1390-1400

Station	Main Studio	Freq	Power	Date
NEW	Medicine Hat, AB	1390	10 kW/DA-2	5/5/81
CHOO	Ajax, ON	1390	10 kW/DA-2	8/29/80
CHOO	Ajax, ON	1390	10 kW/DA-1	2/17/67
CKKC	Nelson, BC	1390	1 kW/DA-1	10/30/57
CJCY	Medicine Hat, AB	1390		5/4/82
KBBO	Yakima, WA	1390	0.5/1 kW/DA-N	4/29/70
KBEC	Waxahachie, TX	1390	0.5/DA-D	5/27/66
KBLW	Logan, UT	1390	1/0.5 kW/DA-N	2/67
KBLW	Logan, UT	1390	0.5/5 kW/DA-N	11/16/76
KCBC	Des Moines, IA	1390	1 kW/DA-1	4/68
KCEY	Turlock, CA	1390	5 kW/DA-2	10/13/58
KCLN	Clinton, IA	1390	1 kW/DA-D	3/26/56
KCRC	Enik, OK	1390	1 kW	12/30/41
KENN	Farmington, NM	1390	1 kW	2/11/57
KFRA	Franklin, LA	1390	0.5/DA-D	4/24/58
KGER	Long Beach, CA	1390	5 kW/DA-N	8/22/80
KNOE	Monroe, LA	1390	5 kW/DA-N	3/15/50
WADA	Shelby, NC	1390	1/0.5 kW/DA-N	12/61
WCER	Charlotte, MI	1390	5 kW/DA-D	11/29/68
WCSC	Charleston, SC	1390	5 kW/DA-N	12/9/47
WEAM	Arlington, VA	1390	5 kW/DA-2	2/17/49
WEED	Rocky Mount, NC	1390	1 kW/DA-N	2/13/50
WEGP	Presque Isle, ME	1390	5 kW/DA-N	9/25/58
WEOK	Poughkeepsie, NY	1390	5 kW/DA-D	9/26/69
WFBL	Syracuse, NY	1390	5 kW/DA-N	6/10/75
WFMJ	Youngstown, OH	1390	5 kW/DA-N	7/12/48

1390-1400

Station	Main Studio	Freq	Power	Date
WHMA	Anniston, AL	1390	1 kW/DA-1	9/9/48
WISK	Americus, GA	1390	1/5 kW/DA-N	7/29/68
WLAN	Lancaster, PA	1390	1/5 kW/DA-2	1/28/65
WPLM	Plymouth, MA	1390	5 kW/DA-2	3/19/76
WROA	Gulfport, MS	1390	5 kW/DA-2	8/8/73
WTJS	Jackson, TN	1390	1/5 kW/DA-N	4/20/77
WTJS	Jackson, TN	1390	1/5 kW/DA-N	10/1/75
WVON	Chicago, IL	1390	5 kW/DA-2	9/21/49
WWOD	Lynchburg, VA	1390	1 kW/DA-1	11/10/47
	Sparwood, BC	1400		
NEW	Moncton, NB	1400	10 kW/DA-2	2/20/80
NEW	Drummondville, QU	1400	0.25/0.1 kW/DA-1	10/2/72
NEW	Fredericton, NB	1400	10/0.1 kW/DA-2	4/1/76
CBG	Gander, NE	1400	1 kW	
CFLD	Burns Lake, BC	1400	0.25 kW	3/26/65
CJFB	Riviere du Loup, QU	1400	10/0.25 kW/ND	2/28/64
CKCB	Collingwood, ON	1400	0.25 kW	2/22/65
CKOB	Renfrew, ON	1400	1/0.25 kW	
CKRN	Rouyn, QU	1400	1/0.25 kW	1/28/69
CKSW	Swift Current, Saskatchewan	1400	0.25/1 kW	11/30/61
KAAP	Santa Paula, CA	1400	0.25/1 kW/DA-D	12/23/70

1390KHz

DESCRIPTION SHEET

Station: New | Main Studio: Medicine Hat, Alberta

Frequency: 1390 kHz | Power: 10 kW

Time: Unlimited | Class: III

Notification List No. 404 | Date: May 5, 1981

Geographic Location: North Lat. 49° 57' 24"

West Long. 110° 35' 47"

Antenna System:

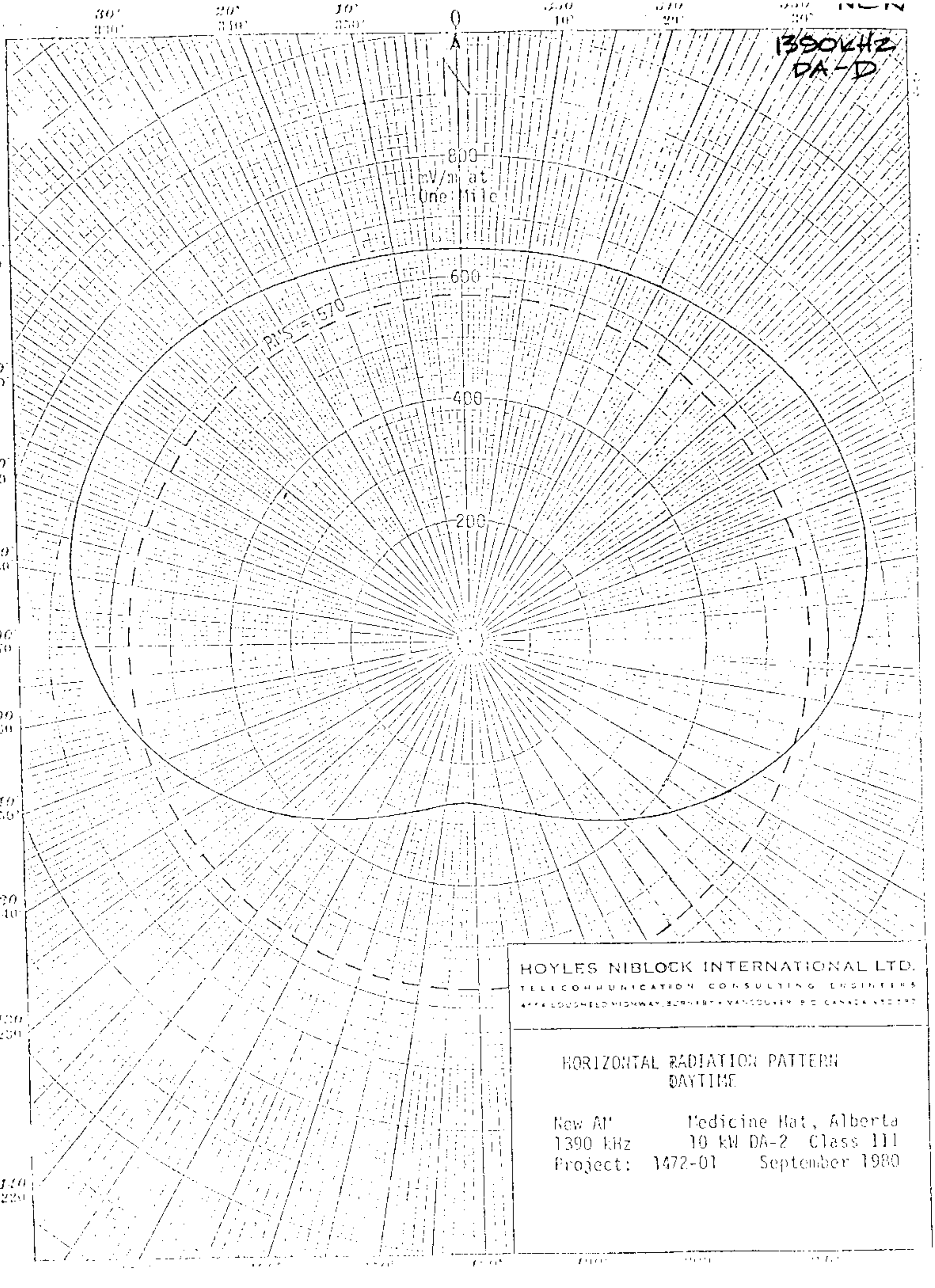
Mode of Operation: DA-2

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

Towers:	1	2	3
Height above insulators:	177'(90°)	177'(90°)	177'(90°)
Overall Height:	181'	181'	181'
Spacing:	ref	90°	180°
Phasing: Day	0	- 45	NOT USED
Night	0	-139	81.9
Current Ratio: Day	1.0	1.0	NOT USED
Night	1.0	1.83	1.0
Orientation:	ref	1°	1°

Ground Systems: The ground system shall consist of 120, No. 10 copper wire radials about each tower buried approximately 8 inches below grade. The arrangement is equivalent to a 0.4 ground system

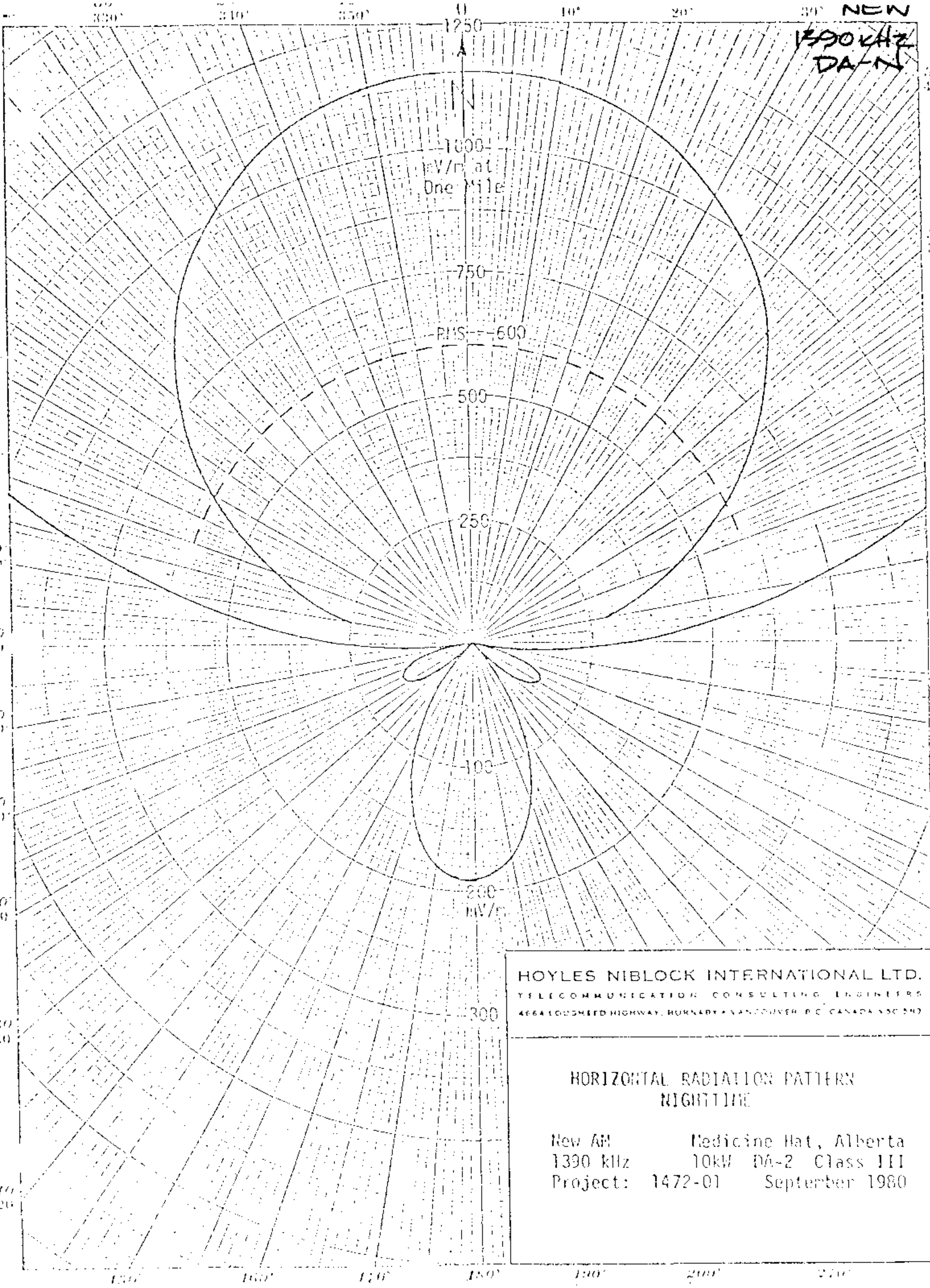
Predicted Effective Field: 600 mV/m for 10 kW nighttime
570 mV/m for 10 kW daytime



HOYLES NIBLOCK INTERNATIONAL LTD.
TELECOMMUNICATION CONSULTING ENGINEERS

HORIZONTAL RADIATION PATTERN
DAYTIME

New AM — Medicine Hat, Alberta
1390 kHz — 10 kW DA-2 Class III
Project: 1472-01 — September 1980



HOYLES NIBLOCK INTERNATIONAL LTD.

TELECOMMUNICATION CONSULTING ENGINEERS

4664 LOUGHEED HIGHWAY, BURNABY • VANCOUVER B.C. CANADA

HORIZONTAL RADIATION PATTERN
NIGHTTIME

New AM — Medicine Hat, Alberta
1390 kHz — 10kW DA-2 Class III
Project: 1472-01 — September 1980

CHOO.

CHOO-AJAX, ONTARIO

Directional Antenna Description Sheet

DA - 2

Station: CHOO

Main Studio: Ajax, Ontario

Frequency: 1390 kHz

Power: 10 kW day and night

Time: Unlimited

Class: III

Notification List No: 363

Date: May 10, 1977

Geographical Location North Lat. 43° 50' 09"

West Long. 78° 58' 30"

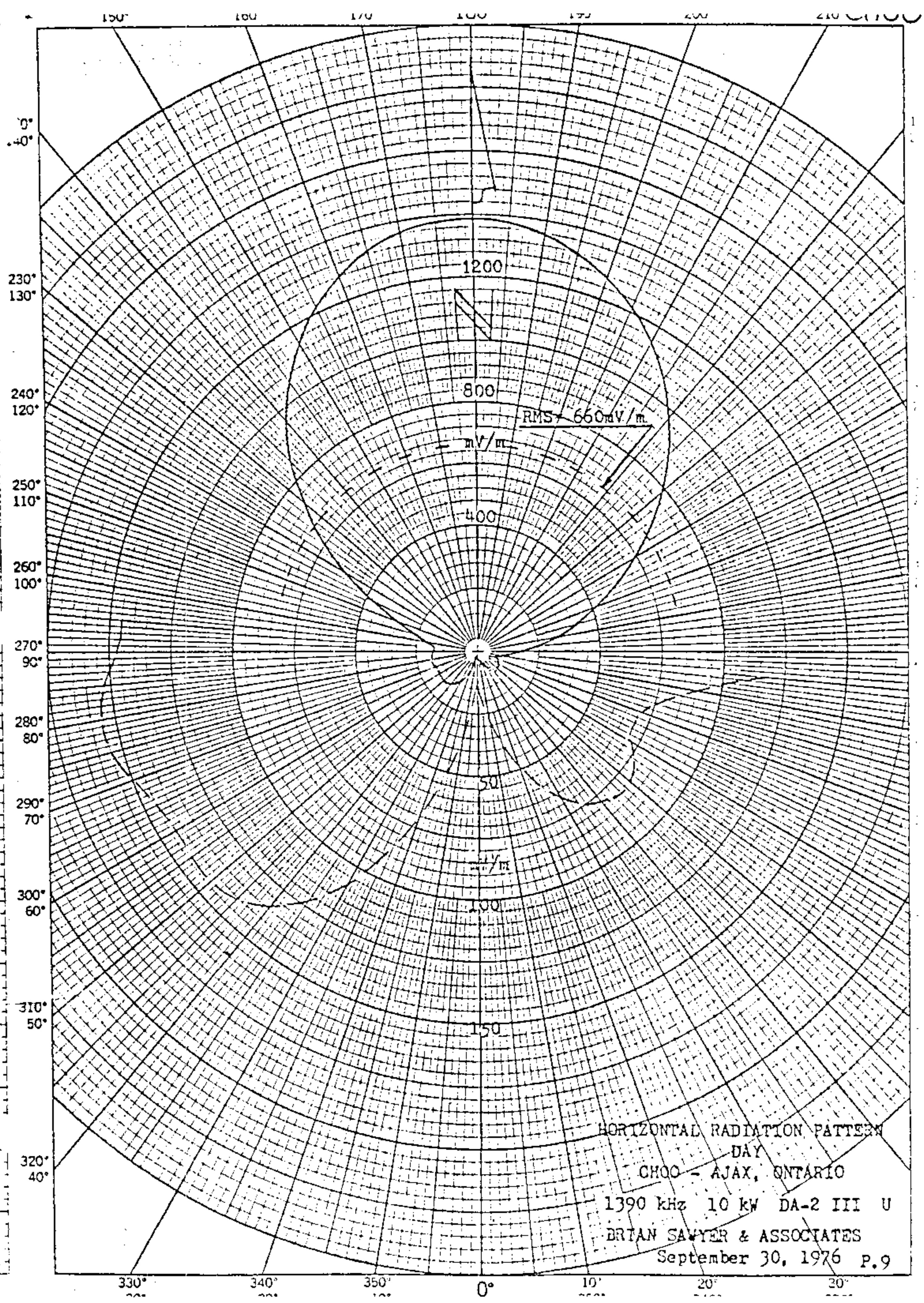
Antenna System: Six elements, guyed, uniform cross section, base insulated, series feed. Height above insulator 180 feet or 91 degrees.

Element:	One	Two	Three	Four	Five	Six
Bearing:	Ref.	005°	005°	005°	005°	050°
Spacing:	Ref.	090°	180°	270°	360°	127.279°
Day Field Ratio:	-	1.0	2.550	2.380	0.790	0.420
Day Phase:	-	Ref.	-129.650	91.565	-49.000	31.000
Night Field Ratio:	1.0	2.959	3.694	2.410	0.730	-
Night Phase:	Ref.	211.970	61.040	265.500	107.800	-

Ground System: 120 Radials per tower, #10 AWG base, soft copper wire, spaced uniformly, depth approximately 8 inches. Radials bonded along line between towers and bonded to soft copper straps at tower base. Maximum radial length 283 feet.

Predicted RMS: Day 660 mV/m at 1 mile for 10 kW
208.71 mV/m at 1 mile for 1 kW

Night 600 mV/m at 1 mile for 10 kw
190 mV/m at 1 mile for 1 kW



HORIZONTAL RADIATION PATTERN
DAY
CHOO - AJAX, ONTARIO
1390 kHz 10 kW DA-2 III U
BRIAN SAWYER & ASSOCIATES
September 30, 1976

CHOO
1390 kHz

ANTENNA DESCRIPTION SHEET   DIRECTIONAL DA-2

Frequency	1390 khz
Call	C H O O
Location	Ajax, Ontario.
Power	10,000 watts
Class	III
Time	Unlimited

Notification Reference List No. 398   August 29, 1980

Geographical Coordinates   Lat 43°50'09", Lon 78°58'30"

Array Characteristics   Seven elements, guyed, uniform cross section, base insulated, series feed. Height 180 feet or 91 degrees. No top loading.

DA-N	Element	One	Two	Three	Four	Five
	bearing	ref.	005°	005°	005°	005°
	spacing	ref.	090° 178'	180° 356'	270° 534'	360° 712'
	ratio	1.000	2.[illegible]	3.694	2.410	0.730
	phase	000°	21[illegible]	61.04°	265.5°	107.8°

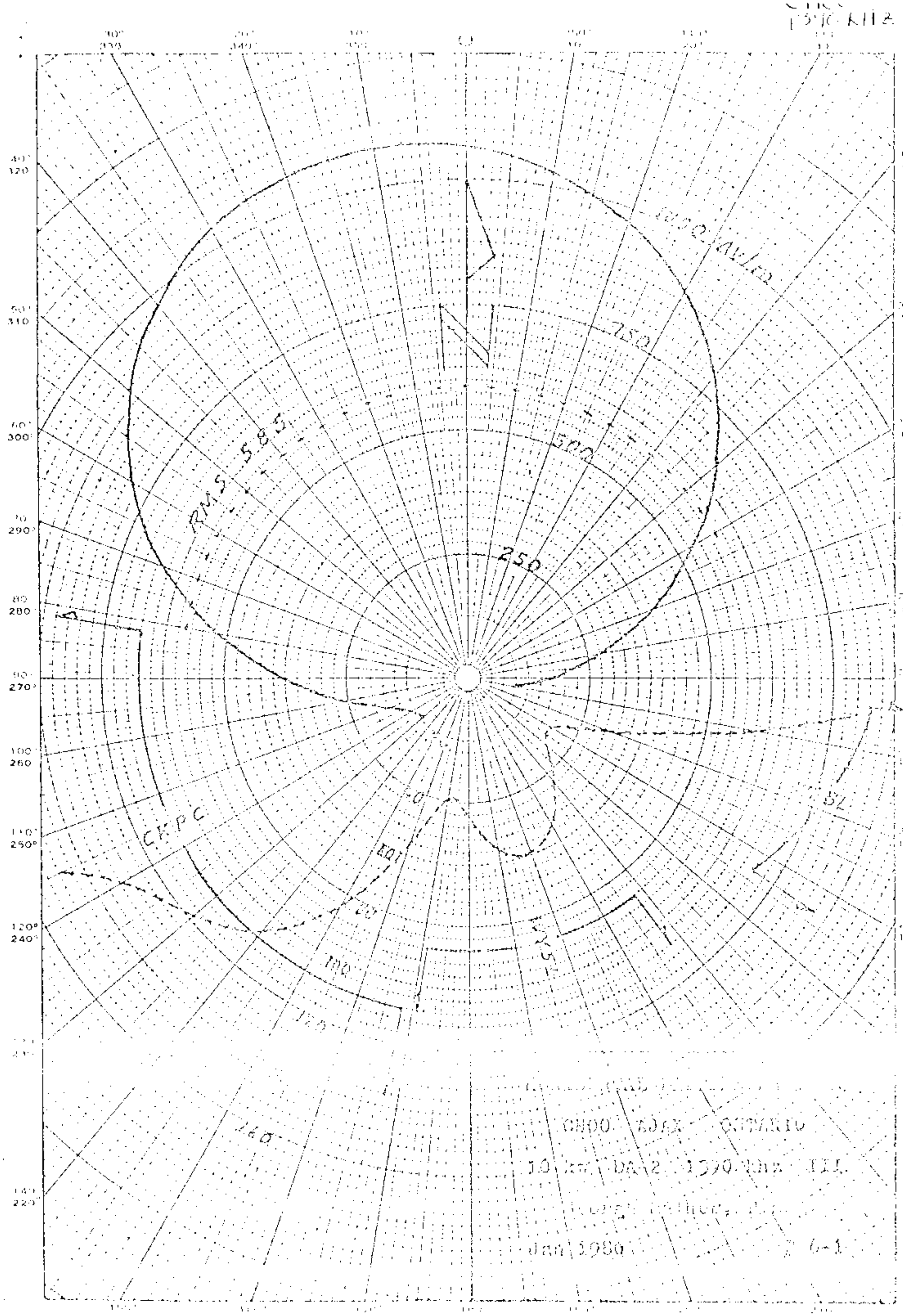
DA-D	Element	Two	Three	Six	Seven
	bearing	185°	ref.	153°	171°
	spacing	090° 178'	ref.	070° 138.4'	153.9° 304.4'
	ratio	1.00	1.55	1.82	1.15
	phase	132°	000°	121°	-108°

Ground System   120 radials per tower, #10 AWG bare, soft copper wire, spaced uniformly, depth 8 inches approximately. Radials bonded along lines [illegible]

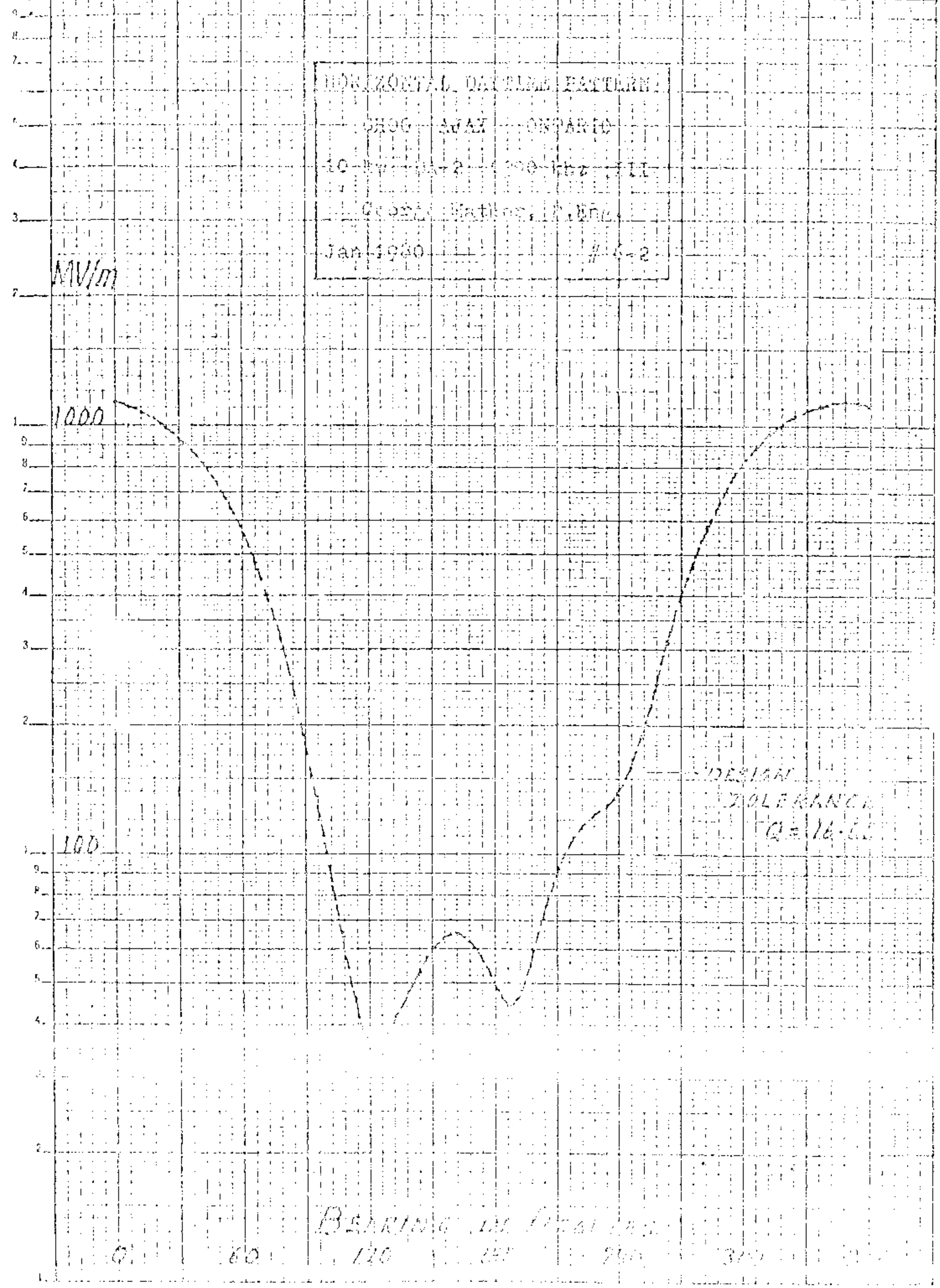
Predicted [illegible]   Night   600 mv/m at 1 mile for 10 kw
190 mv/m at 1 mile for 1 kw

Day   585 mv/m at 1 mile for 10 kw
185 mv/m at 1 mile for 1 kw

[illegible]


RMS 585
250
500
750
CKPC
100
140
0800 AJAX ONTARIO
10 kw DA-2 1570 kHz III
Jan 1980
6-1

1390 KHZ


HORIZONTAL DAYTIME PATTERN
ONTARIO
Jan 1960
6-2
MV/m
1000
100
DESIGN
TOLERANCE
0
60
120
300

6-2

K116

REVISED

DESCRIPTION SHEET

DIRECTIONAL ANTENNA SYSTEM

STATION: CKLN MAIN STUDIO: NELSON, BRITISH COLUMBIA

POWER: 1 KW FREQUENCY: 1390 KC/S CLASS: III

NOTIFICATION LIST NO. 116 Date: October 30, 1957

GEOGRAPHICAL LOCATION OF CENTRE OF ANTENNA SYSTEM: NORTH LAT. 49° 28' 35"

WEST LONG. 117° 17' 49"

ANTENNA:

MODE OF OPERATION: DA-1 (Same pattern day and night)

ELEMENTS: Two element, uniform cross section guyed steel towers, base insulated for series feed.

TOWER:	NORTH #1	SOUTH #2
Height above insulators:	180' (91.5°)	180' (91.5°)
Phasing:	0	+150°
Field Ratio:	1.0	1.05

Spacing: 118' or (60°) between adjacent towers.

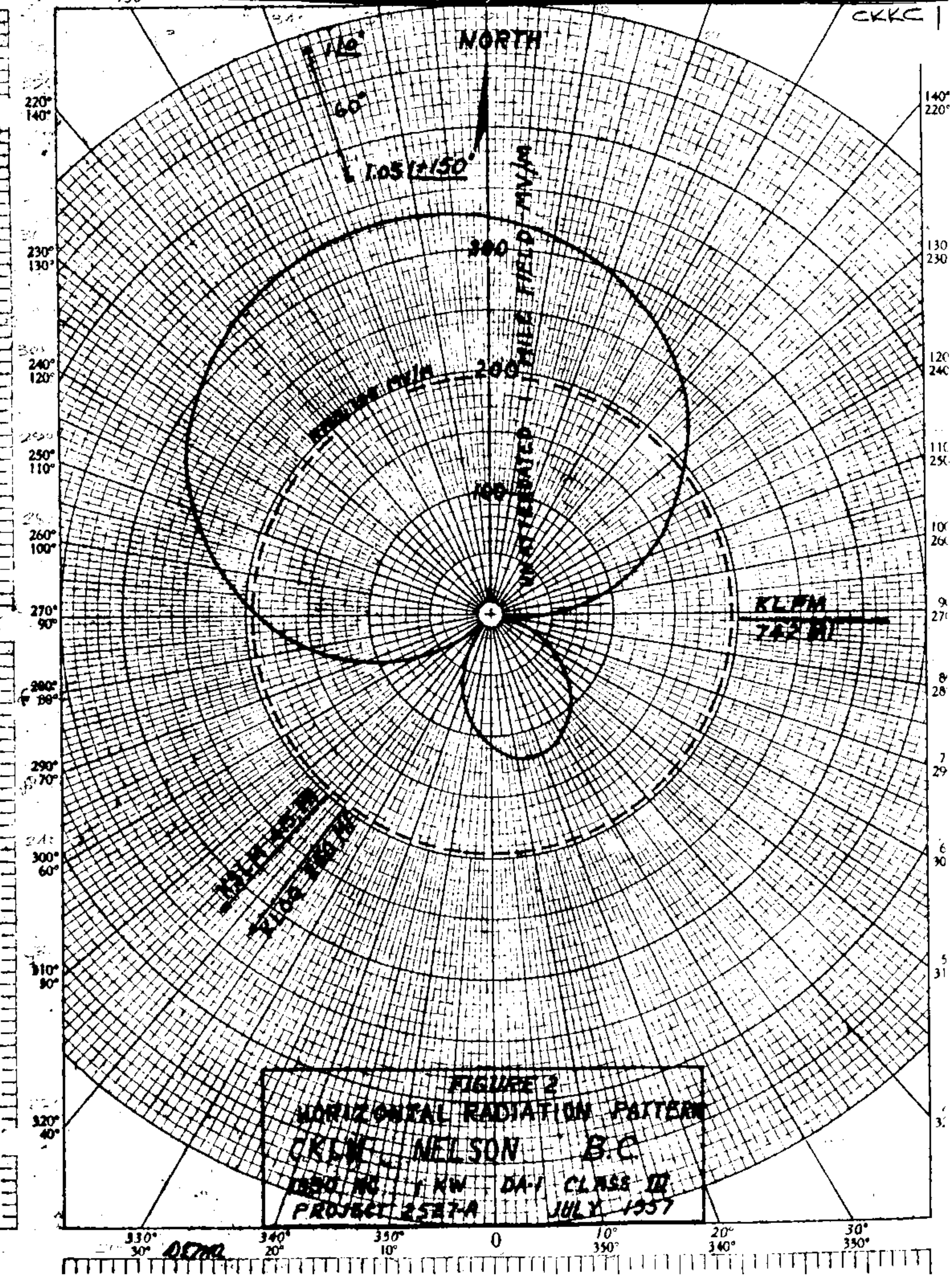
Orientation: Elements on a line bearing 162.5° true.

Ground System: 120 equiangularly spaced radials extend from the base of each tower to a distance of 283 feet (0.4 wavelength) with the exception of those radials joined along the common cord. The radials are also shortened in some directions to 177 feet (0.25 wavelength) but the proposed ground system covers an equivalent area to radial wires extended to a distance of 283 feet (0.4 wavelength). The ground wires consist of solid copper wire #10 B & S gauge and are buried to a depth of approximately 8 inches.

PREDICTED EFFECTIVE FIELD: 198 MV/M at one mile for 1 KW.

PROPOSED DAY & NIGHT Station CKLN 1kw, DA-1,U, Class III
Nelson, British Columbia 1390 KC

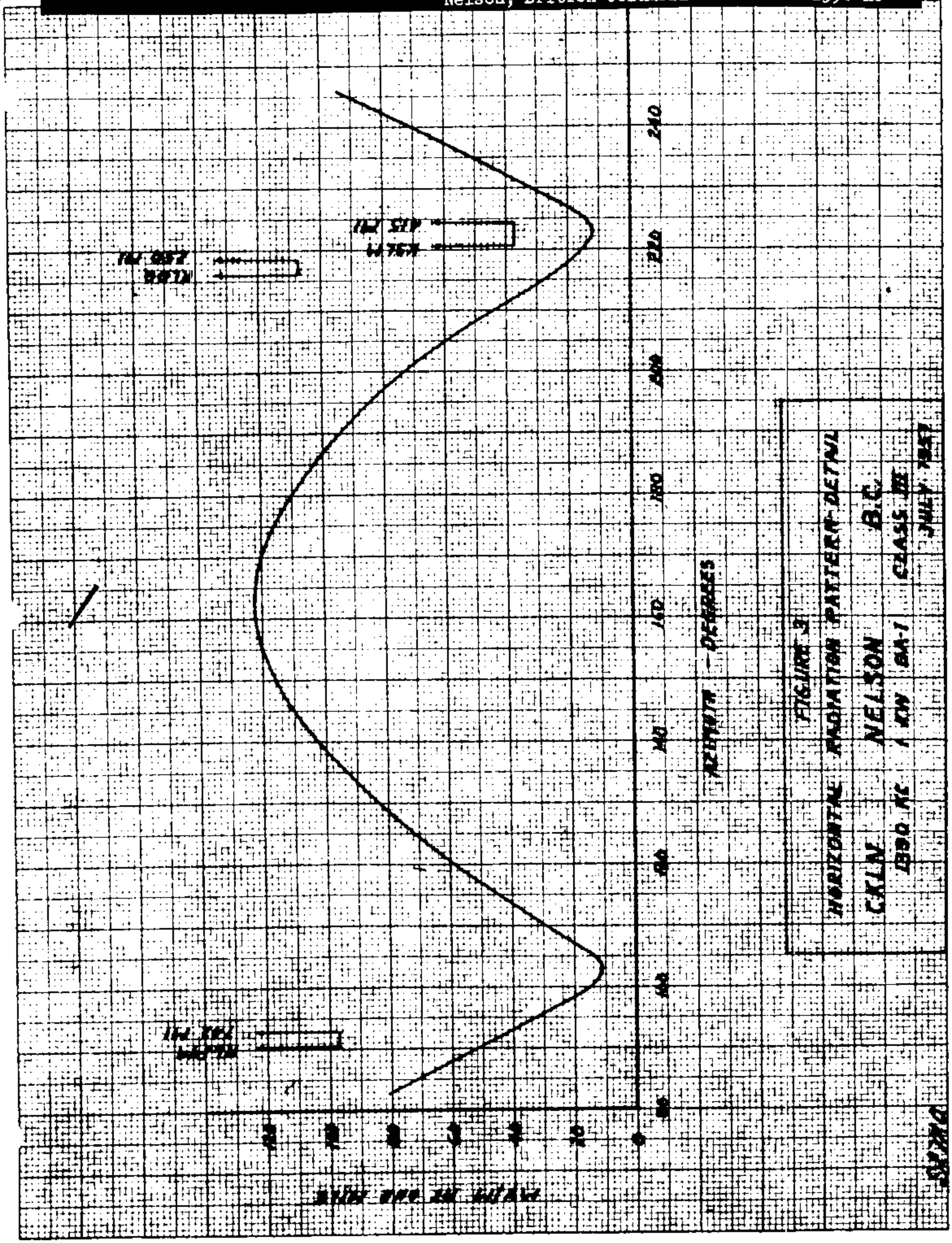
CKKC



#116

PROPOSED DAY & NIGHT NULLS   Station CKLN

Nelson, British Columbia   1390 KC



Description Sheet
(12-28-67ct)

New Station CHOO
Ajax, Ontario

10kw,DA-1,U,Class III
1390 kc

DESCRIPTION OF ARRAY

STATION: NEW

MAIN STUDIO: Ajax, Ontario

FREQUENCY: 1390 Kc/s

POWER: 10,000 watts Class III

GEOGRAPHICAL LOCATION OF ANTENNA SYSTEM: 43° 50' 08" North, 78° 58' 30" West

NOTIFICATION LIST NO. 222

DATED: February 17, 1967.

Antenna Characteristics

Mode of Operation: DA/1
Number of Elements: Five (5)
Type of Elements: Guyed, uniform cross section, base insulated series fed, no top loading.

TOWER:	#1 (S)	#2 (SC)	#3 (C)	#4 (NC)	#5 (N)
HEIGHT OVER INSULATORS:	180' (91°)	180' (91°)	180' (91°)	180'(91°)	180'(91°)
OVERALL HEIGHT:	185'	185'	185'	185'	185'
SPACING	O	178'(90°)	356'(180°)	534'(270°)	712'(360°)
PHASING:	O	211.97	61.04	265.50	107.80
RATIO:	1.000	2.959	3.694	2.410	0.730

ORIENTATION: Radiators on a line 005° True

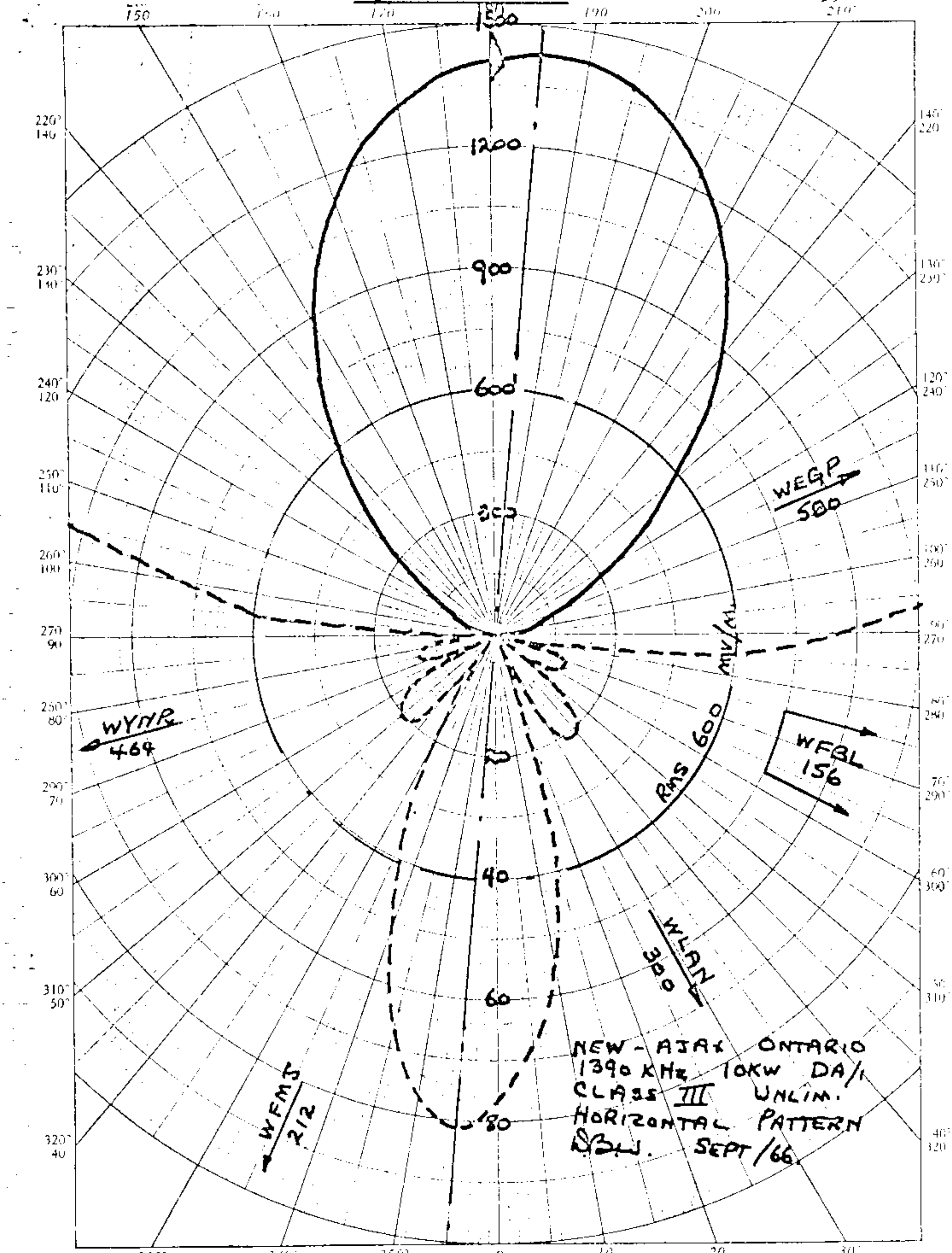
GROUND SYSTEM: 120 Radials #10 AWG copper per tower to property boundary. Minimum length 265' (135°) Maximum length 390' (200°) bonded together at common chords. Buried 8" below grade.

PREDICTED EFFECTIVE FIELD: 190 mv/m @ 1 mi, for 1 Kw
600 mv/m @ 1 mi. for 10 Kw

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

New Station
Ajax, Ontario

10kw,DA-1,U,Class III
1390 kc



IFRB Serial No. 12511

FORM FOR THE APPLICATION OF ARTICLE 4 OF THE AGREEMENT

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

1390 kHz

PART I GENERAL INFORMATION

01 Administration: CANADA | Sheet No.: 412 | Date: 820504

Assigned frequency (kHz)		02	1,390
Transmitting station	Name of the station	03	MEDICINE HAT
	Call sign	04	CJCY
	Additional Identification	05	
	Station class	06	
	Operational Status	07	
Country		08	CAN
Geographical coordinates of the transmitting station		09	W N

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

Call sign

12 Modification under Section 4.2.14 Yes [✓] No [ ]

13 Date of bringing into service or cessation of operation: Year Month Day

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

44 Remarks

COORDINATION UNDER ARTICLE 4							
COUNTRY	USA						
IN PROGRESS							
ACCEPTANCE OBTAINED							

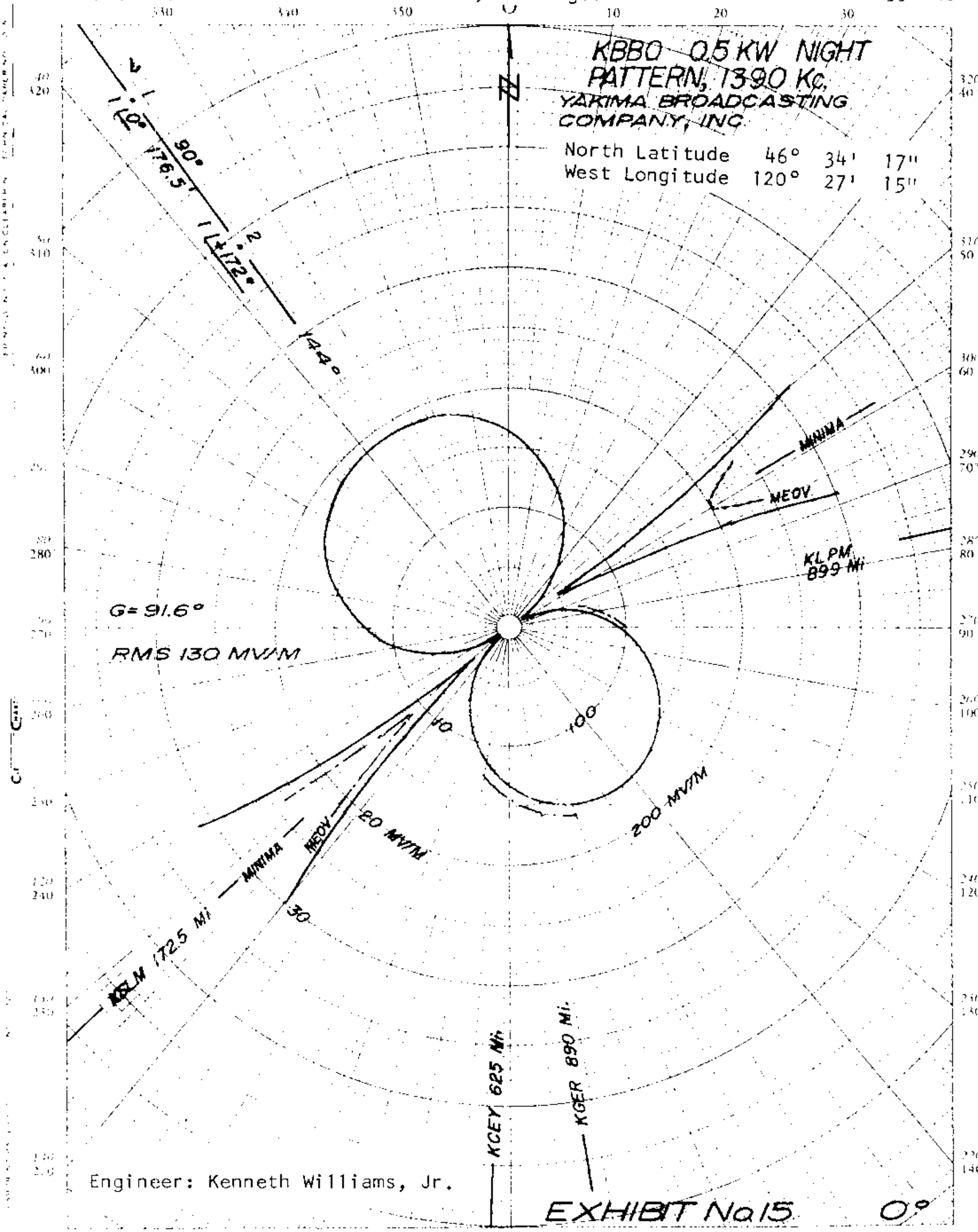
BP-18748
GR-(4-17-70) CP to change ANT-XMTR LOCATION

KBBO

Proposed Night
(4-29-70ct)

