620-630

Station	Main Studio	Freq	Power	Date
NEW	Sudbury, ON	620	10 kW/DA-1	11/9/77
CJCI	Prince George, BC	620	10 kW/DA-N	10/28/69
CJCI	Prince George, BC	620	1 kW/DA-1	4/28/66
CFCL	Timmins, ON	620	5/10 kW/DA-2	6/29/64
CKCK	Regina, Sask.	620	5/10 kW/DA-2	6/27/77
CKCM	Grand Falls, NF	620	10 kW/DA-1	8/22/61
CFRP	Forestville, QU	620	1 kW/DA-1	6/4/76
KGW	Portland, OR	620	5 kW/DA-1	7/27/49
KMNS	Sioux City, IA	620	1 kW/DA-2	4/15/49
KNGS	Hanford, CA	620	1 kW/DA-N	11/46
KTAR	Phoenix, AZ	620	5 kW	11/9/39
KWAL	Wallace, ID	620	1 kW/DA-N	6/29/70
KWFT	Dallas, TX	620	5 kW/DA-N	6/3/48
WDNC	Durham, NC	620	1/5 kW/DA-2	9/28/79
WHEN	Syracuse, NY	620	1/5 kW/DA-N	10/28/68
WHJB	Greensburg, PA	620	0.5/2.5 kW/DA-2	11/16/76
WHJB	Greensburg, PA	620	0.5/1 kW/DA-2	1/8/49
WHJB	Greensburg, PA	620	0.5/2.5 kW/DA-2	11/75
WJDX	Jackson, MS	620	1/5 kW/DA-N	12/12/58
WLBZ		620	5 kW	
WRJZ	Knoxville, TN	620	5 kW/DA-N	11/16/79
WSUN	St. Petersburg, FL	620	5 kW/DA-N	9/75
WTMJ	Milwaukee, WI	620	5 kW	5/41
WTMT	Louisville, KY	620	0.5 kW/DA-D	12/18/56
WVMT	Burlington, VT	620	5 kW/DA-2	5/28/63
WVNJ	Newark, NJ	620	5 kW/DA-2	5/27/70
WWNR	Beckley, WV	620	0.5/1 kW/DA-N	3/29/50

620-630

Station	Main Studio	Freq	Power	Date
NEW	Timmins, ON	630	10 kW/DA-1	2/3/78
CFCO	Chatham, ON	630	10/1 kW/DA-2	4/83
CFCY	Charlotteville, PEI	630	10 kW/DA-2	10/26/62
CHED	Edmonton, AB	630	50 kW/DA-2	11/30/81
CHLT	Sherbrooke, QU	630	15/50 kW/DA-2	11/29/66
CHLT	Sherbrooke, QU	630	10/50 kW/DA-2	8/28/64
CHLT	Sherbrooke, QU	630	5/10 kW/DA-2	9/4/59
CJET	Smiths Falls, ON	630	10 kW/DA-2	5/10/77
CJLA	Lachute, QU	630	0.5/1 kW/DA-2	5/12/72
CFBK	Huntsville, ON	630	1 kW/DA-N	8/22/61
CKAR	Huntsville, ON	630	1 kW/DA-N	8/22/61
CKOV	Kelowna, BC	630	1/5 kW	8/28/67
CKRC	Winnipeg, MB	630	10 kW/DA-2	8/24/83
CMQ	Havana, CU	630	50 kW/DA-1	1/13/55
KDWB	St. Paul, MN	630	0.5/5 kW/DA-2	7/29/70
KGDN	Edmonds, WA	630	1/5 kW/ND-D	9/27/78
KHOW	Denver, CO	630	5 kW/DA-2	7/10/80
KHOW	Denver, CO	630	5 kW/DA-N	3/21/45
KIDD	Monterey, CA	630	1 kW/DA-2	12/21/59
KIDO	Boise, ID	630	5 kW/DA-2	3/20/51
KIDO	Boise, ID	630	5 kW/DA-N	2/10/51
KMAC	San Antonio, TX	630	5 kW/DA-2	10/31/47
KOH	Reno, NV	630	1/5 kW/DA-N	2/7/57
KSXX	Sandy, UT	630	0.5/1 kW/DA-2	9/28/79
KXOK	St. Louis, MO	630	5 kW/DA-2	4/29/68
WJMS	Ironwood, MI	630	1 kW/DA-N	10/14/49
WLAP	Lexington, KY	630	1/5 kW/DA-2	7/10/80

620-630

Station	Main Studio	Freq	Power	Date
WMAL	Washington, DC	630	5 kW/DA-2	7/29/70
WMFD	Wilmington, NC	630	1/5 kW/DA-2	6/16/59
WPRO	Providence, RI	630	5 kW/DA-N	7/10/80
WQBS	San Juan, PR	630	5 kW/DA-2	3/19/76
WSAV	Savannah, GA	630	5 kW/DA-N	2/24/49
WYIS	Phoenixville, PA	630	1 kW/DA-D	11/9/79
XEFB	Monterrey, NL	630	10 kW/DA-2	1/21/55

DESCRIPTION SHEET

Station:	New	Main Studio:	Sudbury, Ontario
Frequency:	620 kHz	Power:	10 kW
Time:	Unlimited	Class:	III
Notification List No. 368		Date:	November 9, 1977

Geographic Location: North Lat. 46° 26' 15"

West Long. 81° 01' 45"

Antenna System:

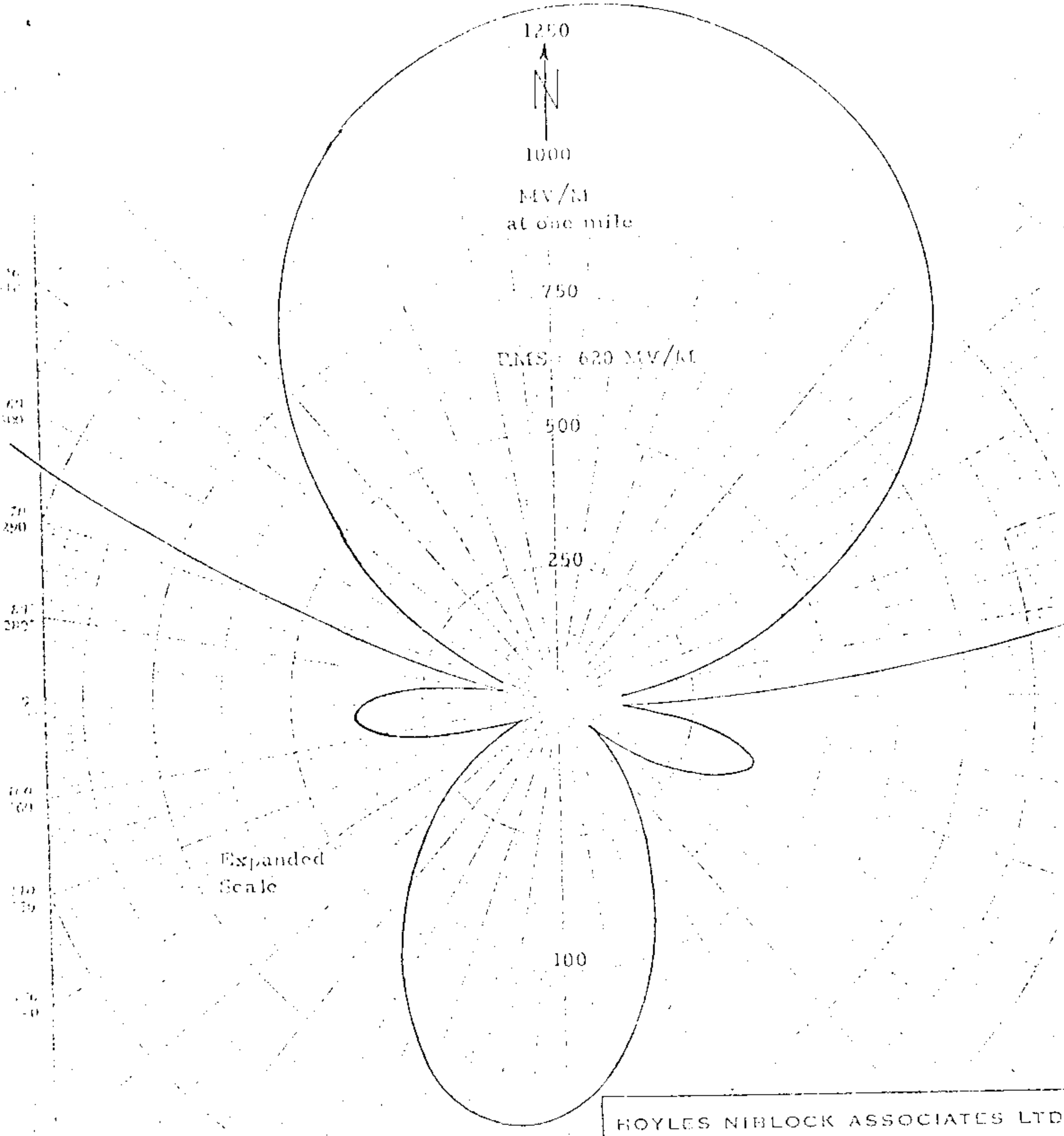
Mode of Operation: DA-1

Elements: Four uniform cross-section, guyed steel towers, base insulated and series fed. Top loaded using the upper portion of the guys to an equivalent height of 75°.

Towers:	1	2	3	4
Height above insulators:	290'	290'	290'	290'
Overall Height:	295'	295'	295'	295'
Spacing:	0°	100°	200°	300°
Phasing:	0°	-140.8°	80.35°	-45.9°
Current Radio:	1.00	1.95	1.57	0.52
Orientation:	0°	8°	8°	8°

Ground System: The ground system shall consist of 120, No. 10 copper wire radials buried approximately 8 inches below grade. The system is equivalent to 0.4 λ

Predicted Effective Field: 620 mV/m for 10 kW



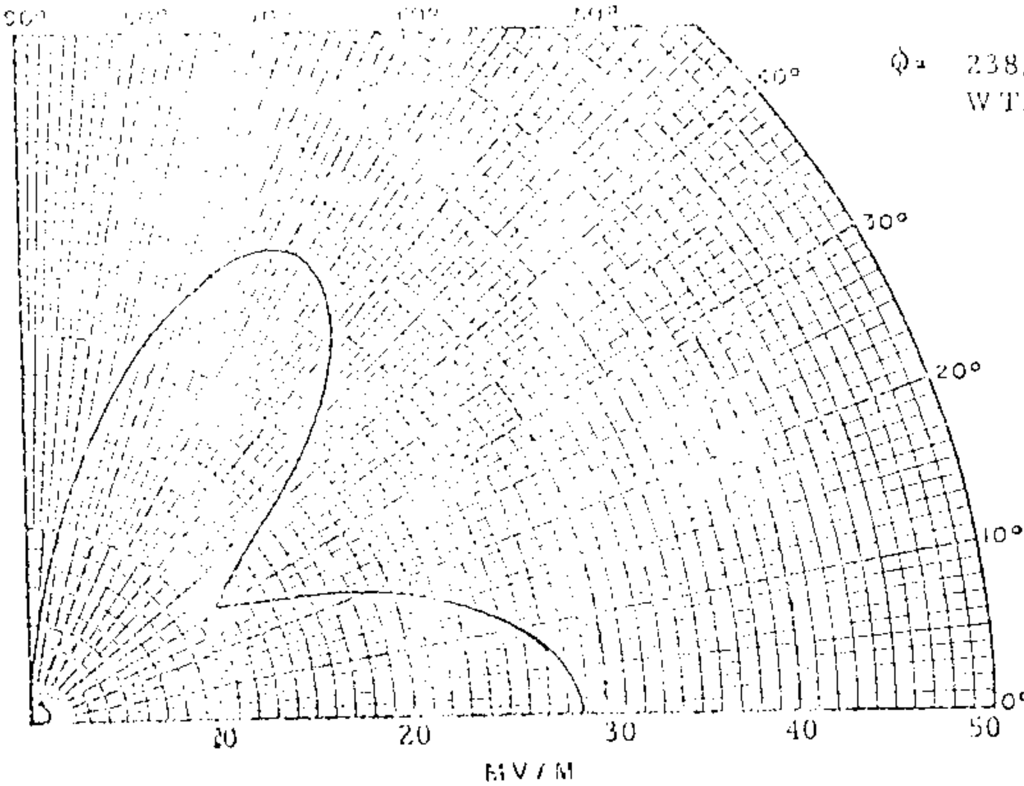
HOYLES NIBLOCK ASSOCIATES LTD

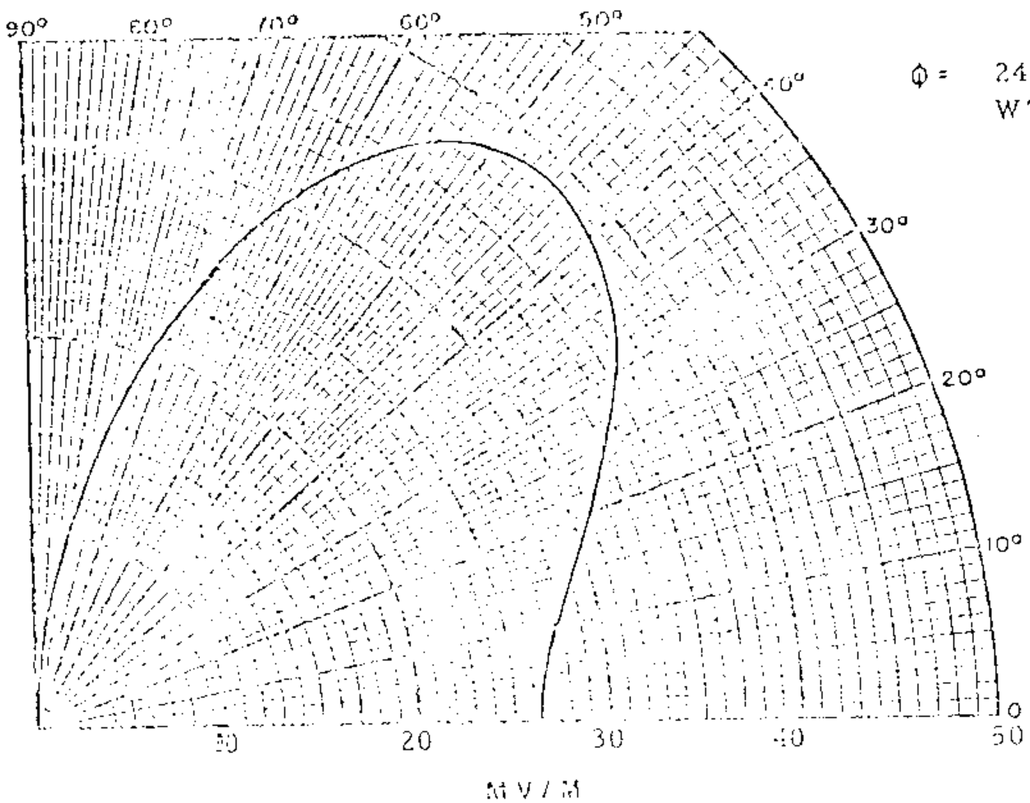
HORIZONTAL RADIATION PATTERN

New AM Sudbury, Ontario

620 KHz 10 kW DA-1 Class II.

Project: 1331-02 April 1976



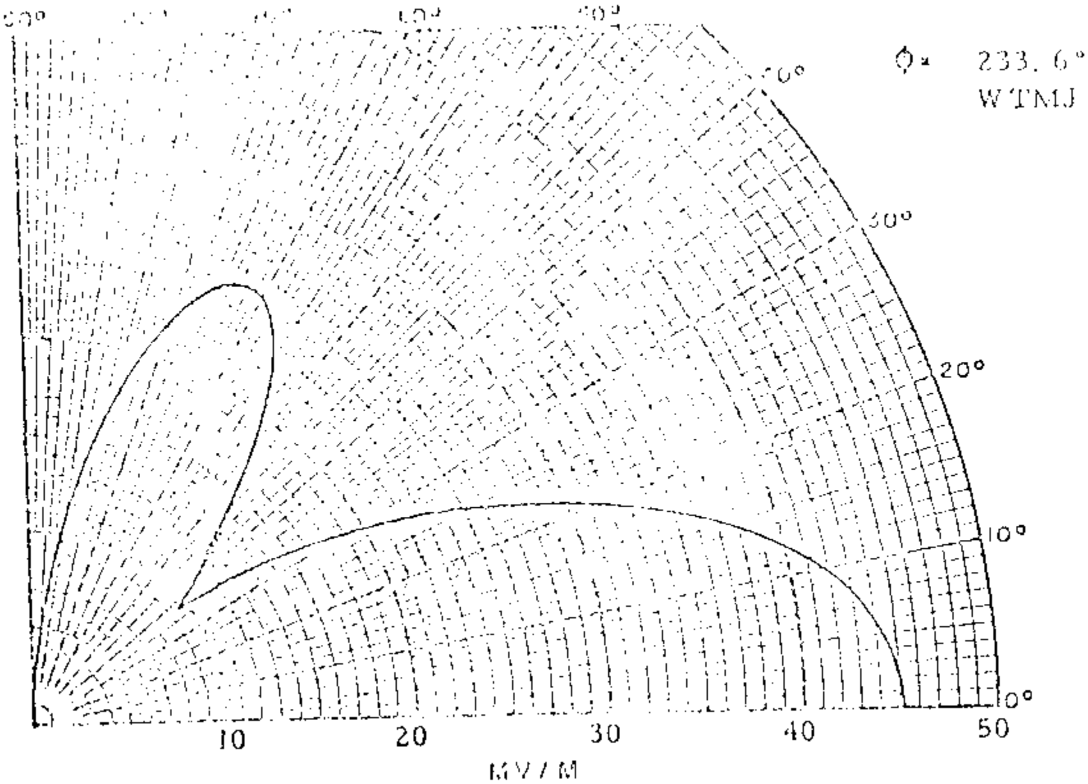


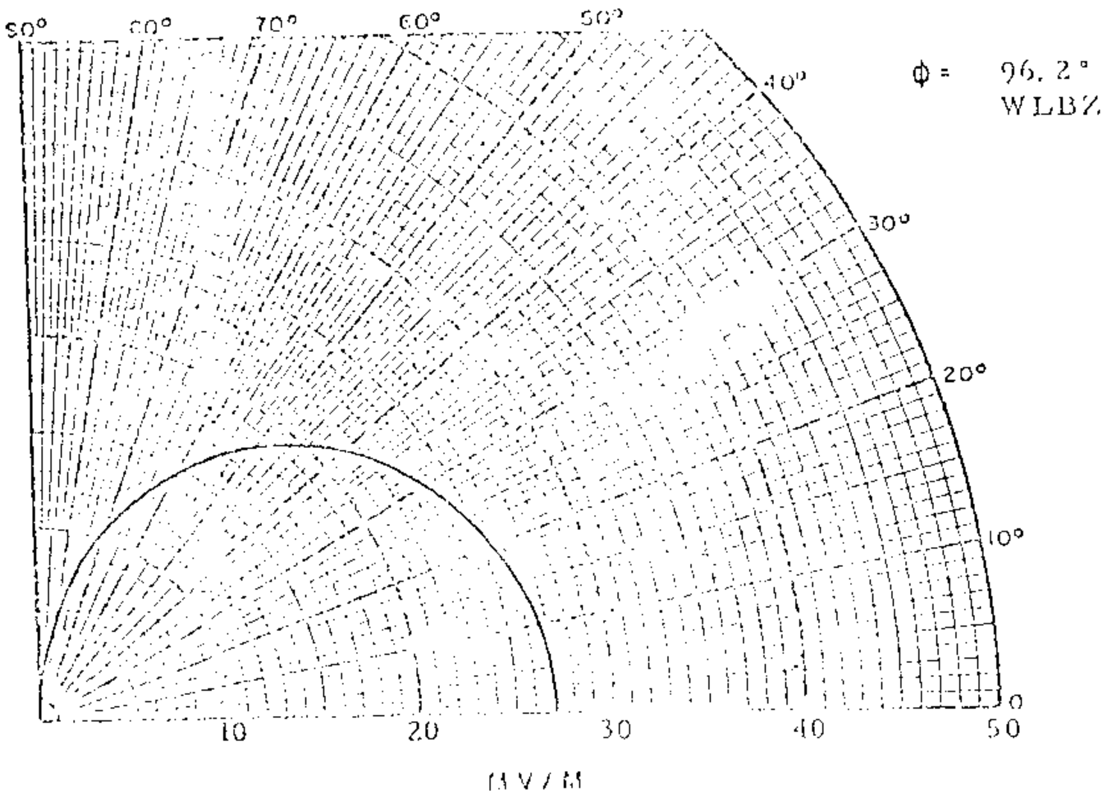
VERTICAL RADIATION PATTERNS

New AM Sudbury, Ontario

620 kHz 10 kW DA-1 Class III

Project: 1331-02 April 1976

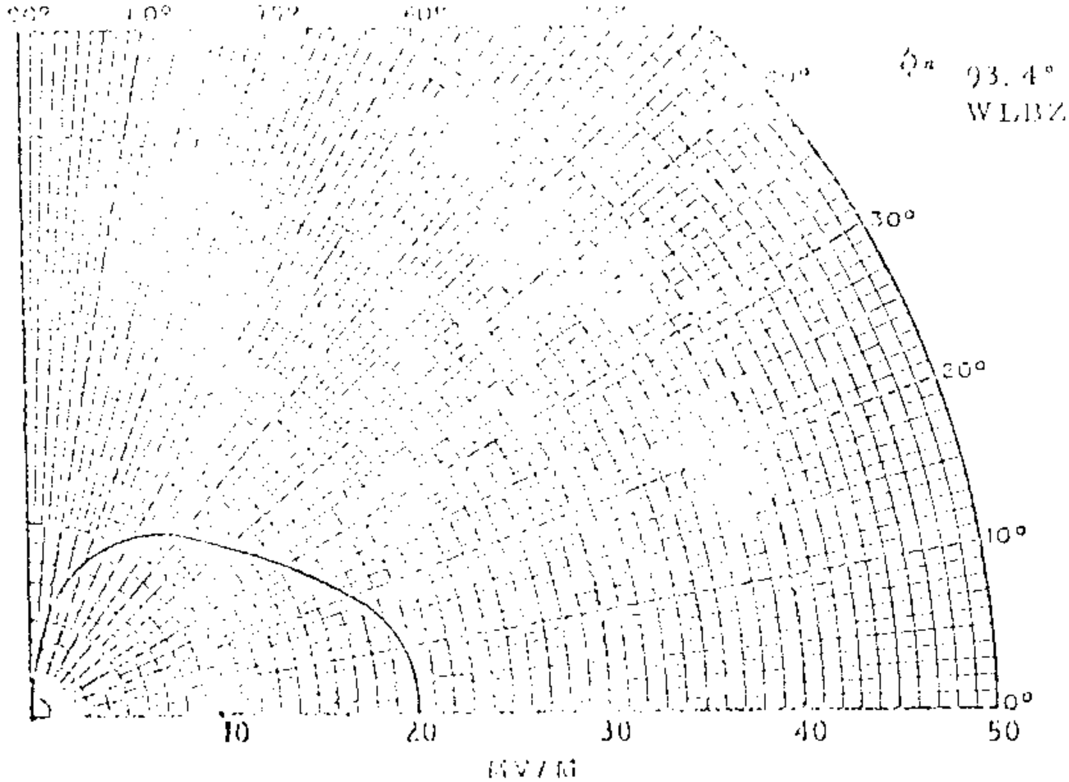


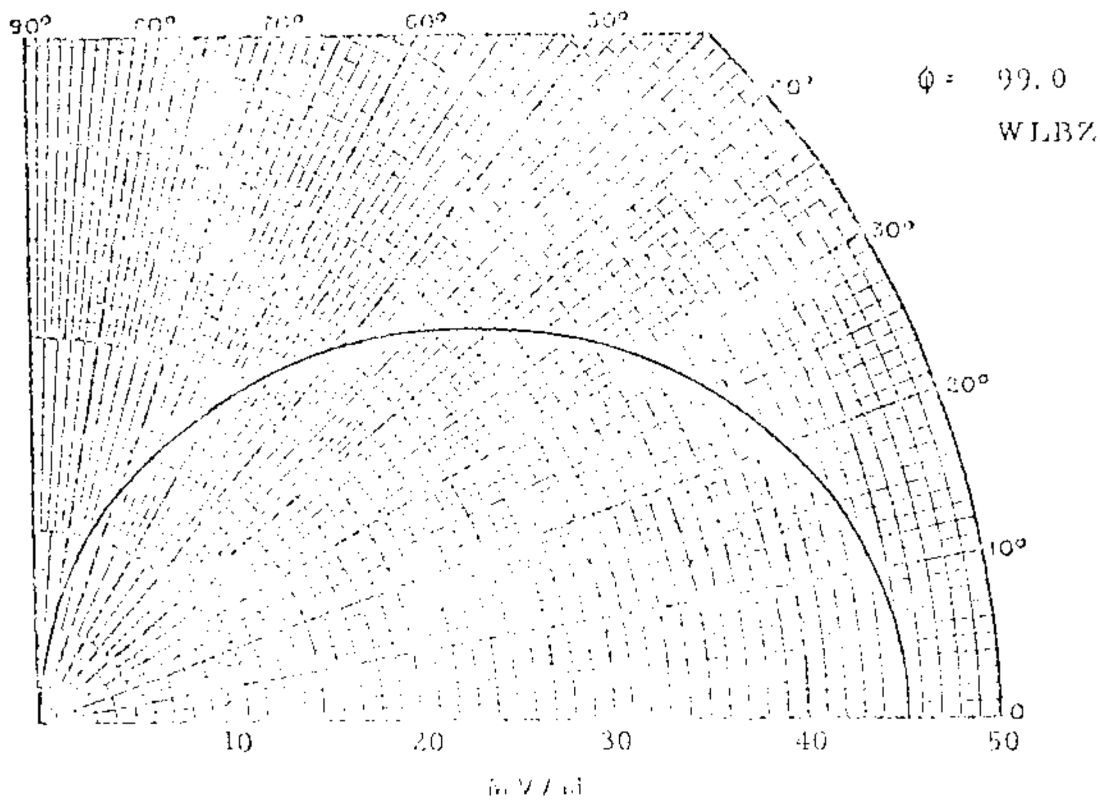


VERTICAL RADIATION PATTERNS

New AM Sudbury, Ontario
620 kHz 10 kW DA-1 Class III

Project: 1331-02 April 1976

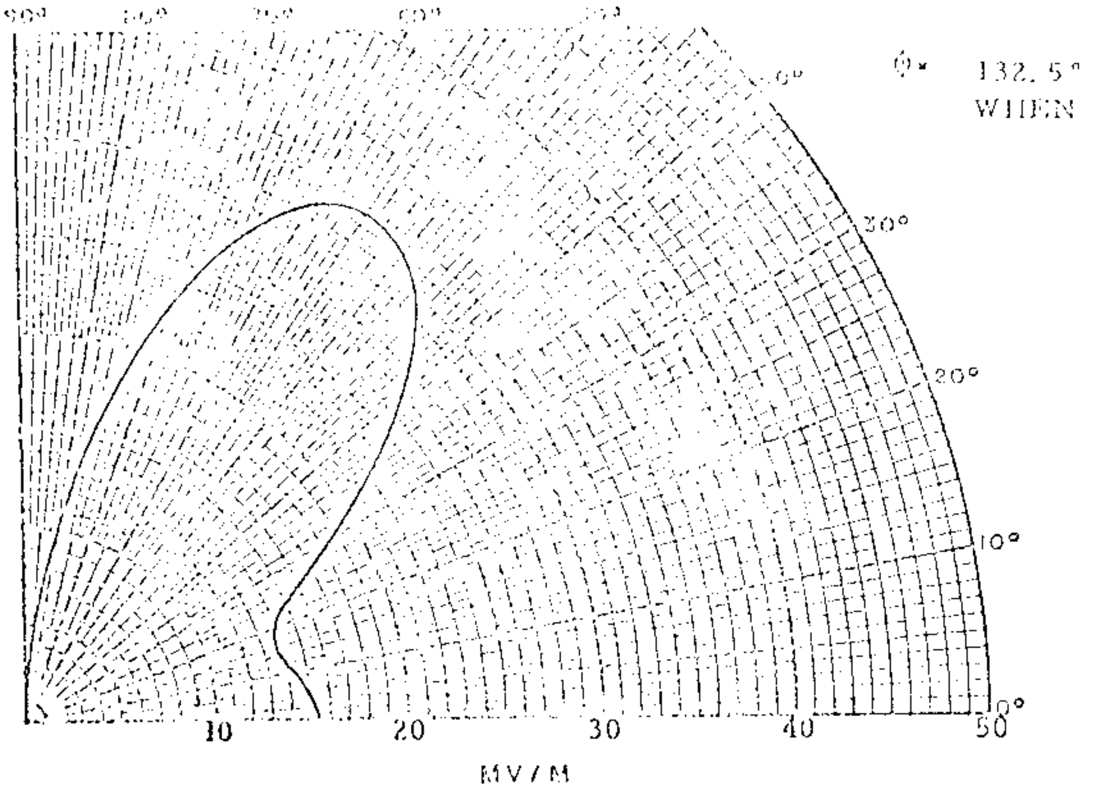


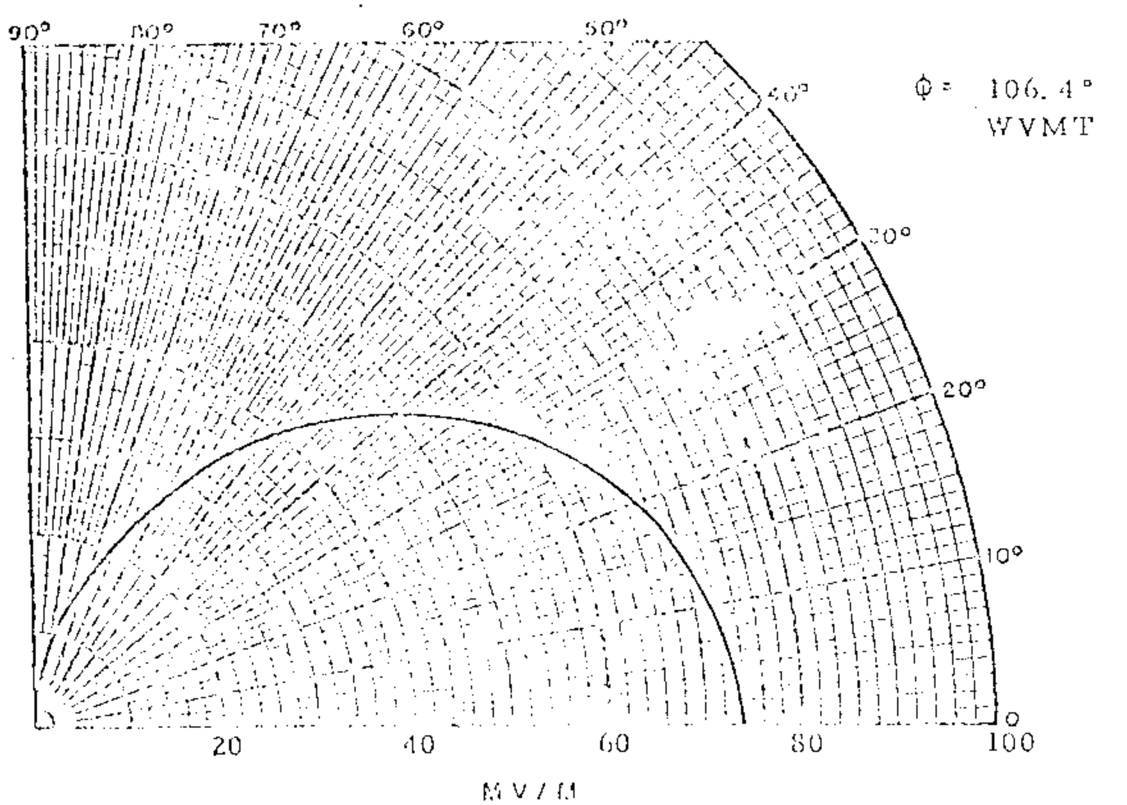


VERTICAL RADIATION PATTERNS

New AM Sudbury, Ontario
620 kHz 10 kW DA-1 Class III

Project: 1331-02 April 1976

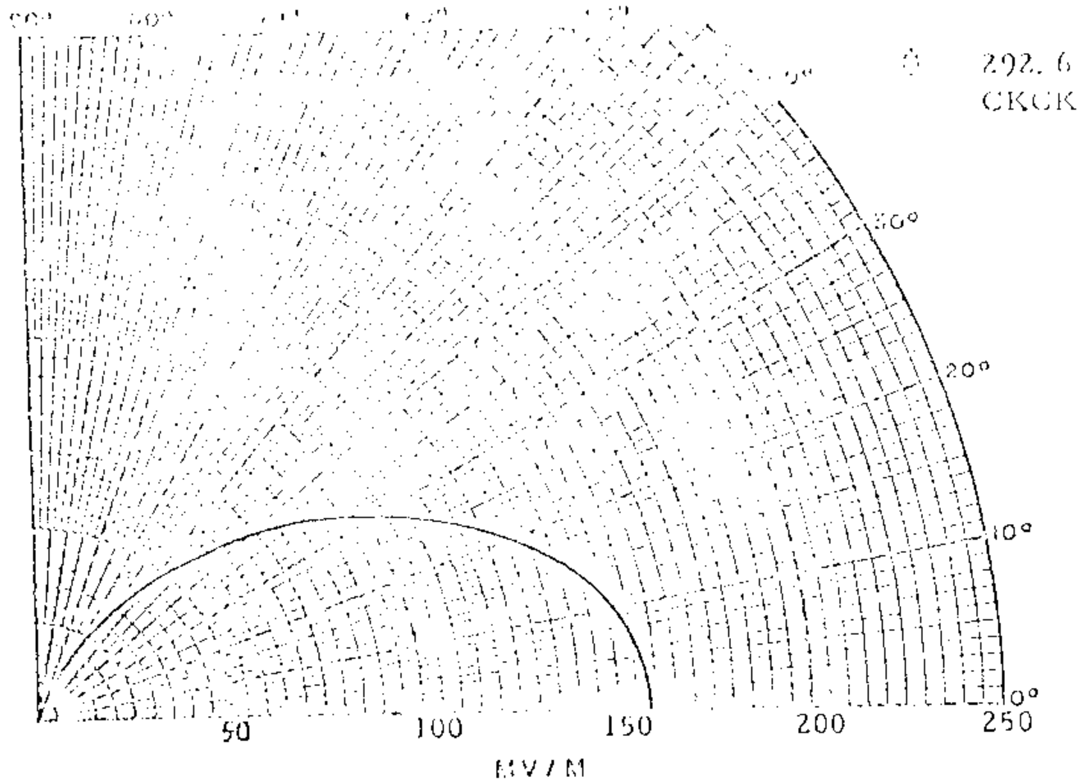


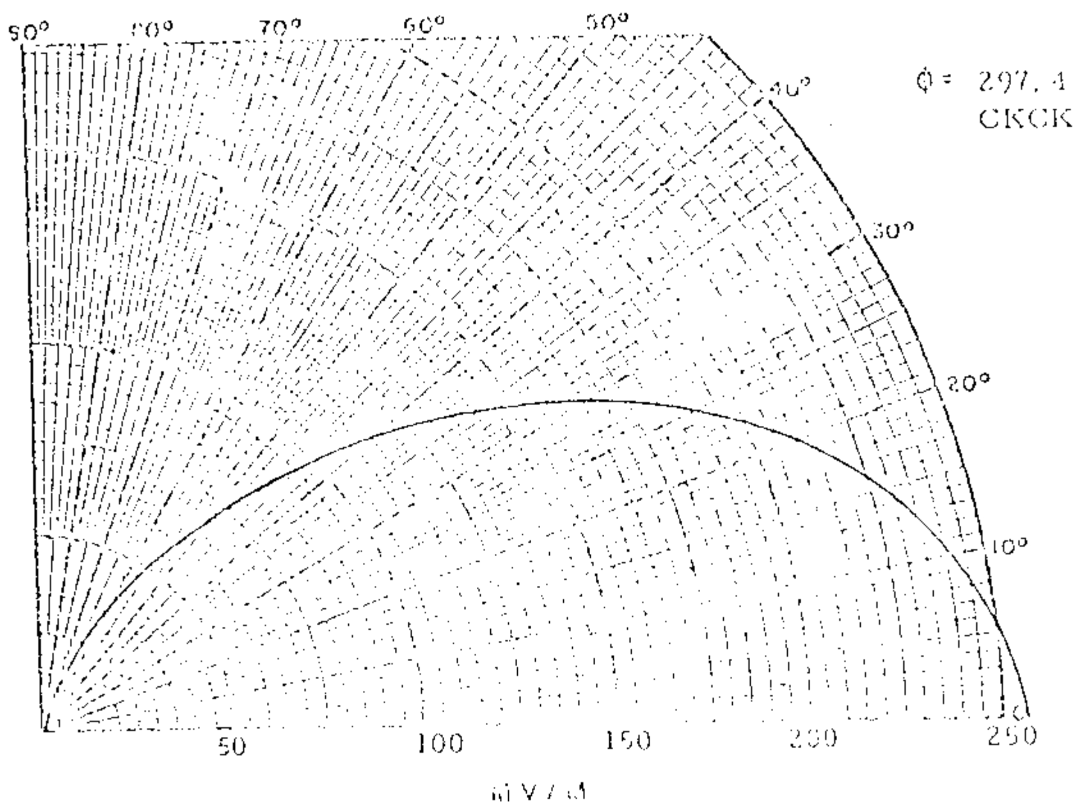


VERTICAL RADIATION PATTERNS

New AM Sudbury, Ontario
620 kHz 10 kW DA-1 Class III

Project: 1331-02 April 1976

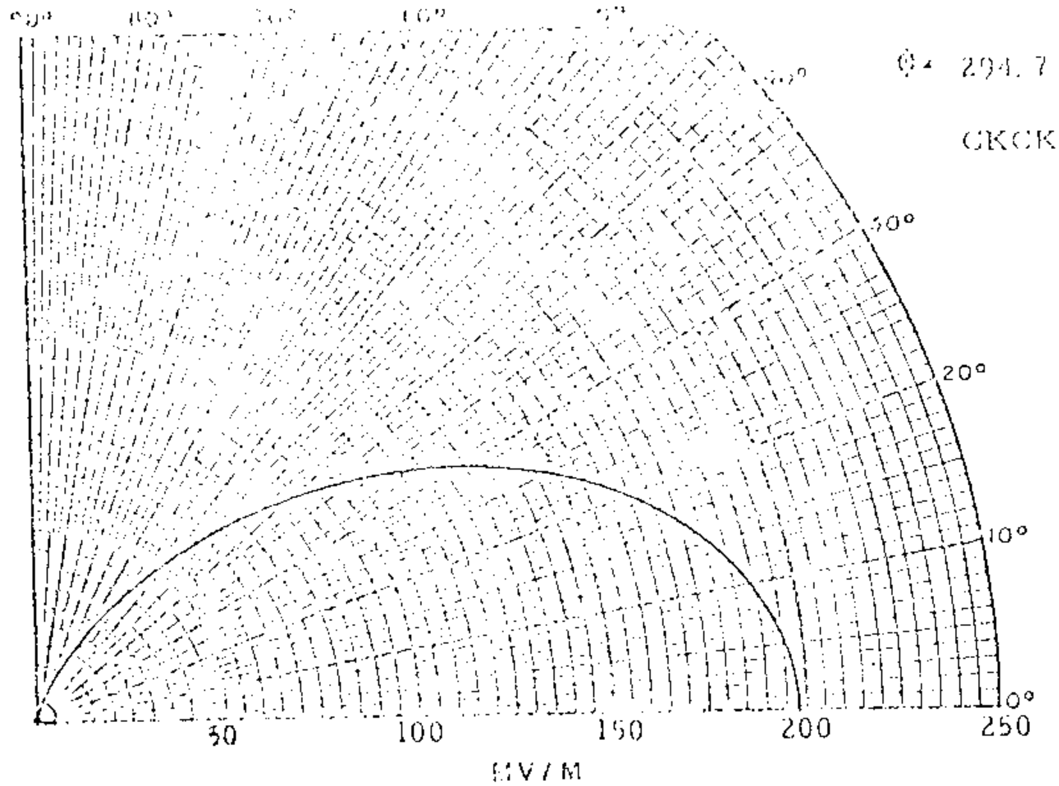


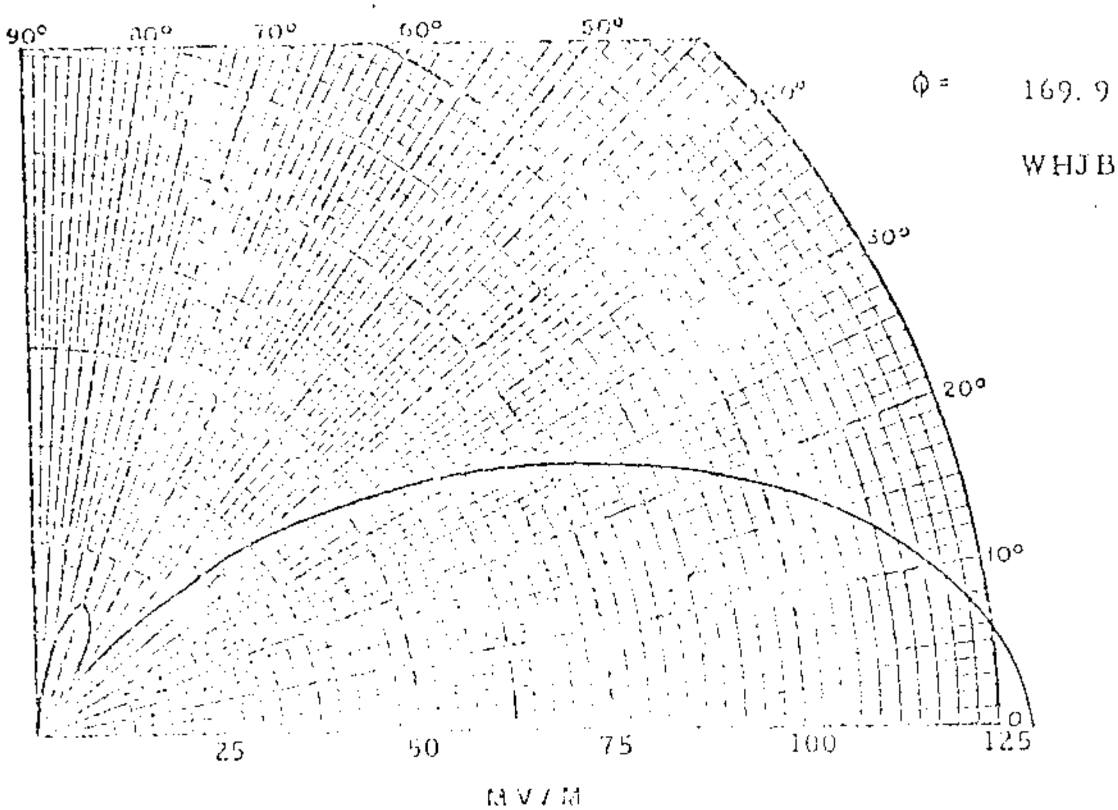


VERTICAL RADIATION PATTERNS

New AM — Sudbury, Ontario
620 kHz — 10 kW — DA-1 — Class III

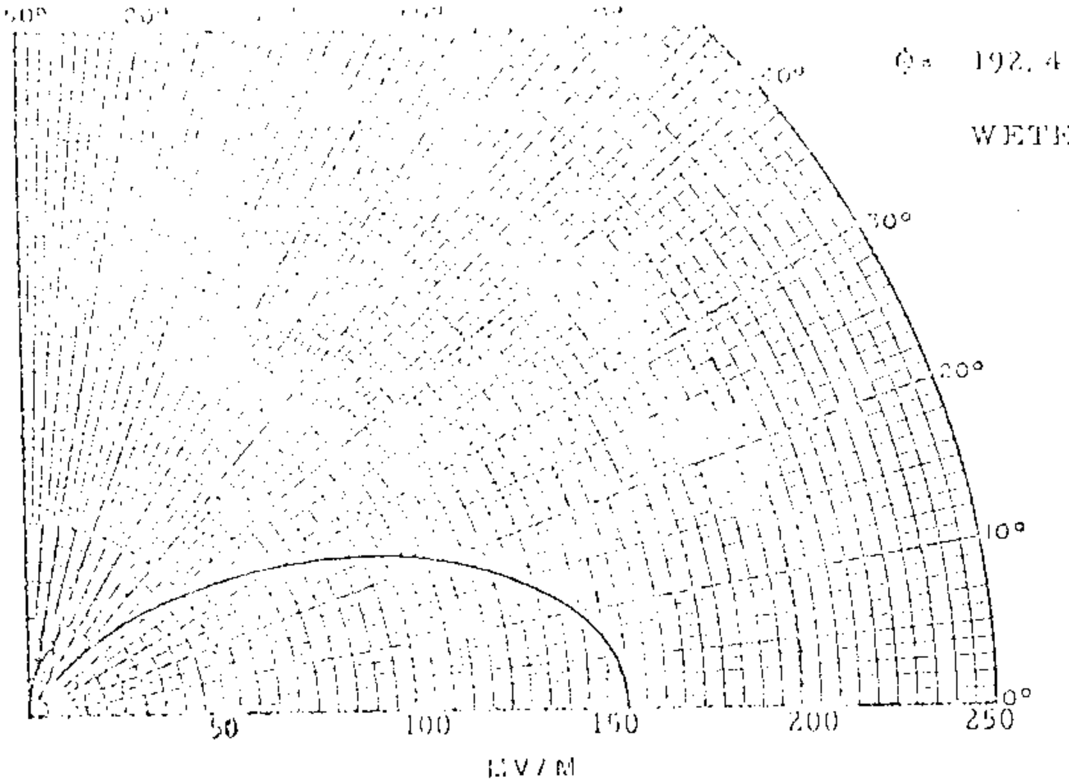
Project: 1331-02 — April 1976

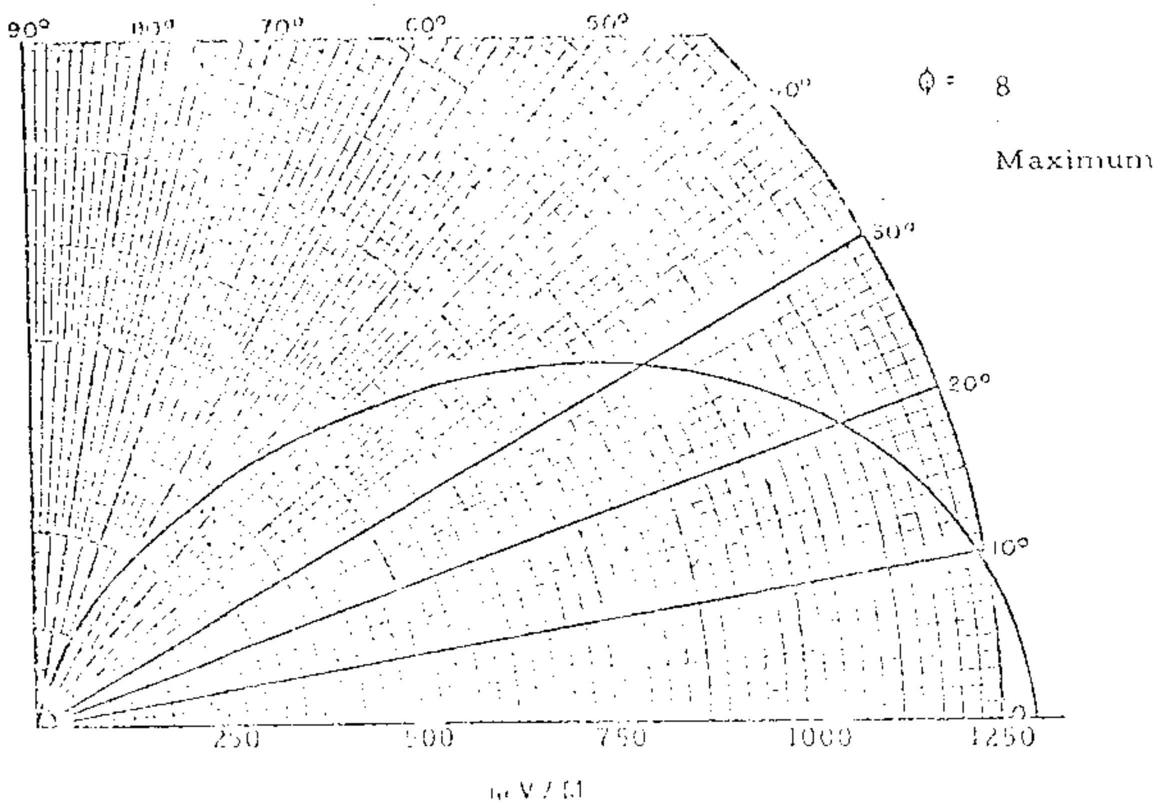




VERTICAL RADIATION PATTERNS

New AM	Sudbury, Ontario
620 kHz 10kW DA-1	Class III
Project: 1331-02	April 1976





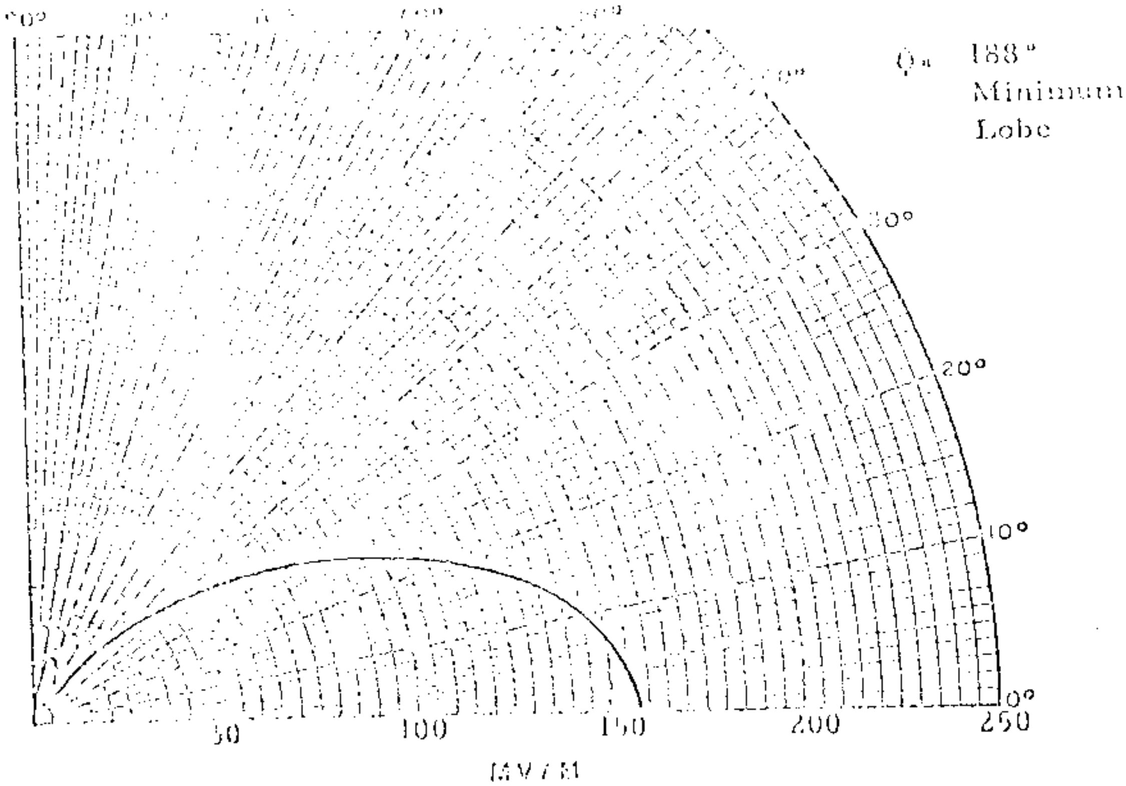
VERTICAL RADIATION PATTERNS

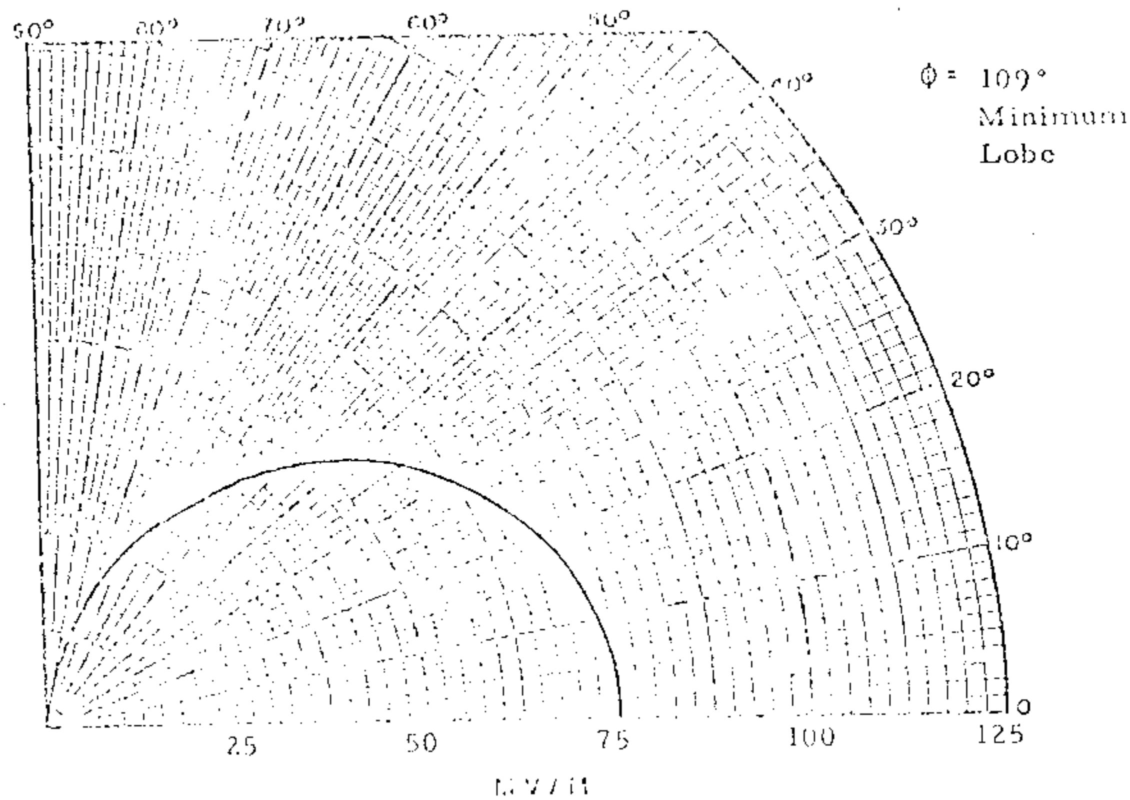
New AM
620 kHz 10 kW DA-1

Sudbury, Ontario
Class III

Project: 1331-02

April 1976





VERTICAL RADIATION PATTERNS

New AM
620 kHz   10 kW   DA-1   Sudbury, Ontario
Class III

Project: 1331-02   April 1976

CJCI

Description Sheet
(10-28-69ct)

New Station
Prince George, B. C.

10kw,DA-N,U,ClassIII
620 kc

TABLE 1

ANTENNA DESCRIPTION SHEET

STATION CALL:	NEW		
MAIN STUDIO:	PRINCE GEORGE, B. C.		
FREQUENCY:	620 kHz		
POWER:	10 kW		
CLASS:	III		
MODE:	DA-N		
TIME:	UNLIMITED		
NOTIFICATION LIST NO.:	259......	DATE:	September 22, 1969
GEOGRAPHICAL LOCATION:	Latitude 53° 51' 03" N. Longitude 122° 43' 10" W.		
ARRAY CHARACTERISTICS:	Two guyed steel towers of uniform cross section; base insulated, series fed; no top loading.		

TOWER #	1 (SE)	2 (NW)
HEIGHT ABOVE INSULATOR:	270'(61.3°)	270'(61.3°)
HEIGHT ABOVE GROUND:	275'	275'
CURRENT RATIO:	1.00	0.92
PHASE ANGLE:	115°	0°
SPACING:	352'(80°)	
ORIENTATION:	Ref.	325° true

GROUND SYSTEM: 120 equally spaced buried copper radial wires per tower; of average length 635' (0.4λ), minimum length 475' (0.3λ), except those joined along the common chord.

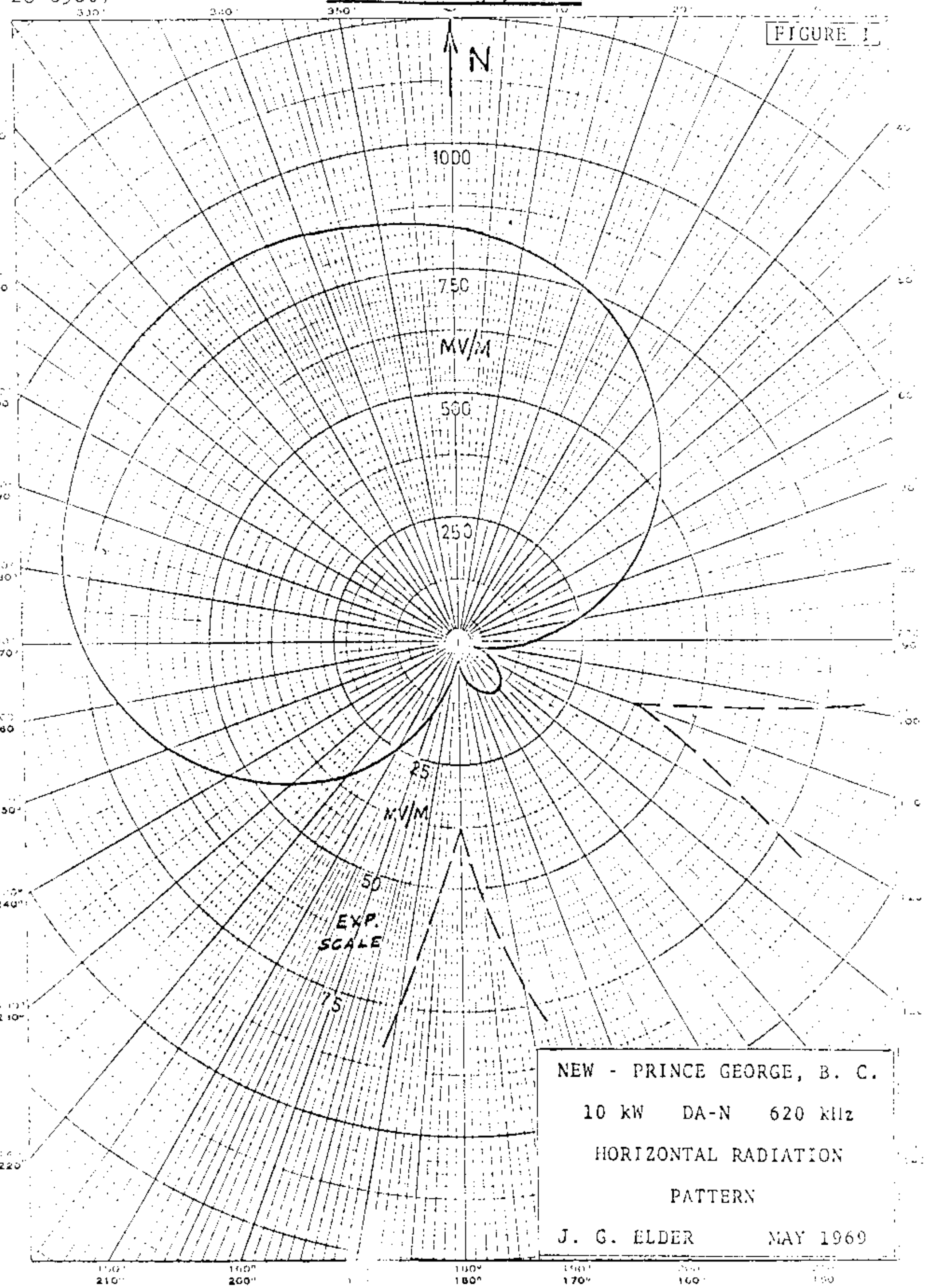
PREDICTED EFFICIENCY: 180 mV/m at one mile for one kilowatt or
569 mV/m at one mile for ten kilowatts day and night.

CJCI

Proposed Night
(10-28-69ct)

New Station
Prince George, B. C.

10kw,DA-N,U,ClassIII
620 kc



NEW - PRINCE GEORGE, B. C.

10 kW DA-N 620 kHz

HORIZONTAL RADIATION PATTERN

J. G. ELDER MAY 1969

CJCI

D~~cription Sheet
(.8-67ct)

New Station
Prince George, B. C.

10kw,DA-N,U,ClassIII
620 kc

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

Station: NEW

Main Studio: Prince George, B.C.

Frequency: 620 Kc/s

Power: 10 KW

Notification List No: 211

Date: May 18/66

GEOGRAPHICAL LOCATION:

Latitude: 53° 50' 18" North

Longitude: 122° 41' 53" West

ANTENNA CHARACTERISTICS:

Mode of Operation: DA-N
Number of Elements: [illegible]
Type of Elements: Guyed steel towers, uniform cross section, base insulated for series feed.

TOWER:	NO. 1 SOUTHEAST	NO. 2 NORTHWEST
HEIGHT ABOVE INSULATORS:	280' (63.5°)	280' (63.5°)
OVERALL HEIGHT:	285'	285'
FIELD RATIO:	1.0	.95
PHASING:	0°	-117°

GROUND SYSTEM: 120 equally spaced radials per tower of No. 10 B & S gauge bare copper wire, buried approximately 8". Length of radials 635' (0.4 wavelength) with the exception of those joined along the common chord and where property boundary limits length to less than .4 wavelength. Radials are extended beyond .4 wavelength to make up area equivalent to Standard ground systems.

SPACING AND ORIENTATION OF TOWERS:

Towers are on a line bearing 34° West of True North and are spaced 344' (78°) apart

Predicted Effective Field:

Daytime: 572 mv/m at 1 mile for 10 Kw
181 mv/m at 1 mile for 1 Kw

Night-time:
585 mv/m at 1 mile for 10 Kw
185 mv/m at 1 mile for 1 Kw

D. E. M. ALLEN, P. Eng.

Broadcast Consulting Engineer

#209 SEE 211 CHG PAT, LOC

Description Sheet
(4-28-66ct)

New Station
Prince George, B. C.

CJCI
1kw, DA-1, U, Class 111
620 kc

TABLE 1

ANTENNA DESCRIPTION SHEET

STATION CALL:	NEW	
MAIN STUDIO:	PRINCE GEORGE, B. C.	
FREQUENCY:	620 kc/s	
POWER:	1 kW	
CLASS:	III	
MODE:	DA-1	
TIME:	UNLIMITED	
NOTIFICATION LIST NO.:	209	DATE: March 3, 1960
GEOGRAPHICAL LOCATION:	Latitude 53° 51' 03" N. Longitude 122° 43' 10" W.	
ARRAY CHARACTERISTICS:	Two guyed steel towers of uniform cross section; base-insulated, series fed; no top loading.	
TOWER #	1 (S.E.)	2 (N.E.)
HEIGHT ABOVE INSULATOR:	270'(61.3°)	270'(61.3°)
HEIGHT ABOVE GROUND:	275'	275'
CURRENT RATIO:	1.00	0.67
PHASE ANGLE:	105°	0°
SPACING:	396.5'(90°)	
ORIENTATION:	ref.	325° true
GROUND SYSTEM:	120 equally spaced buried copper radial wires per tower; of average length 635' (0.4λ), minimum length 475' (0.3λ), except those joined along the common chord.	
PREDICTED EFFICIENCY:	175 mV/m unattenuated at one mile for one kilowatt	

CJCI

Proposed Night
(2-28-67ct)

New Station
Prince George, B. C.

10kw,DA-N,U,ClassIII
620 kc

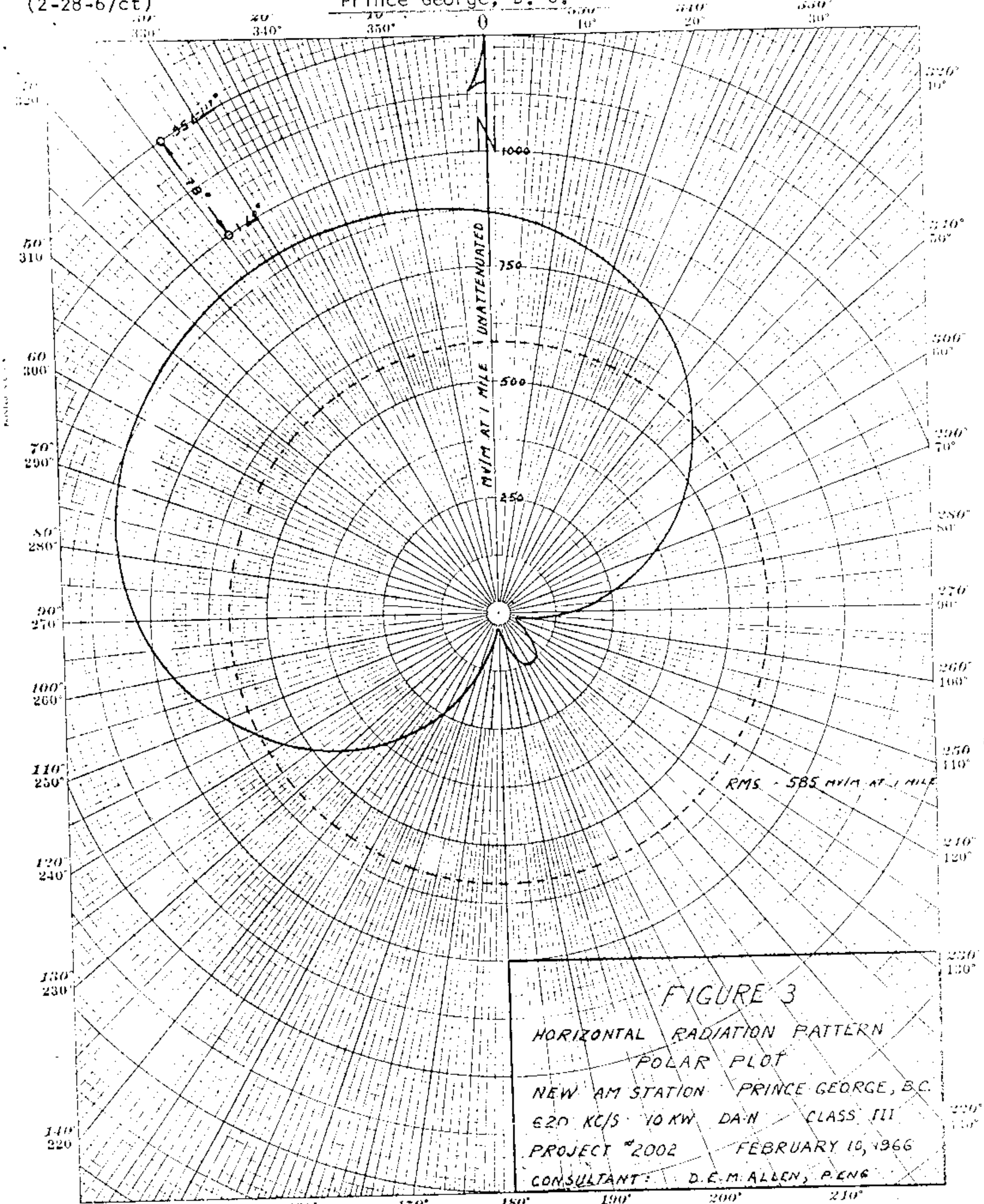


FIGURE 3

HORIZONTAL RADIATION PATTERN
POLAR PLOT

NEW AM STATION PRINCE GEORGE, B.C.

620 KC/S 10 KW DA-N CLASS III

PROJECT #2002 FEBRUARY 10, 1966

CONSULTANT: D.E.M. ALLEN, P.ENG

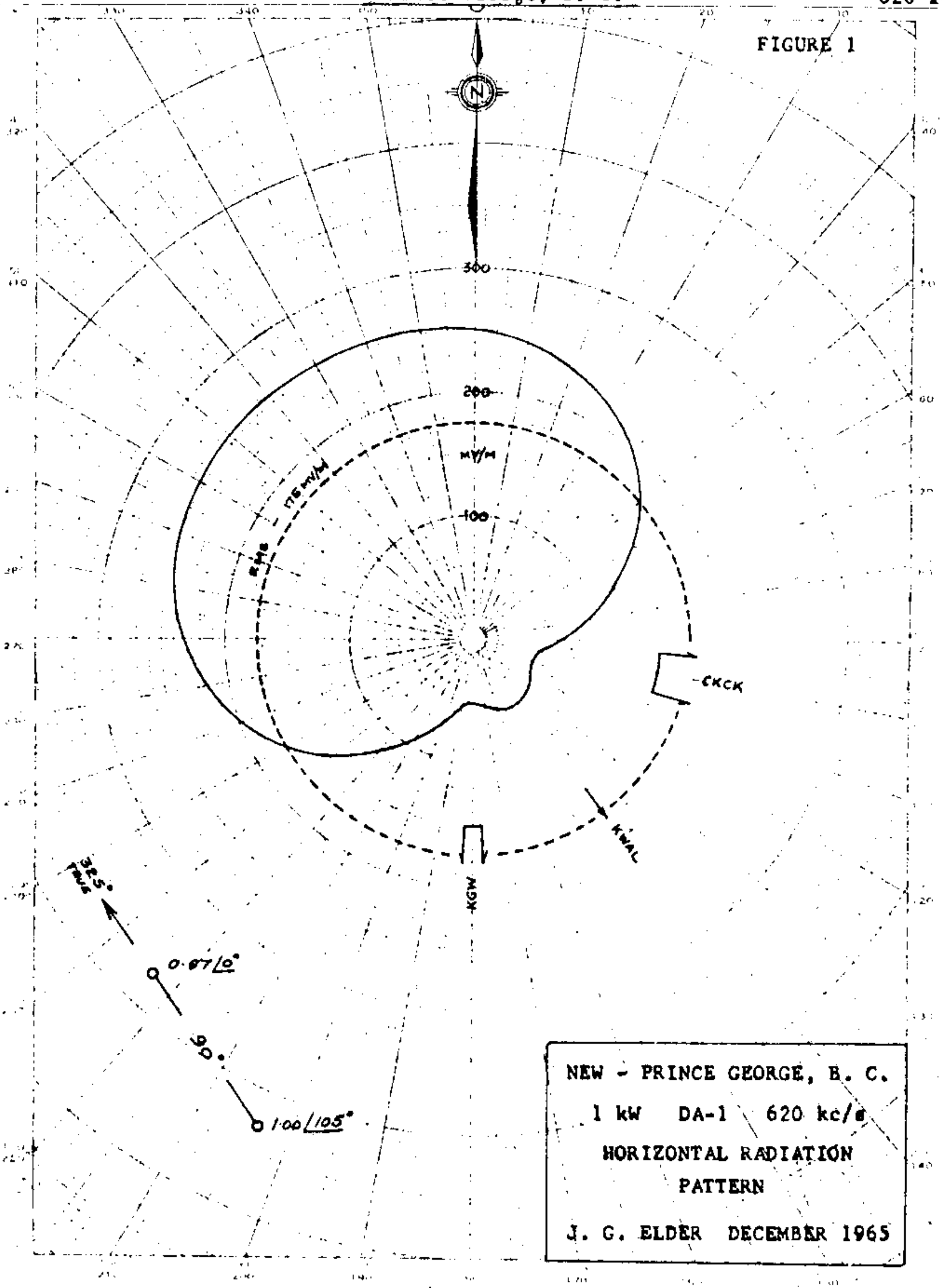
CJCI

\# 209 Proposed Day & Night (4-28-66ct)

New Station Prince George, B. C.

1kw,DA-1,U,Class 111 620 kc

FIGURE 1



CJCI

Proposed Night Nulls
(2-28-67ct)

New Station
Prince George, B. C.

10kw,DA-N,U.ClassIII
620 kc

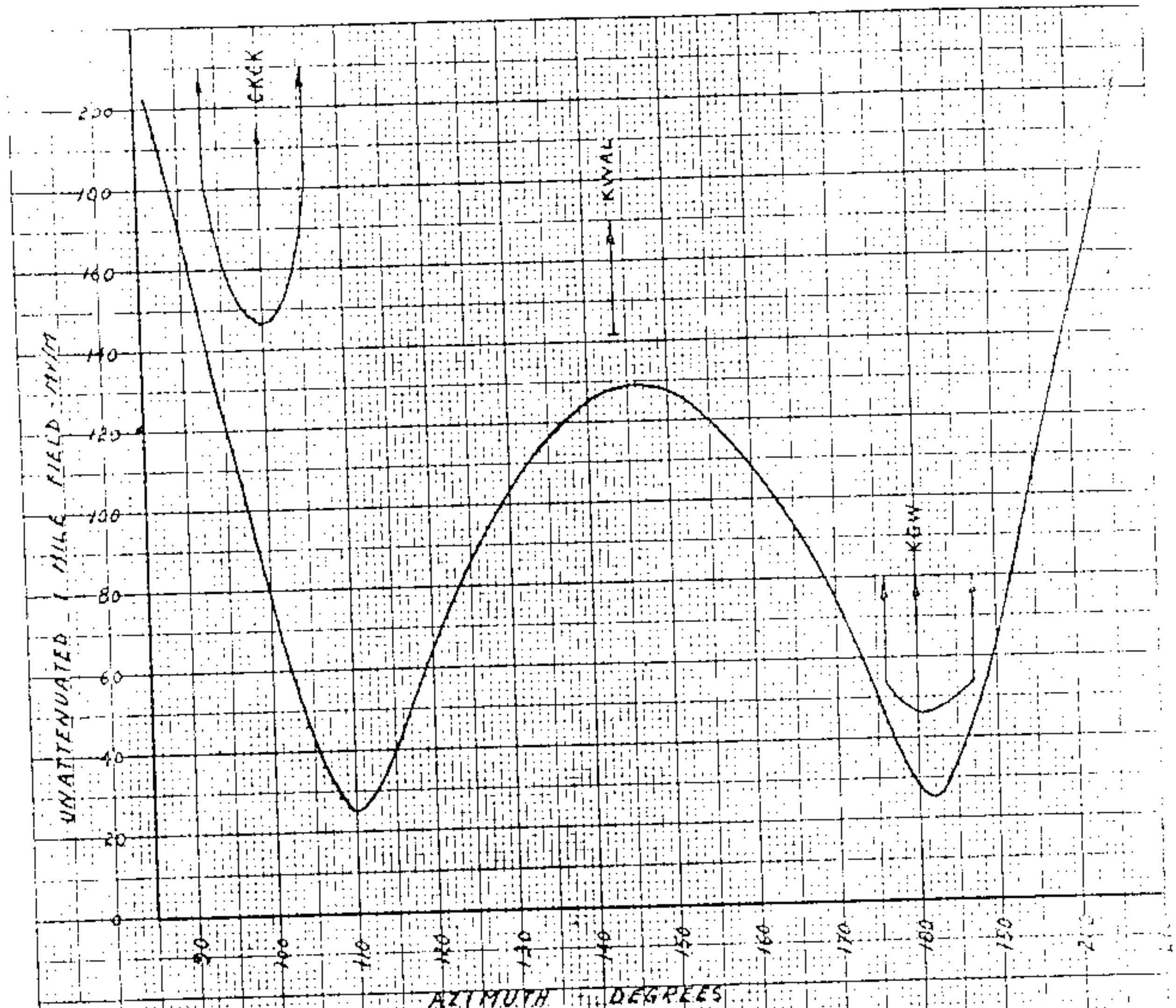


FIGURE 4

HORIZONTAL RADIATION PATTERN
EXPANDED SCALE

NEW AM STATION | PRINCE GEORGE, B.C.
620 KC/S | 10 KW | DA-N | CLASS III
PROJECT #2002 | FEBRUARY 16, 1966
CONSULTANT | D.E.M. ALLEN, P. ENG.

#188 CFCL

Description Sheet (6-29-64ct) | Station CFCL Timmins, Ontario | 5kw,10kw-LS,DA-2,U,Class III 620 kc

DESCRIPTION SHEET

DIRECTIONAL ANTENNA SYSTEM

STATION: CFCL **MAIN STUDIO:** Timmins, Ontario.

POWER: 10KWD/5KWN **FREQUENCY:** 620 Kc/s **CLASS:** III

NOTIFICATION LIST: 188 **DATE:** May 22, 1964

LOCATION: North Latitude 48° 26' 50"
West Longitude 81° 23' 08"

ANTENNA:

Mode of Operation: DA-2

Elements: Four, uniform cross-section, guyed steel towers, insulated for series feed.

TOWER:	#1 (N)	#2	#3	#4 (S)
HEIGHT ABOVE INSULATORS:	300' (68°)	300'	300'	300'
SPACING:	707'	707'	707'	
PHASING DAY:	-60°	+12°	+60°	not used
PHASING NIGHT:	-143°	-52.1°	+52.1°	+143°
FIELD RATIO DAY:	1.0	2.0	1.0	not used
FIELD RATIO NIGHT:	1.0	1.91	1.91	1.0

GROUND SYSTEM: 120 radials per tower of #10 AWG, soft drawn copper wire 0.4 wavelength long, uniformly spaced, bonded equidistant between towers, buried 8" approximately.

ORIENTATION: Towers are on a line bearing 13° True.

PREDICTED EFFECTIVE FIELD:
DAY: 553 mv/m (175 mv/m for 1 Kw at one mile)
NIGHT: 392 mv/m (175 mv/m for 1 Kw at one mile)

NOTE: Please retain daytime pattern notified for CFCL in Canadian Change list no. 126, dated Oct. 30, 1958 and attach to this revised description sheet and nighttime patterns. This only concerns a change in nighttime operation.

RCA VICTOR COMPANY, LTD.
MONTREAL, QUEBEC.
PROJECT 2986-D

#-188

CFCL

Proposed Night (6-29-64ct)

Station CFCL Timmins, Ontario

5kw,10kw-LS,DA-2,U,Class III 620 kc

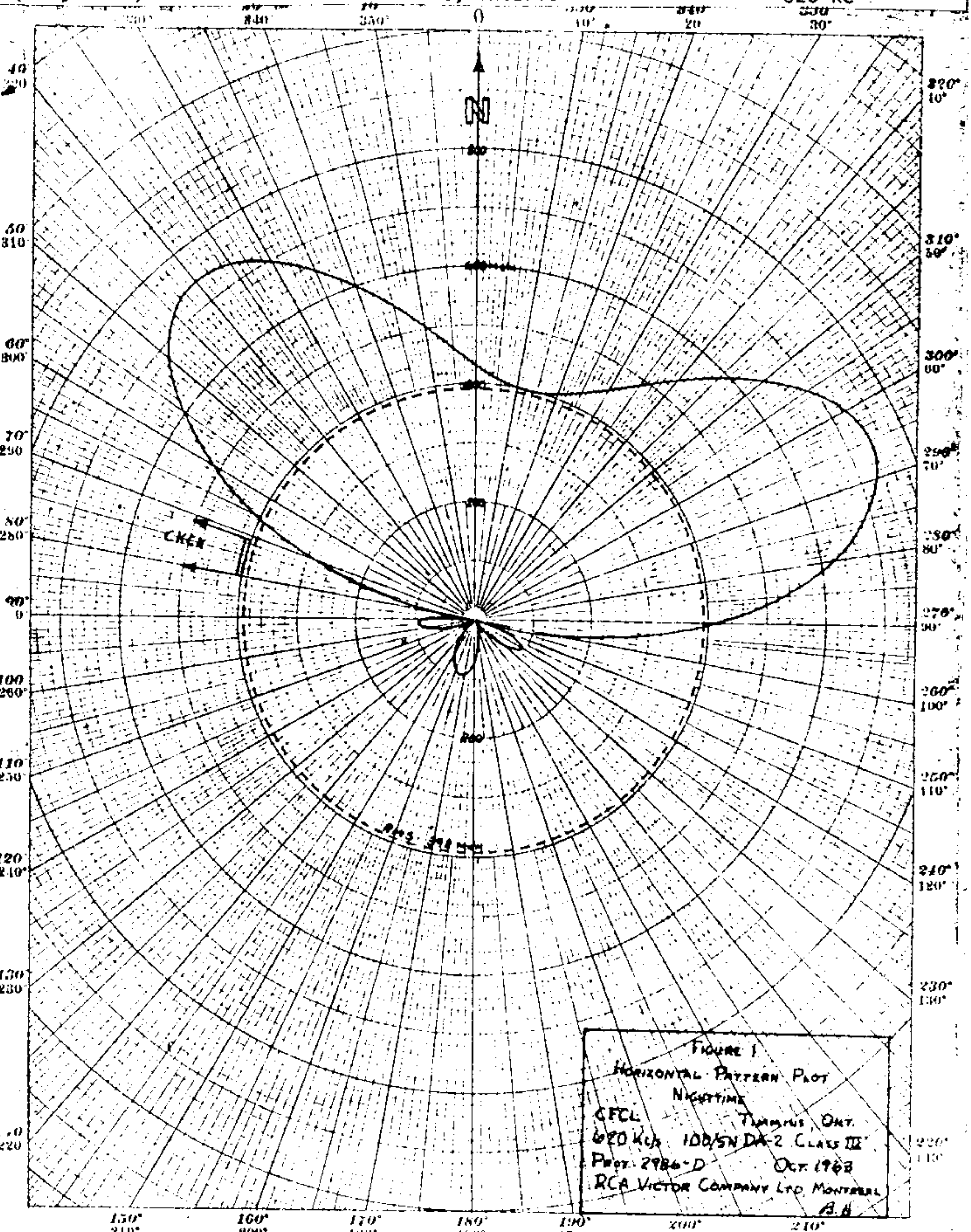


Figure 1
Horizontal Pattern Plot
Nighttime
CFCL Timmins, Ont.
620 Kc/s 10D/5N DA-2 Class III
Proj. 2986-D Oct. 1963
RCA Victor Company Ltd Montreal
A.H.

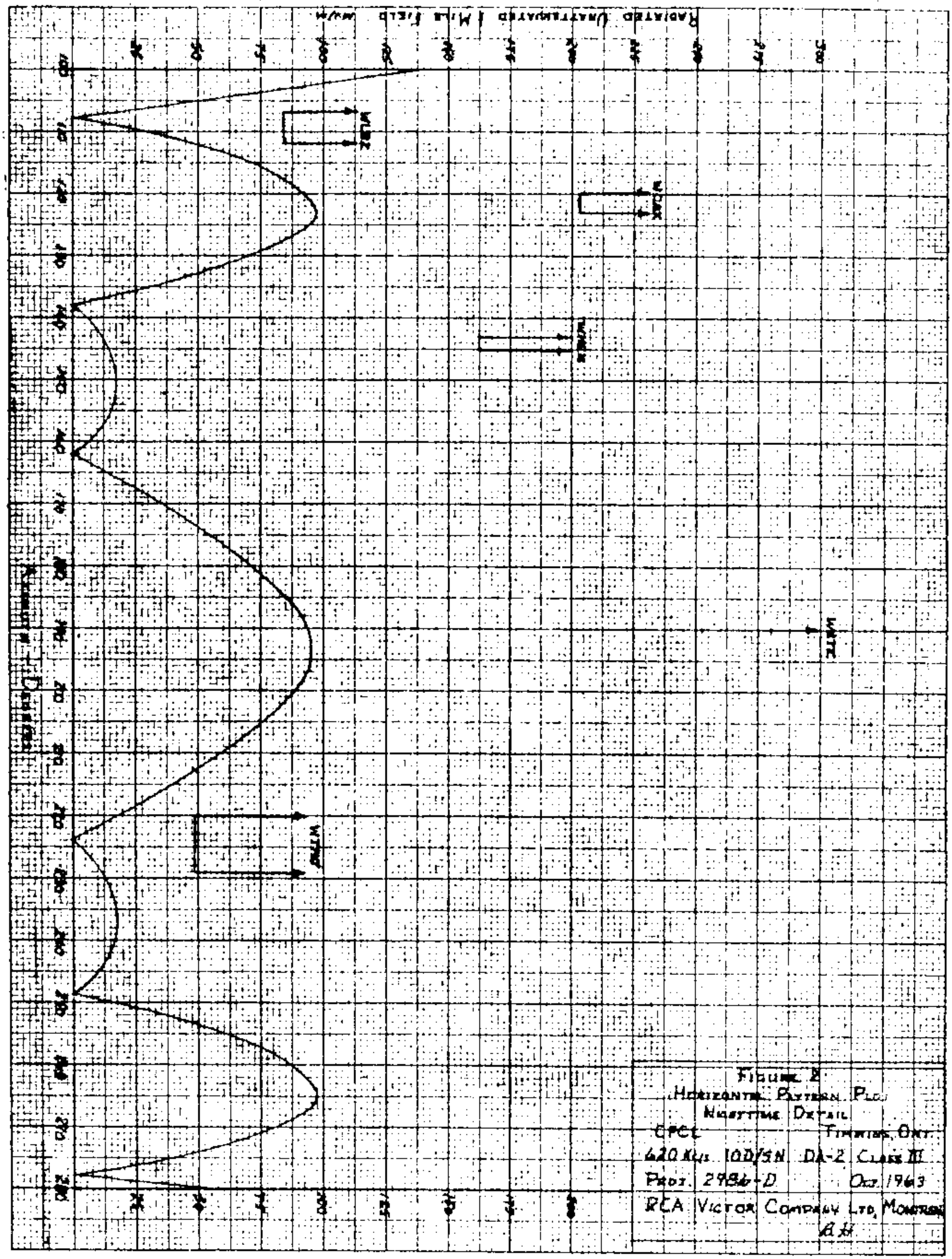
CFCL

#188

Proposed Night Nulls
(6-29-64ct)

Station CFCL
Timmins, Ontario

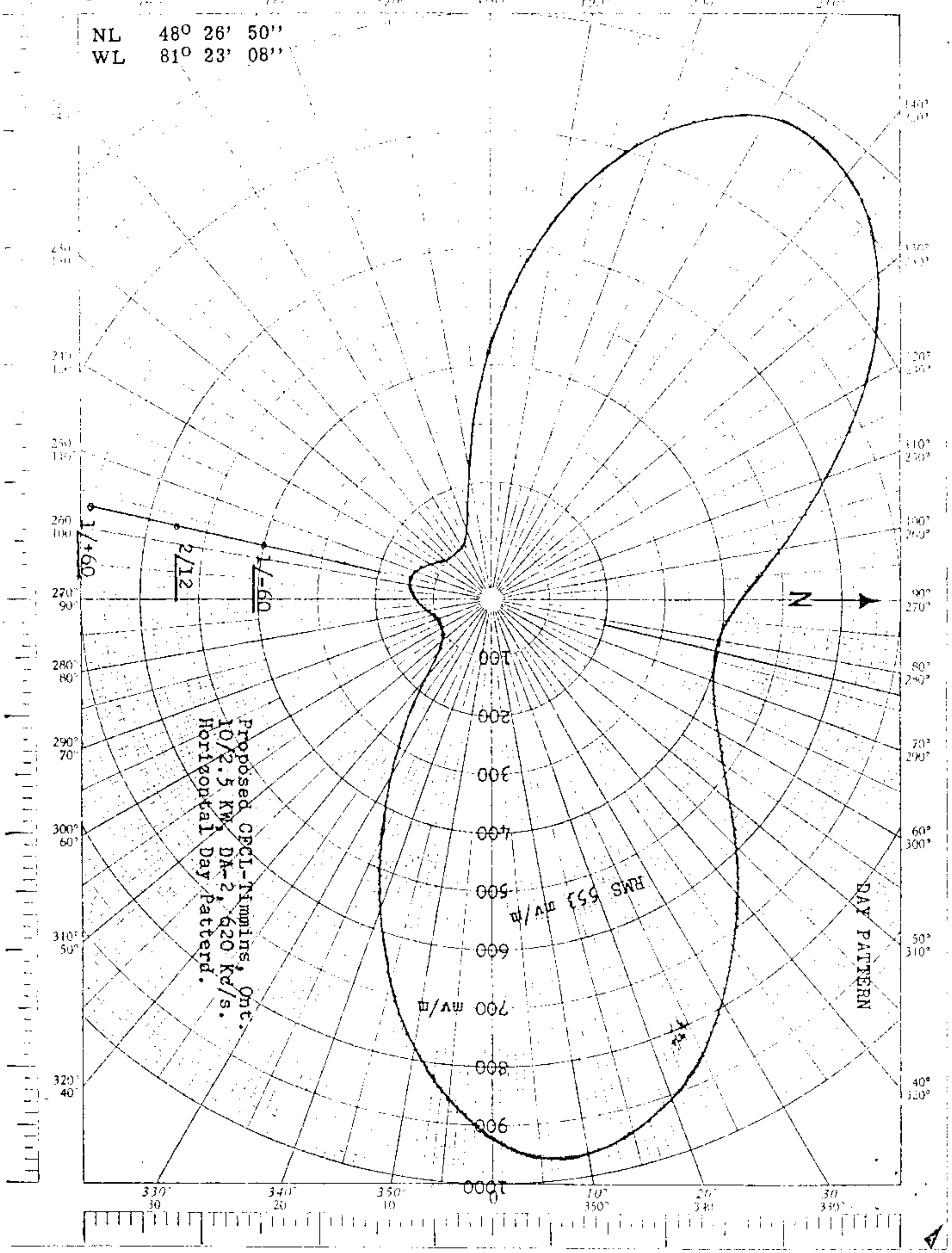
5kw, 10kw-LS, DA-2, U, Class III,
620 kc



#126 CFCL

PROPOSED DAY
(2-2-59g)

Station CFCL 2.5kw, 10kw-LS, DA-2,U, Class III
Timmons, Ontario, Canada 620 KC



CKCK
620

DESCRIPTION OF ARRAY

Station: CKCK Main Studio: Regina, Saskatchewan.

Power : 5000 watts Frequency : 620 KC

Location:

North Latitude: 50° 20'

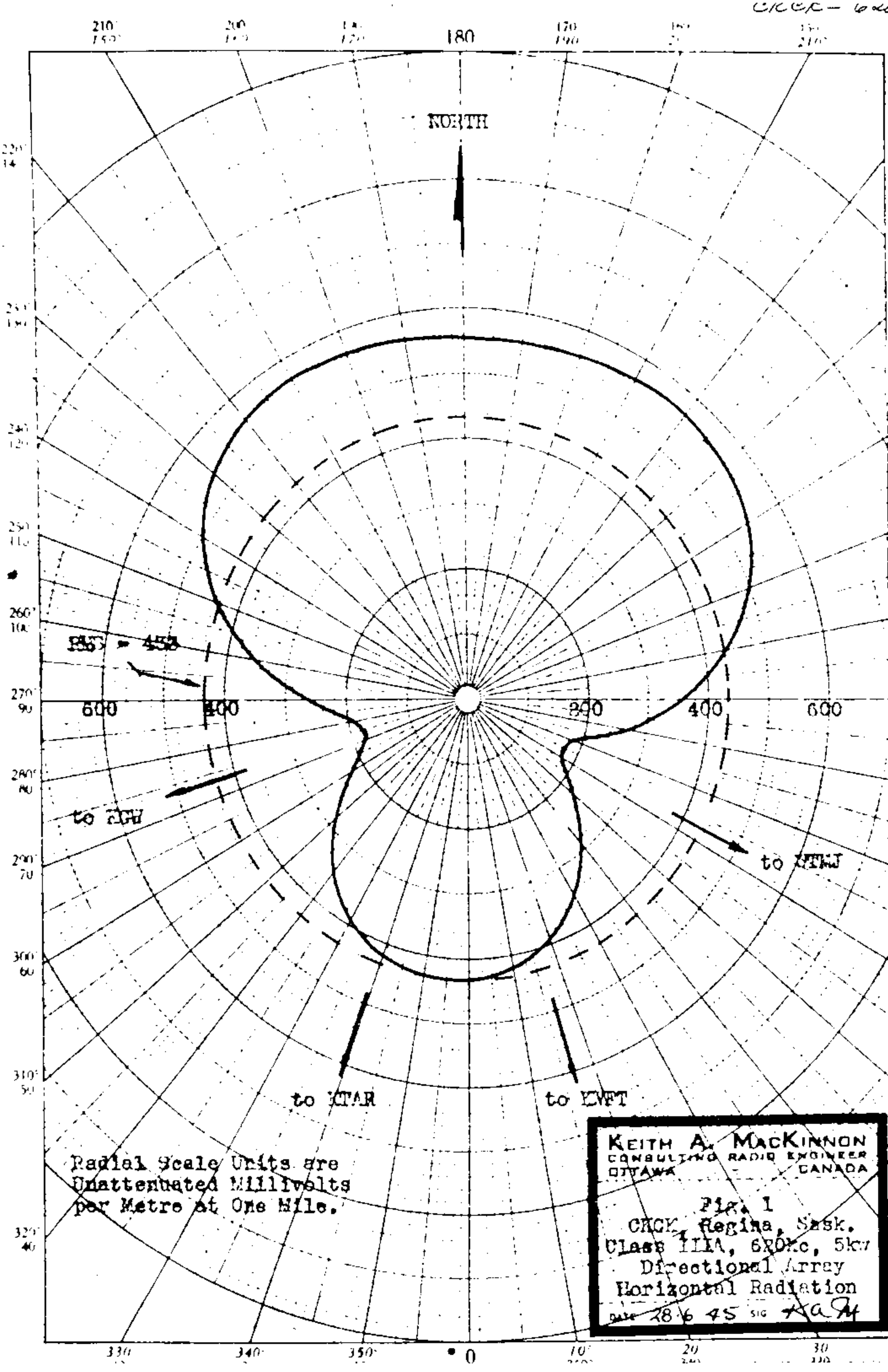
West Longitude: 104° 38'

Antenna: Proposed for NIGHT operation.

Two elements, guyed, series-fed, no top loading.

Tower	North	South
Height	200'	400'
Spacing	662' (150°) between towers	
Phasing	124.5° lag	0°
Current Ratio	1.38	1.00
Orientation	Line through towers bears N 5° E	
Ground System	635' radials spaced 3°	635' radials spaced 3°
Estimated RMS Field	433 mv/m at one mile.	

CKCK — 620K



Radial Scale Units are Unattenuated Millivolts per Metre at One Mile.

KEITH A. MACKINNON
CONSULTING RADIO ENGINEER
OTTAWA CANADA

Fig. 1
CKCK, Regina, Sask.
Class IIIA, 620kc, 5kw
Directional Array
Horizontal Radiation

DATE 28 6 45 SIG KAM

Proposed night

CKCK

PROJECT 14994

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: CKCK

MAIN STUDIO: Regina, Saskatchewan

FREQUENCY: 620 kHz

POWER: 10 kW

CLASS III

NOTIFICATION LIST NO. 364

DATE: June 27, 1977

GEOGRAPHICAL LOCATION: Latitude 50° 19' 36" North
Longitude 104° 37' 13" West

ANTENNA CHARACTERISTICS:

Mode of Operation: DA-2
Number of Elements: 3 (Three)
Type of Elements: Guyed steel towers, uniform cross-section, base insulated for series feed

TOWER	#1 (S)	#2 (C)	#3 (N)
Height above base insulator:	400'(90.7°)	400'(90.7°)	400'(90.7°)
Overall height:	405'	405'	405'
Field Ratio			
Nighttime:	1.0	.87	.14
Daytime:	1.0	.88	.35
Phasing			
Nighttime:	Ref.	-144.5°	98°
Daytime:	Ref.	-162°	33°
Spacing:	Ref.	331'(75°)	662'(150°)
Orientation:	Ref.	5°T	5°T

GROUND SYSTEM: 120 equally spaced radials of No. 10 B & S gauge bare copper wire extend from the base of each tower. The maximum length of any radial is 635 feet (0.4 wavelength), with the exception of those joined along the common chords.

PREDICTED EFFECTIVE FIELD:

Nighttime: 626 mV/m at 1 mile for 10 kW
198 mV/m at 1 mile for 1 kW

Daytime: 639 mV/m at 1 mile for 10 kW
202 mV/m at 1 mile for 1 kW

October 15, 1976

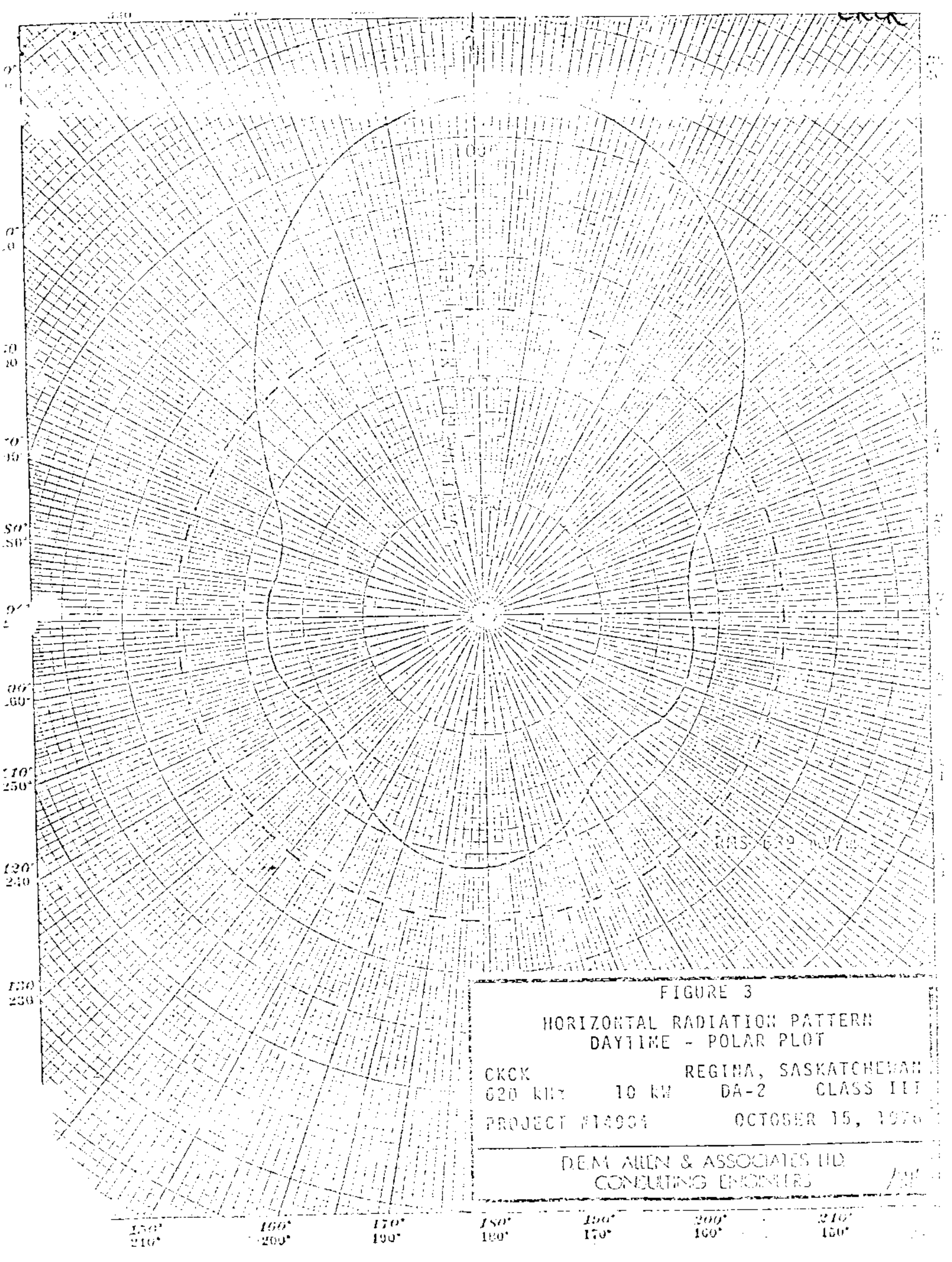


FIGURE 3

HORIZONTAL RADIATION PATTERN
DAYTIME - POLAR PLOT

CKCK REGINA, SASKATCHEWAN
620 kHz 10 KW DA-2 CLASS III

PROJECT #14904 OCTOBER 15, 1976

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

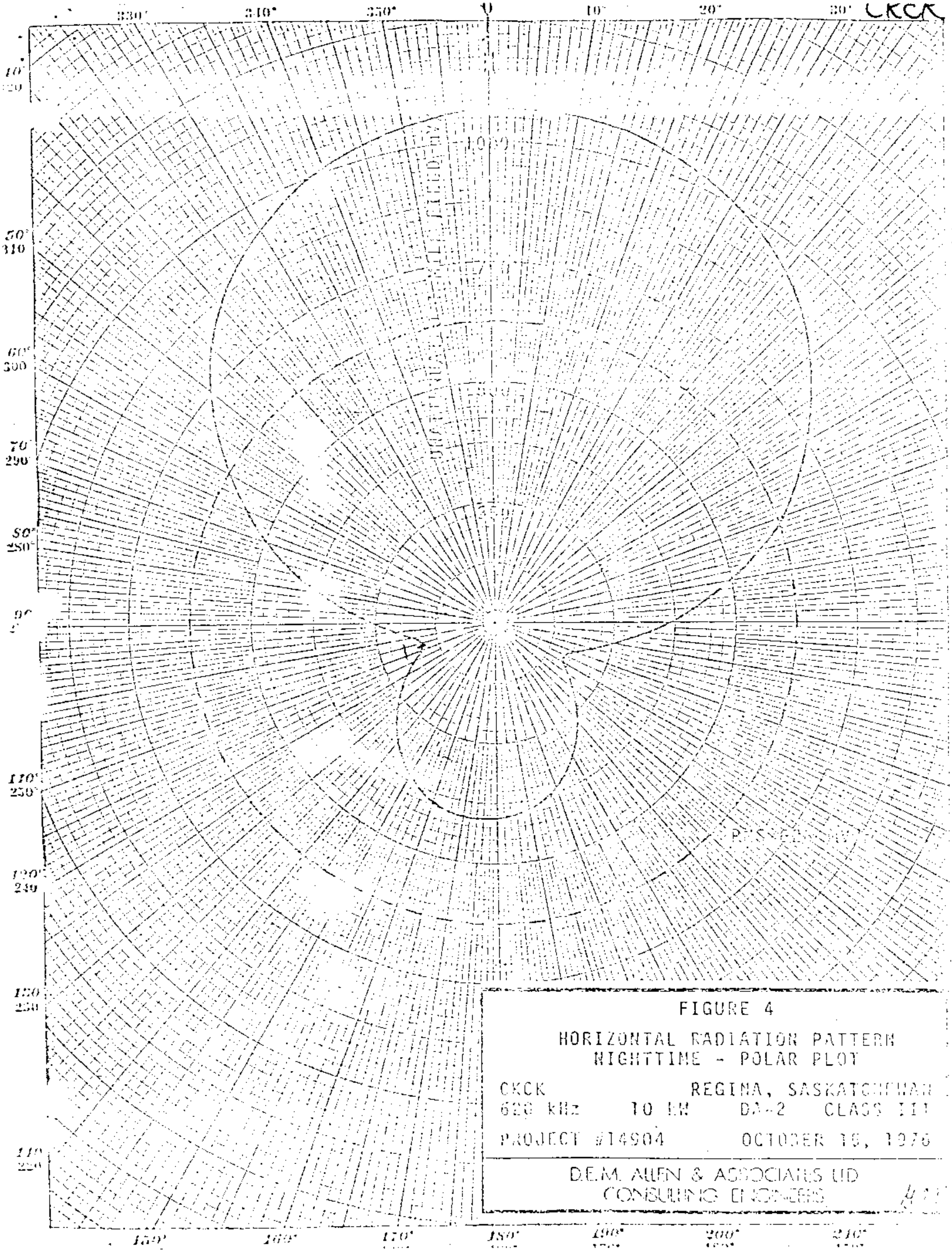


FIGURE 4

HORIZONTAL RADIATION PATTERN
NIGHTTIME - POLAR PLOT

CKCK REGINA, SASKATCHEWAN
620 KHz 10 KW DA-2 CLASS III

PROJECT #14904 OCTOBER 15, 1976

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

CKCK

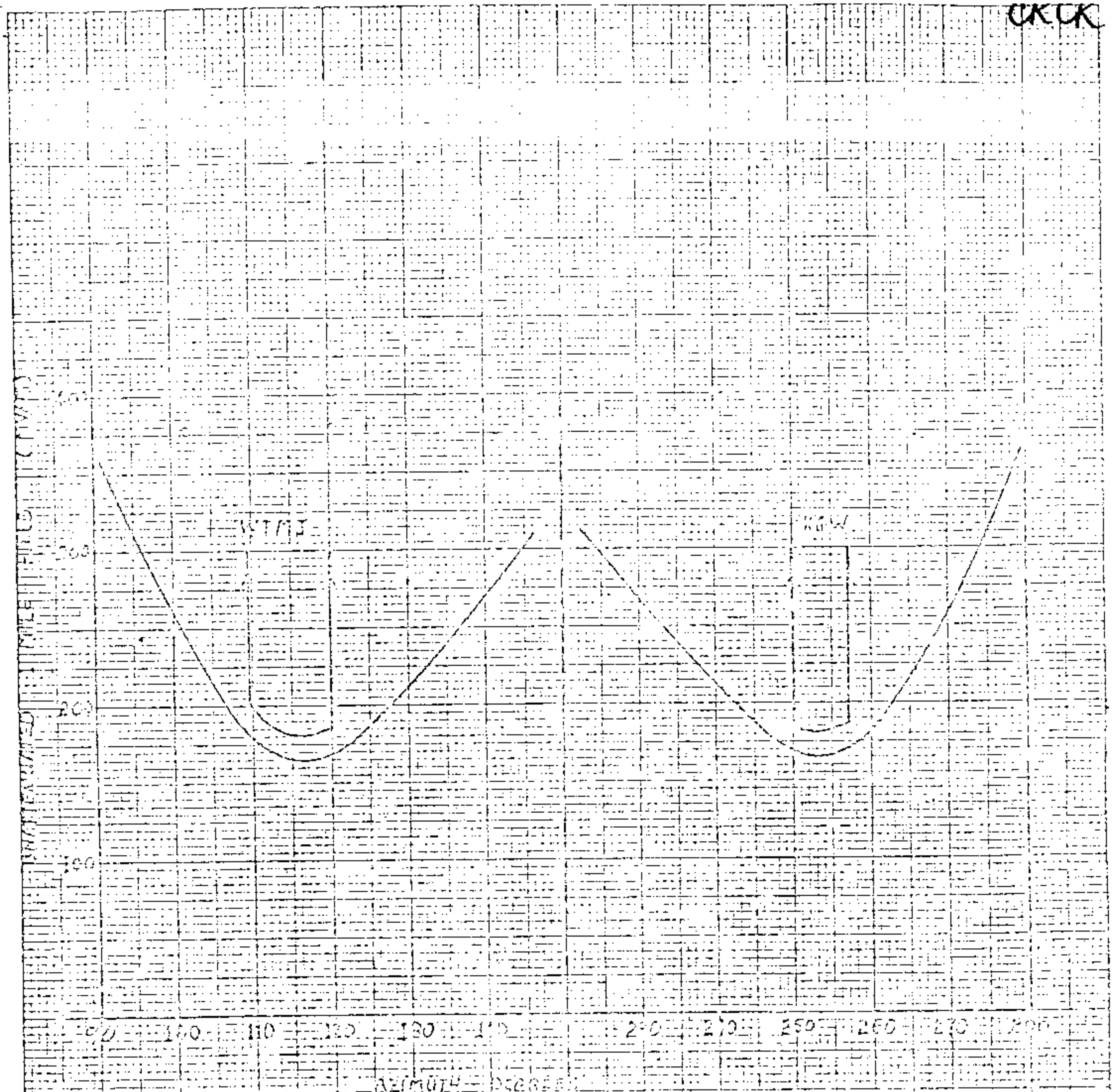


FIGURE 5

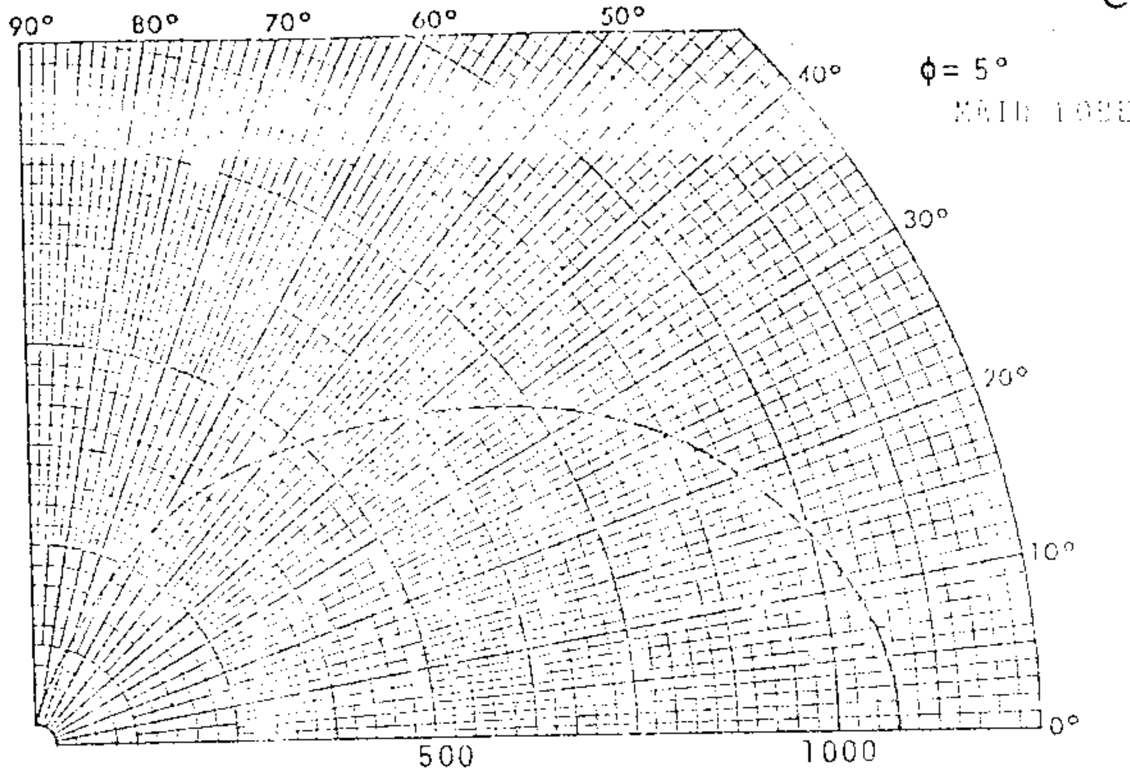
HORIZONTAL RADIATION PATTERN
NIGHTTIME - EXPANDED PLOT

CKCK REGINA, SASKATCHEWAN
620 kHz 10 kW DA-2 CLASS III

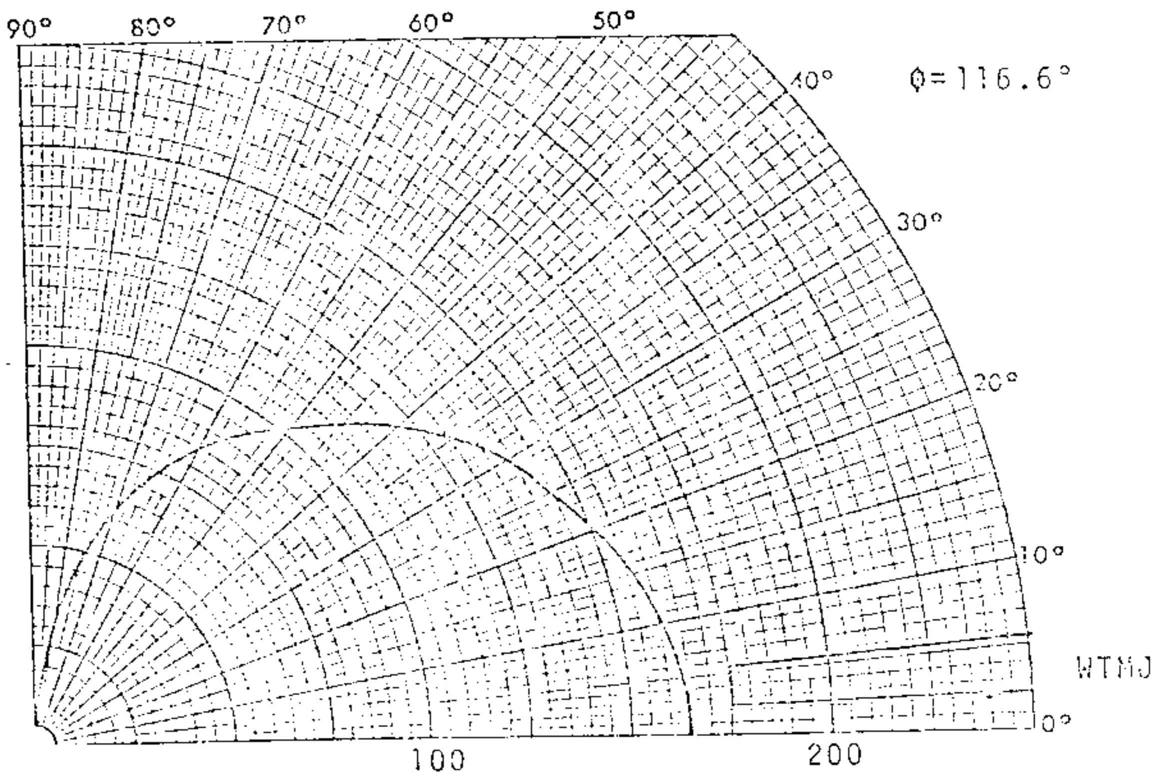
PROJECT #14901 OCTOBER 15, 1976

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

CKCK



UNATTENUATED (MV/M) 1 MILE FIELD



UNATTENUATED (MV/M) 1 MILE FIELD

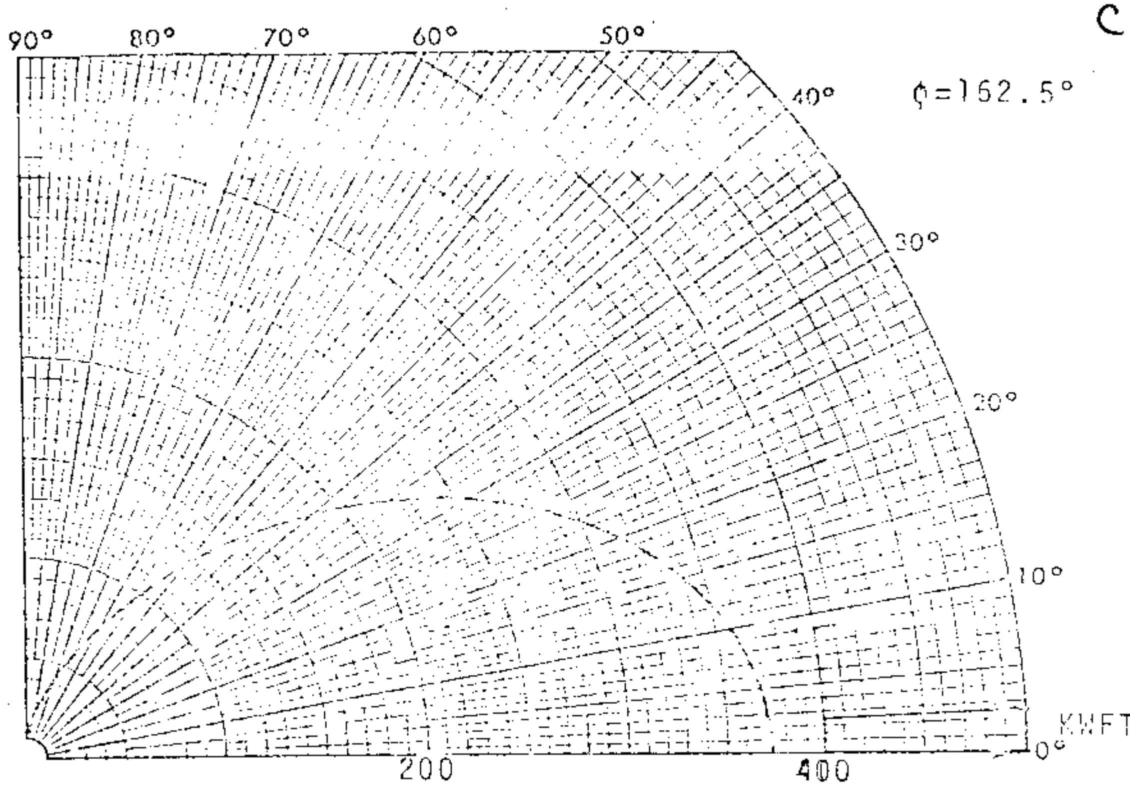
VERTICAL RADIATION PATTERNS

FIGURE 6

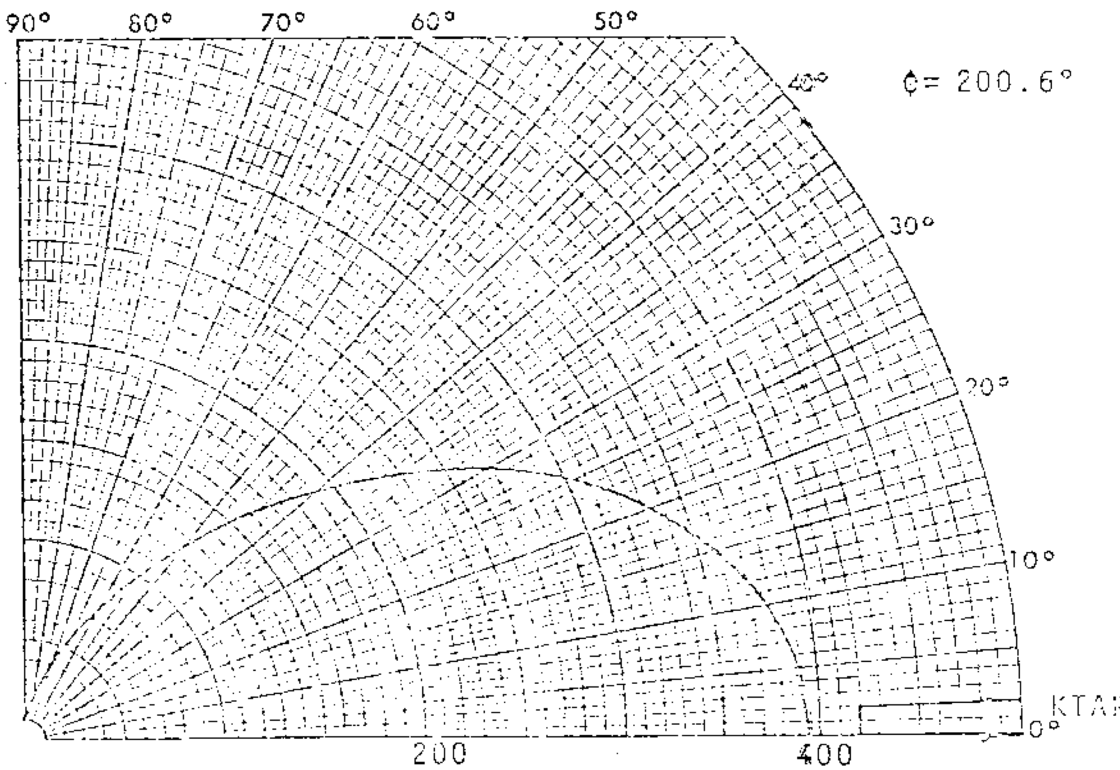
CKCK			REGINA, SASKATCHEWAN
620 kHz	10 kW	DA-2	CLASS III
PROJECT #14904			OCTOBER 15, 1976

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

CKCK



UNATTENUATED (MV/M) 1 MILE FIELD



UNATTENUATED (MV/M) 1 MILE FIELD

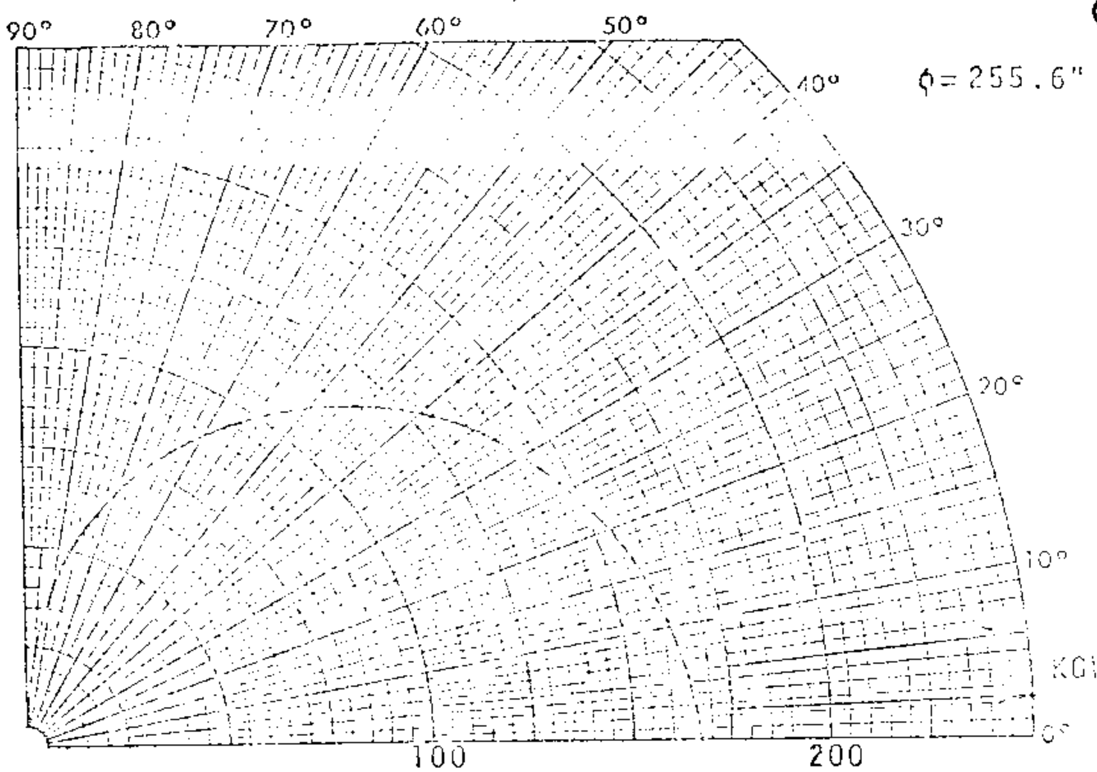
VERTICAL RADIATION PATTERNS

FIGURE 7

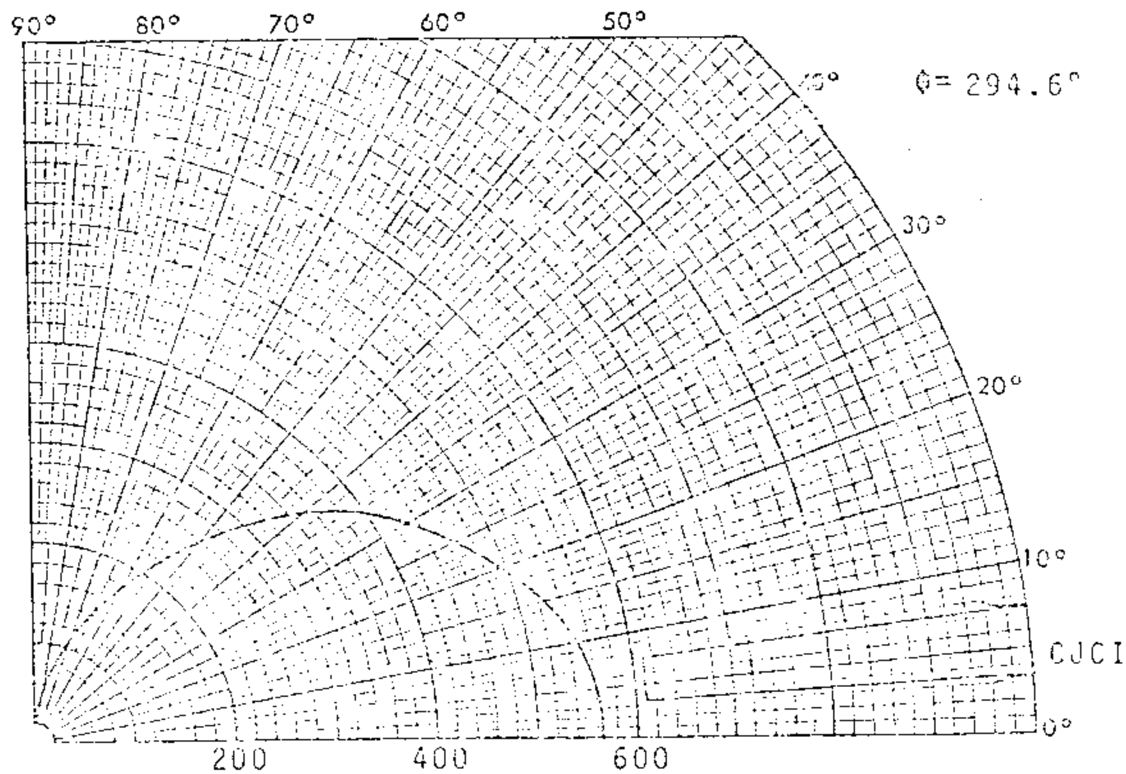
CKCK REGINA, SASKATCHEWAN
620 kHz 10 kW DA-2 CLASS III
PROJECT #14904 OCTOBER 15, 1976

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

CKCK



UNATTENUATED (MV/M) 1 MILE FIELD



UNATTENUATED (MV/M) 1 MILE FIELD

VERTICAL RADIATION PATTERNS

FIGURE 8

CKCK
620 KHz
PROJECT #14904

10 KW

DA-2

REGINA, SASKATCHEWAN
CLASS III
OCTOBER 15, 1976

D.F.H. ALLEN & ASSOCIATES LTD., CONSULTING ENGINEERS

CKCM

DESCRIPTION SHEET
(8-22-61ct)

New Station 10kw,DA-1,U,Class III
Grand Falls,Newfoundland,Canada 620 KC

DIRECTIONAL ANTENNA DESCRIPTION SHEET

RECEIVED
AUG 1961
F.C.C.
MAIL & FILES

Station: NEW

Frequency: 620 Kc/s

Notification List No : 162

Main Studio: Grand Falls

Power: 10 KW Class: III

Date: July 26, 1961

GEOGRAPHICAL LOCATION
OF THE ANTENNA SYSTEM.

North Latitude: 48° 56' 39"

West Longitude: 55 38 55"

ANTENNA CHARACTERISTICS

Mode of Operation: DA-1
Number of Elements: 2
Type of elements: Guyed, uniform cross section base insulated Series fed. No top loading.

TOWER:	No. 1 (N.E.)	No. 2 (S.W.)
HEIGHT ABOVE INSULATORS:	310' (70°)	310' (70°)
OVERALL HEIGHT:	314'	314'
SPACING:	[illegible] (120°)	
PHASING:	-68	
FIELD RATIO:	.87	1.

ORIENTATION: towers on a line bearing [illegible] of North.

GROUND SYSTEM: 120 radials per tower of No. 10 AWG soft drawn copper wire. Radials running between towers bonded to No. 4 stranded copper wire positioned at right angles to tower line. Radials buried to an approximate depth of 8". Effective length of ground system 635' (0.4λ)

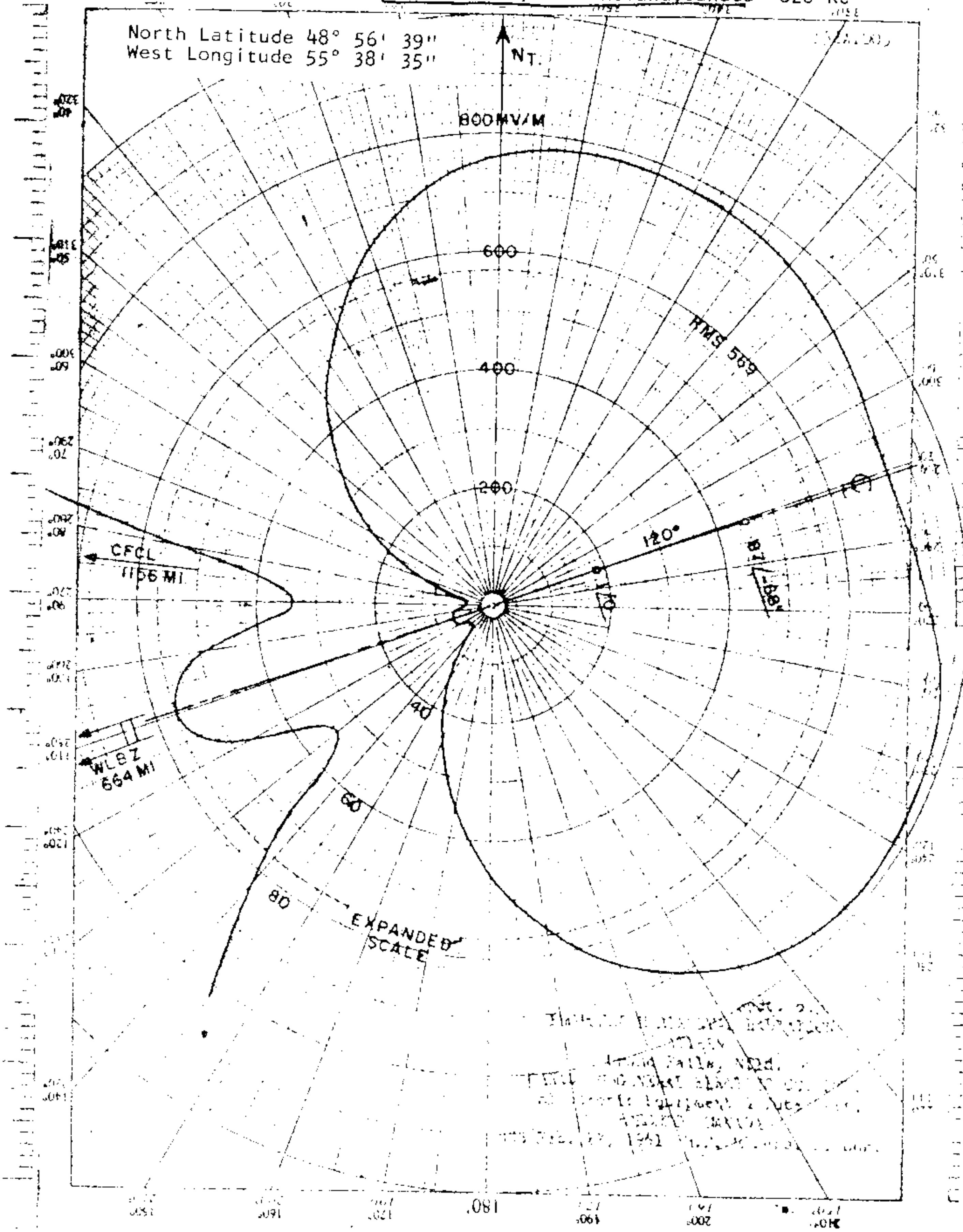
Predicted effective field RMS 569 mv/m (180 mv/m for 1Kw)

CKCM

#162

PROPOSED DAY & NIGHT (8-22-61ct)

New Station 10kw,DA-1,U,Class III
Grand Falls,Newfoundland,Canada 620 KC



CFRP NEW

I - DESCRIPTION DU SYSTEME A ANTENNE DIRECTIONNELLE

1. LETTRES D'APPEL: (nouveau poste)
2. EMPLACEMENT: Forestville, Qué.
3. FREQUENCE: 620 KHz.
4. PUISSANCE: 1 KW jour et nuit.
5. CLASSE: III (U).
6. NOTIFICATION NO: 355 DATE: June 4, 1976
7. COORDONNEES: Latitude nord: 48° 38' 23"

   Longitude ouest: 69° 05' 13"
8. SYSTEME D'ANTENNE: a) Fonctionnement: directionnel AD-1.

   b) Type: deux (2) éléments à section triangulaire, haubanés et alimentés en série.

   c) Mise à la terre: 120 fils #10 espacés également, d'une longueur équivalente à 0.4λ avec courroies d'interconnexion, le tout enfoui à environ 8" sous la surface.
9. MATS D'ANTENNE:

	#1 (sud)	#2 (nord)
Orientation (Az):	Réf.	0.0°
Hauteur au-dessus de l'isolateur:	61.2°	61.2° (270')
Espacement:	Réf.	60.0° (264.5')
Phasage:	0.0°	-123.0°
Rapport d'intensité de champ:	1.00	0.90

10. EFFICACITE PREVUE: 153.6 mV/m à 1 mille pour 1 KW.

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

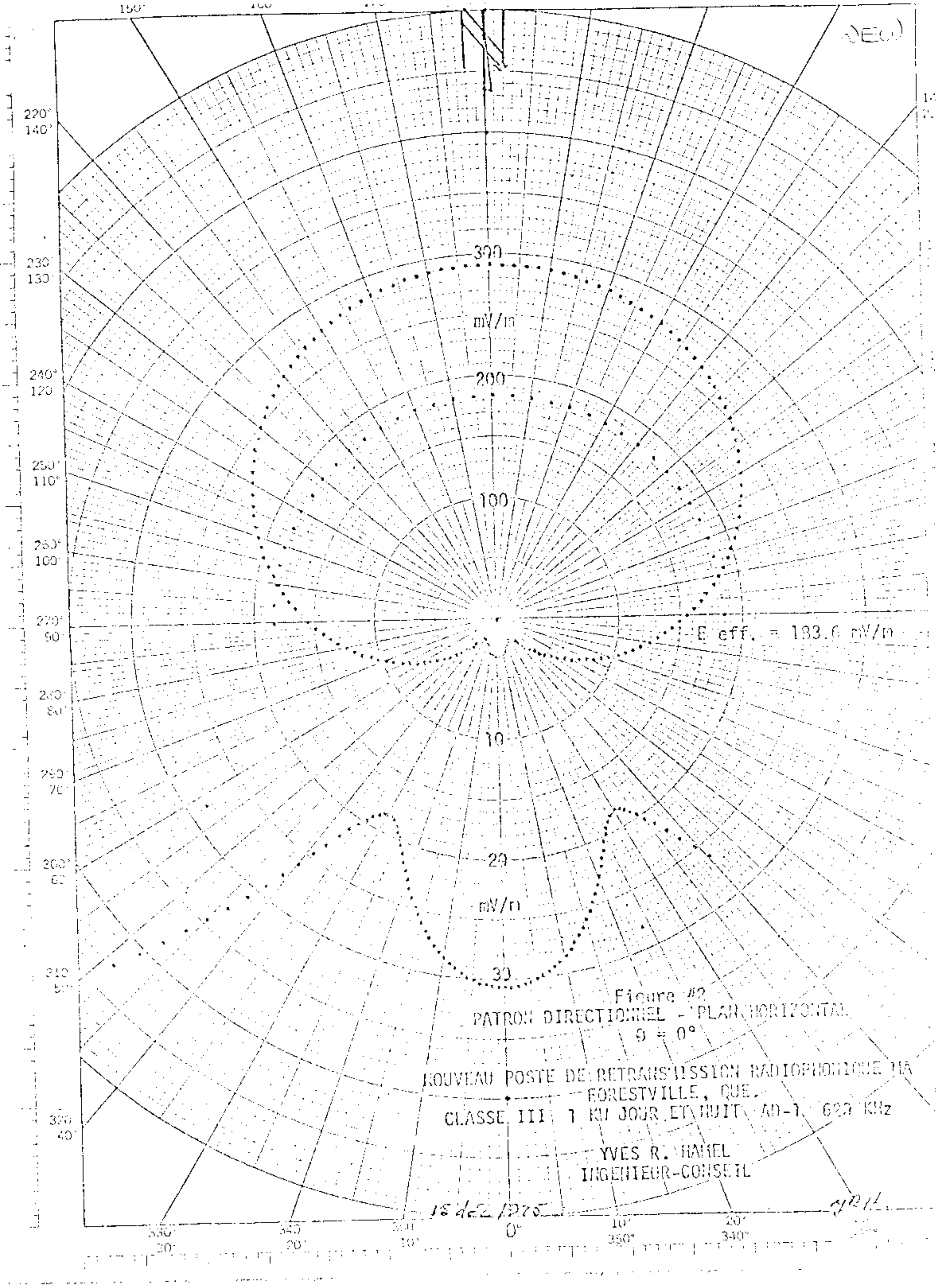
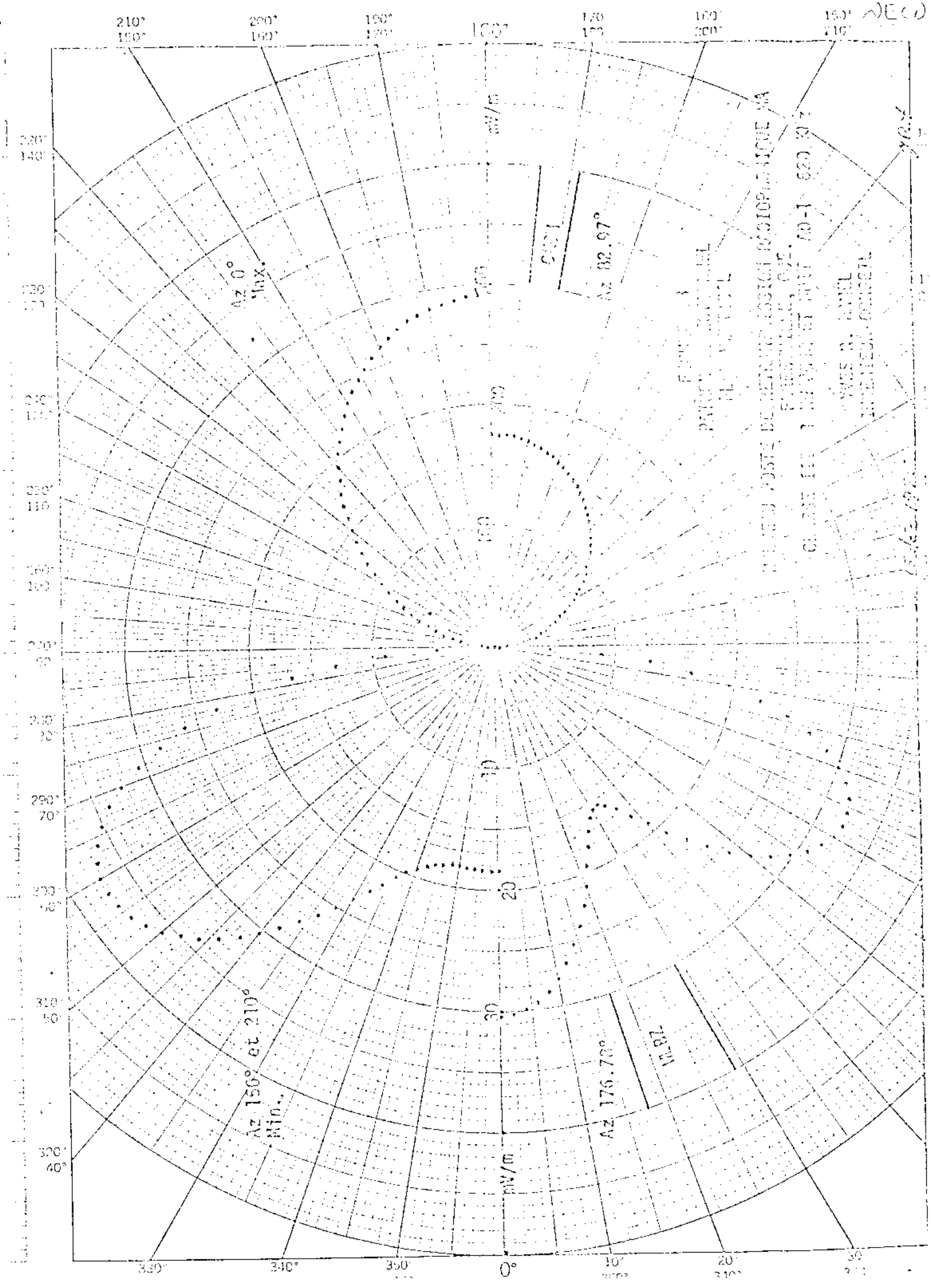


Figure #2
PATRON DIRECTIONNEL - PLAN HORIZONTAL
θ = 0°

NOUVEAU POSTE DE RETRANSMISSION RADIOPHONIQUE MA
FORESTVILLE, QUE.
CLASSE III 1 KW JOUR ET NUIT AD-1 620 KHz

YVES R. HAMEL
INGENIEUR-CONSEIL



210°
200°
190°
180°
170°
160°
150°
220°
230°
240°
250°
260°
270°
280°
290°
300°
310°
320°
330°
340°
350°
0°
10°
20°
30°
140°
130°
120°
110°
100°
90°
80°
70°
60°
50°
40°
mV/m
Az 0°
Max.
Az 82.97°
Az 150° et 210°
Min.
Az 176.72°

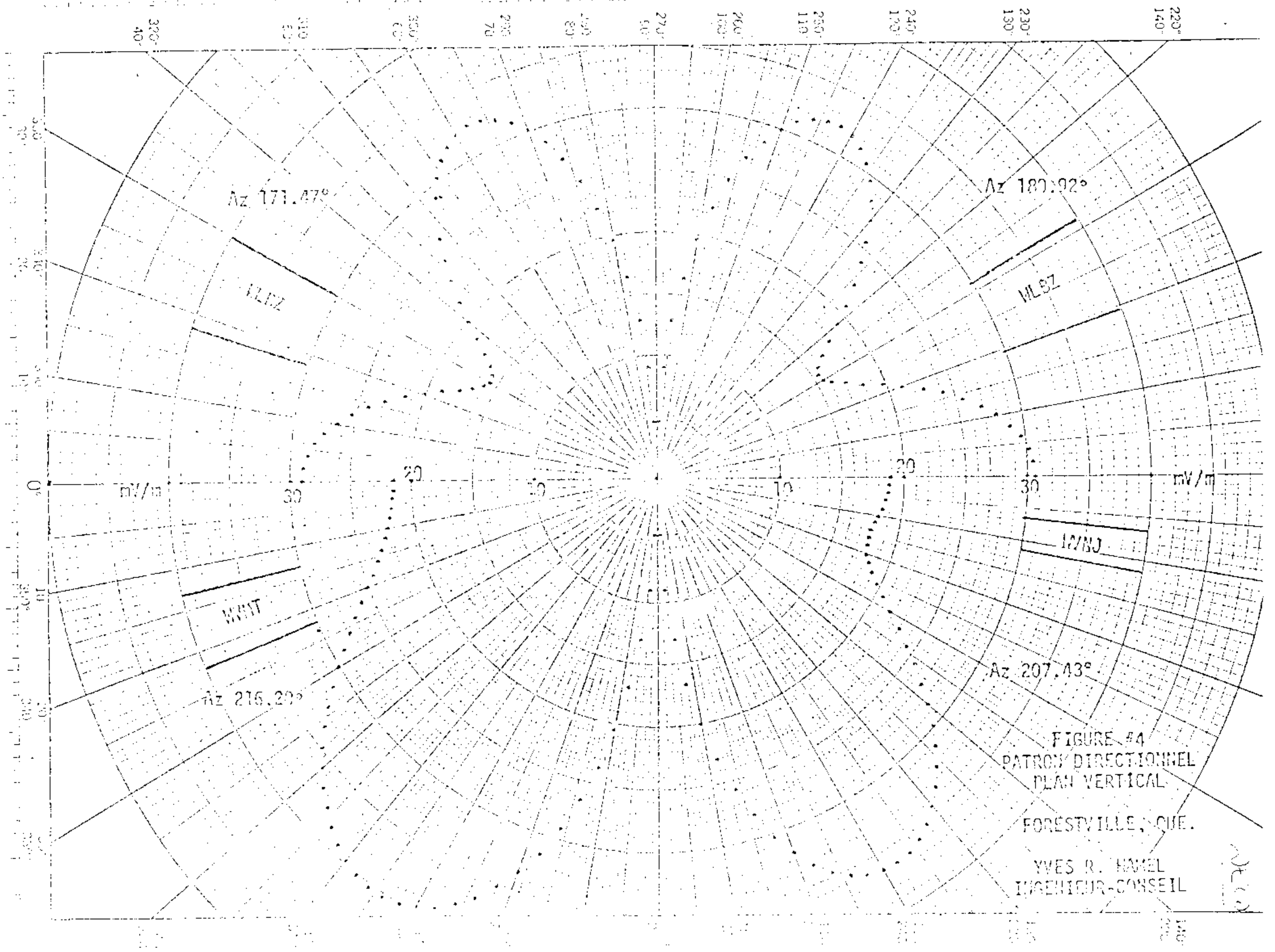


FIGURE #4
PATRON DIRECTIONNEL
PLAN VERTICAL

FORESTVILLE, QUE.

