1430-1450

Station	Main Studio	Freq	Power	Date
NEW	Grande Prairie, Alberta	1430	10 kW/DA-1	1/27/78
CKFH	Toronto, Ontario	1430	50 kW/DA-2	12/23/70
CKFH	Toronto, Ontario	1430	50 kW/DA-2	7/29/70
CKFH	Toronto, Ontario	1430	10 kW/DA-2	1/30/67
CKFH	Toronto, Ontario	1430	5/10 kW/DA-2	12/15/60
KALI	Pasadena, CA	1430	5 kW/DA-D	8/1/52
KALI	San Gabriel, CA	1430	5 kW/DA-2	12/12/58
KALV	Alva, OK	1430	0.5 kW/DA-1	5/12/76
KARM	Fresno, CA	1430	5 kW/DA-1	12/28/67
KBEV	Beaver Dam, WI	1430	1 kW	8/30/78
KBRC	Mt. Vernon, WA	1430	1 kW/DA-N	8/31/56
KNTA	Santa Clara, CA	1430	1 kW/DA-1	3/30/64
KEES	Gladewater, TX	1430	1 kW/DA-N	8/30/78
KELI	Tulsa, OK	1430	5 kW/DA-N	4/28/66
KJAY	Sacramento, CA	1430	5 kW/DA-D	7/24/63
KKAT	Roswell, NM	1430	1 kW/DA-N	12/21/59
KLO	Ogden, UT	1430	5 kW/DA-N	10/1/75
KOSI	Aurora, CO	1430	5 kWDA-N	10/26/79
KRGI	Grand Island, NE	1430	1 kW/DA-N	5/27/53
WBRB	Mt. Clemens, MI	1430	5 kW/DA-D	8/26/66
WBRB	Mt. Clemens, M	1430	0.5 kW/DA-2	10/5/76
WDEX	Monroe, NC			
WEEF	Highland Park, IL	1430	1 kW/DA-2	
WEIR	Weirton, WV	1430	1 kW/DA-2	1/22/71
WENE	Endicott, NY	1430	5 kW/DA-N	1/16/75
WENO	Madison, TN	1430	5 kW/ND/1 kW/DA-N	4/24/64
WFOB	Fostoria, OH	1430	1 kW/DA-2	5/29/56

1430-1450

Station	Main Studio	Freq	Power	Date
WHIL	Everett, WA	1430	5 kW/DA-N	12/9/60
WIL	St. Louis, MO	1430	5 kW/DA-2	6/28/43
WION	Ionia, MI	1430	5 kW/DA-D	7/27/62
WIRE	Indianapolis, IN	1430	5 kW/DA-N	5/28/64
WJRB	Madison, TN	1430	1 kW/DA-2	9/12/80
WMNC	Morganton, NC	1430	1/5 kW/DA-N	10/26/64
WNAV	Annapolis, MD	1430	1/5 kW/DA-N	2/21/74
WNJR	Newark, NJ	1430	5 kW/DA-N	2/9/73
WPCF	Panama City, FL	1430	5 kW/DA-2	7/12/55
WQDI	Homestead, FL	1430	0.5 kW/DA-N	10/26/79
WTTT	Amherst, MA	1430	5 kW/DA-D	6/28/63
WVAM	Altoona, PA	1430	1/5 kW/DA-N	9/68
WVVX	Highland Park, IL	1430	1 kW/DA-D	8/23/63
WWGS	Tifton, GA	1430	1/5 kW/DA-N	11/11/60
WYMC	Mayfield, KY	1430	1 kW/DA-D	11/16/79
NEW	Bathurst, NB	1430	10 kW/DA-1	5/12/72
CFGO	Ottawa, ON	1440	50 kW/DA-2	6/12/81
CJOI	Wetaskiwin, AL	1440	10 kW/DA-N	10/12/73
CJOI	Wetaskiwin, AL	1440	1 kW/DA-1	5/31/67
NEW	Courteney, BC	1440	1 kW/DA-N	9/24/58
CFGO	Ottawa, ON	1440	50 kW/DA-1	8/27/71
KDNT	Denton, TX	1440	0.5 kW/DA-N	7/27/65
KEWI	Topeka, KS	1440	1/5 kW/DA-2	2/28/69
KEYS	Corpus Christi, TX	1440	1 kW	9/8/70
KMLB	Monroe, LA	1440	1/5 kW/DA-N	11/17/61
KODL	The Dalles, OR	1440	1/5 kW/DA-N	3/8/77
KPUR	Lufkin, TX	1440	1/5 kW/DA-N	6/29/70

1430-1450

Station	Main Studio	Freq	Power	Date
KEVE	Golden Valley, MN	1440	0.05/0.5 kW/DA-N	9/25/57
KUHL	Santa Maria, CA	1440	1/5 kW/DA-N	11/16/77
KVON	Napa, CA	1440	1/5 kW/DA-2	2/5/70
KVON	Napa, CA	1440	0.5/5 kW/DA-2	1/31/67
NEW	Martin, KY	1440	2.5 kW/DA-D	10/26/79
WAAB	Worcester, MA	1440	5 kW/DA-N	1/11/55
WAAB	Worcester, MA	1440	5 kW/DA-2	3/26/64
WAAB	Worcester, MA	1440	1 kW/ND	4/24/64
WAJR	Morgantown, WV	1440	0.5/5 kW/DA-2	11/9/56
WAKC	Normal, IL	1440	1 kW/DA-D	11/29/62
WAKC	Normal, IL	1440	0.5/1 kW/DA-N	6/29/64
WAYK	Lehigh Acres, FL	1440	1/5 kW/DA-2	4/10/61
WBCM	Bay City, MI	1440	5 kW/DA-2	
WBUY	Lexington, NC	1440	1/5 kW/DA-N	7/26/61
WCDS	Glasgow, KY	1440	5 kW/DA-D	6/28/78
WCHB	Inkster, MI	1440	1 kW/DA-D	5/31/79
WCHB	Inkster, MI	1440	0.5/1 kW/DA-2	5/27/65
WCHB	Inkster, MI	1440	1/5 kW/DA-2	2/28/69
WGEM	Quincy, IL	1440	1/5 kW/DA-2	10/25/61
WGIG	Brunswick, GA	1440	1 kW/DA-N	3/26/58
WGIG	Brunswick, GA	140	1/5 kW/DA-N	7/26/67
WHDM	McKenzie, TN	1440	5 kW/DA-D	12/4/80
WRRN	Warren, OH	1440	5 kW/DA-2	10/25/51
WHHY	Montgomery, AL	1440	1 kW/DA-N	12/26/46
WHHY	Montgomery, AL	1440	1/5 kW/DA-N	3/26/65
WHIS	Bluefield, WV	1440	5 kW/DA-N	2/8/49
WJBQ	Westbrook, ME	1440	5 kW/ND-D	5/31/78

1430-1450

Station	Main Studio	Freq	Power	Date
WJBQ	Westbrook, ME	1440	5 kW/DA-N	3/76
WKHJ	Holly Hill, SC	1440	1 kW/DA-N	9/27/78
WMVB	Millville, NJ	1440	1 kW/DA-D	4/29/70
WNBE	Winter Park, FL	1440	1/5 kW/DA-N	5/65
WNFL	Green Bay, WI	1440	1/5 kW/DA-2	3/50
WNFL	Green Bay, WI	1440	0.5/5 kW/DA-2	5/54
WNPV	Green Bay, WI	1440	0.5 kW/DA-2	10/1/80
WNPV	Green Bay, WI	1440	5 kW/DA-D	3/58
WOHN	Herndon, VA	1440	1 kW/DA-D	7/18/75
WPGW	Portland, IN	1440	5 kW/DA-D	9/49
WQOK	Greenville, SC	1440	5 kW/DA-N	6/17/66
WRDD	Bay City, MI	1440	2.5/5 kW/DA-2	8/30/78
WROK	Rockford, IL	1440	5 kW/DA-D	2/63
XERAL	Tonala, Jalisco	1440	5 kW	11/1/79
NEW	St. Eleuthere, PQ	1450	0.25/DA	8/26/66
CBG	Gander, Newfoundland	1450	0.25 kW	5/10/47
CFAB	Windsor, Nova Scotia	1450	0.25 kW	11/26/52
CFJR	Brockville, ON	1450	0.25/1 kW/DA-D, ND-N	5/28/59
CHEF	Granby, QU	1450	5/10 kW/DA-2	9/7/72
CHEF	Granby, QU	1450	0.25/10 kW/DA-D	6/27/69
CHRT	St. Eleuthere, PQ	1450	0.25 kW	4/29/69
CHUC	Cobourg, ON	1450	10 kW/DA-2	6/12/81
CJBM	Causapscal, QU	1450	0.25/1 kW	2/26/63
KVEN	Ventura, CA	1450	0.25/1 kW/DA-D	11/27/64
KYOR	Blythe, CA	1450	0.25/1 kW/DA-D	8/28/68
WKIP	Poughkeepsie, NY	1450	0.25/1 kW/DA-D	5/23/68
NEW	Jasper, AB	1450	1 kW	6/27/69

PROJECT #17601

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: NEW

MAIN STUDIO: Grande Prairie, Alberta

FREQUENCY: 1430 kHz

POWER: 10 kW

NOTIFICATION LIST: 370

DATE: February 3, 1978

GEOGRAPHICAL LOCATION:

Latitude 55° 08' 11" North
Longitude 118° 45' 13" West

ANTENNA CHARACTERISTICS:

Mode of Operation: DA-1

Number of Elements: 2 (Two)

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

TOWER:

	#1 (South)	#2 (North)
Height above base insulator:	155'(81.2°)	155'(81.2°)
Overall height:	160'	160'
Ratio:	1.0	.87
Phasing:	0°	-77

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

The length of all radials, with the exception of those joined along the common chord is 275' (0.4 wavelength)

SPACING AND ORIENTATION: Tower #2 is spaced 200.6'(105°) along a line bearing 19.5° True from Tower #1.

PREDICTED EFFECTIVE FIELD:

DAY AND NIGHT

574 mV/m at 1 mile for 10 kW
181 mV/m at 1 mile for 1 kW

July 5, 1977
Revised January 27, 1978

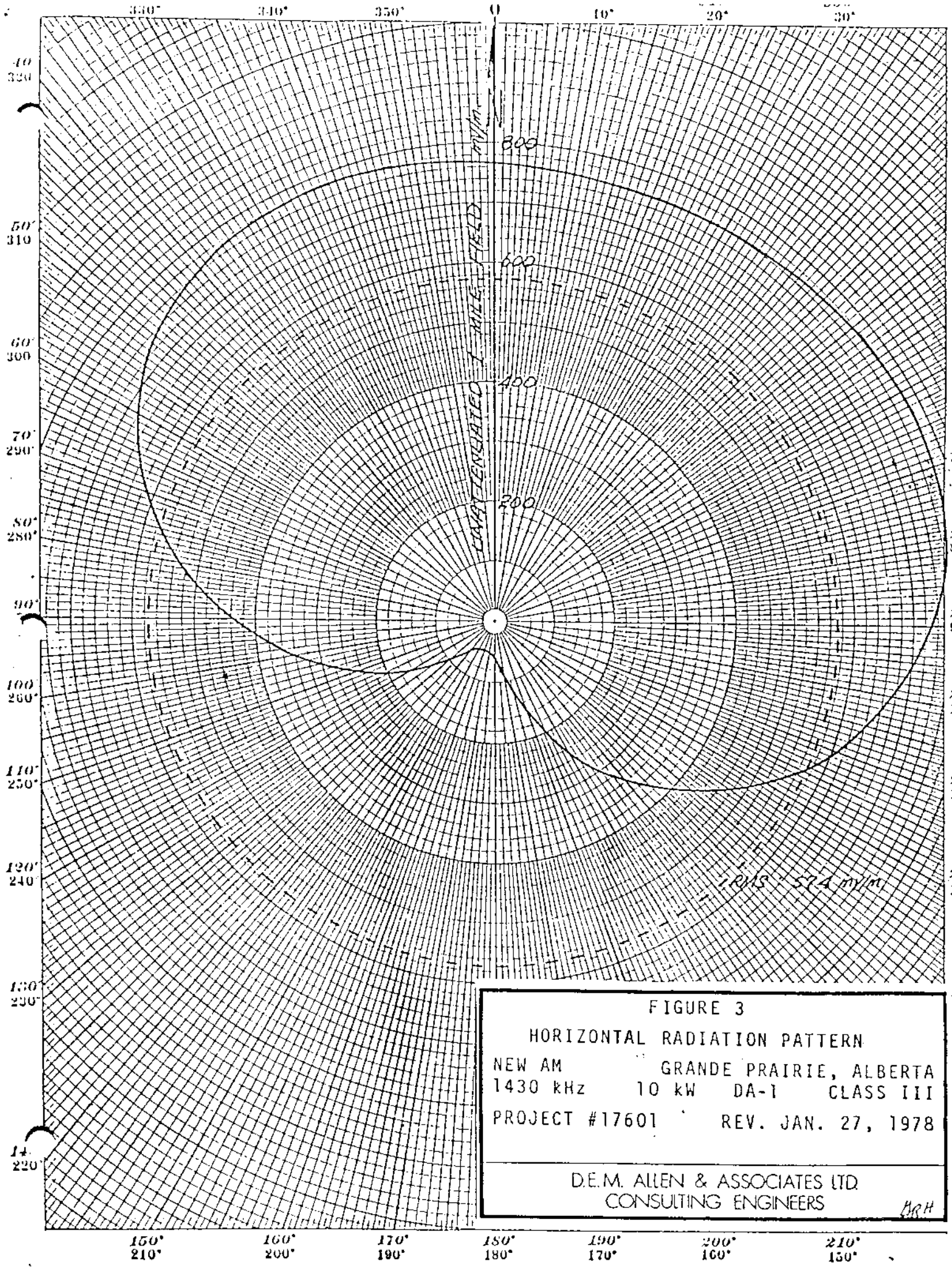


FIGURE 3

HORIZONTAL RADIATION PATTERN

NEW AM GRANDE PRAIRIE, ALBERTA

1430 kHz 10 kW DA-1 CLASS III

PROJECT #17601 REV. JAN. 27, 1978

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

BRH

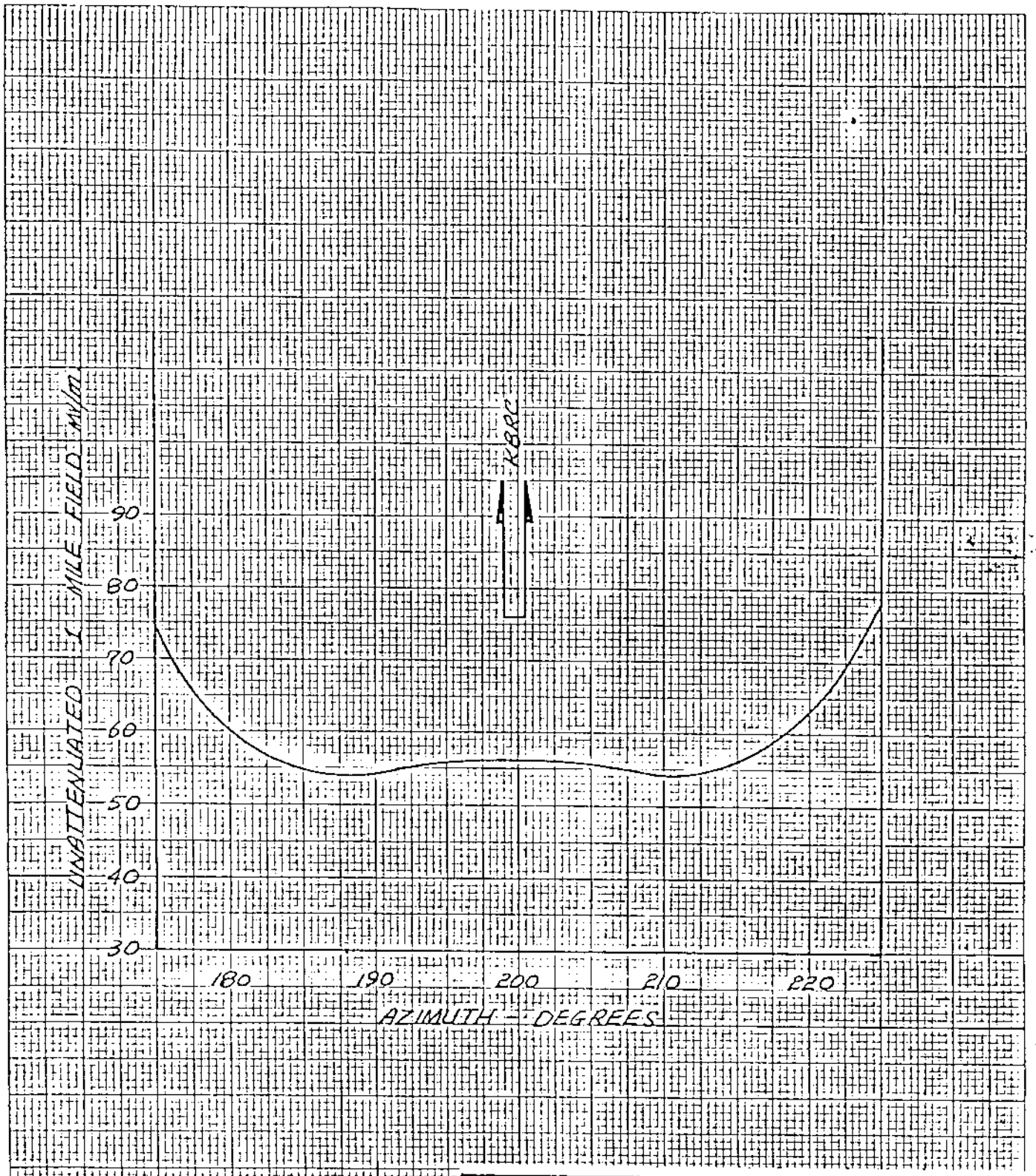


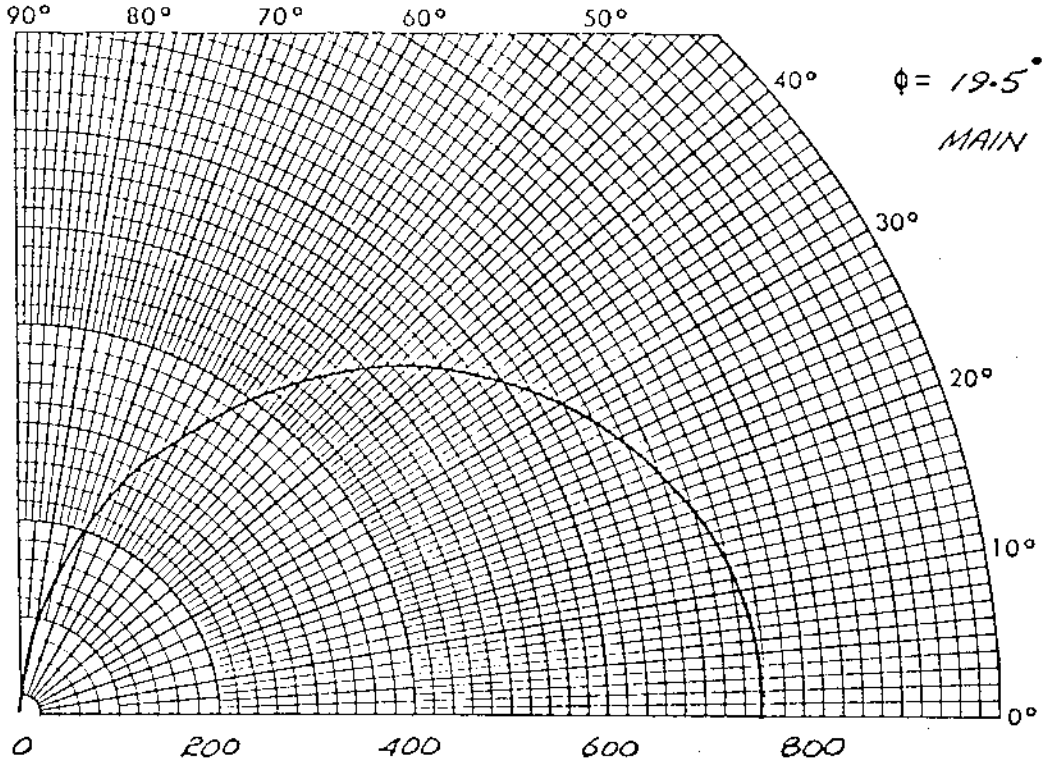
FIGURE 4

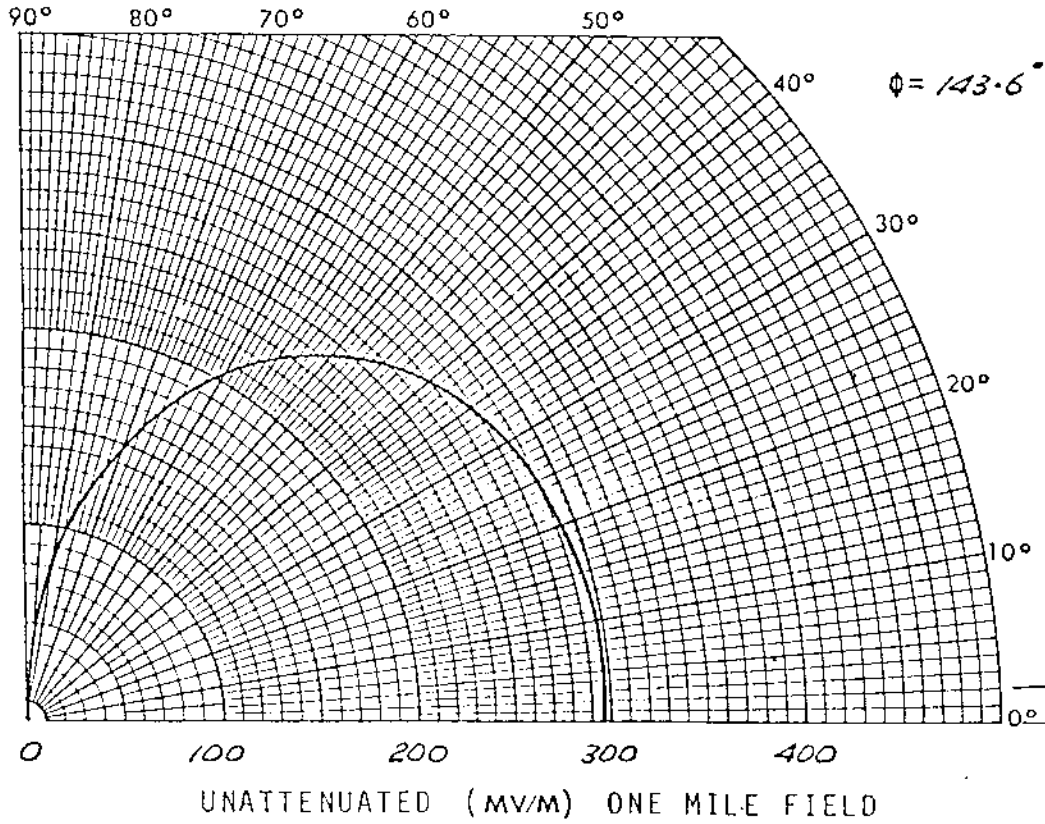
HORIZONTAL RADIATION PATTERN
EXPANDED PLOT

NEW AM GRANDE PRAIRIE, ALTA.
1430 kHz 10 kW DA-1 CLASS III
PROJECT #17601 REV. JAN. 27, 1978

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

YRH





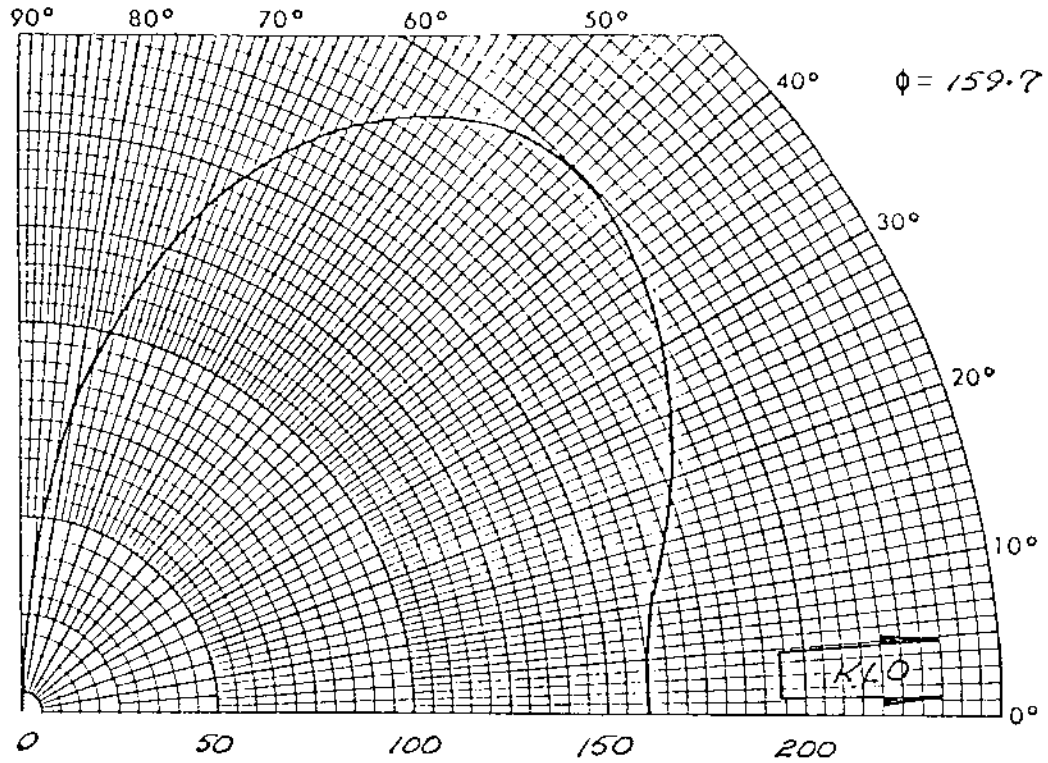
VERTICAL RADIATION PATTERNS

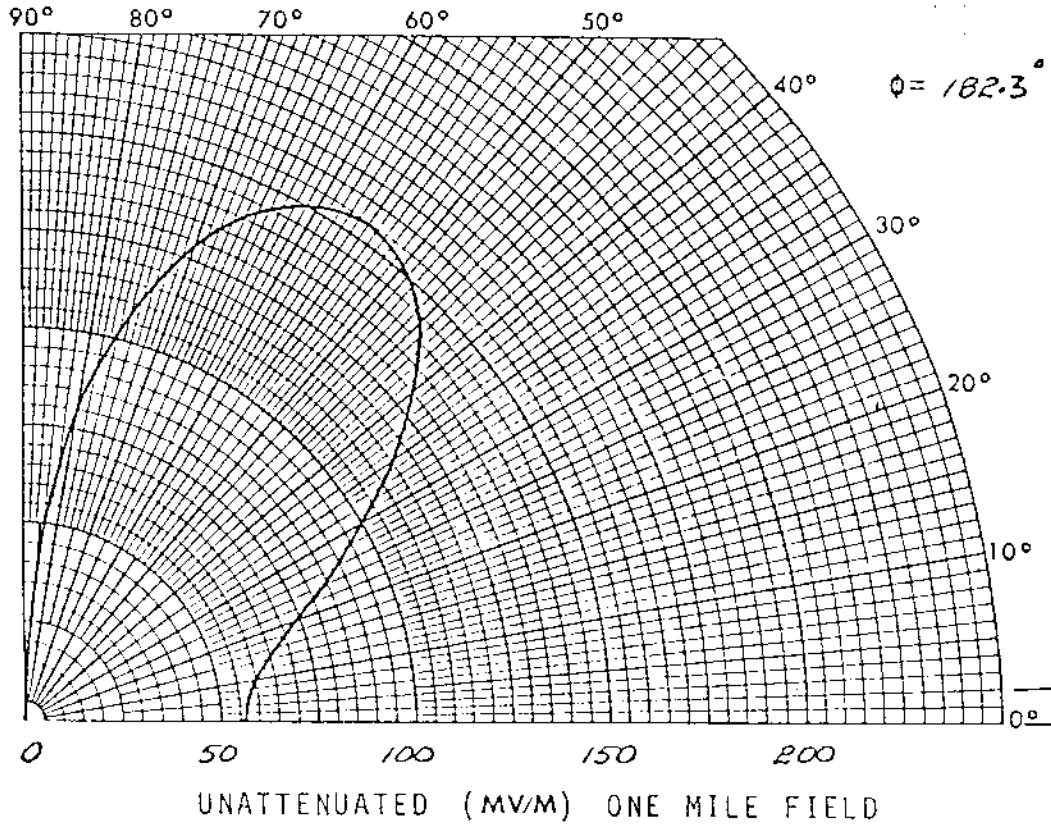
FIGURE 5

NEW AM
1430 kHz 10 kW DA-1
PROJECT #17601

GRANDE PRAIRIE, ALBERTA
CLASS III
REVISED JANUARY 27, 1978

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





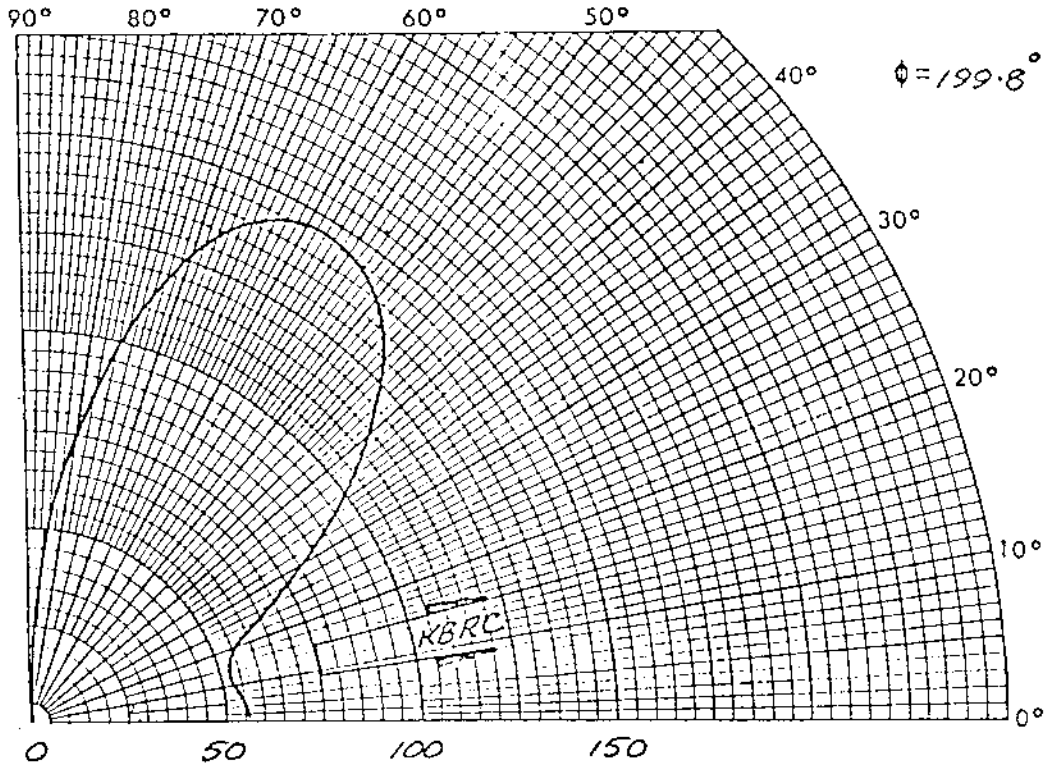
VERTICAL RADIATION PATTERNS

FIGURE 6

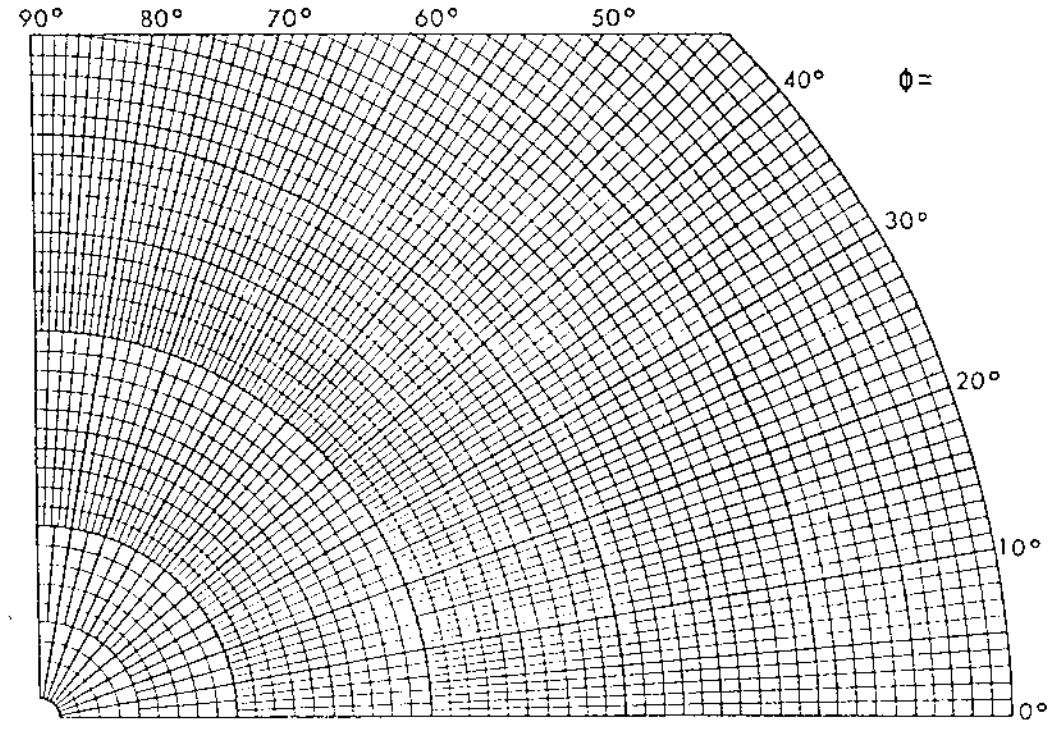
NEW AM
1430 kHz 10 kW DA-1
PROJECT #17601

GRANDE PRAIRIE, ALBERTA
CLASS III
REVISED JANUARY 27, 1978

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



UNATTENUATED (MV/M) ONE MILE FIELD



UNATTENUATED (MV/M) ONE MILE FIELD

VERTICAL RADIATION PATTERNS

FIGURE 7

NEW AM — GRANDE PRAIRIE, ALBERTA
1430 kHz — 10 kW — DA-1 — CLASS III
PROJECT #17601 — REVISED JANUARY 27, 1978

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

PROJECT #17601

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: NEW

MAIN STUDIO: Grande Prairie, Alberta

FREQUENCY: 1430 kHz

POWER: 10 kW

NOTIFICATION LIST: 370

DATE: February 3, 1978

GEOGRAPHICAL LOCATION:

Latitude 55° 08' 11" North
Longitude 118° 45' 13" West

ANTENNA CHARACTERISTICS:

Mode of Operation: DA-1

Number of Elements: 2 (Two)

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

TOWER:

	#1 (South)	#2 (North)
Height above base insulator:	155'(81.2°)	155'(81.2°)
Overall height:	160'	160'
Ratio:	1.0	.87
Phasing:	0°	-77

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

The length of all radials, with the exception of those joined along the common chord is 275' (0.4 wavelength)

SPACING AND ORIENTATION: Tower #2 is spaced 200.6'(105°) along a line bearing 19.5° True from Tower #1.

PREDICTED EFFECTIVE FIELD:

DAY AND NIGHT

574 mV/m at 1 mile for 10 kW
181 mV/m at 1 mile for 1 kW

July 9, 1977
Revised January 27, 1978

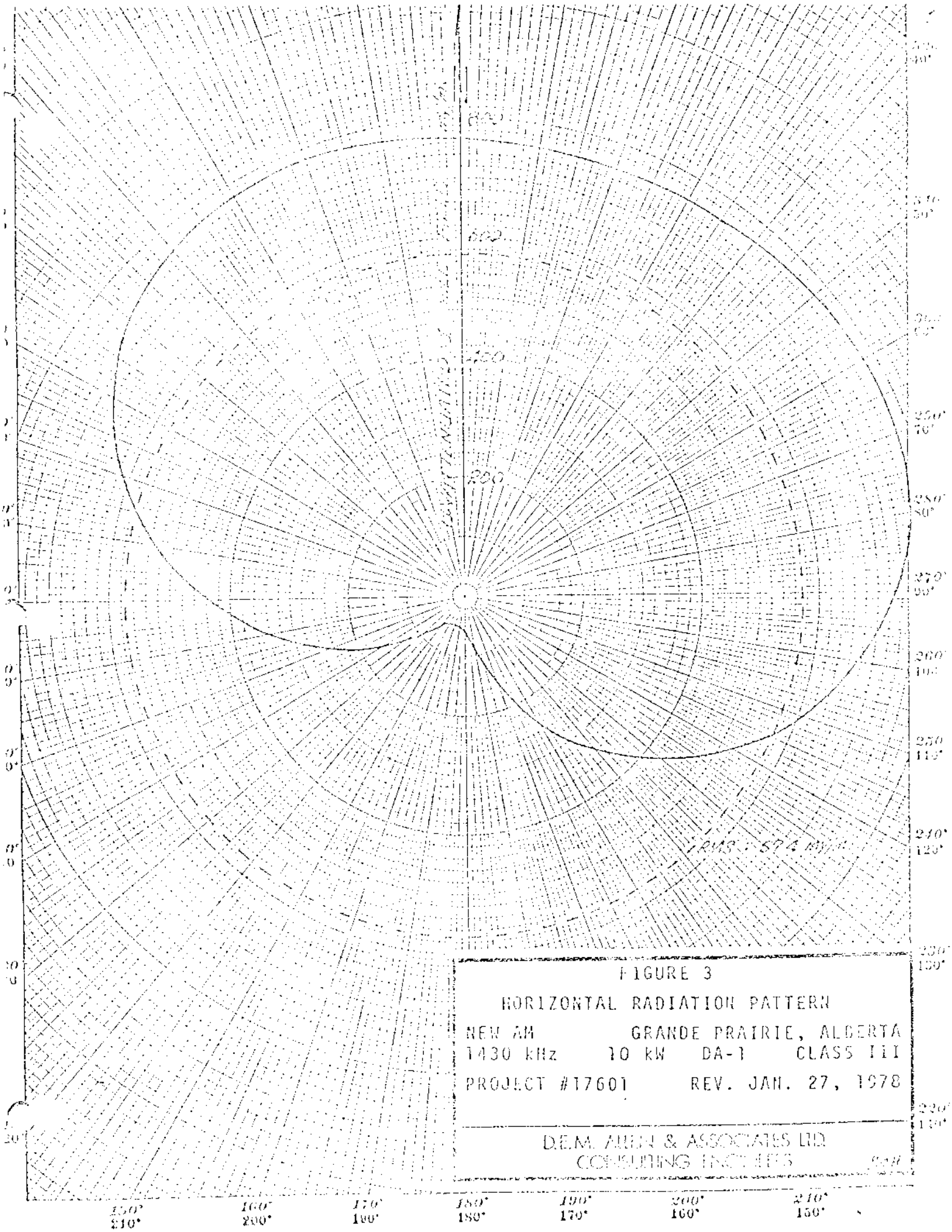


FIGURE 3

HORIZONTAL RADIATION PATTERN

NEW AM GRANDE PRAIRIE, ALBERTA

1430 kHz 10 kW DA-1 CLASS III

PROJECT #17601 REV. JAN. 27, 1978

D.E.M. ALLEN & ASSOCIATES LTD.

CONSULTING ENGINEERS

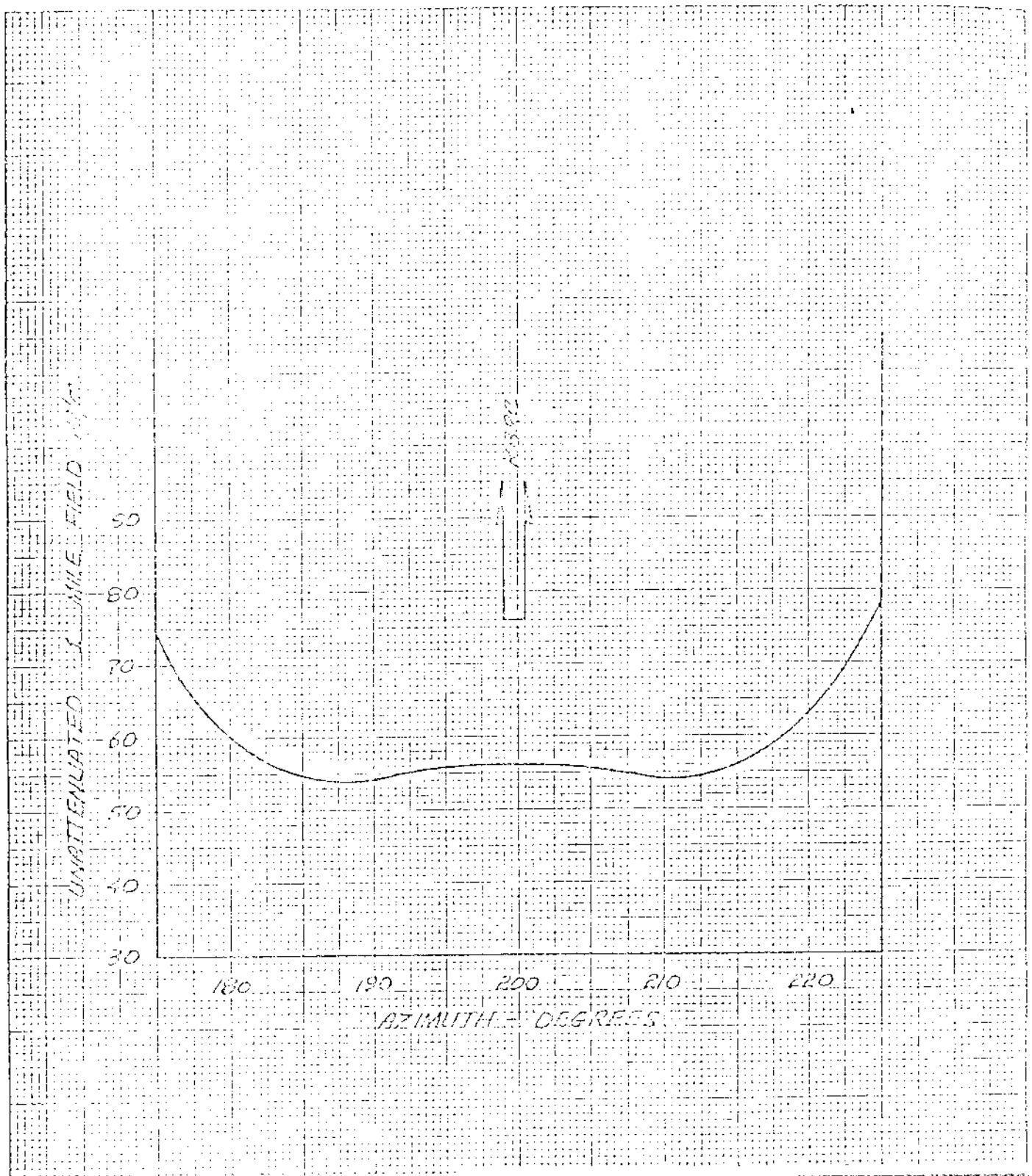
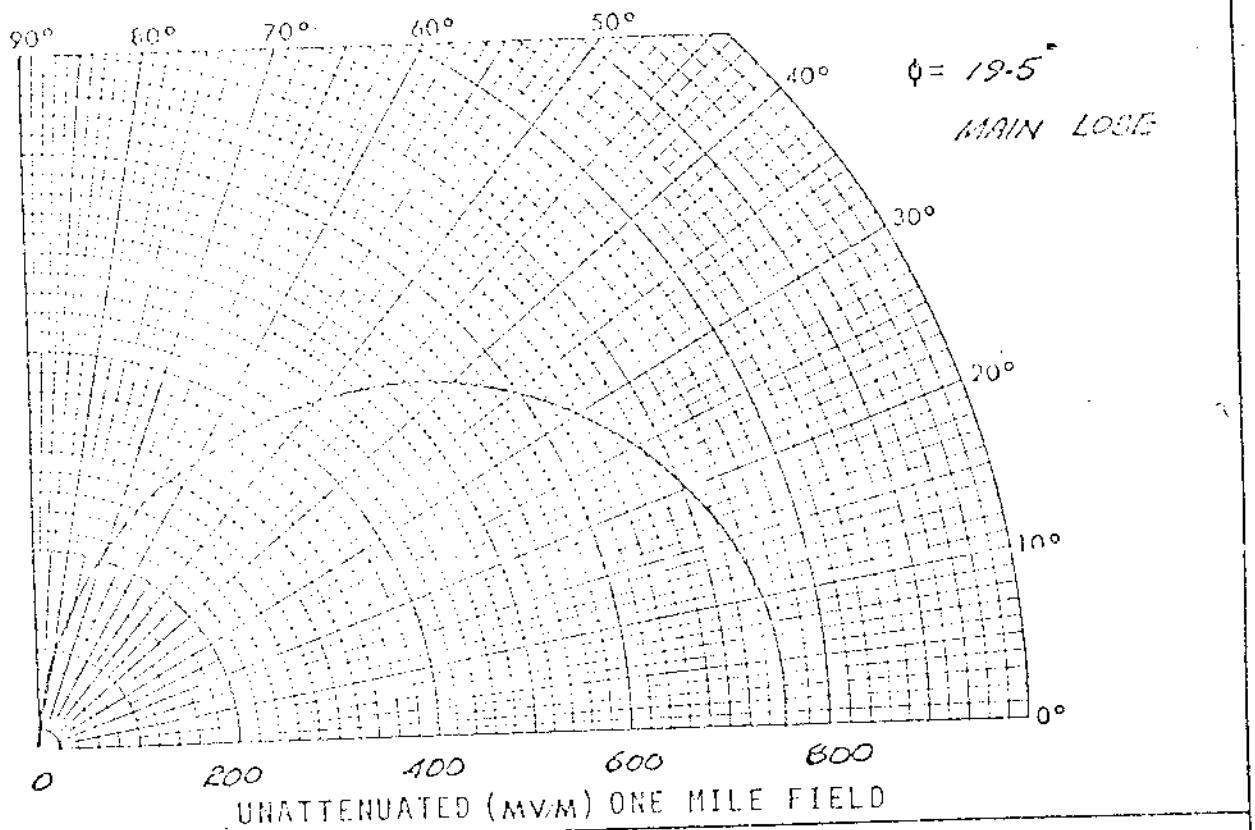


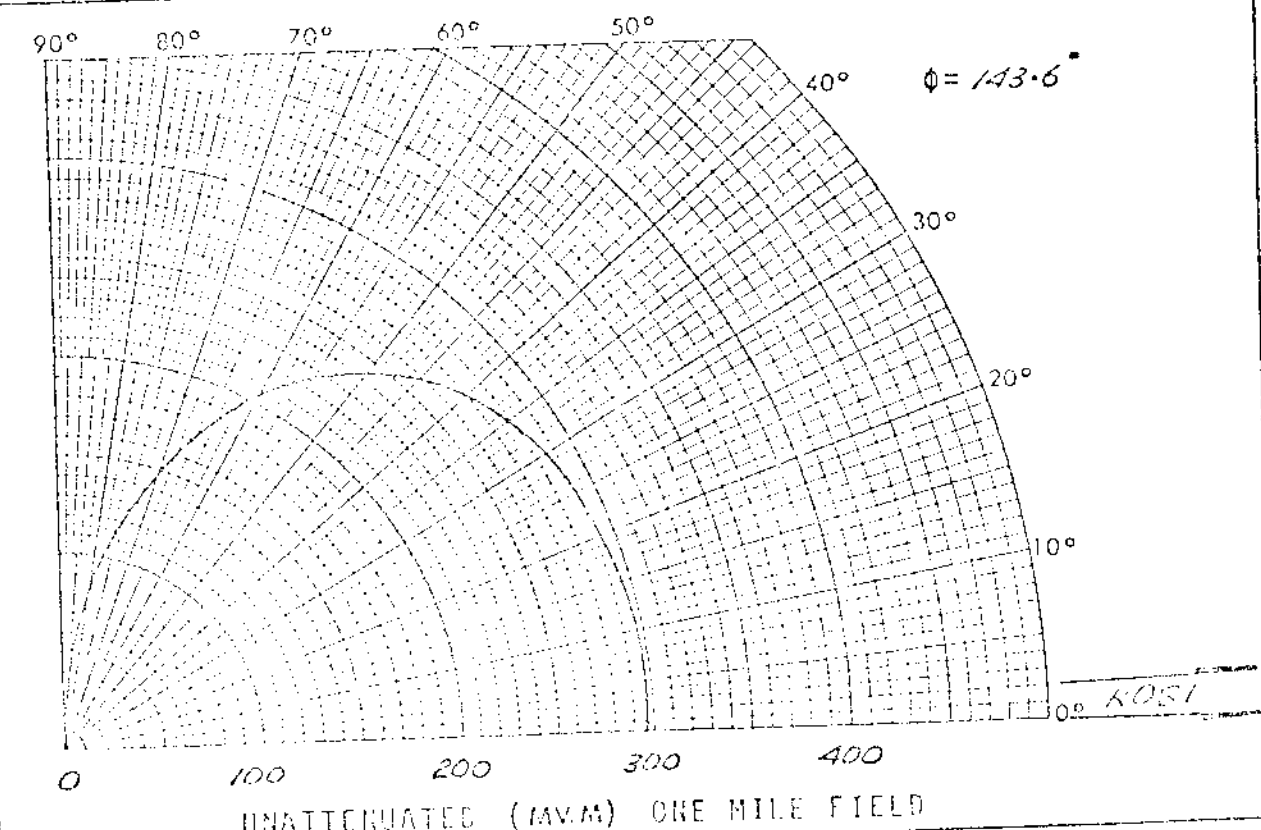
FIGURE 4

HORIZONTAL RADIATION PATTERN
EXPANDED PLOT

NEW AM GRANDE PRAIRIE, ALTA.
1430 kHz 10 kW DA-1 CLASS III
PROJECT #17601 REV. JAN. 27, 1978

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





VERTICAL RADIATION PATTERNS

FIGURE 5

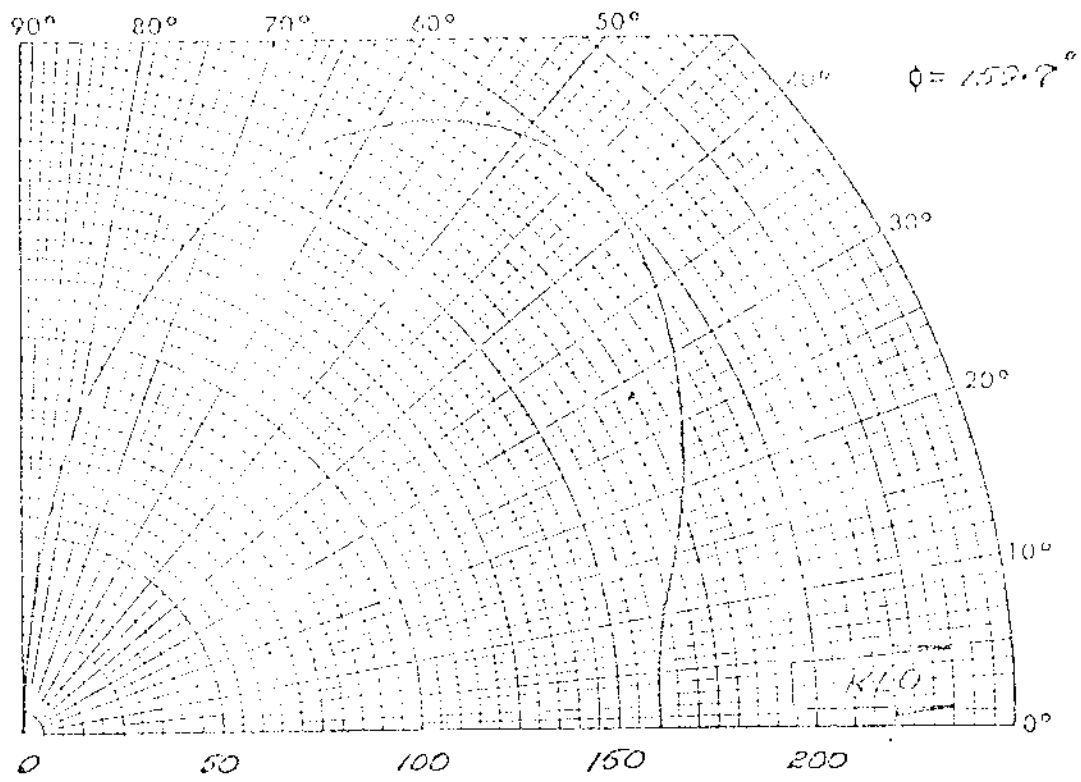
NEW AM
1450 KHz
PROJECT #17501

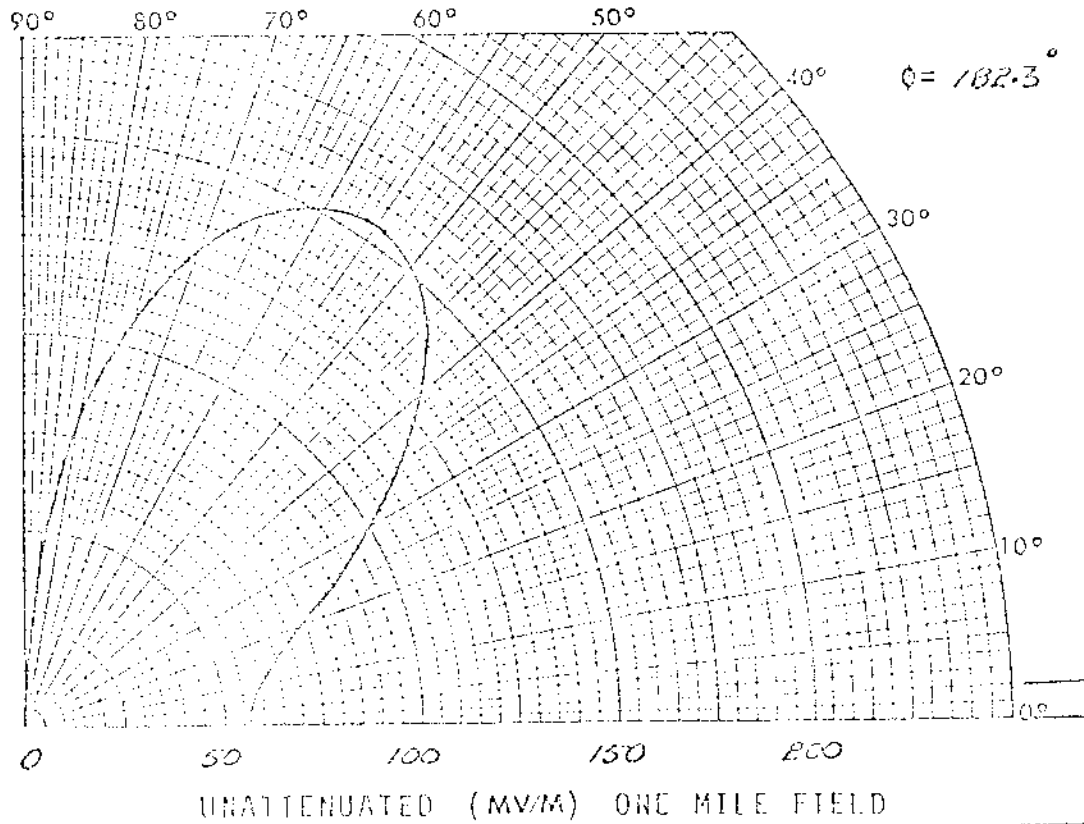
10 KW

DA-1

GRANDE PRAIRIE, ALBERTA
CLASS III
REVISED JANUARY 27, 1975

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



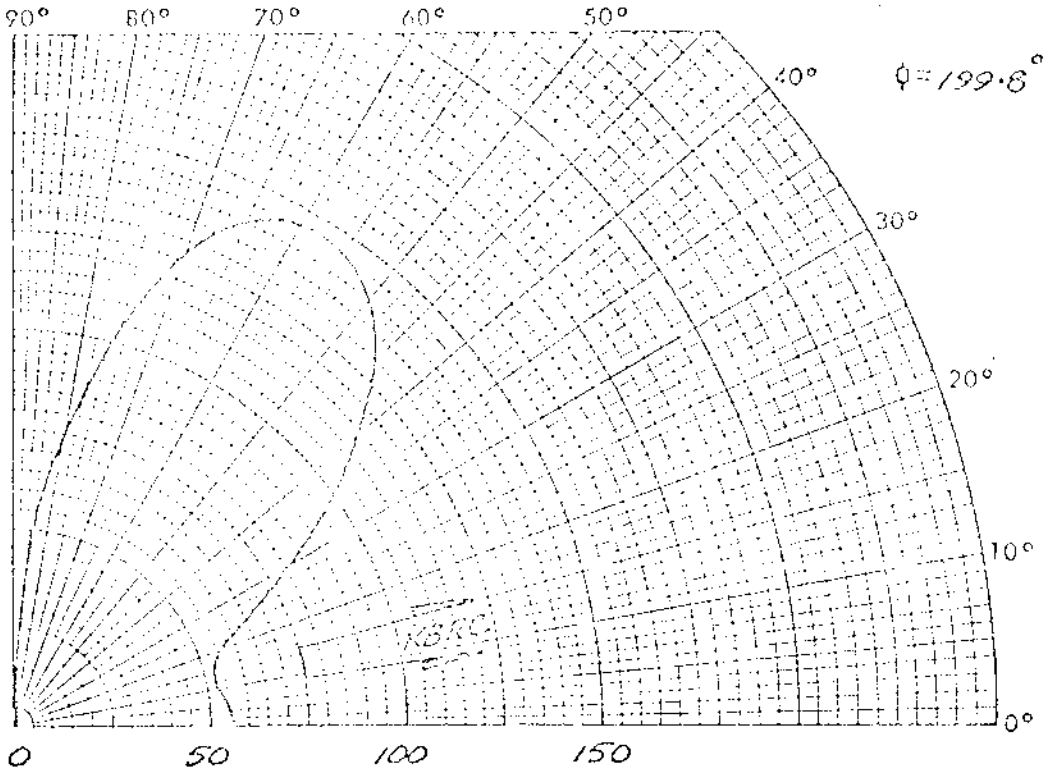


VERTICAL RADIATION PATTERNS

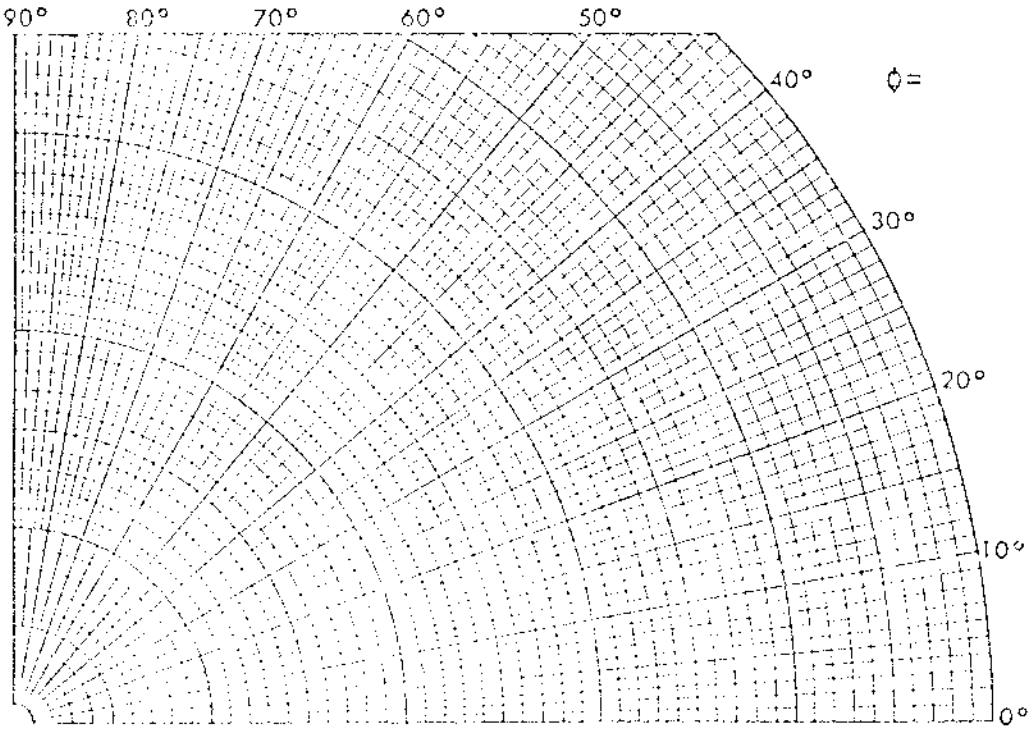
FIGURE 6

NEW AM — GRANDE PRAIRIE, ALBERTA
1430 KHz — 10 KW — DA-1 — CLASS III
PROJECT #17001 — REVISED JANUARY 27, 1978

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



UNATTENUATED (MV/M) ONE MILE FIELD



UNATTENUATED (MV/M) ONE MILE FIELD

VERTICAL RADIATION PATTERNS

FIGURE 7

NEW AM — GRANDE PRAIRIE, ALBERTA
1430 kHz — 10 kW — DA-1 — CLASS III
PROJECT #17601 — REVISED JANUARY 27, 1978

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

CKFH

Description Sheet
(12-23-70ct)

Station CKFH
Toronto, Ontario
CORRECTED

50kw,DA-2,U,ClassIII
1430 kc

DESCRIPTION OF ARRAY

STATION: CKFH

MAIN STUDIO: Toronto, Ontario

FREQUENCY: 1430 Khz

POWER: 50 Kw CLASS: 111

NOTIFICATION LIST #: 265

DATE: January 21, 1970

GEOGRAPHICAL LOCATION OF ANTENNA SYSTEM:

43° - 37' - 03" North Latitude
79° - 22' - 47" West Longitude

ANTENNA CHARACTERISTICS

Mode of operation: DA/2
Number of elements: 6
Type of elements:
Guyed, uniform cross-section base insulated, top loading by folded umbrella guy structure to equivalent of 103 electrical degrees.

TOWER:	# 1 (N)	# 2 (NC)	# 3 (C)	# 4 (SC)	# 5 (S)	# 6 (SCE)
HEIGHT OVER INSULATORS:	150'	150'	150'	150'	150'	150'
SPACING:	140°	70°	0°	70°	140°	70°
	(267.2')	(133.6')	(Ref.)	(133.6')	(267.2')	(133.6')
ORIENTATION:	333.0°	333.0°	0°	153.0°	153.0°	150.1°
PHASING: Day:	+35.29°	-162.31°	0°	not used	-46.30°	+157.11°
Night:	+41.499°	-158.917°	0°	+156.566°	-50.101°	not used
RATIO: Day:	0.8000	2.40392	3.56839	not used	1.00000	2.80411
Night:	0.8000	2.72360	4.11909	3.12916	1.00000	not used

GROUND SYSTEM:

120 radials per tower # 10 AWG copper
0.4 wavelength long to property limits buried to 8" depth or weighted in water surrounding the site.

PREDICTED EFFECTIVE FIELD:

194.9 mv/m @ 1 mi. for 1 Kw. Day
1378 mv/m @ 1 mi. for 50 Kw. Day

189.8 mv/m @ 1 mi. for 1 Kw. Night
1342 mv/m @ 1 mi. for 50 Kw. Night

CONSULTANT:

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

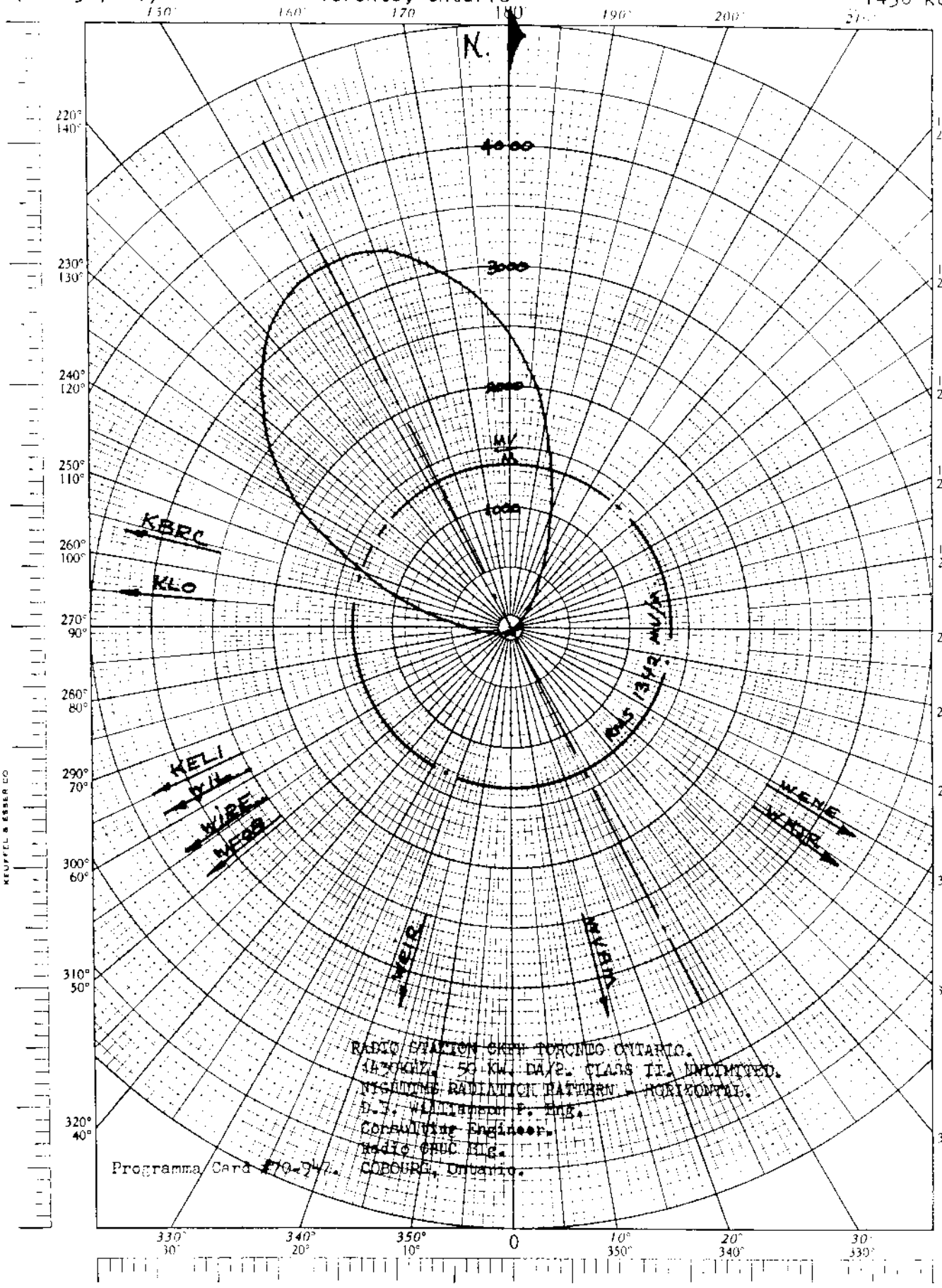
NOTE: This refers to a change in night-time pattern only. To this corrected description sheet and night-time radiation patterns attach the day-time radiation patterns previously distributed with Canadian Change List # 265, dated January 1, 1970.

CKFH

Proposed Night
(12-23-70ct)

Station CKFH
Toronto, Ontario

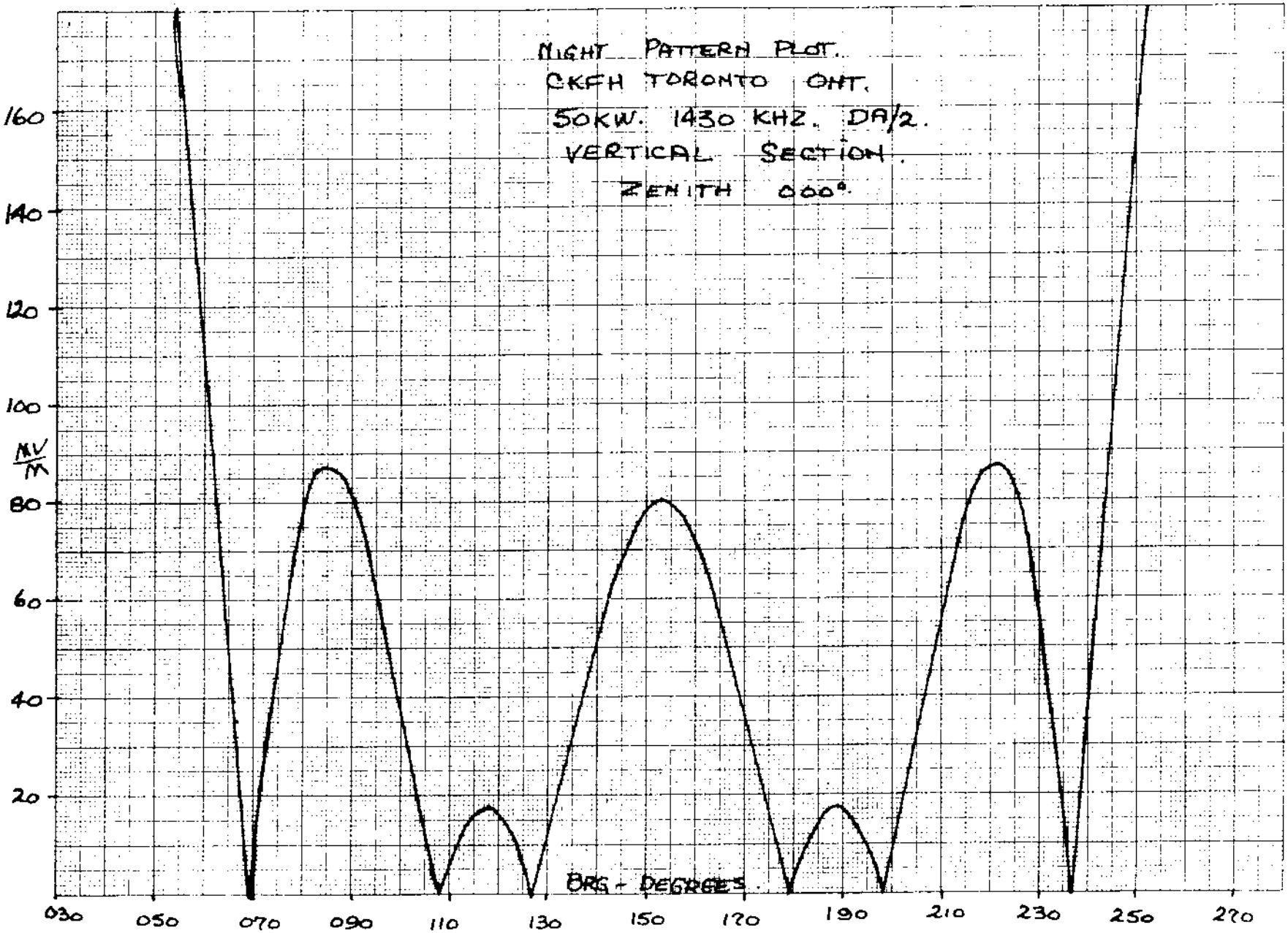
50kw,DA-2,U,ClassII
1430 kc



Proposed Night Nulls
(12-23-70ct)

Station CKFH
Toror , Ontario

50kw,DA-2,U,ClassIII
1430 kc



CKFH

DESCRIPTION OF ARRAY

STATION: CKFH

MAIN STUDIO: Toronto, Ontario

FREQUENCY: 1430 Khz
NOTIFICATION NO. 265
GEOGRAPHICAL LOCATION
OF ANTENNA SYSTEM:

POWER: 50 Kw. Class: III
DATED: January 21, 1970

43 - 37 - 03 North
79 - 22 - 47 West

ANTENNA CHARACTERISTICS

Mode of Operation: DA/2
Number of Elements: 6
Type of Elements:
Guyed, uniform cross section, base insulated, top loading by folded umbrella guy structure to equivalent of 103 electrical degrees.

TOWER:	# 1(N)	# 2(NC)	# 3(C)	# 4(SC)	# 5(S)	# 6(SCE)
HEIGHT OVER INSULATORS:	150'	150'	150'	150'	150'	150'
SPACING:	140° (267.2')	70° (133.6')	0° (Ref.)	70° (133.6')	140° (267.2')	70° (133.6')
ORIENTATION:	333.0°	333.0°	0°	153.0°	153.0°	150.1°
PHASING: Day:	+35.29°	-162.31°	0°	not used	-46.30°	+157.11°
Night:	+36.88	-162.28	0°	+159.79	-45.02	not used
RATIO: Day:	0.8000	2.40392	3.56839	not used	1.00000	2.80411
Night:	0.84000	2.68489	3.94065	3.02612	1.00000	not used

GROUND SYSTEM: 120 radials per tower # 10 AWG copper. 0.4 wavelength long to property limits buried to 8" depth or weighted in water surrounding the site.

PREDICTED EFFECTIVE FIELD:
194.9 mv/m @ 1 mi. for 1 Kw. Day
1378 mv/m @ 1 mi. for 50 Kw. Day

189.8 mv/m @ 1 mi. for 1 Kw. Night
1342 mv/m @ 1 mi. for 50 Kw. Night

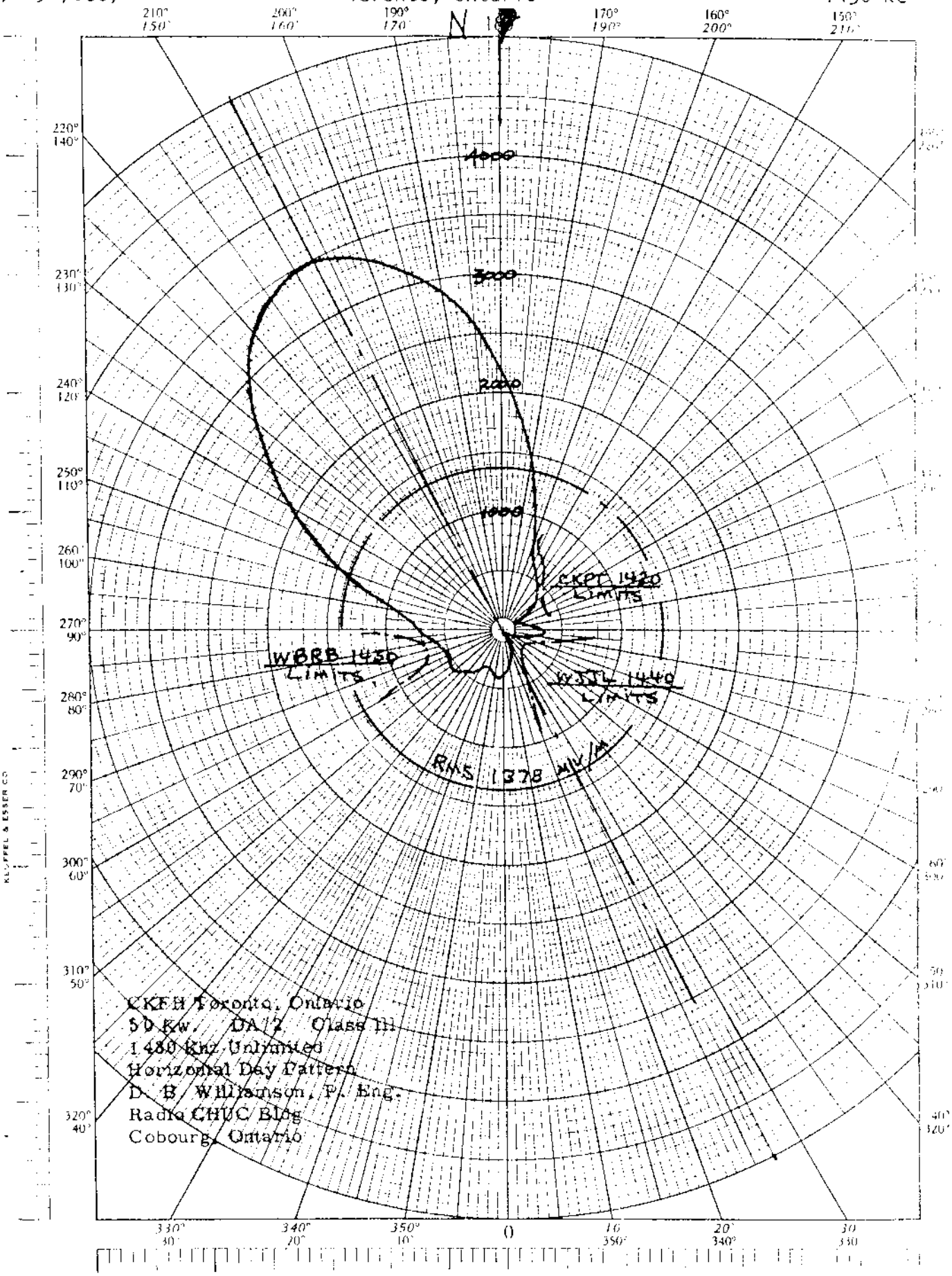
CONSULTANT: D. B. Williamson, P. Eng.,
Consulting Engineer,
Radio CHUC Building,
Cobourg, Ontario.

CKFH

Proposed Day
(7-29-70ct)

Station CKFH
Toronto, Ontario

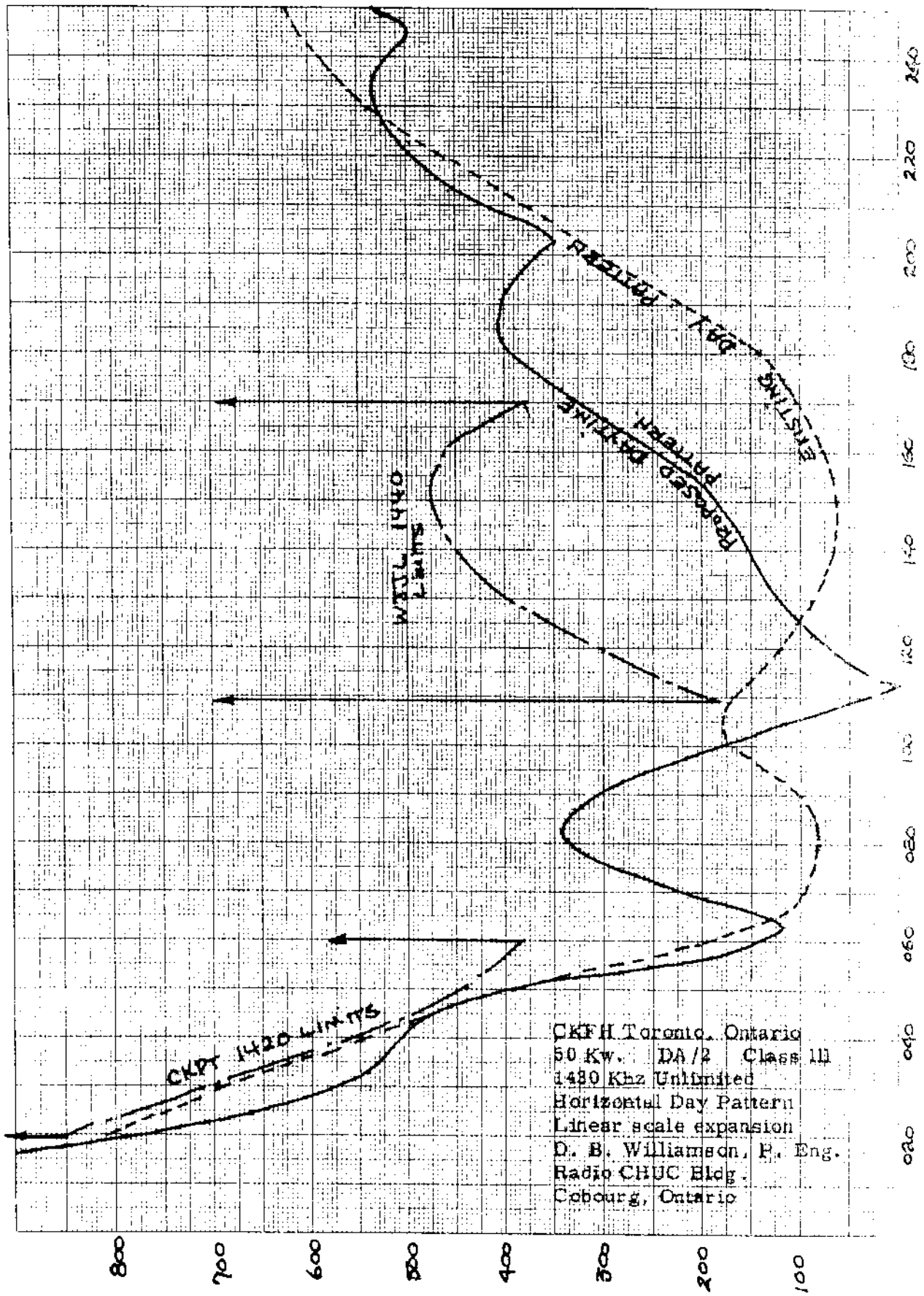
50kw,DA-2,U,Class III
1430 kc



Proposed Day Nulls
(7-29-70ct)

Station CKFH
Toronto, Ontario

CKFH
50kw,DA-2,U,Class III
1430 kc

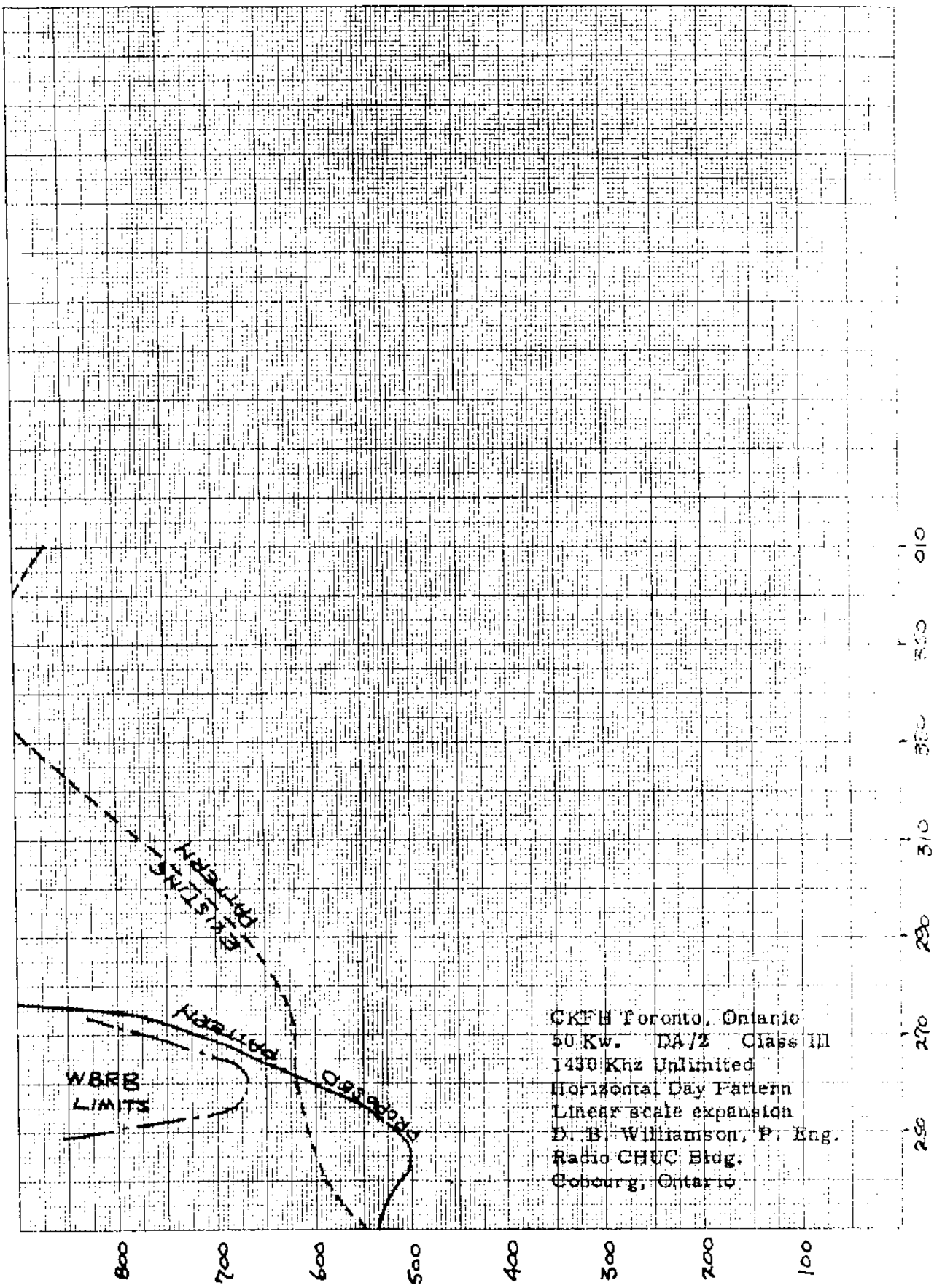


CKFH

Proposed Day Nulls
(7-29-70ct)

Station CKFH
Toronto, Ontario

50kw,DA-2,U,Class III
1430 kc

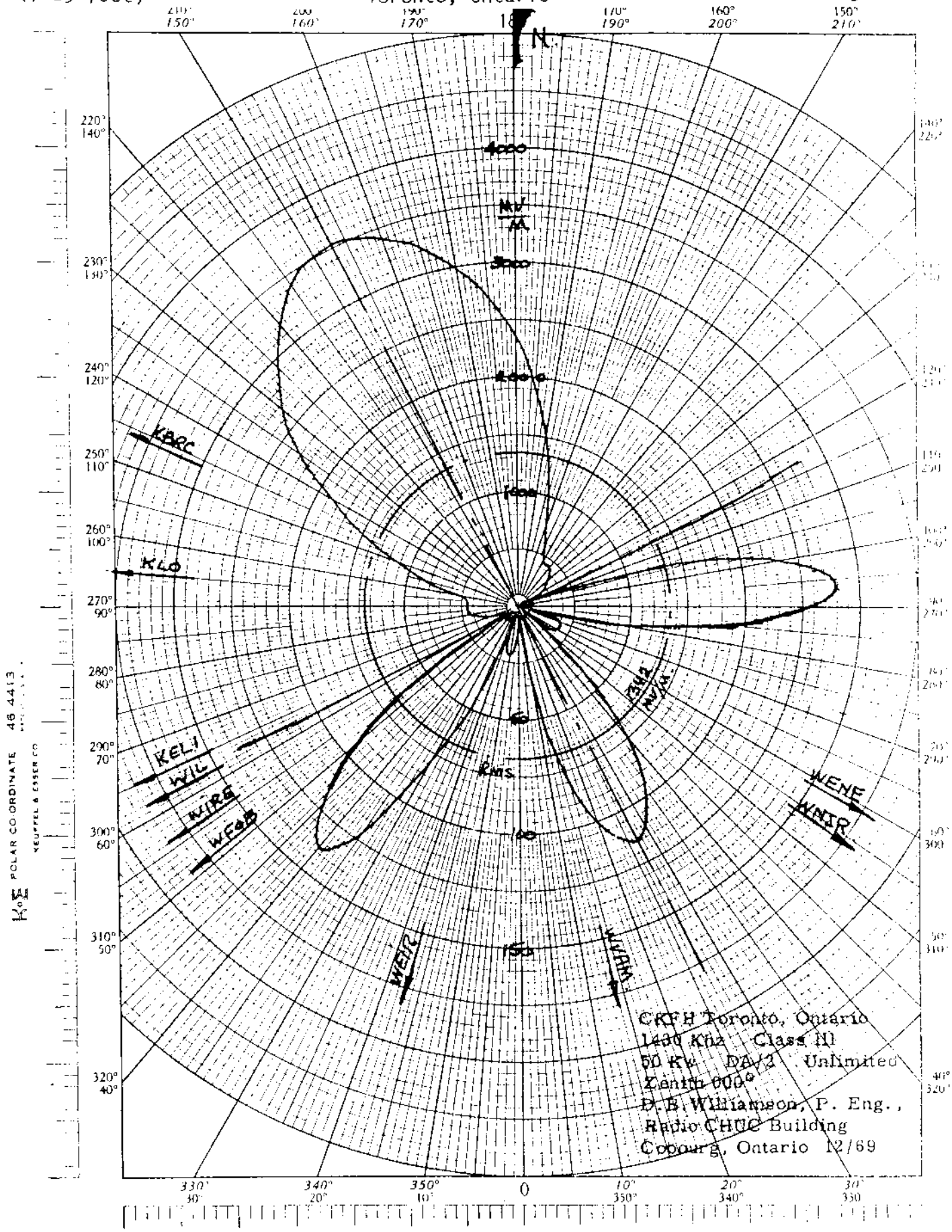


CKFH

Proposed Night
(7-29-70ct)

Station CKFH
Toronto, Ontario

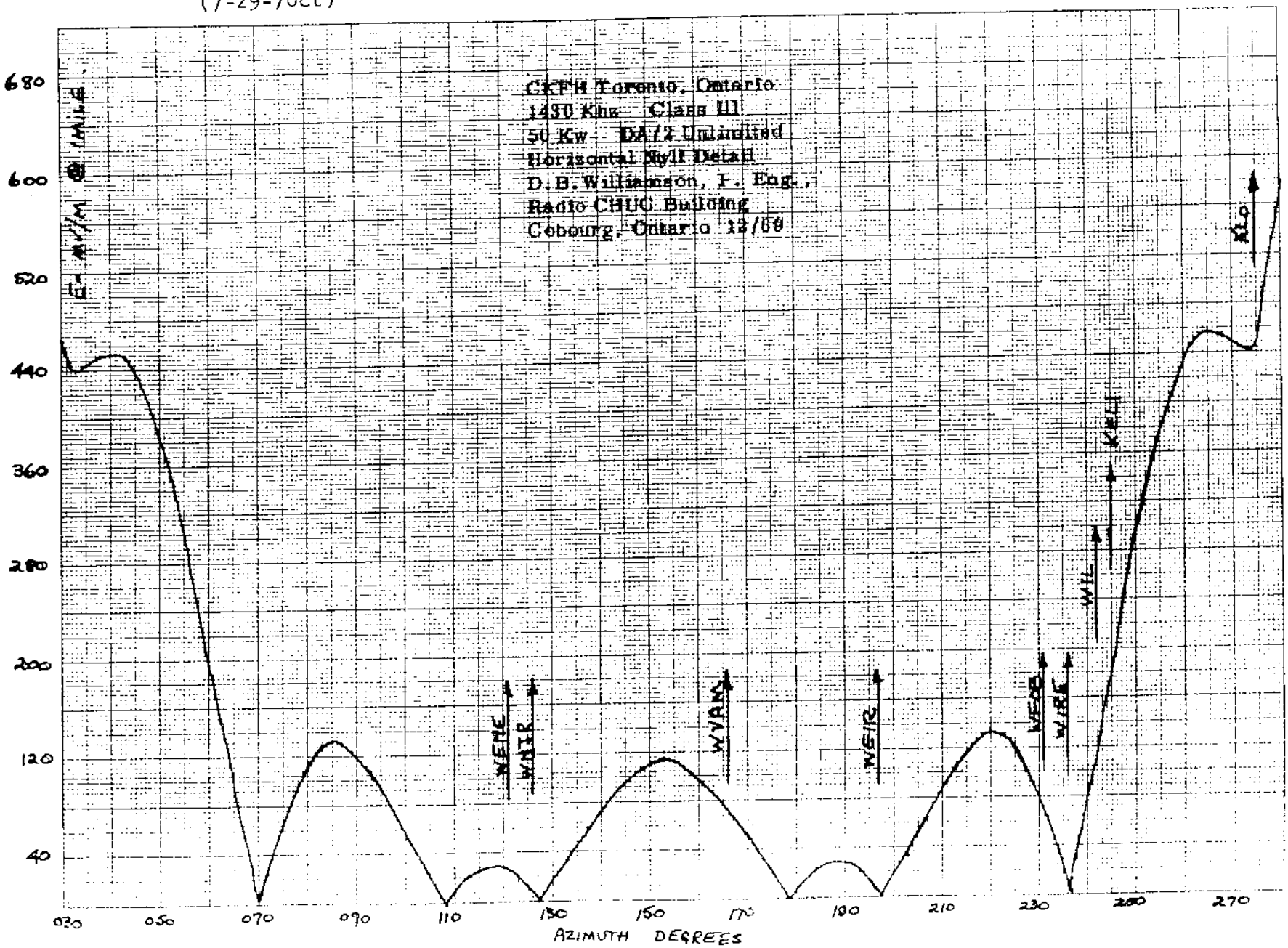
50kw,DA-2,U,Class III
1430 kc



Proposed Night Nulls
(7-29-70ct)

Station CKFH
Toronto, Ontario

50kw,DA-2,U,Class III
1430 kc



CKFH

CKFH

Description Sheet
(1-30-67ct)

Station CKFH
Toronto, Ontario

10kw,DA-2,U,Class III
1430 kc

d) DESCRIPTION OF ARRAY

STATION: CKFH

MAIN STUDIO: Toronto, Ontario

FREQUENCY: 1430 KHZ

POWER: 10 KW. Class III

Notification List No: 220

DATE: December 20, 1966

GEOGRAPHICAL LOCATION OF ANTENNA SYSTEM

43° 37' 03" North
79° 22' 47" West

ANTENNA CHARACTERISTICS

Mode of Operation: DA/2
Number of Elements: 4
Type of Elements: Guyed, uniform cross section, base insulated, top loading by folded umbrella . Guy structure to 75° electrical height.

TOWER:	#1(N)	#2(c)	#3(S)	#4(E)
HEIGHT OVER INSULATORS:	100'	100'	100'	100'
OVERALL HEIGHT:	105'	105'	105'	105'

SPACING: See Orientation Below

ORIENTATION: Towers #1, 2 & 3 are on a line bearing 345° true, spacing between adjacent towers is 129.8' (68°). Towers 2 & 4 are on a line bearing 114° true, spacing between towers #2 & 4 is 63' (33°).

PHASING:				
Day	- 150°	not used	+142°	-27°
Night	- 139.30	0°	+139.30	not used

RATIO:				
Day	1.000	not used	1.080	1.900
Night	1.000	1.919	1.000	not used

GROUND SYSTEM: 120 radials per tower #10AWG copper. 0.4 wavelength long to property limits buried to 8" depth or weighted in water surrounding the site.

PREDICTED EFFECTIVE FIELD:

533 mv/m @ 1 mile for 10KW day
(175 mv/m @ 1 mile for 1KW)

592 mv/m @ 1 mile for 10KW night
(187 mv/m @ 1 mile for 1KW)

147

CKFH

DESCRIPTION SHEET
(12-15-60g)

Station CKFH 5kw,10kw-LS,DA-2,U,Class III
Toronto, Ontario, Canada 1430 KC

REVISED

[illegible]

STATION: CKFH
POWER: 10KW0/5KWN

MUNICIPALITY: [illegible], ONT.
FREQUENCY: 1430 KC CLASS: III

NOTIFICATION REFERENCES: List No. 147 DATE: May 24, 1960

LOCATION: NORTH LATITUDE: 43° 37' 03"
WEST LONGITUDE: 79° 22' 47"

ANTENNA:

MODE OF OPERATION: DA-2 (Directional day and night with different patterns)

Four elements, uniform, cross section, guyed steel towers, base insulated for series feed.

TOWER:	North (#1)	East Centre (#2)	South (#3)	Centre (East) (#4)
Height above insulators:	100'	100'	100'	100'
Spacing:	See Orientation below			
Phasing:				
Day Operation:	-150	Not used	+142	-27
Night Operation:	-137° lag	0°	+137° lead	Not used
Field Ratio:				
Day Operation	1.0	Not used	1.08	1.0
Night Operation:	.526	1	.526	Not used

Ground System: 120 equiangularly spaced radials extend from the base of each tower to a distance of 276 feet (.4 wavelength), with the exception of those joined along the common chords. Wires are continuous or bonded together at junction points and consist of solid copper wire #10 B & S gauge. The ground wires are buried to a depth of approximately eight inches with the exception of those radials which lie in water, these radials are weighted and lie on the bottom of the pond adjoining the property.

Predicted Effective Field:
Day Operation: 533 mv/m at 1 mile for 10 KW
(175 mv/m at 1 mile for 1 KW)
Night Operation: 418 mv/m at 1 mile for 5 KW
(187 mv/m at 1 mile for 1 KW)

Orientation: Towers #1, #2 and #3 are on a line bearing 345° true, spacing between adjacent towers is 129.8 ft. (68°). Towers #2 and #4 are on a line bearing 114° true, spacing between towers #2 and #4 is 63 feet (33°).

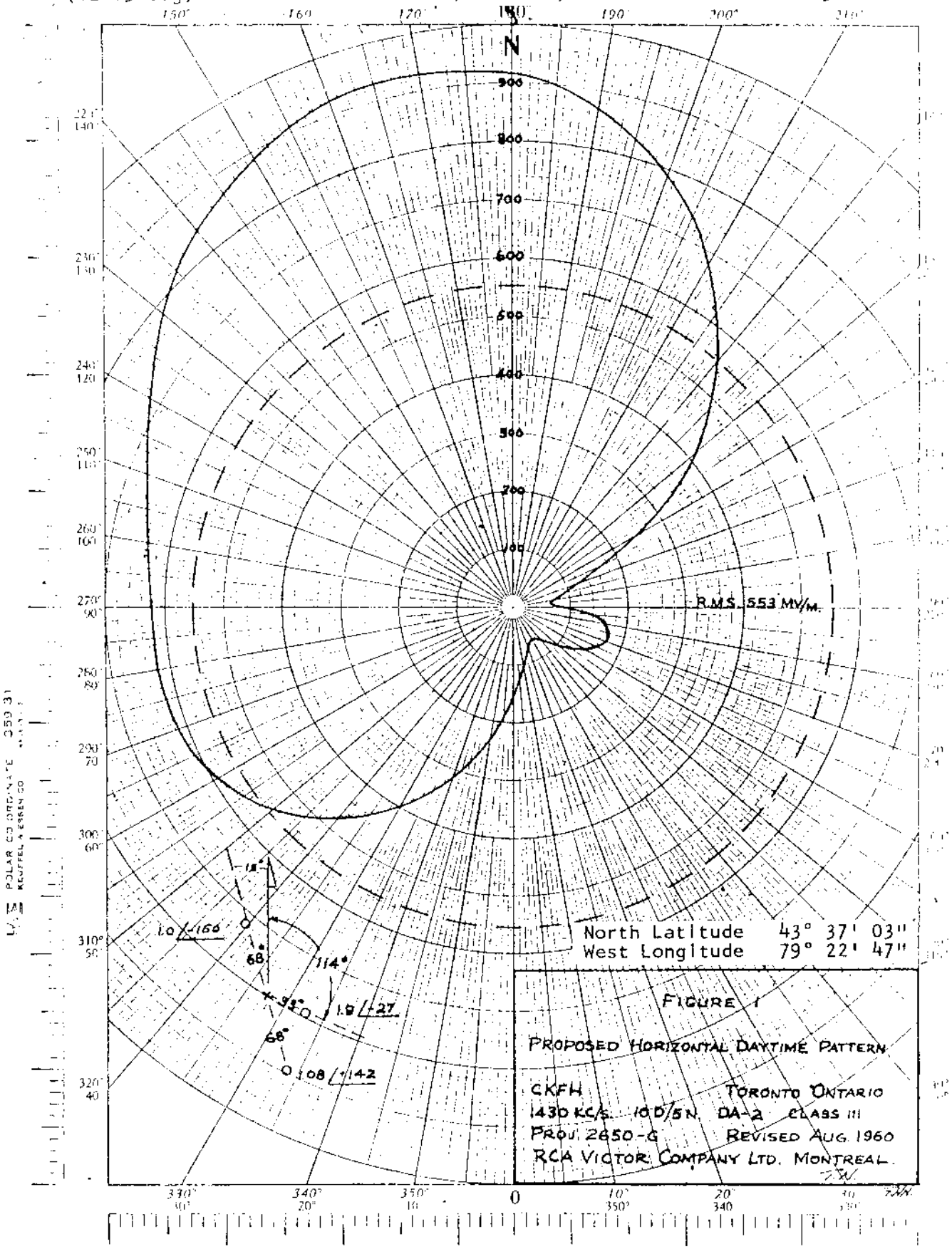
Note: The four towers are each top loaded by an 8' square grid which results in an overall equivalent electrical height of each tower of 61°.

Oficina Interamericana de Radio - PAU
OIR/NARBA 2389 Canada/C.2454
La Habana. 4. XI. 60.--

CKFH

PROPOSED DAY
(12-15-60g)

Station CKFH 5kw,10kw-LS,DA-2,U, Class III
Toronto, Ontario, Canada 1430 KC



#147

CKFH

PROPOSED DAY NULLS (12-15-60g)

Station CKFH 5kw,10kw-LS,DA-2,U, Class III
Toronto, Ontario, Canada 1430 KC

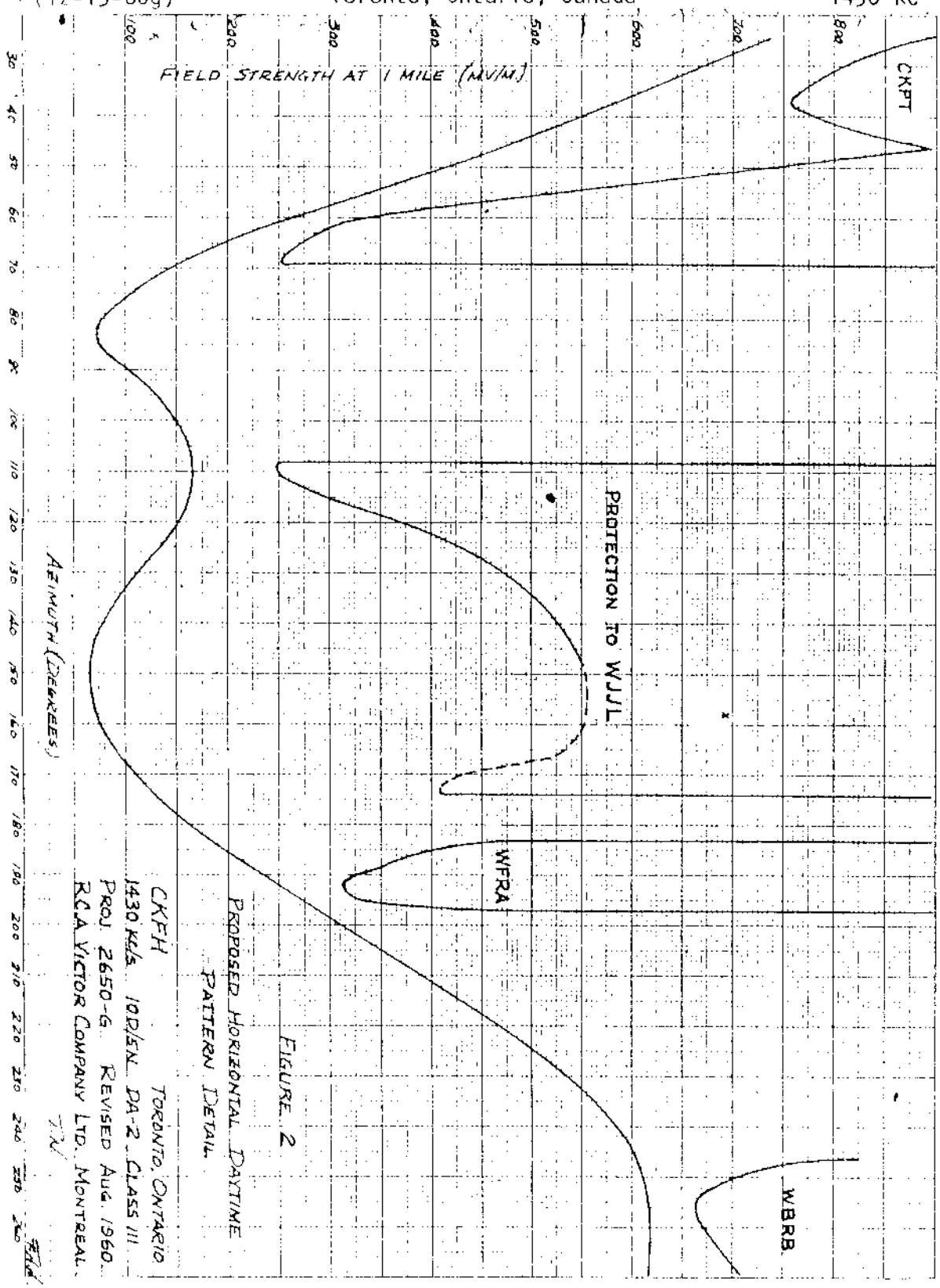


FIGURE 2

PROPOSED HORIZONTAL DAYTIME PATTERN DETAIL

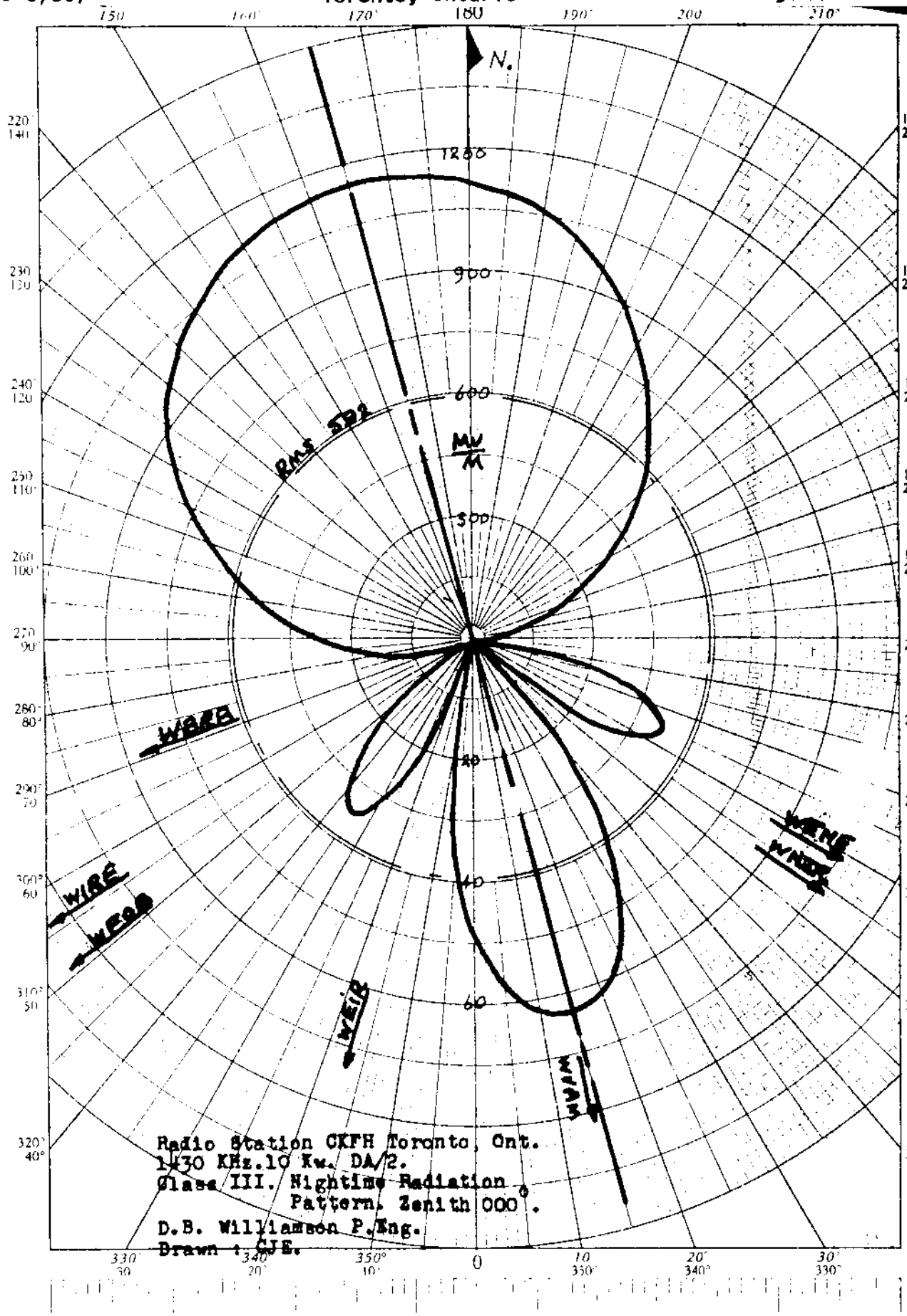
CKFH TORONTO, ONTARIO
1430 KC/S 10D/5N DA-2 CLASS III
PROJ. 2650-G REVISED AUG. 1960.
R.C.A. VICTOR COMPANY LTD. MONTREAL.

CKFH

Proposed Night
(1-30-67ct)

Station CKFH
Toronto, Ontario

10kw,DA-2,U,Class III
1430 kc



MAR 57

CKFH

PROPOSED NIGHT
(3-23-59g)

Station CKFH
Toronto, Ontario, Canada

5kw, DA-2,U, Class III
1430 KC

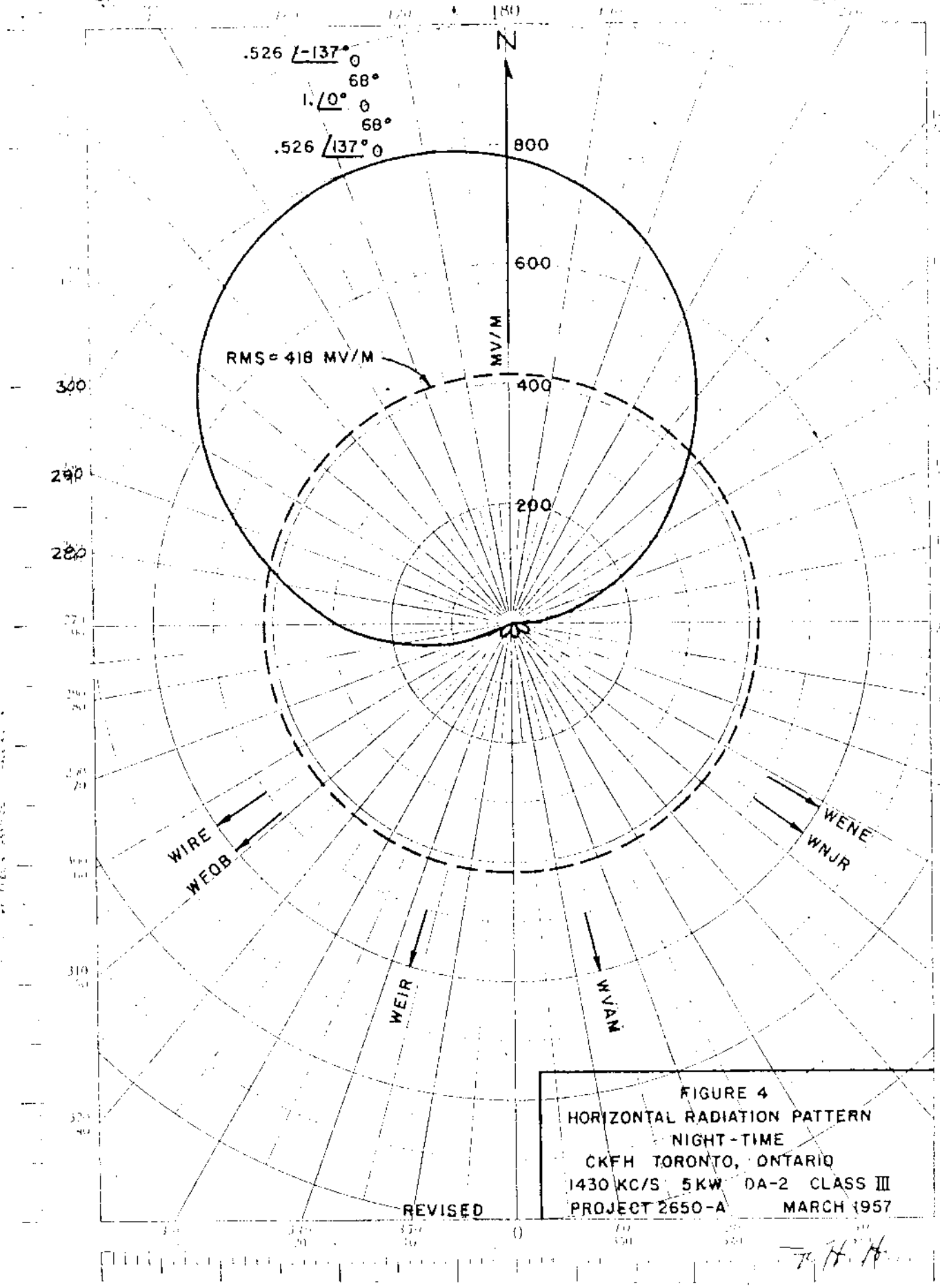


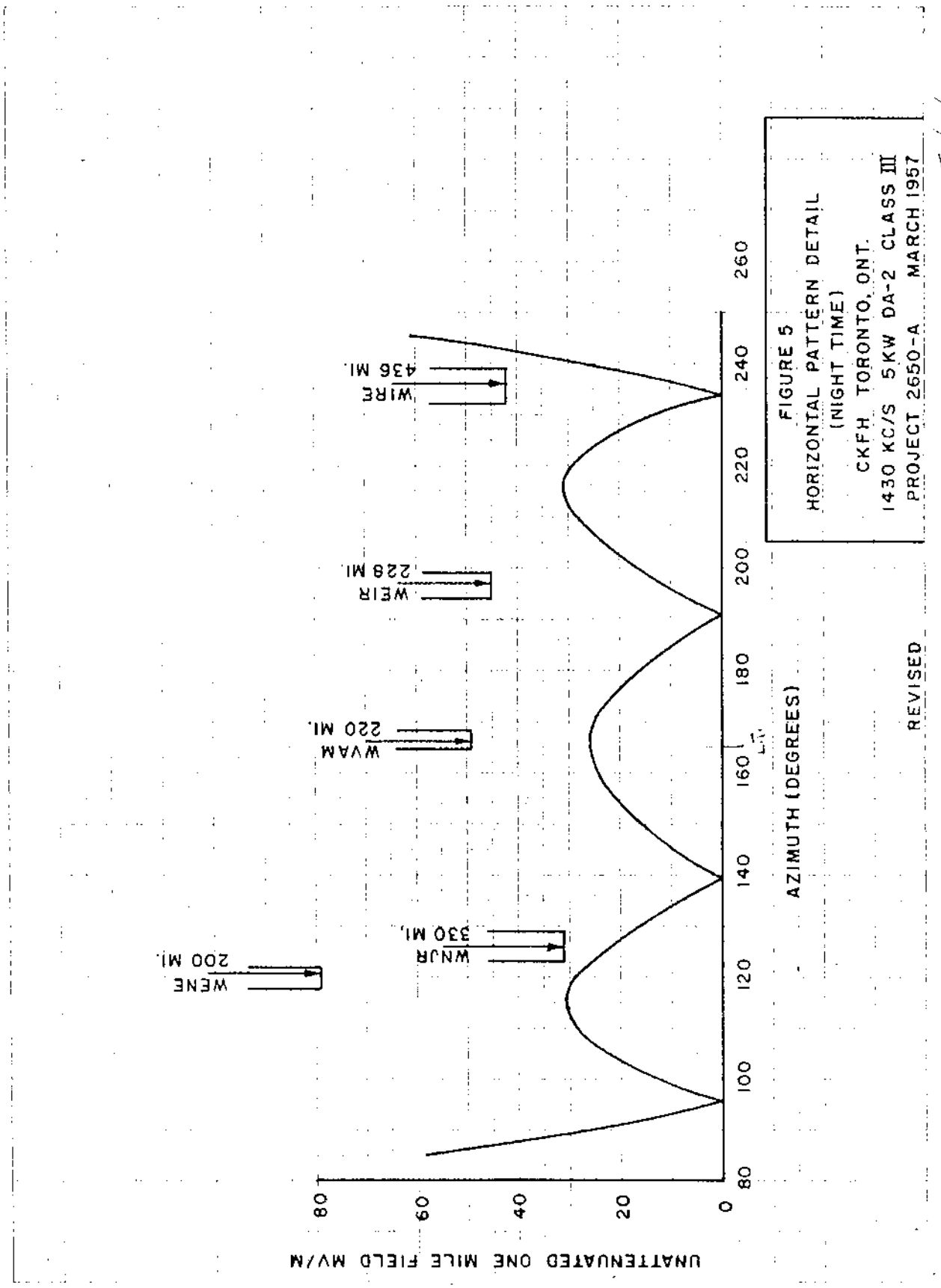
FIGURE 4
HORIZONTAL RADIATION PATTERN
NIGHT-TIME
CKFH TORONTO, ONTARIO
1430 KC/S 5 KW DA-2 CLASS III
PROJECT 2650-A MARCH 1957

CKFH

PROPOSED NIGHT NULLS
(3-23-59g)

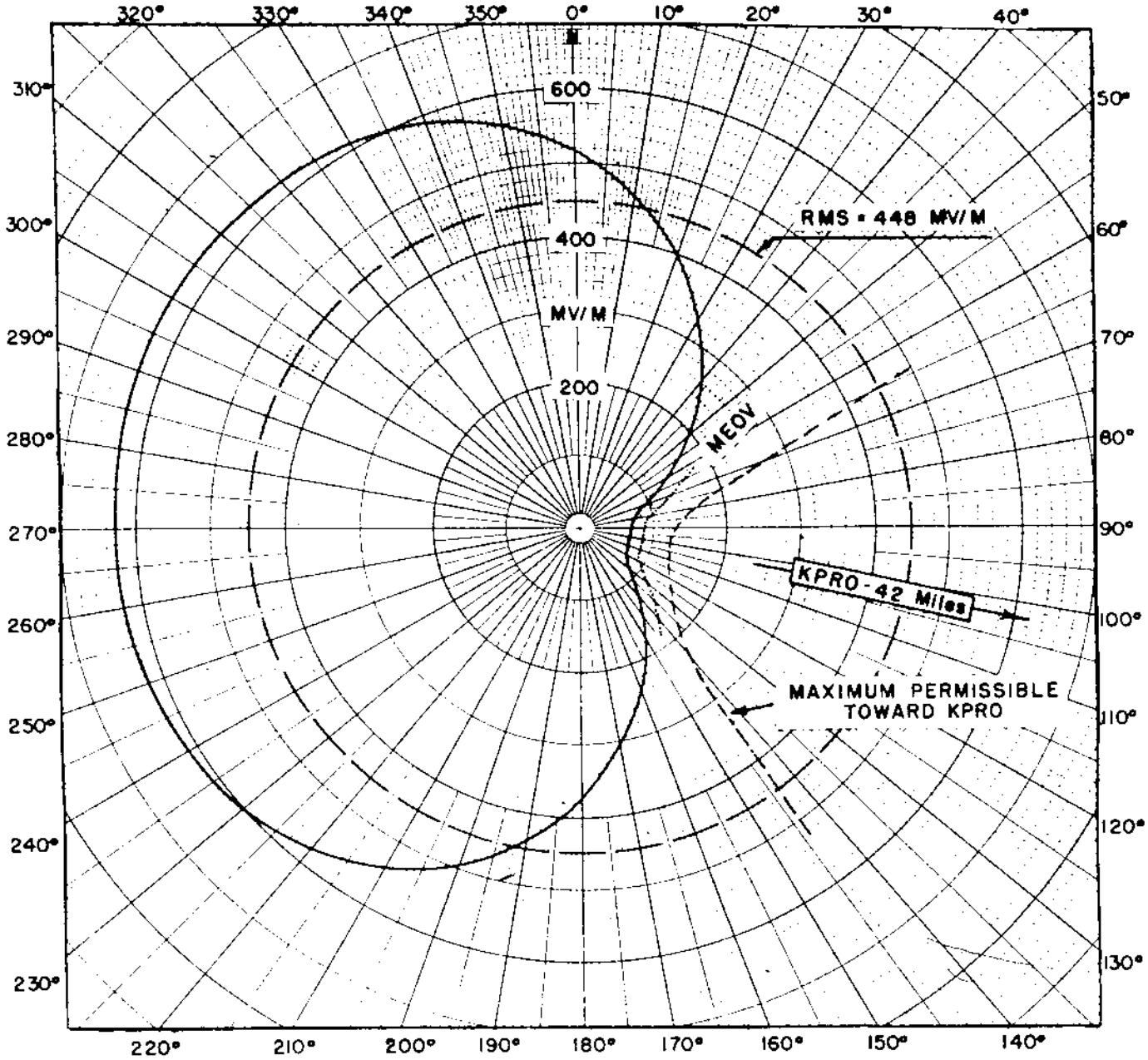
Station CKFH
Toronto, Ontario, Canada

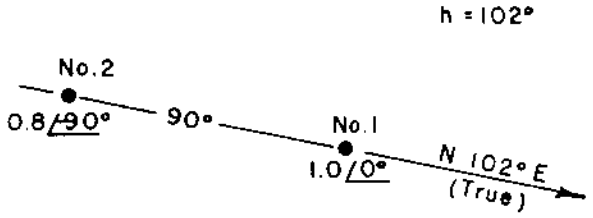
5kw, DA-2,U, Class III
1430 KC



KALI

PROPOSED KALI, ~~PASADENA~~ San Gabriel, CALIFORNIA 5KW, D, DA 1430 kc
DAY (10/6/53G)





ANTENNA PLAN

FIGURE 2
HORIZONTAL PATTERN
CONSOLIDATED BROADCASTING CO.
KALI, PASADENA, CALIFORNIA
1430 KC - 5 KW - D - DA
AUGUST 1, 1952

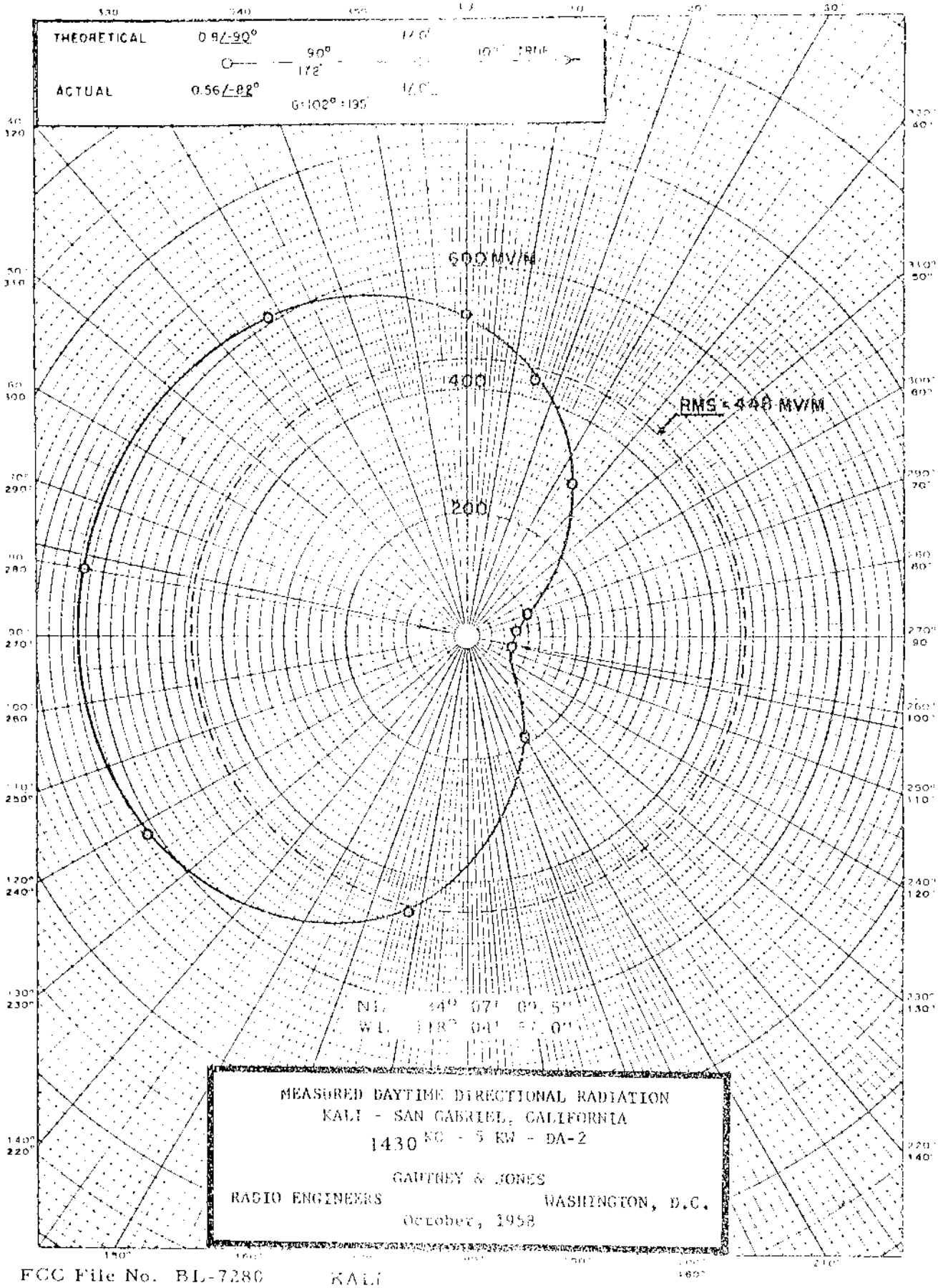
BOND AND OAKLEY
Consulting Radio Engineers
LOS ANGELES, CALIFORNIA

KALI

MEASURED DAY
(12-12-58g)

Station KALI
San Gabriel, California

5kw, DA-2, U
1430 KC



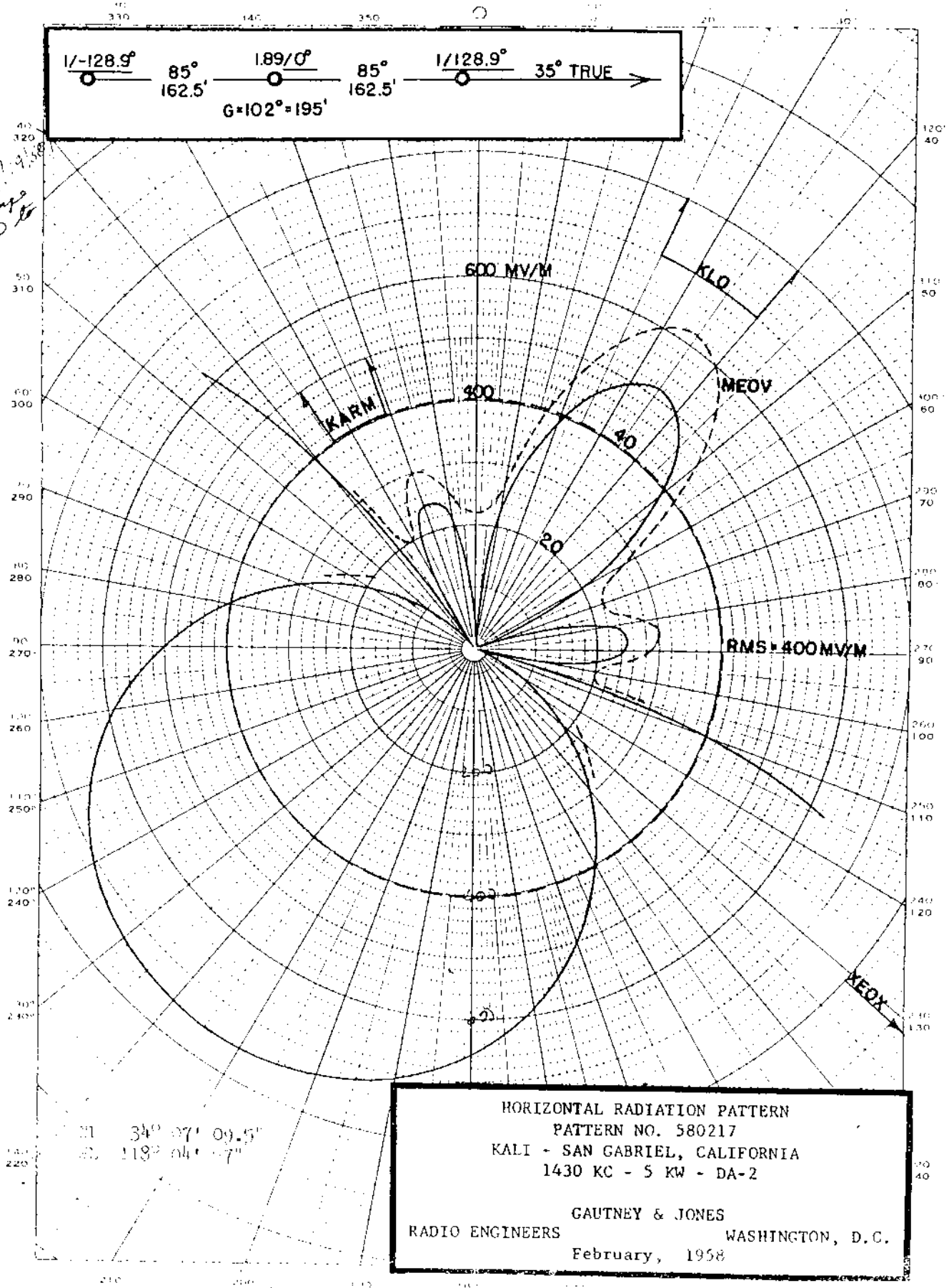
FCC File No. BL-7280
Accepted 11-18-58
granted 6-4-59

KALI
San Gabriel, California

1430 KC

KALI

PROPOSED NIGHT (3-12-58g) | Station KALI San Gabriel, California | 5kw, DA-2,U 1430 KC



FCC File No. BP-11,222
Accepted 3-4-58 (Amended)

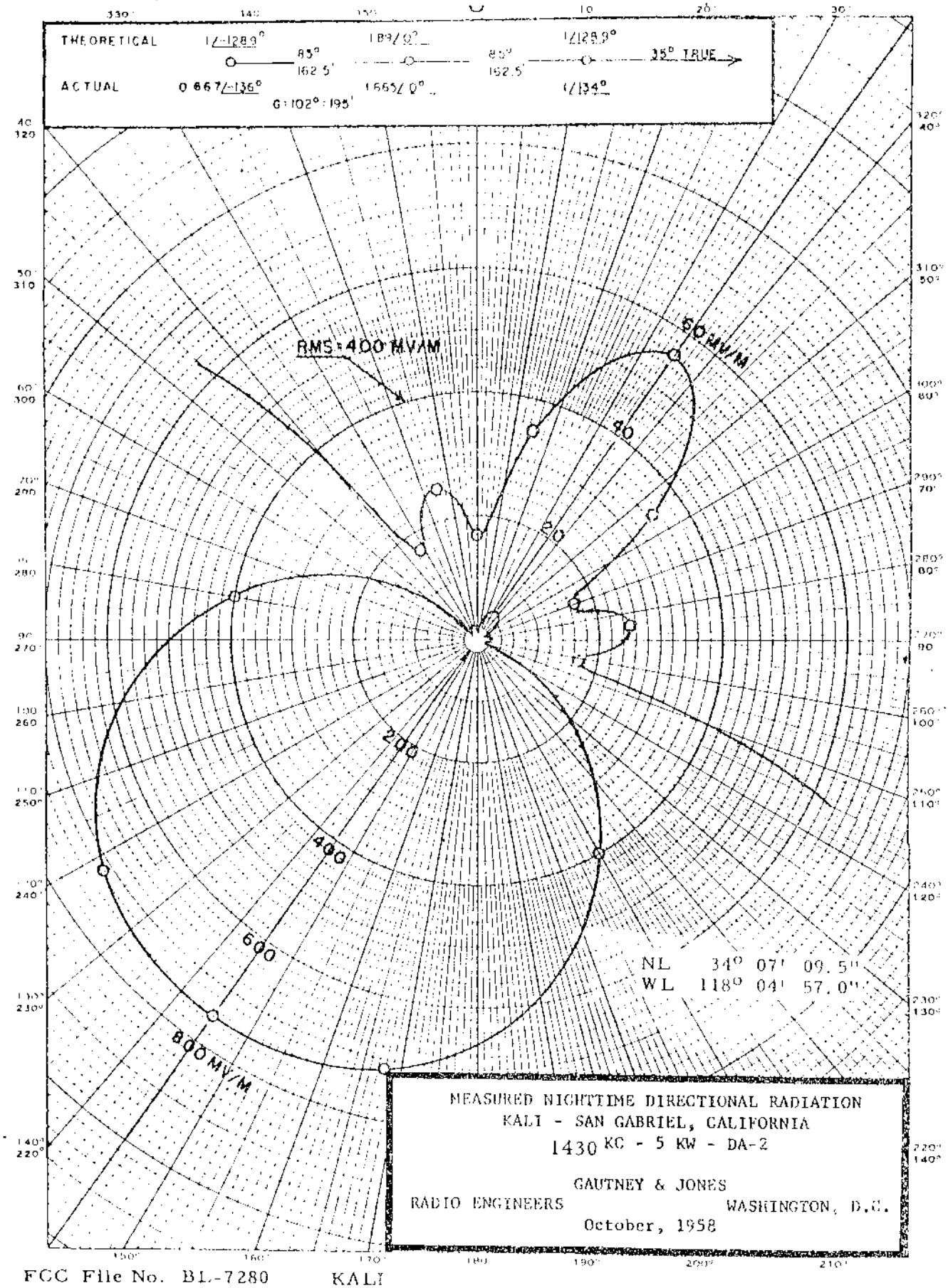
KALI
San Gabriel, California 1430 KC

KALI

MEASURED NIGHT
(12-12-58g)

Station KALI
San Gabriel, California

5kw, DA-2, U
1430 KC



FCC File No. BL-7280
Accepted 11-18-58
granted 6-2-59

KALI
San Gabriel, California

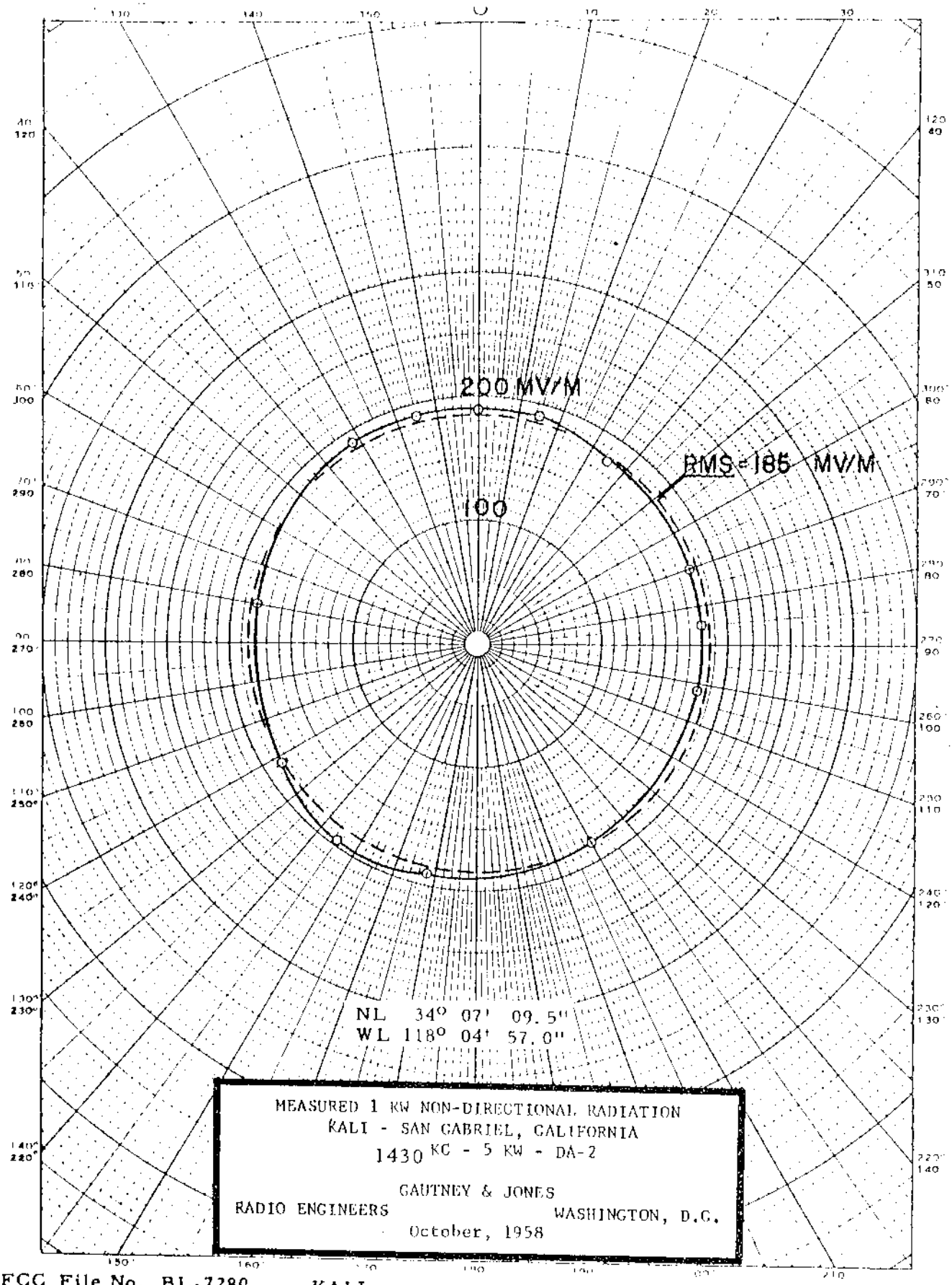
1430 KC

KALI

MEASURED NON-DA
(12-12-58g)

Station KALI
San Gabriel, California

5kw, DA-2, U
1430 KC



FCC File No. BL-7280
Accepted 11-18-58
granted 6-4-59

KALI
San Gabriel, California

1430 KC

KALV

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KALV

Main Studio: Alva, Oklahoma

Frequency: 1430 kHz

Power: 0.5 kW

Notification List No. 1684

Date: May 12, 1976

Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 36° 49' 06"
West Longitude: 98° 38' 38"

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:	SW(#3)	C(#2)	NE(#1)	E(#4)
HEIGHT ABOVE INSULATORS:	150'	150'	150'(78.5°)	120' (62.8°)
NIGHT PHASING:	-132°	0°	+132°	---
NIGHT FIELD RATIO:	1.0	1.85	1.0	---
DAY PHASING:	-123°	0°	---	+110°
DAY FIELD RATIO:	0.3	1	---	0.56

SPACING AND ORIENTATION: Towers #1, #2 and #3 are spaced 153' (80°) on a line bearing 225° true. From tower #1, tower #4 is spaced 133.8' (70°) on a line bearing 89° true.

GROUND SYSTEM: 120-150' 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	THEORETICAL RSS	STANDARD RMS
Day	130.4 mv/m	164.3 mv/m	143.4 mv/m
Night	135 mv/m	---	---

(Cont'd.)

KALV

KALV
1430 kHz
Alva, Oklahoma

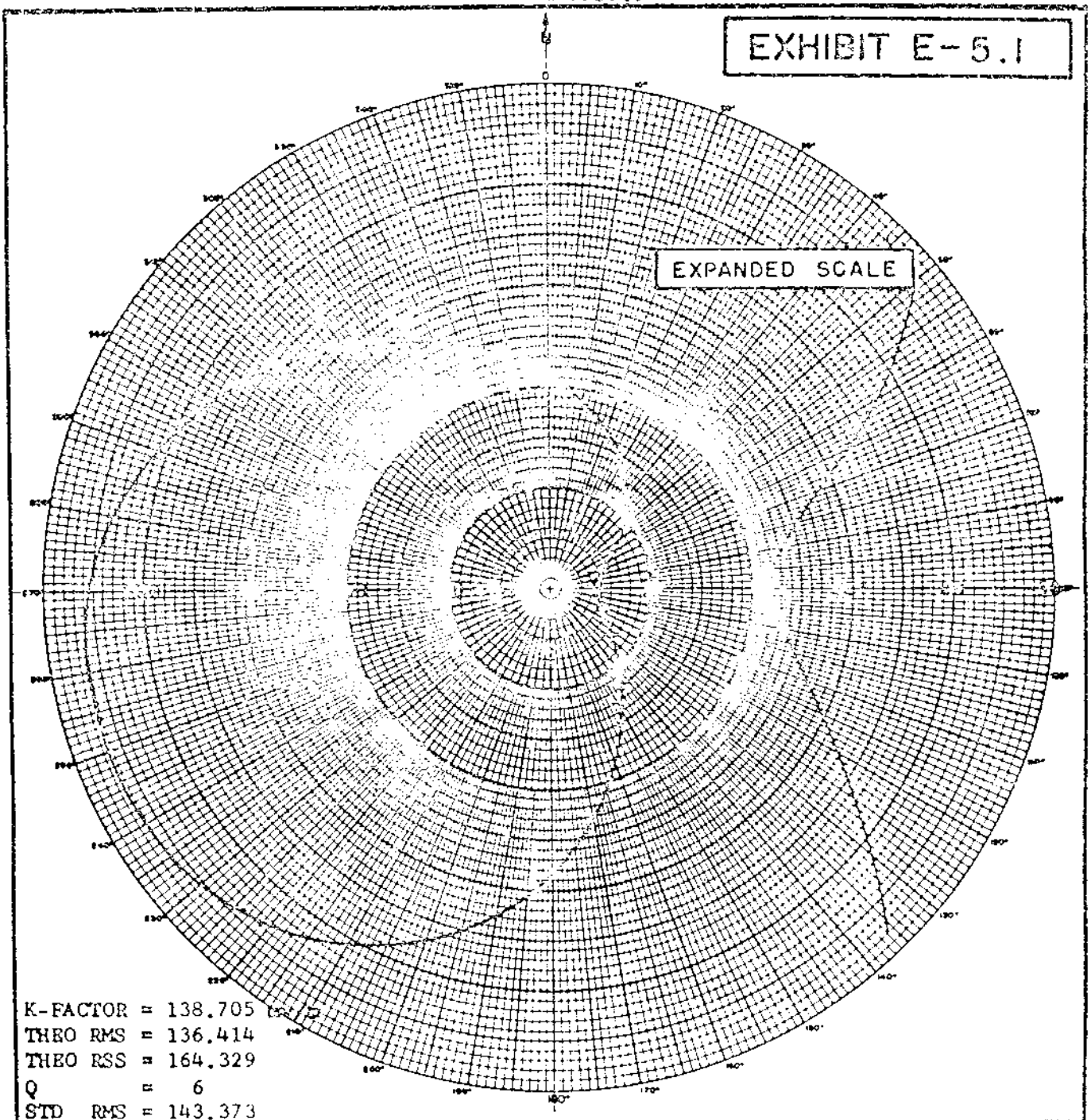
Note: Please retain the directional antenna radiation pattern notified for a new station at Alva, Oklahoma in United States Change List Number 657 dated May 16, 1956, and attach to this Revised Description Sheet and Daytime pattern. This notification concerns only a change in the Daytime operation of the station with Nighttime operation continued as previously notified.

CTR NO 30376A3

KALV

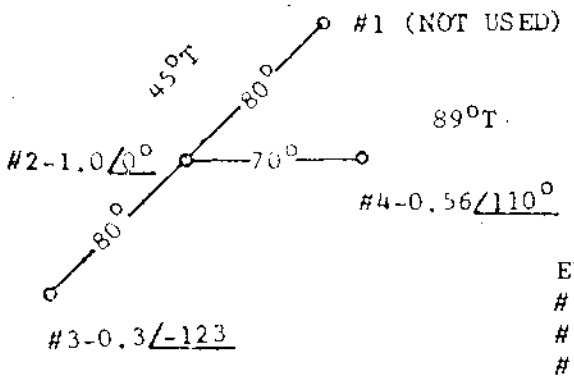
Standard Pattern

EXHIBIT E-5.1



K-FACTOR = 138.705 mv/m
THEO RMS = 136.414
THEO RSS = 164.329
Q = 6
STD RMS = 143.373

STANDARD HORIZONTAL RADIATION PATTERN



ELECTRICAL HEIGHT	
#1	80°
#2	80°
#3	80°
#4	63°

APPLICANT	KALV
LOCATION	ALVA, OKLAHOMA
FREQUENCY	1430 KC/S
POWER	0.5 KW
LATITUDE	36 DEG 49 MIN 06 SEC
LONGITUDE	98 DEG 38 MIN 35 SEC
WHEN USED	Daytime
DATE	15 February 1975

ROBERT L. [illegible]

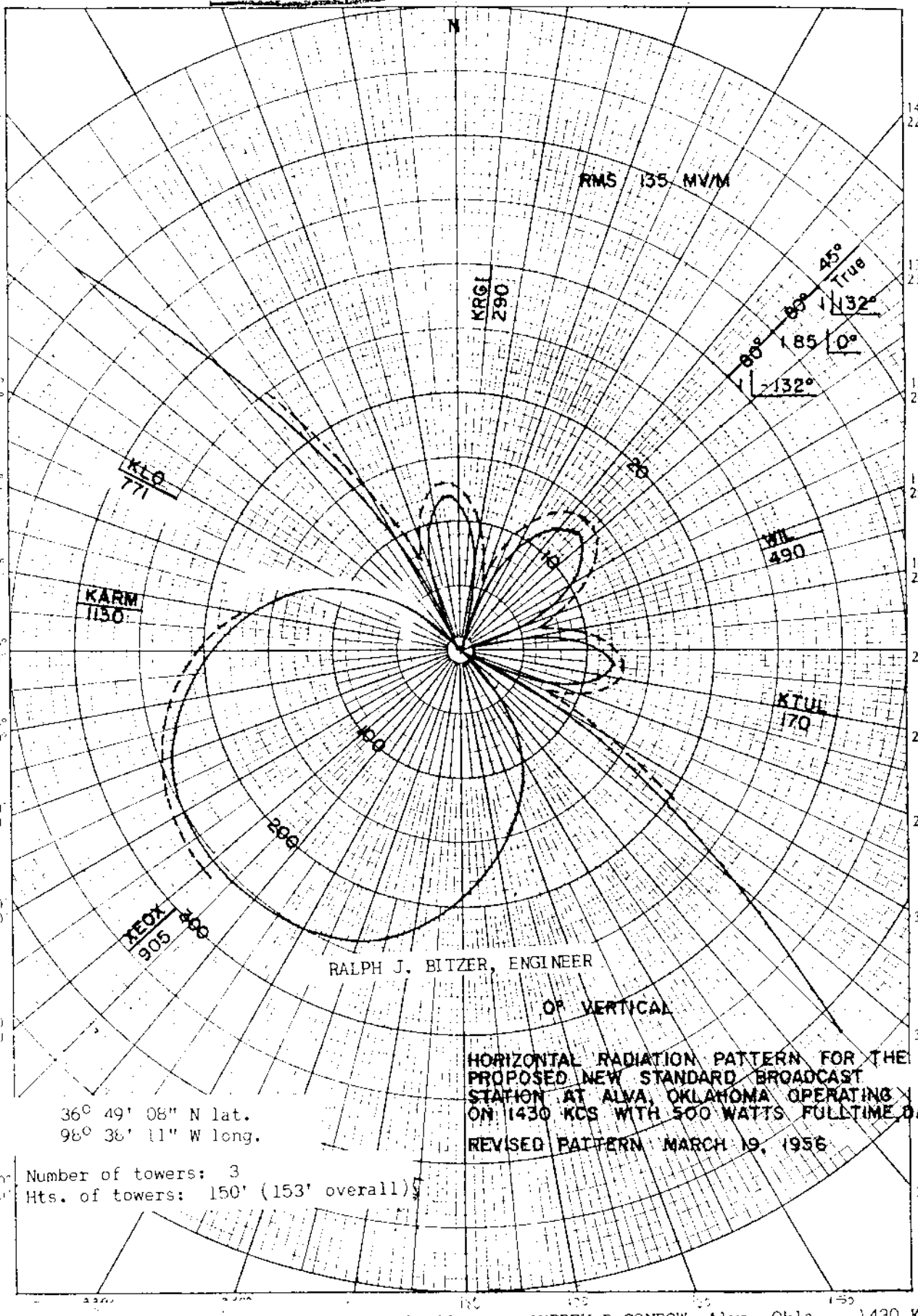
KALV

PROPOSED NIGHT & DAY
(4-9-56G)

AUBREY D. CONROW
ALVA, OKLAHOMA

500W-N,500W-D
DA-1, U

1430 KC



FILE NO. BP-10,164(Amended) ACCEPTED 4-2-56 FCC

AUBREY D.CONROW, Alva, Okla. 1430 KC

granted license 1/2/57

KALV

MEASURED NIGHT & DAY (DA-1)(10-29-56g)

Station K A L V
Alva, Oklahoma

500 W, DA-1 (U) over

1430 K C

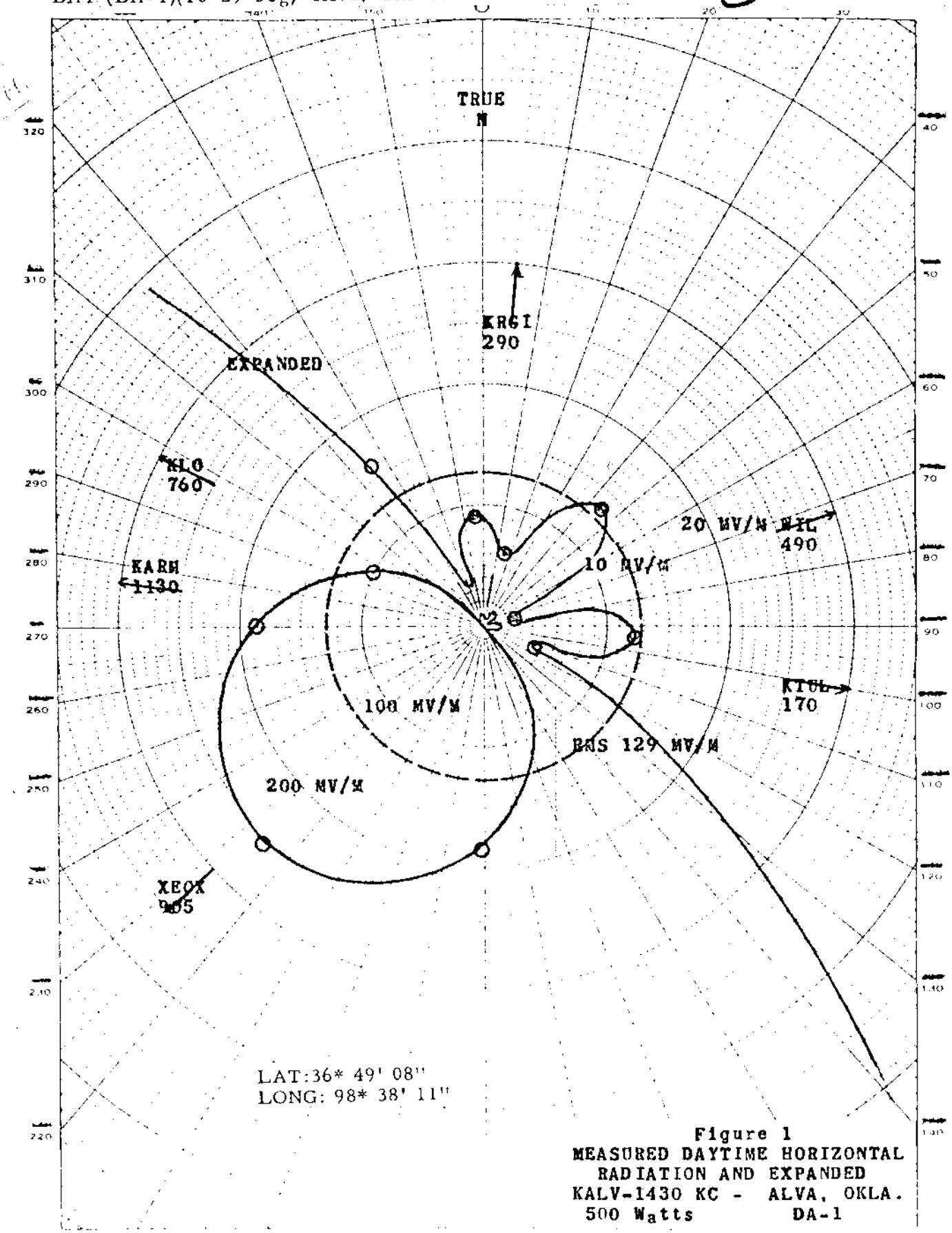


Figure 1
MEASURED DAYTIME HORIZONTAL RADIATION AND EXPANDED
KALV-1430 KC - ALVA, OKLA.
500 Watts DA-1

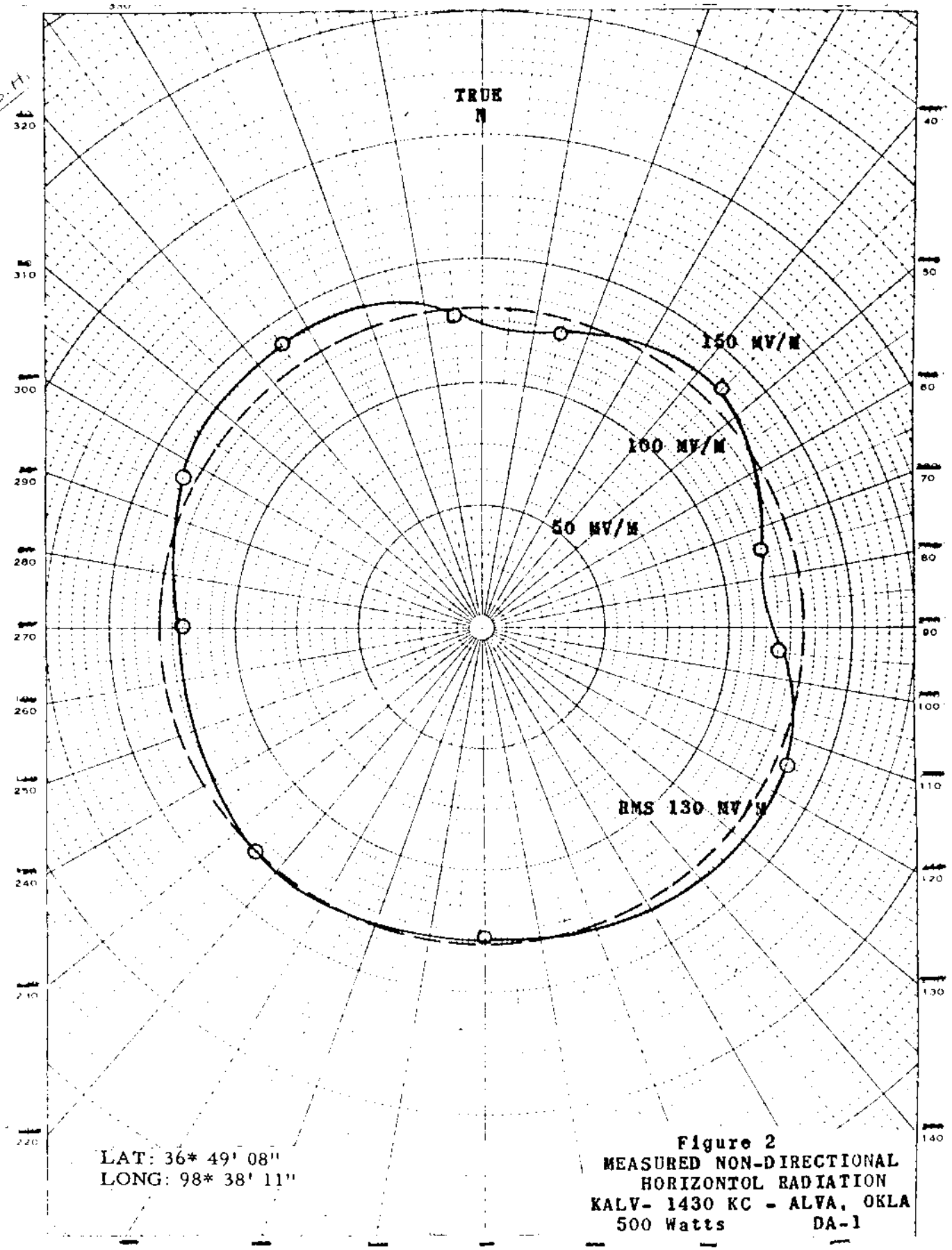
FCC FILE NO. BL-6377 Accepted 10-22-56 Station KALV, Alva, Okla. 1430 KC

granted license 1/2/57

KALV

MEASURED K A L V 500 W, DA-1, U
NON-DA(10-29-56g) Alva, Oklahoma Engr. -Benjamin O. Lange 1430 K C

DISMISSED 10-5-64 APPL FOR S.H.



LAT: 36* 49' 08"
LONG: 98* 38' 11"

Figure 2
MEASURED NON-DIRECTIONAL HORIZONTOL RADIATION
KALV- 1430 KC - ALVA, OKLA
500 Watts DA-1

FCC File No. B L-6377 Accepted 10-22-56 Station K A L V Alva., Oklahoma 1430 K C

KAKM

Proposed Day & Night
(12-28-67ct)

Station KARM
Fresno, California

5kw, DA-1,U
1430 kc

1-24-66
GRANTED
CP

10-17-68
Granted
license

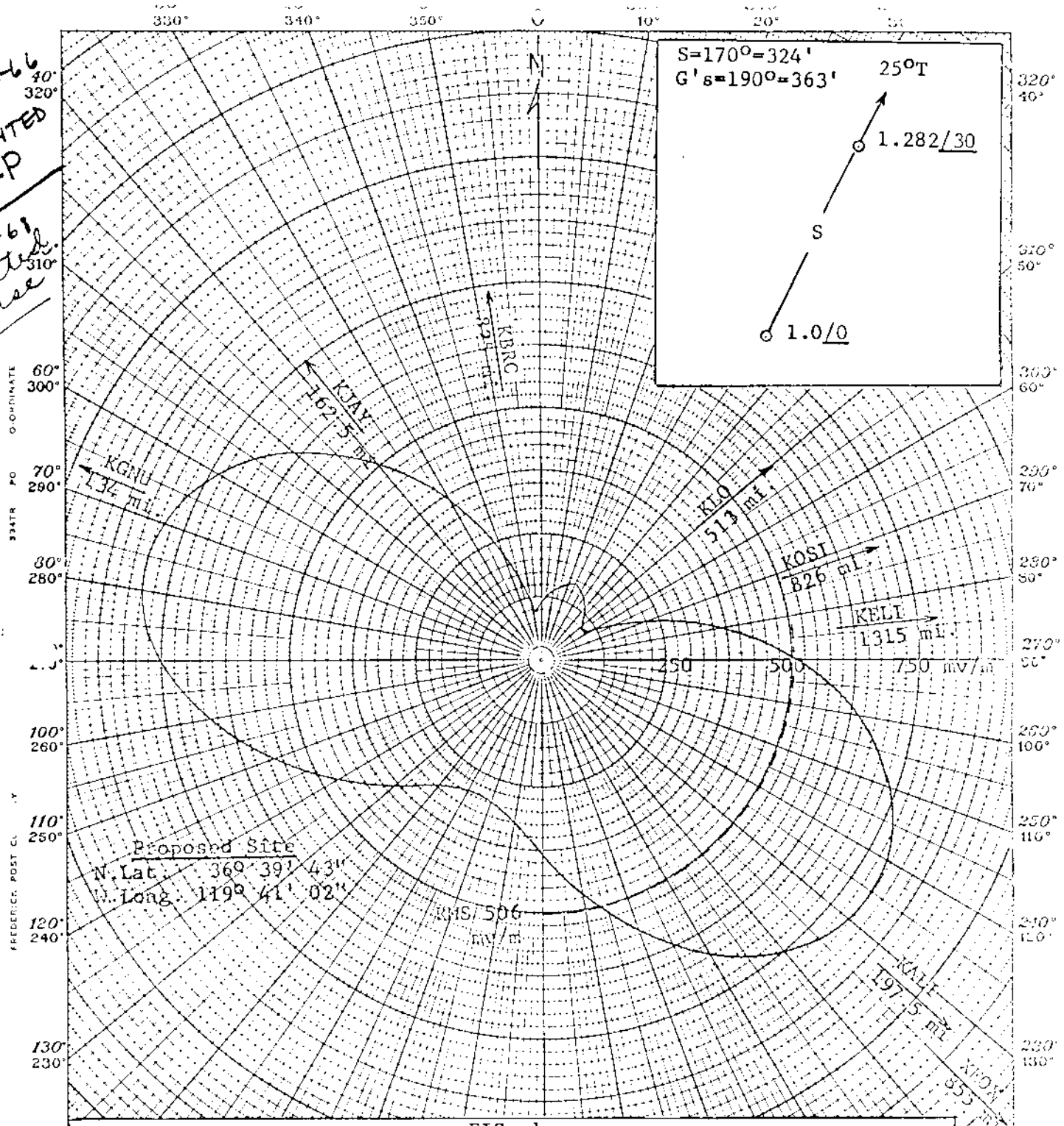


FIG. 1

HORIZONTAL RADIATION
KARM 1430 KC 5.0 KW U DA-1
FRESNO, CALIFORNIA

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

FCC File No. BP-17932
Accepted 12-11-67

Station KARM
Fresno, California

1430 kc

Prop &
MEASURED
NIGHT&DAY

KARM, FRESNO, CAL. License 11-5-48 5kw,DA1

KARM - 1430 kc

3/10/49G

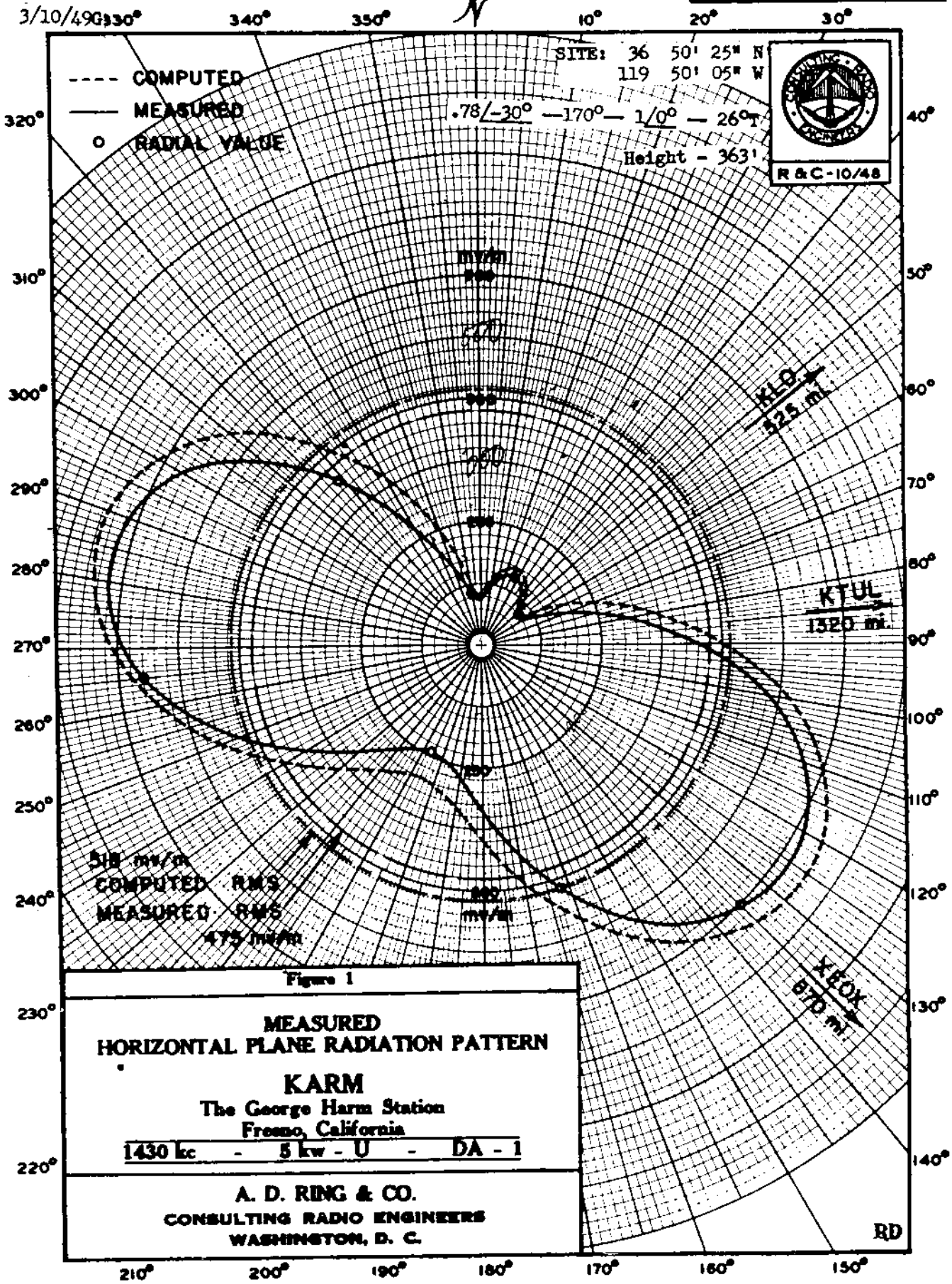


Figure 1

MEASURED
HORIZONTAL PLANE RADIATION PATTERN

KARM
The George Harm Station
Fresno, California

1430 kc - 5 kw - U - DA - 1

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

KARM, Fresno, Cal. 1430 kc

KBEV

Station: WBEV

Main Studio: Beaver Dam, Wisconsin

Frequency: 1430 KHz

Power: 1 Kw Night 1 Kw Day

Notification: 1778

Date: August 30, 1978 Class: III

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

NIGHTTIME:	North Latitude:	43°	25'	43"
	West Longitude:	88°	53'	33"
DAYTIME:	North Latitude:	43°	25'	40"
	West Longitude:	88°	54'	35"

Predicted Effective Dayfield (omnidirectional): 195 $\frac{mv}{m}$ at rated power.

ANTENNA CHARACTERISTICS

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

TOWER :	S (#3)	C (#2)	N (#1)			
HEIGHT ABOVE INSULATORS :	195'	195'	195'	(102°)		
NIGHT PHASING :	+94°	0	-94°			
NIGHT FIELD RATIO:	1	1.797	1			

SPACING AND ORIENTATION : Towers in a row are spaced 229.4' (120°) on a line bearing 350° true.

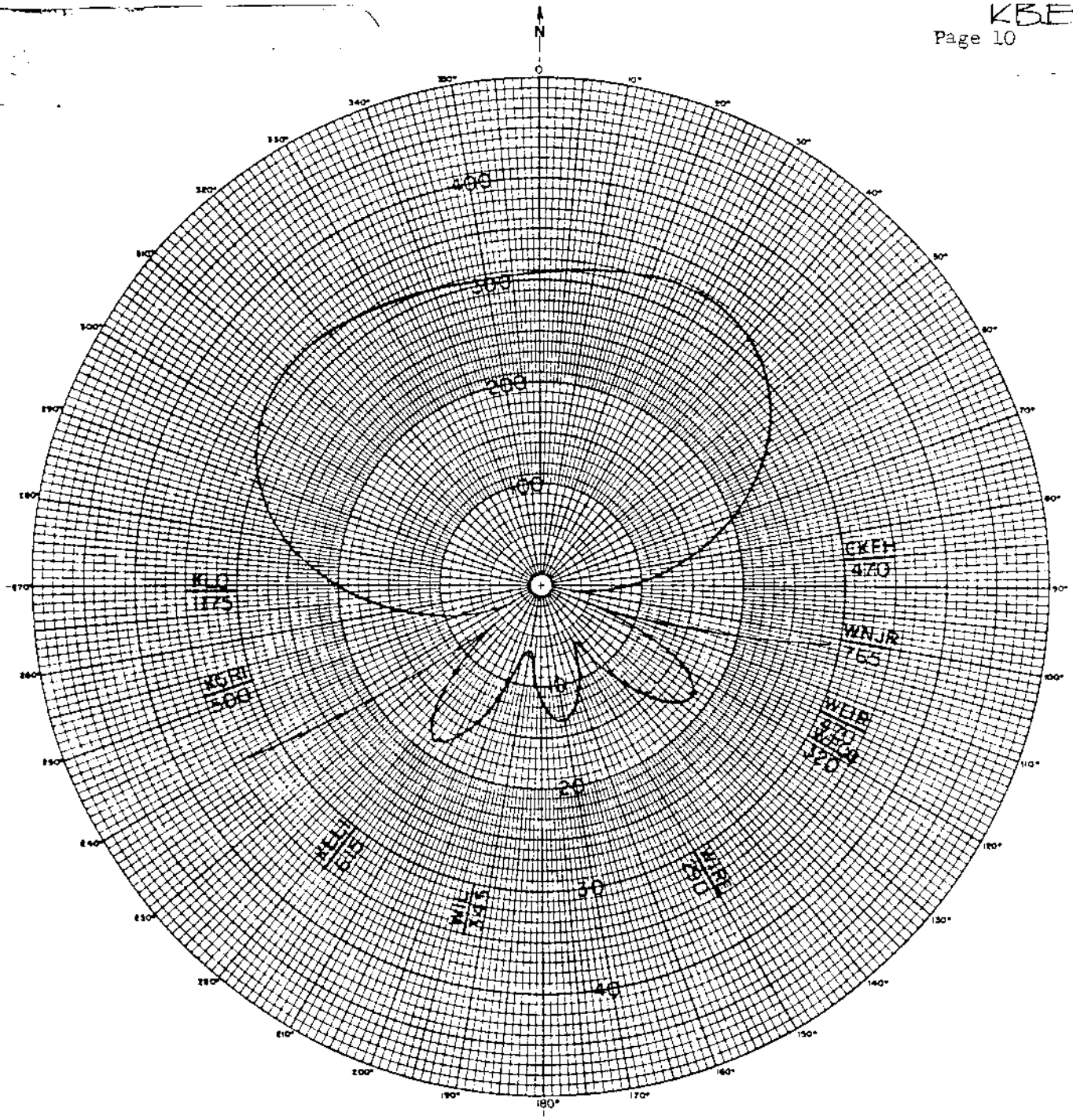
KBEV

GROUND SYSTEM: 120 - 170' equally spaced copper radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Night	197.7 mv/m	186.0 mv/m	207.6 mv/m

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



HORIZONTAL RADIATION PATTERN	0° Standard Pattern
Theoretical RMS (1 ohm loss) -197.7 MV/M Standard Pattern RMS -207.6 MV/M RSS -186.0 MV/M	APPLICANT : WBEV LOCATION : Beaver Dam, Wisconsin FREQUENCY : 1430 KC/S POWER : 1000 Watts LATITUDE : 43 DEG 25 MIN. 43 SEC. LONGITUDE : 88 DEG. 53 MIN. 33 SEC. WHEN USED : Nighttime R.M.S. FIELD : 207.6 MV/M DATE : June 5th, 1976

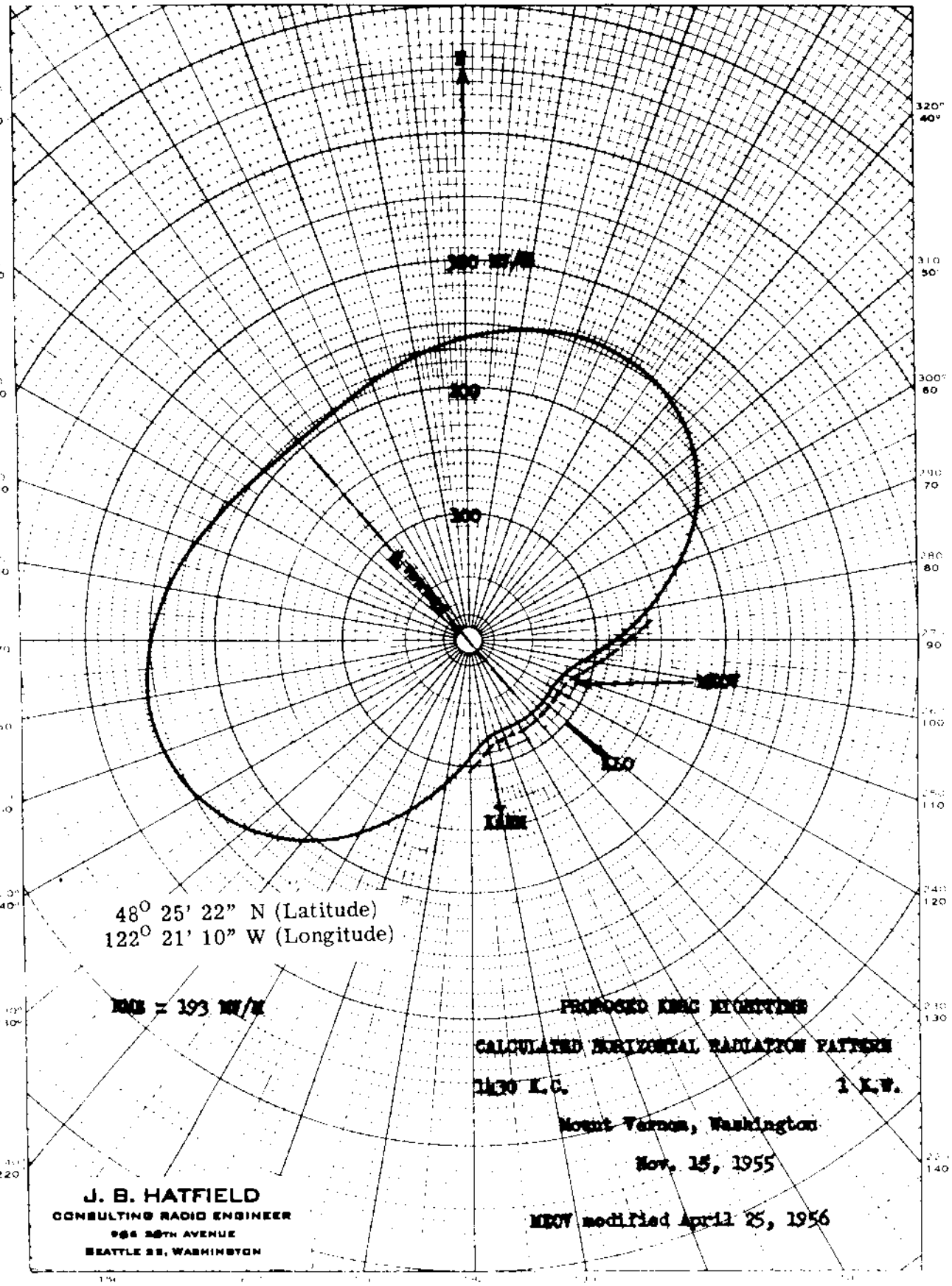
350°
1∠-94°
120°
1.78∠0°
120°
A-195' (102°)
1∠94°

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

PROPOSED STATION KBRC 1 KW
NIGHT (5/15/56g) Mount Vernon, Wash. DA-N, U 1430 KC

Granted CP 11/18/58 to increase Non DA day power from 1 KW to 5 KW

Granted license 11/14/58



SEE BALL FOR PARAMETERS & FORMULA JBH

FCC File No. BP-10,251 (Amended) Accepted 5-8-56 KBRC, Mt. Vernon, Wash. 1430 KC

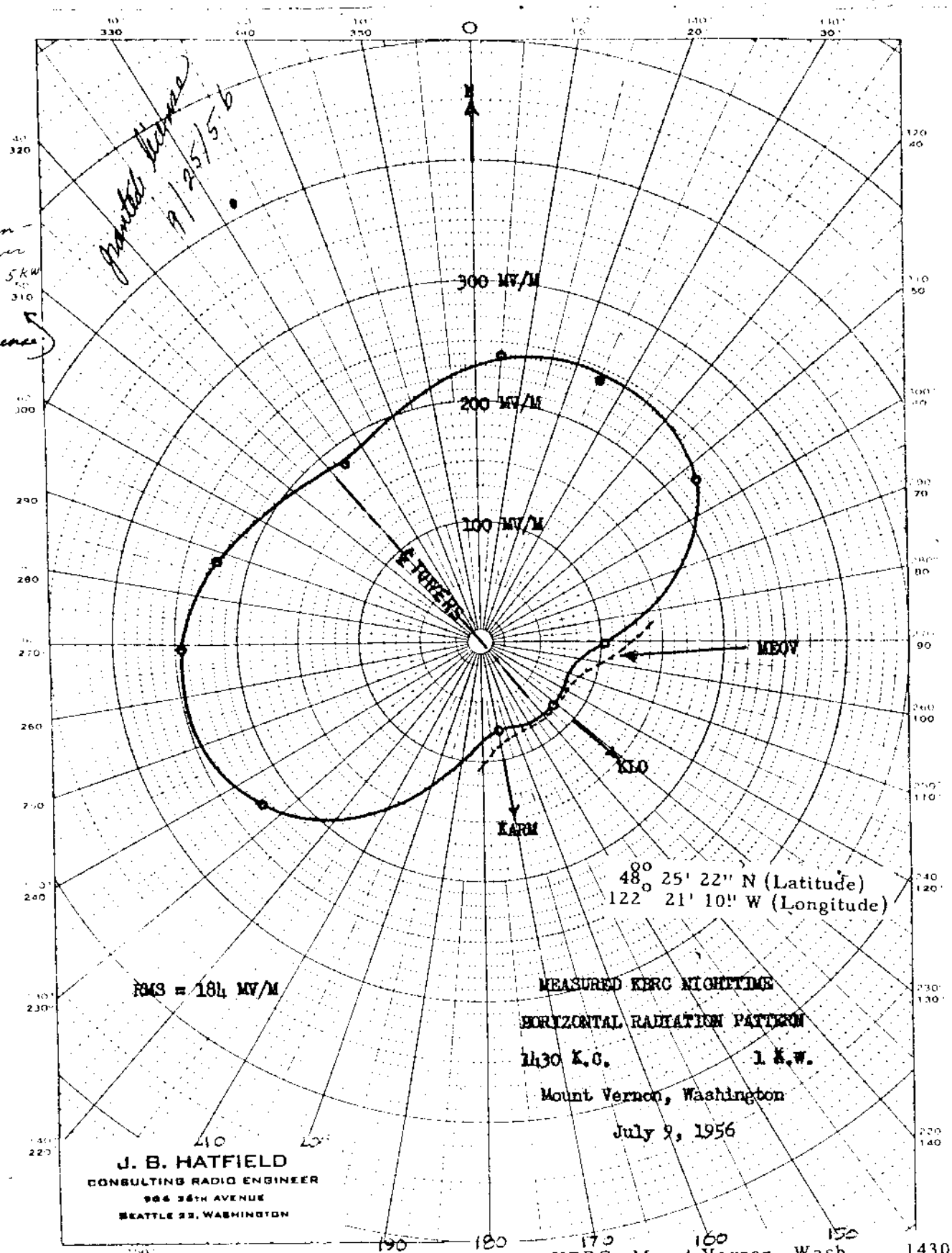
KBRC

MEASURED
NIGHT (8-31-56g)

STATION KBRC
MOUNT VERNON, WASH.

