°32'44"



STANDARD RADIATION PATTERN
HORIZONTAL PLANE
FOR THE PROPOSED OPERATION AT
CRESCENT CITY, FLORIDA
1330 kHz - 1 KW - DA-N
JANUARY 1976

P 43 KFAC-1330KC

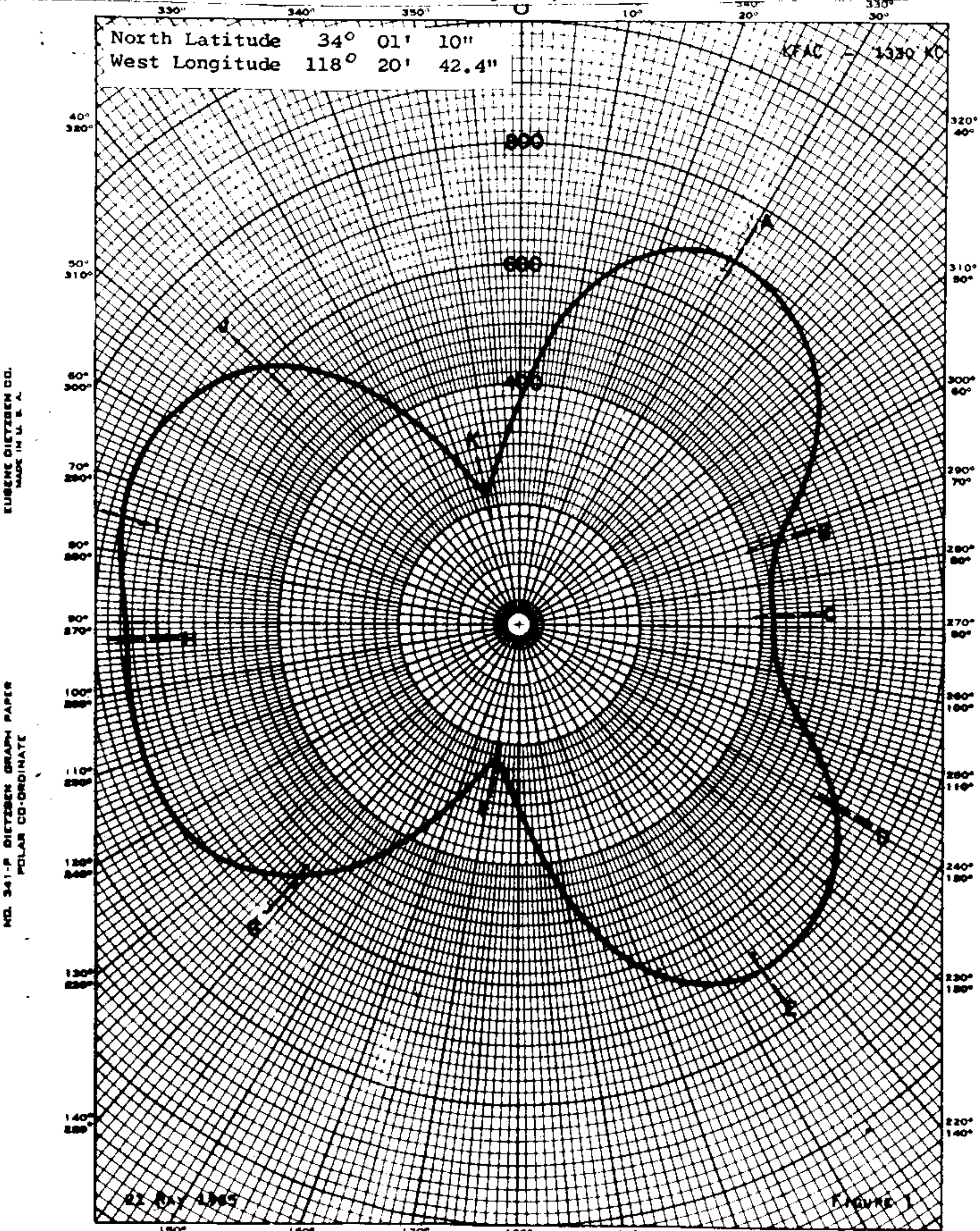


KFAC

Measured Night
(5-27-66ct)

Station KFAC
Los Angeles, California

5kw,DA-N,U
1330 kc



FCC File No. BZ-5949
Accepted 5-6-66

Station KFAC
Los Angeles, California

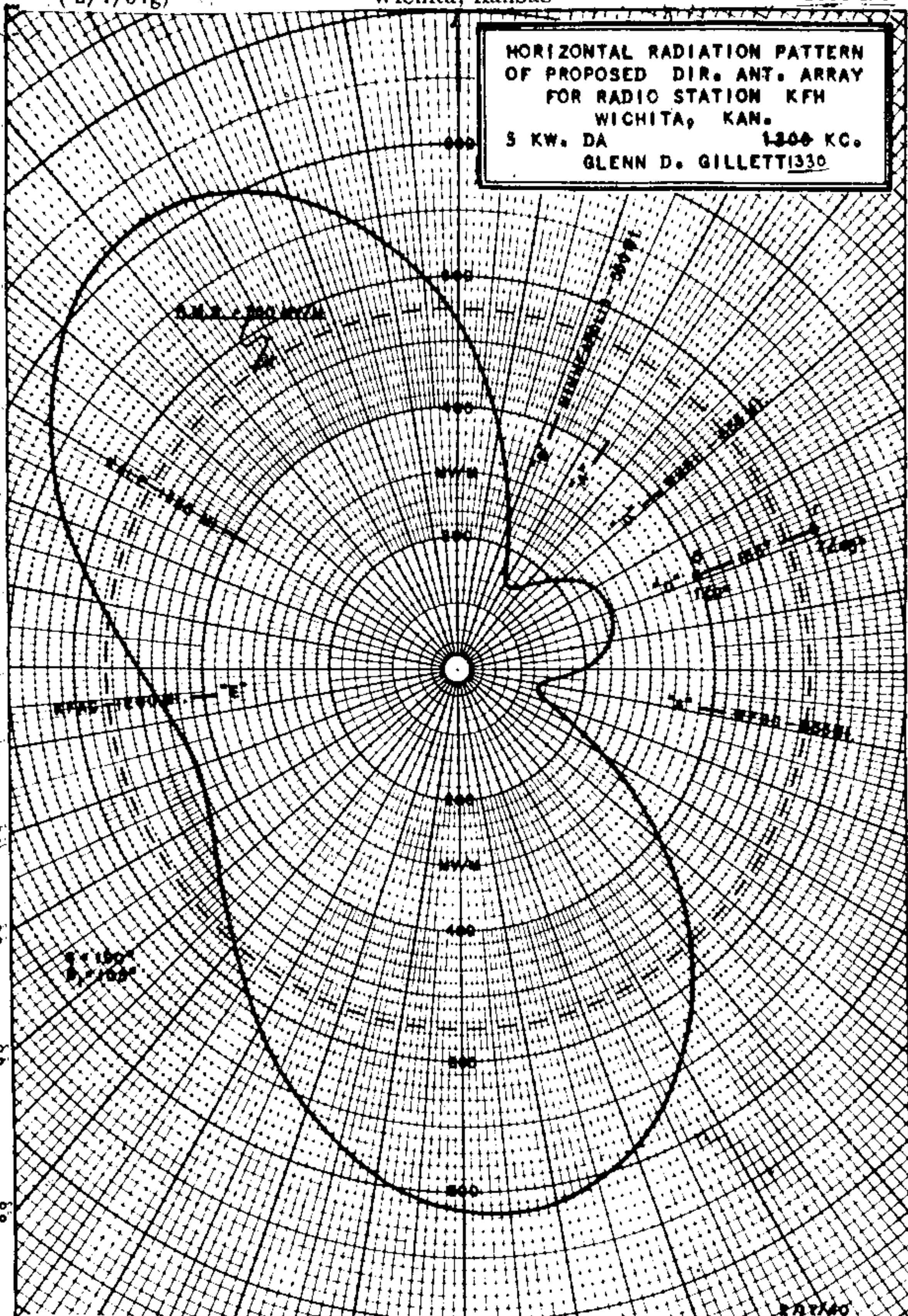
1330 kc

KFH

PROPOSED NIGHT
(2/7/57g)

Station KFH
Wichita, Kansas

5KW,DA-N,U
1330 KC



FCC File No.
BP-2462 Ammended

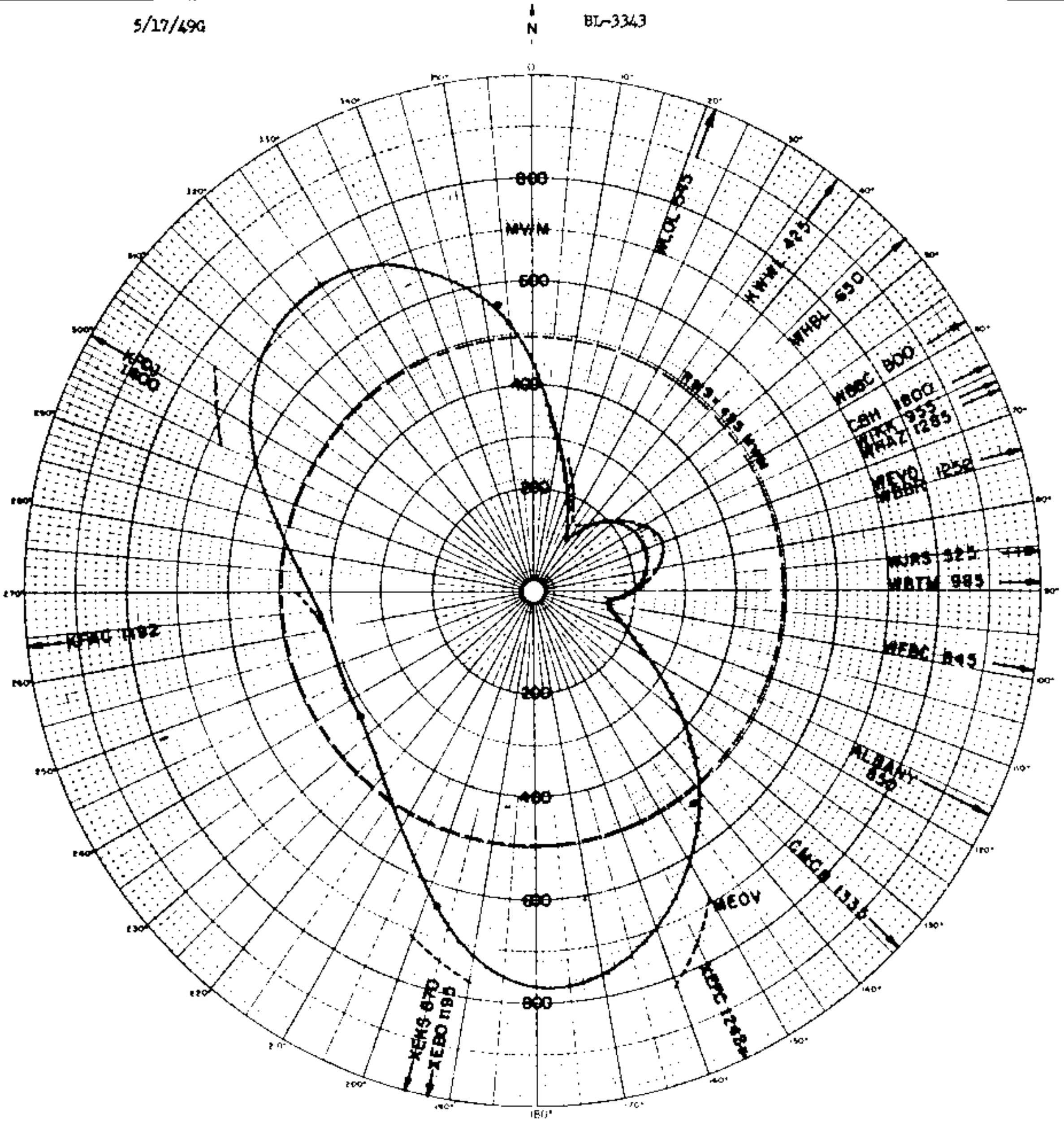
KFH
Wichita, Kansas

1330KC

USE FOR FOREIGN

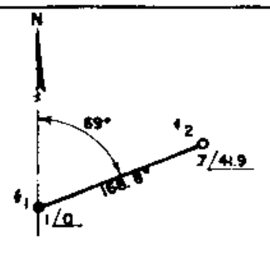
MEASURED NIGHT KFH, WICHITA, KANS. 5-2-49 5kw,DAN 1330 kc

5/17/49G BL-3343



RMS = 495 mv/m BASED ON 1941 PROOF.

ANTENNA PARAMETERS



Tower	Electrical Height	True Tower Orientation	Spacing	Phasing	Horizontal Field mv/m	Field Ratio	Elev. Angle	Elevation RMS Field mv/m
No.								
0							0	
1	207	0	0	0		1.0	10	
2	116	69	168.8	41.9		.7	20	
3							30	
4							40	
5							50	
6							60	
7							70	
8							80	
9								

Glenn D. Gillett And Associates
Consulting Radio Engineers
National Press Building
Washington, D.C.

KFH
WICHITA, KANSAS

5 KW DA-N 1330 KC

HORIZONTAL RADIATION PATTERN
NIGHT-TIME

Latitude 37° 42' ~~21"~~ AV N

Longitude 97° 18' ~~35"~~ 50 W

Supersedes 410719-7

Pattern No. 490224

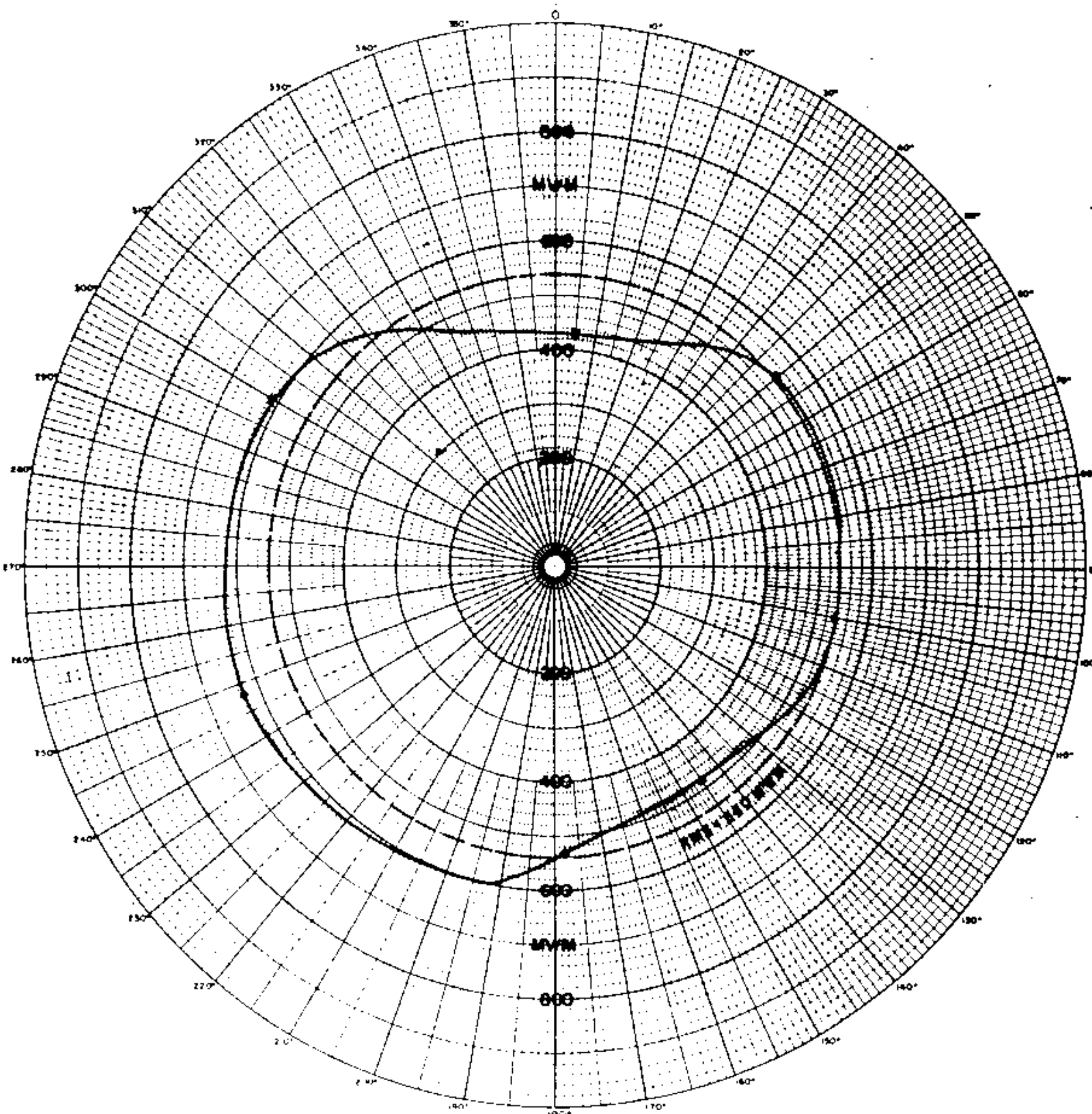
APP. 3

MEASURED
DAY (non-DA)

KFH, WICHITA, KANS. 5-2-49 5kw, DAN 1330 kc

5/17/49G

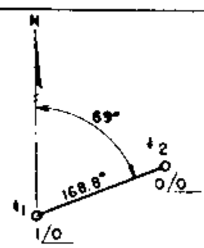
BL-3343



RMS = 540 mv/m BASED ON 1941 PROOF.

ANTENNA PARAMETERS

Glenn D. Gillett And Associates
Consulting Radio Engineers
National Press Building
Washington, D.C.



Tower No.	Electrical Height	True Tower Orientation	Spacing	Phasing	Horizontal Field mv/m	Field Ratio	Elev. Angle	Elevation RMS Field mv/m
0							0	
1	207	0	0	0	540	1.0	10	
2	116	69	168.8	41.9	0	0	20	
3							30	
4							40	
5							50	
6							60	
7							70	
8							80	
9								

KFH
WICHITA, KANSAS
5 KW DA-N 1330 KC

HORIZONTAL RADIATION PATTERN
DAY TIME

Latitude 37° 42' 21"
Longitude 97° 14' 35"
Pattern No. 410719-7

APP. 6

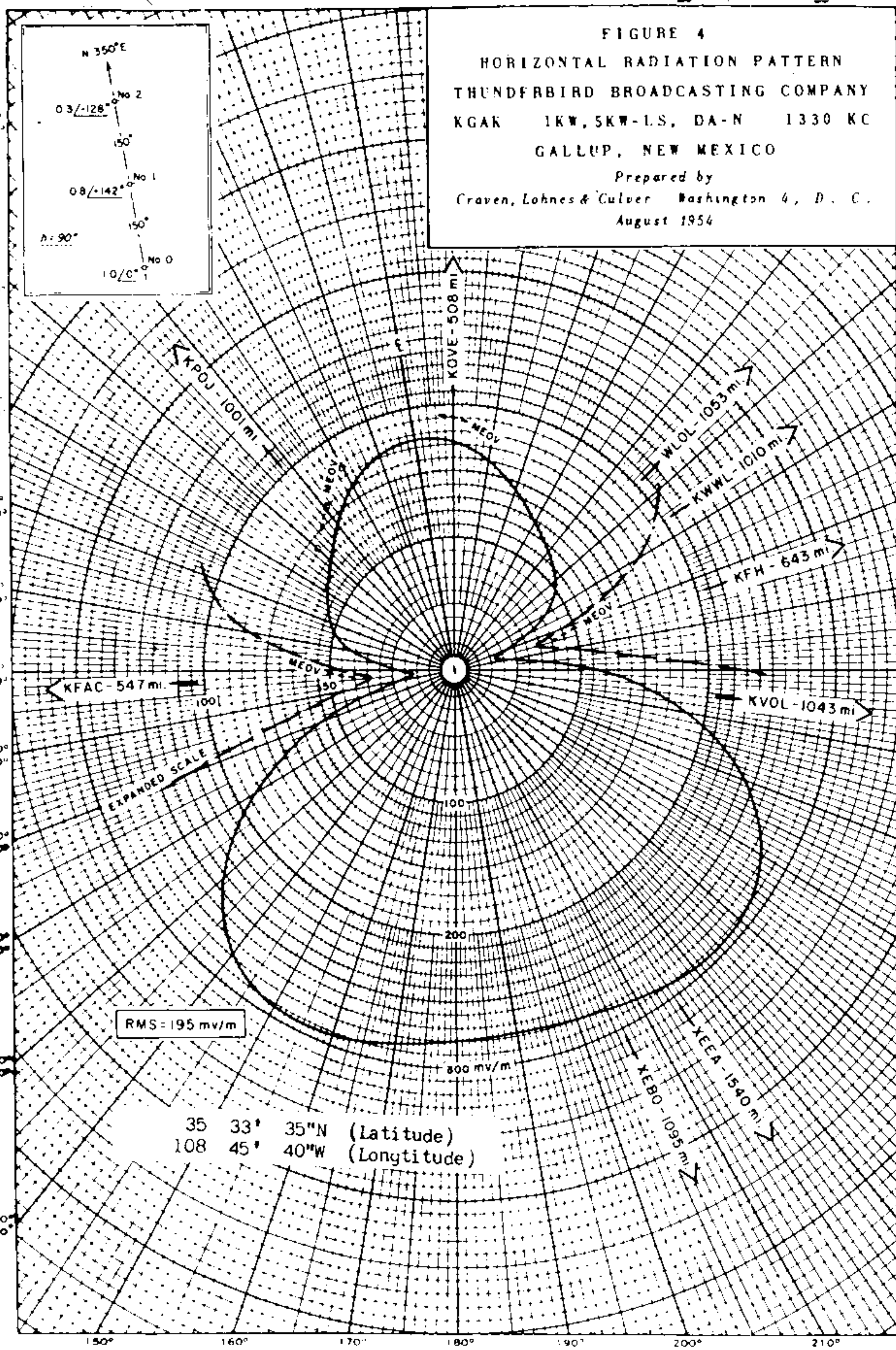
KGAK

PROPOSED NIGHT (11/1/54G)

STATION KGAK GALLUP, NEW MEXICO

1 KW, 5KW--LS DA-N, U

1330 kc



File No. BP--9505 Accepted 10/18/54 KGAK, Gallup, New Mexico 1330 kc

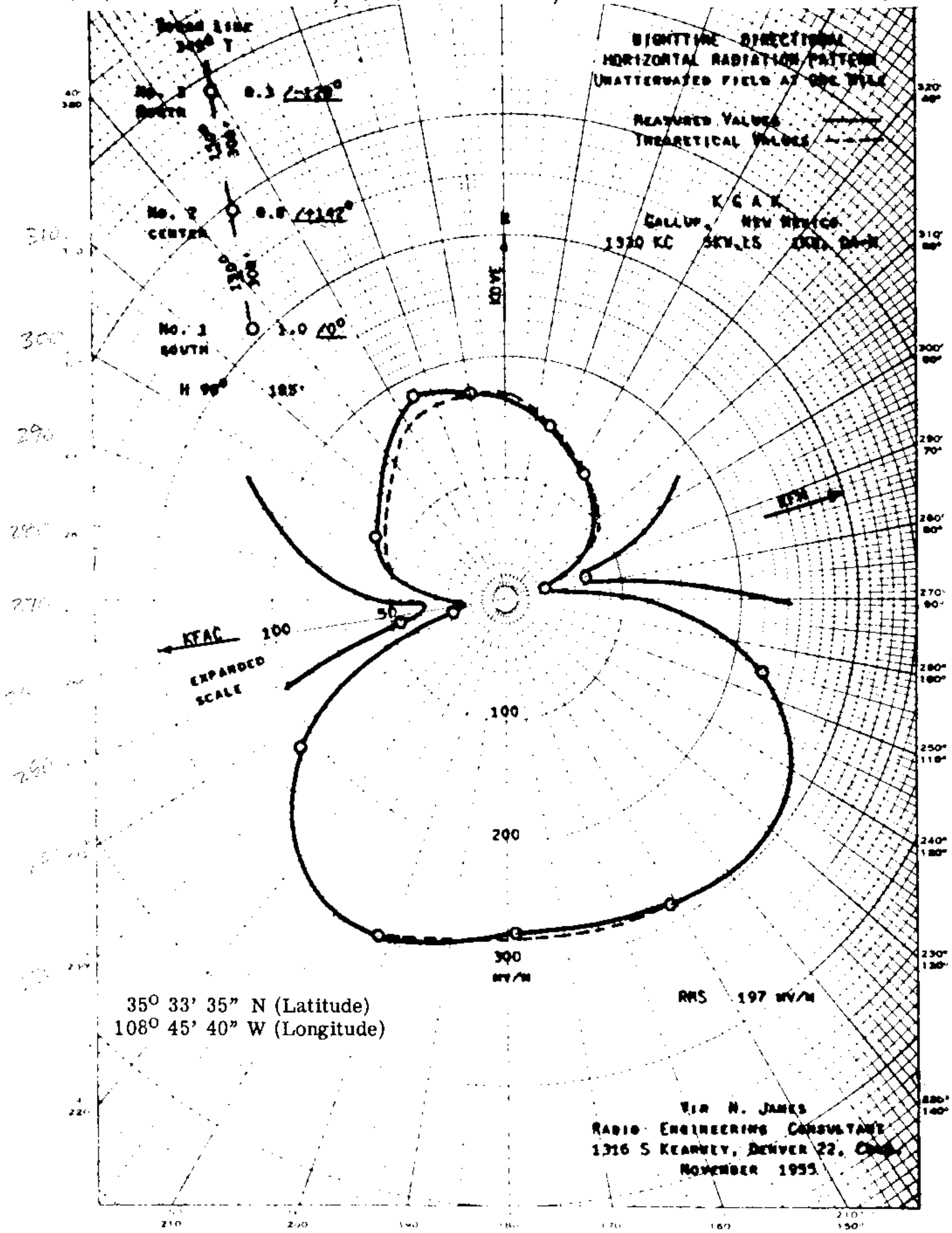
KGAK

MEASURED
NIGHT 1/12/56G

STATION KGAK
GALLUP, N. M.

1 KW-5KW-LS
DA-N, U

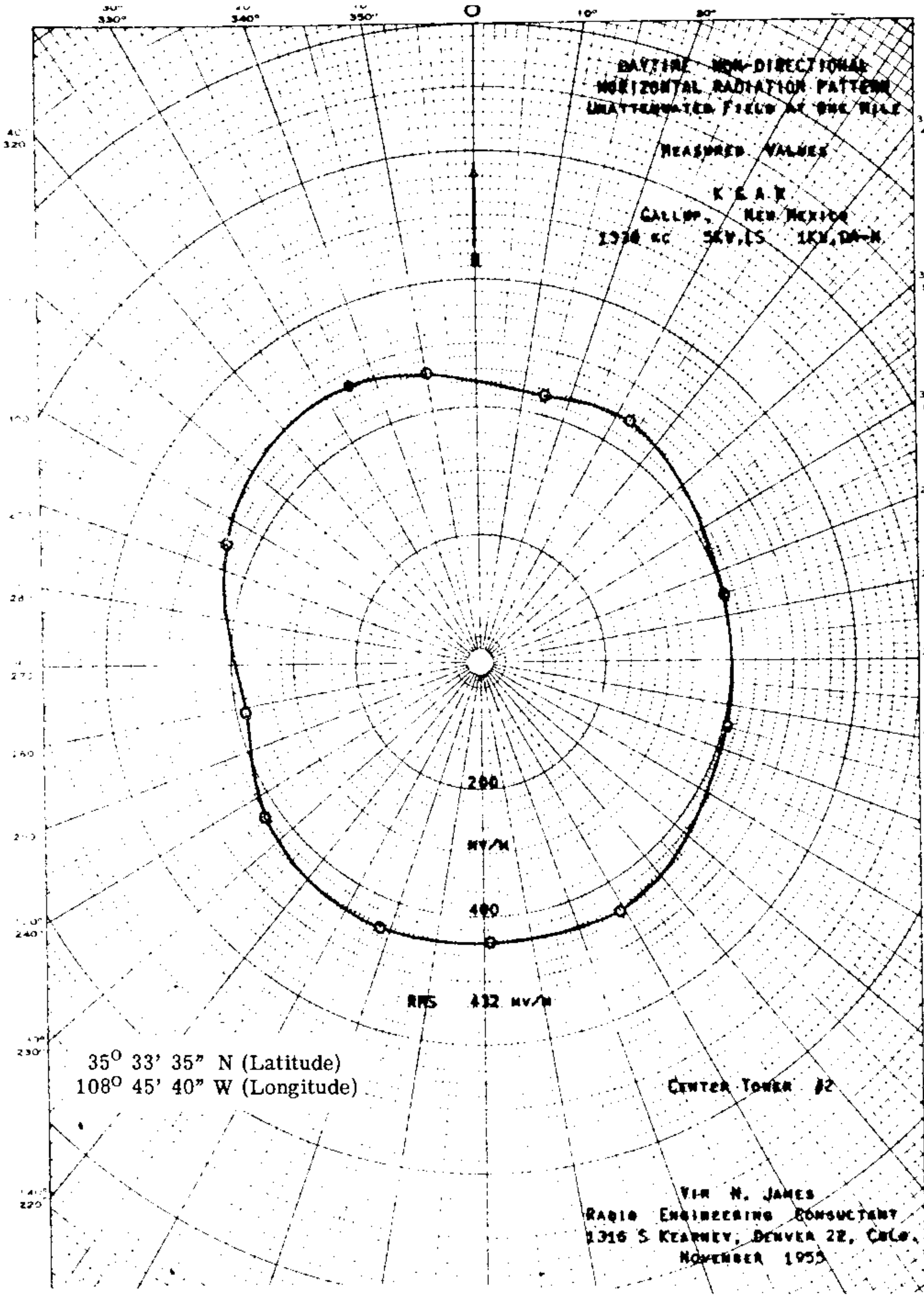
1330 KC



FCC File No. BL--5971 Accepted 12-14-55 KGAK, Gallup, N.M. 1330 KC

KGAK

MEASURED (DAYTIME) NON-DA 1/12/56G | STATION KGAK GALLUP, N.M. | 1 KW-5KW-LS DA-N, U | 1330 KC



FCC File No. BL-5971 Accepted 12/14/55 KGAK, Gallup, N.M. 1330 KC

KHYT
1330kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KHYT

Main Studio: South Tucson, Arizona

Frequency: 1330 kHz

Power: 5kw Night 0.5kw Day

Notification List No. 1783

Date: November 2, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTERS OF THE DAYTIME AND NIGHTTIME ANTENNA SYSTEMS:

DAYTIME				NIGHTTIME			
North Latitude:	32°	13'	02"	North Latitude:	32°	18'	51"
West Longitude:	110°	58'	59"	West Longitude:	110°	58'	17"

NIGHTTIME ANTENNA CHARACTERISTICS

Authorized for Nighttime operation (DA-N)
Number of elements: 6
Type of elements: Series excited, uniform cross-section, guyed, vertical steel towers.

TOWER:	EC(#1)	SE(#2)	SW(#3)	WC(#4)	NW(#5)	NE(#6)
HEIGHT ABOVE INSULATORS:	190'	190'	190'	190'	190'	190' (92.5°)
NIGHT PHASING:	1.18	-80°	173°	-105.82°	-27°	80°
NIGHT FIELD RATIO:	1.0	0.5152	0.4379	0.35	0.4379	0.5152

SPACING AND ORIENTATION: The towers are located in two parallel rows with 3 towers per row. Adjacent towers in a row are spaced 308.1' (150°) on a line bearing 150° true. End towers forming a side of the parallelogram are spaced 184.9' (90°) on a line bearing 285° true.

GROUND SYSTEM: 120 - 185' equally spaced copper radials plus 120-50' interspaced 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	124.5 mv/m		
Night	426.9 mv/m	625.44 mv/m	448.6 mv/m

KHTT
1330kHz

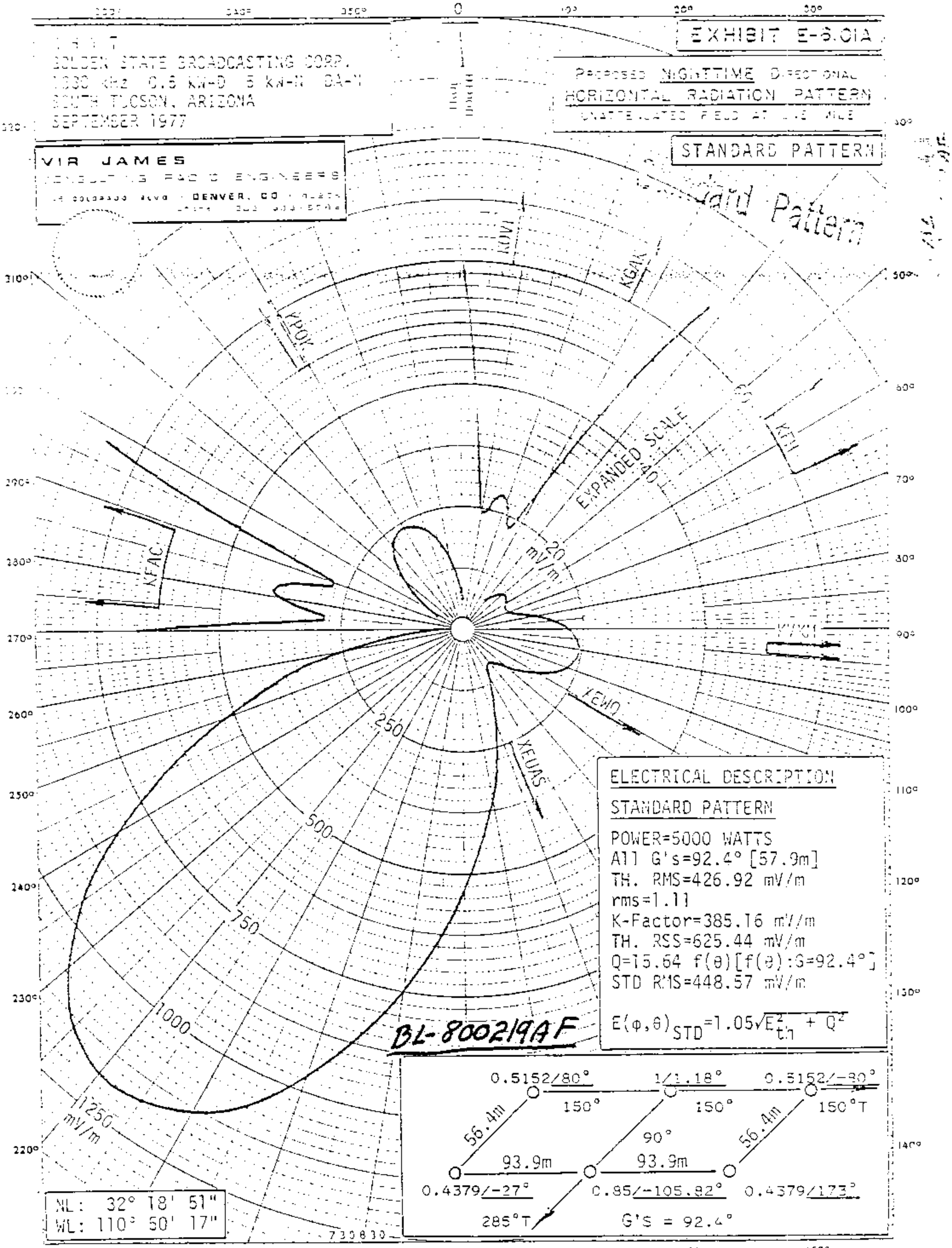
DAYTIME ANTENNA CHARACTERISTICS

Authorized for Daytime operation. (ND-D)
Number of elements: 1
Type of elements: Series excited, uniform cross-section, guyed, vertical steel tower.

HEIGHT ABOVE INSULATORS: 130' (63.3°)

GROUND SYSTEM: 120-170' equally spaced copper radials about the tower.

KHYT
1330 kHz



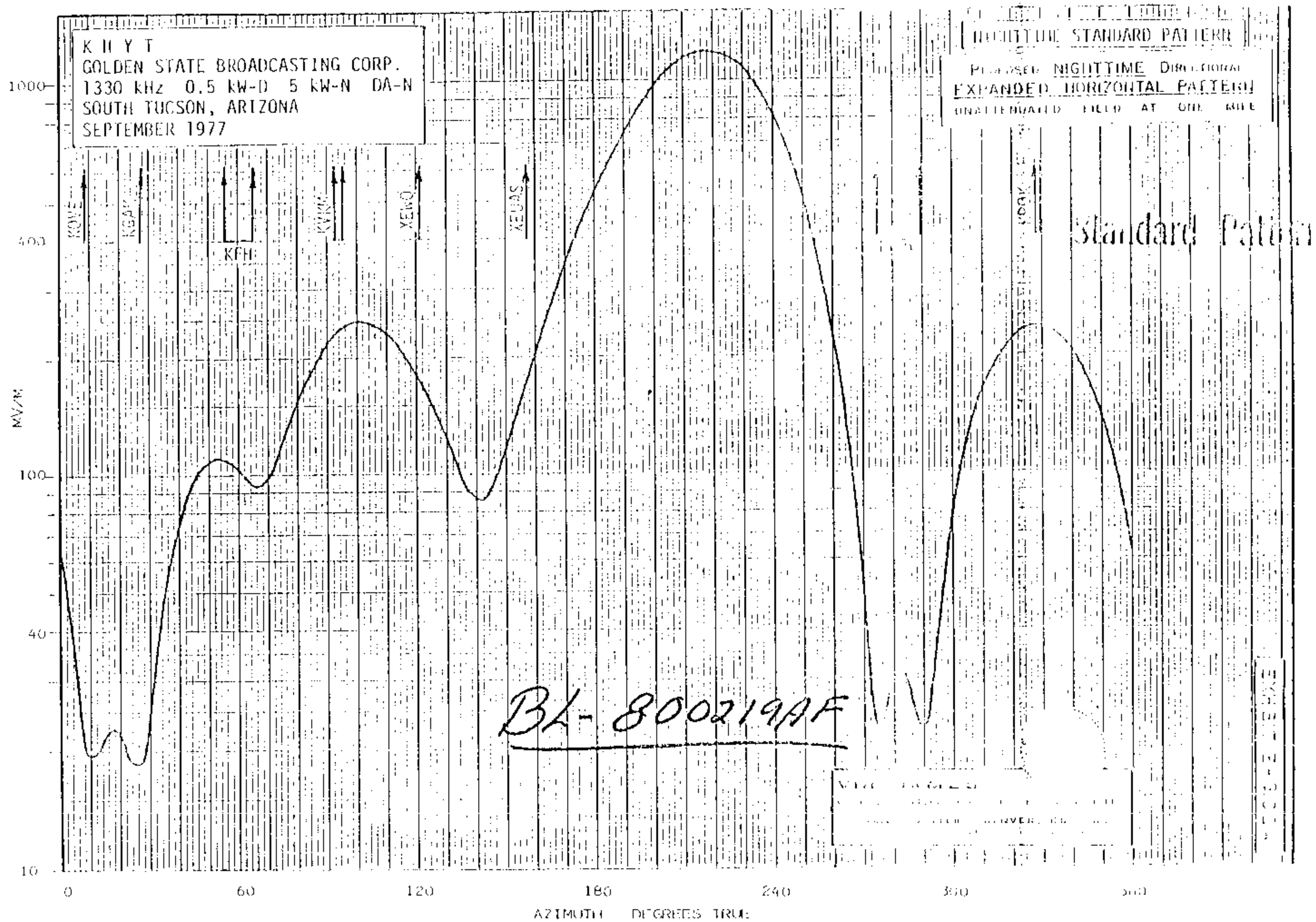
ELECTRICAL DESCRIPTION

STANDARD PATTERN

POWER=5000 WATTS
All G's=92.4° [57.9m]
TH. RMS=426.92 mV/m
rms=1.11
K-Factor=385.16 mV/m
TH. RSS=625.44 mV/m
Q=15.64 f(θ)[f(θ):G=92.4°]
STD RMS=448.57 mV/m

$E(\phi,\theta)_{STD}=1.05\sqrt{E_{th}^2 + Q^2}$

0.5152/80°
1/1.18°
0.5152/-80°
150°
150°
150°T
56.4m
90°
56.4m
93.9m
93.9m
0.4379/-27°
0.85/-105.82°
0.4379/173°
285°T
G'S = 92.4°



KHYT
1330 kHz

KLOM

-15-62
ranted cp for
w station

PROPOSED DAY
(11-11-60g)

New; Lompoc Bcstng. Co. 1kw,DA-D,D
Lompoc, California 1330 KC

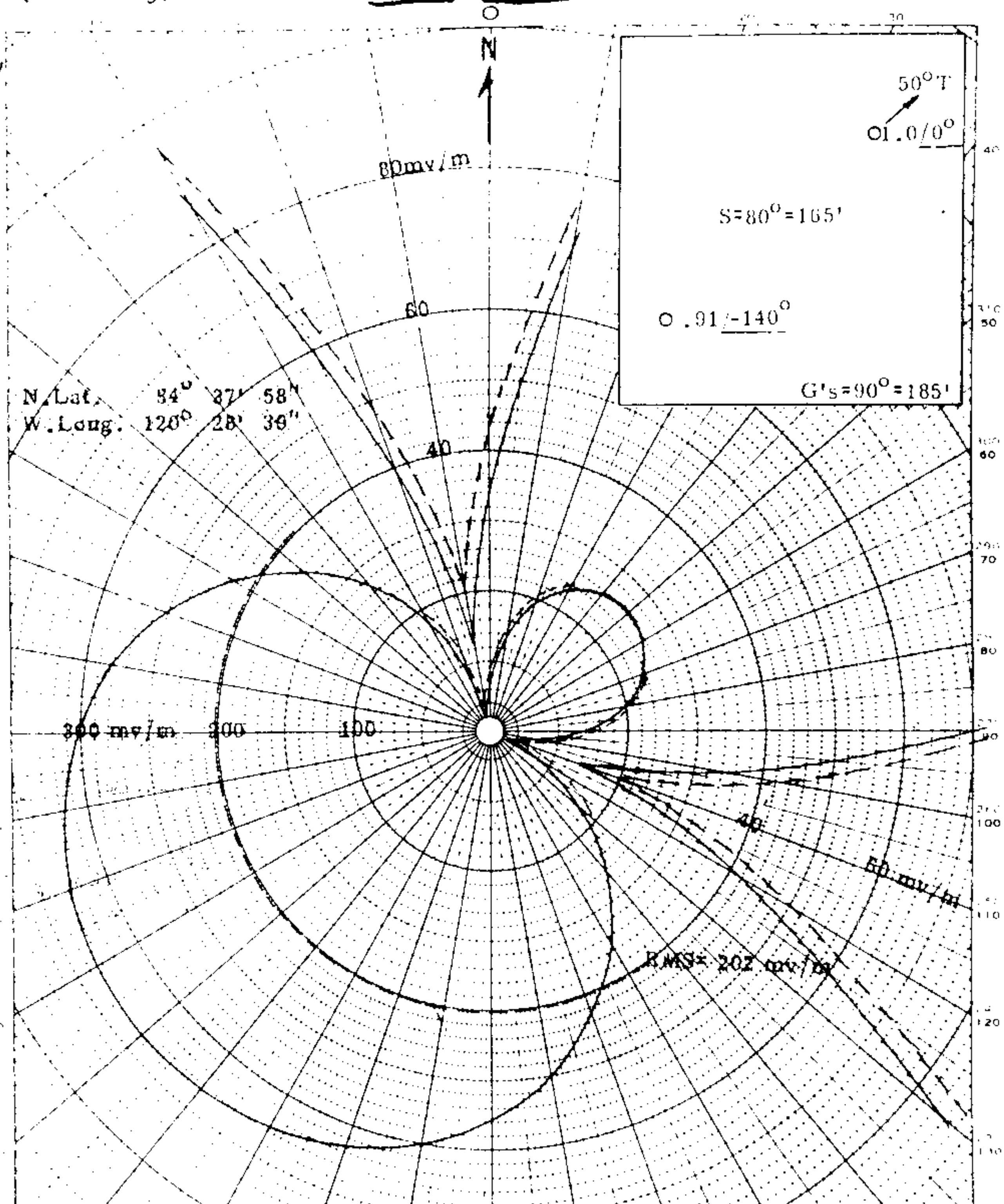


Fig. 1 (amended)

PROPOSED HORIZONTAL RADIATION
NEW DAYTIME STATION LOMPOC , CALIFORNIA
1330 KC 1000 WATTS

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

FCC File No. BP-13927 Lompoc Broadcasting Company
Accepted 10-18-60 (Amended) Lompoc, California 1330 KC

7-29-63 granted d. for new station

KLOM

Measured Day
(4-30-63ct)

Station KLOM
Lompoc, California

1kw,DA-D,D
1330 kc

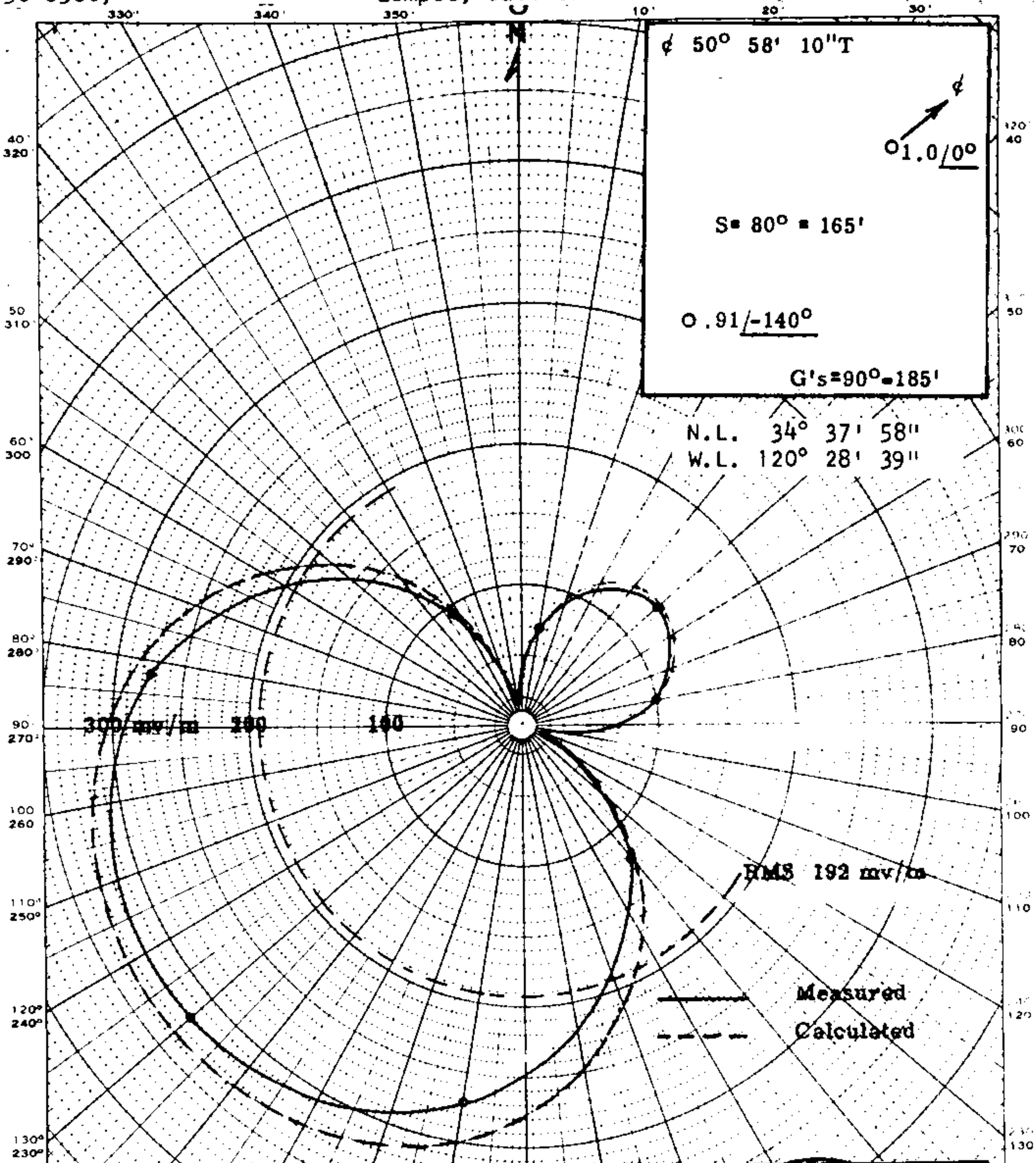


FIG. 2 (amended)

MEASURED DIRECTIONAL RADIATION

KLOM 1.0 KW DA-D

LOMPOC, CALIFORNIA

A.E.Towne Associates Inc., Engineering Consultants, San Francisco, Calif

FCC File No.BL-9882
Accepted 4-10-63

Station KLOM
Lompoc, California

1330 kc

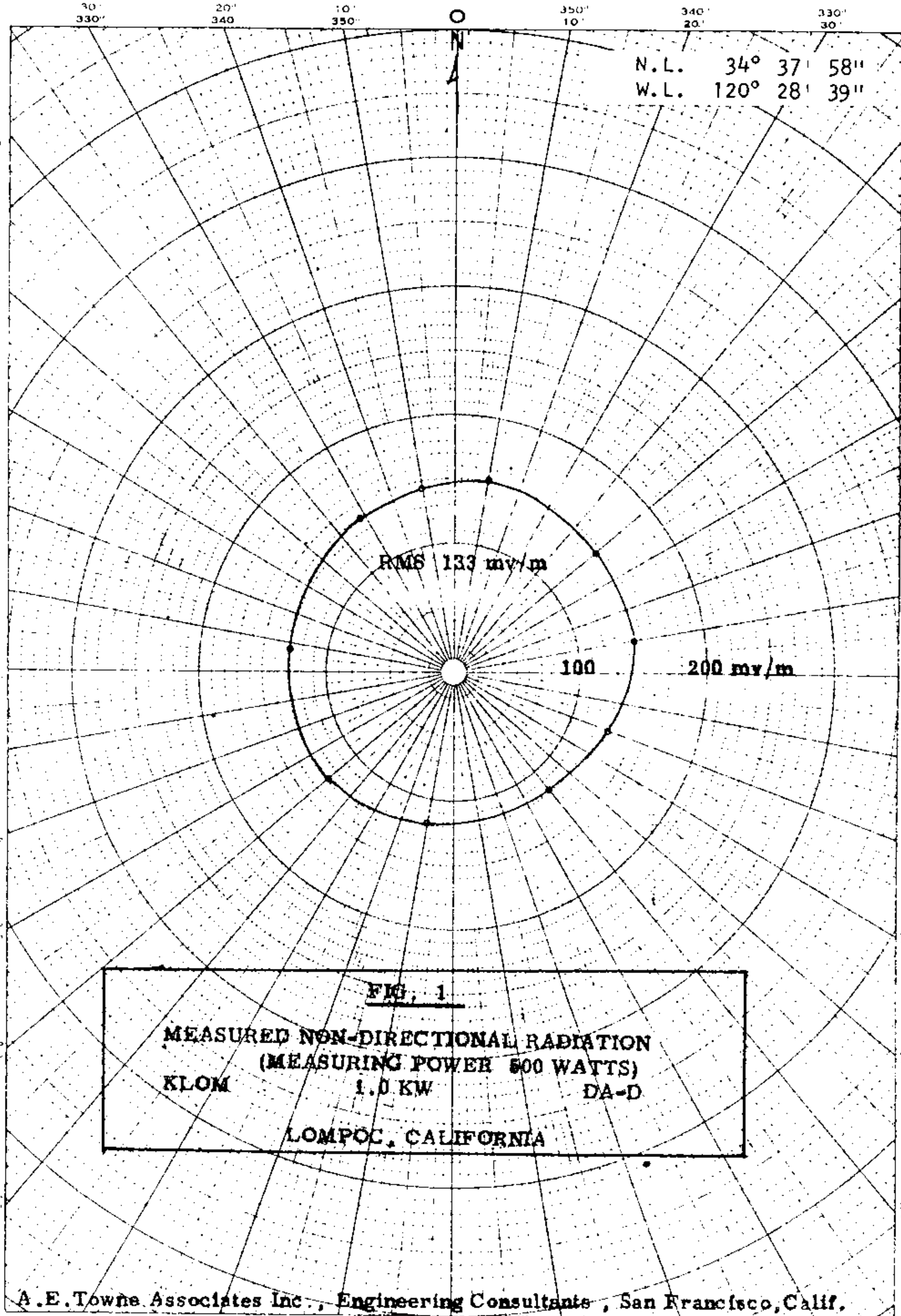
4-24-63 granted for new station

KLOM

Measured Non-DA
(4-30-63ct)

Station KLOM
Lompoc, California

1kw,DA-D,D
1330 kc



FCC File No.BL-9882
Accepted 4-10-63

Station KLOM
Lompoc, California

1330 kc

KOVE

SUPPLEMENTAL DIRECTIONAL ANTENNA
DESCRIPTION SHEET

Station: KOVE Main Studio: Lander, Wyoming

Frequency: 1330 kHz Power: 1 kW Night 5 kW Day

Notification List No. 1581 Date: May 22, 1974 Class: III

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM: North Latitude: 42° 50' 35"

West Longitude: 108° 44' 38"

Authorized for nighttime operation (DA-N).

Predicted effective Day Field: (omnidirectional) 436 mv/m at rated power.

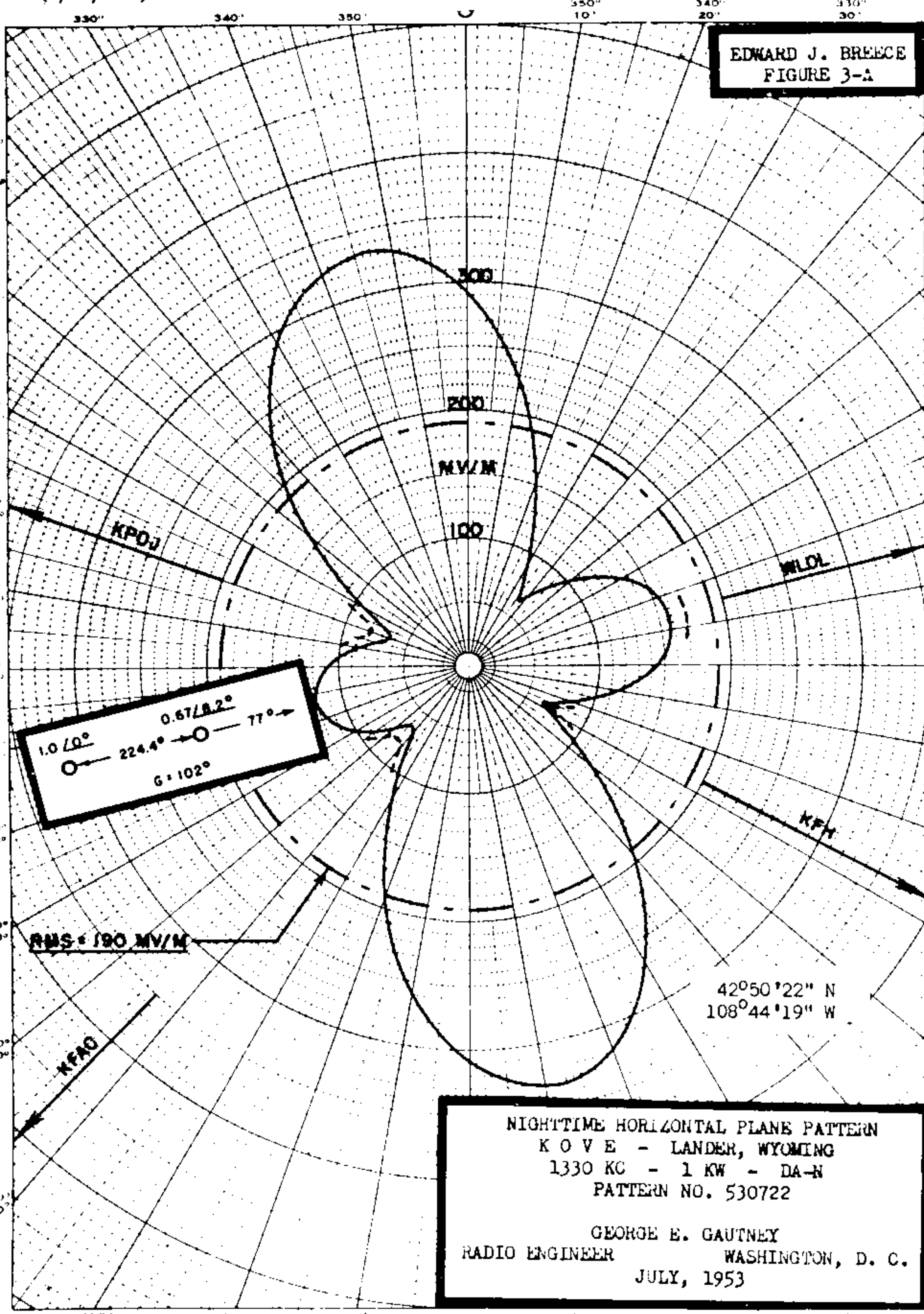
Note: Please retain the description sheet and directional antenna radiation pattern notified for station KOVE in United States Change List Number 531, dated November 4, 1953, and attach to this supplemental Description Sheet. This notification is for the purpose of indicating only a correction in the geographical coordinates of the center of the antenna system.

CTR NO 31025A4

KOVE

PROPOSED KOVE, LANDER, WYOMING 1KW,U, DA-N 1330 kc
NIGHT (8/14/53G)

2-6-68
GRANTED
LICENSE



FCC File No. BP-8854 Amended Accepted 8/3/53 KOVE, LANDER WYOMING 1330 kc

KOVE

MEASURED
NIGHT (7/21/54G)

KOVE
LANDER, WYOMING

1KW DA-N,U

1330kc

8-1-62
granted CP for
increase in day
ND power to 5KW
2-6-68
GRANTED
LICENSE

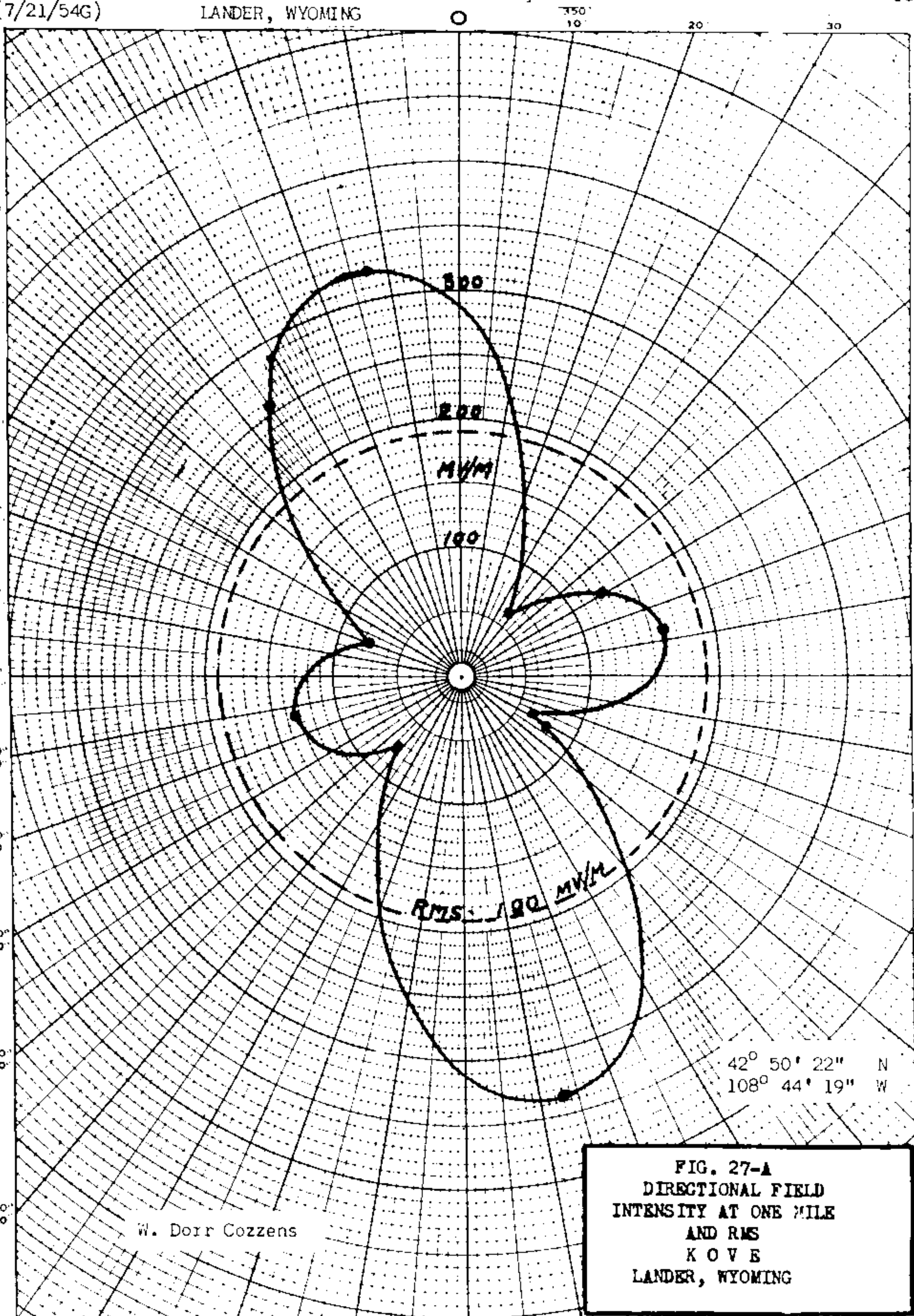


FIG. 27-A
DIRECTIONAL FIELD
INTENSITY AT ONE MILE
AND RMS
K O V E
LANDER, WYOMING

FCC FILE NO. BL-5313 (Amended) Date Accepted 7-6-54

1330 kc

KOVE

MEASURED NON-DA (6/11/54G) KOVE, Lander, Wyoming 1KW, U, DA-N over 1330 kc

2-6-68
GRANTED
LICENSE

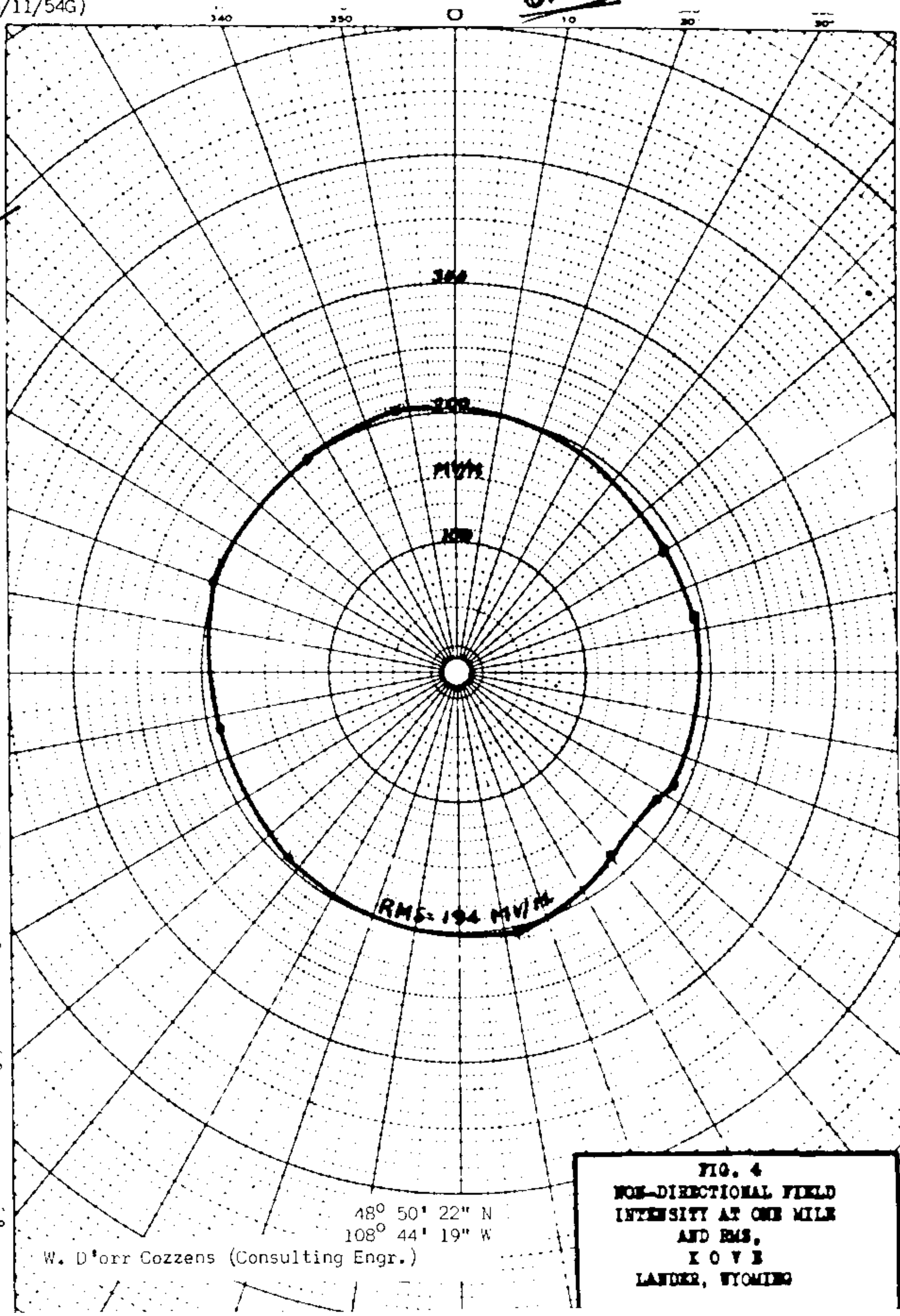


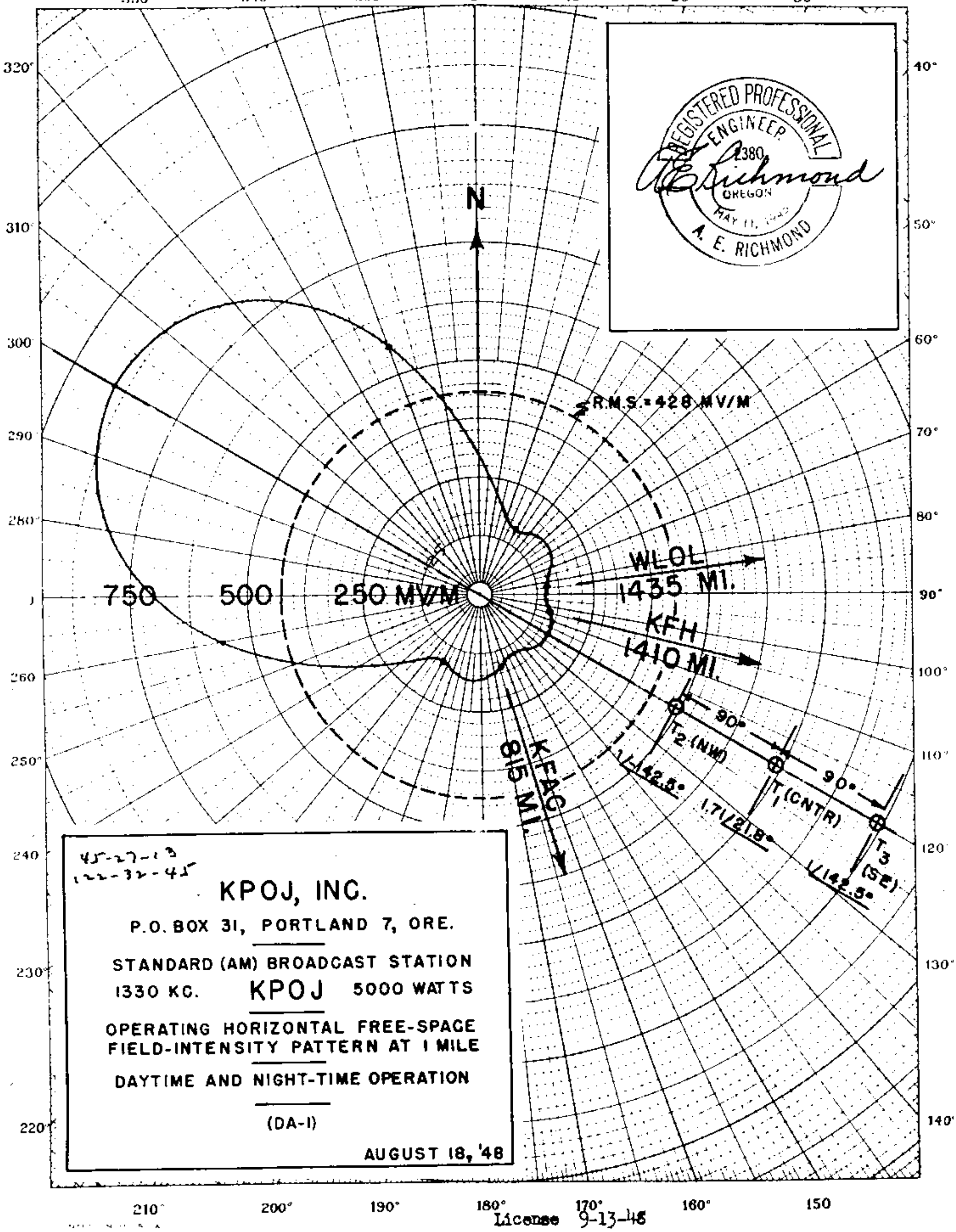
FIG. 4
NON-DIRECTIONAL FIELD
INTENSITY AT ONE MILE
AND RMS,
K O V E
LANDER, WYOMING

KUPL KPOK

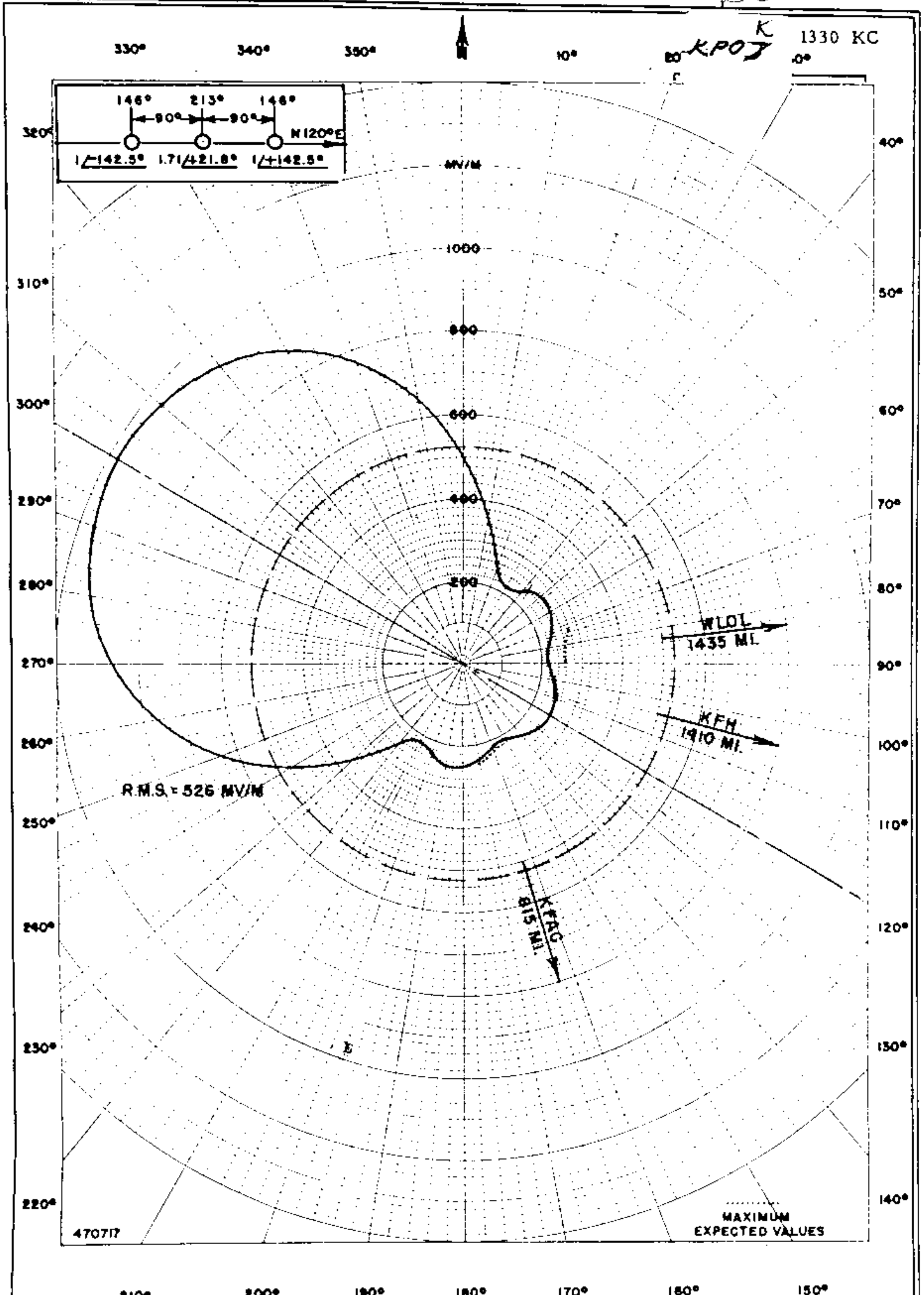
9/16/48G

License 9-13-48

EXHIBIT E-5



License 9-13-48



HORIZONTAL PLANE PATTERN
UNATTENUATED FIELD AT ONE MILE
STATION KALE, PORTLAND, OREGON
1330 KC - 5 KW - DA
JULY 1947

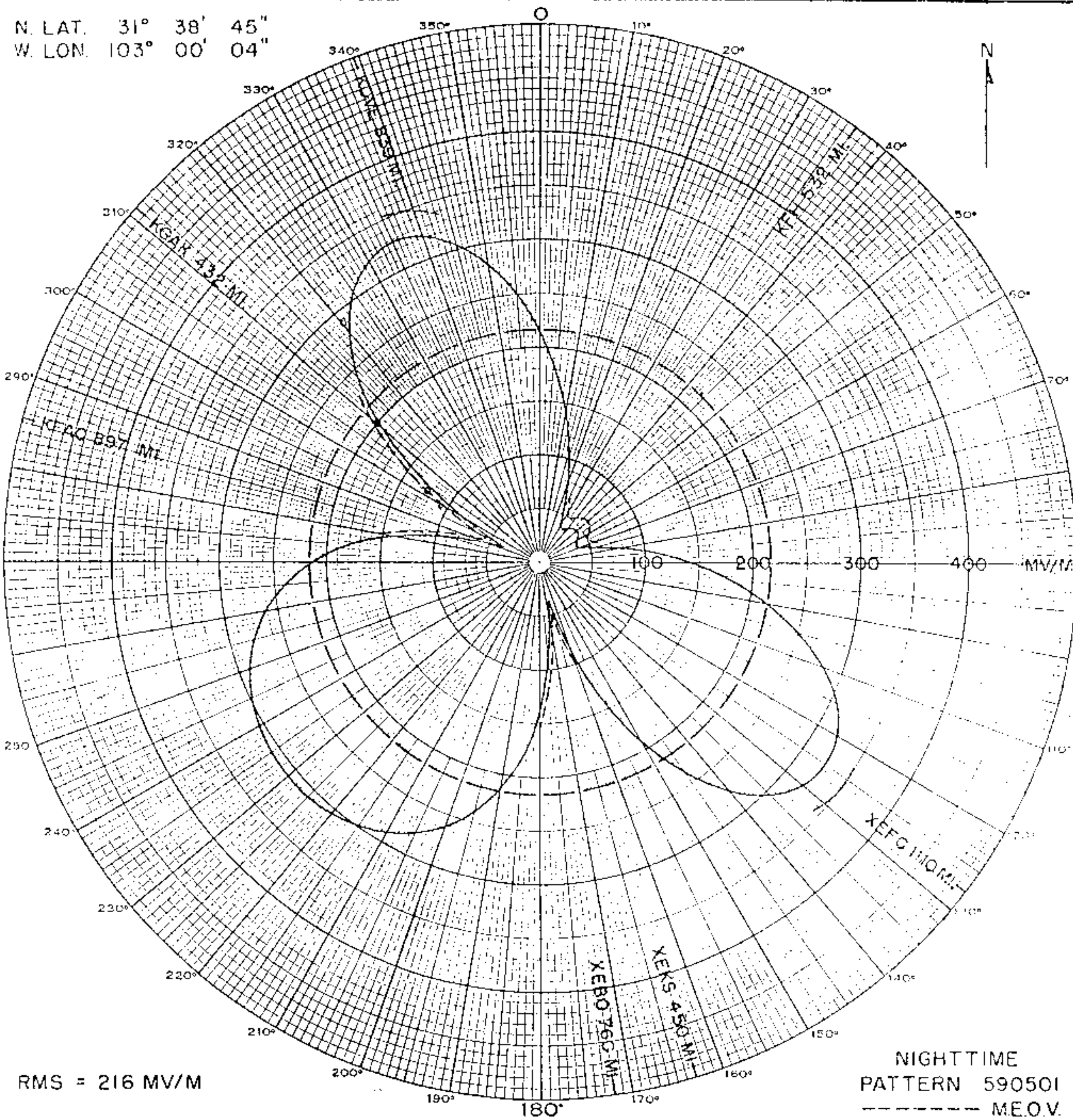
KVKM

PROPOSED NIGHT
(6-16-59g)

Station KVKM
Monahans, Texas

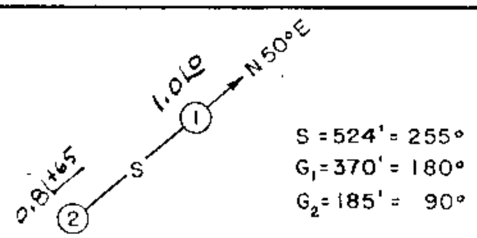
1kw, 5kw-LS, DA-N, U
1330 KC

N. LAT. 31° 38' 45"
W. LON. 103° 00' 04"



RMS = 216 MV/M

NIGHTTIME
PATTERN 590501
-------- M.E.O.V.