YVES R. HAMEL
INGENIEUR-CONSEIL

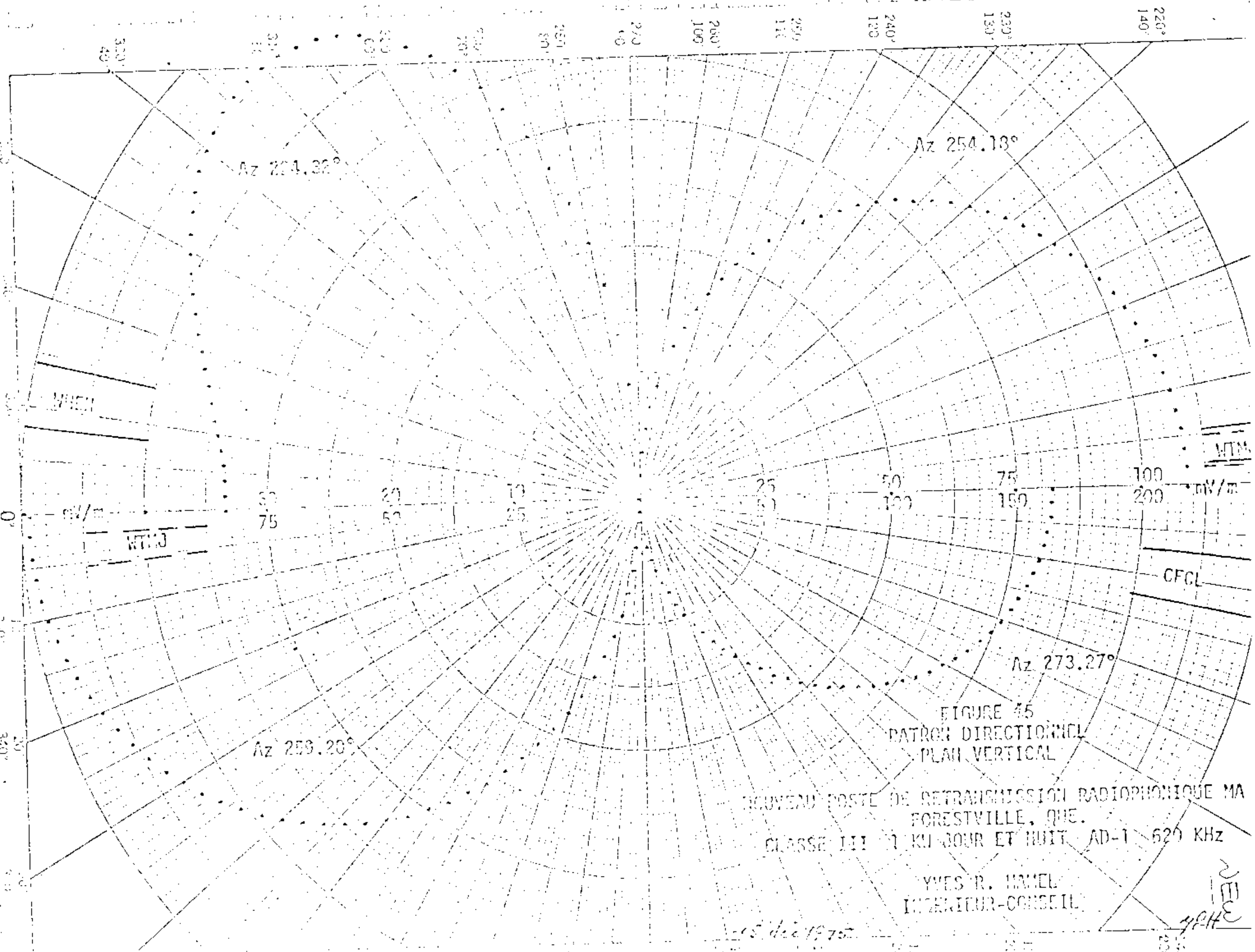
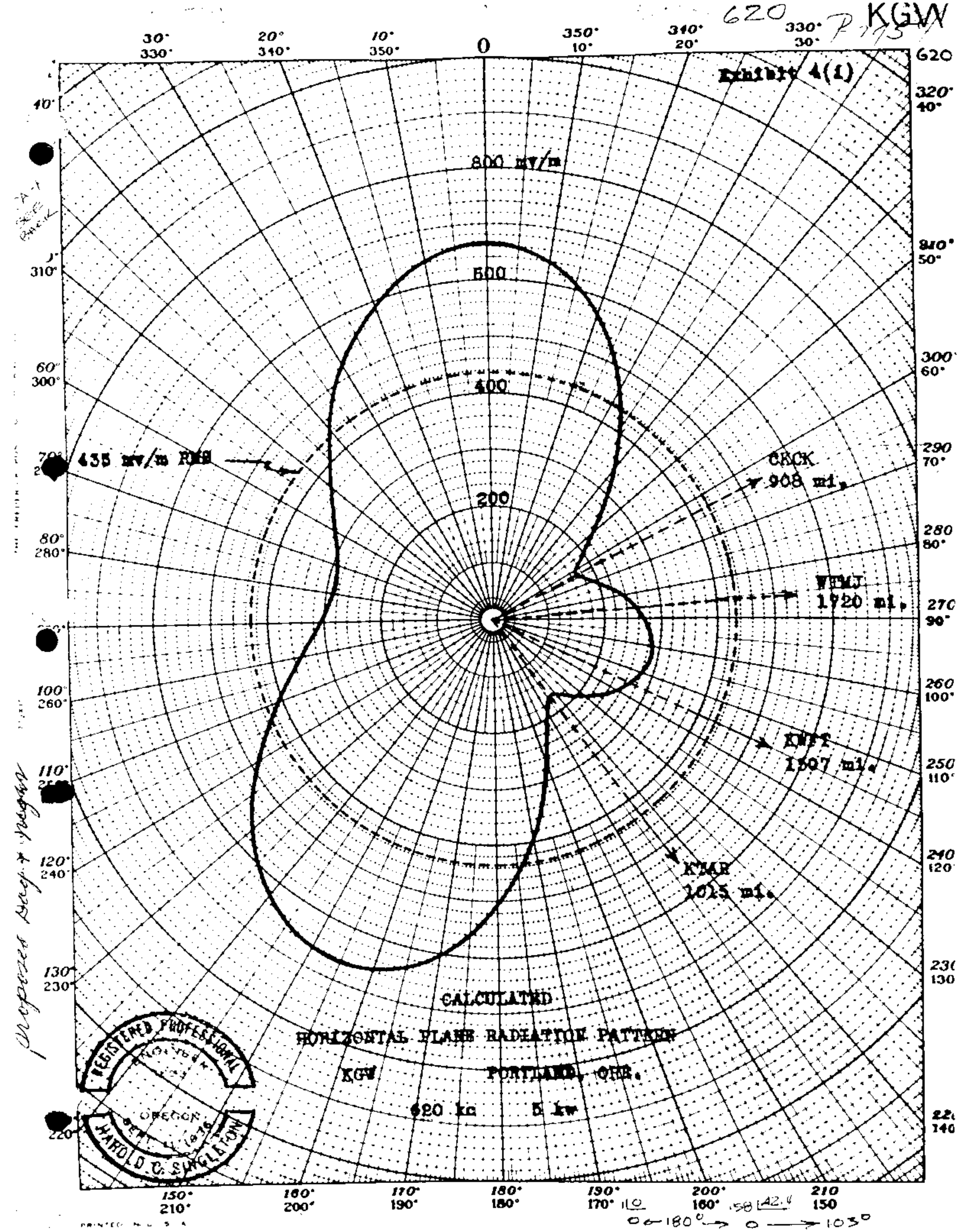


FIGURE 45
PATRON DIRECTIONNEL
PLAN VERTICAL

NOUVEAU POSTE DE RETRANSMISSION RADIOPHONIQUE MA
FORESTVILLE, QUE.
CLASSE III 1 KW JOUR ET NUIT AD-1 620 KHz

YVES R. HAMEL
INGENIEUR-CONSEIL



620
KGW
Exhibit 4(1)
800 mV/m
600
400
200
435 mv/m RMS
CRCK
908 mi.
WEMJ
1720 mi.
KWFT
1507 mi.
KTAR
1015 mi.
CALCULATED
HORIZONTAL PLANE RADIATION PATTERN
KGW PORTLAND, ORE.
620 kc 5 kw
REGISTERED PROFESSIONAL ENGINEER
OREGON
HAROLD C. SINGLETON

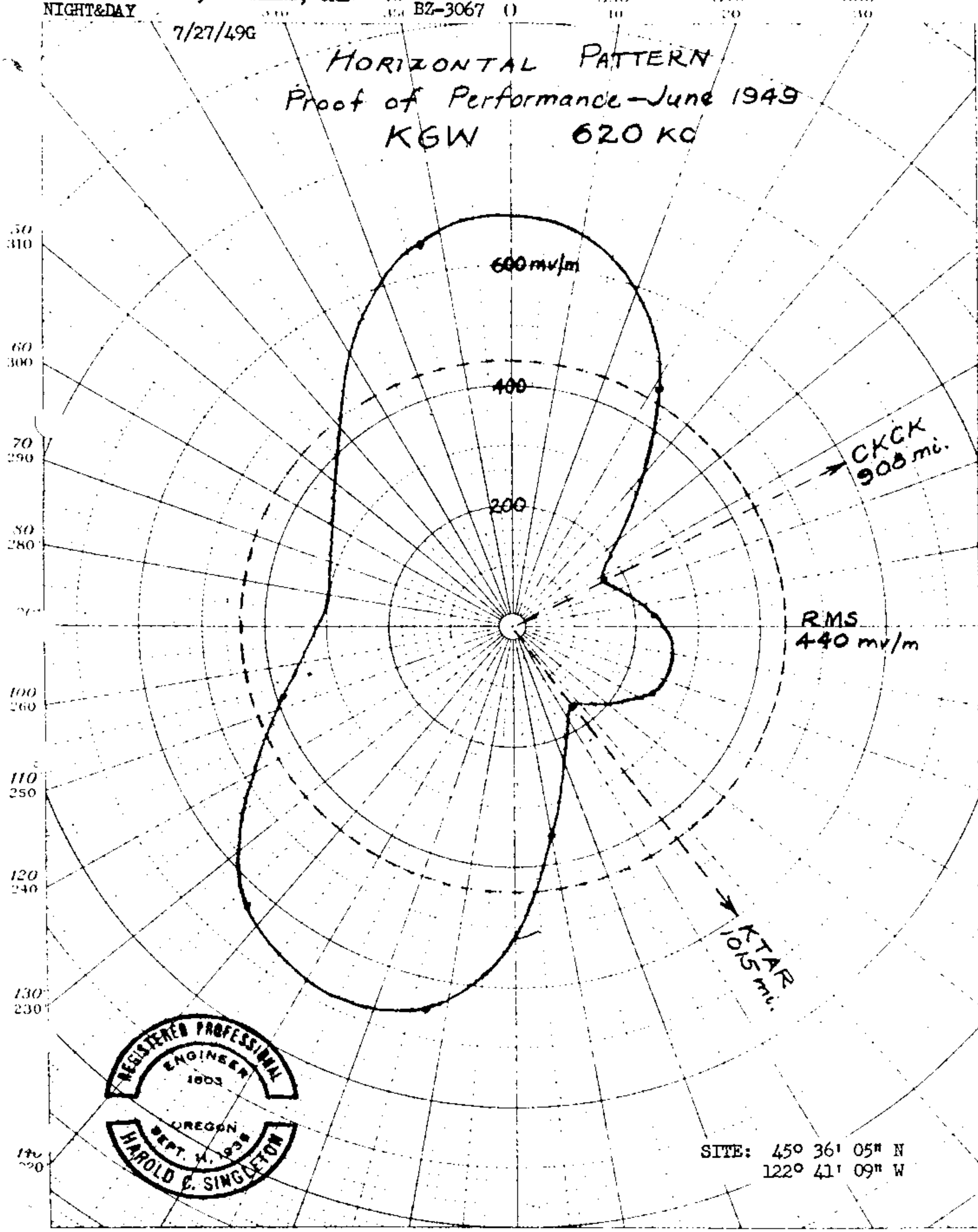
VOID - SEE MEASURED PATTERN BOOK

KGW

5kw, DA-1 Amended Exhibit A-2 620 kc

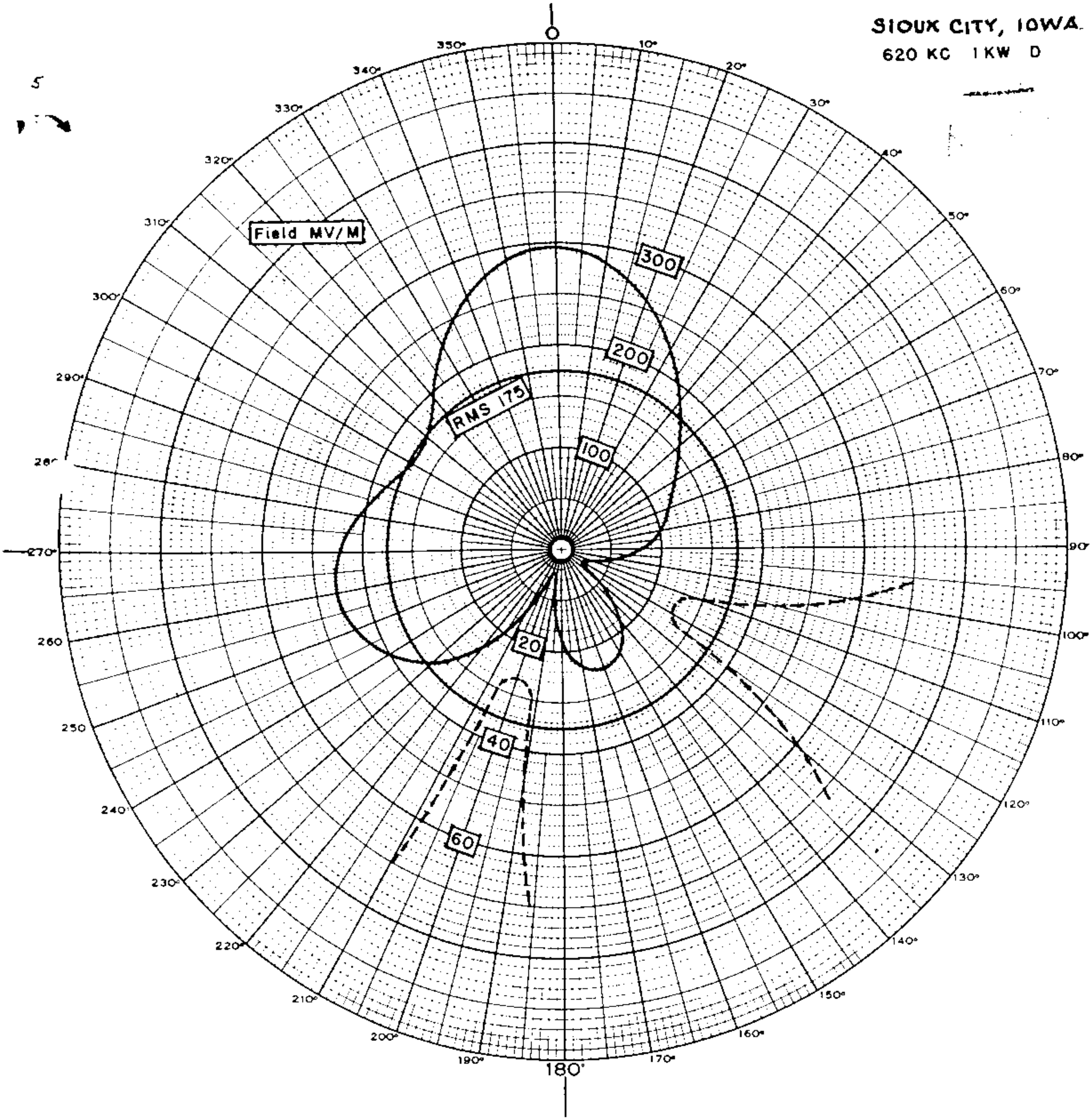
MEASURED NIGHT&DAY KGW, PORTLAND, ORE. 7-1-49 BZ-3067

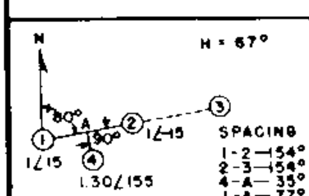
7/27/49G



KGW, Portland, Ore. 620 kc

SIOUX CITY, IOWA
620 KC 1 KW D



COMMERCIAL ASSOCIATES, INC. SIOUX CITY, IOWA		Exhibit E 2 Series 470116 P
		620 KC 1000 WATTS DAY
	PROPOSED DIRECTIONAL ANTENNA PATTERN	FRANK H. McINTOSH *Consulting Radio Engineer* Washington, D.C.

~~KCOM~~
KMNS 620 kc

MEASURED
DAYTIME

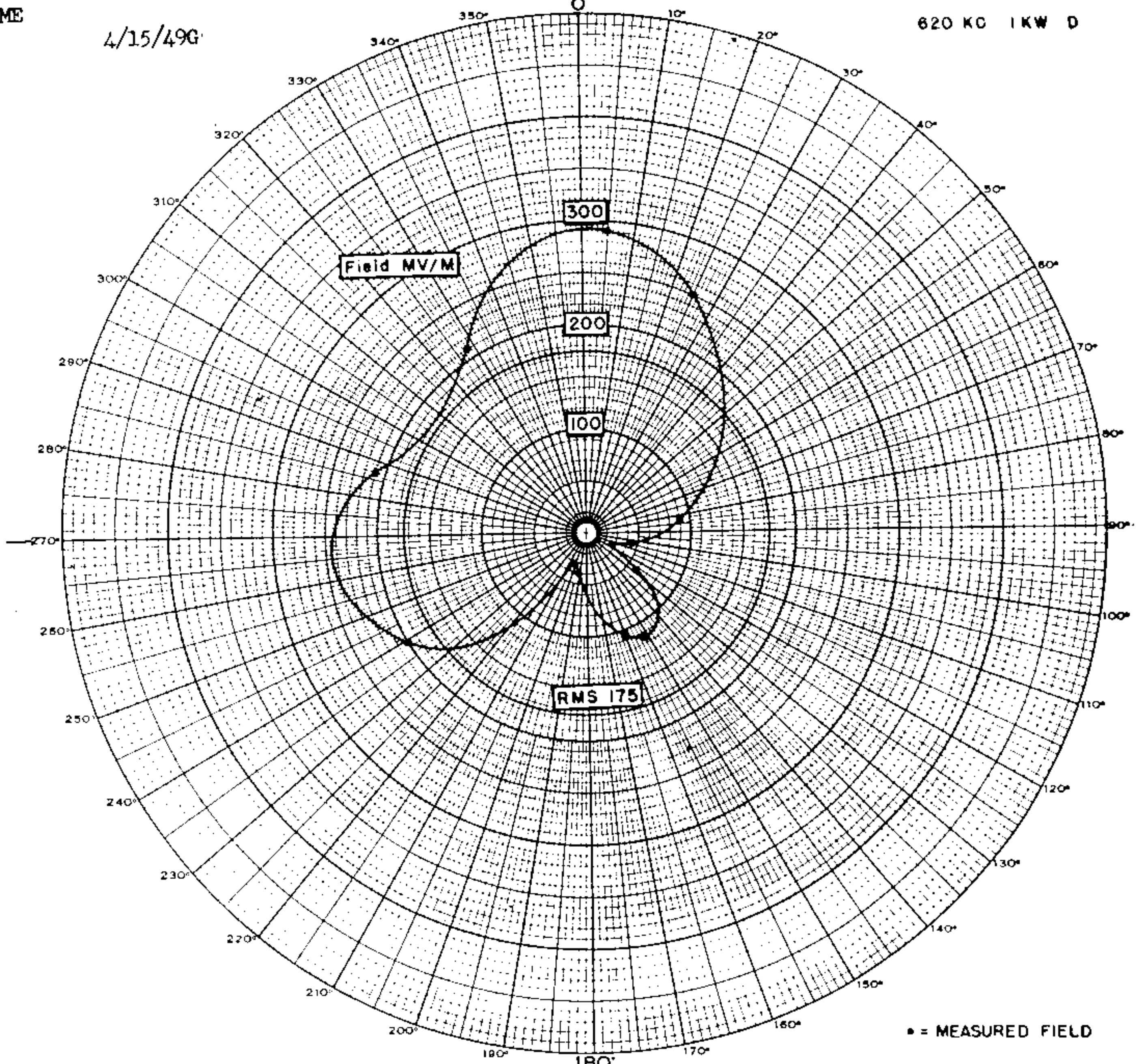
KCOM, SIOUX CITY, IOWA

License 4-12-49

1kw,DA2

620 KC 1KW D

4/15/49G

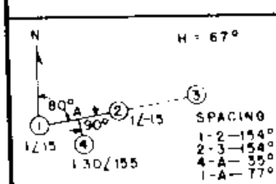


SITE: 42° 22' 15" N
96° 27' 00" W

STATION KCOM
SIOUX CITY, IOWA

Figure 6A
Series C490330

620 KC
1000 WATTS
DAY



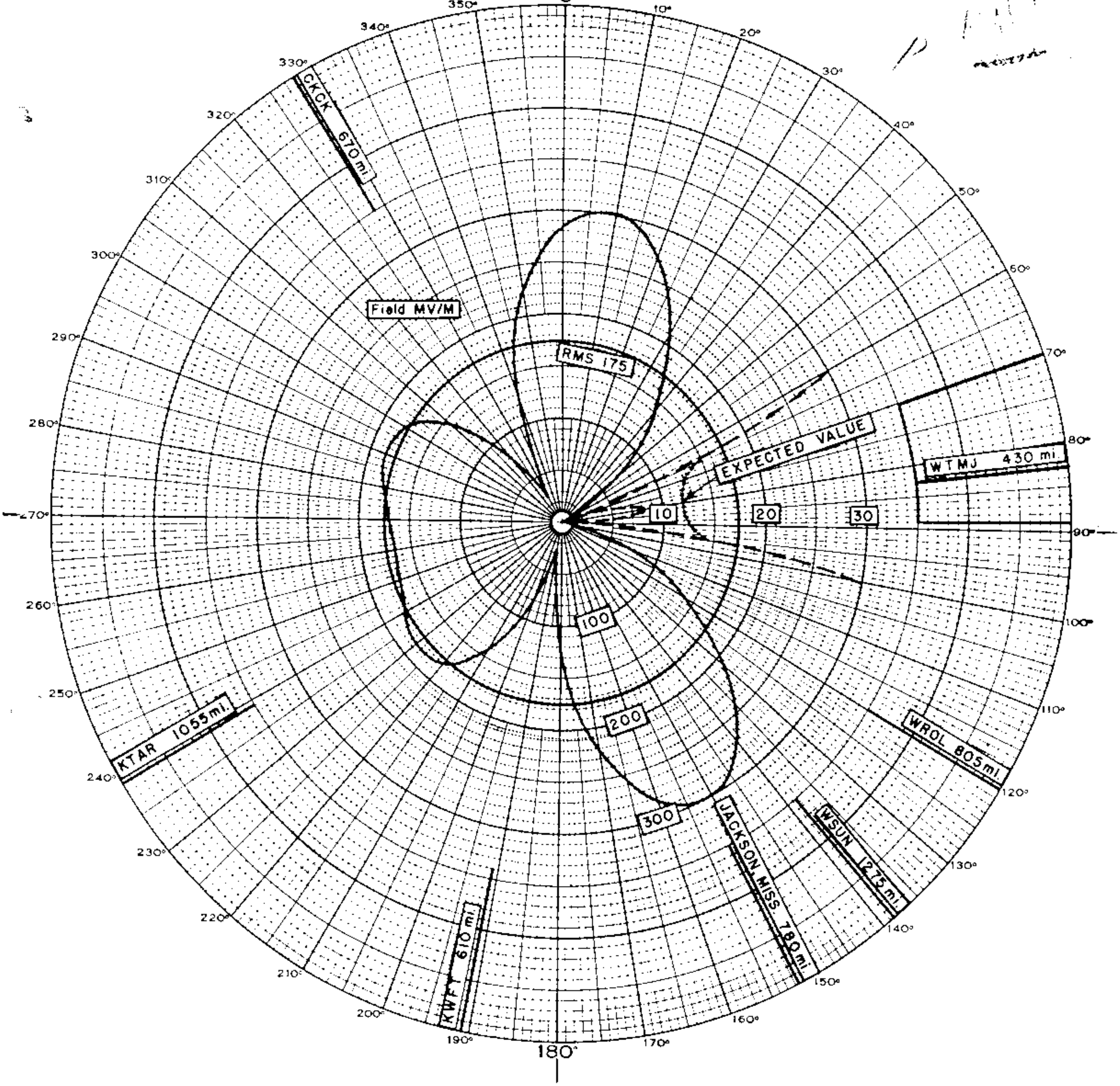
MEASURED

DIRECTIONAL ANTENNA PATTERN

FRANK H. McINTOSH
Consulting Radio Engineer
Washington, D.C.

KCOM, Sioux City, Iowa 620 kc

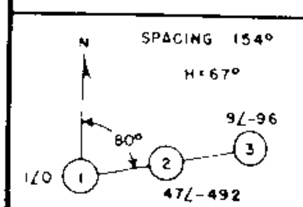
SIOUX CITY
620 KC 1KW N



COMMERCIAL ASSOCIATES INC.
SIOUX CITY, IOWA

Exhibit E1
Series 460827C

620 KC
1000 WATTS
NIGHT



PROPOSED

DIRECTIONAL ANTENNA PATTERN

FRANK H. McINTOSH
Consulting Radio Engineer
Washington, D.C.

~~KCOM~~
KMNS

MEASURED
NIGHT

KCOM, SIOUX CITY, IOWA

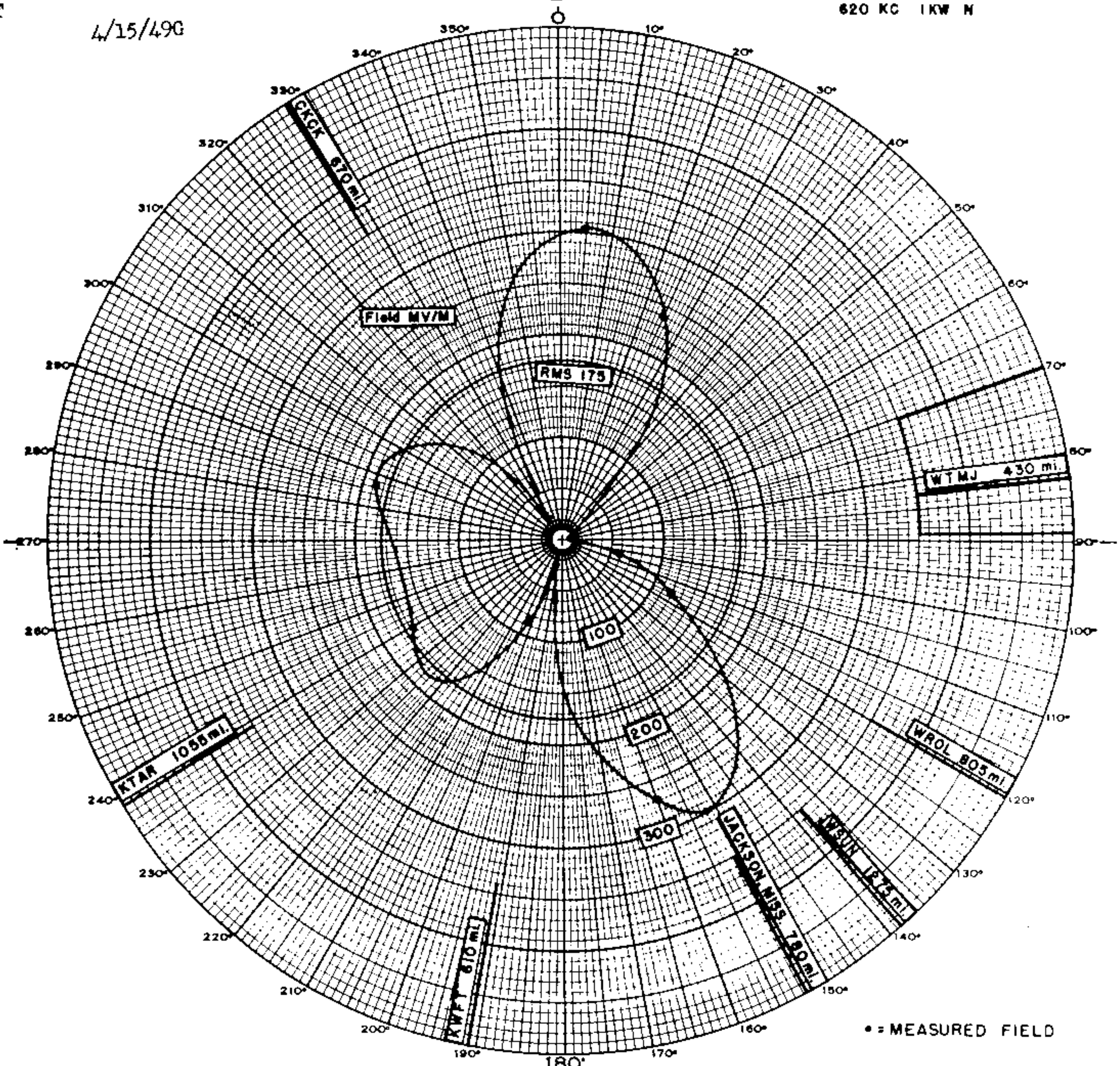
License 4-12-49

1kw,DA2

620 kc

620 KC 1KW N

4/15/49G



SITE: 42 22' 15" N
96 27' 00" W

STATION KCOM SIOUX CITY, IOWA		Figure 6B Series C490330
		620 KC 1000 WATTS NIGHT
SPACING 154° H=67° 1/0	MEASURED DIRECTIONAL ANTENNA PATTERN	FRANK H. McINTOSH *Consulting Radio Engineer* Washington, D.C.

KCOM, Sioux City, Iowa 620 kc

NEW-620KC

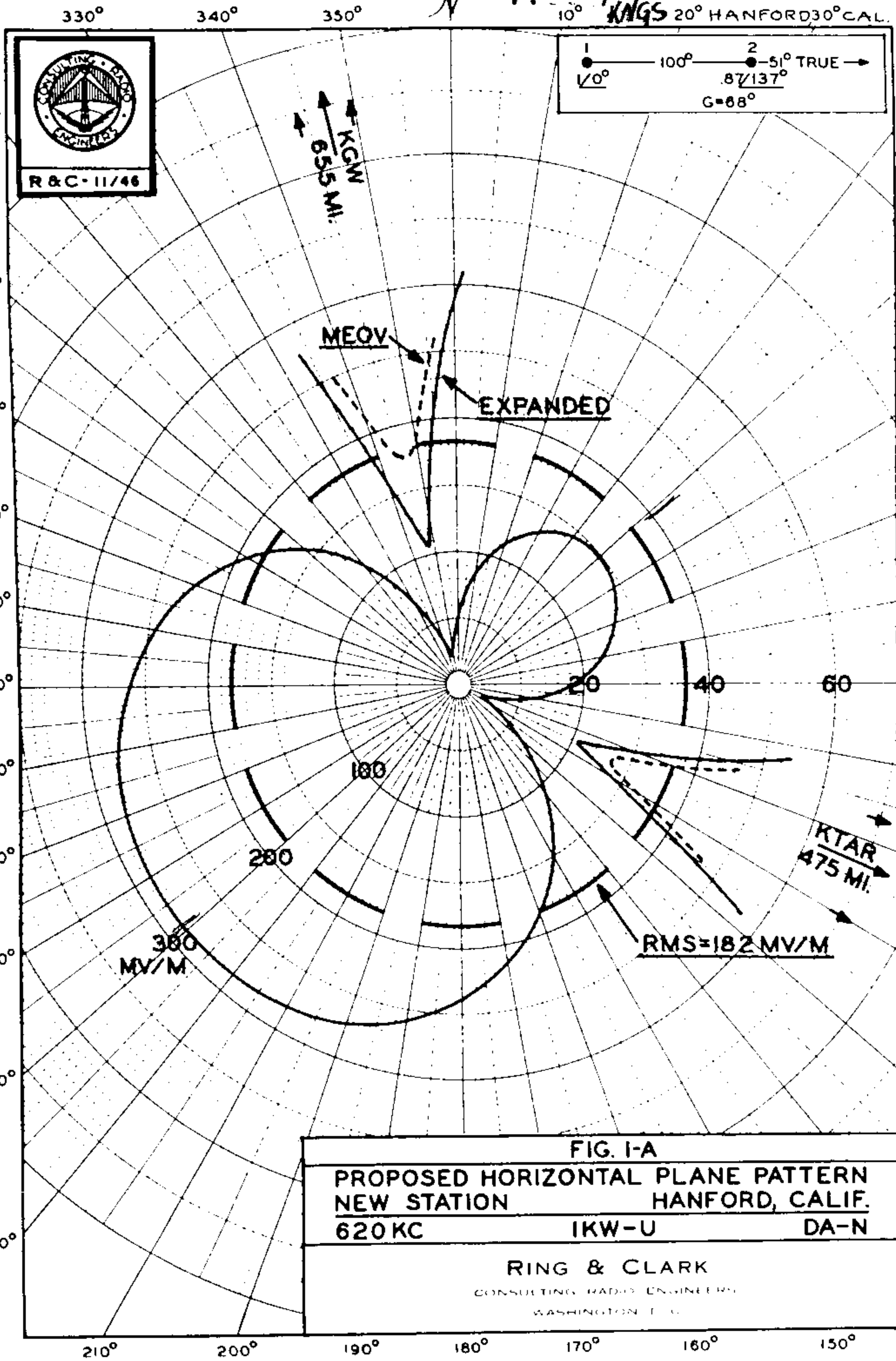


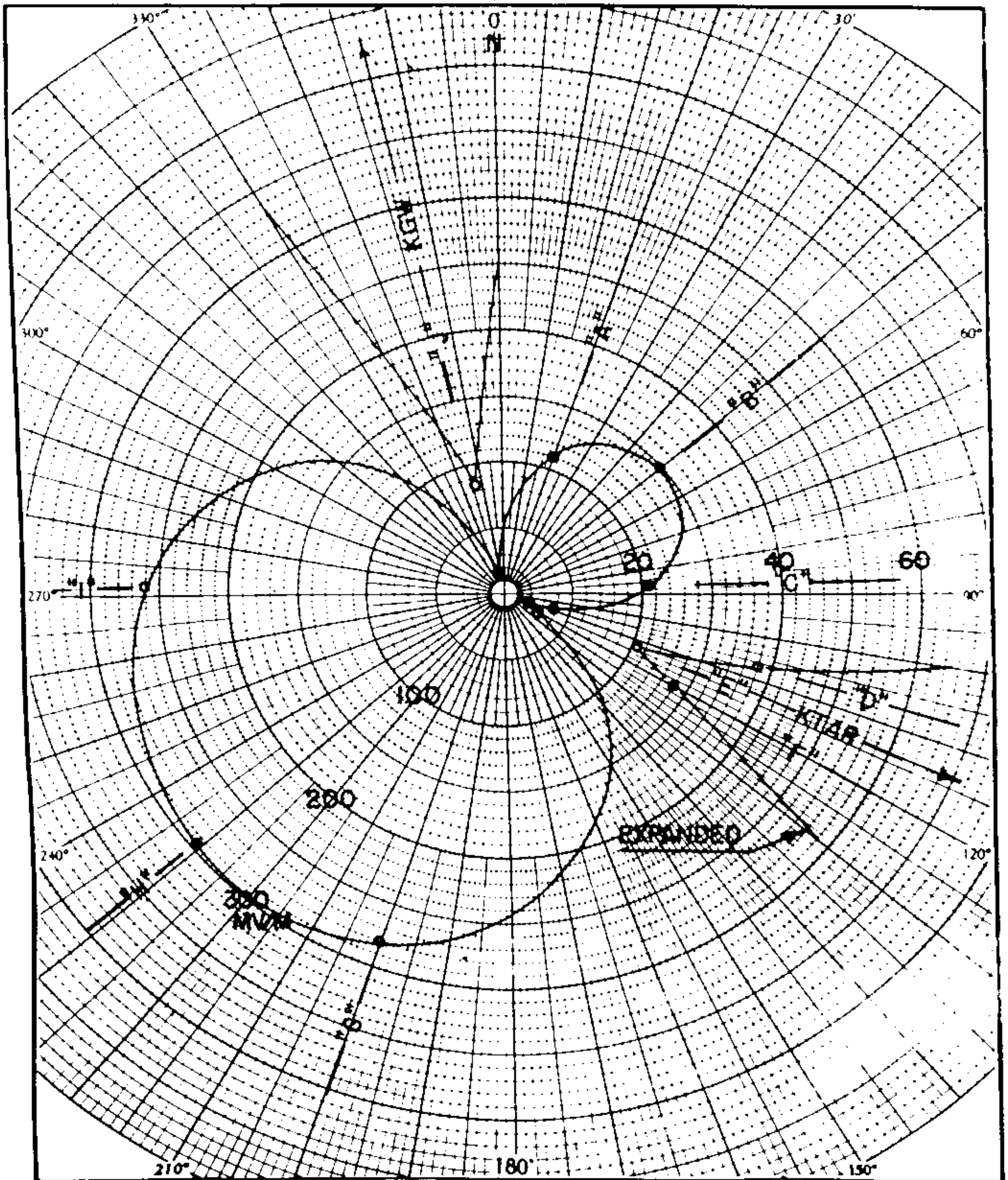
FIG. 1-A

PROPOSED HORIZONTAL PLANE PATTERN
NEW STATION HANFORD, CALIF.
620 KC 1KW-U DA-N

RING & CLARK
CONSULTING RADIO ENGINEERS
WASHINGTON D.C.

KNGS
620

9/8/45 G



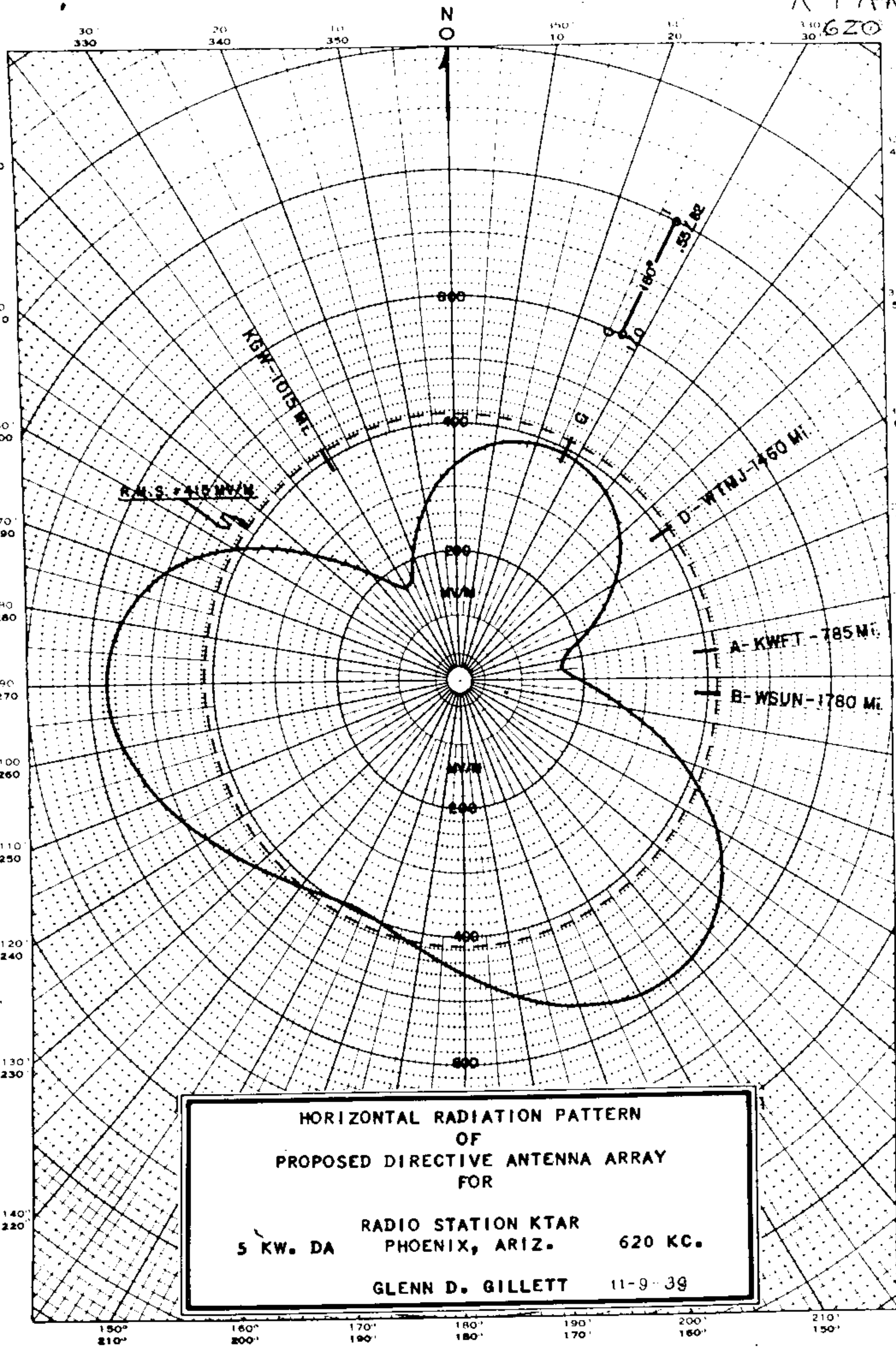
measured

FIGURE NO. 9

Horizontal Radiation Pattern
Antenna operation: DA Night

Radio Station KNGS Hanford ,California
1,000 Watts 620 KC
Determined RMS field at one mile 186 MV/M

KTAR
620

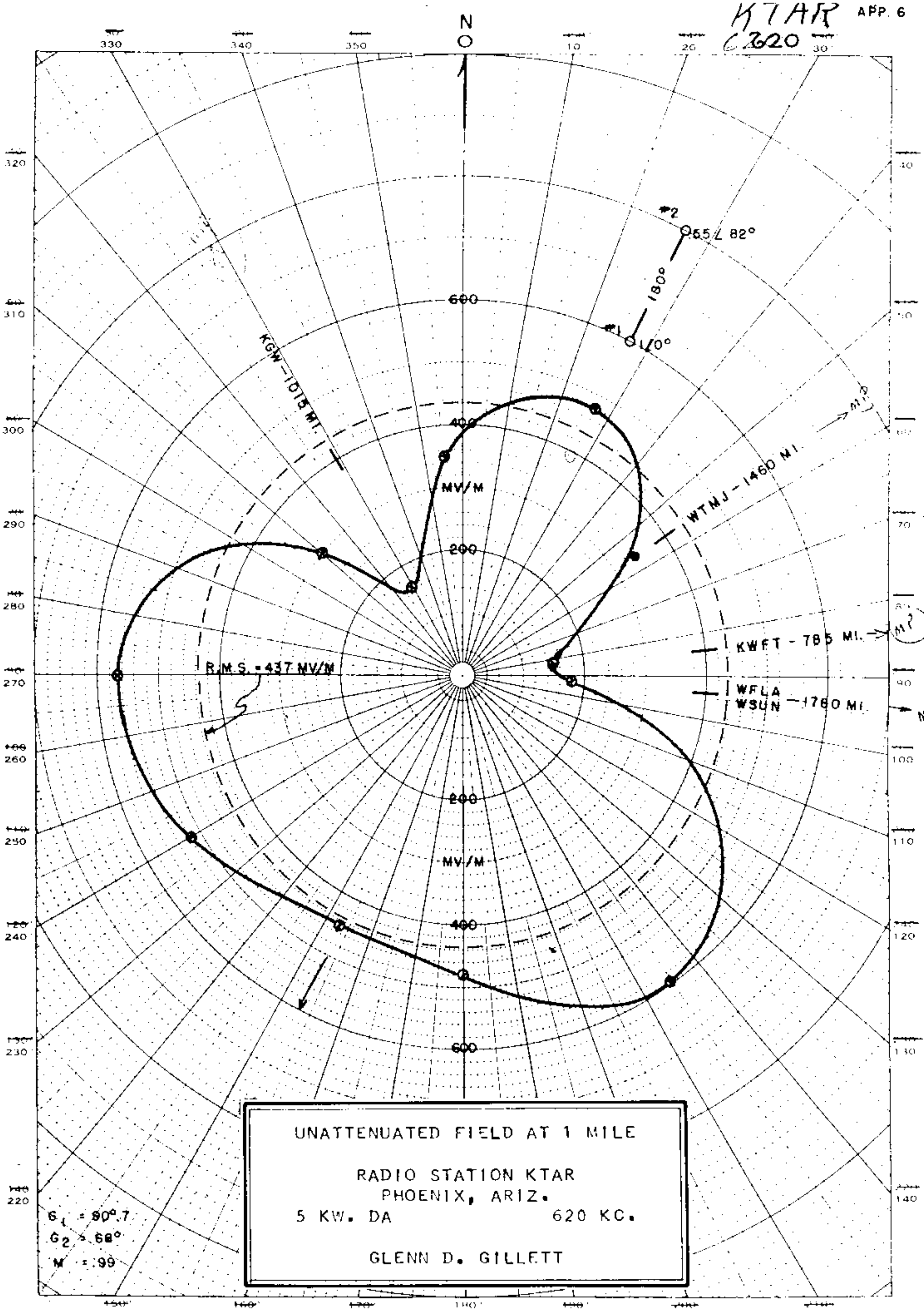


HORIZONTAL RADIATION PATTERN
OF
PROPOSED DIRECTIVE ANTENNA ARRAY
FOR

RADIO STATION KTAR
5 KW. DA PHOENIX, ARIZ. 620 KC.

GLENN D. GILLETT 11-9-39

KTAR APP. 6
620



UNATTENUATED FIELD AT 1 MILE

RADIO STATION KTAR
PHOENIX, ARIZ.
5 KW. DA 620 KC.

GLENN D. GILLETT

401229-6

SEE REVERSE SIDE

Proposed Night
(6-29-70ct)

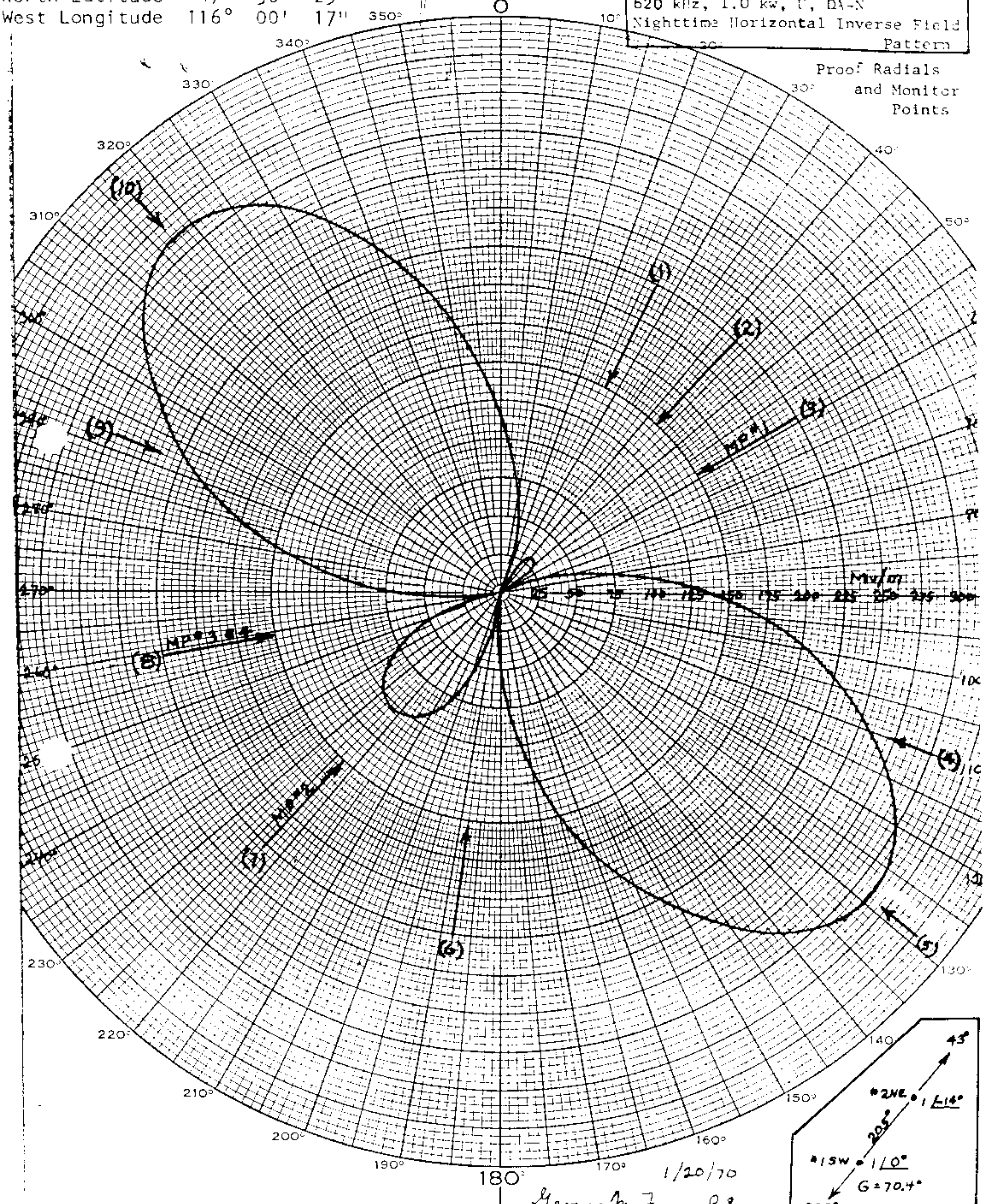
Station KWAL
Wallace, Idaho

1kw,DA-N,U
620 kc

North Latitude 47° 30' 29"
West Longitude 116° 00' 17"

Exhibit No. 5 Wallace - KWAL
620 kHz, 1.0 kw, U, DA-N
Nighttime Horizontal Inverse Field Pattern

Proof Radials and Monitor Points



1/20/70
George M. Frese P.E.

FCC File No.BP-18781
Accepted 6-1-70

Station KWAL
Wallace, Idaho

620 kc

KWAL-

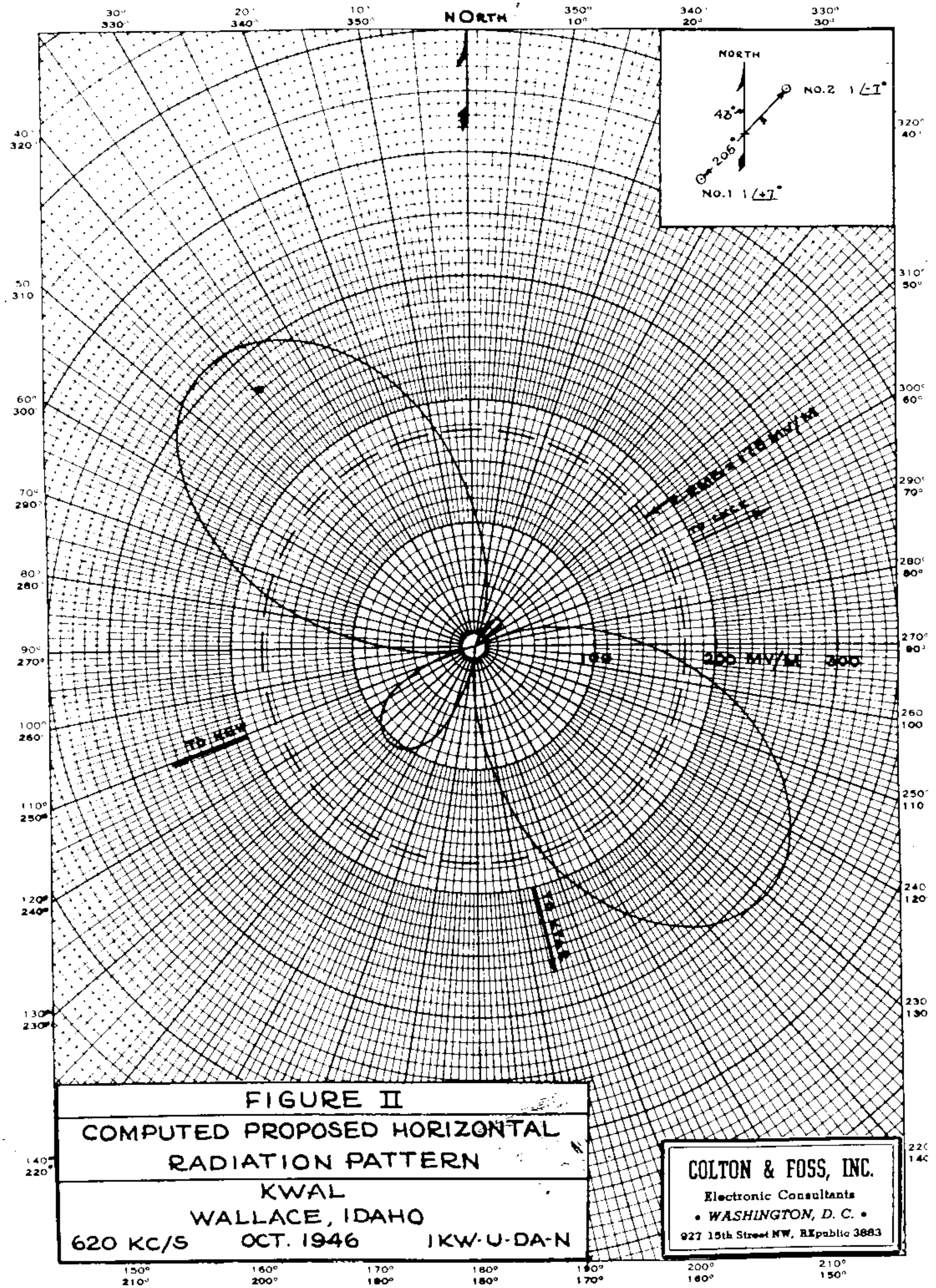


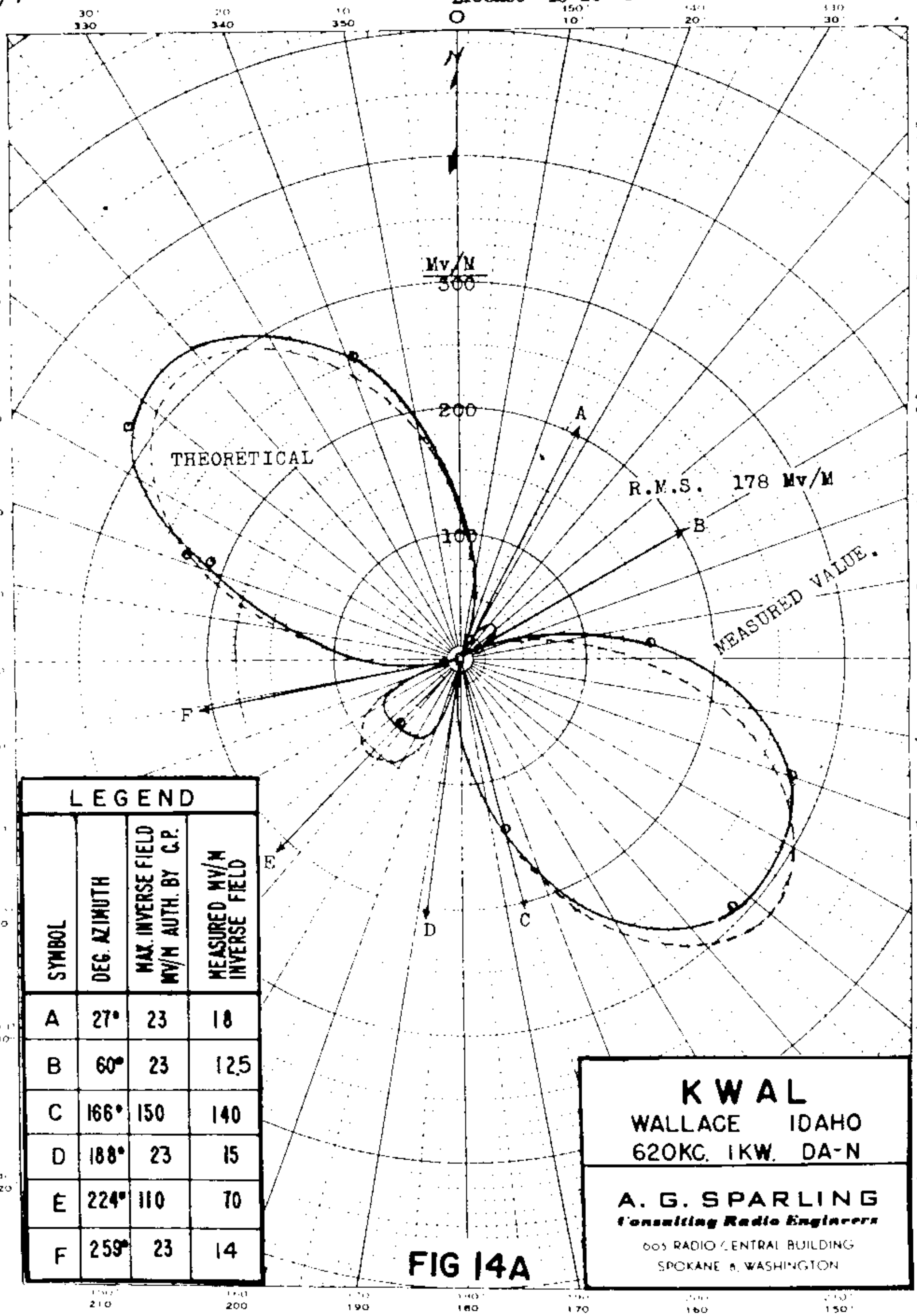
FIGURE II
COMPUTED PROPOSED HORIZONTAL RADIATION PATTERN
KWAL
WALLACE, IDAHO
620 KC/S OCT. 1946 1KW-U-DA-N

COLTON & FOSS, INC.
Electronic Consultants
• WASHINGTON, D. C. •
927 15th Street NW, REpublic 3883

KWAL
620

10/20/48G

License 10-18-48



LEGEND			
SYMBOL	DEG. AZIMUTH	MAX. INVERSE FIELD MV/M AUTH. BY C.P.	MEASURED MV/M INVERSE FIELD
A	27°	23	18
B	60°	23	12.5
C	166°	150	140
D	188°	23	15
E	224°	110	70
F	259°	23	14

KWAL
WALLACE IDAHO
620KC. 1KW. DA-N

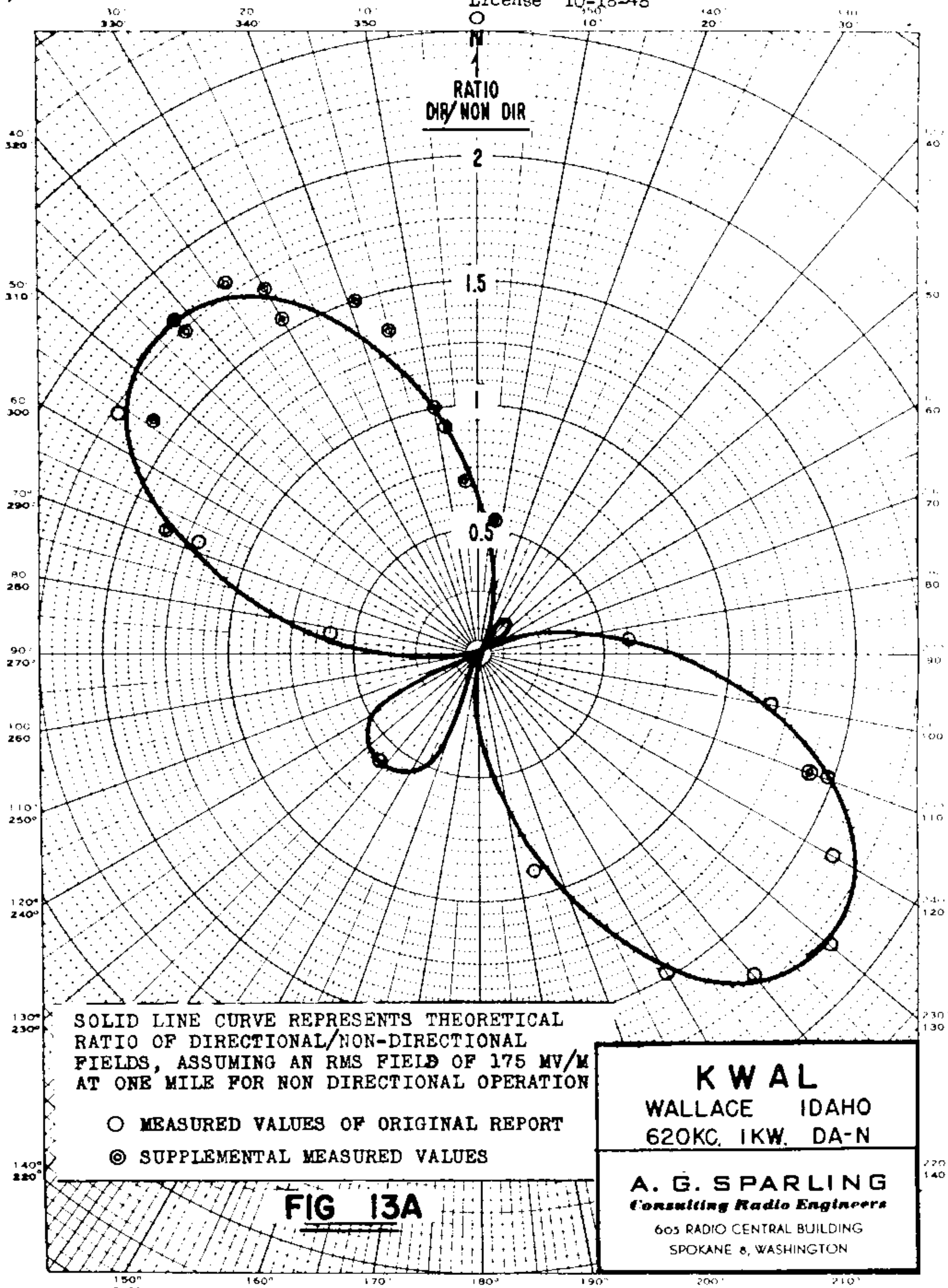
A. G. SPARLING
Consulting Radio Engineers
605 RADIO CENTRAL BUILDING
SPOKANE 8, WASHINGTON

FIG 14A

KWAL
620

10/20/48 G

License 10-18-48



SOLID LINE CURVE REPRESENTS THEORETICAL RATIO OF DIRECTIONAL/NON-DIRECTIONAL FIELDS, ASSUMING AN RMS FIELD OF 175 MV/M AT ONE MILE FOR NON DIRECTIONAL OPERATION

○ MEASURED VALUES OF ORIGINAL REPORT

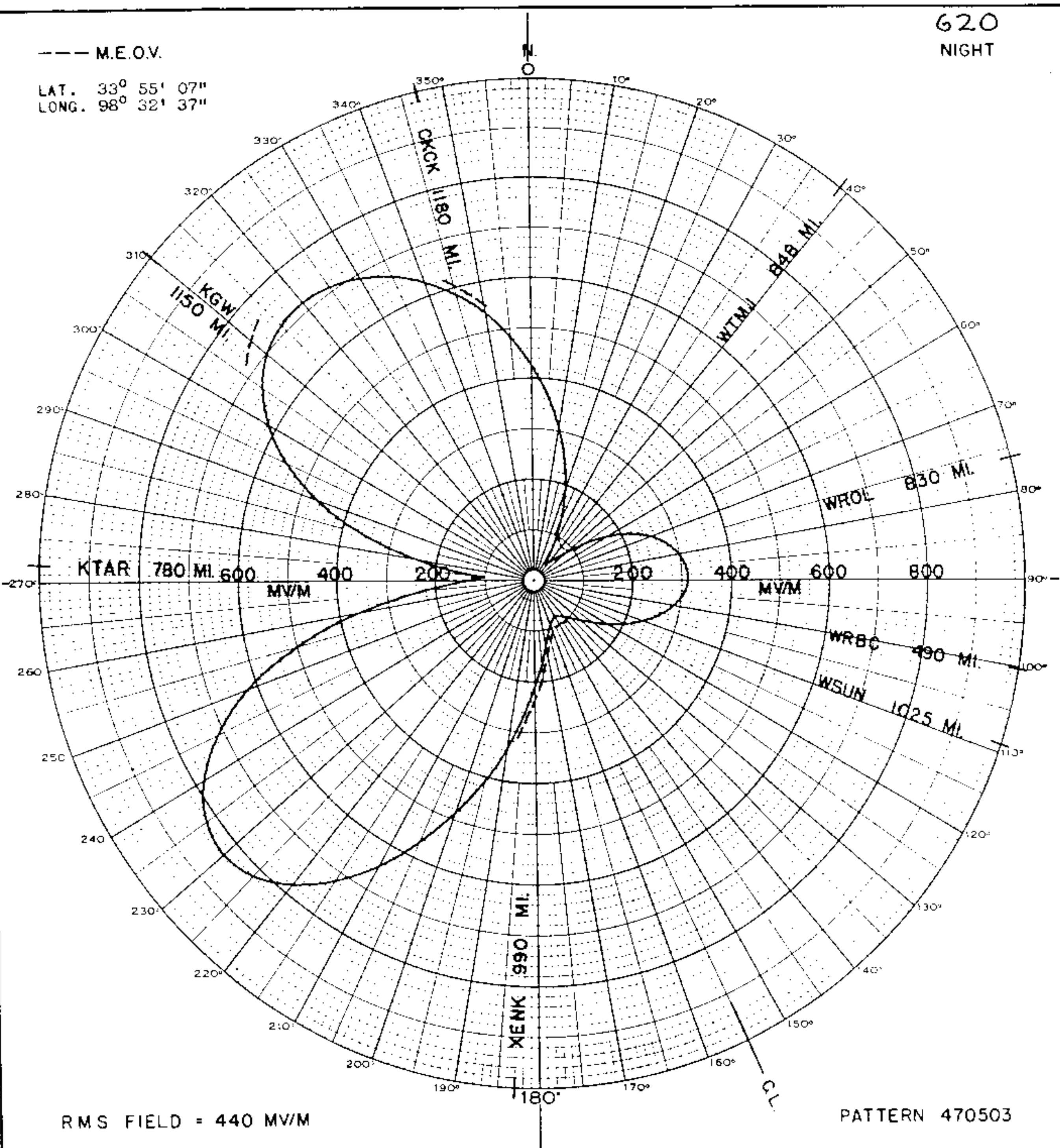
◎ SUPPLEMENTAL MEASURED VALUES

FIG 13A

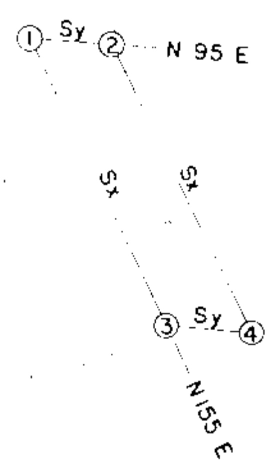
KWAL
WALLACE IDAHO
620KC. 1KW. DA-N

A. G. SPARLING
Consulting Radio Engineers
605 RADIO CENTRAL BUILDING
SPOKANE 8, WASHINGTON

KWFT



Proposed night



TOWER	FIELD	PHASE
1	0.52	-59.5°
2	0.80	+78.0°
3	0.65	-137.5°
4	1.00	0.0°

$S_x = 225°$

$S_y = 60°$

$G'_s = 83.5°$

A. EARL CULLUM, JR.

CONSULTING RADIO ENGINEERS

DALLAS TEXAS

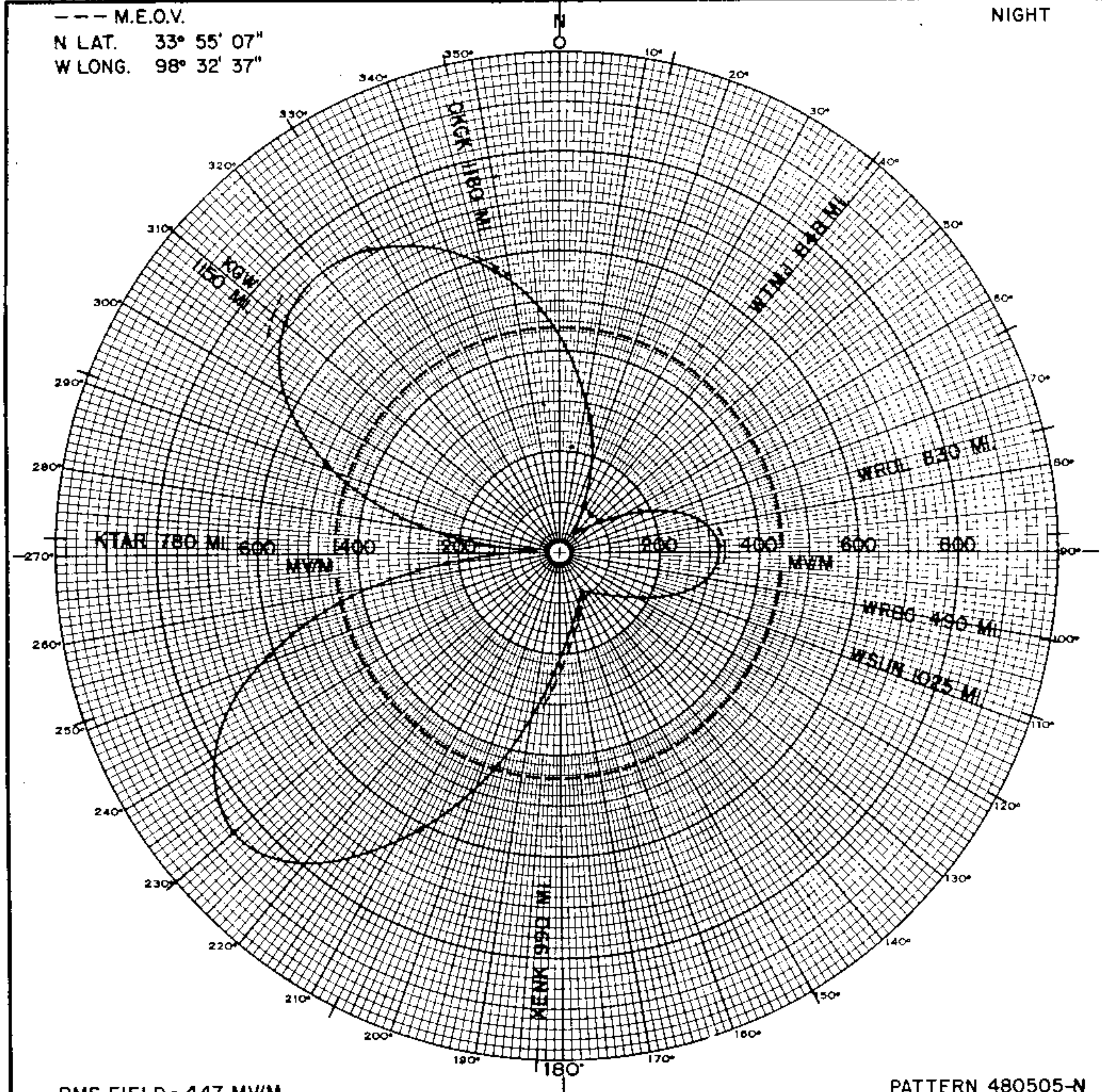
RADIO STATION KWFT

PROPOSED 620 KC 5 KW DA-N

FIGURE 5A

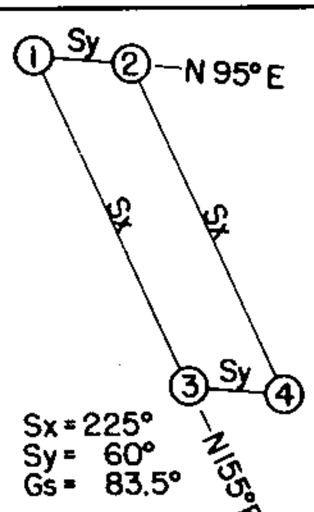
KWFT
620

JUN 3 1948 G License 6-1-48



RMS FIELD = 447 MV/M

PATTERN 480505-N



Sx = 225°
Sy = 60°
Gs = 83.5°

PATTERN BASED ON
FIELD INTENSITY
MEASUREMENTS

License 6-1-48

A. EARL CULLUM, JR.
CONSULTING RADIO ENGINEERS
DALLAS TEXAS

RADIO STATION KWFT
620 KC 5 KW DA-N
480505 FIGURE 1B

measured night

WDNC

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station	: WDNC	Main Studio:	Durham, North Carolina
Frequency	: 620 KHz	Power	: 1 kW Night 5 kW Day
Notification	: 1730	Date	: Sept. 28, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude:	36	02	10
West Longitude:	78	58	07

ANTENNA CHARACTERISTICS

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

TOWER :	SE (#2)	C (#1)	NW (#3)			
HEIGHT ABOVE INSULATORS :	314'(71.2°)	295'	295'(67°)			
NIGHT PHASING :	-130°	0°	+124			
NIGHT FIELD RATIO:	1.00	1.06	1.560			
DAY PHASING :	-64.5	0	+101.5°			
DAY FIELD RATIO :	1.225	1.0	0.866			

SPACING AND ORIENTATION : Adjacent towers in a row are spaced 596' (135.2°) on a line bearing 114.5° true.

GROUND SYSTEM : 120 - 400 equally spaced copper radials plus a 32' square ground screen about each tower. Radials are shortened and bonded to transverse along intersections between towers.

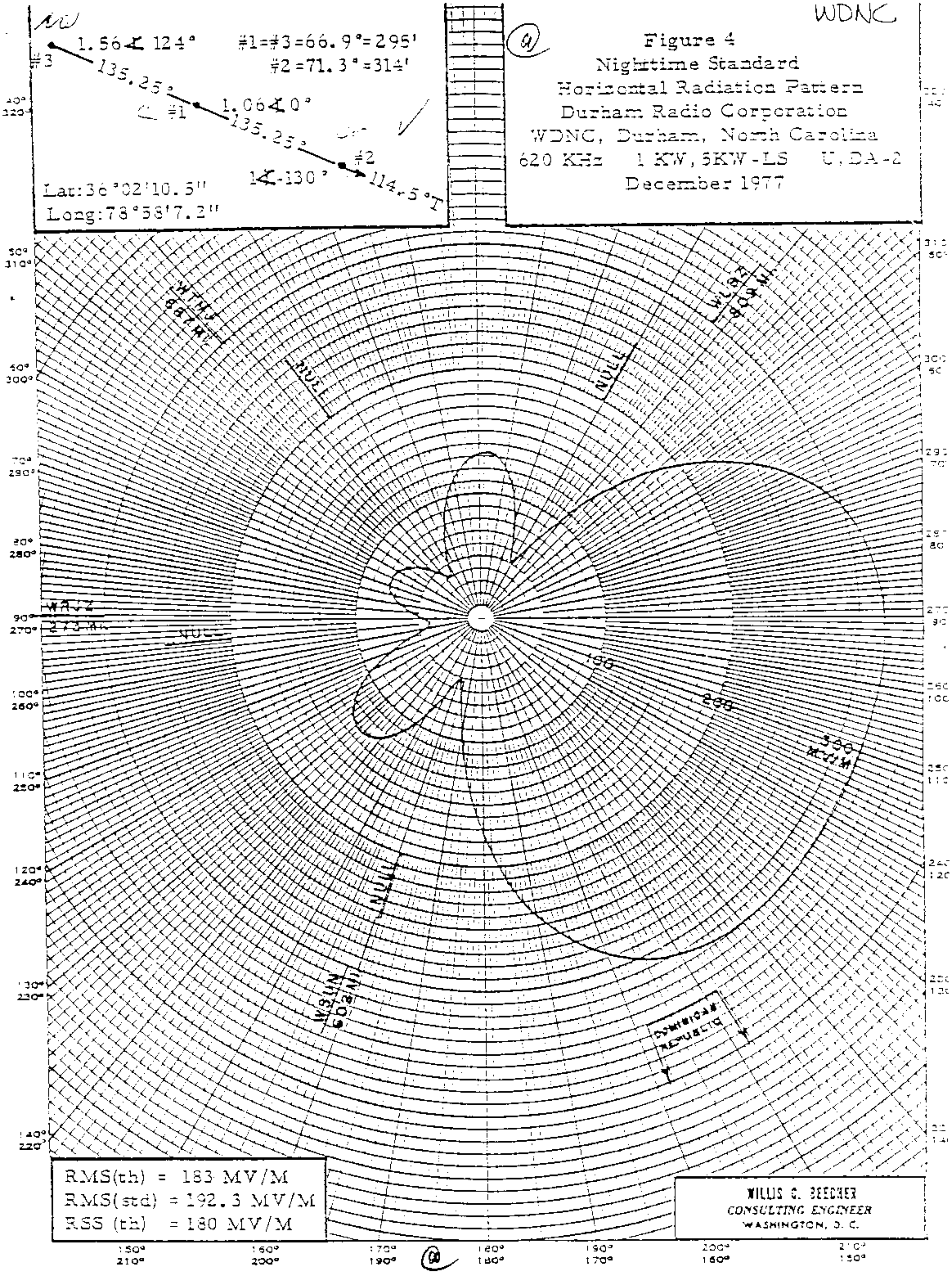
PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	425 mV/m		
Night	183 mV/m	180 mV/m	192.3 mV/m

Note: Please retain the Daytime directional antenna radiation pattern notified for Station WDNC in United States Change List Number 204 dated December 13, 1946 and attach to this Revised Description Sheet Nighttime patterns. This notification concerns only a change in the Nighttime operation of the station with Daytime operation continued as previously notified.

WDNC

Figure 4
Nighttime Standard
Horizontal Radiation Pattern
Durham Radio Corporation
WDNC, Durham, North Carolina
620 KHz 1 KW, 5KW-LS U, DA-2
December 1977



RMS(th) = 183 MV/M
RMS(std) = 192.3 MV/M
RSS (th) = 180 MV/M

WILLIS C. BEECHER
CONSULTING ENGINEER
WASHINGTON, D. C.

WDNC

MEASURED DAY
(9-20-61ct)

Station WDNC
Durham, North Carolina

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

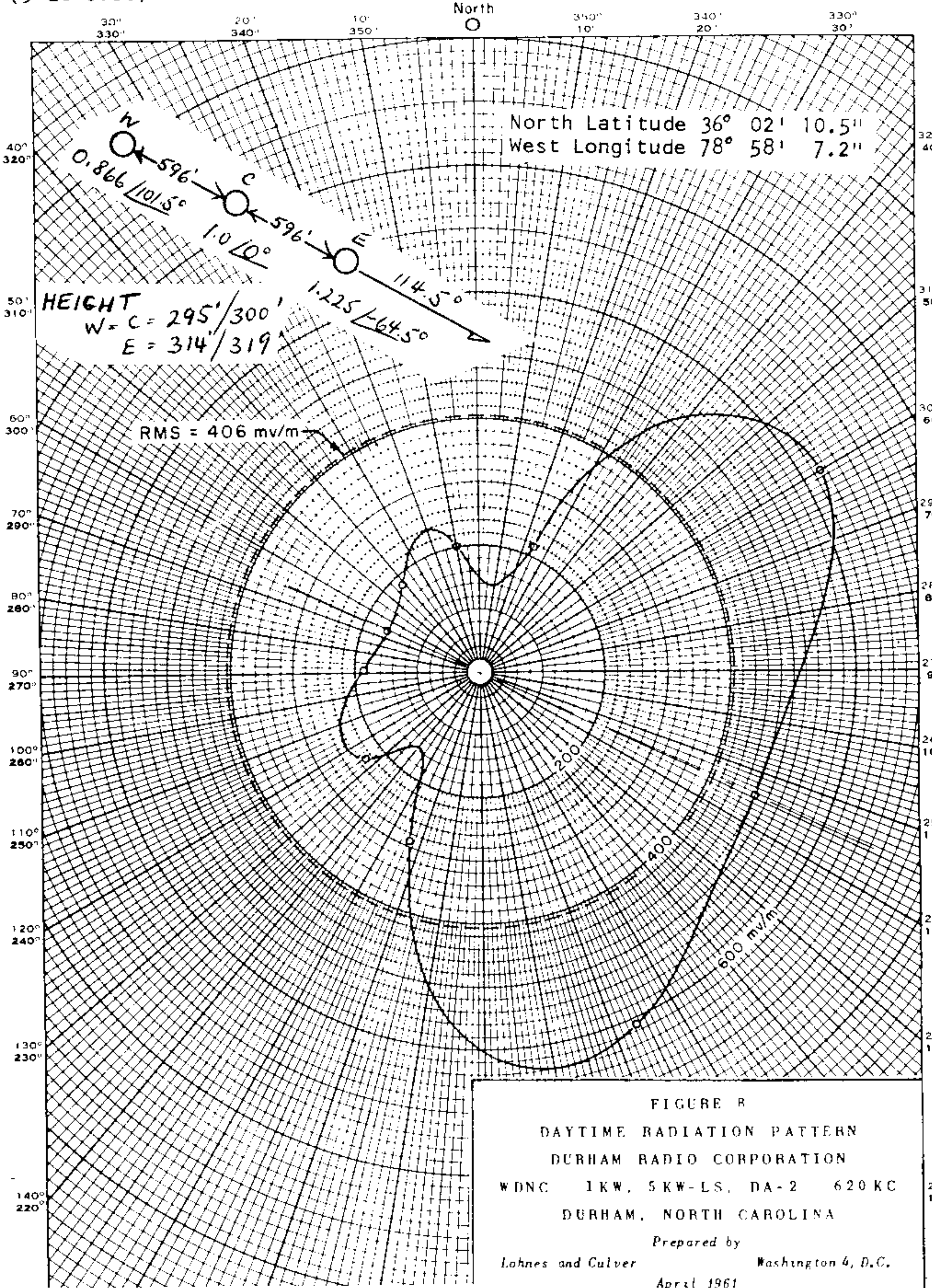


FIGURE 8
DAYTIME RADIATION PATTERN
DURHAM RADIO CORPORATION
WDNC 1KW, 5KW-LS, DA-2 620 KC
DURHAM, NORTH CAROLINA

Prepared by
Lohnes and Culver *Washington 4, D.C.*
April 1961

FCC File No. BZ-4499
Accepted 8-25-61

Station WDNC
Durham, North Carolina

620 kc

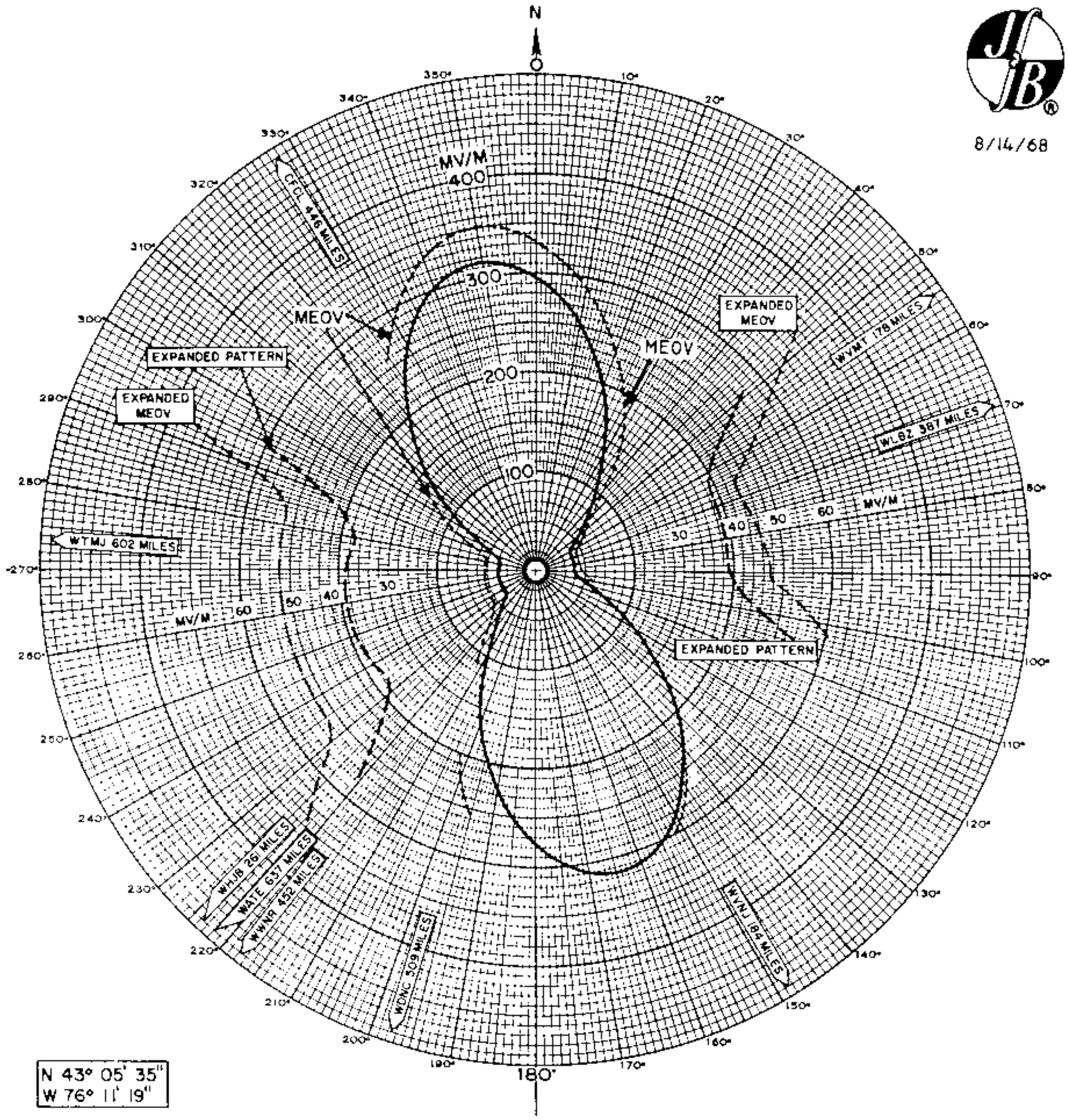
WHEN

Proposed Night
(10-28-68ct)

Station WHEN
Syracuse, New York

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

10/18/68
GRANTED Mod of CP
FOR NEW MEOV



N 43° 05' 35"
W 76° 11' 19"

PATTERN RMS=175MV/M

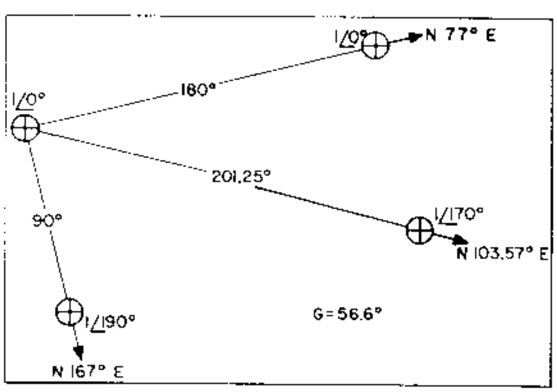


FIG. 1
PROPOSED NIGHTTIME HORIZONTAL RADIATION PATTERN

WHEN 620 kHz 1KW/5KW-LS DA-N

MEREDITH SYRACUSE RADIO CORP.
SYRACUSE, NEW YORK

FCC File No.BMP-12515
Accepted 10-14-68

Station WHEN
Syracuse, New York

620 kc

WHEN

DIRECTIONAL ANTENNA DESCRIPTION SHEET
(RE-ISSUE)

Station: WHEN — Main Studio: Syracuse, New York

Frequency: 620 kcs. — Power: 1 kw Night - 5 kw Day*

Original Notification; "Washington Eng. Conference Assignment" January, 1941

Superseded by Notification; List No. 204 — Date: December 13, 1946
*Reinstated; List No. 274 — Date: May 6, 1948 — Class III-B

GEOGRAPHICAL LOCATION OF ANTENNA: North Latitude: 43° 05' 35"
West Longitude: 76° 11 - 19"

ANTENNA CHARACTERISTICS: Authorized for Nighttime operation. (DA-N)
Number of elements: Four (4)
Type of elements: Series-fed, uniform cross-section, guyed vertical steel towers.

TOWER:	(A) North East	(B) South East	(C) North West	(D) South West	
HEIGHT ABOVE INSULATORS:	250'	250'	250'	250'	(56.7°)
SPACING:	See "Orientation" below				
PHASING:	0°	-180°	0°	-180°	
FIELD RATIO:	1.0	1.0	1.0	1.0	

GROUND SYSTEM: 120 - 396' equally spaced radials about each tower base. Radials shortened and bonded by transverse bonding straps along intersections between towers. Centers of systems bonded together.

ORIENTATION: The towers are mounted on the four vertices of a rectangle, the long sides of which are 792' (180°) long and are on a line bearing 77° true. The short sides are 396' (90°) long and are on a line bearing 167° true.

Predicted effective Field: 396 mv/m (at rated power)

*NOTE: The original WSYR 1941 Washington Conference Assignment was reinstated in the Change List No. 274 notification; however, the Commission also authorized an increase in the daytime power to 5 kw which has been included in the subject notification.

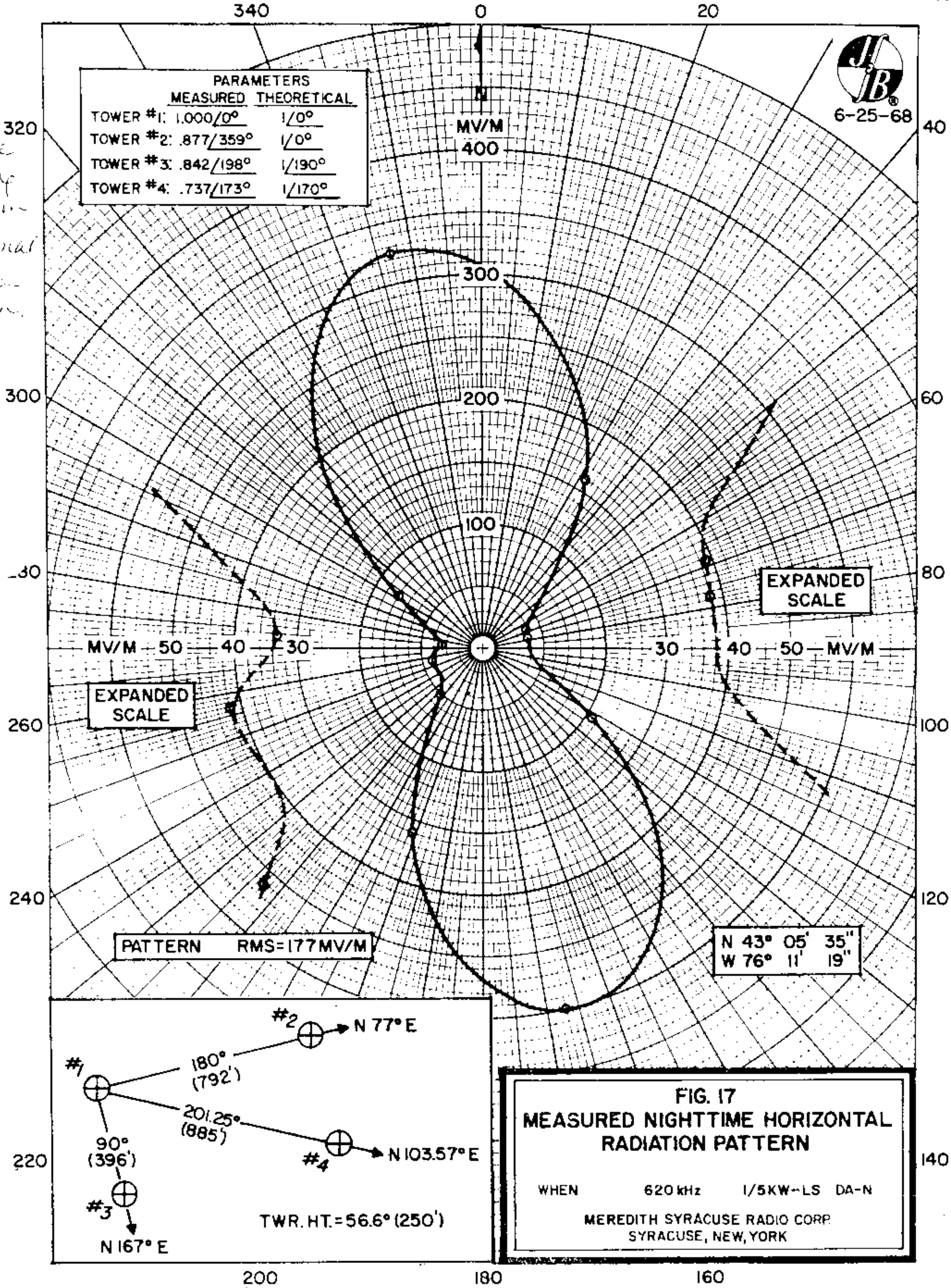
WHEN

Measured Night
(3-28-69ct)

Station WHEN
Syracuse, New York

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

noted
4/21/69
license
covering
change in
directional
antenna
pattern



FCC File No.BL-12163
Accepted 3-20-69

Station WHEN
Syracuse, New York

620 kc

WHEN

Measured Non-DA
(3-28-69ct)

Station WHEN
Syracuse, New York

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

Granted 1/31/69 license covering change in directional antenna pattern.

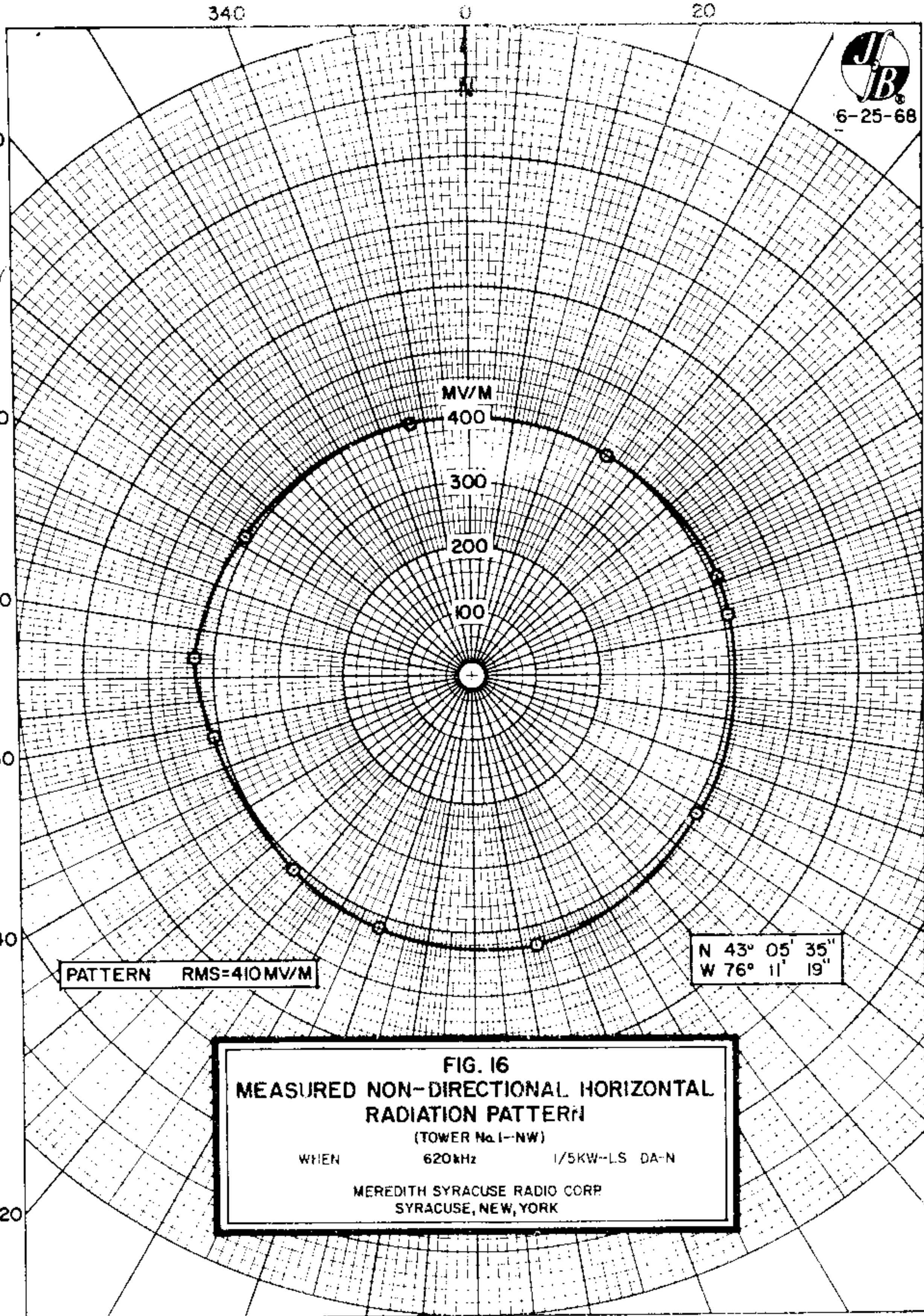


FIG. 16
MEASURED NON-DIRECTIONAL HORIZONTAL RADIATION PATTERN
(TOWER No. 1--NW)
WHEN 620kHz 1/5KW--LS DA-N
MEREDITH SYRACUSE RADIO CORP
SYRACUSE, NEW, YORK

FCC File No.BL-12163
Accepted 3-20-69

Station WHEN
Syracuse, New York

620 kc

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WHJB | Main Studio: Greensburg, Pennsylvania

Frequency: 620 kHz | Power: 0.5 kW Night 2.5 kW Day

Notification List No. 1709 | Date: November 16, 1976 | Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 40 ° 18 ' 14 "
West Longitude: 79 ° 35 ' 50 "

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, top loaded by upper sections of guy wires to an effective electrical height of 68°. (*)

TOWER:	NW(#2)	NE(#3)	SE(#4)	SW(#1)	
HEIGHT ABOVE INSULATORS:	250'	250'	250'	250'	(*)
NIGHT PHASING:	+160°	+45°	-120°	0°	
NIGHT FIELD RATIO:	1.0	1.0	1.0	1.0	
DAY PHASING:	+97°	+340°	-	0°	
DAY FIELD RATIO:	0.25	0.642	-	1	

SPACING AND ORIENTATION: The towers are located at the vertices of a square the sides of which are 397' (90°) in length on lines bearing 69° true and 339° true.

GROUND SYSTEM: 120-400' equally spaced copper radials plus a 32' square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

(Cont'd)

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS		THEORETICAL RSS		STANDARD RMS	
Day	279.4	mv/m	277.4	mv/m	293.5	mv/m
Night	127	mv/m	-	mv/m	-	mv/m

Note: Please retain the Nighttime directional antenna radiation pattern notified for Station WHJB in United States Change List Number 225 dated May 2, 1947 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. Antenna height shown on the attached pattern as 56 degrees is in error.

CTR NO: 31283A3

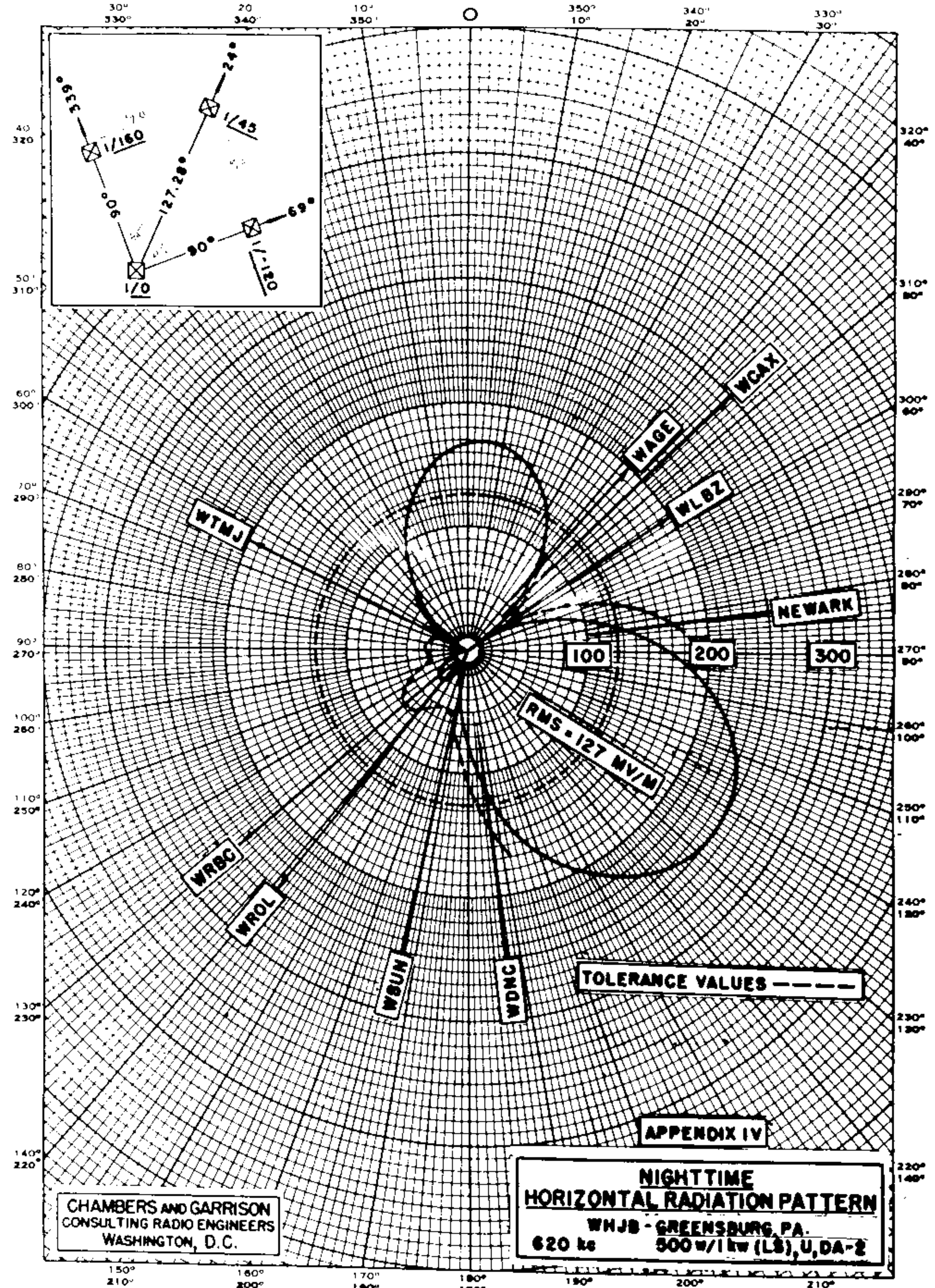
WHJB

PROPOSED
NIGHT

WHJB, GREENSBURG, PA.

500w,1kw-LS,DA2

620kc



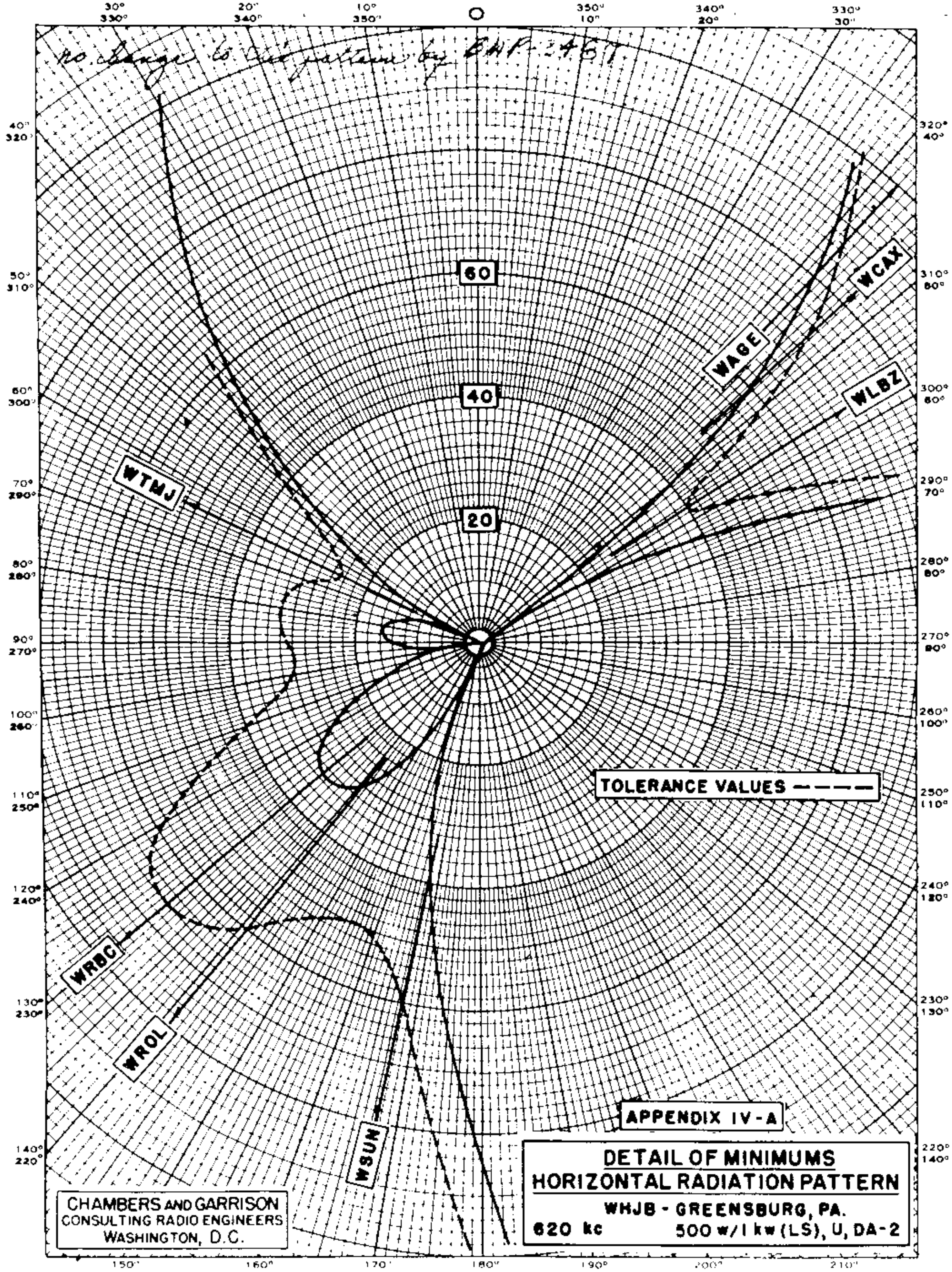
No change to this pattern by BMP-3487

WHJB

PROPOSED
NIGHT
NULLS

WHJB, GREENSBURG, PA.

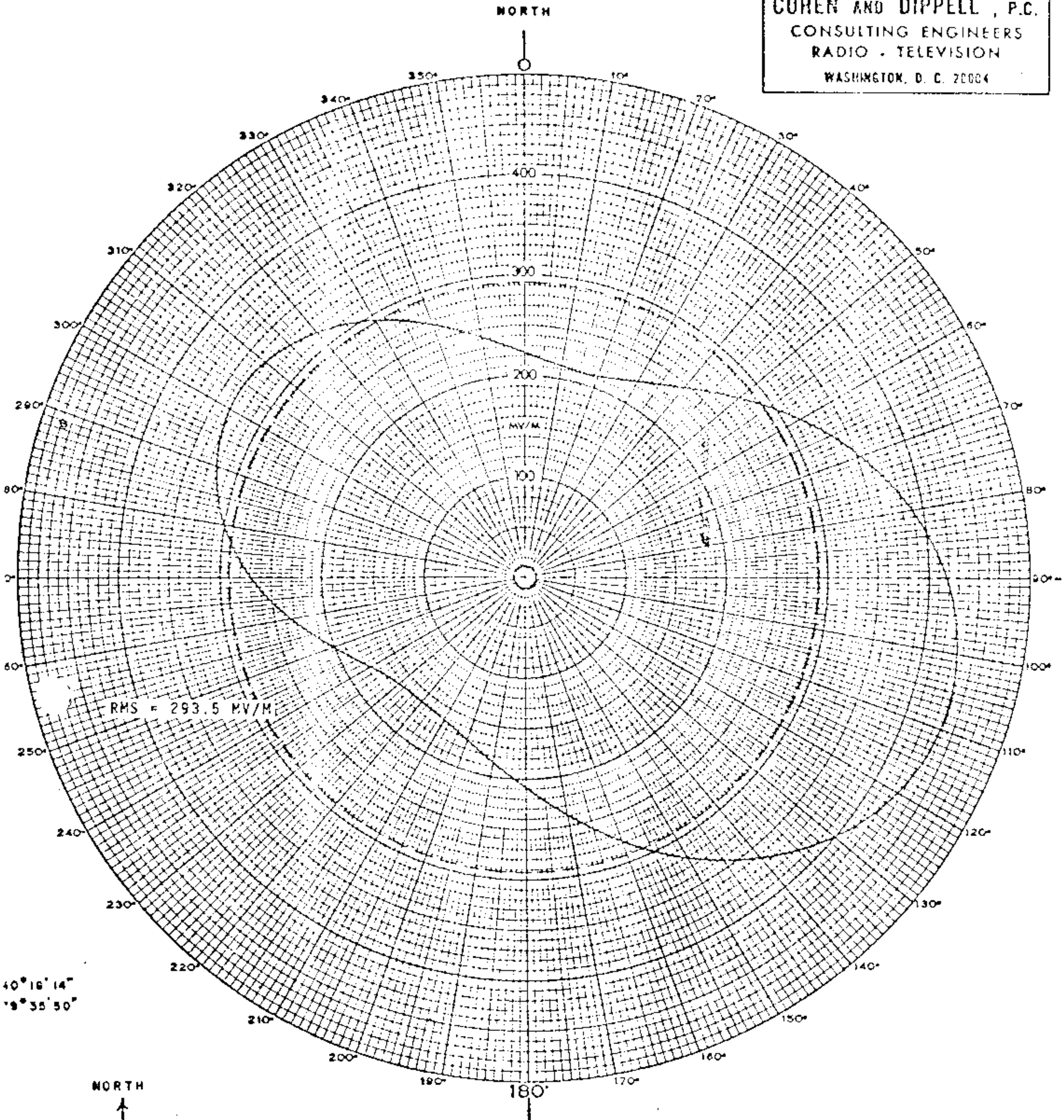
500w,1kw-LS,DA2 620kc



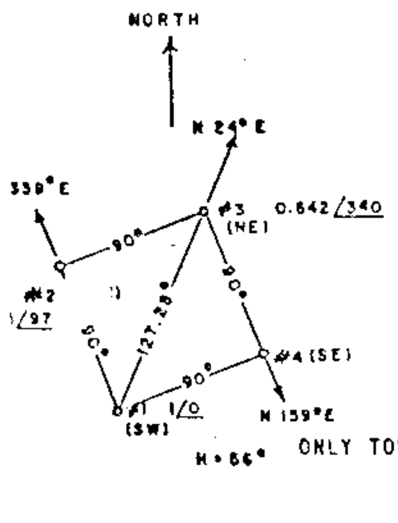
No change to this pattern by BMP-3487

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

STD



40° 16' 14"
79° 35' 50"



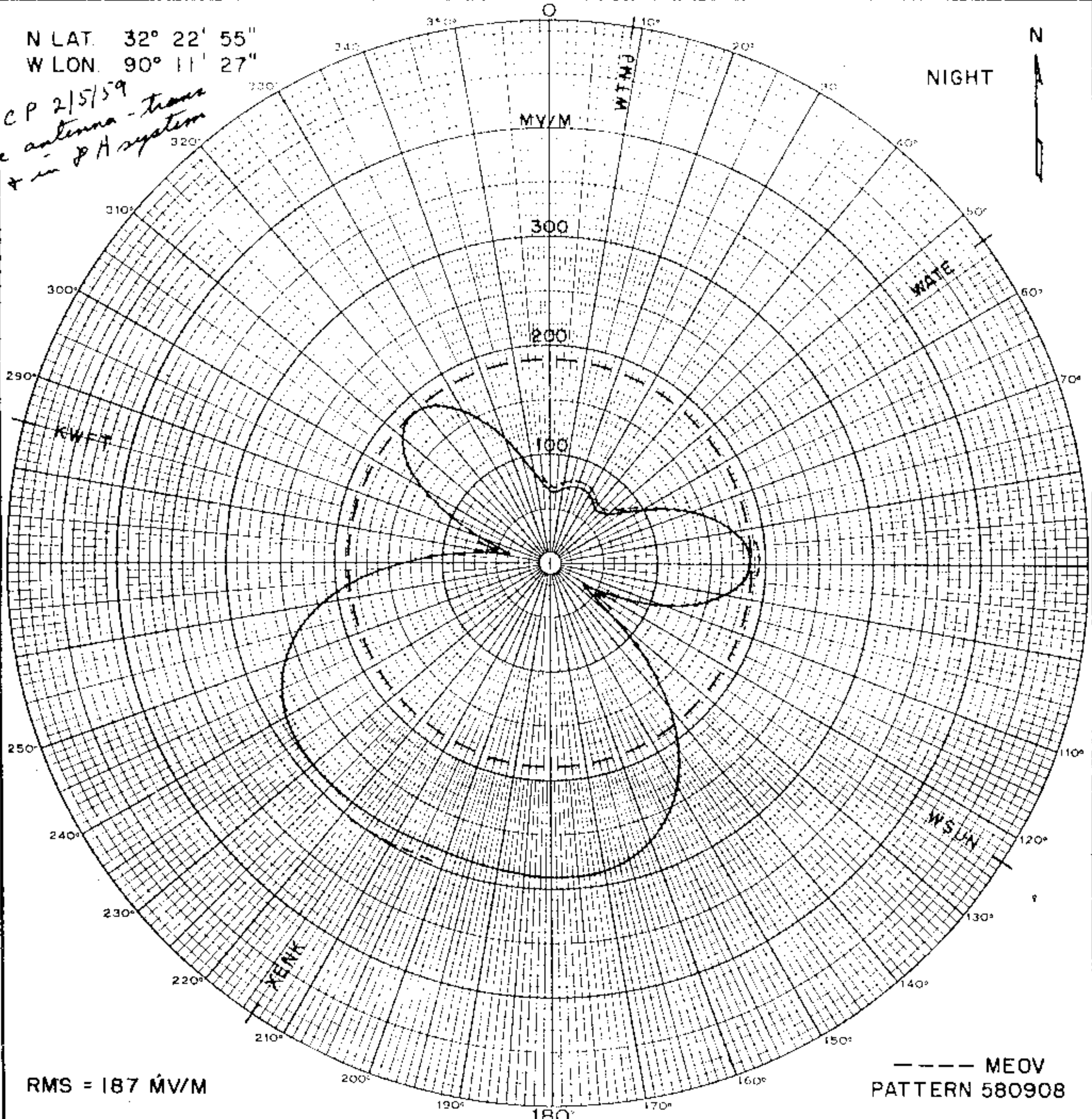
RSS_{th} = 277.4 MV/M
RMS_{th} = 279.4 MV/M
RSS_{th}/RMS_{th} = 0.99

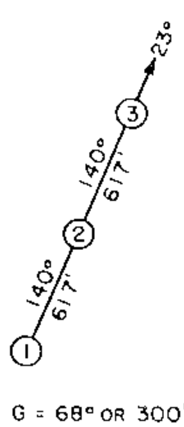
STANDARD RADIATION PATTERN
HORIZONTAL PLANE
FOR THE PROPOSED DAYTIME OPERATION OF
WHJB, GREENSBURG, PENNSYLVANIA
620 KHz - 0.5/2.5 KW - DA-2 U
NOVEMBER 1975

N 66° ONLY TOWERS #1, #2 & #3 ARE USED FOR DAYTIME

PROPOSED NIGHT (12-12-58g) | Station WJDX Jackson, Mississippi | 1kw, 5kw-LS, DA-N, U 620 KC

Granted CP 2/5/59 to change antenna-trans location + in DA system





TOWER	I	Ψ
1	1.00	0°
2	0.60	-191°
3	0.88	-110°

RADIO STATION WJDX

620 KC 1KW 5KW-LS DA-N

580908.2 FIGURE 6A

PREPARED BY

THE FIRM OF A. EARL CULLUM, JR.

CONSULTING ENGINEERS

FCC File No. BP-12577
Accepted 12-4-58

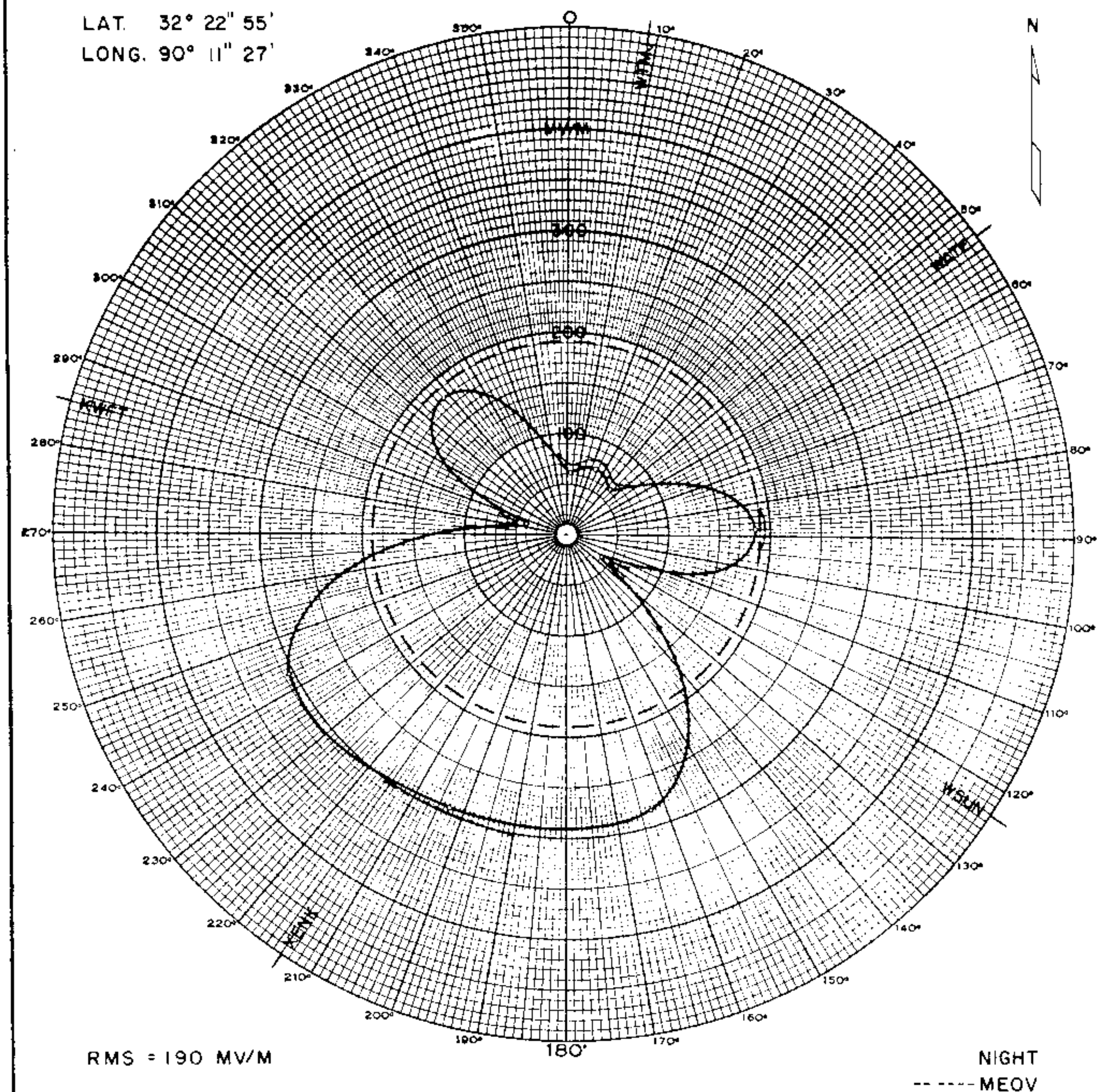
WJDX
Jackson, Mississippi 620 KC

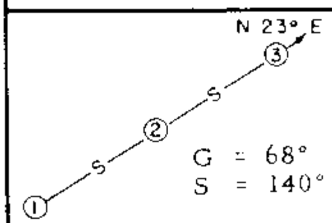
WJDX

MEASURED NIGHT
(7-29-60g)

Station WJDX
Jackson, Missisippi

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





FIELD RATIOS

#1	1.00/0°
#2	0.59/+151°
#3	0.88/-119°

BASED ON MEASUREMENTS

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

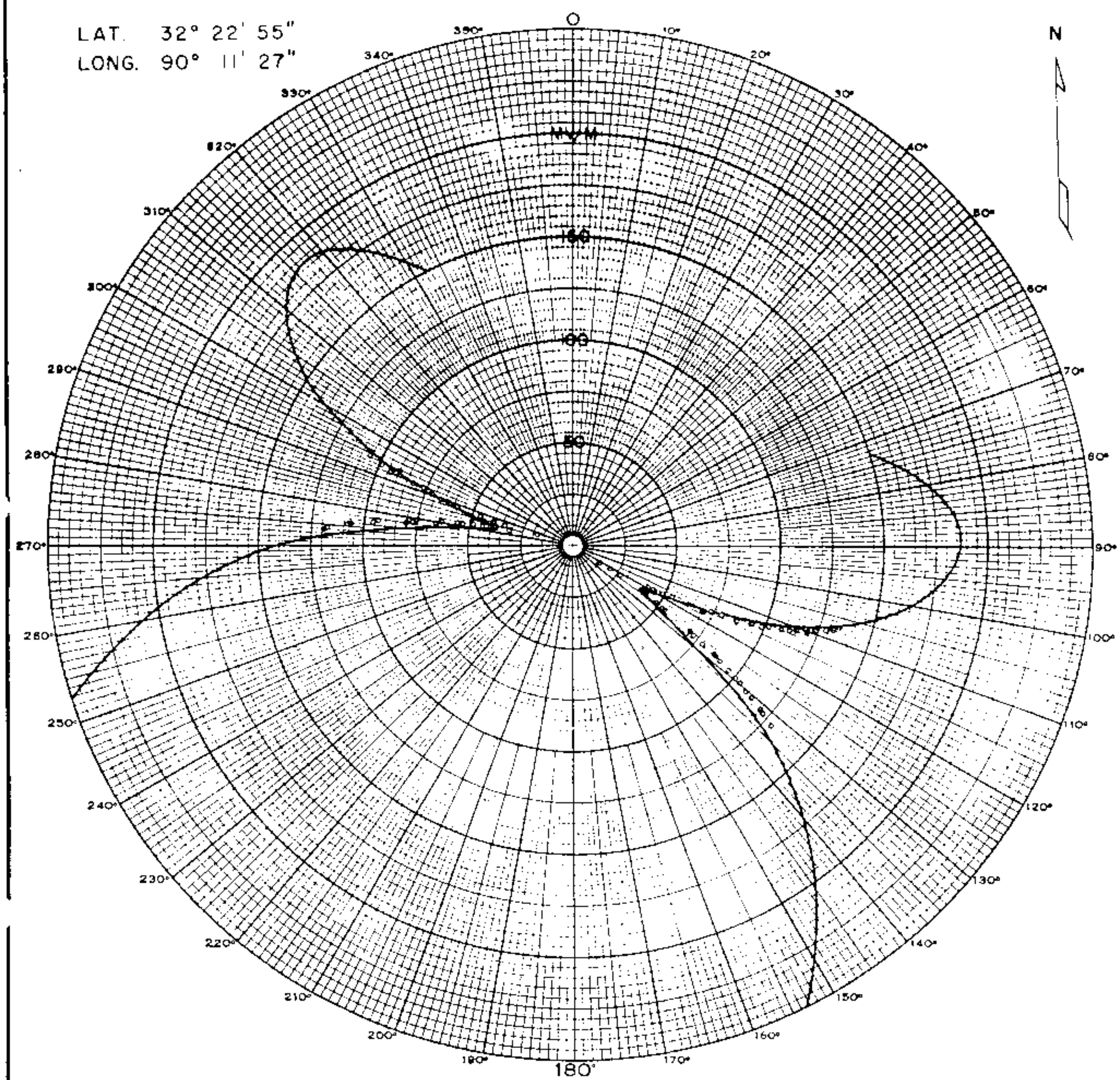
RADIO STATION WJDX
620 KC 1 KW 5 KW-LS DA-N
600505 FIGURE 2 B

FCC File No. BL-8004
Accepted 7-21-60

WJDX
Jackson, Mississippi

620 kc

MEASURED NIGHT NULLS (7-29-60g) | Station WJDX Jackson, Mississippi | 1kw, 5kw-LS, DA-N,U 620 kc

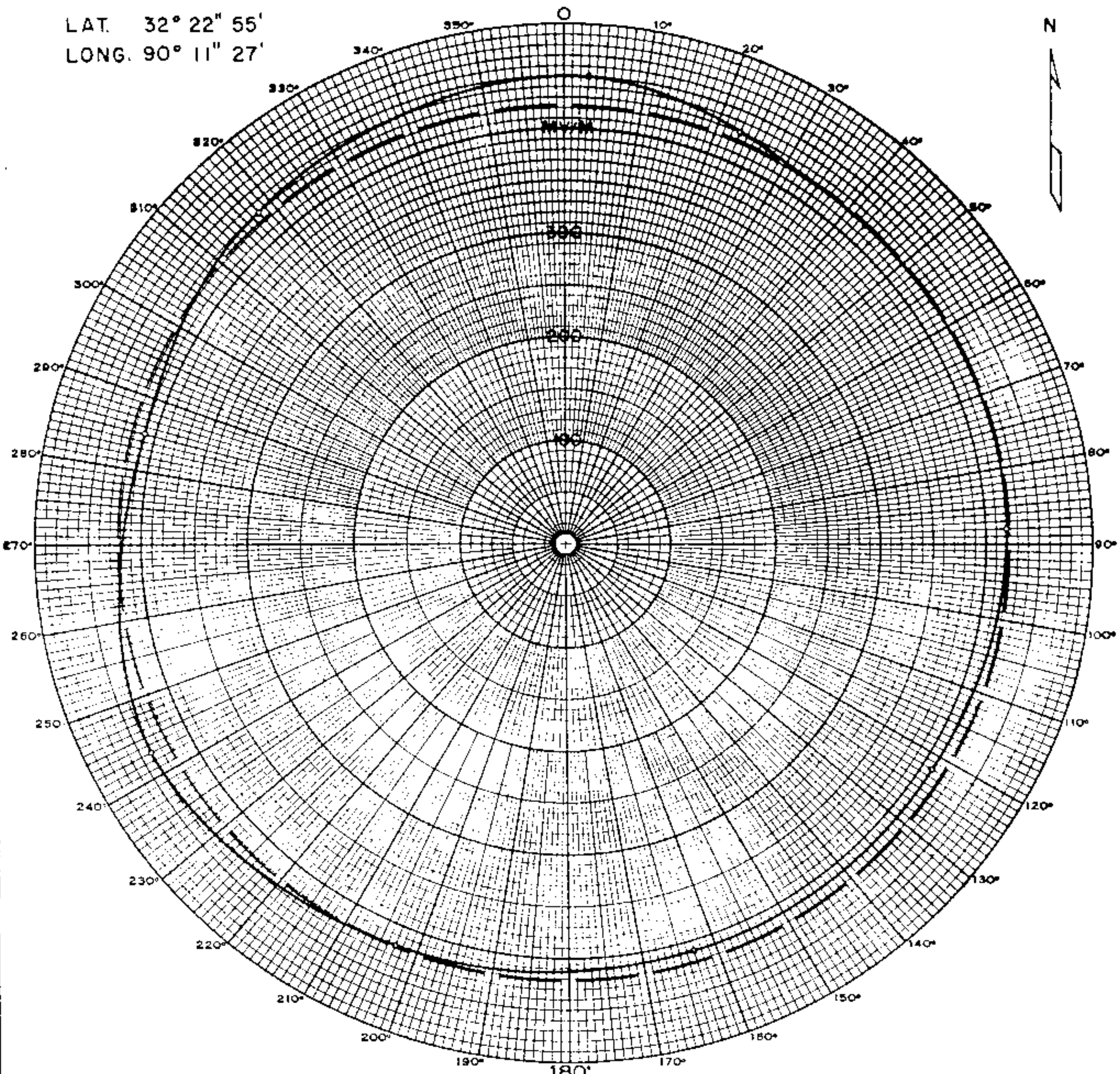


ARC MEASUREMENTS NIGHTTIME DIRECTIONAL OPERATION	—— UNATTENNATED FIELD FROM COMPUTED PATTERN ○○○○ UNATTENNATED FIELD BASED ON $\frac{E_{DA-N}}{E_{ND-D}} \times E_oND$
PREPARED BY THE FIRM OF A. EARL CULLUM, JR. CONSULTING ENGINEERS	RADIO STATION WJDX 620 KC 1 KW 5 KW-LS DA-N 600505 FIGURE 3A

WJUX

MEASURED NON-DA (7-29-60g) | Station WJDX Jackson, Mississippi | 1kw, 5kw-LS, DA-N,U 620 kc

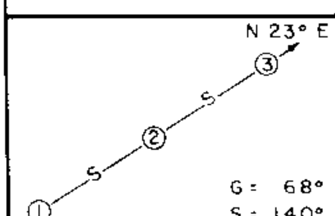
LAT. 32° 22" 55'
LONG. 90° 11" 27'



N

RMS = 422 MV/M

DAY



TOWER	OPERATION
1	DETUNED
2	SERIES FED
3	DETUNED

BASED ON MEASUREMENTS

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

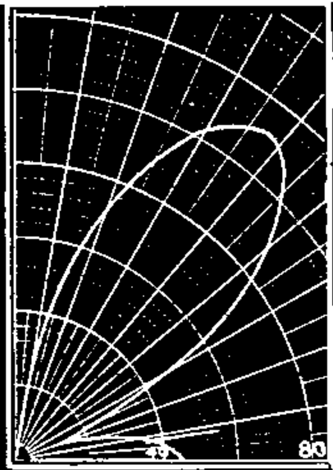
RADIO STATION WJDX
620 KC 1 KW 5 KW-LS DA-N
600505 FIGURE 2 A

FCC File No. BL-8004
Accepted 7-21-60

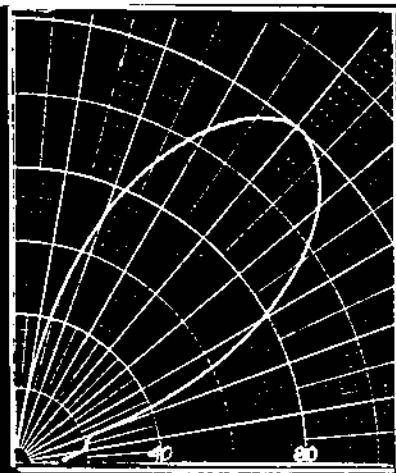
WJDX
Jackson, Mississippi

620 kc

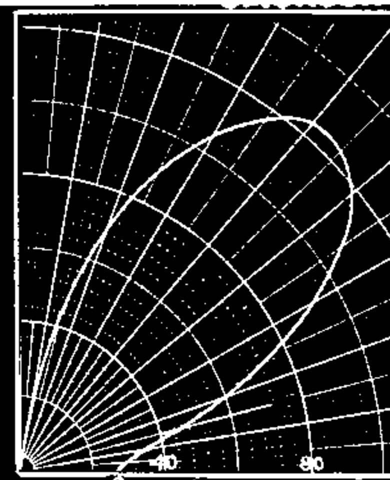
WJDX



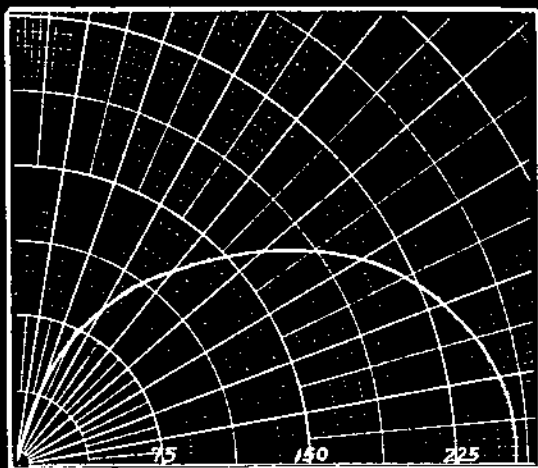
9° WTMJ



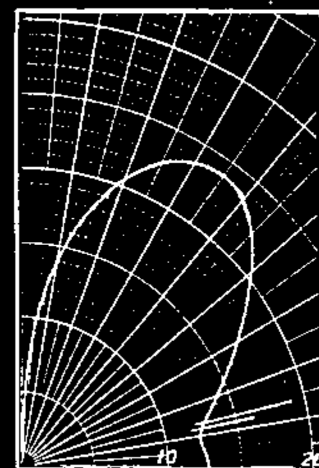
28° Null



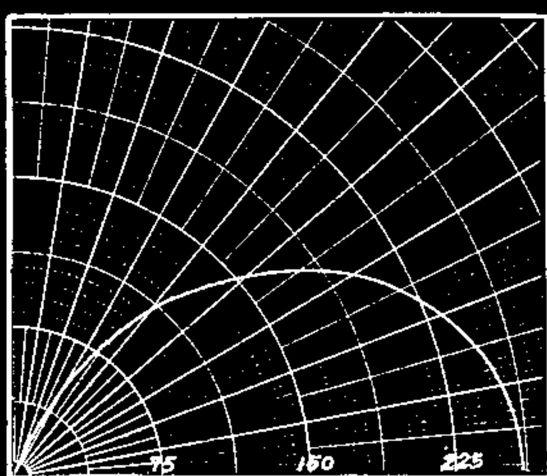
52° 40' WROL



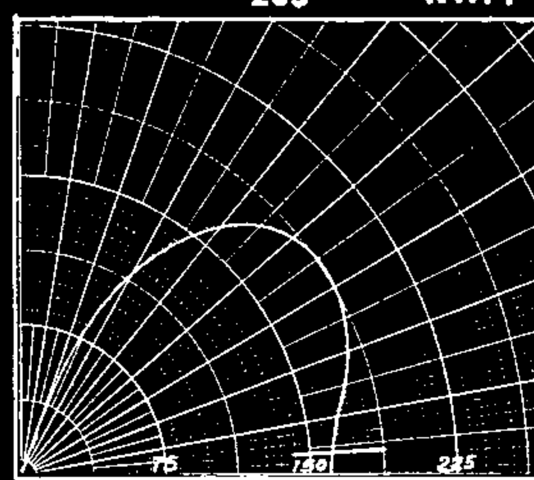
94° Max.-1



122°40' WSUN
285° KWFT



154°MAX-2



214° XENK

Rebel Broadcasting Co.

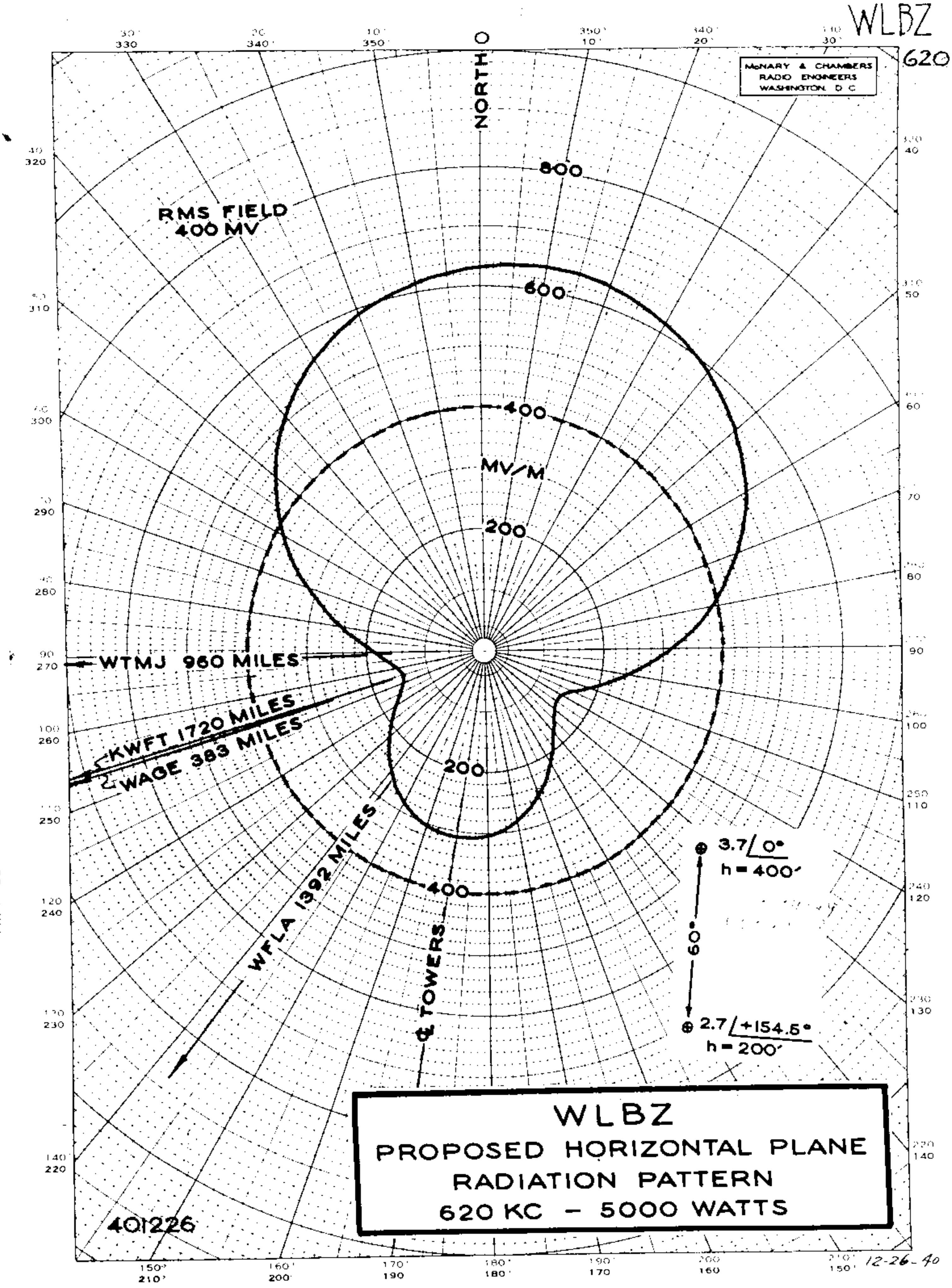
Jackson, Miss.