DA-N, U
1 KW

1430 KC



FCC File No. BL-6249 Accepted 8-23-56 KBRC, Mount Vernon, Wash. 1430 KC

KNTA ~~KEGL~~

Measured Day & Night
(3-30-64ct)

Station KGBA
Santa Clara, California

1kw,DA-1,U
1430kc

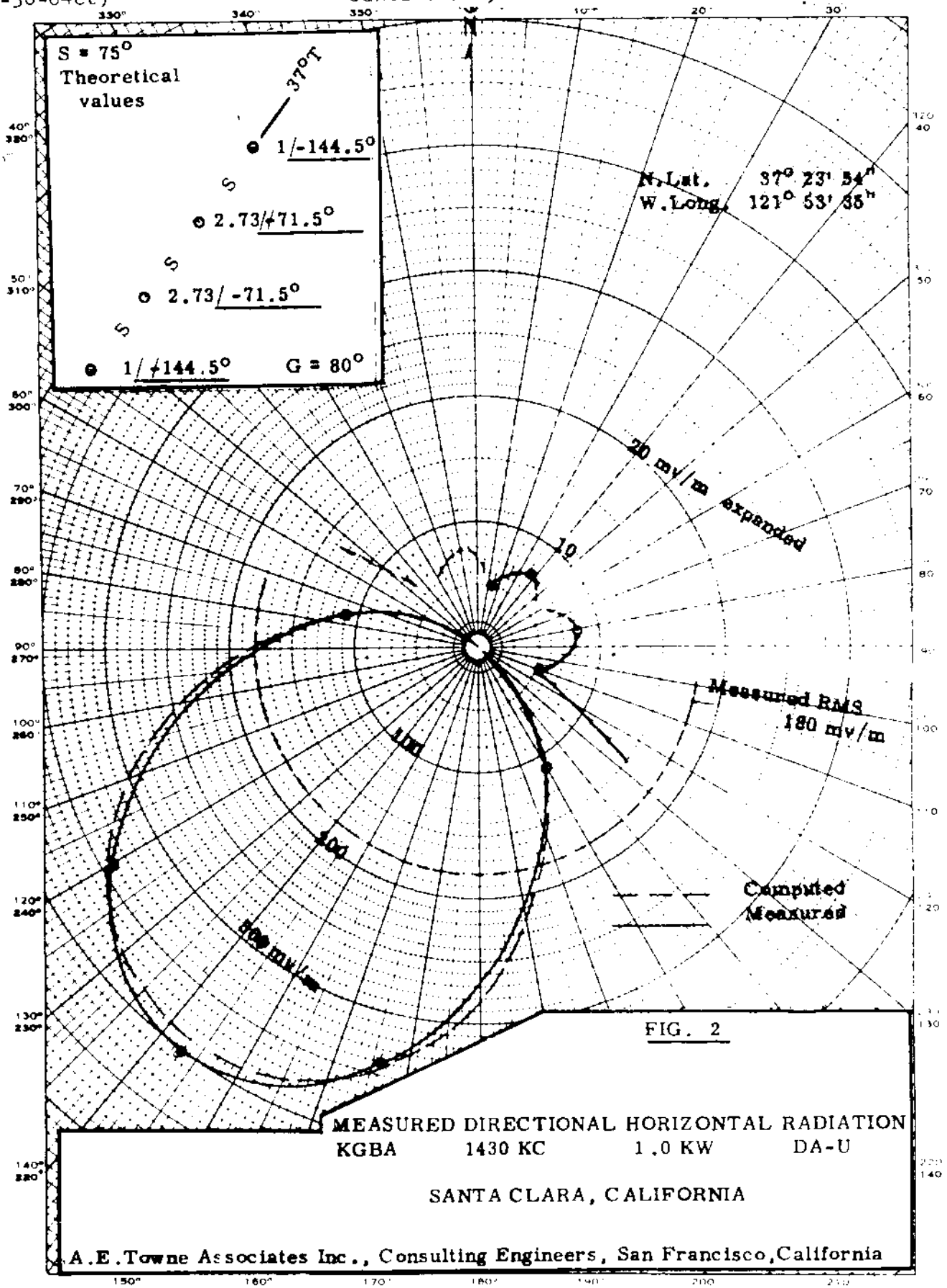


FIG. 2

FCC File No. BL-10393
Accepted 2-25-64

Station KGBA
Santa Clara, California

1430kc

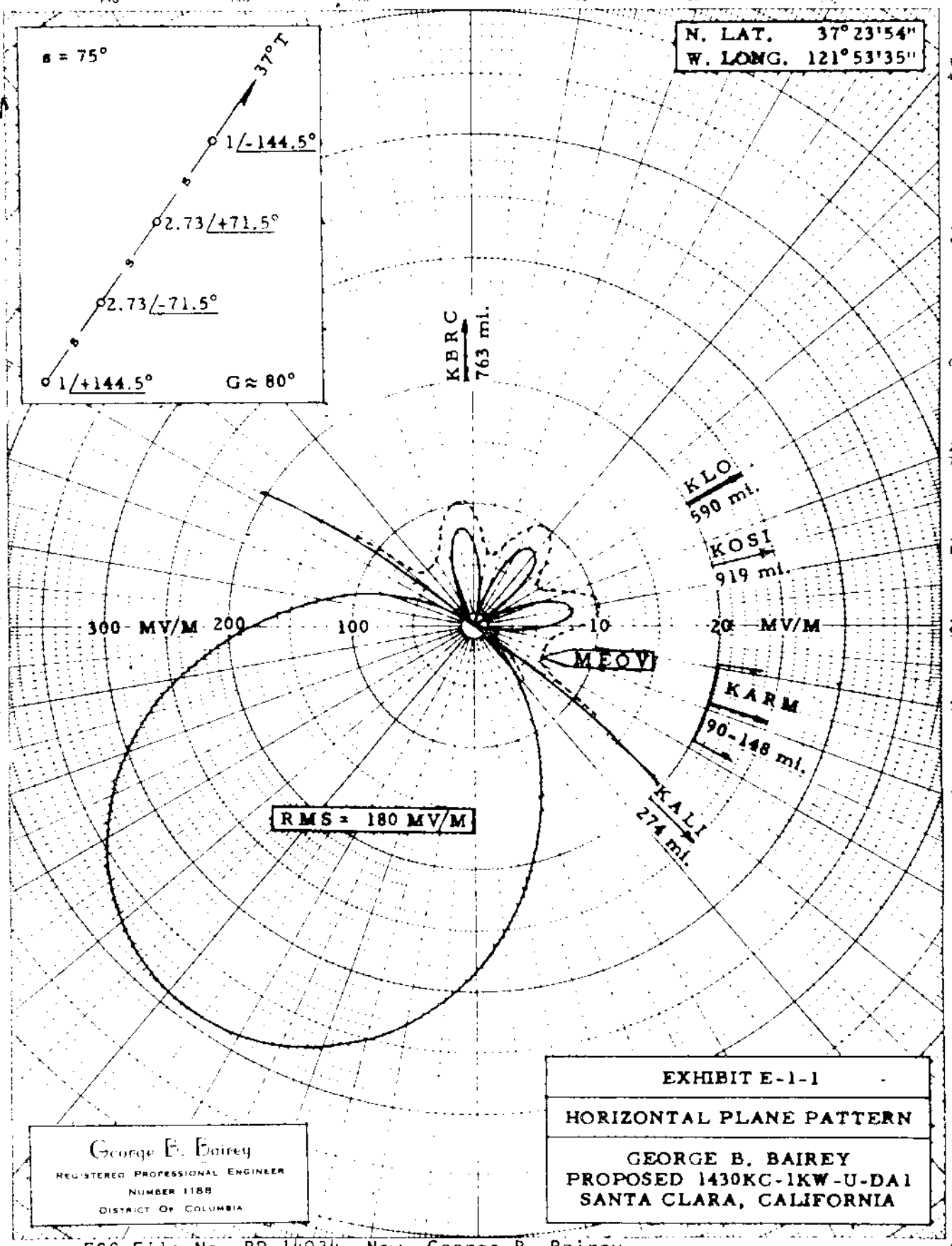
KNTA KEGL

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

New; George B. Bairey
Santa Clara, California

1kw, DA-1,U
1430 KC

3-8-63 granted CP for new station



FCC File No. BP-14934
Accepted 7-26-61

New; George B. Bairey
Santa Clara, California

1430 KC

74

KNTA KEGL

Measured Non-DA
(3-30-64ct)

Station KGBA
Santa Clara, California

1kw,DA-1,U
1430kc

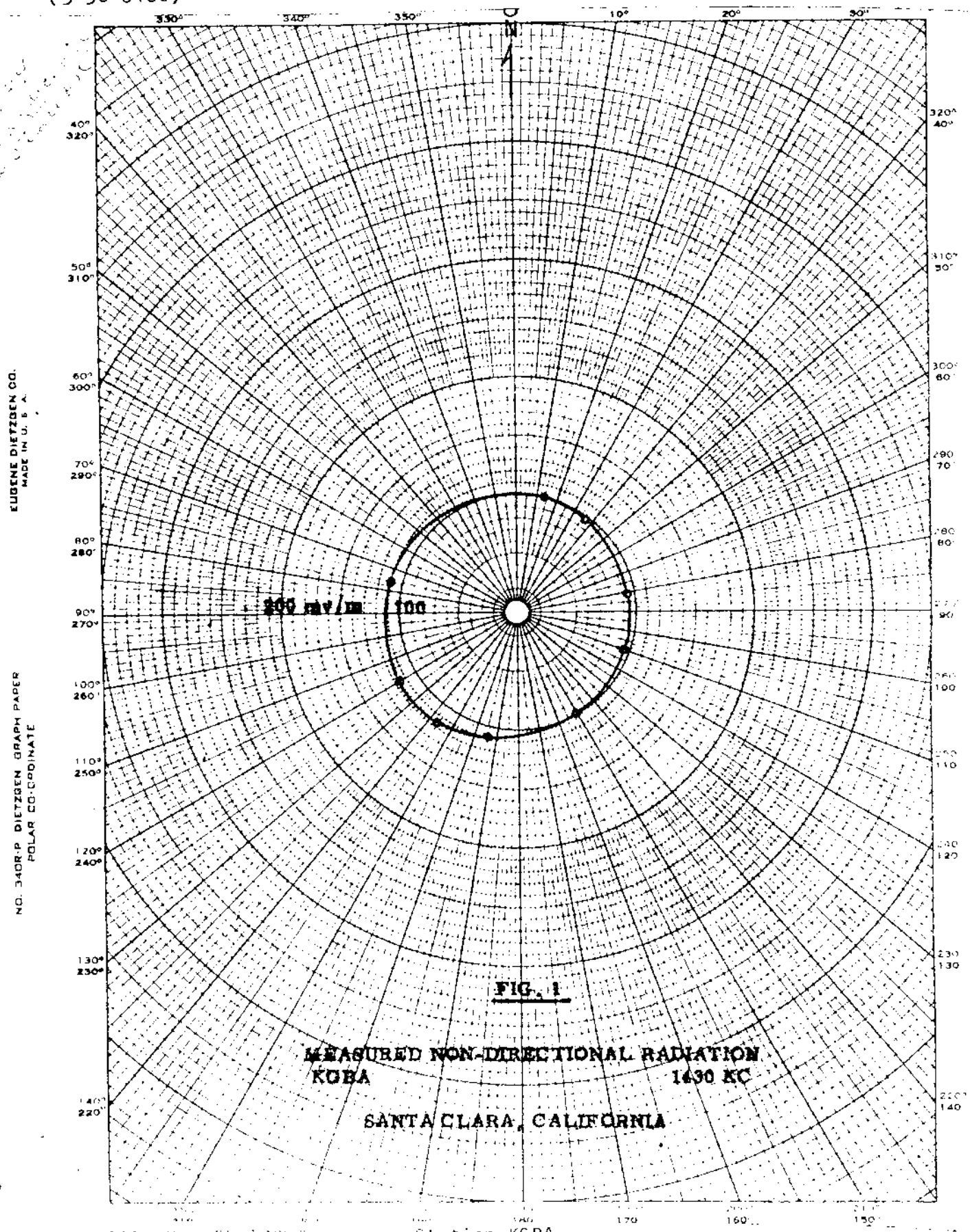


FIG. 1

MEASURED NON-DIRECTIONAL RADIATION
KGBA 1430 KC

SANTA CLARA, CALIFORNIA

FCC File No. BL-10393
Accepted 2-25-64

Station KGBA
Santa Clara, California

1430kc

KEES

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KEES

Main Studio: Gladewater, Texas

Frequency: 1430 KHz

Power: 1 Kw Night 5 Kw Day

Notification: 1778

Date: August 30, 1978 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 32° 31' 46"
West Longitude: 94° 52' 50"

Predicted effective Daytime Field (omnidirectional) 420 $\frac{mv}{m}$ at rated power.

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	:	S (#2)	N (#1)				
HEIGHT ABOVE INSULATORS	:	162.4'	162.4'	(85°)			
PHASING	:	-59.5°	0°				
FIELD RATIO	:	0.93	1				

SPACING AND ORIENTATION : Towers in a row are spaced 258' (135°) on a line bearing 0° true.

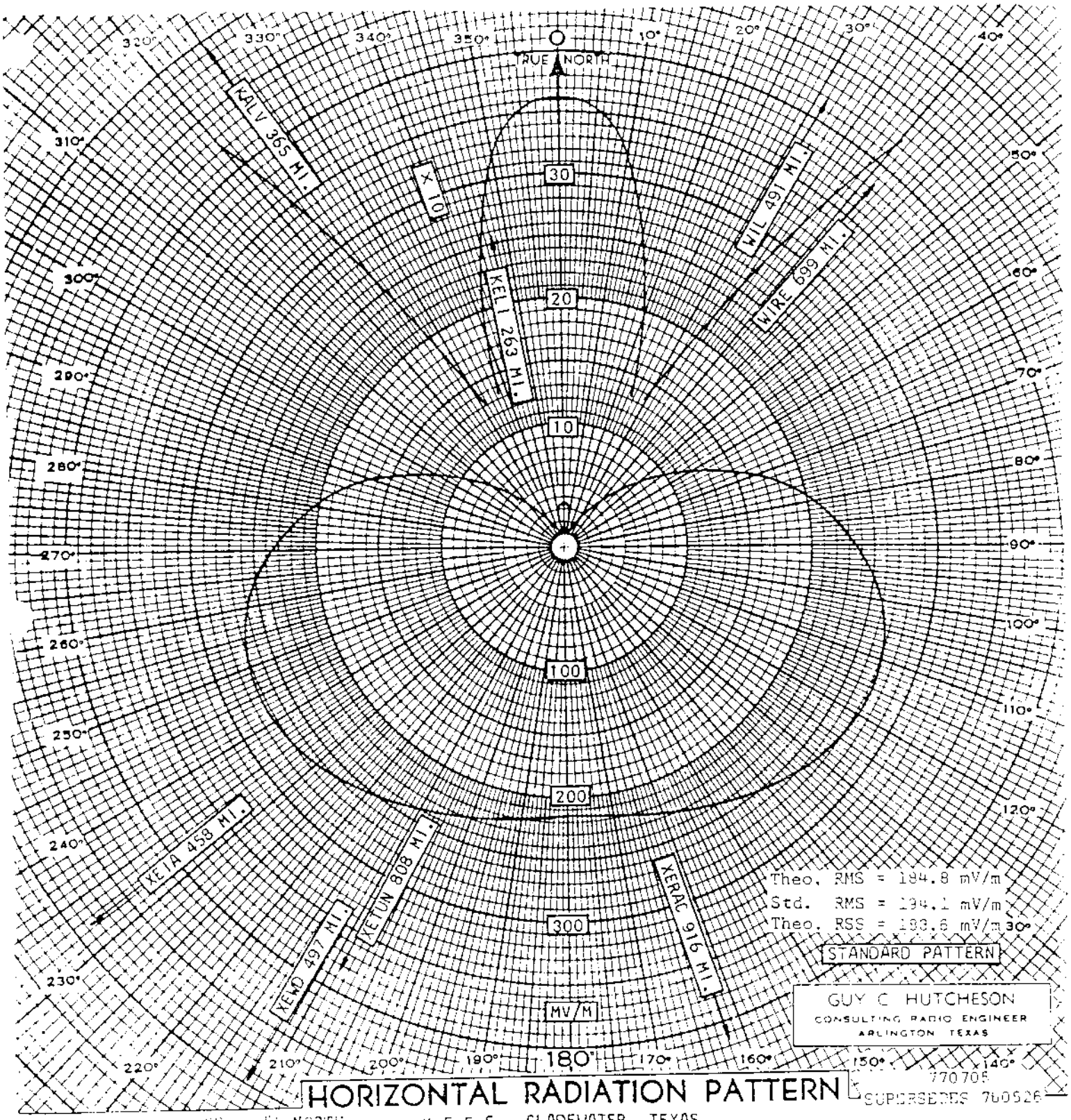
GROUND SYSTEM: 120 - 172' equally spaced copper radials plus 120 - 50' interspaced radials about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers. Centers of system are bonded together.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Night	184.8 mv/m	183.6 mv/m	194.1 mv/m

Note: This notification concerns a change in transmitter site; increase in daytime power and the addition of a directional antenna nighttime operation.

KEES



HORIZONTAL RADIATION PATTERN

770705
SUPERSEDES 760526

0° #1 NORTH
1 ∠0°

135°

#2 SOUTH
.93 ∠-59.5°

N 180° E

K E E S GLADEWATER, TEXAS
Station

1430 KHZ. 1 KW. 5 KW-LS.DA-N
Frequency Power

G1 = G2 = 85° = 162.4 FT.
Height of Antennas

32° 31' 46"
94° 52' 50"

FIG. 36A

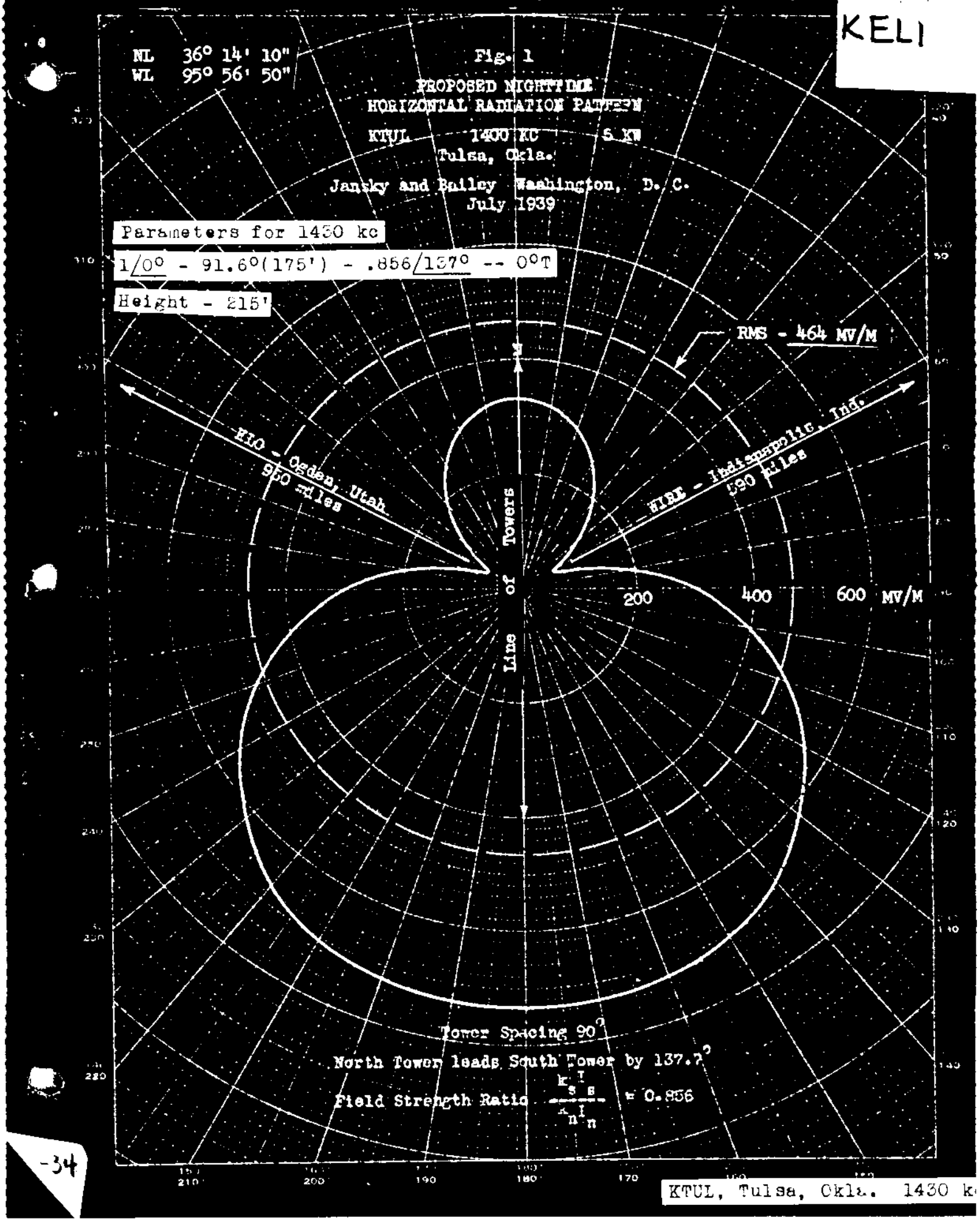
PROPOSED NIGHTTIME
HORIZONTAL PATTERN

PROPOSED NIGHT

Station KTUL
Tulsa, Oklahoma

5kw, DA-N,U
1430 KC

KELI



-34

KTUL, Tulsa, Okla. 1430 k

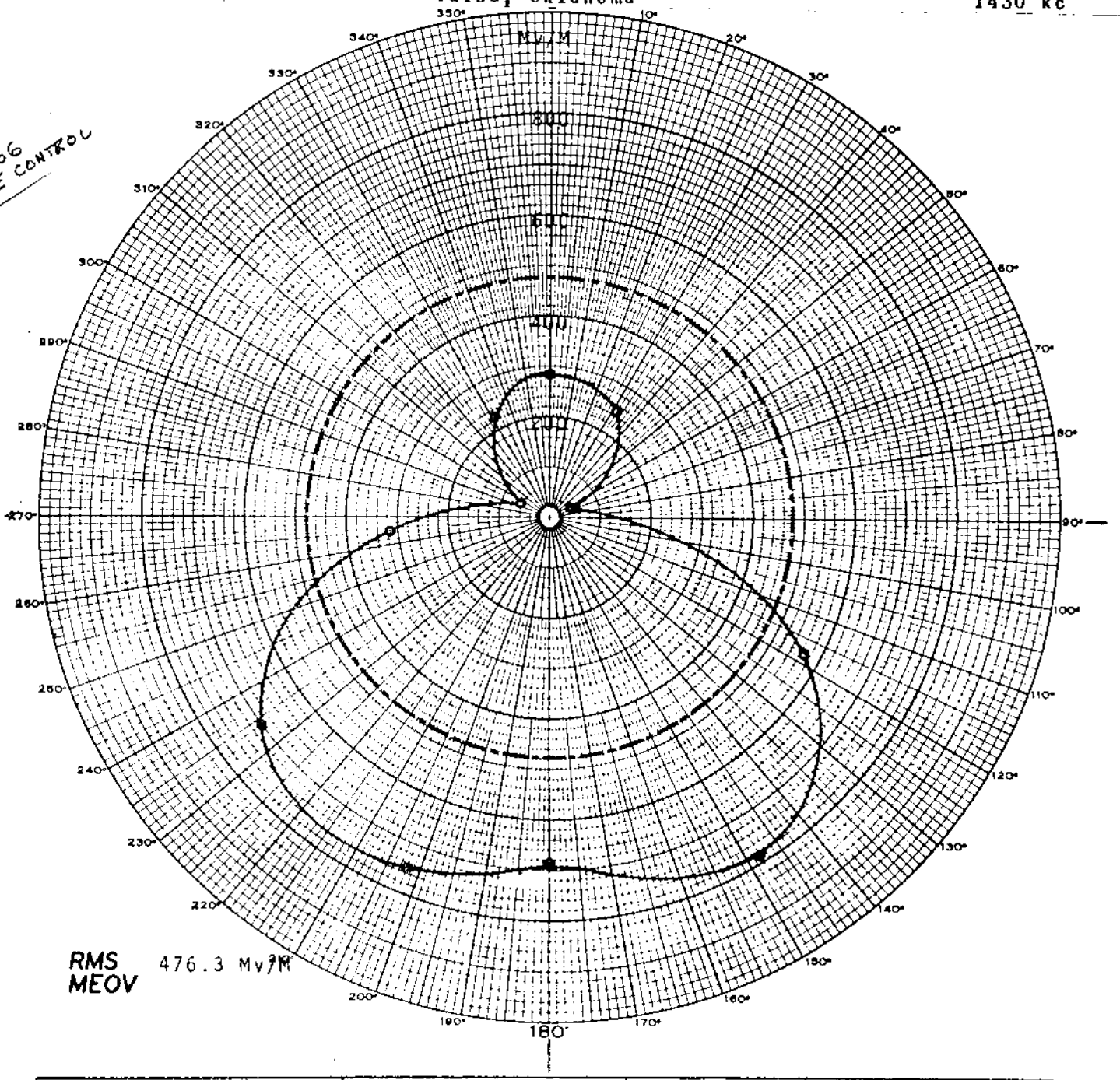
KELI

Measured Night
(4-28-66ct)

Station KELI
Tulsa, Oklahoma

5kw,DA-N,U
1430 kc

100.1/C
3-24-66
REMOTE CONTROL



RMS 476.3 Mv/M
MEOV

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS	FIGURE A	STATION DATA
G=110° 0° No.1 1.427/138° 90° No.2 1/0°	TOWER No. / ELECTRICAL HEIGHT G° / SPACING S° / PHASING K° / FIELD RATIO F 1 2 3 4 5 6 7 8 9 10 DAYTIME OPERATION ☐ NIGHTTIME OPERATION ☑	MEASURED NIGHT DIRECTIONAL PATTERN - - - PATTERN CHECK FEBRUARY 1966 θ° 0°	CALL KELI FREQ 1430 Kc/S POWER 5 Kw TYPE DA-N TIME NIGHT LAT. 36-14-10 N LONG. 95-56-50W E.H.MUNN,JR. RADIO ENGINEER COLDWATER, MICH.

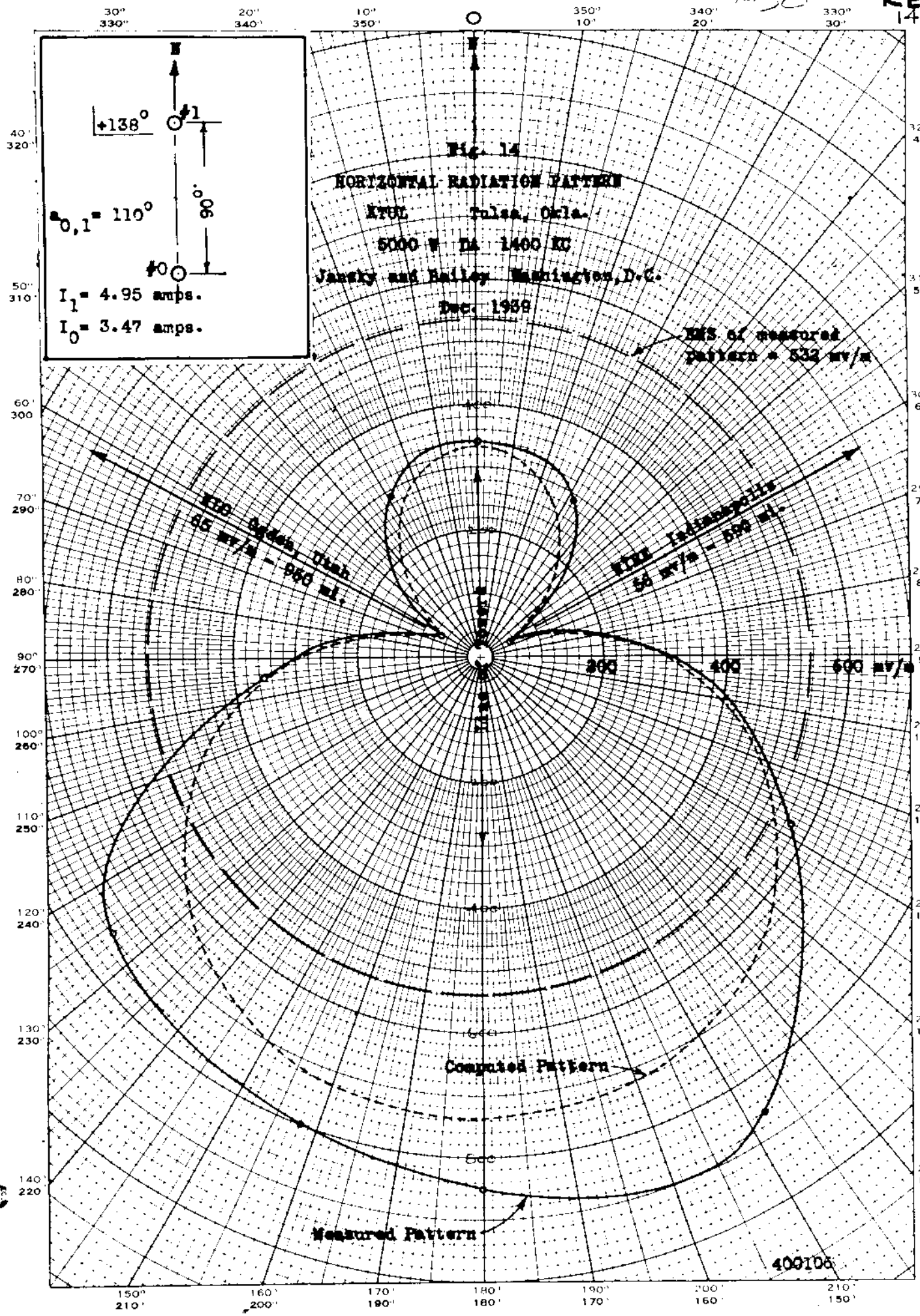
FCC File No.BRC-2860
Accepted 4-8-66

Station KELI
Tulsa, Oklahoma

1430 kc

1450

KELI 1430



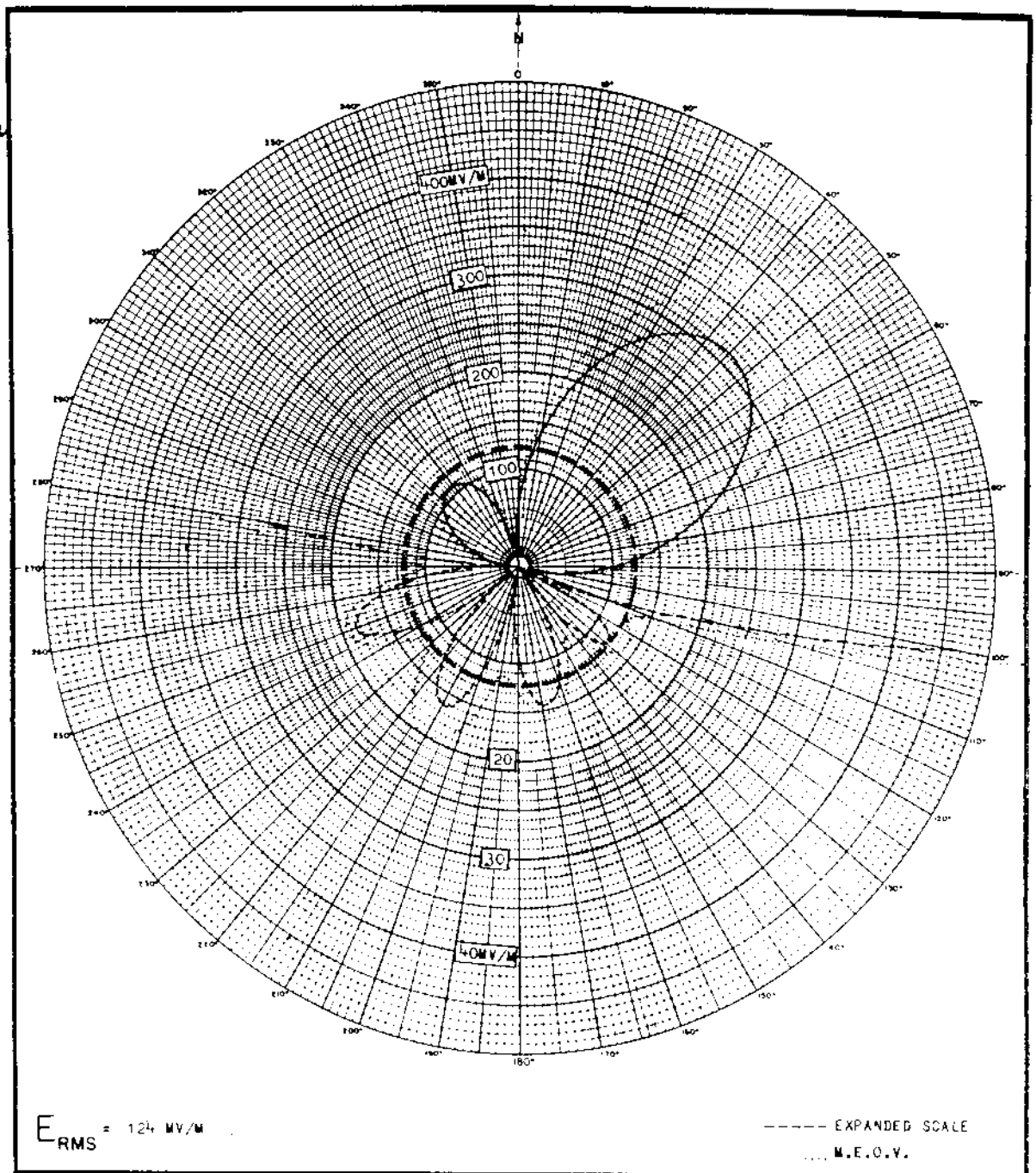
KJAY

Proposed Day
(10-26-62ct)

Station KJAY
Sacramento, California

500w,DA-D,D
1430 kc

11-20-62
granted mcp to make changes in DA pattern + move ants



E_{RMS} = 124 MV/M

----- EXPANDED SCALE
.... M.E.O.V.

LATITUDE: N 38° 29' 3[illegible]
LONGITUDE: W 121° 32' [illegible]

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

ANTENNA PARAMETERS

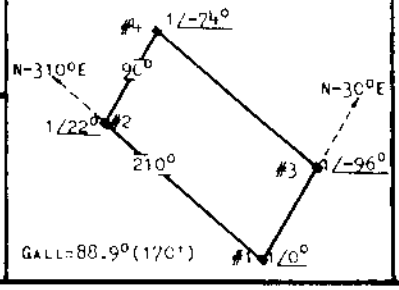


FIGURE 4

DAYTIME DIRECTIONAL
HORIZONTAL PATTERN

RADIO CARMICHAEL
SACRAMENTO, CALIF.

1430 KC 500 WATTS, DA-D

FCC File No. BMP-10595
Accepted 10-17-62

Station KJAY
Sacramento, California

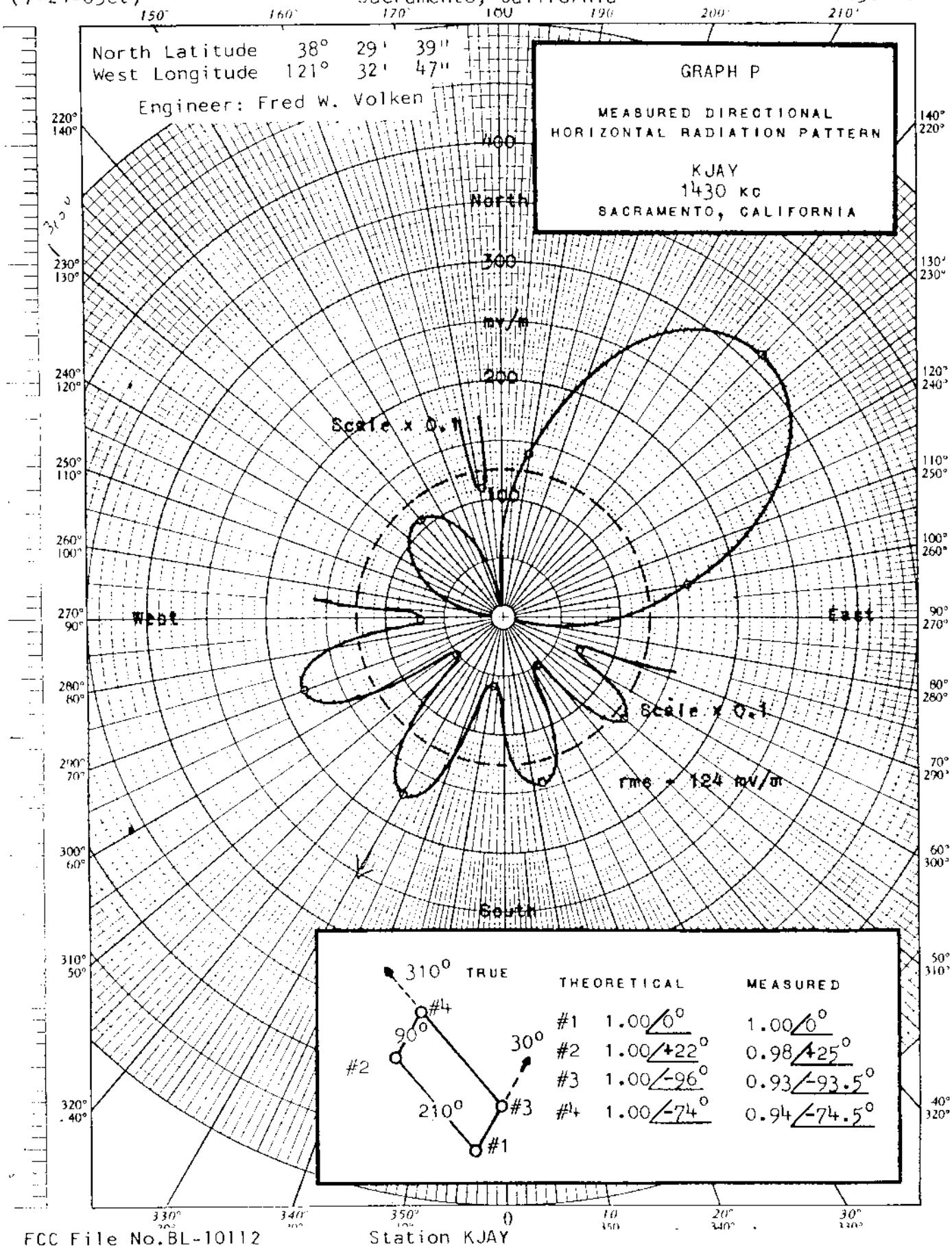
1430 kc

KJAY

Measured Day
(7-24-63ct)

Station KJAY
Sacramento, California

500w,DA-D,D
1430 kc



FCC File No.BL-10112
Accepted 7-2-63

Station KJAY
Sacramento, California

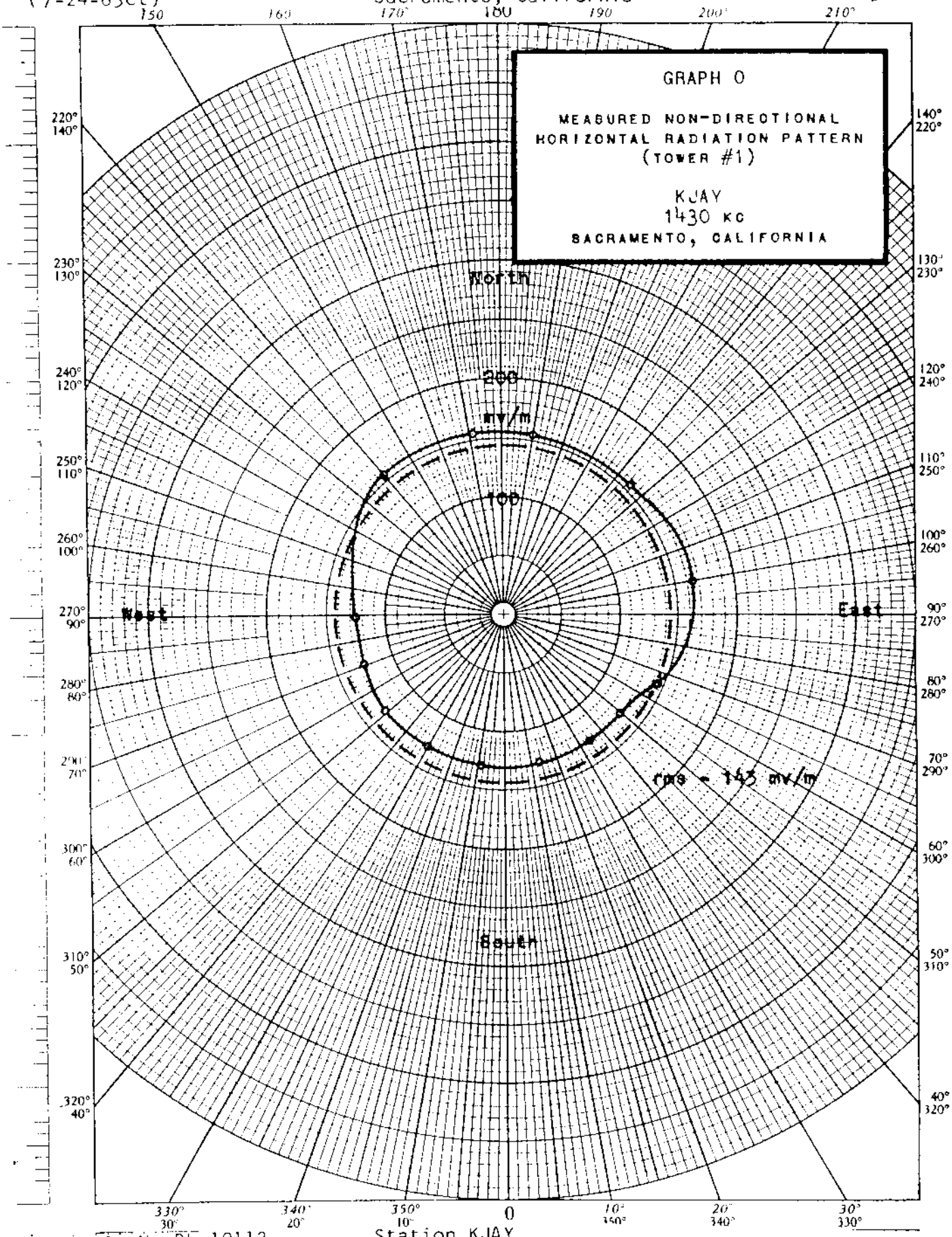
1430 kc

KJAY

Measured Non-DA
(7-24-63ct)

Station KJAY
Sacramento, California

500w,DA-D,D
1430 kc



FCC File No.BL-10112
Accepted 7-2-63

Station KJAY
Sacramento, California

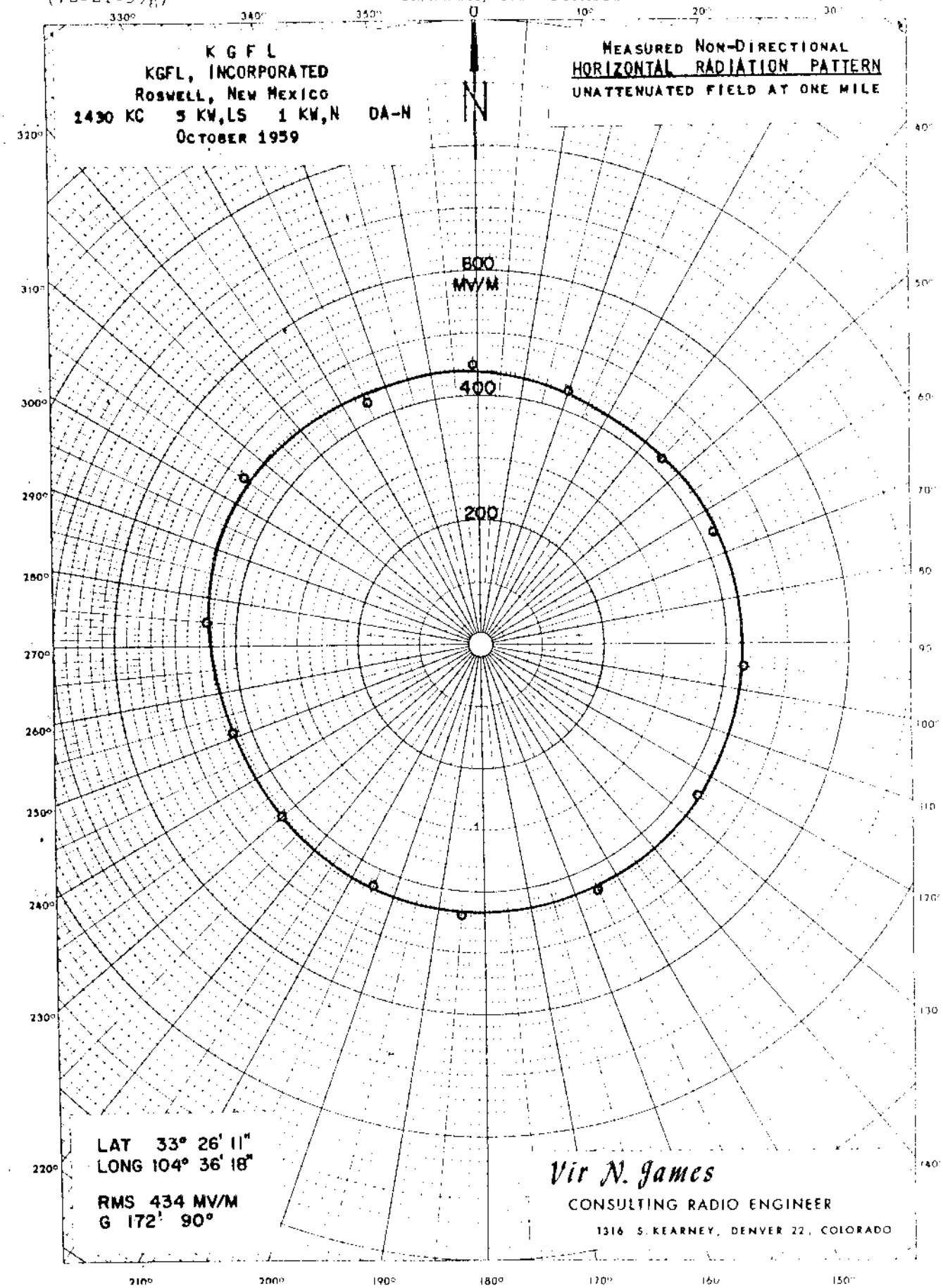
1430 kc

KKAT

MEASURED NON-DA (12-21-59)

Station KGFL Roswell, New Mexico

1kw, 5kw-LS, DA-N, U 1430 KC



FCC File No. BL-7711
Accepted 11-18-59

KGFL
Roswell, New Mexico

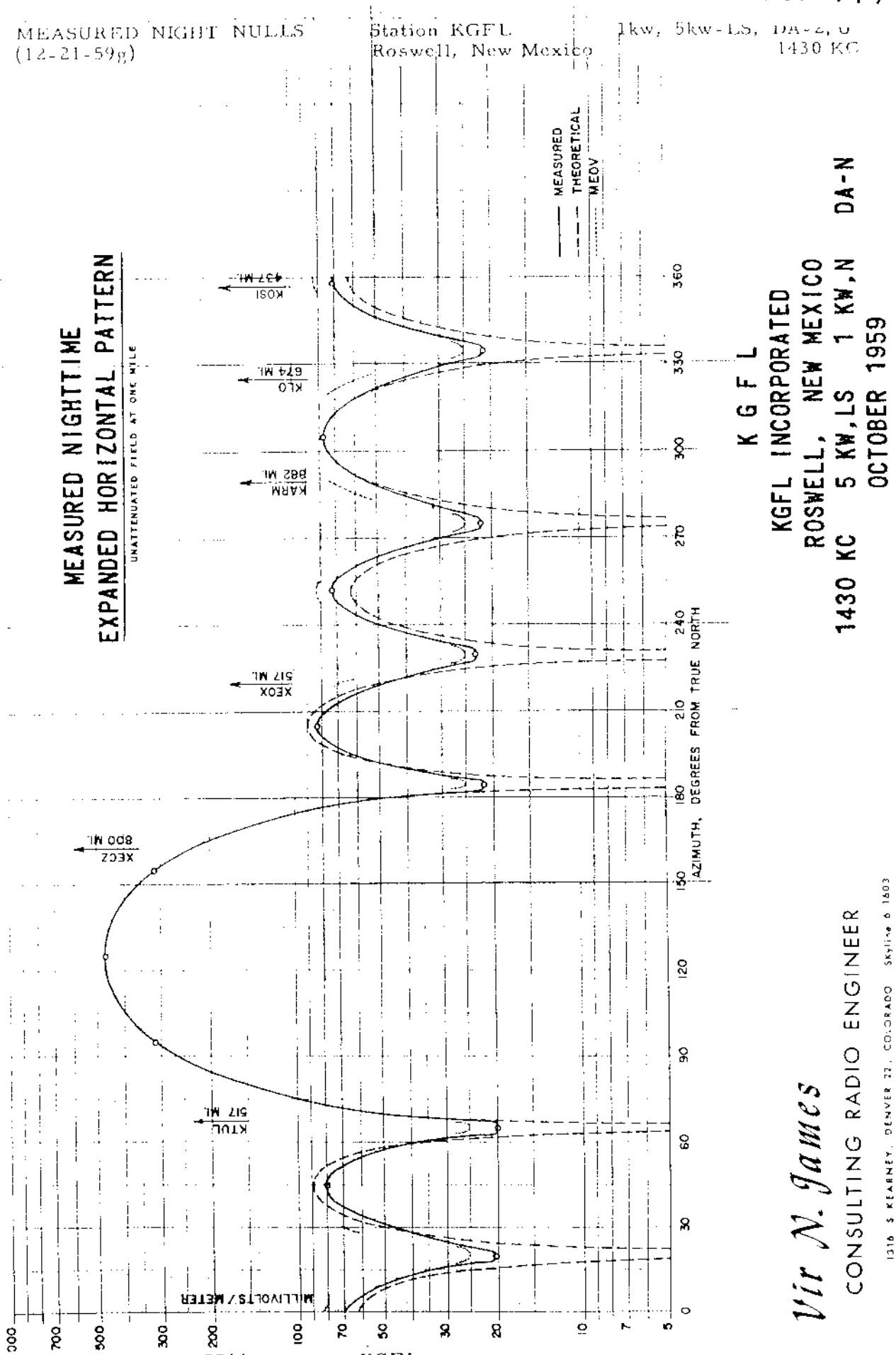
1430 KC

KKAT

MEASURED NIGHT NULLS
(12-21-59g)

Station KGFL
Roswell, New Mexico

1kw, 5kw-LS, DA-2, U
1430 KC



Vir N. James
CONSULTING RADIO ENGINEER
1316 S KEARNEY, DENVER 22, COLORADO Skyline 6-1603

FCC File No. BL-7711
Accepted 11-18-59

KGFL
Roswell, New Mexico

1430 KC

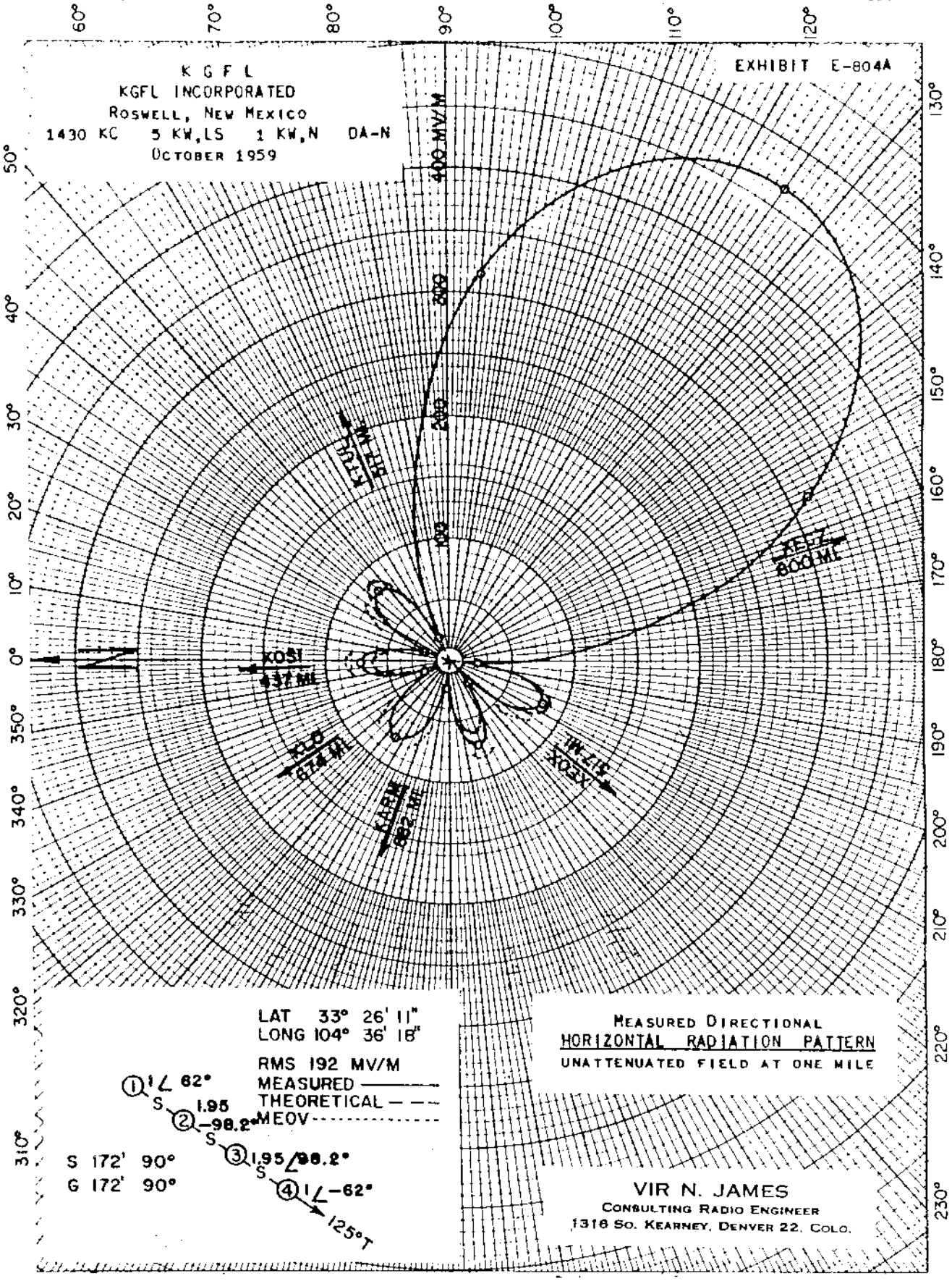
Printed for Chronology/Facilities
Unit Mailing DA-N 6-22-63

KKAT

MEASURED NIGHT
(12-21-59g)

Station KGFL
Roswell, New Mexico

1kw, 5kw-LS, DA-N, U
1430 KC



FCC File No. BL-7711
Accepted 11-18-59

KGFL
Roswell, New Mexico

1430 KC

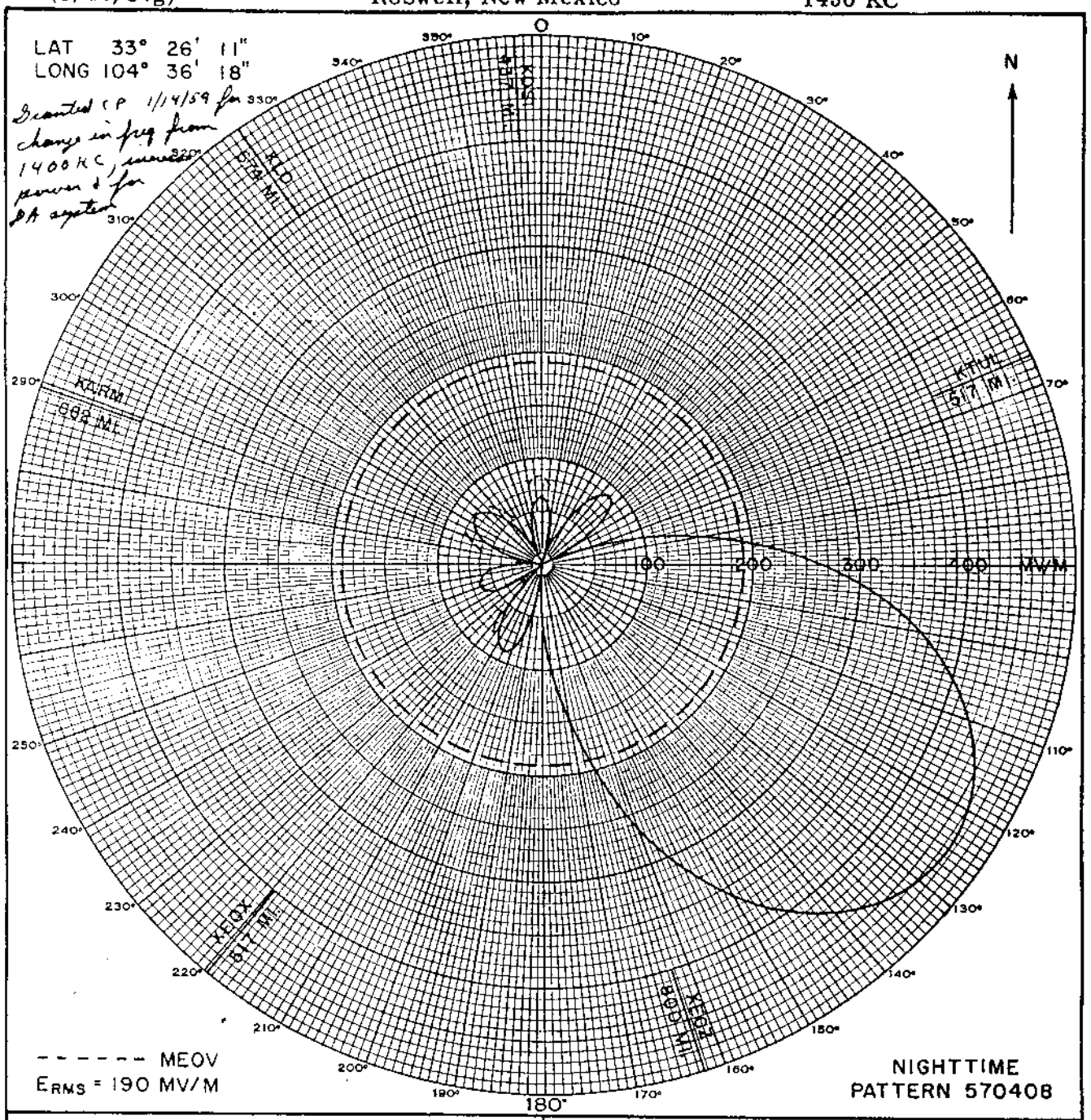
Gain - for change in/results
Gain N 6 22 60

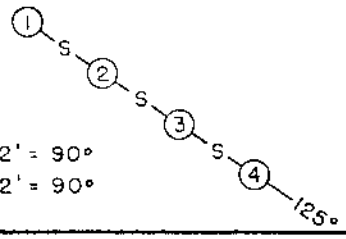
KKAT

PROPOSED NIGHT
(5/27/57g)

Station KGFL
Roswell, New Mexico

1kw,5kw-LS, DA-N,
1430 KC





S = 172' = 90°
G = 172' = 90°

RADIO STATION KGFL

ROSWELL, NEW MEXICO

1430 KC 1 KW 5 KW-LS DA-N

TOWER	1	2	3	4
FIELD	1.00	1.95	1.95	1.00
PHASE	62.00	-98.20	98.20	-62.00

A. EARL CULLUM, JR.

CONSULTING ENGINEERS

570408.2 FIGURE 7A

FCC File No. BP-11,273
Accepted 4/15/57

KGFL
Roswell, New Mexico

1430 KC

KLO

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KLO

Main Studio: Ogden, Utah

Frequency: 1430 kHz

Power: 5 kW

Notification List No. 1652

Date: October 1, 1975

Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 41° 10' 38"
West Longitude: 112° 04' 12"

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:	SW(#1)	C(#2)	NE(#3)	
HEIGHT ABOVE INSULATORS:	300'	300'	300'	(156.9°)
PHASING:	0°	+200°	+46°	
FIELD RATIO:	1.0	1.23	1.11	

SPACING AND ORIENTATION: From reference tower #1; tower #2 is spaced 144.33' (75.49°) on a line bearing 36.047° true, and tower #3 is spaced 305.95' (160.025°) on a line bearing 38.994° true.

GROUND SYSTEM: 120-200' 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.

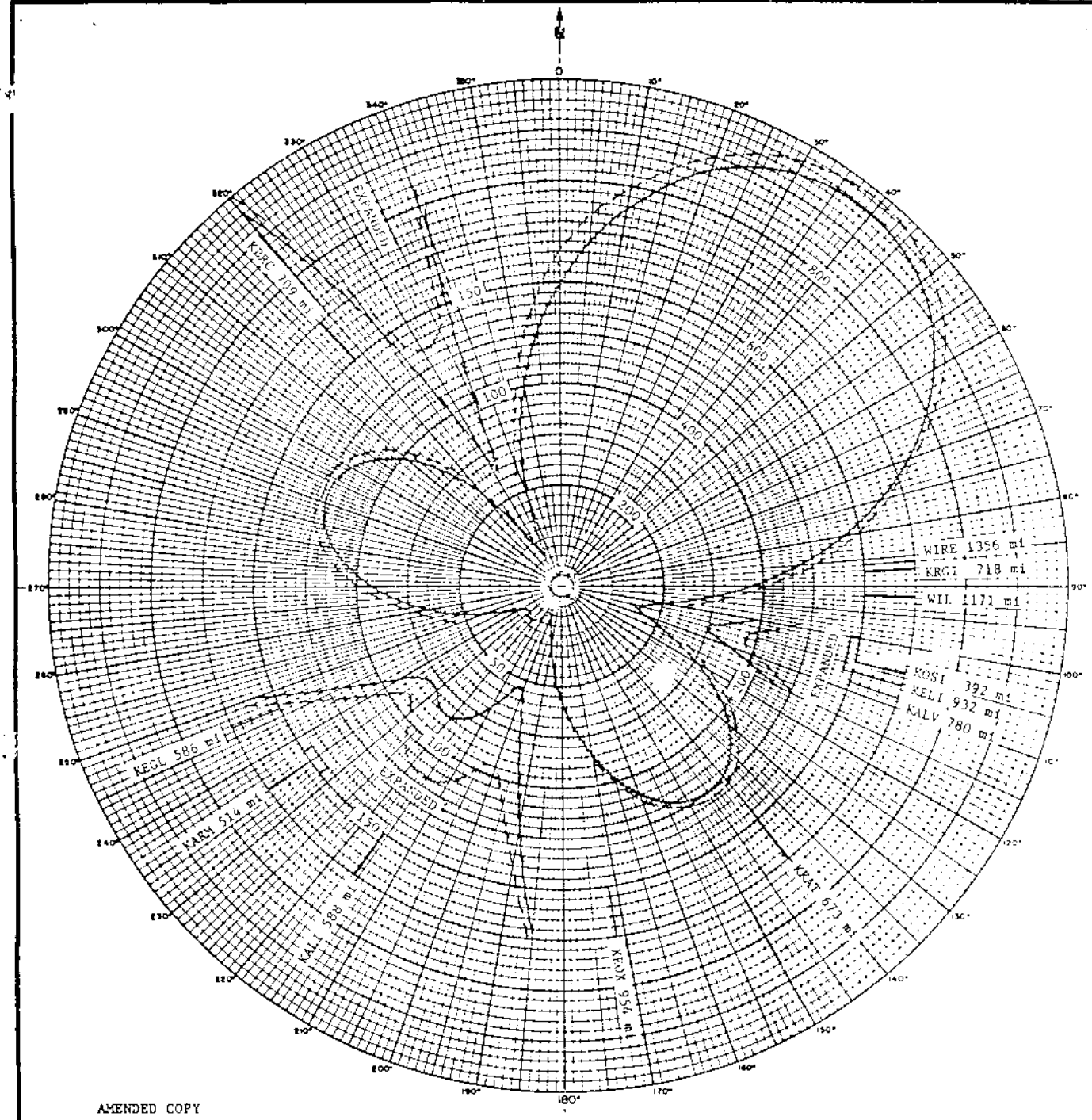
Predicted effective Night Field: 499 mv/m at rated power.

Predicted effective Day Field: (omnidirectional) 493 mv/m at rated power.

Note: This notification concerns minor changes in the directional antenna system and radiation pattern with Daytime operation continued as previously notified.

CTR NO 30377A4

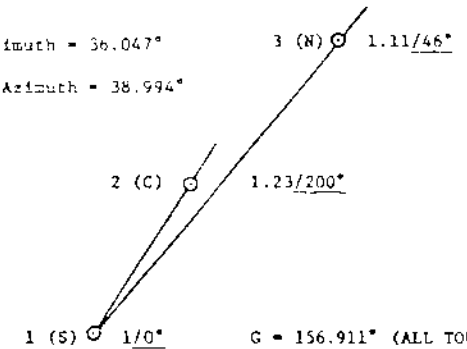
KLO



AMENDED COPY

S = 75.49°, Azimuth = 36.047°

S = 160.025°, Azimuth = 38.994°



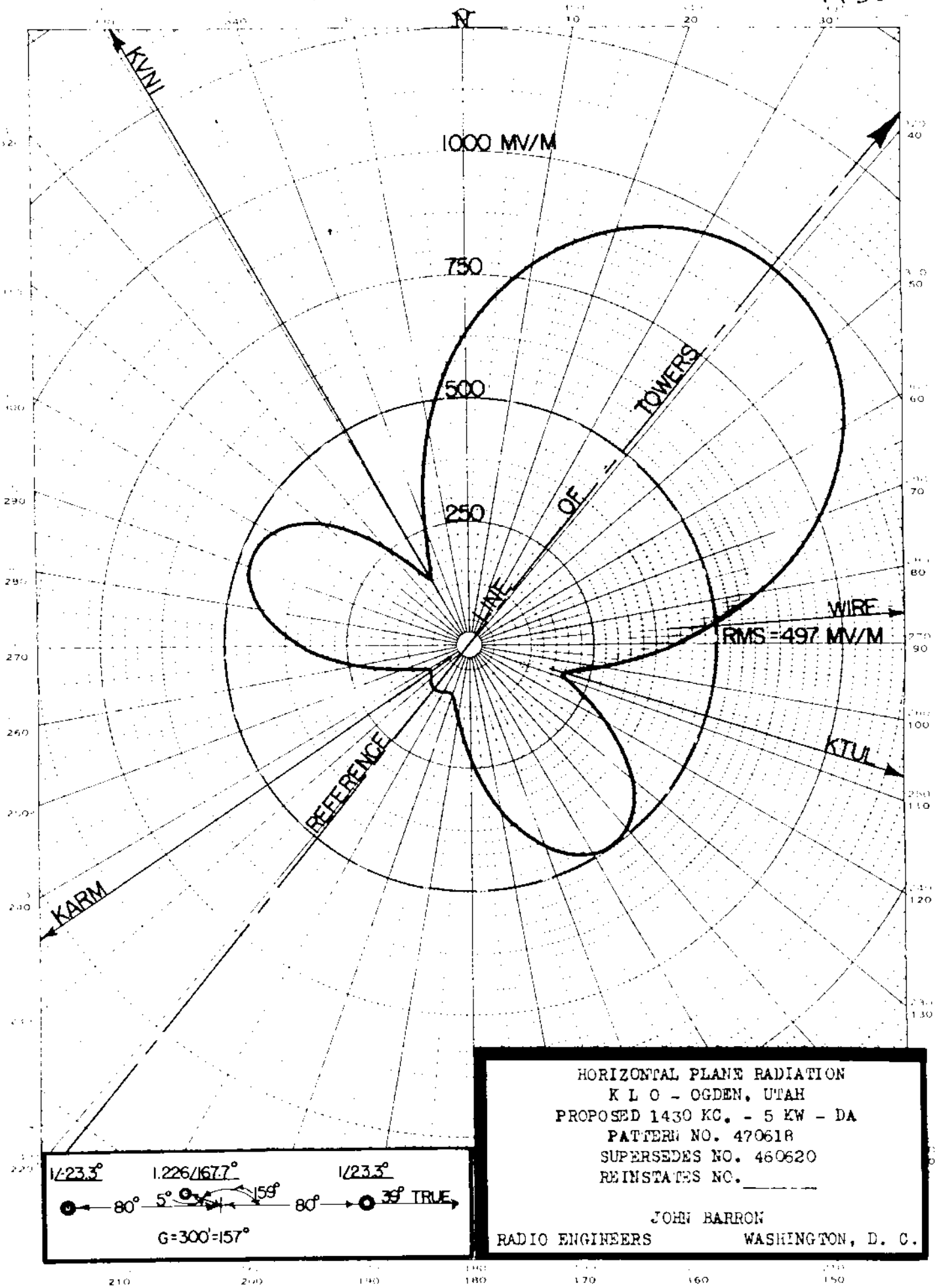
G = 156.911° (ALL TOWERS)

STATION	KLO
LOCATION	OGDEN, UTAH
FREQUENCY	1430 Kcs
POWER	5KW U, DA-N
LATITUDE	41° 10' 36"
LONGITUDE	112° 04' 12"
RMS	499 mv/m
PATTERN	NIGHTTIME
DATE	MAY, 1975

ROBERT R. BLANCHARD

LAKEWOOD, COLORADO

KLO
1430



HORIZONTAL PLANE RADIATION
K L O - OGDEN, UTAH
PROPOSED 1430 KC. - 5 KW - DA
PATTERN NO. 470618
SUPERSEDES NO. 460620
REINSTATES NO._____

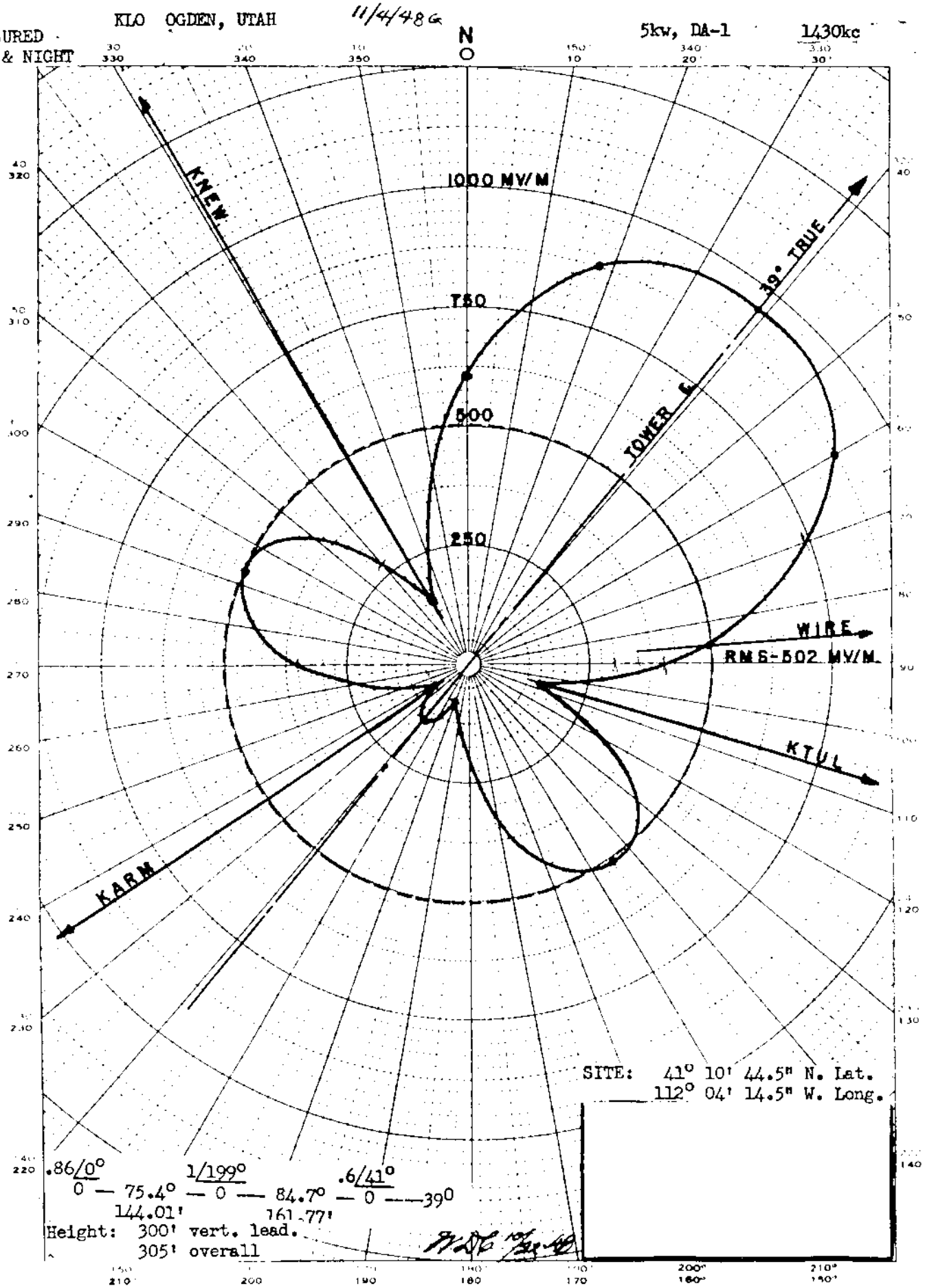
JOHN BARRON
RADIO ENGINEERS WASHINGTON, D. C.

KLO

MEASURED
DAY & NIGHT

KLO OGDEN, UTAH 11/4/48G

5kw, DA-1 1430kc



SITE: 41° 10' 44.5" N. Lat.
112° 04' 14.5" W. Long.

.86/0° 1/199° .6/41°
0 — 75.4° — 0 — 84.7° — 0 — 39°
144.01' 161.77'

Height: 300' vert. lead.
305' overall

KOSI

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station : KOSI Main Studio: Aurora, Colorado

Frequency : 1430 KHz Power : 5 kW Night 5 kW Day

Notification: 1782 Date : October 26, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 39 ° 33 ' 47 "
West Longitude: 104 ° 55 ' 46 "

ANTENNA CHARACTERISTICS

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

(*) Center tower #3 is sectionalized. For nighttime operation, the top section of tower #3 is detuned for an effective electrical height of 136°. For daytime operation, the effective electrical height of tower #3 is 225°.

TOWER :	#1(N)	#2(NC)	#3(C)	#4(SC)	5(S)	
HEIGHT ABOVE INSULATORS :	260'	260'	429'*	260'	260'(136°)	
NIGHT PHASING :	65.9°	-136.9°	0°	142.7°	60.1°	
NIGHT FIELD RATIO:	0.348	0.860	1.0	0.860	0.348	

SPACING AND ORIENTATION: Adjacent towers in a row are spaced 191' (100°) on a line bearing 190° true.

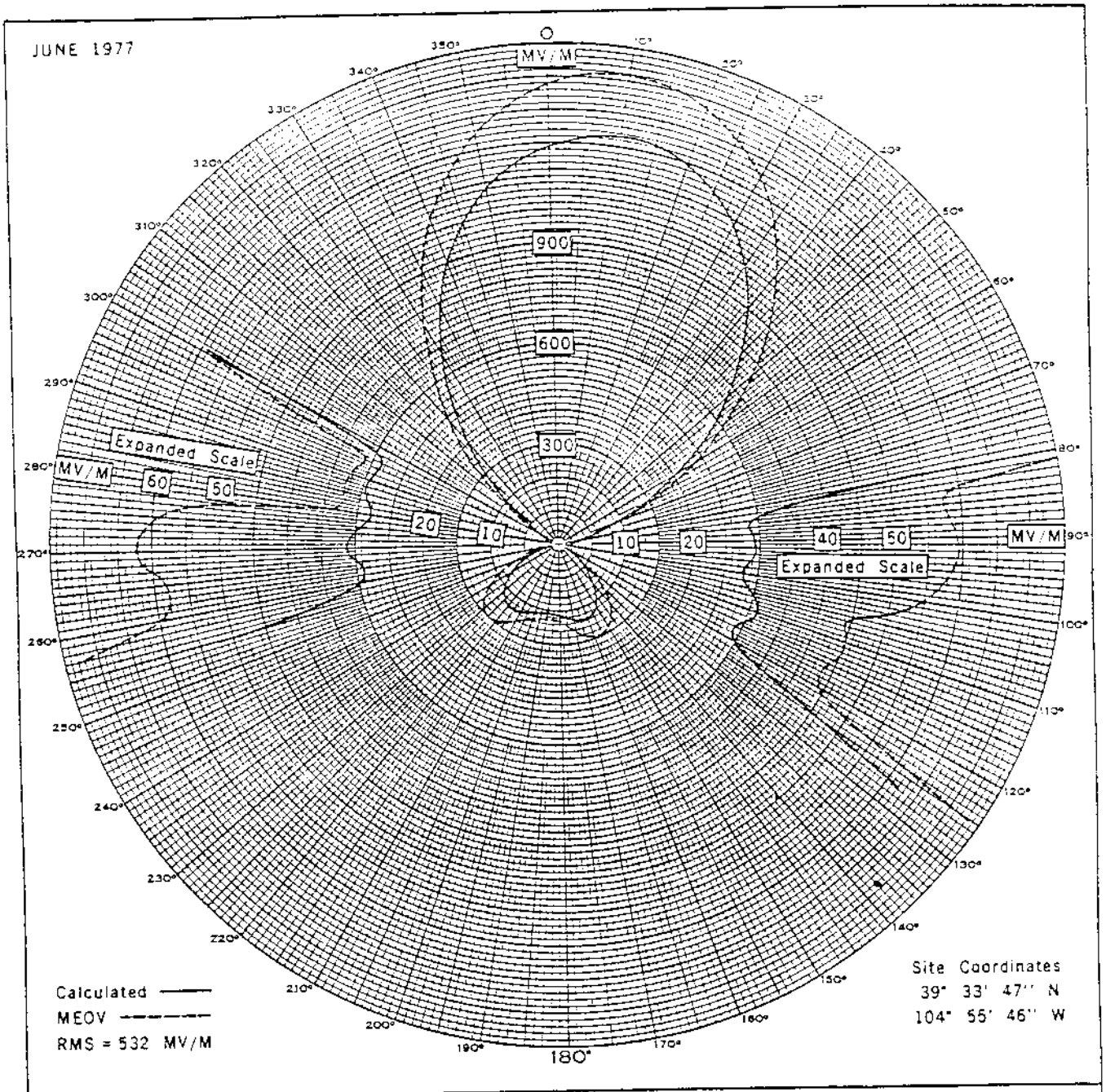
GROUND SYSTEM: 120 - 240 equally spaced copper radials about tower #3 plus 120 - 170' interspaced radials about the remaining towers plus 120-50' interspaced radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers. Centers of system are bonded together.

KOSI

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS		THEORETICAL RSS		STANDARD RMS	
Day	612.7	mV/m	_____	mV/m	_____	mV/m
Night	532	mV/m	_____	mV/m	558.6	mV/m

Note:



PROPOSED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

S = 100°
G = 136°

#1, 0.348/+65.9°
S
#2, 0.860/-136.9°
S
#3, 1.00/0°
S
#4, 0.860/142.7°
S
#5, 0.348/-60.1°

190° TRUE

ARMSTRONG
BROADCASTING CORPORATION
AURORA, COLORADO

Jules Cohen & Associates
Consulting Electronics Engineers

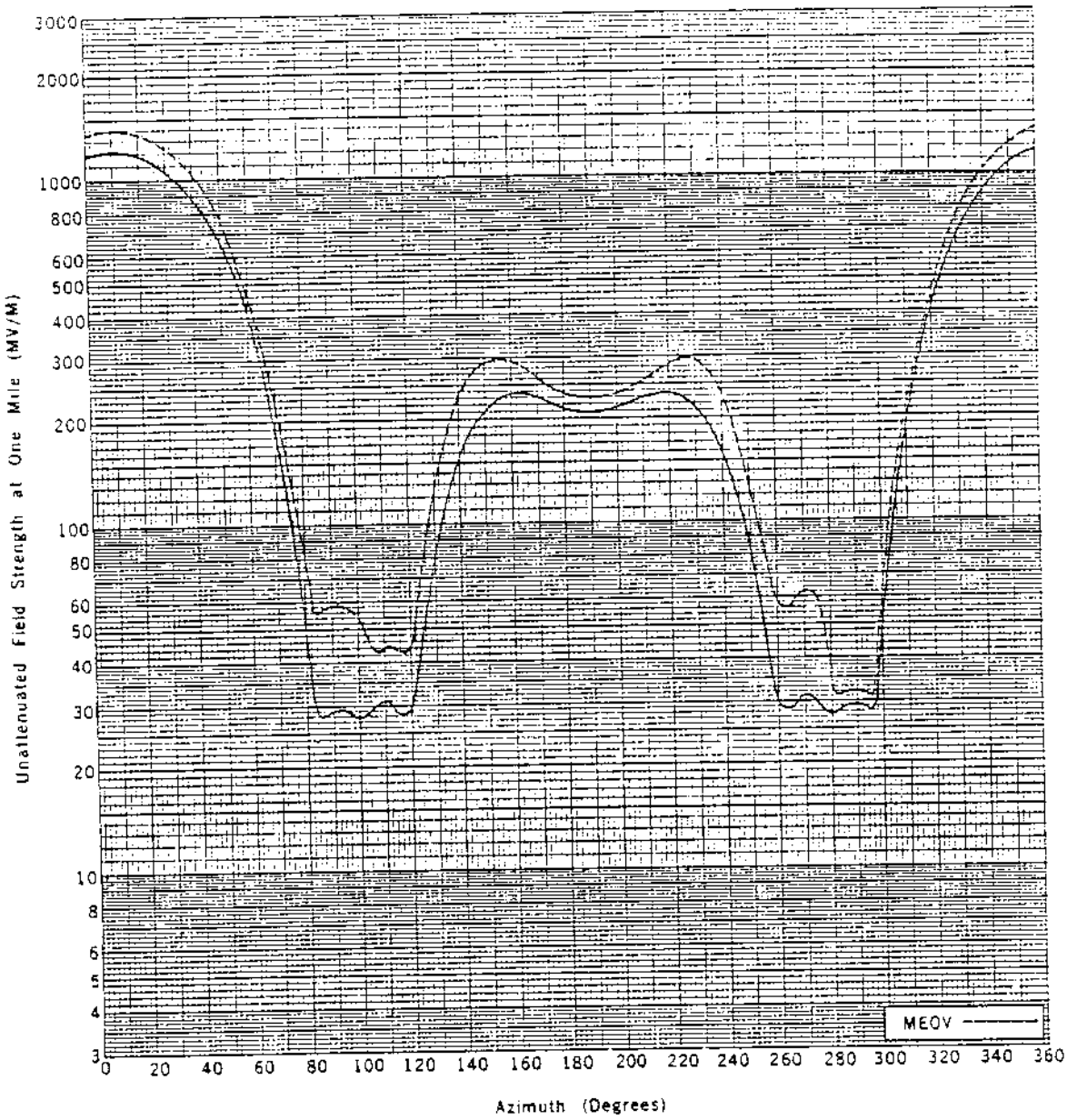
RADIO STATION KOSI

1430 KHZ

5 KW U DA-N

Pattern No. 770621

JUNE 1977



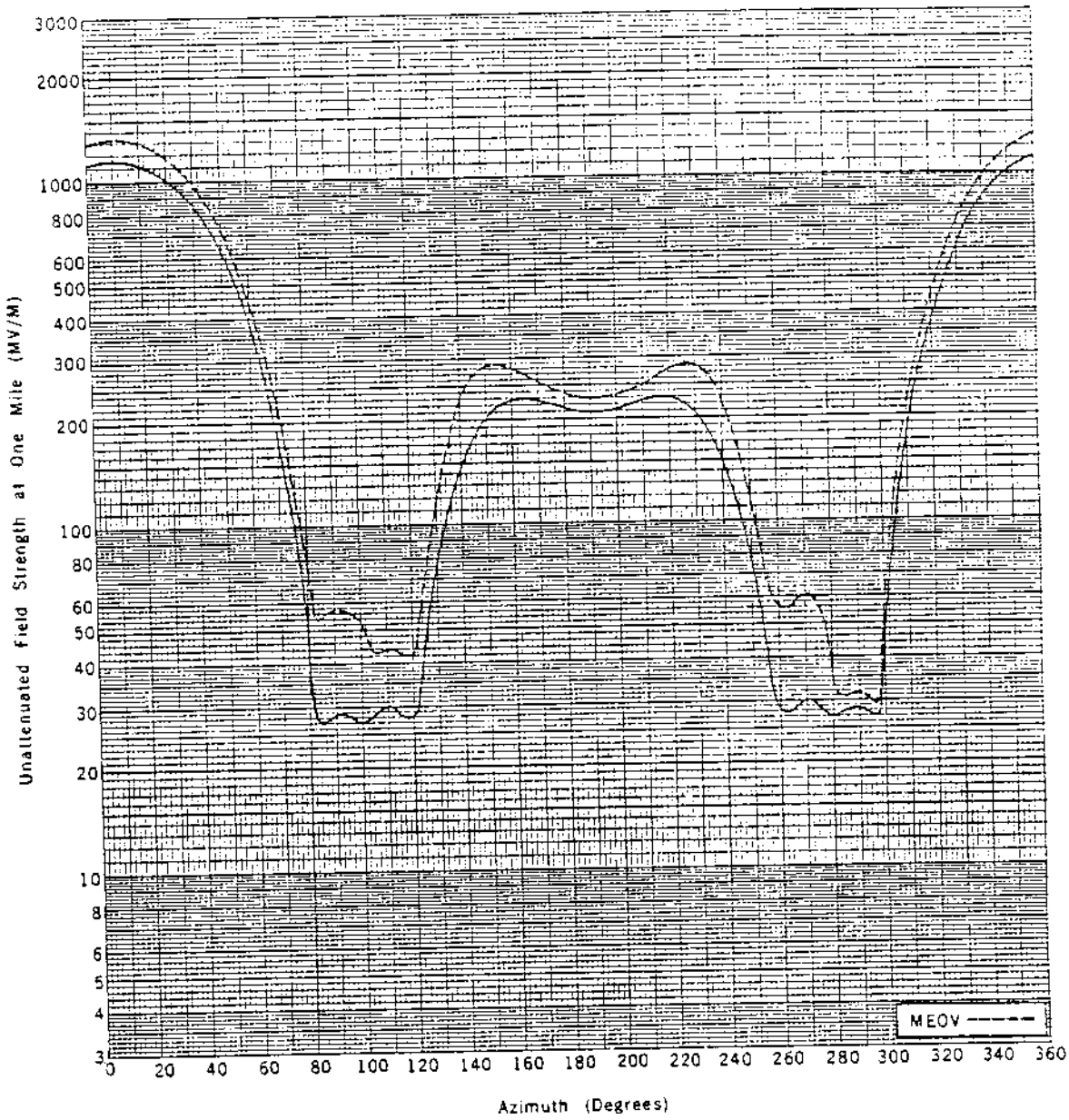
EXISTING

PROPOSED NIGHTTIME RADIATION PATTERN
AT VERTICAL ANGLE OF 5 DEGREES

ARMSTRONG BROADCASTING CORPORATION
RADIO STATION KOSI AURORA, COLORADO
1430 KHZ 5 KW U DA-N

Jules Cohen & Associates Consulting Electronics Engineers

JUNE 1977

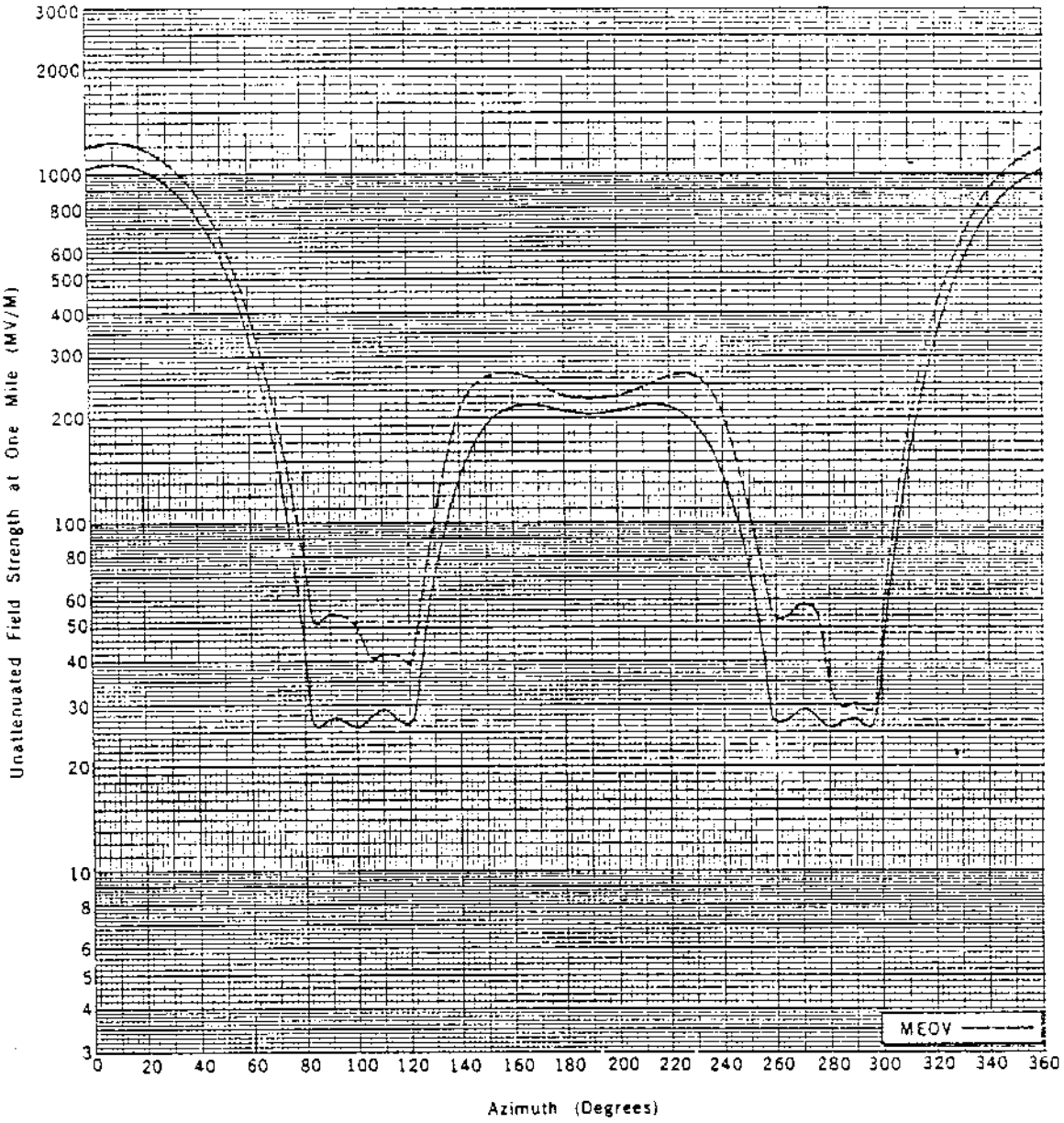


PROPOSED NIGHTTIME RADIATION PATTERN
AT VERTICAL ANGLE OF 10 DEGREES

ARMSTRONG BROADCASTING CORPORATION
RADIO STATION KOSI AURORA, COLORADO
1430 KHZ 5 KW U DA-N

Jules Cohen & Associates Consulting Electronics Engineers

JUNE 1977

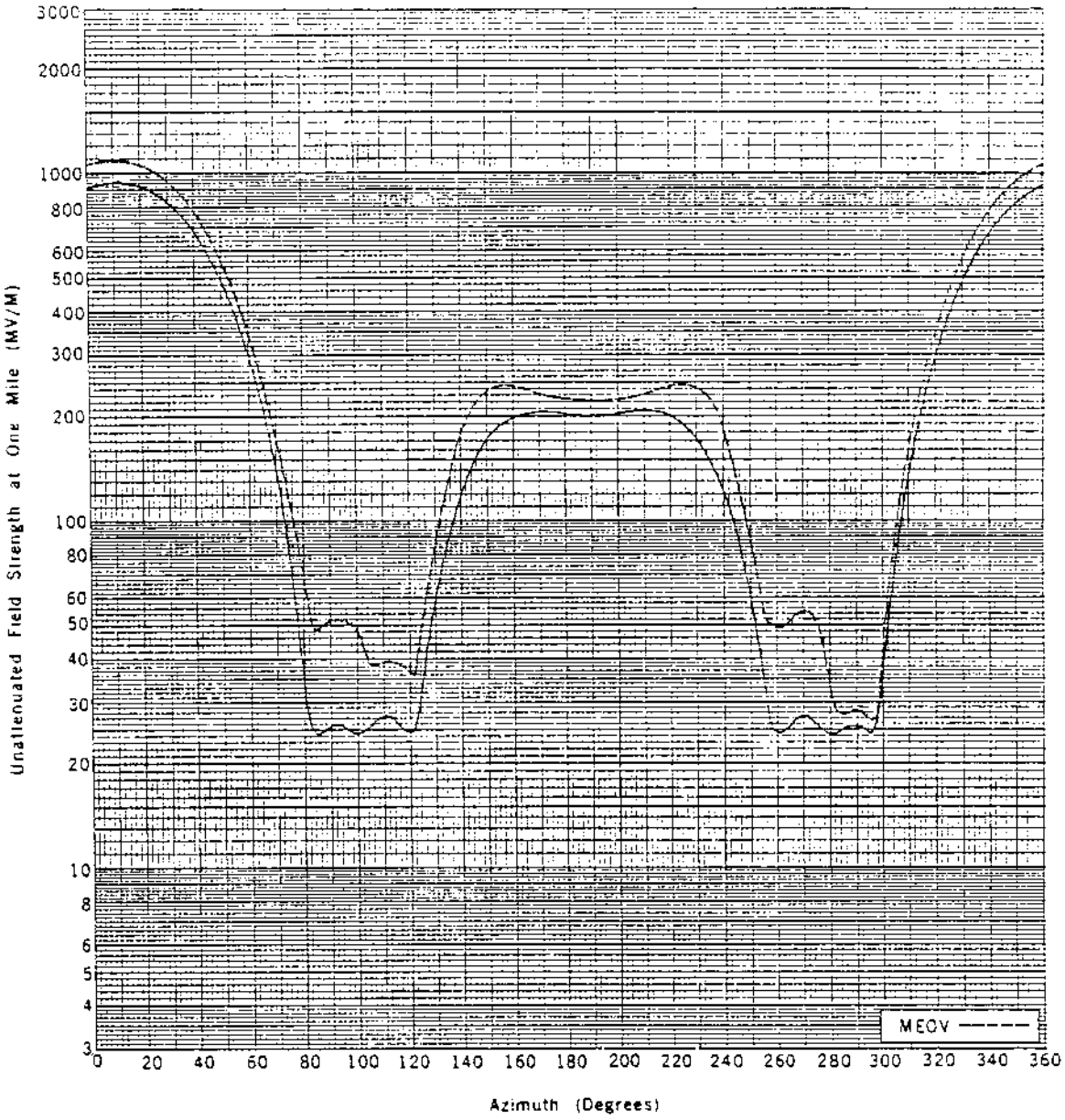


PROPOSED NIGHTTIME RADIATION PATTERN
AT VERTICAL ANGLE OF 15 DEGREES

ARMSTRONG BROADCASTING CORPORATION
RADIO STATION KOSI AURORA, COLORADO
1430 KHZ 5 KW U DA-N

Jules Cohen & Associates Consulting Electronics Engineers

JUNE 1977

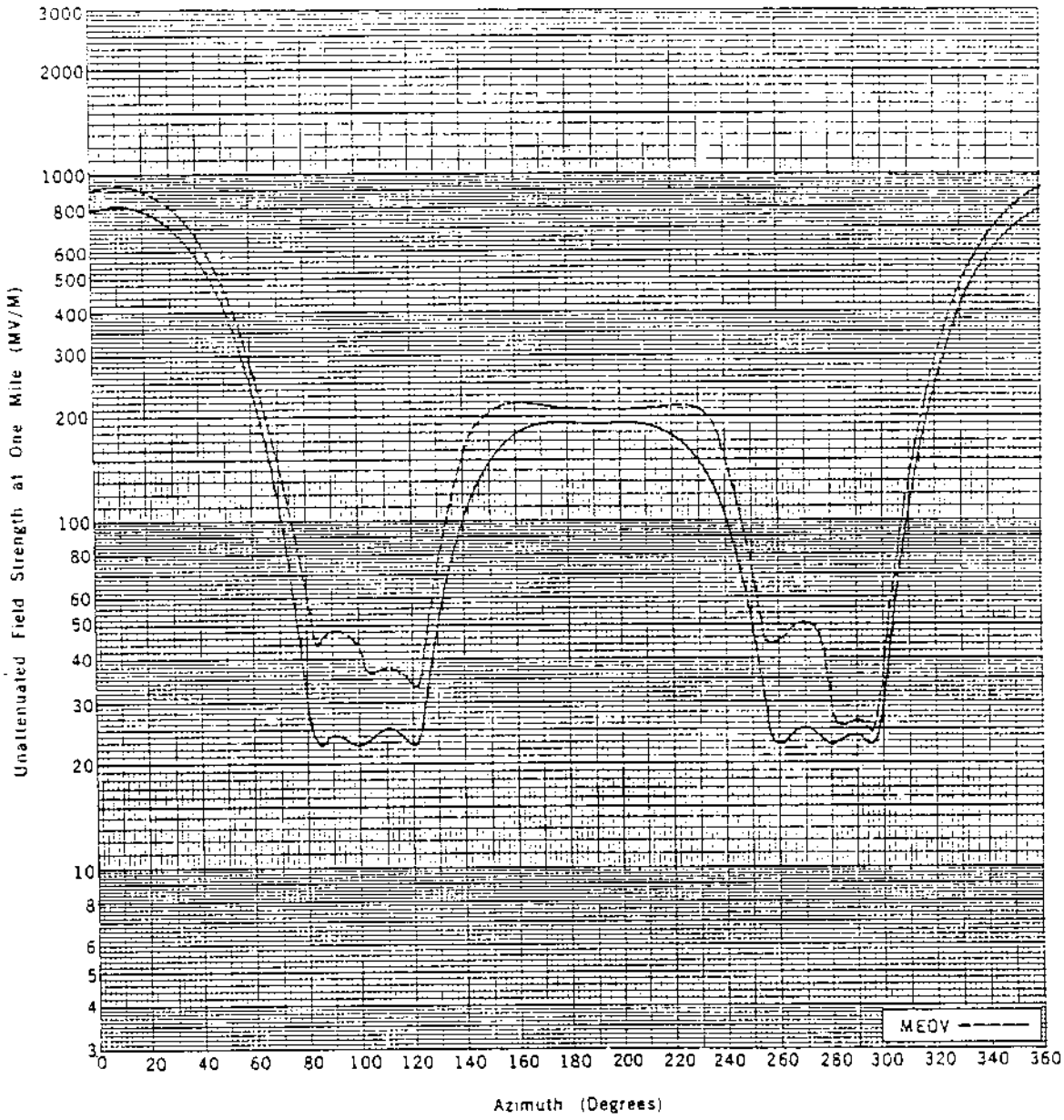


PROPOSED NIGHTTIME RADIATION PATTERN
AT VERTICAL ANGLE OF 20 DEGREES

ARMSTRONG BROADCASTING CORPORATION
RADIO STATION KOSI AURORA, COLORADO
1430 KHZ 5 KW U DA-N

Jules Cohen & Associates Consulting Electronics Engineers

JUNE 1977

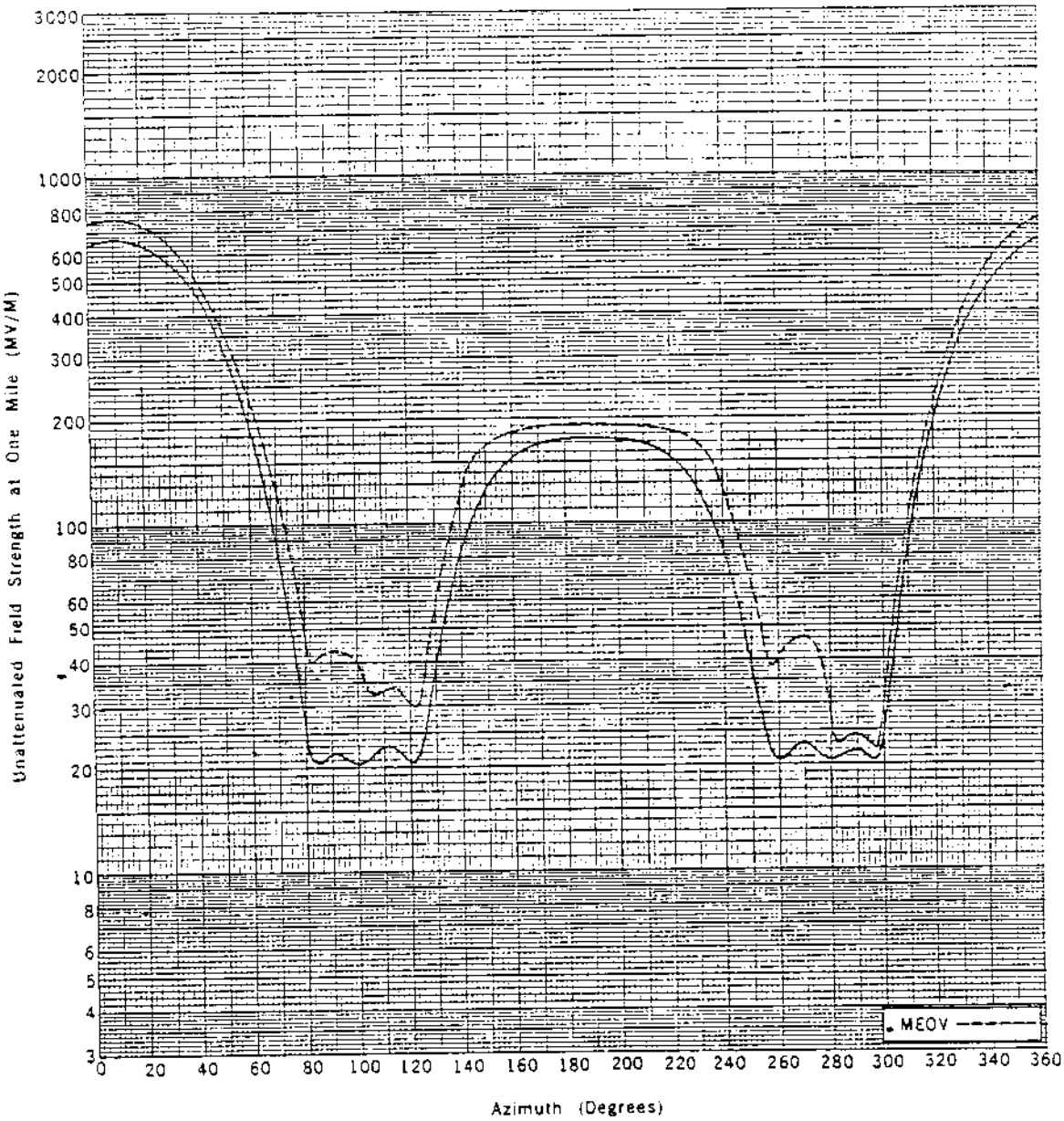


PROPOSED NIGHTTIME RADIATION PATTERN
AT VERTICAL ANGLE OF 25 DEGREES

ARMSTRONG BROADCASTING CORPORATION
RADIO STATION KOSI AURORA, COLORADO
1430 KHZ 5 KW U DA-N

Jules Cohen & Associates Consulting Electronics Engineers

JUNE 1977

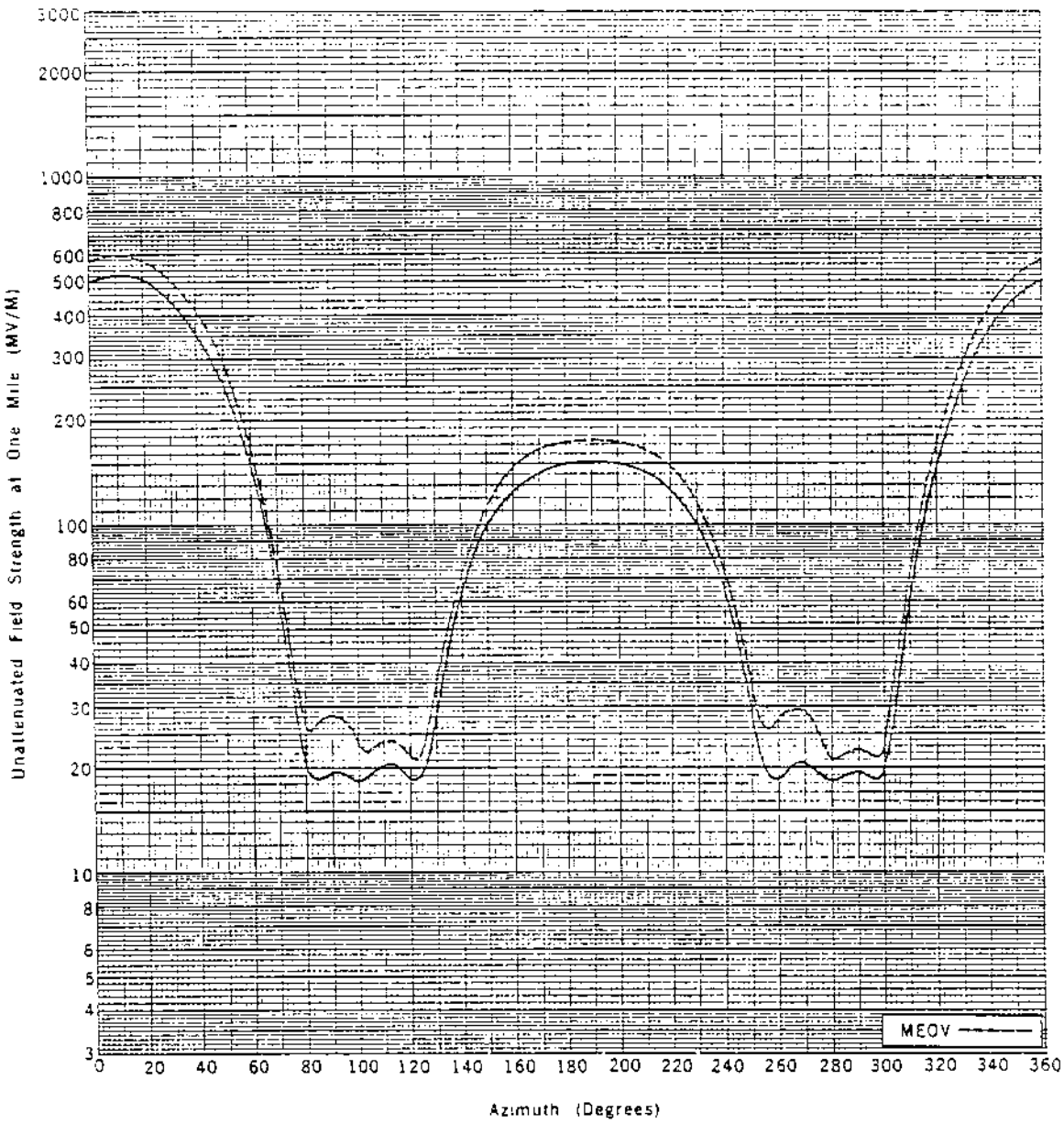


PROPOSED NIGHTTIME RADIATION PATTERN
AT VERTICAL ANGLE OF 30 DEGREES

ARMSTRONG BROADCASTING CORPORATION
RADIO STATION KOSI AURORA, COLORADO
1430 KHZ 5 KW U DA-N

Jules Cohen & Associates Consulting Electronics Engineers

JUNE 1977

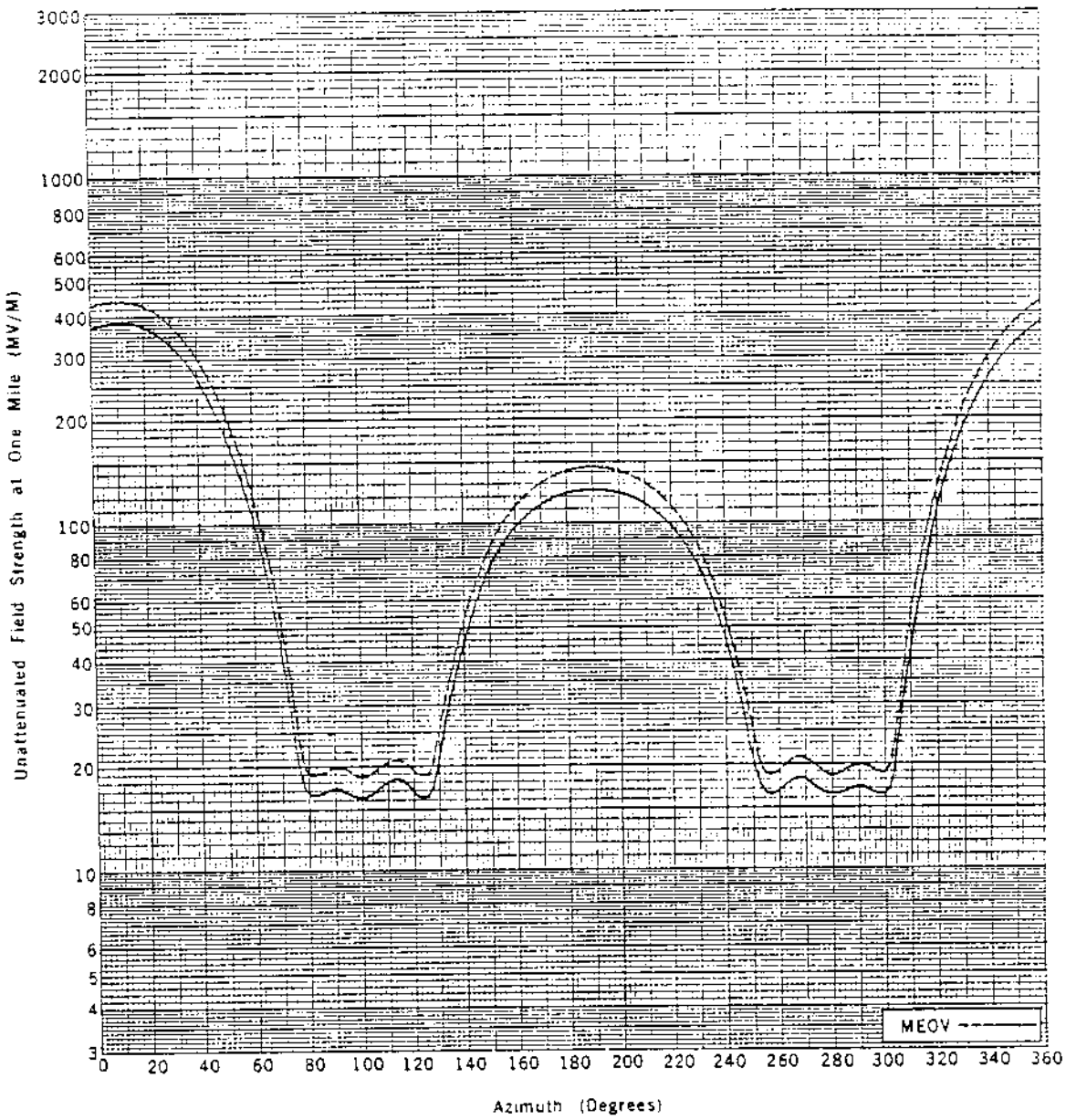


PROPOSED NIGHTTIME RADIATION PATTERN
AT VERTICAL ANGLE OF 35 DEGREES

ARMSTRONG BROADCASTING CORPORATION
RADIO STATION KOSI AURORA, COLORADO
1430 KHZ 5 KW U DA-N

Jules Cohen & Associates Consulting Electronics Engineers

JUNE 1977



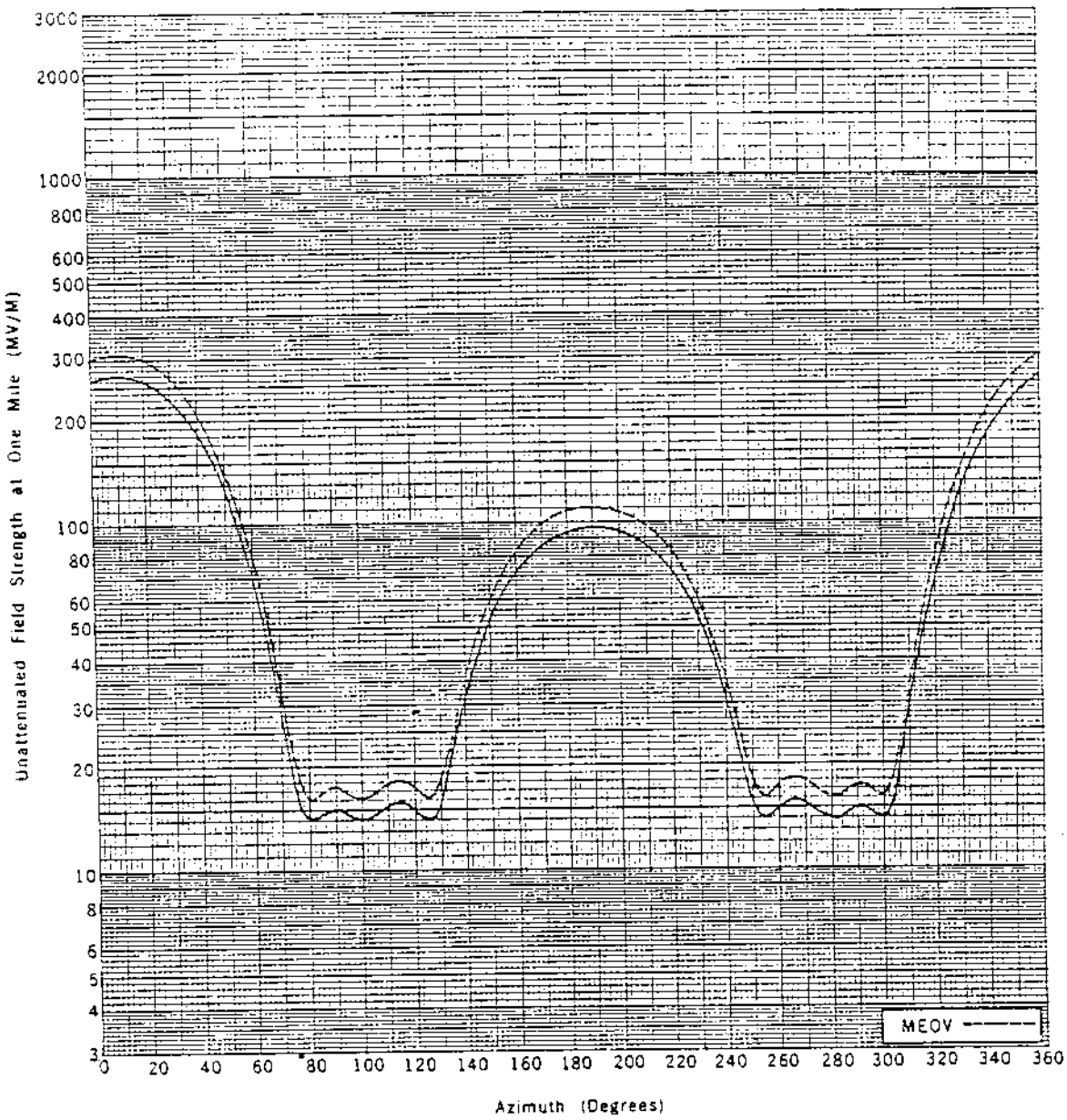
PROPOSED NIGHTTIME RADIATION PATTERN
AT VERTICAL ANGLE OF 40 DEGREES

EXIST. AUG 12 1977

ARMSTRONG BROADCASTING CORPORATION
RADIO STATION KOSI AURORA, COLORADO
1430 KHZ 5 KW U DA-N

Jules Cohen & Associates Consulting Electronics Engineers

JUNE 1977

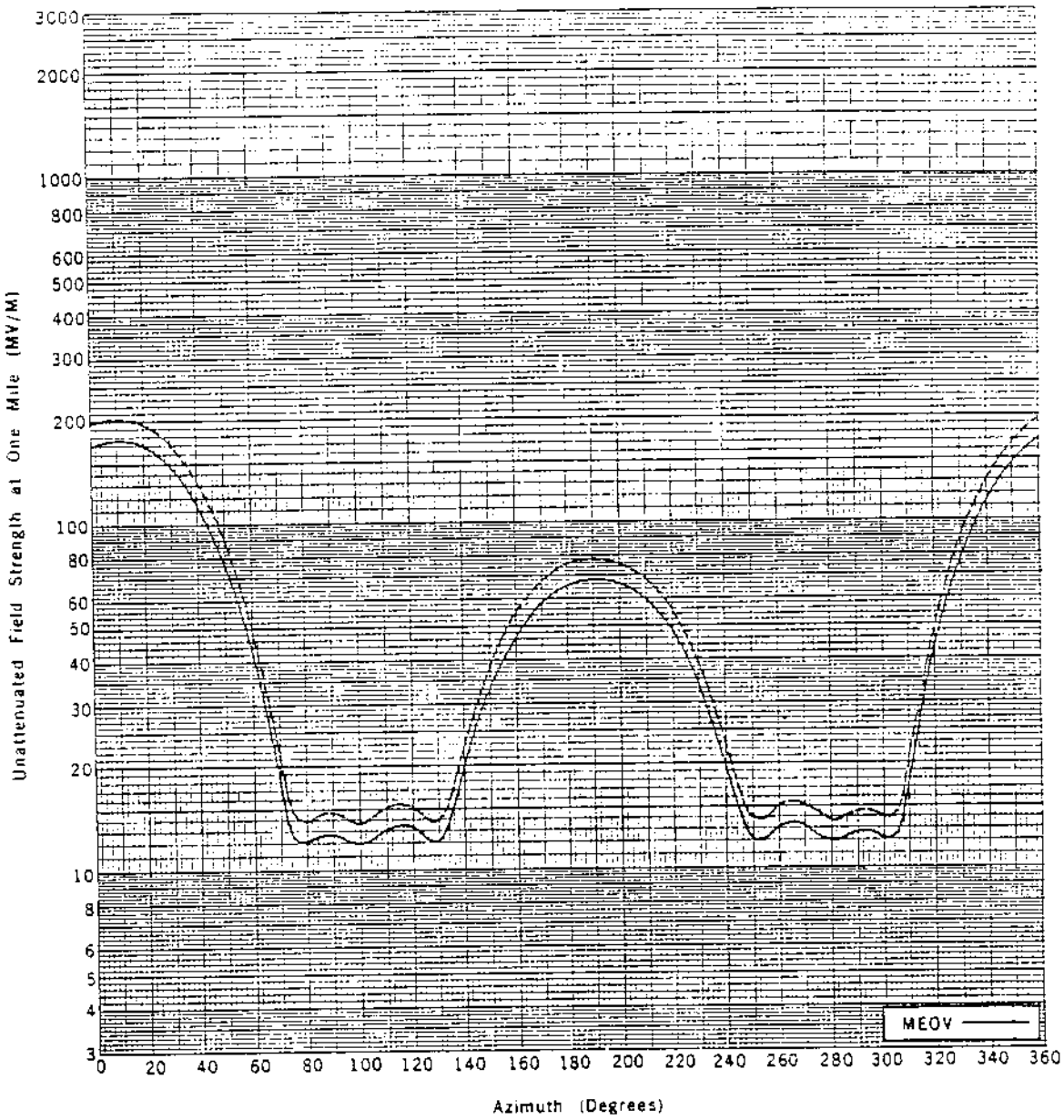


PROPOSED NIGHTTIME RADIATION PATTERN
AT VERTICAL ANGLE OF 45 DEGREES

ARMSTRONG BROADCASTING CORPORATION
RADIO STATION KOSI AURORA, COLORADO
1430 KHZ 5 KW U DA-N

Jules Cohen & Associates Consulting Electronics Engineers

JUNE 1977

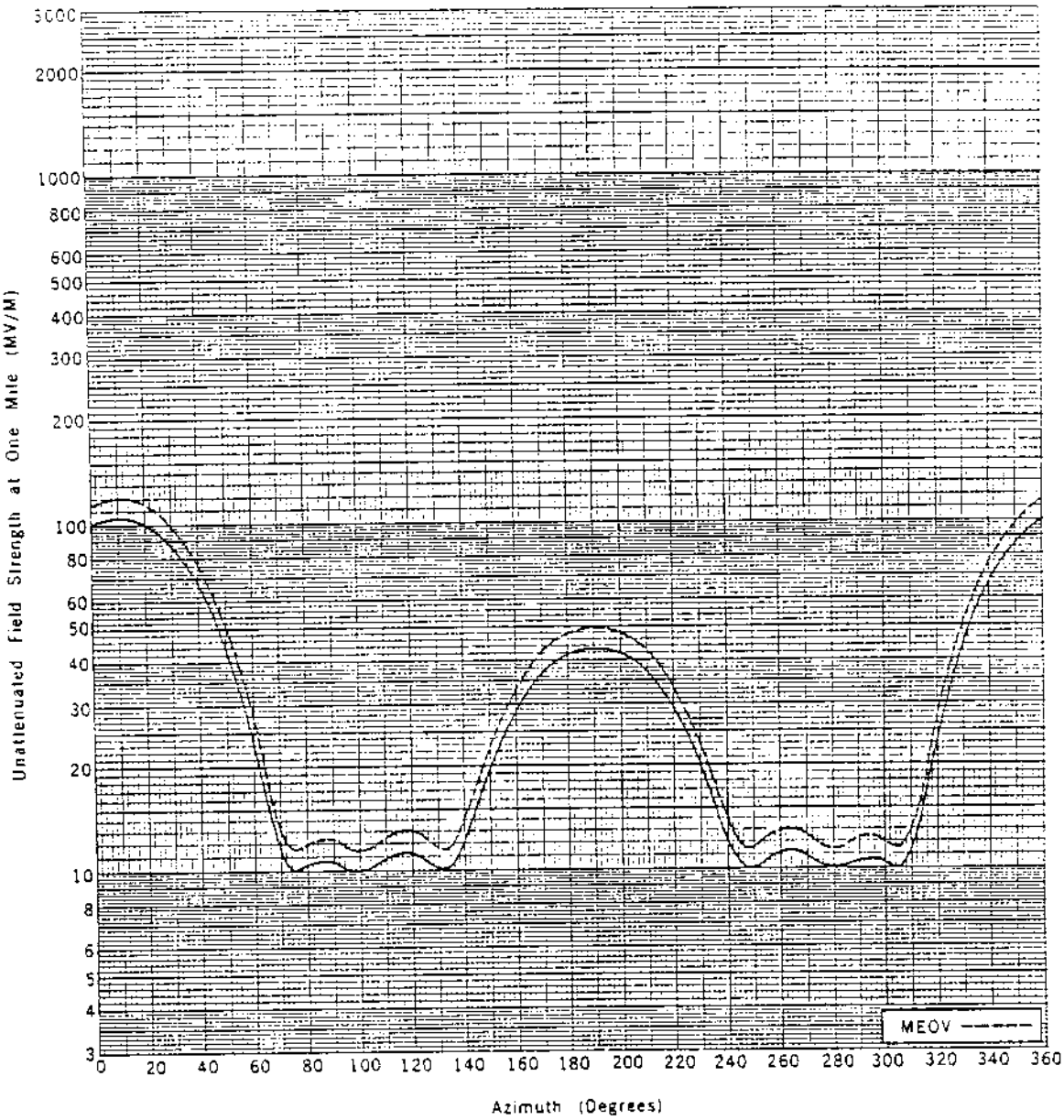


PROPOSED NIGHTTIME RADIATION PATTERN
AT VERTICAL ANGLE OF 50 DEGREES

ARMSTRONG BROADCASTING CORPORATION
RADIO STATION KOSI AURORA, COLORADO
1430 KHZ 5 KW U DA-N

Jules Cohen & Associates Consulting Electronics Engineers

JUNE 1977

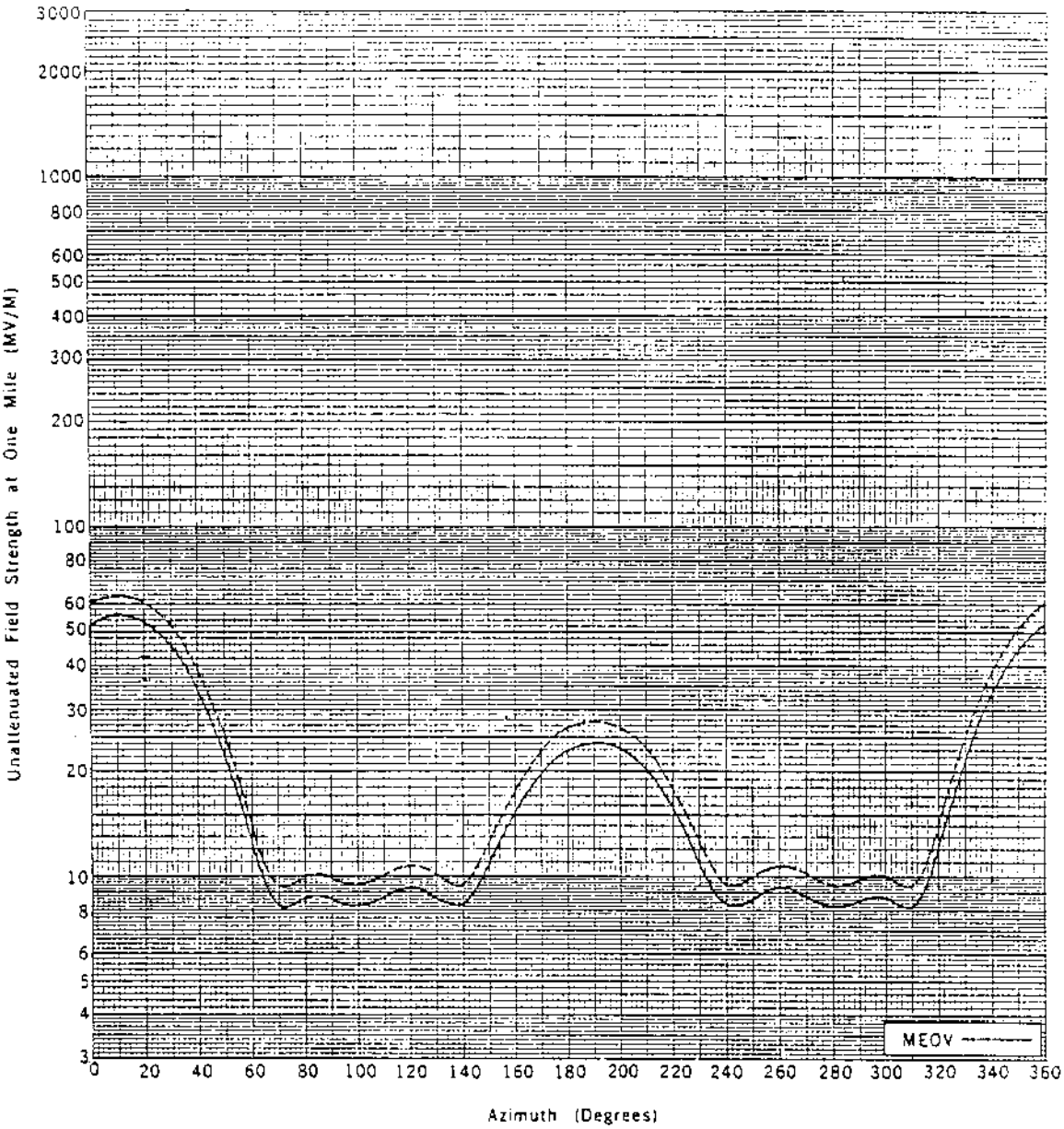


PROPOSED NIGHTTIME RADIATION PATTERN
AT VERTICAL ANGLE OF 55 DEGREES

ARMSTRONG BROADCASTING CORPORATION
RADIO STATION KOSI AURORA, COLORADO
1430 KHZ 5 KW U DA-N

Jules Cohen & Associates Consulting Electronics Engineers

JUNE 1977



PROPOSED NIGHTTIME RADIATION PATTERN
AT VERTICAL ANGLE OF 60 DEGREES

ARMSTRONG BROADCASTING CORPORATION
RADIO STATION KOSI AURORA, COLORADO
1430 KHZ 5 KW U DA-N

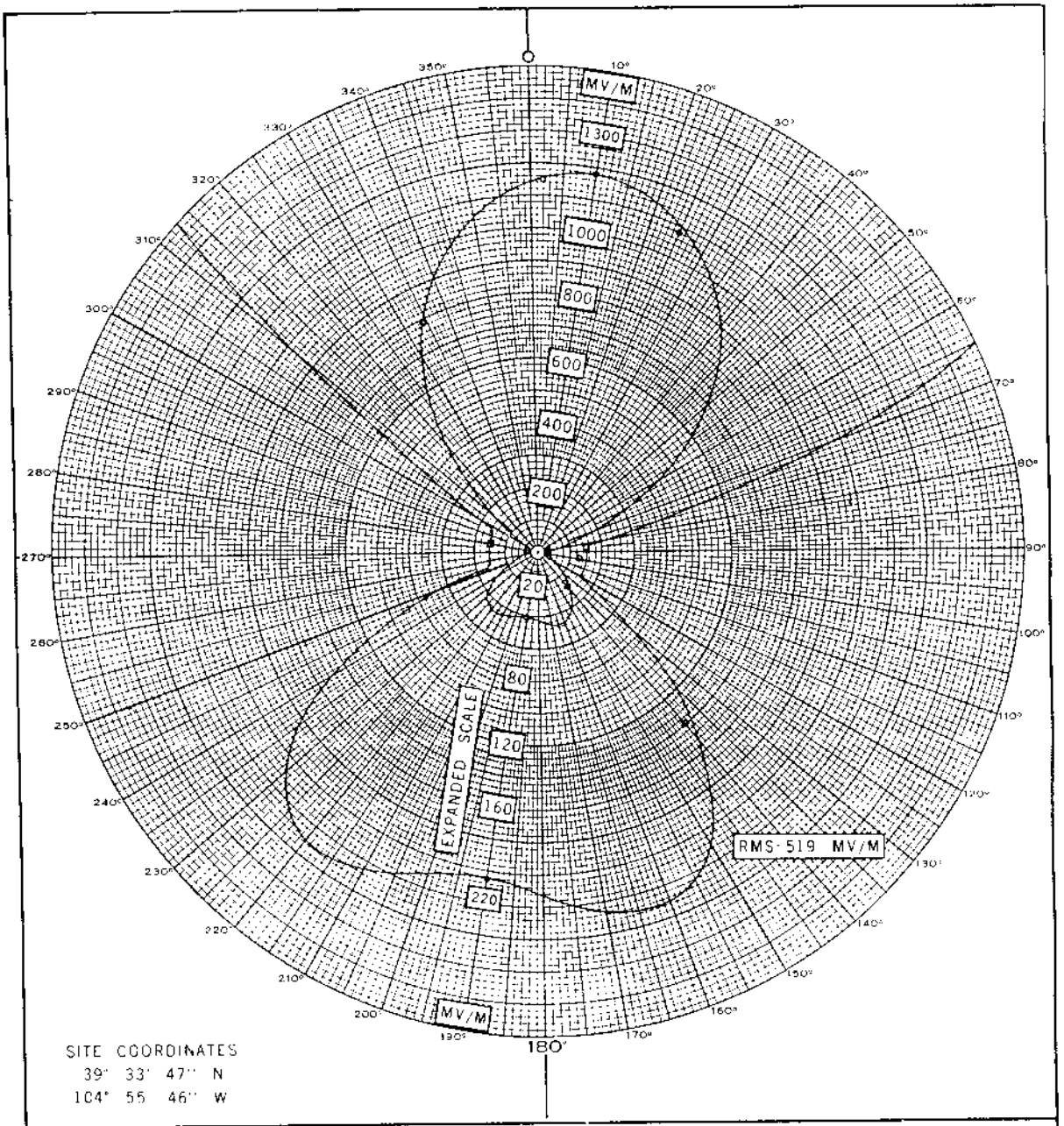
Jules Cohen & Associates Consulting Electronics Engineers

KOSI

Measured Night
(6-29-70ct)

Station KOSI
Aurora, Colorado

5kw,DA-N,U
1430 kc
Figure 7



MEASURED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

10° True
(1) 0 348/+65.9°
(2) 0 86/ 139.9°
(3) 1 0°
(4) 0 86/+142.7°
(5) 0 348/ 60.1°
S-100° (191°)
G-136° (260°)

ARMSTRONG BROADCASTING CORPORATION
AURORA, COLORADO

Jules Cohen & Associates
Consulting Electronics Engineers

RADIO STATION KOSI
1430 KHZ
5 KW U DA N
JANUARY 1970

FCC File No.BZ-7509
Accepted 6-4-70

Station KOSI
Aurora, Colorado

1430 kc

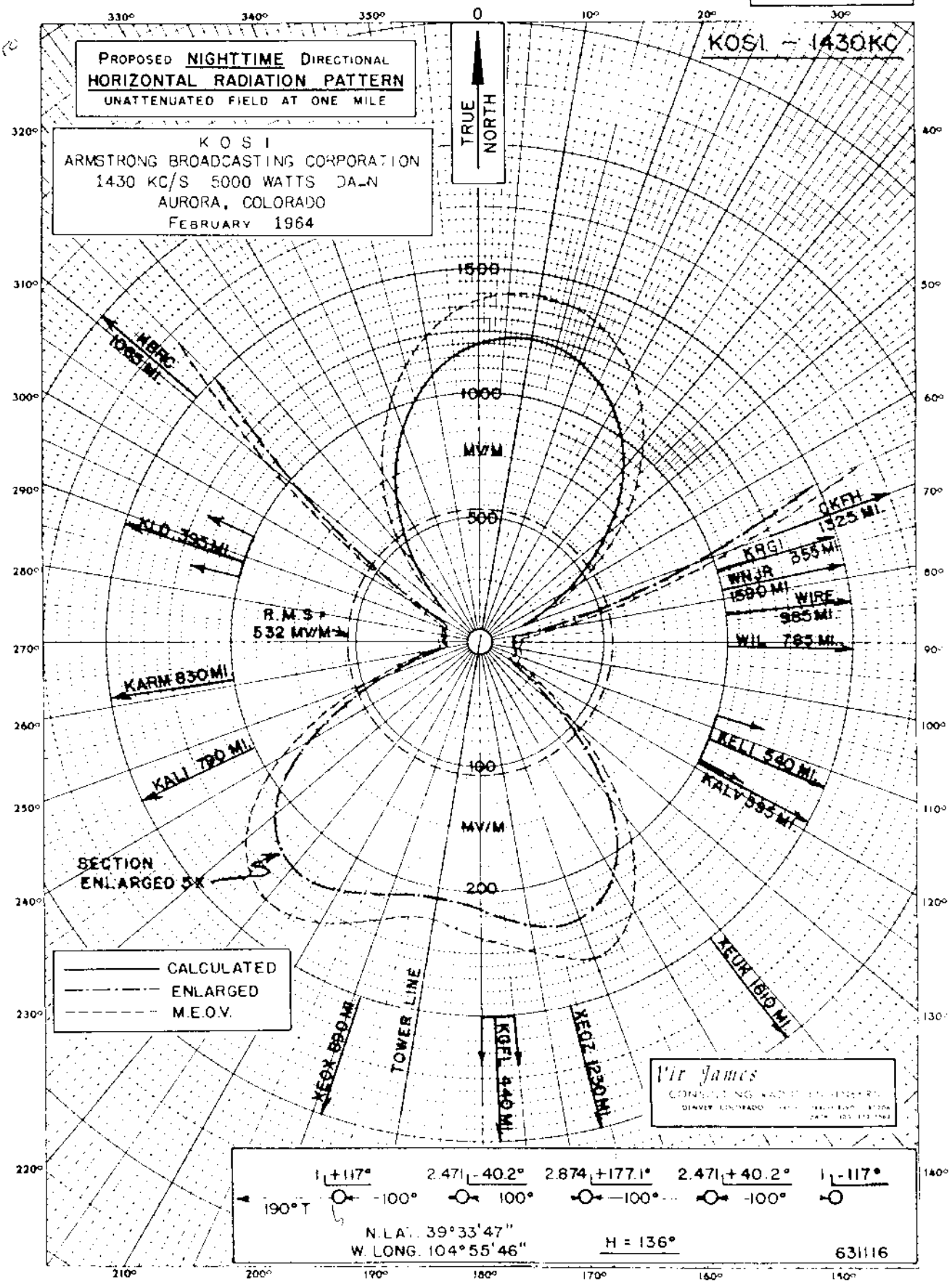
KOSI

Proposed Night
(8-28-64ct)

Station KOSI
Aurora, Colorado

5kw,DA-N,U
1430 kc
EXHIBIT E-5.1

CP 6-14-65
S116.PNR. 5KW R
5KW. DA-N.
CHG. LOC
CHG. DA



FCC File No.BP-16253
Accepted 8-7-64

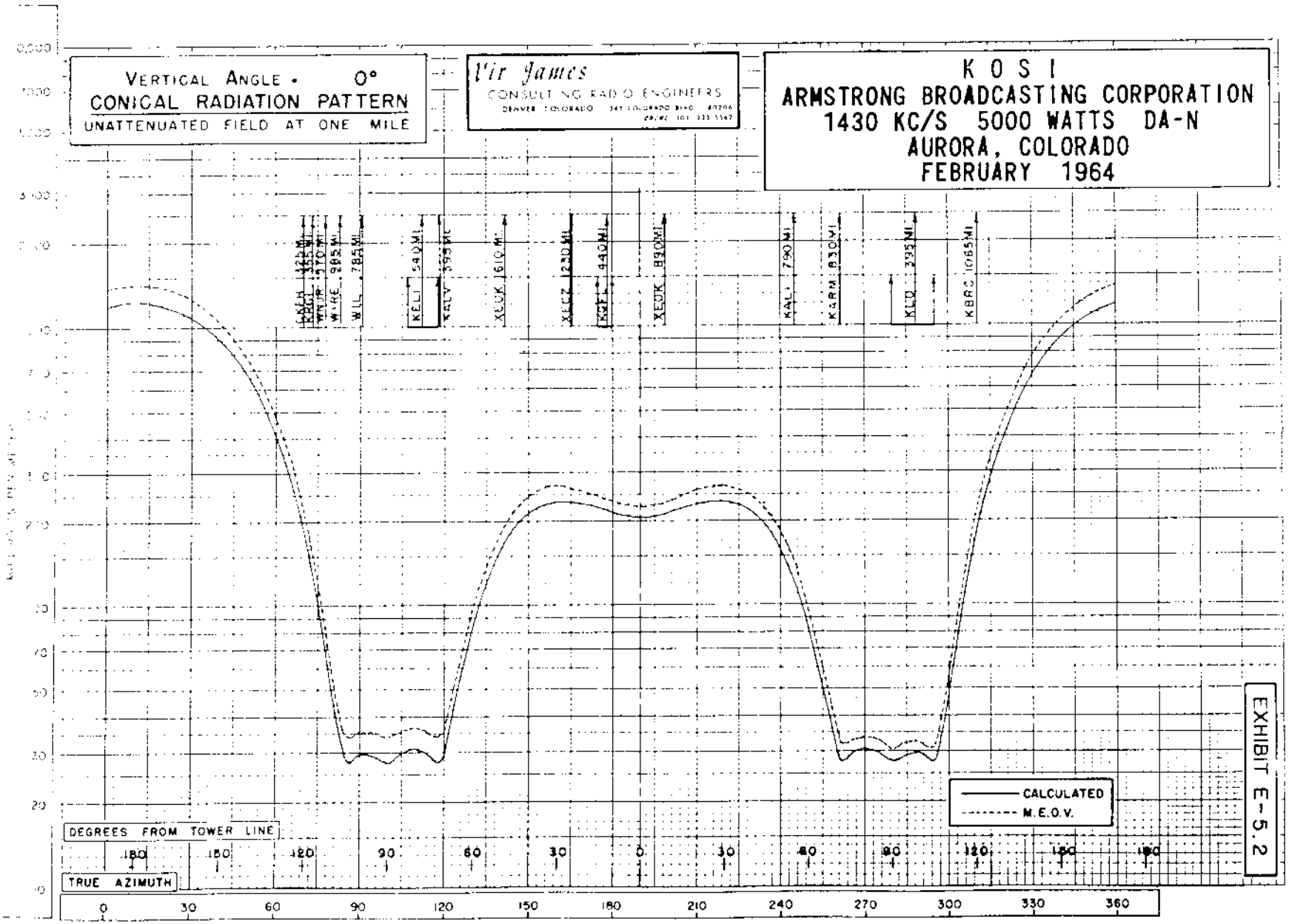
Station KOSI
Aurora, Colorado

1430 kc

Proposed Night Nulls
(8-28-64ct)

Station KOSI
Aurora, Colorado

5kw,DA-N,U
1430 kc



FCC File No.BP-16253
Accepted 8-7-64

Station KOSI
Aurora, Colorado

1430 kc

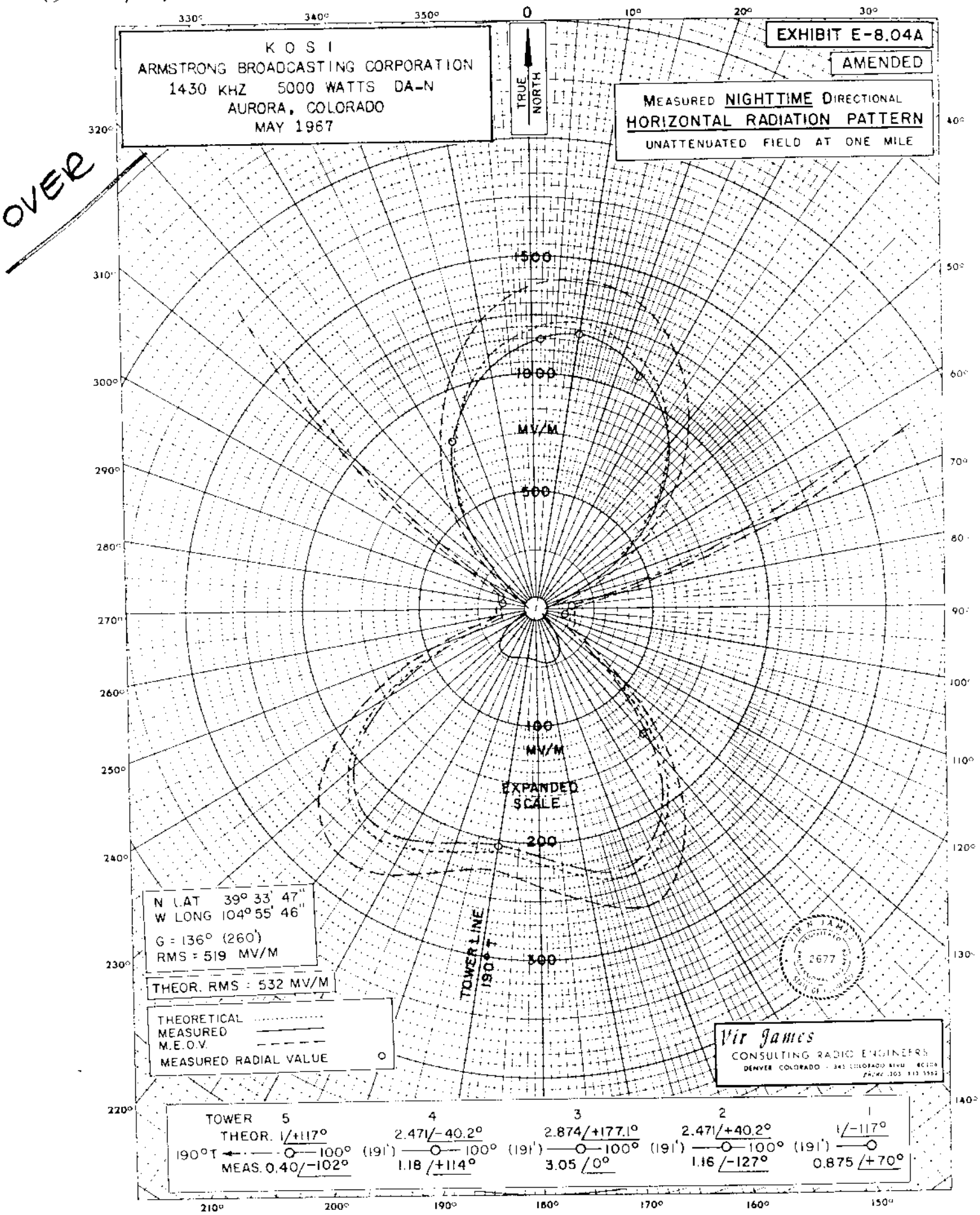
KOSI

KOSI

Measured Night
(9-28-67ct)

Station KOSI
Aurora, Colorado

5kw, DA-N, U
1430 kc



FCC File No. BL-11733
Accepted 8-30-67

Station KOSI
Aurora, Colorado

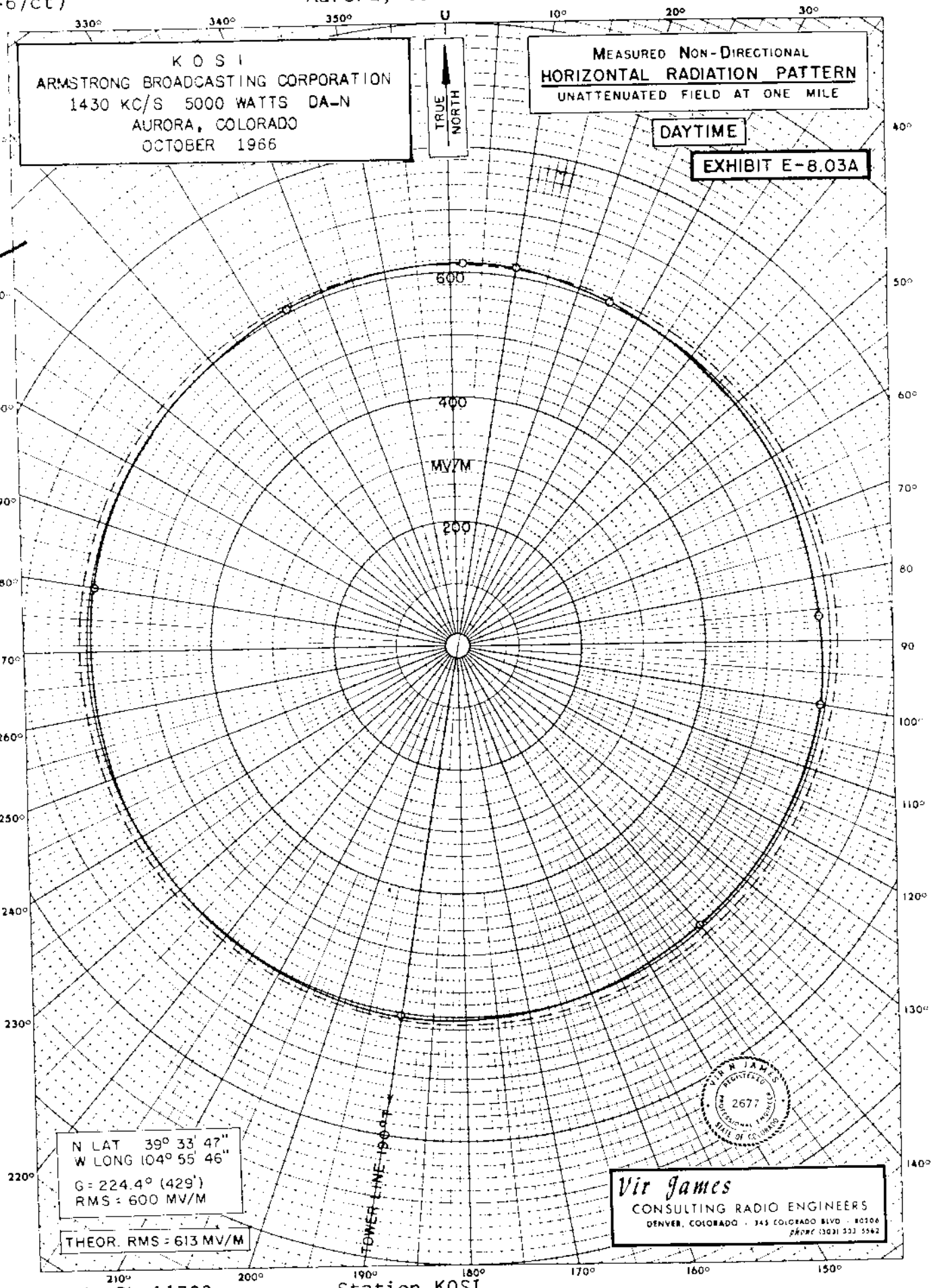
1430 kc

KOSI

Measured Non-DA
(9-28-67ct)

Station KOSI
Aurora, Colorado

5kw, DA-N, U
1430 kc



OVER

FCC File No. BL-11733
Accepted 8-30-67

Station KOSI
Aurora, Colorado

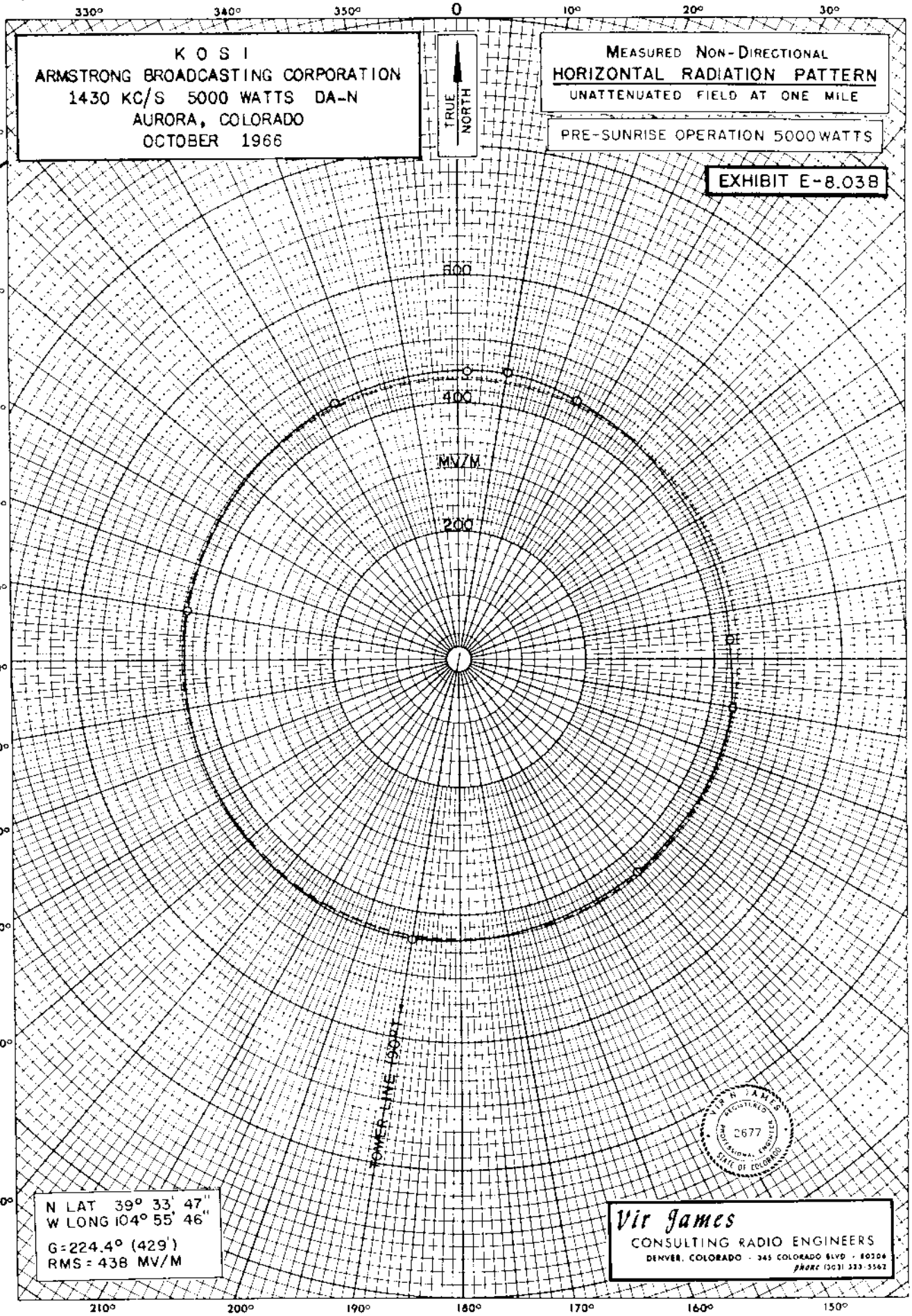
1430 kc

KOSI

Measured Non-DA
(9-28-67ct)

Station KOSI
Aurora, Colorado

5kw, DA-N, U
1430 kc



OVER

FCC File No. BL-11733
Accepted 8-30-67

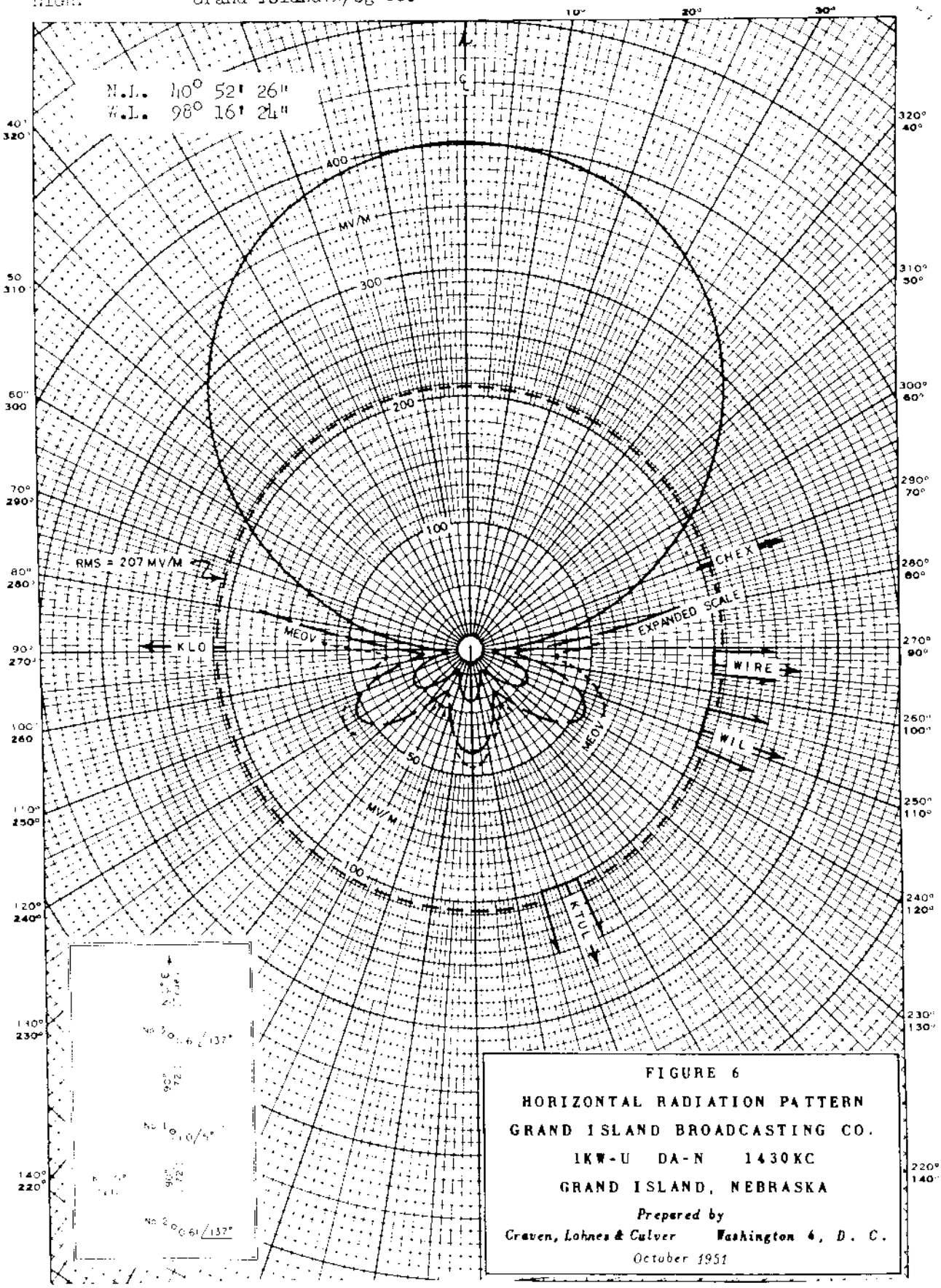
Station KOSI
Aurora, Colorado

1430 kc

KRGI

Station KRGI

PROPOSED NIGHT — NEW, GRAND ISLAND, NEB. Grand Island B/cg Co. — 1 KW, U, DA-N — 1430 KC

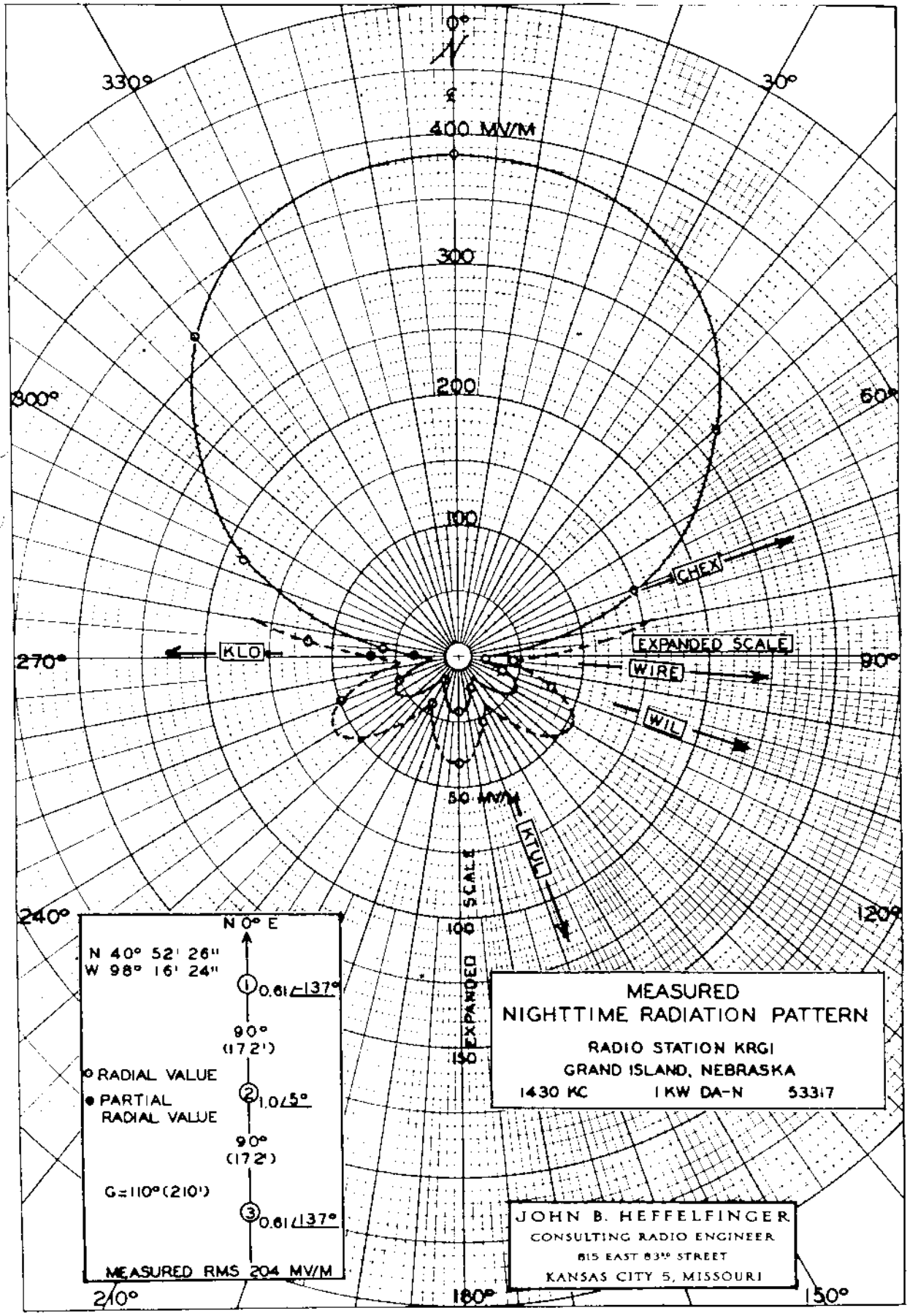


AMD RECD 11/29/51 ACC 11/30/51 BP-8169 Amd. NEW, GRAND ISLAND, NEB. Grand Island B/cg Co. 1430 KC

KRGI

MEASURED NIGHT (5/27/53G) KRGI, GRAND ISLAND, NEBRASKA 1kw, U, DA-N 1430 kc

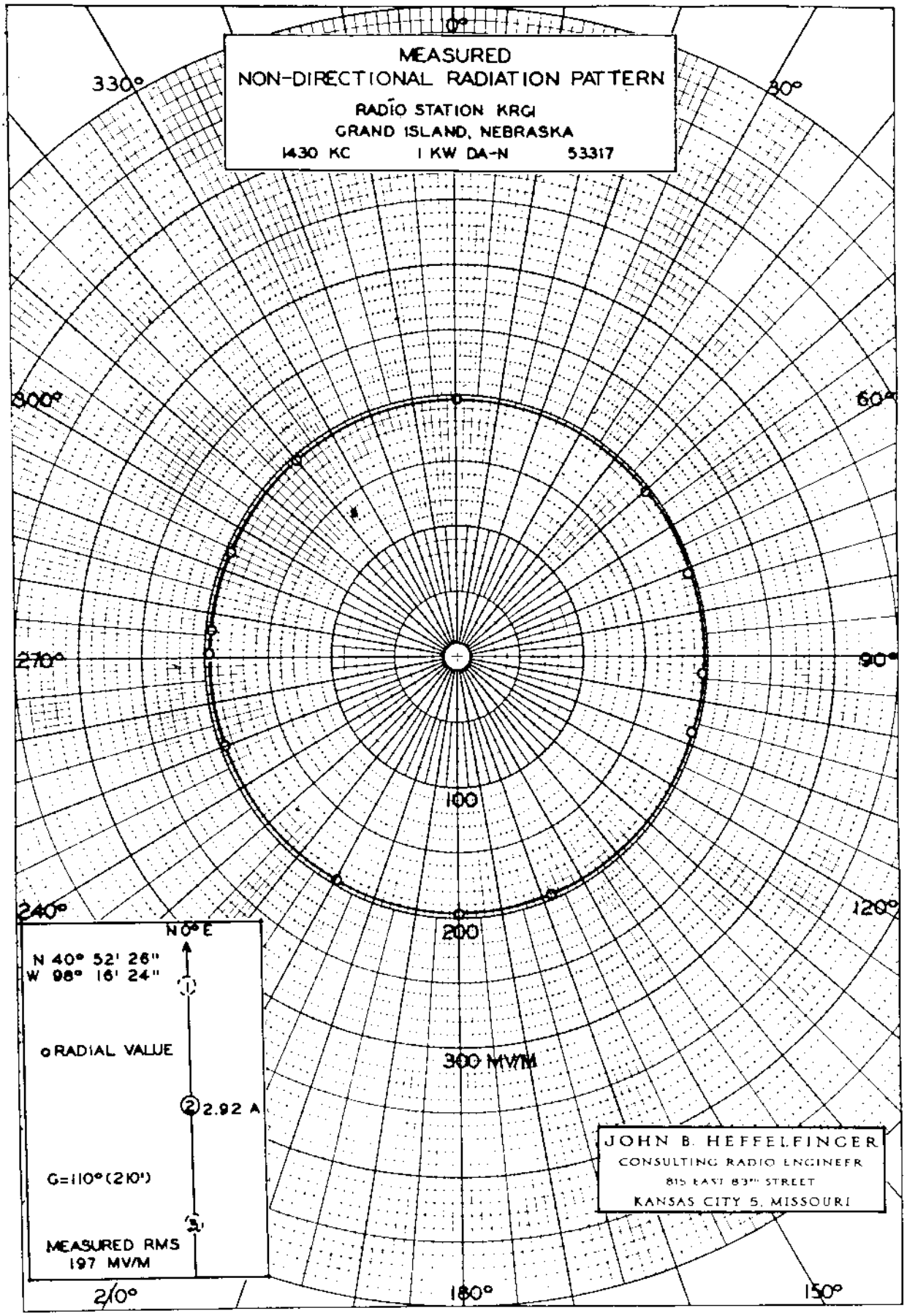
11-7-62 granted up to increase day ND power to 5 kw



FCC FILE NO. BL-4963 Accepted 4/7/53 KRGI, Grand Island, Neb. 1430 kc

KRGI

MEASURED KRGI, GRAND ISLAND, NEBRASKA 5kw, U, DA-N 1430 kc
NON-DA (5/27/53G)



FCC FILE NO. BL-4963 Accepted 4/7/53 KRGI, Grand Island, Neb. 1430 kc

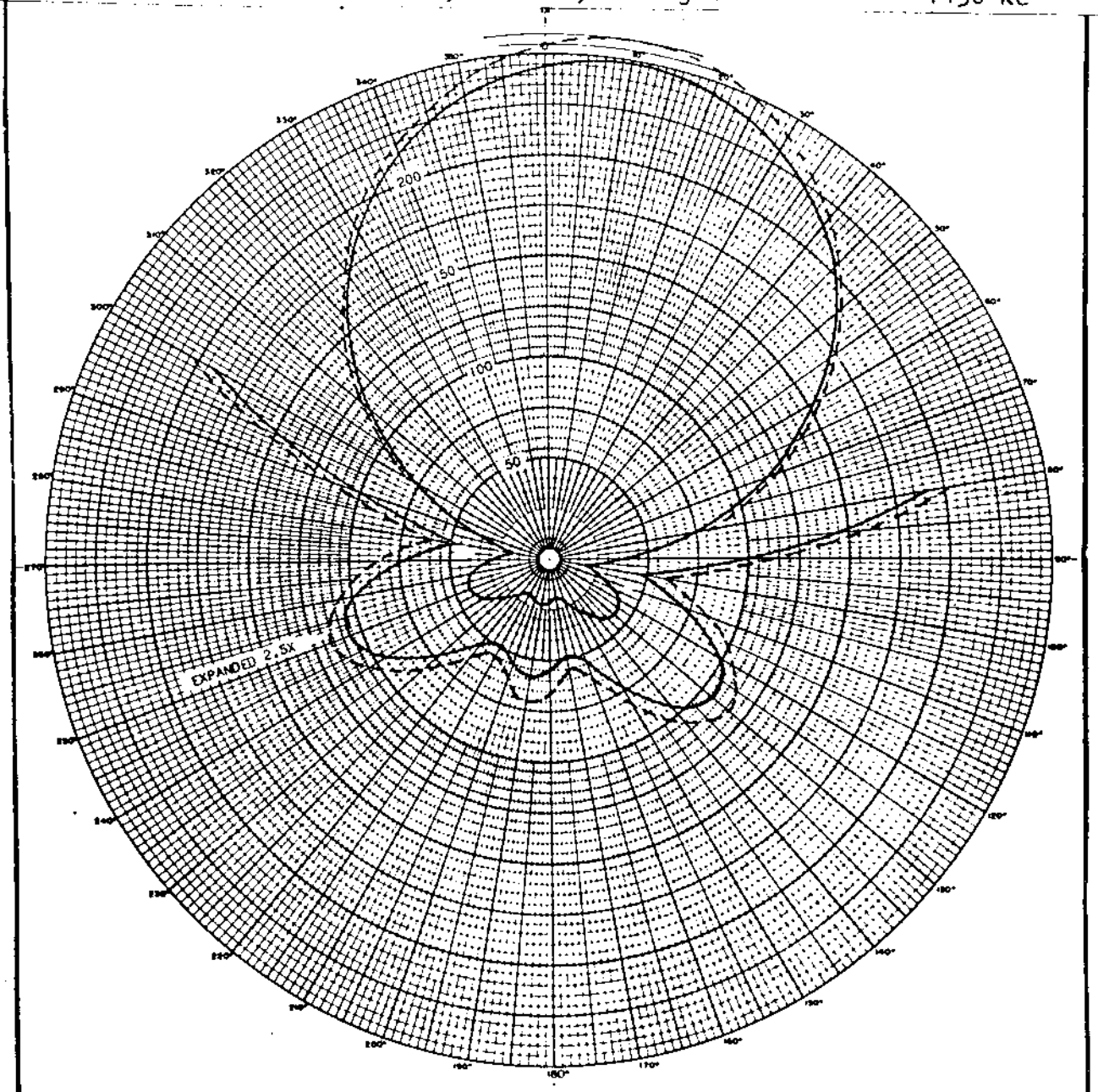
WBRB

Proposed Day
(8-26-66ct)

Station WBRB
Mt. Clemens, Michigan

500w,DA-D,D
1430 kc

BP 17308
BP 8-4-66



E_{RMS} = 124.8 (BY ADJUSTMENT)

PATTERN MINIMA: 100°, 170°, 210°, AND 280°

LATITUDE: 42° 32' 42"

LONGITUDE: 82° 54' 04"

CHARLES E. BRENNAN
CONSULTING RADIO ENGINEERS
MILWAUKEE, WISCONSIN

ANTENNA PARAMETERS

$G_2 = G_3 = 99.5°$
$G_1 = 219°$

10°T

1 O .535/-142.5°

2 O 1.0/0°

3 O .741/+142.5°

660325 FIGURE 4

PROPOSED DIRECTIONAL ANTENNA PATTERN

RADIO STATION WBRB

MOUNT CLEMENS, MICHIGAN

1430 KC 500 DA-D

FCC File No.BP-17308
Accepted 8-3-66

Station WBRB
Mt. Clemens, Michigan

1430 kc

WBRB

PROPOSED DAY
(7-8-59g)

Station WBRB
Mt. Clemens, Michigan

500w, DA-D, D
1430 KC

BP 17308
INC HT
8-4-66
APPL DA-1
DENIED
7-31-63

granted CP for changing HT
7-29-59

application for MCP to increase
height 190 ft/193 ft overall
BMP 871K
& add/replacement FM antenna

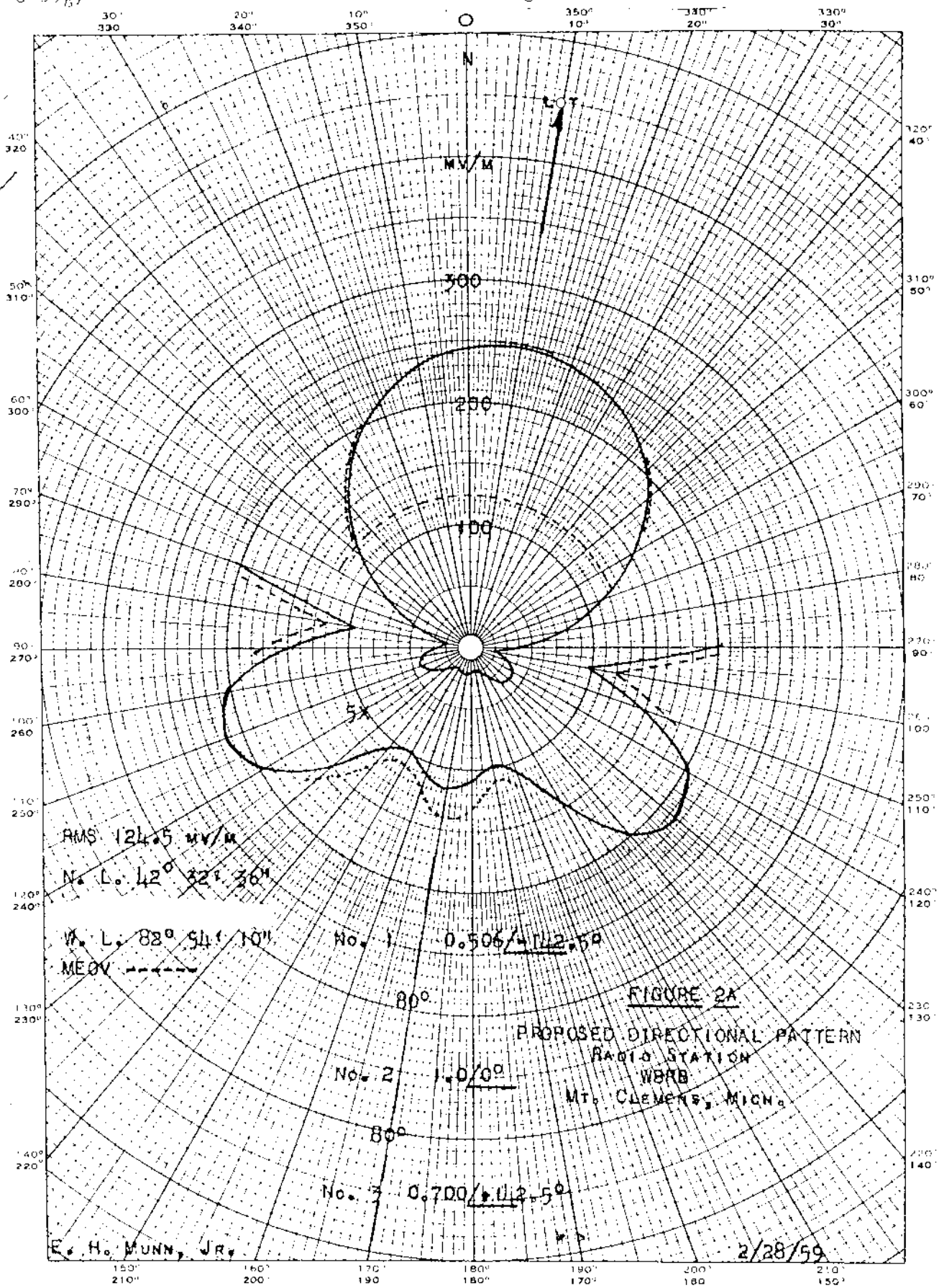


FIGURE 2A
PROPOSED DIRECTIONAL PATTERN
RADIO STATION
WBRB
MT. CLEMENS, MICH.