RADIO STATION KVKM

MONAHANS, TEXAS

1330 KC 1KW 5KW-LS DA-N

TOWER	FIELD	PHASE
1	1.0	0°
2	0.8	65°

A. EARL CULLUM, JR.

CONSULTING ENGINEERS

590501.2 FIGURE 5A

granted CP for change in freq and install

FCC File No. BP-11846
Accepted 5-18-59 (Amended)

KVKM
Monahans, Texas

1330 KC

KVKM

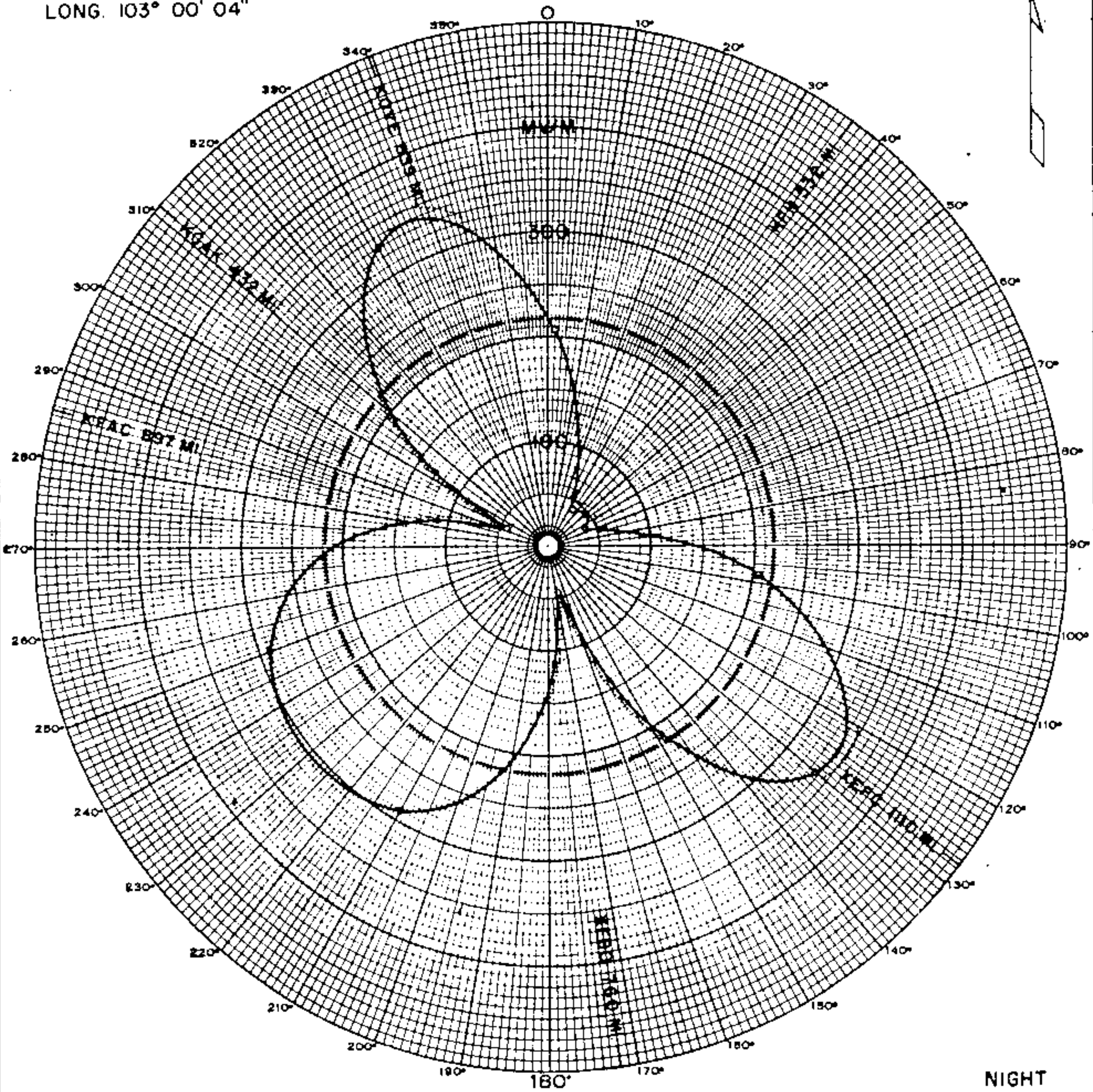
MEASURED NIGHT (7-26-61ct)

Station KVKM
Monahans, Texas

1kw,5kw-LS,DA-N,U
1330 KC

granted L for increase in power and install DA-N 7-18-61

LAT. 31° 38' 45"
LONG. 103° 00' 04"



RMS = 218 MV/M

NIGHT
...... MEOV

N 50° E

S = 524' = 255°
G_1 = 370' = 180°
G_2 = 185' = 90°

THEORETICAL PARAMETERS

TOWER	FIELD	PHASE
1	1.0	0°
2	0.8	65°

MEASURED PARAMETERS

TOWER	LOOP PHASE	LOOP RATIO	BASE RATIO
1	0°	1.0	1.0
2	66°	0.806	1.28

PREPARED BY
THE FIRM OF A. EARL CULLUM, JR.
CONSULTING ENGINEERS

RADIO STATION KVKM
1330 KC 1 KW 5 KW-LS DA-N
601220 FIGURE 2B

FCC File No. BL-8349
Accepted 6-19-61

KVKM
Monahans, Texas

1330 KC.

KVKM

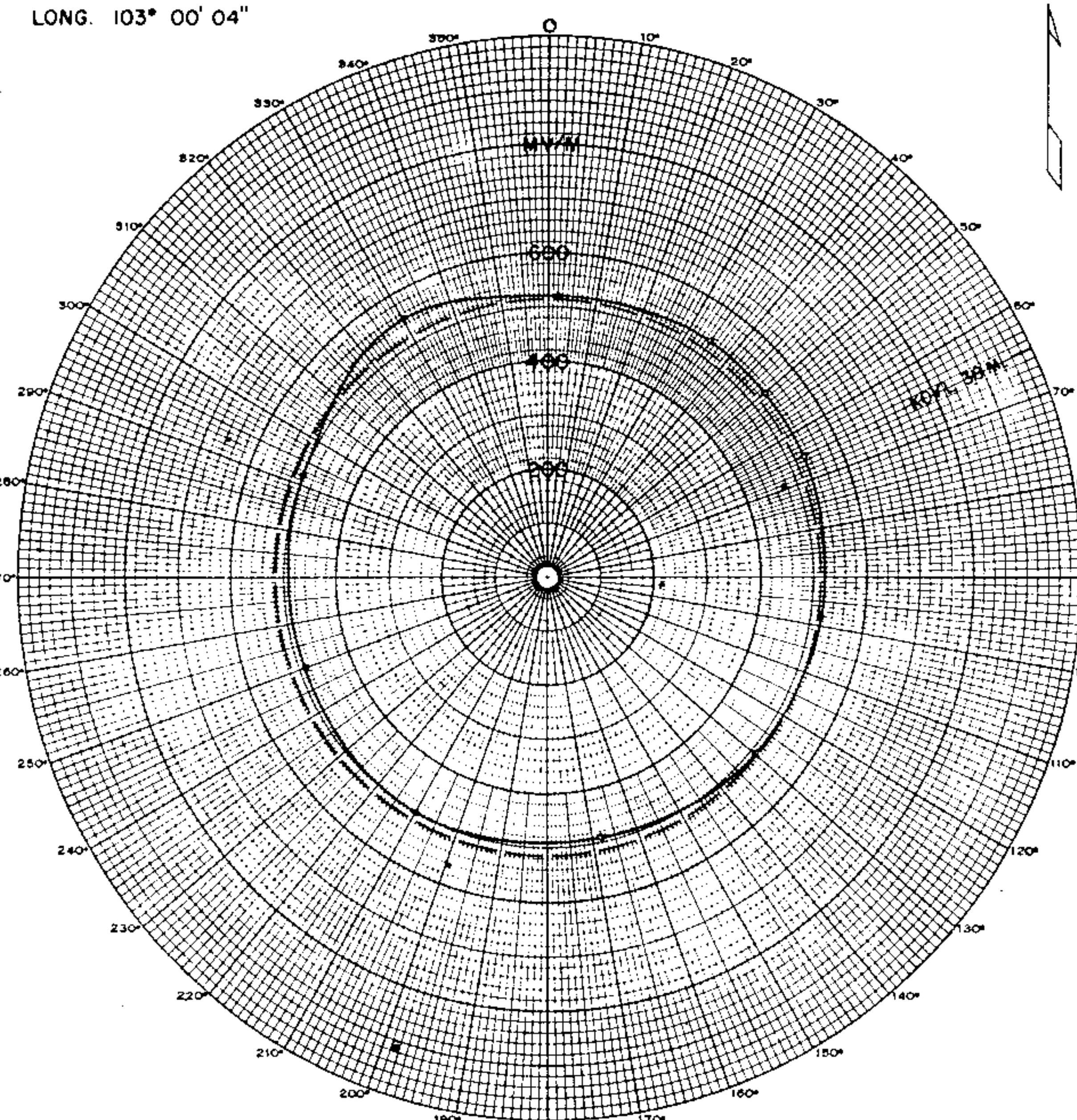
MEASURED NON-DA
(7-26-61ct)

Station KVKM
Monahans, Texas

1kw,5kw-LS,DA-N,U
1330 KC

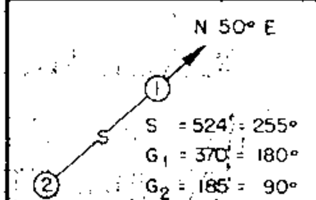
LAT. 31° 38' 45"
LONG. 103° 00' 04"

N



RMS = 514 MV/M

DAY



TOWER
1 - EXCITED
2 - DETUNED

BASED ON MEASUREMENTS

PREPARED BY
THE FIRM OF A. EARL CULLUM, JR.
CONSULTING ENGINEERS

RADIO STATION KVKM
1330 KC 1 KW 5 KW-LS DA-N
601220 FIGURE 2A

FCC File No. BL-8349
Accepted 6-19-61

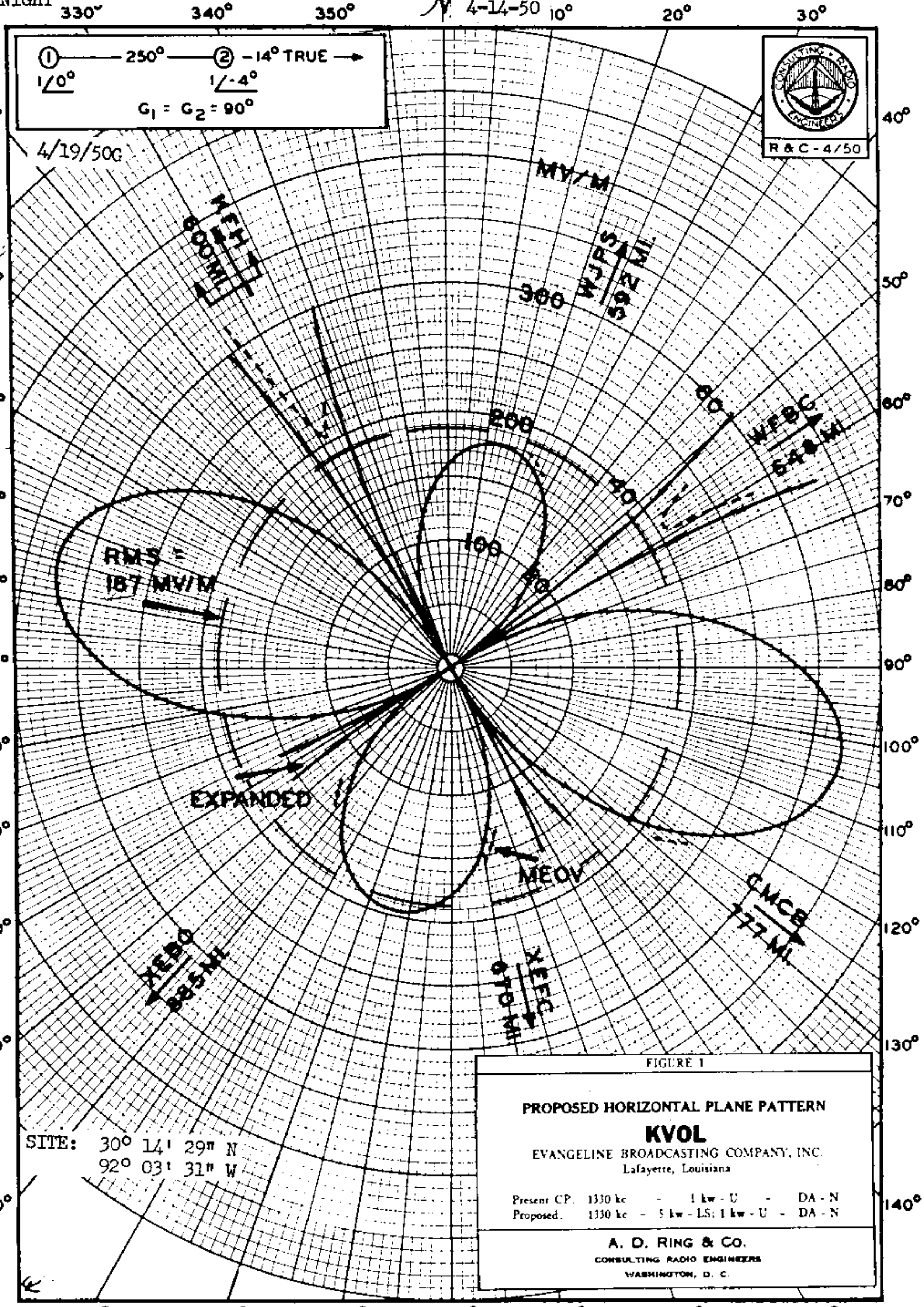
KVKM
Monahans Texas

1330 KC

KVOL

PROPOSED NIGHT KVOL, LAFAYETTE, LA. 4-14-50 1kw,5kw-LS,DAN 1330 kc

PPL 7-16-65 INCR PWR DAY 1KW TO 5KW, ND
JC 3-28-66



BL-11 110

KVOL, Lafayette, La. 1330 kc

Over

KVOL

KVOL (NIGHT) 1330 kc

MEASURED NIGHT   KVOL, LAFAYETTE, LOUISIANA   1kw, DA-N

APPL. 7-16-65
INCR. PWR. DAY
1KW TO 5KW, ND
LIC 3-28-66

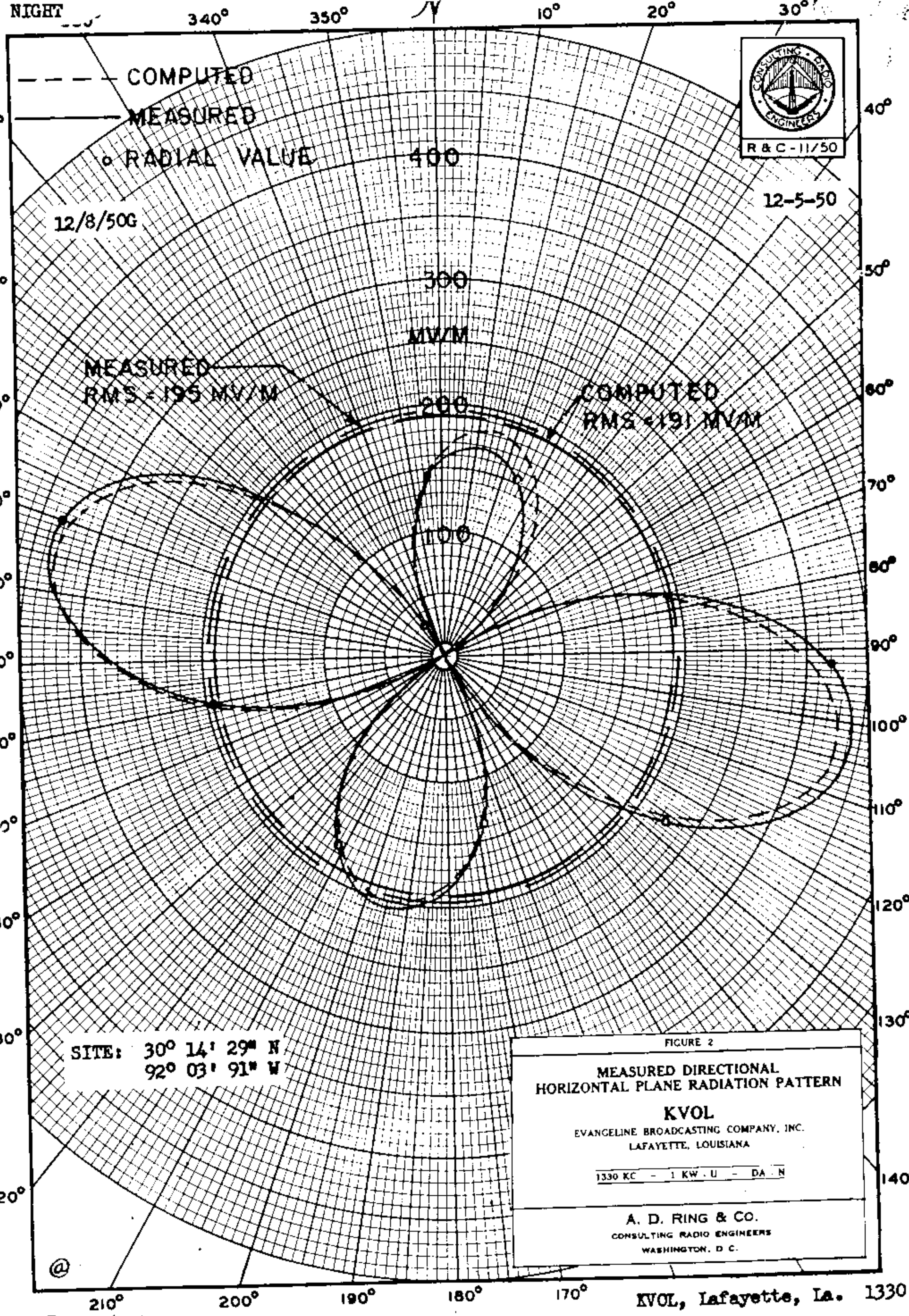


FIGURE 2

MEASURED DIRECTIONAL HORIZONTAL PLANE RADIATION PATTERN

KVOL

EVANGELINE BROADCASTING COMPANY, INC.
LAFAYETTE, LOUISIANA

1330 KC - 1 KW - U - DA - N

A. D. RING & Co.
CONSULTING RADIO ENGINEERS
WASHINGTON, D. C.

KVOL, Lafayette, La. 1330 kc

BL-11110

KVOL

MEASURED
DAY (NON-DA)

KVOL, LAFAYETTE, LOUISIANA

1kw, DA-N

KVOL (DAY) 1330 kc

12/8/50G

12-5-50

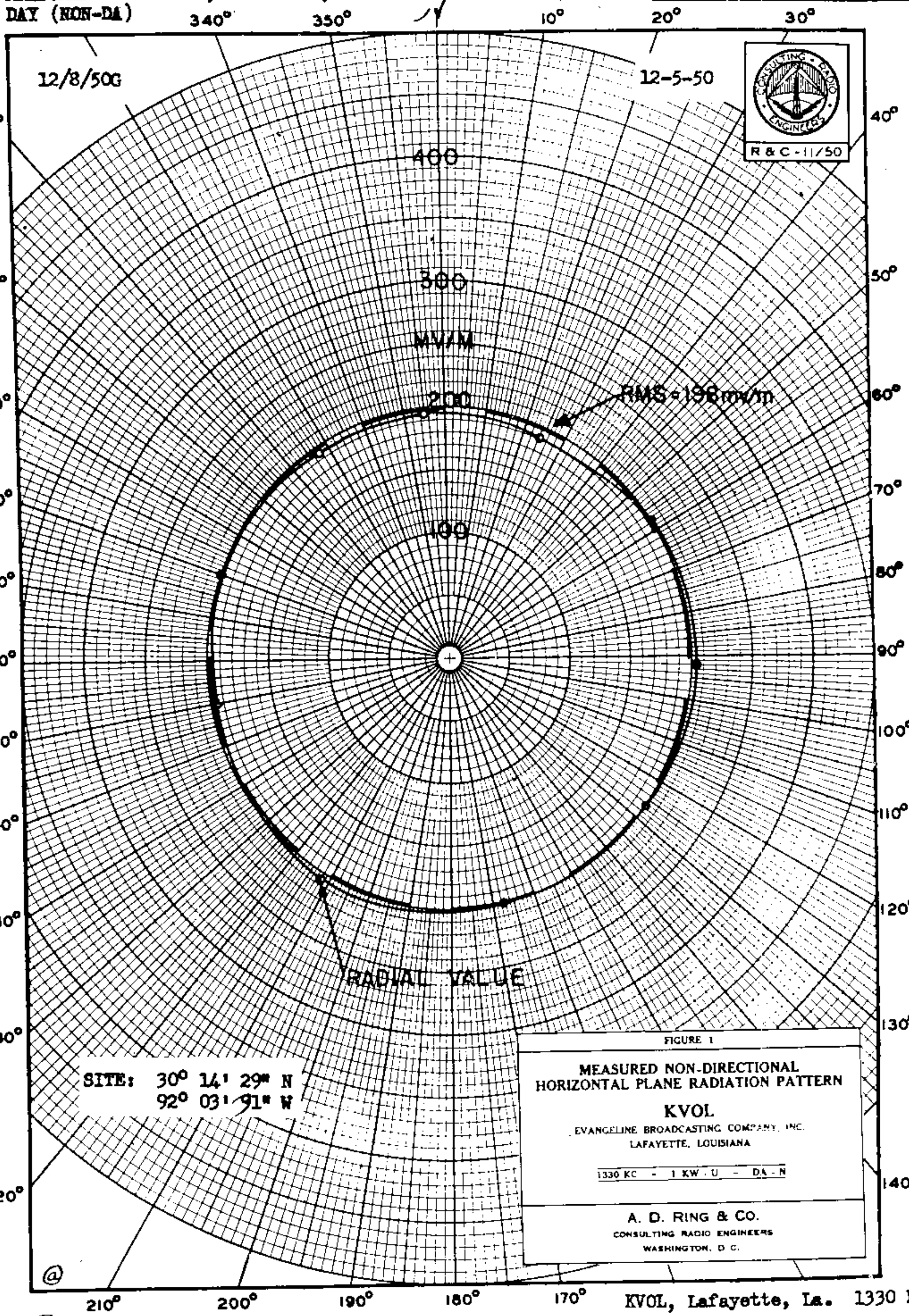


FIGURE 1

MEASURED NON-DIRECTIONAL
HORIZONTAL PLANE RADIATION PATTERN

KVOL

EVANGELINE BROADCASTING COMPANY, INC.
LAFAYETTE, LOUISIANA

1330 KC - 1 KW - U - DA - N

A. D. RING & CO.
CONSULTING RADIO ENGINEERS
WASHINGTON, D. C.

Accepted
2/1/51

APPL. 7-16-65
INCR. PWR. DAY
1 KW to 5 KW, ND
LIC 3-28-66

KVOL, Lafayette, La. 1330 kc

BL-11110

KWWL

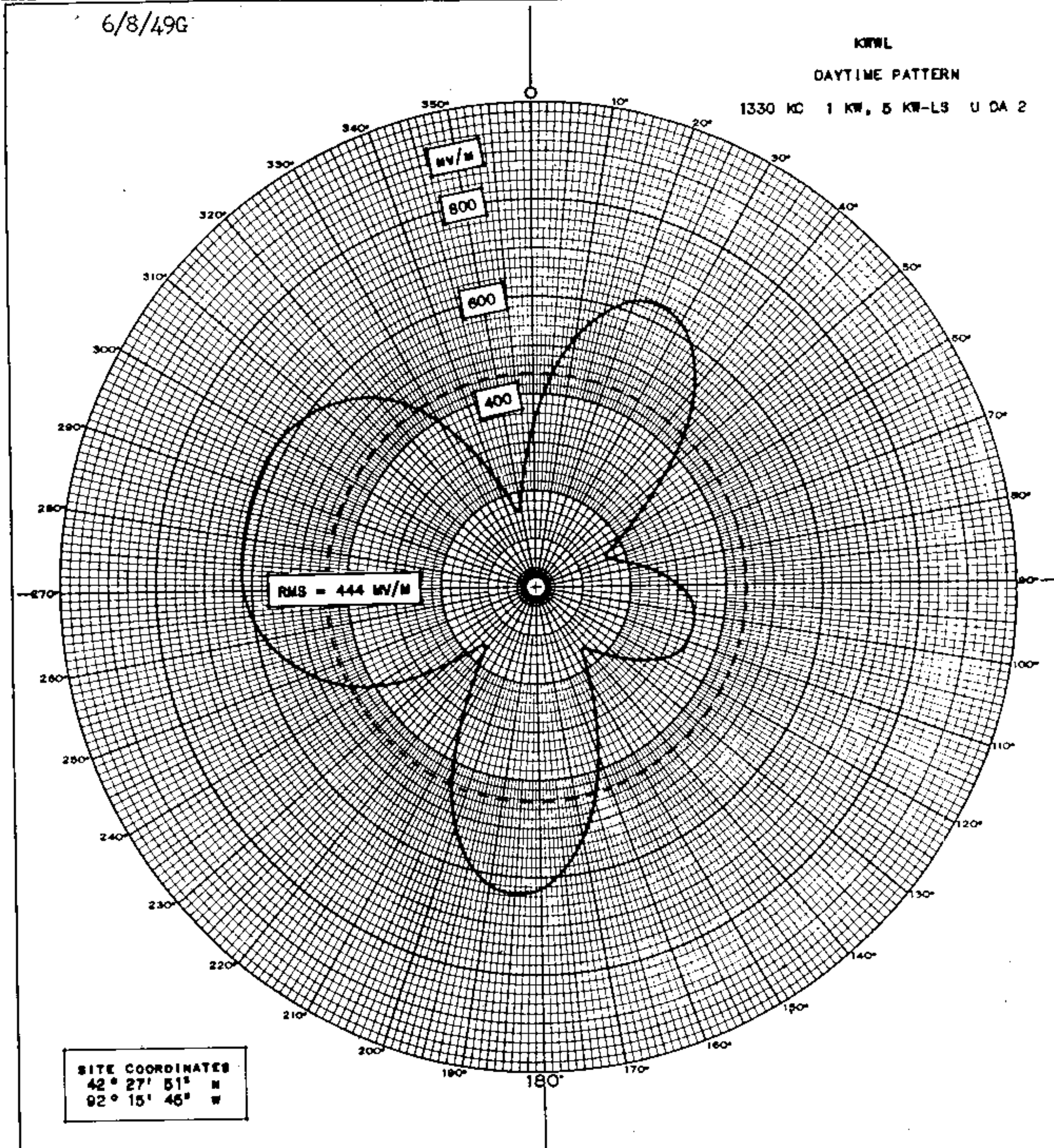
PROPOSED DAY KWWL, WATERLOO, IOWA 1kw,5kw-LS,DA2 FIGURE 4 1330 kc

6/8/49G

KWWL

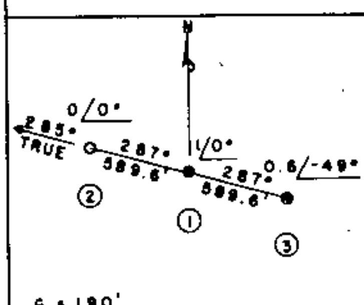
DAYTIME PATTERN

1330 KC 1 KW, 5 KW-LS U DA 2



SITE COORDINATES
42° 27' 51" N
92° 15' 46" W

PROPOSED DAYTIME HORIZONTAL PLANE RADIATION PATTERN



BLACK HAWK BROADCASTING COMPANY

KWWL WATERLOO IOWA

WELDON & CARR

CONSULTING RADIO ENGINEERS

WASHINGTON DC DALLAS TEXAS

KWWL

PROPOSED OPERATION

1330 KC 1 KW, 5 KW-LS U DA 2

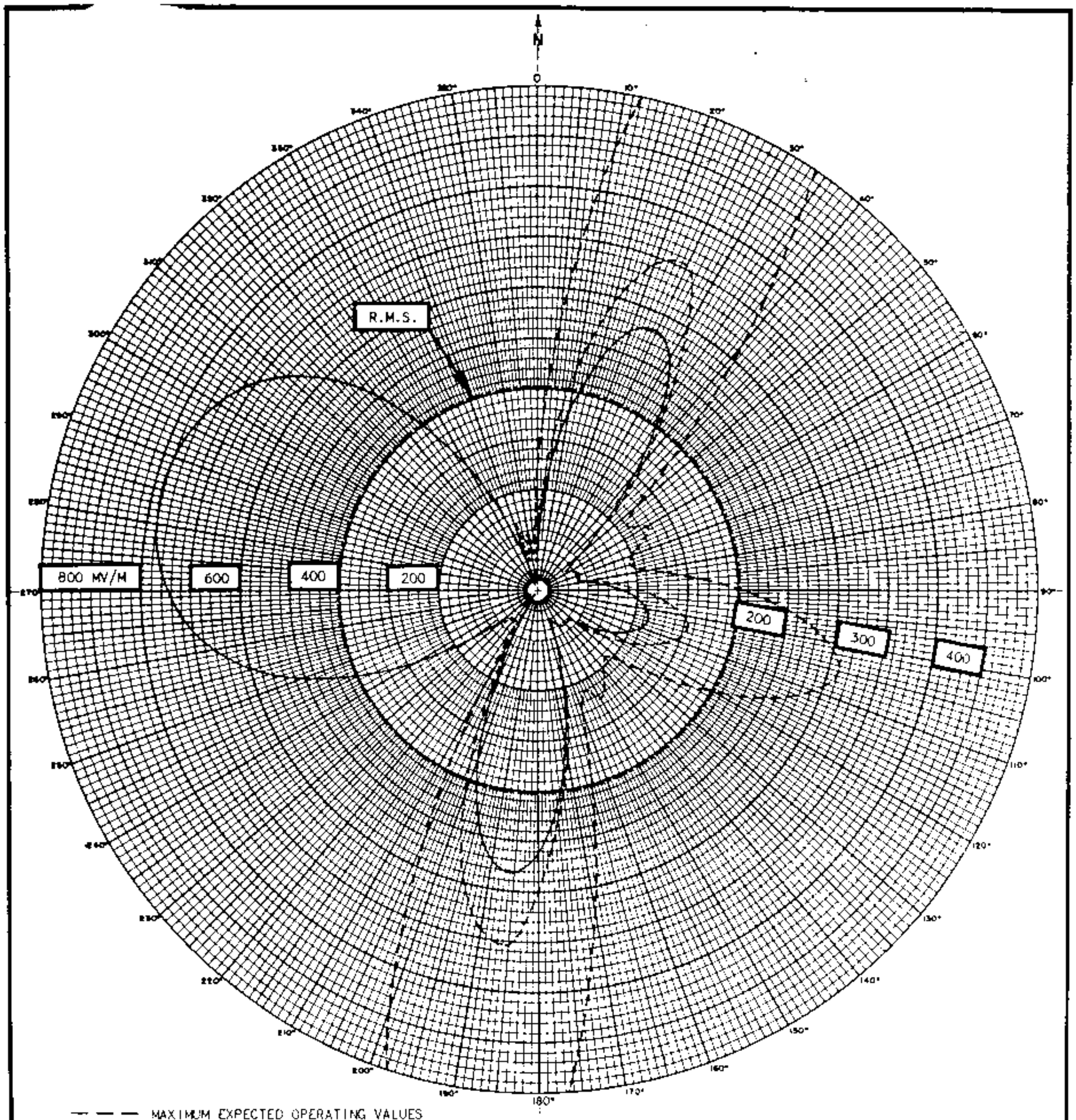
W 490523 C

AMENDMENT FILED 6-3-49 BMP-3224 KWWL, Waterloo, Iowa 1330 kc

KWWL

Proposed Night (3-28-68ct)	Station KWWL Waterloo, Iowa	5kw,DA-2,U 1330 kc

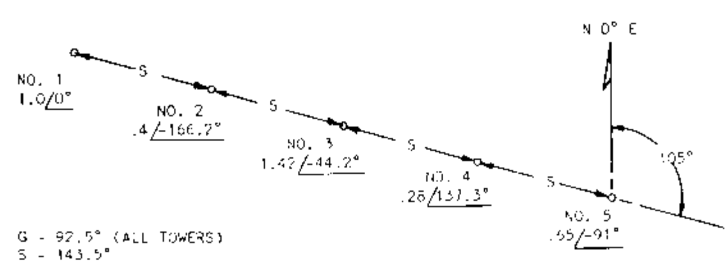
5-7-68
GRANTED
CP.



HORIZONTAL RADIATION PATTERN

FIGURE 1

ORIENTATION AND SPACING OF ARRAY



APPLICANT	: Black Hawk B/cg. Co. (KWWL)
LOCATION	: Waterloo, Iowa
FREQUENCY	: 1330 KC/S
POWER	: 5-KW-U (DA-2)
LATITUDE	: 42 DEG. 27 MIN. 51 SEC.
LONGITUDE	: 92 DEG. 15 MIN. 45 SEC.
WHEN USED	: Nighttime
R.M.S. FIELD	: 405 MV/M
DATE	: August 1967

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

FCC File No.BP-18038 Accepted 3-7-68	Station KWWL Waterloo, Iowa	1330 kc

KWWL

MEASURED DAY
(12-21-59g)

Station KWWL
Waterloo, Iowa

5kw, DA-2,U
1330 KC

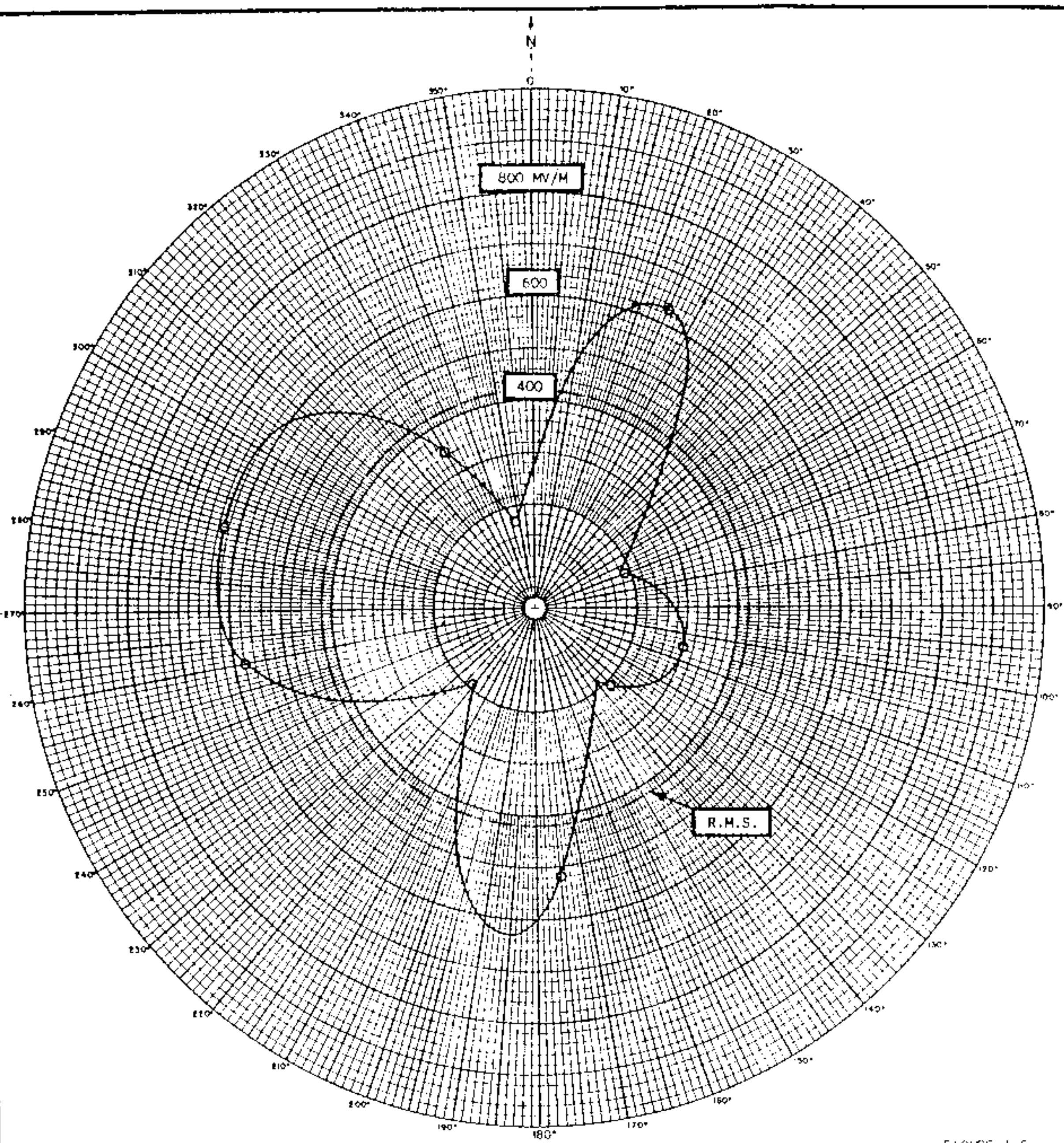
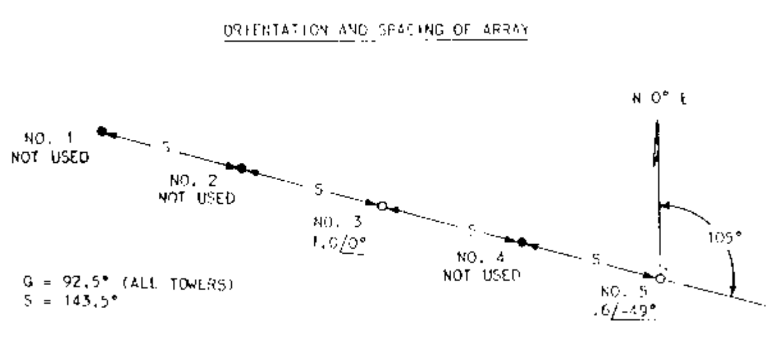


FIGURE 1-C

HORIZONTAL RADIATION PATTERN



APPLICANT	BLACK HAWK B/CG. CO. (KWWL)
LOCATION	WATERLOO, IOWA
FREQUENCY	1330 KC/S
POWER	5 KW - U (DA-2)
LATITUDE	42 DEG 27 MIN 51 SEC
LONGITUDE	92 DEG 15 MIN 45 SEC
WHEN USED	DAYTIME
R.M.S. FIELD	420 MV/M
DATE	OCTOBER 1959

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

FCC File No. BL-7691
Accepted 11-17-59

KWWL
Waterloo, Iowa

1330 KC

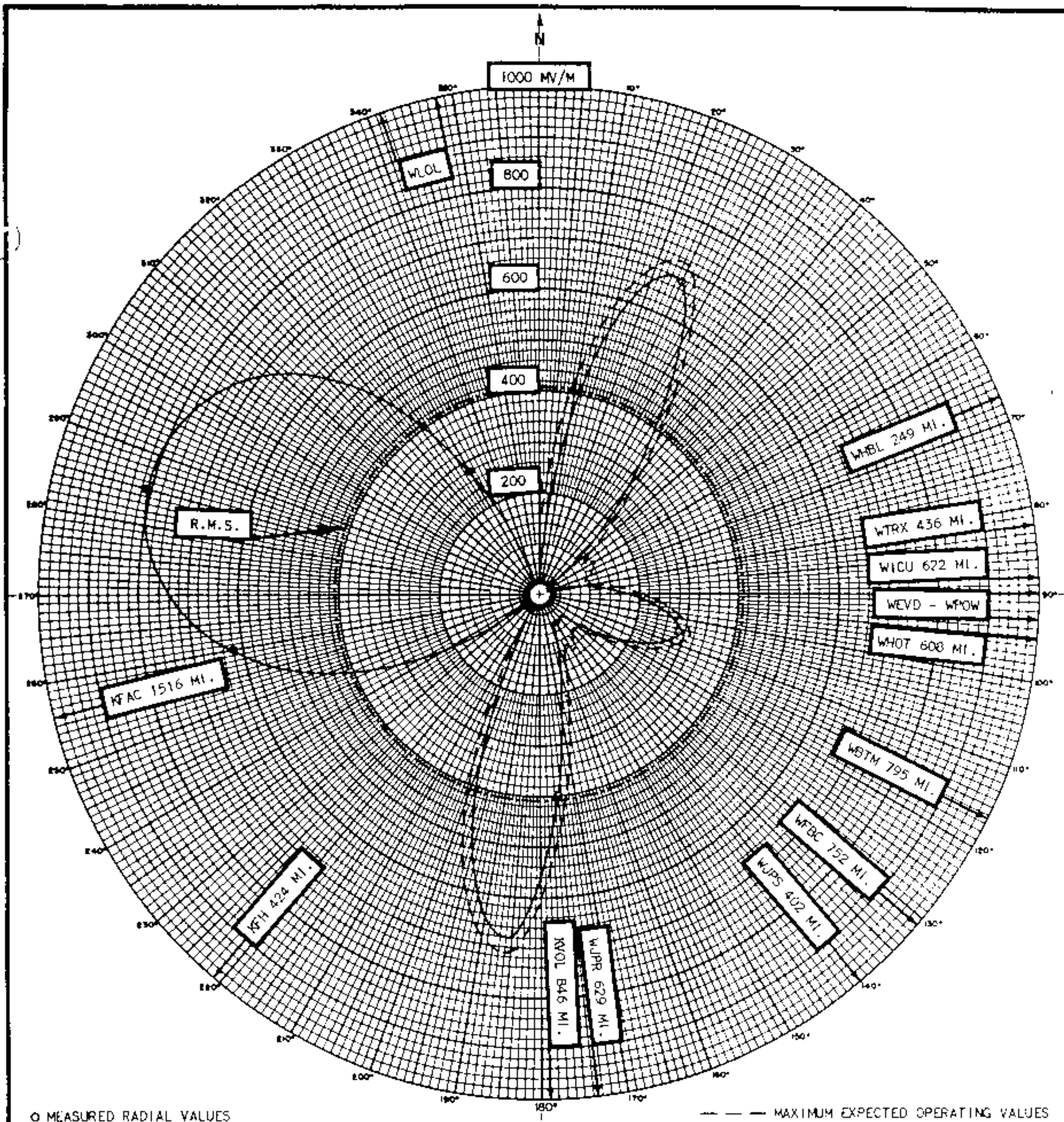
KWWL

Measured Night
(6-28-68ct)

Station KWWL
Waterloo, Iowa

5kw, DA-2, U
1330 kc

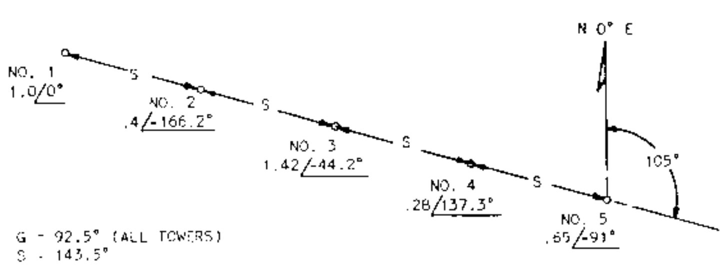
BL-11967
Granted
(8-20-68)
License
Covering
Change



HORIZONTAL RADIATION PATTERN

FIGURE 1-A

ORIENTATION AND SPACING OF ARRAY



APPLICANT	Black Hawk B/cg. Co. (KWWL)
LOCATION	Waterloo, Iowa
FREQUENCY	1330 KC/S
POWER	5-KW-U (DA-2)
LATITUDE	42 DEG 27 MIN. 51 SEC.
LONGITUDE	92 DEG 15 MIN. 45 SEC.
WHEN USED	NIGHTTIME
R.M.S. FIELD	409 MV/M
DATE	August 1967

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

FCC File No. BL-11967
Accepted 6-10-68

Station KWWL
Waterloo, Iowa

1330 kc

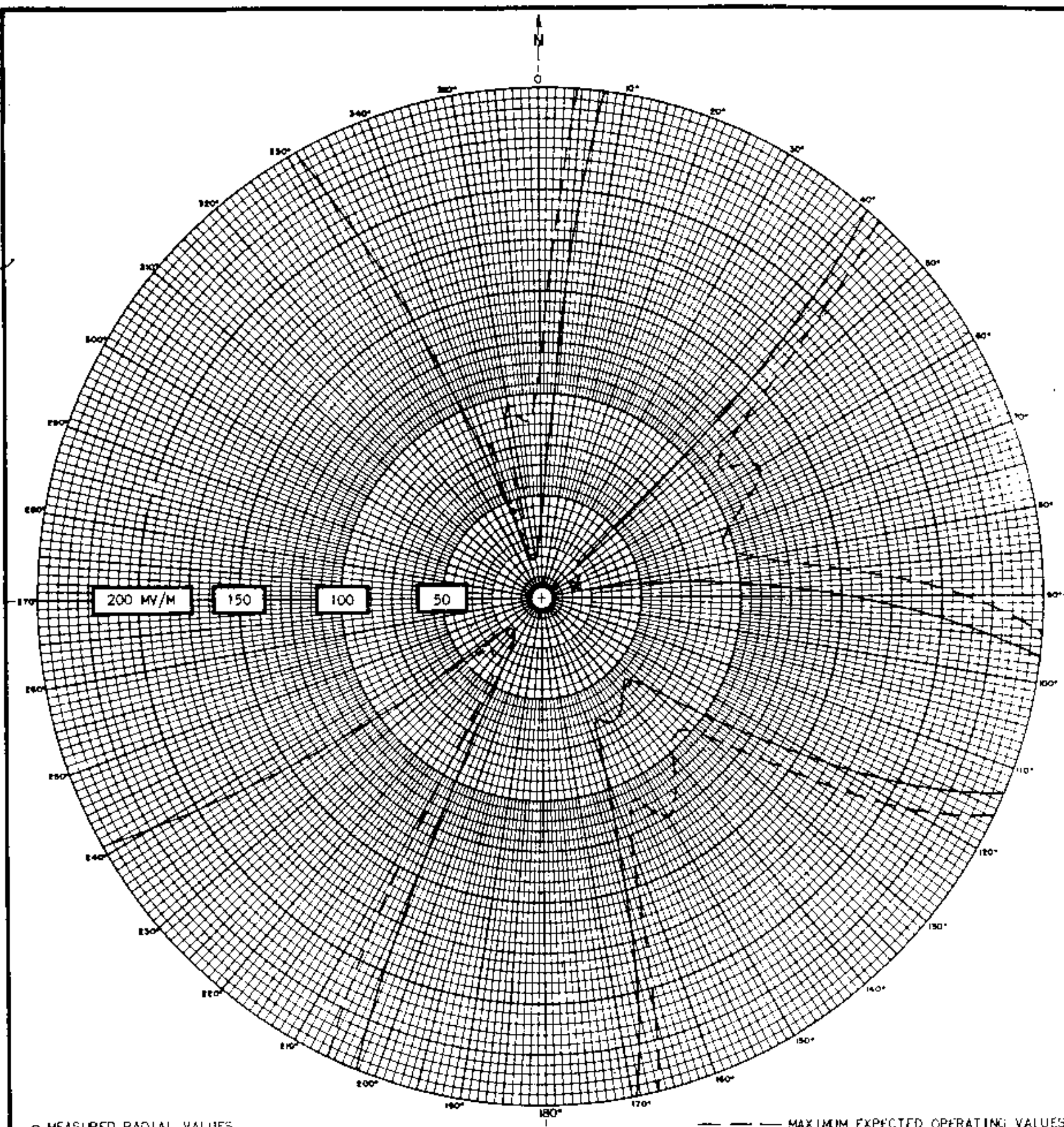
KWWL

Measured Night Nulls
(6-28-68ct)

Station KWWL
Waterloo, Iowa

5kw,DA-2,U
1330 kc

BL-11967
Granted
(8-20-68)
License
covering
changes



HORIZONTAL RADIATION PATTERN

FIGURE 1-8

EXPANDED VIEW

APPLICANT	: Black Hawk B/cg. Co. (KWWL)
LOCATION	: Waterloo, Iowa
FREQUENCY	: 1330 kc/s
POWER	: 5-Kw-U (DA-2)
LATITUDE	: 42 deg 27 min. 51 sec
LONGITUDE	: 92 deg. 15 min. 45 sec.
WHEN USED	: Nighttime
R.M.S. FIELD	: 409 MV/M
DATE	: August 1967

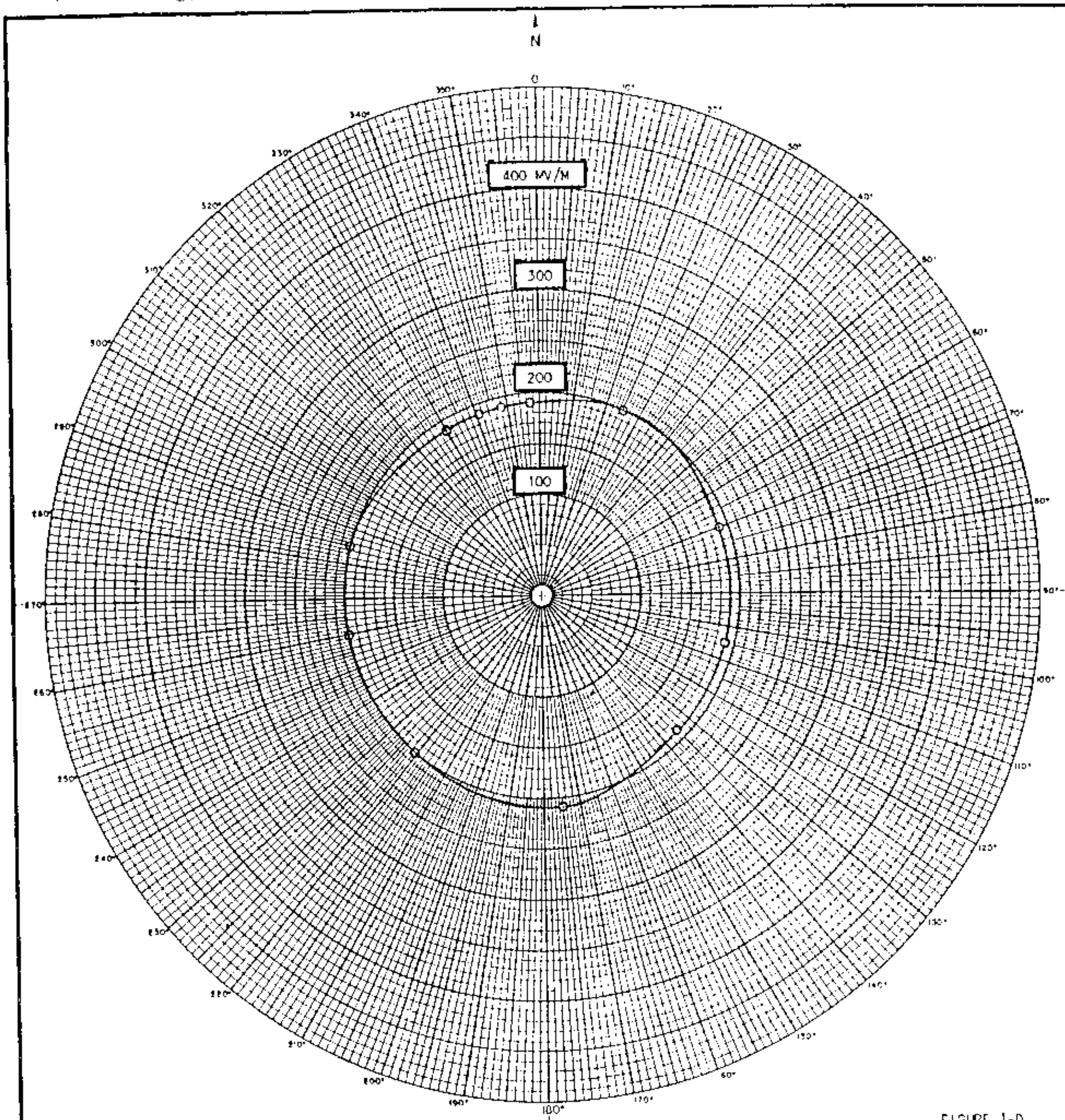
SILLIMAN, MOFFET & KOWALSKI
CONSULTING RADIO ENGINEERS
WASHINGTON, D.C.

FCC File No.BL-11967
Accepted 6-10-68

Station KWWL
Waterloo, Iowa

1330 kc

KWWL
12



HORIZONTAL RADIATION PATTERN

NON-DIRECTIONAL SURVEY

APPLICANT : BLACK HAWK B/CG. CO. (KWWL)
LOCATION : WATERLOO, IOWA
FREQUENCY : 1330 KC/S
POWER 5 KW - U (DA-2)
LATITUDE : 42 DEG 27 MIN 51 SEC
LONGITUDE : 92 DEG 15 MIN 45 SEC
WHEN USED: NON-DIRECTIONAL SURVEY ONLY
R M S FIELD: 197 MV/M
DATE : OCTOBER 1959

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

WASA

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WASA

Main Studio: Harve de Grace, Maryland

Frequency: 1330 KHz

Power: 0.5 Kw Night 5 Kw Day

Notification: 1778

Date: August 30, 1978 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude:	39°	33'	55"
West Longitude:	76°	07'	08"

Predicted effective Daytime field (omnidirectional) 400.3 mv/m # at rated power # by adjustment of input power.

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	:	SE (#1)	C (#2)	NW (#3)			
HEIGHT ABOVE INSULATORS	:	185 (90°)	250' (121.7°)		185' (90°)		
PHASING	:	0°	+154.87°	+310°			
FIELD RATIO	:	1	2.193	1.345			

SPACING AND ORIENTATION : Towers in a row are spaced 184.8' (90°) on a line bearing 317° true.

GROUND SYSTEM: 120 - 275' equally spaced copper radials about the C (#2) tower 120 - 185' equally spaced copper radials plus 120 - 50' interspaced radials a 24' square ground screen about the SE (#1) and the NW (#3) tower. Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL		STANDARD
	RMS	RSS	RMS
Night 1/	155 mv/m	260.8 mv/m	162.9 mv/m

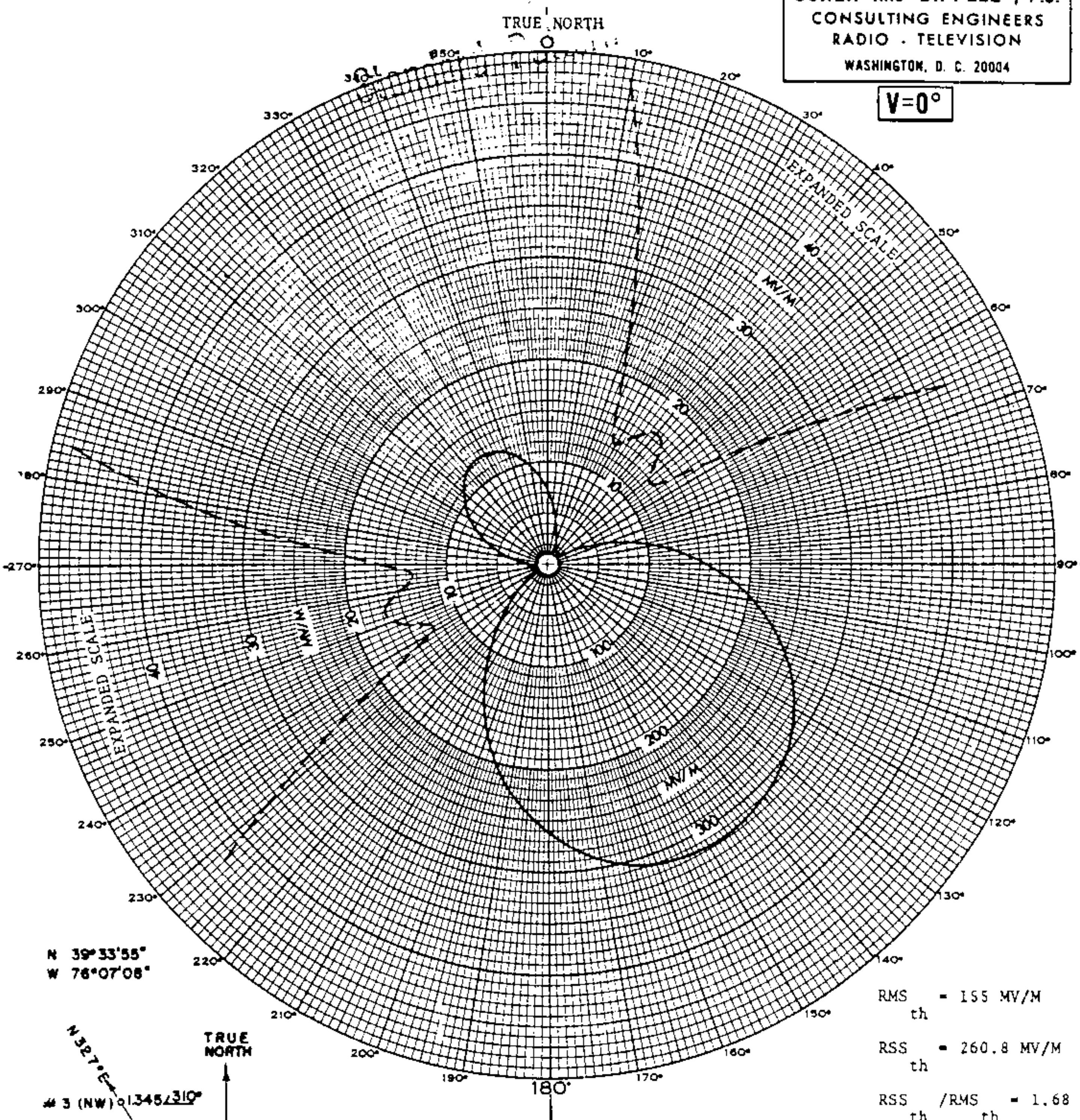
1/ By adjustment of input power.

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

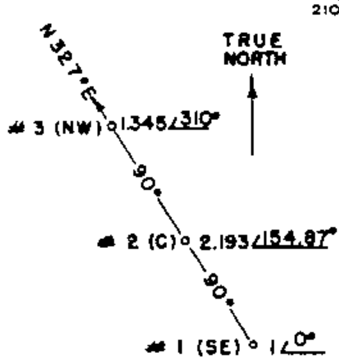
WASA

COHEN AND DIPPELL, P.C.
CONSULTING ENGINEERS
RADIO - TELEVISION
WASHINGTON, D. C. 20004

V=0°



N 39°33'55"
W 76°07'08"



H #1 & 3 = 185' = 90°
H #2 = 250' = 121.7°

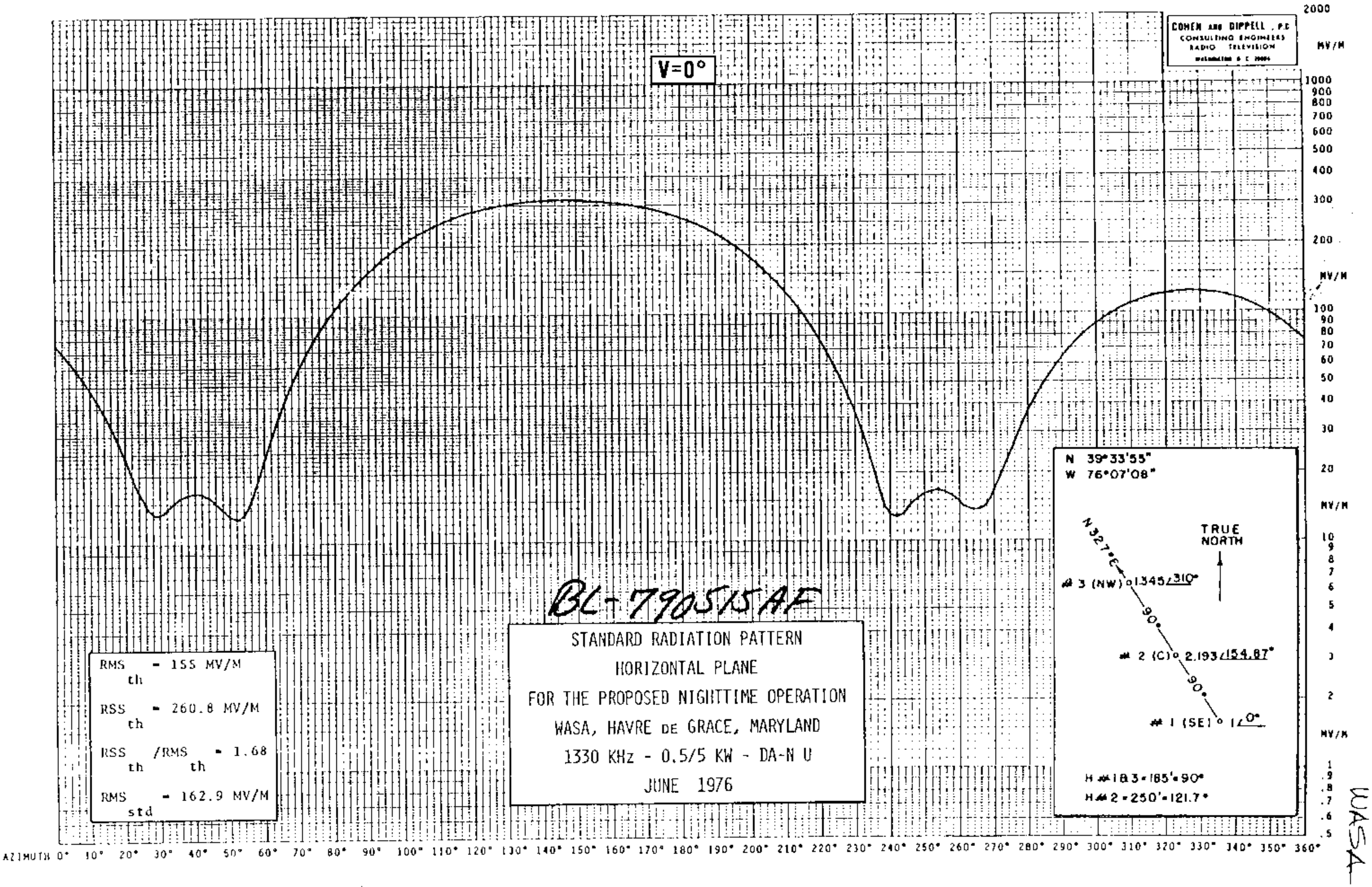
RMS_{th} = 155 MV/M

RSS_{th} = 260.8 MV/M

RSS_{th}/RMS_{th} = 1.68

RMS_{std} = 162.9 MV/M

STANDARD RADIATION PATTERN
HORIZONTAL PLANE
FOR THE PROPOSED NIGHTTIME OPERATION
WASA, HAVRE DE GRACE, MARYLAND
1330 KHz - 0.5/5 KW - DA-N U
JUNE 1976


COHEN AND DIPPELL, P.C.
CONSULTING ENGINEERS
RADIO TELEVISION
V=0°
BL-790515AF
STANDARD RADIATION PATTERN
HORIZONTAL PLANE
FOR THE PROPOSED NIGHTTIME OPERATION
WASA, HAVRE DE GRACE, MARYLAND
1330 KHz - 0.5/5 KW - DA-N U
JUNE 1976
RMS th - 155 MV/M
RSS th - 260.8 MV/M
RSS th /RMS th - 1.68
RMS std - 162.9 MV/M
N 39°33'55"
W 76°07'08"
TRUE NORTH
N 327°E
#3 (NW) 1345 /310°
90°
#2 (C) 2.193 /154.87°
90°
#1 (SE) 1 /0°
H #1 & 3 - 185' - 90°
H #2 - 250' - 121.7°
AZIMUTH 0° 10° 20° 30° 40° 50° 60° 70° 80° 90° 100° 110° 120° 130° 140° 150° 160° 170° 180° 190° 200° 210° 220° 230° 240° 250° 260° 270° 280° 290° 300° 310° 320° 330° 340° 350° 360°
MV/M
2000 1000 900 800 700 600 500 400 300 200 100 90 80 70 60 50 40 30 20 10 9 8 7 6 5 4 3 2 1 .9 .8 .7 .6 .5
WASA

WBTM
1-2

WBTM

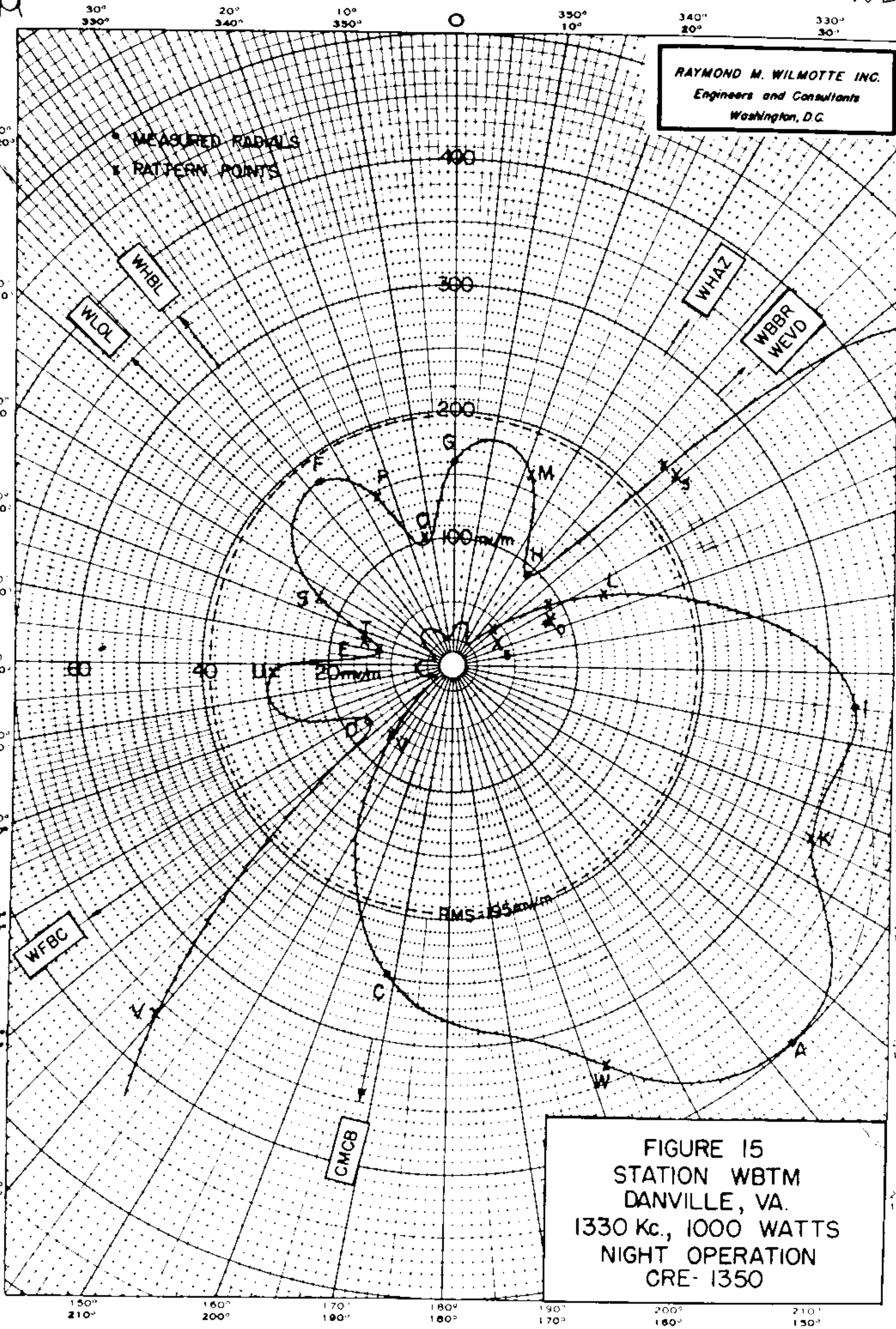


FIGURE 15
STATION WBTM
DANVILLE, VA.
1330 Kc., 1000 WATTS
NIGHT OPERATION
CRE- 1350

PROPOSED WBTM, DANVILLE, VA.
NIGHT

PATTERN No.: 460919
SUPERSEDES:

WBTM - 1330 KC

1kw, 5kw-LS, DA-N

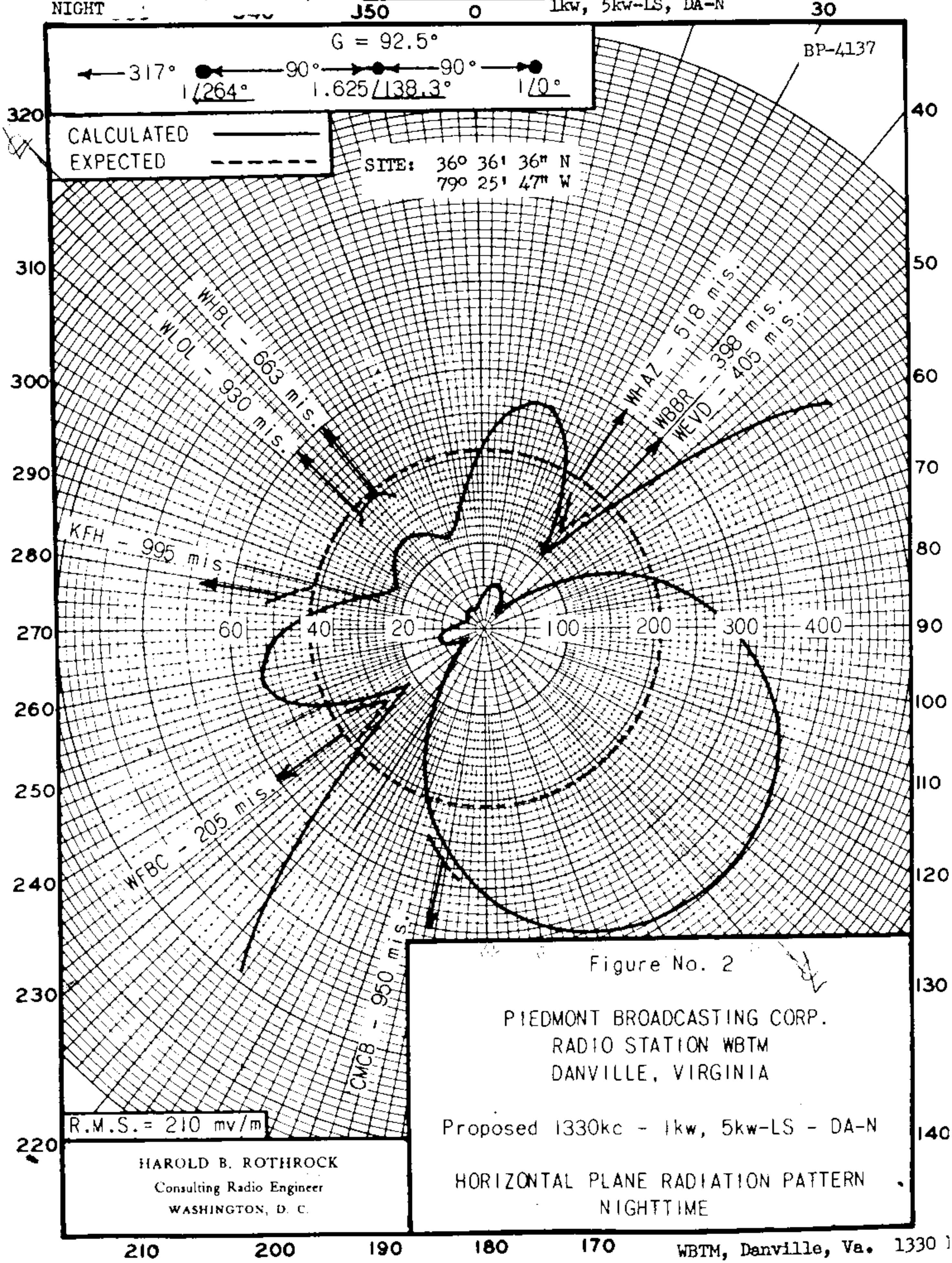


Figure No. 2

PIEDMONT BROADCASTING CORP.
RADIO STATION WBTM
DANVILLE, VIRGINIA

Proposed 1330kc - 1kw, 5kw-LS - DA-N

HORIZONTAL PLANE RADIATION PATTERN
NIGHTTIME

HAROLD B. ROTHROCK
Consulting Radio Engineer
WASHINGTON, D. C.

WBTM

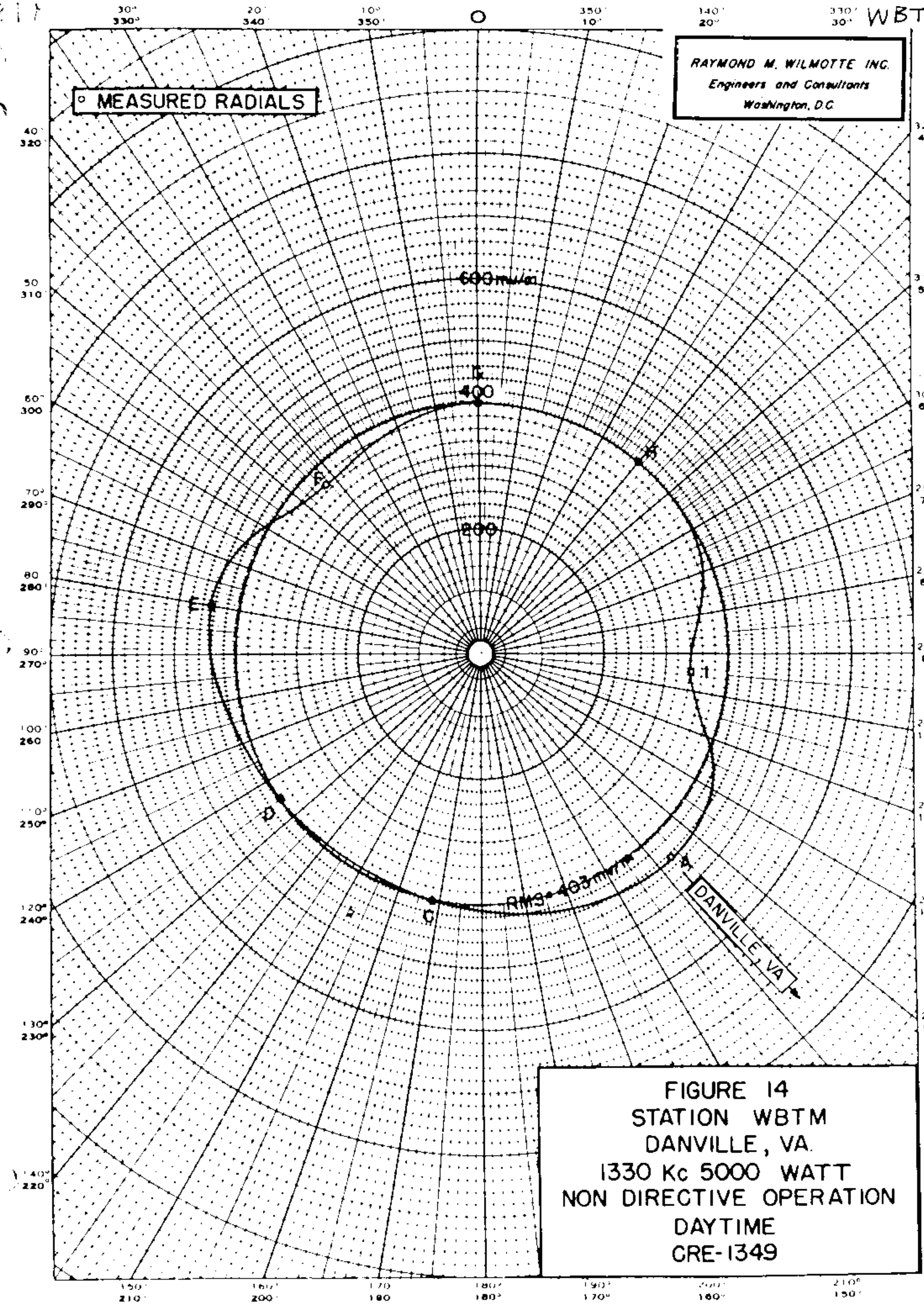


FIGURE 14
STATION WBTM
DANVILLE, VA.
1330 Kc 5000 WATT
NON DIRECTIVE OPERATION
DAYTIME
CRE-1349

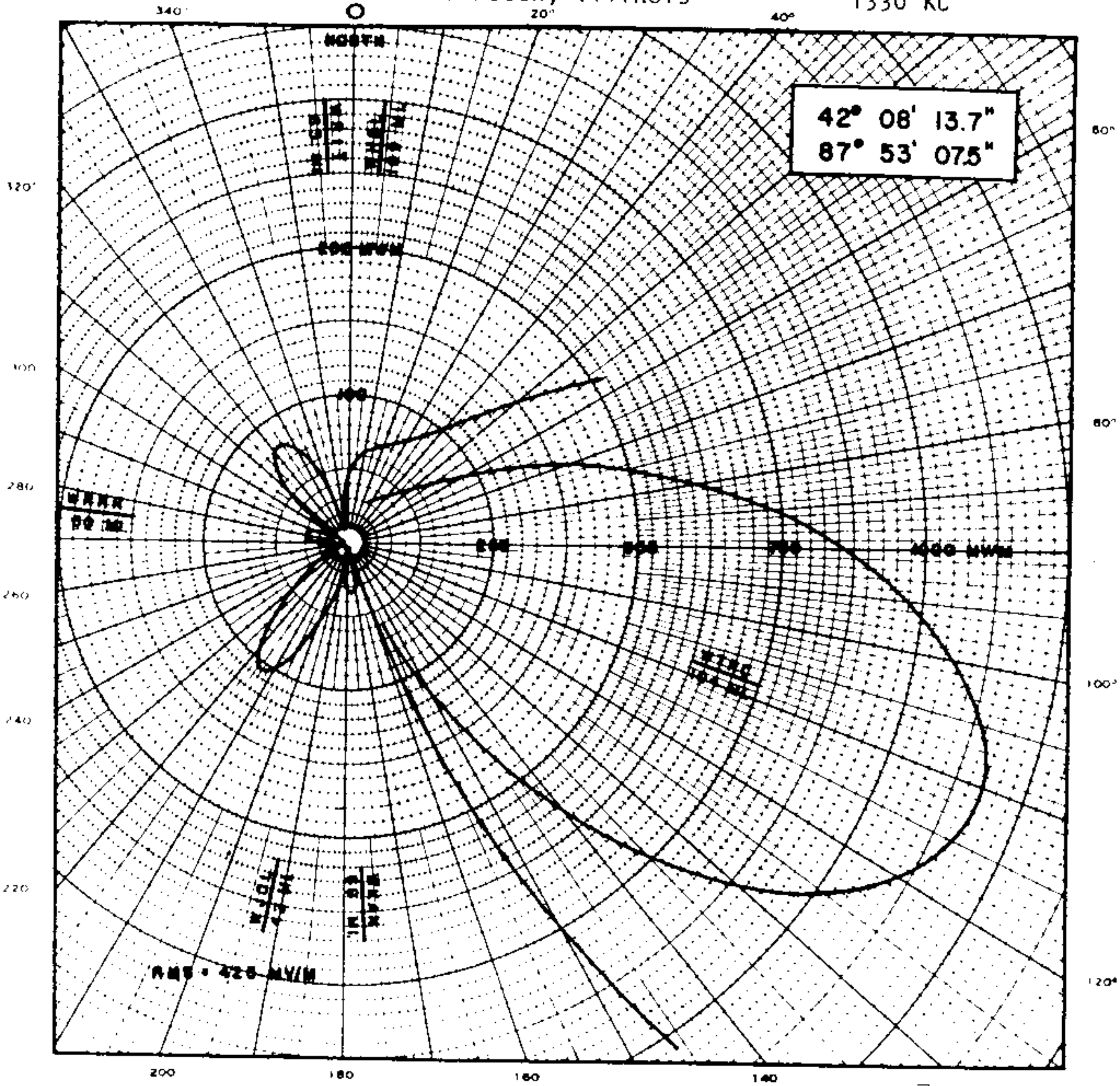
WEAW

PROPOSED DAY
(5-8-61g)

Station WEAW
Evanston, Illinois

5kw, DA-D,D
1330 KC

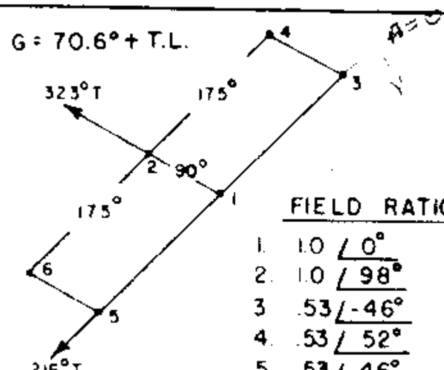
CP 5696



$E = 29.5 [1 + 1.06 \cos(175 \cos A - 46)] \times [2 \cos(45 \cos[A-107] - 49)]$

A = 0 at 36

Rotation clockwise from 3-1-5 line



FIELD RATIOS

1. 1.0 /0°
2. 1.0 /98°
3. .53 /-46°
4. .53 /52°
5. .53 /46°
6. .53 /144°

HORIZONTAL RADIATION PATTERN
WEAW 5 KW DA-D 1330 KC.
EVANSTON, ILLINOIS
MARCH, 1961

WALTER F. KEAN
CONSULTING RADIO ENGINEERS
ONE RIVERSIDE ROAD
RIVERSIDE, ILLINOIS

FCC File No. BMP-9441
Accepted 5-1-61

WEAW
Evanston, Illinois 1330 KC

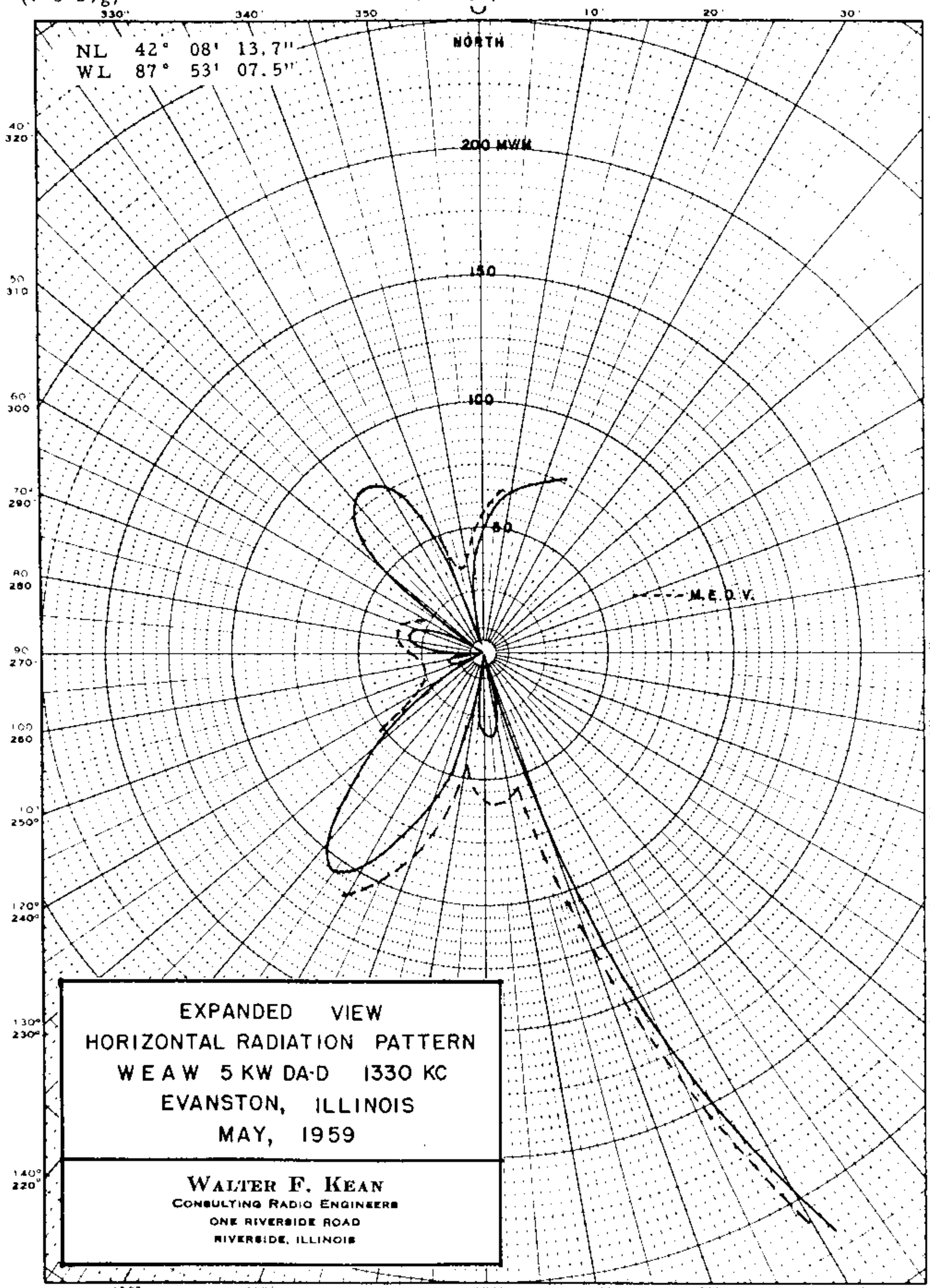
FIGURE 1

WEAW

PROPOSED DAY NULLS
(7-8-59g)

Station WEAW
Evanston, Illinois

5~~0~~kw, DA-D, D
1330 KC



FCC File No. BP-13145
Accepted 6-30-59

WEAW
Evanston, Illinois

1330 KC

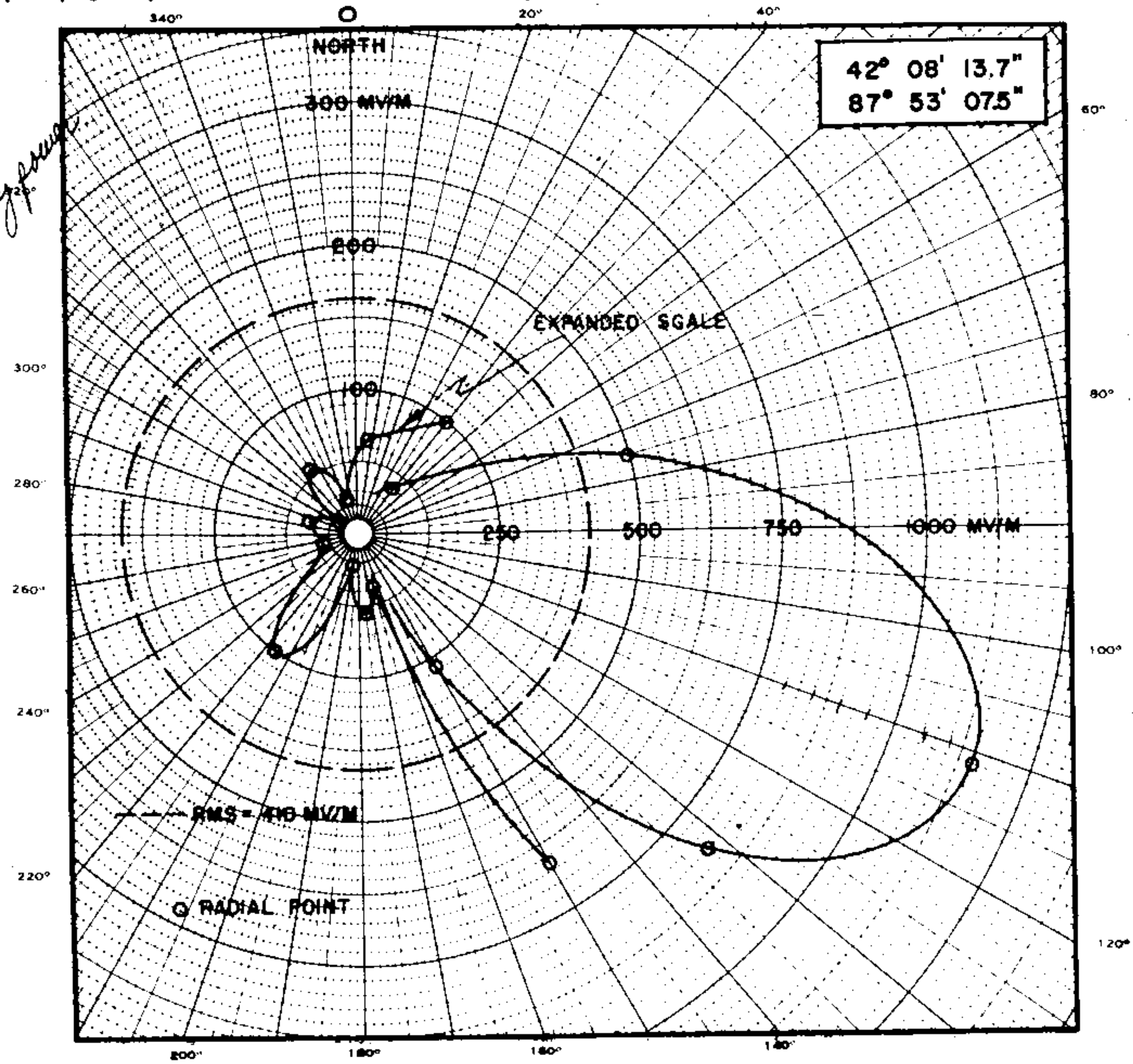
WEAW

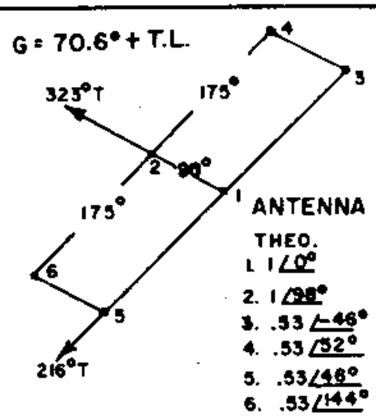
Measured Day
(4-27-62ct)

Station WEAW
Evanston, Illinois

5kw,DA-D,D
1330 kc

1-31-62
vanted L for
ncrease in day power





ANTENNA CONSTANTS

	THEO.	MEAS. BASE	MON.
1.	1/0°	1.0	76/0°
2.	1/98°	1.065	83/93°
3.	.53/-46°	0.55	42/-48°
4.	.53/52°	0.53	40/42°
5.	.53/48°	0.606	43/49°
6.	.53/144°	0.582	42/139°