Station KBBO
Yakima, Washington

500w, 1kw-LS, DA-N, U
1390 kc



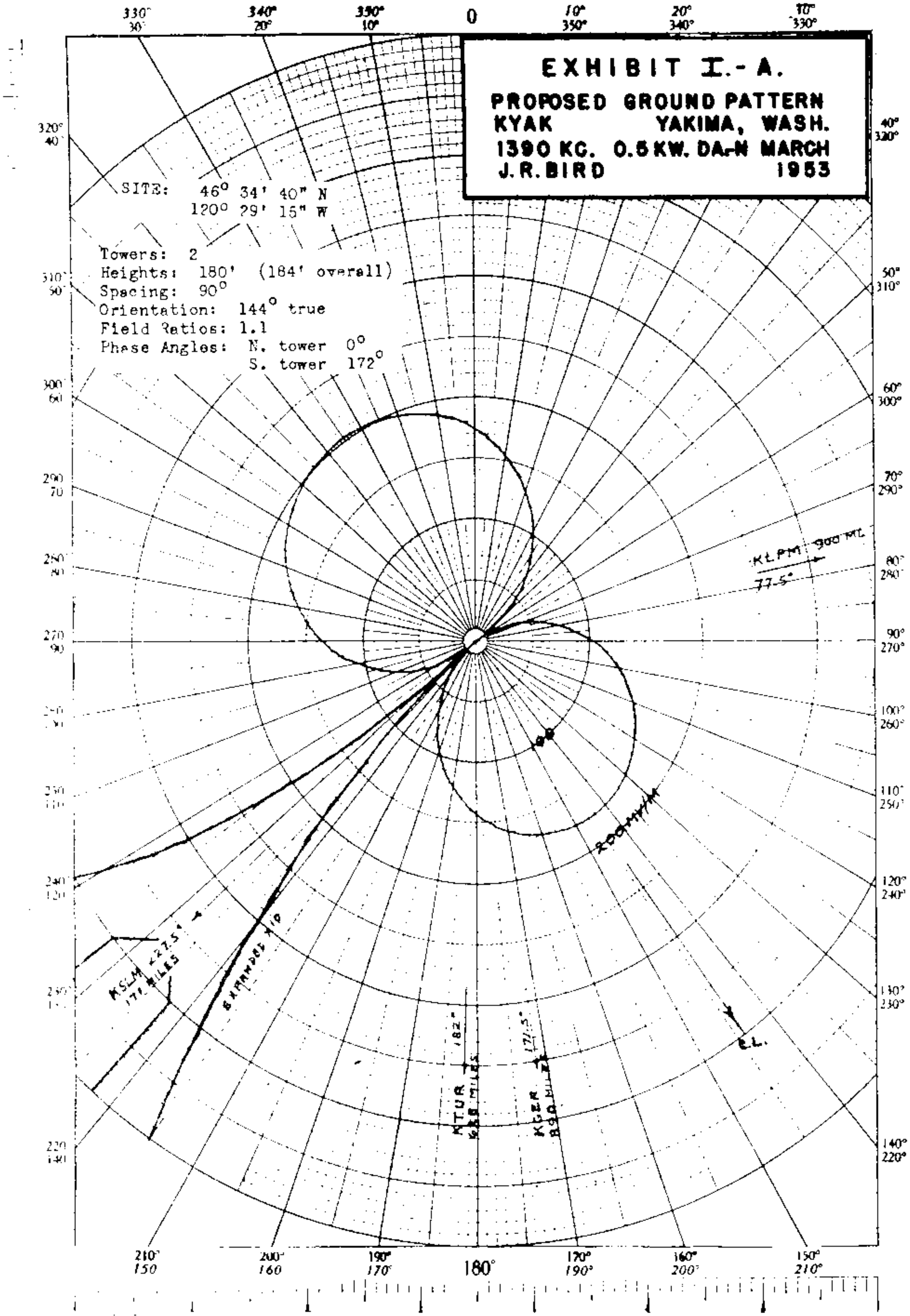
FCC File No. BP-18748
Accepted 4-13-70

Station KBBO
Yakima, Washington

1390 kc

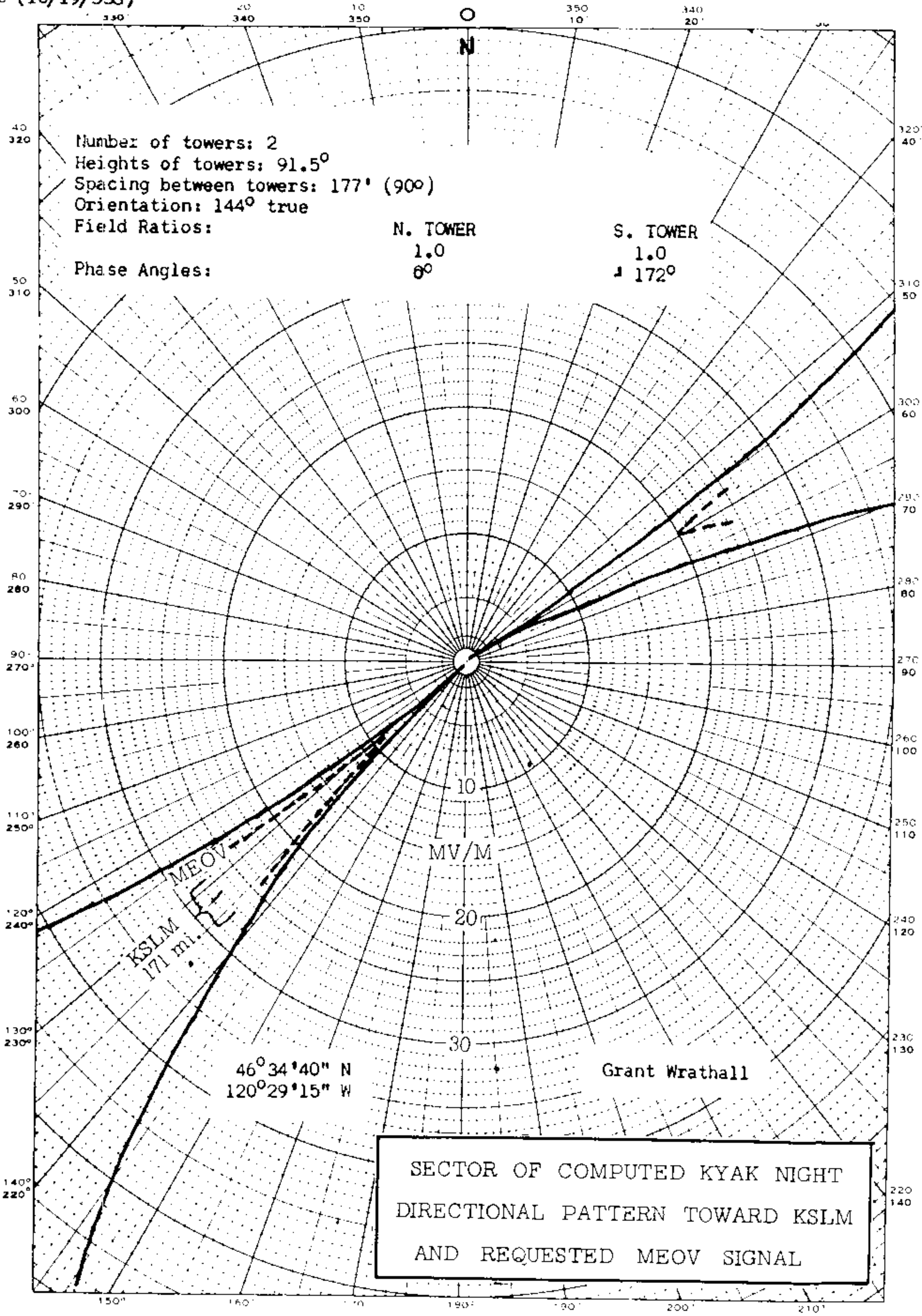
KBBO

PROPOSED NIGHT (5/27/53G) KYAK, YAKIMA, WASHINGTON 0.5kw, 1kw-LS, U, DA-N 1390 kc



KBBO

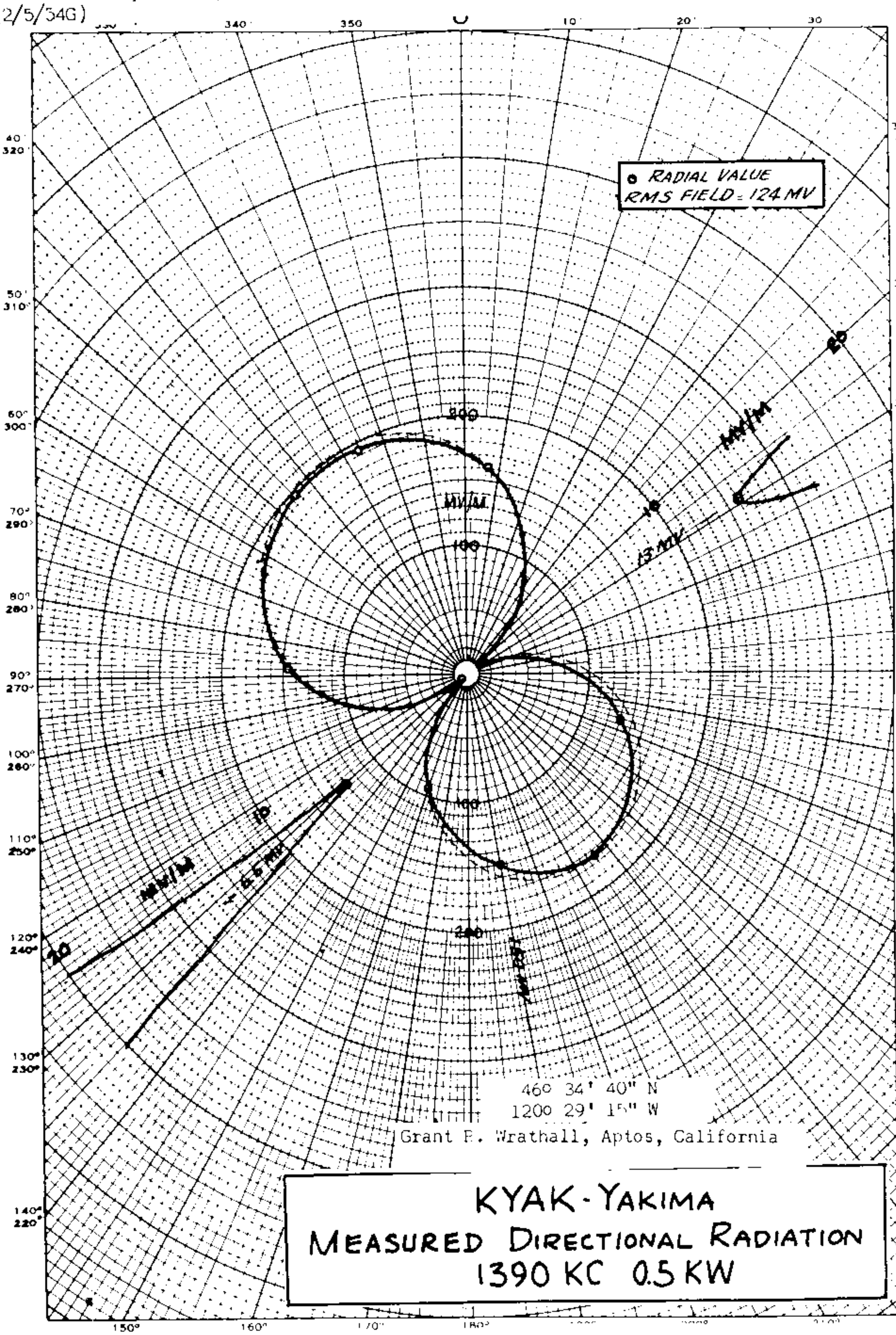
PROPOSED
NIGHT nulls (10/19/53G) KYAK, YAKIMA, WASHINGTON 500W,LKW-LS, U, DA-N 1390 kc



FCC File No. BMP-6280 Accepted 9/16/53 KYAK, YAKIMA, WASHINGTON 1390 kc

KBBO

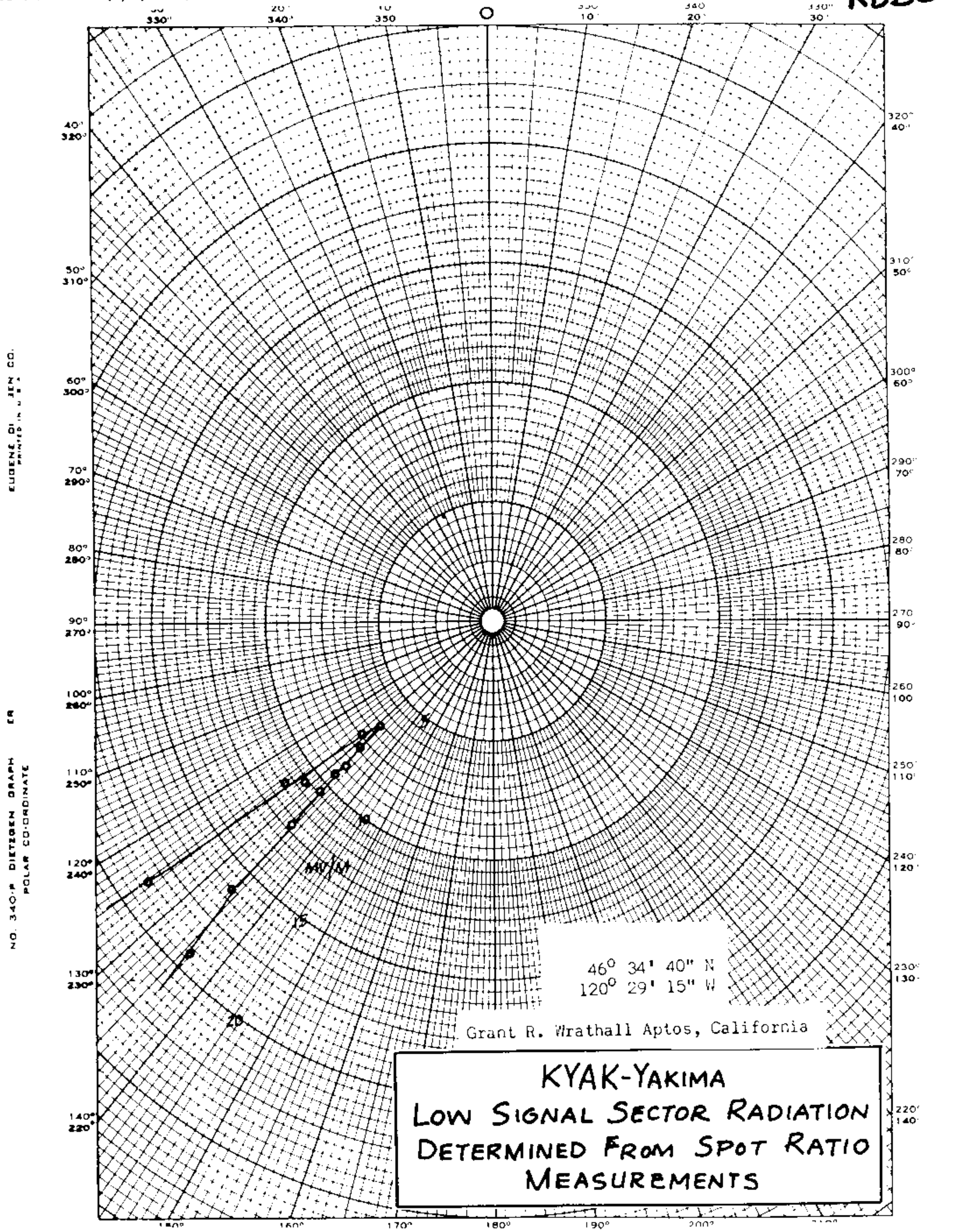
MEASURED KYAK, YAKIMA, WASHINGTON 500W, 1KW-1S, U, DA-N 1390 kc
NIGHT (2/5/54G)



FCC File No. BL-5187 Accepted 1/12/54 KYAK, YAKIMA, WASHINGTON 1390 kc

MEASURED NIGHT NULLS KYAK, YAKIMA, WASHINGTON (2/5/54G) 500W, 1KW-LS, U, DAn-N 1390 kc

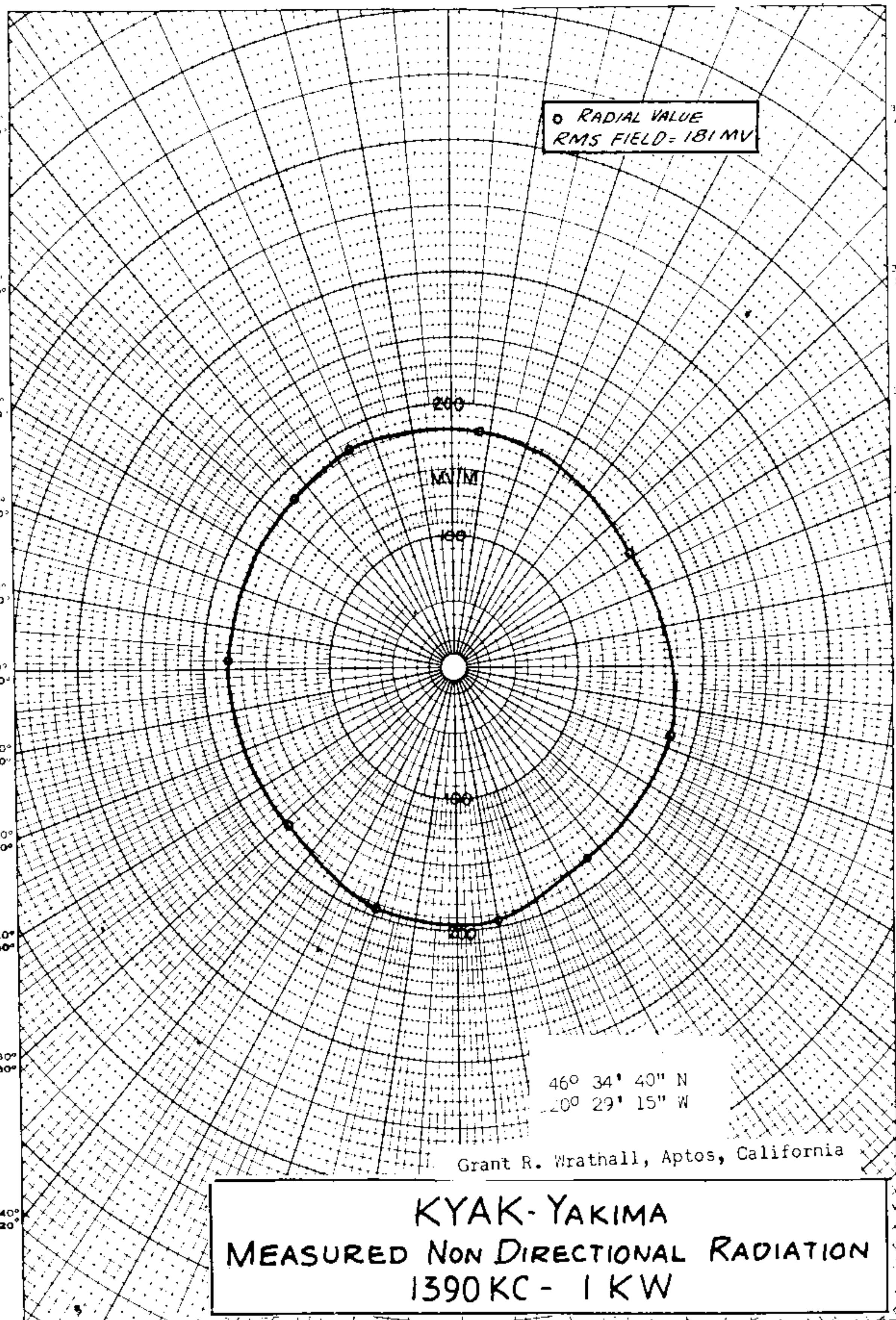
KBBO



FCC File No. BL-5187 Accepted 1/12/54 KYAK, YAKIMA, WASHINGTON 1390 kc

KBBO

MEASURED KYAK, YAKIMA, WASHINGTON 500W, 1KW-LS, U, DA-N 1390 kc
DAY (2/5/54G)



FCC File No. BL-5187 Accepted 1/12/54 KYAK, YAKIMA, WASHINGTON 1390 kc

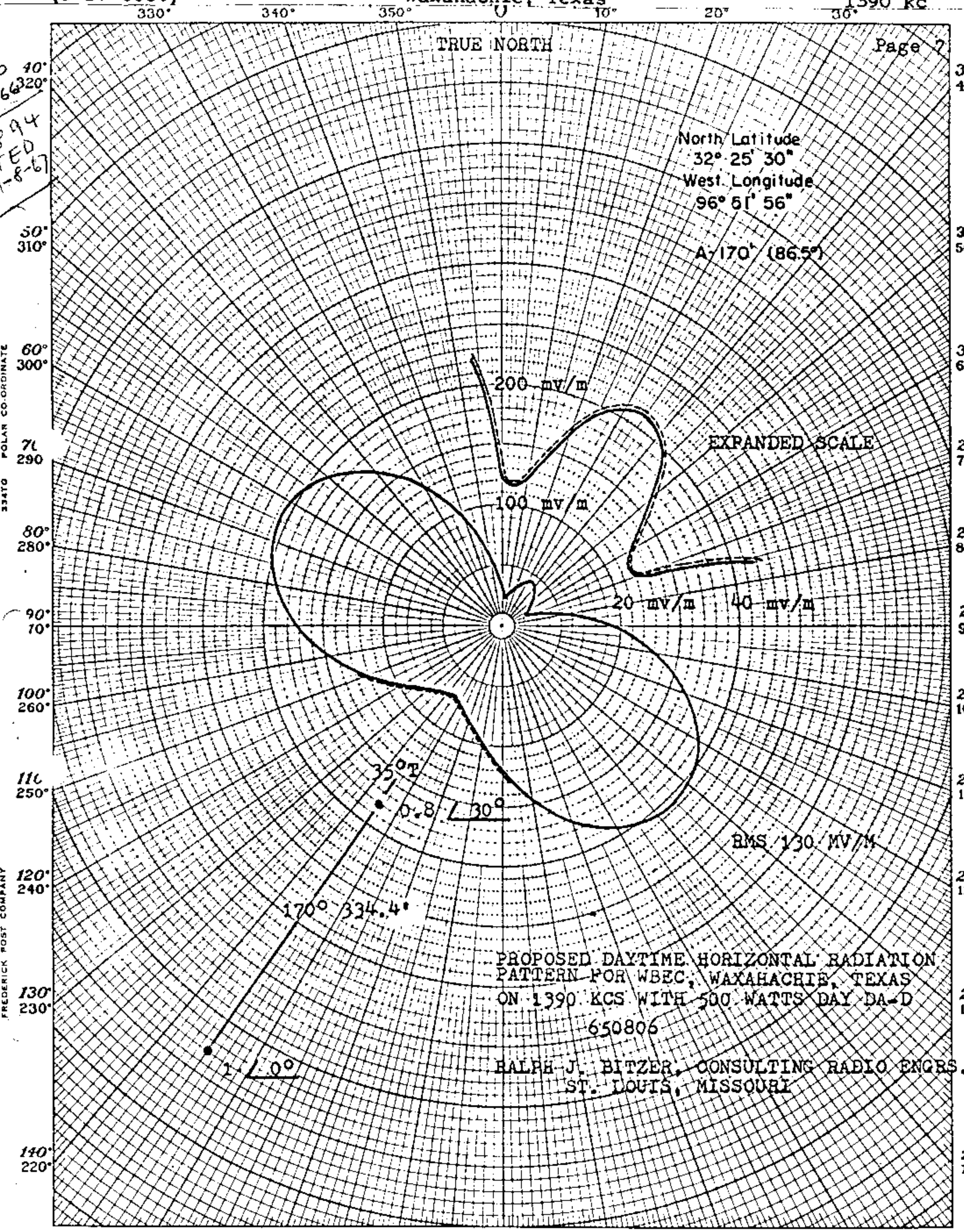
KBEC

Proposed Day
(5-27-66ct)

Station KBEC
Waxahachie, Texas

500w, DA-D, D
1390 kc

BP 17170
BP 8-24-66
BP 17894
GRANTED
CP 11-8-67



FCC File No. BP-17170
Accepted 4-27-66

Station KBEC
Waxahachie, Texas

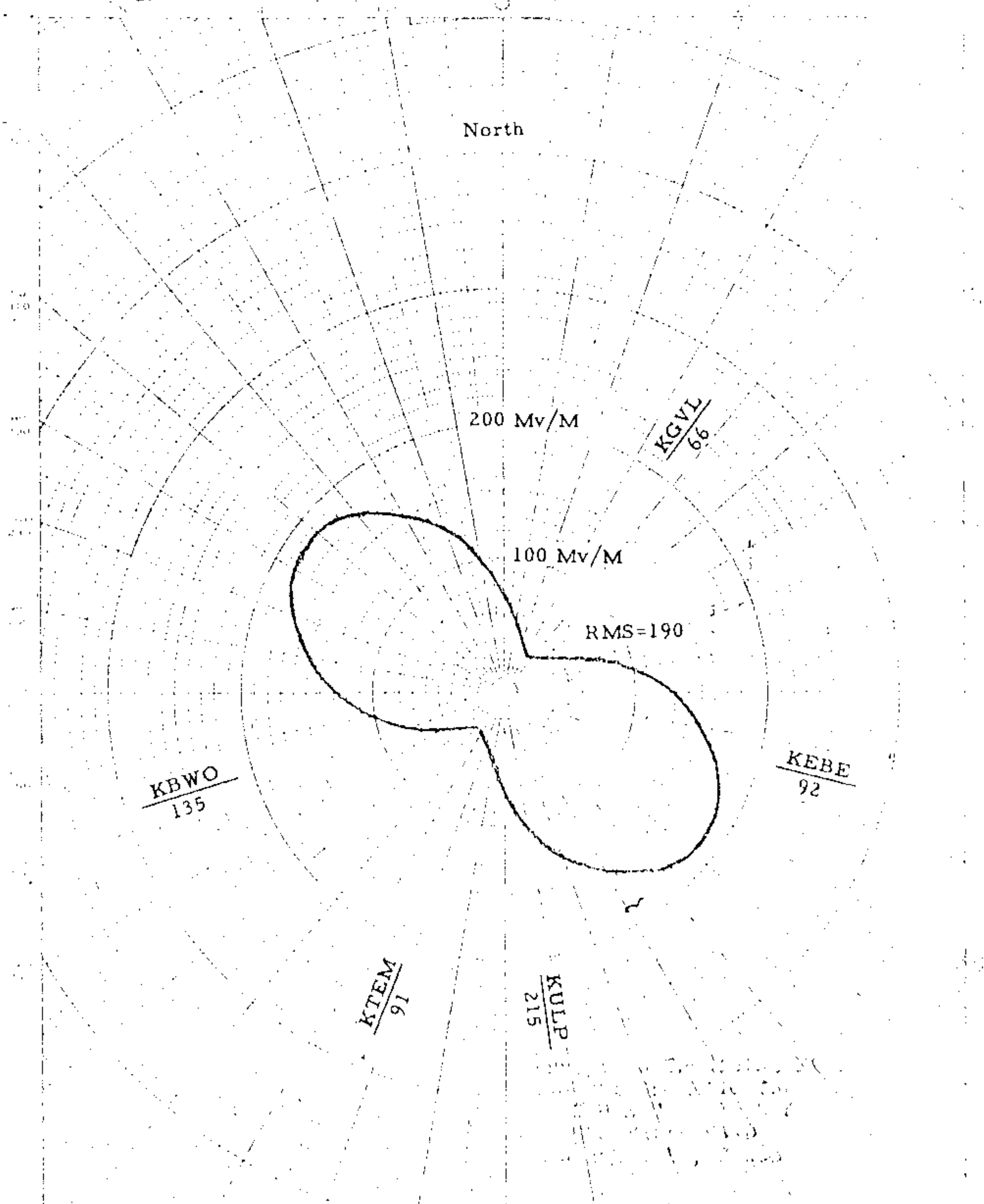
1390 kc

KBEC

PROPOSED DAY
(2-26-60g)

Station KBEC
Waxahachie, Texas

500w, DA-D,D
1390 KC



North Latitude 32° 22' 08''
West Longitude 96° 48' 57''

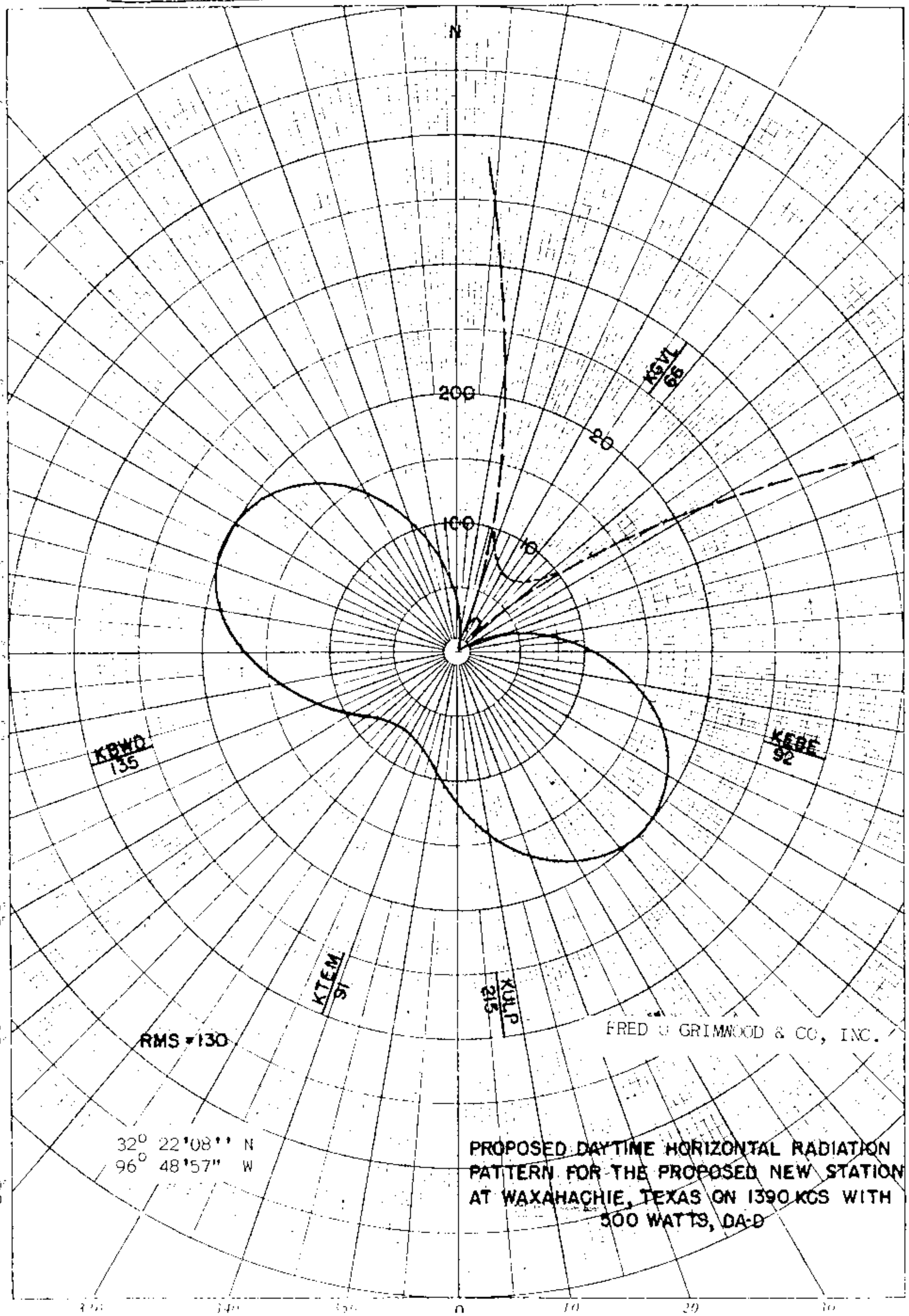
Engineer: JERRY WEST

FCC File No. BP-13868
Accepted 2-9-60

KBEC

KBEC

PROPOSED DAY (7/21/54 G) ELLIS COUNTY BROADCASTING SERVICE 500W DA-D,D 1390kc
WAXAHACHIE, TEXAS



FCC FILE No. BP--9351 Accepted 7-3--54 1390kc

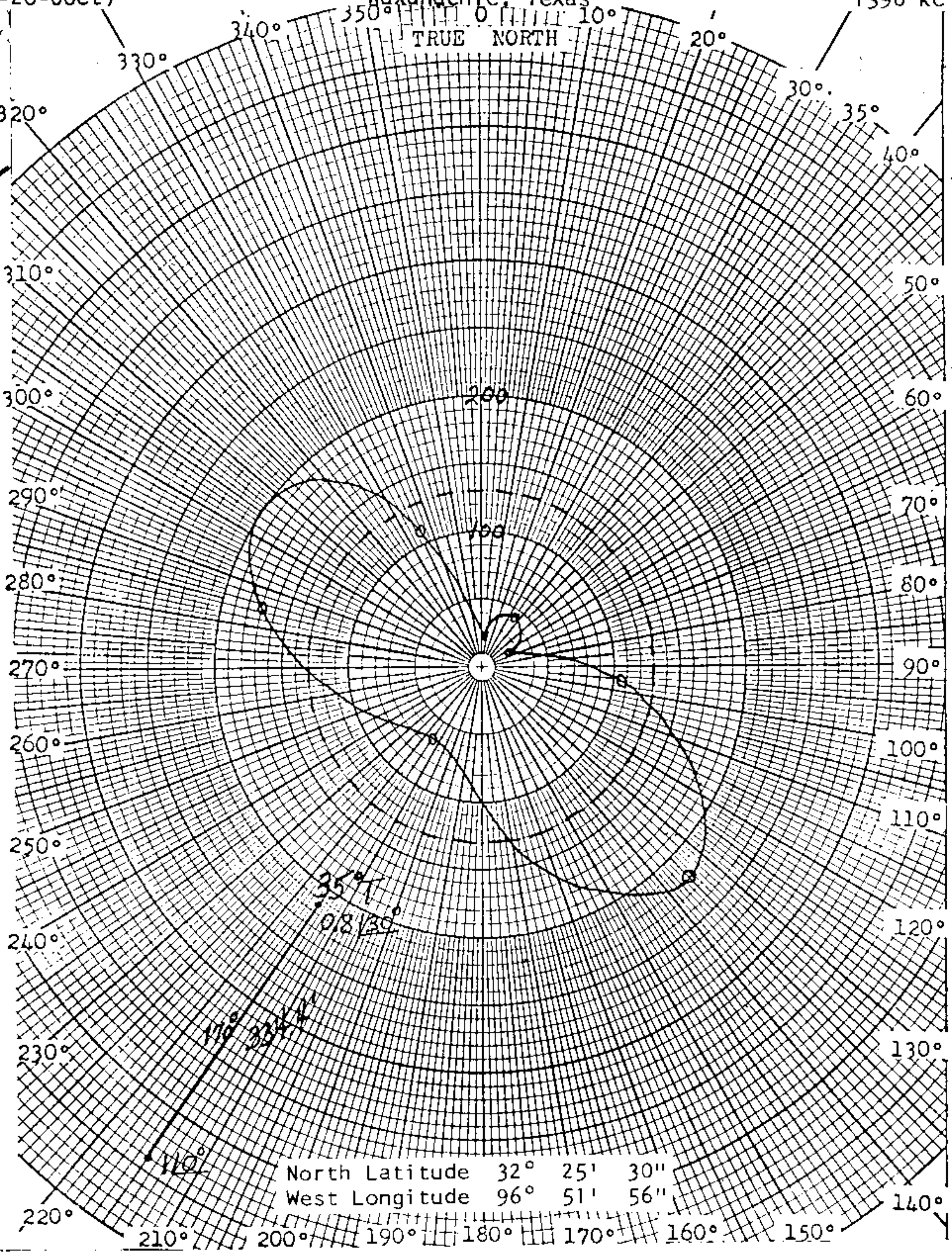
KBEC

Measured Day
(5-28-68ct)

Station KBEC
Waxahachie, Texas

500w,DA-D,D
1390 kc

5-24-68
GRANTED
LICENSE



HORIZONTAL RADIATION PATTERN

ANTENNA LAYOUT

Station KBEC Waxahachie, Texas

Frequency 1390kc Power 0.5 kw

R.M.S. Field 130MV/M No. of Elements 2

Pattern DA Height of Antenna 170FT.

FCC File No. BL-11961
Accepted 5-8-68

Station KBEC
Waxahachie, Texas

1390 kc

MEASURED DAY
(8/16/55G)

STATION KBEC
WAXAHACHIE, TEXAS

500W
DA-D, D

1390 KC

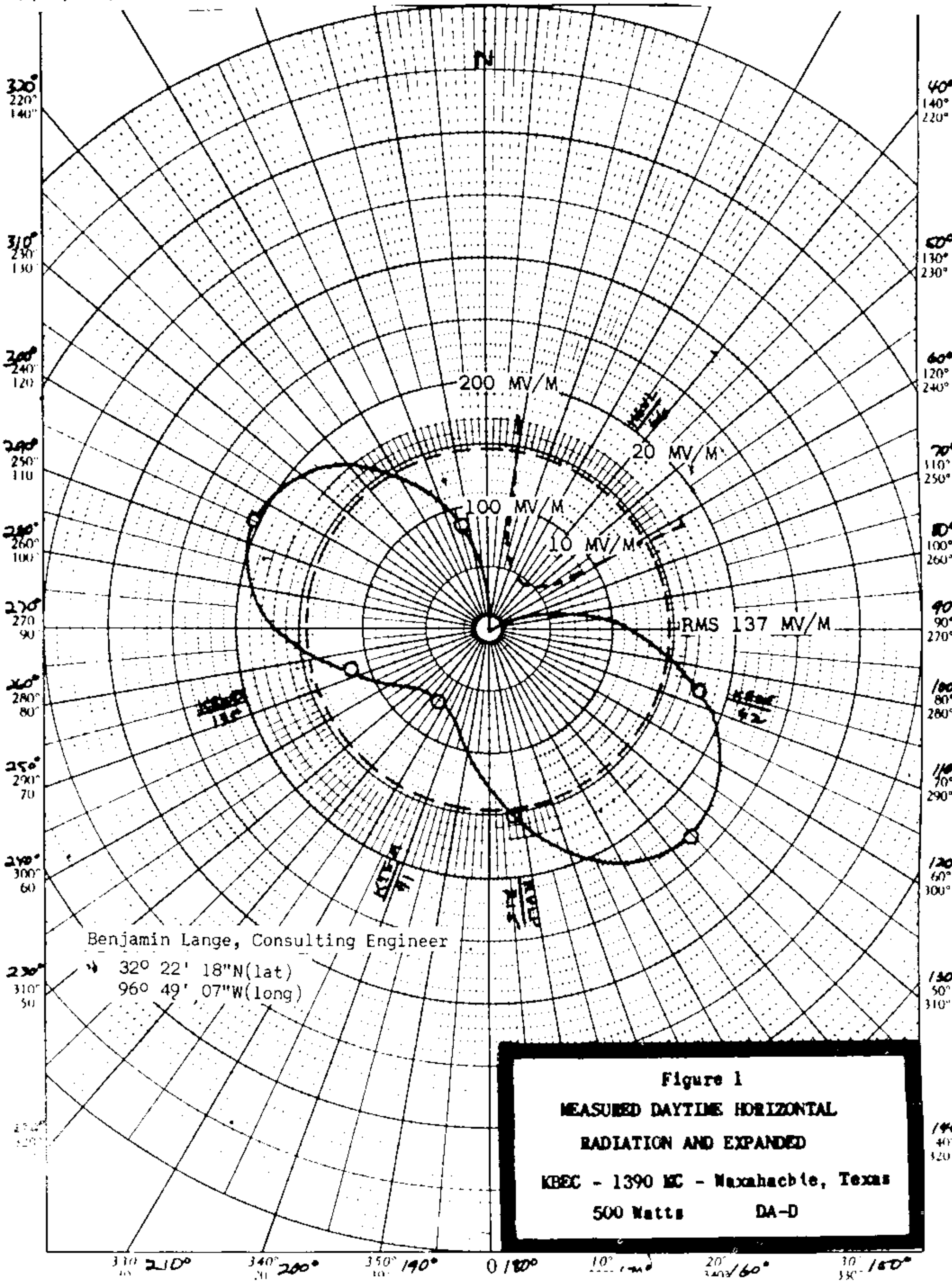


Figure 1
MEASURED DAYTIME HORIZONTAL RADIATION AND EXPANDED
KBEC - 1390 KC - Waxahachie, Texas
500 Watts DA-D

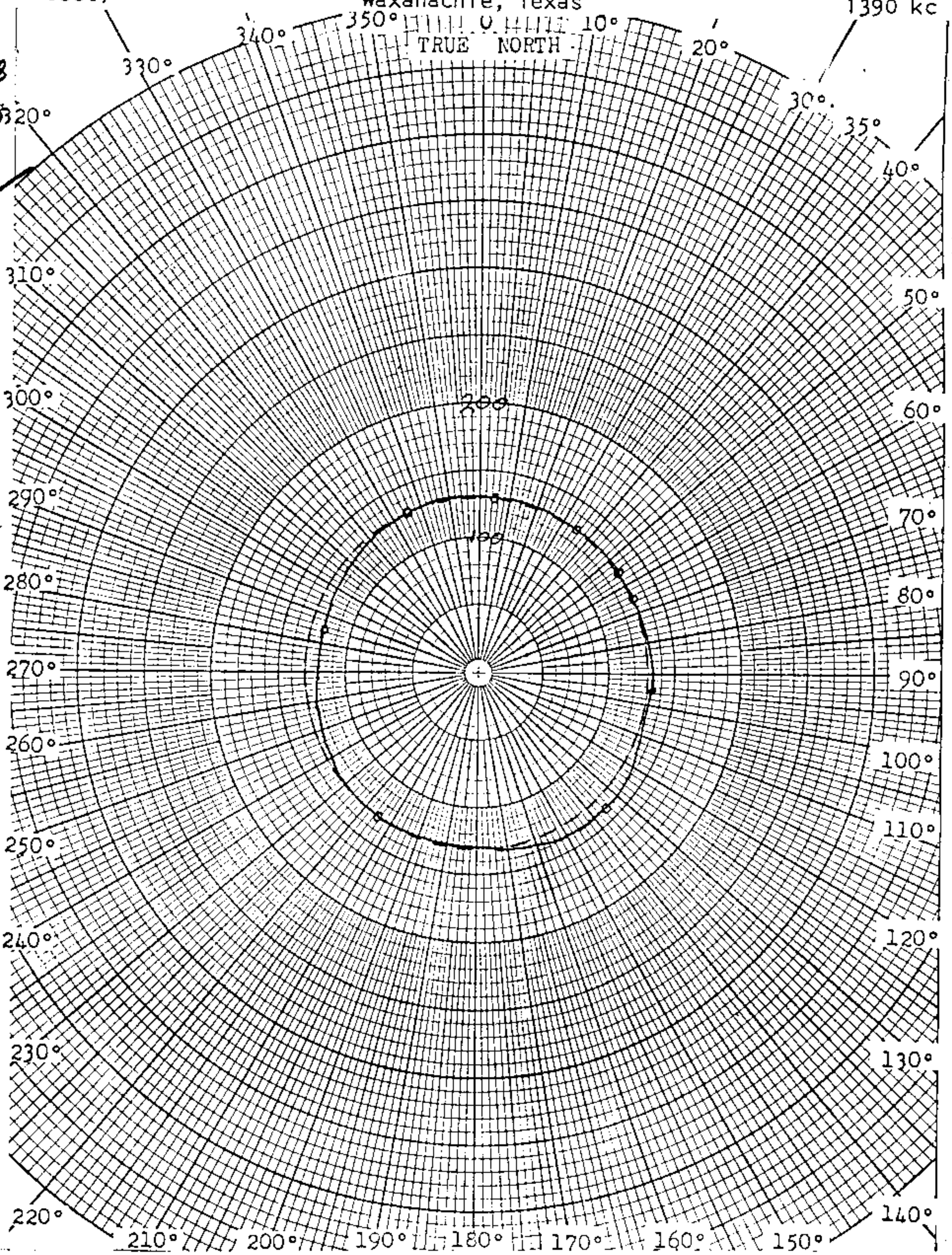
KBEC

5-24-68
GRANTED
LICENSE

Mesured Non-DA
(5-28-68ct)

Station KBEC
Waxahachie, Texas

500w,DA-D,D
1390 kc



HORIZONTAL RADIATION PATTERN

ANTENNA LAYOUT

Station KBEC Waxahachie, Texas

Frequency 1390kc Power 0.5 kw

R.M.S. Field 130 MV/M No. of Elements 2

Pattern NDA Height of Antenna 170 FT.

FCC File No. BL-11961
Accepted 5-8-68

Station KBEC
Waxahachie, Texas

1390 kc

KBEC

MEASURED NON-DIRECTIONAL (8/16/55G) STATION KBEC WAXAHACHIE, TEXAS 500W DA-D, D 1390 KC

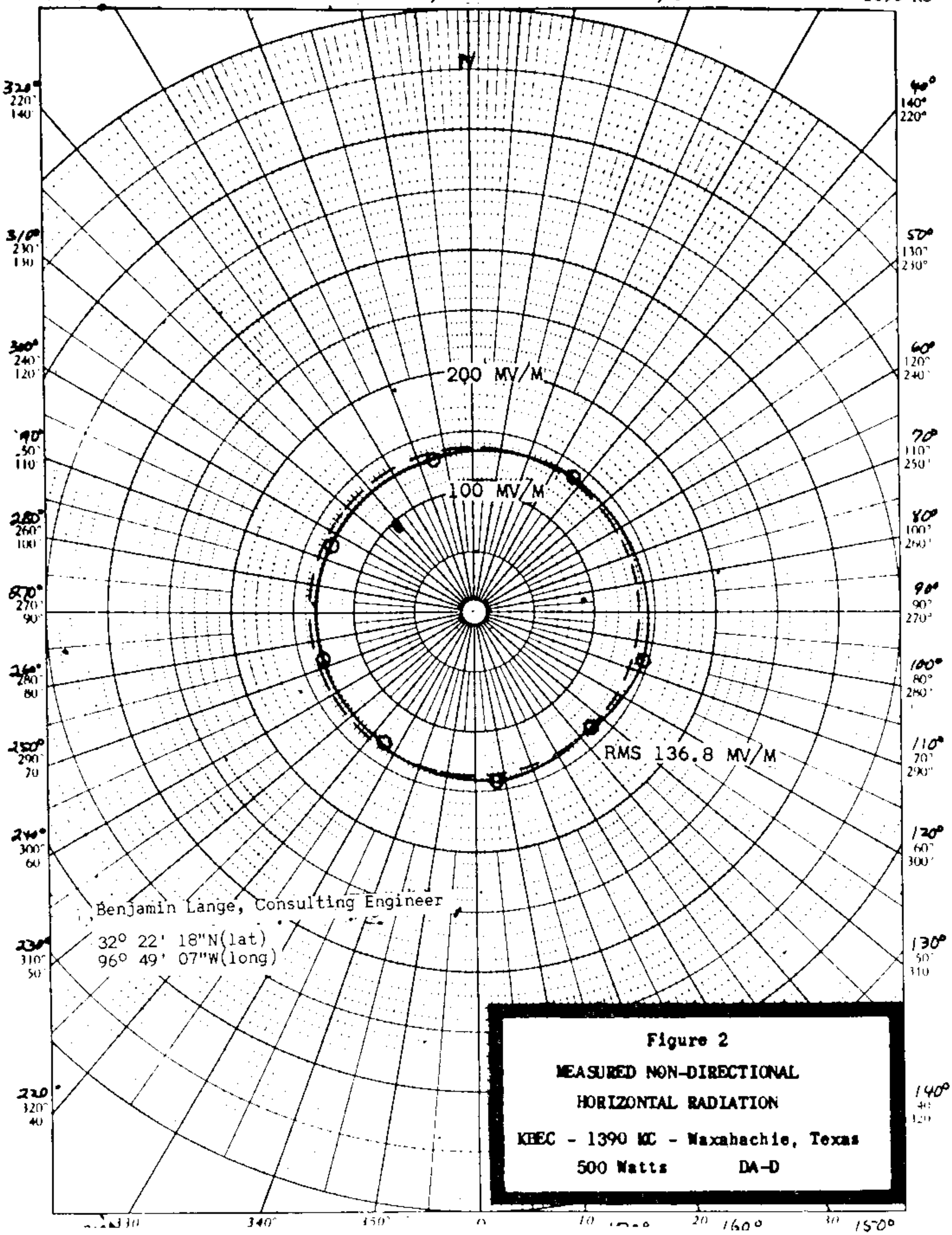


Figure 2
MEASURED NON-DIRECTIONAL
HORIZONTAL RADIATION
KBEC - 1390 KC - Waxahachie, Texas
500 Watts DA-D

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KBEC | Main Studio: Waxahachie, Texas
Frequency: 1390 kHz | Power: 0.5kw
Notification List No. 1771 | Date: February 22, 1978 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 32° 25' 30"
West Longitude: 96° 51' 56"

ANTENNA CHARACTERISTICS

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

TOWER	SW(#1)	NE(#2)
HEIGHT ABOVE INSULATORS:	170'	170' (87°)
PHASING	0	+12°
FIELD RATIO:	1	0.925

SPACING AND ORIENTATION: Towers are spaced 330.4' (168°) on a line bearing 45° true.

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

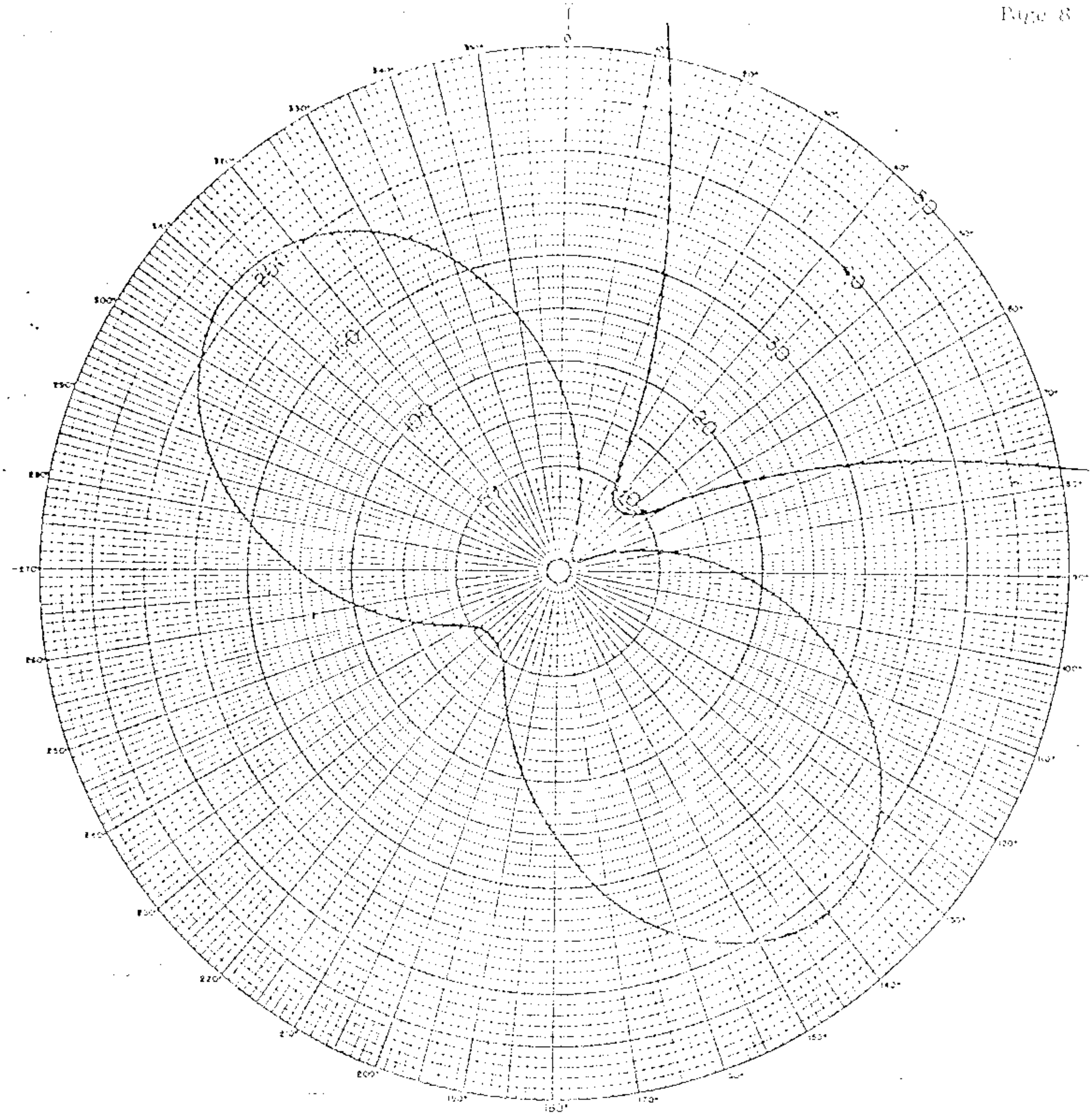
PREDICTED EFFECTIVE FIELDS AT RATED POWER:

THEORETICAL

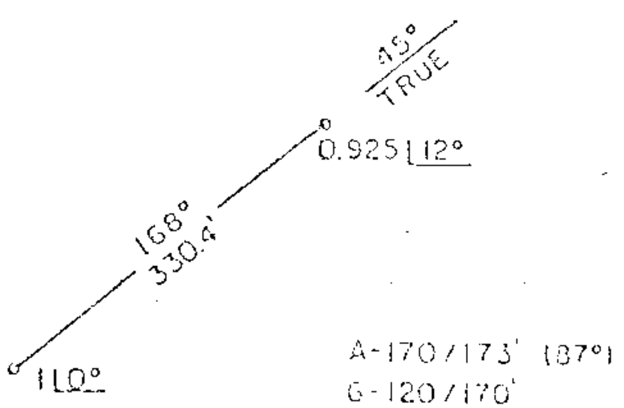
RMS

130 mv/m

Note: This notification concerns only minor changes in the directional antenna system and radiation pattern.