SKY WAVE PATTERNS

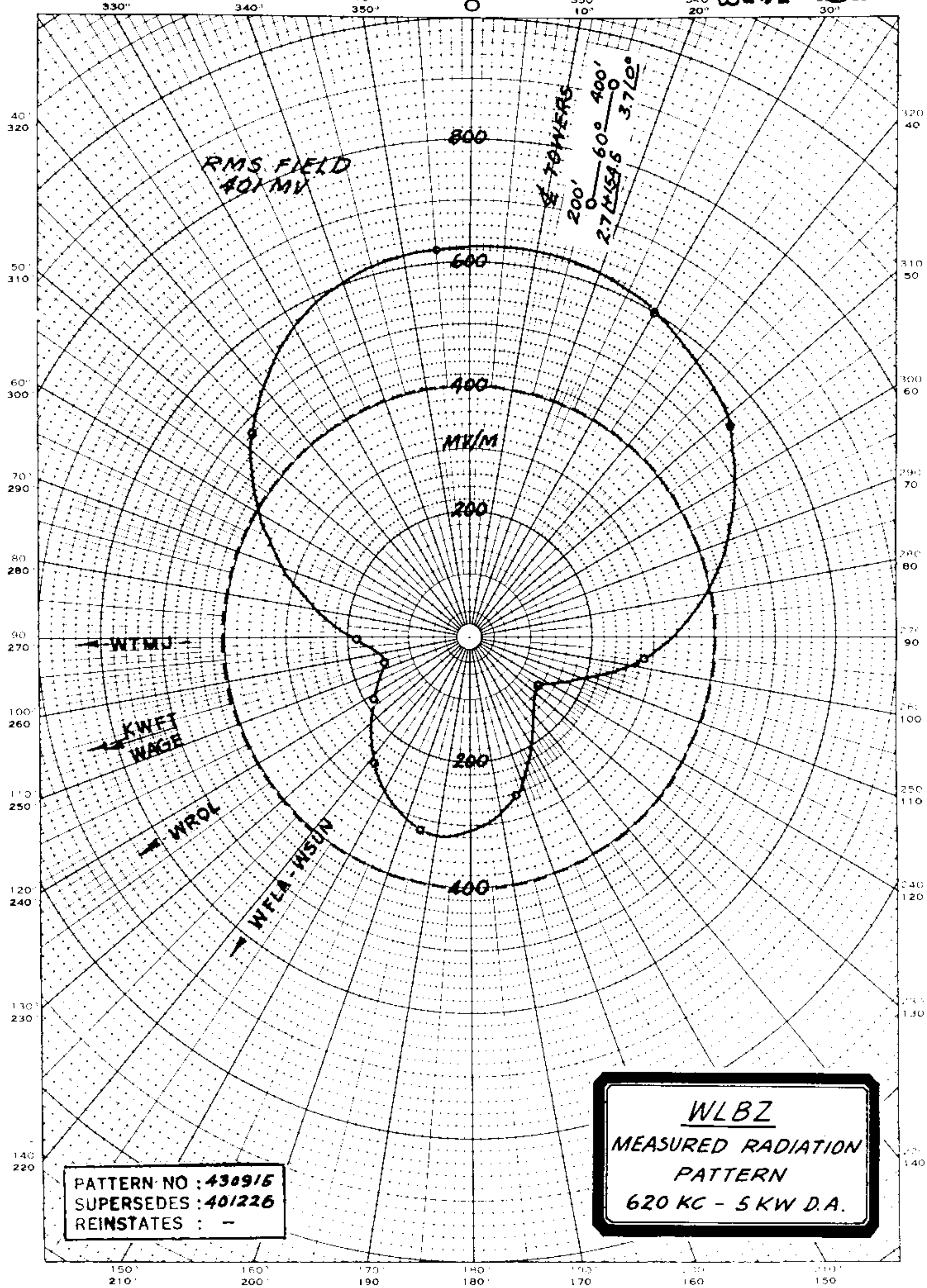
Angles From True North

Exhibit 14.6
Series 441209

FRANK H. McINTOSH
CONSULTING RADIO ENGINEERS
516 SHOREHAM BUILDING
WASHINGTON 5, D. C.


WLBZ
620
McNARY & CHAMBERS
RADIO ENGINEERS
WASHINGTON, D. C.
NORTH
RMS FIELD
400 MV
800
600
400
MV/M
200
WTMJ 960 MILES
KWFT 1720 MILES
WAGE 383 MILES
WFLA 1392 MILES
℄ TOWERS
3.7 /0°
h = 400'
60°
2.7 /+154.5°
h = 200'
WLBZ
PROPOSED HORIZONTAL PLANE
RADIATION PATTERN
620 KC - 5000 WATTS
401226
12-26-40

WLBZ -620



RMS FIELD
401 MV
TOWERS
200' 60° 400'
2.7/154.5 3.7/0°
800
600
400
200
MV/M
WTMJ
KWFT
WAGE
WROL
WFLA-WSUN
PATTERN NO : 430915
SUPERSEDES : 401226
REINSTATES : —
WLBZ
MEASURED RADIATION
PATTERN
620 KC - 5 KW D.A.
NO. 340-R DIETZGEN GRAPH PAPER
POLAR CO-ORDINATE
EUGENE DIETZGEN CO.

WRJZ
620KHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WRJZ

Main Studio: Knoxville, Tennessee

Frequency: 620 kHz

Power: 5kw Night 5kw Day

Notification List No. 1785

Date: November 16, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 35° 59' 24"
West Longitude: 83° 50' 15"

ANTENNA CHARACTERISTICS

Authorized for Nighttime operation. (DA-N)
Number of elements: 4
Type of elements: 3 Series excited, uniform cross-section, guyed, vertical steel towers. The west tower is tapered self supporting.

TOWER:	West	West Center	East Center	East
HEIGHT ABOVE INSULATORS:	322'	300'	300'	300' (68.08°)
NIGHT PHASING:	+324°	+158°	+166°	0°
NIGHT FIELD RATIO:	0.74	0.74	1.0	1.0

SPACING AND ORIENTATION: With the west tower as reference the West Center tower is spaced 130° on a line bearing 73° true, the East Center tower is spaced 392° on a line bearing 73° true, and the east tower is spaced 522° on a line bearing 73° true.

GROUND SYSTEM: 120 - 1050' 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.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL
Day	RMS
Day	404.73 mv/m
Night	394 mv/m

Note: Please retain the Nighttime directional antenna radiation pattern notified for WROL in United States Change List Number 204 dated December 13, 1947 and attach to this Revised Description Sheet. This notification concerns only a change in the Daytime operation of the station with Nighttime operation continued as previously notified.

WRJZ

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station	: WRJZ	Main Studio:	Knoxville, Tennessee
Frequency	: 620 KHz	Power	: 5 kW Night 5 kW Day
Notification	: 1780	Date	: Sept. 28, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude:	35	59	24
West Longitude:	83	50	15

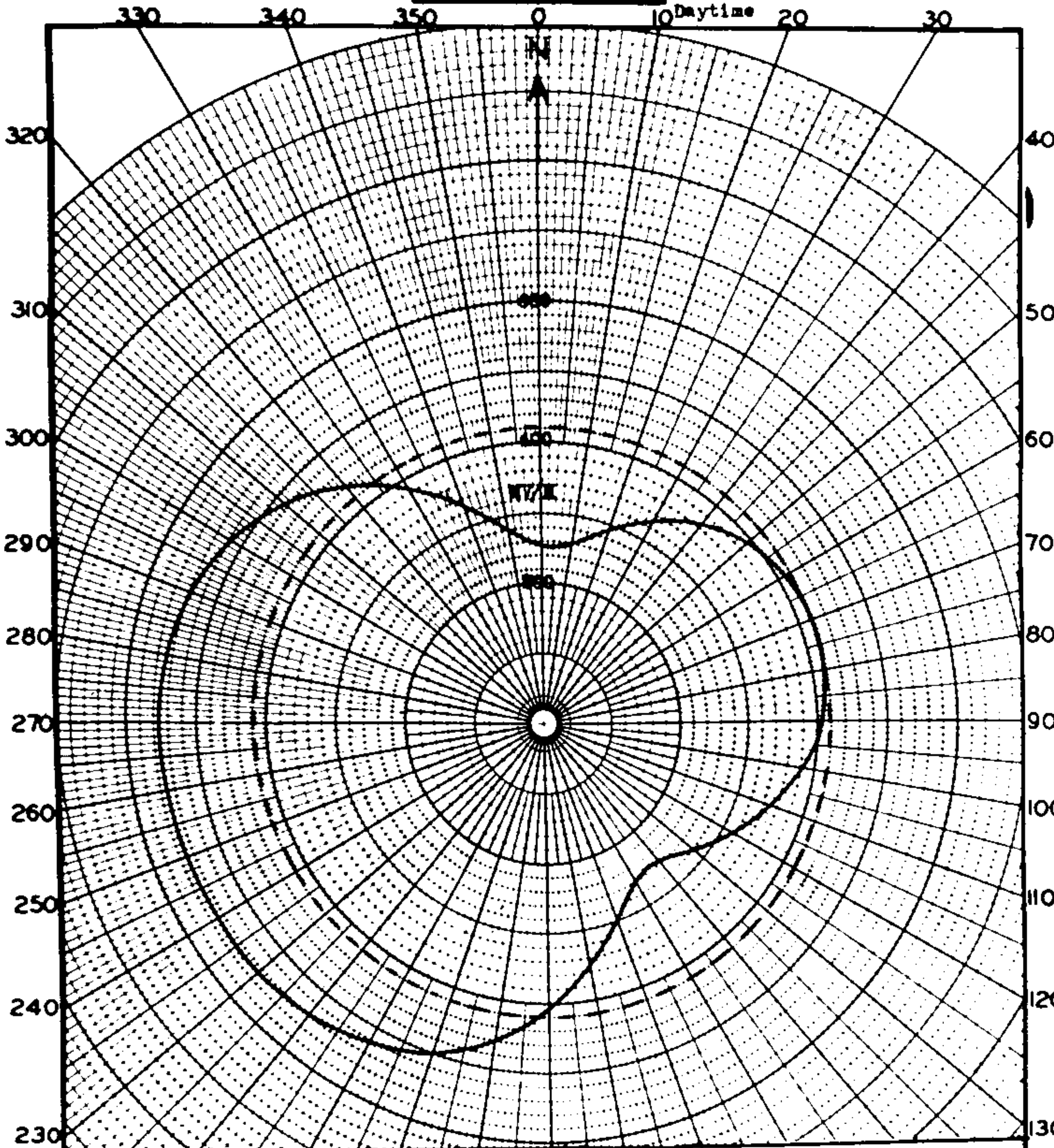
Note: Please retain the description sheet and directional antenna radiation patterns notified for station WROL in United States Change List Number 204, dated Dec. 17, 1946 and attach to this supplemental Description Sheet. This notification is for the purpose of indicating only correction in the geographical coordinates of the center of the antenna system.

Prop Day

PATTERN No. 460219
SUPERSEDES 450829

Proposed
5kw-U
Daytime

WRJZ WROL - 620



G = 68°

1/0° ←130°→ 2.7/136° 73° True

RADIO STATION WROL
KNOXVILLE, TENNESSEE

620 KC - 5 KW - U - DA

HORIZONTAL PLANE RADIATION
DAYTIME

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

RMS = 420 MV/M

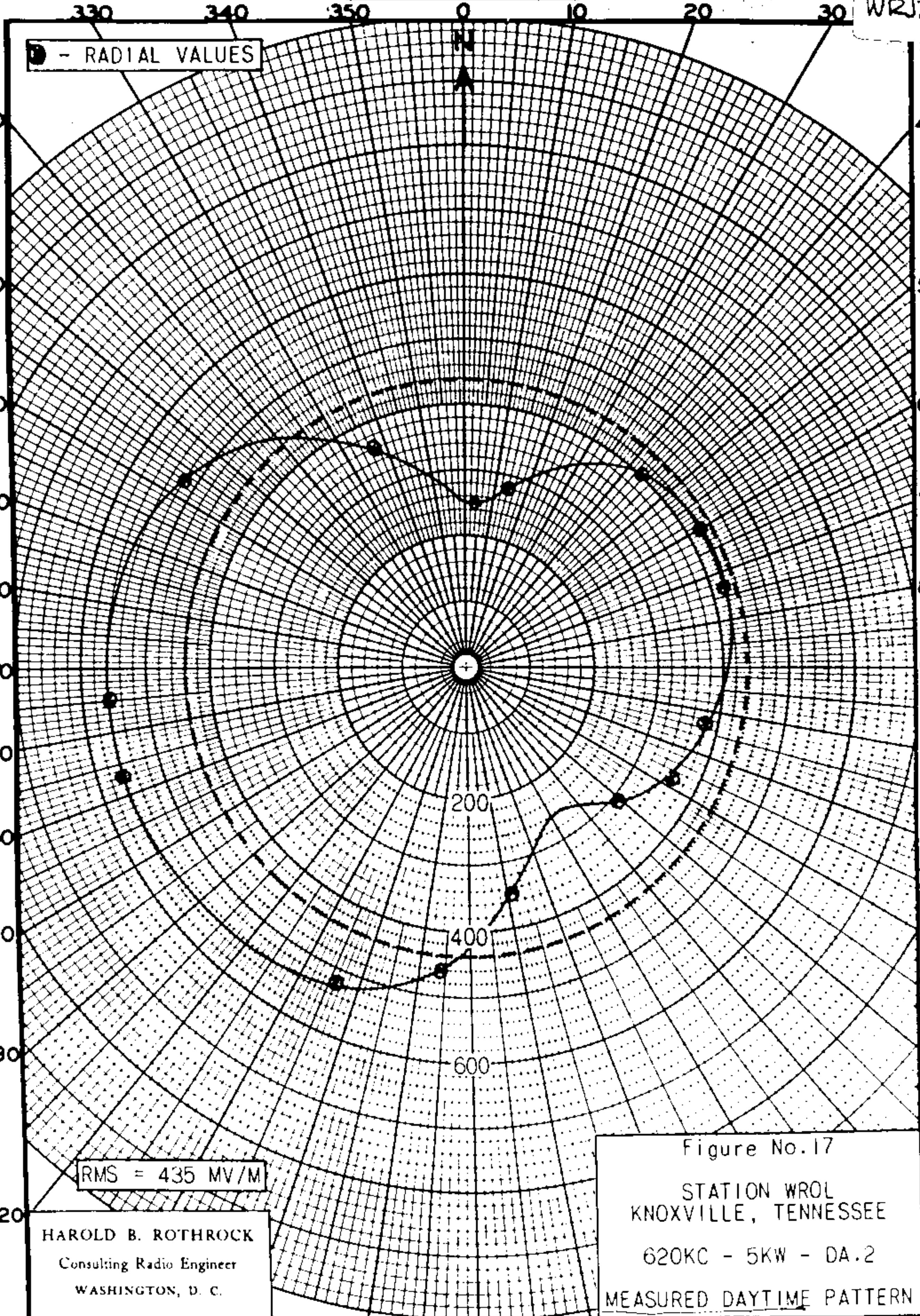
FIG. NO. 4

WROL L-2778

PATTERN No. 471020
SUPERSEDES:

~~WROL - 620KC~~

WRJZ

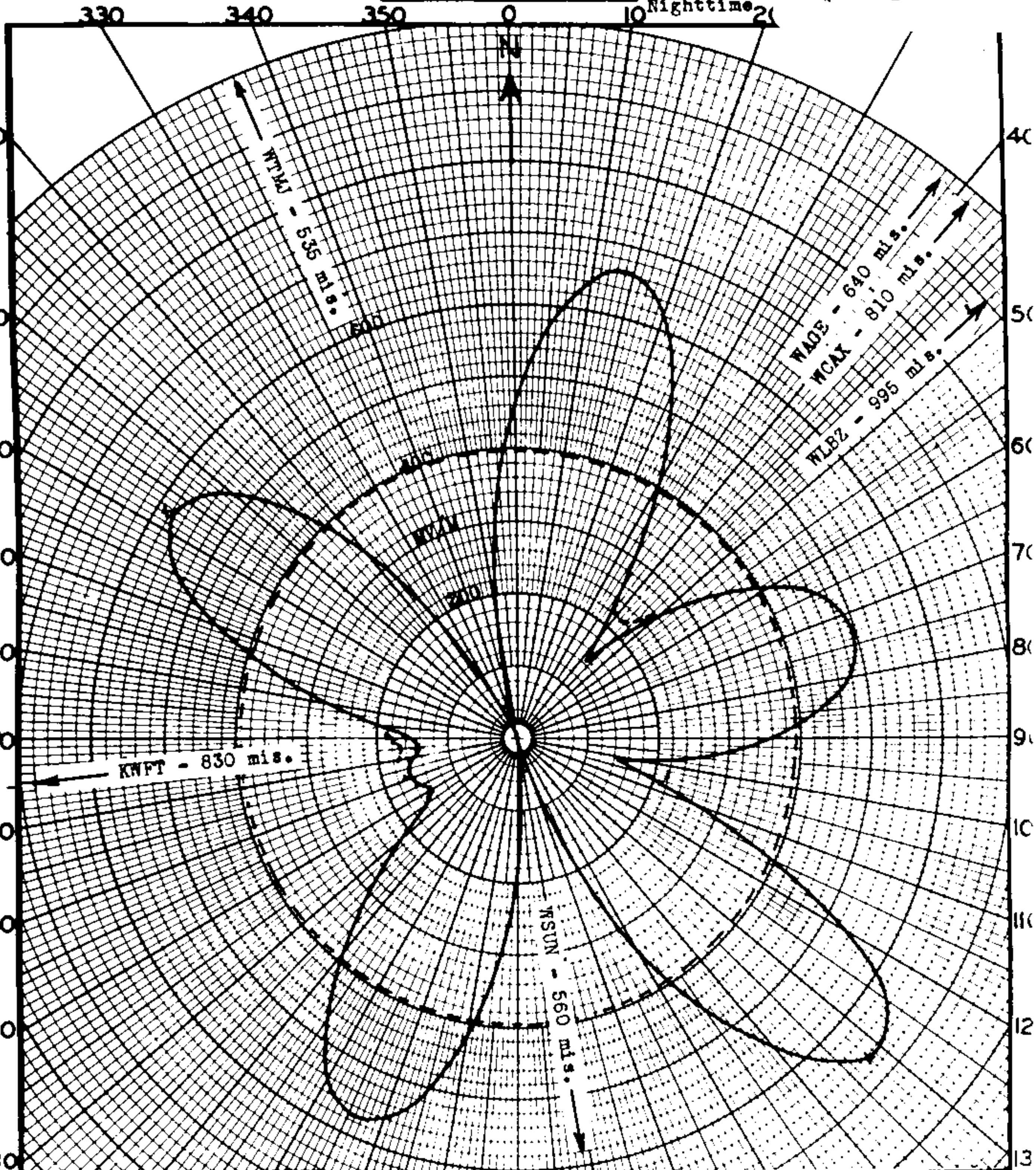


Prop Nite

PATTERN No. 460218
SUPERSEDES: 450828

Proposed
5kw-U
Nighttime

WRJZ



G = 68°

130° — 262° — 130° — 253° True

$1\underline{/0°}$ $1\underline{/166°}$ $0.74\underline{/158°}$ $0.74\underline{/324°}$

RADIO STATION WROL
KNOXVILLE, TENNESSEE

620 KC - 5 KW - U - DA

HORIZONTAL PLANE RADIATION
NIGHTTIME

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

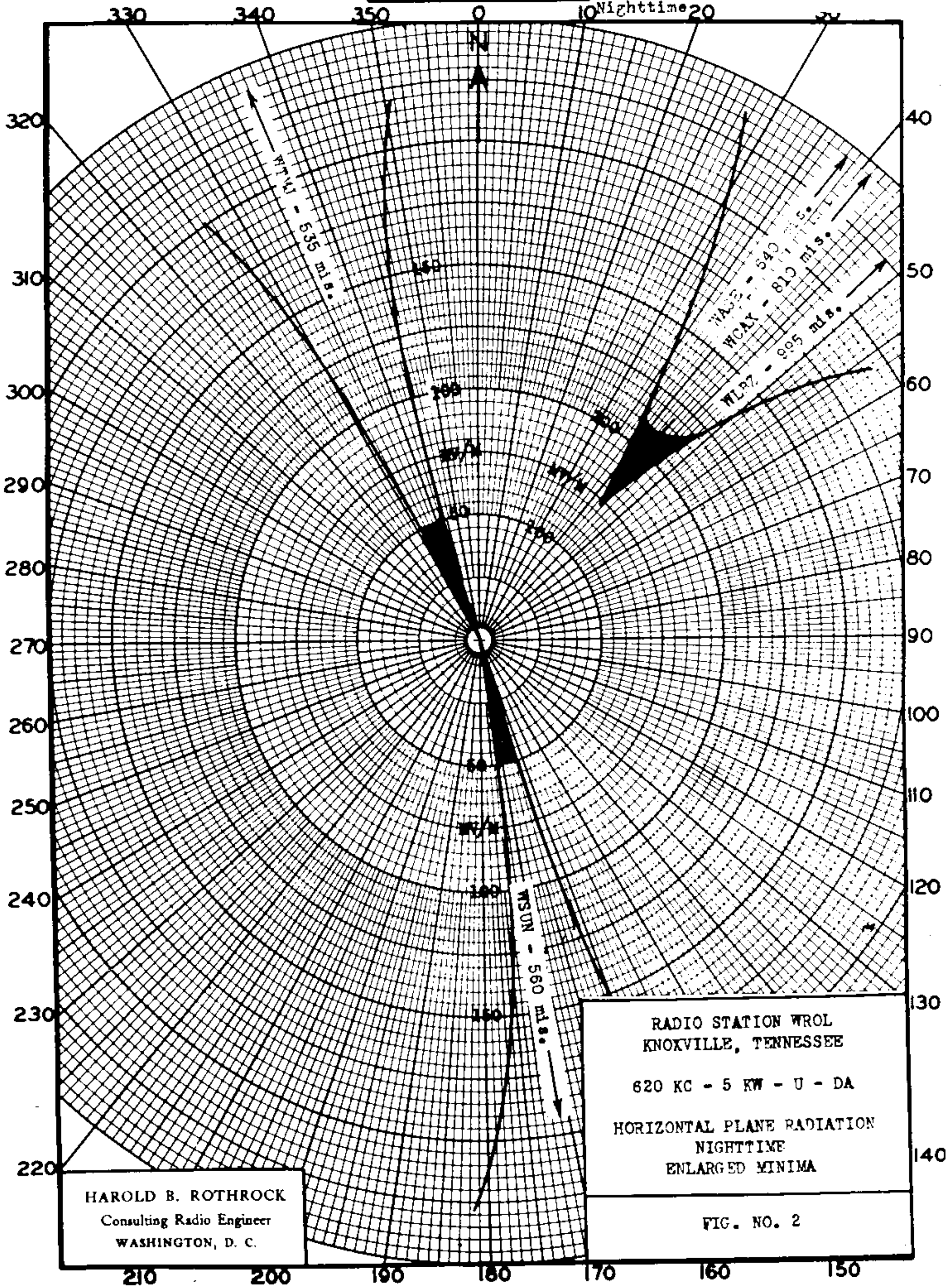
RMS = 394 MV/M	FIG. NO. 1

Prop Nite Nulls

PATTERN No.:460218A
SUPERSEDES:450828A

Proposed
5kw-U
Nighttime

WRJZ



RADIO STATION WROL
KNOXVILLE, TENNESSEE

620 KC - 5 KW - U - DA

HORIZONTAL PLANE RADIATION
NIGHTTIME
ENLARGED MINIMA

FIG. NO. 2

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

Meas Nite
WROL L-2778 2

PATTERN No 47.1022
SUPERSEDES:

WRJZ

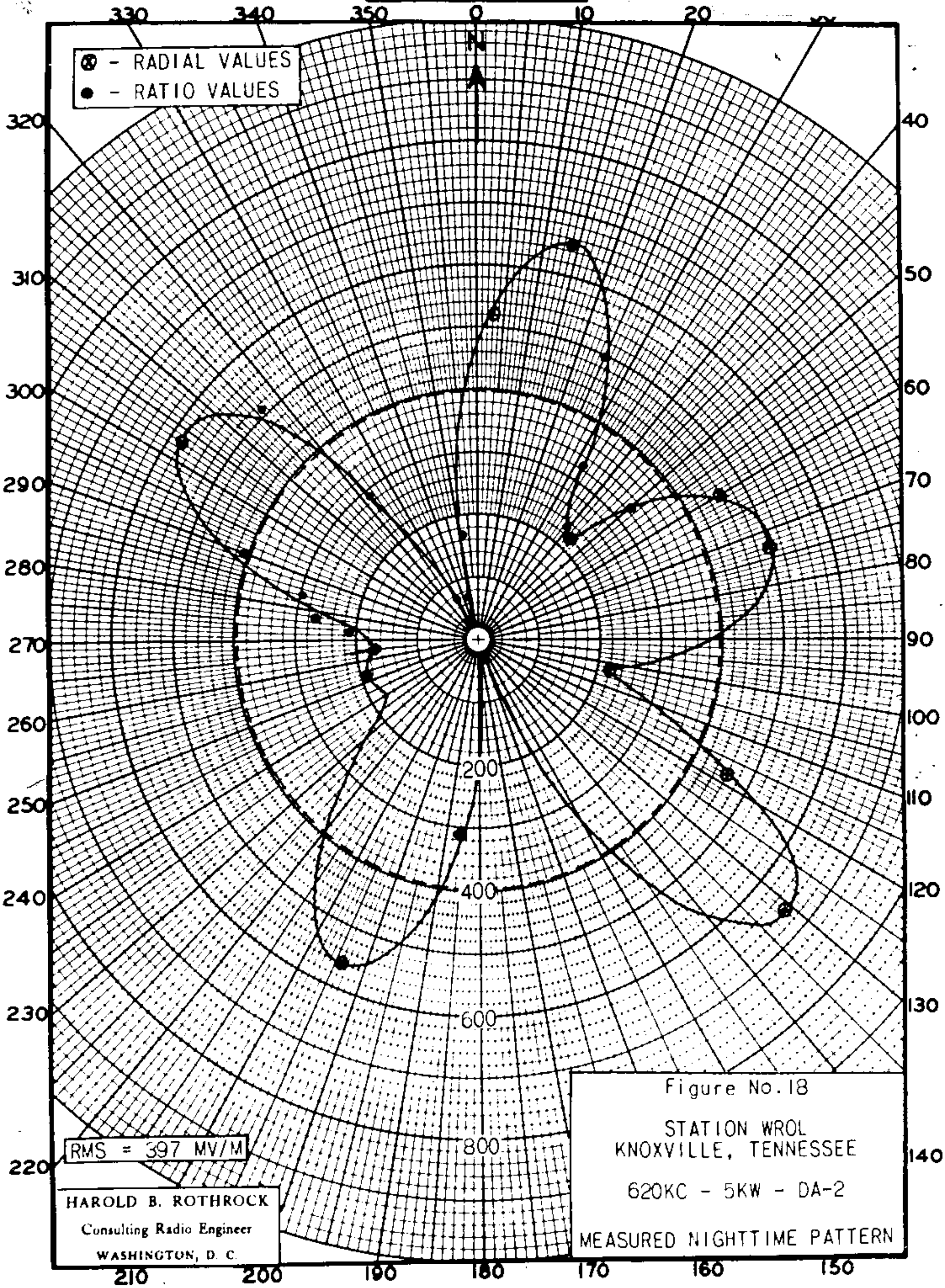


Figure No. 18

STATION WROL
KNOXVILLE, TENNESSEE

620KC - 5KW - DA-2

MEASURED NIGHTTIME PATTERN

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

WSUN

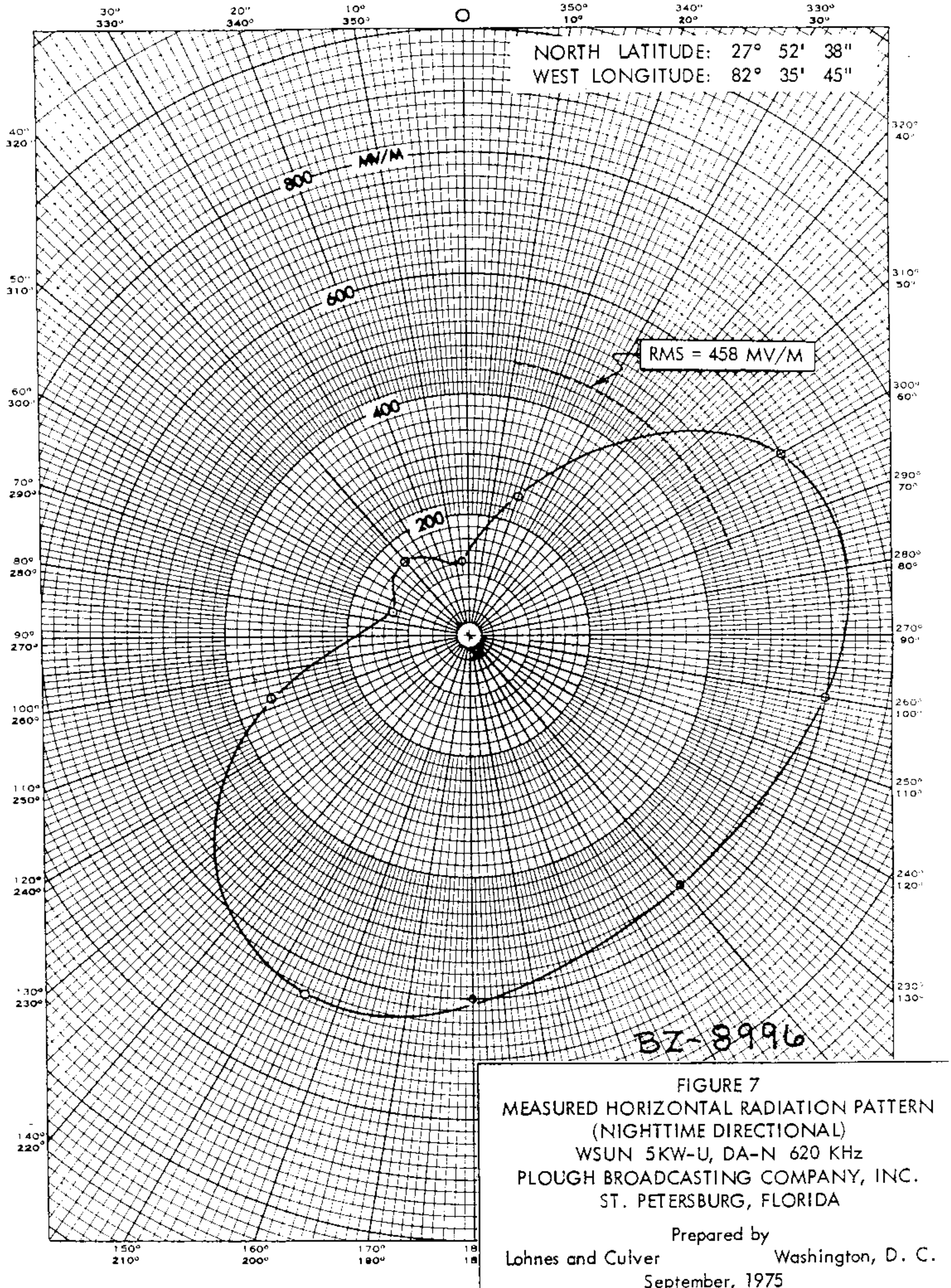


FIGURE 7
MEASURED HORIZONTAL RADIATION PATTERN
(NIGHTTIME DIRECTIONAL)
WSUN 5KW-U, DA-N 620 KHz
PLOUGH BROADCASTING COMPANY, INC.
ST. PETERSBURG, FLORIDA

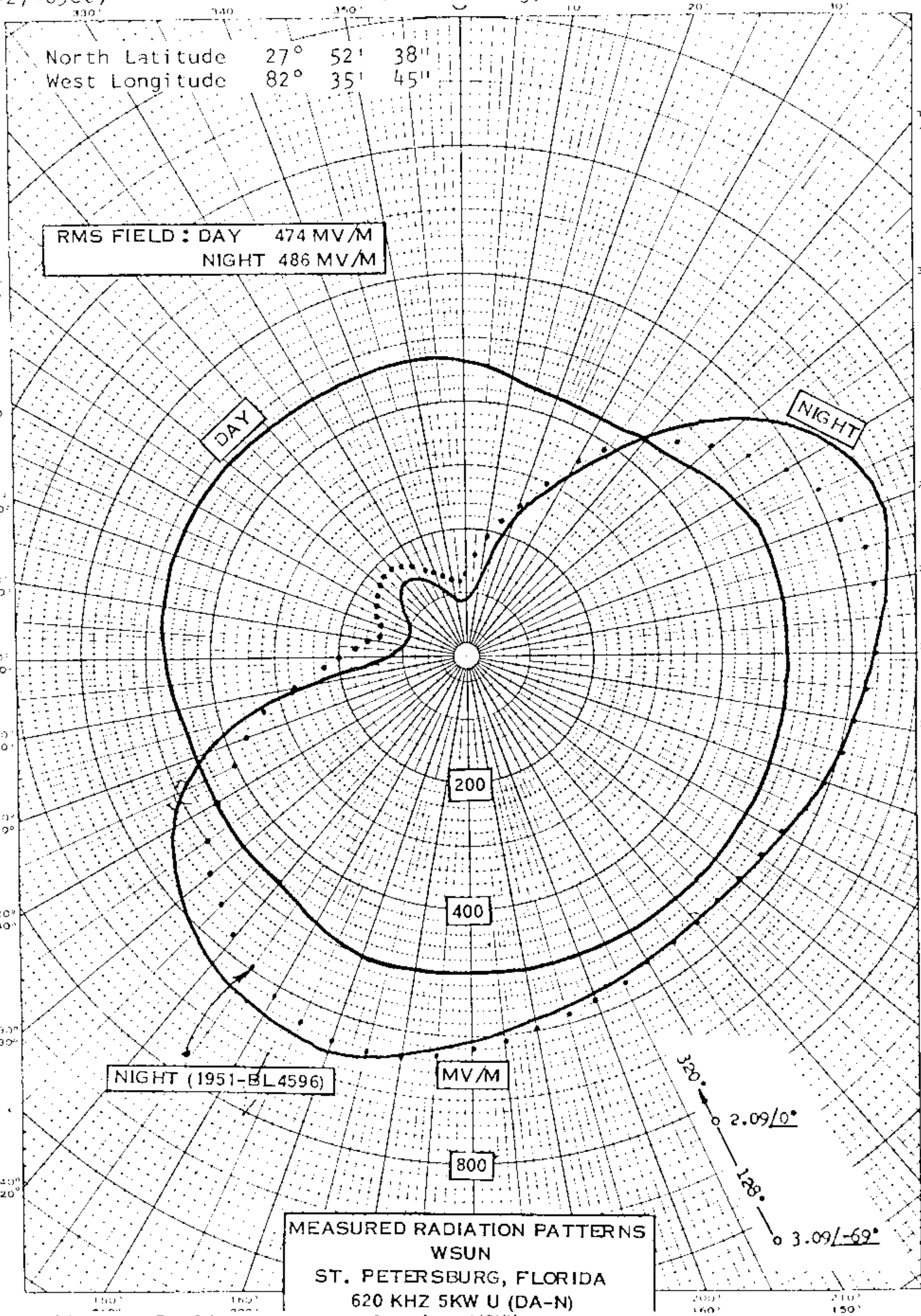
Prepared by
Lohnes and Culver Washington, D. C.
September, 1975

WSUN

Measured Night
(6-27-69ct)

Station WSUN
St. Petersburg, Florida

5kw, DA-N, U
620 kc



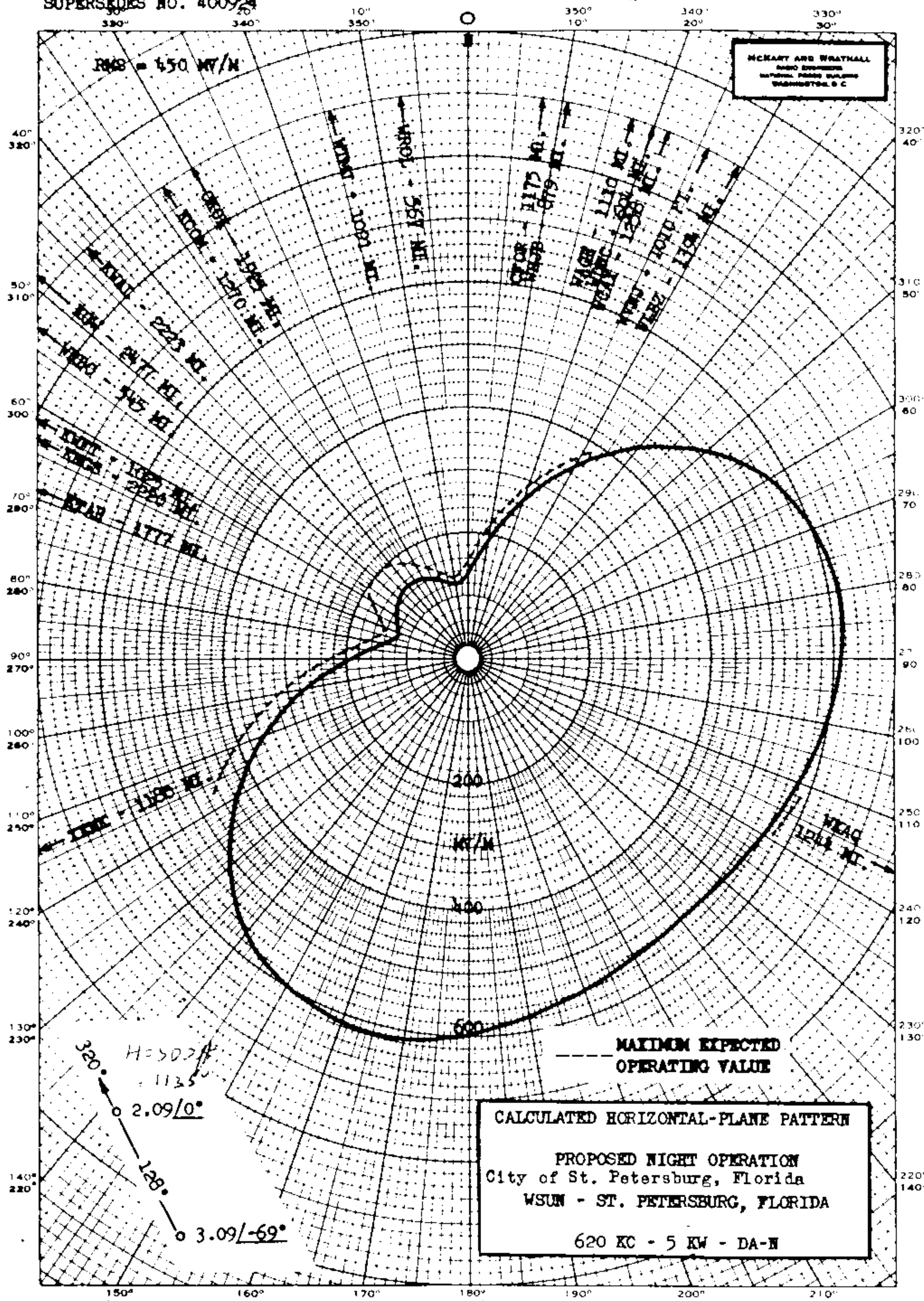
FCC File No. BZ-7205
Accepted 6-10-69

Station WSUN
St. Petersburg, Florida

620 kc

WSUN
620

PATTERN NO. 480524 July 7, 1948 JUL 8 G EXHIBIT NO. 1-D
SUPERSEDES NO. 400924



CALCULATED HORIZONTAL-PLANE PATTERN

PROPOSED NIGHT OPERATION
City of St. Petersburg, Florida
WSUN - ST. PETERSBURG, FLORIDA

620 KC - 5 KW - DA-N

27-

WTMJ
620

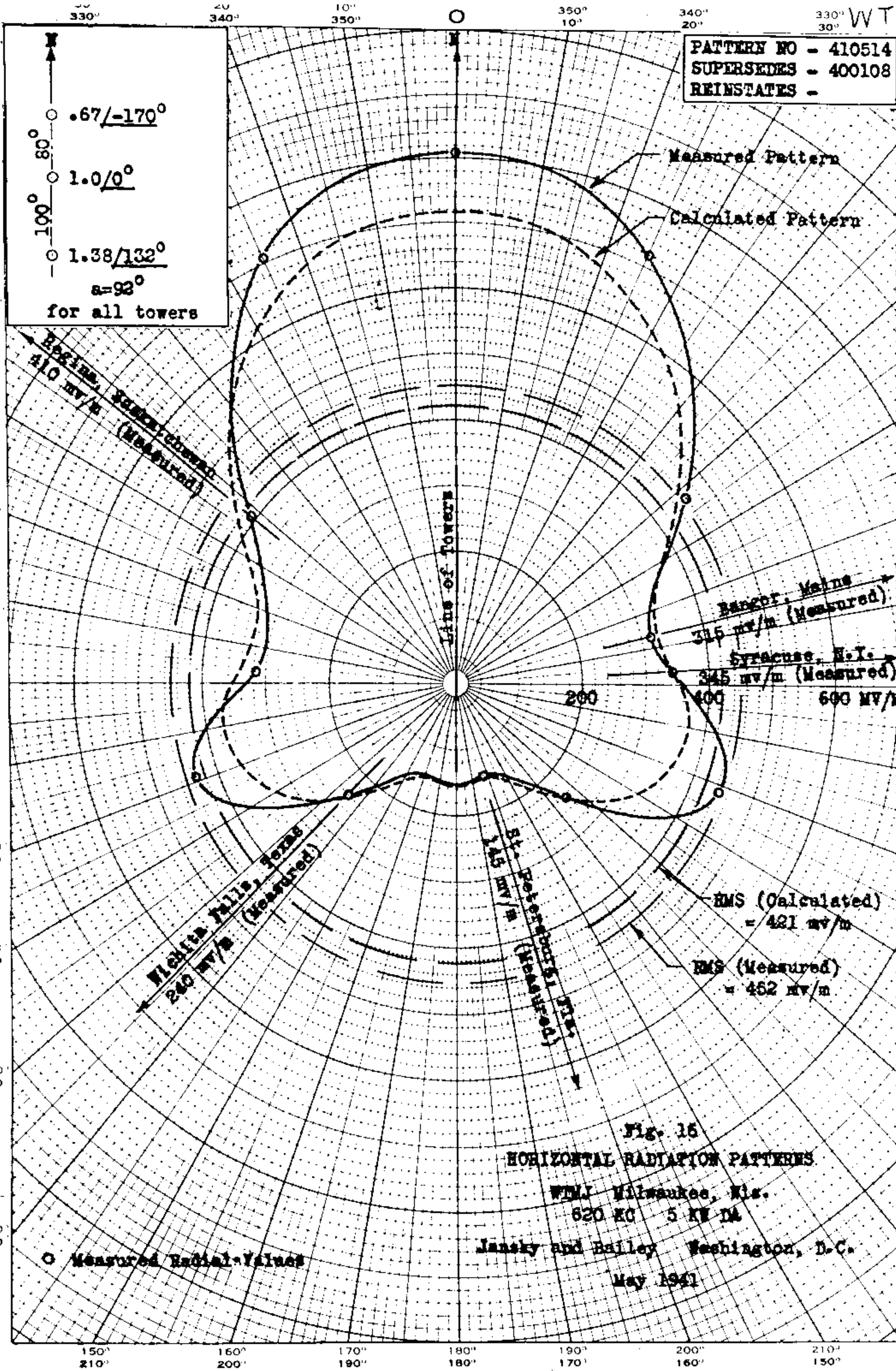


Fig. 16
HORIZONTAL RADIATION PATTERNS
WTMJ Milwaukee, Wis.
620 KC 5 KW DA
Jansky and Bailey Washington, D.C.
May 1941

proposed measured
[illegible]

WTMJ

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

Station WTMJ 5kw, DA-N,U
Milwaukee, Wisconsin 620 KC

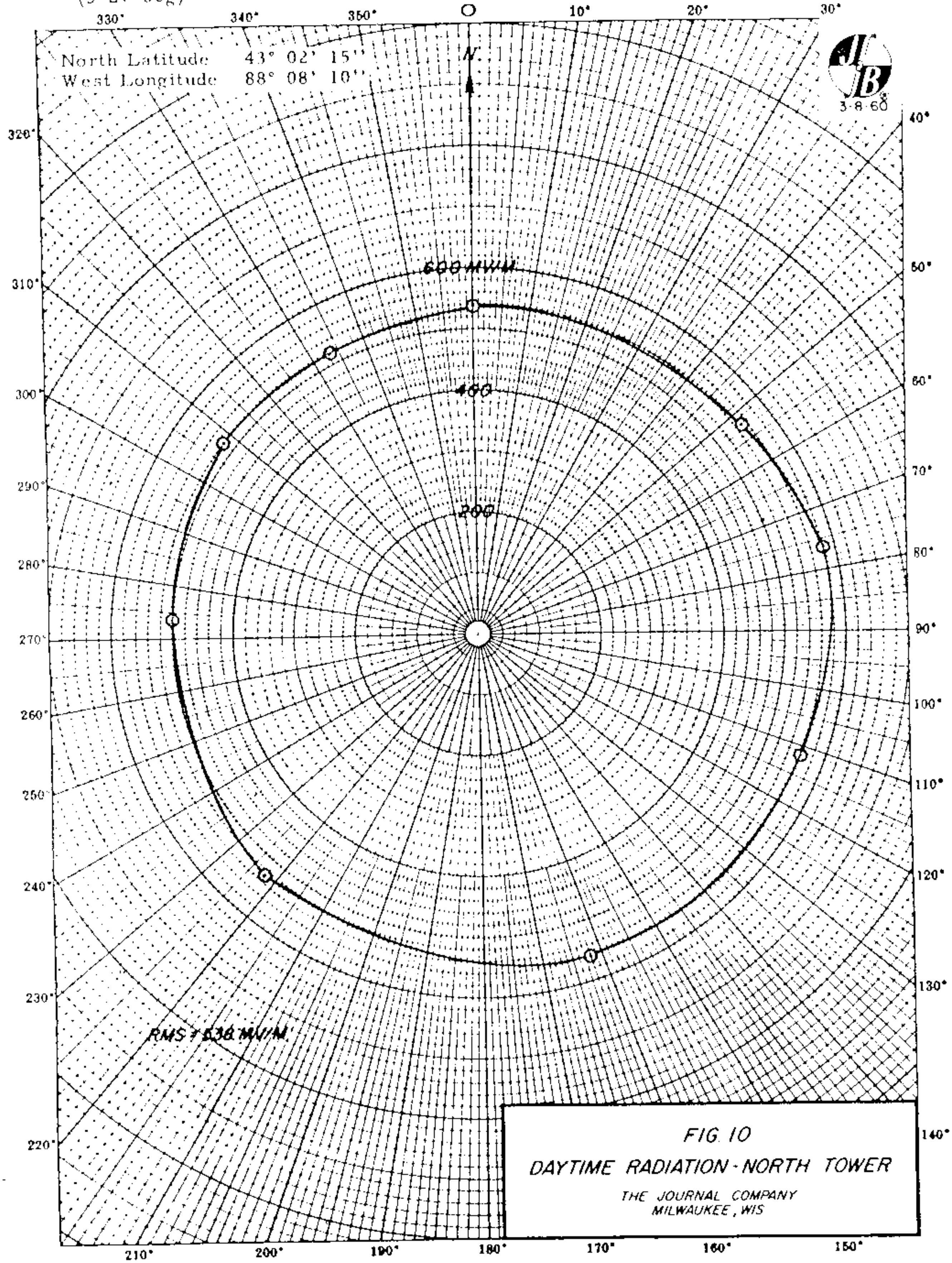


FIG. 10
DAYTIME RADIATION - NORTH TOWER
THE JOURNAL COMPANY
MILWAUKEE, WIS

Granted per changes in ND antenna system 6-24-60

FCC File No. BL-7924
Accepted 5-11-60

WTMJ
Milwaukee, Wisconsin 620 KC

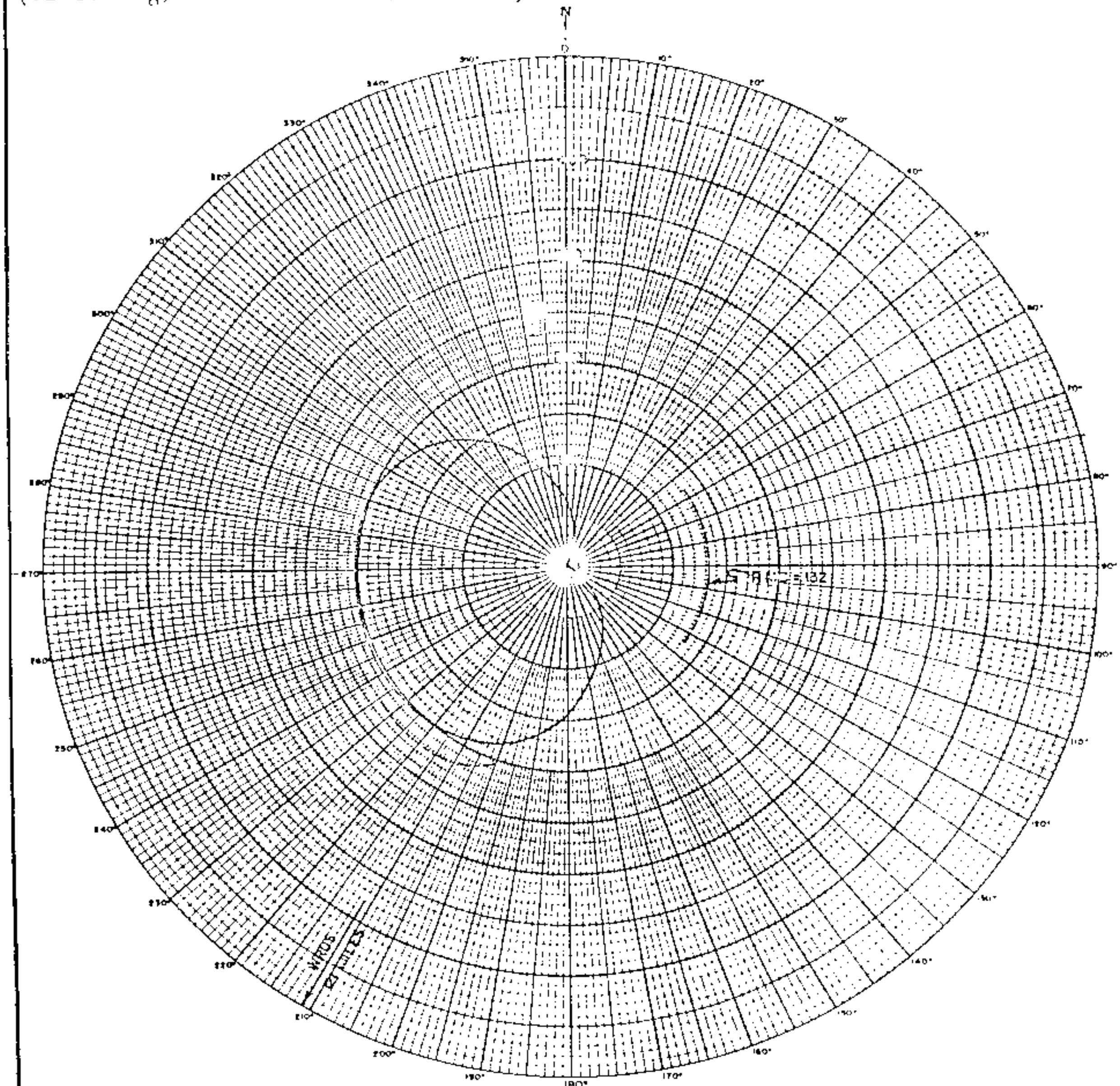
WTMT

Proposed Day (12-18-56g)

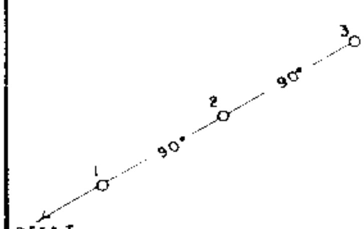
Jefferson B/C Co., Inc. 500 W. DA-D, D
Louisville, Kentucky

620 KC

Granted CP 11/6/57 for new station



MEOV — - - - - - - -



LATITUDE 38° 18' 59"
LONGITUDE 85° 42' 08"

ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG
3	SEE DIAGRAM	—	90	1	181	68.2° (300')
2		90	0	2		
1		180	-90	1		

HORIZONTAL RADIATION PATTERN
FOR
PROPOSED STATION
LOUISVILLE, KENTUCKY
620 Kc 500 W DA-DAY

560803

KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D.C.

FCC File No. BP 10,924

Accepted 12-10-56

Jefferson B/C Co., Inc.
Louisville, Kentucky 620 KC

1, 5

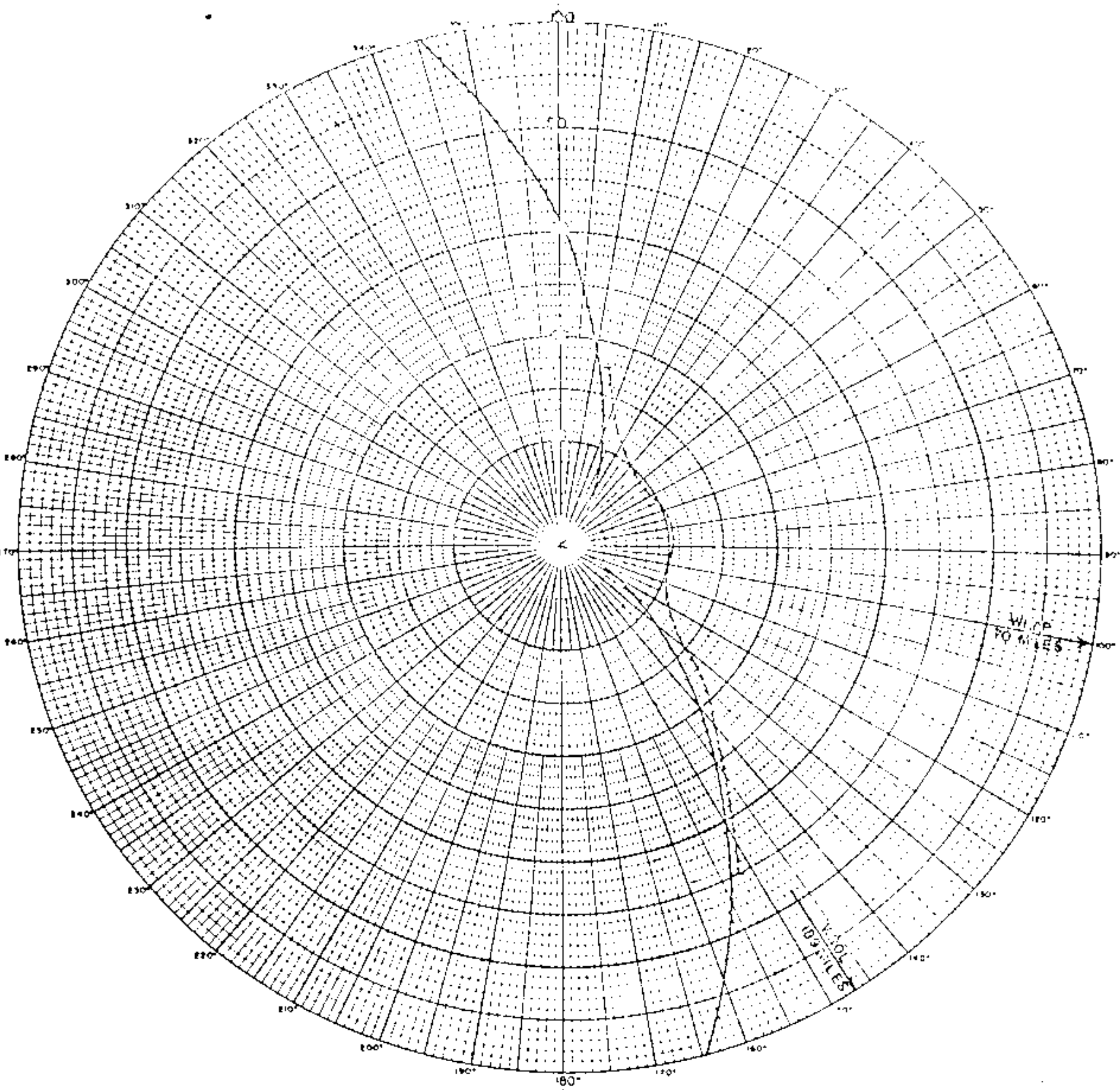
PROPOSED DAY-NULL (12-18-56g)

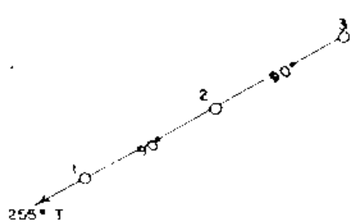
Jefferson B/C Co., Inc.
Louisville, Kentucky

500 W. DA-D, D

620 KC

Granted CP 11/6/57 for new station





LATITUDE	38° 18' 59"
LONGITUDE	85° 42' 08"

ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG
3	SEE DIAGRAM	—	90	1	181	68.2° (300)
2		90	0	2		
1		180	-90	1		

EXPANDED SCALE
HORIZONTAL RADIATION PATTERN
FOR
PROPOSED STATION
LOUISVILLE, KENTUCKY
620 Kc 500 W DA-DAY

560803

KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D.C.

FCC File No. BP-10,924

Accepted 12-10-56

Jefferson B/C Co., Inc.
Louisville, Kentucky

620 KC

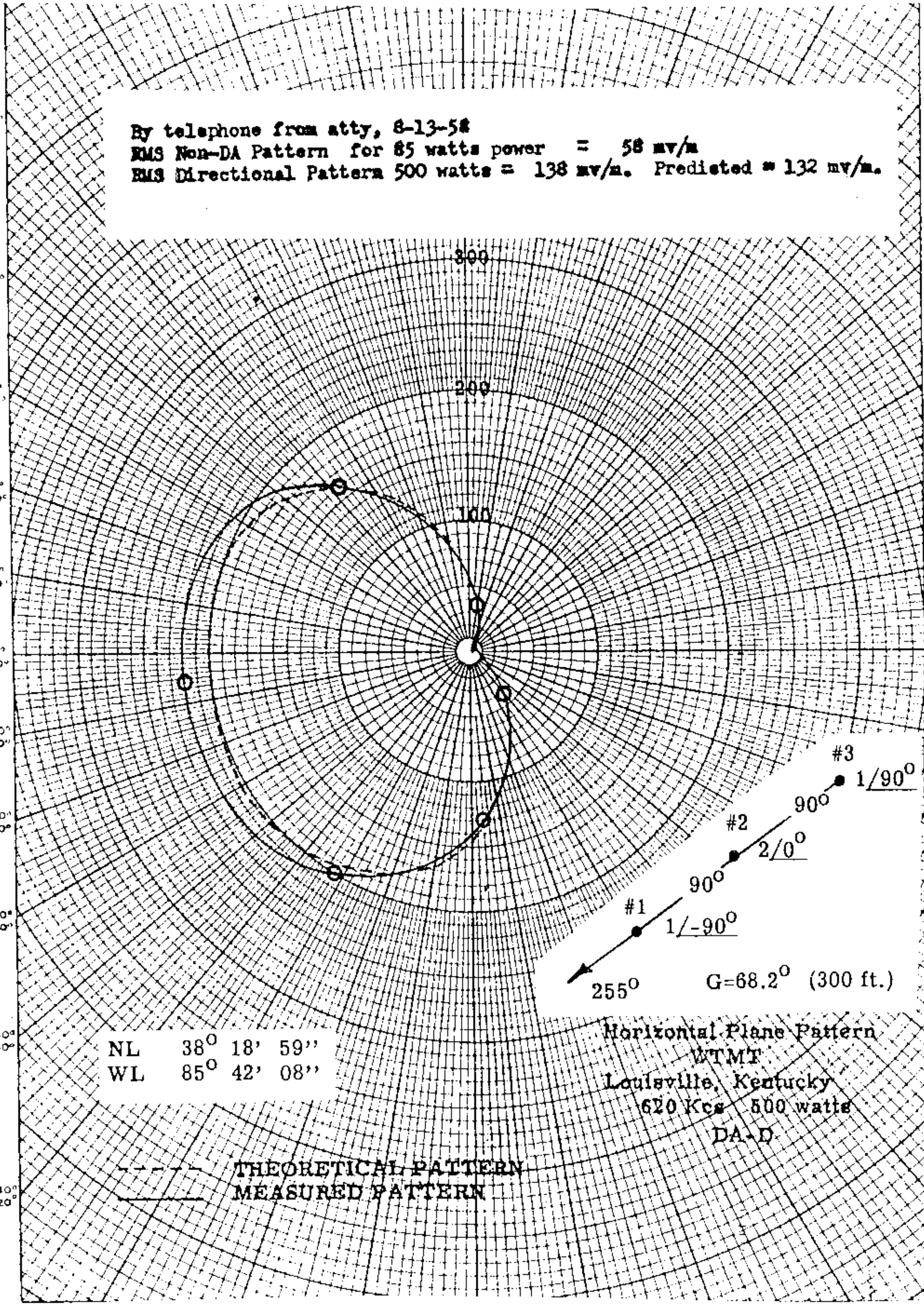
WTMT

Granted license 10/14/58

MEASURED DAY
(9-11-58g)

Station WTMT
Louisville, Kentucky

500w, DA-D,D
620 KC



FCC File No. BL-7188
Accepted 8-25-58

WTMT
Louisville, Kentucky

620 KC

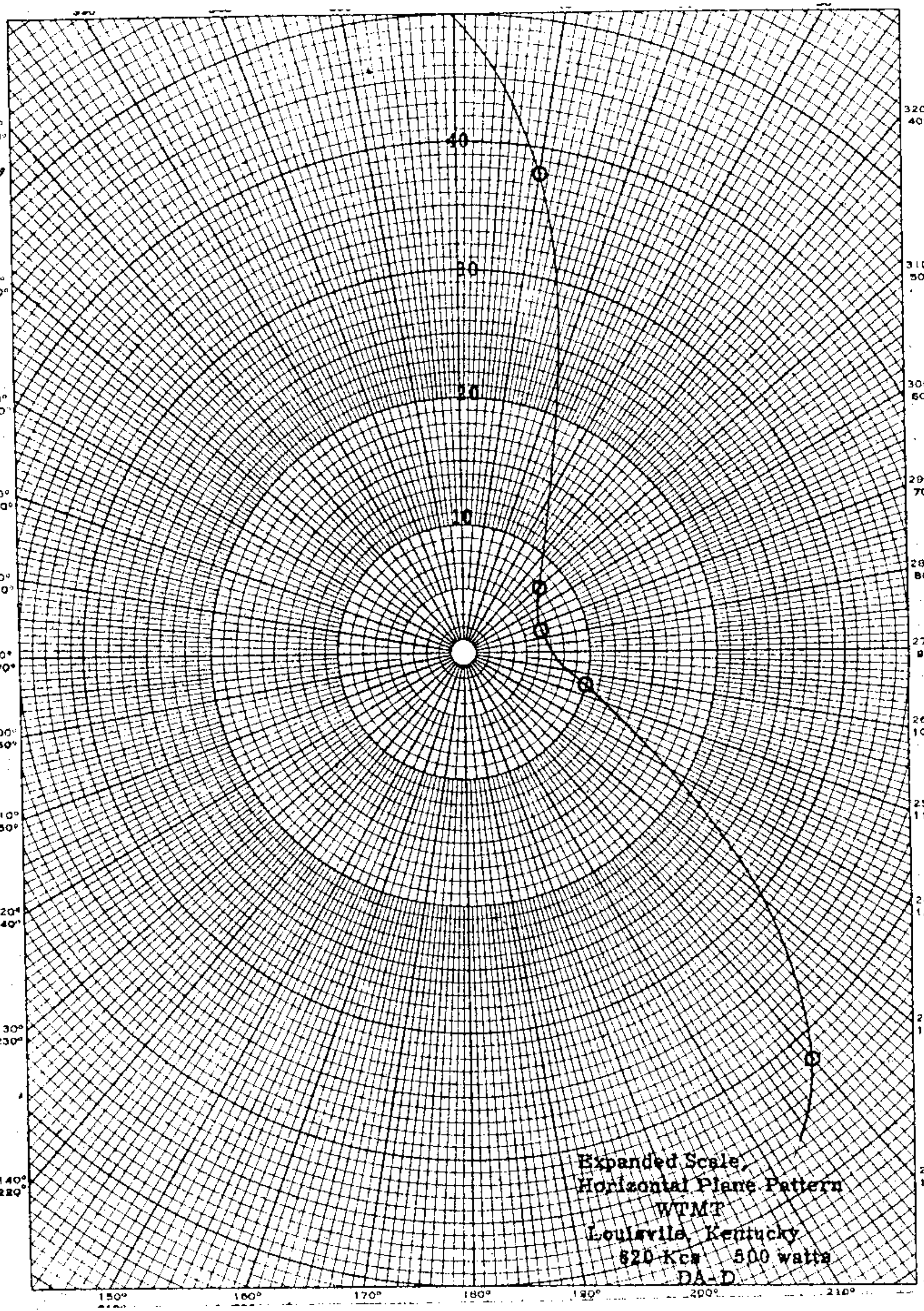
WTMT

MEASURED DAY NULLS (9-11-58g)

Station WTMT Louisville, Kentucky

500w, DA-D,D 620 KC

Granted license 10/14/58



FCC File No. BL-7188 Accepted 8-25-58

WTMT Louisville, Kentucky

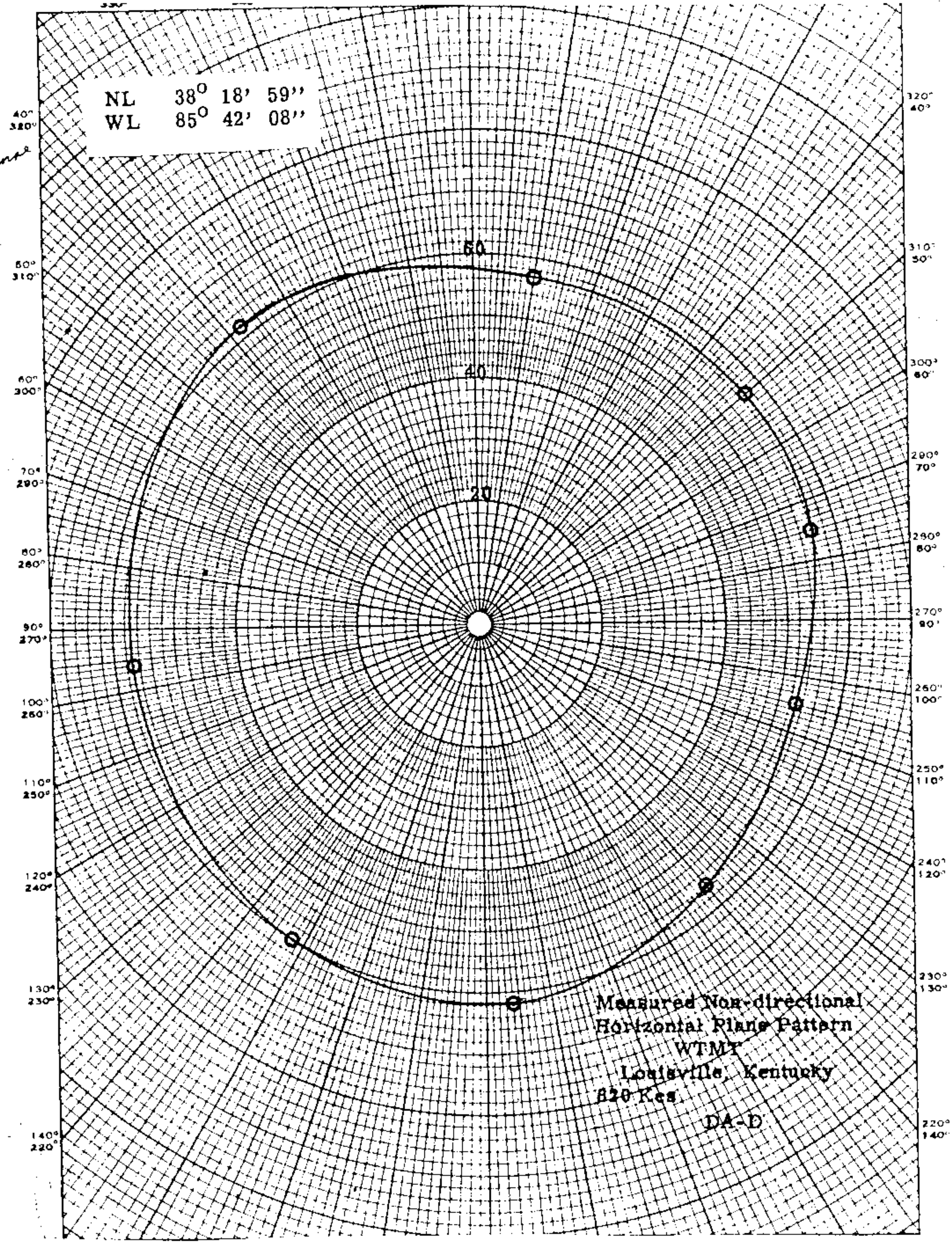
620 KC

WTMT

MEASURED NON-DA
(9-11-58g)

Station WTMT
Louisville, Kentucky

500w, DA-D,D
620 KC



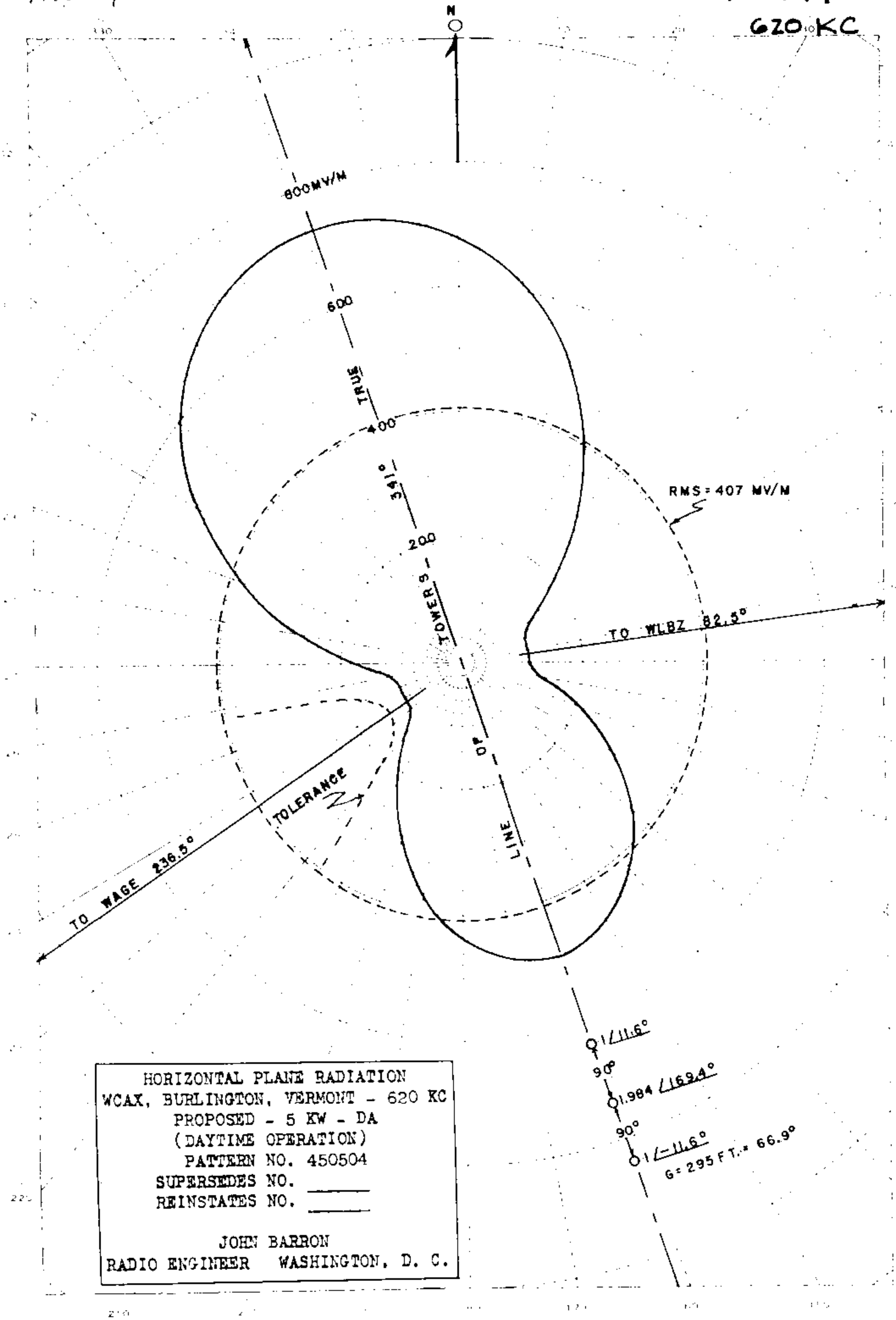
FCC File No. BL-7188
Accepted 8-25-58

WTMT
Louisville, Kentucky

620 KC

Prov Day

WVMT
620 KC



HORIZONTAL PLANE RADIATION
WCAX, BURLINGTON, VERMONT - 620 KC
PROPOSED - 5 KW - DA
(DAYTIME OPERATION)
PATTERN NO. 450504
SUPERSEDES NO. ______
REINSTATES NO. ______

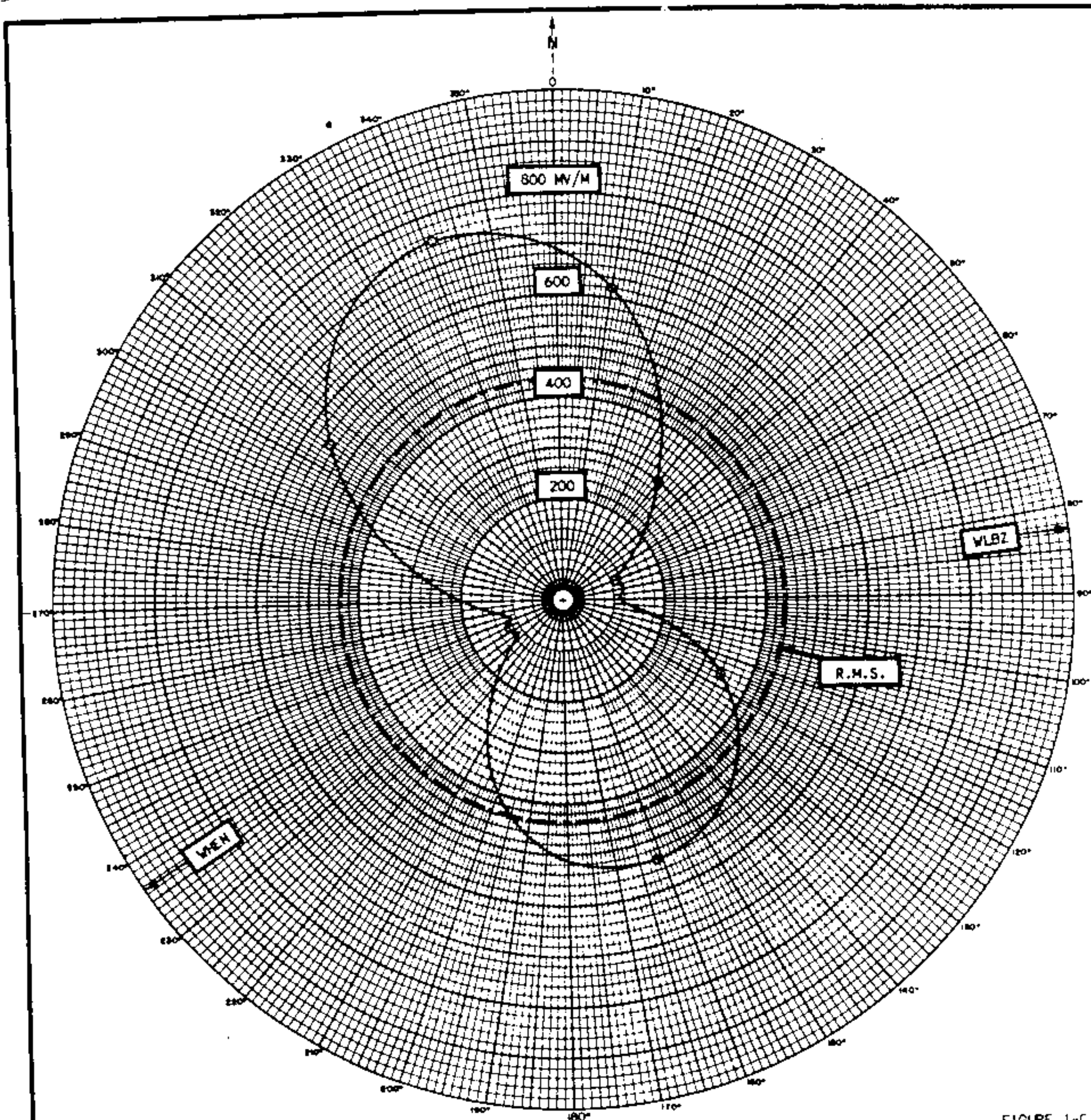
JOHN BARRON
RADIO ENGINEER WASHINGTON, D. C.

WVMT

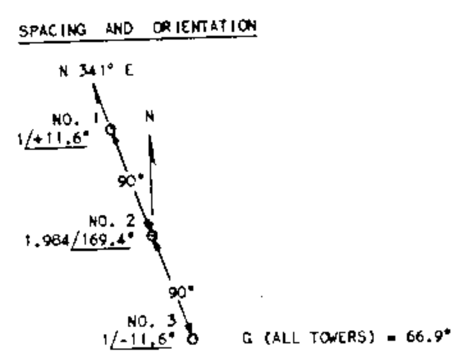
Measured Day
(5-28-63ct)

Station WVMT
Burlington, Vermont

5kw,DA-2,U
620 kc



HORIZONTAL RADIATION PATTERN



APPLICANT	WCAX RADIO, INC.
LOCATION	BURLINGTON, VERMONT
FREQUENCY	620 KC/S
POWER	5 KW - U (DA-2)
LATITUDE	44 DEG 32 MIN 04 SEC.
LONGITUDE	73 DEG 13 MIN 15 SEC
WHEN USED	DAYTIME
R.M.S FIELD	436 MV/M
DATE	JANUARY 1963

SILLIMAN, MOFFET & KOWALSKI

CONSULTING RADIO ENGINEERS

WASHINGTON, D.C.

FCC File No.BZ-4915
Accepted 5-21-63

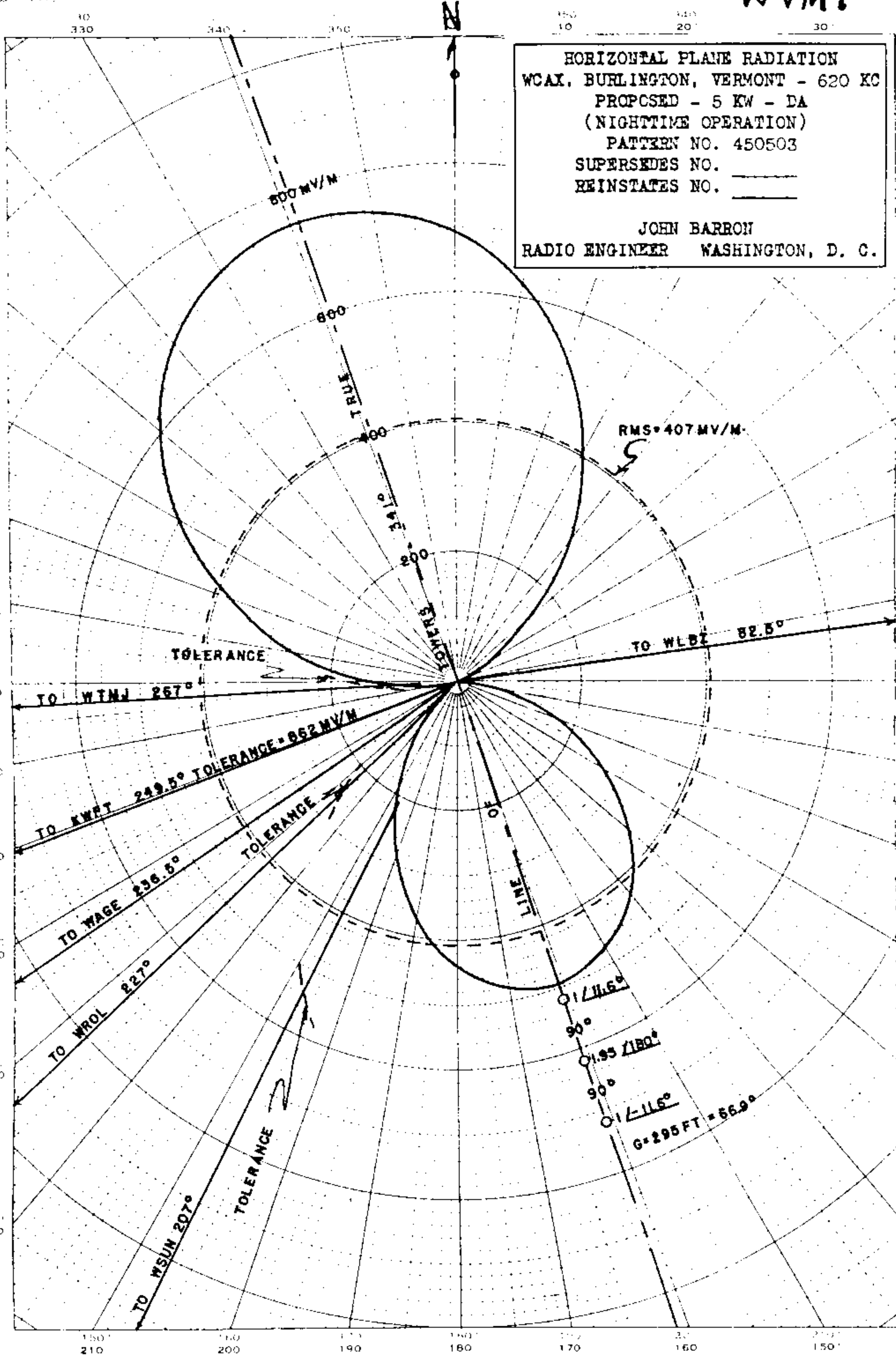
Station WVMT
Burlington, Vermont

620 kc

Prop Nite

WVMT

620 KC

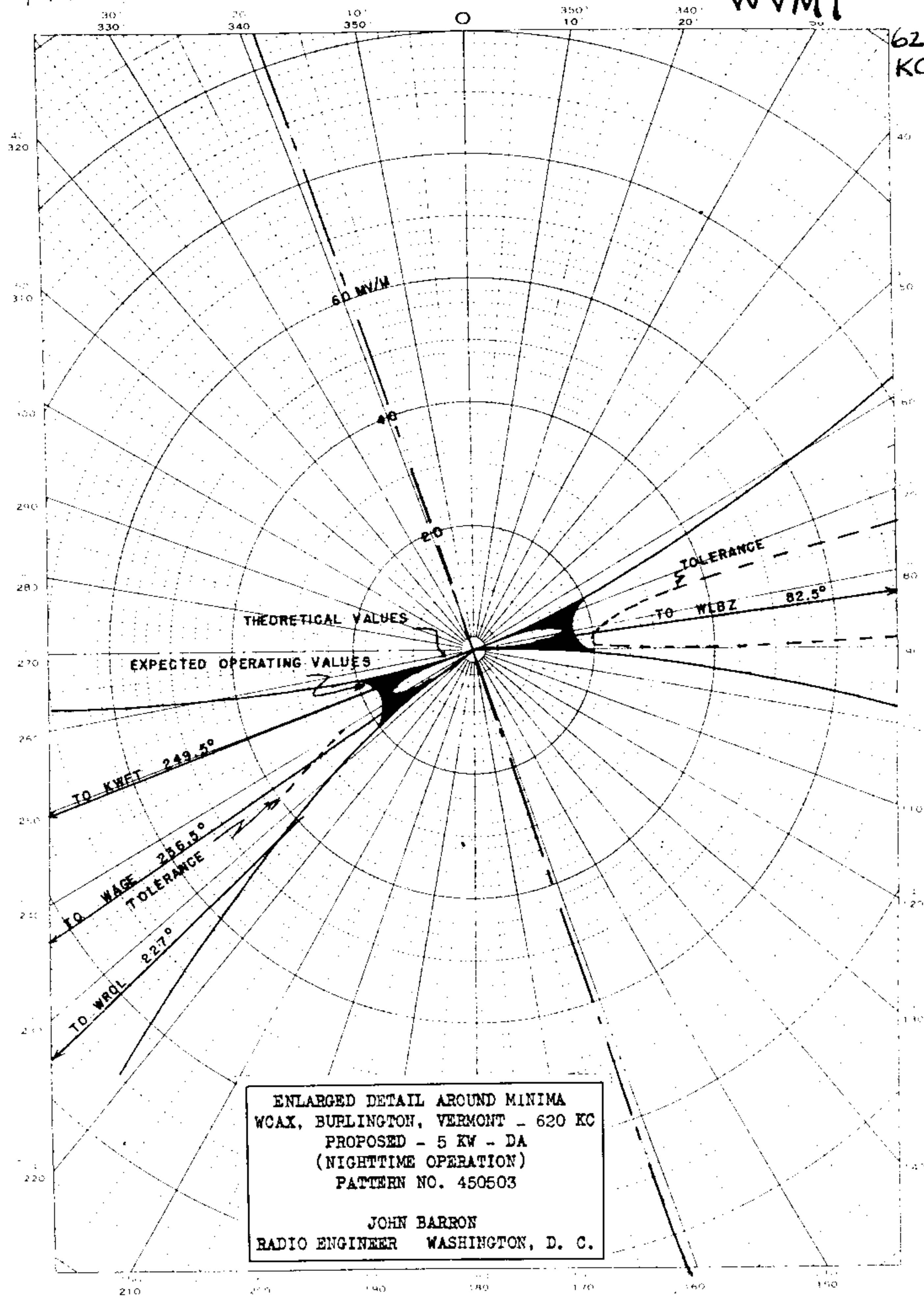


96

Prop Nite Nulls

WVMT

620 KC



ENLARGED DETAIL AROUND MINIMA
WCAX, BURLINGTON, VERMONT - 620 KC
PROPOSED - 5 KW - DA
(NIGHTTIME OPERATION)
PATTERN NO. 450503

JOHN BARRON
RADIO ENGINEER WASHINGTON, D. C.

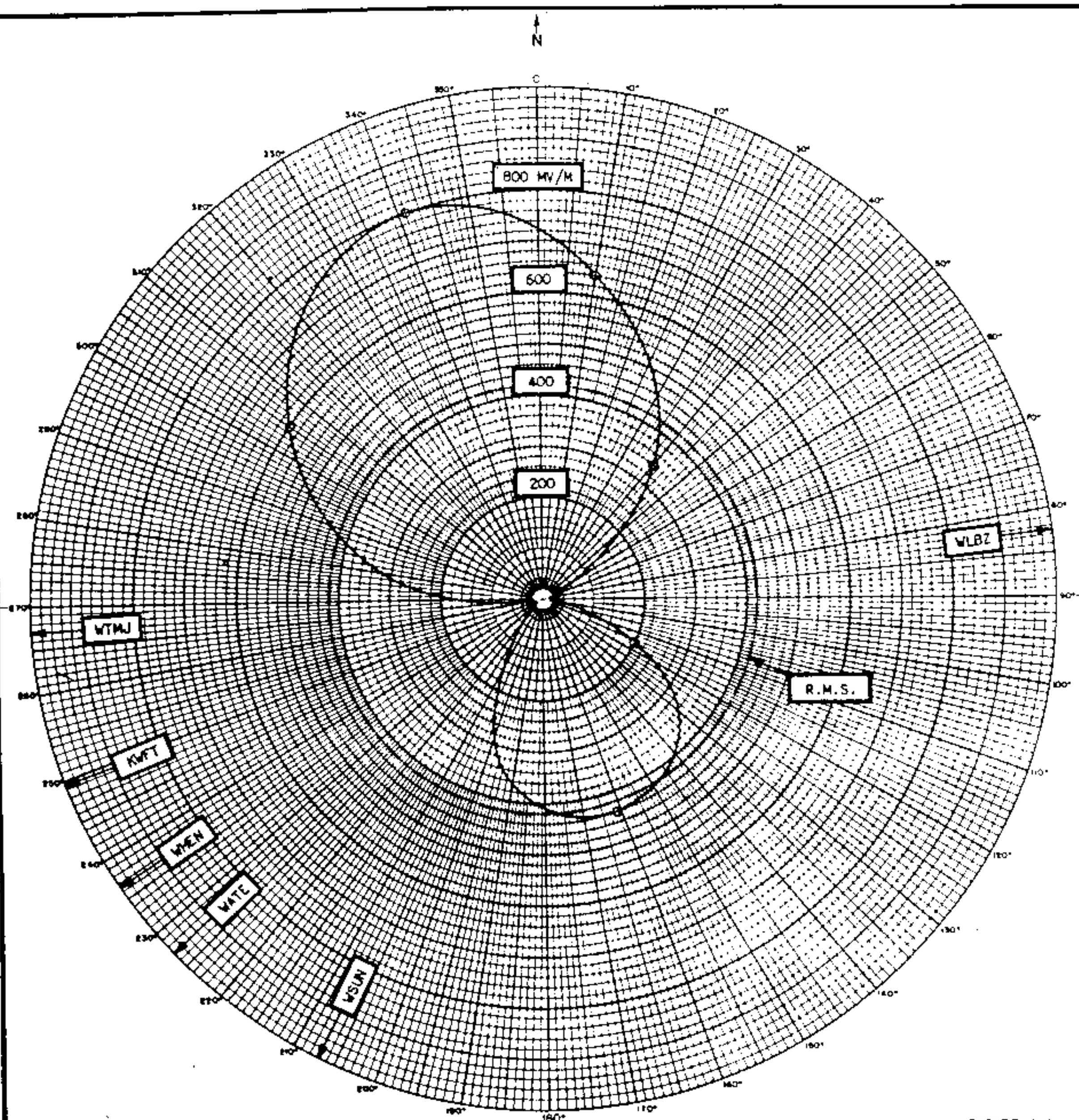
1

WVMT

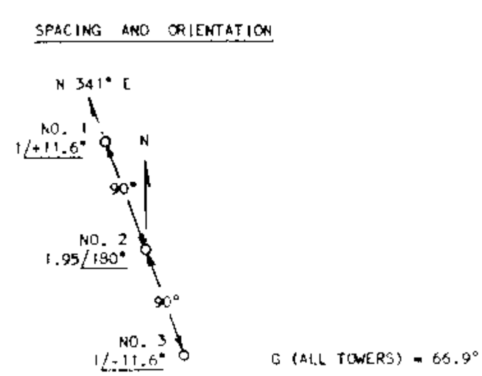
Measured Night (5-28-63ct)

Station WVMT
Burlington, Vermont

5kw,DA-2,U
620 kc



HORIZONTAL RADIATION PATTERN



APPLICANT	WCAX RADIO, INC.
LOCATION	BURLINGTON, VERMONT
FREQUENCY	620 KC/S
POWER	5 KW - U (DA-2)
LATITUDE	44 DEG 32 MIN 04 SEC
LONGITUDE	73 DEG 13 MIN 15 SEC
WHEN USED	NIGHTTIME
R.M.S. FIELD	420 MV/M
DATE	JANUARY 1963

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

FCC File No.BZ-4915
Accepted 5-21-63

Station WVMT
Burlington, Vermont

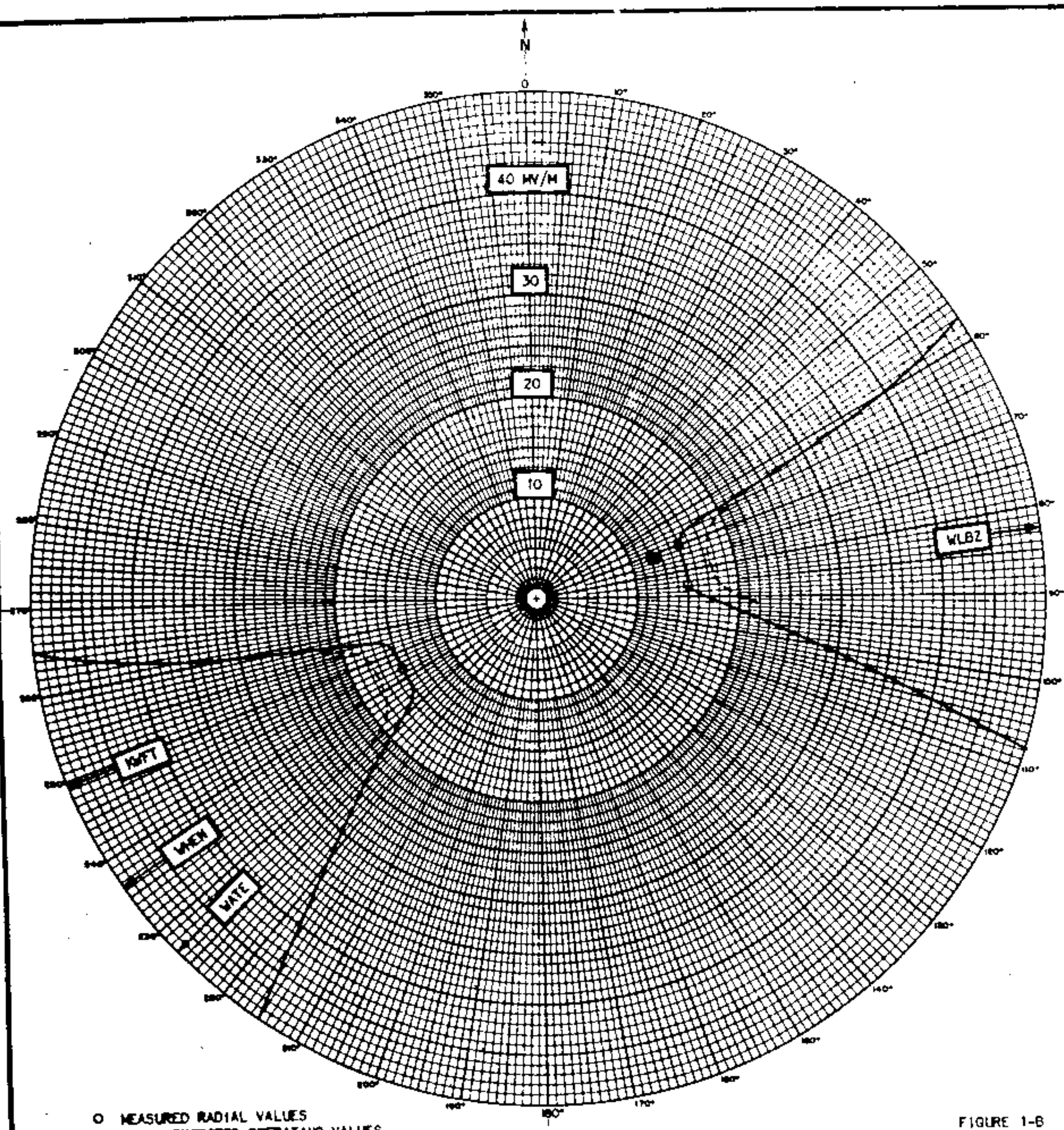
620 kc

WVMT

Measured Night Nulls
(5-28-63ct)

Station WVMT
Burlington, Vermont

5kw,DA-2,U
620kc



HORIZONTAL RADIATION PATTERN

EXPANDED VIEW

APPLICANT	WCAX RADIO, INC.
LOCATION	BURLINGTON, VERMONT
FREQUENCY	620 KC/S
POWER	5 KW - U (DA-2)
LATITUDE	44 DEG. 32 MIN. 04 SEC.
LONGITUDE	73 DEG. 13 MIN 15 SEC.
WHEN USED	NIGHTTIME
R.M.S. FIELD	420 MV/M
DATE	JANUARY 1963

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

FCC File No.BZ-4915
Accepted 5-21-63

Station WVMT
Burlington, Vermont

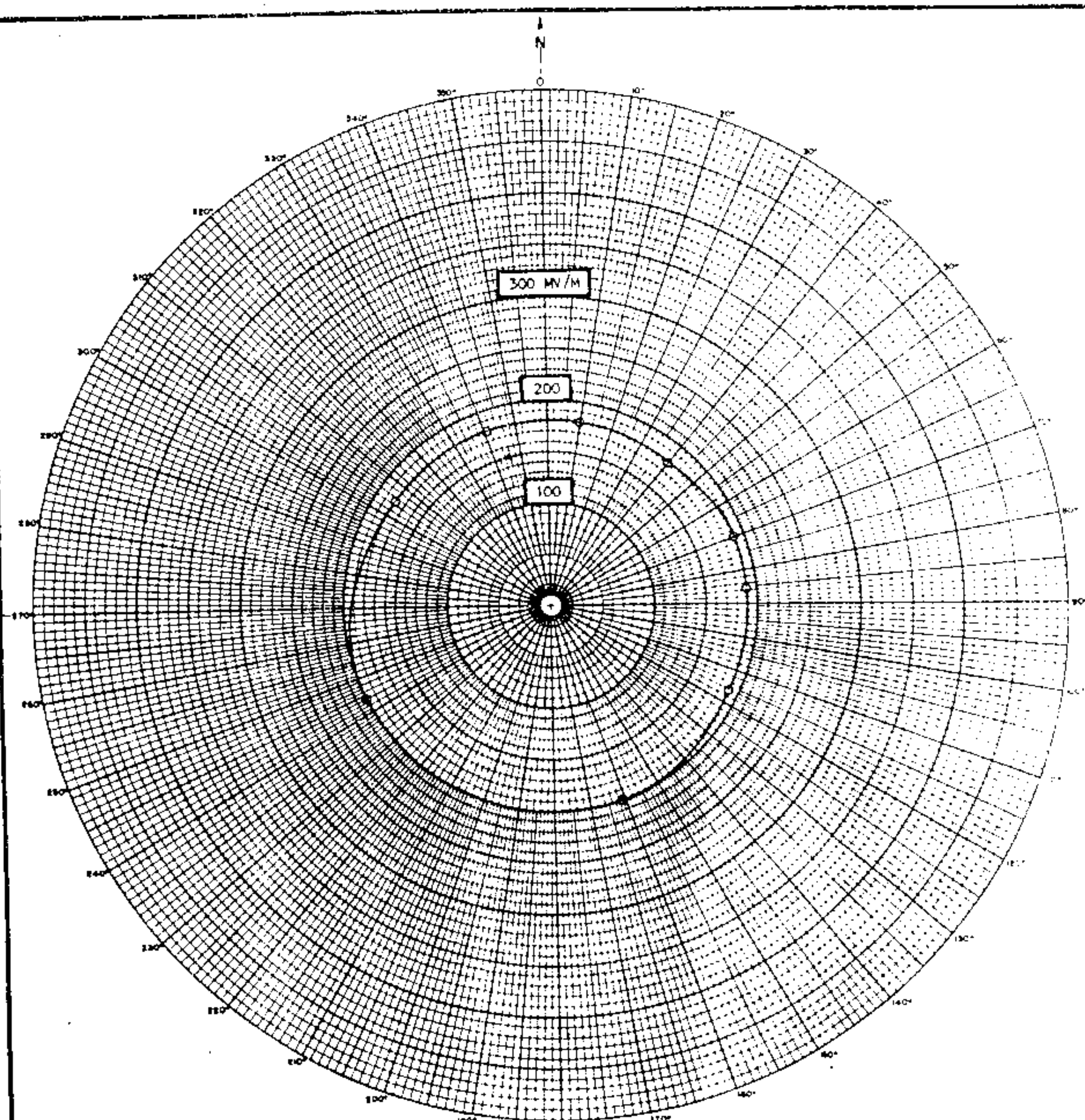
620 kc

WVMT

Measured Non-DA
(5-28-63ct)

Station WVMT
Burlington, Vermont

5kw,DA-2,U
620 kc



O MEASURED RADIAL VALUES

FIGURE 1-C

HORIZONTAL RADIATION PATTERN

NON-DIRECTIONAL SURVEY

APPLICANT	WCAX RADIO, INC.
LOCATION	BURLINGTON, VERMONT
FREQUENCY	620 KC/S
POWER	1 KW
LATITUDE	44 DEG 32 MIN 0 SEC
LONGITUDE	73 DEG 13 MIN 16 SEC
WHEN USED	NON-DIRECTIONAL SURVEY ONLY
RMS FIELD	190 MV/M
DATE	JANURY 1963

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

FCC File No.BZ-4915
Accepted 5-21-63

Station WVMT
Burlington, Vermont

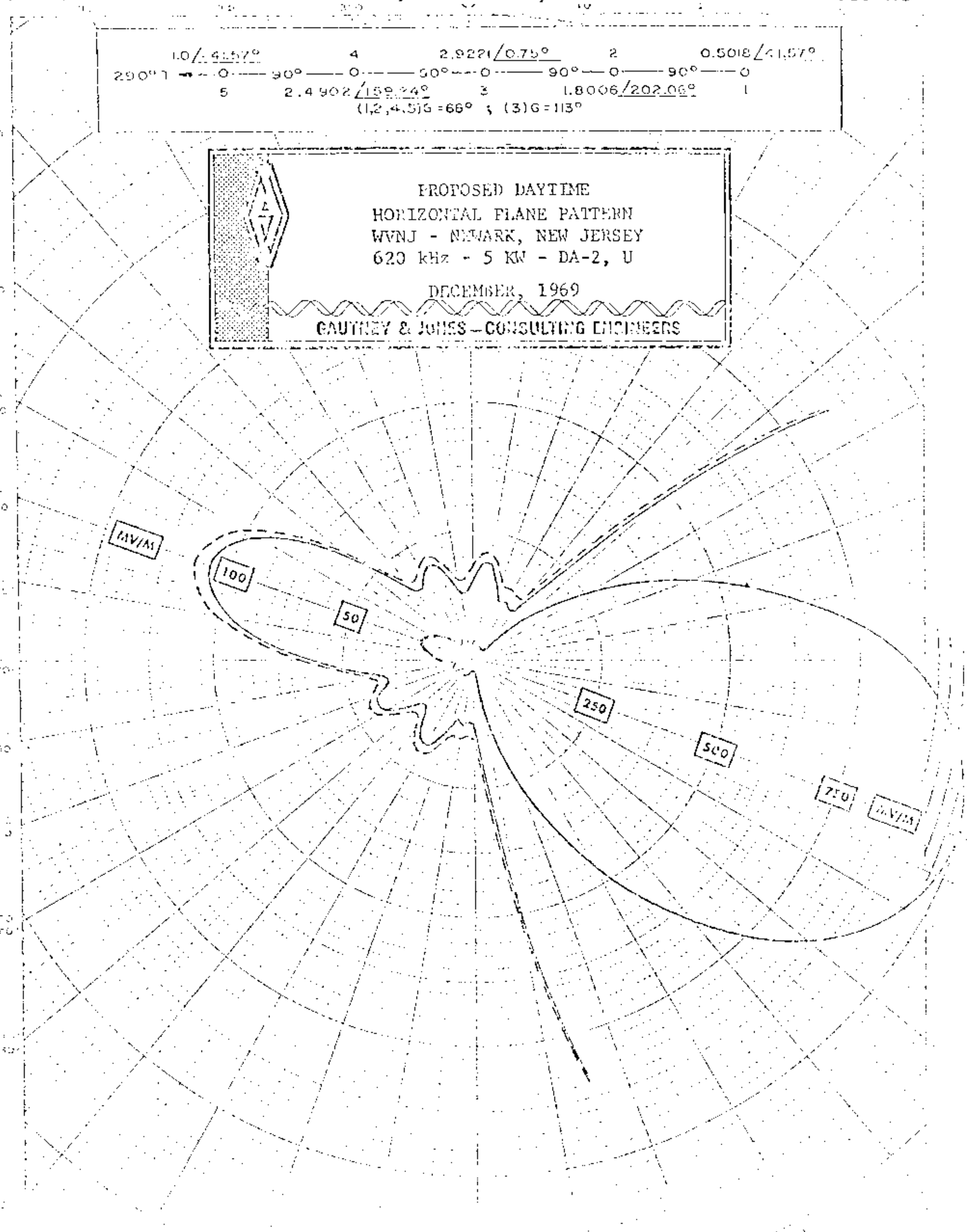
620 kc

WVNJ

Proposed Day
(5-27-70ct)

Station WVNJ
Newark, New Jersey

5kw,DA-2,U
620 kc



North Latitude 40° 47' 51"
West Longitude 74° 21' 36"

RMS: 400 MV/M

FCC File No.BP-18758
Accepted 4-28-70

Station WVNJ
Newark, New Jersey

620 kc

Prep Eng

WVNJ

9/16/48 GO

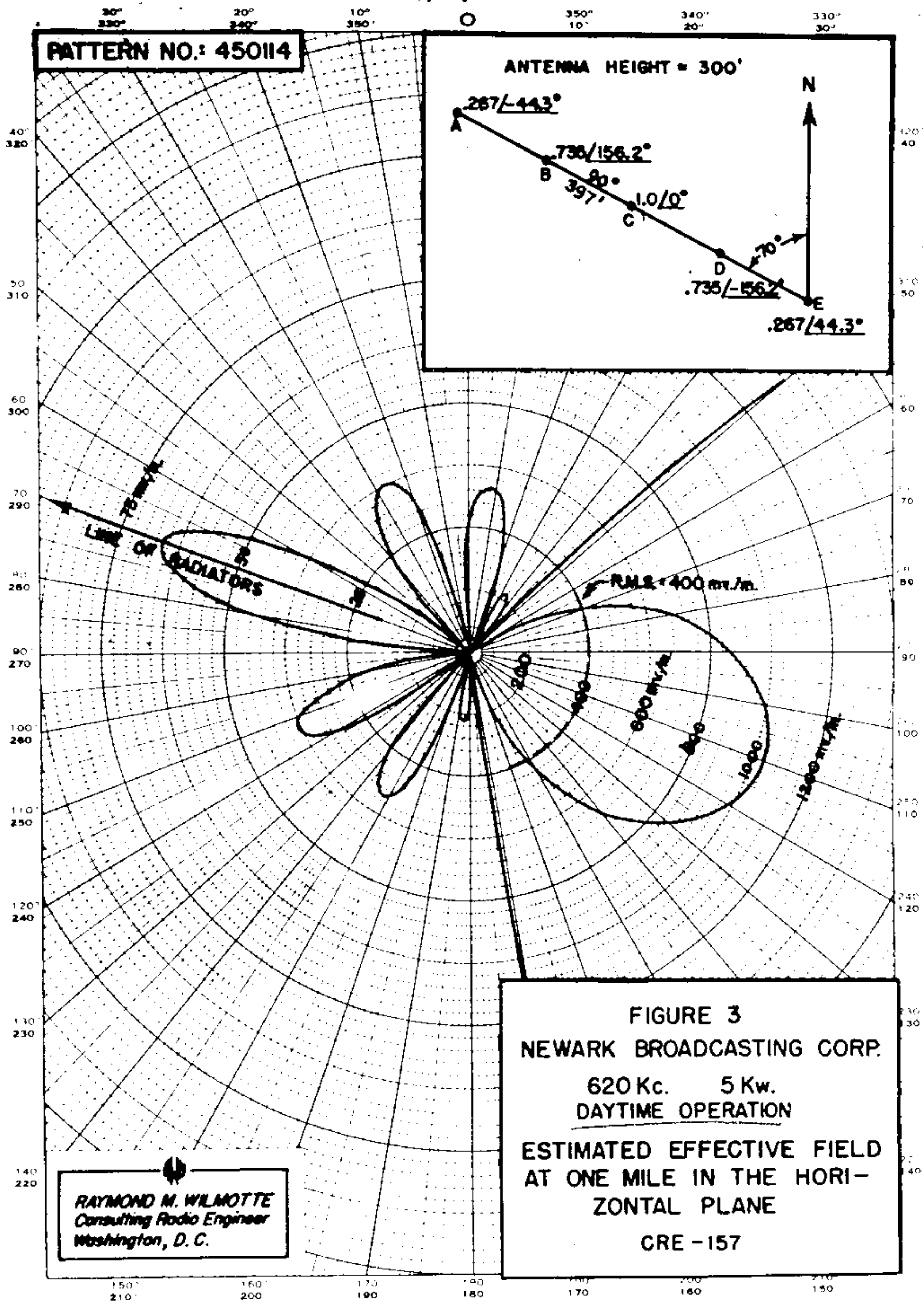


FIGURE 3
NEWARK BROADCASTING CORP.
620 Kc. 5 Kw.
DAYTIME OPERATION
ESTIMATED EFFECTIVE FIELD AT ONE MILE IN THE HORIZONTAL PLANE
CRE -157

WVNJ

MEASURED DAY

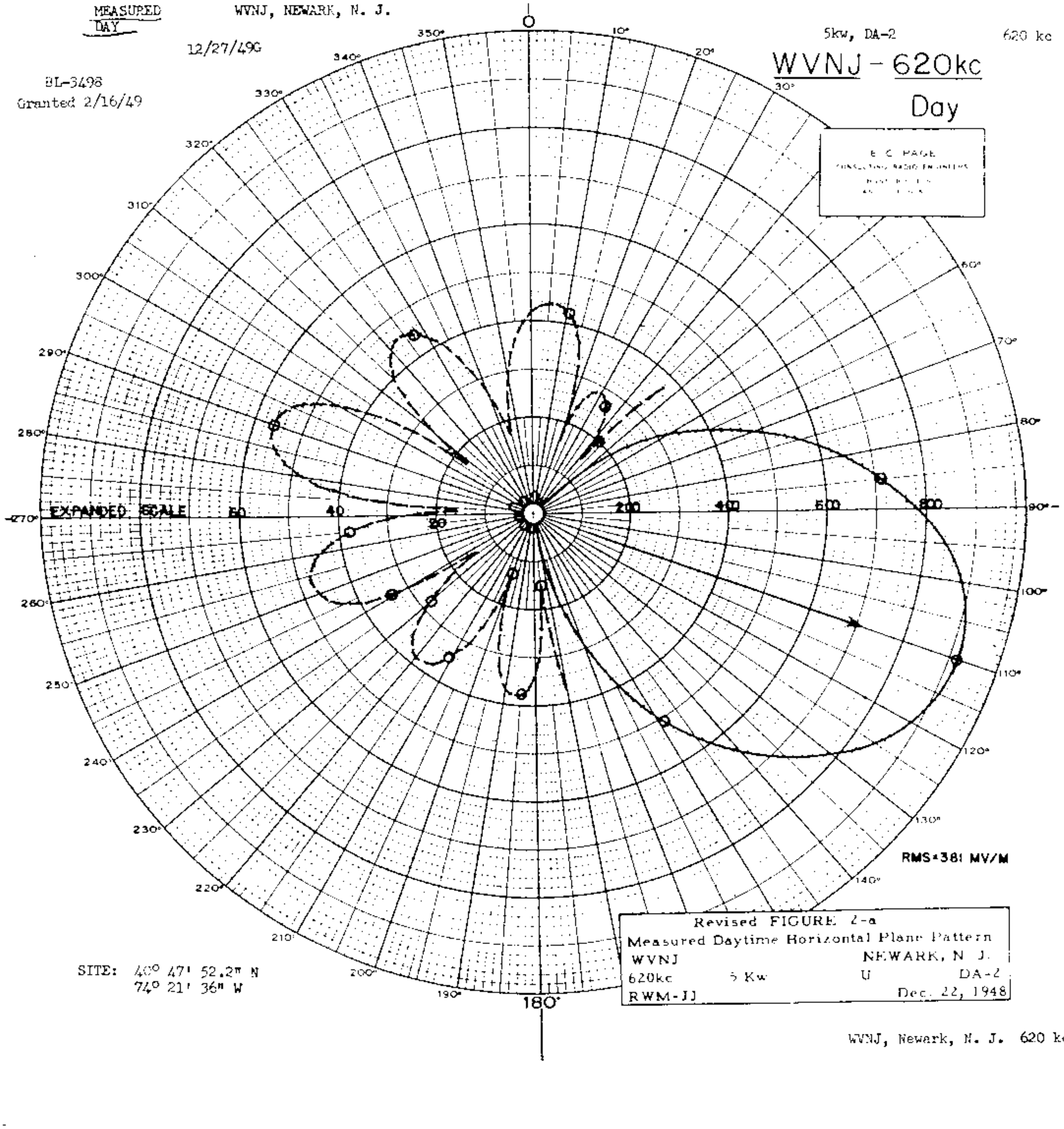
WVNJ, NEWARK, N. J.

5kw, DA-2

620 kc

12/27/49G

BL-3498
Granted 2/16/49



Revised FIGURE 2-a
Measured Daytime Horizontal Plane Pattern

WVNJ		NEWARK, N. J.	
620kc	5 Kw	U	DA-2
RWM-JJ			Dec. 22, 1948

SITE: 40° 47' 52.2" N
74° 21' 36" W

WVNJ, Newark, N. J. 620 kc

WVNJ

15.6

MEASURED
NIGHT

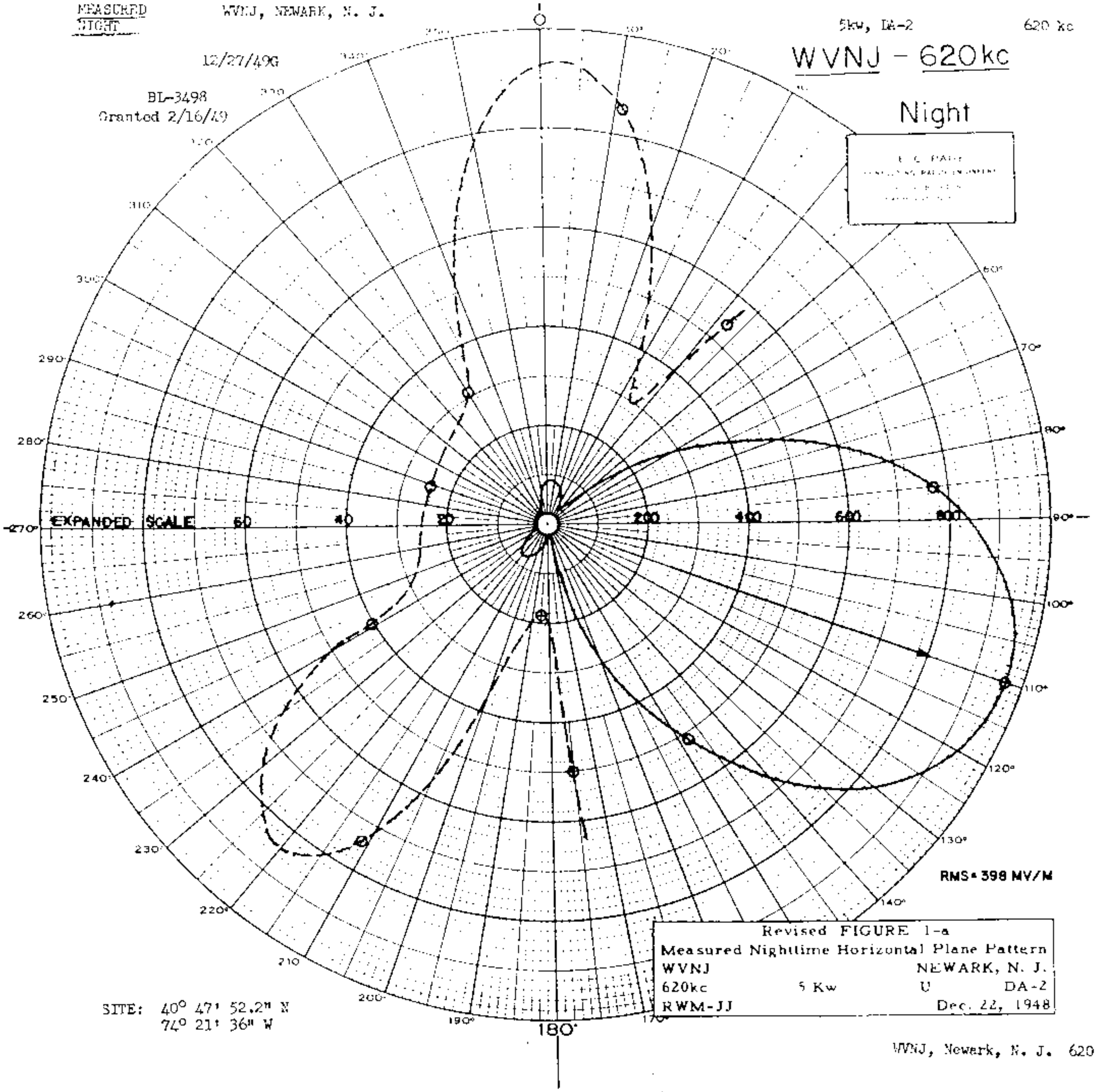
WVNJ, NEWARK, N. J.

5kw, DA-2

620 kc

12/27/49G

BL-3498
Granted 2/16/49



Revised FIGURE 1-a
Measured Nighttime Horizontal Plane Pattern
WVNJ NEWARK, N. J.
620kc 5 Kw U DA-2
RWM-JJ Dec. 22, 1948

SITE: 40° 47' 52.2" N
74° 21' 36" W

WVNJ, Newark, N. J. 620 kc

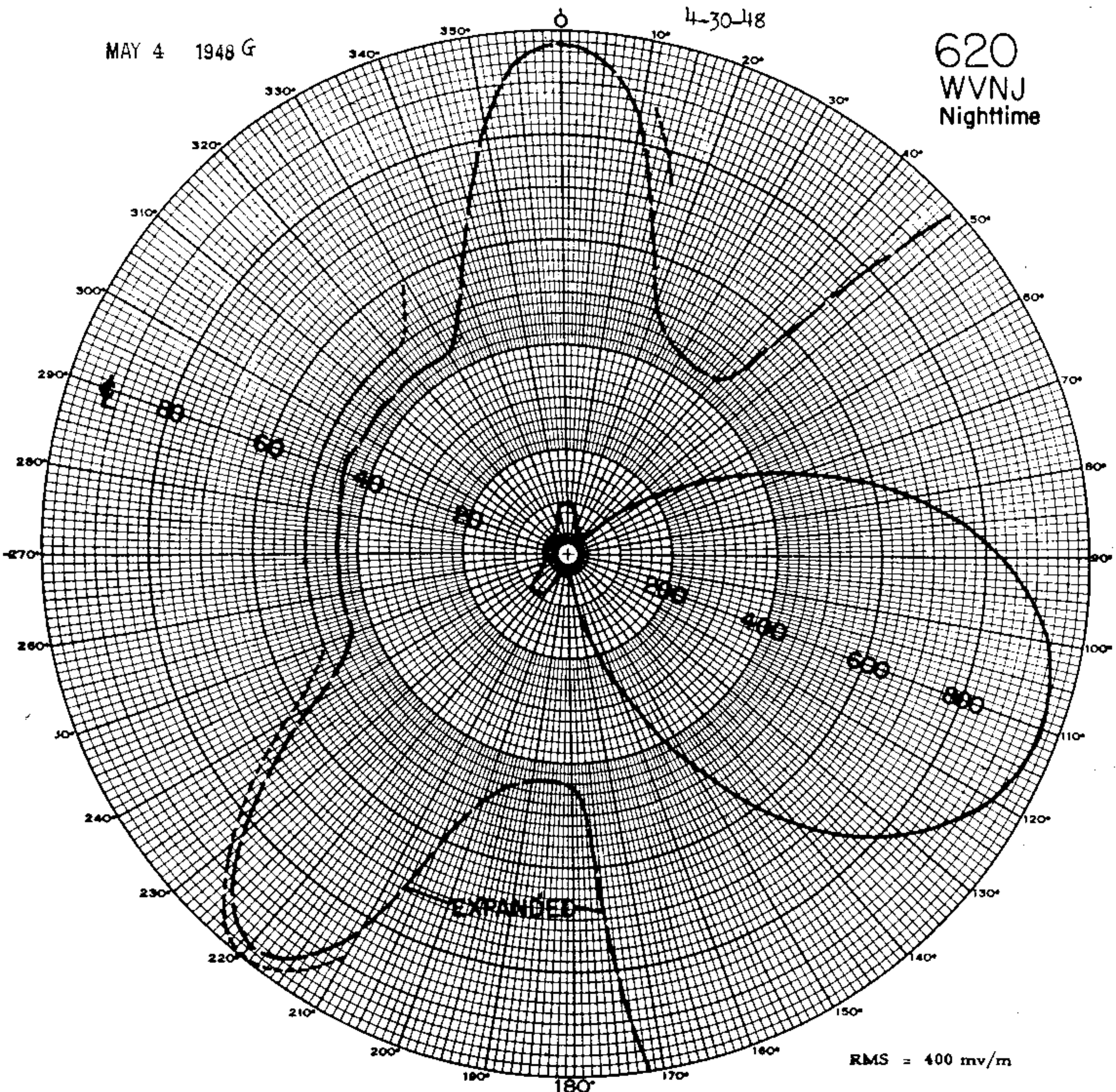
Prop Nite

WVNJ
620

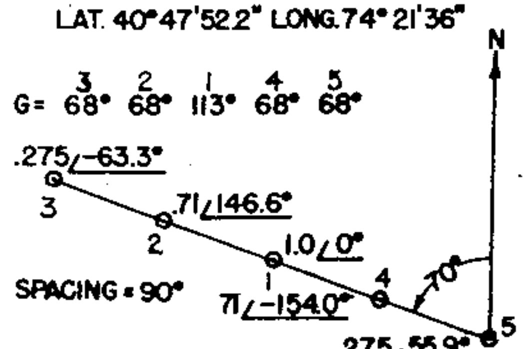
MAY 4 1948 G

4-30-48

620
WVNJ
Nighttime



RMS = 400 mv/m



Nighttime Horizontal Plane Radiation Pattern

PROPOSED STATION, NEWARK, N. J.

Newark Broadcasting Corp.

620 kc 5 kw U DA-2

E. C. PAGE
Consulting Radio Engineers
Washington, D.C.

VRE-JJ
APRIL 21, 1948

FIGURE I

4-30-48

WWNK

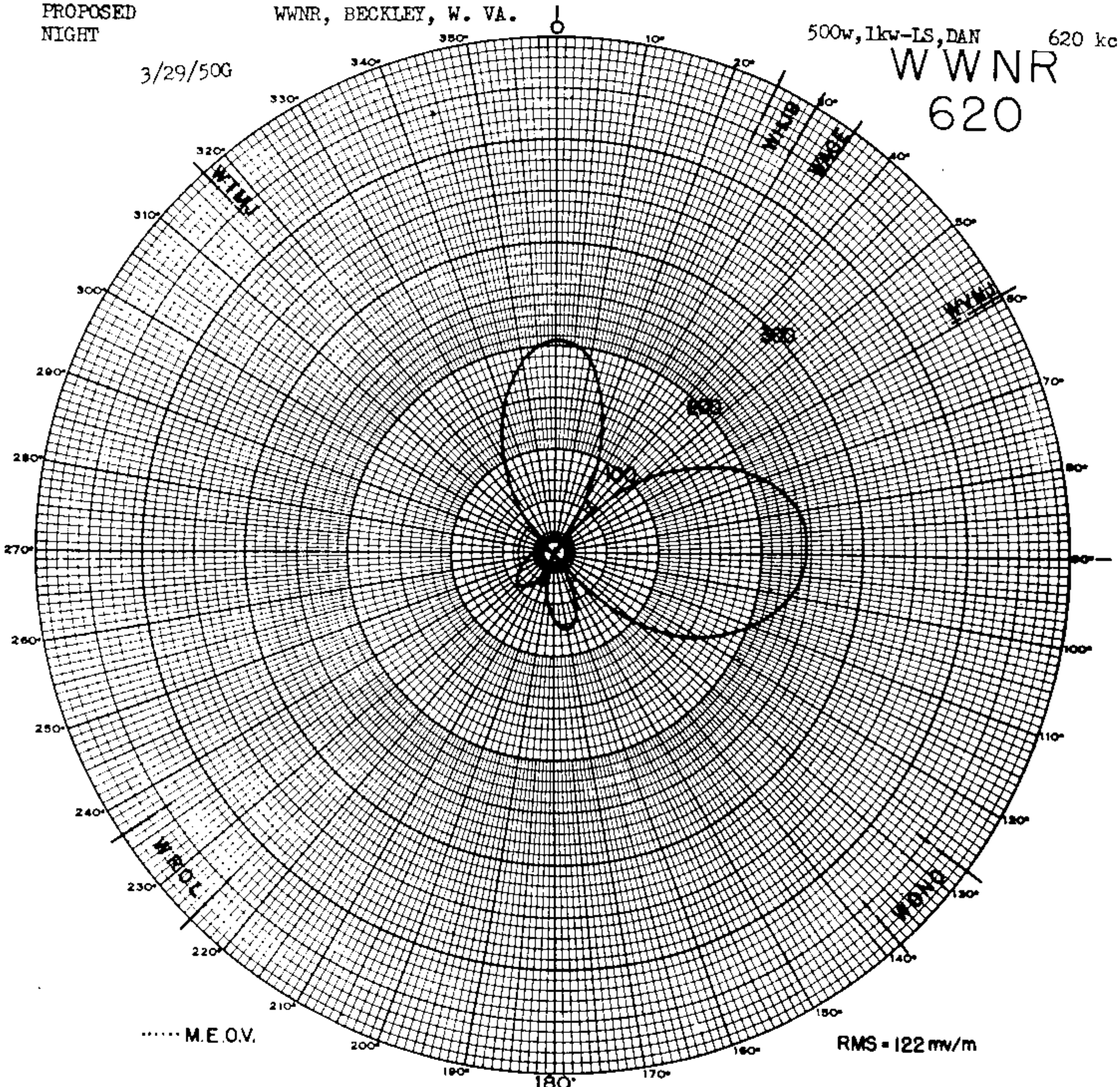
PROPOSED
NIGHT

WWNR, BECKLEY, W. VA.

500w,1kw-LS,DAN 620 kc

WWNR
620

3/29/50G



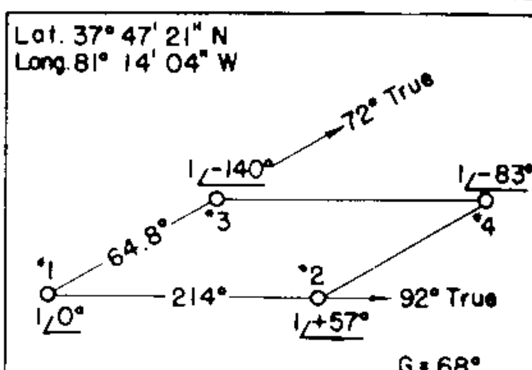


Figure 2-a (amended)

Proposed Horizontal Plane Radiation Pattern
WWNR Beckley, West Virginia
Rahall Broadcasting Company, Inc.
620 kc 500 w-1 kw-LS U DA-N

E. C. PAGE
Consulting Radio Engineers
Washington, DC

VE-JJ March 8, 1950

AMENDMENT RECD 3-15-50 ACC 3-24-50 BP-7392

WWNR, Beckley, W. Va. 620 kc

WWNR

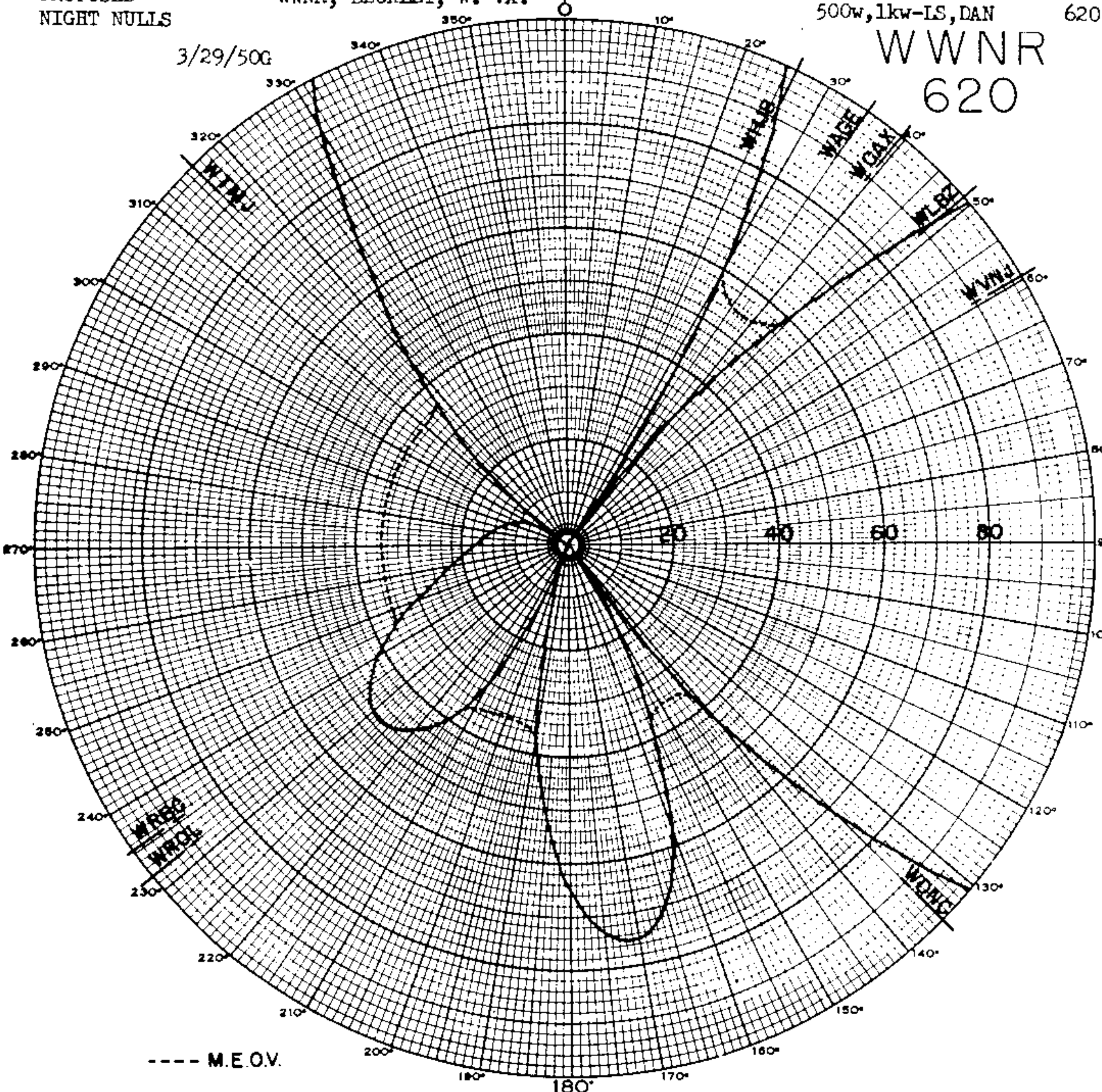
PROPOSED
NIGHT NULLS

3/29/50G

WWNR, BECKLEY, W. VA.

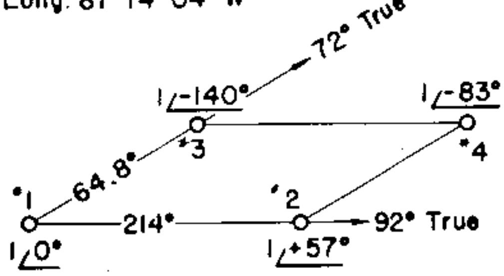
500w,1kw-LS,DAN 620 kc

WWNR
620



---- M.E.O.V.

Lat. 37° 47' 21" N
Long. 81° 14' 04" W



G = 68°

Figure 2-b (amended)

Expanded Minima
Proposed Horizontal Plane Radiation Pattern
WWNR Beckley, West Virginia
Rahall Broadcasting Company, Inc.
620 kc 500 w - 1 kw-LS U DA-N

E. C. PAGE
Consulting Radio Engineers
Washington, D.C.

VE-JJ March 8, 1950

AMENDMENT RECD 3-15-50 ACC 3/24/50 BP-7392

WWNR, Beckley, W. Va. 620 kc

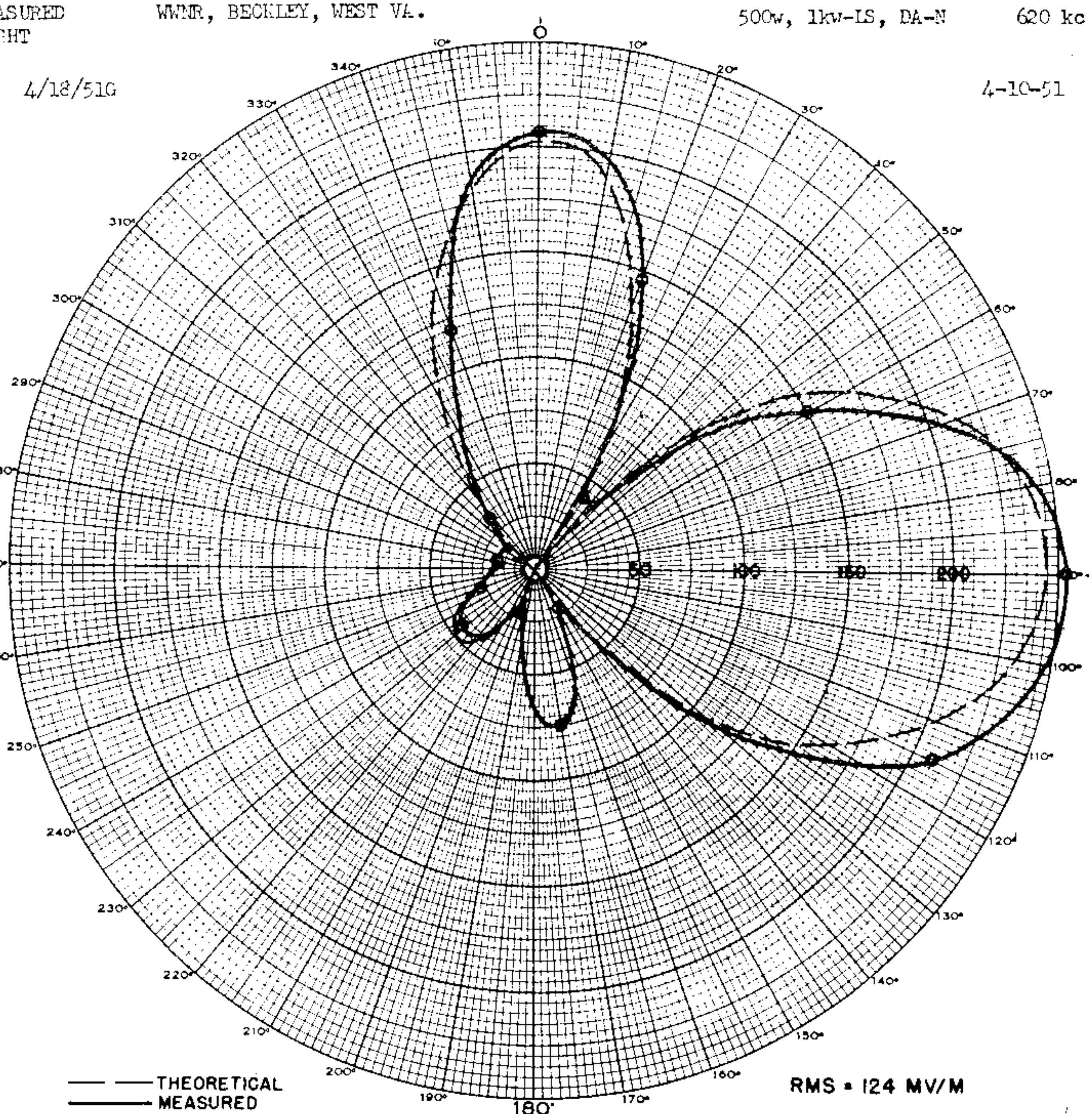
MEASURED
NIGHT

WWNR, BECKLEY, WEST VA.

500w, 1kw-LS, DA-N 620 kc

4/18/51G

4-10-51



— — THEORETICAL
—— MEASURED

RMS = 124 MV/M

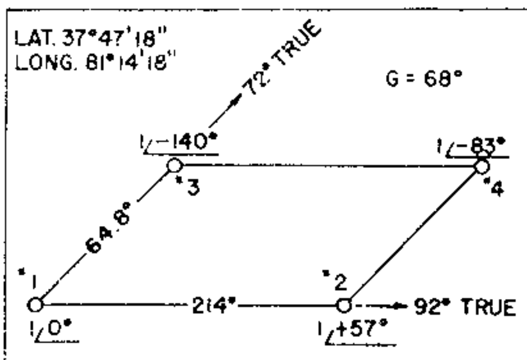


Figure 1-a

Horizontal Plane Radiation Patterns
WWNR Beckley, West Virginia
Rahall Broadcasting Company, Inc.
620 kc 500 w-1 kw-LS U DA-N

E. C. PAGE
Consulting Radio Engineers
Washington, D.C.

VE-JJ

April 7, 1951

WWNR, Beckley, West Va. 620 kc

WWNN

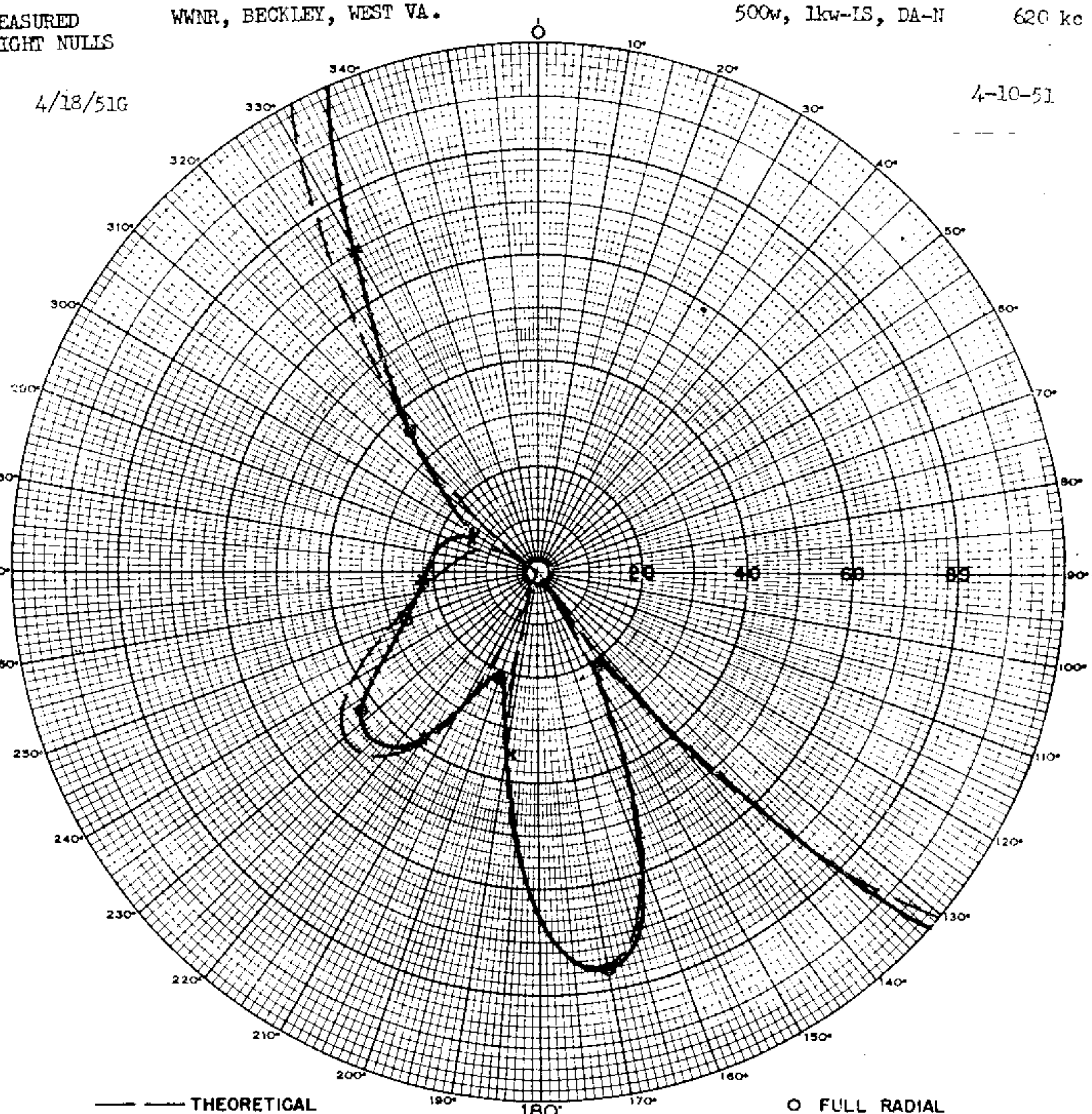
MEASURED
NIGHT NULLS

WWNR, BECKLEY, WEST VA.