MEASURED HORIZONTAL PLANE
RADIATION PATTERN
WEAW 5 KW DA-D 1330KC
EVANSTON ILLINOIS
FEBRUARY 1962

WALTER F. KEAN
CONSULTING RADIO ENGINEERS
NINETEEN EAST QUINCY STREET
RIVERSIDE, ILLINOIS

FCC File No.BL-9183
Accepted 4-23-62

Station WEAW
Evanston, Illinois

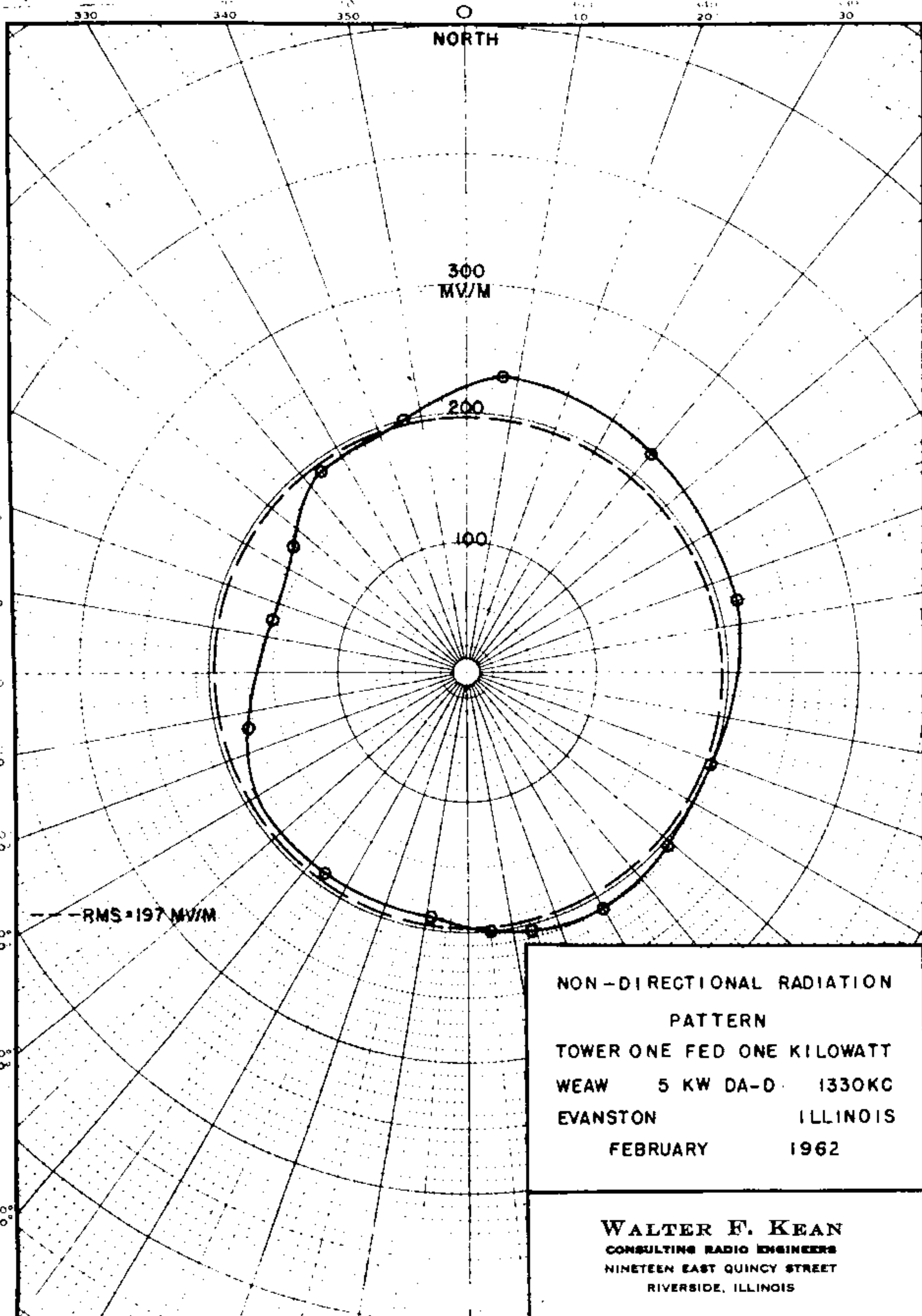
1330 kc

W EAW

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

Station WEAW
Evanston, Illinois

5kw,DA-D,D
1330 kc



FCC File No.BL-9183
Accepted 4-23-62

Station WEAW
Evanston, Illinois

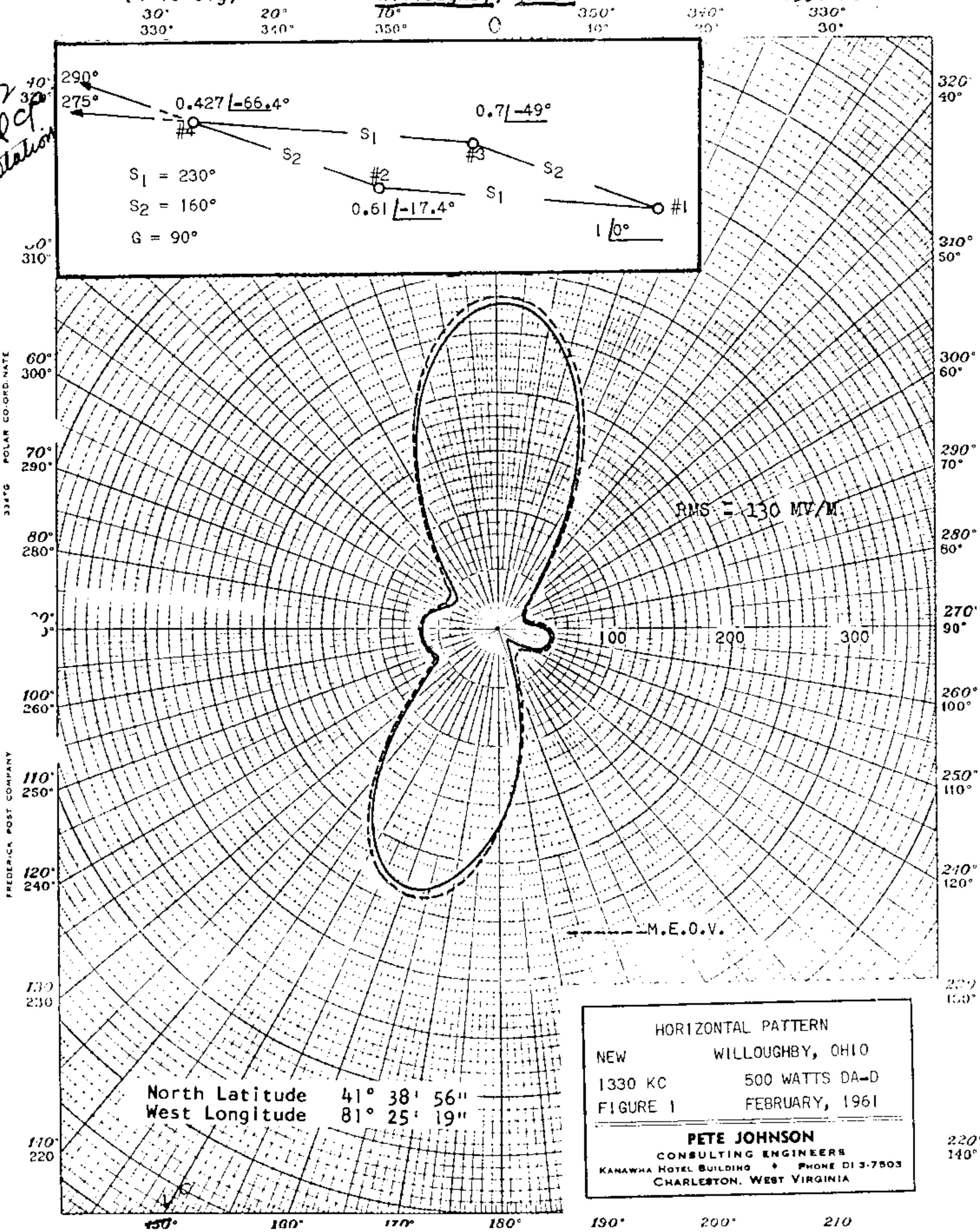
1330 kc

~~WEEV~~ WELW

PROPOSED DAY
(4-10-61g)

New; Radio Quests, Inc.
Willoughby, Ohio

500w, DA-D,D
1330 KC



FCC File No. BP-12691
Accepted 3-8-61 (Amended)

Radio Quests, Inc.
Willoughby, Ohio

1330 KC

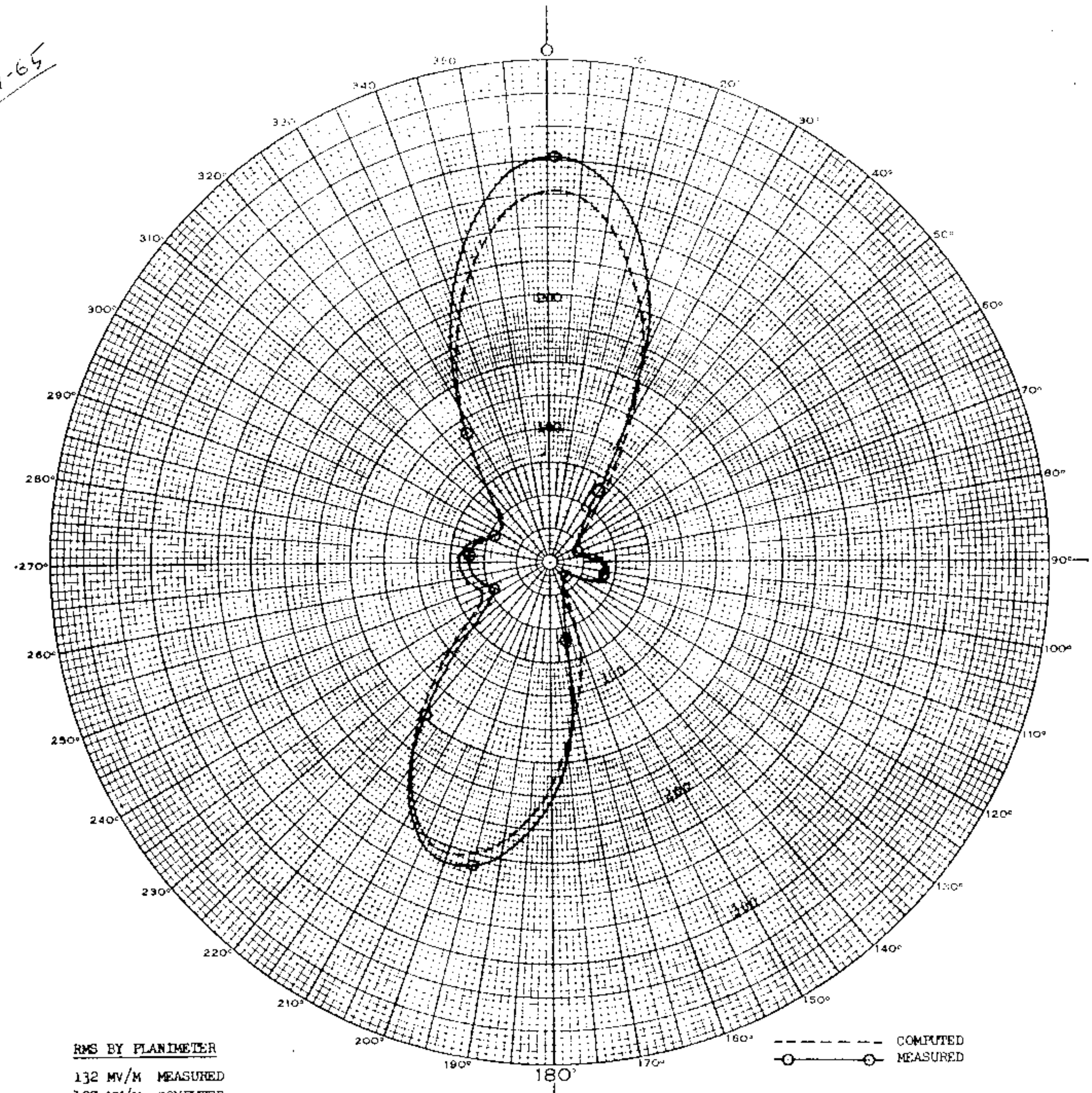
WELW

Measured Day (11-29-65ct)

Station WELW Willoughby, Ohio

500w, DA-D, D 1330 kc

-IC, 12-29-65



RMS BY PLANIMETER

132 MV/M MEASURED

127 MV/M COMPUTED

CARL E. SMITH
CONSULTING RADIO ENGINEERS

PATTERN PARAMETERS

TOWER No.	ELECTRICAL HEIGHT G°	TRUE TOWER ORIENTATION φ°	SPACING S°	PHASING ψ°	HORIZONTAL FIELD mv/m E	FIELD RATIO F	ELEV ANGLE θ°	ELEVATION RMS FIELD mv/m E_θ
1	90	0	0	0		1.0	0	132
2	90	275	230	-17.4		0.61	10	
3	90	290	160	-49		0.7	20	
4	90	281	389	-66.4		0.427	30	
5							40	
6							50	
7							60	
8							70	
9							80	

STATION DATA

CALL	WELW
FREQUENCY	1330 kc
POWER	0.5 kw
TIME OF OPERATION	DA-D
TYPE OF OPERATION	CLASS III
DAYTIME TOWERS	4
NIGHTTIME TOWERS	0
NO. RADIALS PER TOWER	120
LENGTH OF RADIALS	90° 185'
	24'x24'
LAT.	41° 38' 56"
LONG.	81° 25' 19"
	650107
	650813

TOWER PLACEMENT SKETCH

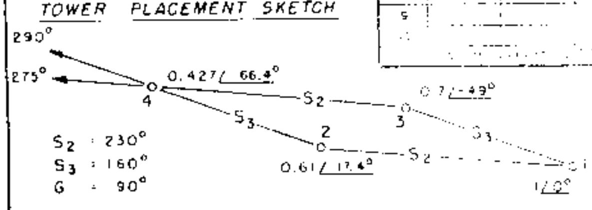


FIG. 7.13A

WELW
MEASURED HORIZONTAL PATTERN
WILLOUGHBY, OHIO

WELW

Measured Non-DA
(11-29-65ct)

Station WELW
Willoughby, Ohio

500w,DA-D,D
1330 kc

LC.12-29-65

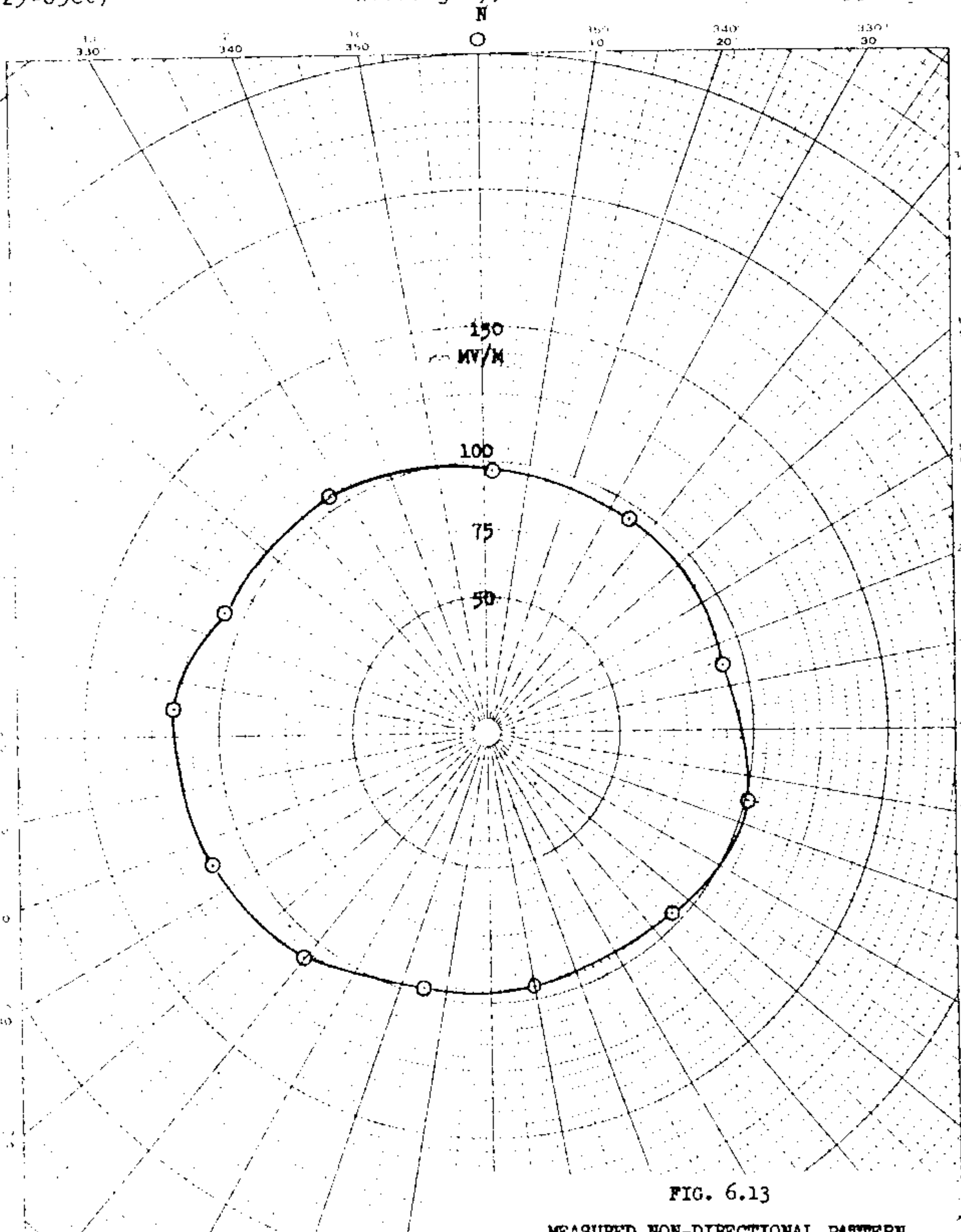


FIG. 6.13

MEASURED NON-DIRECTIONAL PATTERN
250 W TOWER NO. 3

WELW - WILLOUGHBY, OHIO
1330 KC 500 W DA-D
650107

CARL E. SMITH
Consulting Radio Engineers

FCC File No. BL-11102
Accepted 11-5-65

Station WELW
Willoughby, Ohio

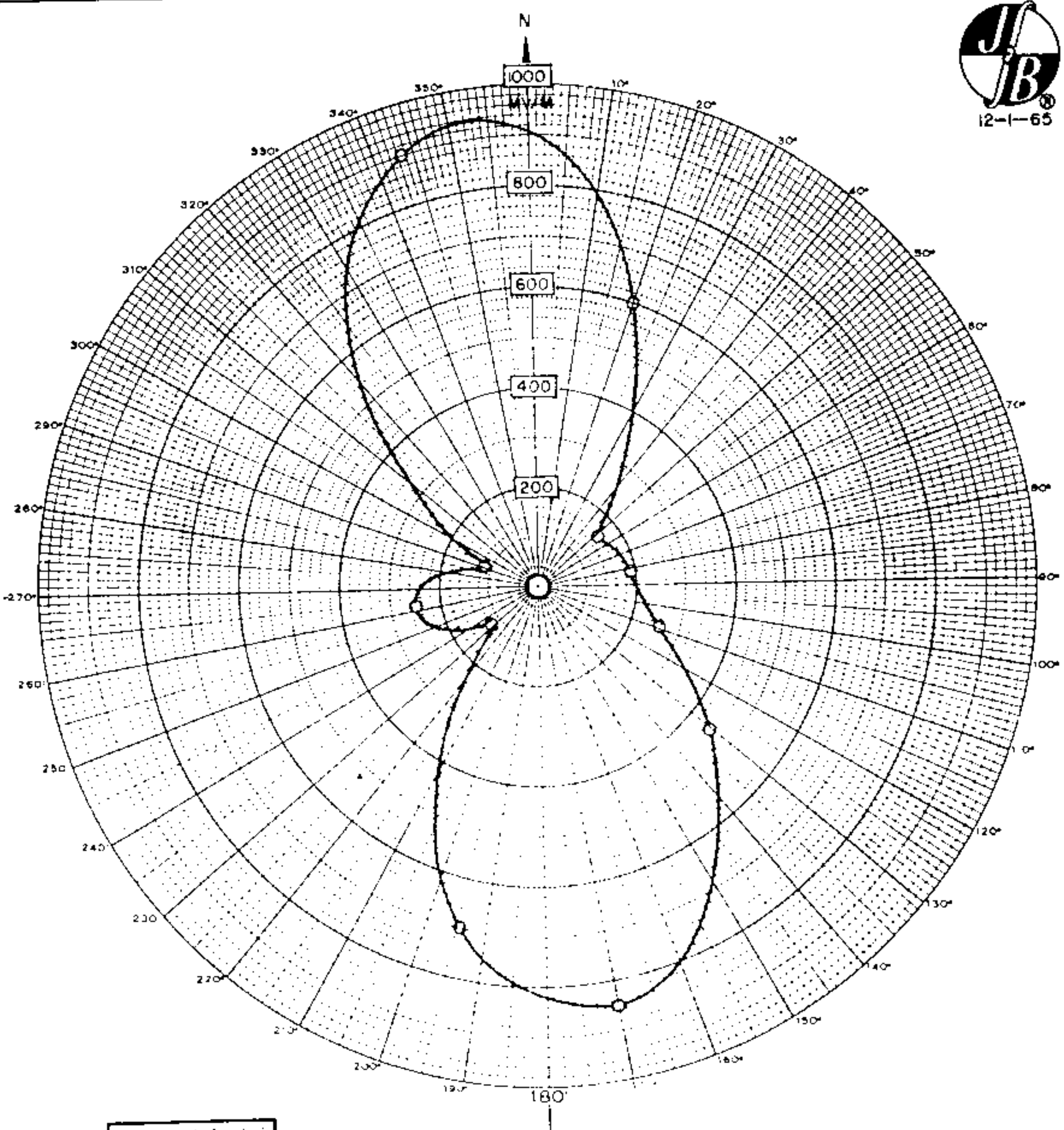
1330 kc

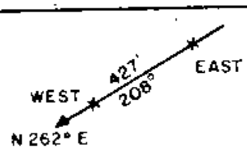
Measured Night
(7-28-66ct)

Station WEVD
New York, New York

5kw,DA-2,U
1330 kc

12-1-65





Night Theoretical Parameters

	West	East
Field Ratio	1.29	1.0
Phase	[illegible]°	0°

Night Operating Parameters

Loop Ratio	1.641	1.0
Base Ratio	[illegible].33	1.0
Phase	0°	+6

Pattern MS - 510 mv/m

FIG. 19
MEASURED DIRECTIONAL NIGHTIME HORIZONTAL RADIATION PATTERN

WEVD 1330KC 5KW DA-2

DEBS MEMORIAL RADIO FUND, INC
NEW YORK, NEW YORK

FCC File No.BZ-6057
Accepted 7-22-66

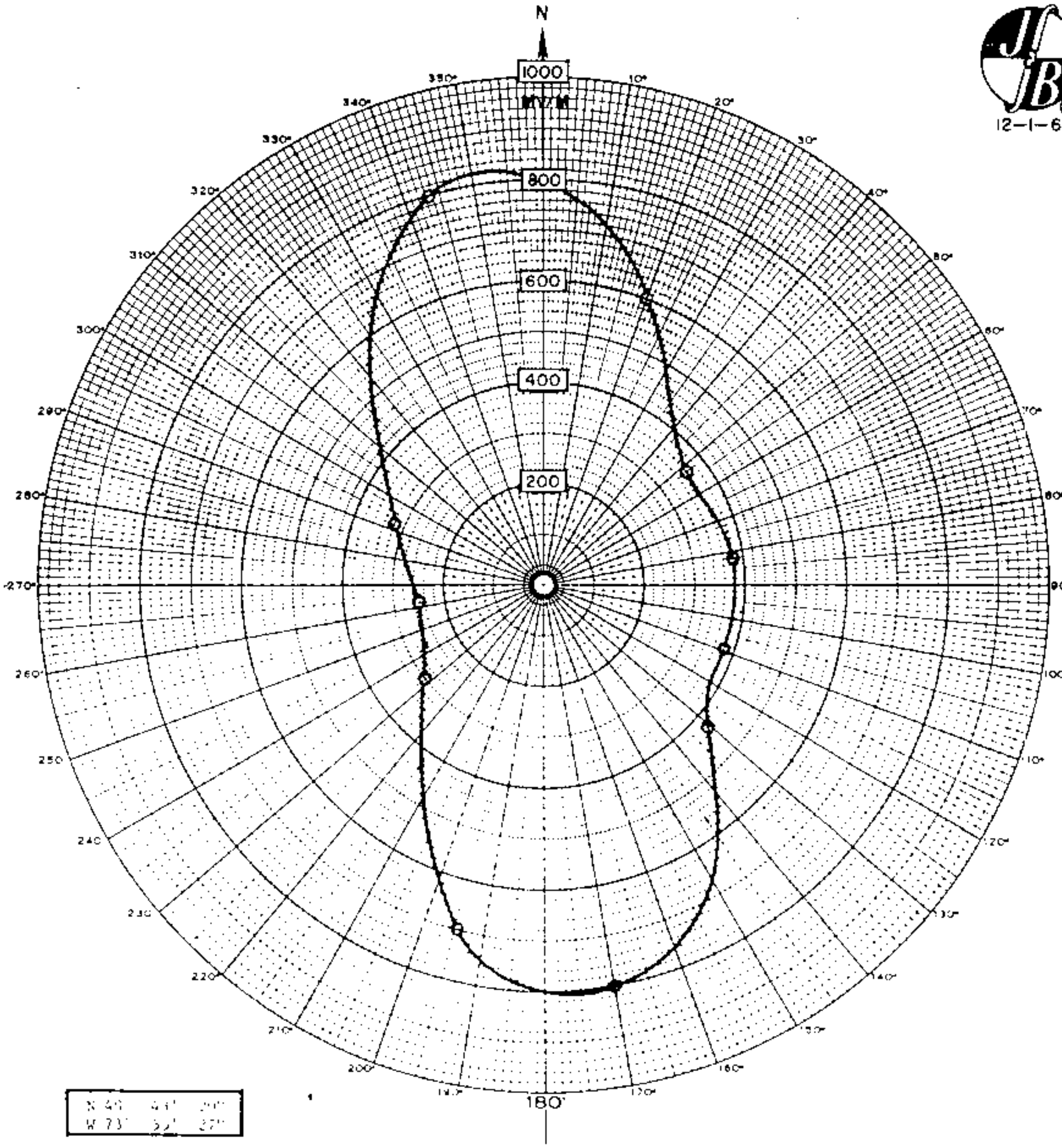
WEVD

Measured Day
(7-28-66ct)

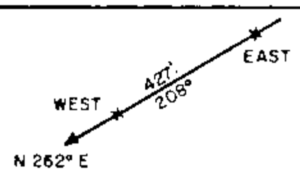
Station WEVD
New York, New York

5kw,DA-2,U
1330 kc

12-1-65



N 40°	44'	20"
W 73°	52'	27"



Day Theoretical Parameters

	West	East
Field Ratio	2.26	1.0
Phase	0°	0°

Day Operating Parameters

Loop Ratio	0.923	1.0
Base Ratio	0.758	1.0
Phase	0°	+12°

Pattern RMS = 524 mv/m

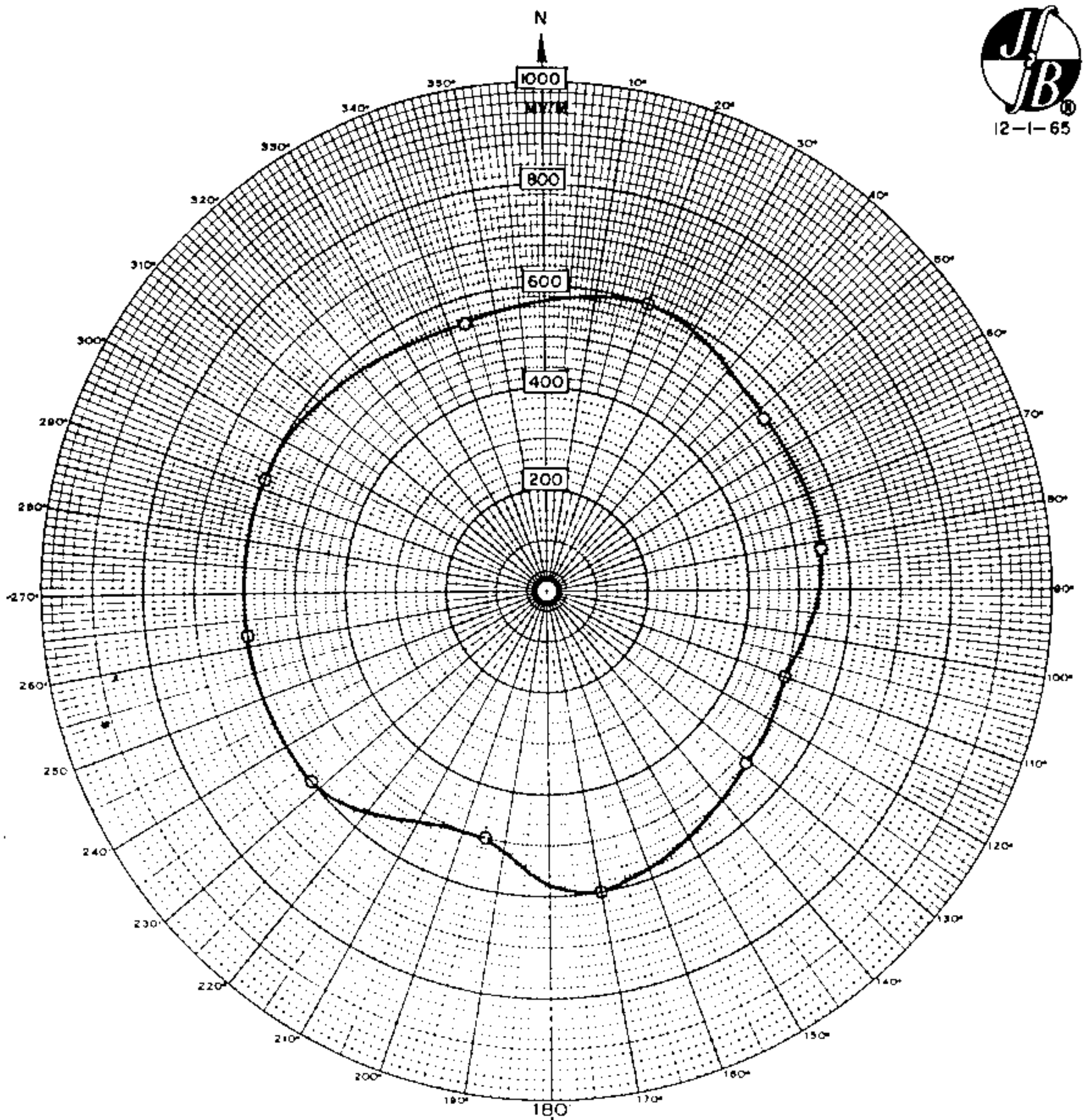
FIG. 18
MEASURED DIRECTIONAL DAYTIME HORIZONTAL RADIATION PATTERN

WEVD 1330 KC 5KW DA-2

DEBS MEMORIAL RADIO FUND, INC
NEW YORK, NEW YORK

WEVD

Measured Non-DA (7-28-66ct)	Station WEVD New York, New York	5kw,DA-2,U 1330 kc



N 40° 43' 20"
W 73° 55' 27"

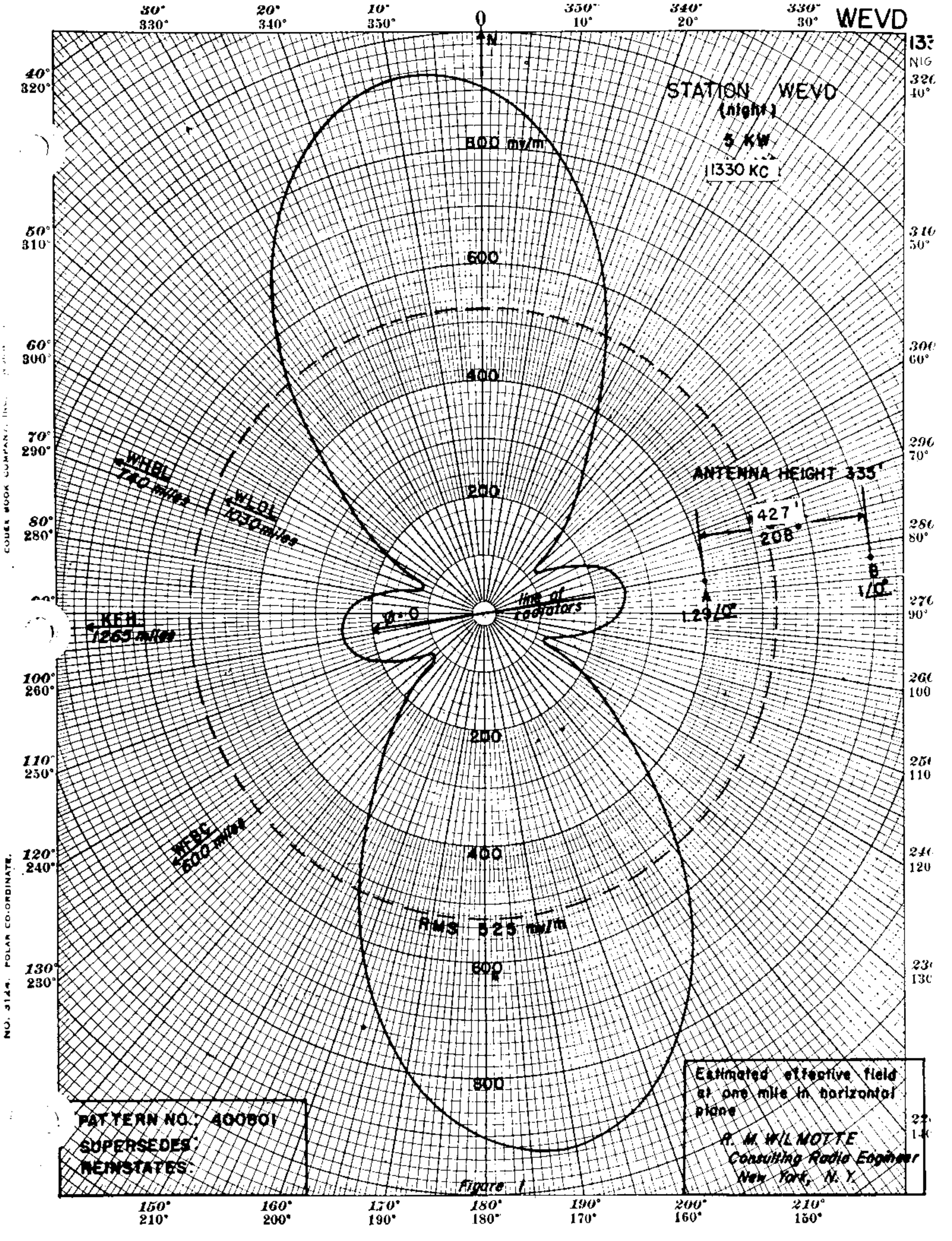
Pattern RMS = 564 mv/m

FIG.17
MEASURED NONDIRECTIONAL
RADIATION PATTERN

WEVD 1330 KC 5KW DA-2

DEBS MEMORIAL RADIO FUND, INC
NEW YORK, NEW YORK

FCC File No. BZ-6057 Accepted 7-22-66	Station WEVD New York, New York	1330 kc



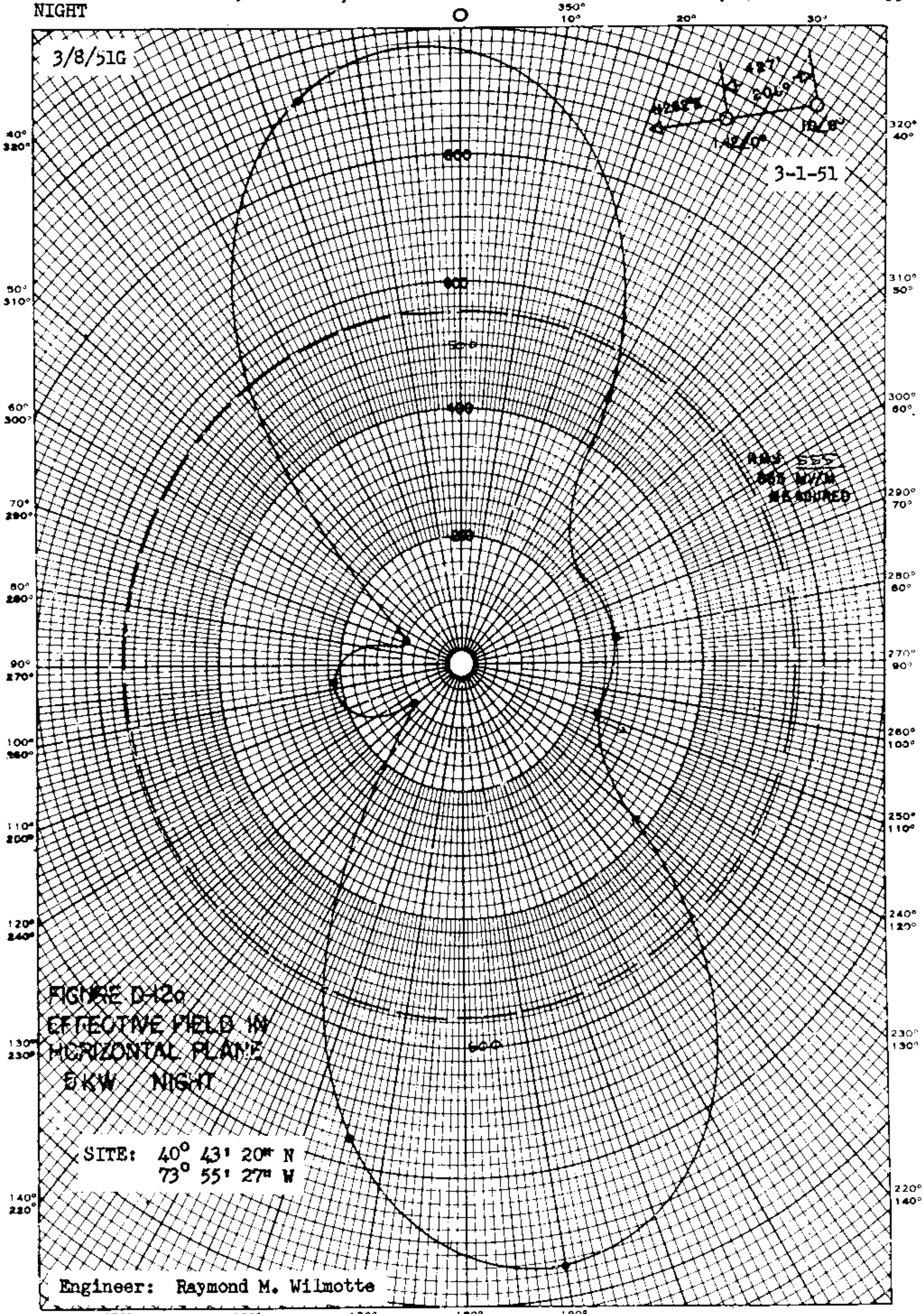
WEVD
STATION WEVD
(night)
5 KW
1330 KC
800 mv/m
600
400
200
ANTENNA HEIGHT 333'
427'
208°
1.29/0°
1/0°
line of radiators
KEHL 1265 miles
WHBL 740 miles
WLOL 1030 miles
WEBC 600 miles
RMS 525 mv/m
PATTERN NO.: 400801
SUPERSEDES:
REINSTATES:
Estimated effective field at one mile in horizontal plane
R. M. WILMOTTE
Consulting Radio Engineer
New York, N. Y.

Figure 1

WEVD

MEASURED
NIGHT

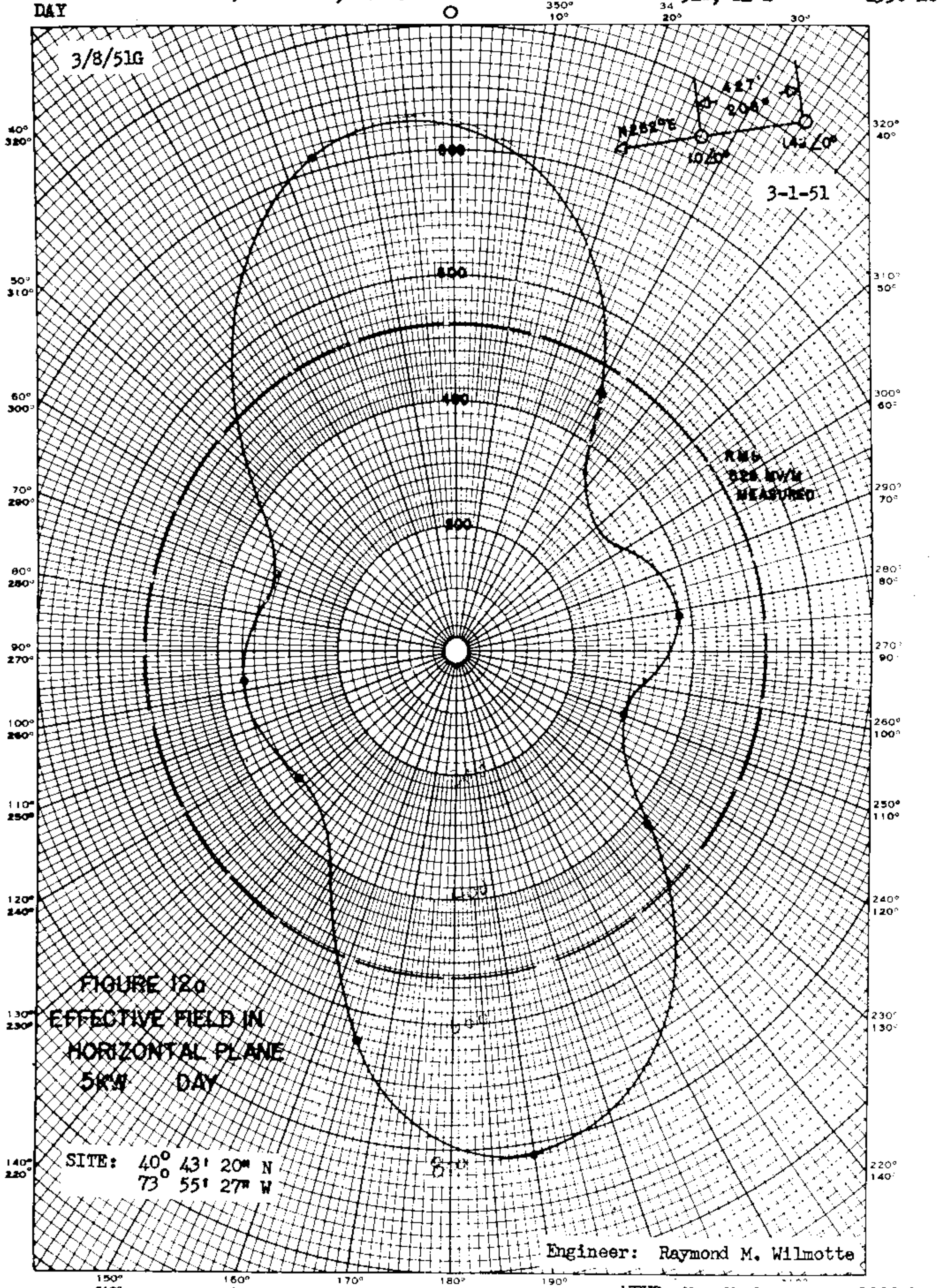
WEVD, NEW YORK, N. Y. 5kw, DA-2 1330 kc



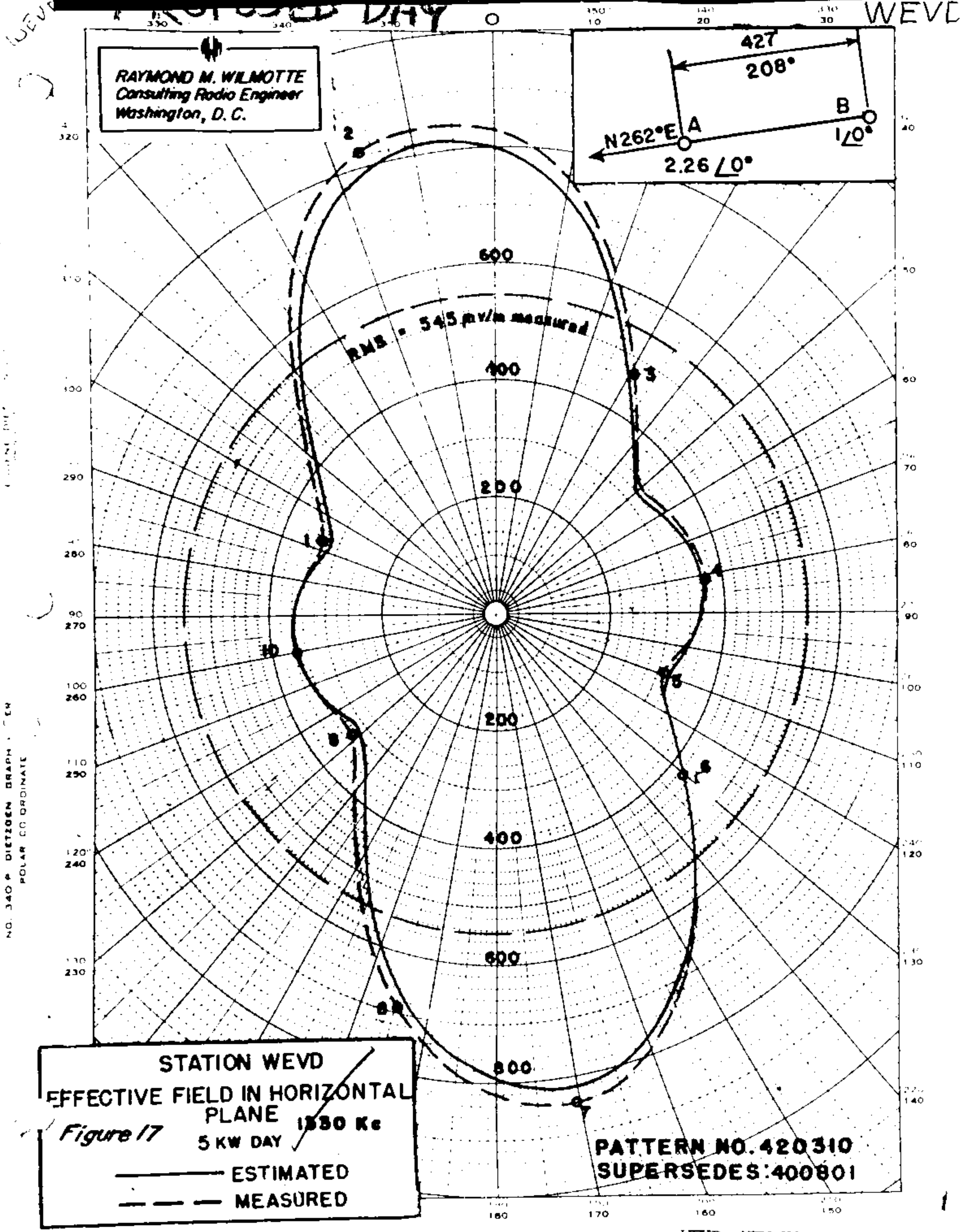
WEVD, New York, N. Y. 1330 kc

WEVD

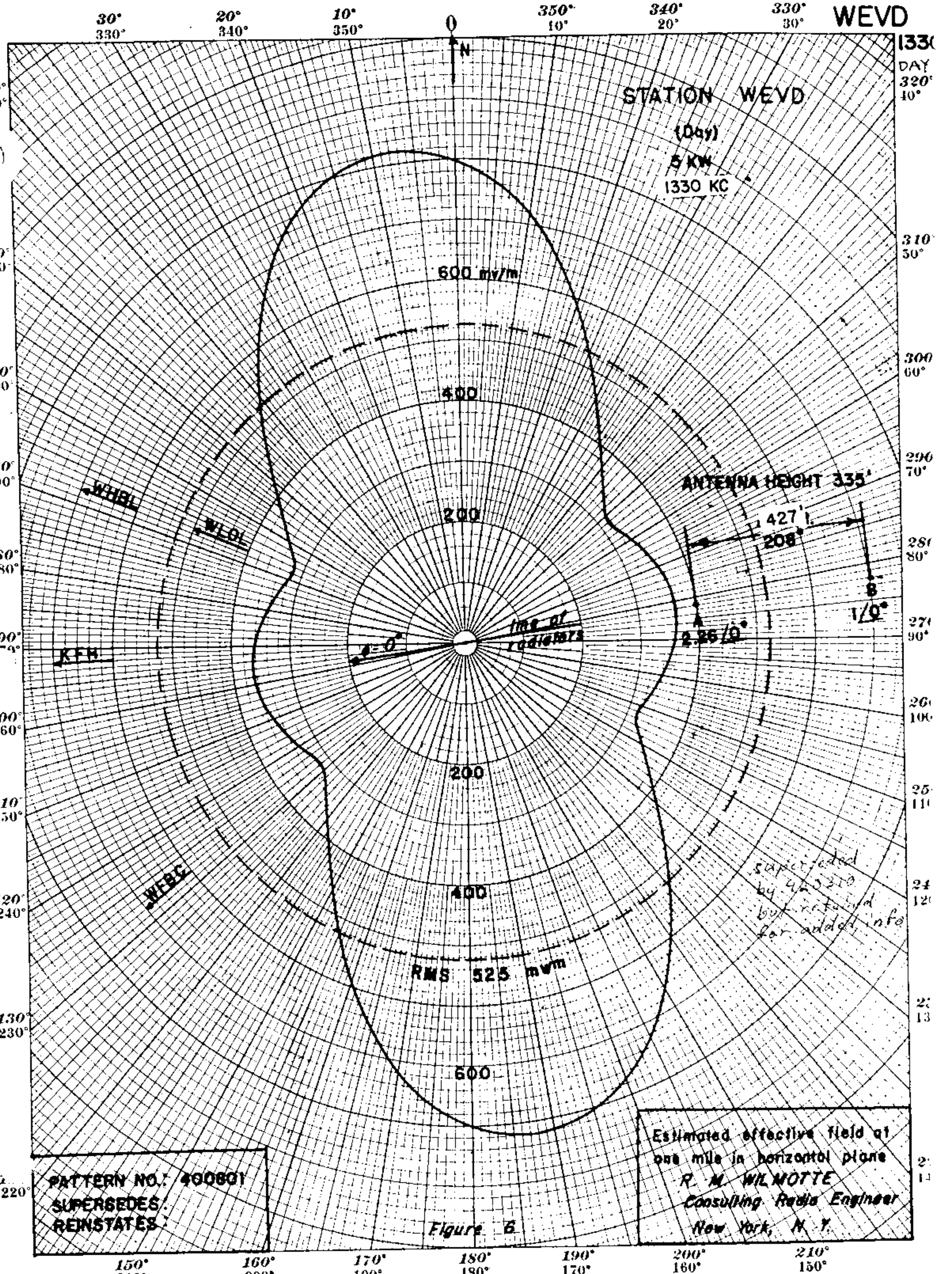
MEASURED DAY — WEVD, NEW YORK, N. Y. — 5kw, DA-2 — 1330 kc



PROPOSED DAY Station WEVD 5kw, DA-2,U
New York, New York 1330 KC



WEVD, NEW YORK, NY 1330 kc


WEVD
1330
DAY
STATION WEVD
(Day)
5 KW
1330 KC
N
600 mv/m
400
200
200
400
600
RMS 525 mv/m
ANTENNA HEIGHT 335'
427'
208°
2.26/0°
1/0°
line of radiators
WHBL
WLOL
KFH
WFBG
PATTERN NO.: 400601
SUPERSEDES:
REINSTATES:
Estimated effective field at one mile in horizontal plane
R. M. WILMOTTE
Consulting Radio Engineer
New York, N. Y.
superseded by 420320 but retained for added info
CODEX BOOK COMPANY, INC.
NO. 3124. POLAR COORDINATE.
Figure 6

WFBC

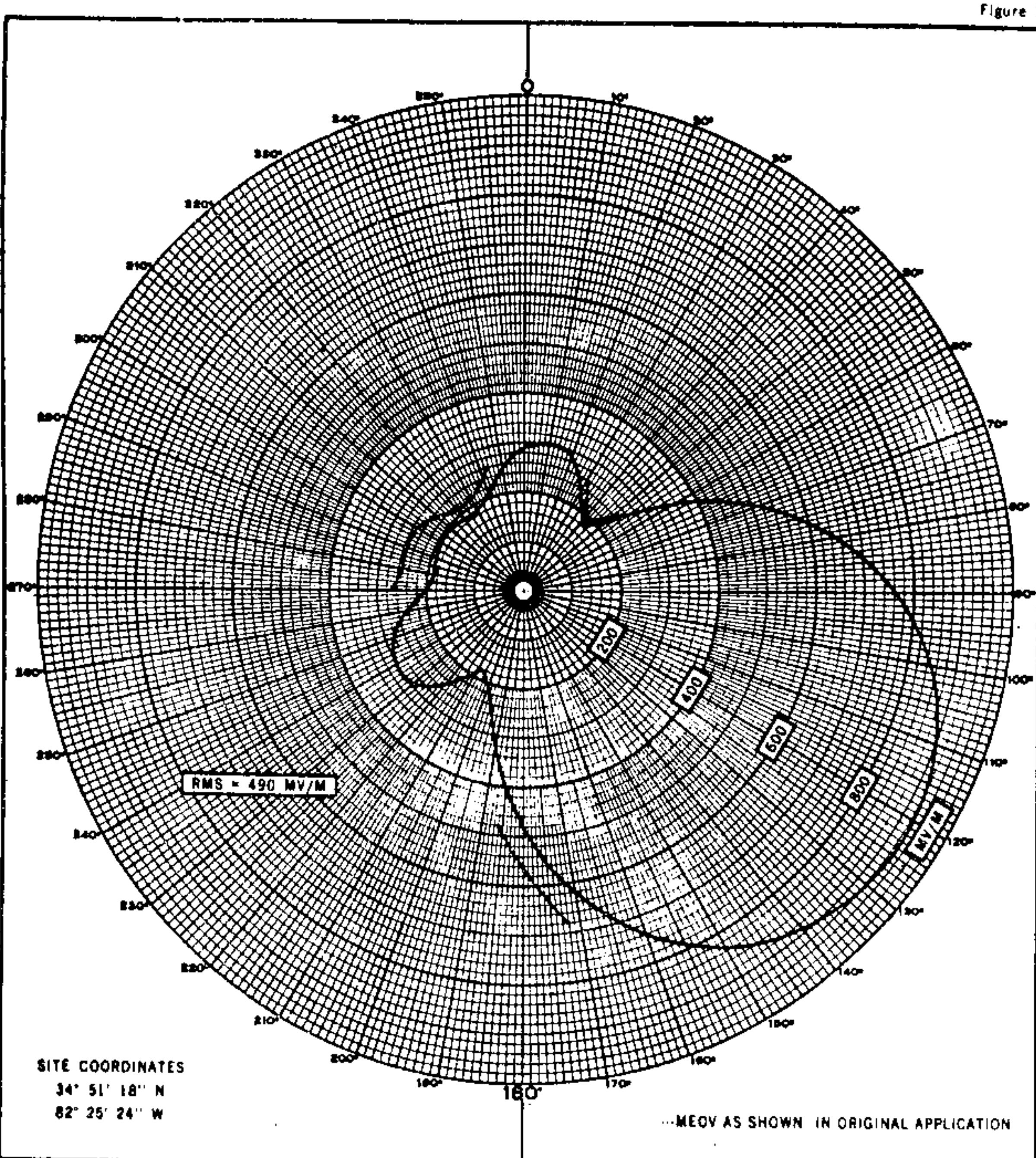
Proposed Night
(5-27-65ct)

Station WFBC
Greenville, South Carolina

5kw,DA-N,U
1330 kc

CP 5-19-65
CHG. LOC.

Figure 7



THEORETICAL NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

304° T S = 90° =185' 0.7 /123° 1.0 /0° 0.7 /-165° Tower Heights Center = 378' NW & SE = 200'	SOUTHEASTERN BROADCASTING CORPORATION GREENVILLE, SOUTH CAROLINA Jules Cohen & Associates Consulting Electronics Engineers	RADIO STATION WFBC 1330 KC 5.0 KW U DA-N MARCH, 1965

FCC File No. BP-16484
Accepted 5-7-65

Station WFBC
Greenville, South Carolina

1330 kc

WFBC

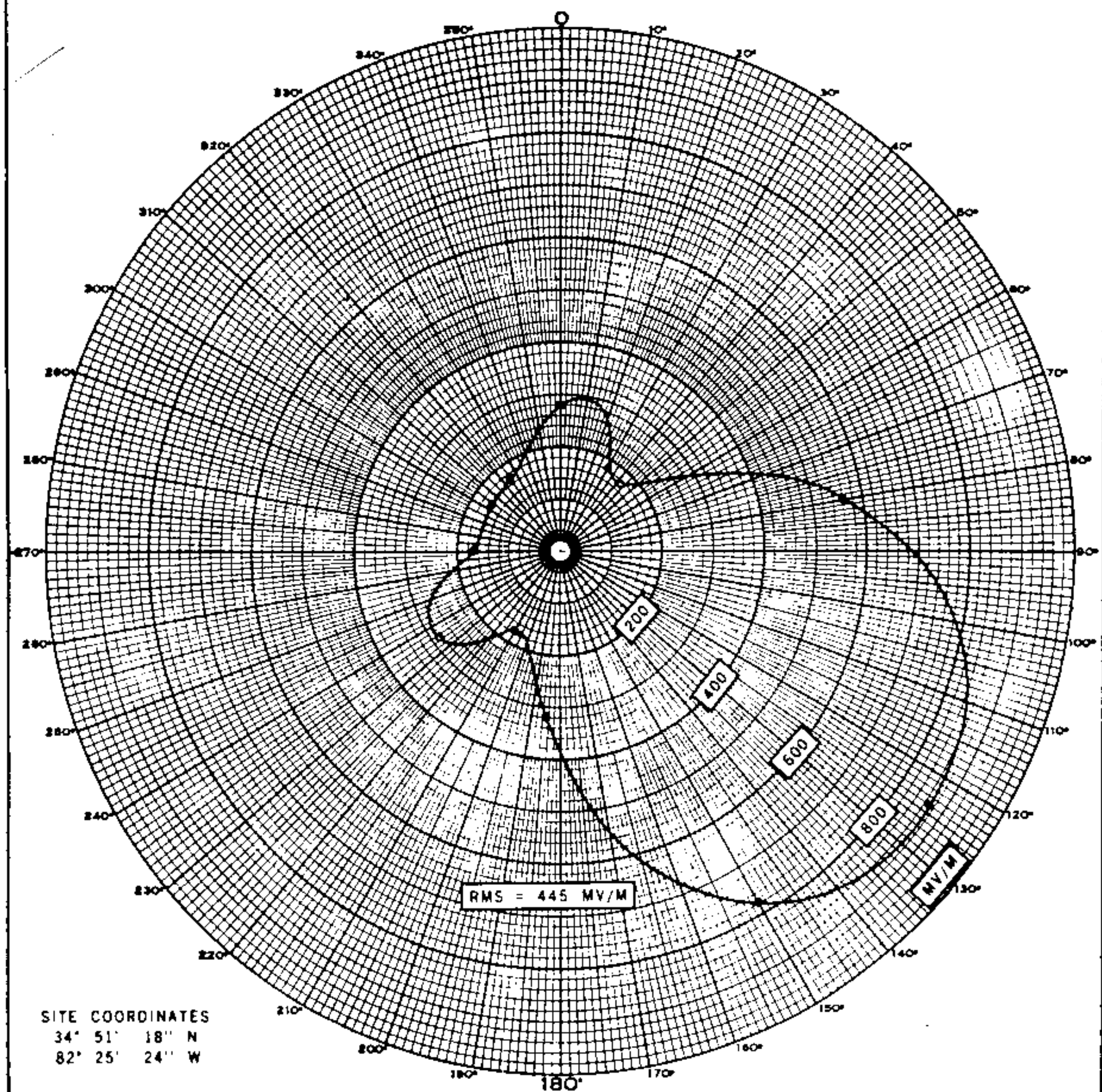
Measured Night
(1-30-67ct)

Station WFBC
Greenville, South Carolina

5kw,DA-N,U
1330 kc

BL-11482
GRANTED
LICENSE
4-5-67

Figure 10



SITE COORDINATES
34° 51' 18" N
82° 25' 24" W

MEASURED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

304° True

0.7/123° (1) S 1.0/0° (2) S 0.7/-165° (3)

Tower Heights
Center = 378'
NW & SE = 200'
S = 185'

SOUTHEASTERN
BROADCASTING CORPORATION
GREENVILLE, SOUTH CAROLINA

Jules Cohen & Associates
Consulting Electronics Engineers

RADIO STATION WFBC

1330 KC/S

5.0 KW U DA-N

SEPTEMBER 1966

FCC File No.BL-11482
Accepted 12-14-66

Station WFBC
Greenville, South Carolina

1330 kc

WFBC

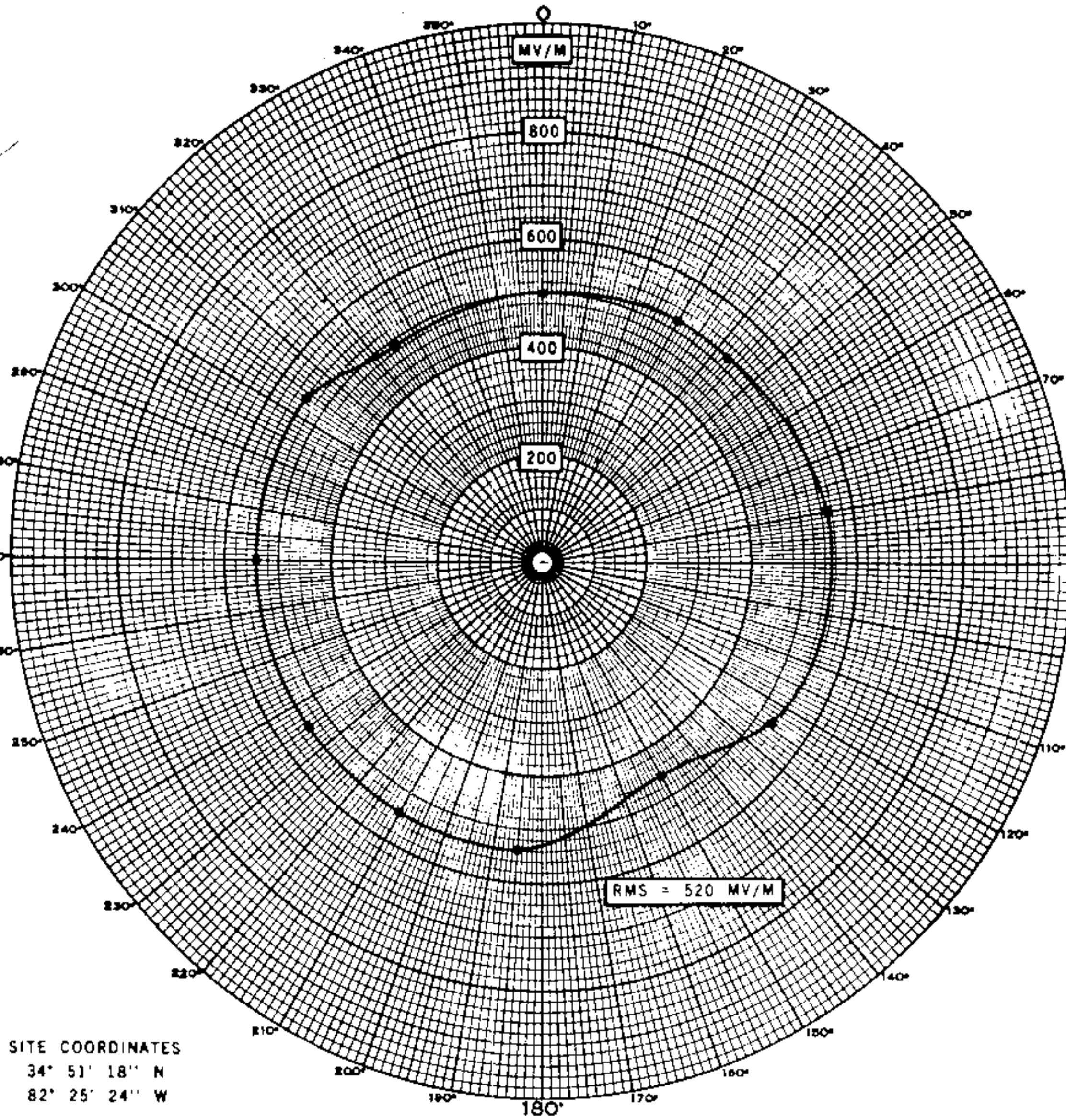
Measured Non-DA
(1-30-67ct)

Station WFBC
Greenville, South Carolina

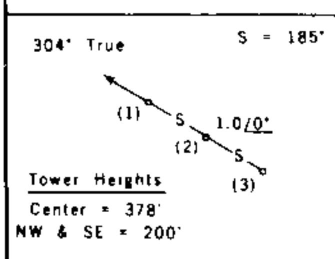
5kw,DA-N,U
1330 kc

BL-11482
GRANTED
LICENSE
4-5-67

Figure 8



MEASURED NONDIRECTIONAL HORIZONTAL PLANE RADIATION PATTERN



SOUTHEASTERN
BROADCASTING CORPORATION
GREENVILLE, SOUTH CAROLINA

Jules Cohen & Associates
Consulting Electronics Engineers

RADIO STATION WFBC
1330 KC/S
5 KW U DA-N
SEPTEMBER 1966

FCC File No. BL-11482
Accepted 12-14-66

Station WFBC
Greenville, South Carolina

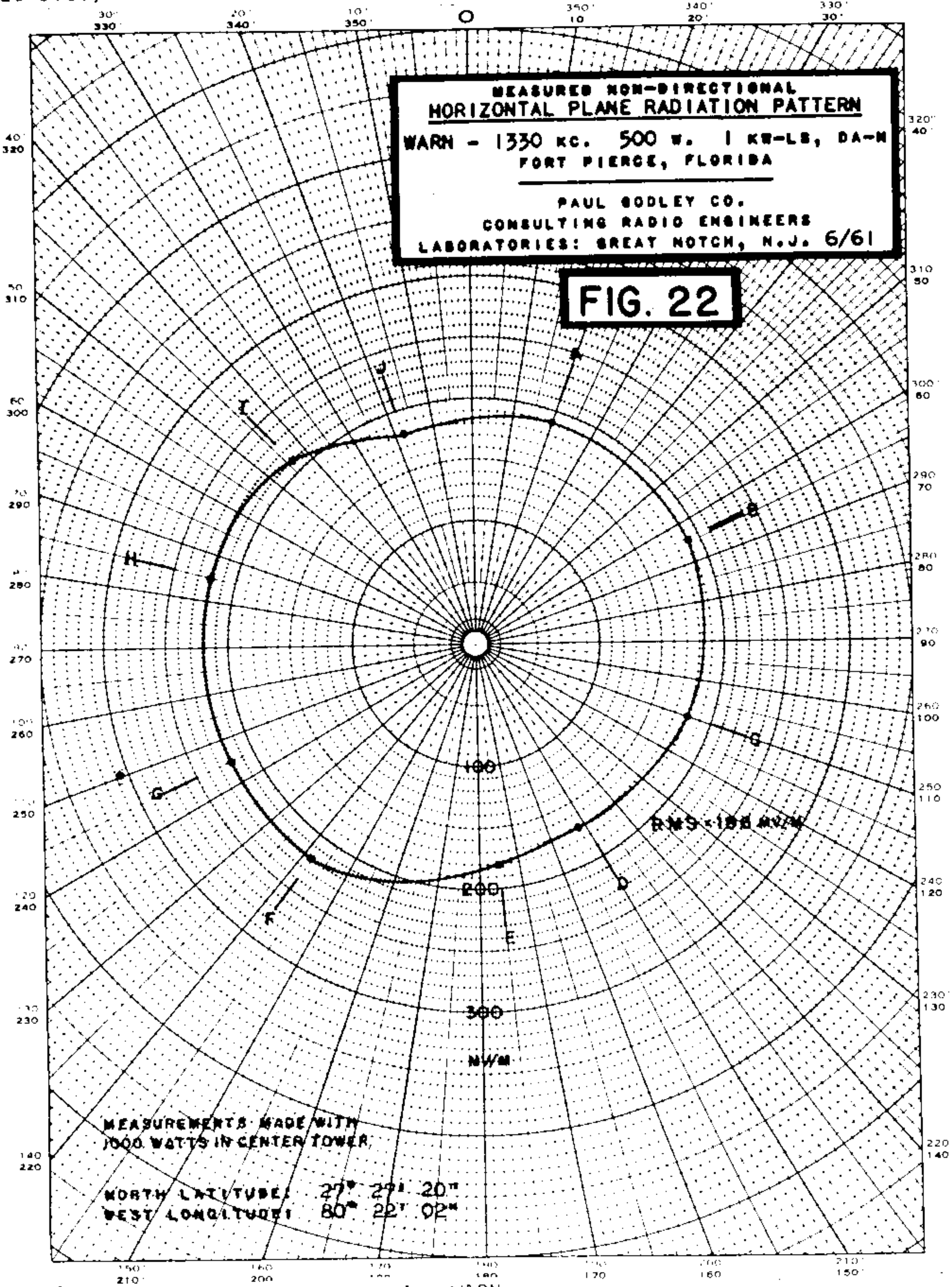
1330 kc

WFTP

MEASURED NON-DA
(9-20-61ct)

Station WARN
Fort Pierce, Florida

500w, 1kw-LS, DA-N, U
1330 kc



FCC File No. BL-8567
Accepted 8-18-61

Station WARN
Fort Pierce, Florida

1330 kc

WFTP

PROPOSED NIGHT
(1-17-61g)

Station WARN
Fort Pierce, Florida

500w, 1kw-LS, DA-N,U
1330 KC

1-31-61 granted MCP to make changes in DA pattern.

11-2-60 granted CP to operate limited time with DA-N

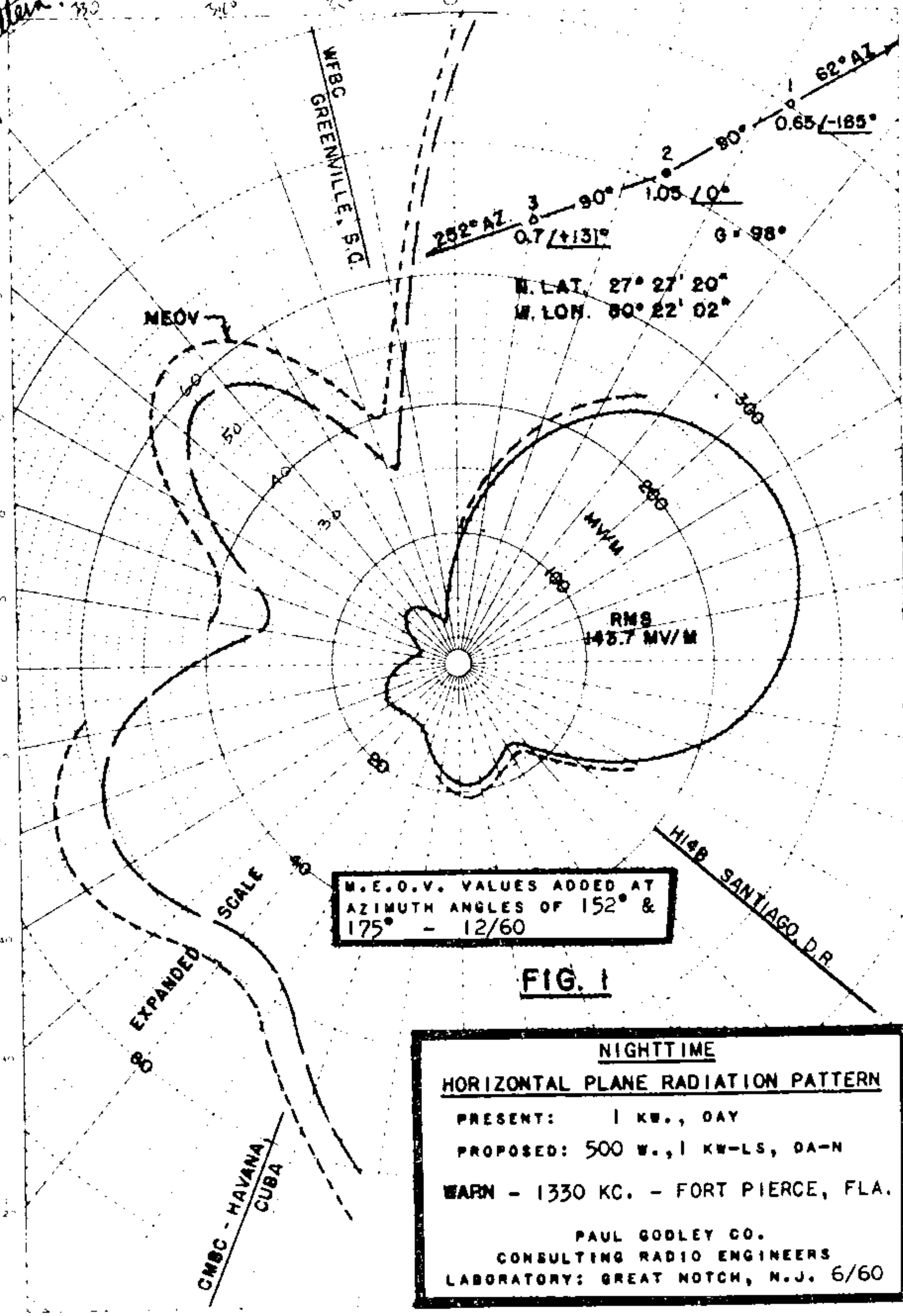


FIG. 1

NIGHTTIME

HORIZONTAL PLANE RADIATION PATTERN

PRESENT: 1 KW., DAY

PROPOSED: 500 W., 1 KW-LS, DA-N

WARN - 1330 KC. - FORT PIERCE, FLA.

PAUL GODLEY CO.
CONSULTING RADIO ENGINEERS
LABORATORY: GREAT NOTCH, N.J. 6/60

FCC File No. BMP-9257
Accepted 1-16-61

WARN
Fort Pierce, Florida

1330 KC

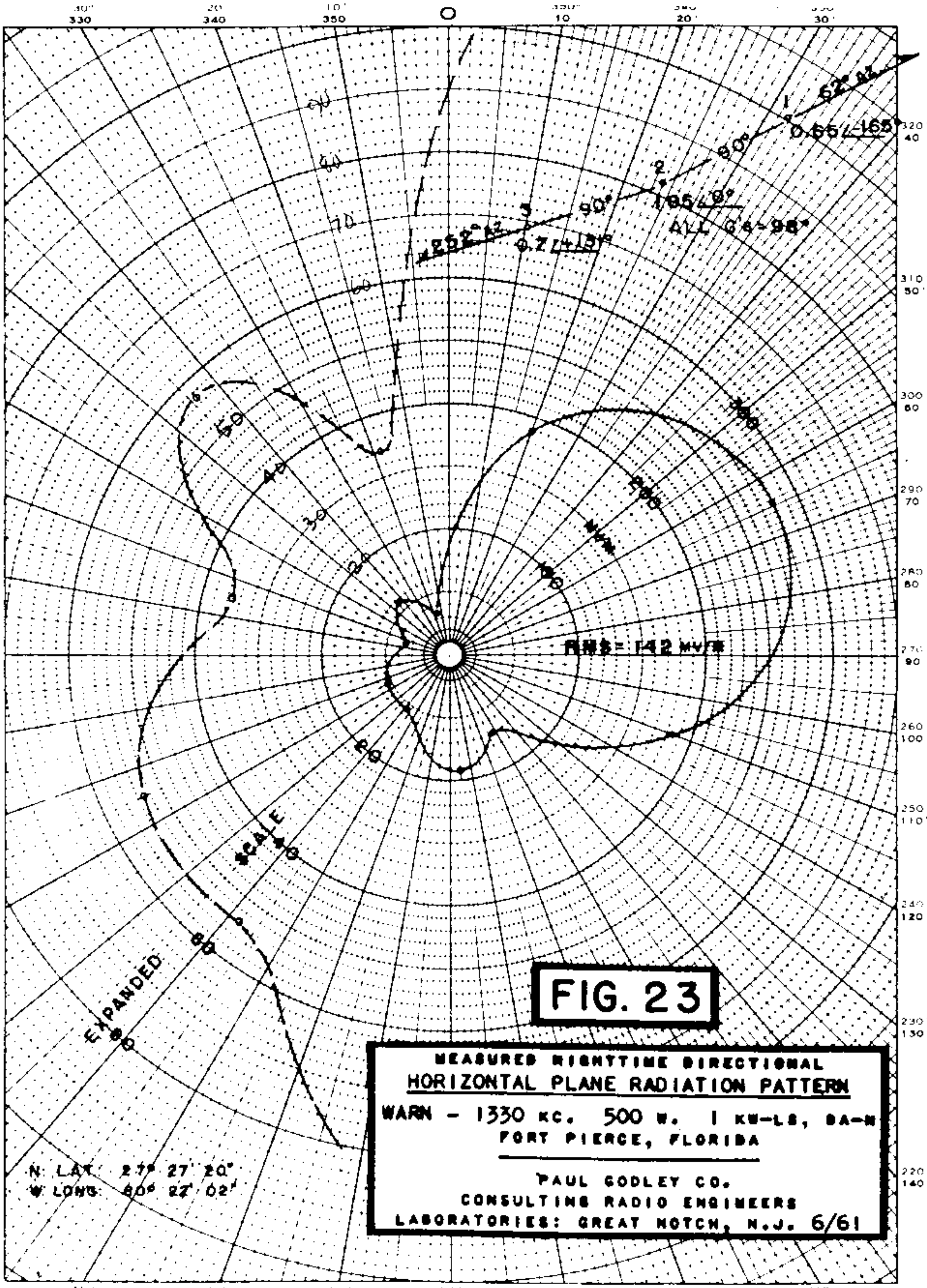
WFTP

MEASURED NIGHT
(9-20-61ct)

Station WARN
Fort Pierce, Florida

500w,1kw-LS,DA-N,U
1330 kc

98° = 201ft,



FCC File No. BL-8567
Accepted 8-18-61

Station WARN
Fort Pierce, Florida

1330 kc

WHBL

PROPOSED NIGHT
(10-25-61ct)

Station WHBL
Sheboygan, Wisconsin

1kw,5kw-LS,DA-2,U
1330 kc

3-13-63
granted increase
w power + DA-2

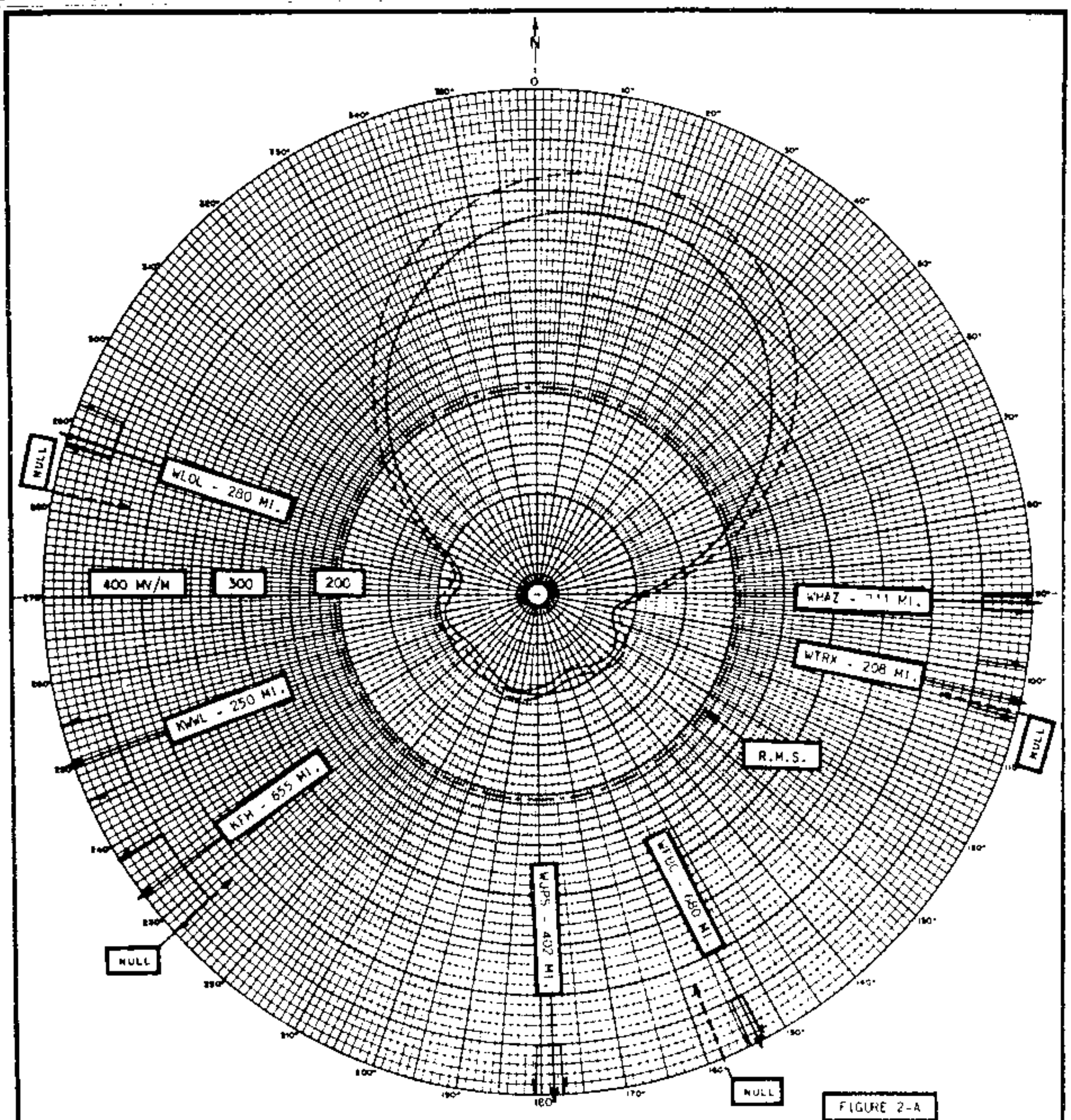
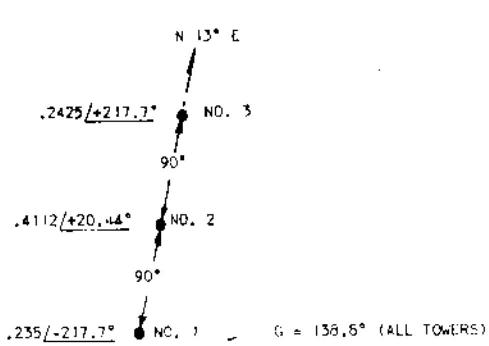


FIGURE 2-A

HORIZONTAL RADIATION PATTERN

SPACING AND ORIENTATION



APPLICANT	WHBL, INC.
LOCATION	SHEBOYGAN, WIS.
FREQUENCY	1330 KC/S
POWER	5 KW-LS, 1 KW-N (DA-2)
LATITUDE	43 DEG 43 MIN 13.9SEC.
LONGITUDE	87 DEG 44 MIN 03.9SEC.
WHEN USED	NIGHTTIME
R.M.S. FIELD	205 MV/M
DATE	JULY 1961

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

FCC File No. BP-15069
Accepted 9-18-61

Station WHBL
Sheboygan, Wisconsin

1330 kc

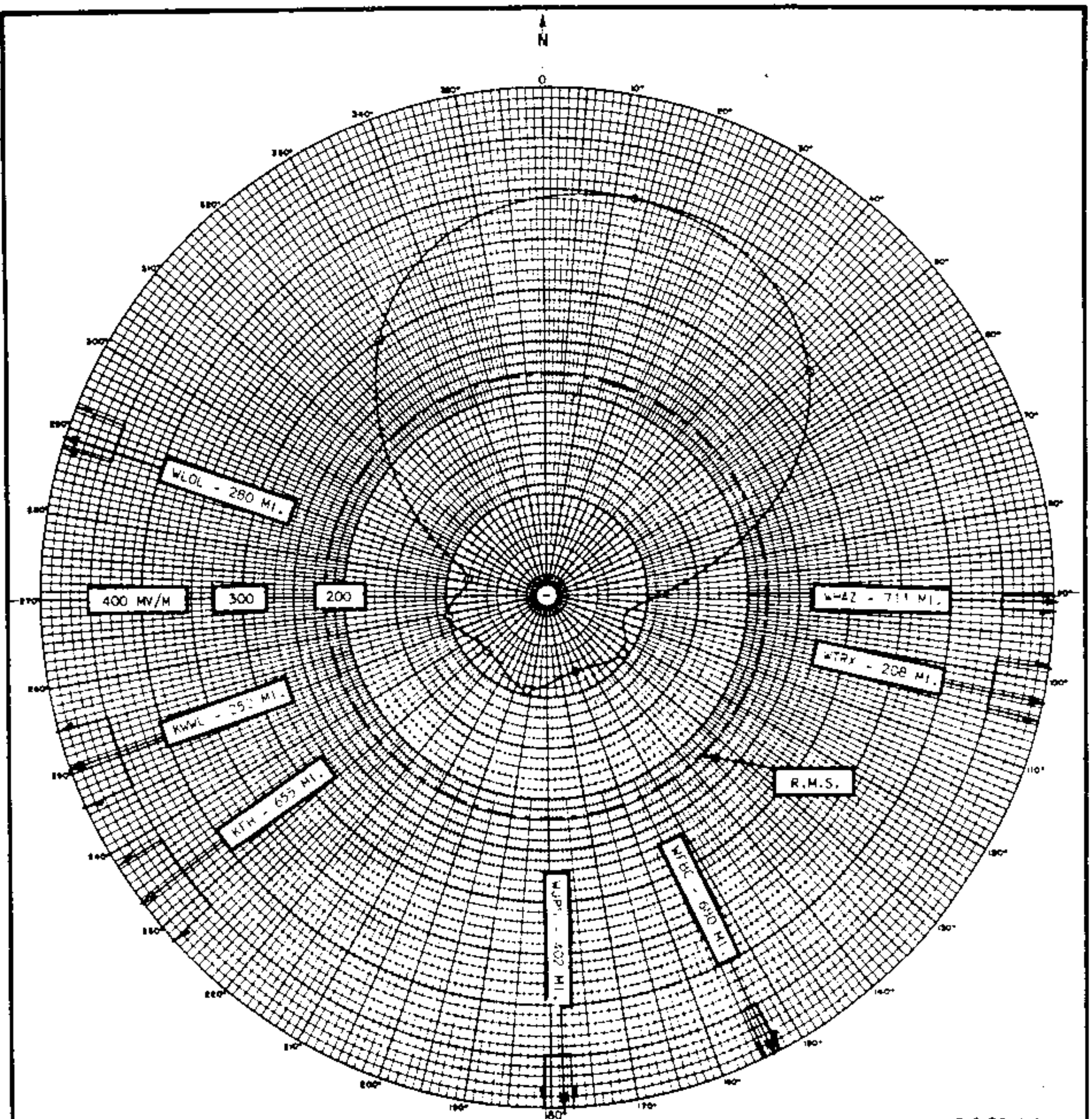
WHBL

Measured Night
(4-24-64ct)

Station WHBL
Sheboygan, Wisconsin

1kw,5kw-LS,DA-2,U
1330 kc

7/4/64
4.1% increase
pending install
DA-2

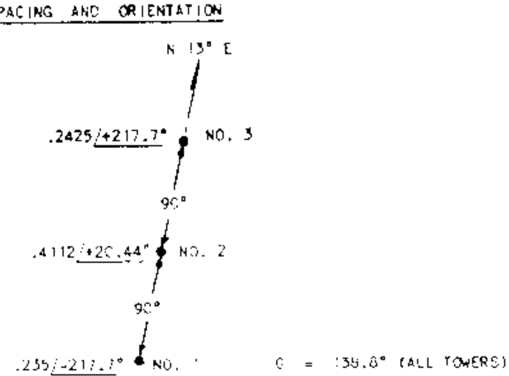


O MEASURED RADIAL VALUES

FIGURE 1-A

HORIZONTAL RADIATION PATTERN

SPACING AND ORIENTATION



G = 138.8° (ALL TOWERS)