HORIZONTAL RADIATION PATTERN



APPLICANT	KBEC
LOCATION	Waxahachie, Texas
FREQUENCY	1390 KC/S
POWER	500 Watts
LATITUDE	32 DEG 25 MIN 30 SEC
LONGITUDE	96 DEG 51 MIN 56 SEC
WHEN USED	[illegible]
R.M.S. FIELD	[illegible]
DATE	[illegible]

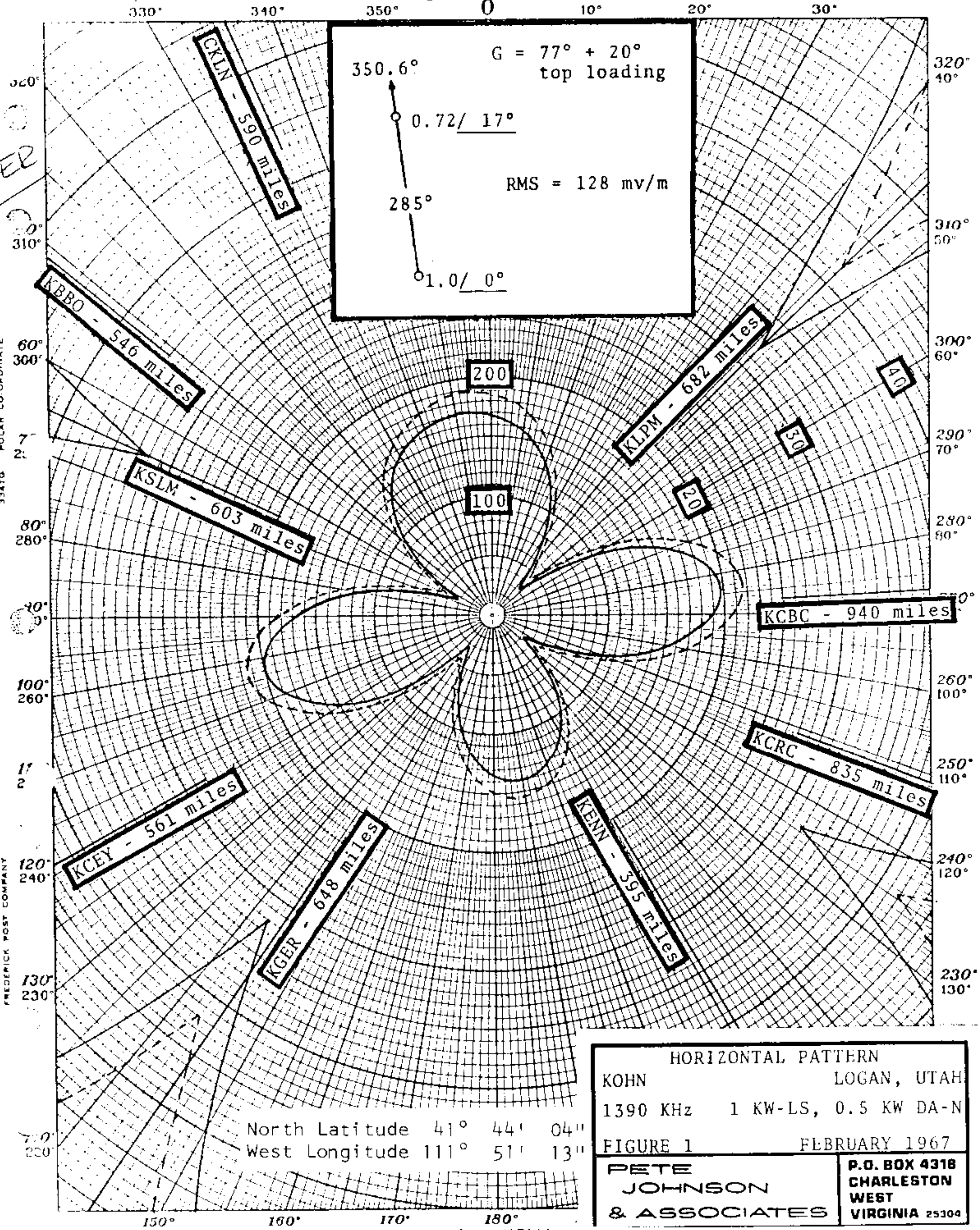
[illegible]
CONSULTING RADIO ENGINEERS

KOHN

Proposed Night
(9-28-67ct)

Station KBLW
Logan, Utah

500w,1kw-LS,DA-N,U
1390 kc



FCC File No.BP-17853
Accepted 8-28-67

Station KBLW
Logan, Utah

1390 kc

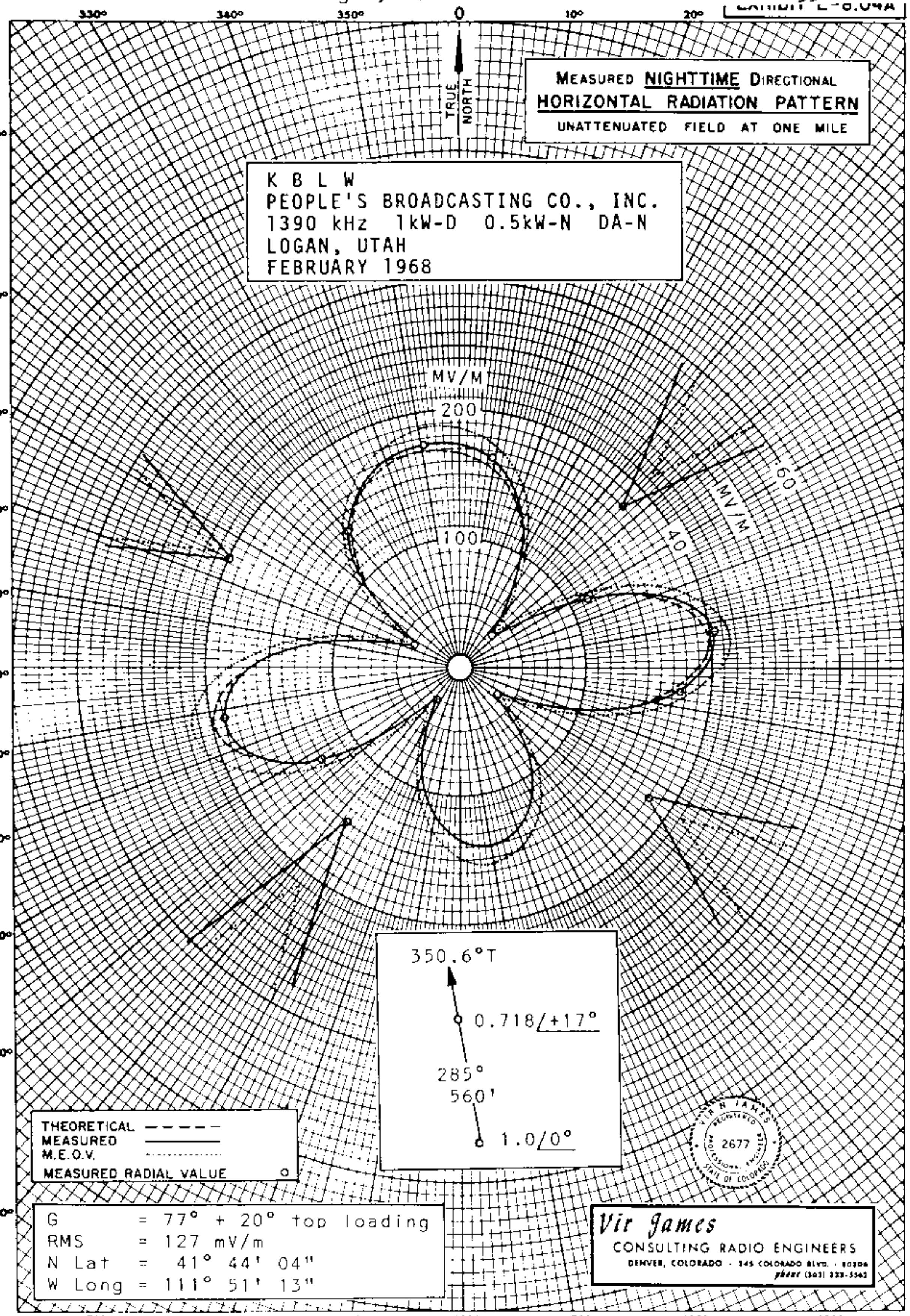
KBLW

Measured Night
(5-28-68ct)

Station KBLW
Logan, Utah

500w, 1kw-LS, DA-N, U
1390 kc

BL-11931
5-15-68
GRANTED
LICENSE



FCC File No. BL-11932
Accepted

Station KBLW
Logan, Utah

1390 kc

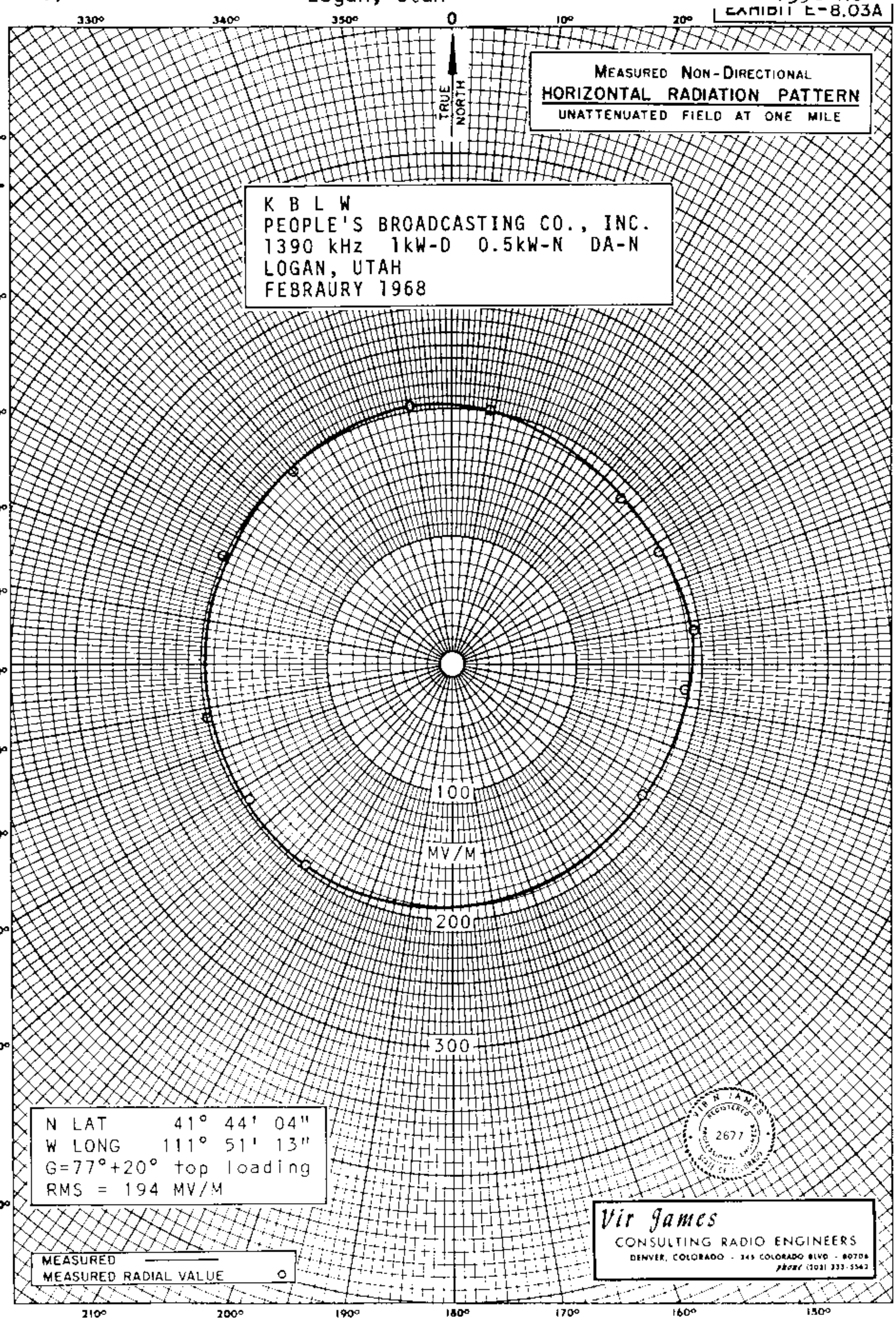
KBLW

Measured Non-DA
(5-28-68ct)

Station KBLW
Logan, Utah

500w,1kw-LS,DA-N,U
1390 kc

BL-11931
5-15-68
-RANTED
ICENSE



FCC File No. BL-11932
Accepted

Station KBLW
Logan, Utah

1390 kc

KBLW

SUPPLEMENTAL DIRECTIONAL ANTENNA
DESCRIPTION SHEET

Station: KBLW

Main Studio: Logan, Utah

Frequency: 1390 kHz

Power: 0.5 kW Night 5 kW Day

Notification List No. 1709

Date: November 16, 1976 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 41 ° 44 ' 04 "

West Longitude: 111 ° 51 ' 13 "

Authorized for Nighttime operation (DA-N).

Predicted effective Day Field: (omnidirectional) 193 mv/m at rated power.

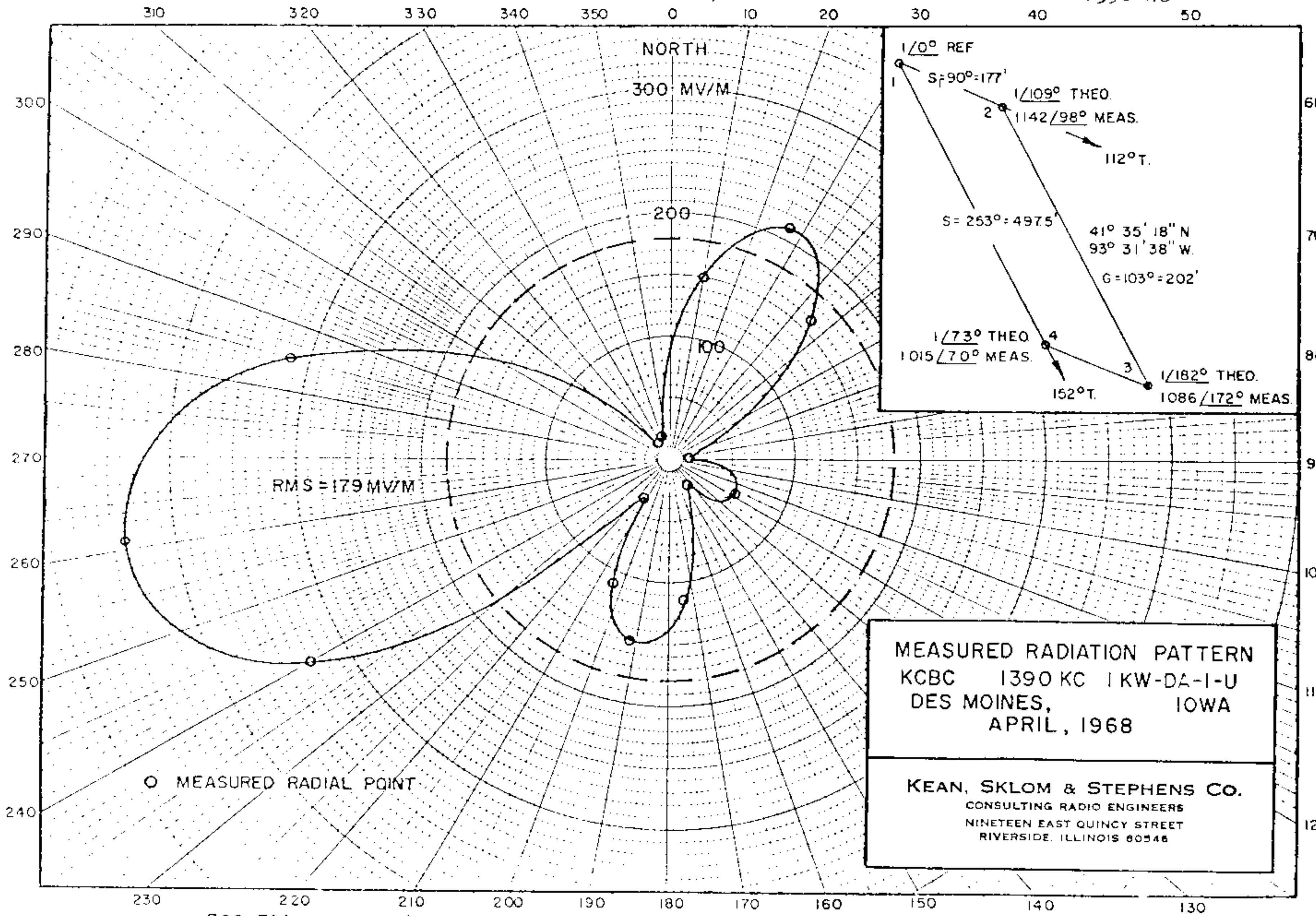
Note: Please retain the description sheet and directional antenna radiation patterns notified for station KBLW in United States Change List Number 1236, dated October 4, 1967 and attach to this supplemental Description Sheet. This notification is for the purpose of indicating an increase in daytime power from 1 kW and a correction in the predicted effective field of the daytime omnidirectional antenna system from ND-183, with no change in the nighttime operation.

CTR NO: 30454A

Measured Day & Night
(3-27-70ct)

Station KCBC
Des Moines, Iowa

1kw,DA-1,U
1390 kc



FCC File No.BZ-7403
Accepted 2-27-70

Station KCBC
Des Moines, Iowa

1390 kc

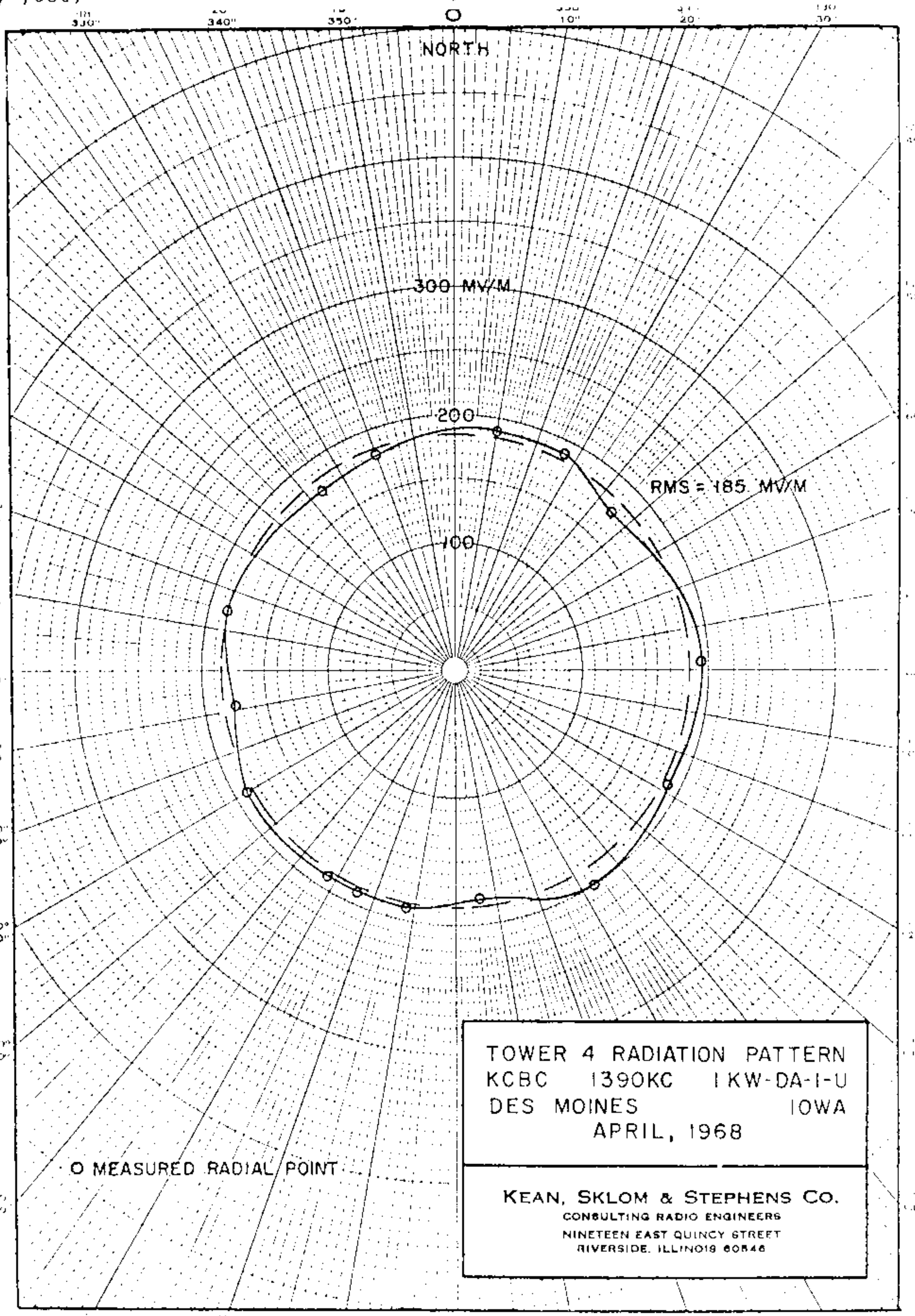
KCBC

KCBC

Measured Non-DA
(3-27-70ct)

Station KCBC
Des Moines, Iowa

1kw,DA-1,U
1390 kc



TOWER 4 RADIATION PATTERN
KCBC 1390KC 1KW-DA-1-U
DES MOINES IOWA
APRIL, 1968

KEAN, SKLOM & STEPHENS CO.
CONSULTING RADIO ENGINEERS
NINETEEN EAST QUINCY STREET
RIVERSIDE, ILLINOIS 60546

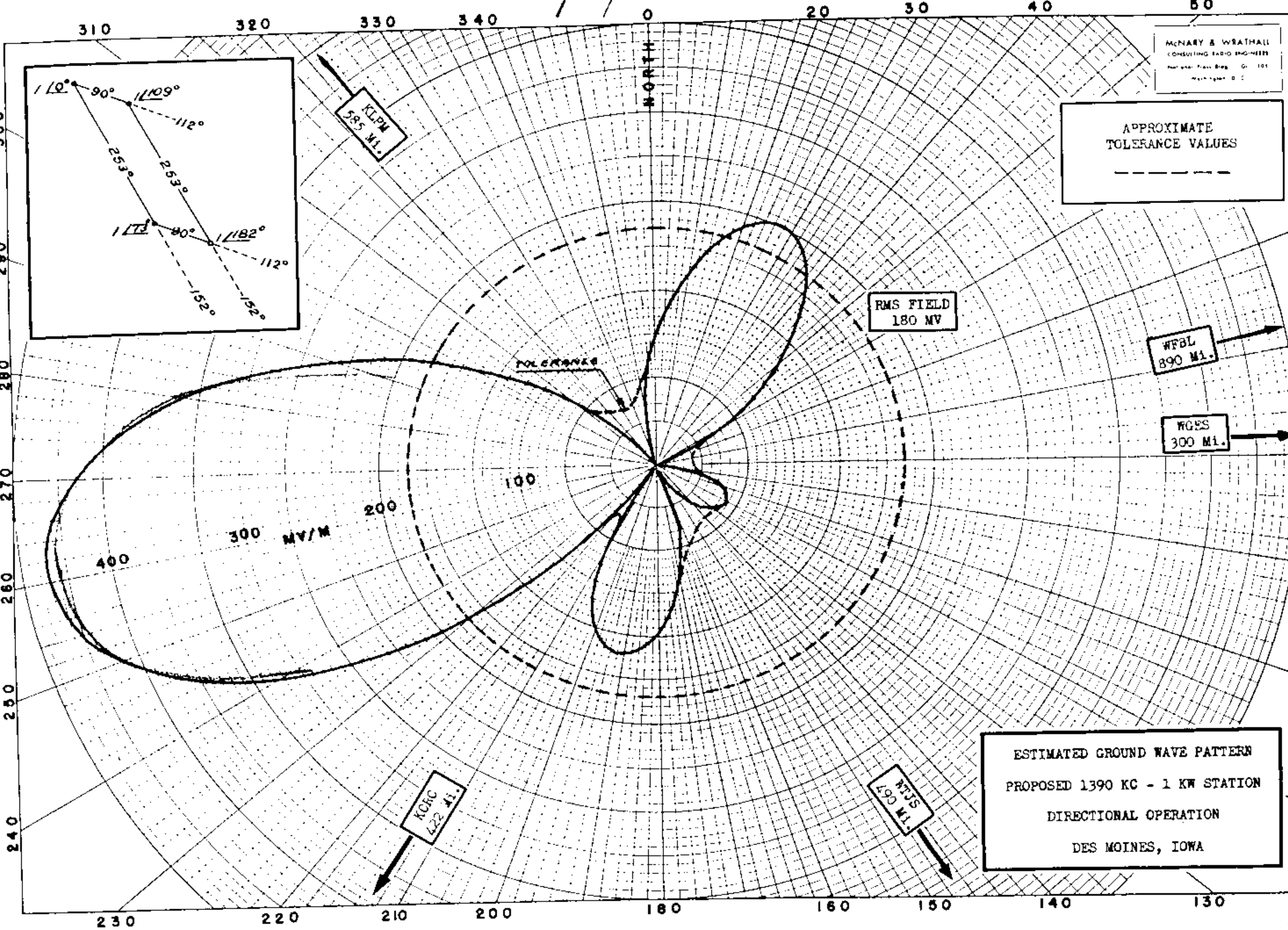
FCC File No.BZ-7403
Accepted 2-27-70

Station KCBC
Des Moines, Iowa

1390 kc

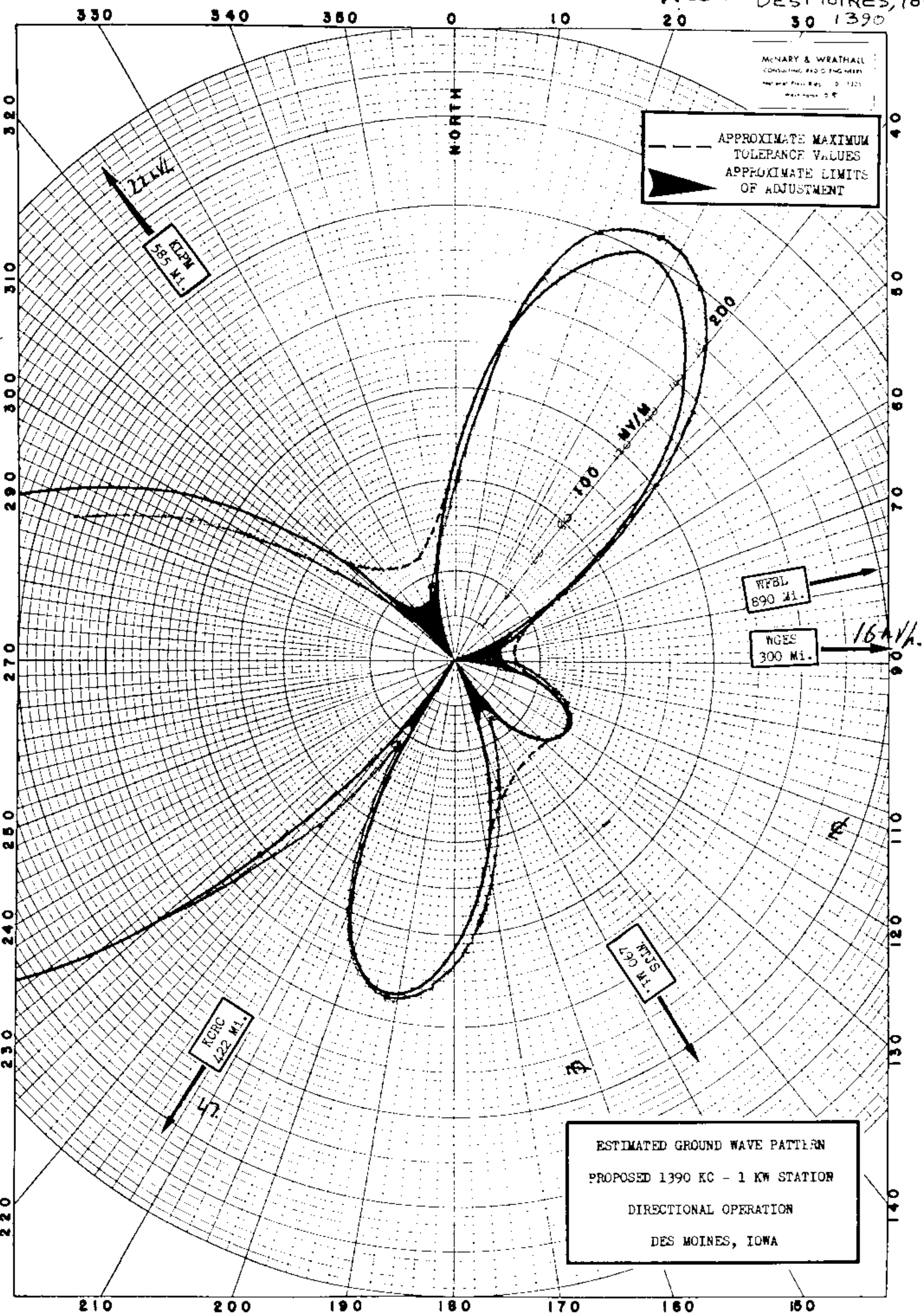
April 1947

41-35-18
93-31-38



KCBC
DES MOINES
1390

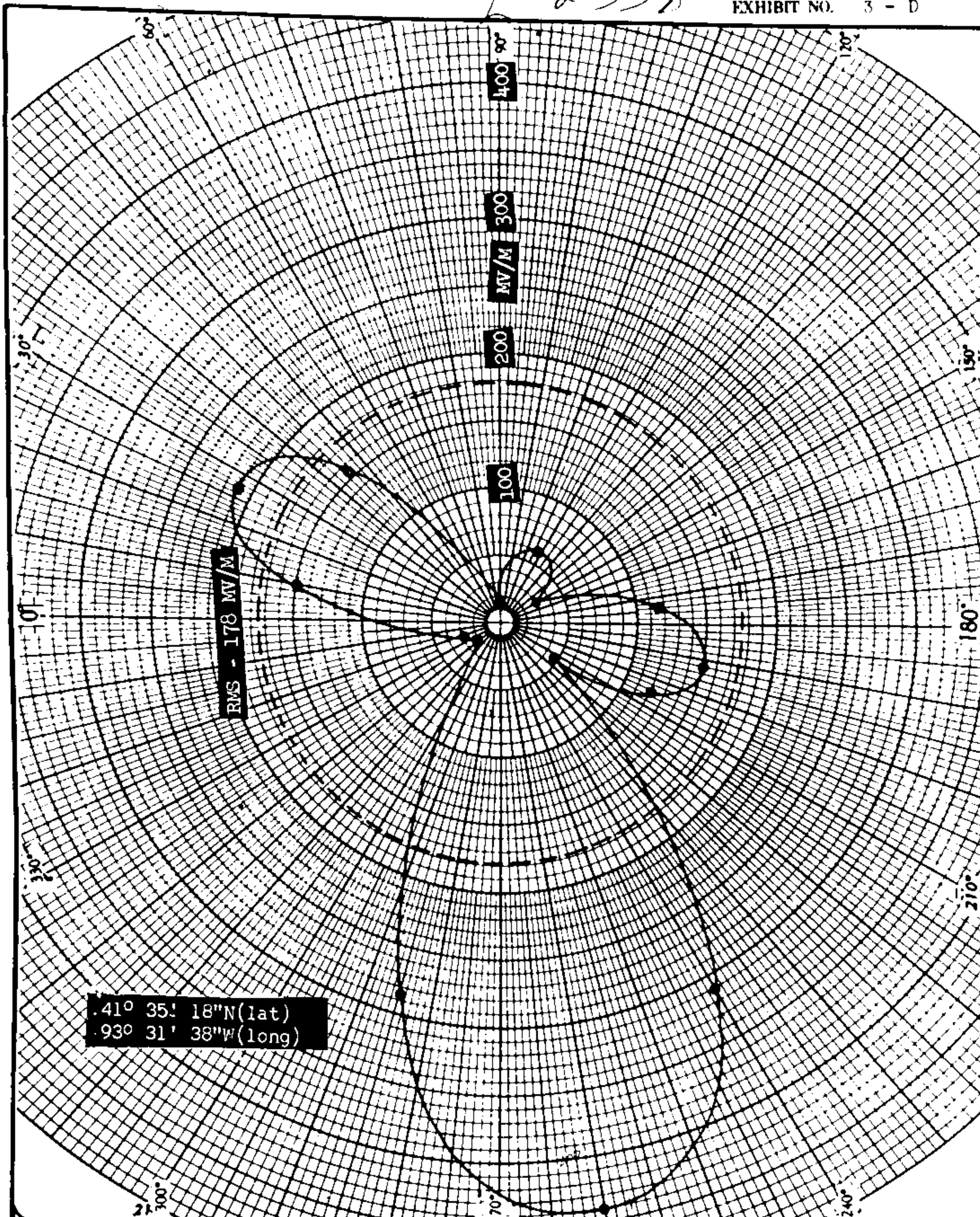
KCBC Des Moines, Iowa 1390



MEASURED DAY & NIGHT Station KCBC 1kw, DA-1,U
Des Moines, Iowa 1390 KC

KCB

EXHIBIT NO. 3 - D

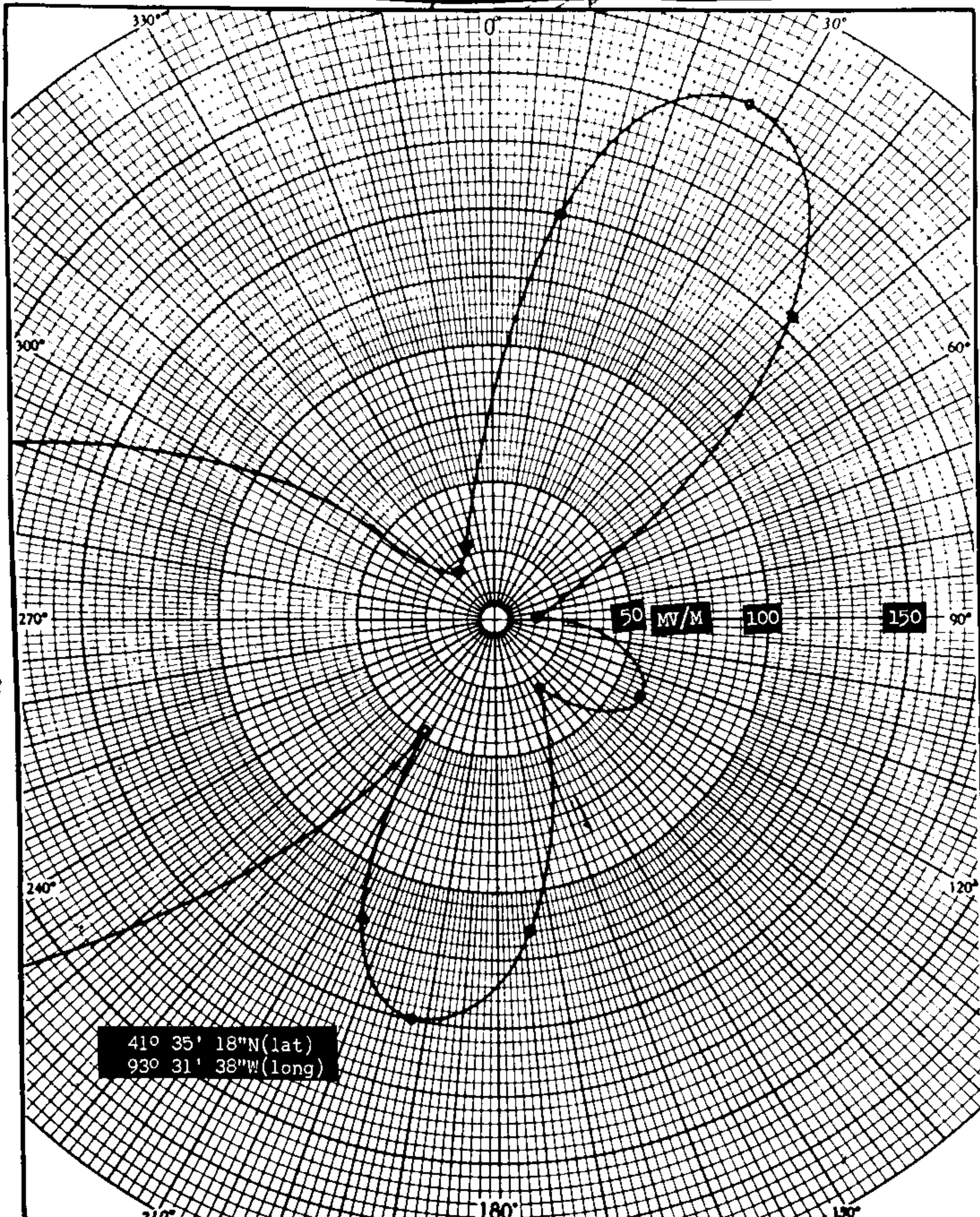


COMMERCIAL RADIO EQUIPMENT CO. Consulting Radio Engineers KANSAS CITY WASHINGTON D C HOLLYWOOD	FOR: KCBC, Des Moines, Ia.	
	DATE: 3-5-47	BY: TFP
	SCALE: Shown	

9

KCBC

MEASURED DAY & NIGHT NULLS Station KCBC 1kw, DA-1,U
Des Moines, Iowa 1390 KC



COMMERCIAL RADIO EQUIPMENT CO.
Consulting Radio Engineers
KANSAS CITY WASHINGTON, D. C. HOLLYWOOD

ACCURACY

FOR: KCBC, Des Moines, Ia.
DATE: 3-5-47 BY: TFP
SCALE: Shown

8

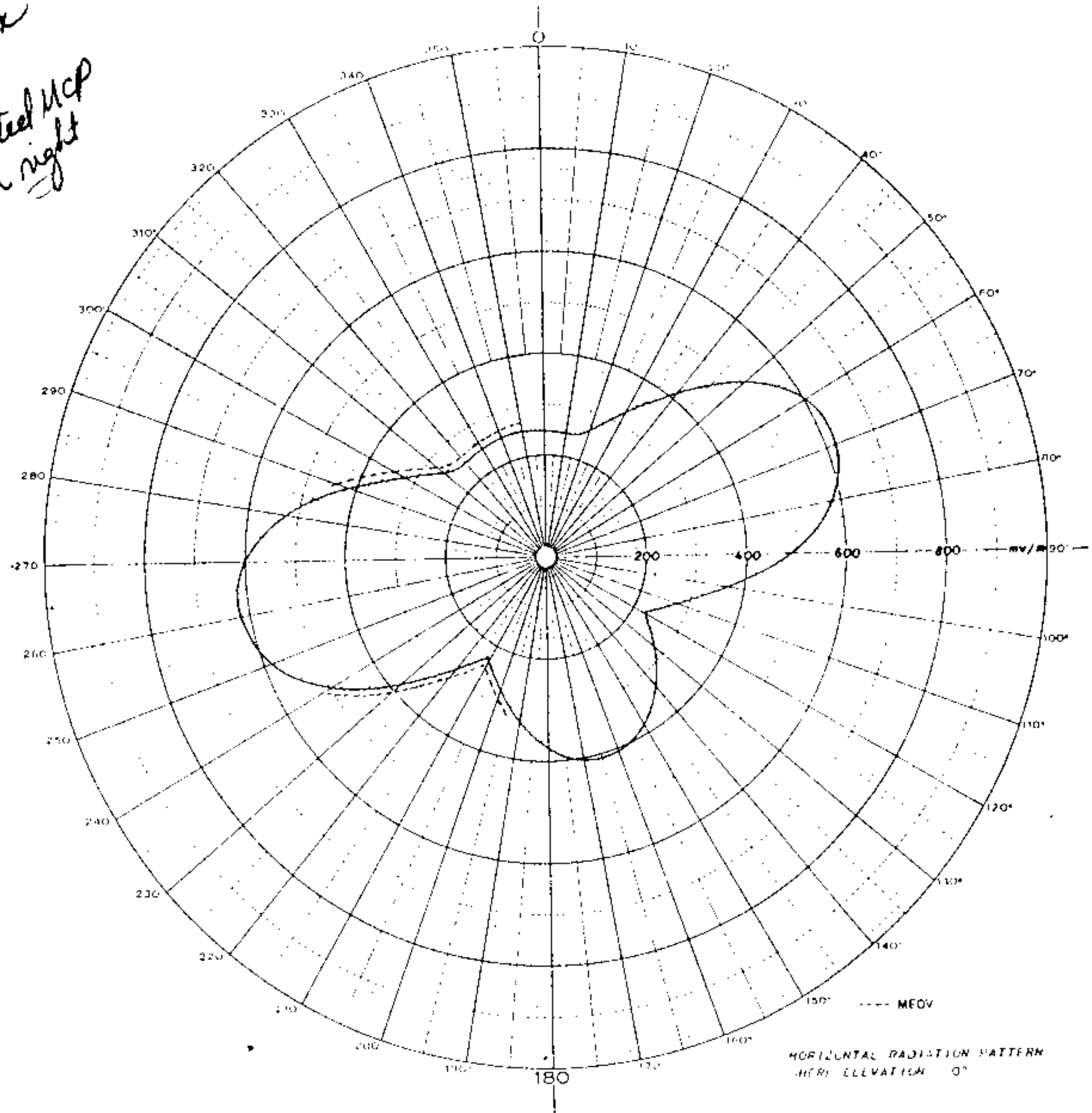
KCEY

PROPOSED DAY
(10-24-58g)

Station KTUR
Turlock, California

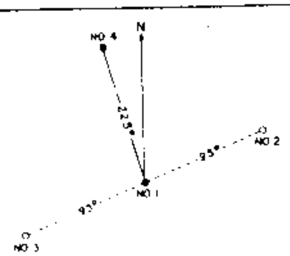
5kw, DA-2,U
1390 KC

11-8-60
wanted change from
A-N to DA2
4-30-62 - granted MCP
o make changes in night
DA Pattern.



HORIZONTAL RADIATION PATTERN
(HOR) ELEVATION 0°

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 r
1	90	165	225	25	430	0.45
2	USED ONLY IN NIGHTTIME ARRAY					
3	USED ONLY IN NIGHTTIME ARRAY					
4	90	0	0	0		1.0
5						
6						
7						
8						
9						
10						

ELEV. ANGLE θ°	ELEVATION RMS FIELD mv/m E_θ
0	409
10	
20	
30	
40	
50	
60	
70	
80	

STATION DATA

CALL	KTUR
FREQUENCY	1390 kc
POWER	5.0 kw
TIME OF OPERATION	FULLTIME
TYPE OF OPERATION	DA-2
DAYTIME TOWERS	2
NIGHTTIME TOWERS	3
No. RADIALS PER TOWER	120
LENGTH OF RADIALS	ft
GROUND SCREEN DIMENSION	NONE
LAT	37° 31' 48"
LONG	120° 41' 37"
SUPERSEDES	
PATTERN No	

CECIL LYNCH, CONSULTING ENGINEER
MODESTO, CALIFORNIA

STATION KTUR PROPOSED POWER INCREASE
5.0 kw DA-2 1390 kc
TURLOCK, CALIFORNIA
August 1958

EXHIBIT NO 1-B

FCC File No. BP-12,364
Accepted 10-13-58

KTUR
Turlock, California

1390 KC

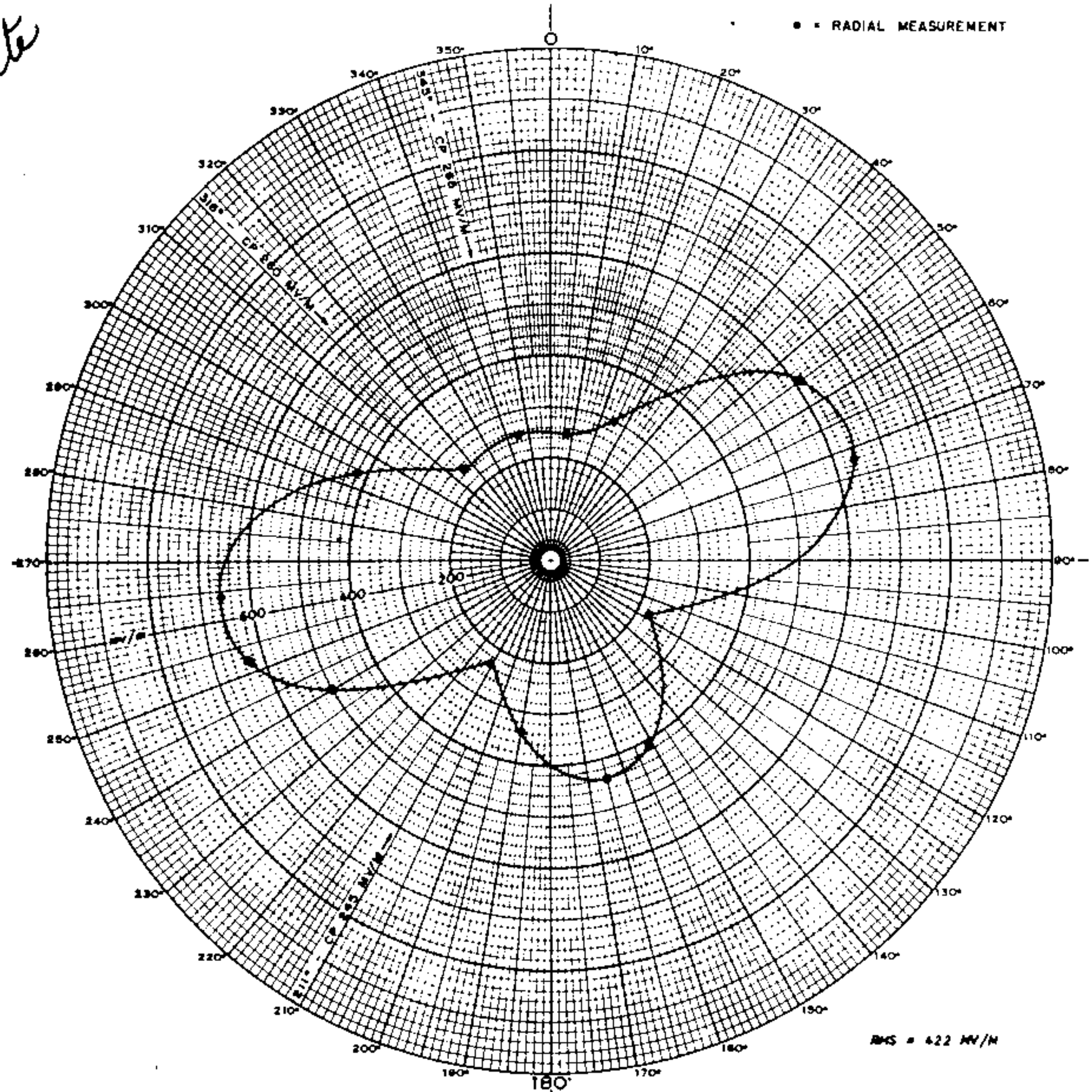
KCEY

Measured Day
(12-28-62ct)

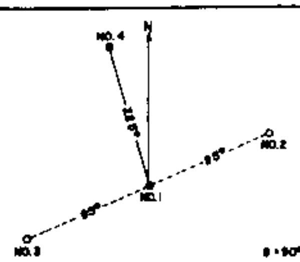
Station KCEY
Turlock, California

5kw,DA-2,U
1390 kc

1-25-63
granted for increase in power, change in Xmtr site and DA-2



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS	STATION DATA



DAYTIME DIRECTIONAL PATTERN

PARAMETERS	*Theoretical*	*Operating*
Φ, 1-4	+25.0°	+25.0°
Current Ratio, 1-4	0.45	0.449

DAYTIME OPERATION ■ NIGHTTIME OPERATION ☐ P_r = kw

CALL	KCEY
FREQUENCY	1390 kc
POWER	5 kw
TIME OF OPERATION	UNLIMITED
TYPE OF OPERATION	DA-2
DAYTIME TOWERS	2
NIGHTTIME TOWERS	3
No. RADIALS PER TOWER	
LENGTH OF RADIALS	' ft
GROUND SCREEN DIMENSION	
LAT.	37 ° 31 ' 48 "
LONG.	120 ° 41 ' 37 "
SUPERSEDES	
PATTERN No.	