FCC File No. BP-11554
Accepted 4-23-59 (Amended)

WBRB
Mt. Clemens, Michigan

1430 KC

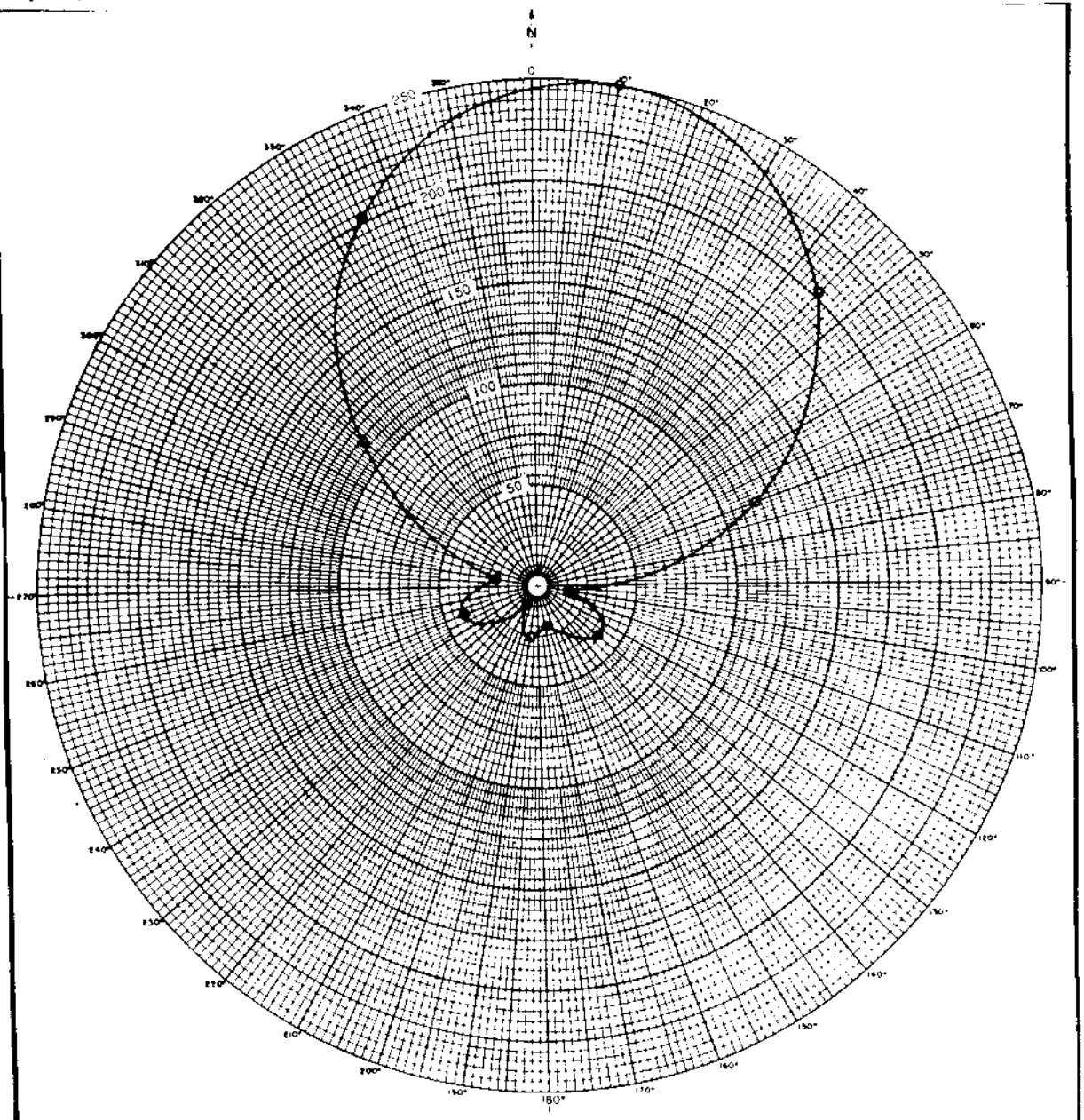
WBRB

Measured Day
(3-29-67ct)

Station WBRB
Mt. Clemens, Michigan

500w,DA-D,D
1430 kc

3-24-67
PAINTED
LENS
CHANGE
SYSTEM



E_{RMS} = 124 MV/M

LATITUDE: 42° 32' 42"

LONGITUDE: 82° 54' 04"

CHARLES E. BRENNAN
CONSULTING RADIO ENGINEERS
MILWAUKEE, WISCONSIN

ANTENNA PARAMETERS

$G_1 = G_3 = 99.5°$
$G_2 = 219°$
$S = 80°$

10°T

1 ○ .535/-142.5°
S
2 ○ 1.0/0°
S
3 ○ .741/+142.5°

861129 FIGURE 4

MEASURED DAYTIME PATTERN
RADIO STATION WBRB
MOUNT CLEMENS, MICHIGAN

1430 KC 500 DA-D

FCC File No.BL-11582
Accepted 3-15-67

Station WBRB
Mt. Clemens, Michigan

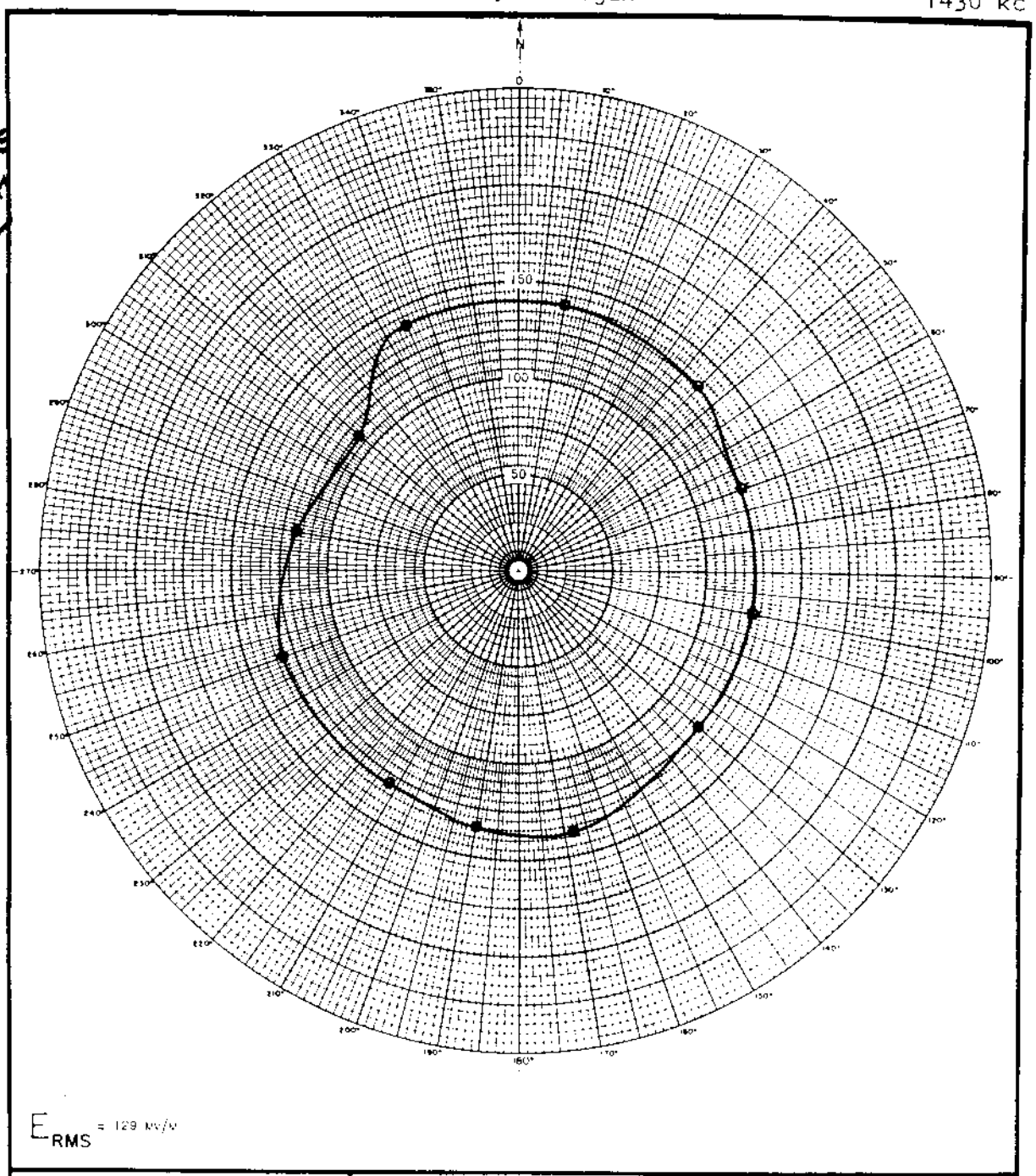
1430 kc

WBRB

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

Station WBRB
Mt. Clemens, Michigan

500w,DA-D,D
1430 kc



E_{RMS} = 129 mv/m

LATITUDE 42° 32' 42"

LONGITUDE 82° 54' 04"

CHARLES E. BRENNAN
CONSULTING RADIO ENGINEERS
MILWAUKEE, WISCONSIN

ANTENNA PARAMETERS

MEASURED WITH 250 WATTS INPUT TO TOWER 2. TOWER 2 = 219°

1 0

2 0

3 0

661129 FIGURE 3

MEASURED NON-DIRECTIONAL PATTERN
RADIO STATION WBRB
MOUNT CLEMENS, MICHIGAN

FCC File No.BL-11582
Accepted 3-15-67

Station WBRB
Mt. Clemens, Michigan

1430 kc

WBRB

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WBRB

Main Studio: Mt. Clemens, Michigan

Frequency: 1430 kHz

Power: 0.5 kW

Notification List No. 1704

Date: October 5, 1976

Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 42 ° 32 ' 43 "
West Longitude: 82 ° 54 ' 03 "

ANTENNA CHARACTERISTICS

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

TOWER:	N(#1)	CW(#2)	SW(#3)	CE(#4)	SE(#5)
HEIGHT ABOVE INSULATORS:	190'	420'(219°)	190'	190'	190' (99.5°)
NIGHT PHASING:	-130.056°	-	-	0°	+136.468°
NIGHT FIELD RATIO:	0.3672	-	-	1	0.5827
DAY PHASING:	-142.5°	0°	+142.5°	-	-
DAY FIELD RATIO:	0.535	1.0	0.741	-	-

SPACING AND ORIENTATION: Nighttime, from tower #4, tower #1 is spaced 171.7' (89.867°) on a line bearing 0° true, and tower #5 is spaced 164.9' (86.313°) on a line bearing 160.992° true. Daytime, towers #1, #2 and #3 are spaced 152.9' (80°) on a line bearing 10° true.

GROUND SYSTEM: 120-175' equally spaced copper radials about towers #1, #2 and #3 plus a 48' square ground screen about towers #4 and #5. Radials are shortened and bonded to transverse straps along intersections between towers #1, #2 and #3.

(Cont'd)

WBRB

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS		THEORETICAL RSS		STANDARD RMS	
Day 1/	124.8	mv/m	-	mv/m	-	mv/m
Night	146.57	mv/m	195.49	mv/m	156.89	mv/m

1/ By adjustment of input power.

Note: Please retain the Daytime directional antenna radiation pattern notified for Station WBRB in United States Change List Number 1176 dated August 10, 1966 and attach to this Revised Description Sheet and Nighttime pattern. This notification concerns the addition of a new Nighttime operation for the station with Daytime operation continued as previously notified.

CTR NO: 31124A3

WBRB

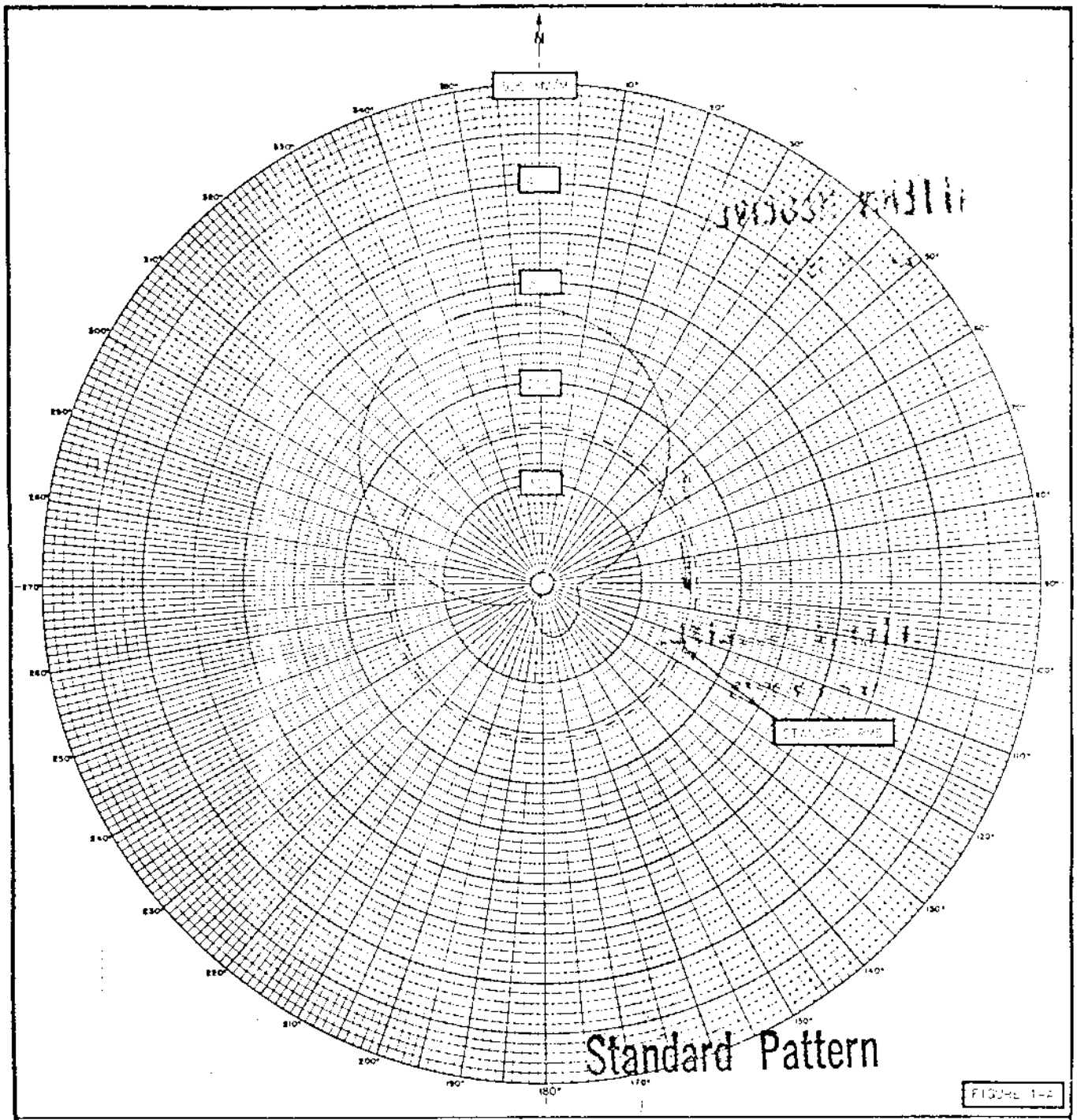


FIGURE 1-2

STANDARD HORIZONTAL PLANE PATTERN

SPACING AND ORIENTATION

N 0° E

N 359.105° E, 10° E

G(TOWERS 1,3,4,5) = 99.5° (190')
G(TOWER 2) = 219° (420')

NO. 1 0.367 /-130.056°

S1=S2=80° (152.9')
S3=89.867° (171.7')
S4=86.313° (164.9')

S1 S3

NO. 2 NOT USED

NO. 4

NO. 3 NOT USED

NO. 5 0.5827 /156.[illegible]°

N 10[illegible].992° E

THEORETICAL RMS	= 146.57 Mv/M
STANDARD RMS	= 156.89 Mv/M
Lmss(fm)	= 195.49 Mv/M

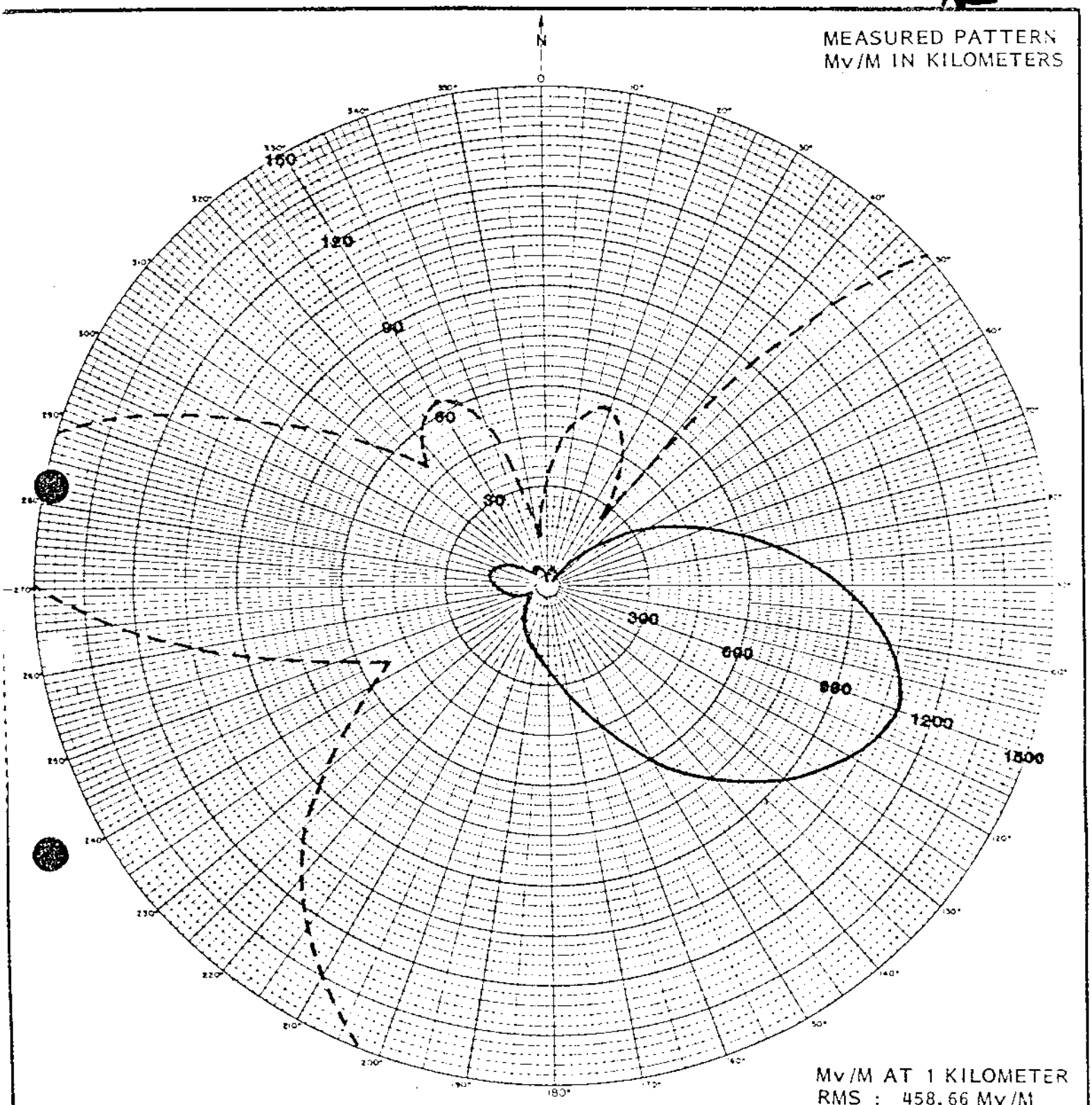
APPLICANT	MACHITE BROADCASTING CO.
LOCATION	MT. CLEMENS, MICHIGAN (WBRB)
FREQUENCY	1430 KC/S
POWER	0.5 KW - U DA-2
LATITUDE	42 DEG 32 MIN 33 SEC
LONGITUDE	82 DEG 56 MIN 00 SEC
WHEN USED	NIGHTTIME
RMS FIELD	156.89 MV/M (STANDARD)
DATE	AUGUST 1[illegible]

SILLIMAN, MOFFET & KOWALSKI

CONSULTING RADIO ENGINEERS

WASHINGTON, D.C.

WDEX MONROE NC



285.06 AT 1 MI

MEASURED NIGHTTIME OPERATING PARAMETERS

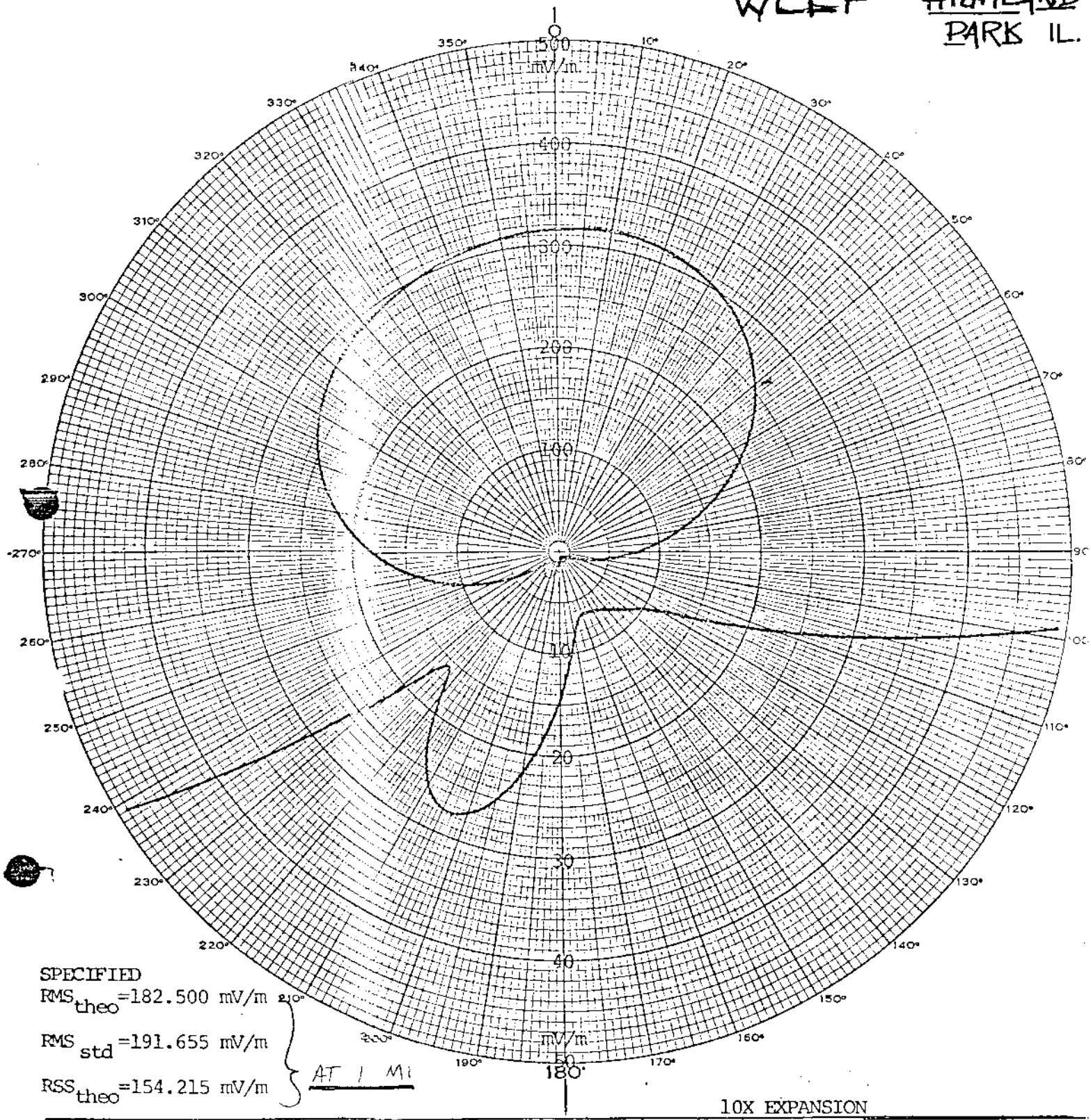
TOWER	FIELD	PHASE	SPACING	ORIENTATION
# 1	1	0	0	0
# 2	1.051	72.1	100	279
# 3	1.322	96.4	190.56	343.5
# 4	1.218	10.8	173	15

FIGURE 14 B

MEASURED
NIGHT-TIME DIRECTIONAL

W. LEE SIMMONS, INC.
BROADCAST CONSULTANTS
MONROE, NORTH CAROLINA

WEEF - HIGHLAND PARK IL.



SPECIFIED

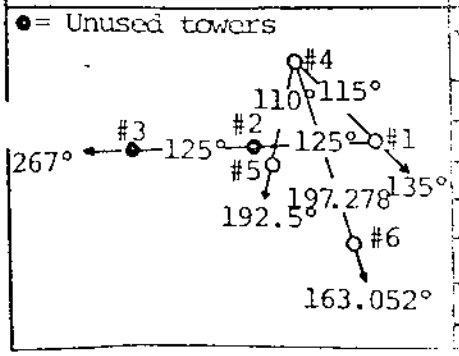
RMS_{theo}=182.500 mV/m

RMS_{std}=191.655 mV/m

RSS_{theo}=154.215 mV/m

AT 1 MI

10X EXPANSION

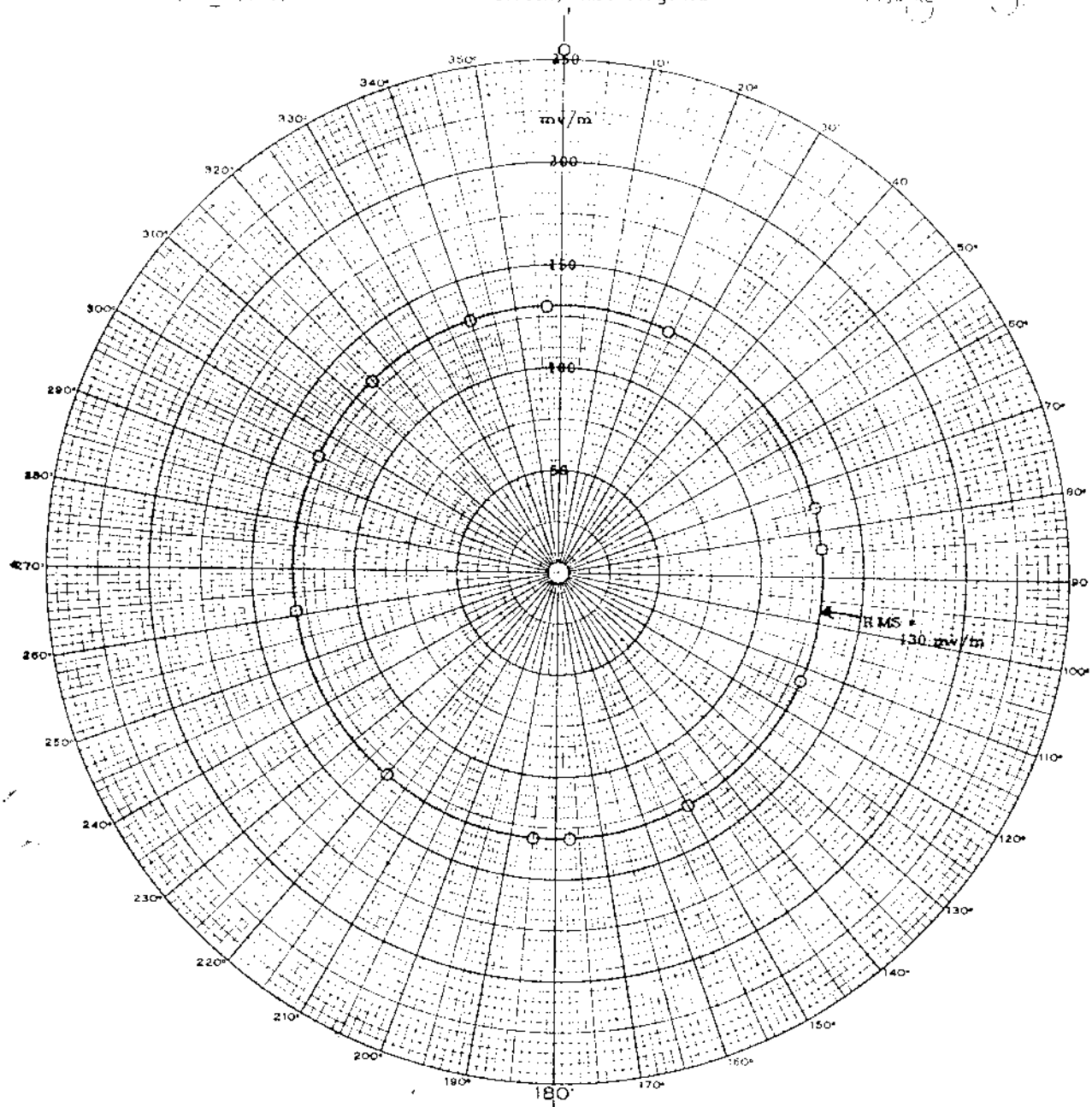
TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 7	STATION DATA
● = Unused towers	TOWER No.	ELECTRICAL HEIGHT G°	SPACING S°	PHASING V°	FIELD RATIO F	PROPOSED HORIZONTAL PLANE STANDARD PATTERN	CALL ~~WOVQ~~ WEEF
	1	78°		65°	0.90		FREQ 1430 kHz
	2	78°		---	----		POWER 1 kW
	3	78°		---	----		TYPE DA-2
	4	78°		0°	1.00	HIGHLAND PARK, ILL.	TIME UNLIMITED
	5	78°		87°	0.90		LAT. N 42°09'26"
	6	78°		152°	0.81	"NIGHTTIME"	LONG. W 87°51'02"
	DAYTIME OPERATION ☐		NIGHTTIME OPERATION ☒			$\theta^\circ = 0$	E. HAROLD MUNN, JR & ASSOCIATES, INC. COLDWATER, MICH.

WEIR

Measured Non-DA
(1-22-71ct)

Station WEIR
Weirton, West Virginia

1kw, DA-2, U
1430 kc



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS								STATION DATA
357°	TOWER No.	ELECTRICAL HEIGHT	TRUE TOWER DIRECTION	SPEC. NO	PHASING	HORIZONTAL FIELD	F.F.D PAT.	ELEV ANGLE	ELEVATION PHS FIELD	CALL WEIR
		°	°	°	°	mv/m		°	mv/m	FREQUENCY 1430 kc
No. 3	1	90	0	0	0		1.0	0	130	POWER 1 kw
	2							10		TIME OF OPERATION U
	3							20		TYPE OF OPERATION DA-2
	4							30		DAYTIME TOWERS
No. 2	5							40		NIGHTTIME TOWERS
	6							50		NO. RADIALS PER TOWER 120
	7							60		LENGTH OF RADIALS 90 - 170 ft
	8							70		GROUND SCREEN DIMENSION 48x48
No. 1	9							80		LAT. 40° 26' 45"
	10							90		LONG. 80° 37' 36"
										SUPERSEDES
	DAYTIME OPERATION ☐			NIGHTTIME OPERATION ☐					0.5 mv	PATTERN No. 701121

Carl E. Smith
Consulting Radio Engineers

FIG. 7.14
ND HORIZONTAL PATTERN
Radio Station WEIR
Weirton, W. Virginia

FCC File No. BRC-3486
Accepted 12-30-70

Station WEIR
Weirton, West Virginia

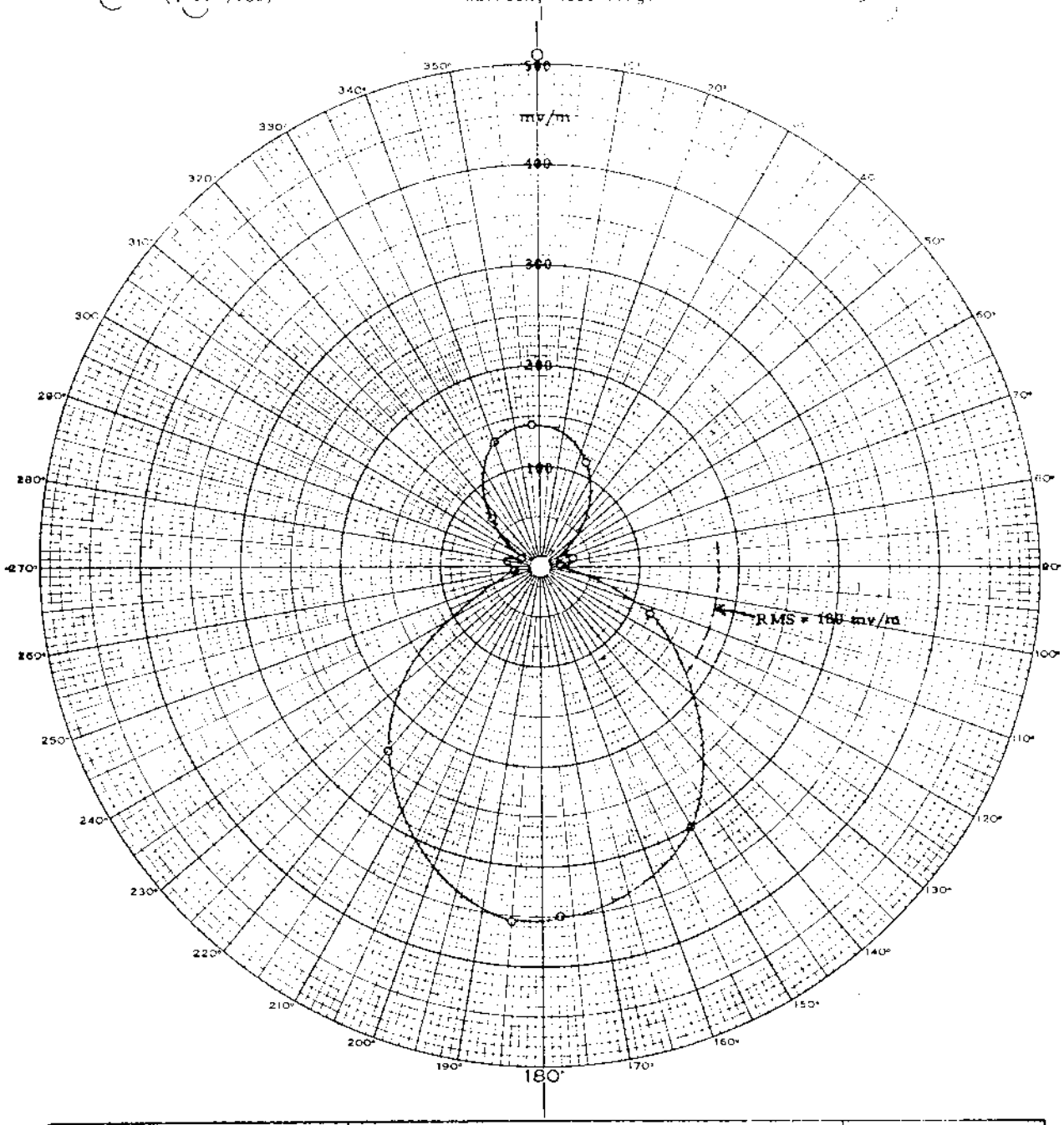
1430 kc

WEIR

Measured Night
(1-22-71ct)

Station WEIR
Weirton, West Virginia

1kw, DA-2, U
1430 kc



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS									STATION DATA
357°	TOWER No.	ELECTRICAL HEIGHT θ°	TRUE TOWER ORIENTATION θ'°	SPACING S°	RATIO D°	HORIZONTAL FIELD E mv/m	FIELD RATIO F	ELEV ANGLE θ°	ELEVATION RMS E_E mv/m	CALL WEIR
	1	90	0	0	0		1.0	0	160	FREQUENCY 1430 kc
No. 3	2	90	357	110	163		1.889	10		POWER 1 kw
	3	90	357	220	308		0.957	20		TIME OF OPERATION U
No. 2	4							30		TYPE OF OPERATION DA-2
	5							40		DAYTIME TOWERS ---
No. 1	6							50		NIGHTTIME TOWERS 1, 2, 3,
	7							60		NO. RADIALS PER TOWER 120
	8							70		LENGTH OF RADIALS 90 & 170 ft
	9							80		GROUND SCREEN DIMENSION 48x48
	10							E_A* mv/m		LAT. 40 26 45
	DAYTIME OPERATION ☐			NIGHTTIME OPERATION ☒				P_K* 1 kw		LONG. 80 37 36
										SUPERSEDES 500918
										PATTERN No. 701121

FIG. 7.42
NIGHTTIME HORIZONTAL PATTERN

Carl E. Smith
Consulting Radio Engineers

Radio Station WEIR
Weirton, W. Virginia

FCC File No. BRC-3486
Accepted 12-30-70

Station WEIR
Weirton, West Virginia

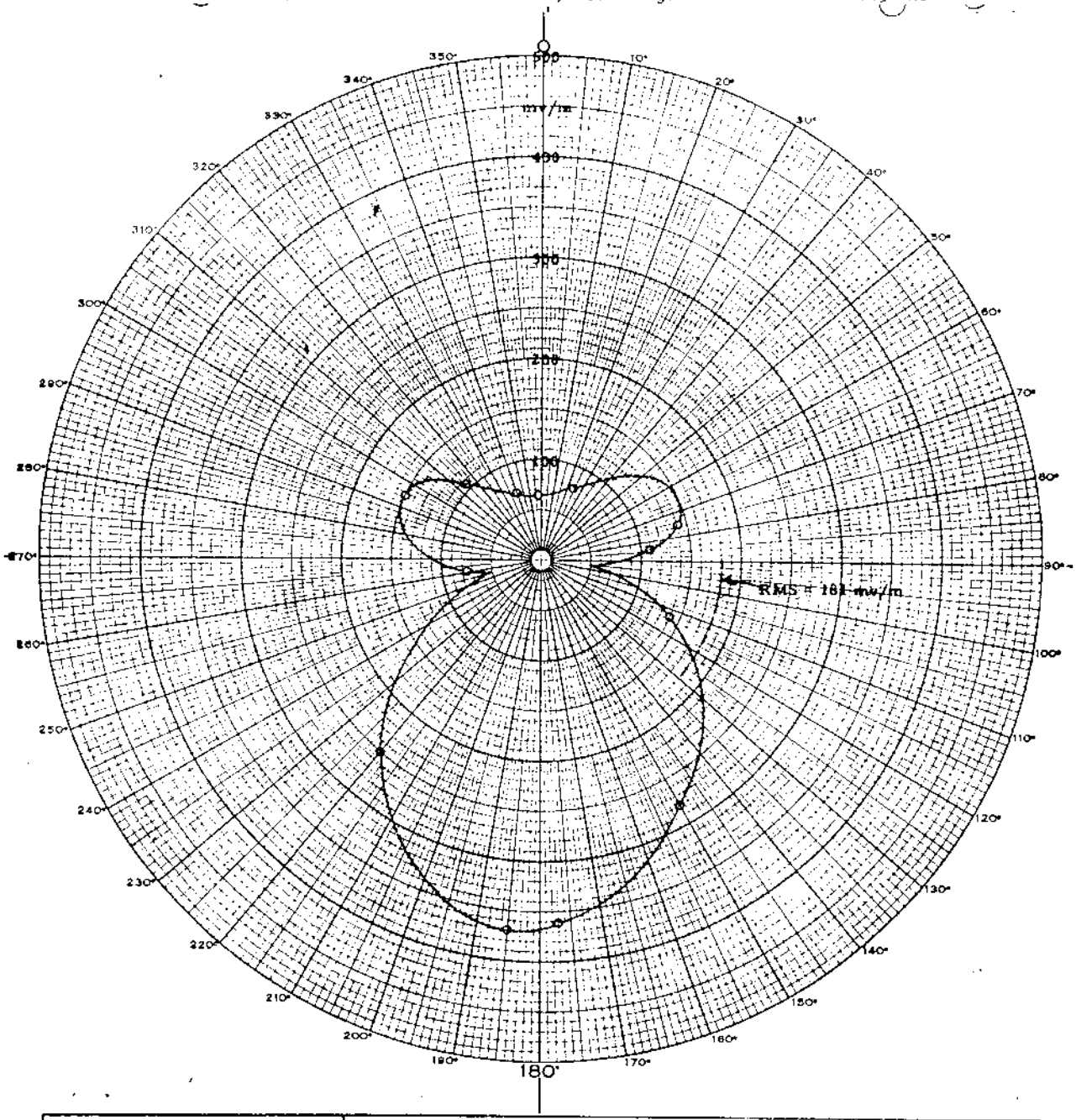
1430 kc

WEIR

Measured Day
(1-22-71ct)

Station WEIR
Weirton, West Virginia

1kw, DA-2, U
1430 kc



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS									STATION DATA	
357°	TOWER No.	ELECTRICAL HEIGHT G°	TRUE TOWER ORIENTATION B°	SPACING S°	PHASING P°	HORIZONTAL FIELD mv/m E	FIELD RATIO F	ELEV. ANGLE θ°	ELEVATION RMS FIELD mv/m E_θ	CALL	WEIR
	1	90	0	0	0		1.0	0	181	FREQUENCY	1430 kc
No. 3	2	90	357	110	128		0.58	10		POWER	1 kw
	3	90	357	220	263		0.563	20		TIME OF OPERATION	U
	4							30		TYPE OF OPERATION	DA-2
No. 2	5							40		DAYTIME TOWERS	1, 2, 3,
	6							50		NIGHTTIME TOWERS	---
	7							60		No RADIALS PER TOWER	120
No. 1	8							70		LENGTH OF RADIALS	90 - 170 ft.
	9							80		GROUND SCREEN DIMENSION	48x48
	10							E_k*	mv/m	LAT.	40 ° 26 ' 45 "
	DAYTIME OPERATION ☒			NIGHTTIME OPERATION ☐				E_1* = 1	kw	LONG	80 ° 37 ' 36 "
										SUPERSEDES	500918
										PATTERN No	701121

Carl E. Smith
Consulting Radio Engineers

FIG. 7.28
DAYTIME HORIZONTAL PATTERN

Radio Station WEIR
Weirton, W. Virginia

FCC File No. BRC-3486
Accepted 12-30-70

Station WEIR
Weirton, West Virginia

1430 kc

WEIR WEIRTON, W.VA

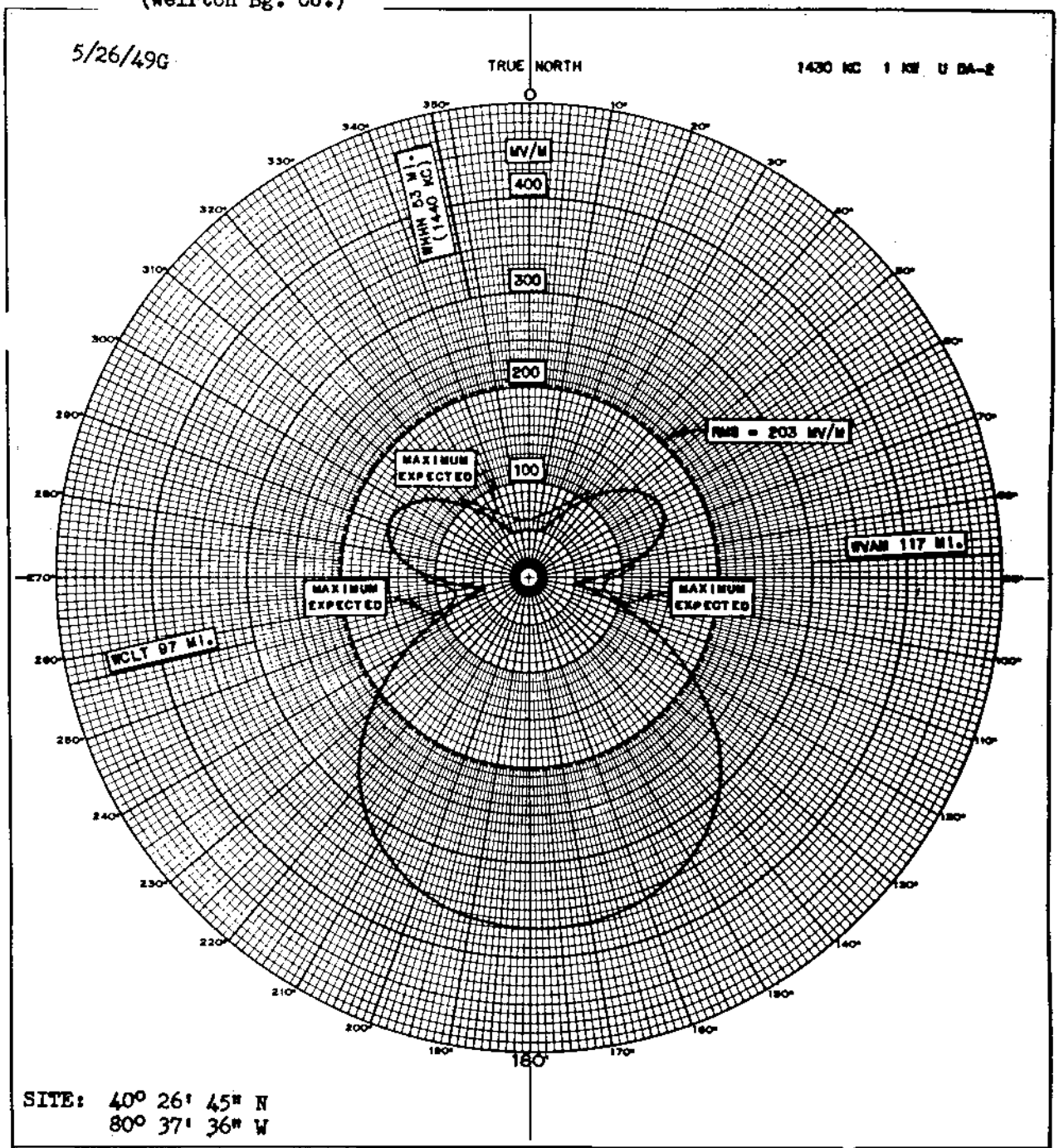
PROPOSED DAY

NEW, WEIRTON, W. VA.
(Weirton Bg. Co.)

1kw, DA2

1430 kc
FIGURE 16

5/26/49G



SITE: 40° 26' 45" N
80° 37' 36" W

CALCULATED DAYTIME HORIZONTAL PLANE RADIATION PATTERN

357° TRUE
3 0.67 /135°
110°
209.84'
2 0.71 /0°
110°
209.84'
1 1.0 /-135°
θ = 90° = 170'

WEIRTON BROADCASTING COMPANY
WEIRTON WEST VIRGINIA

WELDON & CARR
CONSULTING RADIO ENGINEERS
WASHINGTON D.C. DALLAS TEXAS

WEIRTON BROADCASTING COMPANY
WEIRTON WEST VIRGINIA

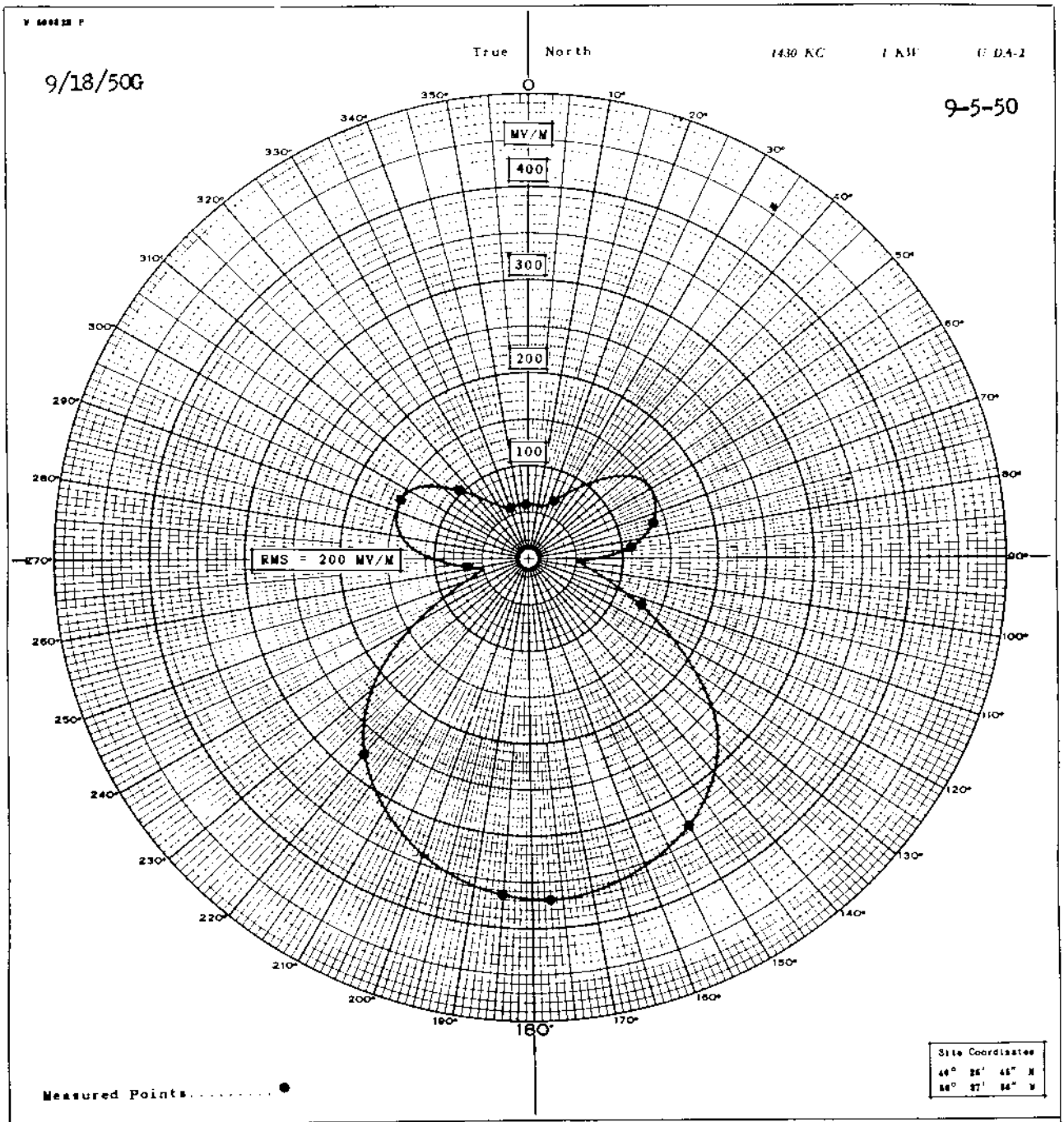
1430 KC 1 KW U DA-2
W 490412C

AMENDMENT RECD 5-9-49 to BP-6788

New, Weirton, W. Va. 1430 kc

WEIR

MEASURED WEIR, WEIRTON, W. VA. 1kw, DA-2 1430 kc
DAY



MEASURED DAYTIME HORIZONTAL PLANE RADIATION PATTERN

357° TRUE
3 0.67 /135°
110°
209.84'
2 0.71 /0°
110°
209.84'
1 1.0 /-135°
θ = 90° = 170'

THE TRI-STATE BROADCASTING COMPANY

WELDON & CARR CONSULTING RADIO ENGINEERS

DALLAS ● WASHINGTON ● SEATTLE

Figure 12

WEIR

Weirton *West Virginia*

1430 KC *1 KW* *U DA-2*

WEIR, Weirton, W. Va. 1430 kc

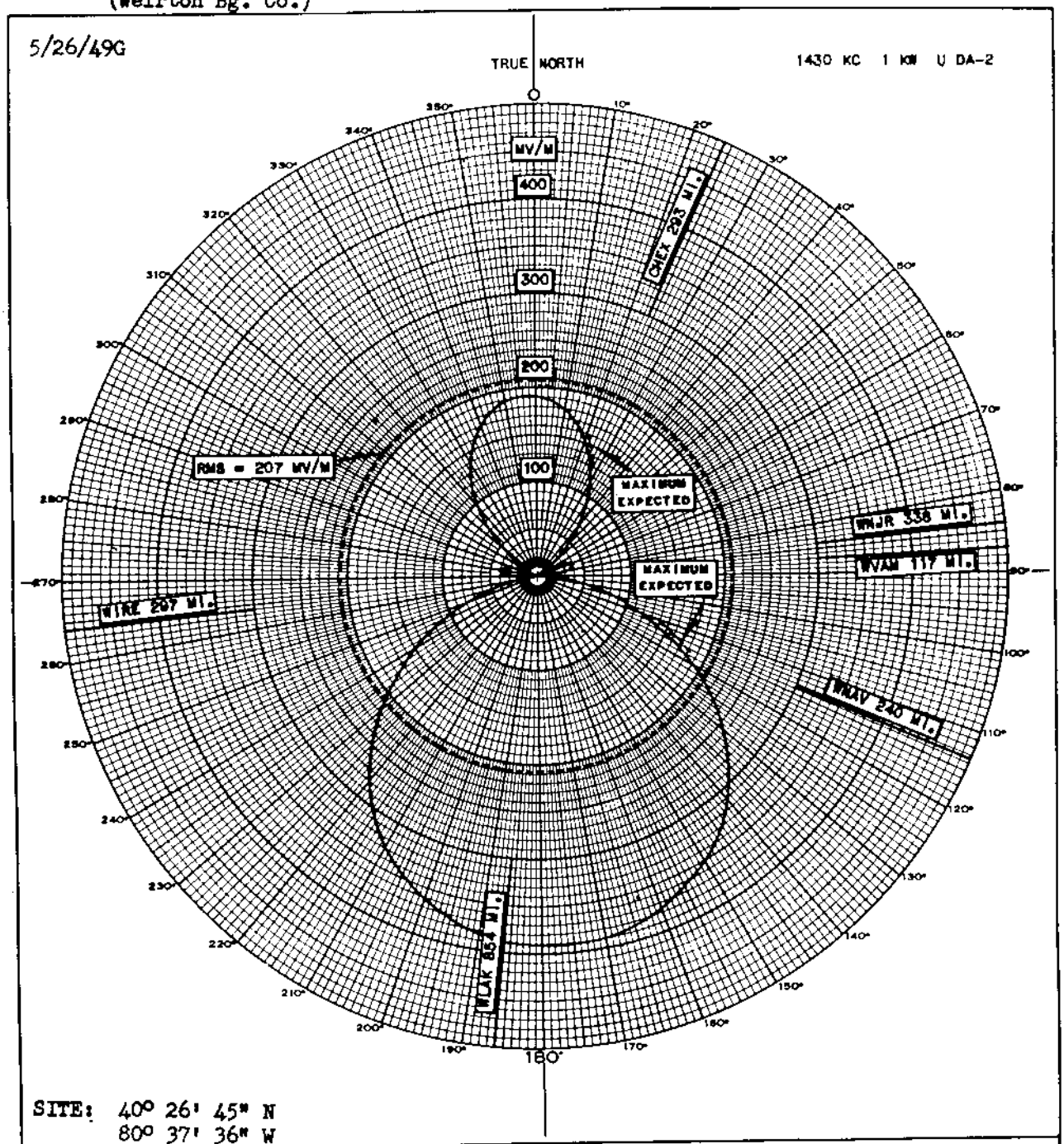
WEIR ~~WVA~~ WEIRTON, W.VA

PROPOSED NIGHT

NEW, WEIRTON, W. VA.
(Weirton Bg. Co.)

1kw, DA2 1430 kc

FIGURE 10.0



SITE: 40° 26' 45" N
80° 37' 36" W

CALCULATED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

357° TRUE
3 1.0 /155°
110°
209.84'
2 1.69 /0°
110°
209.84'
1 1.0 /-155°
G = 90° = 170'

WEIRTON BROADCASTING COMPANY
WEIRTON WEST VIRGINIA

WELDON & CARR
CONSULTING RADIO ENGINEERS
WASHINGTON D.C. DALLAS TEXAS

WEIRTON BROADCASTING COMPANY
WEIRTON WEST VIRGINIA

1430 KC 1 KW U DA-2
W 4904128

AMENDMENT RECD 5-9-49 to BP-6788

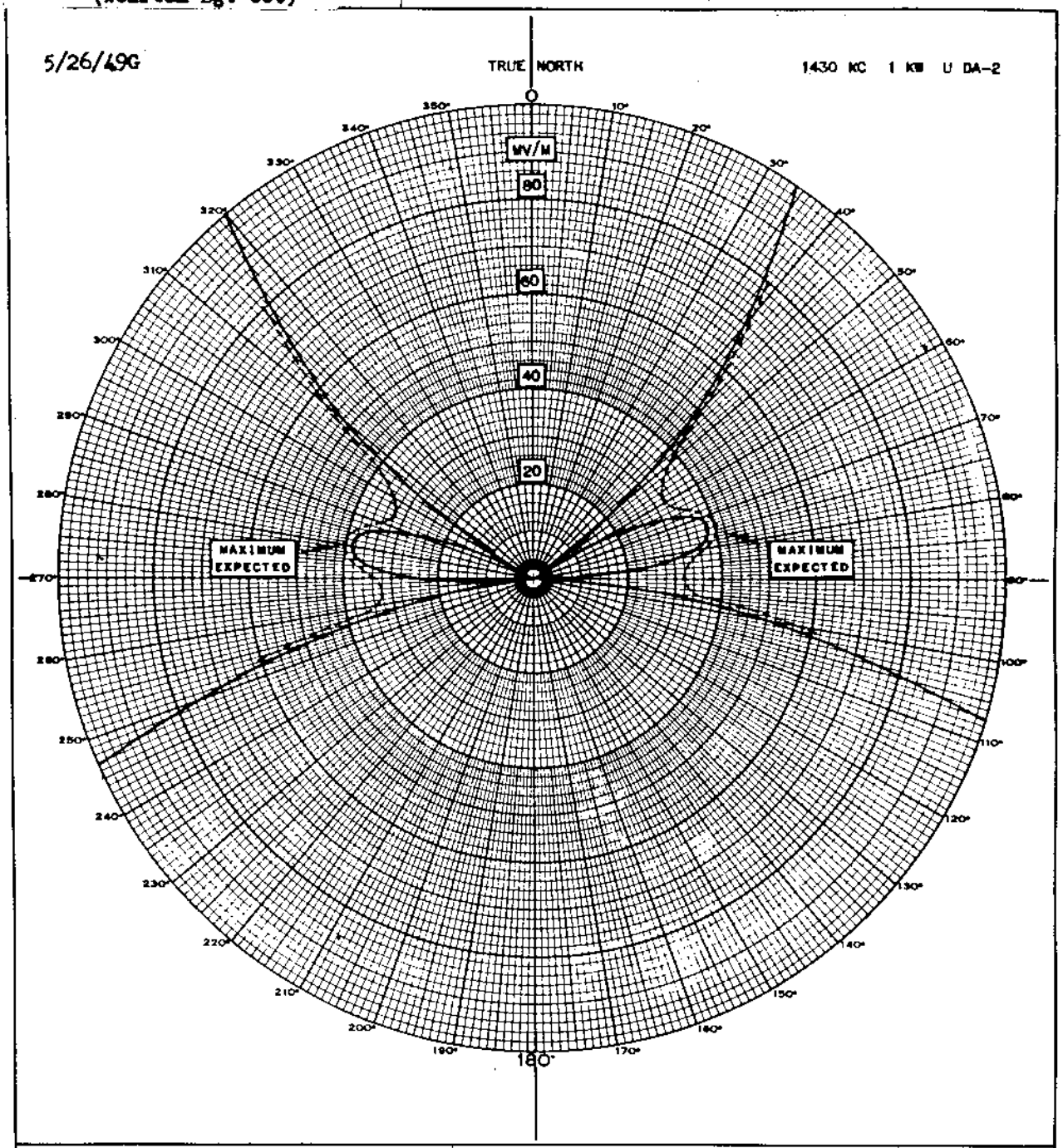
New, Weirton, W. Va. 1430 kc

PROPOSED
NIGHT NULLS

NEW, WEIRTON, W. VA.
(Weirton Bg. Co.)

WEIR
1kw, DA2

WEIRTON, W.VA.
1430 kc
FIGURE 10.1



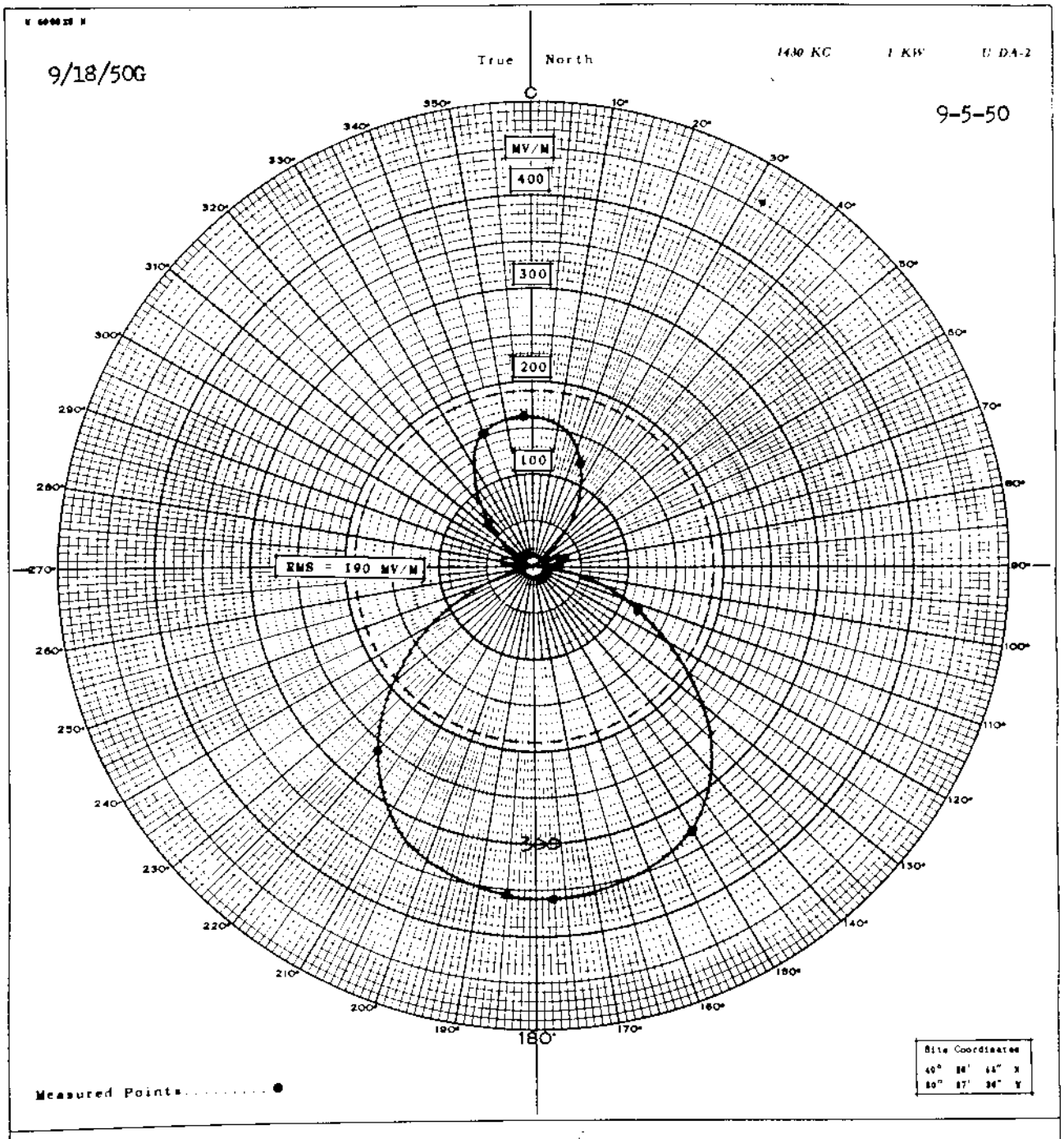
CALCULATED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

SITE: 40° 26' 45" N 80° 37' 36" W DETAIL IN NULLS	WEIRTON BROADCASTING COMPANY WEIRTON WEST VIRGINIA WELDON & CARR CONSULTING RADIO ENGINEERS WASHINGTON D.C. DALLAS TEXAS	WEIRTON BROADCASTING COMPANY WEIRTON WEST VIRGINIA 1430 KC 1 KW U DA-2 W 490412A

AMENDMENT RECD 5-9-49 to BP-6788

New, Weirton, W. Va. 1430 kc

MEASURED WEIR, WEIRTON, W. VA. 1kw, DA-2 1430 kc
NIGHT



MEASURED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

357° TRUE
3 1.0 /155°
110°
209.84'
2 1.69 /0°
110°
209.84'
1 1.0 /-155°
θ = 90° = 170'

THE TRI-STATE BROADCASTING COMPANY

WELDON & CARR CONSULTING RADIO ENGINEERS

DALLAS ● WASHINGTON ● SEATTLE

Figure 9

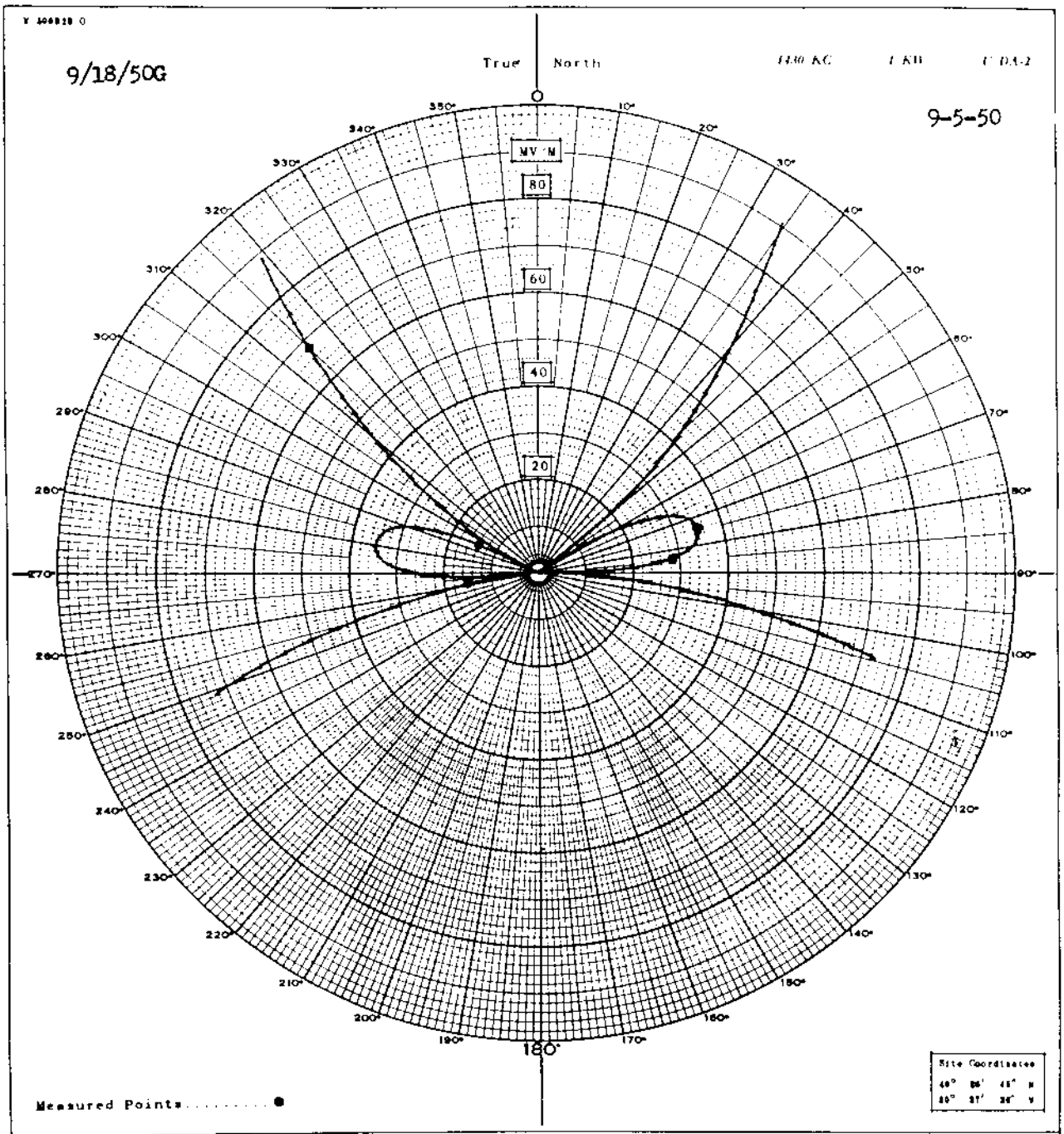
WEIR

Weirton West Virginia

1430 KC 1 KW U DA-2

WEIR

MEASURED NIGHT NULLS — WEIR, WEIRTON, W. VA. — 1kw, DA-2 — 1430 kc



MEASURED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

Details in Nulls	*THE TRI-STATE BROADCASTING COMPANY*	**Figure 10**
		WEIR
		Weirton *West Virginia*
	WELDON & CARR CONSULTING RADIO ENGINEERS	*1430 KC* *1 KW* *U DA-2*
	DALLAS ● WASHINGTON ● SEATTLE	

WENE

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WENE

Main Studio: Endicott, New York

Frequency: 1430 kHz

Power: 5 kW

Notification List No. 1615

Date: January 16, 1975

Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 42° 04' 56"
West Longitude: 76° 01' 53"

ANTENNA CHARACTERISTICS

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

TOWER:	NW(#3)	NC(#2)	NE(#1)	SW(#5)	SE(#4)
HEIGHT ABOVE INSULATORS:	200'	200'	200'	200'	200' (104.5°)
PHASING:	+4°	-140°	+80°	-80°	+140°
FIELD RATIO:	1.0	0.685	0.26	0.26	0.685

SPACING AND ORIENTATION: From a reference point in the center of the array,
Tower #1 is located 344' (180°) on a line bearing 52° true,
Tower #2 is located 172' (90°) on a line bearing 50° true,
Tower #3 is located 11.5' (6°) on a line bearing 345° true,
Tower #4 is located 172' (90°) on a line bearing 230° true,
Tower #5 is located 344' (180°) on a line bearing 232° true.

GROUND SYSTEM: 120-172' 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.

Predicted effective Night Field: 485 mv/m at rated power.

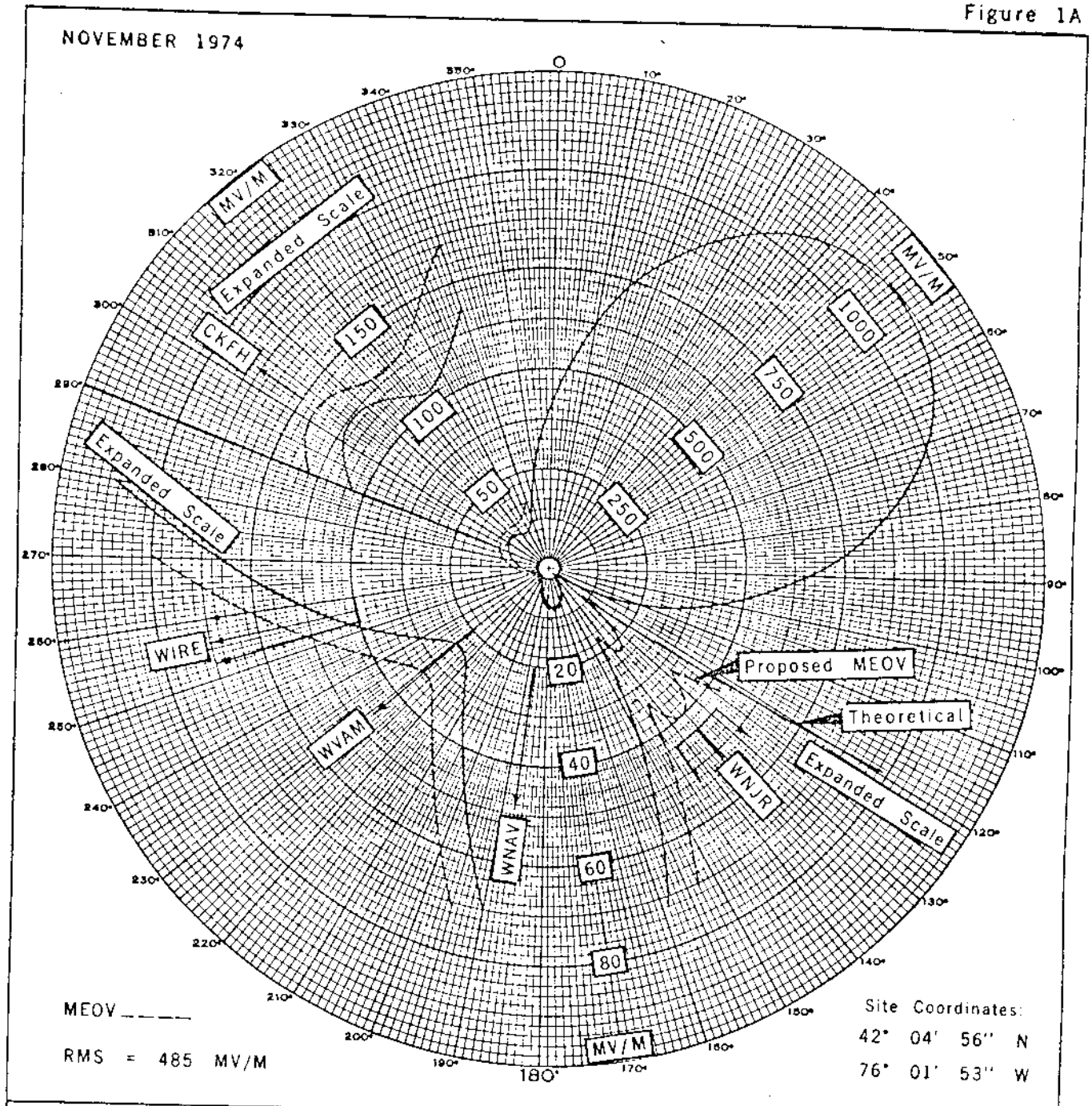
Predicted effective Day Field: (omnidirectional) 439 mv/m at rated power.

Note: Please retain the Nighttime verticle angle directional antenna radiation patterns notified for Station WENE in United States Change List Number 360, dated May 12, 1950, and attach to this Revised Description Sheet and Nighttime horizontal and vertical patterns. This notification concerns only a change in the meovs of radiation in the nighttime directional antenna pattern with daytime operation continued as previously notified.

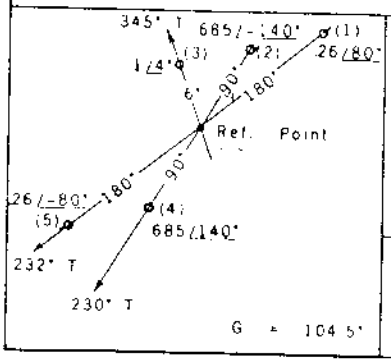
CTR NO 31130A6

WENE

Figure 1A



CALCULATED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN



JANUARY ENTERPRISES, INC.

ENDICOTT, NEW YORK

Jules Cohen & Associates

Consulting Electronics Engineers

WENE

1430 KHZ

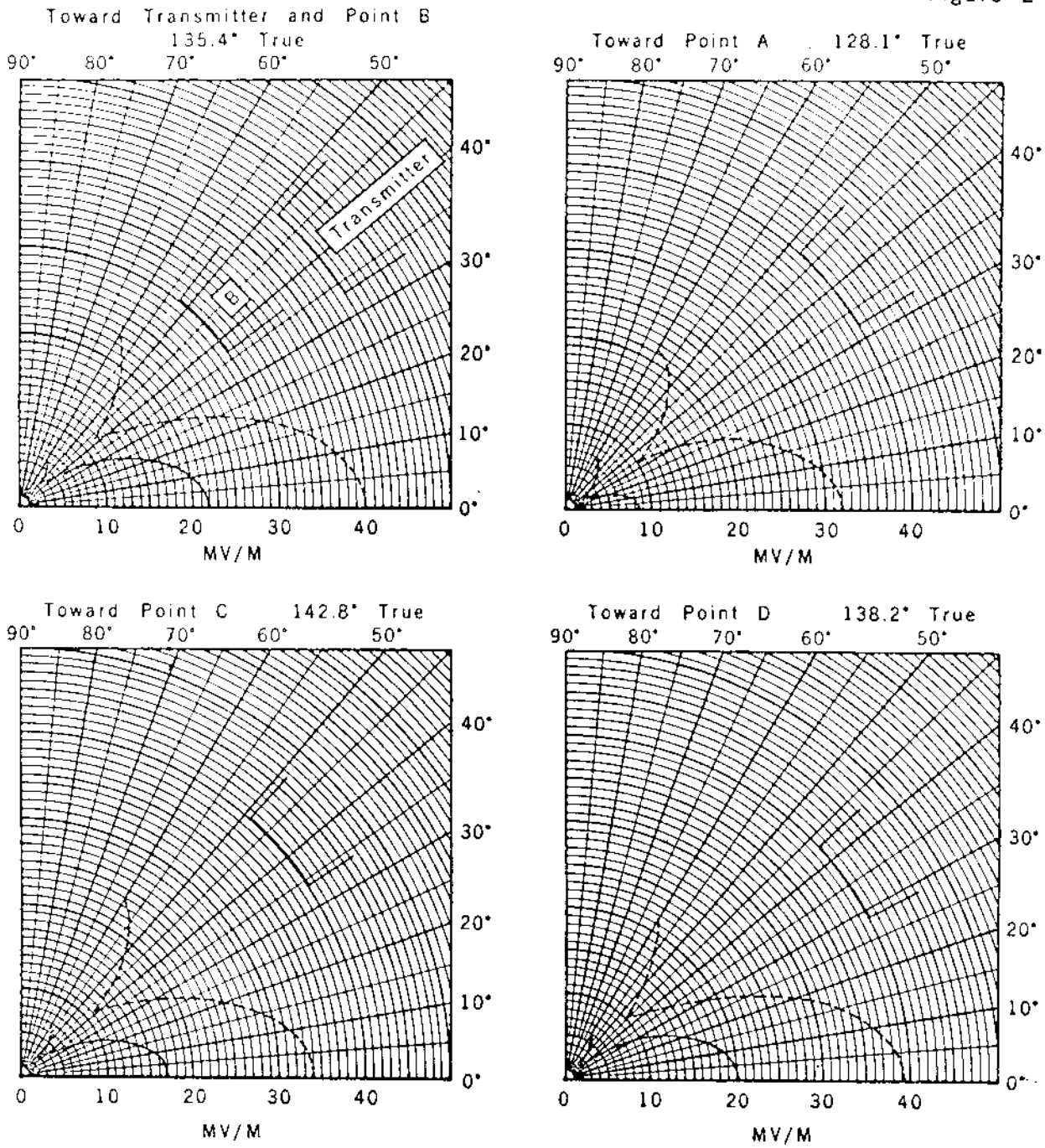
5 KW U DA-N

Pattern 740823

WENE

AUGUST 1974

Figure 2



——— Theoretical pattern

- - - - - - MEOV

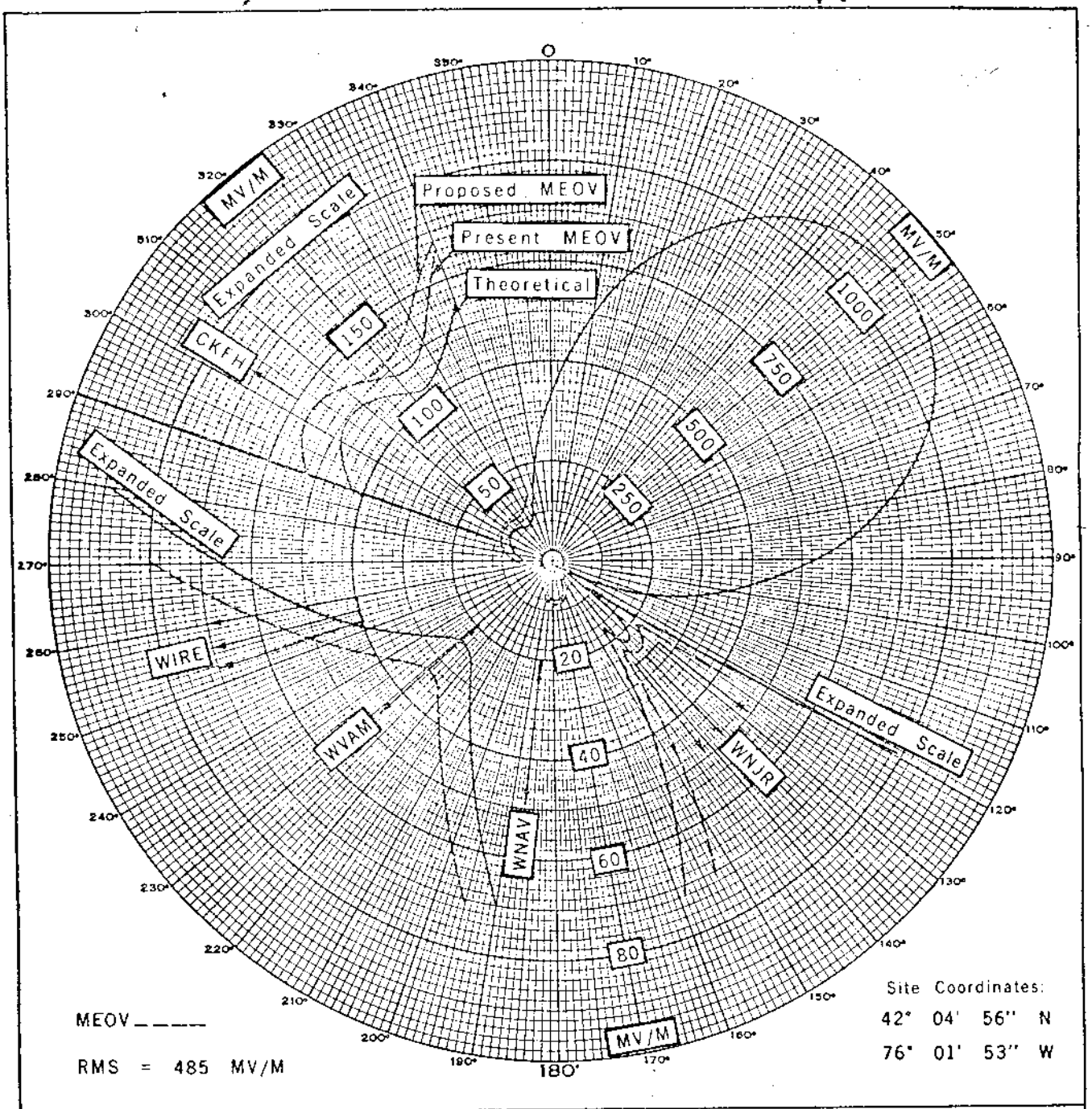
Vertical departure bracket angle

NIGHTTIME VERTICAL PLANE RADIATION PATTERNS
WENE, ENDICOTT, NEW YORK TOWARD WNJR

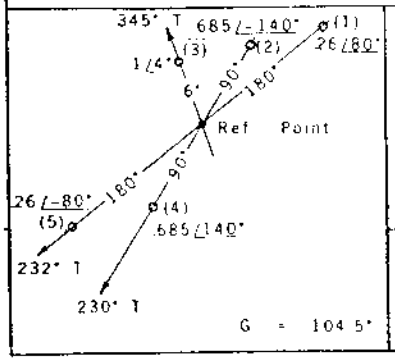
JANUARY ENTERPRISES, INC.
STATION WENE ENDICOTT, NEW YORK
1430 KHZ 5 KW U DA-N

Jules Cohen & Associates Consulting Electronics Engineers

WENE Figure 1A Amended



CALCULATED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN



JANUARY ENTERPRISES, INC.

ENDICOTT, NEW YORK

Jules Cohen & Associates

Consulting Electronics Engineers

WENE

1430 KHZ

5 KW U DA-N

Pattern 710503

FCC File Number BP-19007
July 7, 1971 K & E

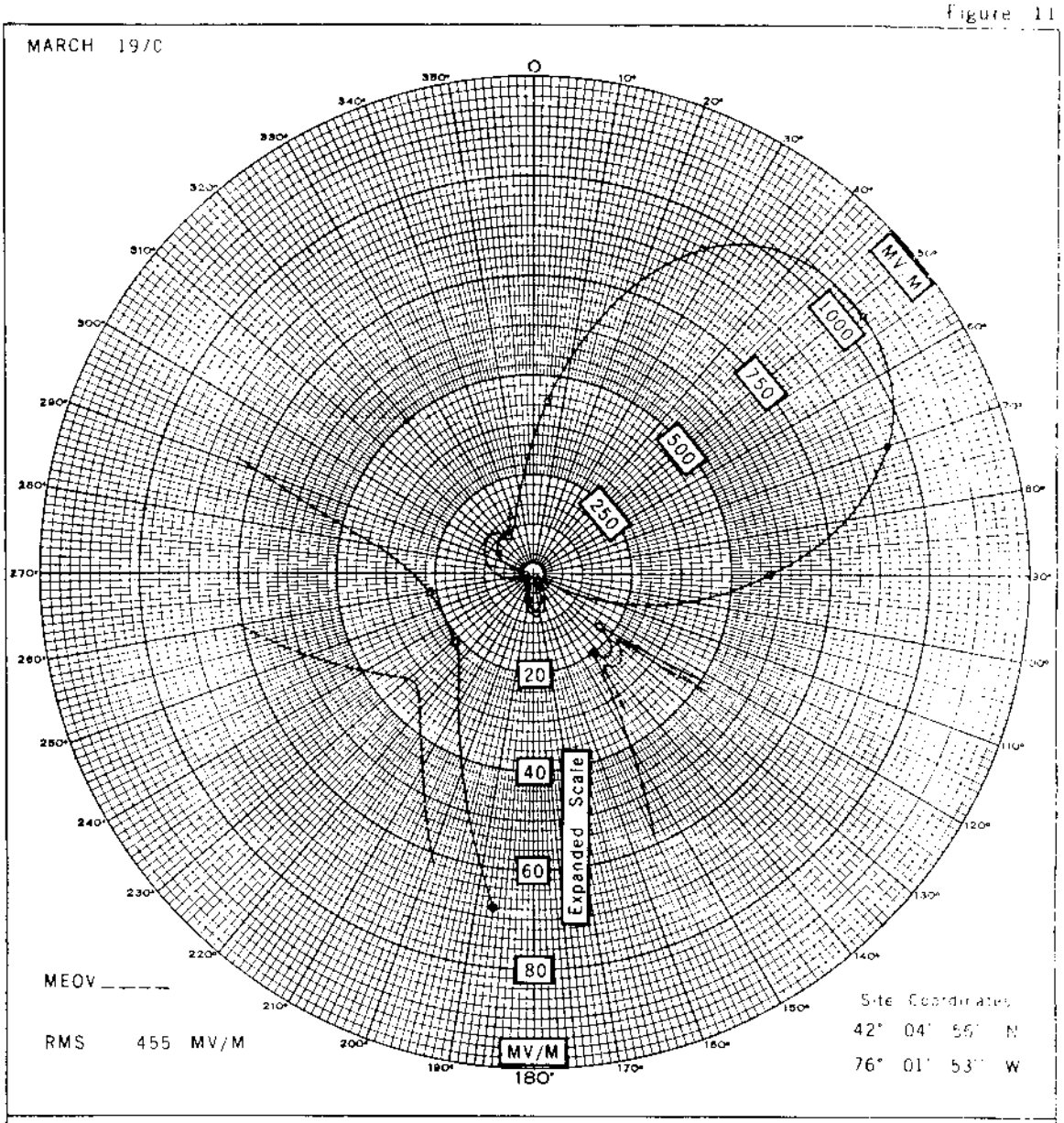
WENE

Measured Night
(2-22-71ct)

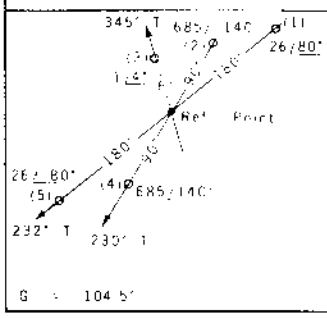
Station WENE
Endicott, New York

5kw, DA-N, U
1430 kc

Figure 11



MEASURED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN



JANUARY ENTERPRISES, INC.

ENDICOTT, NEW YORK

Jules Cohen & Associates
Consulting Electronics Engineers

WENE
1430 KHZ
5 KW U DA-N
Pattern 760320

FCC File No. BZ-7741
Accepted 1-27-71

Station WENE
Endicott, New York

1430 kc

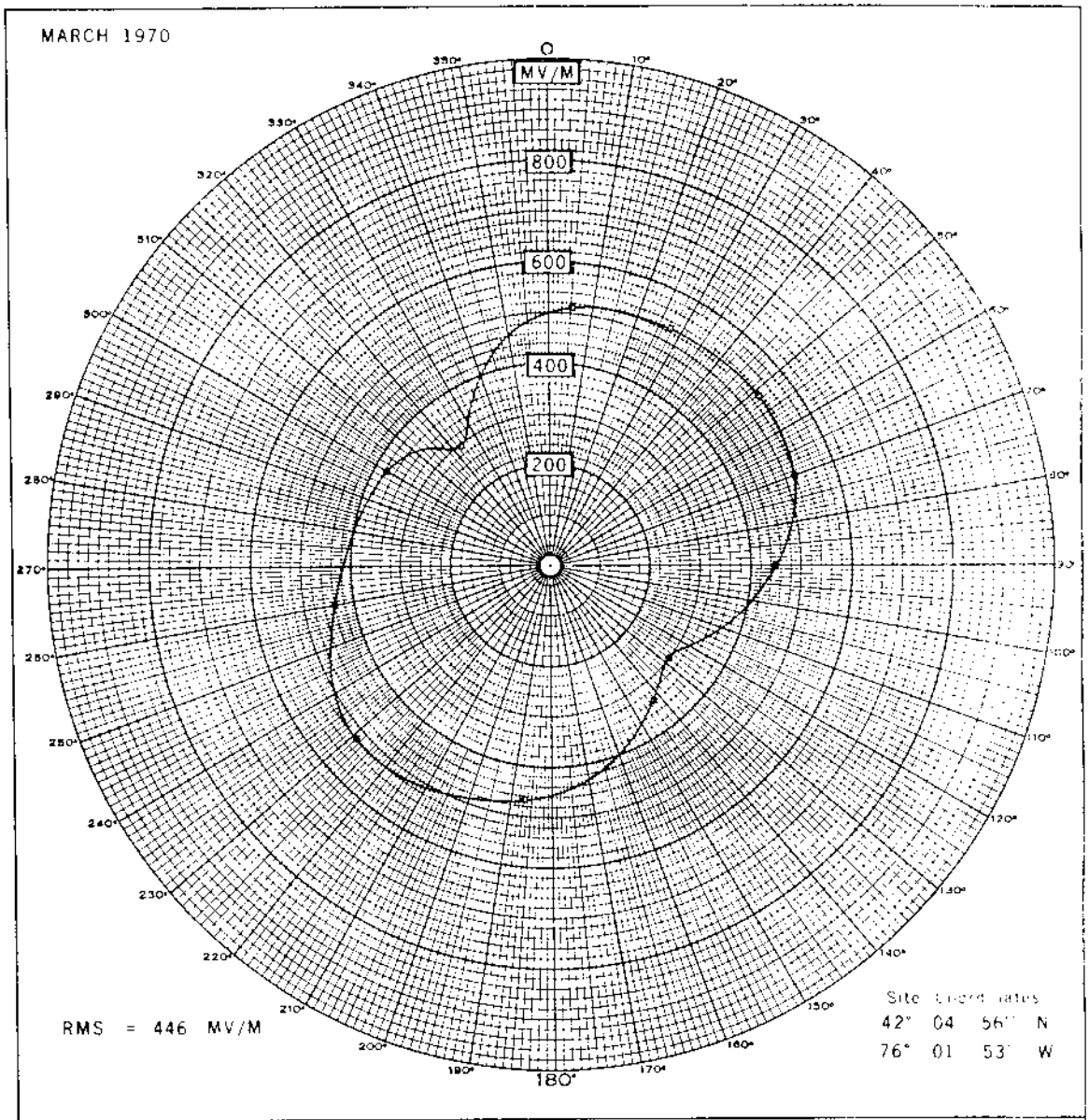
WENE

Measured Non-DA
(2-22-71ct)

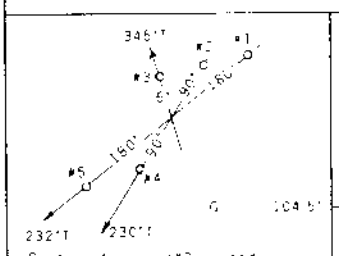
Station WENE
Endicott, New York

5kw,DA-N,U
1430 kc

Figure 9



MEASURED NONDIRECTIONAL HORIZONTAL PLANE RADIATION PATTERN



JANUARY ENTERPRISES, INC.

ENDICOTT, NEW YORK

Jules Cohen & Associates
Consulting Electronics Engineers

WENE

1430 KHZ

5 KW U DA N

Pattern No. 70u320

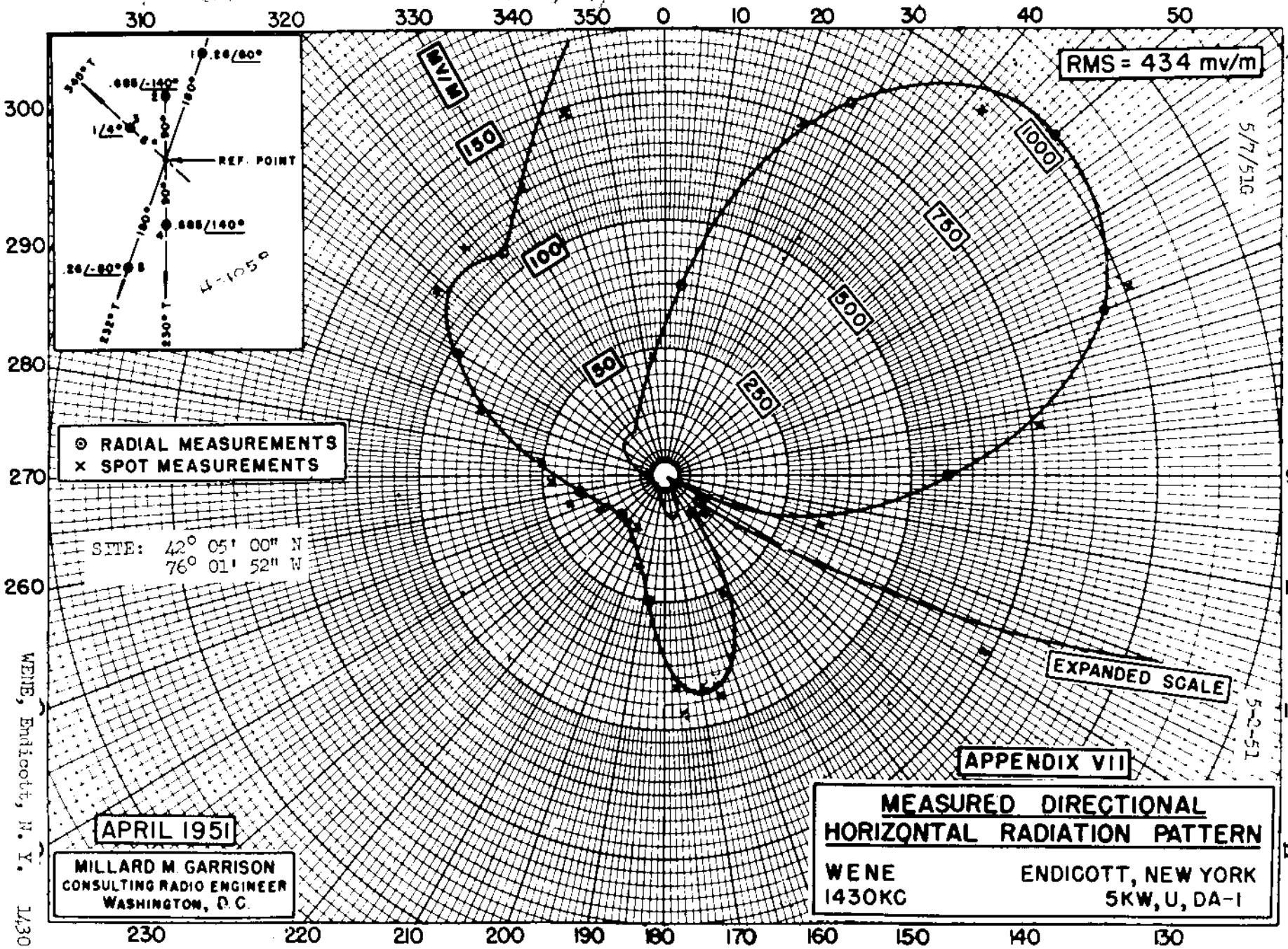
FCC File No.BZ-7741
Accepted 1-27-71

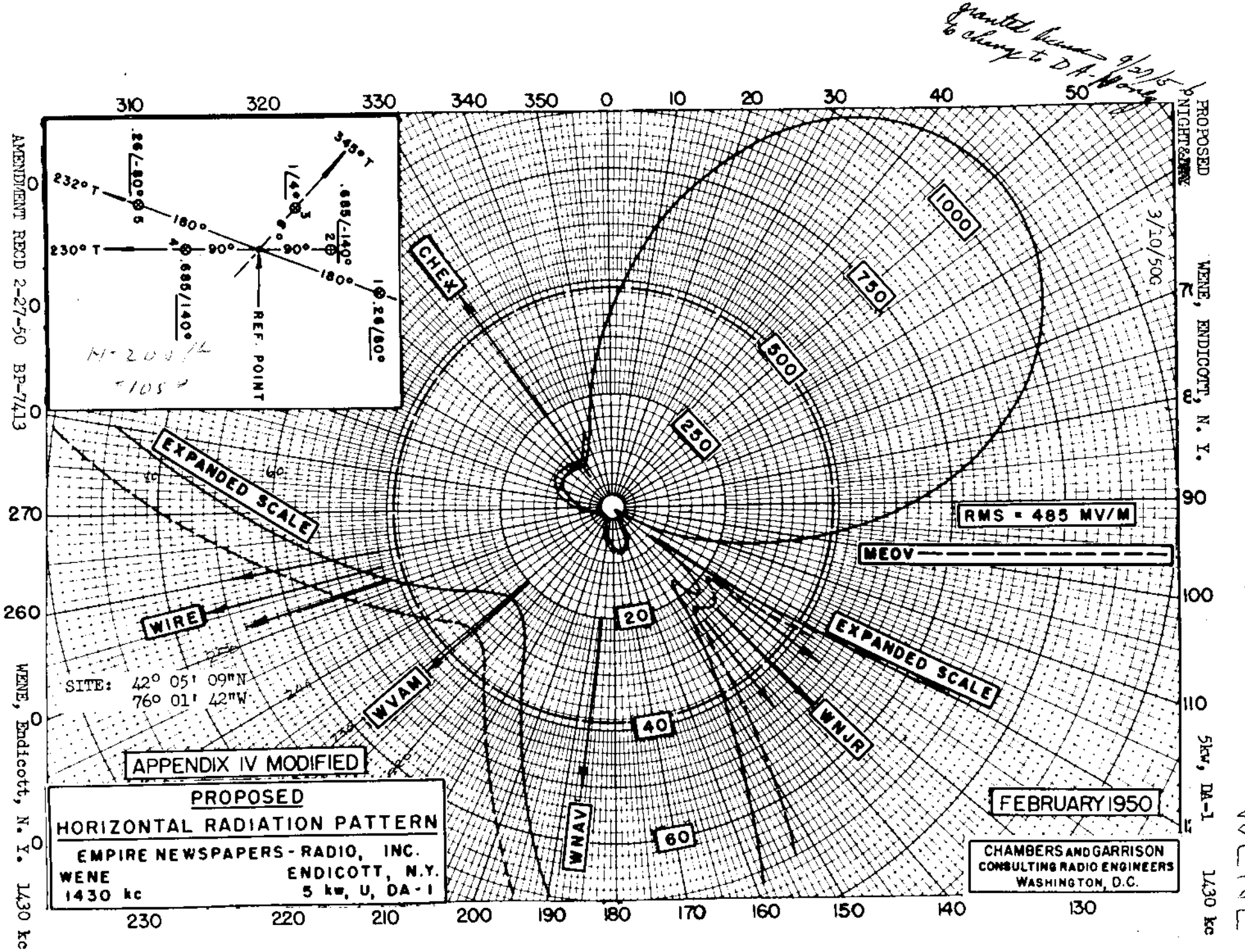
Station WENE
Endicott, New York

1430 kc

granted license 9/27/55 to change to DA-N only

CHANGE 6/21/55 TO DA-N




PROPOSED NIGHT & DAY
WENE, ENDICOTT, N. Y.
3/10/50G
5kw, DA-1
1430 kc
AMENDMENT RECD 2-27-50 BP-7413
WENE, Endicott, N. Y. 1430 kc
310 320 330 340 350 0 10 20 30 40 50
230 220 210 200 190 180 170 160 150 140 130
270 260
90 100 110
1000
750
500
250
20
40
60
CHEX
WIRE
WVAM
WNAV
WNJR
EXPANDED SCALE
EXPANDED SCALE
RMS = 485 MV/M
MEOV
REF. POINT
232° T
230° T
345° T
180°
90°
90°
180°
SITE: 42° 05' 09"N
76° 01' 42"W
APPENDIX IV MODIFIED
PROPOSED
HORIZONTAL RADIATION PATTERN
EMPIRE NEWSPAPERS - RADIO, INC.
WENE
1430 kc
ENDICOTT, N.Y.
5 kw, U, DA-1
FEBRUARY 1950
CHAMBERS AND GARRISON
CONSULTING RADIO ENGINEERS
WASHINGTON, D.C.

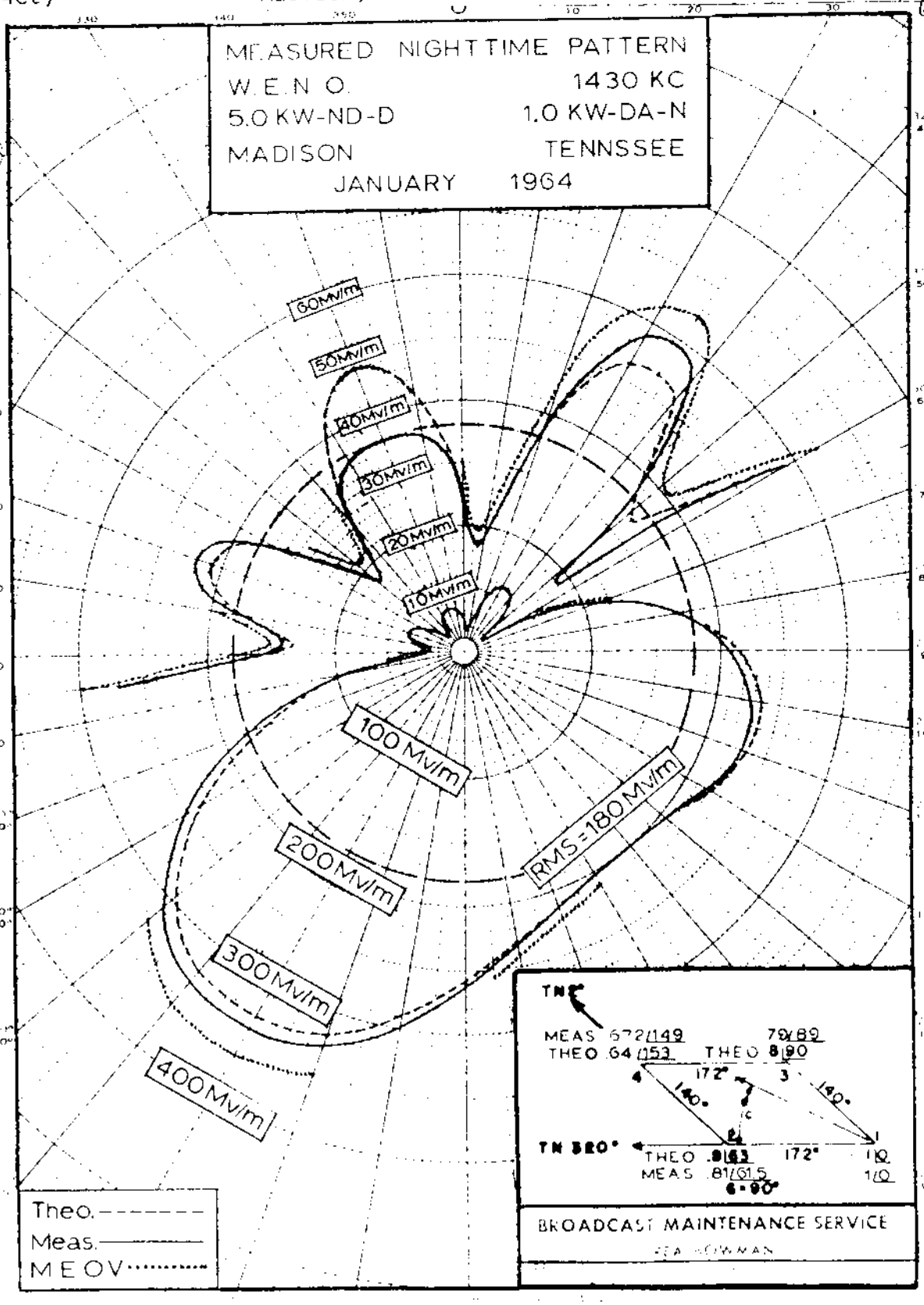
WENE

WENO

Measured Night
(4-24-64ct)

Station WENO
Madison, Tennessee

1kw,5kw-LS,DA-N,U
1430 kc



FCC File No. BL-10528
Accepted 4-21-64

Station WENO
Madison, Tennessee

1430 kc

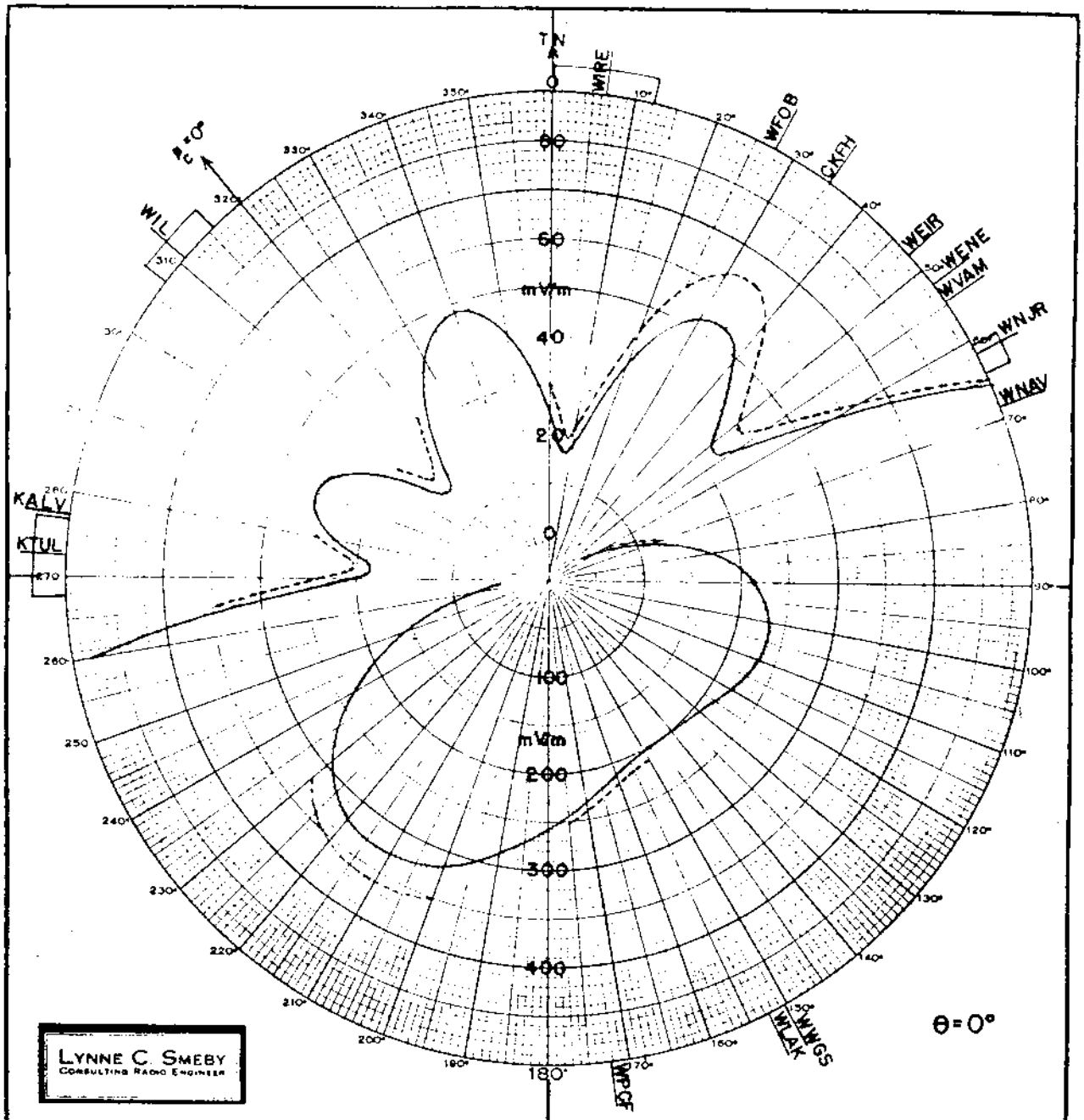
WENO

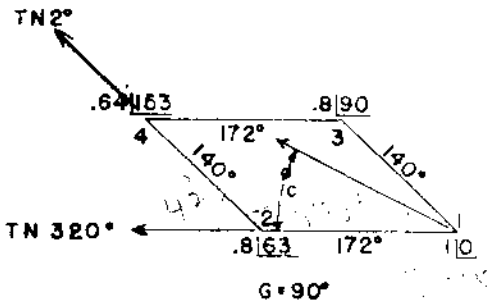
Proposed Night
(12-19-61ct)

Station WENO
Madison, Tennessee

1kw,5kw-LS,DA-N,U
1430 kc

-763
center of
directional
transmitted
radiation
A-N





HORIZONTAL PLANE PATTERN

WENO
MADISON, TENNESSEE

1430 KC PRESENT 5 KW-D
1430 KC PROPOSED 5 KW-D ; 1 KW N-DA
FEBRUARY 1, 1961

—— COMPUTED N. LATI. 36° 16' 19"
----- MEOV " W. LONG. 86° 42' 53"
RMS = 177 mV/m

LYNNE C. SMEBY, CONSULTING RADIO ENGINEER
WASHINGTON 15, D. C.
FIGURE 1

FCC File No.BP-15188
Accepted 12-13-61

Station WENO
Madison, Tennessee

1430 kc

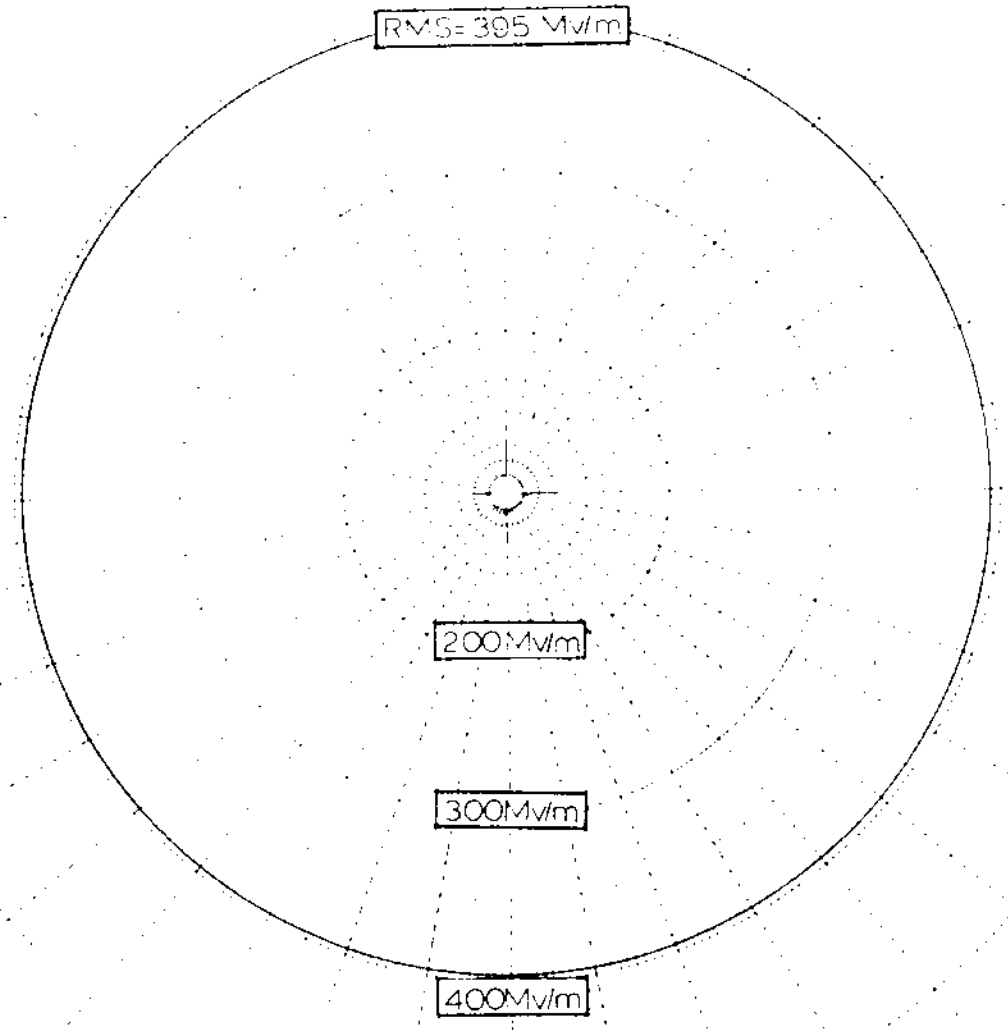
WENO

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

Station WENO
Madison, Tennessee

1kw,5kw-LS,DA-N,U
1430 kc

MEASURED NON DIRECTIONAL PATTERN
WENO 5KW-ND-D 1 KW-DA-N 1430KC
MADISON TENNESSEE
JANUARY 1964



File No. BL-10528
Accepted 4-21-64

Station WENO
Madison, Tennessee

1430 kc

WFOB

MEASURED
DAY (6/6/56G)

STATION WFOB
FOSTORIA, OHIO

1 KW
DA-2,U

1430 KC

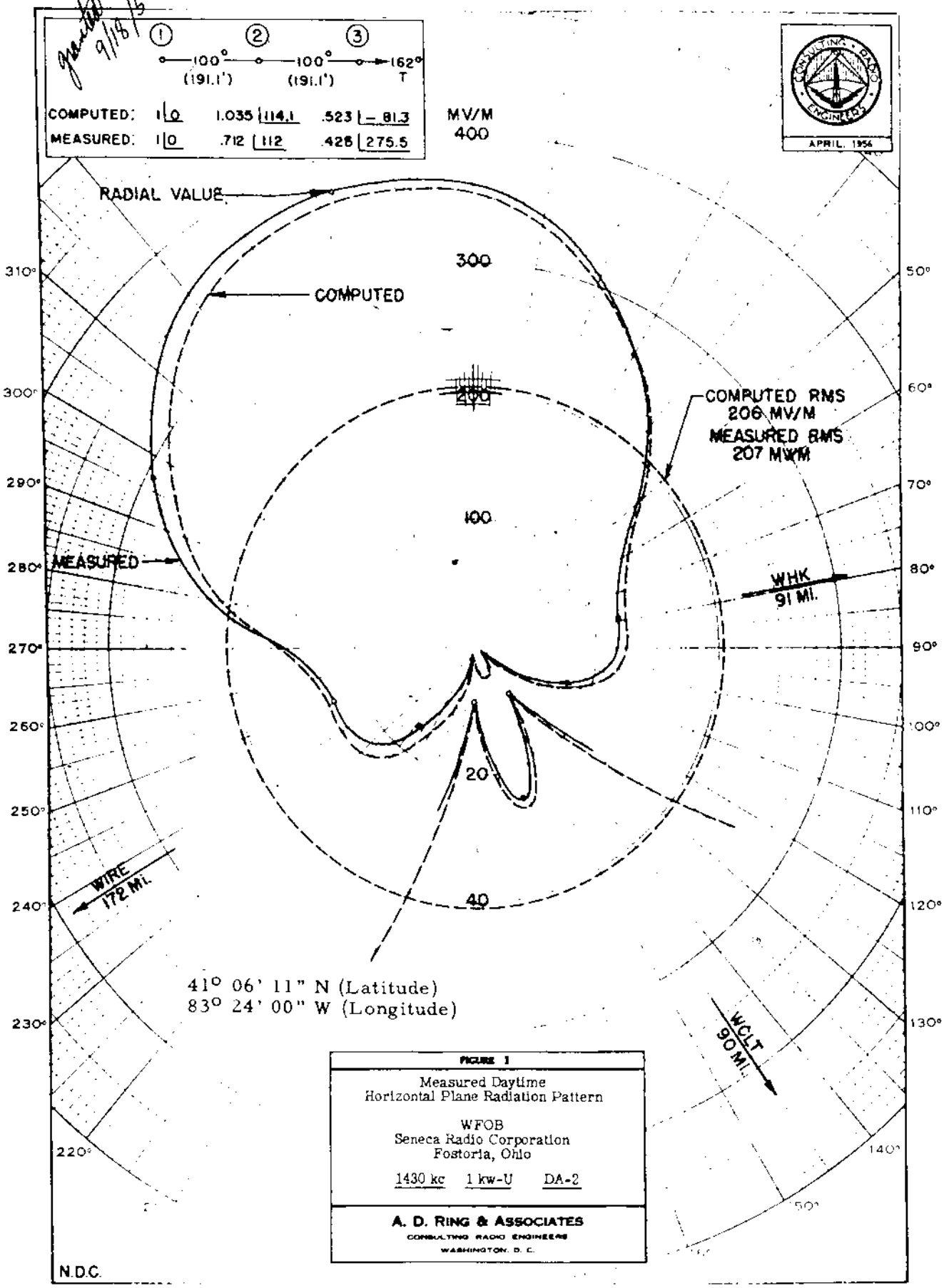


FIGURE 1

Measured Daytime
Horizontal Plane Radiation Pattern

WFOB
Seneca Radio Corporation
Fostoria, Ohio

1430 kc 1 kw-U DA-2

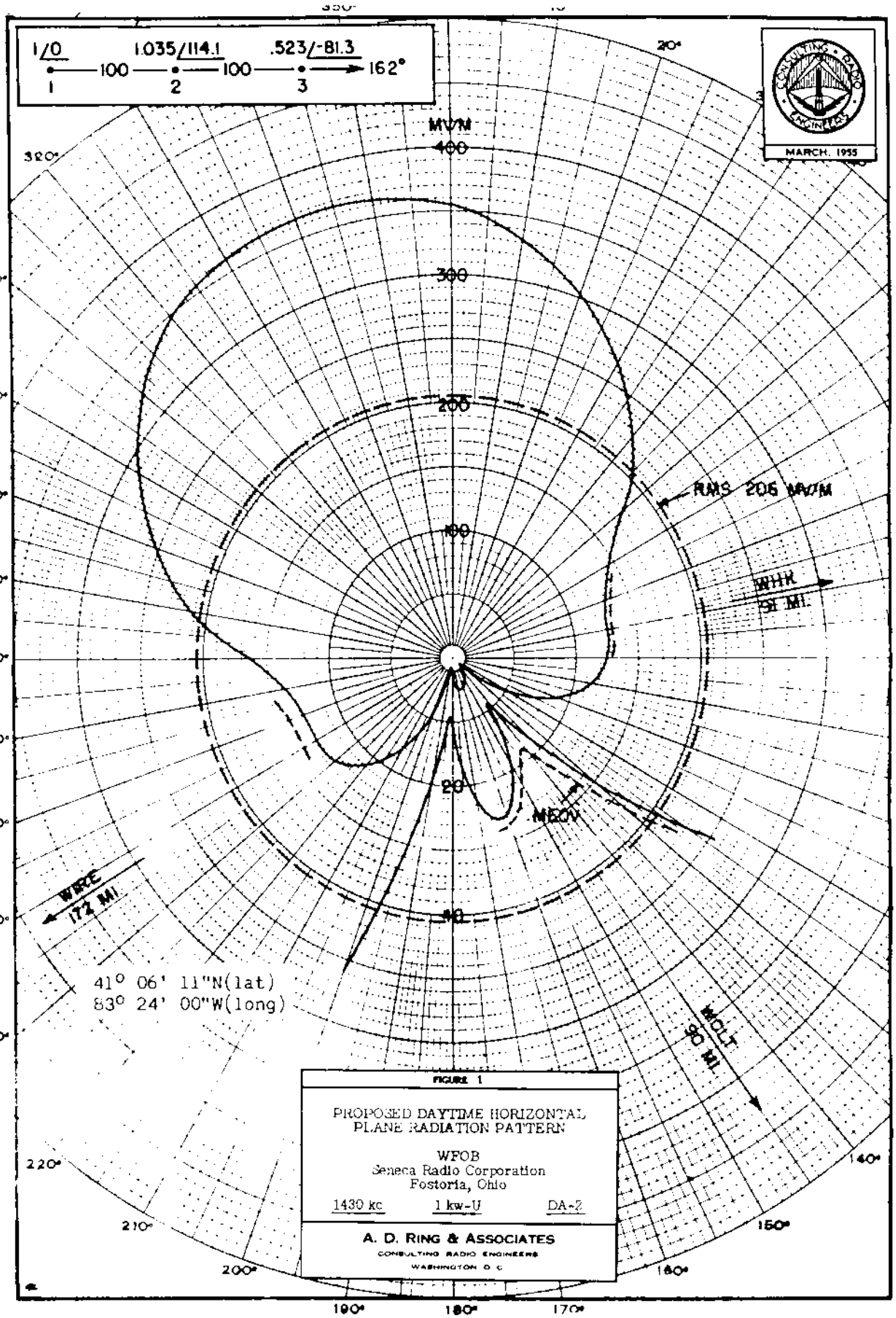
A. D. RING & ASSOCIATES
CONSULTING RADIO ENGINEERS
WASHINGTON, D. C.

FCC File No. BL-6178 Accepted 5-29-56

WFOB, Fostoria, Ohio 1430 KC

WFOB

PROPOSED DAY (9/8/55G) | STATION WFOB FOSTORIA, OHIO | 1 KW DA-2, U | 1430 KC



FILE NO. BP-10007 ACCEPTED FCC 8/15/55 WFOB, Fostoria, Ohio 1430 KC

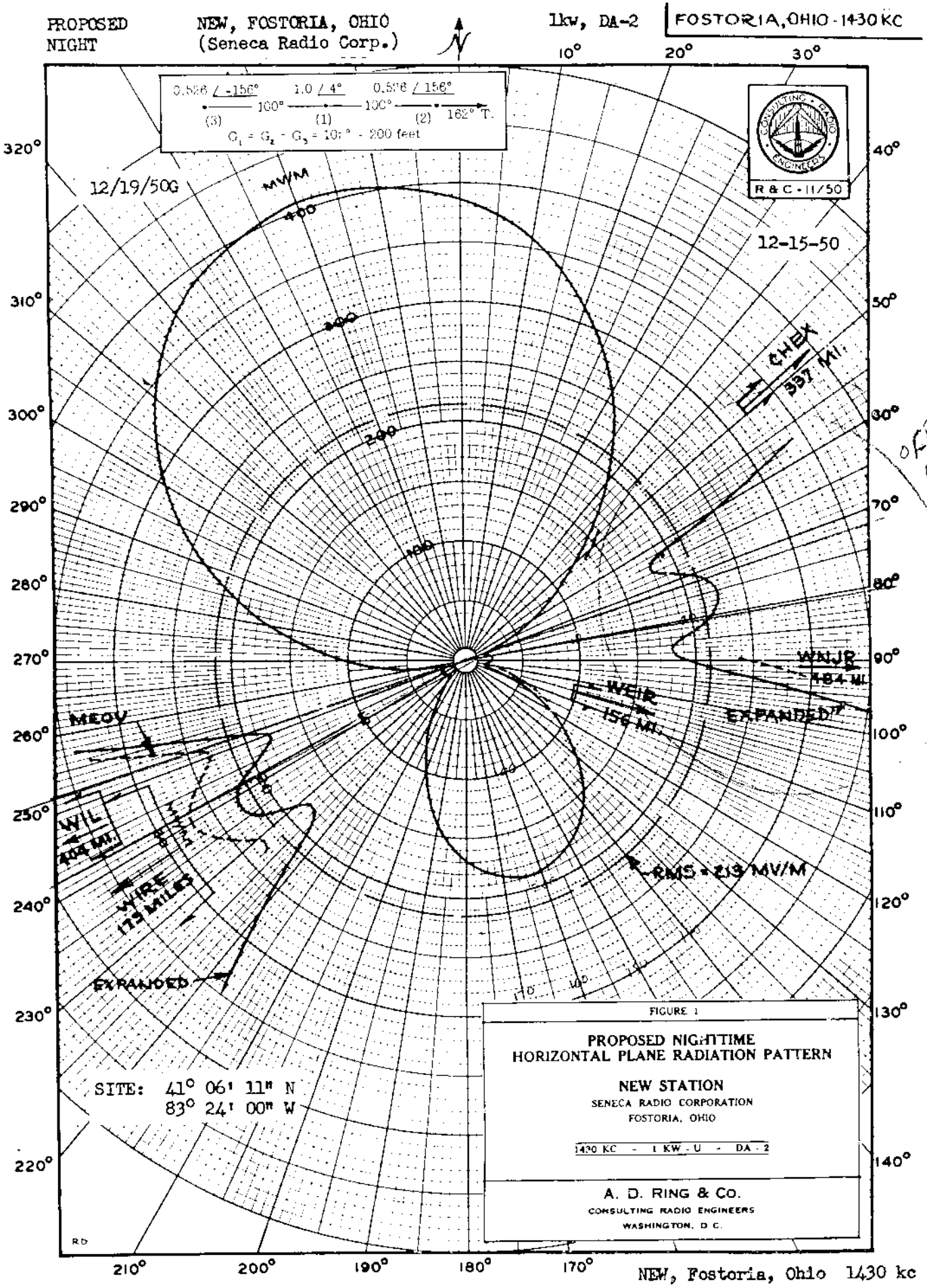
WFOB

PROPOSED NIGHT

NEW, FOSTORIA, OHIO
(Seneca Radio Corp.)

1kw, DA-2

FOSTORIA, OHIO - 1430 KC



NEW, Fostoria, Ohio 1430 kc

MEASURED NIGHT — WFOB, FOSTORIA, OHIO — 1kw, U, DA-2 — 1430 kc

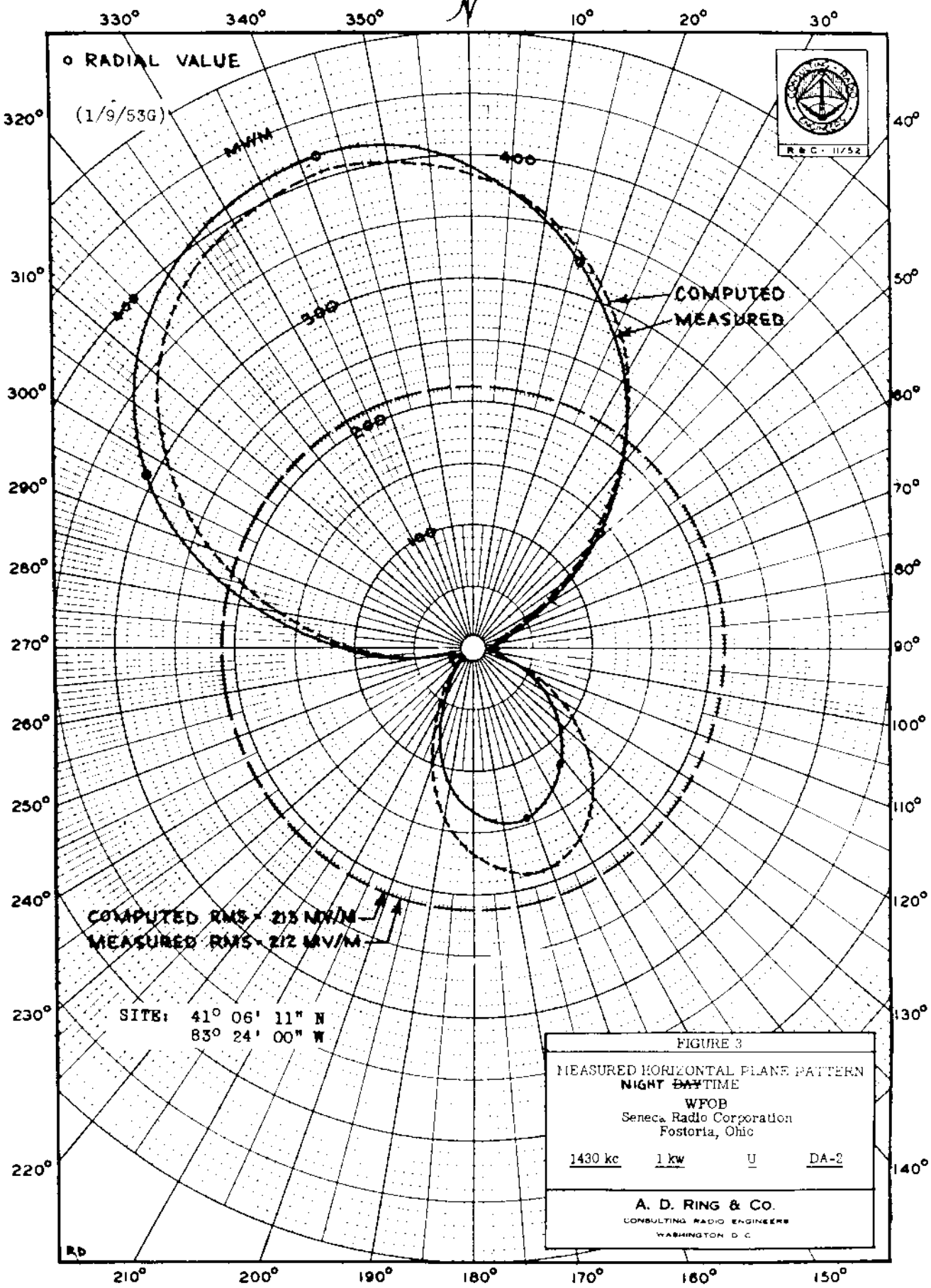


FIGURE 3

MEASURED HORIZONTAL PLANE PATTERN
NIGHT ~~DAY~~TIME
WFOB
Seneca Radio Corporation
Fostoria, Ohio

1430 kc — 1 kw — U — DA-2

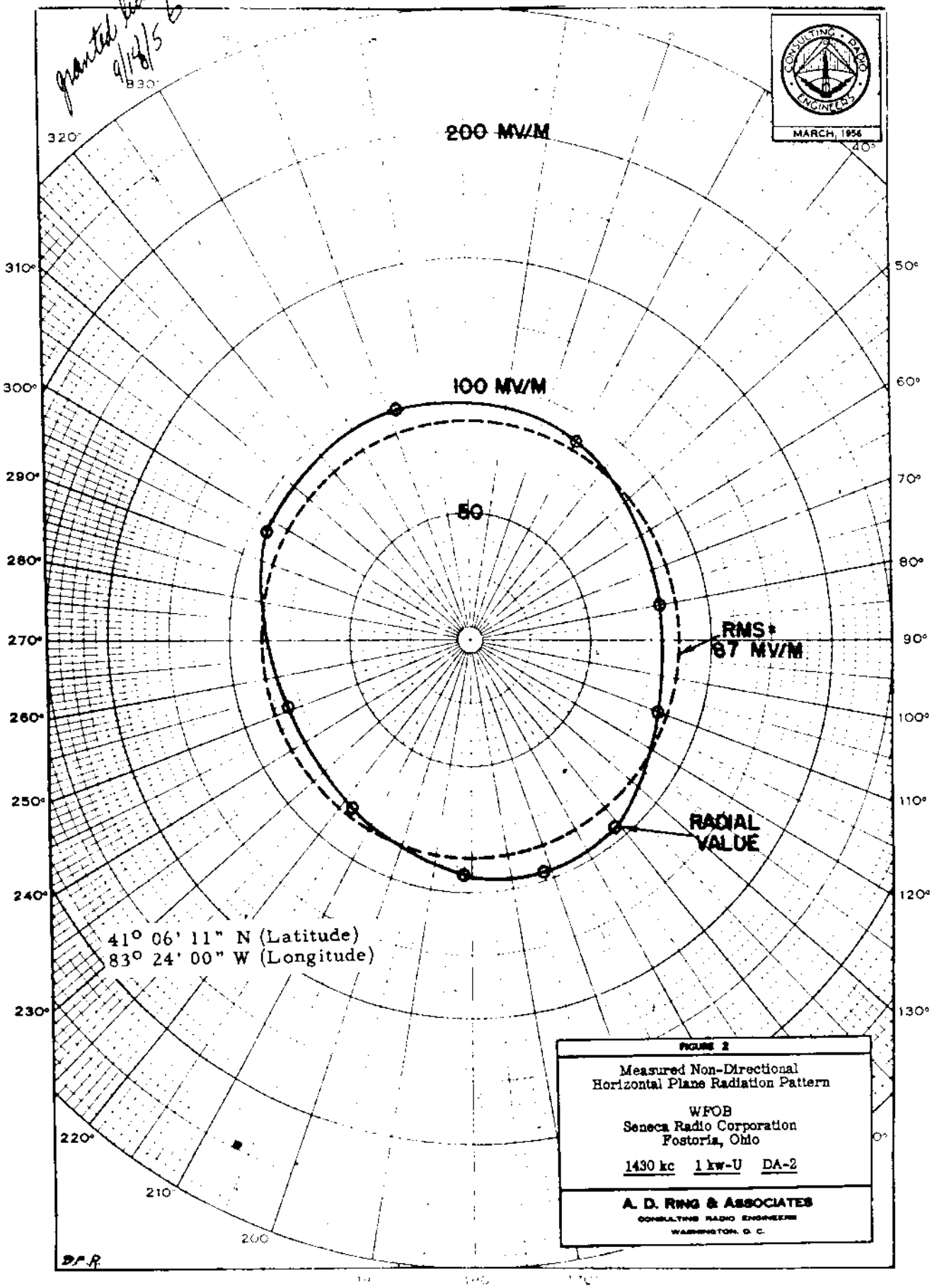
A. D. RING & CO.
CONSULTING RADIO ENGINEERS
WASHINGTON D. C.

FCC FILE NO. BL-4857 RECD 11/28/52 — WFOB, Fostoria, Ohio — 1380 kc

WFOB

MEASURED NON-DA STATION WFOB 1 KW
(6/6/56G) FOSTORIA, OHIO DA-2, U 1430 KC

granted license 9/14/56



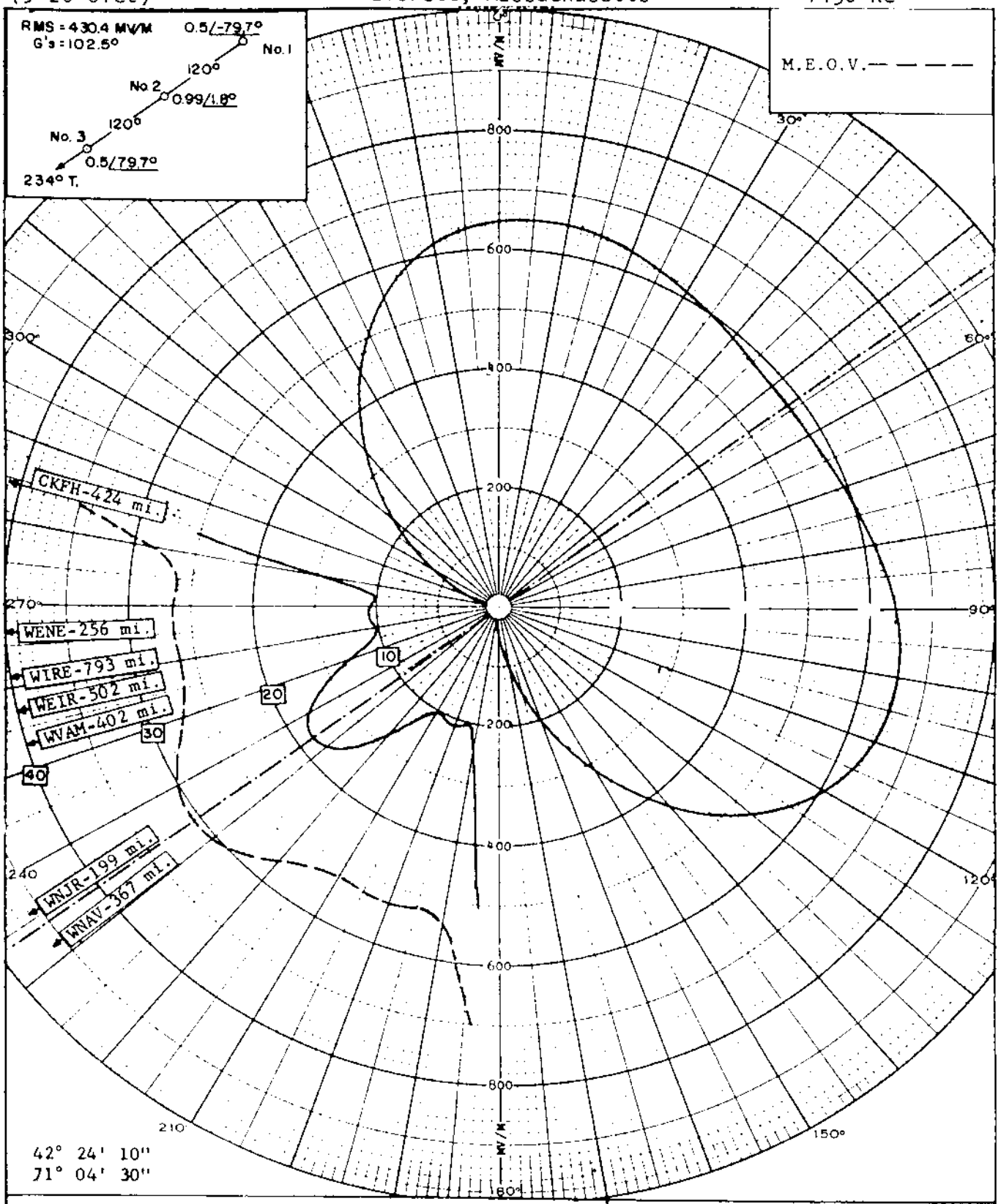
FCC File No. BL-6178 Accepted 5-29-56 WFOB, Fostoria, Ohio 1430 KC

WHIL

PROPOSED NIGHT
(9-20-61ct)

Station WHIL
Everett, Massachusetts

5kw,DA-N,U
1430 kc



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

PATTERN: Proposed Nighttime Horizontal
FOR: WHIL, Everett, Mass.
POWER: 5 KW FREQ: 1430 KC
DATE: 12/9/60

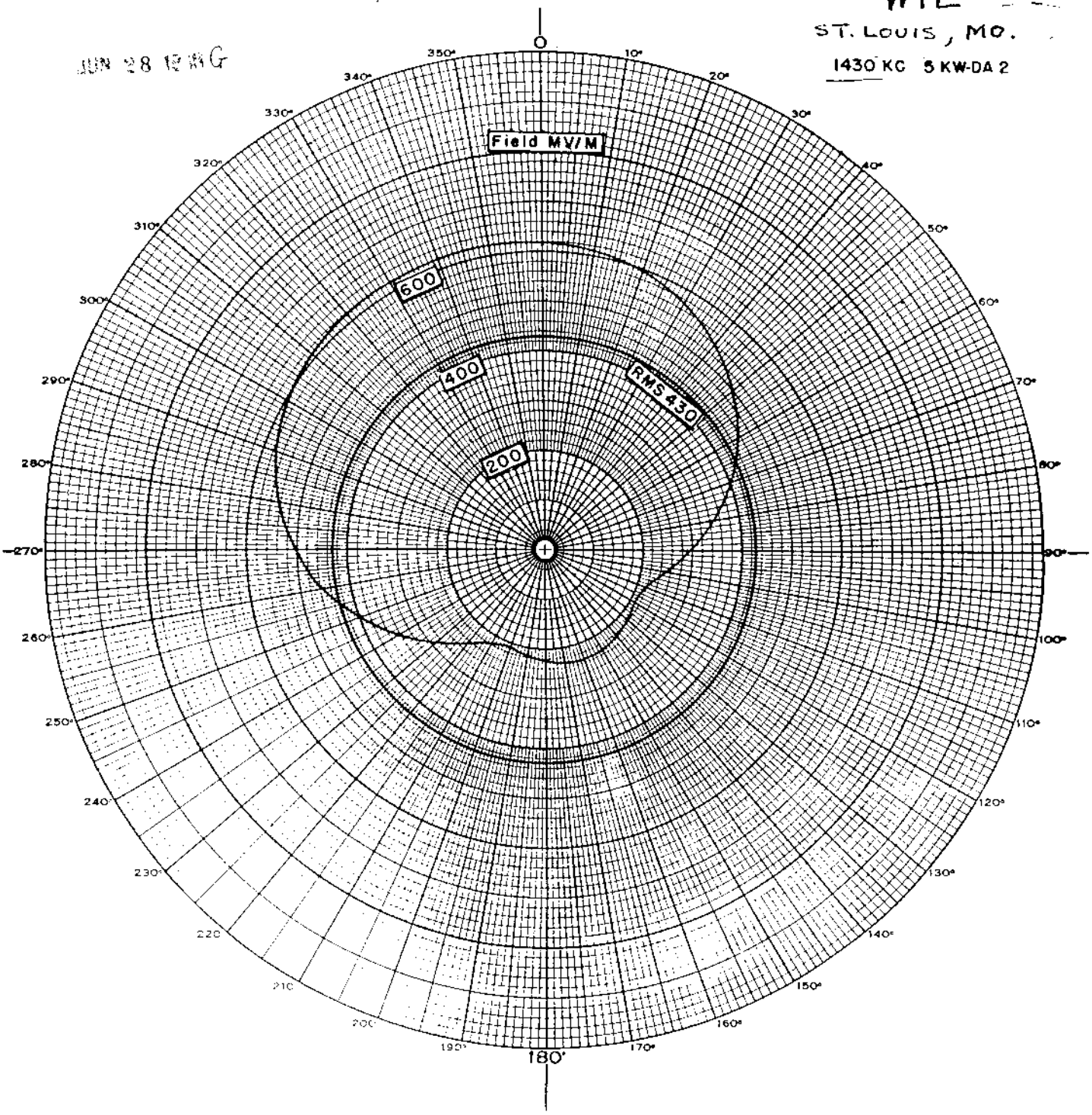
FCC File No.BP-15030
Accepted 8-30-61

Station WHIL
Everett, Massachusetts

1430 kc

WIL
ST. LOUIS, MO.
1430 KC 5 KW-DA 2

JUN 28 1948

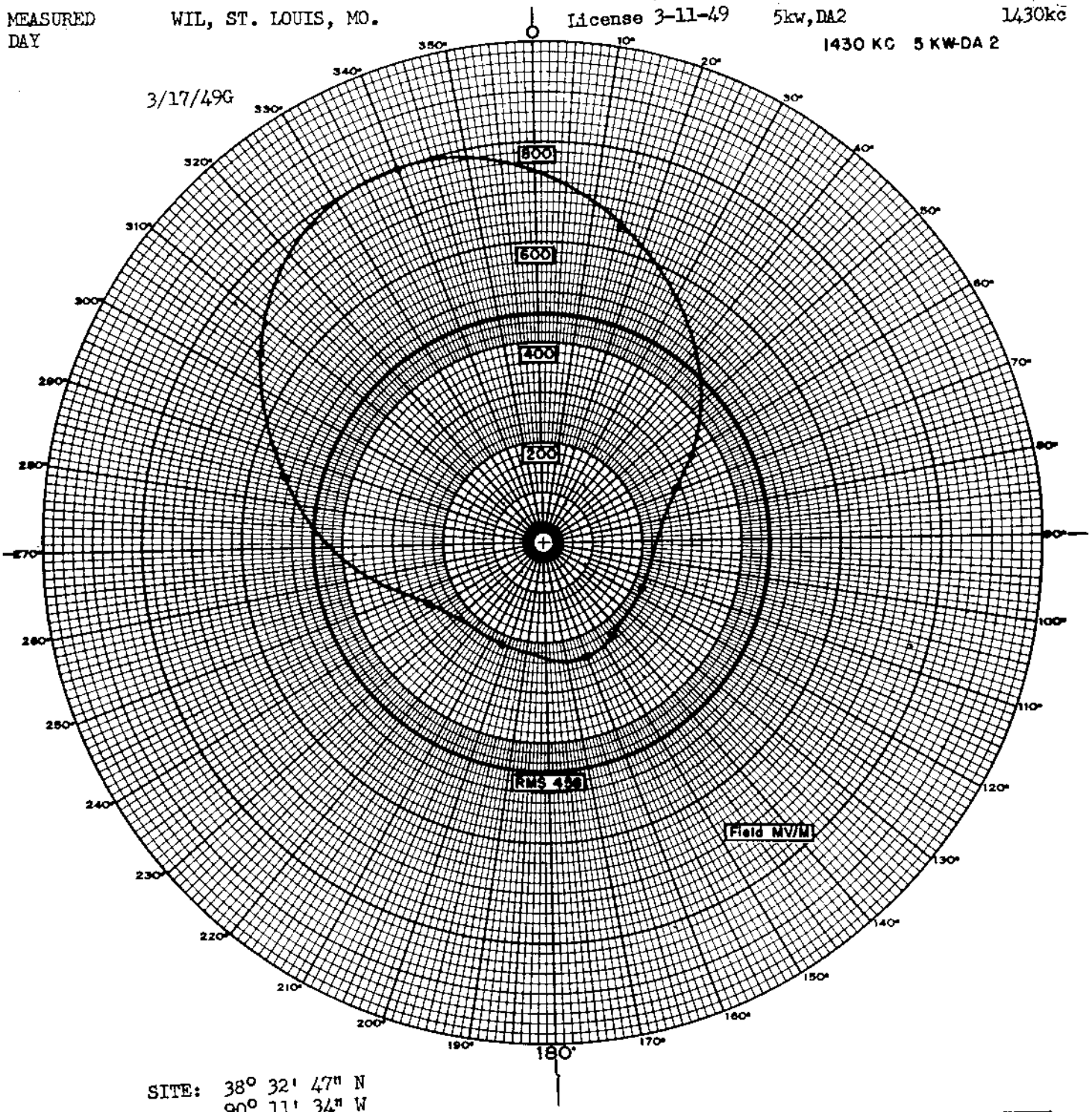


MISSOURI BROADCASTING CORP. ST. LOUIS, MISSOURI		Figure 3 Series 480419C
		1430 KC 5000 WATTS DAY
0.5∠-110Ω N 1∠0Ω SPACING 90° H = 101° 340°	PROPOSED DIRECTIONAL ANTENNA PATTERN	FRANK H. McINTOSH *Consulting Radio Engineer* Washington, D.C.

WIL

MEASURED DAY WIL, ST. LOUIS, MO. License 3-11-49 5kw,DA2 1430kc

3/17/49G



SITE: 38° 32' 47" N
90° 11' 34" W

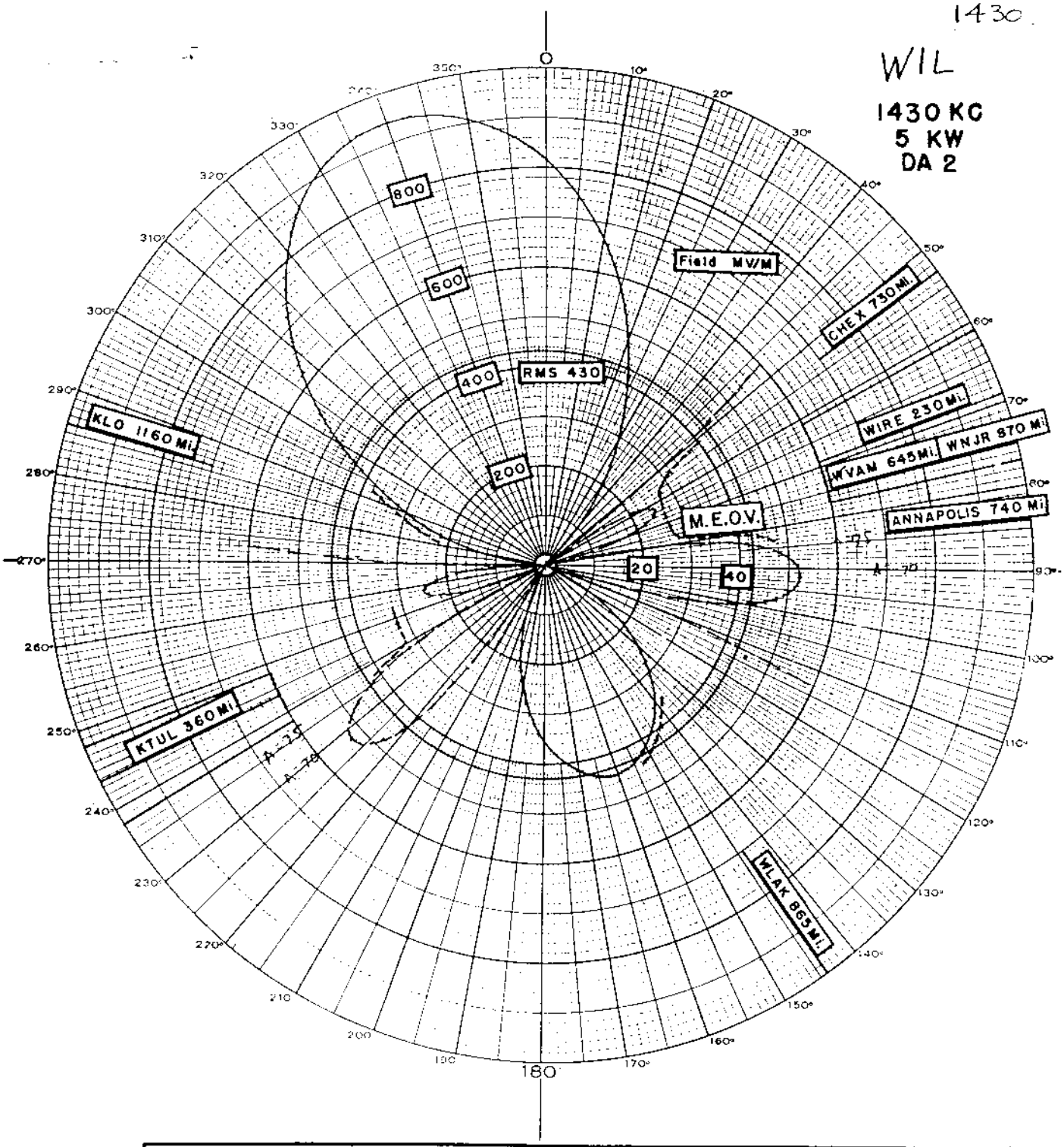
STATION WIL ST. LOUIS, MISSOURI		FIGURE 6A SERIES W49031O 1430 KC 5000 WATTS DAY
0.6∠-110° N 120° SPACING 90° H = 101° 340°	MEASURED DIRECTIONAL ANTENNA PATTERN	FRANK H. McINTOSH *Consulting Radio Engineer* Washington, D.C.

WIL, St. Louis, Mo. 1430 kc

ST. LOUIS, MO
1430

WIL

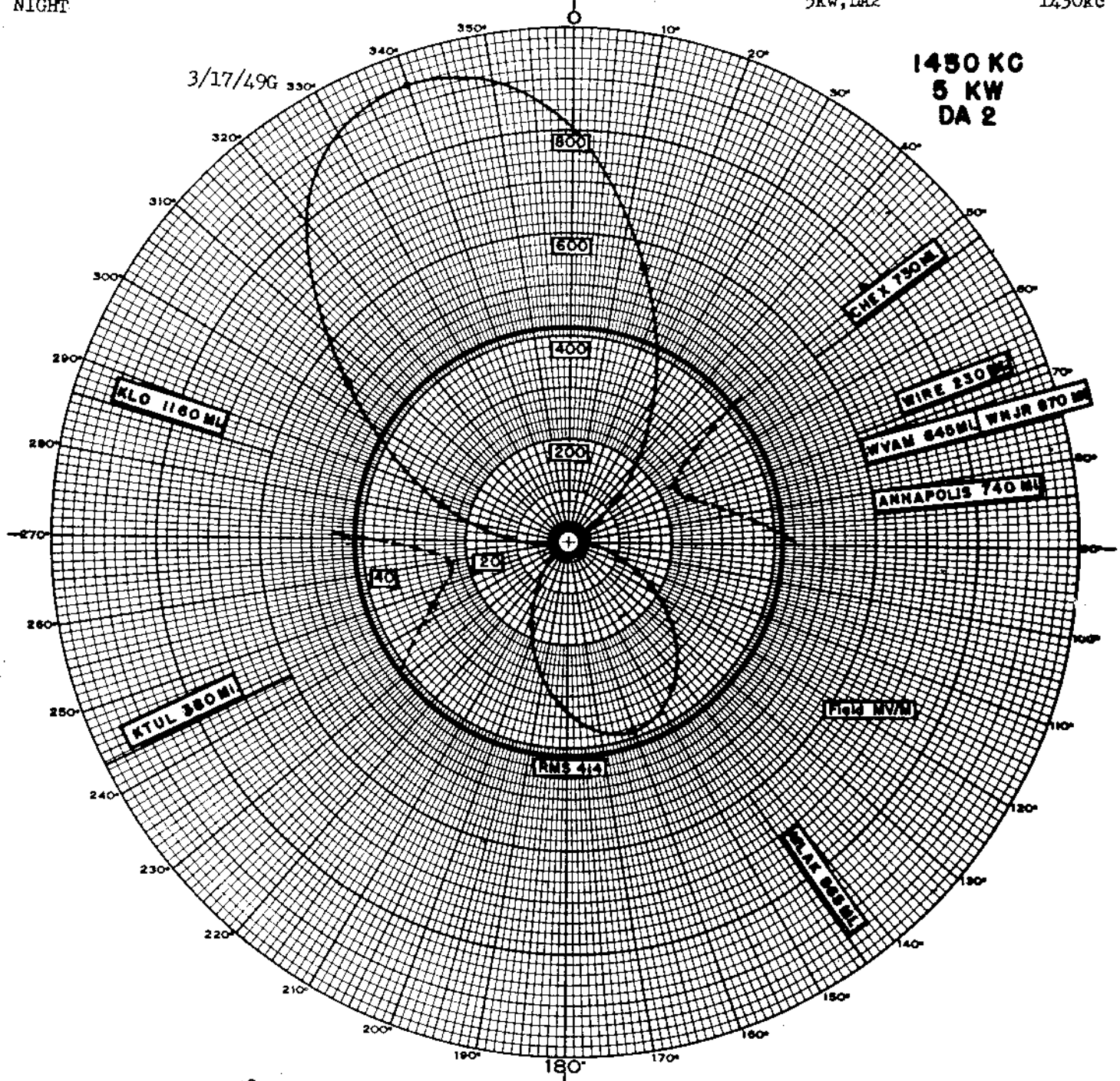
1430 KC
5 KW
DA 2



MISSOURI BROADCASTING CORP. ST. LOUIS, MISSOURI		Figure 1 Series 480419W
1.0∠146° S 2.53∠-23.2° 2.53∠169.2° H=101° 1.0∠0° SPACING 90° 340° N	PROPOSED DIRECTIONAL ANTENNA PATTERN	1430 KC 5000 WATTS NIGHT FRANK H. McINTOSH *Consulting Radio Engineer* Washington, D.C.

WIL

MEASURED NIGHT | WIL, ST. LOUIS, MO. | License 3-11-49 | 5kw, DA2 | 1430kc



SITE: 38° 32' 47" N
90° 11' 34" W

STATION WIL ST. LOUIS, MISSOURI	FIGURE 6B SERIES W490310
1.0∠146° 2.53∠-23.2° 2.53∠169.2° H = 101° 1.0∠0° SPACING 90° 340° N	1430 KC 5000 WATTS NIGHT
MEASURED DIRECTIONAL ANTENNA PATTERN	FRANK H. McINTOSH *Consulting Radio Engineer* Washington, D.C.

WION

PROPOSED DAY
(11-17-58g)

Station WION
Ionia, Michigan

5kw, DA-D, D
1430 KC

12-14 60
Granted Cpto
increase power
to 5kw DA-D
pattern unchanged.

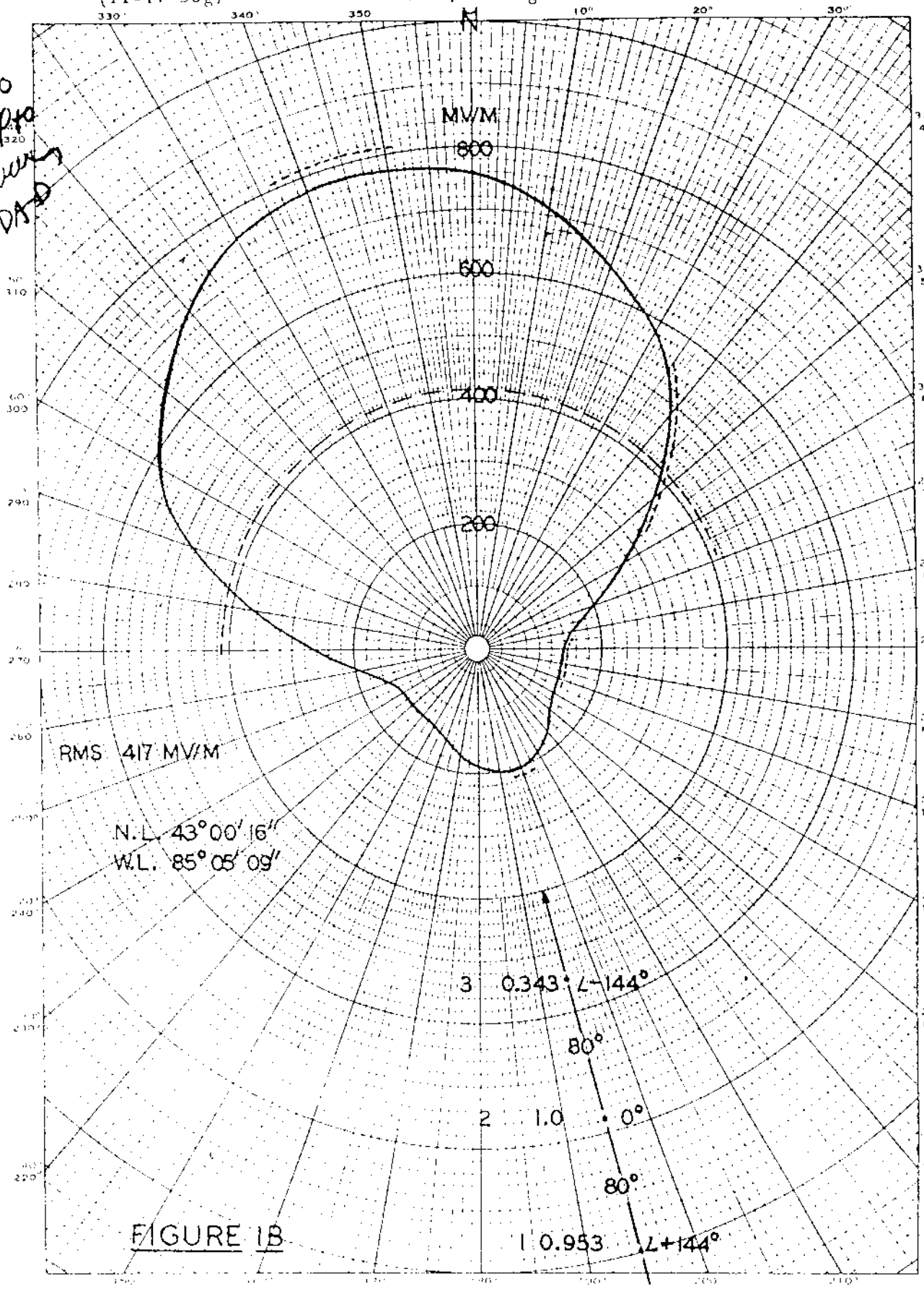


FIGURE 1B

FCC File No. BP-12,445
Accepted 10-29-58

WION
Ionia, Michigan

1430 KC

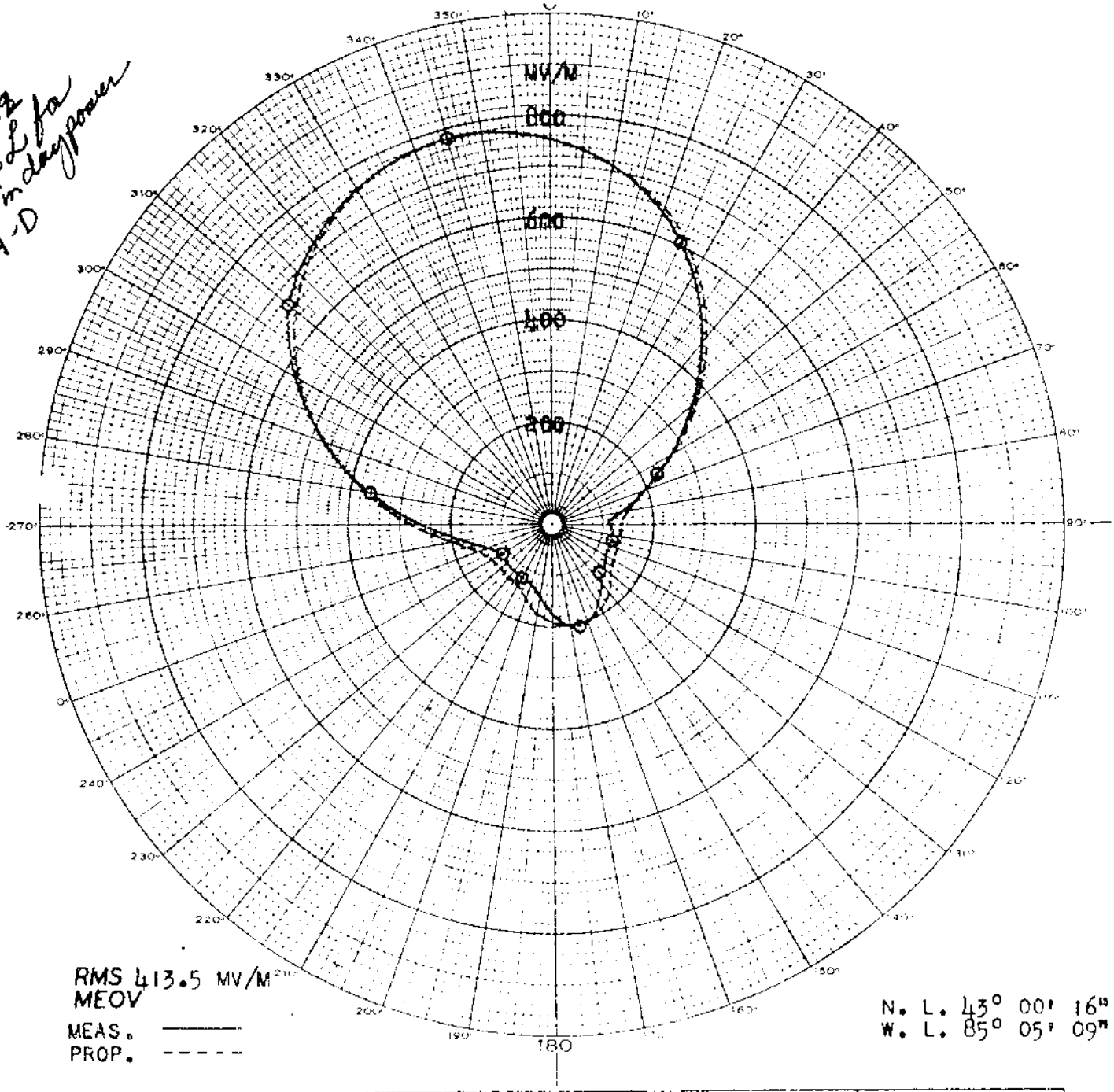
WION

Measured Day
(7-27-62ct)

Station WION
Ionia, Michigan

5kw,DA-D,D
1430 kc

4/28/62 unitil L for decrease in day power and DA-D



RMS 413.5 MV/M
MEOV

MEAS. ———
PROP. - - - - -

N. L. 43° 00' 16"
W. L. 85° 05' 09"

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS	FIGURE 2	STATION DATA
G = 102° 345° T. No. 3 .379/-16P° S No. 2 1.0/0° S No. 1 .807/+149° S= 80°	TOWER / ELECTRICAL HEIGHT / SPACING / PHASING / FIELD RATIO DAYTIME OPERATION	MEASURED WION DAYTIME PATTERN - - - MAY, 1962 θ° 0°	CALL WION FREQ 1430 KC POWER 5 KW TYPE DA TIME DAY LAT. LONG. E.H.MUNN, JR. RADIO ENGINEER COLDWATER, MICH.

FCC File No. BL-9442
Accepted 7-13-62

Station WION
Ionia, Michigan

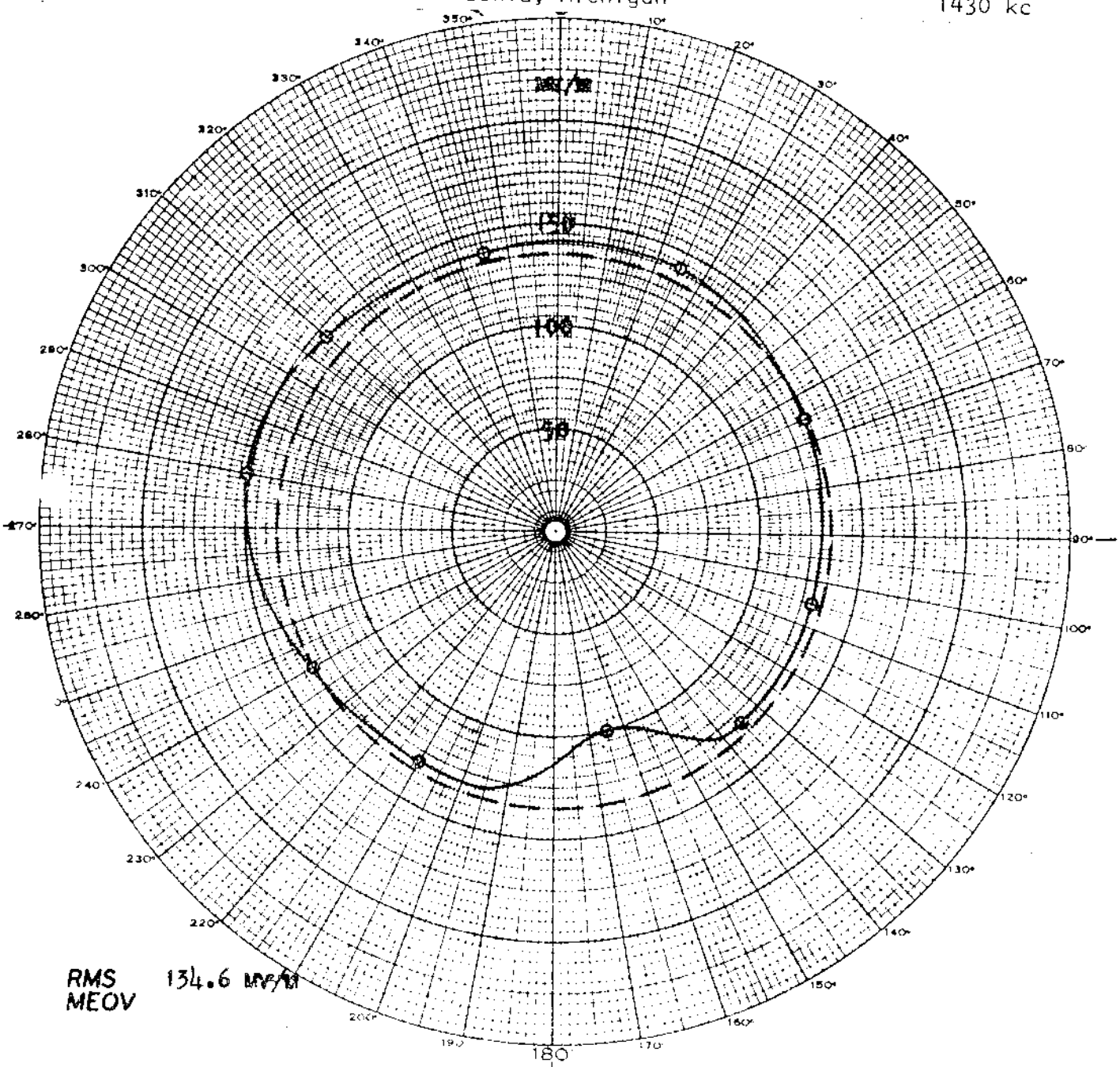
1430 kc

WION

Measured Non-DA
(7-27-62ct)

Station WION
Ionia, Michigan

5kw,DA-D,D
1430 kc



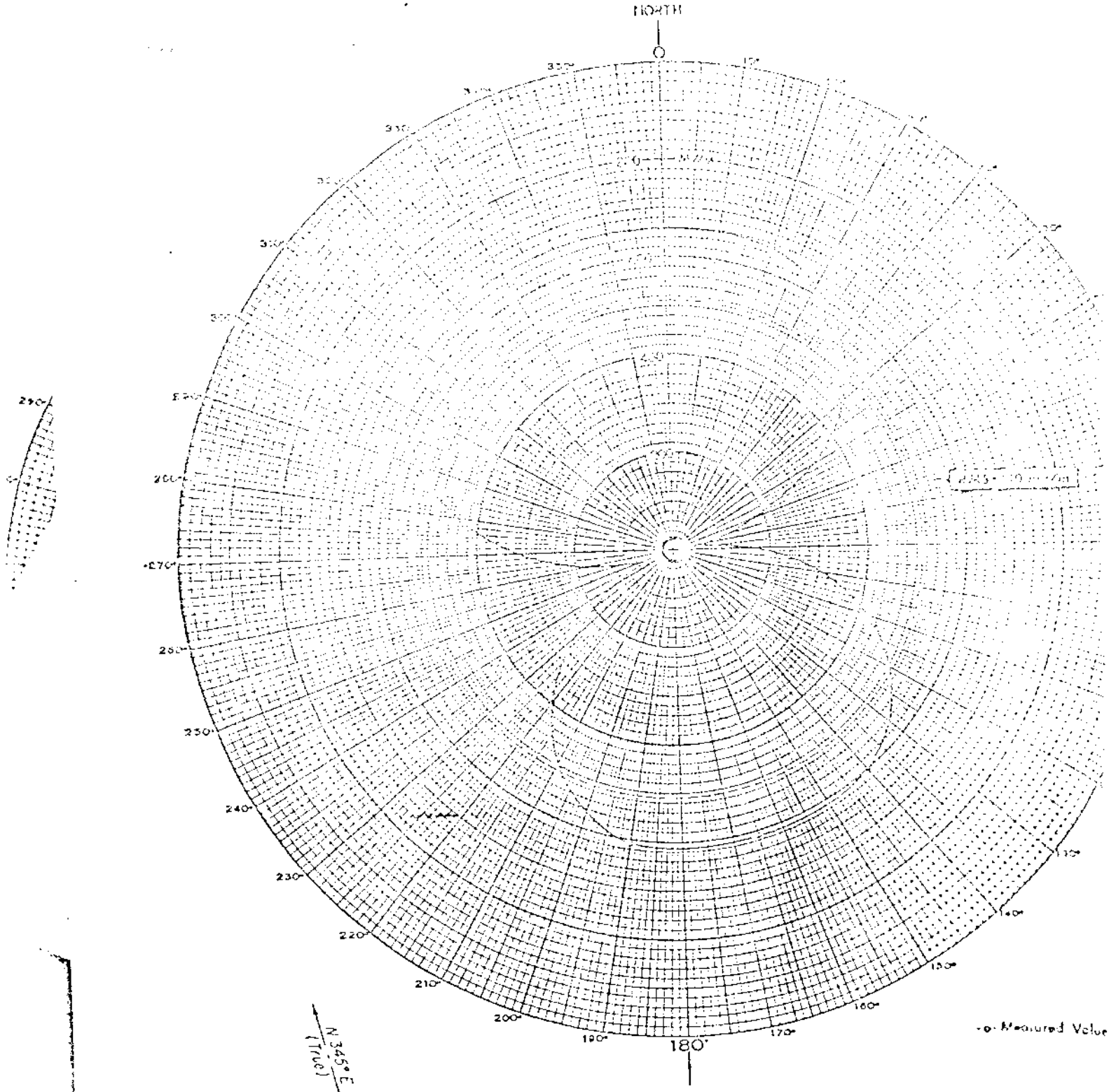
TOWER PLACEMENT SKETCH	PATTERN PARAMETERS	FIGURE 1	STATION DATA
345° T. NON-DA TOWER 80° 80°	TOWER No. / ELECTRICAL HEIGHT / SPACING / PHASE / FIELD RATIO DAYTIME OPERATION ☐ NIGHTTIME OPERATION ☐	WION MEASURED NON-DIRECTIONAL FIELD FROM THE NORTH TOWER AT 0.5 KW POWER θ°	CALL WION FREQ 1430 KC POWER 0.5 KW TYPE NON-DA TIME DAY LAT. LONG. E.H.MUNN,JR. RADIO ENGINEER COLDWATER, MICH.