APPLICANT :	WHBL, INC.
LOCATION	SHEBOYGAN, WISCONSIN
FREQUENCY	1330 KC/S
POWER	5 KW-LS, 1 KW-N (DA-2)
LATITUDE :	43 DEG. 43 MIN. 13.9 SEC.
LONGITUDE :	87 DEG. 44 MIN. 03.9 SEC.
WHEN USED	NIGHTTIME
R.M.S. FIELD	218 MV/M (MEASURED)
DATE	JANUARY 1964

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

FCC File No. BL-10506
Accepted 4-10-64

Station WHBL
Sheboygan, Wisconsin

1330 kc

WHBL

PROPOSED DAY
(10-2?-61ct)

Station WHBL
Sheboygan, Wisconsin

1kw,5kw-LS,DA-2,U
1330 kc

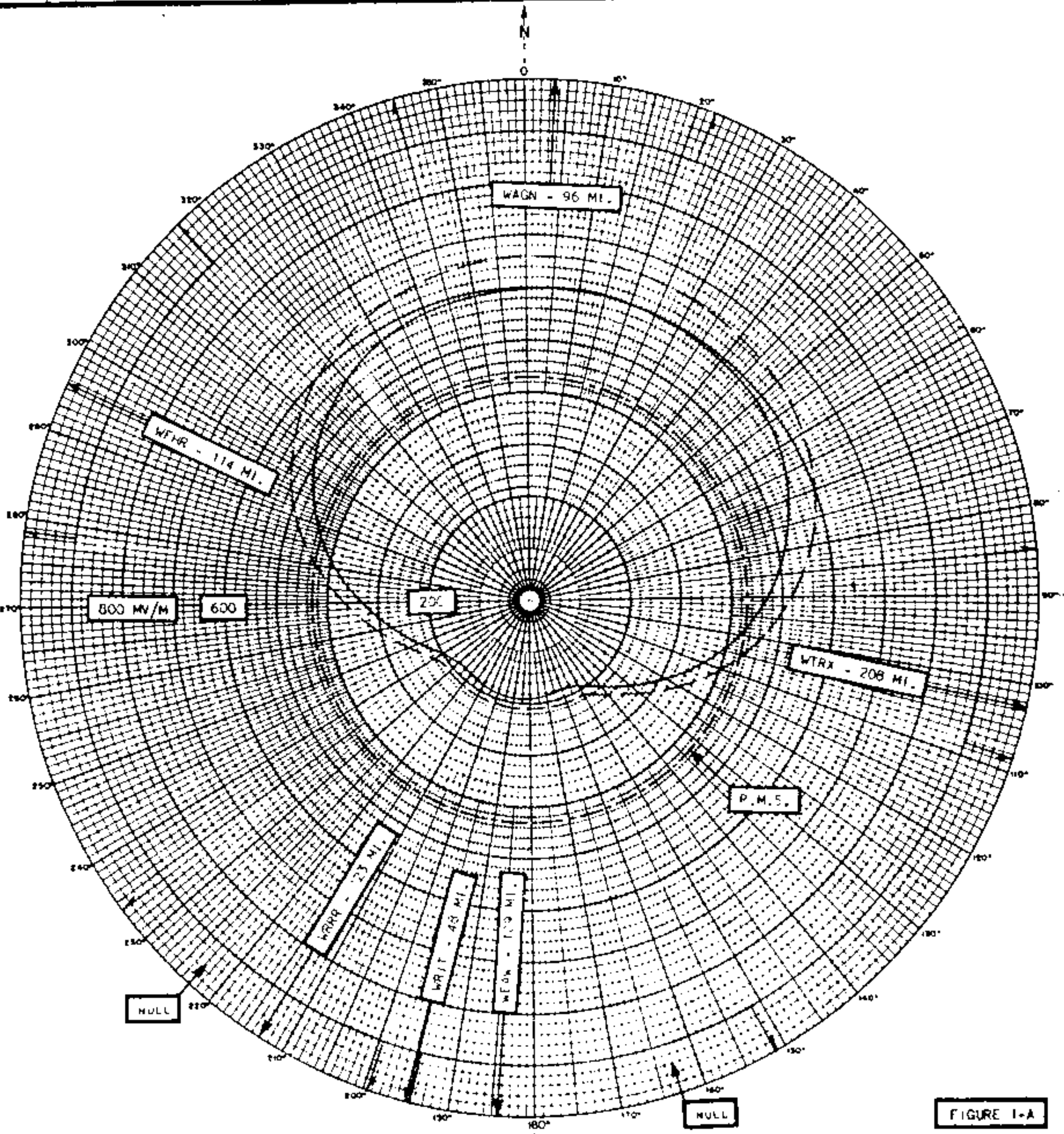
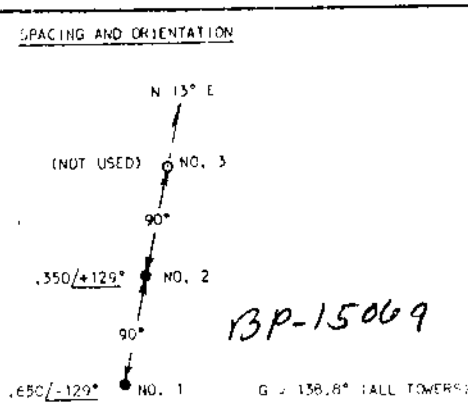


FIGURE 1-A

HORIZONTAL RADIATION PATTERN



BP-15069

APPLICANT :	WHBL, INC.
LOCATION :	SHEBOYGAN, WIS.
FREQUENCY	330 KC
POWER :	5 KW-LS, 1 KW-N (DA-2)
LATITUDE :	43 DEG 43 MIN 13.9 SEC.
LONGITUDE :	87 DEG 44 MIN 03.9 SEC.
WHEN USED:	DAYTIME
R M S FIELD:	429 MV/M
DATE :	JULY 1961

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

FCC File No. BP-15069
Accepted 9-18-61

Station WHBL
Sheboygan, Wisconsin

1330 kc

WHBL

Measured Day
(4-24-64ct)

Station WHBL
Sheboygan, Wisconsin

1kw,5kw-LS,DA-2,U
1330 kc

7/7/64
Ag to increase
power using instead
DA-2

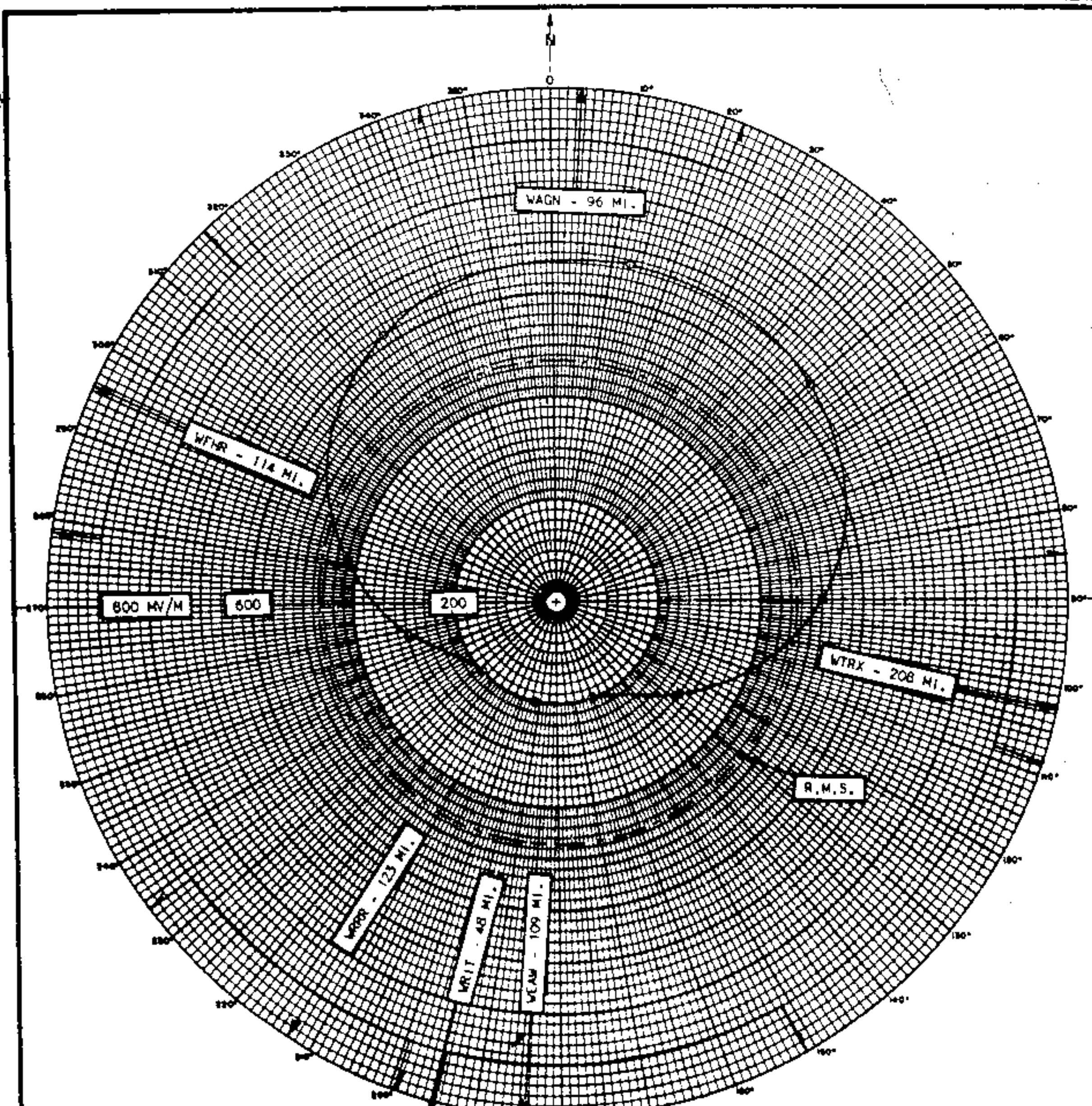
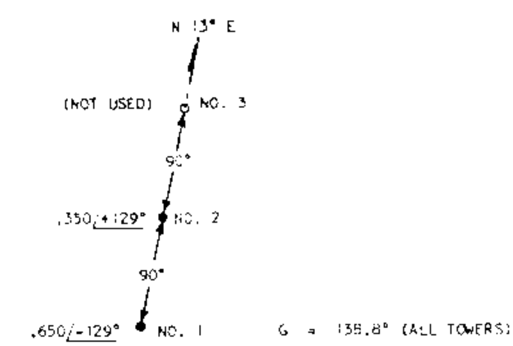


FIGURE 1-8

HORIZONTAL RADIATION PATTERN

SPACING AND ORIENTATION



APPLICANT :	WHBL, INC.
LOCATION :	SHEBOYGAN, WISCONSIN
FREQUENCY :	1330 KC/S
POWER :	5 KW-LS, 1 KW-N (DA-2)
LATITUDE :	43 DEG. 43 MIN. 13.9 SEC.
LONGITUDE :	87 DEG 44 MIN. 03.9 SEC.
WHEN USED	DAYTIME
RMS FIELD	471 MV/M (MEASURED)
DATE	JANUARY 1964

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

FCC File No. BL-10506
Accepted 4-10-64

Station WHBL
Sheboygan, Wisconsin

1330 kc

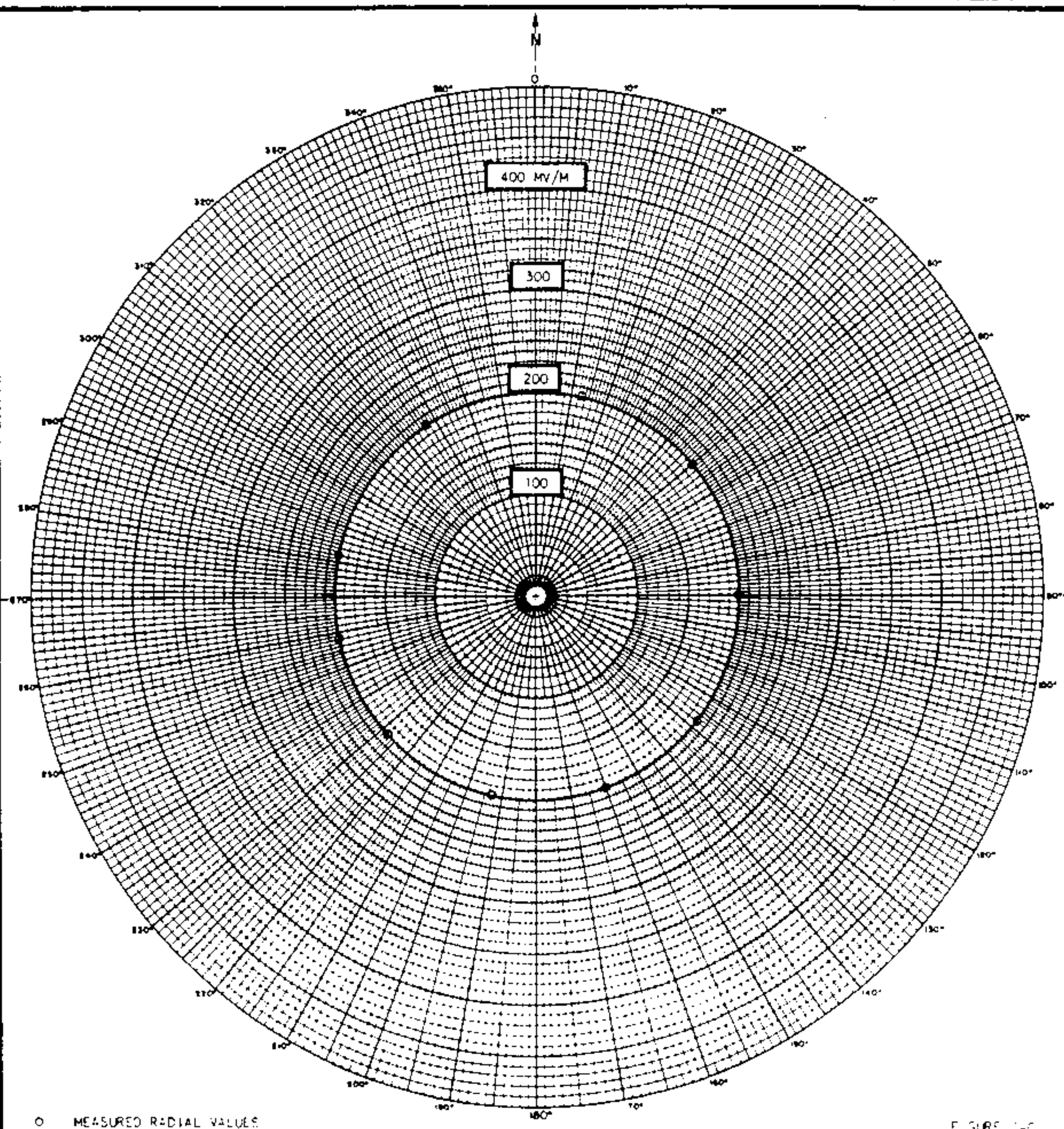
WHBL

Measured Non-DA
(4-24-64ct)

Station WHBL
Sheboygan, Wisconsin

1kw,5kw-LS,DA-2,U
1330 kc

7/9/64 CP to increase power & install DA-2.



O MEASURED RADIAL VALUES

FIGURE 1-C

HORIZONTAL RADIATION PATTERN

NON-DIRECTIONAL SURVEY

APPLICANT	WHBL, INC.
LOCATION	SHEBOYGAN, WISCONSIN
FREQUENCY	1330 KC/S
POWER	1 KW
LATITUDE	43 DEG 43 MIN 13.9 SEC.
LONGITUDE	87 DEG 44 MIN 03.9 SEC.
WHEN USED	NON-DIRECTIONAL SURVEY
RMS FIELD	200 MV/M (MEASURED)
DATE	JANUARY 1964

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

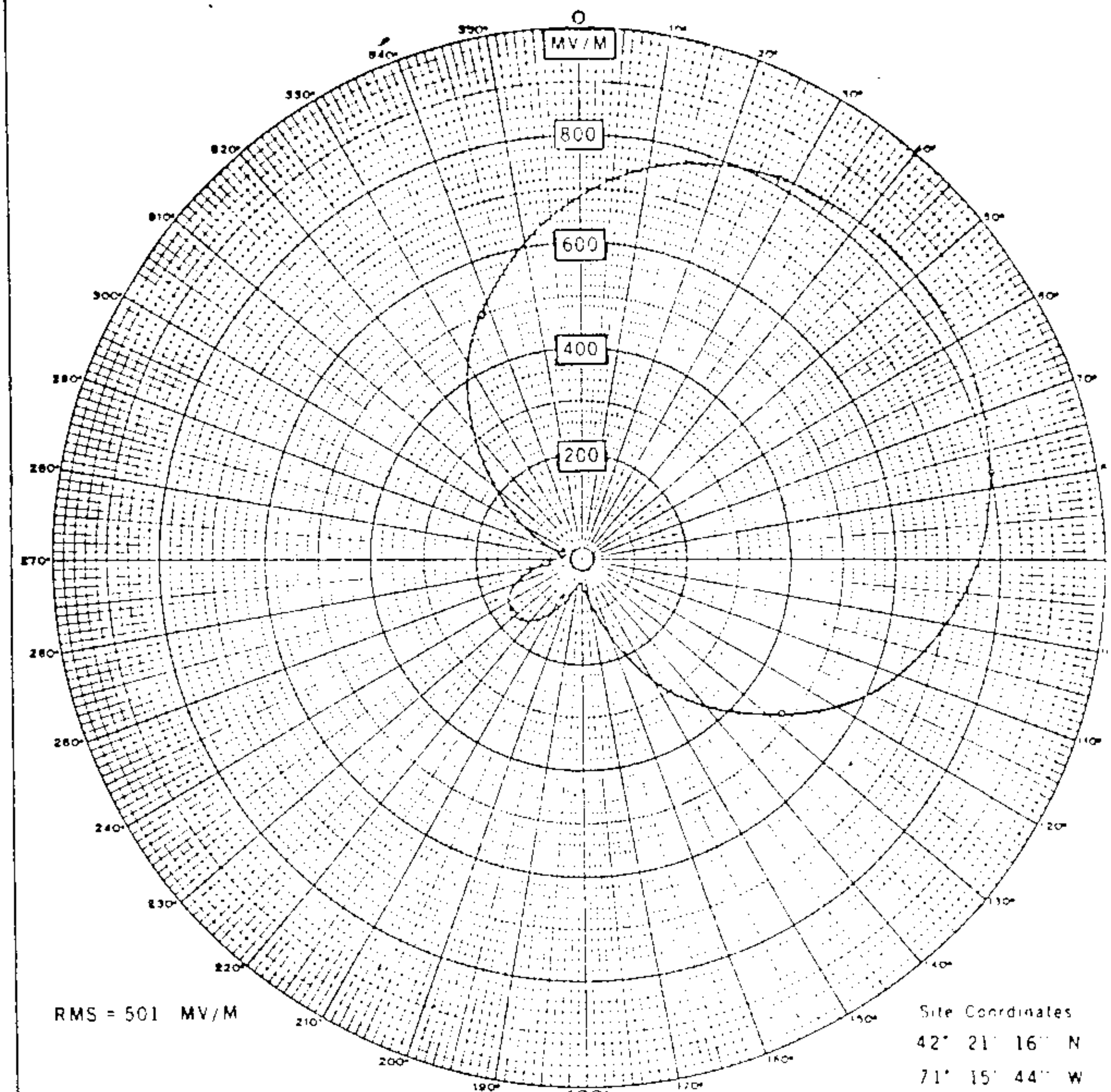
FCC File No. BL-10506
Accepted 4-10-64

Station WHBL
Sheboygan, Wisconsin

1330 kc

WDLW ~~WHET~~

Figure

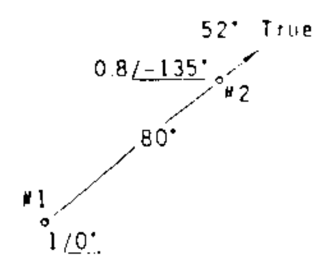


RMS = 501 MV/M

Site Coordinates
42° 21' 16" N
71° 15' 44" W

BL-14,408

MEASURED DAYTIME HORIZONTAL PLANE RADIATION PATTERN



G = 185° (145.9° + 39.1° T.L.)

WHET, INC

WALTHAM, MASSACHUSETTS

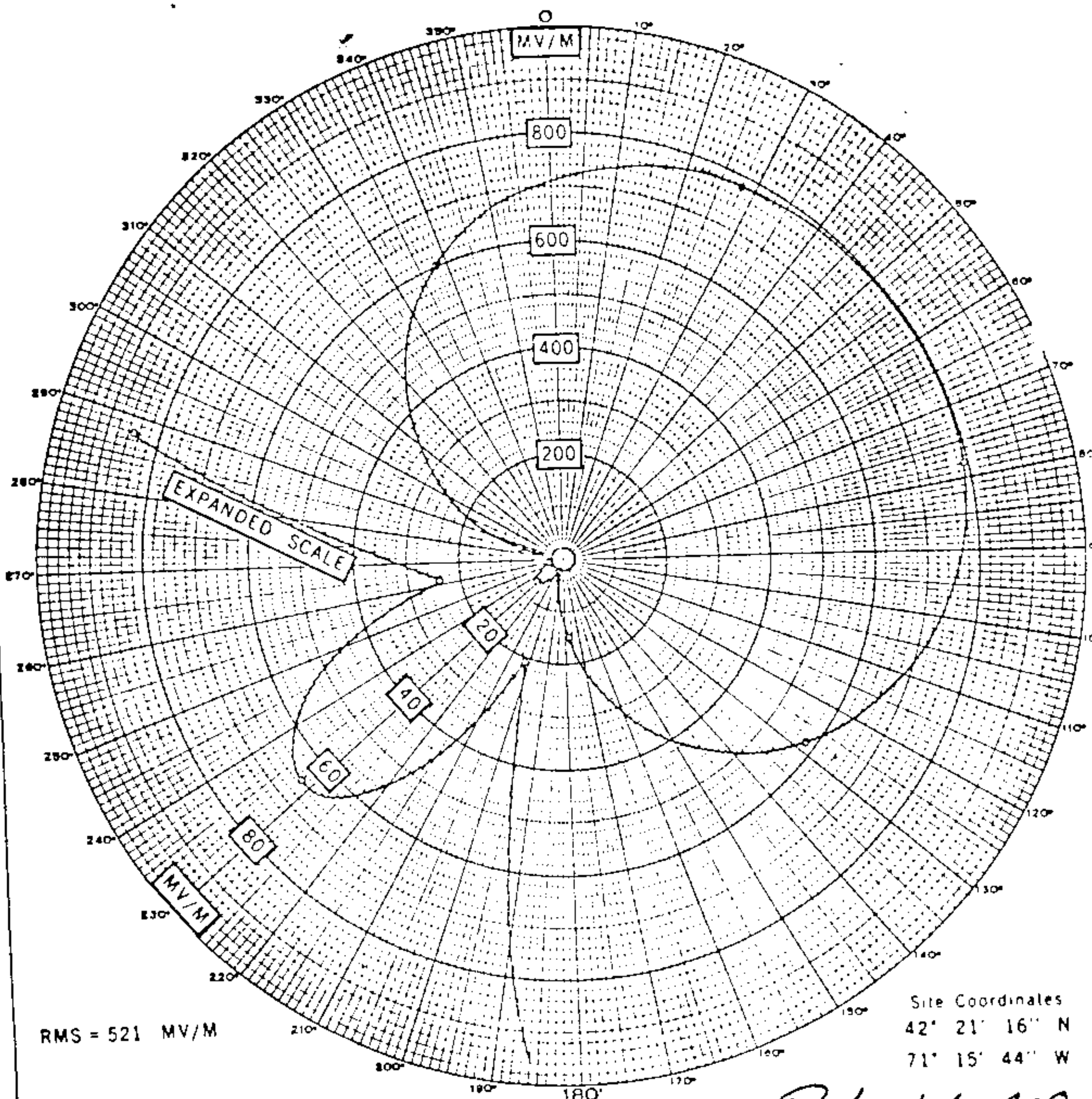
Jules Cohen & Associates
Consulting Electronic Engineers

RADIO STATION WHET
1330 KHZ
5 KW U DA 2

SEPTEMBER 1977

WDLW WHET

Figure



RMS = 521 MV/M

Site Coordinates
42° 21' 16" N
71° 15' 44" W

BL-14,408

MEASURED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

52° True 0.95/-110.5° #2 80° #1 1/0°	WHET, INC. WALTHAM, MASSACHUSETTS	RADIO STATION WHET 1330 KHZ 5 KW U DA-2
	Jules Cohen & Associates Consulting Electronics Engineers	SEPTEMBER 1977

C = 185° (145.9° + 39.1° T.L.)

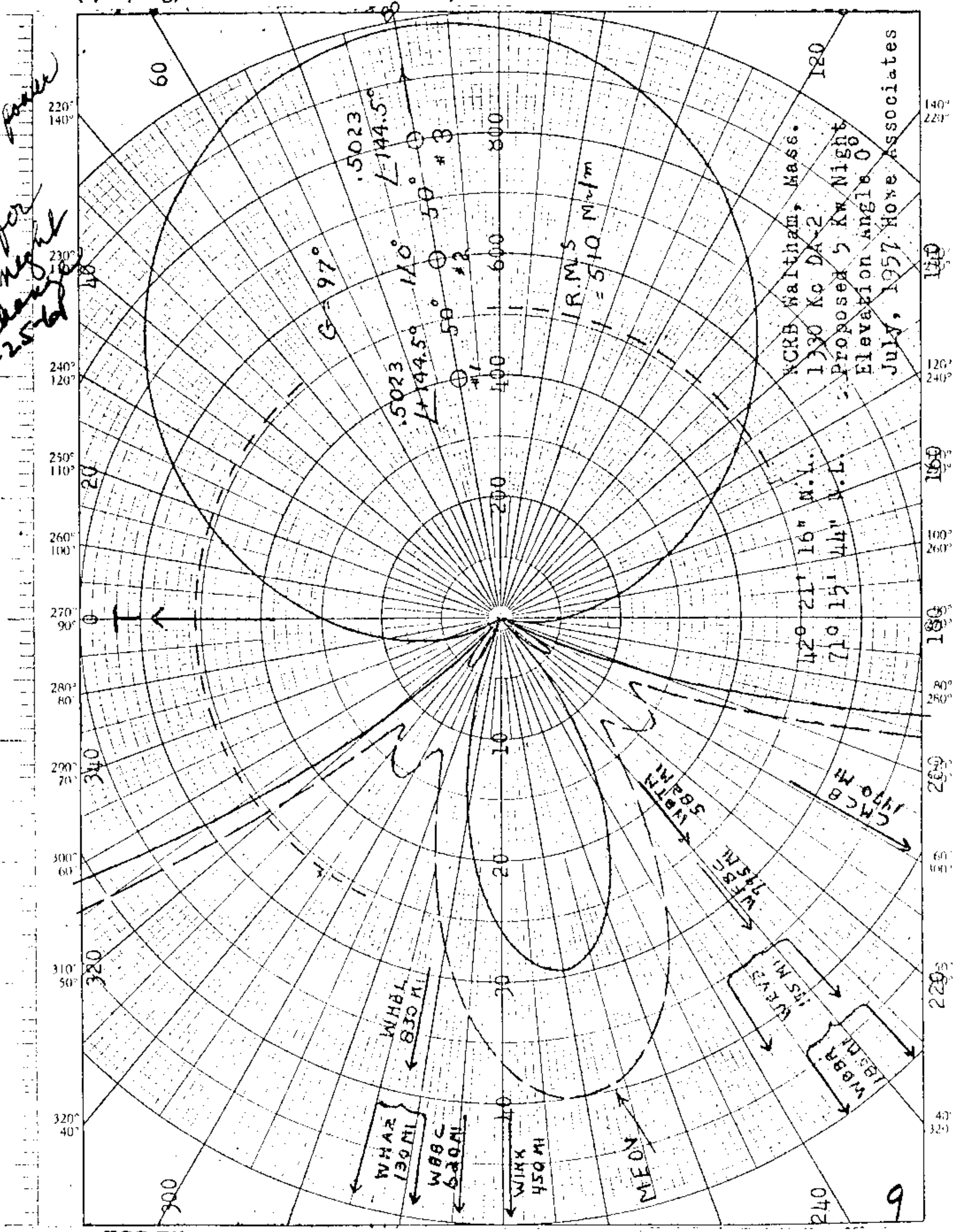
WHET

PROPOSED NIGHT
(8/19/57g)

Station WCRB
Waltham, Massachusetts

5kw, DA-2,U
1330 KC

granted CP to increase night power 10-5-60
Granted L for increase on night power - & change DA system 7-25-61



9

FCC File No. BP-11,481
Accepted 8/14/57

WCRB
Waltham, Massachusetts 1330 KC

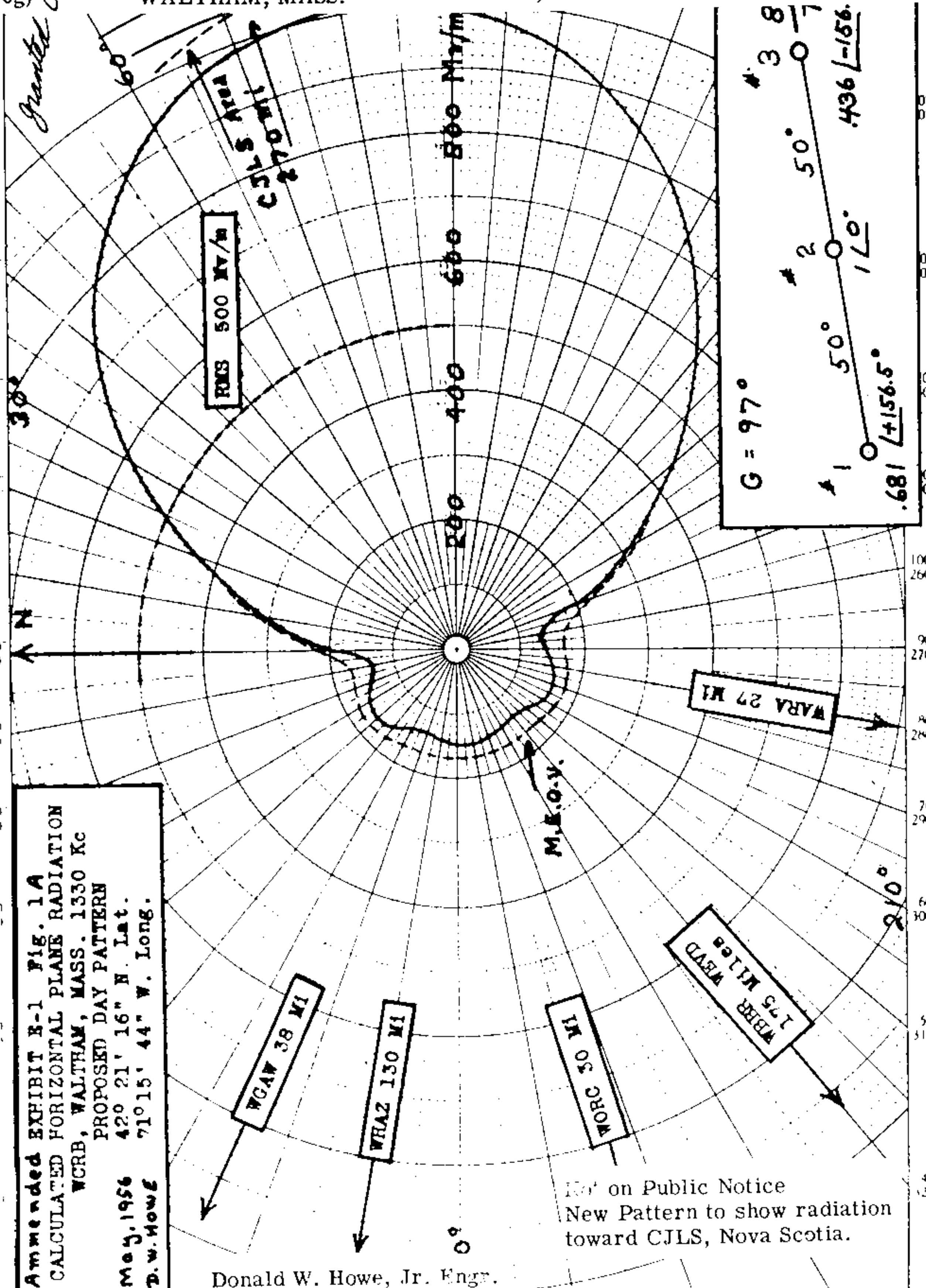
WHET

PROPOSED
DAY (5/22/56g)

STATION WCRB
WALTHAM, MASS.

1 KW, 5 KW
DA-2, U

1330 KC



FCC File No. BP-10,440 Accepted 5-17-56 WCRB, Waltham, Mass. 1330 KC

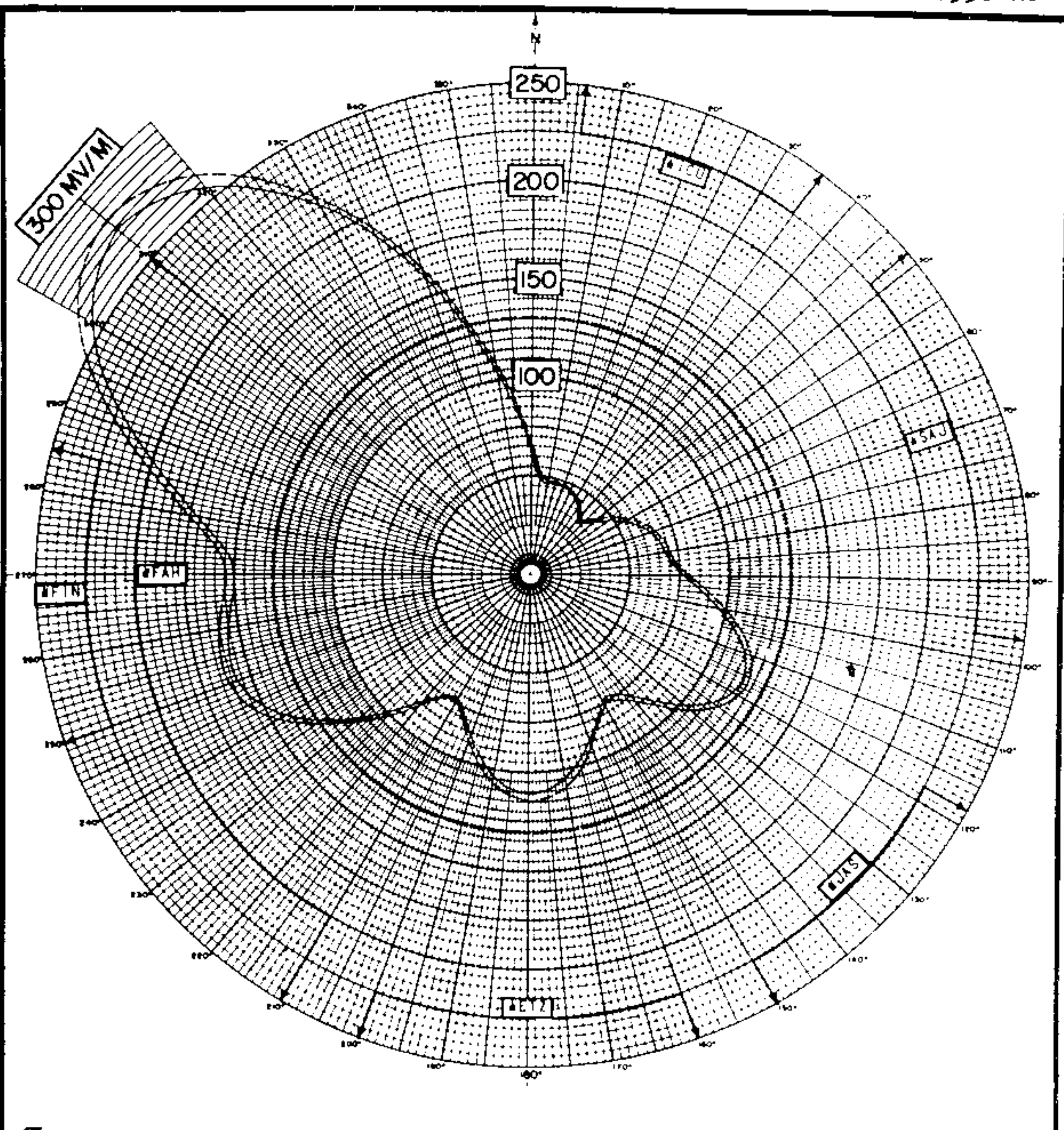
WHOT

PROPOSED DAY (0.5 KW)
(4-10-61g)

Station WHOT
Campbell, Ohio

1.0/0.5
~~500w~~, ~~1kw~~-LS, DA-2,U
1330 KC

1-8-62
granted CP for
change in freq. and
change from DA-D to
DA-2.



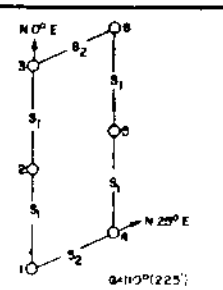
E_{RMS} = 131 MV/M

----MEOV

LATITUDE: 41° 05' 26"
LONGITUDE: 80° 36' 56"

JOHN H. MULLANEY
CONSULTING RADIO ENGINEERS
WASHINGTON, D. C.

ANTENNA PARAMETERS



1 1.0 ∠0°
2 1.053 ∠136.5°
3 .48 ∠72.5°
4 .87 ∠78°
5 .946 ∠-58.5°
6 .4176 ∠150.5°

S_1 = 90° (185')
S_2 = 105° (216')

θ = 110° (225')

FIGURE 59

DAYTIME DIRECTIONAL
HORIZONTAL PLANE PATTERN

RADIO STATION WHOT
CAMPBELL, OHIO

1330 KC 1.0/0.5KW-LS,DA-2,U

FCC File No. BP-14037
Accepted 3-8-61 (Amended)

Station WHOT
Campbell, Ohio

1330 KC

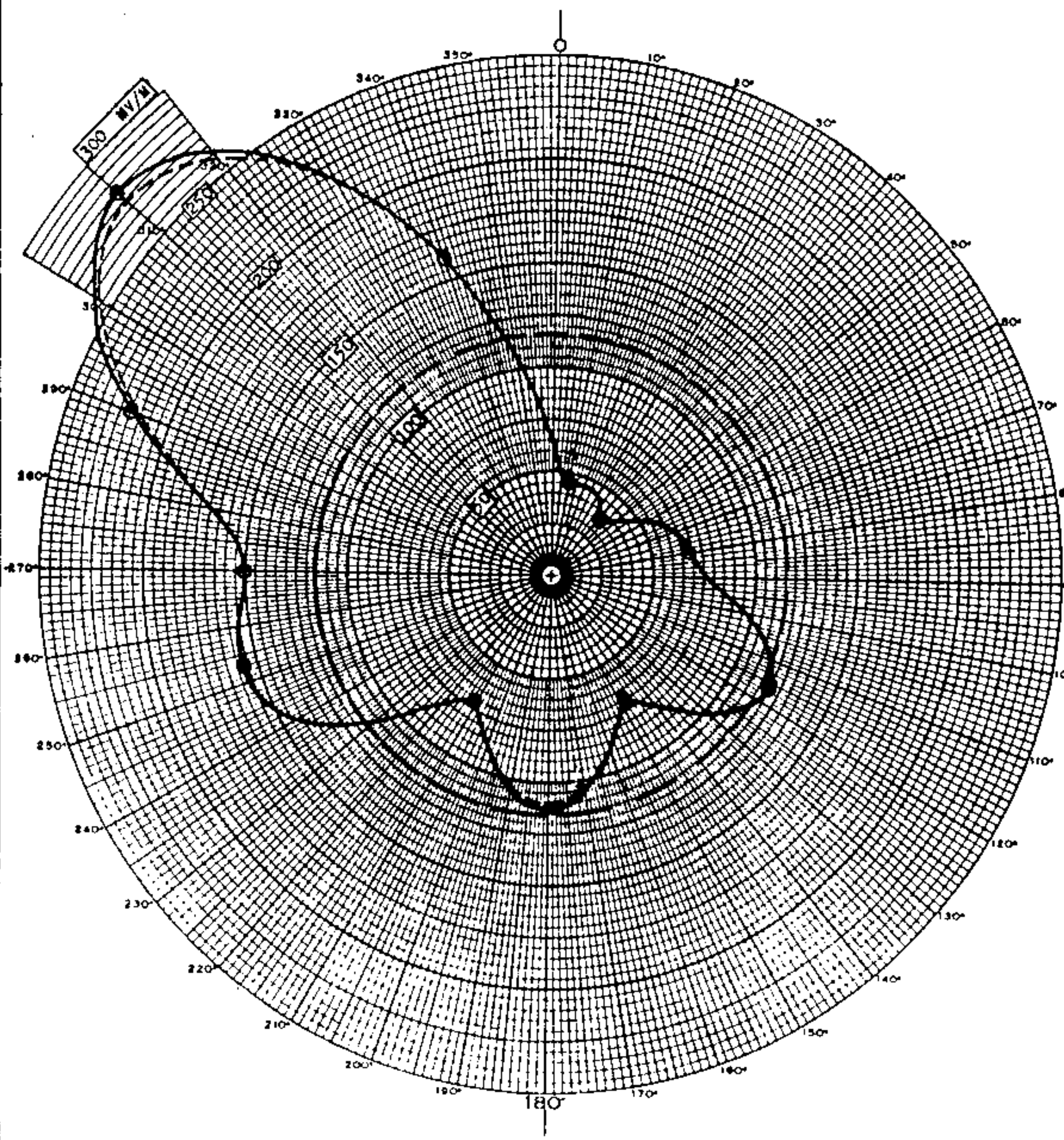
WHOT

Measured Day
(6-28-63ct)

Station WHOT
Campbell, Ohio

1kw,500w-LS,DA-2,U
1330 kc

2-14-64
-G for change
in frequency,
increase in day
power, change
in hours +
change in DA.



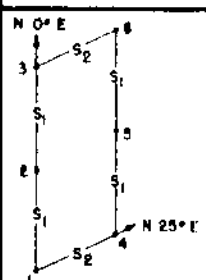
E_{RMS} = 132 MV/M

⊙ MEASURED POINTS
———— MEASURED PATTERN
- - - - - - THEORETICAL PATTERN

LATITUDE 41° 05' 26"
LONGITUDE 80° 38' 56"

JOHN H. MULLANEY
AND
ASSOCIATES
A DIVISION OF MULTRONICS INC.

ANTENNA PARAMETERS



1 1.0∠0°
2 1.053∠-136.5°
3 .48∠72.5°
4 .87∠78°
5 .916∠-58.5°
6 .4176∠150.5°

S_1 = 90° (185')

S_2 = 106° (216')

G_1 G_2 G_3 G_4 G_5 = 90 G_6 = 87.5

FIGURE 15

MEASURED
DAYTIME DIRECTIONAL
HORIZONTAL PLANE PATTERN

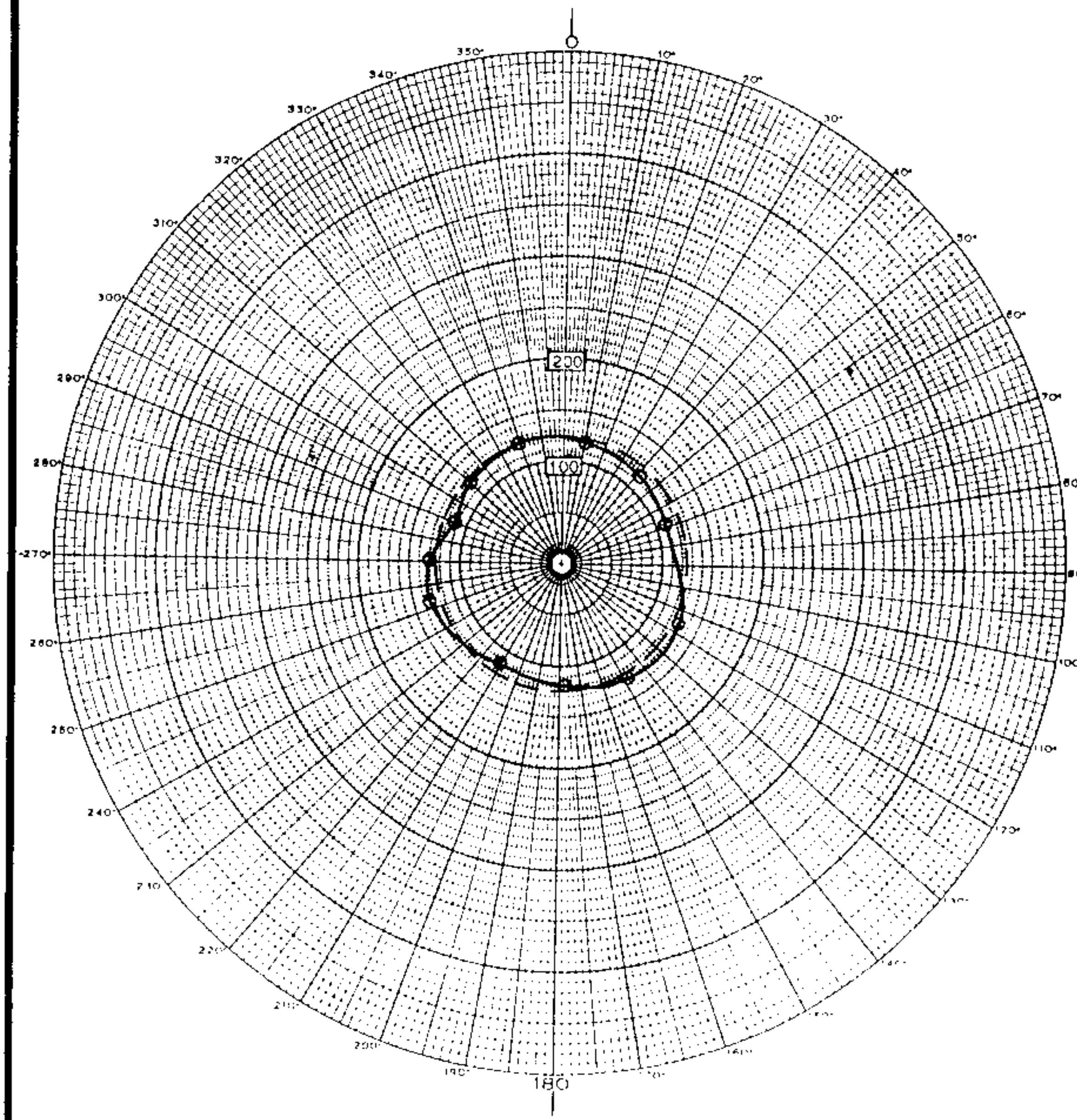
RADIO STATION WHOT
CAMPBELL, OHIO

1330 KC 1.0/0.5 KW-LS, DA-2,U

WHOT

Measured Non-DA (Daytime) (6-28-63ct) | Station WHOT Campbell, Ohio | 1kw,500w-LS,DA-2,U 1330 kc

-14-64 LG change in frequency, power, DA, decrease in ay power



E_{RMS} = 124 MV/M

⊙ MEASURED POINTS

LATITUDE 41° 05' 26" LONGITUDE 80° 36' 56"	ANTENNA PARAMETERS	FIGURE 14 DAYTIME NON-DIRECTIONAL HORIZONTAL PLANE PATTERN RADIO STATION WHOT CAMPBELL, OHIO
JOHN H. MULLANEY AND ASSOCIATES A DIVISION OF MULTRONICS INC	6-97.5	1330 KC 1.0/0.5 KW-LS, DA-2, U

FCC File No.BL-10052 Accepted 6-17-63 | Station WHOT Campbell, Ohio | 1330 kc

WHOT

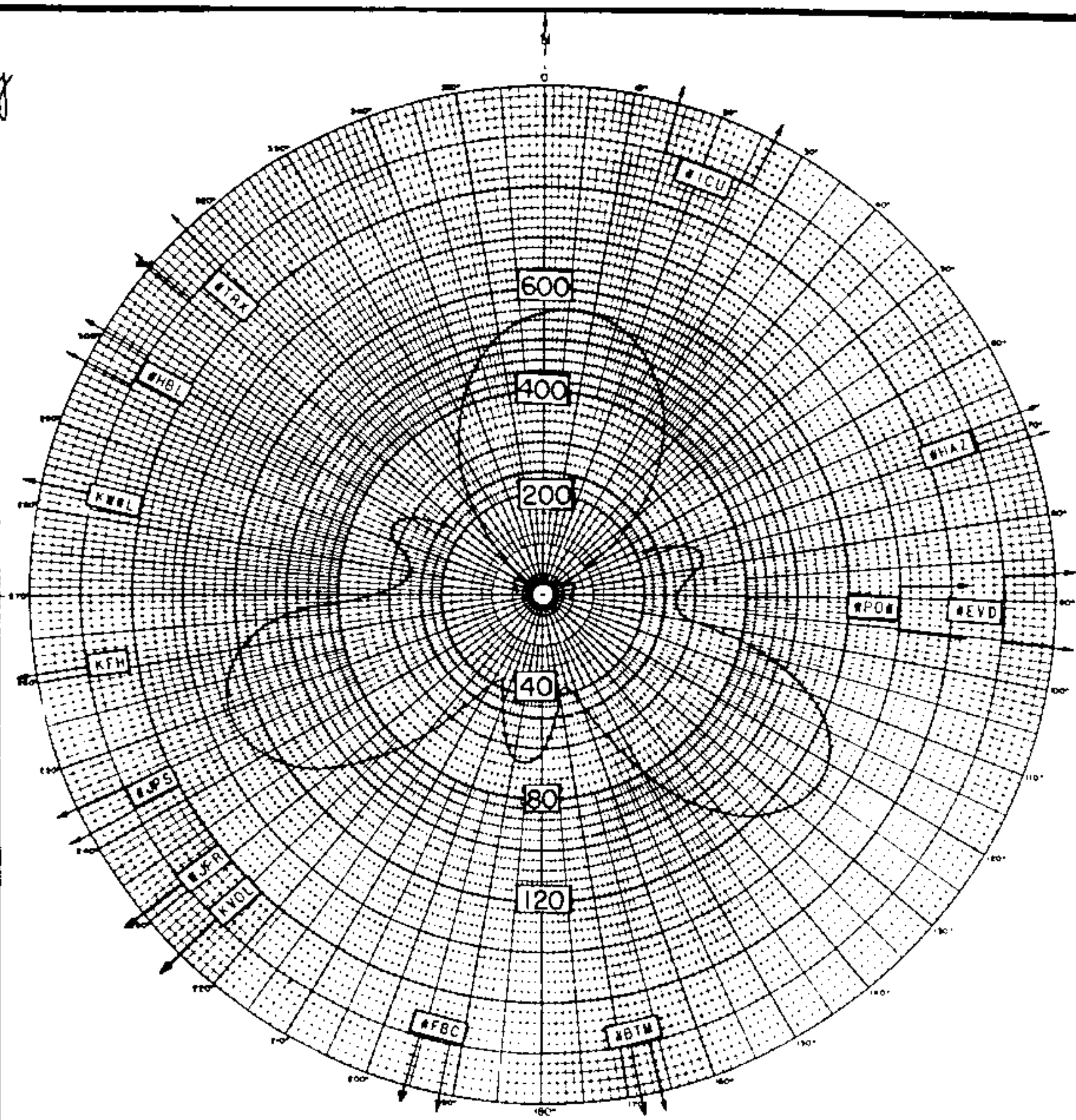
1.0/0.5

PROPOSED NIGHT (1KW)
(4-10-61g)

Station WHOT
Campbell, Ohio

~~500W~~, ~~1KW~~-LS, DA-2,U
1330 KC

2-8-62 Granted CP for change in frequency and change from DA-1 to DA-2



E_{RMS} = 240 MV/M

LATITUDE 40° 58' 30"
LONGITUDE 80° 35' 15"

JOHN H. MULLANEY
Consulting Radio Engineers
Washington, D. C.

ANTENNA PARAMETERS

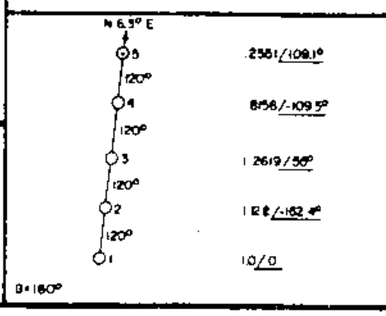


FIGURE 69

NIGHTTIME DIRECTIONAL HORIZONTAL PLANE PATTERN

RADIO STATION WHOT
CAMPBELL, OHIO

1330 KC 1.0/0.5 KW-LS, DA-2,U

FCC File No. BP-14037
Accepted 3-8-61 (Amended)

Station WHOT
Campbell, Ohio

1330 KC

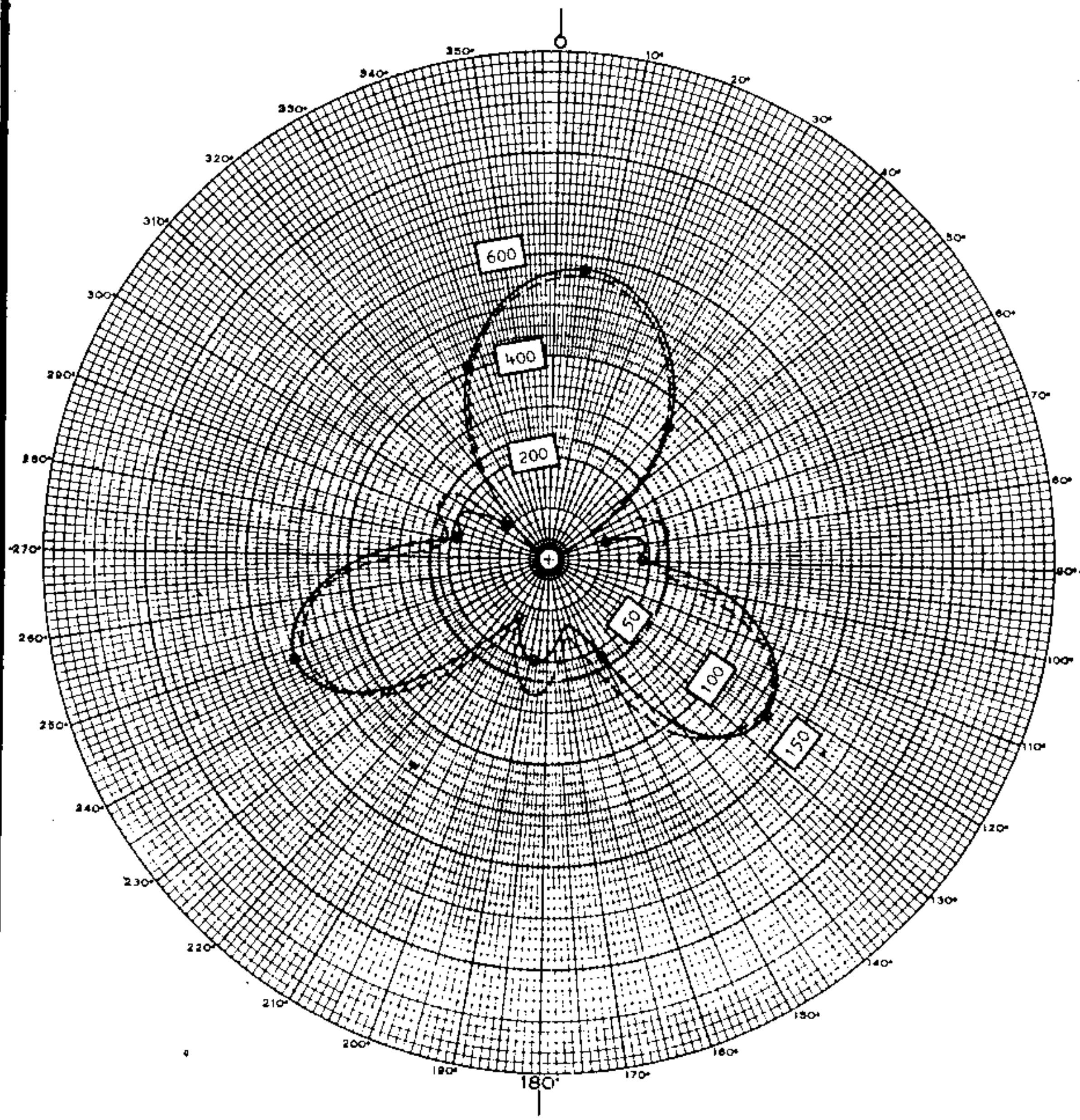
WHOT

Measured Night
(6-28-63ct)

Station WHOT
Campbell, Ohio

1kw,500w-LS,DA-2,U
1330 kc

1-14-64
G for change
- frequency
hours, DA,
and decrease
in Day
power



E_{RMS} = 240 MV/M

- - - - COMPUTED PATTERN
——— MEASURED PATTERN
● RADIAL MEASUREMENTS

LATITUDE: 40° 58' 30"
LONGITUDE: 80° 35' 15"

JOHN H. MULLANEY
AND
ASSOCIATES
A DIVISION OF MULTRONICS INC

ANTENNA PARAMETERS

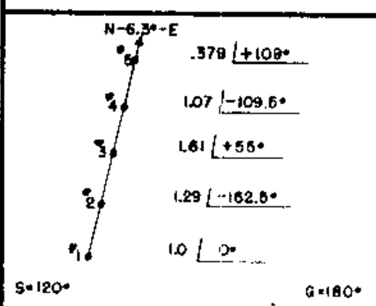


FIGURE 15

MEASURED NIGHTTIME
DIRECTIONAL PATTERN

RADIO STATION WHOT
CAMPBELL, OHIO

1330 KC 1.0 KW, 500W-LS, DA-2,U

FCC File No.BL-10052
Accepted 6-17-63

Station WHOT
Campbell, Ohio

1330 kc

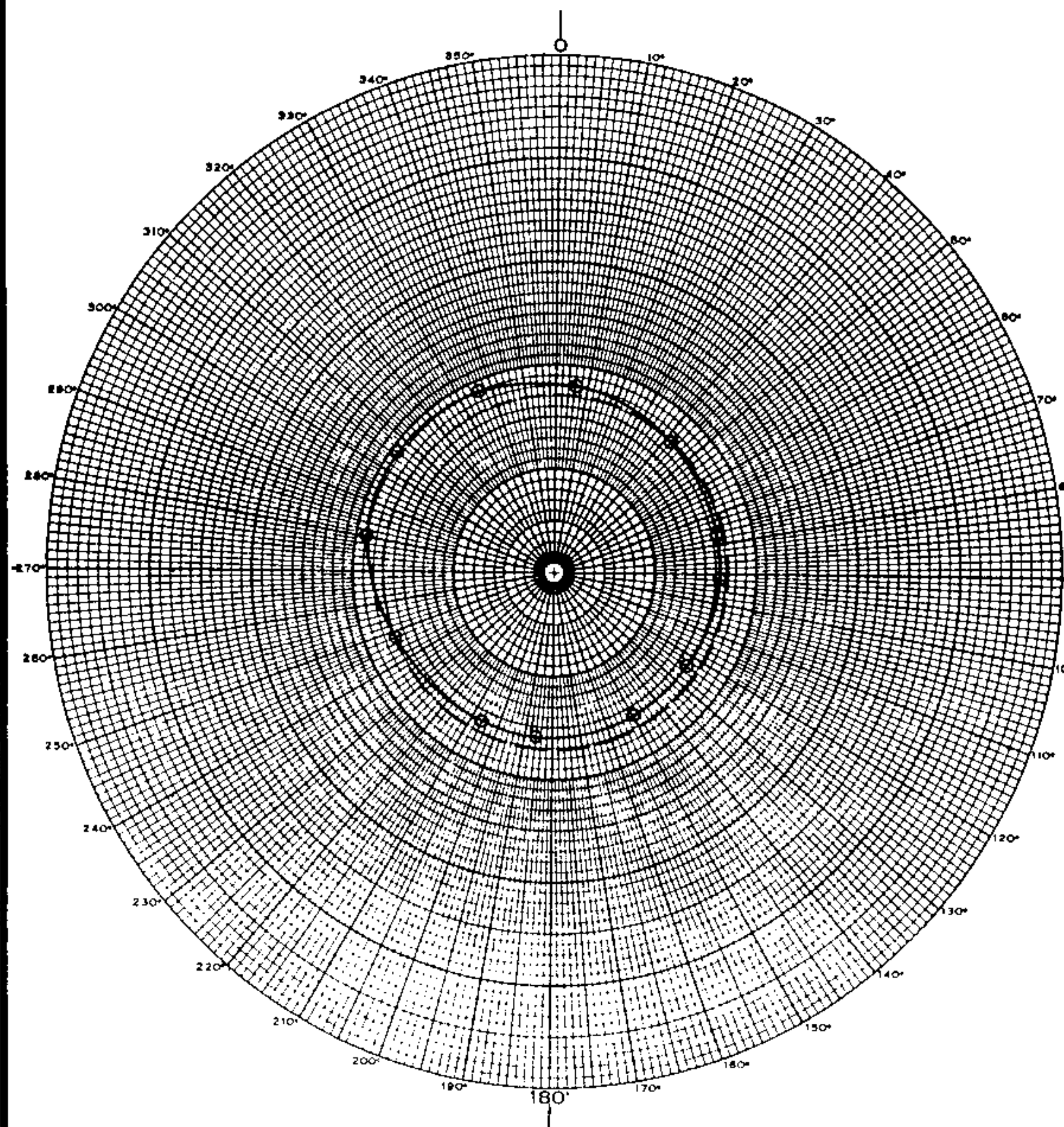
WHOT

Measured Non-DA (Night)
(6-28-63ct)

Station WHOT
Campbell, Ohio

1kw,500w-LS,DA-2,U
1330 kc

2-14-64 CG for change in frequency, hours, DA and decrease in day power.



E_{RMS} = 171 MV/M — —

⊙ MEASURED POINTS

——— PATTERN

LATITUDE: 40° 58' 30" LONGITUDE: 80° 35' 15"	ANTENNA PARAMETERS	FIGURE 14 MEASURED NON-DIRECTIONAL HORIZONTAL PATTERN 500 WATTS RADIO STATION WHOT CAMPBELL, OHIO
JOHN H. MULLANEY AND ASSOCIATES A DIVISION OF MULTRONICS INC	G = 180°	1330 KC 1.0/0.5 KW-LS,DA-2,U

FCC File No.BL-10052
Accepted 6-17-63

Station WHOT
Campbell, Ohio

1330 kc

WHOT

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WHOT

Main Studio: Campbell, Ohio

Frequency: 1330 kHz

Power: 5kw Night 0.5kw Day

Notification List No. 1778

Date: August 30, 1978 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE DAYTIME AND NIGHTTIME ANTENNA SYSTEMS:

DAYTIME				NIGHTTIME			
North Latitude:	41°	05'	26"	North Latitude:	40°	58'	30"
West Longitude:	80°3	36'	56"	West Longitude:	80°	35'	18"

NIGHTTIME ANTENNA CHARACTERISTICS

Authorized for Nighttime operation. (DA-N)
Number of elements: 6
Type of elements: Series excited, uniform cross-section, guyed, vertical steel towers.

TOWER:	#1(S)	#2	#3	#4	#5	#6
HEIGHT ABOVE INSULATORS:	360'(175.2°)	370'	370'	370'	370'	370' (180.1°)
PHASING:	+122.5°	-39.8°	+159.9°	0.0°	-153.2°	+36.6°
FIELD RATIO:	0.29	0.63	0.99	1.00	0.80	0.37

SPACING AND ORIENTATION: Towers in a row are spaced 246.5' (120°) on a line bearing 6.3° true.

GROUND SYSTEM 120 - 185' 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. Centers of system are bonded together.

PREDICTED EFFECTIVE FIELD AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Night	500.0 mv/m	941.8 mv/m	525.6 mv/m

Note: Please retain the Daytime directional antenna radiation pattern notified for Station WHOT in United States Change List Number 939 dated December 27, 1961 and attach to this Revised Description Sheet and Nighttime pattern. This notification concerns only a change in Nighttime operation of the station with Daytime operation continued as previously notified.

WHOT

DAYTIME ANTENNA CHARACTERISTICS

Authorized for Daytime operation. (DA-D)
Number of elements: 6
Type of elements: Series excited, uniform cross-section, guyed, vertical steel towers.

TOWER	:	#1	#2	#3	#4	#5	#6
HEIGHT ABOVE INSULATORS	:	225'	225'	225'	225'	225'	225' (110°)
PHASING	:	0	-136.5°	72.5°	78°	-58.5°	150.5°
FIELD RATIO	:	1.0	1.053	0.48	0.87	0.916	0.4176

SPACING AND ORIENTATION : The towers are located in two parallel rows with 3 towers per row. Adjacent towers in a row are spaced 185' (90°) on a line bearing 0° true. End towers forming a side of the parallelogram are spaced 216' (105°) on a line bearing 25° true.

GROUND SYSTEM: 120 - 185' equally spaced copper radials plus a 24 square ground screen about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers. Centers of system are bonded together.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	131 mv/m		

WHOT

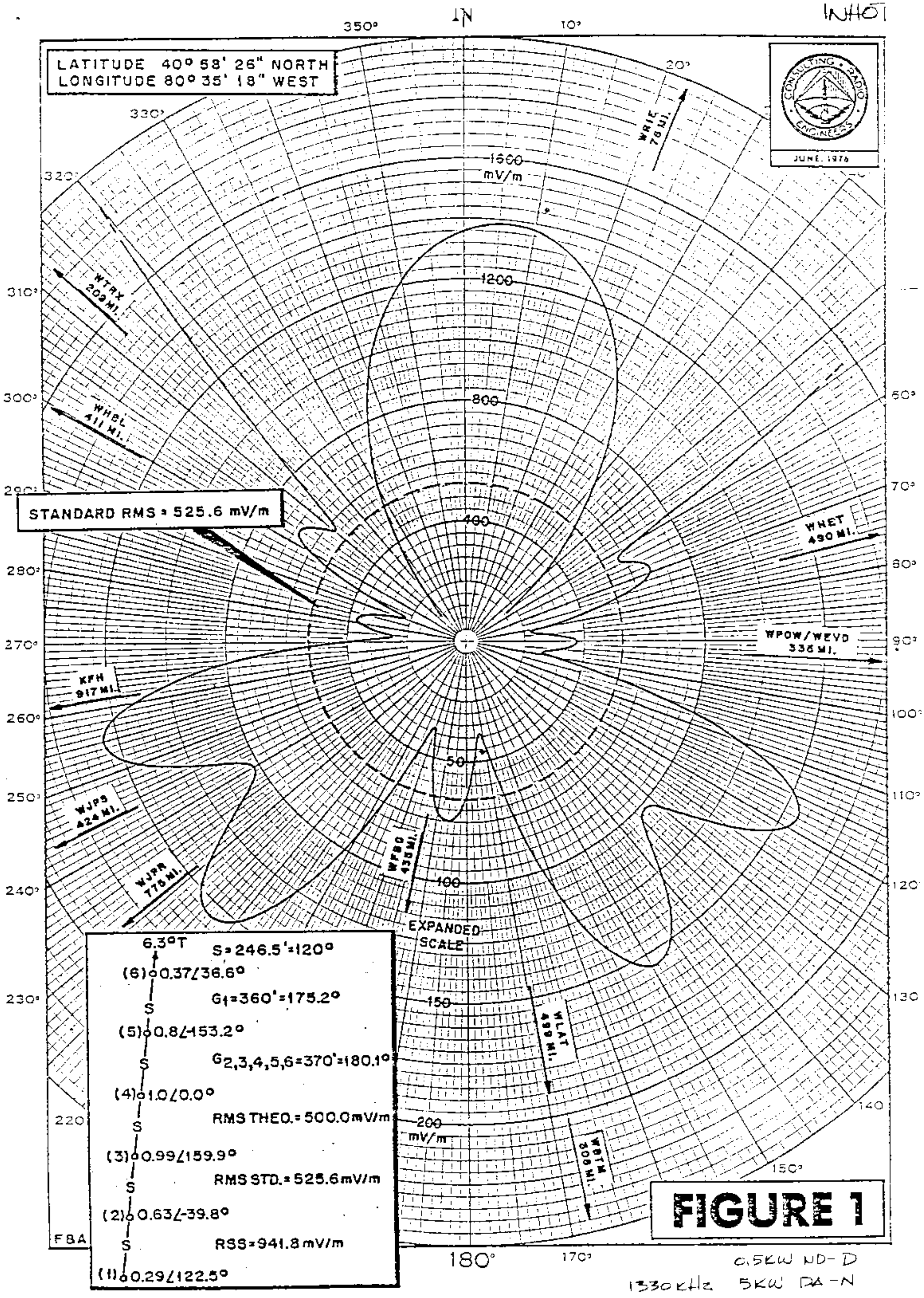


FIGURE 1

A. D. RING & ASSOCIATES - 4/64 - M

0.5KW ND-D
1330 kHz 5KW DA-N

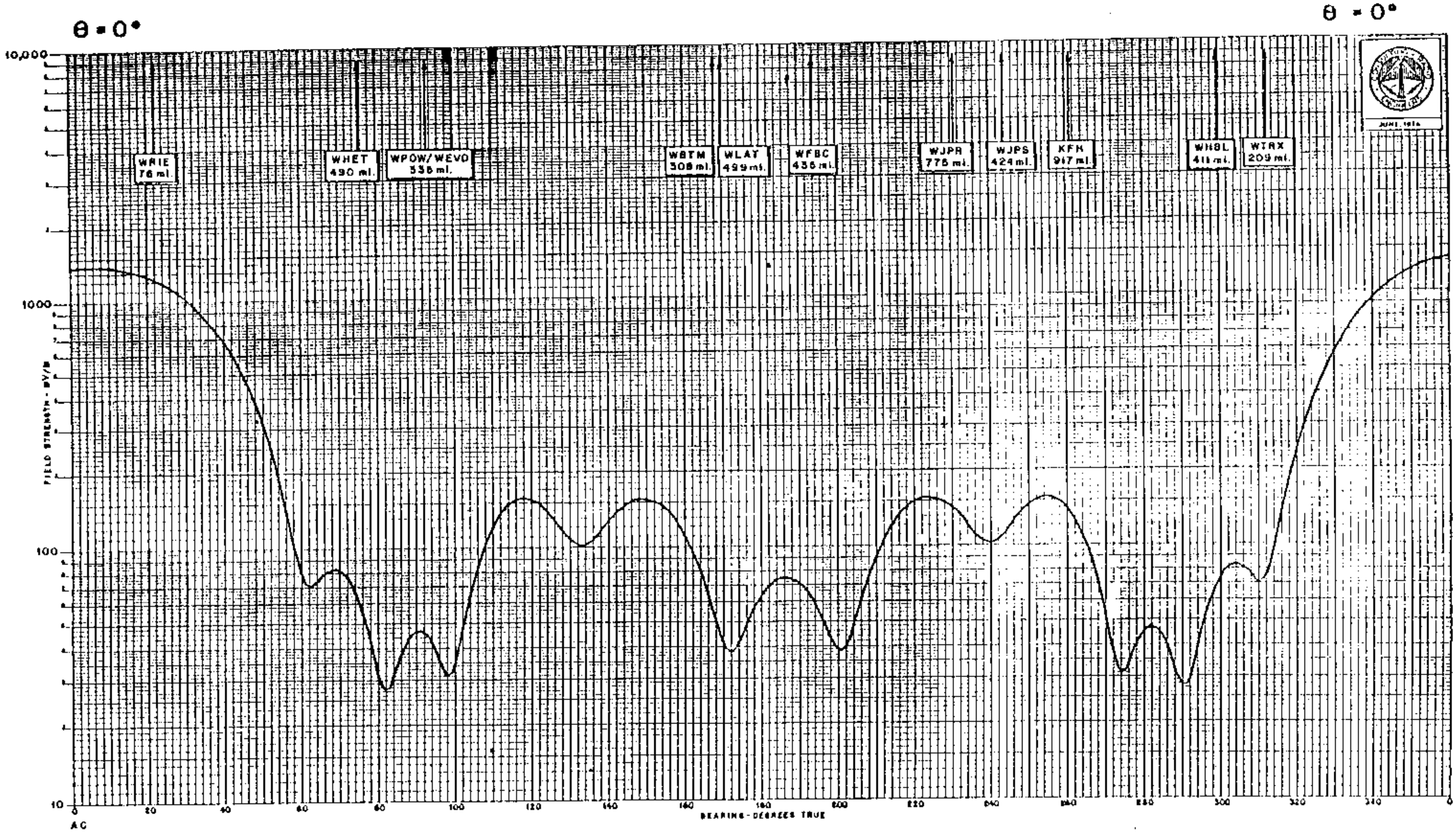
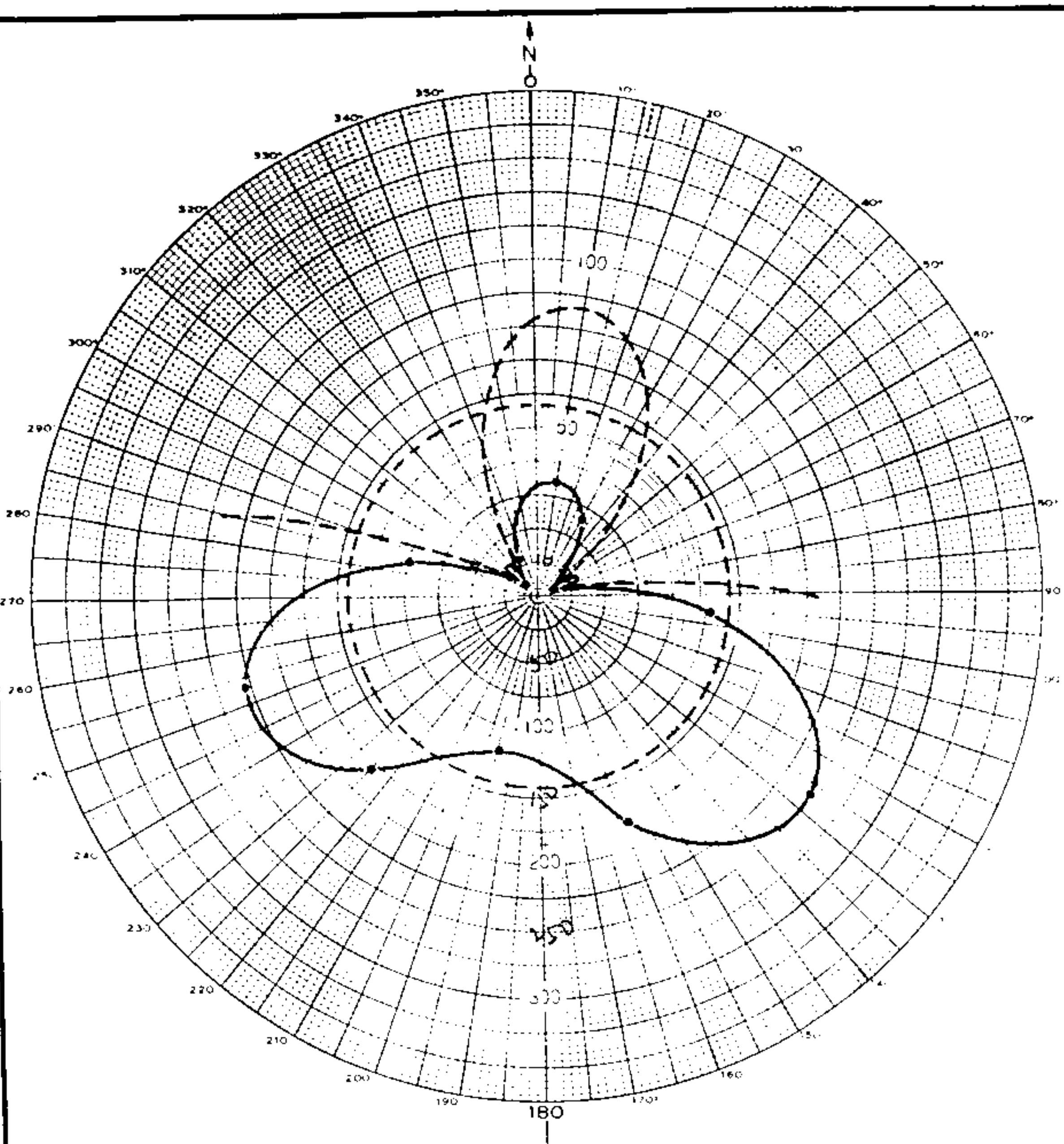


FIGURE 2-A

WHOT

WJPK

MEASURED NIGHT | WJPR, GREENVILLE, MISS. 9/26/51G | 500W, 1kw-LS, U, DA-N | 1330 KC



RMS = 142 MV/M

PATTERN NO. 510829P
LATITUDE: 33° 24' 36"
LONGITUDE: 91° 01' 03"

HAROLD B. ROTHROCK
CONSULTING RADIO ENGINEER
CITIZENS NATIONAL BANK BUILDING
BEDFORD, INDIANA

Exhibit No. 10

RADIO STATION WJPR
RADIO SERVICES COMPANY
GREENVILLE, MISSISSIPPI

1330kc - 500w, 1kw-LS - DA-N

MEASURED DIRECTIONAL PATTERN
NIGHTTIME

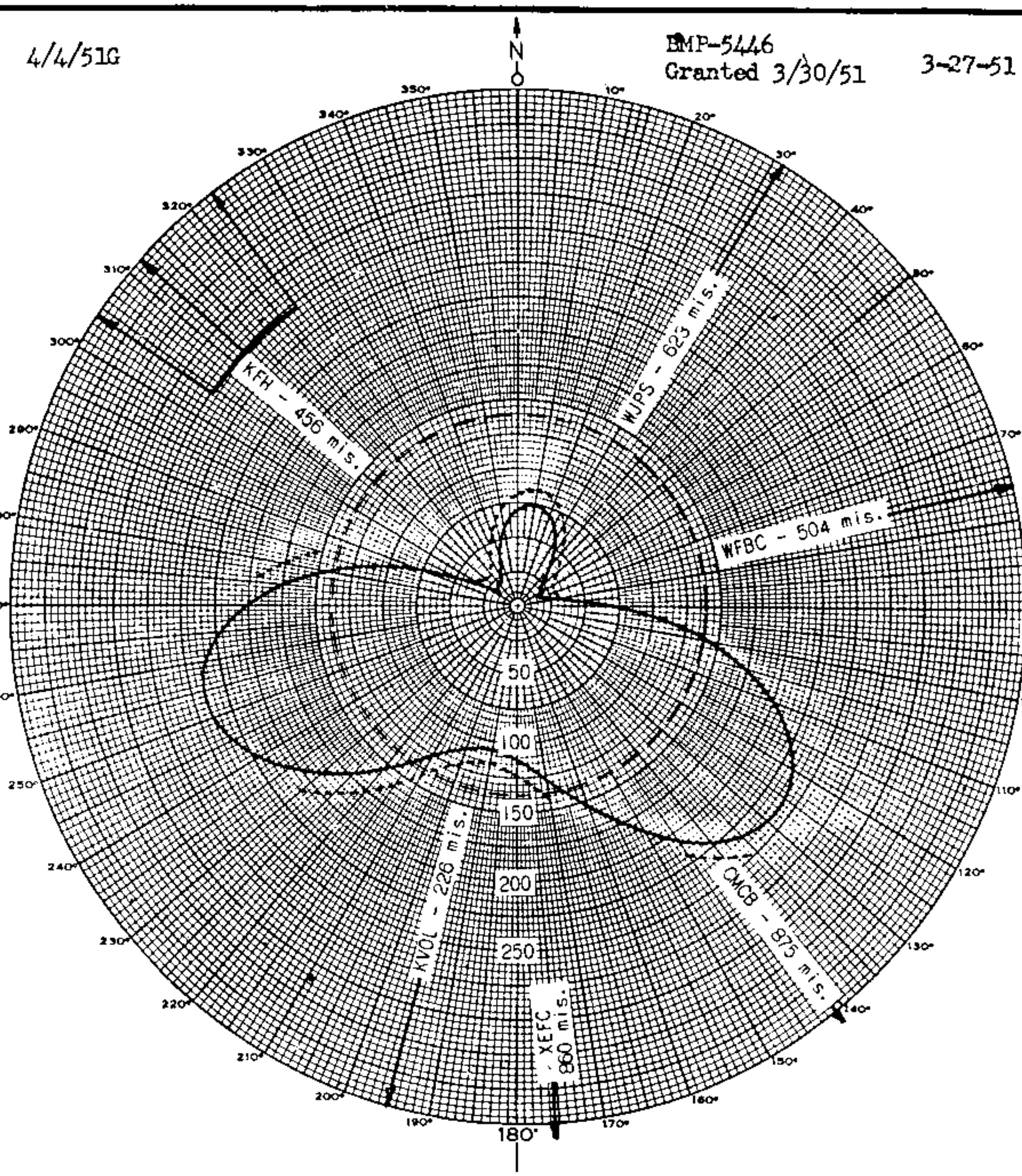
APPL RECD FCC 9/11/51 BL-4535 WJPR, GREENVILLE, MISS. 1330 KC

WJPR

PROPOSED NIGHT WJPR, GREENVILLE, MISS. 500w, 1kw-LS, DA-N 1330 kc

4/4/51G

BMP-5446
Granted 3/30/51 3-27-51



RMS = 138 MV/M

MAXIMUM EXPECTED OPERATING VALUES – – – – –

PATTERN NO. 510321
LATITUDE: 33° 24' 36"
LONGITUDE: 91° 01' 03"

TOWER	FIELD	PHASE
South	1.000	0°
Center	1.313	79.1°
North	0.560	154°

G = 97° S = 172°

Center Line at 10° True

Exhibit No. 9

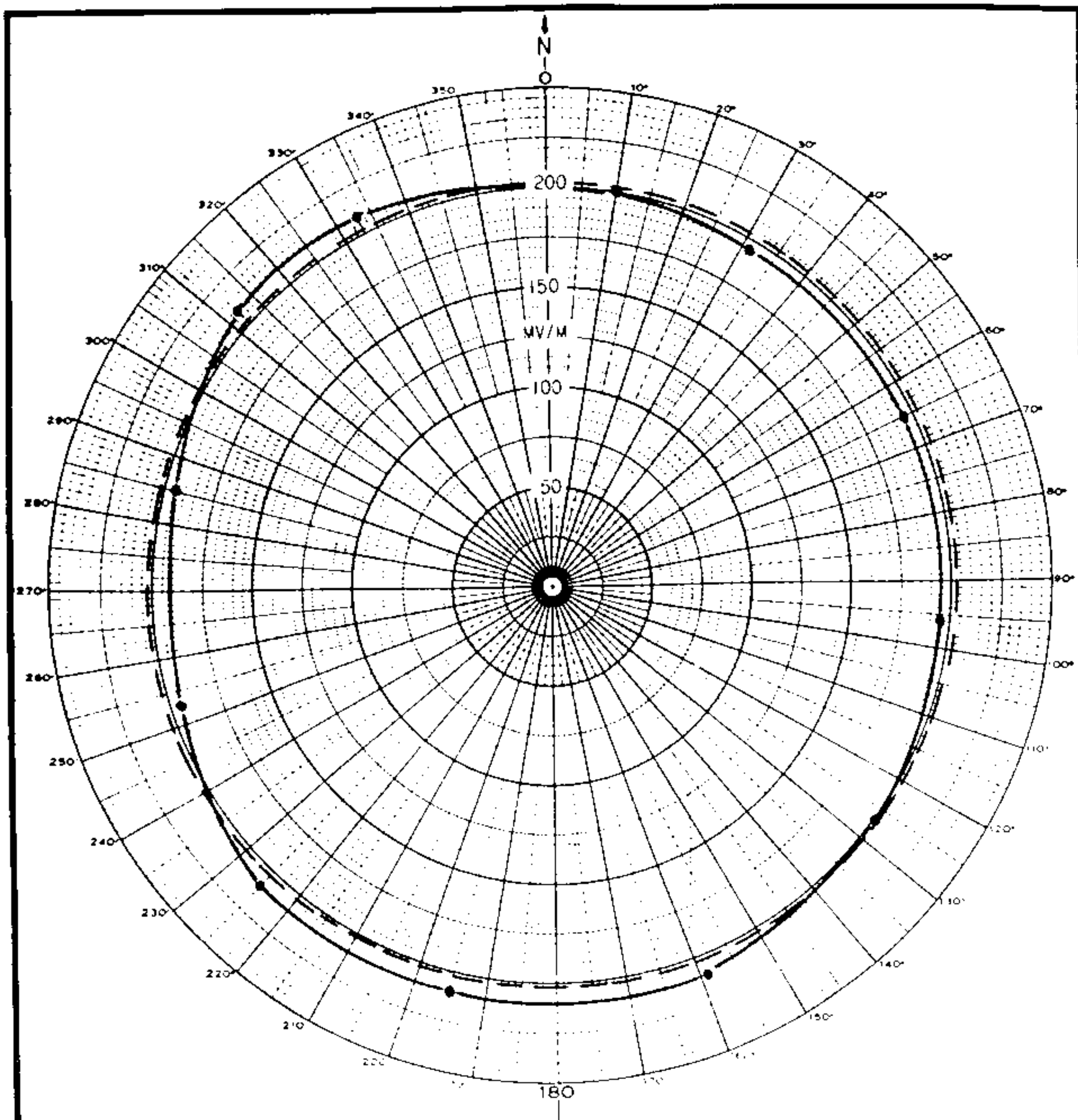
RADIO STATION WJPR
RADIO SERVICES COMPANY
GREENVILLE, MISSISSIPPI

1330kc - 500w, 1kw-LS - DA-N

HORIZONTAL PLANE PATTERN
NIGHTTIME

HAROLD B. ROTHROCK
CONSULTING RADIO ENGINEER
CITIZENS NATIONAL BANK BUILDING
BEDFORD, INDIANA

WJPR



RMS = 202 MV/M

PATTERN NO. 510824NDP
LATITUDE: 33° 24' 36"
LONGITUDE: 91° 01' 03"