CECIL LYNCH, CONSULTING ENGINEER
MODESTO, CALIFORNIA

STATION KCEY • ANTENNA PROOF OF PERFORMANCE
5.0 kw DA-2 1390 kc
TURLOCK, CALIFORNIA
July, 1962

FIGURE NO. 6-A

FCC File No.BL-9640
Accepted 12-12-62

Station KCEY
Turlock, California

1390 kc

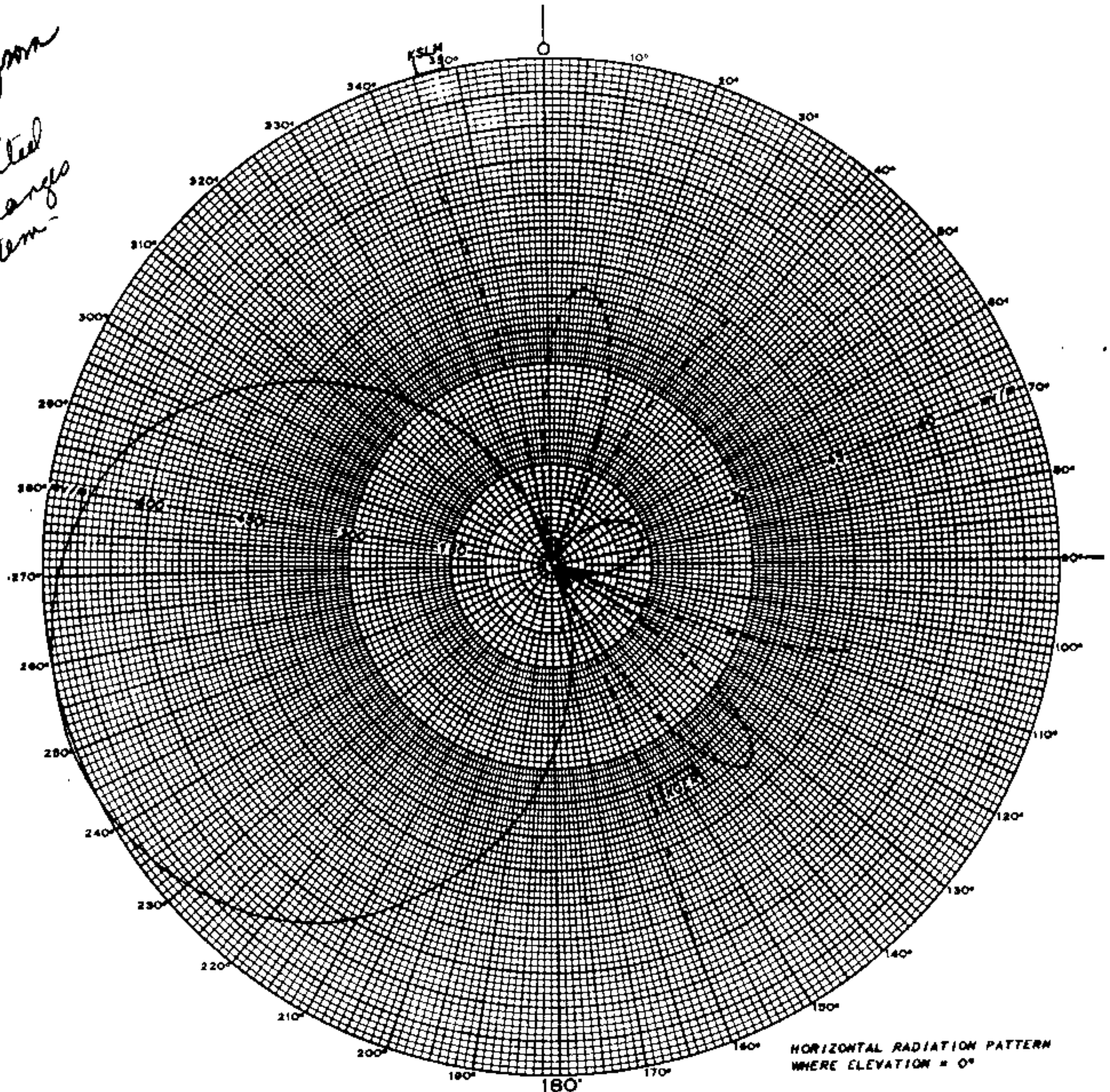
KCEY

PROPOSED NIGHT
(7-29-60g)

Station KTUR
Turlock, California

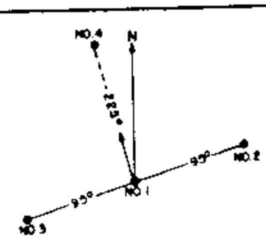
5kw, DA-2,U
1390 kc

11-8-60
Granted change from
DA-N to DA-2
7-30-62 - granted
1CP to make changes
in night DA pattern



HORIZONTAL RADIATION PATTERN WHERE ELEVATION = 0°

TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

TOWER No.	ELECTRICAL HEIGHT $\theta°$	TRUE TOWER ORIENTATION $\phi°$	SPACING $S°$	PHASING $\psi°$	HORIZONTAL FIELD mv/m E	FIELD RATIO F	ELEV. ANGLE $\theta°$	ELEVATION RMS FIELD mv/m E_θ
1	90	0	0	0		1.0	0	396
2	90	72	95	+138		0.55	10	
3	90	252	95	-138		0.55	20	
4	(No. 4 used only in daytime array)						30	
5							40	
6							50	
7							60	
8							70	
9							80	
10							E_r = mv/m	
							P_r = kw	

DAYTIME OPERATION ☐ NIGHTTIME OPERATION ☒

STATION DATA

CALL	KTUR
FREQUENCY	1390 kc
POWER	5.0 kw
TIME OF OPERATION	FULLTIME
TYPE OF OPERATION	DA-2
DAYTIME TOWERS	2
NIGHTTIME TOWERS	3
No RADIALS PER TOWER	120
LENGTH OF RADIALS	ft
GROUND SCREEN DIMENSION	
LAT.	37° 31' 48"
LONG.	120° 41' 37"
SUPERSEDES	
PATTERN No	

CECIL LYNCH, CONSULTING ENGINEER
MODESTO, CALIFORNIA

STATION KTUR PROPOSED POWER INCREASE
5.0 kw DA-2 1390 kc
TURLOCK, CALIFORNIA
May, 1960

FIGURE NO. 10-A

FCC File No. BP-12364
Accepted 7-26-60 (Amended)

KTUR
Turlock, California

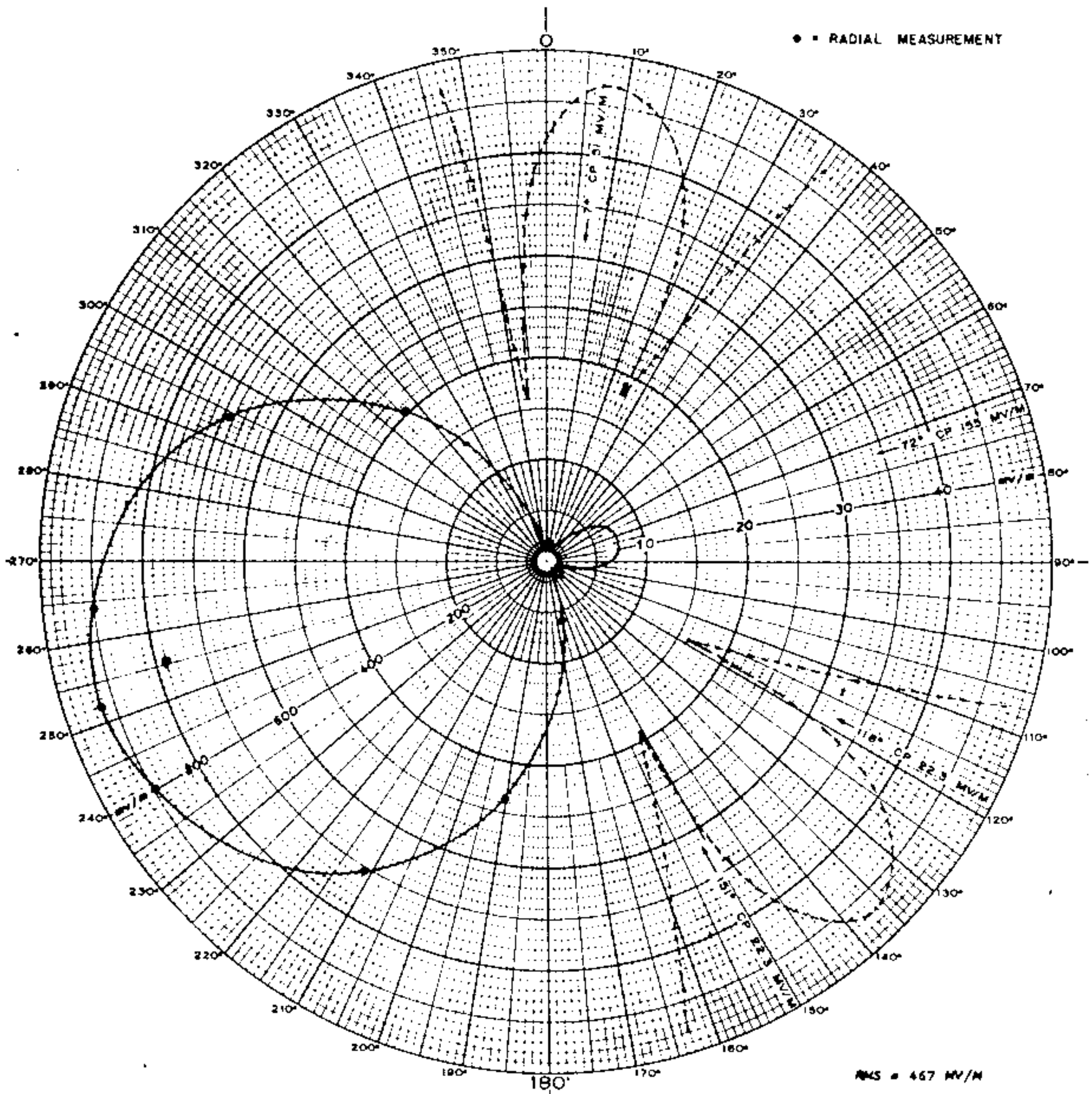
1390 kc

KCEY

Measured Night
(12-28-62ct)

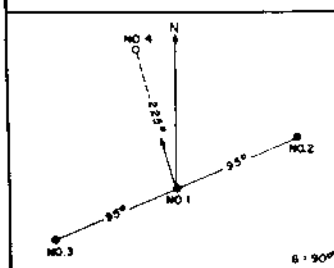
Station KCEY
Turlock, California

5kw,DA-2,U
1390 kc



RMS = 467 MV/M

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS	STATION DATA



NIGHTTIME DIRECTIONAL PATTERN

PARAMETERS	Theoretical	Operating
Φ, 2-1	+138.0°	+136.0°
Φ, 3-1	-138.0°	-137.5°
Current Ratio,		
2-1	0.55	0.566
3-1	0.55	0.434

DAYTIME OPERATION ☐ NIGHTTIME OPERATION ☒ P, = kw

CALL	KCEY
FREQUENCY	1390 kc
POWER	5 kw
TIME OF OPERATION	UNLIMITED
TYPE OF OPERATION	DA-2
DAYTIME TOWERS	2
NIGHTTIME TOWERS	3
NO RADIALS PER TOWER	
LENGTH OF RADIALS	' "
GROUND SCREEN DIMENSION	
LAT.	37 ° 31 ' 46 "
LONG	120 ° 41 ' 37 "
SUPERSEDES	
PATTERN No	

CECIL LYNCH, CONSULTING ENGINEER
MODESTO, CALIFORNIA

STATION KCEY ● ANTENNA PROOF OF PERFORMANCE
5.0 kw DA-2 1390 kc
TURLOCK, CALIFORNIA
July, 1962

FIGURE NO. 6-B

FCC File No.BL-9640
Accepted 12-12-62

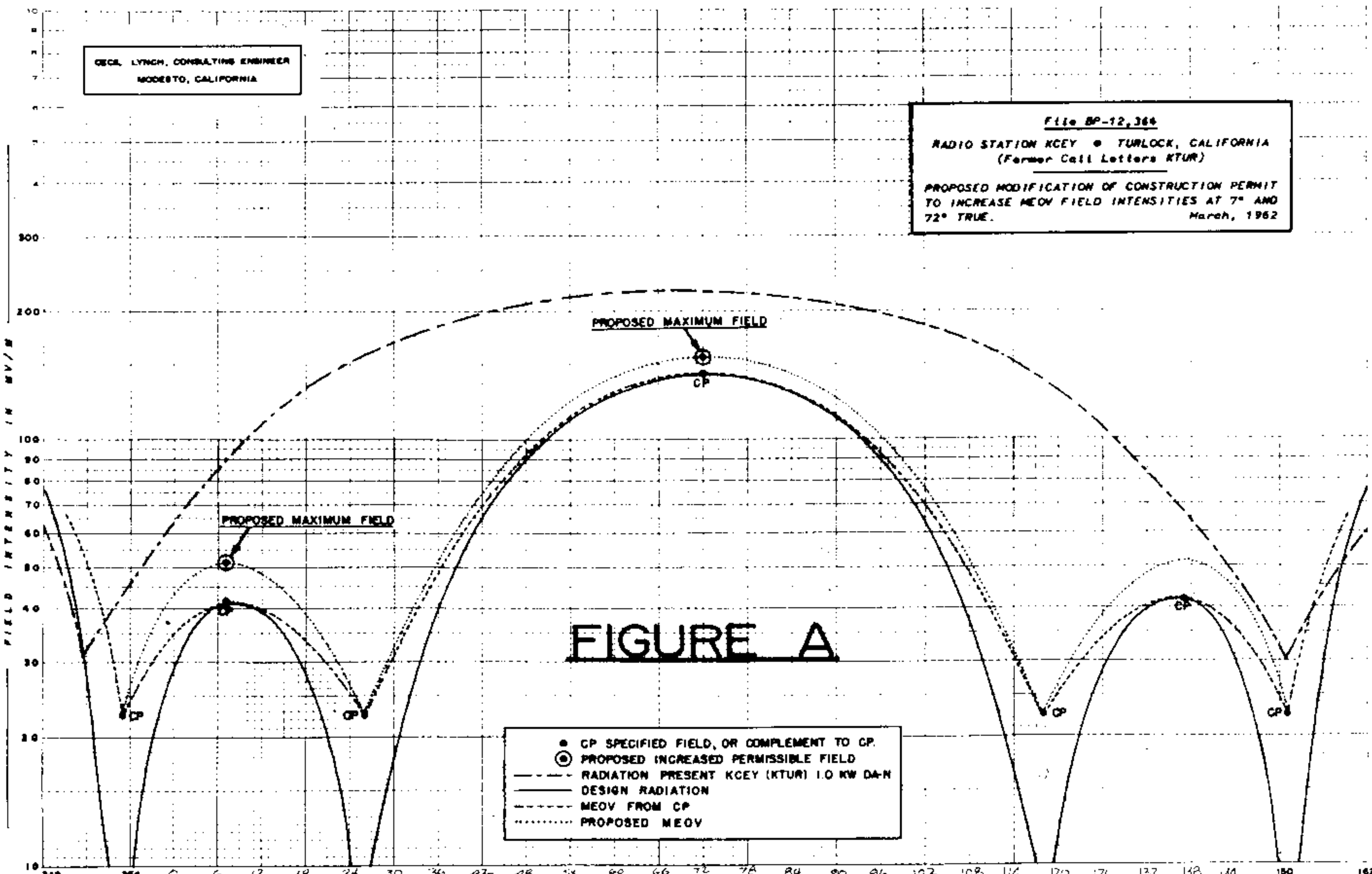
Station KCEY
Turlock, California

1390 kc

Proposed Night
(4-27-62ct)

Station KCEY
Turlock, ılifornia

5kw,DA-2,U
1390 kc



FCC File No. BMP-10208
Accepted 4-3-62

Station KCEY
Turlock, California

1390 kc

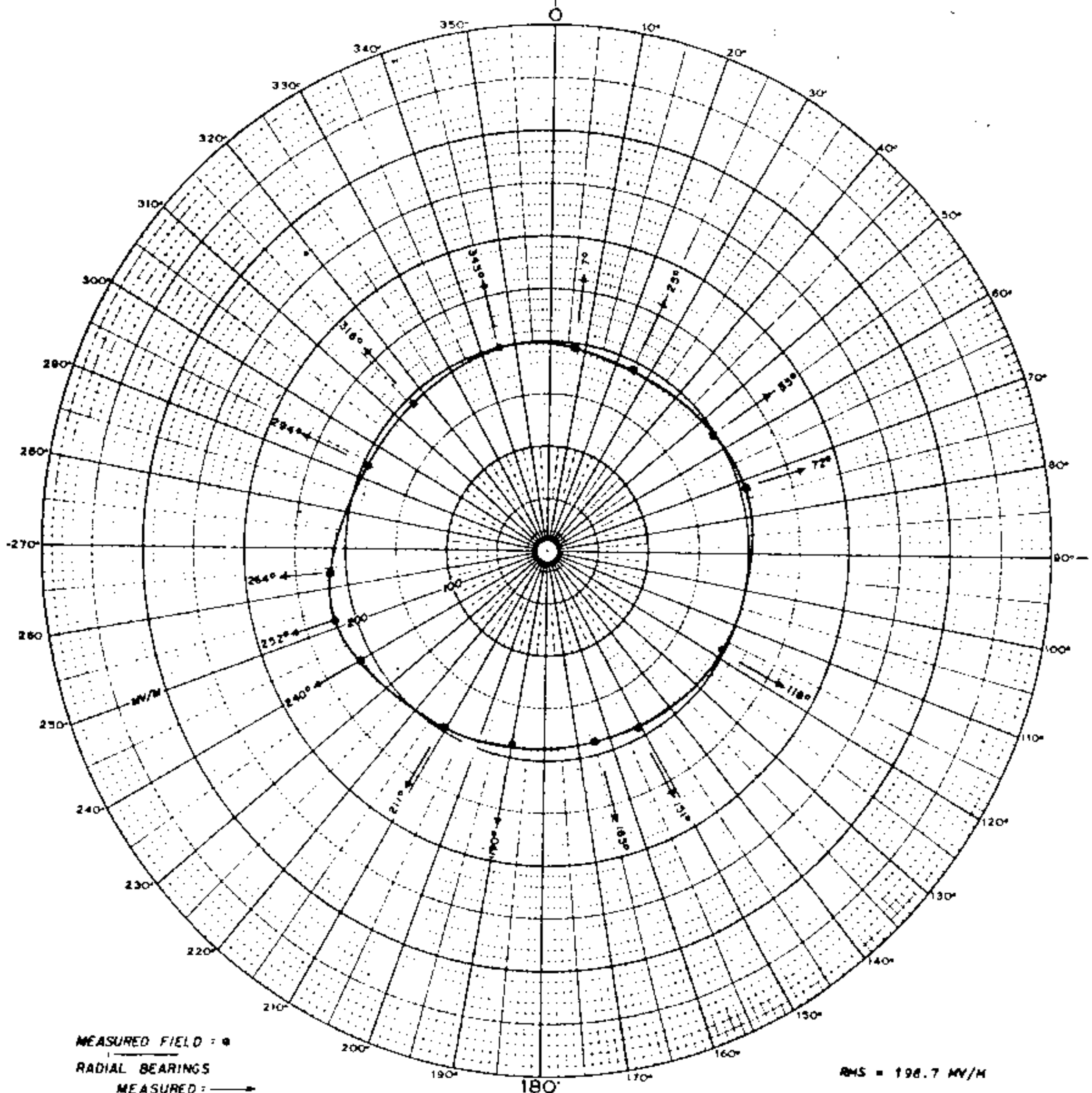
KCEY

KCEY

Measured Non-DA
(12-28-62ct)

Station KCEY
Turlock, California

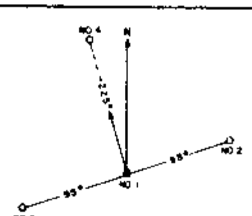
5kw,DA-2,U
1390 kc



MEASURED FIELD = ●
RADIAL BEARINGS MEASURED = ⟶

RMS = 198.7 MV/M

TOWER PLACEMENT SKETCH



NON-DIRECTIONAL ANTENNA TEST

TEST POWER: 10 KW
TEST ANTENNA: NO. 1

ANTENNA SPACING

NO. 1 TO NO. 2 AND NO. 3 = 185.5 FEET
NO. 1 TO NO. 4 = 440 FEET

STATION DATA

CALL	KCEY		
FREQUENCY	1390		kc
POWER	5		kw
TIME OF OPERATION	UNLIMITED		
TYPE OF OPERATION	DA-2		
DAYTIME TOWERS	2		
NIGHTTIME TOWERS	3		
No RADIALS PER TOWER			
LENGTH OF RADIALS			ft
GROUND SCREEN DIMENSION			
LAT	37°	31'	48"
LONG.	120°	41'	37"
SUPERSEDES			
PATTERN No			

CECIL LYNCH, CONSULTING ENGINEER
MODESTO, CALIFORNIA

STATION KCEY • ANTENNA PROOF OF PERFORMANCE
5.0 kw DA-2 1390 kc
TURLOCK, CALIFORNIA
July, 1962

FIGURE NO. 5

FCC File No. BL-9640
Accepted 12-12-62

Station KCEY
Turlock, California

1390 kc

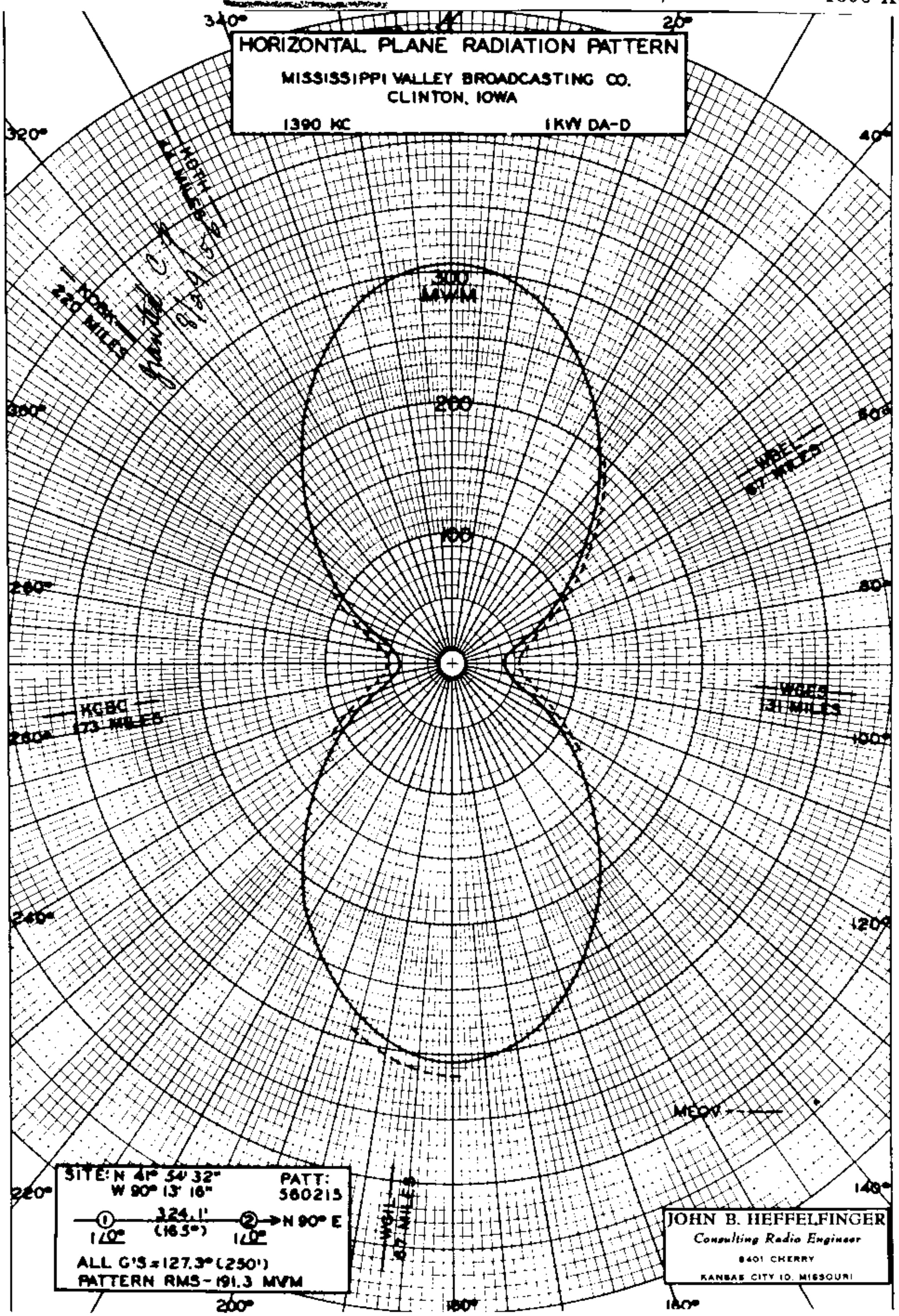
KCLN

PROPOSED
DAY (3/26/56g)

Mississippi Valley B/C Co.
Clinton, Iowa

1 KW
DA-D,D

1390 KC



FCC File No. BP--10,429 Accepted 3-19-56 Mississippi Valley B/C Co. 1390 KC

Clinton, Iowa

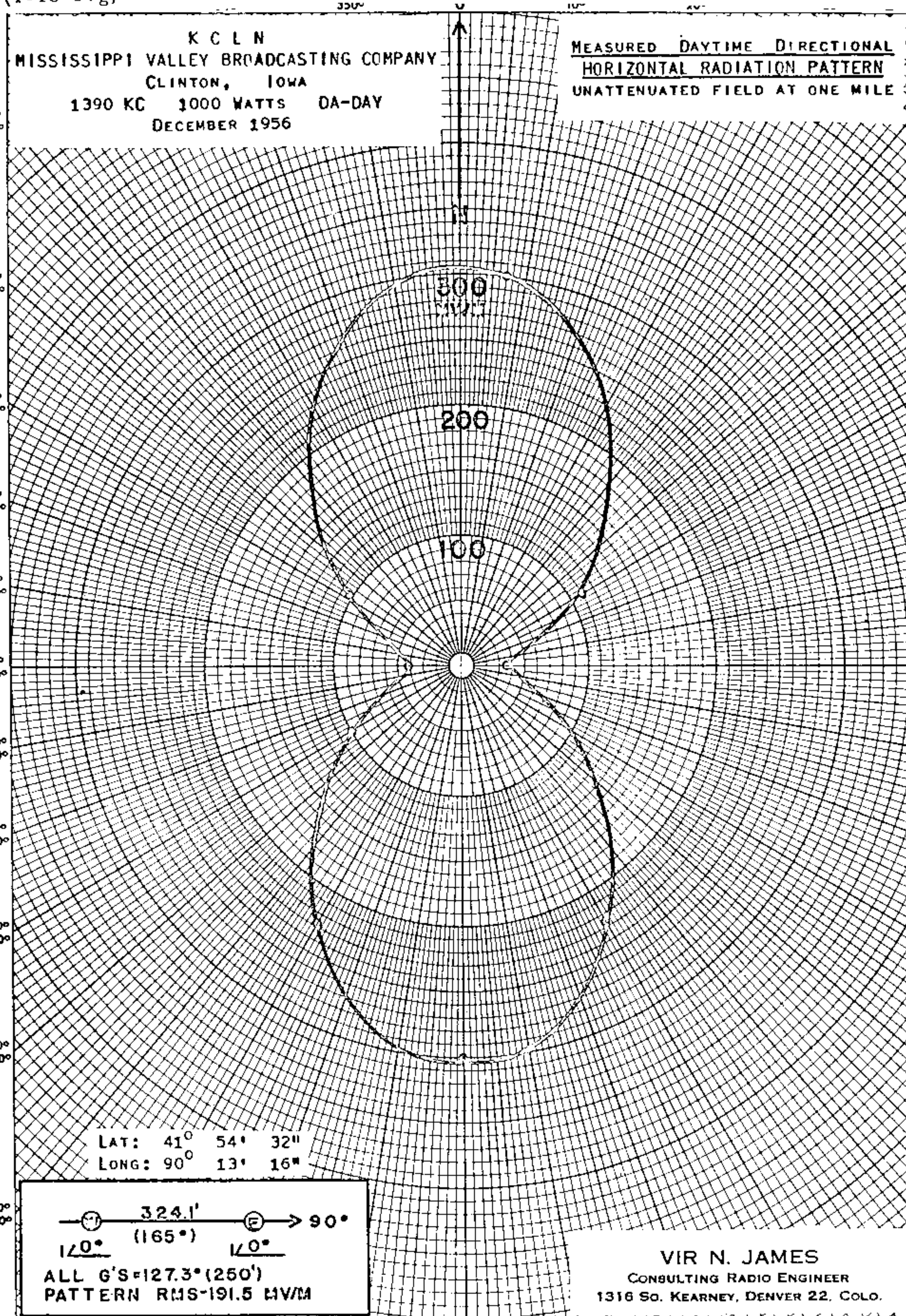
KCLN

MEASURED ~~NON-DA~~ Day
(1-18-57g)

Radio Station K C L N
Clinton, Iowa

1 KW, DA-D, D

1390 KC



FCC File No.
BL-6471

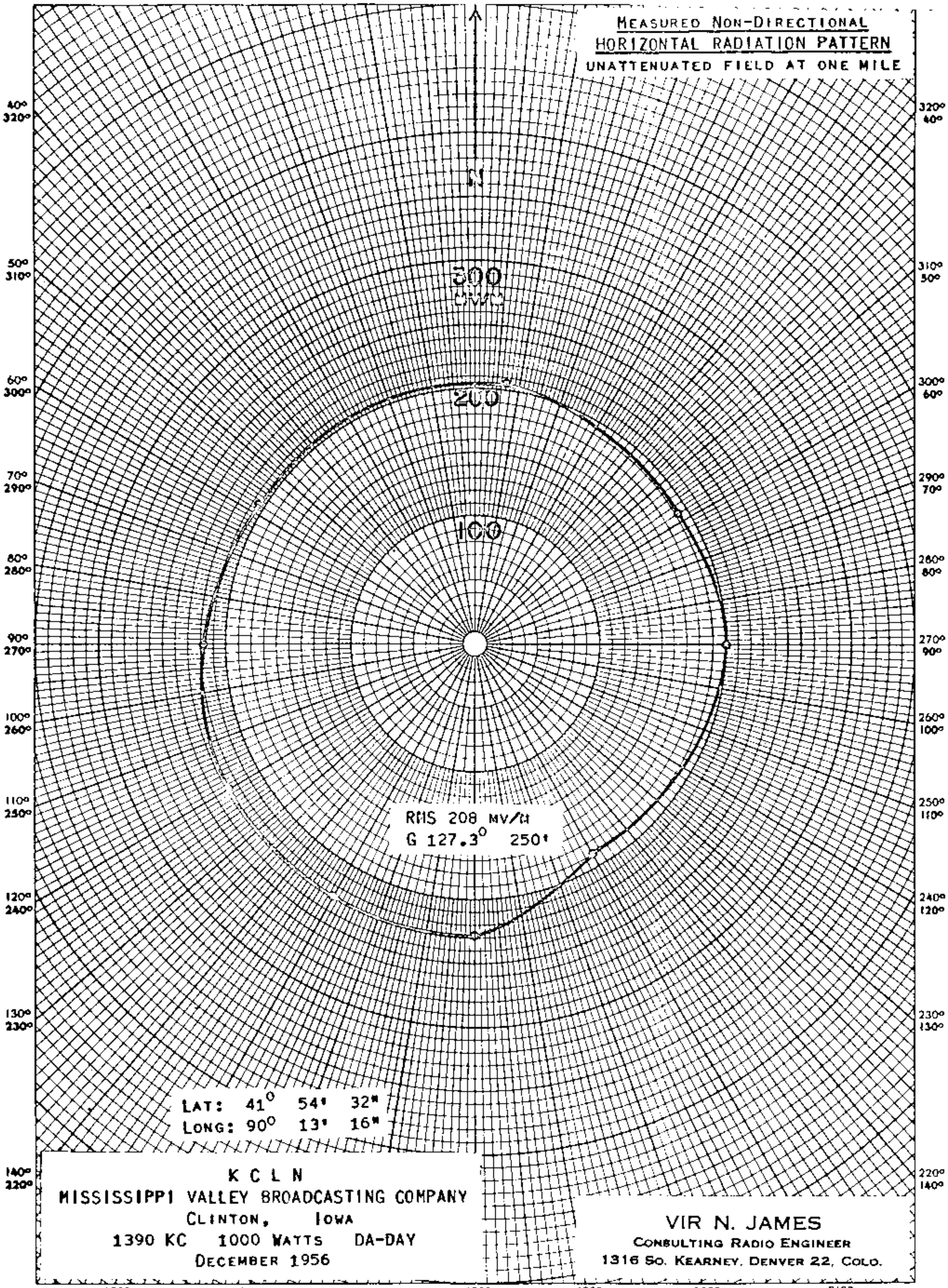
Accepted 1-8-57

KCLN
Clinton, Iowa

1390 KC

KCLN

Nite D*
MEASURED ~~DAY~~ (1-18-57g) Radio Station K C L N 1 KW, DA-D, D 1390 KC
Clinton, Iowa



FCC File No.
BL-6471

Accepted 1-8-57

KCLN
Clinton, Iowa

1390 K C

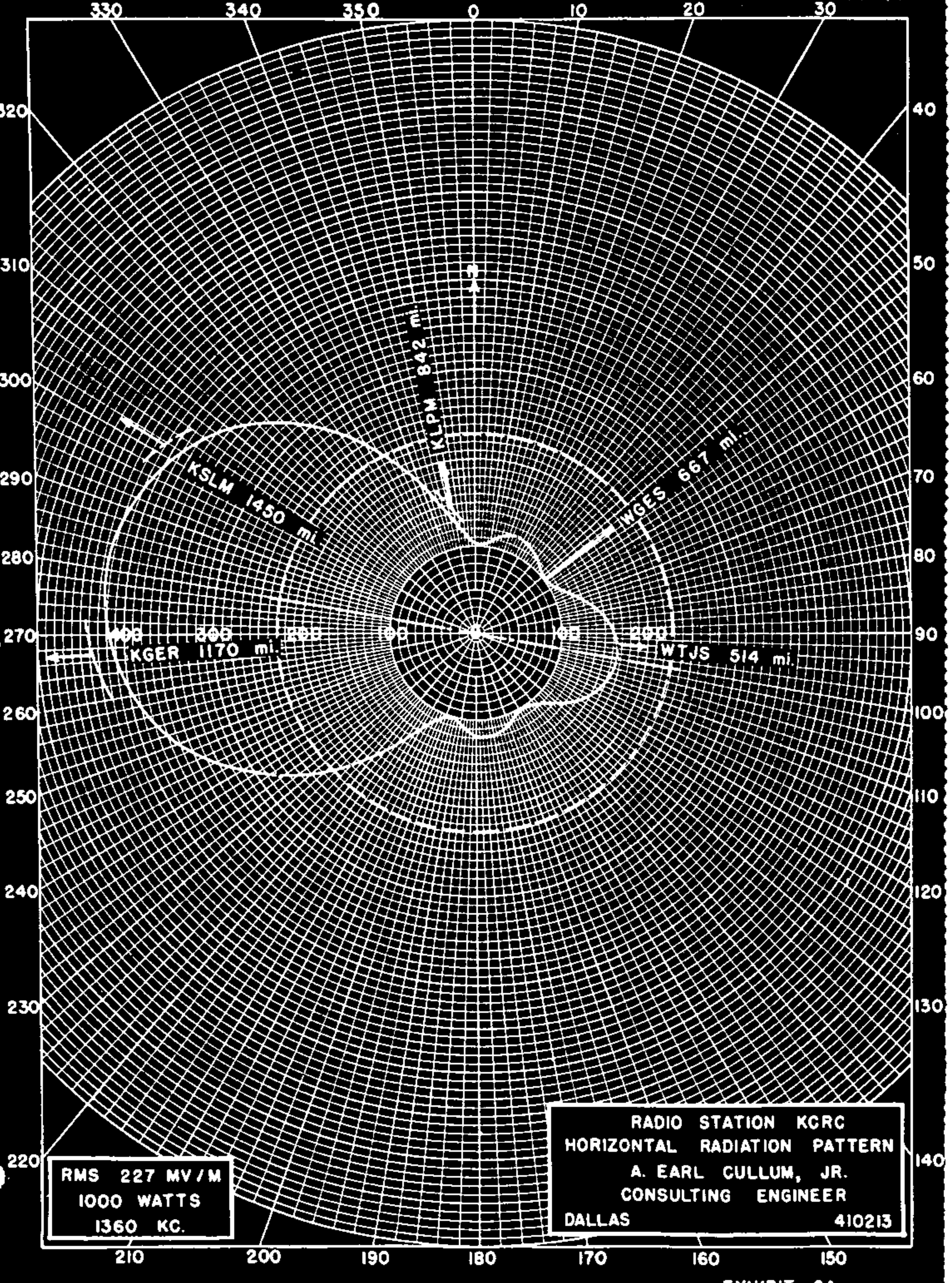

330
340
350
0
10
20
30
320
40
310
50
300
60
290
70
280
80
270
90
260
100
250
110
240
120
230
130
220
140
210
200
190
180
170
160
150
KLPM 842 mi.
KSLM 1450 mi.
WGES 667 mi.
KGER 1170 mi.
WTJS 514 mi.
400
300
200
100
100
200
RMS 227 MV/M
1000 WATTS
1360 KC.
RADIO STATION KCRC
HORIZONTAL RADIATION PATTERN
A. EARL CULLUM, JR.
CONSULTING ENGINEER
DALLAS
410213

EXHIBIT 6A

ASSOCIATE ENGINEERS
C. M. DANIELL
D. A. PETERSON

TELEPHONE 5-2352

A. EARL CULLUM, JR.

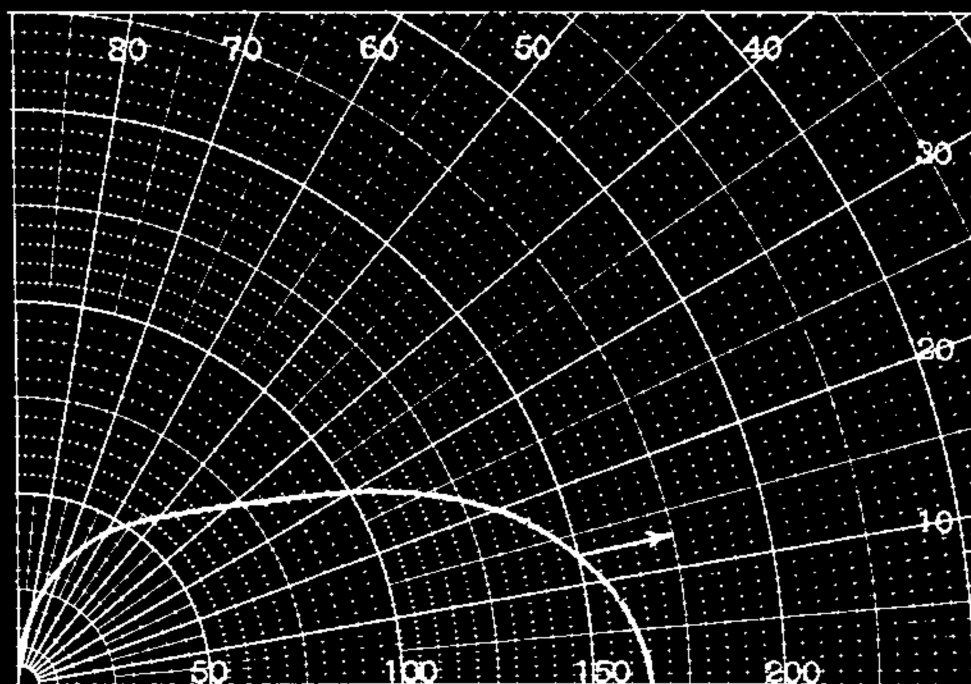
CONSULTING RADIO ENGINEER
HIGHLAND PARK VILLAGE
DALLAS, TEXAS

KCRC DIRECTIVE ARRAY

VERTICAL RADIATION PATTERN

IN PLANE N 94.5 E

TOWARD JACKSON, TENNESSEE



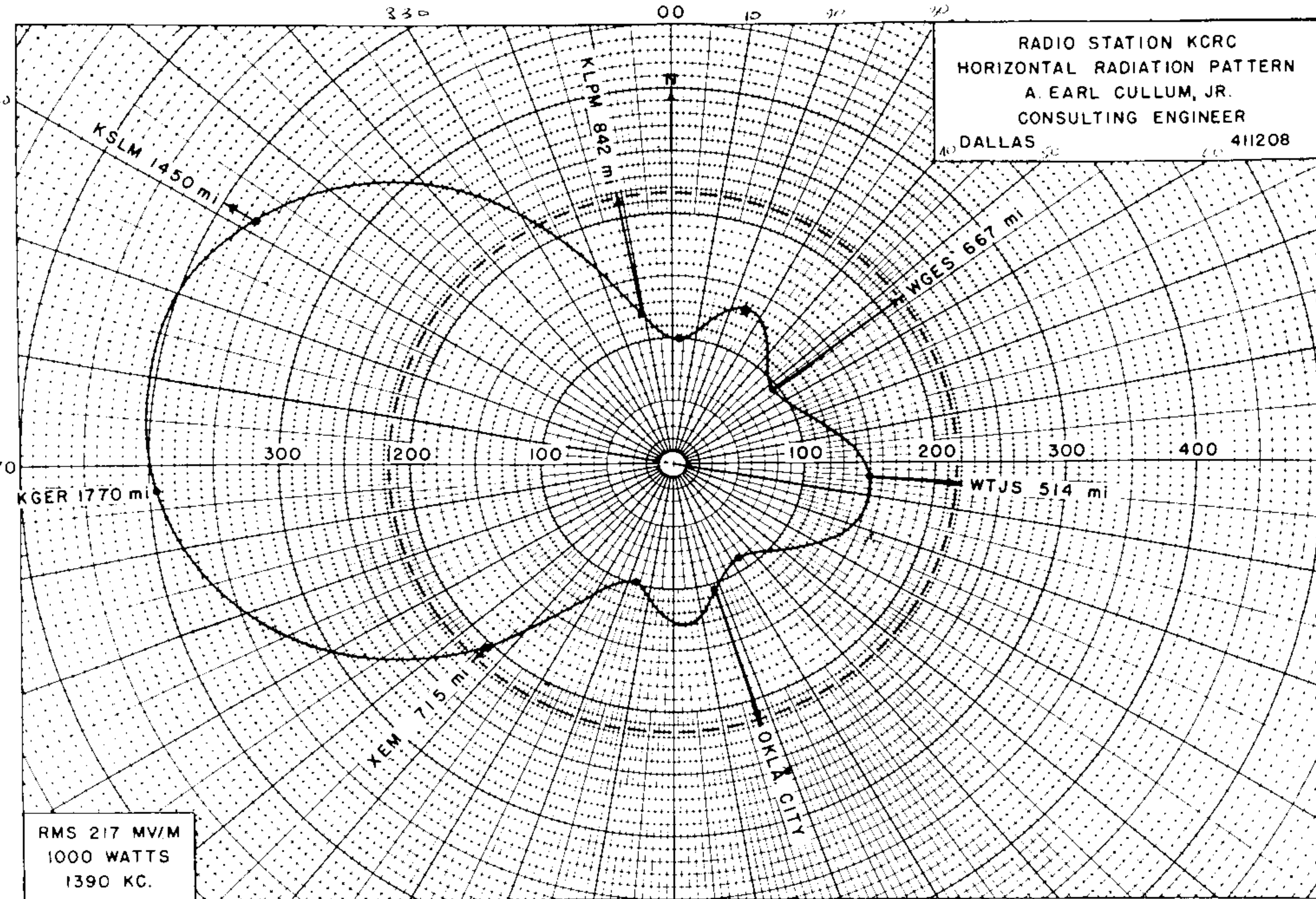
P 1000 Φ 5.5

Θ	$F_1(E)$	$F_2(E)$	$F_x(E)$	E_{1000}
00	0.470	1.347	1.000	165
10	0.458	1.336	0.978	155
20	0.426	1.302	0.914	132
30	0.380	1.243	0.816	100
40	0.350	1.160	0.694	73
50	0.373	1.049	0.560	57
60	0.467	0.910	0.416	46
70	0.612	0.751	0.275	33
80	0.782	0.583	0.140	17
90	-.---	-.---	0.000	0

Θ WTJS APPROX. 13.0 DEGREES WITH DISTANCE 514 MILES.

EXHIBIT 7D

measured Day + Night



KCRC 1390

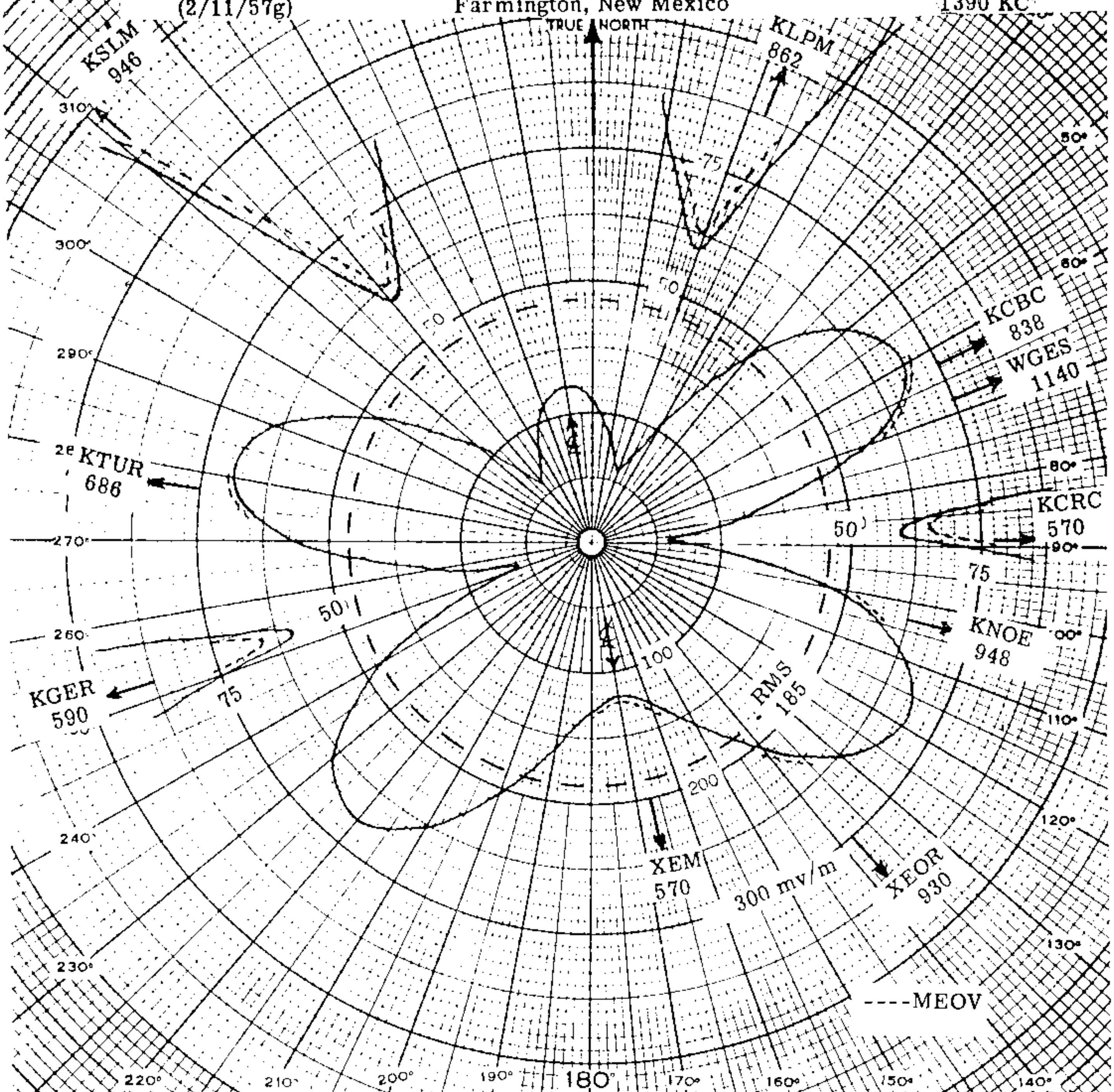
Enid Oklahoma

EXHIBIT 3

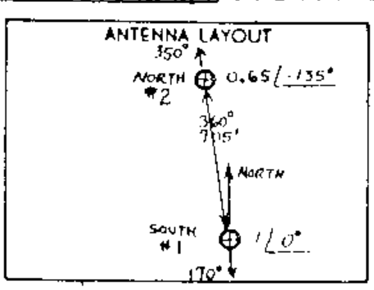
granted CP 3/6/57 covering change of frequency + installation of dir. antenna

KENN

PROPOSED NIGHT (2/11/57g) | Station KVBC Farmington, New Mexico | 1KW,5KW-LS,DA-N,L 1390 KC



HORIZONTAL RADIATION PATTERN



KVBC — Station

Farmington, N.M. — Location

1390 KC — Frequency

1,000 watts — Power

185mv/m — R.M.S. Field

2 — No. of Elements

150 ft. = 0.213 λ = 76.6° — Height of Antenna

MEASURED ☐ CALCULATED ☒ — Pattern

561108.1 — No.

Proposed Nighttime Pattern — Remarks

Fig. 1.0

GUY C. HUTCHESON
CONSULTING RADIO ENGINEER
ARLINGTON, TEXAS

FCC File No. BP - 11,007 | KVBC Farmington, New Mexico | 1390 KC

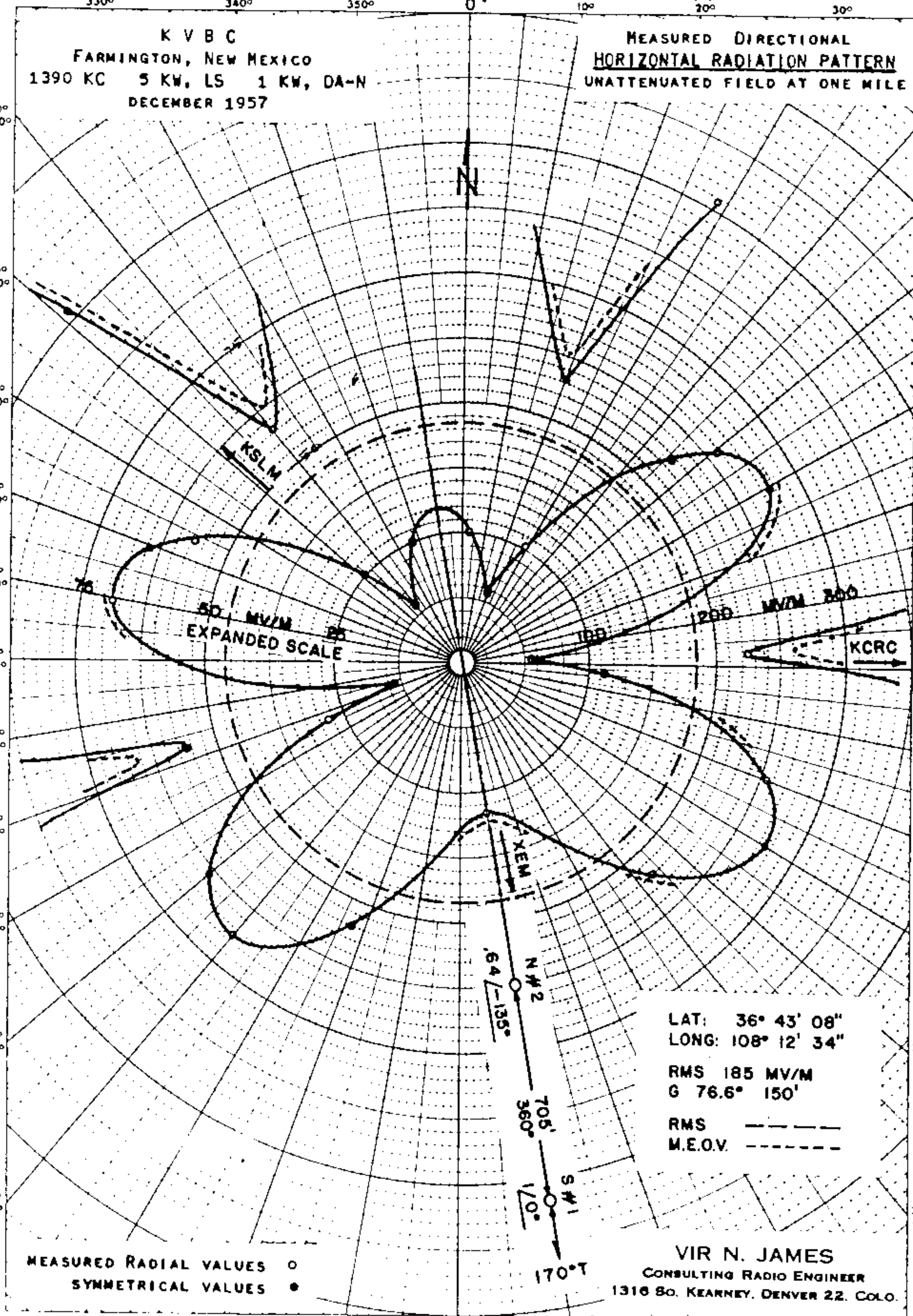
Granted licence (3/3/58) for change in facil + for DA-N

KENN

MEASURED NIGHT
(2-11-58g)

Station KVBC
Farmington, New Mexico

1kw,5kw-LS, DA-N,U
1390 KC



FCC File No. BL-6960
Accepted 1-28-58

KVBC
Farmington, New Mexico

1390 KC

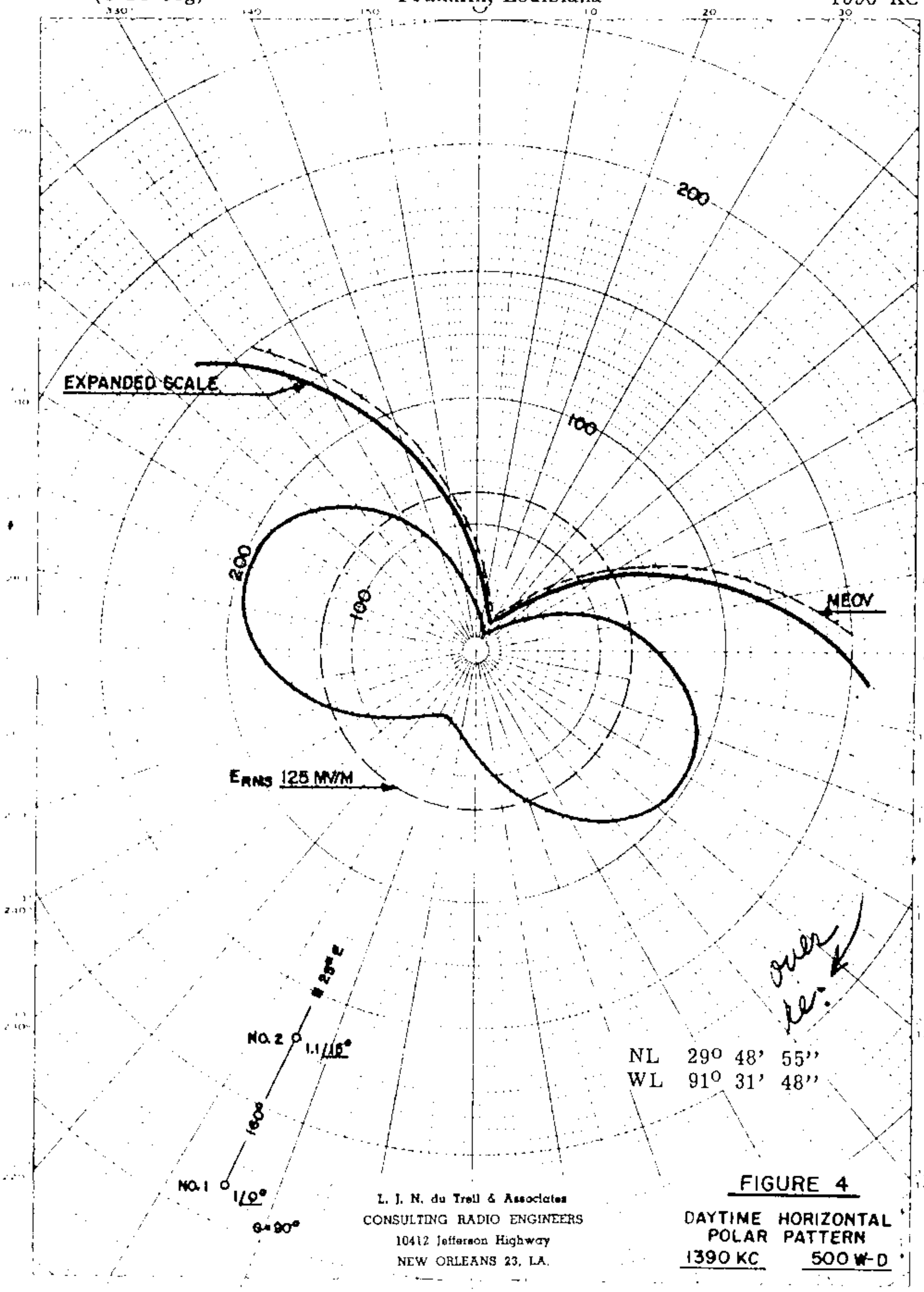
Franklin, La. KPMA

PROPOSED DAY
(4-24-58g)

New; Lionel B. De Ville
Franklin, Louisiana

500w, DA-D,D
1390 KC

Granted New Station - 7-29-59



SEE REVERSE SIDE

over re.