500w, 1kw-LS, DA-N 620 kc

4/18/51G

4-10-51



— — THEORETICAL
—— MEASURED

O FULL RADIAL
× STUB RADIAL

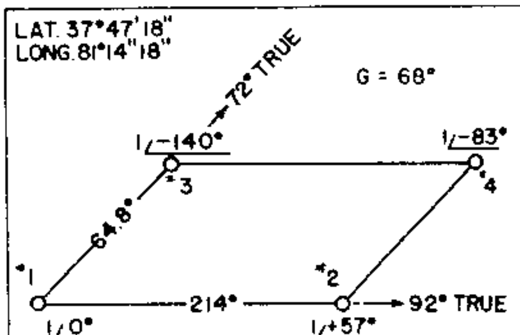


Figure 1-b

Expanded Minima of
Horizontal Plane Radiation Patterns
WWNR Beckley, West Virginia
Rahall Broadcasting Company, Inc.
620 kc 500 w-1 kw-LS U DA-N

E. C. PAGE
Consulting Radio Engineers
Washington, D.C.

VE-JJ

April 7, 1951

WWNR, Beckley, West Va. 620 kc

WWNR

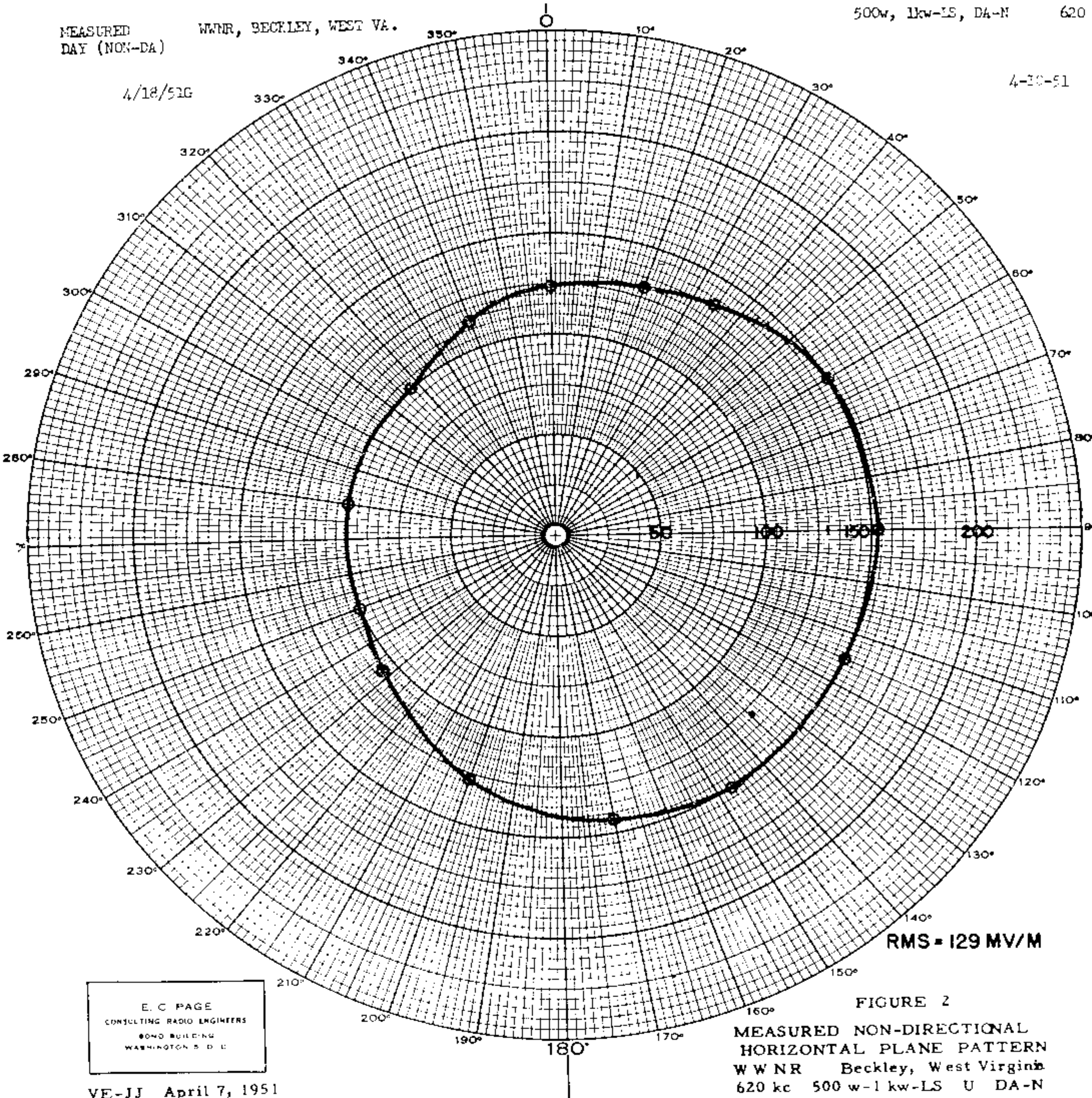
MEASURED
DAY (NON-DA)

WWNR, BECKLEY, WEST VA.

500w, 1kw-LS, DA-N 620 kc

4/18/51G

4-30-51



E. C. PAGE
CONSULTING RADIO ENGINEERS
BOND BUILDING
WASHINGTON 5, D. C.

VE-JJ April 7, 1951

FIGURE 2

MEASURED NON-DIRECTIONAL
HORIZONTAL PLANE PATTERN
WWNR Beckley, West Virginia
620 kc 500 w-1 kw-LS U DA-N

WWNR, Beckley, West Va. 620 kc

DESCRIPTION SHEET

Station:	New	Main Studio:	Timmins, Ontario
Frequency:	630 kHz	Power:	10 kW
Time:	Unlimited	Class:	III
Notification List No. 370		Date:	February 3, 1978
Geographic Location:		North Lat.	48° 26' 50" N. Lat.
		West Long.	81° 23' 08" W. Long.

Antenna System:

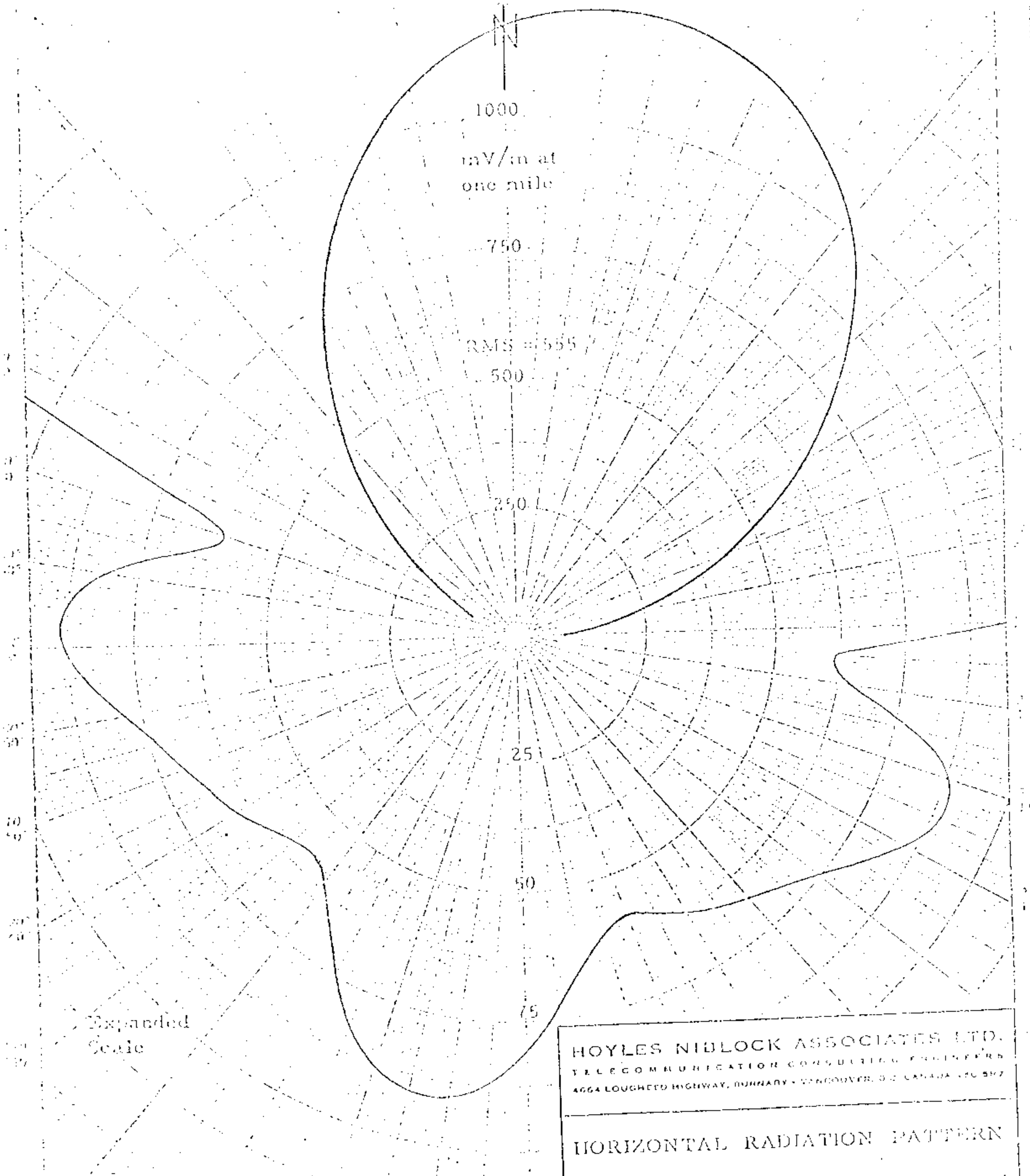
Mode of Operation: DA-1

Elements: Four uniform cross-section, guyed steel towers, base insulated and series fed.

Towers:	1	2	3	4
Height above insulators:	300'	300'	300'	300'
Overall Height:	303'	303'	303'	303'
Spacing:	0°	353.5'	707'	1060.5'
Phasing:	0°	-146.5°	66.8°	-76.7°
Current Radio:	1.00	1.86	1.47	0.44
Orientation:	0°	13°	13°	13°

Ground System: The ground system shall consist of 120, No. 10 copper wire radials buried approximately 8 inches below grade. The system is equivalent to 0.4 λ

Predicted Effective Field: 556 mV/m for 10 kW

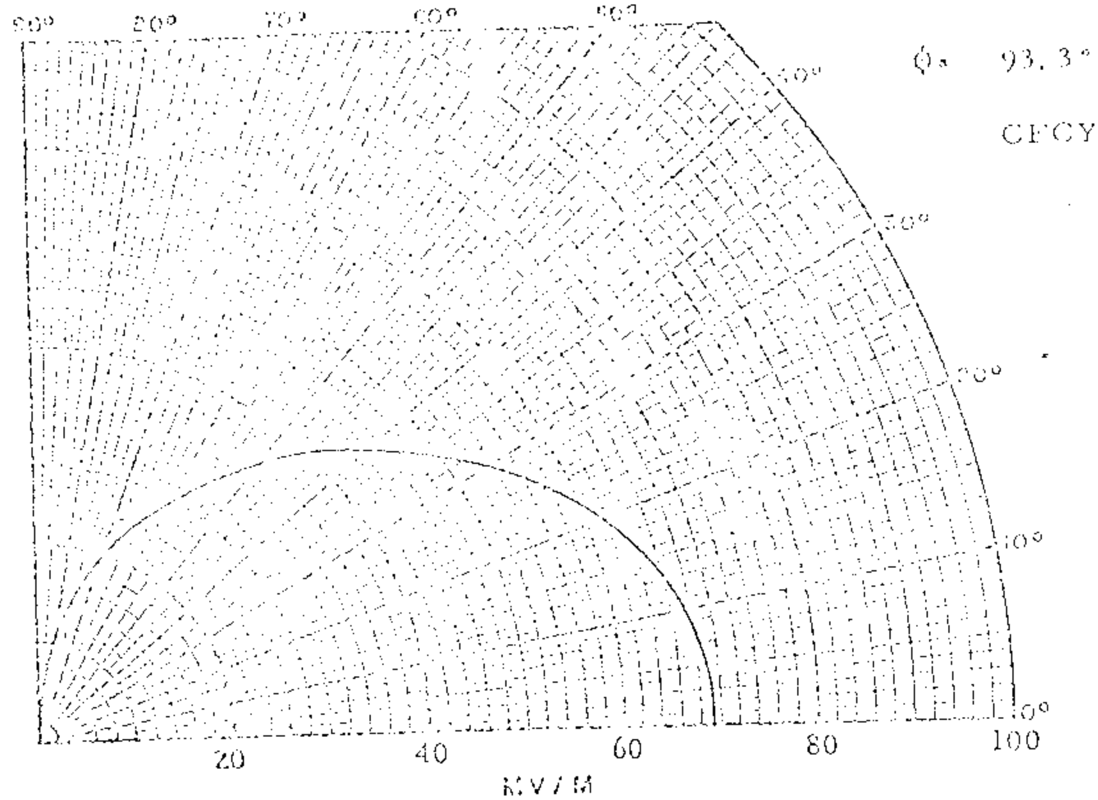


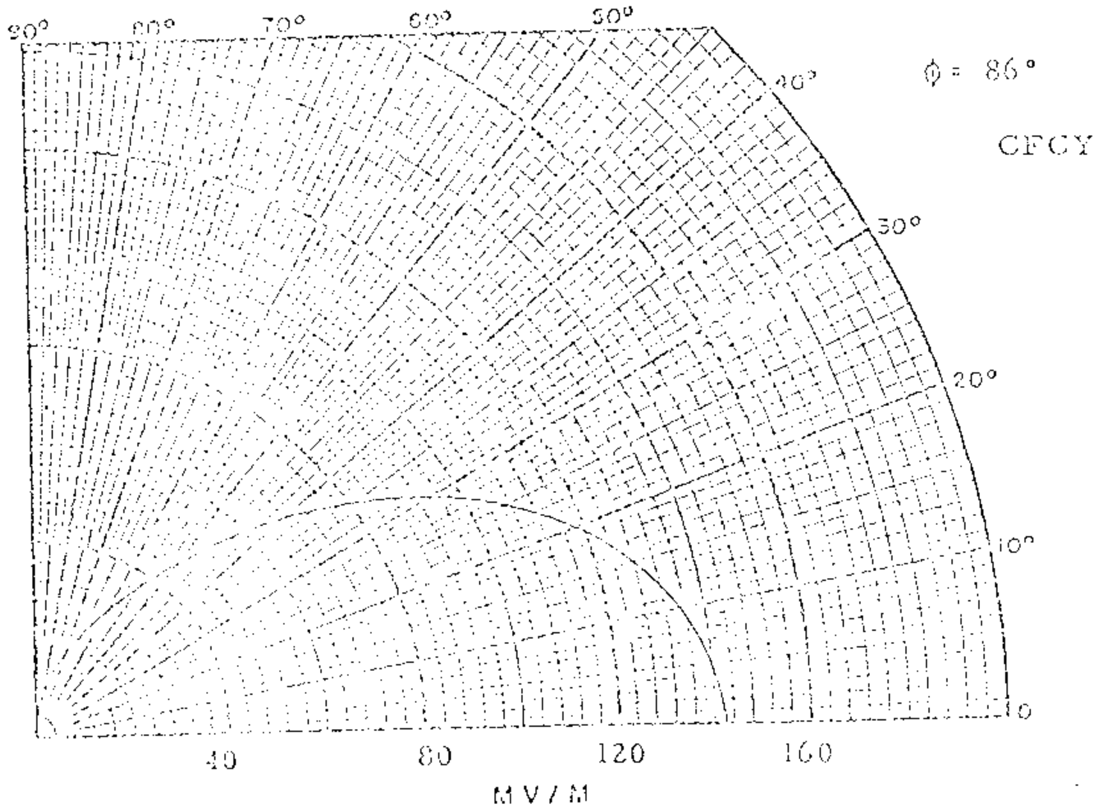
HOYLES NIBLOCK ASSOCIATES LTD.
TELECOMMUNICATION CONSULTING ENGINEERS

HORIZONTAL RADIATION PATTERN

New AM | Timmins, Ontario
630 kHz | 10 kW | DA-1 | Class III

Project: 1333-02 | April 1976



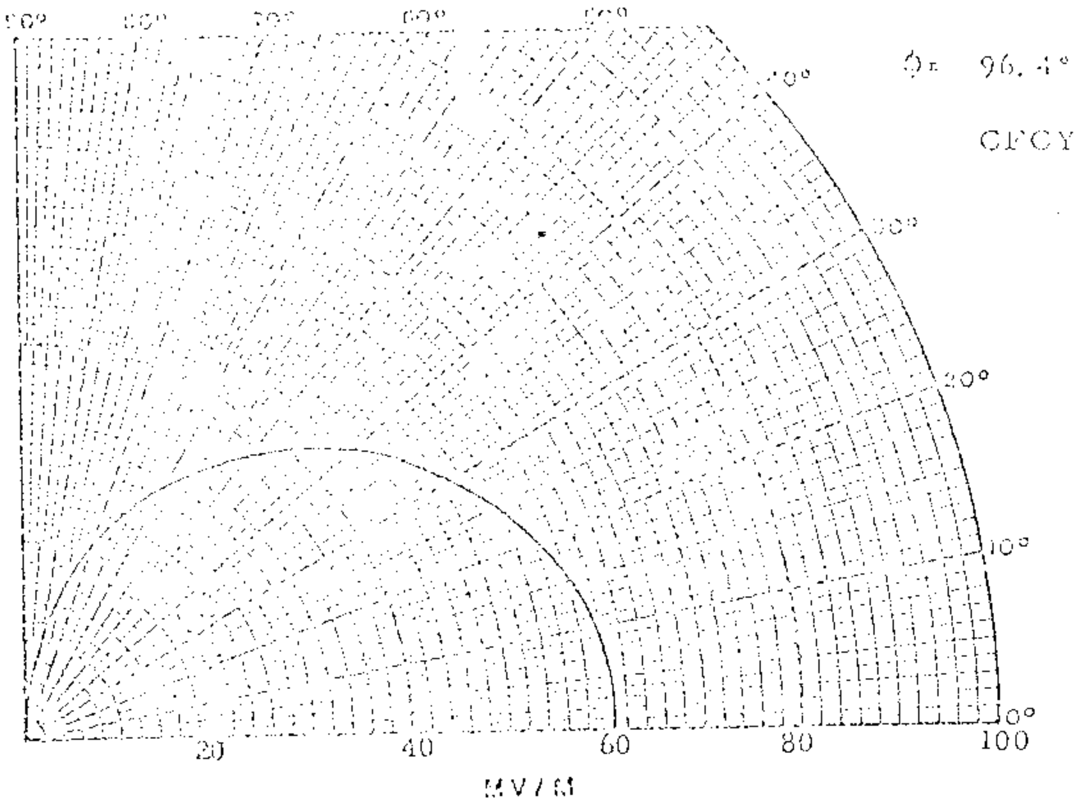


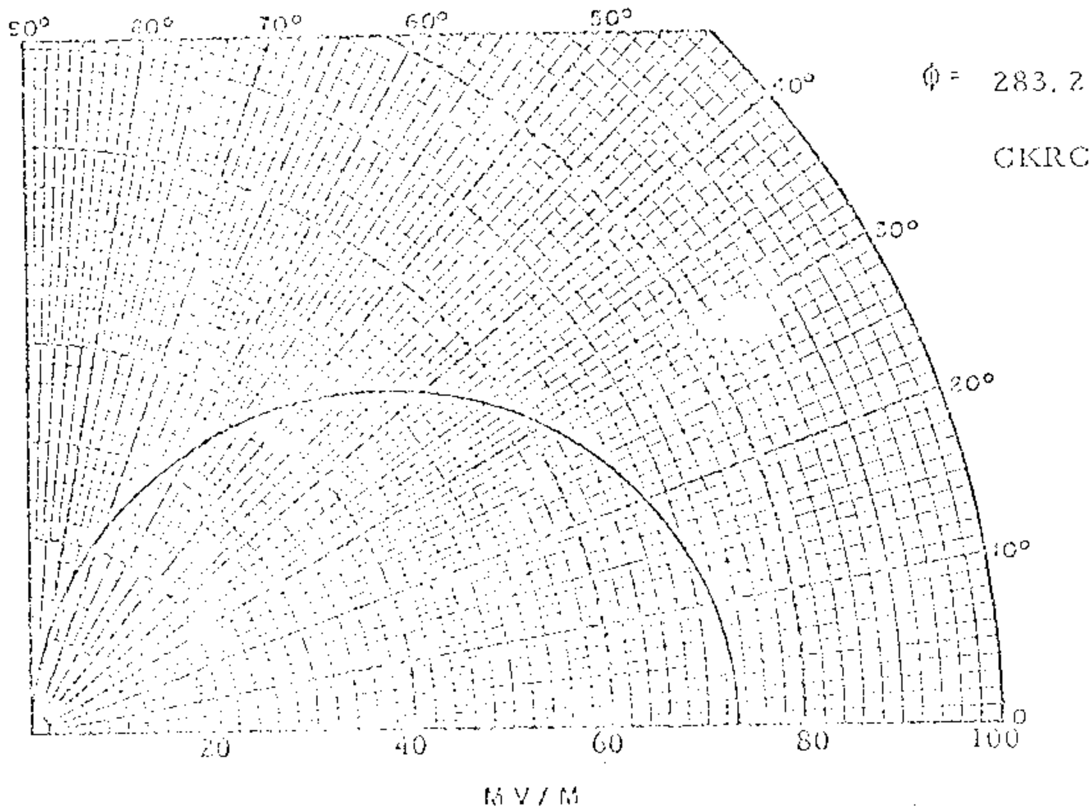
VERTICAL RADIATION PATTERNS

New AM — Timmins, Ontario

630 kHz — 10 kW — DA-1 — Class III

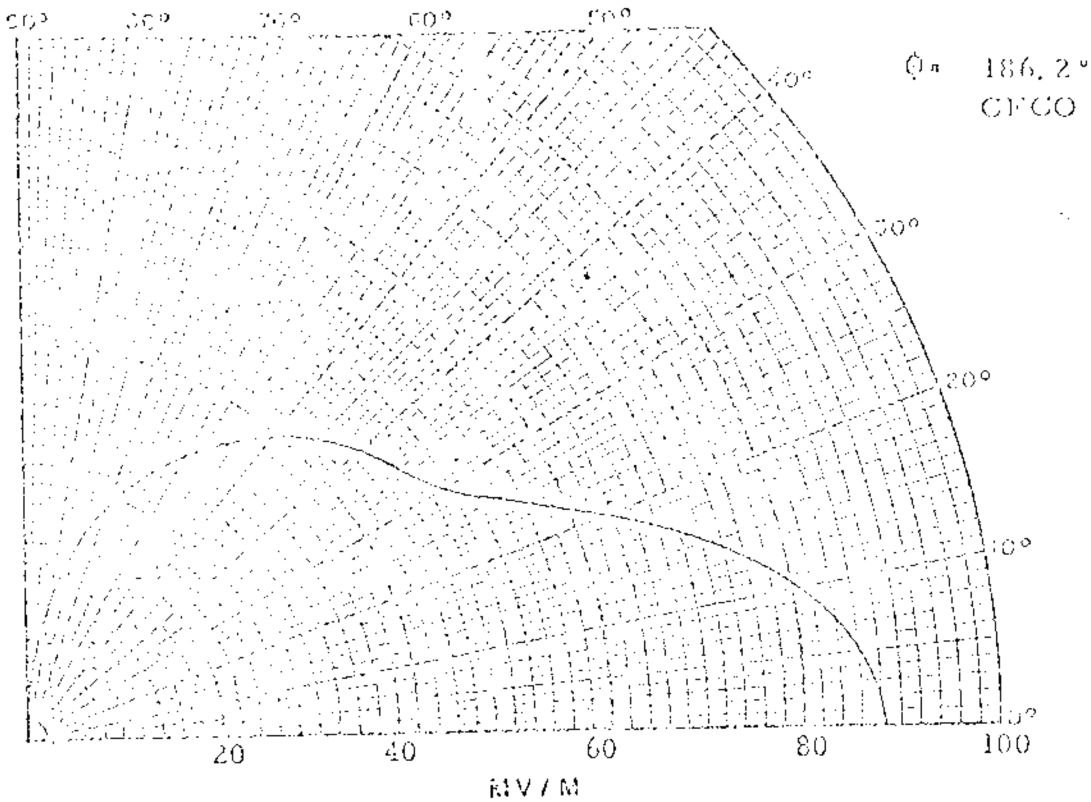
Project: 1331-02 — April 1976

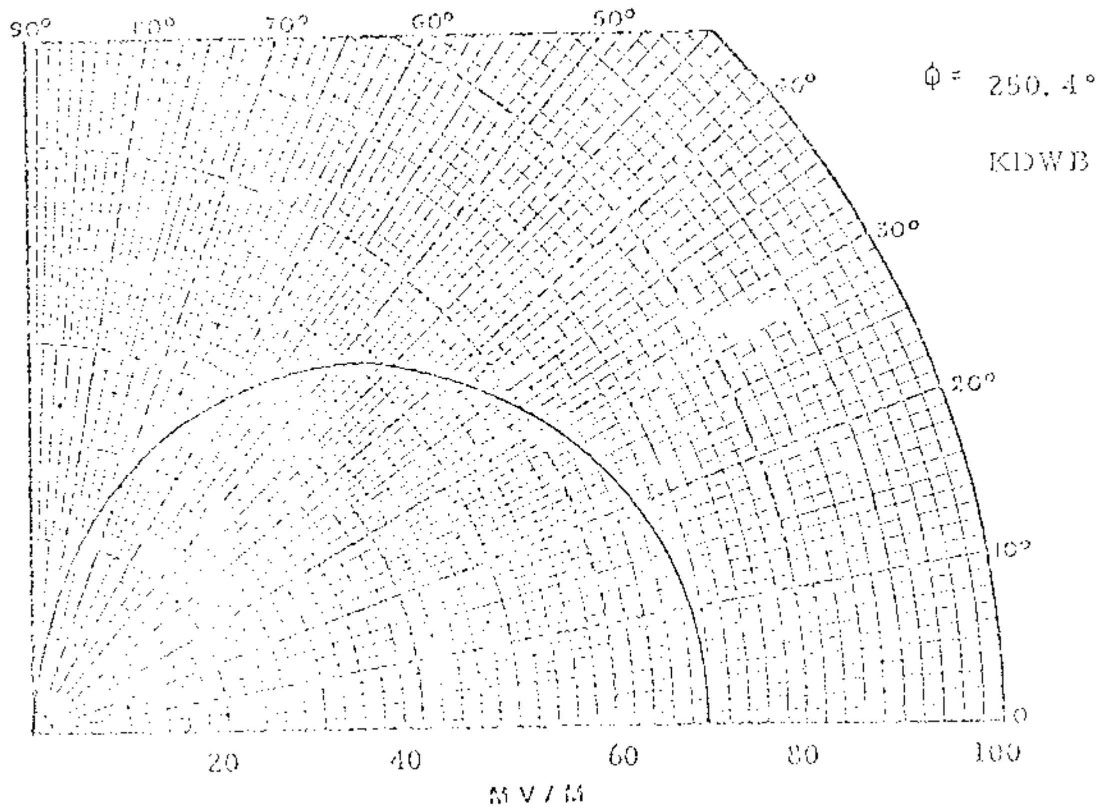




VERTICAL RADIATION PATTERNS

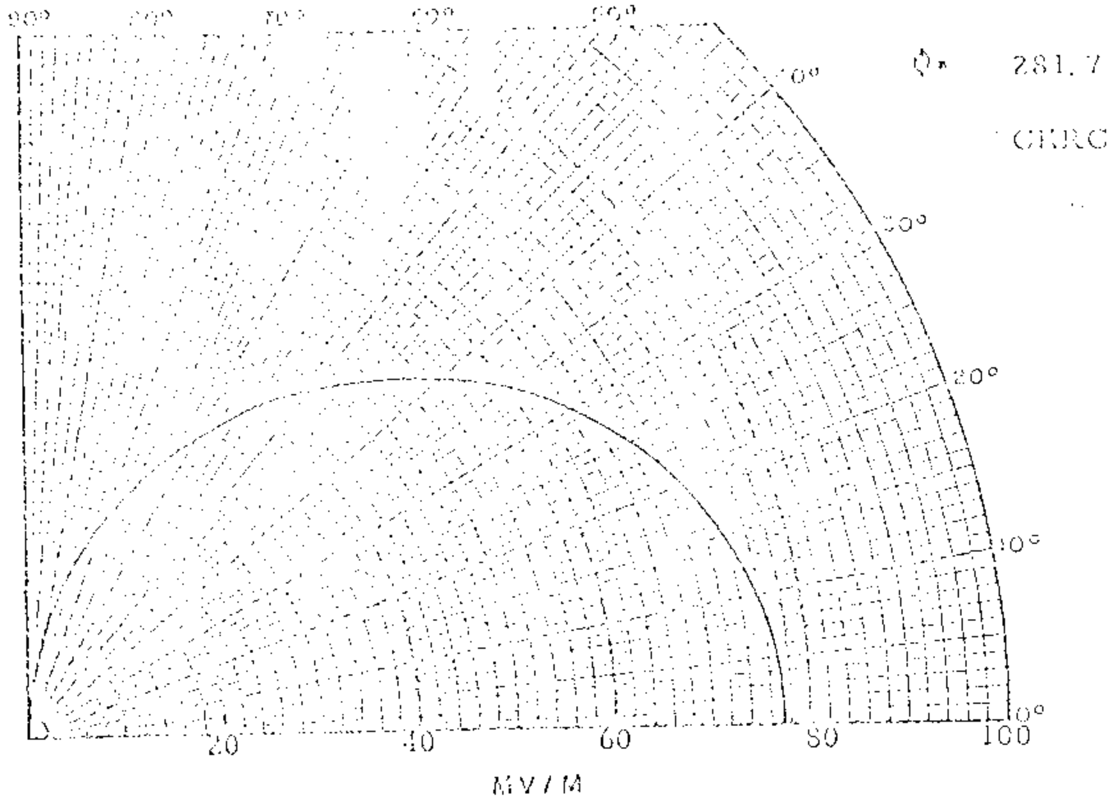
New AM			Timmins, Ontario
630 kHz	10 kW	DA-1	Class III
Project: 1331-02			April 1976

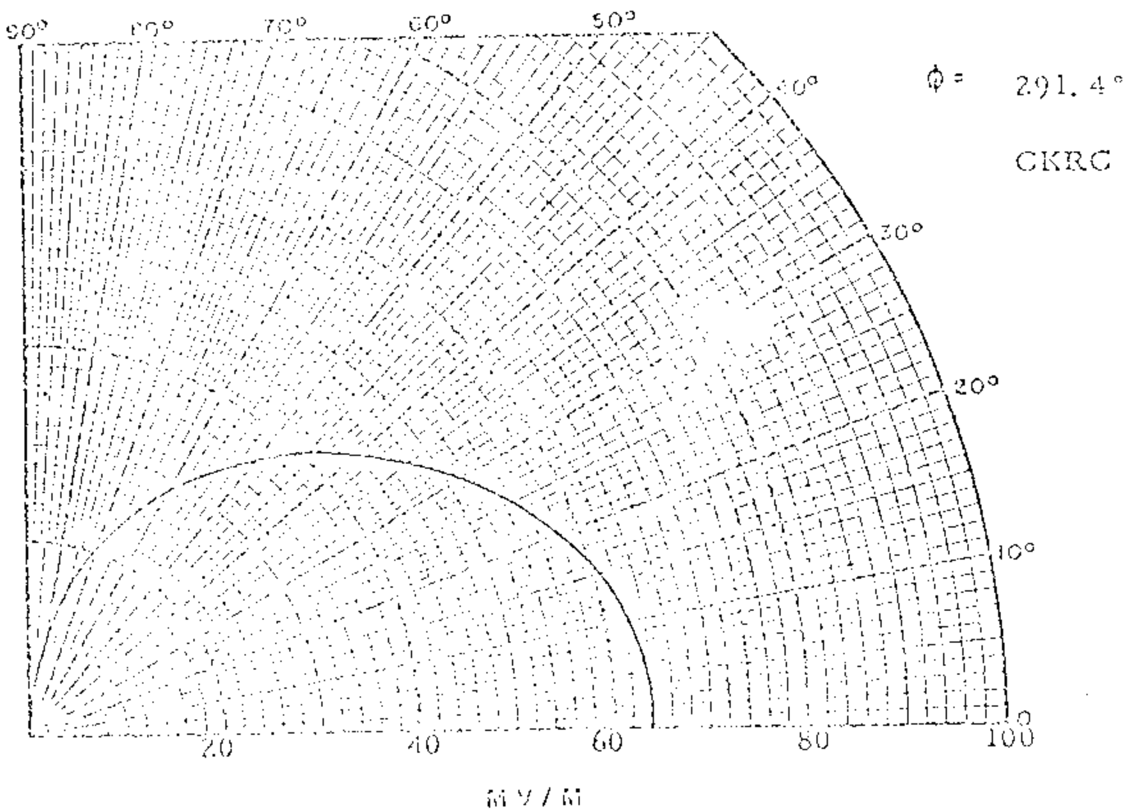




VERTICAL RADIATION PATTERNS

New AM		Timmins, Ontario	
630 kHz	10 kW	DA-1	Class III
Project: 1331-02			April 1976





VERTICAL RADIATION PATTERNS

New AM
630 kHz 10 kW DA-1
Project: 1331-02

Timmins, Ontario
Class III
April 1976

CFCO
IFRB Serial No. 630 | 1,2,0,6,5

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.: 419 | Date: 830606

AUG 8 1983

Assigned frequency (kHz)		(02)	6,3,0
Transmitting station	Name of the station	(03)	C H A T H A M O N
	Call sign	(04)	C F C O
	Additional identification	(05)	
	Station class	(06)	B
	Operational Status	(07)	P
Country		(08)	CAN
Geographical coordinates of the transmitting station		(09)	8 2 W 1 6 5 3 4 2 N 2 0 0 3

(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 [ ] No [X]

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

STATION PARAMETERS	DAYTIME OPERATION		NIGHT-TIME OPERATION	
Station power (kW)	(21)	10.	(31)	1.
r.m.s. value of radiation for station power (mV/m at 1 km)	(25)	890.42	(35)	290.42
Antenna type	(26)	B	(36)	B
Simple vertical antenna electrical height (degrees)	(27)	.	(37)	.

(44) Remarks

COORDINATION UNDER ARTICLE 4:								
COUNTRY	USA							
IN PROGRESS	X							
ACCEPTANCE OBTAINED								

CFCO
630

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

IFRB Se No. 12065

PART II Section I

Description of a directional antenna consisting of vertical conductors

Sheet No. 419

Date 830606

(01) Name of transmitting station: CHATHAM ON

(02) Country: CAN

(03) Hours of operation: D

(04) Total number of towers: 4

(05) Tower No.	(06) Tower field ratio	(07) Phase difference of the field (± degrees)	(08) Electrical tower spacing (degrees)	(09) Angular tower orientation (degrees)	(10) Reference tower indicator	(11) Electrical height of tower (degrees)	(12) Tower structure
1	.682	-13.6	0.	0.	—	76.	—
2	.712	110.25	60.	150.5		76.	
3	1.	0.	263.56	170.		68.	
4	.94	121.5	328.96	168.18		68.	

(14) r.m.s value of radiation: 890.42 mV/m at 1 km

(15) Type of pattern: E

(16) Special quadrature factor: . mV/m at 1 km

(17) SUPPLEMENTARY INFORMATION

CFCO
630

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

IFRB S I No. 12065

PART II Section I

Description of a directional antenna consisting of vertical conductors

Sheet No. 419

Date 830606

(01) Name of transmitting station: CHATHAM ON

(02) Country: CAN

(03) Hours of operation: N

(04) Total number of towers: 3

(05) Tower No.	(06) Tower field ratio	(07) Phase difference of the field (± degrees)	(08) Electrical tower spacing (degrees)	(09) Angular tower orientation (degrees)	(10) Reference tower indicator	(11) Electrical height of tower (degrees)	(12) Tower structure
1	.65	-127.2	0.	0.		76.	
2	1.	0.	84.	189.		76.	
3	.557	136.	150.	195.2		68.	
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(14) r.m.s value of radiation: 290.42 mV/m at 1 km

(15) Type of pattern: E

(16) Special quadrature factor: . mV/m at 1 km

(17) SUPPLEMENTARY INFORMATION

CFCO
630

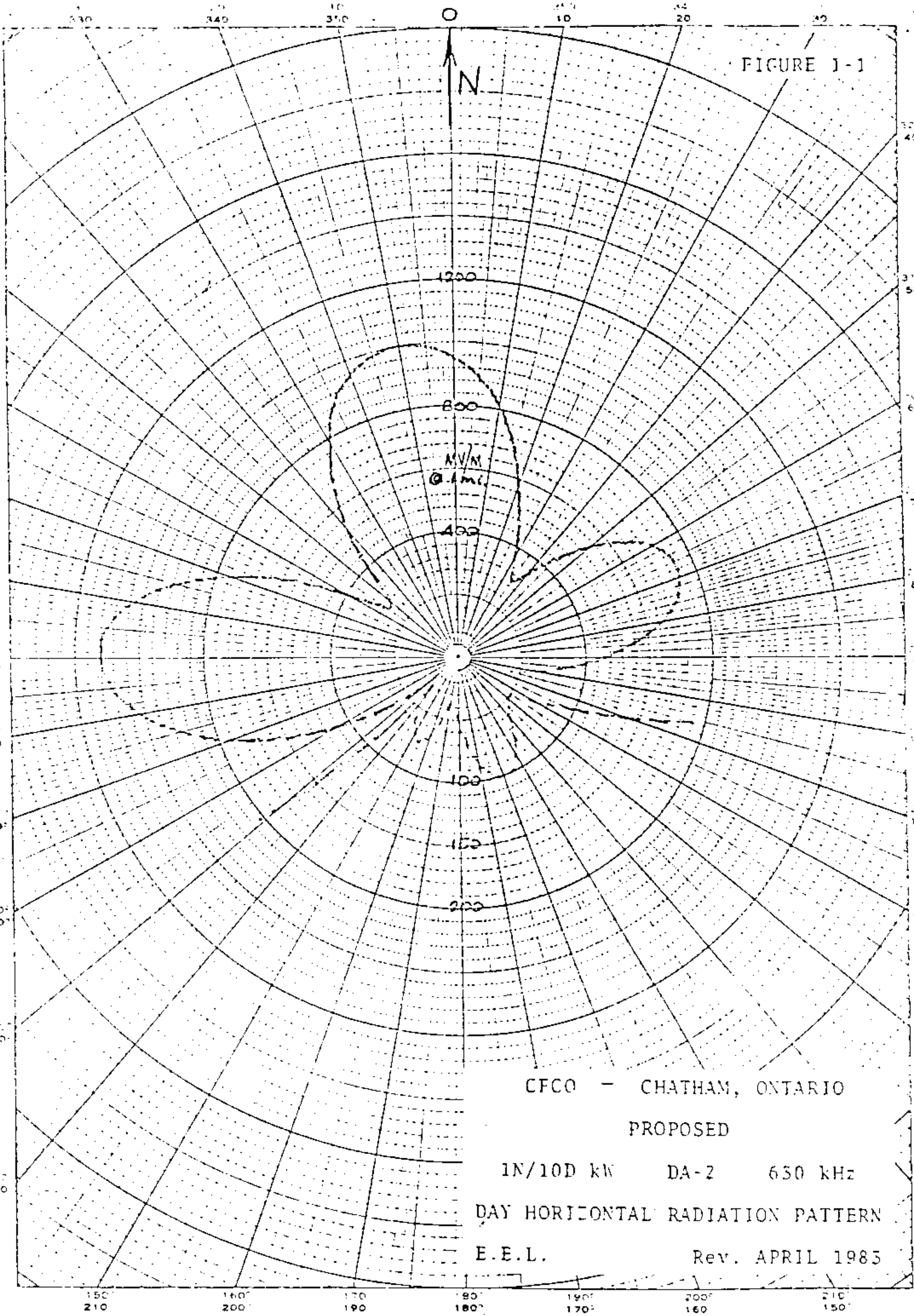


FIGURE 1-1

CFCO - CHATHAM, ONTARIO

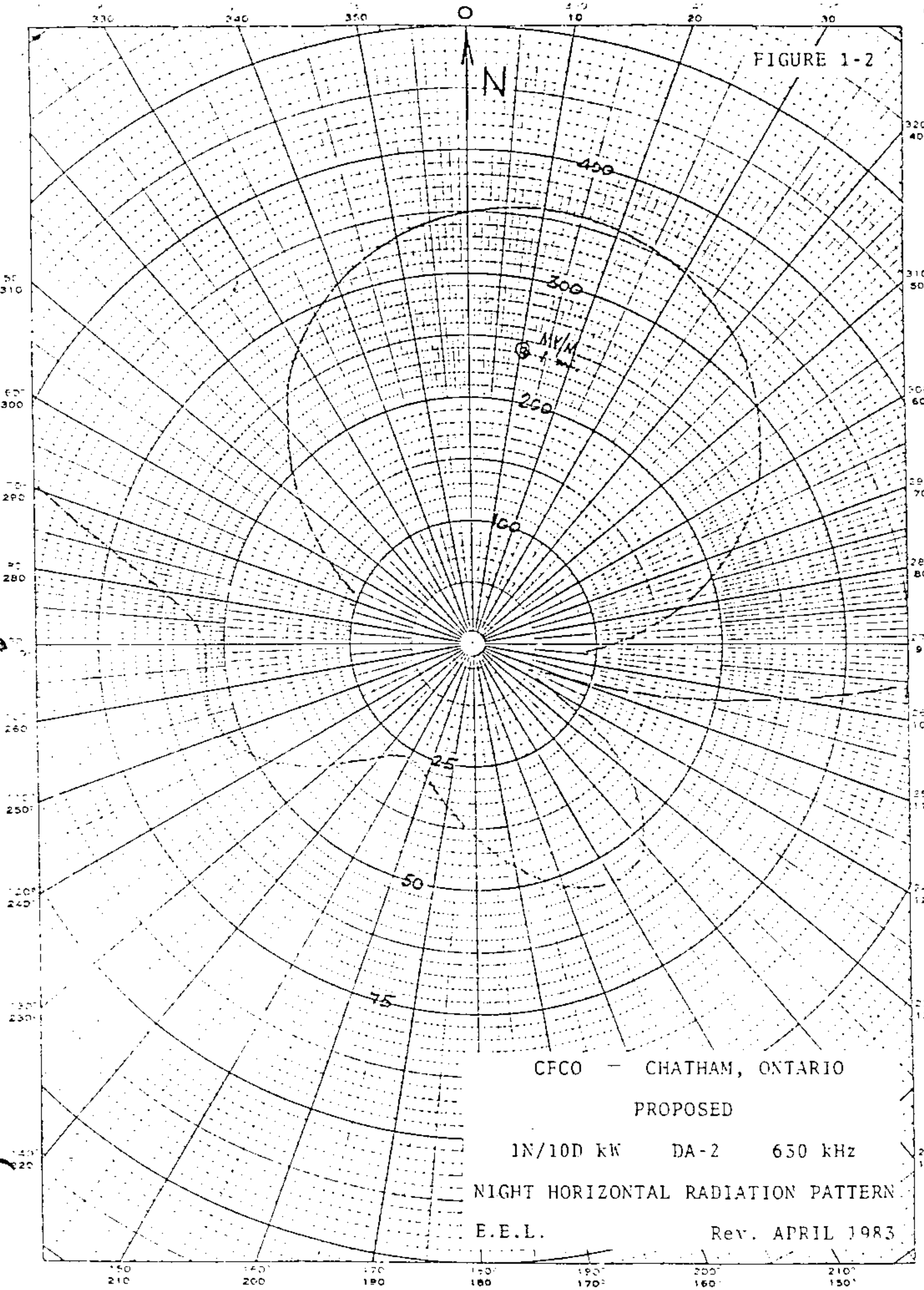
PROPOSED

1N/10D kW DA-2 630 kHz

DAY HORIZONTAL RADIATION PATTERN

E.E.L. Rev. APRIL 1983

CFCO
630



CFCO — CHATHAM, ONTARIO

PROPOSED

1N/10D kW DA-2 630 kHz

NIGHT HORIZONTAL RADIATION PATTERN

E.E.L. Rev. APRIL 1983

186

CFCO

2.4 DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: CFCO

Main Studio: Chatham, Ontario

Frequency: 630 Kc/s

Power: 10 KW. D/ Class:III
1 KW. N

Notification List No.: 186

Date: April 10, 1964

GEOGRAPHICAL LOCATION
OF THE ANTENNA SYSTEM:

North Latitude: 42° 20' 03"
West Longitude: 82° 16' 53"

ANTENNA CHARACTERISTICS: Day Only

Mode of Operation: DA-2
Number of Elements: 6
Type of Elements: guyed, base insulated, series fed.
uniform cross section.

Tower	1 SE	2 SC	3 SW	4 NE	5 NC	6 NW
Height above insulators	295'	295'	295'	295'	295'	295' (68°)
Overall height	299'	299'	299'	299'	299'	299'
Spacing	No. 1-No. 2; No. 2-No. 3; No. 4-No. 5: No. 5-No. 6; 260' (60°)					
Spacing	No. 1-No. 4; No. 2-No. 5; No. 3-No. 6; 1170' (270°)					
Phasing	+104.5	-229.75	+ 5.	-109.5	-234.75	0
Field ratio	.56	1.12	.56	1.	2.	1.

Orientation - Towers No. 1 and 4 on a line bearing 346.5° true.
Towers No. 2 and 5 on a line bearing 346.5° true.
Towers No. 3 and 6 on a line bearing 346.5° true.
Towers No. 1, 2 and 3 on a line bearing 330.5° true.
Towers No. 4, 5 and 6 on a line bearing 330.5° true.
Tower No. 5 is common with North Tower of night-time array previously notified.

Ground System: 120 radials No. 10 AWG copper wire per tower. Radials bonded to No. 4 buss wire between towers. Radial extend to property limits Effective radial system (.4λ).

Predicted effective field: Day 553 mv/m (175 mv/m for 1 Kw).

Note - Please retain previously notified pattern for CFCO night operation.

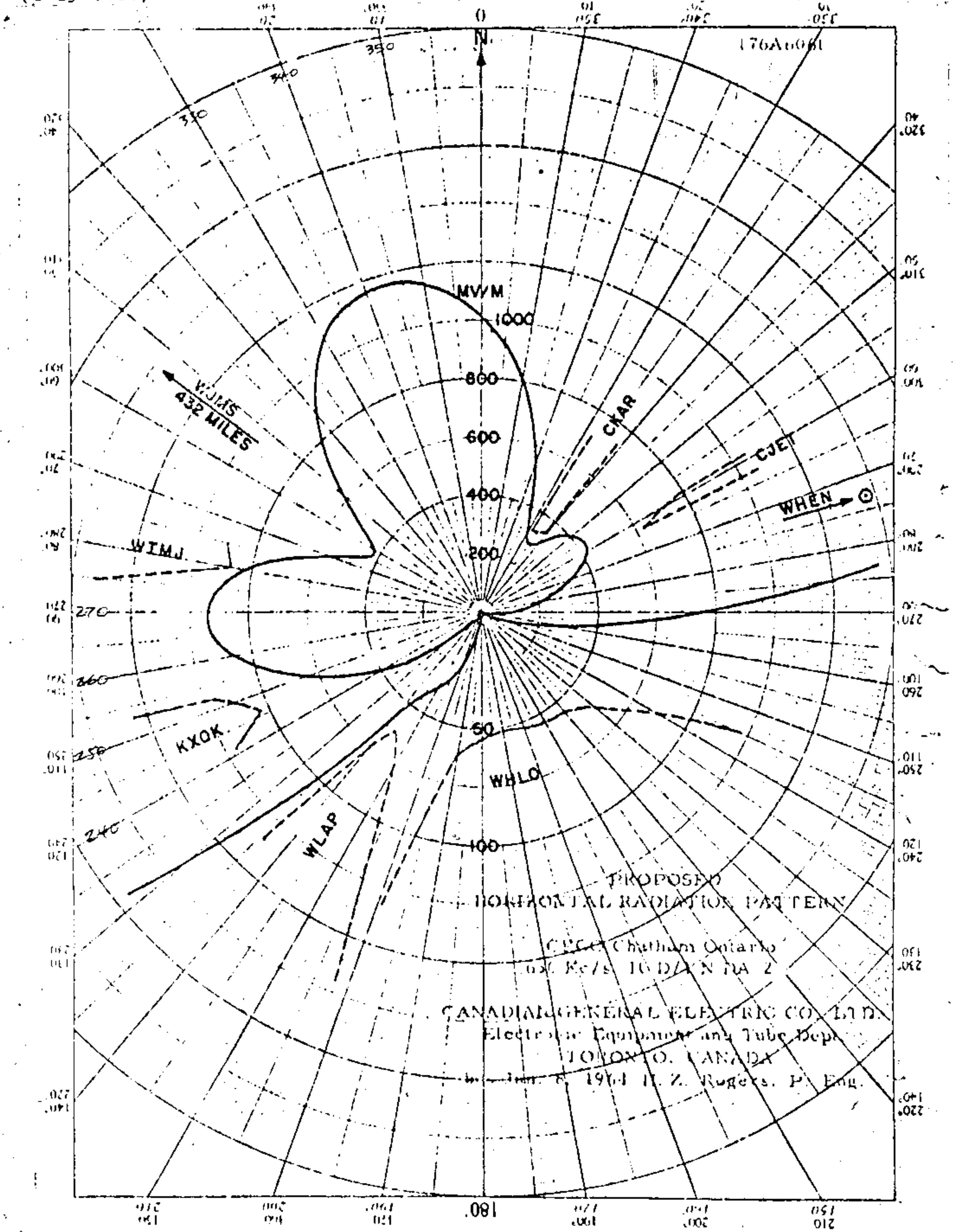
F186

CFCO

Proposed Day
(6-29-64ct)

Station CFCO
Chatham, Ontario

1kw,10kw-LS,DA-2,U,ClassIII
630 kc



CFCO
630

Station C.F.C.O. Main Studio Chatham - Ont.

Power 1 K.W. Frequency 630 K.C.

Authorized

Commenced operation

Location: North Latitude 42° 20' 03"

West Longitude 82° 16' 53"

Antenna:

Authorized for day and night operation

Three elements, uniform cross section, insulated, guyed, no top loading.

Tower:	N	C	S			
Height above insulators:	295'	295'	295'	(68°)		
Spacing:		67.5	67.5			
Phasing:	0	138	265			
Field Ratio:	1	1.83	1.04			

Ground System: 120 radials 0.4 λ (625 ft) long, except at intersections
for each tower: 120 radials 45' long interspaced.

Orientation: Towers: N-C On a line bearing 20° true
N-S On a line bearing 15° true

Predicted effective field 180 mv/m (180 for 1 kw)

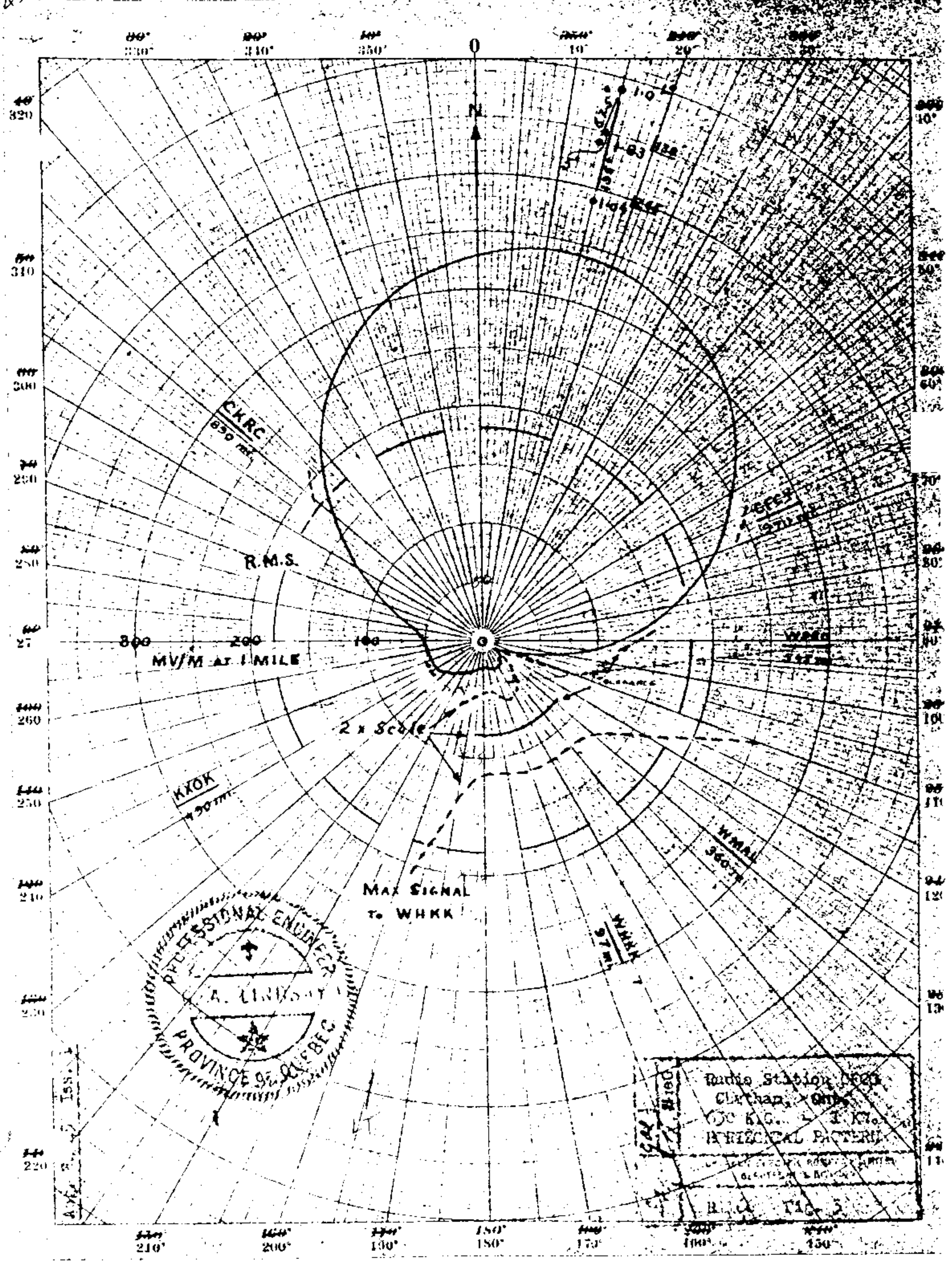
Aug. 24/45

Radio Station CFCO
Chatham - Ont.
630 K.C. - 1 KW.
ANTENNA SYSTEM

R1166 Fig. 6

AUG-45

CHCO- 620 KC



173 CFCY

Description Sheet
(10-26-62ct)

Station CFCY
Charlottetown, P.E.I.

10kw,DA-2,U,Class III
630 kc

Directional Antenna Description Sheet

Station : CFCY Main Studio : Charlottetown, P. E. I.

Frequency : 630 kc Power : 10 kw Class : III

Notification List No. : **173** Date : **Sept. 14, 1962**

Geographical Location
of Antenna System : N. Lat. 46° 14' 51", W. Lng. 63° 11' 40"

Antenna Characteristics : Mode of Operation : DA-2
Number of Elements : 3
Type of Element : guyed, uniform cross section, no top loading.

RECEIVED SEP 1962 F.C.C. MAIL & FILES

	Tower No. 1 (north)	Tower No. 2 (south)	Tower No. 3 (west)
Height above insulator	260' (60°)	260'	260'
Overall Height	265'	265'	265'
Spacing (see orientation below)			
Night Phasing	-25°	+90°	0°
Night Field Ratio	2.28	1.0	1.0
Day Phasing	-45°	0°	+150°
Day Field Ratio	0.90	1.0	1.0

Orientation Tower No. 2 is 977' (225°) from Tower No. 1 in Azimuth 170.5°.
Tower No. 3 is 585' (135°) from Tower No. 1 in Azimuth 215.6°.

Ground System : Around each tower base, 120 radials, 625' long, spaced 3°.

Predicted
Effective Field : Night : 554 mv/m at 1 mile (175 per kw)
Day : 629 " " 1 " (198.5 per kw)

#173

CFCY

Proposed Day
(10-26-62ct)

Station CFCY
Charlottetown, P.E.I.

10kw,DA-2,U,Class III
630 kc

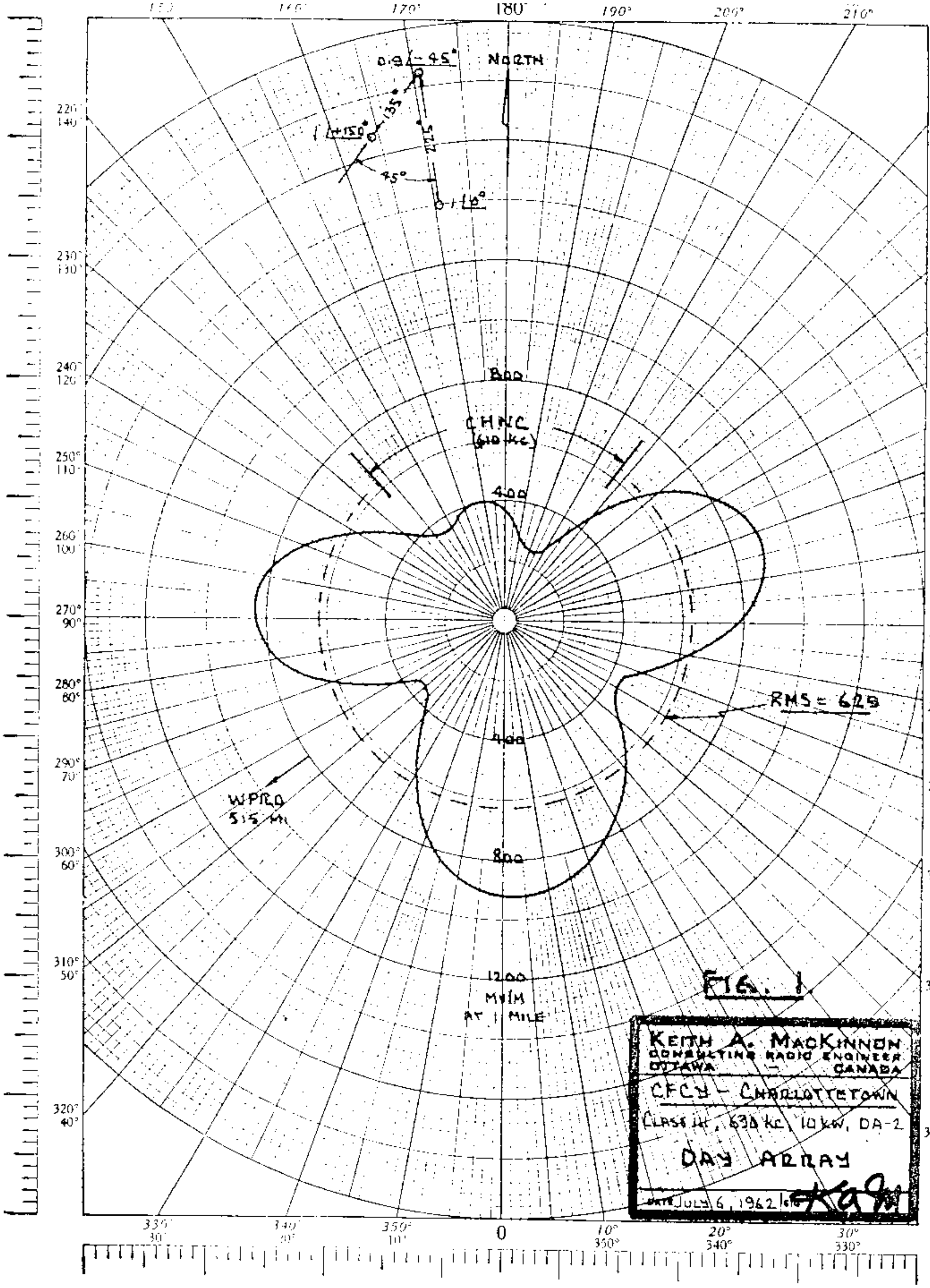


FIG. 1

KEITH A. MACKINNON
CONSULTING RADIO ENGINEER
OTTAWA — CANADA

CFCY - CHARLOTTETOWN

CLASS III, 630 KC, 10 KW, DA-2

DAY ARRAY

DATE JULY 6, 1962

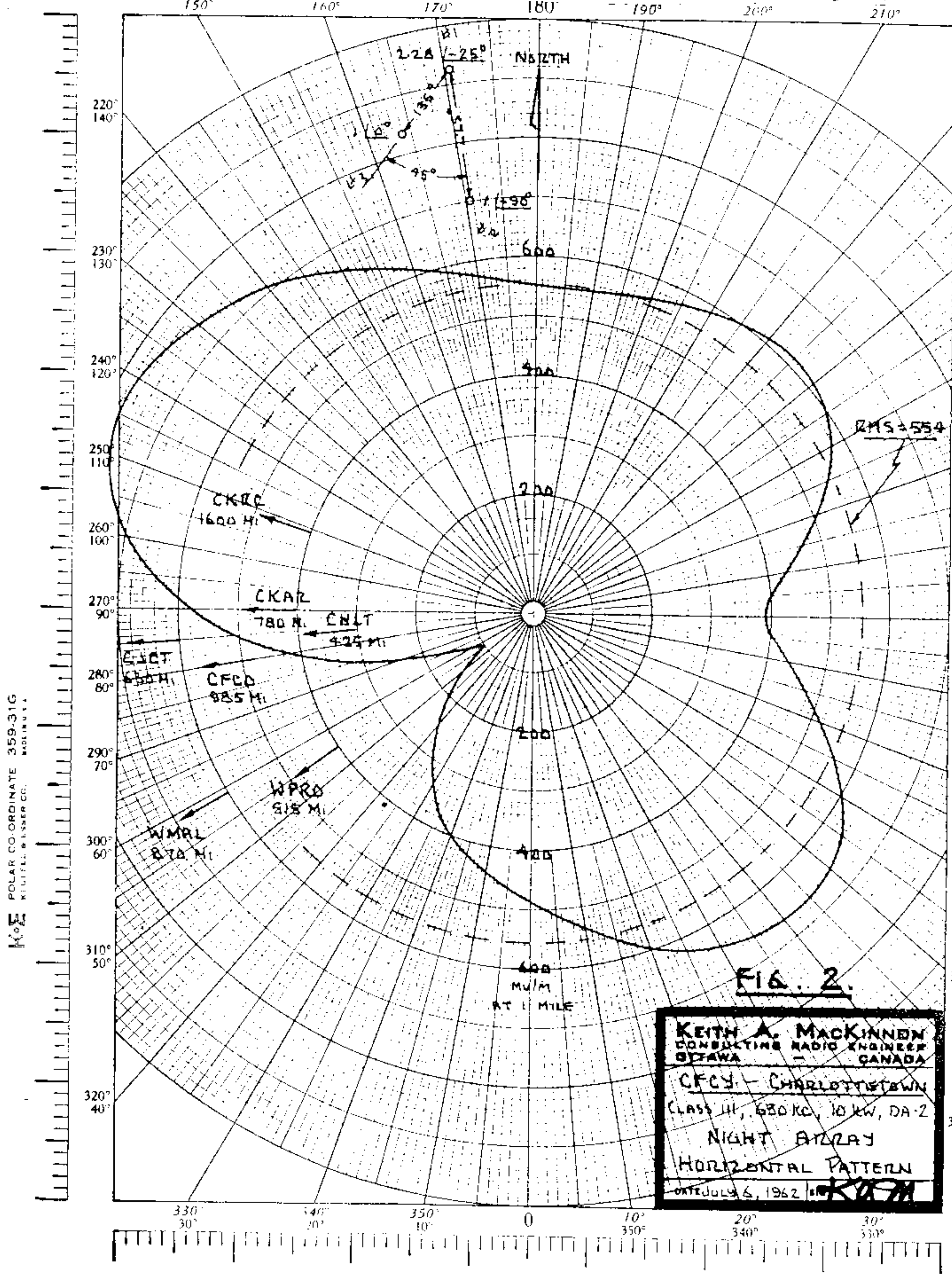
#173

CFCY

Proposed Night
(10-26-62ct)

Station CFCY
Charlottetown, P.E.I.

10kw,DA-2,U,Class III
630 kc



CHED
630 kHz

PROJECT #521

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: CHED

MAIN STUDIO: EDMONTON, ALBERTA

FREQUENCY: 630 kHz

POWER: 50 kW

CLASS III

NOTIFICATION LIST NO. 409

DATE: November 30, 1981

GEOGRAPHICAL LOCATION: Latitude 53° 23' 58" North
Longitude 113° 23' 46" West

ANTENNA CHARACTERISTICS:

Mode of Operation: DA-2
Number of Elements: 6 (Six)
Type of Elements: Guyed steel towers, uniform cross-section, base insulated for series feed

Tower	#1 (SW)	#2 (W)	#3 (NW)	#4 (SE)	#5 (E)	#6 (NE)
Height above base Insulator:	350' (80.6°)	350'	350'	350'	350'	350'
Overall height:	355'	355'	355'	355'	355'	355'
Field Ratio						
Nighttime	1.0	1.9	1.0	1.0	1.9	1.0
Daytime	-	.30	-	1.0	.30	-
Phasing						
Nighttime	Ref.	-116°	125.5°	-108.4°	131.6°	14.6°
Daytime	-	-33°	-	Ref.	-88°	-
Spacing	Ref.	521' (120°)	1042' (240°)	781' (180°)	1094' (252°)	1519' (350°)
Orientation	Ref.	345°	345°	53°	27°	13.7°

GROUND SYSTEM: 120 equally spaced radials of No. 10 bare copper wire extend from each tower base. Maximum radial length: 1160' (267°). Minimum radial length: 390' (90°). The overall average length of the ground system is 0.4 wavelength.

PREDICTED EFFECTIVE FIELDS:

Nighttime
1310 mV/m at 1 mile for 50 kW
185 mV/m at 1 mile for 1 kW

Daytime
1245 mV/m at 1 mile for 50 kW
176 mV/m at 1 mile for 1 kW

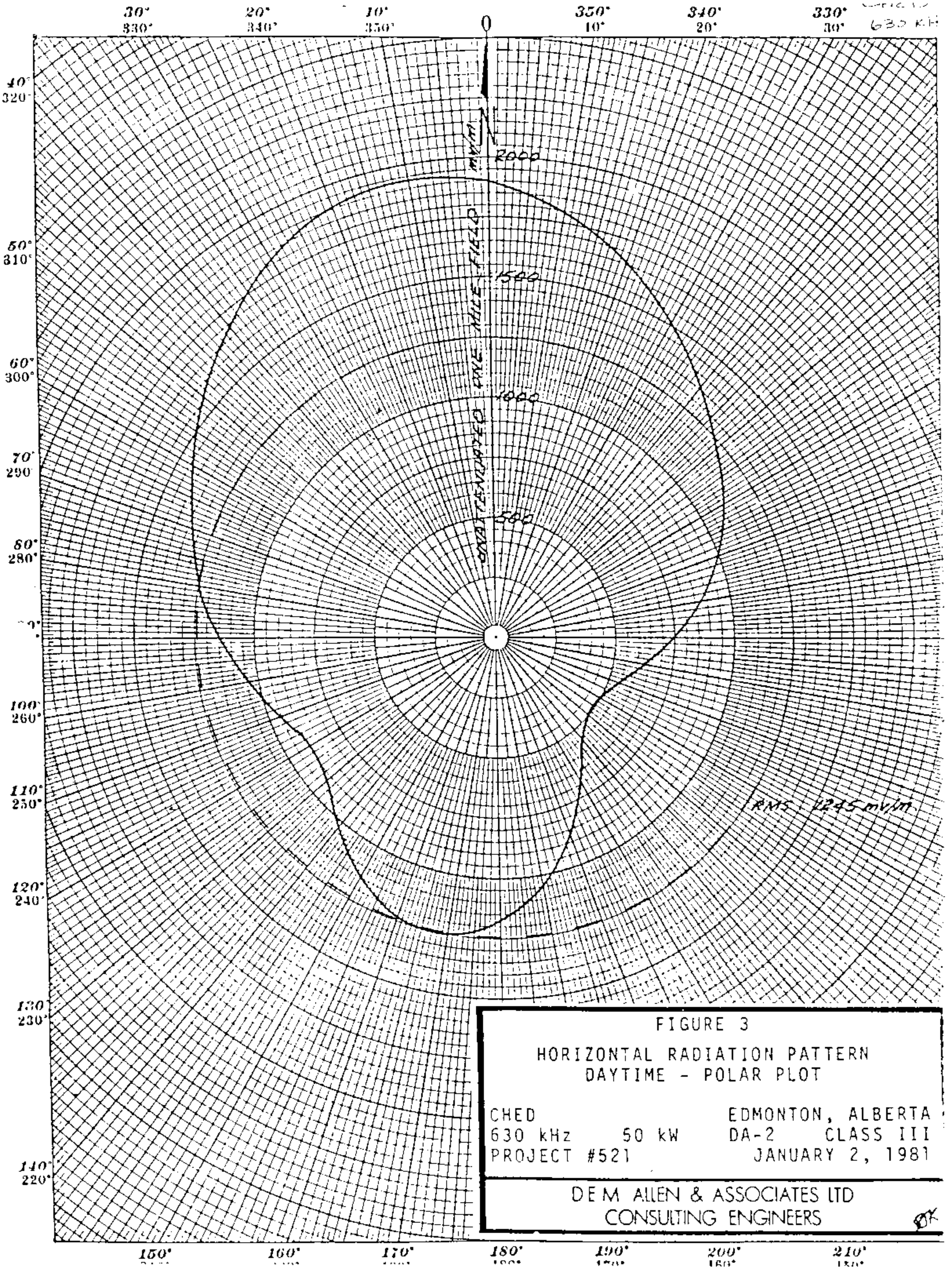


FIGURE 3

HORIZONTAL RADIATION PATTERN
DAYTIME - POLAR PLOT

CHED	EDMONTON, ALBERTA
630 kHz 50 kW	DA-2 CLASS III
PROJECT #521	JANUARY 2, 1981

D E M ALLEN & ASSOCIATES LTD
CONSULTING ENGINEERS

CHED

Please retain day-time radiation pattern (Figure 3) notified in Canadian Change List No. 342 dated July 8, 1975 for CHED and attach to this revised description sheet and night-time radiation patterns.

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: CHED

MAIN STUDIO: EDMONTON, ALBERTA

FREQUENCY: 630 kHz

POWER: 50 kW CLASS III

NOTIFICATION LIST NO. 352

DATE: February 25, 1976

GEOGRAPHICAL LOCATION:

Latitude 53° 23' 58" North
Longitude 113° 23' 46" West

ANTENNA CHARACTERISTICS:

Mode of Operation:	DA-2
Number of Elements:	6 (Six)
Type of Elements:	Guyed steel towers, uniform cross-section, base insulated for series feed

Tower	#1 (SW)	#2 (W)	#3 (NW)	#4 (SE)	#5 (E)	#6 (NE)
Height above base Insulator:	350' (80.6°)	350'	350'	350'	350'	350'
Overall height:	355'	355'	355'	355'	355'	355'
Field Ratio						
Nighttime	1.0	1.9	1.0	1.0	1.9	1.0
Daytime	-	.45	-	1.0	.9	-
Phasing						
Nighttime	Ref.	-116°	125.5°	-108.4°	131.6°	14.6°
Daytime	-	-50°	-	Ref.	-53°	-
Spacing	Ref.	521' (120°)	1042' (240°)	781' (180°)	1094' (252°)	1519' (350°)
Orientation	Ref.	345°	345°	53°	27°	13.7°

GROUND SYSTEM: 120 equally spaced radials of No. 10 bare copper wire extend from each tower base. Maximum radial length: 1160' (267°). Minimum radial length: 390' (90°). The overall average length of the ground system is 0.4 wavelength.

PREDICTED EFFECTIVE FIELDS:

Nighttime:
1310 mV/m at 1 mile for 50 kW
185 mV/m at 1 mile for 1 kW

Daytime:
1245 mV/m at 1 mile for 50 kW
176 mV/m at 1 mile for 1 kW

Revised January 28, 1976

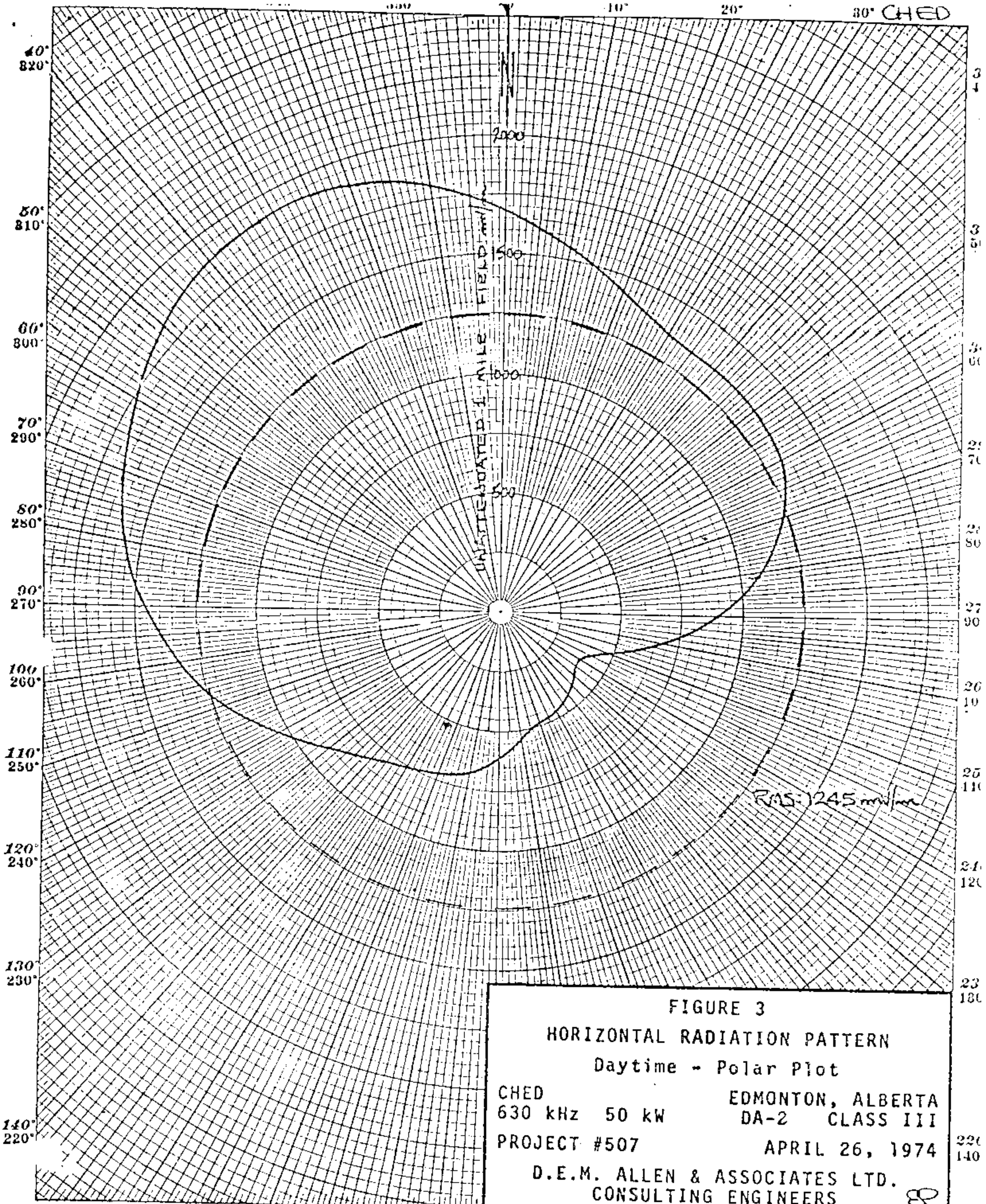


FIGURE 3

HORIZONTAL RADIATION PATTERN

Daytime - Polar Plot

CHED
630 kHz 50 kW

EDMONTON, ALBERTA
DA-2 CLASS III

PROJECT #507

APRIL 26, 1974

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

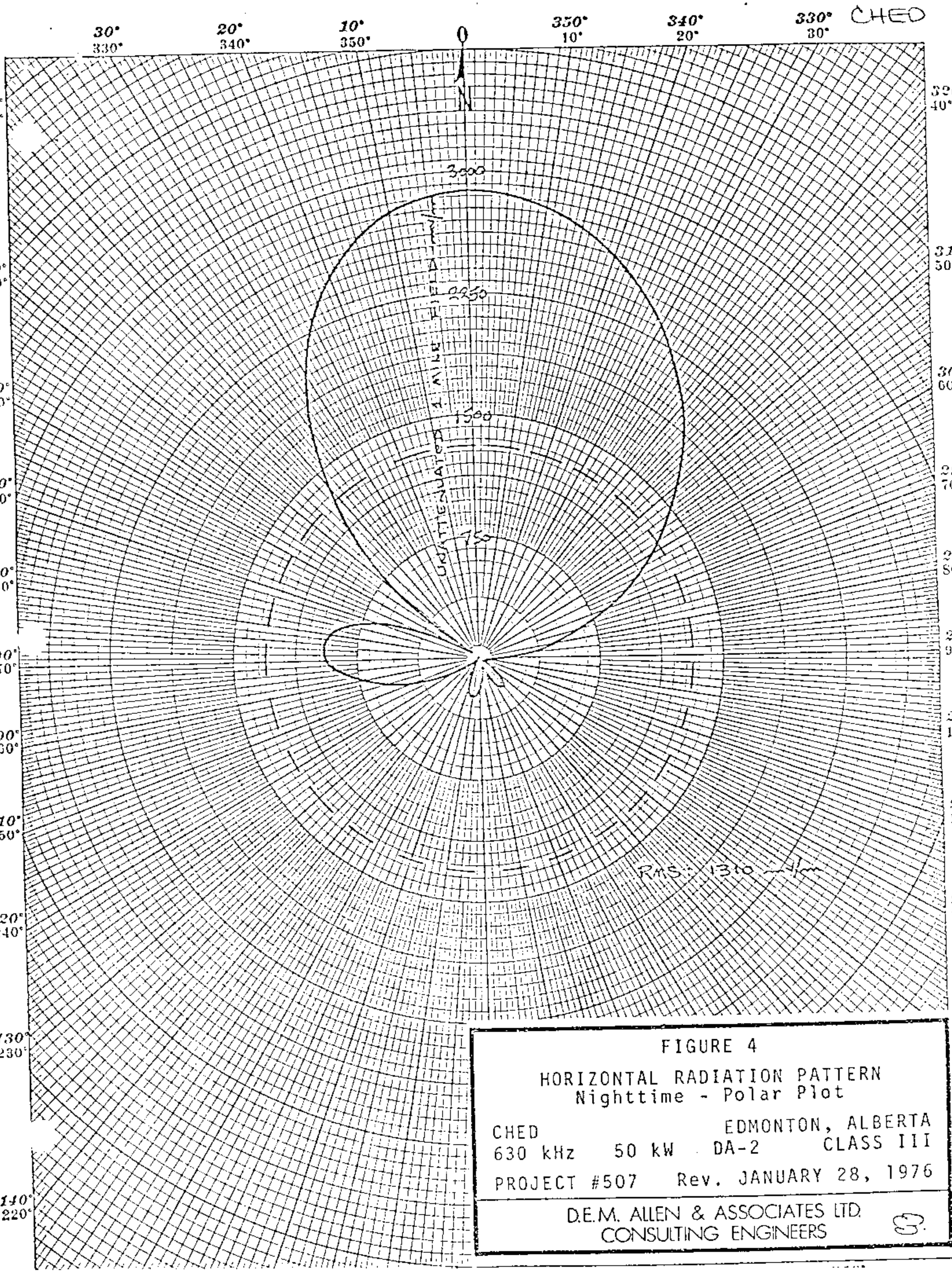


FIGURE 4

HORIZONTAL RADIATION PATTERN
Nighttime - Polar Plot

CHED EDMONTON, ALBERTA
630 kHz 50 kW DA-2 CLASS III

PROJECT #507 Rev. JANUARY 28, 1976

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

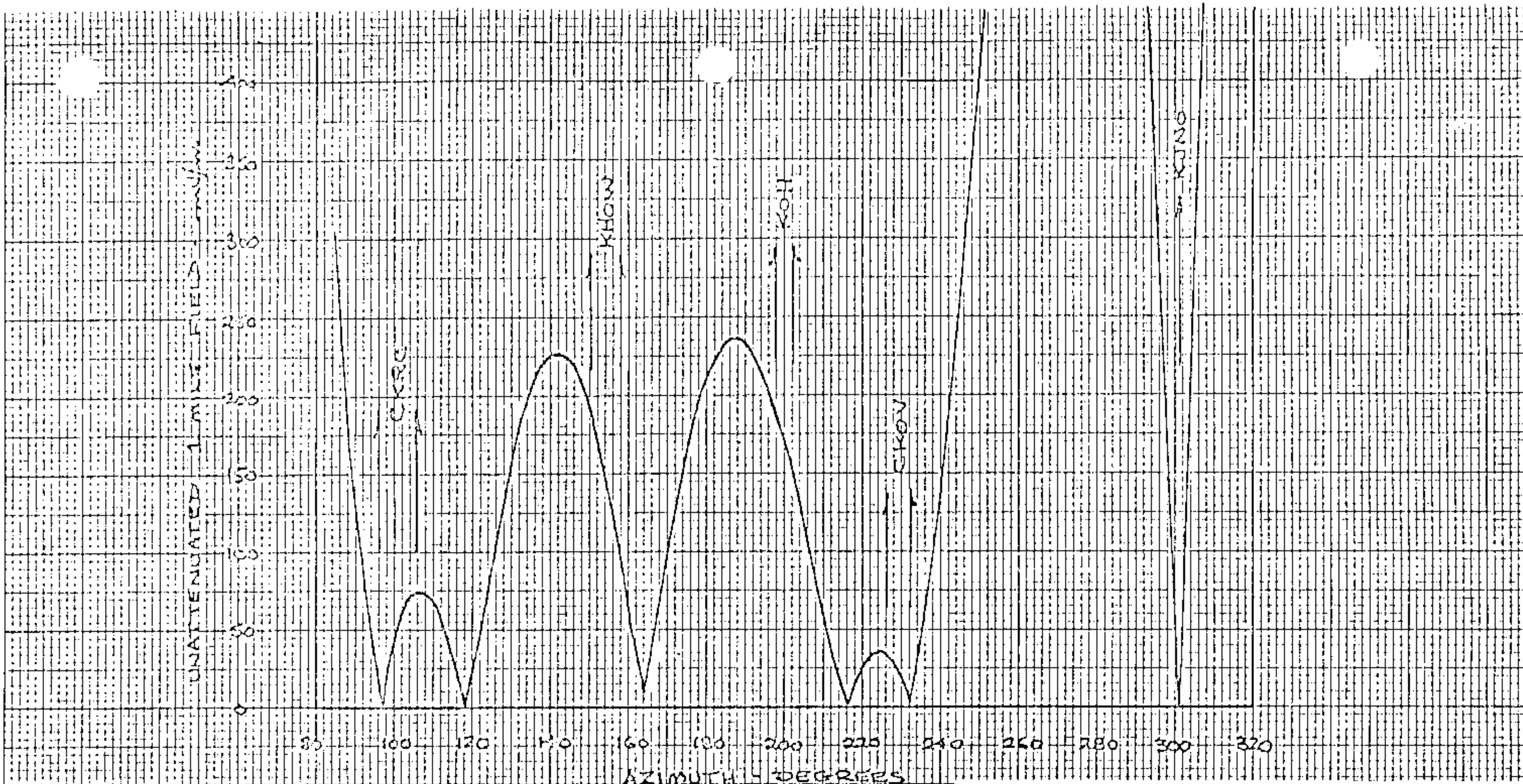


FIGURE 5

HORIZONTAL RADIATION PATTERN
Nighttime - Expanded Plot

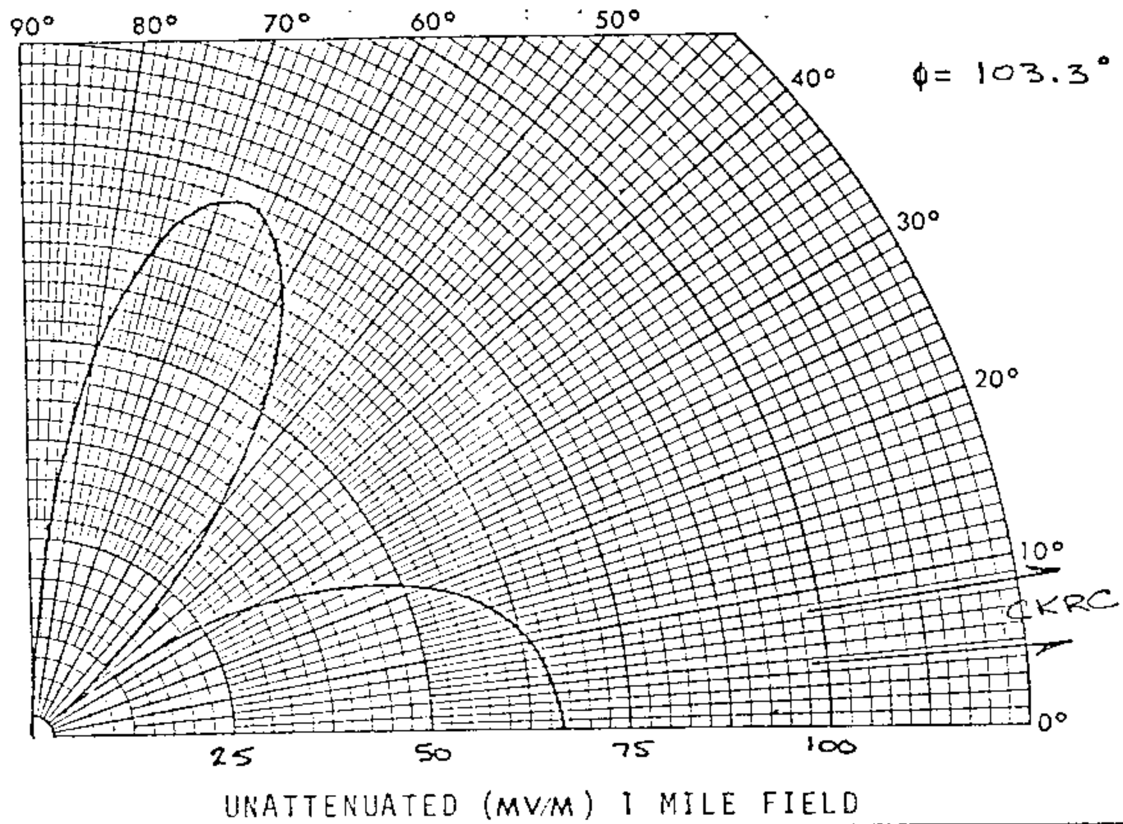
CHED EDMONTON, ALBERTA
630 kHz 50 kW DA-2 CLASS III

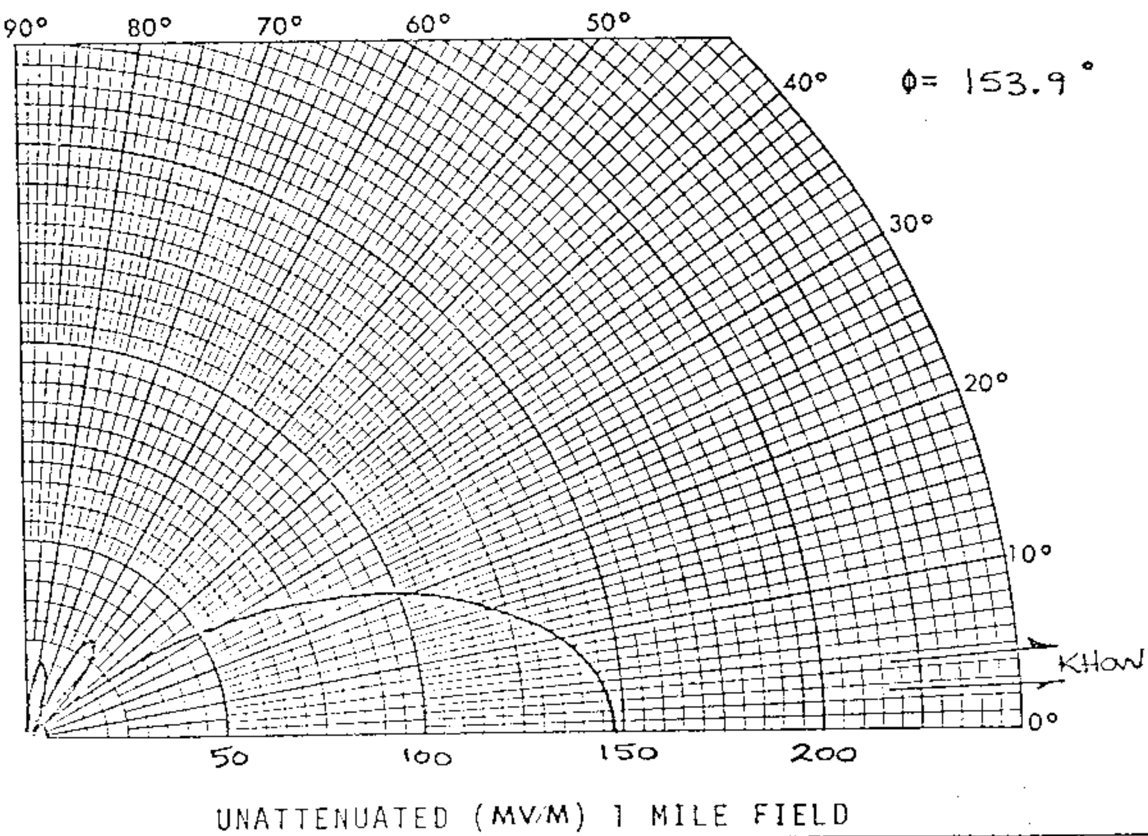
PROJECT #507 Rev. JANUARY 28, 1976

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

CHED

CHED





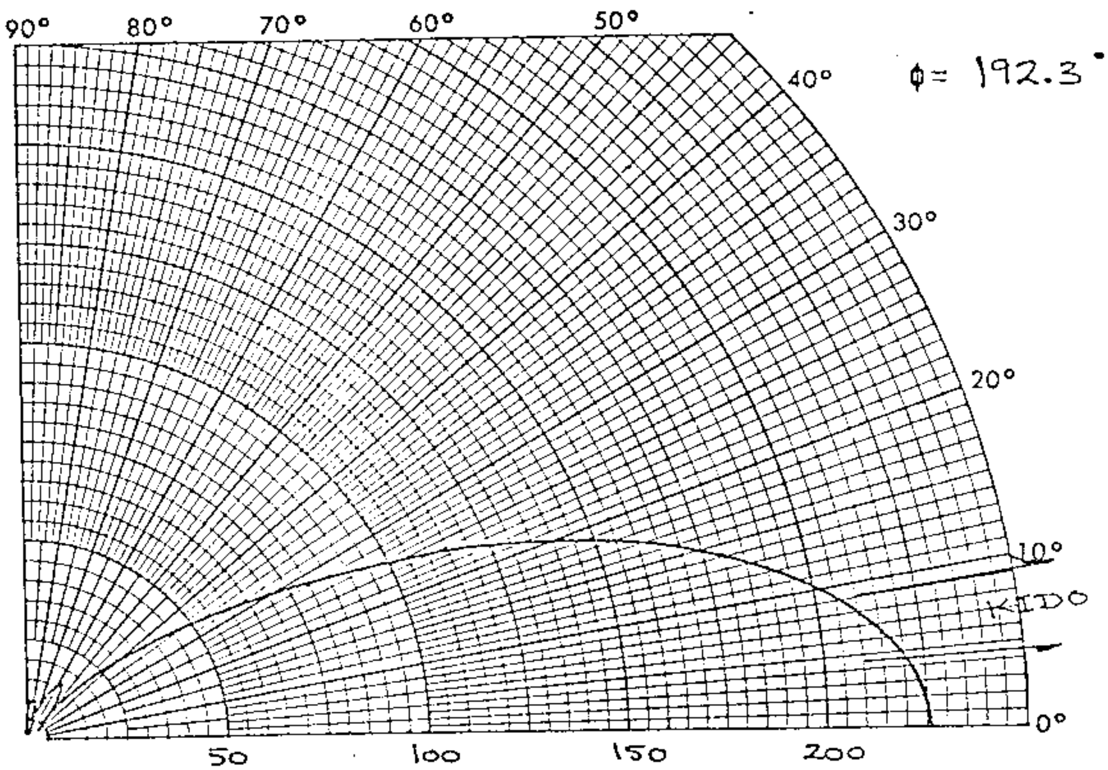
VERTICAL RADIATION PATTERNS

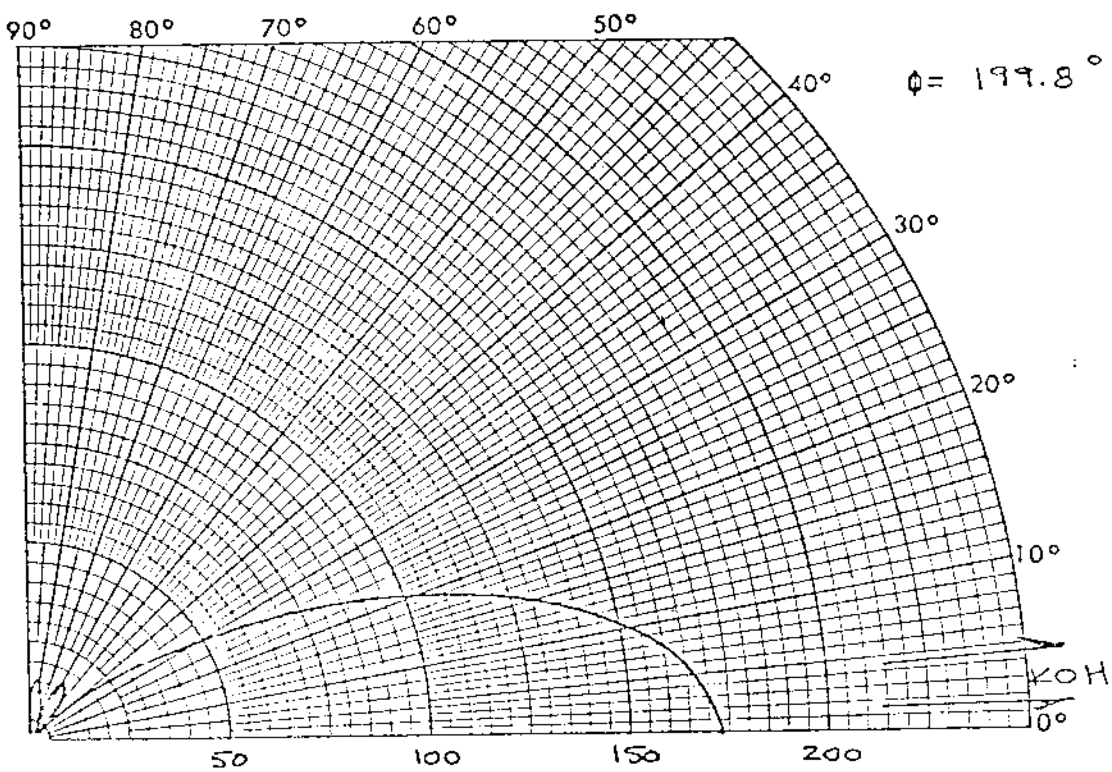
FIGURE 6

CHED			EDMONTON, ALBERTA
630 kHz	50 kW	DA-2	CLASS III
PROJECT #507			REVISED JANUARY 28,1976

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

CHED





VERTICAL RADIATION PATTERNS

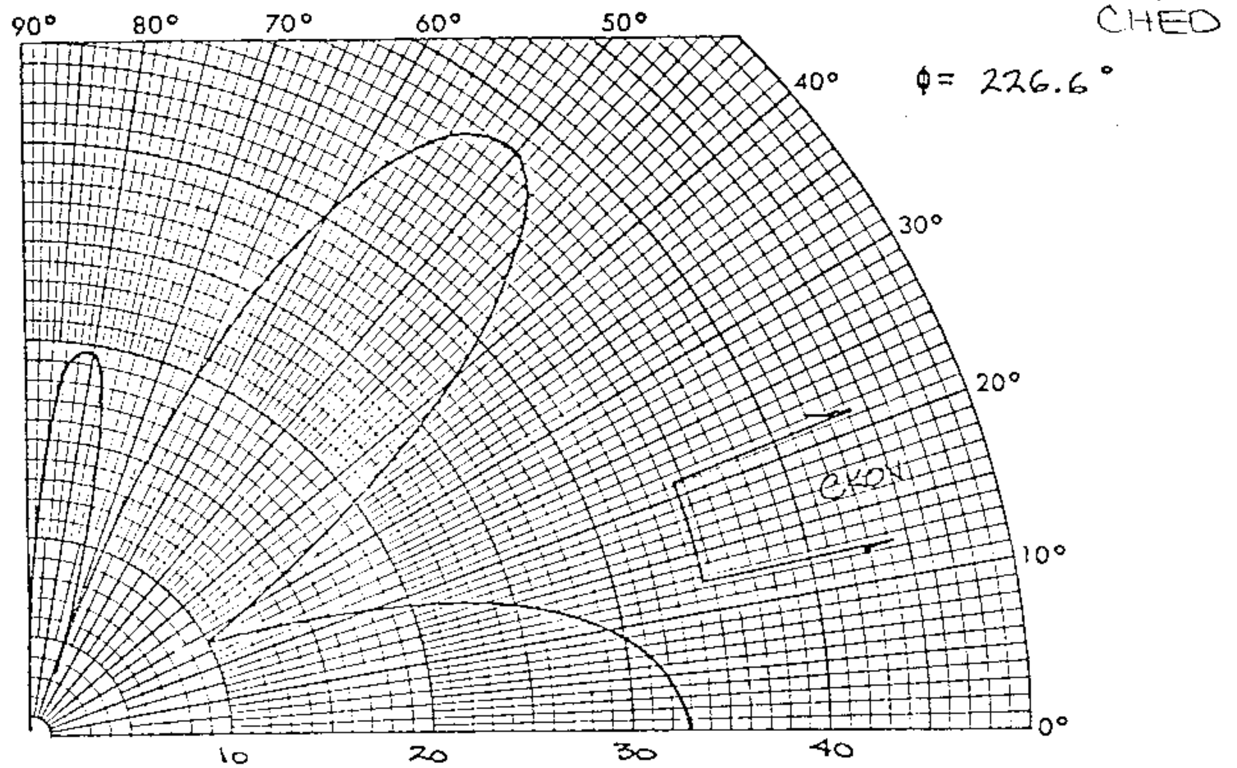
FIGURE 7

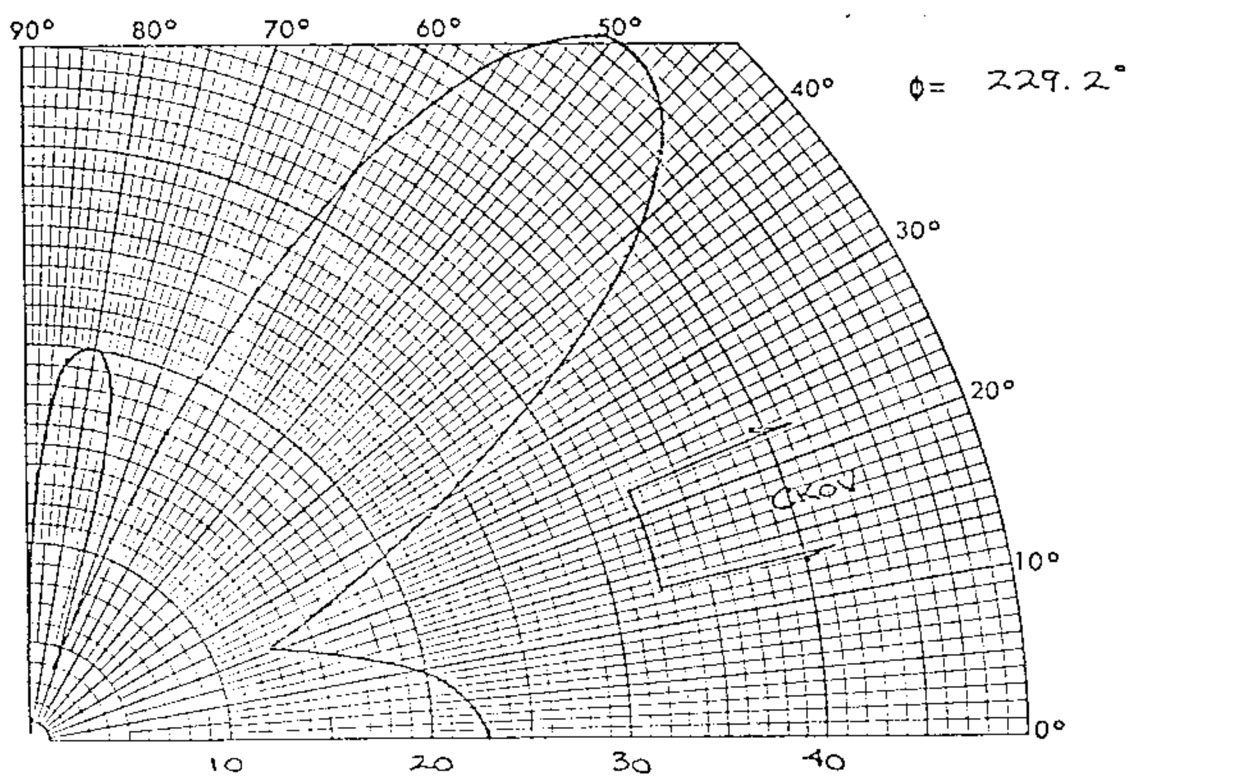
CHED EDMONTON, ALBERTA
630 kHz 50 kW DA-2 CLASS III
PROJECT #507 REVISED JANUARY 28, 1976
D.E.M. ALLEN & ASSOCIATES LTD., CONSULTING ENGINEERS

G9-10159 (NO.10LV)

POLAR CO-ORDINATE
MADE IN CANADA

CCGS MICROGRAPH

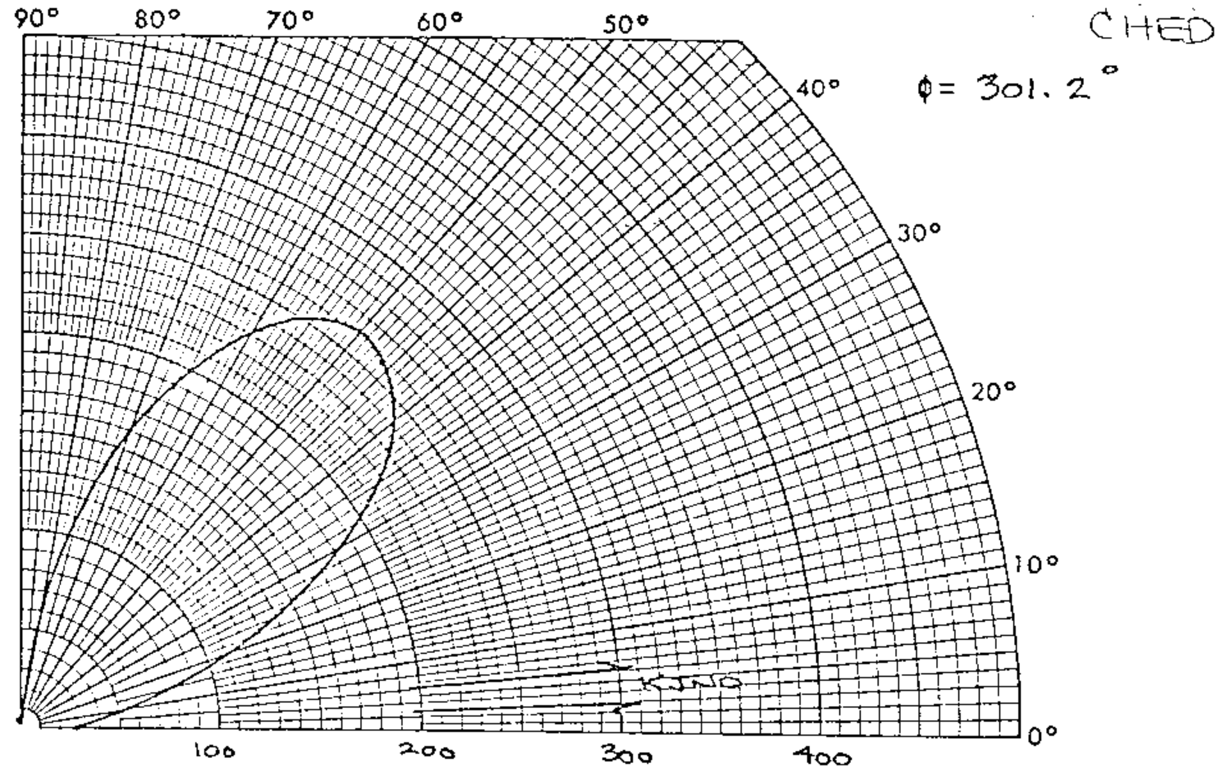




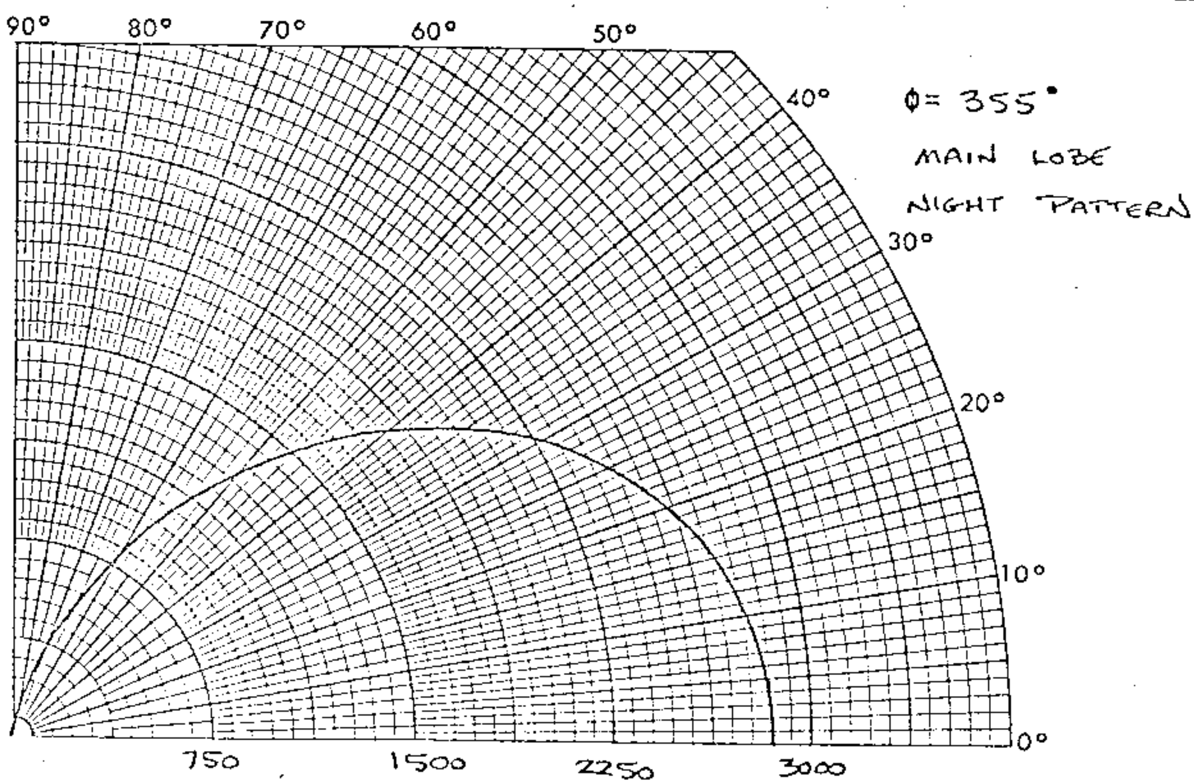
VERTICAL RADIATION PATTERNS

FIGURE 8

CHED EDMONTON, ALBERTA
630 kHz 50 kW DA-2 CLASS III
PROJECT #507 REVISED JANUARY 28, 1976
D.E.M. ALLEN & ASSOCIATES LTD., CONSULTING ENGINEERS



UNATTENUATED (MV/M) 1 MILE FIELD



UNATTENUATED(MV/M) 1 MILE FIELD

VERTICAL RADIATION PATTERNS

FIGURE 9

CHED
630 kHz 50 kW DA-2
PROJECT #507

EDMONTON, ALBERTA
CLASS III
REVISED JANUARY 28, 1976

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

217

DIRECTIONAL ANTENNA DESCRIPTION SHEET

STATION: CHLT

FREQUENCY: 630 kHz

NOTIFICATION LIST NO: **217**

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:

MAIN STUDIO: Sherbrooke, Que.

POWER: 50kW/D - 15kW/N - DA-2

CLASS: III

DATE: **October 7, 1966**

North Latitude: 45° 18' 16"
West Longitude: 71° 51' 59"

ANTENNA CHARACTERISTICS

MODE OF OPERATION: 50kW/D - 15kW/N - DA-2 (directional antenna, different pattern for day and night.)

NUMBER OF ELEMENTS: Six (6)

TYPE OF ELEMENTS: Uniform cross-section, guyed steel towers, base insulated for series feed.

TOWER	No. 1	No. 2	No. 3	No. 4	No.5	No. 6
HEIGHT ABOVE INSULATORS	All at 74° (320')					
OVERALL HEIGHT	(324')					
PHASING						
DAY	+67°	-60°	0°	-67°	+60°	0°
NIGHT	-115°	-230°	-225°	-110°	5°	0°
FIELD RATIO						
DAY	1	1	0	1.11	1.1	0
NIGHT	1.95	1	1	1.95	.96	1
SPACING FROM CENTER OF ARRAY	401.5' 92.5°	429.5' 99°	615.5' 142°	401.5' 92.5°	429.5' 99°	615.5' 142°
ORIENTATION FROM CENTER OF ARRAY	255.9°	305.2°	44°	75.9°	125.2°	224.0°

GROUND SYSTEM: Most of the equiangularly spaced radials extend from the base of each antenna to a distance of approximately 625' (0.4 wavelength) except those joined along a common chord. Copper wire, #10B & S will be used and buried approximately 8 in.

PREDICTED EFFECTIVE FIELD: 1310 mV/m at 1 mile for 50 kW
716 mV/m at 1 mile for 15 kW
185 mV/m at 1 mile for 1 kW

217

CHLT

Proposed Day
(11-29-66ct)

Station CHLT
Sherbrooke, Quebec

15kw,50kw-LS,DA-2,U,Class III
630 kc

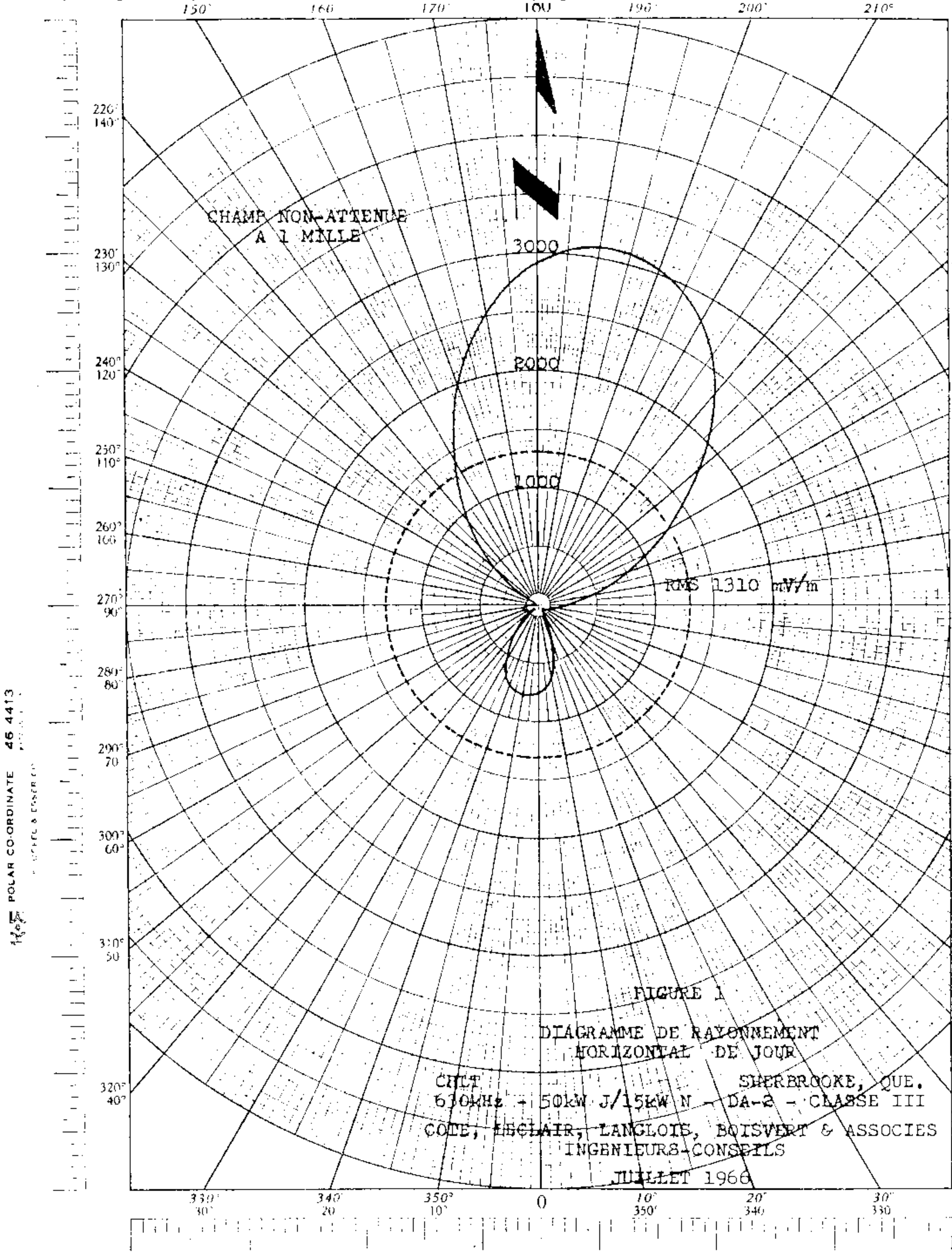


FIGURE 1

DIAGRAMME DE RAYONNEMENT
HORIZONTAL DE JOUR

CHLT SHERBROOKE, QUE.
630kHz - 50kW J/15kW N - DA-2 - CLASSE III

COTE, LECLAIR, LANGLOIS, BOISVERT & ASSOCIES
INGENIEURS-CONSEILS

JUILLET 1966

217

CHLT

Proposed Day Nulls
(11-29-66ct)

Station CHLT
Sherbrooke, Quebec

15kw,50kw-LS,DA-2,U,Class III
630 kc

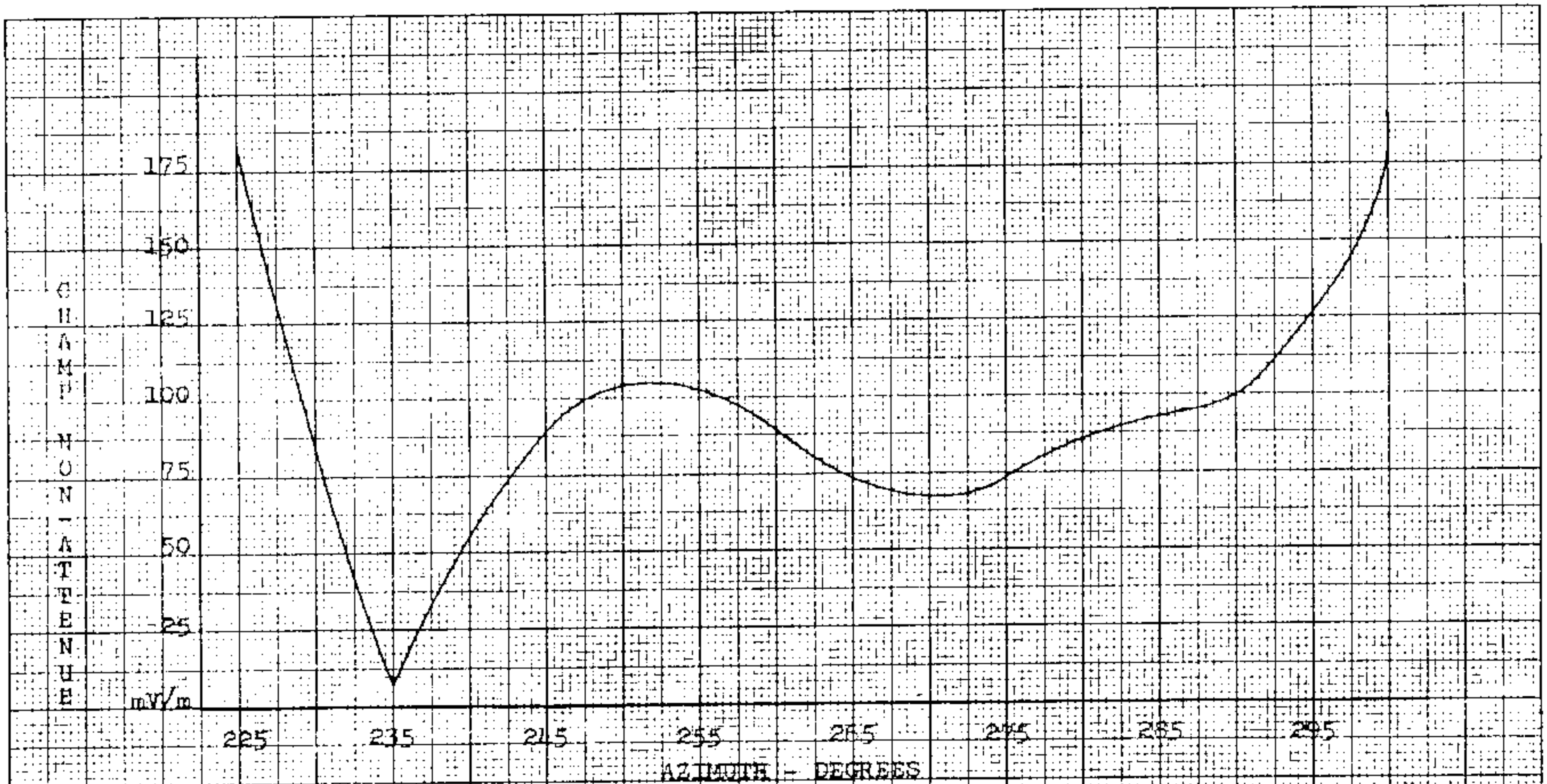


FIGURE 2

DETAILS DU RAYONNEMENT
HORIZONTAL DE JOUR

CHLT SHERBROOKE, QUE.
630kHz - 50kW J/15kW N - DA-2 - CLASSE III

COTE, LECLAIR, LANGLOIS, BOISVERT & ASSOCIES
INGENIEURS-CONSEILS
JUILLET 1966

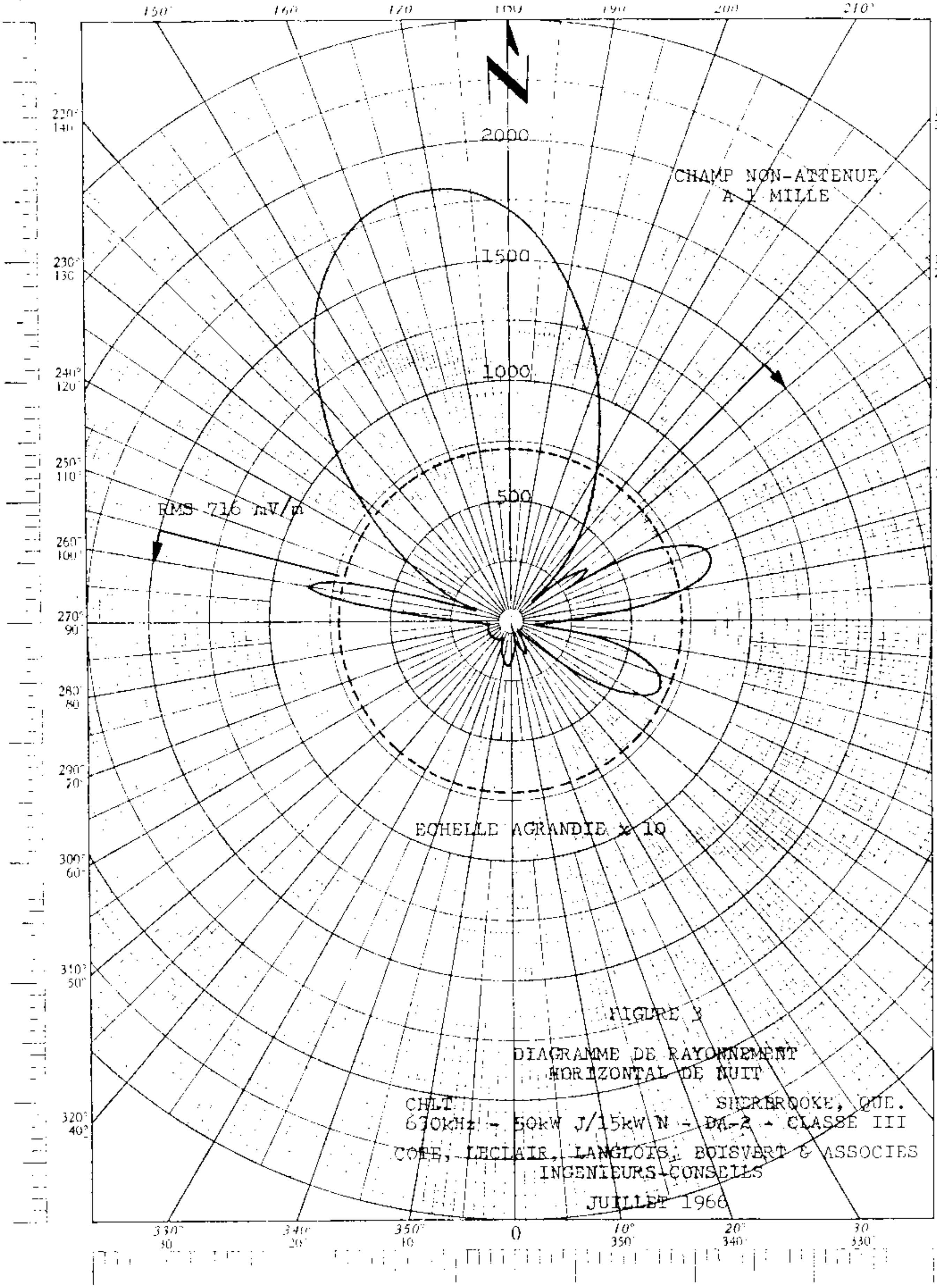
217

CHLT

Proposed Night
(11-29-66ct)

Station CHLT
Sherbrooke, Quebec

15kw,50kw-LS,DA-2,U,Class III
630 kc



185

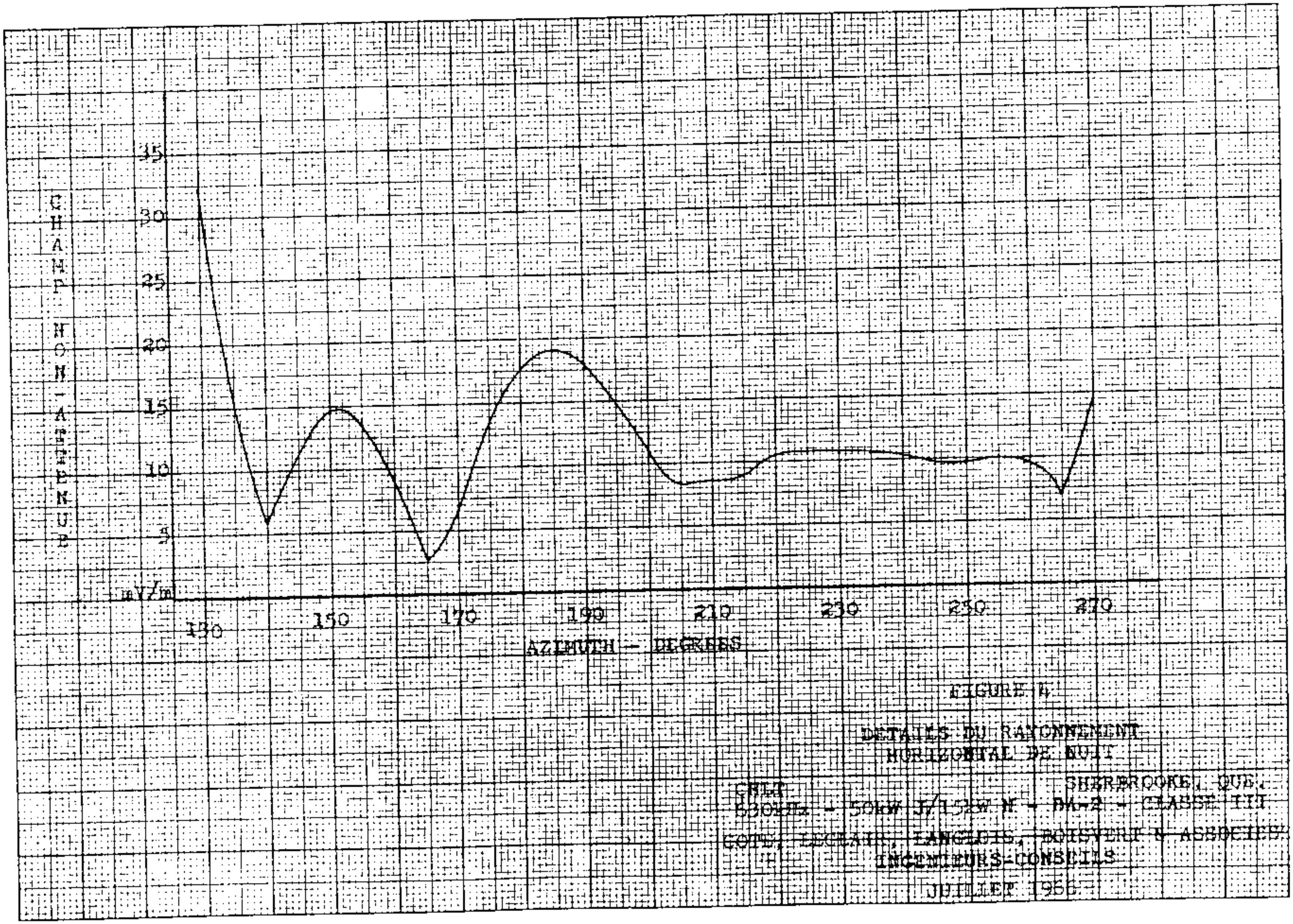
217

CHLT

Proposed Night Nulls
(11-29-66ct)

Station CHLT
Sherbrooke, Quebec

15kw,50kw-LS,DA-2,U,Class III
630kc



*189

CHLT

Description Sheet
(8-28-64ct)

Station CHLT
Sherbrooke, P. Q.

10kw, 50kw-LS, DA-2, U, Class III
630 kc

DIRECTIONAL ANTENNA DESCRIPTION SHEET

STATION: CHLT — MAIN STUDIO: SHERBROOKE, QUE.

FREQUENCY: 630 KC/S — POWER: 50Kw Day 10 Night DA-2

CLASS III

NOTIFICATION LIST NO: 189 — DATE: July 20, 1964.

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:

North Latitude: 45° 18' 16"
West Longitude: 71° 51' 59"

ANTENNA CHARACTERISTICS

Mode of Operation: 50Kw Day - 10 Night - DA-2 (directional with different patterns during the day and at night)

Number of elements: Six (6)

Type of elements: Uniform cross-section, guyed steel towers, base unsulated for series feed, no top-loading.

TOWER	No.1	No.2(N)	No.3(NE)	No.4(E)	No.5(SE)	No.6(S)
HEIGHT ABOVE INSULATORS	All 74° (320')					
OVERALL HEIGHT	All 324'					
PHASING DAY	0°	225°		302°	343°	
NIGHT	0°	-115°	-106°	0°	124°	115°
FIELD RATIO DAY	1	.54		.38	.34	
NIGHT	1	.5	.5	1.	.5	.5
SPACING (From No.1)		80°	215°	177°	171°	80°
ORIENTATION (from No.1)		6.5°	58.2°	79°	105.5°	185.5°

GROUND SYSTEM: Most of the 120 equiangularly spaced radials extend from the base of each tower to a distance of 625 feet (0.4 wavelength) except those joined at a common chord. The ground wires will consist of solid copper wire No.10 B & S buried to a depth of approximately 6 inches.

PREDICTED EFFECTIVE FIELD
1310 MV/M at 1 mile for 50 Kw
585 MV/M at 1 mile for 10 Kw
185 MV/M at 1 mile for 1 Kw

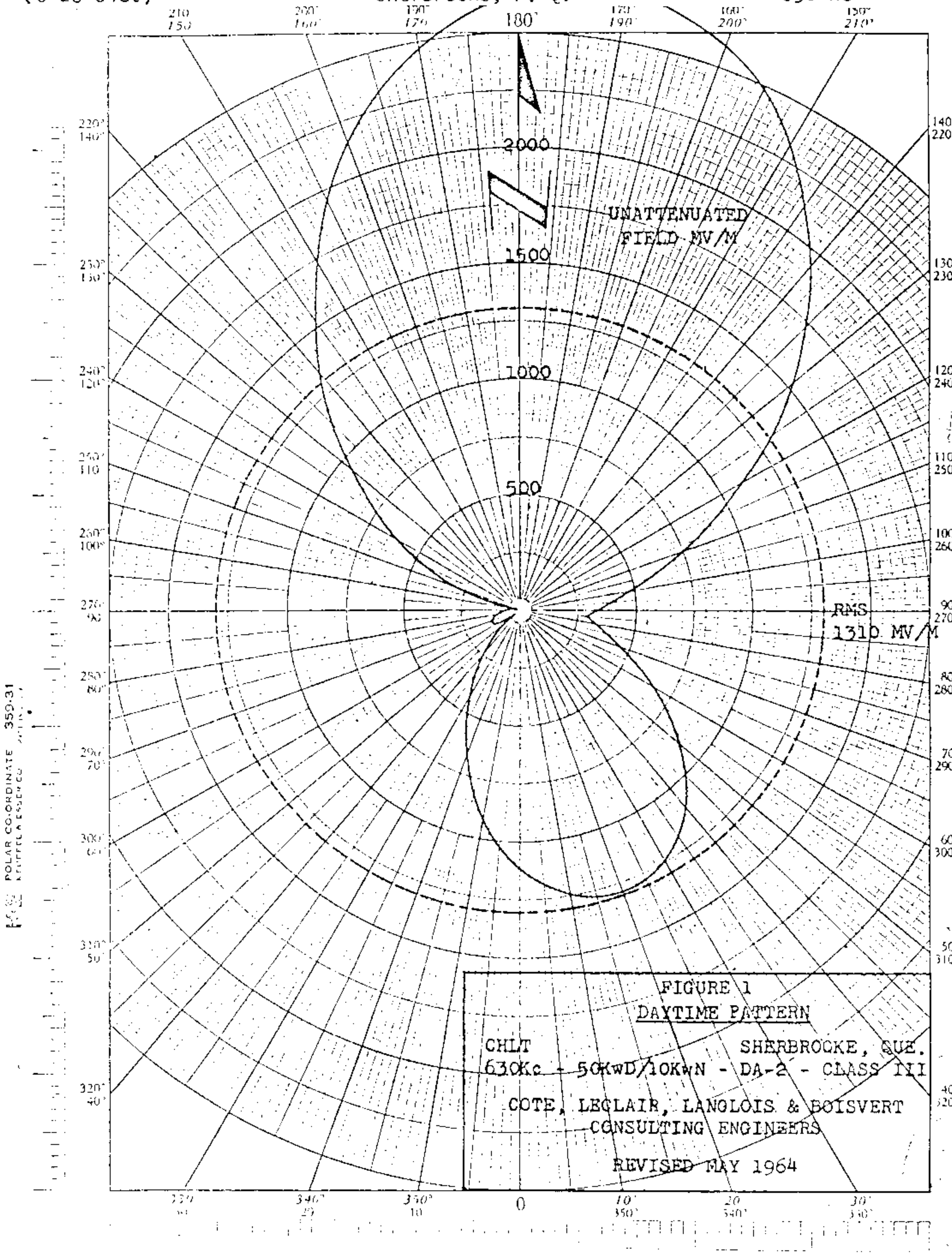
189

CHLT

Proposed Day
(8-28-64ct)

Station CHLT
Sherbrooke, P. Q.

10kw,50kw-LS,DA-2,U,Class III
630 kc



#189

CHLT

Proposed Night
(8-28-64ct)

Station CHLT
Sherbrooke, P. Q.

10kw,50kw-LS,DA-2,U,Class III
630 kc

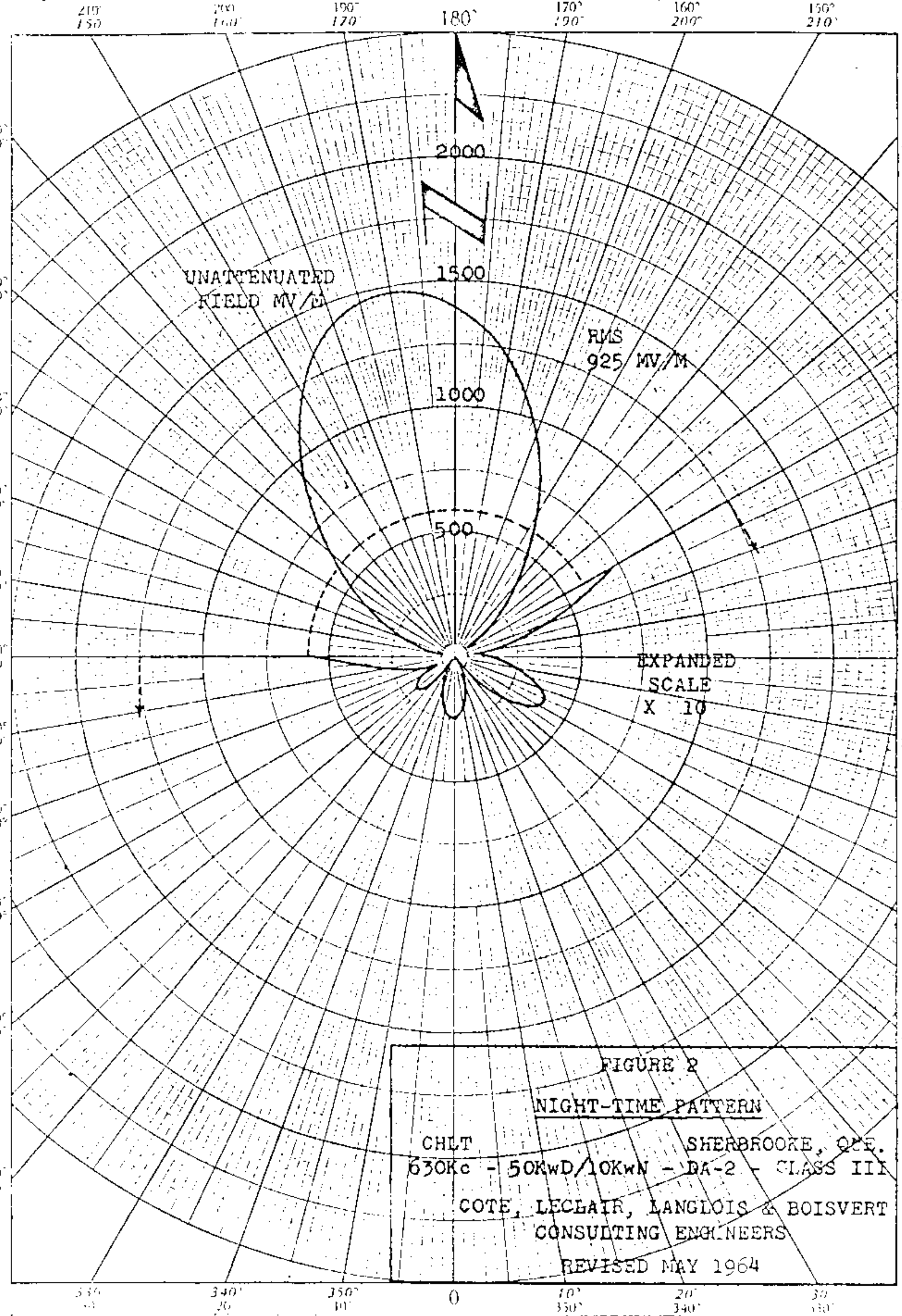


FIGURE 2

NIGHT-TIME PATTERN

CHLT SHERBROOKE, QUE.
630Kc - 50KwD/10KwN - DA-2 - CLASS III

COTE, LECLAIR, LANGLOIS & BOISVERT
CONSULTING ENGINEERS

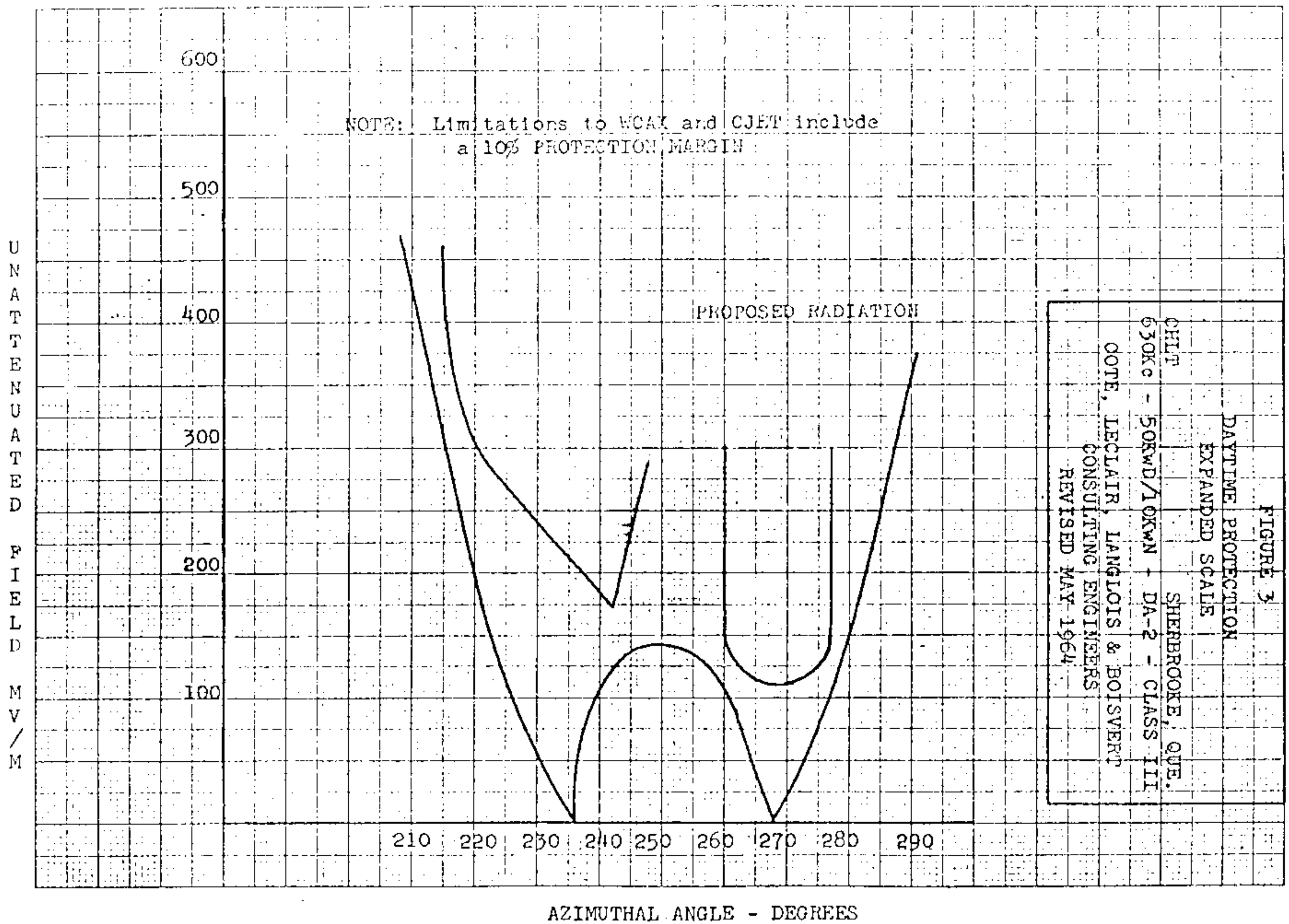
REVISED MAY 1964

#189

Proposed Day Nulls
(8-28-64ct)

Station CHLT
Sherbrooke, P. Q.

10kw,50kw-LS,DA-2,U,Class III
630 kc



CHLT

#137 DESCRIPTION SHEET (9-4-59g) Station CHLT Sherbrooke, Quebec, Canada 5kw,10kw-LS,DA-2,U,Class III 630 KC

DESCRIPTION SHEET

DIRECTIONAL ANTENNA SYSTEM

STATION: CHLT MAIN STUDIO: SHERBROOKE, QUEBEC

POWER: 10 KW DAY/5 KW NIGHT FREQUENCY: 630 KC/S

TIME: U CLASS: III

NOTIFICATION REFERENCE: 137 Dated: July 31, 1959.

GEOGRAPHICAL LOCATION: NORTH LATITUDE 45° 18' 16"

WEST LONGITUDE 71° 51' 59"

ANTENNA: DA-2 Four element uniform cross section guyed steel towers, base insulated for series feed.