HAROLD B. ROTHROCK
CONSULTING RADIO ENGINEER
CITIZENS NATIONAL BANK BUILDING
BEDFORD, INDIANA

Exhibit No. 9

RADIO STATION WJPR
RADIO SERVICES COMPANY
GREENVILLE, MISSISSIPPI

1330kc - 500w, 1kw-LS - DA-N

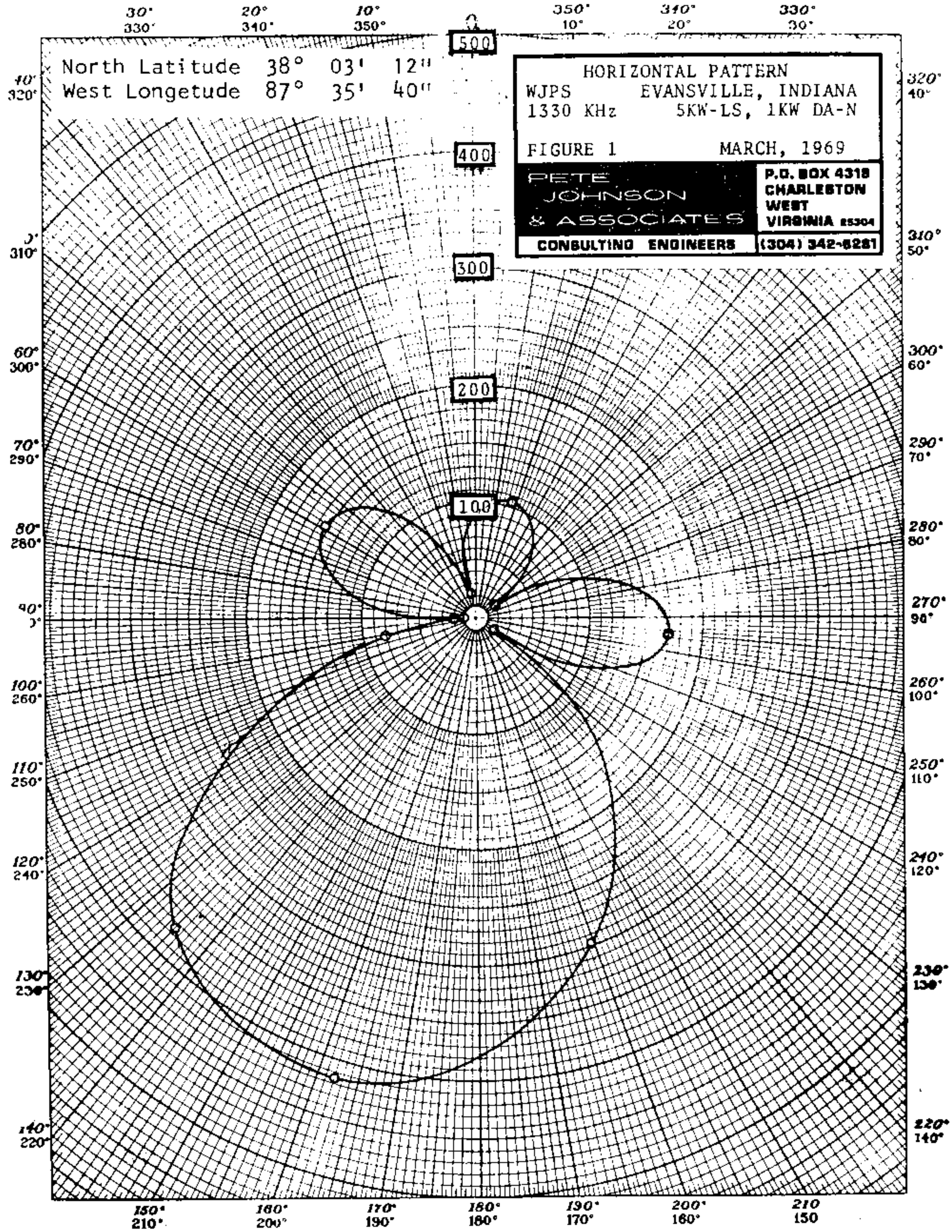
MEASURED NON-DIRECTIONAL PATTERN

WJPS

Measured Night
(2-28-70ct)

Station WJPS
Evansville, Indiana

1kw,5kw-LS,DA-N,U
1330 kc



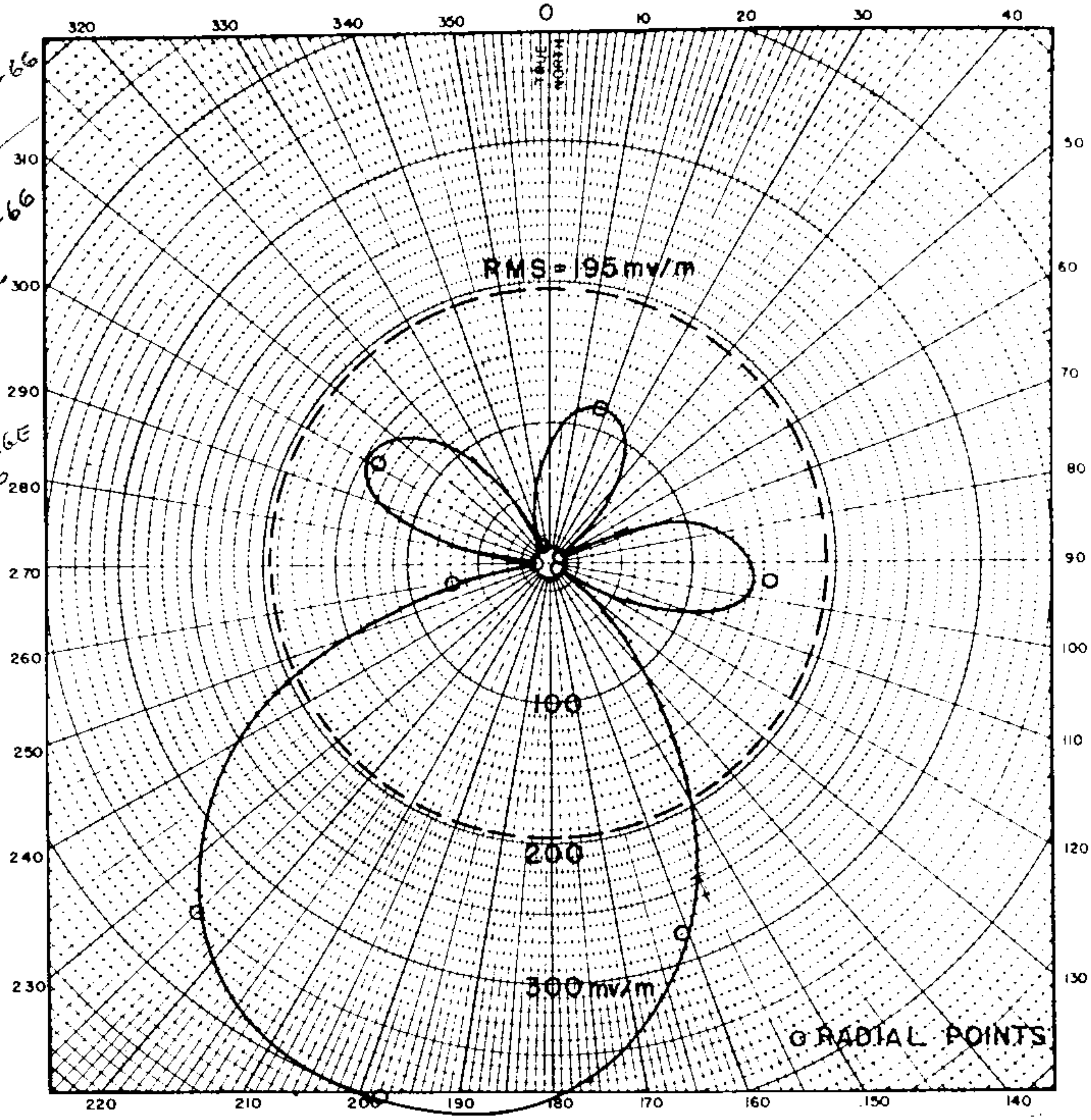
FCC File No.BZ-7373
Accepted 1-30-70

Station WJPS
Evansville, Indiana

1330 kc

WJPS

MEASURED NIGHTTIME   WJPS Evansville, Ind.   11/1/48G   1kw, DA-2 1330
License 10-28-48



75∠156°   110°   75∠161°
#1 -- 87.5° -- #2 -- 87.5° -- #3 ---→ 18° T
204.9'   180'   203.2'   201.3'

HORIZONTAL RADIATION PATTERN MEASURED NIGHT WJPS - EVANSVILLE, IND.	1330 KC 1 KW DA-2
ANDREW CONSULTING RADIO ENGINEERS	FIGURE 3 481023

WJPS

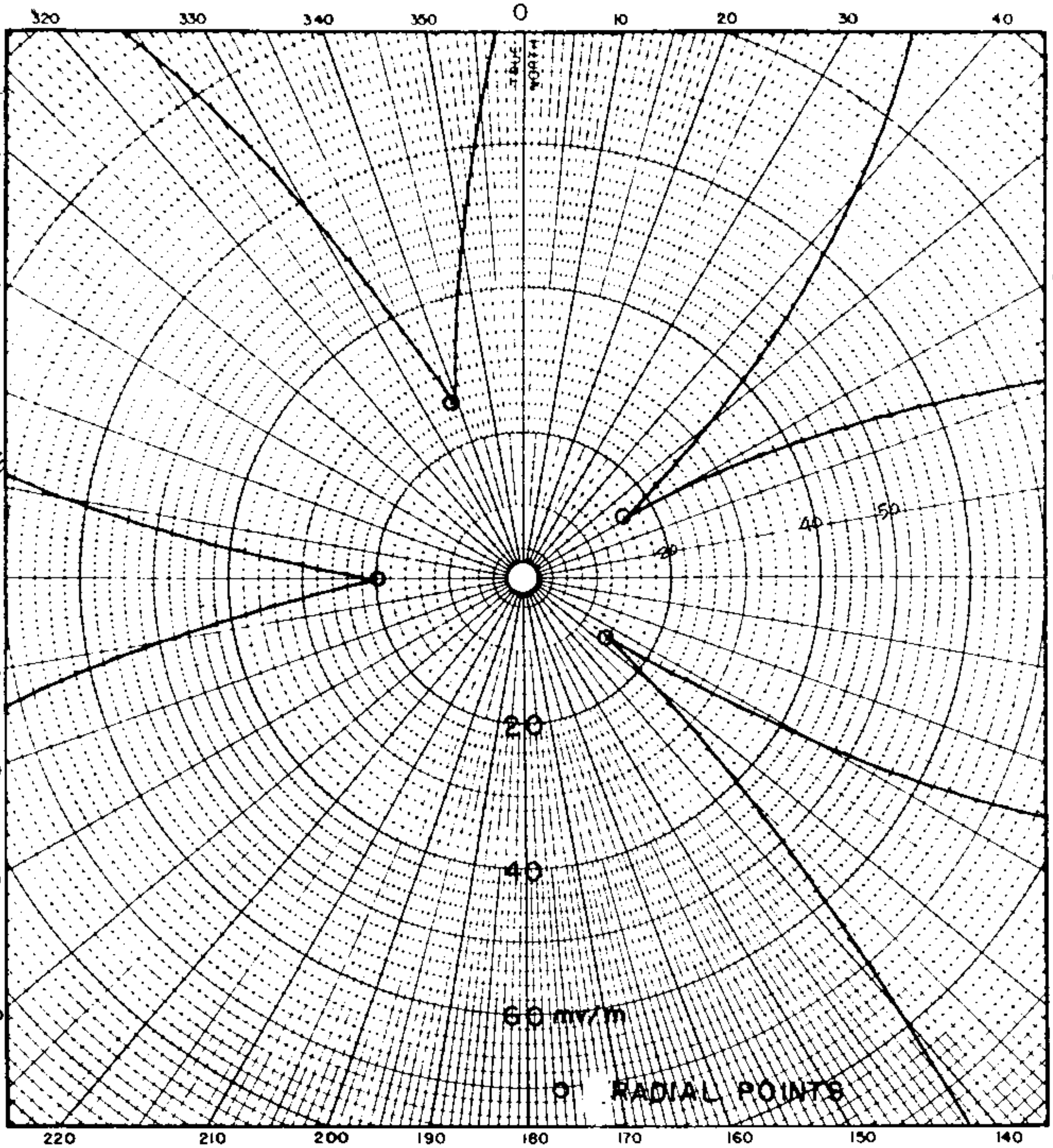
MEASURED NIGHTTIME NULLS

WJPS Evansville, Ind. 11/1/48G 1kw, DA-2 1330

PL 6-22-66 DA-N

BP16914 CP 9-27-66 DA-N

1-3-67 GRANTED LICENSE COV. CHANGE DA-2 to DA-N.



Site: 38° 04' 12.3" N. Lat. 87° 35' 40.5" W. Long.	HORIZONTAL RADIATION PATTERN MEASURED NIGHT WJPS - EVANSVILLE, IND.	1330 KC 1 KW DA-2
	ANDREW CONSULTING RADIO ENGINEERS	FIGURE 4 481023

6921-1 NEW 1330
WJPS
EVANSVILLE IND.

PPL 6-22-66
DA-N
BP 16914
CP 9-27-66
DA-N

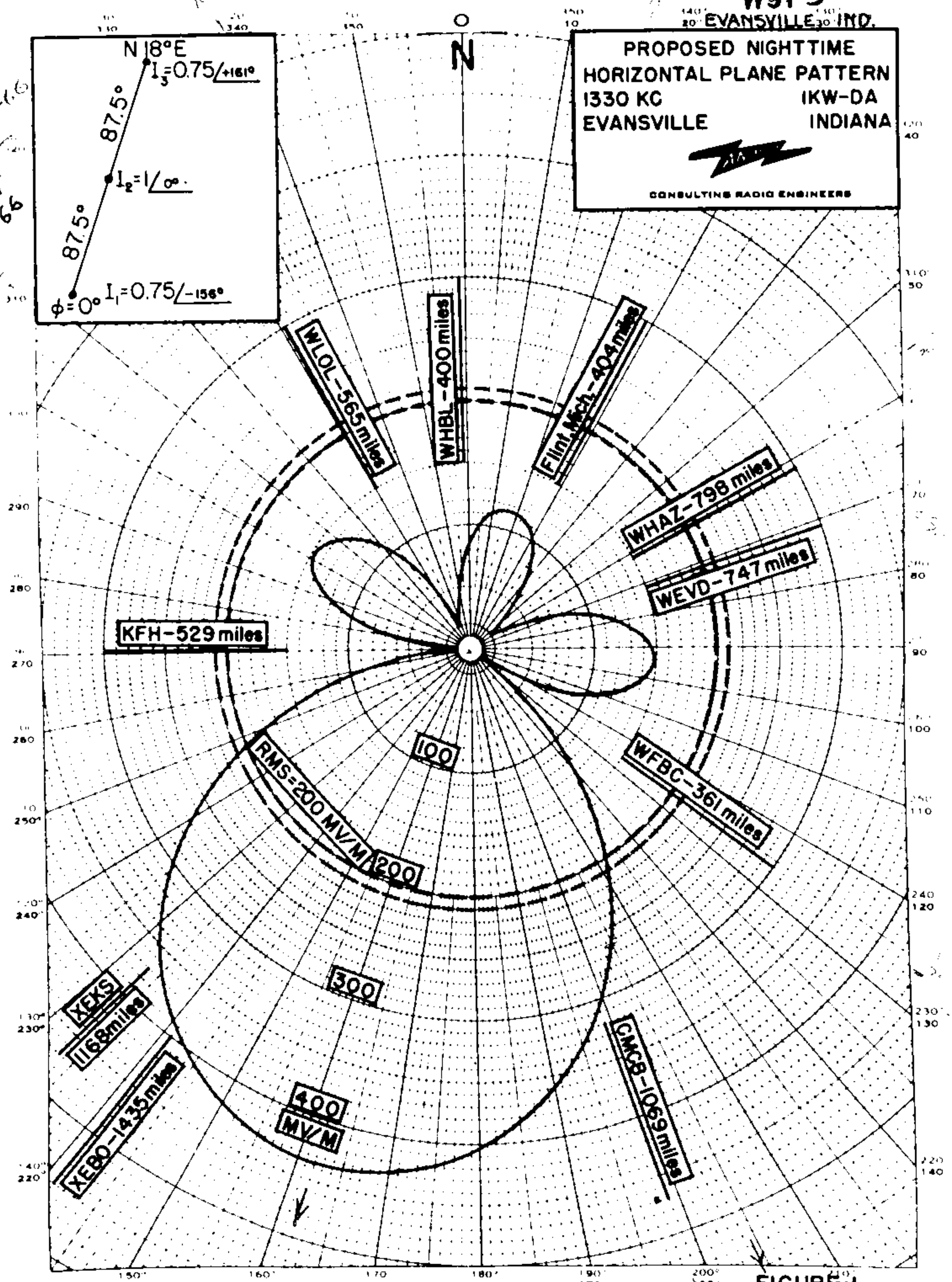
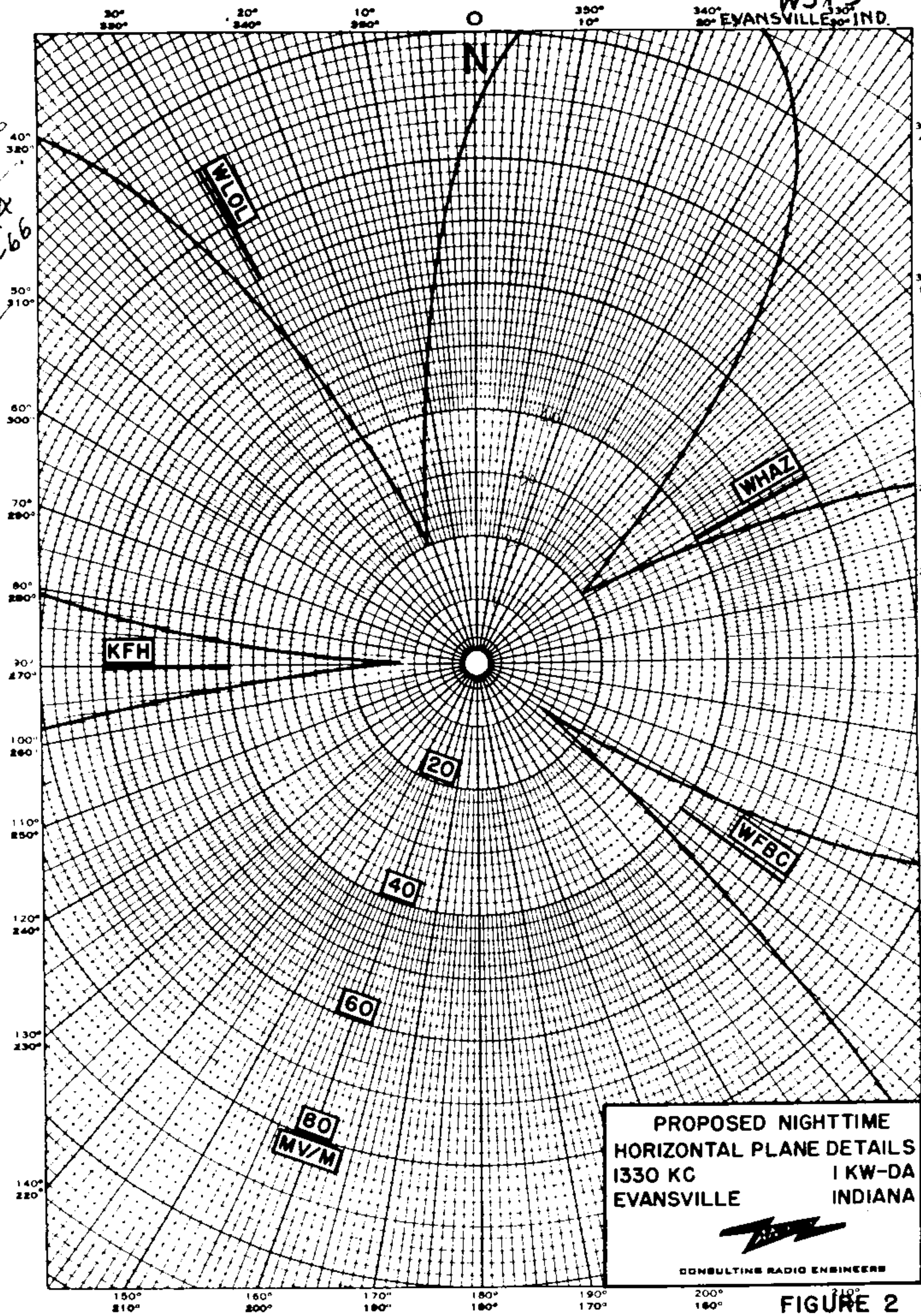


FIGURE 1

6921 NEW 1330
WJPS
EVANSVILLE IND.

APPL
6-22-66
DA-N
BP16914
CP 9-27-66
DA-N



PROPOSED NIGHTTIME
HORIZONTAL PLANE DETAILS
1330 KC 1 KW-DA
EVANSVILLE INDIANA

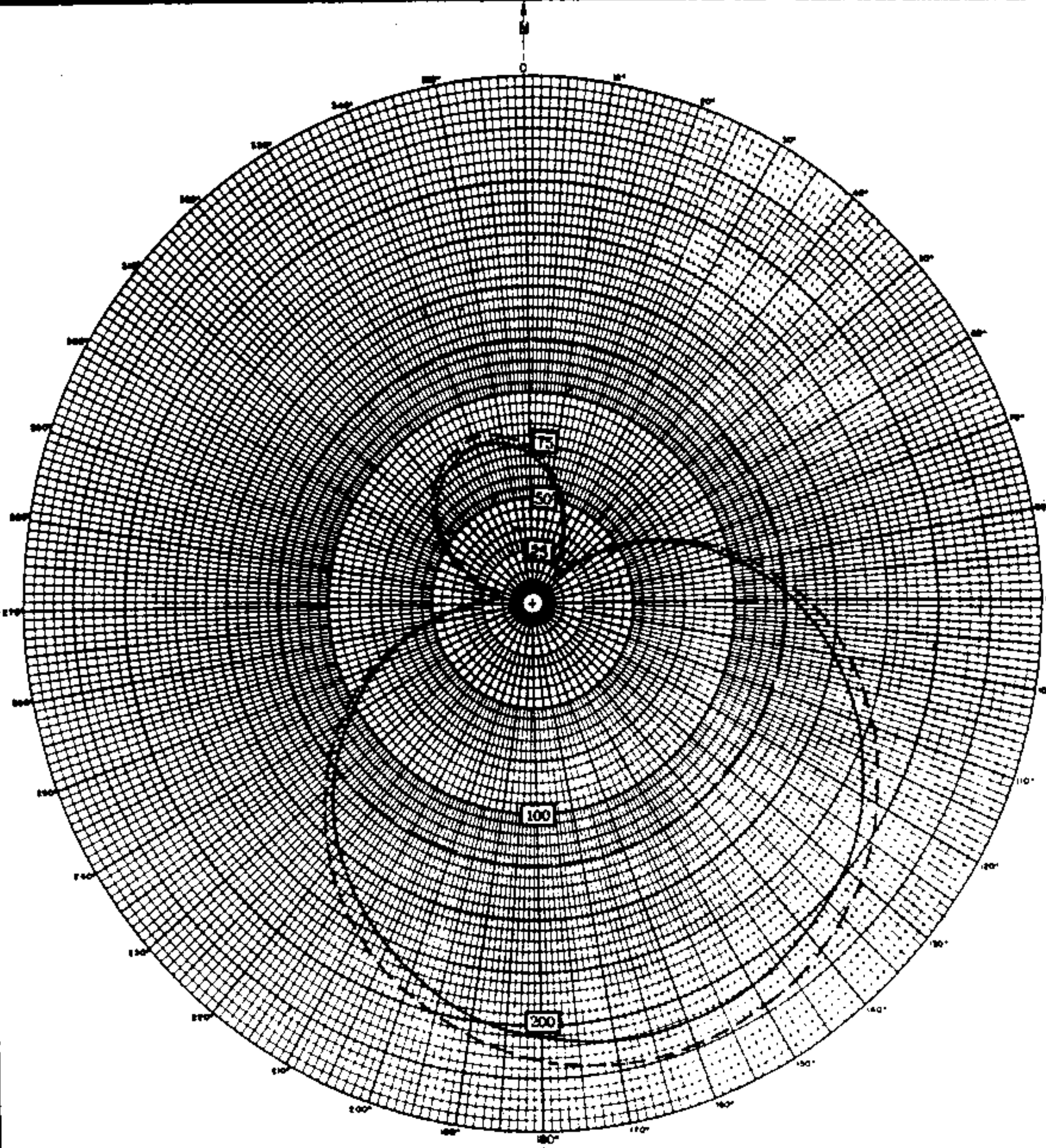
FIGURE 2

PROPOSED NIGHT
(7-29-60g)

Station WLAT
Conway, South Carolina

500w,5kw-LS, DA-N,U
1330 kc

0-26-61
granted Map
? night operation
?th DA.



--- MEOV

E_{RMS} = 124.5 MV/M

LATITUDE: 33° 51' 02"
LONGITUDE: 79° 04' 04"

WILLIAM E. BENNS JR.
Consulting Radio Engineer

ANTENNA PARAMETERS

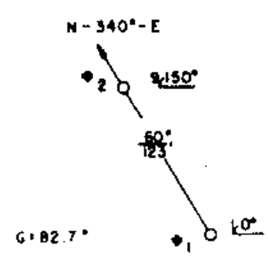


FIGURE 2

HORIZONTAL POLAR PATTERN
(NIGHTTIME)
RADIO STATION WLAT
CONWAY, S.C.

1330 KC, .5KW, 5KW-LS,(DA-N)

FCC File No. BMP-8480
Accepted 7-18-60

WLAT
Conway, South Carolina

1330 kc

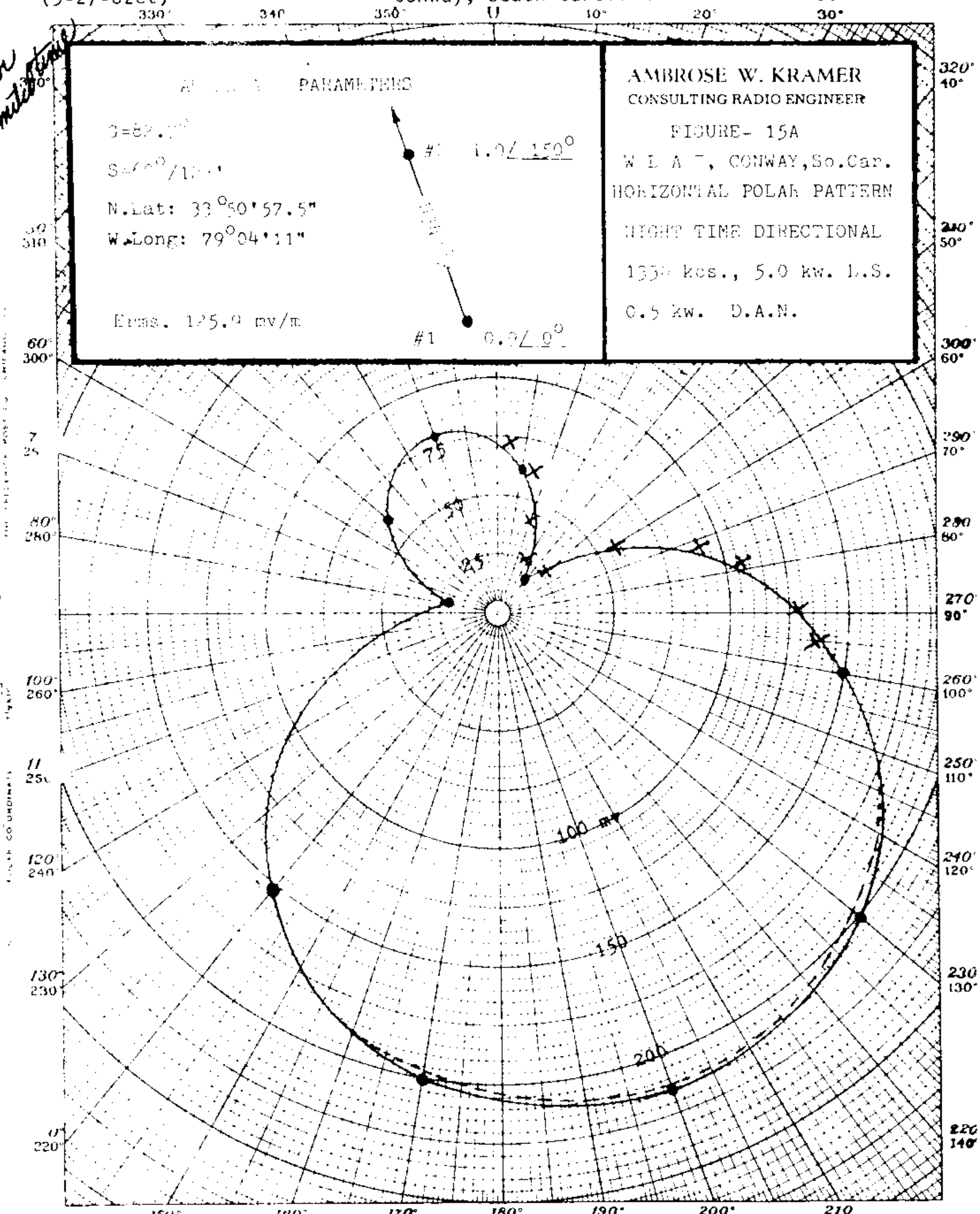
WLAT

Measured Night
(9-27-62ct)

Station WLAT
Conway, South Carolina

500w,5kw-LS,DA-N,U
1330 kc

1/24/63 wanted 2 for DA-N & unlimited time



FCC File No.BL-9526
Accepted 8-29-62

Station WLAT
Conway, South Carolina

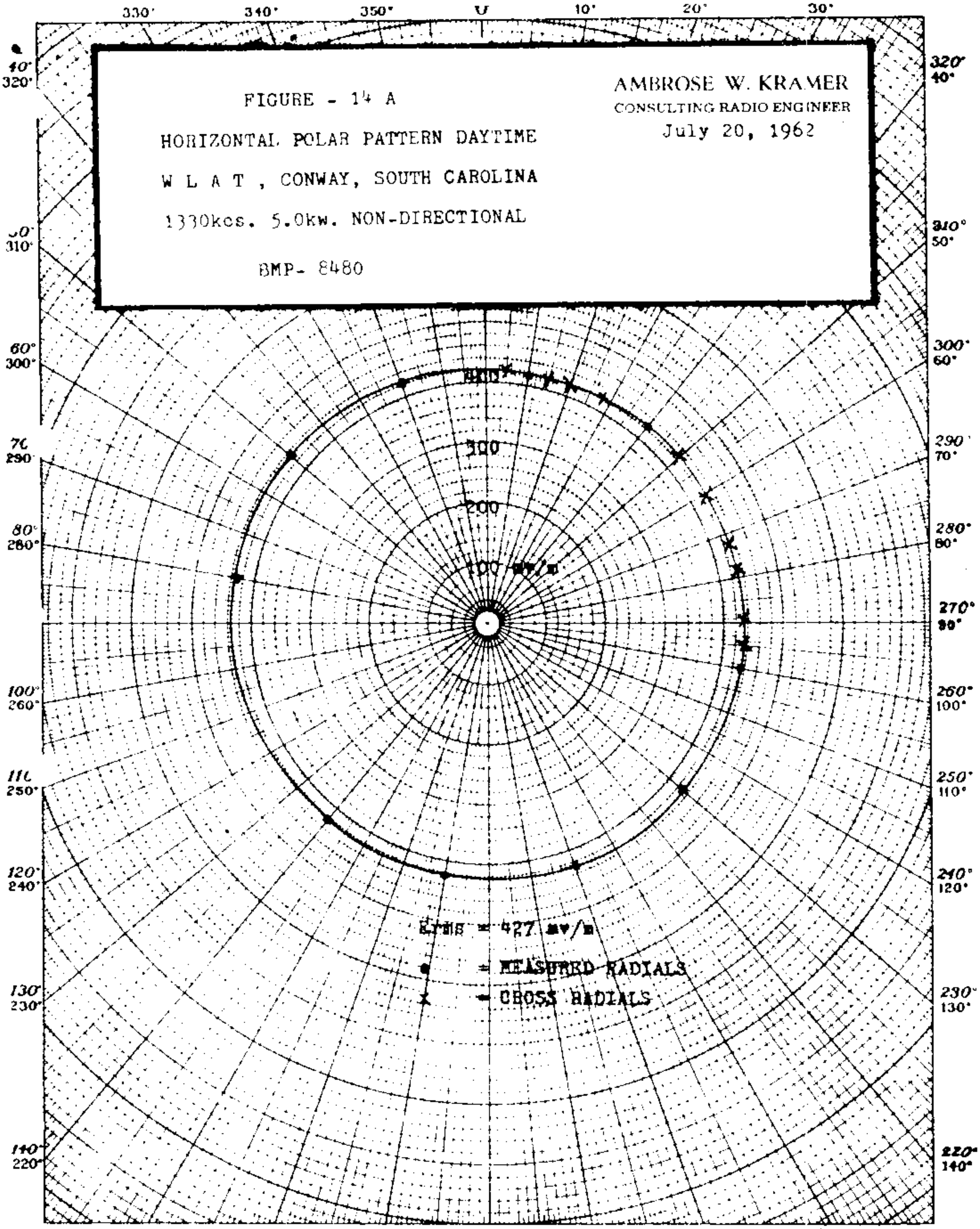
1330 kc

WLAT

Measured Non-DA
(9-27-62ct)

Station WLAT
Conway, South Carolina

500w,5kw-LS,DA-N,U
1330 kc



FCC File No. BL-9526
Accepted 8-29-62

Station WLAT
Conway, South Carolina

1330 kc

WLOL

Proposed Day
(5-27-65ct)

Station WLOL
Minneapolis, Minnesota

5kw, DA-2, U
1330 kc

P17377
P9-30-66
REPLACES
P16521

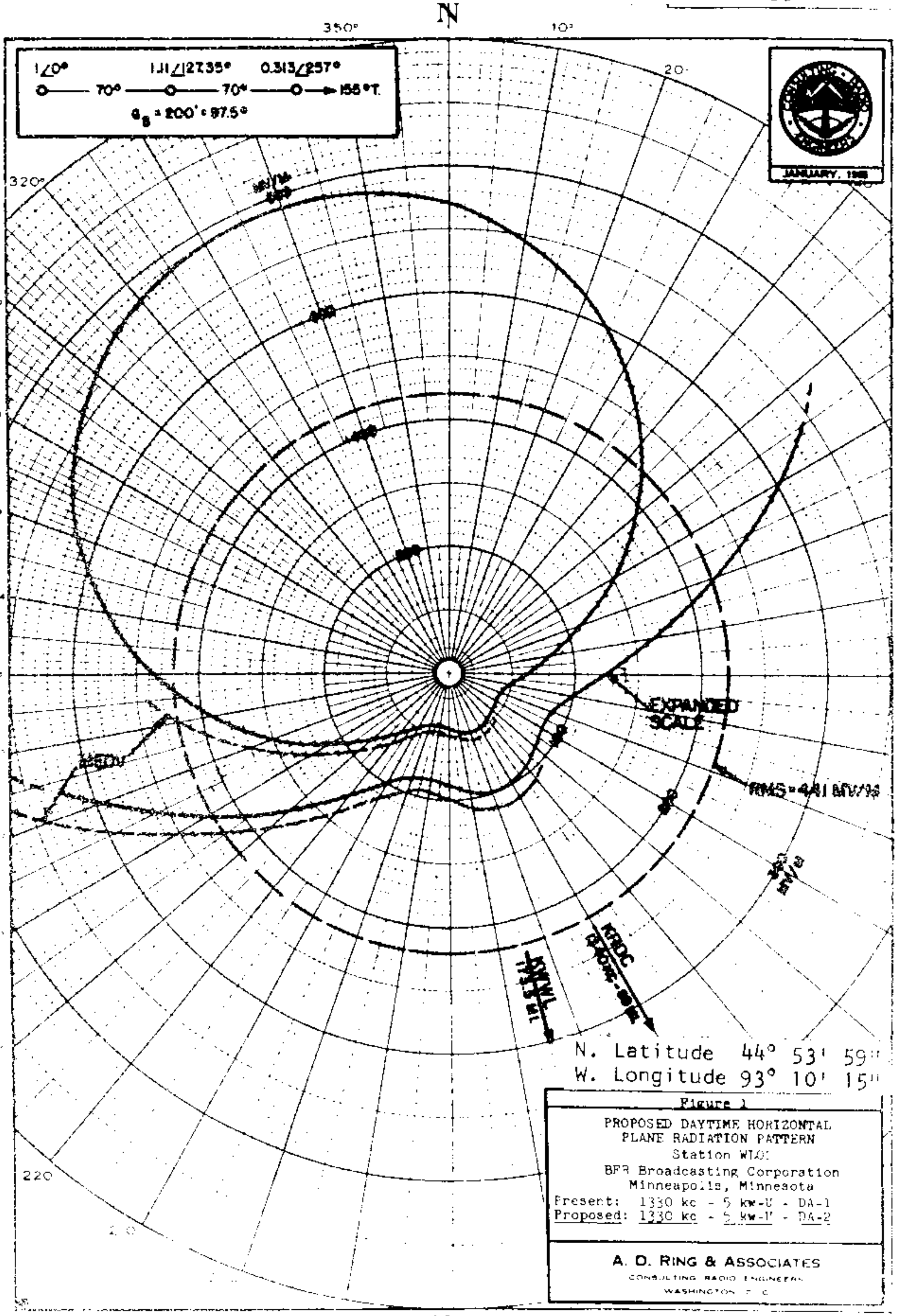


Figure 1

PROPOSED DAYTIME HORIZONTAL
PLANE RADIATION PATTERN
Station WLOL
BFR Broadcasting Corporation
Minneapolis, Minnesota
Present: 1330 kc - 5 kw-U - DA-1
Proposed: 1330 kc - 5 kw-U - DA-2

A. D. RING & ASSOCIATES
CONSULTING RADIO ENGINEERS
WASHINGTON, D. C.

A. D. RING & ASSOCIATES - 4/64 - #

FCC File No. BP-16521
Accepted [illegible]-65

Station WLOL
Minneapolis, Minnesota

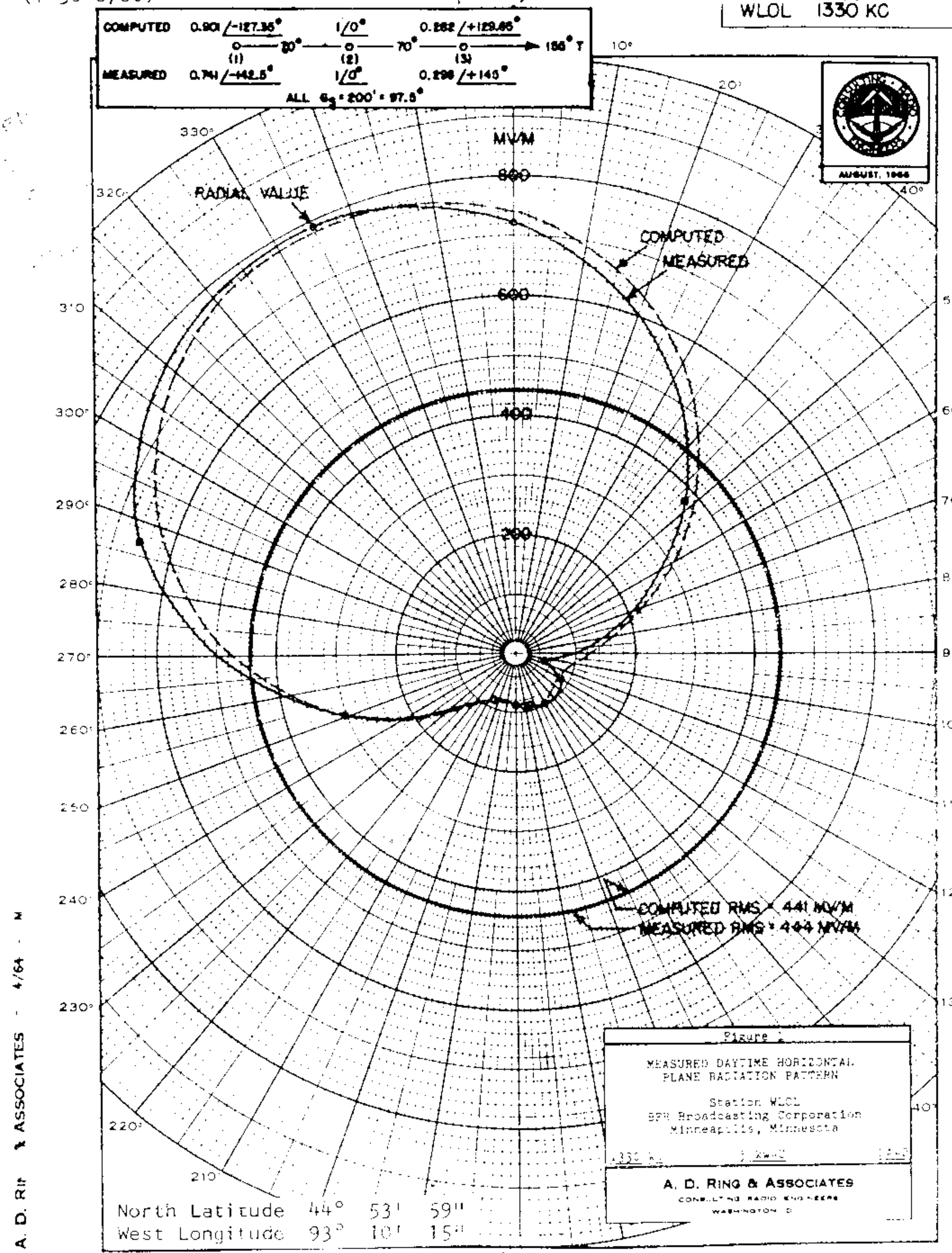
1330 kc

Measured Day
(1-30-67ct)

Station WLOL
Minneapolis, Minnesota

5kw,DA-2,U
1330 kc

WLOL 1330 KC



FCC File No.BL-11503
Accepted 1-3-67

Station WLOL
Minneapolis, Minnesota

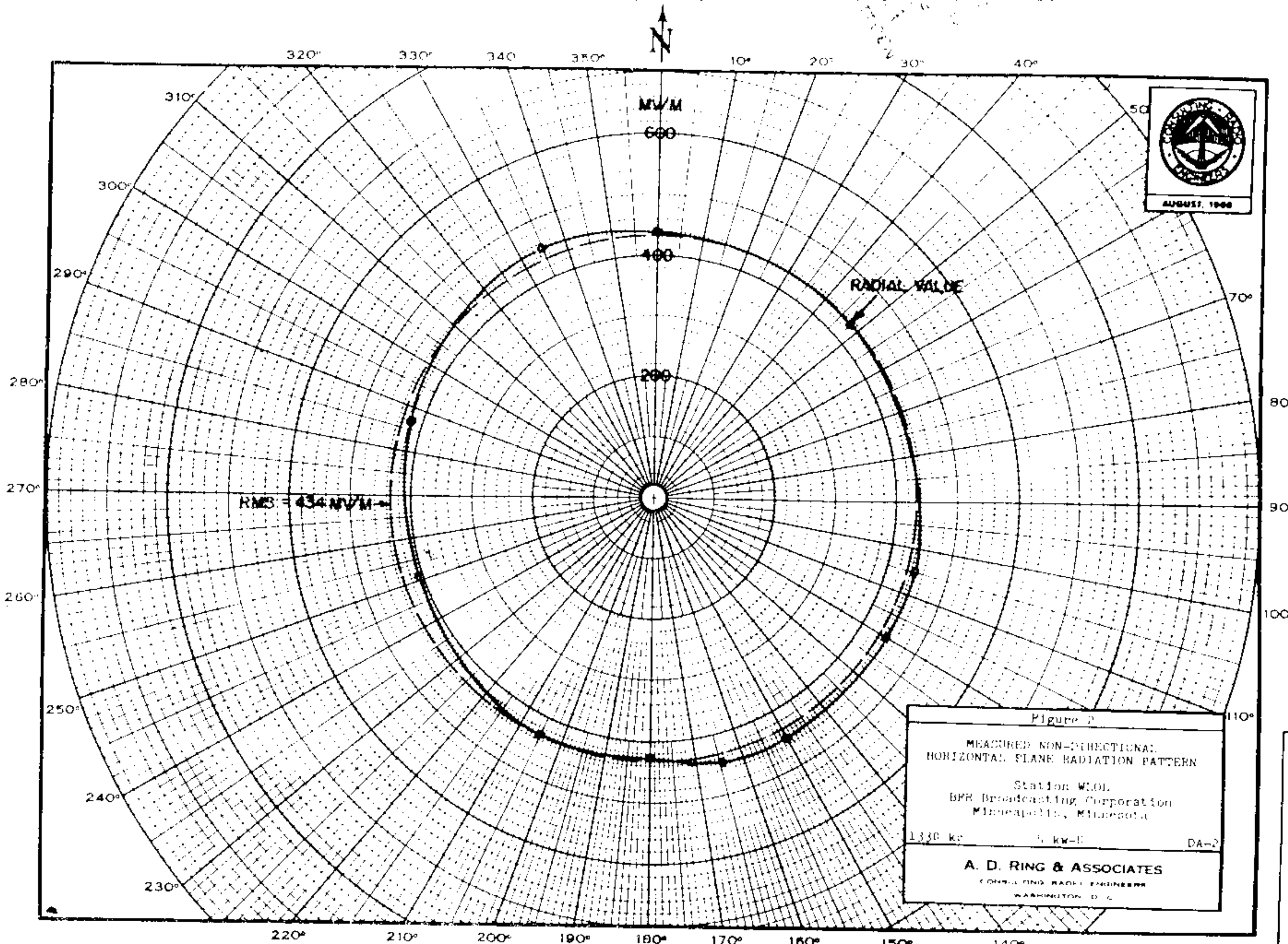
1330 kc

A. D.

Measured Non-DA
(1-30-67ct)

Station WLOL
Minneapolis, Minnesota

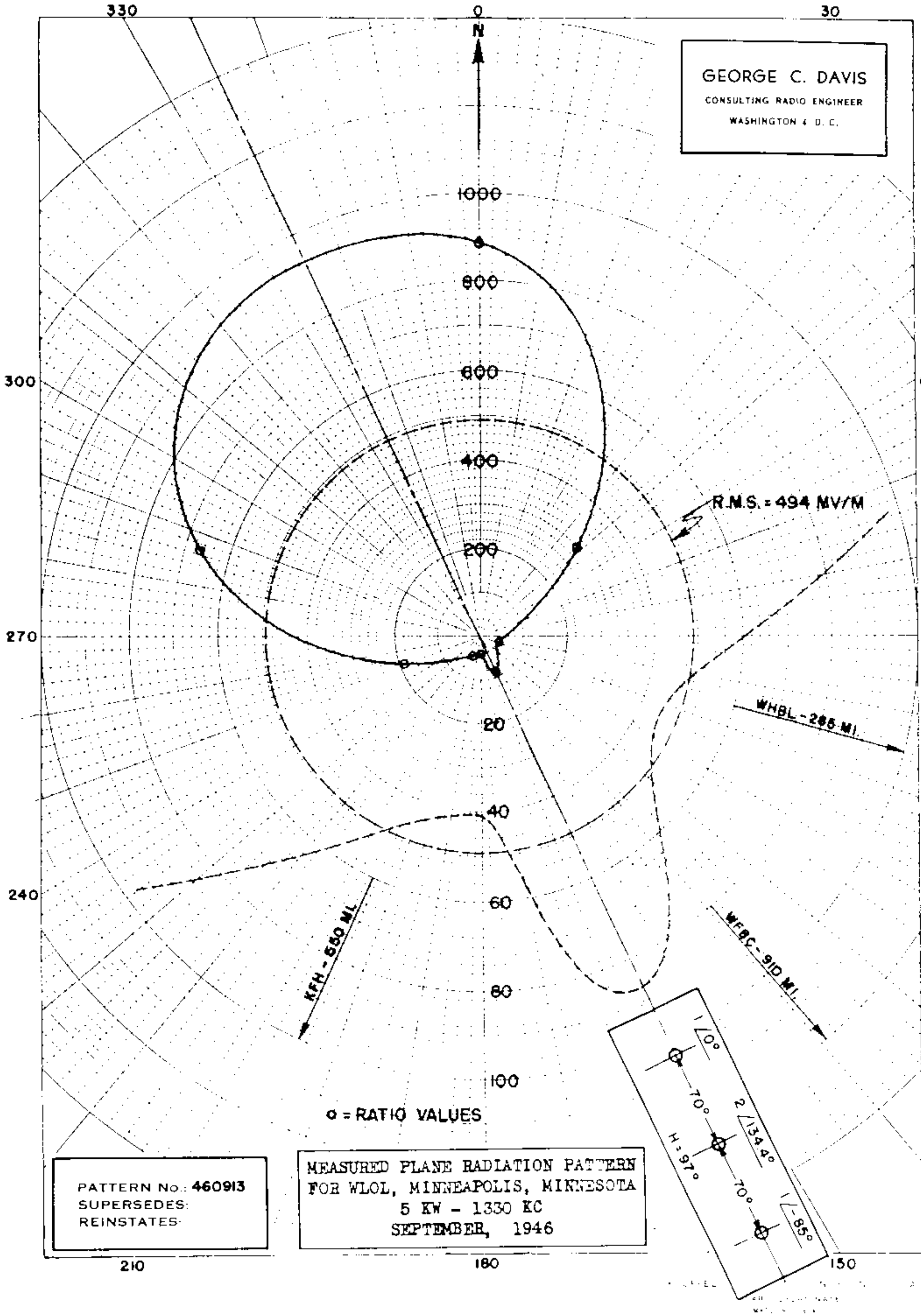
5kW,DA-2,U
1330 Kc



FCC File No.BL-11503
Accepted 1-3-67

Station WLOL
Minneapolis, Minnesota

1330 Kc



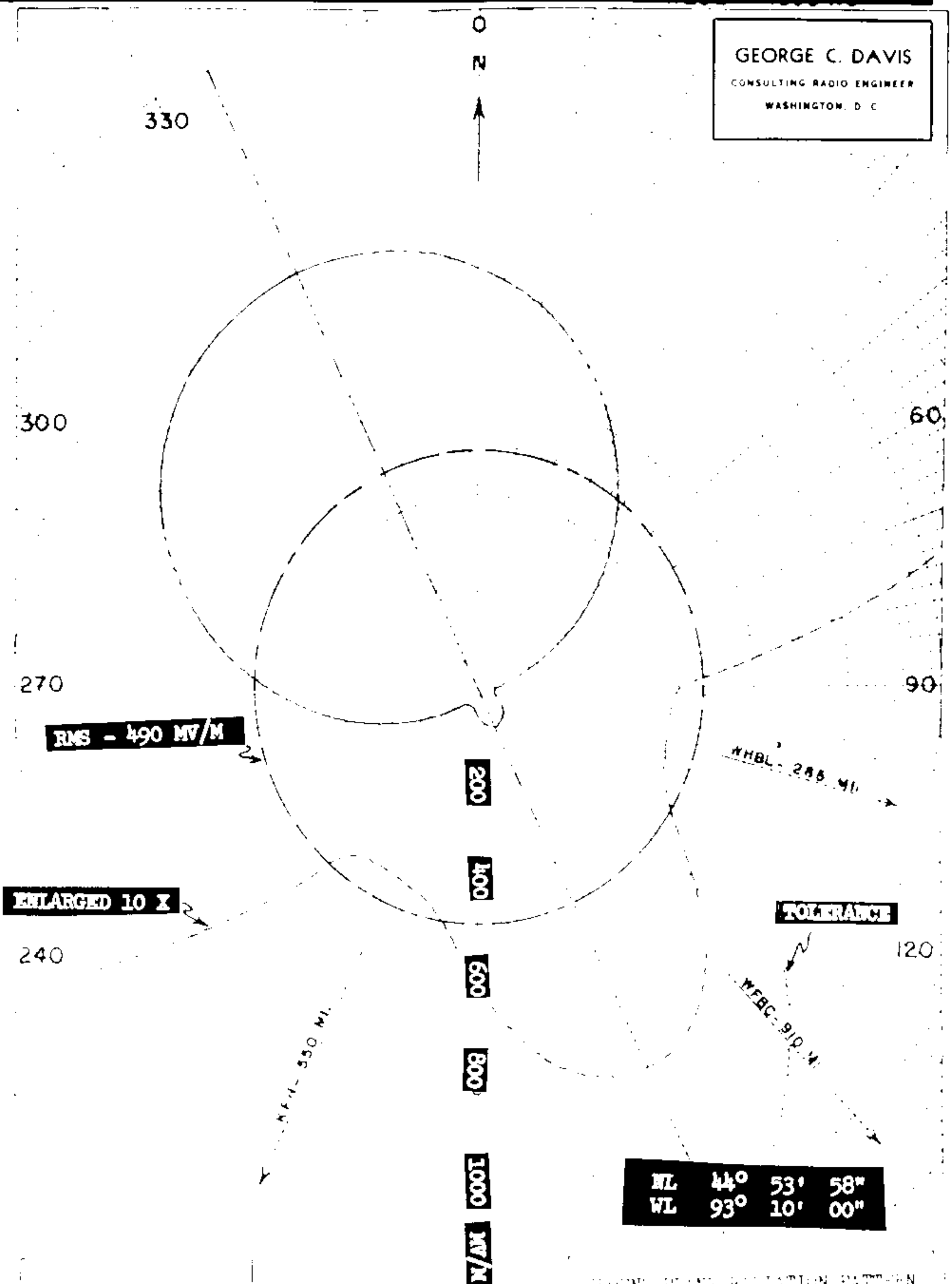
MEASURED PLANE RADIATION PATTERN
FOR WLOL, MINNEAPOLIS, MINNESOTA
5 KW - 1330 KC
SEPTEMBER, 1946

WLOL

PROPOSED NIGHT & DAY

Station WLOL 5kw, DA-1,U
Minneapolis, Minnesota 1330 KC

GEORGE C. DAVIS
CONSULTING RADIO ENGINEER
WASHINGTON, D. C.



PATTERN N. 440811-N
SUPERSEDES 440109-N

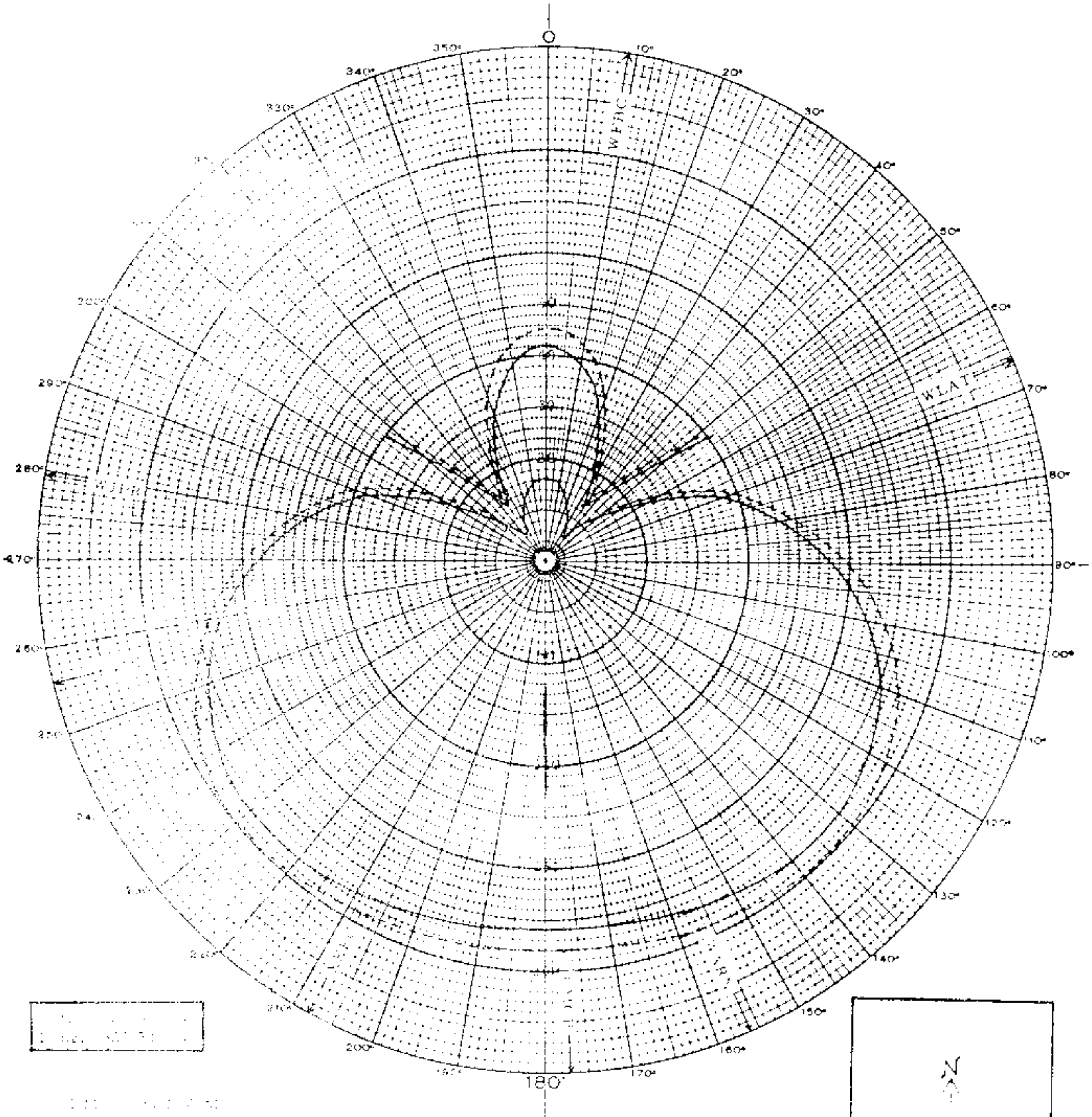
GROUND PLANE RADIATION PATTERN
FOR 5 KW. OPERATION
WLOL, MINNEAPOLIS, MINNESOTA

Proposed Night
(4-28-66ct)

Station WMLT
Dublin, Georgia

500w, 5kw-LS, DA-N, U
1330 kc

BP 16835
CP 8-24-66



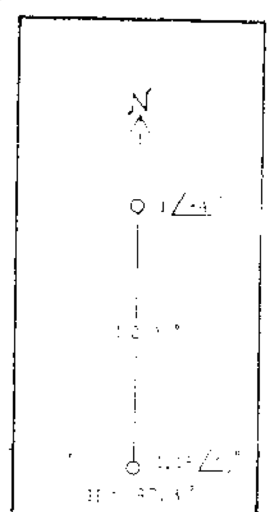


FIGURE 2

CALCULATED NIGHT-TIME

HORIZONTAL PLANE RADIATION PATTERN

WMLT, DUBLIN, GEORGIA

1330KC .5KW - 5KW LS U, DA-N

JUNE 1965

FCC File No. BP-16835
Accepted [illegible]

Station WMLT
Dublin, Georgia

1330 kc

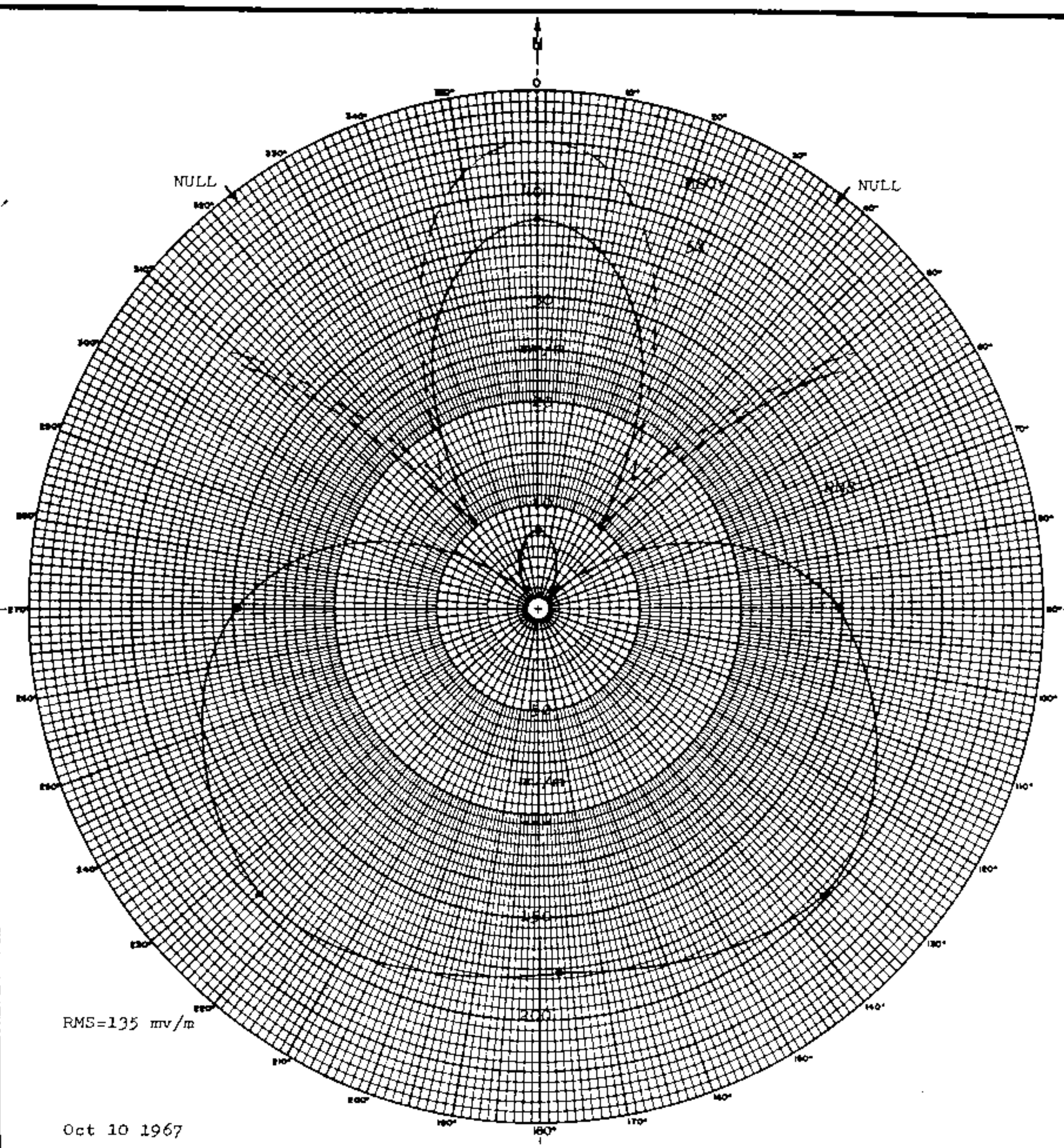
WMLT

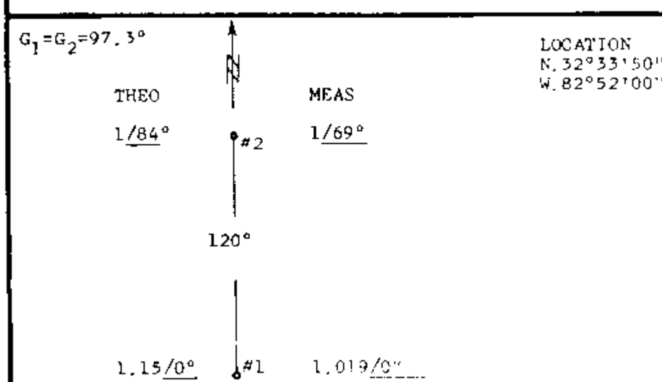
Measured Night
(11-28-67ct)

Station WMLT
Dublin, Georgia

500w,5kw-LS,DA-N,U
1330 kc

GRANTED LICENSE COV. 1-9-68 CHANGE IN HOURS INSTALL DA-N.





PALMER A. GREER
GREENVILLE S.C.

FIG.3 REV
DUBLIN BROADCASTING CO.
RADIO STATION WMLT
DUBLIN, GA.
1330 KHz. .5KW/5 KW LS. U. DA-N.
MEASURED DIRECTIONAL PATTERN.

FCC File No.BL-11804
Accepted 11-6-67

Station WMLT
Dublin, Georgia

1330 kc

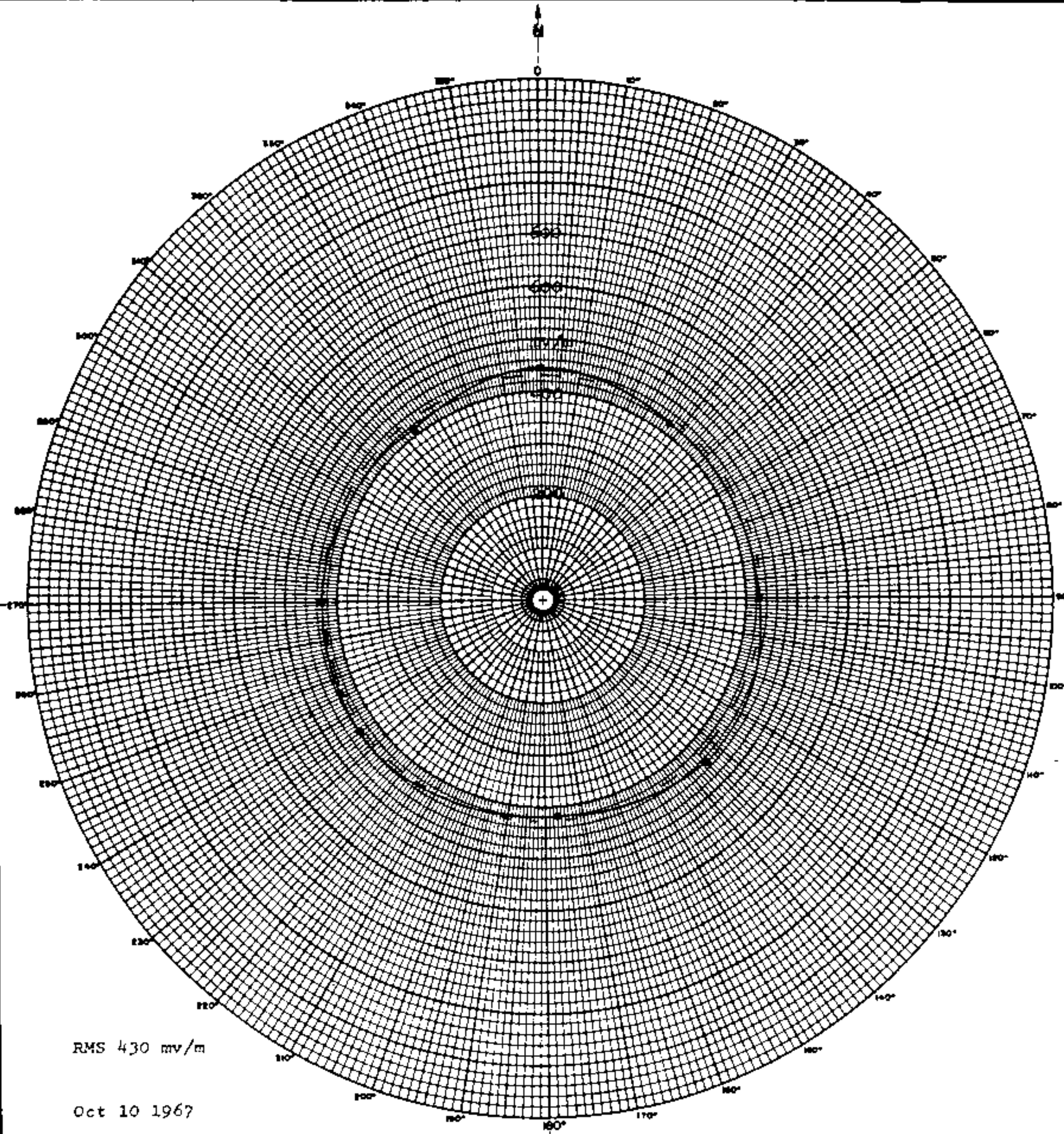
WMLT

Measured Non-DA
(11-28-67ct)

Station WMLT
Dublin, Georgia

500w,5kw-LS,DA-N,U
1330 kc

GRANTED
LICENSE 1-9-68
COV. CHANGE IN
HOURS INSTALL
DA-N.



#1,SOUTH TOWER

#2,NORTH TOWER,OPEN.

POWER 5,000 WATTS.

LOCATION
N.32°33'50"
W.82°52'00"

FIG.1 (rev)
DUBLIN BROADCASTING CO.
RADIO STATION WMLT
DUBLIN, GA.

1330 kHz.	.5KW/5.KW LS.	U. DA-N.

MEASURED NON-DIRECTIONAL RADIATION PATTERN.

PALMER A. GREER
GREENVILLE, S.C.

FCC File No.BL-11804
Accepted 11-6-67

Station WMLT
Dublin, Georgia

1330 kc

WPOW

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WEVD and WPOW — Main Studio: New York, New York

Frequency: 1330 kHz — Power: 5 kW

Notification List No. 1652 — Date: October 1, 1975 — Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:
North Latitude: 40° 32' 45"
West Longitude: 74° 12' 11"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-1)
Number of elements: 3
Type of elements: 2 Series-excited, uniform cross-section, guyed, vertical steel towers. Center element is a vertical wire supported by an insulated, sectionalized, wire cable suspended between the two towers.

TOWER:	SW(#1)	C(#2)	NE(#3)
HEIGHT ABOVE INSULATORS:	408'	377'(183.5°)	408'(198.5°)
PHASING:	+140°	0°	-120°
FIELD RATIO:	0.65	1.00	0.65

SPACING AND ORIENTATION: Adjacent elements are spaced 185'(90°) on a line bearing 230° true.

GROUND SYSTEM: 120-298' equally spaced copper radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

Predicted effective Field: 560 mv/m at rated power.

Note: Please retain the directional antenna radiation pattern notified for station WBBR (now WPOW) in United States Change List Number 225 dated May 2, 1947 and attach to this Revised Description Sheet. This notification concerns a change in the operation of station WEVD to change transmitter location and antenna system to the same transmitter location and antenna system used by WPOW on a share time basis.

WPOW CTR NO 30371A0

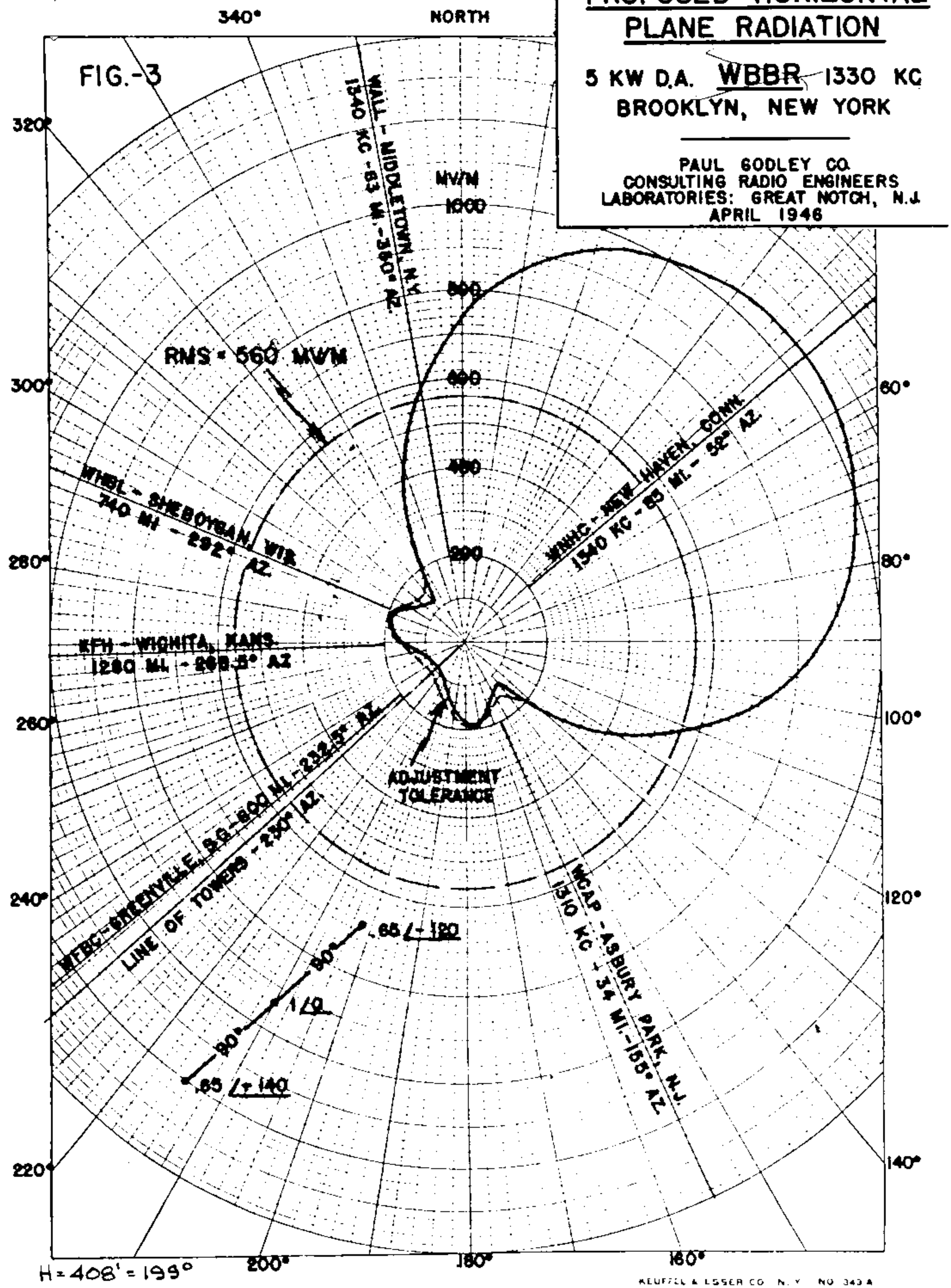
WEVD CTR NO 31018A4

W WPOW

PROPOSED HORIZONTAL PLANE RADIATION

5 KW D.A. ~~WBBR~~ 1330 KC
BROOKLYN, NEW YORK

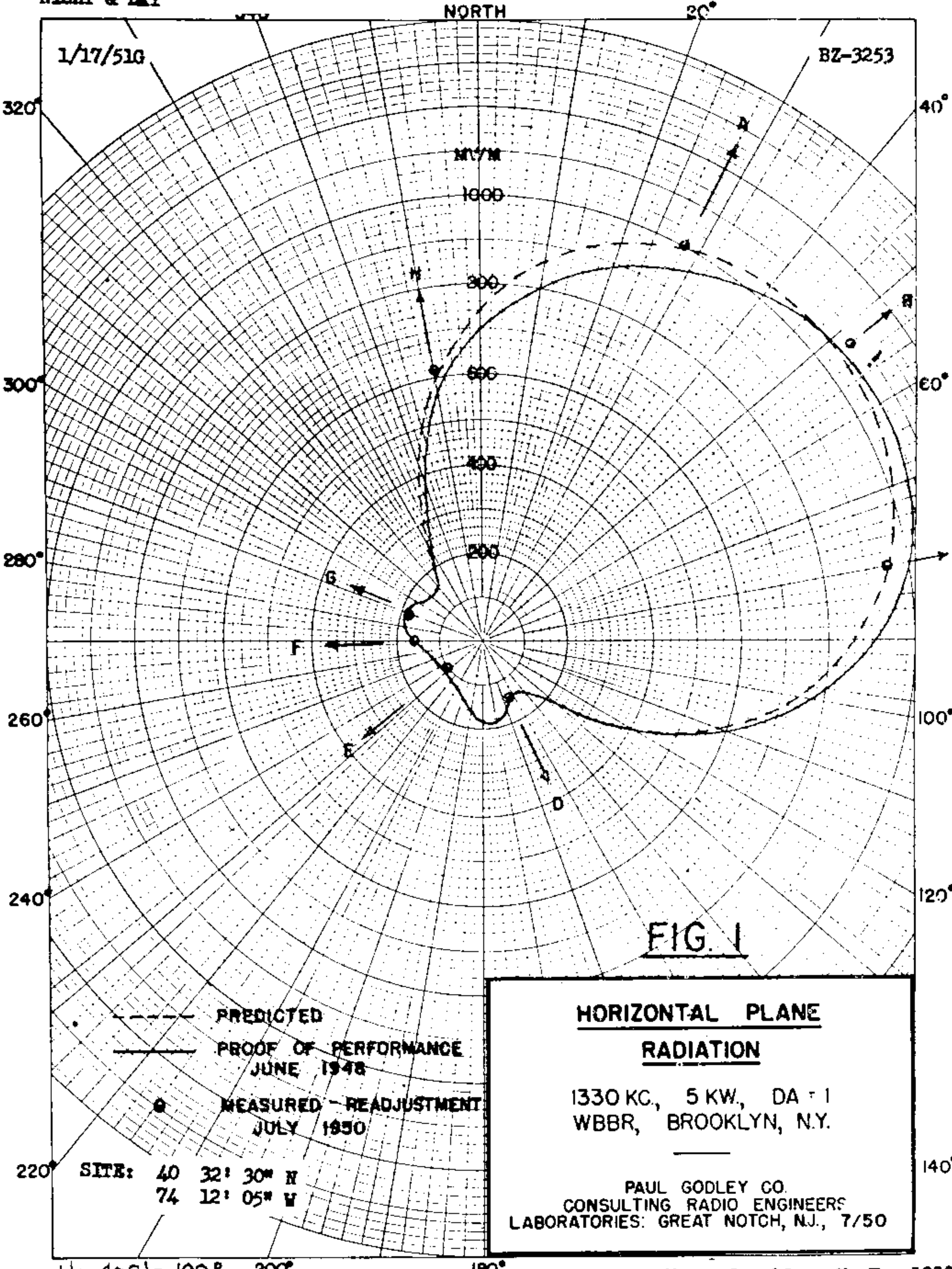
PAUL GODLEY CO.
CONSULTING RADIO ENGINEERS
LABORATORIES: GREAT NOTCH, N.J.
APRIL 1946



H = 408' = 199°

WPOW

MEASURED NIGHT & DAY WBBR, BROOKLYN, N. Y. 5kw, DA-1 1330 kc



H = 408' = 199°

WBBR, Brooklyn, N. Y. 1330 kc

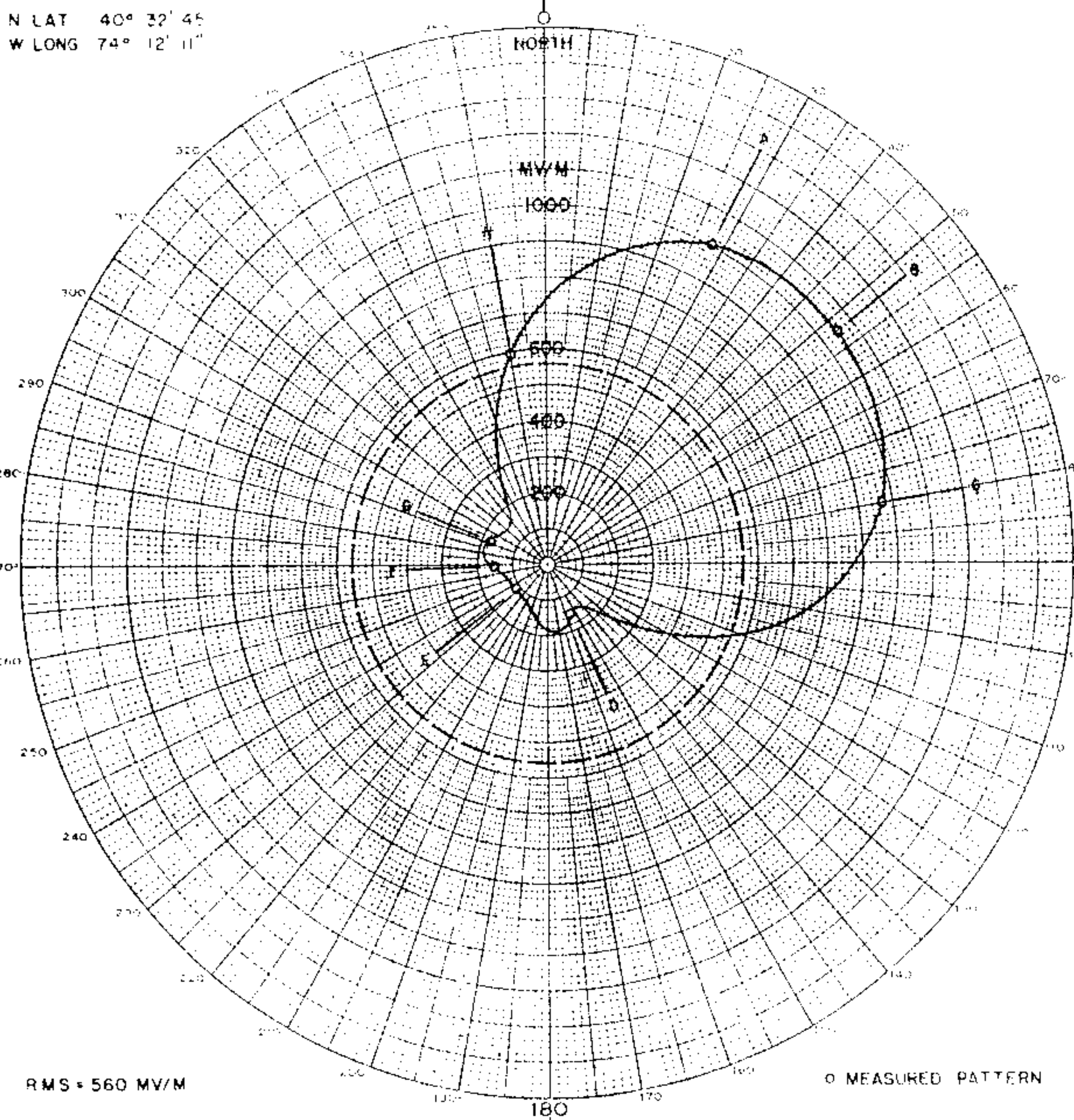
WPOW

MEASURED DAY & NIGHT
(11-11-60g)

Station WPOW
New York, New York

5kw, DA-1, S-WEVD, WHAZ
1330 KC

N LAT 40° 32' 45"
W LONG 74° 12' 11"

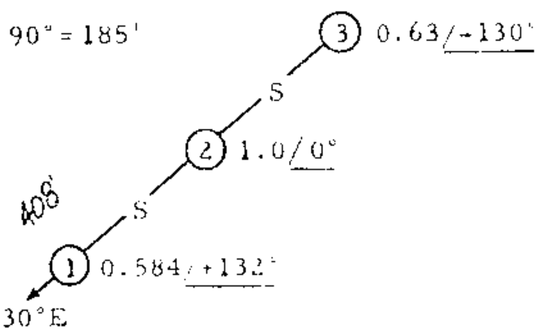


RMS = 560 MV/M

O MEASURED PATTERN

ANTENNA PARAMETERS

S = 90° = 185'



H = 408' = 199°

HORIZONTAL RADIATION PATTERN

RADIO STATION WPOW
1330 KC 5.0 KW S DA-1
New York New York

EDWARD W. JACKER
Consulting Radio Engineer
Lombard Illinois
August 1960

FCC File No. BZ-4362
Accepted 10-20-60

WPOW
New York, New York

1330 KC

WPRZ
1330kHz

DIRECTIONAL ANTENNA DESCRIPTION

Station: WPRZ

Main Studio: Evanston, Illinois

Frequency: 1330 kHz

Power: 5kw Day

Notification List No. 1790

Date: December 4, 1980 Class: III

GEOGRAPHICAL LOCATION OF THE C
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 42° 08' 14"
West Longitude: 87° 53' 08"

ANTENNA CHARACTERISTICS

Authorized for Daytime operation. (DA-D)
Number of elements: 6
Type of elements: Series excited, guyed, Shunt excited, Self supporting, tapered, vertical steel towers.