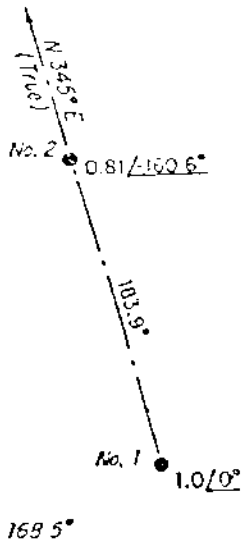
FCC File No.BL-9442
Accepted 7-13-62

Station WION
Ionia, Michigan

1430 kc

WIRE





BZ-7922

FIGURE 5 - REVISED
HORIZONTAL RADIATION PA
(DA-N OPERATION)
WIRE 5KW-U, DA-N 1430
MID AMERICA RADIO, IN
INDIANAPOLIS, INDIAN

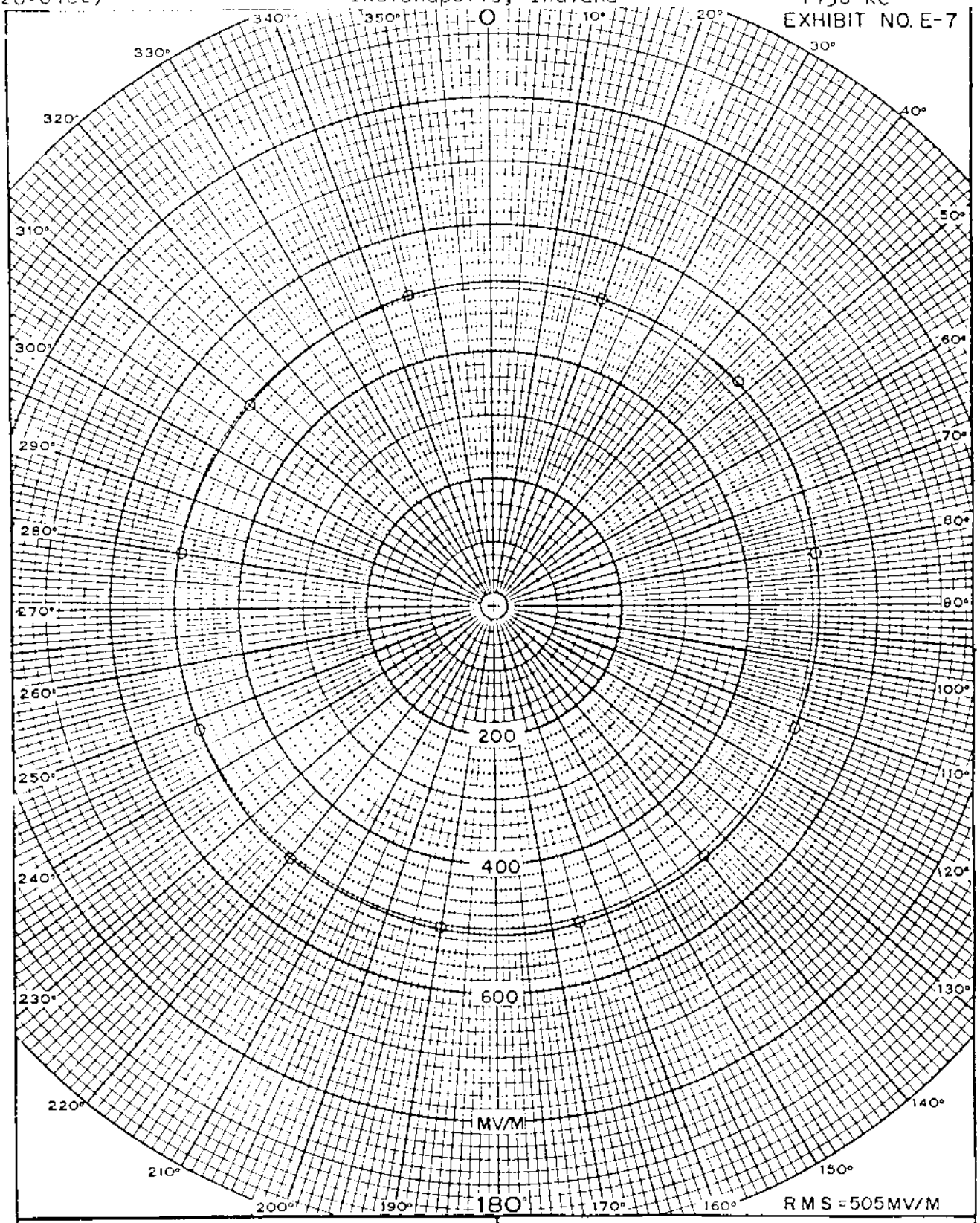
Prepared by
Lohnes and Culver Washingto

WIRE

Measured Non-DA
(5-28-64ct)

Station WIRE
Indianapolis, Indiana

5kw,DA-N,U
1430 kc
EXHIBIT NO. E-7



COMMERCIAL RADIO EQUIPMENT CO.
Radio Engineering Consultants
WASHINGTON, D. C.

MEASURED DAYTIME NON-DIRECTIONAL
WIRE INDIANAPOLIS, INDIANA
1430 KC, 5 KW-U, DA-N
DECEMBER 1963

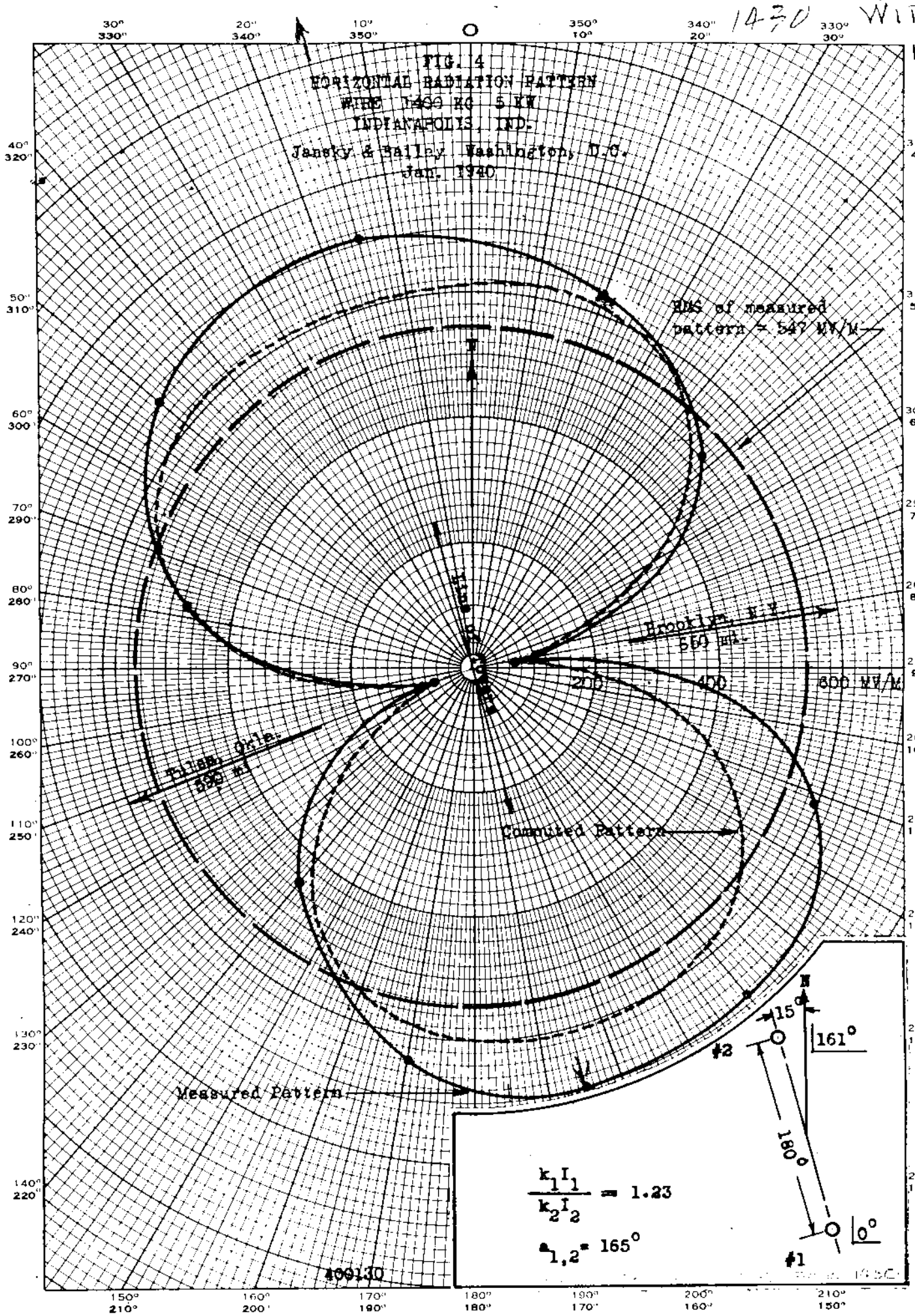
FCC File No.BZ-5203
Accepted 4-28-64

Station WIRE
Indianapolis, Indiana

1430 kc

1430 WIRE

1430



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

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

WJKB
1430KHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WJRB

Main Studio: Madison, Tennessee

Frequency: 1430 kHz

Power: 1kw Night 5kw Day

Notification List No. 1789

Date: September 12, 1980 Class: III

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

DAYTIME		NIGHTTIME	
North Latitude:	36° 16' 17"	North Latitude:	36° 16' 19"
West Longitude:	86° 42' 57"	West Longitude:	86° 42' 56"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2)
Number of elements: 6
Type of elements: Series excited, uniform cross-section, guyed, vertical steel towers.

TOWER:	SE(#1)	NE(#2)	SW(#3)	NW(#4)	SW(#5)	NW(#6)
HEIGHT ABOVE INSULATORS:	420.62'	420.62'	172.07'	172.07'(90°)	420.62'	420.62'(220°)
NIGHT PHASING:	0°	+111°	—	—	+340°	+85°
NIGHT FIELD RATIO:	1	1	—	—	0.7822	0.7822
DAY PHASING:	0°	+130°	+339°	+107°	—	—
DAY FIELD RATIO:	1	0.43	0.37	0.35	—	—

SPACING AND ORIENTATION: The towers #1, #2, #5 and #6 are located at the vertices of a parallelogram the long sides of which are 430.2' (225°) in length on a line bearing 116° true. The short sides are 153' (80°) in length on a line bearing 0° true. The towers #1, #2, #3 and #4 are located at the vertices of a parallelogram the long sides of which are 451.2' (236°) in length on a line bearing 261.5° true. The short sides are 153' (80°) in length on a line bearing 0° true.

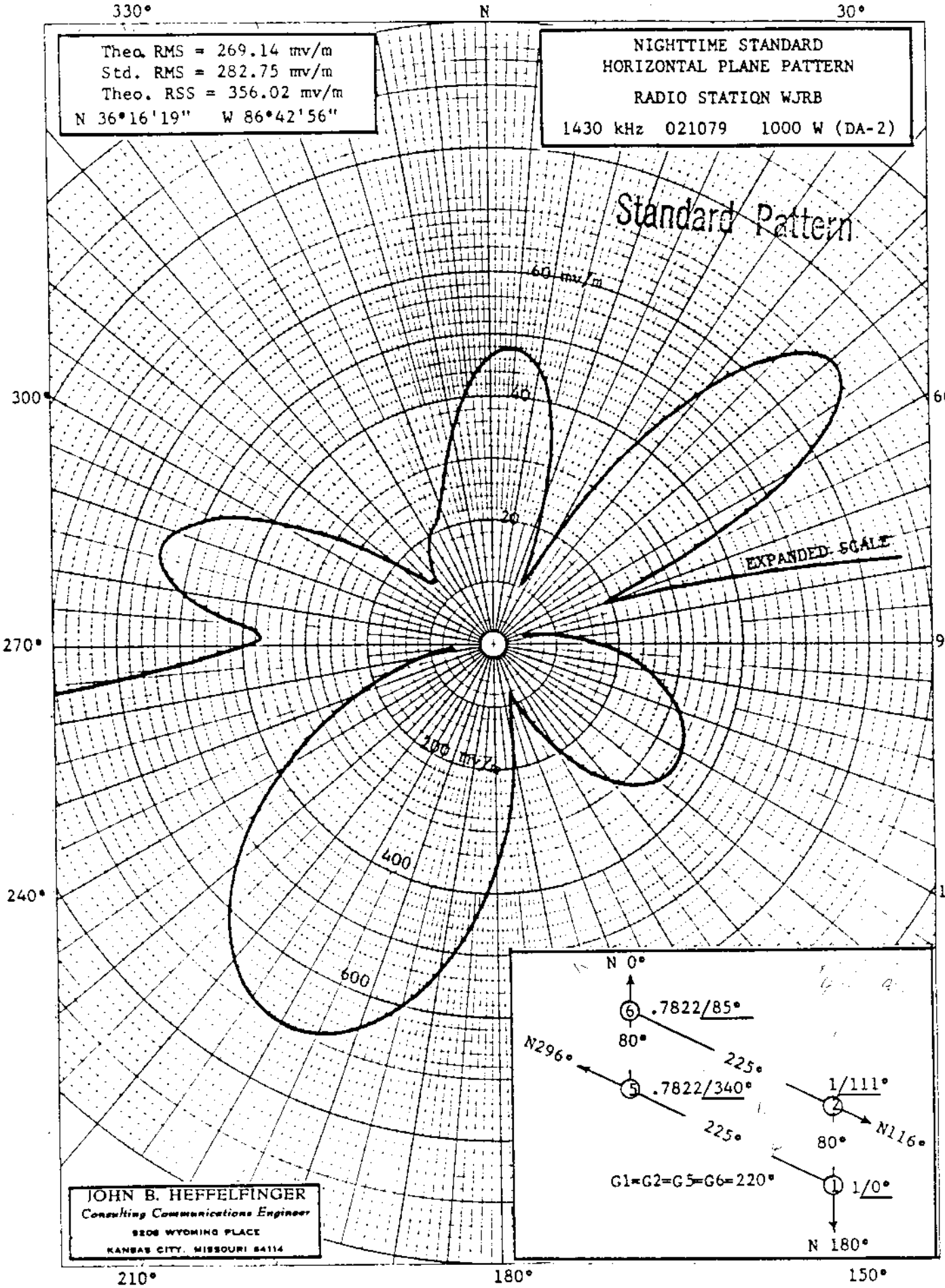
WJEB
1430 kHz

GROUND SYSTEM: 120 - 172' equally spaced copper radials plus 120 - 35' 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	THEORETICAL RSS	STANDARD RMS
Day	570.98 mv/m	753.27 mv/m	599.85 mv/m
Night	269.14 mv/m	356.02 mv/m	282.75 mv/m

WJRB
1430 kHz

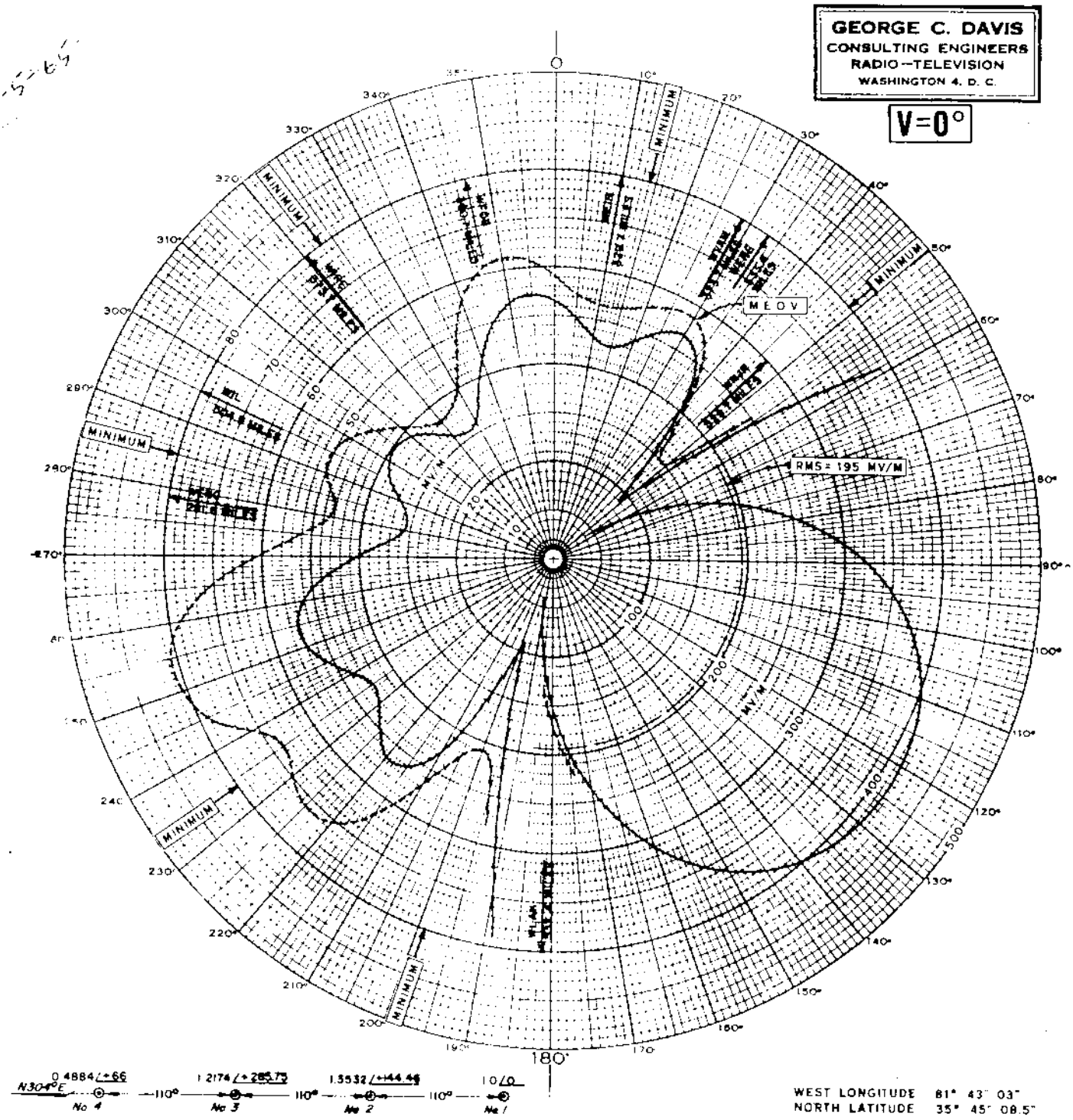


Proposed Night
(10-26-64ct)

Station WMNC
Morganton, North Carolina

1kw,5kw-LS,DA-N,U
1430 kc

GR, 11-5-64



WEST LONGITUDE 81° 43' 03"
NORTH LATITUDE 35° 45' 08.5"

COMPUTED HORIZONTAL PLANE RADIATION PATTERN FOR PROPOSED NIGHTTIME OPERATION AT WMNC, MORGANTON, NORTH CAROLINA
1430 KC 1/5 KW DA-N U
AUGUST 1964

FCC File No. BP-16328
Accepted 10-22-64

Station WMNC
Morganton, North Carolina

1430 kc

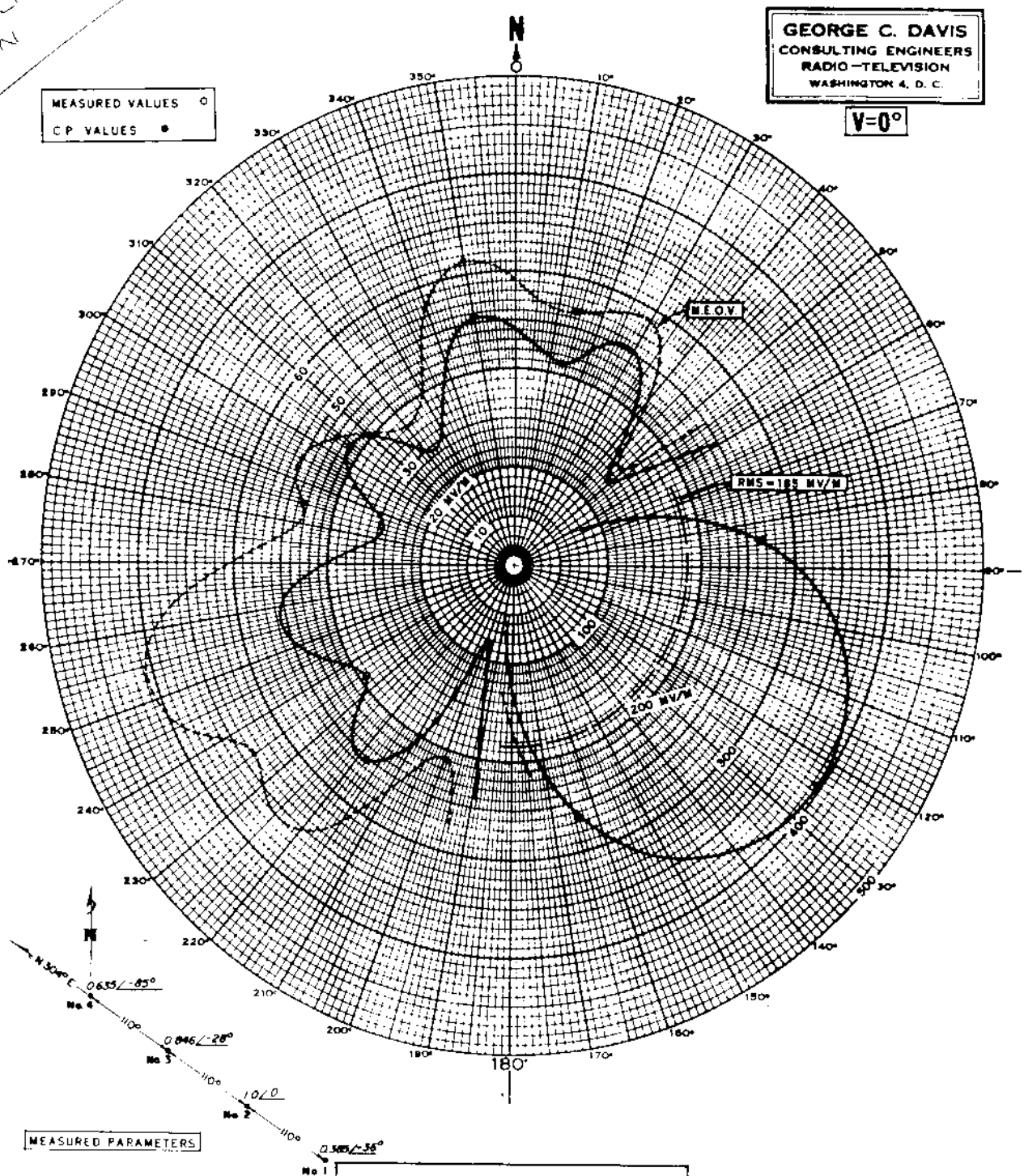
WMNC

Measured Night
(8-28-67ct)

9-7-67
GRANTED LICENSE
FOR DA-N

Station WMNC
Morganton, North Carolina

1kw, 5kw-LS, DA-N, U
1430 kc



MEASURED PARAMETERS

H - 104.7° = 205'
S = 110° = 210

MEASURED HORIZONTAL PLANE RADIATION PATTERN FOR PROPOSED OPERATION OF WMNC, MORGANTON, NORTH CAROLINA 1430 KC- 1/5 KW- DA-N U JUNE 1967

NORTH LATITUDE 35° 45' 08.5"
WEST LONGITUDE 81° 43' 03"

FCC File No. BL-11716
Accepted 8-22-67

Station WMNC
Morganton, North Carolina

1430 kc

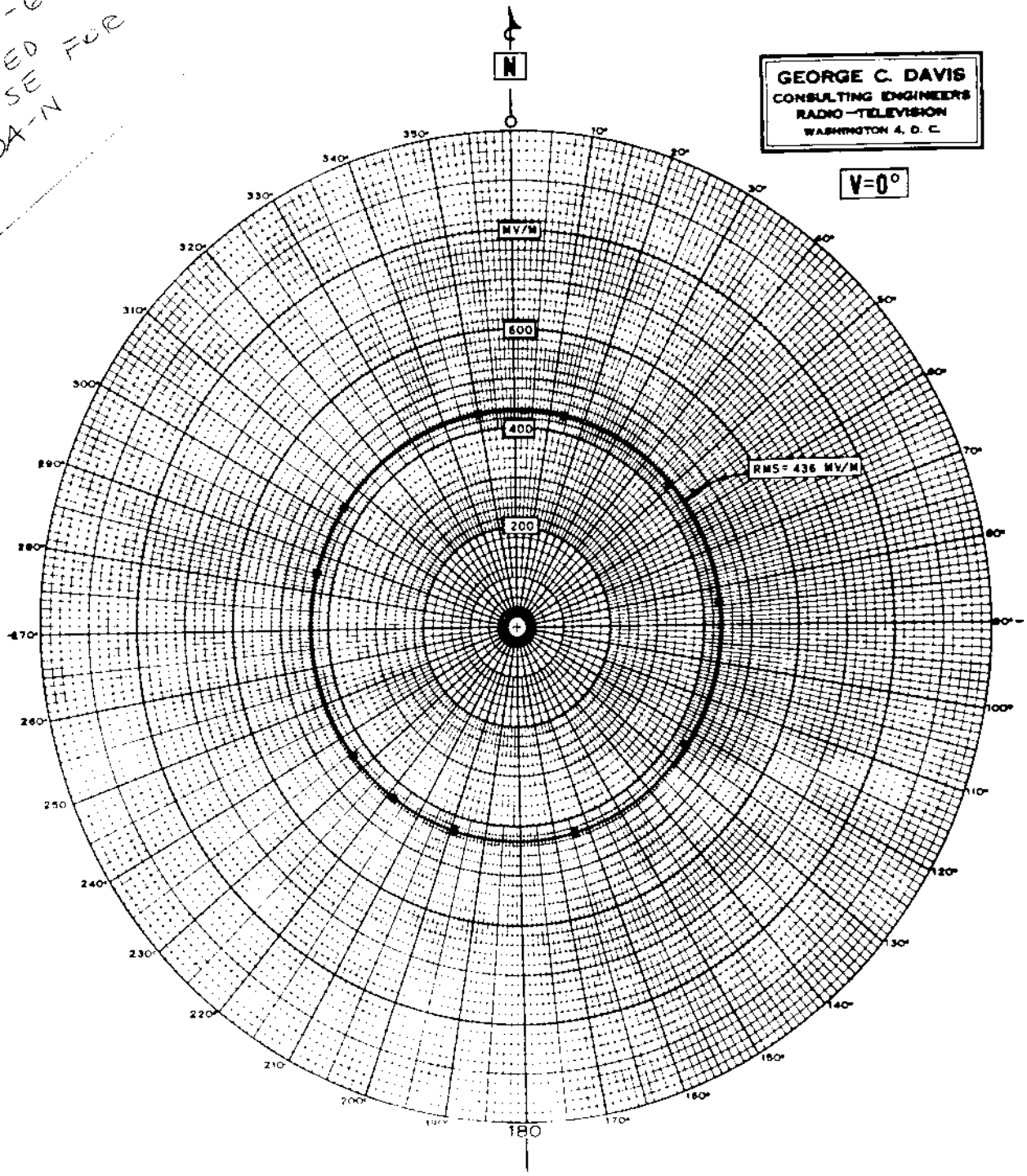
WMNC

Measured Non-DA
(8-28-67ct)

Station WMNC
Morganton, North Carolina

1kw,5kw-LS,DA-N,U
1430 kc

9-7-67
GRANTED LICENSE FOR DA-N



NON-DIRECTIONAL
UNATTENUATED FIELD INTENSITY
AT ONE MILE FOR
WMNC, MORGANTON, NORTH CAROLINA
1430 KC 1/5 KW DA-N U
JUNE 1967

FCC File No.BL-11716
Accepted 8-22-67

Station WMNC
Morganton, North Carolina

1430 kc

WNAV

CORRECTED DIRECTIONAL
ANTENNA DESCRIPTION SHEET

Station: WNAV

Main Studio: Annapolis, Maryland

Frequency: 1430 kHz

Power: 1 kW Night 5 kW Day

Notification List No. 1568

Date: February 21, 1974 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 38° 59' 00"

West Longitude: 76° 31' 21"

Authorized for Nighttime operation (DA-N)

Predicted effective Day Field: (omnidirectional) 195 mv/m at rated power, by adjustment of imput power.

Predicted effective Night Field: 245 mv/m at rated power.

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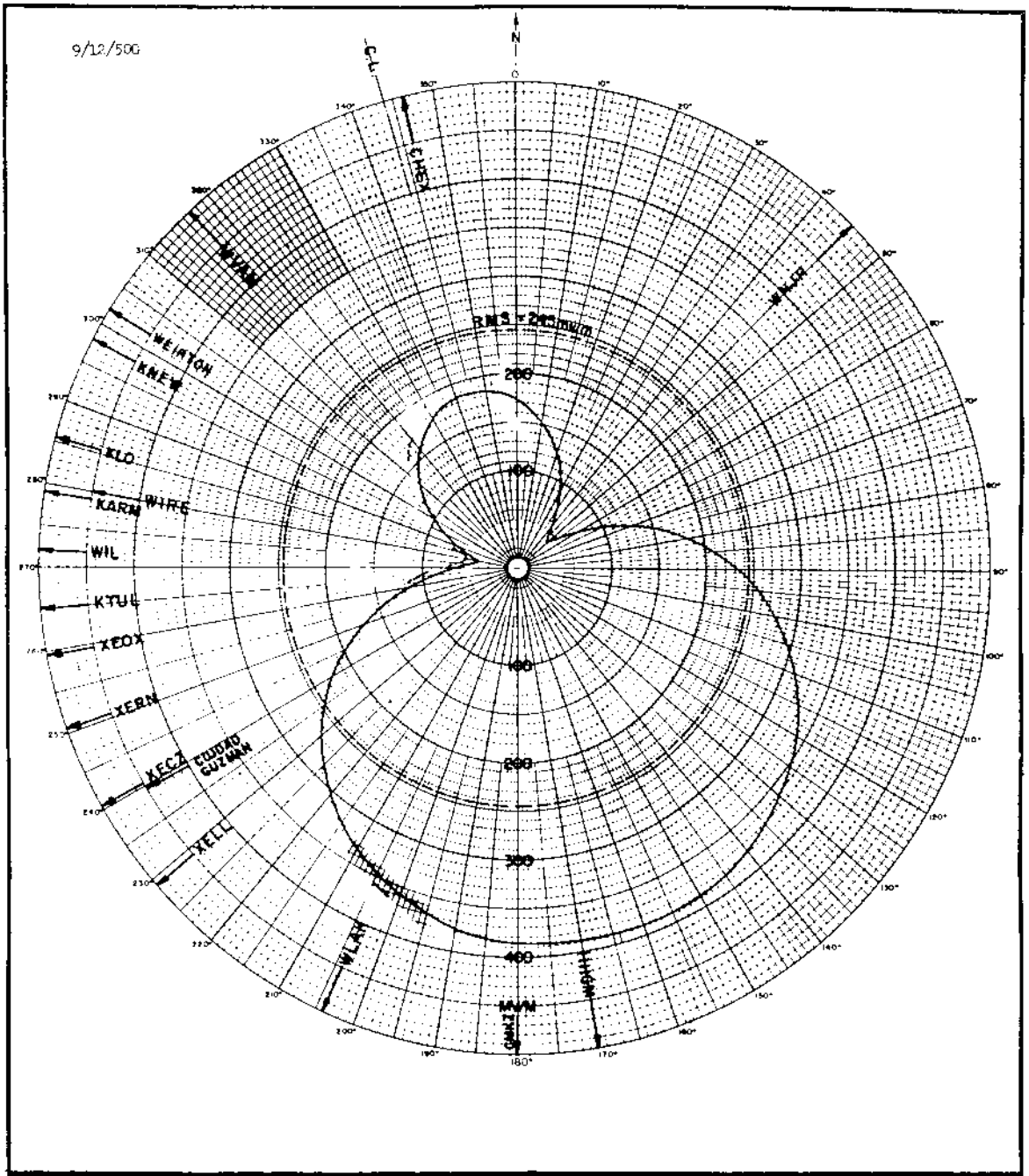
*Note: Please retain the description sheet and directional antenna radiation patterns notified for station WNAV in United States Change List Number 381, dated November 14, 1950 and attach to this supplemental Description Sheet. This notification is for the purpose of indicating only corrections in the Predicted Day and Night effective fields.

CTR NO 31125A4

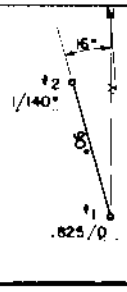
WNAV

PROPOSED NIGHT — WNAV, ANNAPOLIS, MD. — 1kw, DA-N — 1430 kc



ANTENNA PARAMETERS

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



Tower	Electrical Height	True Tower Orientation	Spacing	Phasing	Horizontal Field mv/m	Field Ratio	Elev. Angle	Elevation RMS Field mv/m
No.	C°	θ°	S°	Ψ°	τ	f	Ω°	E_θ
0							0	
1	215	0					10	
2	215	344	90	140	245	.825	20	
3							30	
4							40	
5							50	
6							60	
7							70	
8							80	
9							RMS/Max Ant Gain gr	1.44

RADIO STATION WNAV
ANNAPOLIS, MD.

1 KW — DAN — 1430 KC

HORIZONTAL RADIATION PATTERN
NIGHT-TIME

APP 3a

Latitude 38° 59' 00" — Report No. 480708
Longitude 76° 31' 21" — Pattern No. 500828

AMENDMENT RECD. 8-30-50 ACC. 9-8-50 BP- BML-1378

WNAV, Annapolis, Md. 1430 kc

Giantex to unauthorized (MD) Permit to STKW 6-27-60

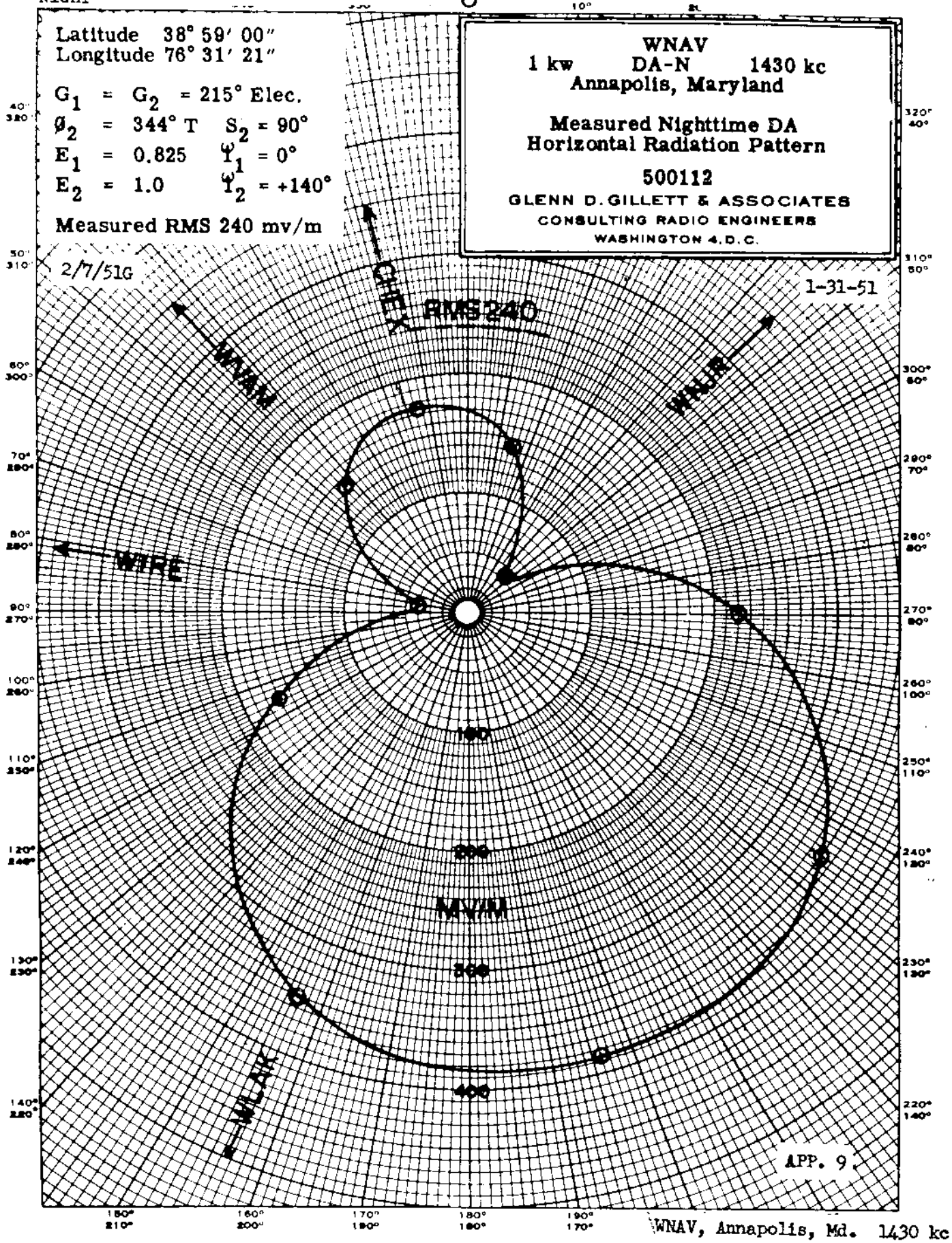
WNAV

MEASURED
NIGHT

WNAV, ANNAPOLIS, MD.

1kw, DA-N

1430 kc



WNAV, Annapolis, Md. 1430 kc

WNAV

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

Station WNAV
Annapolis, Maryland

1kw, 5kw-LS, DA-N,U
1430 KC

Latitude 38° 59' 00"
Longitude 76° 31' 21"

Tower No. 1 with Tower No. 2 Grounded

Measured RMS 396 mv/m

MEASURED DAYTIME RADIATION PATTERN
TOWER I
CAPITAL B/CING. CO.
ANNAPOLIS, MD.
1430 KC. 5KW-D, 1KW-DA-N
PREPARED BY: LLOYD S. SMITH

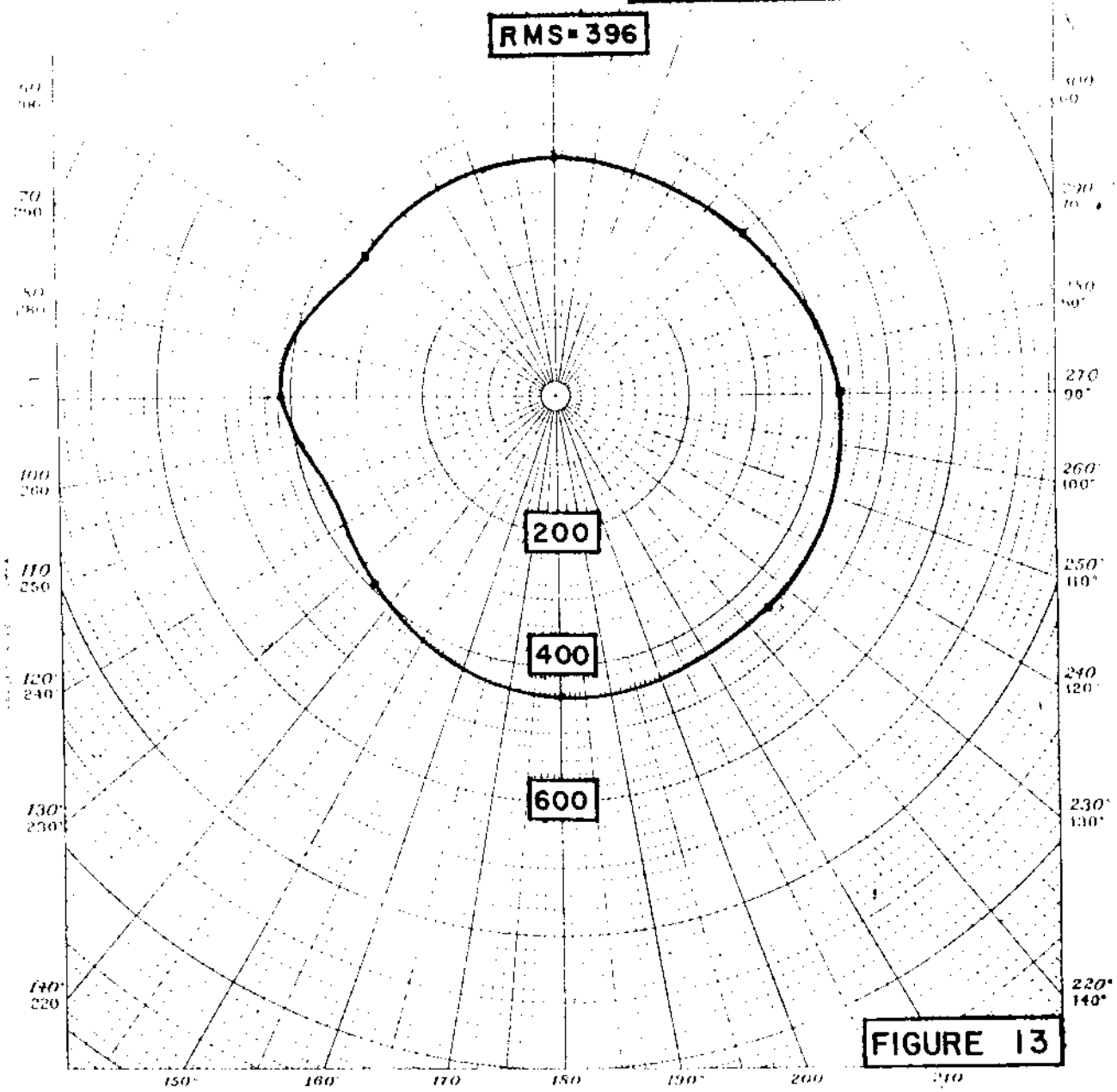


FIGURE 13

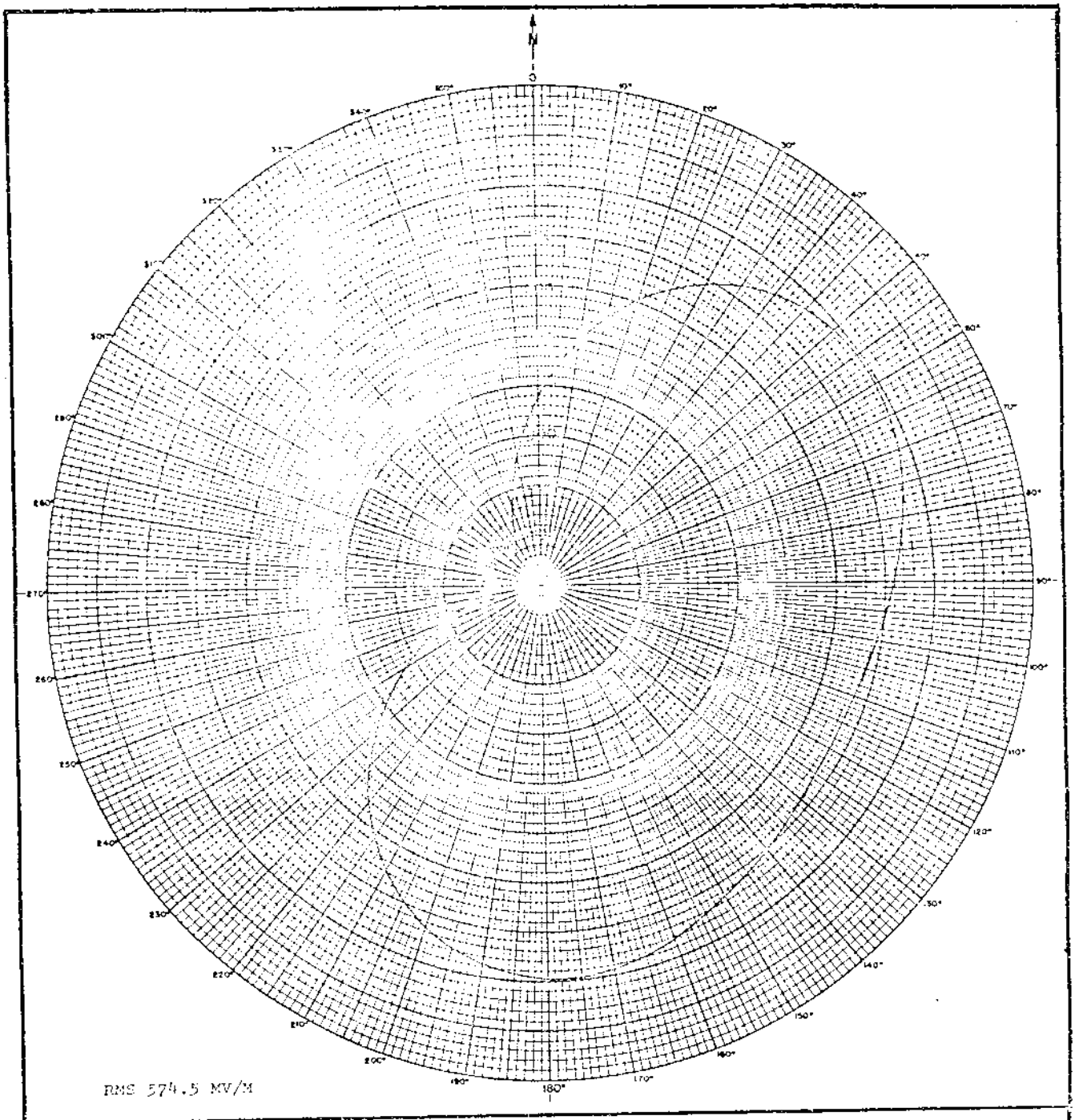
FCC File No. BL-7916
Accepted 5-10-60

WNAV
Annapolis, Maryland

1430 KC

Received ... Wednesday, ... Jan. 1, 5 ... 6 27-00

WNJR



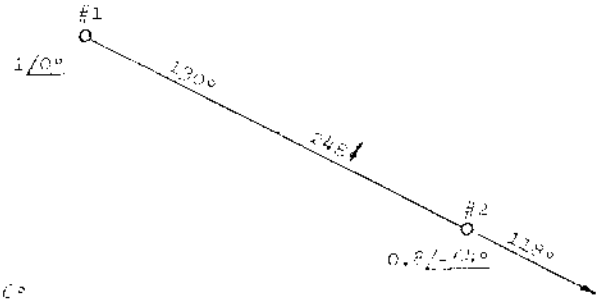
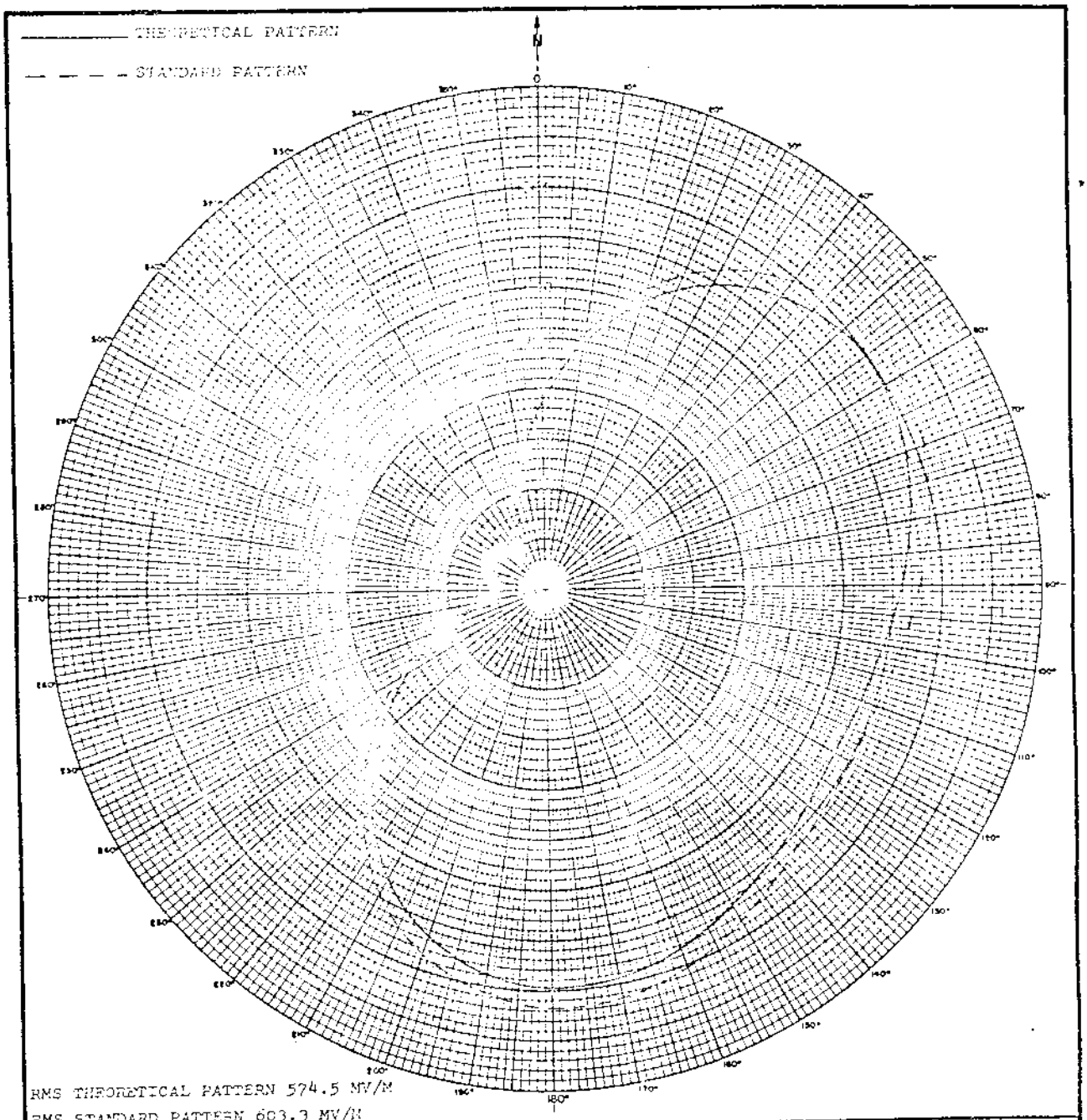


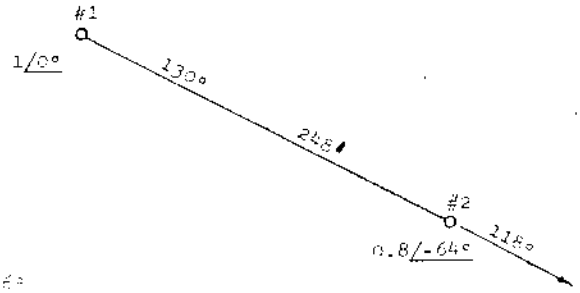
FIG. 4 (Rev.)
BROAD BROADCAST CORPORATION
NEWARK, NEW JERSEY
1430 KHz 1.0 KW DA-5
HORIZONTAL RADIATION PATTERN

FEB 9, 72

APPROVED RECEIVED FOR CP FOR WTW STATION DA 11/0

WNJR



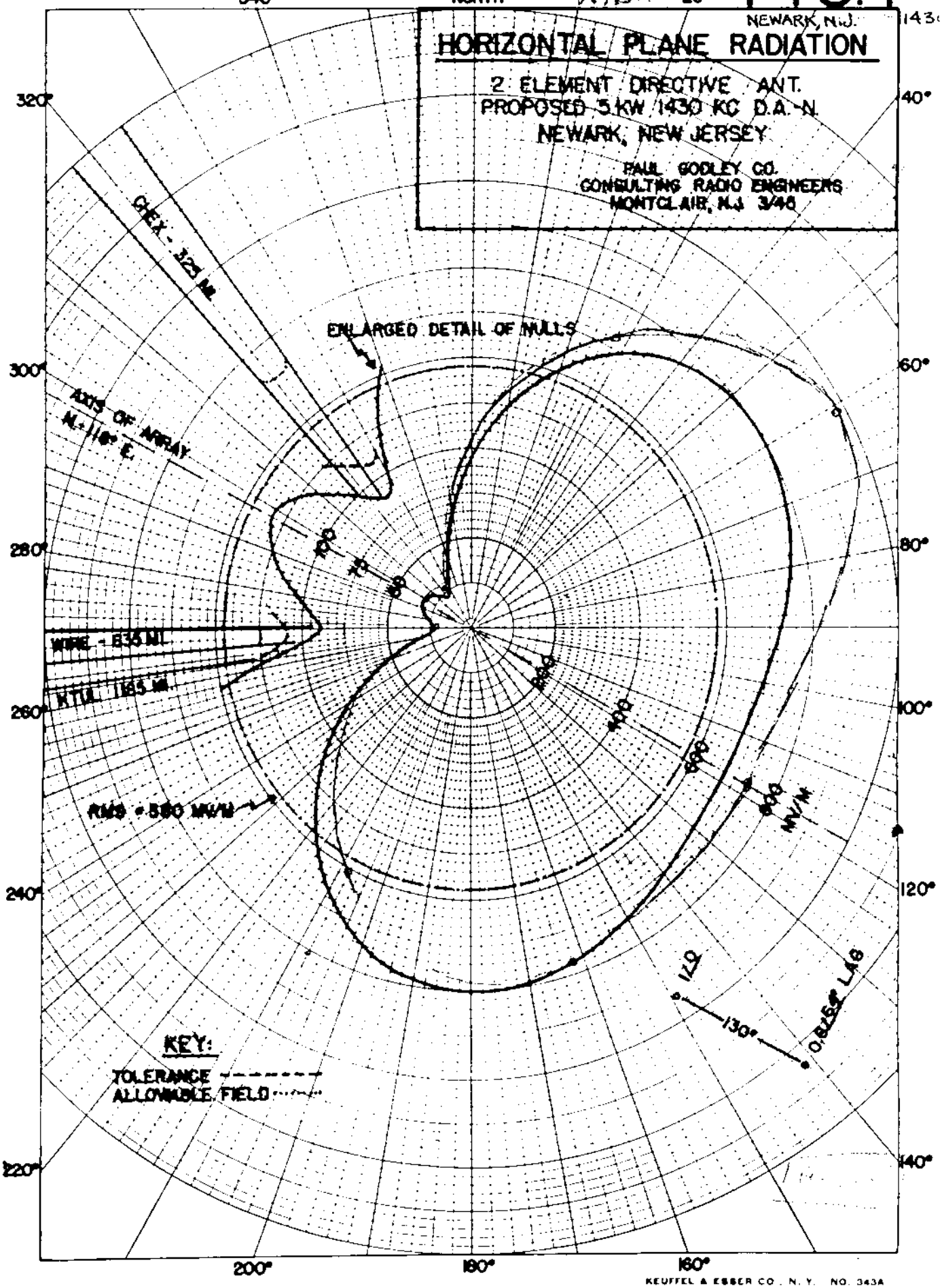


G-2068

GREENVILLE, S.C.

FIG. 4
BROWN BROADCASTING CO. STATION
NEWARK, NEW JERSEY
1430 KHz 5.0 KW
HORIZONTAL RADIATION

FIG. 1



5

SEE OTHER SIDE FOR FORMULA

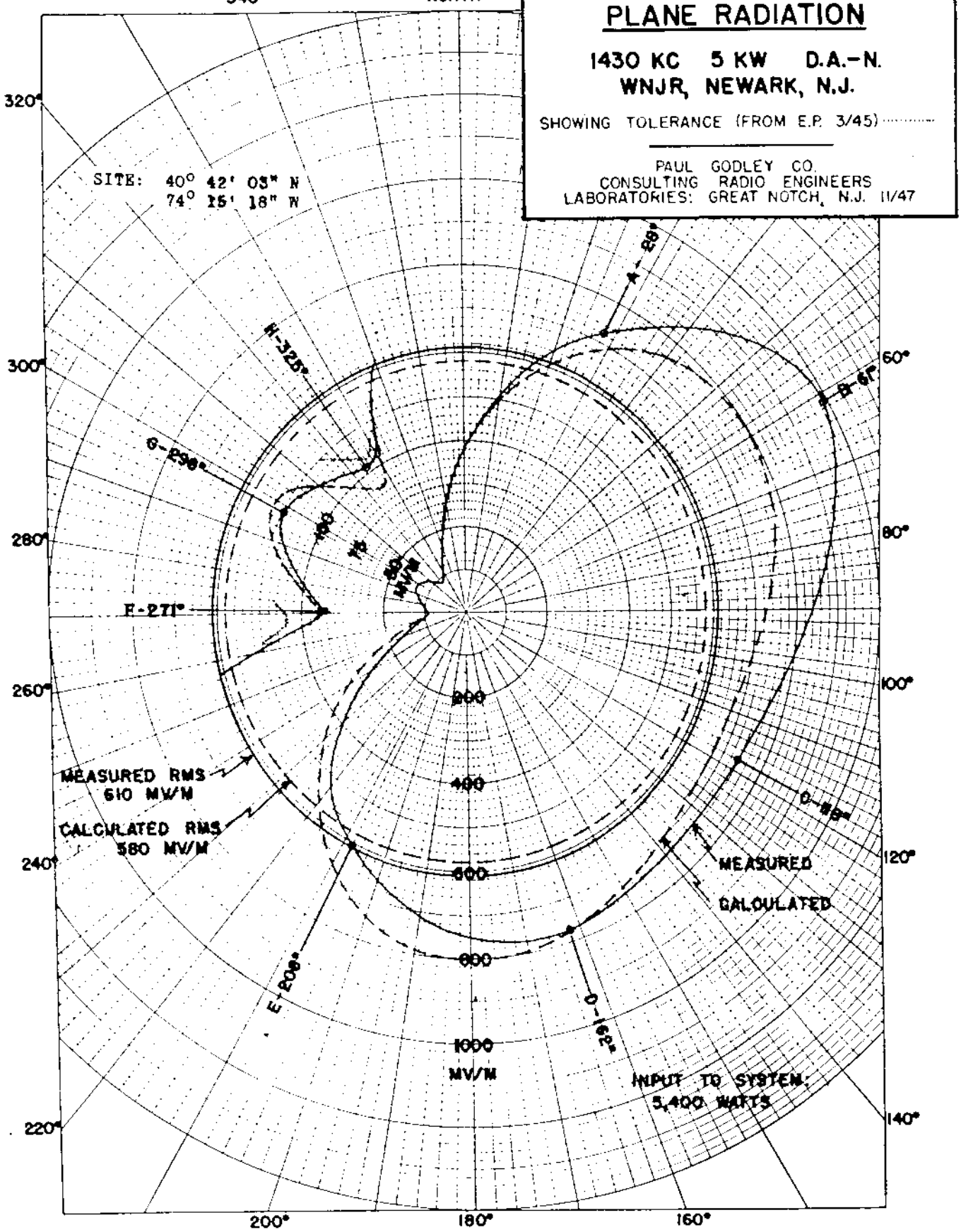
MEASURED
NIGHT
(1/9/530)

WNJR, NEWARK, N. J.

5kw, U, DA-N

1430kc

FIG. 11



FILE NO. BL-2837 RECD 11/12/47

WNJR, Newark, N. J.

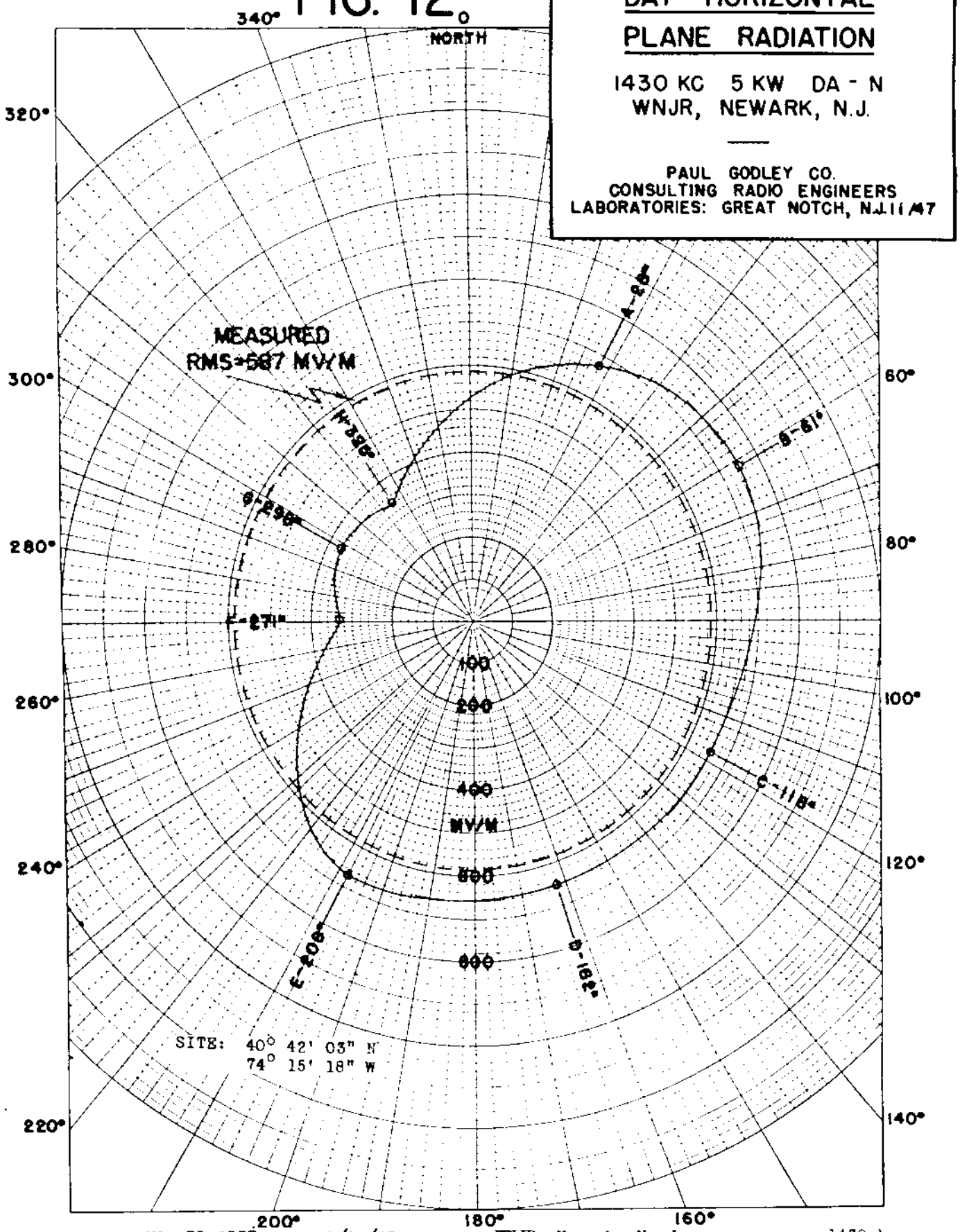
1430 kc

measured day non DA

WNJR

MEASURED DAY (1/9/53G) WNJR, NEWARK, N. J. 5kw, U, ~~DA-N~~ 1430 kc

FIG. 12.

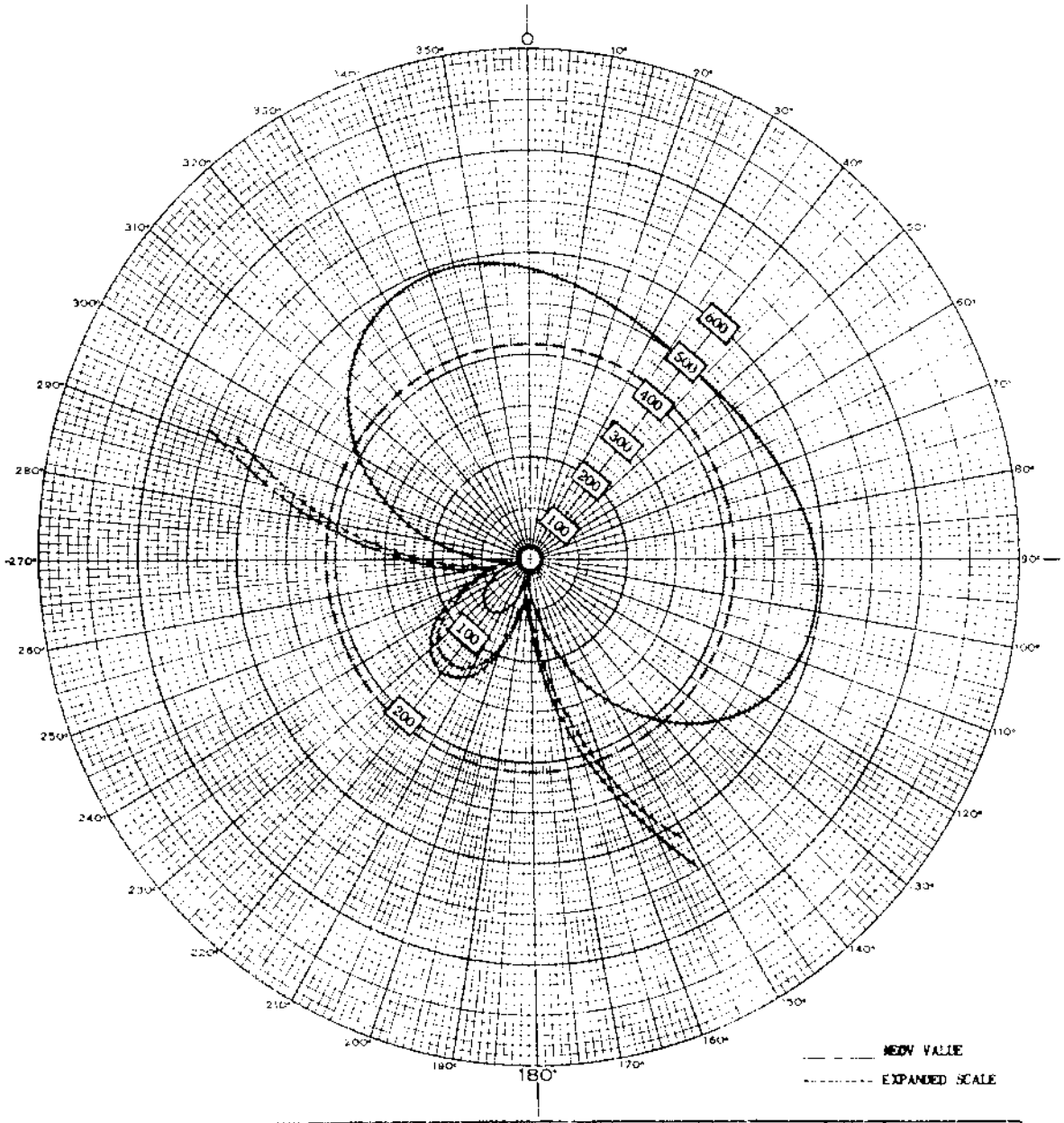


FILE NO. BL-2837 RECD 11/12/47 WNJR, Newark, N. J. 1430 kc

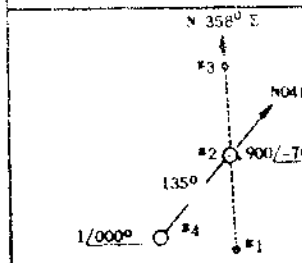
WPCF
1430

PROPOSED DAY (7/12/55) | STATION WPCF PANAMA CITY, FLORIDA | 5 KW DA-2, U

POLAR CO-ORDINATE MADE IN U.S.A. | NO. 10 HP | CLEVELAND INSTITUTE OF RADIO ELECTRONICS CLEVELAND, OHIO



TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

TOWER	RADIUS (FEET)	BEARING	RUN (POWER OF EXTENSION)	STACKING	PHASING	HORIZONTAL FIELD	FIELD RATIO	ELEV ANGLE	ELEVATION PATTERN FIELD
1								5	
2	90		000	000	-70		.900	10	
3								20	
4	90		041	135	000		1.	30	
5								40	
6								50	
7								60	
8								70	
9								80	
10									

DAYTIME OPERATION ☒ NIGHTTIME OPERATION ☐

E_k = 420 mv/m

P_k = 5.0 kw

STATION DATA

CALL	WPCF
FREQUENCY	1430
POWER	5 kw
TIME OF OPERATION	DAY
TYPE OF OPERATION	DA
DAYTIME TOWERS	2 & 4
NIGHTTIME TOWERS	1, 2 & 3
NO. RADIALS PER TOWER	120
LENGTH OF RADIALS	104.5' 200'
GROUND SCREEN DIMENSION	24' x 24'
LAT.	30° 09' 38"
LONG	85° 43' 43"
SUPERSEDES	
PATTERN No.	550520

CLAUDE M. GRAY
CONSULTING RADIO ENGINEER
BIRMINGHAM, ALA

EXHIBIT
1-A-7
550620

DAYTIME
PROPOSED HORIZONTAL RADIATION PATTERN
W P C F PANAMA CITY, FLORIDA
5.0 KW-U DA-2 1430 KC

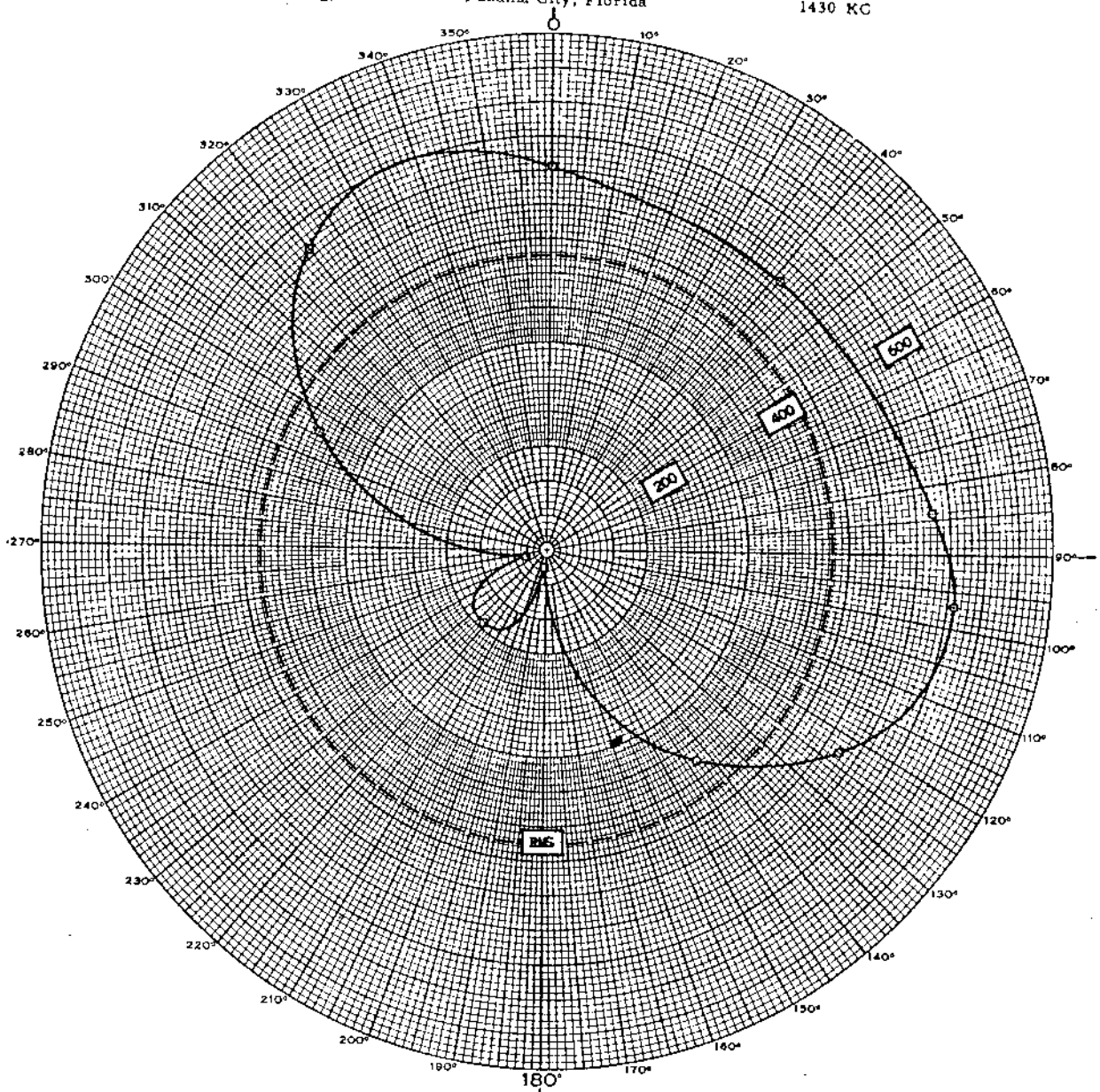
WPCF

MEASURED DAY
(5-29-58g)

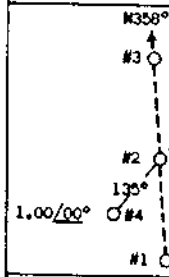
Station WPCF
Panama City, Florida

5kw, DA-2,U

1430 KC



TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

TOWER No	ELECTRICAL HEIGHT G°	TRUE TOWER ORIENTATION φ°	SPACING S°	PHASING ψ°	HORIZONTAL FIELD mv/m E	FIELD RATIO F	ELEV. ANGLE β°	ELEVATION RMS FIELD mv/m E_β
1							0	
2	90°	041°	135°	-70°		.900	10	
3							20	
4	90°	000°	000°	000°		1.00	30	
5							40	
6							50	
7							60	
8							70	
9							80	
10							RMS 426 mv/m	
							P_r =	kw

DAYTIME OPERATION ☒ NIGHTTIME OPERATION ☐

STATION DATA

CALL	W P C F
FREQUENCY	1430 kc
POWER	5.0 kw
TIME OF OPERATION	Day
TYPE OF OPERATION	DA
DAYTIME TOWERS	2 - 4
NIGHTTIME TOWERS	1 - 2 - 3
No. RADIALS PER TOWER	120
LENGTH OF RADIALS	104.5' 200 ft
GROUND SCREEN DIMENSION	24 x 24
LAT.	30° 09' 38"
LONG	85° 43' 43"
SUPERSEDES	
PATTERN No	589201A

CLAUDE M. GRAY
CONSULTING RADIO ENGINEER
BIRMINGHAM, ALA

MEASURED HORIZONTAL RADIATION PATTERN

BAY COUNTY BROADCASTING COMPANY

PANAMA CITY, FLORIDA

FCC File No. BL-7110
Accepted 5-19-58

WPCF
Panama City, Florida

1430 KC

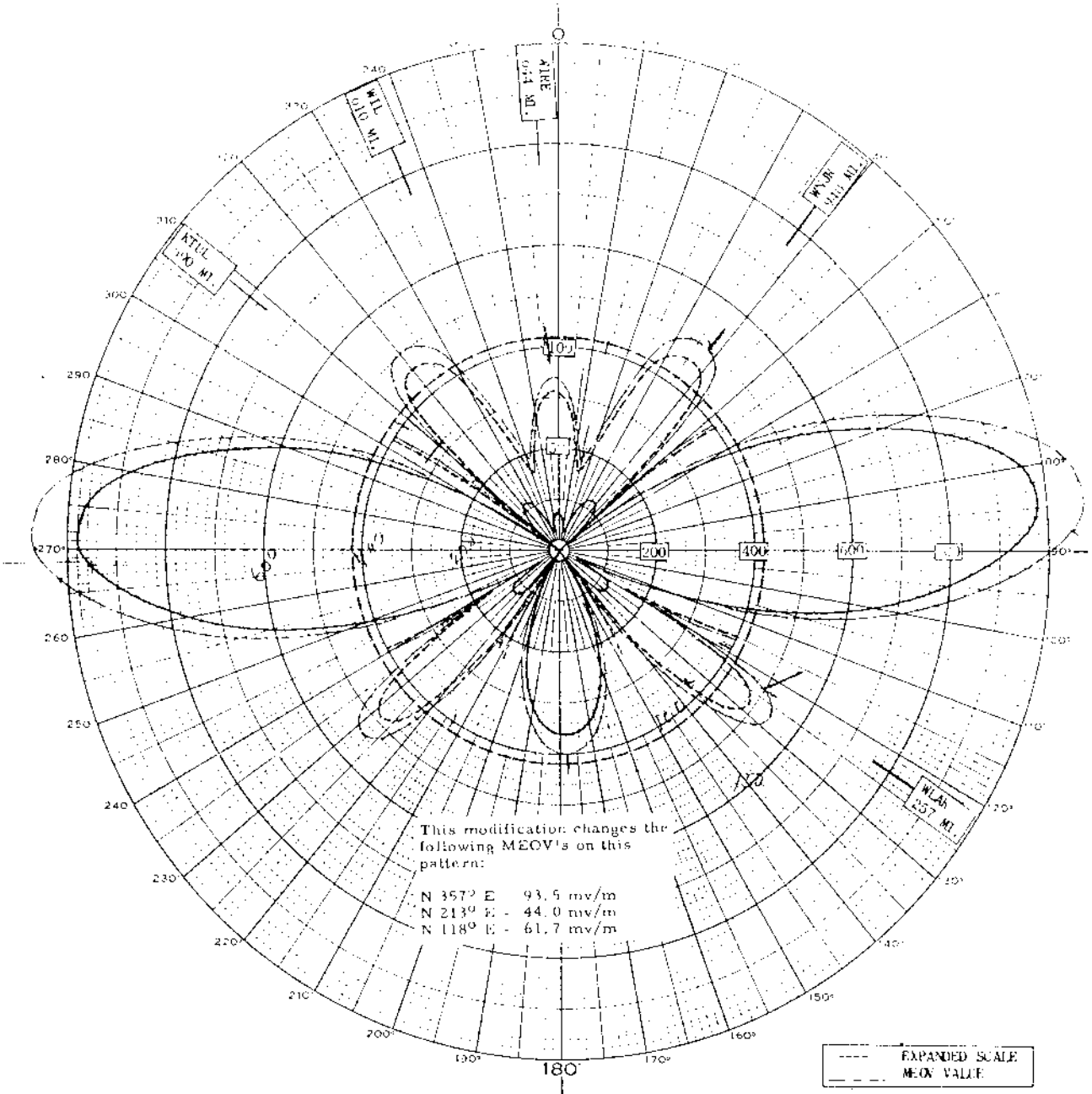
granted 5-27-59

WPCF

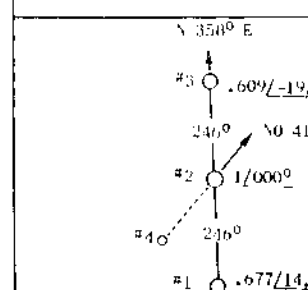
PROPOSED NIGHT
(6-16-58)

Station WPCF
Panama City, Florida

5kw, DA-2, U
1430 KC



TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

TOWER No.	ELECTRICAL HEIGHT S°	TRUE TOWER ORIENTATION β°	SPACING S°	PHASING V°	HORIZONTAL FIELD mv/m E	FIELD RATIO F	ELEV ANGLE θ°	ELEVATION RMS FIELD mv/m E_θ
1	90°	178	246	14.55		0.677	0	
2	90	000	000	000		1	10	
3	90	350	246	-19.45		0.609	20	
4							30	
5							40	
6							50	
7							60	
8							70	
9							80	
10							E_θ = 420 mv/m	

DAYTIME OPERATION [ ] NIGHTTIME OPERATION [x] D_θ = 5.0 mv/m

STATION DATA

CALL WPCF
FREQUENCY 1430 kc
POWER 5.0 kw
TIME OF OPERATION Night
TYPE OF OPERATION DA
DAYTIME TOWERS 2 & 4
NIGHTTIME TOWERS 1, 2 & 3
No RADIALS PER TOWER 120
LENGTH OF RADIALS 201.5' - 200'
GROUND SCREEN DIMENSION 24' x 24
LAT 30° 09' 30"
LONG 85° 43' 43"
SUPERSEDES 550520
PATTERN No 551010

CLAUDE M. GRAY
CONSULTING RADIO ENGINEER
BIRMINGHAM ALA

EXHIBIT
1-A-B

NIGHTTIME
PROPOSED HORIZONTAL RADIATION PATTERN
W P C F PANAMA CITY, FLORIDA
5.0 KW-U DA-2 1430 KC
0° ELEVATION GROUND

FCC File No. BMP-8131
Accepted 5-13-58

WPCF
Panama City, Florida 1430 KC

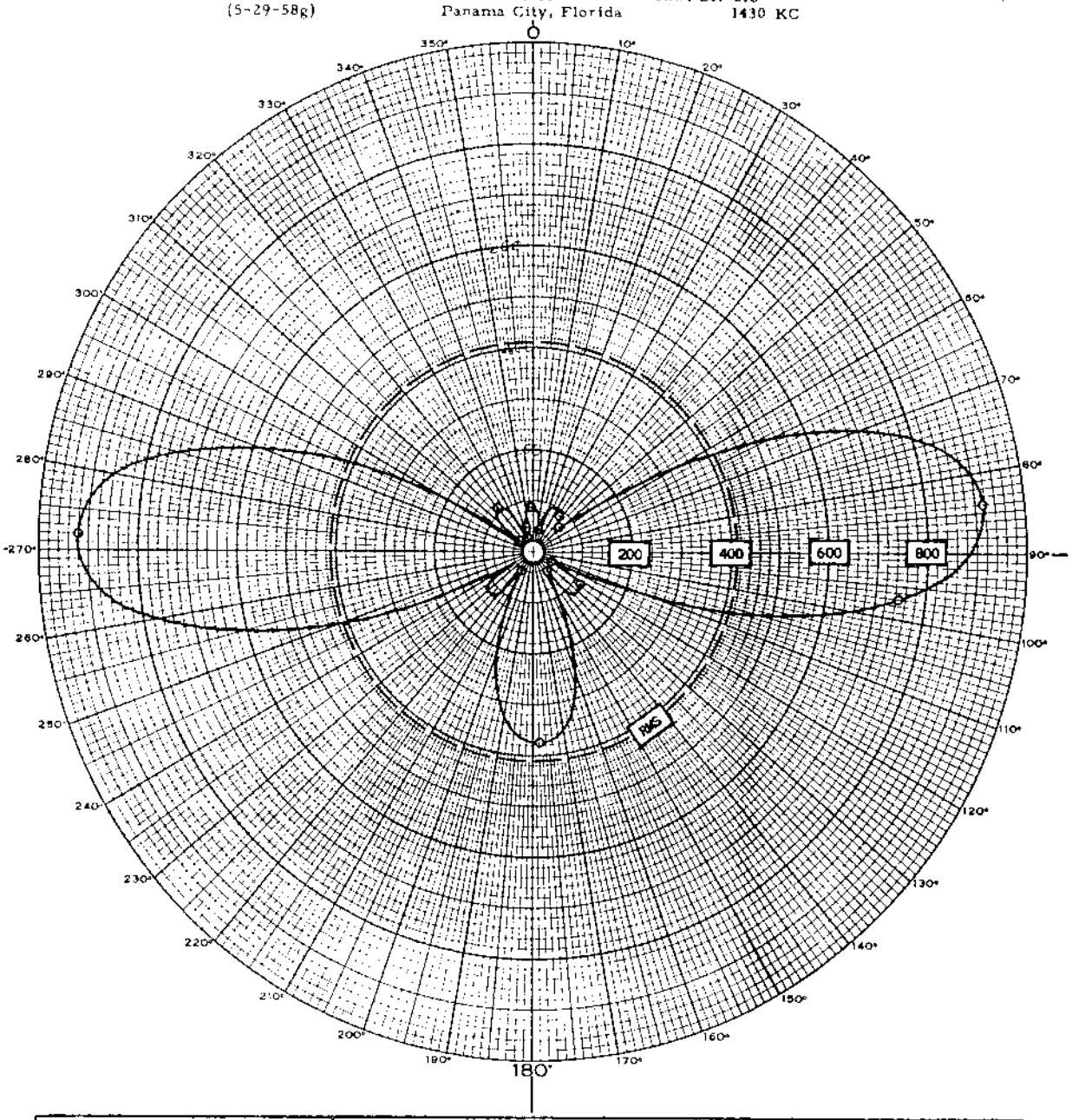
Panama City, Florida

WPCF

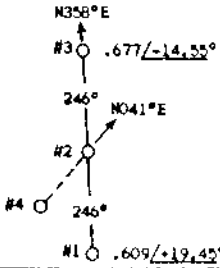
MEASURED NIGHT (5-29-58g)

Station WPCF
Panama City, Florida

5kw. DA-2,U
1430 KC



TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

TOWER No	ELECTRICAL HEIGHT θ°	TRUE TOWER ORIENTATION φ°	SPACING S°	PHASING ψ°	HORIZONTAL FIELD mv/m E	FIELD RATIO F	ELEV ANGLE θ°	ELEVATION RMS FIELD mv/m E_θ
1	90°	178°	246°	+19.45°		0.609	0	
2	90°	000°	000°	000°		1.000	10	
3	90°	358°	246°	-14.55°		0.677	20	
4							30	
5							40	
6							50	
7							60	
8							70	
9							80	
10							RMS 410 mv/m	

DAYTIME OPERATION ☐ NIGHTTIME OPERATION ☒

STATION DATA

CALL	W P C F
FREQUENCY	1430 kc
POWER	5.0 kw
TIME OF OPERATION	Night
TYPE OF OPERATION	DA
DAYTIME TOWERS	2 - 4
NIGHTTIME TOWERS	1 - 2 - 3
No. RADIALS PER TOWER	120
LENGTH OF RADIALS	104.5' 200 ft
GROUND SCREEN DIMENSION	24 x 24
LAT.	30° 09' 38"
LONG	85° 43' 43"
SUPERSEDES	
PATTERN No	580202A

CLAUDE M. GRAY
CONSULTING RADIO ENGINEER
BIRMINGHAM ALA

MEASURED HORIZONTAL RADIATION PATTERN

BAY COUNTY BROADCASTING COMPANY

PANAMA CITY, FLORIDA

FCC File No. BL-7110
Accepted 5-19-56

WPCF
Panama City, Florida

1430 KC

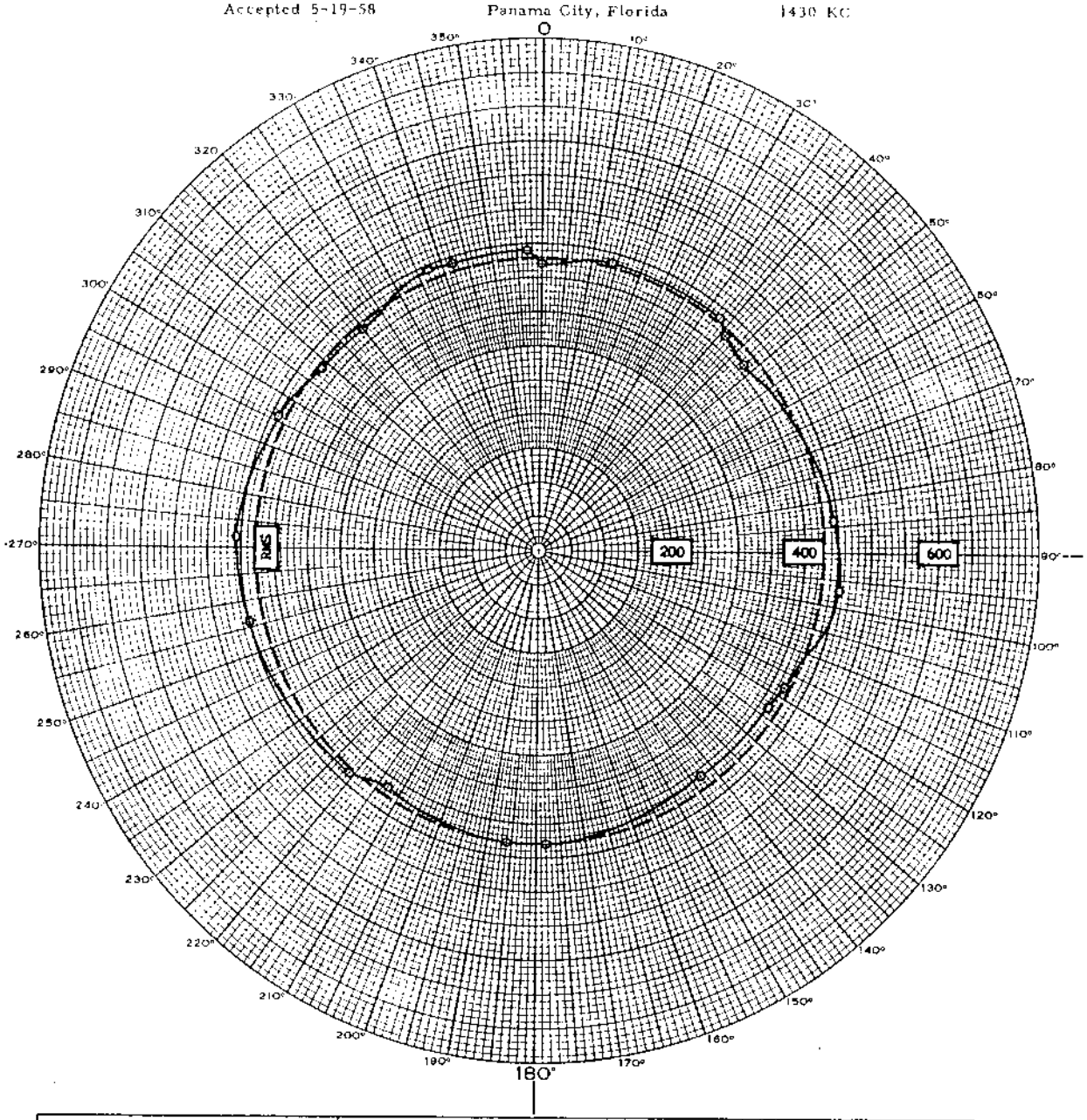
granted 5-21-59

WPCF

MEASURED NON-DA
Accepted 5-19-58

WPCF
Panama City, Florida

1430 KC



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS									STATION DATA	
N356°E #3	TOWER No.	ELECTRICAL HEIGHT G°	TRUE TOWER ORIENTATION φ°	SPACING S°	PHASING ψ°	HORIZONTAL FIELD mv/m E	FIELD RATIO F	ELEV. ANGLE θ°	ELEVATION RMS FIELD mv/m E_θ	CALL	WPCF
N041°E #2 1/000°	1							0		FREQUENCY	1430 kc
#4	2	90°	000°	000°	000°		1.0	10		POWER	5.0 kw
#1	3							20		TIME OF OPERATION	ND (Proof)
	4							30		TYPE OF OPERATION	ND
	5							40		DAYTIME TOWERS	2
	6							50		NIGHTTIME TOWERS	xx
	7							60		No RADIALS PER TOWER	120
	8							70		LENGTH OF RADIALS	104.5' 200 ft
	9							80		GROUND SCREEN DIMENSION	24 x 24
	10							RMS	429 mv/m	LAT	30° 09' 38"
	DAYTIME OPERATION [ ]				NIGHTTIME OPERATION [ ]			E_θ	mv/m	LONG	85° 43' 43"
										SUPERSEDES	
										PATTERN No	580203A

CLAUDE M. GRAY
CONSULTING RADIO ENGINEER
BIRMINGHAM ALA

MEASURED HORIZONTAL RADIATION PATTERN

BAY COUNTY BROADCASTING COMPANY

PANAMA CITY, FLORIDA

FCC File No. BL-7110
Accepted 5-19-58

WPCF
Panama City, Florida

1430 KC

granted 5-21-59

WQDI

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station : WQDI Main Studio: Homestead, Florida

Frequency : 1430 KHz Power : .5 kW Night .5 kW Day

Notification No. 1782 Date : October 26, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 25 ° 27 ' 09 "
West Longitude: 80 ° 30 ' 57 "

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(31)	NE(#2)				
HEIGHT ABOVE INSULATORS :	200'	200'(104.6°)				
NIGHT PHASING :	0°	175°				
NIGHT FIELD RATIO:	1.0	0.40				

SPACING AND ORIENTATION: Adjacent towers in a row are spaced 305.7' (160°) on a line bearing 60° true.

GROUND SYSTEM: 120-172' equally spaced copper radials about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers. Centers of system are bonded together.

WQDI

2.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

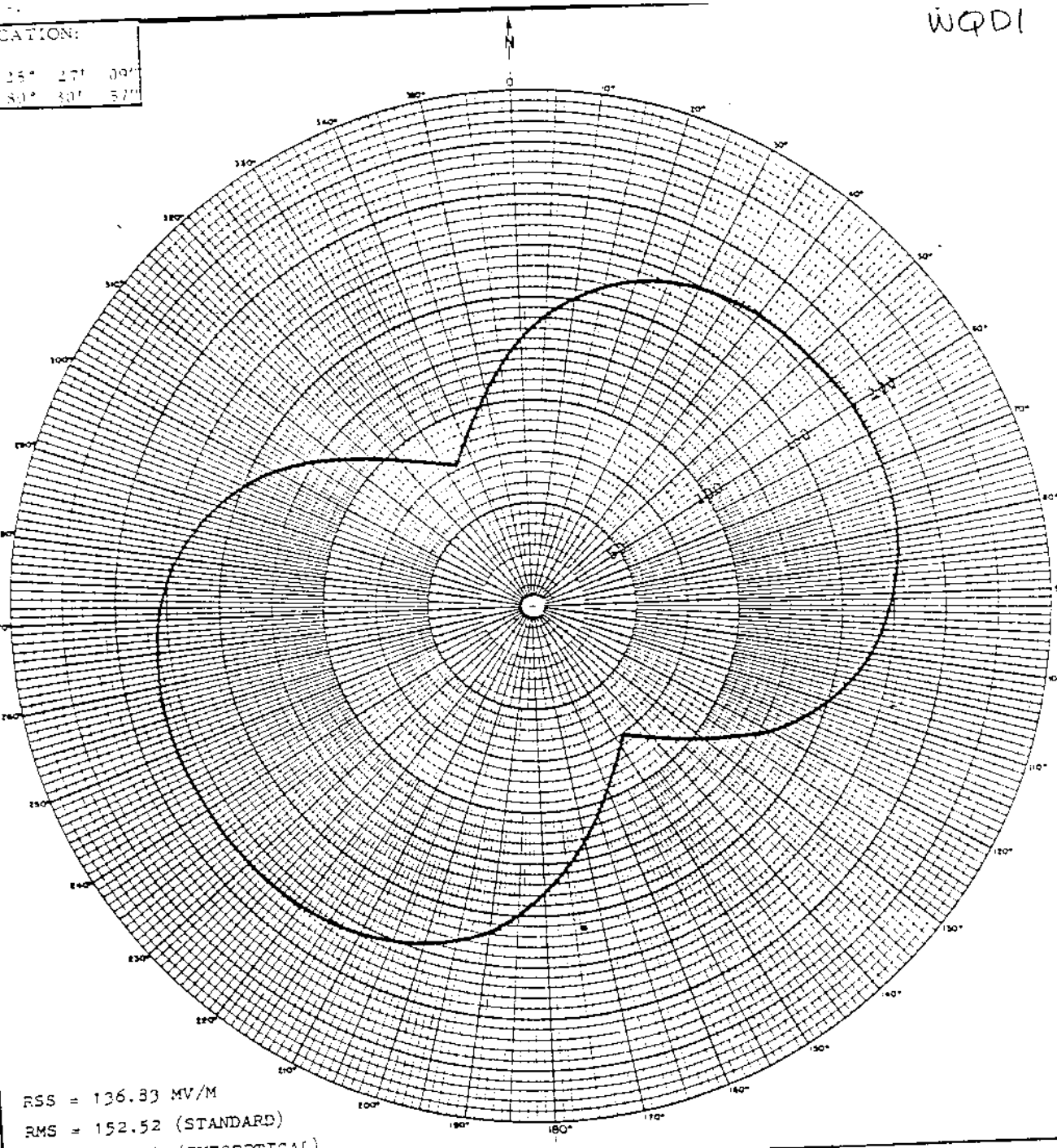
	THEORETICAL RMS		THEORETICAL RSS		STANDARD RMS	
Day	138.6	mV/m		mV/m		mV/m
Night	145.14	mV/m	136.83	mV/m	152.52	mV/m

Note:

WQDI

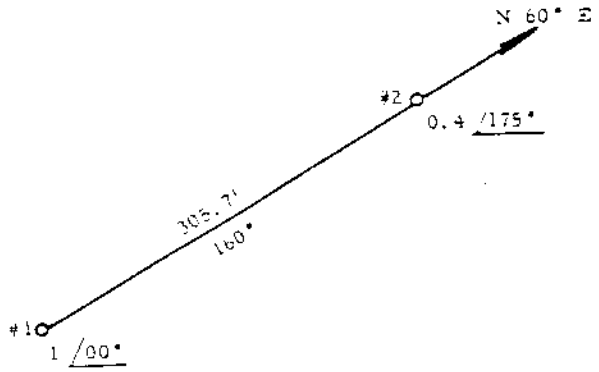
LOCATION:

N 25° 27' 09"
W 80° 30' 37"



RSS = 136.83 MV/M
RMS = 152.52 (STANDARD)
RMS = 145.14 (THEORETICAL)

HORIZONTAL RADIATION PATTERN



G = 104.7°

FIG. 4 (REV.)
RADIO SOUTH DADE INC.
RADIO STATION WQDI
HOMESTEAD, FLORIDA
1430 KHz 0.5 KW's DA-N
HORIZONTAL RADIATION PATTERN

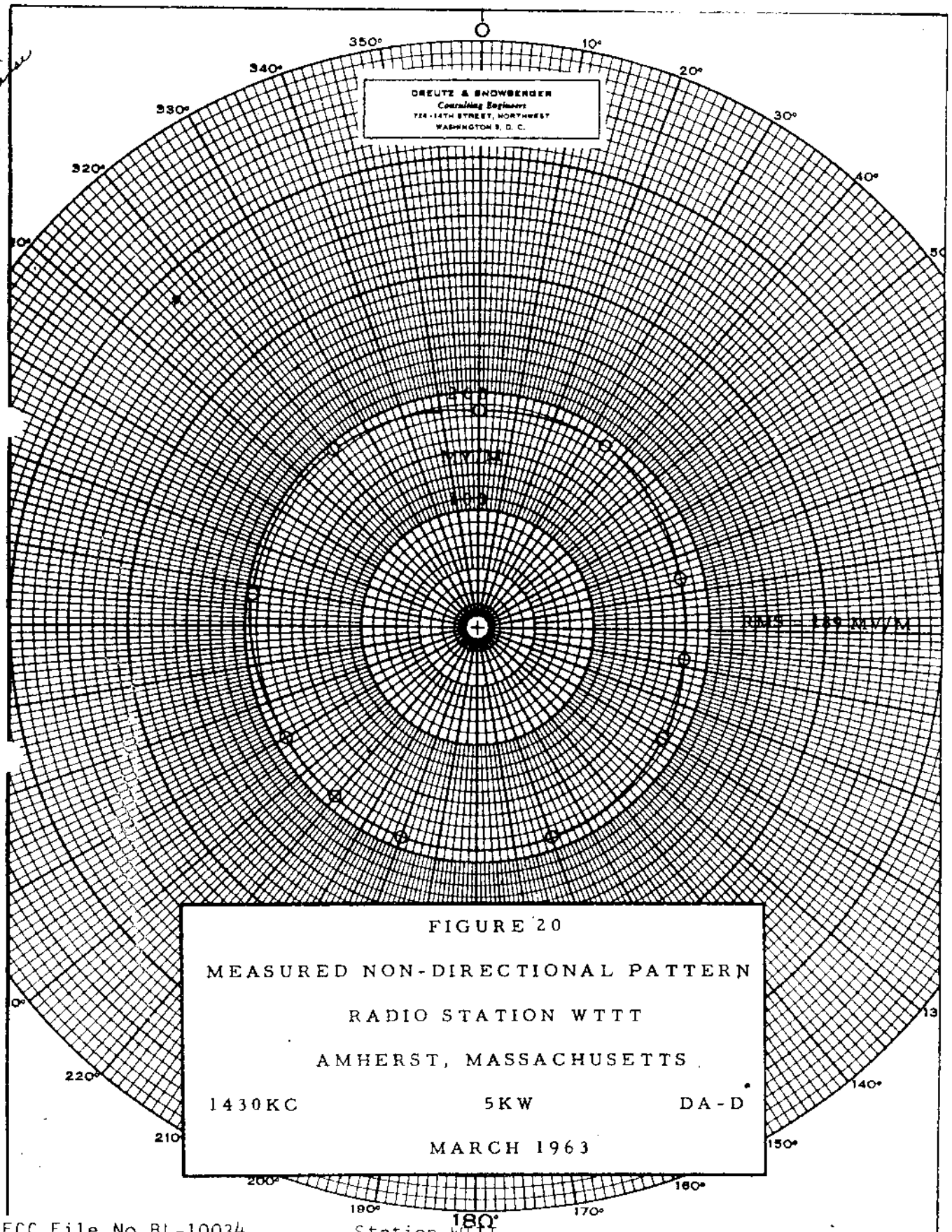
WTTT

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

Station WTTT
Amherst,Massachusetts

5kw,DA-D,D
1430 kc

-6-63 water heater
~ rain
n station



FCC File No.BL-10034
Accepted 6-17-63

Station WTTT
Amherst,Massachusetts

1430 kc

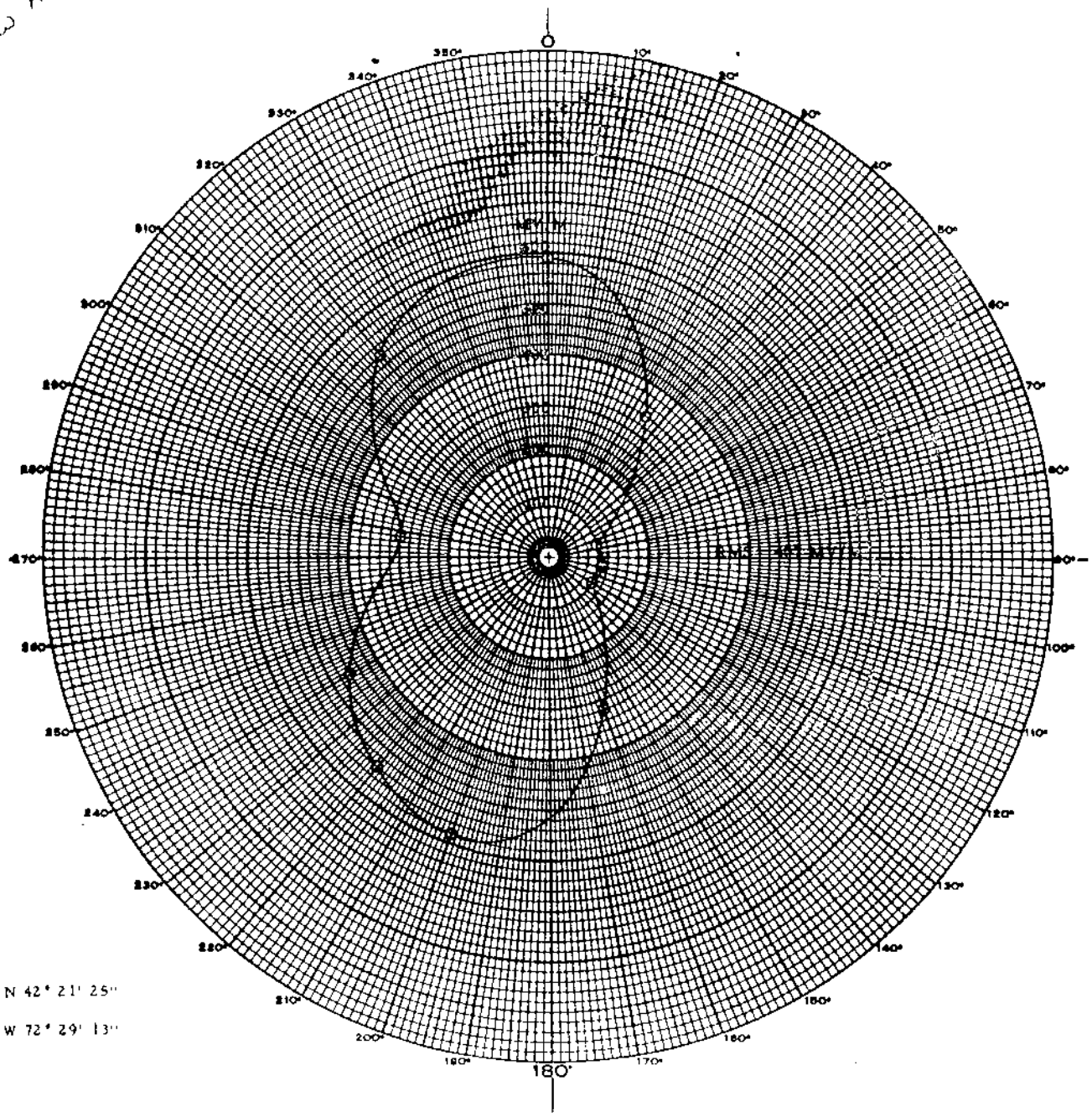
WTTT

Measured Day
(6-28-63ct)

Station WTTT
Amherst, Massachusetts

5kw, DA-D, D
1430 kc

8-6-63
Granted license
for new A-M station.



1.0/0°
160°
WEST

.75/430°
N 98° E
EAST

G = 78.6°

FIGURE 21
MEASURED DIRECTIONAL PATTERN
RADIO STATION WTTT
AMHERST, MASSACHUSETTS
1430KC 5KW DA-D
MARCH 1963

GREUTZ & SNOWBERGER
Consulting Engineers
724 -14TH STREET, NORTHWEST
WASHINGTON 5, D. C.

WTTT

FCC File No. BL-10034
Accepted 6-17-63

Station WTTT
Amherst, Massachusetts

1430 kc

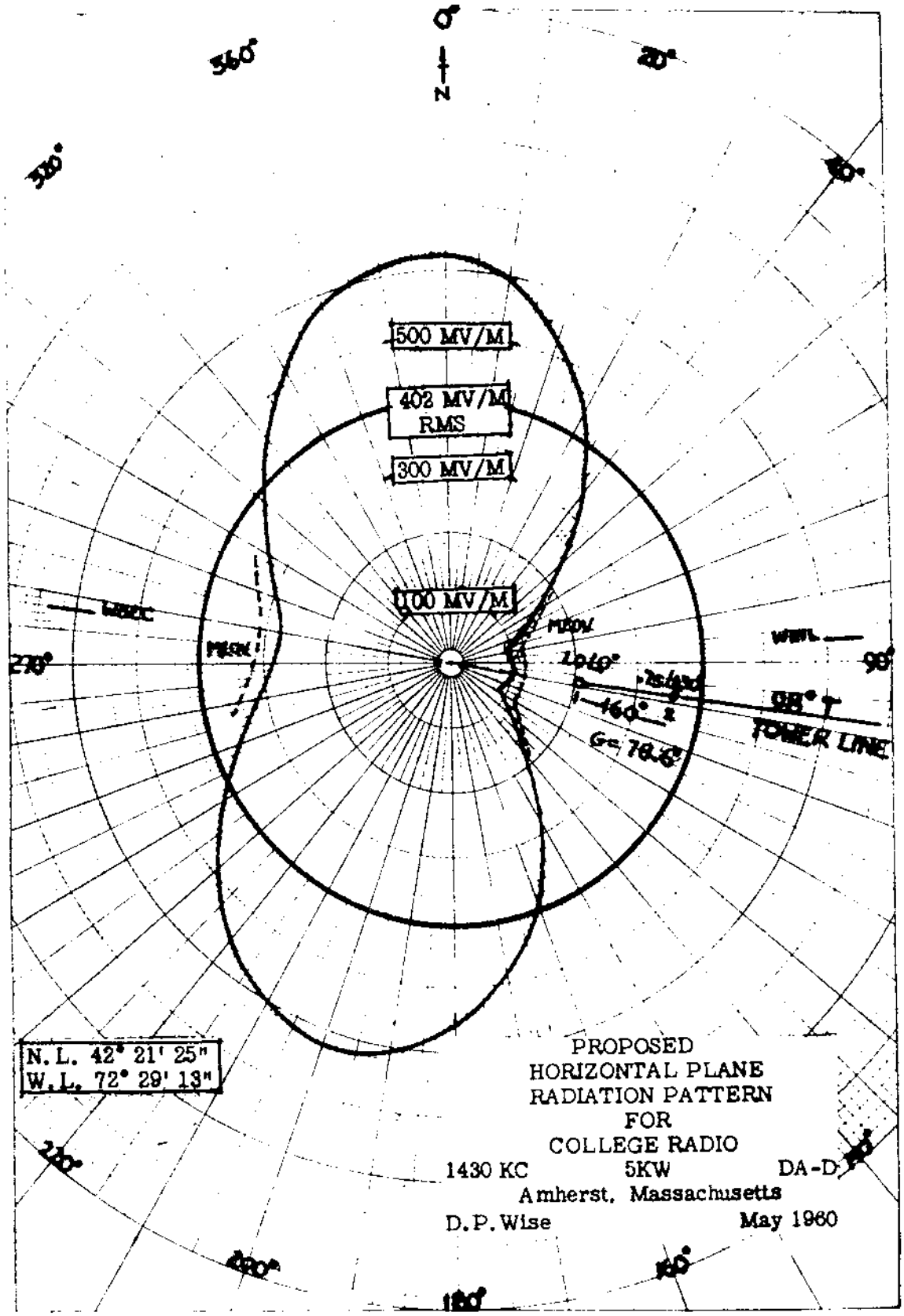
WTTT

PROPOSED DAY
(4-10-61g)

New; College Radio
Amherst, Massachusetts

5kw, DA-D,D
1430 KC

10-19-61
granted cp for
new station

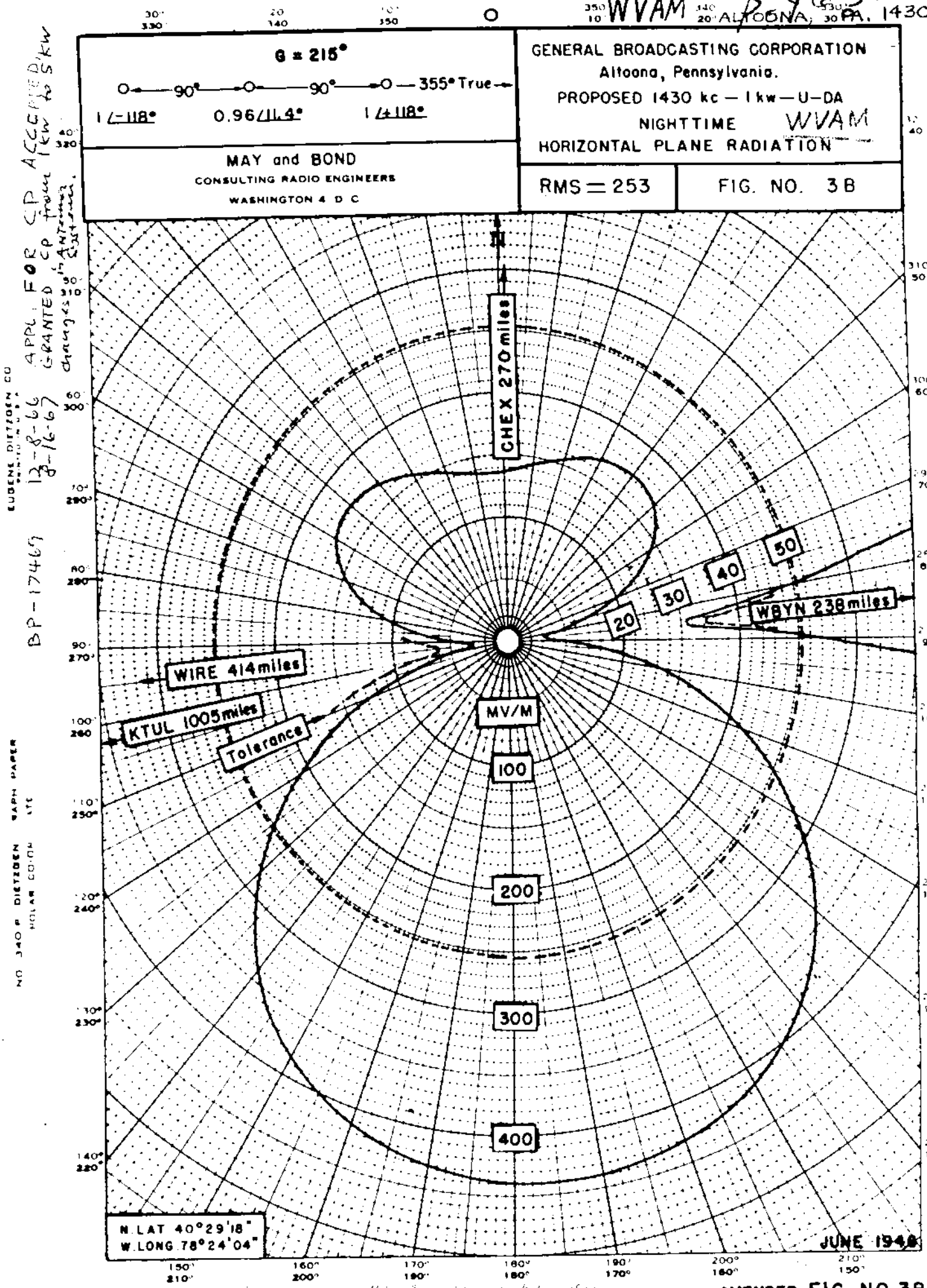


FCC File No. BP-14179
Reinstated 2-15-61

College Radio
Amherst, Massachusetts

1430 KC

WVAM ALTOONA, PA. 1430



AMENDED FIG. NO. 3B

WVAM
1430

AUG 2100 1948 G

G = 180°

90° — 90° — 355°

1/-118° .96/11.4° 1/118°

NIGHTIME

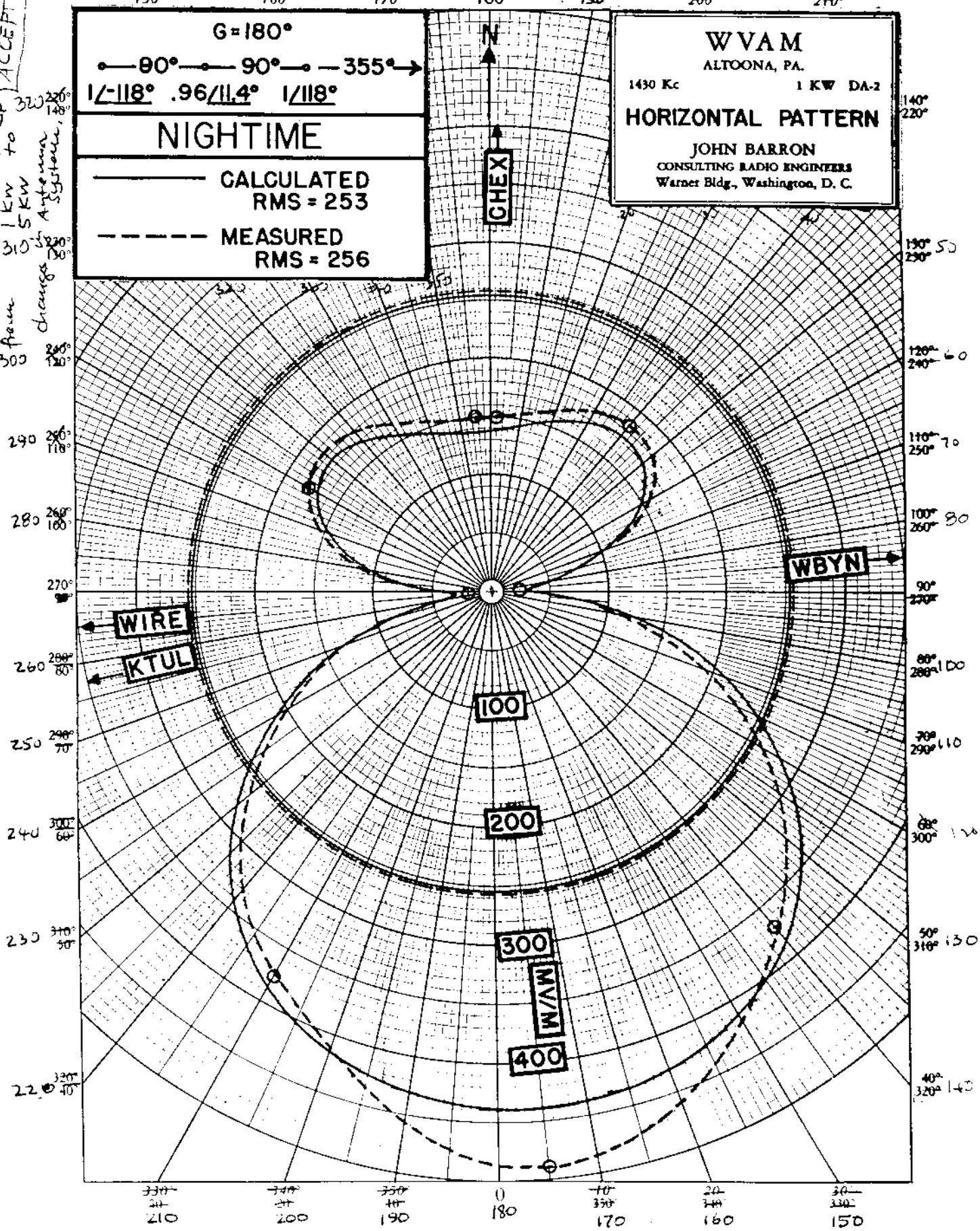
CALCULATED
RMS = 253

MEASURED
RMS = 256

WVAM
ALTOONA, PA.
1430 Kc 1 KW DA-2

HORIZONTAL PATTERN

JOHN BARRON
CONSULTING RADIO ENGINEERS
Warner Bldg., Washington, D. C.



APPL. FOR CP GRANTED TO 1 KW 5 KW Antenna System, 12-8-66 8-16-67 Antenna changes

ACCEPTED

BP-17469

WVAM

Measured Night
(11-29-68ct)

Station WVAM
Altoona, Pennsylvania

1kw,5kw-LS,DA-N,U
1430 kc

BL-12172
GRANTED 2-14-69
LICENSE COVERING
INCREASE IN
DAYTIME POWER
& CHANGE
IN DAYTIME
ANTENNA
SYSTEM

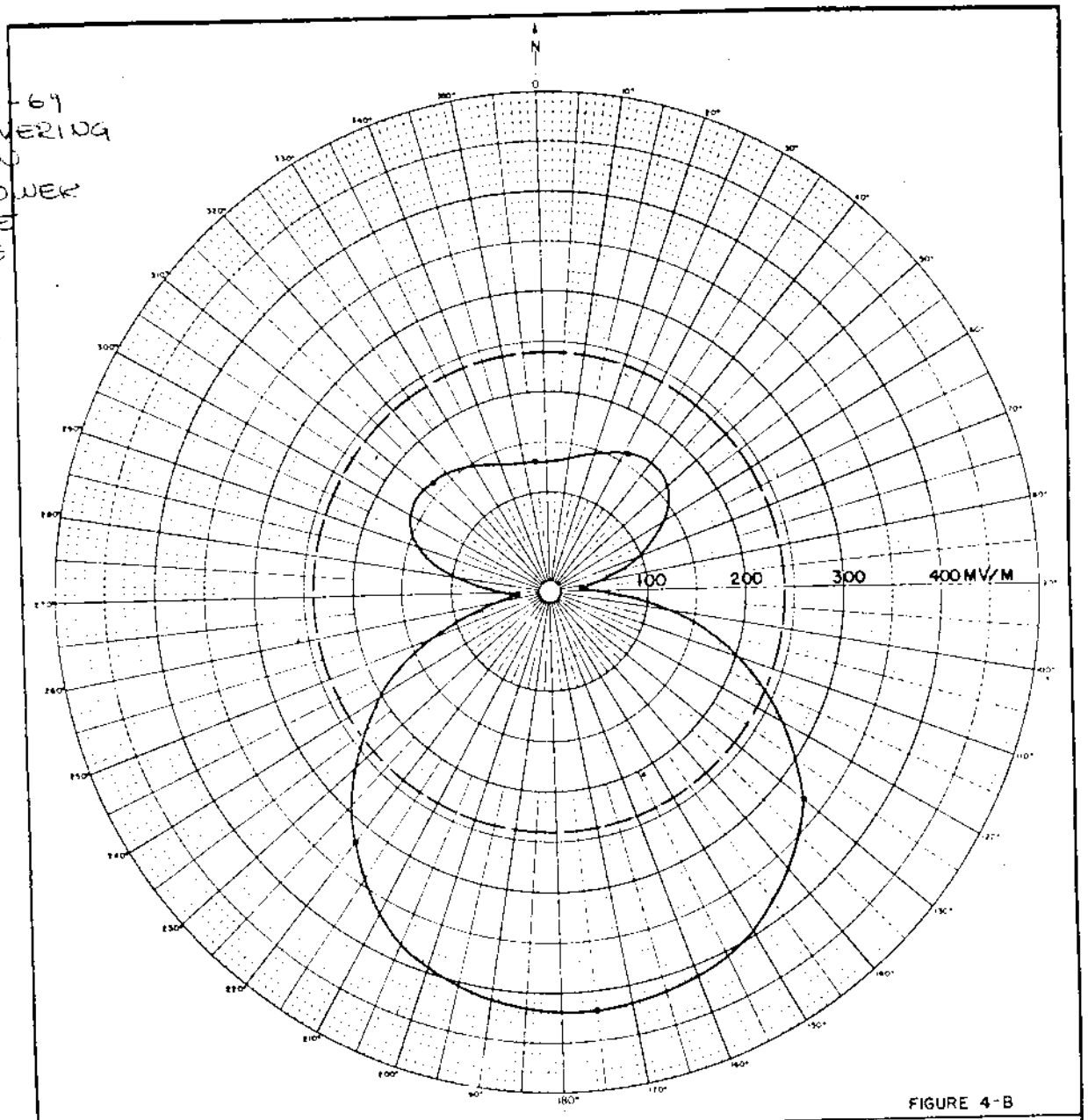
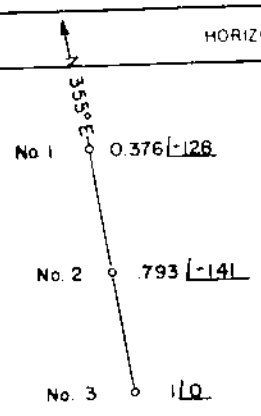


FIGURE 4-B

HORIZONTAL RADIATION PATTERN



APPLICANT	WVAM
LOCATION	ALTOONA, PA.
FREQUENCY	1430 KC/S
POWER	1 KW. DA-N
LATITUDE	40 DEG 29 MIN 42 SEC
LONGITUDE	78 DEG 24 MIN 06 SEC
WHEN USED	NIGHTTIME
RMS FIELD	240.8 MV/M
DATE	SEPT. 1968

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

FCC File No.BL-12172
Accepted 11-15-68

Station WVAM
Altoona, Pennsylvania

1430 kc

WVAM

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

Station WVAM
Altoona, Pennsylvania

1kw,5kw-LS,DA-N,U
1430 kc

BL-12172
Granted
2-14-69
licence
covering
increase
in daytime
power
change
in
daytime
antenna
system

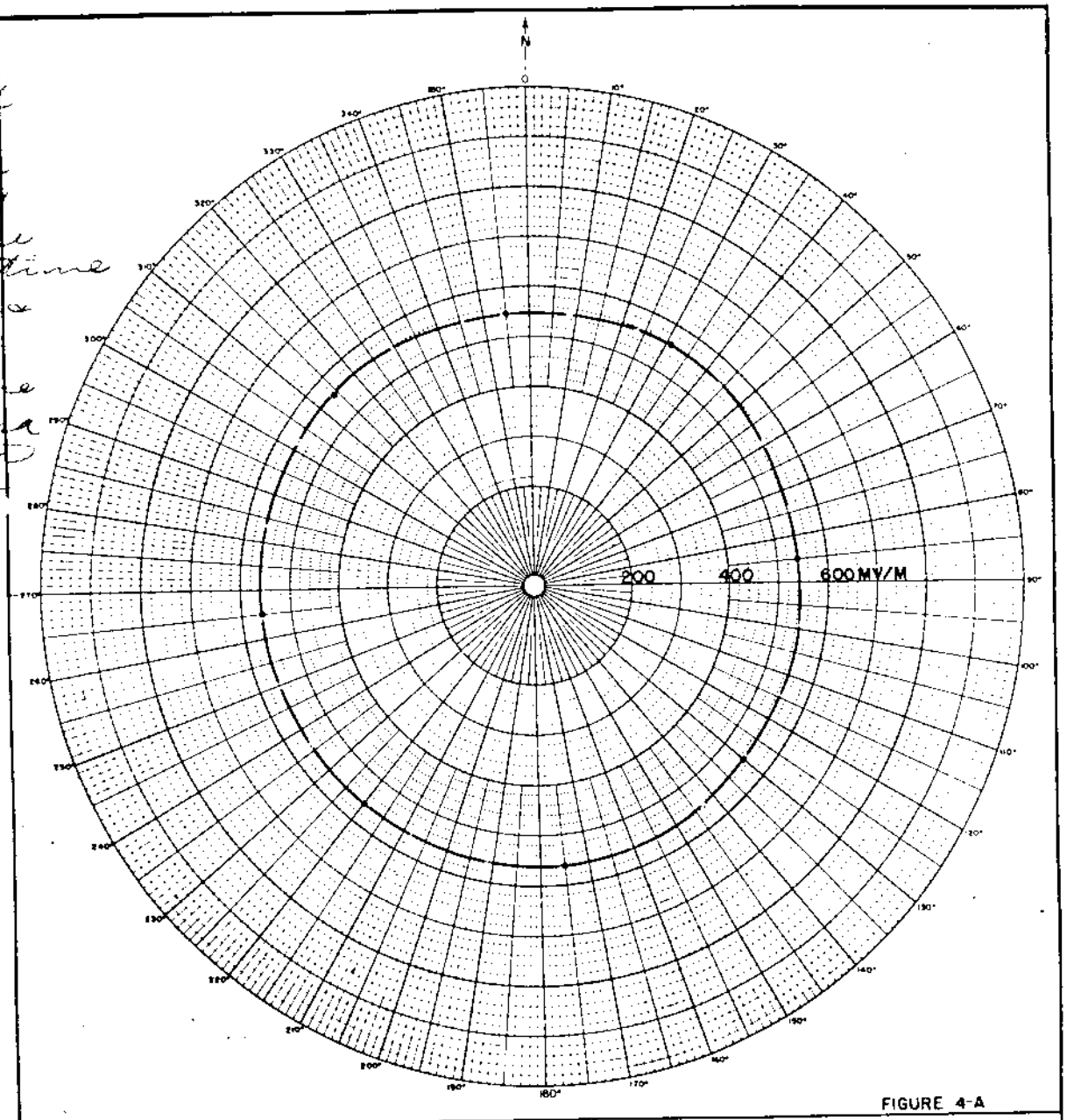


FIGURE 4-A

HORIZONTAL RADIATION PATTERN

APPLICANT	WVAM
LOCATION	ALTOONA, PA.
FREQUENCY	1430 KC/S
POWER	5 KW. ND-D
LATITUDE	40 DEG 29 MIN 42 SEC
LONGITUDE	78 DEG 24 MIN 06 SEC
WHEN USED	DAYTIME
RMS FIELD	----
DATE	SEPT 1968

RAYMOND E. ROHRER & ASSOCIATES
CONSULTING RADIO ENGINEERS

FCC File No.BL-12172
Accepted 11-15-68

Station WVAM
Altoona, Pennsylvania

1430 kc

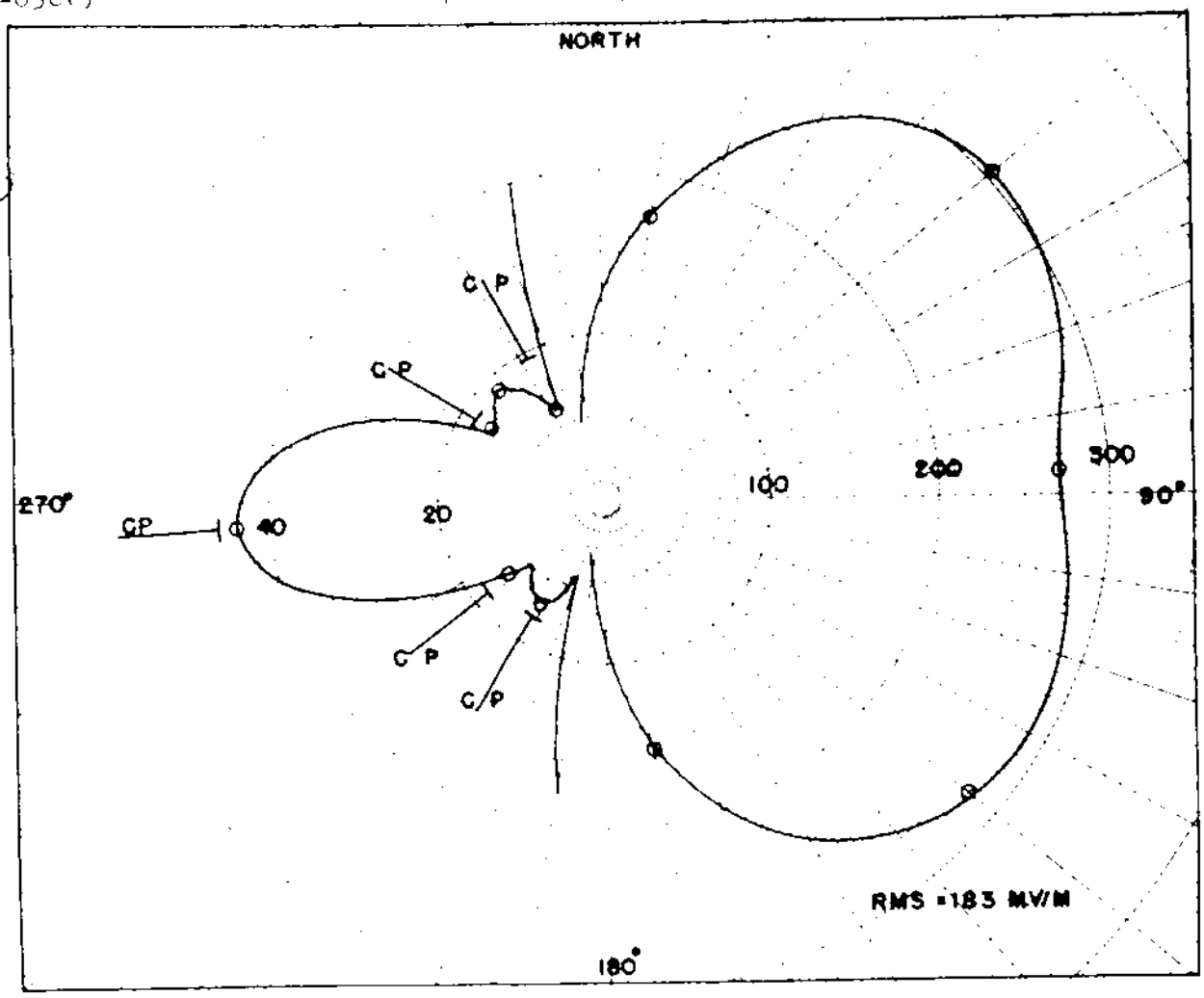
WVVX

Measured Day
(8-23-63ct)

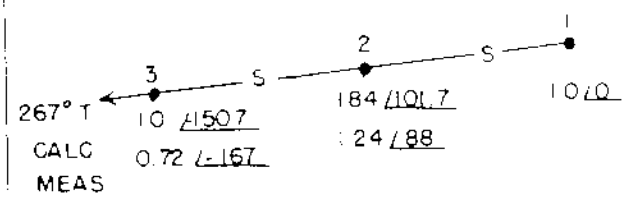
Station WEEF
Highland Park, Illinois

1kw,DA-D,D
1430 kc

2-20-64 measured series for new station



DESIGN PARAMETERS



S = 125° = 239' 42 09 26

H = 78° = 150 87 51 02

HORIZONTAL RADIATION PATTERN

WEEF 1 KW 1430 KC

HIGHLAND PARK, ILL

JUNE 1963

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FCC File No.BL-10179
Accepted 8-5-63

Station WEEF
Highland Park, Illinois

1430 kc

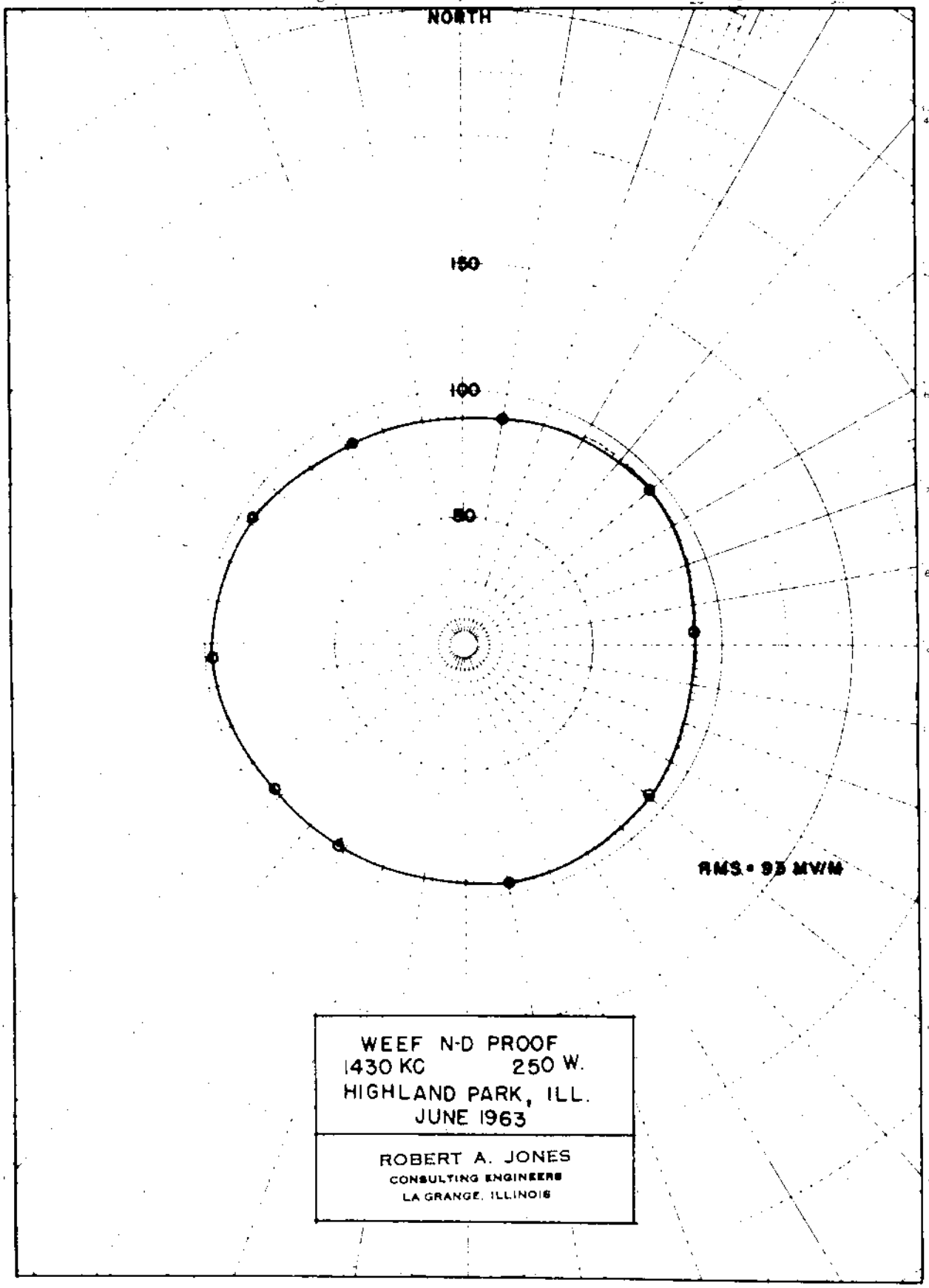
WVVX

Measured Non-DA
(8-23-63ct)

Station WEEF
Highland Park, Illinois

1kw,DA-D,D
1430 kc

2-20-64 Granted license for new station



FCC File No.BL-10179
Accepted 8-5-63

Station WEEF
Highland Park, Illinois

1430 kc

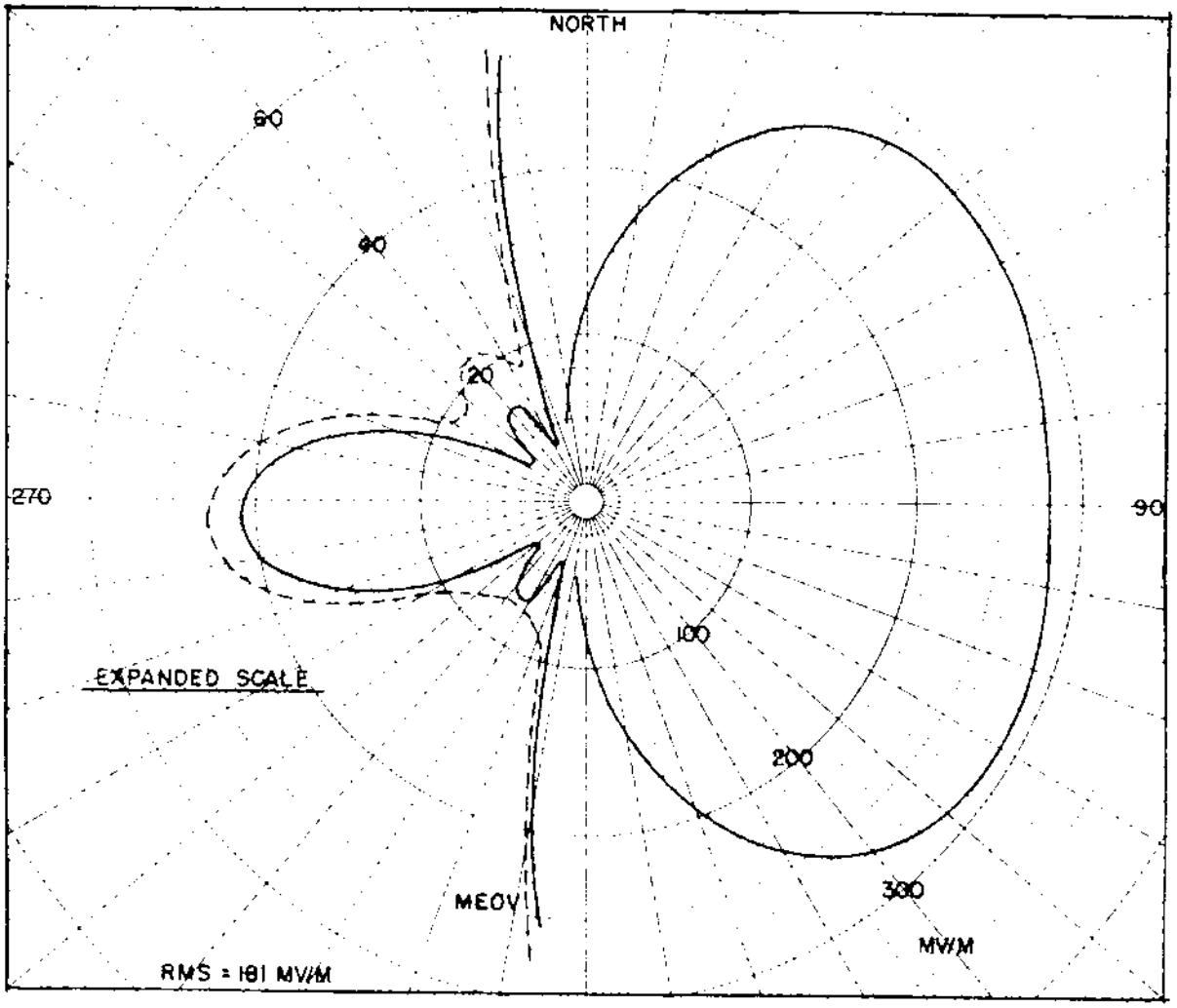
WVVX

Proposed Day
(10-26-62ct)

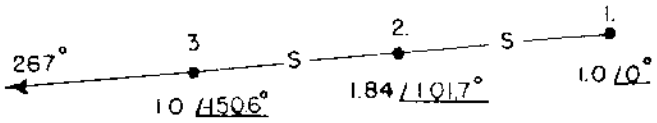
Station WNSH
Highland Park, Illinois

1kw,DA-D,D
1430 kc

11-20-62 granted mod to make changes in DA sys.



DESIGN PARAMETERS



S = 125° = 239'
H = 78° = 150'

N LAT. 42 09 26
W LONG. 87 51 02

HORIZONTAL RADIATION PATTERN
WNSH 1 KW 1430 KC
HIGHLAND PARK, ILL.
SEPT. 1962

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FCC File No. BMP-10583
Accepted 10-8-62

Station WNSH
Highland Park, Illinois

1430 kc

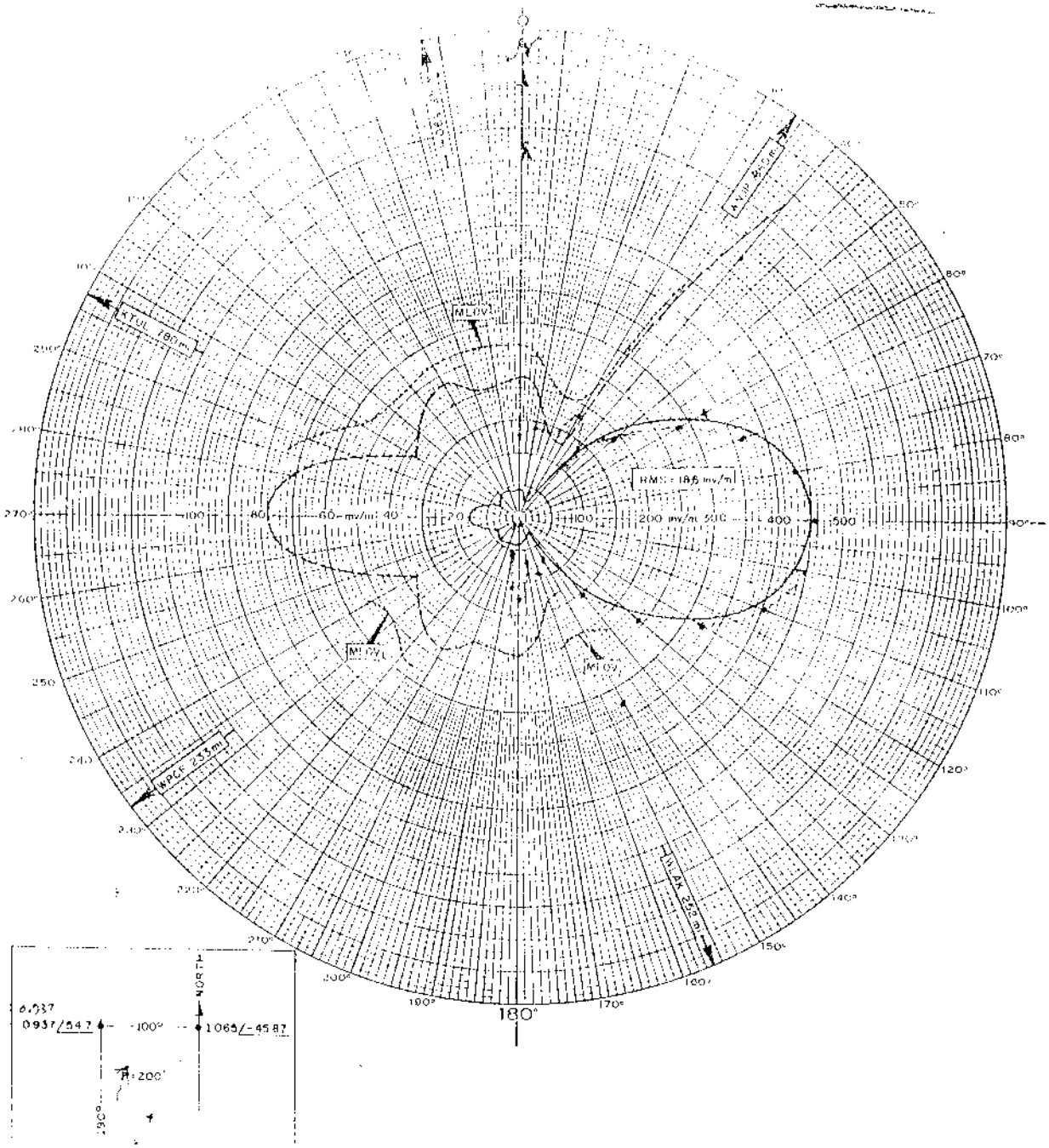
WWG

granted MCP to move nighttime transmitter location.

PROPOSED NIGHT
(6-16-59g)

Station WWGS
Tifton, Georgia

500w, DA-N, U
1430 KC



1430 KC WWGS - Tifton, Georgia; BMP-8795. An application to modify CP by moving nighttime transmitter location was accepted by the FCC . Proposed nighttime coordinates are:

North Latitude 31° 27' 29"
West Longitude 83° 33' 39"

Make notation on Proposed Night pattern dated 6-16-59g.

FCC File NO. BP-11788
Accepted 5-18-59 (Amended)

WWGS
Tifton, Georgia

1430 KC

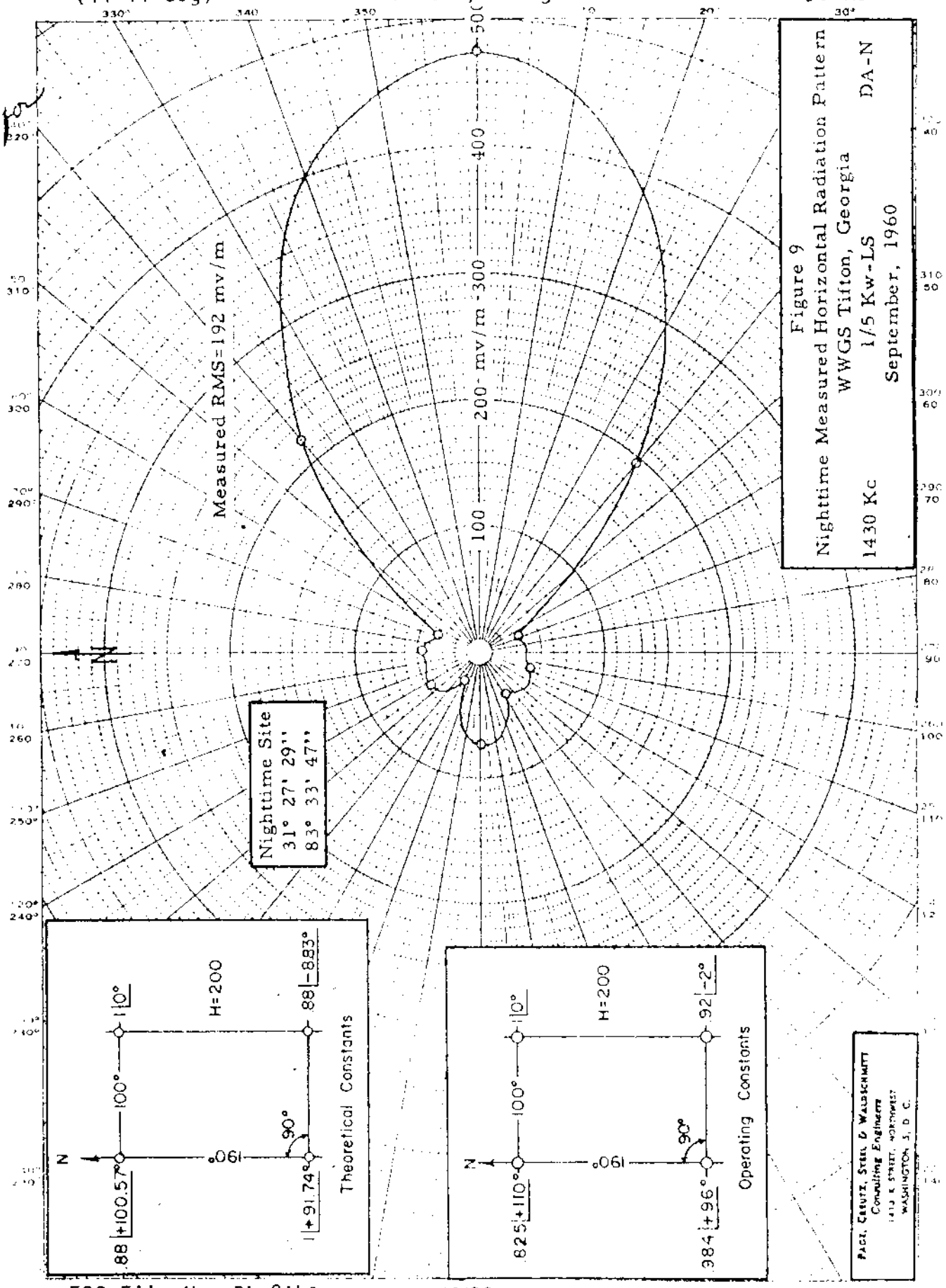
granted CP DA-N - 6-17-59

WWGS

MEASURED NIGHT
(11-11-60g)

Station WWGS
Tifton, Georgia

1kw,5kw-LS,DA-N,U
1430 KC



FCC File No. BL-8143
Accepted 10-20-60

WWGS
Tifton, Georgia

1430 KC

WWGS

MEASURED NON-DA
(11-11-60g)

Station WWGS
Tifton, Georgia

1kw,5kw-LS, DA-N,U
1430 KC

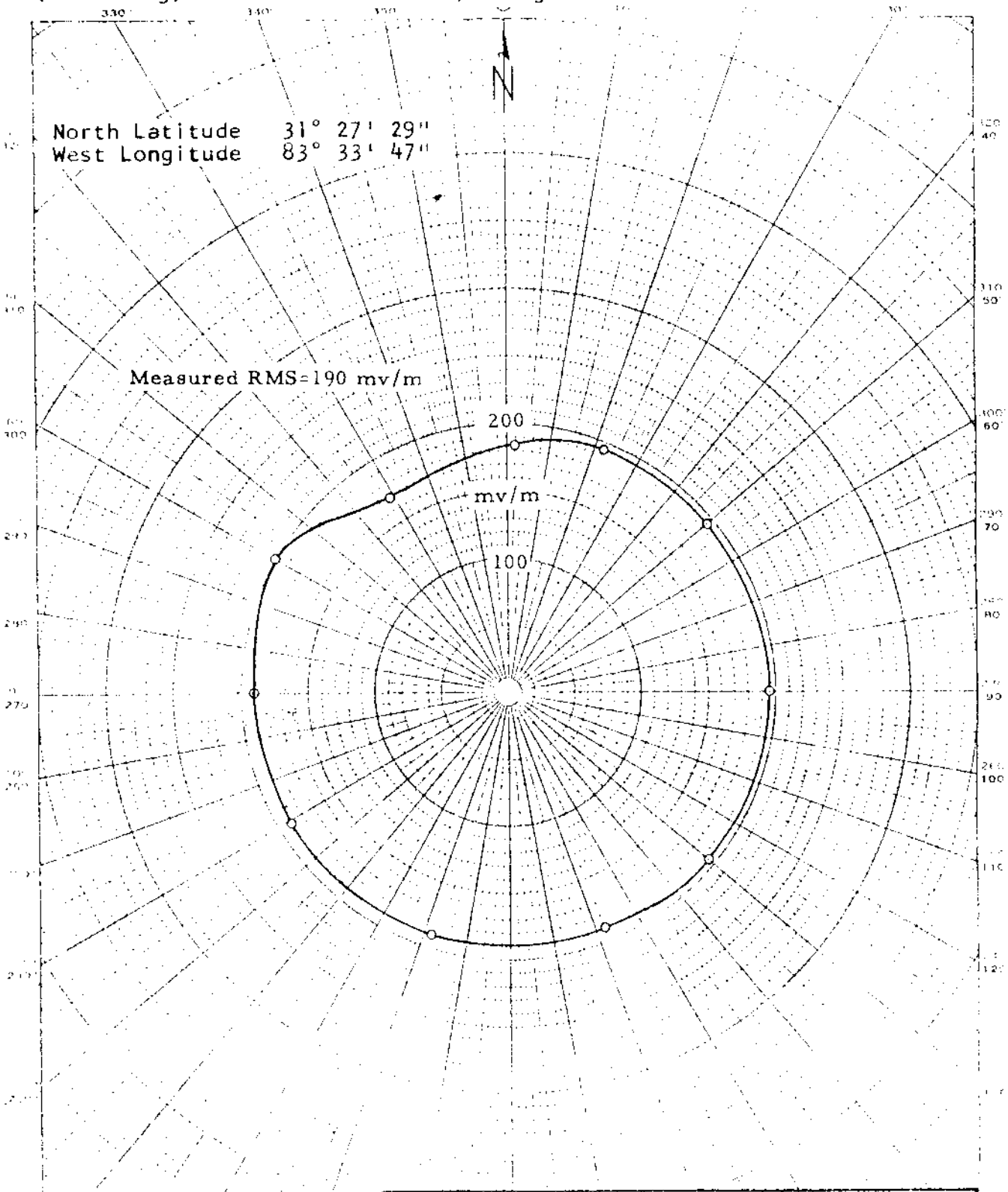


Figure 8
Non-directional (test) Horizontal Radiation Pattern
Using Southeast Tower 3
WWGS Tifton, Georgia
1430 Kc 1/5 Kw-LS DA-N
September, 1960

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

FCC File No. BL-8143
Accepted, 10-20-60

WWGS
Tifton, Georgia

1430 KC

WYMC
1430kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WYMC

Main Studio: Mayfield, Kentucky

Frequency: 1430 kHz

Power: 1kw Night 1kw Day

Notification List No.1785

Date: November 16, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 36° 47' 12"
West Longitude: 88° 39' 16"

ANTENNA CHARACTERISTICS

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

TOWER:	#1(N)	#2(NC)	#3(SC)	#4(S)
HEIGHT ABOVE INSULATORS:	140'	140'	140'	140' (73°)
NIGHT PHASING:	0°	-144.8	64.75	-76.0°
NIGHT FIELD RATIO:	1.000	1.63608	1.4355	0.6055

SPACING AND ORIENTATION: The towers are spaced 172' (90°) on a line bearing 195° true.

GROUND SYSTEM: 120 - 175' equally spaced copper radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Night	177.99 mv/m	327.5 mv/m	186.93 mv/m

PREDICTED EFFECTIVE DAY FIELD: (Omnidirectional) 183 mv/m at rated power.

Note: Please retain directional antenna radiation pattern notified for a new Station in United States Change List Number 1682 dated April 27, 1976 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.

WYMC

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: (New)

Main Studio: Mayfield, Kentucky

Frequency: 1430 kHz

Power: 1 kW

Notification List No. 1682

Date: April 27, 1976

Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 36° 47' 12"
West Longitude: 88° 39' 16"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-1)
Number of elements: 4
Type of elements: Series excited, uniform cross-section, guyed, vertical steel towers.

TOWER:	N(#1)	NC(#2)	SC(#3)	S(#4)
HEIGHT ABOVE INSULATORS:	140'	140'	140'	140' (73°)
PHASING:	0°	-144.8°	64.75°	-76.0°
FIELD RATIO:	1	1.636	1.436	0.606

SPACING AND ORIENTATION: Adjacent towers in a row are spaced 172' (90°) on a line bearing 195° true.

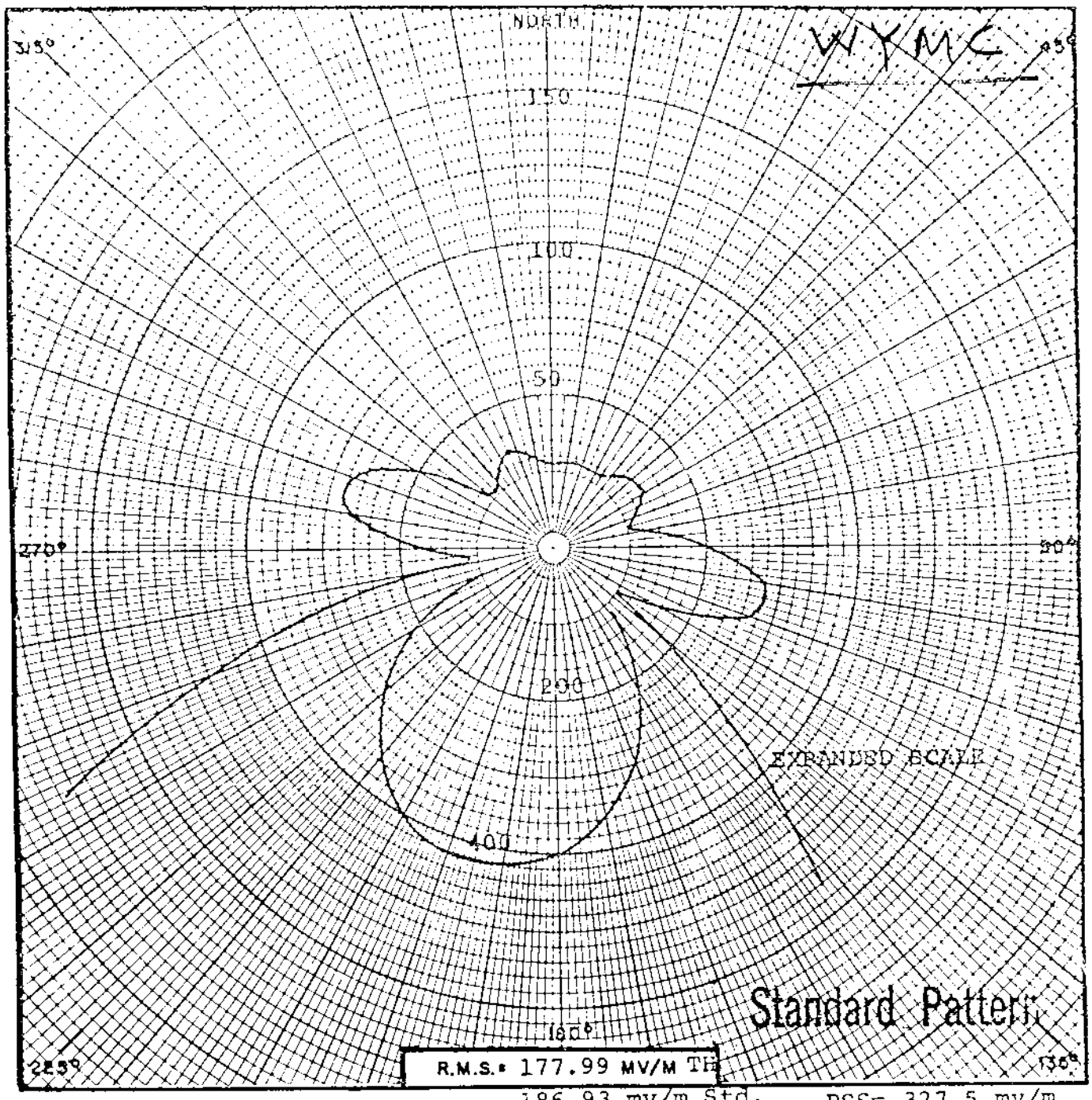
GROUND SYSTEM: 120-175' equally spaced copper radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
177.99 mv/m	327.5 mv/m	186.93 mv/m

CTR NO 30459A3

STANDARD HORIZONTAL PLANE PATTERN



186.93 mv/m Std. RSS= 327.5 mv/m

PATTERN PARAMETERS
1. 1.000/ 0°
2 1.63608/-144.8°
3 1.4355/64.75°
4 0.6055/-76.0°
195°True S = 90° H = 73°

DIRECTIONAL
RADIATION PATTERN
PURCHASE SOUND, INC

☐ MEASURED ☒ PROPOSED

FREQ: 1430 (KHZ) POWER 1.0 (KW) ☒ DA-D

N. LAT. 36 ° 47 ' 12 " ☒ DA-N

W. LONG. 88 ° 39 ' 16 " ☐ N-D

LOCATION: MAYFIELD, KENTUCKY

DATE: DECEMBER 1974

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

DIRECTIONAL ANTENNA DESCRIPTION SHEET

STATION: New

MAIN STUDIO: Bathurst, N.B.

POWER: 10 kW

FREQUENCY: 1430 kHz, CLASS: III

NOTIFICATION LIST NO: 291

DATE: May 12, 1972

GEOGRAPHICAL LOCATION: North Latitude 47° 39' 20"
West Longitude 65° 40' 25"

ANTENNA CHARACTERISTICS

MODE OF OPERATION: DA-1, Unlimited

ANTENNA CHARACTERISTICS: Two elements, uniform cross-section guyed steel tower, base insulated for series feed, no top loading.

TOWERS:	No. 1	No. 2
HEIGHT ABOVE INSULATORS:	115' (60°)	115'
OVERALL HEIGHT:	120'	120'
FIELD RATIOS:	1.0	.85
PHASING:	0°	-60°
SPACING:	0°	230' (120°)
ORIENTATION:	Ref.	45°

GROUND SYSTEM: 120 equiangularly spaced radials extend from the base of each tower to a maximum distance of 275 ft. (0.4 wavelength) and bonded along the common chord. Ground wires are No. 10 B & S soft drawn copper wire, buried 8" in the ground.

PREDICTED FIELD: 570 mV/m for 10 kW

RCA LIMITED
APRIL 1972

PROJECT 5121-A-1

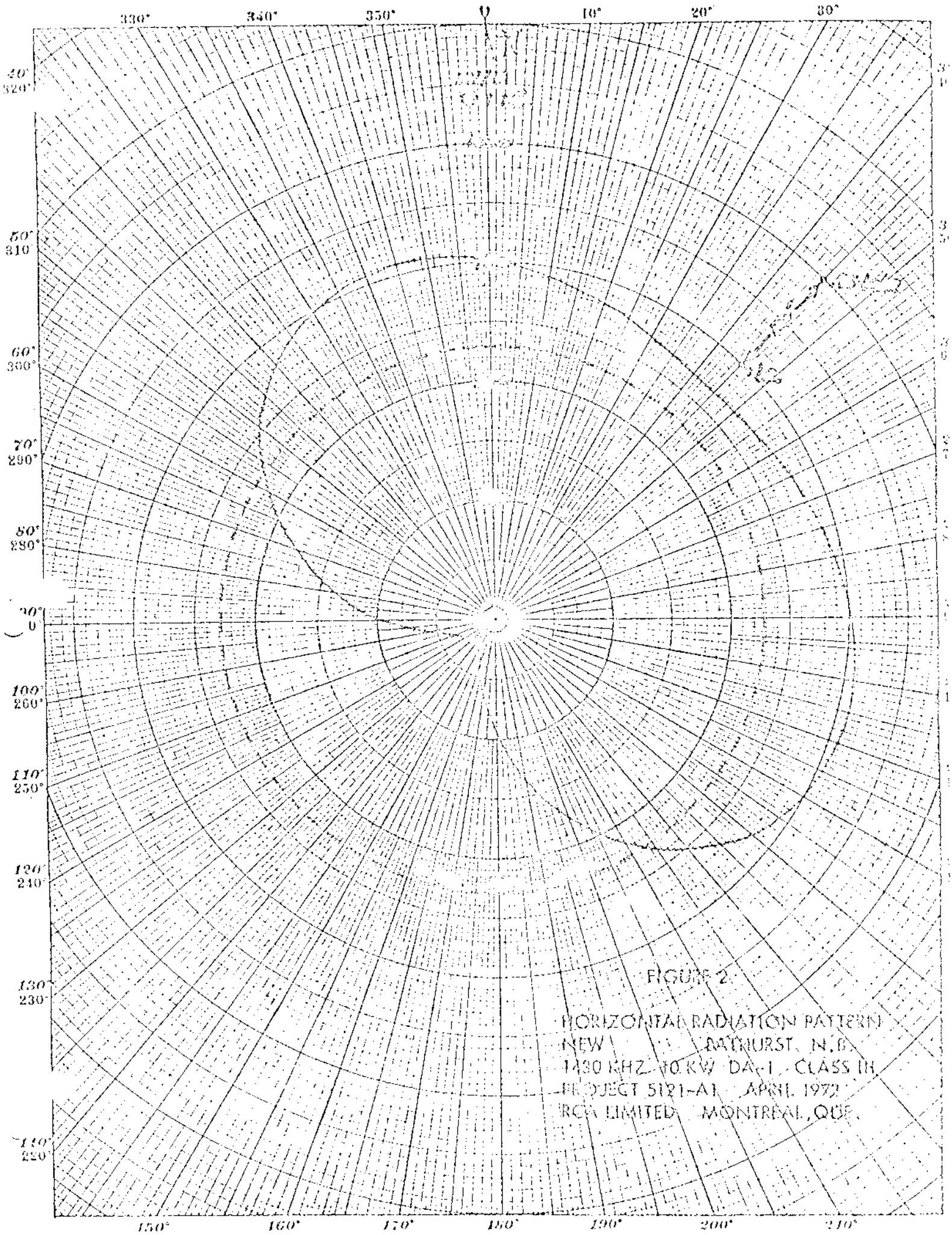


FIGURE 2

HORIZONTAL RADIATION PATTERN
NEW BATHURST, N.B.
1430 KHZ 10 KW DA-1 CLASS III
PROJECT 5121-A1 APRIL 1972
RCA LIMITED MONTREAL, QUE.

PROJECT #20404

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: CFGO

MAIN STUDIO: Ottawa, Ontario

FREQUENCY: 1440 kHz

POWER: 50 kW CLASS: III

NOTIFICATION LIST NO: 405

DATE: June 12, 1981

GEOGRAPHICAL LOCATION:

Latitude 45° 16' 59" North
Longitude 75° 44' 31" 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	#2	#3	#4	#5	#6
Height above Base Insulator:	170' (90°)	170' (90°)	170' (90°)	170' (90°)	170' (90°)	170' (90°)
Overall Height:	175'	175'	175'	175'	175'	175'
Day Field Ratio:	-	-	2.0	-	1.0	0.83
Day Phasing:	-	-	-70.5°	-	0	-141.1°
Night Field Ratio:	1.0	2.6	2.6	.94	-	-
Night Phasing:	0°	-113°	-235°	-2°	-	-
Spacing:	341.4' (179.82°)	170.9' (90°)	Ref.	170.9' (90°)	208.8' (110°)	208.8' (110°)
Orientation:	197.5°	200°	Ref.	20°	174°	354'

GROUND SYSTEM: 120 equally spaced radials per tower of No. 10 B & S gauge bare soft copper wire, buried approximately 8". Length of radials is 273.4' (0.4 wavelength) with the exception of those joined along the common chords. Size limitations of the transmitter site do not allow a standard ground system. This will be offset by installation of extra long radials in other directions.

PREDICTED EFFECTIVE FIELD:

Nighttime: 1393 mV/m at 1 mile for 50 kW
197 mV/m at 1 mile for 1 kW
Daytime: 1292 mV/m at 1 mile for 50 kW
183 mV/m at 1 mile for 1 kW

December 3, 1980
Revised May 27, 1981

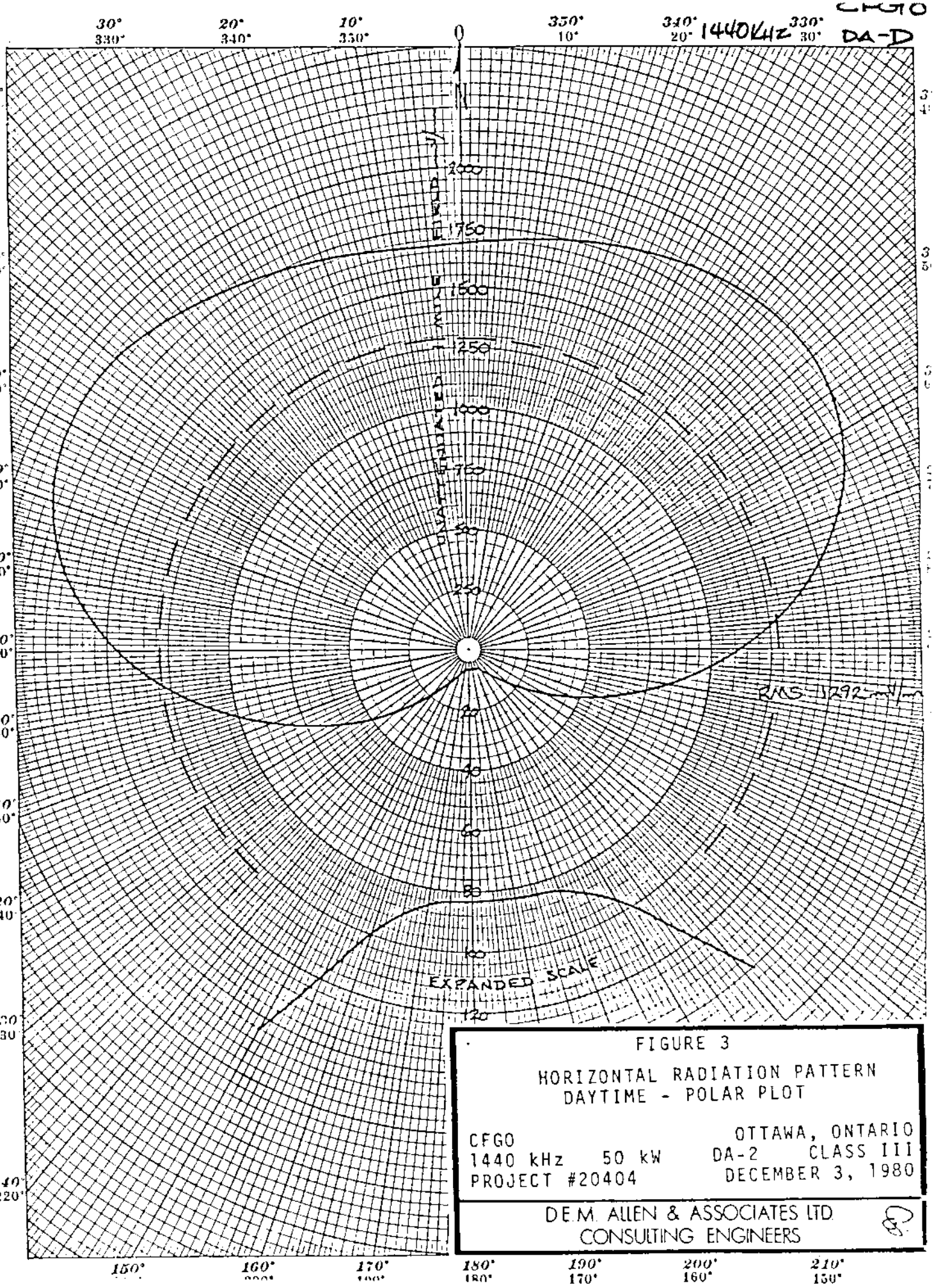


FIGURE 3

HORIZONTAL RADIATION PATTERN
DAYTIME - POLAR PLOT

CFGO OTTAWA, ONTARIO
1440 kHz 50 kW DA-2 CLASS III
PROJECT #20404 DECEMBER 3, 1980

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

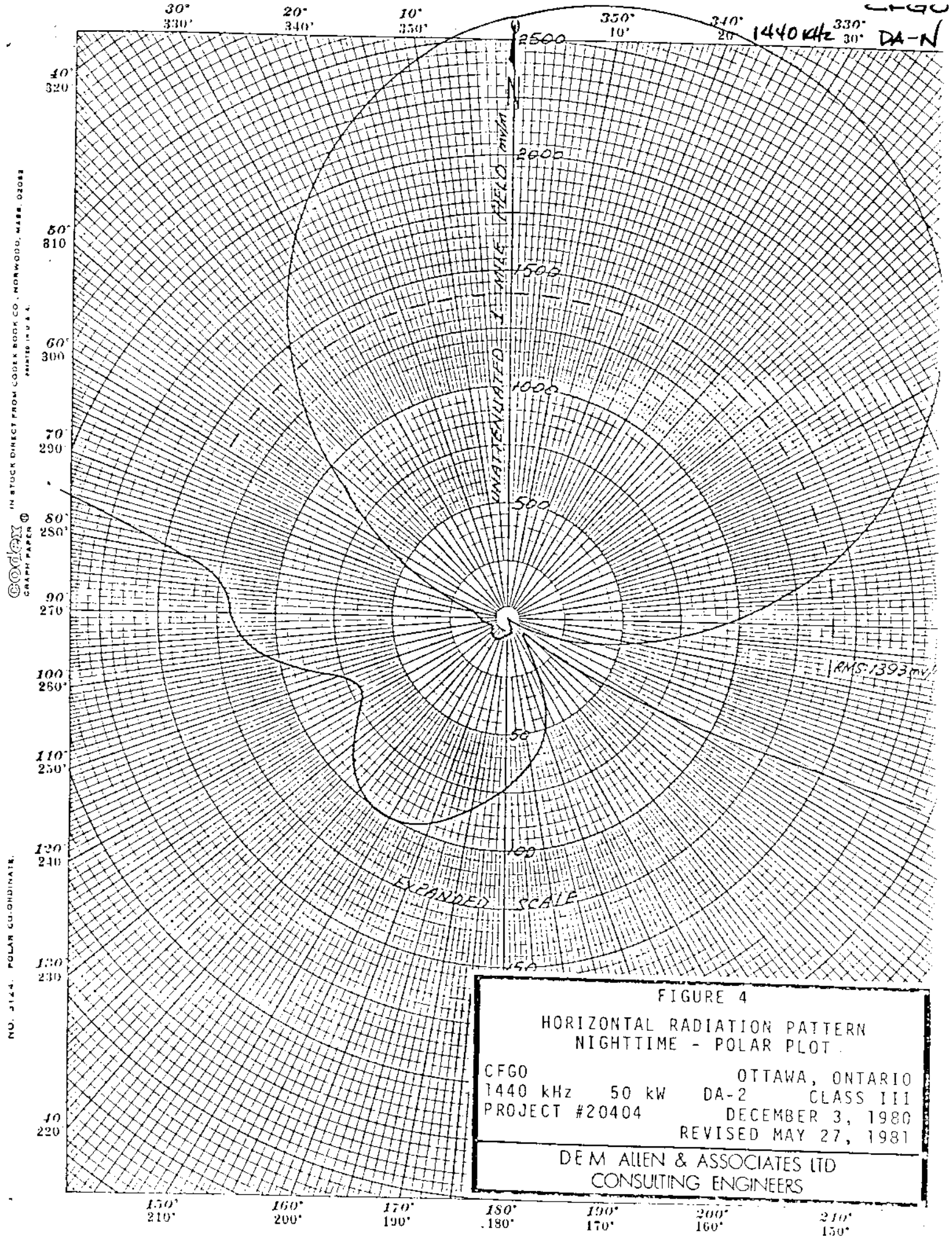


FIGURE 4

HORIZONTAL RADIATION PATTERN
NIGHTTIME - POLAR PLOT

CFGO OTTAWA, ONTARIO
1440 kHz 50 kW DA-2 CLASS III
PROJECT #20404 DECEMBER 3, 1980
REVISED MAY 27, 1981

DEM ALLEN & ASSOCIATES LTD
CONSULTING ENGINEERS

CJOI
1440

PROJECT #11606

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: CJOI

MAIN STUDIO: WETASKIWIN, ALBERTA

FREQUENCY: 1440 kHz

POWER: 10 kW

NOTIFICATION LIST: 315

DATE: October 12, 1973

GEOGRAPHICAL LOCATION:

Latitude 52° 57' 30" North
Longitude 113° 27' 00" West

ANTENNA CHARACTERISTICS:

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

TOWER:	#1(South)	#2(Centre)	#3(North)
Height above base insulator:	171' (90°)	171' (90°)	171' (90°)
Overall Height:	174'	174'	174'
Field Ratio:	.515	1.0	.361
Phasing:	+151°	0°	-149°
Orientation:	Ref.	350°T	350°T
Spacing:	Ref.	114' (60°)	228' (120°)

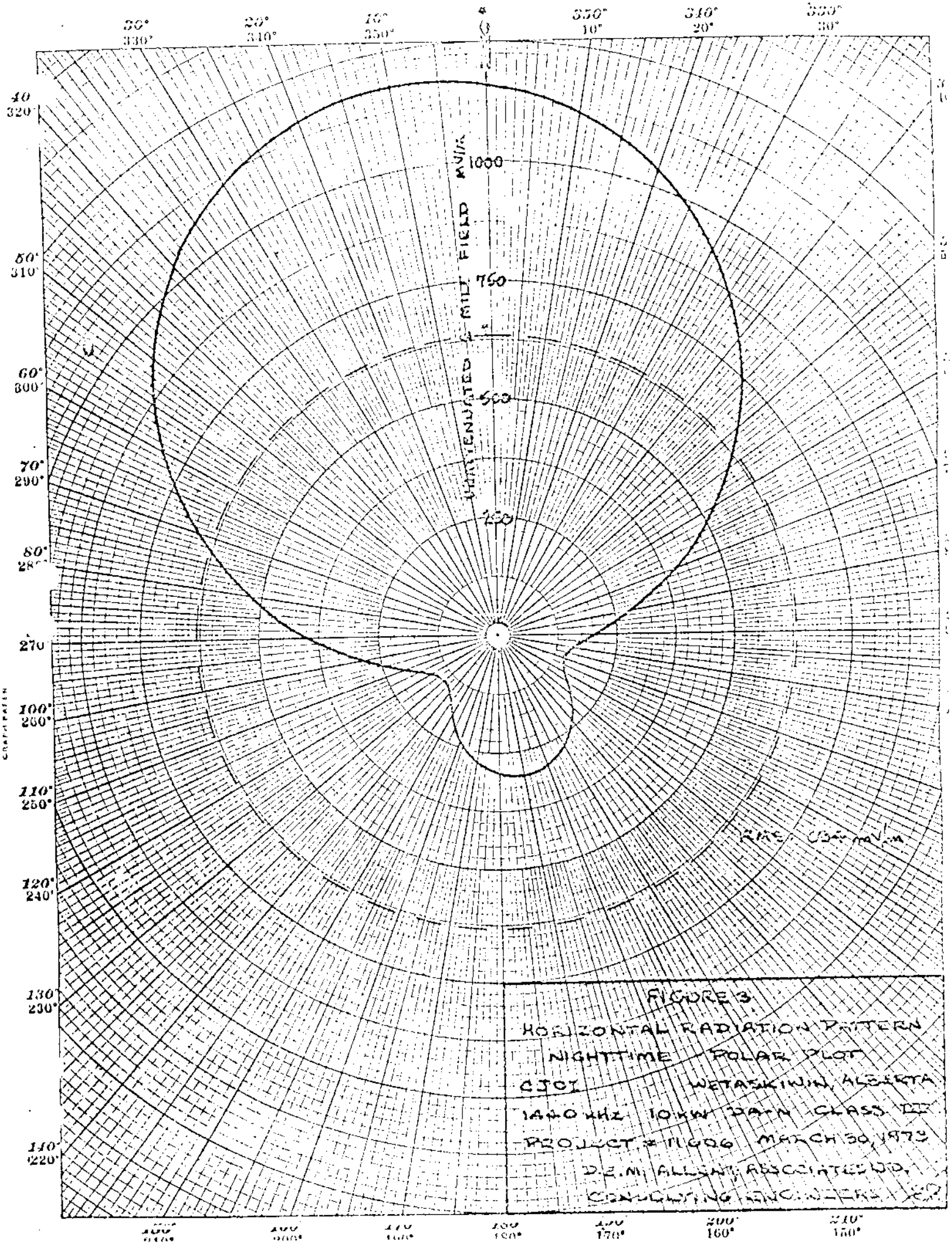
GROUND SYSTEM:

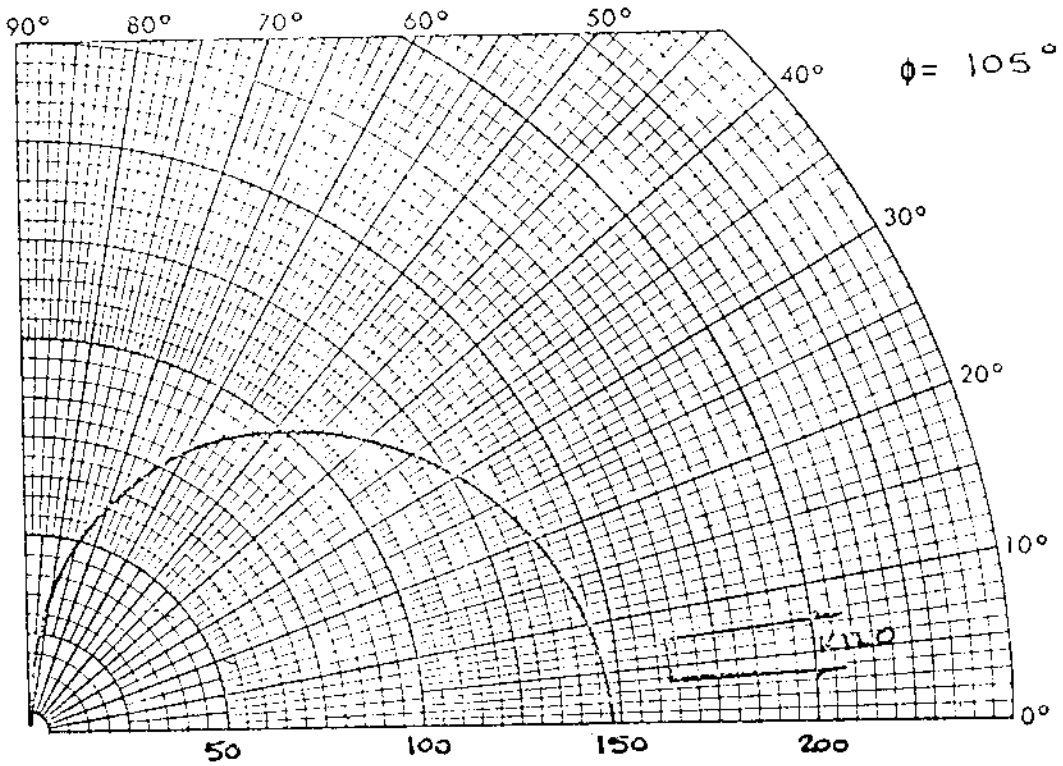
120 equally spaced radials per tower of #10 bare soft copper wire, buried approximately 8". The radials extend to a length of 191' (0.4 wavelength), with the exception of those joined along the common chords.