TOWER:	#1 Northwest	#2 Northeast	#3 Southeast	#4 Southwest
Height above insulators;	320' (74°)	320' (74°)	320' (74°)	320' (74°)
Spacing: *	92°	107.5°	92°	107.5°
Phasing - Night	-49	-45	+49°	+45°
Field Ratio - Night	1.0	.865	1.0	.865
Phasing - Day	-49	-45	+49	+51
Field Ratio - Day	.874	.957	1.0	.865
Orientation	301°	63°	121°	243°

* See note below for spacing and orientation

Ground System: 120 equiangularly spaced radials extend from the base of each tower to a distance of 625 feet (0.4 wavelength) with the exception of those radials joined along the common chord. The ground wires consist of solid copper wire #10 B & S gauge and are buried to a depth of approximately 8 inches.

Predicted Effective Field: Day 531 mv/m at one mile for 10 KW
Night 381 mv/m at one mile for 5 KW
Day 168 mv/m at one mile for 1 KW
Night 171 mv/m at one mile for 1 KW

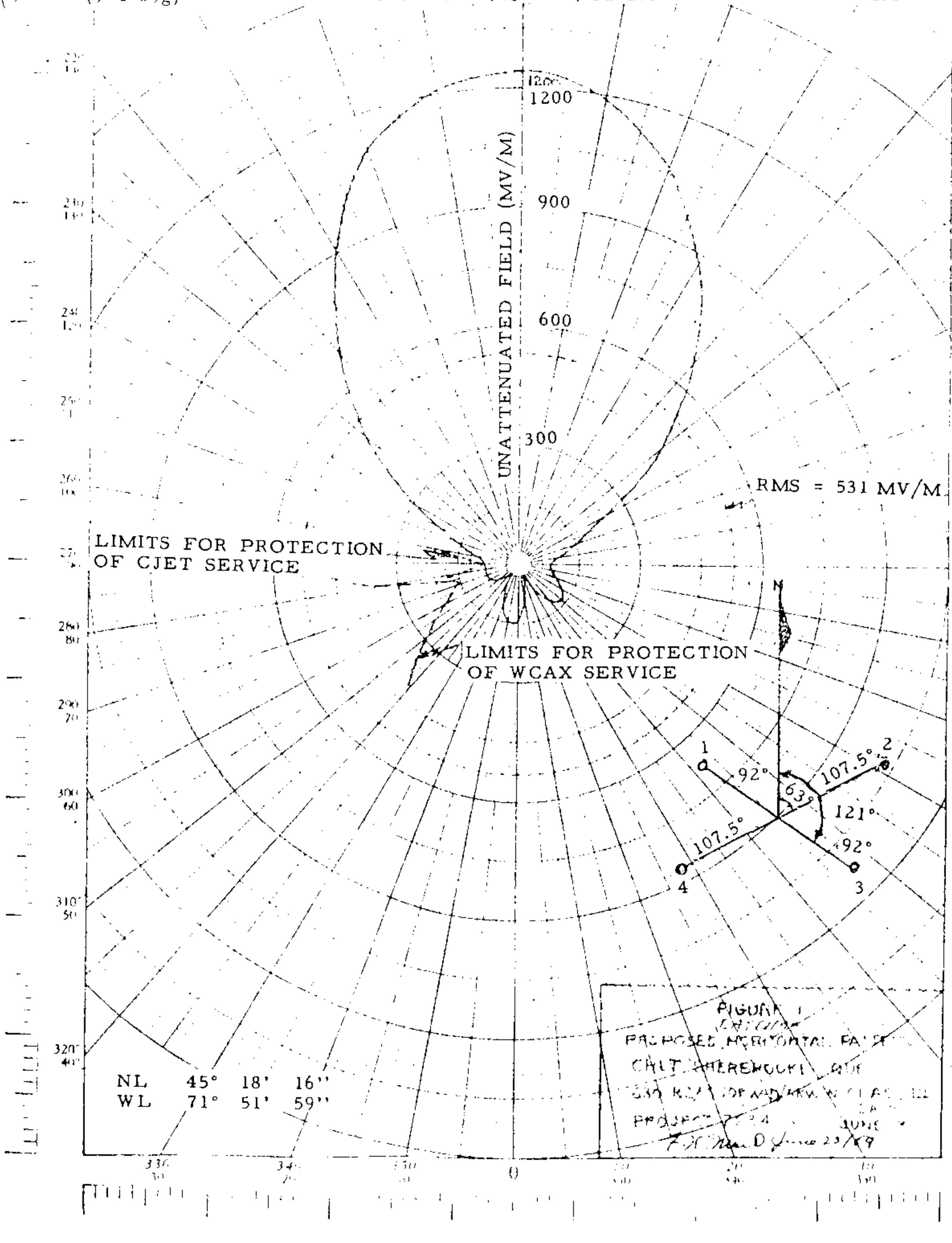
* The four radiators are at the vertices of a parallelogram and the orientation and spacing are from the intersection of the diagonals.

Please retain the night-time pattern previously notified and attach to this Description sheet.

#137 CHL1

PROPOSED DAY (9-4-59g)

Station CHLT 5kw,10kw-LS,DA-2,U,Class III
Sherbrooke, Quebec, Canada 630 KC



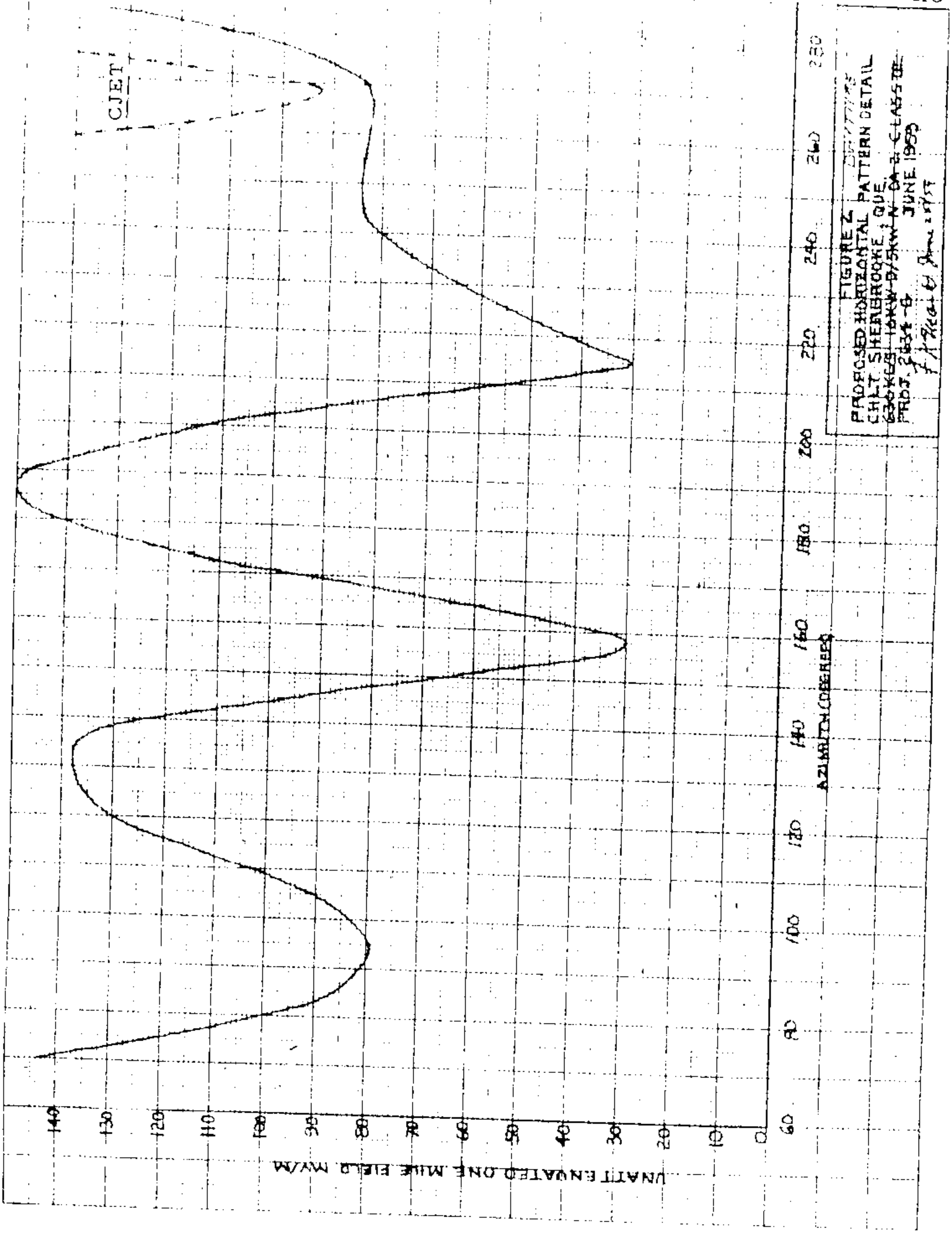
#137

CHLT

PROPOSED DAY NULLS
(9-4-59g)

Station CHLT
Sherbrooke, Quebec, Canada

5kw,10kw-LS,DA-2,U,Class III
630 KC



CJET

TABLE 1

ANTENNA DESCRIPTION SHEET

STATION CALL:	CJET
MAIN STUDIO:	SMITHS FALLS, ONTARIO
FREQUENCY:	630 kHz
POWER:	10 kW
CLASS:	III
MODE:	DA-2
TIME:	UNLIMITED
NOTIFICATION LIST NO.:	363 TIME: May 10, 1977
GEOGRAPHICAL LOCATION:	Latitude 44° 50' 31" North Longitude 75° 58' 44" West
ARRAY CHARACTERISTICS:	Six guyed steel towers of uniform cross section; base insulated series fed; each tower top loaded by means of a folded umbrella to provide an effective height of approximately 100°.

TOWER NUMBER:	1	2	3	4	5	6
HEIGHT ABOVE INSULATOR:	260'	260'	260'	260'	260'	260'(60°)
OVERALL HEIGHT ABOVE GRADE:	265'	265'	265'	265'	265'	265'
DAY FIELD RATIO:	1.000	1.231	2.457	2.398	1.974	2.052
DAY PHASE ANGLE:	0°	005.1°	152.6°	275.6°	270.3°	147.5°
NIGHT FIELD RATIO:	1.000	1.000	1.741	1.000	1.000	1.741
NIGHT PHASE ANGLE:	0°	355°	124.5°	254°	259°	129.5°
SPACING:	ref.	195° 846.0'	208.99° 906.7'	255.99° 1110.6'	180° 781.0'	090° 390.5'
ORIENTATION:	ref.	262°	236.56°	217.46°	168°	168°

GROUND SYSTEM:	120 equally spaced radial wires per tower of # 10 AWG bare copper wire, buried 6"-12" below grade of average length 0.4λ(625') excluding those along common chords minimum length 0.25λ(390')
PREDICTED EFFECTIVE FIELD: (UNATTENUATED AT ONE MILE)	570 mV/m for 10 kW day and night or 180 mV/m per kW.

CJET

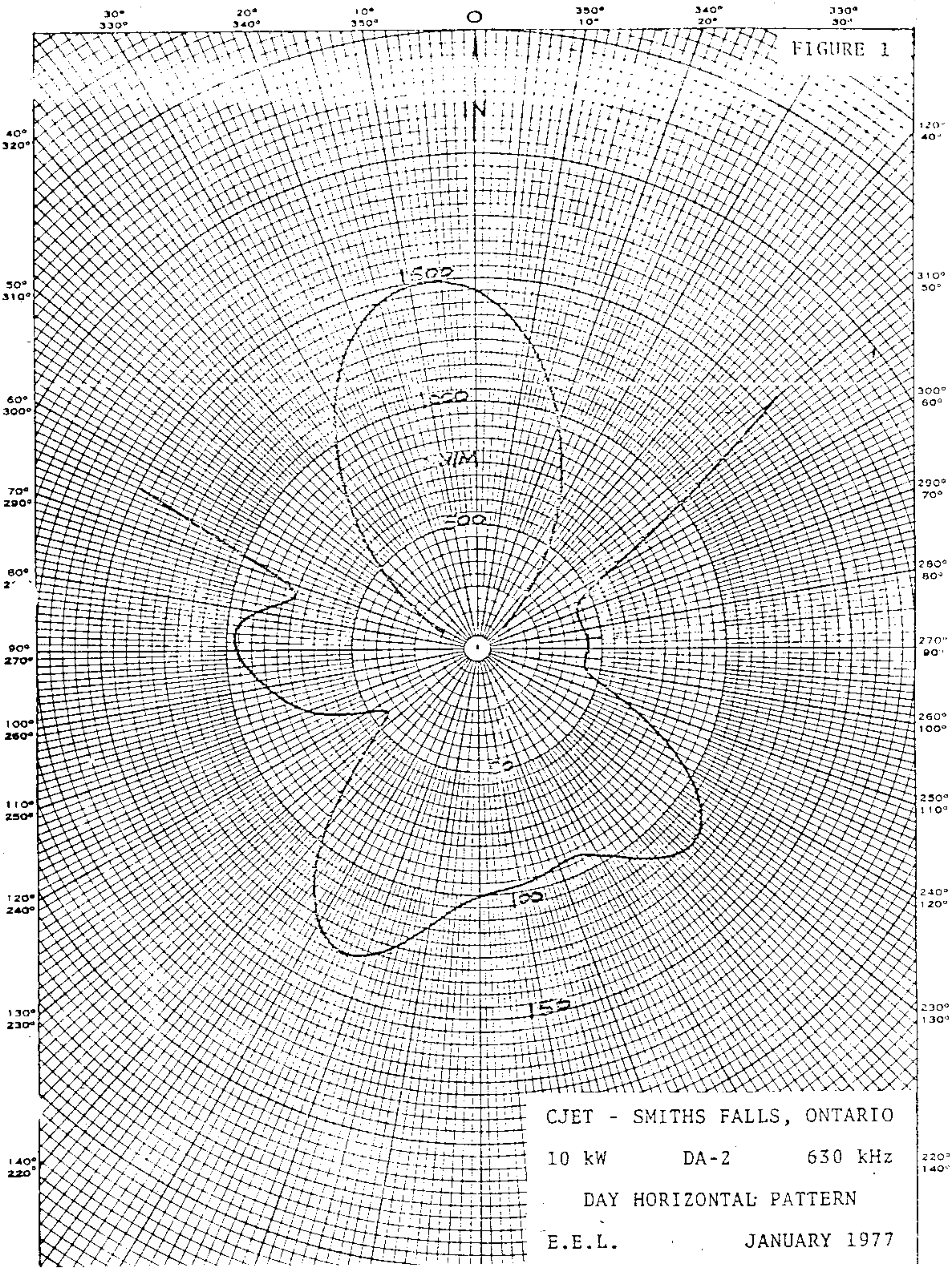


FIGURE 1

CJET - SMITHS FALLS, ONTARIO

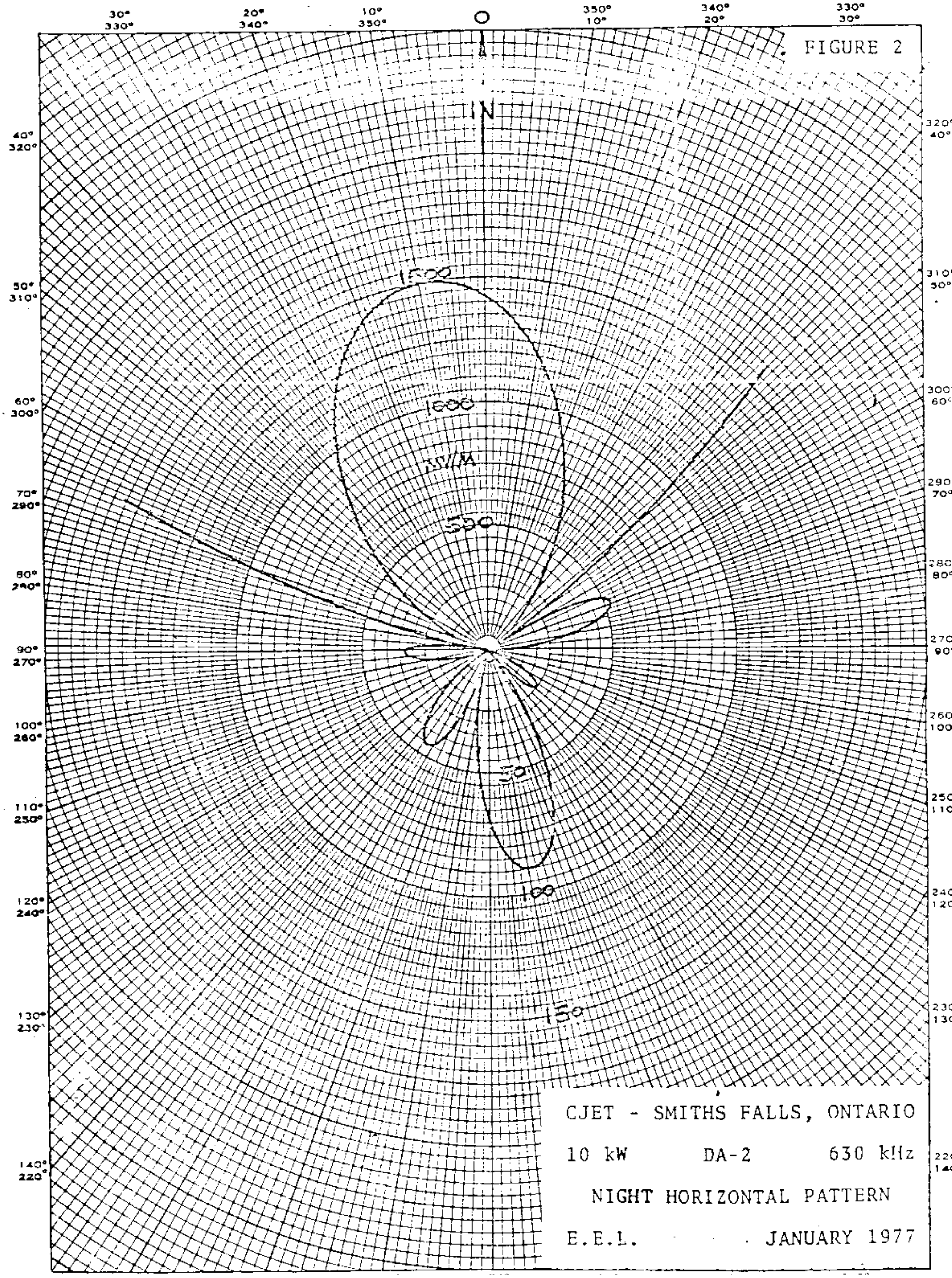
10 kW DA-2 630 kHz

DAY HORIZONTAL PATTERN

E.E.L. JANUARY 1977

CJET

FIGURE 2



CJET - SMITHS FALLS, ONTARIO

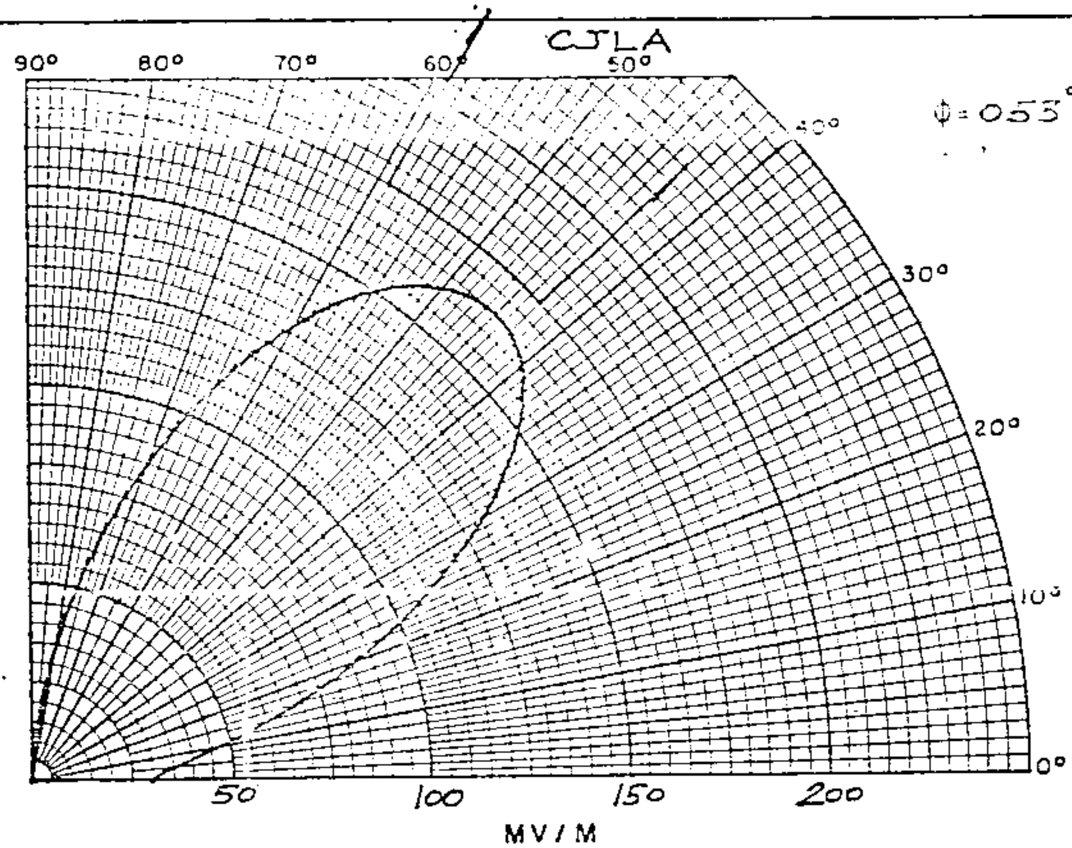
10 kW DA-2 630 kHz

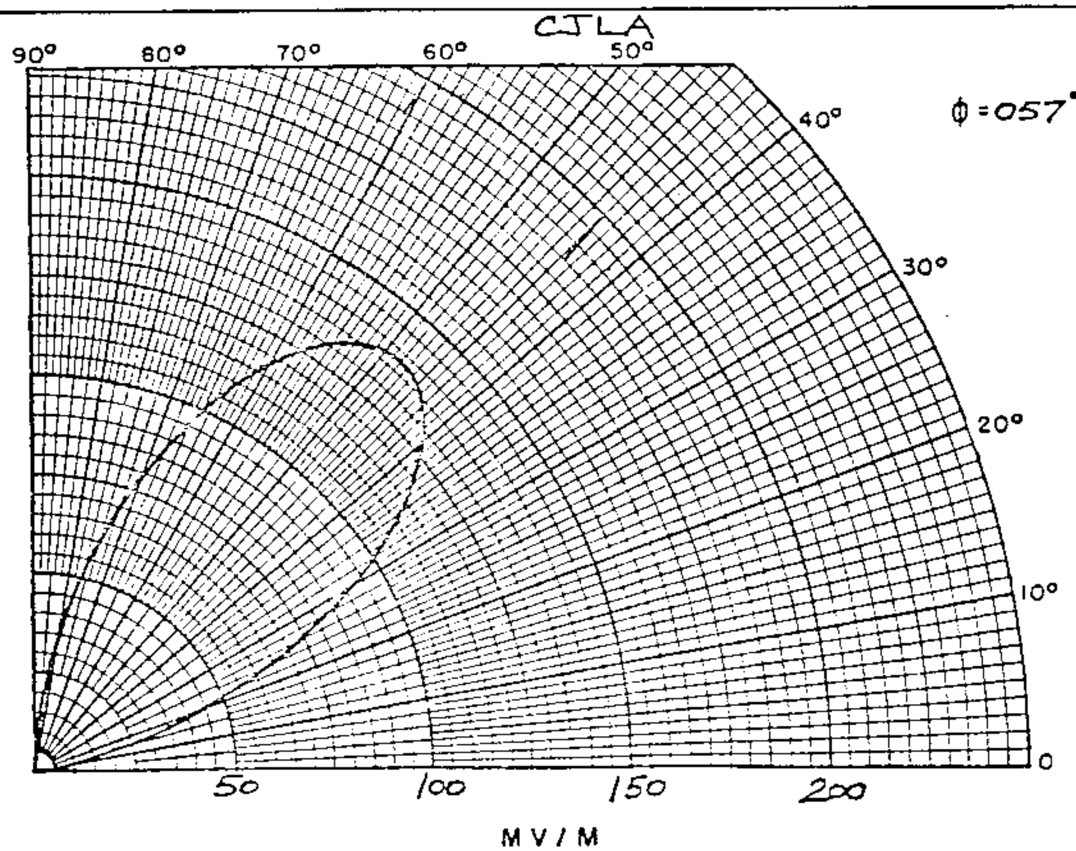
NIGHT HORIZONTAL PATTERN

E.E.L. JANUARY 1977

CJET

FIGURE 3-1





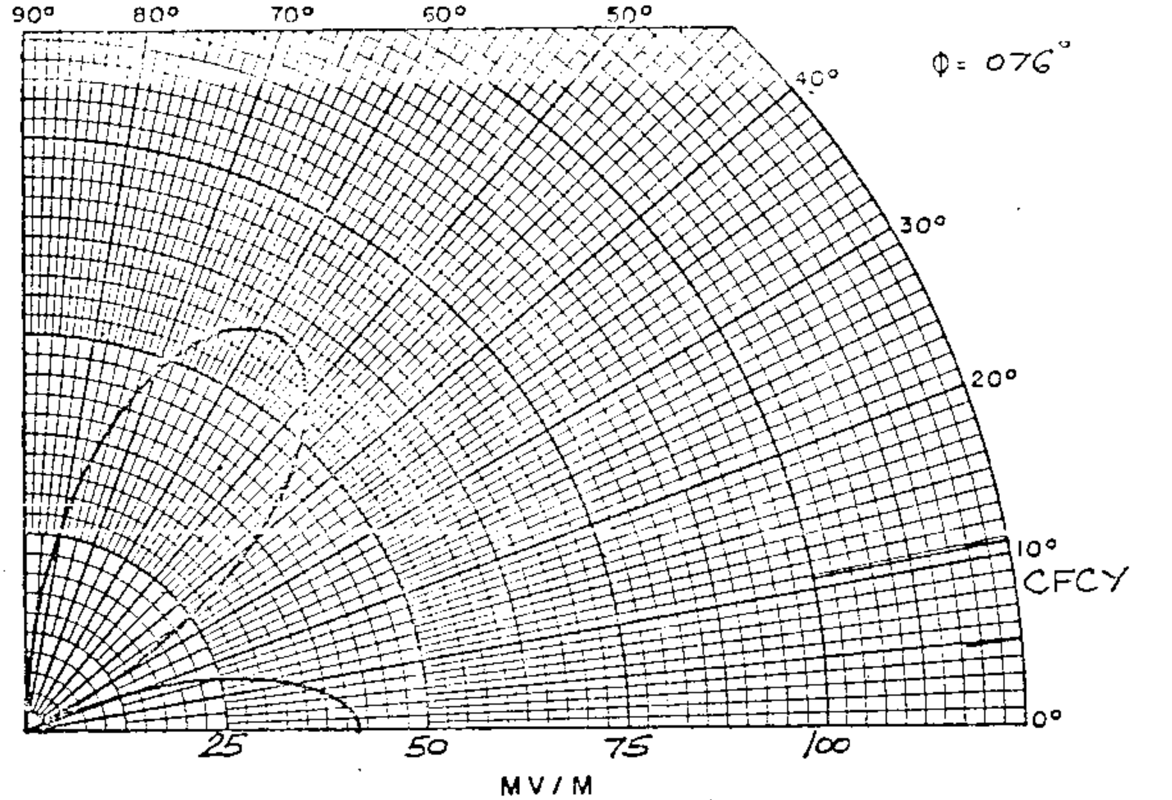
VERTICAL RADIATION PATTERNS

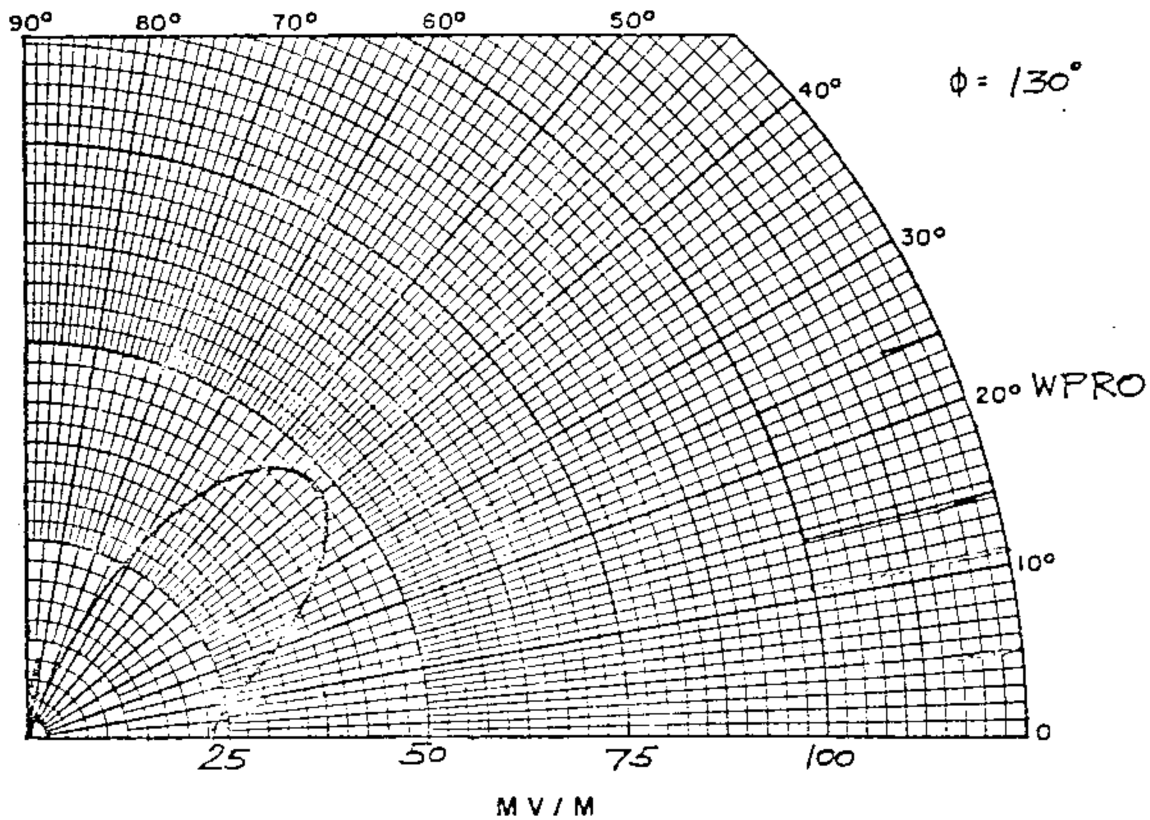
CJET - SMITHS FALLS, ONTARIO

10 kW DA-2 630 kHz

E.E.L. JANUARY 1977

CJET



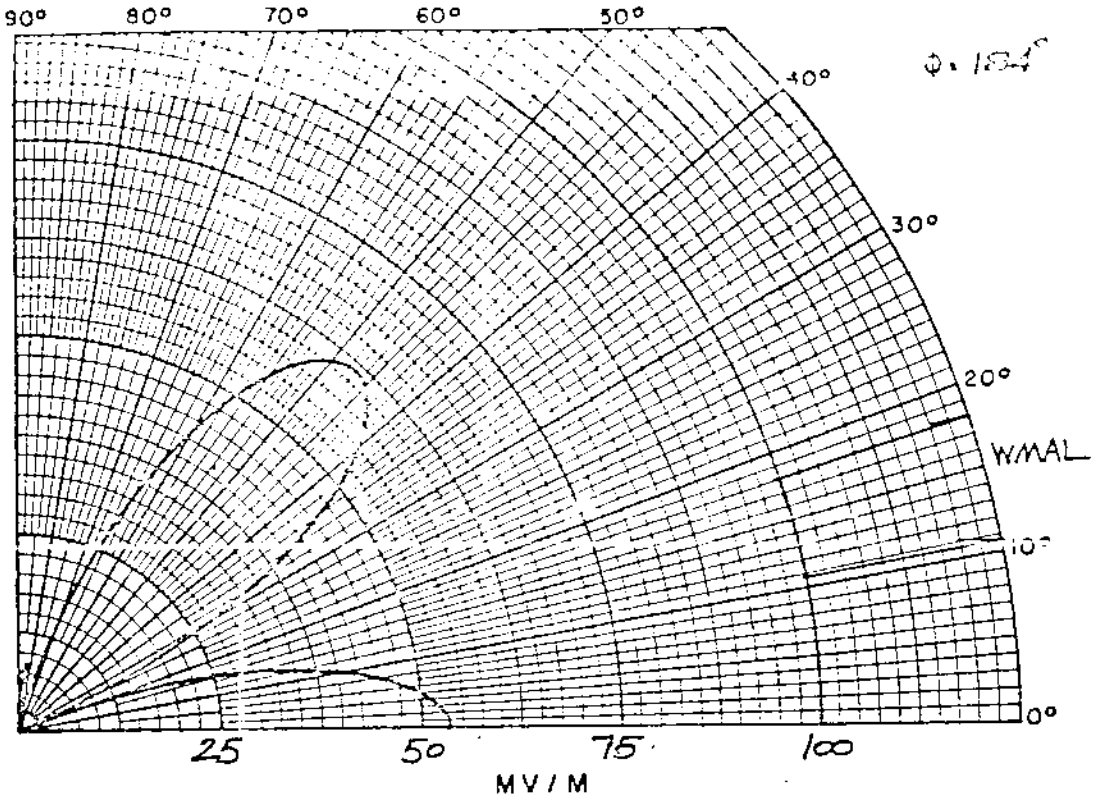


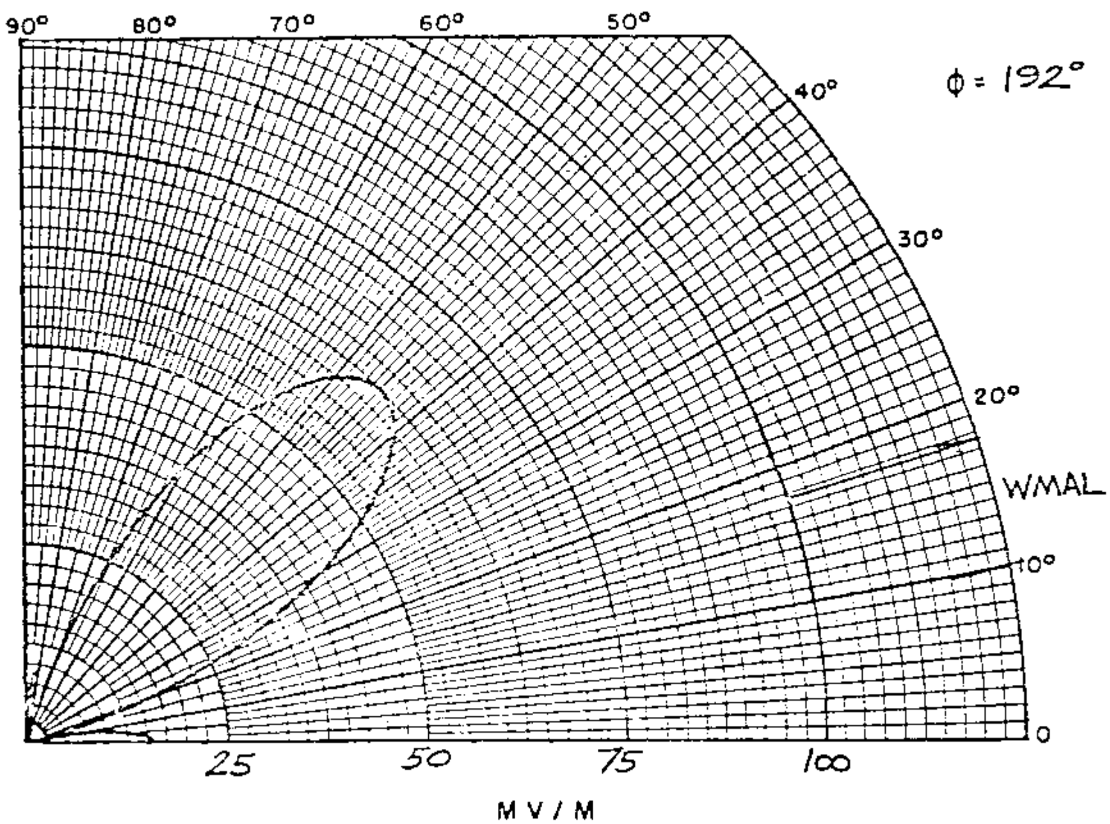
VERTICAL RADIATION PATTERNS

CJET - SMITHS FALLS, ONTARIO

10 kW DA-2 630 kHz

E.E.L. JANUARY 1977



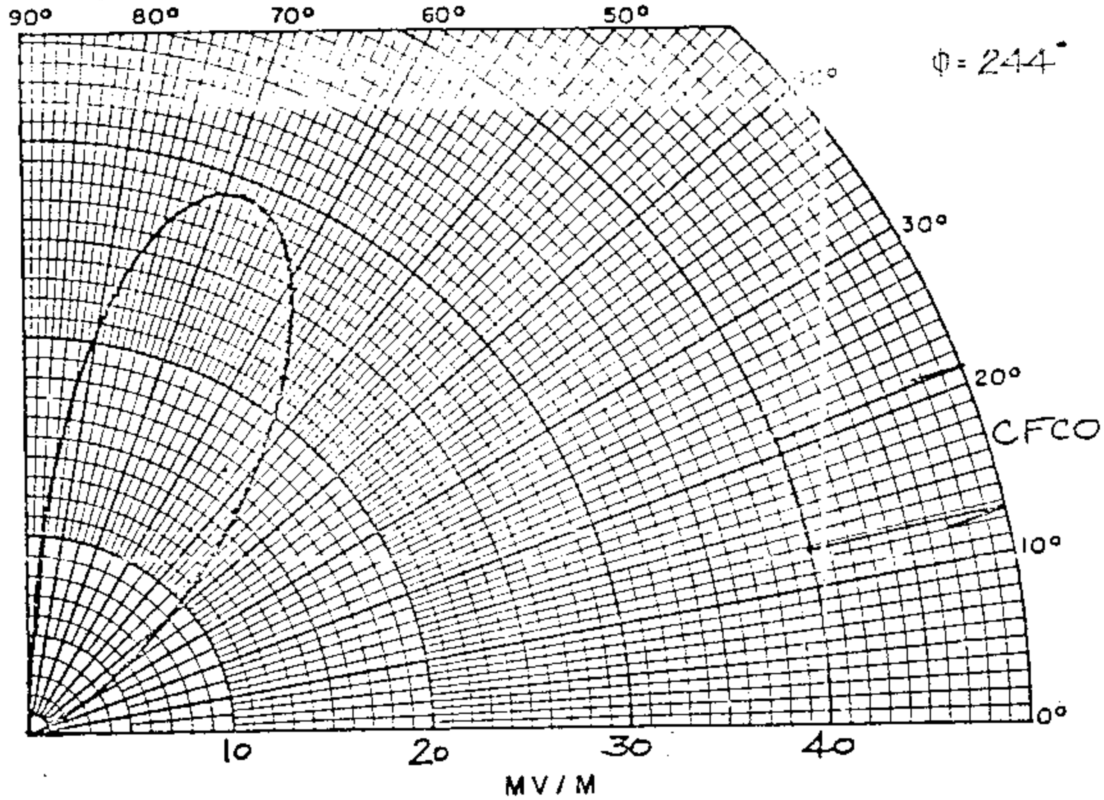


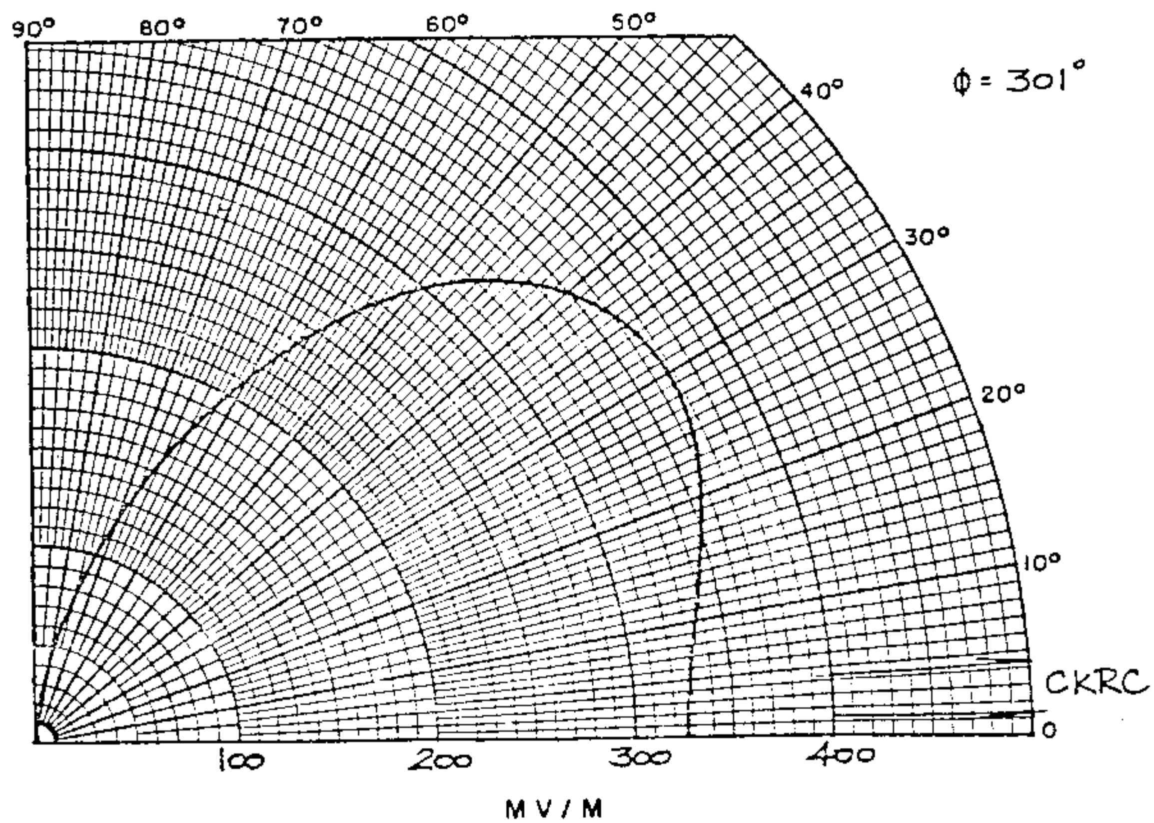
VERTICAL RADIATION PATTERNS

CJET - SMITHS FALLS, ONTARIO

10 kW DA-2 630 kHz

E.E.L. JANUARY 1977





VERTICAL RADIATION PATTERNS

CJET - SMITHS FALLS, ONTARIO

10 kW DA-2 630 kHz

E.E.L. JANUARY 1977

CJLA

DESCRIPTION SHEET

STATION: New — MAIN STUDIO: Lachute, Quebec

FREQUENCY: 630 kHz — POWER: 500 Watts Day
1 kW Night

TIME: Unlimited — DATE: July 1971

NOTIFICATION LIST NO: 291 — DATE: May 12, 1972.

GEOGRAPHIC LOCATION: N. 45°35'10"
W. 74°19' 0"

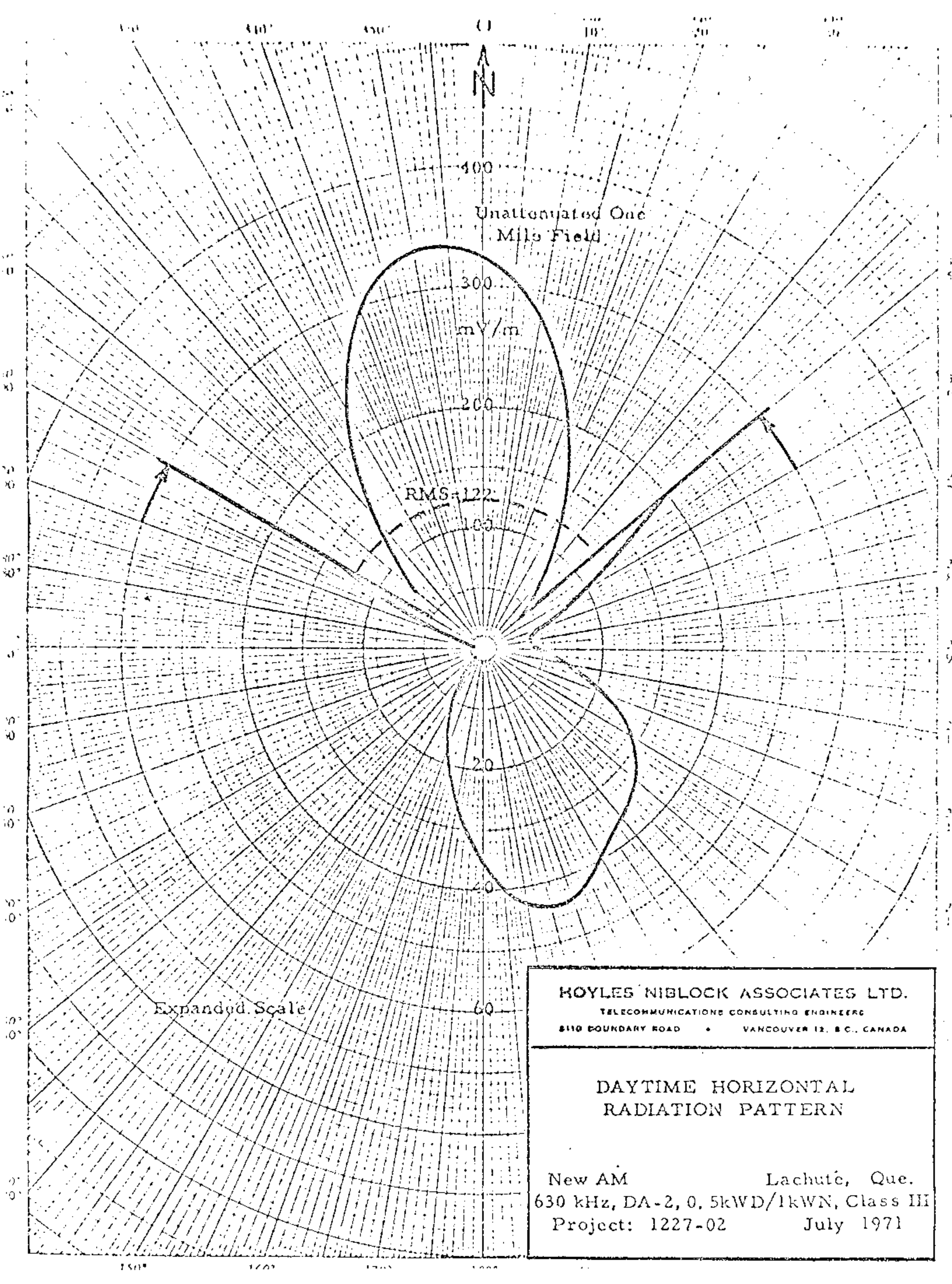
ANTENNA SYSTEM: Mode of Operation: DA-2

Elements: Six (6) guyed towers. Uniform cross section. Series fed top loaded to 70° using upper section of guys.

			2	3	4	1
TOWERS:	1	2	3	4	5	6
Height Overall	265'	265'	265'	265'	265'	265'
Height above Insulators	260'	260'	260'	260'	260'	260'
Spacing (Degrees)	ref	90°	198.668°	362.478°	348°	174°
(Feet)	ref	390.433'	861.849'	1572.48'	1509.67'	754.836'
Orientation (Degrees)	ref	N35°E -10°	51.08°	63.633°	78°	78°
Field Ratios: Day	1.0	0.77	1.525	0.77	1.0	1.983
Night	-	-	0.91	0.636	0.7	1.0
Field Phase: Day	0°	-93°	-109.13°	-125.26°	-32.25°	-16.13°
Night	-	-	-100°	-100°	0	0

GROUND SYSTEM: The ground system shall consist of 120, copper wire radials per tower, buried approximately 8-10 inches below grade. The area covered is equivalent to a 0.4 λ length system.

PREDICTED EFFECTIVE FIELD: Day Pattern 122 mV/m at 500 Watts
Night Pattern 174 mV/m at 1 kW



HOYLES NIBLOCK ASSOCIATES LTD.

TELECOMMUNICATIONS CONSULTING ENGINEERS

8110 BOUNDARY ROAD • VANCOUVER 12, B.C., CANADA

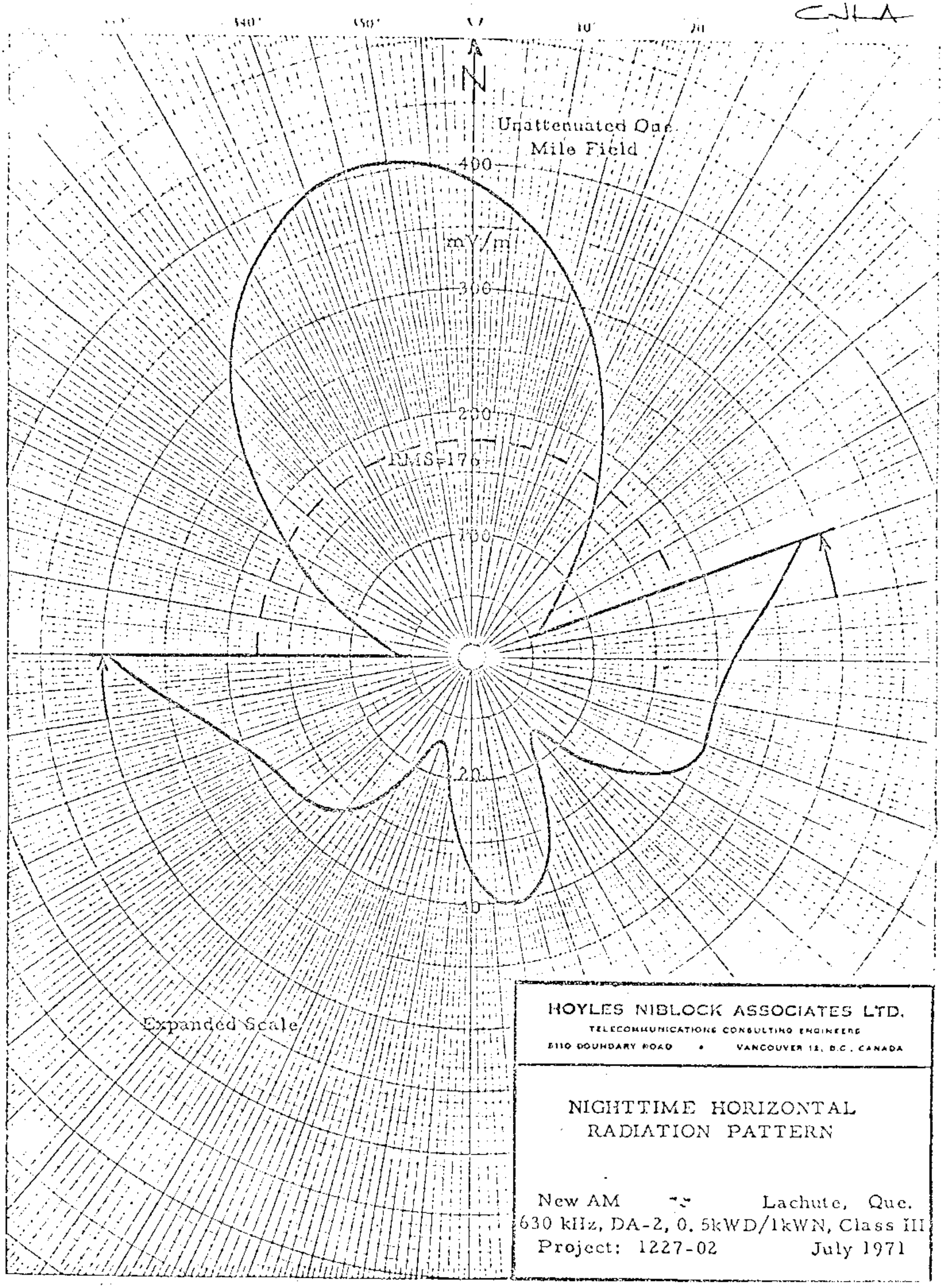
DAYTIME HORIZONTAL RADIATION PATTERN

New AM Lachute, Que.

630 kHz, DA-2, 0.5kWD/1kWN, Class III

Project: 1227-02 July 1971

CJLA



HOYLES NIBLOCK ASSOCIATES LTD.

TELECOMMUNICATIONS CONSULTING ENGINEERS

5110 BOUNDARY ROAD • VANCOUVER 12, B.C., CANADA

NIGHTTIME HORIZONTAL RADIATION PATTERN

New AM Lachute, Que.
630 kHz, DA-2, 0.5kWD/1kWN, Class III
Project: 1227-02 July 1971

16?

CKAR
CFBK

DESCRIPTION SHEET
(8-22-61ct)

Station CKAR — 1kw,DA-N,U,Class III
Huntsville,Ontario,Canada — 630 KC

DESCRIPTION SHEET

STATION CALL:	CKAR
MAIN STUDIO:	HUNTSVILLE, ONTARIO
FREQUENCY:	630 kc/s
POWER:	1 kw
MODE:	DA-N
CLASS:	III
TIME:	Unlimited

NOTIFICATION LIST NUMBER: 162 — DATE: July 26, 1961

GEOGRAPHICAL LOCATION:
OF THE ANTENNA SYSTEM:

NORTH LATITUDE: 45° 17' 38"
WEST LONGITUDE: 79° 12' 21"

ANTENNA CHARACTERISTICS: Three steel towers, guyed, uniform cross section, base insulated, series fed, with no top loading.

TOWER	SOUTH	CENTRE	NORTH
HEIGHT ABOVE INSULATOR	277'(ovs)	277'	277'
OVERALL HEIGHT:	281'	281'	281'
SPACING:	0°	155.4°	250°
		(675')	(1,215')
ORIENTATION (TRUE)	ref.	030.2°	020°
NIGHT FIELD RATIO:	1.000	1.216	1.000
NIGHT PHASING:	[illegible].5°	00°	-97.5°

GROUND SYSTEM: 120 equally spaced soft drawn # 10 AWG copper wires per tower, of average length 625' (0.40λ). Bonded to copper strap along the common chords and buried approximately 6" deep.

PREDICTED RMS. FIELD:

DAY: 182 mV/m for 1 kw
NIGHT: 195.6 mV/m for 1 kw

J.G.E., May 25,1961.

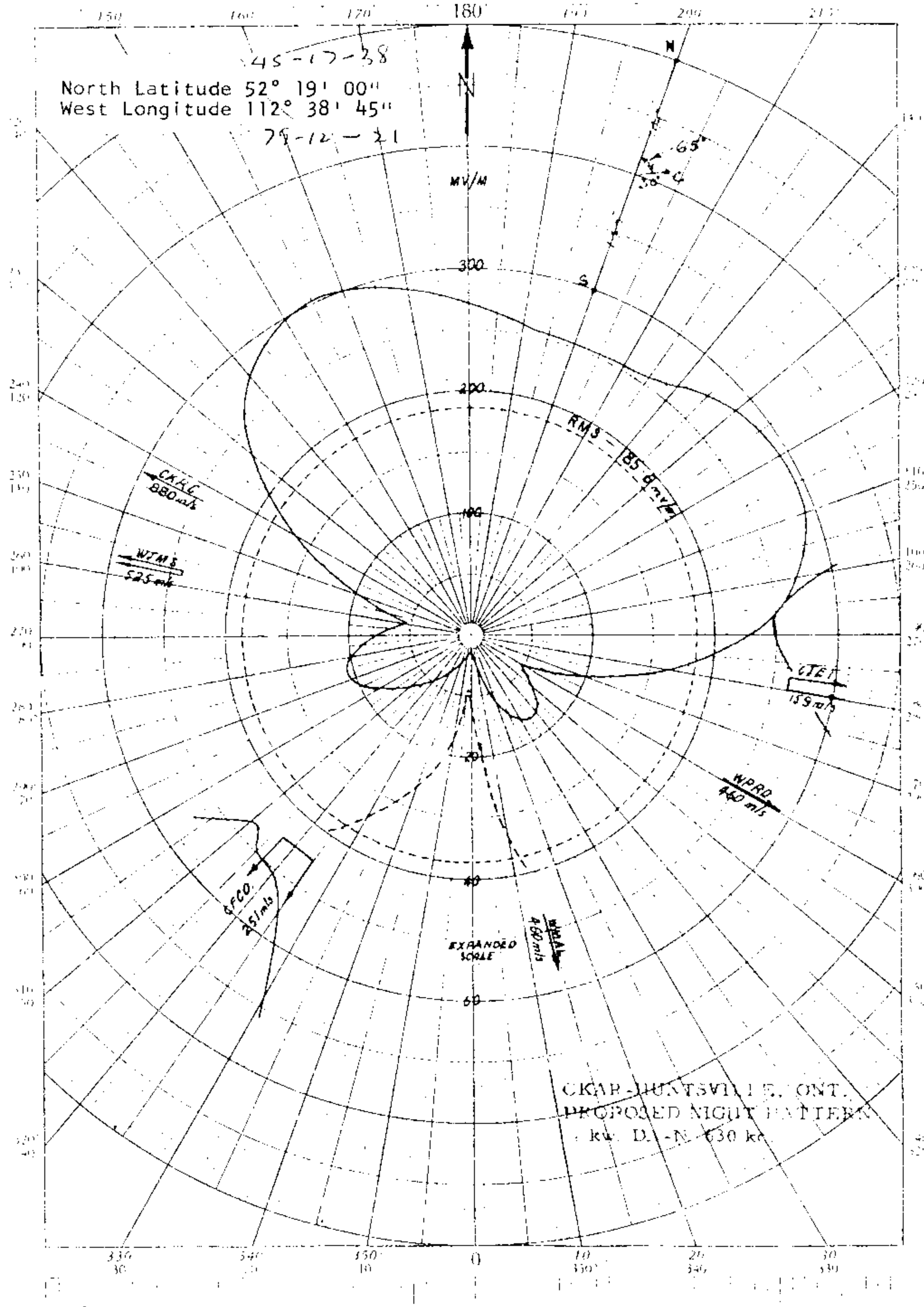
#162

CKAR

PROPOSED NIGHT (8-22-61ct)

Station CKAR
Huntsville, Ontario, Canada

1kw, DA-N, U, Class III
630 KC



Description Sheet
(8-28-67ct)

Station CKOV
Kelowna, B. C.

1kw,5kw-LS,U,Class I
630 kc

DESCRIPTIVE SHEET - OMNIDIRECTIONAL ANTENNA

STATION CALL: CKOV	MAIN STUDIO: KELOWNA, B.C.
POWER: 5KWD/1KW NIGHT	FREQUENCY: 630 KC/S CLASS: III
NOTIFICATION LIST NO.: **229**	DATE: **July 31, 1967.**
GEOGRAPHICAL LOCATION:	NORTH LATITUDE: 49° 50' 51" WEST LONGITUDE: 119° 29' 00"
ANTENNA HEIGHT ABOVE INSULATORS:	194' (44.[illegible]°)
GROUND SYSTEM:	120 radials, buried approximately 6 inches radial length within range 390 feet to 625 feet.
TYPE OF ELEMENT:	Square tower, uniform cross-section base insulated for series feed.
PREDICTED EFFECTIVE FIELD:	DAY 405 mv/m for 5 kw NIGHT 161 mv/m for 1 kw

CKOV
630

REFER TO FILE NUMBER

Air Services
Telecommunications Division
(5-10-55)

CANADA

DEPARTMENT OF TRANSPORT
OTTAWA

DESCRIPTIVE SHEET - OMNIDIRECTIONAL ANTENNA

Station Call: CKOV

Main Studio: Kelowna, British Columbia

Frequency: 630 Kc/s.

Power: 1 Kw.

Class: III

Time: U

Notification Reference: NARBA Annex 3

Geographical Location:

North Latitude: 49° 50' 51"

West Longitude: 119° 29' 00"

Antenna Characteristics:

Height: 194 ft. 44.8 degrees

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

or: 181 mv/m at 1 mi. for 1 Kw.

Ground System:

120 radials, buried approximately 8 inches, radial length within range 390 feet to 625 feet.

Type of Element:

Square tower of uniform construction, base insulated for series feed.

November 20, 1952

CKRC
630

IFRB Serial No. 1 20 6 4

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

(a) Administration: CANADA   Sheet No. 422   Date 83 08 24

Assigned frequency (kHz)		02	630
Transmitting station	Name of the station	03	WINNIPEG MB
	Call sign	04	CKRC
	Additional Identification	05	
	Station class	06	B
	Operational Status	07	P
Country		08	CAN
Geographical coordinates of the transmitting station		09	97W07 57 49N45 51

(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 [ ] No [X]

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

STATION PARAMETERS	DAYTIME OPERATION		NIGHT-TIME OPERATION	
Station power (kW)	21	10.	31	10. No change
r.m.s. value of radiation for station power (mV/m at 1 km)	25	978.	35	.
Antenna type	26	B	36	B
Simple vertical antenna electrical height (degrees)	27	.	37	.

(44) Remarks

COORDINATION UNDER ARTICLE 4:								
COUNTRY	USA							
IN PROGRESS	X							
ACCEPTANCE OBTAINED								

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

IFRB Serial No. 1 20 6 4

PART II Section I

Description of a directional antenna consisting of vertical conductors

Sheet No. 422

Date 830824

(01) WINNIPEG MB
Name of transmitting station

(02) CAN
Country

(03) D
Hours of operation

(04) 3
Total number of towers

(05) Tower No.	(06) Tower field ratio	(07) Phase difference of the field (± degrees)	(08) Electrical tower spacing (degrees)	(09) Angular tower orientation (degrees)	(10) Reference tower indicator	(11) Electrical height of tower (degrees)	(12) Tower structure
1	1.09	-78.0	0.0	0.0	0	92.0	0
2	1.00	0.0	90.0	202.0	0	92.0	0
3	0.64	52.0	80.0	202.0	0	92.0	0
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(14) r.m.s value of radiation: 978. mV/m at 1 km

(15) Type of pattern: E

(16) Special quadrature factor: . mV/m at 1 km

(17) SUPPLEMENTARY INFORMATION

CKKC
630

CKRC
630

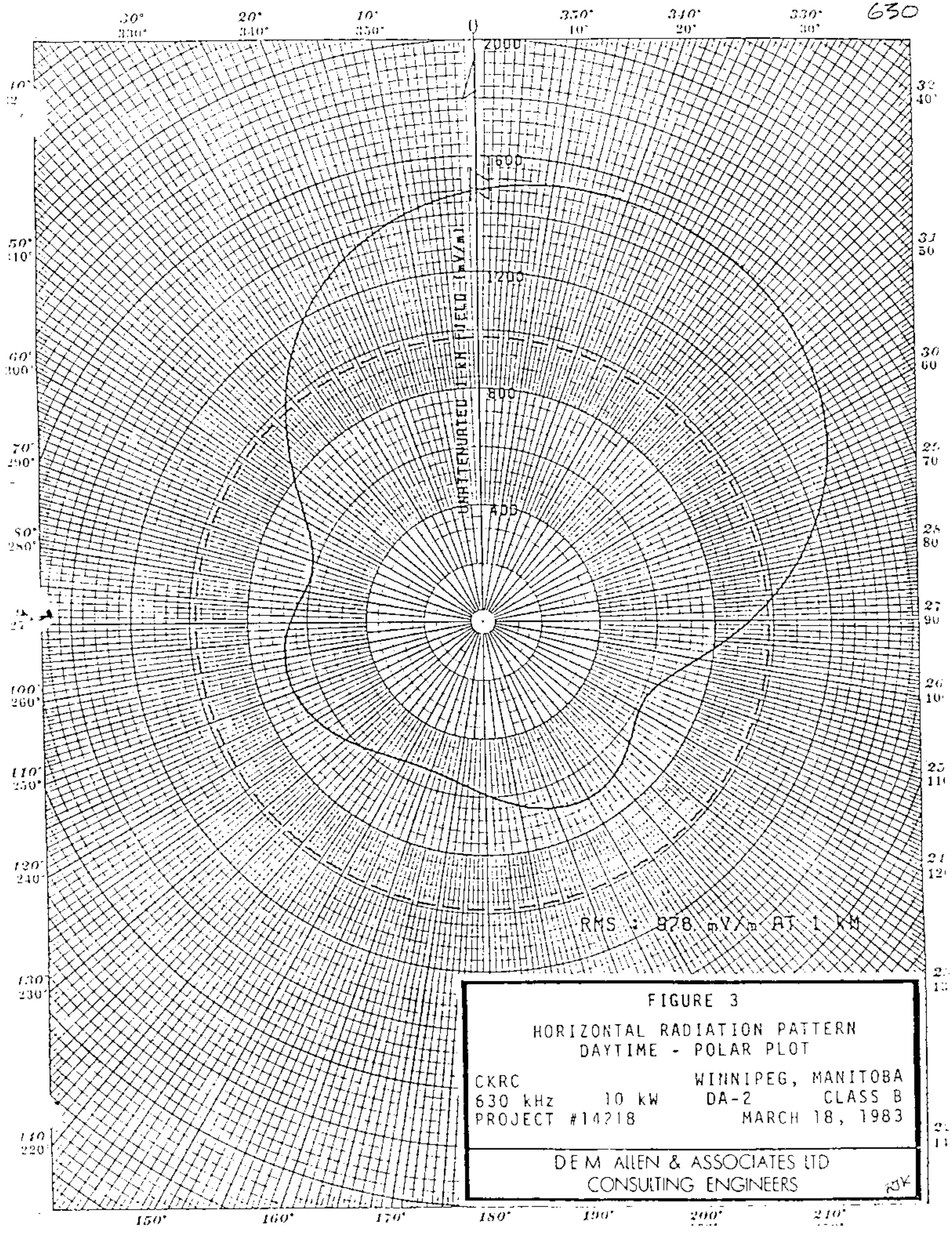


FIGURE 3

HORIZONTAL RADIATION PATTERN
DAYTIME - POLAR PLOT

CKRC WINNIPEG, MANITOBA
630 kHz 10 kW DA-2 CLASS B
PROJECT #14218 MARCH 18, 1983

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

PROJECT #14204

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: CKRC

MAIN STUDIO: Winnipeg, Manitoba

FREQUENCY: 630 kHz

POWER: 10 kW CLASS III

NOTIFICATION LIST NO. 365

DATE: July 29, 1977

GEOGRAPHICAL LOCATION: Latitude 49° 45' 51" North, Longitude 97° 07' 57" West

ANTENNA CHARACTERISTICS:

- Mode of Operation: DA-2
- Number of Elements: 3 (Three)
- Type of Elements: Guyed steel towers, uniform cross-section, base insulated for series feed

TOWER	#1 (N)	#2 (C)	#3 (S)
Height above base insulator:	400'(92°)	400'(92°)	400'(92°)
Overall height:	405'	405	405'
Field Ratio			
Nighttime:	.526	1.0	.579
Daytime:	.895	1.0	.968
Phasing			
Nighttime:	-112.5°	0.0°	123.5°
Daytime:	-90°	0.0°	140°
Spacing:	Ref.	390'(90°)	780'(180°)
Orientation:	Ref.	202°T	202°T

GROUND SYSTEM: 120 equally spaced radials of No. 10 B & S gauge bare soft copper wire extend from the base of each tower for a distance of 625 feet (0.4 wavelength at 630 kHz), with the exception of those joined along the common chords as well as a number of radials from the Number 3 (South) tower where the southwest boundary limits their length. To make up for these shortened radials, radials in other directions, are lengthened, resulting in an overall area equivalent to that of a standard ground system. The radials are buried approximately 8 inches.

PREDICTED EFFECTIVE FIELD:

Nighttime: 622 mV/m at 1 mile for 10 kW
197 mV/m at 1 mile for 1 kW

Daytime: 624 mV/m at 1 mile for 10 kW
197 mV/m at 1 mile for 1 kW

March 28, 1977

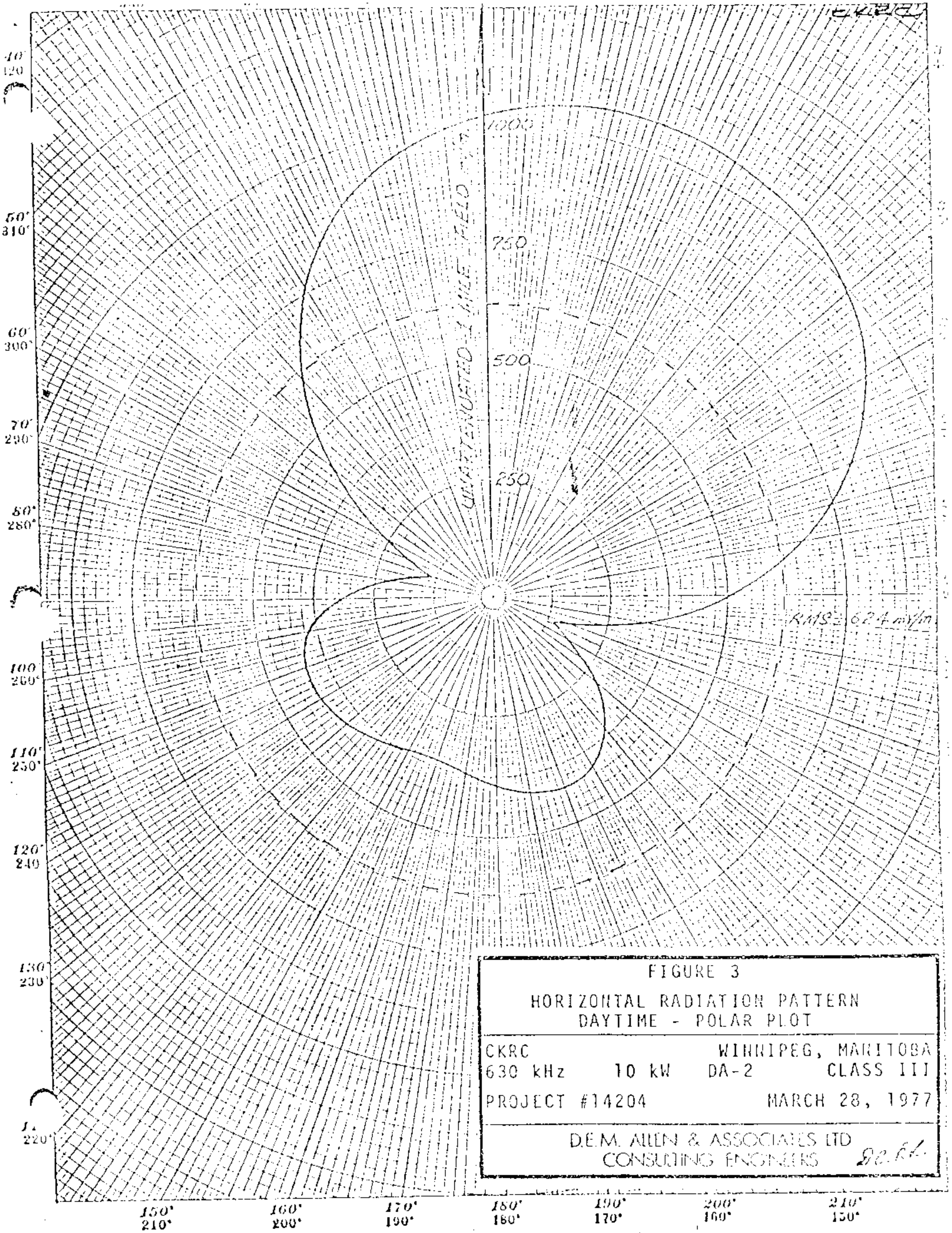


FIGURE 3

HORIZONTAL RADIATION PATTERN
DAYTIME - POLAR PLOT

CKRC	WINNIPEG, MANITOBA
630 kHz 10 kW DA-2	CLASS III
PROJECT #14204	MARCH 28, 1977

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

46 1323

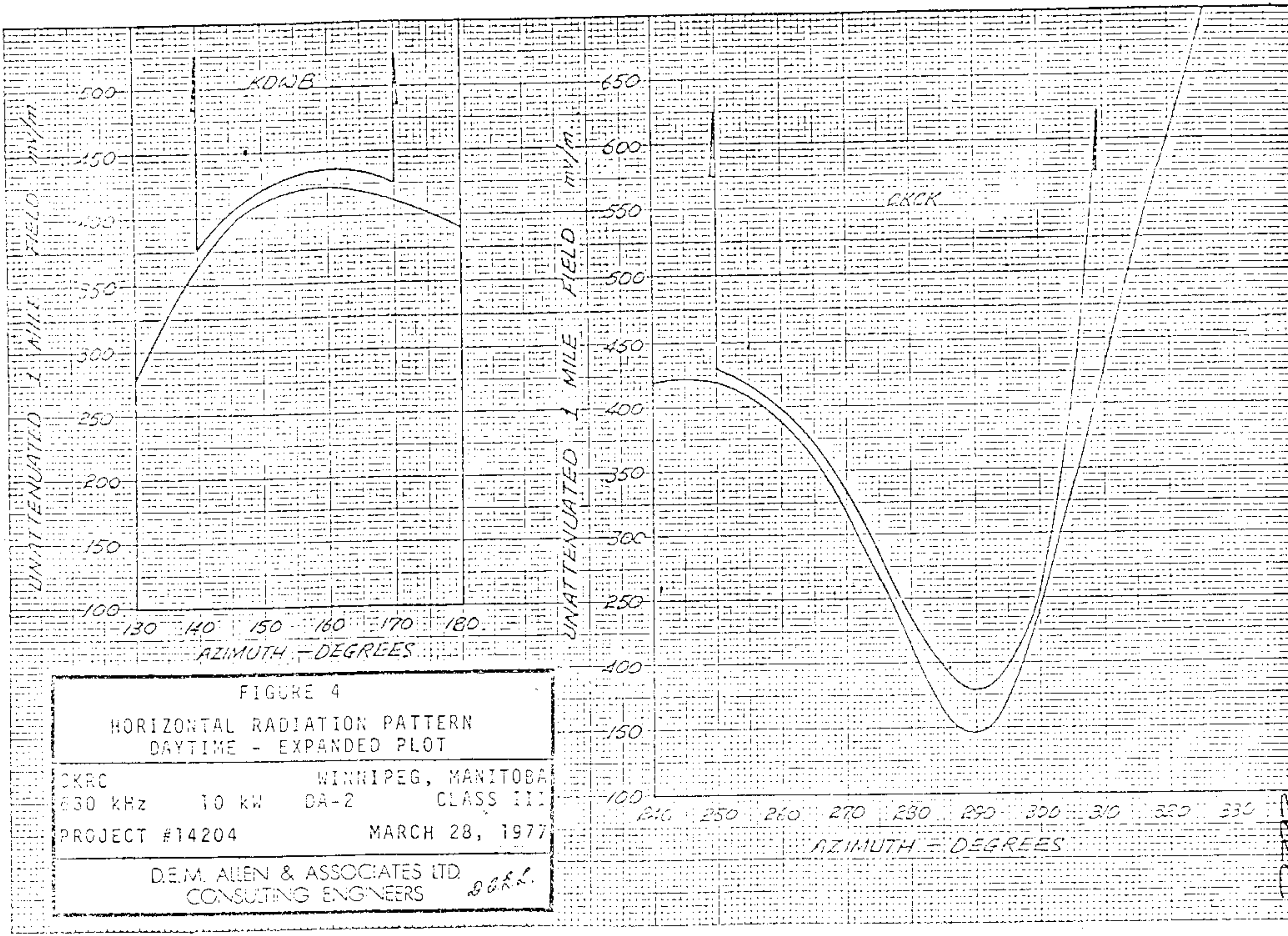


FIGURE 4

HORIZONTAL RADIATION PATTERN
DAYTIME - EXPANDED PLOT

CKRC	WINNIPEG, MANITOBA
630 kHz 10 kW DA-2	CLASS III
PROJECT #14204	MARCH 28, 1977

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

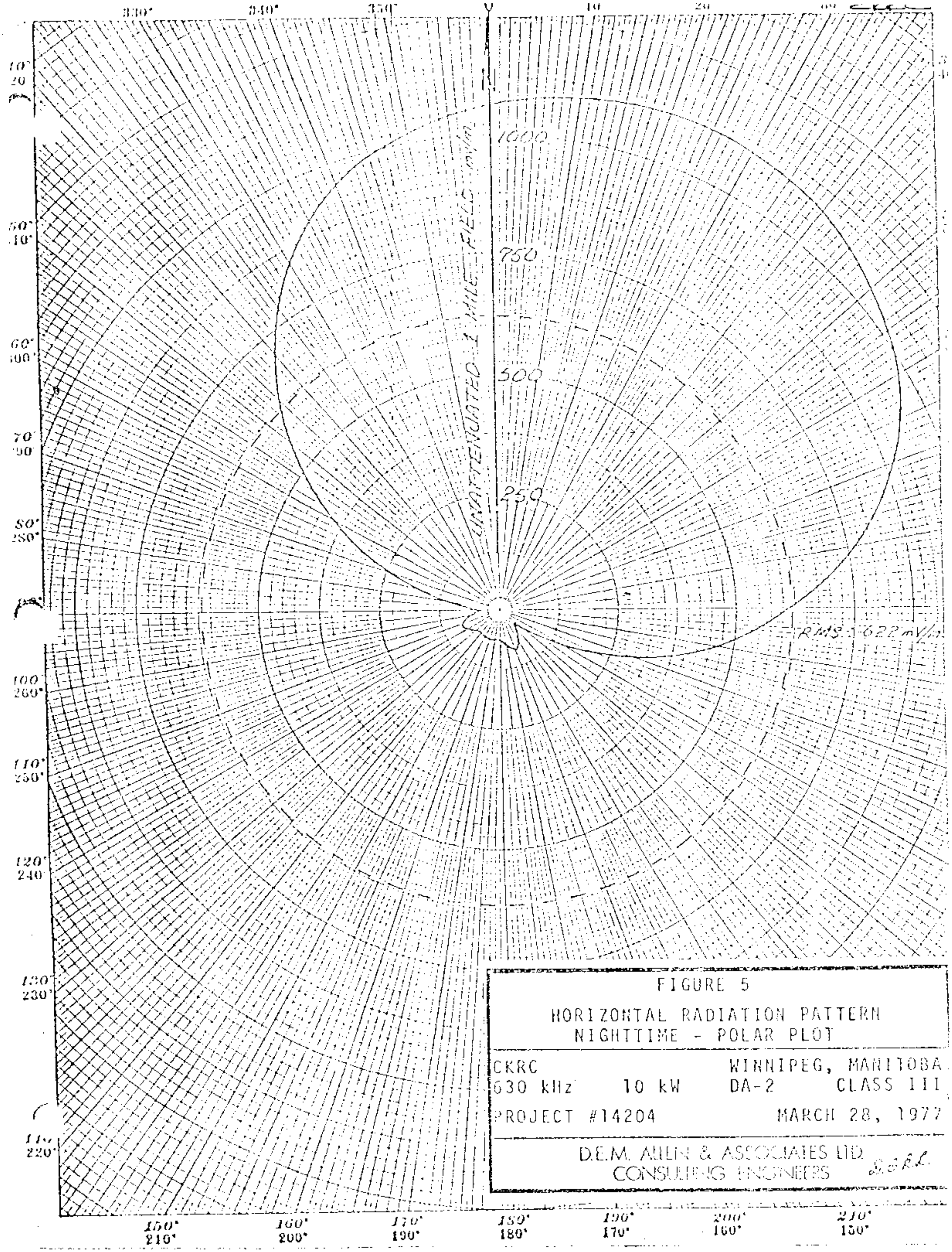


FIGURE 5

HORIZONTAL RADIATION PATTERN
NIGHTTIME - POLAR PLOT

CKRC	WINNIPEG, MANITOBA
630 kHz 10 kW	DA-2 CLASS III
PROJECT #14204	MARCH 28, 1977

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

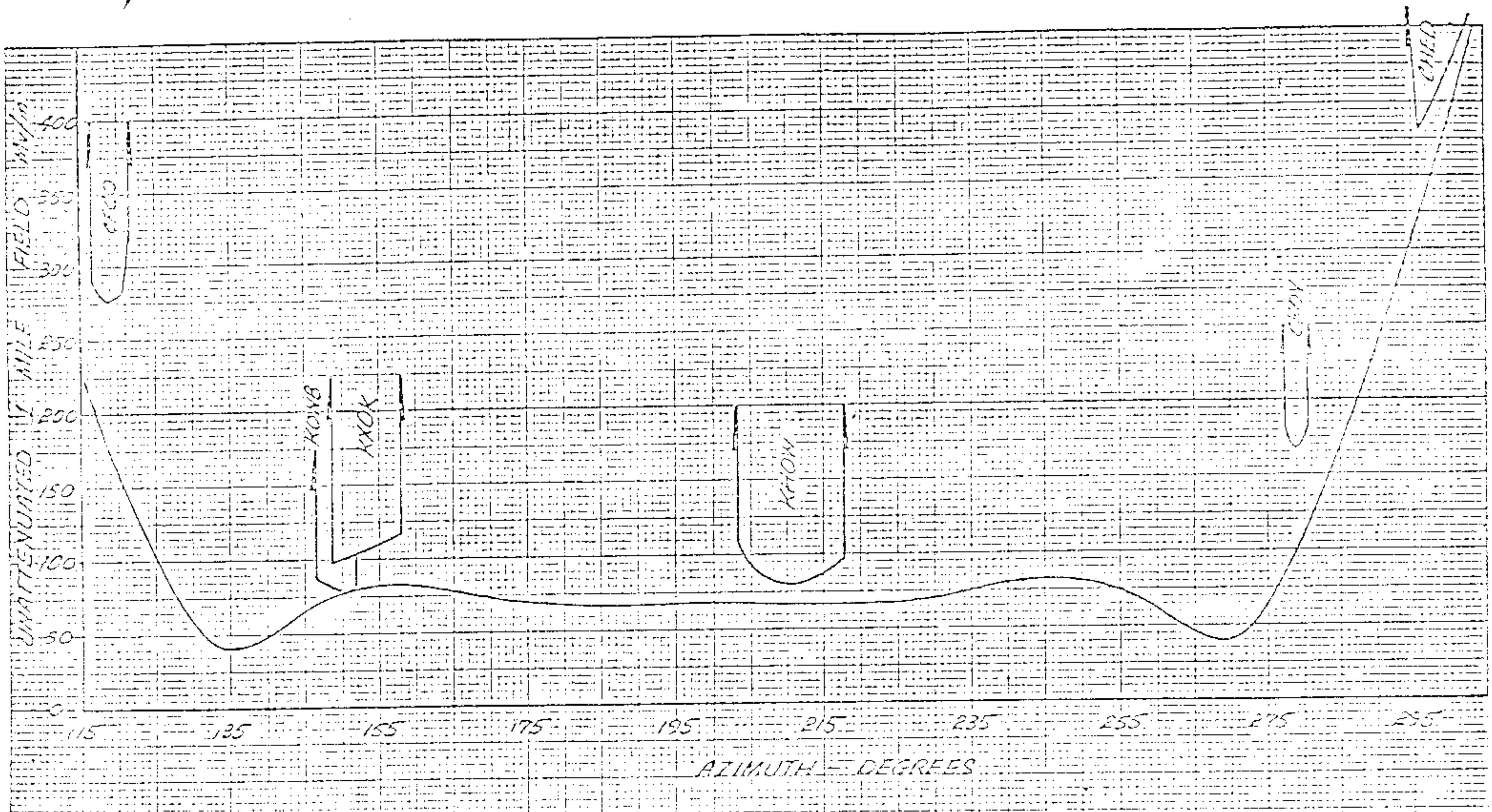


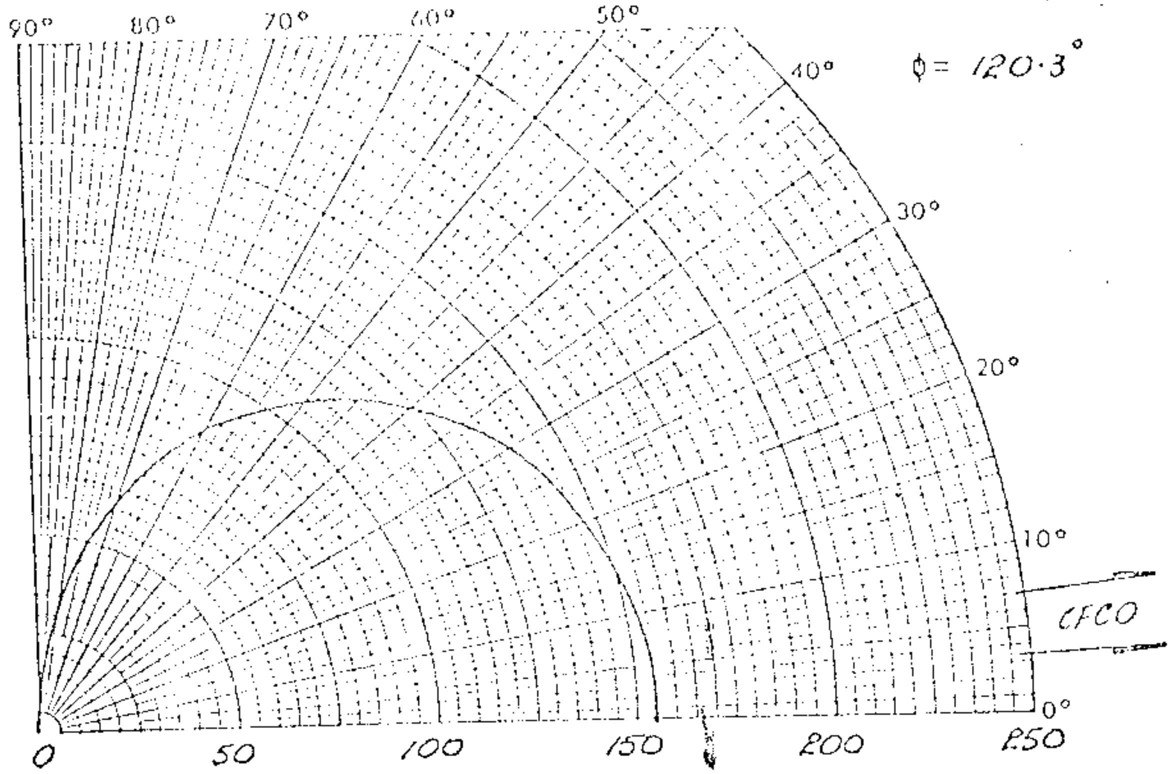
FIGURE 6

HORIZONTAL RADIATION PATTERN
NIGHTTIME - EXPANDED PLOT

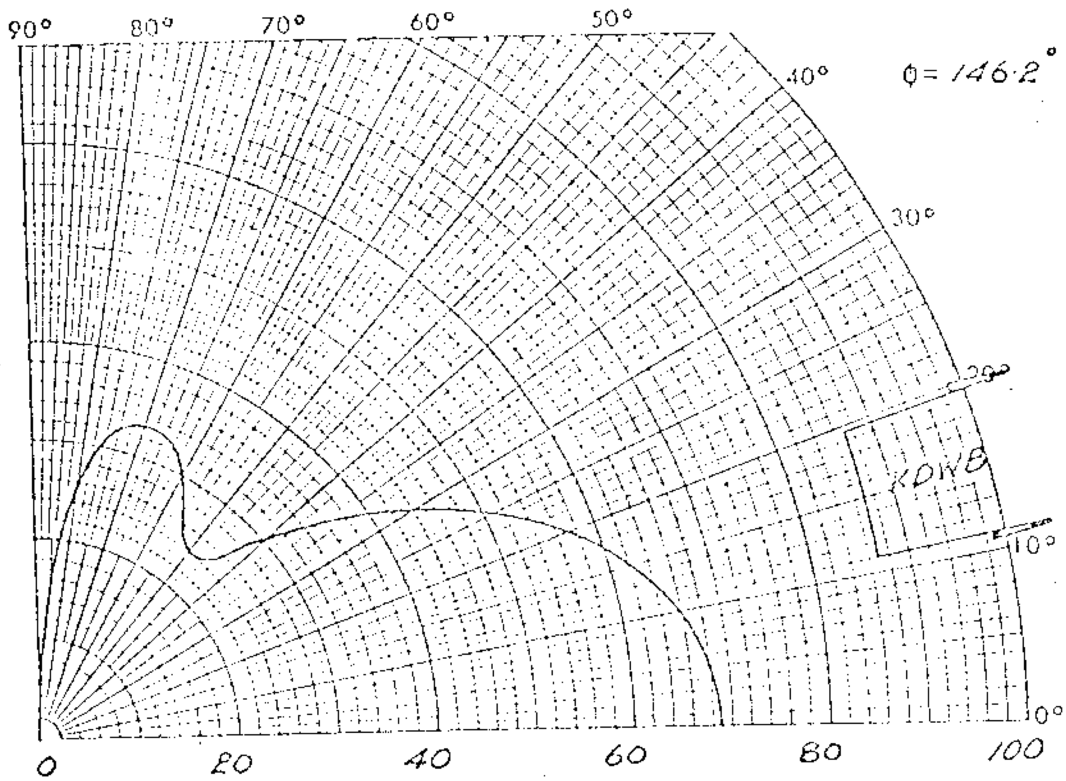
CKRC 630 kHz	10 kW	WINNIPEG, MANITOBA DA-2 CLASS III
PROJECT #14204		MARCH 28, 1977

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

CKRC



UNATTENUATED (MV/M) 1 MILE FIELD



UNATTENUATED (MV/M) 1 MILE FIELD

VERTICAL RADIATION PATTERNS

FIGURE 7

CKRC
630 kHz
PROJECT #14204

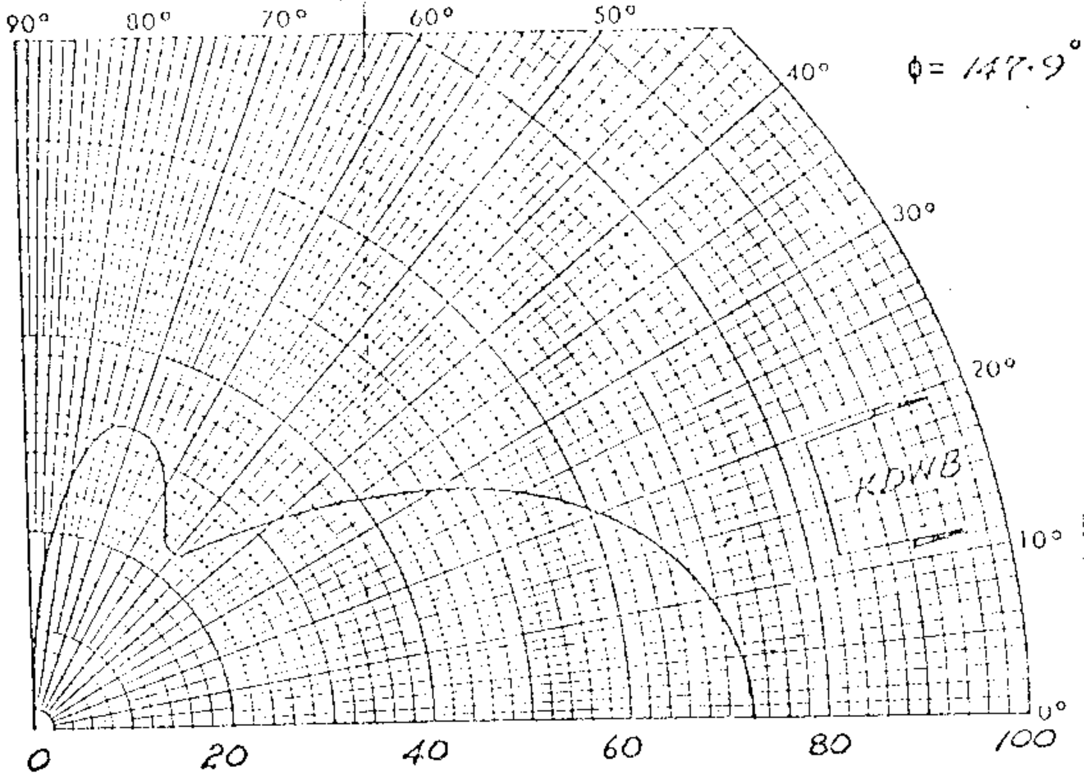
10 kW

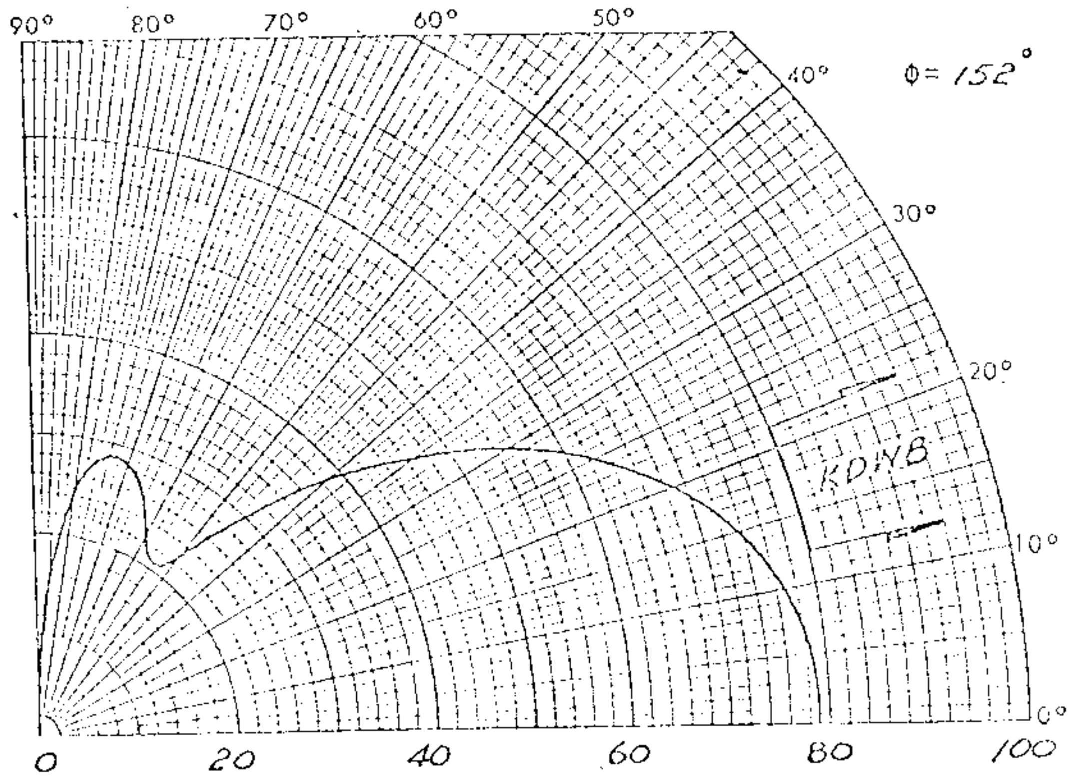
DA-2

WINNIPEG, MANITOBA
CLASS III
MARCH 28, 1977

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

CKRC





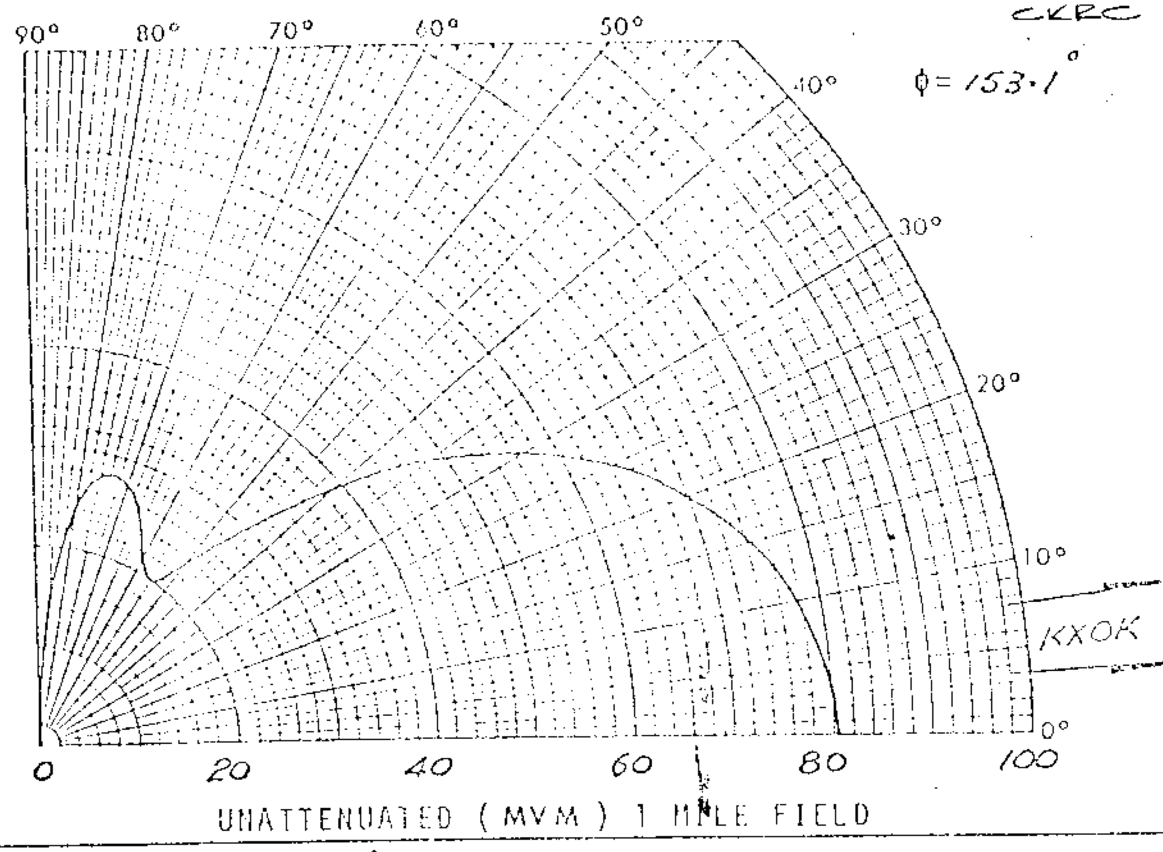
VERTICAL RADIATION PATTERNS

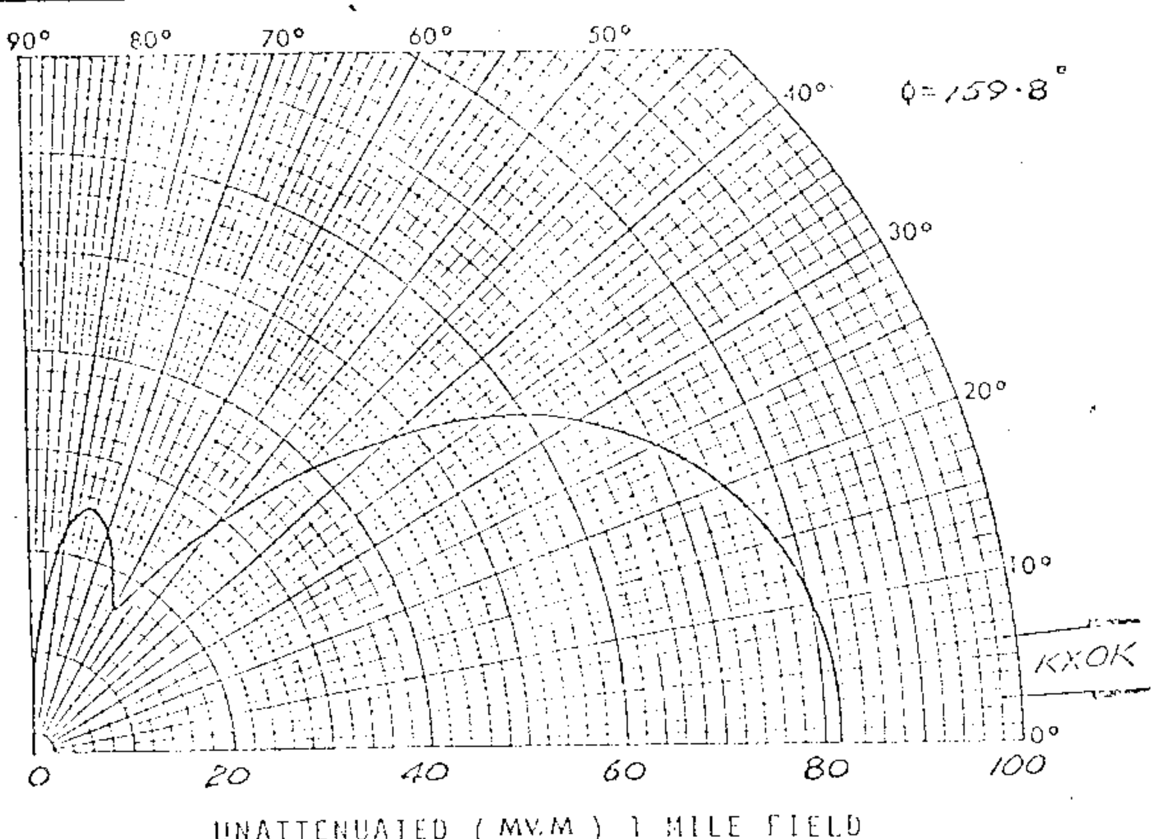
FIGURE 8

CKRC 630 kHz PROJECT #14204	10 kW	DA-2	WINNIPEG, MANITOBA CLASS III MARCH 28, 1977

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

CKRC





VERTICAL RADIATION PATTERNS

FIGURE 9

CKRC
630 kHz
PROJECT #14204

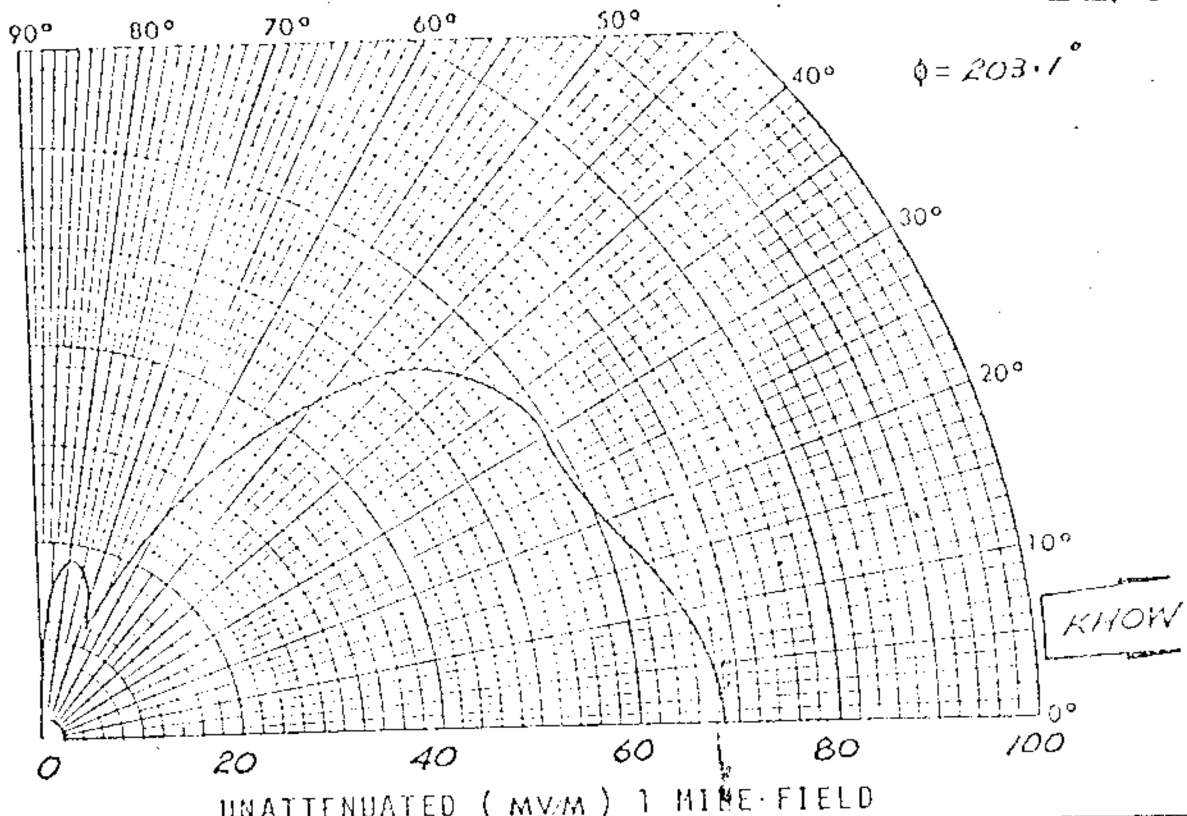
10 kW

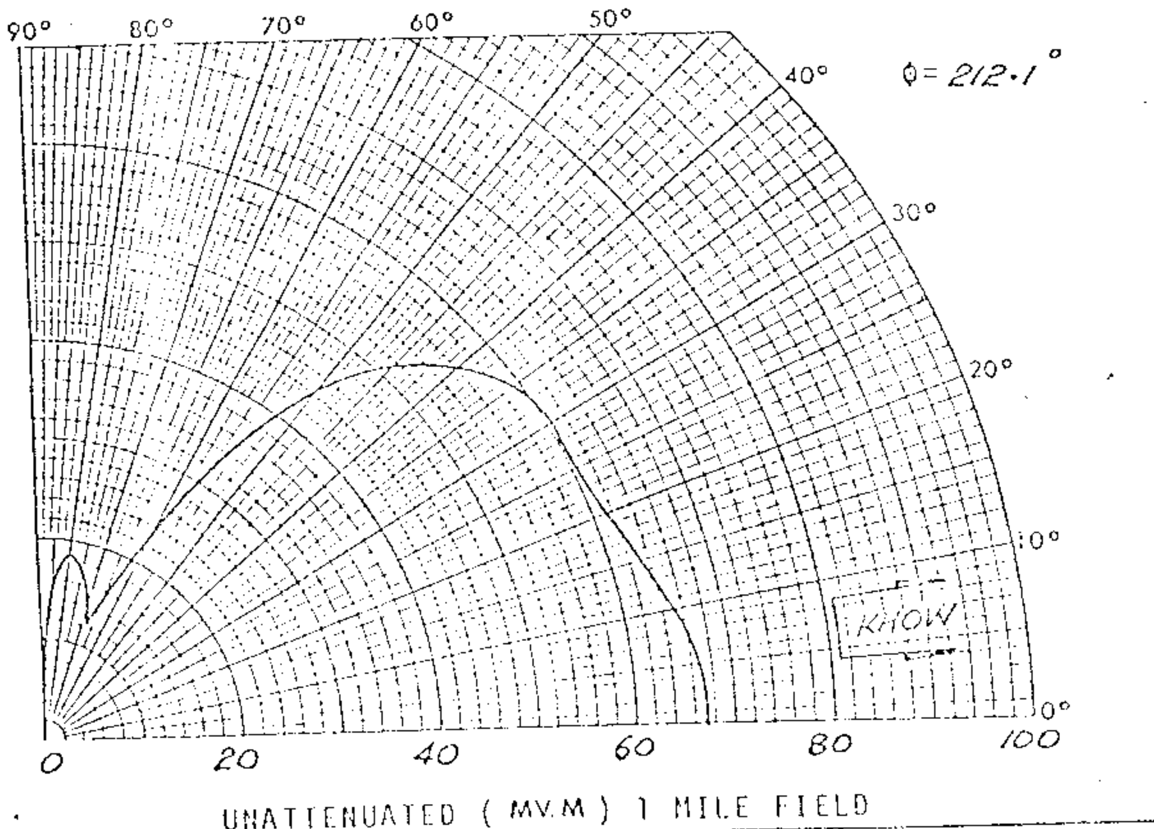
DA-2

WINNIPEG, MANITOBA
CLASS III
MARCH 28, 1977

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

CKRC



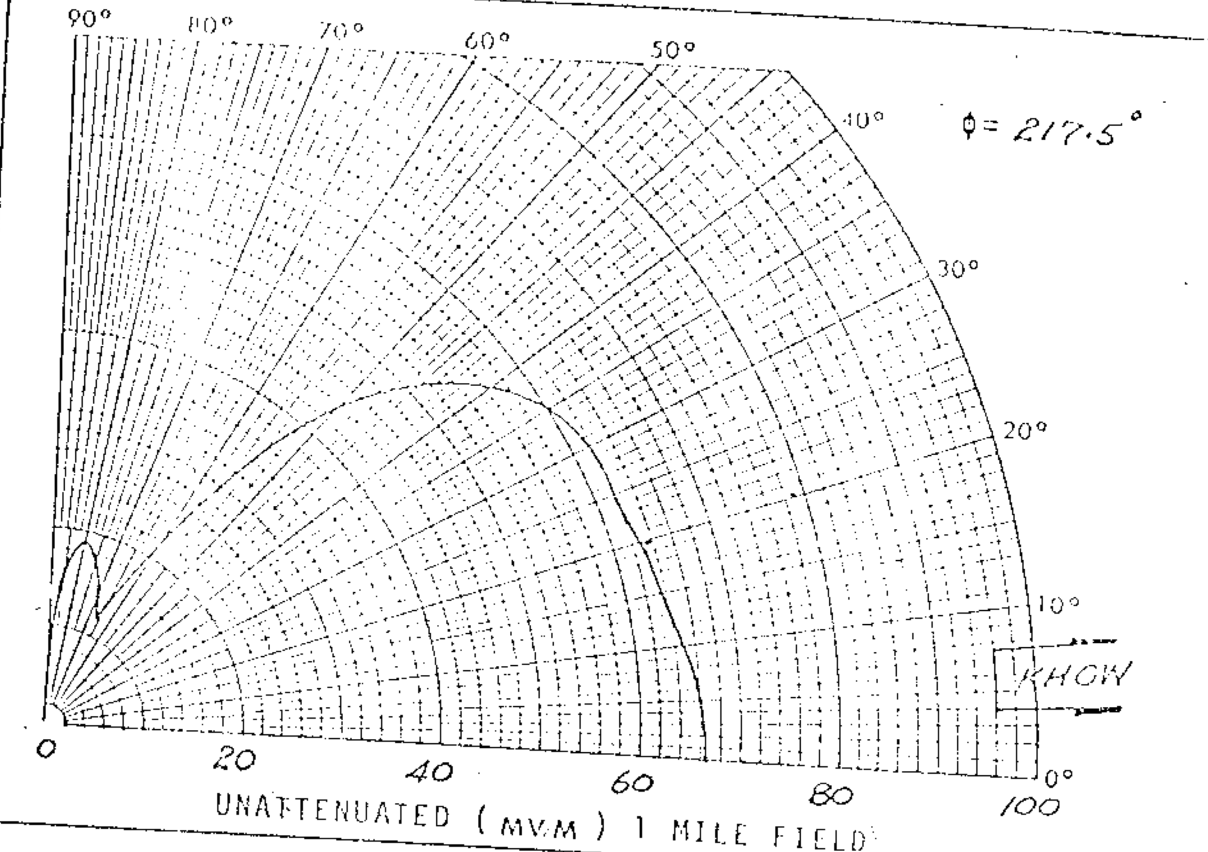


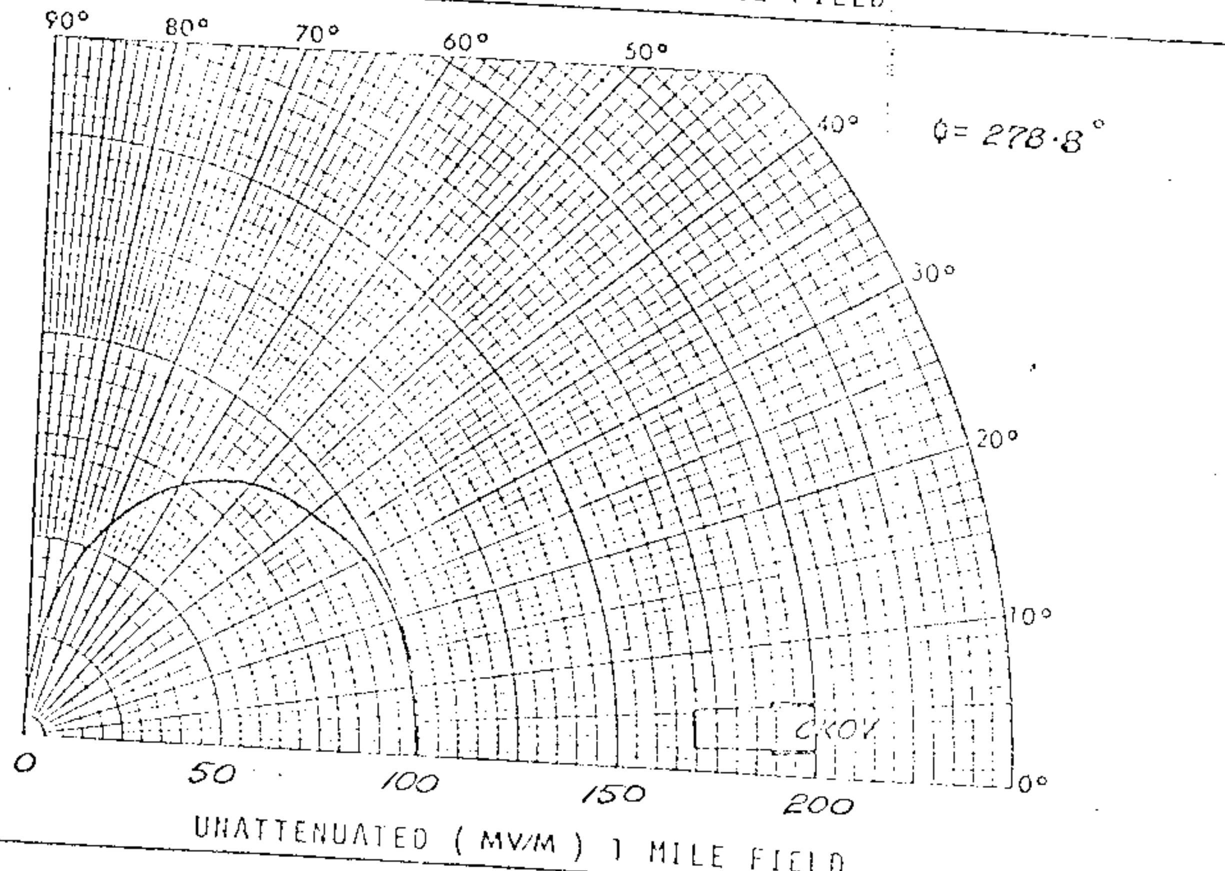
VERTICAL RADIATION PATTERNS

FIGURE 10

CKRC 630 kHz PROJECT #14204	10 kW	DA-2	WINNIPEG, MANITOBA CLASS III MARCH 28, 1977

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





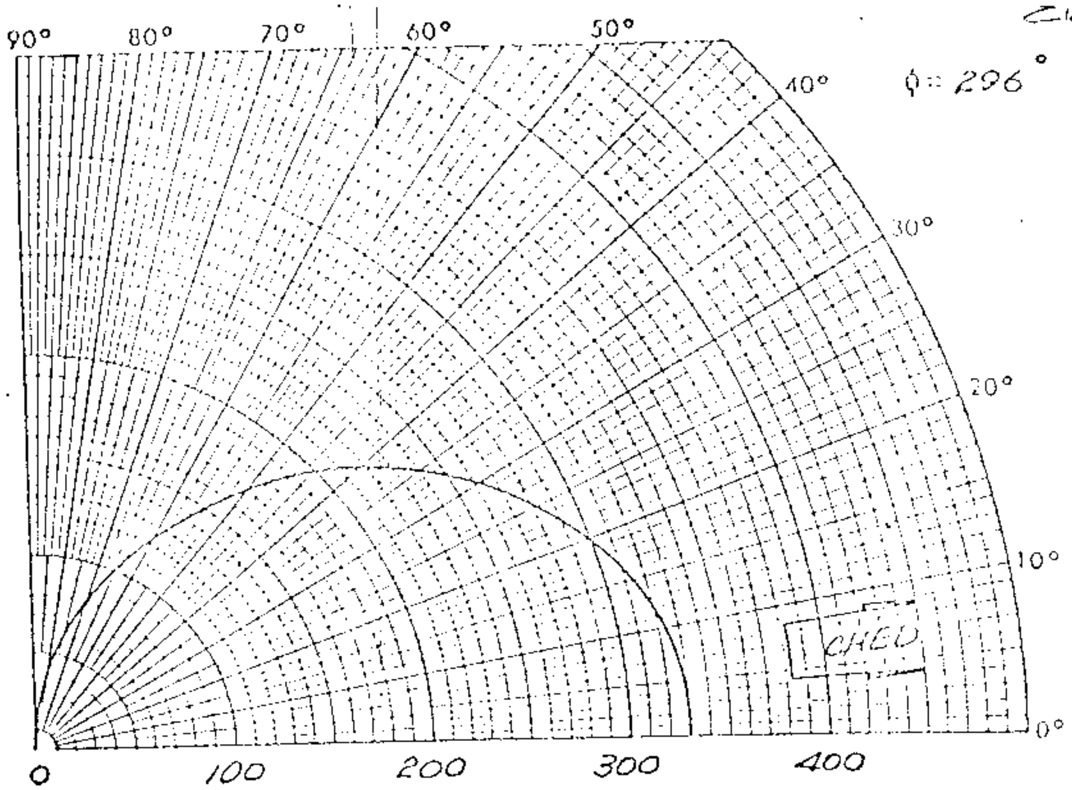
VERTICAL RADIATION PATTERNS

FIGURE 11

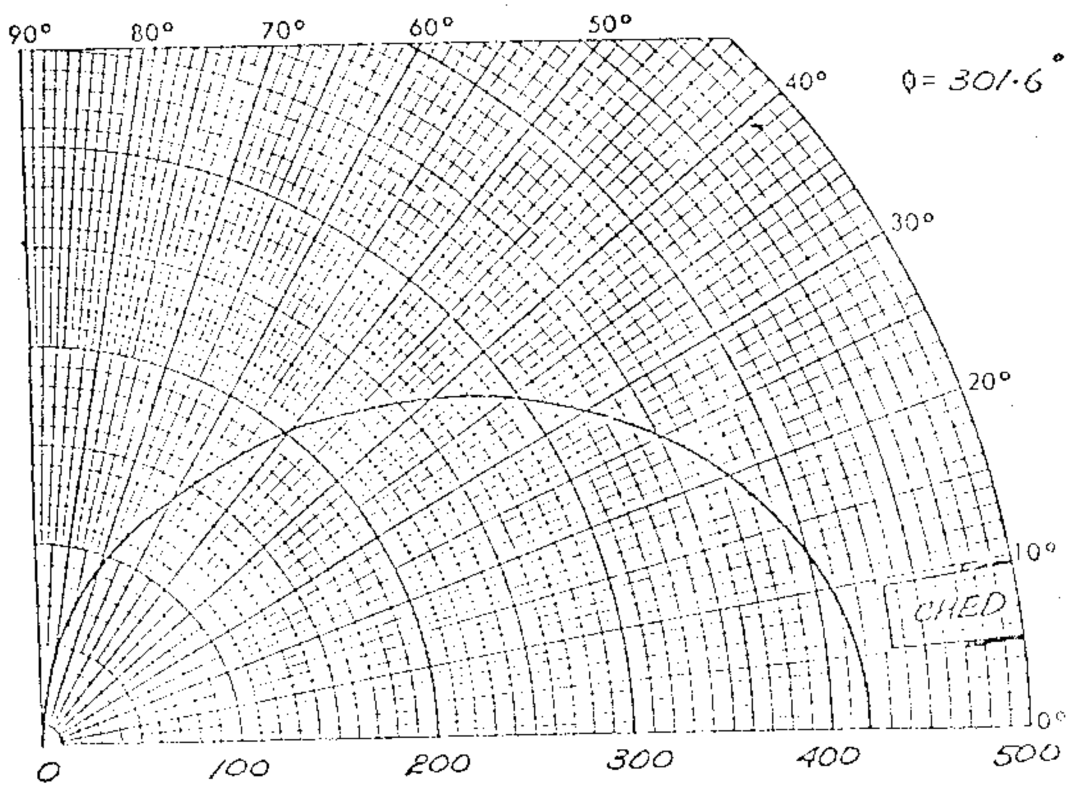
CKRC
630 kHz
PROJECT #14204 — 10 kW — DA-2 — WINNIPEG, MANITOBA
CLASS III
MARCH 28, 1977

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

CKRC



UNATTENUATED (MV/M) 1 MILE FIELD



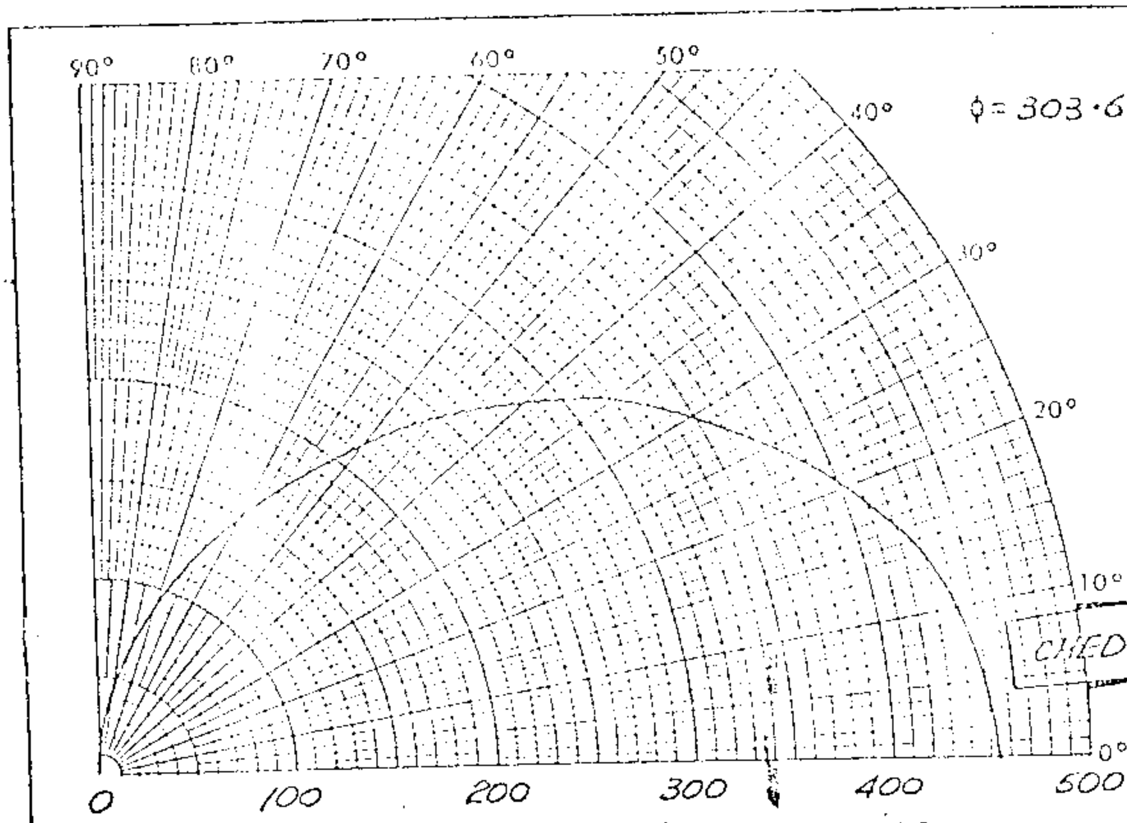
UNATTENUATED (MV/M) 1 MILE FIELD

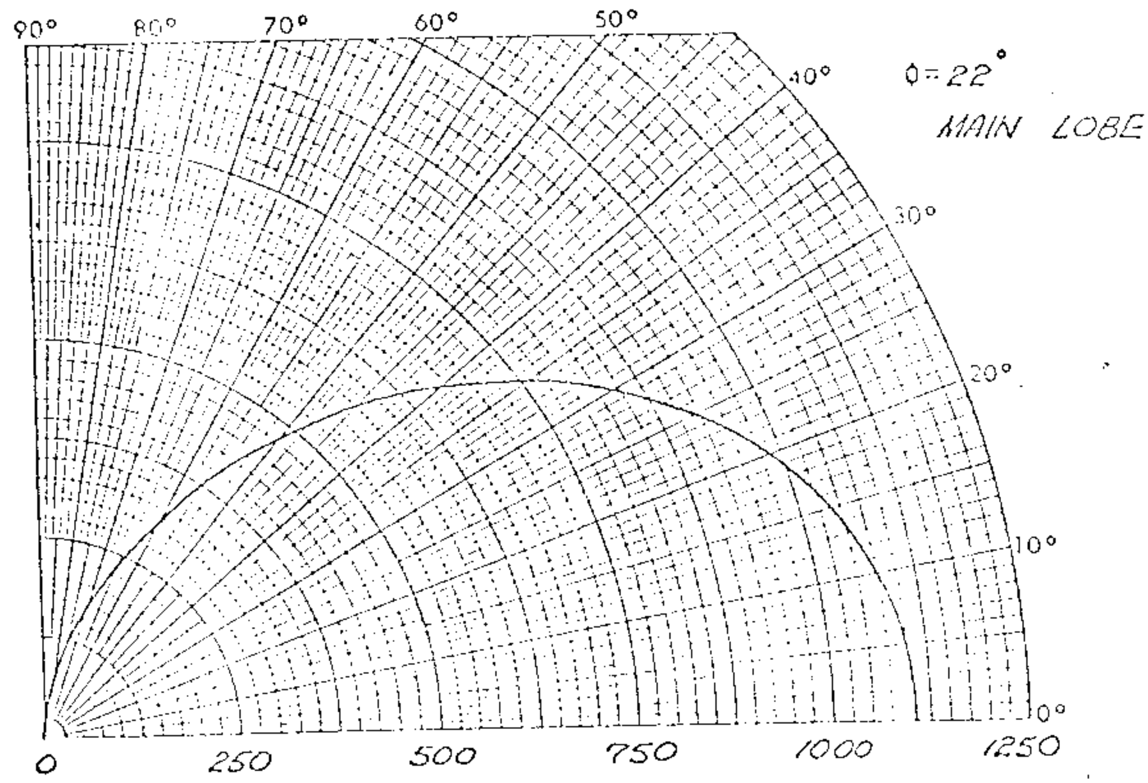
VERTICAL RADIATION PATTERNS

FIGURE 12

CKRC 630 kHz PROJECT #14204	10 kW	DA-2	WINNIPEG, MANITOBA CLASS III MARCH 28, 1977

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





VERTICAL RADIATION PATTERNS

FIGURE 13

CKRC 630 kHz PROJECT #14204	10 kW	DA-2	WINNIPEG, MANITOBA CLASS III MARCH 28, 1977

D.E.H. ALLEN & ASSOCIATES LTD., CONSULTING ENGINEERS

Cuba CMQ

14494

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: CMQ

Main Studio: Havana, Cuba

Frequency: 630kc

Power: 50kw Night 50kw Day

Notification List No. 7/54

Date: August 23, 1954 Class: 1-C

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 23° 04' 57"
West Longitude: 82° 27' 41"

ANTENNA CHARACTERISTICS

Authorized for Day and Night operation. (DA-1)
Number of elements: Two (2)
Type of elements: Shunt-fed, self-supporting, square cross-section, vertical steel towers.

TOWER: North South

HEIGHT ABOVE INSULATORS: 325' 325' (75°)

SPACING: 344' or 79.5° between adjacent towers

PHASING: 0° -116.5°

FIELD RATIO: 1.0 1.0

ORIENTATION: Elements on a line bearing 155° true. (See horizontal pattern attached.)

GROUND SYSTEM: FCC Note: No diagram or other information concerning ground system has been notified.

Predicted effective Field: 1,410 mv/m at rated power.

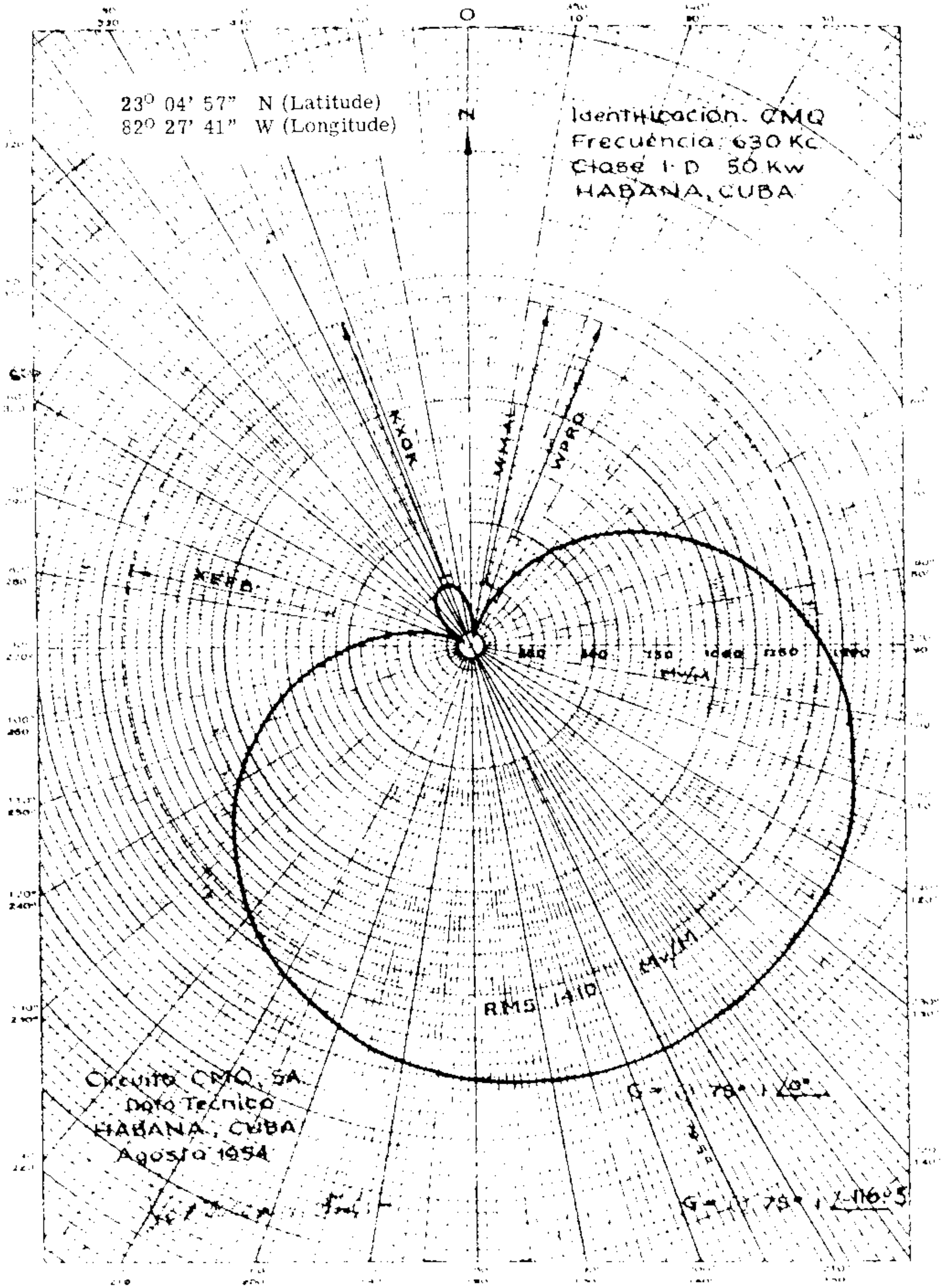
FCC Note: The Federal Communications Commission has objected to this assignment.

PROPOSED NIGHT AND DAY (1-13-55G)

CMQ *Cuba*
HAVANA, CUBA

50 KW Night, 50 KW Day
DA-1, CLASS I-C

CMQ
630 KC



CMG CMQ, HAVANA CUBA 630 KC

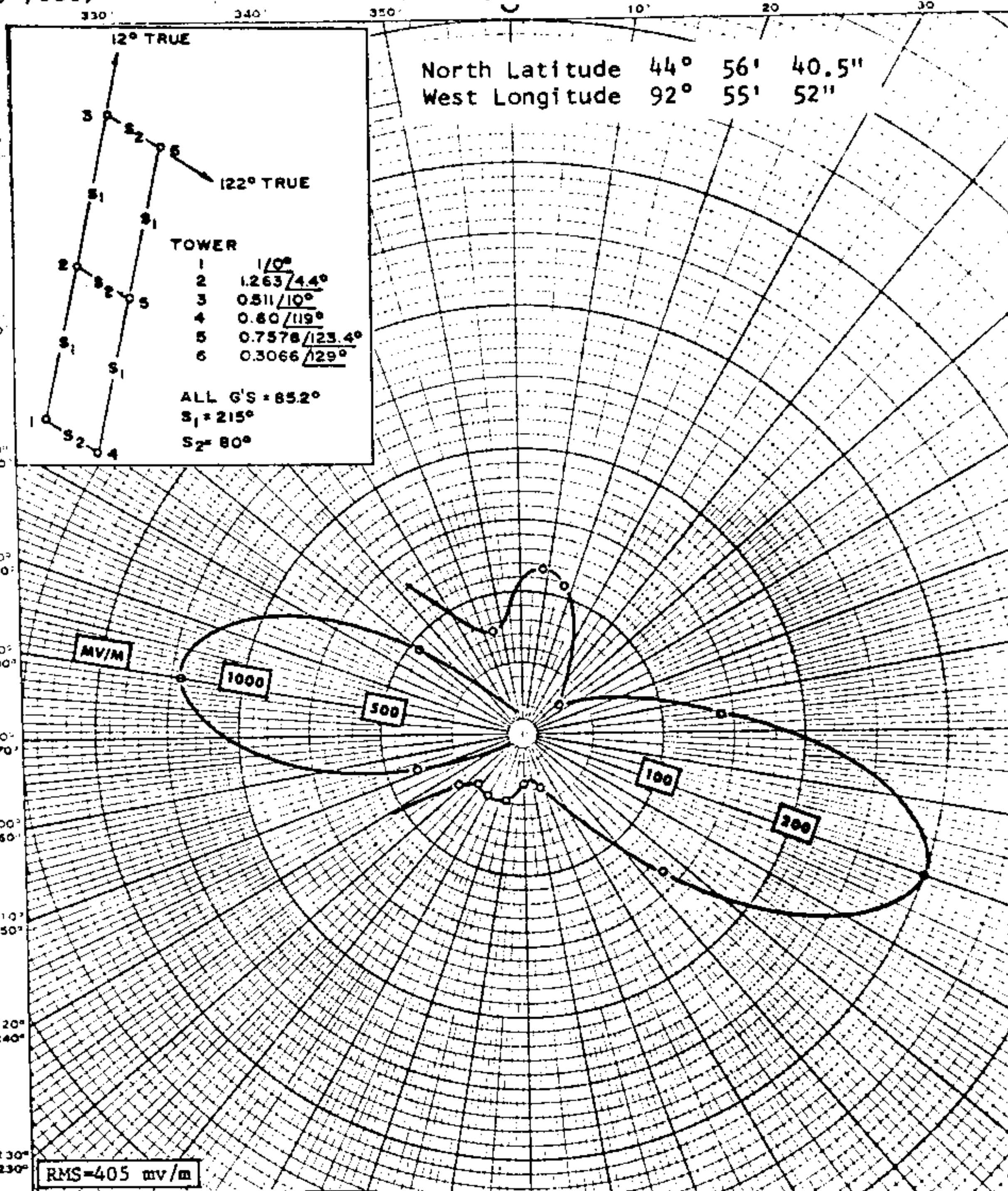
SEE REVERSE SIDE

KDWB

Measured Day
(7-29-70ct)

Station KDWB
St. Paul, Minnesota

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



RMS=405 mv/m

ANTENNA PARAMETERS		
	THEORETICAL	MEASURED
1	1/0°	.82/-7°
2	1.263/4.4°	1.0/0°
3	.511/10°	.33/3°
4	.60/119°	.49/114°
5	.7578/123.4°	.63/105°
6	.3066/129°	[illegible]

MEASURED DAYTIME DIRECTIONAL PATTERN
KDWB - ST. PAUL, MINNESOTA
630 kHz - 0.5 KW/5 KW-LS - DA-2

NOVEMBER, 1969

GAUTNEY & JONES CO

FCC File No.BL-12639
Accepted 6-29-70

Station KDWB
St. Paul, Minnesota

630 kc

(SEE REVERSE SIDE)

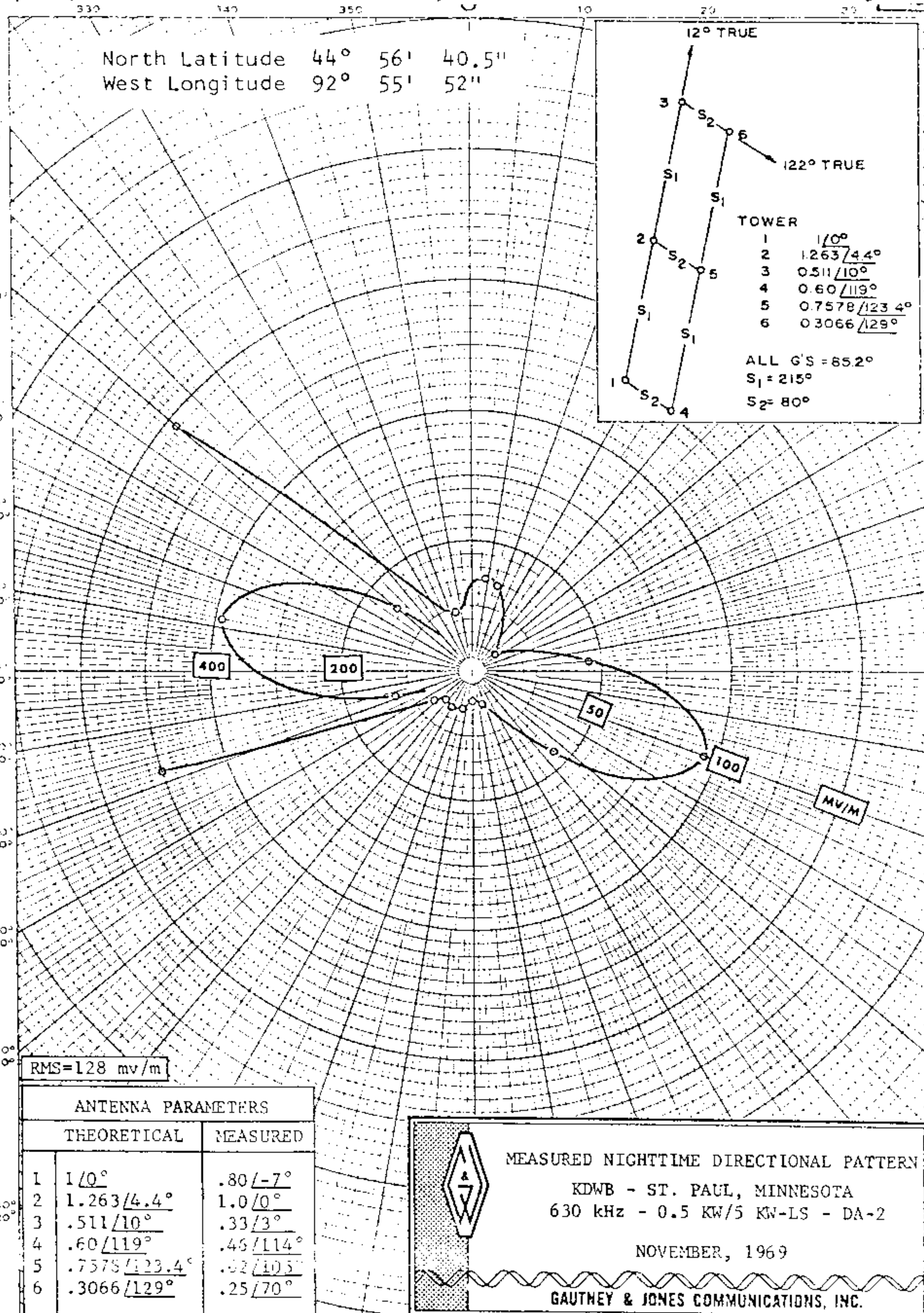
KDWB

Measured Night (7-29-70ct)

Station KDWB
St. Paul, Minnesota

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

North Latitude 44° 56' 40.5"
West Longitude 92° 55' 52"



RMS=128 mv/m

ANTENNA PARAMETERS		
	THEORETICAL	MEASURED
1	1/0°	.80/-7°
2	1.263/4.4°	1.0/0°
3	.511/10°	.33/3°
4	.60/119°	.46/114°
5	.7578/123.4°	.62/103°
6	.3066/129°	.25/70°

MEASURED NIGHTTIME DIRECTIONAL PATTERN
KDWB - ST. PAUL, MINNESOTA
630 kHz - 0.5 KW/5 KW-LS - DA-2

NOVEMBER, 1969

GAUTNEY & JONES COMMUNICATIONS, INC.