TOWER:	EC(#1)	WC(#2)	NE(#3)	NW(#4)	SE(#5)	SW(#6)
HEIGHT ABOVE INSULATORS:	175'	175'	175'	175'	175'	175' (85.19°)
DAY PHASING:	0°	+98°	-46°	+52°	+46°	+144°
DAY FIELD RATIO:	1.0	1.0	0.53	0.53	0.53	0.53

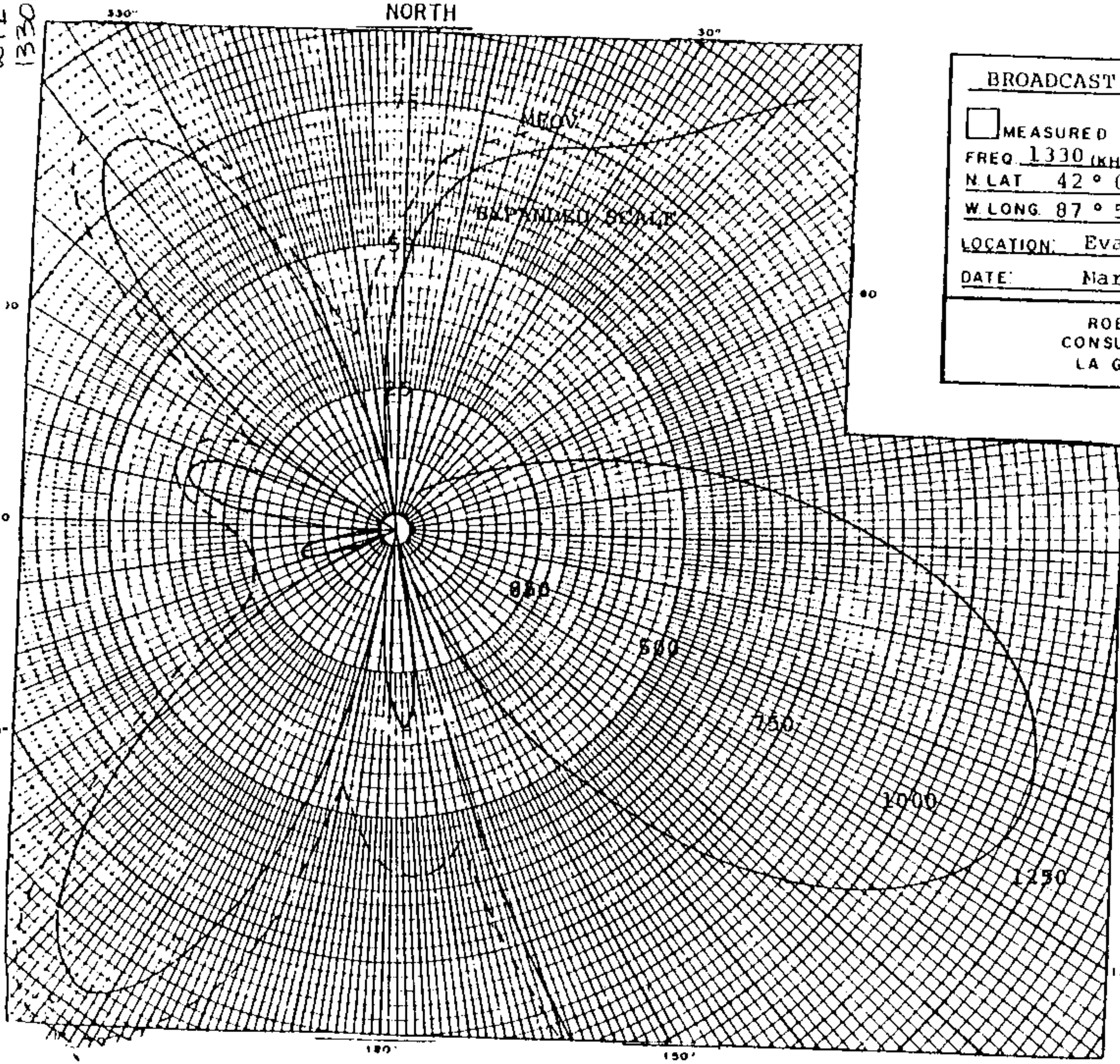
SPACING AND ORIENTATION: Towers are in the form of a parallelogram with long sides consisting of three towers on lines bearing 216° true and 359' (175) — 359'(175°) spacing between adjacent elements. Short sides consist of two towers on lines bearing 323° true and 185'(90°) spacing between towers.

GROUND SYSTEM: 240 - 185' equally spaced copper radials 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	425 mv/m		

WPRZ
1330kHz



BROADCAST COMMUNICATIONS, INC.

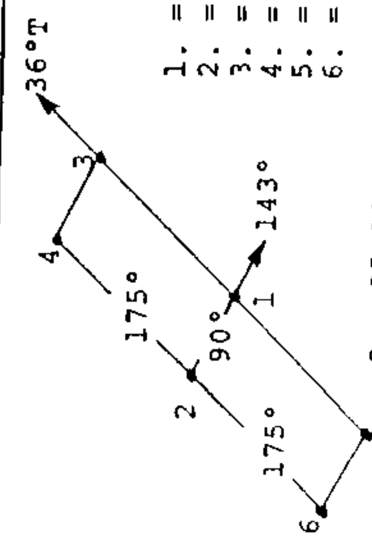
☐ MEASURED	☒ PROPOSED
FREQ. 1330 (KHZ) POWER 5.0 (KW)	☒ DA-D
N. LAT. 42 ° 08 ' 13.7 "	☐ DA-N
W. LONG. 87 ° 53 ' 07.5 "	☐ N-D

LOCATION: Evanston, Illinois

DATE: March, 1978

ROBERT A JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

PATTERN PARAMETERS



1. = 1.00/ 0°
2. = 1.00/98°
3. = 0.53/-46°
4. = 0.53/ 52°
5. = 0.53/ 46°
6. = 0.53/144°

G = 85.19°

Figure 3

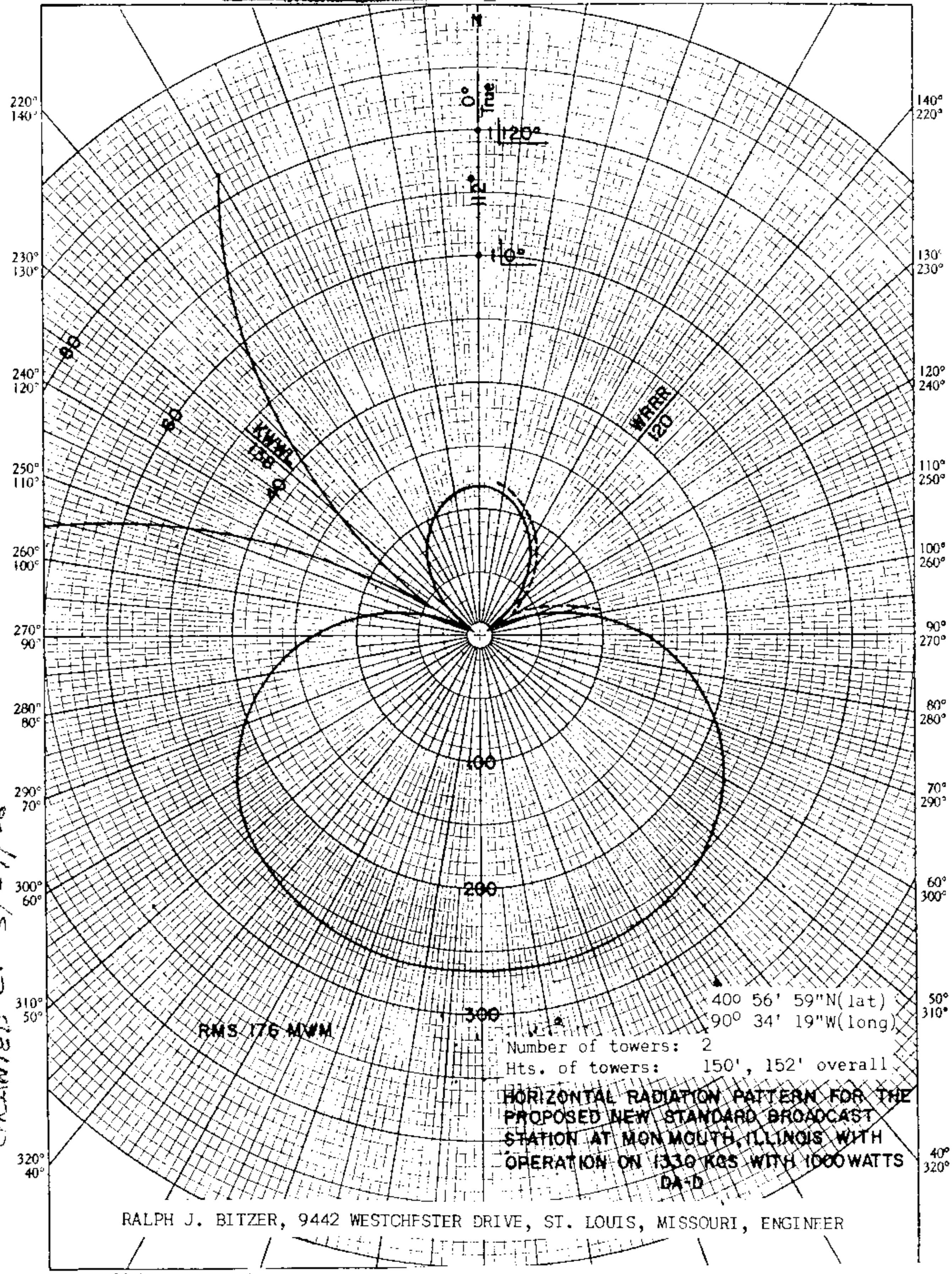
WRAM

PROPOSED DAY
(11/28/55G)

PRAIRIELAND BROADCASTERS
MONMOUTH, ILLINOIS

1 KW
DA-D, D

1330 KC



GRANTED CP 5/29/56

FILE NO. BP-10,116

ACCEPTED 10-12-55 FCC

PRAIRIELAND BCRS.
Monmouth, Illinois

1330 KC

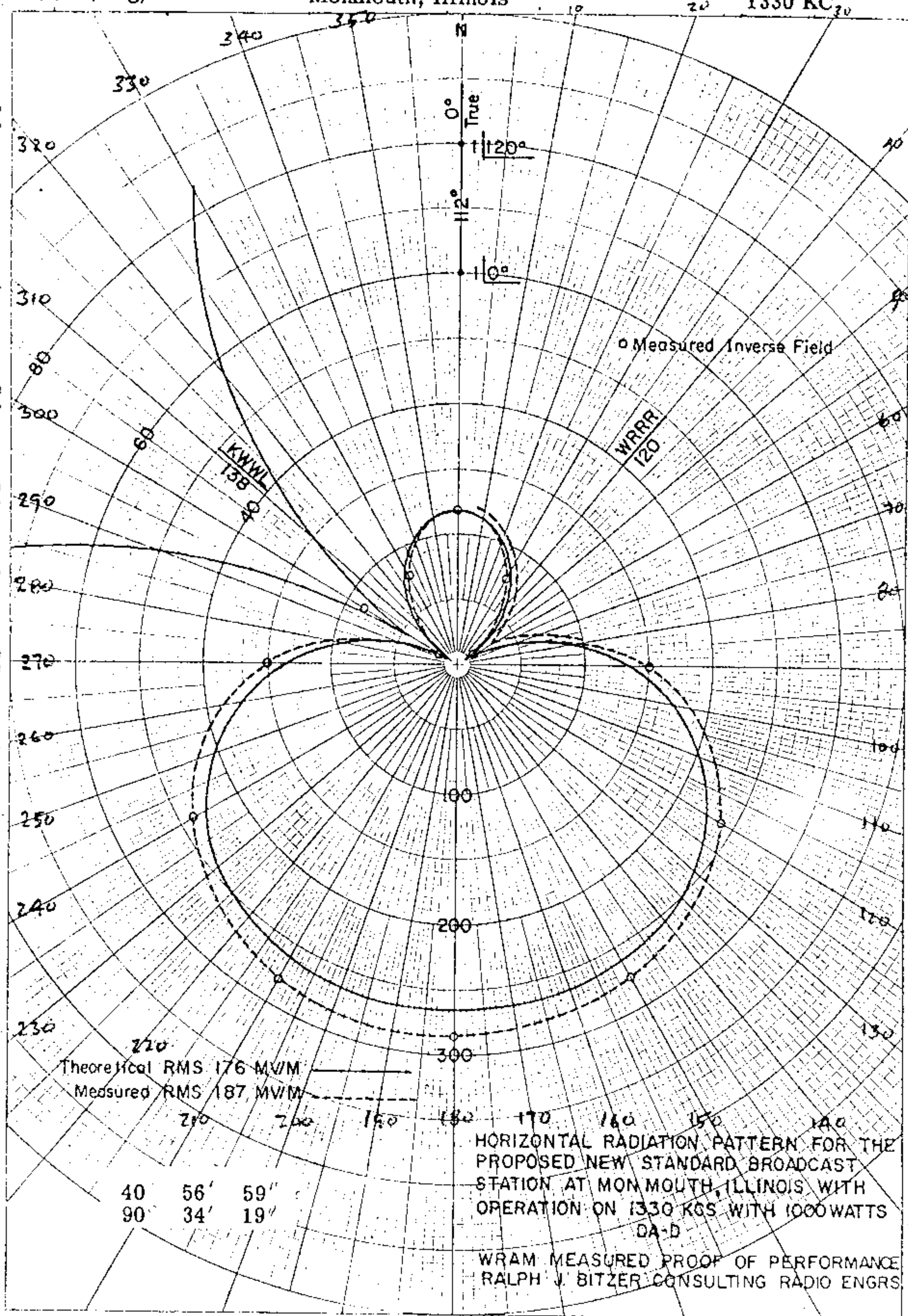
W KAM

MEASURED DAY
(5/17/57g)

Station WRAM
Monmouth, Illinois

1kw, DA-D,D

1330 KC



FCC File No. BL-6624
Accepted 5/6/57

WRAM
Monmouth, Illinois

1330 KC

WRIE
1330kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: W R I E | Main Studio: Erie, Pennsylvania

Frequency: 1330 kHz | Power 5 kW Night 5 kW Day

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

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:
North Latitude: 41° 59' 32"
West Longitude: 80° 01' 44"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2)
Number of elements: 4
Type of elements: Series excited, uniform cross-section, guyed, vertical steel towers.

TOWER:	S(#1)	SC(#2)	NC(#3)	N(#4)
HEIGHT ABOVE INSULATORS:	185'	185'	185'	185'(90°)
NIGHT PHASING:	0°	203.9°	53.1°	257.0°
NIGHT FIELD RATIO:	1.0	2.2	2.2	1.0
DAY PHASING:	0°	-133.0°	77.0°	-90.0°
DAY FIELD RATIO:	1.0	2.6	2.5	1.4

SPACING AND ORIENTATION: Adjacent towers in a row are spaced 185'(90°) on a line bearing 6° true.

GROUND SYSTEM: 120-296' equally spaced copper radials about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers.

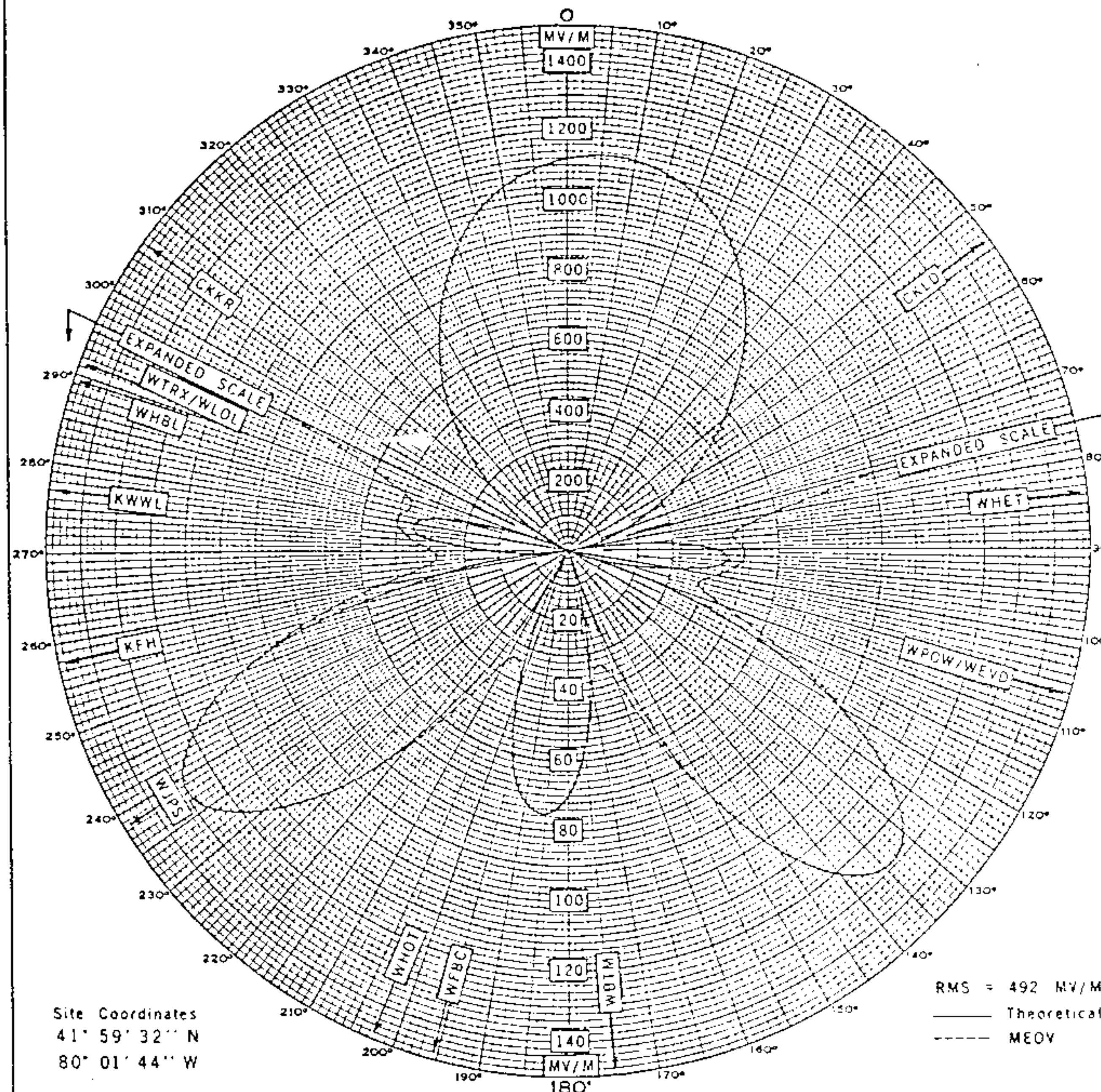
PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	472 mV/m		
Night	492 mV/m		516. 6 mV/m

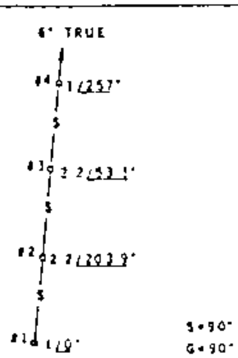
WRIE
1330kHz

Note: Please retain the Daytime directional antenna radiation pattern notified for Station WIKK in United States Change List Number 225 dated May 2, 1947 and attached 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.

Figure 1 WKIE
Sheet 1 of 13 1330kHz



NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN



RADIO ERIE, INC.

ERIE, PENNSYLVANIA

Jules Cohen & Associates

Consulting Electronics Engineers

RADIO STATION WRIE

1330 KHZ

5 KW U DA-2

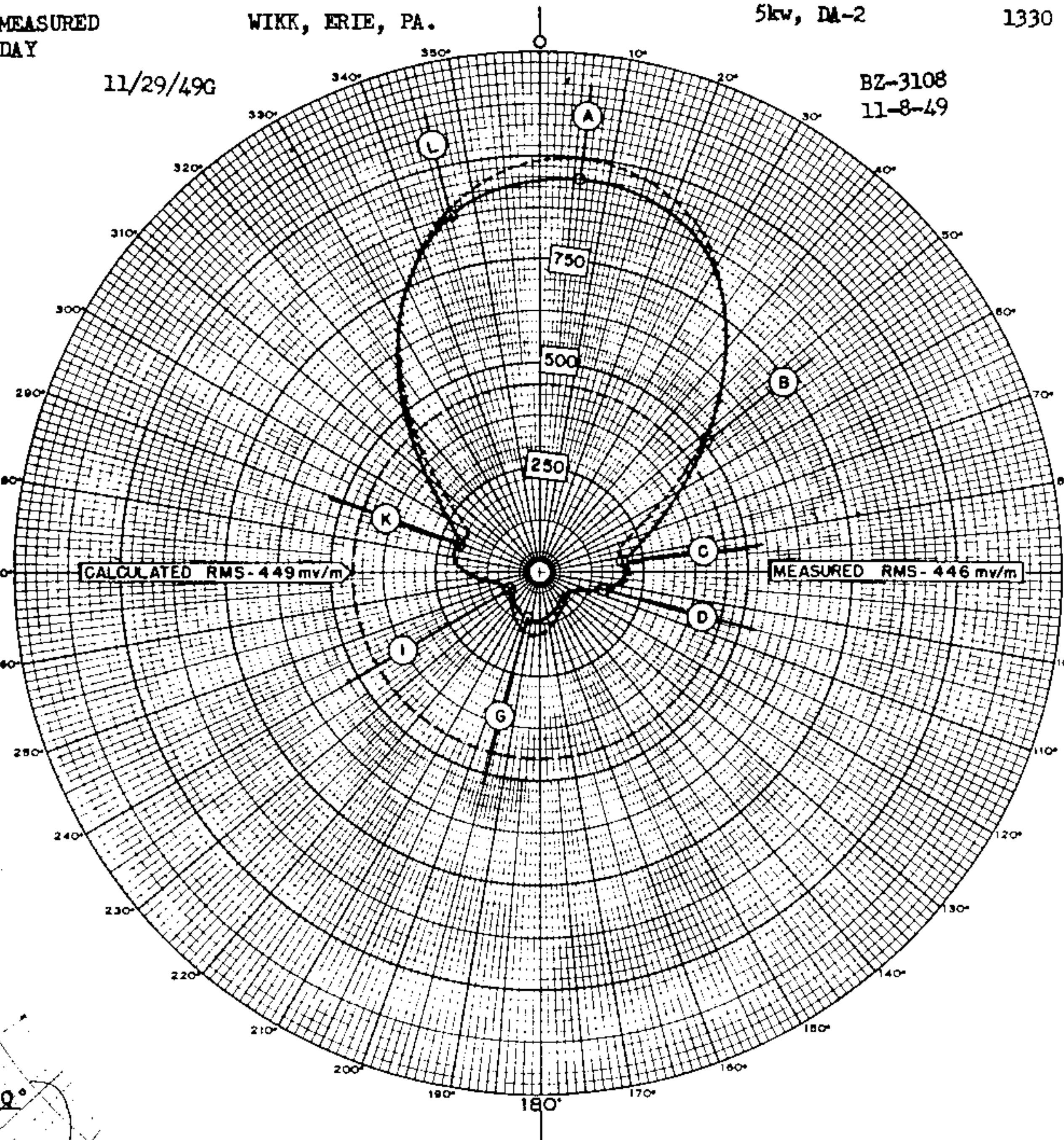
Pattern 770128

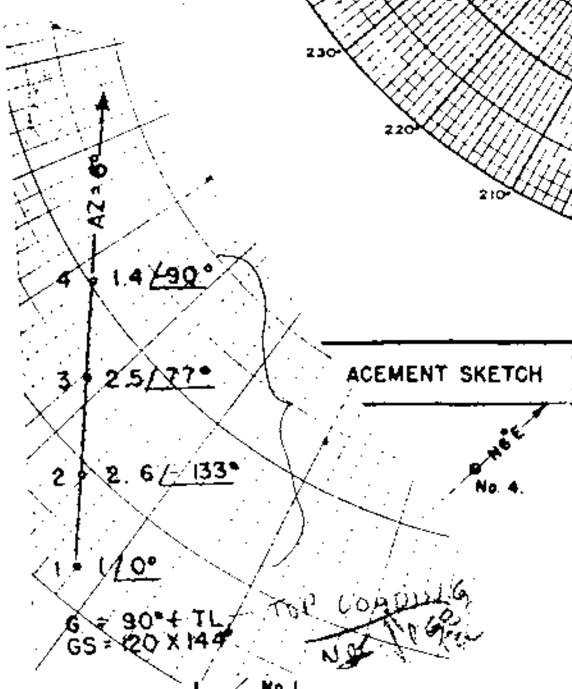
WRIE ~~WICU~~

MEASURED WIKK, ERIE, PA. 5kw, DA-2 1330 kc
DAY

11/29/49G

BZ-3108
11-8-49





PATTERN PARAMETERS

TOWER No	ELECTRICAL HEIGHT θ°	TRUE TOWER ORIENTATION φ°	SPACING S°	PHASING ψ°	HORIZONTAL FIELD mv/m E	FIELD RATIO F	ELEV. ANGLE θ°	ELEVATION RMS FIELD mv/m Eθ
1	90	N6°E	90				0	
2	90						10	
3	90						20	
4	90						30	
5							40	
6							50	
7							60	
8							70	
9							80	
10							E_r =	mv/m
DAYTIME OPERATION ☒				NIGHTTIME OPERATION ☐			P_r =	kw

STATION DATA

CALL	WIKK
FREQUENCY	1330 kc
POWER	5 kw
TIME OF OPERATION	U
TYPE OF OPERATION	DA-2
DAYTIME TOWERS	4
NIGHTTIME TOWERS	4
No RADIALS PER TOWER	120
LENGTH OF RADIALS	144 · 296 ft
GROUND SCREEN DIMENSION	40'X40'
LAT.	41° 59' 32.43"
LONG.	80° 01' 44.46"
SUPERSEDES	10/7/48
PATTERN No	490901 R

COMMUNITY SERVICE BROADCASTING CO.

Erie, Pennsylvania

Fig. 38 9/1/49

GEORGE P. ADAIR
Radio Engineering Consultants
WASHINGTON, D. C.

WIKK, Erie, Pa. 1330 kc.

WRIE ~~WICU~~

MEASURED
NIGHT

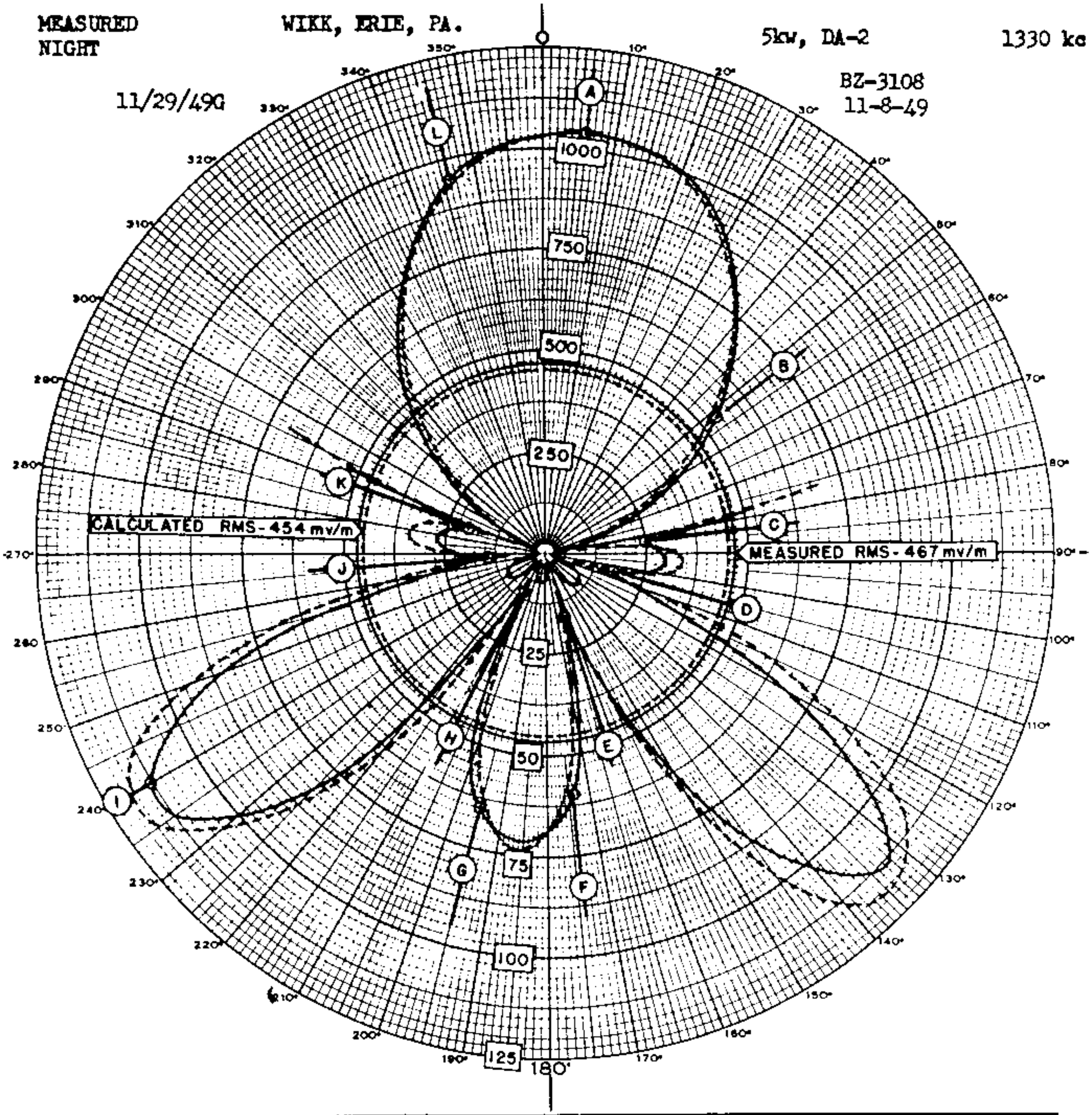
WIKK, ERIE, PA.

5kw, DA-2

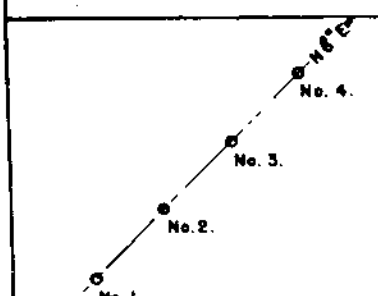
1330 kc

11/29/49G

BZ-3108
11-8-49



TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

TOWER No	ELECTRICAL HEIGHT $\theta°$	TRUE TOWER ORIENTATION $\phi°$	SPACING $S°$	PHASING $\psi°$	HORIZONTAL FIELD mv/m E	FIELD RATIO F	ELEV ANGLE $\theta°$	ELEVATION RMS FIELD mv/m E_θ
1	90	N6°E	90				0	
2	90						10	
3	90						20	
4	90						30	
5							40	
6							50	
7							60	
8							70	
9							80	
10							E_r =	mv/m
DAYTIME OPERATION ☐			NIGHTTIME OPERATION ☒				P_r =	kw

STATION DATA

CALL	WIKK
FREQUENCY	1330 kc
POWER	5 kw
TIME OF OPERATION	U
TYPE OF OPERATION	DA-2
DAYTIME TOWERS	4
NIGHTTIME TOWERS	4
NO RADIALS PER TOWER	120
LENGTH OF RADIALS	144 ° 296 ft
GROUND SCREEN DIMENSION	40'X40'
LAT	41 ° 59 ' 32.43"
LONG.	80 ° 01 ' 44.46"
SUPERSEDES	10/7/48
PATTERN No	490901N

COMMUNITY SERVICE BROADCASTING CO.

Erie, Pennsylvania

Fig. 3A 9/1/49

GEORGE P. ADAIR
Radio Engineering Consultants
WASHINGTON, D. C.

WIKK, Erie, Pa. 1330 kc

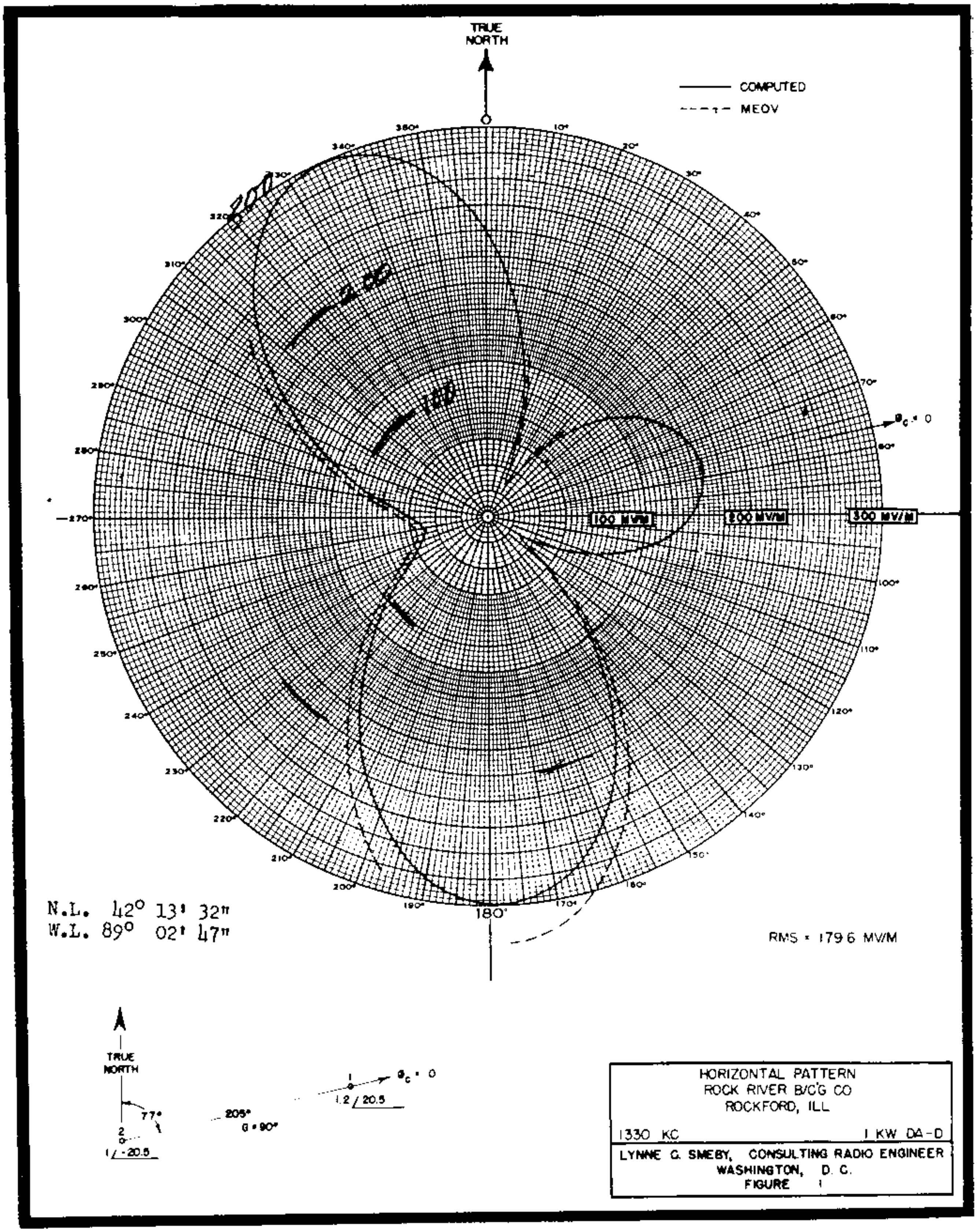
Drandlee WRRK
ROCKFORD

PROPOSED
DAY

NEW, ROCKFORD, ILL.
(Rock River B/cg Co.)
11/5/51G

1 KW, D, DA-D

1330 KC



APPL RECD 10/25/51 BP-8286

NEW, ROCKFORD, ILL.
(Rock River B/cg Co.)

1330 KC

WRRR

MEASURED DAY (5/4/54G) WRRR, Rockford, Illinois 1KW, D, DA-D 1330 kc

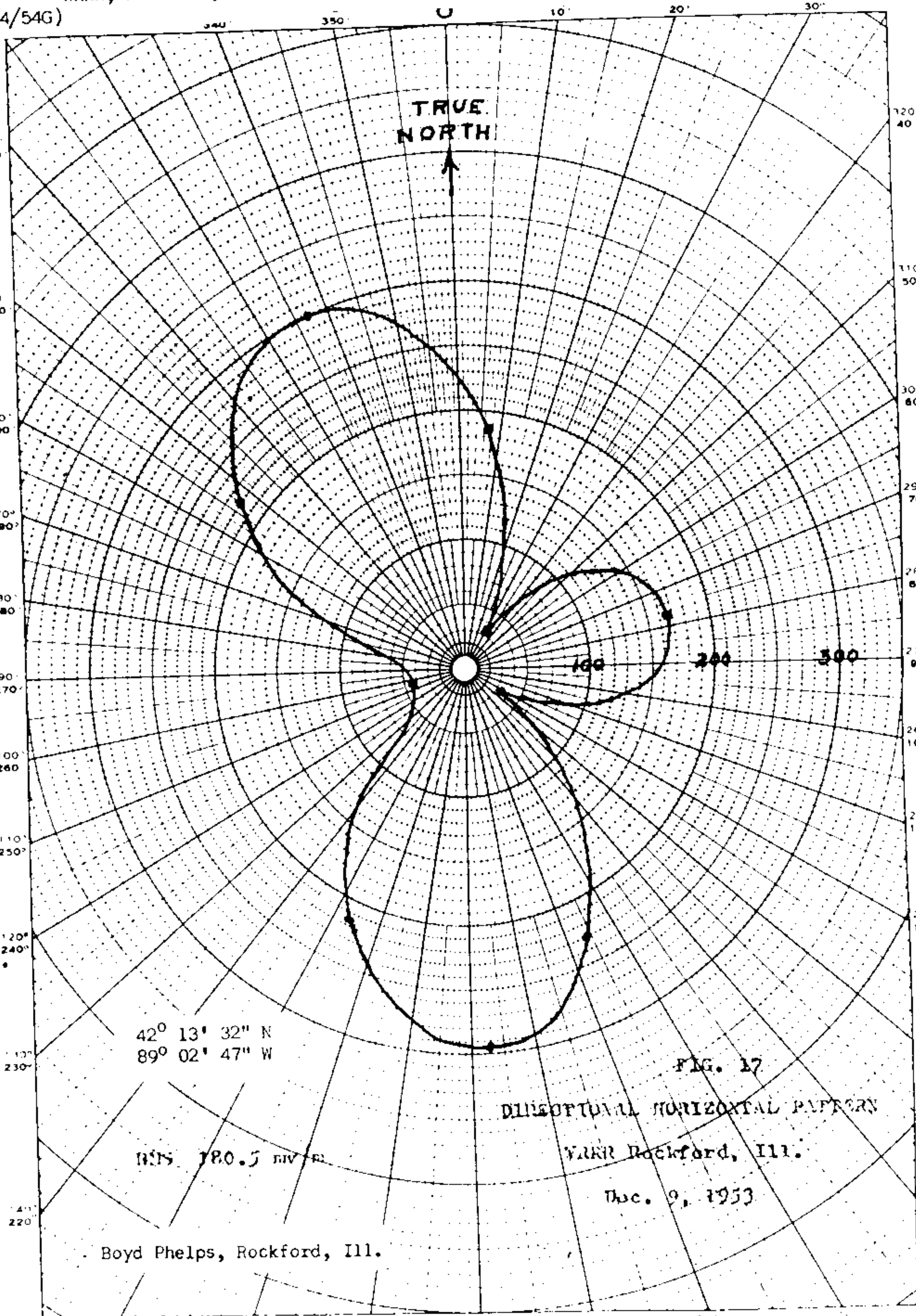


FIG. 17

DIRECTIONAL HORIZONTAL PATTERN

WRRR Rockford, Ill.

Dec. 9, 1953

FCC File No. BL-5194 WRRR, Rockford, Illinois 1330 kc

WRRR

1330 KC

MEASURED WRRR, Rockford, Illinois. 1KW, D, DA-D
NON DA (5/4/54G)

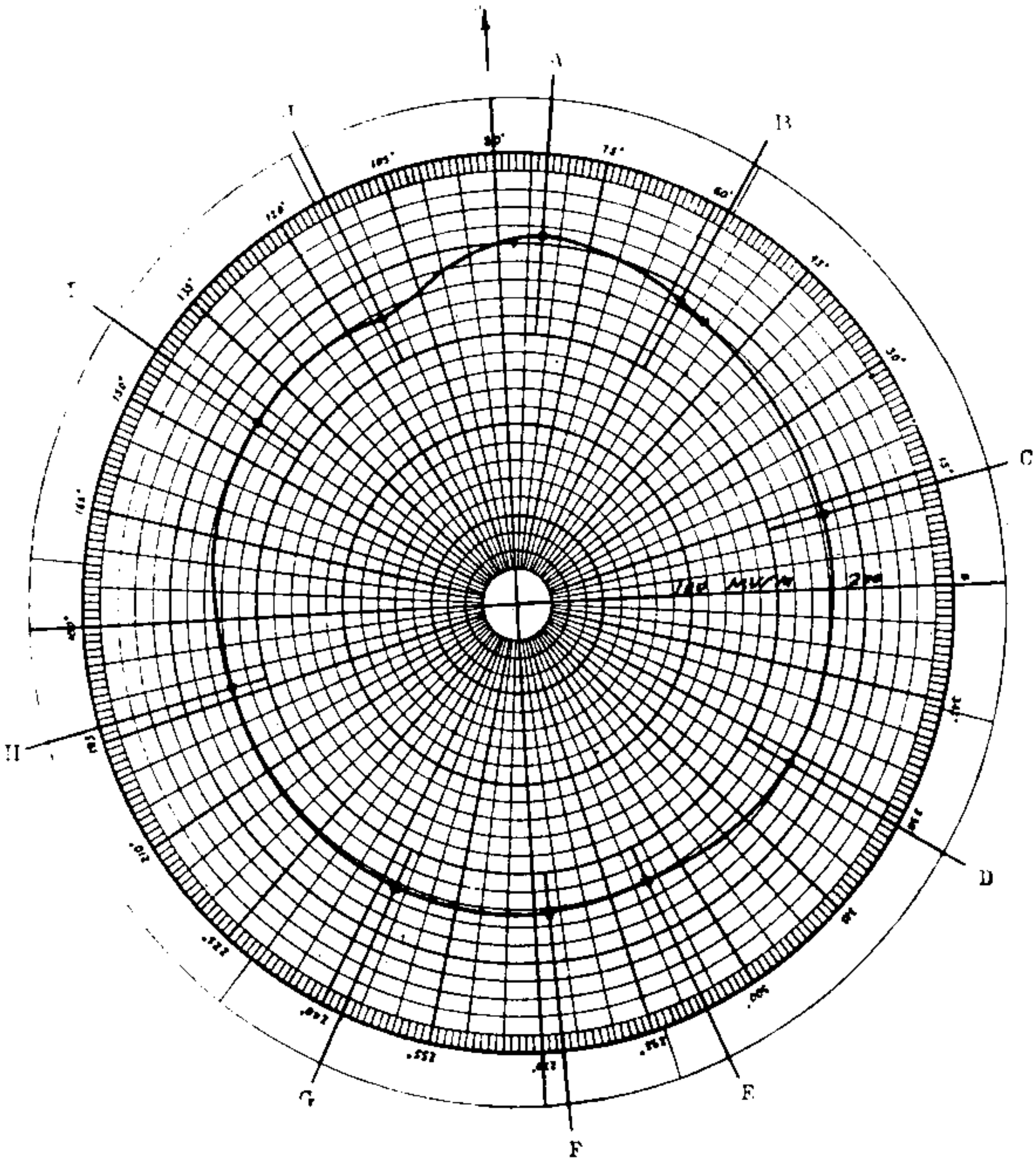


FIG. 4

NON-DIRECTIONAL HORIZONTAL PATTERN

RMS = 180.5 MV/M

WRRR Rockford, Ill.

WTRE

Proposed Day
(6-28-66ct)

N 39° 19' 41"
W 85° 30' 06"

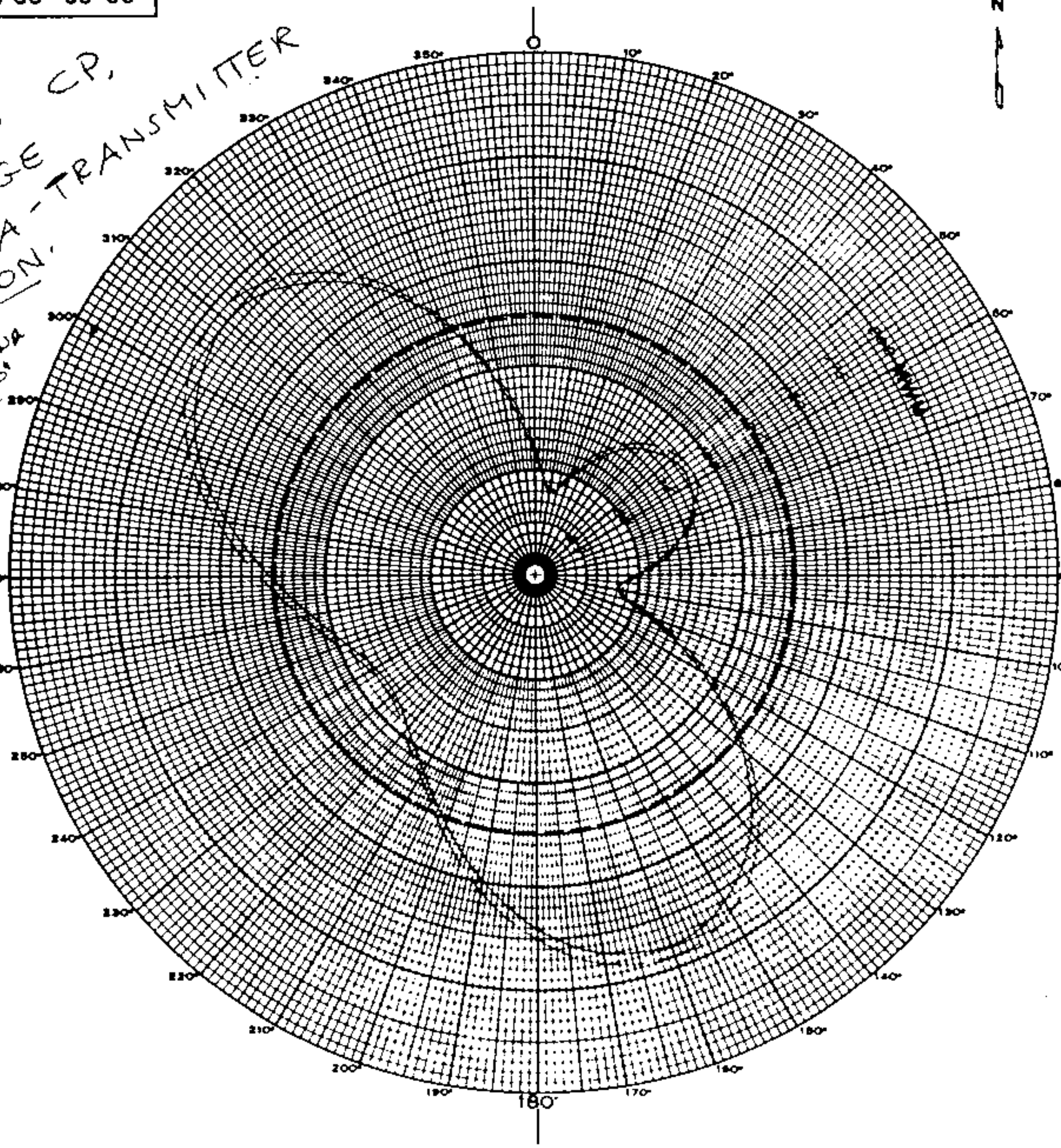
Station WTRE
Greensburgh, Indiana

500w, DA-D, D
1330 kc

1-23-67 GRANTED CP, TO CHANGE ANTENNA-TRANSMITTER LOCATION.

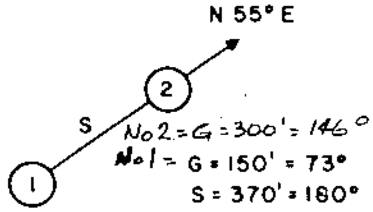
5-16-67 INCREASE ANTENNA HT OF No 2 TO 300'

BMP-12058 GRANTED MODIF. OF CP INCR. HEIGHT OF TOWER #2



——MEOV
RMS 124 MV/M

1330 KC 0.5 KW DA-D



TOWER	FIELD	PHASE
1	1.0	0°
2	0.65	50°

PREPARED BY
ELECTRONIC LABORATORIES, INC.

BMP-12058

PROPOSED POLAR PATTERN
TREE BROADCASTING COMPANY
GREENSBURG, INDIANA
FIGURE 7

FCC File No. BMP-11809
Accepted 6-16-66

Station WTRE
Greensburgh, Indiana

1330 kc

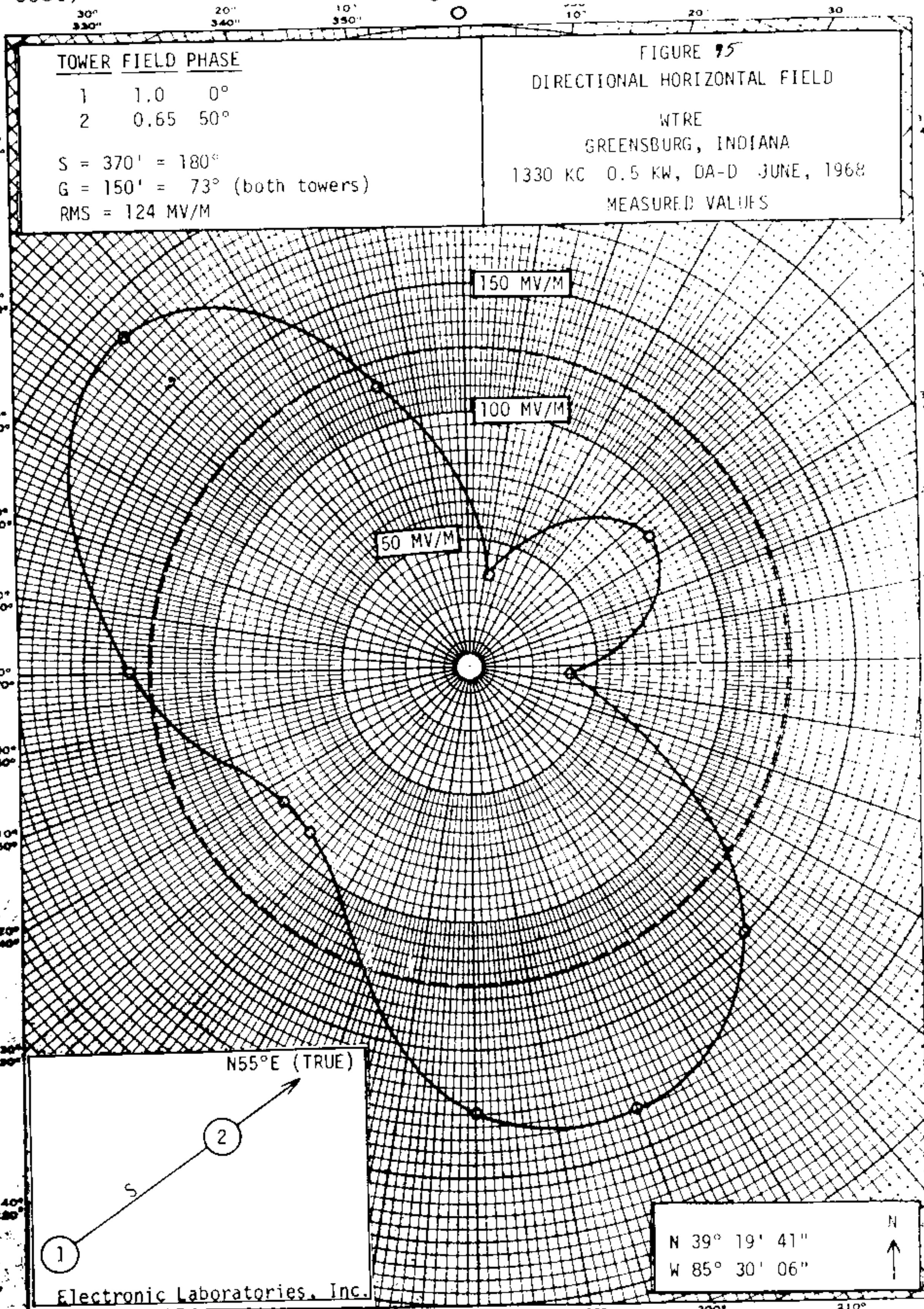
WTRE

Measured Day
(11-29-68ct)

Station WTRE
Greensburg, Indiana

500w,DA-D,D
1330 kc

3L-12160 granted 2-24-69 license covering new station



FCC File No.BL-12160
Accepted 11-13-68

Station WTRE
Greensburg, Indiana

1330 kc

WTRE

Measured Non-DA
(11-29-68ct)

Station WTRE
Greensburg, Indiana

500w,DA-D,D
1330 kc

IL-1216
Granted
2-24-68
license
covering
new
station

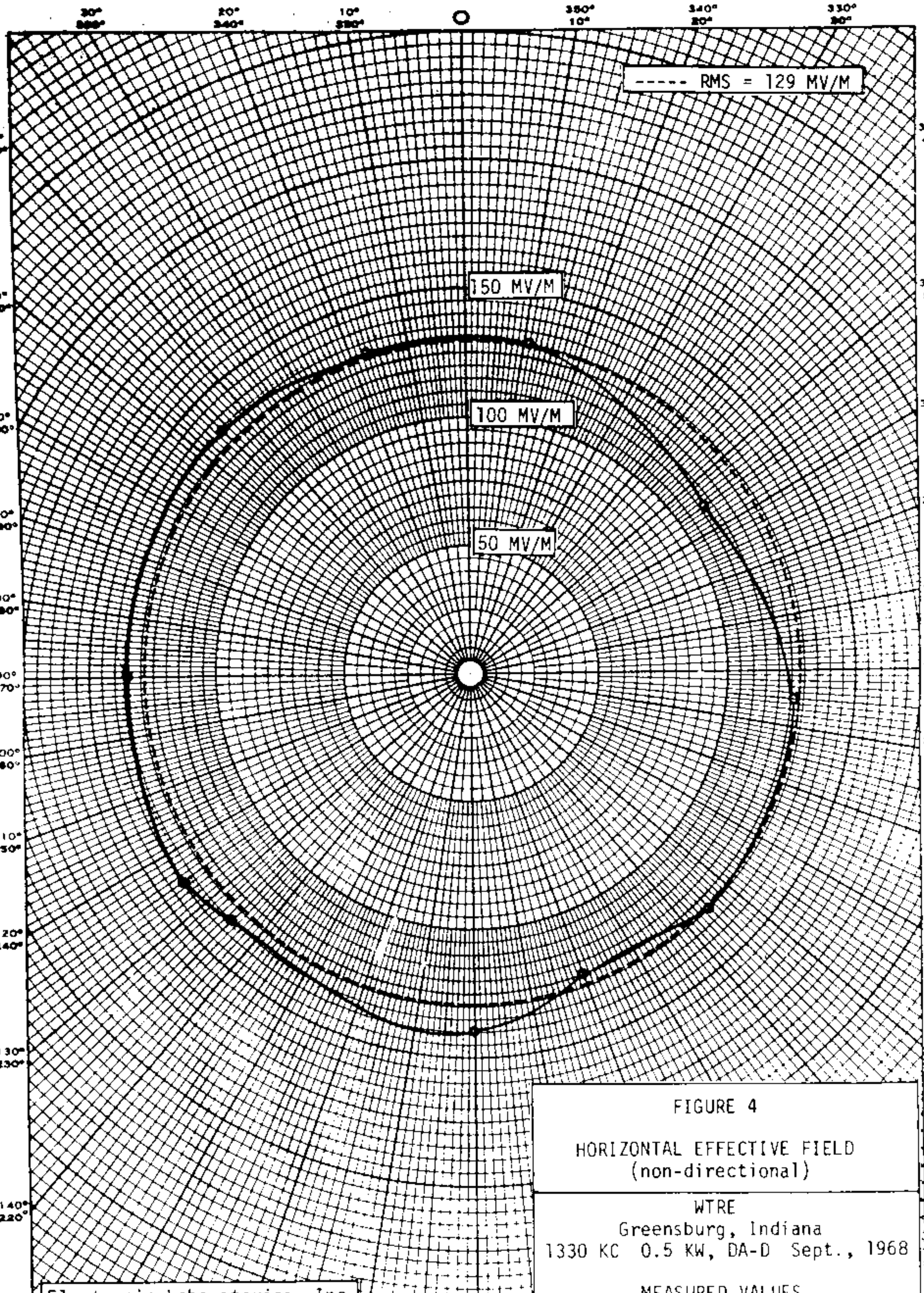


FIGURE 4

HORIZONTAL EFFECTIVE FIELD
(non-directional)

WTRE
Greensburg, Indiana
1330 KC 0.5 KW, DA-D Sept., 1968

MEASURED VALUES

FCC File No.BL-12160
Accepted 11-13-68

Station WTRE
Greensburg, Indiana

1330 kc

WTRX
1330kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WTRX

Main Studio: Flint, Michigan

Frequency: 1330 kHz

Power: 1kw Night 5kw Day

Notification List No. 1789

Date: September 12, 1980 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 42° 58 24"
West Longitude: 83° 39' 02"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation (DA-2)
Number of elements: 3
Type of elements: Series excited, self supporting, tapered, vertical steel towers.

TOWERS:	N(#1)	C(#2)	S(#3)
HEIGHT ABOVE INSULATORS:	355' (172.8°)	200'	200' (97.2°)
NIGHT PHASING:	-143°	0°	+147°
NIGHT FIELD RATIO:	0.878	1.0	0.535
DAY PHASING:	-137°	0°	137°
DAY FIELD RATIO:	0.616	1.0	0.616

SPACING AND ORIENTATION: Towers in a row are spaced 185' (90°) on a line bearing 10° true.

GROUND SYSTEM: 120 - 185' eaually spaced copper radials about each tower plus a 40' square ground screen at Towers #2 and #3 and a 72' square ground screen at Tower #1. Radials are shortened and bonded to a transverse strap along intersections between towers.

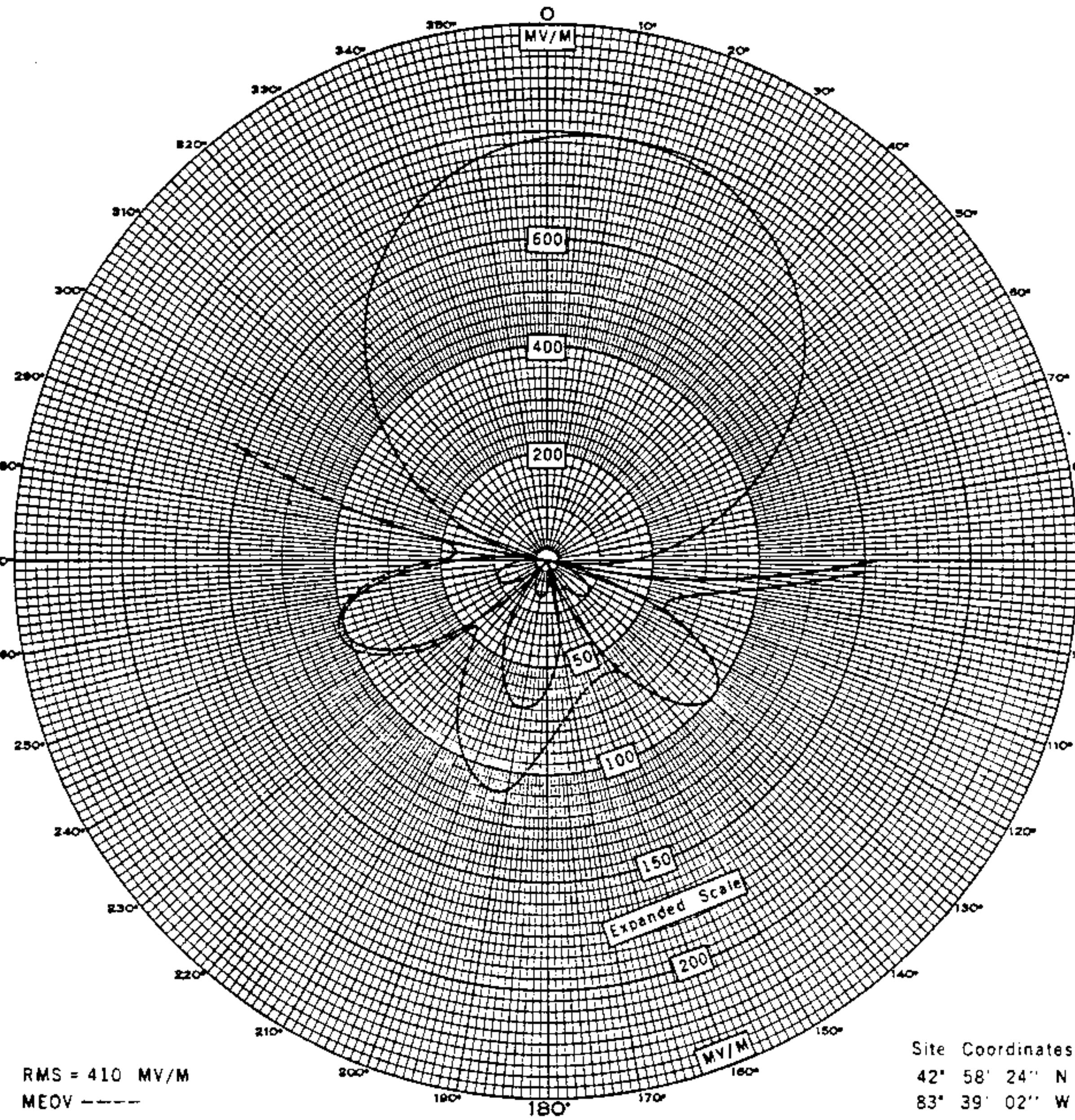
PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS
Day	410 mv/m

Note: Please retain the Nighttime directional antenna radiation pattern notified for Station WTRX in United States Change List Number 1656 dated October 29, 1975 and attach to this Revised Description Sheet and Daytime pattern. This notification concerns only a change in the Daytime operation of the station with Nighttime operation continued as previously notified.

WTRX
1330kHz

Figure 1



RMS = 410 MV/M
MEOV -----

Site Coordinates
42° 58' 24'' N
83° 39' 02'' W

PROPOSED DAYTIME HORIZONTAL PLANE RADIATION PATTERN

10° #1 0.616/-137° 90° #2 1.0/0° 90° #3 0.616/137° G1 = 171° G2,3 = 97°	MID AMERICA MEDIA, INC. FLINT, MICHIGAN Jules Cohen & Associates Consulting Electronics Engineers	RADIO STATION WTRX 1330 KHZ 1 KW, 5 KW-LS U DA-2 JULY 1978

WTRX

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WTRX Main Studio: Flint, Michigan

Frequency: 1330 kHz Power: 1 kW Night 5 kW Day

Notification List No. 1656 Date: October 29, 1975 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:
North Latitude: 42° 58' 24"
West Longitude: 83° 39' 02"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2)
Number of elements: 3
Type of elements: Series-excited, Self-supporting, tapered, vertical steel towers.

TOWER:	S(#3)	C(#2)	N(#1)
HEIGHT ABOVE INSULATORS:	200'	200'(97°)	355'(171°)
NIGHT PHASING:	+147.0°	0°	-143°
NIGHT FIELD RATIO:	0.535	1.0	0.878
DAY PHASING:	+137.0°	0°	-137.0°
DAY FIELD RATIO:	0.616	1.0	0.616

SPACING AND ORIENTATION: Adjacent elements are spaced 185' (90°) on a line bearing 10° true.

GROUND SYSTEM: 120-185' 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 Centers of systems are bonded together.

Predicted effective Night Field: 215 mv/m at rated power.

Predicted effective Day Field: 410 mv/m at rated power.

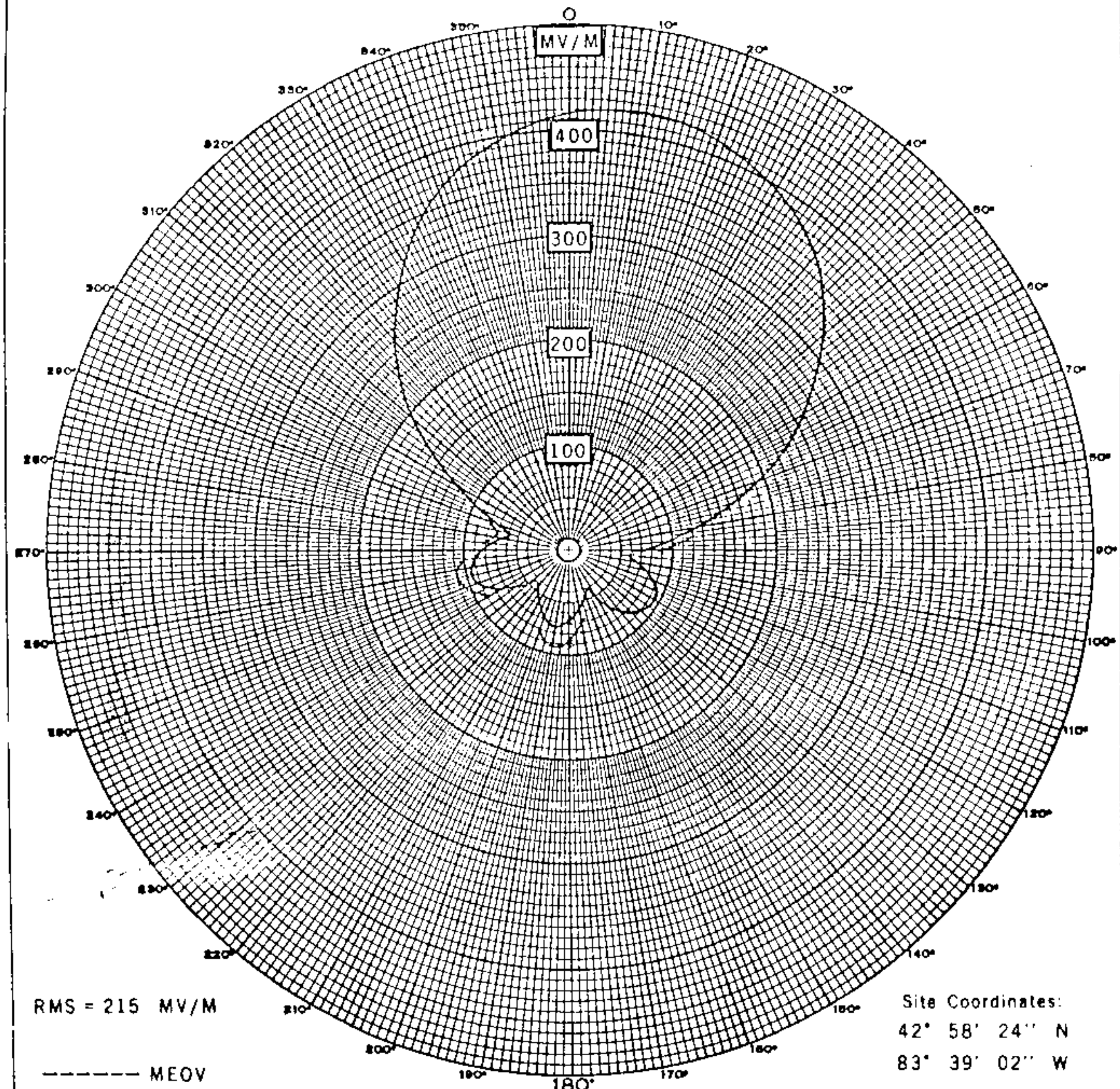
Note: Please retain the Daytime directional antenna radiation pattern notified for Station WBBC (now WTRX) in United States Change List Number 815 dated June 17, 1959 and attach to this Revised Description Sheet and Nighttime pattern. This notification concerns only a change in meovs of radiation in the Nighttime radiation pattern with Daytime operation continued as previously notified.

CTR NO 31014A4

WTRX

Figure 1

THEO DA-N

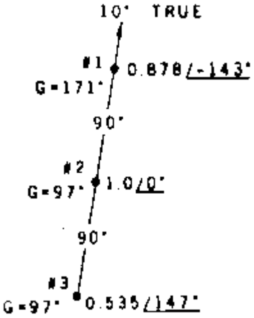


RMS = 215 MV/M

------- MEOV

Site Coordinates:
42° 58' 24'' N
83° 39' 02'' W

PROPOSED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN



MID AMERICA MEDIA, INC.

FLINT, MICHIGAN

Jules Cohen & Associates
Consulting Electronics Engineers

RADIO STATION WTRX

1330 KHZ

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

MAY 1975

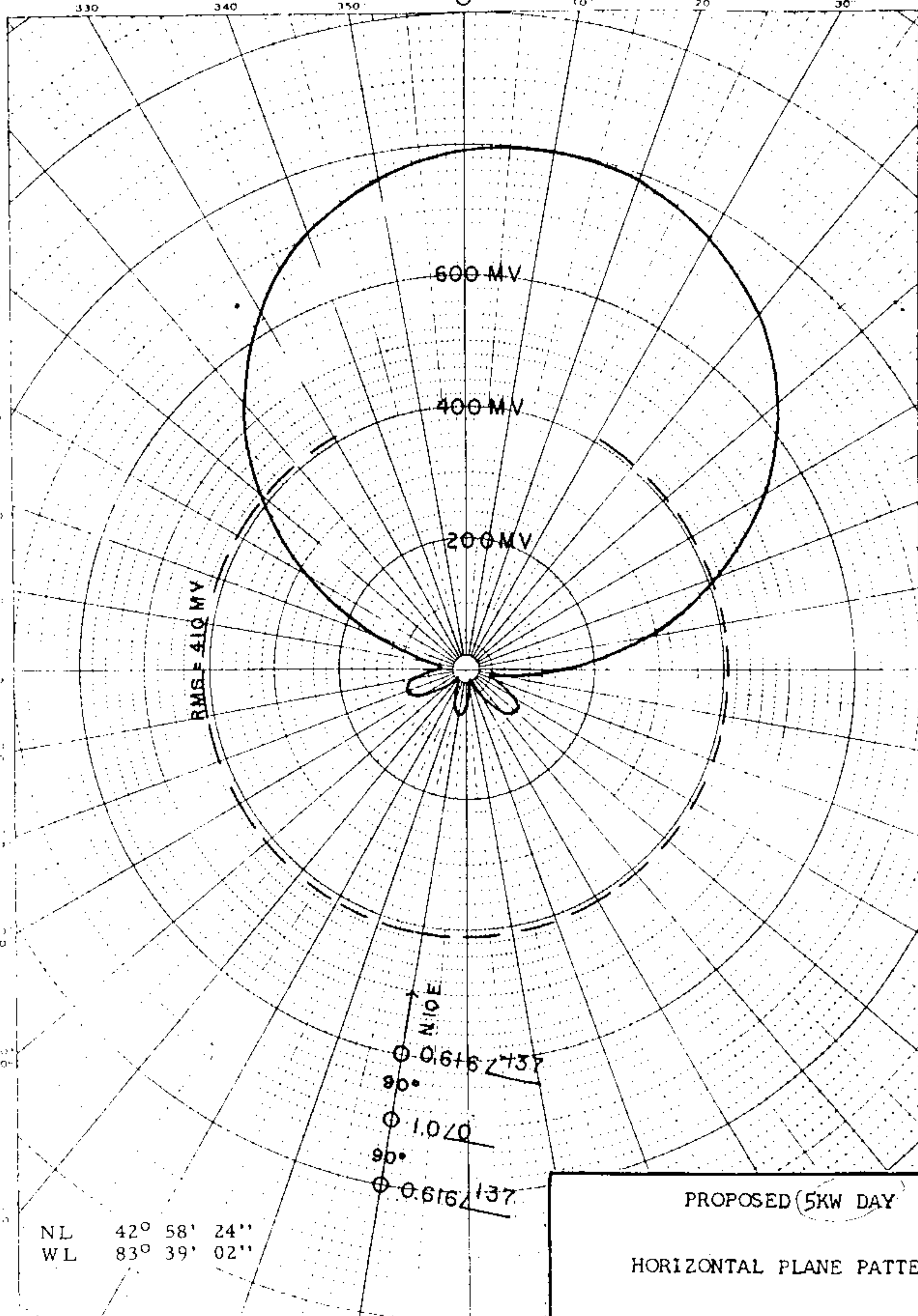
WTRX

PROPOSED DAY
(3-23-59g)

Station WBBC
Flint, Michigan

1kw, 5kw-LS, DA-2,U
1330 KC

grant cp - 7-29-59 - for
increase in daytime power



PROPOSED 5KW DAY

HORIZONTAL PLANE PATTERN

WBBC, 1330 KC, FLINT, MICH.

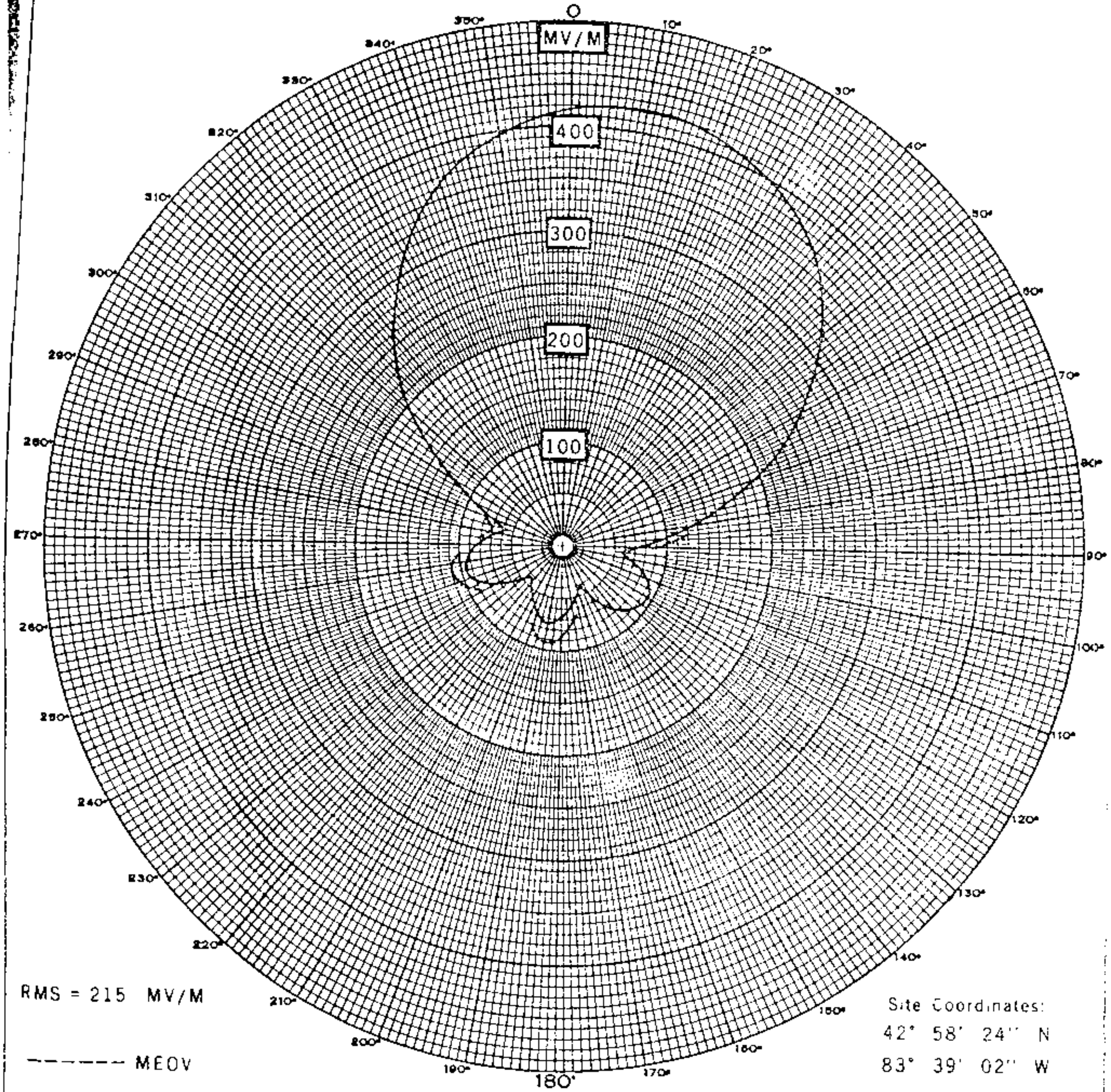
FCC File No. BP-11661
Accepted 2-2-59 (Amended)

WBBC
Flint, Michigan

1330 KC

WTRX

Figure

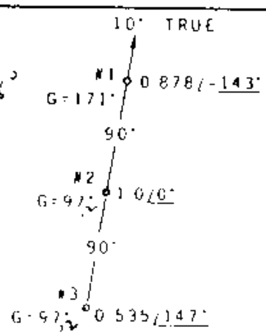


RMS = 215 MV/M

------ MEOV

Site Coordinates:
42° 58' 24" N
83° 39' 02" W

PROPOSED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN



MID AMERICA MEDIA, INC.

FLINT, MICHIGAN

Jules Cohen & Associates

Consulting Electronics Engineers

RADIO STATION WTRX

1330 KHZ

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

MAY 1975

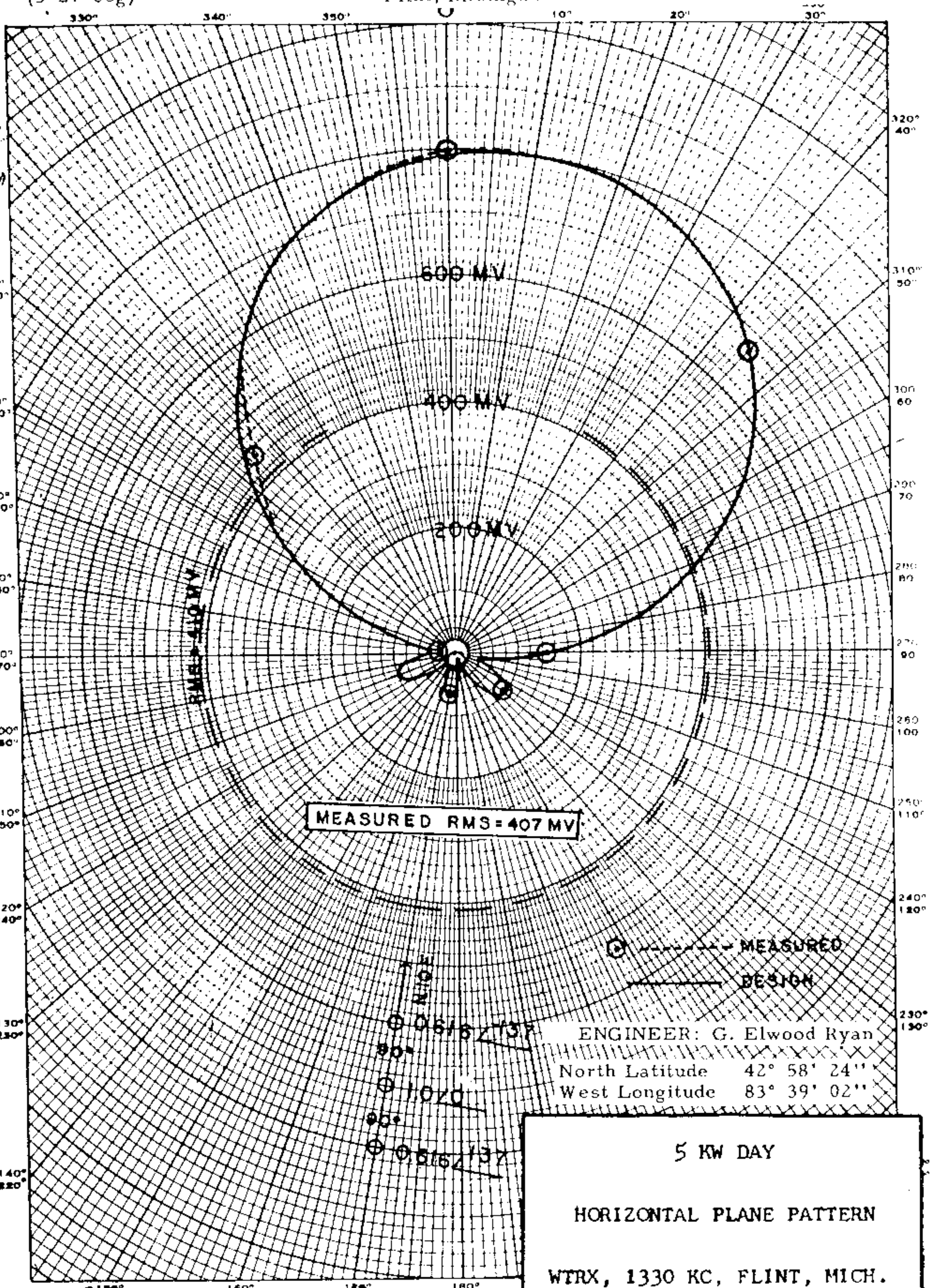
WTRX

MEASURED DAY
(5-27-60g)

Station WTRX
Flint, Michigan

1kw, 5kw-LS, DA-2,U
1330 KC

8-10-62
granted L for
increase in day
power and changes
in DA - day pattern



5 KW DAY

HORIZONTAL PLANE PATTERN

WTRX, 1330 KC, FLINT, MICH.