PREDICTED EFFECTIVE FIELDS:

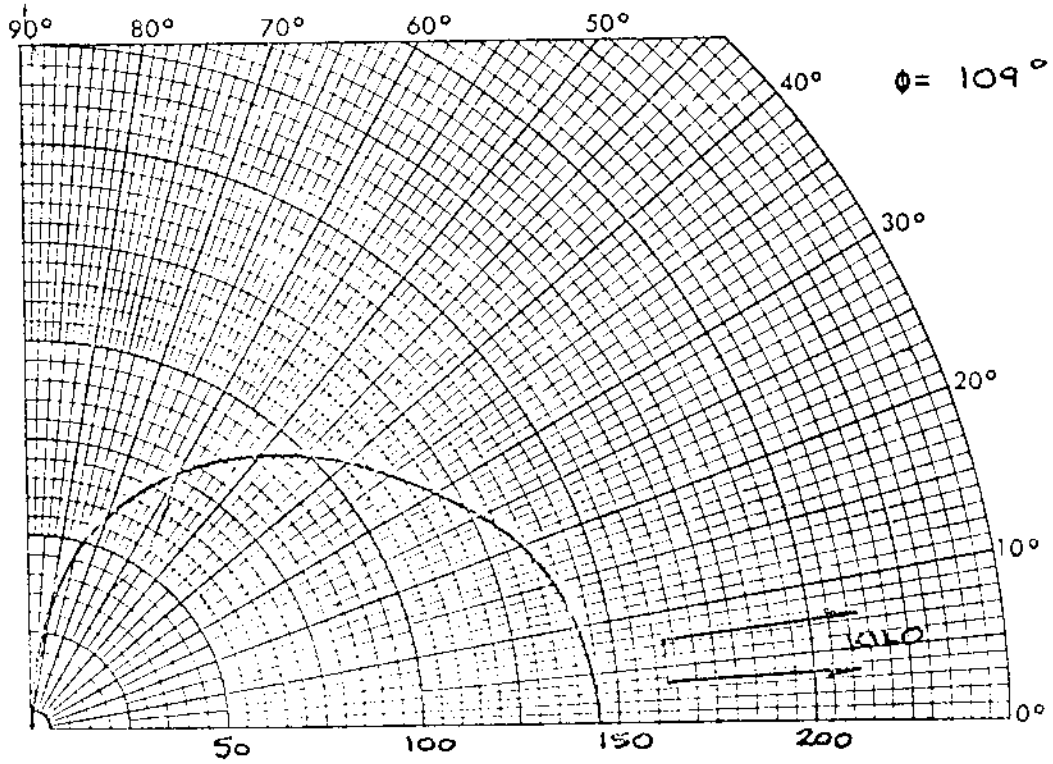
Day	Night
601 mV/m at 1 mile for 10 kW	634 mV/m at 1 mile for 10 kW
190 mV/m at 1 mile for 1 kW	201 mV/m at 1 mile for 1 kW

March 30, 1973


UNATTENUATED FIELD MV/M
1000
750
500
250
FIGURE 3
HORIZONTAL RADIATION PATTERN
NIGHTTIME POLAR PLOT
CJOI WETASKIWIN, ALBERTA
1440 KHZ 10 KW DAYN CLASS III
PROJECT # 11006 MARCH 30, 1979
D.E.M. ALLGAY ASSOCIATES LTD.
CONSULTING ENGINEERS



UNATTENUATED (MV/M) 1 MILE FIELD



UNATTENUATED (MV/M) 1 MILE FIELD

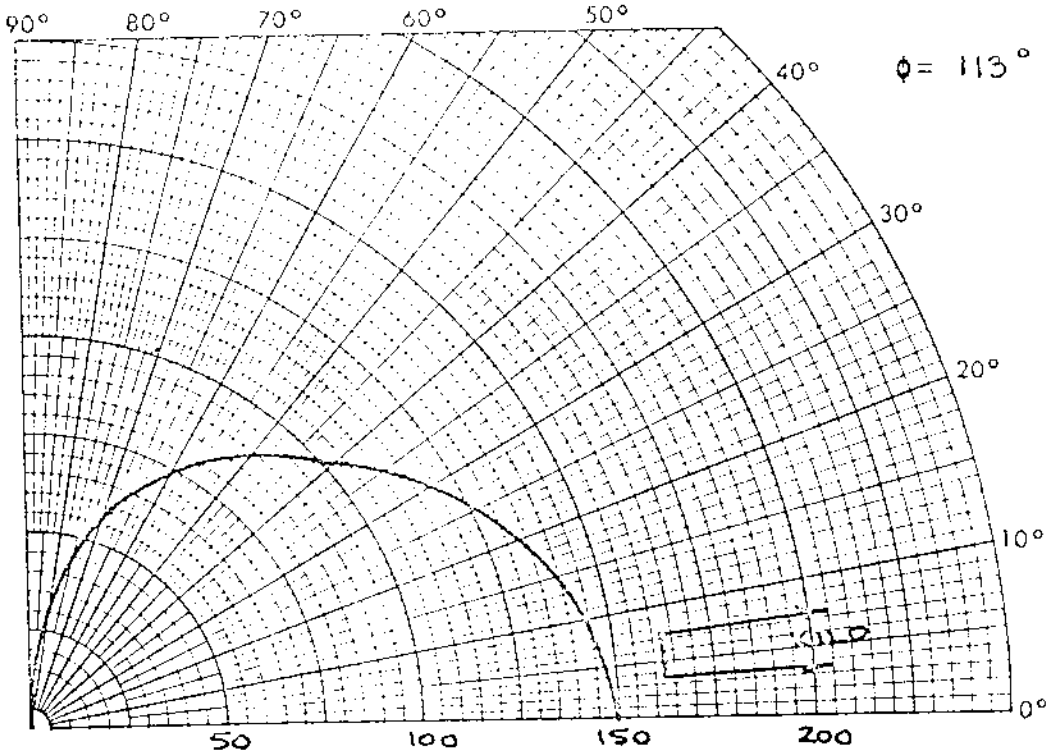
VERTICAL RADIATION PATTERNS

FIGURE 4

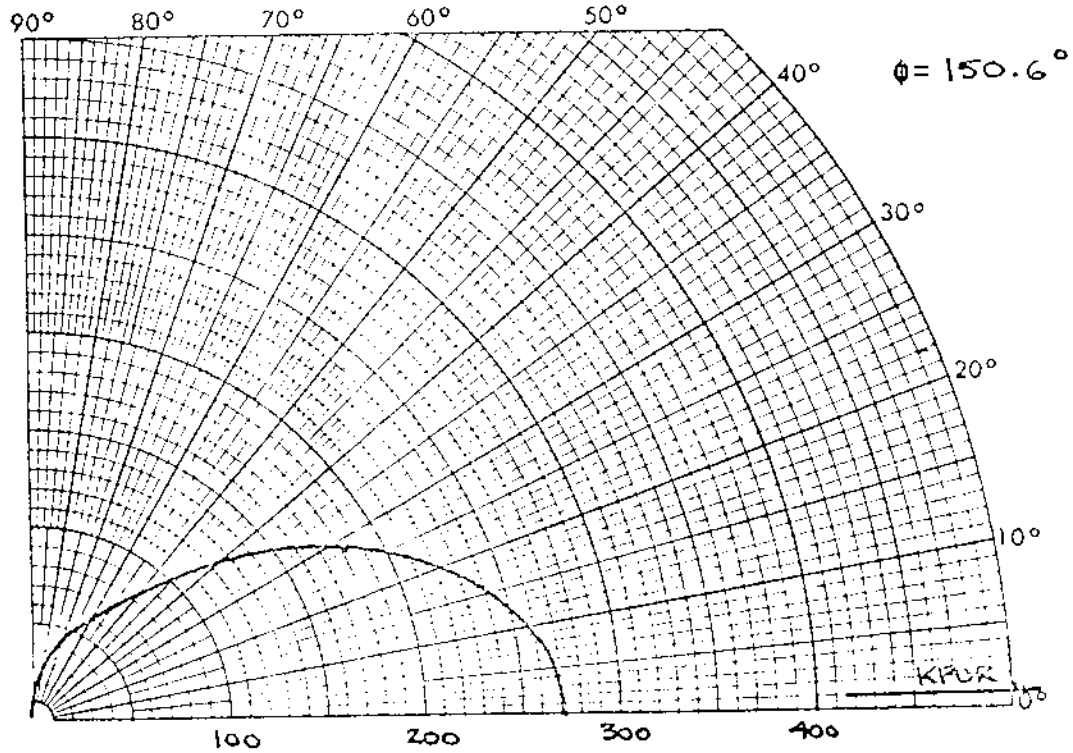
CJOI
1440 kHz 10 kW DA-N
PROJECT #11606

WETASKIWIN, ALBERTA
CLASS III
MARCH 30, 1973

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



UNATTENUATED (MV/M) 1 MILE FIELD



UNATTENUATED (MV/M) 1 MILE FIELD

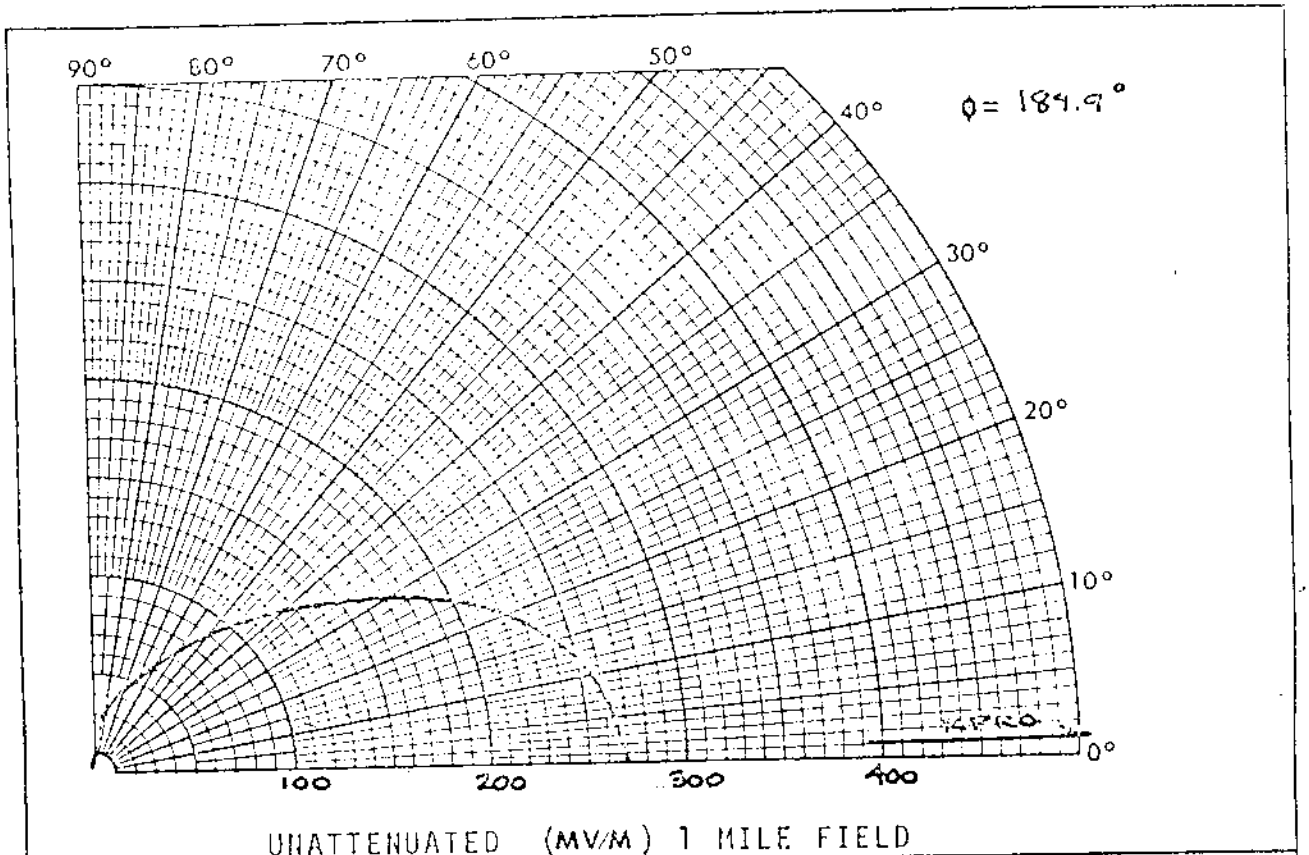
VERTICAL RADIATION PATTERNS

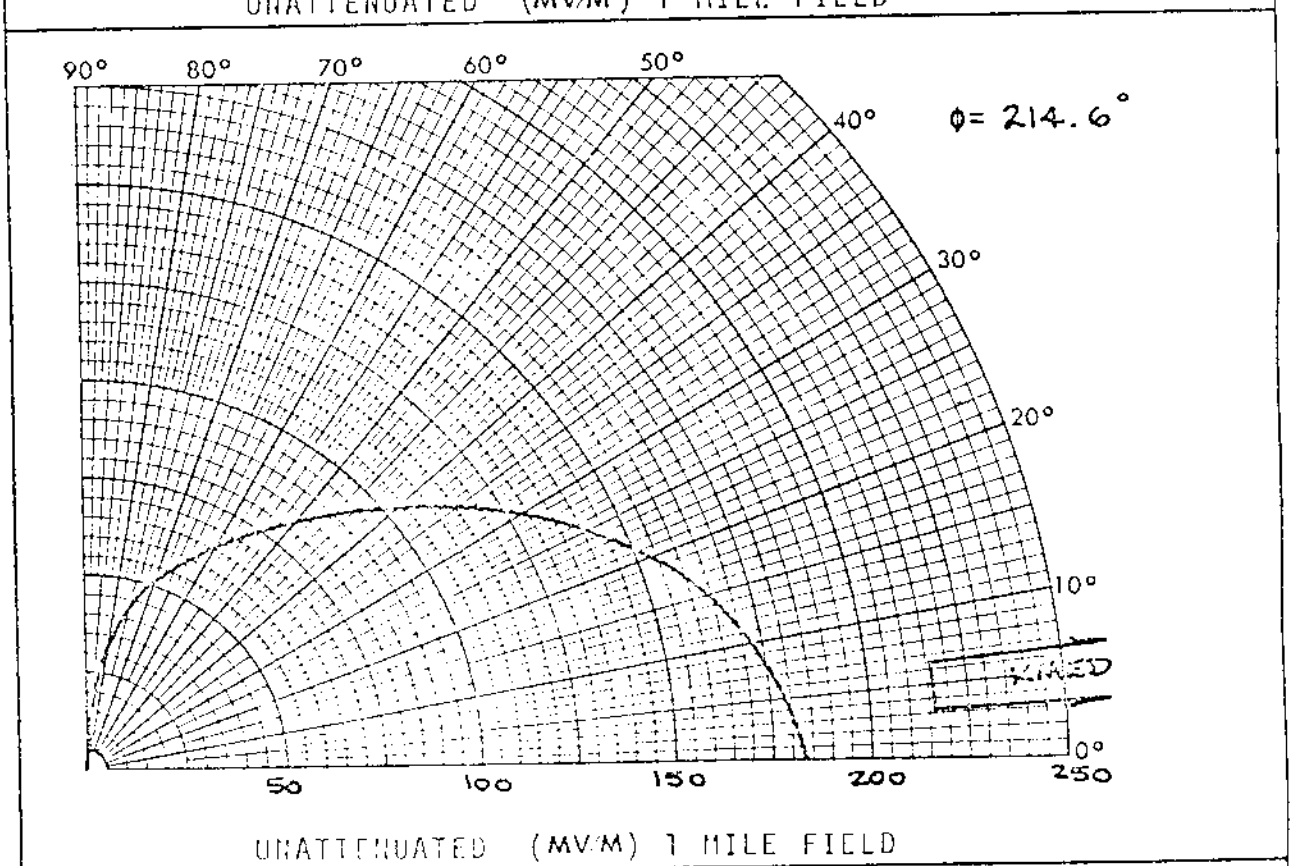
FIGURE 5

CJOI
1440 kHz 10 kW DA-N
PROJECT #11606

WETASKIWIN, ALBERTA
CLASS III
MARCH 30, 1973

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





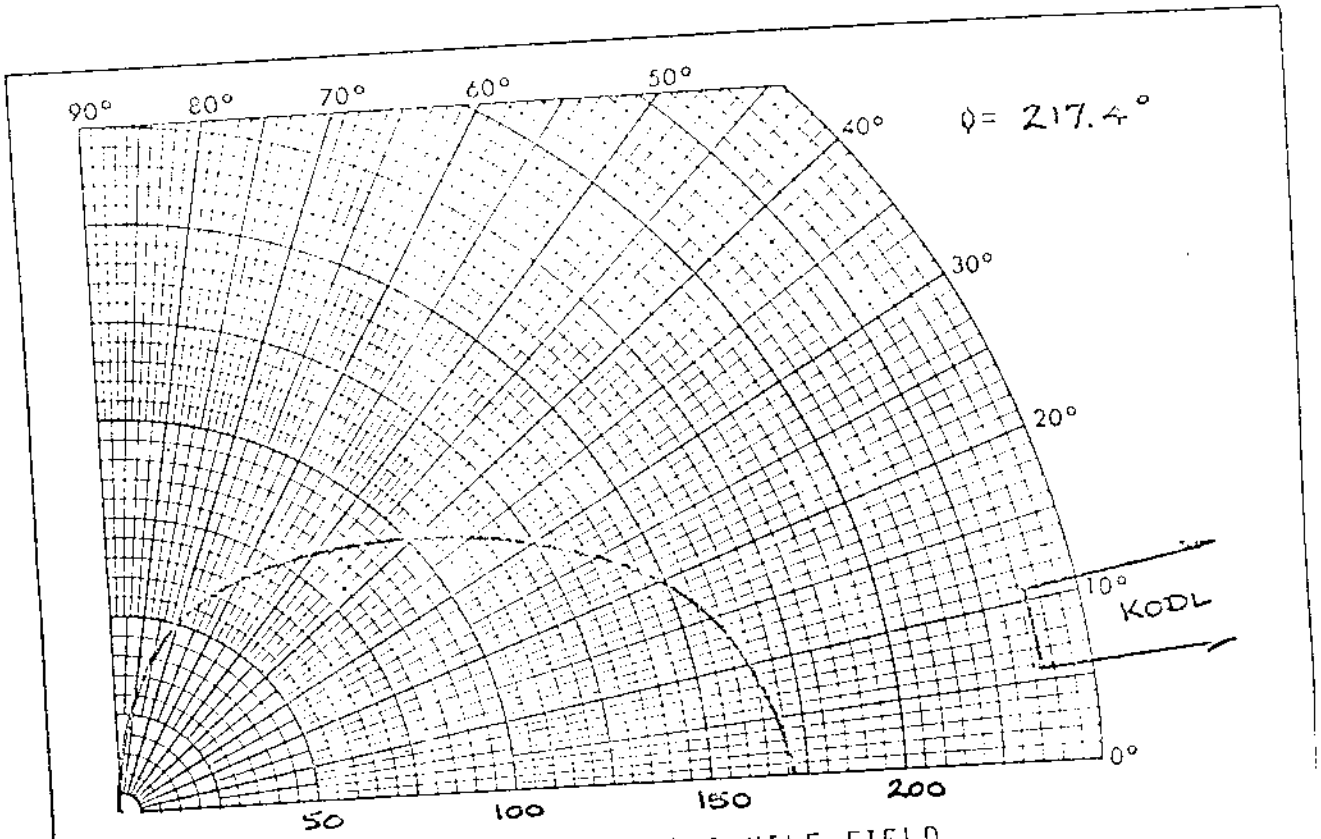
VERTICAL RADIATION PATTERNS

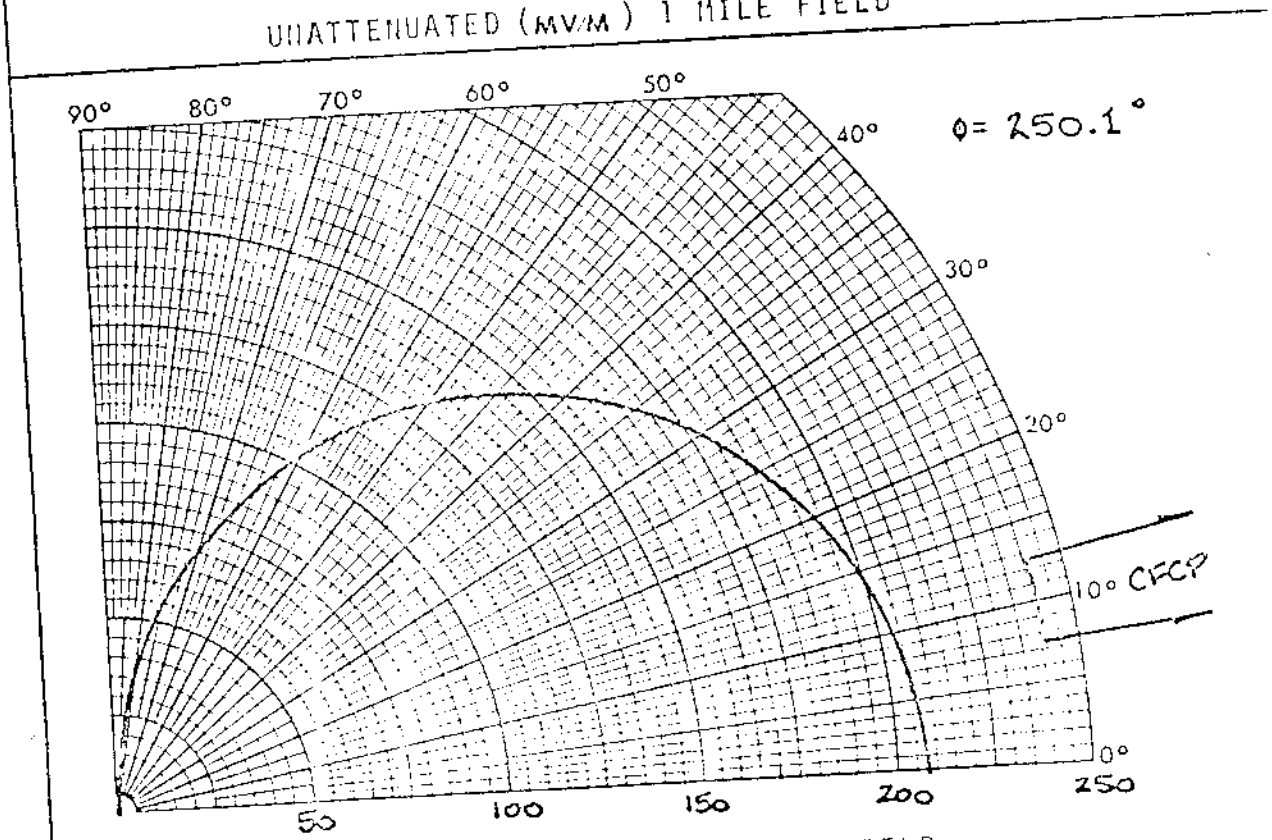
FIGURE 6

CJOI
1440 kHz 10 kW DA-N
PROJECT #11606

WETASKIWIN, ALBERTA
CLASS III
MARCH 30, 1973

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





VERTICAL RADIATION PATTERNS

FIGURE 7

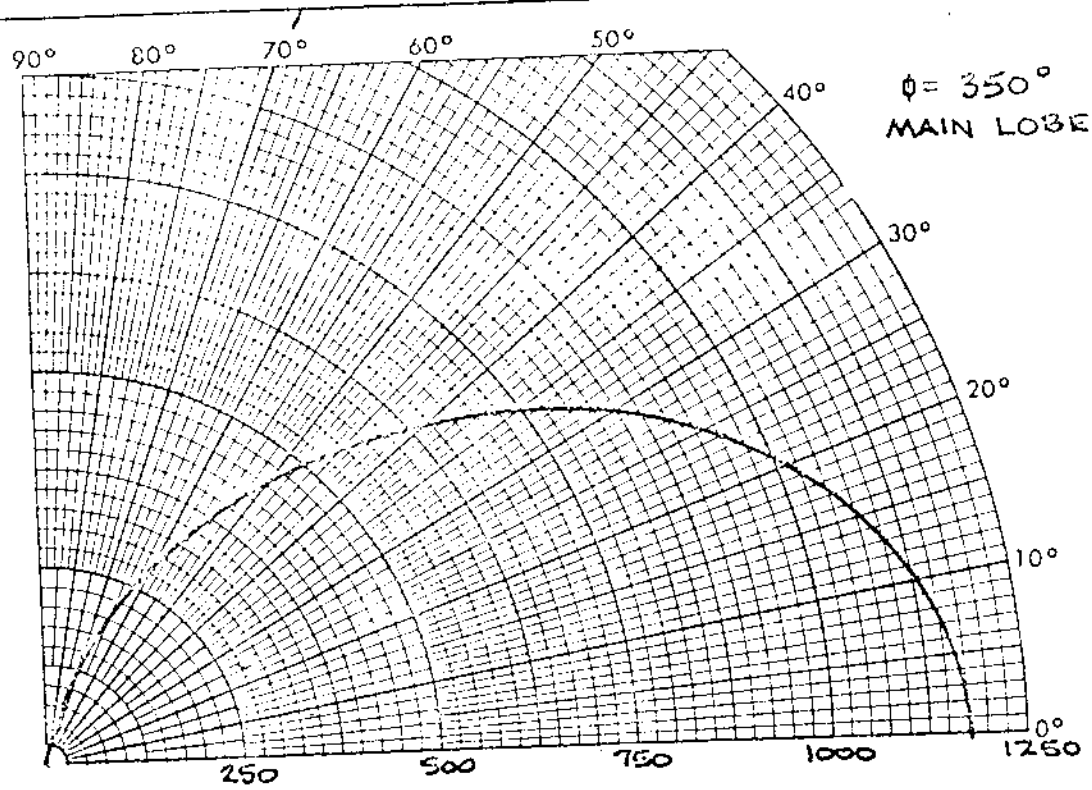
CJOI
1440 kHz
PROJECT #11606

10 kW

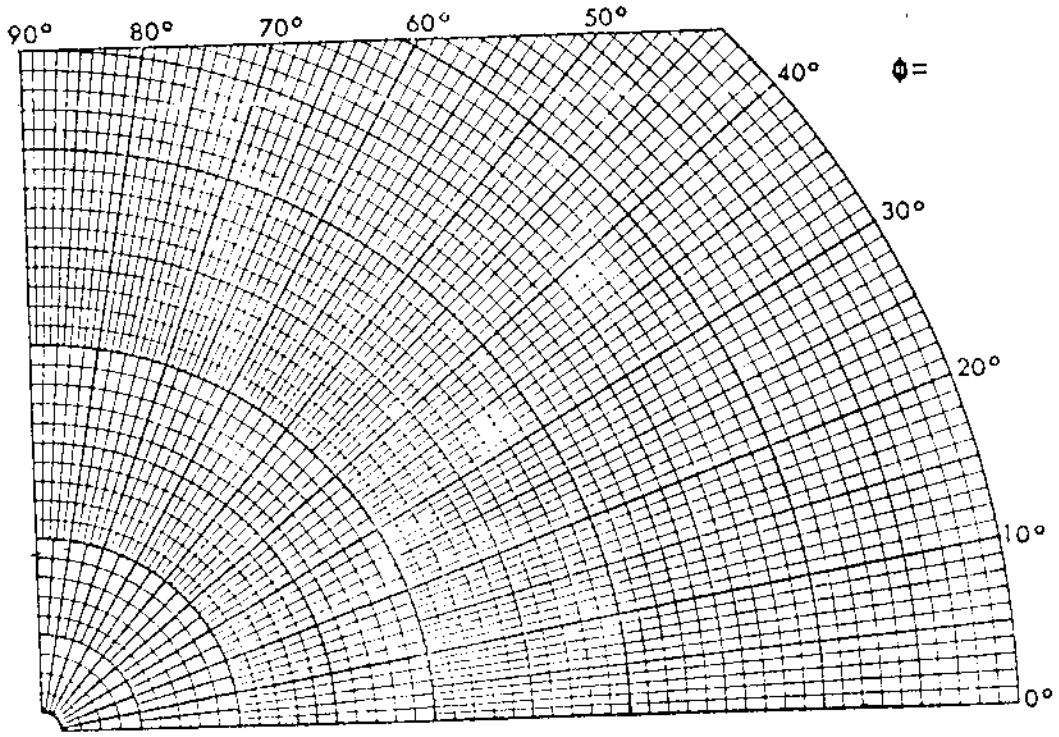
DA-N

WETASKIWIN, ALBERTA
CLASS II
MARCH 30, 197

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



UNATTENUATED (MV/M) 1 MILE FIELD



UNATTENUATED (MV/M) 1 MILE FIELD

VERTICAL RADIATION PATTERNS

FIGURE 8

CJOI
1440 kHz 10 kW DA-N
PROJECT #11606

WETASKIWIN, ALBERTA
CLASS III
MARCH 30, 1973

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

C J O I

Description Sheet
(7-26-67ct)

New Station
Wetaskiwin, Alberta

1kw,DA-1,U,Class III
1440 kc

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: NEW

Main Studio: Wetaskiwin, Alberta.

Frequency: 1440 KHz

Power: 1 KW, DA-1 Class 111

Notification List No. 227

Date: May 31, 1967

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:

North Latitude: 52° 57' 30"

West Longitude: 113° 27' 00"

ANTENNA CHARACTERISTICS:

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

TOWER:	NO. 1 SOUTH	NO. 2 NORTH
HEIGHT ABOVE INSULATORS:	171' (90°)	171' (90°)
OVERALL HEIGHT:	174'	174'
SPACING:	228' (120°)	
PHASING:	0	-108°
FIELD RADIO:	1	.24

ORIENTATION: Towers on a line bearing 10° West of True North.

GROUND SYSTEM: 120 radials No. 10 AWG copper wire per tower. Radials from each tower bonded to No. 4 AWG bus at right angles midway between towers. Effective radial length. .4λ (191').

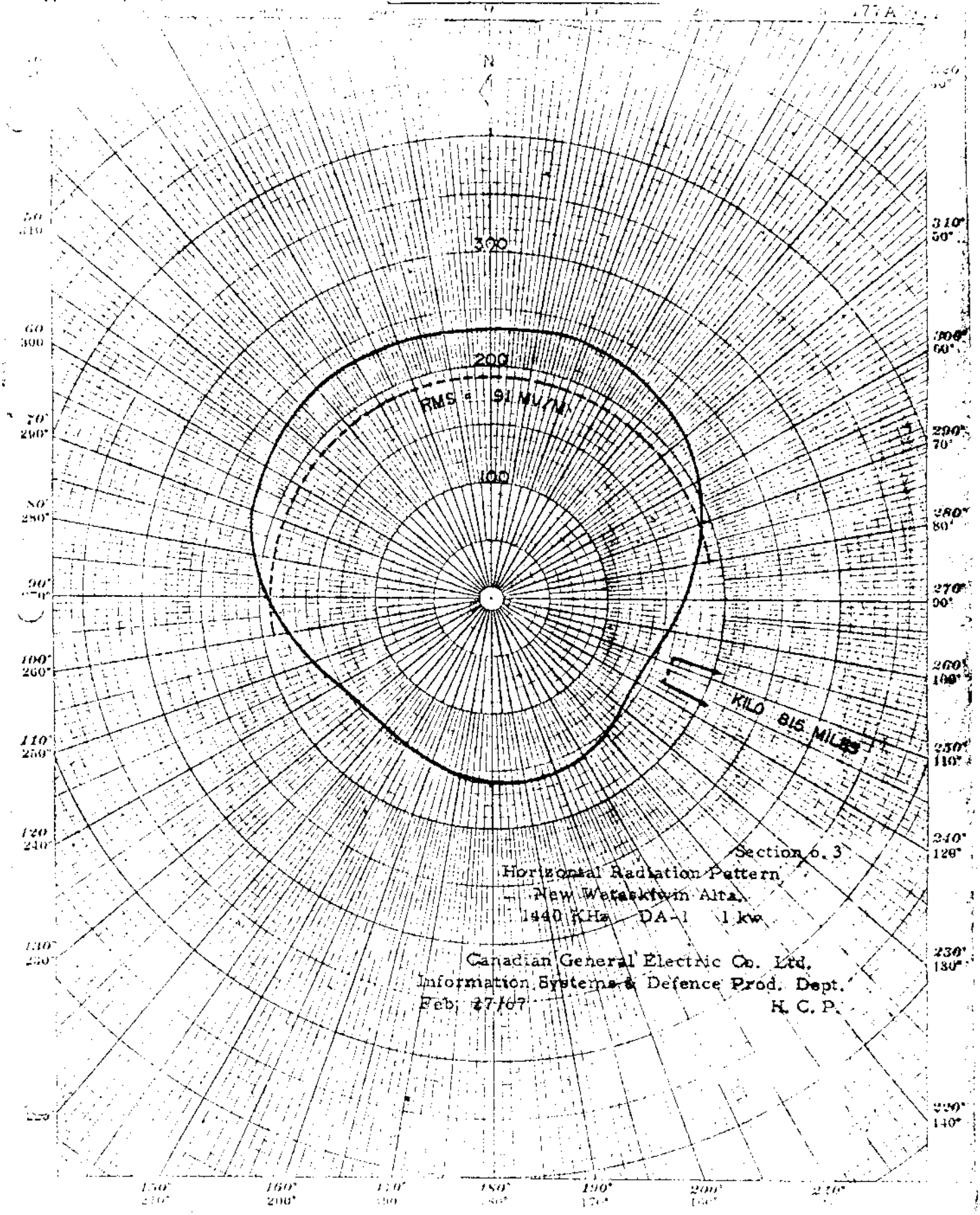
Predicted Effective Field (191 mv/m for 1 Kw).

CJOI

Proposed Day & Night
(7-26-67ct)

New Station
Wetaskewin, Alberta

1kw,DA-1,U,Class III
1440 kc



#125 Courtenay, B.C., Canada CFCP

DESCRIPTION SHEET (11-17-58g)

New Station 1kw, DA-N, U
Courtenay, British Columbia, Canada 1440 KC

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: NEW Main Studio: Courtenay, B.C.

Frequency: 1440 kcs. Power: 1000 watts Class: III

Notification List No. 125 Date: September 24, 1958

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM: North Latitude: 49° 41' 03"

West Longitude: 124° 58' 30"

ANTENNA CHARACTERISTICS

Mode of Operation: DA/N

Number of elements: 2

Type of elements: guyed, uniform cross-section, series fed, no top loading.

TOWERS:	North Tower	South Tower
HEIGHT OVER INSULATORS:	170' (90°)	170' (90°)
OVERALL HEIGHT:	179'	179'
SPACING:	170' (90°)	
PHASING:	-65°	0
FIELD RATIO:	1.0	1.0

GROUND SYSTEM: 120 radials per tower 0.4 wavelength long.

PREDICTED EFFECTIVE FIELD: 187 mv/m at 1 mile for 1 kw.

ORIENTATION: Towers due North-South.

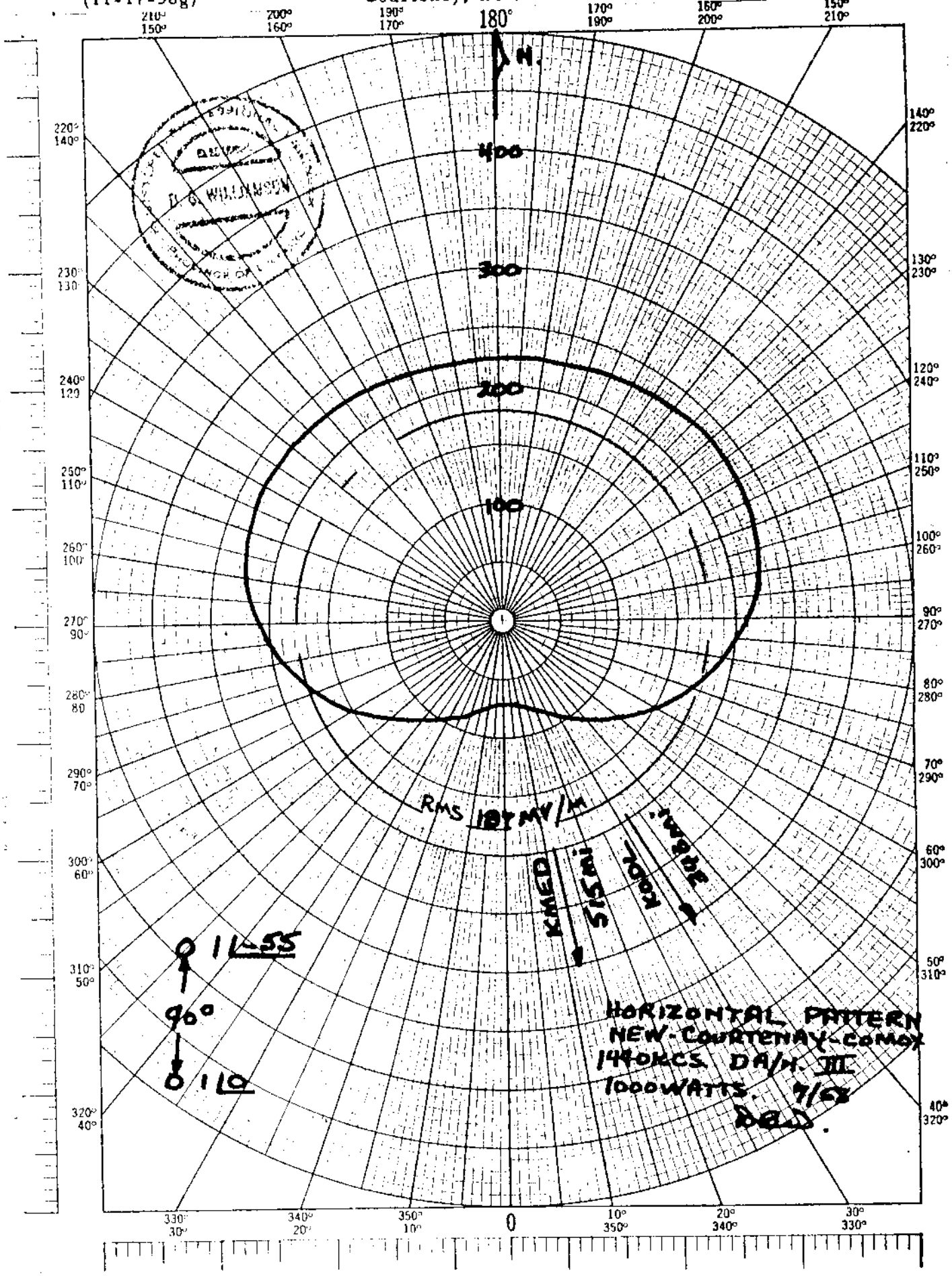
Courteney, B.C., Canada CHCP

#125

PROPOSED NIGHT
(11-17-58g)

New Station
Courteney, British Columbia, Canada

1kw, DA-N, U
1440 KC



OTTAWA, ONTARIO CKPM

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station Call	: CKPM	Main Studio	: Ottawa, Ont.
Frequency	: 1440 kHz	Power	: 50 kW
Time	: Unlimited	Class	: III

Notification List No. : 282 Date : August 27, 1971.

Geographical Location of the Antenna System : 45° 16' 59" N. Latitude
75° 44' 31" W. Longitude.

Antenna Characteristics -

Mode of Operation : DA-1

No. of Elements : 4 (Four)

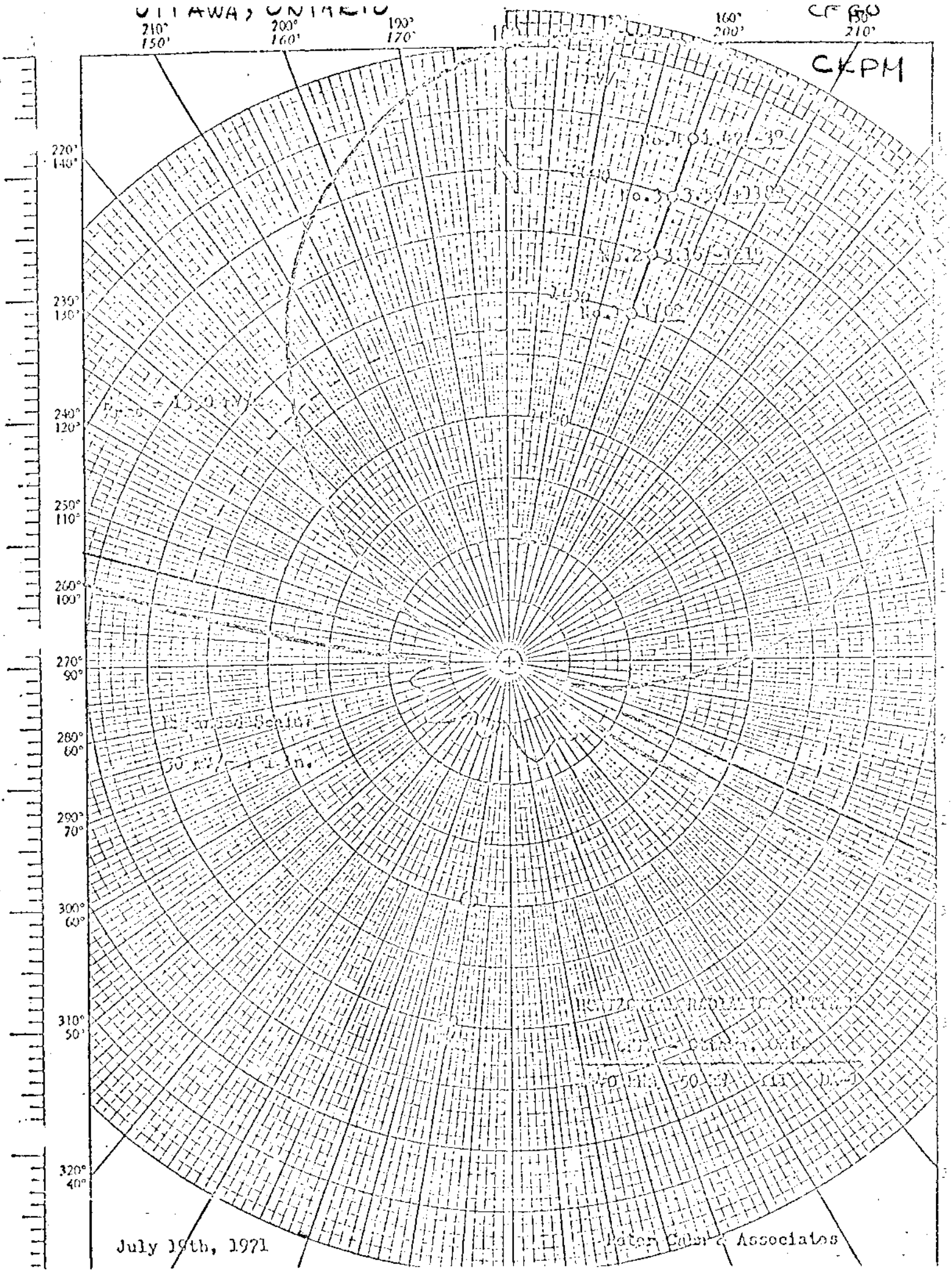
Type of Elements : Uniform cross-section, guyed, base insulated, series fed, no top loading.

Tower No.	1(S)	2	3	4(N)
Height above Insulator :	171' (90°)	171'	171'	171'
Overall Height :	175'	175'	175'	175'
Spacing :	Ref.	90°	180°	270°
Phasing :	0°	-121°	+118°	-3°
Field Ratio :	1	3.16	3.56	1.47
Orientation (E of True) :	20°	20°	20°	20°

Ground System : 120 radials per tower, No. 10 AWG bare, soft copper wire, buried approx. 8" in ground. Radials bonded along line between towers and bonded to 4" copper strap at tower base. Average length of radial : 274 ft. (= 0.4λ).

Predicted Effective Field : 1350 mV/m at 1 mile for 50 kW, or 190.9 mV/m at 1 mile for 1 kW radiated.

PETER CAHN & ASSOCIATES
CONSULTING ENGINEERS


OTTAWA, ONTARIO
CF 60
CKPM
210° 150°
200° 160°
190° 170°
160° 200°
150° 210°
220° 140°
230° 130°
240° 120°
250° 110°
260° 100°
270° 90°
280° 60°
290° 70°
300° 60°
310° 50°
320° 40°
July 19th, 1971
Peter Cole & Associates

KDNT

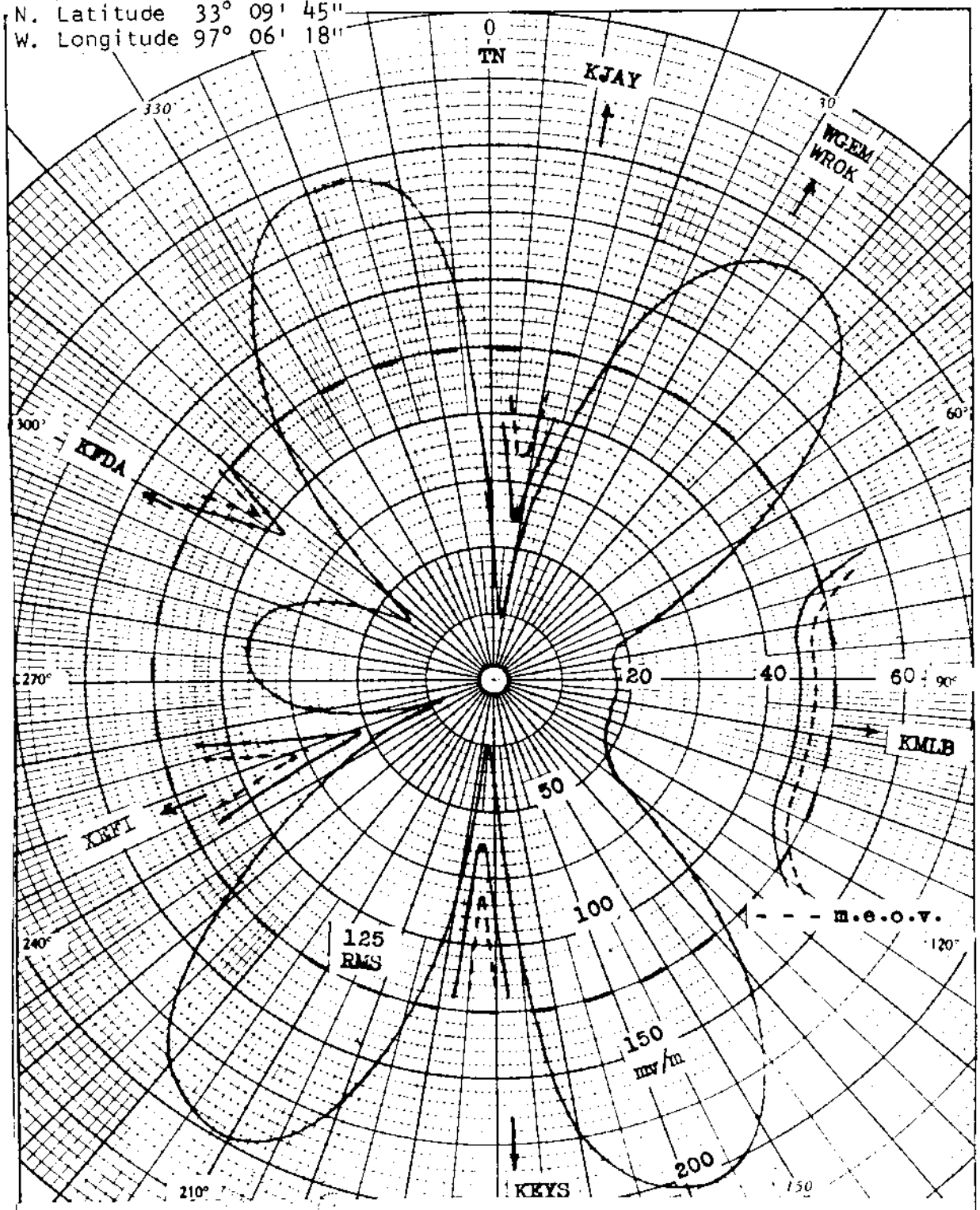
Measured Night
(7-27-65ct)

Station KDNT
Denton, Texas

500w,5kw-LS,DA-N,U
1440 kc

N. Latitude 33° 09' 45"
W. Longitude 97° 06' 18"

-1C, 8-11-65
CHG. LOC.



Antenna Layout
395°
750'
N
97°
West
0.75/-171°
East
1/0°

HORIZONTAL RADIATION PATTERN - NIGHT

K D N T Denton, Texas 1440 kc 0.5 kw
Two elements, 192', 0.28 , 101°

FCC File No. BL-10961
Accepted 7-22-65

Station KDNT
Denton, Texas

1440 kc

JUL 18 1975

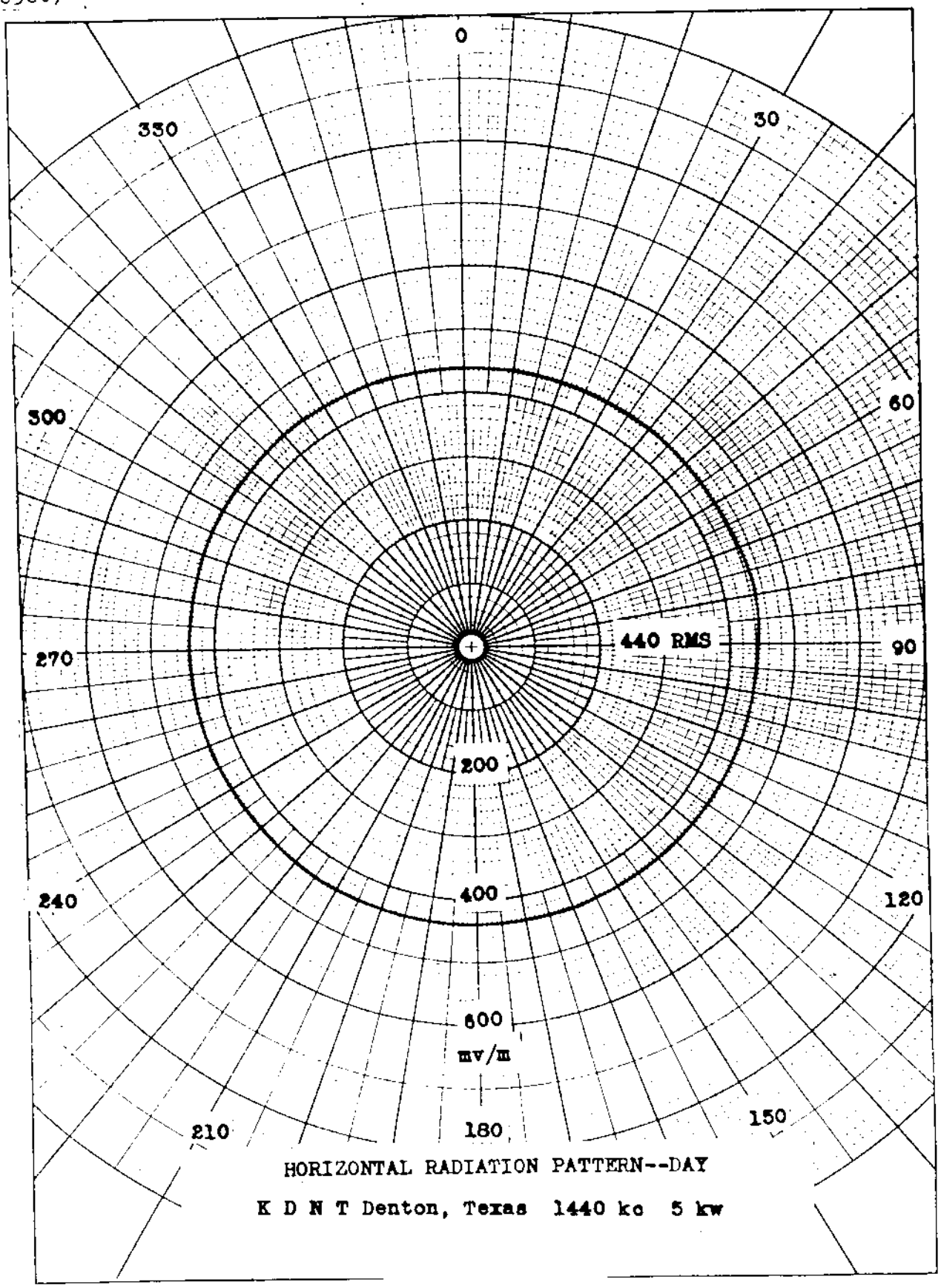
KDNT

Measured Non-DA
(7-27-65ct)

Station KDNT
Denton, Texas

500w,5kw-LS,DA-N,U
1440 kc

-10. 8-11-65
CHG LOC.



FCC File No. BL-10961
Accepted 7-22-65

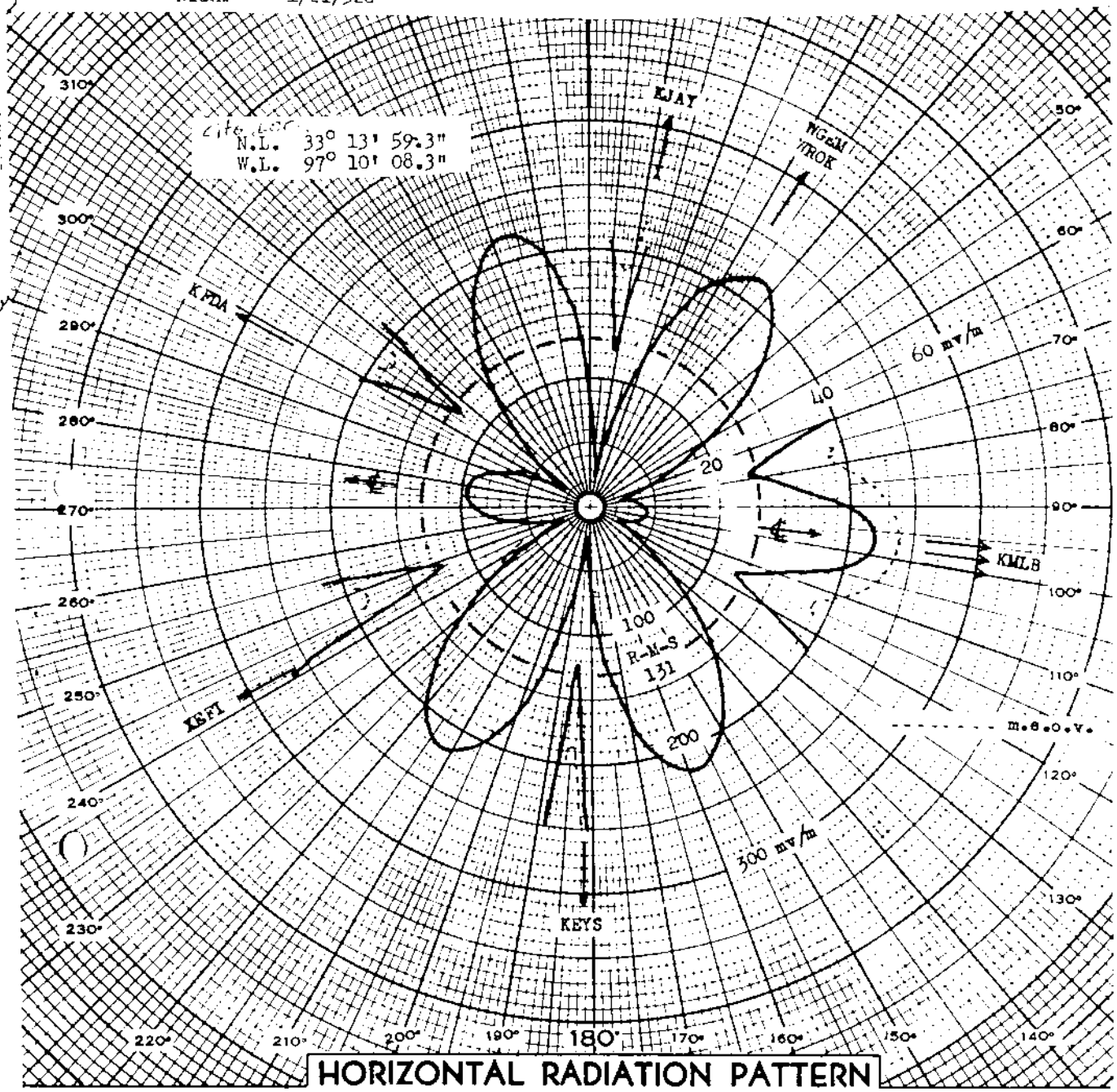
Station KDNT
Denton, Texas

1440 kc

granted increase in Daytime ND power to 5 ICW 11-19-57

KDNT

PROPOSED KDNT, DENTON, TEXAS 500W, 1 KW-LS, U, DA-N 1440 KC
NIGHT 1/21/52G



12/64 antenna to chg transmitter location

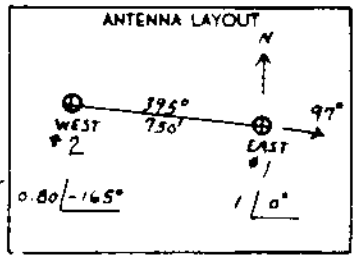
HORIZONTAL RADIATION PATTERN

5/27/64 application to chg location to N 33 09 45 W 97 06 18

GP-16380

5-65 CP TO ACE EXP. PERMIT OC

ANTENNA LAYOUT



KDNT	DENTON, TEXAS		
Station	Location		
1440 kc	0.5 kw	131 mv/m	(1.15/kw)
Frequency	Power	R-M-S Field	
2	192 ft. = 0.28 λ = 101°		
No. of Elements	Height of Antenna		
MEASURED ☐	CALCULATED ☒	520104.1 supersedes 510417.1	
Pattern		No.	
HORIZONTAL PATTERN			
Remarks		GUY C. HUTCHESON CONSULTING RADIO ENGINEER ARLINGTON TEXAS	

AMD RECD 1/9/52 ACC 1/11/52 BP-8120 Amd. KDNT, DENTON, TEXAS 1440 KC

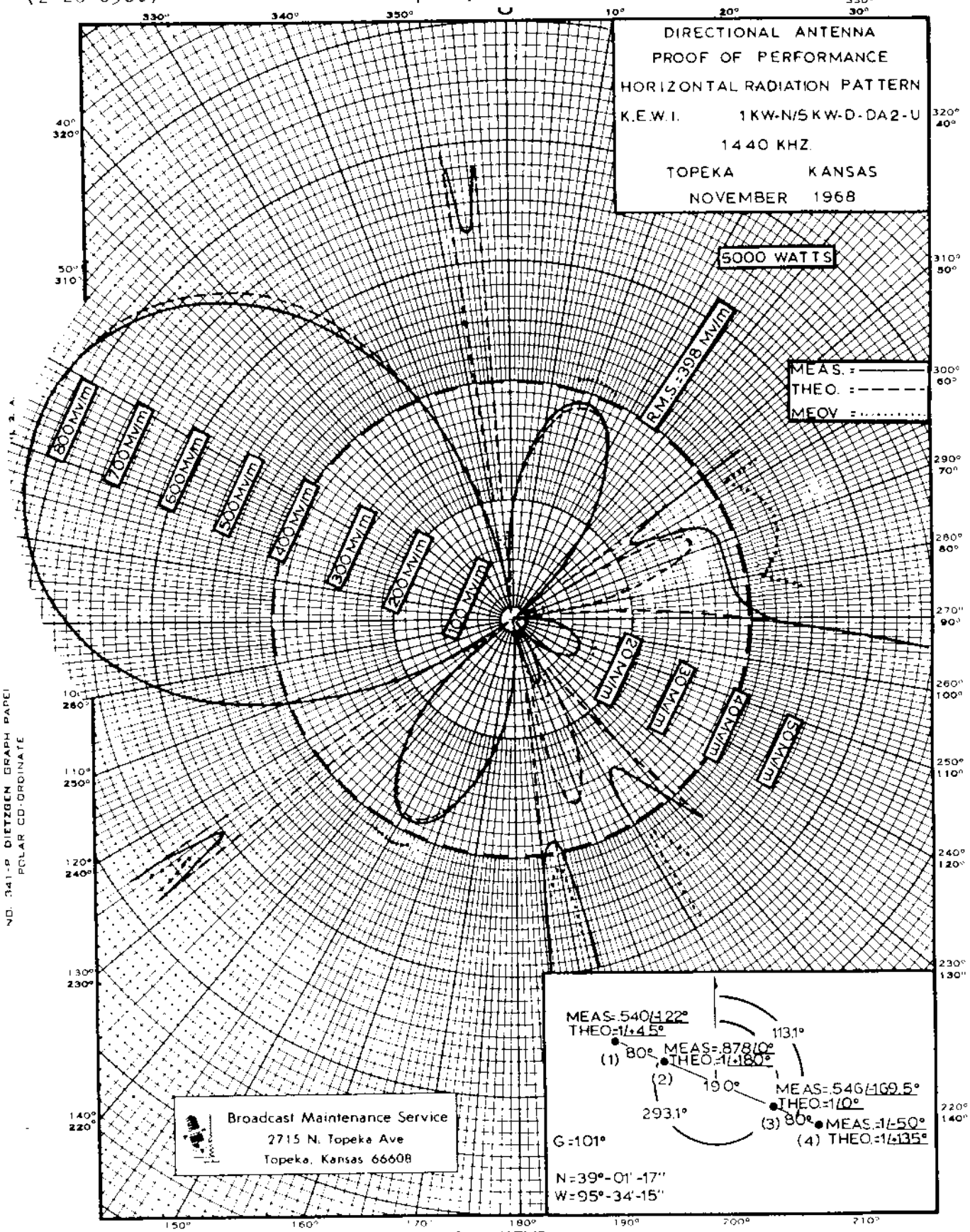
JUL 1 9 1975

KEWI

Measured Day
(2-28-69ct)

Station KEWI
Topeka, Kansas

1kw,5kw-LS,DA-2,U
1440 kc



FCC File No.BZ-7073
Accepted 1-29-69

Station KEWI
Topeka, Kansas

1440 kc

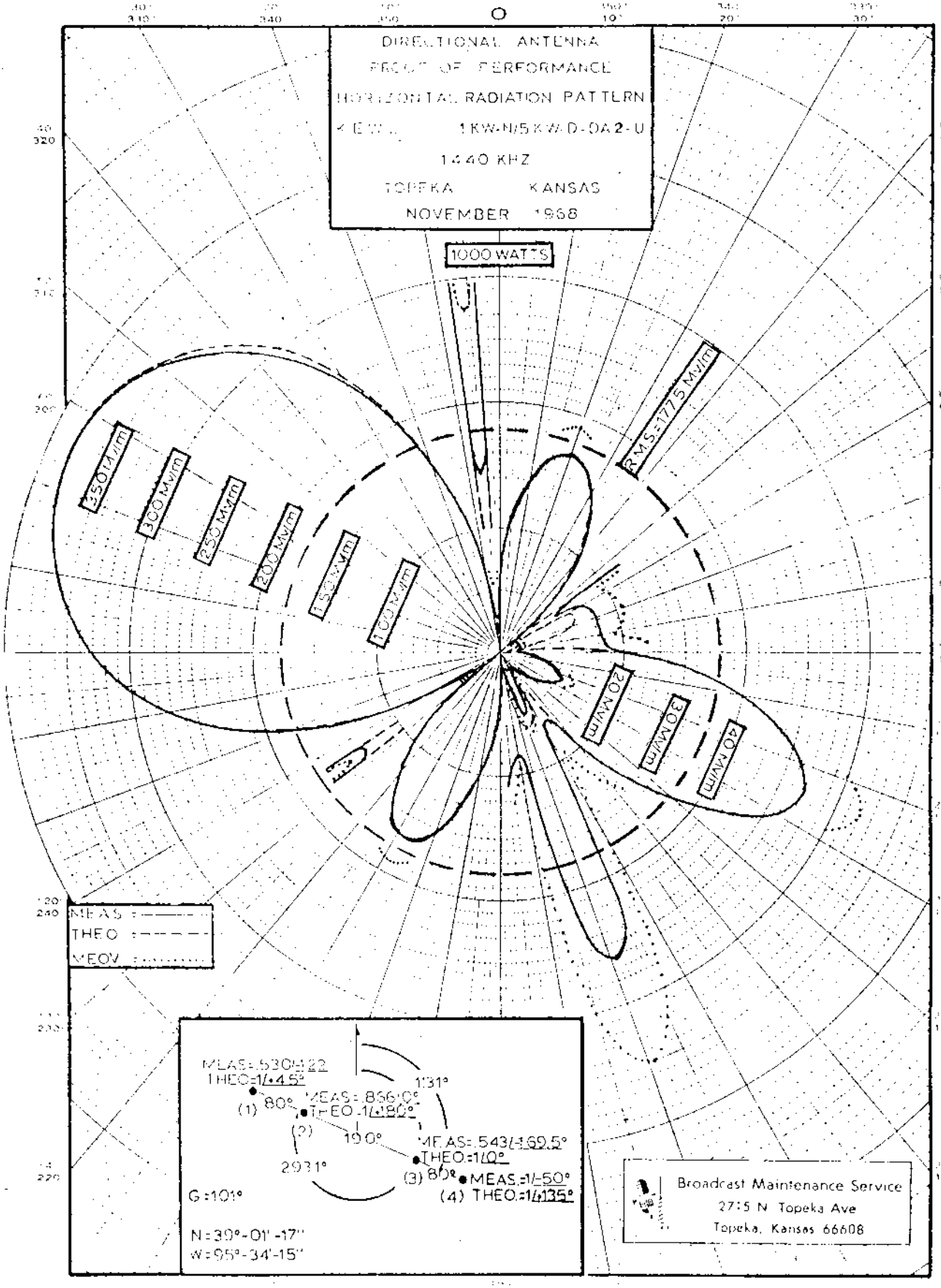
JUL 1975 OK

KEWI

Measured Night
(2-28-69ct)

Station KEWI
Topeka, Kansas

1kw,5kw-LS,DA-2,U
1440 kc



FCC File No.BZ-7073
Accepted 1-29-69

Station KEWI
Topeka, Kansas

1440 kc

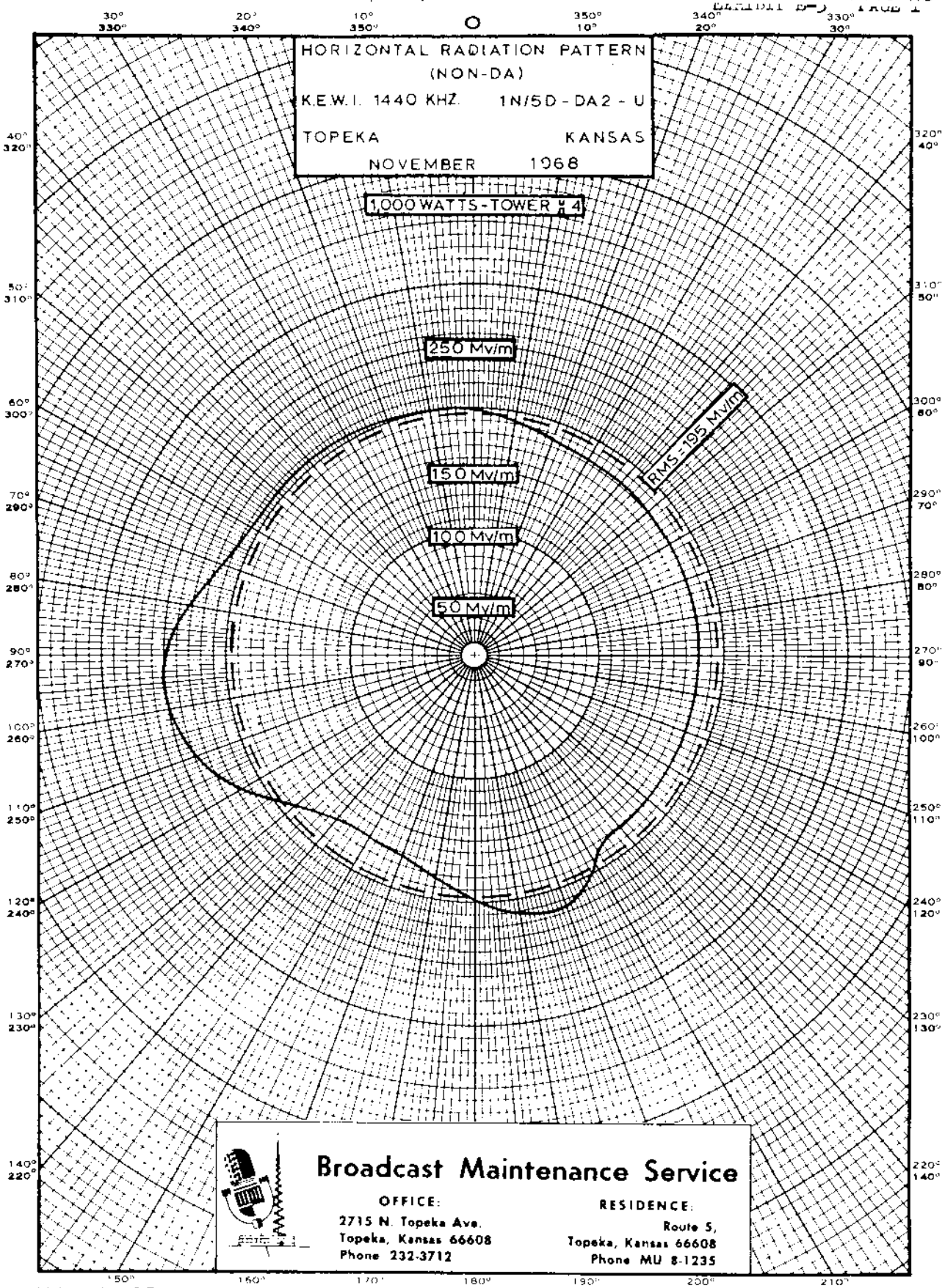
JUL 1 1975 cK

KEWI

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

Station KEWI
Topeka, Kansas

1kw,5kw-LS,DA-2,U
1440 kc



FCC File No.BZ-7073
Accepted 1-29-69

Station KEWI
Topeka, Kansas

1440 kc

KEWI

Proposed Day
(4-27-62ct)

Station KEWI
Topeka, Kansas

1kw,5kw-LS,DA-2,U
1440 kc

10-24-62 granted CP to make changes in DA Patterns.

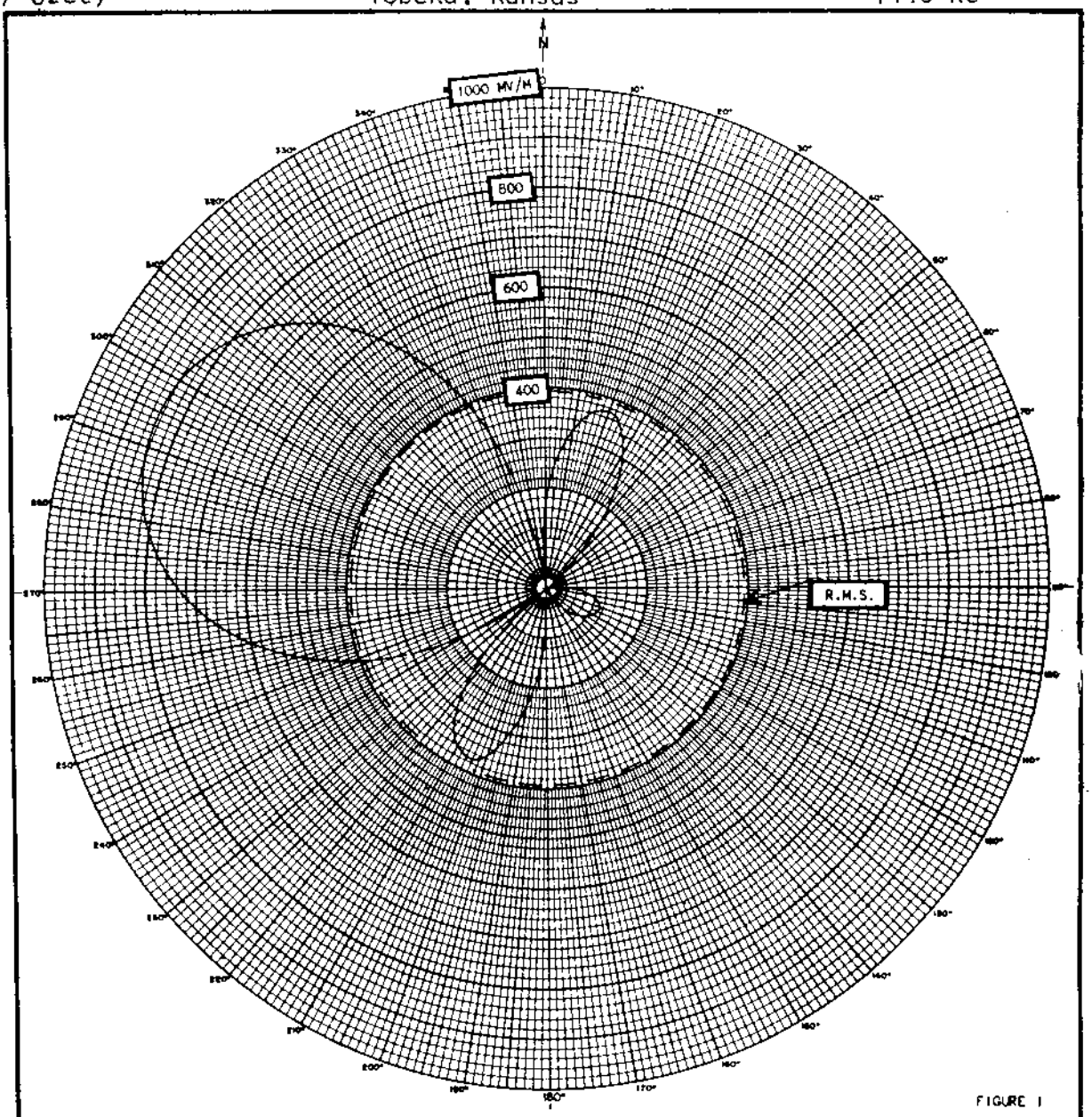
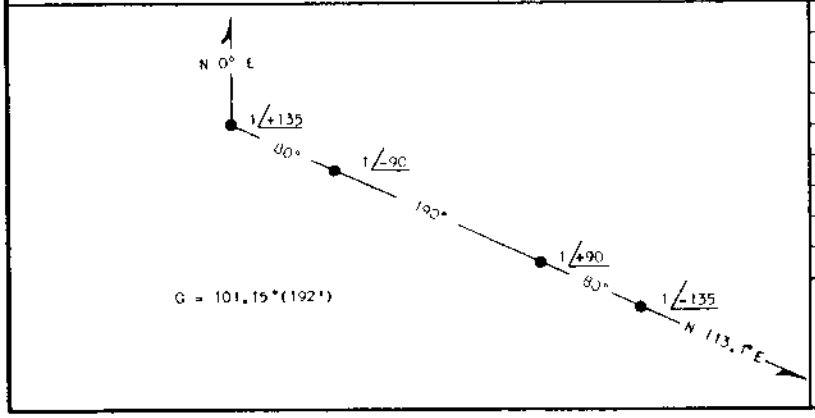


FIGURE 1

HORIZONTAL RADIATION PATTERN



APPLICANT	KJAY, INC.
LOCATION	TOPEKA, KANSAS
FREQUENCY	1440 KC/S
POWER	5 KW DA
LATITUDE	39 DEG 01 MIN. 17 SEC.
LONGITUDE	95 DEG 34 MIN. 15 SEC.
WHEN USED	DAYTIME
R.M.S. FIELD	393.5 MV/M
DATE	FEBRUARY 1962

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

FCC File No.BP-15216
Accepted 4-10-62

Station KEWI
Topeka, Kansas

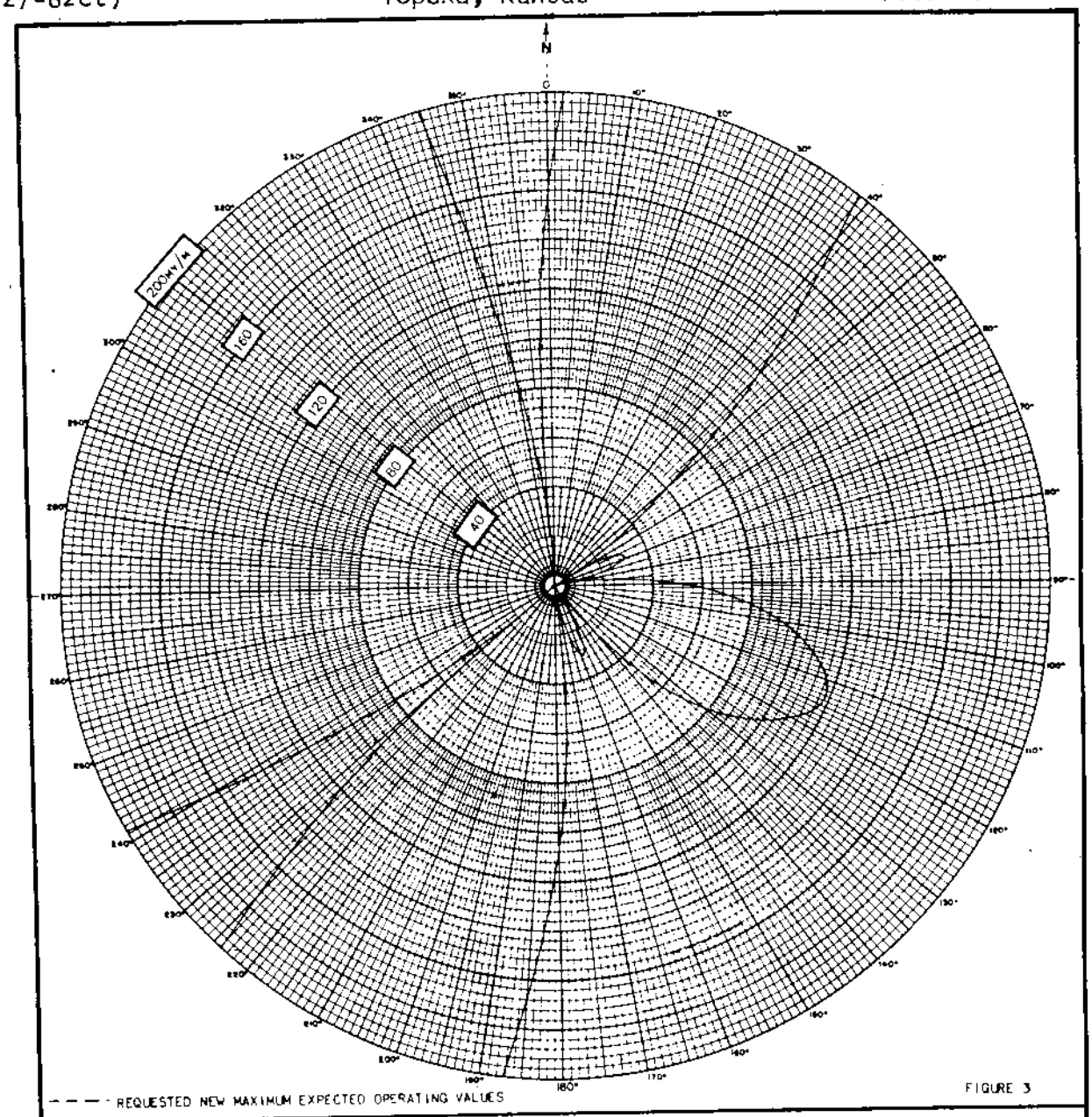
1440 kc

KEWI

Proposed Day Nulls
(4-27-62ct)

Station KEWI
Topeka, Kansas

1kw,5kw-LS,DA-2,U
1440 kc



- - - - REQUESTED NEW MAXIMUM EXPECTED OPERATING VALUES

FIGURE 3

EXPANDED VIEW

5 KW DAYTIME

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

FCC File No.BP-15216
Accepted 4-10-62

Station KEWI
Topeka, Kansas

1440 kc

KEWI

Proposed Night
(4-27-62ct)

Station KEWI
Topeka, Kansas

1kw,5kw-LS,DA-2,U
1440 kc

10-24-62 granted CP to change DA patterns.

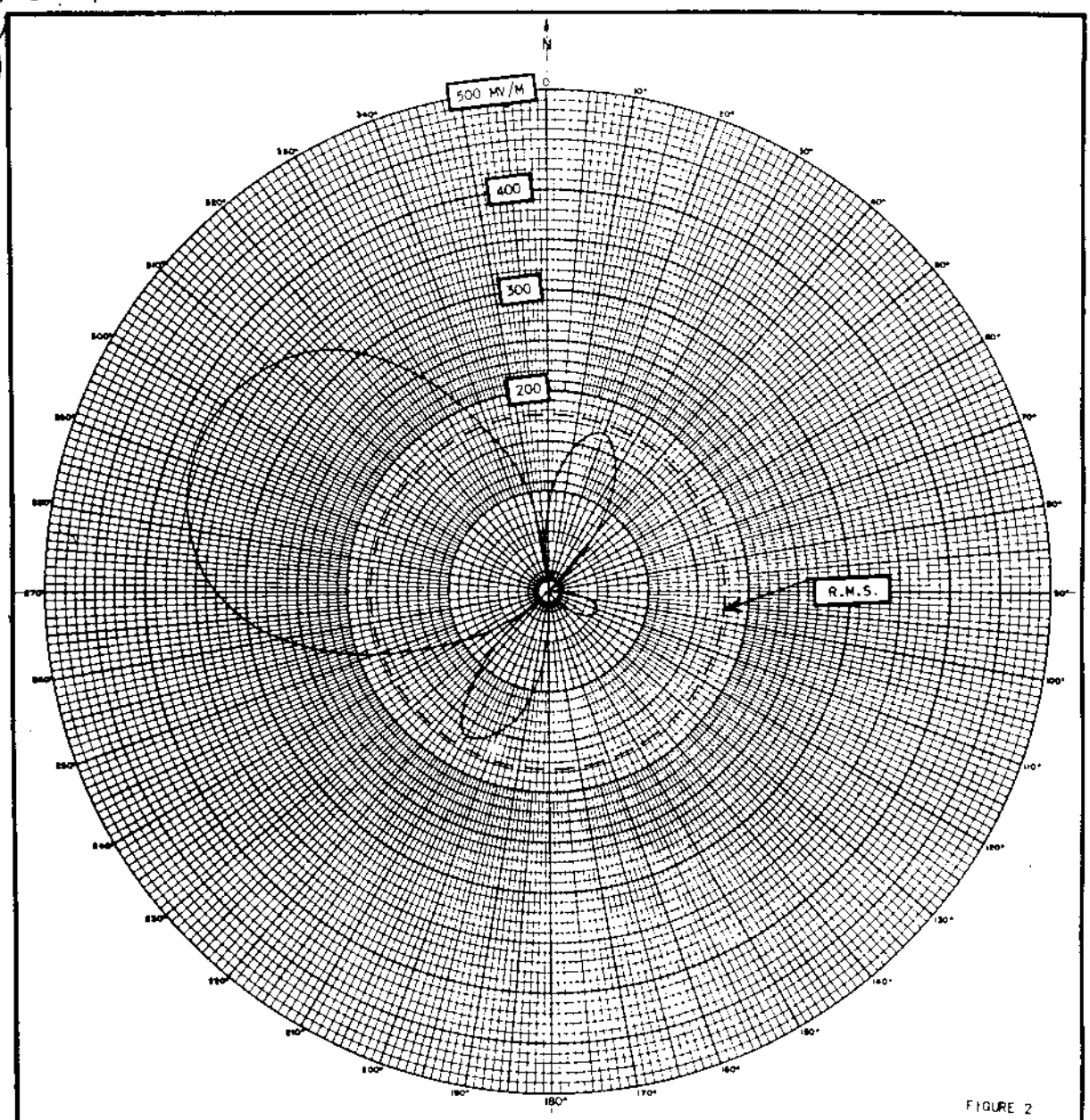
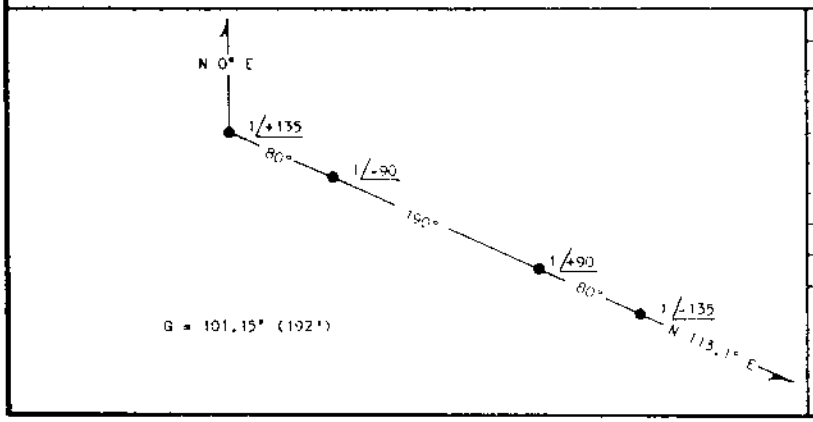


FIGURE 2

HORIZONTAL RADIATION PATTERN



APPLICANT	KJAY, INC.
LOCATION	TOPEKA, KANSAS
FREQUENCY	1440 KC/S
POWER	1 KW DA
LATITUDE	39 DEG 01 MIN. 17 SEC
LONGITUDE	95 DEG 34 MIN 15 SEC.
WHEN USED	NIGHTTIME
R.M.S. FIELD	176 MV/M
DATE	FEBRUARY 1962

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

FCC File No.BP-15216
Accepted 4-10-62

Station KEWI
Topeka, Kansas

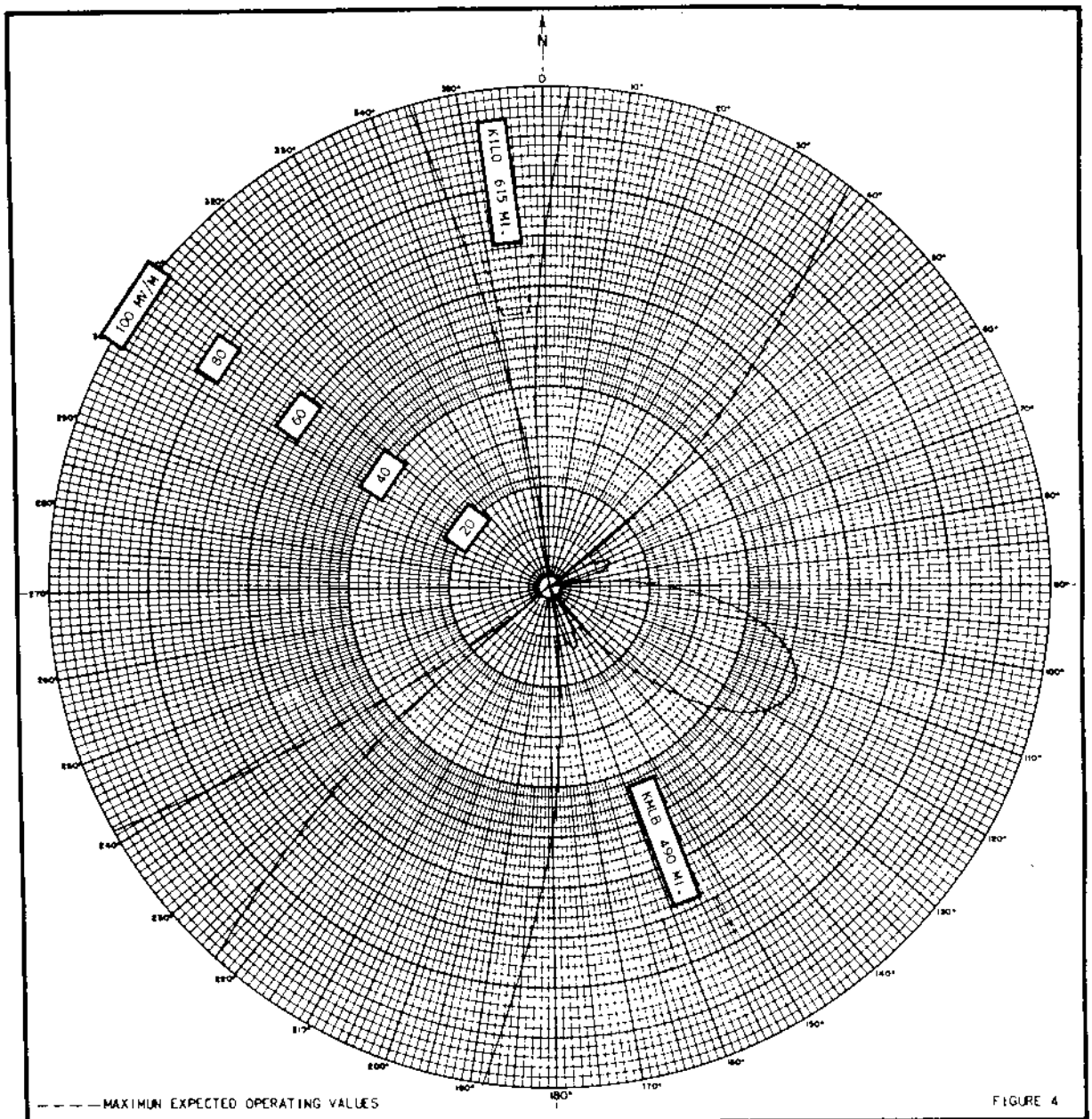
1440 kc

KEWI

Proposed Night Nulls
(4-27-62ct)

Station KEWI
Topeka, Kansas

1kw,5kw-LS,DA-2,U
1440 kc



— — — —MAXIMUN EXPECTED OPERATING VALUES

FIGURE 4

EXPANDED VIEW

1 KW NIGHTTIME

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

FCC File No.BP-15216
Accepted 4-10-62

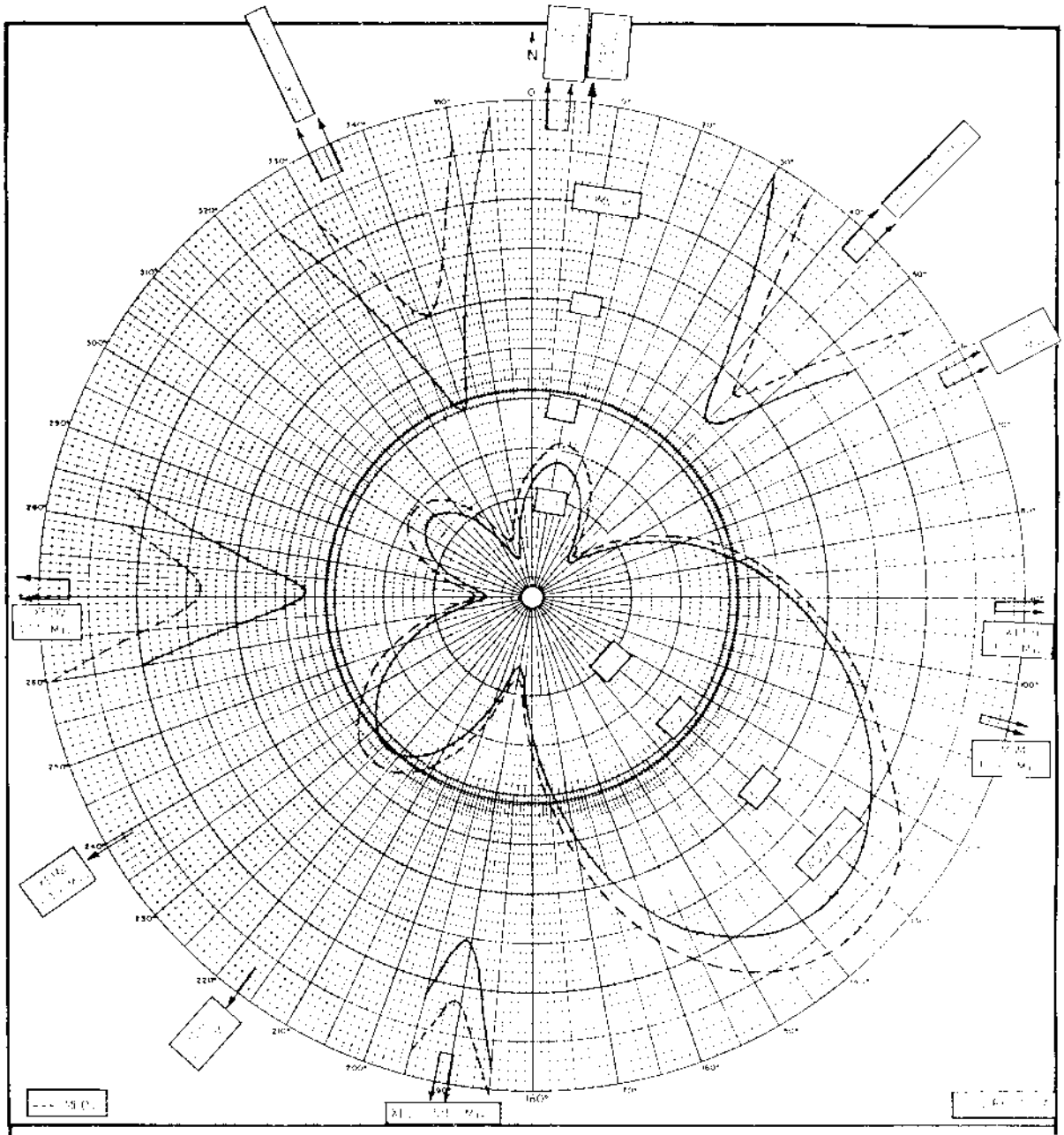
Station KEWI
Topeka, Kansas

1440 kc

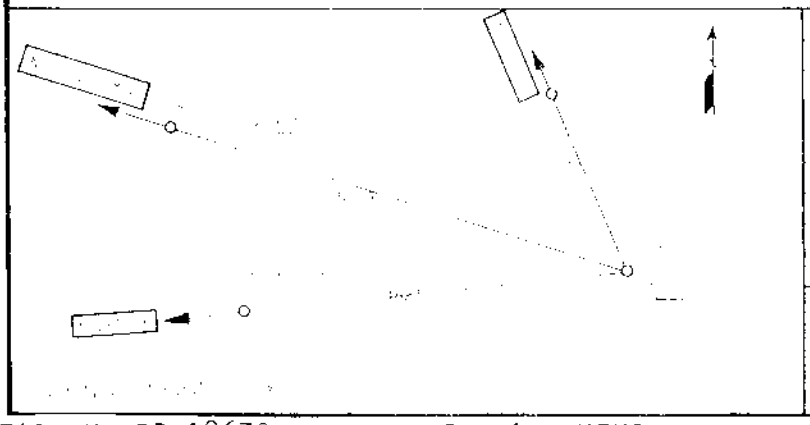
Proposed Night
(9-25-70ct)

Corpus Christi, Texas

KEYS
1440 kc



HORIZONTAL RADIATION PATTERN



APPLICANT
LOCATION
FREQUENCY KC
POWER
LATITUDE DEG MIN SEC
LONGITUDE DEG MIN SEC
WHEN USED
R.M.S. FIELD
DATE

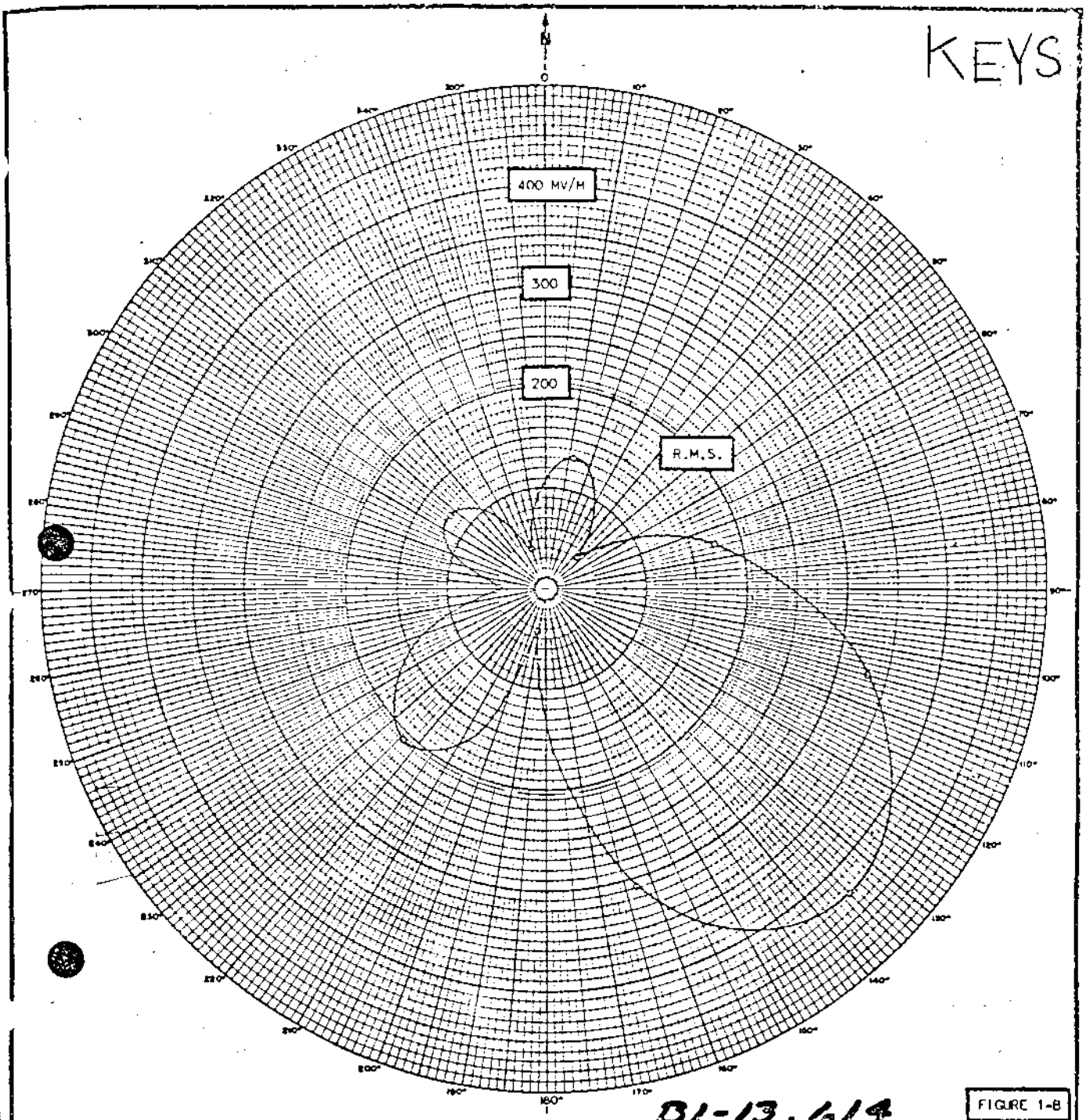
SILLIMAN, MOFFET & KOWALSKI
CONSULTING RADIO ENGINEERS
WASHINGTON, D.C.

FCC File No.BP-18670
Accepted 9-8-70

Station KEYS
Corpus Christi, Texas

1440 kc

KEYS

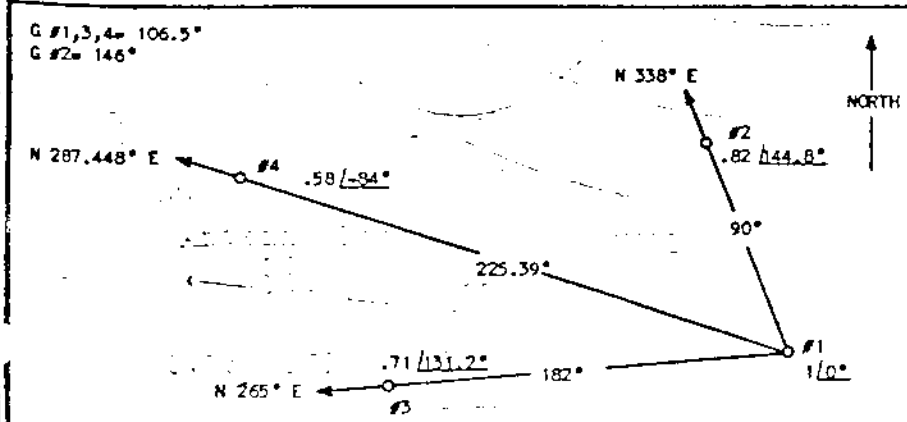


BL-13,614

FIGURE 1-B

HORIZONTAL RADIATION PATTERN

KEYS



THEORETICAL PARAMETERS

APPLICANT	RADIO CORPUS CHRISTI, INC.
LOCATION	CORPUS CHRISTI, TEXAS
FREQUENCY	1440 KC/S
POWER	1 Kw
LATITUDE	27 DEG 47 MIN 02 SEC
LONGITUDE	97 DEG 27 MIN 29 SEC
WHEN USED	NIGHTTIME
R.M.S. FIELD	204.8
DATE	SEPTEMBER 1973

SILLIMAN, MOFFET & KOWALSKI

CONSULTING RADIO ENGINEERS

WASHINGTON, D.C.

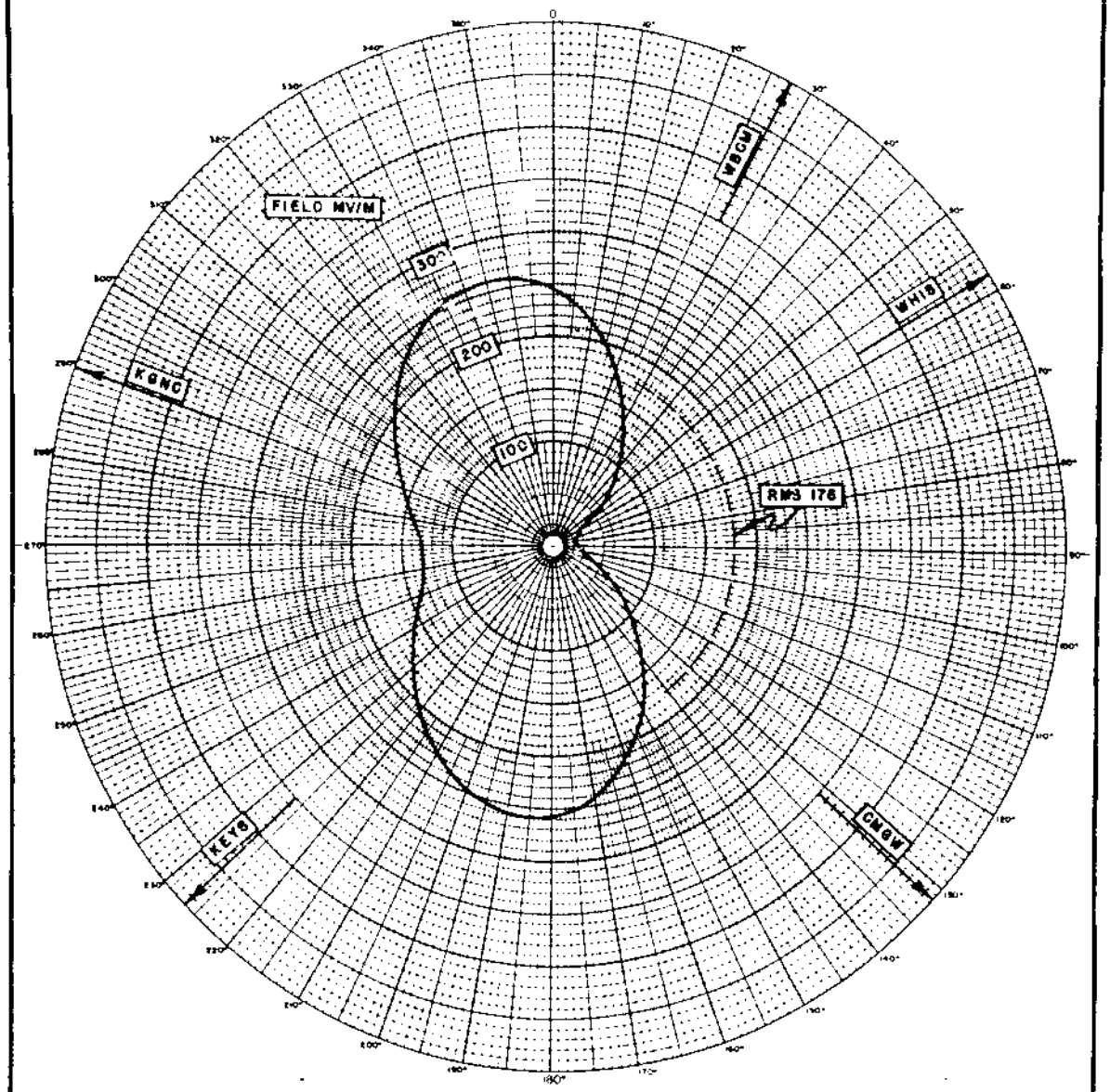
1975

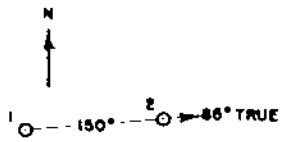
KMLB

Proposed Night
(11-30-61ct)

Station KMLB
Monroe, Louisiana

1kw,5kw-LS,DA-N,U
1440 kc





LATITUDE 32° 33' 10" NORTH
LONGITUDE 92° 04' 24.8" WEST

ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG
1	SEE DIAGRAM	SEE DIAGRAM	0	1.0	185	106.3
2			+30	1.2	185	106.3

CALCULATED HORIZONTAL PLANE PATTERN

KMLB

MONROE, LOUISIANA
1440 KC 5KW, 1KW DA-N
891008

KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D.C.

FCC File No.BP-15175
Accepted 11-17-61

Station KMLB
Monroe, Louisiana

1440 kc

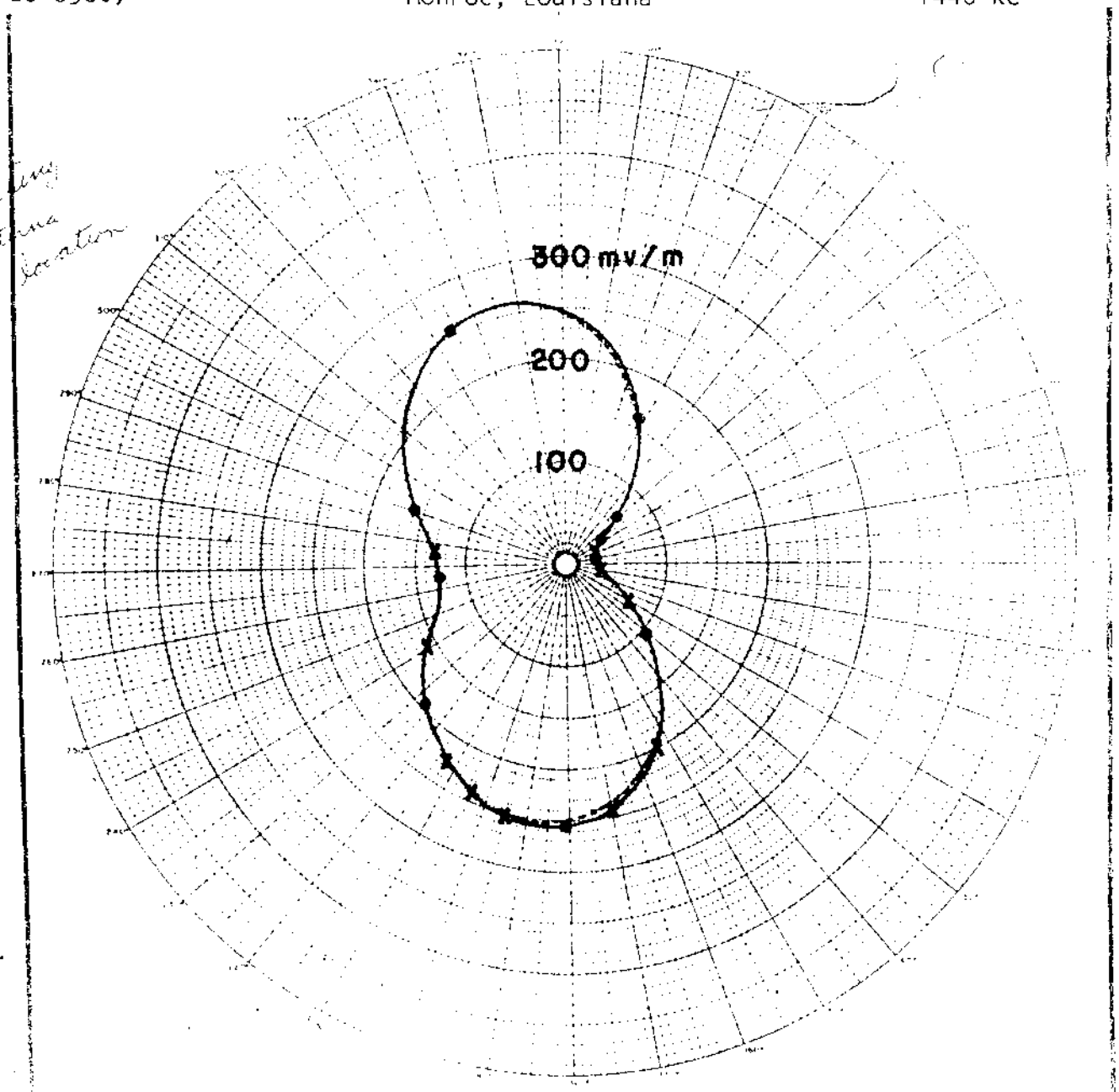
KMLB

Measured Night
(2-26-63ct)

Station KMLB
Monroe, Louisiana

1kw,5kw-LS,DA-N,U
1440 kc

5-1-63
granted
license covering
change in antenna
transmitter location



E_{RMS} = 177.3

LATITUDE N 32° 33' 10"
LONGITUDE W 92° 04' 24.5"

AMBROSE W. KRAMER
CONSULTING RADIO ENGINEER

ANTENNA PARAMETERS

W —150°— E -N85°E

1.15 ∠-30° 1.0 ∠0°

G = 105.3°

FIGURE-15A
HORIZONTAL POLAR PATTERN

KMLB MONROE
1440 kcs. 5.0KW LS
1.0KW DAN

FCC File No. BL-9744
Accepted 2-18-63

Station KMLB
Monroe, Louisiana

1440 kc

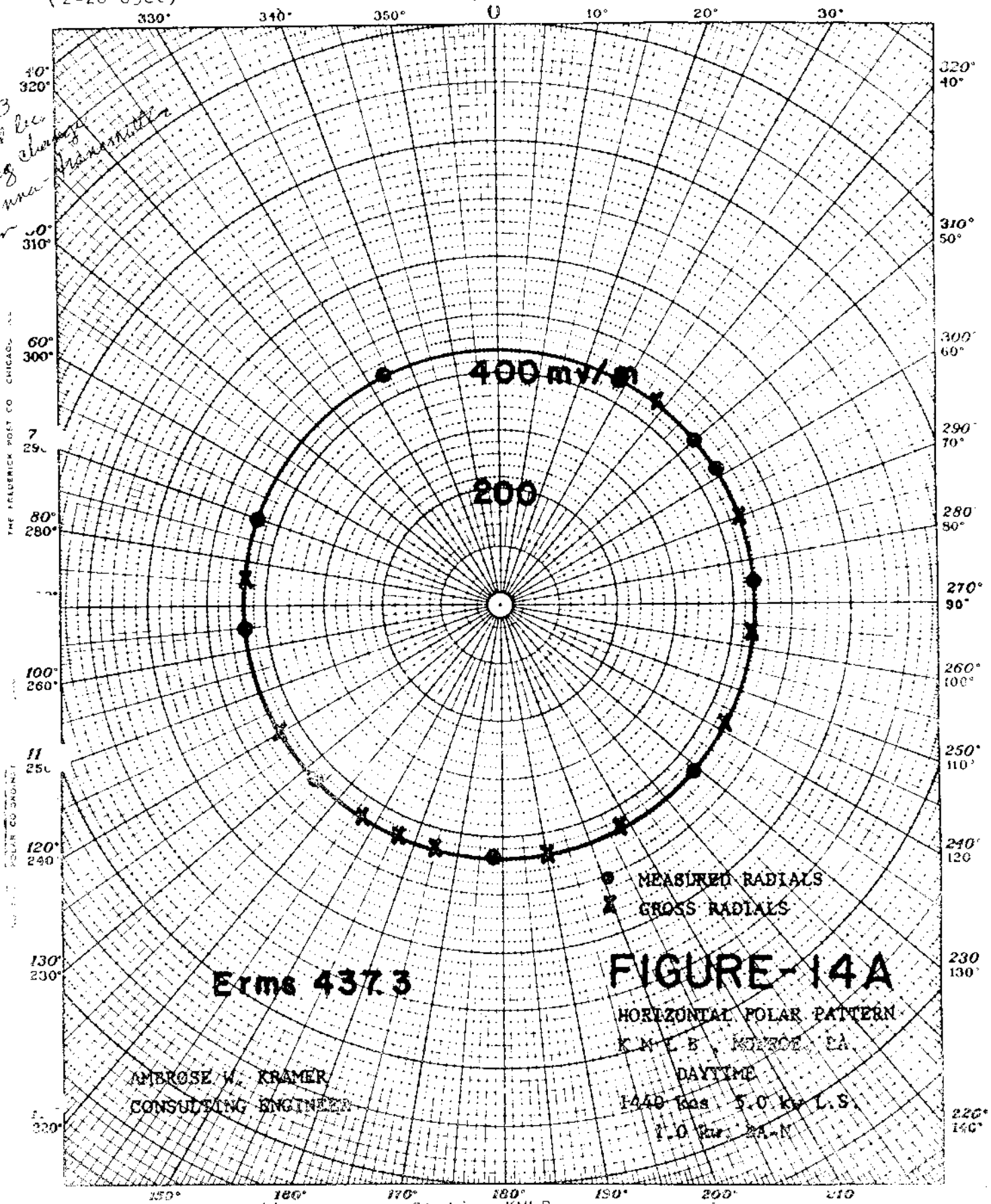
JUL 1975

KMLB

Measured Non-DA
(2-26-63ct)

Station KMLB
Monroe, Louisiana

1kw,5kw-LS,DA-N,U
1440 kc



FCC File No.BL-9744
Accepted 2-18-63

Station KMLB
Monroe, Louisiana

1440 kc

KODL

SUPPLEMENTAL DIRECTIONAL ANTENNA
DESCRIPTION SHEET

Station: KODL

Main Studio: The Dalles, Oregon

Frequency: 1440 kHz

Power: 1 kW Night 5 kW Day

Notification List No. 1724

Date: March 8, 1977 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 45° 35' 31"
West Longitude: 121° 11' 57"

Authorized for nighttime operation (DA-N).

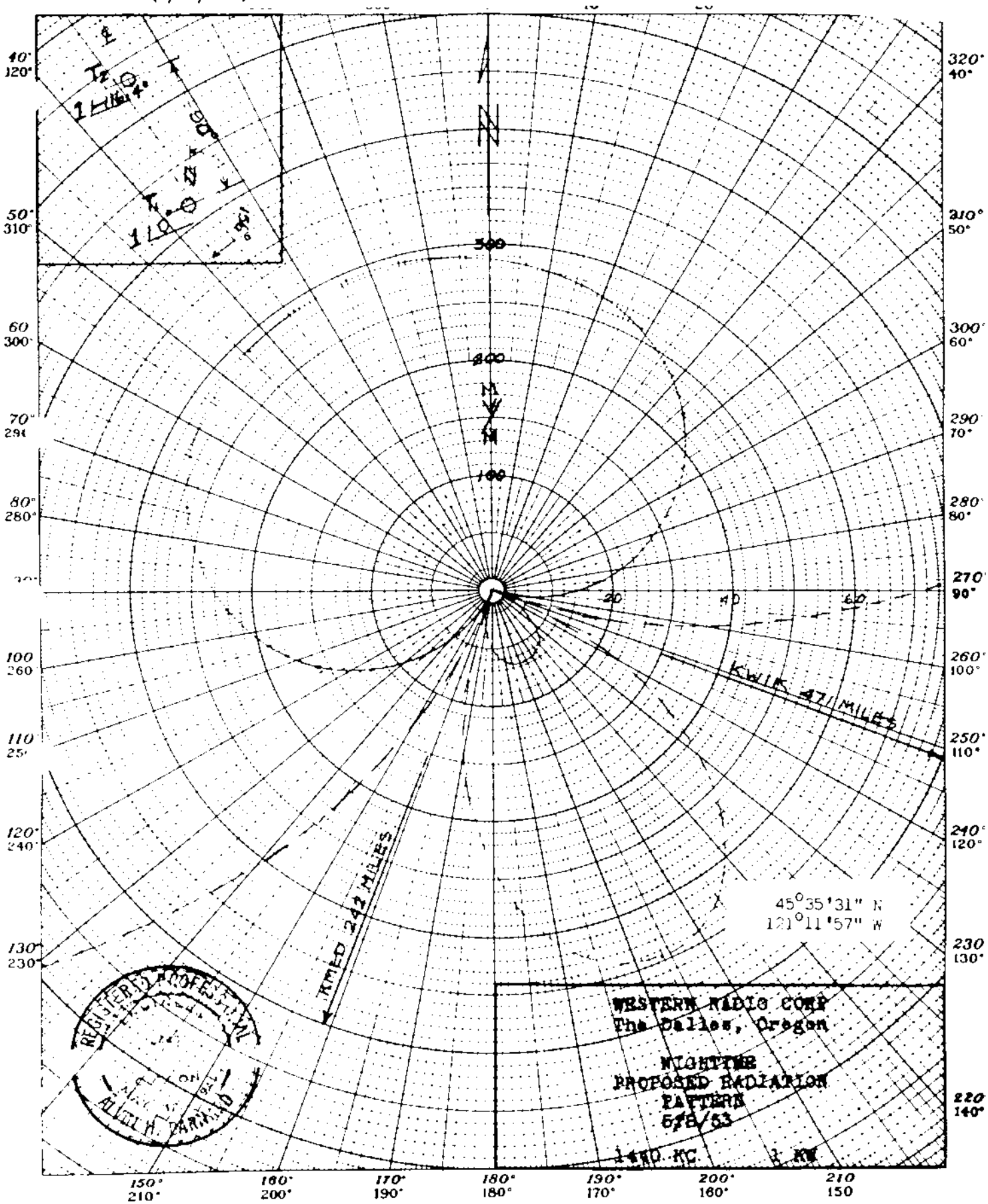
Predicted effective Day Field: (omnidirectional) 429 mv/m at rated power.

Note: Please retain the description sheet and directional antenna radiation patterns notified for station KODL in United States Change List Number 540, dated January 13, 1954 and attach to this supplemental Description Sheet. This notification is for the purpose of indicating only a change in the daytime operation of the station with nighttime operation continued as previously notified.

CTR NO 31149A3

KODL

PROPOSED KODL, THE DALLES, OREGON 1kw,U, DA-N 1440 kc
NIGHT (7/10/53G)



FCC File No. BP-88898 Accepted 6/26/53 KODL, THE DALLES, OREGON 1440 kc

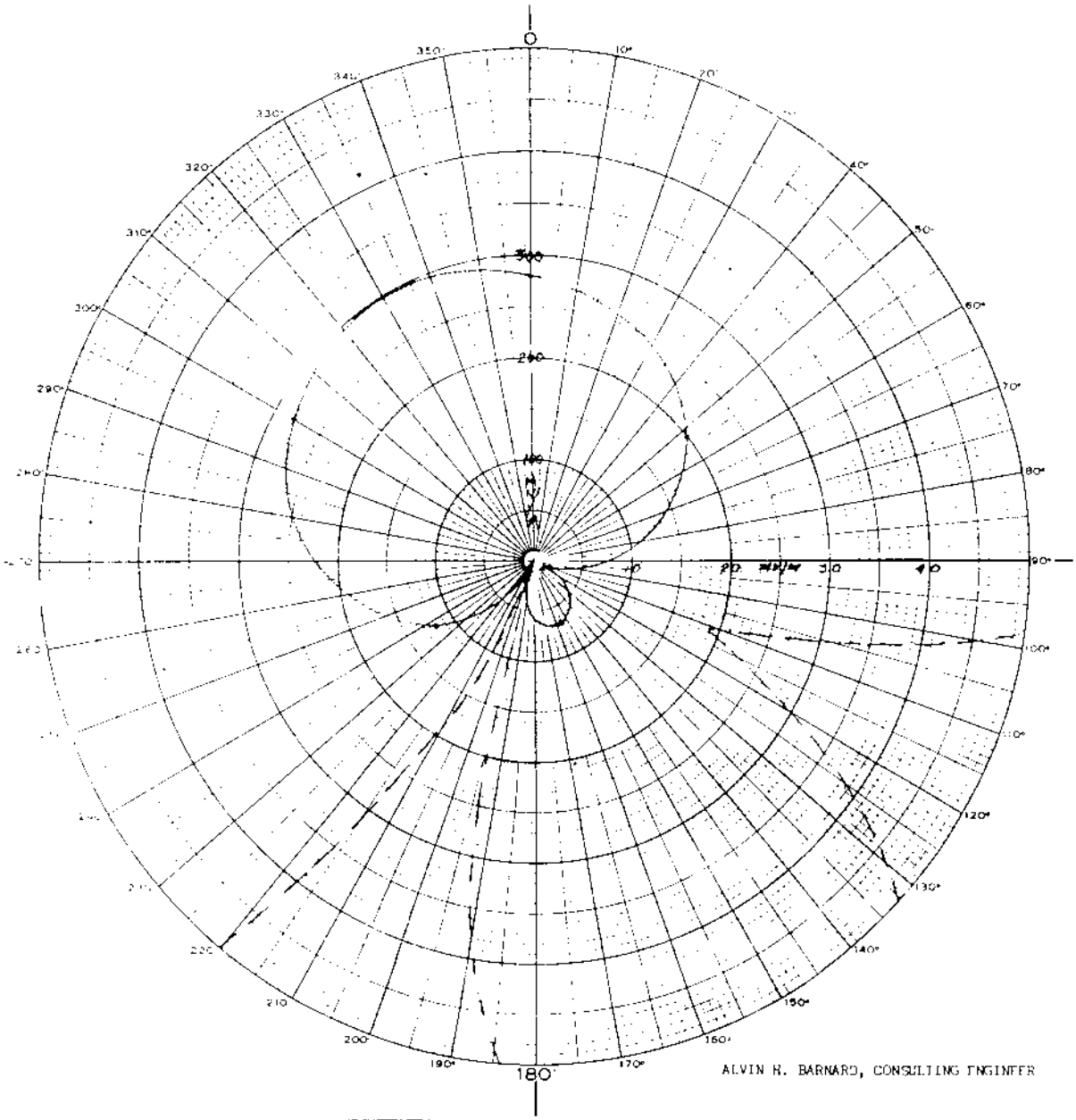
KODL

MEASURED NIGHT (CORRECTED)
(8/16/55C)

STATION KODL
THE DALLES, OREGON

1 KW
DA-N, U

1440 KC



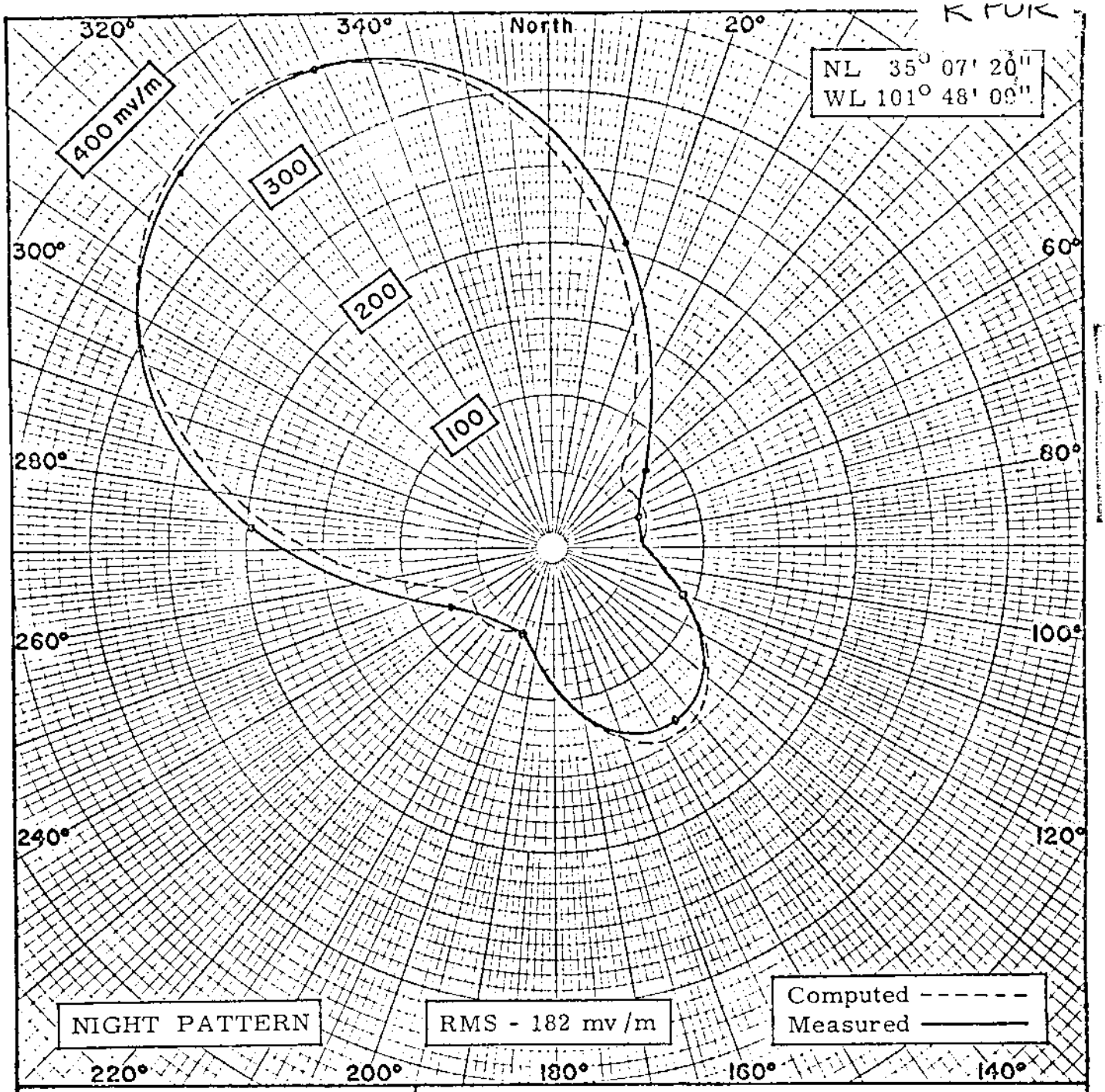
ALVIN R. BARNARD, CONSULTING ENGINEER

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS									STATION DATA
	TOWER No	ELECTRICAL HEIGHT °	TRUE TOWER ORIENTATION °	SPACING '	BEARING °	HORIZONTAL FIELD	FIELD RATIO X	ELEV ANGLE °	ELEVATION RMS FIELD mv/m Ea	CALL KODL
										FREQUENCY 1440 kc
										POWER 1 kw
	1	92°	NOTE		0°		68	0		TIME OF OPERATION UNLIMITED
	2	92°	NOTE	30'	-116.5°	190	71.5	10		TYPE OF OPERATION —
	3							20		DAYTIME TOWERS # 2
	4							30		NIGHTTIME TOWERS # 2
	5							40		NO RADIALS PER TOWER 120
	6							50		LENGTH OF RADIALS ' "
	7							60		GROUND SCREEN DIMENSION
	8							70		LAT 45 ° 35 ' 51 "
	9							80		LONG. 121 ° 11 ' 51 "
	0							E = 187.7 mv/m		SUPERSEDES
		DAYTIME OPERATION ☐		NIGHTTIME OPERATION ☐				R =	kw	PATTERN No.

CORRECTED MEASURED PATTERN
[redacted] 7/18/55

FILE NO. BL-5756 ACCEPTED FCC 7/28/55 KODL, The Dalles, Oregon 1440 KC

1975



Theoretical

0.567/-166°

1.37/0°

1.00/166°

① — ② — ③ → 145°T

G_1 - 362' - 191°
G_2 = G_3 - 171' - 90°
S - 114' - 60°

RADIO STATION KPUR
AMARILLO, TEXAS

MEASURED DIRECTIONAL
HORIZONTAL PLANE RADIATION PATTERN
1440 KHZ 1000 WATTS

090672

FIGURE 2

MERL SAXON
CONSULTING RADIO ENGINEER
LUFKIN, TEXAS

BL 13482

JUL 1 1975

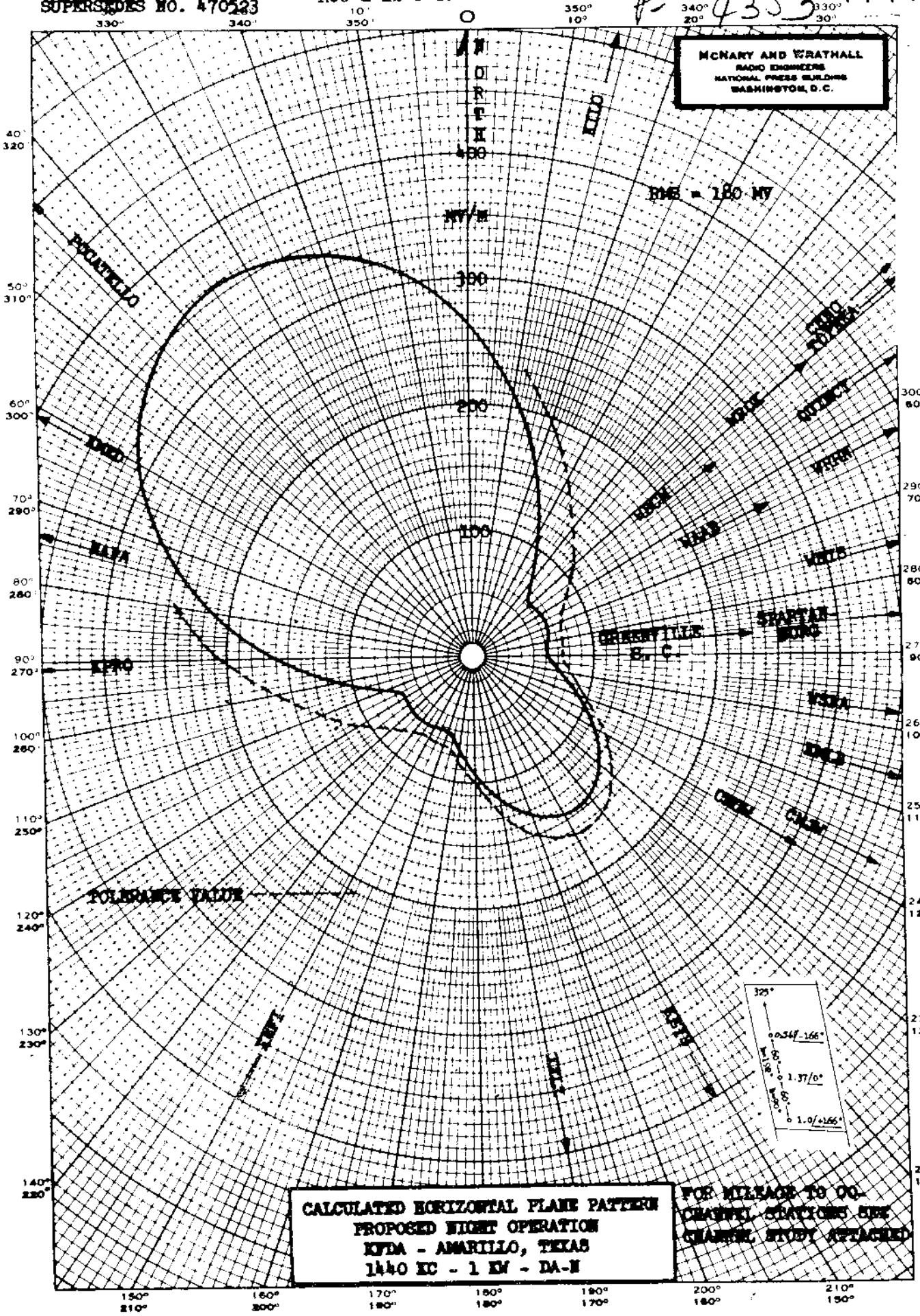
SEE REVERSE SIDE 4/24/70

KPUR
1/5, DA-N, U
1440

PATTERN NO. 471203
SUPERSEDES NO. 470523

Rec'd 12-3-47

P-4353



12

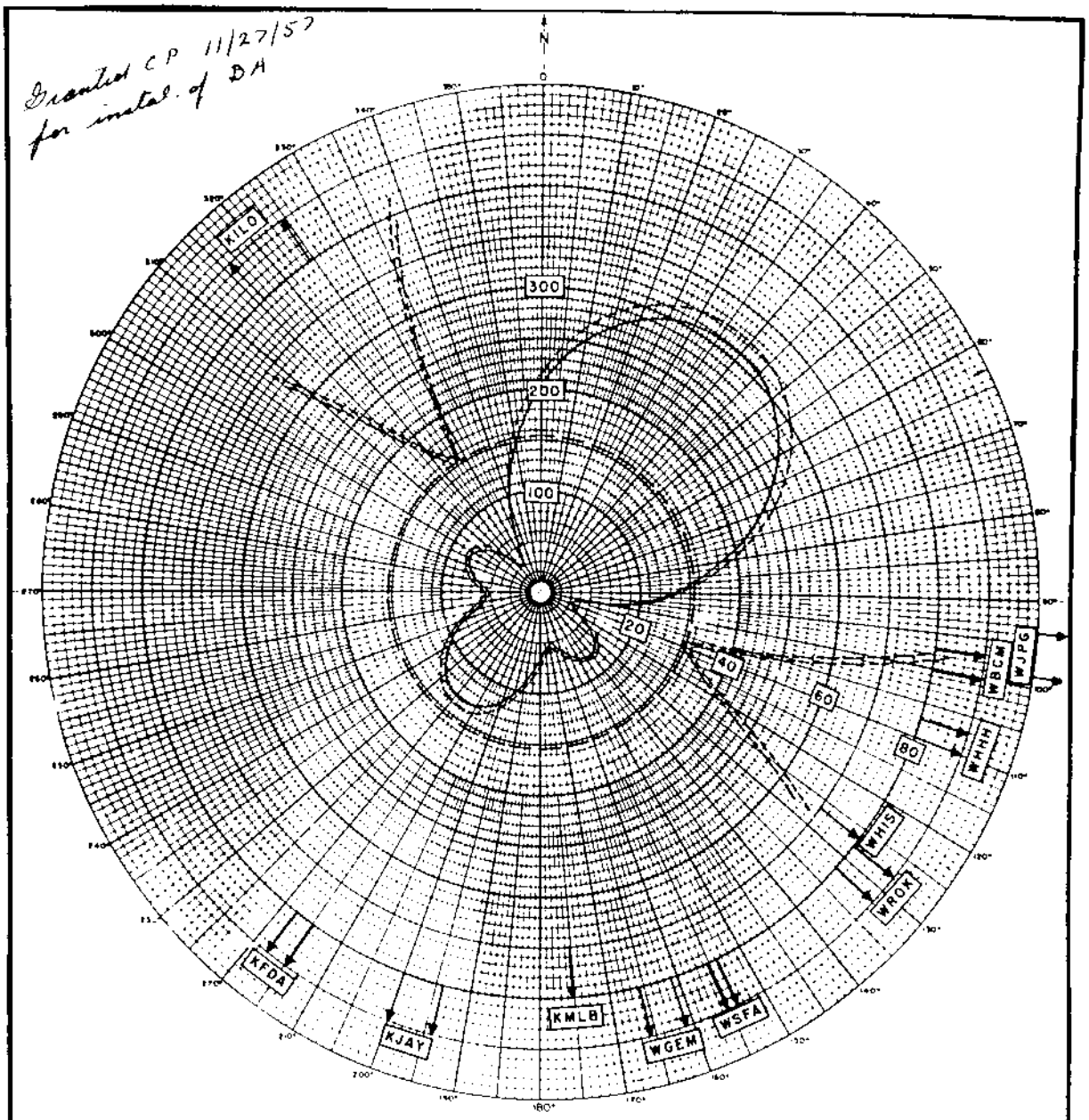
-KQRS

PROPOSED NIGHT
(9/25/57g)

Station KEVE
~~Minneapolis~~ GOLDEN VALLEY, Minnesota

500w, 5kw-LS, DA-N, U
1440 KC

Granted CP 11/27/57 for instal. of DA



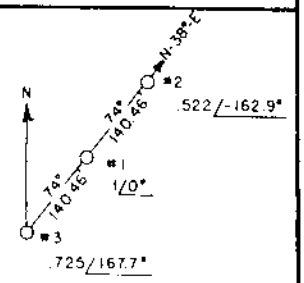
E_{RMS} = 153.3 MV/M

----- MEOV
—·—·— EXPANDED SCALE

LATITUDE 44° 59' 20"
LONGITUDE 93° 21' 05.8"

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

ANTENNA PARAMETERS



G_1 = 137° G_2 & G_3 = 105.4° PLUS T LOADING

FIGURE 4

HORIZONTAL POLAR PATTERN
(GROUND)

RADIO STATION ~~KEVE~~ KQRS

1440 KC 0.5KW,5KW-LS,DA-N,U

FCC File No. BP-7205
Accepted 9/10/57

KEVE
Minneapolis, Minnesota

1440 KC

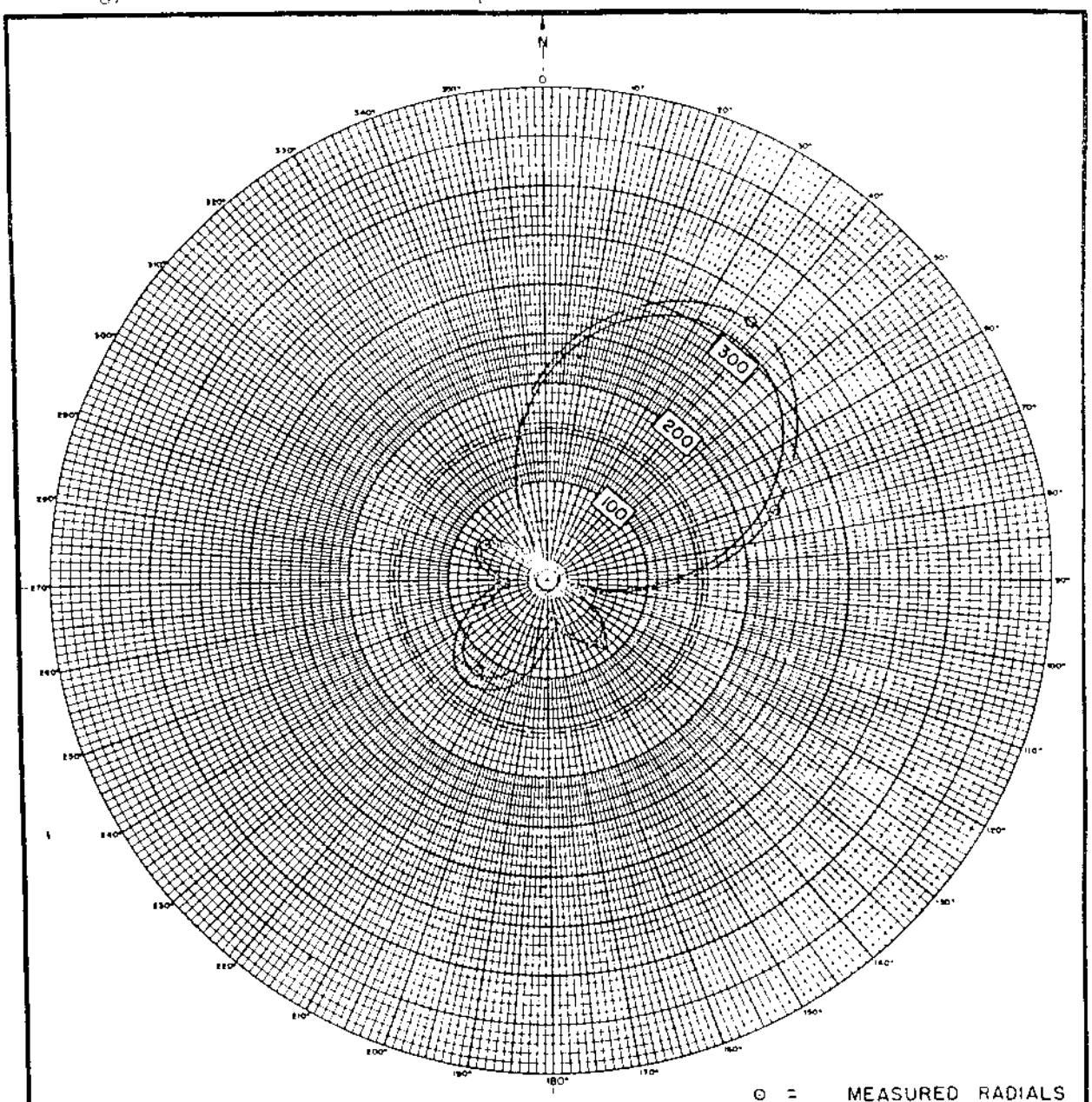
KQRS

GOLDEN VALLEY

MEASURED NIGHT
(5-28-59g)

Station KEVE
~~Minneapolis~~, Minnesota

500w, 5kw-LS, DA-N,U
1440 KC



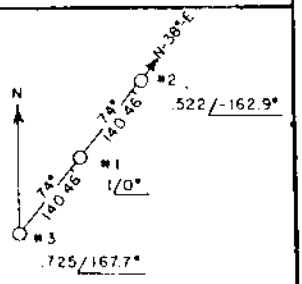
E_{RMS} = 155.9 MV/M (MEASURED)

LATITUDE: 44° 59' 20"

LONGITUDE: 93° 21' 05.8"

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

ANTENNA PARAMETERS



G_1 = 137° G_2 & G_3 = 105.4° PLUS T. LOADING

FIGURE 19

HORIZONTAL POLAR PATTERN
(NIGHTTIME)

RADIO STATION ~~KEVE~~ KQRS
~~MINNEAPOLIS~~, MINNESOTA
GOLDEN VALLEY

1440 KC 0.5 KW, 5KW-LS, DA-N,U

FCC File No. BL-7457
Accepted 5-12-59

KEVE
Minneapolis, Minnesota

1440 KC

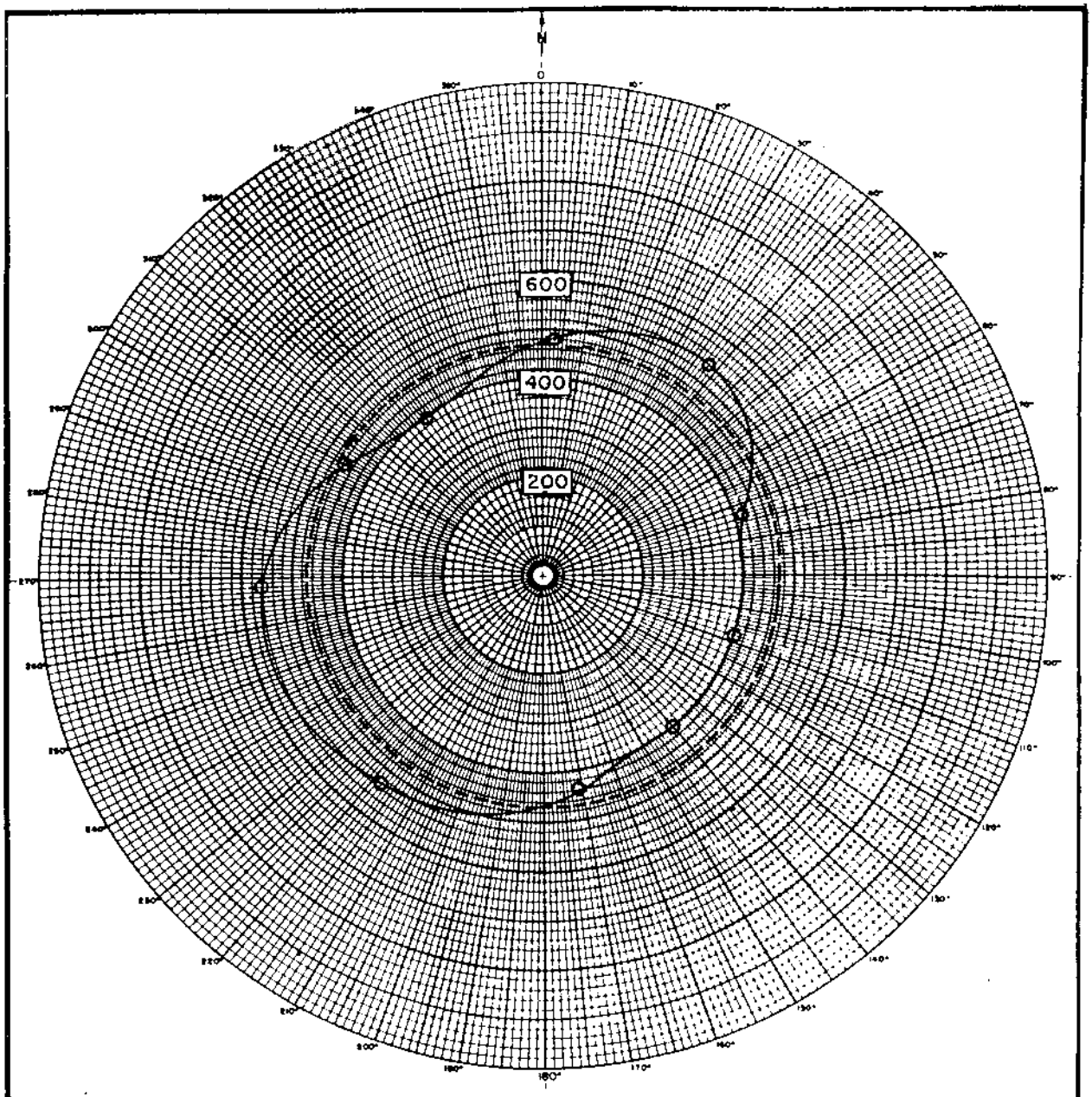
KQRS

MEASURED NON-DA
(5-28-59g)

GOLDEN VALLEY
Station KEVE
~~Minneapolis~~, Minnesota

500w, 5kw-LS, DA-N,U
1440 KC

gratitude for DA-N
7-17-59



E_{RMS} = 472 MV/M

O = MEASURED RADIALS

LATITUDE: 44° 59' 20" LONGITUDE: 93° 21' 05.8"	ANTENNA PARAMETERS	FIGURE 17 HORIZONTAL POLAR PATTERN (NON-DIRECTIONAL)
JOHN H. MULLANEY CONSULTING RADIO ENGINEERS WASHINGTON, D. C.		RADIO STATION ~~KEVE~~ KQRS ~~MINNEAPOLIS~~, MINNESOTA 1440 KC 0.5KW, 5KW-LS, DA-N,U

FCC File No. BL-7457
Accepted 5-12-59

KEVE
Minneapolis, Minnesota

1440 KC

SUPPLEMENTAL
DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KUHL

Main Studio: Santa Maria, California

Frequency: 1440 kHz

Power: 1kw Night 5kw Day

Notification List No. 1757

Date: November 16, 1977 Class III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 34° 59' 02"

West Longitude: 120° 27' 10"

Authorized for Nighttime operation (DA-N)

Predicted effective Day Field: (omnidirectional) 427 mv/m at rated power.

Note: Please retain the corrected description sheet and directional antenna radiation patterns notified for station KOOY (now KUHL) in United States Change List Number 784, dated November 12, 1958 and attach to this supplemental Description Sheet. This notification is for the purpose of indicating an increase in daytime power from 1 kw with no changes in the nighttime opeation.

KUHL

PROPOSED NIGHT
(3-3-58g)

Station KCOY
Santa Maria, California

1kw, DA-N,U
1440 KC

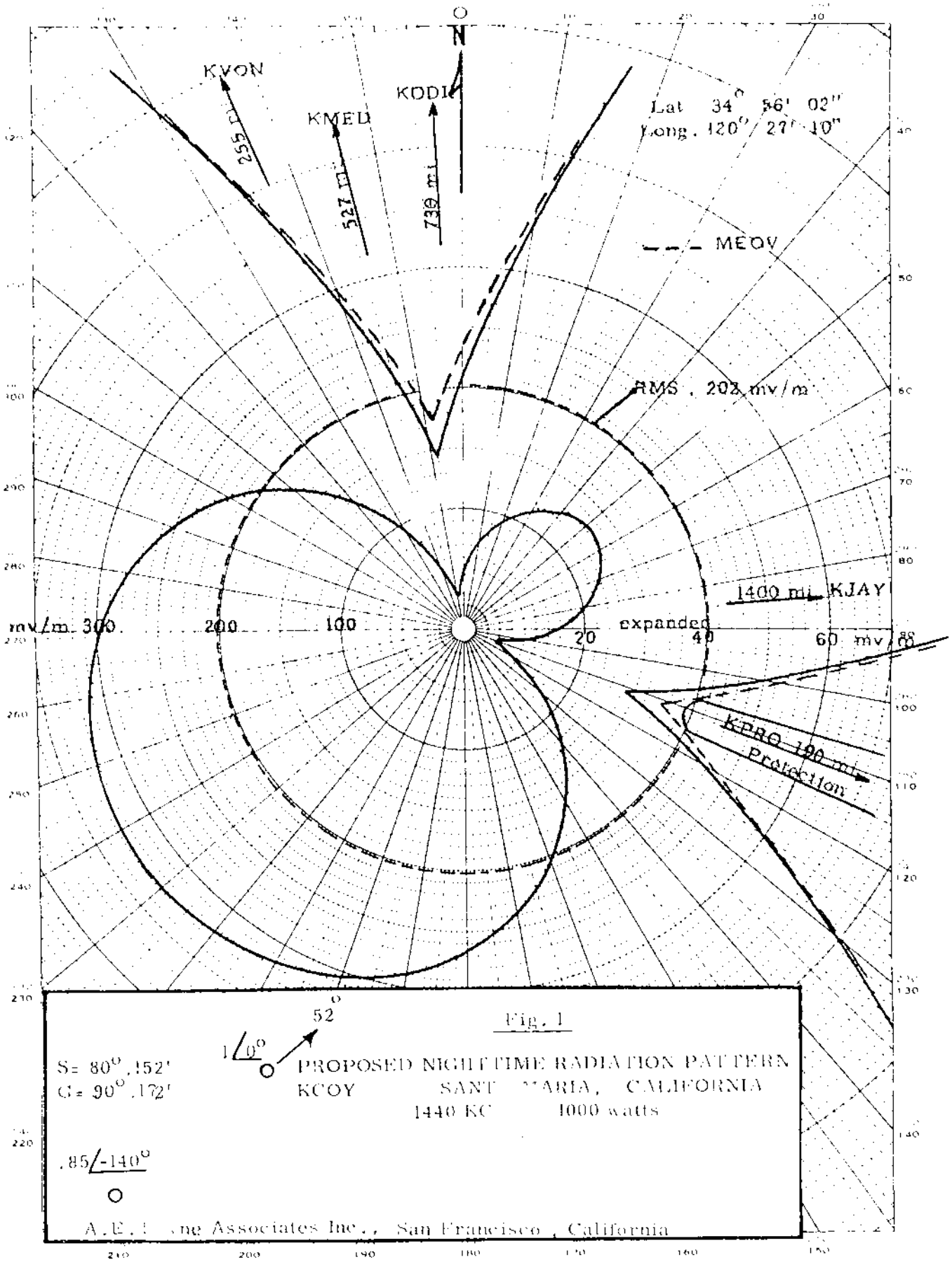


Fig. 1

Granted for change of freq
increase power and installation
DAN 5-3-60

FCC File No. BP-11,805
Accepted 2-12-58

KCOY
Santa Maria, California

1440 KC

KUHL

MEASURED NIGHT
(7-8-59)

Station KCOY
Santa Maria, California

1kw, DA-N, U
1440 KC

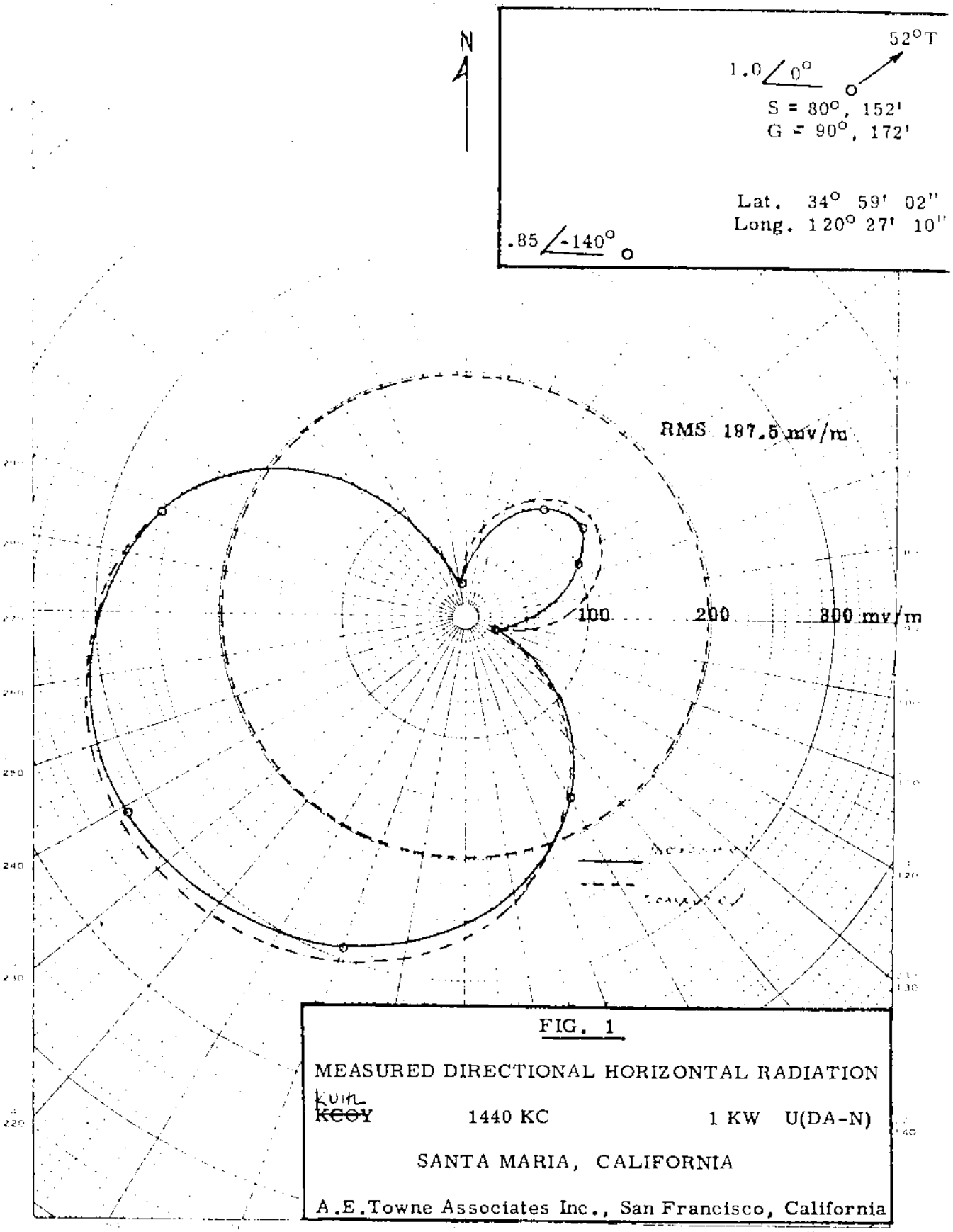


FIG. 1

MEASURED DIRECTIONAL HORIZONTAL RADIATION

KUHL ~~KCOY~~ 1440 KC 1 KW U(DA-N)

SANTA MARIA, CALIFORNIA

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

granted X for change in freq increase of power + install DA-N
5-3-60

FCC File No. BL-7886
Accepted 6-16-59

KCOY
Santa Maria, California

1440 KC

KUHL

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

Station KCOY
Santa Maria, California

1kw, DA-N, U
1440 KC

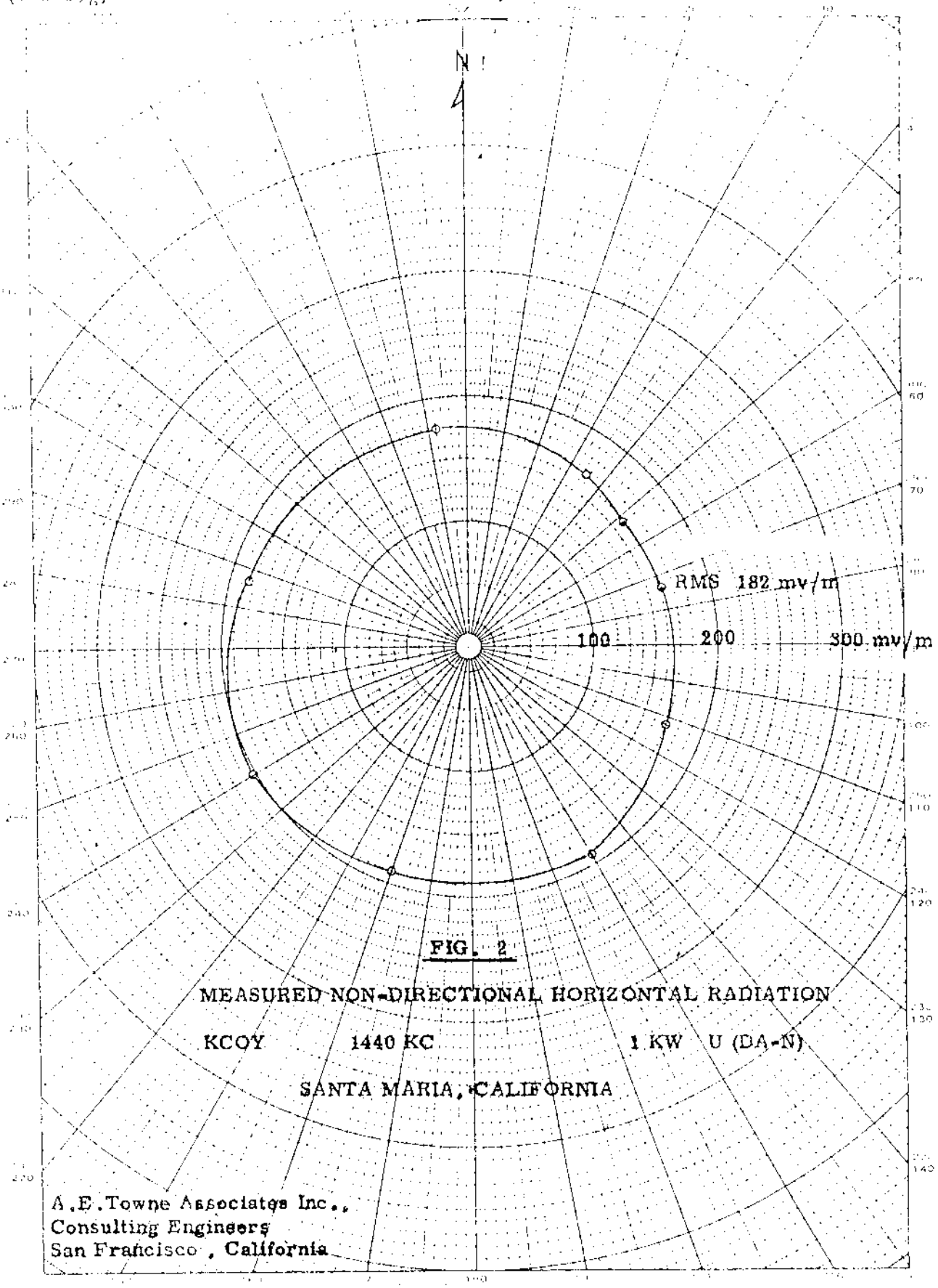


FIG. 2

MEASURED NON-DIRECTIONAL HORIZONTAL RADIATION

KCOY 1440 KC 1 KW U (DA-N)

SANTA MARIA, CALIFORNIA

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

Granted for change in freq. increase power and install DA-N
5-3-60

FCC File No. BL-7886
Accepted 6-16-59

KCOY
Santa Maria, California

1440 KC

BL 12493
GR. (2-13-70) Lic. Covering CP for changes

KVON

Measured Day
(2-28-70ct)

Station KVON
Napa, California

1kw, 5kw-LS, DA-2, U
1440 kc

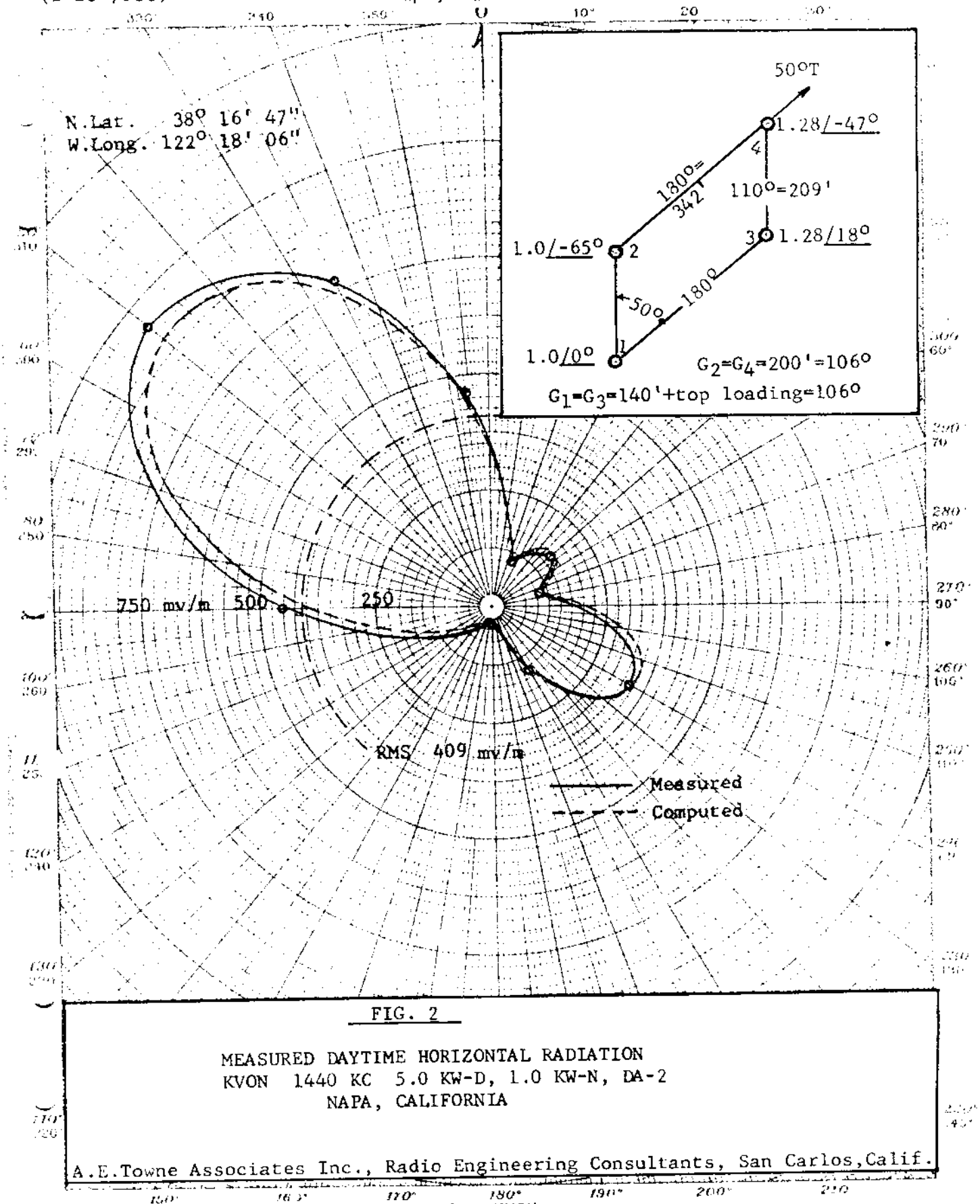


FIG. 2

MEASURED DAYTIME HORIZONTAL RADIATION
KVON 1440 KC 5.0 KW-D, 1.0 KW-N, DA-2
NAPA, CALIFORNIA

A.E.Towne Associates Inc., Radio Engineering Consultants, San Carlos, Calif.

FCC File No.BL-12493
Accepted 2-5-70

Station KVON
Napa, California

1440 kc

BL 12493
GR. (2-13-70) L.C. Covering CP for Changes

KVON

Measured Night
(2-28-70ct)

Station KVON
Napa, California

1kw, 5kw-LS, DA-2, U
1440 kc

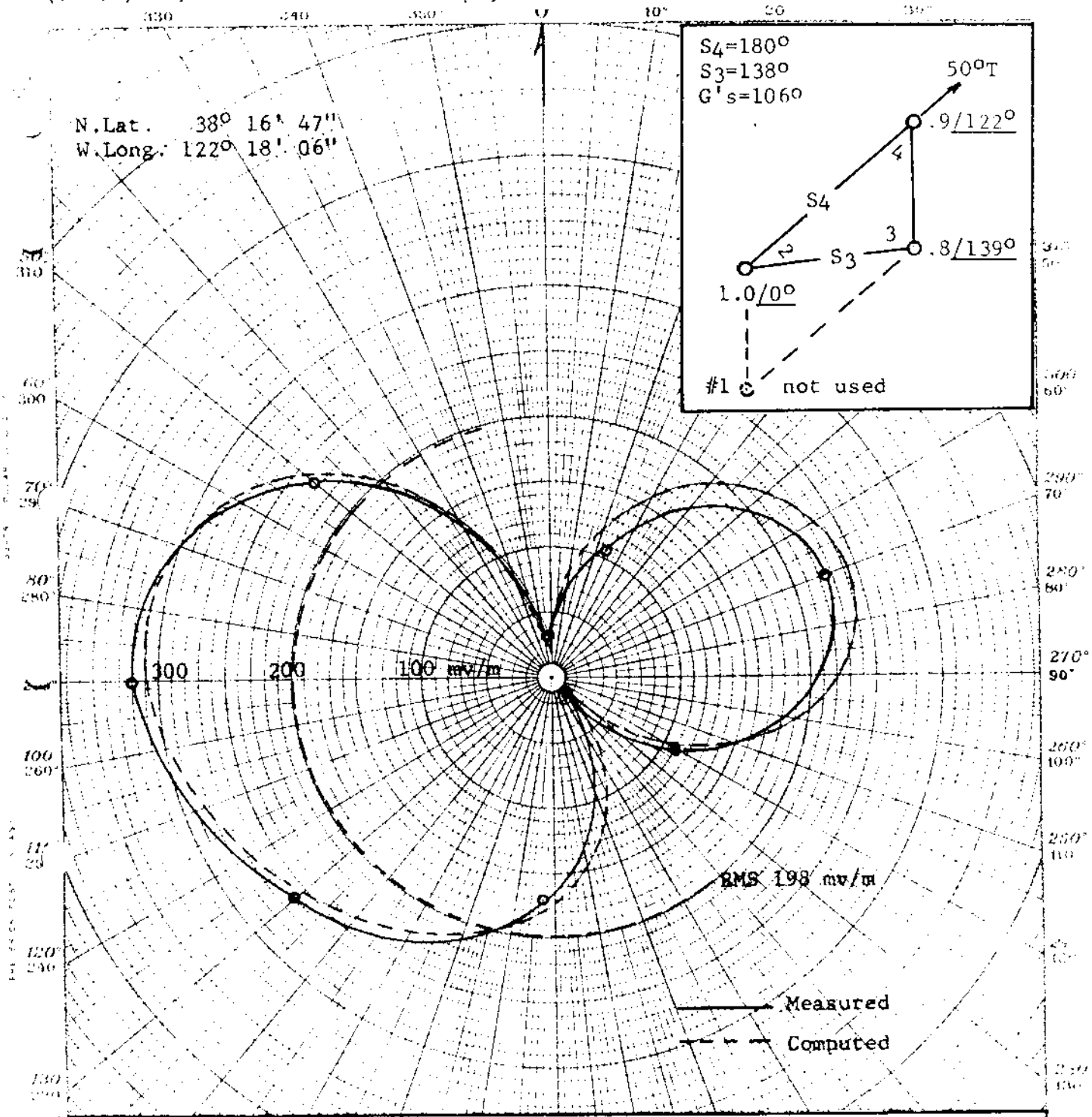


FIG. 3

MEASURED NIGHTTIME HORIZONTAL RADIATION
KVON 1440 KC 5.0 KW-D, 1.0 KW-N DA-2
NAPA , CALIFORNIA

A.E.Towne Associates Inc., Radio Engineering Consultants, San Carlos, Calif.

FCC File No.BL-12493
Accepted 2-5-70

Station KVON
Napa, California

1440 kc

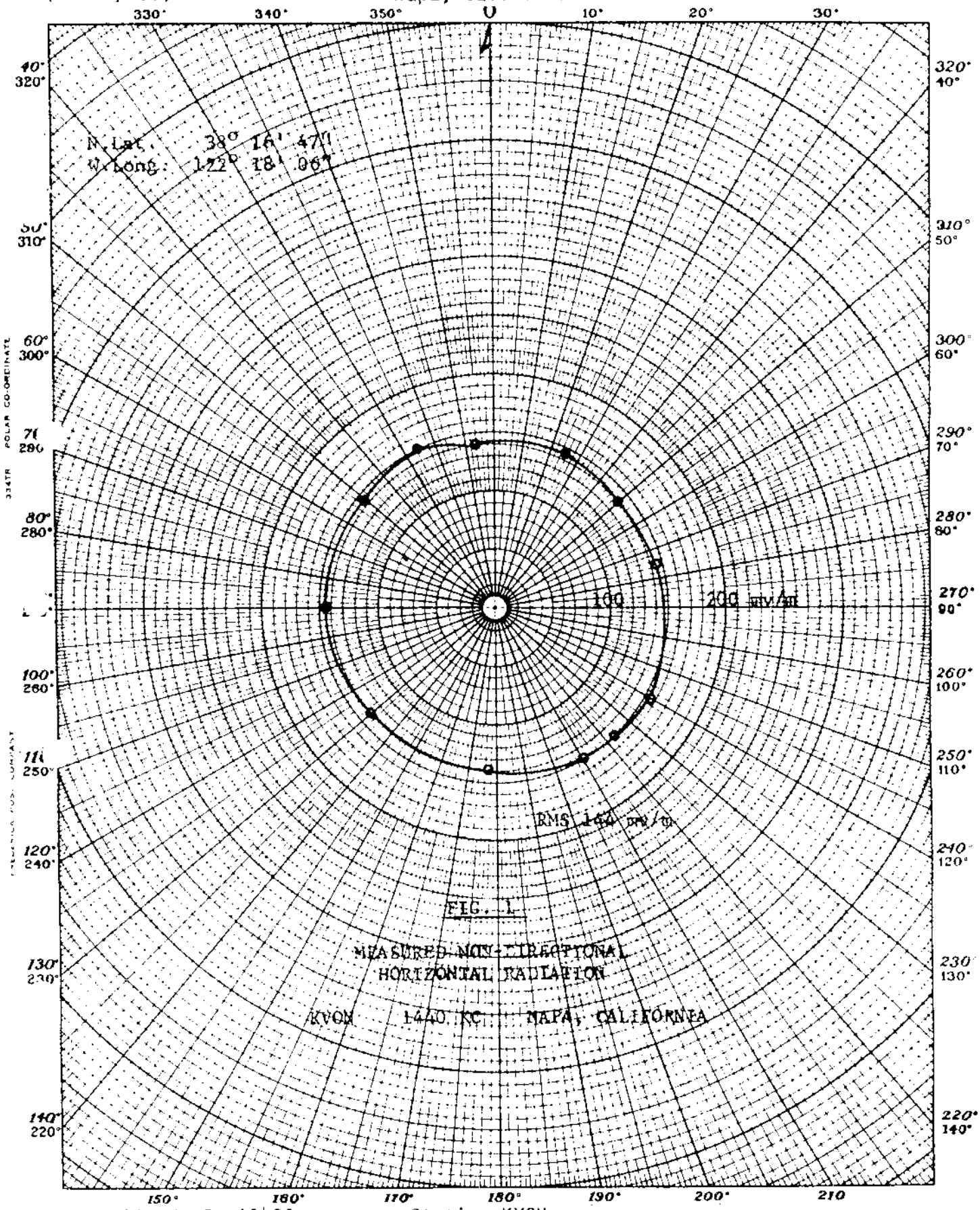
BL 12493
GR(2-13-70) Lic. covering CP for changes

KVON

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

Station KVON
Napa, California

1kw,5kw-LS,DA-2,U
1440 kc



FCC File No.BL-12493
Accepted 2-5-70

Station KVON
Napa, California

1440 kc

KVON

Proposed Day
(2-28-67ct)

Station KVON
Napa, California

500w,5kw-LS,DA-2,U
1440 kc

7-11-67
PAINTED
CP
DA 4 SYST.