FCC File No.BL-12639
Accepted 6-29-70

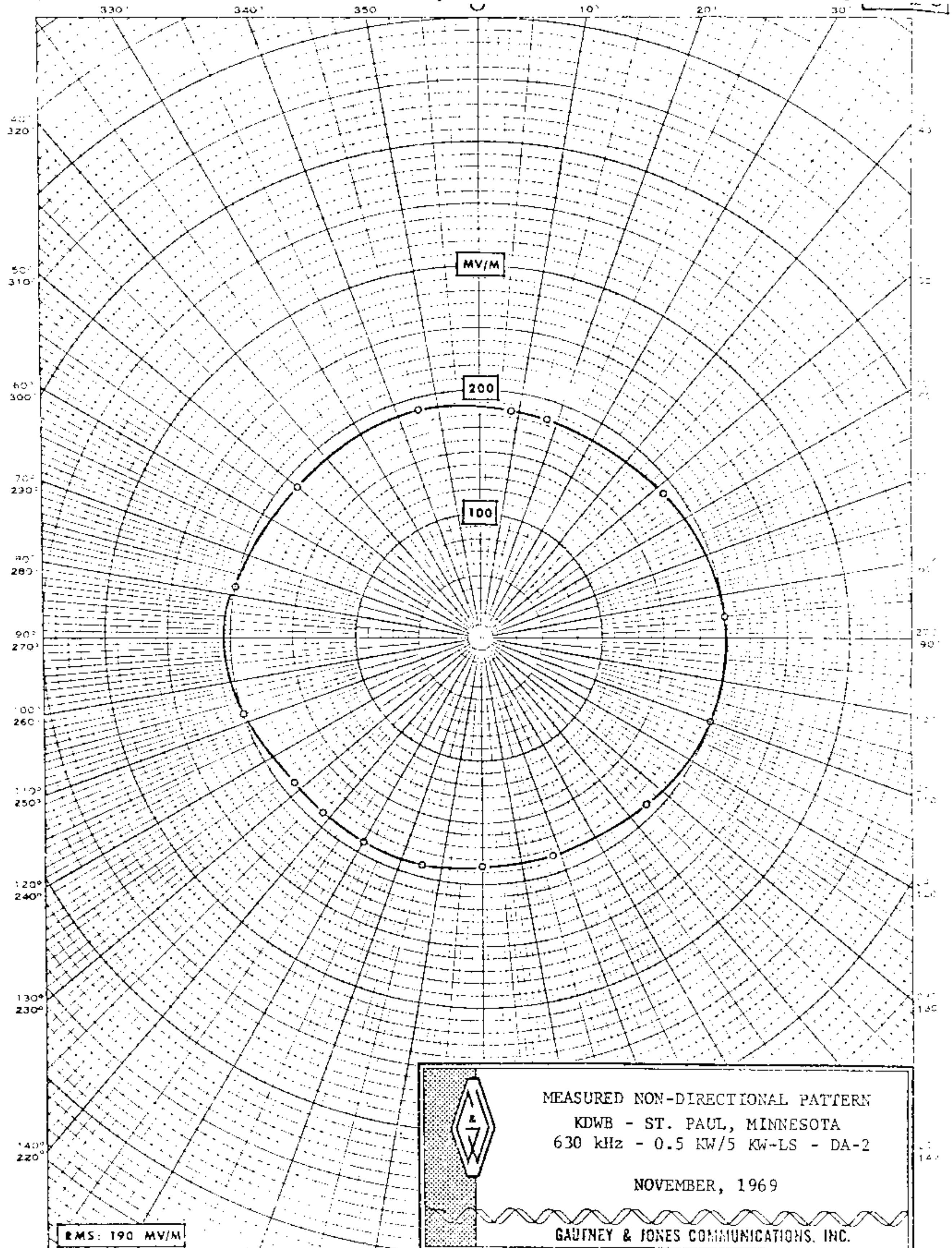
Station KDWB
St. Paul, Minnesota

630 kc

SEE REVERSE SIDE

KDWB

Measured Non-DA (7-29-70ct) | Station KDWB St. Paul, Minnesota | 500w, 5kw-LS, DA-2, U 630 kc



MEASURED NON-DIRECTIONAL PATTERN
KDWB - ST. PAUL, MINNESOTA
630 kHz - 0.5 KW/5 KW-LS - DA-2

NOVEMBER, 1969

GAUTNEY & JONES COMMUNICATIONS, INC.

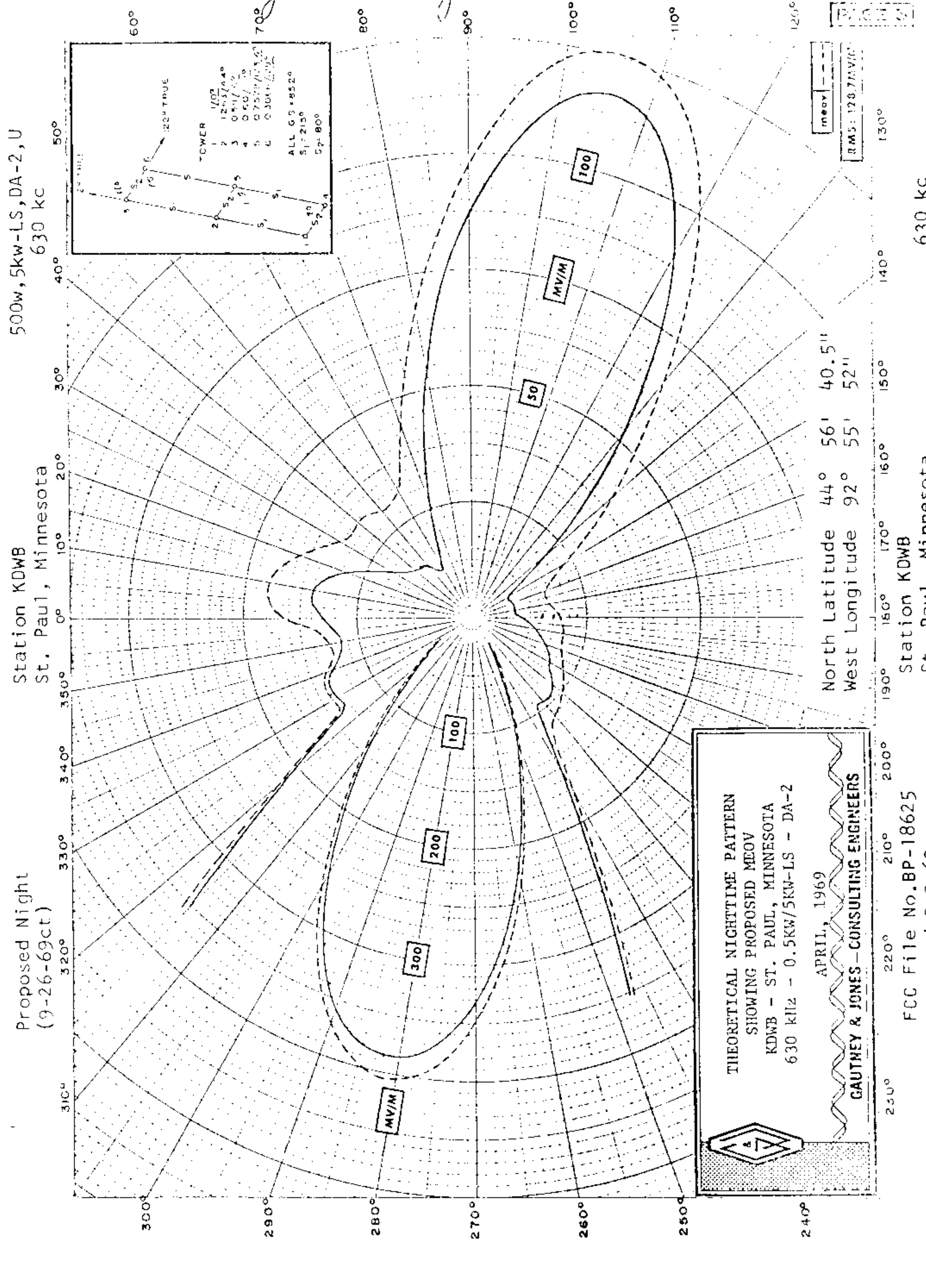
FCC File No. BL-12639
Accepted 6-29-70

Station KDWB
St. Paul, Minnesota

630 kc

BP-18625 Granted 9/10/67 CP to make changes in daytime directional antenna pattern + changes in nighttime MEOV

KDWB



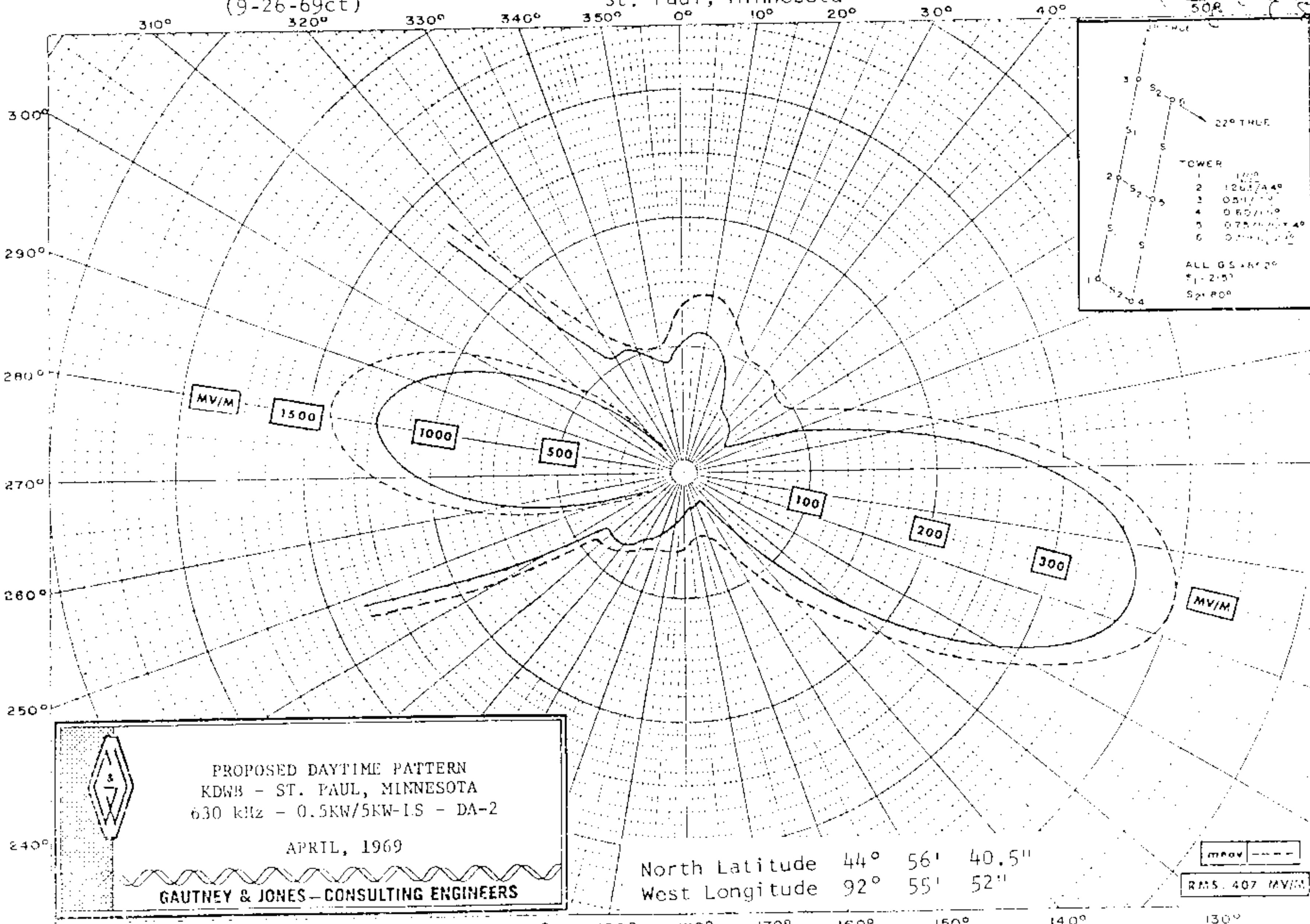
BP-18625 Granted 9/10/69
CP to make changes in daytime
directional antenna
pattern
& change
in
nighttime
MEOV

KDWB

Proposed Day
(9-26-69ct)

Station KDWB
St. Paul, Minnesota

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



PROPOSED DAYTIME PATTERN
KDWB - ST. PAUL, MINNESOTA
630 kHz - 0.5KW/5KW-LS - DA-2

APRIL, 1969

GAUTNEY & JONES—CONSULTING ENGINEERS

North Latitude 44° 56' 40.5"
West Longitude 92° 55' 52"

FCC File No.BP-18625
Accepted 9-9-69

Station KDWB
St. Paul, Minnesota

630 kc

BP-18625 granted 9-10-69 cp to make change in daytime directional antenna pattern & changes in nighttime MEO

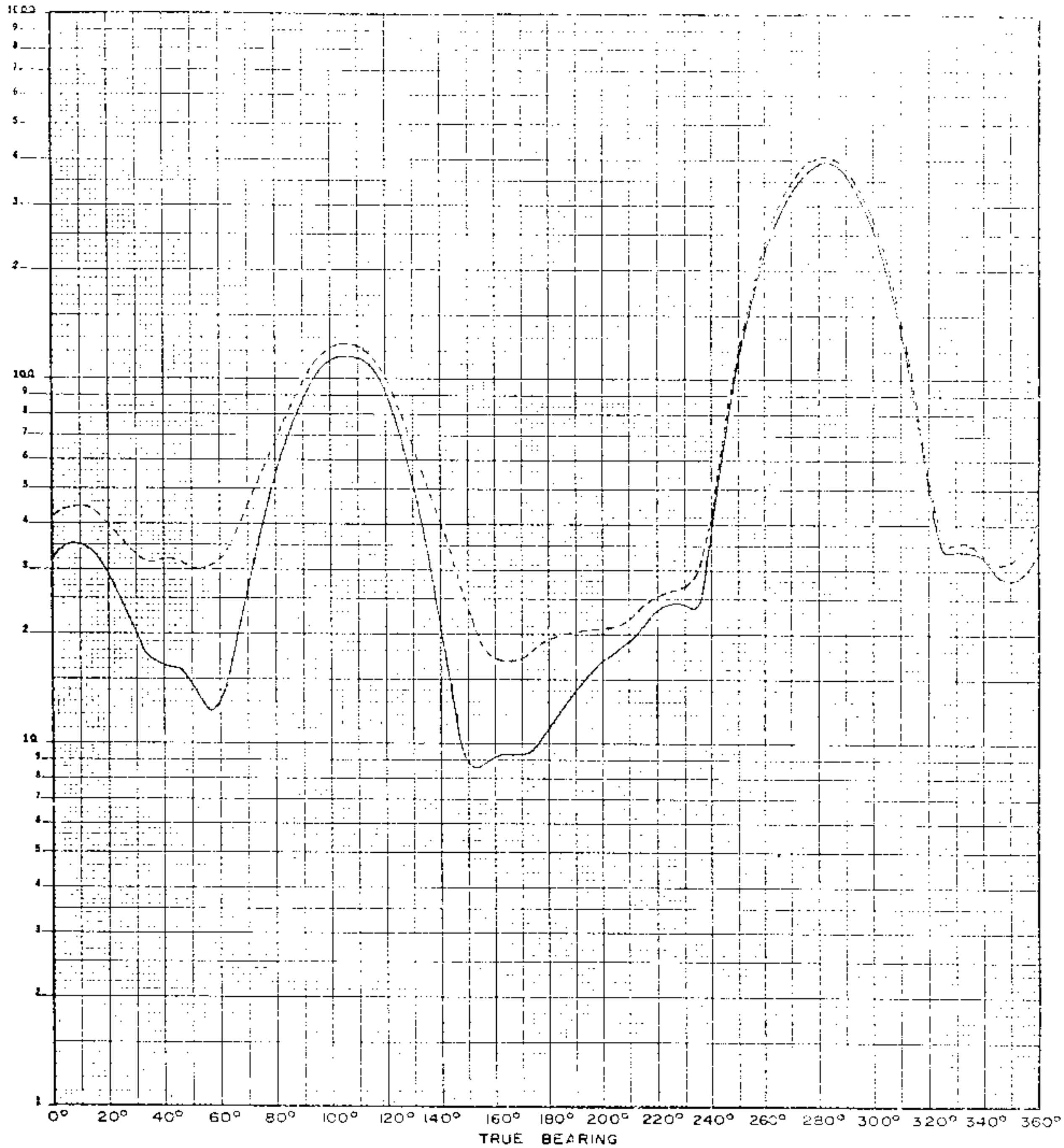
KDWB

Proposed Night Nulls
(9-26-69ct)

Station KDWB
St. Paul, Minnesota

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

0° VERTICAL RADIATION PATTERN



NIGHTTIME VERTICAL PATTERN
KDWB - ST. PAUL, MINNESOTA
630 kHz - 0.5KW/5KW-LS - DA-2

APRIL, 1969

GAUTNEY & JONES — CONSULTING ENGINEERS

FCC File No.BP-18625
Accepted 9-9-69

Station KDWB
St. Paul, Minnesota

630 kc

KGDN

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: K G D N

Main Studio: Edmonds, Washington

Frequency: 630 kHz

Power: 1 kW Night 5 kW Day

Notification List No. 1779

Date: September 27, 1978 Class: III

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

Daytime	Nighttime
North Latitude: 47° 46' 06"	North Latitude: 47° 46' 04"
West Longitude: 122° 21' 06"	West Longitude: 122° 21' 15"

DAYTIME ANTENNA CHARACTERISTICS

Predicted effective daytime field (omni-directional) at rated power 451.7 mV/m

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: 525' (121.1°)

GROUND SYSTEM: 120-250' to 400' equally spaced copper radials about the tower.

NIGHTTIME 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	N (#1)	SSW (#2)	SW (#3)
HEIGHT ABOVE INSULATORS:	380'	380'	380' (87.6°)
PHASING:	0.0°	+140.2°	-112.6°
FIELD RATIO:	1.0	2.36	1.26

KGDN

SPACING AND ORIENTATION: With the N(#1) tower as reference the SSW(#2) tower is spaced 578.2'(87.2°) on a line bearing 109.7° and the SW(#3) tower is spaced 1014.8'(234°) on a line bearing 104.3°.

GROUND SYSTEM: 120-163' to 591' 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.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL		STANDARD
	RMS	RSS	RMS
Night	199.7 mV/m	217.57 mV/m	210.9 mV/m

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

KGDN

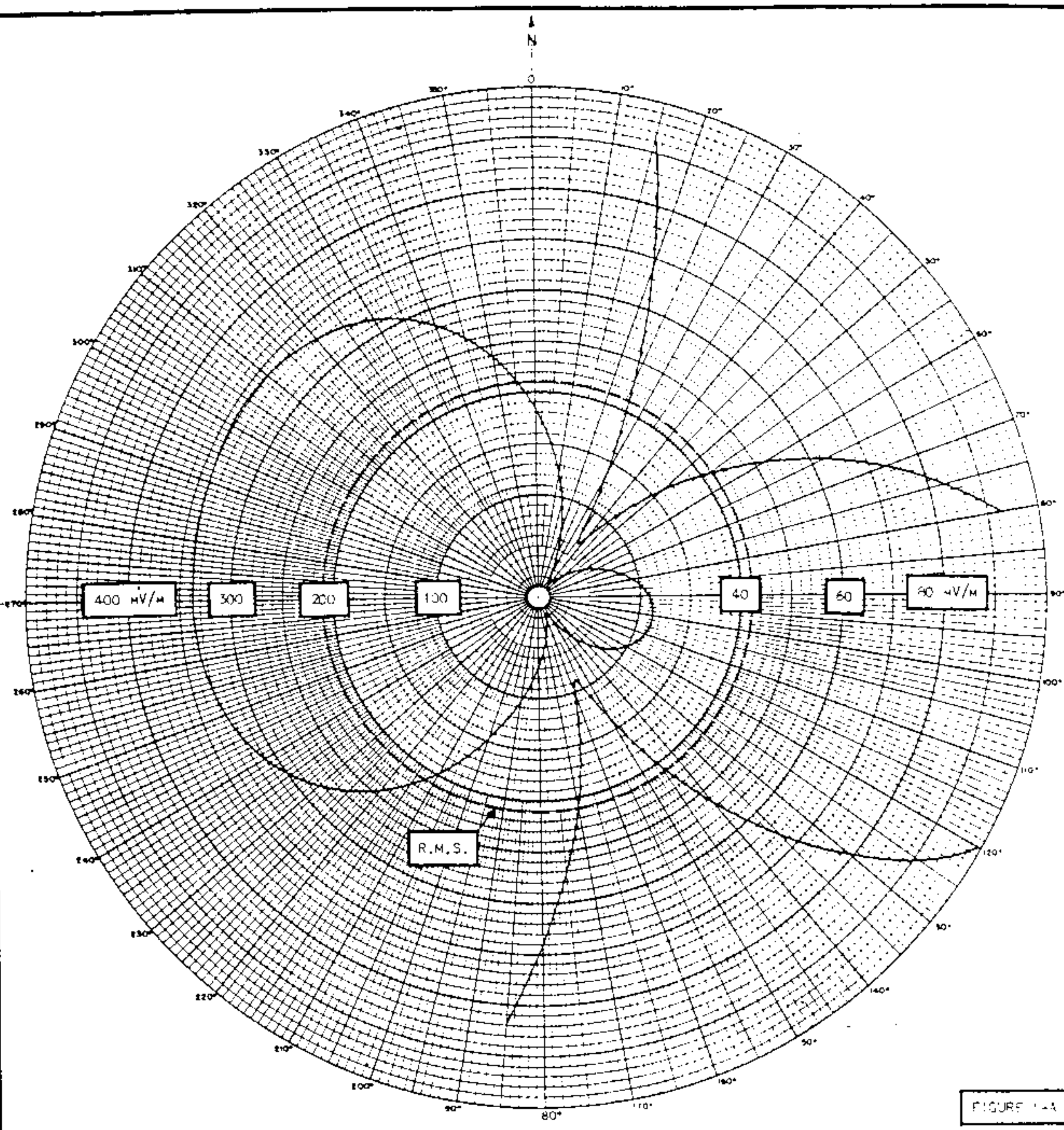
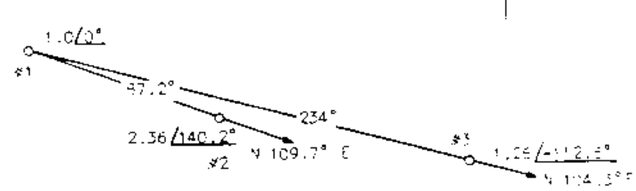


FIGURE 14A

HORIZONTAL RADIATION PATTERN

ERSS : 217.57
Q : 6.0

THEORTICAL PARAMETERS



G = 37.6° (ALL TOWERS)

APPLICANT	KGDN
LOCATION	EDMONDS, WASHINGTON
FREQUENCY	630 KC/S
POWER	1.0 KW
LATITUDE	47 DEG 46 MIN 04 SEC.
LONGITUDE	122 DEG 21 MIN 15 SEC.
WHEN USED	NIGHTTIME
R.M.S. FIELD	199.685 mV/M (THEORTICAL)
R.M.S. FIELD	210.353 mV/M (STANDARD)
DATE	JUNE 1976

SILLIMAN, MOFFET & KOWALSKI
CONSULTING RADIO ENGINEERS
711 FOURTEENTH STREET N.W.
WASHINGTON D.C. 20005

KGDN

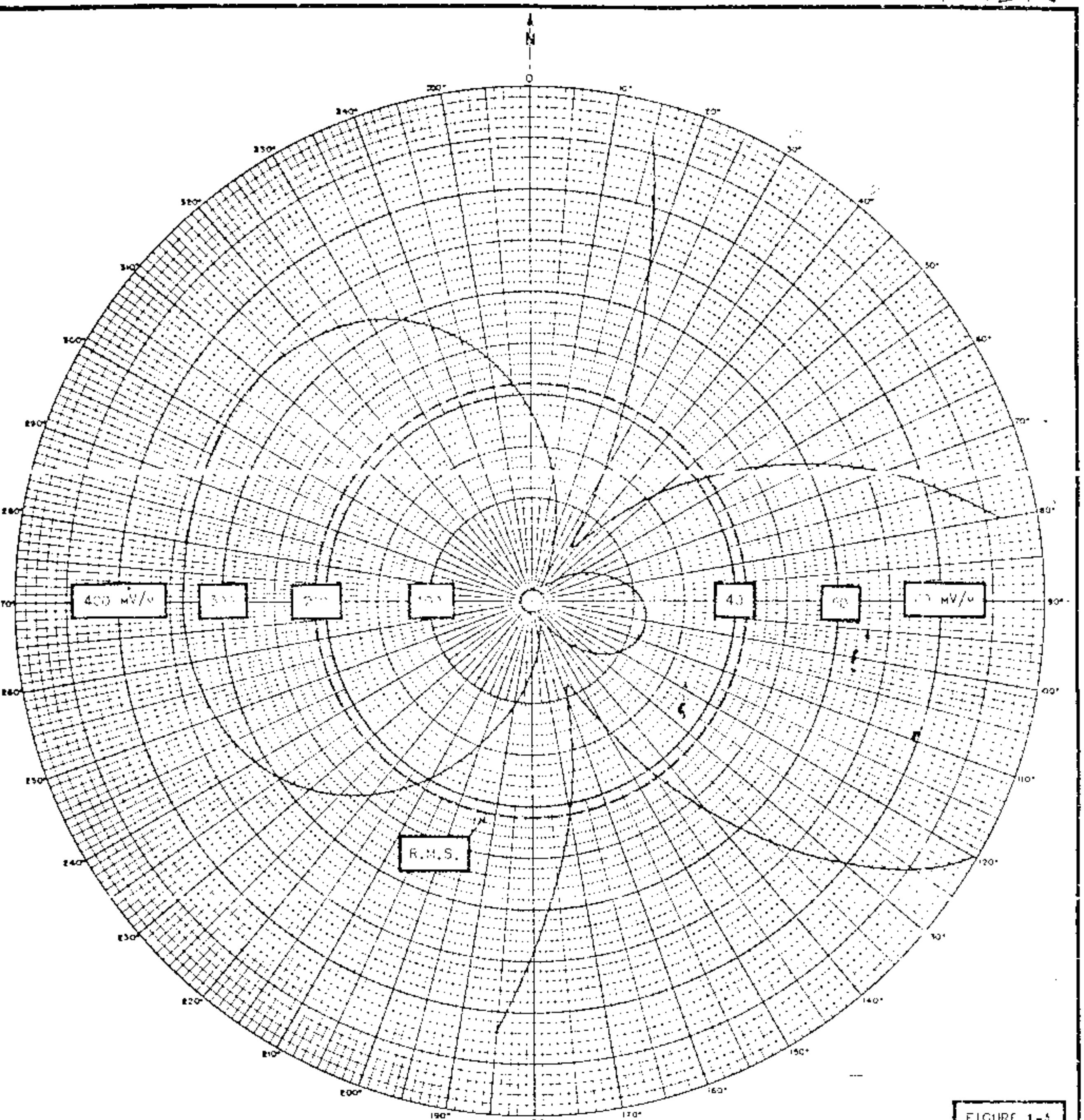
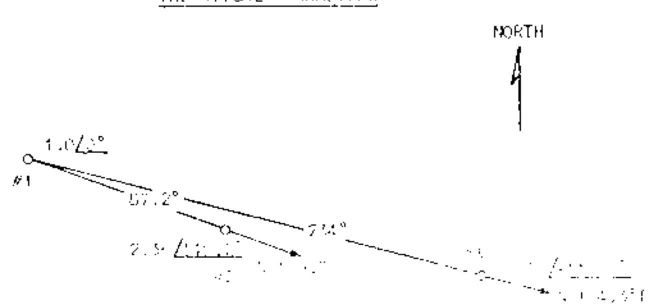


FIGURE 1-A

HORIZONTAL RADIATION PATTERN

ERSS : 217.57
Q : 6.0

THEORETICAL PARAMETERS



APPLICANT	: KGDN
LOCATION	: EDMONDS, WASHINGTON
FREQUENCY	: 630 KC/S
POWER	: 1.0 KW
LATITUDE	: 47 DEG 4[illegible] MIN [illegible]4 SEC.
LONGITUDE	: 122 DEG 21 MIN 15 SEC
WHEN USED	: NIGHTTIME
RMS FIELD	: 19[illegible] mV/M (THEORETICAL)
RMS FIELD	: 210.[illegible] mV/M (STANDARD)
DATE	: [illegible]

SILLIMAN, MOFFET & KOWALSKI
CONSULTING RADIO ENGINEERS
711 FOURTEENTH STREET, N. W.
WASHINGTON, D. C. 20005

G = [illegible] (ALL TOWERS)

KHOW
630 KHZ

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KHOW

Main Studio: Denver, Colorado

Frequency: 630 kHz

Power: 5kw Night 5kw Day

Notification List No. 1787

Date: July 10, 1980 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 39° 54' 36"
West Longitude: 104° 54' 50"

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:	N(#1)	W(#2)	S(#3)	SW(#4)
HEIGHT ABOVE INSULATORS:	350'	350'	350'	350' (80.7°)
NIGHT PHASING:	0°	-116.5°	-175°	68.5°
NIGHT FIELD RATIO:	1	0.74	0.88	0.65
DAY PHASING:	0°	-111°	—	—
DAY FIELD RATIO:	1	0.5	—	—

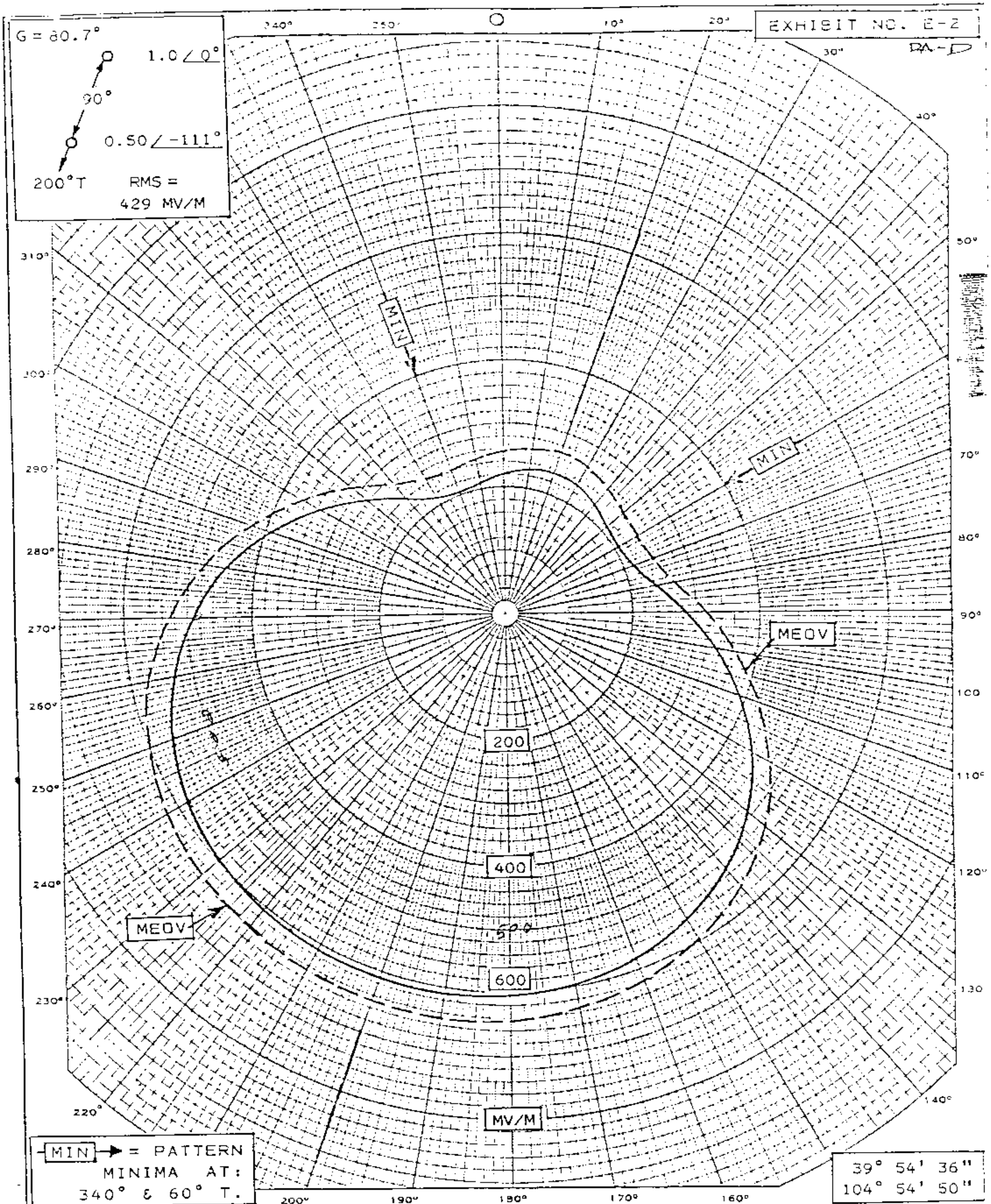
SPACING AND ORIENTATION: The towers are located at the vertices of a parallelogram the long sides of which are 1279.9' (295°) in length on a line bearing 182° true. The short sides are 390.5' (90°) in length on a line bearing 200° true.

GROUND SYSTEM: 120 - 390' equally spaced copper radials about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	429 mv/m		
Night	400 mv/m		

KHOW
630 kHz



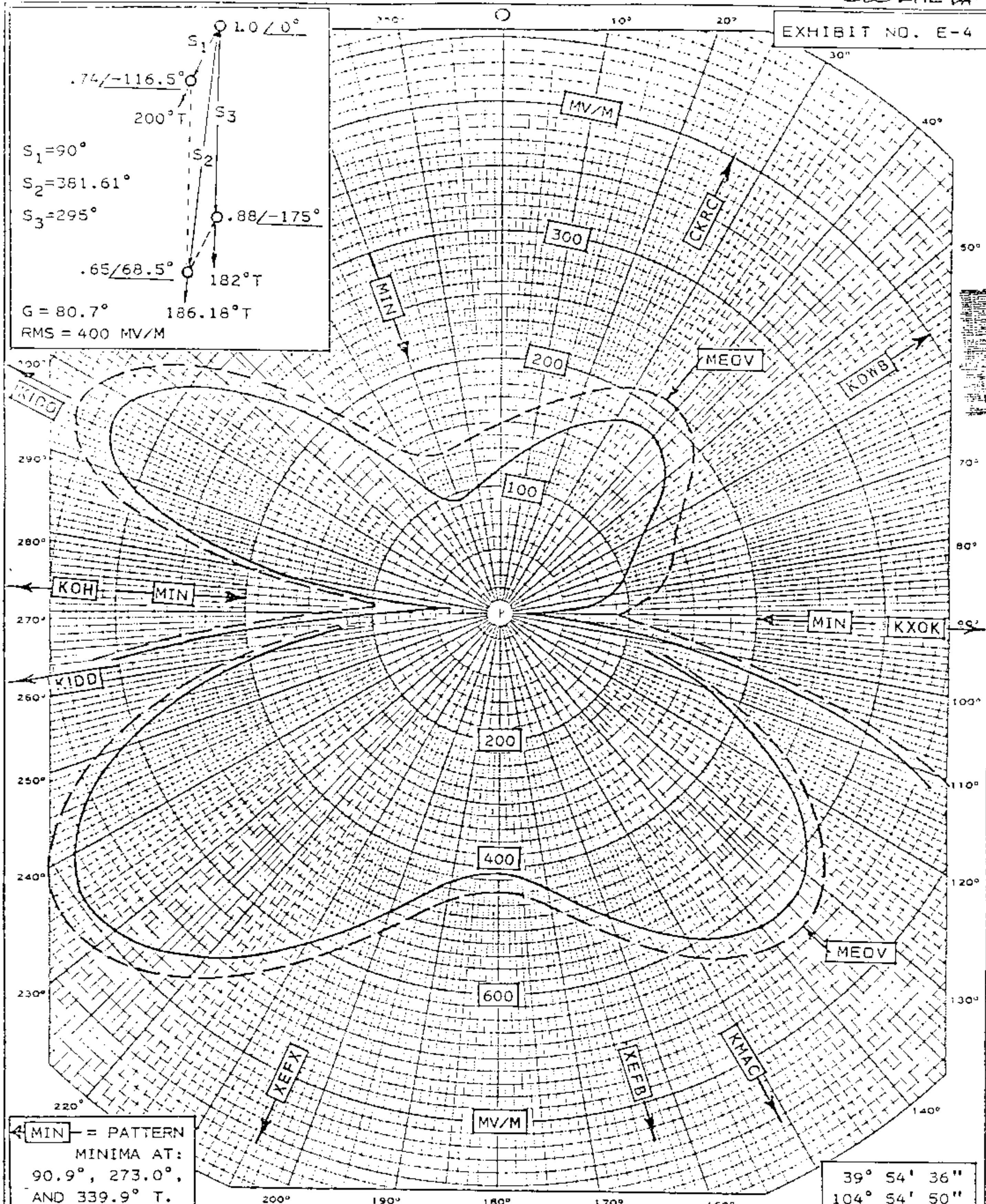
EDWARD F. LORENTZ & ASSOCIATES
CONSULTING RADIO ENGINEERS
WASHINGTON, D.C.

PROPOSED DAYTIME HORIZONTAL
DIRECTIONAL ANTENNA PATTERN

KHOW, DENVER, COLORADO
630 KHZ, 5 KW-U, DA-2

4-79

KHOW
630 KHz DA-N



EDWARD F. LORENTZ & ASSOCIATES CONSULTING RADIO ENGINEERS WASHINGTON, D.C.	PROPOSED NIGHTTIME HORIZONTAL DIRECTIONAL ANTENNA PATTERN KHOW, DENVER, COLORADO 630 KHZ, 5 KW-U, DA-2 4-79

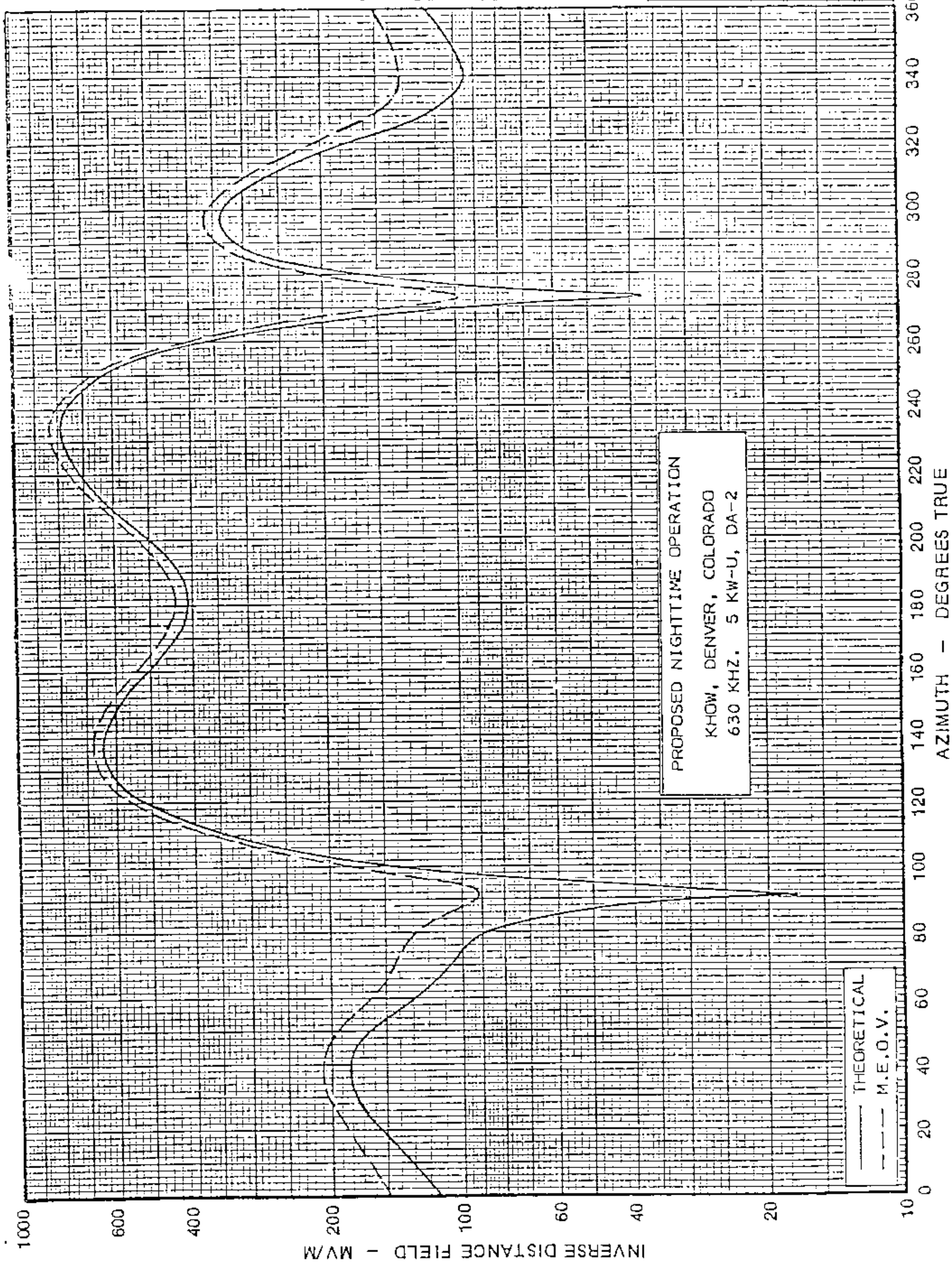
KHOW
630 kHz
DA-N

EDWARD F. LORENTZ & ASSOCIATES

CONSULTING RADIO ENGINEERS WASHINGTON, D. C.

VERTICAL RADIATION PATTERN
0° ELEVATION

EXHIBIT NO. E-6 A



KHOW

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station : KHOW   Main Studio: Denver, Colorado

Frequency : 630 KHz   Power : 5 kW Night 5 kW Day

Notification : 1781   Date : Oct. 19, 1979   Class: II

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 39 54 30
West Longitude: 104 54 56

ANTENNA CHARACTERISTICS

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

TOWER :	N(#1)	W(#2)	E(#3)	S(#4)		
HEIGHT ABOVE INSULATORS :	382'	382'	382'	382'(88.5°)		
NIGHT PHASING :	0°	-97.7°	-23.5°	-121.2°		
NIGHT FIELD RATIO:	1.0	0.6751	0.8351	0.5638		
DAY PHASING :	50°	0°	+23.0°	----		
DAY FIELD RATIO :	0.75	1.0	0.93	---		

SPACING AND ORIENTATION : The towers are located at the vertices of a parallelogram the long sides of which are 738' (170.1°) in length on a line bearing 116° true. The short sides are 412° (95°) in length on a line bearing 63° true.

GROUND SYSTEM : 120 - 390 equally spaced copper radials plus a 48 square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

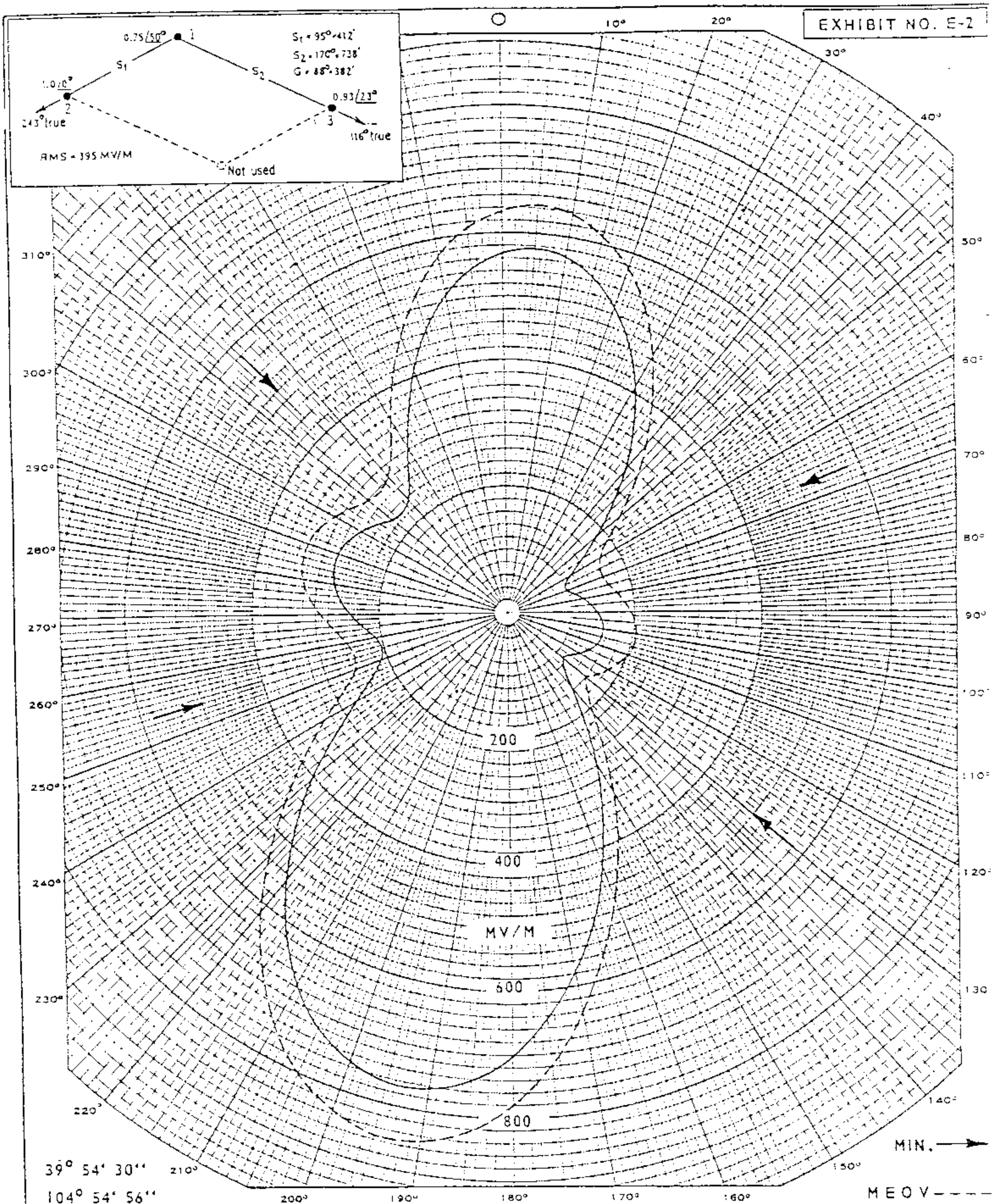
KHOW

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

RMS	THEORETICAL	
Day 395 mv/m	______	______
Night 402 mv/m	______	______

KHOW

EXHIBIT NO. E-2

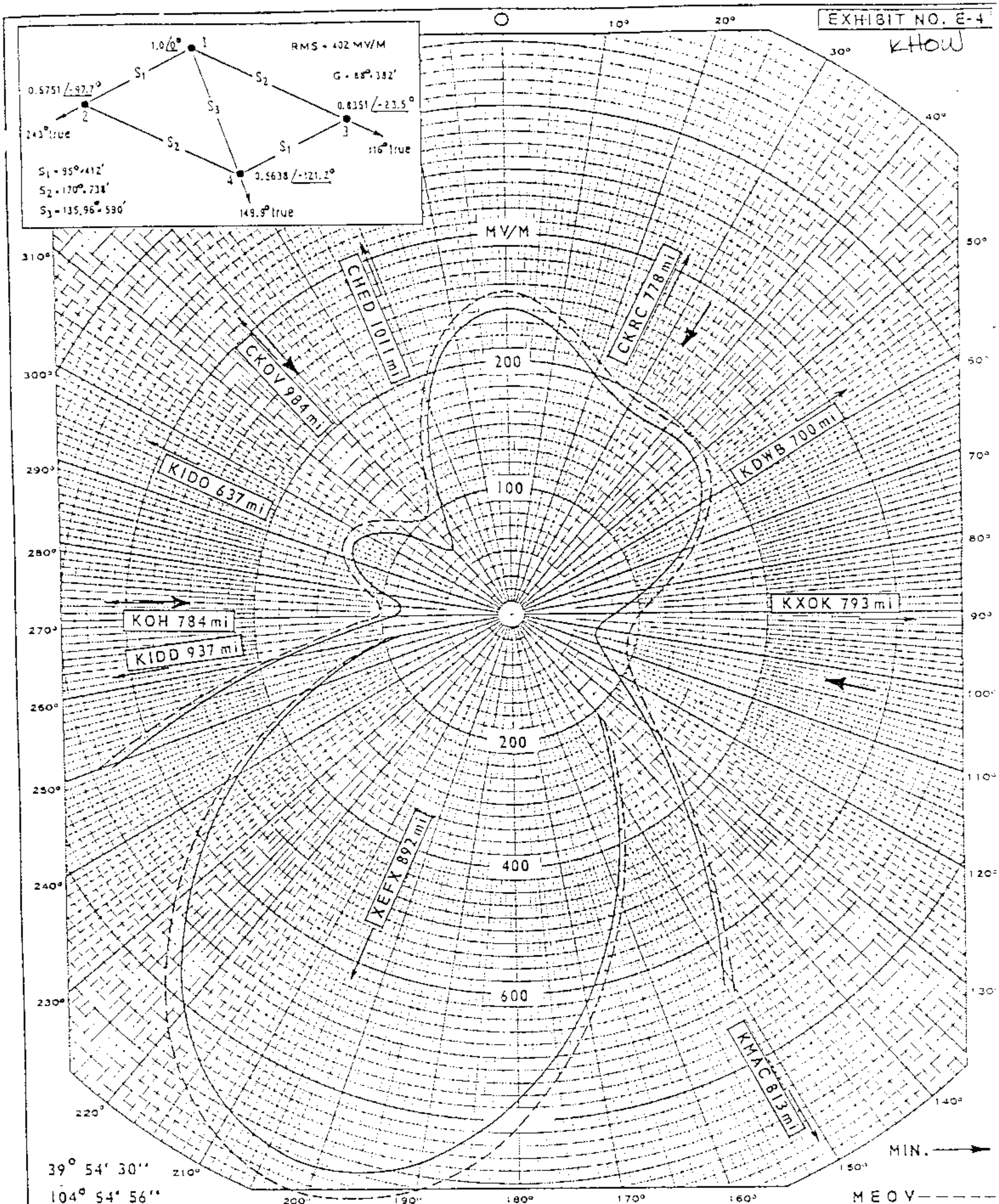


EDWARD F. LORENTZ & ASSOCIATES
Consulting Radio Engineers
Washington, D.C.

PROPOSED DAYTIME DIRECTIONAL
ANTENNA HORIZONTAL PATTERN

KHOW DENVER, COLORADO
630 KHz 5 KW DA-2

9/75



EDWARD F. LORENTZ & ASSOCIATES
Consulting Radio Engineers
Washington, D.C.

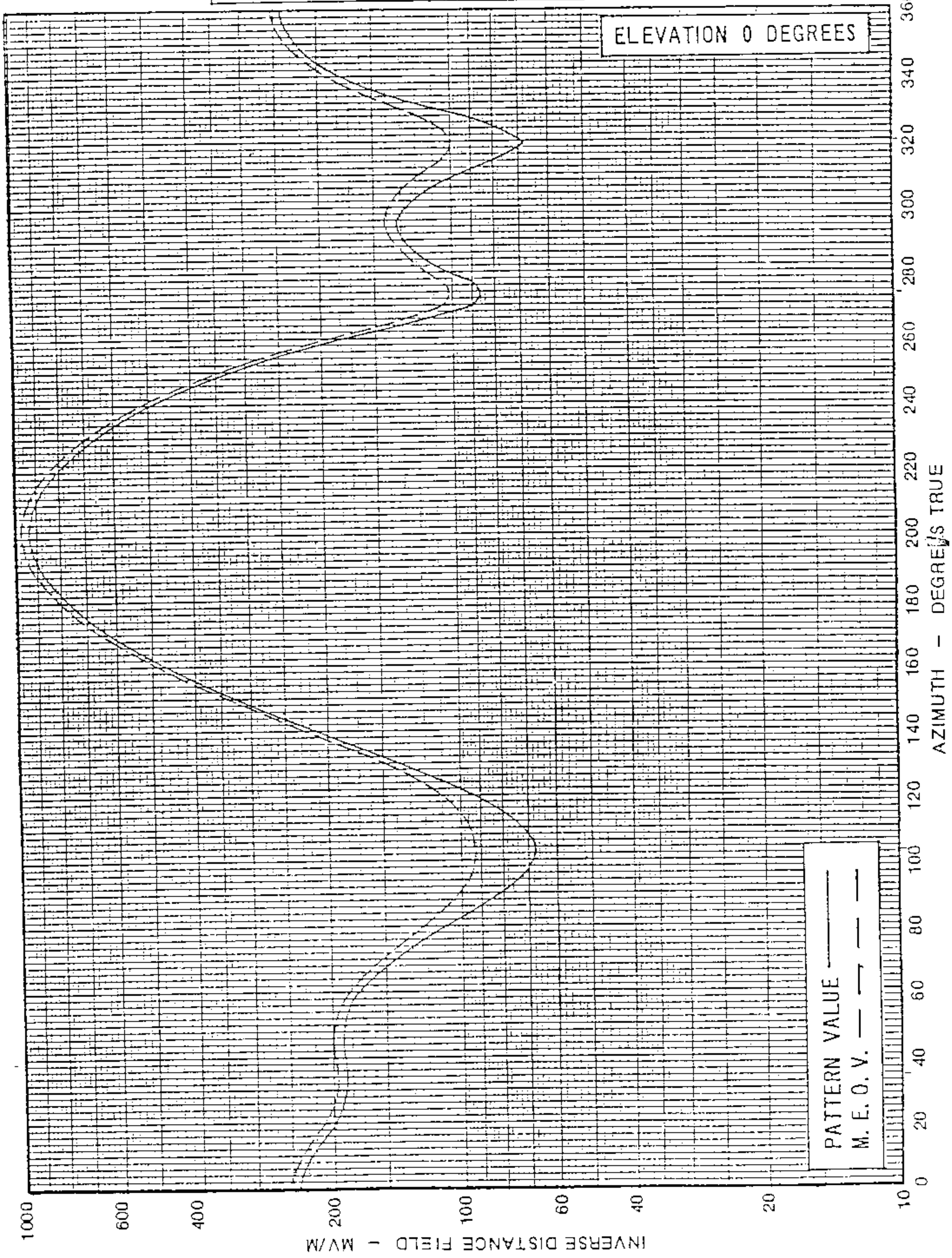
PROPOSED NIGHTTIME DIRECTIONAL ANTENNA HORIZONTAL PATTERN

KHOW DENVER, COLORADO
630 KHz 5KW DA-2
9/75

KHOW

EXHIBIT NO. E-6A

NIGHTTIME VERTICAL RADIATION PATTERN
KHOW DENVER, COLORADO
630 KHz 5 KW DA-2



KHOW

EXHIBIT NO. E-68

NIGHTTIME VERTICAL RADIATION PATTERN
KHOW DENVER, COLORADO
630 KHz 5 KW DA-2

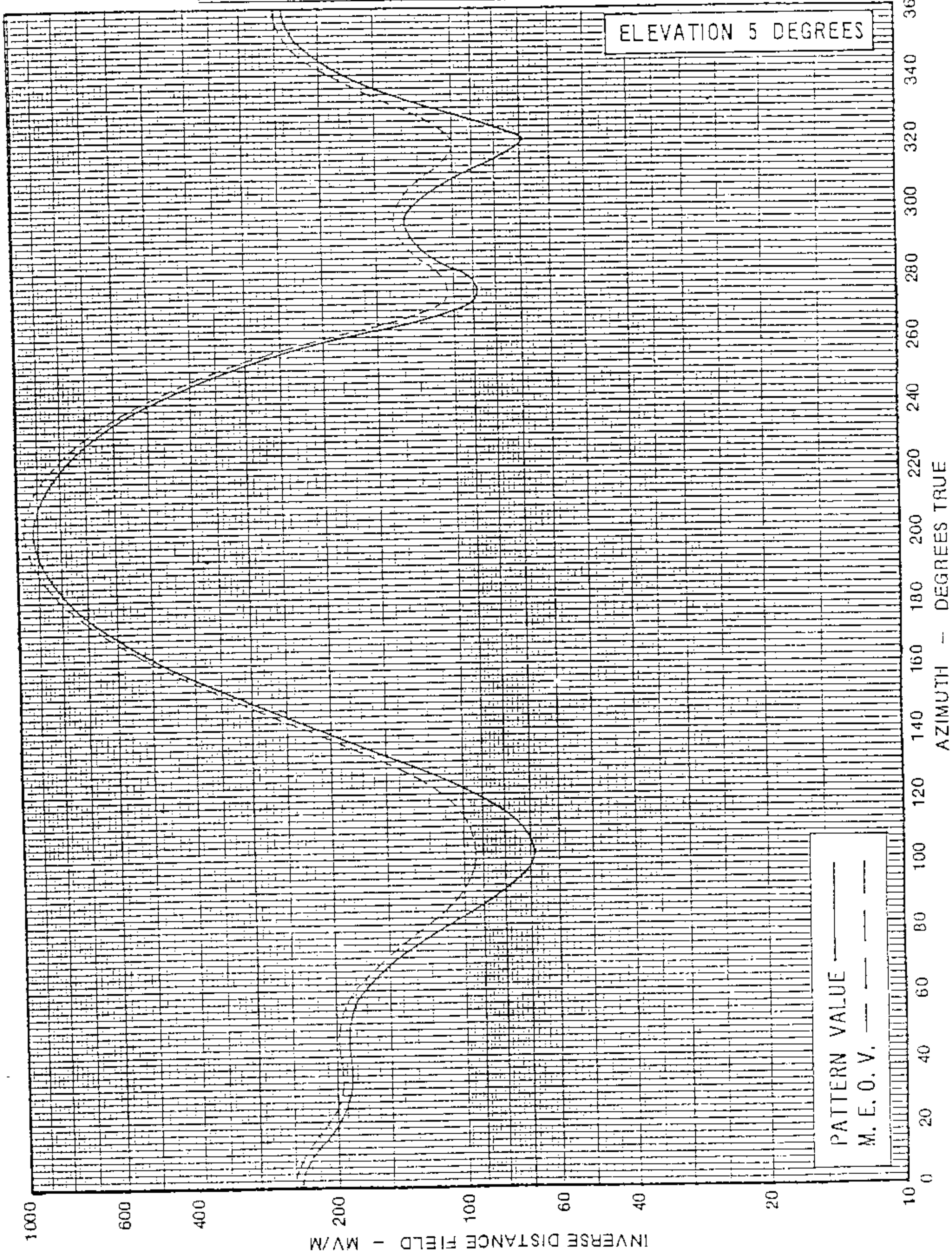


EXHIBIT NO. E-6C

KHOW

NIGHTTIME VERTICAL RADIATION PATTERN
KHOW, DENVER, COLORADO
630 KHz 5 KW DA-2

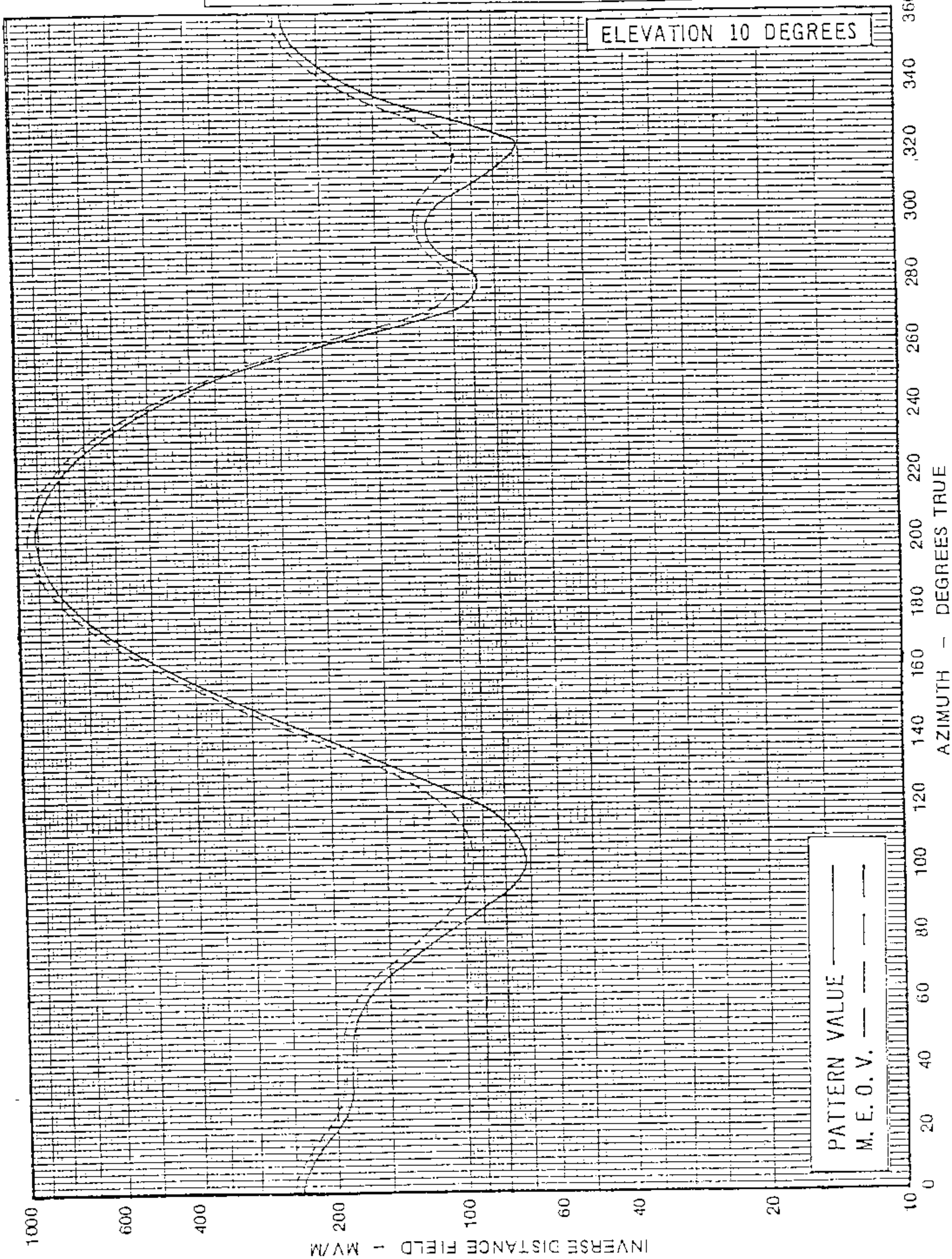


EXHIBIT NO. E-6D
KHOW

NIGHTTIME VERTICAL RADIATION PATTERN
KHOW DENVER, COLORADO
630 KHz 5 KW DA-2

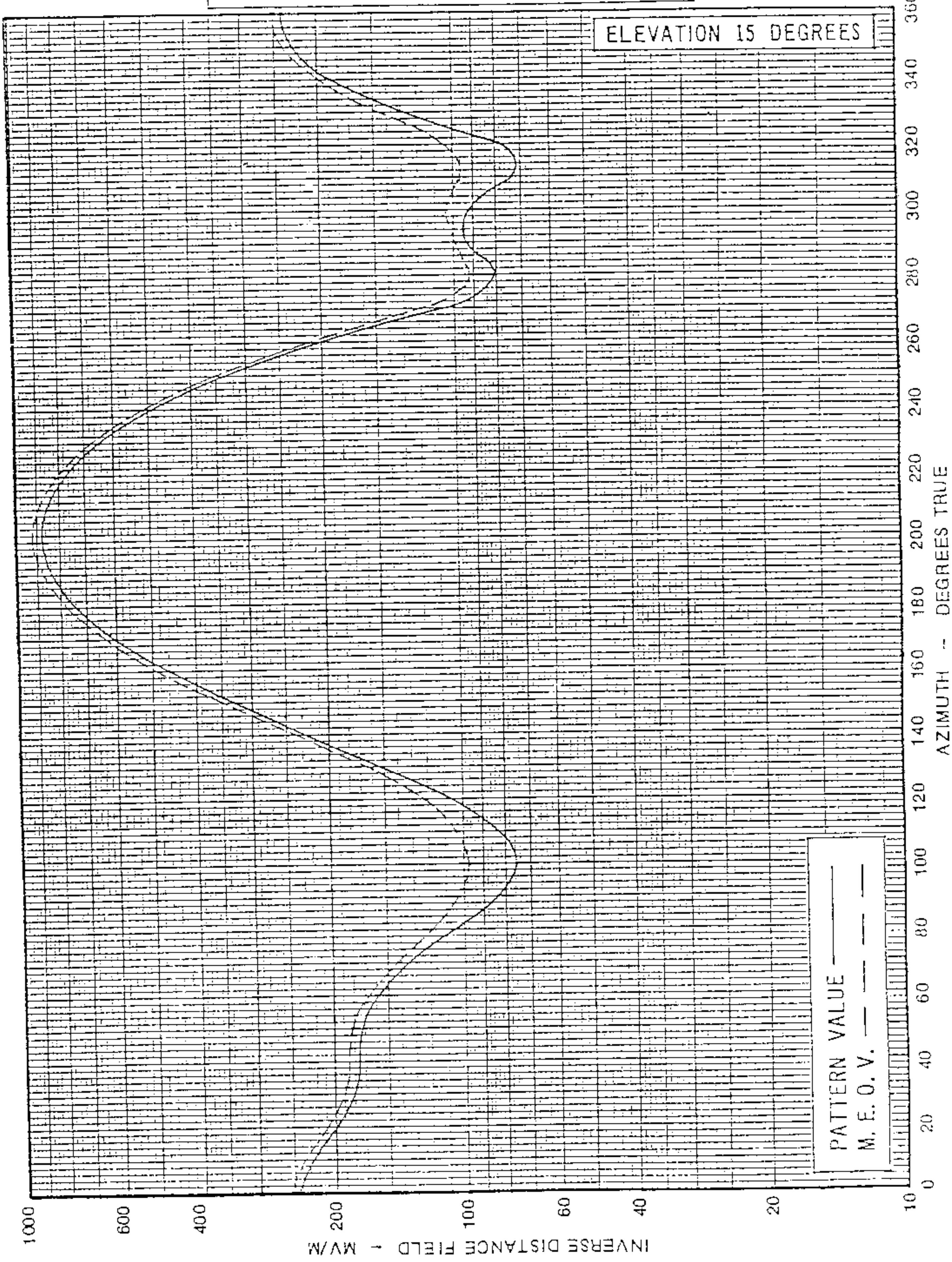


EXHIBIT NO. E-65

KHOW

NIGHTTIME VERTICAL RADIATION PATTERN
KHOW DENVER, COLORADO
630 KHz 5 KW DA-2

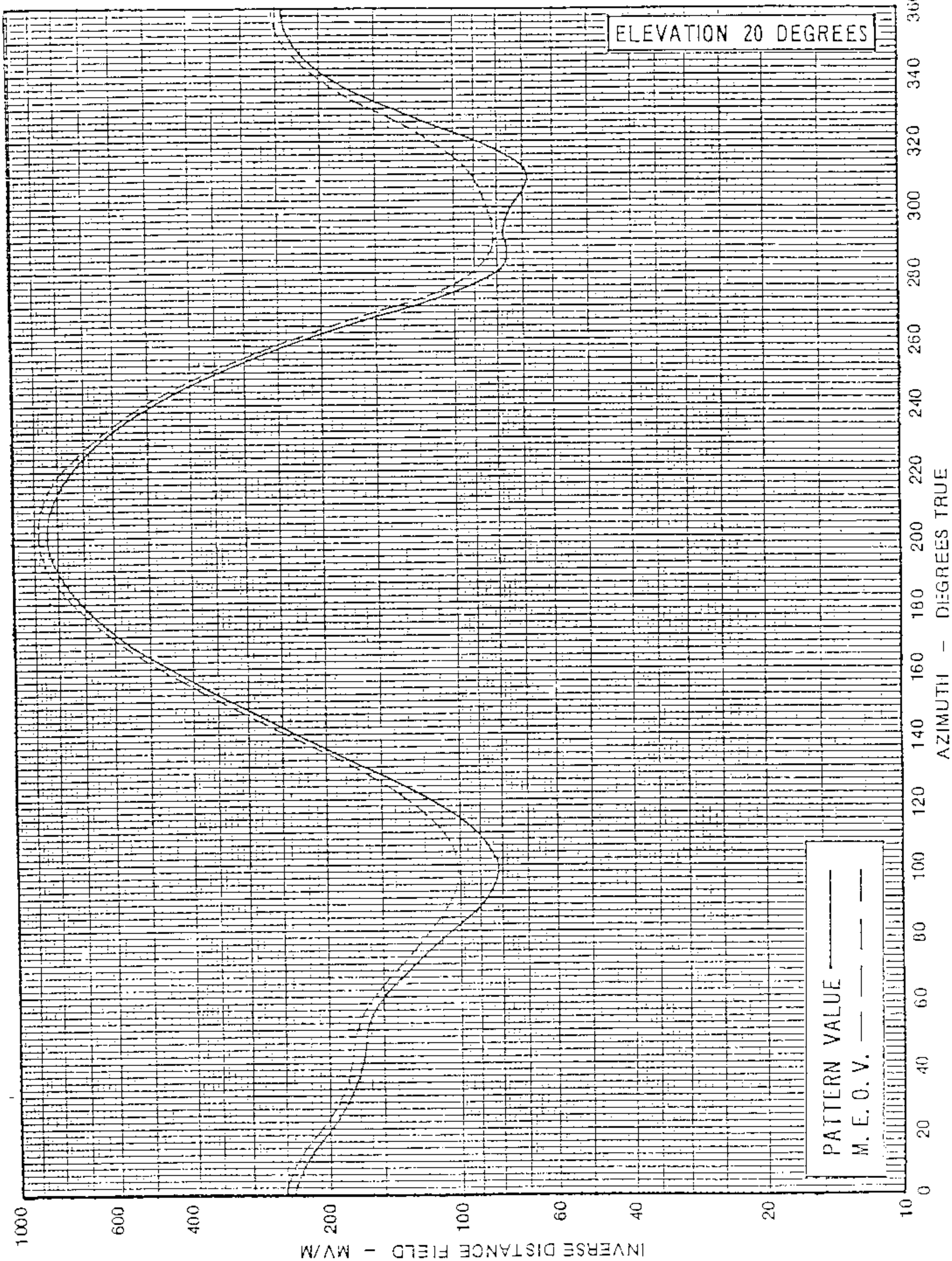


EXHIBIT NO. E-5F1

KHOW

NIGHTTIME VERTICAL RADIATION PATTERN
KHOW DENVER, COLORADO
630 KHz 5 KW DA-2

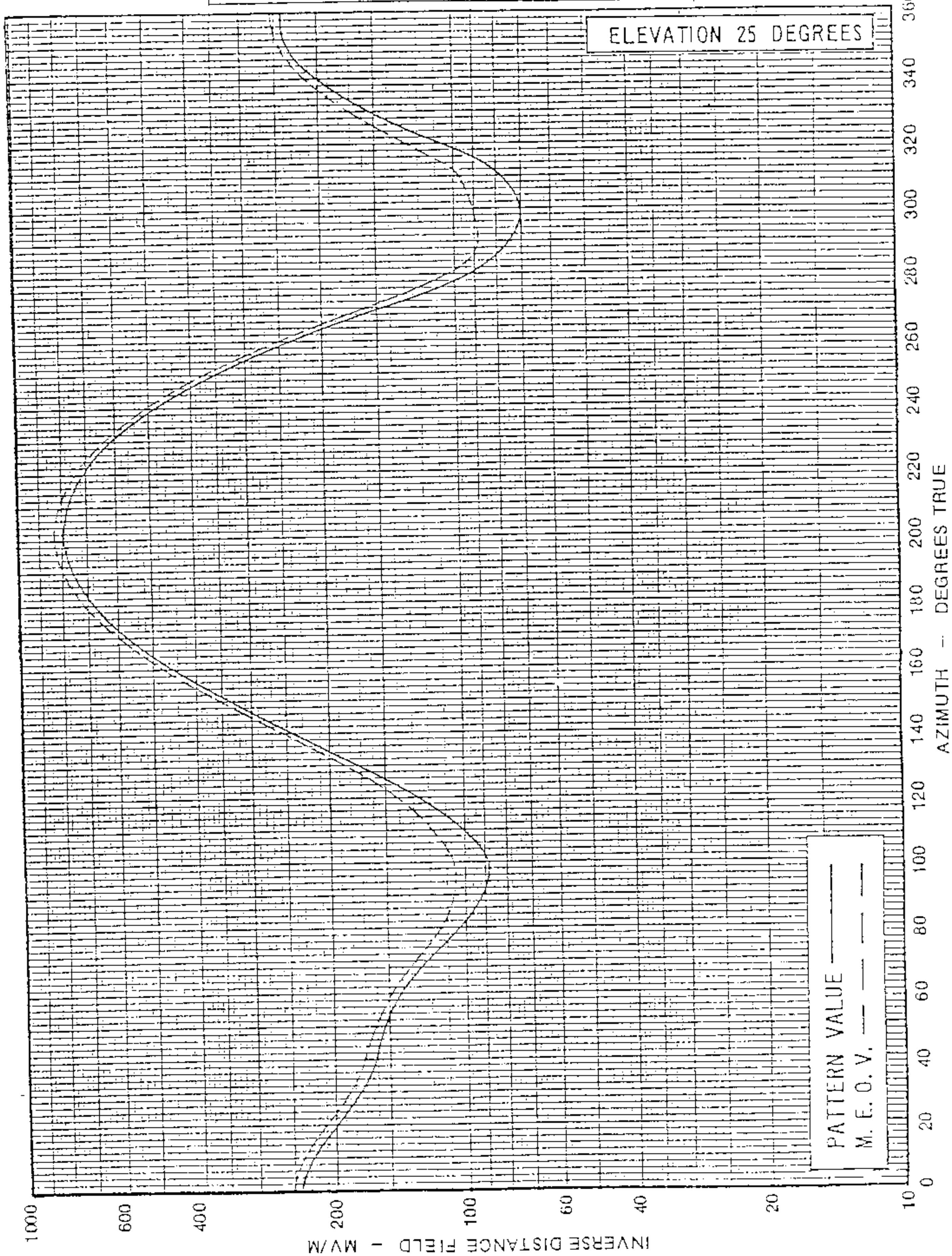
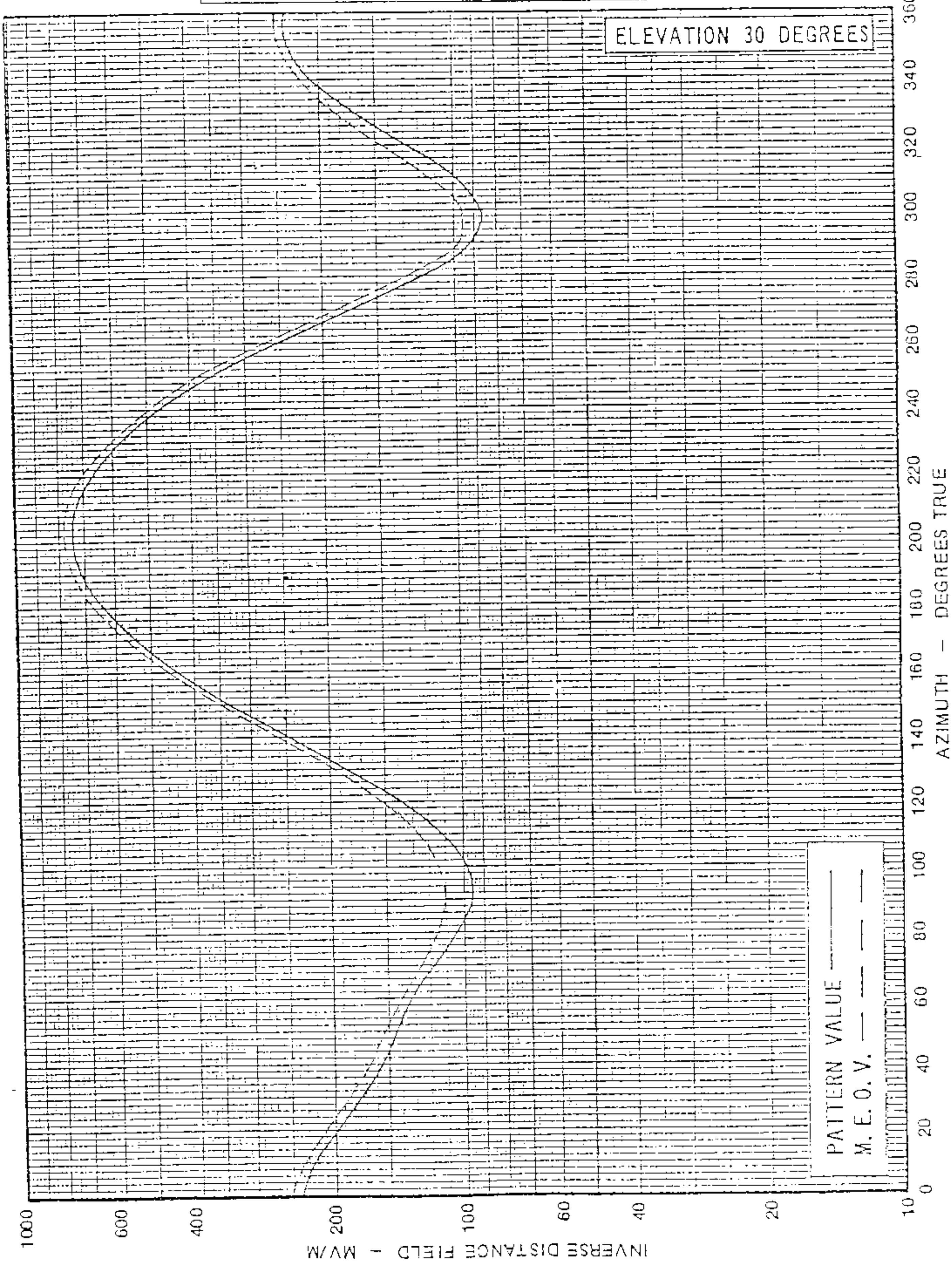


EXHIBIT NO. E-6G

KHOW

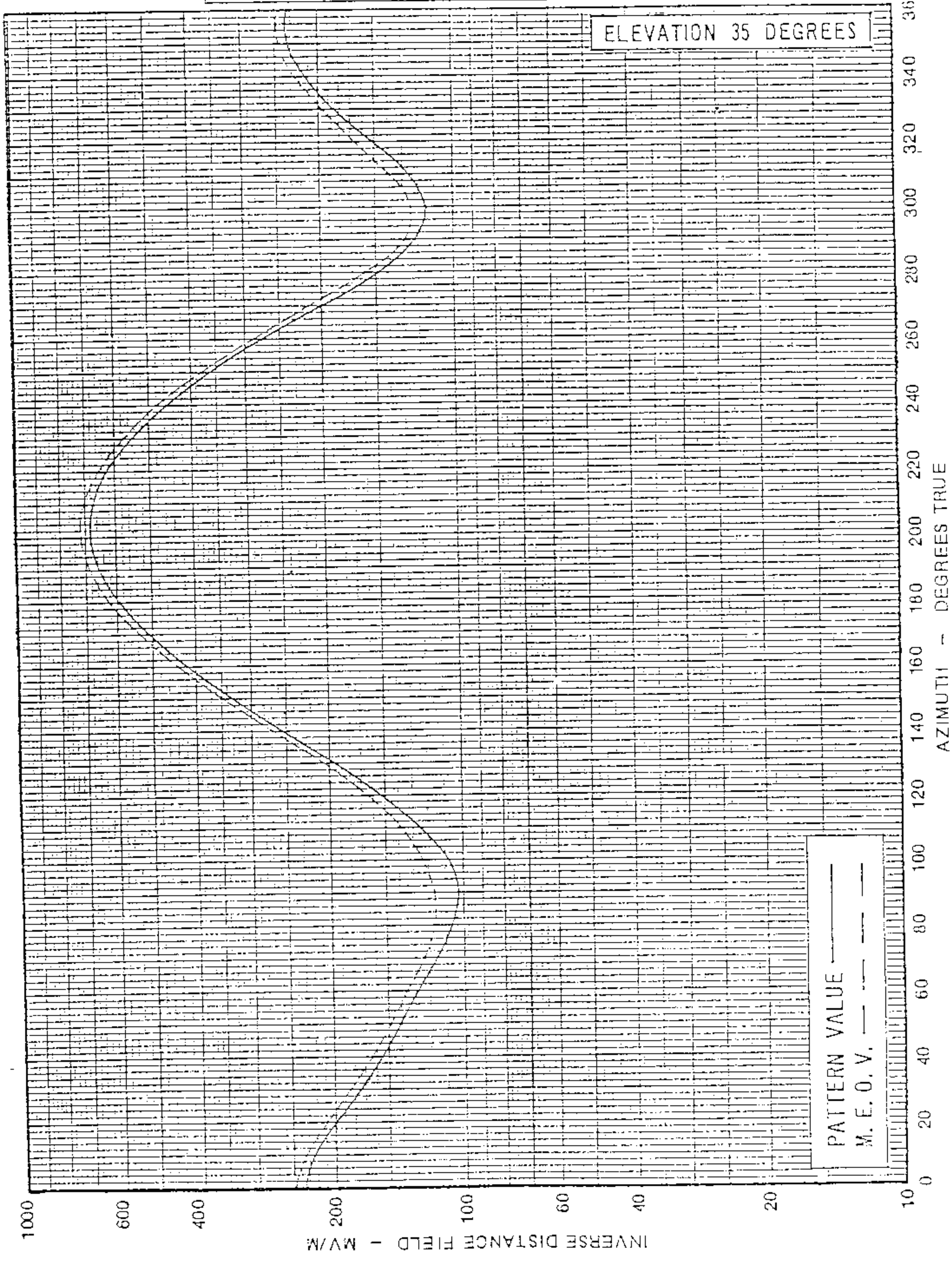
NIGHTTIME VERTICAL RADIATION PATTERN
KHOW DENVER, COLORADO
630 KHz 5 KW DA-2



KHOW

EXHIBIT NO. E-6H

NIGHTTIME VERTICAL RADIATION PATTERN
KHOW DENVER, COLORADO
630 KHz 5 KW DA-2



KHOW
EXHIBIT NO. E-61

NIGHTTIME VERTICAL RADIATION PATTERN
KHOW DENVER, COLORADO
630 KHz 5 KW DA-2

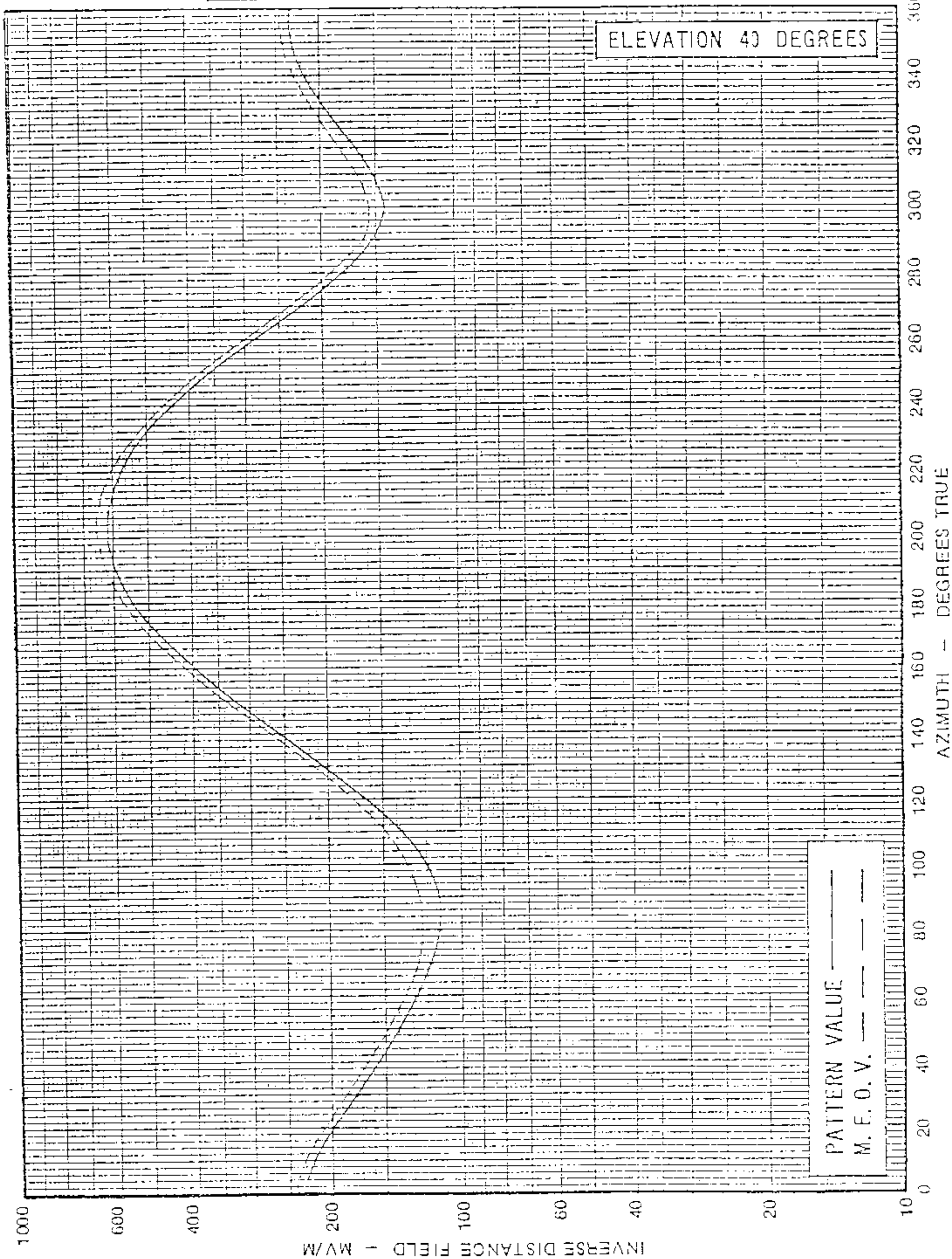


EXHIBIT NO. E-6J

KHOW

NIGHTTIME VERTICAL RADIATION PATTERN
KHOW DENVER, COLORADO
530 KHz 5 KW DA-2

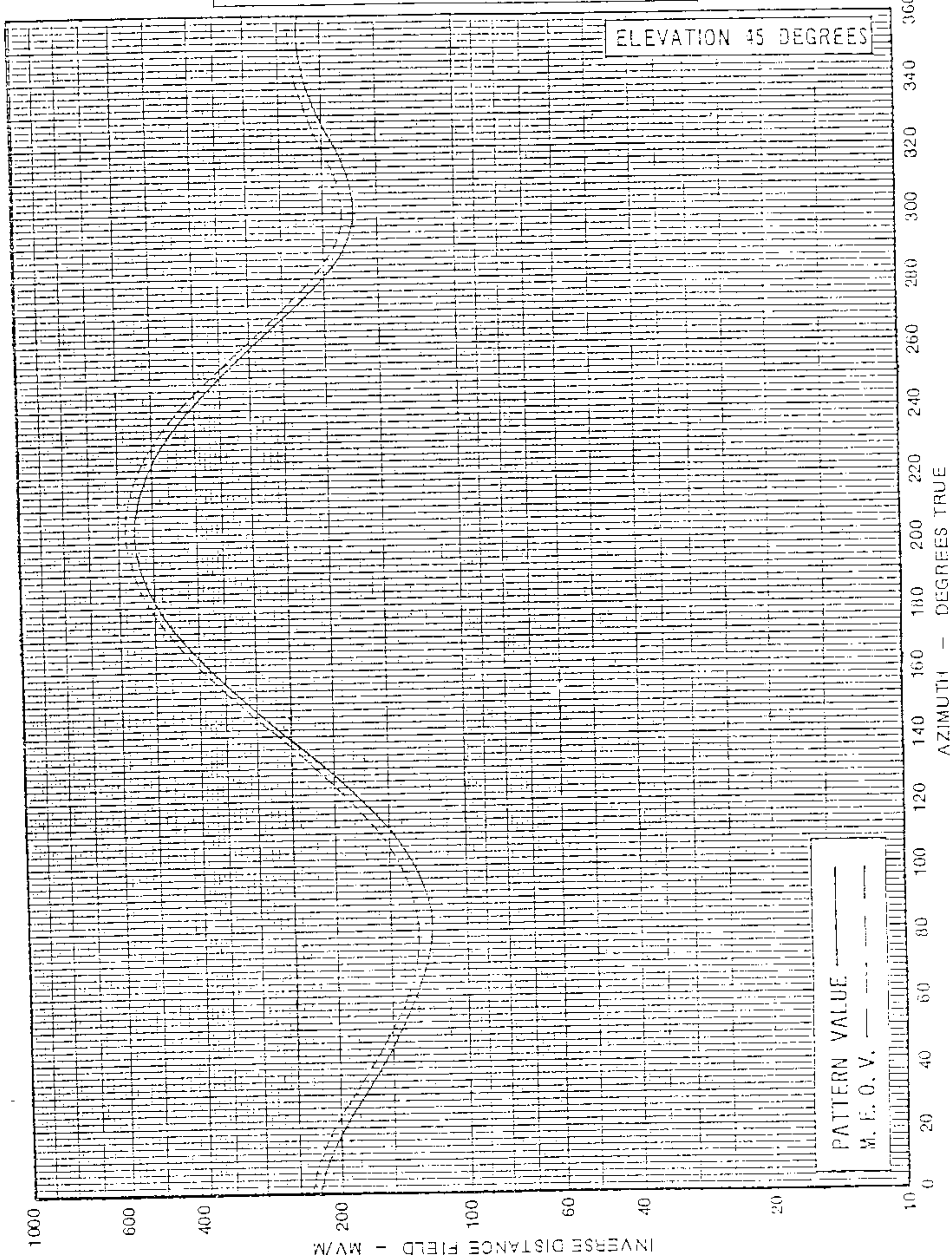


EXHIBIT NO. E-6K

KHOW

NIGHTTIME VERTICAL RADIATION PATTERN
KHOW DENVER, COLORADO
530 KHz 5 KW DA-2

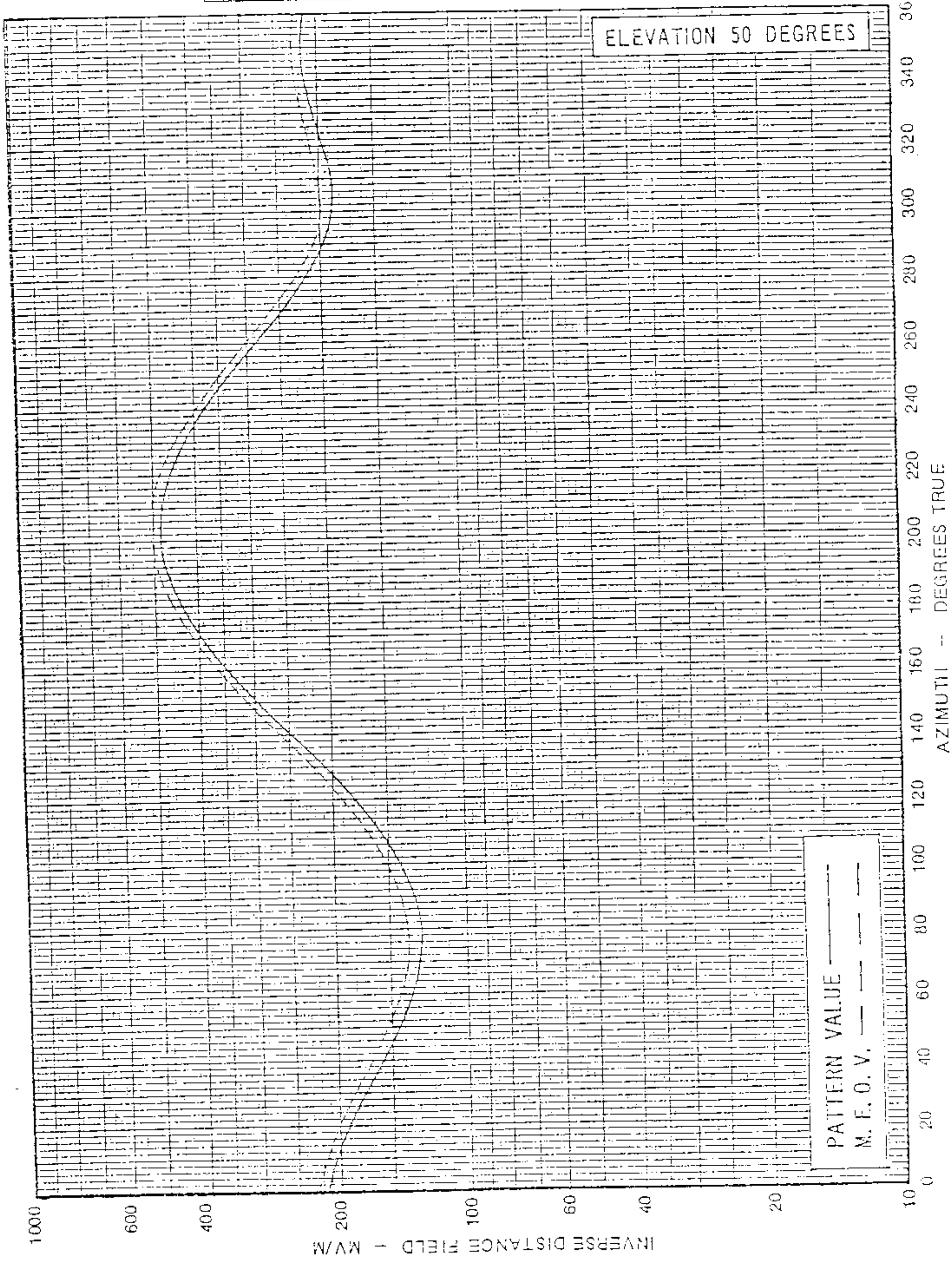


EXHIBIT NO. E-6L

NIGHTTIME VERTICAL RADIATION PATTERN
KHOW DENVER, COLORADO
630 KHz 5 KW DA-2

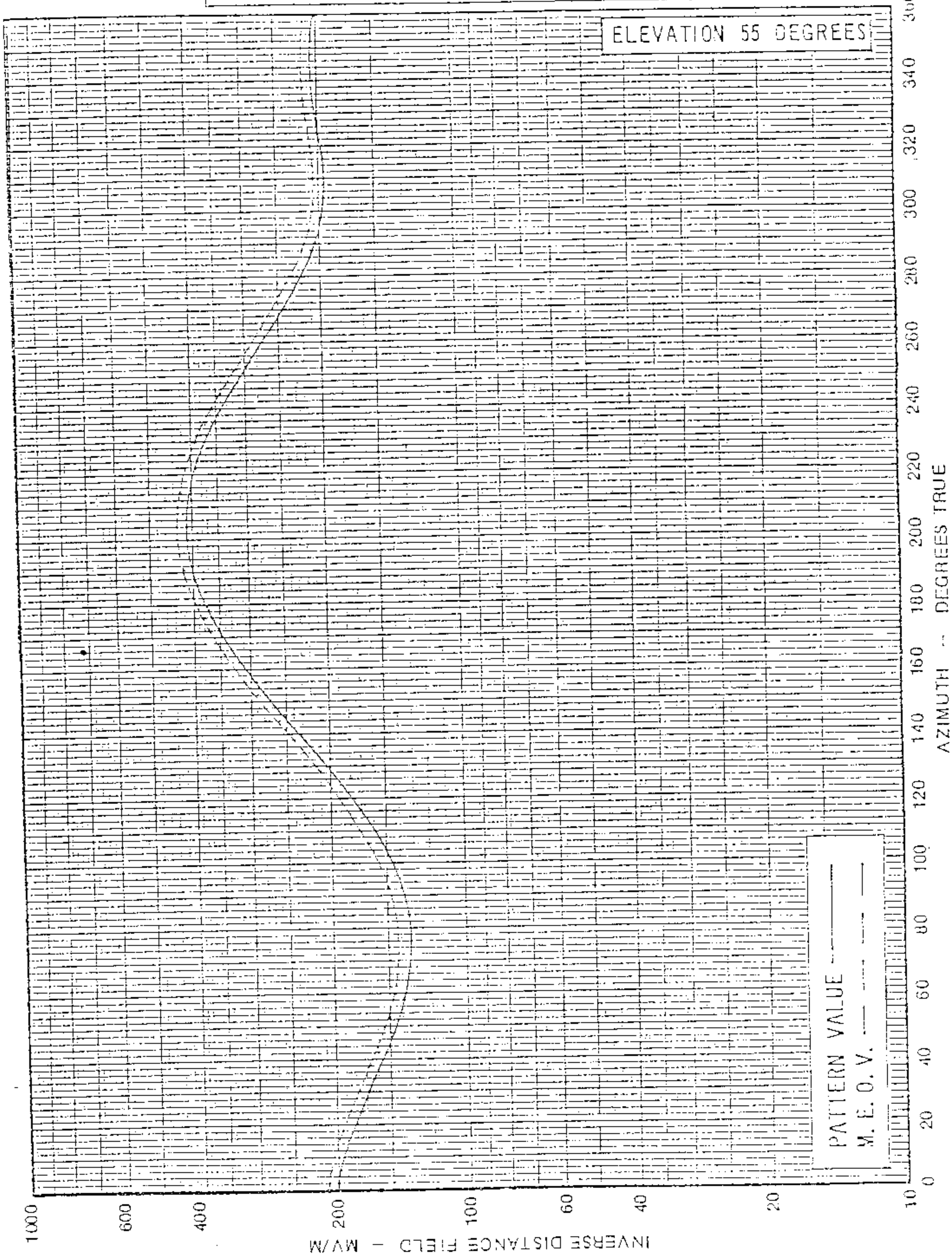
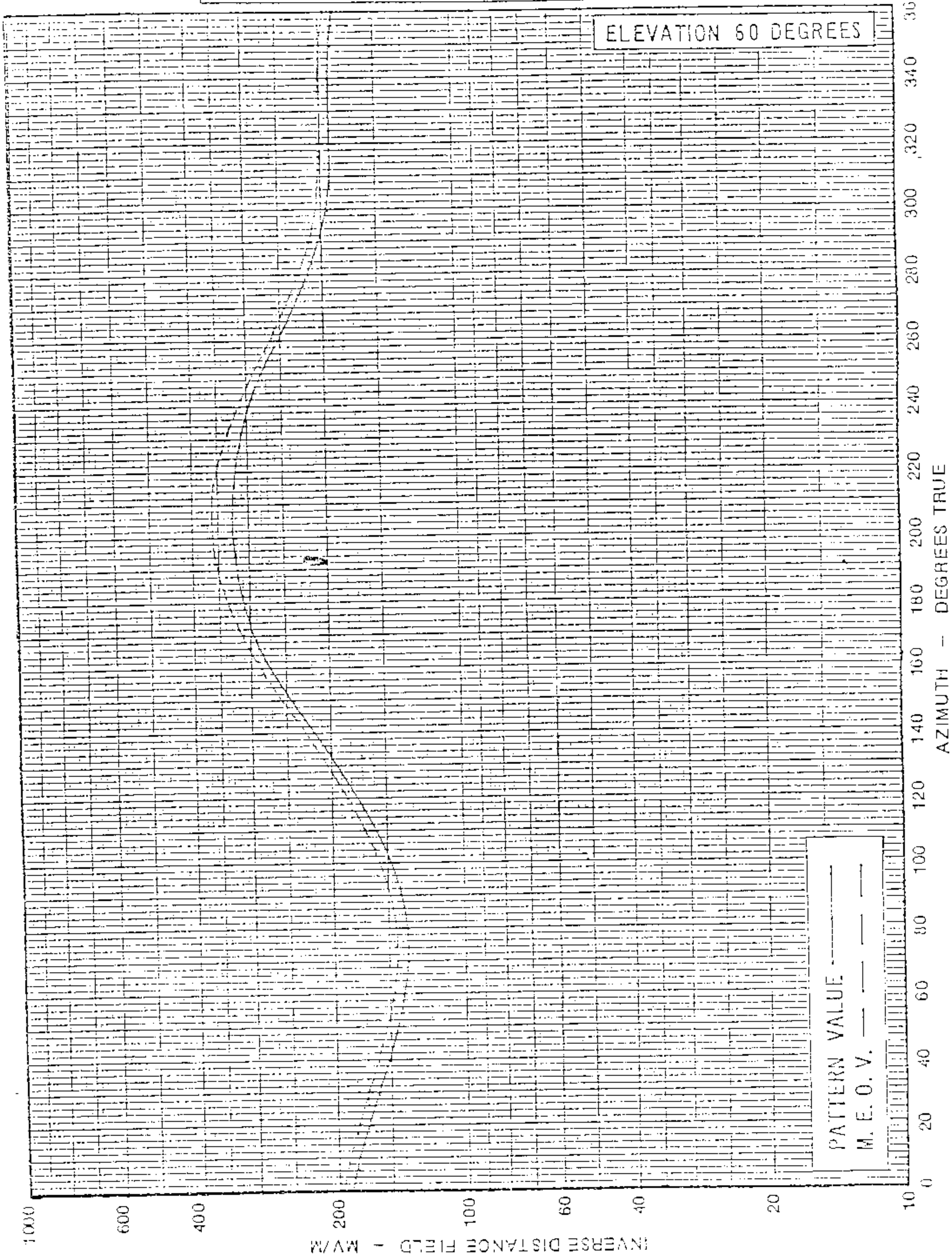


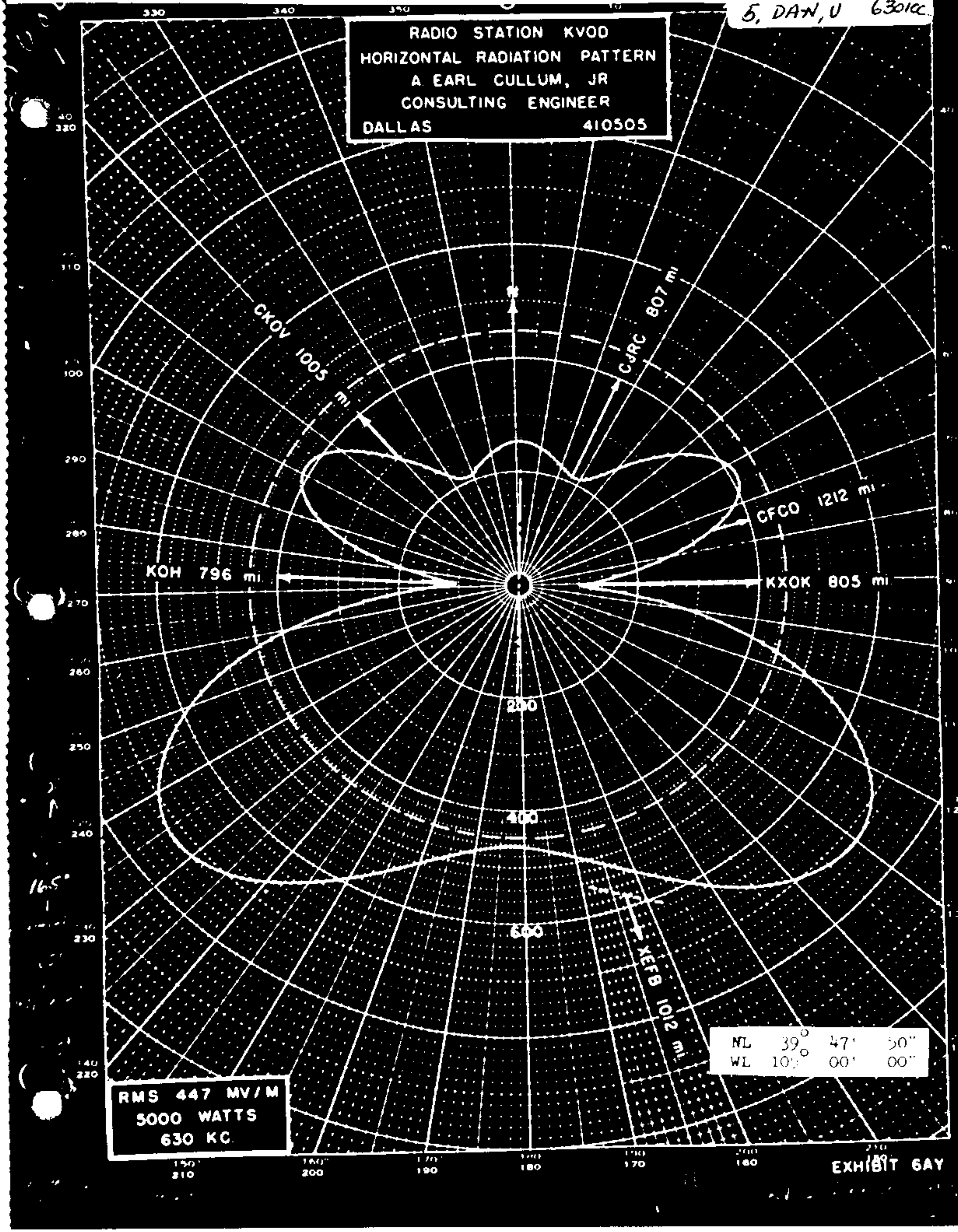
EXHIBIT NO. E-6M

KHOW

NIGHTTIME VERTICAL RADIATION PATTERN
KHOW DENVER, COLORADO
630 KHz 5 KW DA-2



PROPOSED NIGHT Station KVOD Denver, Colorado 5kw, KHOW 5, DA-N, U 630kc



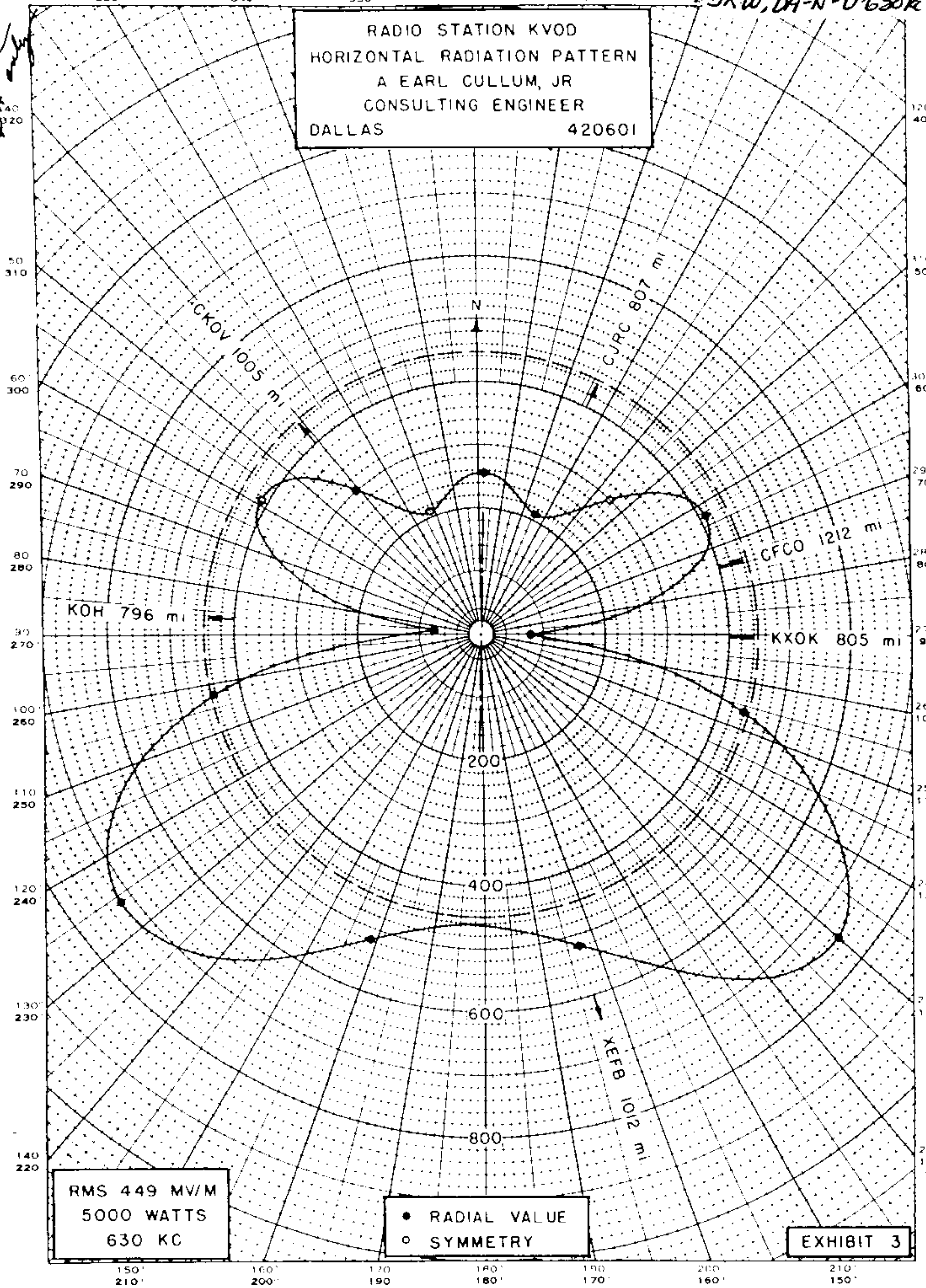
KVOD

Denver

KHOW

5KW, DA-N-U 630k

granted license 9/7/56 DA only



K...

Granted CP to change DA system
2-5-60

PROPOSED DAY
(12-21-59g)

Station KIDD 1kw. DA-2, U
Monterey, California 630 KC

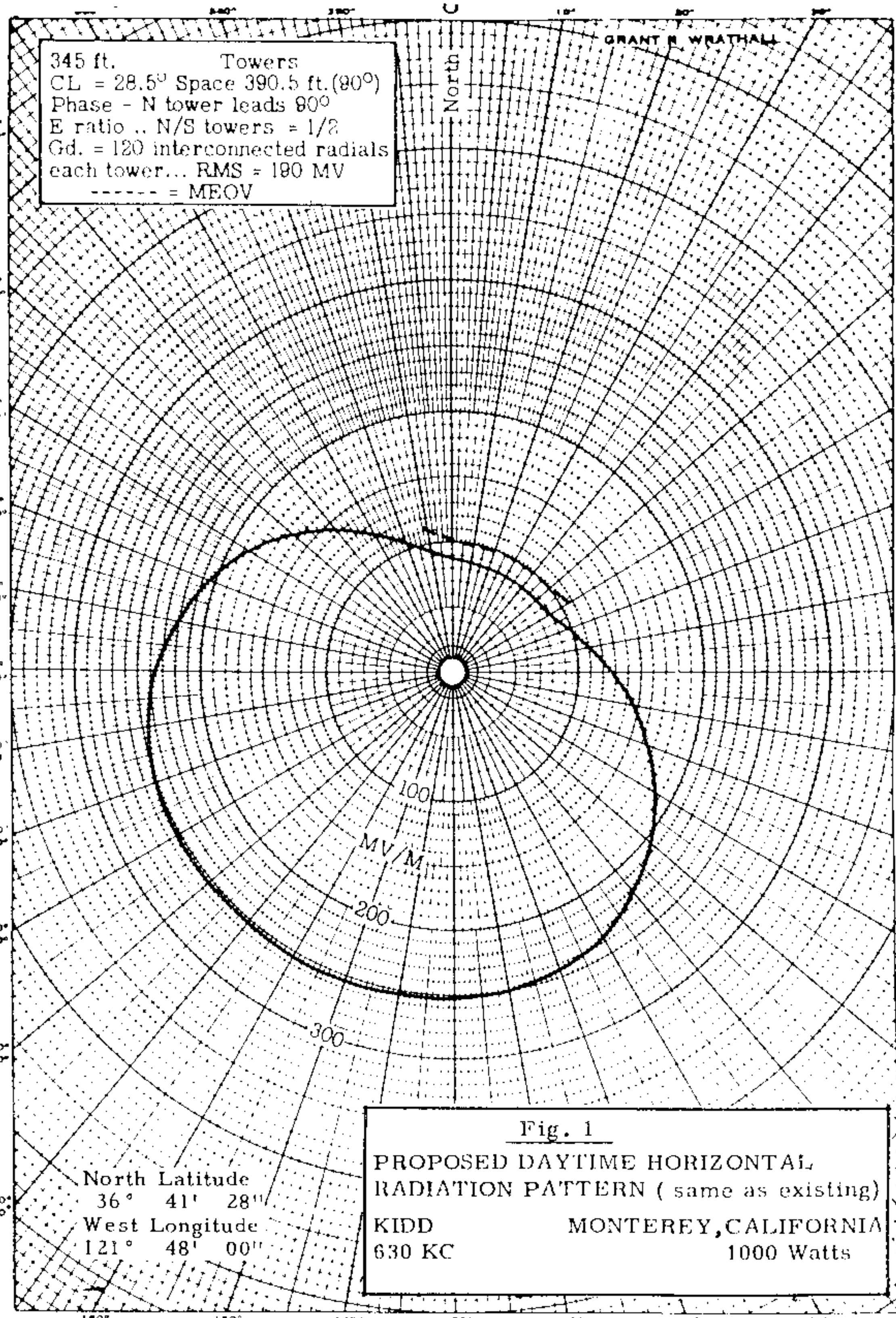


Fig. 1

PROPOSED DAYTIME HORIZONTAL RADIATION PATTERN (same as existing)

KIDD MONTEREY, CALIFORNIA
630 KC 1000 Watts

FCC File No. BP-13255
Accepted 11-20-59 (Amended)

KIDD
Monterey, California 630 KC

KIDD

MEASURED DAY
(2-17-61g)

Station KIDD
Monterey, California

1kw, DA-2,U
630 KC

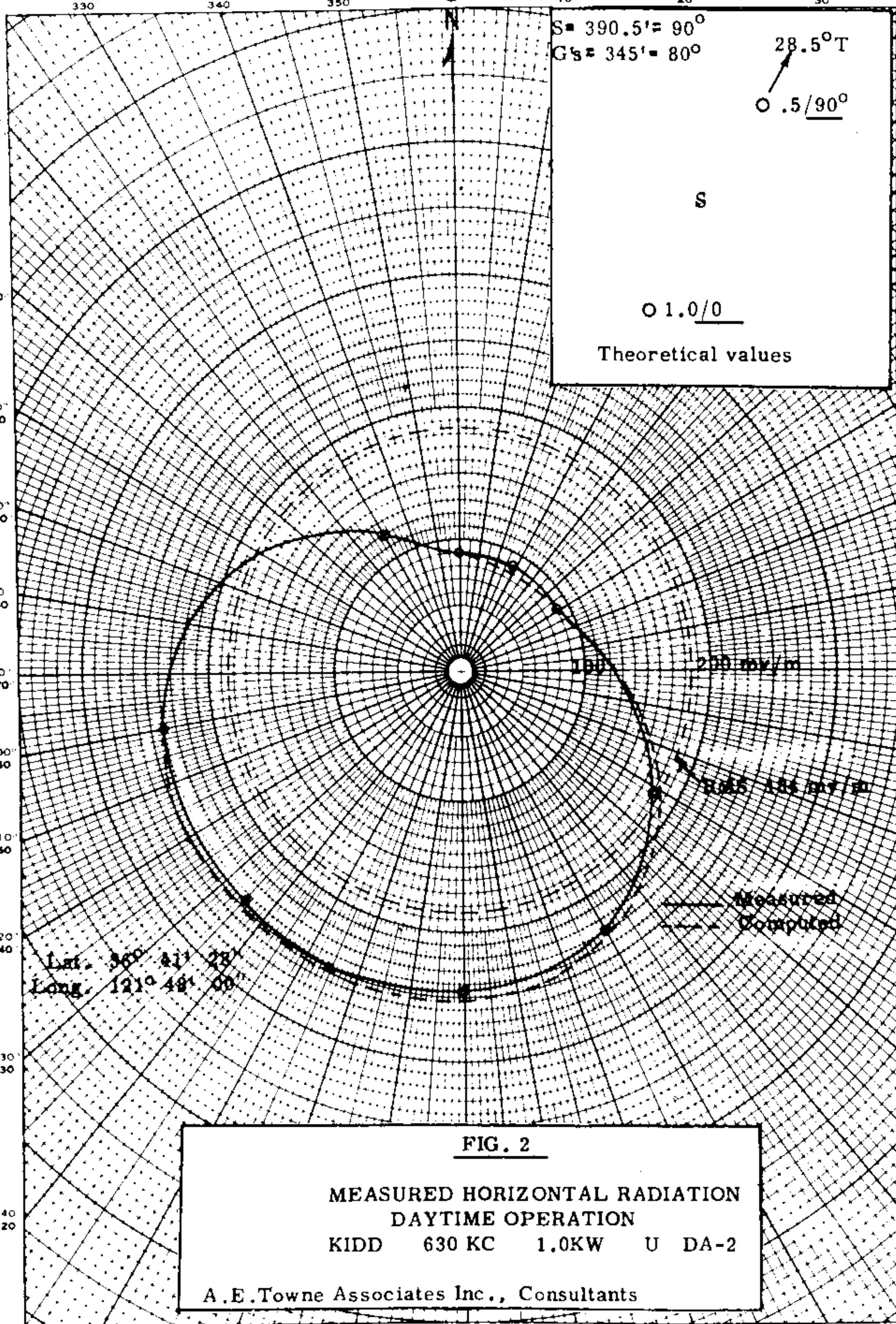


FIG. 2

MEASURED HORIZONTAL RADIATION
DAYTIME OPERATION
KIDD 630 KC 1.0KW U DA-2

A.E.Towne Associates Inc., Consultants

FCC File No. BL-8218
Accepted 1-30-61

KIDD
Monterey, California

630 KC

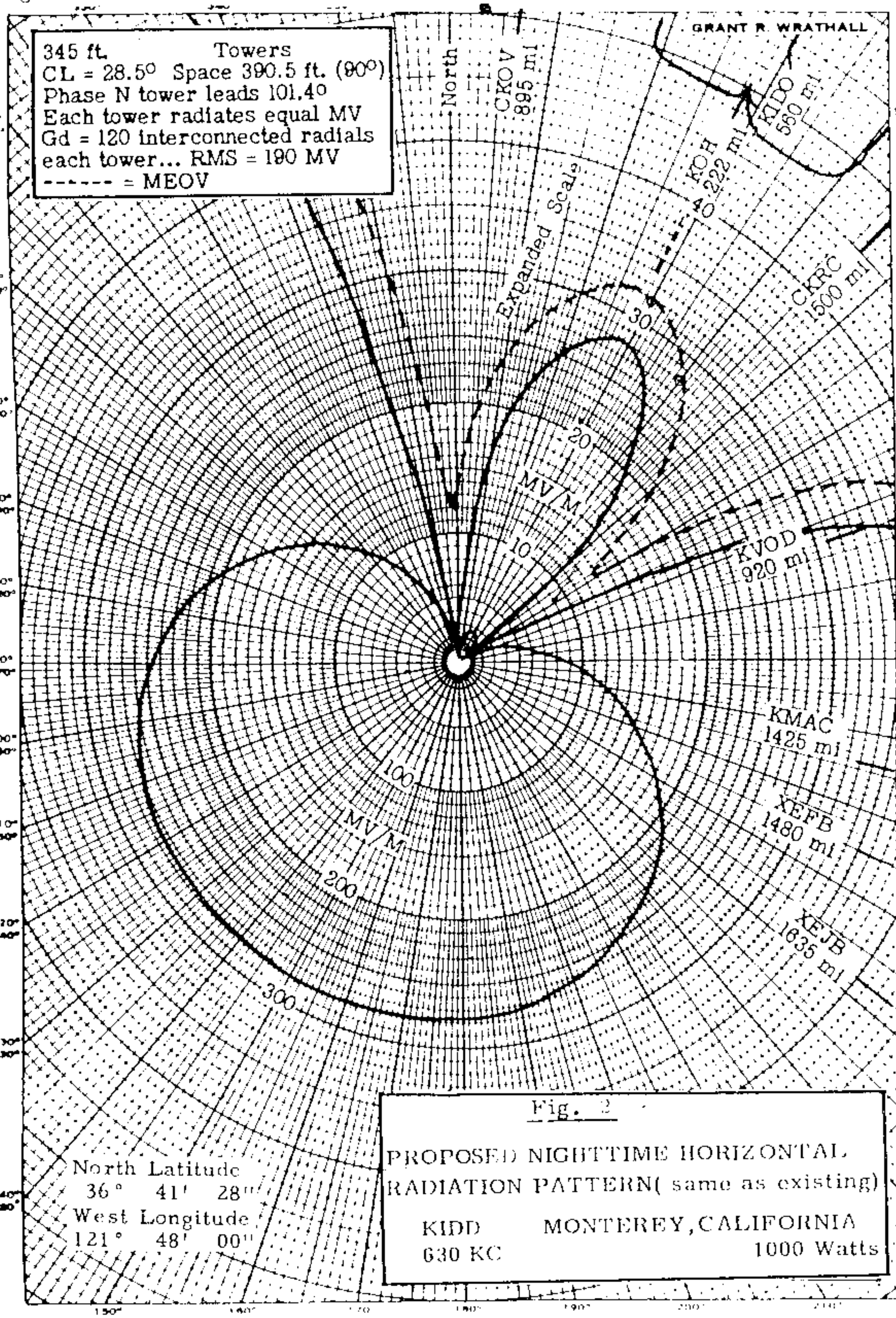
KIDD

PROPOSED NIGHT
(12-21-59g)

Station KIDD
Monterey, California

1kw, DA-2, U
630 KC

granted CP to change DA System
2-5-60



FCC File No. BP-13255
Accepted 11-20-59 (Amended)

KIDD
Monterey, California

630 KC

KIDD

MEASURED NIGHT
(2-17-61g)

Station KIDD
Monterey, California

1kw, DA-2,U
630 KC

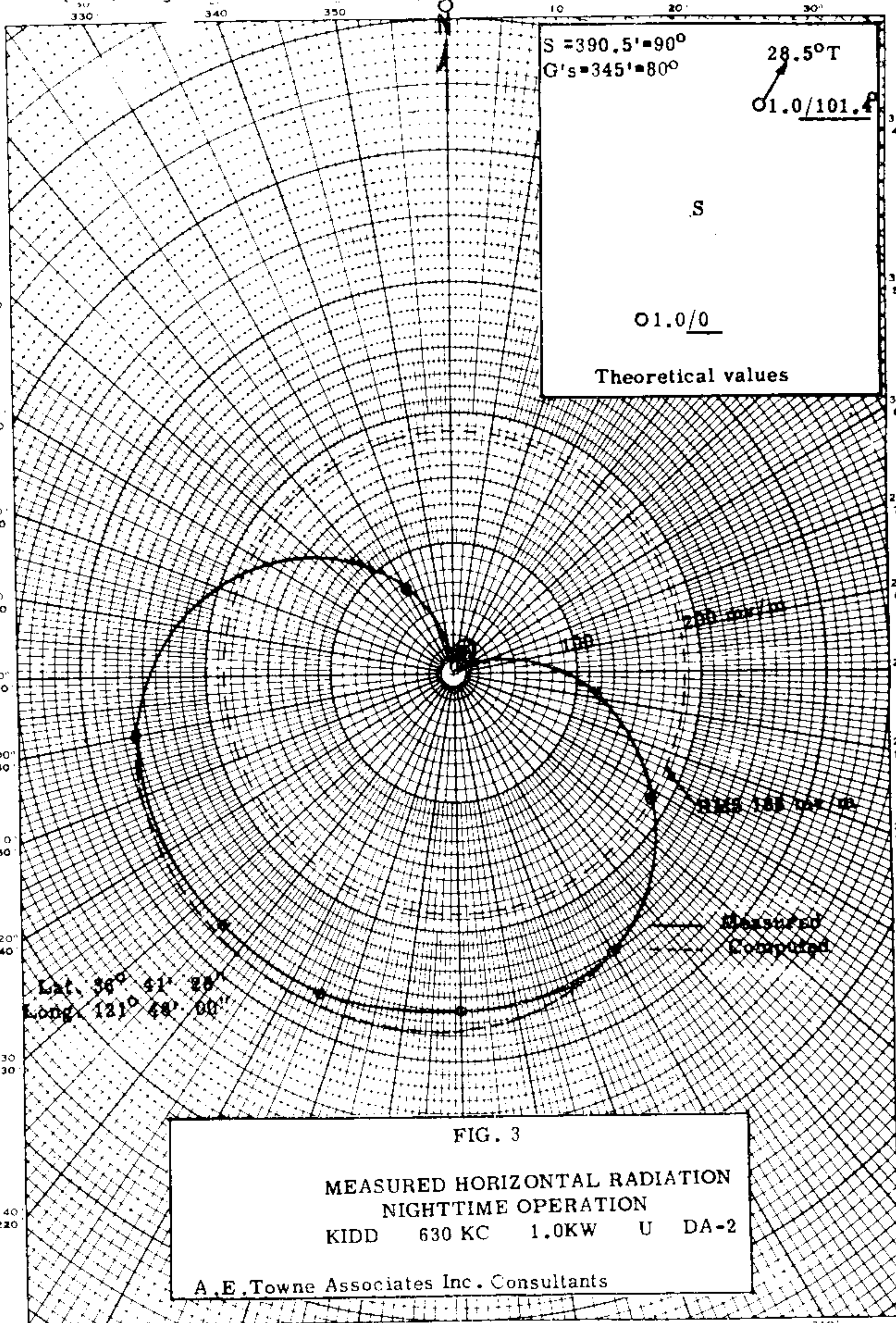


FIG. 3

MEASURED HORIZONTAL RADIATION
NIGHTTIME OPERATION
KIDD 630 KC 1.0KW U DA-2

A.E.Towne Associates Inc. Consultants

FCC File No. BL-8218
Accepted 1-30-61

KIDD
Monterey, California

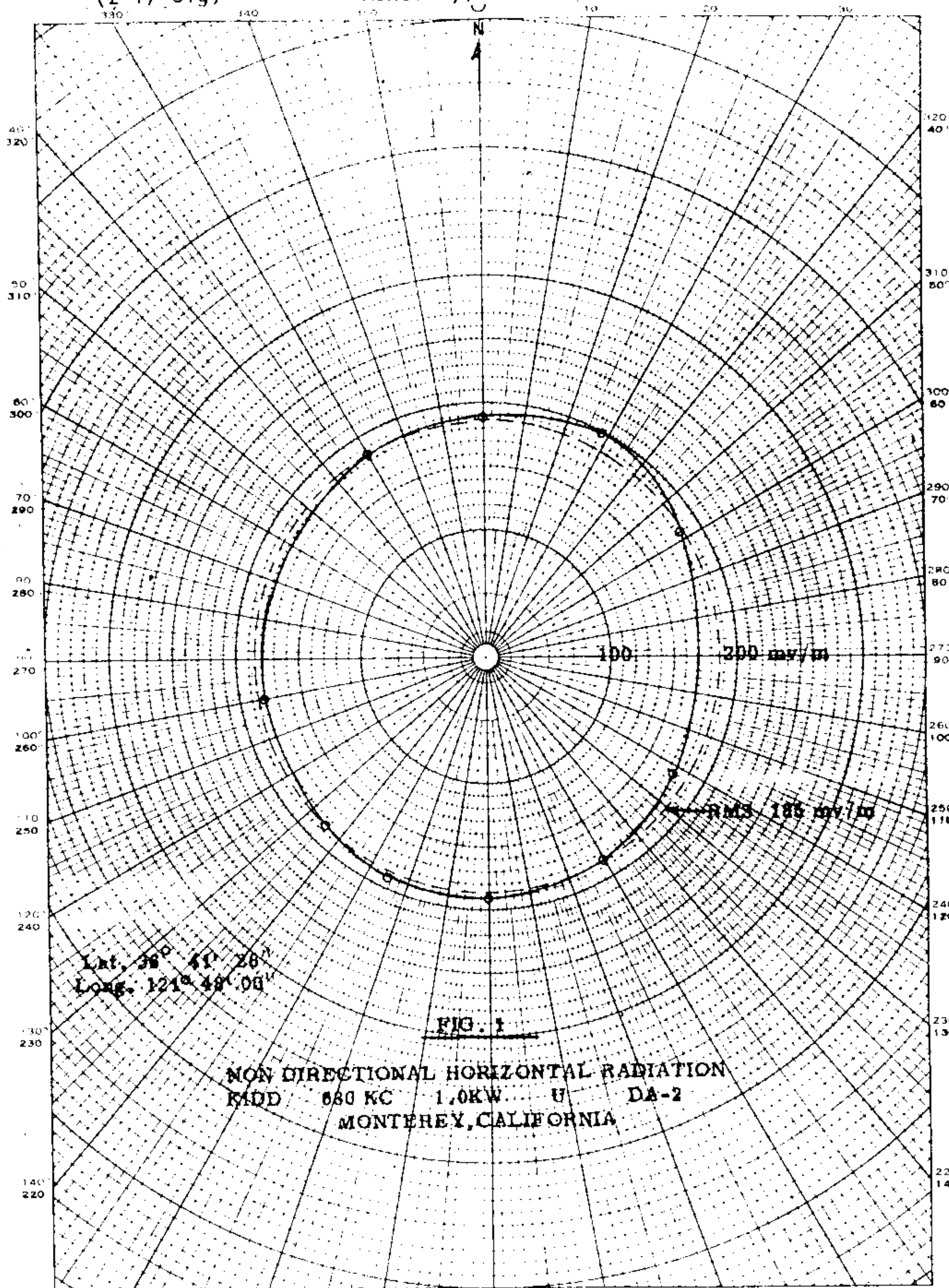
630 KC

KIDD

MEASURED NON-DA
(2-17-61g)

Station KIDD
Monterey, California

1kw, DA-2,U
630 KC



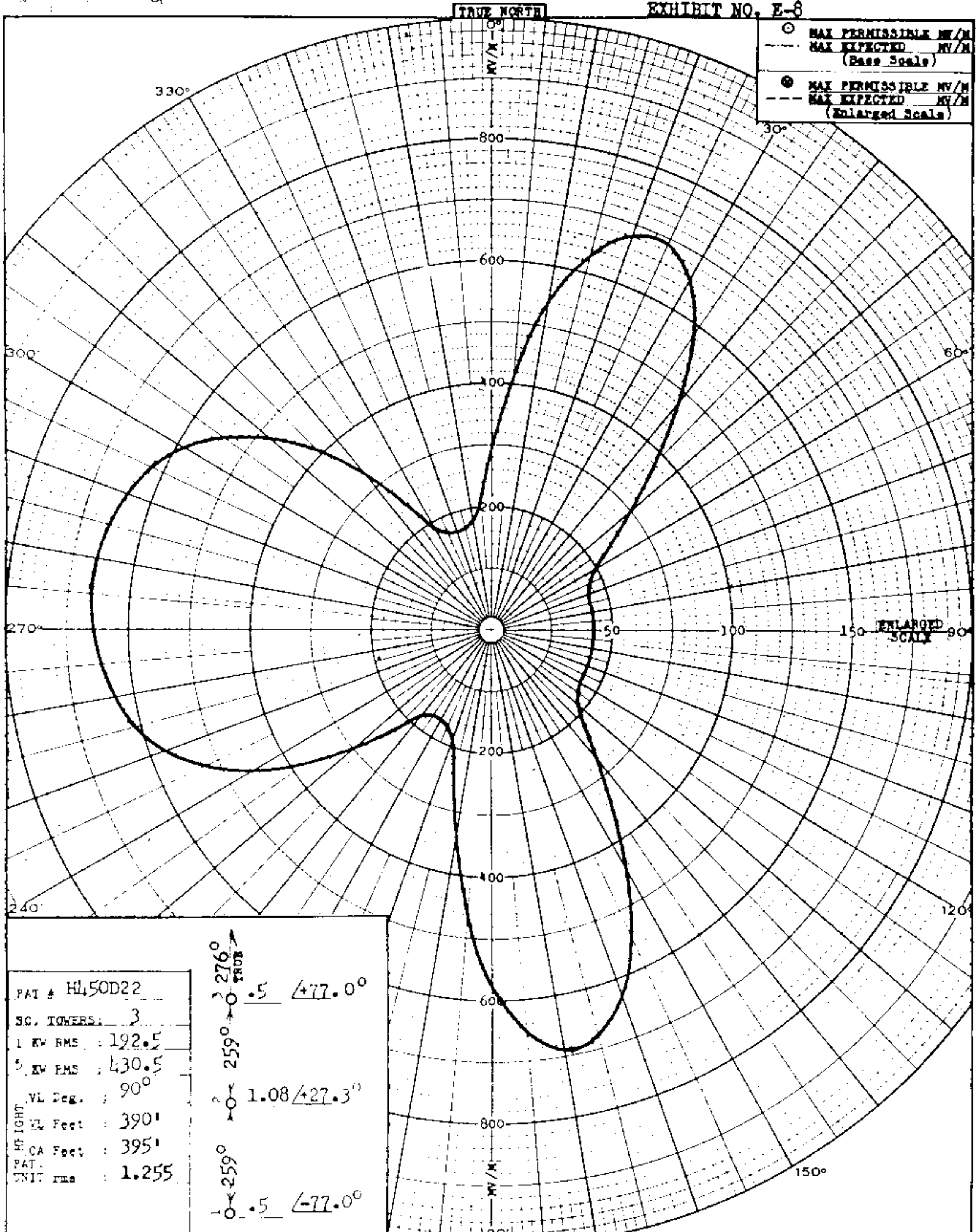
FCC File No. BL-8218
Accepted 1-30-61

KIDD
Monterey, California

630 KC

KIDO
630

EXHIBIT NO. E-8



○	MAX PERMISSIBLE MV/M
······	MAX EXPECTED MV/M
	(Base Scale)
⊗	MAX PERMISSIBLE MV/M
- - -	MAX EXPECTED MV/M
	(Enlarged Scale)

PAT #	H450D22
NO. TOWERS:	3
1 KW RMS	192.5
5 KW RMS	430.5
HEIGHT VL Deg.	90°
HEIGHT VL Feet	390'
HEIGHT CA Feet	395'
PAT. UNIT rms	1.255

276° TRUE

.5 ∠77.0°

259°

1.08 ∠27.3°

259°

.5 ∠-77.0°

COMMERCIAL RADIO EQUIPMENT CO.

RADIO ENGINEERING CONSULTANTS

KANSAS CITY WASHINGTON, D.C. HOLLYWOOD

PATTERN:	PROPOSED DAYTIME		
FOR:	KIDO, BOISE, IDAHO		
POWER:	5 KW-U	FREQ:	630 KC
DATE:	7/9/48	BY:	ITN

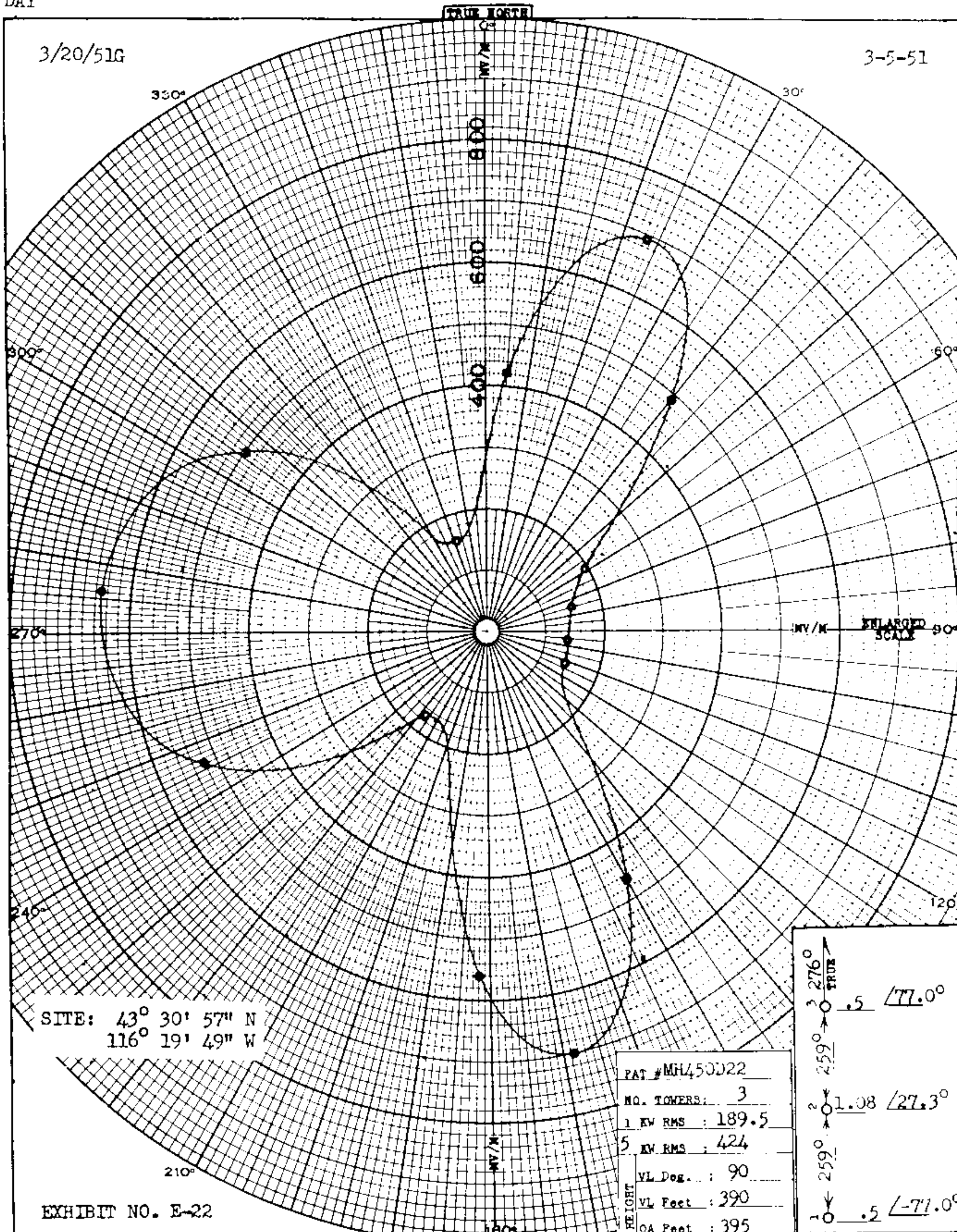
Amendment Filed Aug 4/45 P-5017

KIDO

MEASURED
DAY

KIDO, BOISE, IDAHO

5kw, DA-2 630 kc



SITE: 43° 30' 57" N
116° 19' 49" W

PAT #	MH450D22
NO. TOWERS:	3
1 KW RMS :	189.5
5 KW RMS :	424
HEIGHT VL Deg. :	90
VL Feet :	390
OA Feet :	395

EXHIBIT NO. E-22

COMMERCIAL RADIO EQUIPMENT CO.