L. J. N. du Treil & Associates
CONSULTING RADIO ENGINEERS
10412 Jefferson Highway
NEW ORLEANS 23, LA.

FIGURE 4

DAYTIME HORIZONTAL POLAR PATTERN
1390 KC 500 W-D

FCC File No. BP-11,908
Accepted 4-7-58

Lionel B. De Ville
Franklin, Louisiana

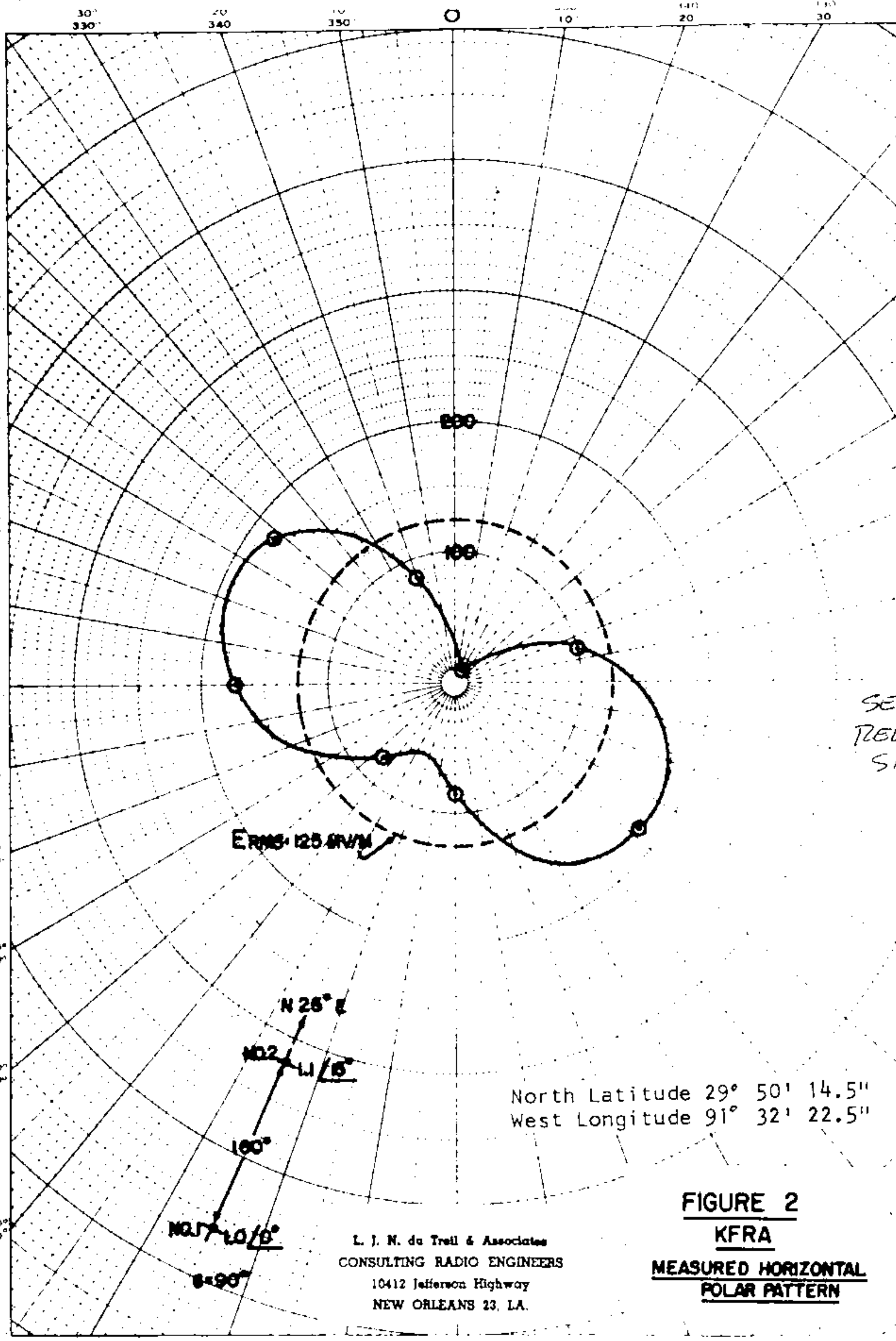
1390 KC

KFRA

MEASURED Day
(9-20-61ct)

Station KFRA
Franklin, Louisiana

500w,DA-D,D
1390 kc



L. J. N. du Treil & Associates
CONSULTING RADIO ENGINEERS
10412 Jefferson Highway
NEW ORLEANS 23, LA.

FIGURE 2
KFRA
MEASURED HORIZONTAL
POLAR PATTERN

SEE REVERSE SIDE

FCC File No.BL-8523
Accepted 8-8-61

Station KFRA
Franklin, Louisiana

1390 kc

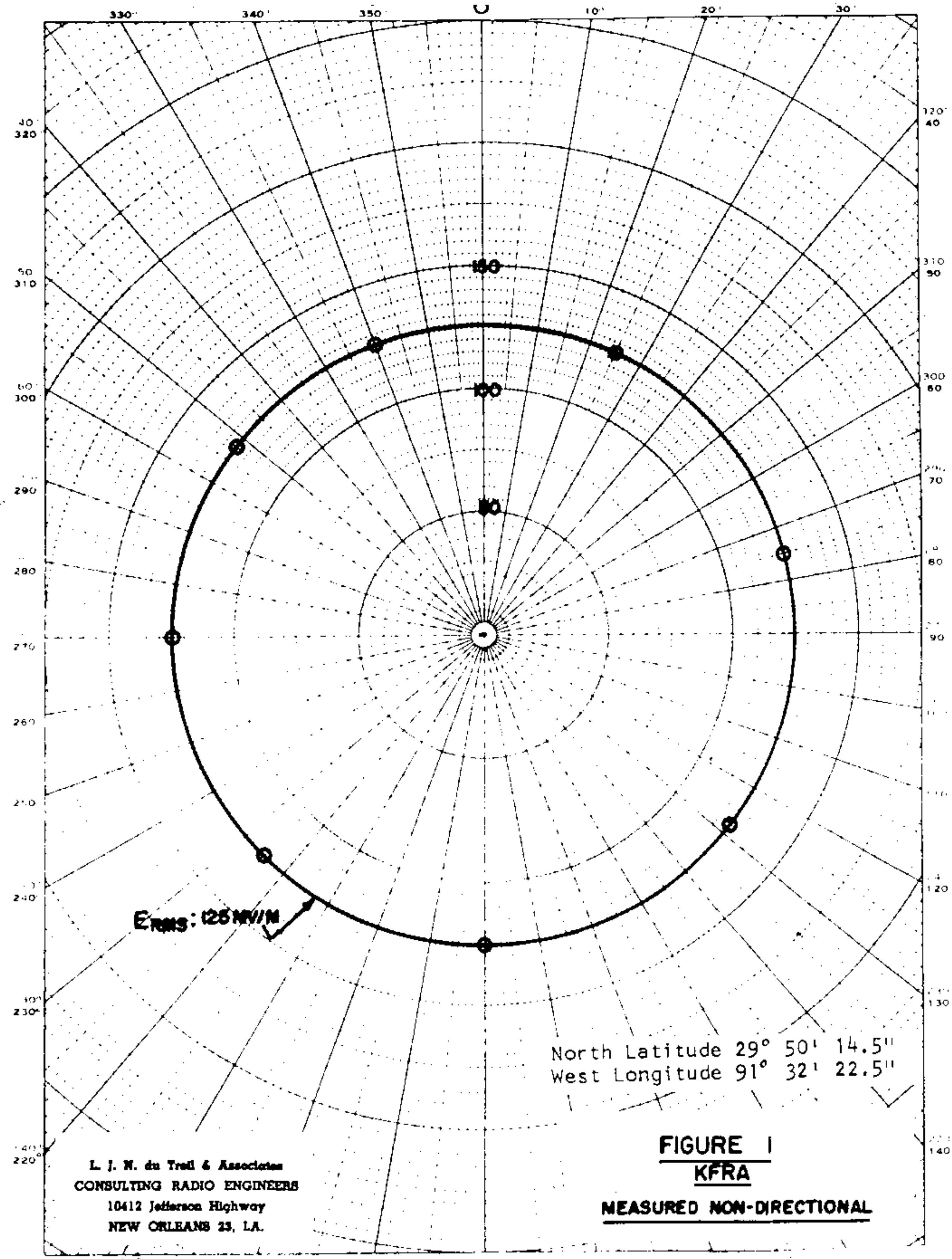
KFRA

SEE REVERSE SIDE

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

Station KFRA
Franklin, Louisiana

500w,DA-D,D
1390 kc



FCC File No.BL-8523
Accepted 8-8-61

Station KFRA
Franklin, Louisiana

1390 kc

KGER
1390 kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KGER

Main Studio: Long Beach, California

Frequency: 1390 kHz

Power: 5kw Night 5kw Day

Notification List No. 1788

Date: August 22, 1980 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 33° 53' 30"
West Longitude: 118° 11' 03"

ANTENNA CHARACTERISTICS

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

TOWER:	NE(#1)	SW(#2)
HEIGHT ABOVE INSULATORS:	200'	200' (101.75°)
NIGHT PHASING:	0.0°	
NIGHT FIELD RATIO:	1.0	0.5

SPACING AND ORIENTATION: Adjacent towers in a row are spaced 295' (150°) on a line bearing 47.5° true.

GROUND SYSTEM: 120 - 145' to 200' equally spaced copper radials plus 120 - 50' interspaced radials about each tower. Radials are shortened and bonded to a transverse strap along the intersection between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	438.3 mv/m		
Night	450 mv/m		

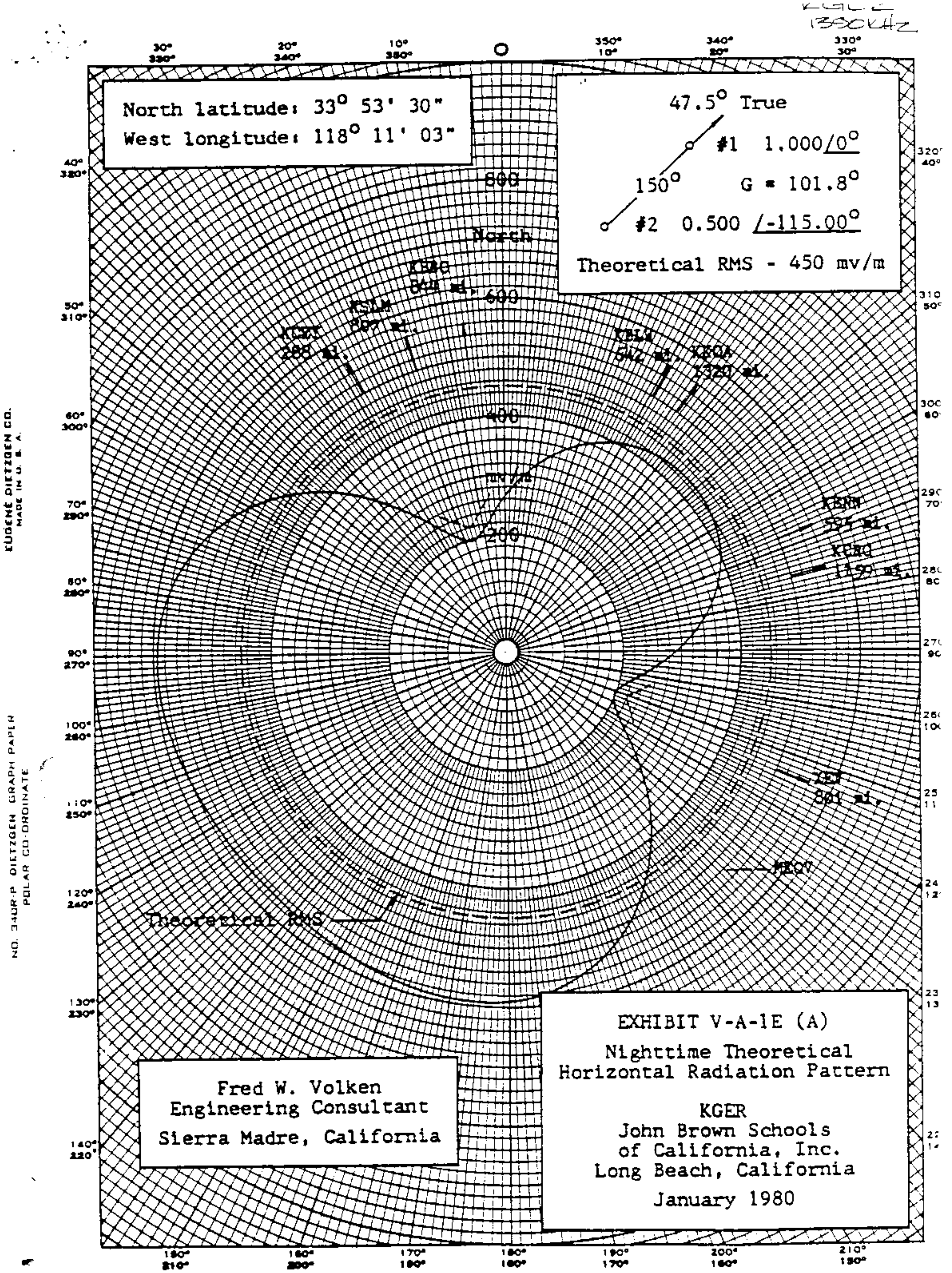


EXHIBIT V-A-1E (A)

Nighttime Theoretical
Horizontal Radiation Pattern

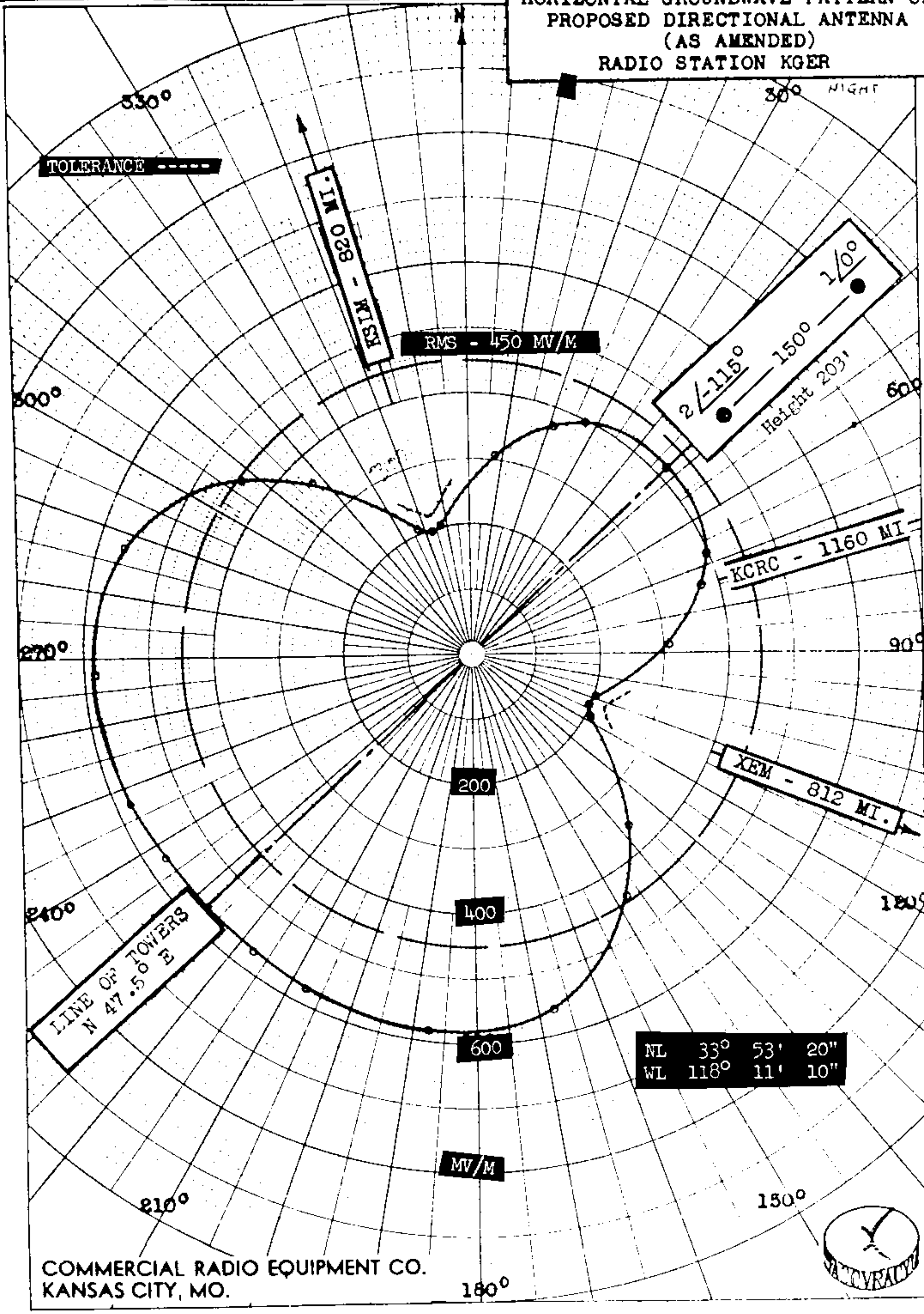
KGER
John Brown Schools
of California, Inc.
Long Beach, California

January 1980

URED NIGHT Station KGER 5kw, DA-N,U
Long Beach, California 1390

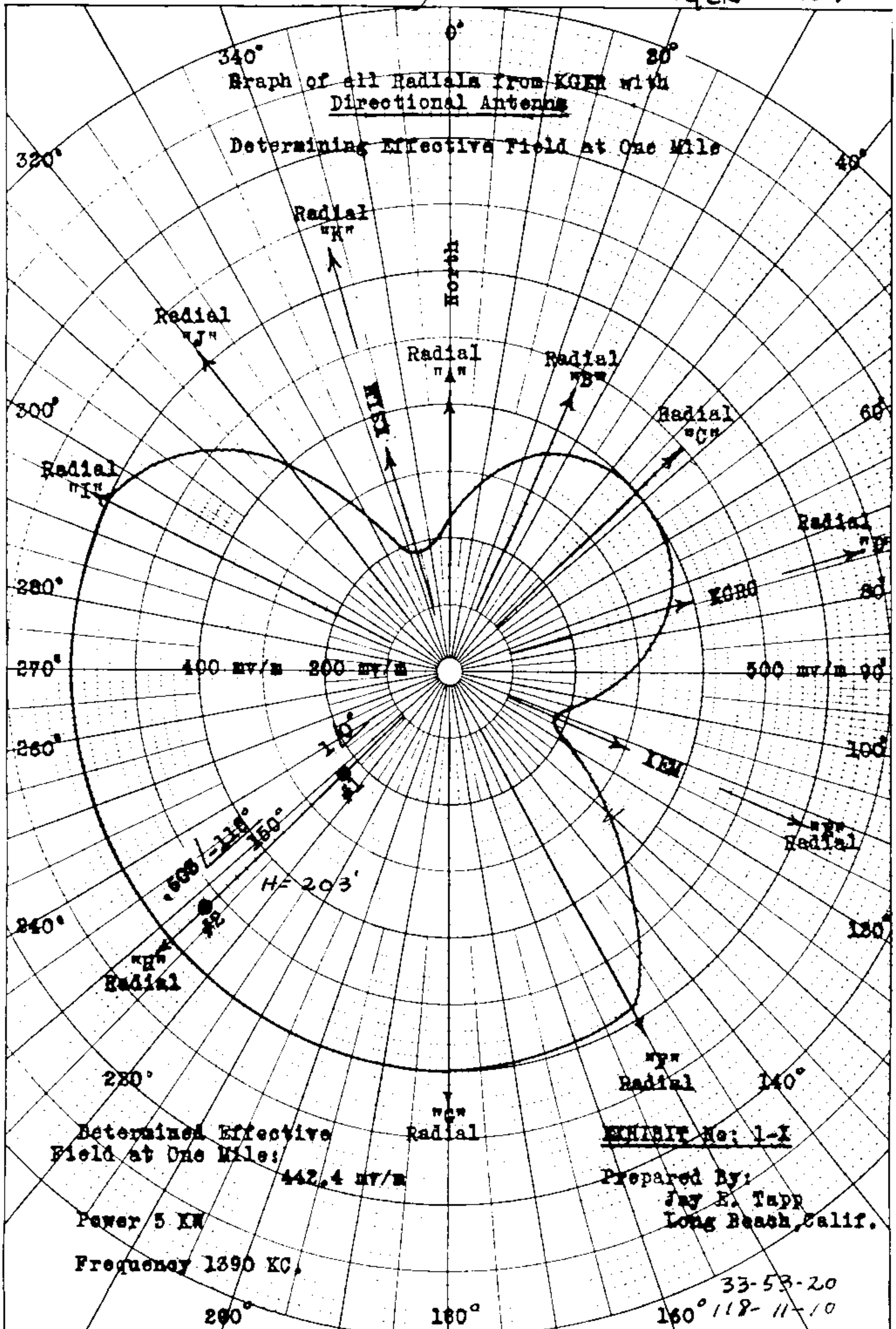
* EXHIBIT NO. D-4-a *KGER

HORIZONTAL GROUNDWAVE PATTERN OF
PROPOSED DIRECTIONAL ANTENNA
(AS AMENDED)
RADIO STATION KGER



KGER 1390 Kc

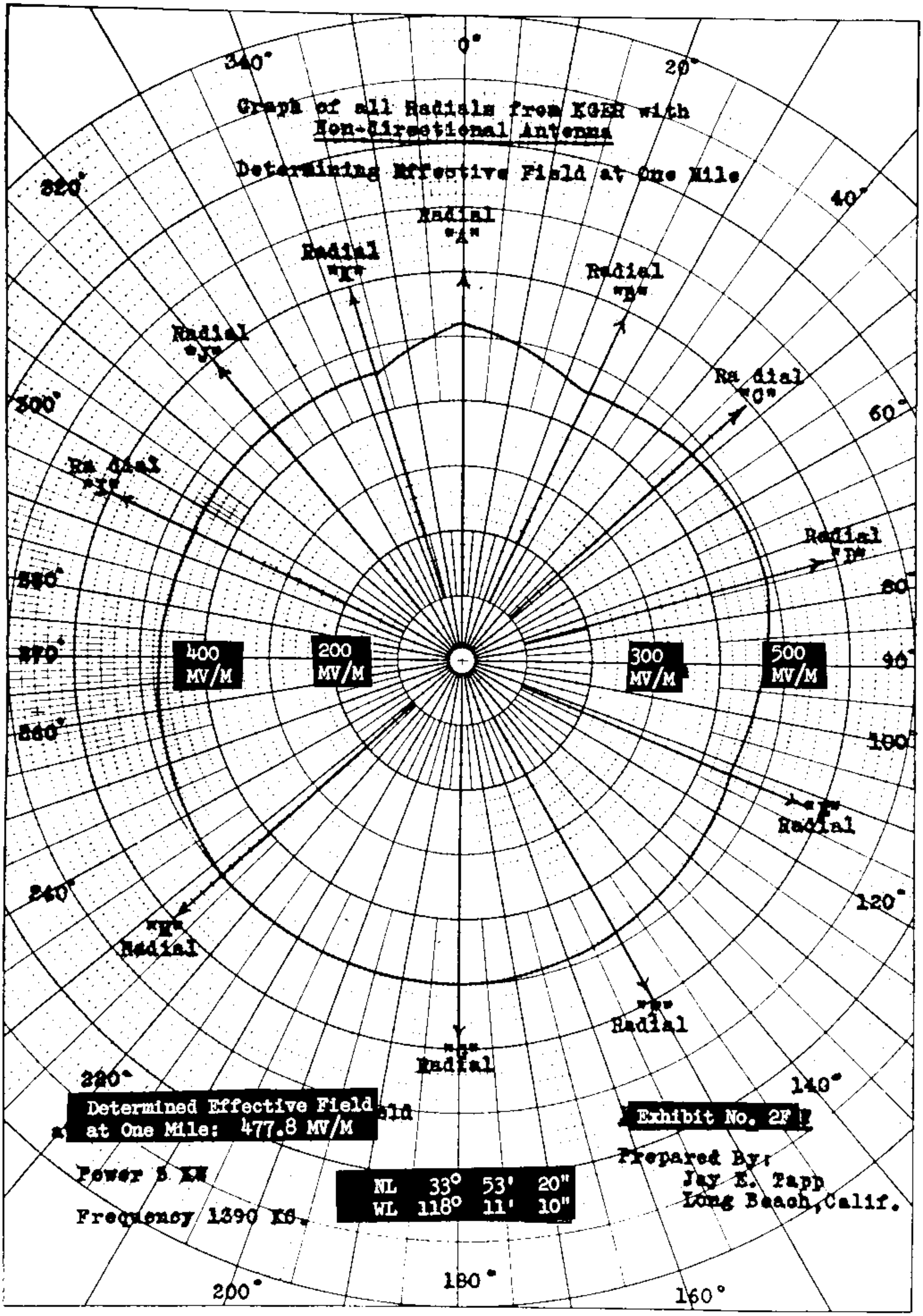
Long Beach, Cal. KGER - 1390 KC



KGER

MEASURED NON - DA

Station KGER 5kw, DA-N,U
Long Beach, California 1390 KC



KNOE

PROPOSED
NIGHT

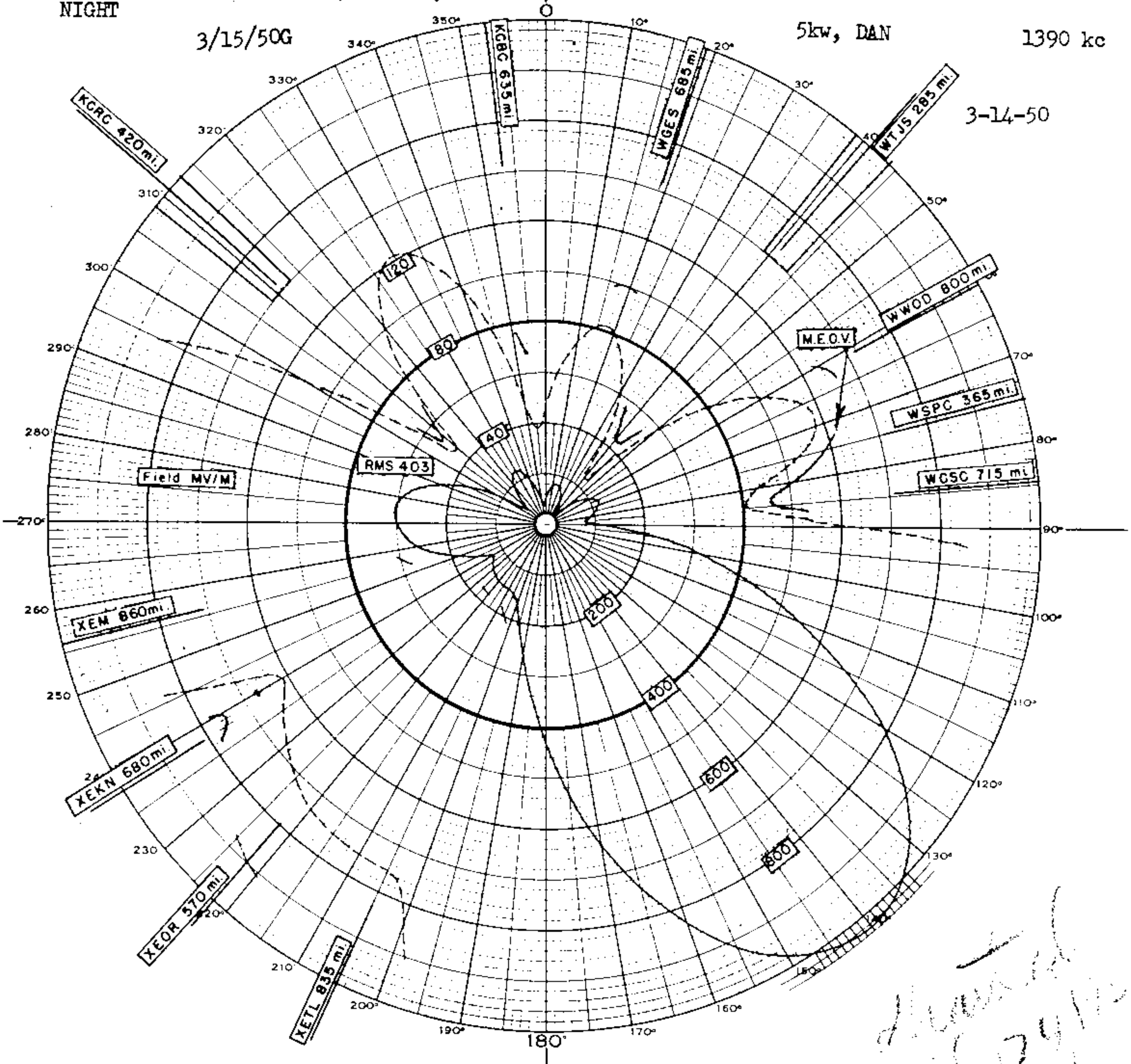
KNOE, MONROE, LA.

3/15/50G

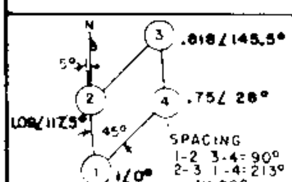
5kw, DAN

1390 kc

3-14-50



SITE: 32° 32' 30" N
92° 10' 22" W

STATION KNOE MONROE, LOUISIANA	Figure 1 Series C500221 1390 KC 5000 WATTS DA-N
 PROPOSED DIRECTIONAL ANTENNA PATTERN	Mc INTOSH & INGLIS *Consulting Radio Engineers* Washington, D.C.

KNOE, Monroe, La. 1390 kc

KNOE

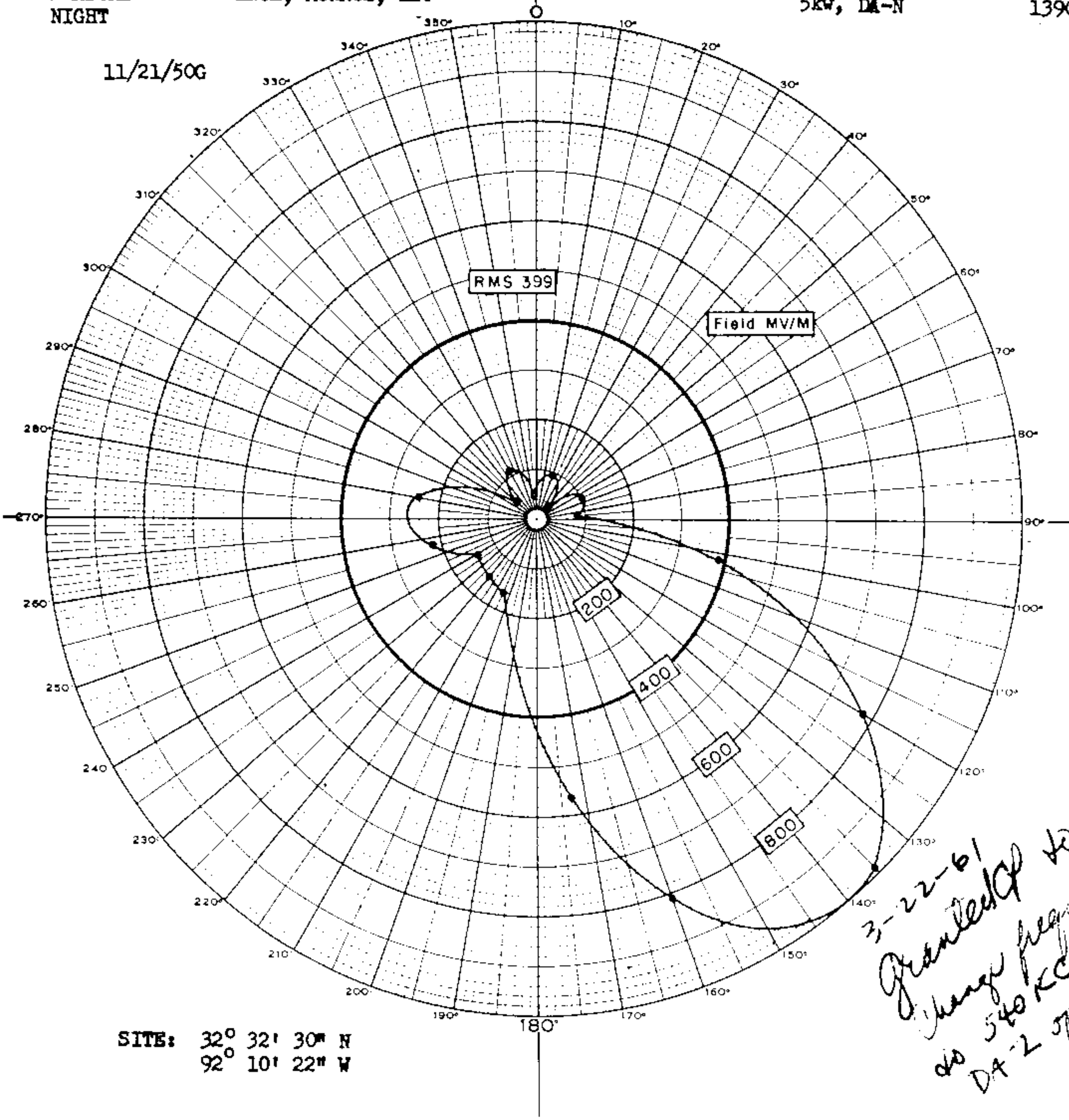
MEASURED NIGHT

KNOE, MONROE, LA.

5kw, DA-N

1390 kc

11/21/50G



3-22-61 granted CP to change frequency to 540 KC + DA-2 operation

SITE: 32° 32' 30" N
92° 10' 22" W

STATION KNOE MONROE, LOUISIANA	FIGURE 6A SERIES C501017 1390 KC 5000 WATTS DA-N
MEASURED DIRECTIONAL ANTENNA PATTERN	McINTOSH & INGLIS *Consulting Radio Engineers* Washington, D.C.

AMENDMENT RECD 11-15-50 BL-3851

KNOE

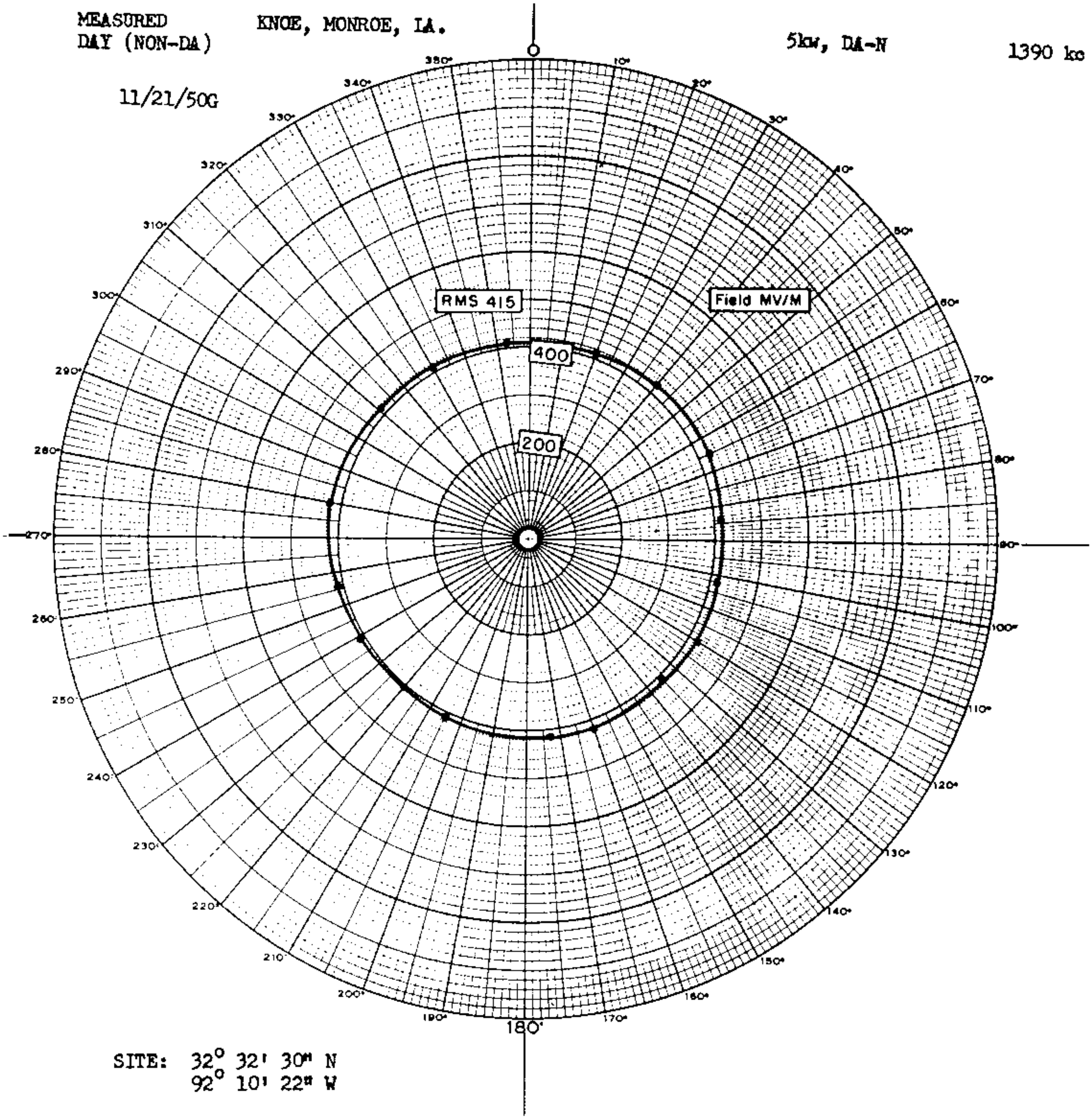
MEASURED
DAY (NON-DA)

KNOE, MONROE, LA.

5kw, DA-N

1390 kc

11/21/50G



SITE: 32° 32' 30" N
92° 10' 22" W

STATION KNOE MONROE, LOUISIANA	FIGURE 6B SERIES C501017
	1390 KC 5000 WATTS DA-N
MEASURED NON-DIRECTIONAL ANTENNA PATTERN	McINTOSH & INGLIS *Consulting Radio Engineers* Washington, D.C.

AMENDMENT RECD 11-15-50 BL-3851

KNOE, Monroe, La. 1390 kc

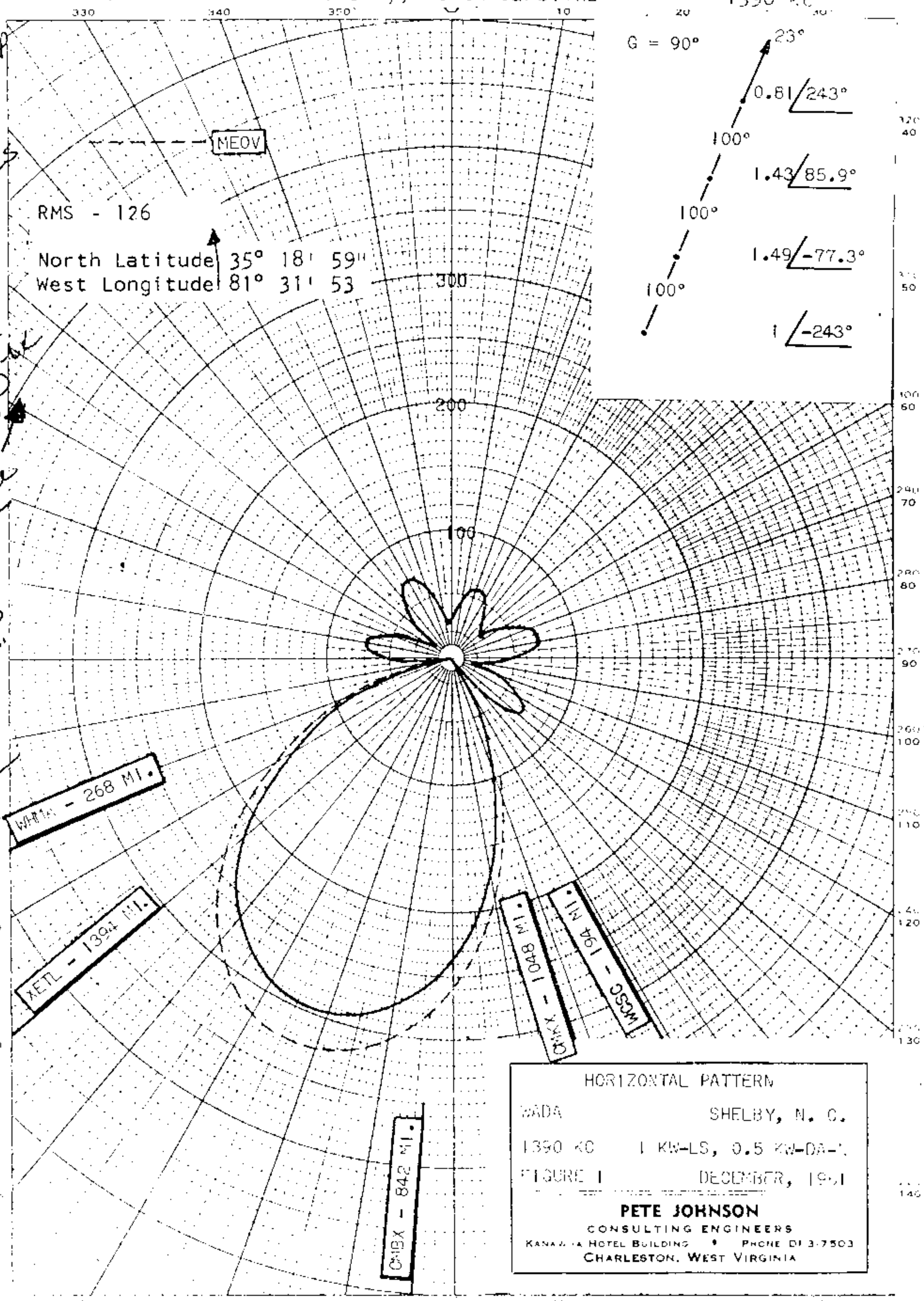
NL 35-19-18
WL 81-31-50

WADA

Proposed Night
(1-24-62ct)

Station WADA
Shelby, North Carolina

500w, 1kw-LS, DA-N, U
1390 kc



-27-64
granted CP
change
from .5
& .5N, 1kw-LS
DA-N, U.
1-8-64
I.D.

2017-10-20-wk
granted MCP
change
Xmtr site

BMP-11473
Appl. CHG. LOC.
35° 19' 28"
81 32 00
3-26-65ct
MCP 5-13-65
CHG. LOC.