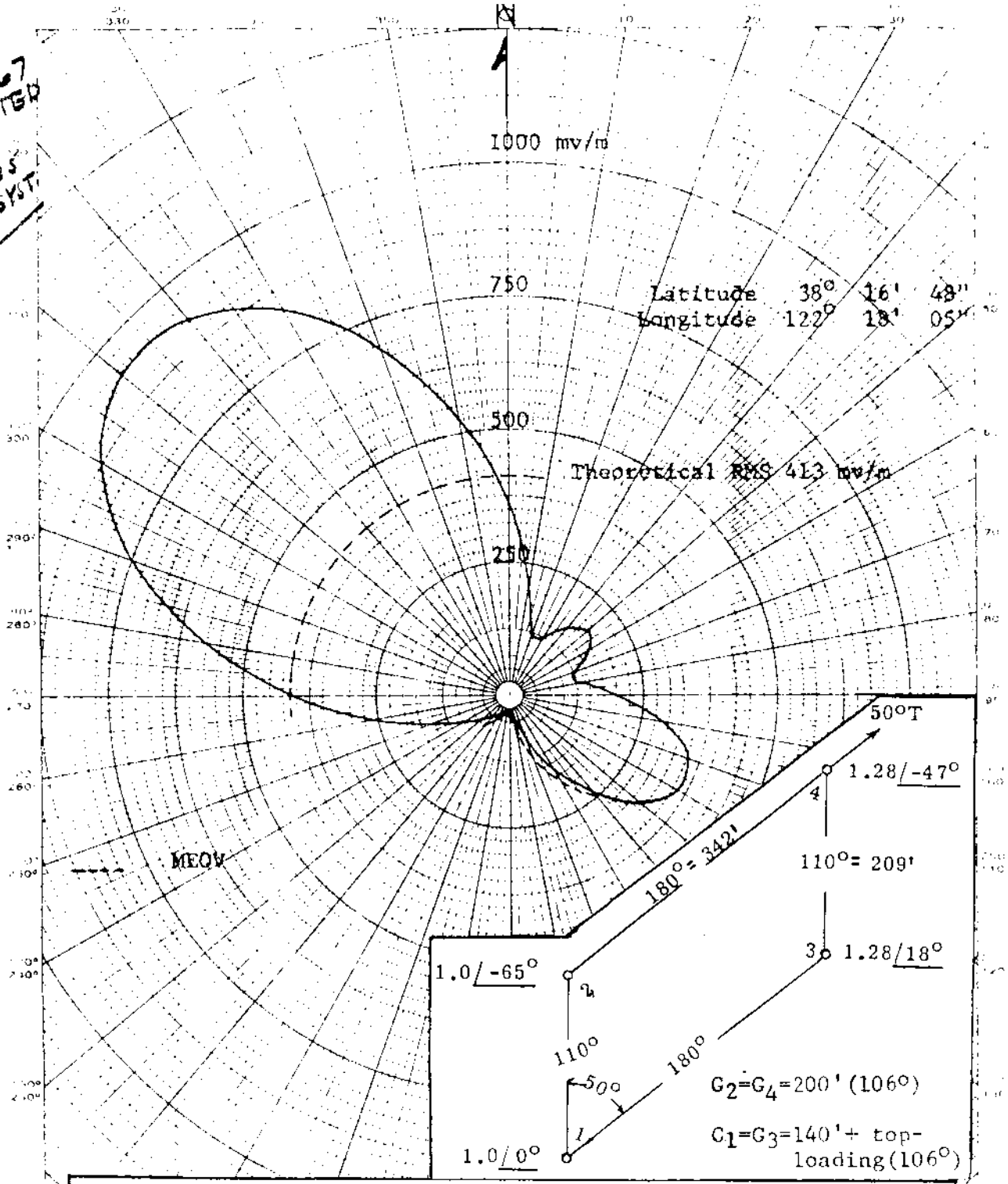


Fig. 1

PROPOSED HORIZONTAL RADIATION
KVON 1440 KC .5 KW-N 5.0 KW-D DA-2
NAPA, CALIFORNIA

A.E.Towne Associates Inc.,Consulting Engineers, San Carlos,Calif.

FCC File No.BP-17295
Accepted 1-31-67

Station KVON
Napa, California

1440 kc

KVON

Proposed Night
(4-29-68ct)

Station KVON
Napa, California

1kw,5kw-LS,DA-2,U
1440 kc

3/23/68
GRANTED CP
TO MAKE CHANGES
IN NIGHT DA-
PATTERN

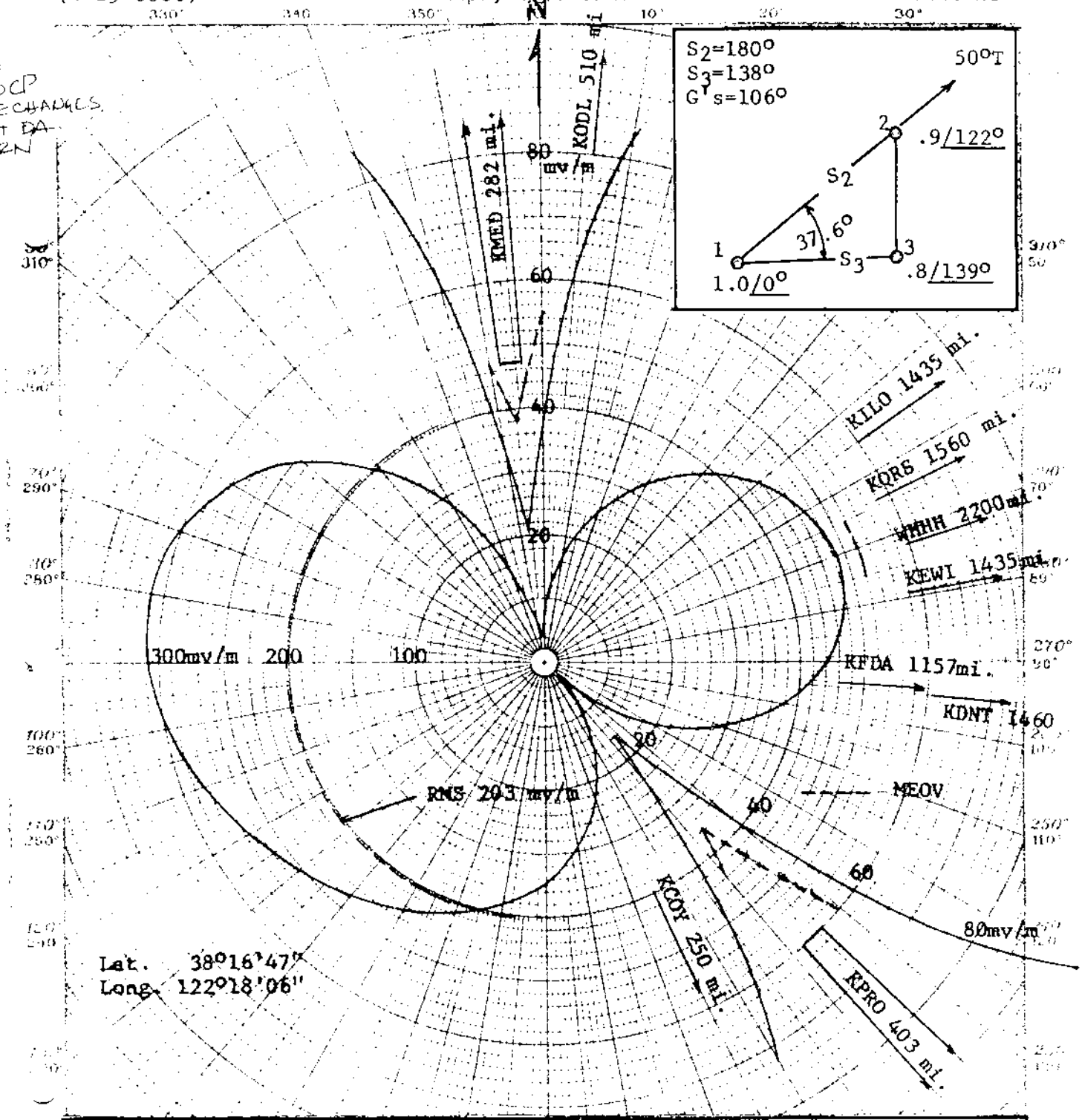


Fig. 1

PROPOSED NIGHTTIME HORIZONTAL RADIATION
KVON 1440 KC 5.0 KW LS 1.0 KW N DA-2
NAPA, CALIFORNIA

A.E.Towne Associates Inc.,Radio Engineering Consultants,San Carlos,Calif.

FCC File No.BMP-12359
Accepted 4-5-68

Station KVON
Napa, California

1440 kc

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: (NEW)

Main Studio: Martin, Kentucky

Frequency: 1440 kHz

Power: 2.5kw Day

Notification List No. 1782

Date: October 26, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 37° 35' 33"
West Longitude: 82° 43' 43"

ANTENNA CHARACTERISTICS

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

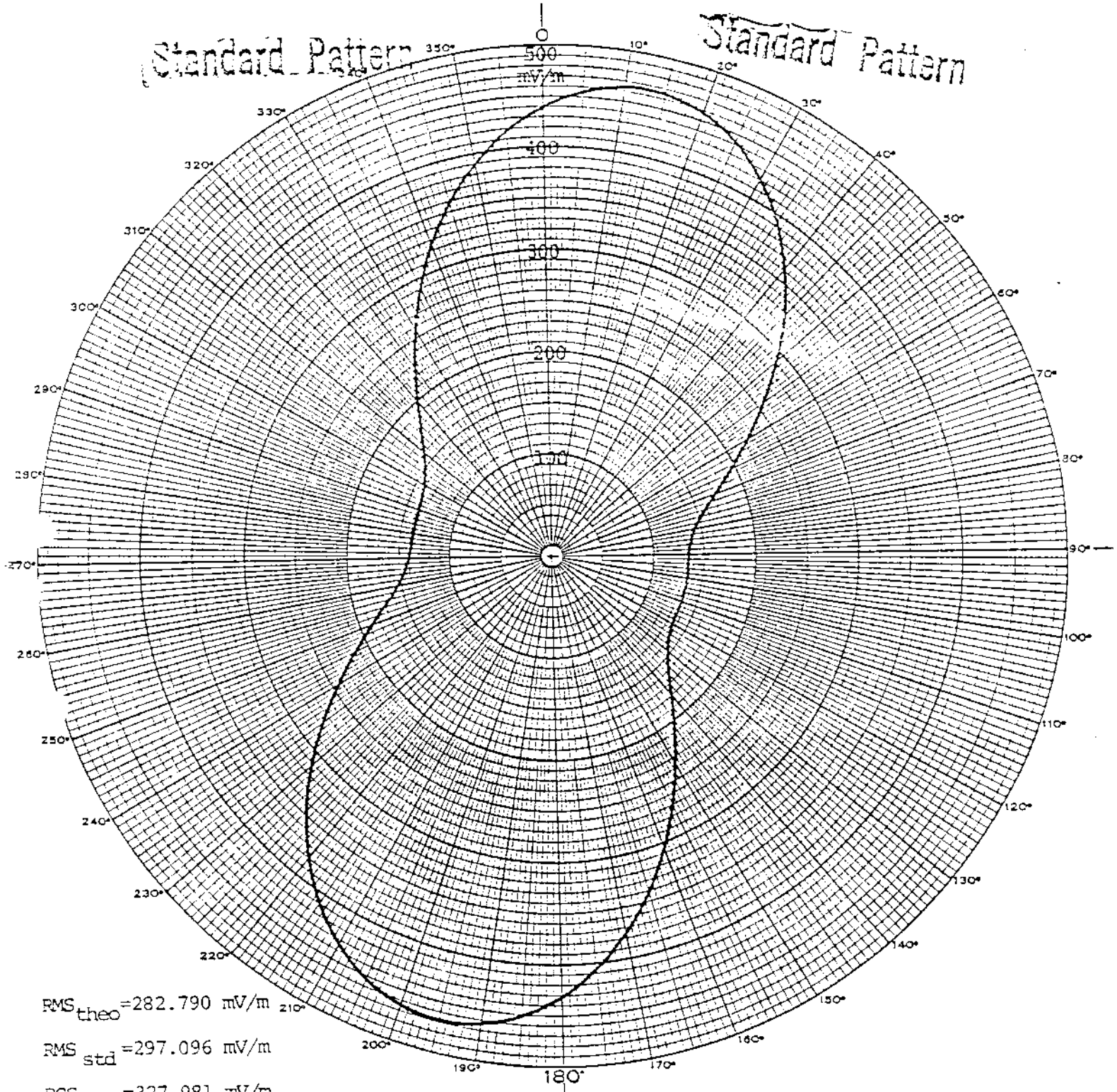
TOWER:	#1 (NW)	#2 (SE)
HEIGHT ABOVE INSULATORS:	171'	171' (90°)
DAY PHASING:	0°	3°
DAY FIELD RATIO:	1	0.55

SPACING AND ORIENTATION: Adjacent towers in a row are spaced 341.6' (180°) on a line bearing 104° true.

GROUND SYSTEM: 120 - 171' equally spaced copper radials about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers. Centers of system are bonded together.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	282.79 mv/m	327.981 mv/m	297.06 mv/m



RMS_{theo}=282.790 mV/m

RMS_{std}=297.096 mV/m

RSS_{theo}=327.981 mV/m

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 4	STATION DATA
G's = 90°	TOWER No.	ELECTRICAL HEIGHT G°	SPACING S°	PHASING ψ°	FIELD RATIO F	PROPOSED DAYTIME STANDARD PATTERN	CALL NEW
#1 180° #2 104° T.	1			0°	1.00		FREQ 1440 kHz
	2			3°	0.55		POWER 2.5 kW
	3						TYPE DA-D
	4					MAY - 1977	TIME DAYTIME
	5					MARTIN, KENTUCKY	LAT. N 37°35'33"
	6						LONG. W 82°43'43"
	DAYTIME OPERATION ☒		NIGHTTIME OPERATION ☐			Θ° = 0	E. HAROLD MUNN, JR. & ASSOCIATES, INC. COLDWATER, MICH.

OVER WAAB

PROPOSED DAY (2/4/55G) | STATION WAAB WORCESTER, MASSACHUSETTS | 5 KW DA-2, U | 1440 KC

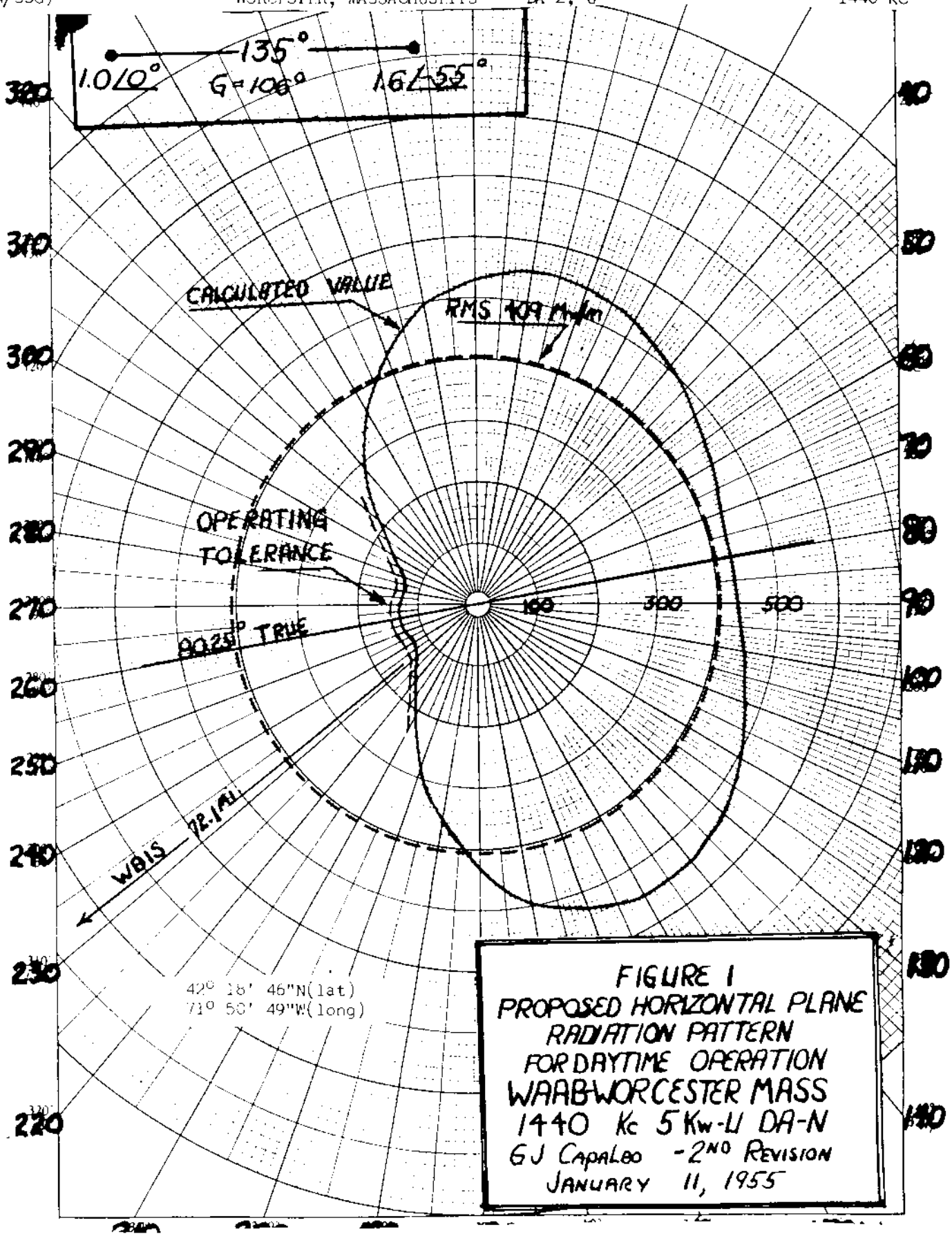


FIGURE 1
PROPOSED HORIZONTAL PLANE RADIATION PATTERN FOR DAYTIME OPERATION
WAAB-WORCESTER MASS
1440 Kc 5 Kw-U DA-N
G J CAPALBO - 2ND REVISION
JANUARY 11, 1955

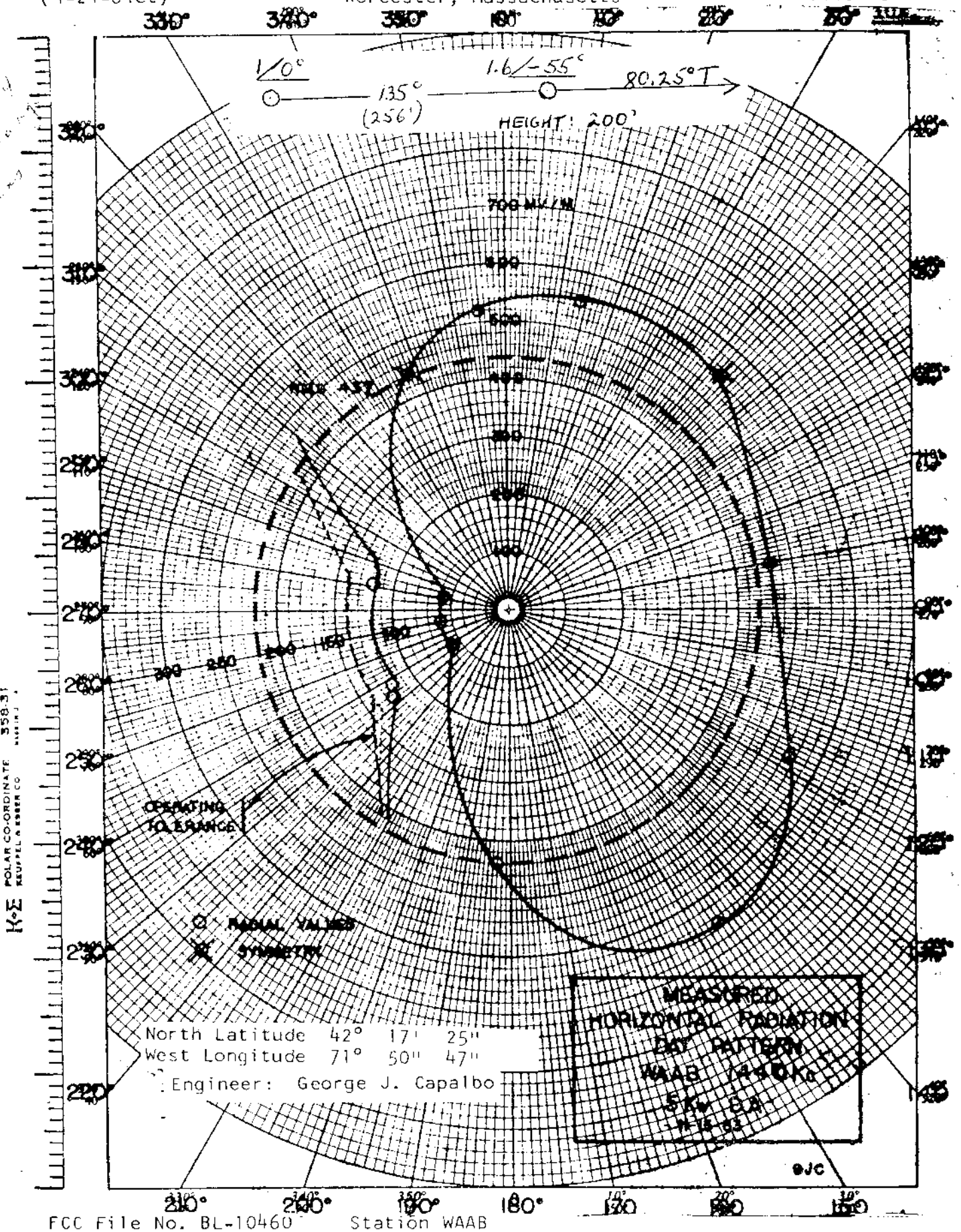
FILE NO. BP-9537 (Amended) Accepted 1/19/55 WAAB, Worcester, Massachusetts 1440 KC

WAAB

Measured Day
(4-24-64ct)

Station WAAB
Worcester, Massachusetts

5kw,DA-2,U
1440 kc

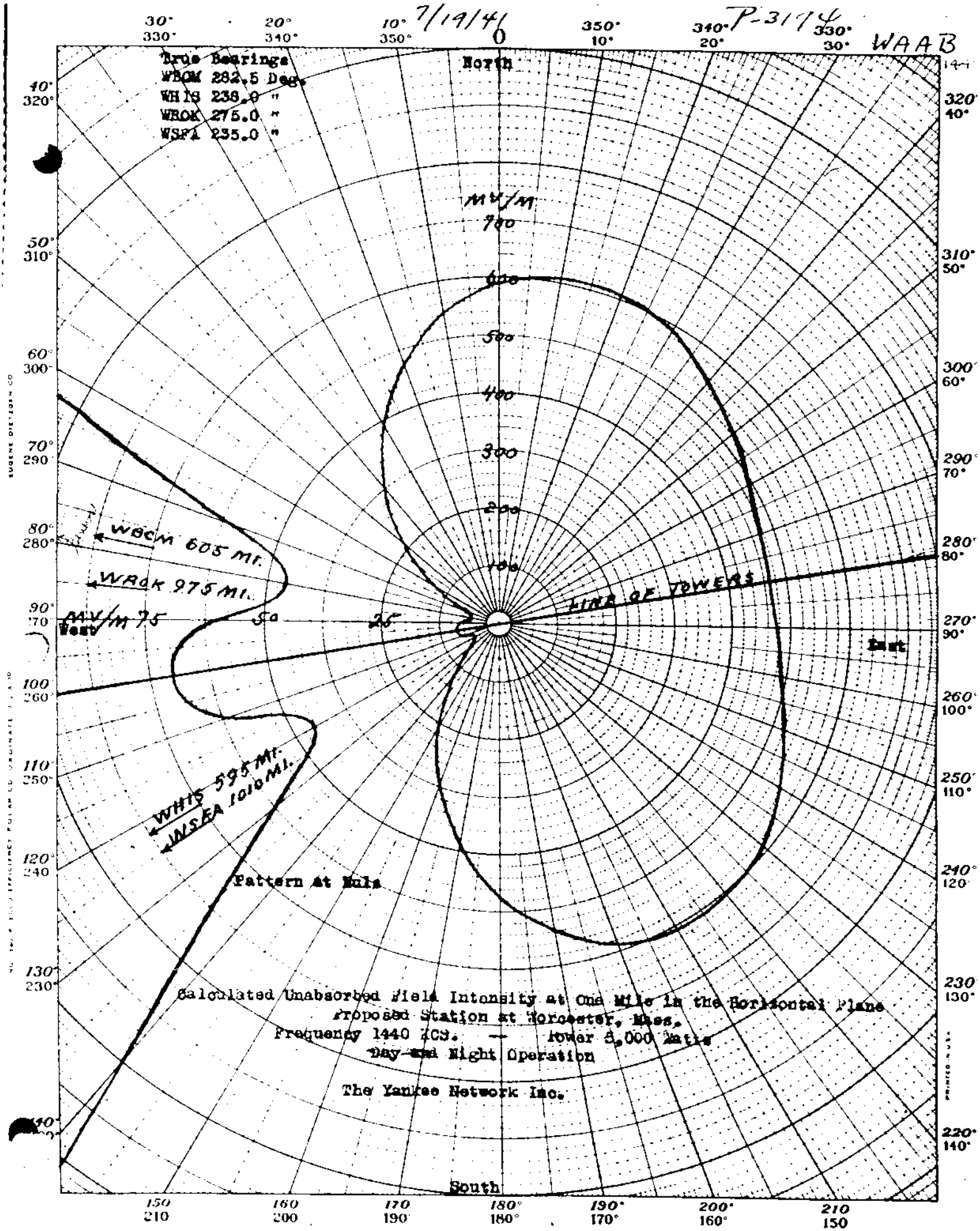


FCC File No. BL-10460
Accepted 3-26-64

Station WAAB
Worcester, Massachusetts

1440 kc

JUL 18 1975



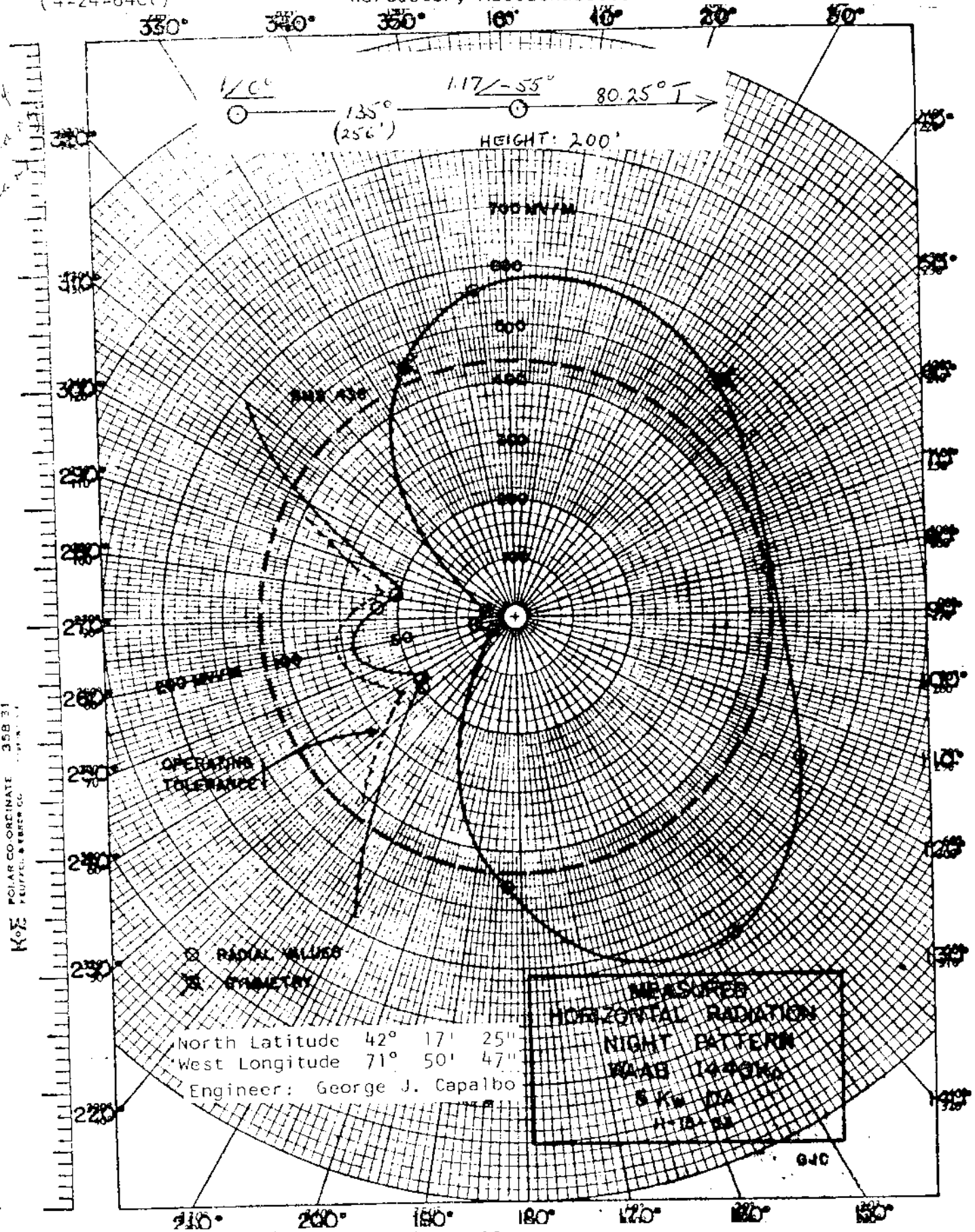
REVISED EXHIBIT D

WAAB

Measured Night
(4-24-64ct)

Station WAAB
Worcester, Massachusetts

5kw,DA-2,U
1440 kc



FCC File No. BL-10460
Accepted 3-26-64

Station WAAB
Worcester, Massachusetts

1440 kc

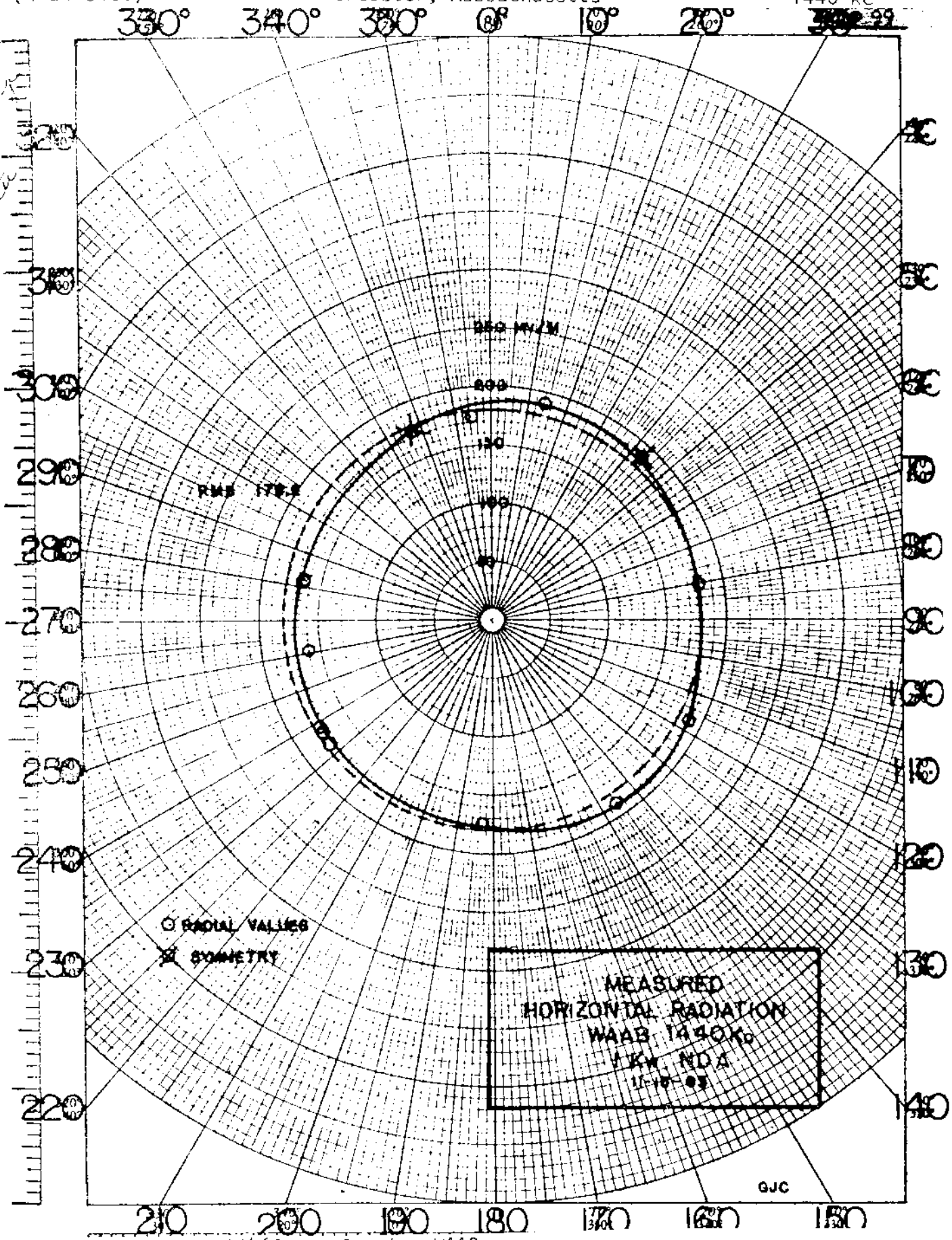
JUL 1 8 1975

WAAB

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

Station WAAB
Worcester, Massachusetts

5kw,DA-2,U
1440 kc



FCC File No. BL-10460
Accepted 3-26-64

Station WAAB
Worcester, Massachusetts

1440 kc

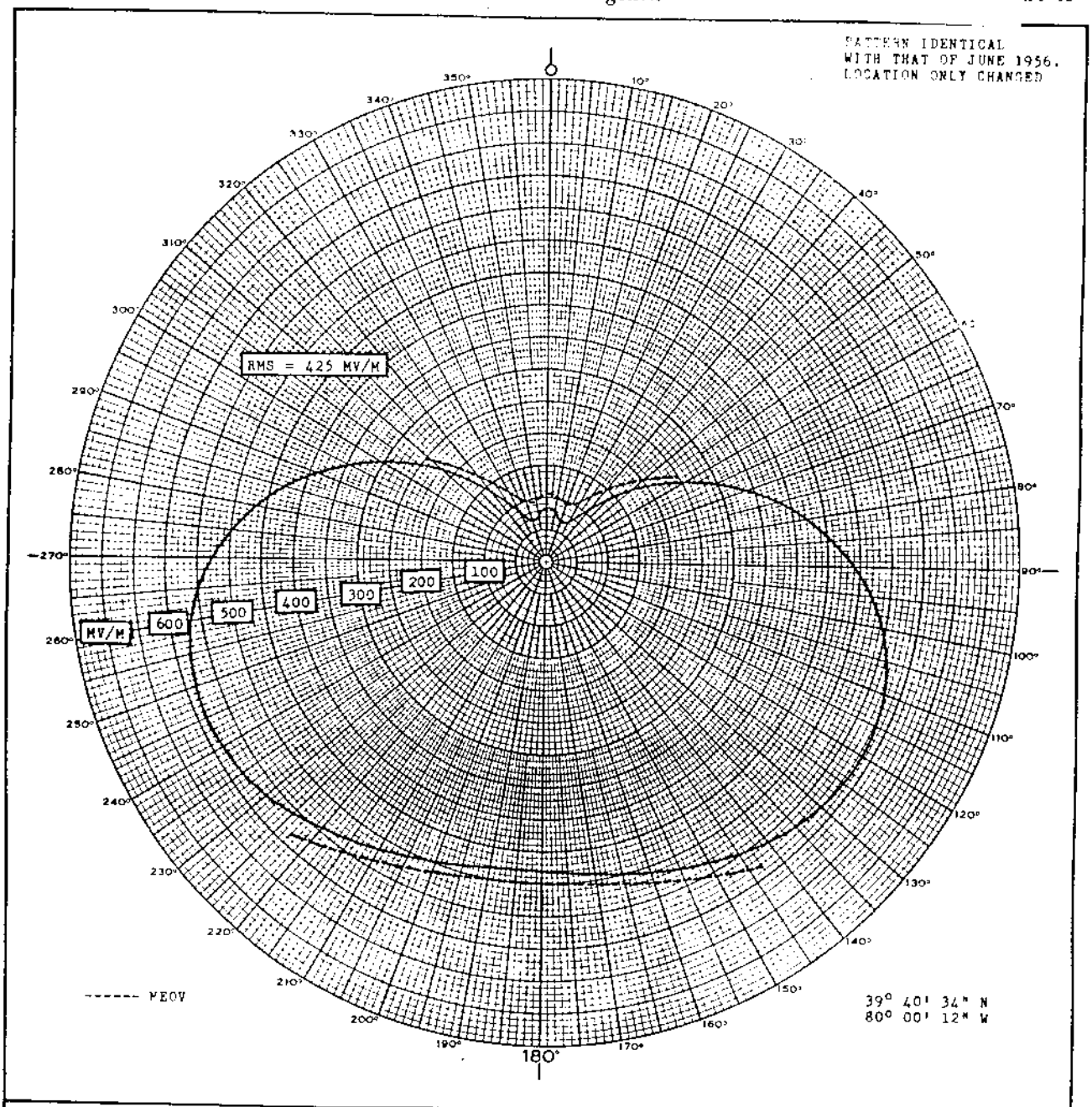
WAJR

PROPOSED
DAY(11-9-56g)

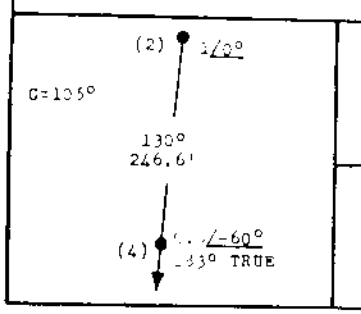
WAJR
Morgantown, West Virginia

5 kw, DA-2, U

1440 KC



PROPOSED DAYTIME HORIZONAL PLANE RADIATION PATTERN



	THE WEST VIRGINIA RADIO CORPORATION MORGANTOWN, WEST VIRGINIA	PROPOSED OPERATION WAJR 1440 KC 5 KW-LS, 0.5 KW-N, DA-2 OCTOBER 1956
	VANDIVERE, COHEN and WEARN CONSULTING ELECTRONIC ENGINEERS	

FCC File No.
BMP-7421

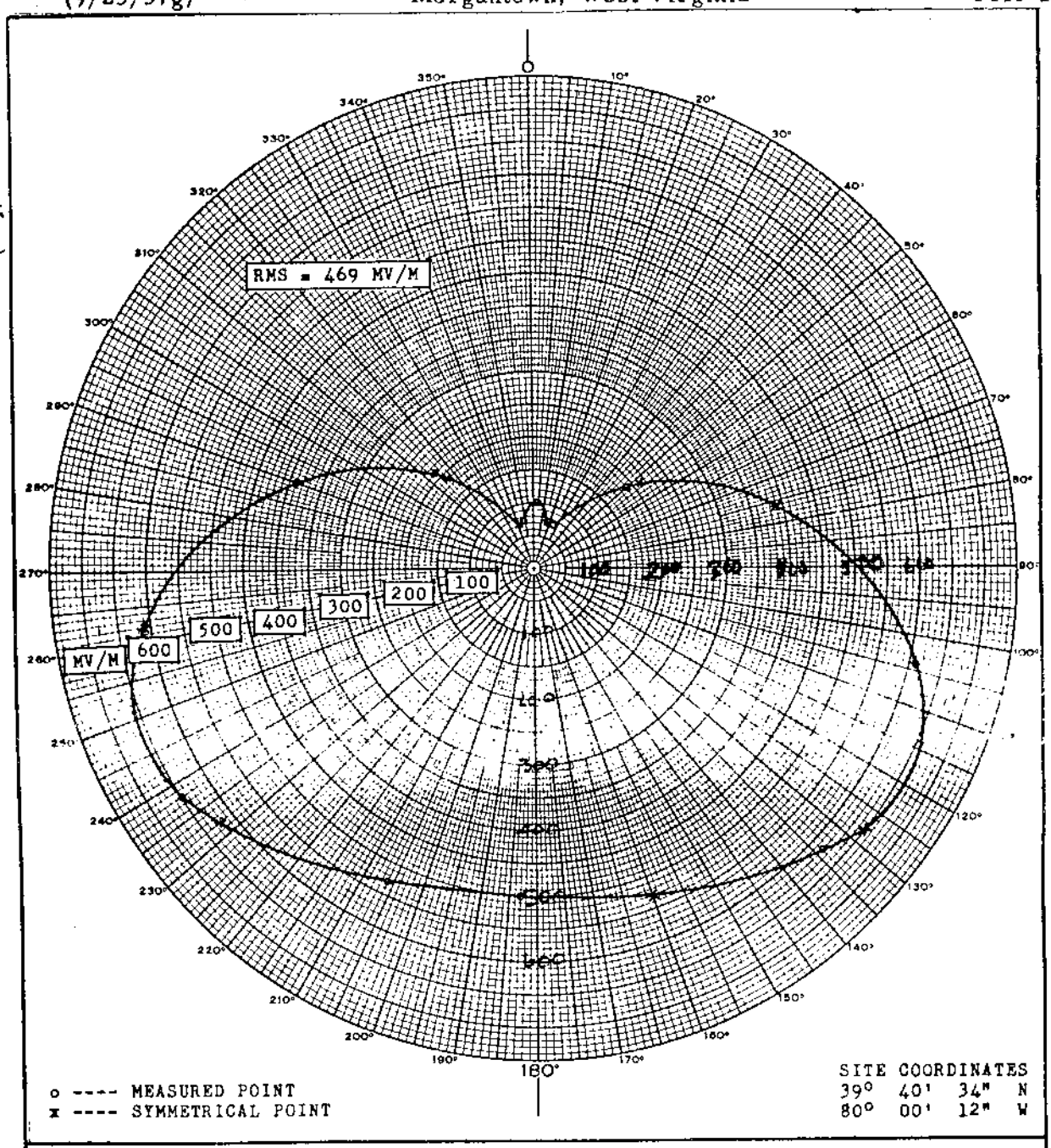
Accepted 11-2-56

WAJR
Morgantown, West Virginia 1440 KC

WAJR

MEASURED DAY (9/25/57g) | Station WAJR, Morgantown, West Virginia | 500w, 5kw-LS, DA-2, U | 1440 KC

Granted license 12/15/58 for change in facilities + modes of DA-2 operation



MEASURED DAYTIME HORIZONTAL PLANE RADIATION PATTERN

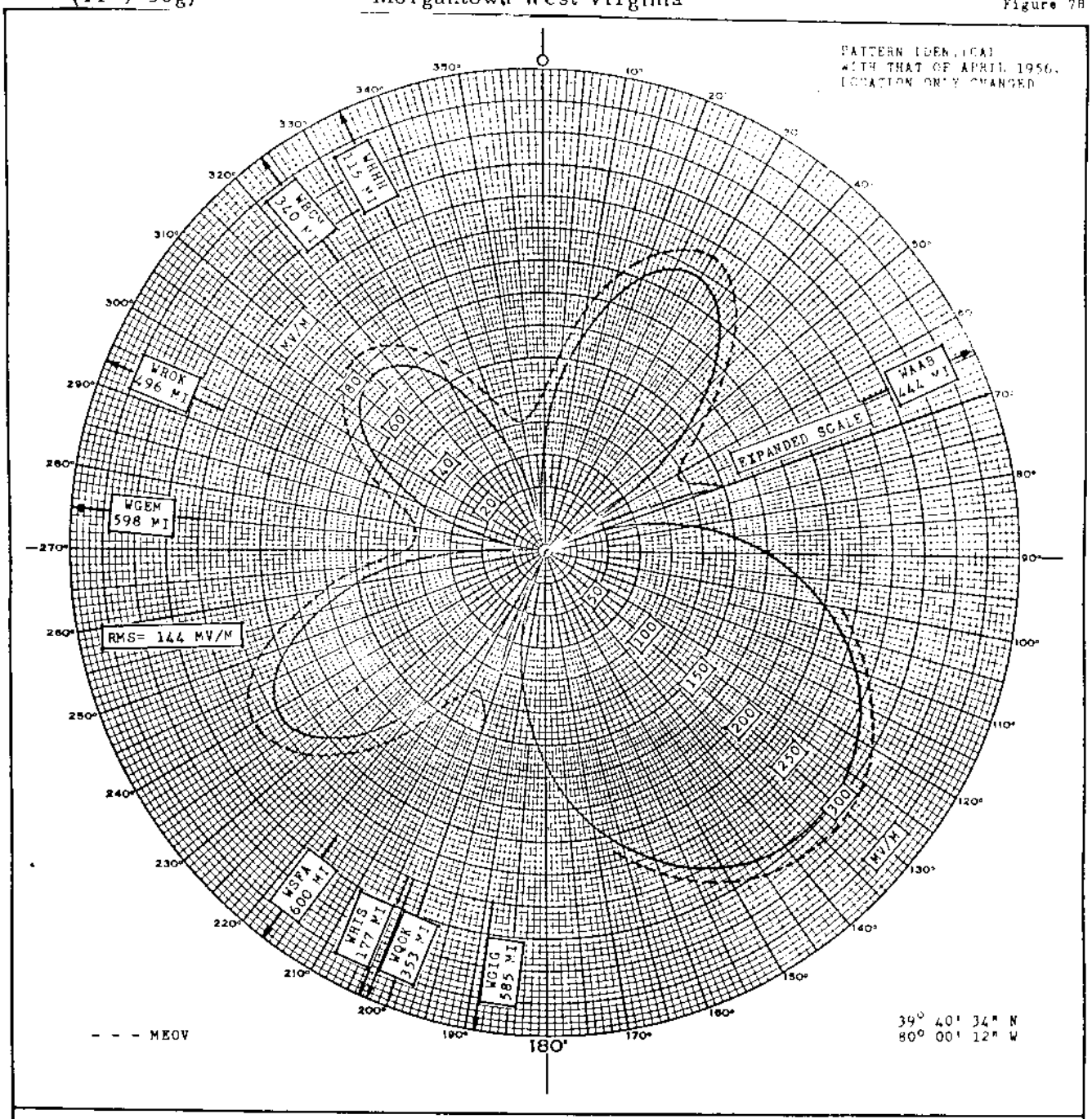
(2) 1/0° G=105 130° (4) 0.8/-60° 183° TRUE	THE WEST VIRGINIA RADIO CORPORATION MORGANTOWN, WEST VIRGINIA VANDIVERE, COHEN and WEARN CONSULTING ELECTRONIC ENGINEERS	RADIO STATION WAJR 1440 KC 0.5 KW, 5 KW-LS DA-2 JULY 1957

FCC File No. BL-6750 | WAJR | 1440 KC
Accepted 9/11/57 | Morgantown, West Virginia

WAJR

PROPOSED NIGHT (11-9-56g) | W A J R Morgantown West Virginia | 500 W, DA-2, U | 1440 KC

Figure 7B



PROPOSED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

(1) 1.0/ 0° 90° 170.8' (2) 1.31/ 202.9° 90° 170.8' (3) 1.0/45.6° G=105° 134° TRUE	THE WEST VIRGINIA RADIO CORPORATION MORGANTOWN, WEST VIRGINIA	PROPOSED OPERATION WAJR 1440 KC 5 KW-LS, 0.5 KW-N, DA-2 OCTOBER 1956
	VANDIVERE, COHEN and WEARN CONSULTING ELECTRONIC ENGINEERS	

FCC File No. BMP-7421 Accepted 11-2-56 WAJR Morgantown, West Virginia 1440 KC

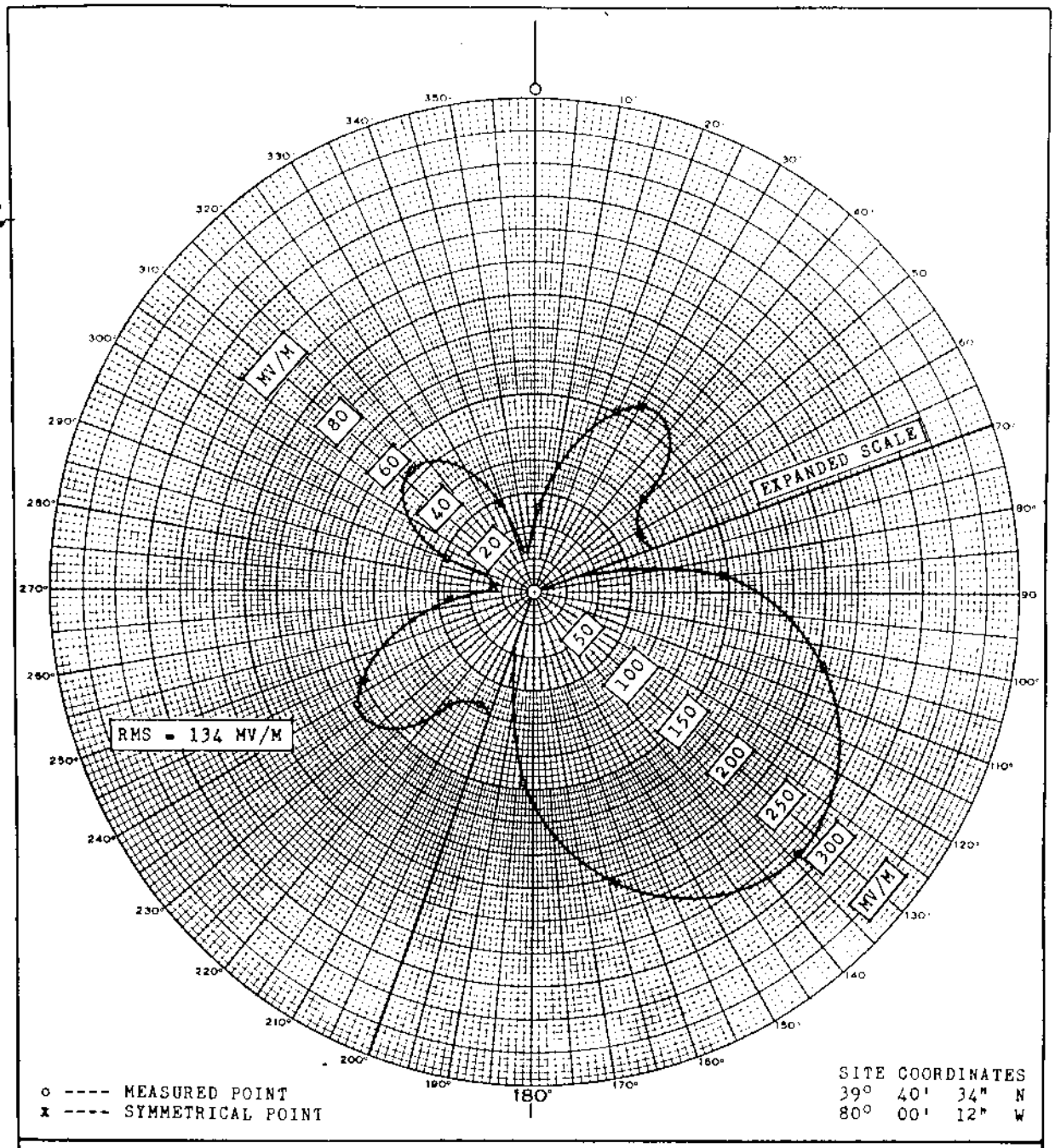
WAJR

MEASURED NIGHT (9/25/57g)

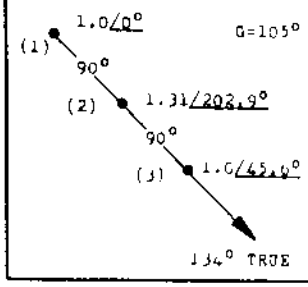
Station WAJR
Morgantown, West Virginia

500w, 5kw-LS, DA-2, U
1440 KC

Granted license 12/15/58 for change in facilities & for DA-2 operation



MEASURED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN



THE WEST VIRGINIA RADIO CORPORATION
MORGANTOWN, WEST VIRGINIA

VANDIVERE, COHEN and WEARN
CONSULTING ELECTRONIC ENGINEERS

RADIO STATION WAJR
1440 KC
0.5 KW, 5 KW-LS DA-2
JULY 1957

FCC File No. BL-6750
Accepted 9/11/57

WAJR
Morgantown, West Virginia

1440 KC

JUL 18 1975

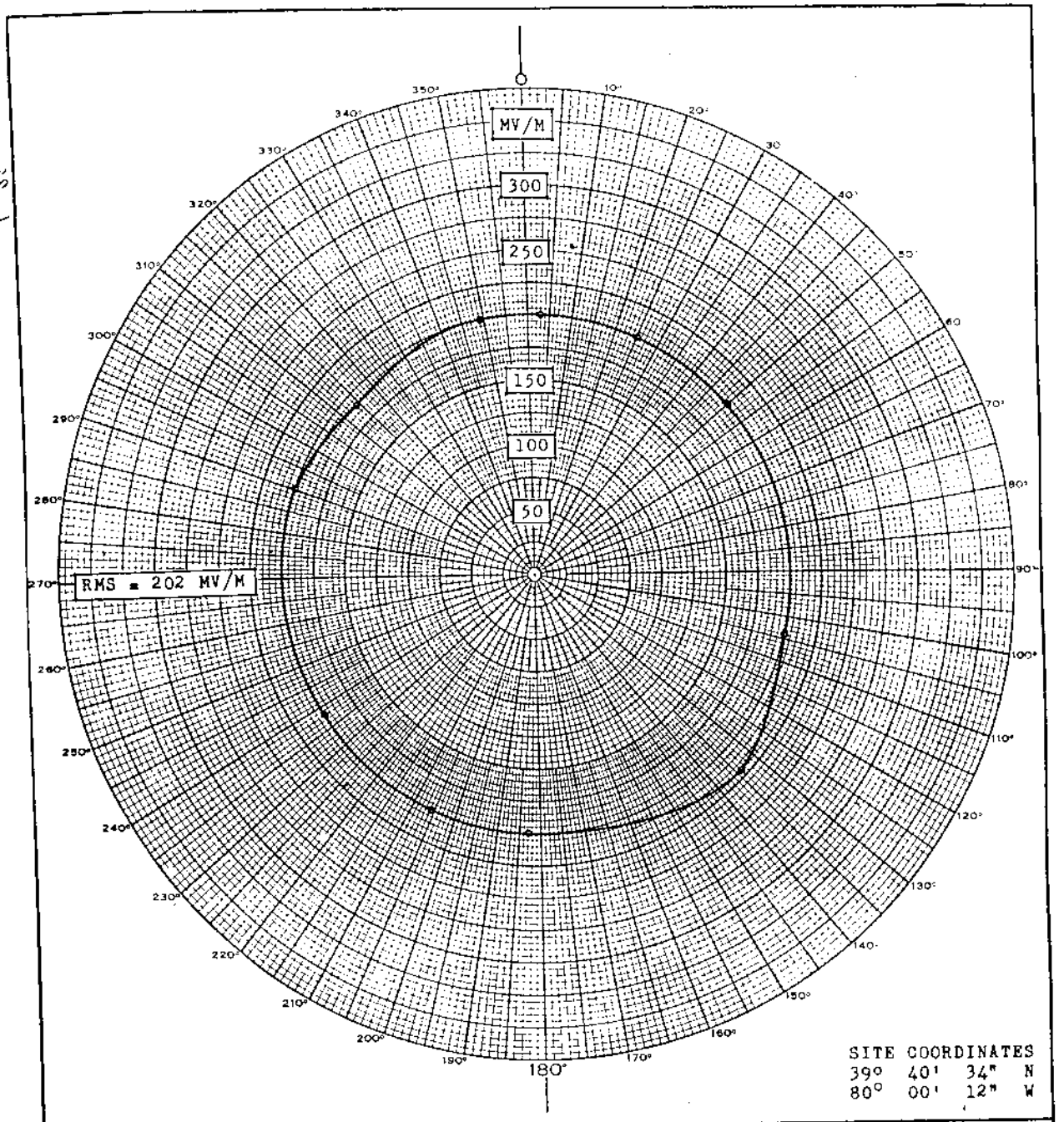
WAJR

MEASURED NON-DA
(9/25/57g)

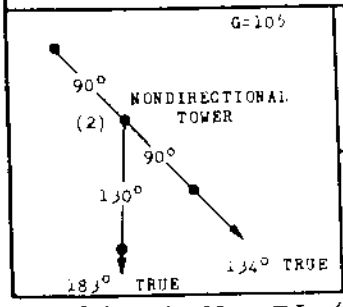
Station WAJR
Morgantown, West Virginia

500w, 5kw-LS, DA-2, U
1440 KC

Granted license 12/15/58 for change in facilities + installation of DA-2 system



MEASURED NONDIRECTIONAL HORIZONTAL PLANE RADIATION PATTERN



THE WEST VIRGINIA RADIO CORPORATION
MORGANTOWN, WEST VIRGINIA

VANDIVERE, COHEN and WEARN
CONSULTING ELECTRONIC ENGINEERS

RADIO STATION WAJR
1440 KC
0.5 KW, 5 KW-LS DA-2
JULY 1957

FCC File No. BL-6740
Accepted 9/11/57

WAJR
Morgantown, West Virginia

1440 KC

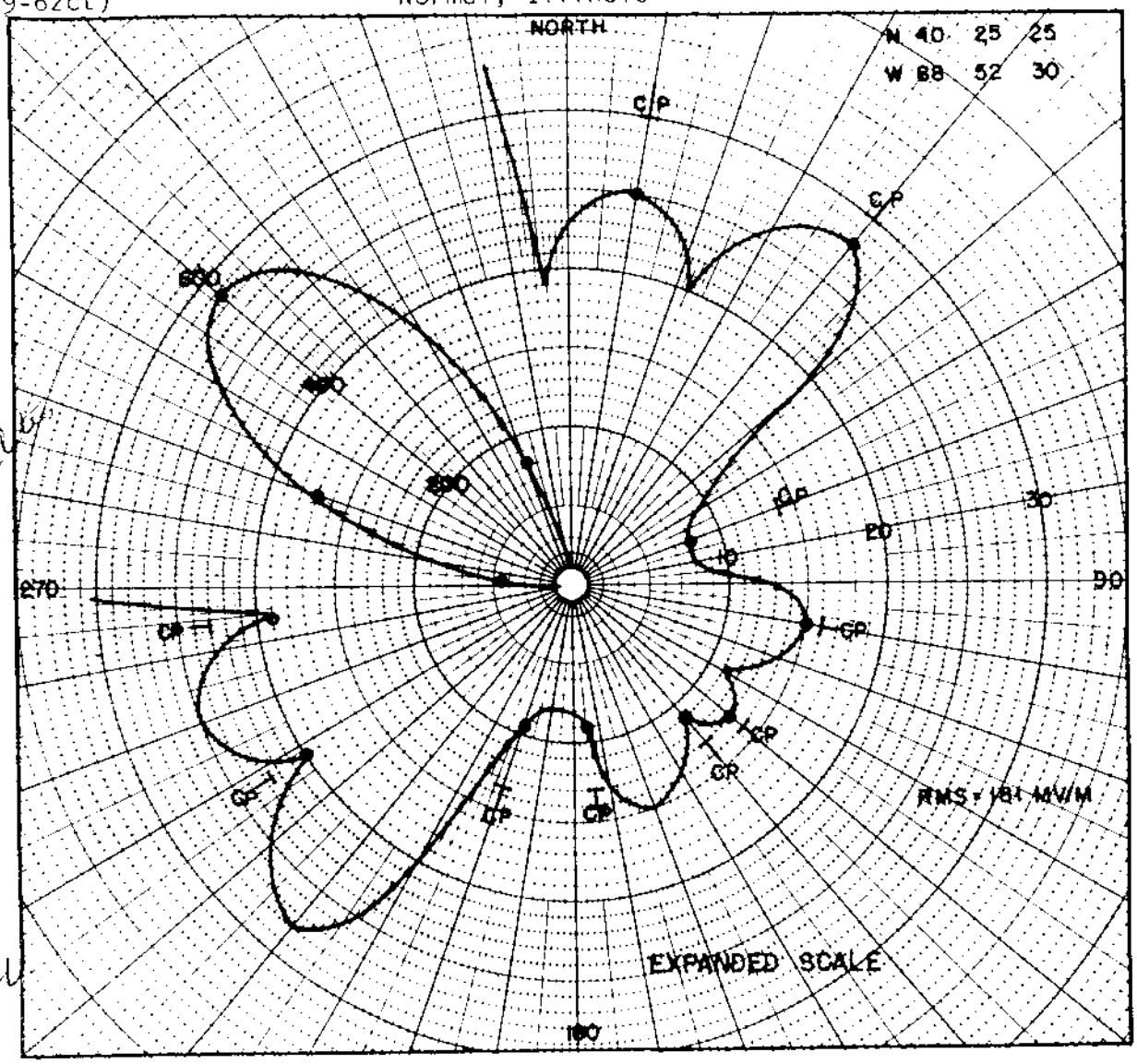
WAKC

Measured Day
(11-29-62ct)

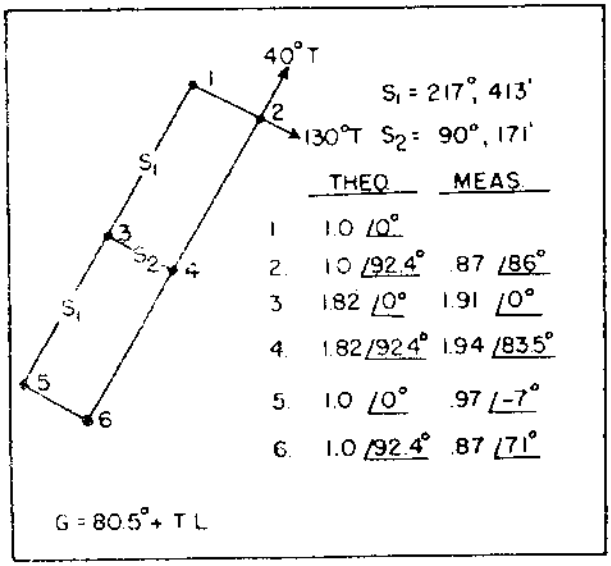
Station WIOK
Normal, Illinois

1kw,DA-D,D
1440 kc

1/63
ented for
w station
3/10/64
ulte
equest for
nting in
ystem facil
or DA-N



E203
1-18-64
ented CP
or DA-2+U



	THEO	MEAS
1	1.0 /0°	
2.	1.0 /92.4°	.87 /86°
3	1.82 /0°	1.91 /0°
4.	1.82 /92.4°	1.94 /83.5°
5.	1.0 /0°	.97 /-7°
6.	1.0 /92.4°	.87 /71°

WIOK RADIATION PATTERN
1440 KC 1.0 KW
NORMAL, ILLINOIS
AUG. 1962

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FCC File No. BL-9611
Accepted 11-18-62

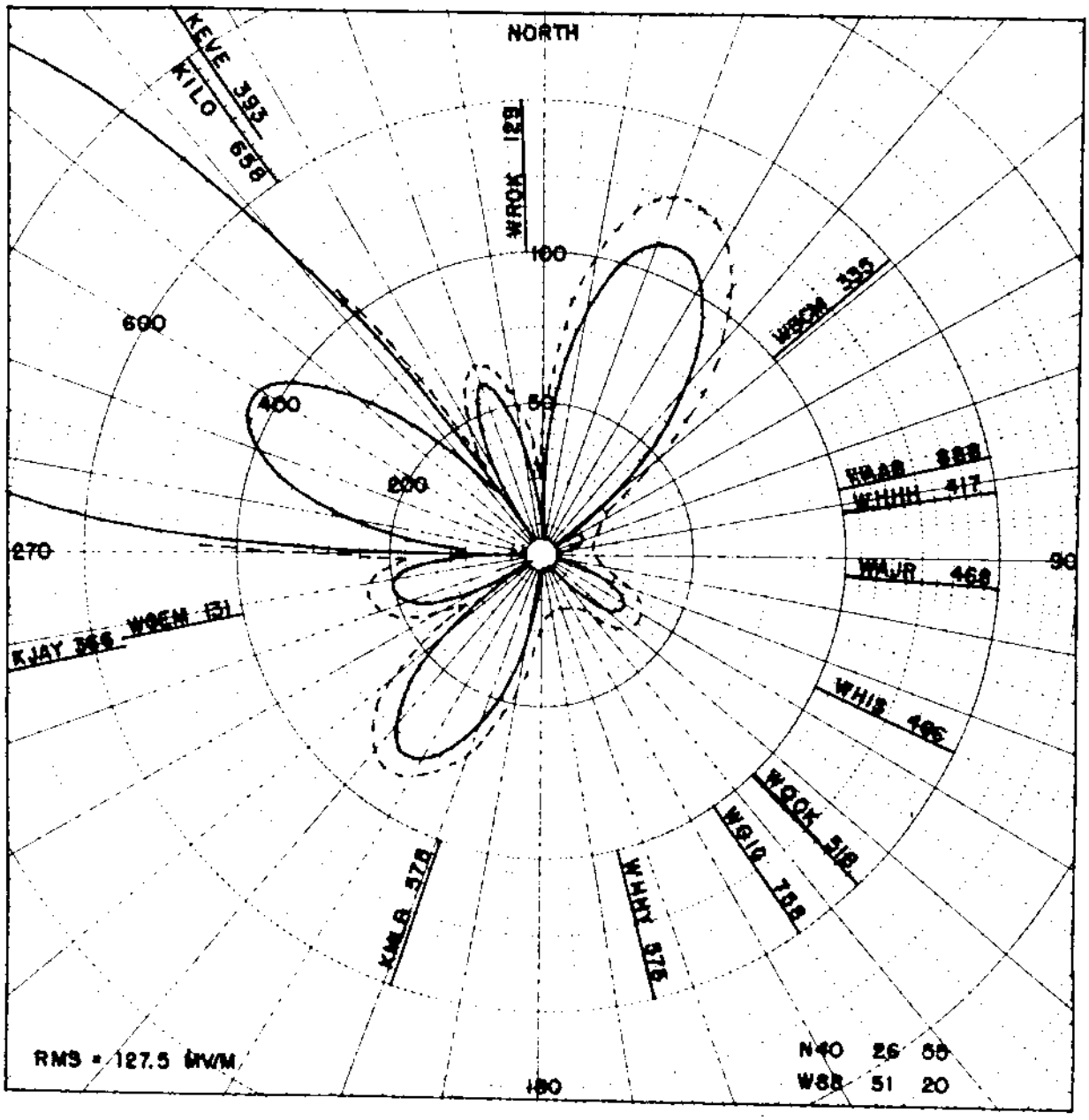
Station WIOK
Normal, Illinois

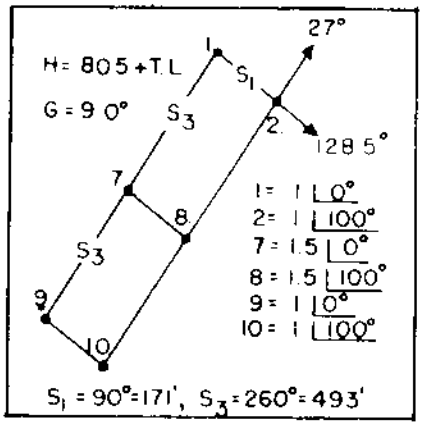
1440 kc

Proposed Night
(6-29-64ct)

Station WIOK
Normal, Illinois

500w,1kw-LS,DA-N,U
1440 kc





HORIZONTAL
PLANE RADIATION PATTERN
1440 KC 0.5 KW NIGHT
MC LEAN COUNTY B/C
NORMAL, ILLINOIS
APRIL, 1964

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FCC File No.BMP-10066
Accepted 5-26-64

Station WIOK
Normal, Illinois

1440 kc

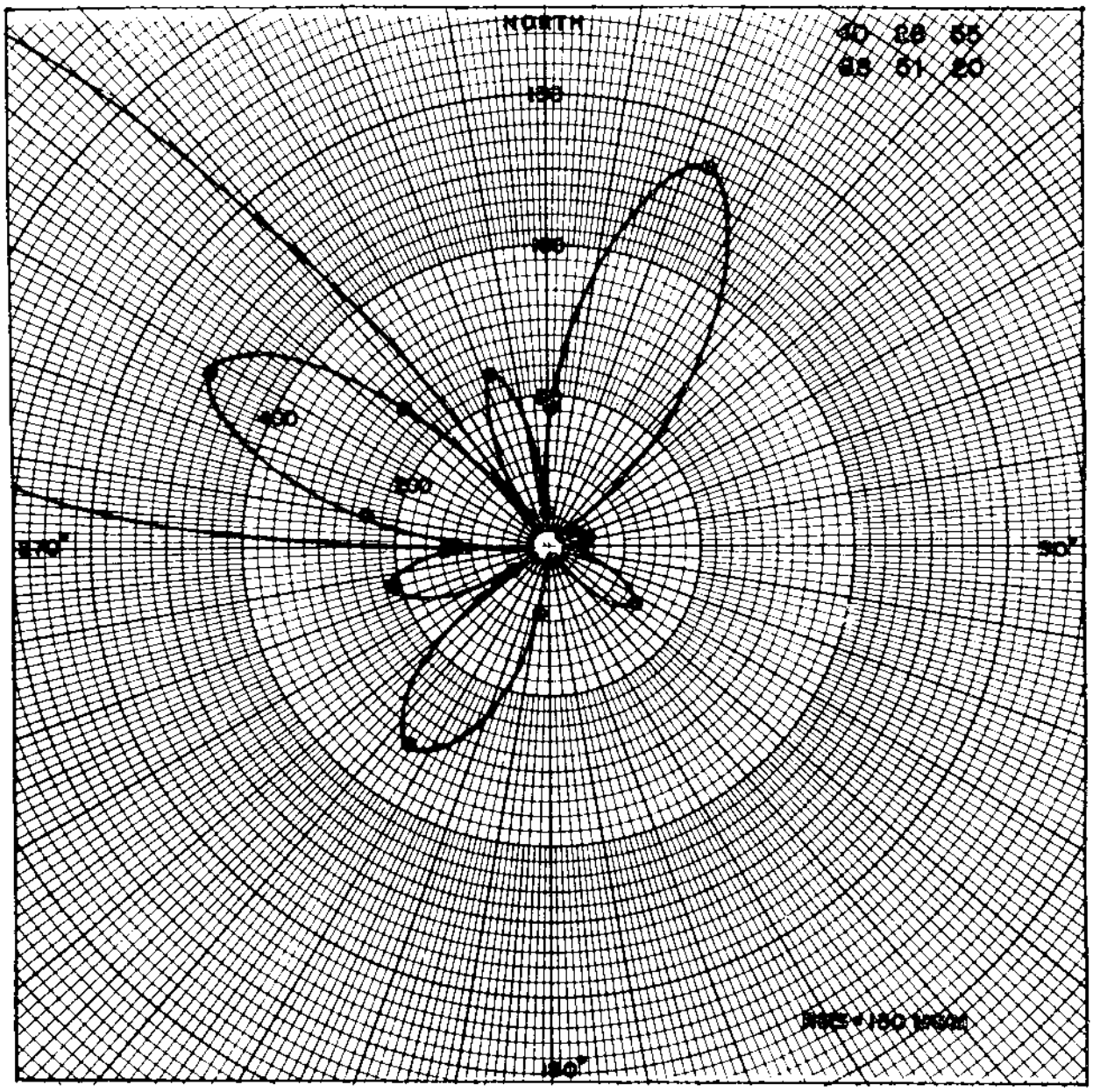
WAKC —

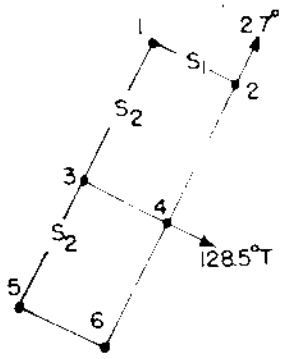
Measured Night
(12-29-65ct)

Station WIOK
Normal, Illinois

500w,1kw-LS,DA-2,U
1440 kc

-IC 1-26-66





TOWER	CALC.	MEAS.
1	1 ∠0	1 ∠0
2.	1 ∠100	1 ∠93
3	1.5 ∠0	1.51 ∠0
4.	1.5 ∠100	1.49 ∠93
5.	1 ∠0	1 ∠0
6.	1 ∠100	1 ∠91

S_1 = 90° = 171' S_2 = 260° = 493'

WIOK
MEASURED RAD. PATTERN
0.5 KW (NIGHT) 1440 KC
NORMAL, ILLINOIS
OCT. 1965

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FCC File No.BL-11128
Accepted 11-26-65

Station WIOK
Normal, Illinois

1440 kc

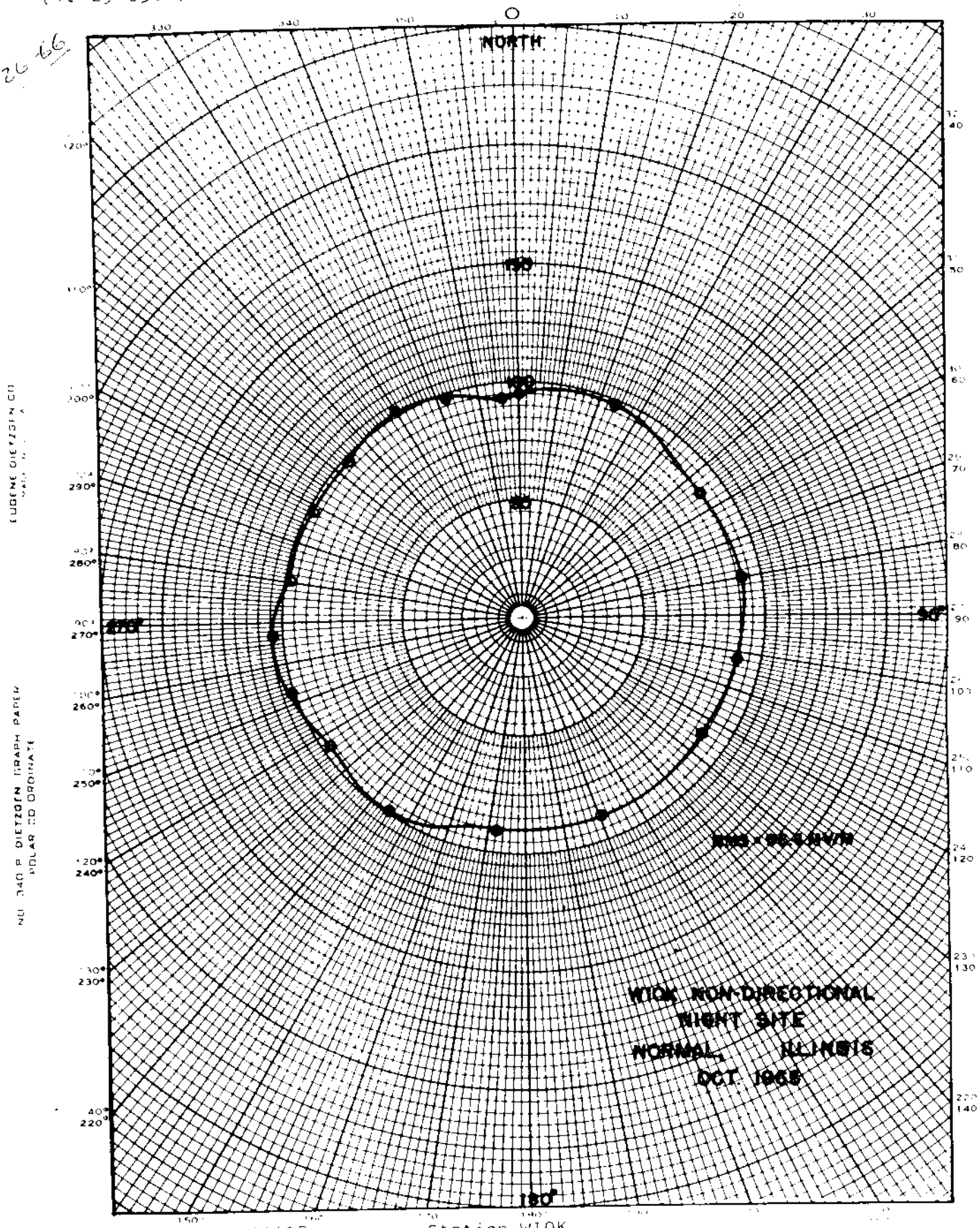
—WAKC

Measured Non-DA
(12-29-65ct)

Station WIOK
Normal, Illinois

500w,1kw-LS,DA-2,U
1440 kc

1-10 1-26-66



FCC File No.BL-11128
Accepted 11-26-65

Station WIOK
Normal, Illinois

1440 kc

WAYK

PROPOSED DAY
(4-10-61g)

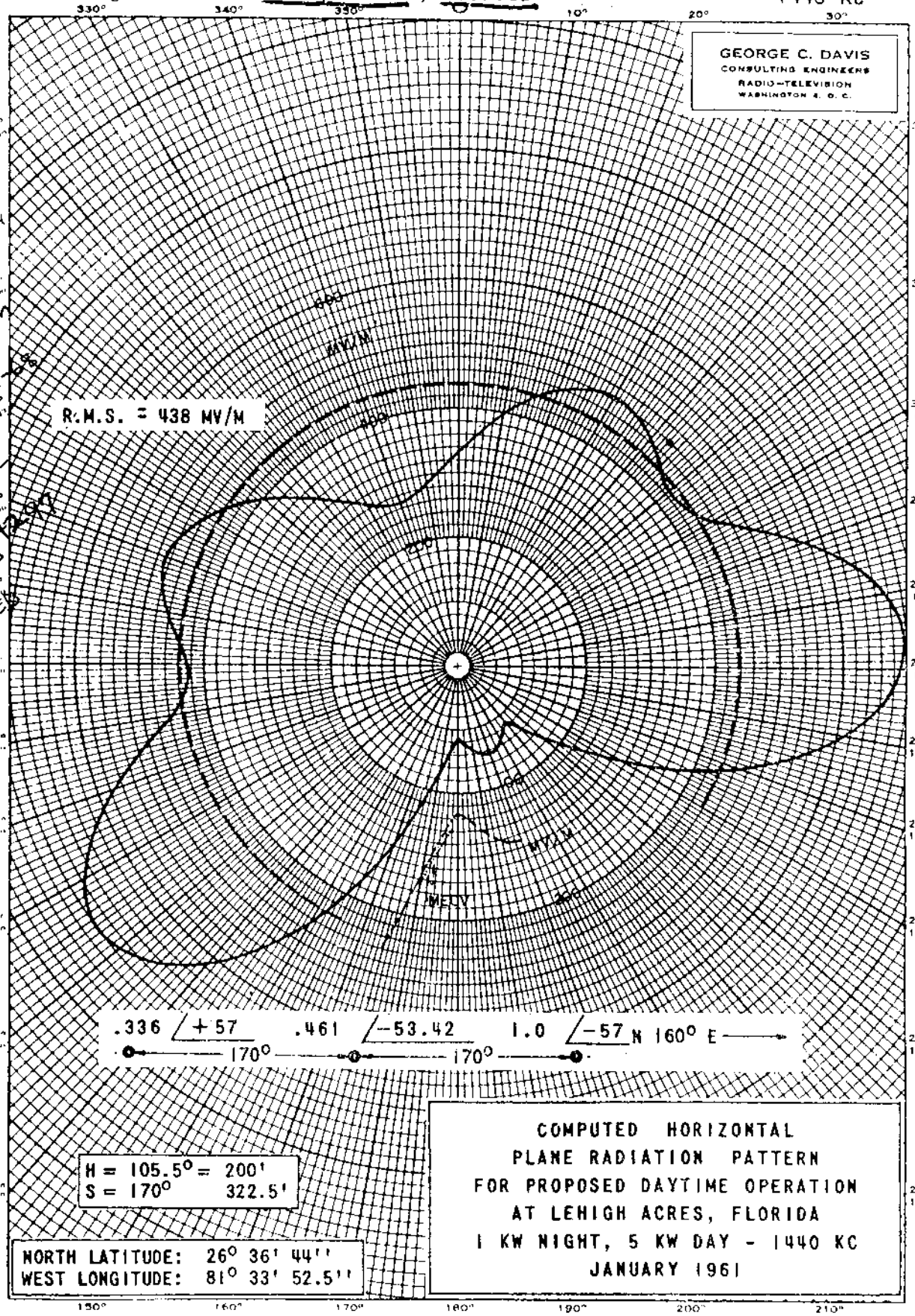
New; Southern Radio & TV Co.
Lehigh Acres, Florida

1kw,5kw-LS,DA-2,U
1440 KC

OVER

12-12-66 GRANTED APPL FOR CP FOR A NEW AM STATION

BP18383 AN APPLICATION FOR CP WAS ACCEPTED BY THE F.C.C. 11-27-66 TO REPLACE EXPIRED CONSTRUCTION PERMIT BP14297 AS MODIFIED WHICH AUTHORIZED A NEW AM BROADCAST STATION



FCC File No. BP-14297
Accepted 3-17-61 (Amended)

Southern Radio & Television Company
Lehigh Acres, Florida
1440 KC

WAYK

PROPOSED NIGHT
(4-10-61g)

New; Southern Radio & TV Co.
Lehigh Acres, Florida

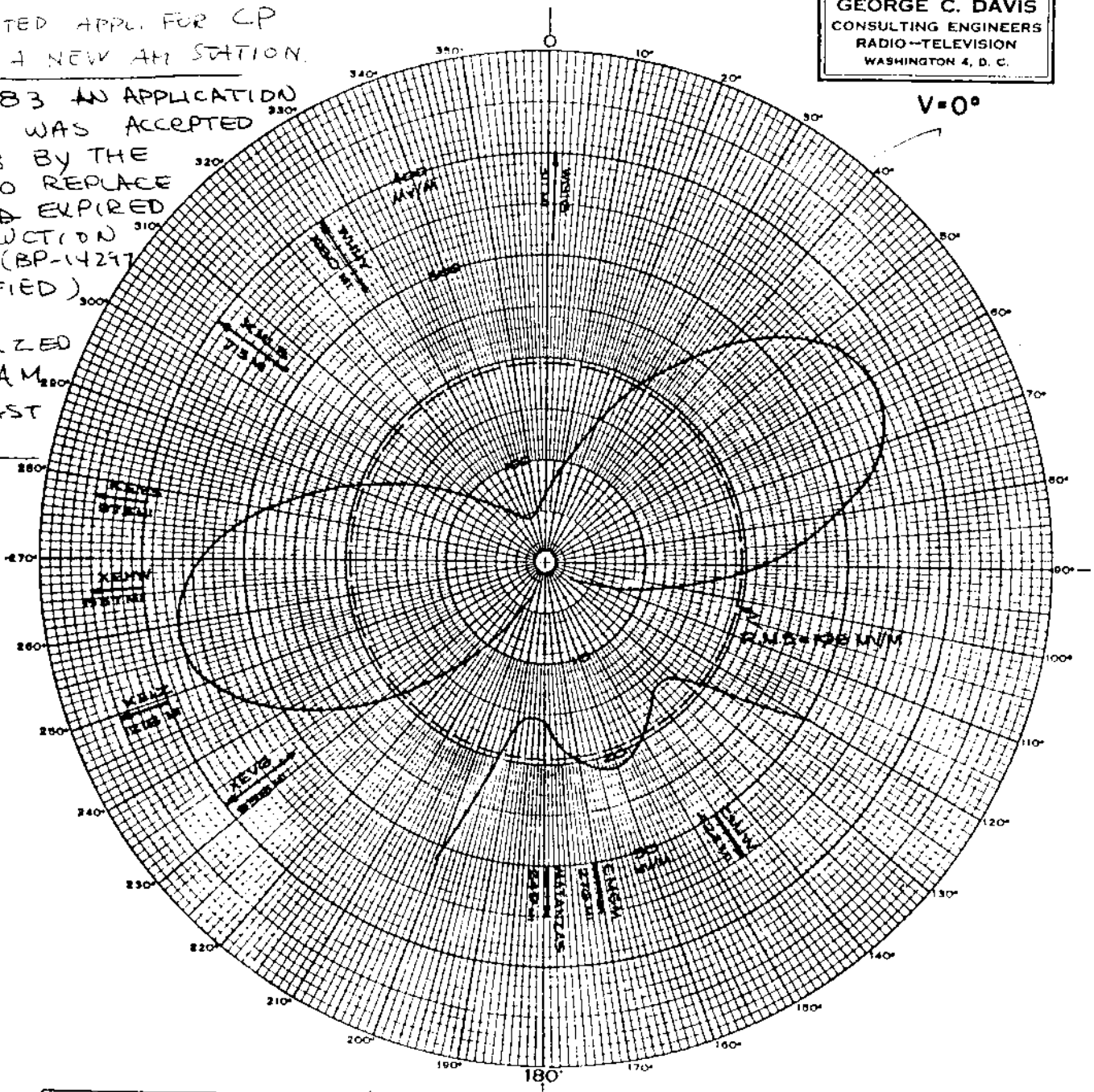
1kw,5kw-LS, DA-2,U
1440 KC

12-12-66

GRANTED APPL. FOR CP
FOR A NEW AM STATION.

BP 18383 AN APPLICATION
FOR CP WAS ACCEPTED
11-27-68 BY THE
F.C.C. TO REPLACE
~~MODIFIED~~ EXPIRED
CONSTRUCTION
PERMIT (BP-14297
AS MODIFIED)
WHICH
AUTHORIZED
A NEW AM
BROADCAST
STATION

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



H = 105.5° = 200'
S = 170° = 322.5'

0.4517 ∠-25 1.329 ∠0 1 ∠+25 N 160°E
170° 170°

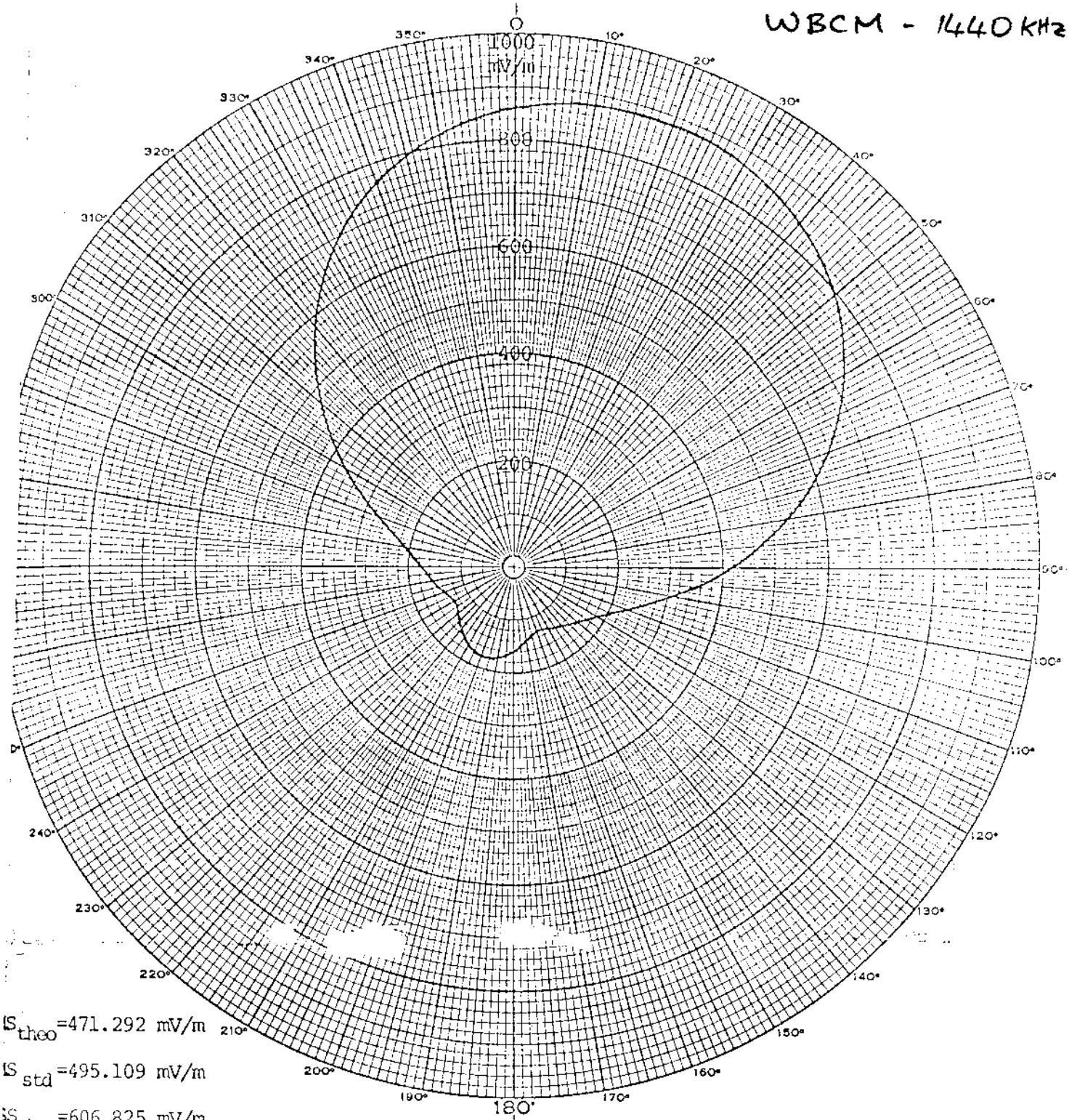
COMPUTED HORIZONTAL
PLANE RADIATION PATTERN
FOR PROPOSED NIGHTTIME OPERATION
AT LEHIGH ACRES, FLORIDA
1 KW NIGHT, 5 KW DAY - 1440 KC
JANUARY 1961

NORTH LATITUDE: 26° 36' 44''
WEST LONGITUDE: 81° 33' 52.5''

FCC File No. BP-14297
Accepted 3-17-61 (Amended)

Southern Radio & Television Company
Lehigh Acres, Florida
1440 KC

WBCM - 1440 kHz



IS_{theo}=471.292 mV/m

IS_{std}=495.109 mV/m

SS_{theo}=606.825 mV/m

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS	FIGURE 4	STATION DATA
All G's = 115° 17.5° #3 ϕ 3.076/-268.899° 90° #2 ϕ 3.074/221.252° 90° #1 ϕ 1.000/0°		PROPOSED DAYTIME STANDARD PATTERN BAY CITY, MICHIGAN	CALL WBCM FREQ 1440 kHz. POWER 5.0 kW TYPE DA-2 TIME Unlimited LAT. N 43-31-27 LONG. W 83-57-58

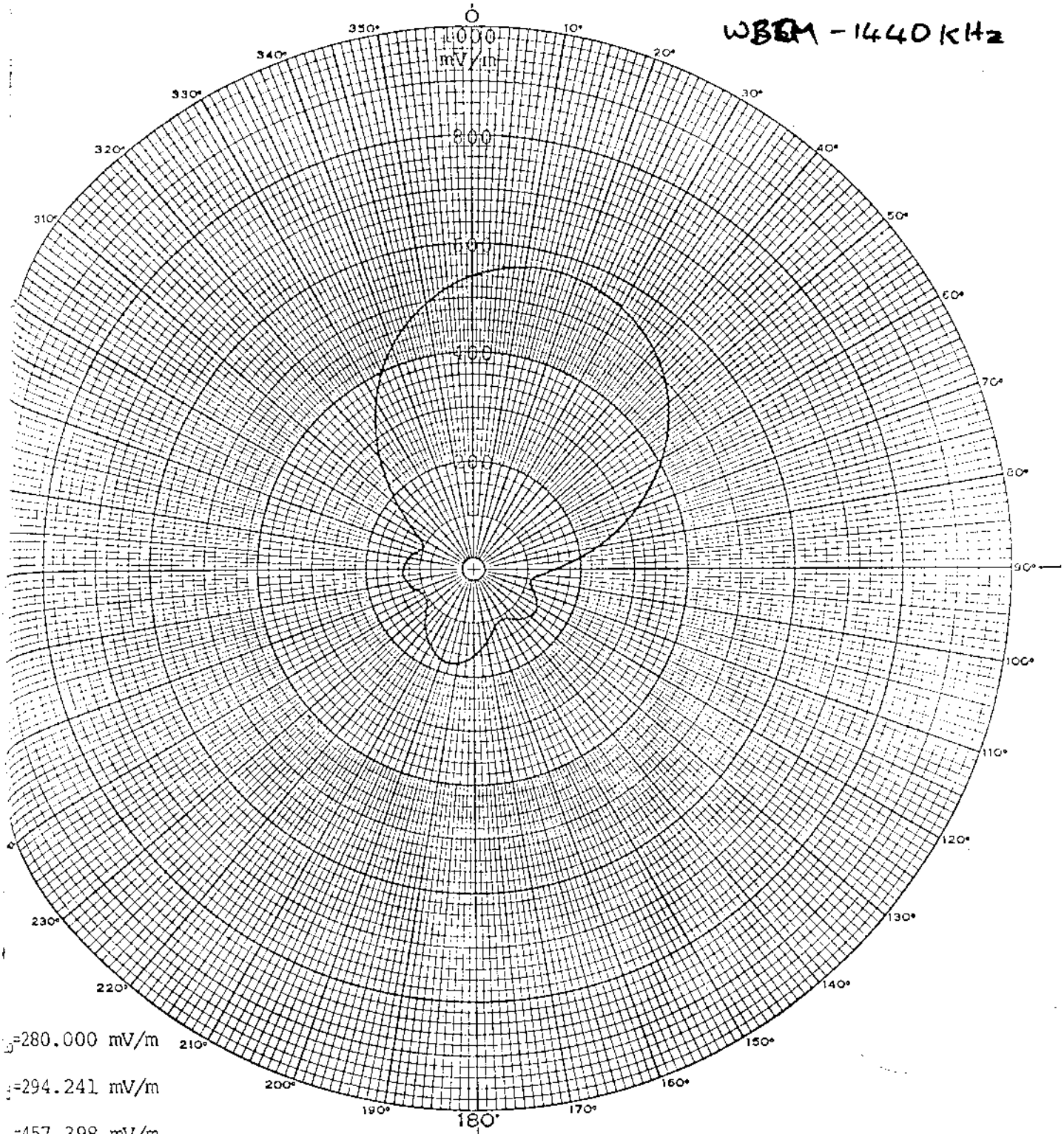
TOWER No.	ELECTRICAL HEIGHT G°	SPACING S°	PHASING V°	FIELD RATIO F
1				
2				
3				
4				
5				
6				

DAYTIME OPERATION ☒ NIGHTTIME OPERATION ☐

$\Theta^{\circ} = 0$

E. HAROLD MUNN, JR. & ASSOCIATES, INC.
COLDWATER, MICH.

WBCM - 1440 kHz



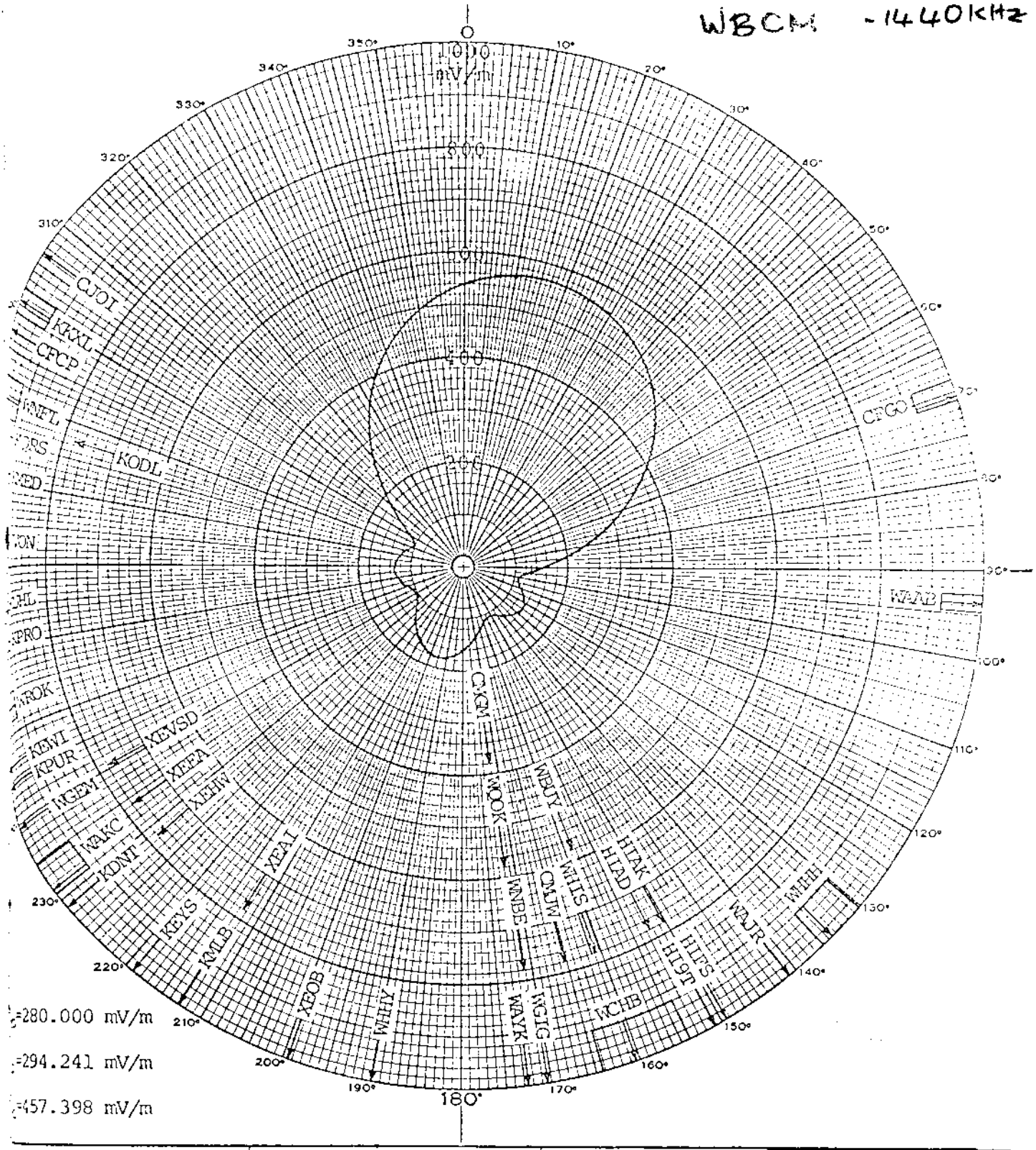
E_D=280.000 mV/m

E_N=294.241 mV/m

E_D=457.398 mV/m

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 17	STATION DATA
115°	TOWER No.	ELECTRICAL HEIGHT θ°	SPACING S°	PHASING ψ°	FIELD RATIO F	PROPOSED NIGHTTIME STANDARD PATTERN	CALL WBCM
17.5° T.	1						FREQ 1440 kHz.
#3 0.49/56.5°	2						POWER 2.5 kW
90°	3						TYPE DA-2
#2 1.06/208.25°	4					BAY CITY, MICHIGAN	TIME Unlimited
90°	5						LAT. N 43-31-27
#1 1.0/0°	6						LONG. W 83-57-58
	DAYTIME OPERATION ☐		NIGHTTIME OPERATION ☒			Θ° = 0°	E. HAROLD MUNN, JR. & ASSOCIATES, INC. COLDWATER, MICH.

WBCM -1440KHz



ER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 17A	STATION DATA
15° 17.5° T. #3φ 0.49/56.5° 90° #2φ 1.06/208.25° 90° #1φ 1.0/0°	TOWER No.	ELECTRICAL HEIGHT G°	SPACING S°	PHASING ψ°	FIELD RATIO F	PROPOSED ~~NIGHTTIME~~ STANDARD PATTERN BAY CITY, MICHIGAN	CALL WBCM FREQ 1440 kHz. POWER 2.5 kW TYPE DA-2 TIME Unlimited LAT. N 43-31-27 LONG. W 83-57-59
	1						
	2						
	3						
	4						
	5						
	6						
	DAYTIME OPERATION ☐ NIGHTTIME OPERATION ☒					$\theta^\circ = 0^\circ$	E. HAROLD MUNN, JR. & ASSOCIATES, INC. COLDWATER, MICH.

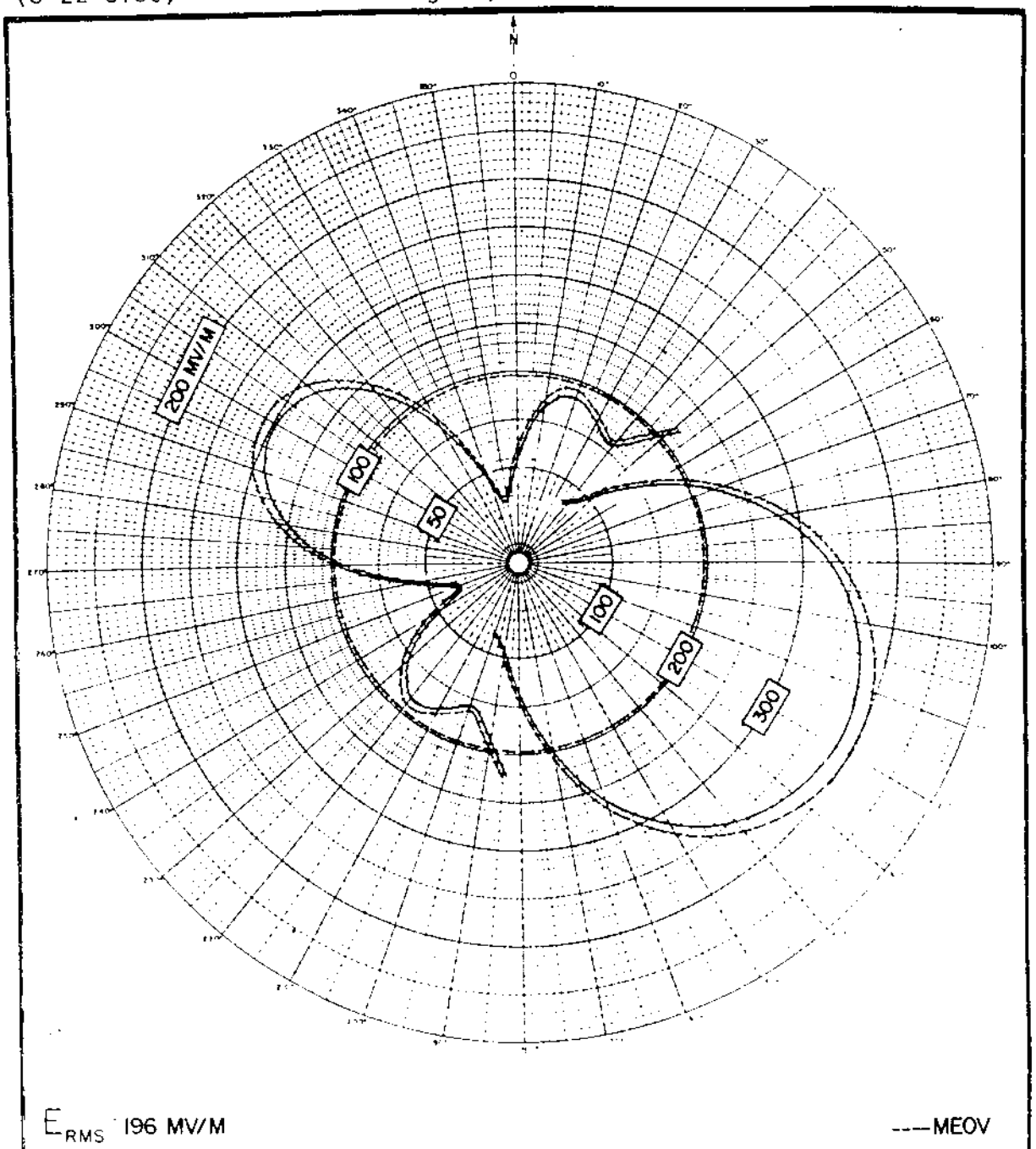
WBUY

PROPOSED NIGHT
(8-22-61ct)

Station WBUY
Lexington, North Carolina

1kw,5kw-LS,DA-N,U
1440 KC

1/6/63 granted CP for DA-N & unlimited



E_{RMS} 196 MV/M

----MEOV

LATITUDE 35° 49' 55"

LONGITUDE 80° 17' 12.5"

ANTENNA PARAMETERS

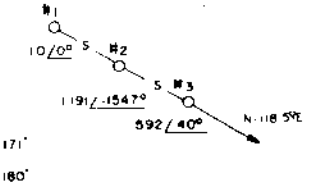


FIGURE 4

PLOT OF NIGHTTIME HORIZONTAL POLAR PATTERN

RADIO STATION WBUY
LEXINGTON, N.C.

1440 KC 1.0/5.0 KW-LS, DA-N, U

FCC File No.BP-14938
Accepted 7-26-61

Station WBUY
Lexington, North Carolina

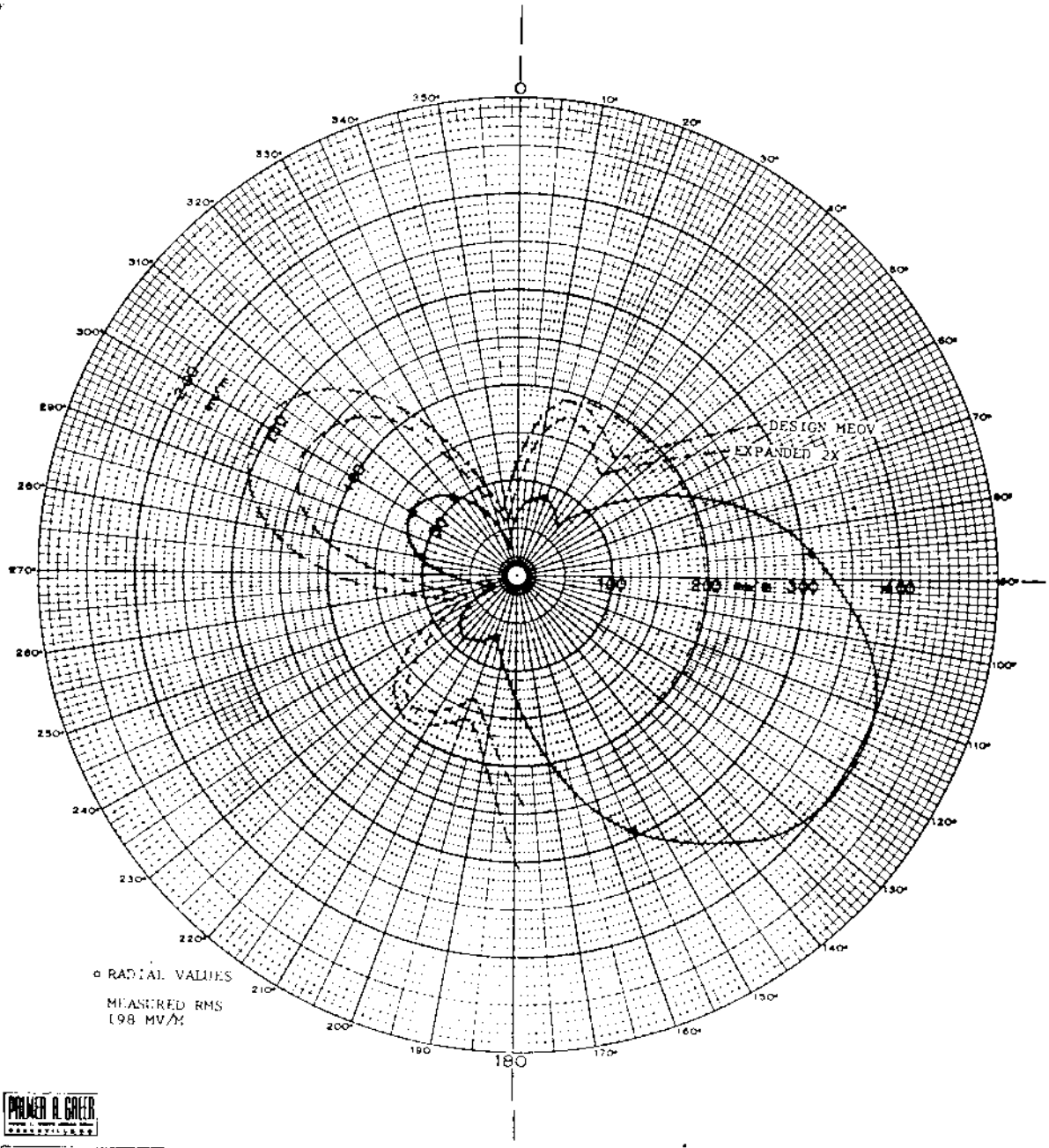
1440 KC

WBUY

Measured Night
(3-30-64ct)

Station WBUY
Lexington, North Carolina

1kw,5kw-LS,DA-N,U
1440kc



PALMER R. GREER

ANTENNA PARAMETERS

1 ○ 60.8 | 159°

N.35° 49' 55"
W.80° 17' 12.5"

S

2 ○ 84.2 | 0°

S

S=90°=171'
G=95°=180"

3 ○ 63.5 | -152.5°

N-118.5°E

FIG. 3

MEASURED NIGHTTIME HORIZONTAL RADIATION PATTERN
RADIO STATION WBUY LEXINGTON, N.C.
1440 KCS. 1.0 KW, 5 KW, LS. DA-N

FCC File No. BL-10424
Accepted 3-11-64

Station WBUY
Lexington, North Carolina

1440kc

JUL 1 9 1975

WBUY

Measured Non-DA
(3-30-64ct)

Station WBUY
Lexington, North Carolina

1kw,5kw-LS,DA-N,U
1440kc

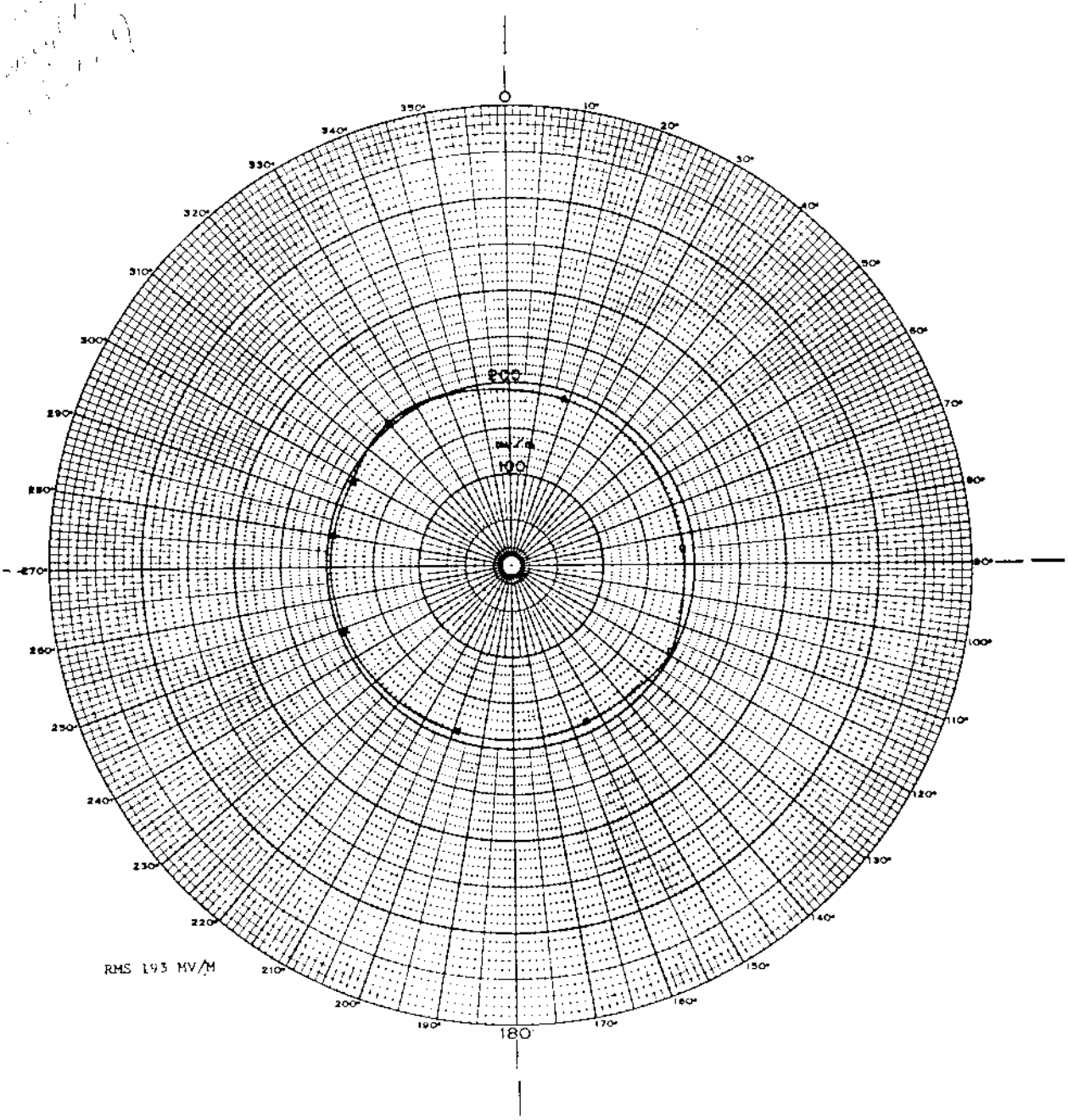


FIG. 1

MEASURED NON-DIRECTIONAL PATTERN, #2, CENTRAL TOWER
RADIO STATION WBUY LEXINGTON, N.C.
1440 KCS. 1.0 KW, 5 KW, LS. DA-N

PALMER & GILLIS

FCC File No. BL-10424
Accepted 3-11-64

Station WBUY
Lexington, North Carolina

1440kc

WCDS

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: W C D S

Main Studio: Glasgow, Kentucky

Frequency: 1440 kHz

Power: 5 kW Day

Notification List No.: 1776

Date: June 28, 1978 Class: III

GEORGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 36 ° 58 ' 10 "

West Longitude: 85 ° 56 ' 24 "

ANTENNA CHARACTERISTIC

Authorized for Daytime operation. (DA-D)

Number of elements: 3

Type of elements : Series excited, uniform cross-section, guyed, vertical steel towers.

TOWER	SW (#1)	E (#2)	NE (#3)
HEIGHT ABOVE INSULATORS :	359.9'	359.9'	359.9'(189.7°)
PHASING:	0	+101.8	+6.0
FIELD RATIO:	1.00	0.60	0.68

SPACING AND ORIENTATION: With the SW(#1) tower as reference the E(#2) tower is spaced 219.9'(115.9°) on a line bearing 82° true, and the NW(#3) tower is spaced 345.9'(182.3°) on a line bearing 46.3° true.

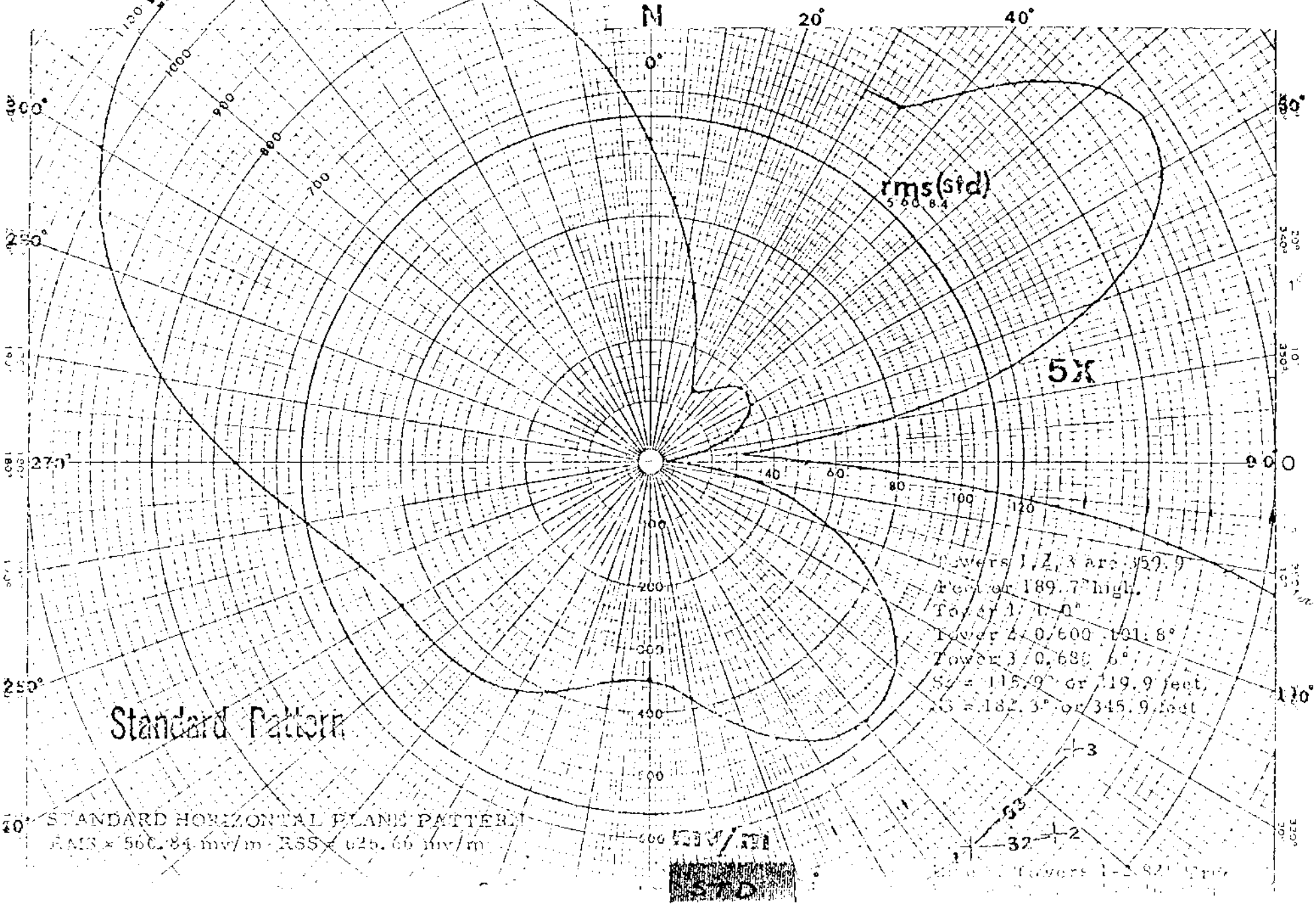
GROUND SYSTEM: 120-170' equally spaced copper radials a 24' square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersections between towers. Centers of system are bonded together.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	533.90 mV/m	626.66 mV/m	560.84 mV/m

Note: This notification concerns a daytime in power increase with a direction antenna system.

STANDARD HORIZONTAL PLANE PATTERN
Proposed Directional Pattern, WCDS, Glasgow, Kentucky
1440 khz. 5000W-D, DA-D. This Exhibit Prepared on June 28, 1976 by Paul Dean Ford, Engineer. 36°58'10" 85°56'24" Center of Array.



WCDS

WCHB

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station WCHB

Main Studio: Inkster, Michigan

Frequency: 1440 kHz

Power: 1kw Night 1kw Day

Notification List No. 1775

Date: May 31, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 42° 15' 22"
West Longitude: 83° 21' 48"

DAYTIME ANTENNA CHARACTERISTICS

Authorized for daytime operation. (DA-D)
Number of elements: 6
Type of elements: Series excited, uniform cross-section, guyed, vertical steel towers. Top loaded by top 28.5' section of guy wires to an effective electrical height of 90°.

TOWER:	SW(#5)	CW(#3)	NW(#1)	SE(#6)	CE(#4)	NE(2)
HEIGHT ABOVE INSULATORS:	143'	143'	143'	143'	143'	143' (75.4°)
DAY PHASING:	+130°	+130°	+130°	0°	0°	0°
DAY FIELD RATIO:	1.0	2.0	1.0	1.0	2.0	1.0

SPACING AND ORIENTATION: The towers are located at the vertices of a rectangle long sides of which are 493' (260°) in length on a line bearing 316° true. The short sides are 171' (90°) in length on a line bearing 46° true.

GROUND SYSTEM: 120 - 180' equally spaced copper radials plus a 40' square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

THEORETICAL

	RMS	RSS
Day	178 mv/m	

NIGHTTIME ANTENNA CHARACTERISTICS

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

TOWER:	W(#1)	NW(#3)	N(#5)	E(#6)	SE(#4)	S(#2)
HEIGHT ABOVE INSULATORS:	143'	143'	143'	143'	143'	143' (75.4°)
NIGHT PHASING:	0	+212.5	-295	-297	+210.5	-2.0
NIGHT FIELD RATIO:	1.000	2.220	1.234	1.371	2.466	1.111

SPACING AND ORIENTATION: The towers are located in two parallel rows with 3 towers per row. Adjacent towers in a row are spaced 170.8' (90°) on a line bearing 46° true. End towers forming a side of the parallelogram are spaced 493.5' (260°) on a line bearing 136° true.

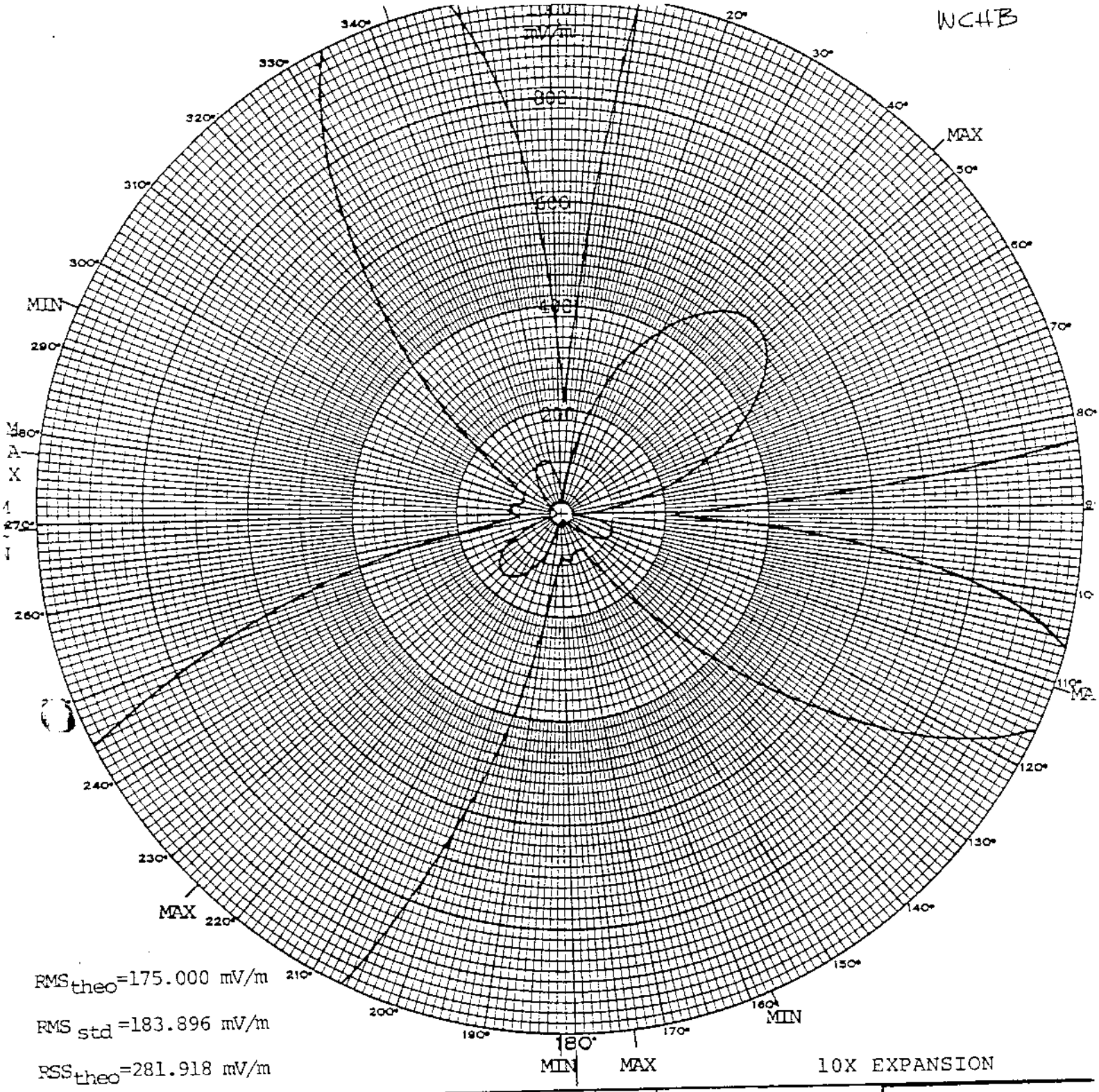
GROUND SYSTEM: 120 - 230' equally spaced copper radials plus a 40' square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Night	175.000 mv/m	281.918 mv/m	183.896 mv/m

Note: Please retain the Daytime directional antenna radiation pattern notified for Station WCHB in United States Change List Number 1066 dated June 24, 1964 and attach to this Revised Description Sheet and Nighttime patterns. This notification concerns only a change in Nighttime operation of the station with Daytime operation continued as previously notified.

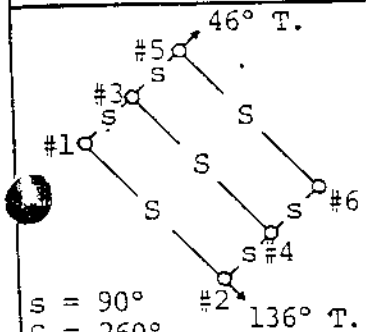
WCHB



RMS_{theo}=175.000 mV/m

RMS_{std}=183.896 mV/m

RSS_{theo}=281.918 mV/m

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 3	STATION DATA
	TOWER No.	ELECTRICAL HEIGHT G°	SPACING S'	PHASING V°	FIELD RATIO F	PROPOSED NIGHTTIME STANDARD PATTERN	CALL WCHB
	1	75.4		0°	1.000		FREQ 1440 kHz
	2	75.4		-2.0	1.111		POWER 1.0 kW
	3	75.4		212.5	2.220		TYPE DA-2
	4	75.4		210.5	2.466	INKSTER, MICHIGAN	TIME Unlimite
	5	75.4		-295	1.234		LAT. N 42-15-
	6	75.4		-297	1.371		LONG. W 83-21-
s = 90° S = 260°	DAYTIME OPERATION ☐		NIGHTTIME OPERATION ☑			θ° = 0°	E. HAROLD MUNN, & ASSOCIATES, INC COLDWATER, MICH.

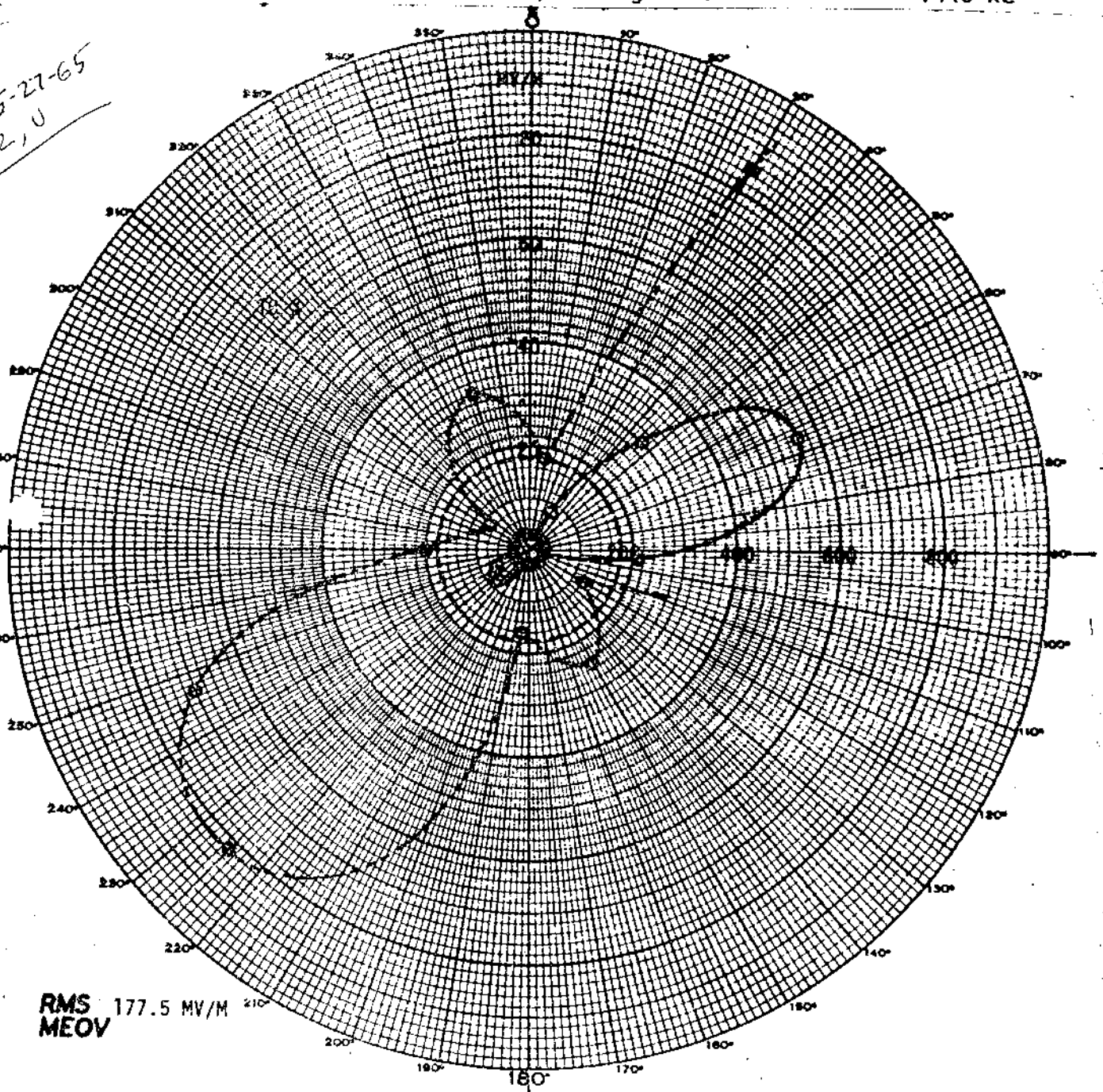
WCHB

Measured Day
(5-27-65ct)

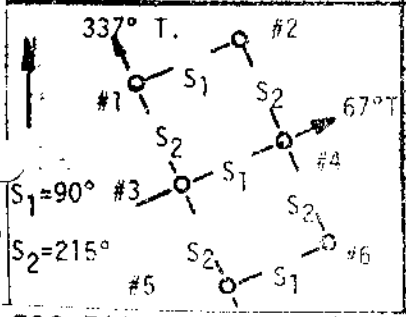
Station WCHB
Inkster, Michigan

500w, 1kw-LS, DA-2, U
1440 kc

LIC. 5-27-65
DA-2, U



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS	FIGURE 7	STATION DATA



TOWER No	ELECTRICAL HEIGHT °	SPACING °	PHASING °	FIELD RATIO
1	75.4	-	0°	1.0
2	75.4	-	+60°	1.375
3	75.4	-	+158°	1.625
4	75.4	-	+39.5°	2.25
5	75.4	-	+148°	1.069
6	75.4	-	+167°	0.957
7				
8	ALL	+	TOP	LOAD
9				
10				

DAYTIME OPERATION ☒ NIGHTTIME OPERATION ☐

MEASURED DAYTIME
DIRECTIONAL PATTERN
FEBRUARY - 1965

θ° 0°

CALL WCHB
FREQ 1440 Kc/S
POWER 1 Kw
TYPE DA-2
TIME DAY
LAT. 42°15'22"
LONG. 83°21'47.5"

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

FCC File No. BL-10883
Accepted 4-29-65

JUL 18 1975

Station WCHB
Inkster, Michigan

1440 kc

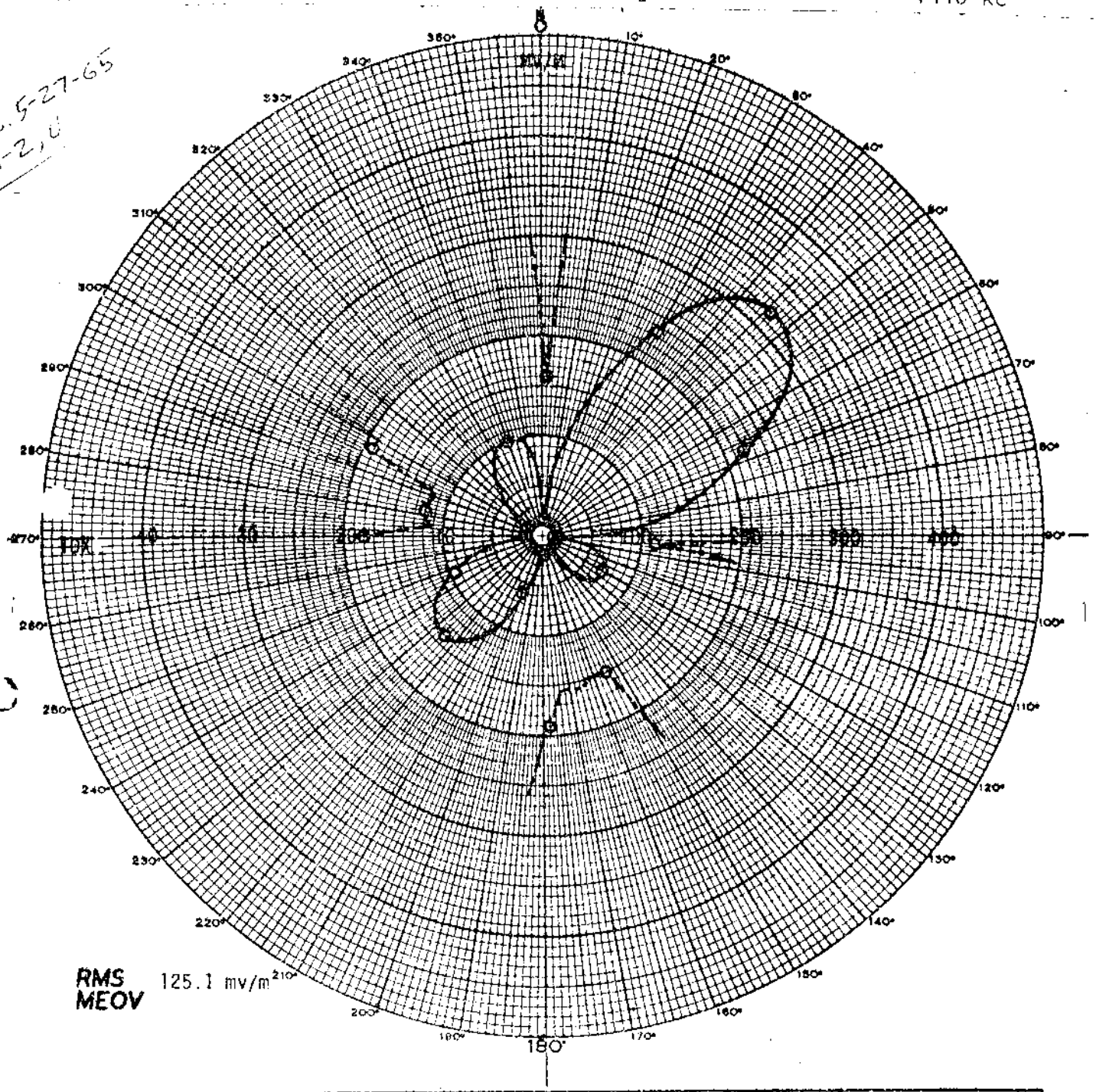
WCHB

Measured Night
(5-27-65ct)

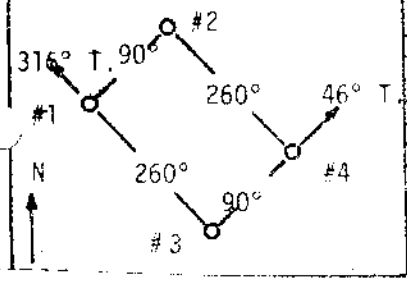
Station WCHB
Inkster, Michigan

500w,1kw-LS,DA-2,U
1440 kc

LIC. 5-27-65
DA-2,U



RMS MEOV 125.1 mv/m

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 8	STATION DATA
	TOWER No.	ELECTRICAL HEIGHT °	SPACING °	PHASING °	FIELD RATIO	MEASURED NIGHTTIME RADIATION PATTERN FEBRUARY - 1965	CALL WCHB FREQ 1440 Kc/S POWER 0.5 Kw, 1 LS TYPE DA-2 TIME NIGHT LAT. 42°15'22" LONG. 83°21'47.5"
	1	75.4	-	0°	1.0		
	2	75.4	-	-152°	1.057		
	3	75.4	-	+3°	0.922		
	4	75.4	-	-175.5°	1.109		
	5						
	6						
	7	NO	TOP	LOAD			
	8						
	9						
	10						
	DAYTIME OPERATION ☒		NIGHTTIME OPERATION ☐			θ° 0°	E.H.MUNN,JR. RADIO ENGINEER COLDWATER, MICH.

FCC File No. BL-10883
Accepted 4-29-65

Station WCHB
Inkster, Michigan

1440 kc

JUL 1975

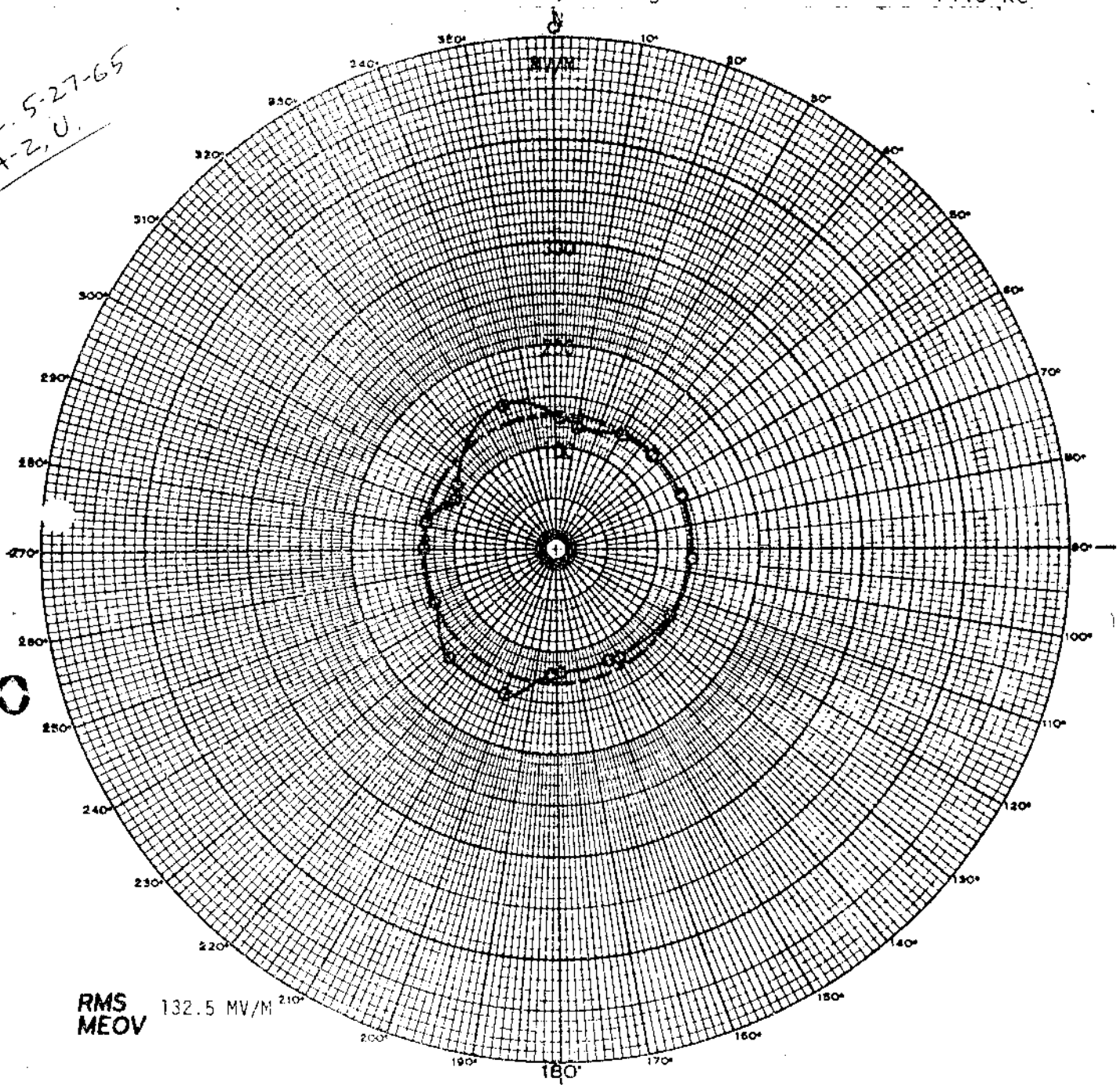
WCHB

Measured Non-DA
(5-27-65ct)

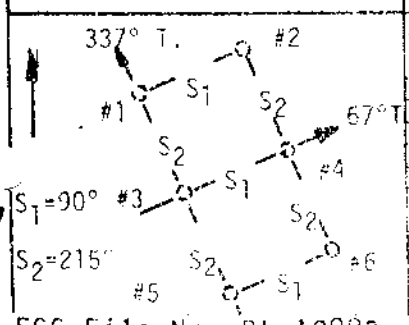
Station WCHB
Inkster, Michigan

500w, 1kw-LS, DA-2, U
1440 kc

LIC. 5-27-65
DA-2, U.



RMS MEOV 132.5 MV/M

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS	FIGURE 6	STATION DATA
	TOWER No. / ELECTRICAL HEIGHT / SPACING / PHASING / FIELD RATIO	MEASURED DAYTIME NON-DIRECTIONAL RADIATION - 1965 TOWER NO. 6 75.4° + TOP LOAD	CALL WCHB FREQ 1440 Kc/S POWER 0.5 Kw TYPE TIME LAT. LONG.
	DAYTIME OPERATION ☒ NIGHTTIME OPERATION ☐	θ° 0°	E.H.MUNN, JR. RADIO ENGINEER COLDWATER, MICH.

FCC File No. BL-10883
Accepted 4-29-65

Station WCHB
Inkster, Michigan

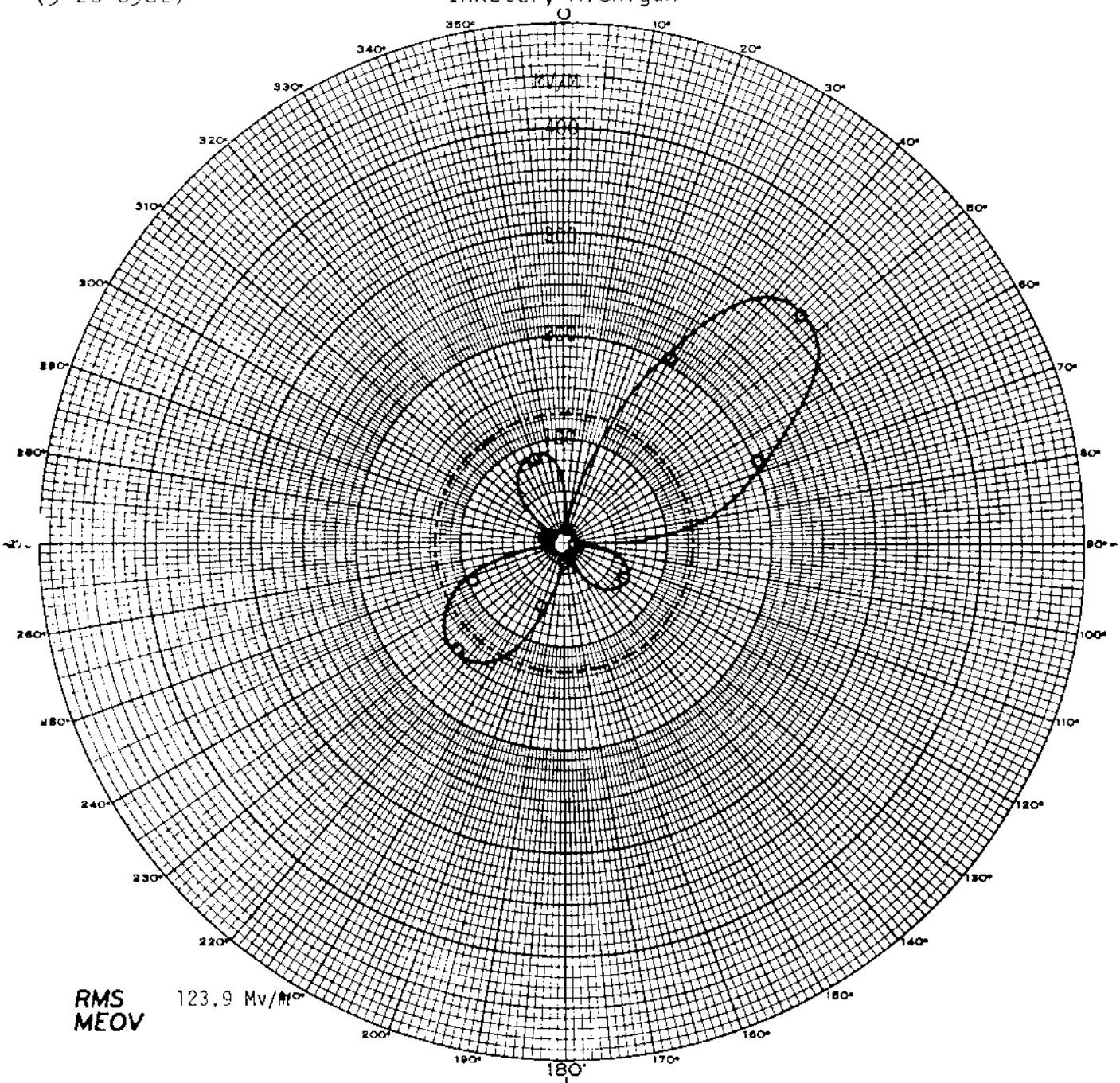
1440 kc

WCHB

Measured Night
(9-26-69ct)

Station WCHB
Inkster, Michigan

500w,1kw-LS,DA-2,U
1440 kc



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 6	STATION DATA
G's 75.4	TOWER No.	ELECTRICAL HEIGHT θ°	SPACING δ°	PHASING ψ°	FIELD RATIO f	MEASURED NIGHTTIME RADIATION PATTERN	CALL WCHB
316° 46° #2	1			0	1.0	RADIO STATION WCHB	FREQ 1440 kHz
90° #1 260°	2			-154°	.954	READJUSTMENT 1968	POWER 0.5 Kw, 1 Kw LS
260° #4	3			-4°	.972		TYPE DA-2
90° #3	4			+173°	1.11		TIME NIGHT
	5						LAT. 42°15'22"
	6						LONG. 83°21'47.5"
	7						
	8						
	9						
	10						
	DAYTIME OPERATION ☐			NIGHTTIME OPERATION ☑		θ° 0°	E.H.MUNN,JR. RADIO ENGINEER COLDWATER, MICH.

FCC File No.BZ-7281
Accepted 9-18-69

Station WCHB
Inkster, Michigan

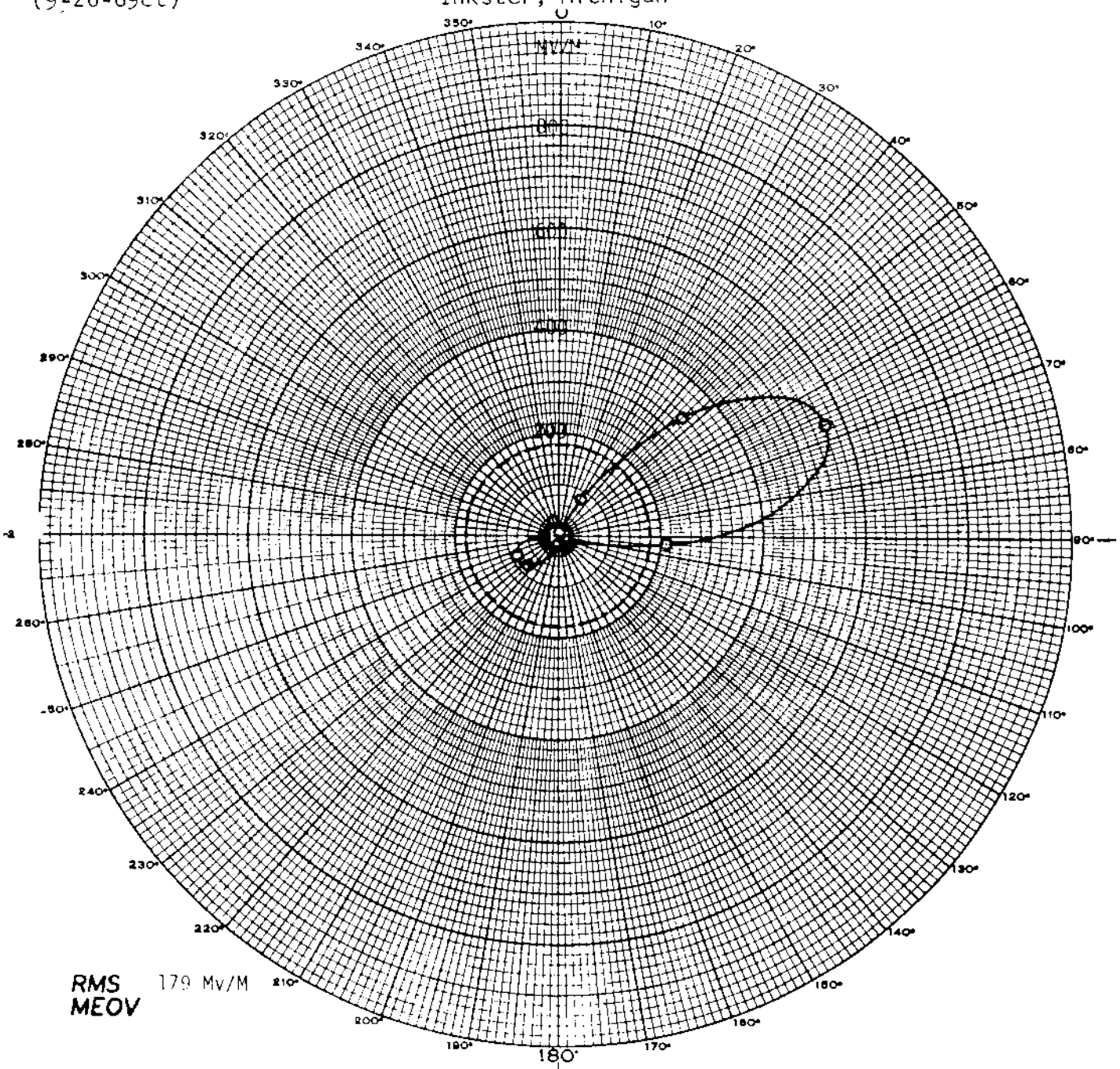
1440 kc

WCHB

Measured Day
(9-26-69ct)

Station WCHB
Inkster, Michigan

500w,1kw-LS,DA-2,U
1440 kc



RMS MEOV 179 Mv/M

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS	FIGURE 5	STATION DATA
G's 75.4° S_1 90° S_2 215°		MEASURED DAYTIME DIRECTIONAL PATTERN	CALL WCHB
337° T. #1 S_1 #2		WCHB, INKSTER, MICH	FREQ 1440 kHz
S_2 67° T. #3 S_1 #4		1968 READJUSTMENT	POWER .5Kw, 1 Kw LS
S_2 #5 S_1 #6			TYPE DA-2
			TIME DAYTIME
			LAT. 42°15'22"
			LONG. 83°21'47.5"
		θ°	E.H.MUNN, JR. RADIO ENGINEER COLDWATER, MICH.

TOWER No.	ELECTRICAL HEIGHT G°	SPACING S°	PHASING K°	FIELD RATIO r
1			0	1.0
2			+57	1.535
3			+149	1.684
4			+34	2.258
5			+145	0.974
6			+165	0.948
7				
8				
9				
10				

DAYTIME OPERATION ☒ NIGHTTIME OPERATION ☐

FCC File No.BZ-7281
Accepted 9-18-69

Station WCHB
Inkster, Michigan

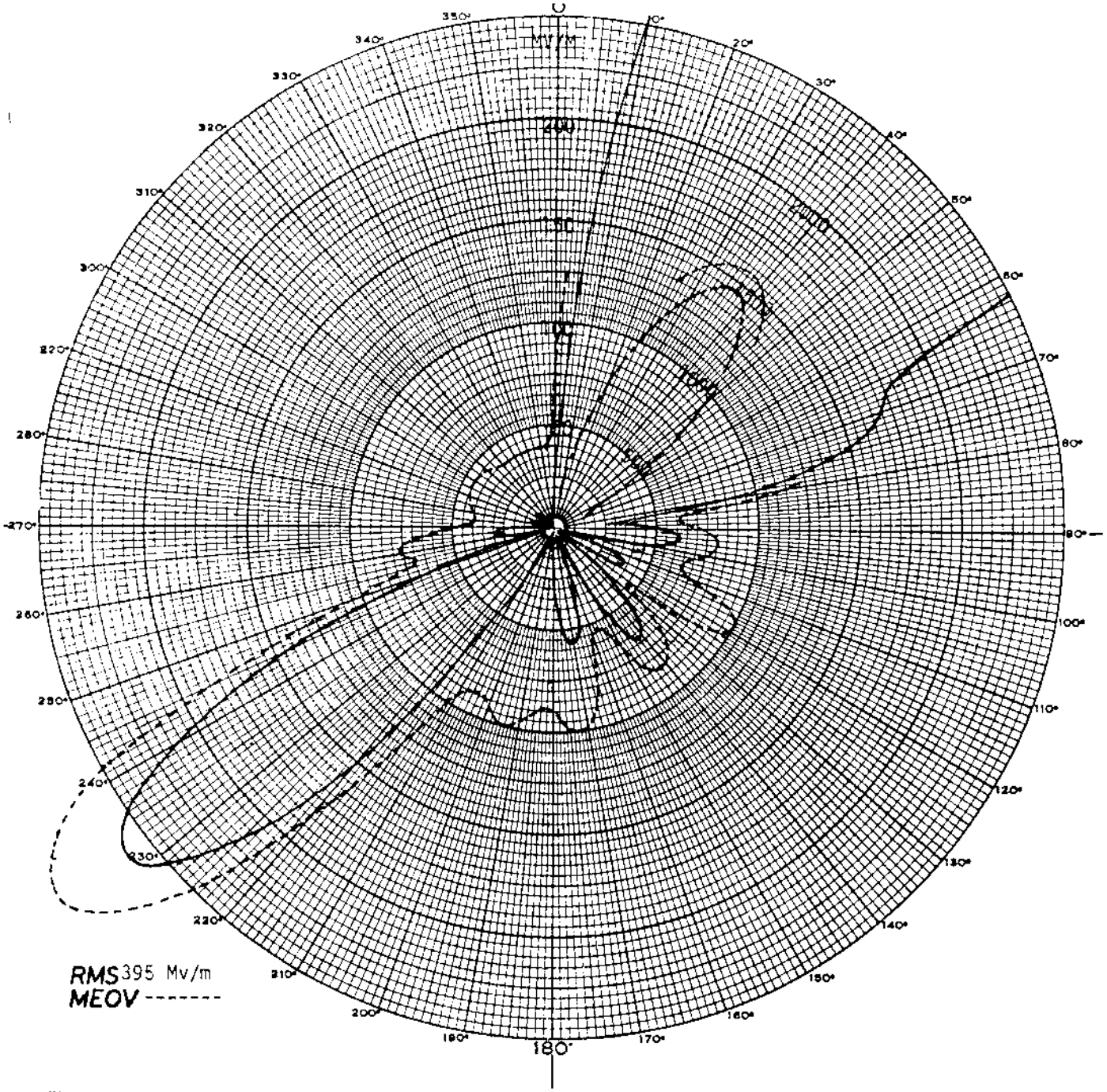
1440 kc

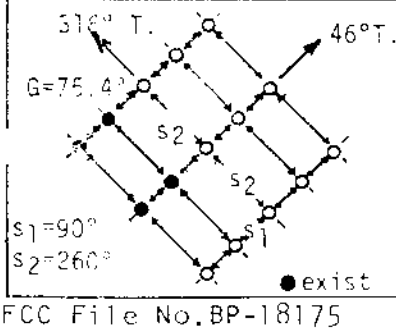
WCHB

Proposed Night
(2-28-69ct)

Station WCHB
Inkster, Michigan

5kw,1kw-LS,DA-2,U
1440 kc



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS	FIGURE B-7-1	STATION DATA
		PROPOSED WCHB DA-N 1440 kHz - 5 Kw INKSTER, MICHIGAN April - 1968	CALL WCHB FREQ 1440 kHz POWER 5 Kw, 1 LS TYPE DA-2 TIME NIGHT LAT. 42-15-22 LONG. 83-21-47.5

TOWER No.	ELECTRICAL HEIGHT θ°	SPACING S°	PHASING ψ°	FIELD RATIO F
1				
2				
3	SEE	FIG.	B-4	
4				
5				
6				
7				
8				
9				
10				

DAYTIME OPERATION ☐ NIGHTTIME OPERATION ☒

θ° 0°

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

FCC File No.BP-18175
Accepted 2-5-69

Station WCHB
Inkster, Michigan

1440 kc

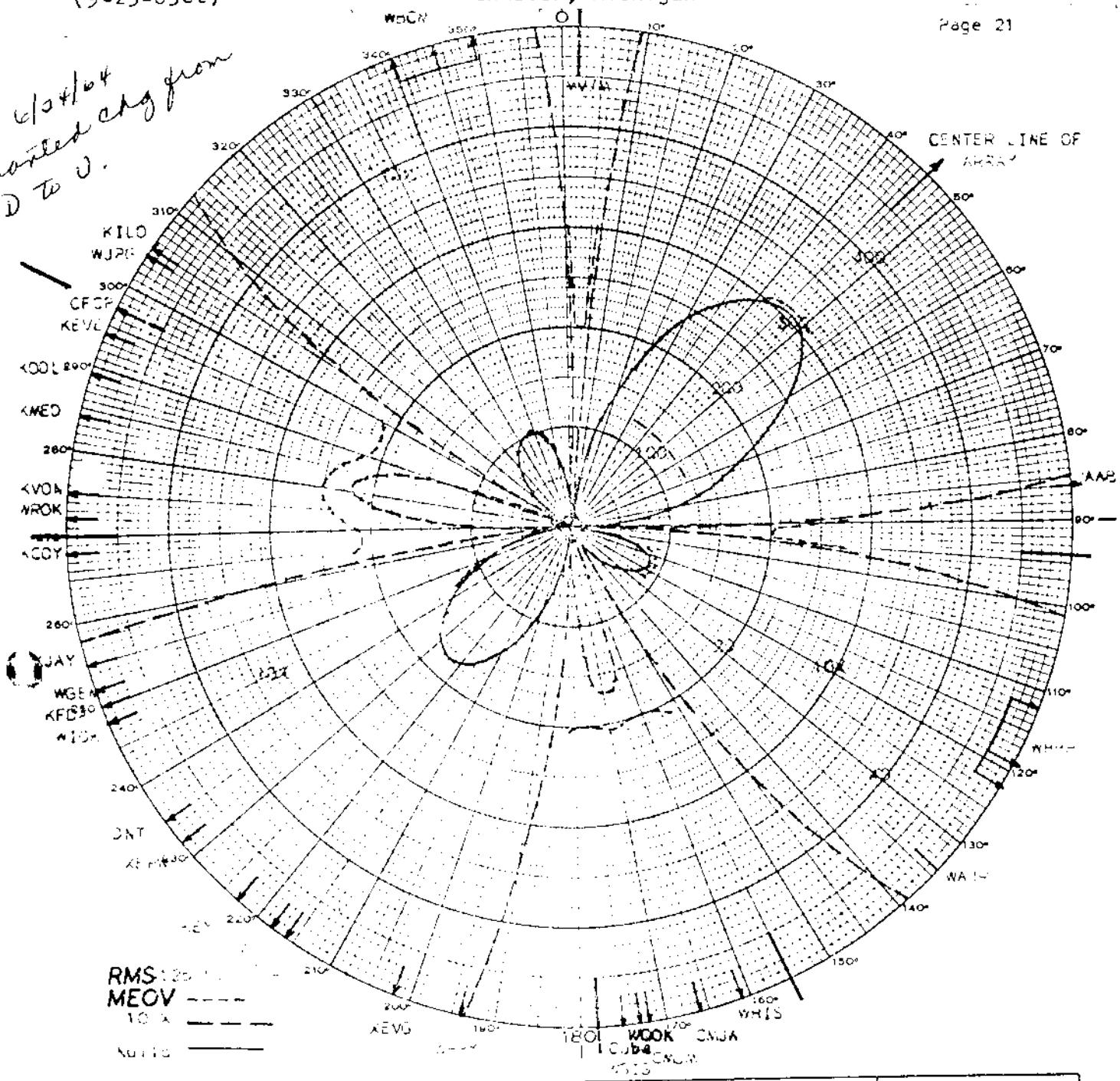
WCHB

Proposed Night
(9-25-63ct)

Station WCHB
Inkster, Michigan

500w,1kw-LS,DA-2,U
1440 kc

6/24/64 granted chg from D to U.



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS	FIGURE 6-A	STATION DATA
356° T. #1 ← 90° → #2 (260°, 260°) #3 ← 90° → #4	Tower / Lat. Height / Spacing / Phasing / Amp.	PROPOSED NIGHTTIME RADIATION PATTERN GROUND PLANE	CALL WCHB FREQ 1440 KC/S POWER 0.5 KW TYPE DA-2 TIME NIGHT LAT. 42-15-22 LONG. 83-21-47.5
		θ°	E.H.MUNN,JR. RADIO ENGINEER COLDWATER, MICH.

FCC File No.BP-15277
Accepted 8-26-63 Amended

Station WCHB
Inkster, Michigan

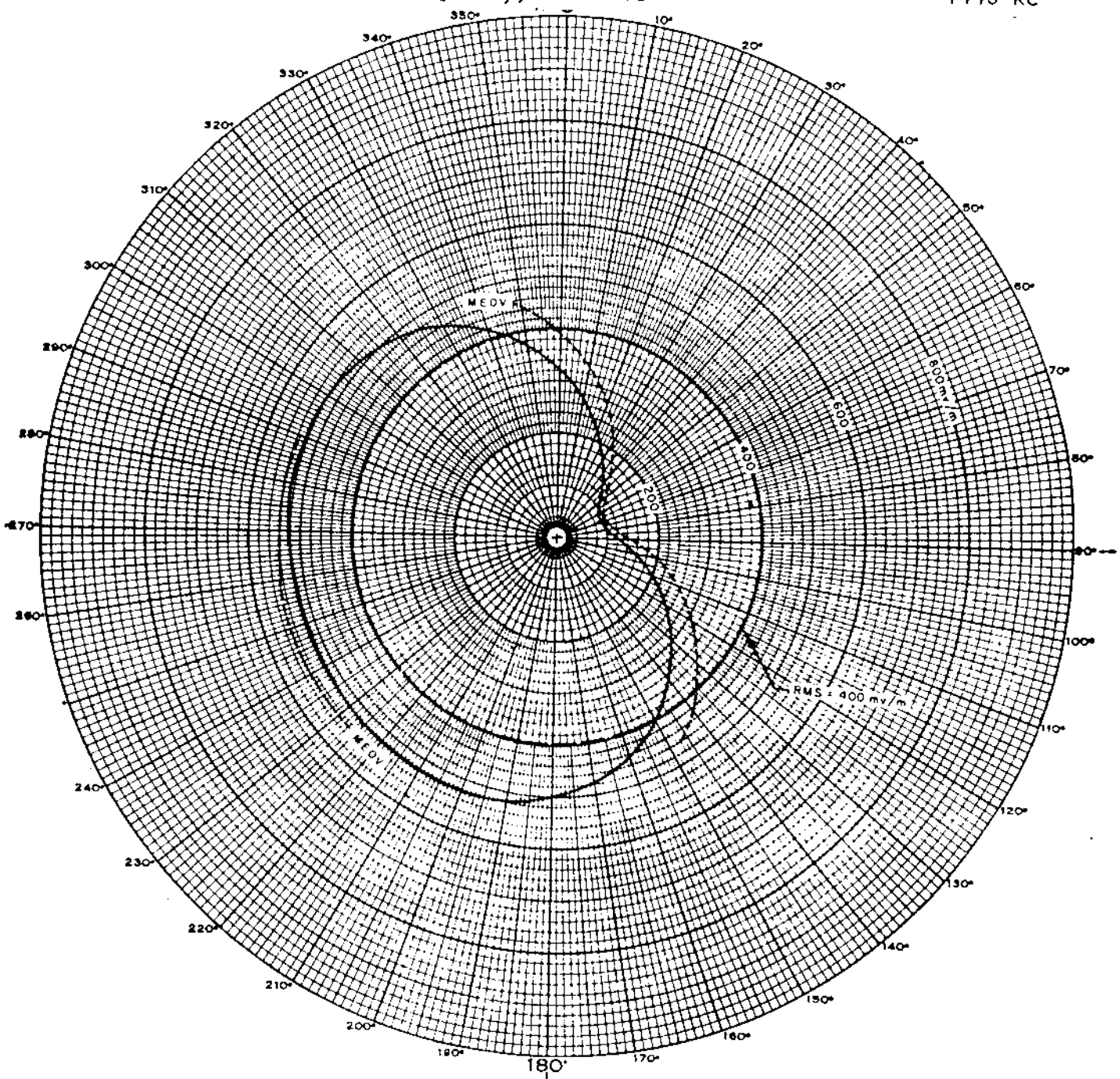
1440 kc

WGEM

PROPOSED DAY
(10-25-61ct)

Station WGEM
Quincy, Illinois

1kw.5kw-LS,DA-2,U
1440 kc



North Latitude 39° 58' 47"
West Longitude 91° 19' 27"

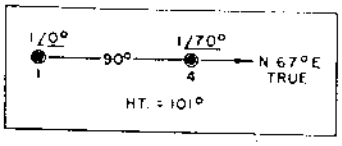


FIGURE 1
HORIZONTAL RADIATION PATTERN
WGEM 1 KW, 5 KW-LS, DA-2 1440 KC
QUINCY BROADCASTING COMPANY
QUINCY, ILLINOIS

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

FCC File No. BP-14225
Accepted 9-29-61 Amended

Station WGEM
Quincy, Illinois

1440 kc

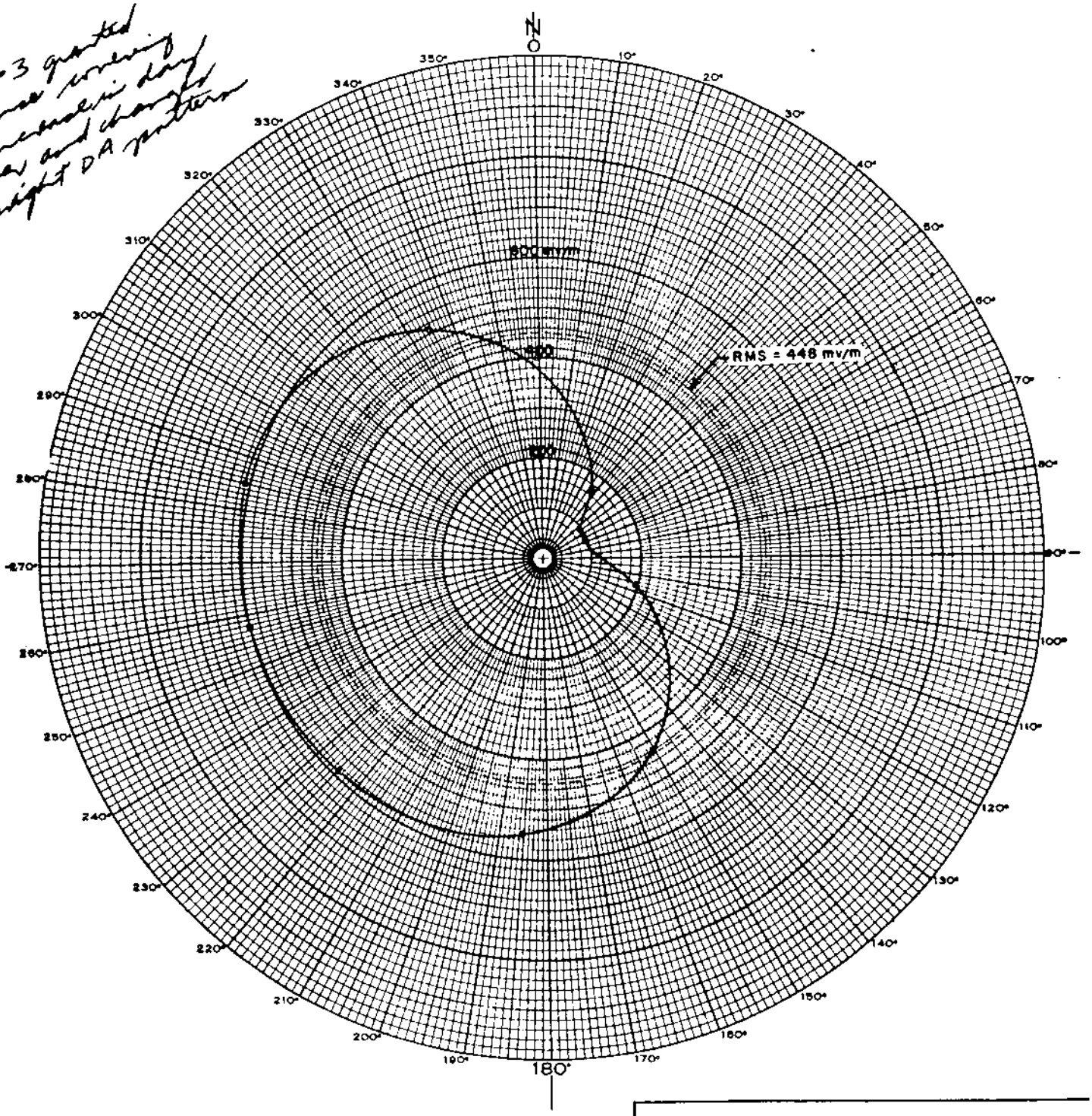
WGEM

Measured Day
(5-28-63ct)

Station WGEM
Quincy, Illinois

1kw,5kw-LS,DA-2,U
1440 kc

8-1-63 granted license covering on increase in day power and change in night DA pattern



North Latitude 39° 58' 47"

West Longitude 91° 19' 27"

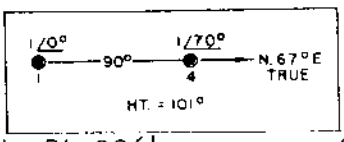


FIGURE 8

HORIZONTAL RADIATION PATTERN

DAYTIME OPERATION

QUINCY BROADCASTING COMPANY

WGEM 1 KW, 5 KW-LS, DA-2 1440 KC

QUINCY, ILLINOIS

Prepared by

Lohnes and Culver *Washington 6, D.C.*

December 1962 1440 kc

FCC File No.BL-9964
Accepted 5-1-63

Station WGEM
Quincy, Illinois

JUL 13 1975 ok

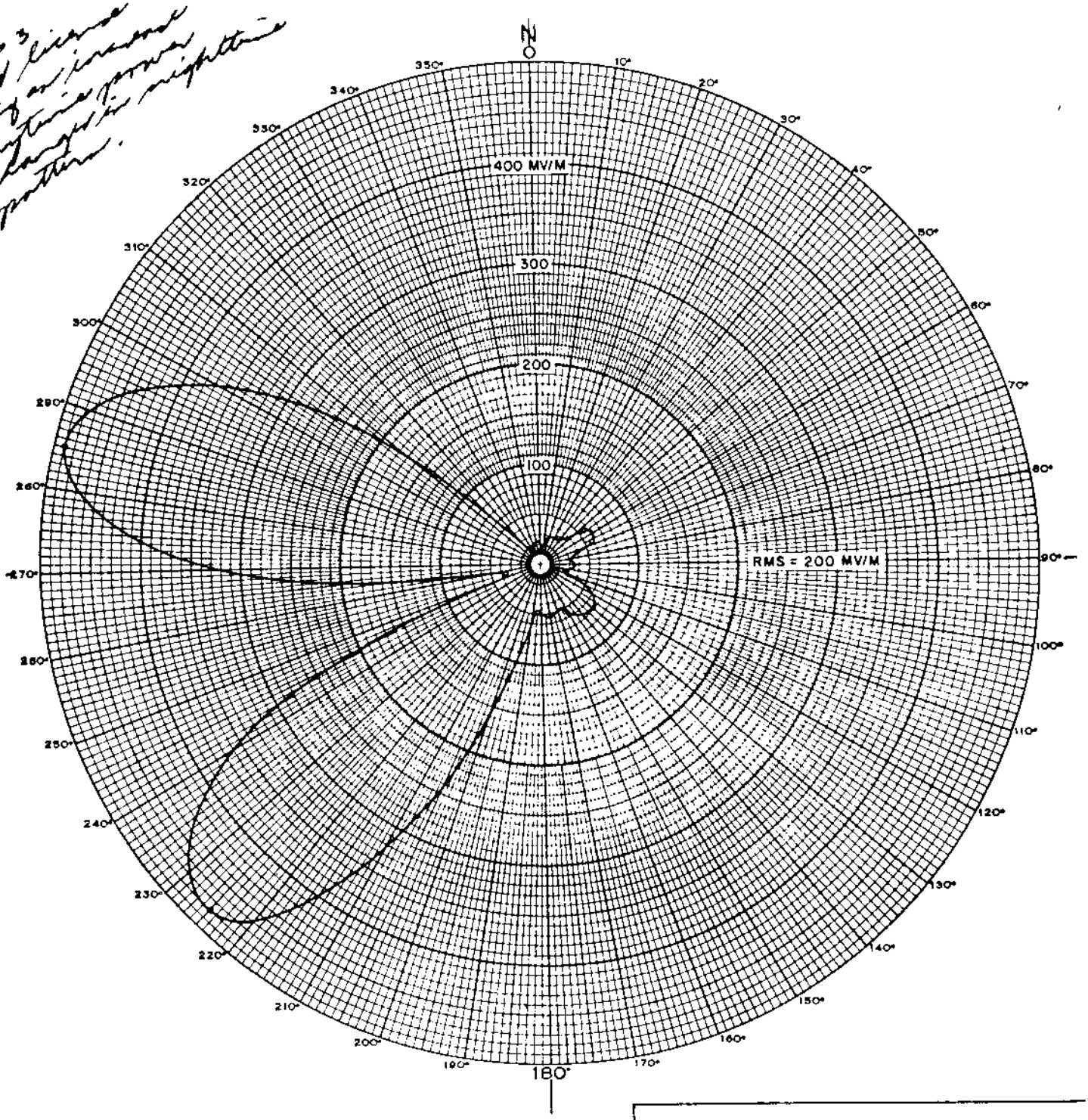
WGEM

Measured Night
(5-28-63ct)

Station WGEM
Quincy, Illinois

1kw,5kw-LS,DA-2,U
1440 kc

8-1-63 granted license covering an increase in daytime power and change in nighttime DA pattern.