RADIO ENGINEERING CONSULTANTS

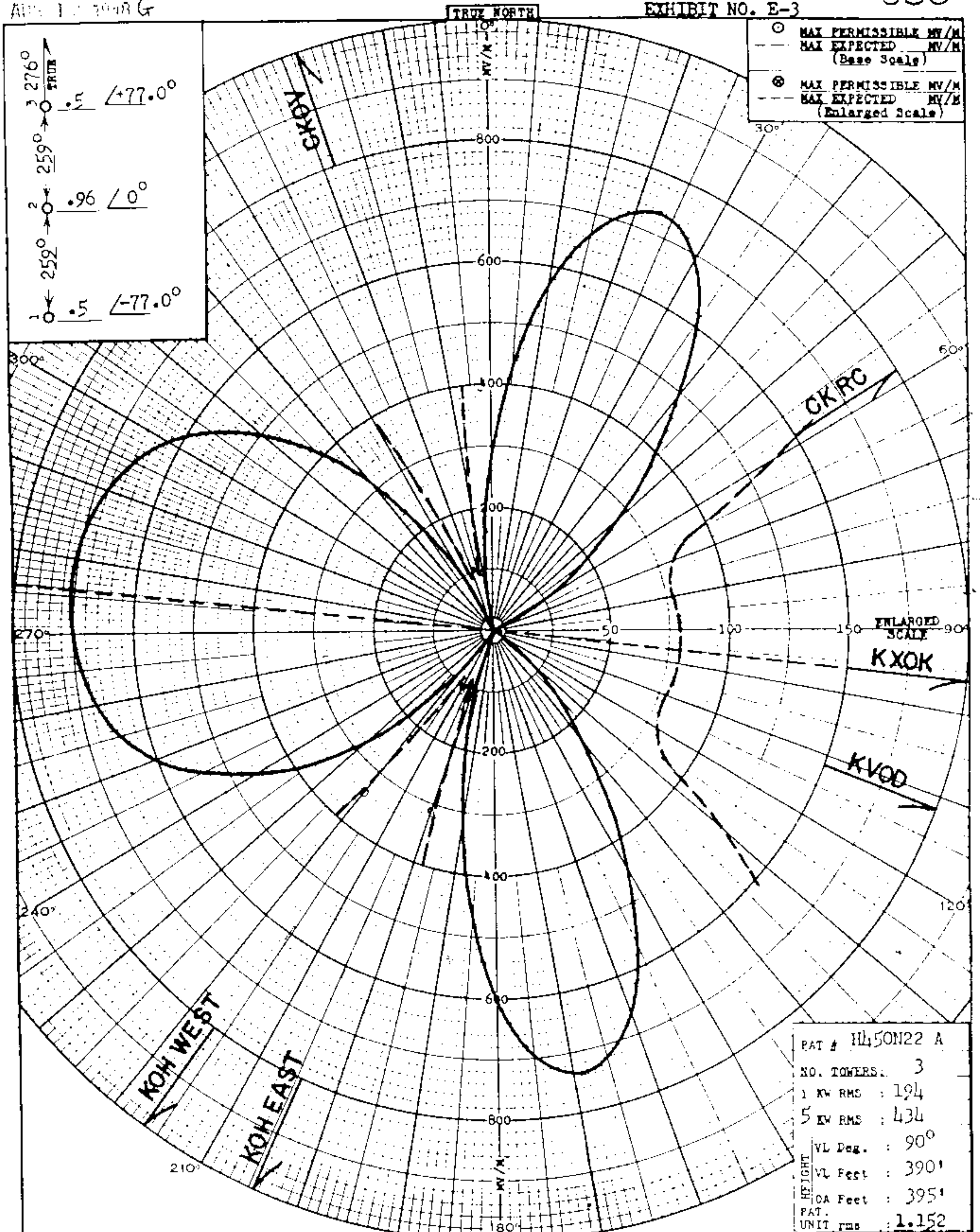
KANSAS CITY WASHINGTON, D.C. HOLLYWOOD

PATTERN: MEASURED DAYTIME PATTERN
FOR: KIDO, BOISE, IDAHO
POWER: 5 KW FREQ: 630 KC.
DATE: 2/15/51 BY: ITN

KIDO, Boise, Idaho 630 kc

KIDO
630

EXHIBIT NO. E-3



COMMERCIAL RADIO EQUIPMENT CO.	PATTERN: PROPOSED NIGHTTIME
RADIO ENGINEERING CONSULTANTS	FOR: KIDO, BOISE, IDAHO
	POWER: 5 KW-U FREQ: 630 KC
KANSAS CITY WASHINGTON, D.C. HOLLYWOOD	DATE: 7/9/48 BY: ITN

Amendment Fil ... 4/48 P-5017

Feb. 1951
BP-5017 amended

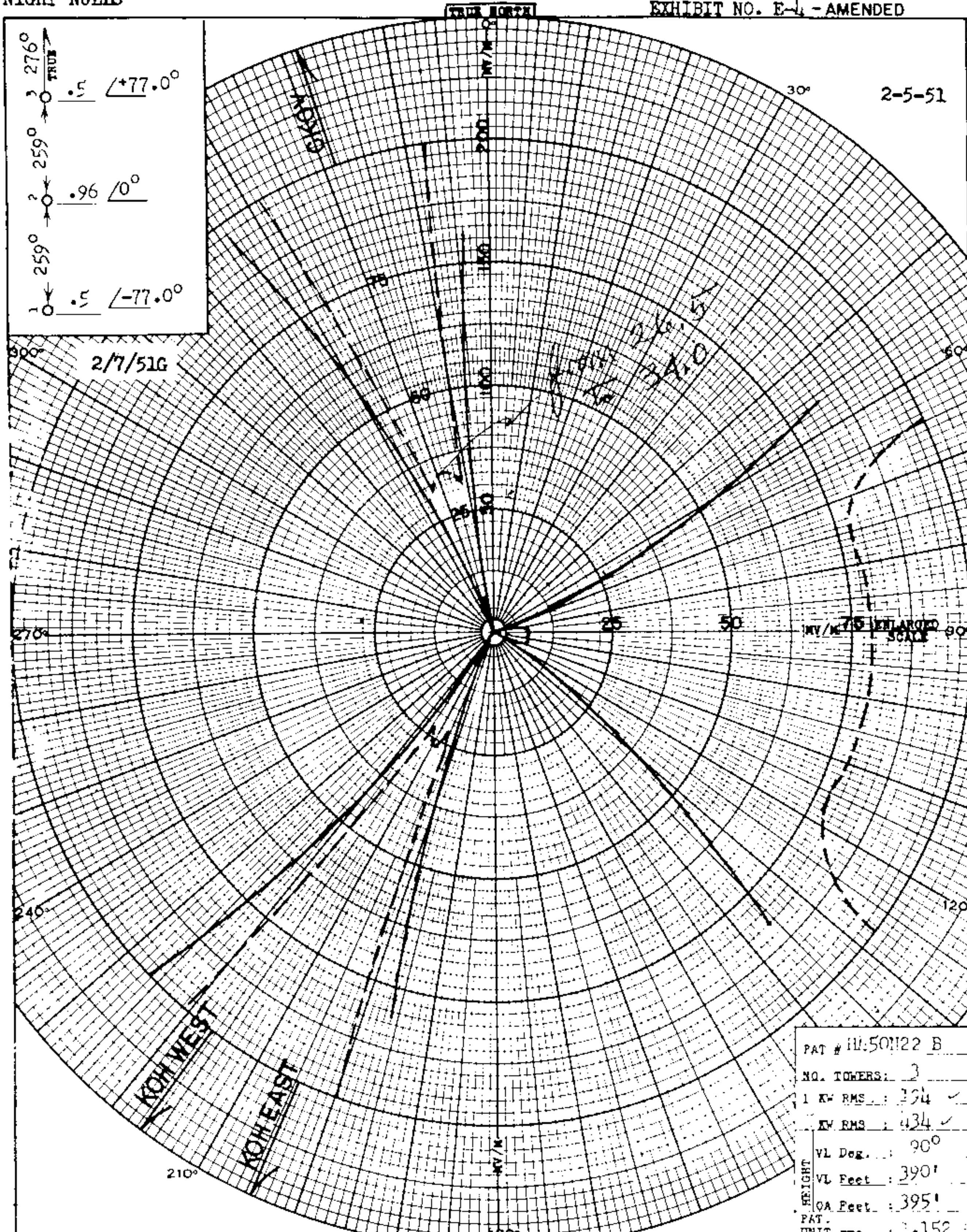
KIDO

PROPOSED
NIGHT NULLS

KIDO, BOISE, IDAHO

5kw, DA-N 630 kc

EXHIBIT NO. E-4 - AMENDED



COMMERCIAL RADIO EQUIPMENT CO.

RADIO ENGINEERING CONSULTANTS

KANSAS CITY WASHINGTON, D. C.

PATTERN: PROPOSED NIGHTTIME
FOR: KIDO, BOISE, IDAHO
POWER: 5 KW-U FREQ: 630 KC
DATE: 1/31/51

KIDO, Boise, Idaho 630 kc

KIDO

VOID

MEASURED
NIGHT

KIDO, BOISE, IDAHO

5kw, DA-2

630 kc

10

3/20/51G

3-5-51

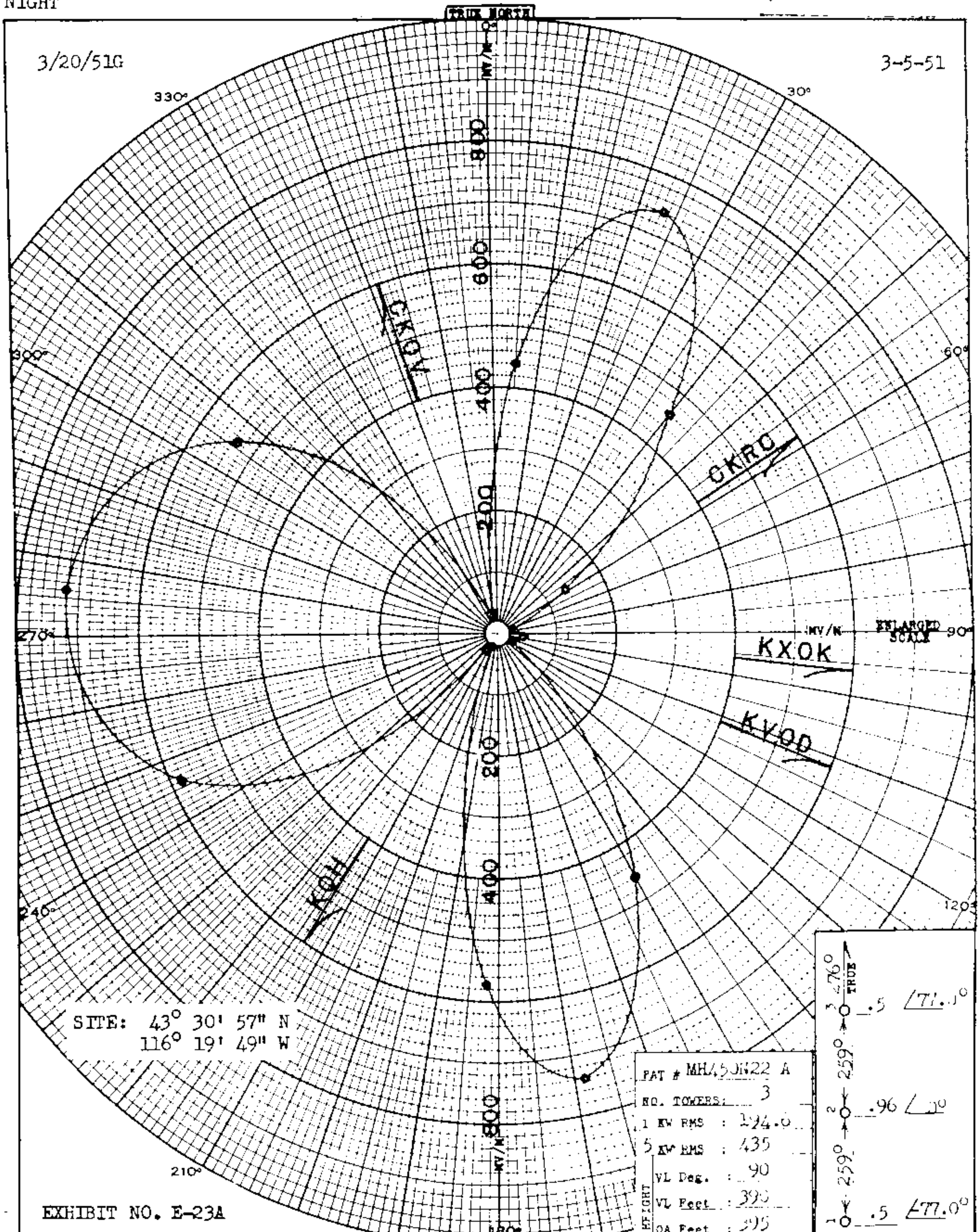


EXHIBIT NO. E-23A

COMMERCIAL RADIO EQUIPMENT CO.

RADIO ENGINEERING CONSULTANTS

KANSAS CITY WASHINGTON, D.C. HOLLYWOOD

PATTERN: MEASURED NIGHTTIME PATTERN

FOR: KIDO, BOISE, IDAHO

POWER: 5 Kw FREQ: 630 KC.

DATE: 2/15/51 BY: ITN

KIDO, Boise, Idaho 630 kc

KIDO

MEASURED NIGHT NULLS — KIDO, BOISE, IDAHO — 5kw, DA-2 — 630 kc

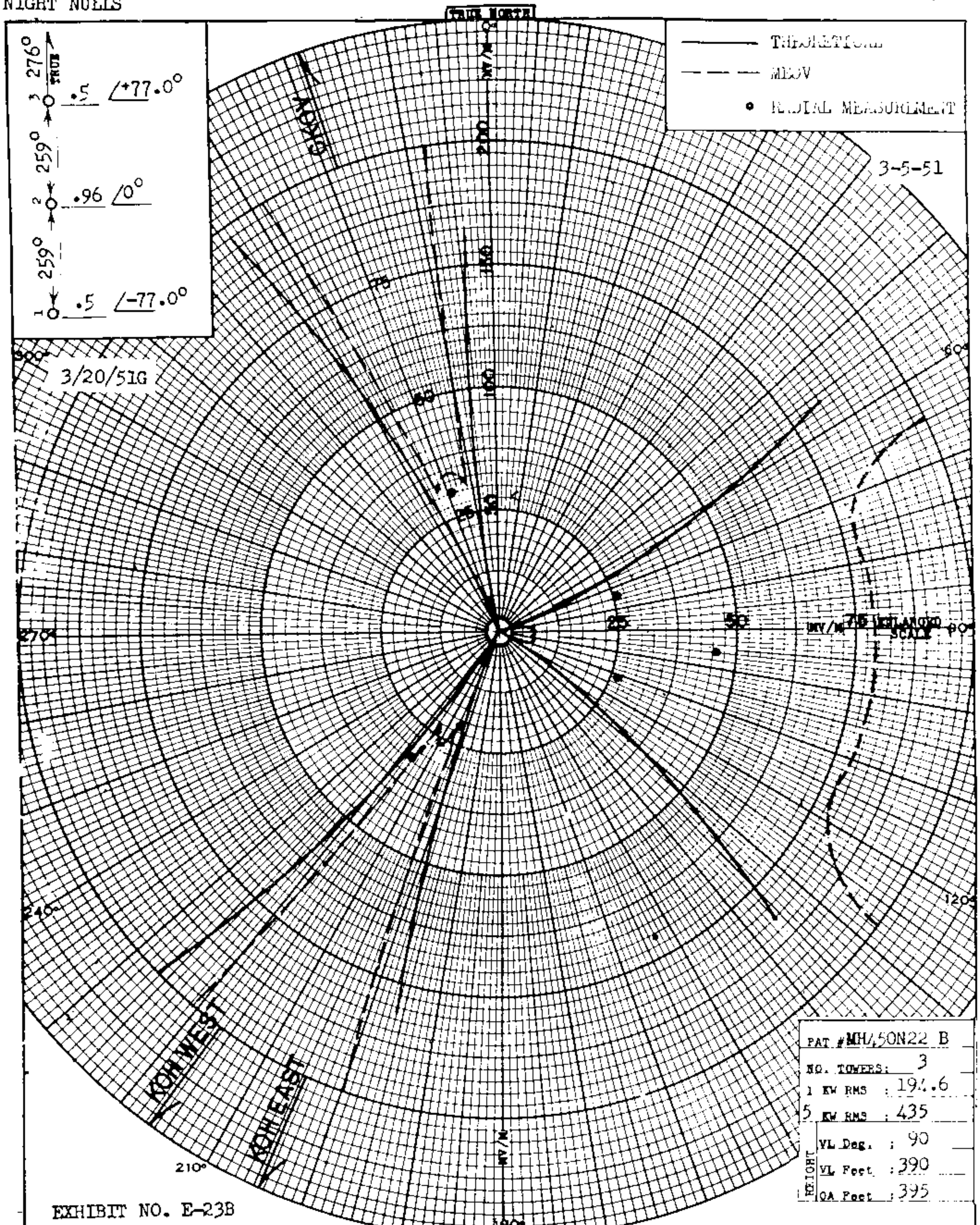


EXHIBIT NO. E-23B

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

PATTERN: MEASURED NIGHTTIME PATTERN
FOR: KIDO, BOISE, IDAHO
POWER: 5 KW FREQ: 630 KC.
DATE: 2/15/51 BY: ITN

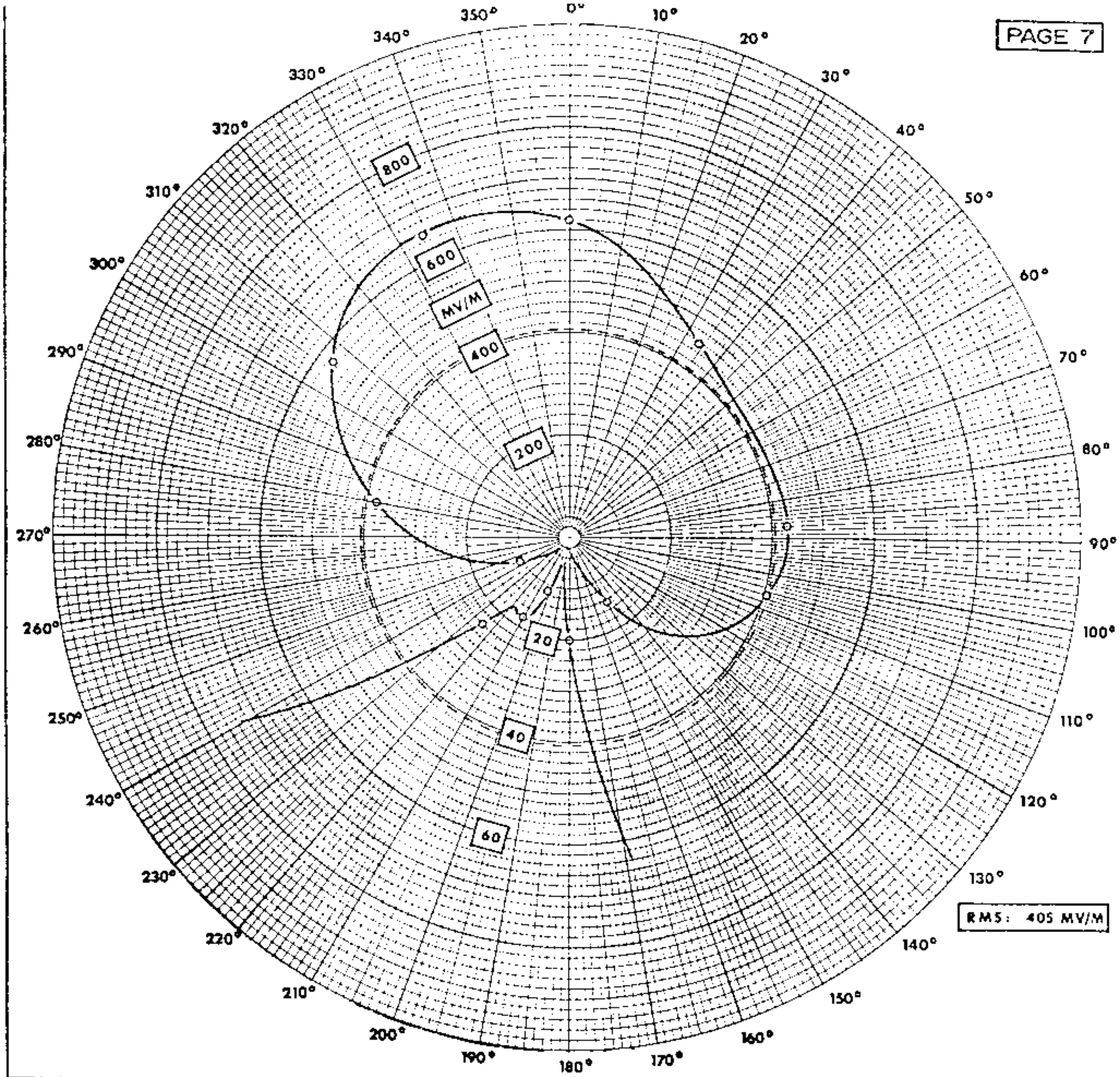
KIDO, Boise, Idaho 630 kc

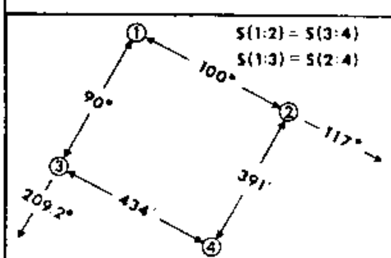
KMAC

Measured Day
(10-28-68ct)

Station KMAC
San Antonio, Texas

5kw,DA-2,U
630 kc





North Latitude 29° 23' 24"
West Longitude 98° 21' 00"

Ant.	Theo.	Meas.
1	0.296/234°	0.229/235°
2	1.0/0°	1.0/0°
3	0.266/312°	0.367/315°
4	1.0/90°	0.431/93.5°

G(1,2,3) = 68° - 295'

G(4) = 115° - 510'

MEASURED DAYTIME PATTERN
KMAC - SAN ANTONIO, TEXAS
630 KC - 5 KW - DA-2

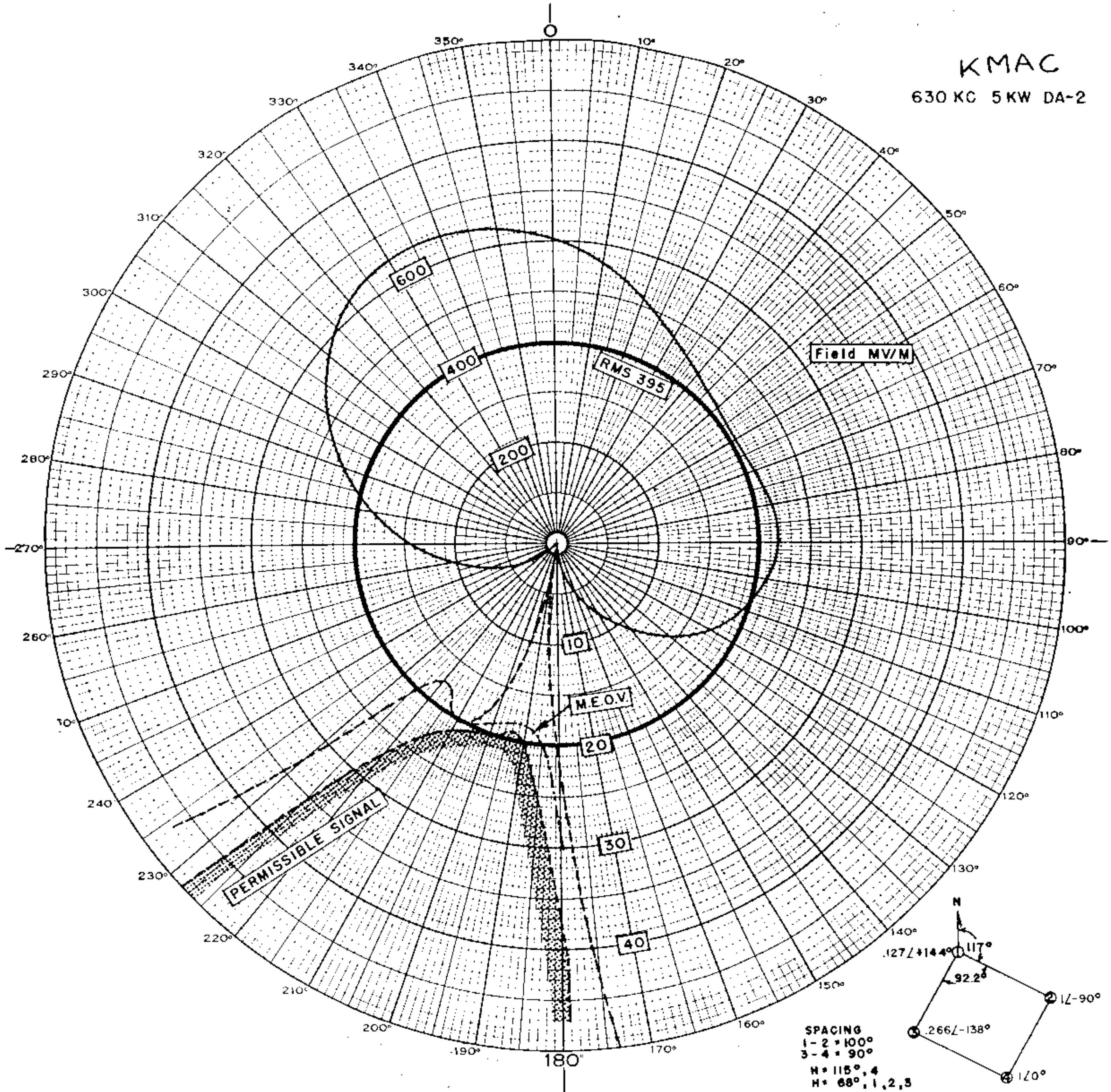
MARCH, 1968

GAUTNEY & JONES—CONSULTING ENGINEERS

FCC File No.BZ-6959
Accepted 10-3-68

Station KMAC
San Antonio, Texas

630 kc



WALMAC COMPANY **SAN ANTONIO, TEXAS**	FIGURE 1 SERIES 471009 P
	630 KC 5000 WATTS DAY
PROPOSED DIRECTIONAL ANTENNA PATTERN	**FRANK H. McINTOSH** *Consulting Radio Engineer* Washington, D. C.

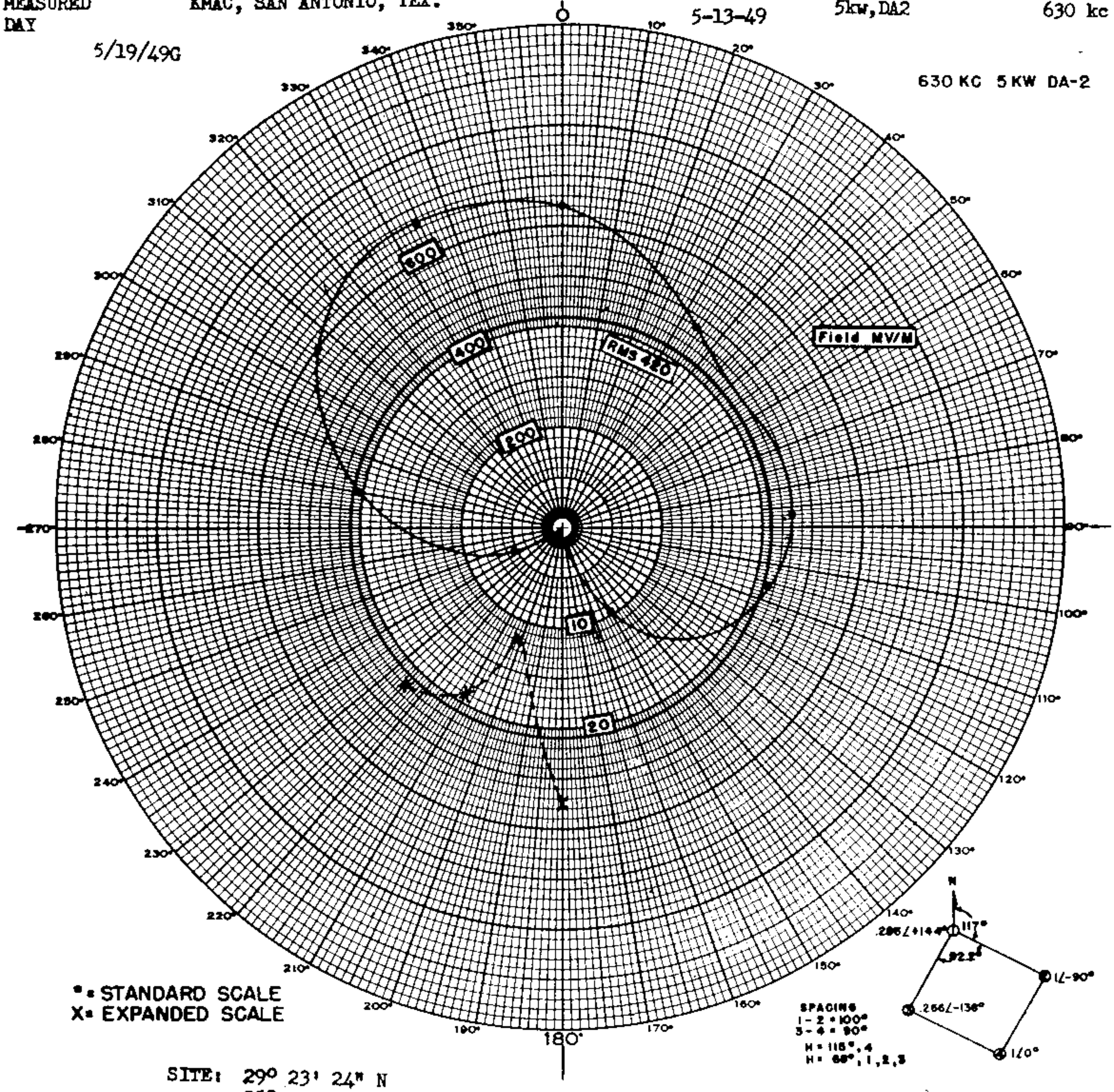
KMAC

MEASURED
DAY

KMAC, SAN ANTONIO, TEX. 5-13-49 5kw,DA2 630 kc

5/19/49G

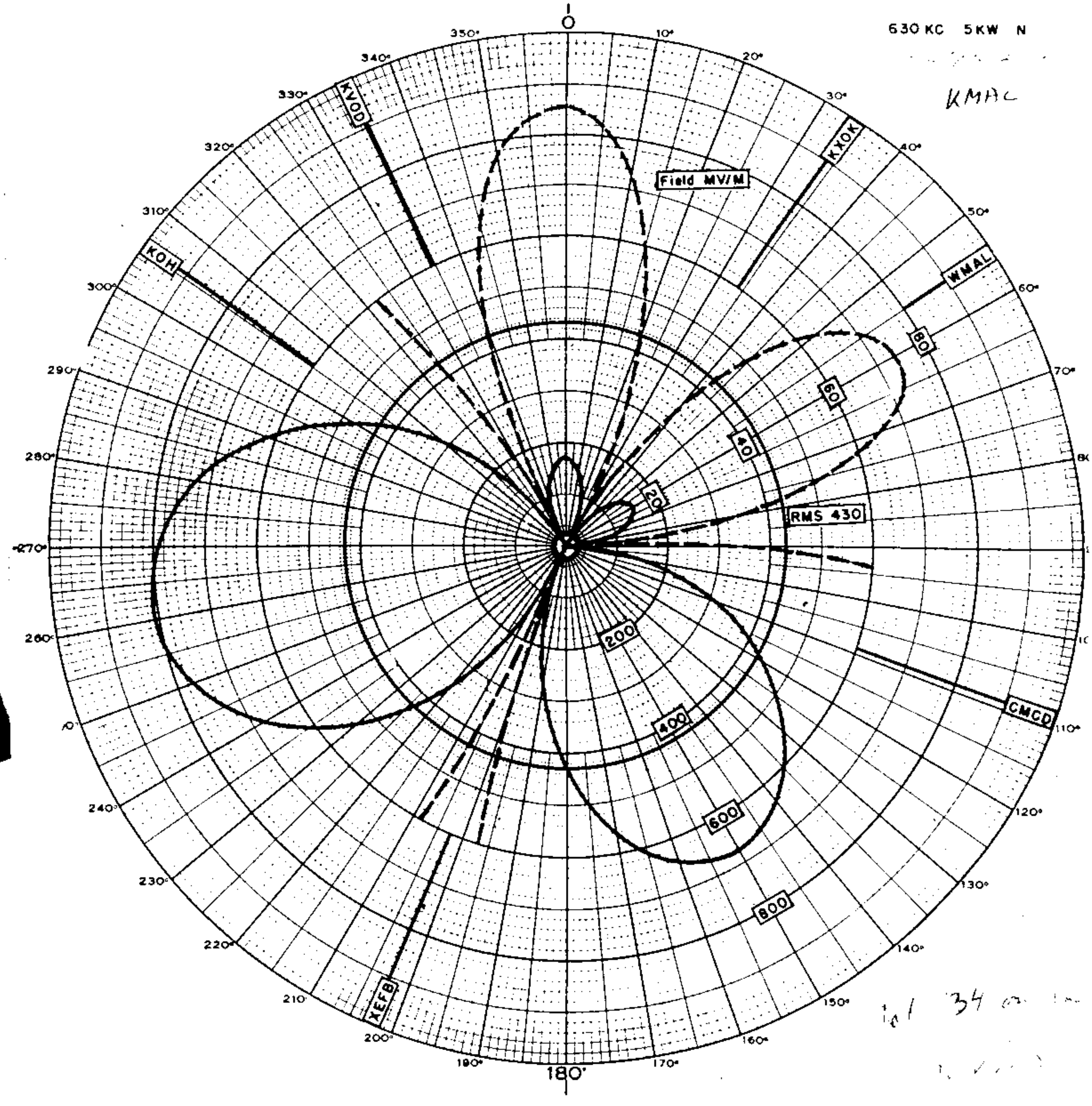
630 KC 5 KW DA-2



• = STANDARD SCALE
X = EXPANDED SCALE

SITE: 29° 23' 24" N
98° 21' 00" W

STATION KMAC SAN ANTONIO, TEXAS	FIGURE 6A SERIES C490505 630 KC 5000 WATTS DAY
MEASURED DIRECTIONAL ANTENNA PATTERN	FRANK H. McINTOSH *Consulting Radio Engineer* Washington, D. C.



WALMAC COMPANY
SAN ANTONIO, TEXAS

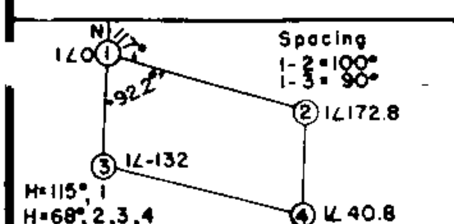
Exhibit E I

Series 461122

630 KC

5000 WATTS

NIGHT



PROPOSED DIRECTIONAL

ANTENNA PATTERN

FRANK H. McINTOSH

Consulting Radio Engineer

Washington, D.C.

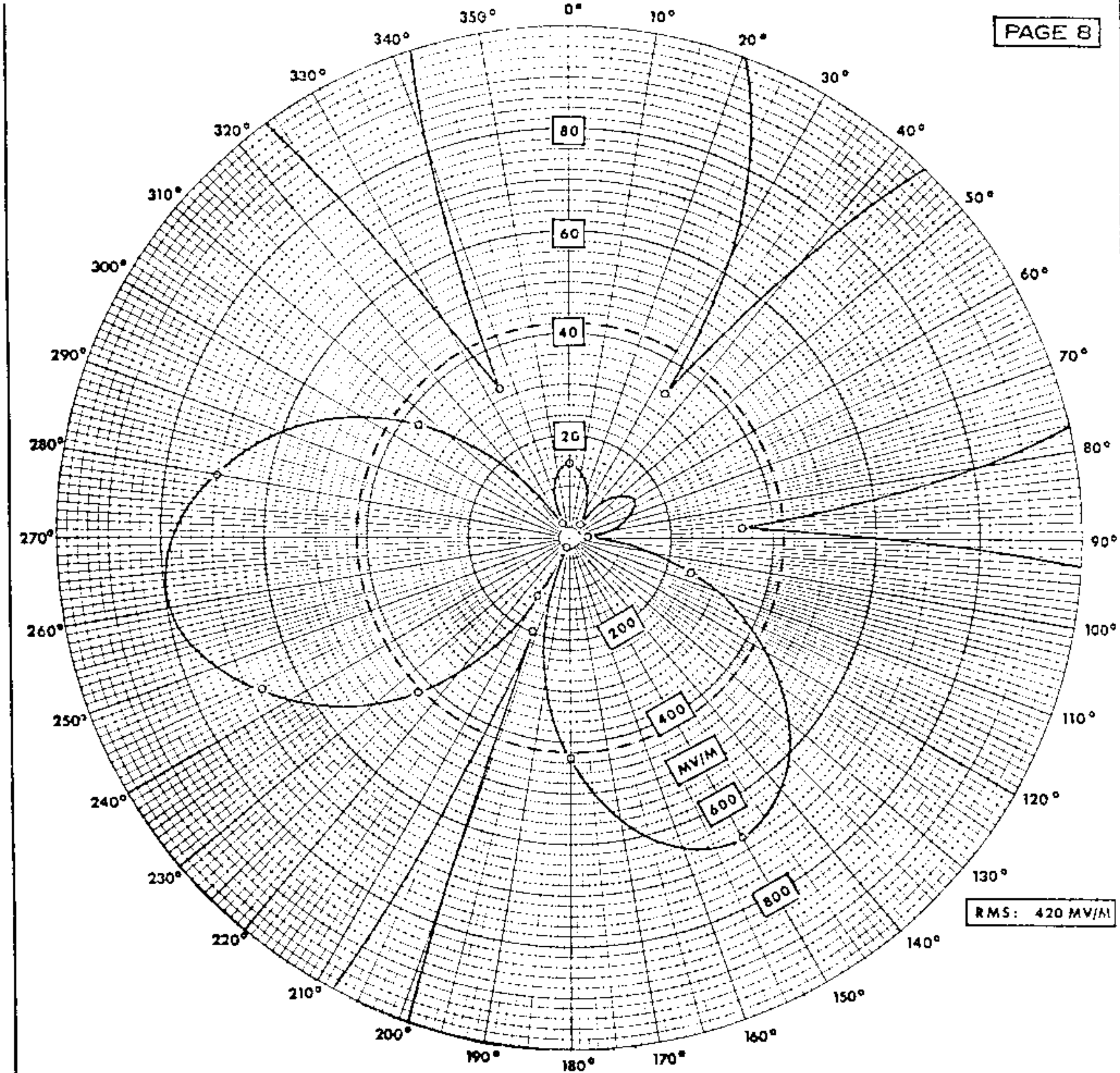
KMAC

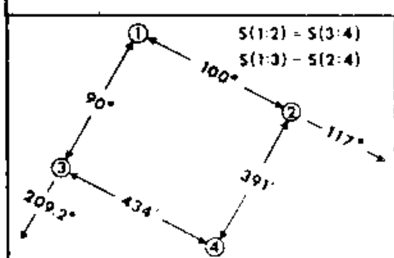
Measured Night
(10-28-68ct)

Station KMAC
San Antonio, Texas

5kw, DA-2, U
630 kc

PAGE 8





Ant.	Theo.	Meas.
1	1.0/0°	1.0/0°
2	1.0/172.8°	0.944/176°
3	1.0/228°	1.056/232°
4	1.0/40.8°	0.368/46°
G(1,2,3) = 68° = 295'		
G(4) = 115° = 510'		

North Latitude 29° 23' 24"
West Longitude 98° 21' 00"

MEASURED NIGHTTIME PATTERN
KMAC - SAN ANTONIO, TEXAS
630 KC - 5 KW - DA-2

MARCH, 1968

GAUTNEY & JONES—CONSULTING ENGINEERS

FCC File No. BZ-6959
Accepted 10-3-68

Station KMAC
San Antonio, Texas

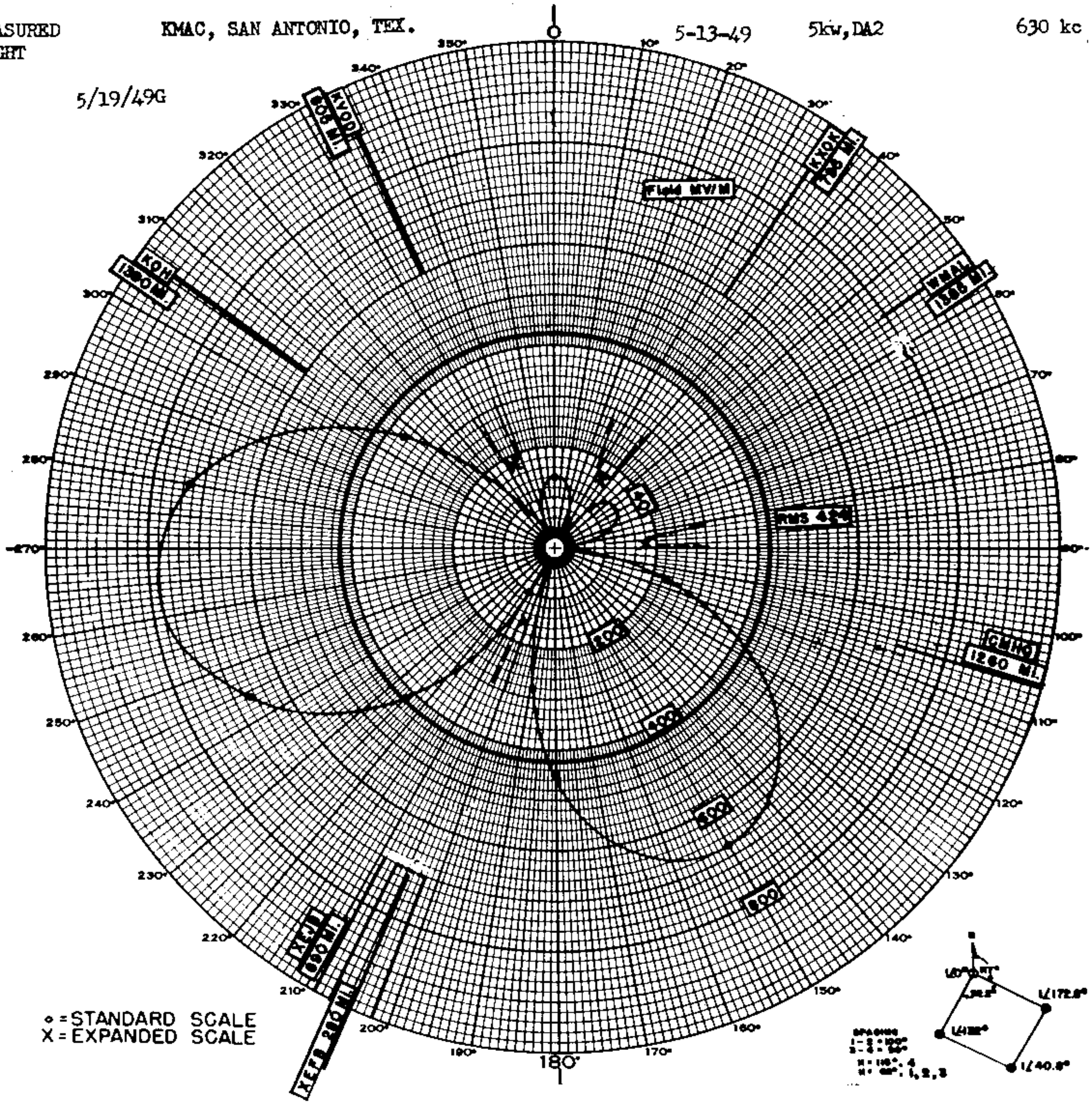
630 kc

KMAC

MEASURED
NIGHT

KMAC, SAN ANTONIO, TEX. 5-13-49 5kw,DA2 630 kc

5/19/49G



STATION KMAC SAN ANTONIO, TEXAS		FIGURE 68 SERIES C490506
SITE: 29° 23' 24" N 98° 21' 00" W	MEASURED DIRECTIONAL ANTENNA PATTERN	.630 KC 5000 WATTS NIGHT
		FRANK H. McINTOSH *Consulting Radio Engineer* Washington, D. C.

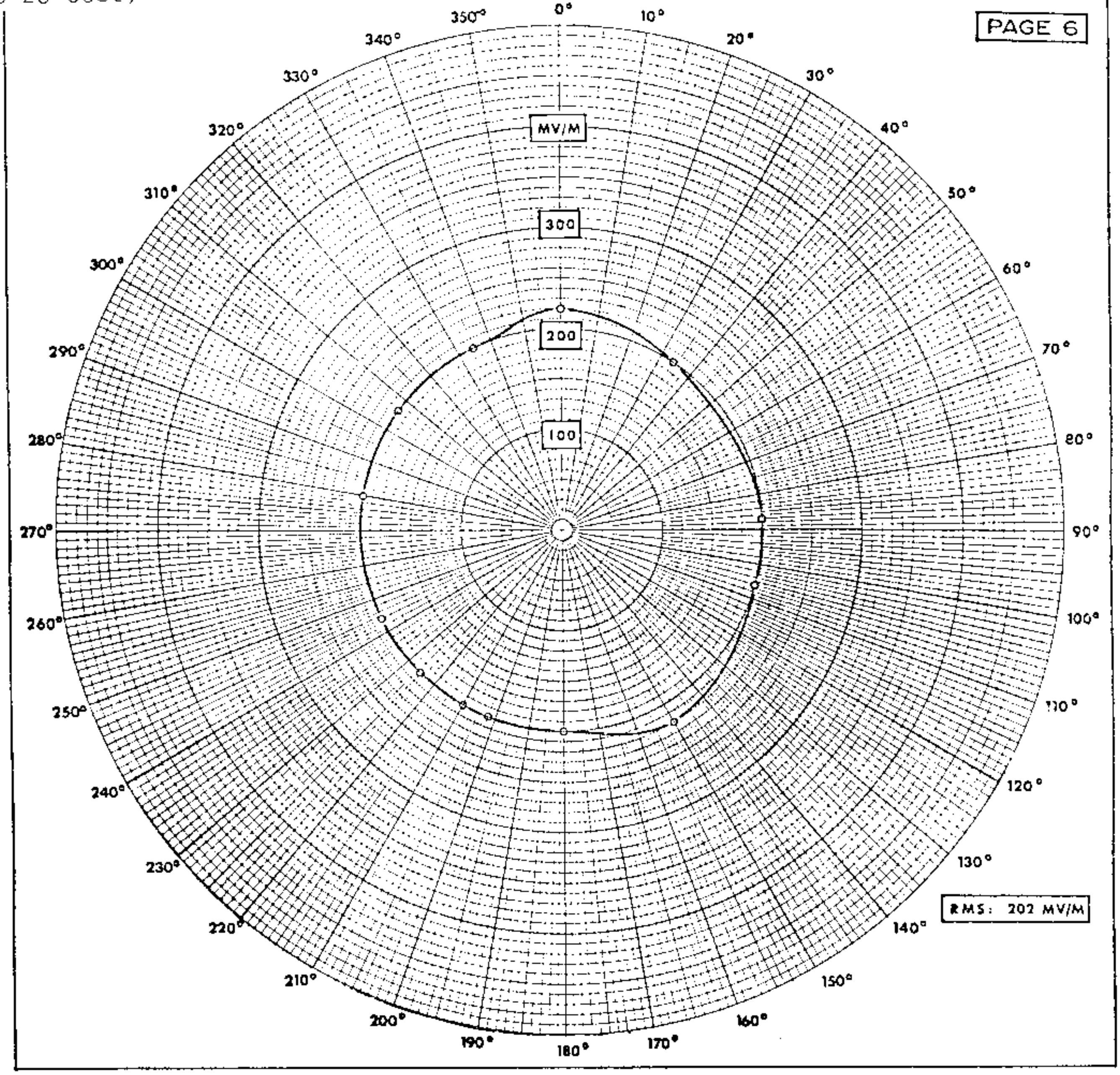
KMAC

Measured Non-DA
(10-28-68ct)

Station KMAC
San Antonio, Texas

5kw,DA-2,U
630 kc

PAGE 6



MEASURED 1 KW NON-DIRECTIONAL PATTERN
KMAC - SAN ANTONIO, TEXAS
630 KC - 5 KW - DA-2

MARCH, 1968

GAUTNEY & JONES—CONSULTING ENGINEERS

FCC File No.BZ-6959
Accepted 10-3-68

Station KMAC
San Antonio, Texas

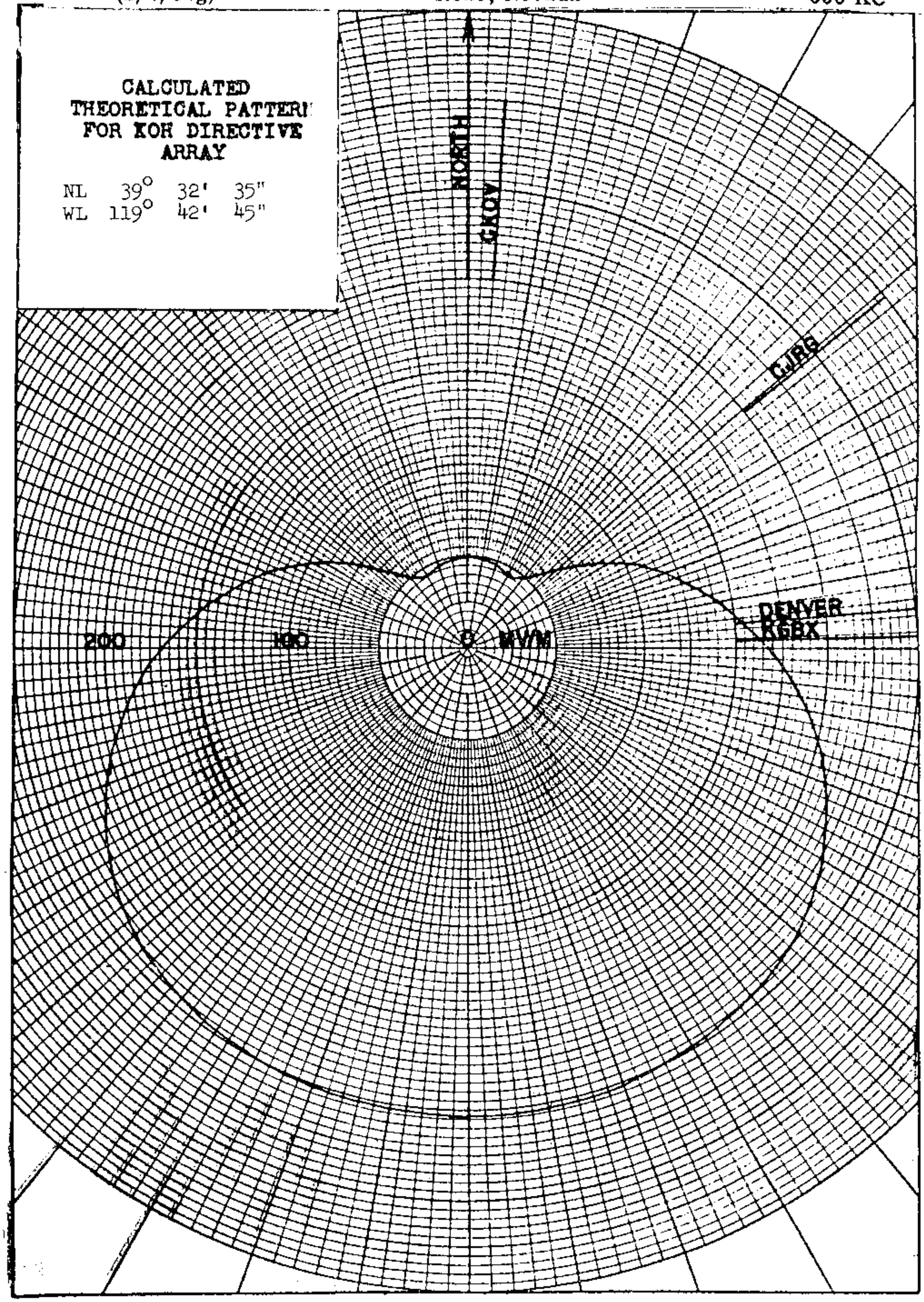
630 kc

KOH

PROPOSED NIGHT
(2/7/57g)

Station KOH
Reno, Nevada

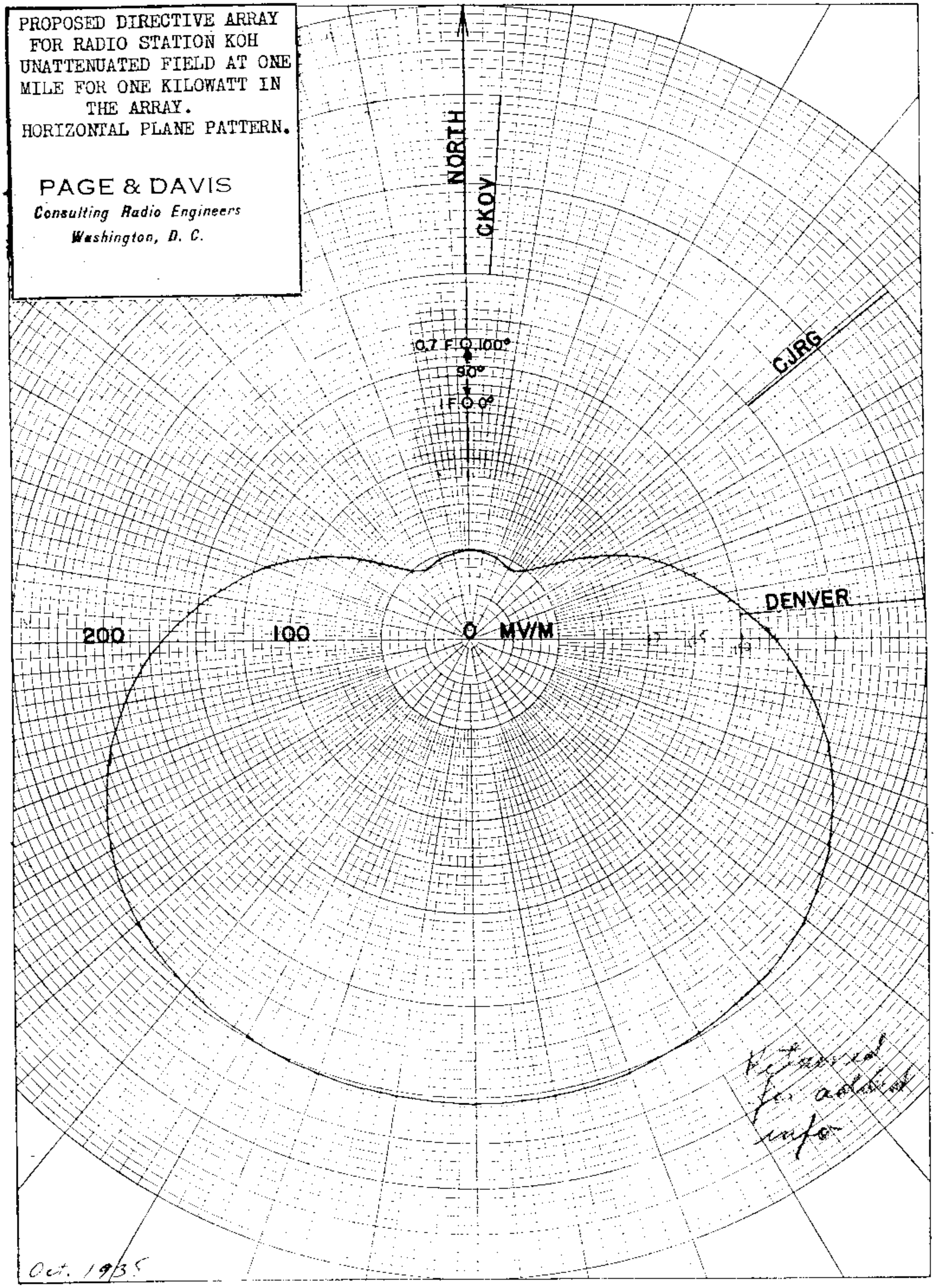
1kw,5kw-LS, DA-N,U
630 KC



KOH
Reno, Nevada

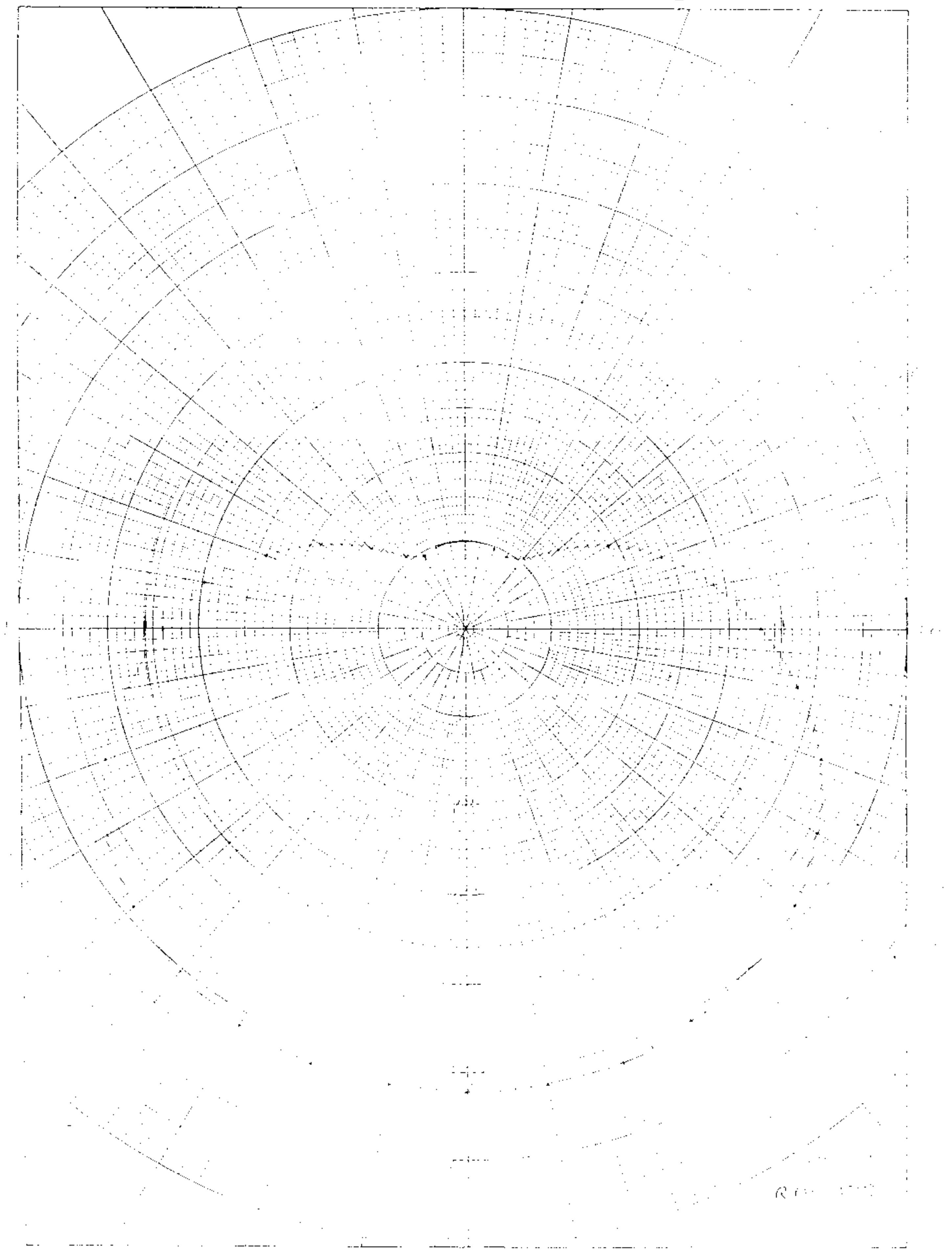
630 KC

KOH

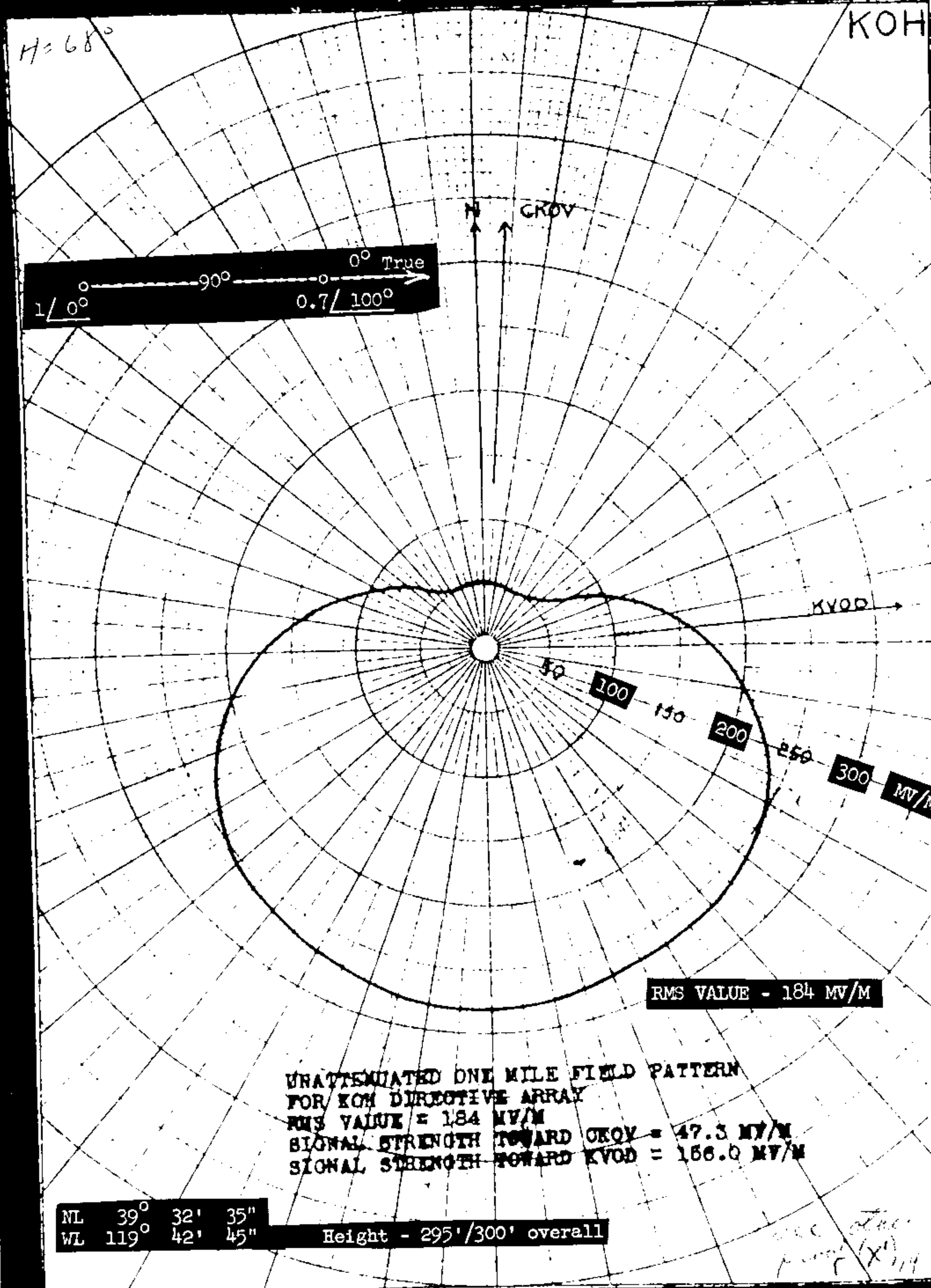


PROPOSED DIRECTIVE ARRAY
FOR RADIO STATION KOH
UNATTENUATED FIELD AT ONE
MILE FOR ONE KILOWATT IN
THE ARRAY.
HORIZONTAL PLANE PATTERN.
PAGE & DAVIS
Consulting Radio Engineers
Washington, D. C.
NORTH
CKOV
CJRG
0.7 F 100°
90°
1 F 0°
DENVER
200
100
0
MV/M
Oct. 1935

valid

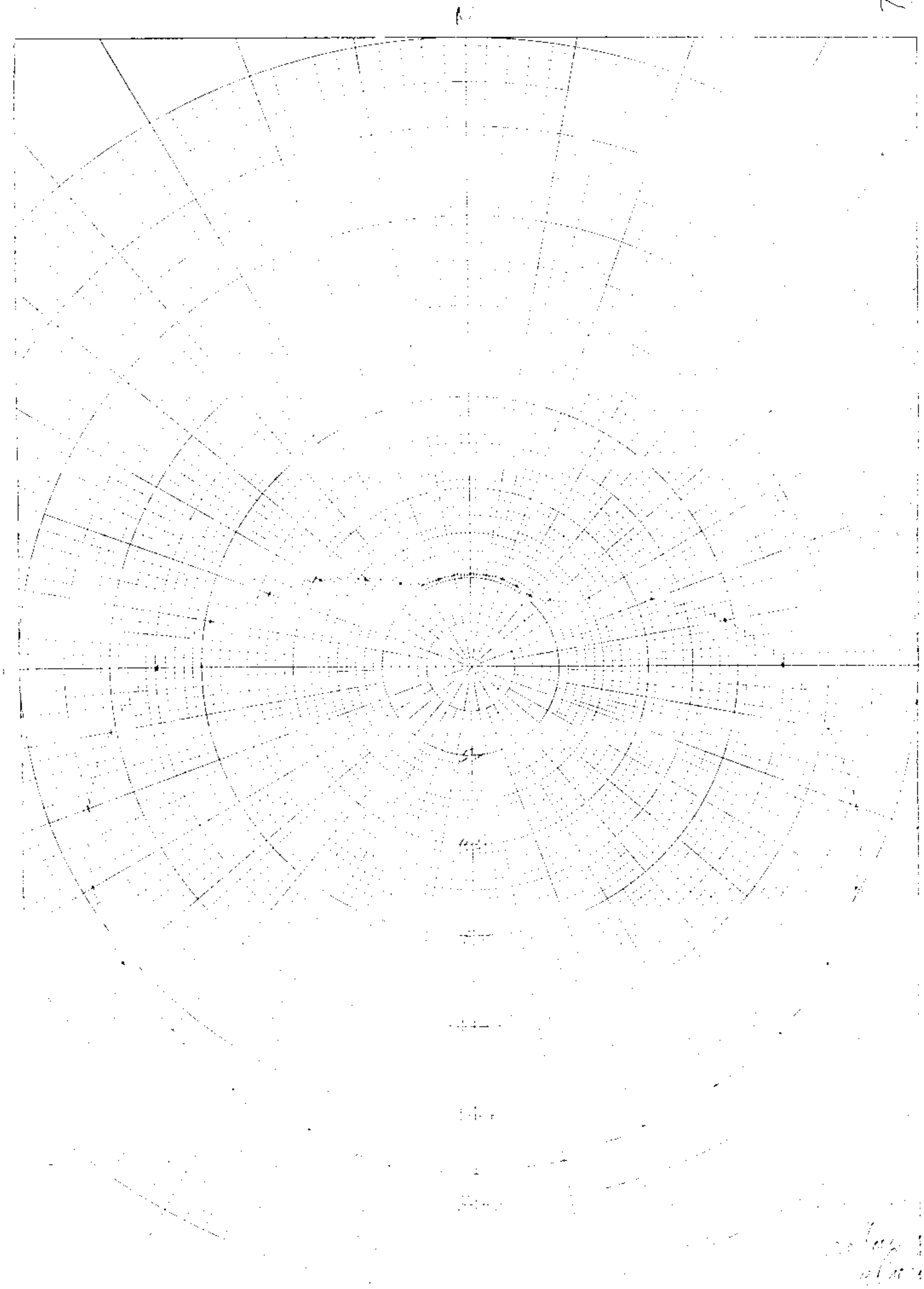


MEASURED NIGHT Station KOH 1kw,5kw-LS, DA-N,U
Reno,Nevada 630 KC



PROOF - AUGUST 1940 - NORMAN WEBSTER

KOH



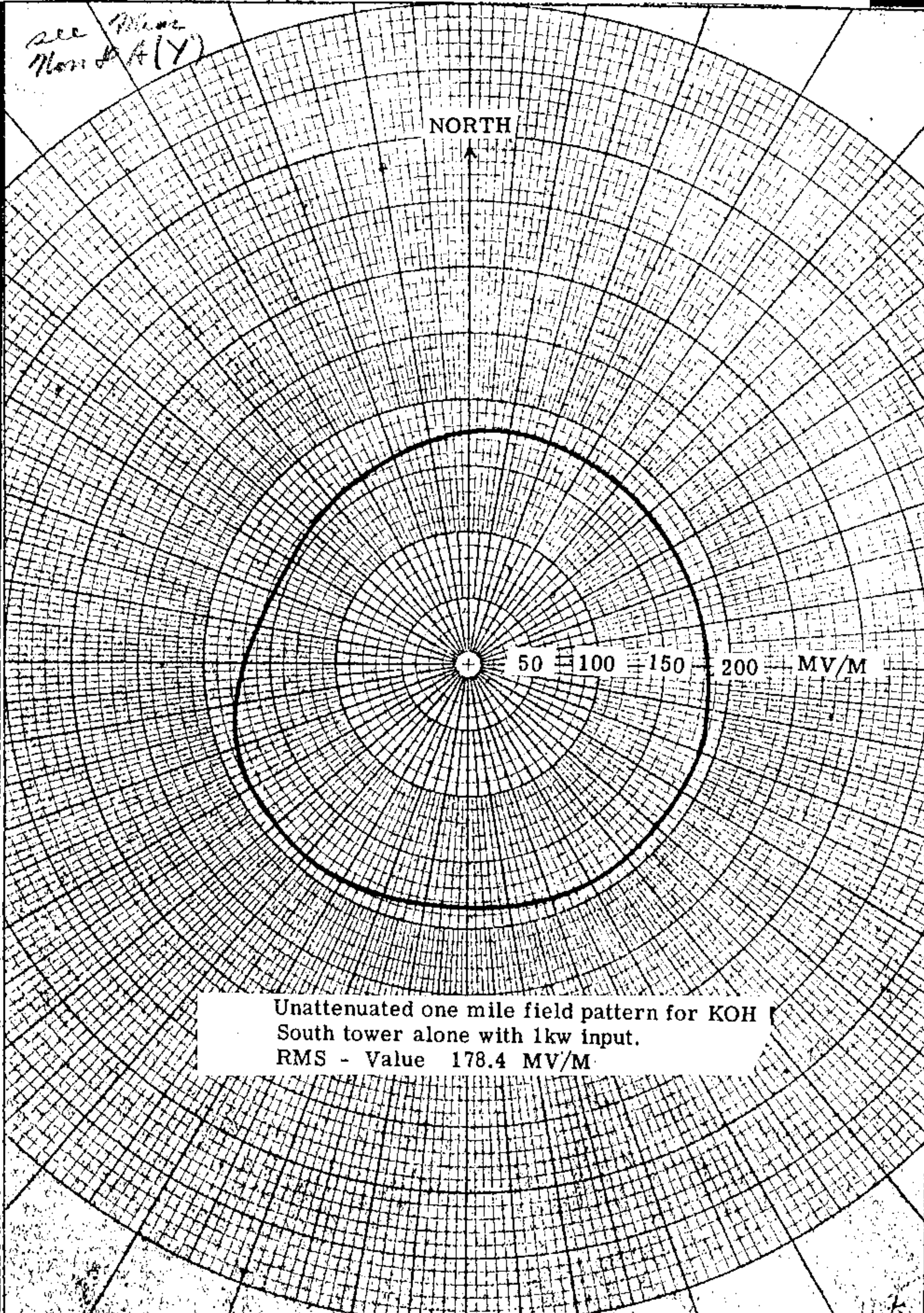
IX'

KOH

MEASURED NON-DA
(2/7/57g)

Station KOH
Reno, Nevada

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



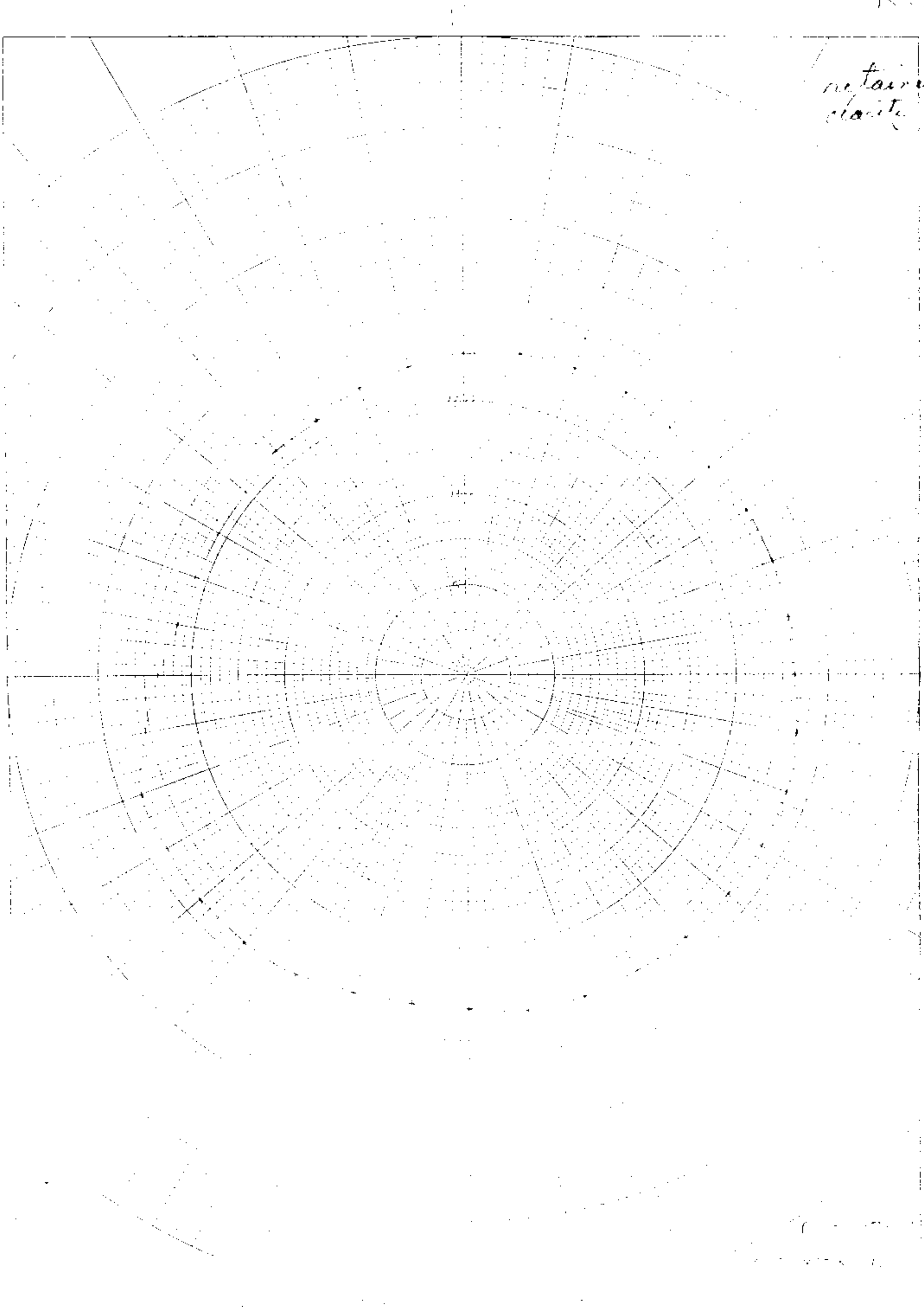
Unattenuated one mile field pattern for KOH
South tower alone with 1kw input.
RMS - Value 178.4 MV/M

71

KOH
Reno, Nevada
630 KC

K 0 11

retained for clarity



KEUFFEL & ESSER CO. N.Y. NO. 358A
POLAR CO-ORDINATE
MADE IN U.S.A.

Y'

KSXX

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station : KSXX   Main Studio: Sandy, Utah

Frequency : 630 KHz   Power : 0.5 kW Night 1 kW Day

Notification : 1780   Date : Sept. 28, 1979   Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 40 41 35
West Longitude: 111 55 26

ANTENNA CHARACTERISTICS

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

TOWER :	C(#1)	NW(#2)	E(#3)	SE(#4)		
HEIGHT ABOVE INSULATORS :	400'	400'	400'	400'	(92.27°)	
NIGHT PHASING :	0.0°	110.0°	29.0°	143.0°		
NIGHT FIELD RATIO:	1.0	1.2	0.9	1.1		
DAY PHASING :	+100.0°		0°			
DAY FIELD RATIO :	1.4		1.0			

SPACING AND ORIENTATION : With the center (#1) tower as reference, the NW (#2) is spaced 355.6' (82°) a line bearing 290° true, the east (#3) tower is spaced 346.9' (80°) on a line bearing 90° true, the SE(#4) tower is spaced 693.9' (160°) on a line bearing 100° true.

GROUND SYSTEM : 120 - 390 equally spaced copper radials about each tower. Radials are shortened and bonded to a transverse straps along intersections between towers.

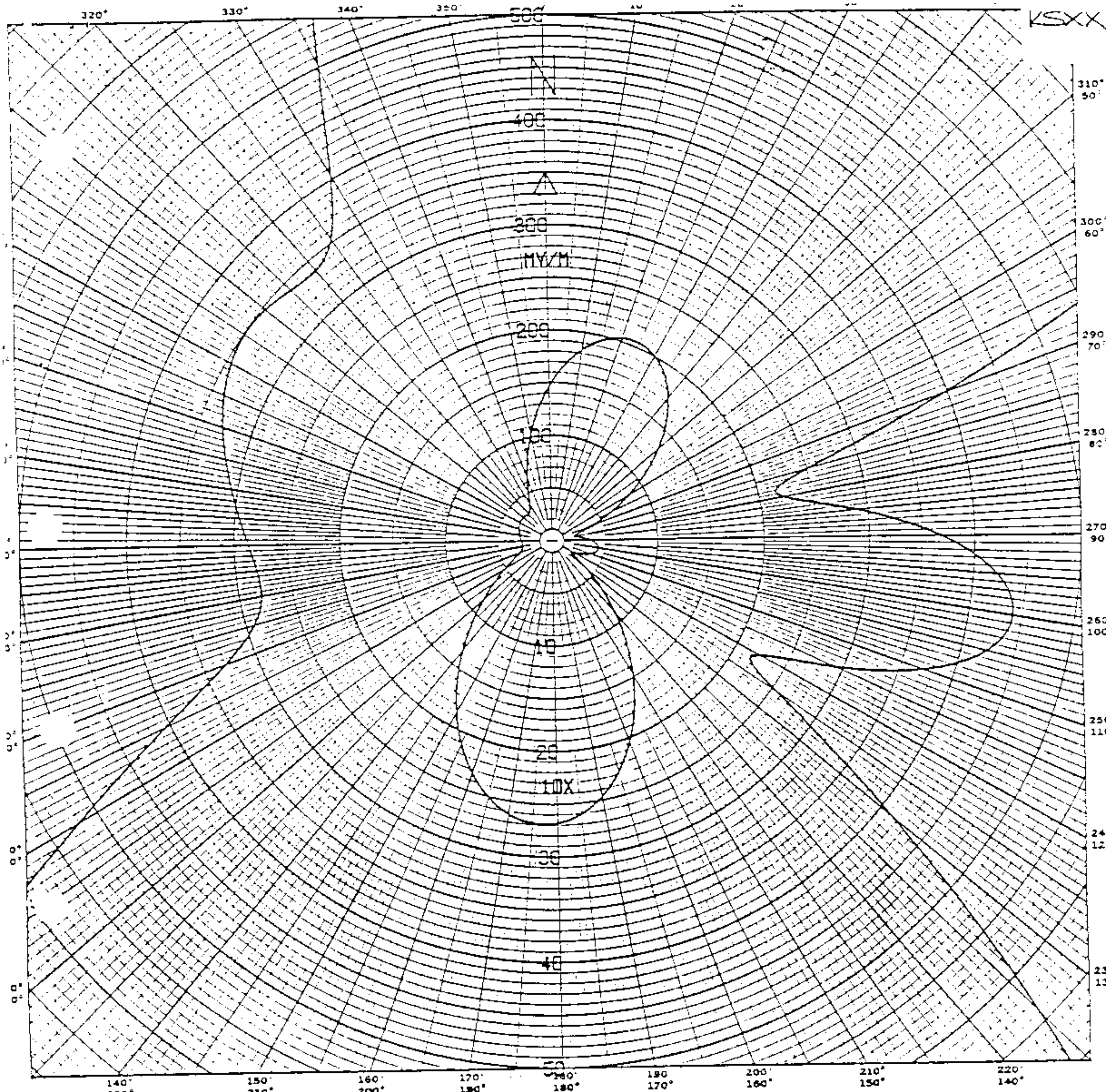
KSXX

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day 1/	180 mV/m	______ mV/m	______ mV/m
Night 1/	124.377 mV/m	197.9646 mV/m	130.748 mV/m

1/ By adjustment of input power.

KSXX

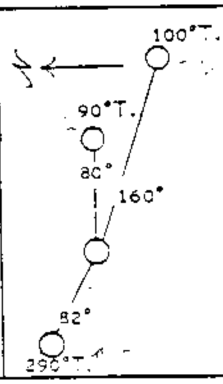


HATFIELD & DAWSON
CONSULTING ELECTRICAL ENGINEERS
3525 STONE WAY N.
SEATTLE, WASHINGTON 98103

RADIO STATION KSXX

SANDY, UTAH

10/79 FIGURE E-



PROPOSED NIGHTIME DIRECTIONAL ANTENNA 630 KHZ.
0.5 KW. DA-N HORIZONTAL PLANE STANDARD PATTERN
RMSTHEO = 124.3774 MV/M RMSSTD = 130.7482MV/M
RSS = 197.9646 MV/M K = 93.7390 MV/M

#	F	ψ	S	θ
1	1.0	0.00	0.00	0.00
2	1.2	110.00	82.00	290.00
3	0.9	29.00	160.00	100.00
4	1.1	143.00	80.00	90.00

G = 92.27°
FOR ALL ELEMENTS

SITE: 40 41 35 NL X 111 55 26 WL

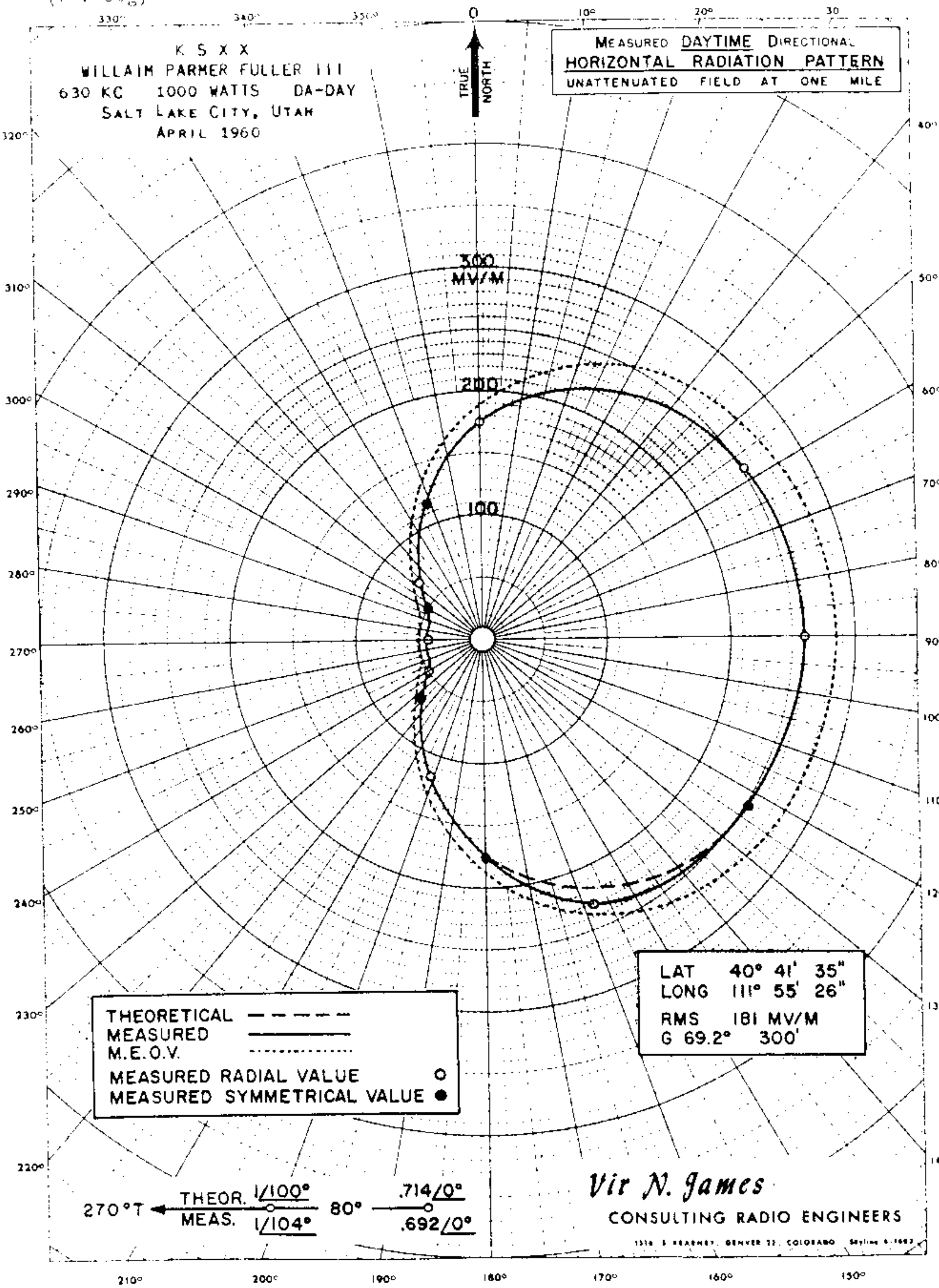
KSXX

MEASURED DAY
(7-7-60g)

Station KSXX
Salt Lake City, Utah

1kw, DA-D,D
630 KC

[illegible] 10-4-60



FCC File No. BL-7950
Accepted 7-1-60

KSXX
Salt Lake City, Utah

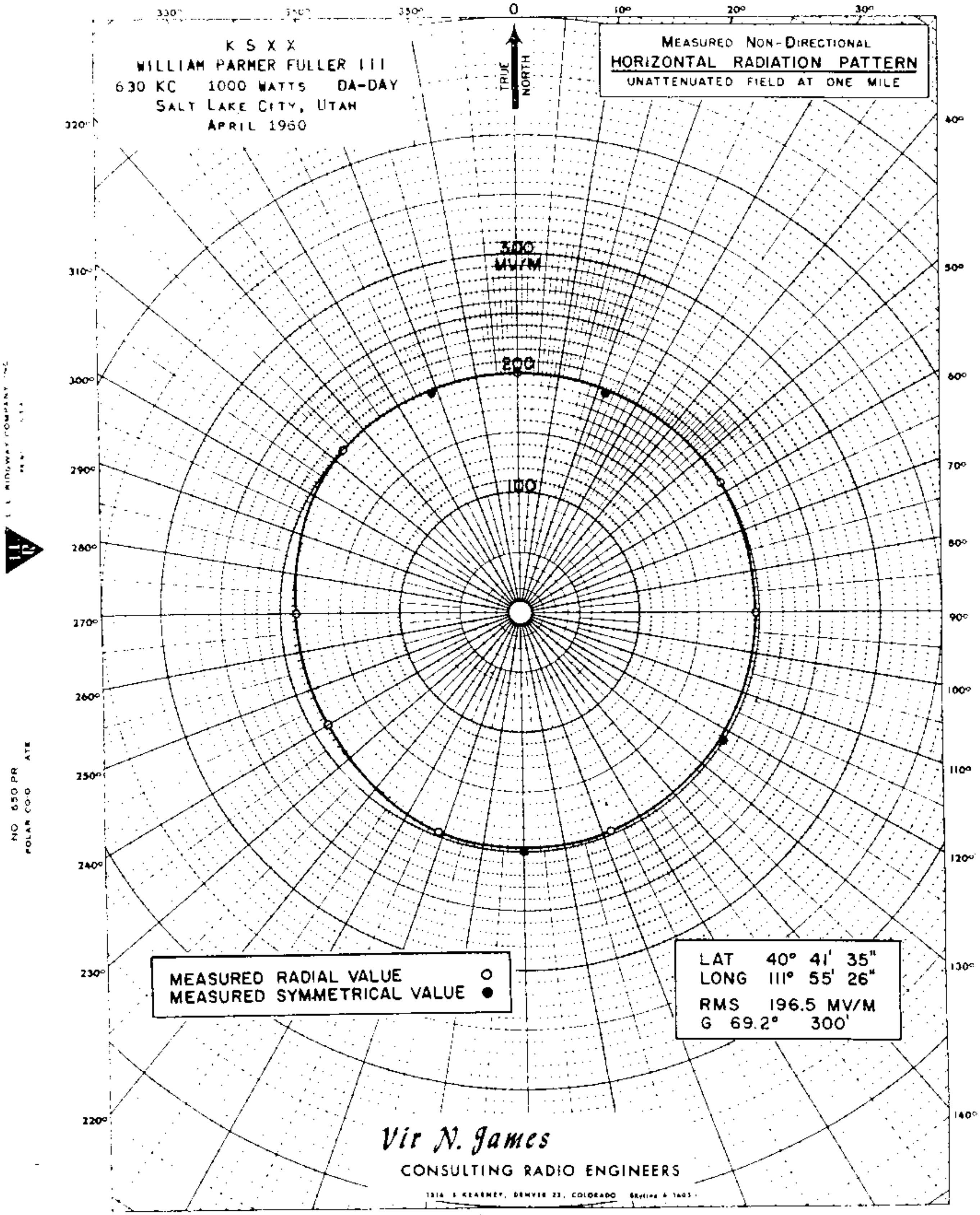
630 KC

KSXX

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

Station KSXX
Salt Lake City, Utah

1kw, DA-D,D
630 KC



FCC File No. BL-7590
Accepted 7-1-60

KSXX
Salt Lake City, Utah

630 KC

Salt Lake City, Utah

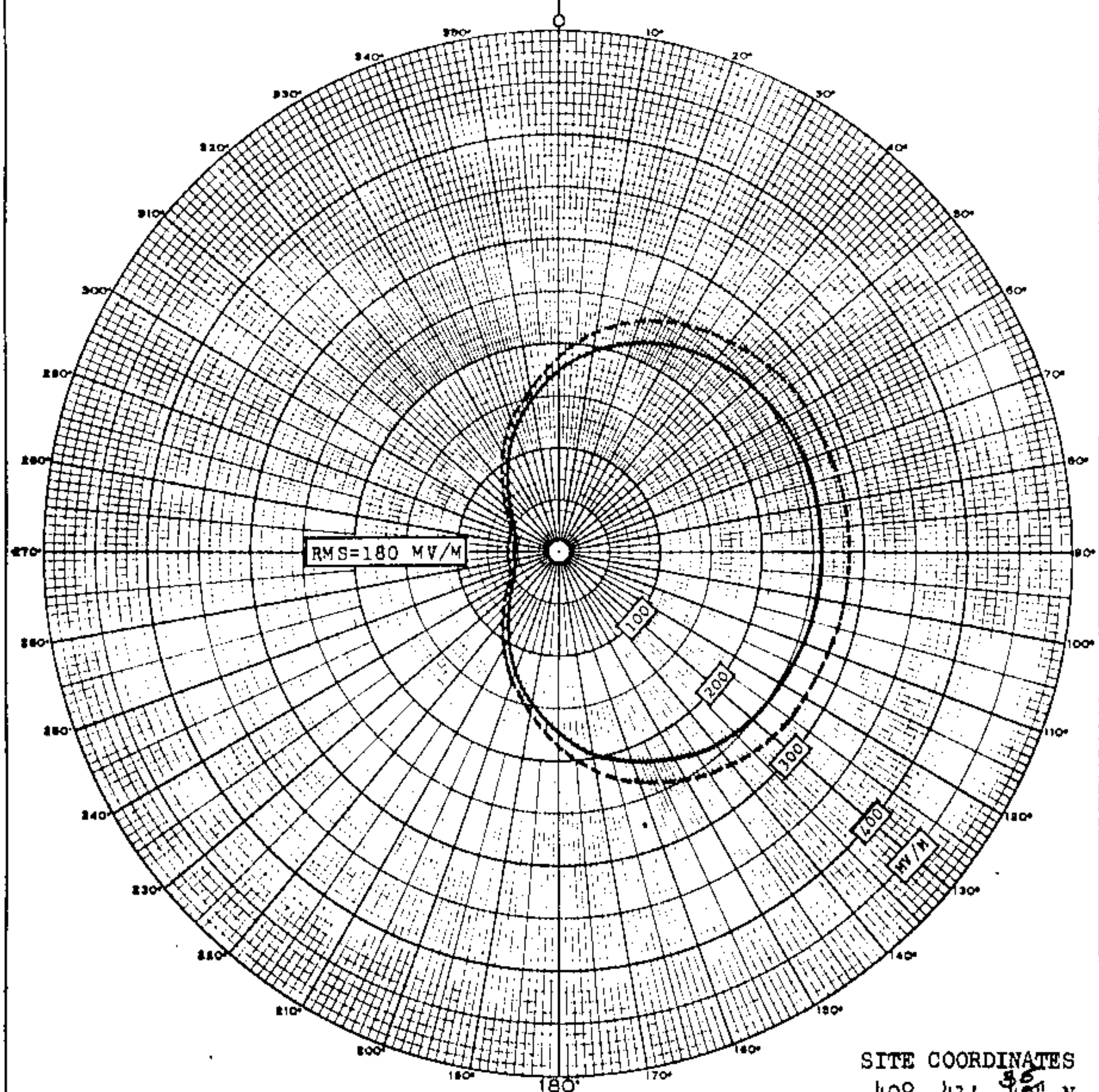
KSXX

granted CP 10-27-59- for New station

PROPOSED DAY (1-10-58g)

New; William Parmer Fuller, III
Salt Lake City, Utah

1kw, DA-D,D
630 KC



--- MEOV

SITE COORDINATES
40° 41' ~~16~~ 55" N
111° 55' ~~34~~ 26" W

PROPOSED HORIZONTAL PLANE RADIATION PATTERN

G = 69.2° 270° TRUE 1.4 100° — 80° — 1.0 0°	WILLIAM PARMER FULLER, III SALT LAKE CITY, UTAH VANDIVERE, COHEN and WEARN CONSULTING ELECTRONIC ENGINEERS	PROPOSED OPERATION 630 KC 1 KW D DA NOVEMBER, 1957

FCC File No. BP-11,727
Accepted 12-30-57

William Parmer Fuller, III
Salt Lake City, Utah

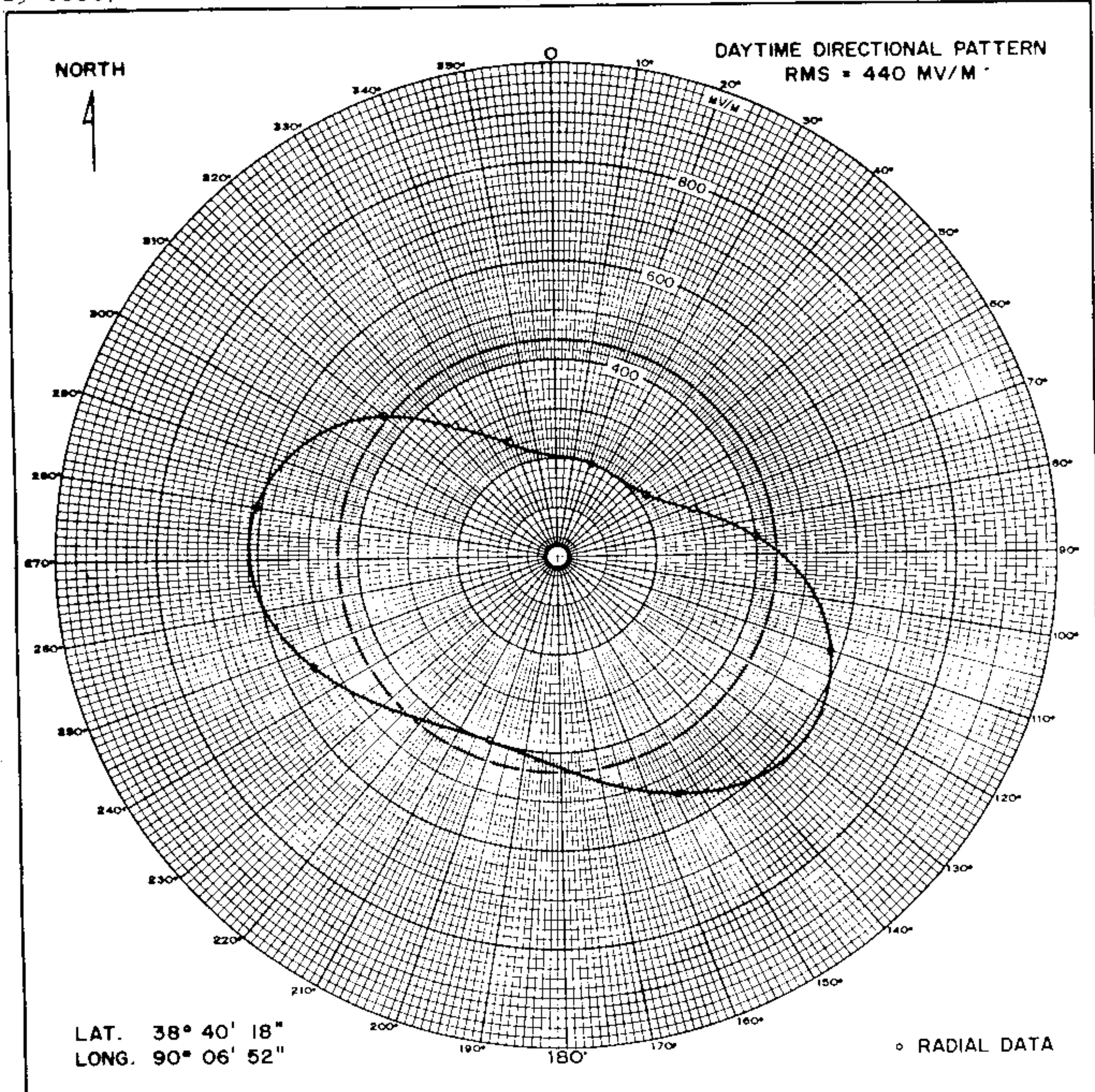
630 KC

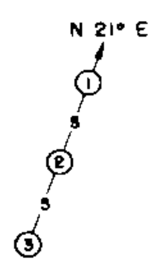
KXOK

Measured Day
(4-29-68ct)

Station KXOK
St. Louis, Missouri

5kw,DA-2,U
630 kc





S = 390' = 90°
G = 390' = 90°

ANTENNA PARAMETERS

	THEORETICAL		OBSERVED	
TOWER	FIELD	PHASE	FIELD	PHASE
1 (N)	1.00	64.8°	0.942	54.0°
2 (C)	1.00	0.0°	1.000	0.0°
3 (S)	1.00	29.8°	0.981	24.0°

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

RADIO STATION KXOK
630 KC 5.0 KW DA-2
680212 FIGURE 2A

FCC File No.BZ-6776
Accepted 4-10-68

Station KXOK
St. Louis, Missouri

630 kc

KXOK

Measured Night
(4-29-68ct)

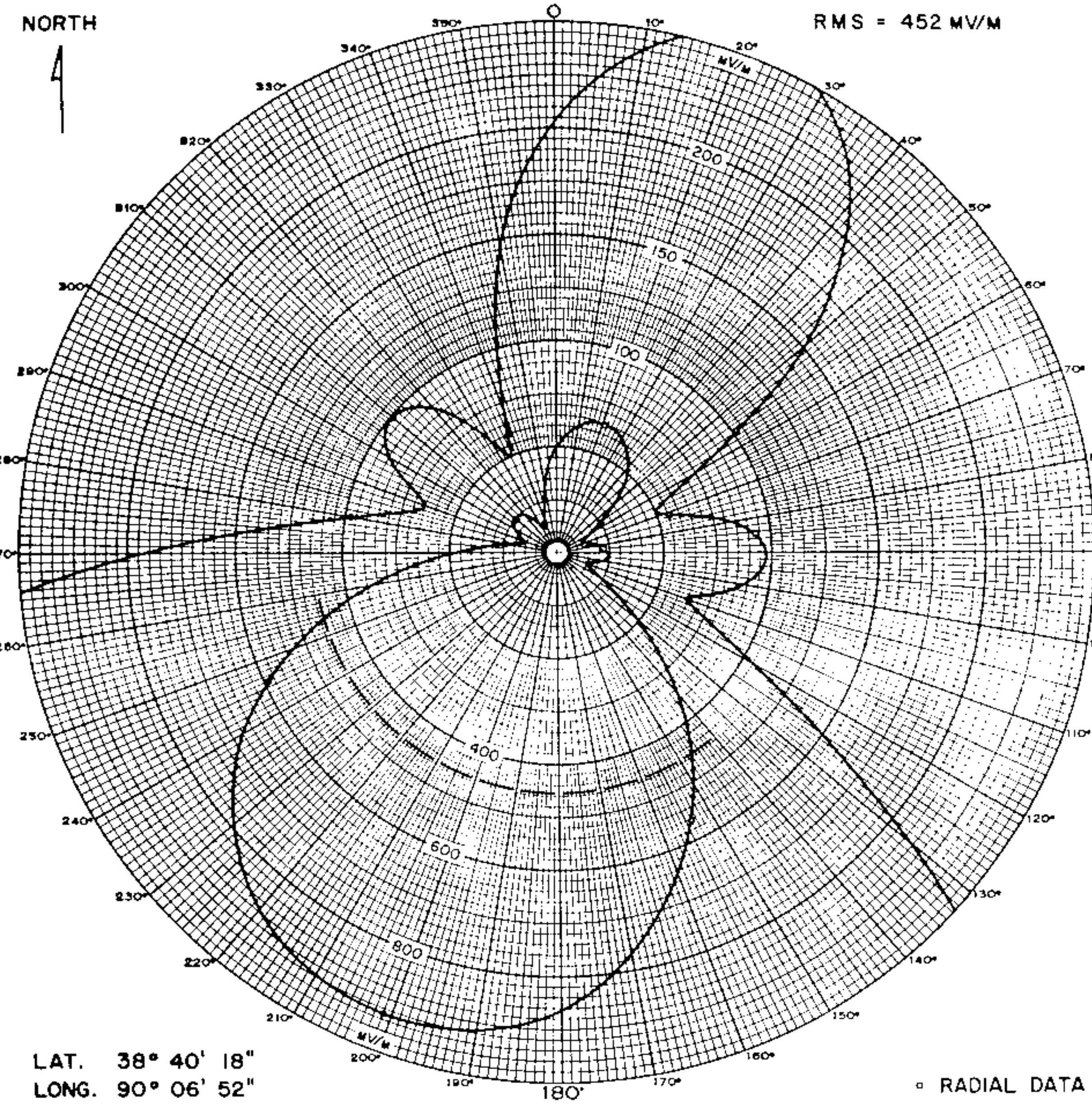
Station KXOK
St. Louis, Missouri

5kw,DA-2,U
630 kc

NIGHTTIME DIRECTIONAL PATTERN

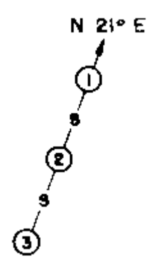
RMS = 452 MV/M

NORTH



LAT. 38° 40' 18"
LONG. 90° 06' 52"

▫ RADIAL DATA



S = 390' = 90°
G = 390' = 90°

ANTENNA PARAMETERS

TOWER	THEORETICAL FIELD	THEORETICAL PHASE	OBSERVED FIELD	OBSERVED PHASE
1 (N)	0.75	150.0°	0.722	149.0°
2 (C)	1.00	0.0°	1.000	0.0°
3 (S)	0.46	-150.0°	0.515	-162.0°

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

RADIO STATION KXOK
630 KC 5.0 KW DA-2
680212 FIGURE 2B

FCC File No.BZ-6776
Accepted 4-10-68

Station KXOK
St. Louis, Missouri

630 kc

KXOK

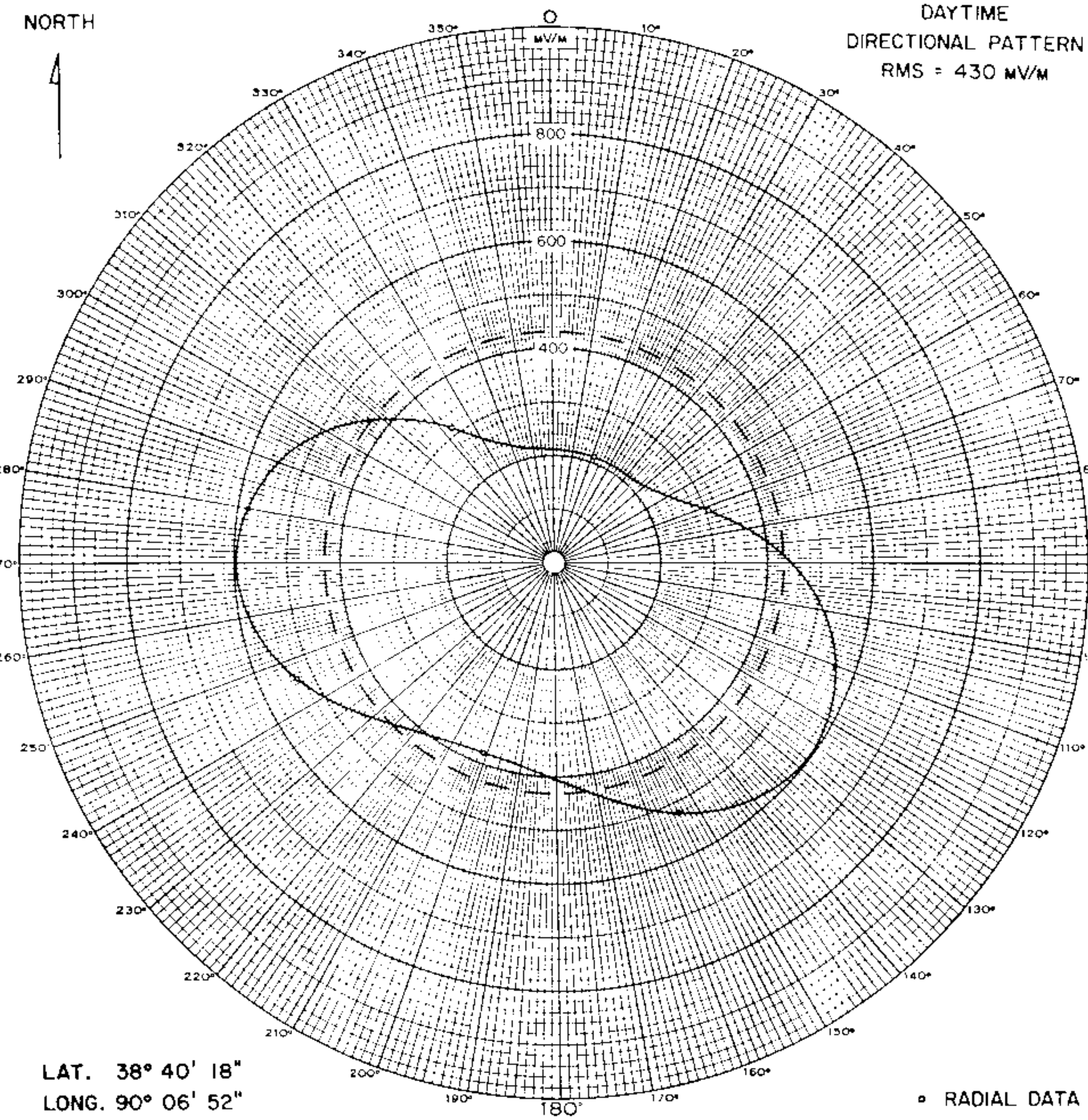
Measured Day
(2-28-69ct)

Station KXOK
St. Louis, Missouri

5kw, DA-2, U
630 kc

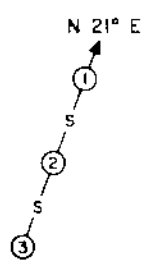
NORTH

DAYTIME
DIRECTIONAL PATTERN
RMS = 430 MV/M



LAT. 38° 40' 18"
LONG. 90° 06' 52"

∘ RADIAL DATA



S = 390' = 90°
G = 390' = 90°

ANTENNA PARAMETERS

TOWER	THEORETICAL FIELD	THEORETICAL PHASE	OBSERVED FIELD	OBSERVED PHASE
1 (N)	1.00	64.8°	0.800	76.0°
2 (C)	1.00	0.0°	1.000	0.0°
3 (S)	1.00	29.8	0.850	32.0°

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

RADIO STATION KXOK
630 kHz 5 kW DA-2
681102 FIGURE 2B

FCC File No. BZ-7089
Accepted 2-4-69

Station KXOK
St. Louis, Missouri

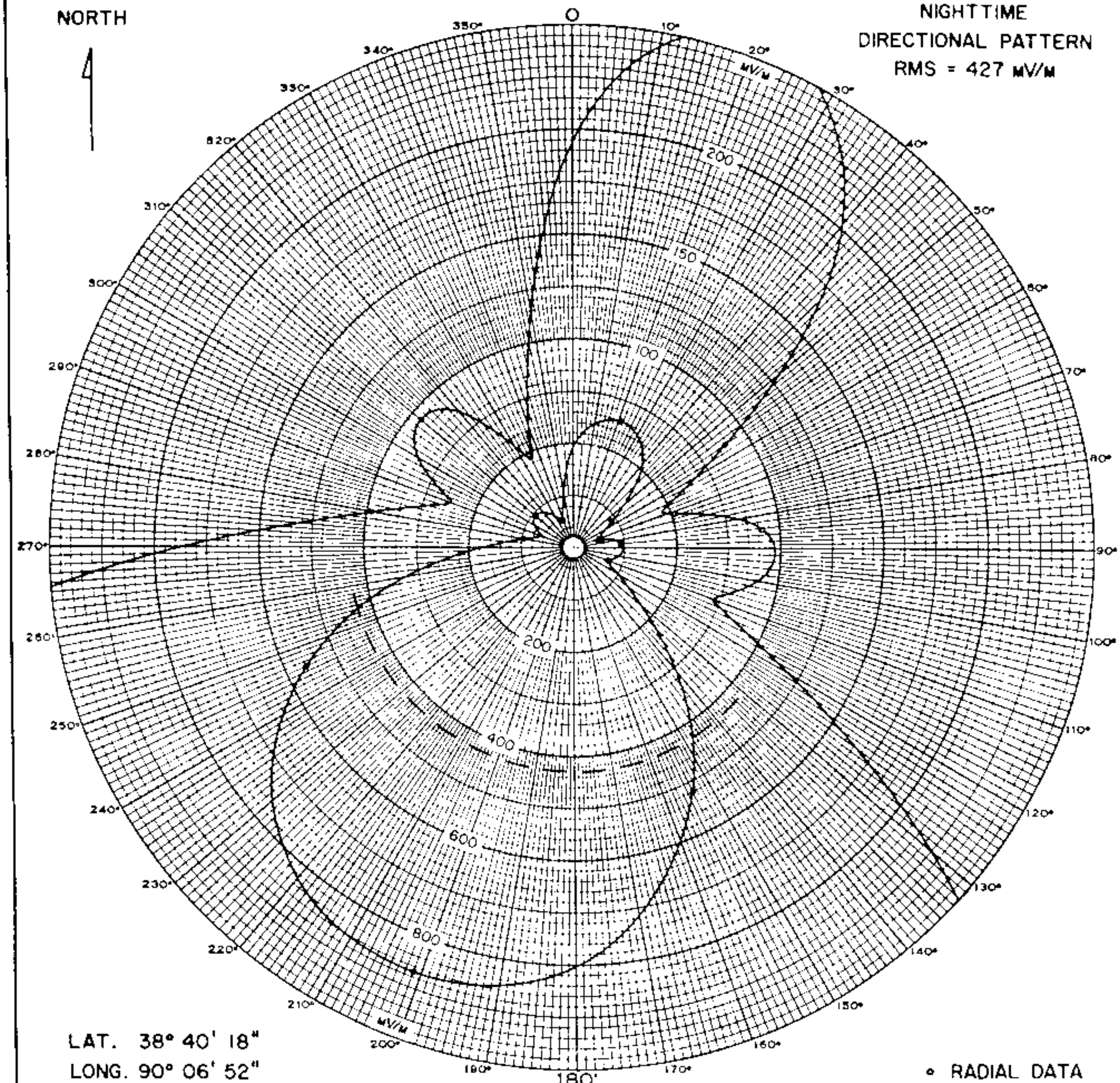
630 kc

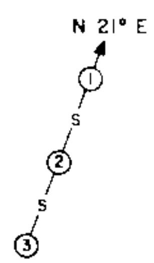
KXOK

Measured Night
(2-28-69ct)

Station KXOK
St. Louis, Missouri

5kw, DA-2, U
630 kc





ANTENNA PARAMETERS

TOWER	THEORETICAL FIELD	THEORETICAL PHASE	OBSERVED FIELD	OBSERVED PHASE
1(N)	0.75	150.0°	0.625	151.0°
2(C)	1.00	0.0°	1.000	0.0°
3(S)	0.46	-150.0°	0.525	-157.0°

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

RADIO STATION KXOK
630 kHz 5 kW DA-2
681102 FIGURE 2C

FCC File No. BZ-7089
Accepted 2-4-69

Station KXOK
St. Louis, Missouri

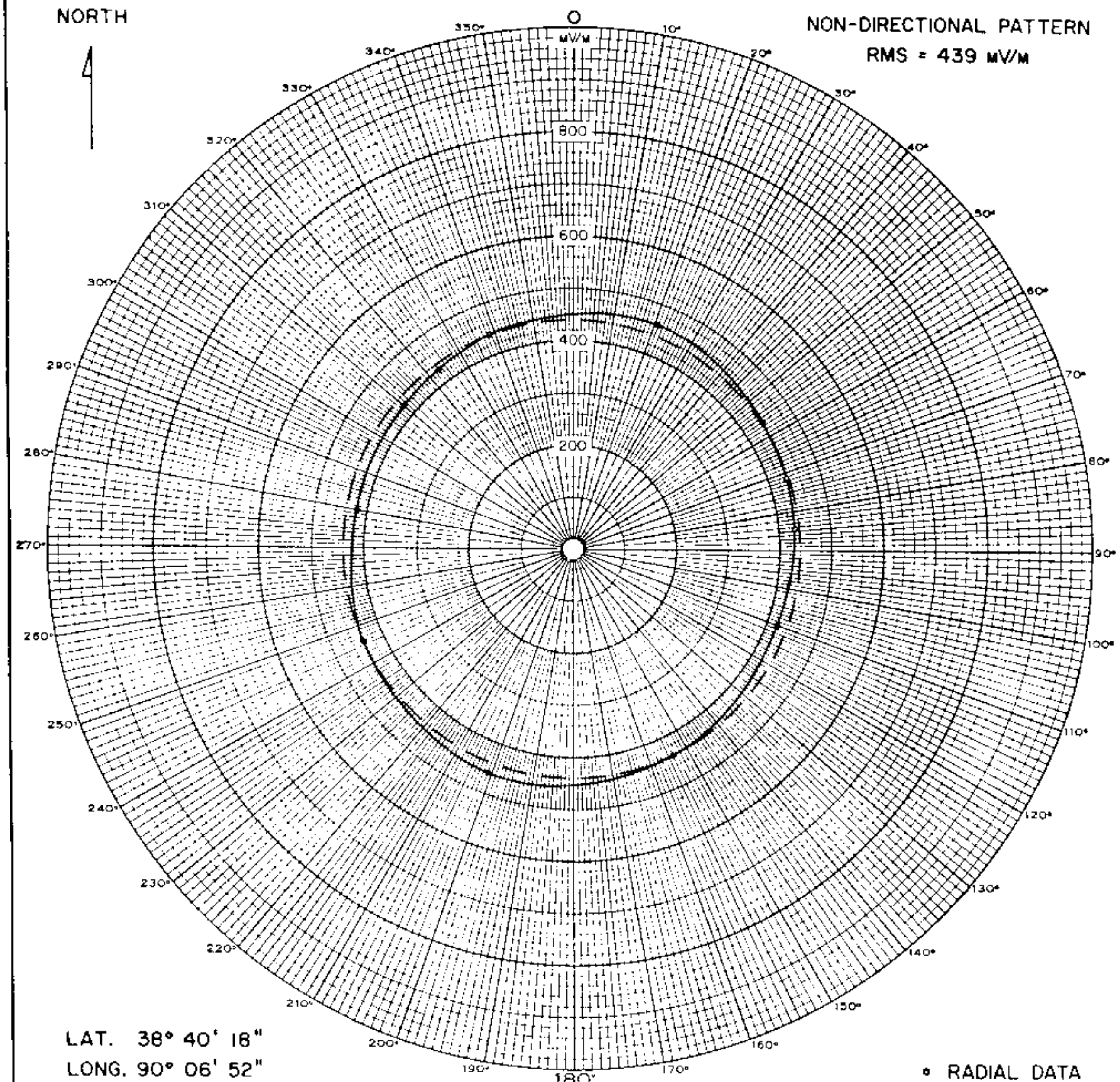
630 kc

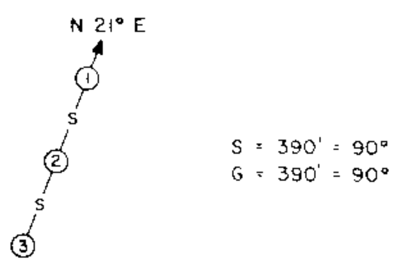
KXOK

Measured Non-DA
(2-28-69ct)

Station KXOK
St. Louis, Missouri

5kw,DA-2,U
630 kc





RADIATING ELEMENTS

TOWER	OPERATION
1(N)	DETUNED
2(C)	SERIES FED
3(S)	DETUNED

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

RADIO STATION KXOK
630 kHz 5 kW DA-2
681102 FIGURE 2A

FCC File No.BZ-7089
Accepted 2-4-69

Station KXOK
St. Louis, Missouri

630 kc

KXOK
630

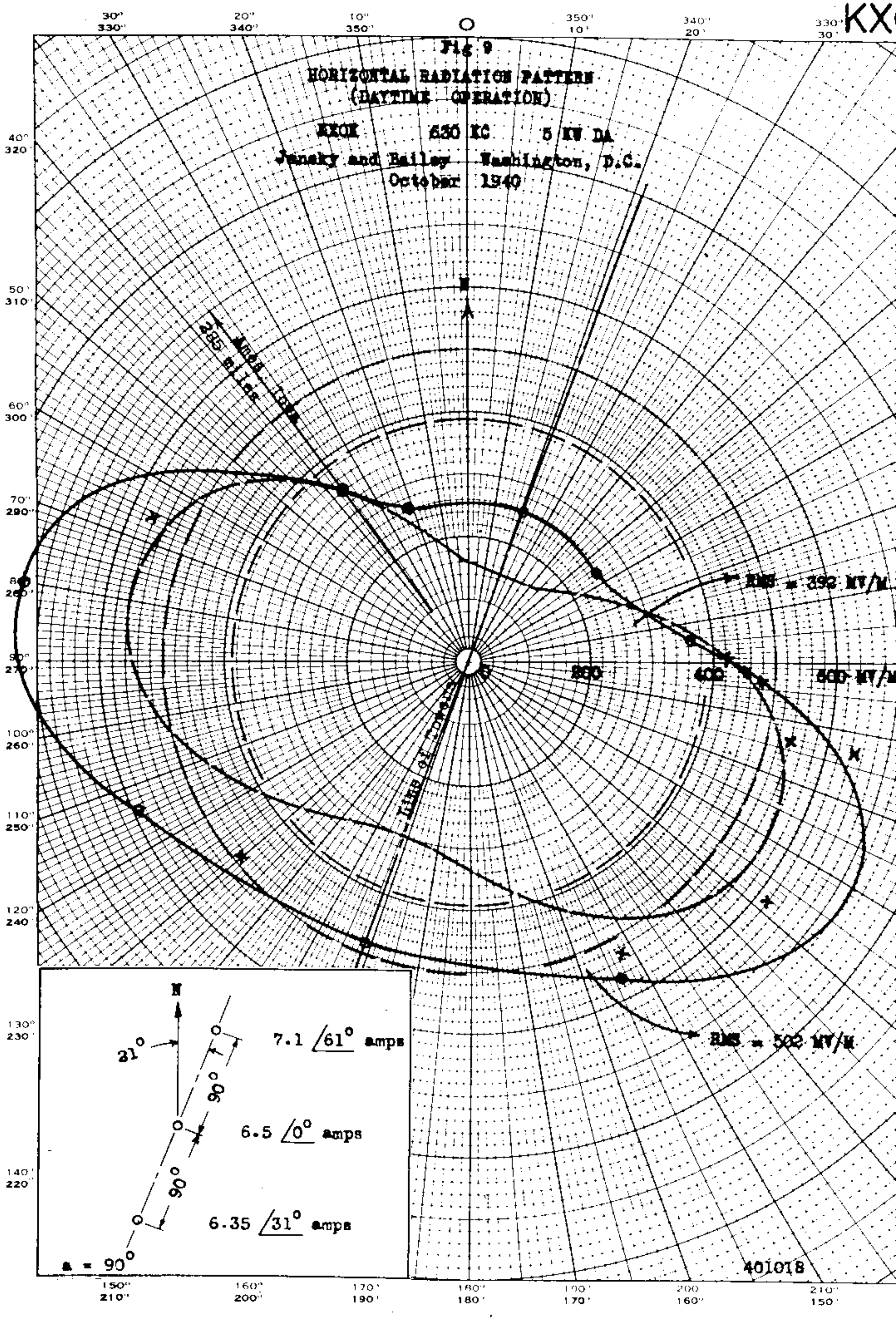


Fig 9
HORIZONTAL RADIATION PATTERN
(DAYTIME OPERATION)
KXOK 630 KC 5 KW DA
Jansky and Bailey Washington, D.C.
October 1940
N
285 miles
RMS = 392 MV/M
200
400
600 MV/M
Line of towers
RMS = 502 MV/M
N
21°
7.1 /61° amps
90°
6.5 /0° amps
90°
6.35 /31° amps
a = 90°
401018
EUGENE DIETZGEN CO.
PRINTED IN U.S.A.
POLAR CO-ORDINATE

KXOK
630

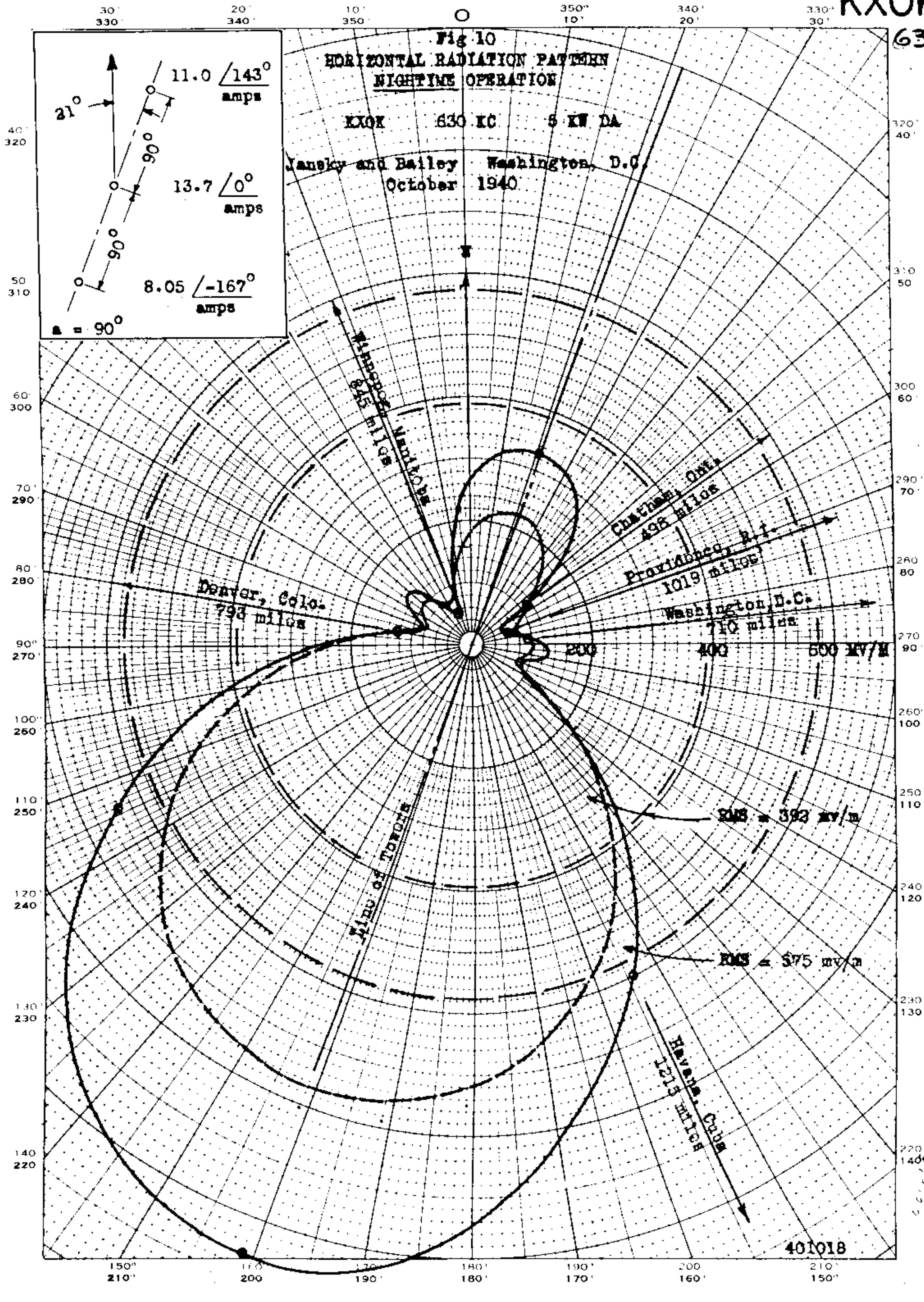


Fig 10
HORIZONTAL RADIATION PATTERN
NIGHTTIME OPERATION
KXOK 630 KC 5 KW DA
Jansky and Bailey Washington, D.C.
October 1940
11.0 /143° amps
13.7 /0° amps
8.05 /-167° amps
21°
90°
90°
a = 90°
Winnipeg, Manitoba
845 miles
Chatham, Ont.
498 miles
Providence, R.I.
1019 miles
Washington, D.C.
710 miles
Denver, Colo.
793 miles
200
400
600 MV/M
RMS = 393 mv/m
RMS = 575 mv/m
Line of Towers
Havana, Cuba
1215 miles
401018
EUGENE DIETZGEN CO.
NO. 340-P DIETZGEN GRAPH PAPER
POLAR CO-ORDINATE

KXOK-630 KC

Measured night field

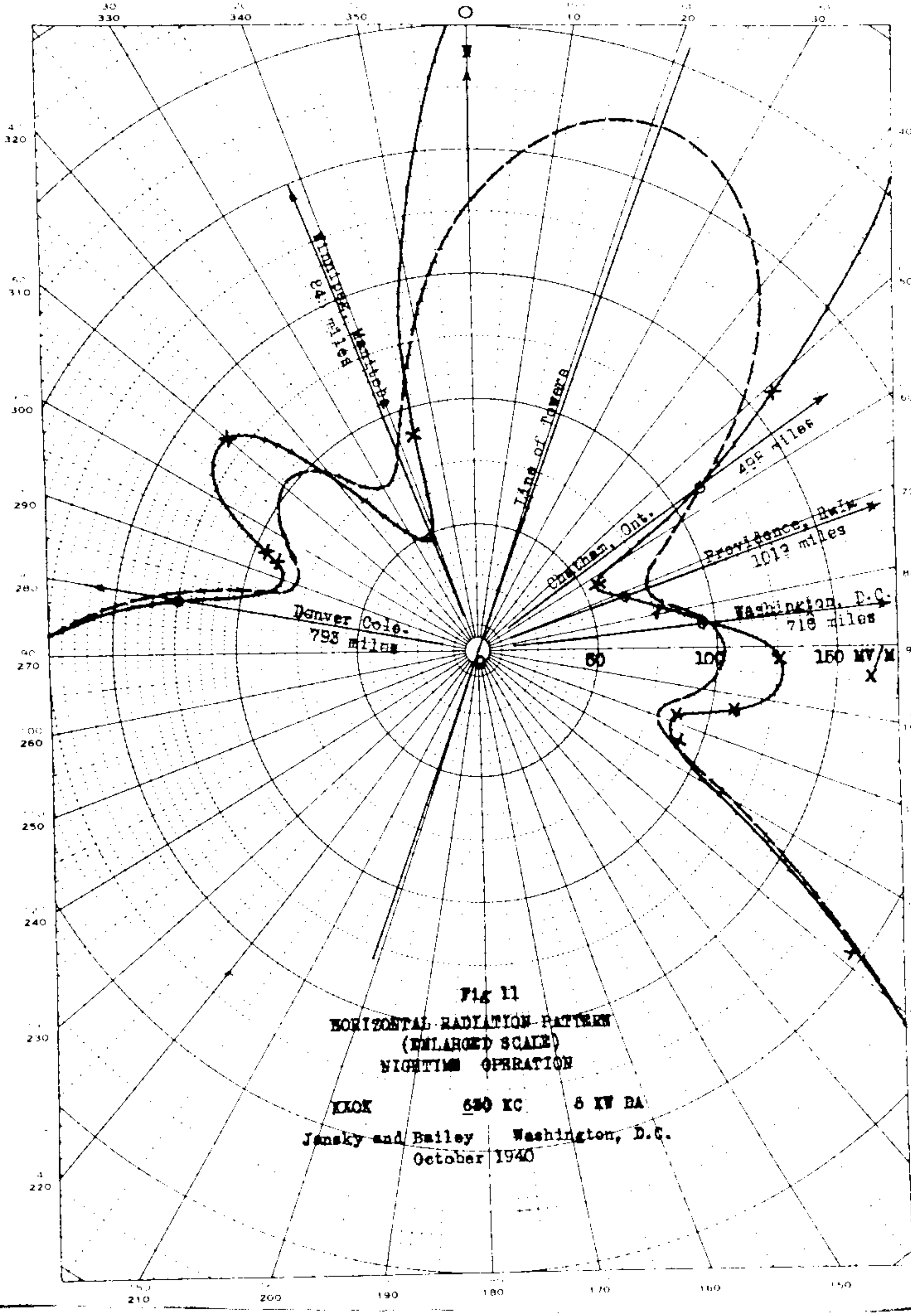


Fig 11
HORIZONTAL RADIATION PATTERN
(ENLARGED SCALE)
NIGHTTIME OPERATION

KXOK 630 KC 5 KW DA

Jansky and Bailey Washington, D.C.
October 1940

KXOK

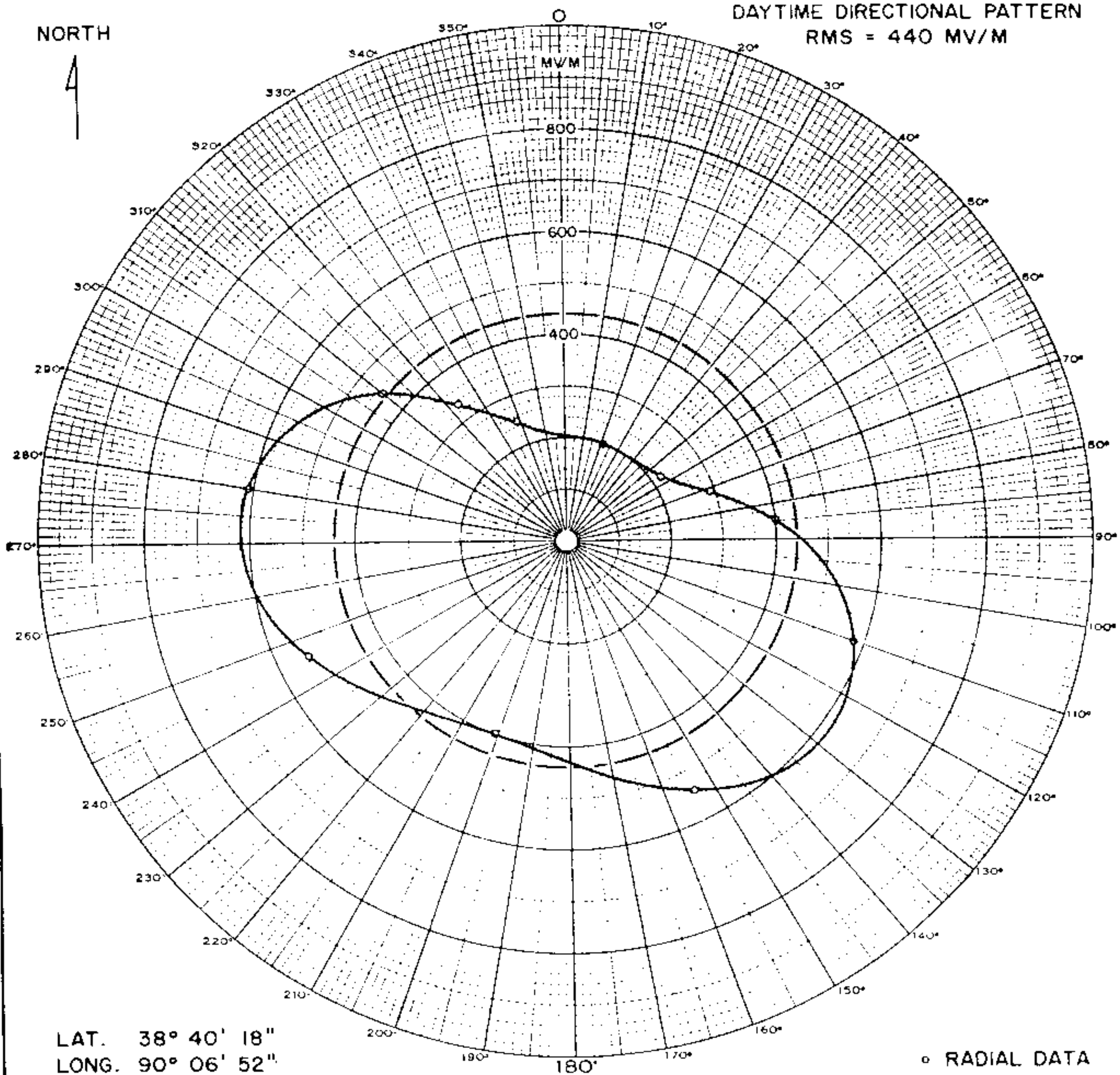
Measured Day
(6-28-65ct)

Station KXOK
St. Louis, Missouri

5kw,DA-2,U
630 kc

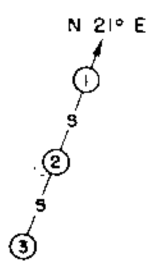
NORTH

DAYTIME DIRECTIONAL PATTERN
RMS = 440 MV/M



LAT. 38° 40' 18"
LONG. 90° 06' 52"

○ RADIAL DATA



S = 390' = 90°
G = 390' = 90°

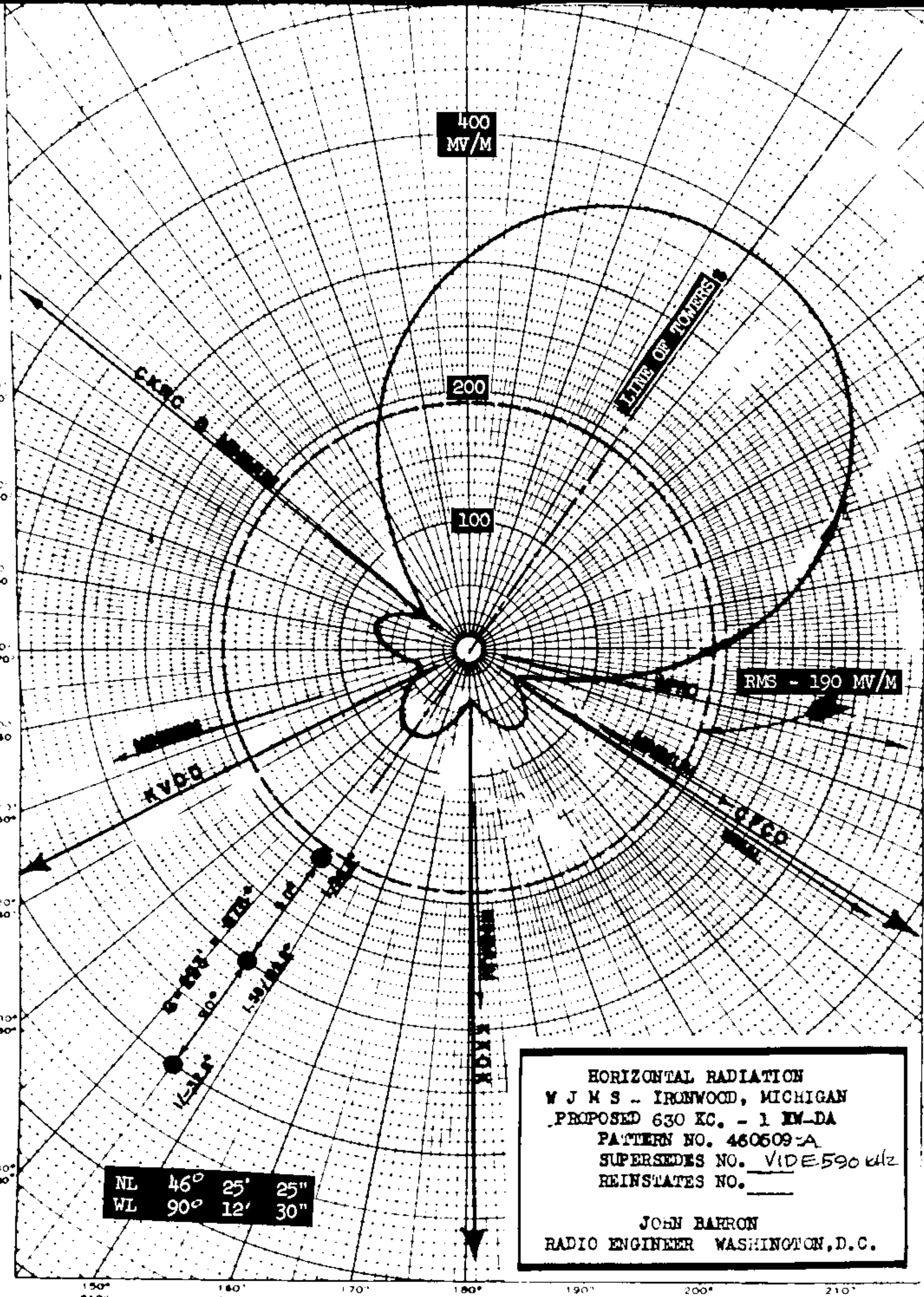
ANTENNA PARAMETERS

	THEORETICAL		OBSERVED	
TOWER	FIELD	PHASE	FIELD	PHASE
1 (N)	1.00	64.8°	0.922	57.0°
2 (C)	1.00	0.0°	1.000	0.0°
3 (S)	1.00	29.8°	0.980	28.0°

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

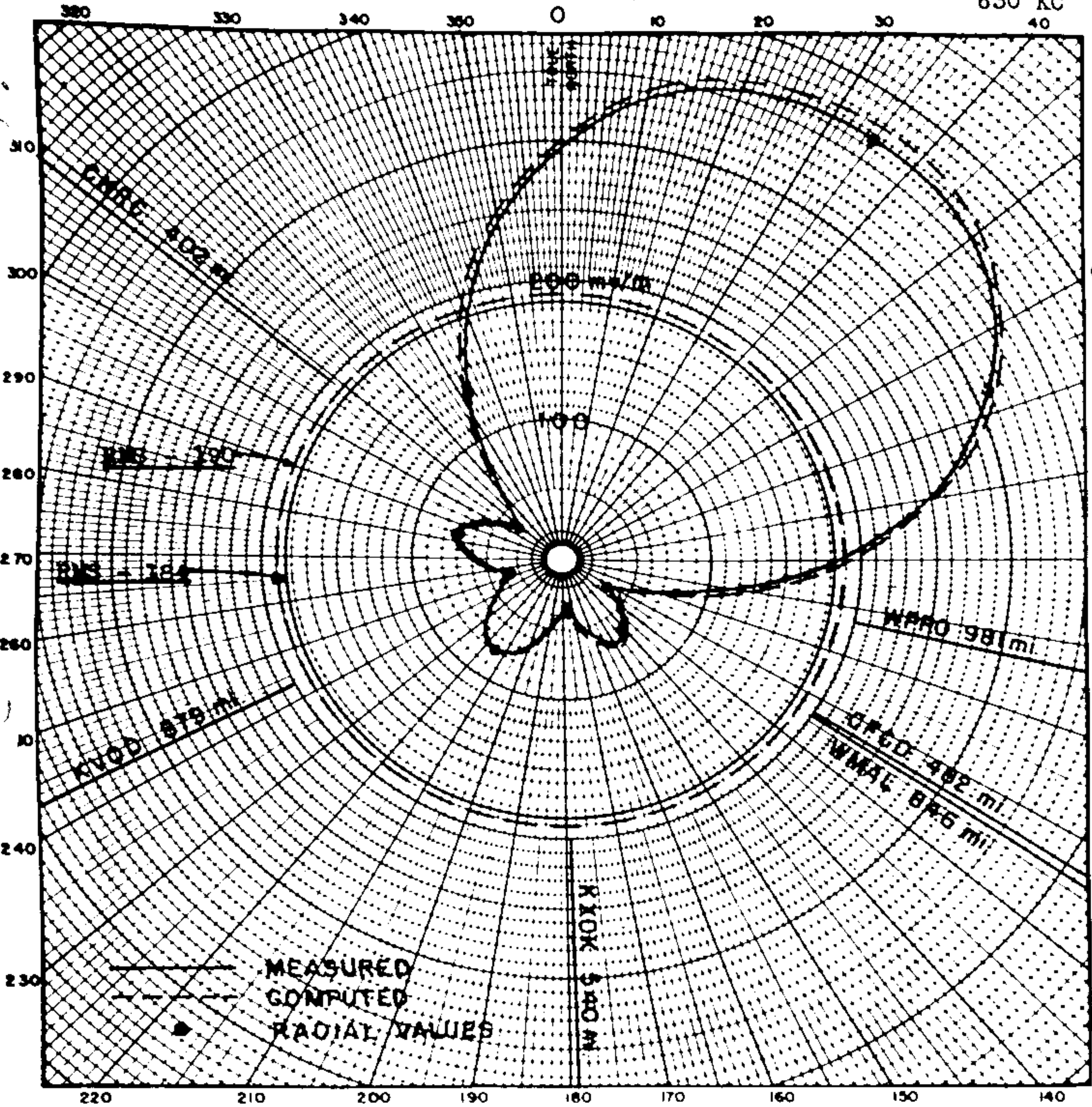
RADIO STATION KXOK
630 KC 5.0 KW DA-2
650327 FIGURE 7A

PROPOSED NIGHT Station WJMS 1kw, DA-N,U
Ironwood, Michigan 630 KC



Rec'd 12-2?-47

WJMS
630 KC



G = 67.5° 35°T 1 0.60∠0 90° 2 1∠138 90° 3 0.60∠-65	HORIZONTAL RADIATION PATTERN MEASURED IRONWOOD, WJMS MICHIGAN BL-1341 granted 10/14/49 changed DA1 to DAN	630 KC 1 KW-U DA-1
	CONSULTING RADIO ENGINEERS	471?21 FIGURE 1

VIDE 590 kHz

WLAP
630kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WLAP

Main Studio: Lexington, Kentucky

Frequency: 630 kHz

Power: 1kw Night 5kw Day

Notification List No. 1787

Date: July 10, 1980 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 38° 07' 25"
West Longitude: 84° 26' 45"

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:	SE(#1)	NE(#2)	NW(#3)	SW(#4)
HEIGHT ABOVE INSULATORS:	660'(152°)	300'	300'	300' (69°)
NIGHT PHASING:	0°	+169°	+78°	-91°
NIGHT FIELD RATIO:	1.0	0.925	0.925	0.925
DAY PHASING:	0°	+169°	+78°	-91°
DAY FIELD RATIO:	1.0	0.96	0.912	0.95

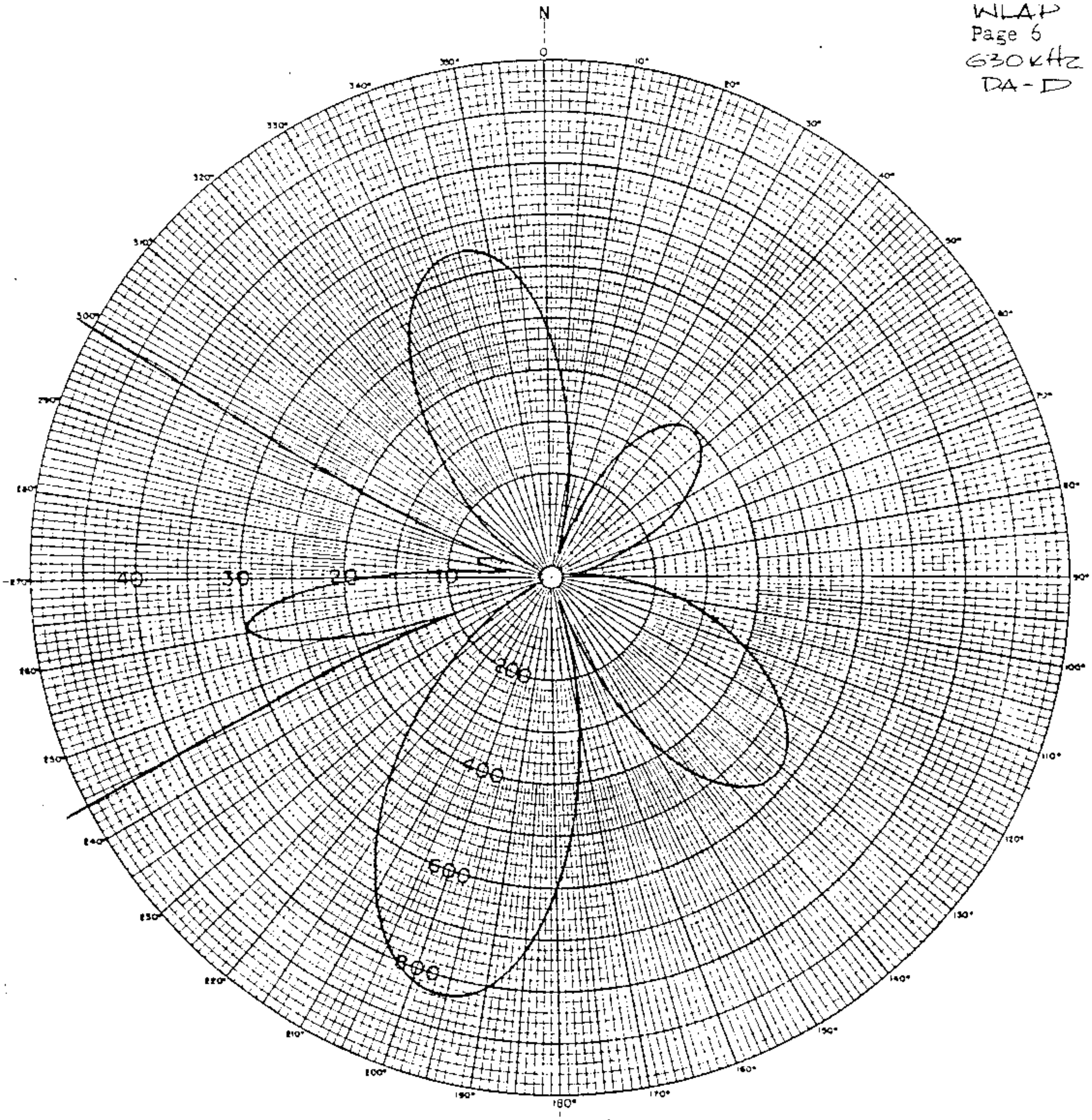
SPACING AND ORIENTATION: The towers are located at the vertices of a rectangle the long sides of which are 1249' (288°) in length on a line bearing 270° true. The short sides are 347' (80°) in length on a line bearing 0° true.