FCC File No. BP-15269
Accepted 1-12-62

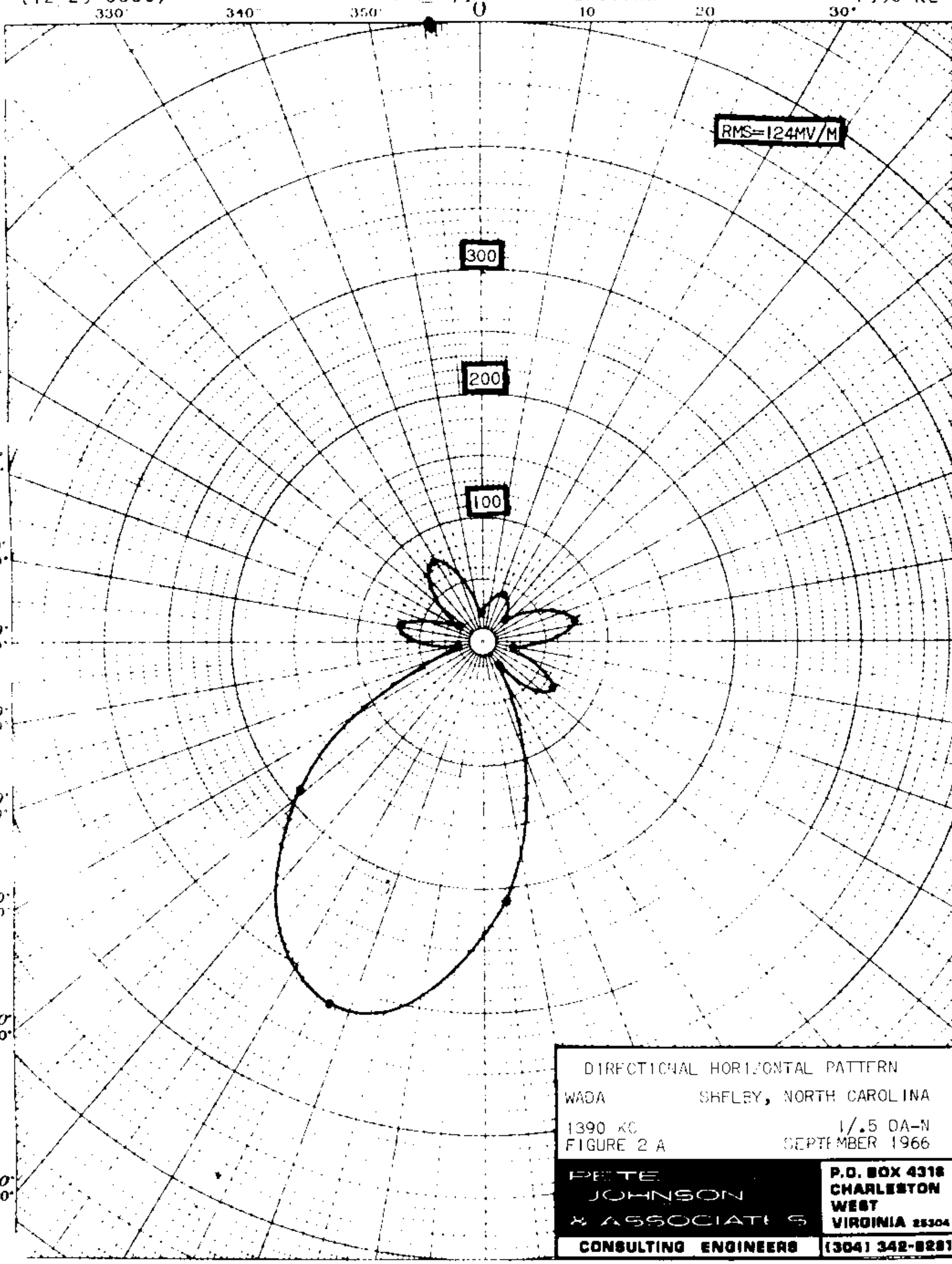
Station WADA
Shelby, North Carolina

1390 kc

Measured Night
(12-29-66ct)

Station WADA
Shelby, North Carolina

500w,1kw-LS,DA-N,U
1390 kc

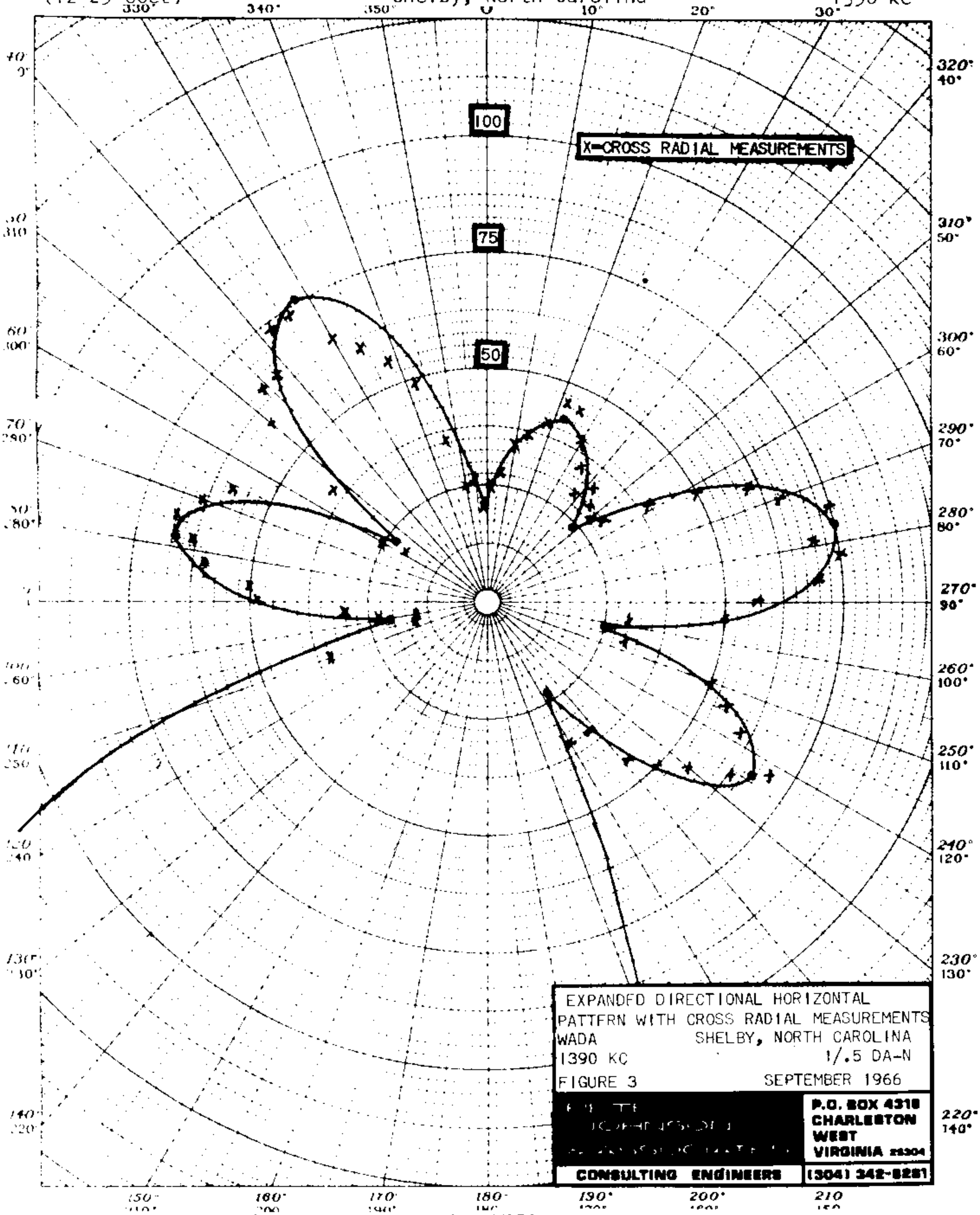


FCC File No.BL-11457
Accepted 12-5-66

Station WADA
Shelby, North Carolina

1390 kc

Measured Night Nulls (12-29-66ct) | Station WADA Shelby, North Carolina | 500w,1kw-LS,DA-N,U 1390 kc



FCC File No.BL-11457
Accepted 12-5-66

Station WADA
Shelby, North Carolina

1390 kc

WADA

Proposed Night Nulls
(1-24-62ct)

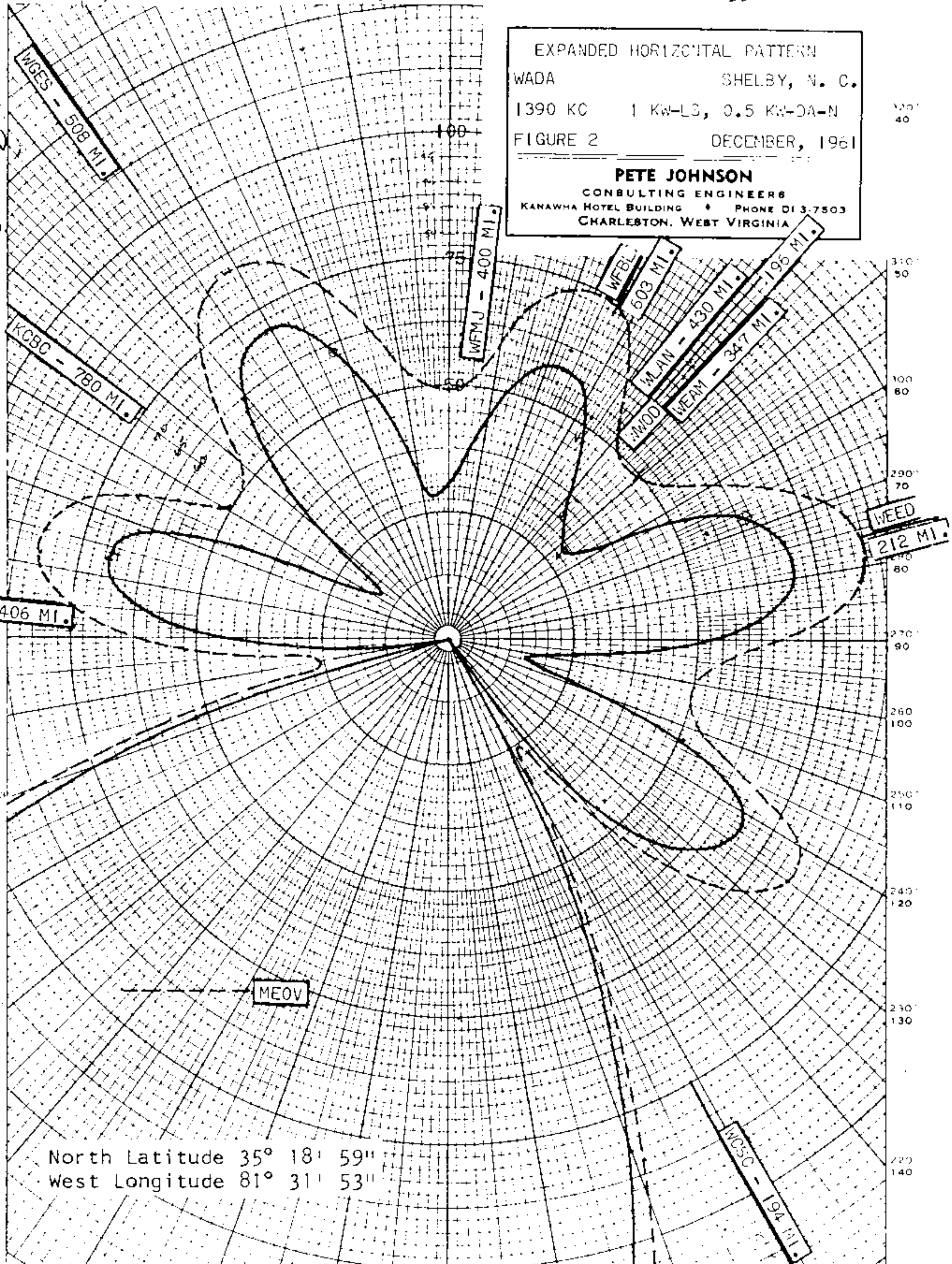
Station WADA
Shelby, North Carolina

500w, 1kw-LS, DA-N, U
1390 kc

-27-64
extend CP
to change
m .5D to
5N, 1LS, DA-N

1-8-64 I.D

1-26-65 ct
HG. COORD.
MCP 5-13-65
CHG. LOC



FCC File No. BP-15269
Accepted 1-12-62

Station WADA
Shelby, North Carolina

1390 kc

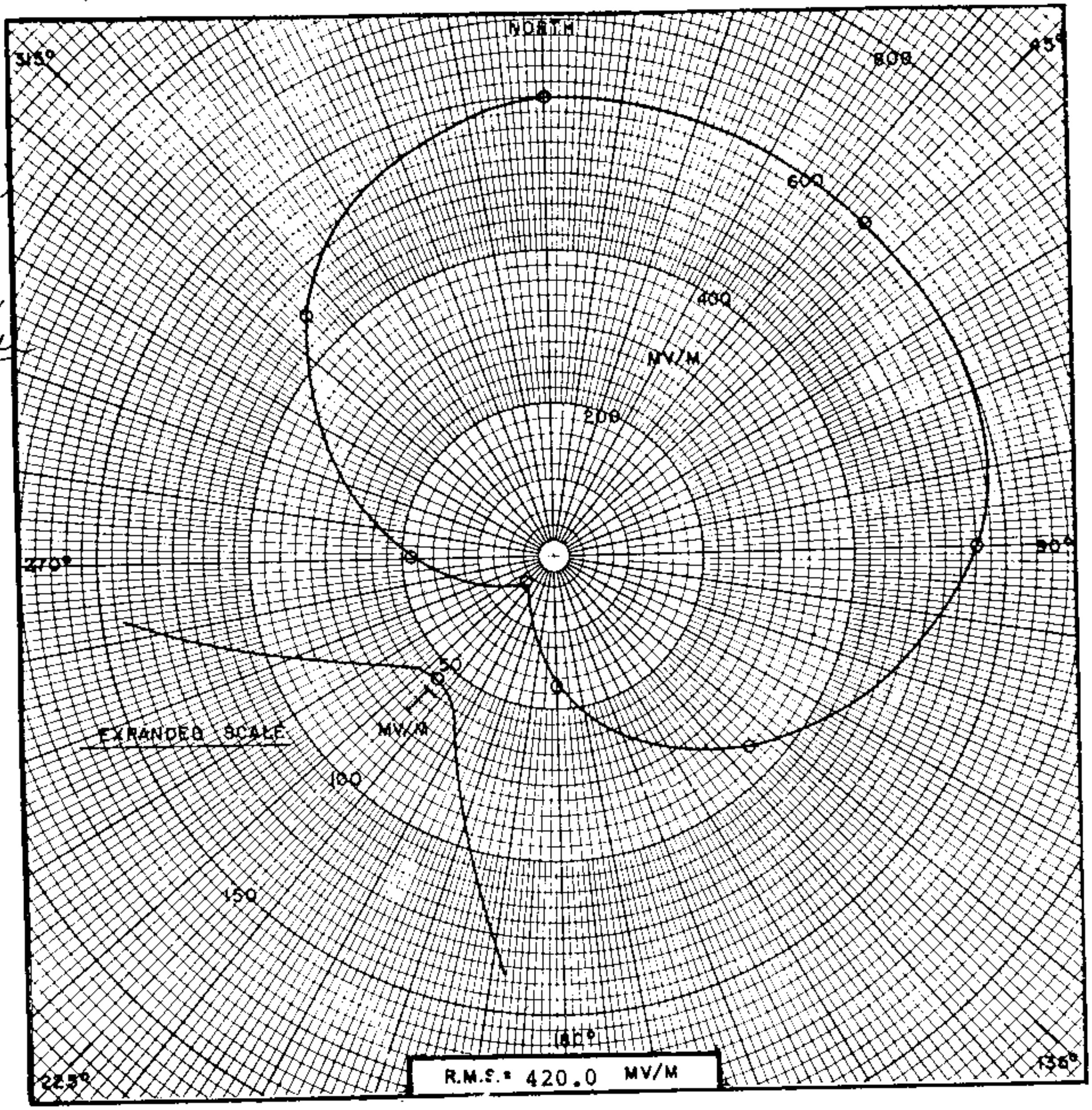
WCER

Measured Day
(11-29-68ct)

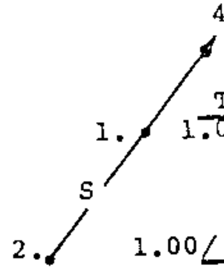
Station WCER
Charlotte, Michigan

5kw, DA-D, D
1390 kc

BL-12125
Granted
(2-28-69)
license
covering
increase
in power



PATTERN PARAMETERS



	Theo.	Meas.
1.	1.00/ 0°	1.00/ 0°
2.	1.00/ 81°	1.15/ 90°

S = 89°,175.3'   G = 84°,163'

DIRECTIONAL
RADIATION PATTERN
W C E R

[x] MEASURED [ ] PROPOSED
FREQ. 1390 (KHZ) POWER 5000 (KW) [x] DA-D
N. LAT. 42° 34' 01.5" [ ] DA-N
W. LONG. 84° 51' 57.75 [ ] N-D
LOCATION: Charlotte, Michigan
DATE: Sept. 1968

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FCC File No. BL-12125
Accepted 11-1-68

Station WCER
Charlotte, Michigan

1390 kc

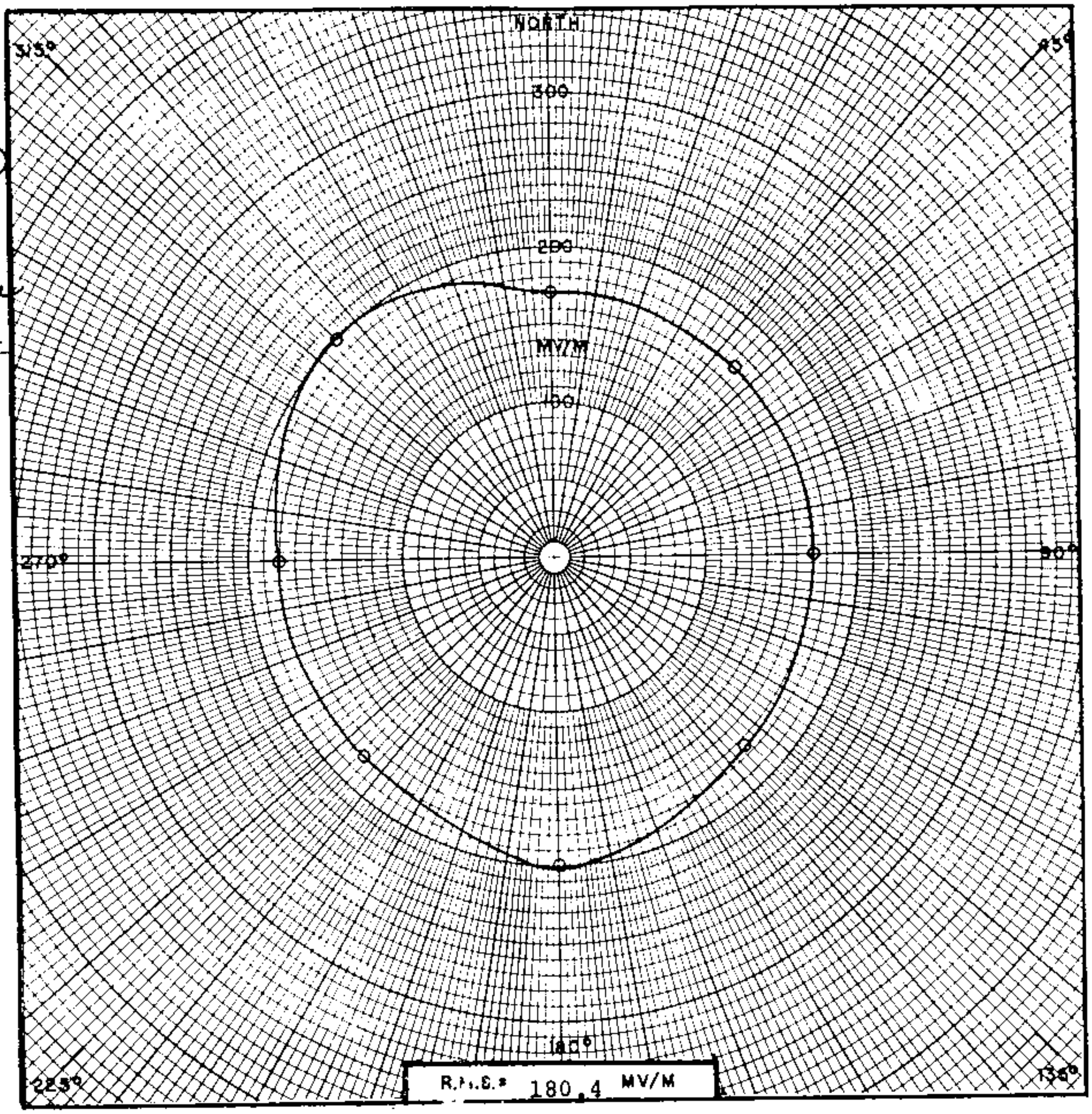
WCER

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

Station WCER
Charlotte, Michigan

5kw,DA-D,D
1390 kc

BL-12125
Granted
(2-28-69)
license
covering
increase
in power



PATTERN PARAMETERS

DIRECTIONAL
RADIATION PATTERN
W C E R

[X] MEASURED [ ] PROPOSED

FREQ: 1390 (KHZ) POWER 1.0 (KW) [ ] DA-D

N. LAT. 42° 34' 03.5 [ ] DA-N

W. LONG. 84° 51' 57.75 [X] N-D

LOCATION: Charlotte, Michigan

DATE: Sept. 1968

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FCC File No. BL-12125
Accepted 11-1-68

Station WCER
Charlotte, Michigan

1390 kc

WCER

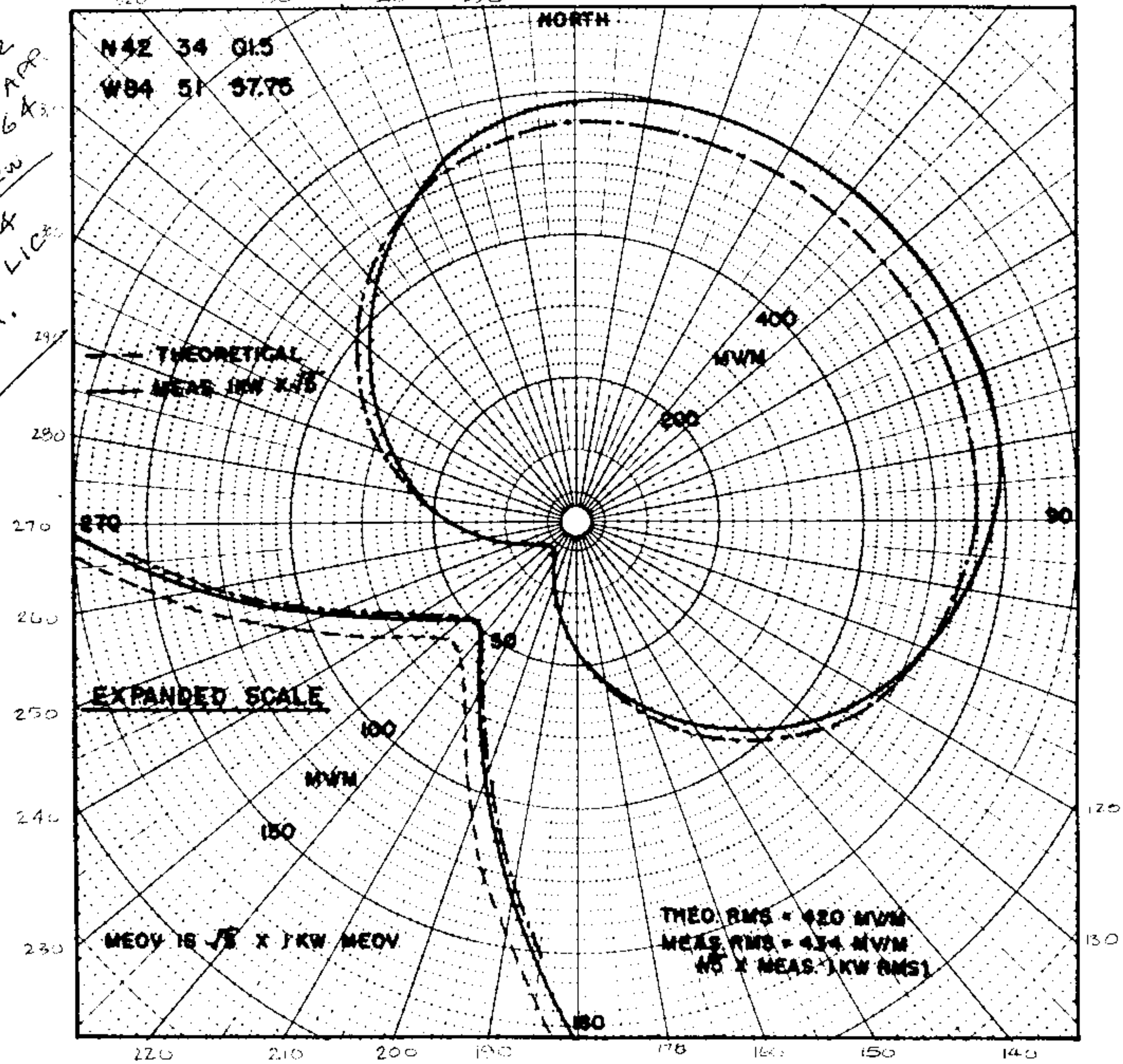
Proposed Day
(7-29-64ct)

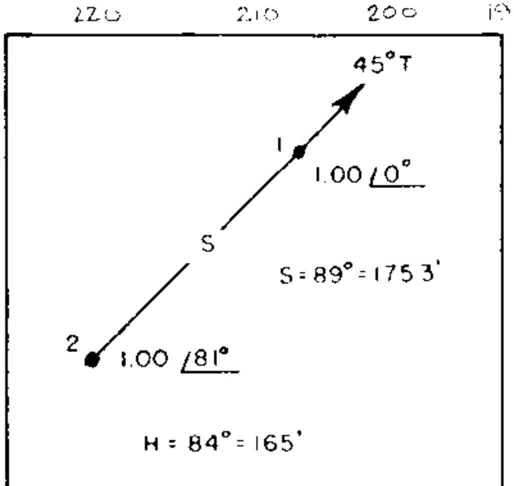
Station WCER
Charlotte, Michigan

5kw,DA-D,D
1390 kc

P-14612
RANTED APP.
12-22-64
1 TO 5KW

L-10784
3-11-65 LIC
CHG. DA.
S=175.3'





WCER
PROP. RADIATION PATTERN
5 KW 1390 KC
CHARLOTTE, MICHIGAN
APRIL, 1964

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FCC File No.BP-14612
Accepted 7-2-64 Amended

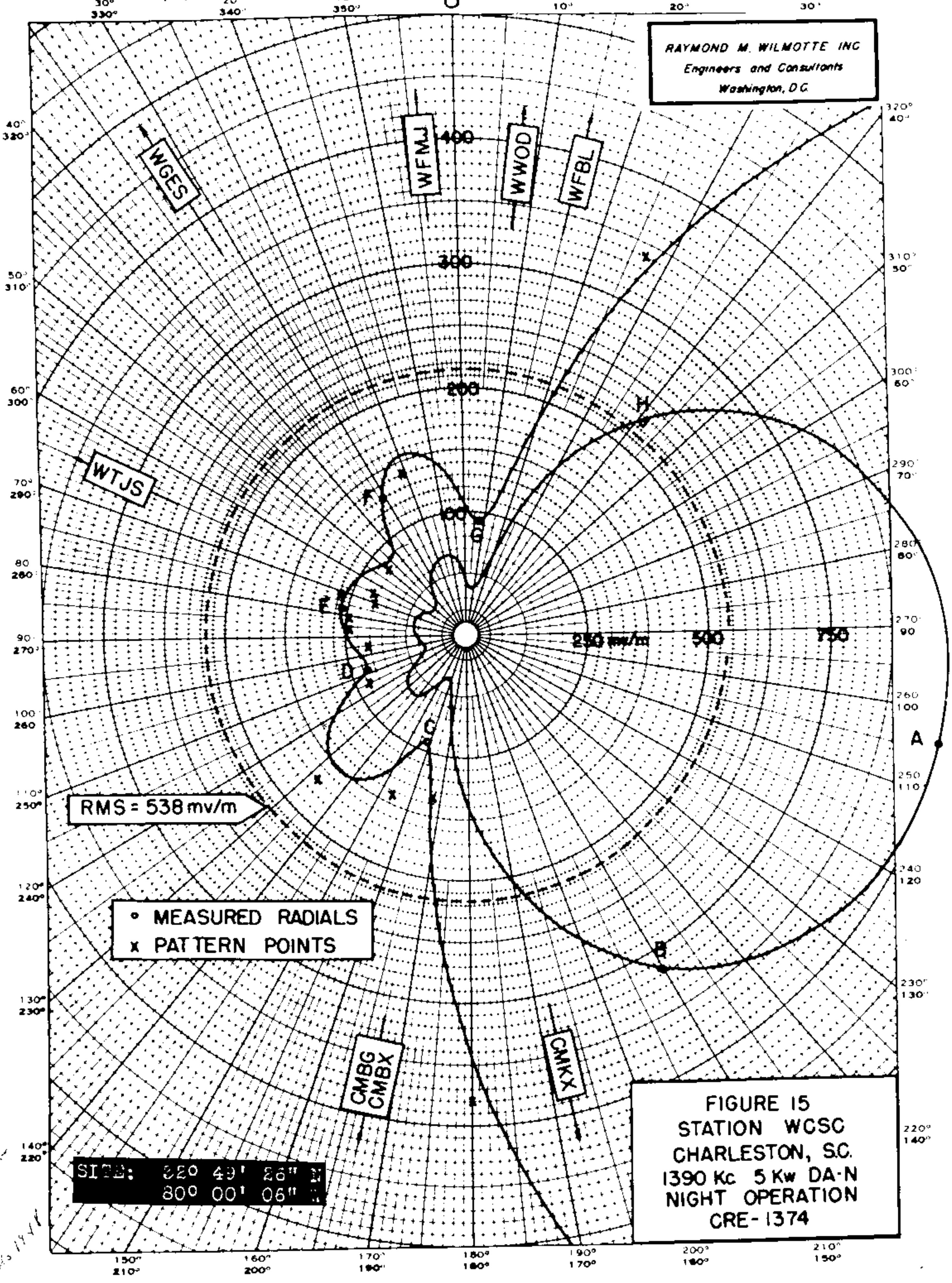
Station WCER
Charlotte, Michigan

1390 kc

Rec'd 12/9/47

L-2473

WCSC



WCSC

PROPOSED NIGHT   WCSC, CHARLESTON, S. C.   5kw, DAN   1390 kc

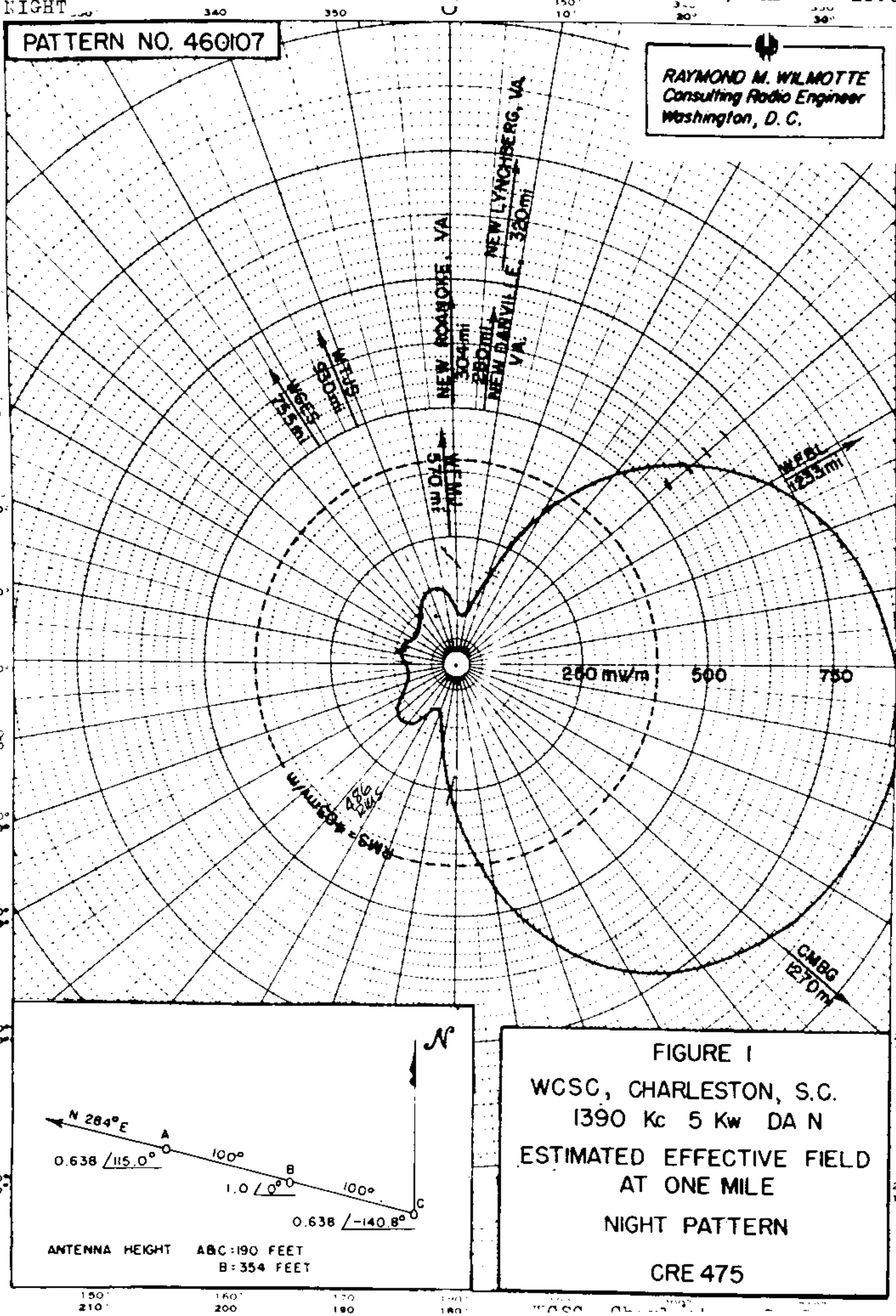


FIGURE I

WCSC, CHARLESTON, S.C.

1390 Kc 5 Kw DA N

ESTIMATED EFFECTIVE FIELD AT ONE MILE

NIGHT PATTERN

CRE 475

MEASURED NON - DA   Station WCSC   5kw, DA-N,U
Charleston, South Carolina   1390 KC

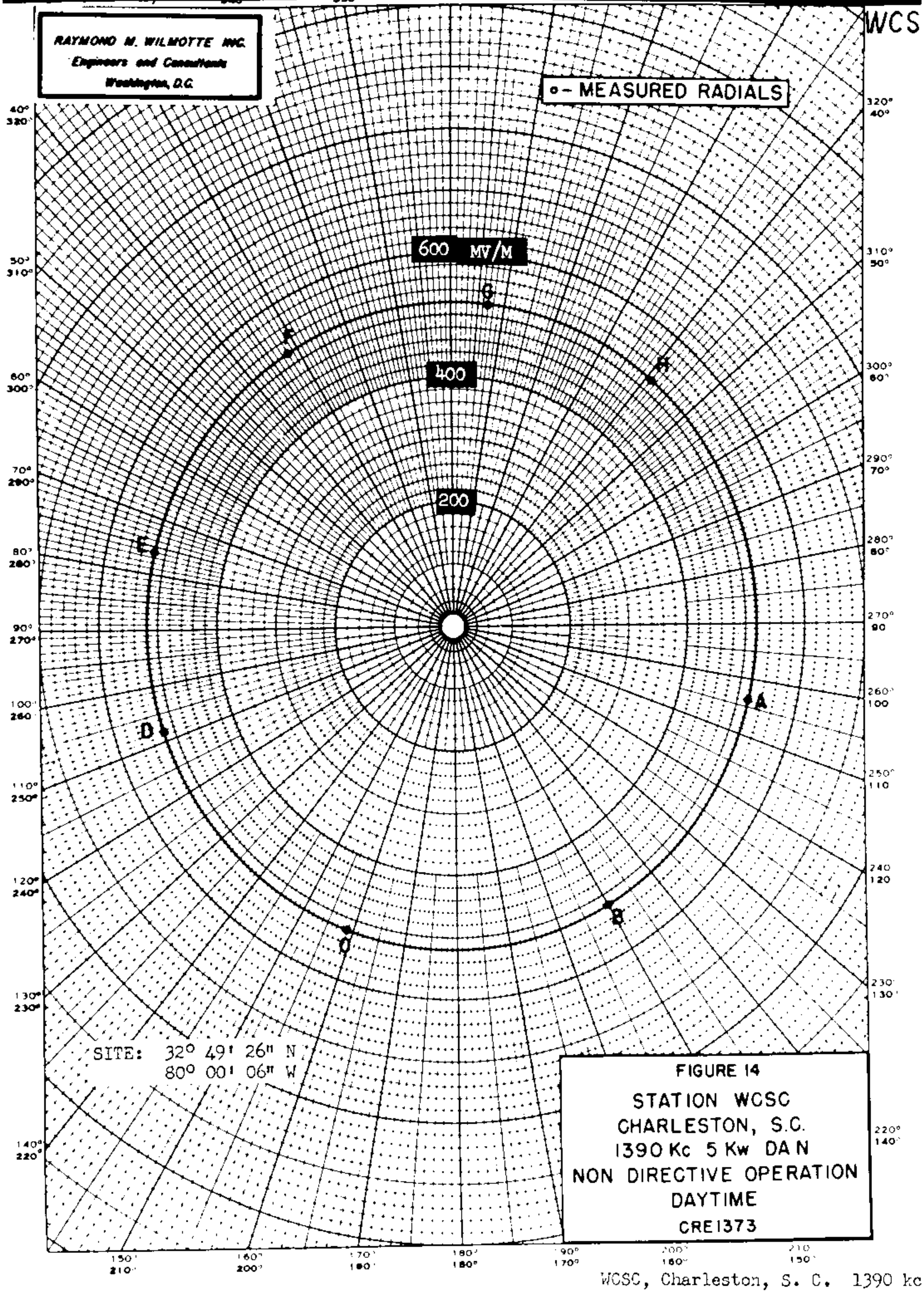


FIGURE 14
STATION WCSC
CHARLESTON, S.C.
1390 Kc 5 Kw DA N
NON DIRECTIVE OPERATION
DAYTIME
CRE1373

WCSC, Charleston, S. C. 1390 kc

WEAM

PROPOSED
NIGHT

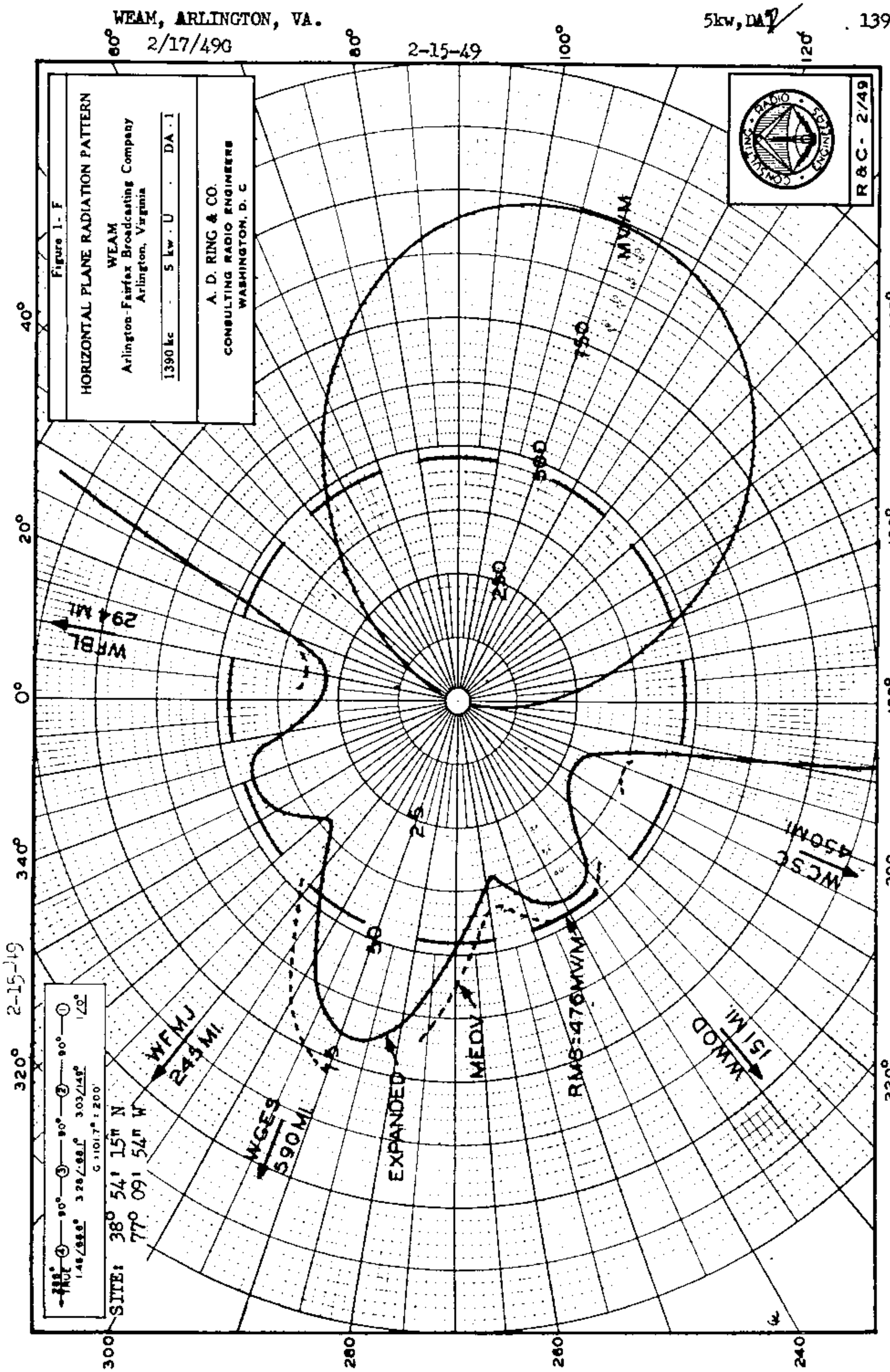
WEAM, ARLINGTON, VA.

2/17/490

2-15-49

5kw, DA

1390 kc

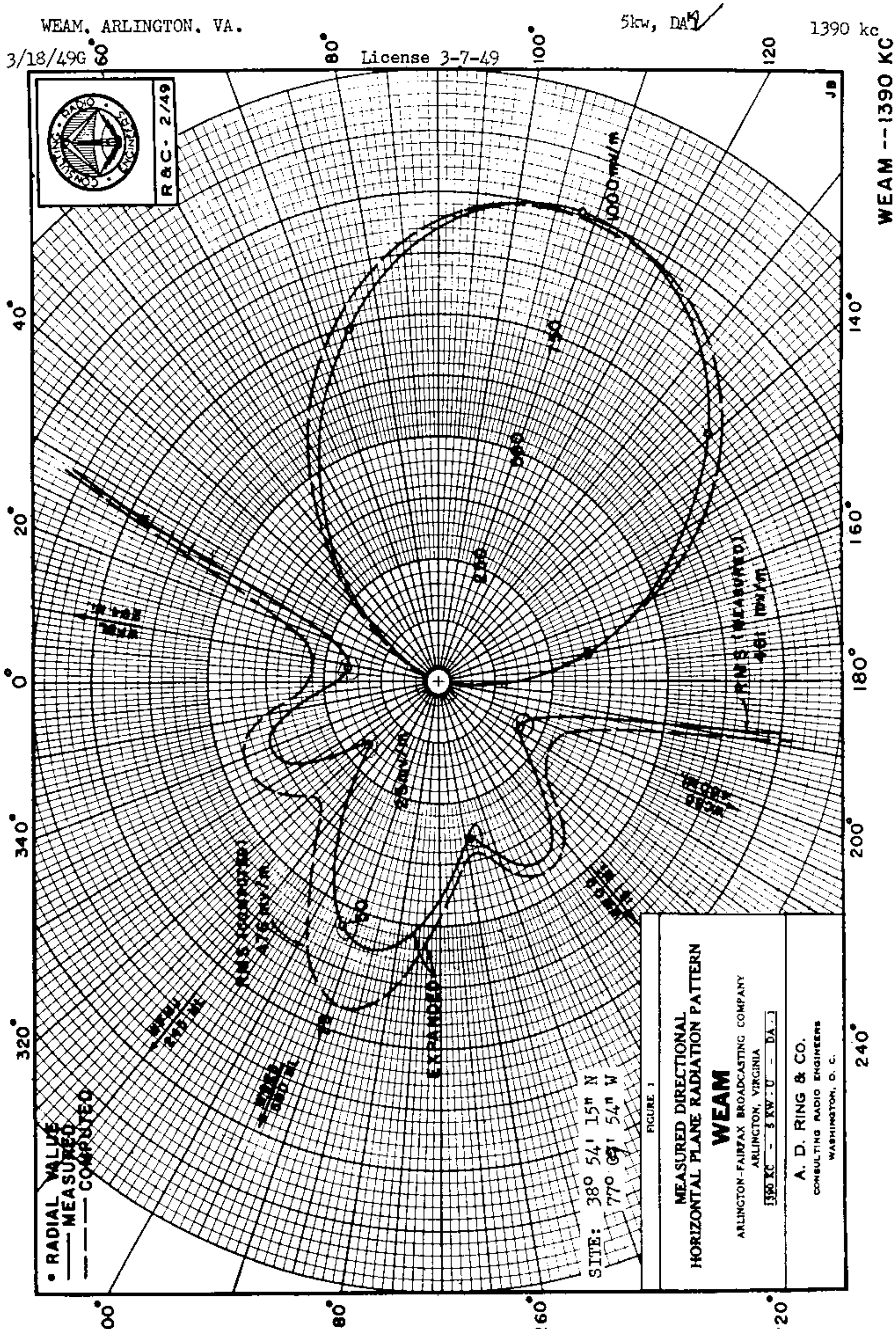


WEAM, ARLINGTON, VA. 1390kc

WEAM

MEASURED WEAM, ARLINGTON, VA. 5kw, DAN 1390 kc
NIGHT&[redacted]
3/18/49G

License 3-7-49



WEAM, Arlington, Va. 1390 kc.

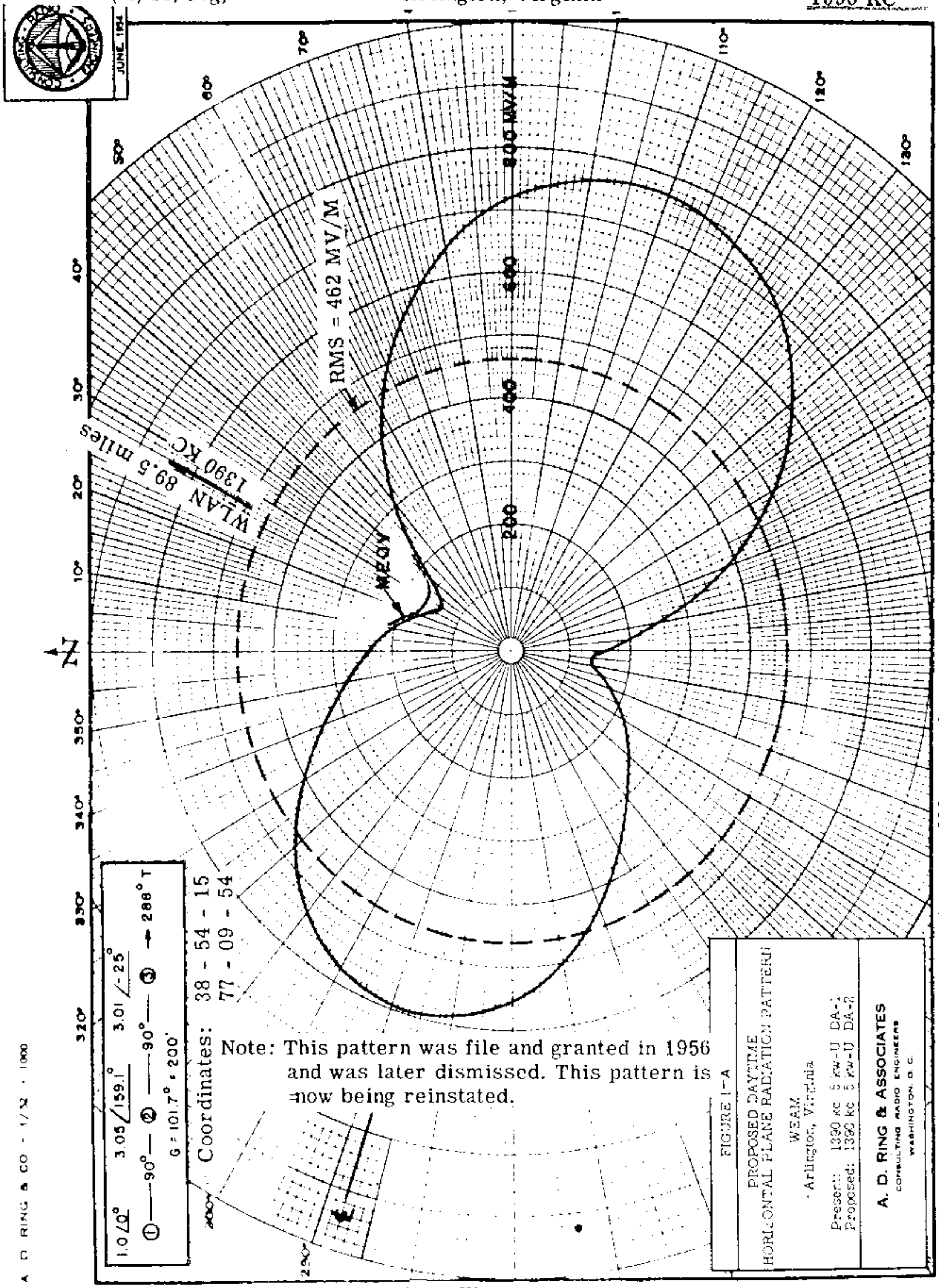
granted CP to change from DA-1, to DA-2 directional antenna operation 2/14/57

WEAM

PROPOSED DAY
(2/11/57g)

Station WEAM
Arlington, Virginia

5KW,DA-2,U
1390 KC



A. D. RING & CO - 1/2 - 1000

FCC File No. BP - 11,009
Accepted 1/29/57

WEAM
Arlington, Virgina

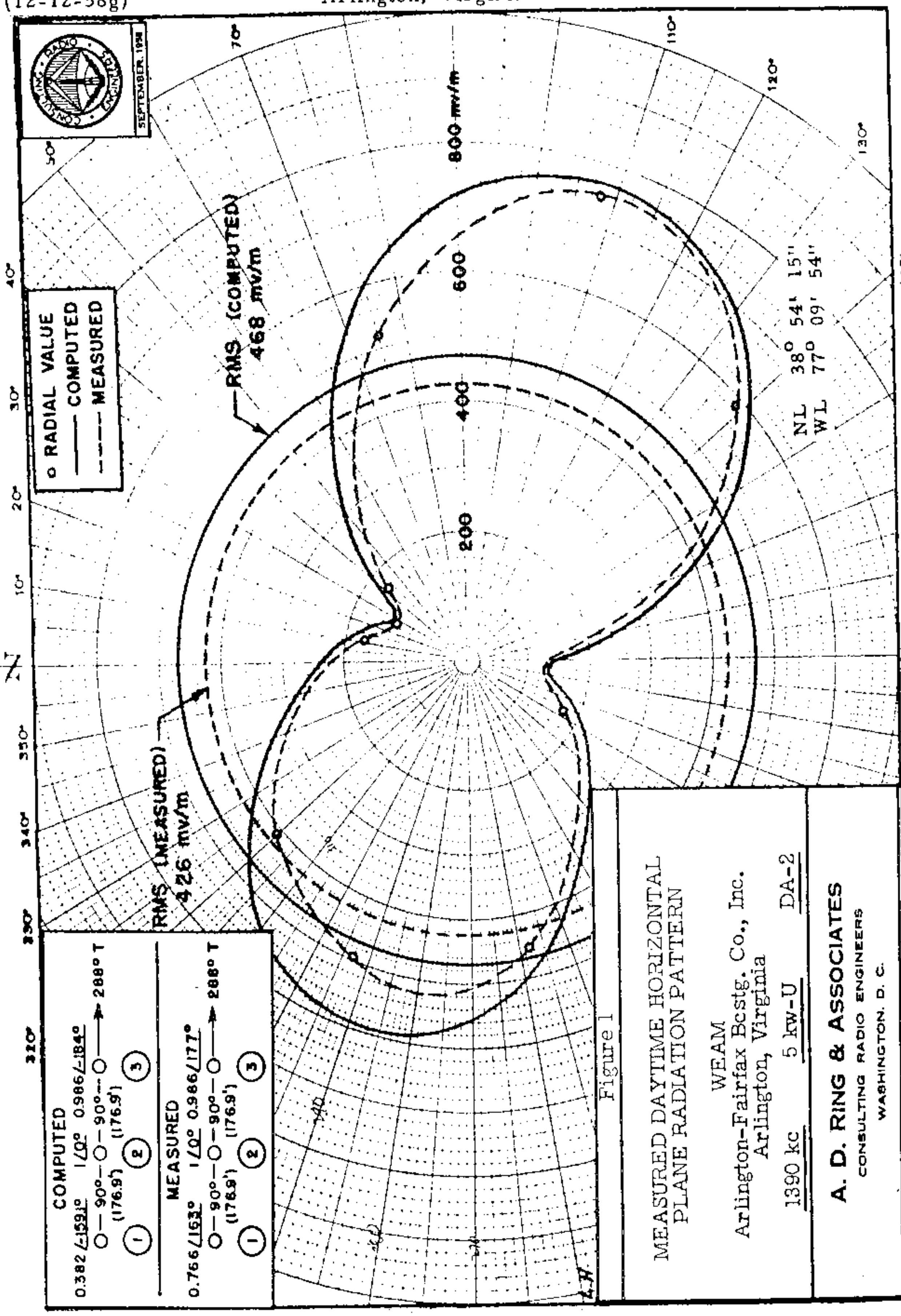
1390 KC

WEAM

MEASURED DAY
(12-12-58g)

Station WEAM
Arlington, Virginia

5kw, DA-2, U
1390 KC



FCC File No. BL-7284
Accepted 12-2-58

WEAM
Arlington, Virginia

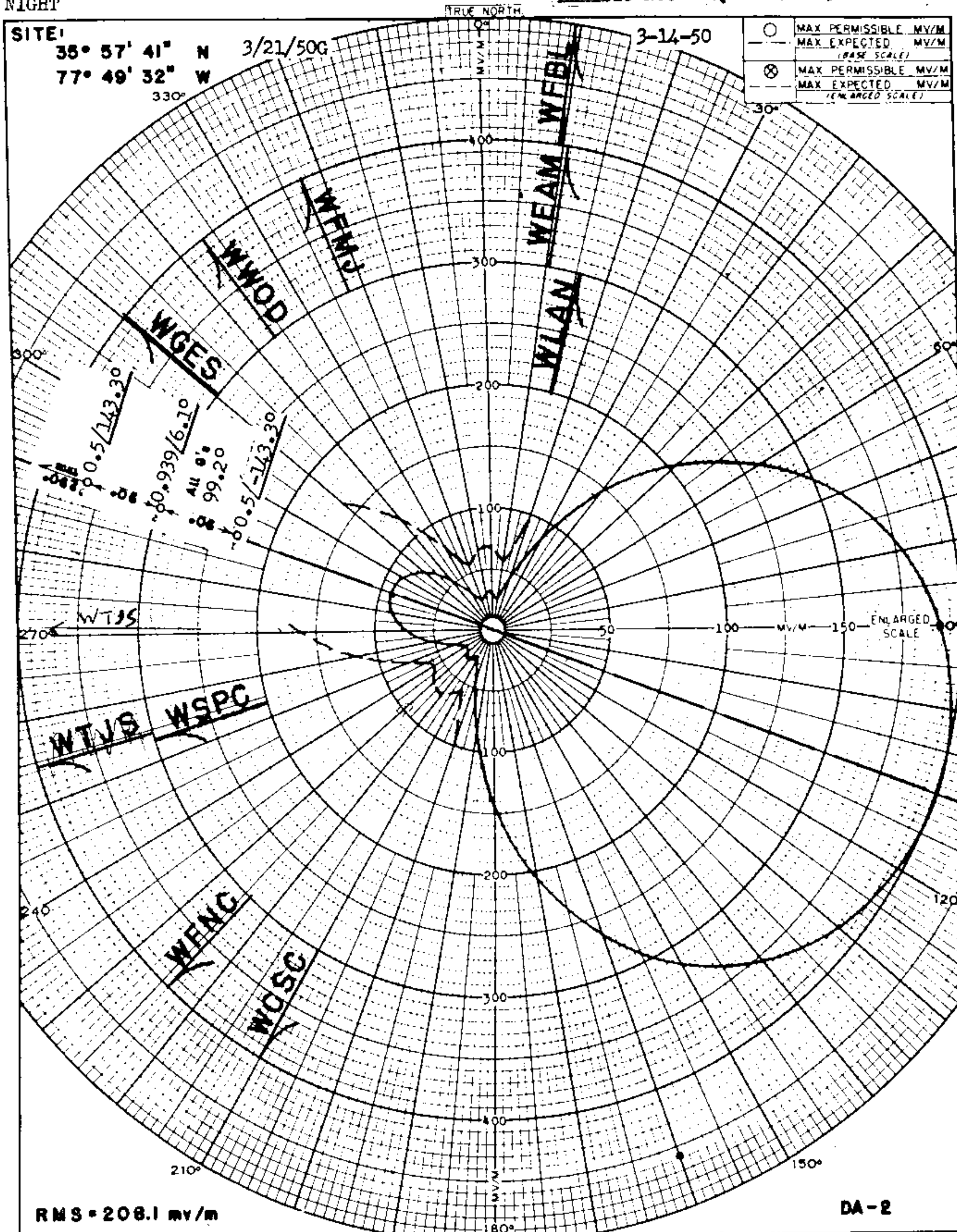
1390 KC

WEED

PROPOSED
NIGHT

WEED, ROCKY MOUNT, N. C.