North Latitude 39° 58' 47"
North Longitude 91° 19' 27"

FIGURE 9
HORIZONTAL RADIATION PATTERN
NIGHTTIME OPERATION
QUINCY BROADCASTING COMPANY
WGEM 1 KW, 5 KW-LS, DA-2 1440 KC
QUINCY, ILLINOIS

Prepared by
Lohnes and Culver *Washington 4, D.C.*
December 1962 1440 kc

FCC File No.BL-9964
Accepted 5-1-63

Station WGEM
Quincy, Illinois

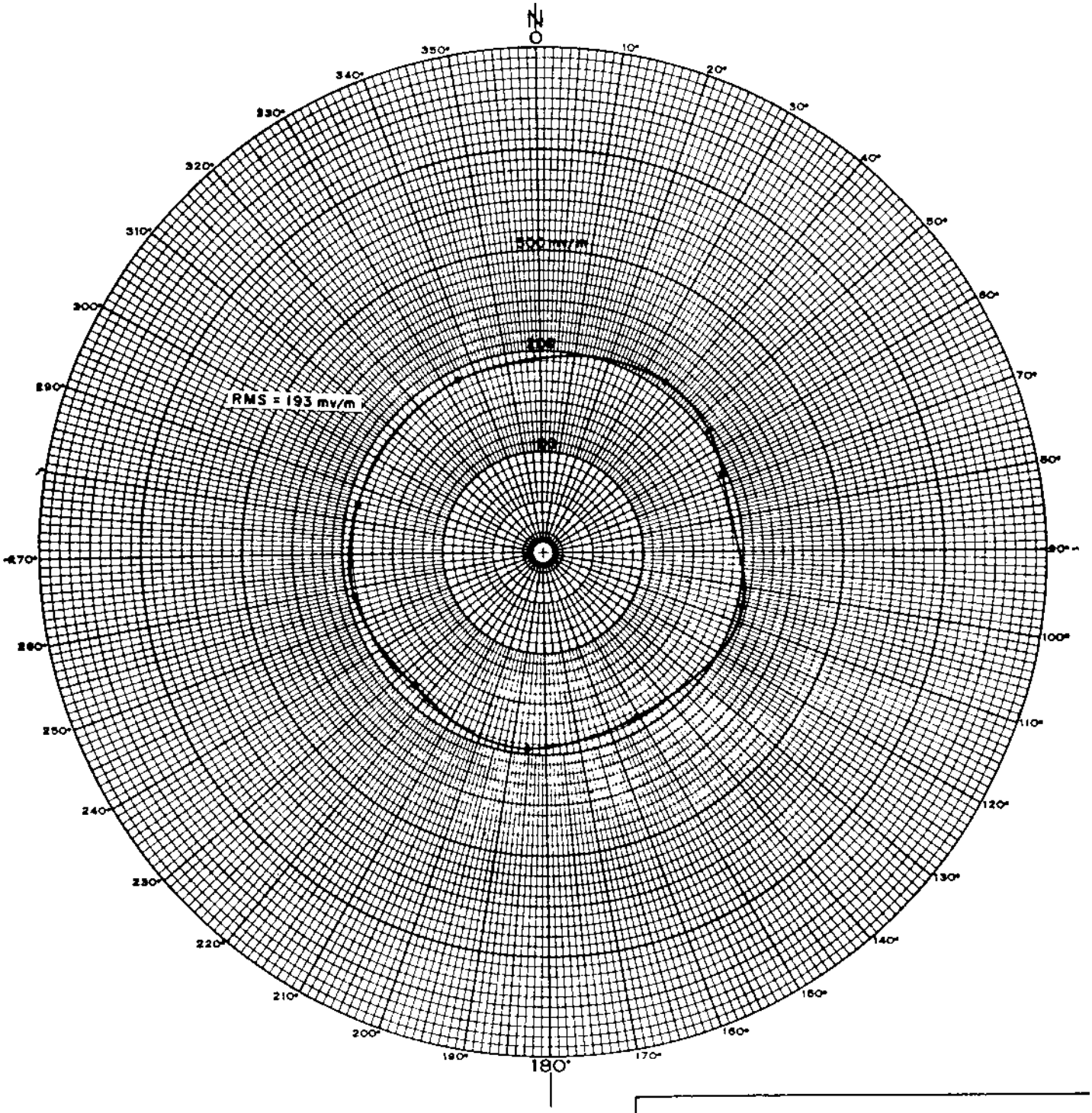
JUN 1975

WGEM

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

Station WGEM
Quincy, Illinois

1kw,5kw-LS,DA-2,U
1440 kc



North Latitude 39° 58' 47"
West Longitude 91° 19' 27"

FIGURE 7
HORIZONTAL RADIATION PATTERN
NON-DA TEST OPERATION
QUINCY BROADCASTING COMPANY
WGEM 1 KW, 5 KW-LS, DA-2 1440 KC
QUINCY, ILLINOIS

Prepared by
Lohnes and Culver *Washington 4, D.C.*
December 1962 1440 kc

FCC File No.BL-9964
Accepted 5-1-63

Station WGEM
Quincy, Illinois

WGEM

16015
1/48

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: W G E M Main Studio: Quincy, Illinois

Frequency: 1440 kc Power: 1kw

Notification List No. 225 Date: May 2, 1947 Class: III-B

Location: North Latitude: 39° 59' 20"

West Longitude: 91° 19' 15"

Antenna: Authorized for Day and Night operation (DA-2)

Two elements Day, Four elements Night, Series-fed, uniform cross-section, guyed vertical steel towers.

Towers:	North East	South East	South West	North West
Height above Insulators	192'	192'	192'	192' (101.5°)
Spacing:	See "Orientation" below.			
Night Phasing:	+289°	+109°	0°	+180°
Night Field Ratio:	1.0	1.0	1.0	1.0
Day Phasing:	Not Used	+60°	0°	Not Used
Day Field Ratio:	Not Used	1.0	1.0	Not Used

Ground System: 120 - 170' equally spaced radials plus 120 - 50' interspaced 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 parollelogram, the long sides of which are 703' (370°) long and are on a line bearing 346° true. The short sides are 171' (90°) and are on a line bearing 67° true.

Predicted effective Night Field: 180 mv/m (at rated power)

Predicted effective Day Field: 187 mv/m (at rated power)

WGEM

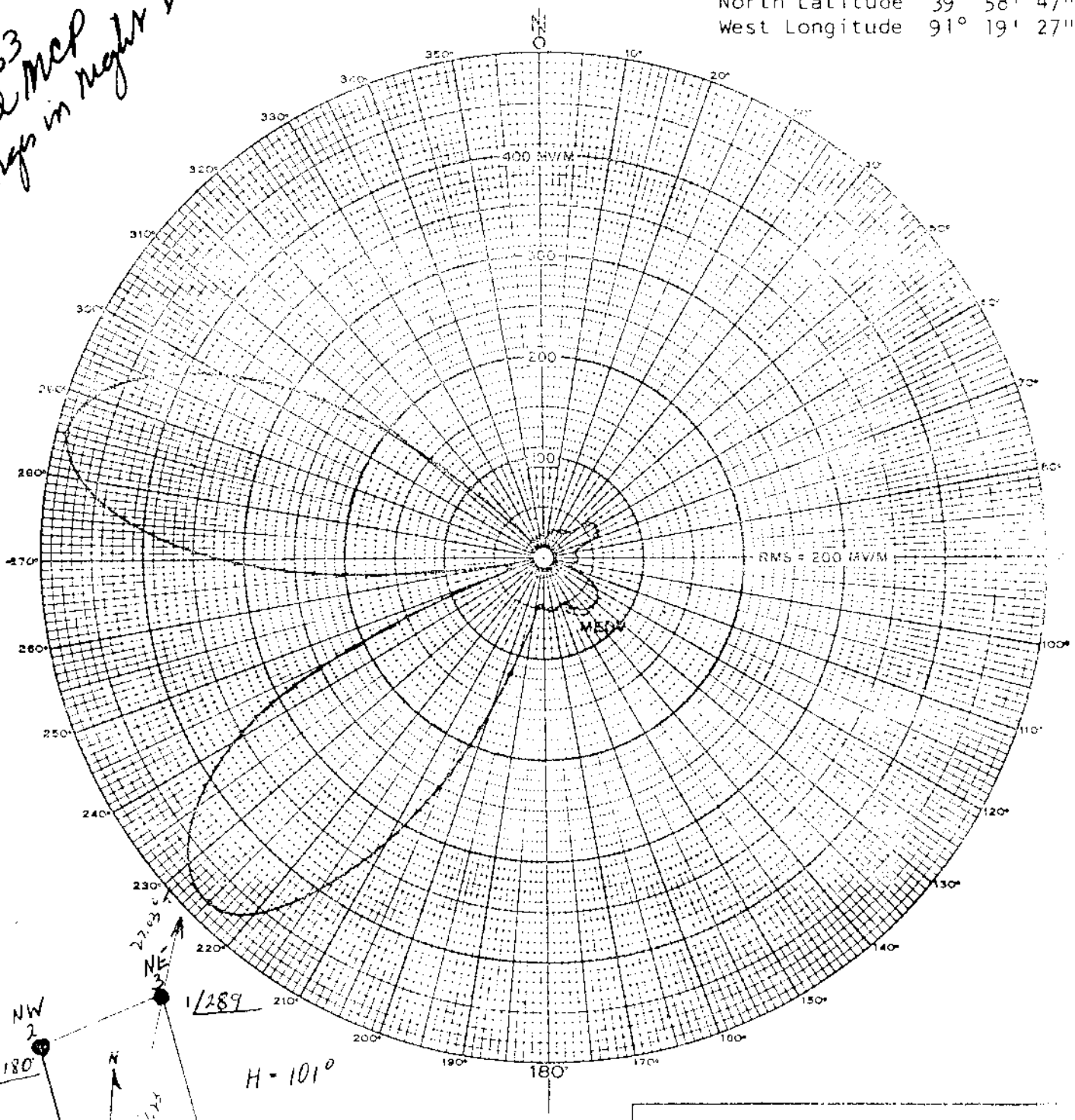
Proposed Night
(2-26-63ct)

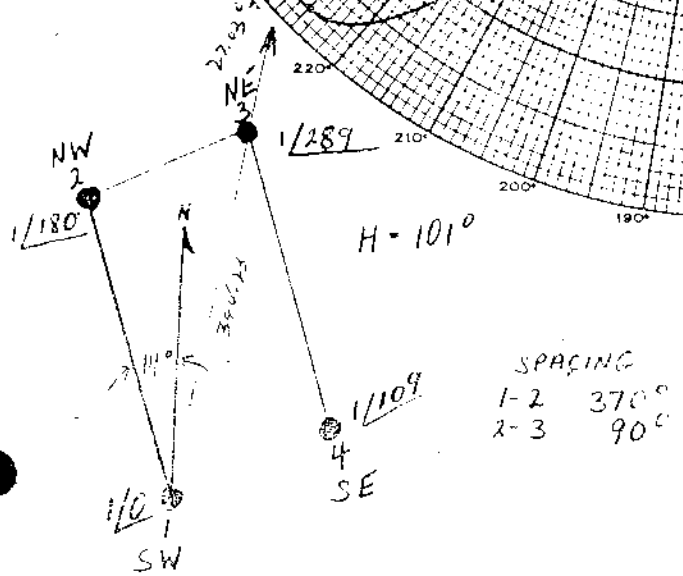
Station WGEM
Quincy, Illinois

1kw,5kw-LS,DA-2,U
1440 kc

North Latitude 39° 58' 47"
West Longitude 91° 19' 27"

2-13-63 granted MCP for changes in night DA.





SPACING
1-2 370°
2-3 90°

FIGURE 9
HORIZONTAL RADIATION PATTERN
NIGHTTIME OPERATION
QUINCY BROADCASTING COMPANY
WGEM 1 KW, 5 KW-LS, DA-2 1440 KC
QUINCY, ILLINOIS

Prepared by
Lohnes and Culver *Washington, D.C.*
December 1962

FCC File No.BMP-10780
Accepted 2-14-63

Station WGEM
Quincy, Illinois

Granted license 3/24/58 for increase in day (non PA) power

WGIG BRUNSWICK, GA.
PATTERN NO. 470919
1440

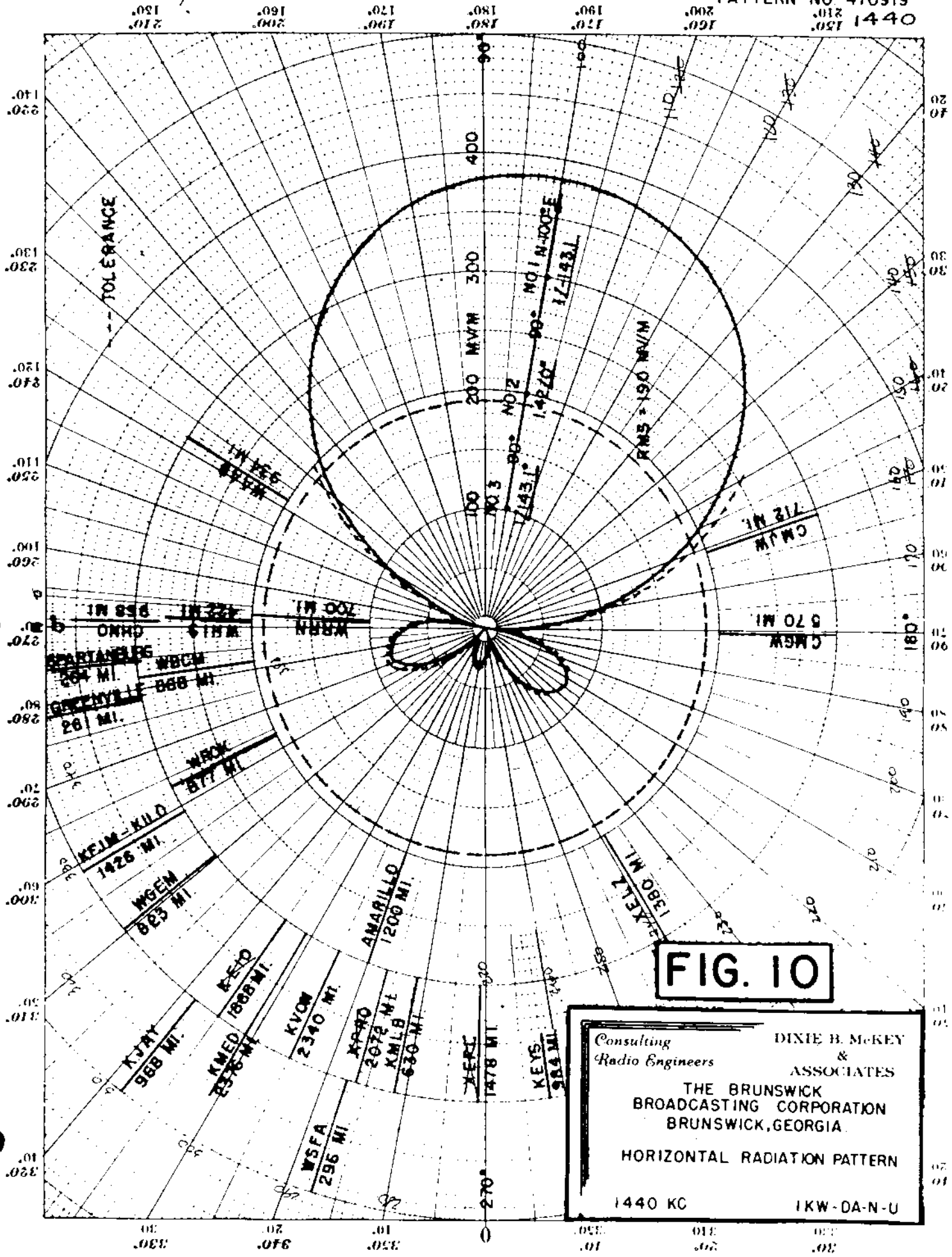


FIG. 10

Consulting Radio Engineers

DIXIE B. McKEY & ASSOCIATES

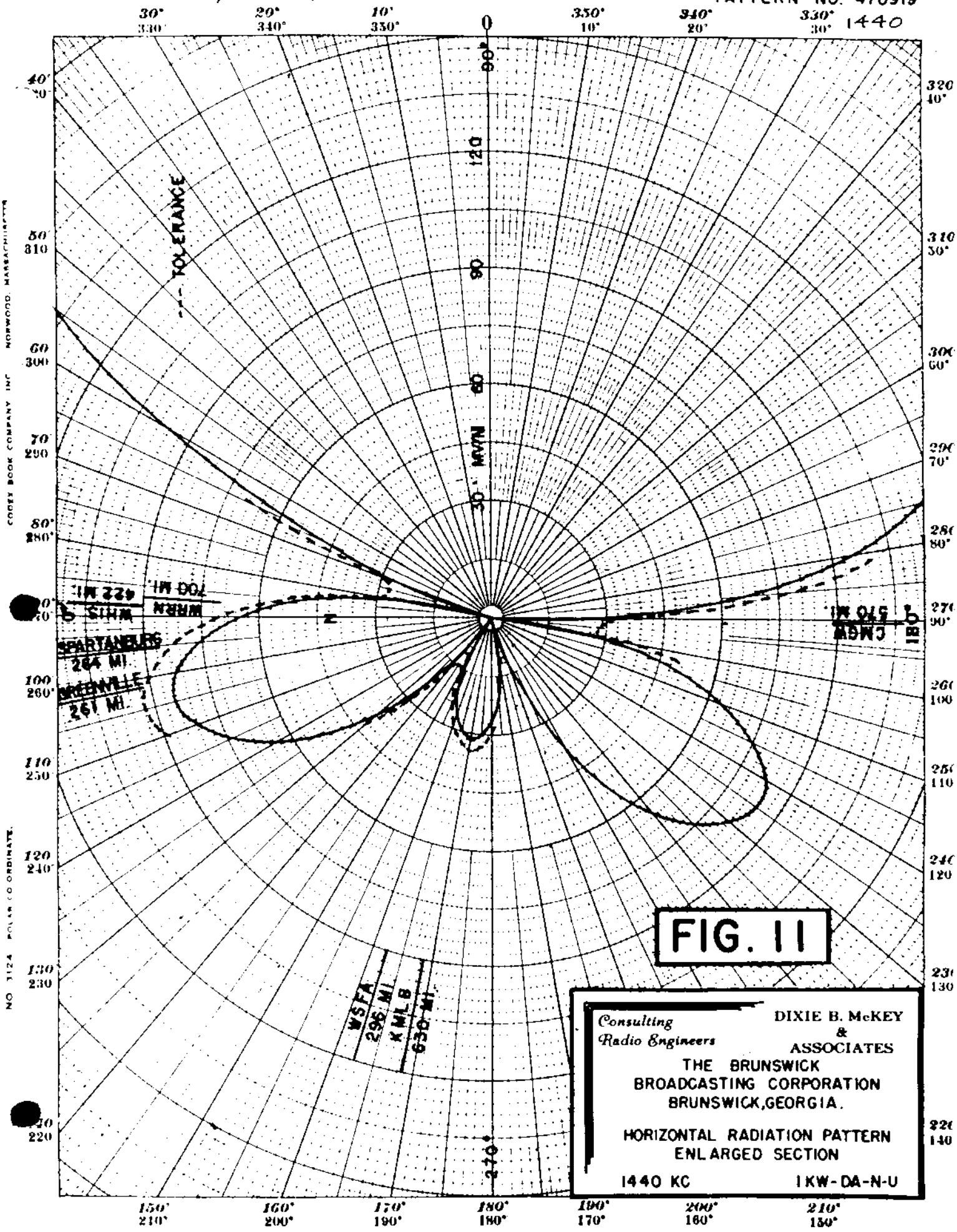
THE BRUNSWICK BROADCASTING CORPORATION
BRUNSWICK, GEORGIA

HORIZONTAL RADIATION PATTERN

1440 KC 1KW-DA-N-U

Granted license 3/20/58 for increase in day (non DA) power

WGIG BRUNSWICK, GA.
PATTERN NO. 470919

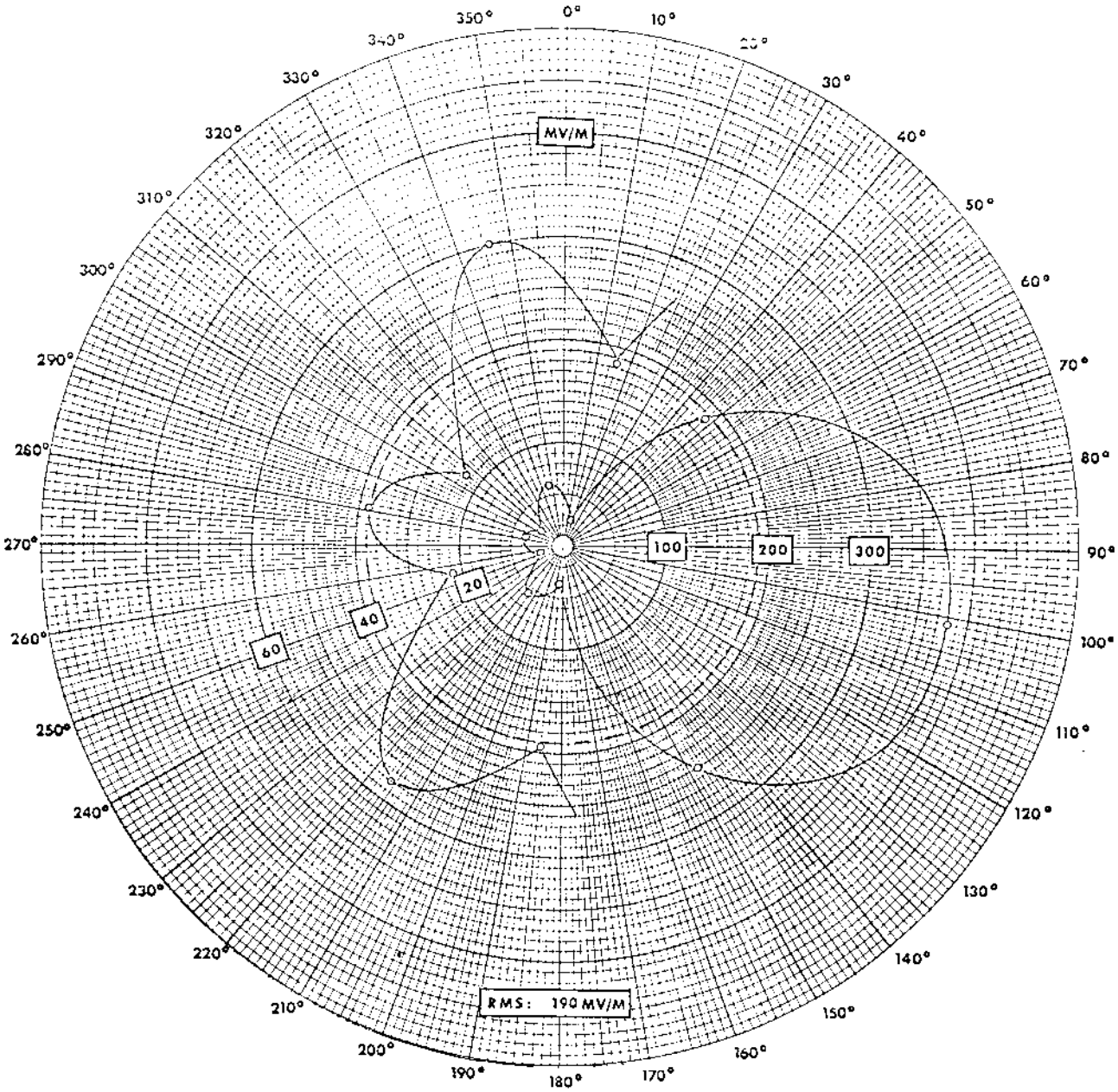


WGIG

Measured Night
(7-26-67ct)

Station WGIG
Brunswick, Georgia

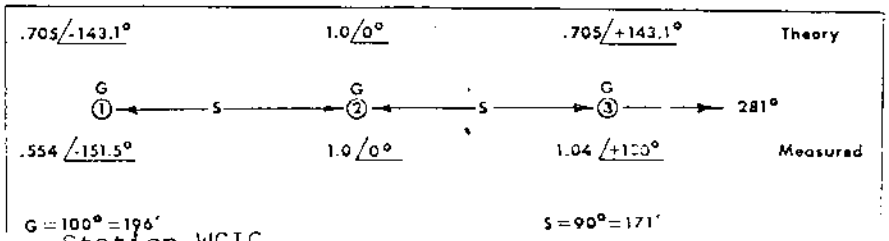
1kw,5kw-LS,DA-N,U
1440 kc



North Latitude 31° 10' 07"
West Longitude 81° 32' 14"

MEASURED DIRECTIONAL PATTERN
WGIG - BRUNSWICK, GEORGIA
1440 KC - 5.0 KW-LS/1.0 KW - DA-N

APRIL, 1967



Gautney & Jones
Consulting Radio Engineers

FCC File No.BZ-6465
Accepted 6-30-67

Station WGIG
Brunswick, Georgia

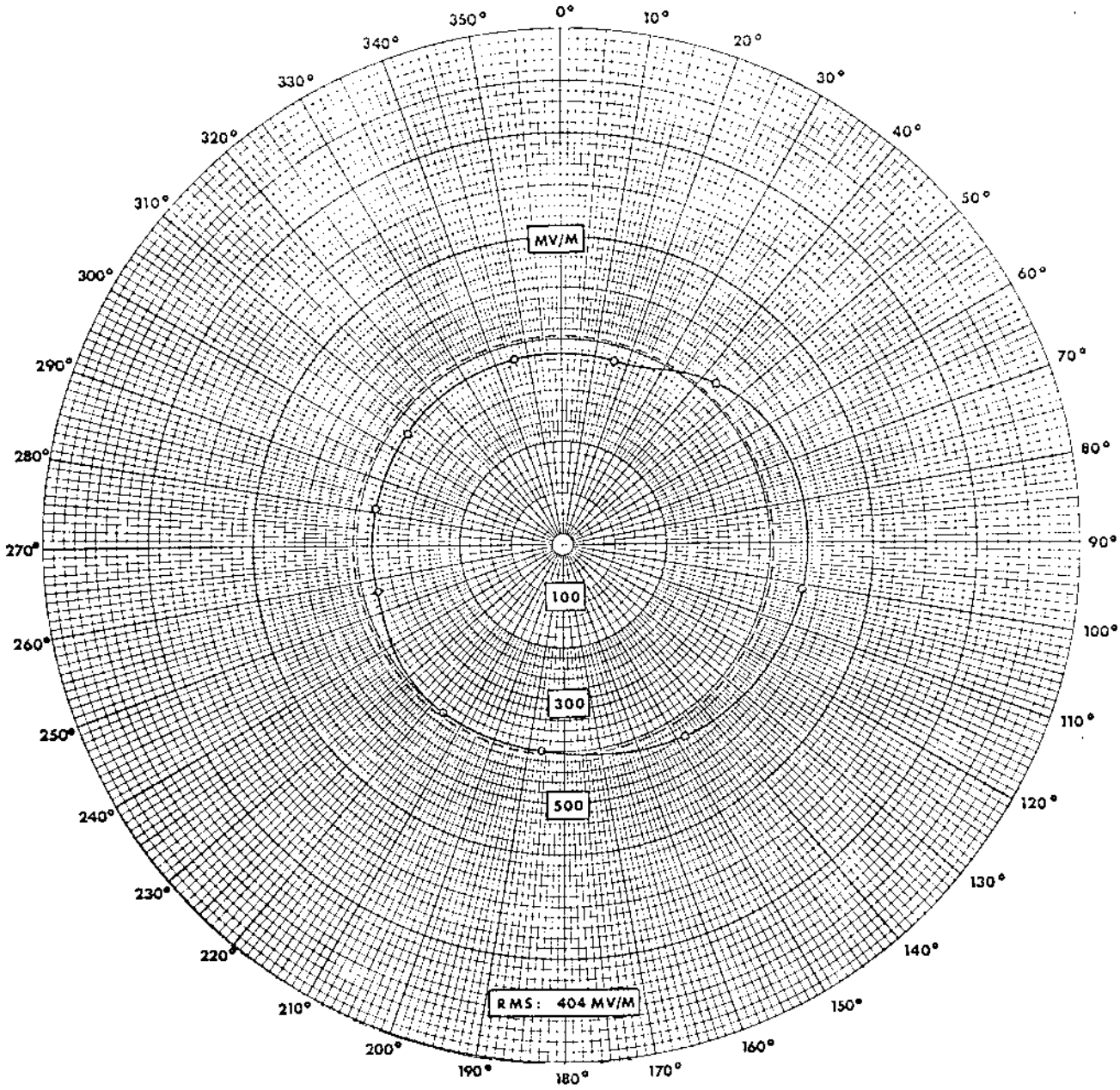
1440 kc

WGIG

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

Station WGIG
Brunswick, Georgia

1kw,5kw-LS,DA-N,U
1440 kc



MEASURED NON-DIRECTIONAL PATTERN
WGIG - BRUNSWICK, GEORGIA
1440 KC - 5.0 KW-LS/1.0 KW - DA-N

APRIL, 1967

GAUTHEY & JONES
CONSULTING RADIO ENGINEERS

FCC File No.BZ-6465
Accepted 6-30-67

Station WGIG
Brunswick, Georgia

1440 kc

WHDM
1440kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WHDM

Main Studio: McKenzie, Tennessee

Frequency: 1440 kHz

Power 5kw Day

Notification List No. 1790

Date: December 4, 1980 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM

North Latitude: 36° 07' 45"
West Longitude: 88° 29' 50"

ANTENNA CHARACTERISTICS

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

TOWER:	NW(#1)	NE(#2)	S(#3)
HEIGHT ABOVE INSULATORS:	132.81°	132.81'	132.81' (70°)
DAY PHASING:	0°	-139.87°	+42.53°
DAY FIELD RATIO:	1	1.561	0.818

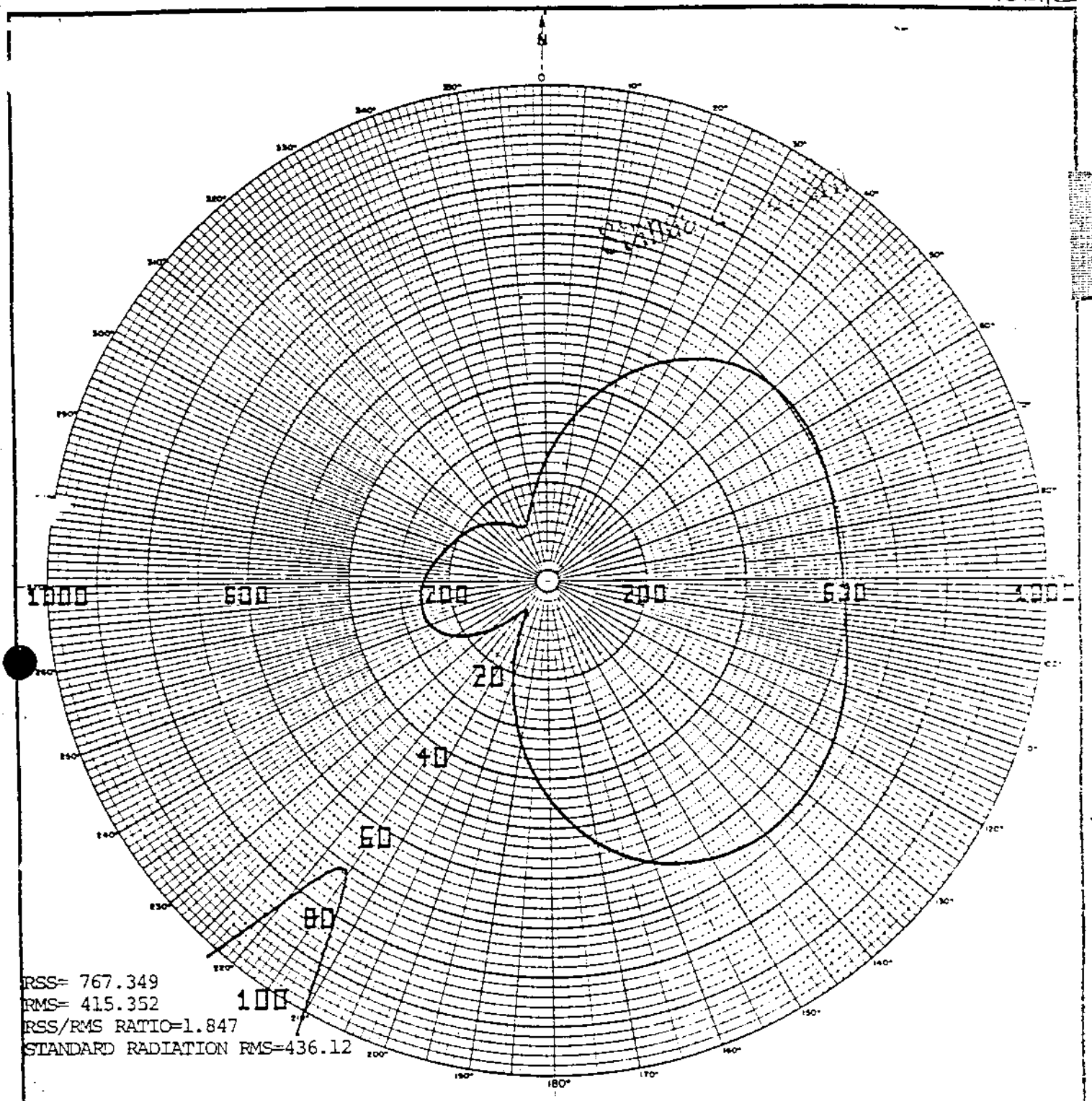
SPACING AND ORIENTATION: With the NW(#1) tower as the reference, the NE(#2) tower is spaced 181.536'(95.68°) on a bearing 117.91° true, and the South #3 tower is spaced 264.411'(139.37°) on a bearing of 138.58° true.

GROUND SYSTEM: 120 - 170' equally spaced copper radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	415.352 mv/m	767.349 mv/m	436.12 mv/m

WHDM
1440 kHz



N. LAT. 36° 07' 45"

W.LONG. 88° 29' 49.5"

PETER V. GURECKIS & ASSOC.
CONSULTING RADIO ENGINEERS
WASHINGTON, D.C.

1 /0°

#1

S_1 #2 1.561 /-139.87°

N-117.91°-E

S_2 #3 0.818 /42.53°

N-138.58°-E

S_1 = 95.68°
S_2 =139.36°
G = 70°

FIGURE 4
PROPOSED DIRECTIONAL
DAYTIME PATTERN

RADIO STATION WHDM
McKENZIE, TENNESSEE

1440 KHz 5 KW, DA-2

Prop. Day

WHHH

1440

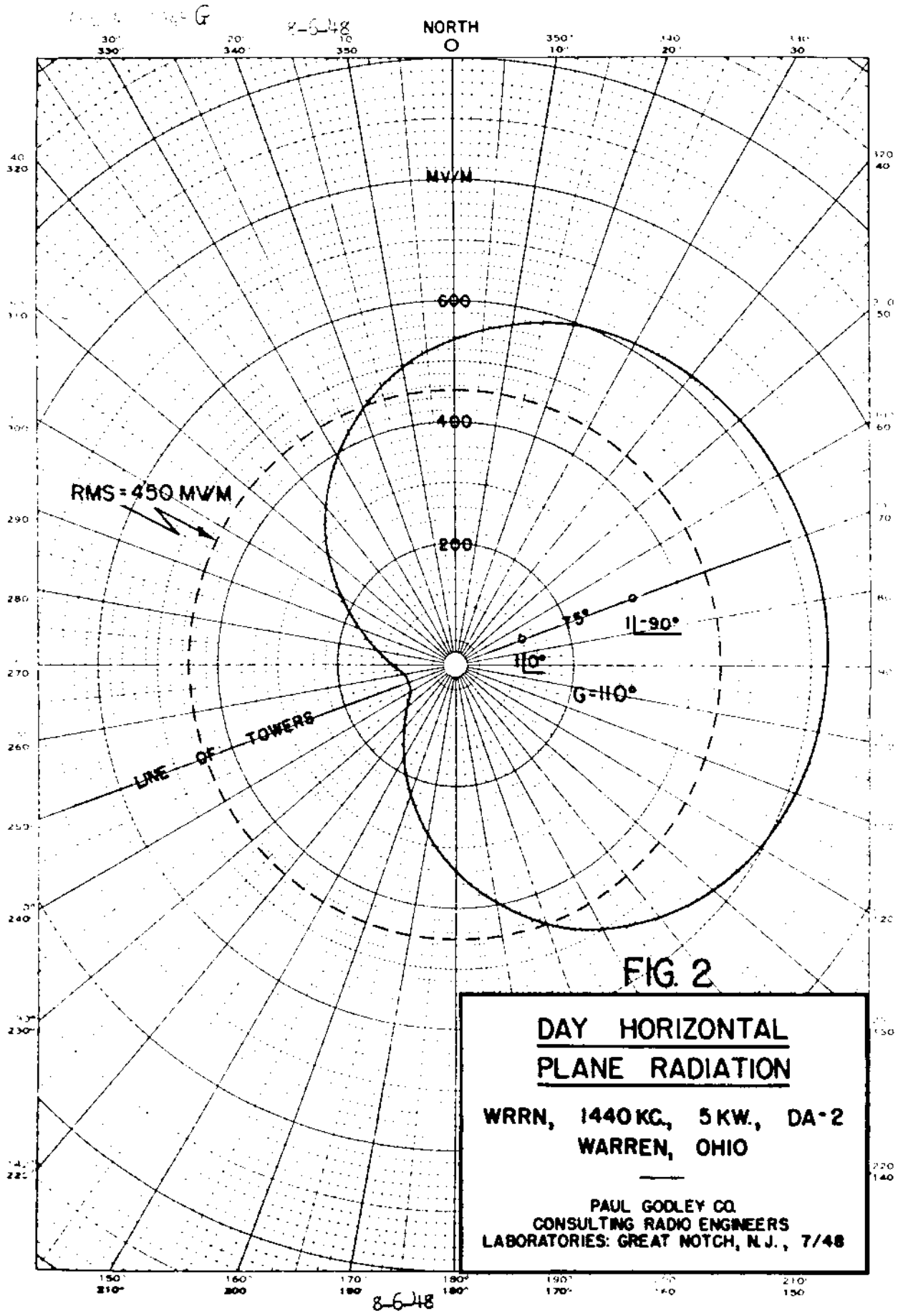


FIG. 2

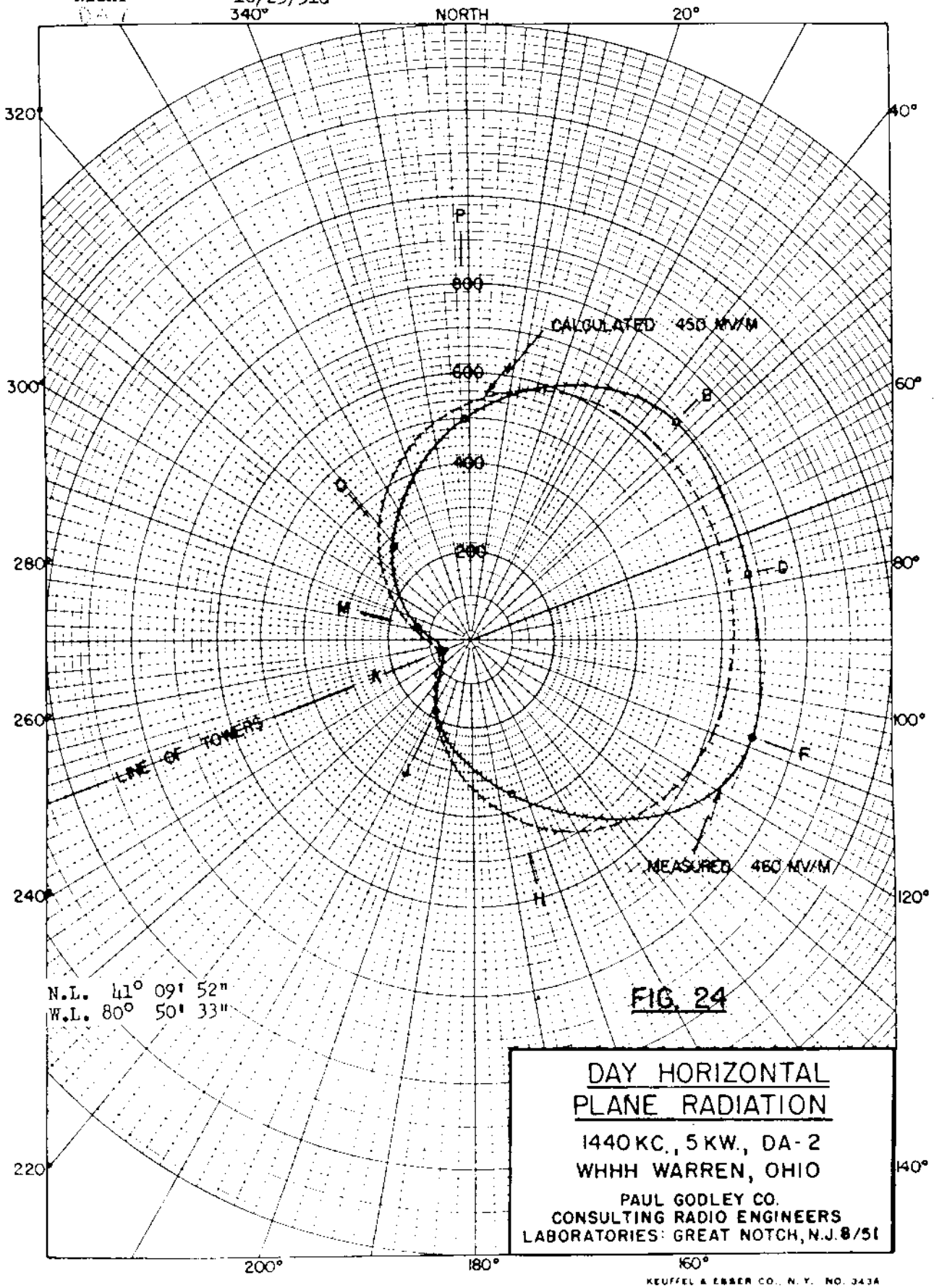
DAY HORIZONTAL PLANE RADIATION

WRRN, 1440 KC., 5 KW., DA-2
WARREN, OHIO

PAUL GODLEY CO.
CONSULTING RADIO ENGINEERS
LABORATORIES: GREAT NOTCH, N.J., 7/48

WHHH

MEASURED ~~NIGHT~~ WHHH, WARREN, OHIO 10/25/51G 5 KW, U, DA-2 1440 KC



APPL RECD 8/24/51 BZ-3328 WHHH, WARREN, OHIO 1440 KC

JUL 18 1975 BL3979

WHHH

Proposed Night
(2-28-62ct)

Station WHHH
Warren, Ohio

5kw,DA-2,U
1440 kc

2-9-62 granted CP to make change in night directional pattern.

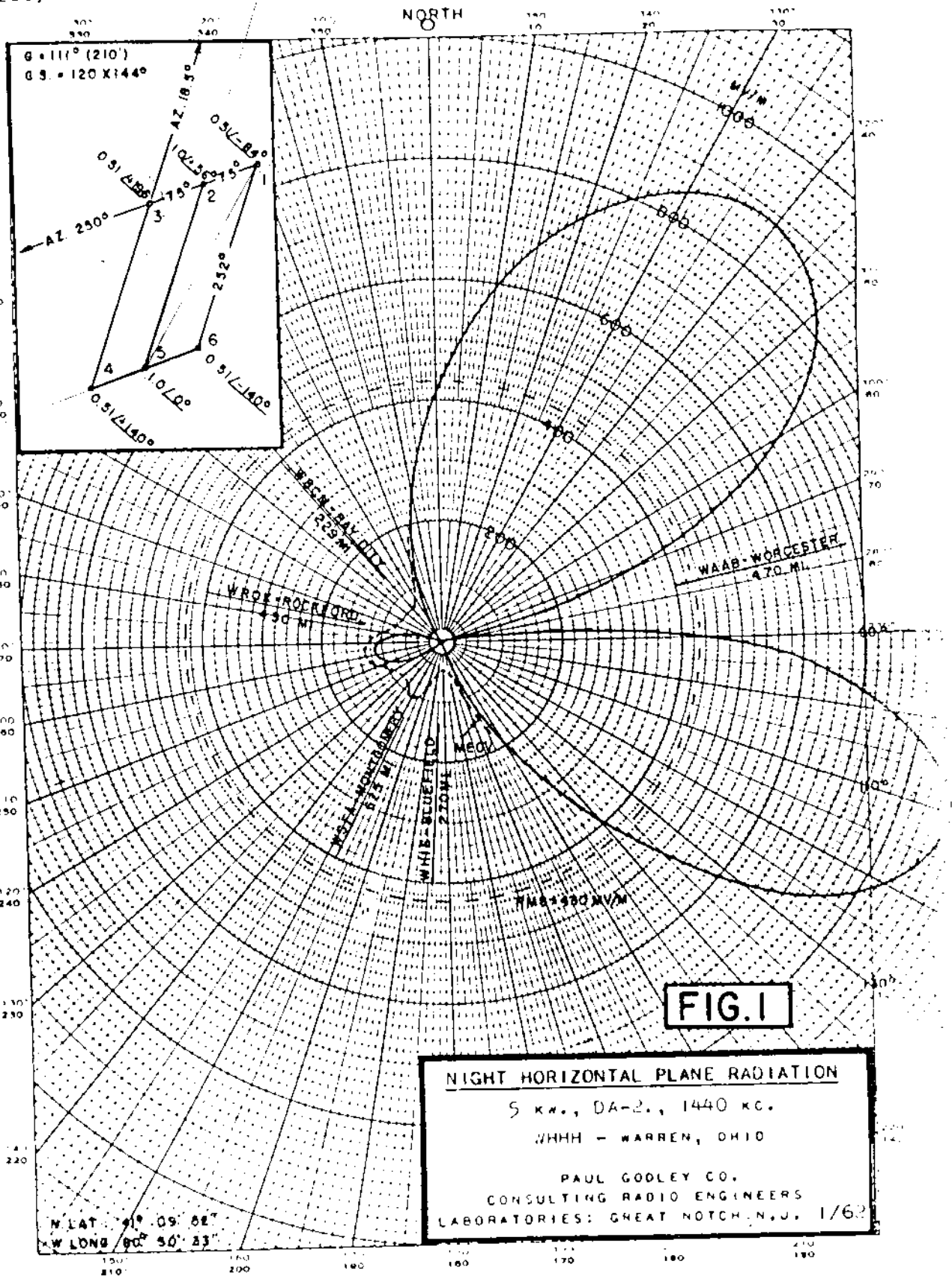


FIG. I

NIGHT HORIZONTAL PLANE RADIATION
5 KW., DA-2., 1440 KC.
WHHH - WARREN, OHIO

PAUL GODLEY CO.
CONSULTING RADIO ENGINEERS
LABORATORIES: GREAT NOTCH, N.J. 1/62

FCC File No.BP-15300
Accepted 1-22-62

Station WHHH
Warren, Ohio

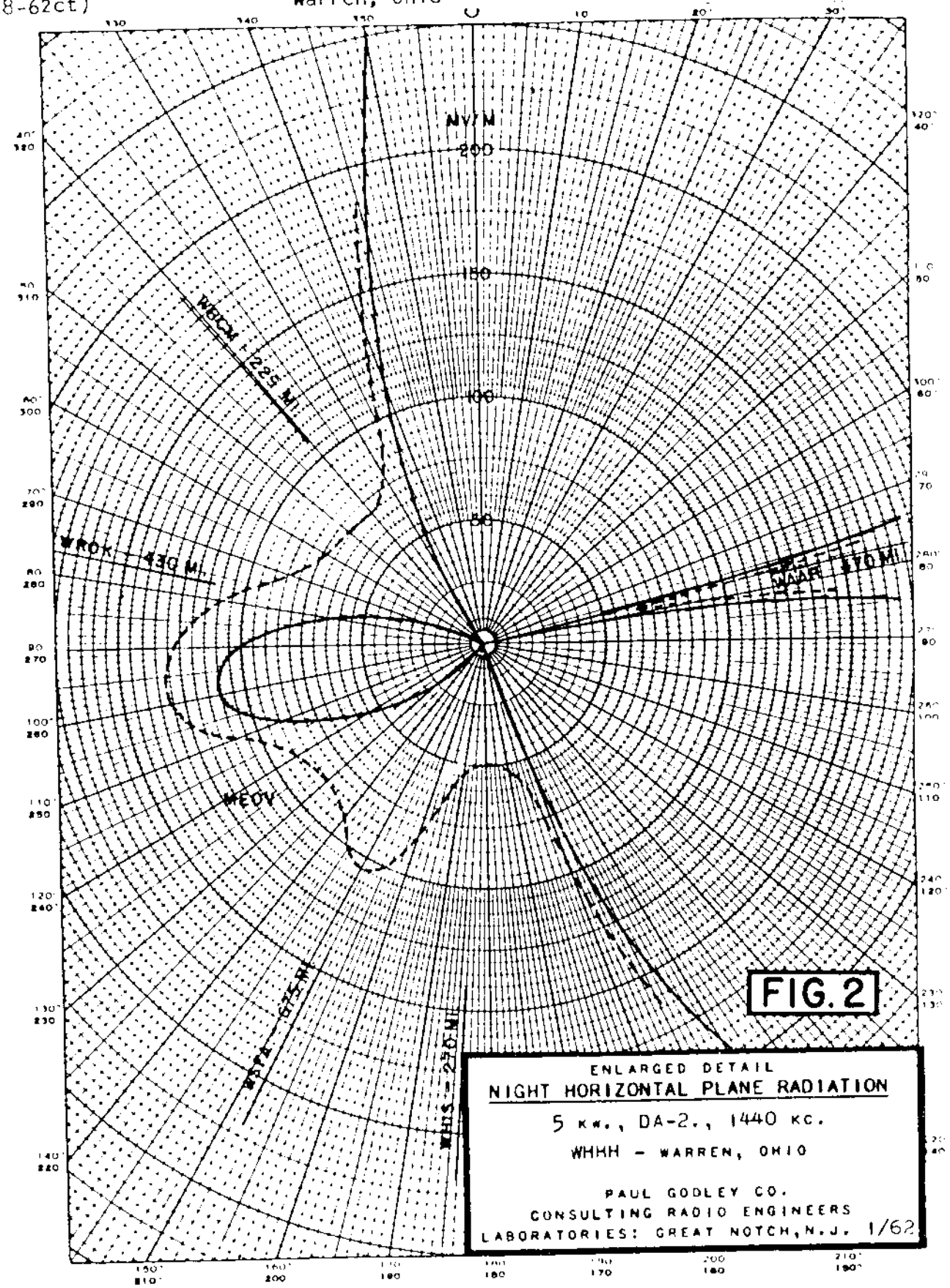
1440

WHHH

Proposed Night Nulls
(2-28-62ct)

Station WHHH
Warren, Ohio

5kw,DA-2,U
1440 kc



FCC File No.BP-15300
Accepted 1-22-62

Station WHHH
Warren, Ohio

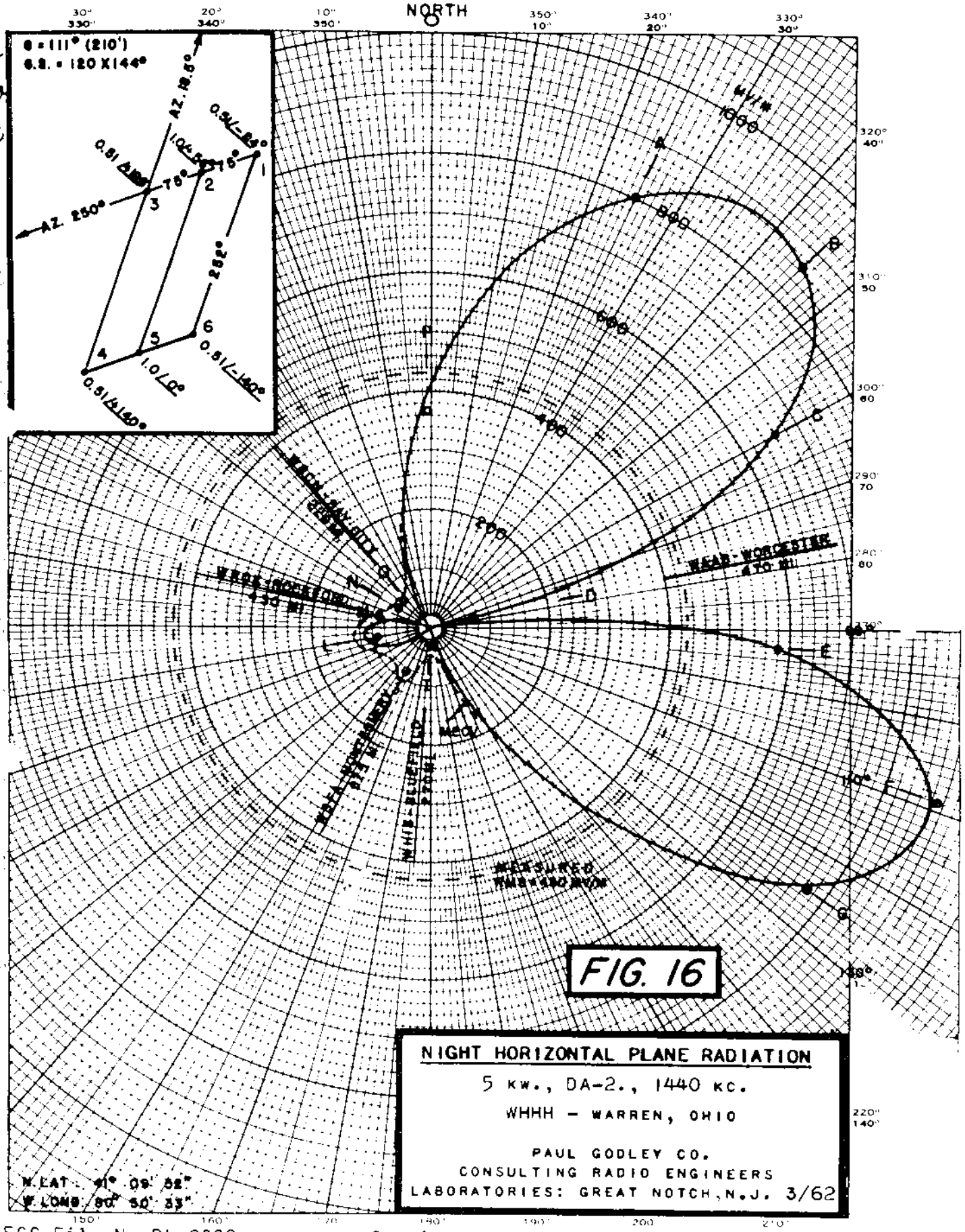
1440 kc

WHHH

Measured Night
(8-24-62ct)

Station WHHH
Warren, Ohio

5kw,DA-2,U
1440 kc



FCC File No.BL-9320
Accepted

Station WHHH
Warren, Ohio

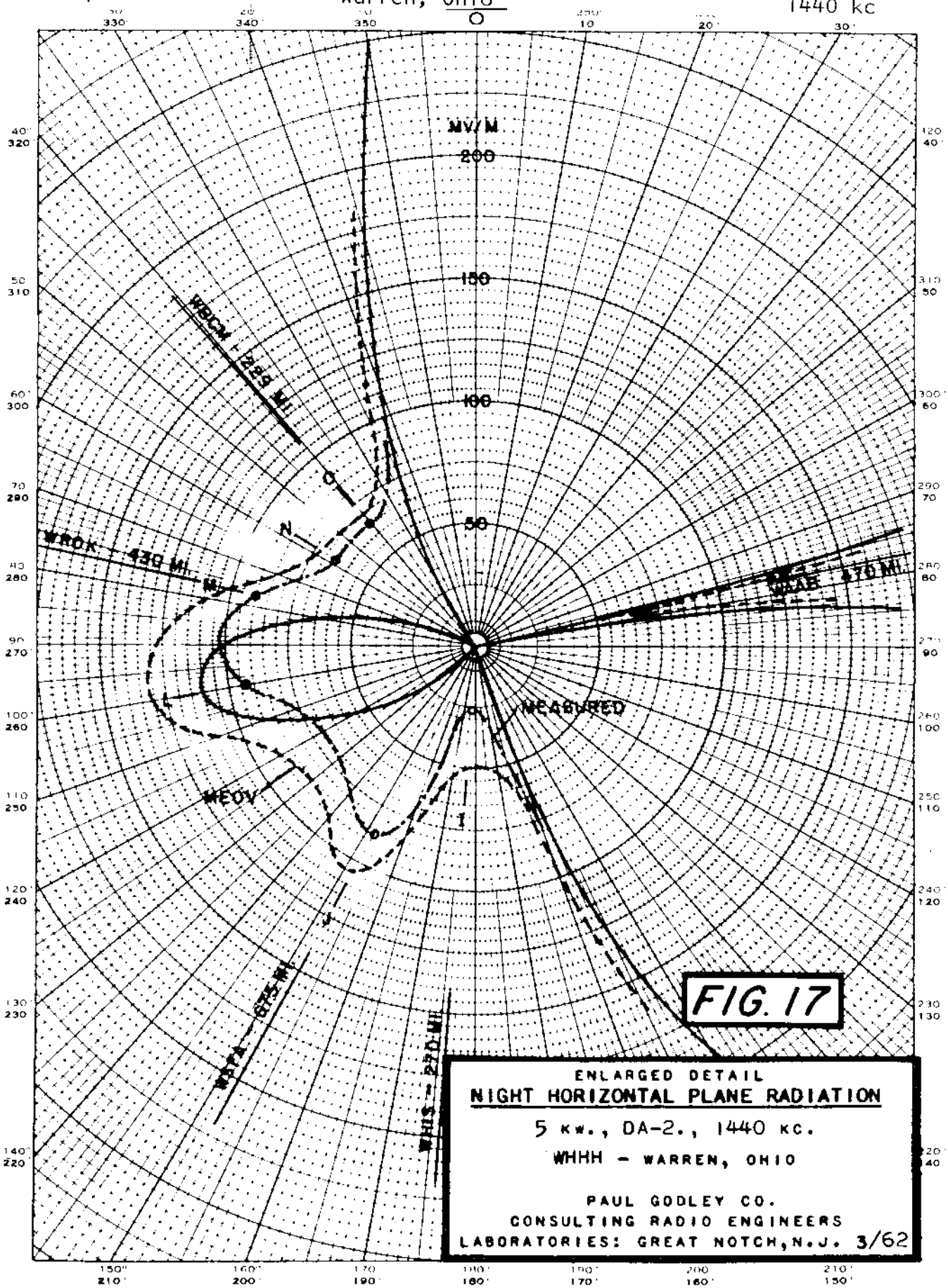
1440 kc

WHHH

Measured Night Nulls
(8-24-62ct)

Station WHHH
Warren, Ohio

5kw, DA-2, U
1440 kc



FCC File No. BL-9320
Accepted

Station WHHH
Warren, Ohio

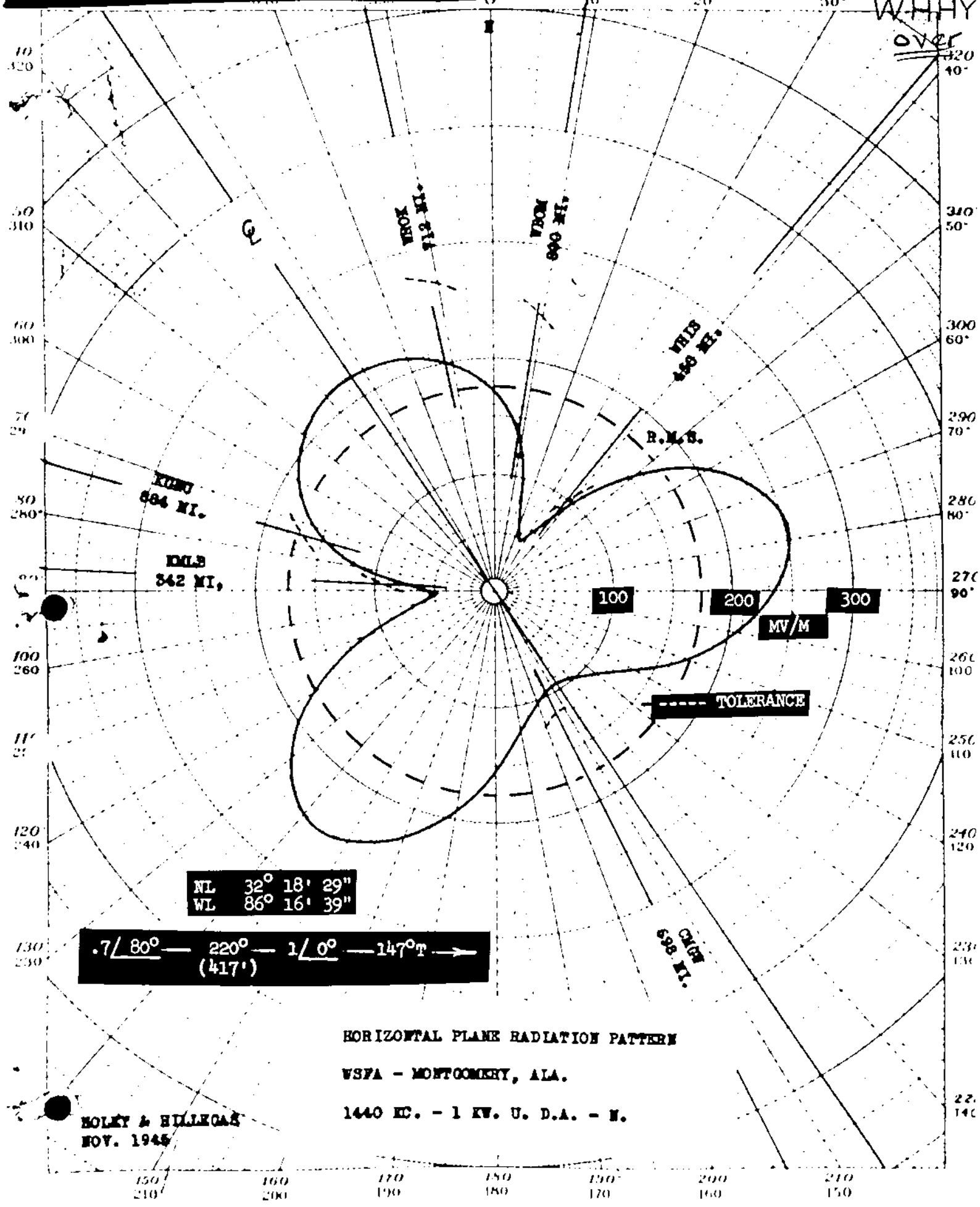
1440 kc

PROPOSED NIGHT

Station WHHY
Montgomery, Alabama

1440 KC

WHHY
over



HORIZONTAL PLANE RADIATION PATTERN

WSFA - MONTGOMERY, ALA.

1440 KC. - 1 KW. U. D.A. - N.

KOLKY & HILLEGAS
NOV. 1945

Prop Nite MONTGOMERY, ALABAMA

WHHY ~~WSFH~~

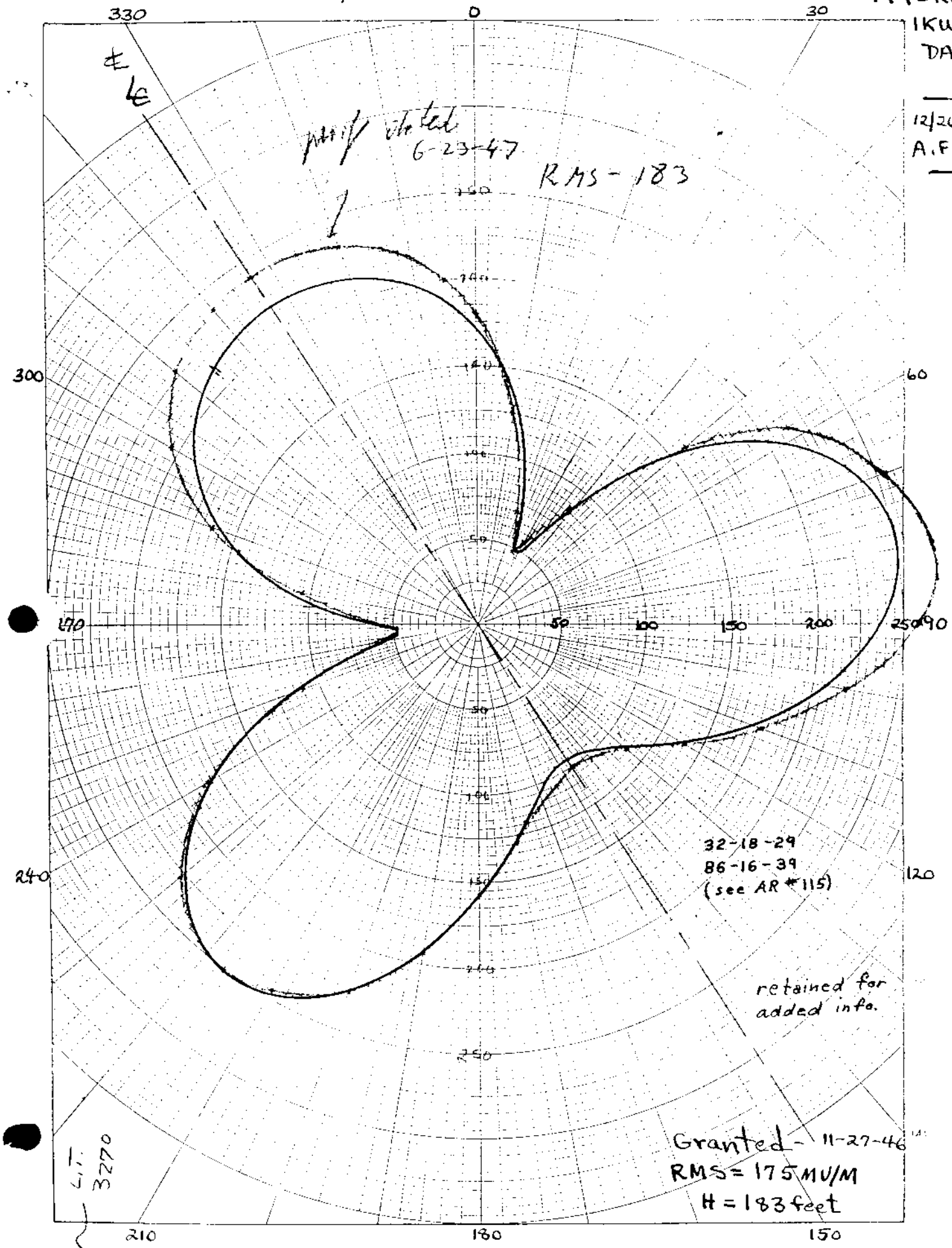
1440KC

1KW-U

DA-N

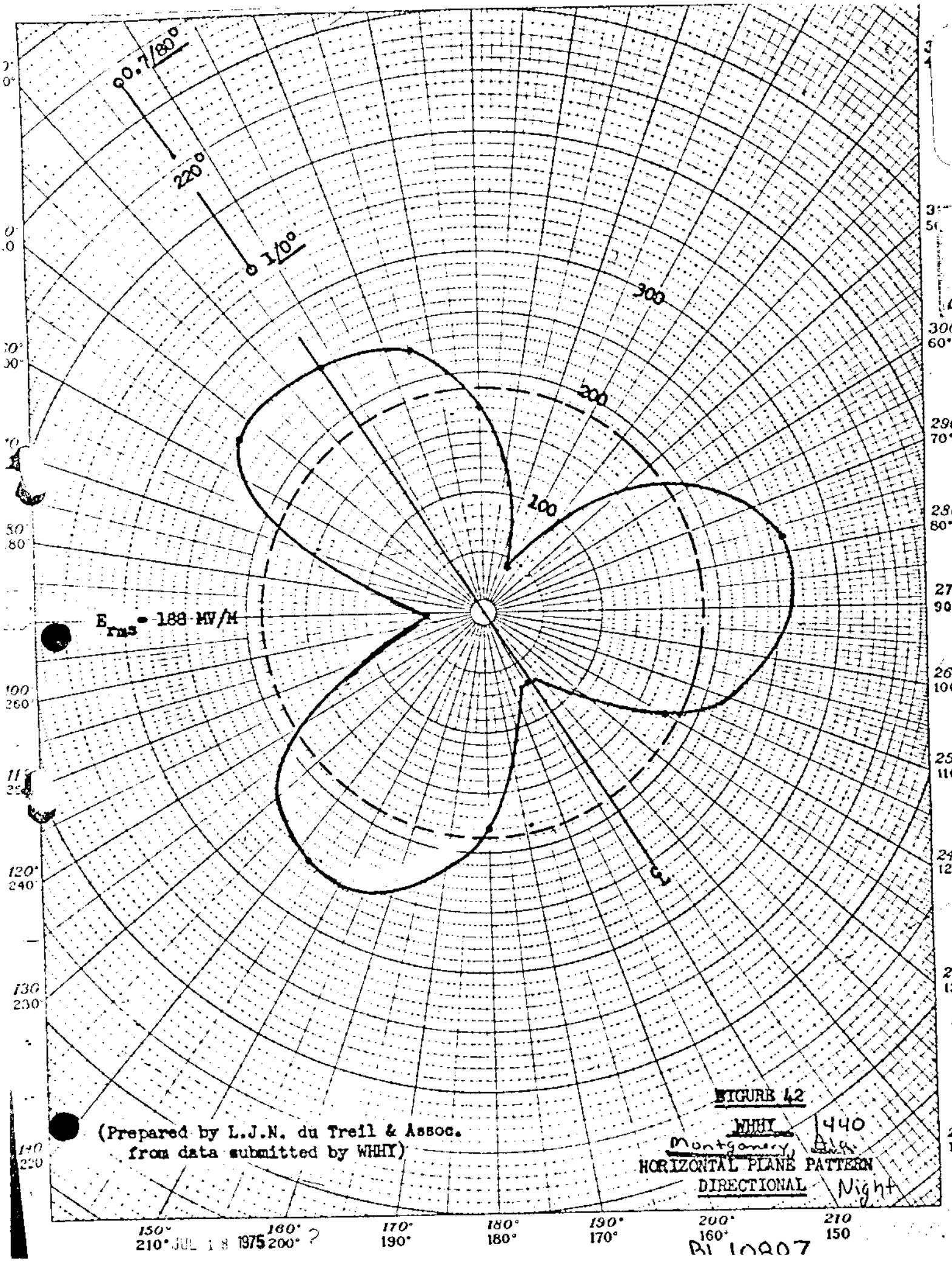
12/26/46

A.F.B.

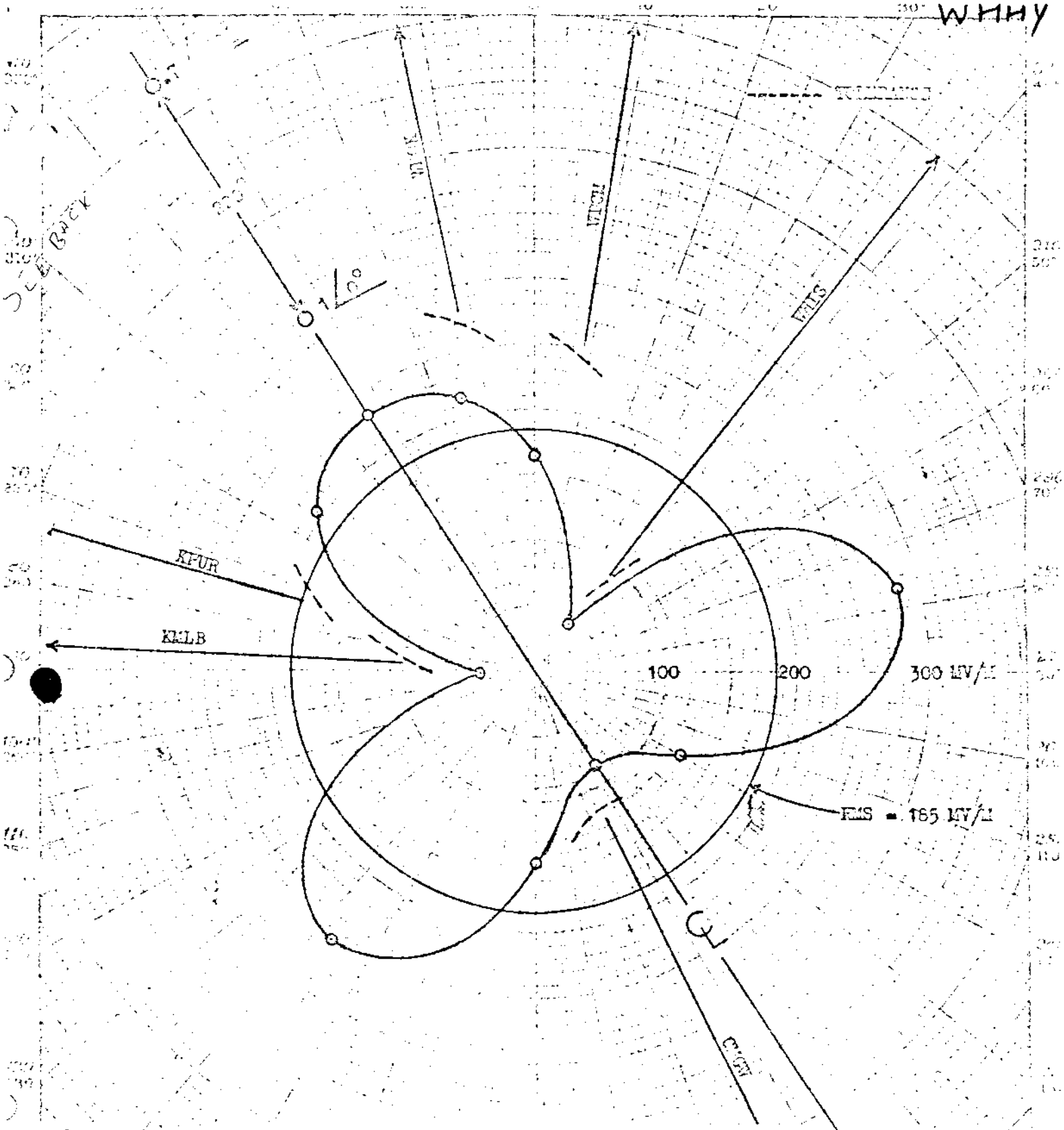


$E = 175\left[1.064 + \cos(220\cos A\cos V + 80)\right]^{1/2} \cdot f(V)$

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


0.7/80°
220°
1/0°
300
200
100
E_{rms} = 188 MV/M
(Prepared by L.J.N. du Treil & Assoc.
from data submitted by WHHY)
FIGURE 42
WHHY 440
Montgomery, Ala.
HORIZONTAL PLANE PATTERN
DIRECTIONAL Night
150° 210°
160° 200°
170° 190°
180° 180°
190° 170°
200° 160°
210 150
300 60°
290 70°
280 80°
270 90°
260 100
250 110
240 120
230 130
JUL 18 1975
BL 10807

WHHY



MEASURED HORIZONTAL PLANE RADIATION PATTERN

WHHY - MONTGOMERY, ALA.
1440 Khz 1 KW-U DA-N
BY

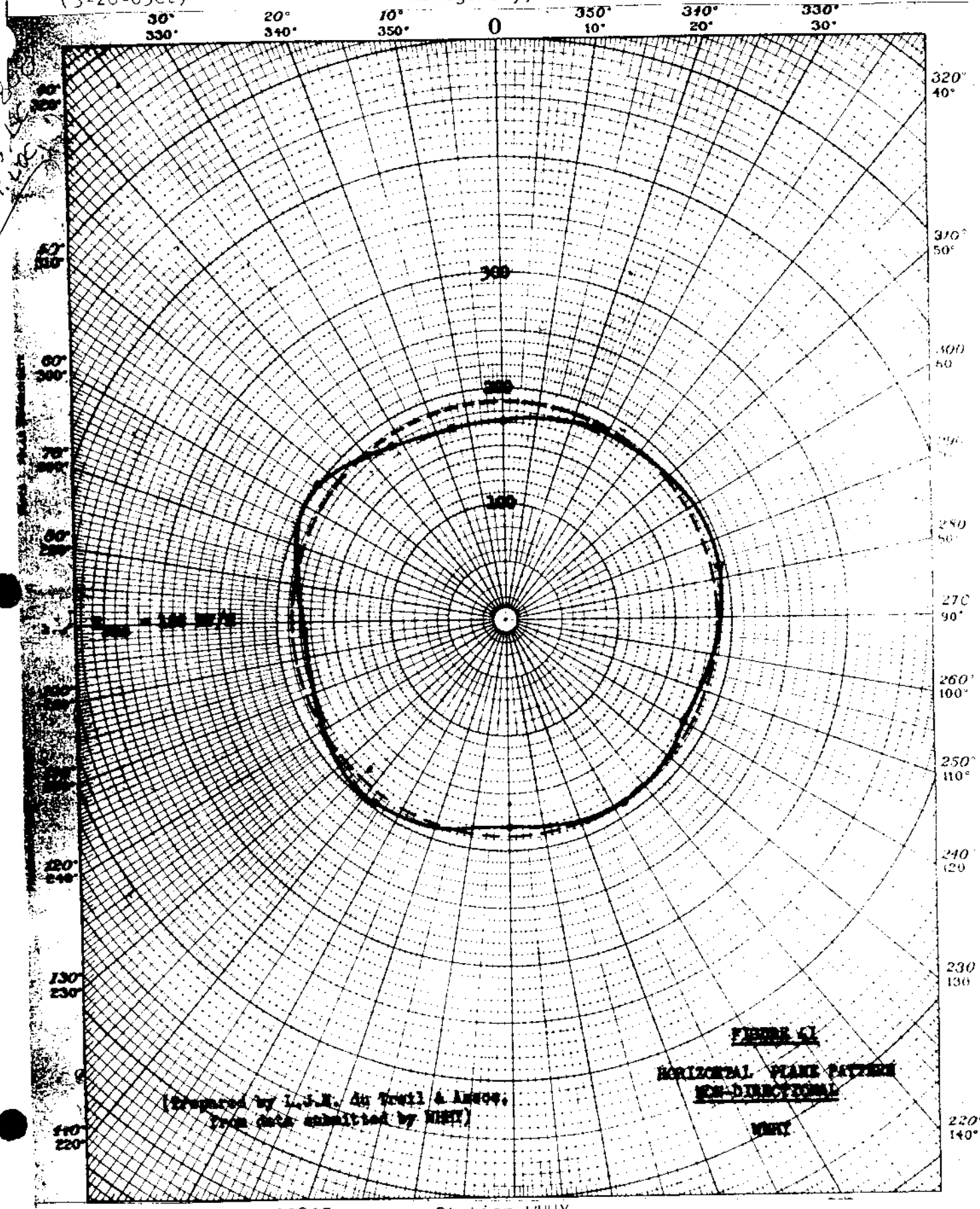
Dwight M. Cleveland
October, 1971

WHHY

Measured Non-DA
(3-26-65ct)

Station WHHY
Montgomery, Alabama

1kw,5kw-LS,DA-N,U
1440 kc



FCC File No. BL-10807
Accepted 3-17-65

Station WHHY
Montgomery, Alabama

1440 kc

for granted license 10/9/54
from .5-Mon DA-N
to 5 DA-N

MEASURED DAY (non-DA)

WHIS, BLUEFIELD, W. VA.

2/8/49

License 2-2-49

5kw, DAN

1440 kc

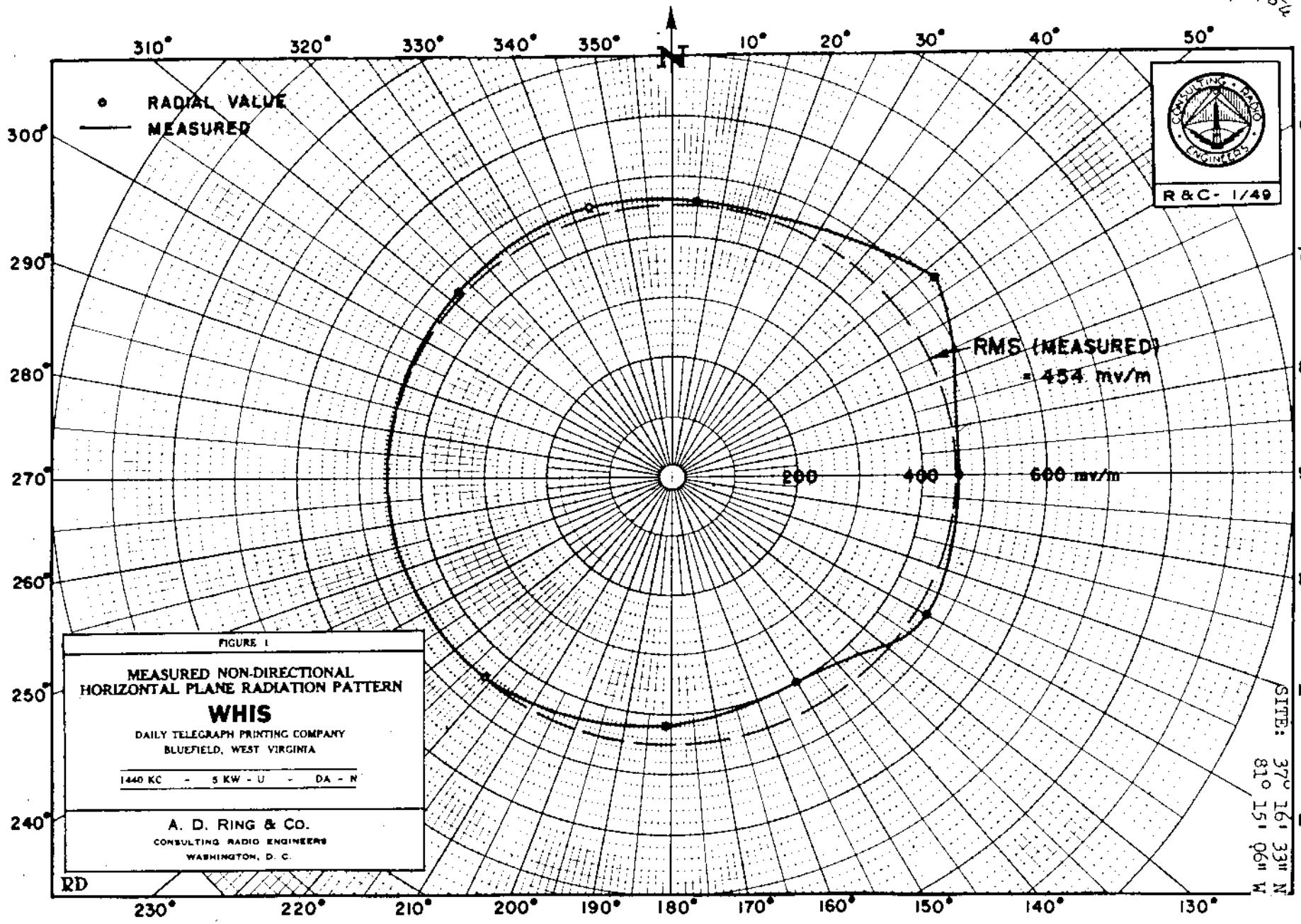


FIGURE 1

MEASURED NON-DIRECTIONAL
HORIZONTAL PLANE RADIATION PATTERN

WHIS

DAILY TELEGRAPH PRINTING COMPANY
BLUEFIELD, WEST VIRGINIA

1440 KC - 5 KW - U - DA - N

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

WHIS

WJBQ

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WJBQ

Main Studio: Westbrook, Maine

Frequency: 1440 kHz

Power: 5kw Night 5kw Day

Notification List No. 1775

Date: May 31, 1978 Class: III

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

DAYTIME		NIGHTTIME	
North Latitude:	43° 41' 16"	North Latitude:	43° 40' 51"
West Longitude:	70° 19' 24"	West Longitude:	70° 23' 06"

DAYTIME ANTENNA CHARACTERISTICS

Authorized for Daytime operation (ND-D-191)
Number of elements: 1
Type of elements: Series excited, uniform cross-section, guyed, vertical steel towers.

HEIGHT ABOVE INSULATORS: 175' (92.2°)

GROUND SYSTEM: 120 - 175' equally spaced copper radials plus a 24' square ground screen 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, Shunt excited, self supporting, tapered, vertical steel towers.

TOWER:	SW(#3)	C(#2)	NE(#1)
HEIGHT ABOVE INSULATORS:	171'	171'	171' (90.1°)
NIGHT PHASING:	+208°	+104°	1.000
NIGHT FIELD RATIO:	1.877	2.690	

SPACING AND ORIENTATION: Adjacent towers in a row are spaced 189.67' (99.97°) on a line bearing 256° true.

GROUND SYSTEM: 120 - 171' equatly spaced copper radials plus a 48' square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

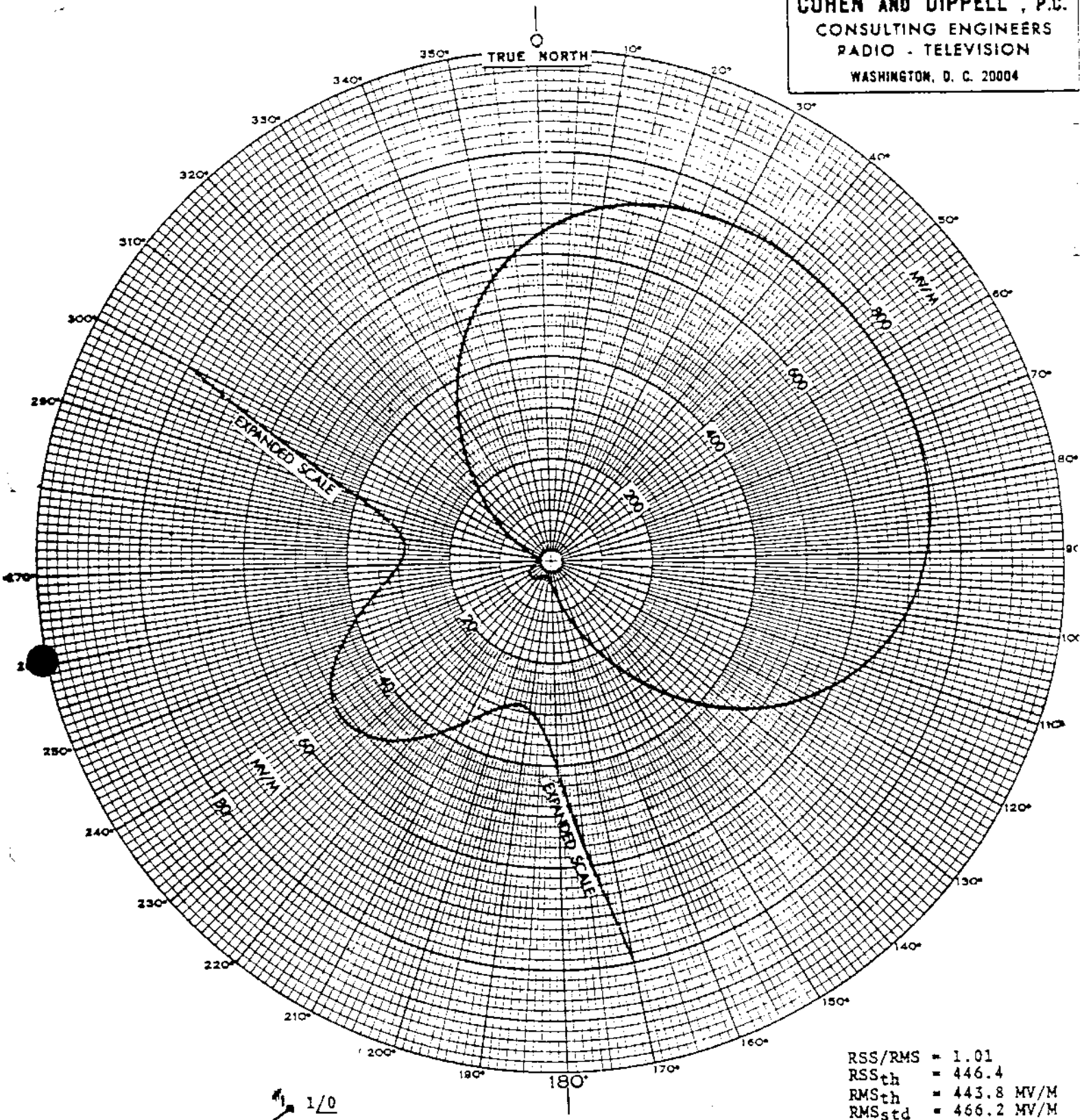
	THEORETICAL		STANDARD
	RMS	RSS	RMS
Night	443.8 mv/m	446.4 mv/m	466.2 mv/m

Note: This notification concerns only an addition of the Nighttime operation of the station at a new nighttime directional antenna site, with Daytime operation continued as previously notified.

- 0 -

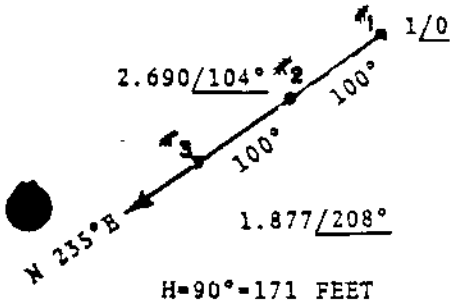
WJBQ

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



RSS/RMS = 1.01
RSS_{th} = 446.4
RMS_{th} = 443.8 MV/M
RMS_{std} = 466.2 MV/M

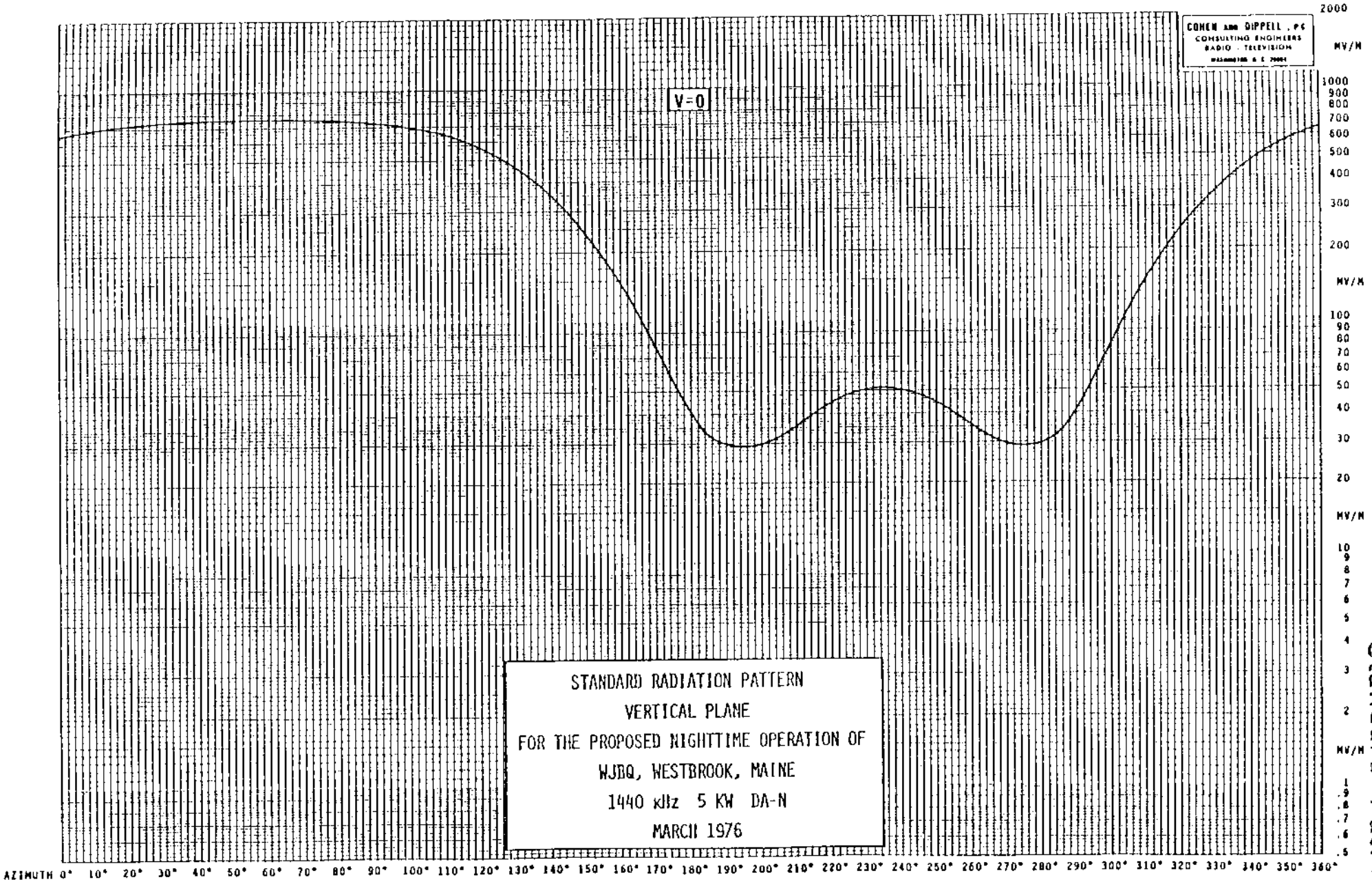
N. LAT: 43° 40' 51"
W. LONG: 70° 23' 06"



H=90°=171 FEET
100°=189.67 FEET

STANDARD RADIATION PATTERN
HORIZONTAL PLANE
FOR THE PROPOSED NIGHTTIME OPERATION OF
WJBQ, WESTBROOK, MAINE
1440 kHz 5 KW DA-N

Standard Pattern



STANDARD RADIATION PATTERN
VERTICAL PLANE
FOR THE PROPOSED NIGHTTIME OPERATION OF
WJBQ, WESTBROOK, MAINE
1440 kHz 5 KW DA-N
MARCH 1976

WJBQ

WKHJ

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station : WKHJ

Main Studio: Holly Hill, South Carolina

Frequency : 1440 KHz

Power : 1 KW Night 1 KW Day

Notification List No.: 1779

Date : Sept 27, 1978

Class: III

GEORGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 33° 20' 23"
West Longitude: 80° 26' 18"

Predicted Daytime effectiee Field at rated power: 186 $\frac{mv}{m}$

ANTENNA CHARACTERISTICS

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

TOWER:	West(#3)	Center(#2)	East(#1)
HEIGHT ABOVE INSULATORS	190'	150'(79°)	114'(60°)
PHASING:	+138°	0°	-154°
FIELD RATIO:	0.574	1.0	0.563

SPACING AND ORIENTATION: Adjacent towers in a row are spaced 171'(90°) on a line bearing 107° true.

GROUND SYSTEM: 120- 170' equally spaced copper radials about the West and east towers. 120-200' equally spaced copper radials about the center tower. A 24' square ground screen at the base of each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

WKHJ

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

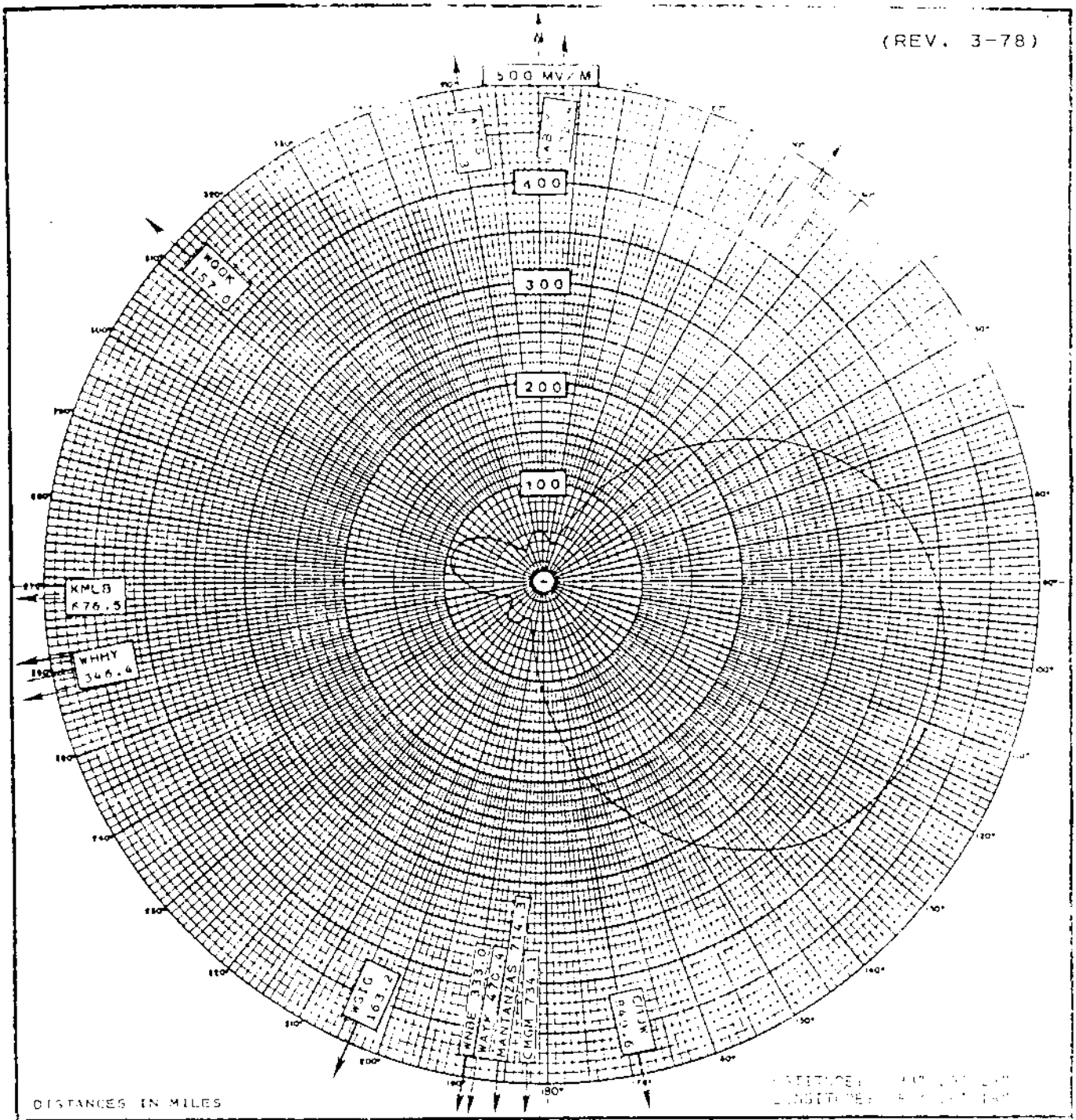
	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
NIGHT	200.414 mv/m	309.073 mv/m	210.435 mv/m

NOTE: This notification concerns only a change in the addition of Nighttime operation of the station with Daytime operation continued as previously notified.

CTR NO

WKHJ

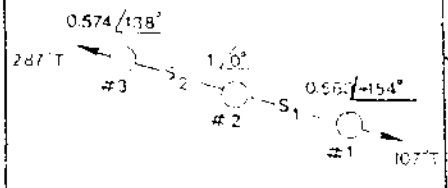
(REV. 3-78)



LBA

LAWRENCE BEHR ASSOCIATES INC
GREENVILLE N.Y. 12083

ANTENNA PARAMETERS



$G_1 = 50°$
$G_2 = 79°$
$G_3 = 100°$ $S_1 = S_2 = 90°$

FIGURE 3A
PROPOSED STANDARD NIGHTTIME
HORIZONTAL PATTERN

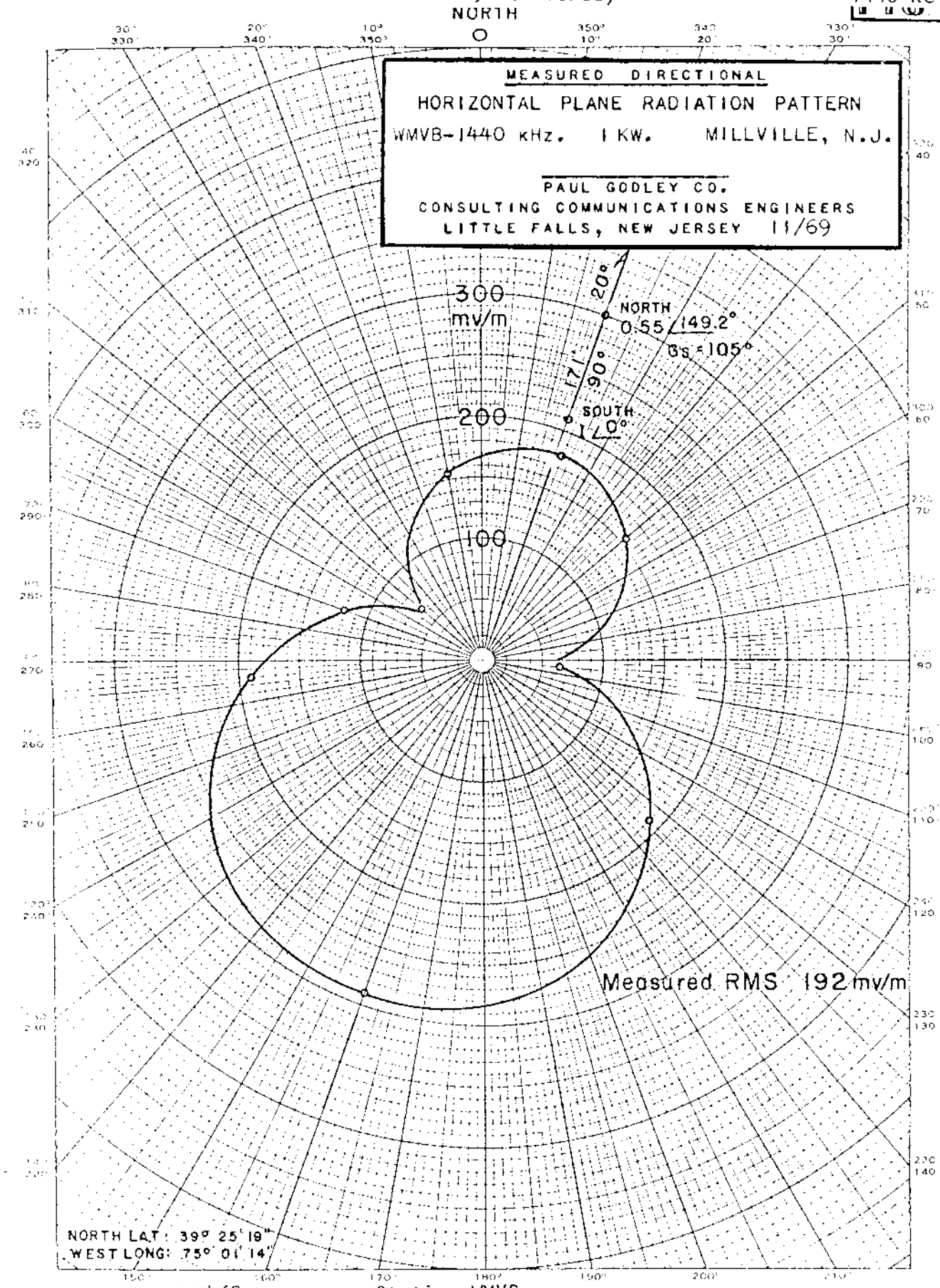
1340 KHZ, 1 KW, DA-N

WMVB

Measured Day
(4-29-70ct)

Station WMVB
Millville, New Jersey

1kw, DA-D, D
1440 kc



FCC File No. BZ-7468
Accepted 4-9-70

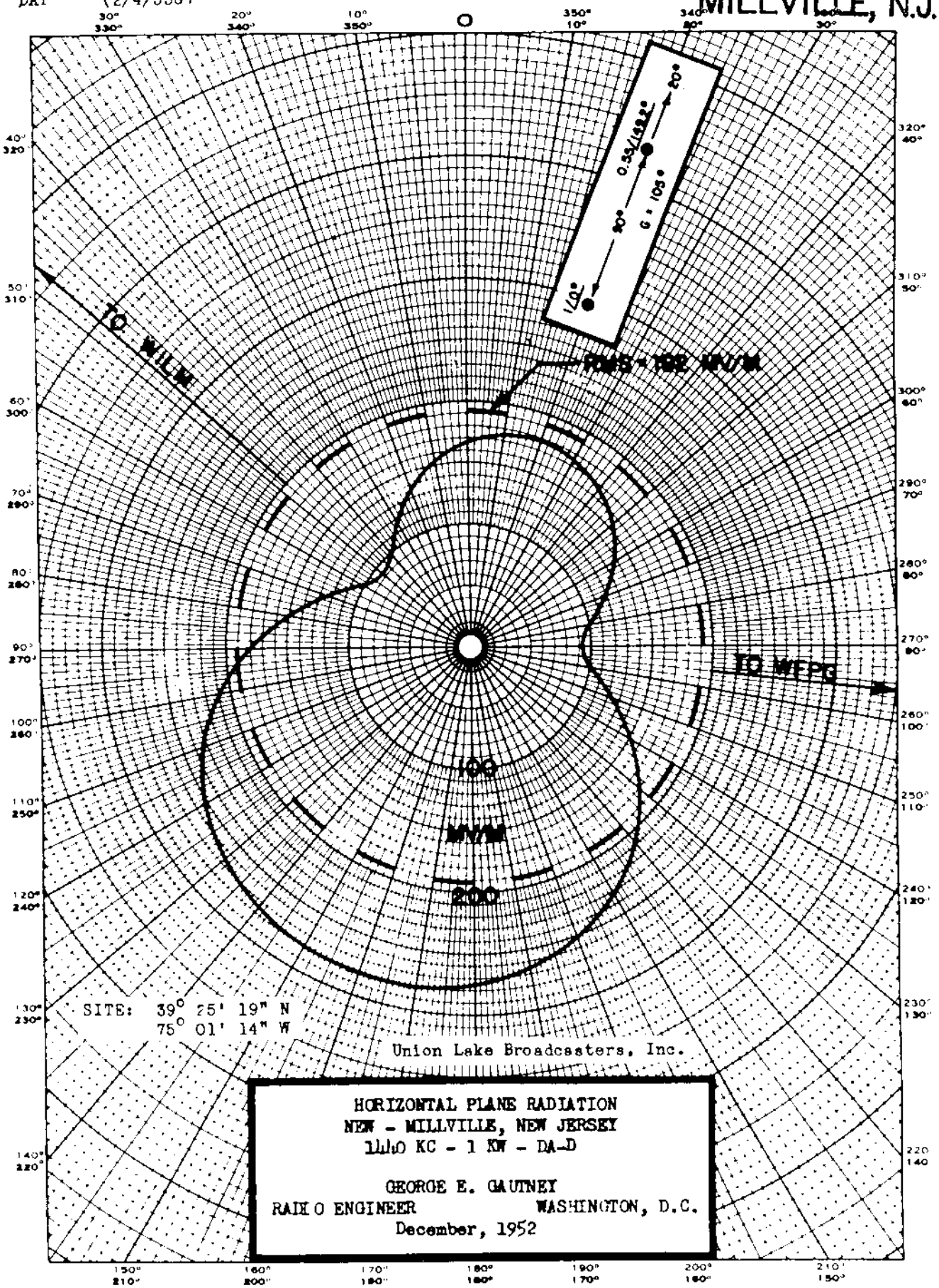
Station WMVB
Millville, New Jersey

1440 kc

WMVB

PROPOSED NEW, MILLVILLE, N. J. 1kw, D, DA-D 1440 kc
DAY (2/4/53G)

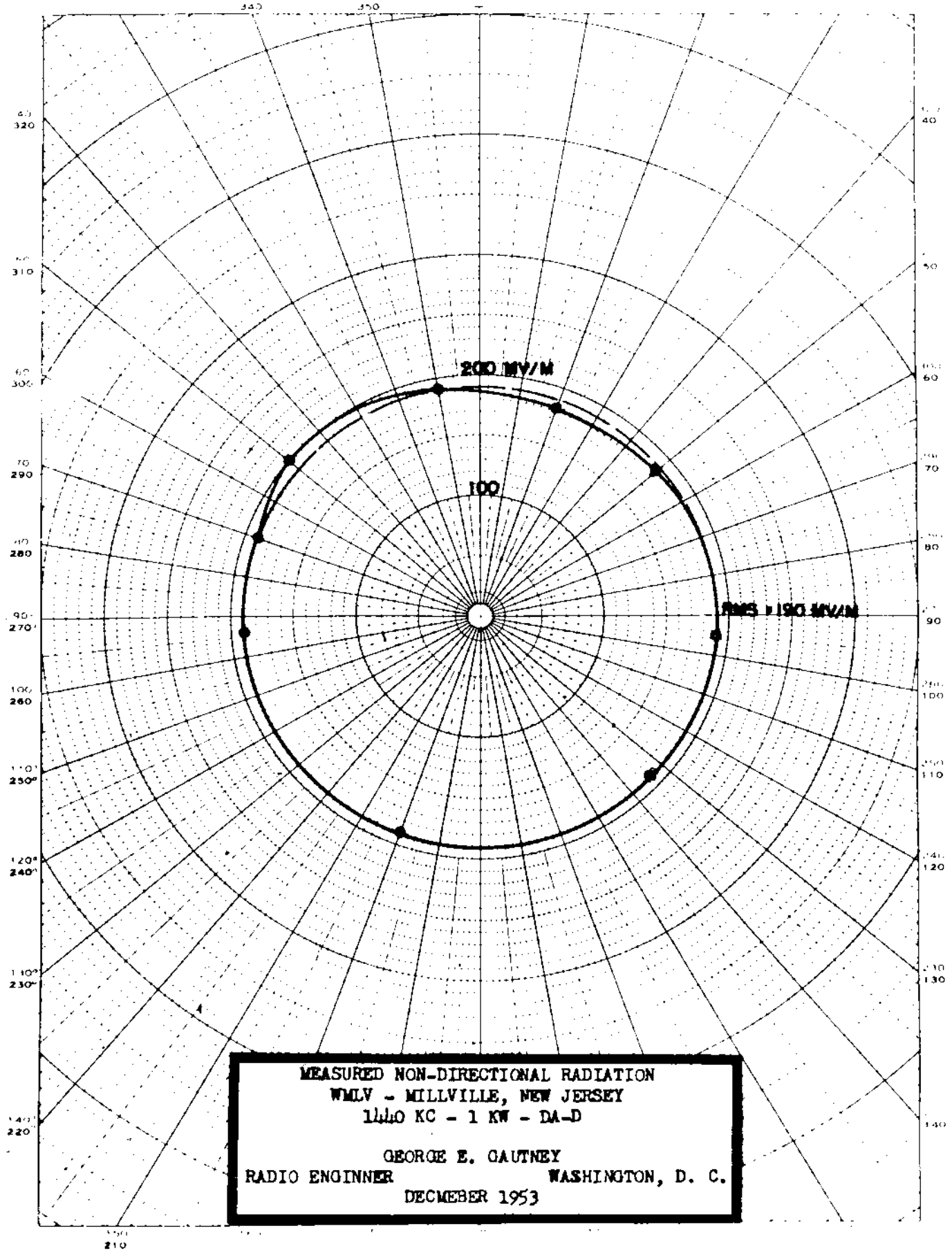
MILLVILLE, N.J.



FCC File No. BP-8725 Date Recd 1/9/53 NEW, Millville, N. J. 1440 kc

WMVB ~~WMEV~~

MEASURED WMLV, Millville, New Jersey 1KW, D, DA-D 1440 kc
NON-DA (5/4/54G)



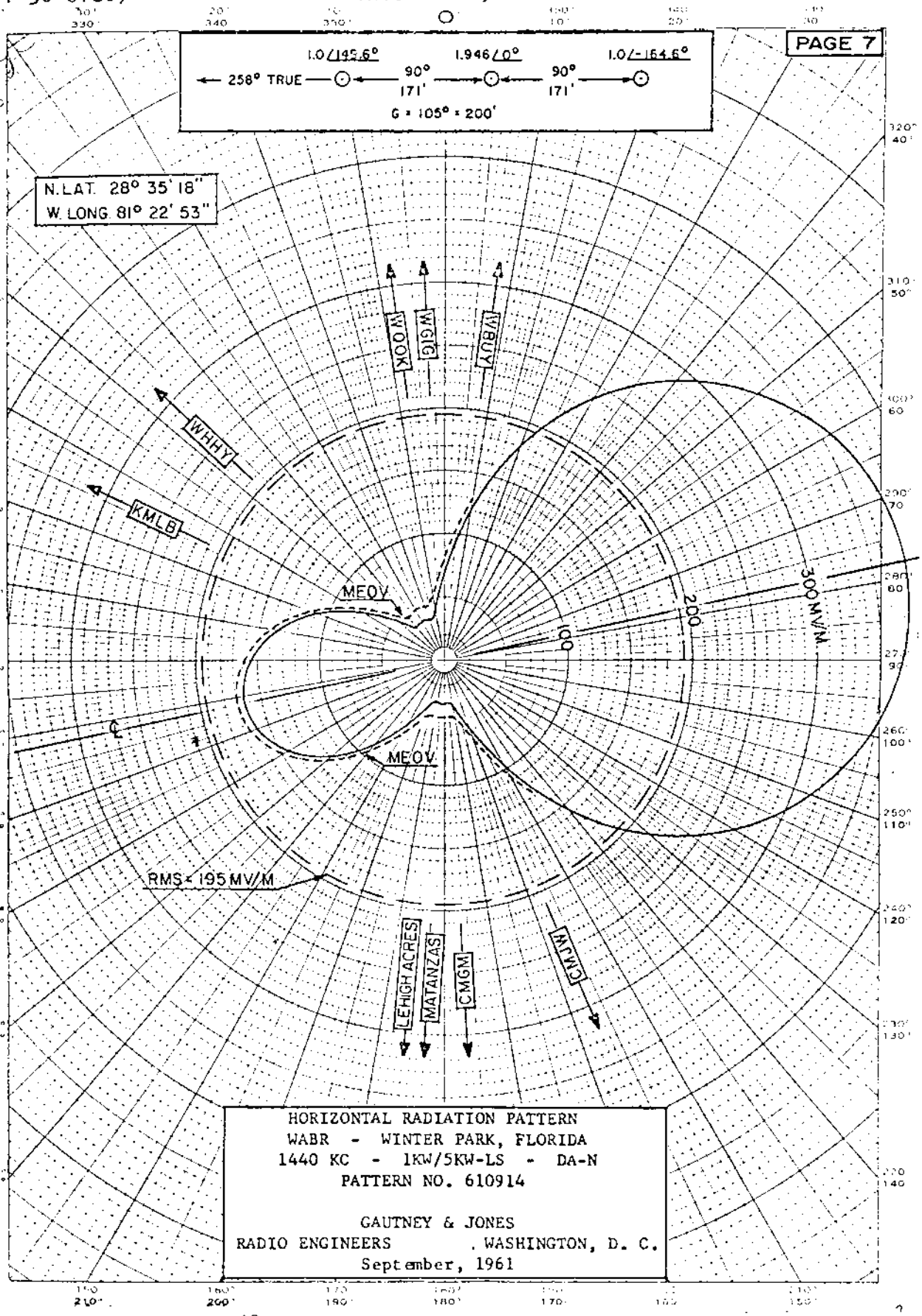
FCC File No. BL-5193 WMLV, Millville, New Jersey 1440 kc

1976 ~~WBJW~~ WNBE

Proposed Night
(11-30-61ct)

Station WABR
Winter Park, Florida

1kw,5kw-LS,DA-N,U
1440 kc



HORIZONTAL RADIATION PATTERN
WABR - WINTER PARK, FLORIDA
1440 KC - 1KW/5KW-LS - DA-N
PATTERN NO. 610914

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

FCC File No.BP-15168
Accepted 11-9-61-

Station WABR
Winter Park, Florida

1440 kc

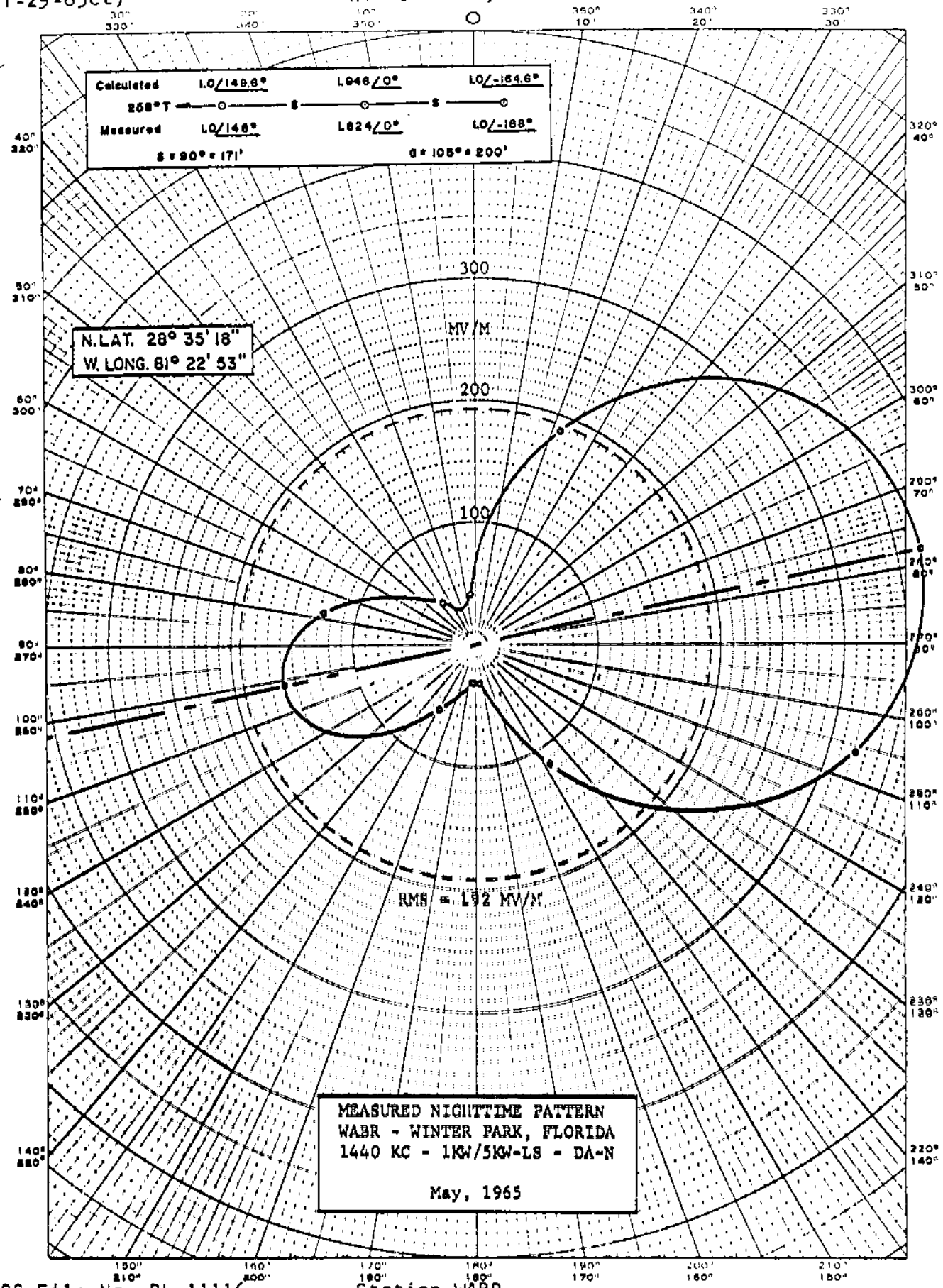
WNBE! -

Measured Night
(11-29-65ct)

Station WABR
Winter Park, Florida

1kw, 5kw-LS, DA-N, U
1440 kc

-IC 3-28-66



FCC File No. BL-11116
Accepted 11-8-65

Station WABR
Winter Park, Florida

1440 kc

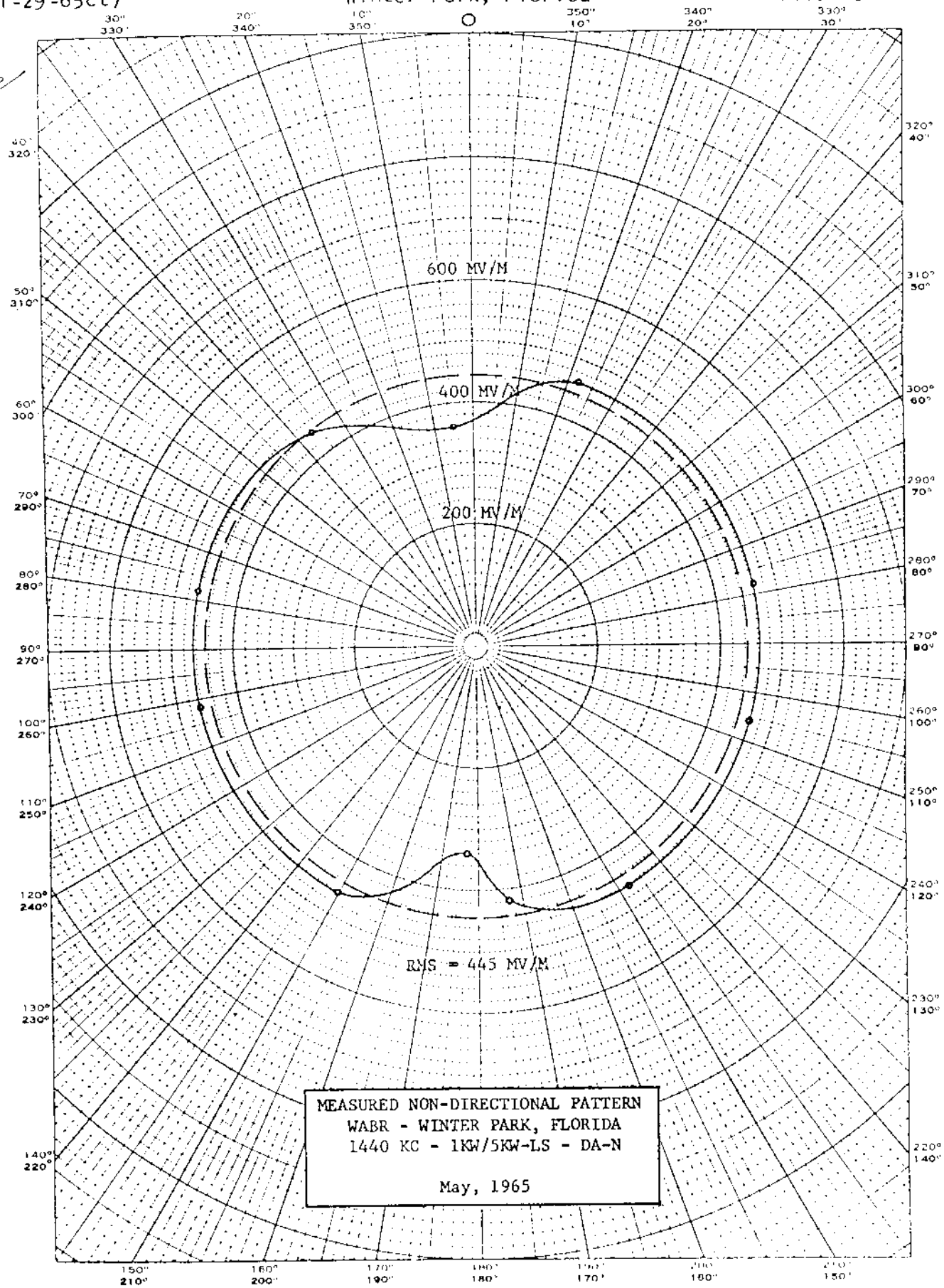
WNBE

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

Station WABR
Winter Park, Florida

1kw,5... ...A-N,U
1440 kc

.IC - 3-28-66



FCC File No. BL-11116
Accepted 11-8-65

Station WABR
Winter Park, Florida

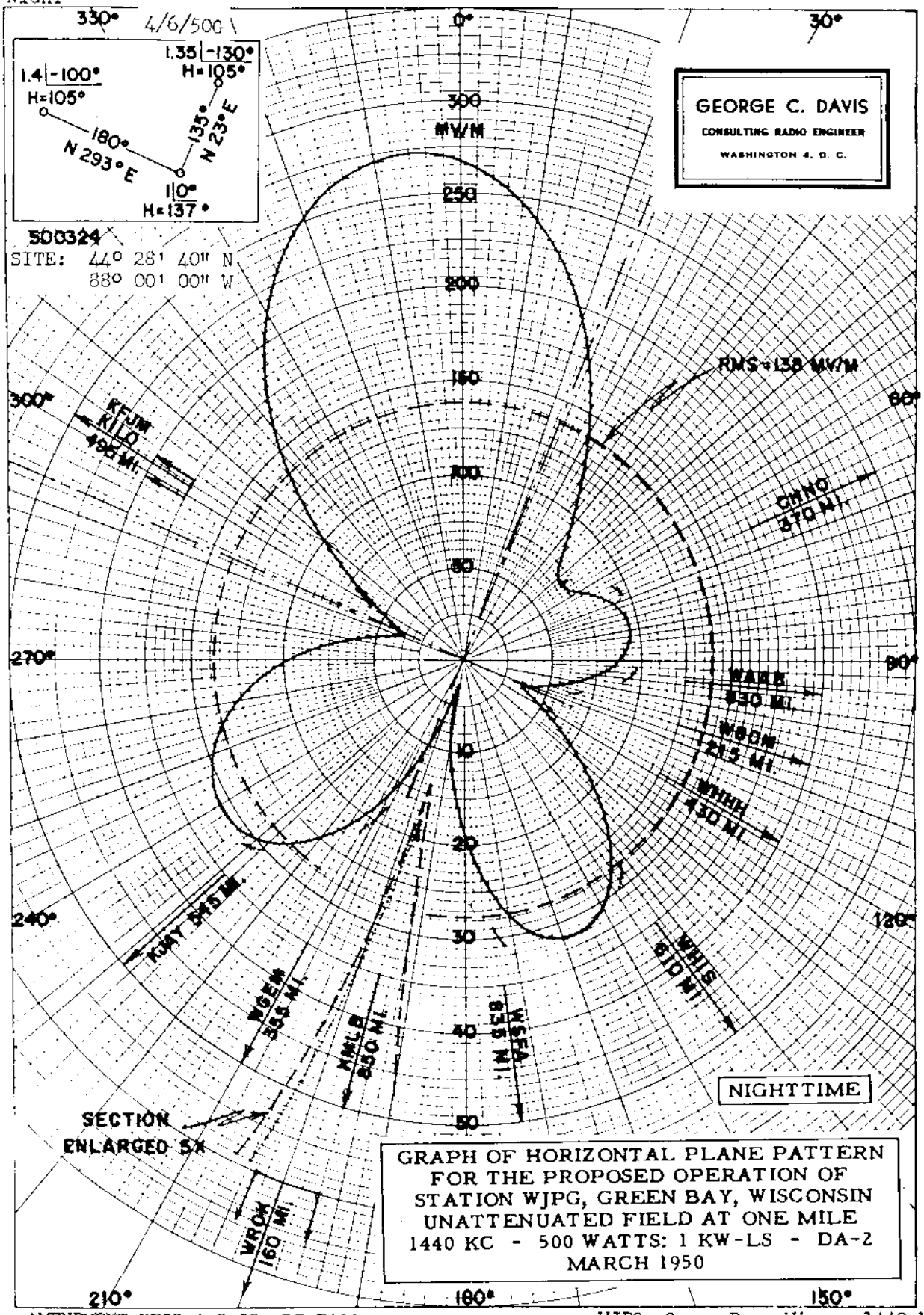
1440 kc

WNFL ~~WJPG~~

PROPOSED NIGHT

WJPG, GREEN BAY, WISC.

500w,1kw-LS,DA-2 1440 kc

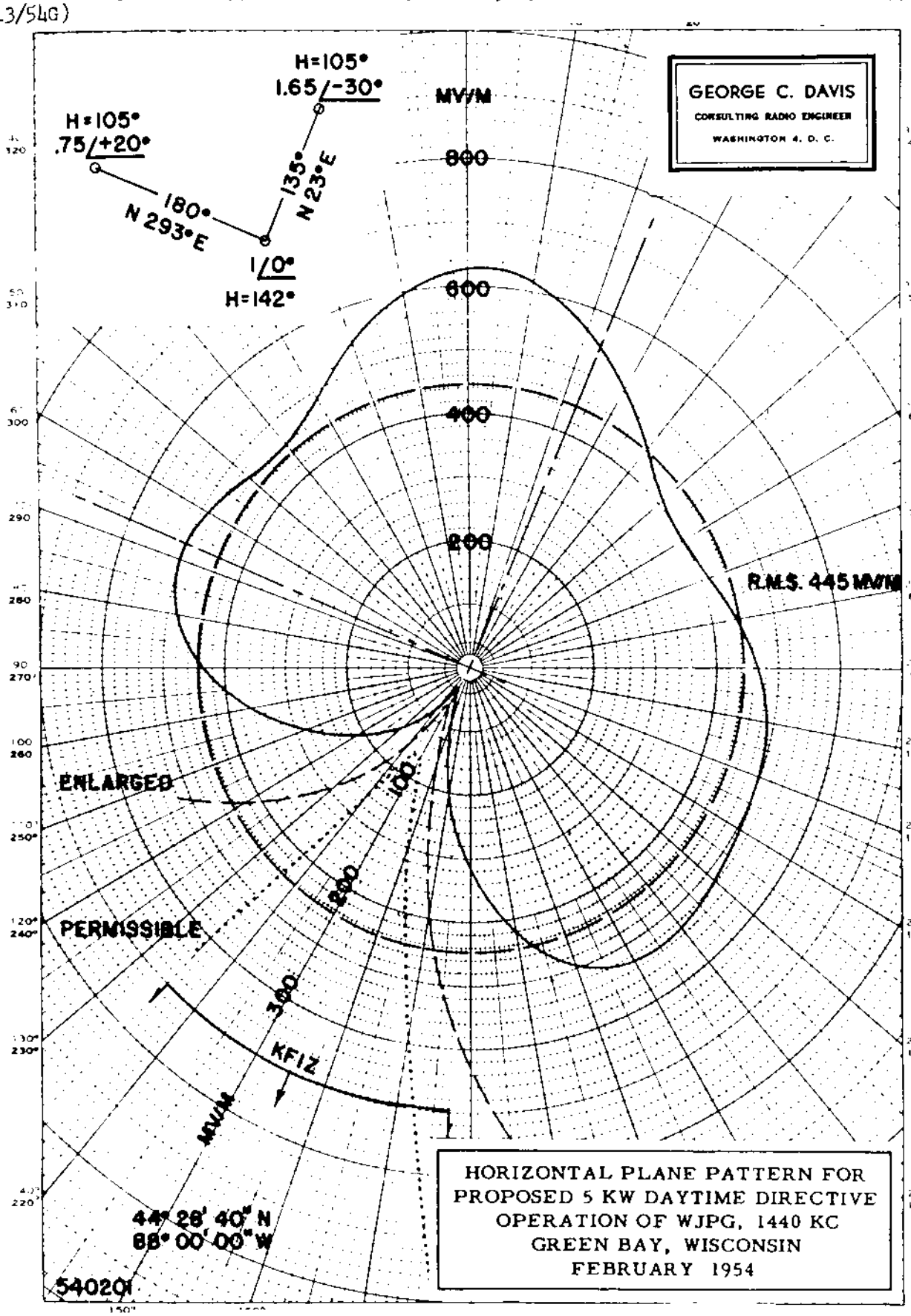


AMENDMENT RECD 4-3-50 BP-7422

WJPG, Green Bay, Wisc. 1440 kc

WNFL ~~WJPG~~

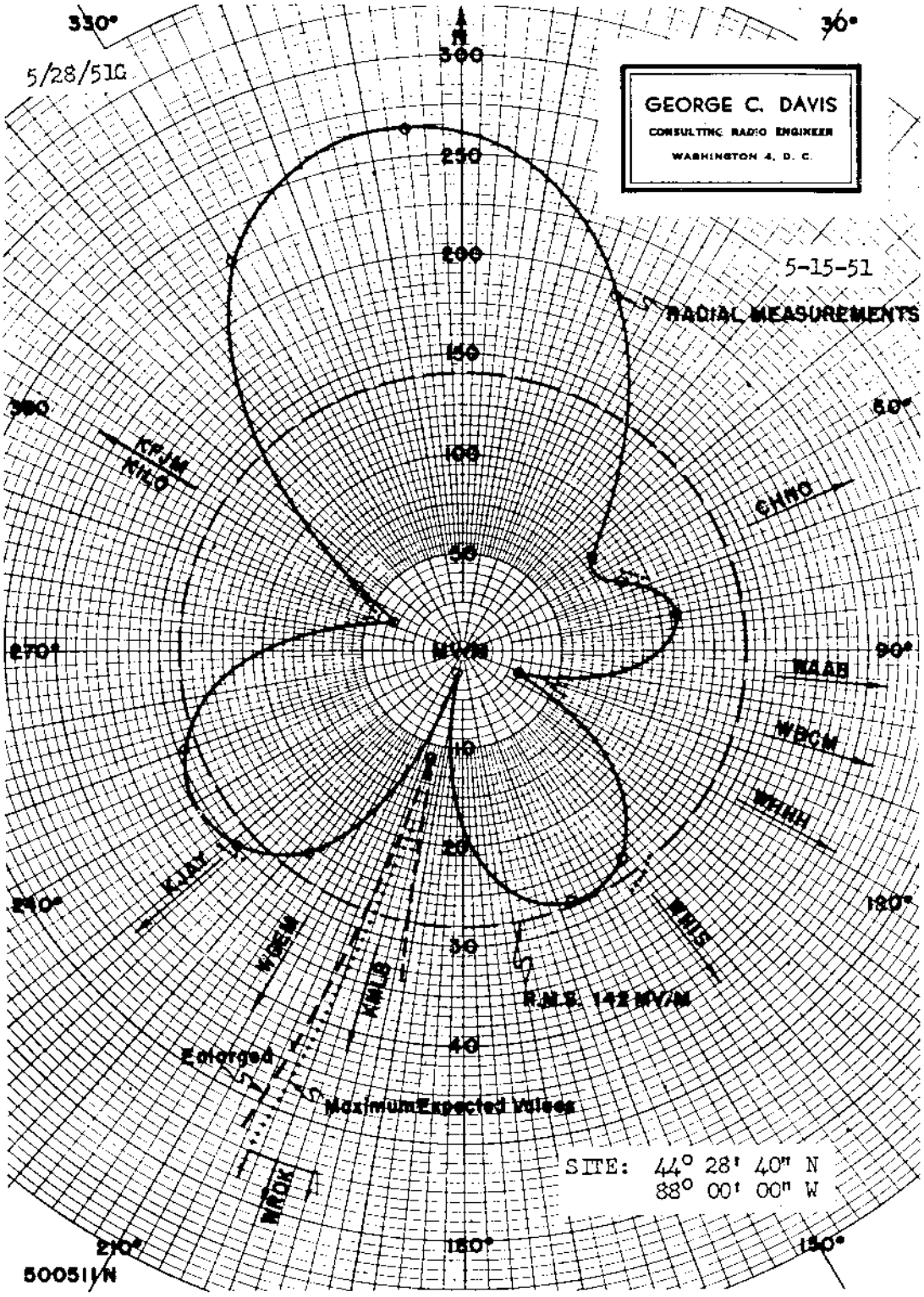
PROPOSED WJPG, Green Bay, Wisc. 500W, 5KW-LS, U, DA-2 1440 kc
DAY (7/13/54G)



FCC File No. BL-5339 Accepted 6/24/54 WJPG, Green Bay, Wisc. 1440 kc

WNFL ~~WJPG~~

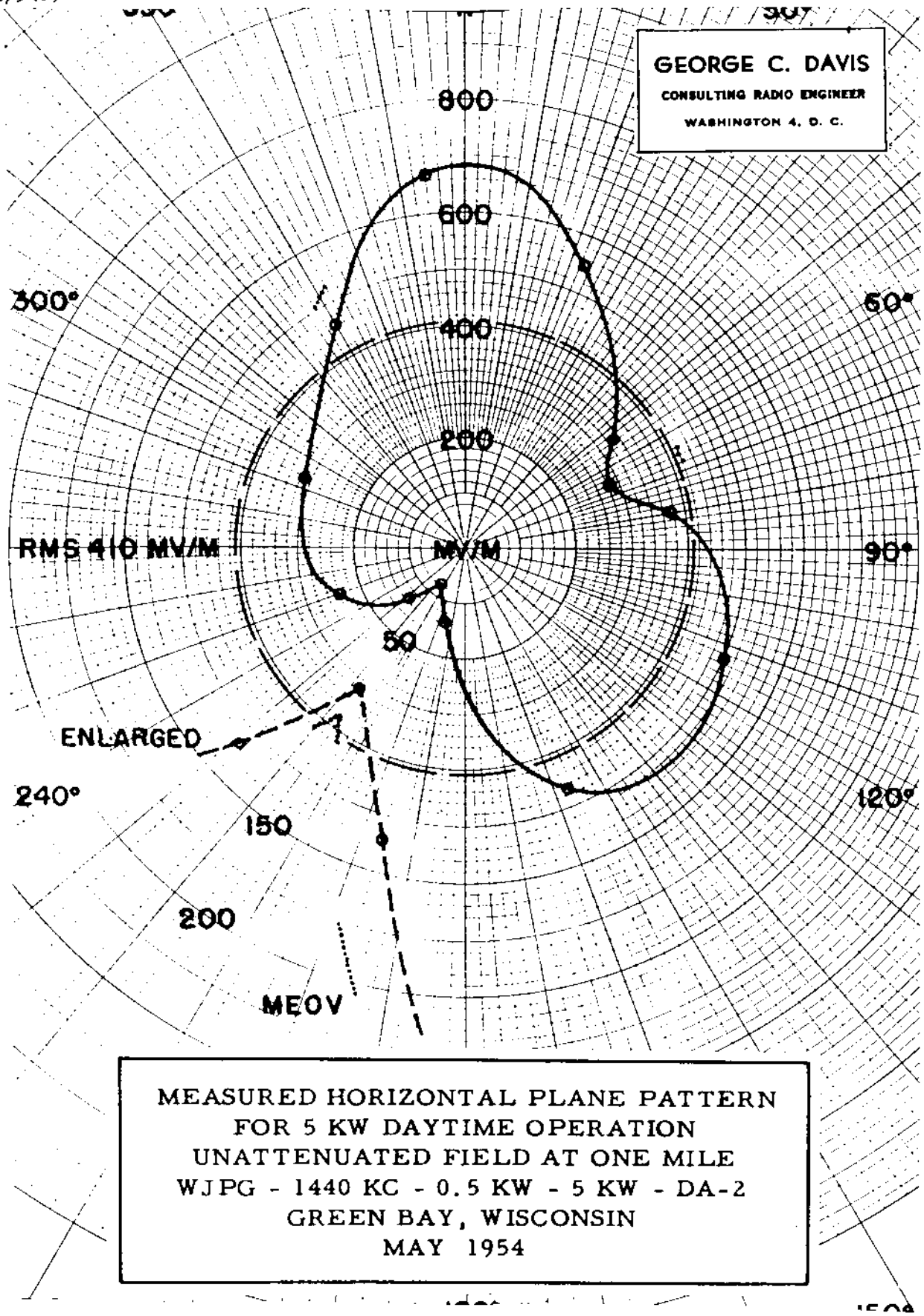
MEASURED WJPG, GREEN BAY, WIS. 500w, 1kw-LS, DA-2 1440 kc
NIGHT



MEASURED HORIZONTAL PLANE PATTERN
FOR NIGHTTIME OPERATION
UNATTENUATED FIELD AT ONE MILE
WJPG - 1440 KC - 500 W - 1 KW - DA-2
GREEN BAY, WISCONSIN
MAY 1951

WNFL ~~WJPG~~

MEASURED DAY (7/13/54G) WJPG, Green Bay, Wisc. 500W, 5KW-LS, U, DA-2 1440 kc



MEASURED HORIZONTAL PLANE PATTERN
FOR 5 KW DAYTIME OPERATION
UNATTENUATED FIELD AT ONE MILE
WJPG - 1440 KC - 0.5 KW - 5 KW - DA-2
GREEN BAY, WISCONSIN
MAY 1954

FCC File No. BL-5339 Accepted 6/24/54 WJPG, Green Bay, Wisc. 1440 kc

JUL 1 5 1975

WNPV

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station : WNPV Main Studio: Lansdale, Pennsylvania

Frequency : 1440 KHz Power : .5 kW Night .5 kW Day

Notification No.: 1782 Date : October 26, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 40° 14 ' 18 "
West Longitude: 75 ° 19 ' 00 "

ANTENNA CHARACTERISTICS

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

TOWER :	N	S	W	C	E	
HEIGHT ABOVE INSULATORS :	171'	171'	171'	171'	171'	
NIGHT PHASING :	--	--	0	183.66	26	
NIGHT FIELD RATIO:	--	--	1.0	0.728	1.0	
DAY PHASING :	0°	+60.				
DAY FIELD RATIO :	1.0	0.78				

SPACING AND ORIENTATION: DAYTIME: Spaced 322 feet (170°) on a bearing of 206° true.
NIGHTTIME: Adjacent towers in a row are spaced 189.7 (100°) on a line bearing 101° true.

GROUND SYSTEM: 120 - 171' equally spaced copper radials plus 120 - 50' interspaced radials and a 48' square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

WNPV

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

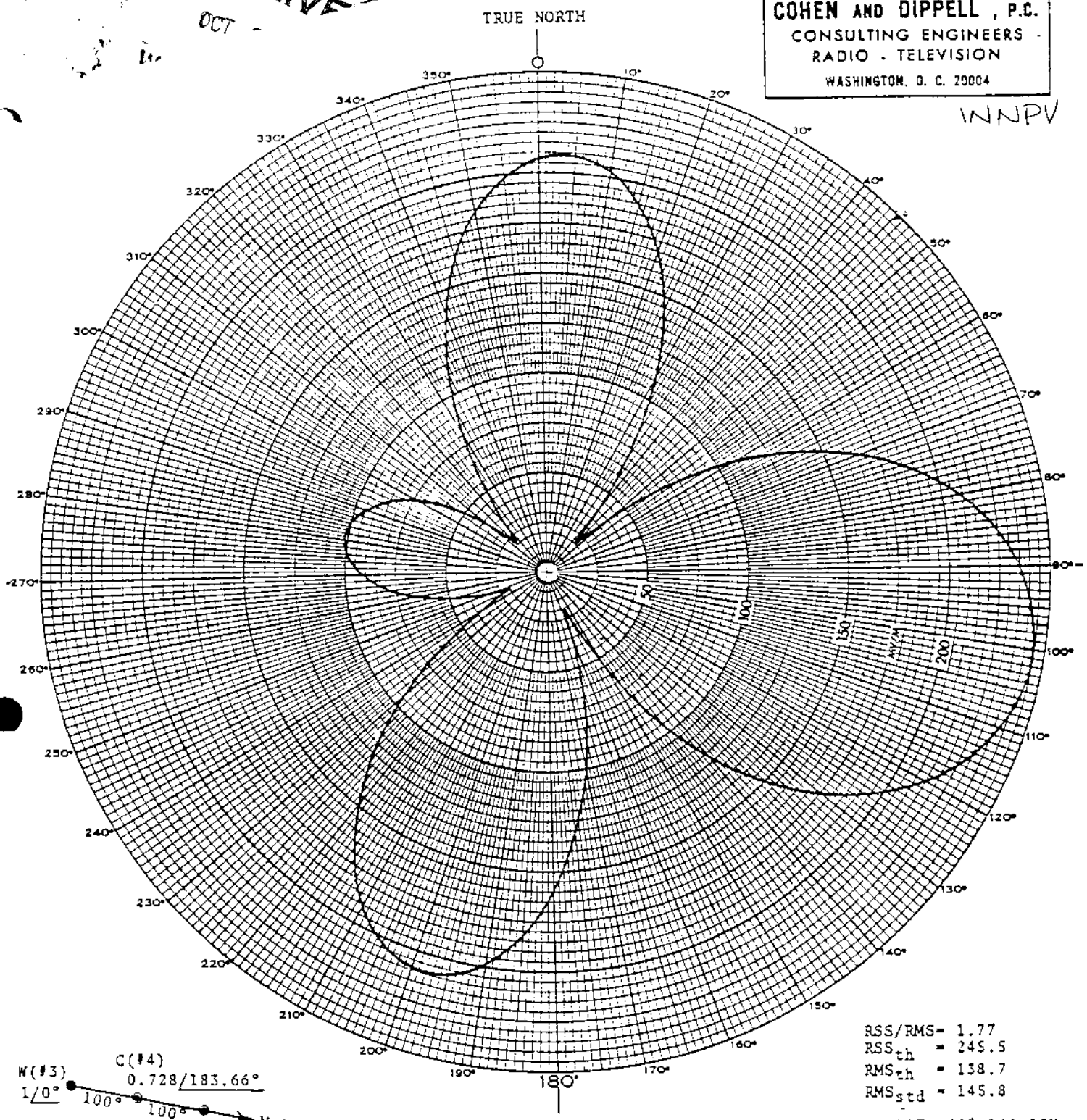
	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Night	138.7 mV/m	245.5 mV/m	145.8 mV/m

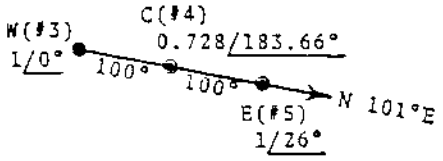
Note: Please retain the nighttime directional antenna radiation pattern notified for Station (NEW) in United States Change List Number 843 dated December 29, 1959 and attach to this supplemental Description Sheet and Nightime pattern. This notification concerns only a change in the Nightime operation of the station with Daytime operation continued as previously notified.

Standard Pattern

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

WNPV





H=90°=171 FEET
100°=189.7 FEET

RSS/RMS= 1.77
RSS_{th} = 245.5
RMS_{th} = 138.7
RMS_{std} = 145.8

N. LAT: 40° 14' 18"
W. LONG: 75° 19' 00"

STANDARD RADIATION PATTERN

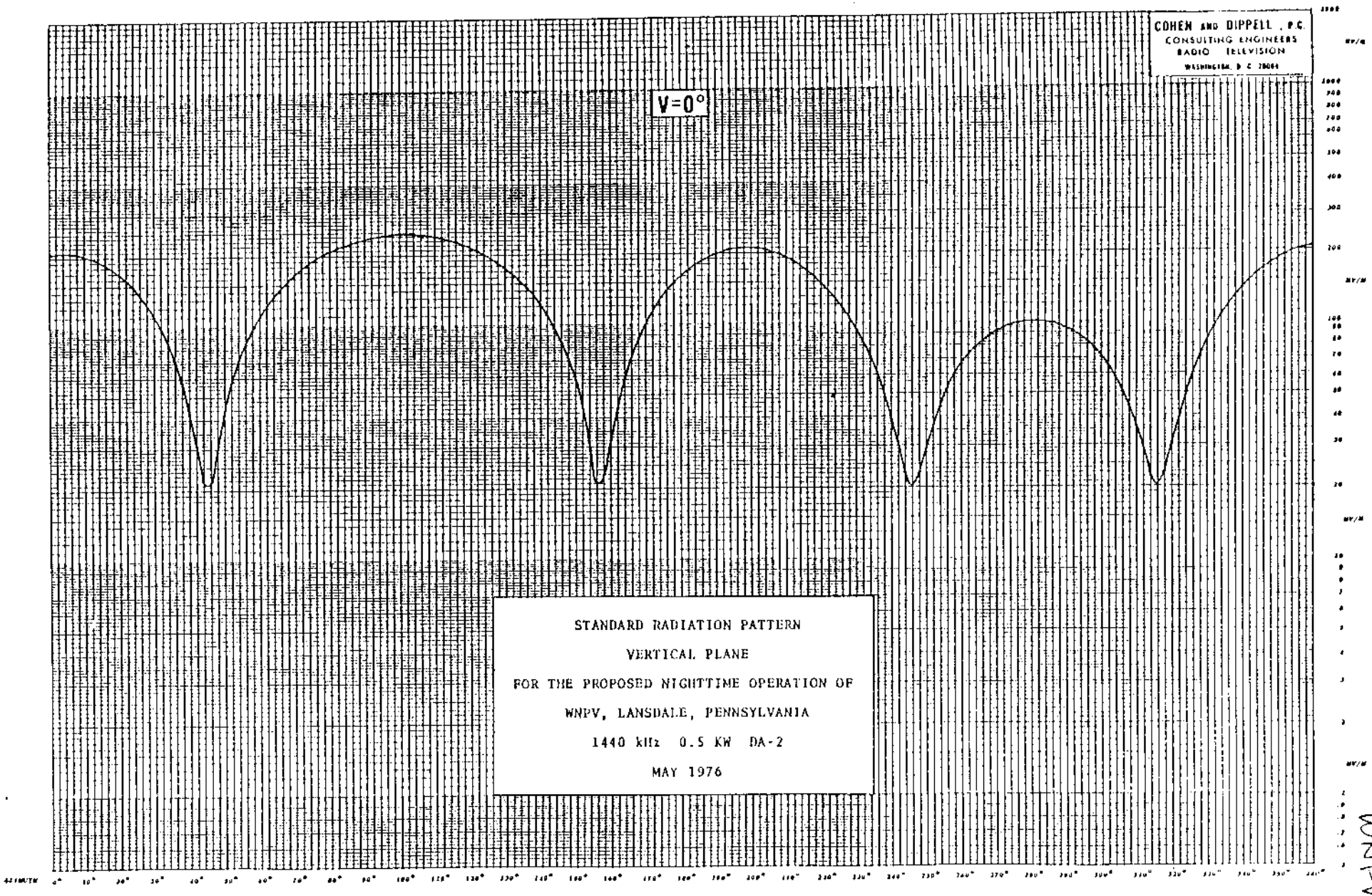
HORIZONTAL PLANE

FOR THE PROPOSED NIGHTTIME OPERATION OF

WNPV, LANSDALE, PENNSYLVANIA

1440 kHz 0.5 KW DA-2

MAY 1976



ORIGINAL / GREEN

WNPV

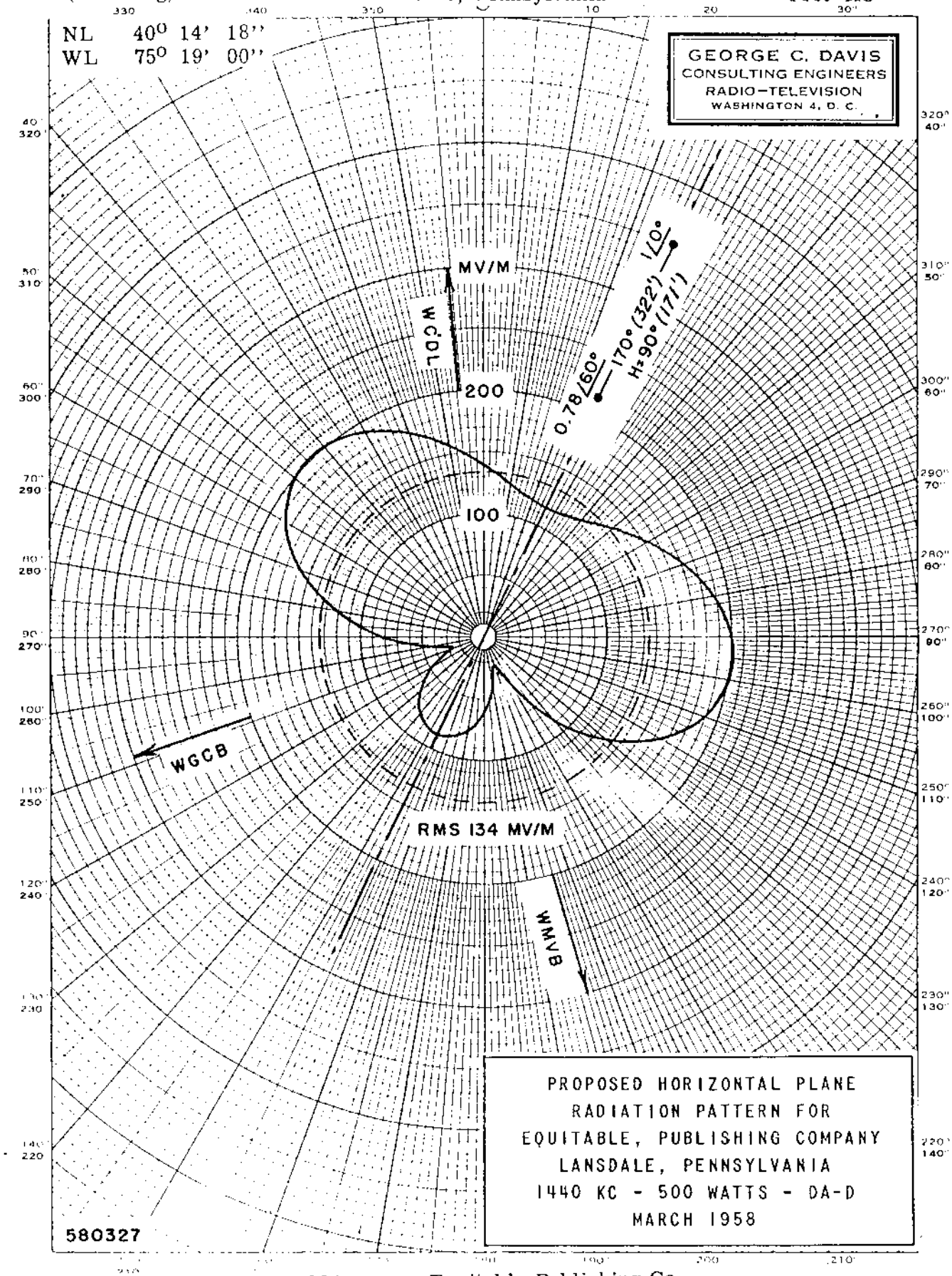
Lansdale, Pa.

WNPV

PROPOSED DAY
(7-25-58g)

New; Equitable Publishing Co.
Lansdale, Pennsylvania

500w, DA-D,D
1440 KC



FCC File No. BP-11,934
Accepted March, 1958

Equitable Publishing Co.
Lansdale, Pennsylvania

1440 KC

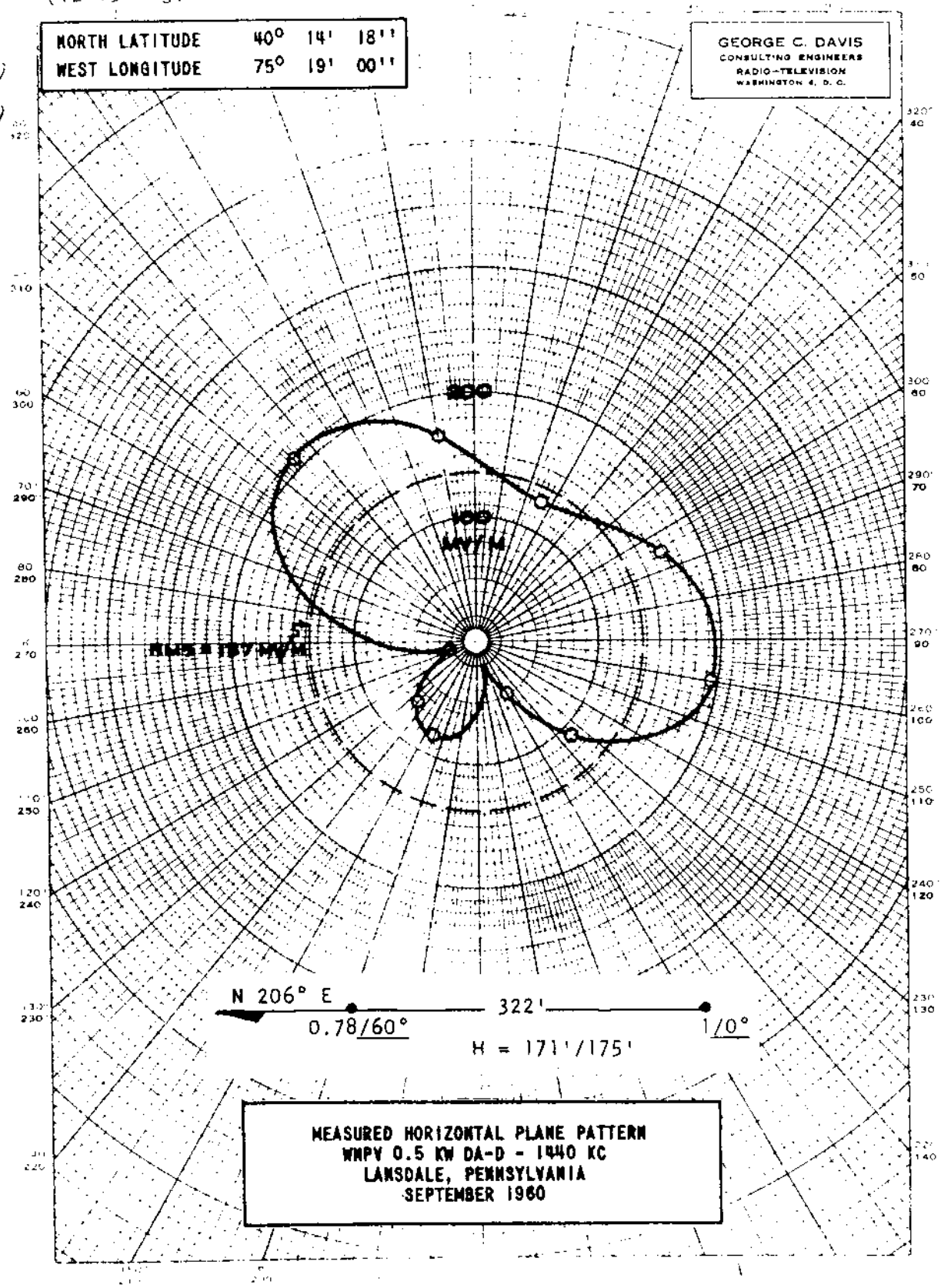
WNPV

MEASURED DAY
(12-15-60g)

Station WNPV
Lansdale, Pennsylvania

500w, DA-D,D
1440 KC

1-31-62 granted L for new station



FCC File No. BL-8156
Accepted 11-17-60

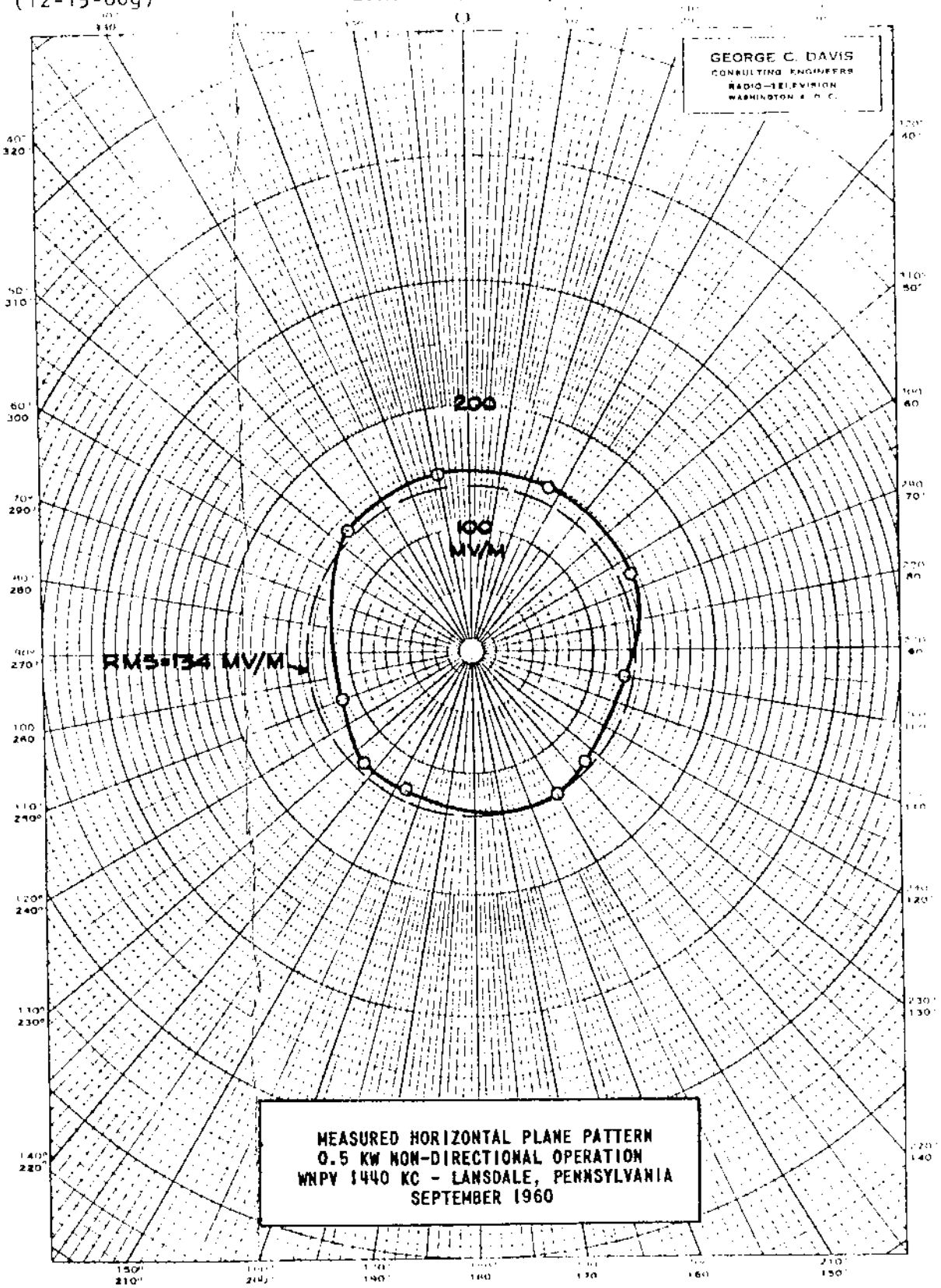
WNPV
Lansdale, Pennsylvania

1440 KC

WNPV

MEASURED NON-DA
(12-15-60g)

Station WNPV 500w, DA-D,D
Lansdale, Pennsylvania 1440 KC



FCC File No. BL-8156
Accepted 11-17-60

WNPV
Lansdale, Pennsylvania 1440 KC

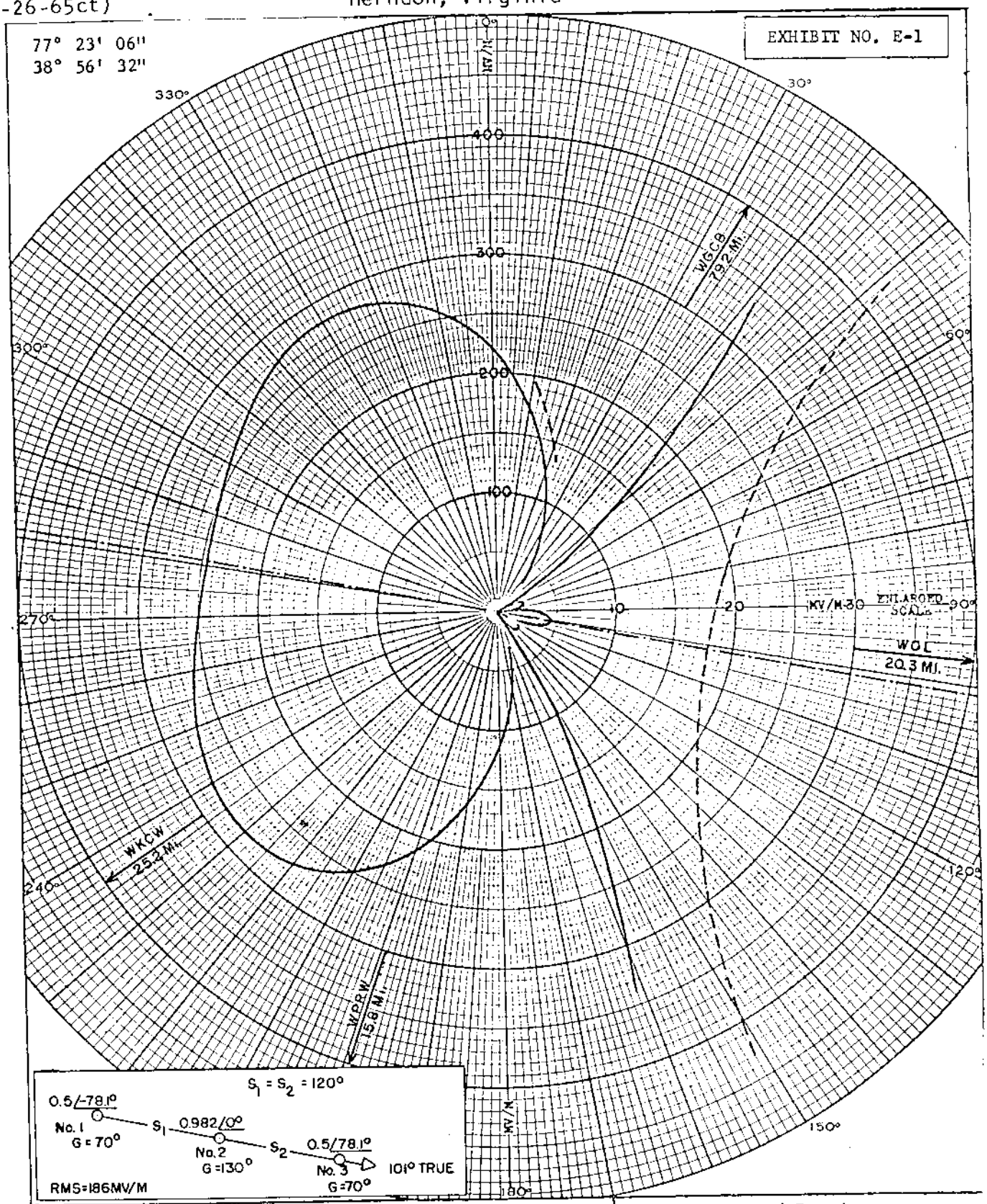
WOHN

Proposed Day
(3-26-65ct)

Station WHRN
Herndon, Virginia

1kw,DA-D,D
1440 kc

BMP-11460
3-17-65 MCP
CHG. DA.



COMMERCIAL RADIO EQUIPMENT CO.
RADIO ENGINEERING CONSULTANTS
WASHINGTON, D.C.
2/65

PATTERN: Proposed Daytime
FOR: Herndon, Virginia
POWER: 1KW-D FREQ: 1440 KC

FCC File No. BMP-11460
Accepted 3-16-65

Station WHRN
Herndon, Virginia

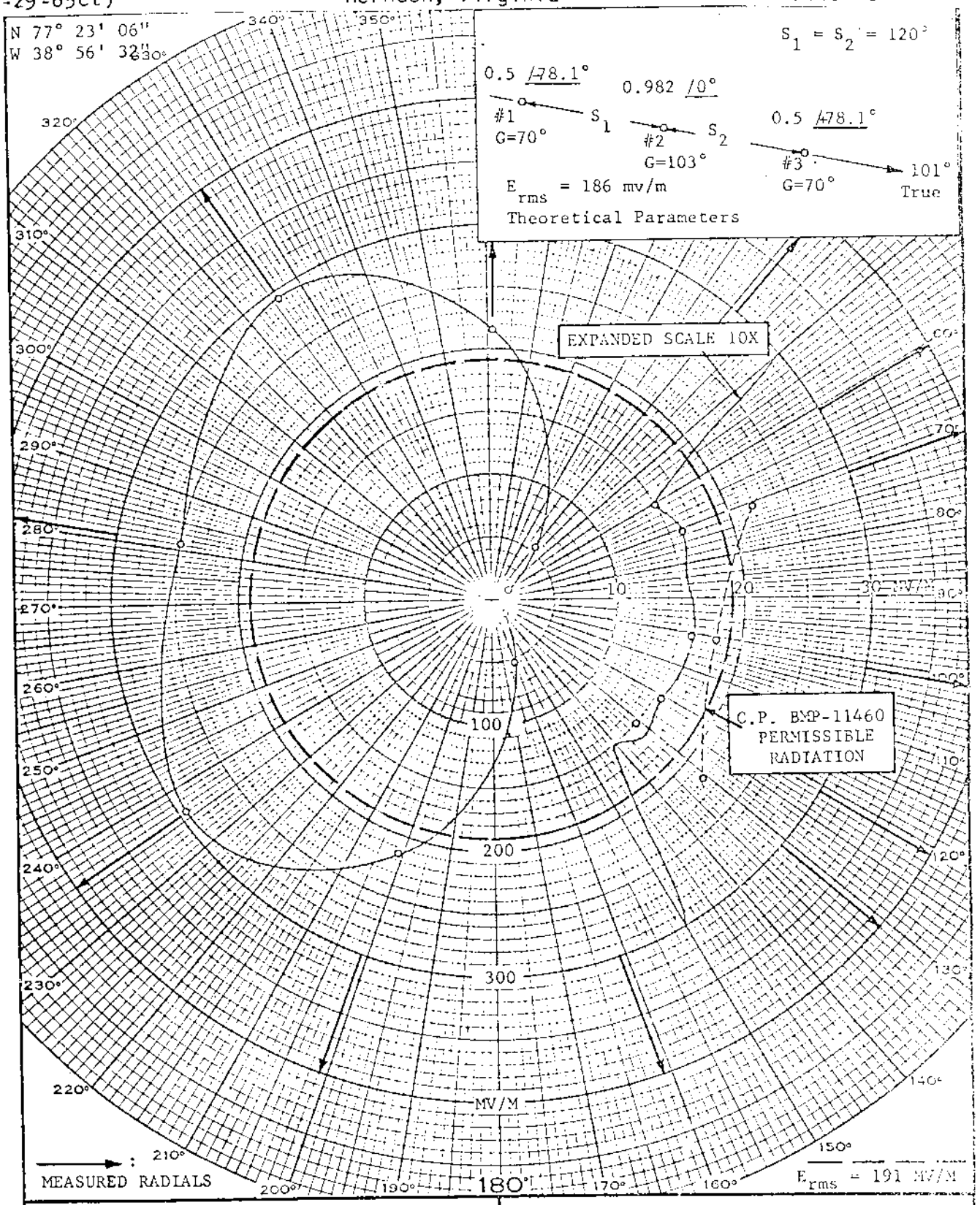
1440 kc

WOHN

Measured Day
(11-29-65ct)

Station WHRN
Herndon, Virginia

1kw,
1440 kc



COMMERCIAL RADIO EQUIPMENT CO.
Radio Engineering Consultants
WASHINGTON, D. C.

7/65

MEASURED HORIZONTAL DIRECTIONAL
RADIATION PATTERN
RADIO STATION WHRN
HERNDON, VIRGINIA
1440 KC 1 KW, DA-D

FCC File No. BL-11091
Accepted 11-1-65

Station WHRN
Herndon, Virginia

1440 kc

1975

WOHN

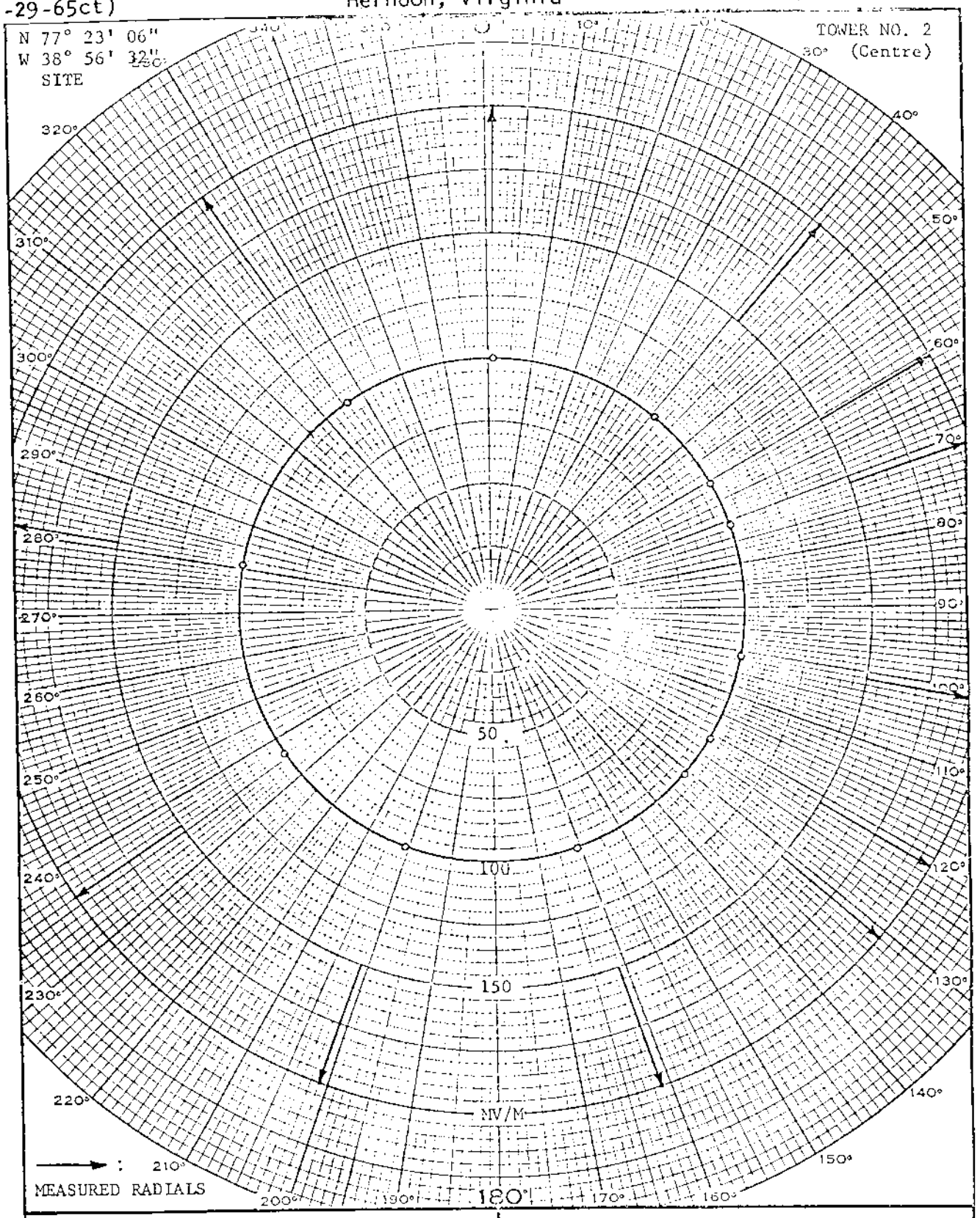
Measured Non-DA
(11-29-65ct)

Station WHRN
Herndon, Virginia

1k

1440 kc

12-20-65



COMMERCIAL RADIO EQUIPMENT CO.
Radio Engineering Consultants
WASHINGTON, D. C.