GROUND SYSTEM: 120 - 173'to 720' equally spaced copper radials plus 120 - 50' interspaced radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

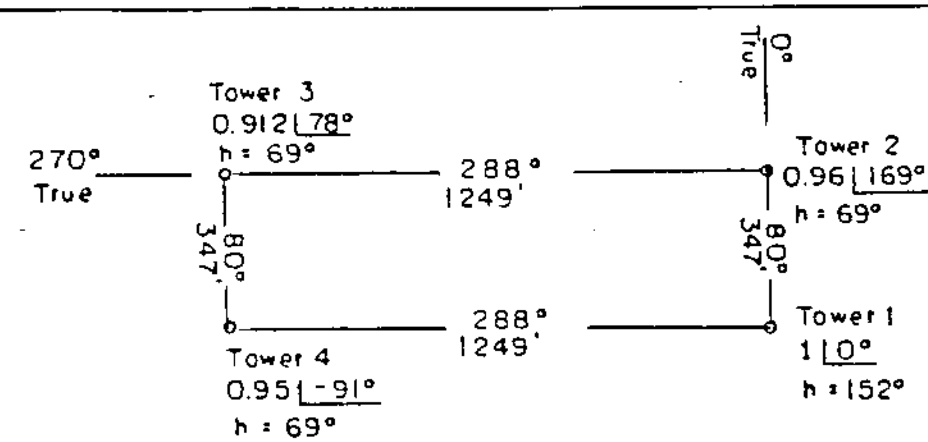
PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	RSS
Day	403 mv/m	
Night	180 mv/m	

WLAP
Page 6
630 kHz
DA-D

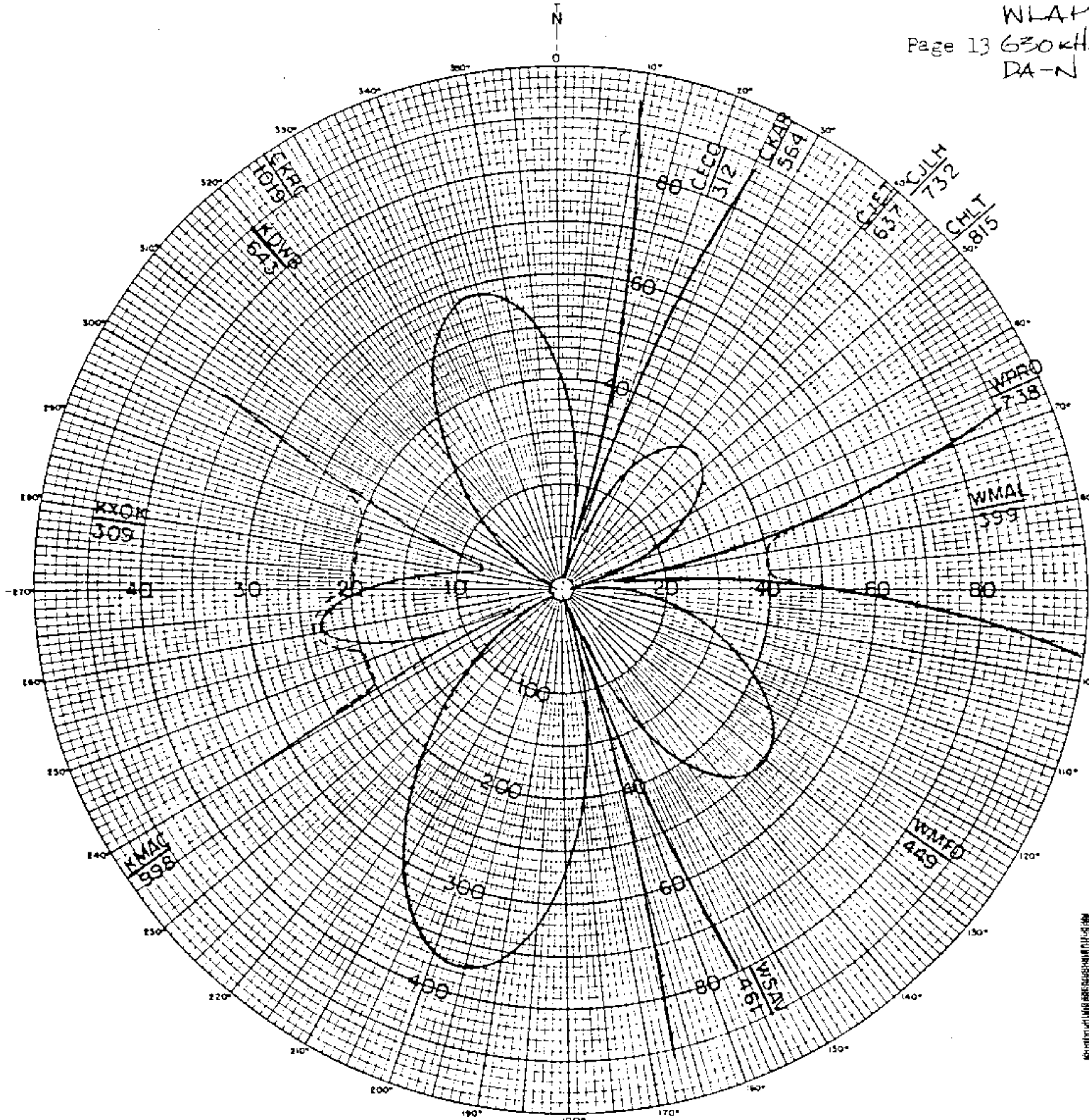


HORIZONTAL RADIATION PATTERN

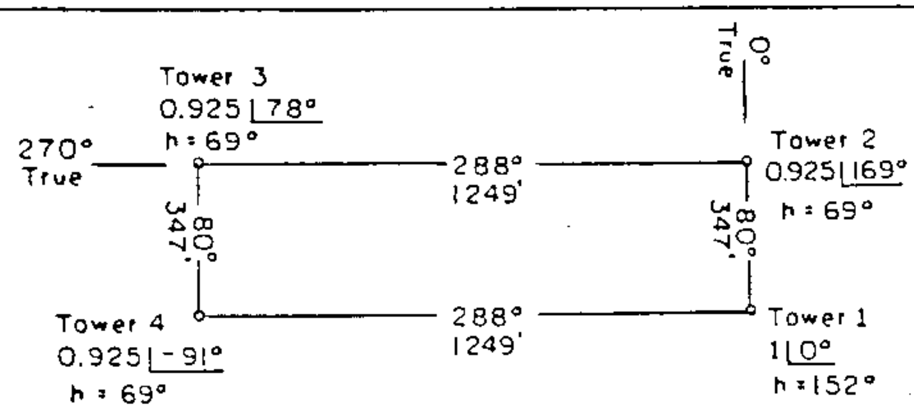


APPLICANT :	WLAP
LOCATION :	Lexington, Ky.
FREQUENCY :	630 KC/S
POWER :	5 KW
LATITUDE :	38 DEG 07 MIN. 25 SEC.
LONGITUDE :	84 DEG 26 MIN. 45 SEC.
WHEN USED:	Daytime
R.M.S. FIELD:	403 MV/M
DATE :	May 11th, 1979

RALPH J. BITZER
CONSULTING RADIO ENGINEERS
ST. LOUIS, MISSOURI



HORIZONTAL RADIATION PATTERN 0° Level

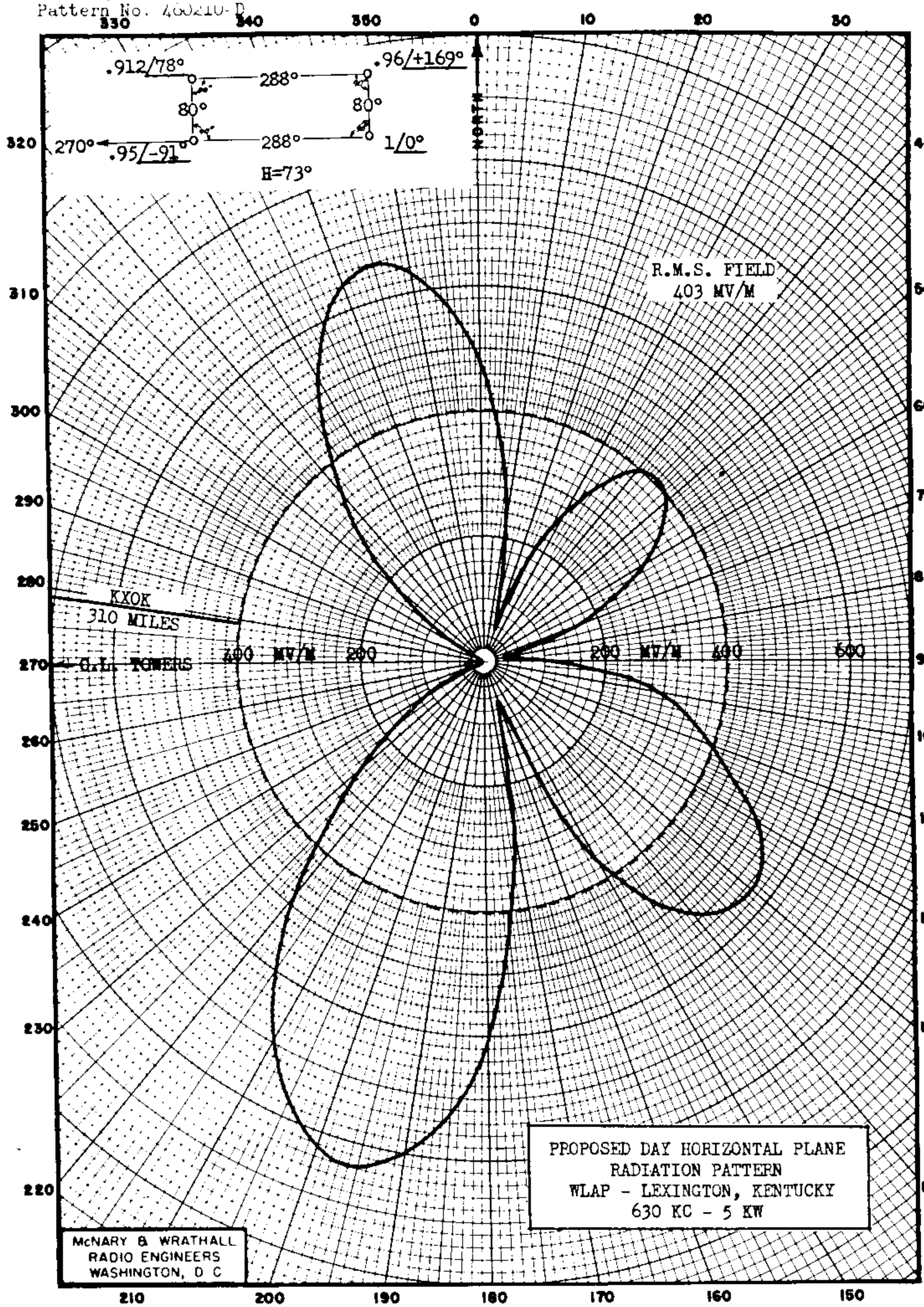


APPLICANT	WLAP
LOCATION	Lexington, Ky.
FREQUENCY	630 KC/S
POWER	1 KW
LATITUDE	38 DEG 07 MIN. 25 SEC.
LONGITUDE	84 DEG. 26 MIN. 45 SEC.
WHEN USED	Nighttime
R.M.S. FIELD	180 MV/M
DATE	May 11th, 1979

RALPH J. BITZER
CONSULTING RADIO ENGINEERS
ST. LOUIS, MISSOURI

WLAP 630 KC

Pattern No. 460210-D



proposed day

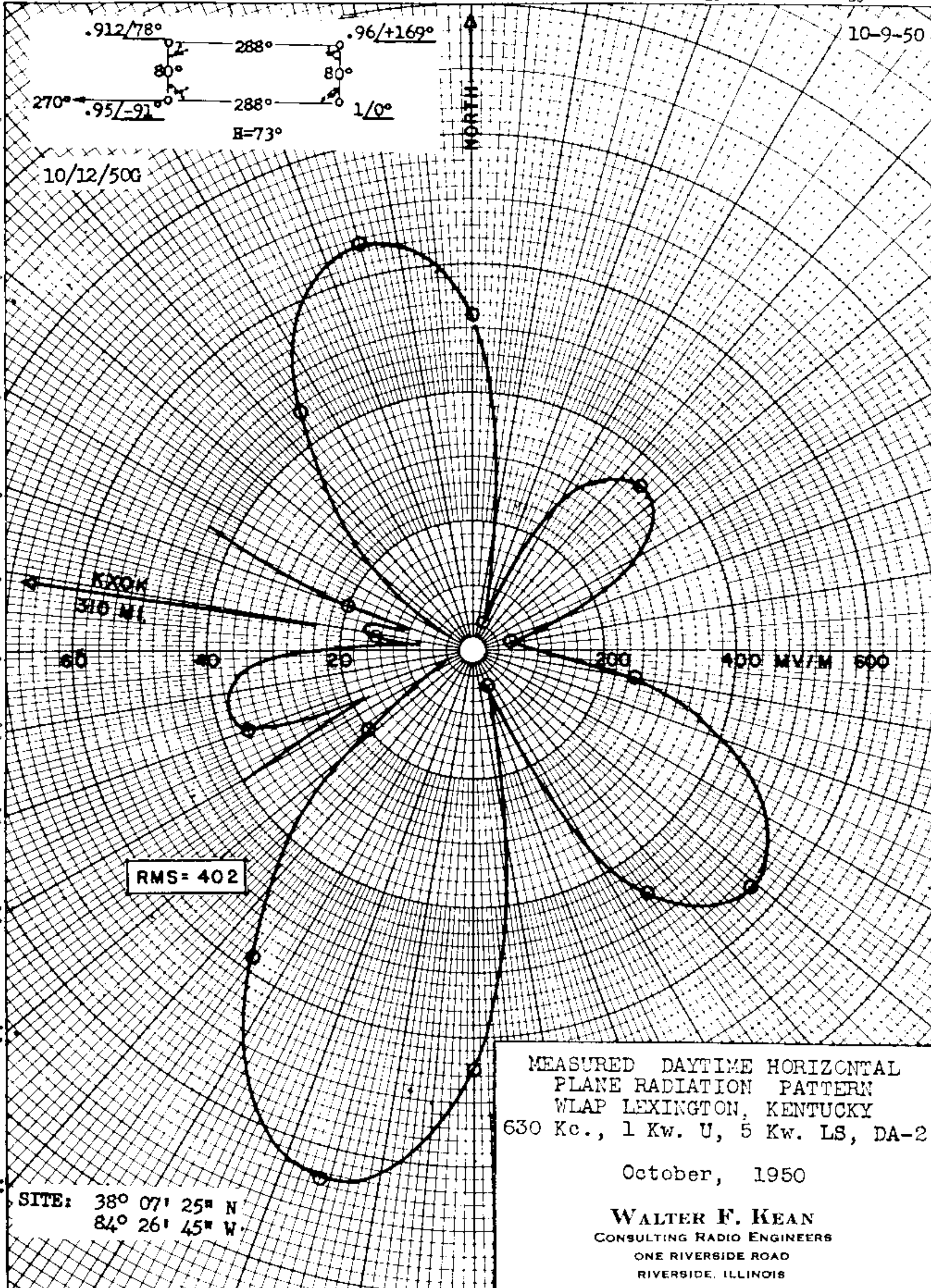
WLAP

MEASURED DAY

WLAP, LEXINGTON, KY.

1kw, 5kw-LS, DA-2

630 kc



SITE: 38° 07' 25" N
84° 26' 45" W

MEASURED DAYTIME HORIZONTAL
PLANE RADIATION PATTERN
WLAP LEXINGTON, KENTUCKY
630 Kc., 1 Kw. U, 5 Kw. LS, DA-2

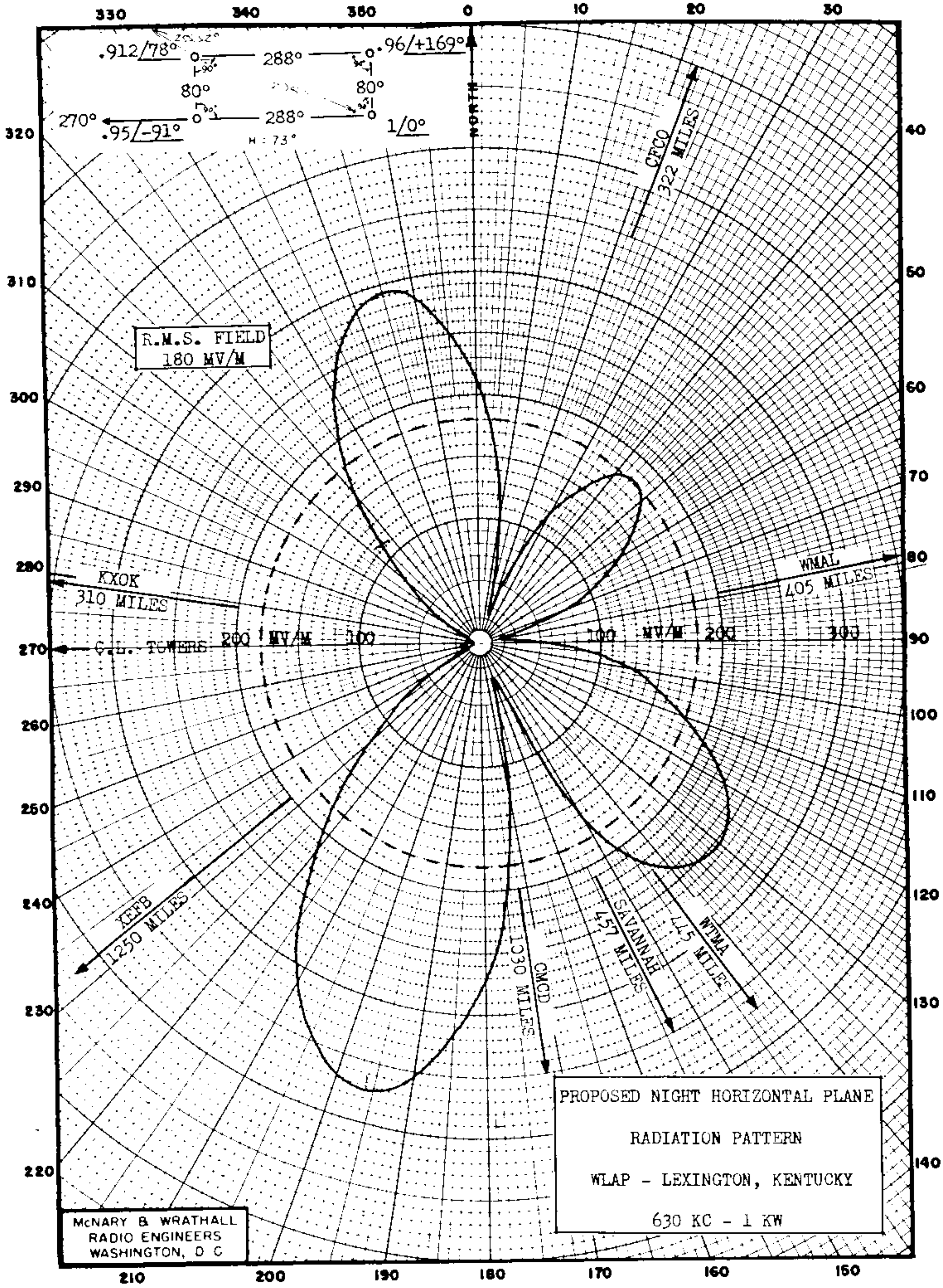
October, 1950

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

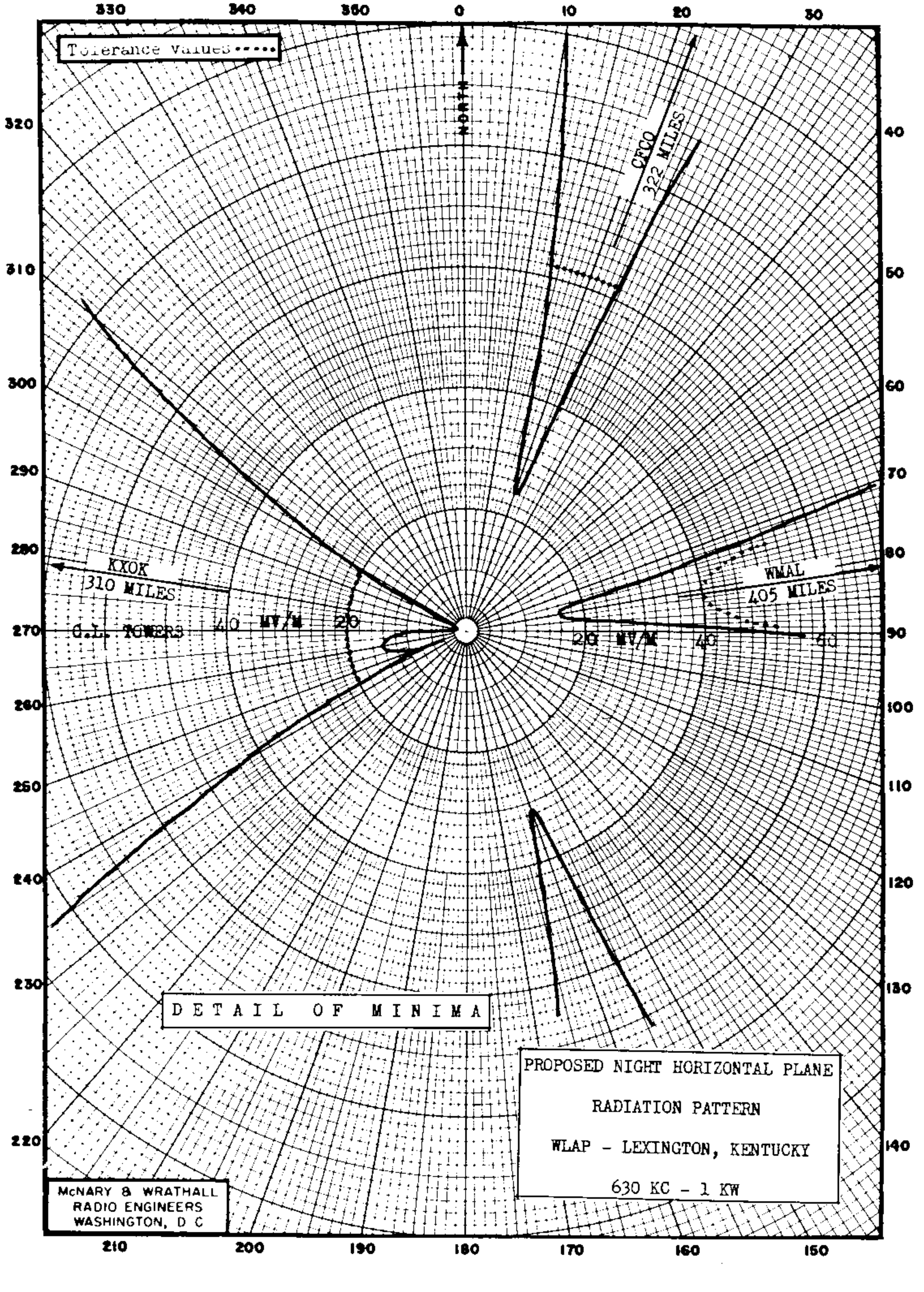
WLAP, Lexington, Ky. 630 kc

Pattern No. [illegible] N

WLAP 630 K.



WLAP 630 KC



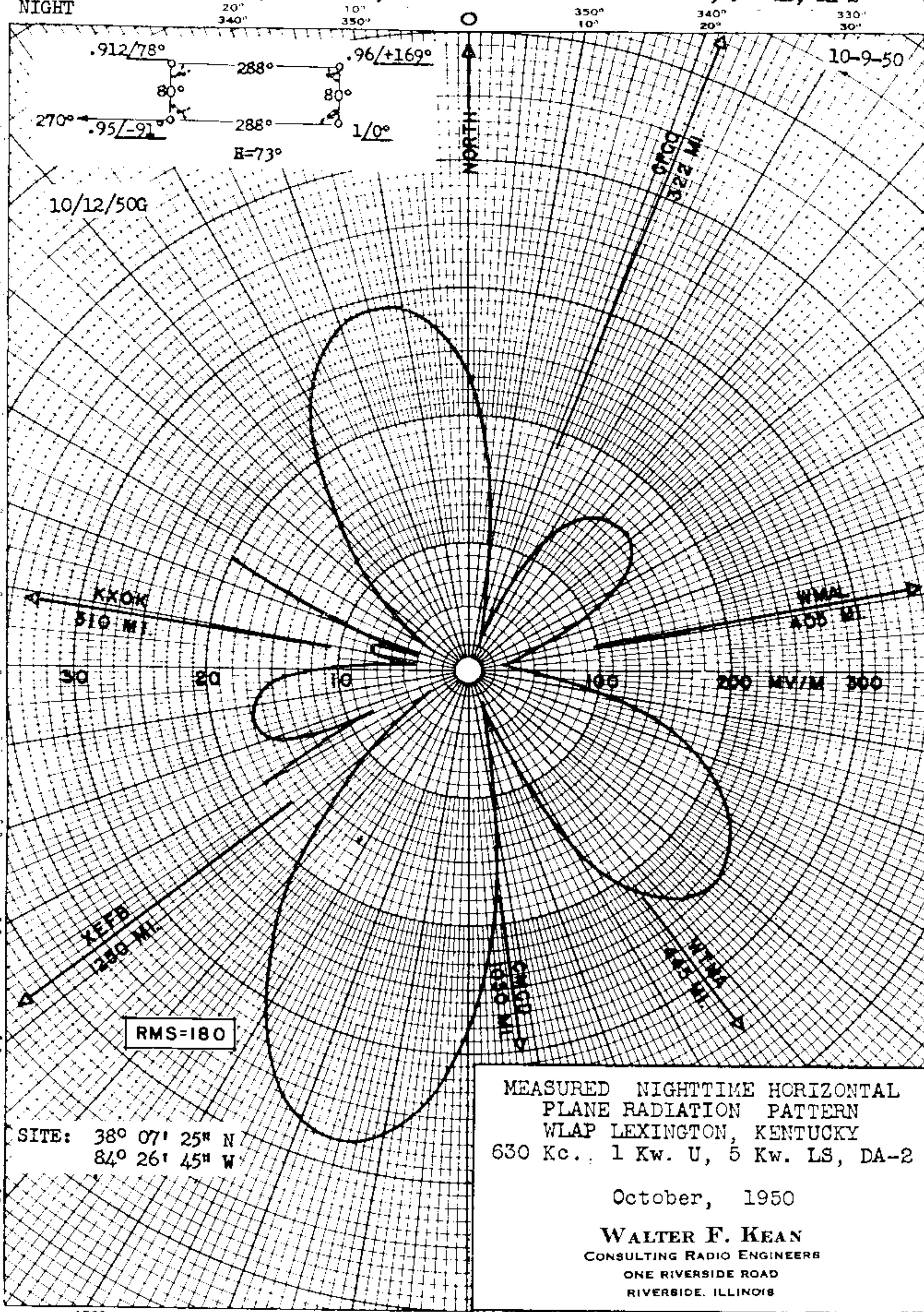
Tolerance Values
NORTH
CFCO
322 MILES
KXOK
310 MILES
C.L. TOWERS
40 MV/M 20
WMAL
405 MILES
20 MV/M 40 60
DETAIL OF MINIMA
PROPOSED NIGHT HORIZONTAL PLANE
RADIATION PATTERN
WLAP - LEXINGTON, KENTUCKY
630 KC - 1 KW
McNARY & WRATHALL
RADIO ENGINEERS
WASHINGTON, D C

WLAP

MEASURED
NIGHT

WLAP, LEXINGTON, KY.

1kw, 5kw-LS, DA-2 630 kc



MEASURED NIGHTTIME HORIZONTAL
PLANE RADIATION PATTERN
WLAP LEXINGTON, KENTUCKY
630 Kc. 1 Kw. U, 5 Kw. LS, DA-2

October, 1950

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

WLAP, Lexington, Ky. 630 kc

WMAL

Measured Night
(7-29-70ct)

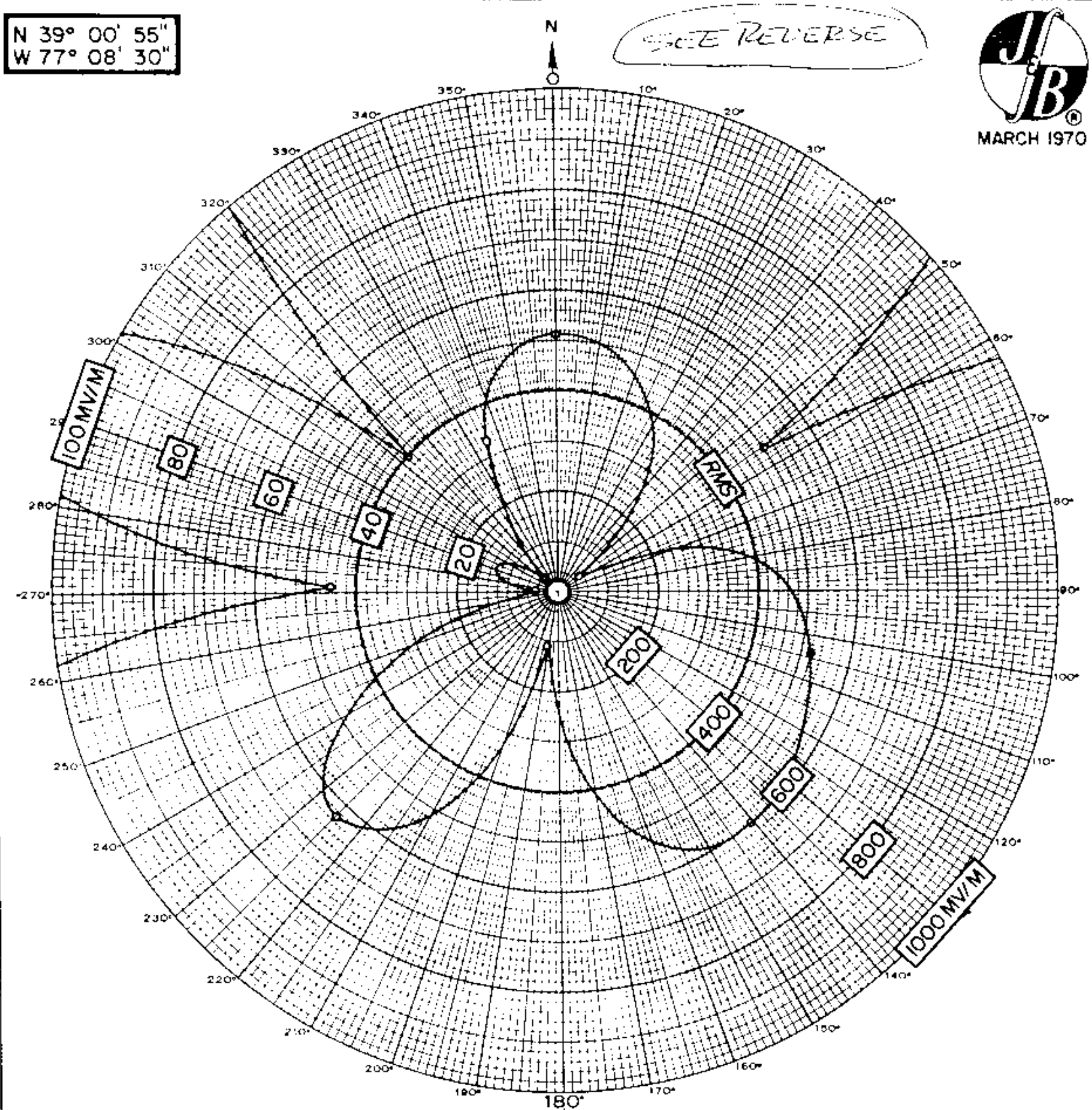
Station WMAL
Washington, D.C.

5kw, DA-2, U
630 kc

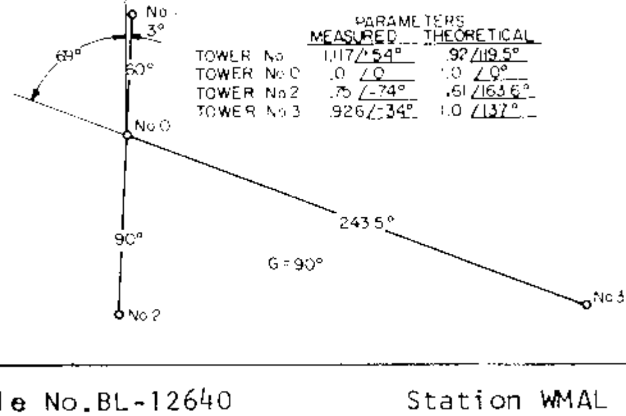
N 39° 00' 55"
W 77° 08' 30"

SEE REVERSE

MARCH 1970



RMS = 402 MV/M



PARAMETERS

	MEASURED	THEORETICAL
TOWER No	1.117 /-54°	.92 /119.5°
TOWER No 0	1.0 /0	1.0 /0°
TOWER No 2	.75 /-74°	.61 /163.6°
TOWER No 3	.926 /-34°	1.0 /137°

FIG. 20
MEASURED NIGHTTIME HORIZONTAL RADIATION PATTERN

WMAL 630 KHz 5KW DA-2

THE EVENING STAR BROADCASTING CO
WASHINGTON, D.C.

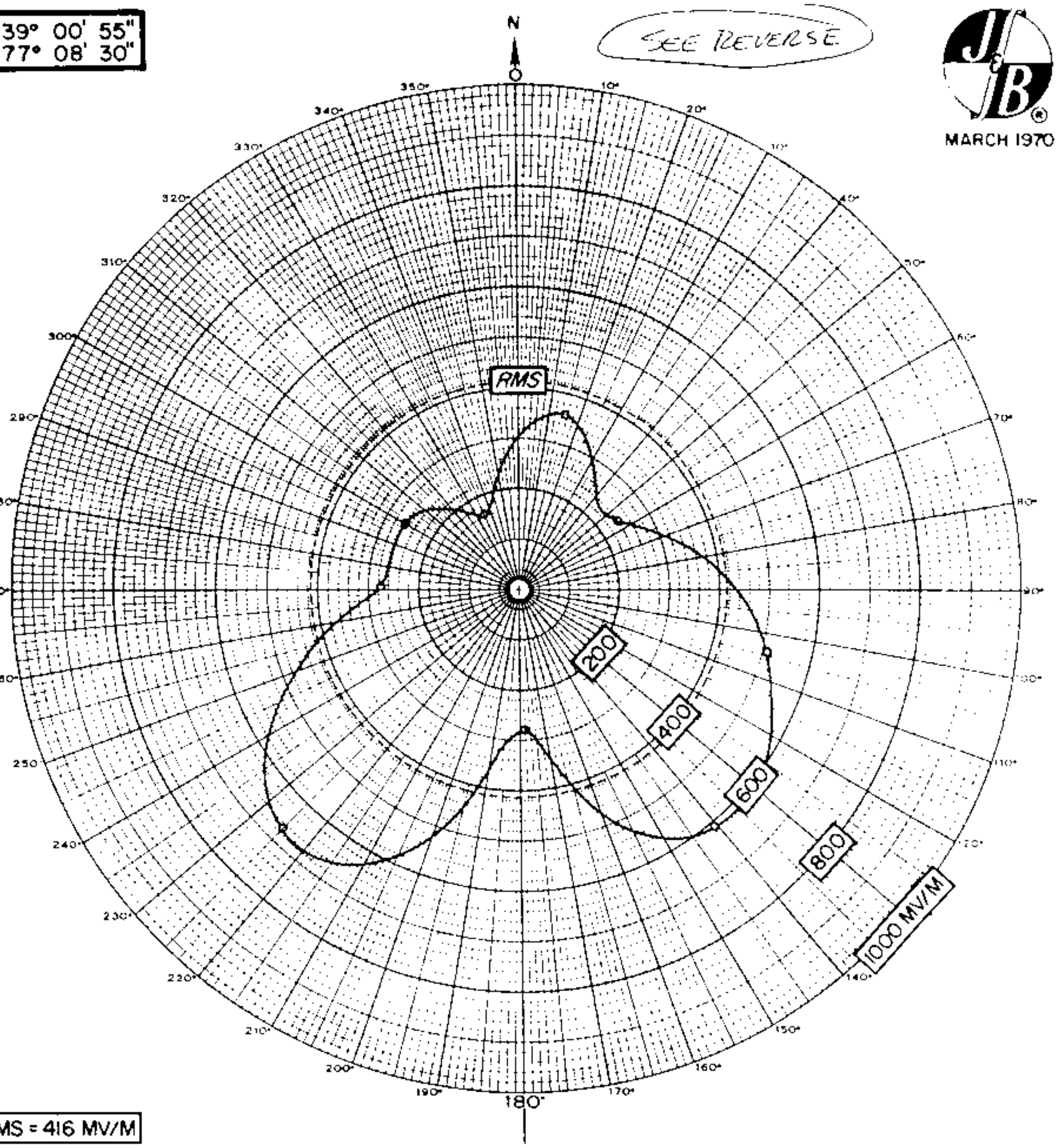
FCC File No. BL-12640
Accepted 6-29-70

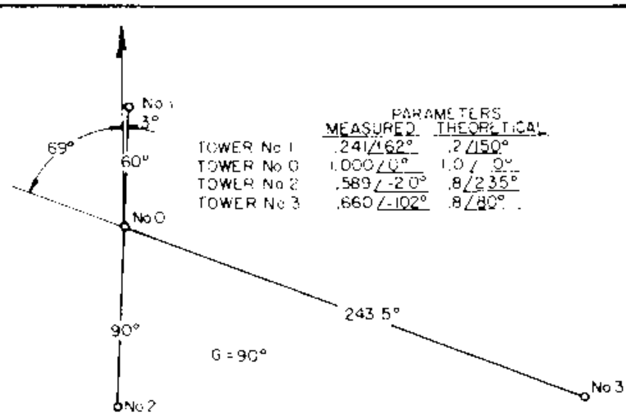
Station WMAL
Washington, D.C.

630 kc

WMAL

Measured Day (7-29-70ct) | Station WMAL Washington, D.C. | 5kw,DA-2,U 630 kc





PARAMETERS

	MEASURED	THEORETICAL
TOWER No 1	.241/162°	.2/150°
TOWER No 0	1.000/0°	1.0/0°
TOWER No 2	.589/-20°	.8/235°
TOWER No 3	.660/-102°	.8/80°

FIG. 19
MEASURED DAYTIME HORIZONTAL RADIATION PATTERN

WMAL 630 KHz 5 KW DA-2

THE EVENING STAR BROADCASTING CO
WASHINGTON, DC

FCC File No.BL-12640
Accepted 6-29-70

Station WMAL
Washington, D.C.

630 kc

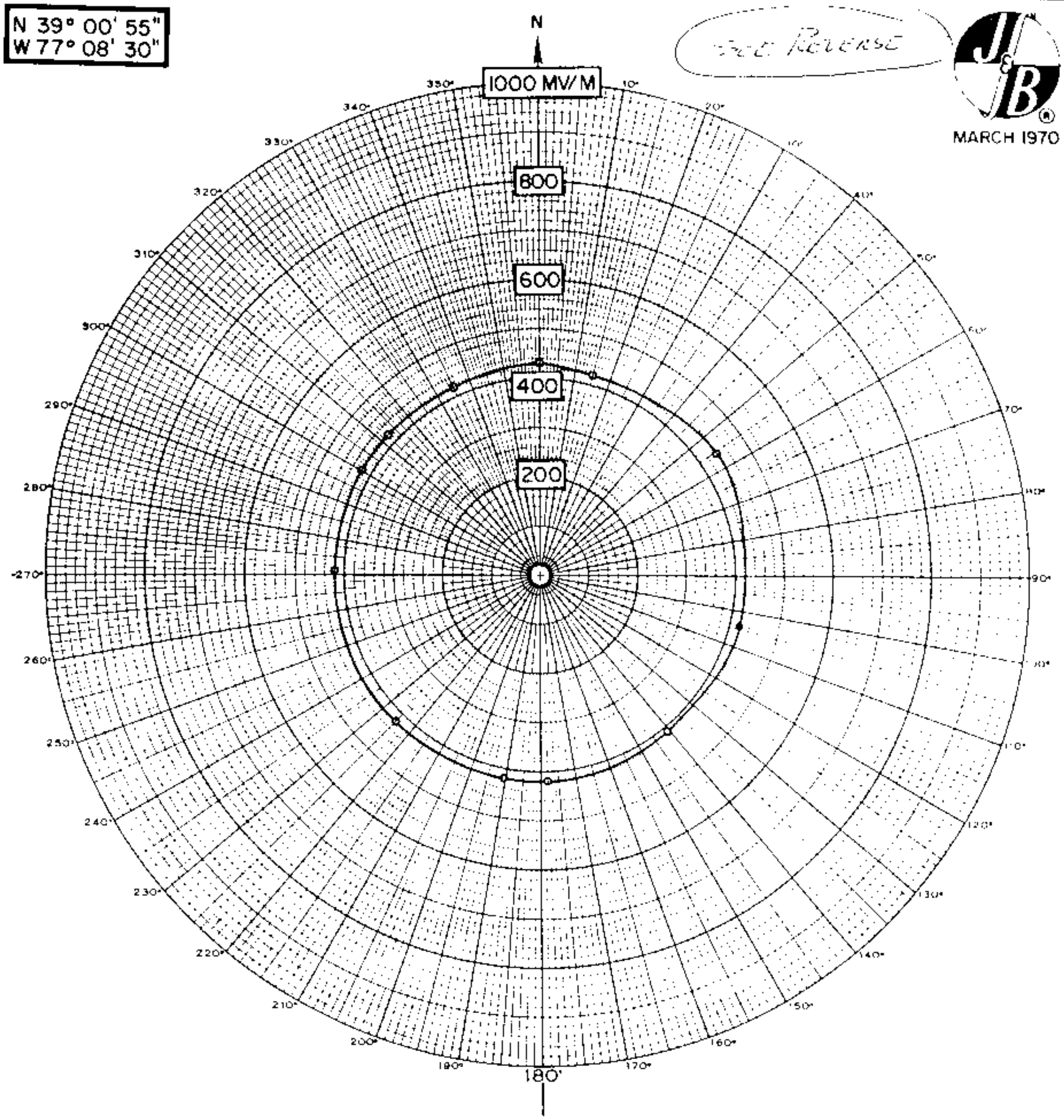
WMAL

Measured Non-DA (7-29-70ct)

Station WMAL
Washington, D.C.

5kw, DA-2, U
630 kc

N 39° 00' 55"
W 77° 08' 30"



MARCH 1970

FIG. 18
MEASURED NON-DIRECTIONAL HORIZONTAL RADIATION PATTERN
(Tower No. 2)

WMAL	630 KHz	5 KW	DA-2

THE EVENING STAR BROADCASTING CO.
WASHINGTON, D.C.

FCC File No. BL-12640
Accepted 6-29-70

Station WMAL
Washington, D.C.

630 kc

WMAL

Proposed Day
(3-28-69ct)

Station WMAL
Washington, D. C.

5kw,DA-2,U
630 kc

BP-18461
Granted
3-21-69
Cp to
make
changes
in direct
ional
antenna
system

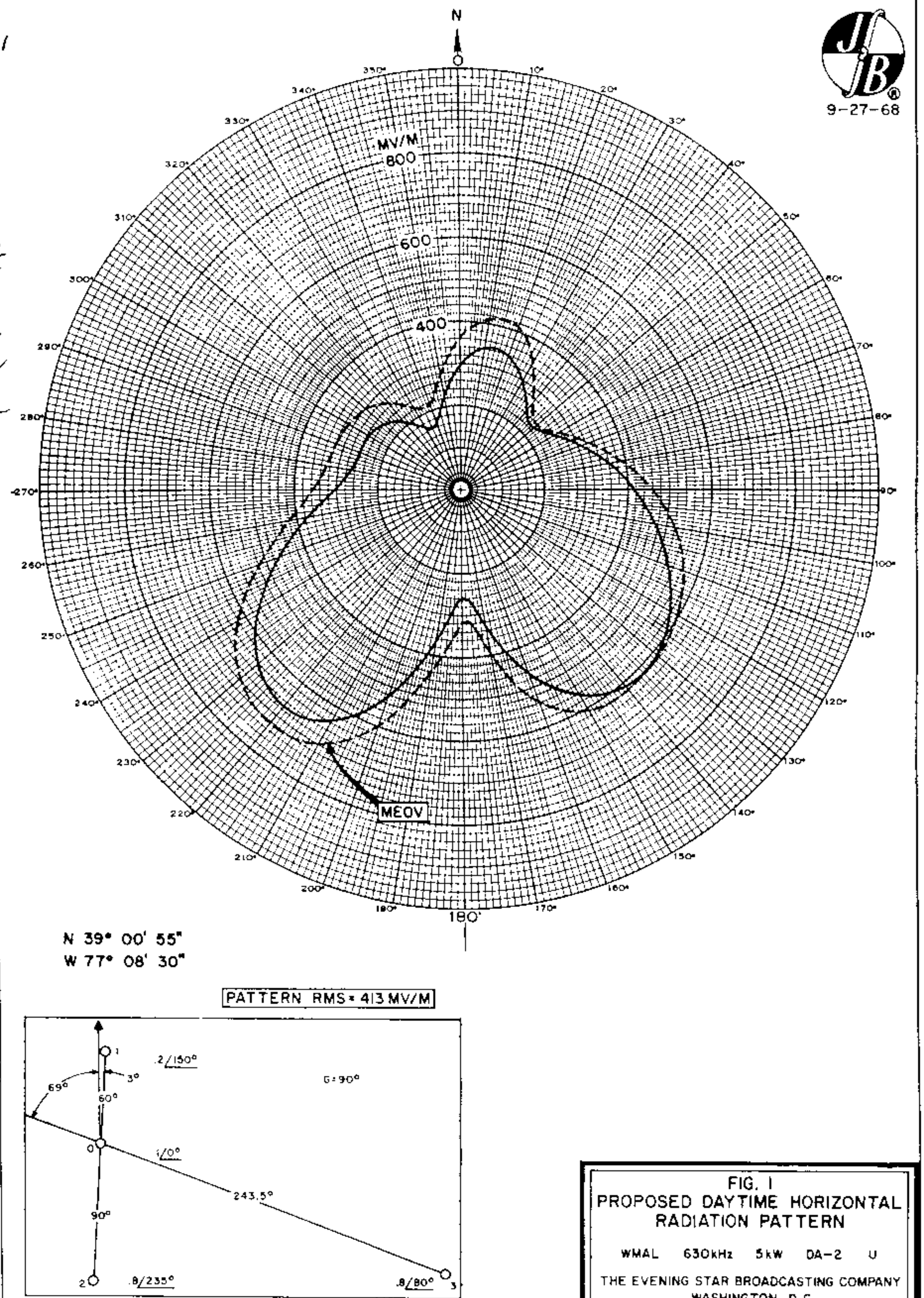


FIG. I
PROPOSED DAYTIME HORIZONTAL
RADIATION PATTERN

WMAL 630kHz 5kW DA-2 U

THE EVENING STAR BROADCASTING COMPANY
WASHINGTON, D.C.

FCC File No.BP-18461
Accepted 3-21-69

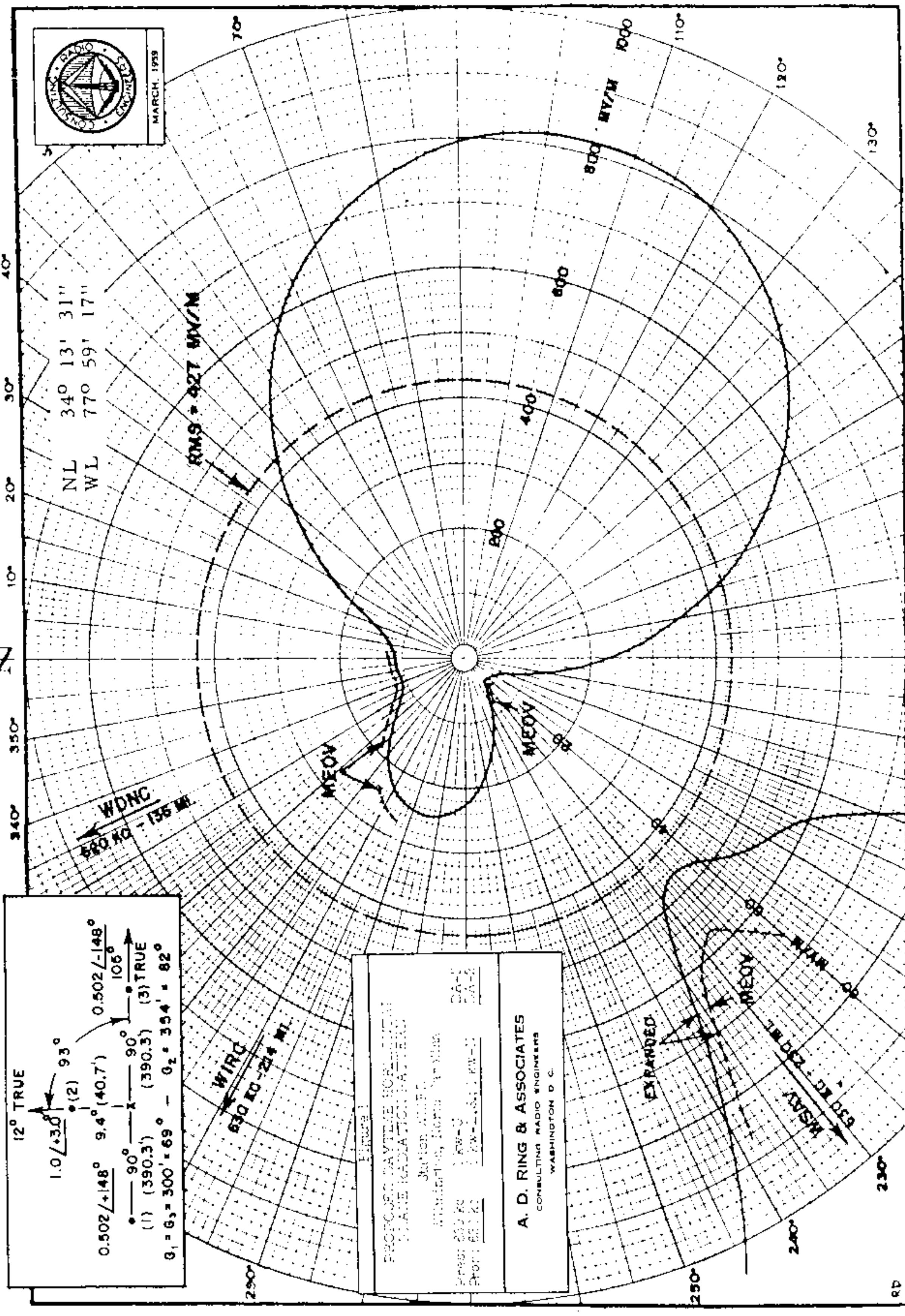
Station WMAL
Washington, D. C.

630 kc

WMFD

PROPOSED DAY
(6-16-59g)

Station WMFD 1kw, 5kw-LS, DA-2, U
Wilmington, North Carolina 630 KC



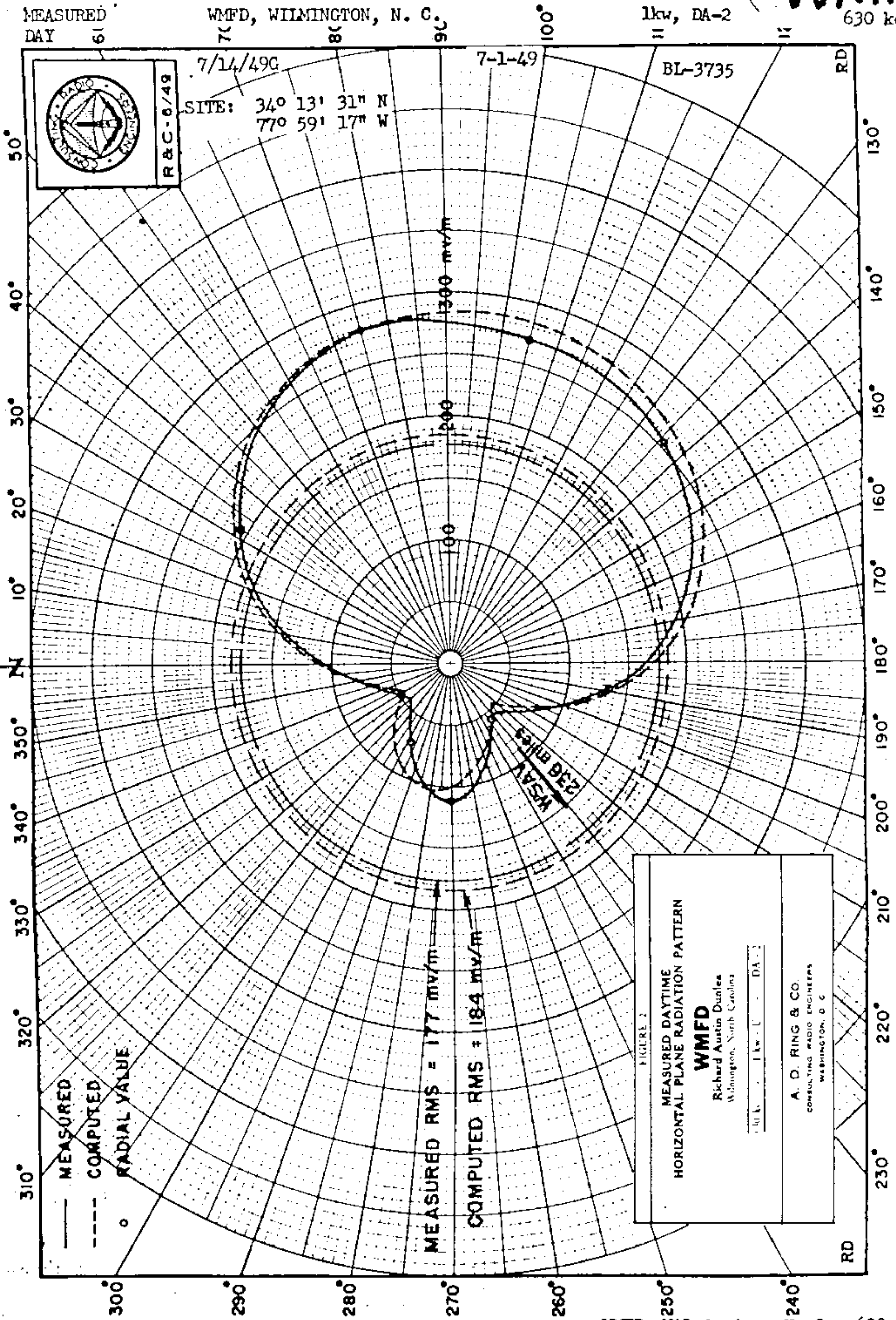
FCC File No. BP-13038
Accepted 5-27-59

WMFD
Wilmington, North Carolina 630 KC

auth

WMFD

MEASURED DAY WMFD, WILMINGTON, N. C. 1kw, DA-2 630 kc



WMFD, Wilmington, N. C. 630 kc

WMFD 630 KC.

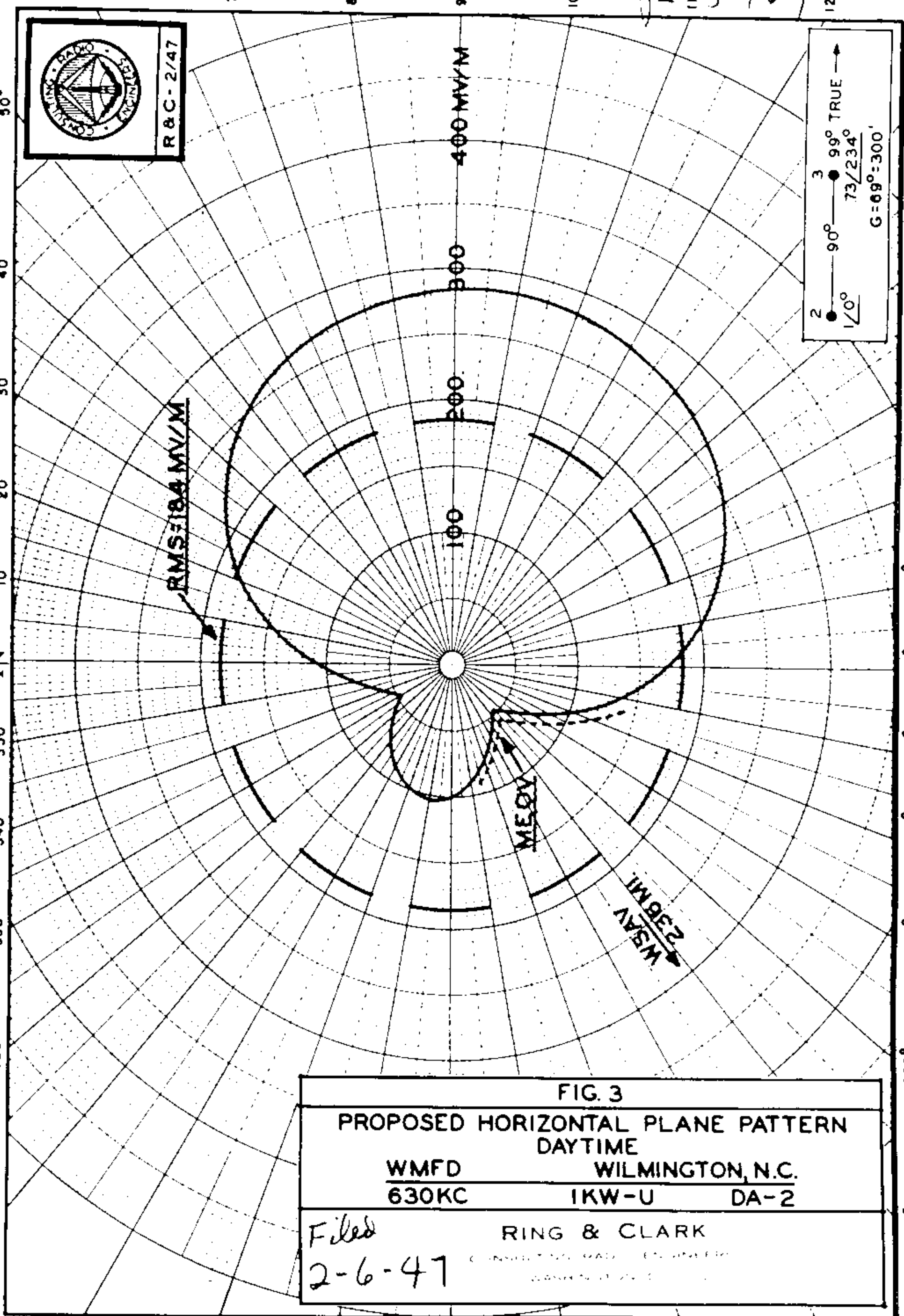


FIG. 3

PROPOSED HORIZONTAL PLANE PATTERN
DAYTIME

WMFD WILMINGTON, N.C.

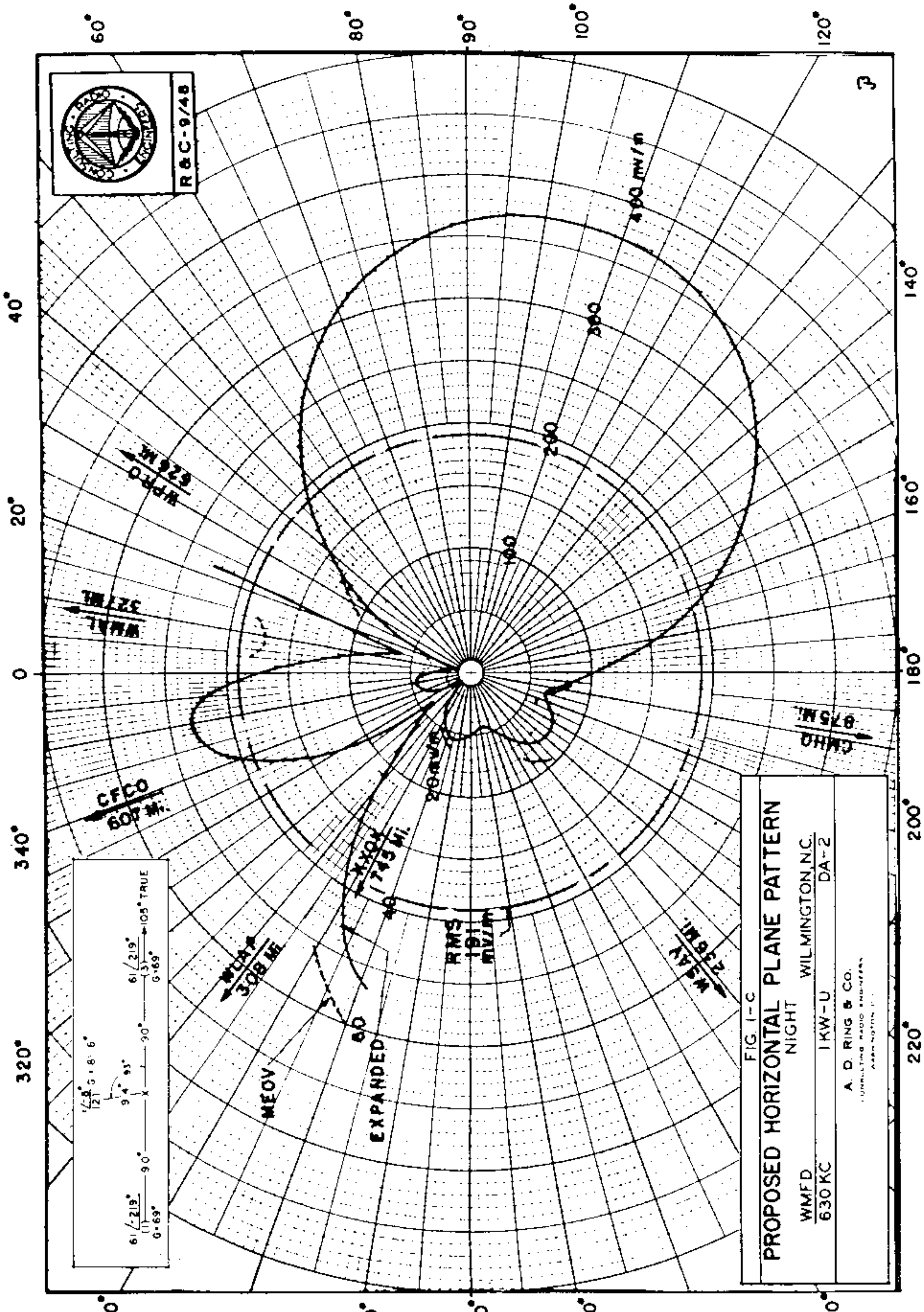
630KC 1KW-U DA-2

Filed 2-6-47

RING & CLARK

10/14/48G

WMFD-630 KC

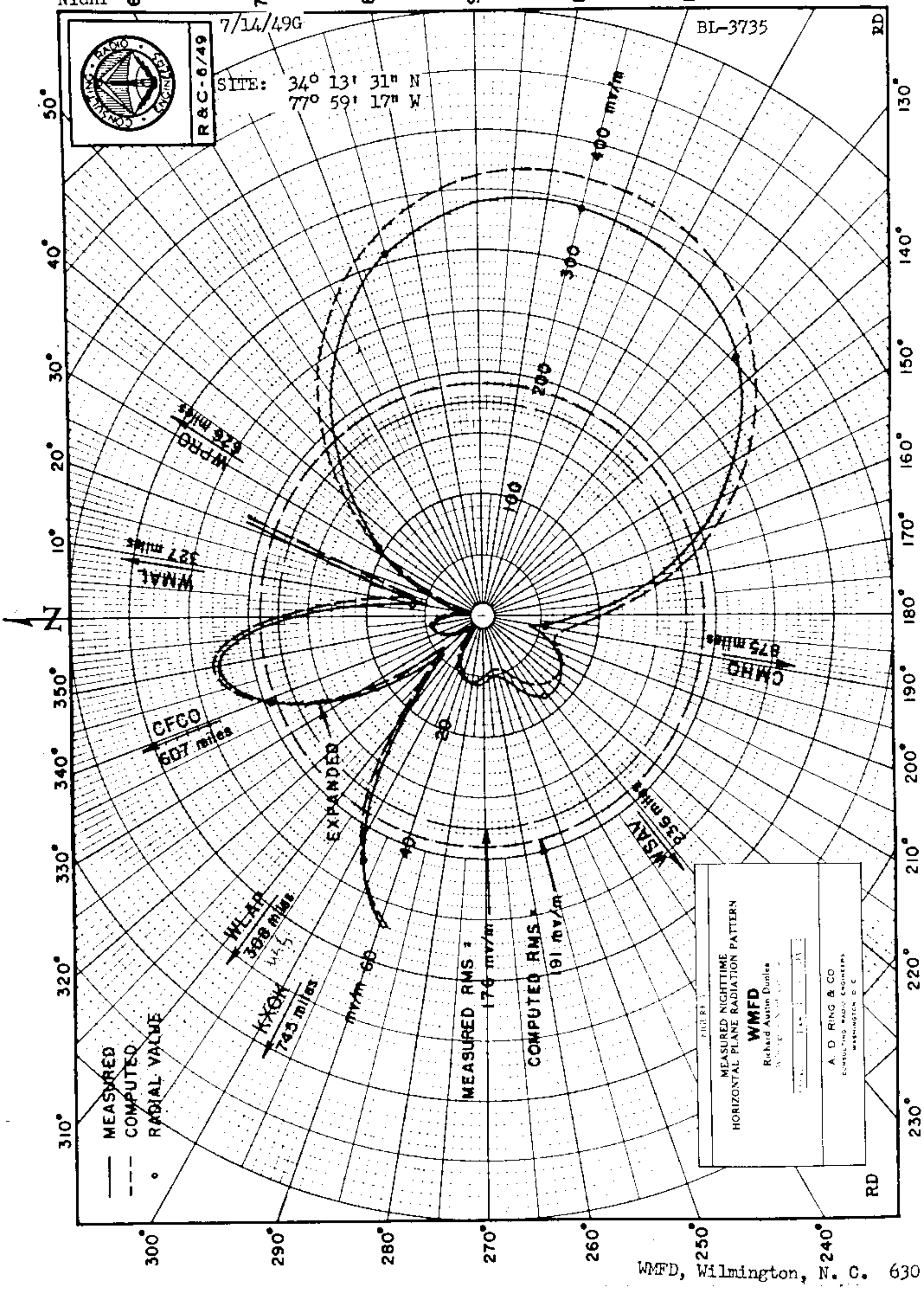


Amendment Rec'd 10-7-48

BMP-3895

WMFD

MEASURED NIGHT — WMFD, WILMINGTON, N. C. — 7-1-49 — 1kw, DA-2 — 630 kc



WMFD, Wilmington, N. C. 630 kc

WPRD
630 kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WPRD

Main Studio: Providence, Rhode Island

Frequency: 630 kHz

Poser: 5kw Night 5kw Day

Notification List No. 1787

Date: July 10, 1980 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 41° 46' 28"
West Longitude: 71° 19' 23"

ANTENNA CHARACTERISTICS

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

TOWER:	SW(#1)	NE(#2)
HEIGHT ABOVE INSULATORS:	380'	380' (87.5°)
NIGHT PHASING:	0	-6°
NIGHT FIELD RATIO:	1.0	1.14

SPACING AND ORIENTATION: Towers in a row are spaced 820' (189°) on a line bearing 60° true.

GROUND SYSTEM: 120 275' to 385' equally spaced copper radials plus a 35' 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.

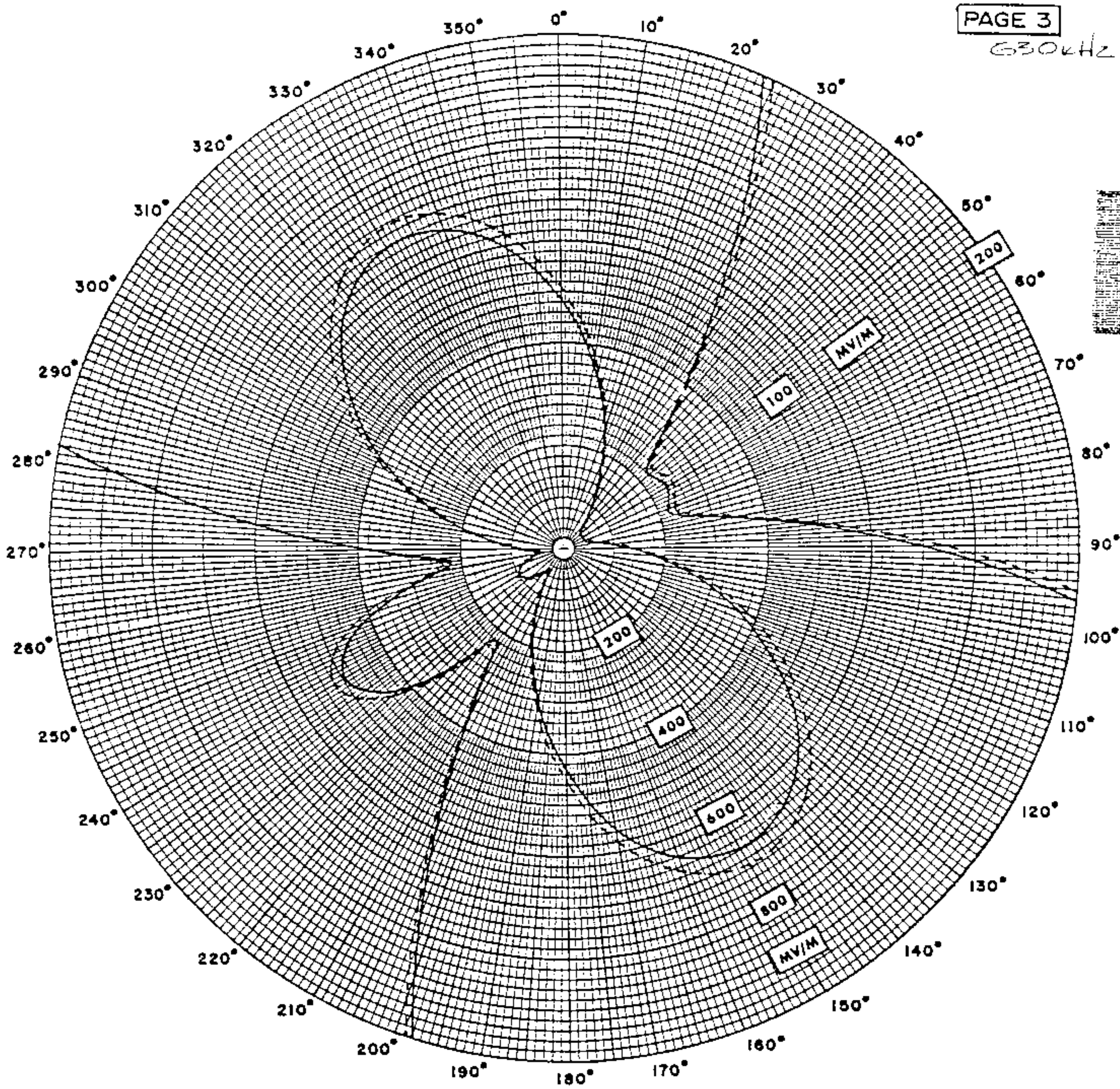
DAYTIME PREDICTED EFFECTIVE FIELD (omnidirectional) AT RATED POWER: 425 mV/m

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Night	391.48 mv/m		

WIKD

630kHz



N. LAT.	41 °	46 ′	28 ″
W. LONG.	71 °	19 ′	23 ″
RMS	391.481		mv/m

ANTENNA NO.	1	2
FIELD	1	1.14
PHASE	0	-6°
SPACING	REF	189°
ORIENTATION	REF	60°T
HEIGHT	87.5	87.5

PROPOSED HORIZONTAL PATTERN
WPRO - PROVIDENCE, RHODE ISLAND
630 kHz - 5 KW - DA-N

MARCH, 1976

GAUTNEY & JONES—CONSULTING ENGINEERS

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WPRO

Main Studio: Providence, Rhode Island

Frequency: 630 kHz

Power: 5kw Night 5kw Day

Notification List No. 1773

Date: March 29, 1978 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 41° 46' 28"
West Longitude: 71° 19' 23"

ANTENNA CHARACTERISTICS

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

TOWER:	SW	NE
HEIGHT ABOVE INSULATORS:	380	380 (87.6°)
NIGHT PHASING:	0	-8°
NIGHT FIELD RATIO:	1	1

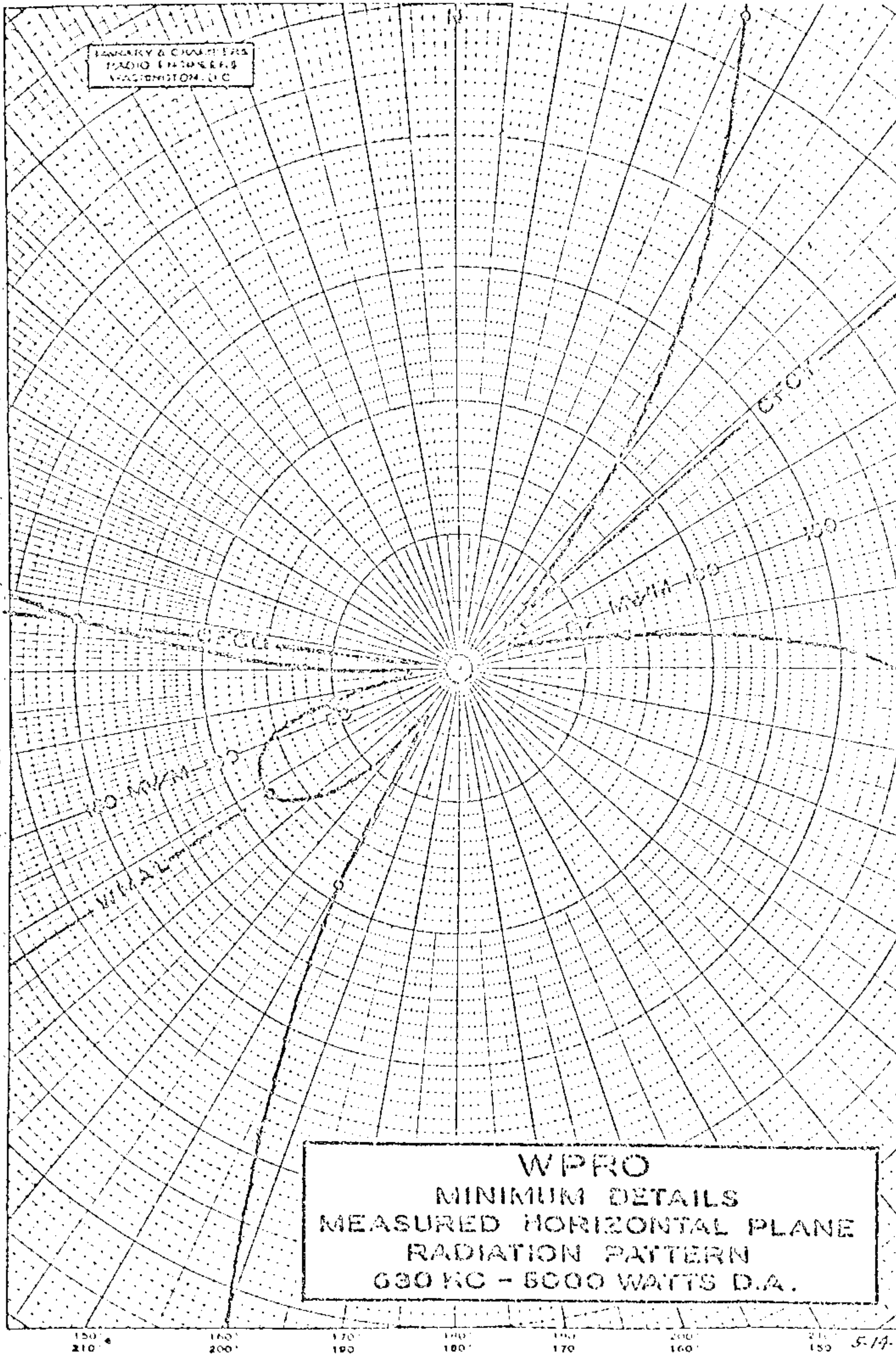
SPACING AND ORIENTATION: With the SW tower as reference the NE tower is spaced 820' (189°) on a line bearing 60° true.

GROUND SYSTEM: 180 - 225' to 385' equally spaced copper radials plus a 35' 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:

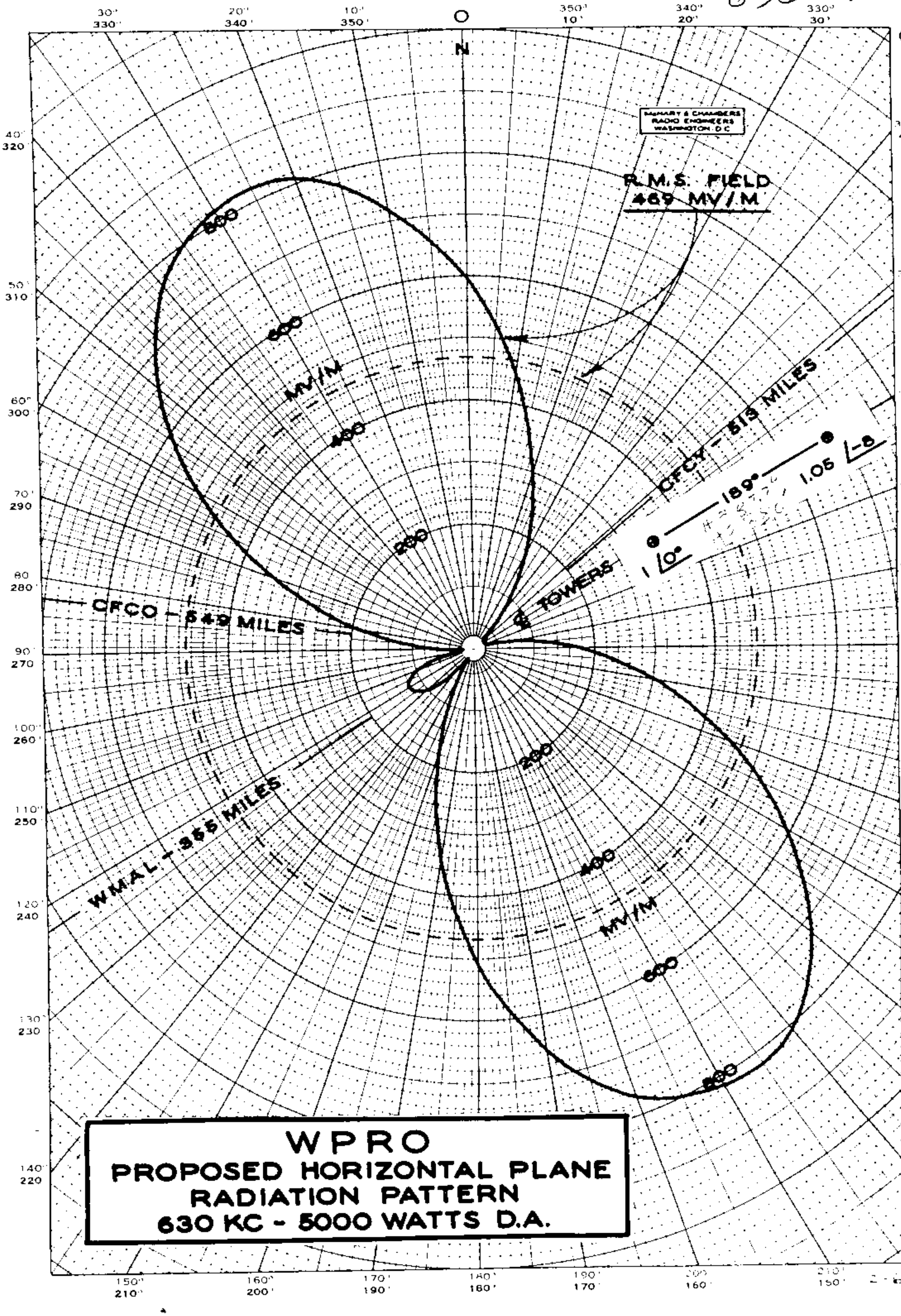
	THEORETICAL RMS	RSS
Night	470 mv/m	

Note: Please retain the Nighttime directional antenna radiation pattern notified for Station WPRO in the original United States Change List dated January 31, 1941 and attach to this Revised Description Sheet and expanded Nighttime pattern. This notification concerns only a correction in the Nighttime operation of the station to provide an expanded nighttime directional pattern which was previously omitted with Daytime operation continued as previously notified.


WPRO
MINIMUM DETAILS
MEASURED HORIZONTAL PLANE
RADIATION PATTERN
630 KC - 5000 WATTS D.A.
CFCY
WHAM
CFCO
WMAL
100 MV/M
N

5-14-40

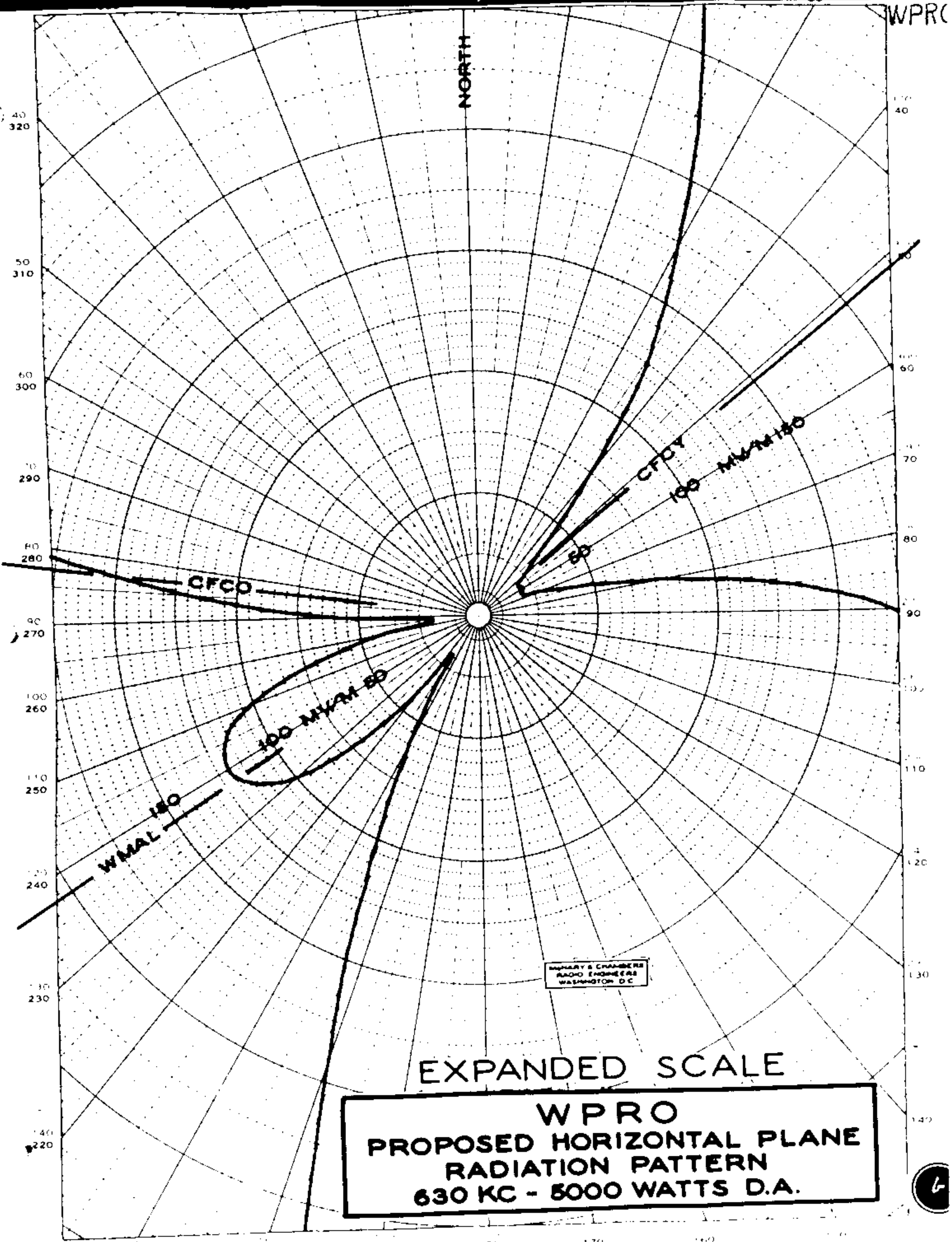
630 WPRO



630

2-6-40

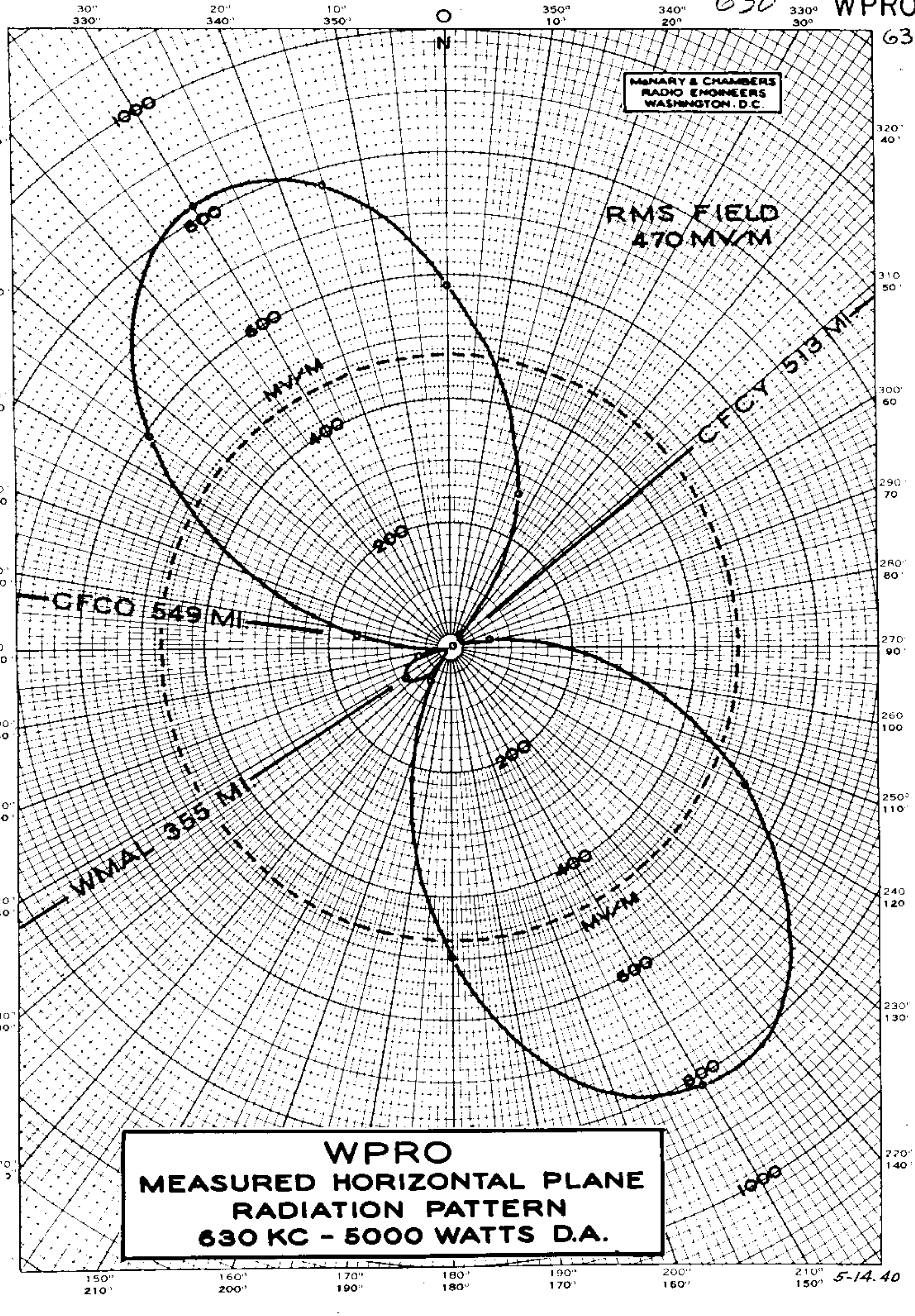
PROPOSED NIGHT NULLS Station WPRO 5kw, DA-N,U
Providence, Rhode Island 630 KC



2-8-40

81

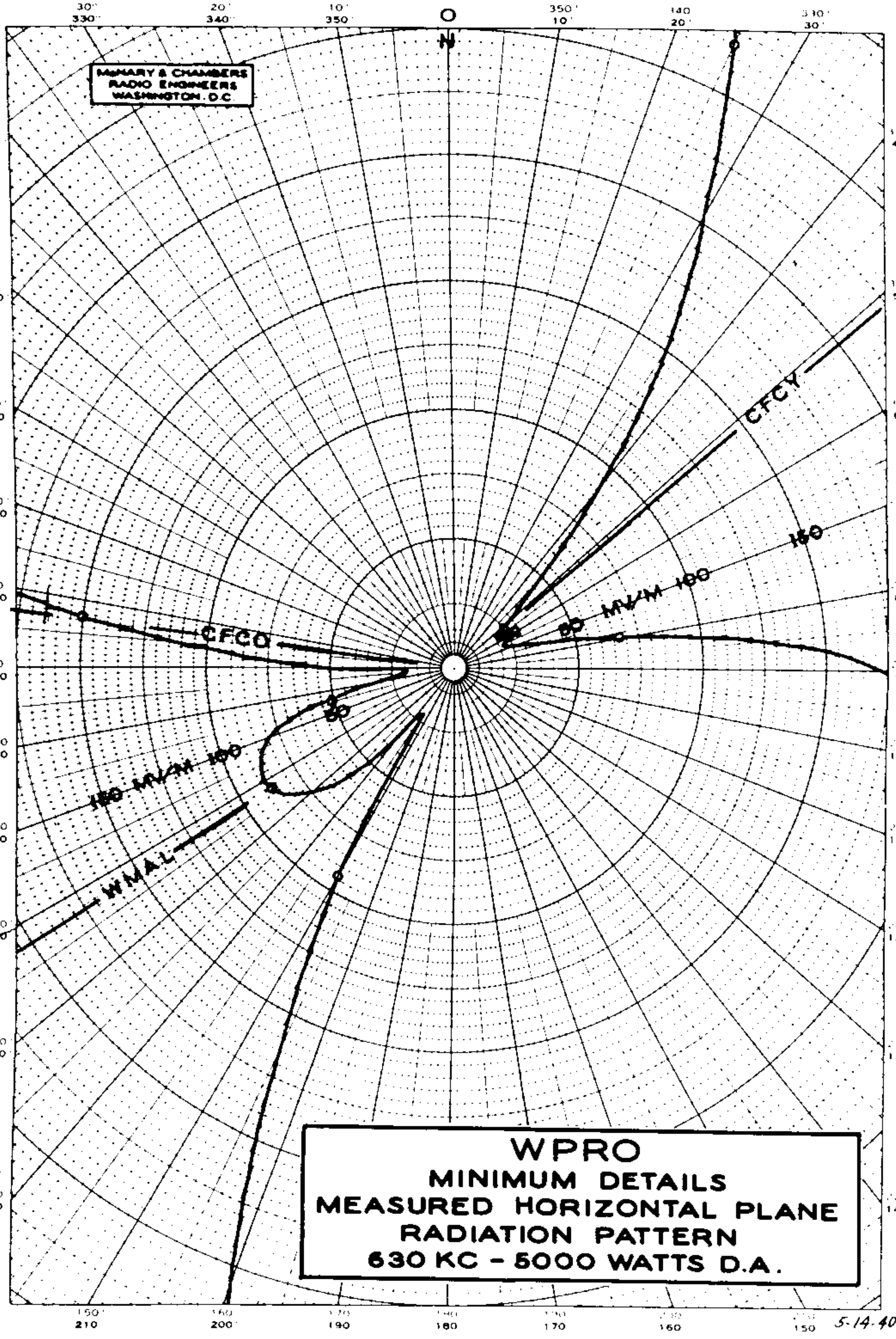
630 WPRO
630



WPRO
MEASURED HORIZONTAL PLANE
RADIATION PATTERN
630 KC - 5000 WATTS D.A.

5-14.40

WPRO-630 KC



86

5-14-40

WQBS

SUPPLEMENTAL DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WQBS Main Studio: San Juan, Puerto Rico

Frequency: 630 kHz Power: 5 kW

Notification List No. 1676 Date: March 19, 1976 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 18° 26' 00" West Longitude: 66° 07' 29"

Authorized for Day and Night operation. (DA-2)

Note: Please retain the description sheet and directional antenna radiation patterns notified for station WQBS in United States Change List Number 1648, dated September 5, 1975, and attach to this supplemental Description Sheet. This notification is for the purpose of indicating only a change in the geographical coordinates of the center of the antenna system.

CTR NO 30690A7

WQBS

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WQBS	Main Studio: San Juan, Puerto Rico		
Frequency: 630 kHz	Power: 5 kW		
Notification List No. 1648	Date: September 5, 1975	Class: III	

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 18° 26' 10"
West Longitude: 66° 07' 33"

STANDARD PATTERNS

ANTENNA CHARACTERISTICS

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

TOWER:	SW(#1)	NE(#2)
HEIGHT ABOVE INSULATORS:	250'	250' (57.6°)
NIGHT PHASING:	0°	-143.5°
NIGHT FIELD RATIO:	1	0.97
DAY PHASING:	0°	-133°
DAY FIELD RATIO:	1	0.8

SPACING AND ORIENTATION: Elements are spaced 347' (80°) on a line bearing 41.5° true.

GROUND SYSTEM: 120-392' equally spaced copper radials plus a 40' 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		STANDARD
	RMS	RSS	RMS
Day	413 mv/m	524 mv/m	433 mv/m
Night	415 mv/m	564 mv/m	437 mv/m

Note: Antenna height shown on the attached directional antenna radiation patterns should be 57.6°.

CTR NO 30690A6

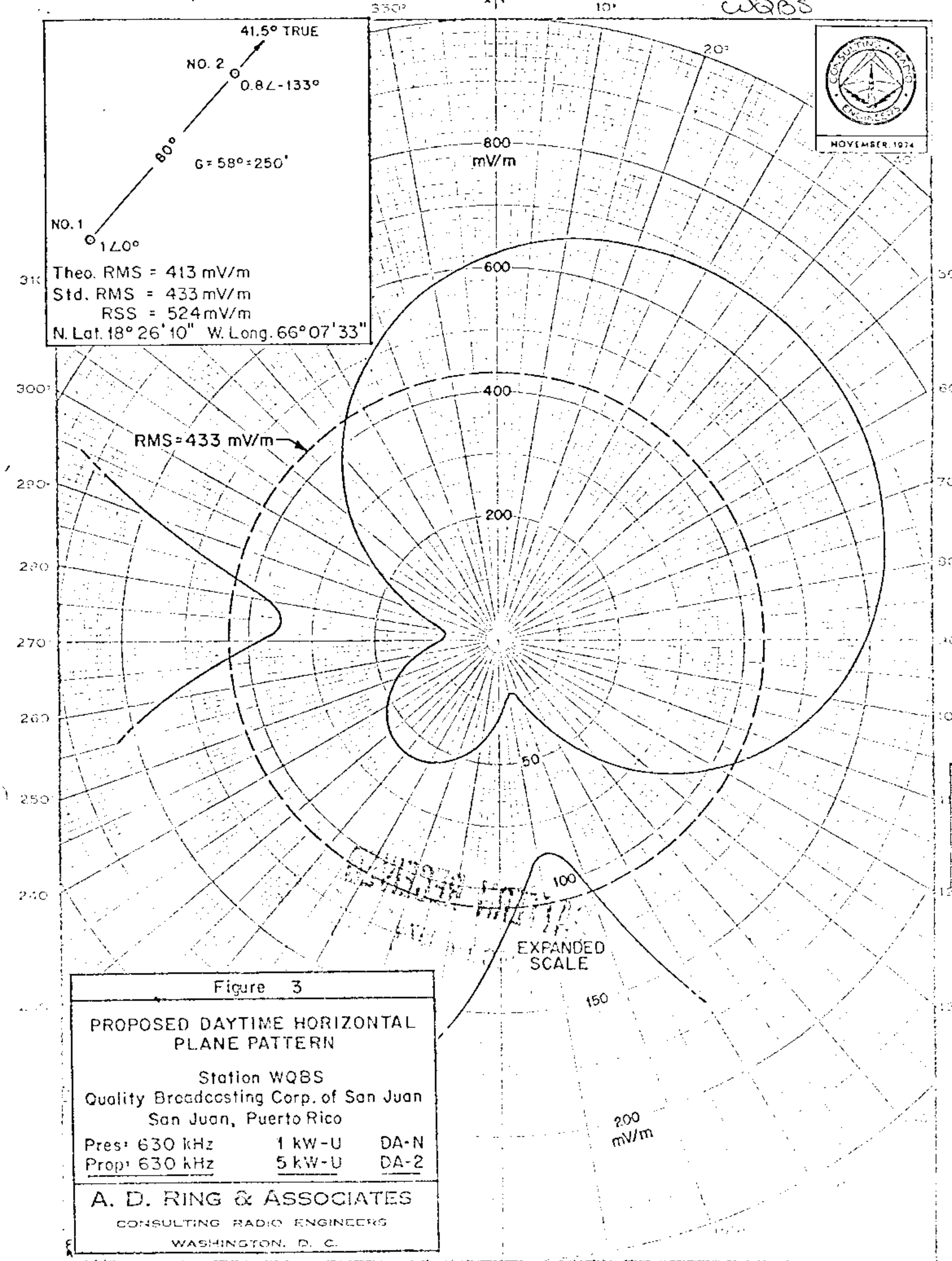


Figure 3

PROPOSED DAYTIME HORIZONTAL PLANE PATTERN

Station WQBS
Quality Broadcasting Corp. of San Juan
San Juan, Puerto Rico

Pres: 630 kHz	1 kW-U	DA-N
Prop: 630 kHz	5 kW-U	DA-2

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

Standard Pattern

A. D. RING & ASSOCIATES - 5/67 - 500

Standard Pattern

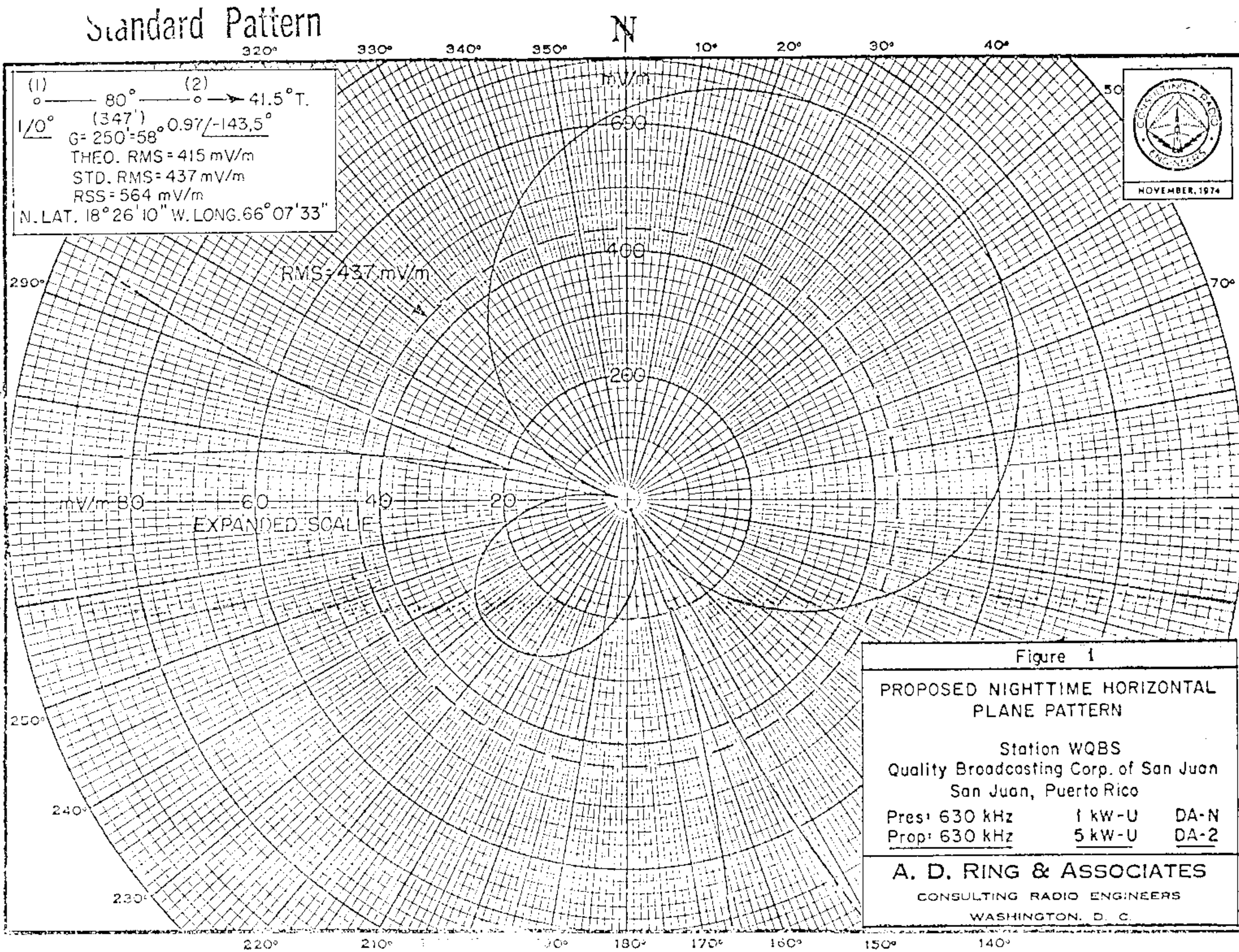


Figure 1

PROPOSED NIGHTTIME HORIZONTAL PLANE PATTERN

Station WQBS
Quality Broadcasting Corp. of San Juan
San Juan, Puerto Rico

Pres:	630 kHz	1 kW-U	DA-N
Prop:	630 kHz	5 kW-U	DA-2

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

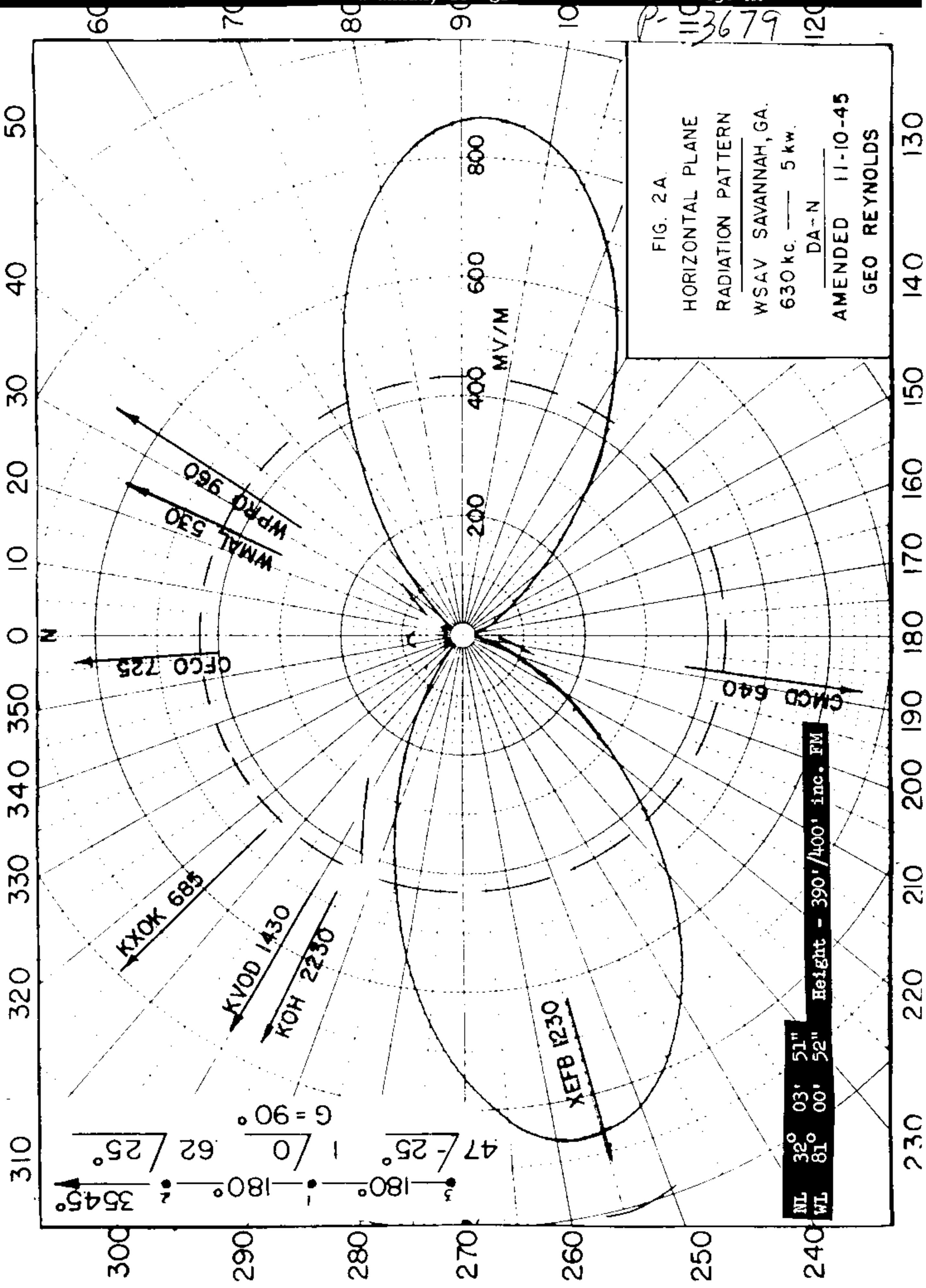
WQBS 630 KHZ

WQBS

WSAV

PROPOSED NIGHT | Station WSAV Savannah, Georgia | 5kw, DA-N,U 630 KC

P-3679



WSAV

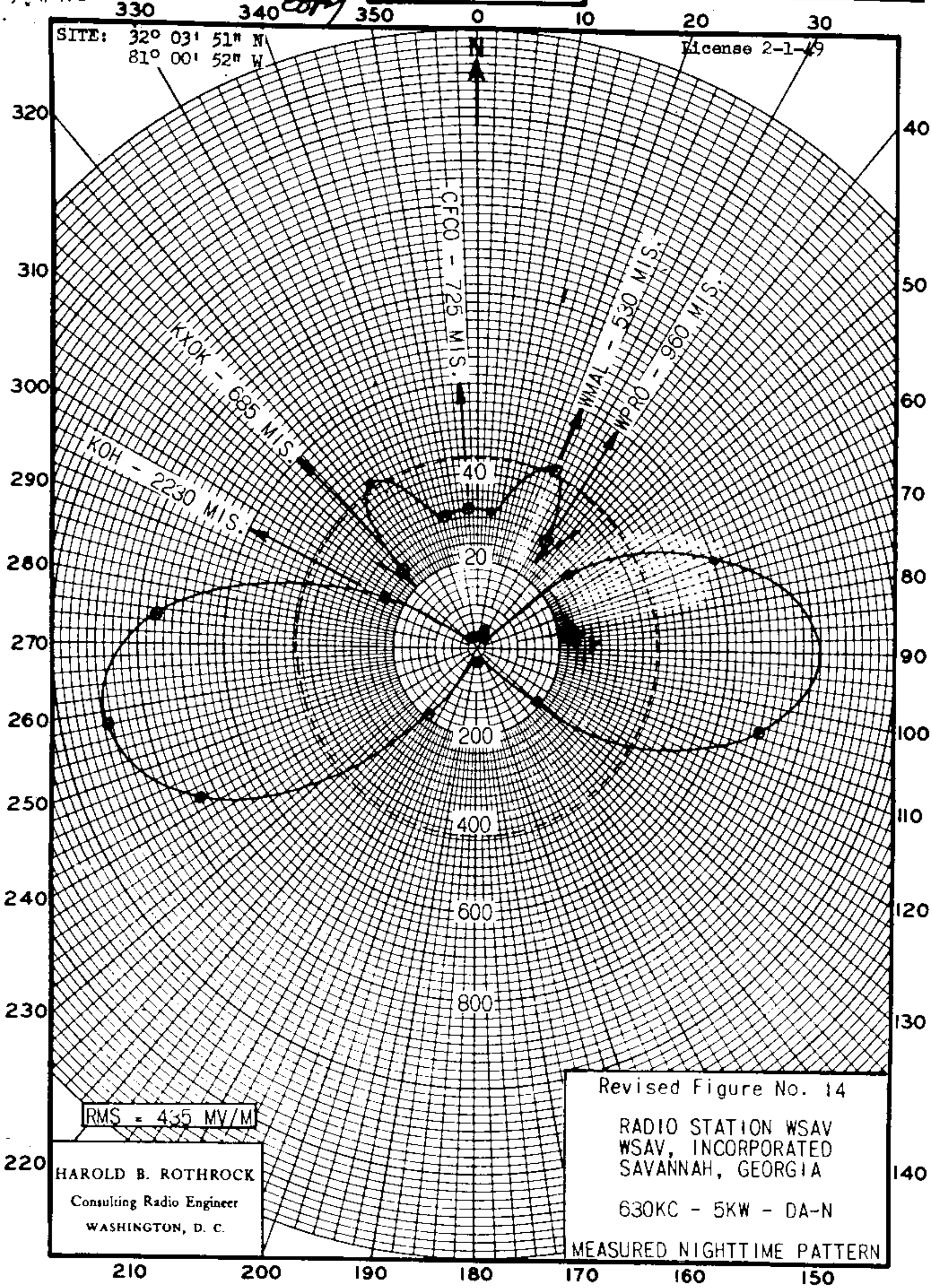
MEASURED
NIGHT 2/24/49G

WSAV, SAVANNAH, GA.

PATTERN No.: 490127
SUPERSEDES: 480217

5kw,DAN

WSAV - 630KC



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

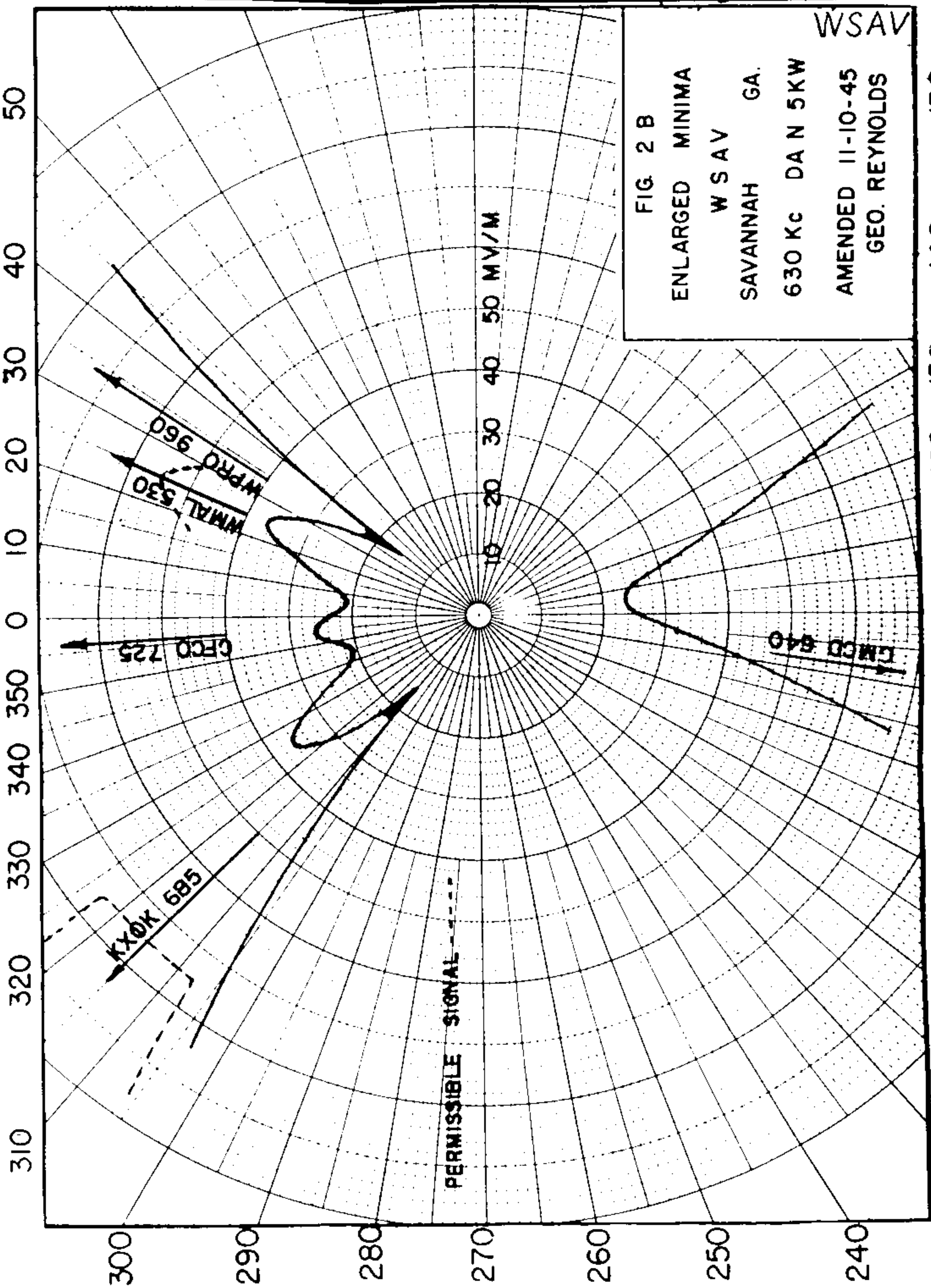
Revised Figure No. 14

RADIO STATION WSAV
WSAV, INCORPORATED
SAVANNAH, GEORGIA

630KC - 5KW - DA-N

MEASURED NIGHTTIME PATTERN

PROPOSED NIGHT NULLS | Station WSAV Savannah, Georgia | 5kw, DA-N,U 630 KC



WSAV

MEASURED
DAY(non-DA)

WSAV, SAVANNAH, GA.

PATTERN No. 480216
SUPERSEDES:

5kw,DAN

WSAV - 630KC

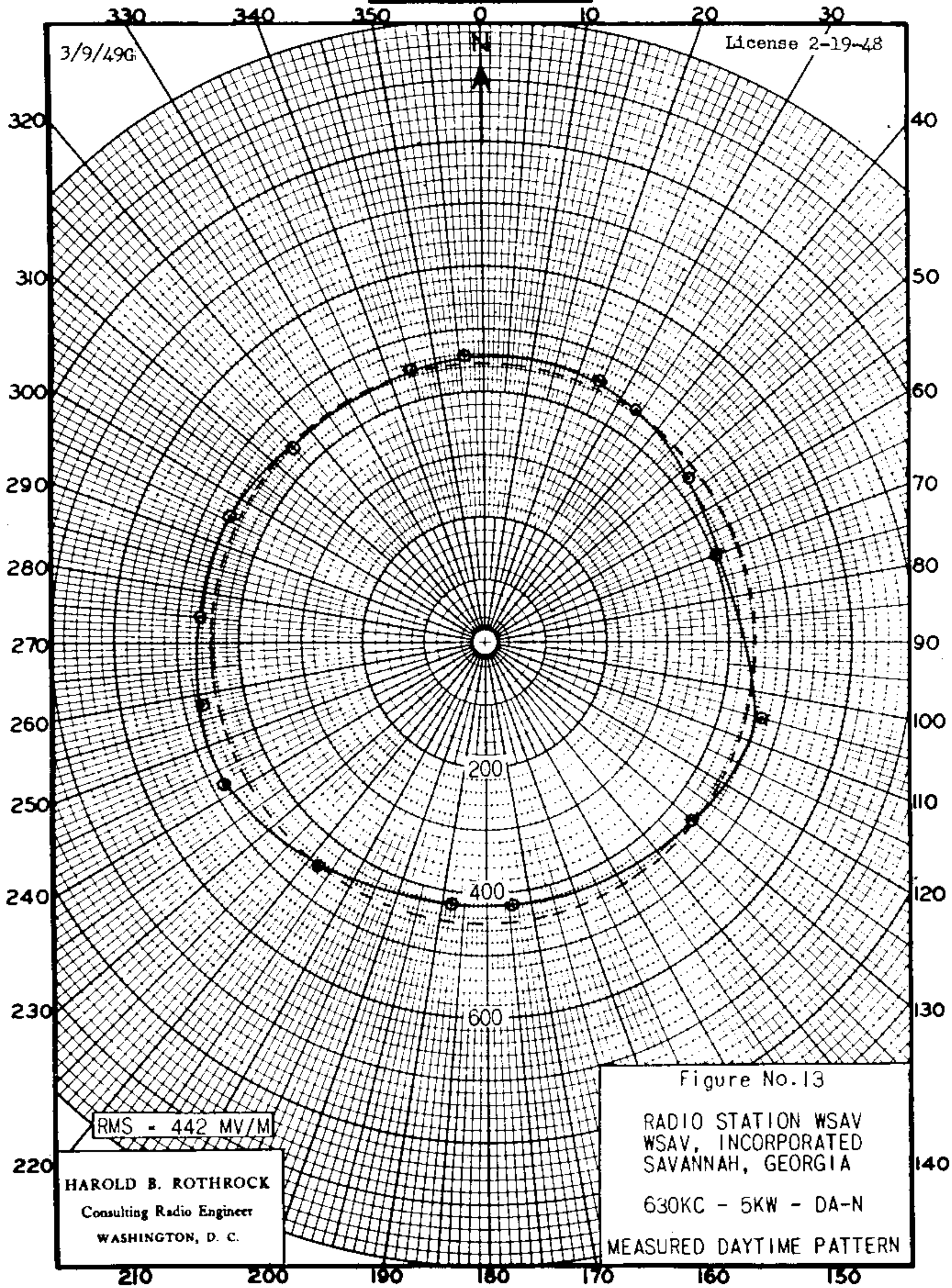


Figure No. 13

RADIO STATION WSAV
WSAV, INCORPORATED
SAVANNAH, GEORGIA

630KC - 5KW - DA-N

MEASURED DAYTIME PATTERN

WYIS
630 KHZ
DA-D

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: W Y I S — Main Studio: Phoenixville, Pennsylvania

Frequency: 630 kHz — Power: 1 kW Day

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

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 40° 08' 08"
West Longitude: 75° 33' 37"

ANTENNA CHARACTERISTICS

Authorized for Daytime operation. (DA-D)
Number of elements: 2
Type of elements: Series excited, uniform cross-section, guyed, vertical steel towers. Top loaded to an effective height of 109.8°.

TOWER:	#1 (NE)	#2 (SW)
HEIGHT ABOVE INSULATORS:	360'	360'
DAY PHASING:	0°	-13°
DAY FIELD RADIO:	1.0	0.75

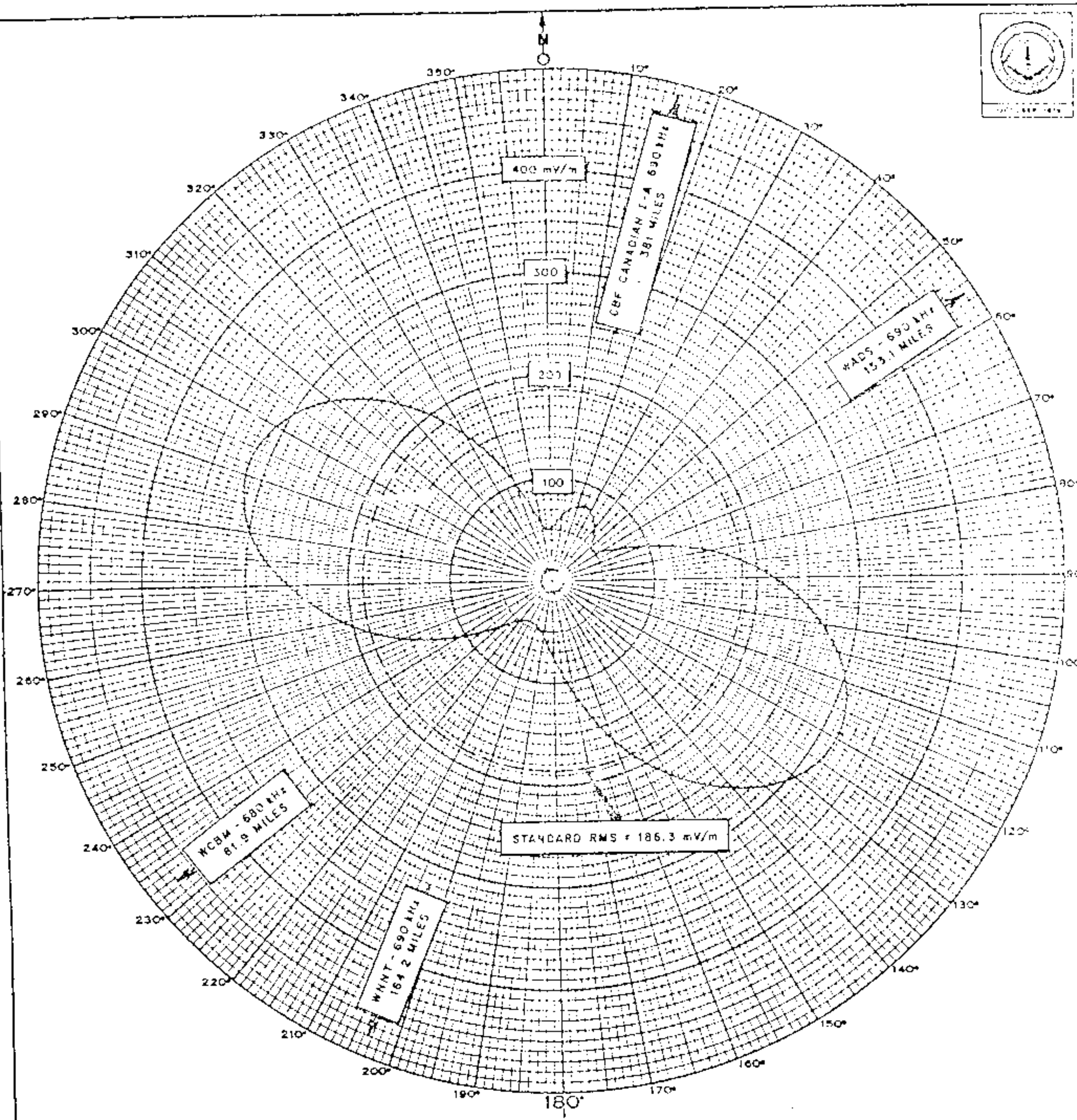
SPACING AND ORIENTATION: The towers are spaced 752.3' (190°) on a line bearing 206° true.

GROUND SYSTEM: 120-360' equally spaced copper radials about each tower.

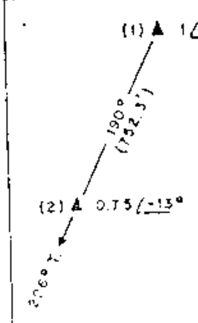
PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	177.3 mV/m	215.9 mV/m	186.3 mV/m

WYIS
630KHz
DA - [illegible]



Standard Pattern



RMS (Theo.) = 177.3 mV/m
RMS (Std.) = 186.3 mV/m
RSS = 215.9 mV/m
G = 360' = 109.8°
(WITH TOP LOADING)

NORTH LAT. 40° 08' 08"
WEST LONG. 75° 33' 37"

FIGURE 1

PROPOSED STANDARD DAYTIME
HORIZONTAL PLANE RADIATION PATTERN

STATION WYIS
HART BROADCASTING COMPANY, INC.
PHOENIXVILLE, PENNSYLVANIA

Pres. 690 kHz	0.5 kW	Day - DA
Prop. 690 kHz	1.0 kW	Day - DA

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

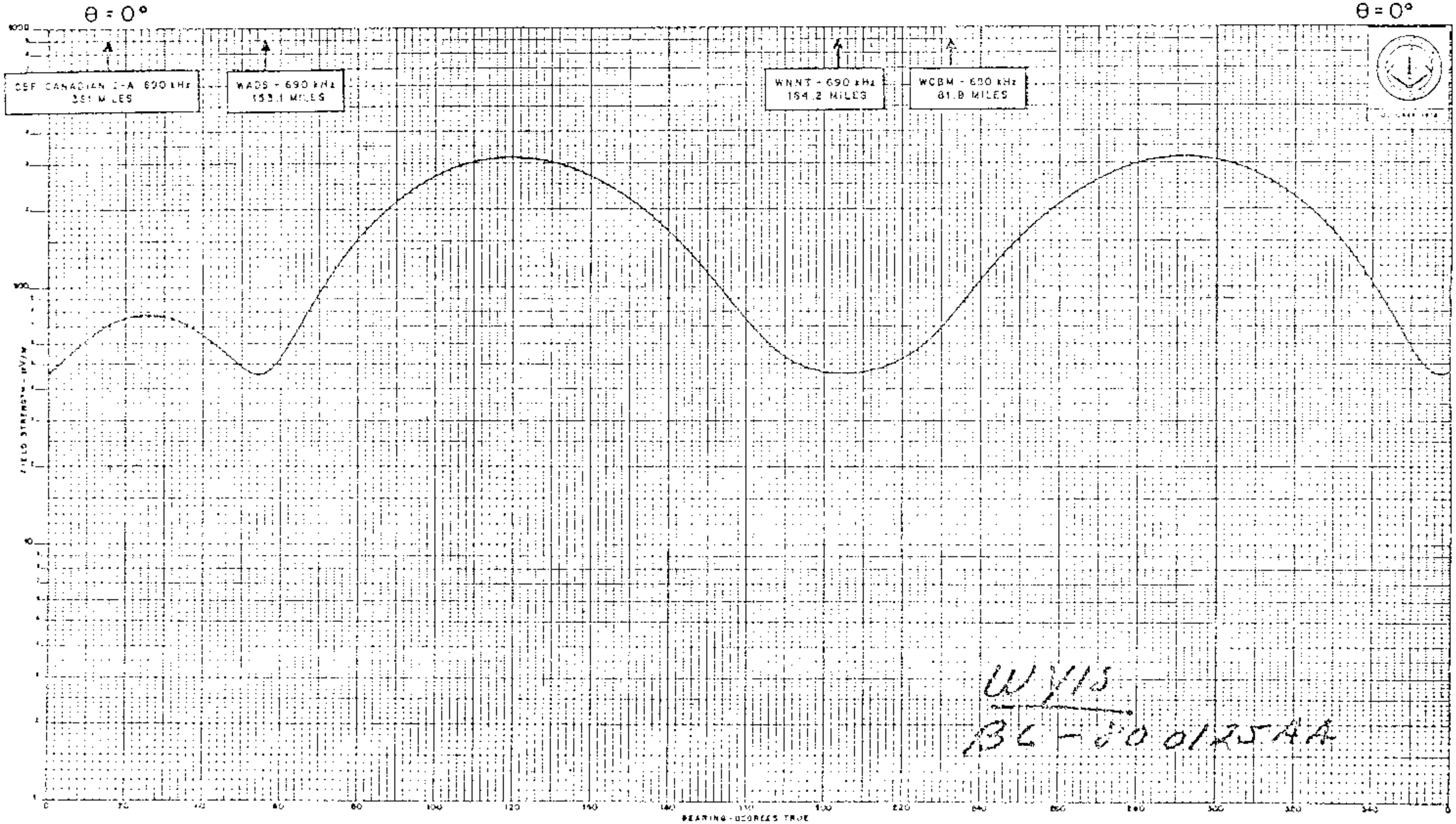


FIGURE 2A

WYIS
630 kHz
DA-D

Mexico XEFB

Proposed Night & Day (1-21-55G)	XEFB Monterrey, N. L.	10 KW DA-2, Class III-A	630 KC

DIRECTIONAL ANTENNA DESCRIPTION SHEET 15111

Station: XEFB — Main Studio: Monterrey, N. L.

Frequency: 630 kcs — Power: 10kw

Notification List No. 172 — Date: Oct. 25, 1954 Class : III-A

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 100° 14' 33.5"

West Longitude: 25° 41' 6.2"

ANTENNA CHARACTERISTICS

Authorized for Day and Night operation. (DA-2)
Number of elements: Four (4)
Type of elements: Series-fed, uniform cross-section, guyed vertical steel towers.

TOWER:	West	South	North	East
HEIGHT ABOVE INSULATORS:	90°	90°	90°	90°
NIGHT PHASING:	0°	180°	155°	-25°
NIGHT FIELD RATIO:	1.0	1.0	1.0	1.0
DAY PHASING:	-	0°	-	68°
DAY FIELD RATIO:	-	1.0	-	1.0

SPACING AND ORIENTATION: The towers are located at the vertices of a parallelogram the sides of which are 45° in length. Two sides are on a line bearing 46° true. The other two sides are on a line bearing 116° true.

Ground System: The equivelent of 120-392' equally spaced radials about each tower with radials shortened and bonded by transverse straps along intersections between towers.

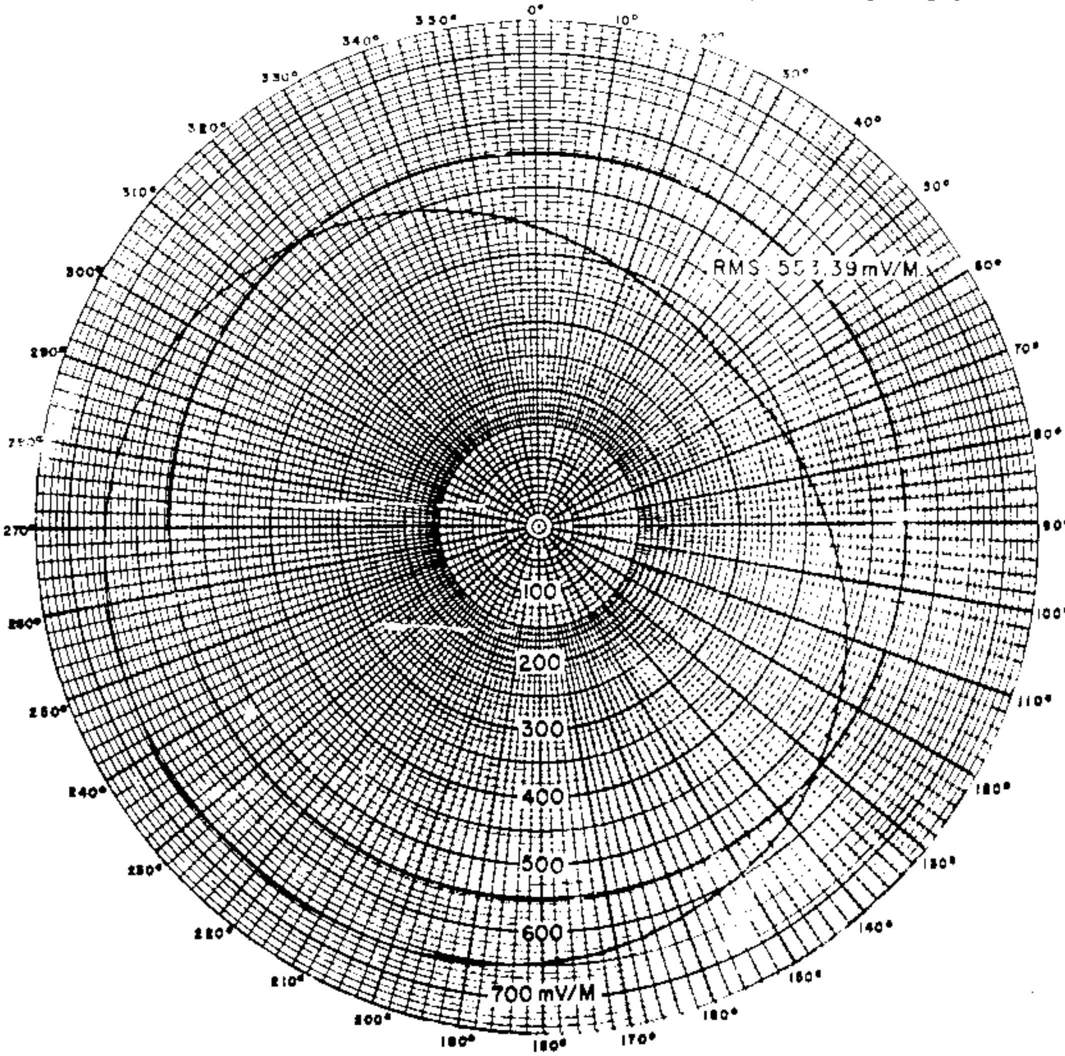
Predicted effective Night Field: 553.39 mv/m (at rated power)

Predicted effective Day Field: 553.39 mv/n (at rated power)

Mexico XEFB

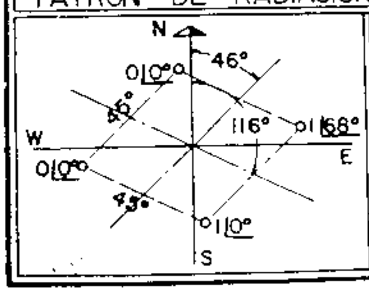
PROPOSED DAY (1-21-55G)	XEFB MONTERREY, N.L.	10 KW DA-2, Class III-A	630 KC

OPERACION DIURNA



100° 14' 33.5" N (Latitude)
25° 41' 6.2" W (Longitude)

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



EMISORAS INCORPORADAS DE MONTERREY S.A.

XEFB

Monterrey N.L.

630 Kc/s.

10000 Watts.

ARTURO AMADOR

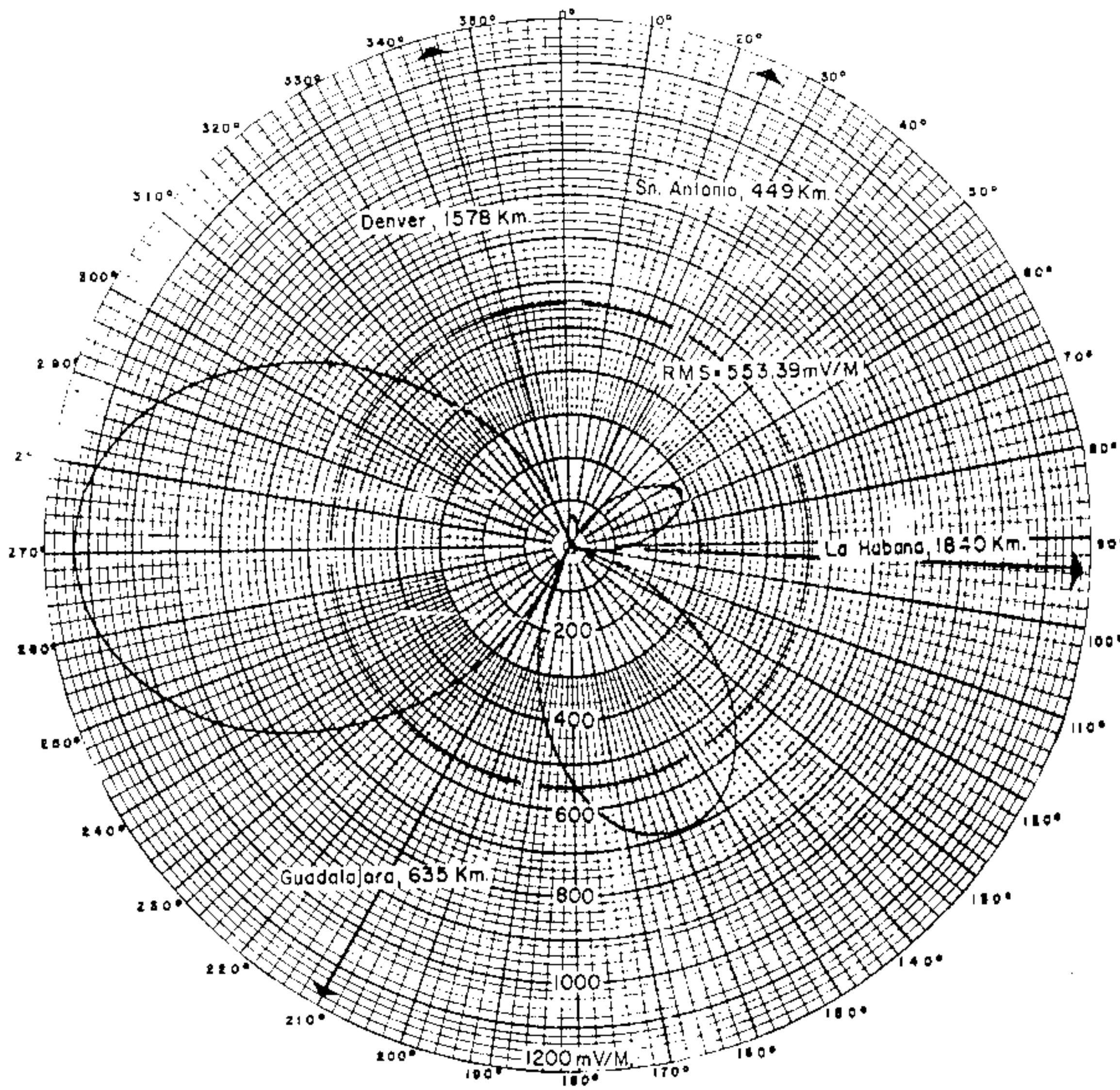
Pasante Ing. COMUNICACIONES

Mexico

XEFB

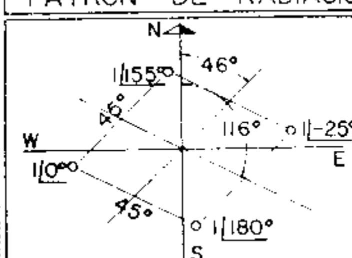
PROPOSED NIGHT (1-21-55G)	XEFB MONTERREY, N. L.	10 KW DA-2, Class III-A	630 KC

OPERACION NOCTURNA



100° 14' 33.5" N (Latitude)
25° 41' 6.2" W (Longitude)

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



EMISORAS INCORPORADAS
DE MONTERREY S. A.

XEFB

Monterrey N. L.

630 Kc/s

10000 Watts.

ARTURO AMADOR
Pasante Ing. COMUNICACIONES