EXHIBIT NO. E-4, 1kw, DA-N 1390 kc



COMMERCIAL RADIO EQUIPMENT CO.

RADIO ENGINEERING CONSULTANTS

KANSAS CITY WASHINGTON, D.C. HOLLYWOOD

PATTERN PROPOSED NIGHTTIME
FOR WEED, ROCKY MOUNT, N. C.
POWER 1 KW-U FREQ 1390 KC
DATE FEBRUARY 13, 1950 BY ITN

WEED, Rocky Mount, N. C. 1390 kc

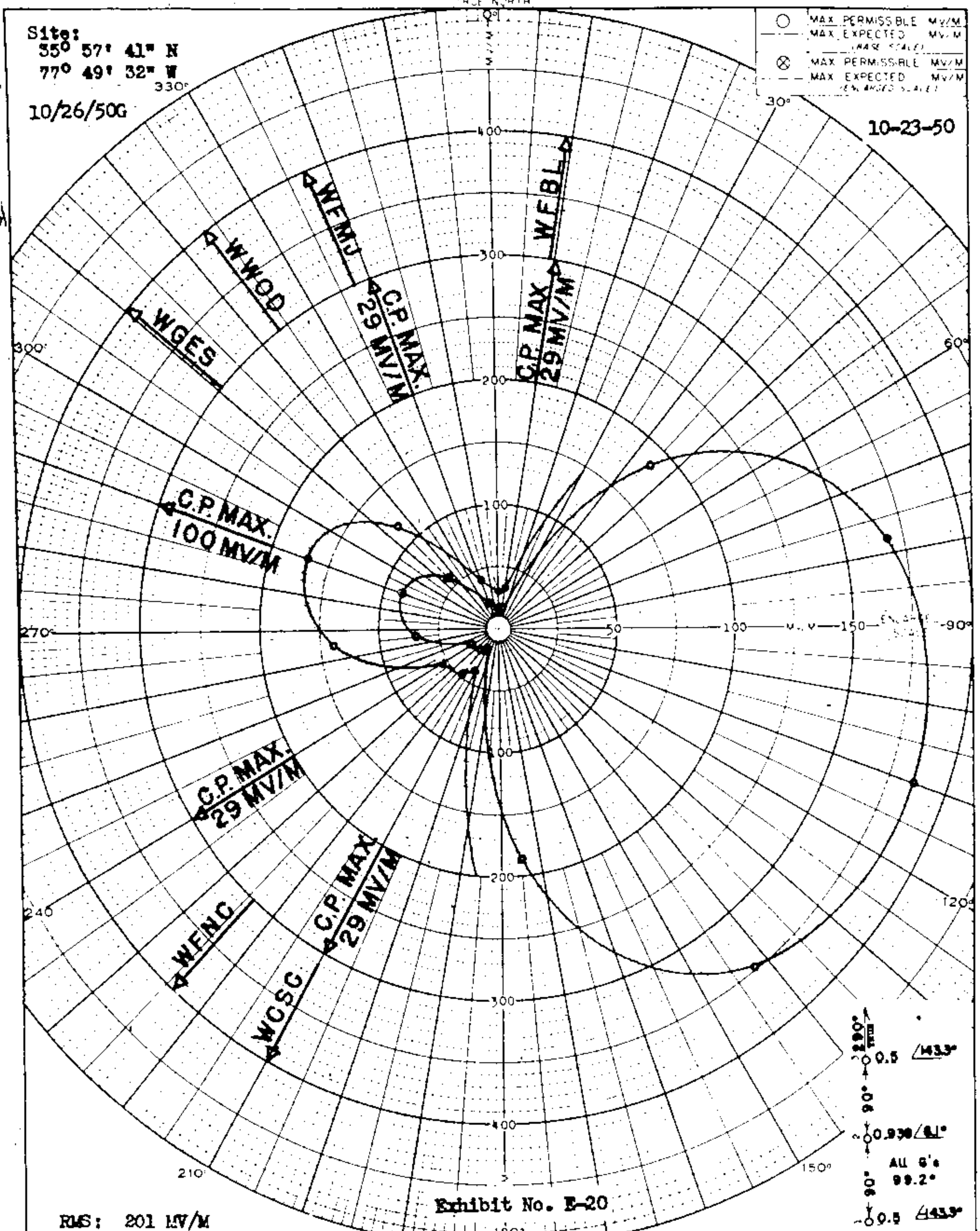
MEASURED NIGHT

WEED, ROCKY MOUNT, N. C.

1kw, DA-N

1390 kc

granted for DA-N operation 5-24-61



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

PATTERN MEASURED NIGHTTIME
WEED, ROCKY MOUNT, N. C.
1 Kw-U DA-2 1390 Kc.
DATE October 18, 1950 BY ITN

WEED, Rocky Mount, N. C. 1390 kc

PROPOSED NIGHT
(9-25-58g)

New; Presque Isle Radio Co.
Presque Isle, Maine

5kw, DA-N,U
1390 KC

granted CP 9-30-59

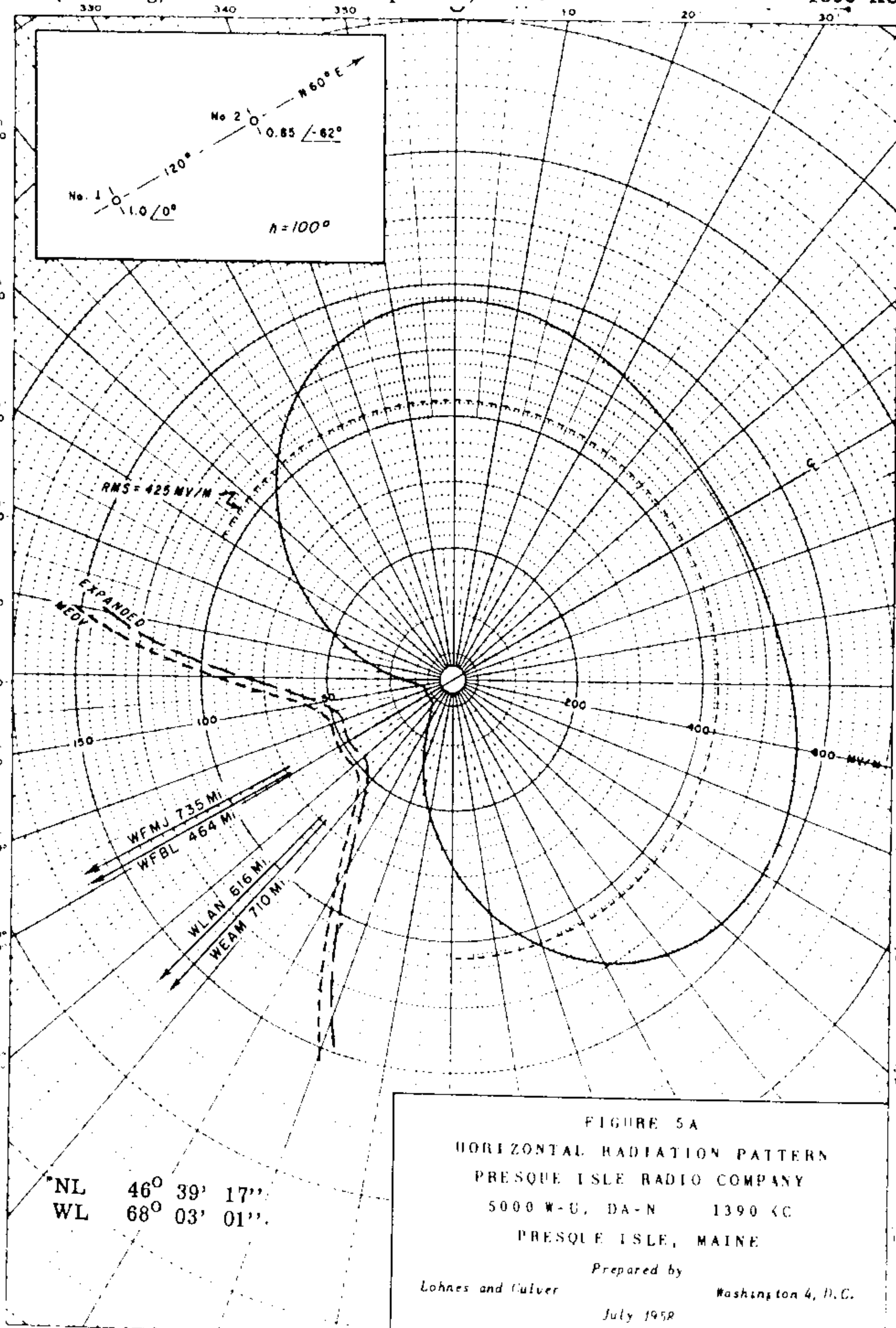


FIGURE 5A
HORIZONTAL RADIATION PATTERN
PRESQUE ISLE RADIO COMPANY
5000 W-U, DA-N 1390 KC
PRESQUE ISLE, MAINE
Prepared by
Lohnes and Culver *Washington 4, D.C.*
July 1958

FCC File No. BP-12,242
Accepted 9-15-58

Presque Isle Radio Company
Presque Isle, Maine 1390 KC

WEGP

11-16-60 painted for new station

MEASURED NIGHT (7-29-60g)

Station WEGP Presque Isle, Maine

5kw, DA-N,U 1390 kc

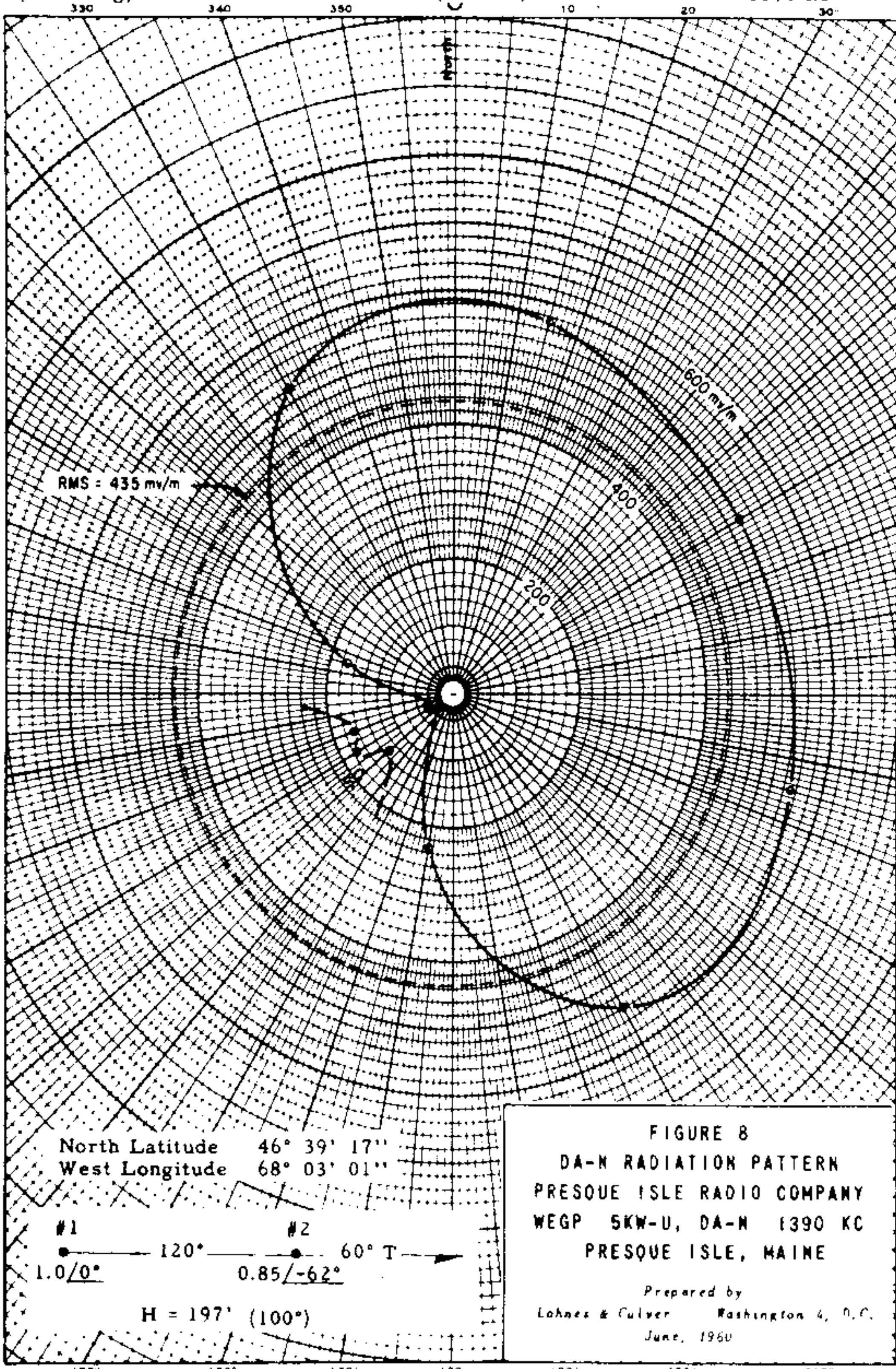


FIGURE 8
DA-N RADIATION PATTERN
PRESQUE ISLE RADIO COMPANY
WEGP 5KW-U, DA-N 1390 KC
PRESQUE ISLE, MAINE

Prepared by
Lohnes & Culver Washington 4, D.C.
June, 1960

FCC File No. BL-7982
Accepted 7-13-60

WEGP
Presque Isle, Maine

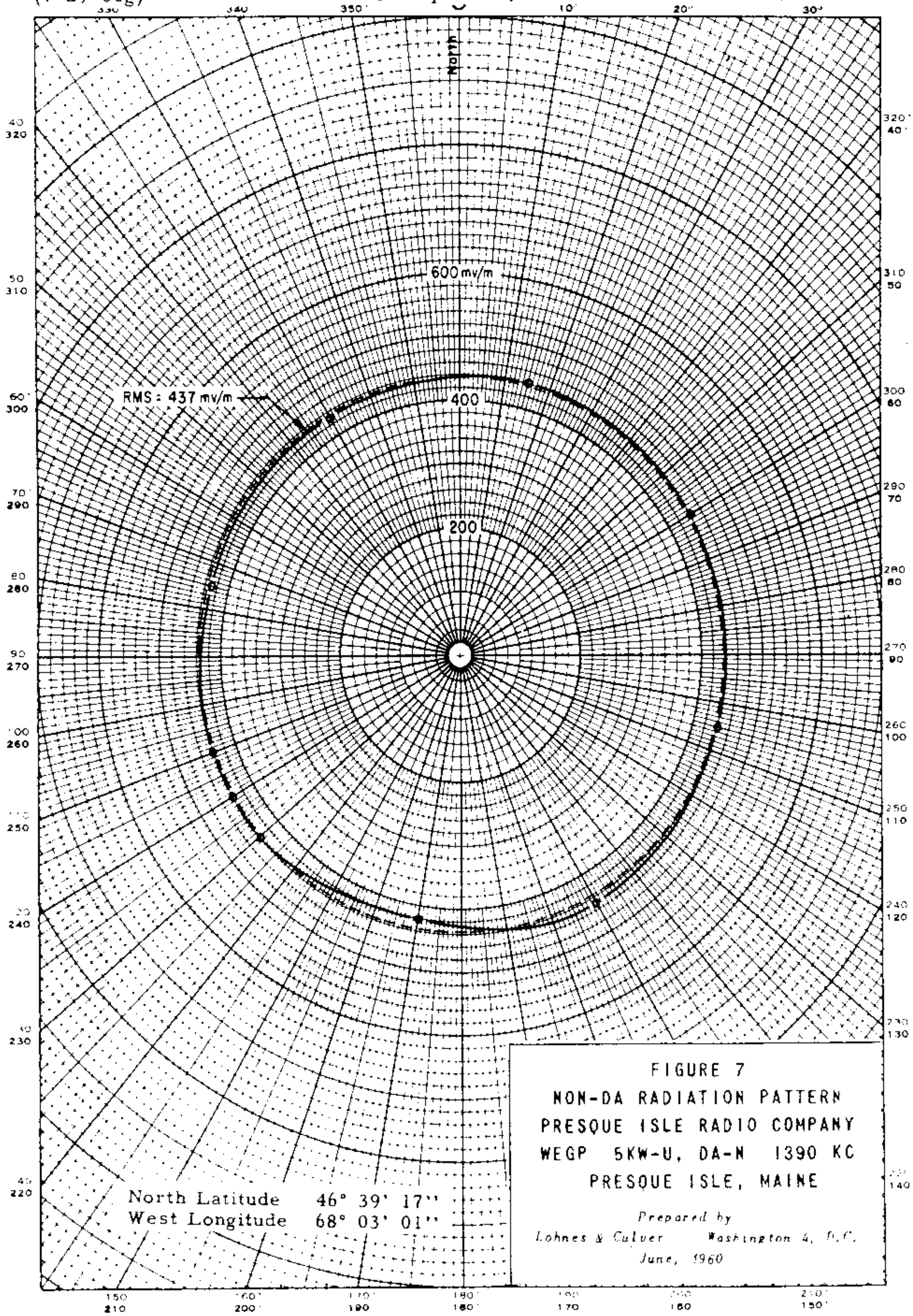
1390 kc

WEGP

MEASURED NON-DA
(7-29-60g)

Station WEGP
Presque Isle, Maine

5kw, DA-N, U
1390 kc



FCC File No. BL-7982
Accepted 7-13-60

WEGP
Presque Isle, Maine

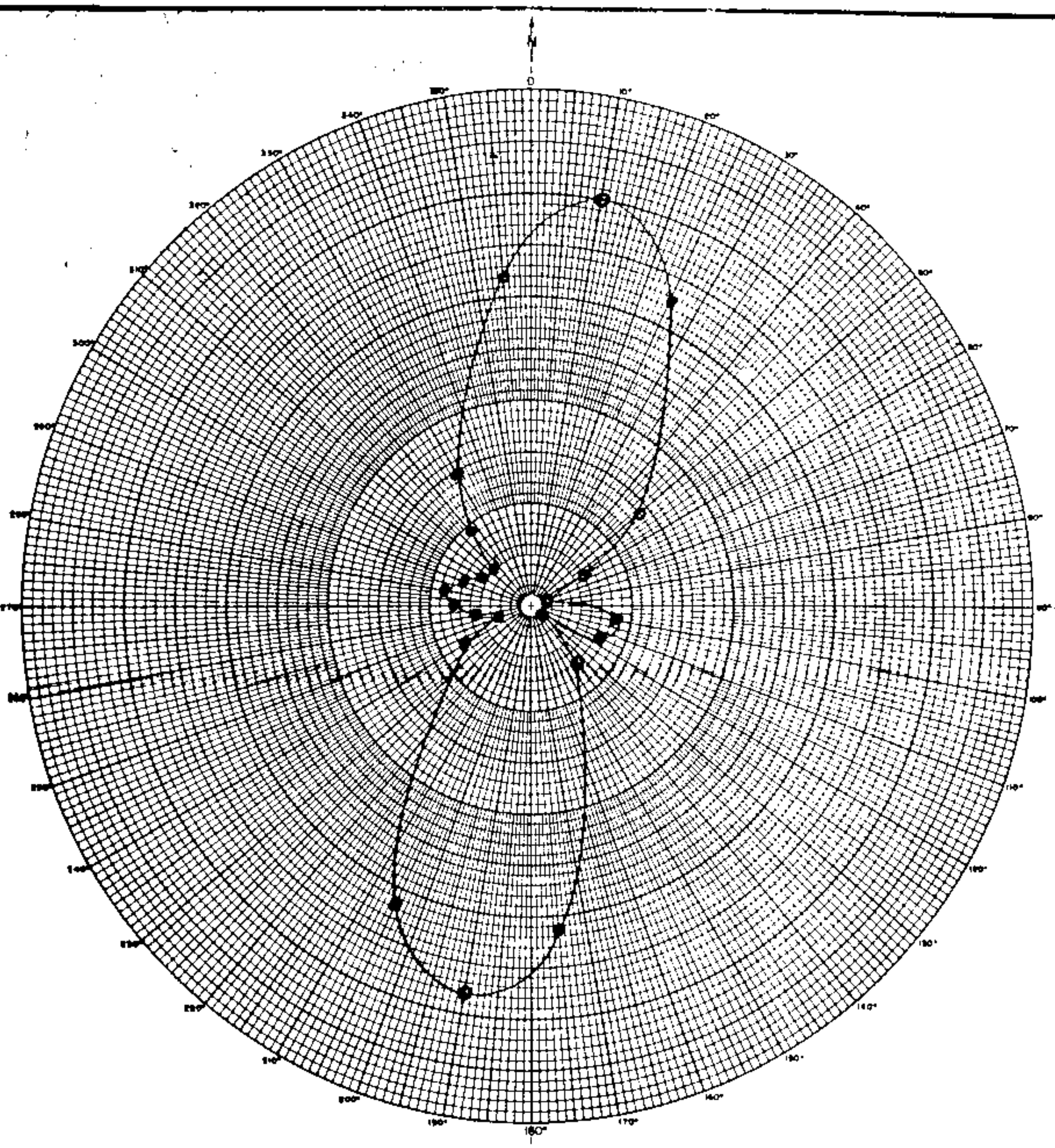
1390 kc

WEOK

Measured Day (9-26-69ct)

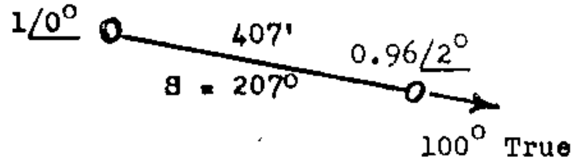
Station WEOK
Poughkeepsie, New York

5kw,DA-D,D
1390 kc



HORIZONTAL RADIATION PATTERN

ANTENNA PARAMETERS



APPLICANT	WEOK Bcst. C.
LOCATION	Pough., N. Y.
FREQUENCY	1390 KC
POWER	5 KW DA
LATITUDE	41° 43' 13.7"
LONGITUDE	73° 54' 29.4"
WHEN USED	Daytime
R.M.S. FIELD	397 MV/M
DATE	6/1/68

FIGURE 5

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

FCC File No.BZ-7284
Accepted 9-19-69

Station WEOK
Poughkeepsie, New York

1390 kc

WEOK

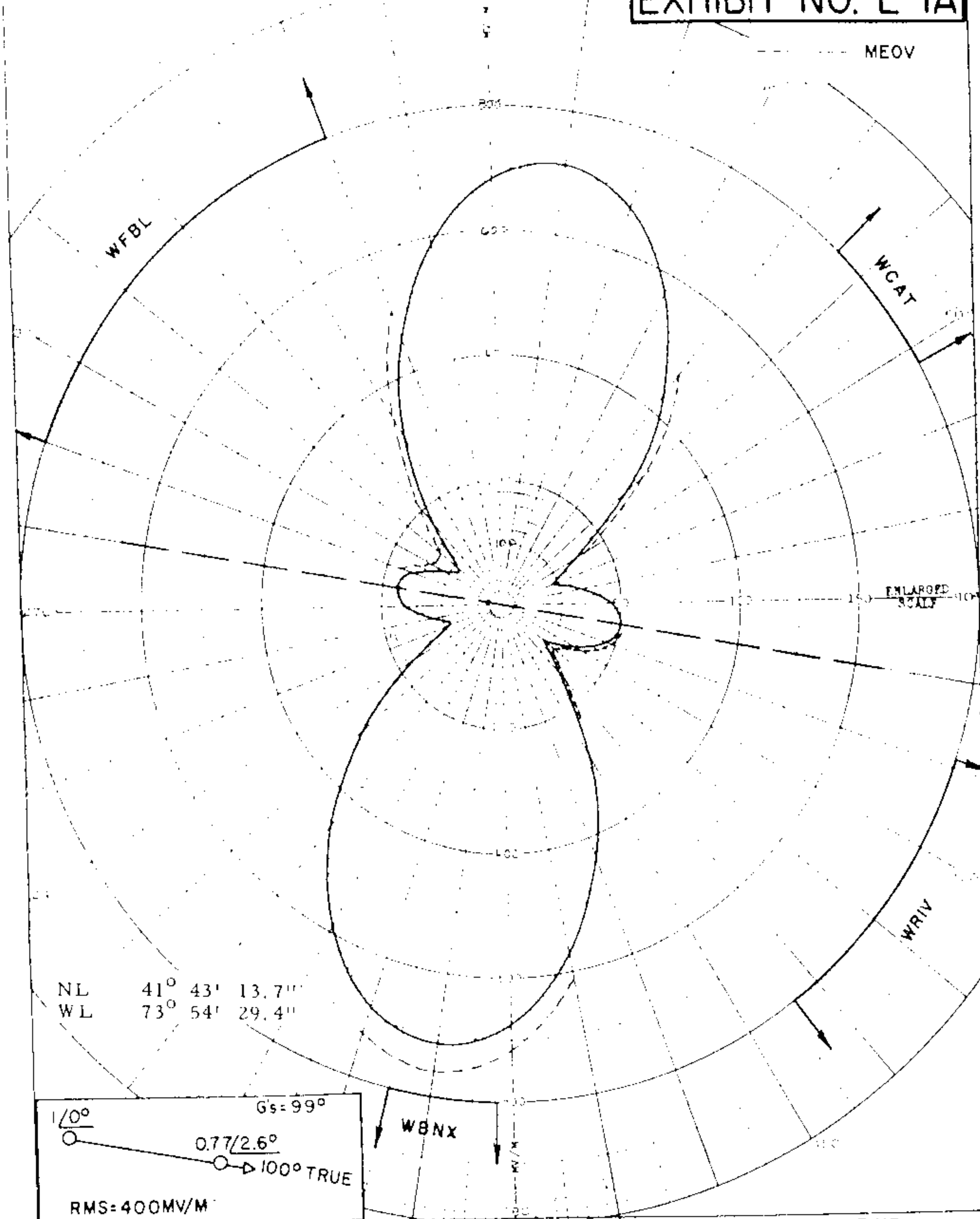
PROPOSED DAY
(12-12-58p)

Station WEOK
Poughkeepsie, New York

5kw, DA-D, D
1390 KC

EXHIBIT NO. E-1A

Granted CP for increase in power to 5 KW 4-13-60
9-28-61 - granted L for DA-D
NIGHT DENIED NOV '64



COMMERCIAL RADIO EQUIPMENT CO.

RADIO ENGINEERING CONSULTANTS

KANSAS CITY WASHINGTON D.C.

PATTERN: PROPOSED DAYTIME
FOR: POUGHKEEPSIE, NEW YORK
POWER: 5KW, DA-D FREQ: 1390 KC.
DATE: 9-11-58

FCC File No. BP-12565
Accepted 12-4-58

WEOK
Poughkeepsie, New York

1390 KC

WEOK

MEASURED DAY
(4-10-61g)

Station WEOK
Poughkeepsie, New York

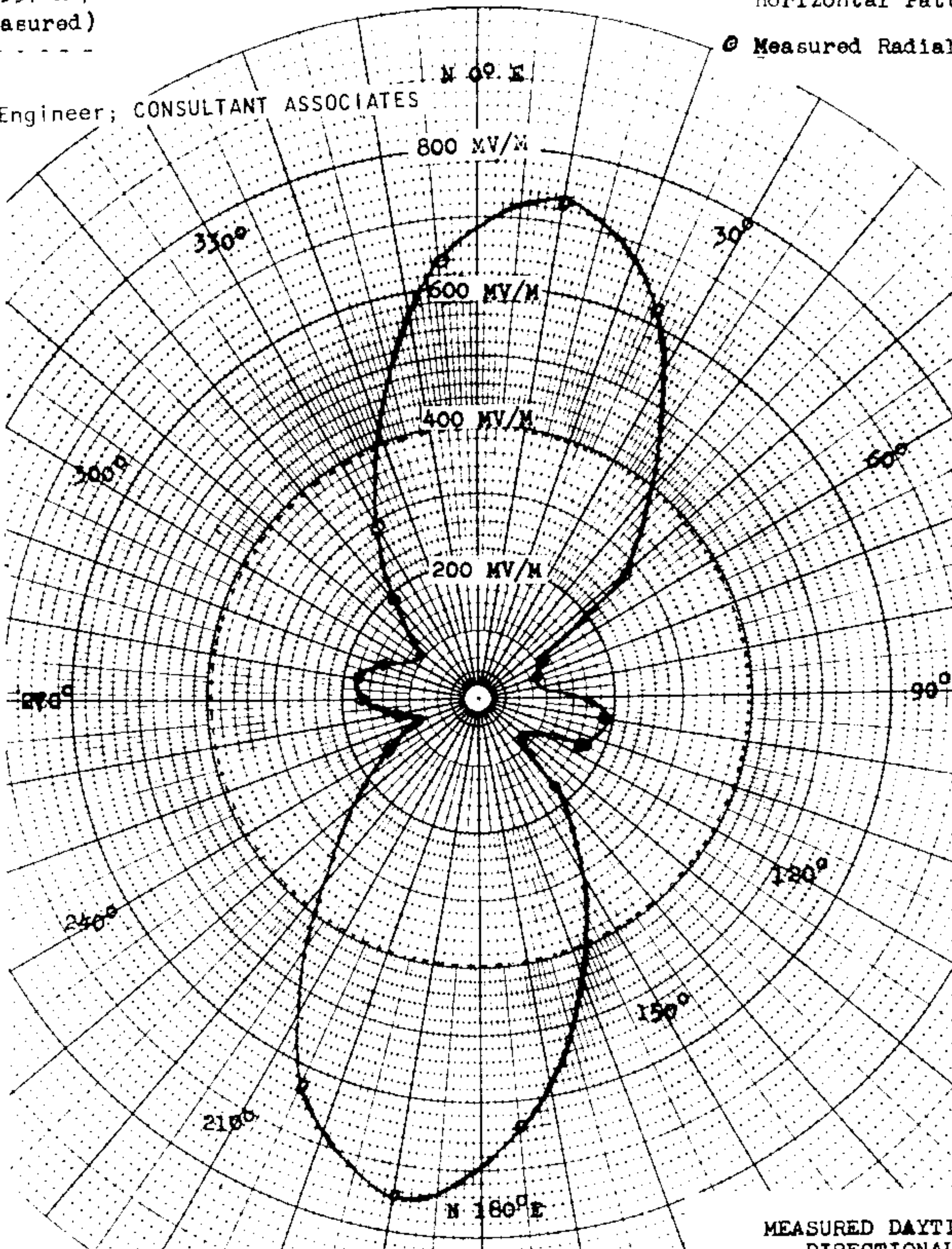
5kw, DA-D,D
1390 KC

E_{rms} = 397 MV/M
(Measured)

— Measured Directional Horizontal Pattern

⊙ Measured Radials

Engineer; CONSULTANT ASSOCIATES



MEASURED DAYTIME
DIRECTIONAL
HORIZONTAL POLAR PATTERN

RADIO STATION WEOK

1390 Kc/s 5 KW-DA-D

LATITUDE: 41° 43' 13.7"

LONGITUDE: 73° 54' 29.4"

FCC File No. BL-8268
Accepted 3-31-61

WEOK
Poughkeepsie, New York 1390 KC

WEOK

MEASURED NON-DA
(4-10-61g)

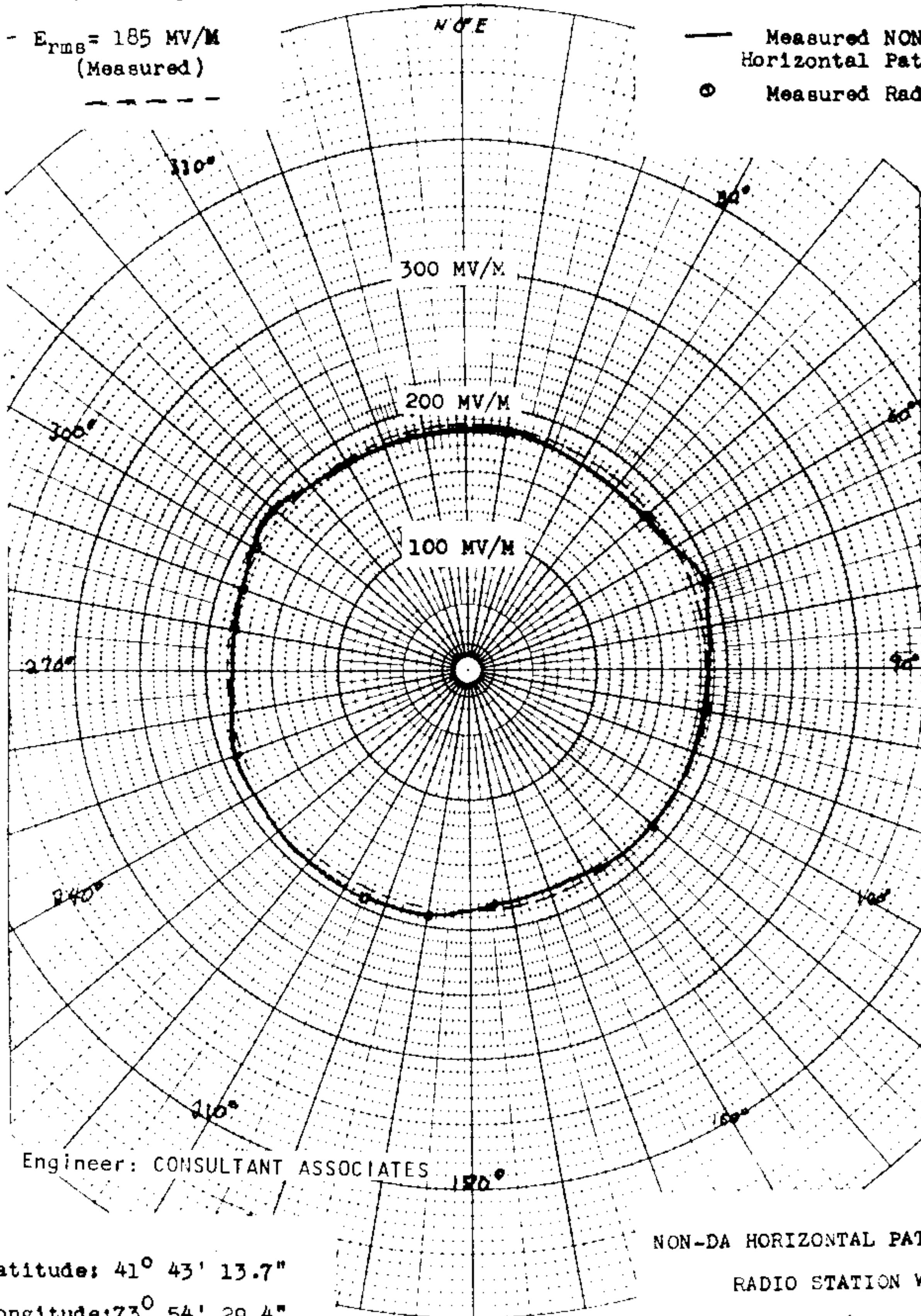
Station WEOK
Poughkeepsie, New York

5kw, DA-D,D
1390 KC

---- E_{rms}= 185 MV/M
(Measured)

— Measured NON-DA Horizontal Pattern

⊙ Measured Radials



Engineer: CONSULTANT ASSOCIATES

NON-DA HORIZONTAL PATTERN

RADIO STATION WEOK

1390 Kc/s 1 KW-D

1390 KC NEW YORK

Latitude: 41° 43' 13.7"

Longitude: 73° 54' 29.4"

FCC File No. BL-8268
Accepted ?-?1-61

WEOK
Poughkeepsie, New York

WFBL

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WFBL — Main Studio: Syracuse, New York

Frequency: 1390 kHz — Power: 5 kW

Notification List No. 1636 — Date: June 10, 1975 — Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 43° 04' 37"
West Longitude: 76° 10' 04"

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(#2)	NE(#1)
HEIGHT ABOVE INSULATORS:	200'(101.8°)	403'(205.0°)
PHASING:	+45°	0°
FIELD RATIO:	0.65	1.0

SPACING AND ORIENTATION: Elements are spaced 344' (175°) on a line bearing 222.5° true.

GROUND SYSTEM: 120-400' equally spaced copper radials about tower #1 plus 120-200' equally spaced copper radials about tower #2 plus 120-50' interspaced radials about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers.

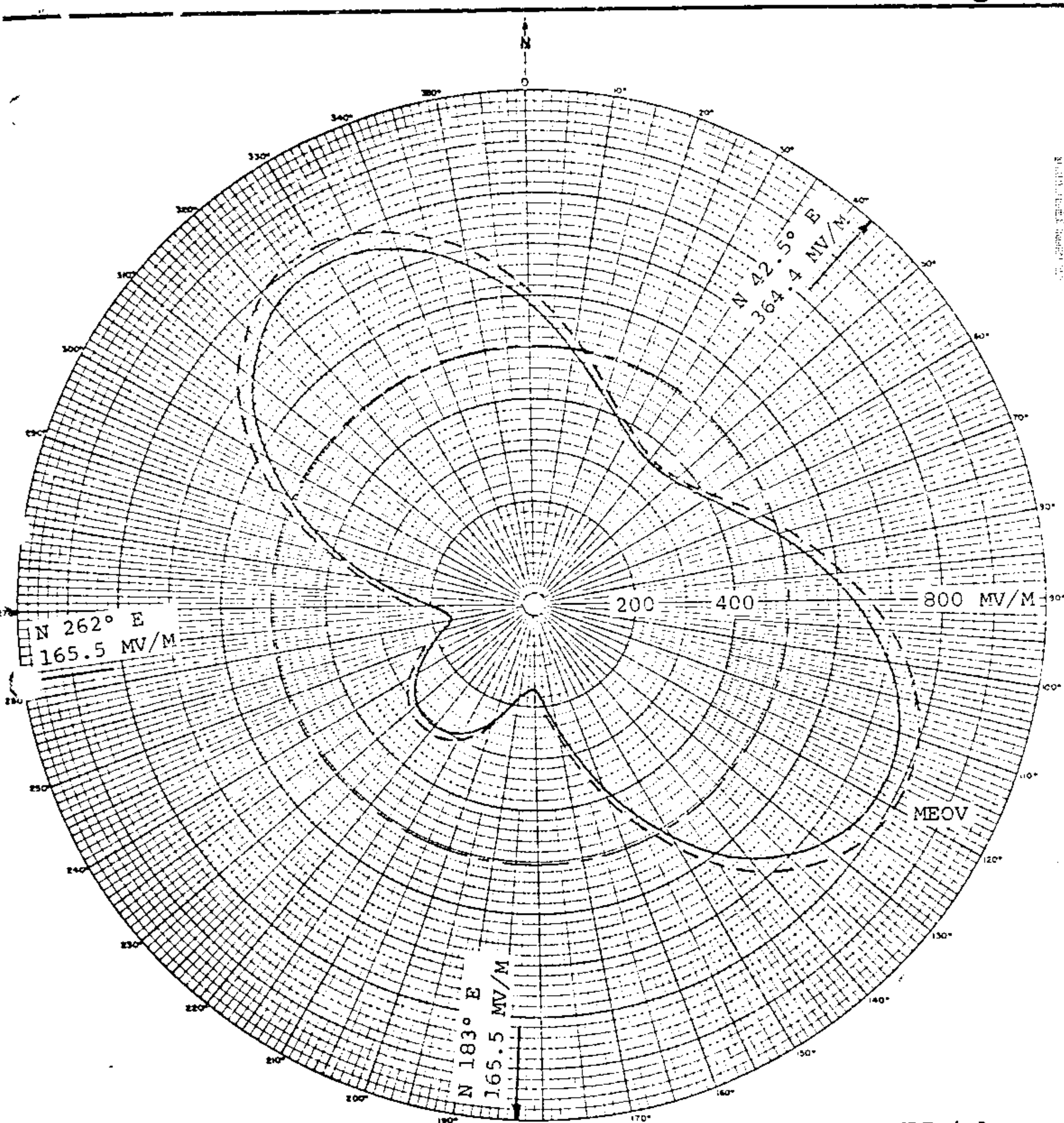
Predicted effective Night Field: 506 mv/m at rated power.

Predicted effective Day Field: (omnidirectional tower #1) 538 mv/m at rated power by adjustment of input power.

Note: This notification concerns changes in transmitter location and antenna systems.

CTR NO 30014A3

WFBL



RMS = 506 MV/M

FIGURE 4-A

PROPOSED NIGHTTIME HORIZONTAL RADIATION PATTERN

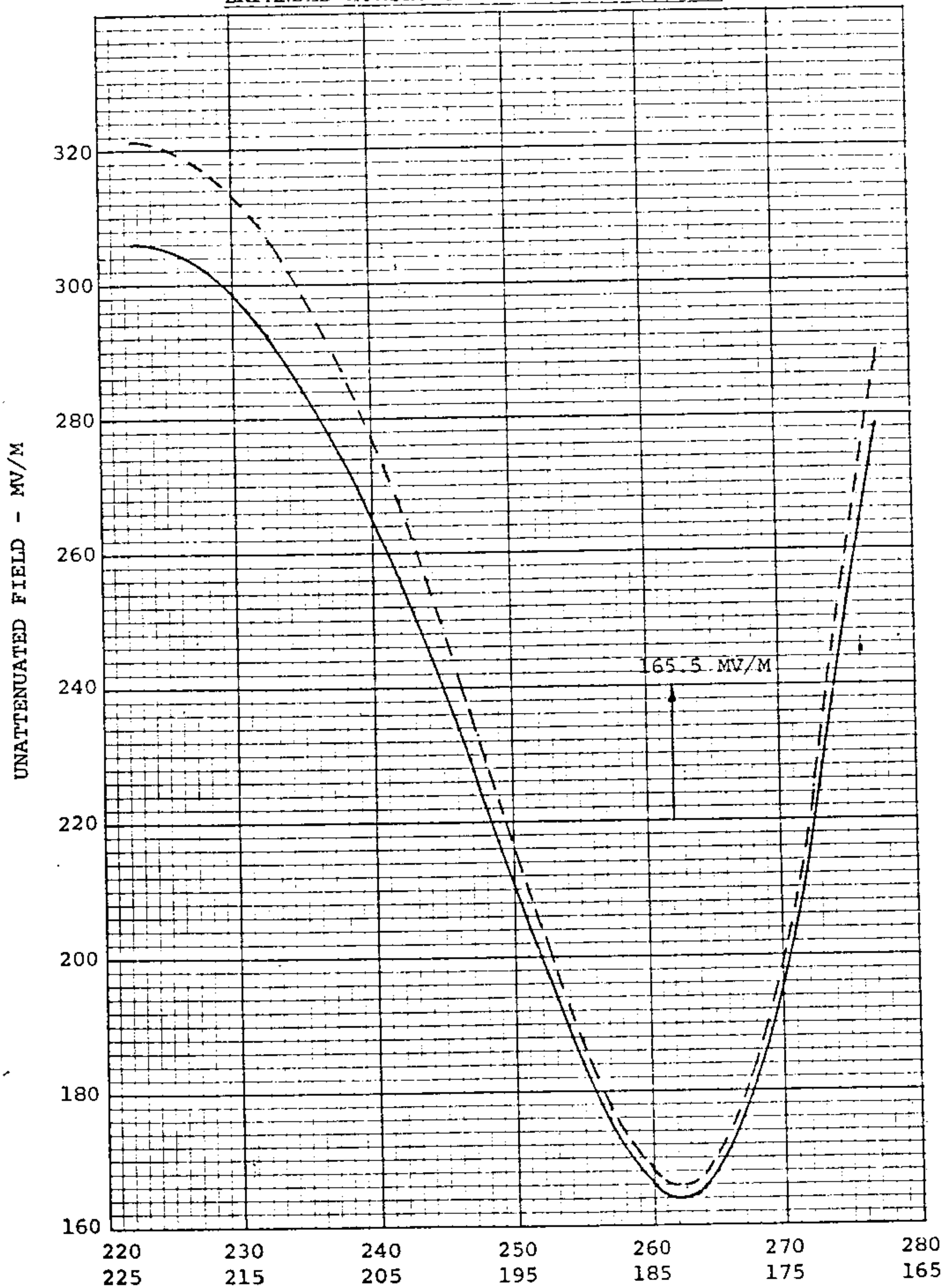
AUGUST 1974 RAYMOND E. ROHRER	G1 = 204.94° G2 = 101.71° 1 o 1/ 0° 175° 2 o 0.65/ 45° N 222.5° E	WFBL SYRACUSE, NEW YORK 1390 KHZ 5 KW DA-N

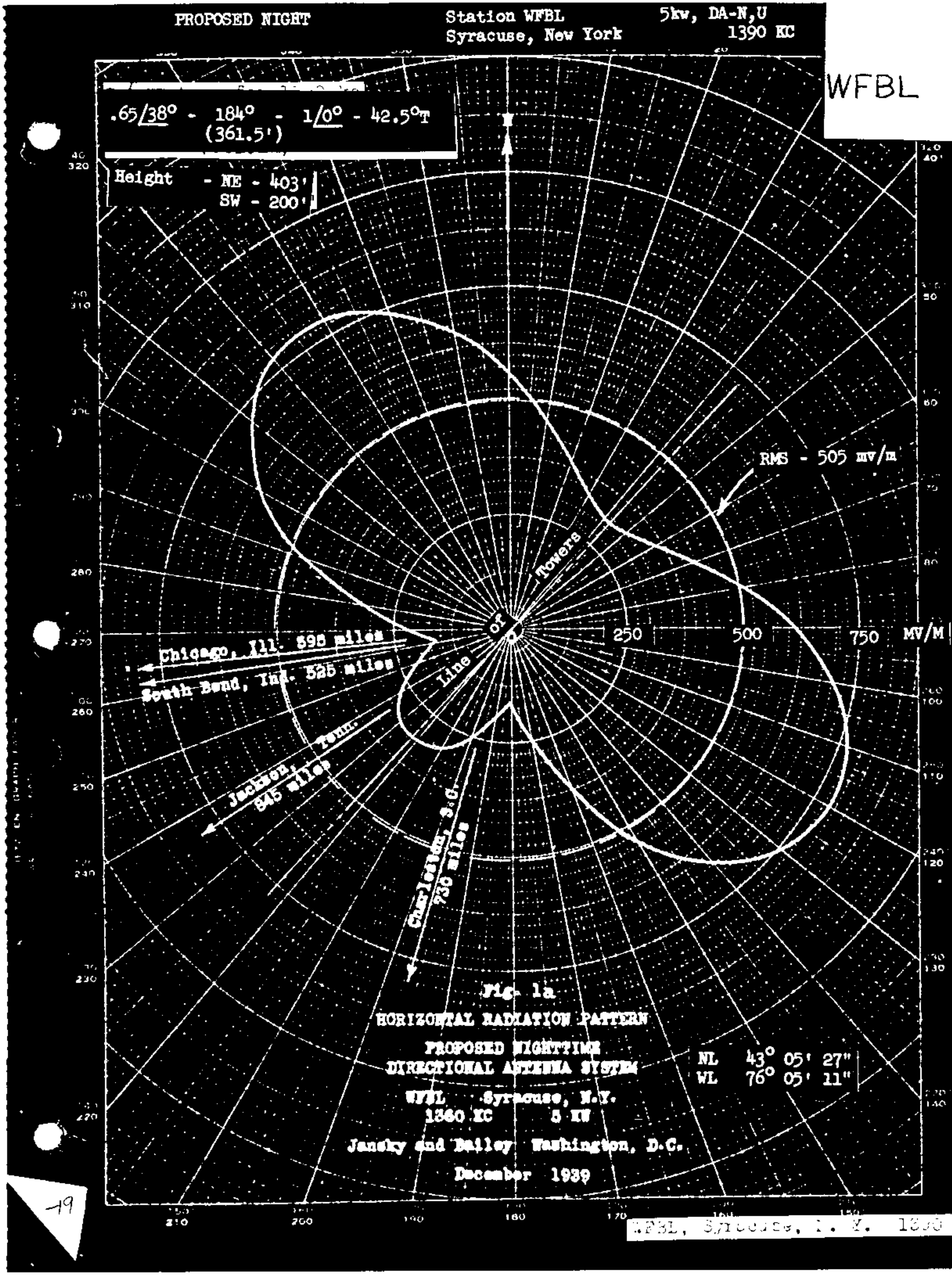
RADIO STATION WFBL - SYRACUSE, NEW YORK

WFBL

FIGURE 4-B

EXPANDED HORIZONTAL RADIATION PATTERN





PROPOSED NIGHT
Station WFBL
Syracuse, New York
5kw, DA-N,U
1390 KC
WFBL
.65/38° - 184° - 1/0° - 42.5°T
(361.5')
Height - NE - 403'
SW - 200'
RMS - 505 mv/m
Line of Towers
250
500
750
MV/M
Chicago, Ill. 598 miles
South Bend, Ind. 525 miles
Jackson, Tenn.
845 miles
Charleston, S.C.
730 miles
Fig. 1a
HORIZONTAL RADIATION PATTERN
PROPOSED NIGHTTIME
DIRECTIONAL ANTENNA SYSTEM
WFBL Syracuse, N.Y.
1360 KC 5 KW
Jansky and Bailey Washington, D.C.
December 1939
NL 43° 05' 27"
WL 76° 05' 11"
280
270
260
250
240
230
220
210
200
180
170
80
100
110
120
130
140

79

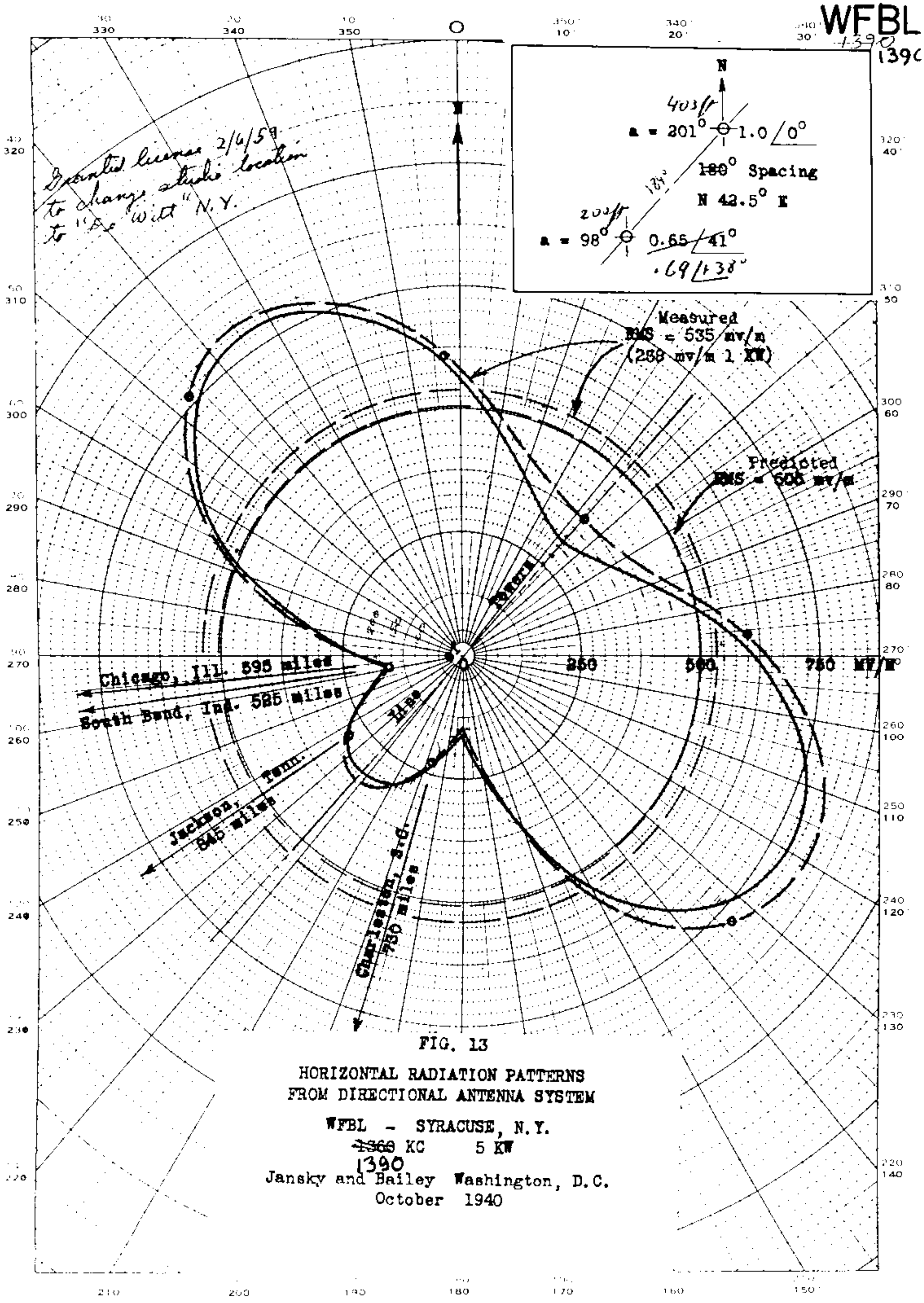


FIG. 13

HORIZONTAL RADIATION PATTERNS
FROM DIRECTIONAL ANTENNA SYSTEM

WFBL - SYRACUSE, N.Y.
~~1360~~ 1390 KC 5 KW
Jansky and Bailey Washington, D.C.
October 1940

41145 WFMJ 1390 KC

Corrected January 30,1957
DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WFMJ

Main Studio: Youngstown, Ohio

Frequency: 1390 kc.