MEASURED HORIZONTAL NON-DIRECTIONAL
RADIATION PATTERN
RADIO STATION WHRN
HERNDON, VIRGINIA

7/65

1440 KC 250 WATTS

FCC File No. BL-11091
Accepted 11-1-65

Station WHRN
Herndon, Virginia

1440 kc

WPGW

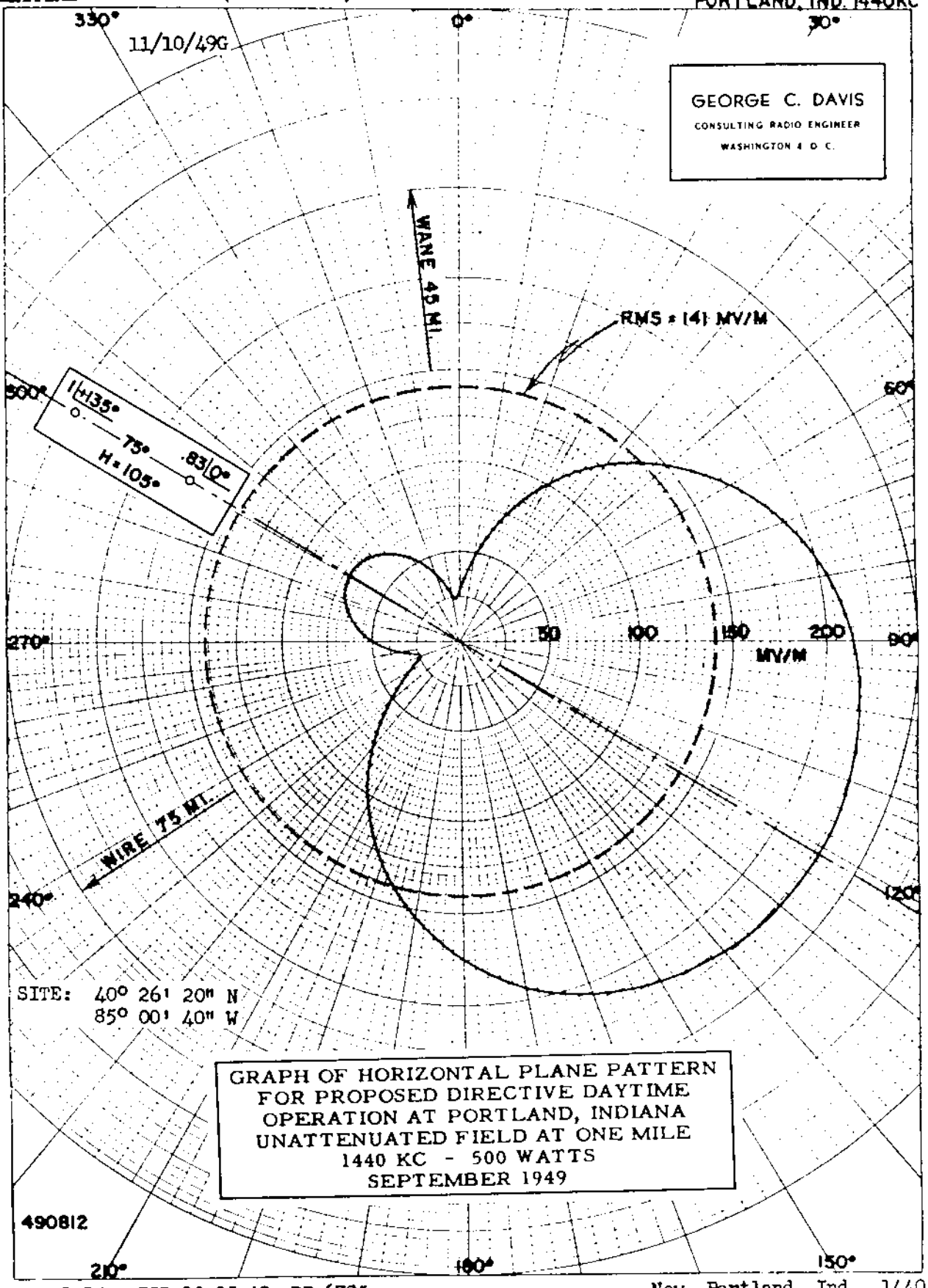
PORTLAND, IN

PROPOSED DAYTIME

NEW, PORTLAND, IND. (Glenn West)

500w, DA, D

PORTLAND, IND. 1440KC

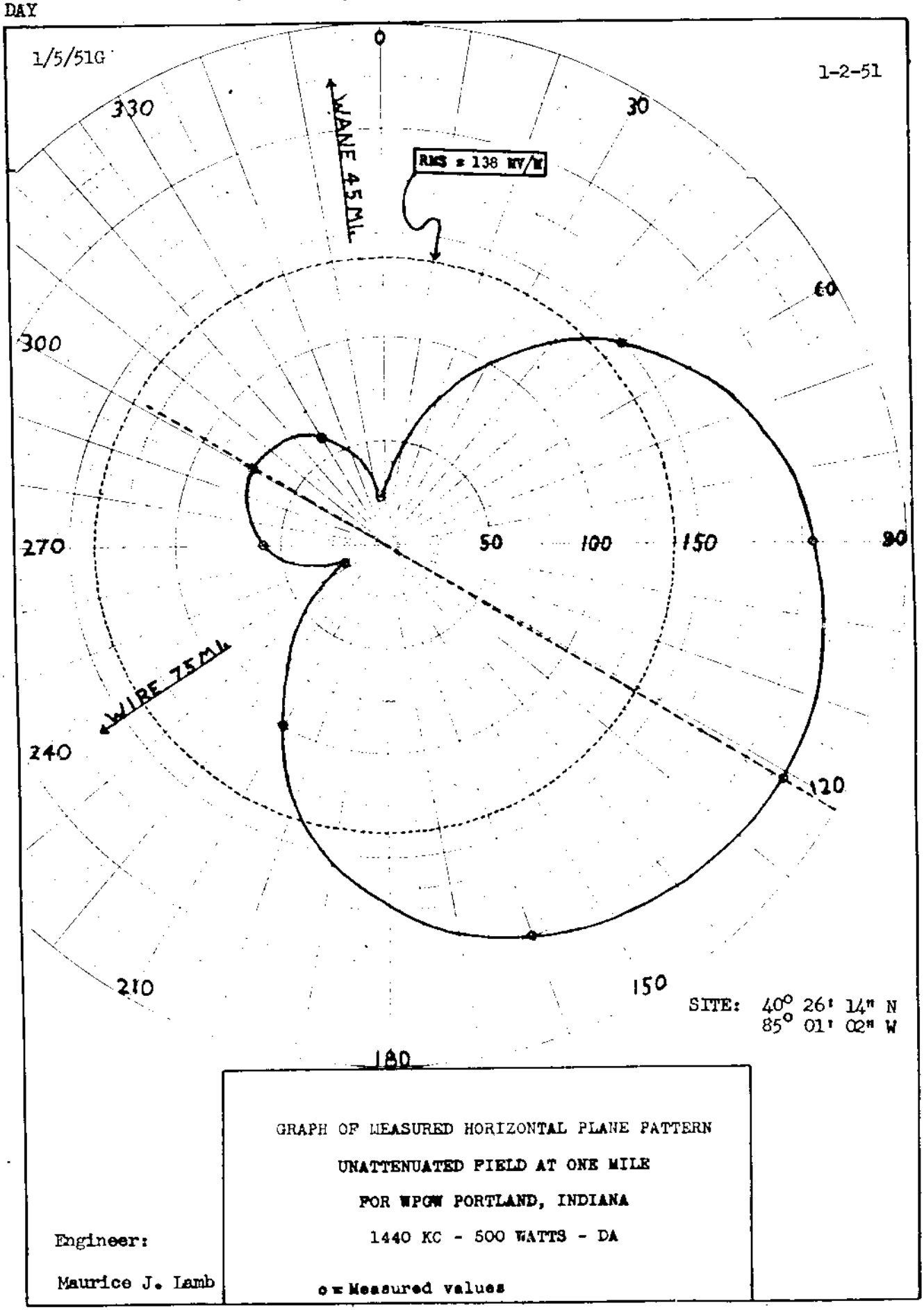


AMENDMENT RECD 10-25-49 BP-6785

New, Portland, Ind. 1440 kc

WPGW

MEASURED DAY WPGW, PORTLAND, IND. 500w, DA 1440 kc



GRAPH OF MEASURED HORIZONTAL PLANE PATTERN

UNATTENUATED FIELD AT ONE MILE

FOR WPGW PORTLAND, INDIANA

1440 KC - 500 WATTS - DA

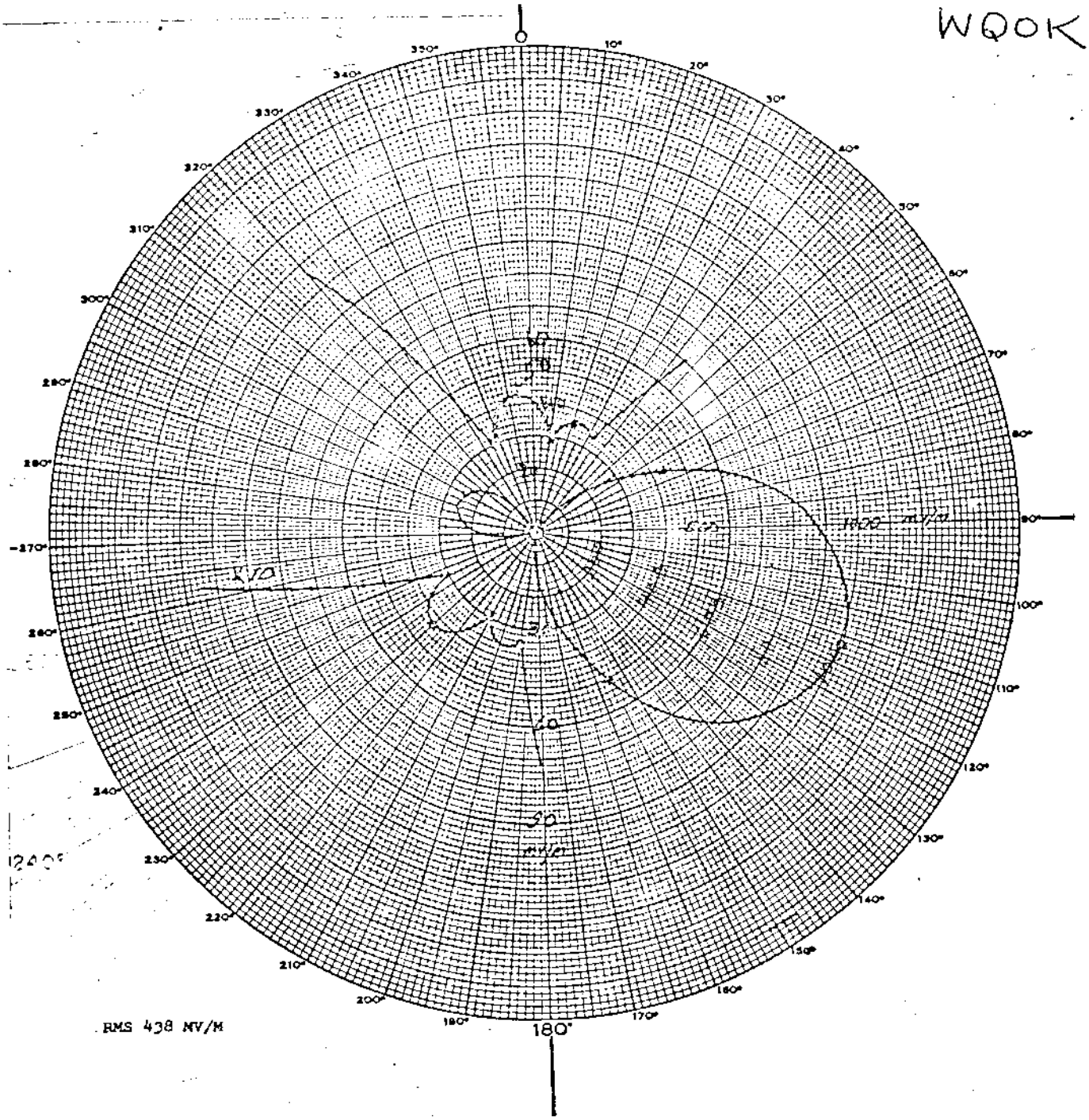
o = Measured values

Engineer:

Maurice J. Lamb

WQOK

BZ 7998



MEASURED

#1 0.45/ 146.5°

#2 1.0/ 0°

#3 0.772/ 151.8°

BZ 7998

FIG. 5
WQOK, INC.
RADIO STATION WQOK
GREENVILLE, S.C.

MEASURED NIGHTTIME HORIZONTAL RADIATION PATTERN.

1440 KHZ

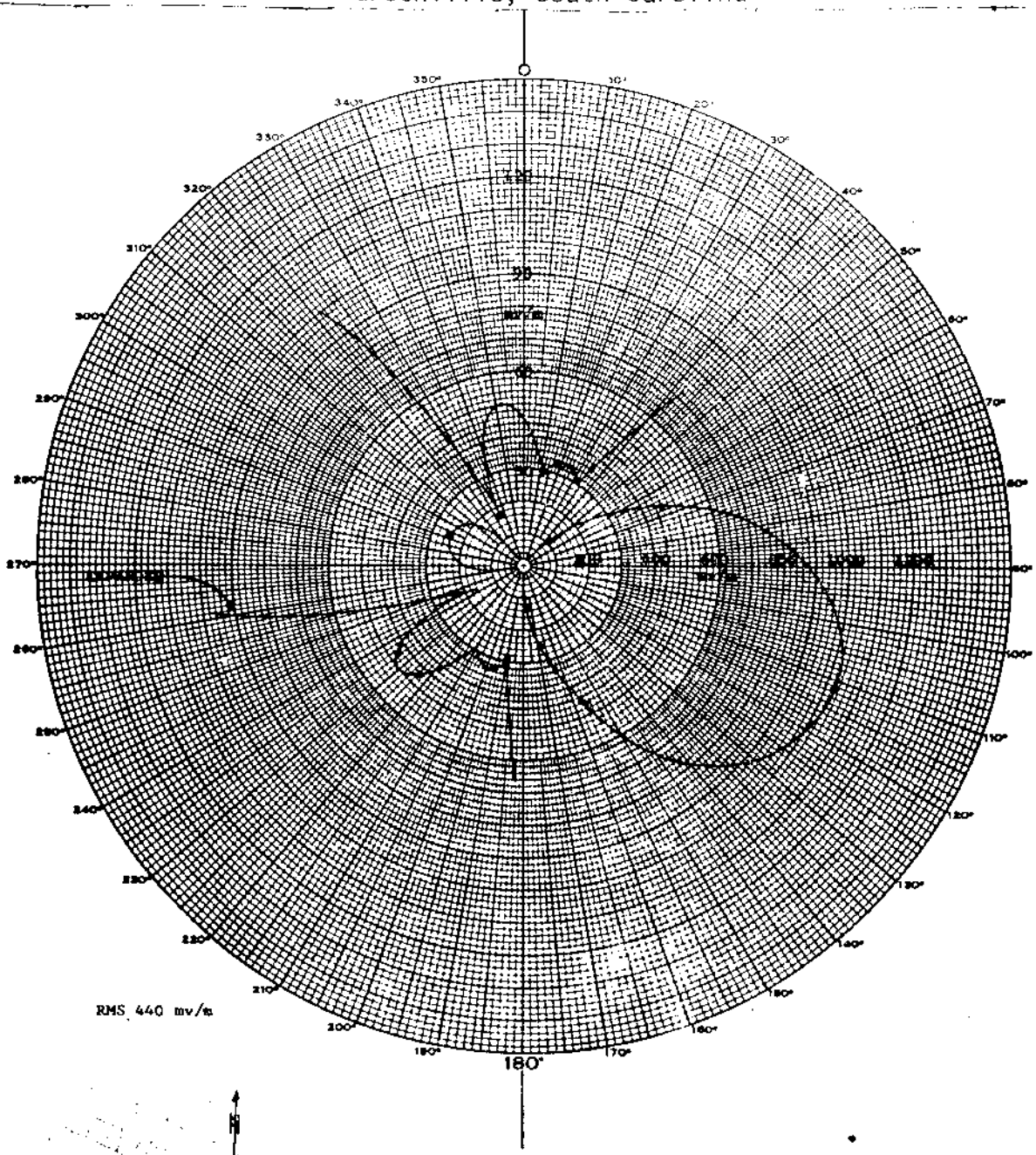
JUL 18 1975

WQOK

Measured Night
(6-28-66ct)

Station WQOK
Greenville, South Carolina

5kw,DA-N,U
1440 kc



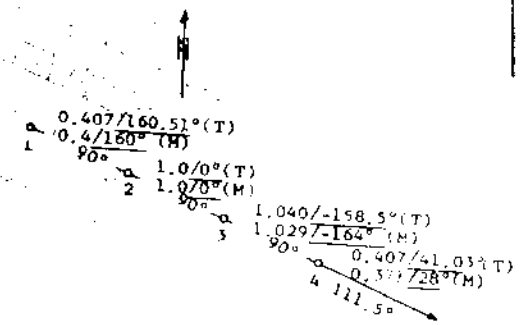


Fig.5
RADIO STATION WQOK GREENVILLE, S.C.
1440 KCS. 5.0 KW. DA-N.
MEASURED NIGHTTIME HORIZONTAL RADIATION PATTERN.

PALMER R. GREER
GREENVILLE, S.C.

FCC File No.BZ-6017
Accepted 6-17-66

Station WQOK
Greenville, South Carolina

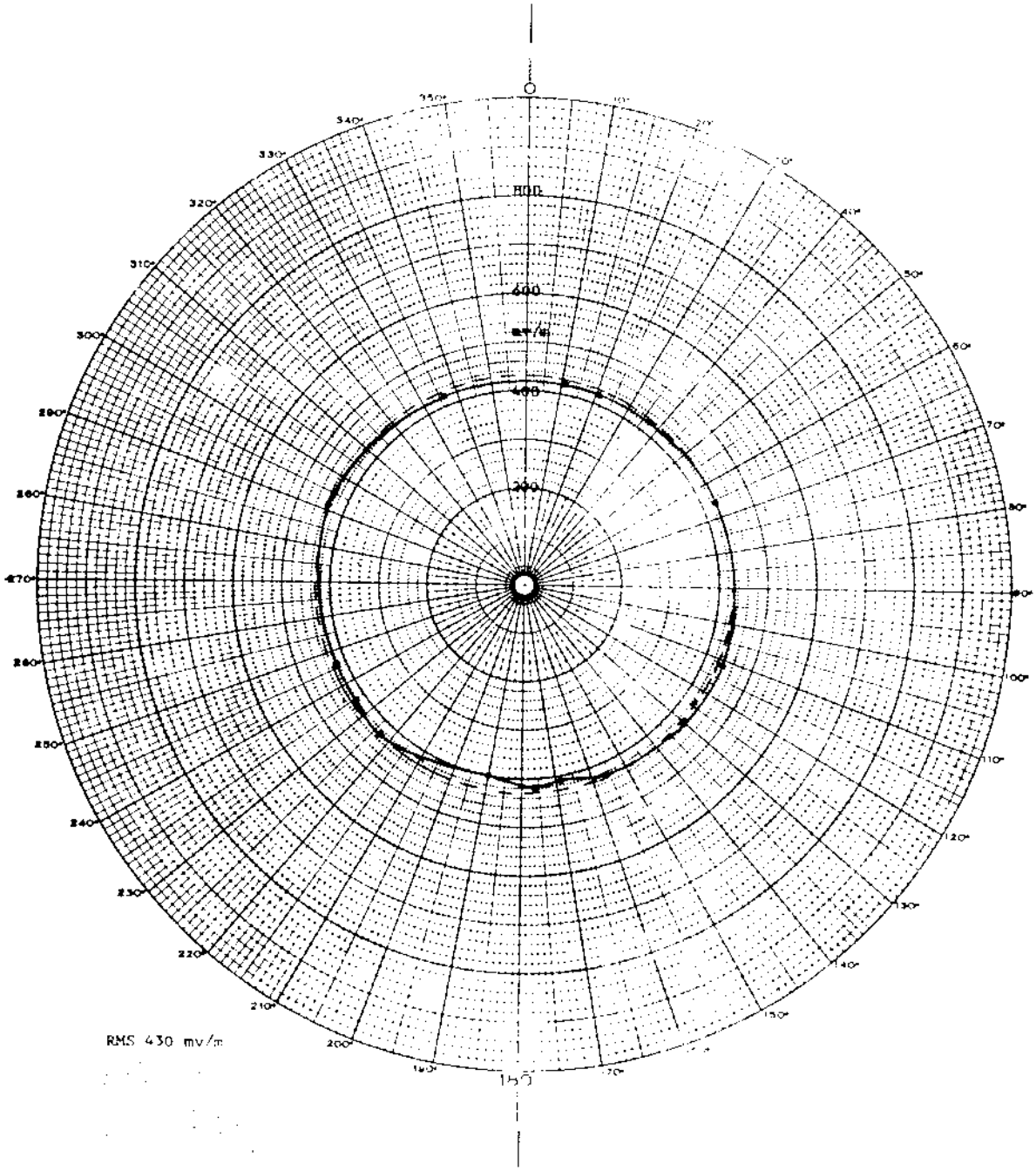
1440 kc

WQOK

Measured Non-DA
(6-28-66ct)

Station WQOK
Greenville, South Carolina

5kw,DA-N,U
1440 kc



PALMER A. GREER

FCC File No.BZ-6017
Accepted 6-17-66

Station WQOK
Greenville, South Carolina

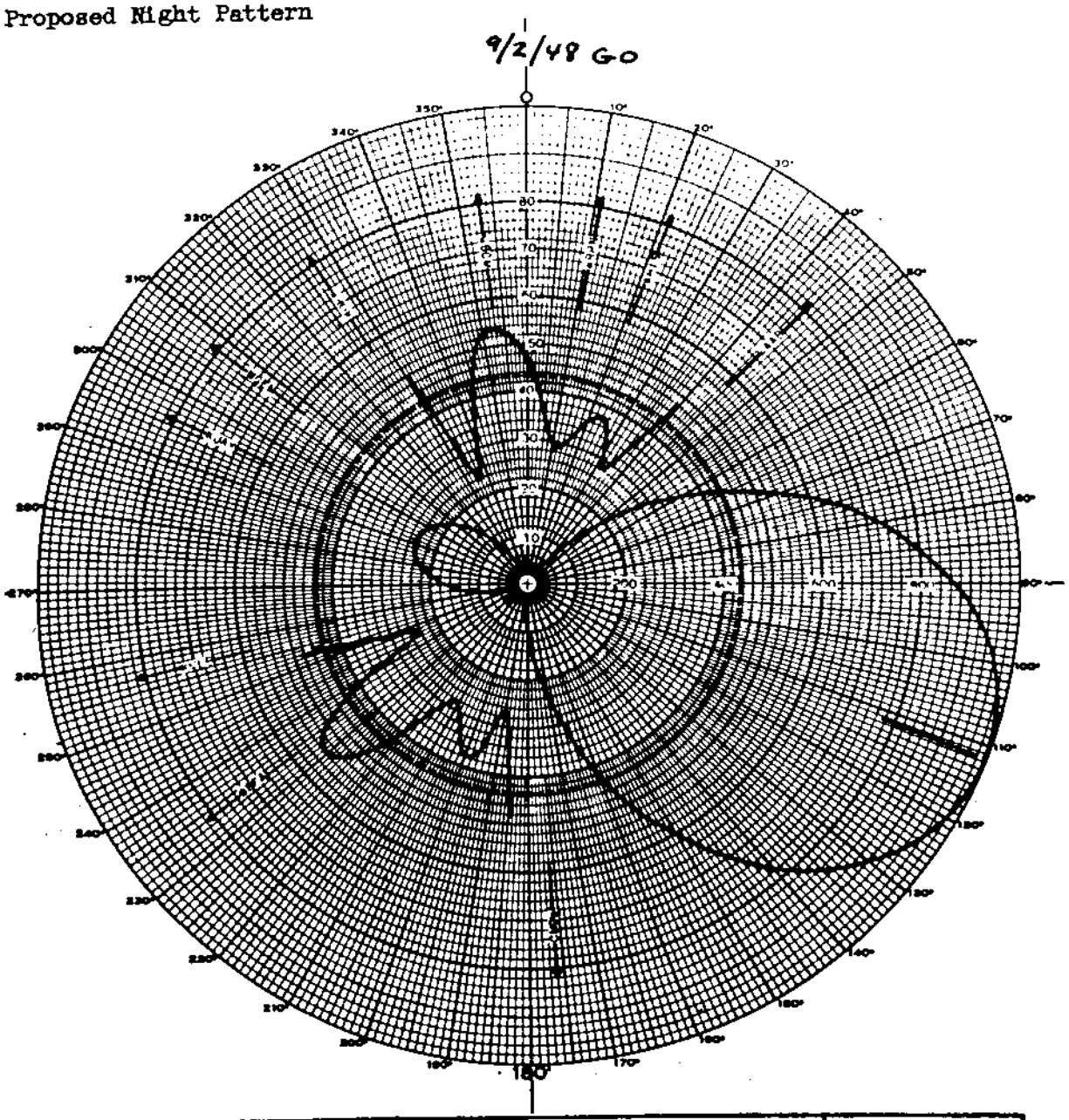
1440 kc

WQOK

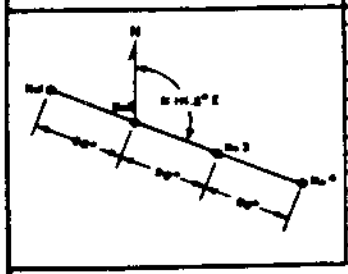
Station WQOK - Greenville, South Carolina 5kw, DA-2,U 1440 KC

Proposed Night Pattern

9/2/48 GO



TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

Tower No.	Electrical Height (°)	Tower Type & Description (°)	Spacing (°)	Phasing (°)	Horizontal Field (mv/m)	Field Ratio	Elev. Angle (°)	Elevation Rad Field (mv/m)
1	105		90	+38.74	59.74	1	0	454
2	105		90	-100.77		2.458	10	
3	105		90	+100.34		2.557	20	
4	105		90	-99.74	59.74	1	30	
5							40	
6							50	
7							60	
8							70	
9							80	
10							90	
							E_A =	mv/m
							E_D =	mv/m

DAYTIME OPERATION ☐ NIGHTTIME OPERATION ☒

STATION DATA

CALL	WMRC
FREQUENCY	1440 kc
POWER	5 kw
TIME OF OPERATION	U
TYPE OF OPERATION	DA-2
DAYTIME TOWERS	3
NIGHTTIME TOWERS	4
No. RADIALS PER TOWER	120
LENGTH OF RADIALS	101.6 to 102 ft
GROUND SCREEN DIMENSION	40' x 40'
LAT.	34° 52' 18"
LONG.	82° 28' 22"
SUPERVISOR	47H11-N
PATTERN No.	47215-N

TEXTILE BROADCASTING COMPANY
GREENVILLE, S. C.

1440 KC 5KW DA-2

GEORGE P. ADAIR
Radio Engineering Consultant

Fig. 1A

WKDD
1440 KHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WRDD

Main Studio: Bay City, Mighigan

Frequency: 1440 KHz

Power: 2.5 Kw Night 5 Kw Day

Notification: 1778

Date: August 30, 1978 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEMS:

North Latitude: 43° 31' 27"
West Longitude: 83° 57' 58"

ANTENNA CHARACTERISTICS

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

TOWER :	S (#1)	C (#2)	N (#3)			
HEIGHT ABOVE INSULATORS :	218.3'	218.3'	218.3'	(115°)		
NIGHT PHASING :	0°	+206.°	+51°			
NIGHT FIELD RATIO:	1.0	1.15	0.58			
DAY PHASING :	0°	-139.5°	+80°			
DAY FIELD RATIO :	1.000	3.02	2.98			

SPACING AND ORIENTATION : Towers in a row are spaced 170.8' (90°) on a line bearing 21.5° true.

WRDD
1410 kHz.

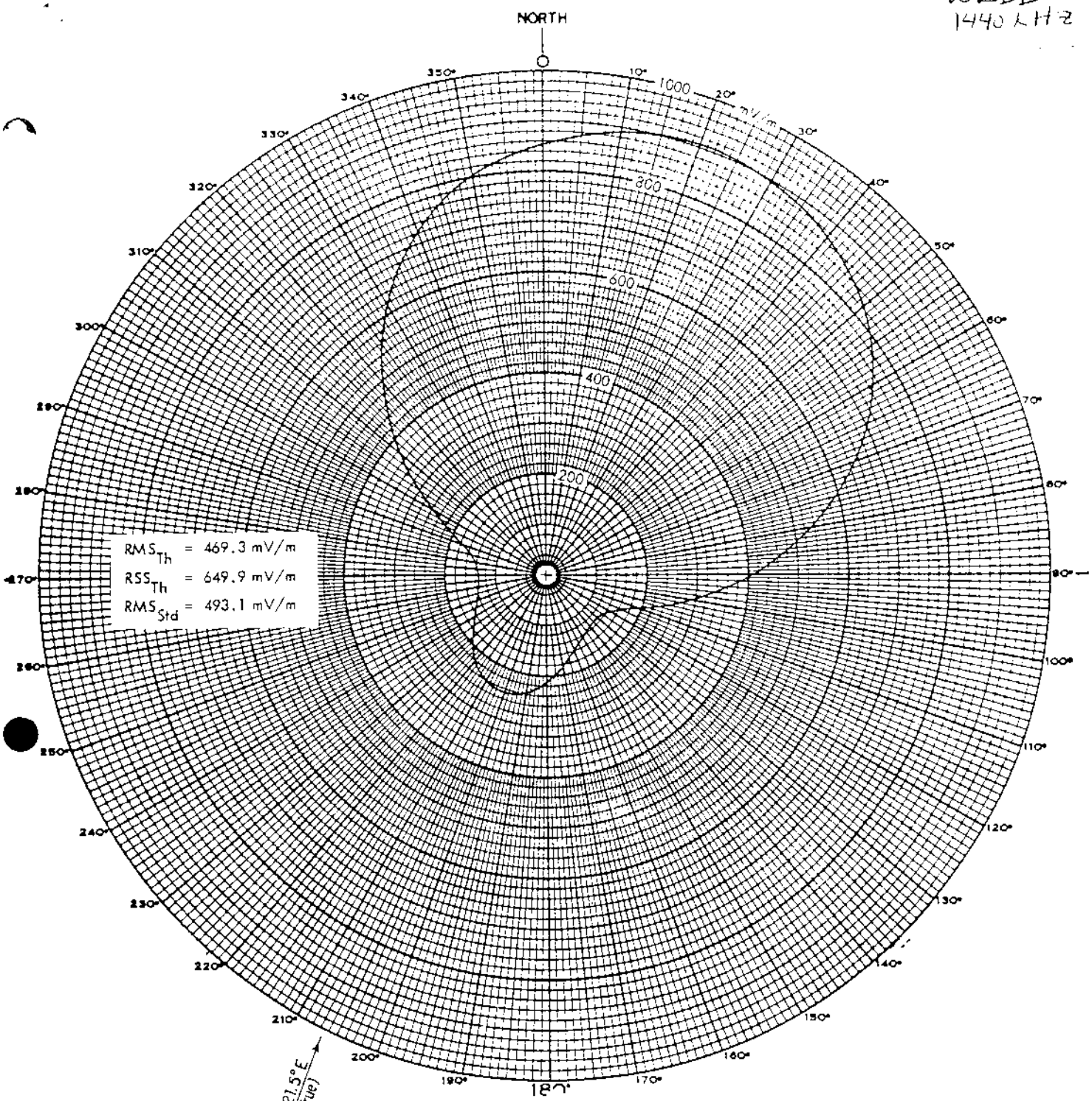
GROUND SYSTEM: 120 - 170.8' equally spaced copper radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers. Centers of system are bonded together.

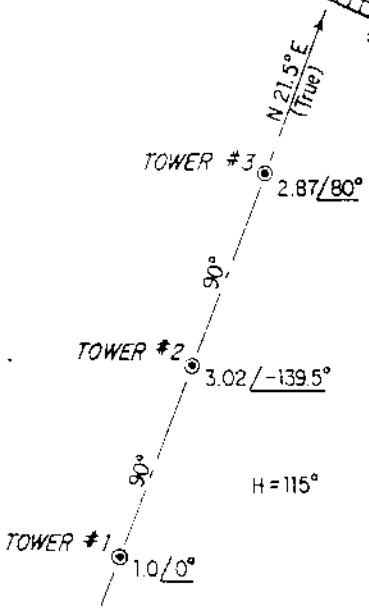
PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	469.3 mv/m	649.9 mv/m	493.1 mv/m
Night	280 mv/m	483.9 mv/m	294.3 mv/m

Note: This notification concerns a change in the Daytime operation of the station and Nighttime to use a directional antenna daytime and nighttime and increase daytime and nighttime power.

WRDD
1440 kHz





NORTH LATITUDE: 43° 31' 27"
WEST LONGITUDE: 83° 57' 58"

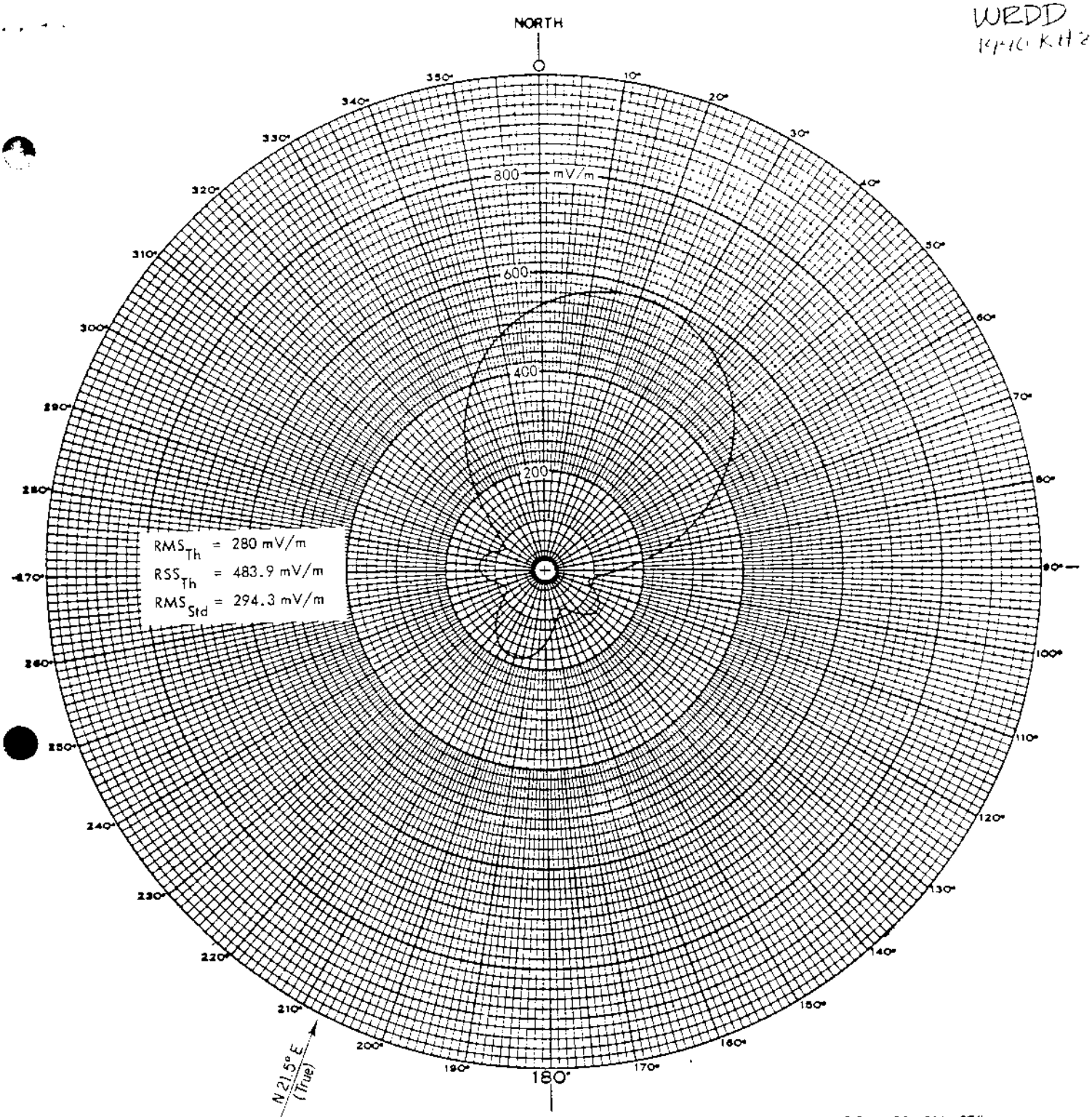
BL-790810AC

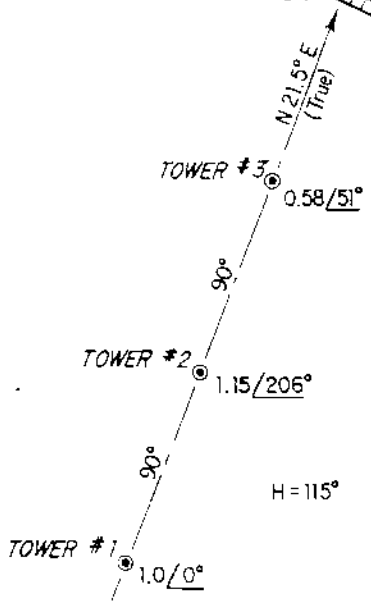
FIGURE 3
PROPOSED DAYTIME HORIZONTAL PLANE
STANDARD RADIATION PATTERN

WRDD 2.5 kW-N, 5 kW-LS, DA-2 1440 kHz
BAY CITY, MICHIGAN

Prepared by
Lohnes and Culver Washington, D. C.
April, 1979

WRDD
1440 KHz





NORTH LATITUDE: 43° 31' 27"
WEST LONGITUDE: 83° 57' 58"

BL-790810AC

FIGURE 5
PROPOSED NIGHTTIME HORIZONTAL PLANE
STANDARD RADIATION PATTERN

WRDD 2.5 kW-N, 5 kW-LS, DA-2 1440 kHz
BAY CITY, MICHIGAN

Prepared by
Lohnes and Culver Washington, D. C.
April, 1979

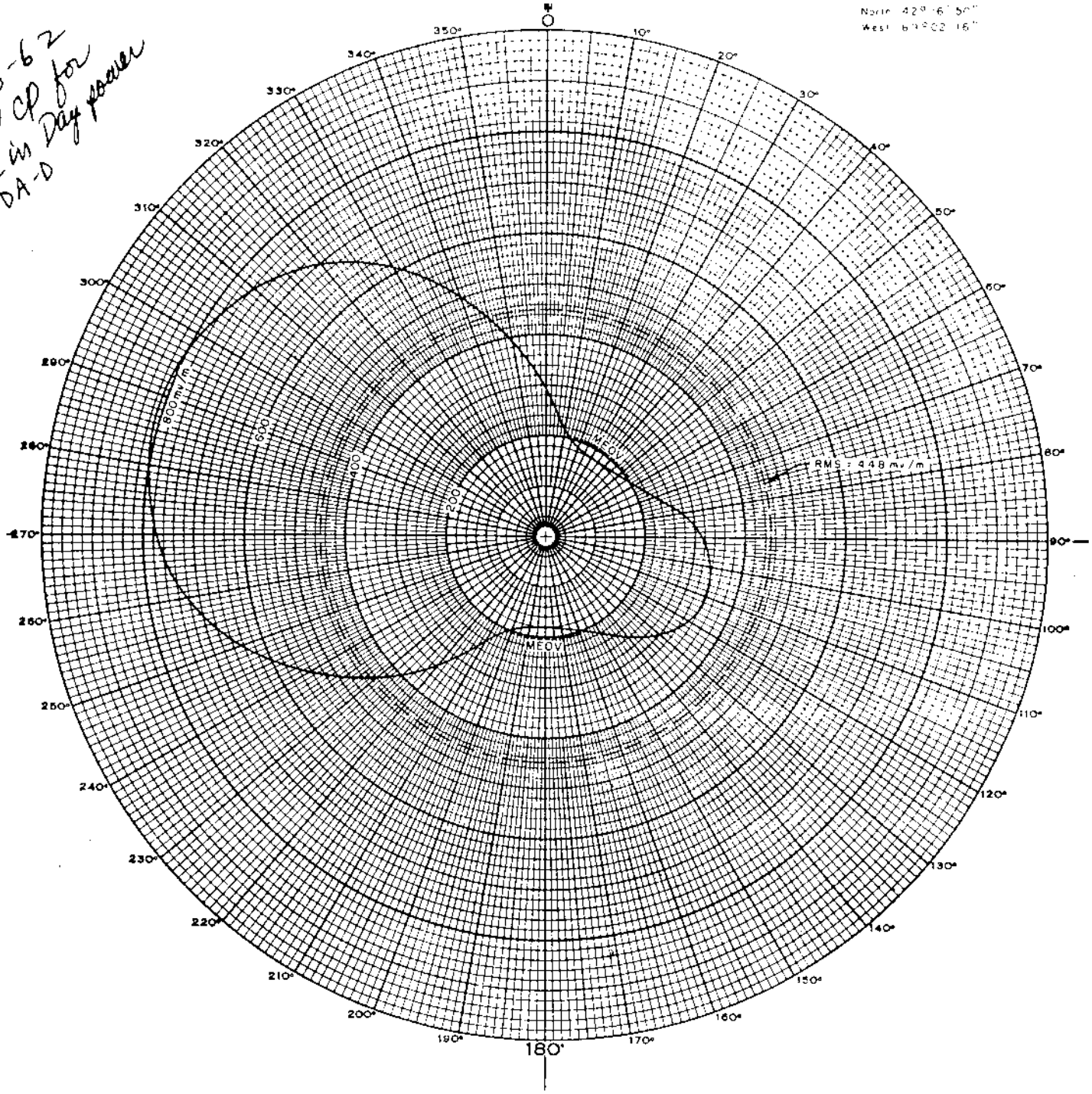
WROK

Proposed Day
(12-19-61ct)

Station WROK
Rockford, Illinois

500w,5kw-LS,DA-D,U
1440 kc
North 42° 16' 50"
West 89° 02' 16"

3-28-62
granted CP for
decrease in Day power
5 KW - DA-D



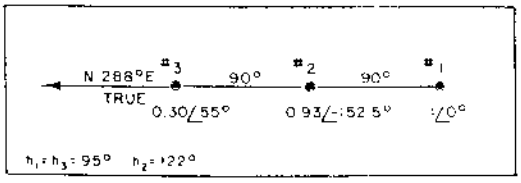


FIGURE 4
HORIZONTAL RADIATION PATTERN
ROCKFORD BROADCASTERS, INC.
WROK 500W, 5KW-LS DA-D 1440 KC
ROCKFORD, ILLINOIS
Prepared by
Lohnes and Culver Washington 4, D. C.
July 1961

FCC File No.BP-13422
Accepted 11-9-61

Station WROK
Rockford, Illinois 1440 kc

WROK

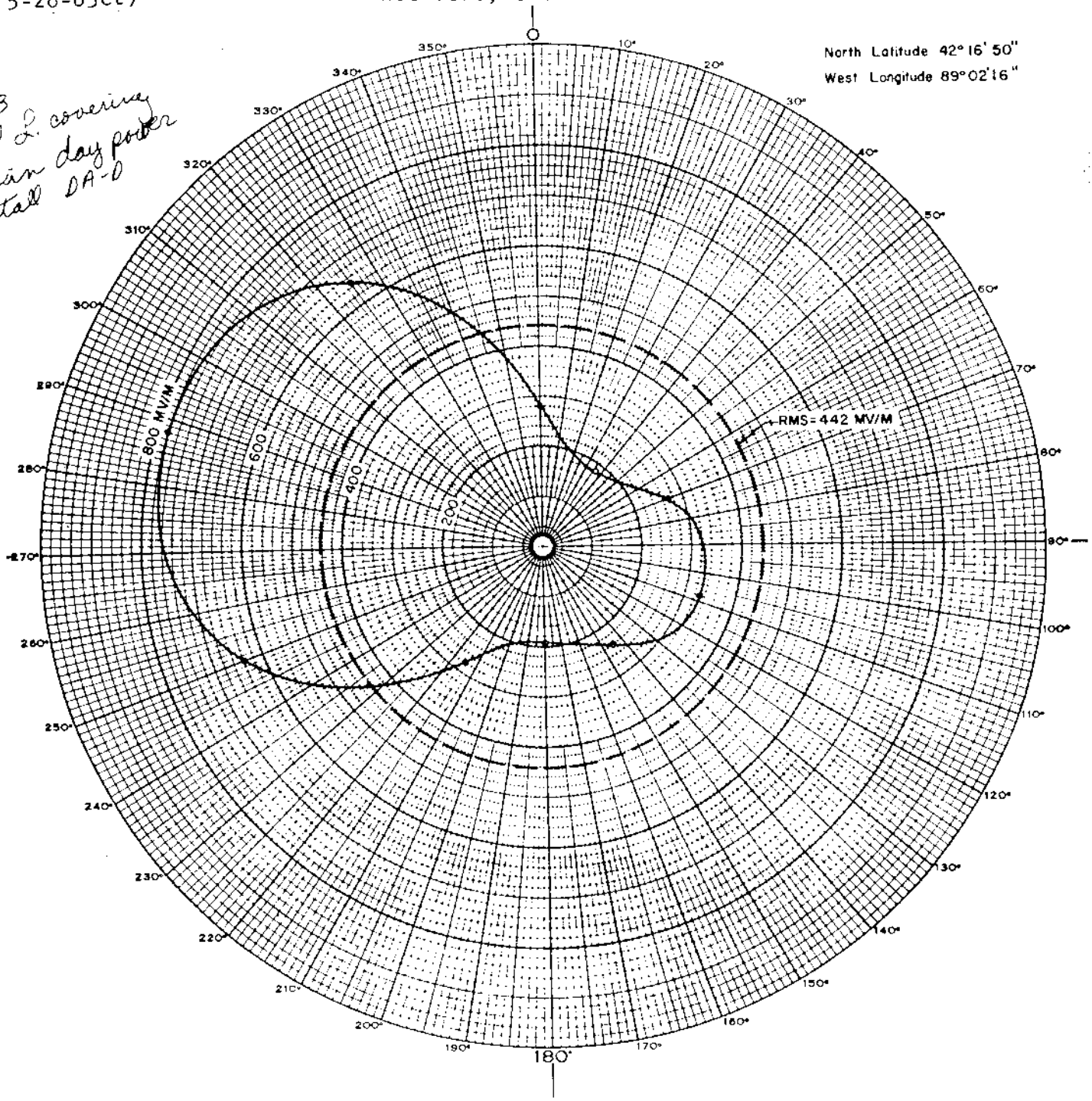
Measured Day
(5-28-63ct)

Station WROK
Rockford, Illinois

500w, 5kw-LS, DA-D, U
1440 kc

North Latitude 42° 16' 50"
West Longitude 89° 02' 16"

6-21-63
granted L. covering
increase in day power
and install DA-D



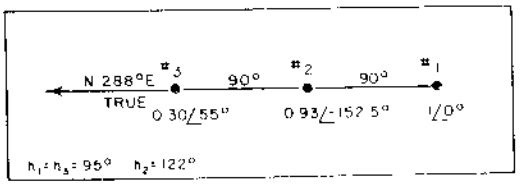


FIGURE 7
HORIZONTAL RADIATION PATTERN
(DA-DAY)
ROCKFORD BROADCASTERS, INCORPORATED
WROK 0.5 KW, 5 KW-LS, DA-D 1440 KC
ROCKFORD, ILLINOIS
Prepared by
Lohnes and Culver Washington 4, D.C.
February 1963 1440 kc

FCC File No. BL-9883
Accepted 5-9-63

Station WROK
Rockford, Illinois

JUL 18 1975 DK

WROK

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

Station WROK
Rockford, Illinois

500w,5kw-LS,DA-D,U
1440 kc
North Latitude 42° 16' 50"
West Longitude 89° 02' 16"

6-21-63
Granted L. covering increase in day power and install DA-D.

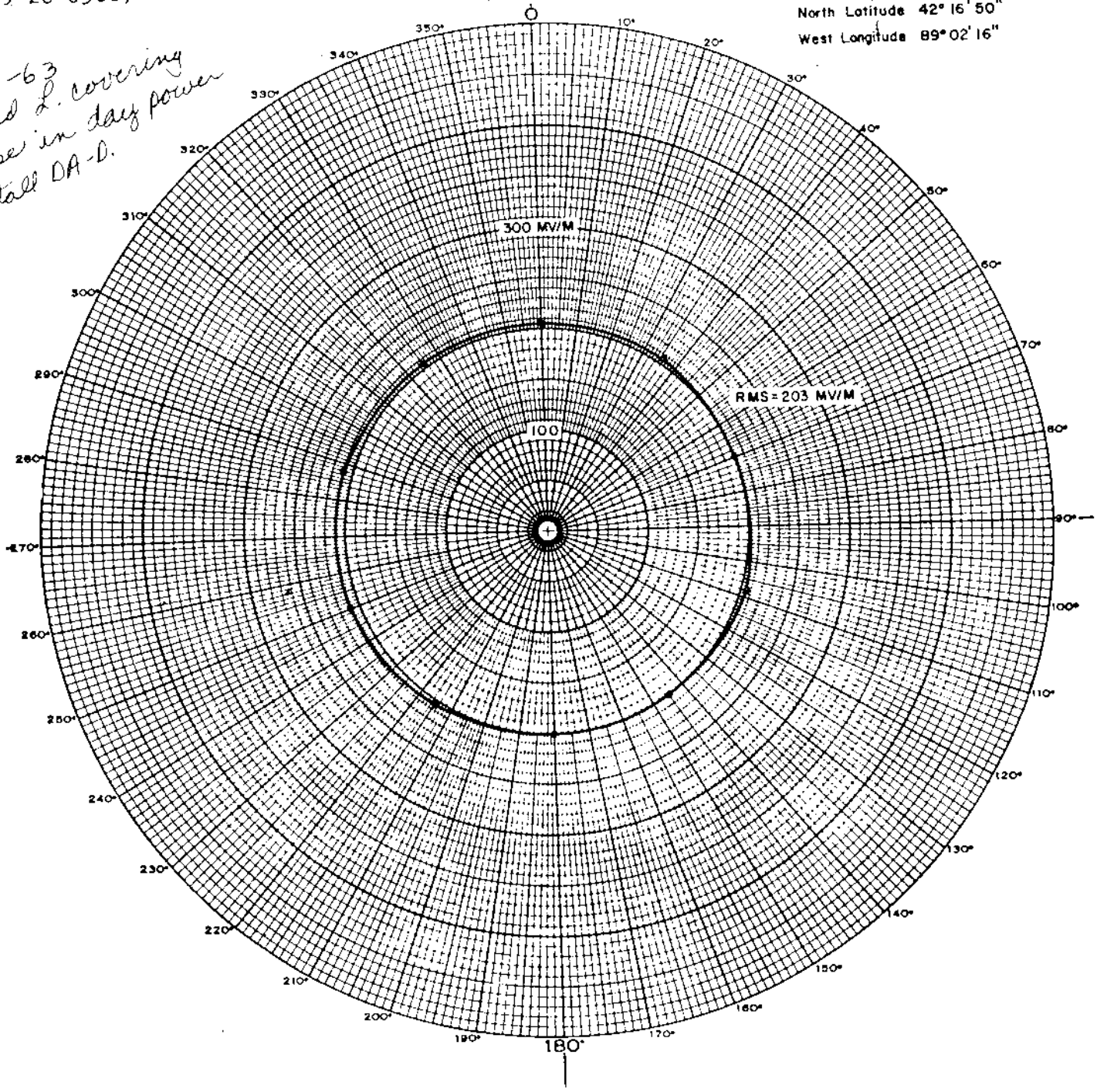


FIGURE 6
HORIZONTAL RADIATION PATTERN
(NON-DIRECTIONAL)
ROCKFORD BROADCASTERS, INCORPORATED
WROK 0.5 KW, 5 KW-LS, DA-D 1440 KC
ROCKFORD, ILLINOIS
Prepared by
Lohnes and Culver *Washington 4, D.C.*
February 1963

FCC File No.BL-9883
Accepted 5-9-63

Station WROK
Rockford, Illinois
1440 kc

XERAL

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: XERAL

Main Studio: Tonala, Jalisco

Frequency: 1440 kHz

Power: 5kw

Notification List No. 292

Date: November 1, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 20° 37' 25"
West Longitude: 103° 15' 49"

ANTENNA CHARACTERISTICS

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

TOWER:	#1(N)	#2(S)
HEIGHT ABOVE INSULATORS:	498.7	498.7'
DAY PHASING:	0°	135°
DAY FIELD RATIO:	1	1

SPACING AND ORIENTATION: The towers are spaced 132.9' (70°) on a line bearing 166° true.

GROUND SYSTEM: 90 - 498.7' equally spaced copper radials 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
Day	416.76 mv/m

XERAL

XERAL

1440 KHz. 5 KW. AD

PATRON DE RADIACION

TONALA, JAL. SEPTIEMBRE DE 1979

DESCRIPCION DEL SISTEMA RADIADOR DIRECCIONAL XERAL

1. LISTA DE CAMBIOS
2. FECHA SEPTIEMBRE DE 1979
3. FRECUENCIA 1440 KHz
4. DISTINTIVO XERAL
5. POBLACION TONALA JALISCO
6. UBICACION
7. POTENCIA 5000 AD-D
8. CLASE III

LAT. NORTE 20°-37'-25"
LONG. OESTE 103°-15'-49"

CARACTERISTICAS TECNICAS DEL RADIADOR

9. TIEMPO DE OPERACION DIURNO
10. SISTEMA DEL RADIADOR DIRECCIONAL - DIURNO
11. NUMERO DE ELEMENTOS DOS

TIPO DE ELEMENTOS RADIADORES

12. TIPO DE ALIMENTACION SERIE
13. SECCION TRANSVERSAL FORMA TRIANGULAR DIMENSIONES 45 CMS. POR LADO
14. TIPO DE ELEMENTO RADIADOR VERTICAL
15. TIPO DE SOPORTE CON RETENIDAS TIPO DE RETENES CABLE ACERO DE 6.3 mm. DE DIAM.
16. LONGITUD DE TOPETE CAPACITIVO
17. IMPEDANCIA MUTUA $Z_{12} = 26.15 - j\,8.50$ IMPEDANCIA PROPIA $45 + j\,30 = Z_{11} = Z_{22}$
18. NUMERO DE ELEMENTOS 1 2
19. ALTURA SOBRE EL AISLADOR 52 M. 52 M.
20. DEFASAMIENTO 0° 135°
21. RELACION DE CAMPO 1 1
22. DESCRIPCION DE LA ORIENTACION DEL SISTEMA RADIADOR EL EJE DE LAS TORRES SE ENCUENTRA A 166° RESPECTO DEL NORTE GEOGRAFICO, LA SEPARACION ENTRE TORRES ES DE 70° Y LA FASE DE LAS CORRIENTES ES DE 135° Y EN RELACION ES LA UNIDAD.

SISTEMA DE TIERRA

23. NUMERO DE RADIALES POR ELEMENTO 90
24. LONGITUD DE LOS RADIALES 52
25. TIPO DEL RADIAL ALAMBRE DE COBRE No. 10

RADIACION DEL SISTEMA

26. INTENSIDAD DE CAMPO EFECTIVO TEORICO (OMNIDIRECCIONAL) DE LA POTENCIA RADIADA (HCM) 416.76
27. INTENSIDAD DE CAMPO EFECTIVO TEORICO A 1609 mts POR KW DE POTENCIA RADIADA 190 MV/M
28. NOTA PATRON NUEVO

REVISO

XERAL

PATRON DE RADIACION HORIZONTAL TABULADO

OPERACION DIURNA

XERAL

1440 KHz

5,000 WATTS

TONALA JAL.

$$E_\theta = 2E \cos\left[\frac{s}{2}\cos(166-\theta) + \frac{\psi}{2}\right]$$

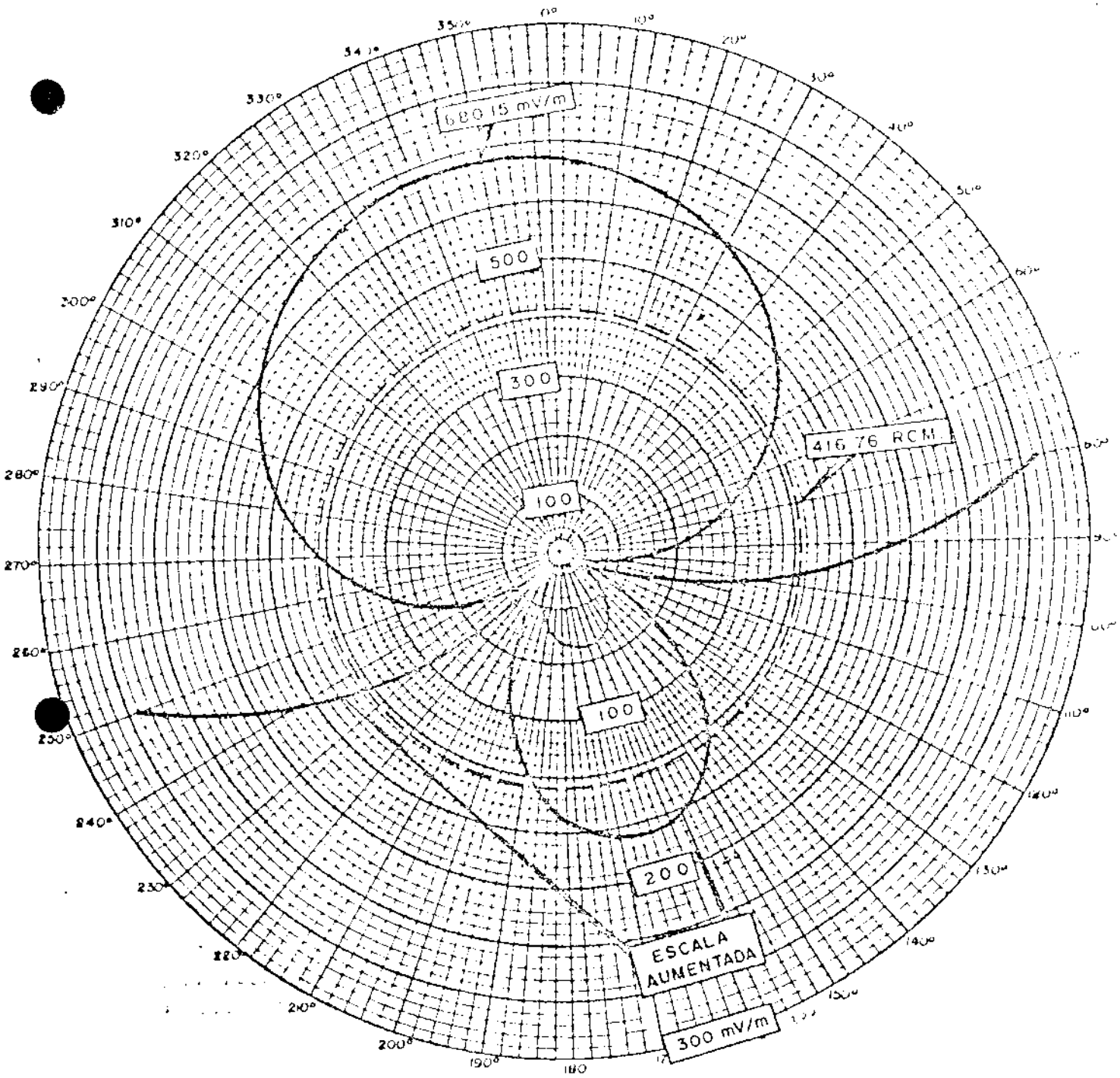
$E_1 = 40361$

$s = 70°$

$\psi = 135°$

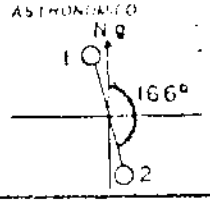
AZIMUT	A	B	C	D	F	E (mV./M)
θ	$\cos(166-\theta)$	$\frac{S}{2}A$	$B+\frac{\psi}{2}$	$\cos C$	2D	|F|
0	-0.9702	-33.9603	33.5396	0.8335	1.6670	672.8208
10	-0.9135	-31.9740	35.5259	0.8138	1.6277	656.9582
20	-0.8290	-29.0163	38.4836	0.7827	1.5655	631.8800
30	-0.7193	-25.1768	42.3231	0.7393	1.4787	596.8258
40	-0.5877	-20.5724	46.9275	0.6829	1.3658	551.2691
50	-0.4383	-15.3429	52.1570	0.6134	1.2269	495.2292
60	-0.2756	-9.6473	57.8526	0.5320	1.0641	429.5200
70	-0.1045	-3.6584	63.8415	0.4408	0.8817	355.8676
80	0.0697	2.4414	69.9414	0.3429	0.6859	276.8601
90	0.2419	8.4672	75.9672	0.2424	0.4849	195.7316
100	0.4067	14.2357	81.7357	0.1437	0.2874	116.0283
110	0.5591	19.5717	87.0717	0.0510	0.1021	41.2371
120	0.6947	24.3130	91.8130	-0.0316	-0.0632	-25.5390
130	0.8090	28.3155	95.8155	-0.1013	-0.2026	-81.7932
140	0.8987	31.4577	98.9577	-0.1557	-0.3114	-125.689
150	0.9612	33.6441	101.1441	-0.1932	-0.3865	-156.018
160	0.9945	34.8082	102.3082	-0.2131	-0.4263	-172.076
170	0.9975	34.9147	102.4147	-0.2149	-0.4299	-173.541
180	0.9702	33.9603	101.4603	-0.1986	-0.3973	-160.386
190	0.9135	31.9740	99.4740	-0.1646	-0.3292	-132.869
200	0.8290	29.0163	96.5163	-0.1134	-0.2269	-91.6082
210	0.7193	25.1768	92.6768	-0.0467	-0.0934	-37.7000
220	0.5877	20.5724	88.0724	0.0336	0.0672	27.1509
230	0.4383	15.3429	82.8429	0.1245	0.2491	100.5705
240	0.2756	9.6473	77.1473	0.2224	0.4448	179.5622
250	0.1045	3.6584	71.1584	0.3229	0.6459	260.6927
260	-0.0697	-2.4414	65.0585	0.4216	0.8433	340.3984
270	-0.2419	-8.4672	59.0327	0.5145	1.0290	415.3536
280	-0.4067	-14.2357	53.2642	0.5981	1.1962	482.8190
290	-0.5591	-19.5717	47.9282	0.6700	1.3401	540.8864
300	-0.6946	-24.3130	43.1869	0.7291	1.4582	588.5638
310	-0.8090	-28.3155	39.1844	0.7751	1.5502	625.6895
320	-0.8987	-31.4577	36.0422	0.8085	1.6170	652.7049
330	-0.9612	-33.6441	33.8558	0.8304	1.6608	670.3493
340	-0.9945	-34.8082	32.6917	0.8415	1.6830	679.3472
350	-0.9975	-34.9147	32.5852	0.8425	1.6851	680.1563

XERAL



PATRON DE RADIACION HORIZONTAL CALCULADO

ESQUEMA DE LAS TORRES Y SU ORIENTACION CON RESPECTO AL NORTE ASTRONOMICO



SARA CABAÑAS RODRIGUEZ

XERAL

1440 KHz

5,000 WATTS

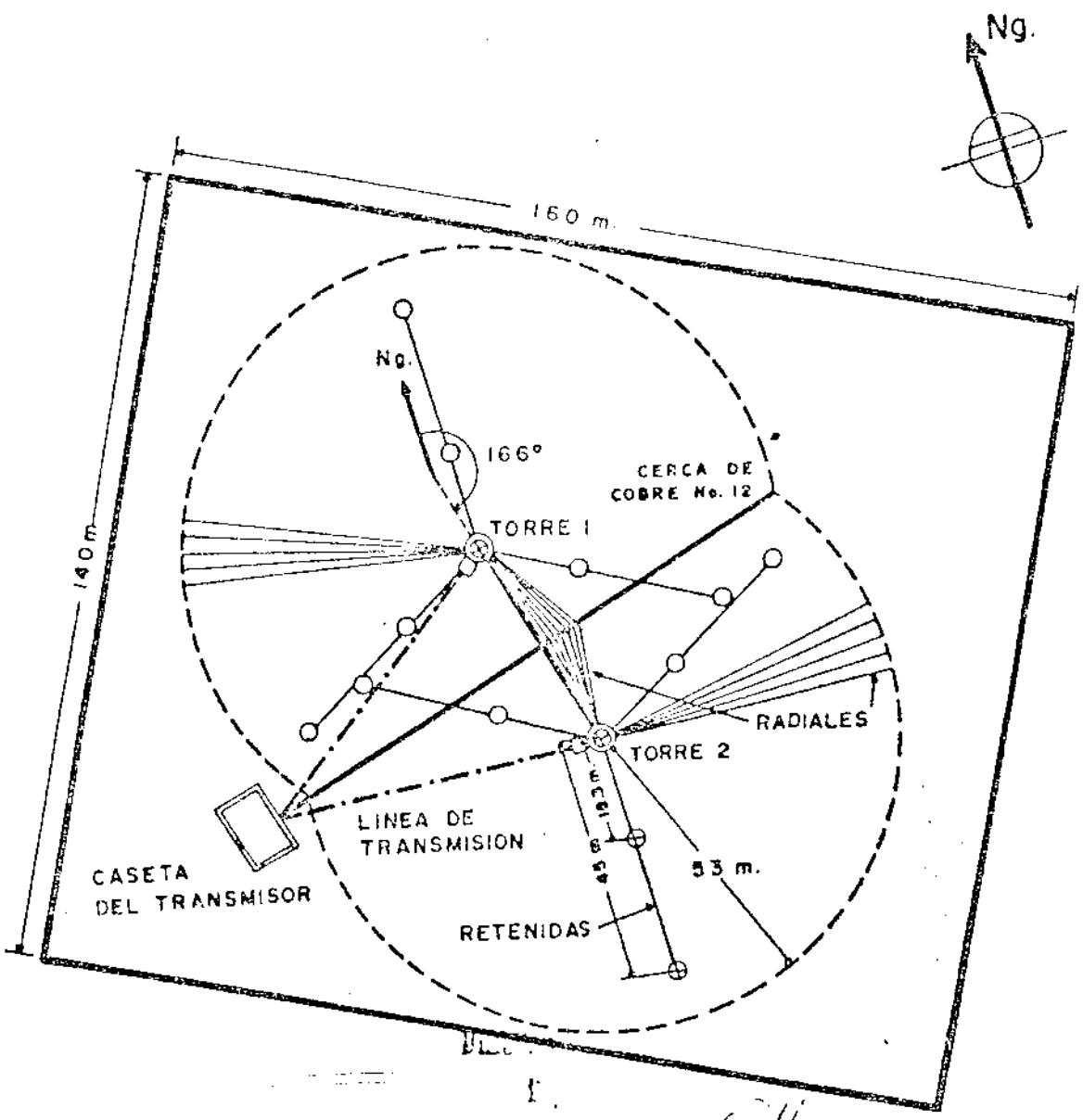
REALIZO

ING. ANTONIO DE AVILA S

SEPTIEMBRE DE 1979

APROBO

XERAL



EN TODAS LAS UNIONES SE UTILIZA SOLDADURA DE COBRE APLICADA CON ACETILENO

METROS

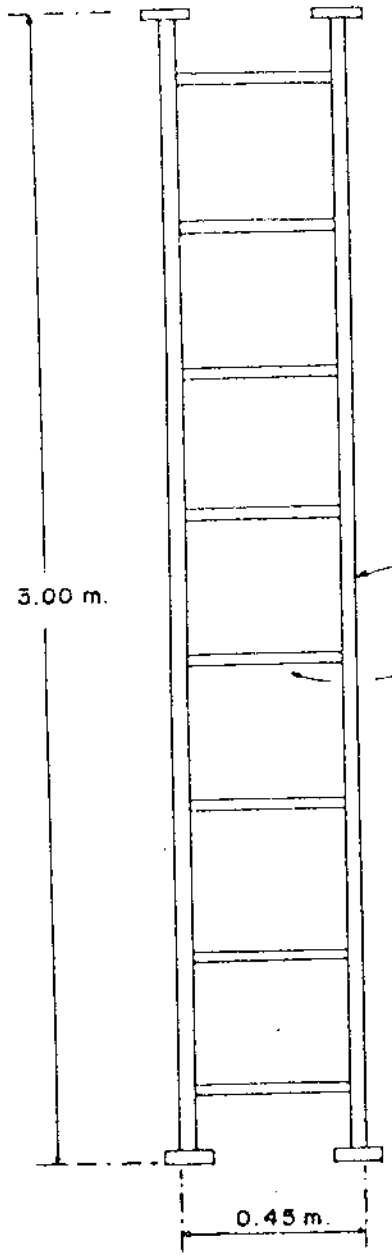
10 0 50 100

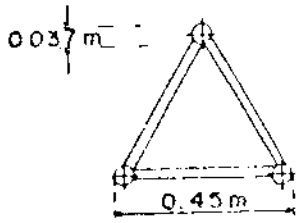
ESCALA: 1:1250

SISTEMA DE TIERRA

DESCRIPCION DEL MATERIAL	DISTINTIVO DE LLAMADA	FRECUENCIA
120 RADIALES POR TORRE IGUALMENTE ESPACIADAS PARTIENDO DE LA BASE DE CADA TORRE 53 m DE LONGITUD DE ALAMBRE No. 10 ENTERRADOS A 10 cm. DE PROFUNDIDAD	XERAL COORDENADAS GEOGRAFICAS L.N 20° 37' 25" L.W 103° 15' 49"	1440 KHz.
		PERITO EN TELECOMUNICACIONES ING. ANTONIO DE AVILA S. REGISTRO No 7
		FECHA SEPTIEMBRE DE 1979

XERAL





SECCION TRANSVERSAL
ESCALA 1 : 20

LARGUEROS = tubo 1½" Cal. 13 redondo

ESCALONES = tubo 1¾" x ¾" Cal. 13 ovalado

TIPO T-60
SECCION TRIANGULAR
GALVANIZADO EN CALIENTE
ESCALA 1 : 20

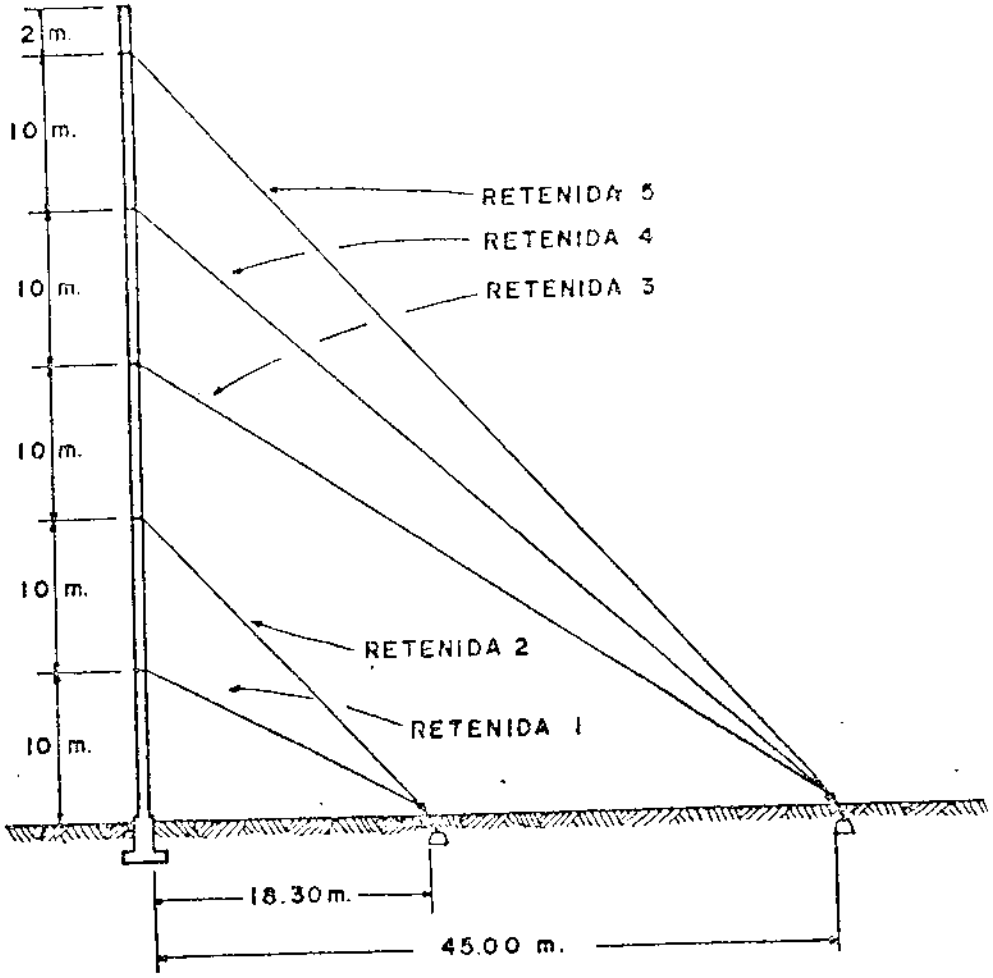
UNION = bridas ¼"

DETALLE SECCION DE TORRE — ANTENA

FRECUENCIA: 1440 KHz.	SARA CABAÑAS RDGZ.	RESPONSABLE TECNICO: ING. ANTONIO DE AVILA SERAFIN
POTENCIA: 5,000 WATTS.	XERAL TONALA, JAL.	FECHA: SEPTIEMBRE DE 1979

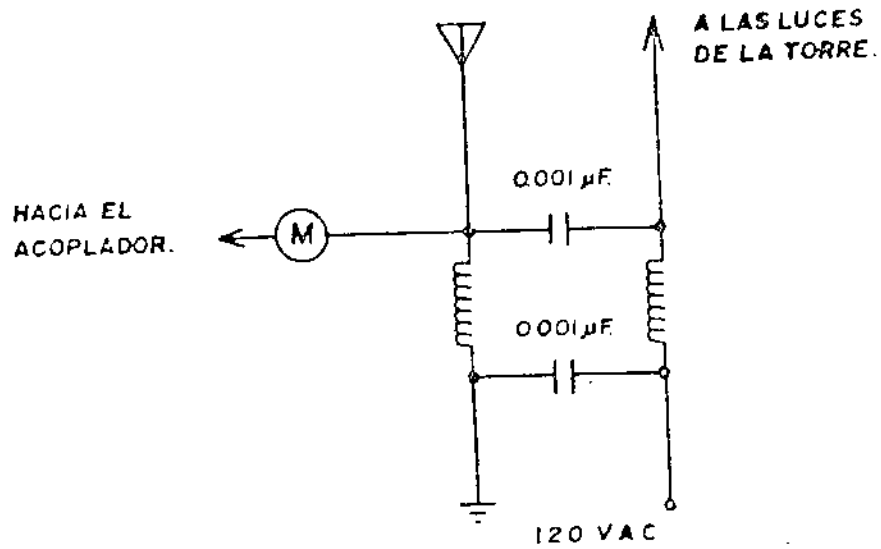
XERAL

ESCALA 1:500



DETALLE DE LA TORRE Y RETENIDAS

FRECUENCIA 1440 KHz.	SARA CABAÑAS RDGZ. XERAL TONALA JAL.	RESPONSABLE TECNICO ING. ANTONIO DE AVILA
POTENCIA 5,000 WATTS.		FECHA SEPTIEMBRE DE 1979



SISTEMA DE ALIMENTACION DE 120 V.A.C
PARA EL ALUMBRADO DE LA TORRE.

XERAL
1440 KHZ.

APROBO

XERAL

216

Description Sheet
(8-26-66ct)

New Station
St. Eleuthere, P. Q.

250w,U,Class IV
1450 kc

DESCRIPTION SHEET - OMNIDIRECTIONAL ANTENNA

STATION CALL: New

MAIN STATION: Ville la Pocatière, Què.
STATION LOCATION: St. Eleuthere, P. Q.
FREQUENCY: 1450 KHz

POWER: 0.25 KW

CLASS: IV

TIME: Day and Night Operation

NOTIFICATION LIST NO.: 216 DATE: July 26, 1966

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM: 47° 28' 45" N. Lat.
69° 16' 35" W. Long.

ANTENNA CHARACTERISTICS:

HEIGHT: 142 ft. (75°)

TYPE OF ELEMENT: Triangular, uniform cross-section, guyed, base insulated, series fed, no top loading.

GROUND SYSTEM: 120 equally spaced radials consisting of #10 B&S bare soft-drawn copper wire buried approx. 8" in ground. The radials extend to a length of at least 275 ft.(equivalent to 0.4)

EXPECTED EFFICIENCY: 92.5 mV/m @ 1 mile for 0.25 KW
or
185 mV/m @ 1 mile for 1 KW.

CBG
1450

AIR SERVICES
TELECOMMUNICATIONS DIVISION
5-10-47

CANADA

REFER TO FILE NUMBER

DEPARTMENT OF TRANSPORT

(REVISED)

DESCRIPTIVE SHEET - OMNIDIRECTIONAL ANTENNA

Station Call:	CBG
Main Studio:	Gander, Newfoundland
Frequency:	1450 Kc/s.
Power:	250 watts
Class:	IV
Time:	U

Geographical Location:

North Latitude: 48° 57' 19"

West Longitude: 54° 36' 48"

Antenna Characteristics:

Height: 110 ft. 72 degrees electrical including top loading.

Expected efficiency: 75 mv/m at 1 mi. for 0.25 KW.

or: 150 mv/m at 1 mi. for 1 KW.

Ground System: Rods driven into ground, connected to tower base by radials and a ground lead bonded to the water system.

Type of Element: Constant triangular cross-section tower, guyed, base insulated for series feed. Top loading employed.

Nov 26-52

CFAB
1450

AIR SERVICES
TELECOMMUNICATIONS DIVISION
(5-10-99)

CANADA

DEPARTMENT OF TRANSPORT

DESCRIPTIVE SHEET - OMNIDIRECTIONAL ANTENNA

Station Call: CFAB

Main Studio: Windsor, Nova Scotia

Frequency: 1450 Kc/s.

Power: 0.25 Kw.

Class: IV

Time: U

Notification Reference: NARBA Annex 3

Geographical Location:

North Latitude: 44° 59' 52"

West Longitude: 64° 09' 45"

Antenna Characteristics:

Height: 90 ft. 52 degrees

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

or: 180 mv/m at 1 mi. for 1 Kw.

Ground System:

120 radial ground wires approximately 230 feet long.

Type of Element:

One radiator, guyed, insulated, series-fed; top loading is a "capacity hat", 4-foot diameter wheel with 16 spokes.

November 26, 1952

#132

CFJR

DESCRIPTION SHEET
(5-28-59g)

Station CFJR 250w, 1kw-LS, DA-D,U, Class IV
Brockville, Ontario, Canada 1450 KC

Description of Array

Station CFJR Main Studio Brockville, Ontario

Frequency 1450 kc Power 1 kw D/0.25 kw N Class IV

Notification List No. 132 Date April 9, 1959

Geographical Location of Antenna System

North Latitude 44° 36' 22"
West Longitude 75° 43' 09"

Antenna Characteristics

Mode of Operation: DA-D, ND-N

Number of Elements: 2

Type of Elements: guyed, uniform cross section, no top loading.

	North Tower		South Tower
Height above Insulators	170'		100'
Overall Height	173'		103'
Spacing		141'	
Phasing	0°		+85.5°
Field Ratio	1.0		0.193

Orientation: Line through towers in Azimuth 173°.

Ground System: Around each tower base, 120 radials spaced to to limit of property approximately 400' [illegible], plus 120 radials interspaced, each 40' long.

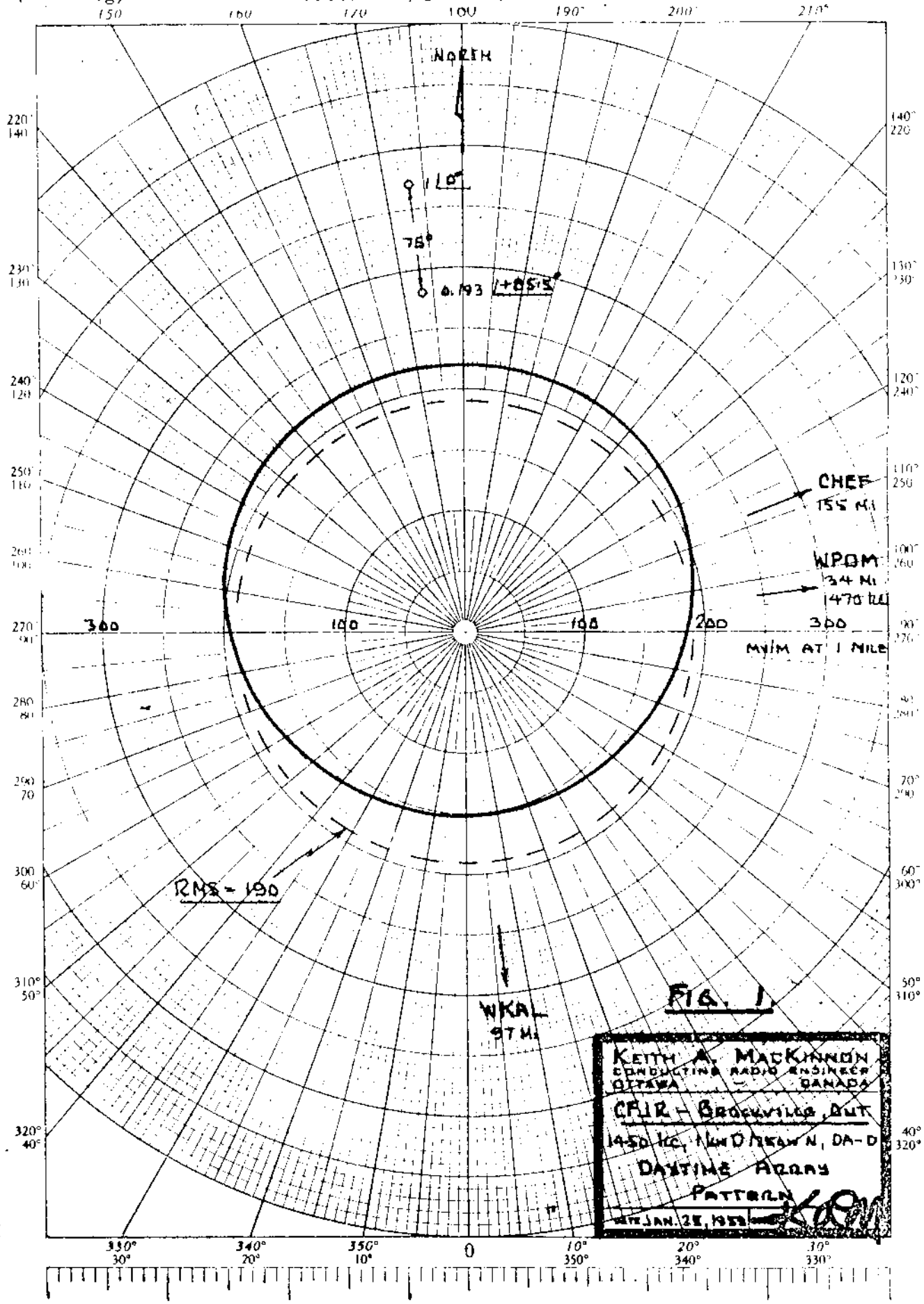
Predicted Effective Field: 190 mv/m at 1 mile (190 per kw)

F32

CFJR

PROPOSED DAY
(5-28-59g)

Station CFJR 250w, 1kw-LS,DA-D,U,Class IV
Brockville, Ontario, Canada 1450 KC



CHEF

ANTENNA DESCRIPTION SHEET

1. Call Letters: CHEF

2. Station: Granby, Quebec.

3. Frequency: 1450 kHz

4. Power: 10 Kw D/5 Kw N

5. Class: IV (U)

6. Notification No.: 296 Date: September 7, 1972.

7. Co-ordinates: North Latitude: 45° 19' 03"
West Longitude: 72° 41' 43"

8. Antenna System: a) Mode of Operation: DA-2

b) Type: four elements, guyed triangular and series fed.

c) ground system: 120 No. 10 equally spaced radials of a length 271' (0.4λ) with interconnected straps buried approximately 8 inches.

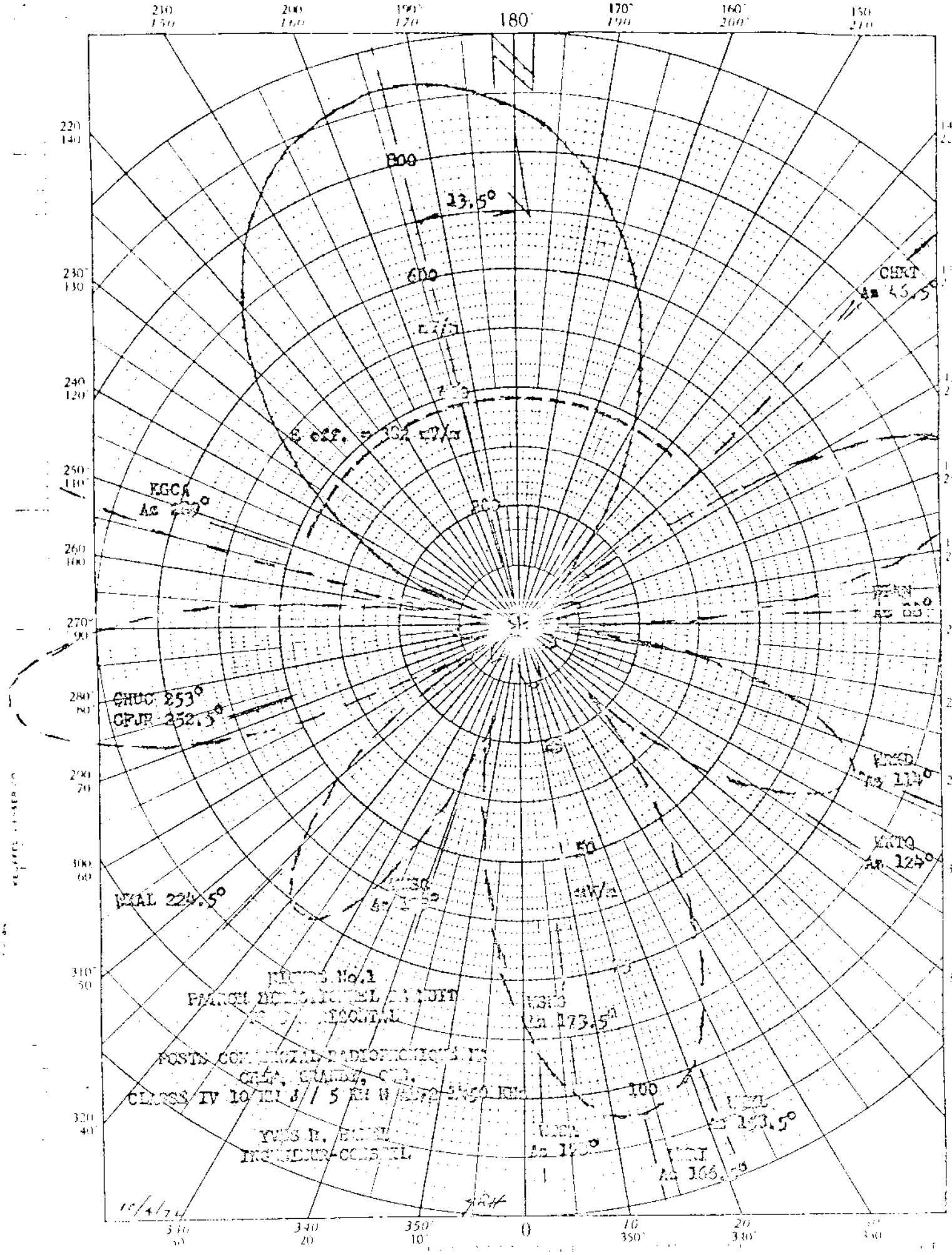
9. Antenna Characteristics:

		No. 1 South	No. 2	No. 3	No. 4 North
Orientation (Az.)		166.5°	Ref.	346.5°	346.5°
Height above insulator:		165'	165'	165'	165' (87.8°)
Spacing:		80°	Ref.	80°	160°
Phasing:	Day:	+140°	+10°	-140°	-
	Night:	+160°	+0.5°	-160°	+42°
Field intensity ratio:	Day:	0.9672	1.0	0.6393	-
	Night:	0.4516	1.0	0.9677	0.4194

10. Predicted efficiency: Day: 597 mVm
Night: 382 mVm

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

CHEF


180°
800
13.5°
600
CHRT
EGCA
CHUC 253°
CFUR 252.5°
EKKD
EKTQ
EXAL 229.5°
100
0

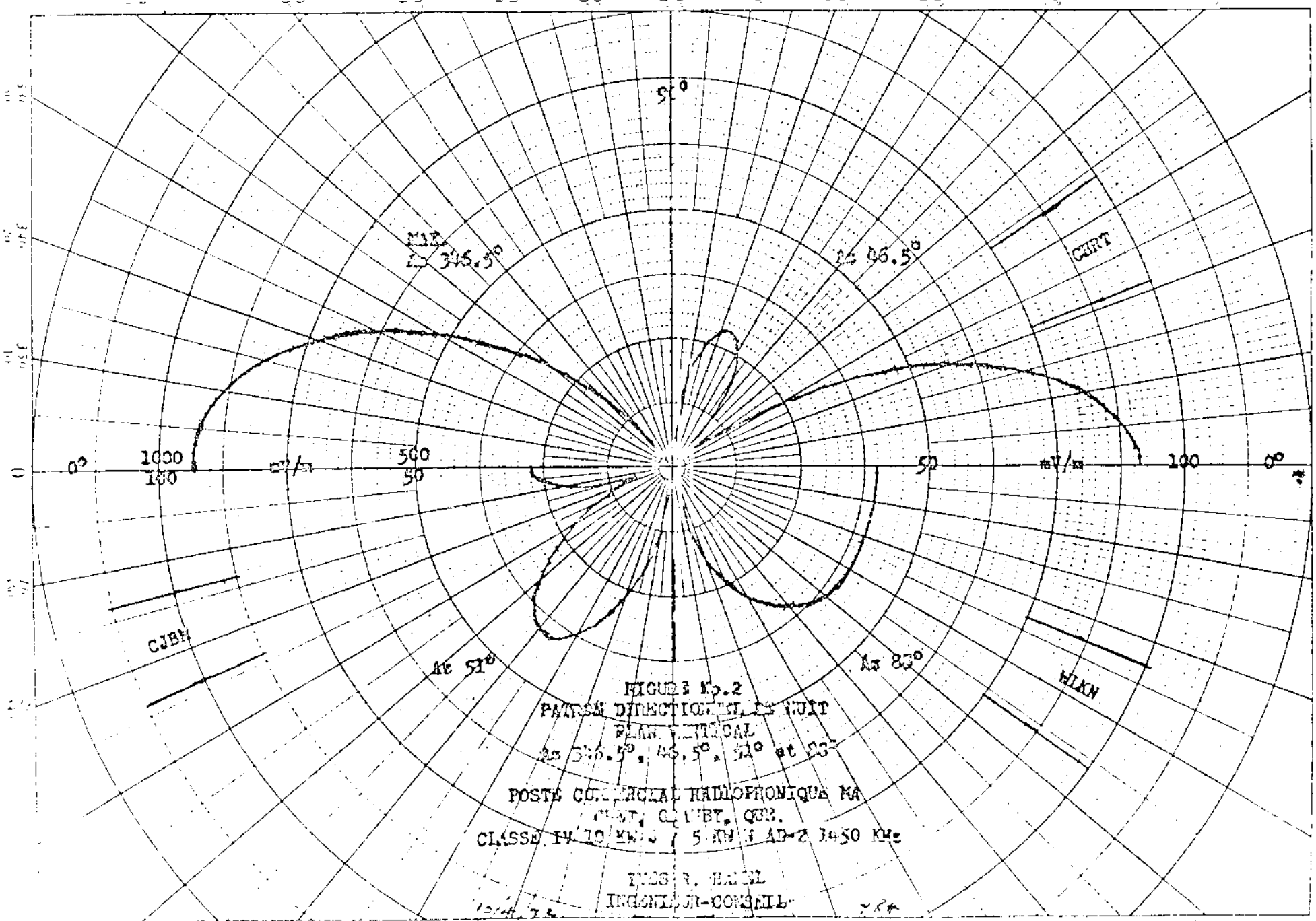


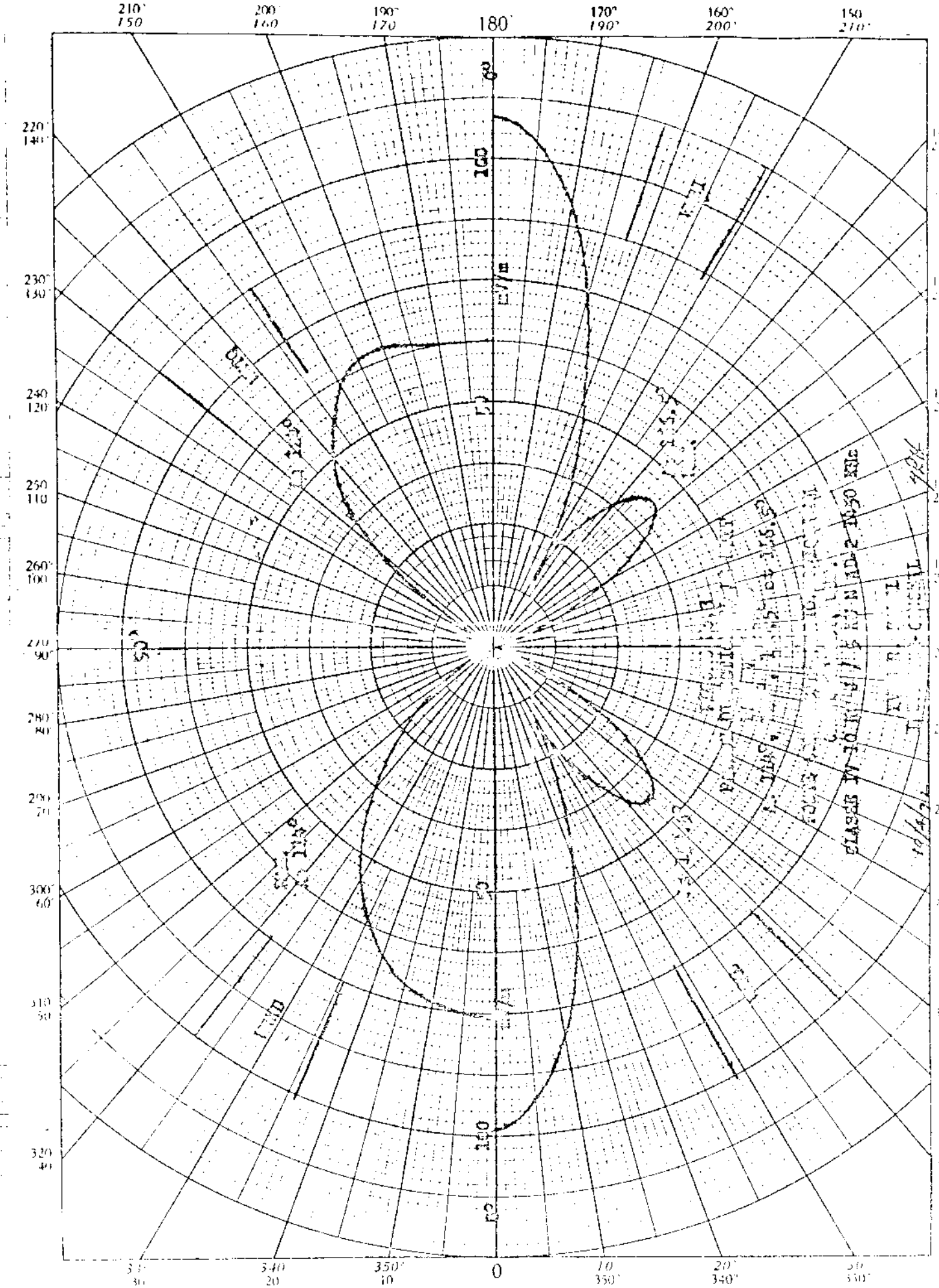
FIGURE No.2
PATRON DIRECTIONNEL DE NUIT
PLAN VERTICAL
As 306.5°, 86.5°, 51° et 86°

POSTE COMMERCIAL RADIOPHONIQUE MA
CHAT, C. CHBT, QUB.
CLASSE IV 10 KW / 5 KW ; AD-2 3450 KHz

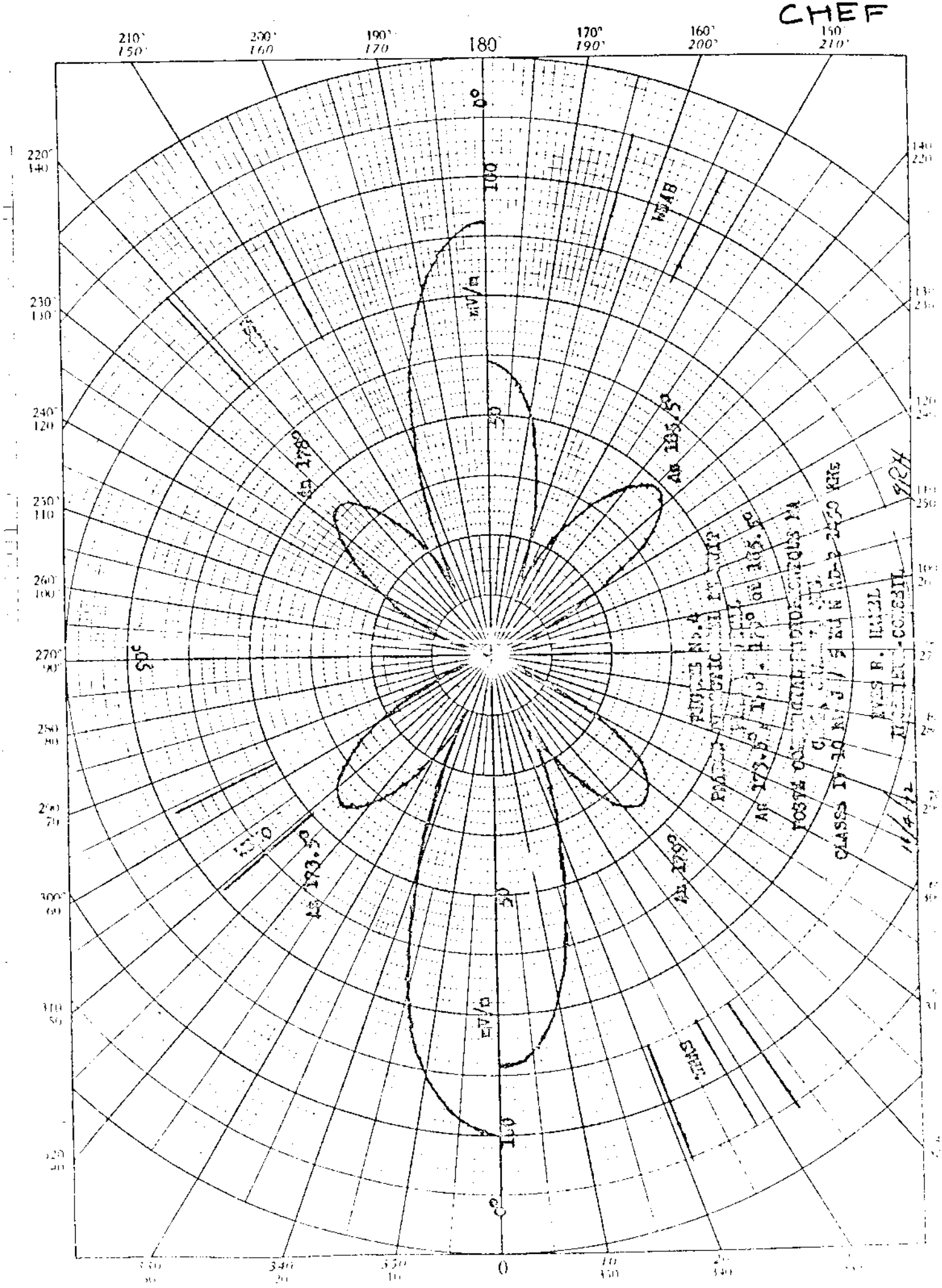
INGS R. HAGEL
INGENIEUR-CONSEIL

CHEF

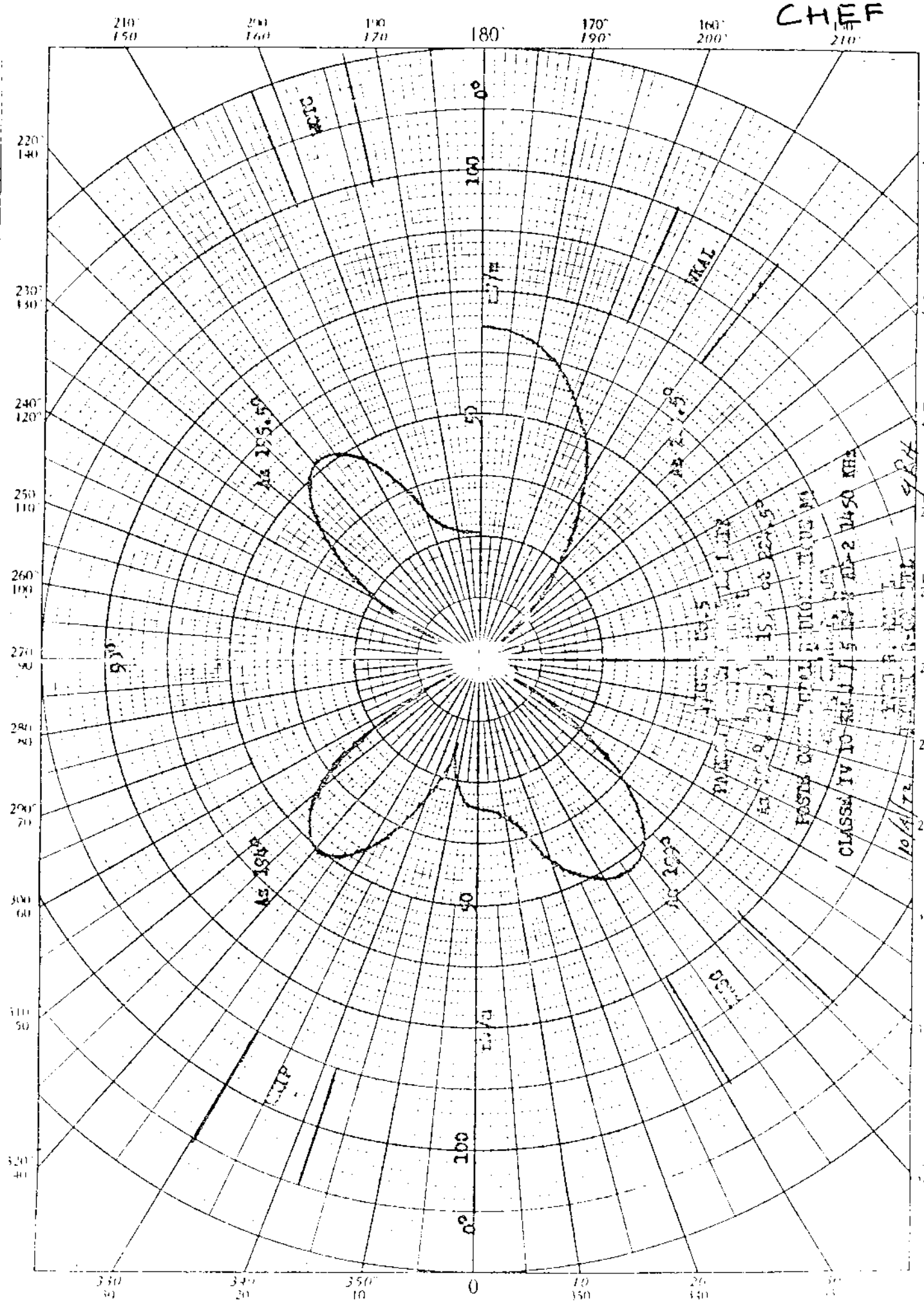
CHEF


180°
0
90
100
110
50
210°
150
200°
160
190°
170
170°
190°
160°
200°
150
210°
220°
140°
230°
130°
240
120°
250
110
260°
100
270
90°
280
80
290
70
300°
60°
310
50
320
40
340
20
350°
10
10
350°
20°
340°

CHEF


180°
0°
100
20
10
mV/m
AB 105.5°
AB 178°
AB 173.5°
AB 178°
AB
10.0
CLASS IV 30 MHz
1/4/72

CHEF


180°
0°
100
50
50
100
0°
0
CLASS IV
POSTS
2450 MHz
ZS-2
Az 195.5°
Az 194°
Az 200°
Az 195.5°
MKAL
CHP
CHC
CHF

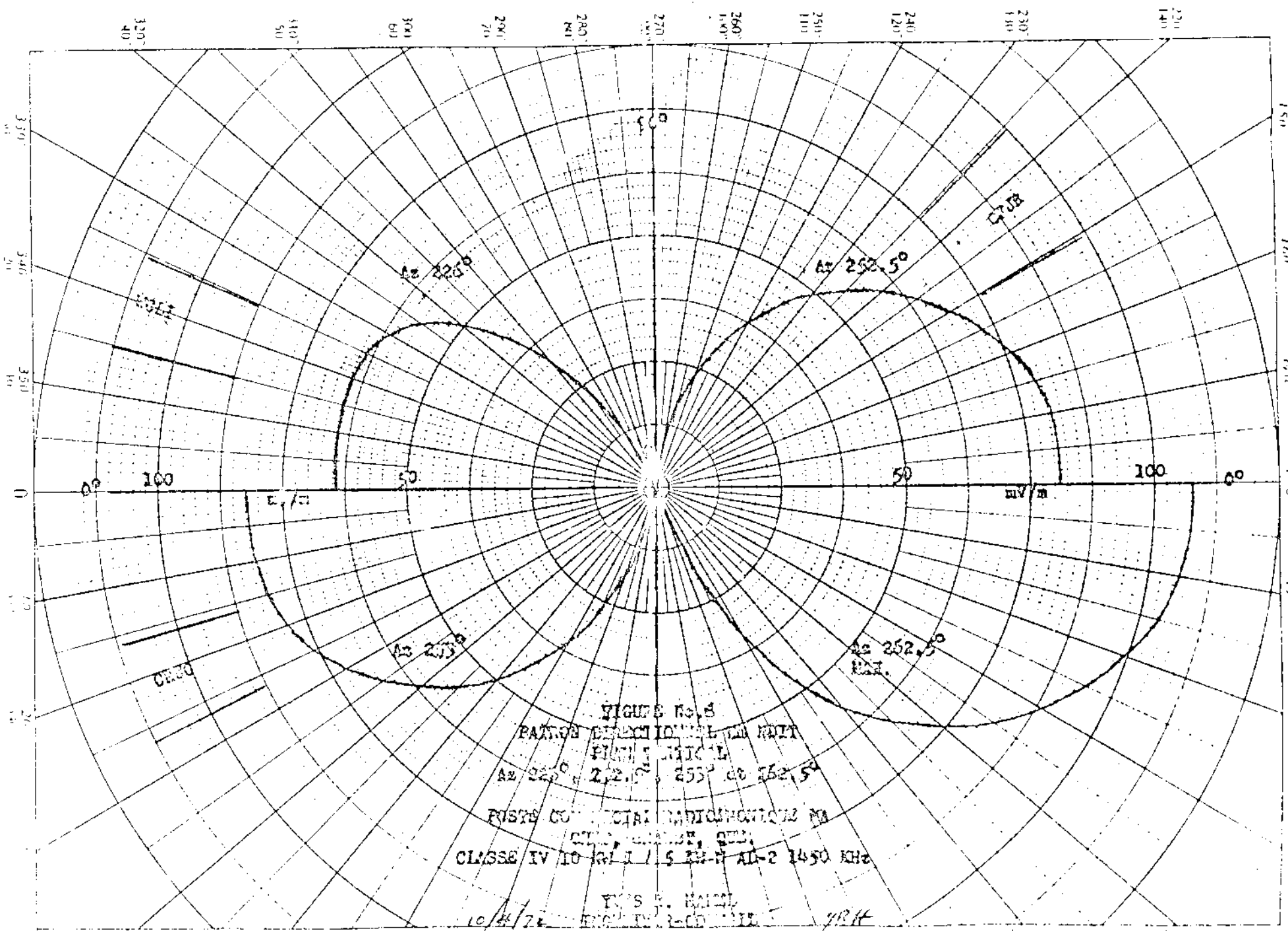


FIGURE No. 8
PATTERN DIRECTIONAL ON NIGHT
FIGURE 1 [illegible]
Az 220°, 222.5°, 255° & 252.5°

POSTS COMMERCIAL RADIOBROADCAST [illegible]
[illegible], [illegible], [illegible]
CLASSE IV 10 KW [illegible] 5 KW-N AM-2 1450 KHz

[illegible] R. HAIGH
10/4/72 [illegible] [illegible]

CHEF

CHEF

Description Sheet
(2-28-69ct)

Station CHEF
Granby, P.Q.

5kw,10kw-LS,DA-2,U,Class IV
1450 kc

DESCRIPTION OF THE DIRECTIONAL ANTENNA SYSTEM

CALL SIGN:	CHEF
LOCATION:	Granby, P.Q.
FREQUENCY:	1450 kHz
POWER:	10 kW D/5 kW N
CLASS:	IV, (U)
NOTIFICATION NO. 251	DATE: January 28, 1969
COORDINATES:	Latitude North: 45° 19' 03"
	Longitude West: 72° 41' 43"

ANTENNA SYSTEM:

Mode of Operation: DA-2

Type: three triangular section elements and one square section element (No. 4), guyed and series fed.

Ground system: 120 No. 10 wires per element, evenly spaced and 0.4 in length, approximately 8 inches underground.

ANTENNA MASTS:	No. 1 South	No. 2	No. 3	No. 4 North
Orientation (in line)	Az 166.5°	Ref.	Az 346.5°	Az 346.5°
Height above insulator:	165' (87.8°)	165'(87.8°)	165'(87.8°)	154'(82°)
Spacing:	80°	Ref.	80°	160°
Phasing:	Day: +140°	+10°	-140°	-
	Night: +160°	+0.5°	-160°	+42°
Field ratio:	Day: 0.9672	1.0	0.6393	-
	Night: 0.4516	1.0	0.9677	0.4194
EXPECTED EFFICIENCY:	Day: 597 mV/m			
	Night: 382 mV/m			

CHEF

Description Sheet
(6-27-69ct)

Station CHEF
Granby, Quebec

250w,1okw-LS,DA-D,U,Class IV
1450 kc

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Call Sign: CHEF

Location: Granby, Quebec

Frequency: 1450 kc/s

Power: 10 kw Day 0.25 kw Night

Notification List No. 257

Date: June 5, 1969 Class: IV (u)

GEOGRAPHICAL LOCATION OF THE DAY AND NIGHT ANTENNA SYSTEMS:

	DAY	NIGHT
North Latitude:	45° 19' 03"	45° 24' 58"
West Longitude:	72° 41' 43"	72° 45' 13"

Description of the Day Antenna System. (DA-D)
Number of elements: 3
Type of elements: Triangular section, guyed and series fed.

ANTENNA CHARACTERISTICS:	NO.1 SOUTH	NO.2 CENTRE	NO.3 NORTH
ORIENTATION (IN LINE)	Az 166.5°	REF.	Az 346.5°
HEIGHT ABOVE	165'	165'	165' (87.8°)
INSULATOR SPACING:	80°	REF.	80°
PHASING:	+140°	+10°	-140°
FIELD RATIO:	0.9672	1.0	0.6393

GROUND SYSTEM: 120 radials of No. 10 solid copper wire per tower, evenly spaced and 0.4λ in length, approximately 6 inches underground.

EXPECTED EFFICIENCY: 597 mv/m

Description of the Night Antenna System (omnidirectional)
Number of elements: 1
Type of elements: Guyed, square section tower, series fed.

ANTENNA CHARACTERISTICS:

HEIGHT: 154' (82°)

GROUND SYSTEM: 120 radials of No. 10 solid copper wire, evenly spaced and approximately 350' in length, buried 6 inches deep.

EXPECTED EFFICIENCY: (omnidirectional) 91 mv/m

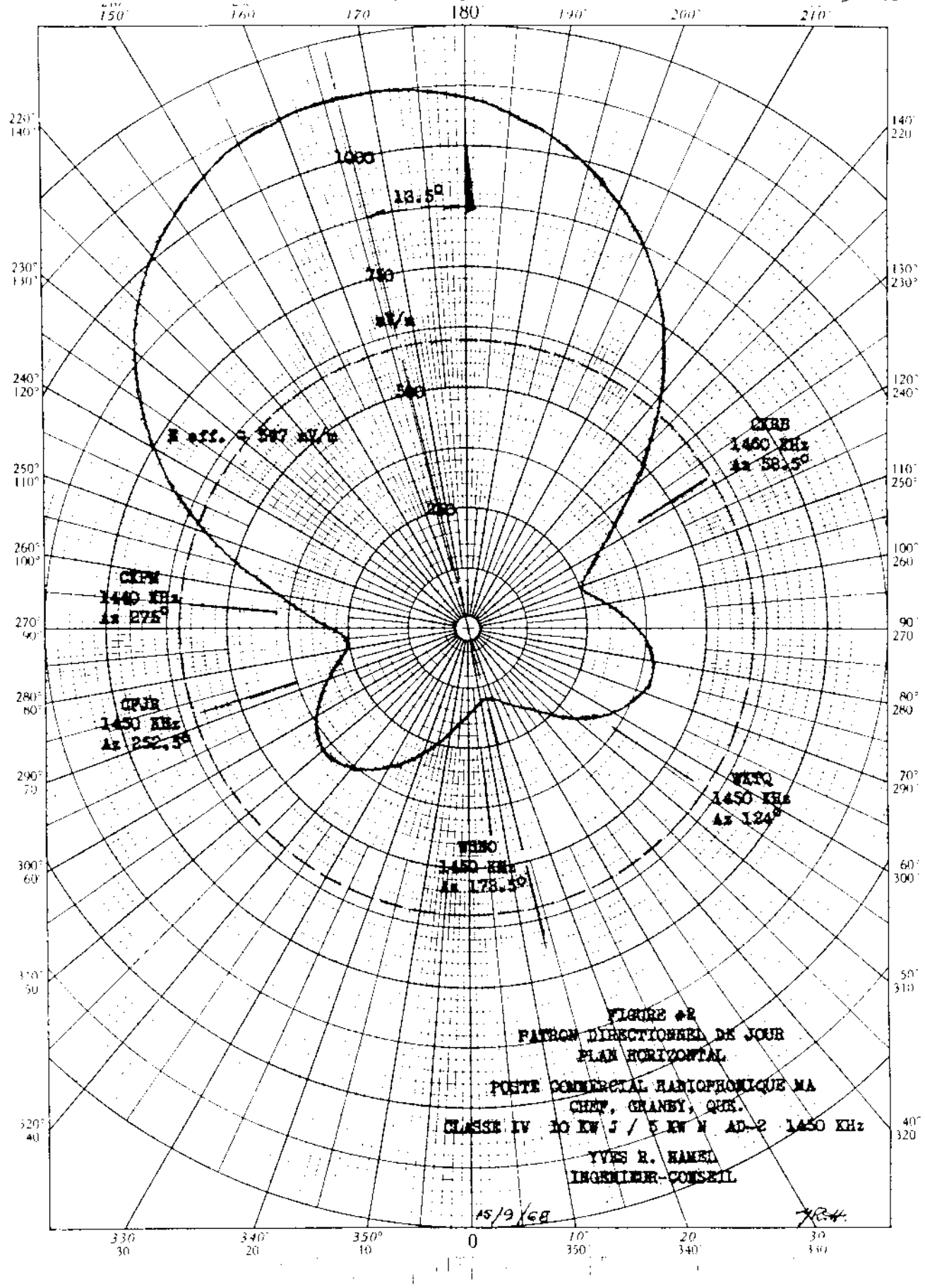
NOTE: Please retain the daytime directional antenna radiation pattern notified in Canadian change List No. 251, dated January 29, 1969 and attach to this Description Sheet.

CHEF

Proposed Day
(2-28-69ct)

Station CHEF
Granby, P.Q.

5kw,10kw-LS,DA-2,U,Class IV
1450 kc



CHEF

Proposed Night
(2-28-69ct)

Station CHEF
Granby, P.Q.

5kw,10kw-LS,DA-2,U,Class IV
1450 kc

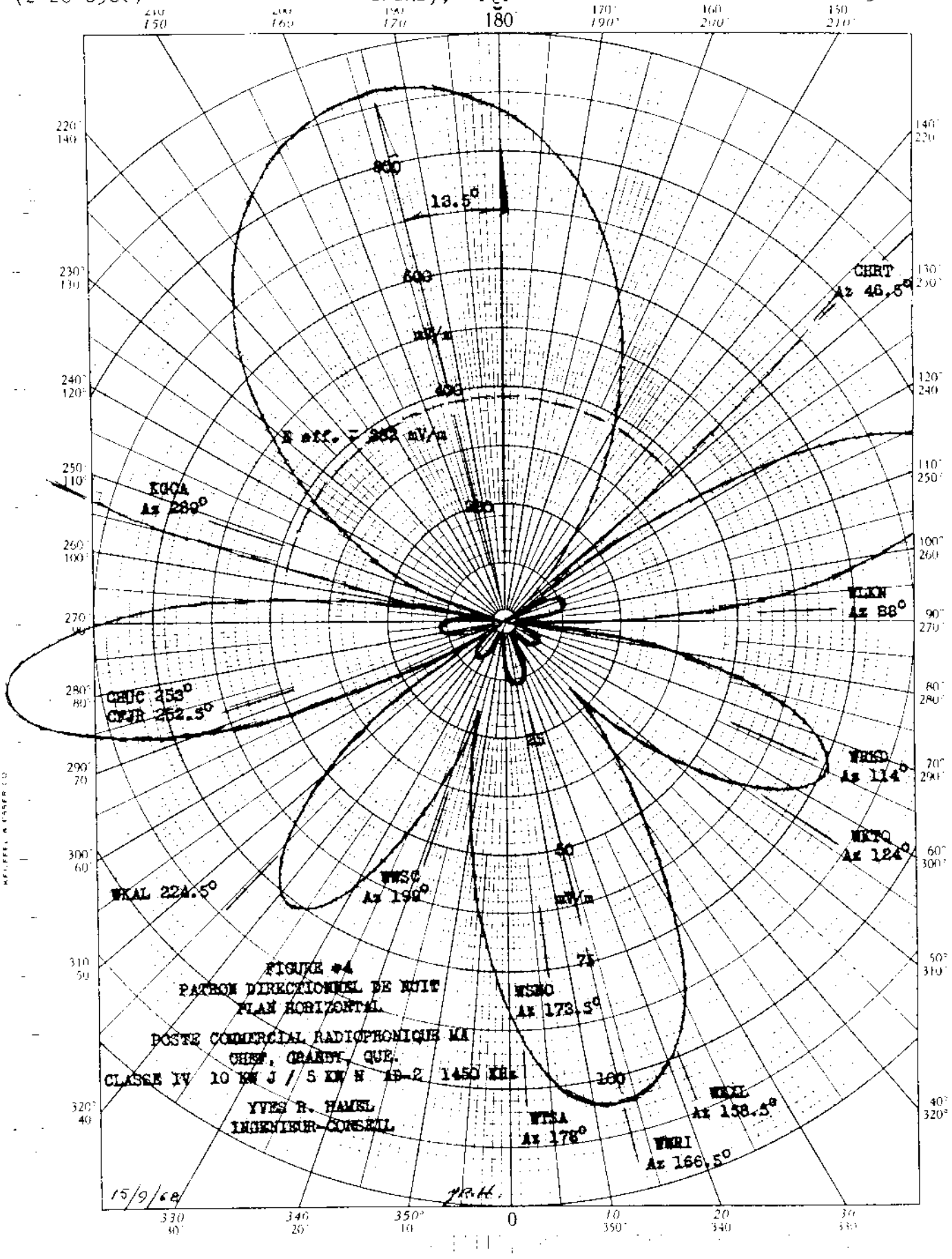


FIGURE #4
PATRON DIRECTIONNEL DE NUIT
PLAN HORIZONTAL

POSTE COMMERCIAL RADIOPHONIQUE MA
CHEF, GRANBY, QUE.
CLASSE IV 10 KW J / 5 KW N DA-2 1450 KHz

YVES R. HAMEL
INGENIEUR-CONSEIL

15/9/68

POLAR COORDINATE 46 4413

CHEF

Proposed Day Nulls
(2-28-69ct)

Station CHEF
Granby, P.Q.

5kw,10kw-LS,DA-2,U,Class IV
1450 kc

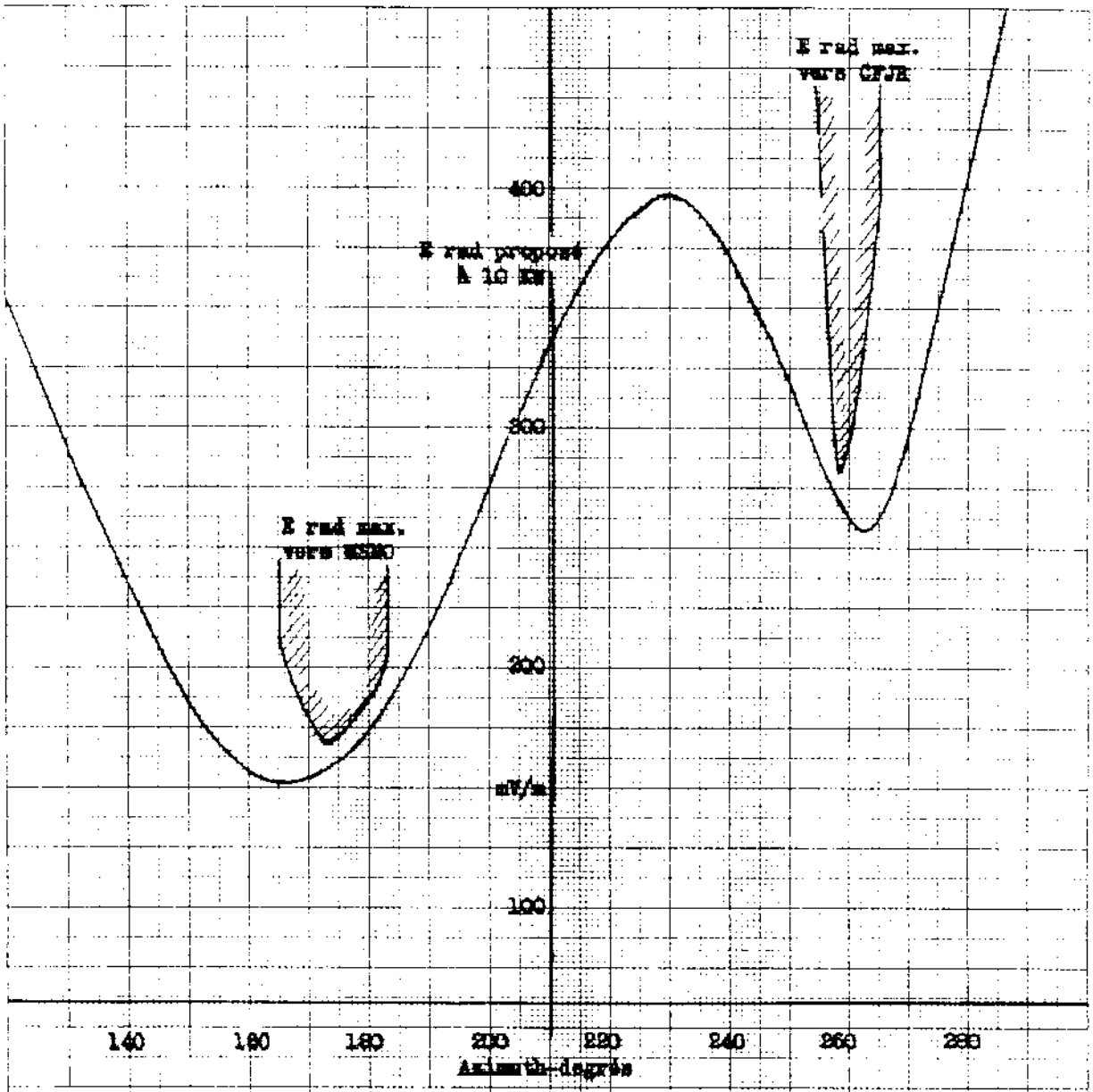


FIGURE #3
LIMITES DE RADIATION DE JOUR
POSTE COMMERCIAL RADIOPHONIQUE MA
CHEF, GRANBY, QUE.
CLASSE IV 10 KW J / 5 KW N AD-2 1450 KHz

YVES R. HAMEL
INGENIEUR-CONSEIL

15/9/69

JR.H.

#131

CHEF

DESCRIPTION SHEET
(5-28-59g)

Station CHEF 250w, 1kw-LS, U, Class IV
Granby, Quebec, Canada 1450 KC

DESCRIPTIVE SHEET - OMNIDIRECTIONAL ANTENNA

STATION CALL:	CHEF
MAIN STUDIO:	GRANBY, QUE.
FREQUENCY:	1450 KC
POWER:	1 KW DAY/250 W NIGHT
CLASS:	IV
TIME:	U
GEOGRAPHICAL LOCATION:	NORTH LATITUDE 45° 24' 58"
	WEST LONGITUDE 72° 45' 13"
ANTENNA CHARACTERISTICS:	HEIGHT: 154 FEET (82°)
	EXPECTED EFFICIENCY: 182 MV/M AT 1 MILE FOR 1 KW
	GROUND SYSTEM: 120 RADIALS, MOST ABOUT 300 FEET LONG. SOME RADIALS ON SOUTH SIDE 350 TO 400 FEET LONG BURIED 6 INCHES DEEP
	TYPE OF ELEMENT: UNIFORM, BASE INSULATED, SQUARE CROSS-SECTION, SERIES FED, GUYED.

NOTIFICATION LIST NO. 131

DATE: February 27, 1959

CHRT

Description Sheet
(4-29-69ct)

Station CHRT
St. Eleuthere, P. Q.
CORRECTED

250w,U,Class IV
1450 kc

DESCRIPTION SHEET - OMNIDIRECTIONAL ANTENNA

STATION CALL:	CHRT
MAIN STUDIO	Ville la Pocatiere, Que.
STATION LOCATION:	St. Eleuthere, P. Q.
FREQUENCY:	1450 kHz
POWER:	0.25 KW
CLASS:	IV
TIME:	Day and Night Operation
NOTIFICATION LIST NO.	216 DATE: July 26, 1966
GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:	47° 28' 36" N. Lat. 69° 16' 14" W. Long.

ANTENNA CHARACTERISTICS:

HEIGHT:	142 ft. (759
TYPE OF ELEMENT:	Triangular, uniform cross-section, guyed, base insulated, series fed, top loaded to an effective electrical height of 82° (42')
GROUND SYSTEM:	120 equally spaced radials consisting of #10 B&S bare soft-drawn copper wire buried approx. 8" in ground. The radials extend to a length of at least 275 ft. (equivalent to 0.4 λ)
EXPECTED EFFICIENCY:	92.5 mV/m @ 1 mile for 0.25 KW or 185 mV/m @ 1 mile for 1 KW.

NOTE: This notification concerns only a correction to geographical coordinates and to provide details of top loading.

Revised: December 31, 1968.

CHUC
1450kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET.

Station : CHUC Main Studio : Cobourg, Ontario.

Frequency : 1450 Khz. Power : 10 Kw.

Time : Unlimited. Class : IV.

Notification List # 405 Date : June 12, 1981

Geographical Location : 43 - 57 - 20 North.
78 - 13 - 09 West.

Operation : DA/2.

Antenna System :

The array consists of 6 guyed, uniform, steel towers 170' or 90 electrical degrees over grade. Overall height with insulators - 175'. There is no top loading.

Antenna Parameters. Expressed in magnitude and degrees.

Nightime.

Tower	Ratio	Phase	Orientation	Spacing	Height
1	1.0000	0.0000	000.0000	000.0000	90.0000
2	2.7550	145.0440	178.2500	90.0000	90.0000
3	3.6423	-64.8630	178.2500	180.0000	90.0000
4	2.6205	87.6930	178.2500	270.0000	90.0000
5	0.8500	234.8300	178.2500	360.0000	90.0000

Daytime.

1	1.0000	0.0000	000.0000	000.0000	90.0000
3	0.2210	-47.0100	178.2500	180.0000	90.0000
6	0.9000	115.0560	150.0000	100.0000	90.0000

Ground System.

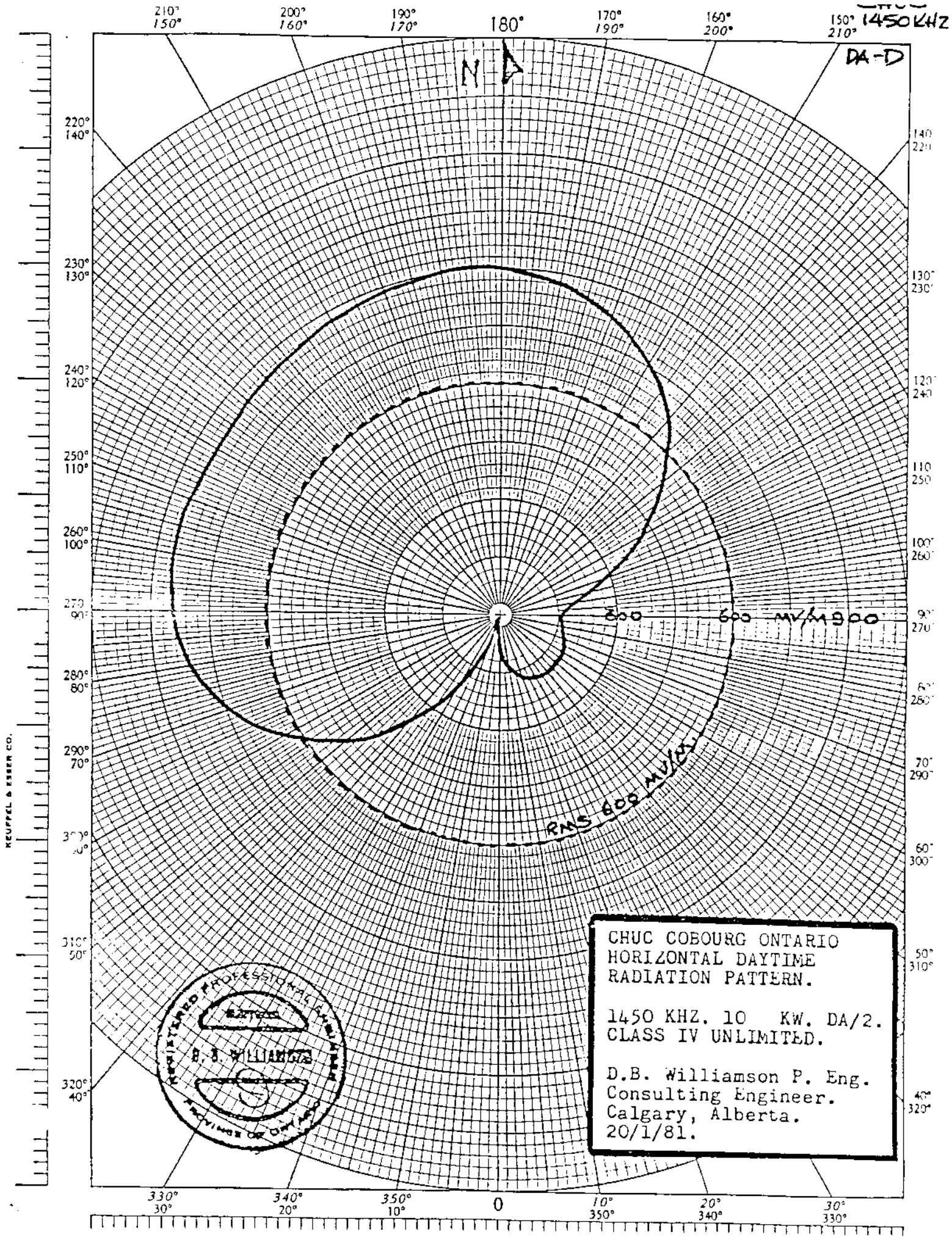
120 radials per tower, buried 8" below grade, spaced 3° all 0.4 wavelengths long. Radials bonded to common chords between towers.

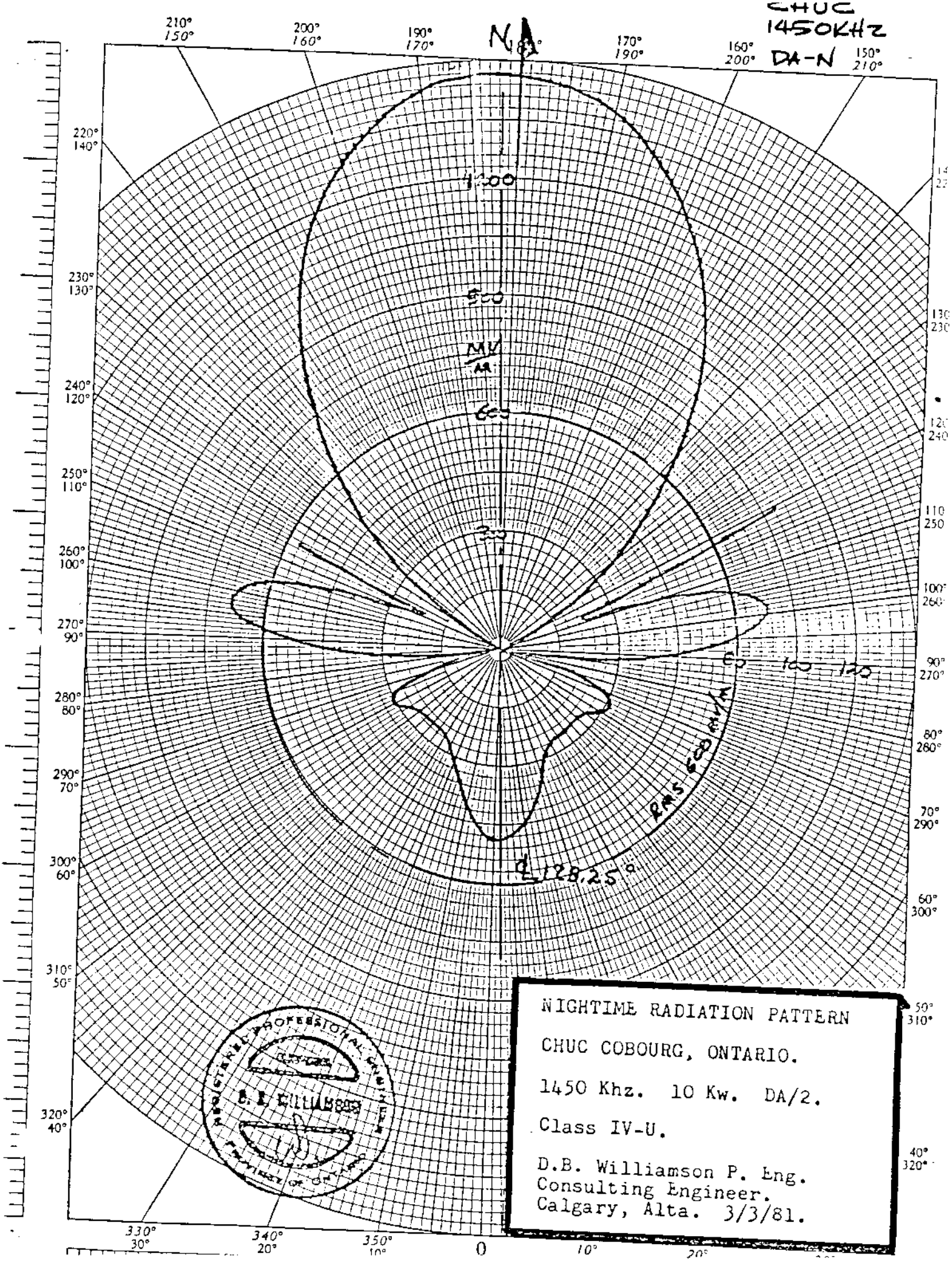
Predicted Effective Fields.

600.000 mv/m @ 1 mile for 10 Kw. night and day.
189.737 mv/m @ 1 mile for 1 Kw. night and day.

Consultant.

D.B. Williamson P. Eng.
Calgary, Alberta.


1450 KHZ
DA-D
N
180°
0
800
600 mV/M 900
RMS 605 mV/M
CHUC COBOURG ONTARIO
HORIZONTAL DAYTIME
RADIATION PATTERN.
1450 KHZ. 10 KW. DA/2.
CLASS IV UNLIMITED.
D.B. Williamson P. Eng.
Consulting Engineer.
Calgary, Alberta.
20/1/81.
REGISTERED PROFESSIONAL ENGINEER
D. B. WILLIAMSON
PROVINCE OF ONTARIO
KEUFFEL & ESSER CO.


CHUC
1450KHz
DA-N
N
210° 150°
200° 160°
190° 170°
170° 190°
160° 200°
150° 210°
220° 140°
230° 130°
240° 120°
250° 110°
260° 100°
270° 90°
280° 80°
290° 70°
300° 60°
310° 50°
320° 40°
330° 30°
340° 20°
350° 10°
0
10°
20°
1000
500
MV/M
600
300
60 100 120
RMS 68 mV/M
d 128.25°
NIGHTTIME RADIATION PATTERN
CHUC COBOURG, ONTARIO.
1450 Khz. 10 Kw. DA/2.
Class IV-U.
D.B. Williamson P. Eng.
Consulting Engineer.
Calgary, Alta. 3/3/81.
REGISTERED PROFESSIONAL ENGINEER
D. B. WILLIAMSON
PROVINCE OF ALBERTA

#175

Description Sheet
(2-26-63ct)

New Station
Causapscal, Quebec

250w,1kw-LS,U,Class IV
1450 kc

PM

Description Sheet - Omni-directional Antenna

Station Call : [illegible] CJBM

Main Studio : Transmitter at Causapscal, Que., to be programmed from CJBM studios in Rimouski.

Frequency : 1450 kc

Power : 1 Kw Day, 0.5 Kw Night

Class : IV

Time : Day and Night

Notification List : 175

Date : December 21, 1963

Geographical Location of Antenna System :

North Lat. 48° 21' 53"

West Long. 67° 14' 17"

Antenna Characteristics :

Height : 175 feet (5.[illegible])

Type of Element : [illegible] cross-section

Ground System : 120 radials, [illegible] each 175' (0.5 wave) in length, No. 10 [illegible]

Expected Efficiency : 190 mv/m/[illegible] for 95 for 0.5 [illegible]

oooooooooooooooooooo

KVEN

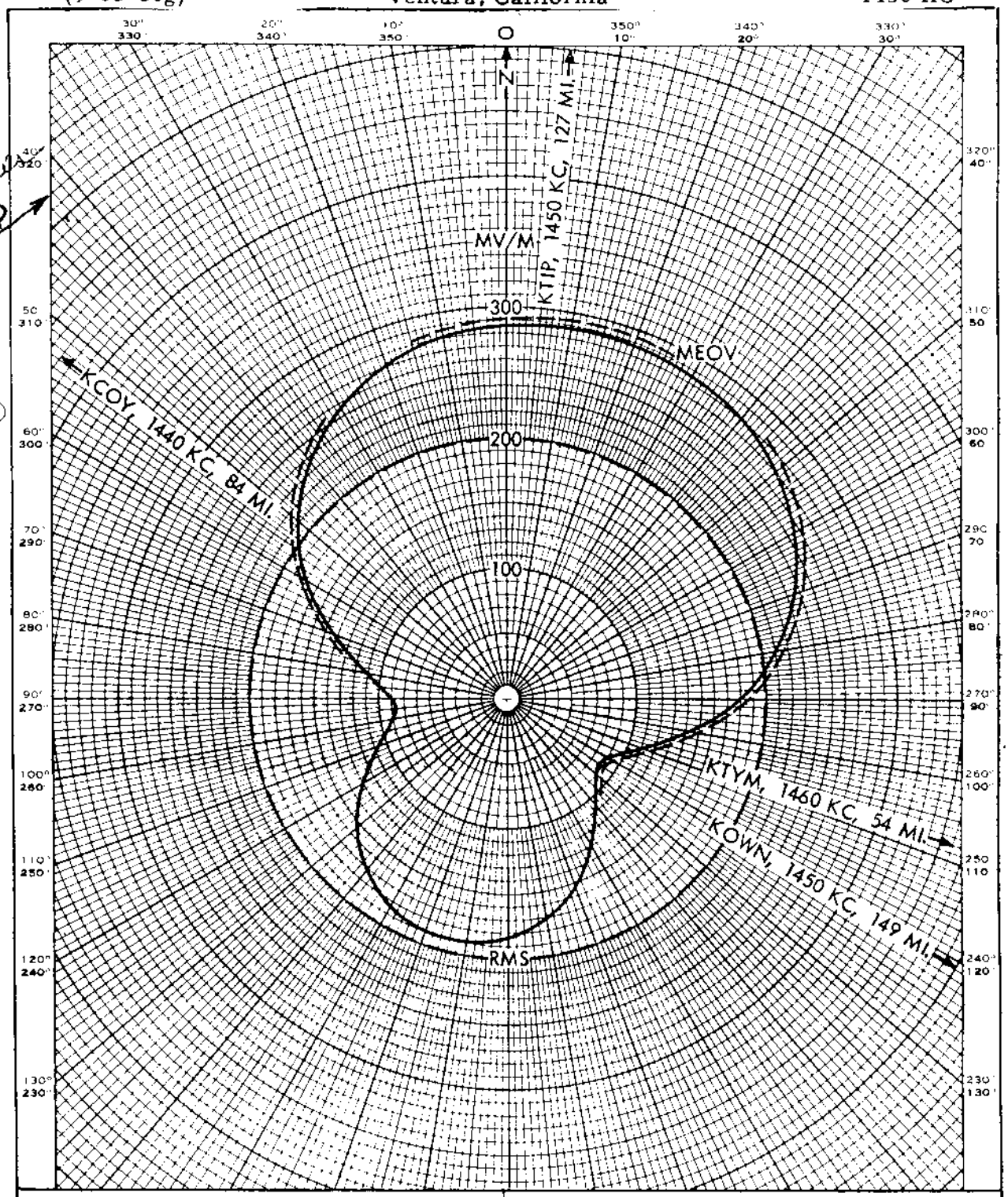
PROPOSED DAY
(9-13-60g)

Station KVEN
Ventura, California

250w, 1kw-LS, DA-D,U
1450 KC

4-26-61 granted up to accept temporary full DA-D over

#202 10-30-61 granted L for DAD and 1KW



S = 110° = 208'
G = 122° = 230'
RMS = 200 MV/M

N. LAT. 34° 14' 50"
W. LONG. 119° 15' 45"

N 15° E
S
2 0.55 ∠-142°
1 1.00 ∠0°

HORIZONTAL RADIATION PATTERN
DAYTIME

UNATTENUATED FIELD INTENSITY
AT ONE MILE

HAMMETT & EDISON
CONSULTING RADIO ENGINEERS
SAN FRANCISCO

RADIO STATION KVEN
1450KC, 0.25KW, 1KW-LS, DA-D,U
VENTURA, CALIFORNIA

600526

FIGURE 3

FCC File No. BP-13279
Accepted 9-7-60 (Amended)

KVEN
Ventura, California

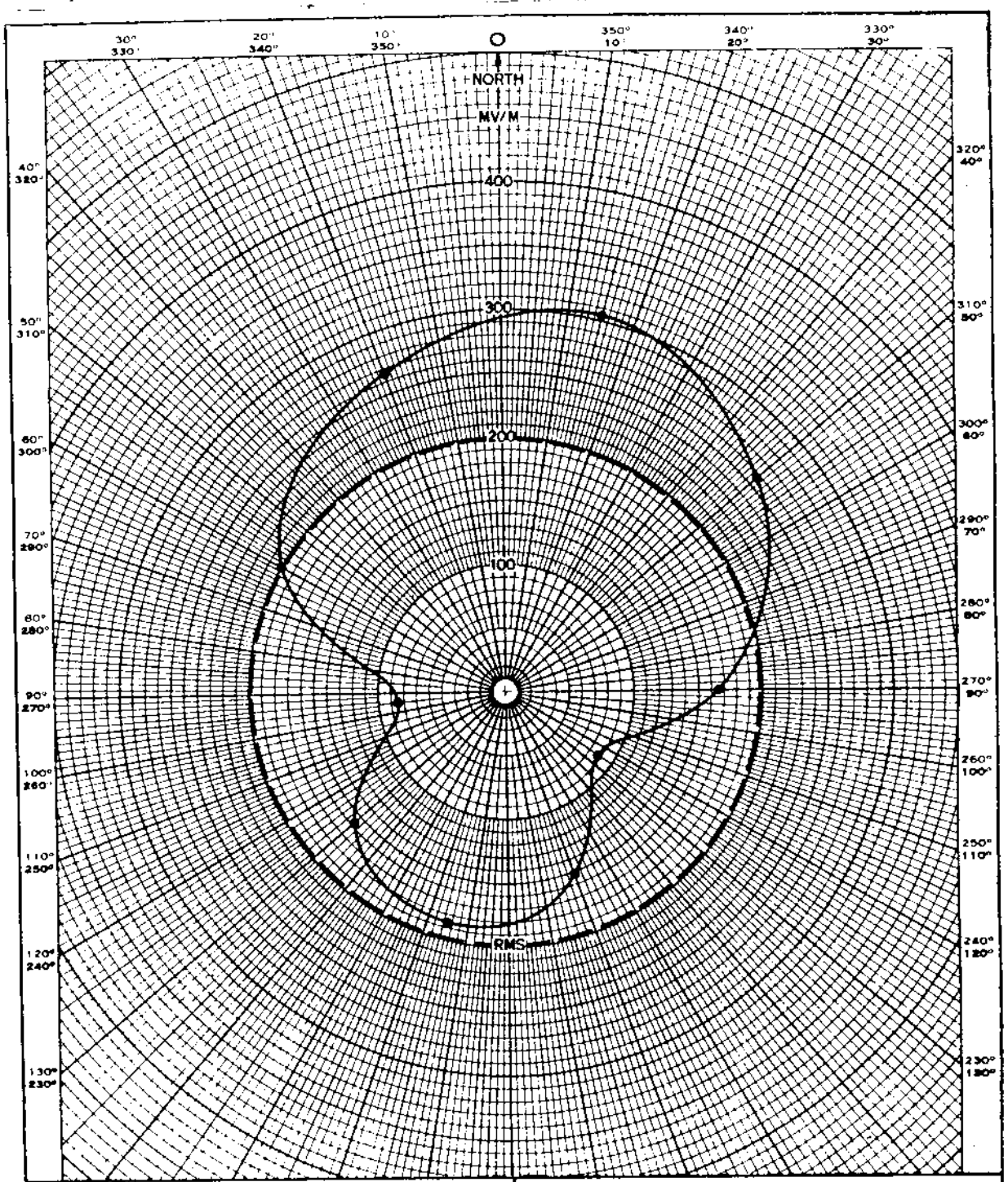
1450 KC

KVEN

Measured Day
(11-27-64ct)

Station KVEN
Ventura, California

250w,1kw-LS,DA-D,U
1450 kc



THEORETICAL	OPERATING
2 0.550 ∠-142°	2 0.95 ∠-143°
1 1.000 ∠0°	1 1.00 ∠0°

N. LAT. 34° 15' 38"
W. LONG. 119° 14' 29"

RMS = 198 MV/M

S = 110°-208'
G = 122°-230'

HAMMETT & EDISON
CONSULTING RADIO ENGINEERS
SAN FRANCISCO

RADIO STATION KVEN
1450 KC. 0.25 KW. 1 KW-LS. DA-D
VENTURA, CALIFORNIA

MEASURED DIRECTIONAL HORIZONTAL RADIATION PATTERN

UNATTENUATED FIELD INTENSITY AT ONE MILE

640611

FIGURE 6

FCC File No. BL-10660
Accepted 10-27-64

Station KVEN
Ventura, California

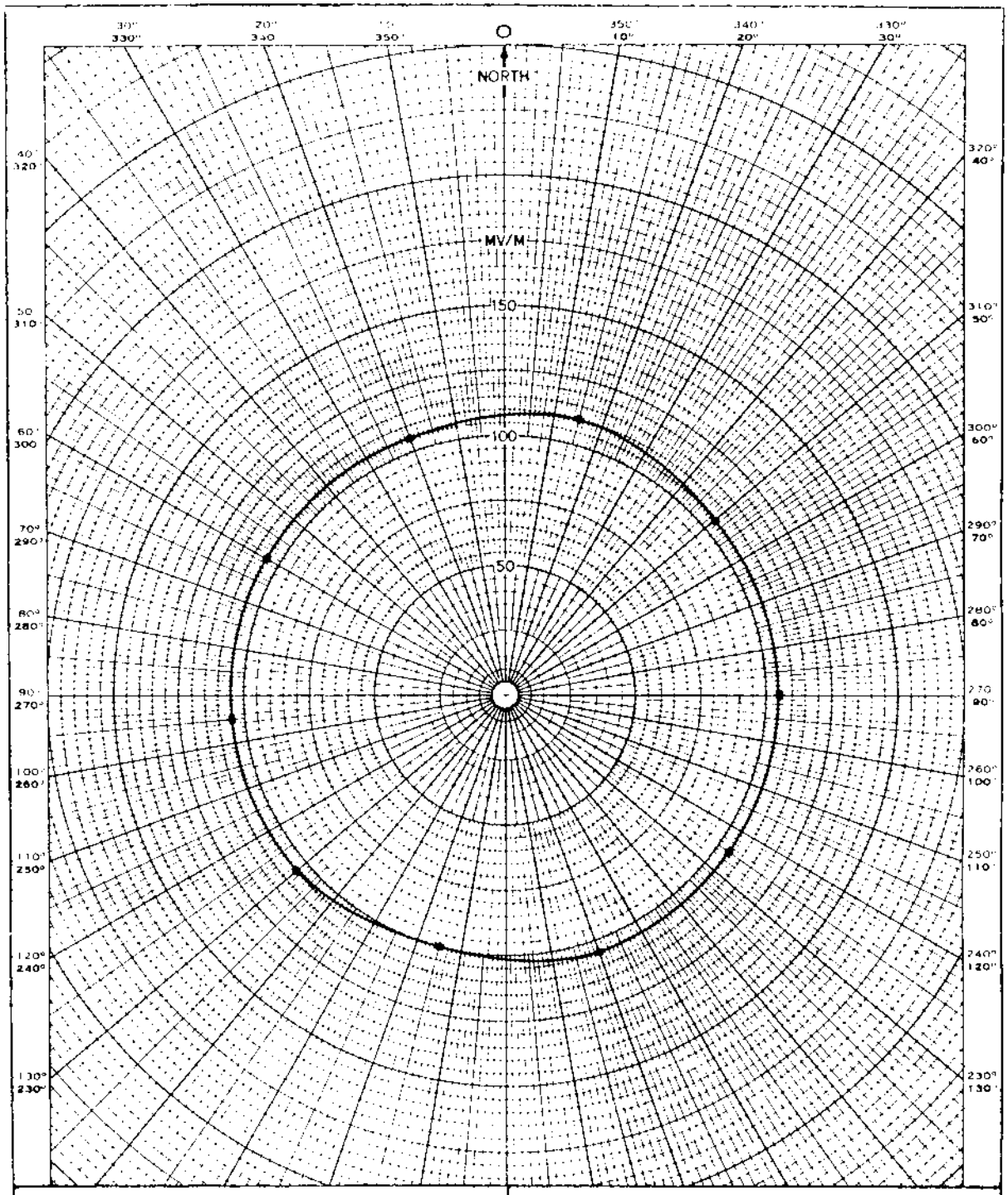
1450 kc

KVEN

Measured Non-DA
(11-27-64ct)

Station KVEN
Ventura, California

250w,1kw-LS,DA-D,U
1450 kc



N LAT 34° 15' 38"
W LONG. 119° 14' 29"

G = 122°-230'

RMS = 105 MV/M

0.25 KW INTO TOWER 1

MEASURED

NON-DIRECTIONAL

HORIZONTAL RADIATION PATTERN

UNATTENUATED FIELD INTENSITY AT ONE MILE

HAMMETT & EDISON CONSULTING RADIO ENGINEERS SAN FRANCISCO	RADIO STATION KVEN 1450 KC 0.25 KW, 1 KW-LS, DA-D VENTURA CALIFORNIA

640116

FIGURE 10A

FCC File No. BL-10660
Accepted 10-27-64

Station KVEN
Ventura, California

1450 kc

KYOR

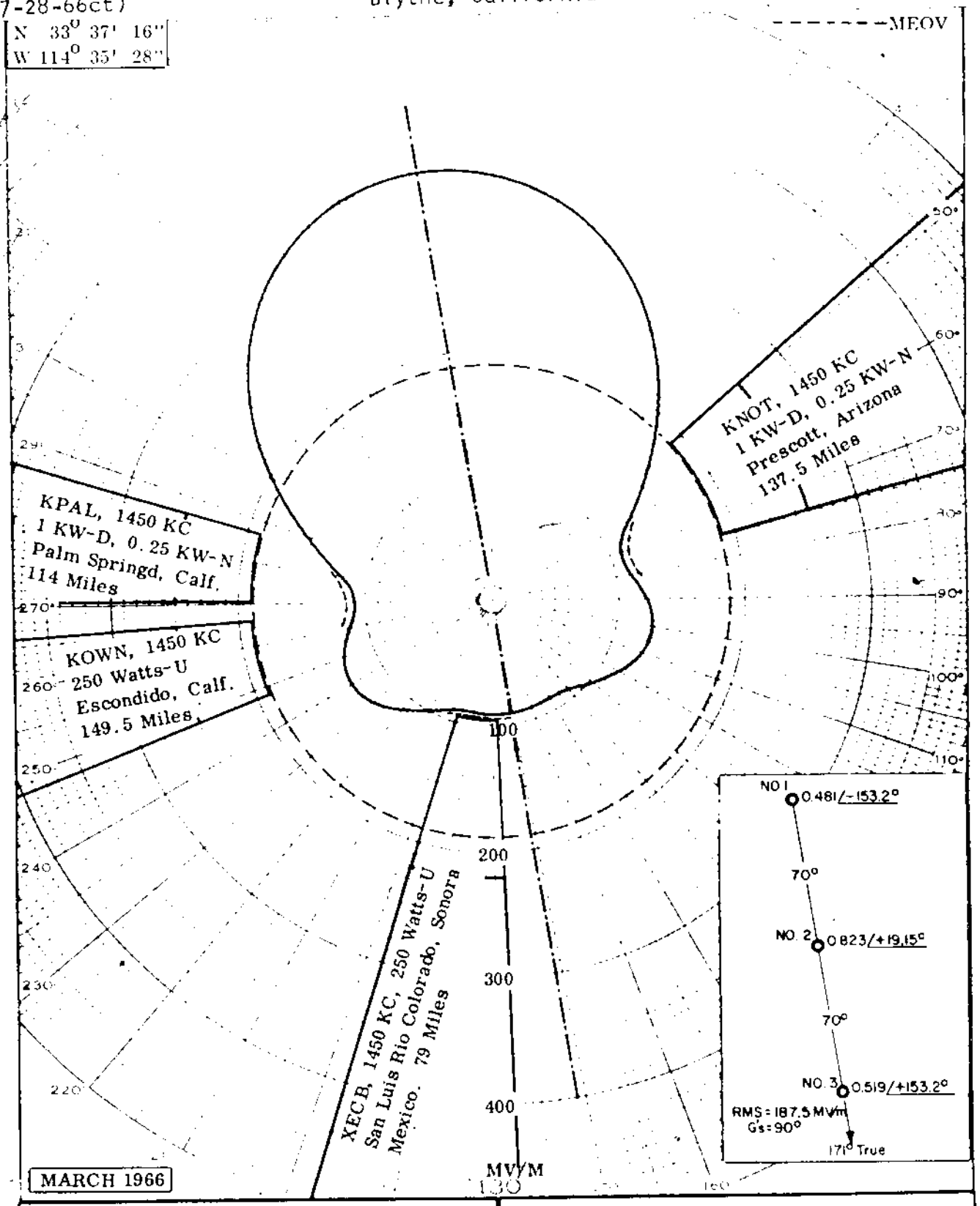
Proposed Day
(7-28-66ct)

N 33° 37' 16"
W 114° 35' 28"

BP-17195
-Vacated
-P to include
Daytime
Power
6-14-67

Station KYOR
Blythe, California

250w,1kw-LS,DA-D,U
1450 kc



OSCAR LEON CUELLAR, P.E.
CONSULTING ENGINEER
TUCSON ARIZONA

PROPOSED KYOR OPERATION
1450 KC, 1 KW-D, 0.25 KW-N, DA-D
BLYTHE, CALIFORNIA
KYOR, INC.

FCC File No. BP-17195
Accepted 7-18-66

Station KYOR
Blythe, California

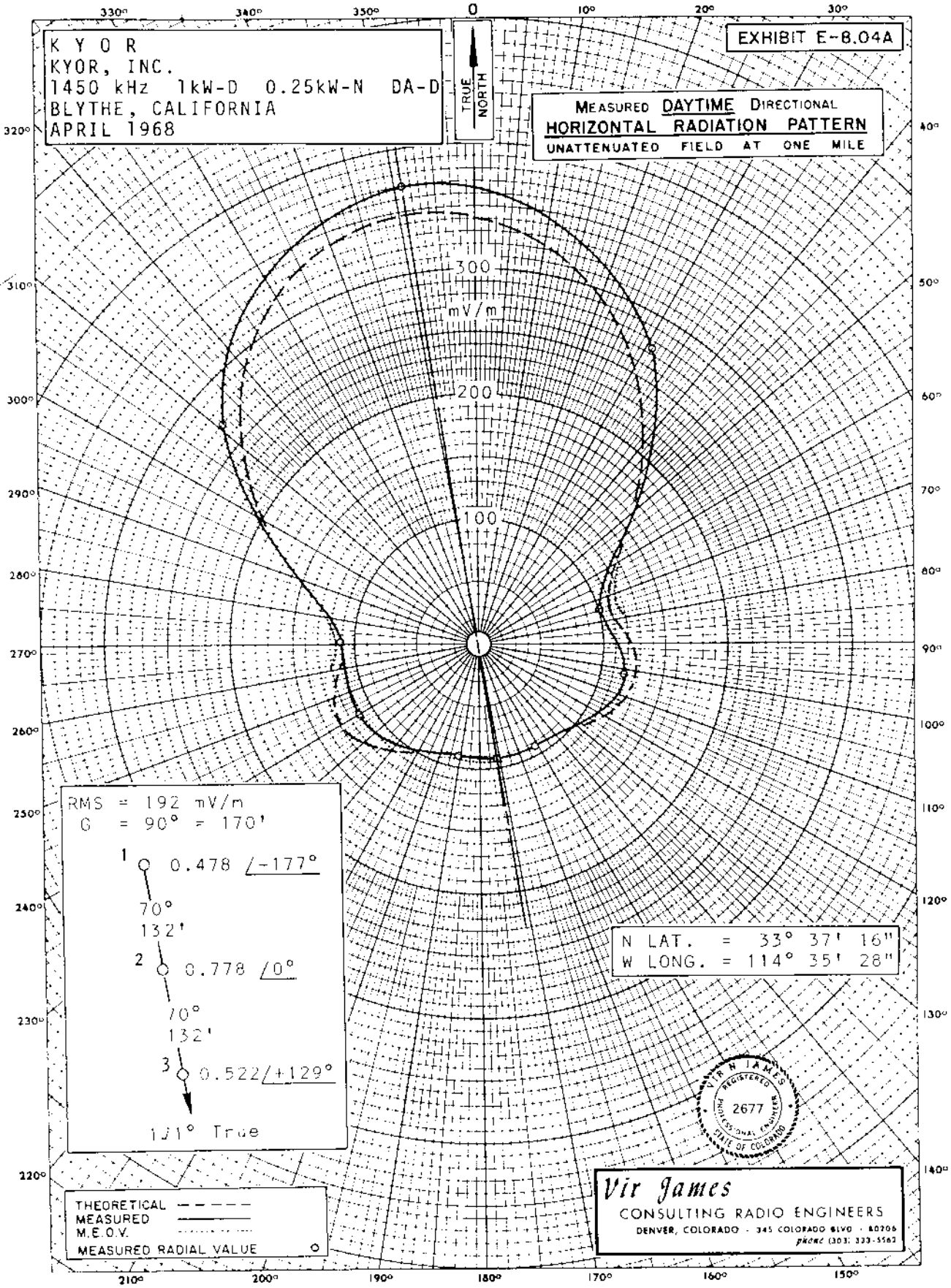
1450 kc

KYOR

Measured Day
(8-28-68ct)

Station KYOR
Blythe, California

250w,1kw-LS,DA-D,U
1450 kc



BL 12034
Granted
1/31/69
license
covering
changes

FCC File No.BL-12034
Accepted 7-29-68

Station KYOR
Blythe, California

1450 kc

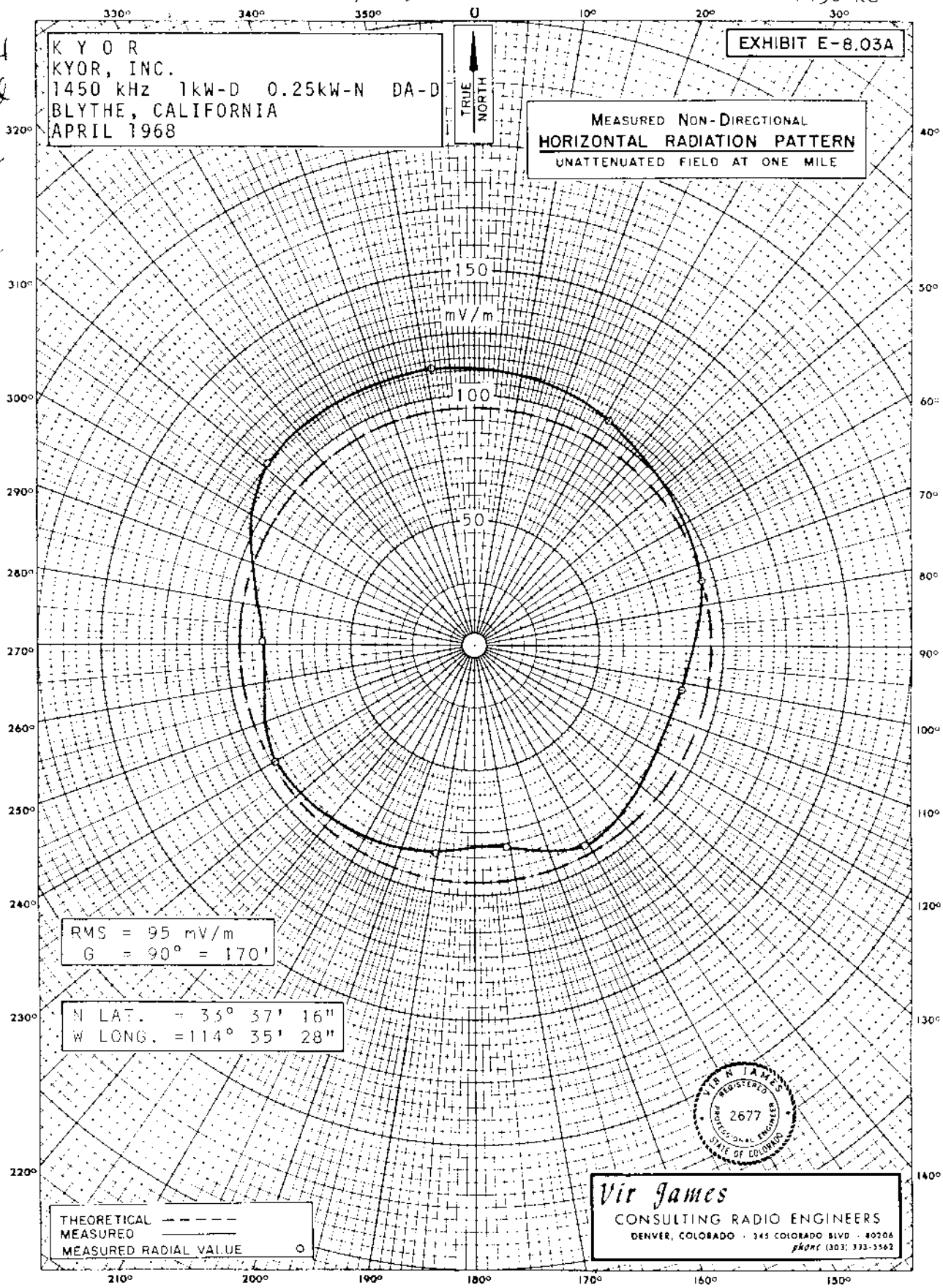
KYOR

Measured Non-DA
(8-28-68ct)

Station KYOR
Blythe, California

250w,1kw-LS,DA-D,U
1450 kc

BL 12034 granted 1/31/69 license covering changes



FCC File No.BL-12034
Accepted 7-29-68

Station KYOR
Blythe, California

1450 kc

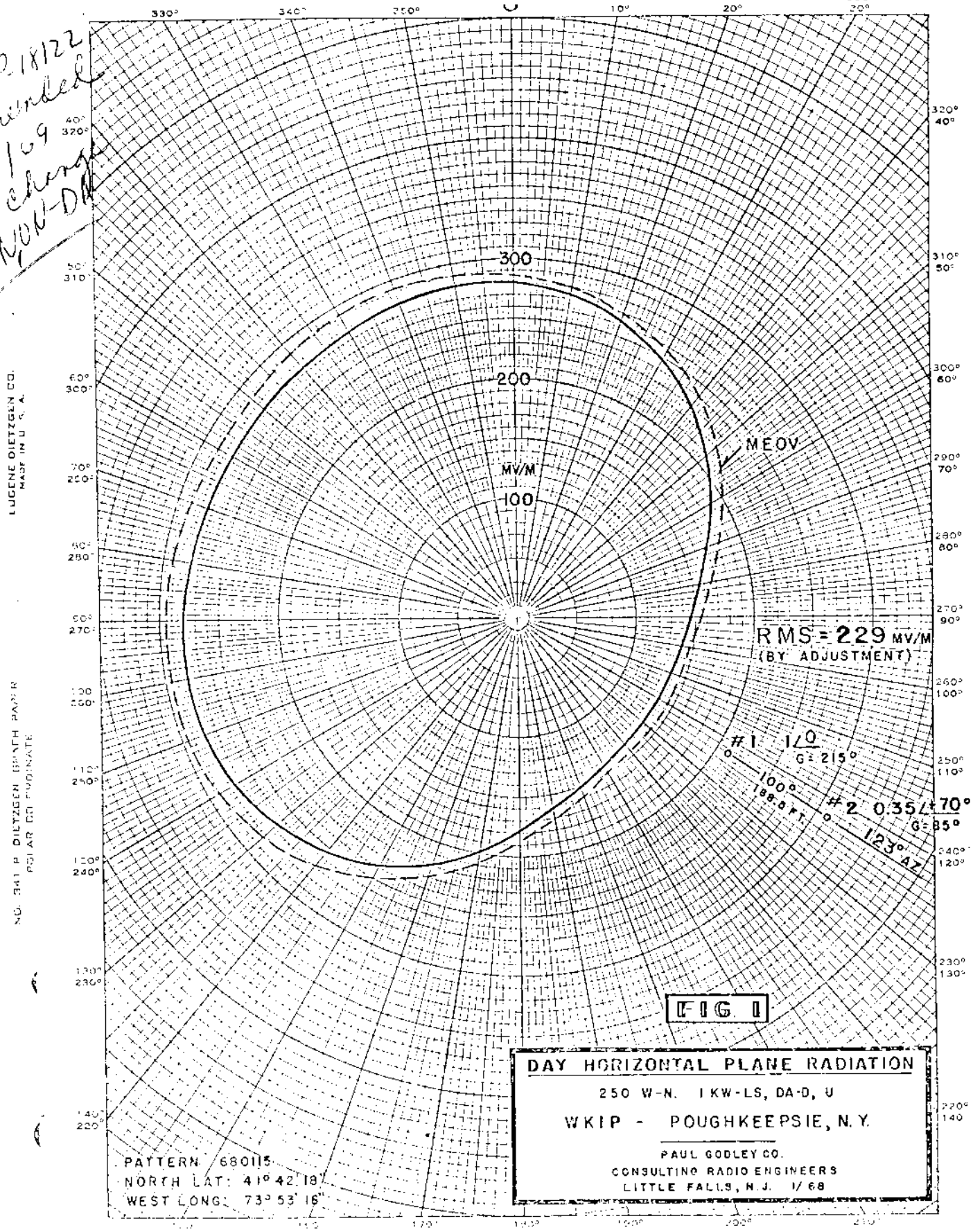
WKIP

Proposed Day
(5-28-68ct)

Station WKIP
Poughkeepsie, New York

250w,1kw-LS,DA-D,U
1450 kc

BP-18122 amended 8/1/69 to change to NON-DA



FCC File No. BP-18122
Accepted 5-23-68

Station WKIP
Poughkeepsie, New York

1450 kc

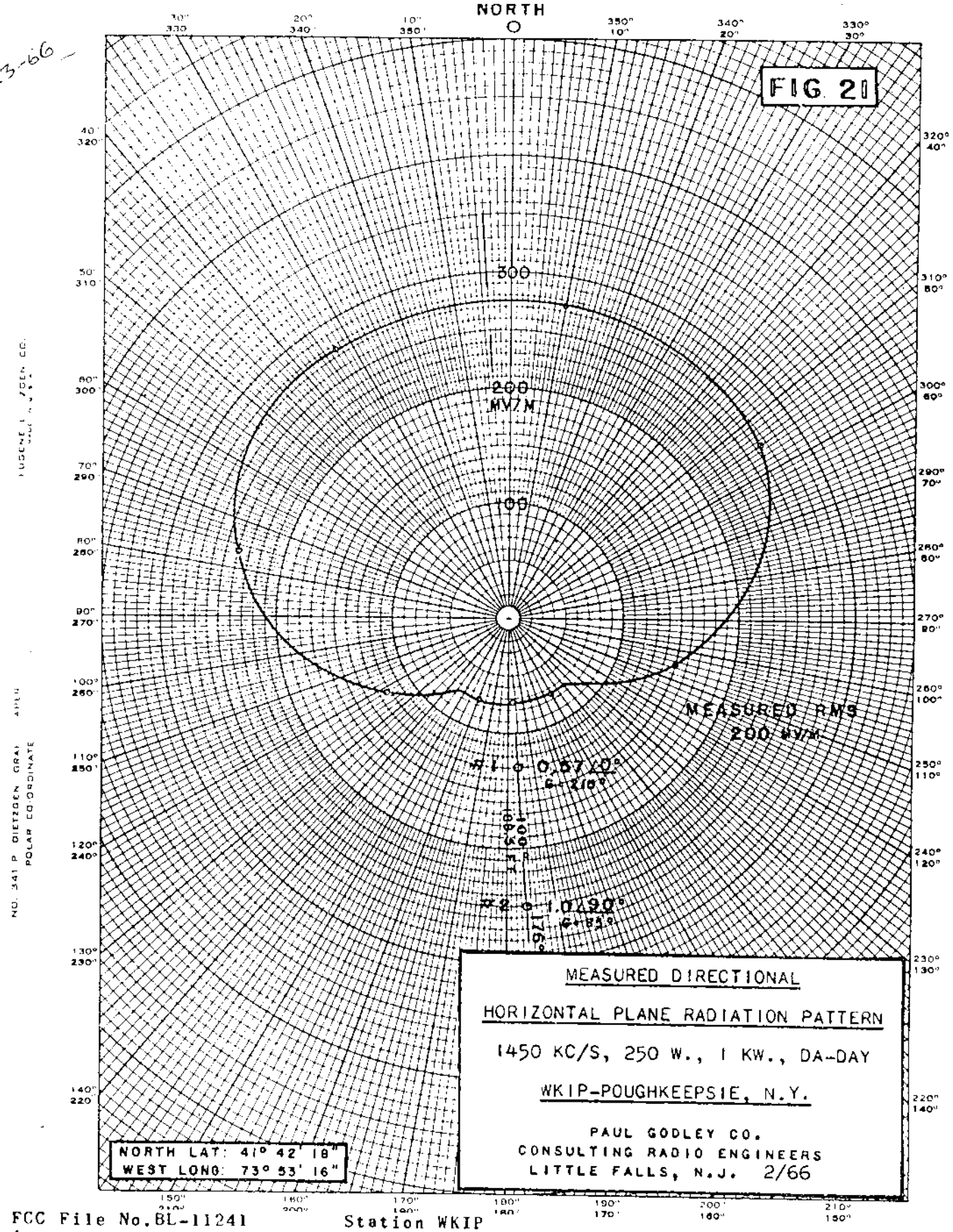
WKIP

Mesured Day
(4-28-66ct)

Station WKIP
Poughkeepsie, New York

250w,1kw-LS,DA-D,U
1450 kc

LIC-5-23-66



FCC File No.BL-11241
Accepted 3-28-66

Station WKIP
Poughkeepsie, New York

1450 kc

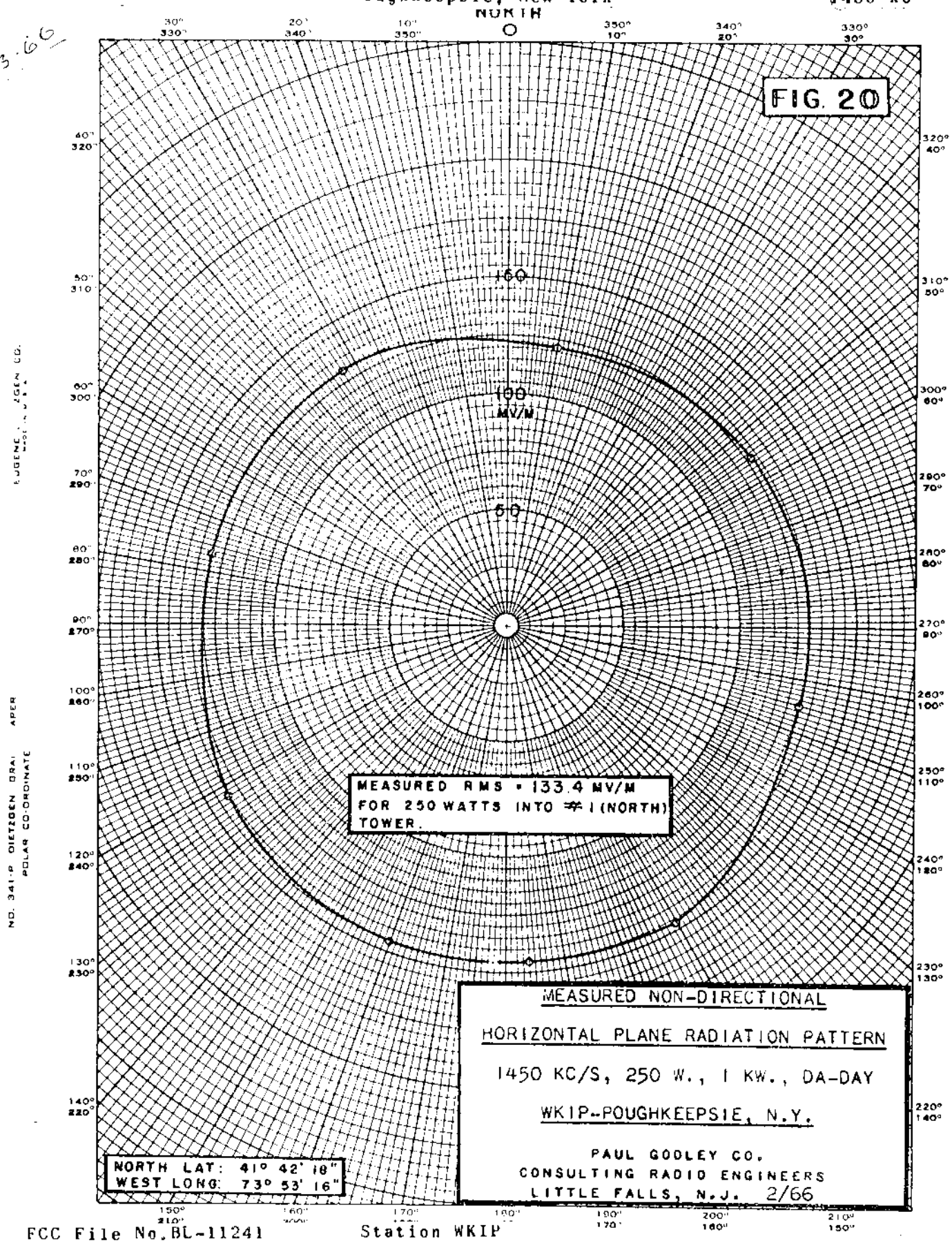
WKIP

Measured Non-DA
(4-28-66ct)

Station WKIP
Poughkeepsie, New York

250w, 1kw-LS, DA-D, U
1450 kc

LIC 5-23-66



FCC File No. BL-11241
Accepted 3-28-66

Station WKIP
poughkeepsie, New York

1450 kc

PROJECT #5907

DESCRIPTION SHEET - OMNIDIRECTIONAL ANTENNA

STATION CALL:	NEW
TRANSMITTER SITE:	JASPER, ALBERTA
MAIN STUDIO:	EDSON, ALBERTA
FREQUENCY:	1450 kHz
POWER:	100 Watts
TIME:	U

NOTIFICATION LIST: #256 DATE: May 16, 1969

GEOGRAPHICAL LOCATION:

Latitude: 52° 52' 51" North

Longitude: 118° 04' 26" West

ANTENNA CHARACTERISTICS:

Height above the base insulator: 80 feet, top-loaded to an equivalent electrical height of 60°

Height above ground: 83 feet

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

Ground System: 120 equally spaced radials of #10 B & S gauge bare soft copper wire buried approximately 8", extend from the base of the tower to the property boundary. The radial lengths vary from 60' to 160' in length.

EXPECTED EFFICIENCY: 47.5 mV/m at 1 mile for 100 Watts

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