FCC File No. BL-7890
Accepted 4-25-60

WTRX
Flint, Michigan

1330 KC

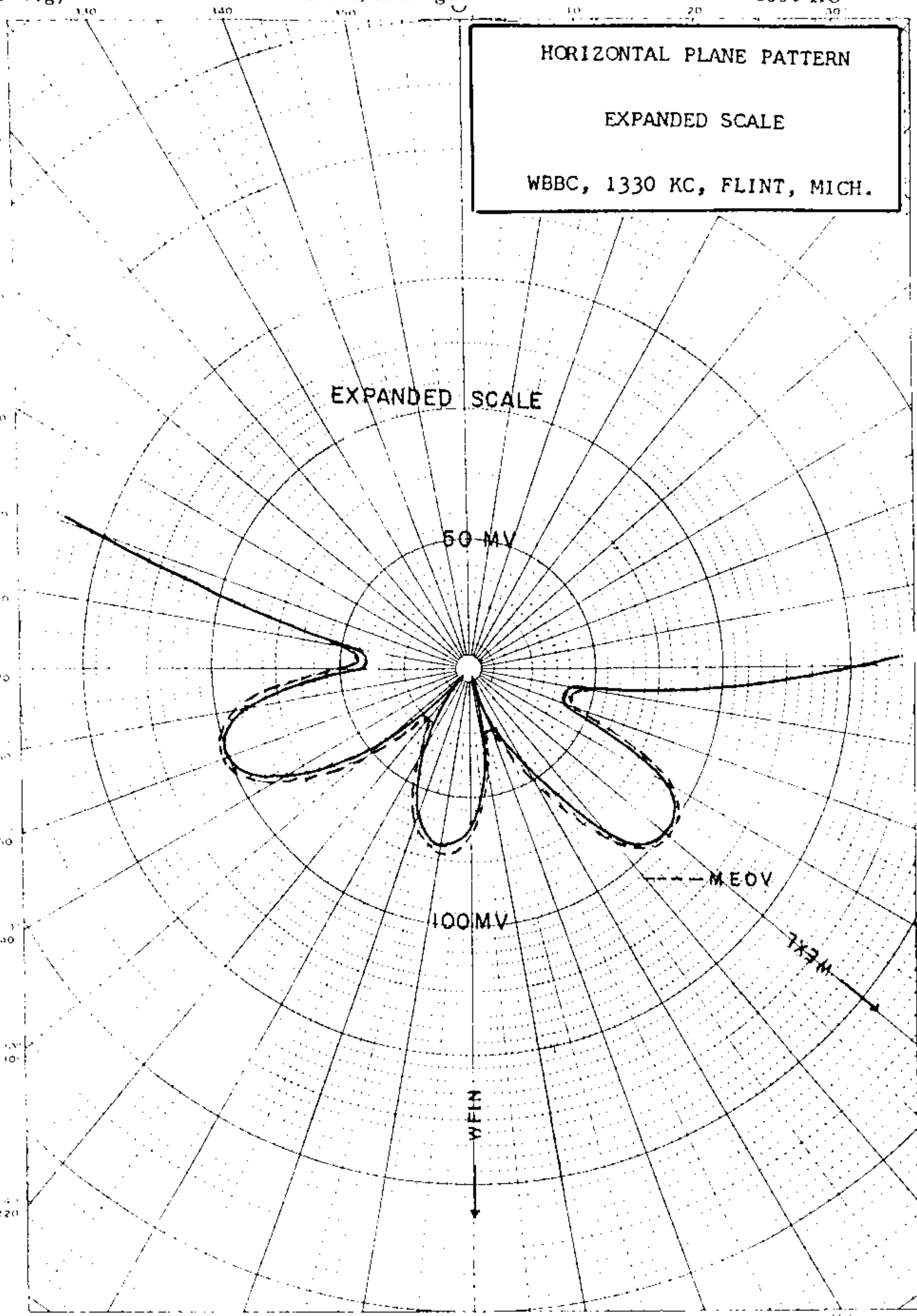
WTRX

PROPOSED DAY NULL
(3-23-59g)

Station WBBC
Flint, Michigan

1kw, 5kw-LS, DA-2,U
1330 KC

grant cp - 7-29-59 for increase in daytime power



FCC File No. BP-11661
Accepted 2-2-59 (Amended)

WBBC
Flint, Michigan

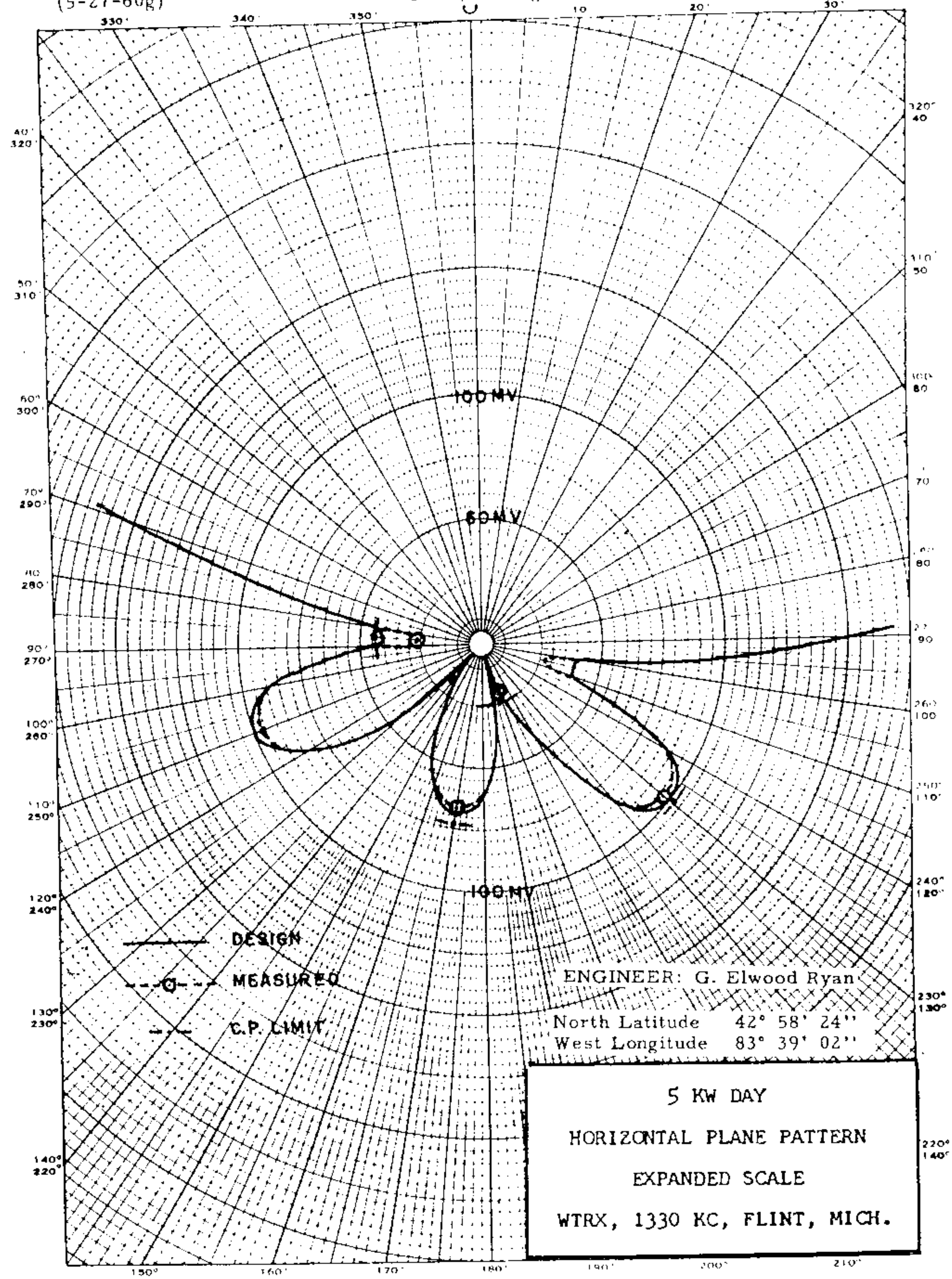
1330 KC

WTRX

MEASURED DAY NULLS
(5-27-60g)

Station WTRX
Flint, Michigan

1kw, 5kw-LS, DA-2,U
1330 KC



FCC File No. BL-7890
Accepted 4-25-60

WTRX
Flint, Michigan

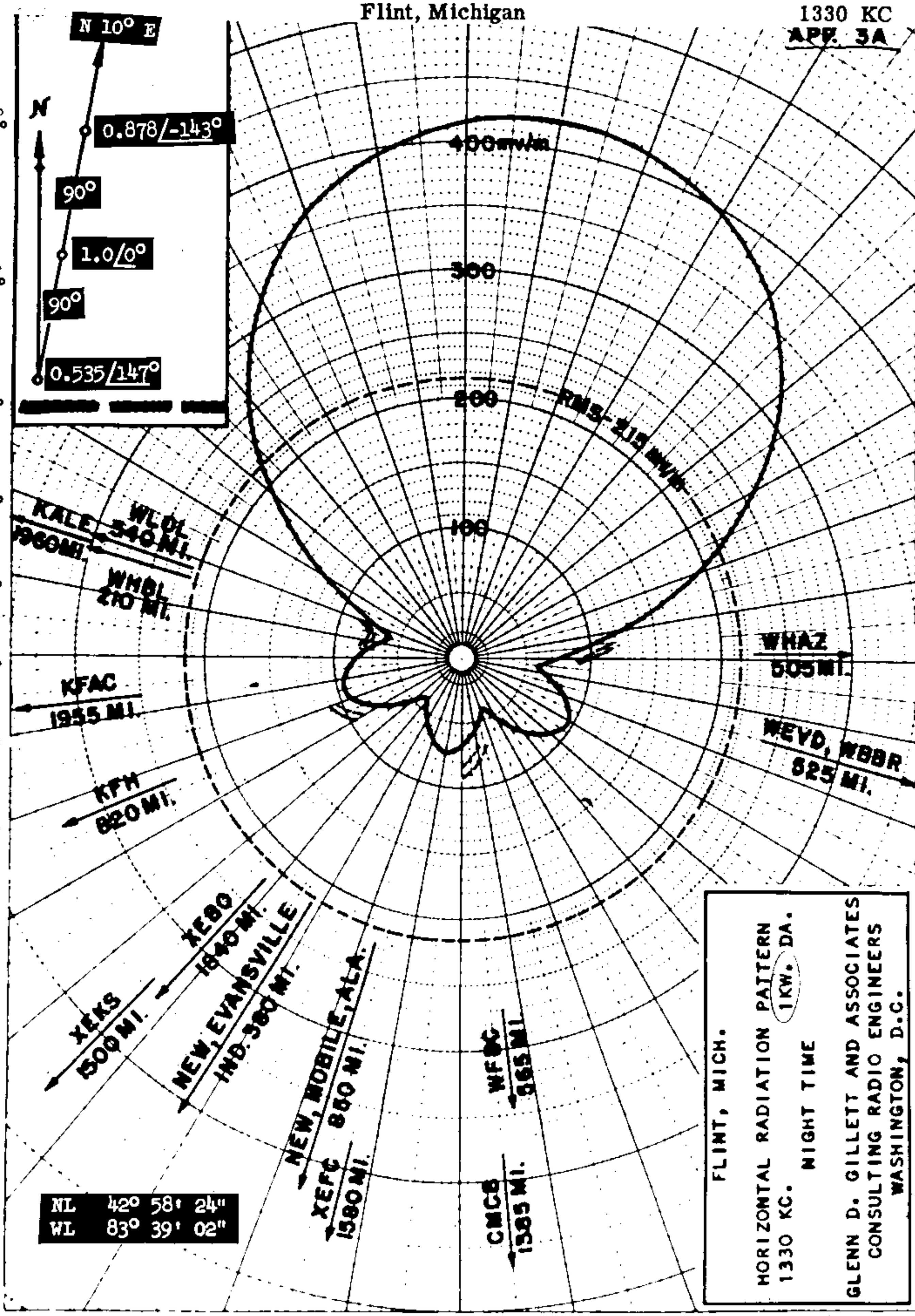
1330 KC

WTRX

PROPOSED NIGHT 1 KW Station WBBC 1kw, DA-2

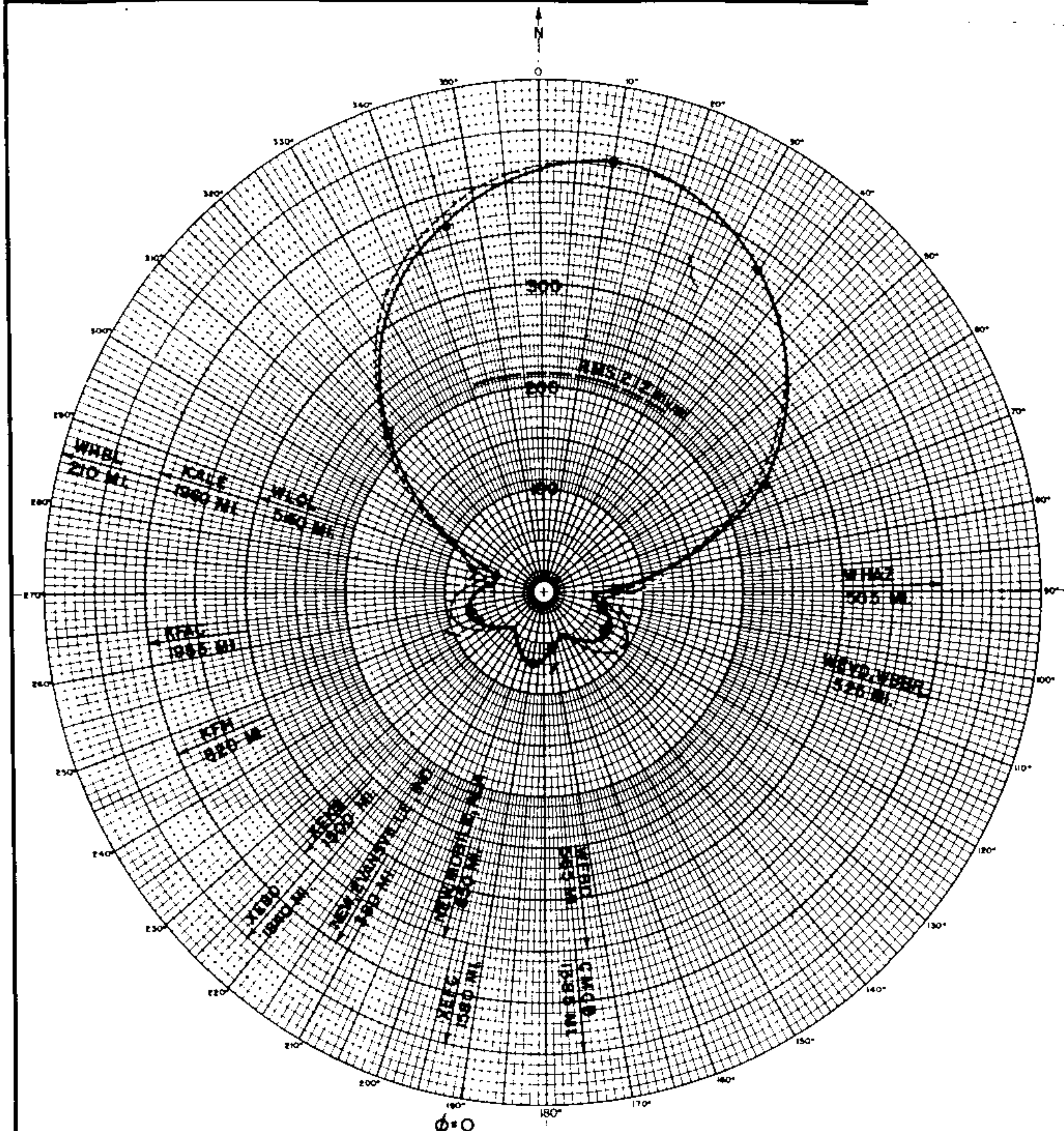
Flint, Michigan 1330 KC

APP. 3A



MEASURED ... 1 KW

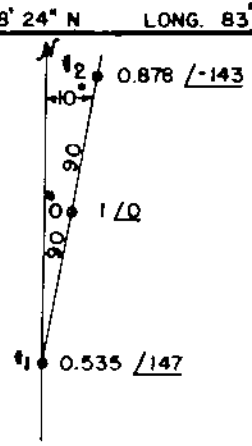
WTRX



——— MEASURED

- - - - -THEORETICAL

LAT. 42° 58' 24" N   LONG. 83° 39' 02" W



NIGHT

ANT	α-DEG	S-DEG	σ-DEG	FIELD-K	F-GND	H-DEG
0	–	–	–			100
1	0	90	147	.535		100
2	180	90	-143	.878		180

WBBC FLINT, MICH.

1 KW   DA - 2   1330 KC

GLENN D. GILLETT AND ASSOCIATES
CONSULTING RADIO ENGINEERS
NATIONAL PRESS BUILDING
WASHINGTON 4, D. C.

PATTERN NO. PROOF

SUPERSEDES

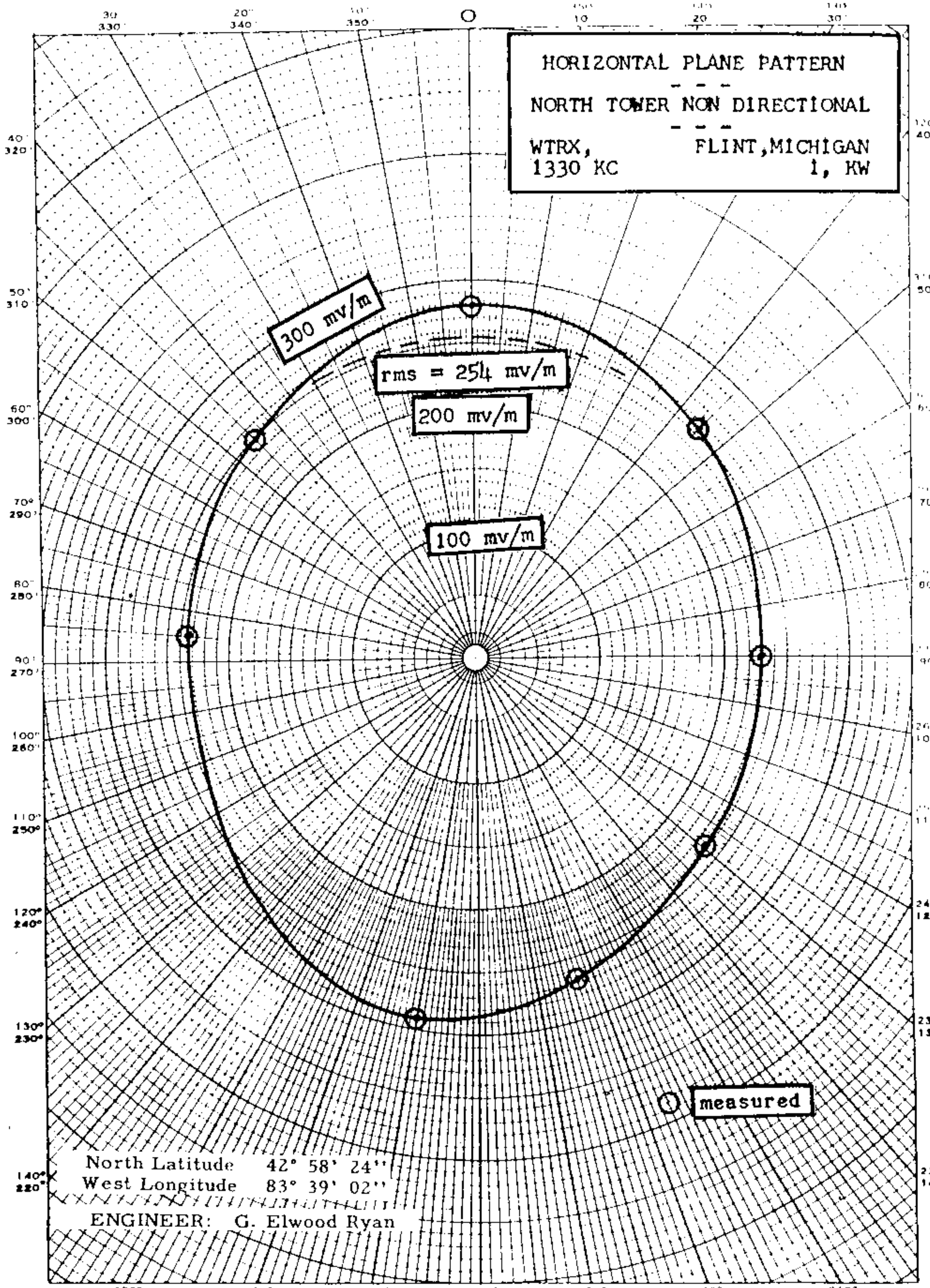
APP. 4

WTRX

MEASURED NON-DA
(5-27-60g)

Station WTRX
Flint, Michigan

1kw, 5kw-LS, DA-2,U
1330 KC



FCC File No. BL-7890
Accepted 4-25-60

WTRX
Flint, Michigan

1330 KC

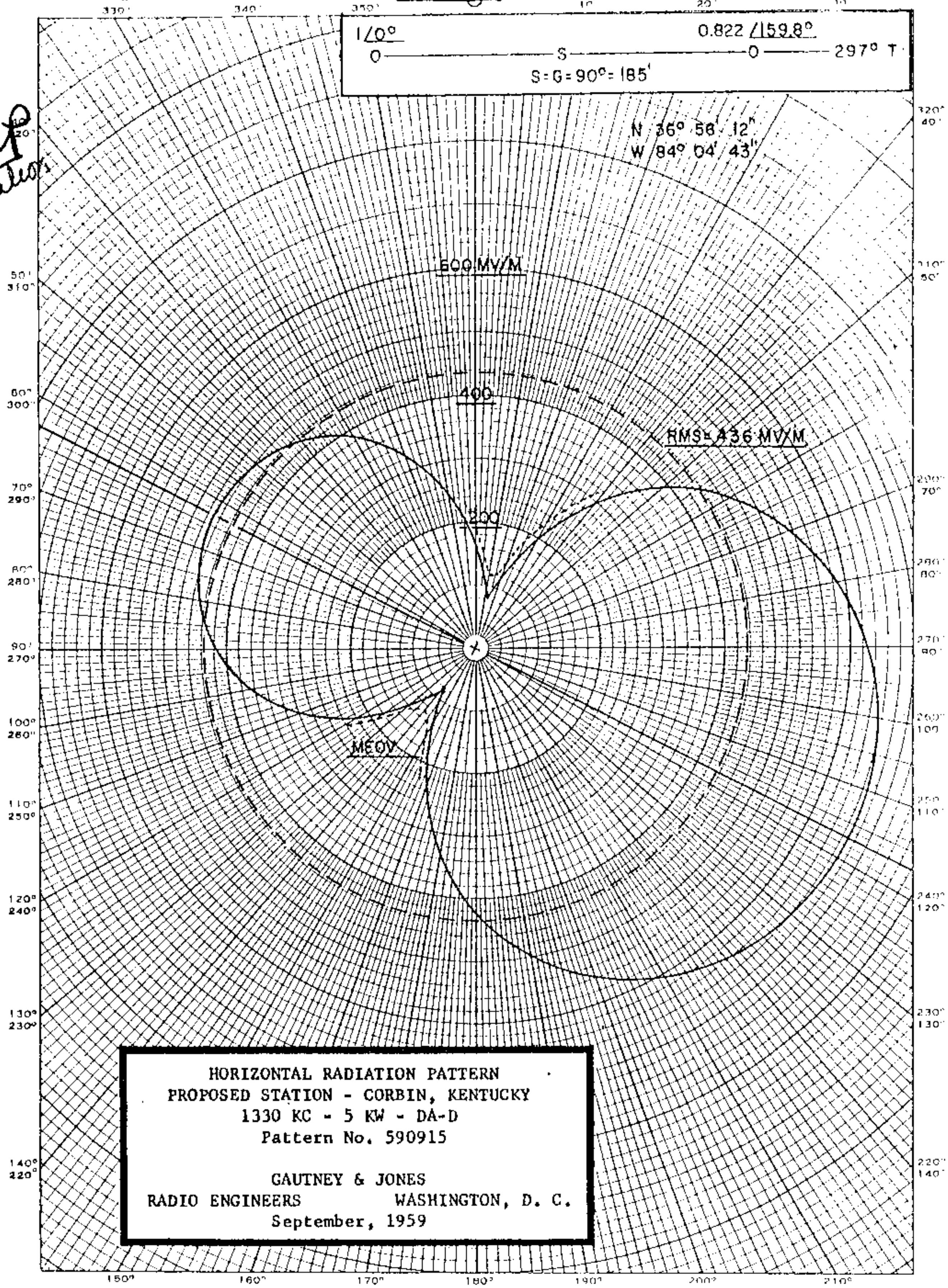
CORBIN, KY. WYGO

PROPOSED DAY
(12-21-59g)

New; Tri-County B/C Co.
Corbin, Kentucky

5kw, DA-D, D
1330 KC

1-12-61 granted CP, new station



HORIZONTAL RADIATION PATTERN
PROPOSED STATION - CORBIN, KENTUCKY
1330 KC - 5 KW - DA-D
Pattern No. 590915

GAUTNEY & JONES
RADIO ENGINEERS WASHINGTON, D. C.
September, 1959

FCC File No. BP-13623
Accepted 11-24-59

Tri-County Broadcasting Company
Corbin, Kentucky 1330 KC

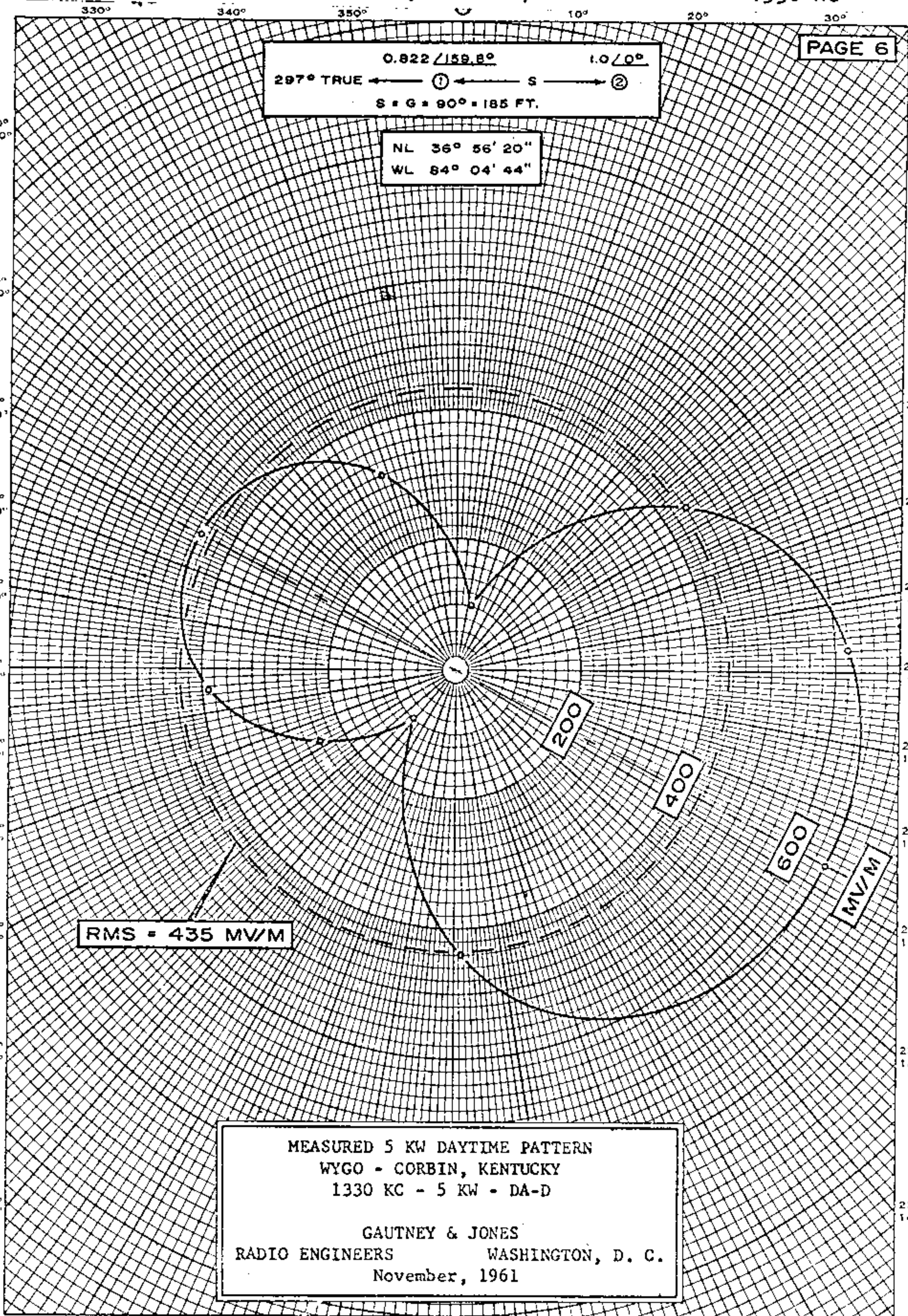
WYGO

Measured Day
(3-30-62ct)

Station WYGO
Corbin, Kentucky

5kw,DA-D,D
1330 kc

5-7-62 granted L for new station



FCC File No.BL-8920
Accepted 3-6-62

Station WYGO
Corbin, Kentucky

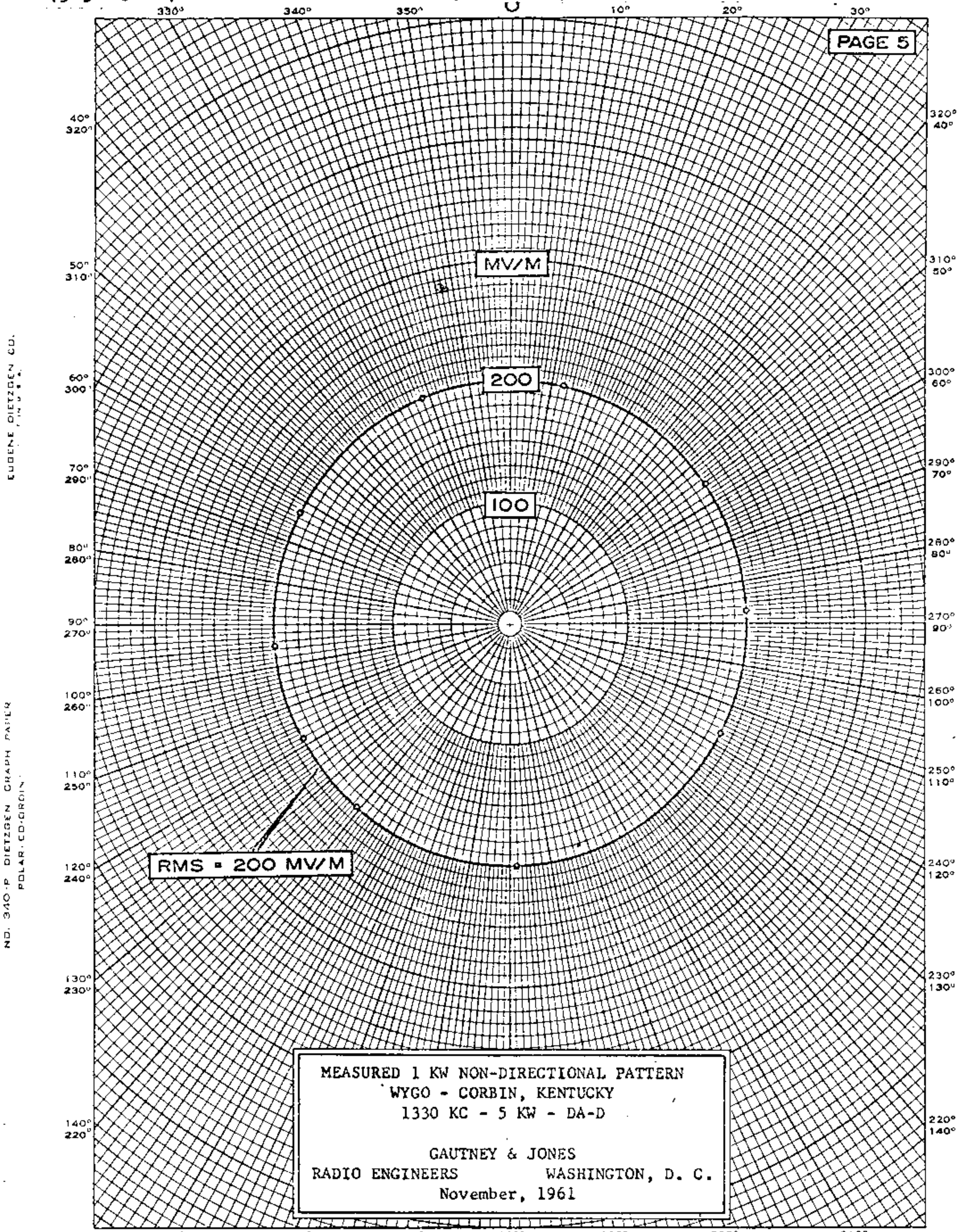
1330 kc

WYGO

Measured Non-DA
(3-30-62ct)

Station WYGO
Corbin, Kentucky

5kw,DA-D,D
1330 kc



MEASURED 1 KW NON-DIRECTIONAL PATTERN
WYGO - CORBIN, KENTUCKY
1330 KC - 5 KW - DA-D

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

FCC File No.BL-8920
Accepted 3-6-62

Station WYGO
Corbin, Kentucky

1330 kc

XEBo

XEBO	CLASS III-B	IRAPUATO, GTO.	1000 W, DA-N	1330 KC/S

DESCRIPCION DEL SISTEMA DIRECCIONAL DE RADIACION

ESTACION X E B O

FRECUENCIA 1330 kc/s

CLASE III-B

ESTUDIOS EN Irapuato, Gto.

POTENCIA 1000 Watts

LISTA DE CAMBIOS 171

FECHA 18 de agosto de 1954

LOCALIZACION GEOGRAFICA DEL SISTEMA RADIADOR

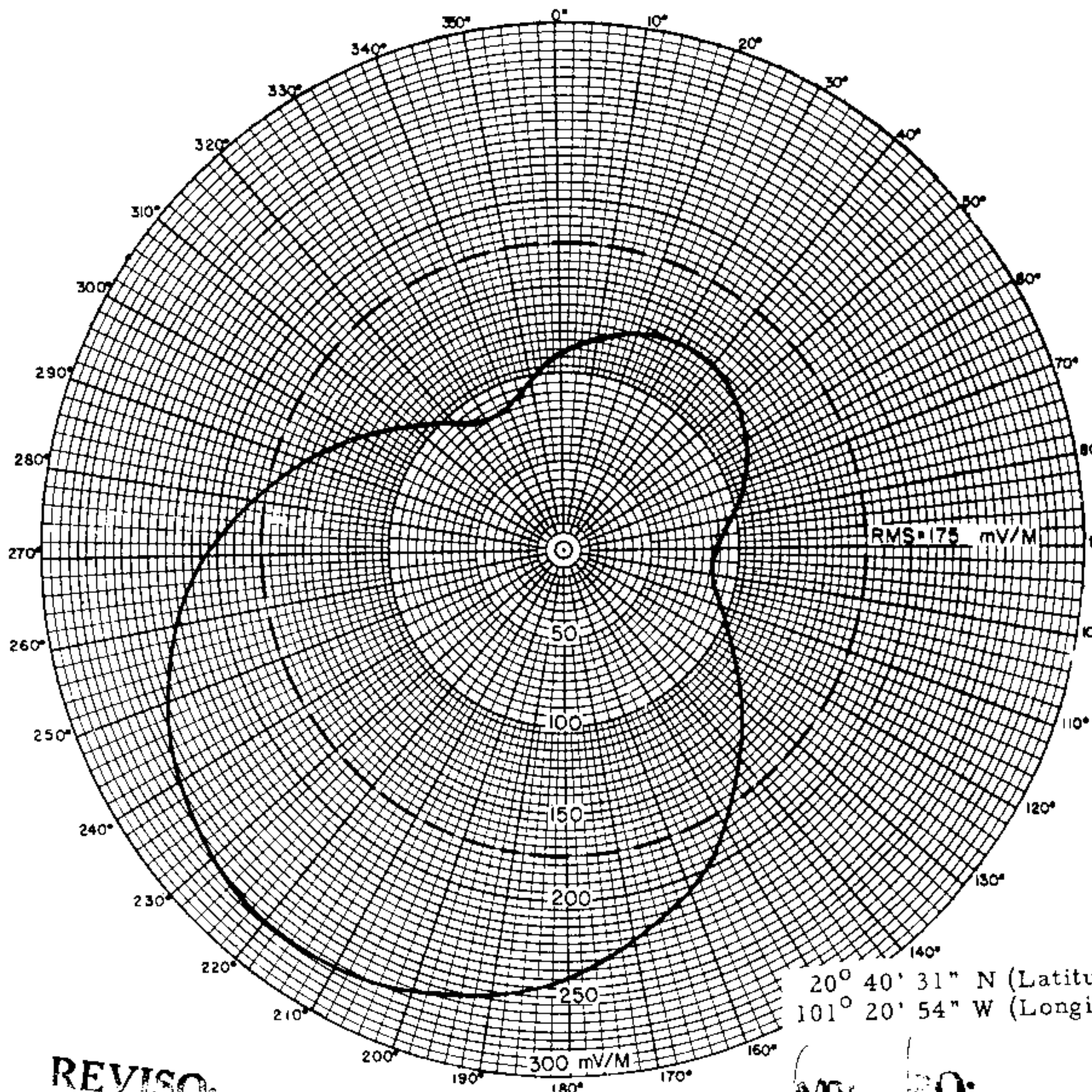
LONGITUD 101° 20' 54" W
LATITUD 20° 40' 31" N

AUTORIZACION	DAN	
NUMERO DE ELEMENTOS RADIADORES	DOS	
TIPO DE ELEMENTOS RADIADORES	TORRES VERTICALES DE ACERO SOPORTADAS CON RETENIDAS Y ALIMENTADAS EN SERIE, DE 56.39 METROS	
TORRES	Norte	Sur
ALTURA SOBRE LOS AISLADORES	90°	90°
SEPARACION ENTRE TORRES	45°	
MAGNITUDES RELATIVAS DE CORRIENTES	0.7	1
DEFASAMIENTO	160°	0°
AZIMUT DEL EJE DE LAS TORRES	35° 00' 00"	
RAIZ CUADRATICA MEDIA TEORIA	175 mV/m	
INTENSIDAD DE CAMPO NO ATENUADO A UNA MILLA POR Kw	175 mV/m	

REVISO:

APROBO:

XEBO

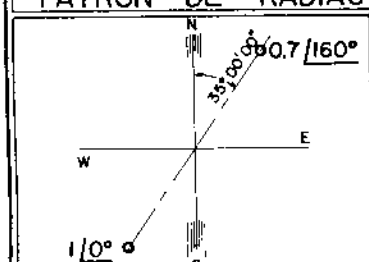


20° 40' 31" N (Latitude)
101° 20' 54" W (Longitude)

REVISO:

APROBO:

PATRON DE RADIACION HORIZONTAL CALCULADO EN mV/M A UNA MILLA



RADIODIFUSORA

XEBO

Irapuato Gto.

1330 Kc/s.
1000 Watts.

ARTURO AMADOR
Pasante Ing. COMUNICACIONES

XEBO CLASS III-B IRAPUATO, GTO. 1000 W, DA-N 1330 KC/S

Description Sheet
(7-26-67çt)

New Station
Wetaskiwin, Alberta

250w,1kw-LS,U,Class IV
1340 kc

ANTENNA DESCRIPTION SHEET

OMNI-DIRECTIONAL

STATION CALL

LOCATION Wetaskiwin, Alberta.

FREQUENCY 1340 kc/s

POWER **Day** 1000 W, 250 W **Night**

CLASS IV

TIME **Unlimited**

NOTIFICATION REFERENCE # 228 **Dated: June 16, 1967.**

GEOGRAPHICAL LOCATION Lat 52°58'43", Lon 113°23'20"

ARRAY CHARACTERISTICS

Radiator: One element, guyed, uniform cross section, base insulated series feed. Height 145 feet or 71 degrees. No top loading

Ground system: 120 radials #10 AWG bare, soft copper wire, spaced uniformly, depth 8 inches approximately. Radials bonded to soft copper strap at tower base. Maximum radial length 294 feet.

Predicted R M S: 154 mv/m at 1 mile for 1000 W

92 mv/m at 1 mile for 250 W

DESCRIPTION SHEET
Omnidirectional Antenna

Station Call:	New
Location:	Creston, B. C.
Frequency:	1340 kc/s
Power:	0.25 kw
Class: IV	Operation: Unlimited
Notification List No. 236	Date: **December 20, 1967**
Geographic Co-ordinates Antenna System:	49° 05' 35" North Latitude 116° 31' 50" West Longitude
Antenna Characteristics:	Height 135' (66°)
Type of Element:	A guyed uniform cross-section, single tower, base-insulated and fitted for series feed.
Ground System:	120, 0.4λ copper radials buried approximately 8" below grade
Expected Efficiency:	89 mv/m at 1 mile for 0.25 kw 178 mv/m at 1 mile for 1 kw

DESCRIPTION SHEET - OMNIDIRECTIONAL ANTENNA

STATION CALL: NEW

TRANSMITTER SITE: GRAND FORKS, B.C.

MAIN STUDIO: PENTICTON, B.C.

FREQUENCY: 1340 kHz

POWER: 1 kW Day, 0.25 kW Night

CLASS: IV

TIME: U

NOTIFICATION LIST: 246 DATE: September 27, 1968.

GEOGRAPHICAL LOCATION:

Latitude 49° 01' 17" North
Longitude 118° 27' 39" West

ANTENNA CHARACTERISTICS:

Height above the base insulator: 140 feet (68.5°)

Type of Element: A guyed steel tower, uniform cross section, base insulated for series feed.

Ground System: 120 equally spaced radials of #10 B & S gauge bare soft copper wire extend from the base of the tower. The minimum length of any radial is 205' (.28 wavelength at 1340 kHz). Radials in other directions are lengthened so that the total ground system area is equal to a standard ground system utilizing a uniform length of 294' (0.4 wave-length). The radials are buried approximately 8'.

Expected Efficiency: 183 mV/m at 1 mile for 1 kW
91.5 mV/m at 1 mile for 0.25 kW

217

TABLE 1

ANTENNA DESCRIPTION SHEET

STATION CALL:	NEW
LOCATION:	ELLIOT LAKE, ONTARIO
STUDIOS:	ELLIOT LAKE AND BLIND RIVER
FREQUENCY:	1340 kc/s
POWER:	250 WATTS
CLASS:	IV
MODE:	ND-U
TIME:	UNLIMITED
NOTIFICATION LIST NO.:	..217.. DATE: October 7, 1966
GEOGRAPHICAL LOCATION:	Latitude: 46° 23' 02" North Longitude: 82° 38' 38" West
ARRAY CHARACTERISTICS:	One guyed steel tower of uniform cross section; base insulated, series fed. Height 199' or 97°; no top loading.
GROUND SYSTEM:	120 equally spaced radial wires of #10 AWG copper. Buried approximately 6-8"; of average effective length 300'(0.4λ).
PREDICTED EFFICIENCY:	97.5 mV/m unattenuated at one mile for 250 watts or 195 mV/m for 1000 watts.

DIRECTIONAL ANTENNA DESCRIPTION SHEET

1. Call Sign: (New Station)

2. Location: Asbestos, P.Q.

3. Frequency: 1340 KHz

4. Power: 1 Kw D/0.25 Kw N

5. Class: IV (U)

6. Notification No. 288 Date: April 14, 1972

7. Coordinates: North Latitude: 45° 45' 06"

   West Longitude: 71° 56' 26"

8. Antenna System:
   a) Mode: Directional DA-D - ND-N
   b) Type: Two elements with triangular cross-section, guyed and series fed.
   c) Ground system: 120 uniformly spaced No. 10 wires with inter-connecting straps buried approximately 8". The radials are 293' long (0.4 λ).

9. Antenna Characteristics:

	No. 1	No. 2
Orientation (Az):	Ref.	109°
Height above Insulator:	90°	90° (183')
Spacing:	Ref.	90° (183')
Phasing: Day	0°	-170°
Field intensity ratio: Day	1.0	1.63

10. Predicted Efficiency: Day: 196 mV/m
    Night: 95 mV/m

Yves R. Hamel
Consulting Engineer
3772 Kent Avenue
MONTREAL 249, P.Q.

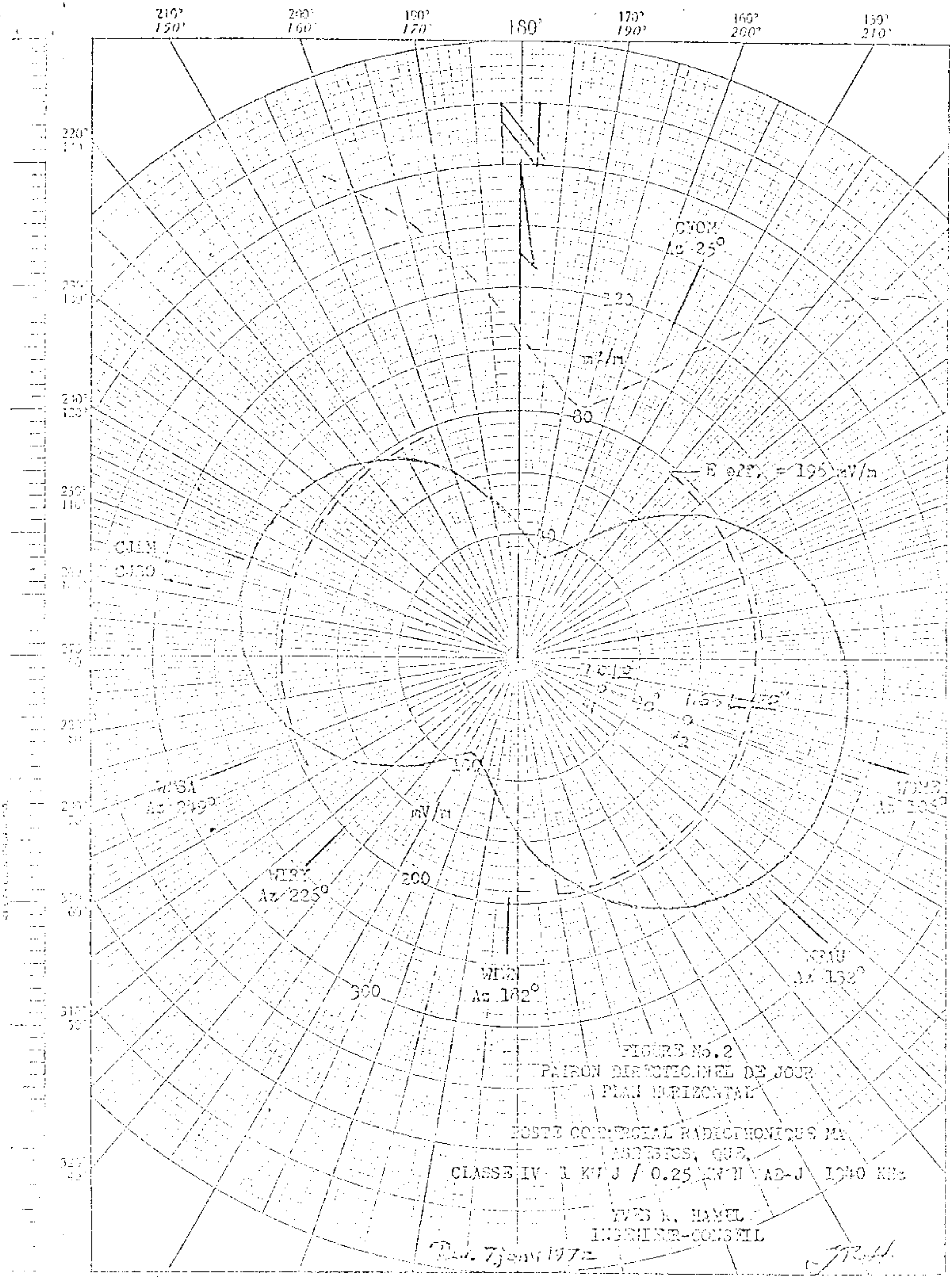


FIGURE No. 2
PATRON DIRECTIONNEL DE JOUR
PLAN HORIZONTAL

POSTE COMMERCIAL RADIOPHONIQUE MA
ASBESTOS, QUE.
CLASSE IV 1 KW J / 0.25 KW N AD-J 1240 KHz

YVES R. HAMEL
INGENIEUR-CONSEIL

Description Sheet (8-28-67ct) | New Station, Lac Megantic, P. Q. | 250w, 1kw-LS, DA-D, U, Class IV, 1340 kc

DESCRIPTION OF THE ANTENNA SYSTEM

STATION: NEW

FREQUENCY: 1340 kHz

CLASS: IV

NOTIFICATION LIST NO: 229

STUDIO: LAC MEGANTIC, P.Q.
THETFORD MINES, P.Q.

POWER: 1 kw D - 250 w N

OPERATION: DA-D/ND-N

DATE: JULY 31, 1967

GEOGRAPHICAL COORDINATES OF THE SYSTEM:

LAT. NORTH 45° 33' 38"
LONG. WEST 70° 53' 30"

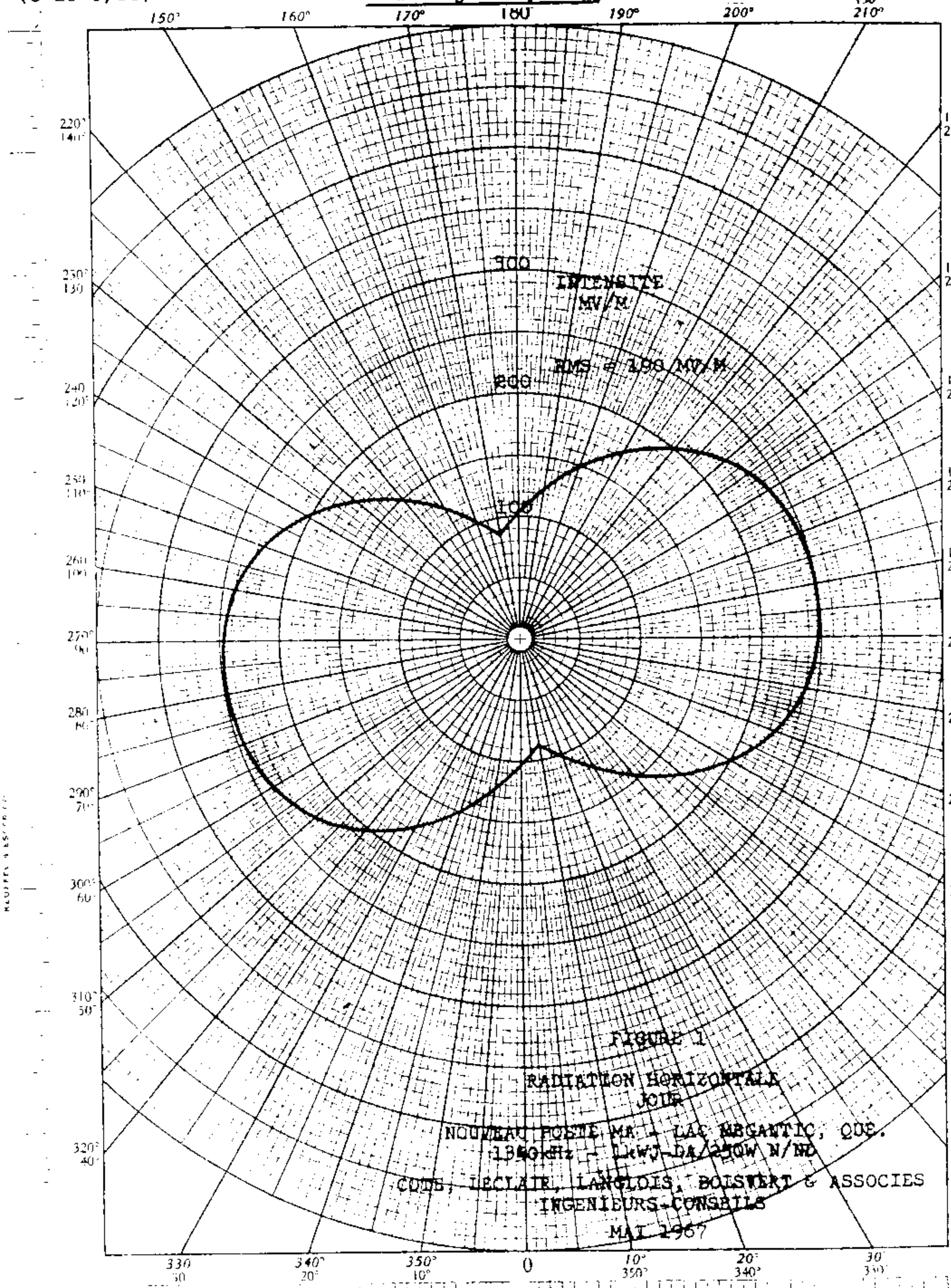
ANTENNA CHARACTERISTICS

Mode of operation:	1000 watts directional daytime, 250 watts non-directional nighttime.	
Number of elements:	Two (2)	
Type of element:	Uniform section steel mast guyed and insulated at the base for series feeding, no top loading.	
Tower:	No. 1 (west)	No. 2 (east)
Height above insulator:	90°	90°
Ratio (day):	1	.6
Phase Displacement (day):	0°	180°
Spacing:	183'(90°)	
Orientation:	0°	80°
Ground System:	120 No. 10 B & S copper radial wires buried approximately 8" under the ground extending in such a way that the area covered is equivalent to that given if all the free radials were .4 of a wavelength. No radial will be shorter than .25 of a wavelength.	
Anticipated effective field	190 mV/m for 1 kw 95 mV/m for 250 watts	

Proposed Day
(8-28-67ct)

New Station
Lac Megantic, P. Q.

250w,1kw-LS,DA-D,U,Class IV
1340 kc



K&E POLAR COORDINATE 46 4413

Description Sheet
(1-29-68ct)

New Station
Temiscaming, P.Q.

250w,U,Class IV
1340 kc

DESCRIPTION SHEET

Omnidirectional Antenna

STATION CALL:	New
MAIN STUDIO:	Temiscaming, P.Q.
FREQUENCY:	1340 kc/s
POWER:	0.25 kw day/night
CLASS: IV	OPERATION: Unlimited
NOTIFICATION LIST No. 236	DATE: December 20, 1967
GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:	46° 44' 06" North Latitude 79° 03' 30" West Longitude
ANTENNA CHARACTERISTICS:	Height 170' (83°)
TYPE OF ELEMENT:	A triangular section supported and isolated at the base
GROUND SYSTEM:	120 - #10 wires equally spaced, 293' in length (0.4 λ), buried approximately 8" below the surface.
PREDICTED EFFECTIVE FIELD:	92.5 mv/m at 1 mile (185 mv/m at 1 mile for 1 kw)

Office of Chief Engineer

JAN 5 1968

Technical Division

JAN 1968
RECEIVED
F. C. C.
MAIL & FILES

DESCRIPTION SHEET - OMNIDIRECTIONAL ANTENNA

STATION CALL:	New
TRANSMITTER:	Ste-Anne-des-Monts, Quebec
MAIN STUDIO:	Matane, Quebec
FREQUENCY:	1340 Kc/s
POWER:	1 KW - Day/.25 KW - Night
CLASS:	IV
TIME:	Unlimited

NOTIFICATION LIST NO: 232 DATE: September 28, 1967

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:	North Latitude:	49° 07' 48"
	West Longitude:	66° 27' 46"

ANTENNA CHARACTERISTICS

HEIGHT ABOVE INSULATOR:	150 feet 73.5 degrees
TYPE OF ELEMENT:	Guyed, uniform cross-section, base insulated series fed, no top loading.
GROUND SYSTEM:	120 evenly spaced radials of No. 10 A.W.G. bare soft drawn copper wire, buried to a depth of 8 inches and extending to a distance of 295 ft. (.4λ).
EXPECTED EFFICIENCY:	184 MV/M for 1 KW
	92 MV/M for .25 KW

8161

CFGB.

Description Sheet
(12-19-61ct)

Station CFGB
Goose Bay, Newfoundland

1kw, U, ClassIV
1340 kc

AIR SERVICES
TELECOMMUNICATIONS AND
ELECTRONICS BRANCH

CANADA

DEPARTMENT OF TRANSPORT
OTTAWA

AMENDED
DESCRIPTION SHEET - OMNIDIRECTIONAL ANTENNA

Station Call:	CFGB
Main Studio:	Goose Bay, Nfld.
Frequency:	1340 kc/s
Power:	1 kw
Class:	IV
Time:	U
Notification Reference:	List no. 161, dated June 7, 1961
Geographical Location:	53° 18' 59" N. 60° 17' 17" W.
Antenna Characteristics:	
Type:	Uniform triangular cross-section, guye tower, base insulated and series fed.
Top Loading:	The top level of three guys is not insulated at the tower. The upper fifty feet of these guys forms a capacity top loading which apparently adds 11 electrical degrees to the height of the antenna.
Height of conducting portion:	100 ft., 49°
Effective electrical height:	60°
Over-all height:	105 ft.
Ground System:	14 radials of length approximately 183 feet, (90°). The radials are no. 8 copper wire, buried 14", and are brazed to a ring of no. 2 copper wire located around the tower base with a 3' radius.
Expected efficiency:	150 mv/m at one mile for 1 kw.
Measured efficiency:	100 mv/m at one mile for 1 kw.

PROJECT #7201

DESCRIPTION SHEET - OMNIDIRECTIONAL ANTENNA

STATION CALL: NEW

MAIN STUDIO: WHITEHORSE, YUKON TERRITORY

FREQUENCY: 1340 kHz

POWER: 1 kW

CLASS: IV

TIME: U

NOTIFICATION LIST: 246 DATE: September 27, 1968.

GEOGRAPHICAL LOCATION:

Latitude: 60° 43' 03" North
Longitude: 135° 04' 57" West

ANTENNA CHARACTERISTICS:

Height above the base insulator: 85 feet, top loaded to an equivalent electrical height of 60°

Height above ground: 90 feet

Type of Element: A guyed steel tower, uniform cross section, base insulated for series feed

Ground System: 120 equally spaced radials of #10 B & S gauge bare soft copper wire buried approximately 8", extending from the base of the tower for a distance of 294' (0.4 wavelength)

Expected Efficiency: 175 mV/m at 1 mile for 1 kW

D. E. M. Allen, P. Eng.,
Broadcast Consulting Engineer.

NOV 27 '52

CFOM
1340

AIR SERVICES
TELECOMMUNICATIONS DIVISION
(5-10-96)

CANADA

DEPARTMENT OF TRANSPORT

DESCRIPTIVE SHEET - OMNIDIRECTIONAL ANTENNA

Station Call: ~~CONT CJQC~~ # 190 CFOM

Main Studio: Quebec, Quebec

Frequency: 1340 Kc/s.

Power: 0.25 Kw .

Class: IV

Time: U

Notification Reference: NARBA Annex 3

Geographical Location:

North Latitude: 46° 48' 31"

West Longitude: 71° 15' 46"

Antenna Characteristics:

Height: 180 ft. 88.2 degrees

Expected Efficiency: 95 mv/m at 1 mi. for 0.25 Kw.

or: 190 mv/m at 1 mi. for 1 Kw.

Ground System:

150 radials extending to property boundaries and having a minimum length of 275 feet and average length well in excess of 0.4 of a wavelength. More than 50,000 feet of #10 B. & S. bare copper wire.

Type of Element:

One vertical radiator, uniform cross-section, square, guyed, insulated from ground, series-fed, no top loading.

November 27, 1952

#133

CFSL

DESCRIPTION SHEET
(11-16-59g)

Station CFSL 250w, 1kw-LS, U, Class IV
Weyborn, Saskatchewan, Canada 1340 KC

AIR SERVICES
TELECOMMUNICATIONS BRANCH

REFER TO FILE NUMBER
6206-402

CANADA

DEPARTMENT OF TRANSPORT

DESCRIPTIVE SHEET - OMNIDIRECTIONAL ANTENNA

Station Call: CFSL

Main Studio: Weyburn, Saskatchewan

Frequency: 1340 Kc.

Power: 1 Kw Day/0.25 Kw Night

Class: IV

Time: U

Notification List No.: 133 Date: May 8, 1959.

Geographical Location:

North Latitude: 49° 37' 48"

West Longitude: 103° 48' 30"

Antenna Characteristics:

Height: 184 ft. 90 degrees

Expected Efficiency: 200 mv/m at 1 mi. for 1 KW

Ground System: 120 radials, equally spaced about tower, extending 294 feet approx. 0.4 wavelengths; each No. 10 B & S bare copper wire buried approx. 8".

Type of Element: Single vertical radiator, guyed, square, uniform cross-section, insulated from ground, series-fed, no top loading.

OFFICE OF CHIEF ENGINEER

CFYK

Decription Sheet (1-29-68ct) | Station CFYK Yellowknife, N.W.T. | 1kw,U,Class IV 1340 kc

CANADIAN BROADCASTING CORPORATION

ENGINEERING DIVISION MONTREAL

TITLE Change of Location CFYK Yellowknife

DWG. No.

DATE Sept.11/67 ISS.

ENG. J.L. APP. R.E.S.

DESCRIPTION OF ANTENNA SYSTEM

Station Call:	CFYK
Main Studio:	Yellowknife, N.W.T.
Frequency:	1340 kHz
Power:	1 KW
Class:	IV
Time:	Day and night
Notification List No. 236	Date: December 20, 1967
Geographical Location:	Latitude - 62° 25' 55" N. Longitude - 114° 25' 05" W.
Antenna Height:	140 feet
Physical Height:	68.6 degrees
Type of Element:	Guyed, base insulated, series fed, steel tower of constant cross-section. It will meet the requirements of Broadcast Procedure 1, Rule 1.
Ground System:	120 radials, of length 294 feet (0.4λ), no. 10 B&S gauge, buried at least 8 inches deep wherever possible.
Expected Efficiency:	175 mV/m at 1 mile for 1 kW.

Transmission Department.

C.B.C.-232A

#195

CFYK

Description Sheet (3-26-65ct) | Station CFYK Yellowknife, N.W.T. | 1kw,U,Class IV 1340 kc

CANADIAN BROADCASTING CORPORATION
ENGINEERING DIVISION MONTREAL

TITLE Power Increase - CFYK
Yellowknife, N.W.T.

DWG. NO.
DATE Dec.14/64 ISS.
ENG. J.H.S. APP R.E.S.

ANTENNA DESCRIPTION SHEET

Station:	CFYK
Main Studio:	Yellowknife, N.W.T.
Frequency:	1340 kc/s
Power:	1 kw
Class:	IV
Geographical Co-ordinates:	62° 28' 41" N 114° 28' 14" W

Antenna Characteristics:

Day and Night Operation:	ND
Number of Elements:	ONE
Type of Element:	Single tower series fed, guyed, constant cross-section, base insulated.
Height above Insulator:	126 feet (63°)
Ground System:	120 radials, 180 feet (0.25λ) in length
Antenna Efficiency:	170 mv/m at one mile for 1 kw.
Painting and Lighting:	In accordance with the Department of Transport Specification No. 16.

Notification No. 195 February 22, 1965

Transmission & Development Department

CHAD

Description Sheet (2-28-69ct) | Station CHAD Amos, P.Q. | 250w,1kw-LS,U,Class IV 1340 kc

DESCRIPTION SHEET - OMNIDIRECTIONAL ANTENNA

STATION CALL:	CHAD
MAIN STUDIO:	AMOS, P.Q.
FREQUENCY:	1340 kHz
POWER:	1 kw D/0.25 kw N
CLASS:	IV
TIME:	U
NOTIFICATION LIST NO: 251	DATE: January 28, 1969
GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:	North Lat. 48° 33' 42" West Long. 78° 05' 12"
ANTENNA CHARACTERISTICS:	
Height	150 feet (73.5 degrees)
Type of Element	Uniform cross section, guyed, series fed, vertical element.
Ground System	120 radials each 294 ft. (0.4λ) spaced 3° apart, buried approx. eight inches, #10 AWG bare copper wire, soldered to bus ring around tower base.
Expected Efficiency	92.5 mv/m at one mile for 0.25 kw or 185 mv/m at one mile for 1 kw.

ECK-92

CHAD
1340

AIR SERVICES
TELECOMMUNICATIONS DIVISION

CANADA

DEPARTMENT OF TRANSPORT

DESCRIPTIVE SHEET - OMNIDIRECTIONAL ANTENNA

Station Call: CHAD

Main Studio: Amos, Quebec

Frequency: 1340 Kc.

Power: 0.25 Kw.

Class: IV

Time: U

Notification Reference: NARBA Annex 3

Geographical Location:

North Latitude: 48° 33' 40"

West Longitude: 78° 05' 12"

Antenna Characteristics:

Height: 150 ft. 73.5 degrees

Expected Efficiency: 92.5 mv/m at 1 mi. for 0.25 Kw.

or: 185 mv/m at 1 mi. for 1 Kw.

Ground System:

120 radials 294' long, spaced 3 degrees

Type of Element:

One radiator, uniform cross-section, steel tower.

December 4, 1952

87

CHRD
1340

Oficina Interamericana de Radio (OIR)
OIR/NARBA 1571 Canada/C. 1636
La Habana, 10. XI. 54.

AIR SERVICES
TELECOMMUNICATIONS DIVISION
5-10-431

CANADA

DEPARTMENT OF TRANSPORT

REFER TO FILE NUMBER

DESCRIPTIVE SHEET - OMNIDIRECTIONAL ANTENNA

Station Call: CHRD

Main Studio: Drummondville, P.Q.

Frequency: 1340 Kc.

Power: 0.25 Kw.

Class: IV

Time U

Notification List No.: 87 Date: September 30, 1954.

Geographical Location:

North Latitude: 45° 52' 22"

West Longitude: 72° 30' 46"

Antenna Characteristics:

Height: 122 ft. 60 degrees

Expected Efficiency: 90 mv/m at 1 mi. for 0.25 Kw.
or 180 mv/m at 1 mi. for 1 Kw.

Ground System:

120 radials per tower, #10 AWG bare soft copper wire uniformly spaced, buried to a depth of 8" approximately. Wire radials 295 feet.

Type of Element:

One element, guyed, base insulated, uniform, cross section, series fed.

ANTENNA DESCRIPTION SHEET

DIRECTIONAL DA-2

STATION CALL:	C J L S
LOCATION:	Yarmouth, Nova Scotia.
FREQUENCY:	1340 kc/s
POWER:	Day 5000 w, 1000 w Night
CLASS:	IV
TIME:	Unlimited
NOTIFICATION REFERENCE: #266	Dated; February 10, 1970.
GEOGRAPHICAL COORDINATES:	Lat 43°50'25", Lon 66°08'50"
ARRAY CHARACTERISTICS:	Three elements, guyed, uniform cross section, base insulated, series feed. Height 123 feet or 60 degrees. No top loading.

Tower		ONE	TWO	THREE
bearing		ref	082°	082°
spacing		ref	075° 153'	150° 306'
Day	R	500	400	500
	ø	+45°	+15°	-45°
Night	R	690	782	310
	ø	+147°	+004°	-147°

Ground System: 120 radials per tower, #10 AWG bare, soft copper wire, spaced uniformly, depth approximately 8 inches. Radials bonded along line between towers and bonded to soft copper straps at tower base. Maximum length 294 feet.

Predicted RMS:
Day 393 mv/m at 1 mi for 5 kw
176 mv/m at 1 mi for 1 kw

Night 171 mv/m at 1 mi for 1 kw

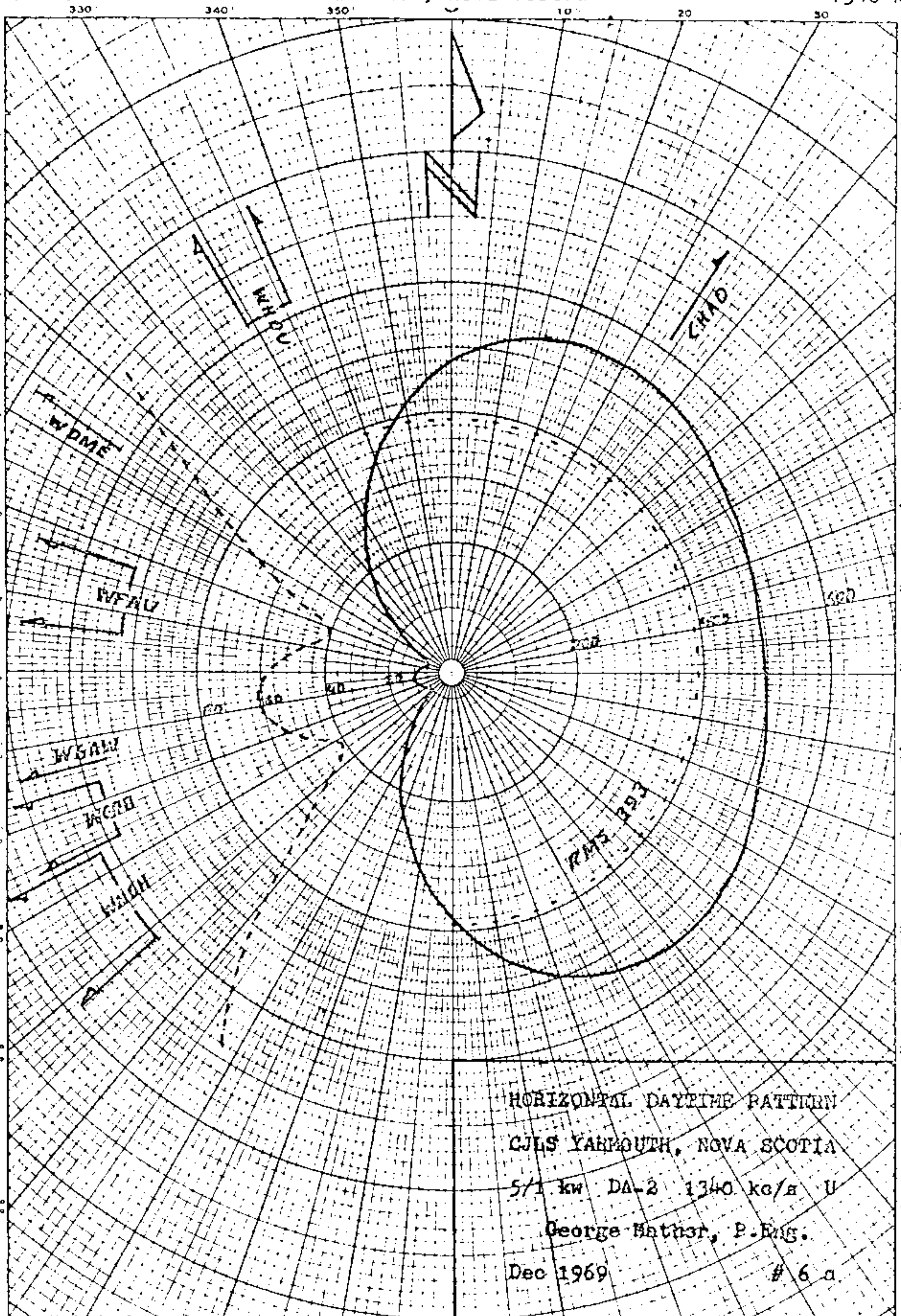
Dec 1969 # 5

CJLS

Proposed Day
(7-29-70ct)

Station CJLS
Yarmouth, Nova Scotia

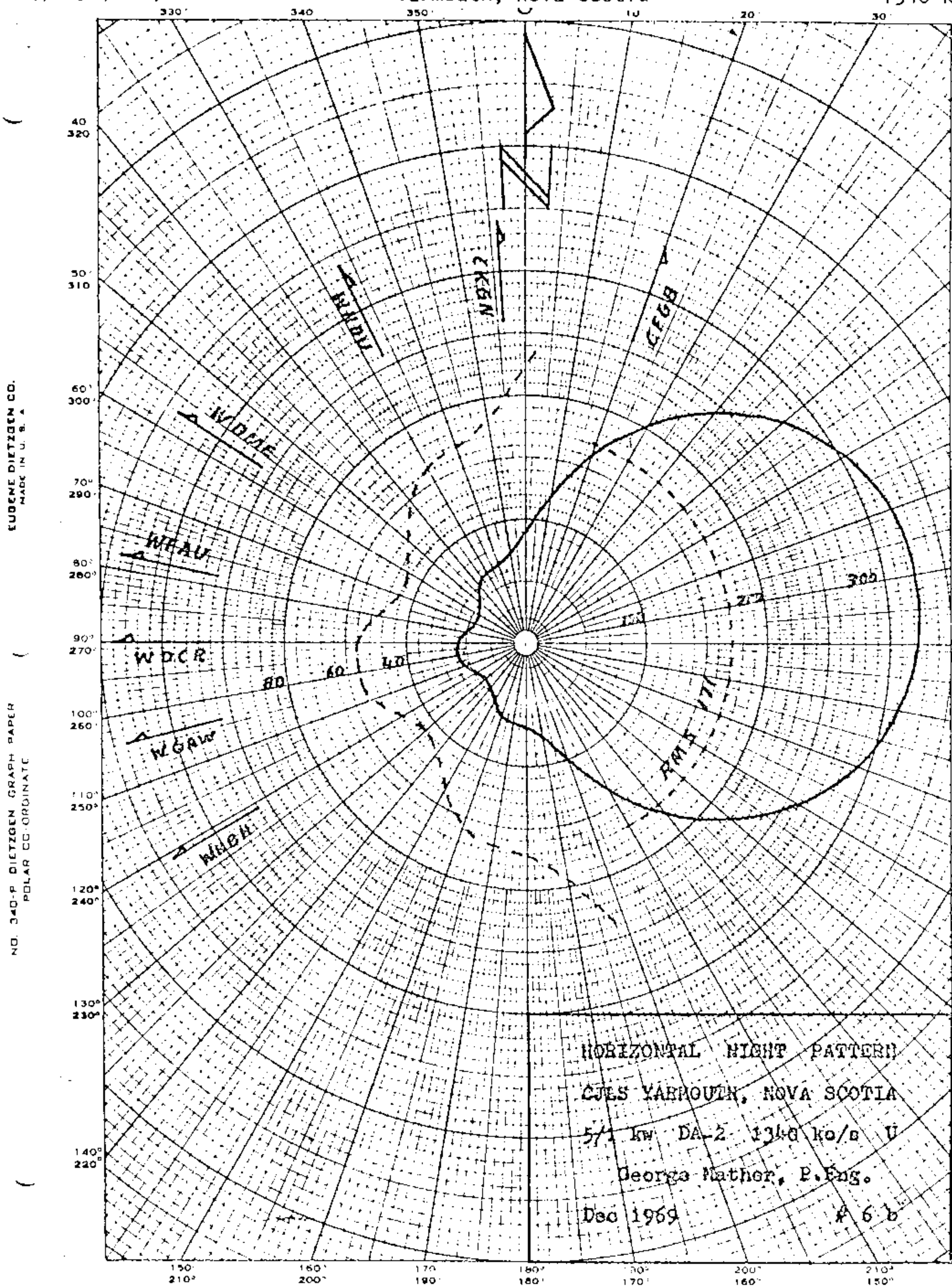
1kw,5kw-LS,DA-2,U,ClassIV
1340 kc



Proposed Night
(7-29-70ct)

Station CJLS
Yarmouth, Nova Scotia

CJLS
1kw,5kw-LS,DA-2,U,ClassIV
1340 kc



ANTENNA DESCRIPTION SHEET

DIRECTIONAL DA-2

STATION CALL: C J L S
LOCATION: Yarmouth, Nova Scotia
FREQUENCY: 1340 kc/s
POWER: Day 5000 w, 1000 w Night
CLASS: IV
TIME: Unlimited

NOTIFICATION REFERENCE: 258 Dated: September 19, 1969

GEOGRAPHICAL COORDINATES: Lat 43°52'00", Lon 66°03'50"

ARRAY CHARACTERISTICS: Three elements, guyed, uniform cross section, base insulated, series feed. Height 123 feet or 60 degrees. No top loading.

Tower		ONE	TWO	THREE
bearing		ref	080°	080°
spacing		ref	075° 153'	150° 306'
Day	R	1000	750	
	ø	00°	-111°	
Night	R	775	645	225
	ø	00°	-141°	+78°

Ground system: 120 radials per tower, #10 AWG bare, soft copper wire, spaced uniformly, depth approximately 8 inches. Radials bonded along line between towers and bonded to soft copper strap at tower base. Maximum radial length 294 feet.

Predicted RMS: Day 393 mv/m at 1 mi for 5 kw
176 mv/m at 1 mi for 1 kw

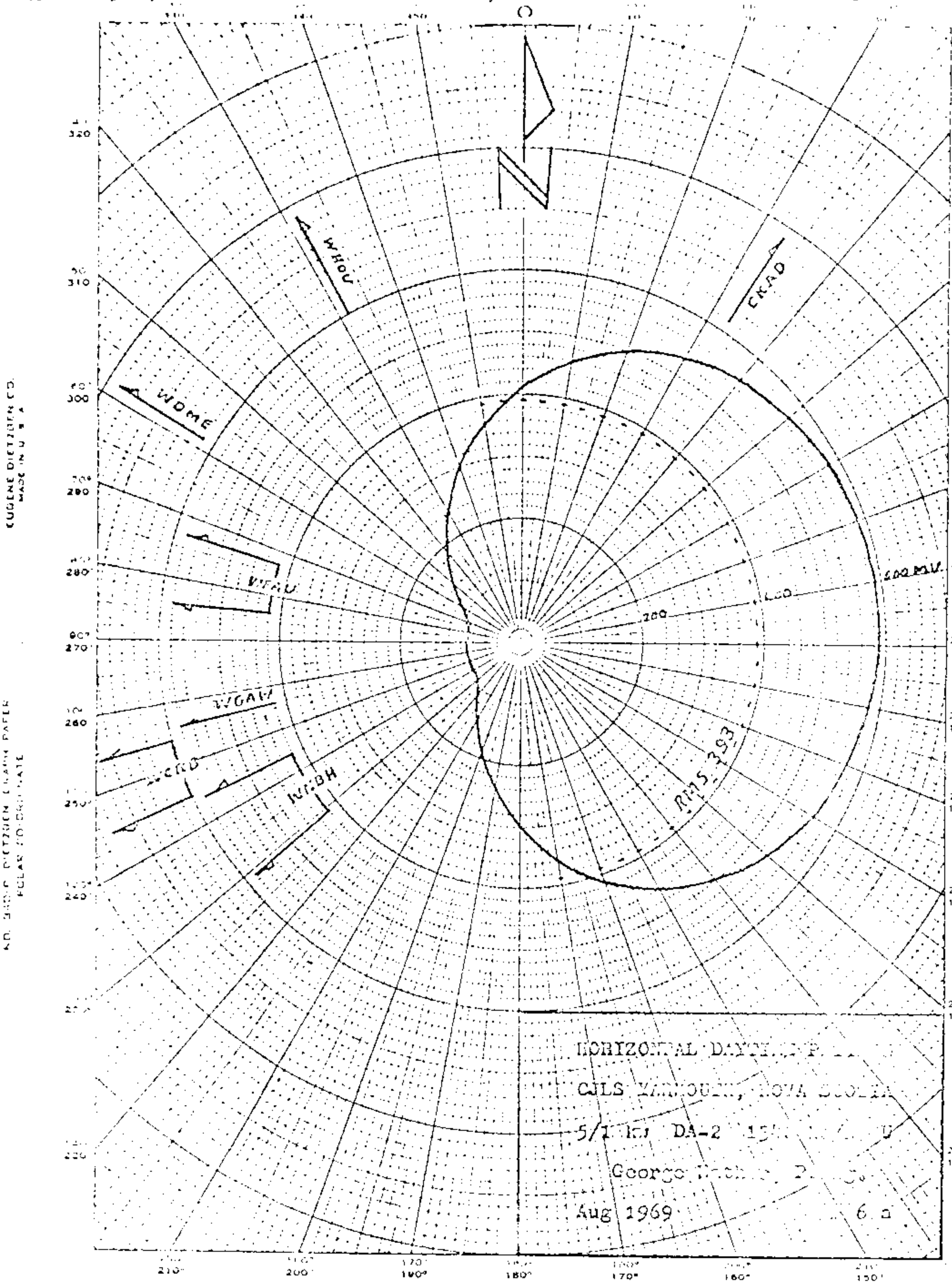
Night 171 mv/m at 1 mi for 1 kw

CJLS

Proposed Day
(9-26-69ct)

Station CJLS
Yarmouth, Nova Scotia

1kw,5kw-LS,DA-2,U,Class IV
1340 kc

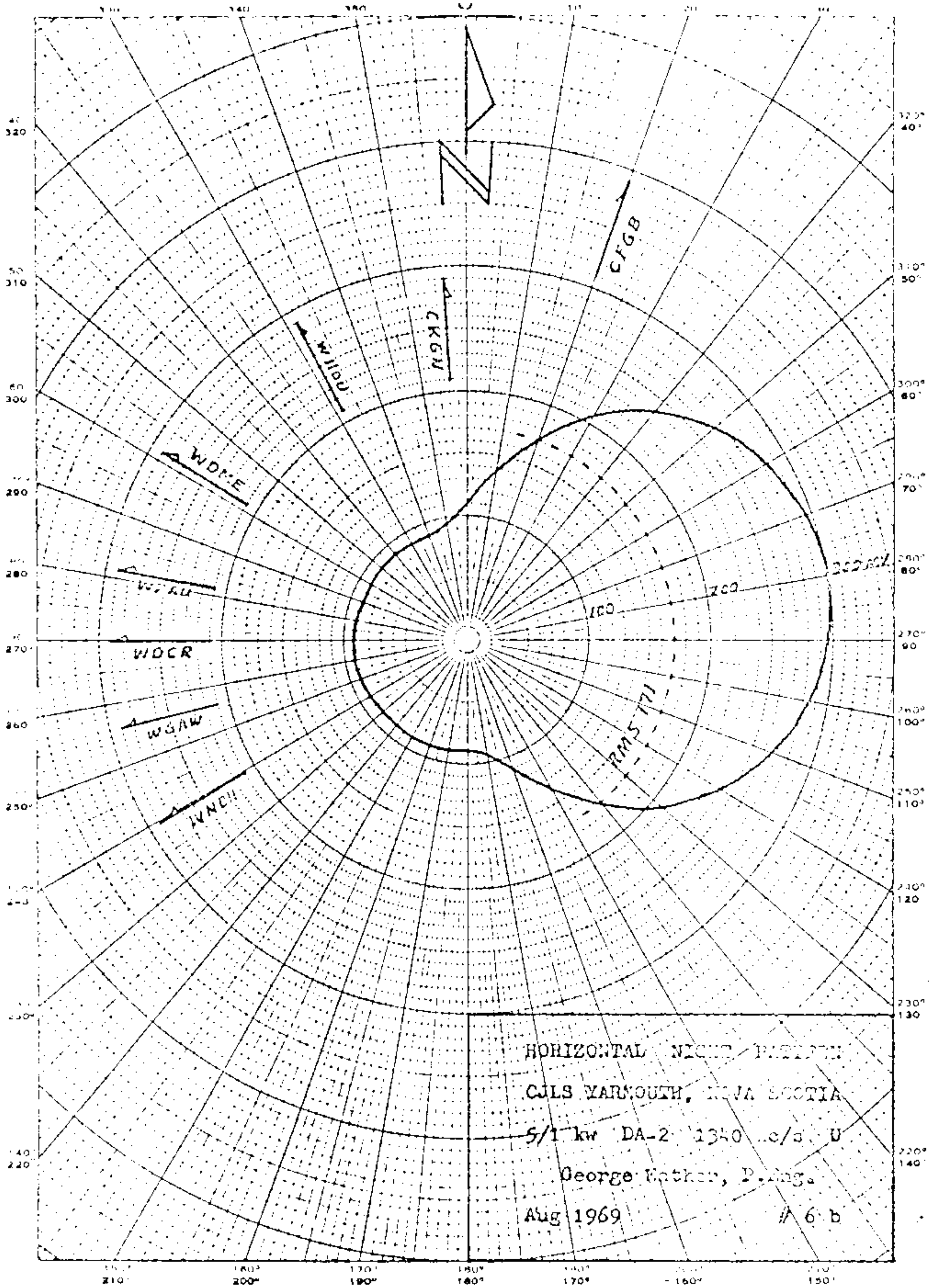


CJLS

Proposed Night (9-26-69ct)

Station CJLS
Yarmouth, Nova Scotia

1kw,5kw-LS,DA-2,U,Class IV
1340 kc



Nov 25 '52

CJLS
1340

AIR SERVICES
TELECOMMUNICATIONS DIVISION
(5-10-83)

CANADA

DEPARTMENT OF TRANSPORT

DESCRIPTIVE SHEET – OMNIDIRECTIONAL ANTENNA

Station Call: CJLS

Main Studio: Yarmouth, Nova Scotia

Frequency: 1340 Kc/s.

Power: 0.25 Kw.

Class: IV

Time: U

Notification Reference: NARBA Annex 3

Geographical Location:

North Latitude: 43° 52' 00"

West Longitude: 66° 03' 50"

Antenna Characteristics:

Height: 125 ft. 61.3 degrees

Expected Efficiency: 93 mv/m at 1 mi. for 0.25 Kw.

or: 186 mv/m at 1 mi. for 1 Kw.

Ground System:

120 radials each 50 feet long and an additional 120 radials 300 feet long, equal angular spacing.

Type of Element:

Steel tower, lower portion flat steel, upper portion tubular, welded throughout.

November 25, 1952

127

CKAR-1
PARRY SOUND

DESCRIPTION SHEET
(1-29-60g)

Station CKAR-1 250w,U, Class IV
Huntsville, Ontario, Canada 1340 KC

AIR SERVICES
TELECOMMUNICATIONS BRANCH
5-1-8-503

REFER TO FILE NUMBER

CANADA

DEPARTMENT OF TRANSPORT

DESCRIPTION SHEET - OMNIDIRECTIONAL ANTENNA

Station Call: CKAR-1 (Transmitter at Parry Sound, Ontario. Satellite of CKAR Huntsville, Ontario.)

Main Studio: Huntsville, Ontario.

Frequency: 1340 Kc/s

Power: 250 watts

Class: IV

Time: Unlimited

Notification List No. 127

Date: November 28, ~~1959~~ 1958

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:

North Latitude: 45° 20' 42"

West Longitude: 80° 01' 23"

ANTENNA CHARACTERISTICS:

Height: 122' feet 60° degrees

Type of Element: guyed, uniform cross-section base insulated, series-fed, no top loading.

Ground System:

Expected Efficiency:

91 mv/m at 1 mile for 250 watts

or: 182 mv/m at 1 mile for 1 kw.

41

CKCR

Description Sheet (10-28-67ct)	Station CKCR Revelstoke, B. C.	250w,1kw-LS,U,Class IV 1340 kc

DESCRIPTION SHEET

<u>Omnidirectional Antenna</u>

Station Call:	CKCR
Location:	Revelstoke, B. C.
Frequency:	1340 KHz
Power:	1 Kw Day / .25 Kw Night
Class:	IV
Time:	Unlimited
Notification List No. 232	Date: September 28, 1967.
Geographic Co-ordinates Antenna System	50° [illegible]' 50" N. Latitude 11[illegible]° 1[illegible]' [illegible]0" W. Longitude
Antenna Characteristics:	Height [illegible]' ([illegible]°)
Type of Element:	A guyed uniform cross-section, single tower, base-insulated and fitted for series feed.
Ground System:	1[illegible] - .4 λ copper radials buried approximately 6" below grade
Expected Efficiency:	1[illegible] mv/m at 1 mile for 1 Kw

195

CKCR

Description Sheet
(3-26-65ct)

New Station
Revelstoke, B.C.

250w,U,Class IV
1340 kc

DESCRIPTION SHEET

Omnidirectional Antenna

Station Call:	New
Location:	Revelstoke, B.C.
Frequency:	1340 kc/s
Power:	0.25 kw
Class: IV	Operation: Unlimited
Notification List No. 195	Date: February 22, 1965
Geographic Co-ordinates: Antenna System	50° 58' 30" N. Latitude 118° 10' 00" W. Longitude
Antenna Characteristics:	Height 122' (60°)
Type of Element:	A guyed uniform cross-section, single tower, base-insulated and fitted for series feed.
Ground System:	120 - 0.4λ copper radials buried approximately 8" below grade
Expected Efficiency:	88.5 mv/m at 1 mile for 0.25 kw

CKOX

Description Sheet
(2-22-71ct)

Station CKOX
Woodstock, Ontario

250w,1kw-LS,DA-D,U,Class IV
1340 kc

DESCRIPTION OF ARRAY

STATION: CKOX

MAIN STUDIO: Woodstock, Ontario

FREQUENCY: 1340

POWER: 1000/250 CLASS: IV

NOTIFICATION LIST NO. 275

DATE: January 11, 1971

GEOGRAPHICAL LOCATION OF ANTENNA SYSTEM:

43° - 06' - 18" North Latitude

80° - 45' - 50" West Longitude

ANTENNA CHARACTERISTICS

Mode of operation: DA/D, ND-N
Number of elements: 3
Type of elements: Guyed, uniform cross-section base insulated, no top loading.

TOWER:	# 1 (SE)	# 2 (C)	# 3 ([illegible])
HEIGHT OVER INSULATORS:	130' (60°)	130' (60°)	130' ([illegible])
OVERALL HEIGHT:	134'	134'	134'
SPACING:	0.	183.2' (90°)	[illegible] (180°)
ORIENTATION:	0.	019°	019°
DAY PHASING:	0.	185.514°	[illegible]
DAY RATIO:	1.00000	1.17411	[illegible]

GROUND SYSTEM: 120 radials per tower. Bonded to common chord radials 0.4. Wavelength equivalent length.

PREDICTED DAY EFFECTIVE FIELD: 174.894 mv/m @ 1 mile for 1 Kw.

OMNI NIGHT EFFECTIVE FIELD: 92.500 mv/m @ 1 mile for 250 Kw.

CONSULTANT:
D. B. Williamson, P. Eng.,
Consulting Engineer,
CHUC Radio Building,
Cobourg, Ontario.

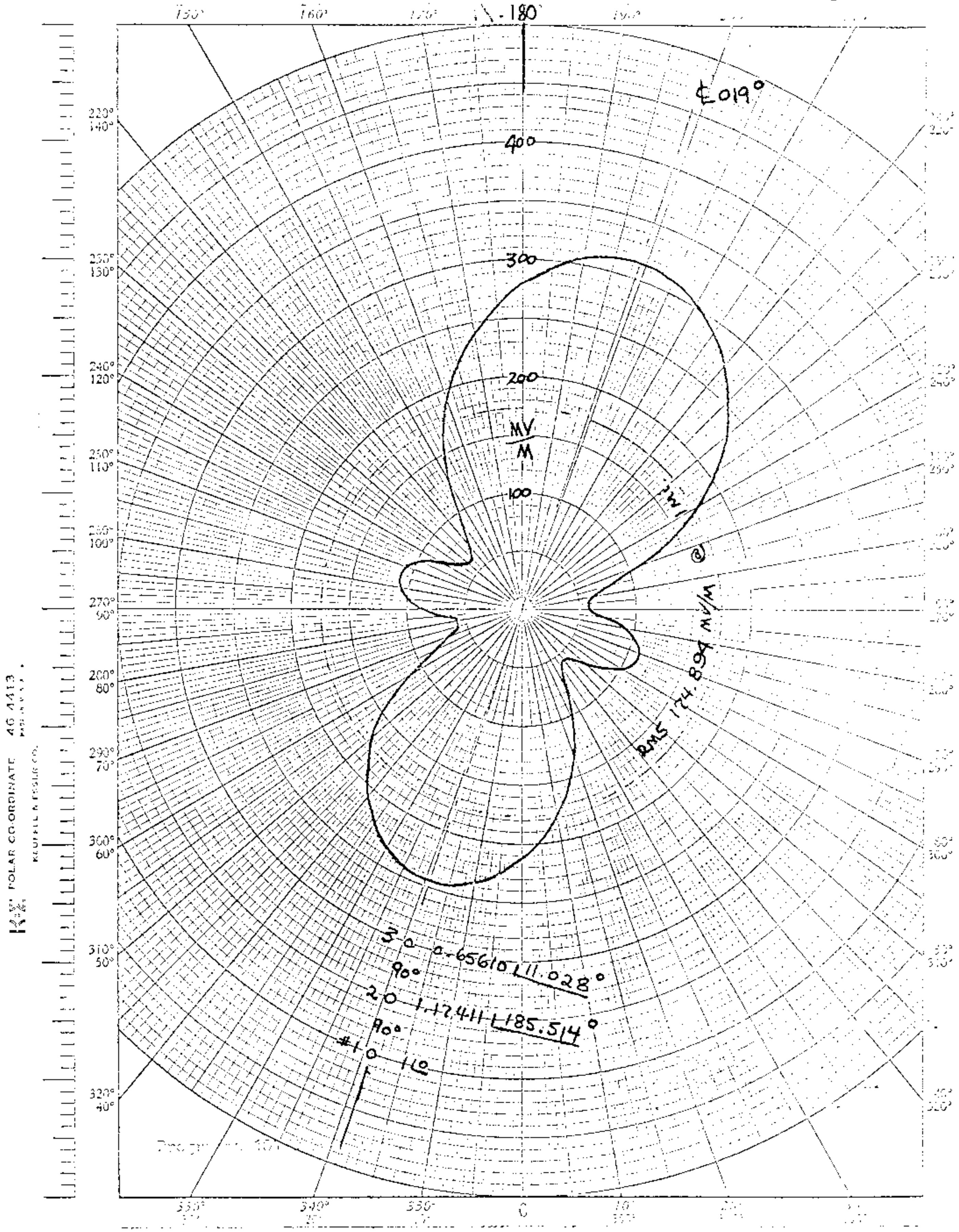
Programma 101 Card # 70 - 363 B

CKOX

Proposed Day
(2-22-71ct)

Station CKOX
Woodstock, Ontario

250w,1kw-LS,DA-D,U,Class IV
1340 kc



#184

CKOX

(d) DESCRIPTION OF ARRAY

STATION: CKOX

MAIN STUDIO: Woodstock, Ontario

FREQUENCY: 1340 Kcs.

POWER: 1000/250 Class IV

GEOGRAPHICAL LOCATION OF ANTENNA SYSTEM: 43 - 06 - 15 North

80 - 45 - 50 West

ANTENNA CHARACTERISTICS

Mode of Operation: DA/D

Number of Elements: 2

Type of Elements: Guyed, uniform cross section, base insulated, no top loading.

TOWER:	# 1 (NW)	# 2 (SE)
HEIGHT OVER INSULATORS:	130' (60°)	130' (60°)
OVERALL HEIGHT:	134'	134'
SPACING:	428' (210°)	
ORIENTATION:	Ref.	109° TRUE
DAY PHASING:	0	-5°
DAY RATIO:	1.00	0.610

GROUND SYSTEM: 120 Radials per tower. Bonded to common chord,
Radials 0.4 Wavelength equivalent length.

PREDICTED DAY EFFECTIVE FIELD: 175 mv/m @ 1 mi for 1 KW

OMNI NIGHT EFFECTIVE FIELD: 92.5 mv/m @ 1 mi for 250 W. 185/kw

NOTIFICATION LIST NO. 184 DATED February 10, 1964

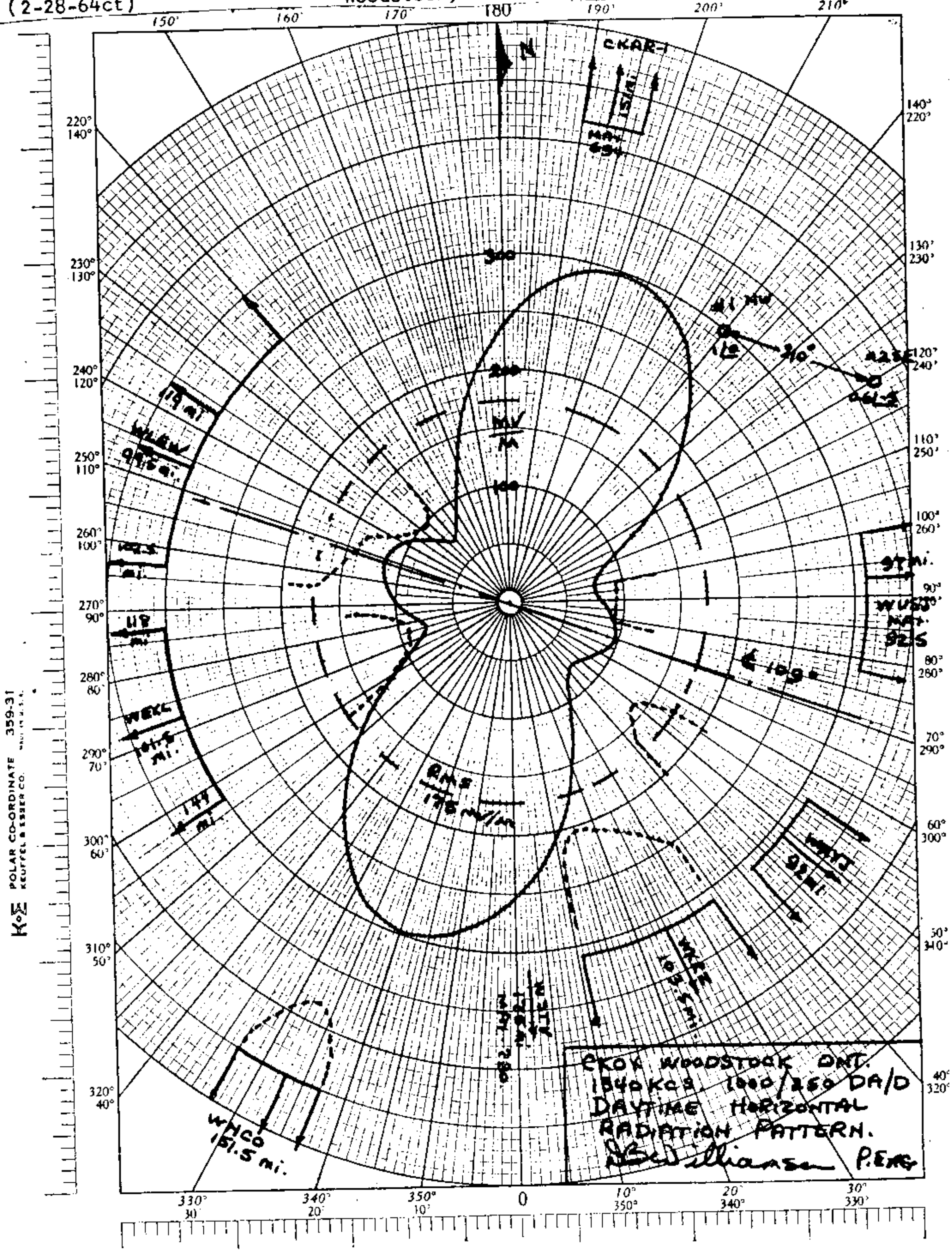
184

CKOX

Proposed Day
(2-28-64ct)

Station CKOX
Woodstock, Ontario

250w,1kw-LS,DA-D, Class IV
1340kc



CKRE 1340

IFRB Serial No. 12436

FORM FOR THE APPLICATION OF ARTICLE 4 OF THE AGREEMENT

CHARACTERISTICS OF A REGION 2 BROADCASTING STATION IN THE BAND 535 - 1605 kHz

PART I GENERAL INFORMATION

(01) Administration: CANADA | Sheet No.: 423 | Date: 830907

Assigned frequency (kHz)		(02)	1340
Transmitting station	Name of the station	(03)	RED LAKE ON
	Call sign	(04)	CKRE
	Additional Identification	(05)	
	Station class	(06)	
	Operational Status	(07)	O
Country		(08)	CAN
Geographical coordinates of the transmitting station		(09)	93W4921 51N0047

(11) a) New assignment [ ] b) Modification of characteristic of an assignment recorded in the plan [X] c) Cancellation of an assignment [ ]

(12) Modification under Section 4.2.14 Yes [X] No [ ]

(13) Date of bringing into service or cessation of operation [ ] Year Month Day

STATION PARAMETERS	DAYTIME OPERATION		NIGHT-TIME OPERATION	
Station power (kW)	(21)	.25	(31)	. [illegible]
r.m.s. value of radiation for station power (mV/m at 1 km)	(25)	144.8	(35)	144.8
Antenna type	(26)	1	(36)	1
Simple vertical antenna electrical height (degrees)	(27)	.	(37)	.

(44) Remarks

COORDINATION UNDER ARTICLE 4:								
COUNTRY	USA							
IN PROGRESS								
ACCEPTANCE OBTAINED								

CKRE
1340

FORM FOR THE APPLICATION OF ARTICLE 4 OF THE AGREEMENT
CHARACTERISTICS OF A REGION 2 BROADCASTING STATION IN THE BAND 535 - 1605 kHz

PART IV

12436 IFRB Serial No.

Description of the top-loaded or sectionalized towers used for :

A) Directional antenna systems for towers entered in Part II Section I as top-loaded or sectionalized (column 12), or

B) Non-directional antenna towers entered in Part I as top-loaded or sectionalized (column 26 or 36)

(01) RED LAKE ON — Name of transmitting station

(02) CAN — Country

423 — Sheet No.

(03) DN — Hours of Operation

(04) TOWER NUMBER	(05) A	(06) B	(07) C	(08) D
1	49	11		

KROC

MEASURED NON-DA
(7-7-60g)

Station KROC
Rochester, Minnesota

250w, 1kw-LS, DA-D,U
1340 KC

North Latitude 44° 01' 46.5''
West Longitude 92° 29' 31.0''

BL-10364
GRANTED
2-17-64
ND
RETAINED FOR
INFO. ONLY

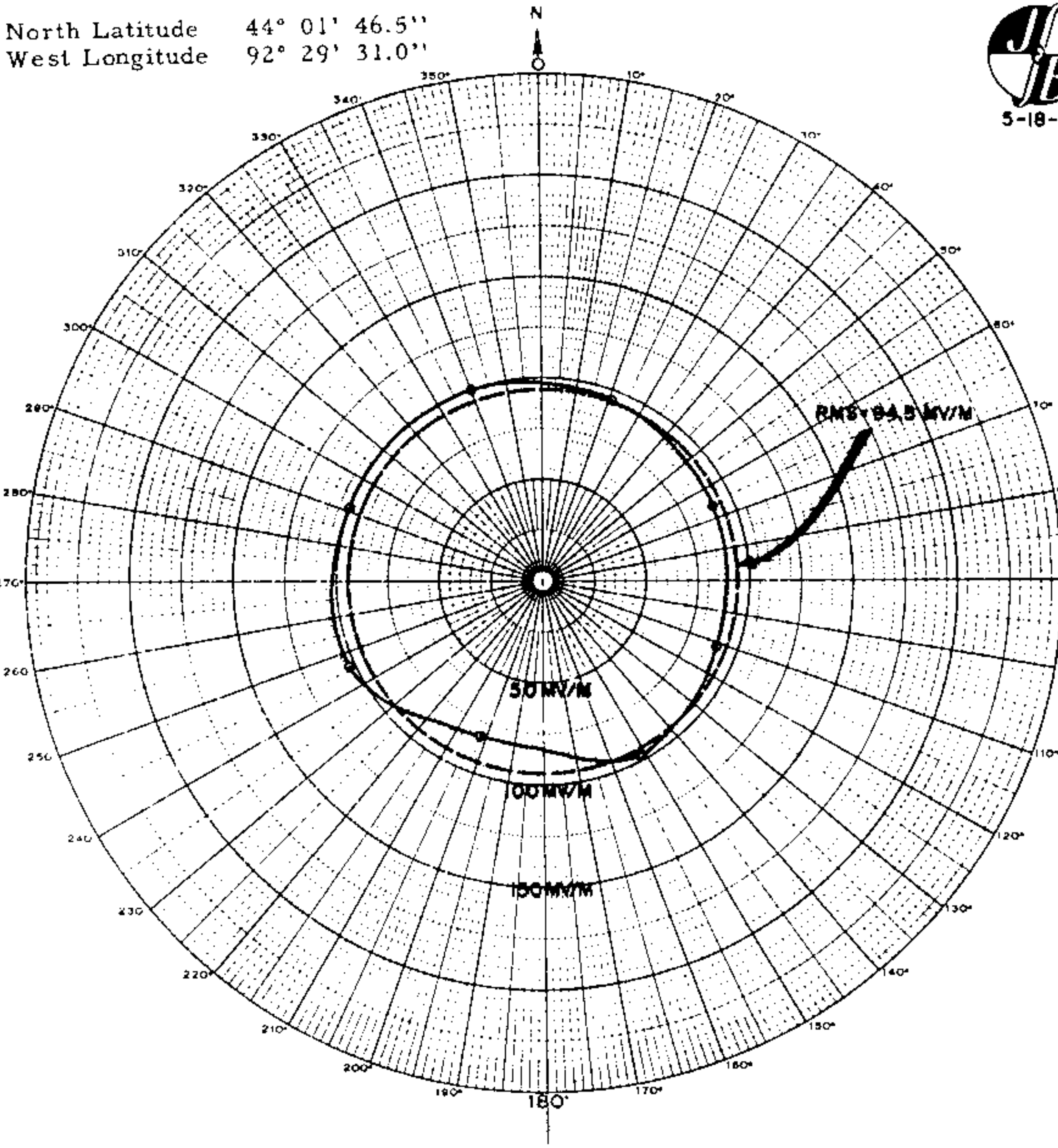


FIG. 6
MEASURED NIGHTTIME HORIZONTAL
RADIATION PATTERN
KROC 1340 KC 0.25-1KW(LS) DA-D
SOUTHERN MINNESOTA BROADCASTING COMPANY
ROCHESTER, MINNESOTA

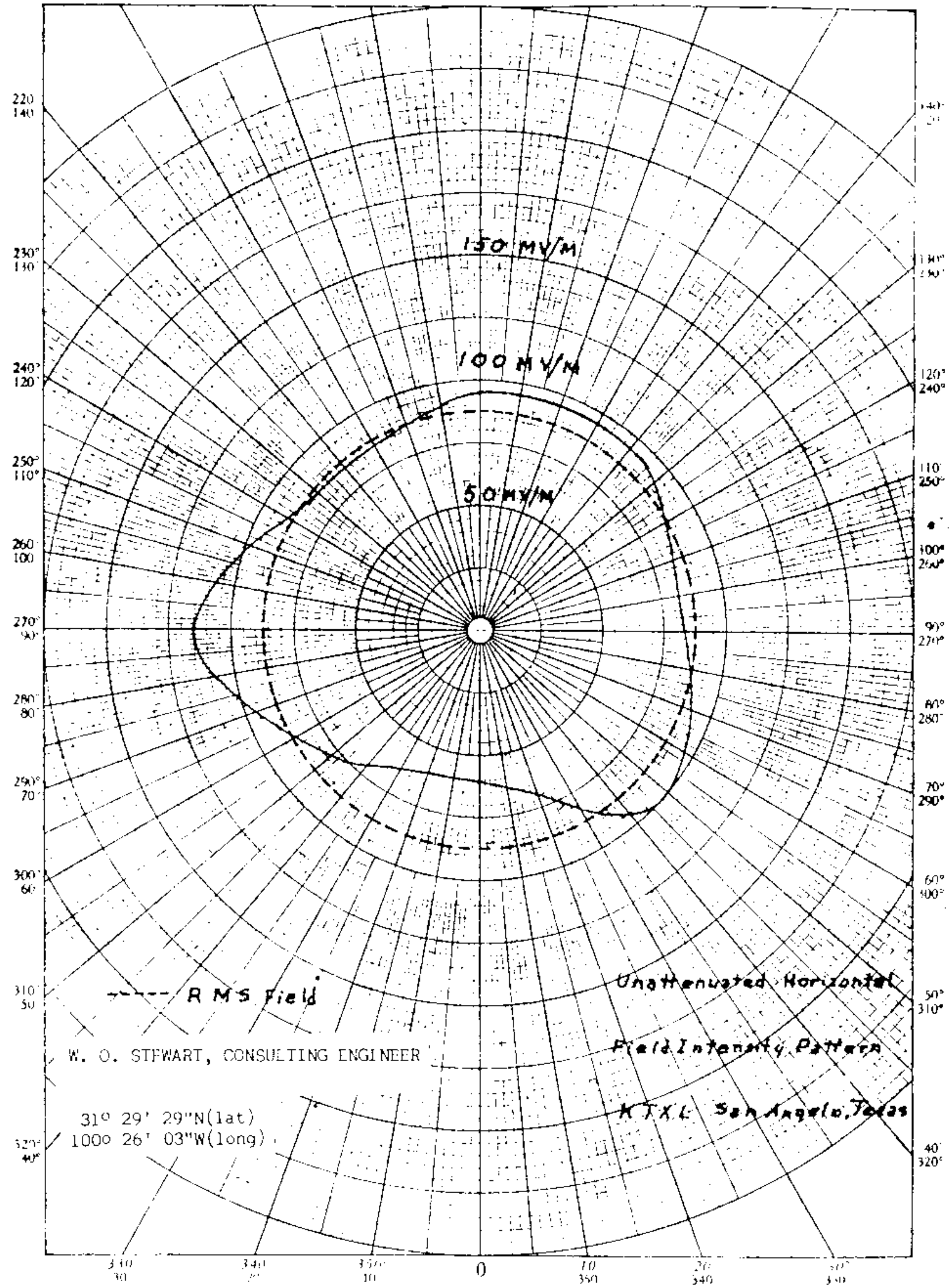
KTXL
1340

MEASURED NON-DIRECTIONAL
(8/16/55G)

STATION KTXL
SAN ANGELO, TEXAS

250W
NON-DA, U

1340 KC



FILE NO. BL-5797 ACCEPTED 8/5/55 FCC

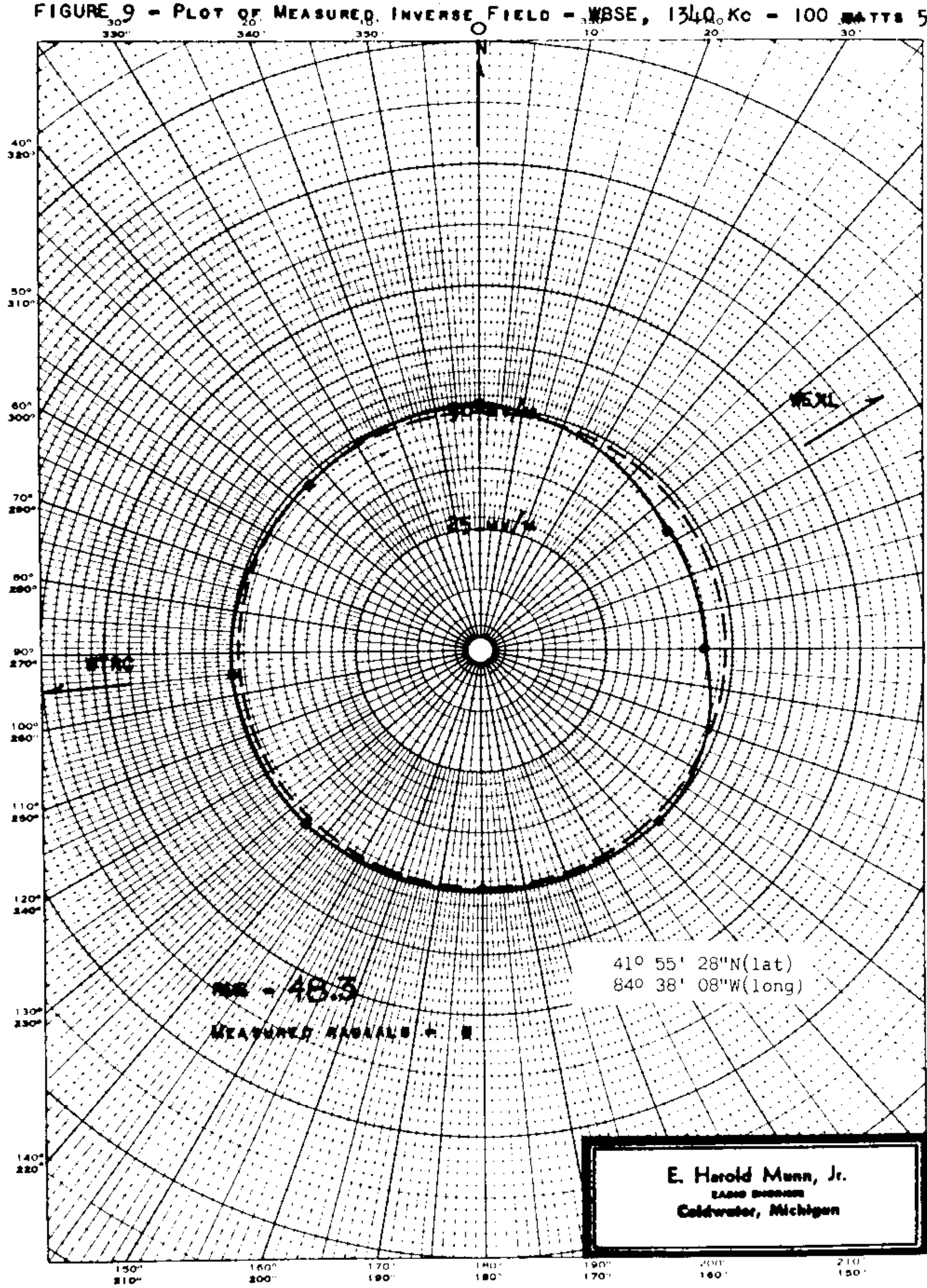
KTXL, San Angelo, Texas 1340 KC

WBSE

MEASURED NON-DIRECTIONAL (6/21/55G) | STATION WBSE HILLSDALE, MICHIGAN | 100W NON-DA, U | 1340 KC

1340

FIGURE 9 - PLOT OF MEASURED INVERSE FIELD - WBSE, 1340 KC - 100 WATTS 5/55



FILE NO. BL-5727 ACCEPTED FCC 5/26/55 WBSE, Hillsdale, Mich. 1340 KC

WEXL

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WEXL

Main Studio: Royal Oak, Michigan

Frequency: 1340 kHz

Power: 0.25 kW Night 1 kW Day

Notification List No. 1583

Date: June 5, 1974

Class: IV

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 42° 28' 25"
West Longitude: 83° 06' 56"

ANTENNA CHARACTERISTICS

Authorized for Daytime operation. (DA-D)
Number of elements: 2
Type of elements: Series-excited, 1 uniform cross-section, guyed, and 1 Self-supporting, tapered, vertical steel towers.

TOWER:	NW(#2)	SE(#1)
HEIGHT ABOVE INSULATORS:	184' (90°)	410' (201°)
PHASING:	+167.85°	0°
FIELD RATIO:	0.451	1.0

SPACING AND ORIENTATION: Elements are spaced 142' (70°) on a line bearing 347° true.

GROUND SYSTEM: 120-184' equally spaced copper radials plus a 48' square ground screen about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers. Centers of systems are bonded together.

Predicted effective Day Field: 165 mv/m at rated power.

Predicted effective Night Field: (omnidirectional) 132 mv/m at rated power.

Note: Please retain the Daytime directional antenna radiation pattern notified for Station WEXL in United States Change List Number 980 dated October 17, 1962 and attach to this Revised Description Sheet. This notification concerns only a correction in the day and night effective fields and height of tower #1.

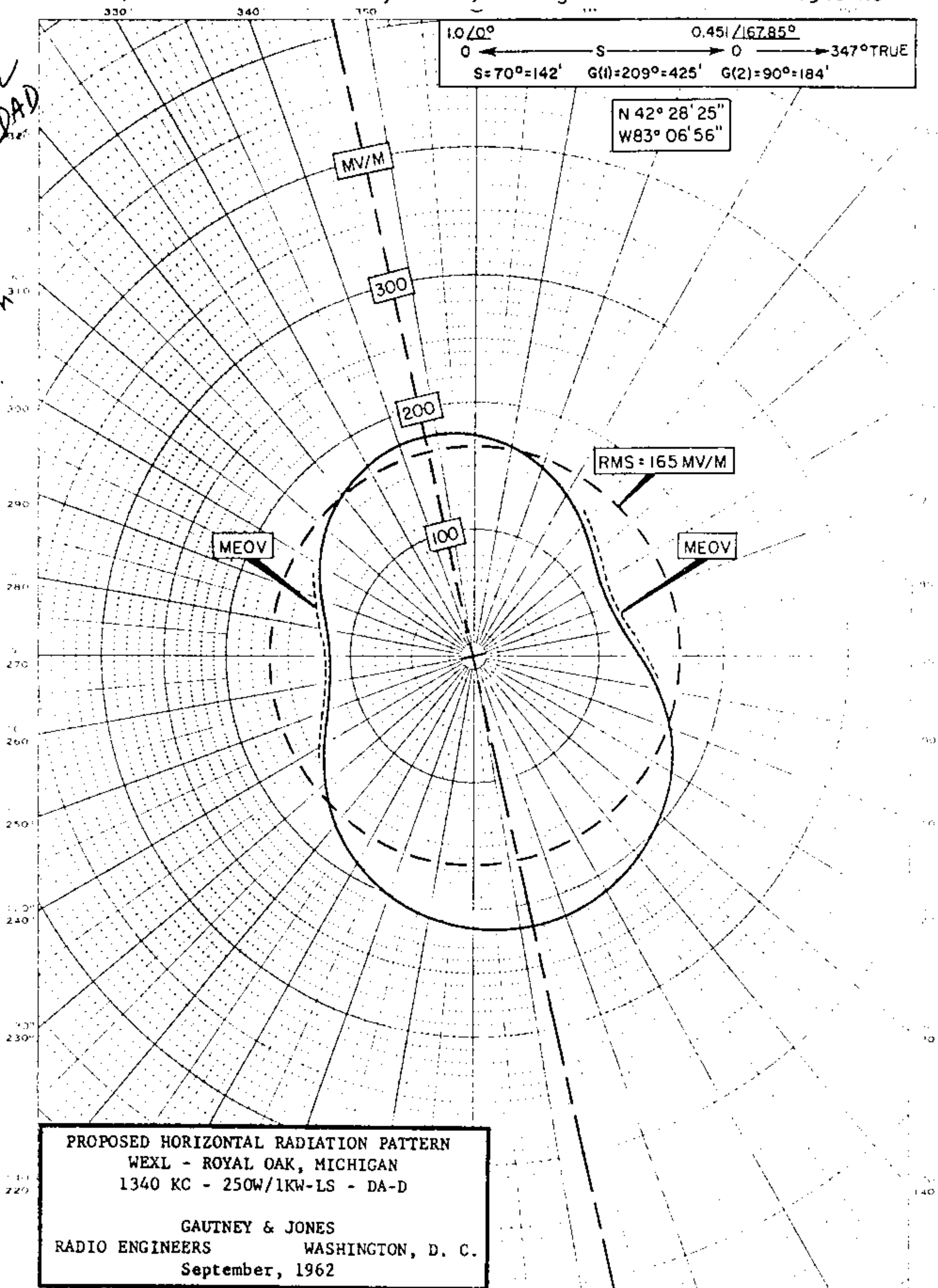
Proposed Day
(10-26-62ct)

Station WEXL
Royal Oak, Michigan

250w,1kw-LS,DA-D,U
1340 kc

8-29-62 granted CP for KW day and DAD

10-12-62 granted CP to make changes in DA system



PROPOSED HORIZONTAL RADIATION PATTERN
WEXL - ROYAL OAK, MICHIGAN
1340 KC - 250W/1KW-LS - DA-D

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

FCC File No.BMP-10561
Accepted 9-28-62

Station WEXL
Royal Oak, Michigan

1340 kc

WEXL

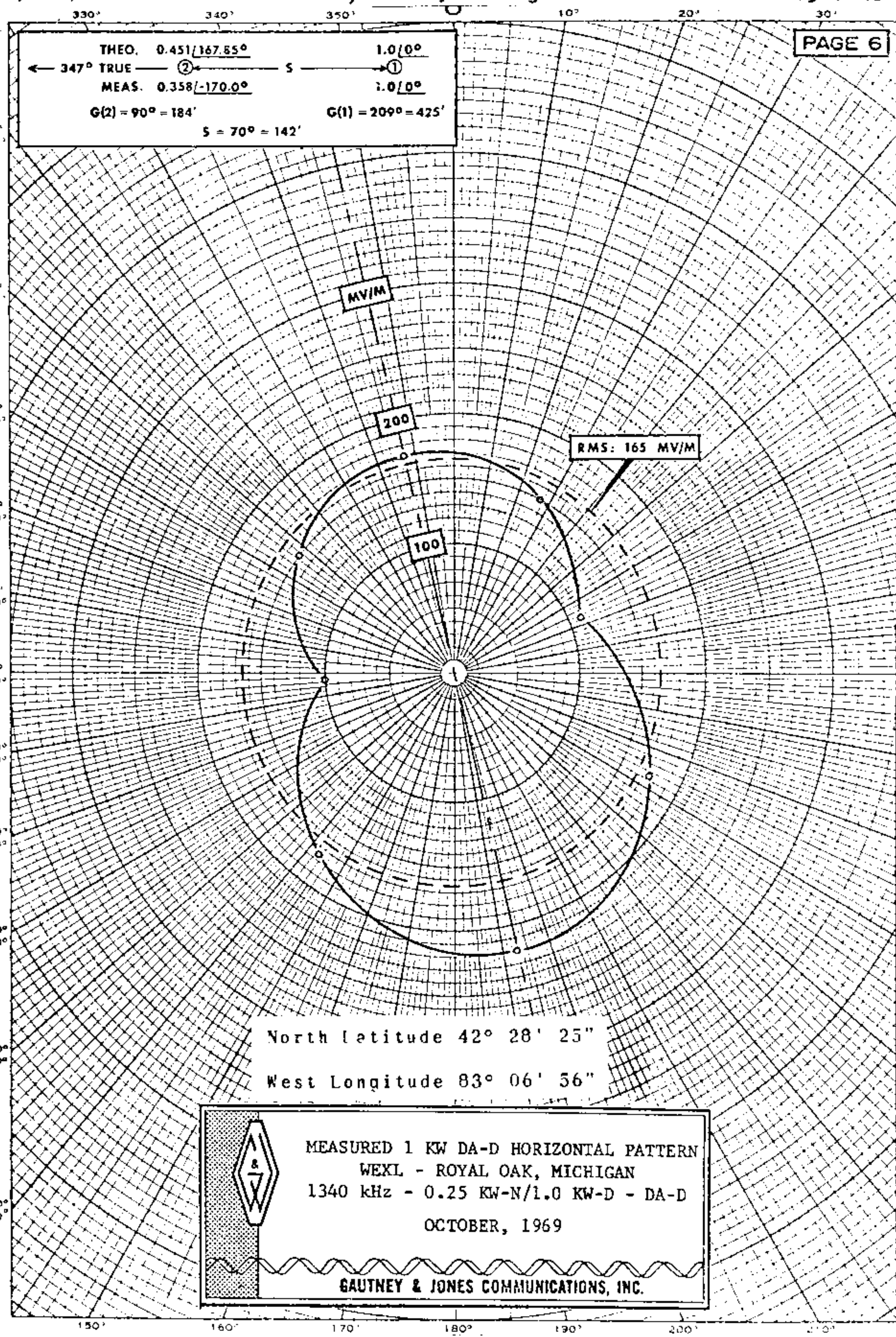
Measured Day
(2-22-71ct)

Station WEXL
Royal Oak, Michigan

250w,1kw-LS,DA-D,U
1340 kc

EUGENE DIETZGEN CO.
N. U. S. A.

NO. 340-P DIETZGEN GRAPH PAPER
POLAR COORDINATE

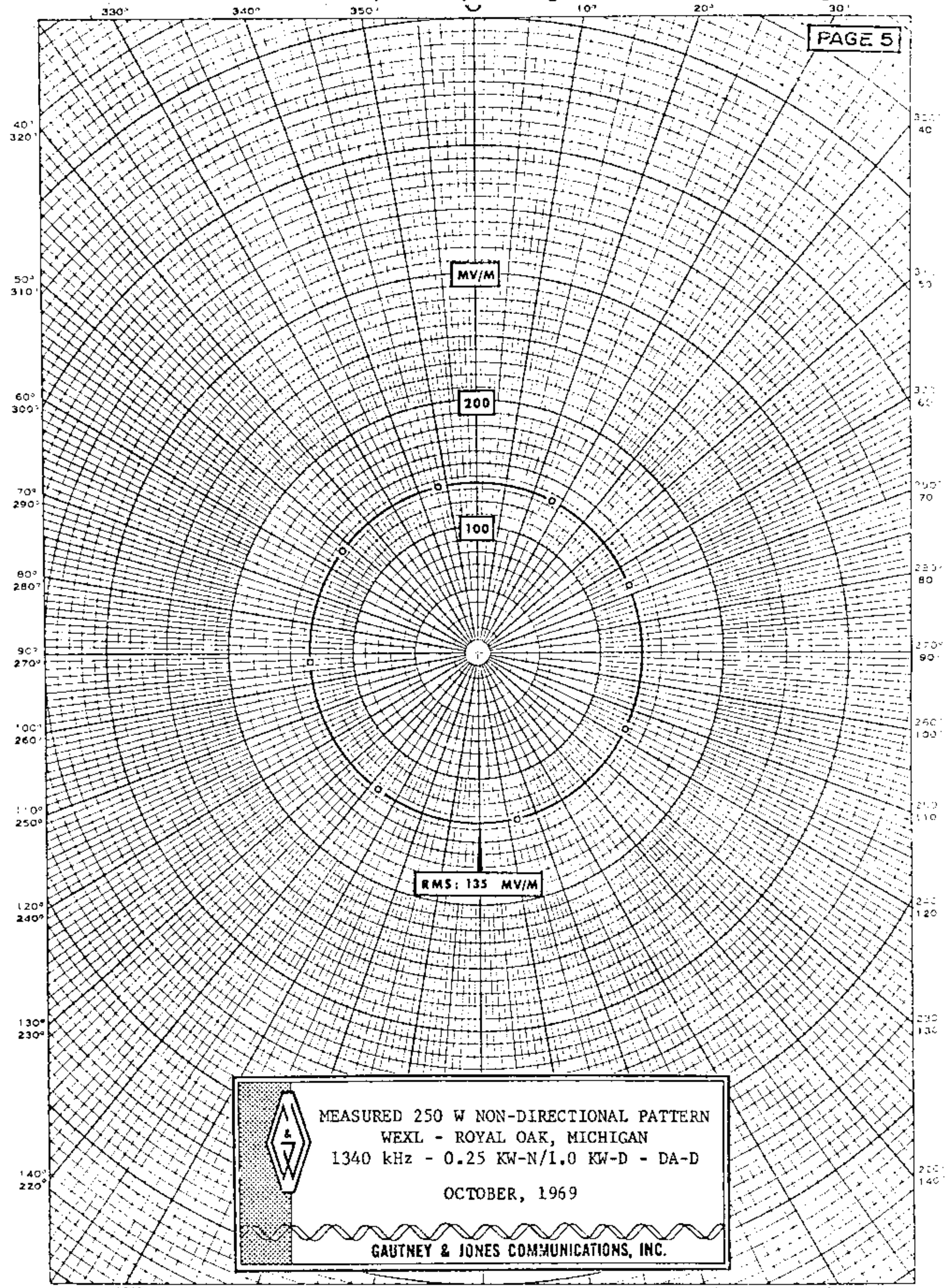


FCC File No.BZ-7753
Accepted 2-16-71

Station WEXL
Royal Oak, Michigan

1340 kc

Measured Non-DA (2-22-71ct) | Station WEXL Royal Oak, Michigan | 250w,1kw-LS,DA-D,U 1340 kc



MEASURED 250 W NON-DIRECTIONAL PATTERN
WEXL - ROYAL OAK, MICHIGAN
1340 kHz - 0.25 KW-N/1.0 KW-D - DA-D

OCTOBER, 1969

GAUTNEY & JONES COMMUNICATIONS, INC.

FCC File No.BZ-7753
Accepted 2-16-71

Station WEXL Royal Oak, Michigan 1340 kc

WKRZ

Measured Day
(11-29-66ct)

Station WKRZ
Oil City, Pennsylvania

250w,1kw-SH,DA-D,U
1340 kc

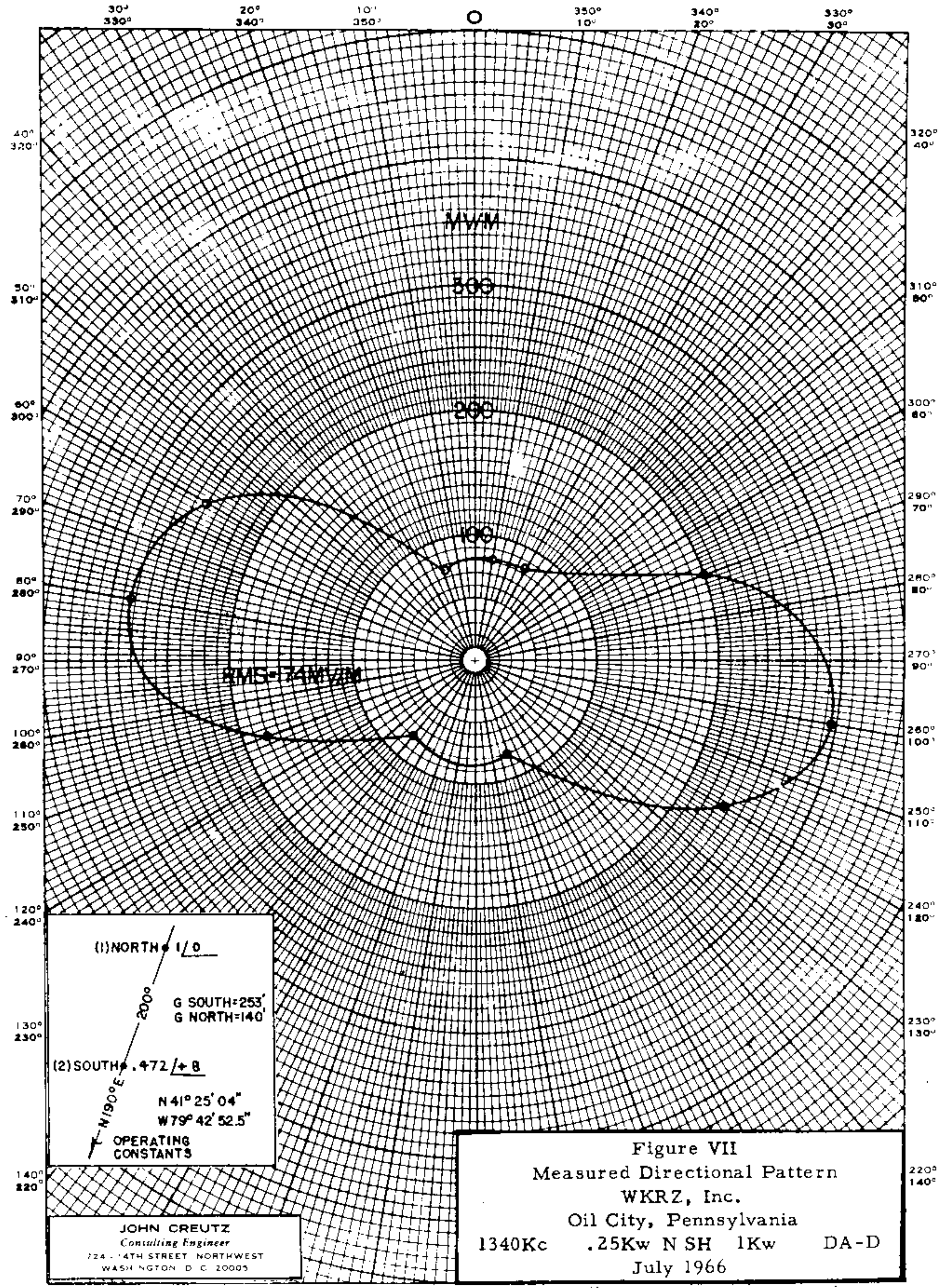


Figure VII
Measured Directional Pattern
WKRZ, Inc.
Oil City, Pennsylvania
1340Kc .25Kw N SH 1Kw DA-D
July 1966

FCC File No.BZ-6190
Accepted 11-15-66

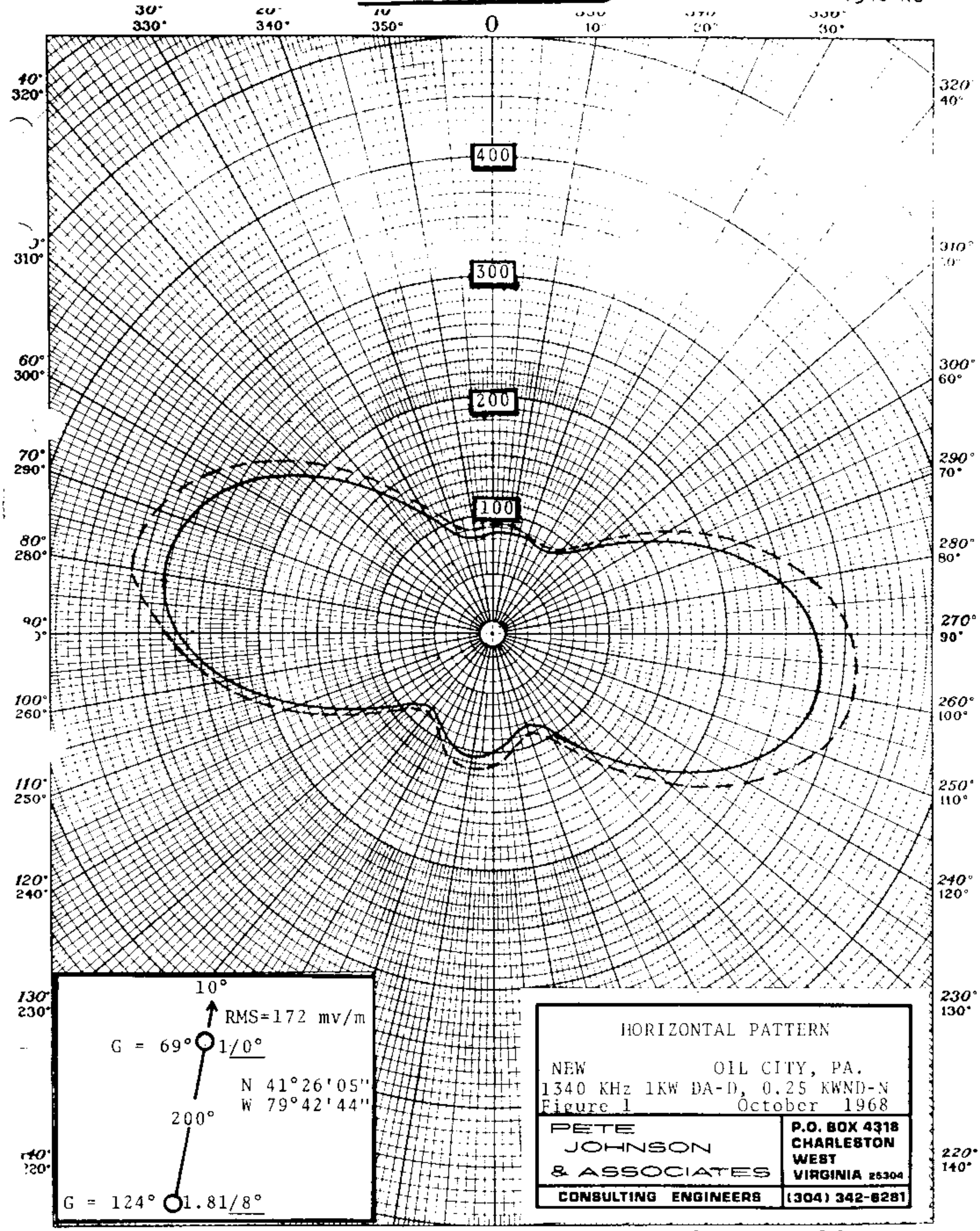
Station WKRZ
Oil City, Pennsylvania

1340 kc

WKRZ

Proposed Day
(12-27-68ct)

New; Brinsfield Broadcasting Co. 250w,1kw-LS,DA-D,U
Oil City, Pennsylvania 1340 kc



FCC File No.BP-18380
Accepted 12-16-68

New; Brinsfield Broadcasting Co.
Oil City, Pennsylvania 1340 kc

WKRZ

Measured Day
(4-27-62ct)

Station WKRZ
Oil City, Pennsylvania

250w,1kw-SH,DA-D,U
1340 kc

8-3-62
granted L for
Kwday.

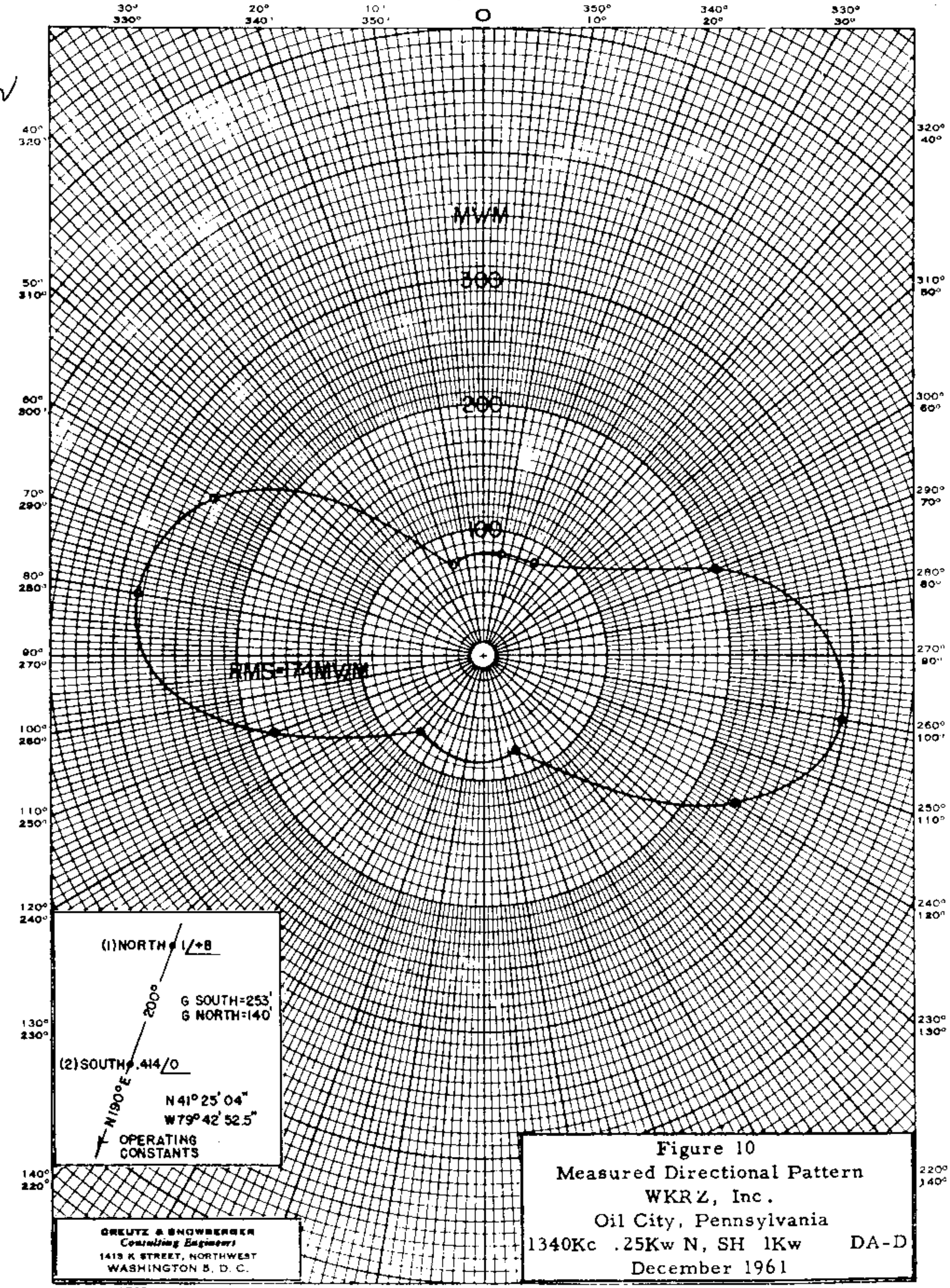


Figure 10
Measured Directional Pattern
WKRZ, Inc.
Oil City, Pennsylvania
1340Kc .25Kw N, SH 1Kw DA-D
December 1961

FCC File No.BL-9080
Accepted 4-6-62

Station WKRZ
Oil City, Pennsylvania

1340 kc

WKRZ

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

Station WKRZ
Oil City, Pennsylvania

250w,1kw-SH,DA-D,U
1340 kc

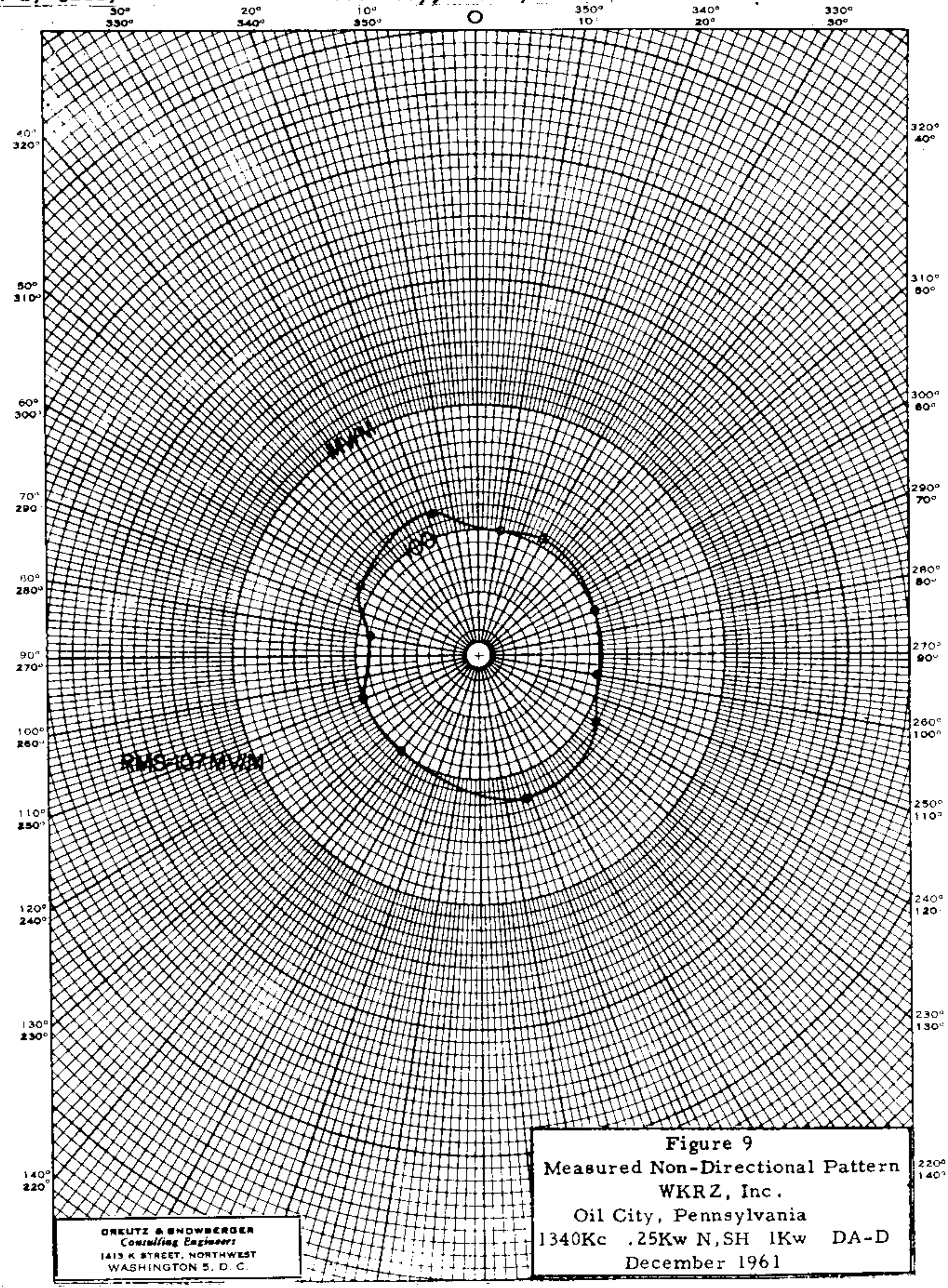


Figure 9
Measured Non-Directional Pattern
WKRZ, Inc.
Oil City, Pennsylvania
1340Kc .25Kw N,SH 1Kw DA-D
December 1961

FCC File No.BL-9080
Accepted 4-6-62

Station WKRZ
Oil City, Pennsylvania

1340 kc

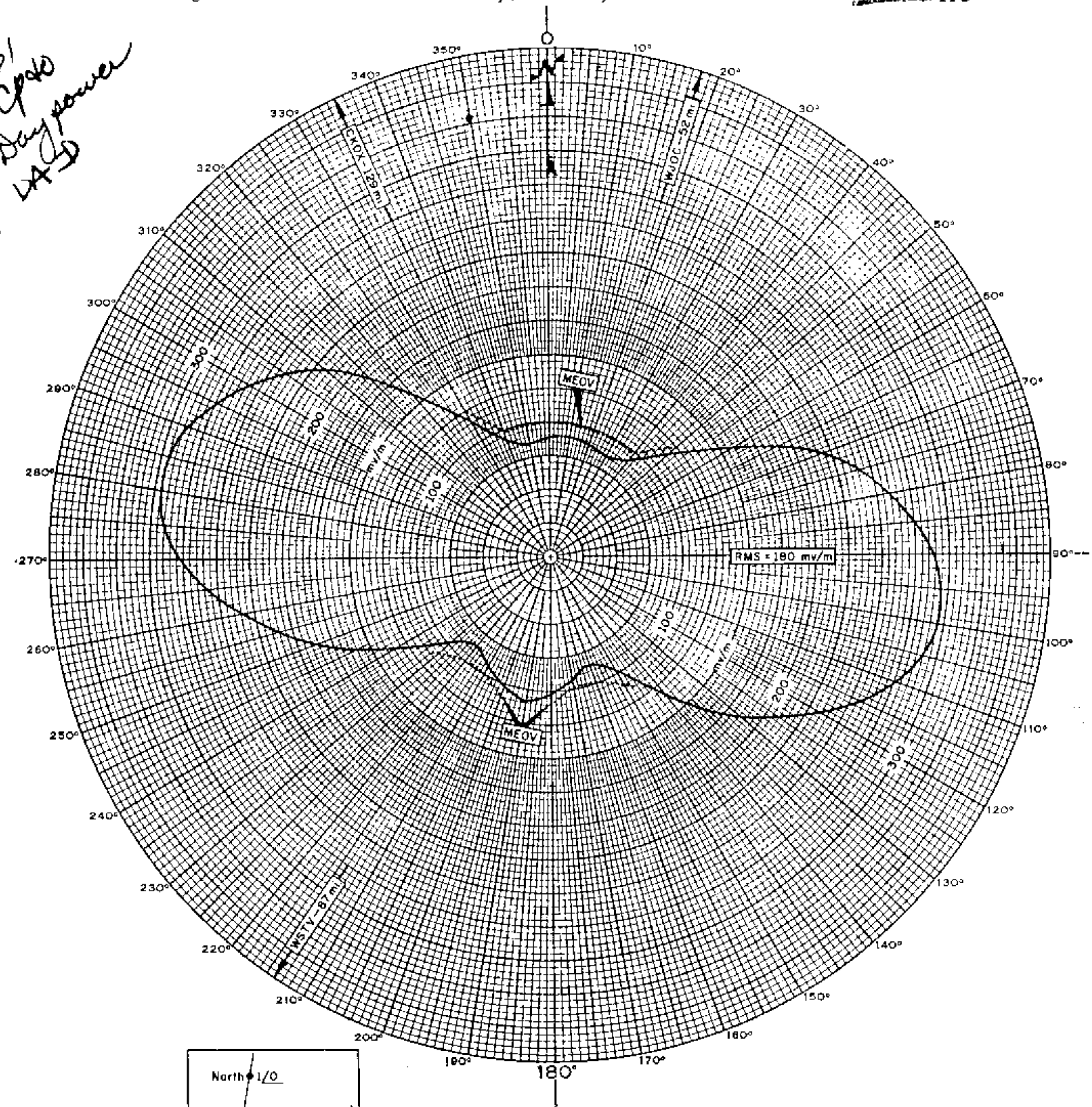
WKRZ

PROPOSED DAY
(6-16-59g)

Station WKRZ
Oil City, Pennsylvania

250w, 1kw-LS, DA-D, U
1340 KC

1-18-61
granted CP to
increase Day power
& install DA-D
CP 1937



North 1/0
G South = 253'
G North = 140'
200°
South 1.81/+8
N190°E
N 41° 25' 04"
W 79° 42' 52.5"

FIGURE 2
DAYTIME HORIZONTAL RADIATION PATTERN
WKRZ, INC.
RADIO STATION WKRZ
OIL CITY, PENNSYLVANIA
1340 KC 1000 W DA-D 250 W N SH
MAY 1959

PAGE, CREUTZ, STEEL & WALDSCHMITT
Consulting Engineers
1413 K STREET, NORTHWEST
WASHINGTON 5, D. C.

FCC File No. BP-12231
Accepted 5-18-59 (Amended)

WKRZ
Oil City, Pennsylvania

1340 KC

WLEW
1340KHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: W L E W | Main Studio: Bad Axe, Michigan

Frequency: 1340 kHz | Power: 0.25 kW Night 1 kW Day

Notification List No. 1784 | Date: November 9, 1979 Class: IV

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 43° 47' 56"
West Longitude: 83° 01' 21"

ANTENNA CHARACTERISTICS

Authorized for Daytime operation. (DA-D)
Number of elements: 2
Type of elements: Series excited, uniform cross-section, guyed, vertical steel towers. Theoretical efficiency of 194 mV/m/kW is restricted to 150 mV/m/kW.

TOWER:	N (#1)	S (#2)
HEIGHT ABOVE INSULATORS:	205' (100.5°)	234' (114.8°)
DAY PHASING:	0°	139.7°
DAY FIELD RATIO:	1.0	0.83

SPACING AND ORIENTATION: Adjacent towers in a row are spaced 163' (79.89°) on a line bearing 172° true.

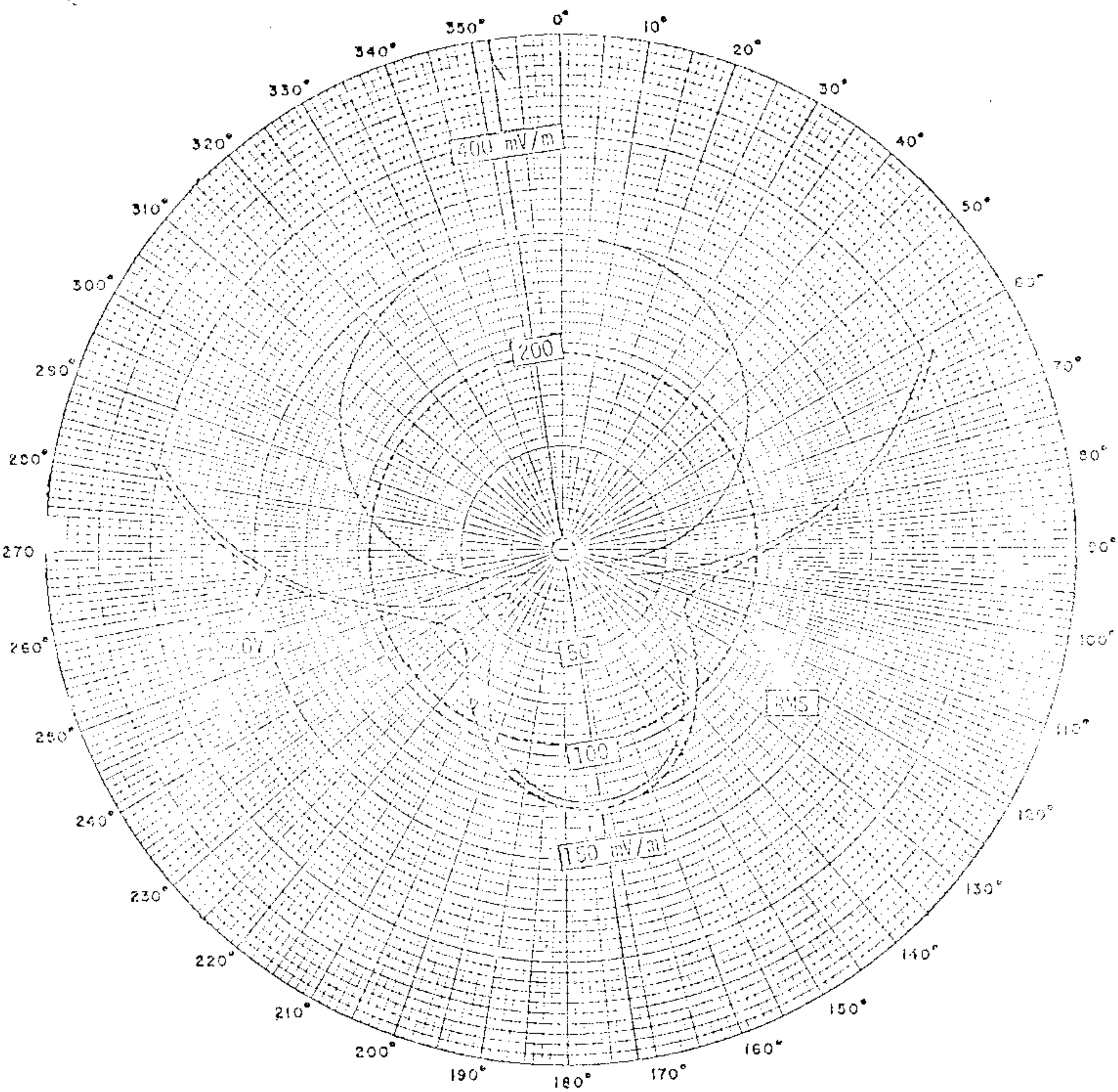
GROUND SYSTEM: 120-184' equally spaced copper radials plus a 48' x 48' square ground screen about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS
Day	150 # mV/m
Night	190 mV/m

WLEW
1340KHz

FIGURE 1



N. LAT.	43°	47′	56″
W. LONG.	83°	01′	21″
RMS	190 mv/m		

1 ∠0° S = 80° .83 ∠197°

O———S———O——172° T→

G=205′=100° G=234′=115°

DAYTIME HORIZONTAL RADIATION PATTERN
(Amended)
WLEW - BAD AXE, MICHIGAN
1340 kHz - 0.25/1 kW - DA-D (ND-N)

MAY, 1978

CARL T. JONES ASSOCIATES—CONSULTING ENGINEERS

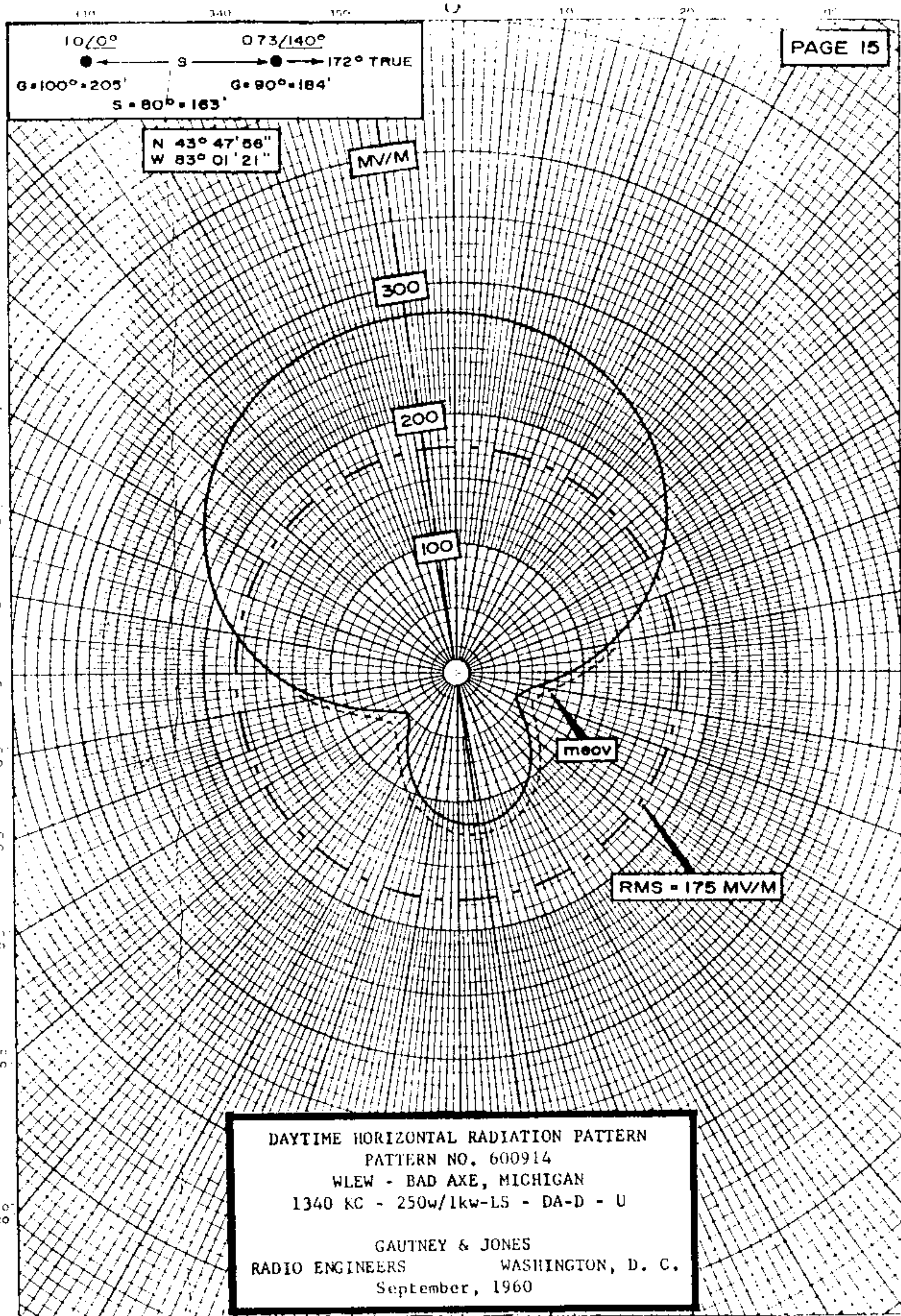
WLEW

PROPOSED DAY
(11-11-60g)

Station WLEW
Bad Axe, Michigan

250w,1kw-LS,DA-D,U
1340 KC

8-29-62
granted L for
KW + DA-D



DAYTIME HORIZONTAL RADIATION PATTERN
PATTERN NO. 600914
WLEW - BAD AXE, MICHIGAN
1340 KC - 250w/1kw-LS - DA-D - U

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

FCC File No. BP-14396
Accepted 10-27-60

WLEW
Bad Axe, Michigan

1340 KC

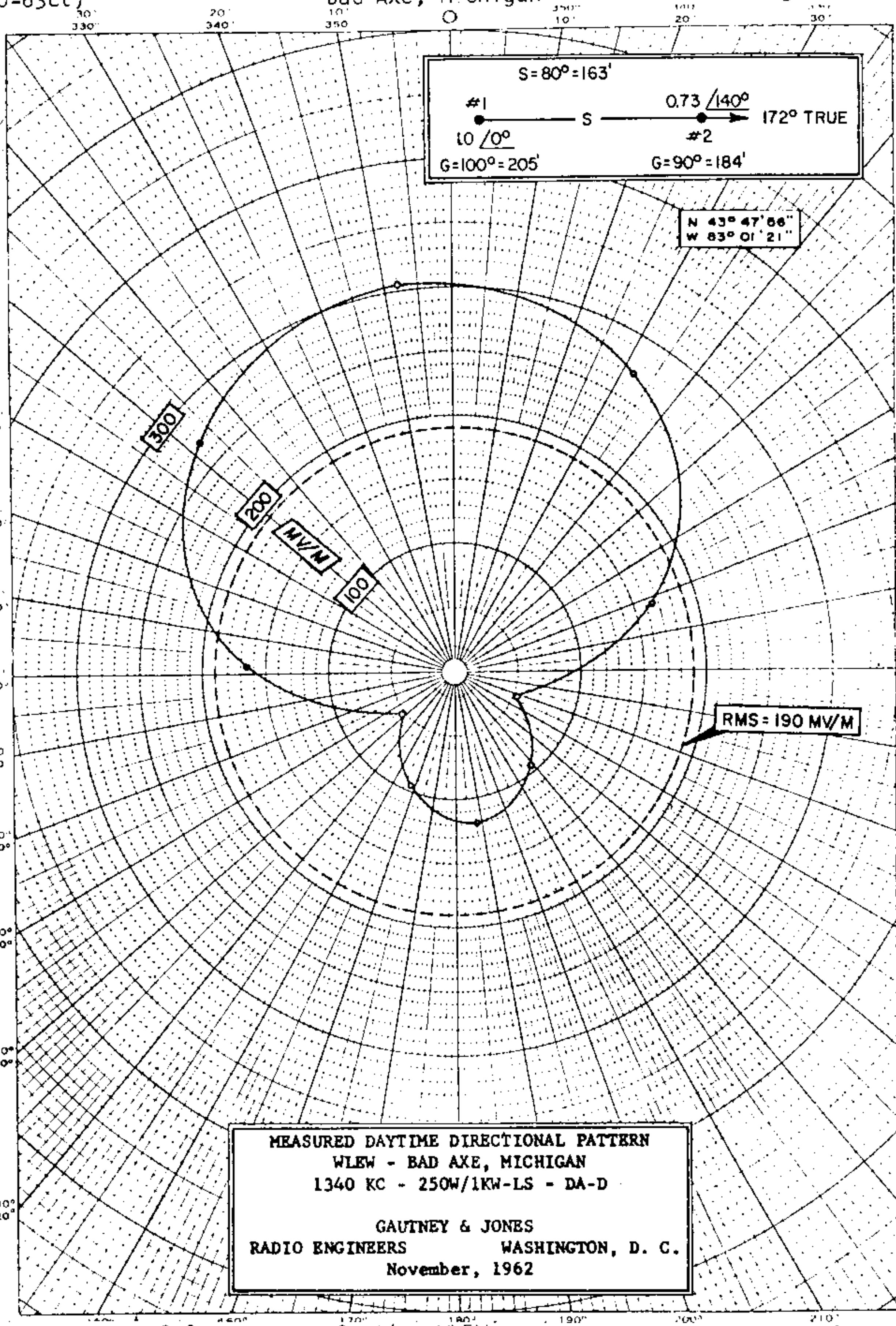
WLEW

Measured Day
(3-30-63ct)

Station WLEW
Bad Axe, Michigan

250w,1kw-LS,DA-D,U
1340 kc

-15-63
anted license for
crease in day
wer + installation
f DA-D



FCC File No.BL-9838
Accepted 3-21-63

Station WLEW
Bad Axe, Michigan

1340 kc

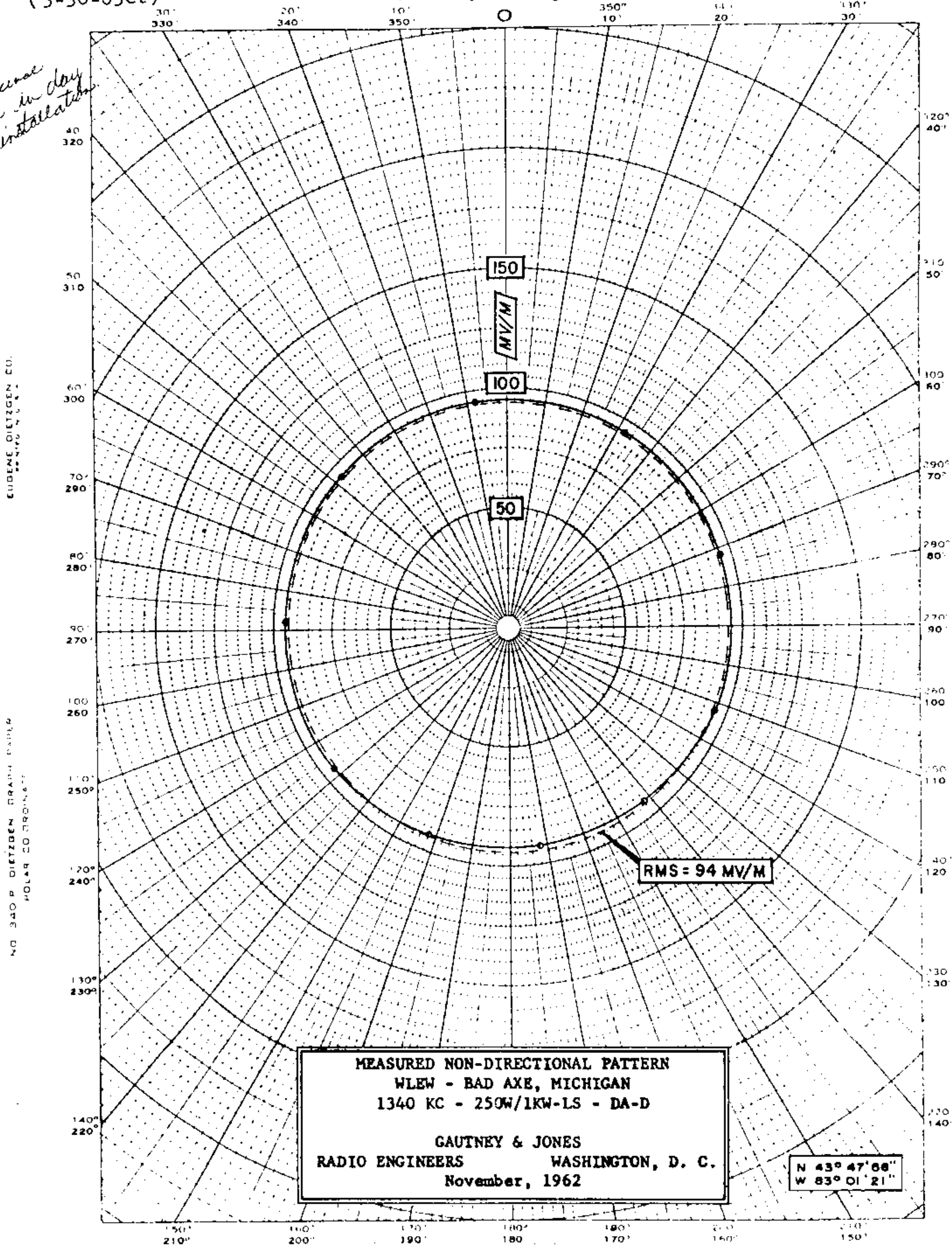
WLEW

Measured Non-DA
(3-30-63ct)

Station WLEW
Bad Axe, Michigan

250w,1kw-LS,DA-D,U
1340 kc

-15-63
anted license
increase in day
er and installation
DA-D



FCC File No. BL-9838
Accepted 3-21-63

Station WLEW
Bad Axe, Michigan

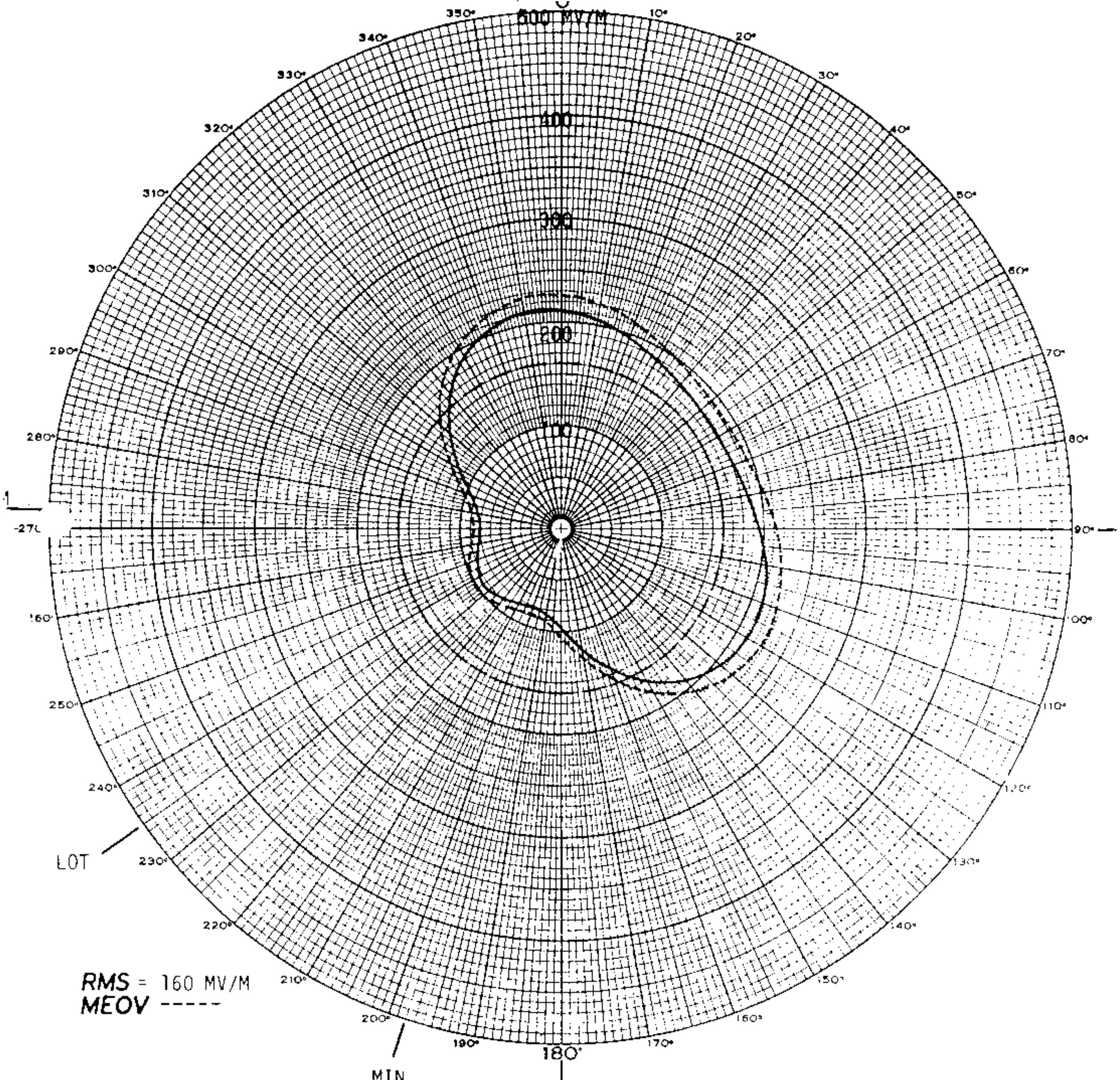
1340 kc

WLVL

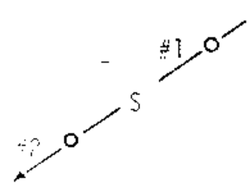
Proposed Day
(10-26-70ct)

Station WUSJ
Lockport, New York

250w, 1kw-LS, DA-D, U
1340 kc



RMS = 160 MV/M
MEOV -----

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 4	STATION DATA
	TOWER No.	ELECTRICAL HEIGHT G°	SPACING S°	PHASING ψ°	FIELD RATIO F	PROPOSED DAYTIME DIRECTIONAL	CALL WUSJ
	1	86.7	Ref.	0	1.000		FREQ 1340 KHz.
	2	86.7	140	+68	0.450	LOCKPORT, NEW YORK	POWER 1.0 Kw
	3						TYPE DA-D
	4						TIME Unlimited
	5					[illegible]	LAT. 43-[illegible]
	6						LONG. [illegible]

DAYTIME OPERATION XX

FCC File No. BP-18866
Accepted 10-15-70

Station WUSJ
Lockport, New York

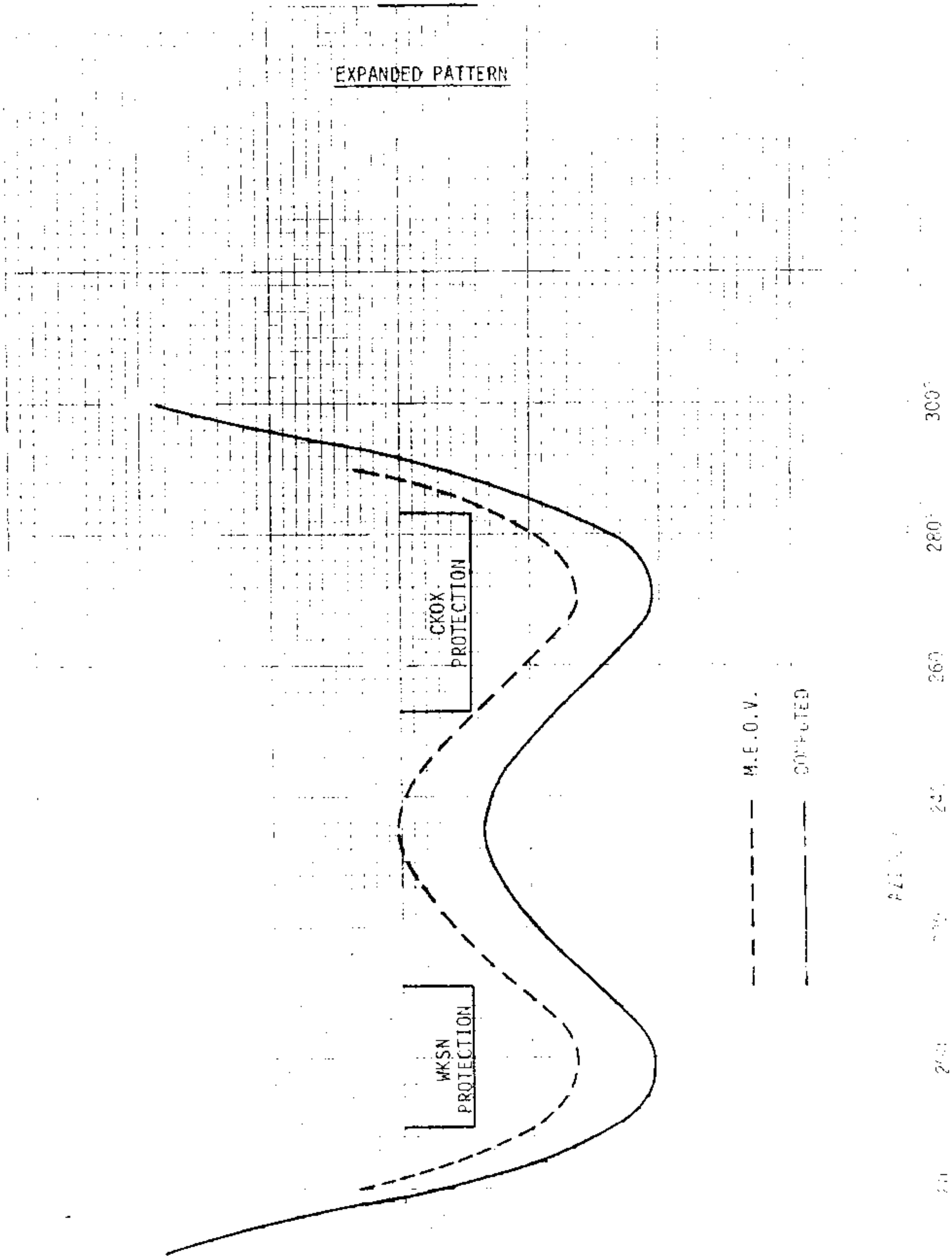
1340 kc

WLVL

Proposed Day Nulls
(10-26-70ct)

Station WUSJ
Lockport, New York

1340 kc



FCC File No.BP-18866
Accepted 10-15-70

Station WUSJ
Lockport, New York

1340 kc