Power: 5 kw

Notification List No. 282

Date: July 12, 1948 Class: III-A

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 41° 01' 22.5"

West Longitude: 80° 38' 46.2"

ANTENNA CHARACTERISTICS

Authorized for Nighttime operation. (DA-N)
Number of elements: 6
Type of elements: Series-excited, Self-supporting, tapered vertical steel towers.

TOWER:	Northwest	West Center	South West	North East	East Center	South East
HEIGHT ABOVE INSULATORS:	400'	400'	400'	400'	400'	400' (203.4°)
PHASING:	-145.2°	0°	+145.2°	-145.2°	0°	+145.2°
FIELD RATIO:	1.0	1.278	1.0	1.0	1.278	1.0

SPACING AND ORIENTATION: The towers are arranged in two rows of three. These rows (major axis) bear 348° true. Spacing between elements of the major axis is 176.5'(90°). The minor axis of the array bears 78° true. Spacing between adjacent elements along the minor axis is 409'(208°)

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

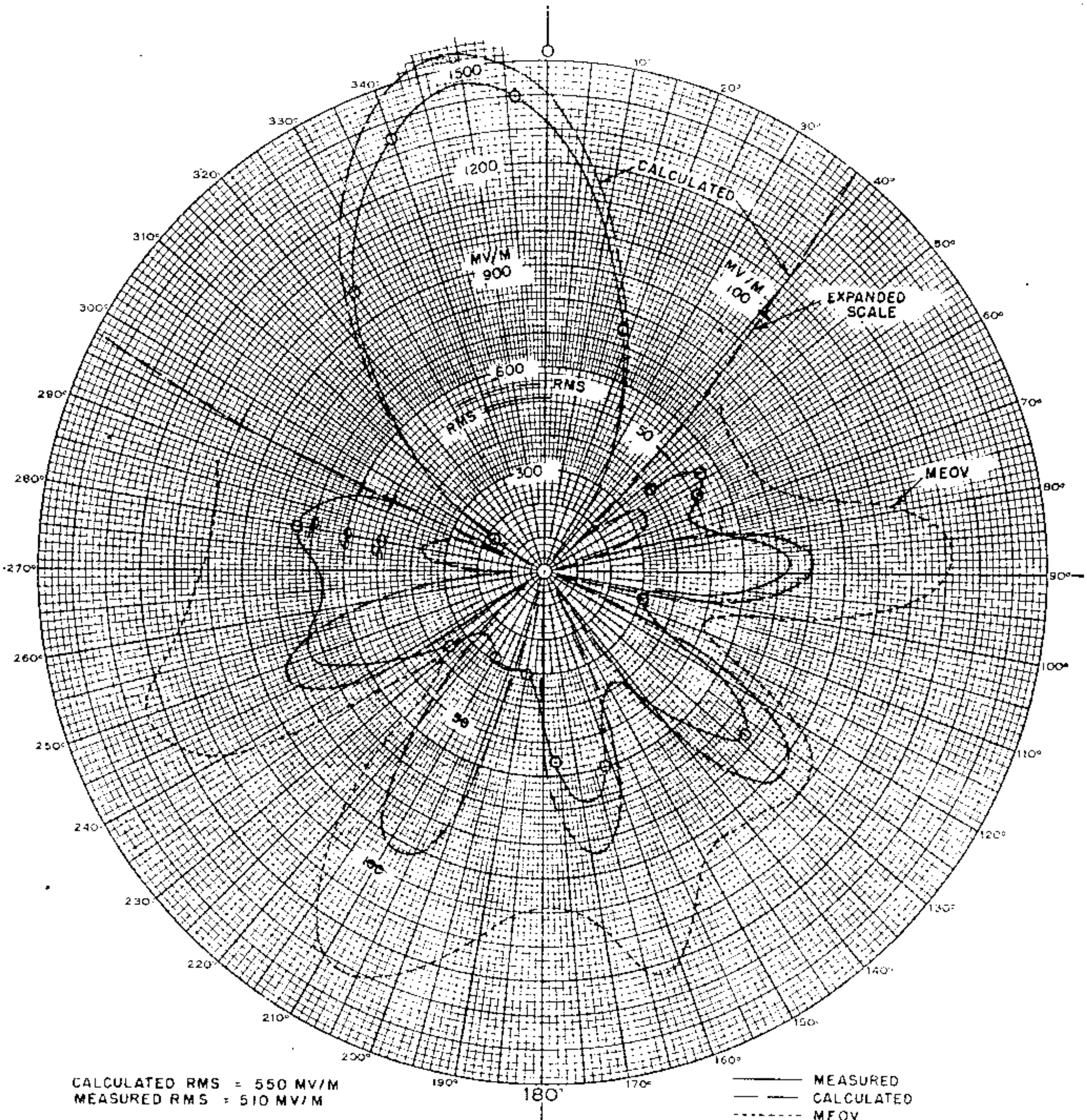
Predicted effective Night Field: 550 mv/m at rated power.
Predicted effective Day Field: (omnidirectional) 580 mv/m at rated power.

---

*Note: The purpose of this notification is to correct an error made in 1948. At that time several minor variations of the pattern proposed for WFMJ had been under consideration and the wrong pattern was inadvertently notified. No change is involved except in the M.E.O.V. in the area subtended by the arc 170° to 200° true.

Measured ~~Day~~ NIGHT (11-29-62ct) | Station WFMJ Youngstown, Ohio | 5kw, DA-N, U 1390 kc

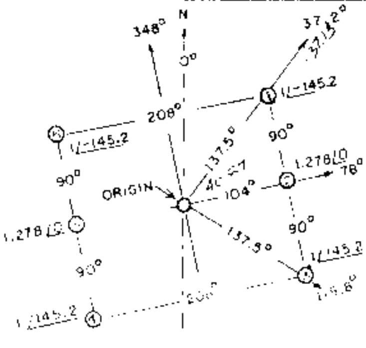
WFMJ



CALCULATED RMS = 550 MV/M
MEASURED RMS = 510 MV/M

—— MEASURED
— — CALCULATED
-------- MEOV

TOWER PLACEMENT SKETCH



90° = 176.5'
208° = 408'
203.4° = 400' = (HEIGHTS)

PATTERN PARAMETERS

Tower No.	Electrical Height G°	True Tower Orientation φ°	Spacing S°	Phasing ψ°	Horizontal Field E	Field Ratio f	Elev. Angle θ°	Elevation Field E_{θ}
1	203.4	37.2	137.5	-145.2		1.0	0	
2	203.4	78.0	104.0	0		1.278	10	
3	203.4	118.8	137.5	145.2		1.0	20	
4	203.4	217.2	137.5	145.2		1.0	30	
5	203.4	258.0	104.0	0		1.278	40	
6	203.4	298.8	137.5	-145.2		1.0	50	
7							60	
8	Note.						70	
9	Origin at center of array							

STATION DATA

- CALL: WFMJ
- FREQUENCY: 1390 kc
- POWER: 5 kw
- TIME OF OPERATION: U
- TYPE OF OPERATION: DA-N
- DAYTIME TOWERS: 1 (No. 1)
- NIGHTTIME TOWERS: 6
- NO. RADIALS PER TOWER: 120
- LENGTH OF RADIALS: 88 to 400'
- GROUND SCREEN DIMENSIONS: 50'x50'
- LAT.: 41 01 22.5
- LONG.: 80° 38 46.2
- DATE: 62 04 05

FIG 5
HORIZONTAL PATTERN
WFMJ BROADCASTING CO.
Youngstown, Ohio

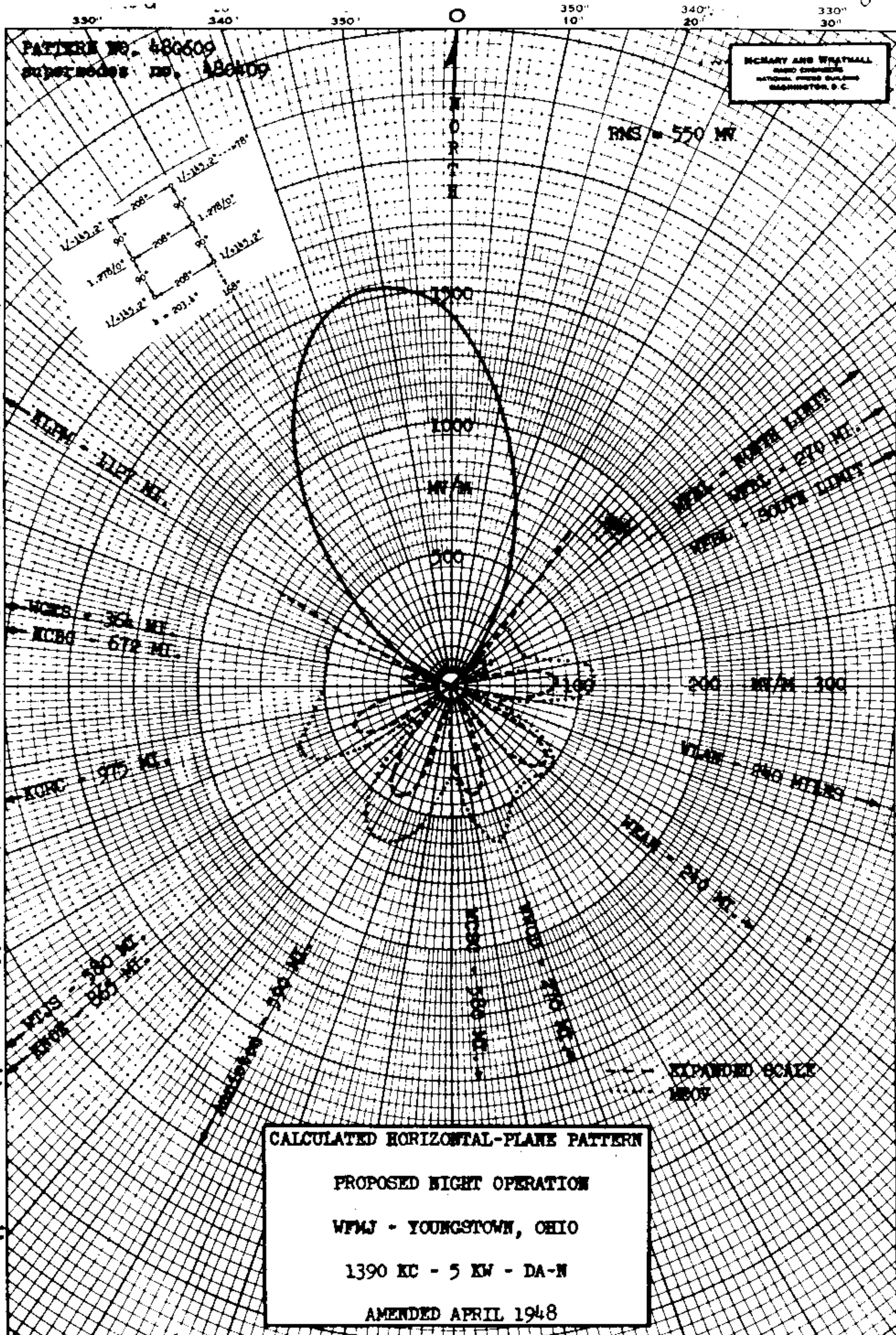
CARL E. SMITH CONSULTING RADIO ENGINEERS

FCC File No. B7-4784
Accepted 11-21-62

Station WFMJ
Youngstown, Ohio

1390 kc

G - 6-10-48



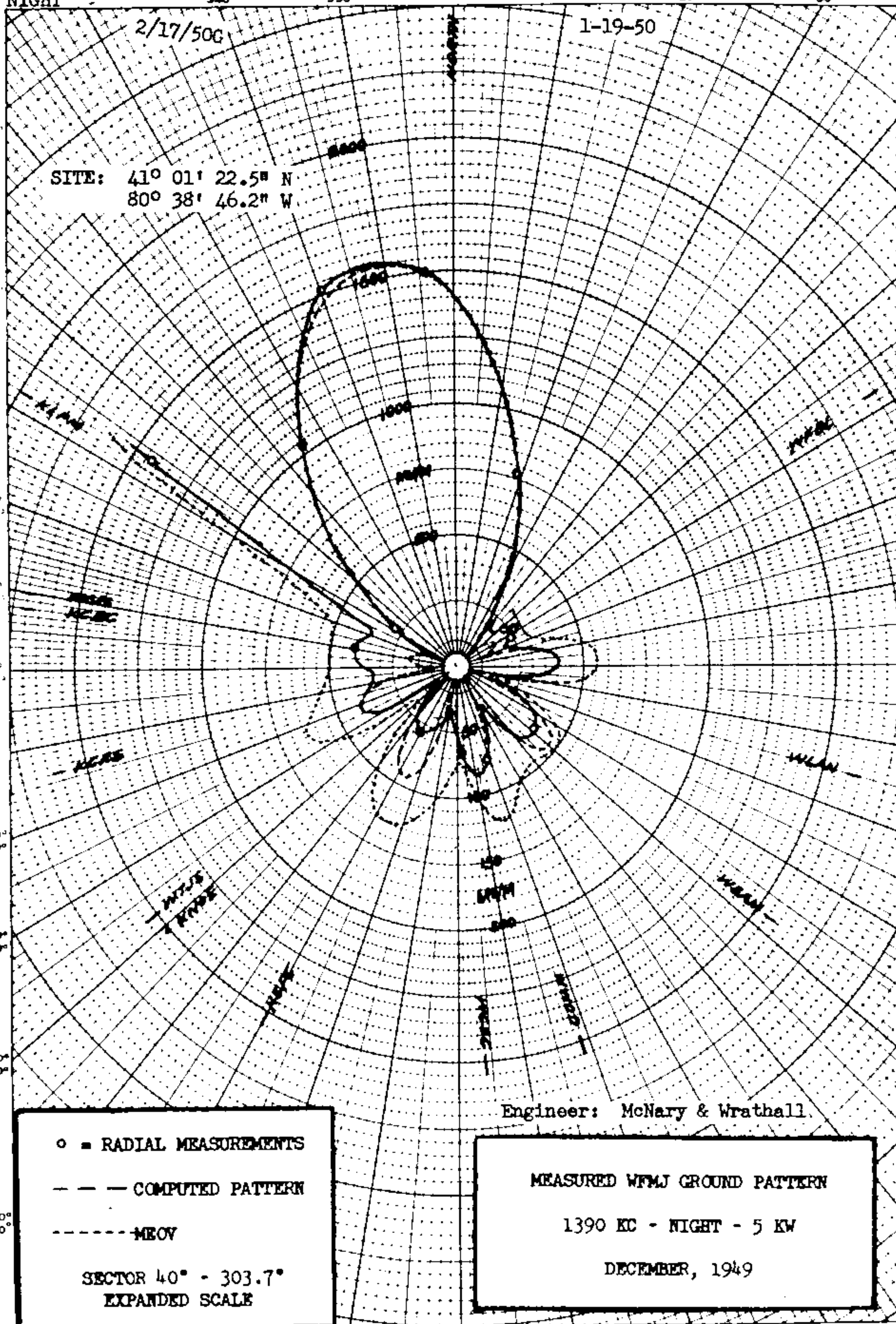
Amendment Recd. 6-9-48

REVISED JUNE 1948

BMP-2440

WFMJ

MEASURED NIGHT — WFMJ, YOUNGSTOWN, OHIO — 5kw, DAN — 1390 kc



○ = RADIAL MEASUREMENTS

— — — COMPUTED PATTERN

- - - - - - MEOV

SECTOR 40° - 303.7°
EXPANDED SCALE

MEASURED WFMJ GROUND PATTERN

1390 KC - NIGHT - 5 KW

DECEMBER, 1949

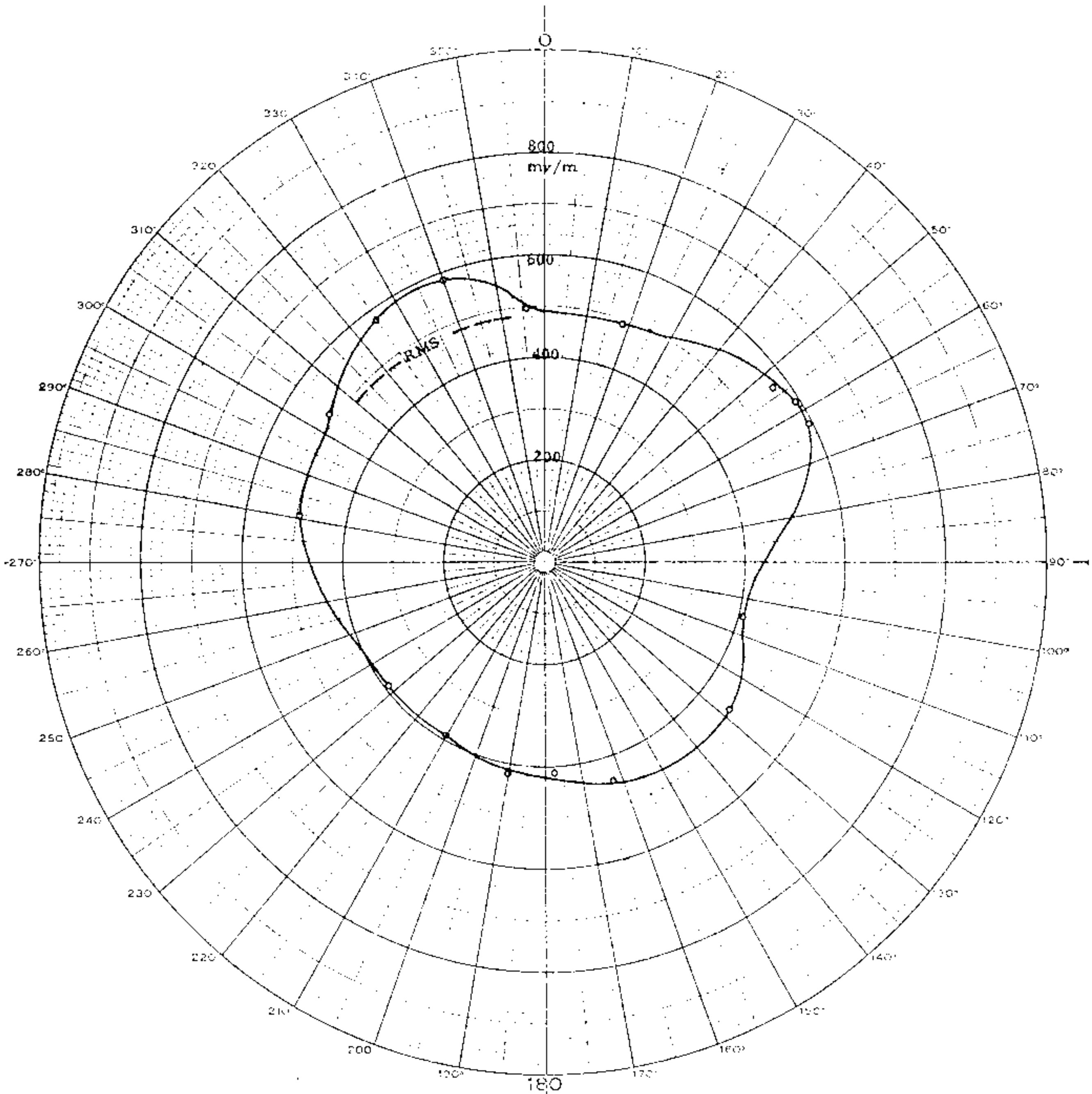
WFMJ, Youngstown, Ohio 1390 kc

WFMJ

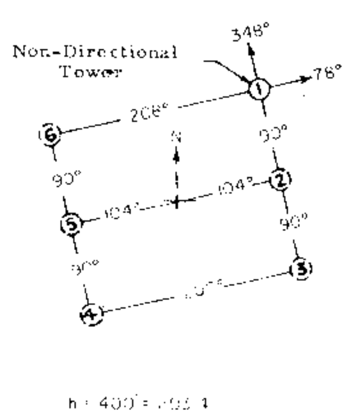
Measured Non-DA
(11-29-62ct)

Station WFMJ
Youngstown, Ohio

5kw,DA-N,U
1390 kc



TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

Tower	Electrical Height	True Tower Orientation	Spacing	Phasing		Field Ratio		
1	203.4			Driven		ND		481
2	203.4			Grounded		0		
3	203.4			"		0		
4	203.4			"		0		
5	203.4			"		0		
6	203.4			"		0		

STATION DATA

Call WFMJ
Frequency 1390
Power 5
U
DA-N
1 (No. 1)
6
120
88 to 400'
60'x50'
41 01 22.5
80 38 46.2
62 04 04

CARL E. SMITH CONSULTING
RADIO ENGINEERS

FIG 4
NON-DIRECTIONAL
HORIZONTAL PATTERN

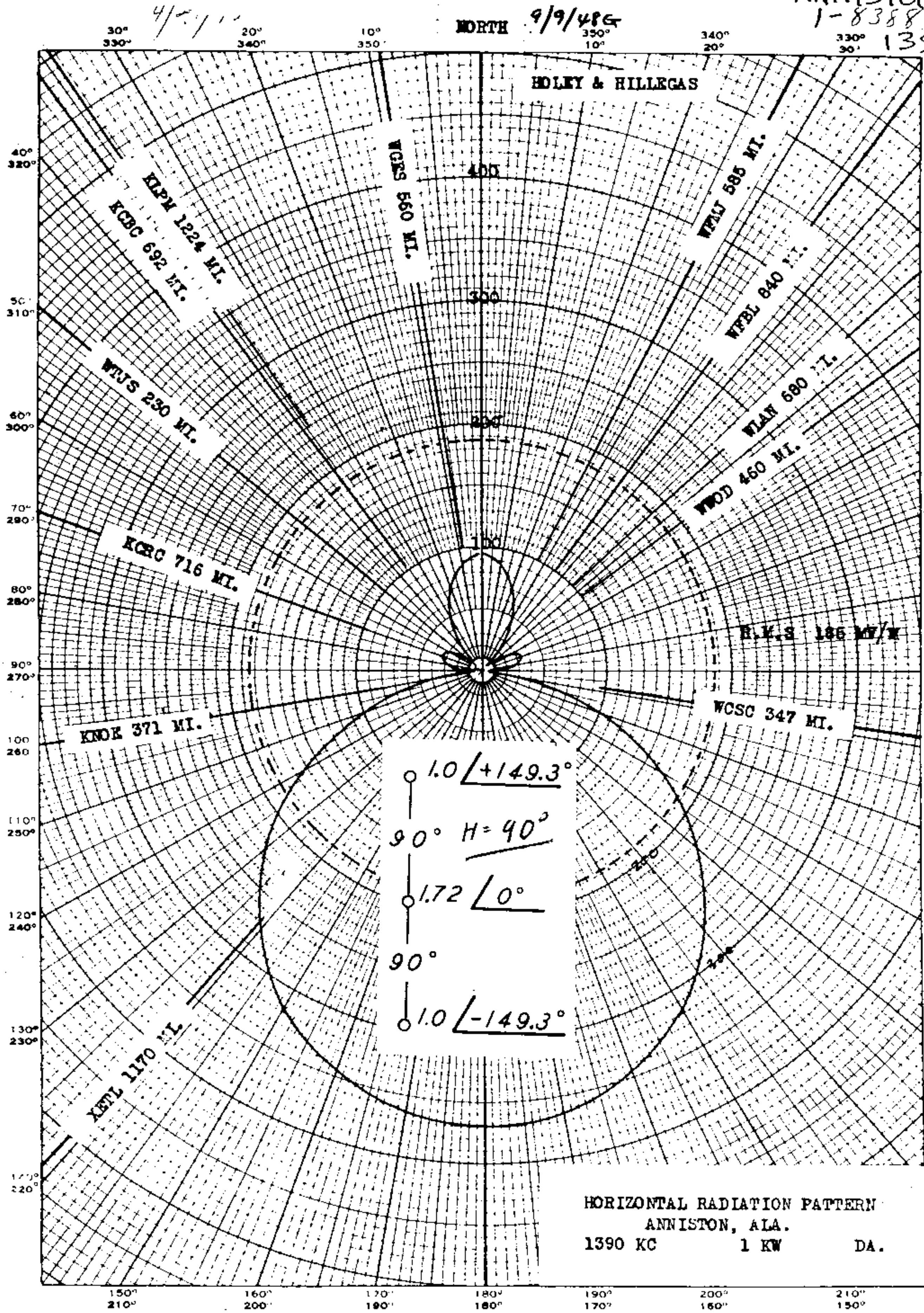
WFMJ BROADCASTING CO
Youngstown, Ohio

FCC File No. BL-4784
Accepted 11-21-62

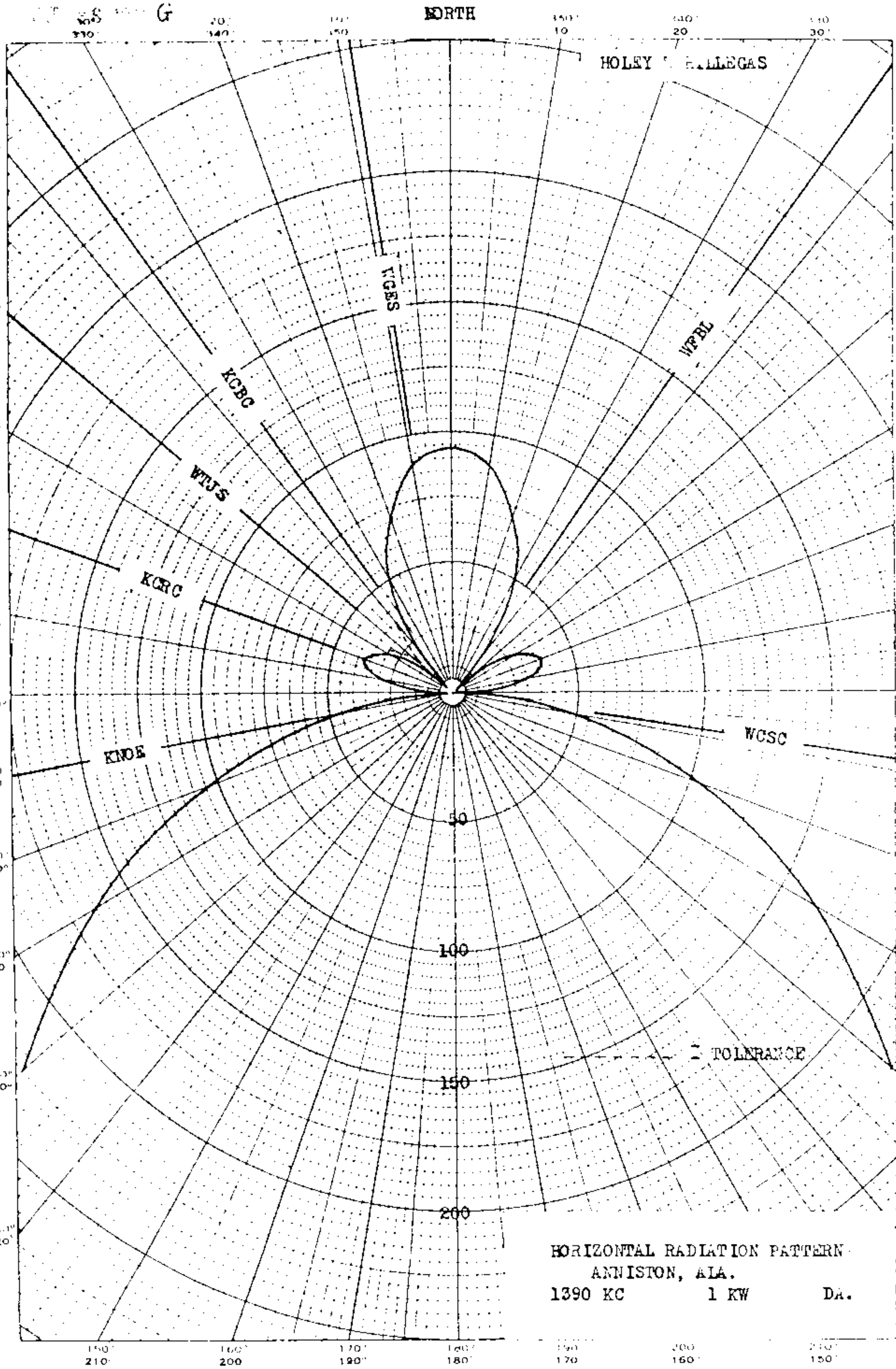
Station WFMJ
Youngstown, Ohio

1390 kc

WHMA
ANNISTON, AL
1-8388
1390

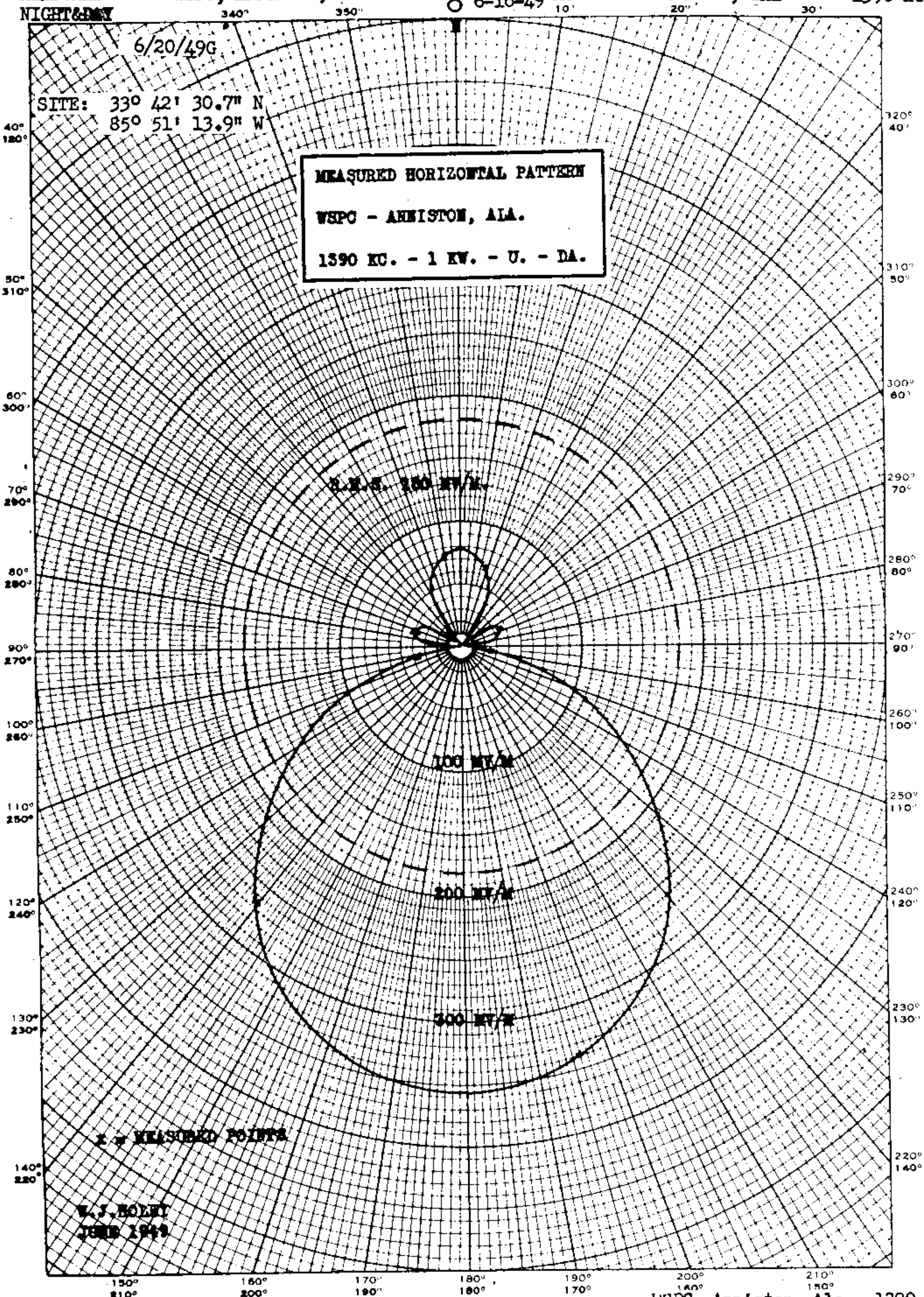


WHMA
ANNISTON, ALA.
1390



WHMA

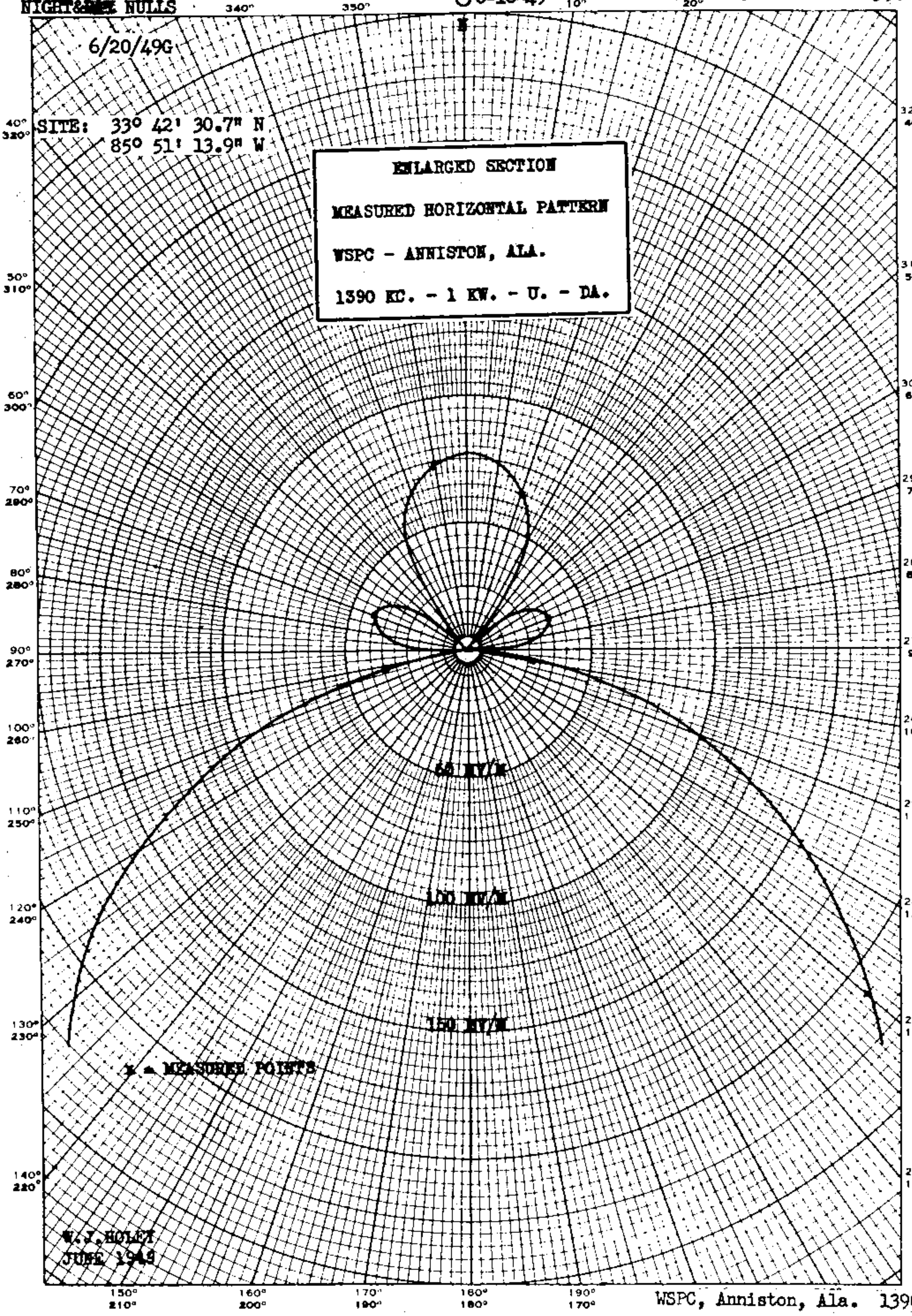
MEASURED NIGHT&DAY WSPC, ANNISTON, ALA. 6-16-49 1kw, DA1 1390 kc



WSPC, Anniston, Ala. 1390 kc

WHMA

MEASURED NIGHT&DAY NULLS WSPC, ANNISTON, ALA. 6-16-49 1kw, DA1 1390 kc



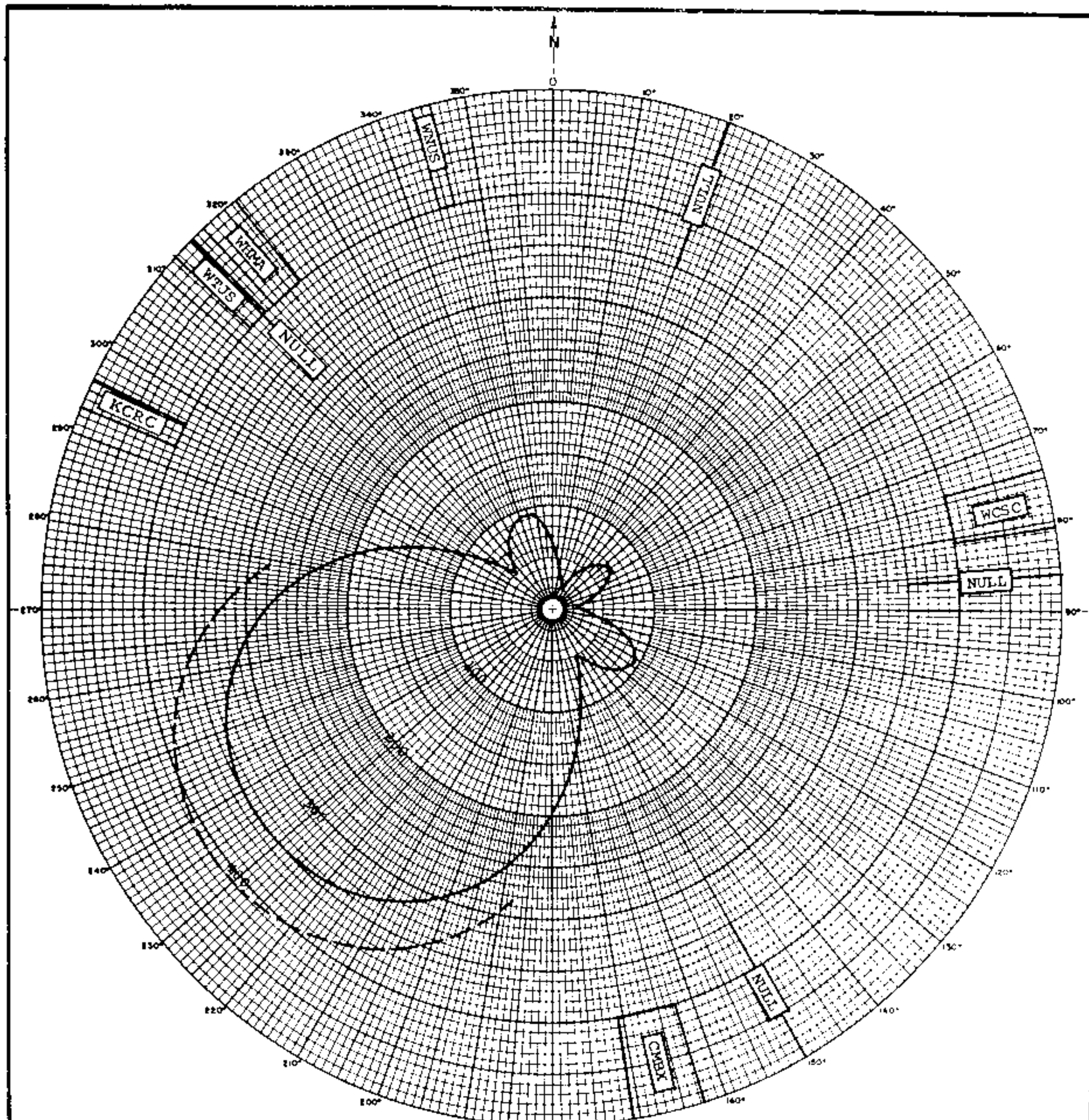
WSPC, Anniston, Ala. 1390 kc

WISK

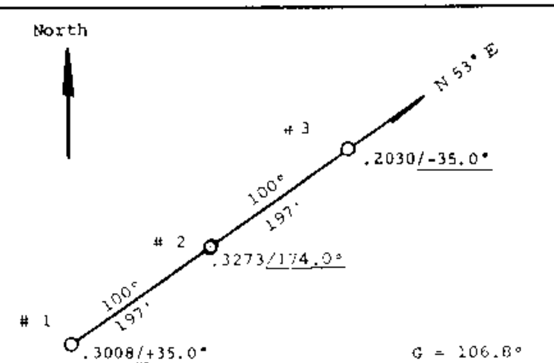
Proposed Night
(7-29-68ct)

Station WISK
Americus, Georgia

1kw,5kw-LS,DA-N,U
1390 kc



HORIZONTAL RADIATION PATTERN



APPLICANT	Radio Station WISK
LOCATION	Americus, Georgia
FREQUENCY	1390 KC/S
POWER	1.0 KW
LATITUDE	32 DEG 04 MIN 22 SEC.
LONGITUDE	84 DEG 11 MIN. 43 SEC
WHEN USED	Nighttime
R.M.S. FIELD	180 mv/m
DATE	June 1968

ROBERT L. PURCELL

WASHINGTON, D. C.

FCC File No.BP-18224
Accepted 7-25-68

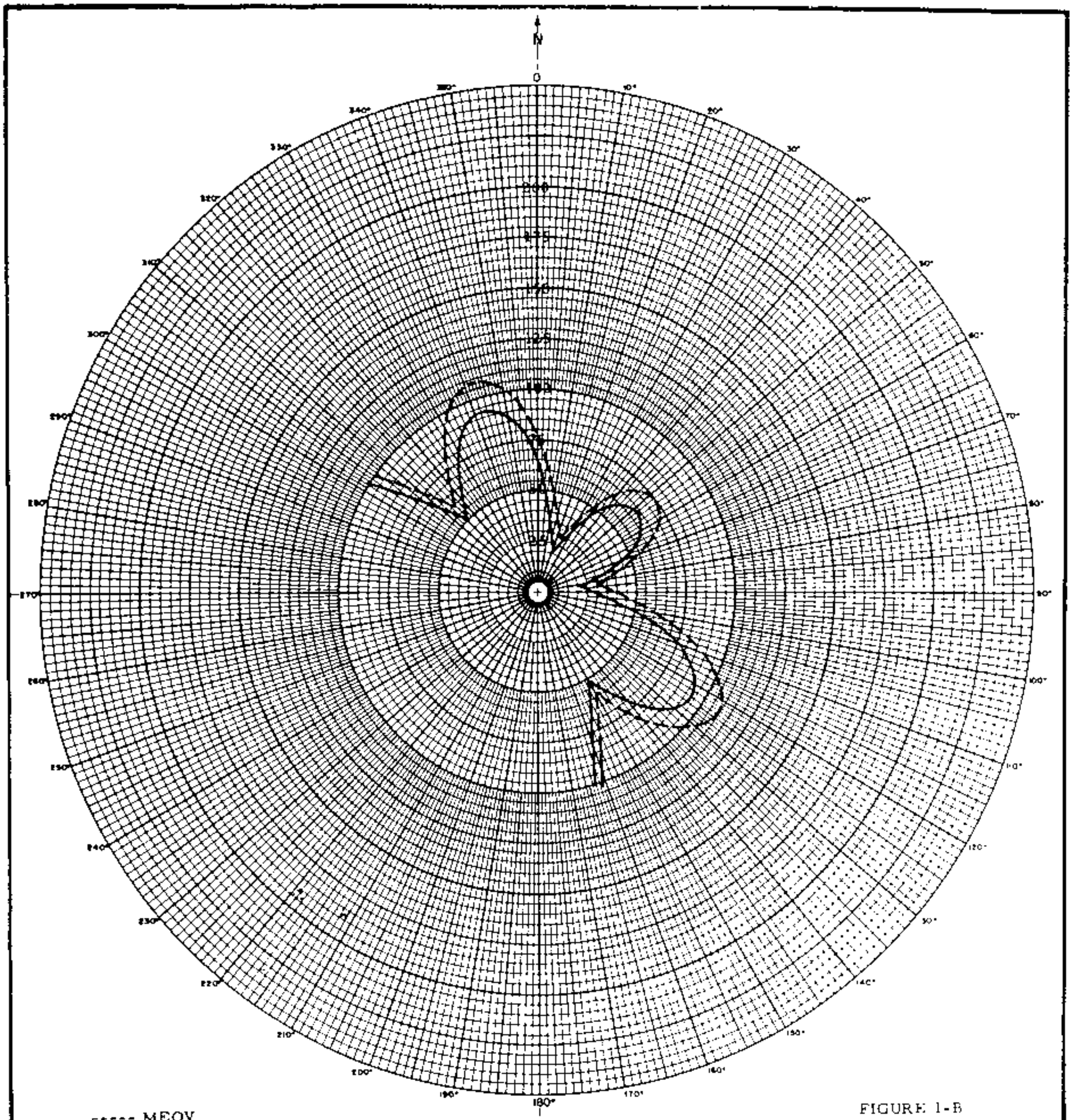
Station WISK
Americus, Georgia

1390 kc

Proposed Night Nulls
(7-29-68ct)

Station WISK
Americus, Georgia

1kw,5kw-LS,DA-N,U
1390 kc



EXPANDED VIEW

ROBERT L. PURCELL
WASHINGTON D. C

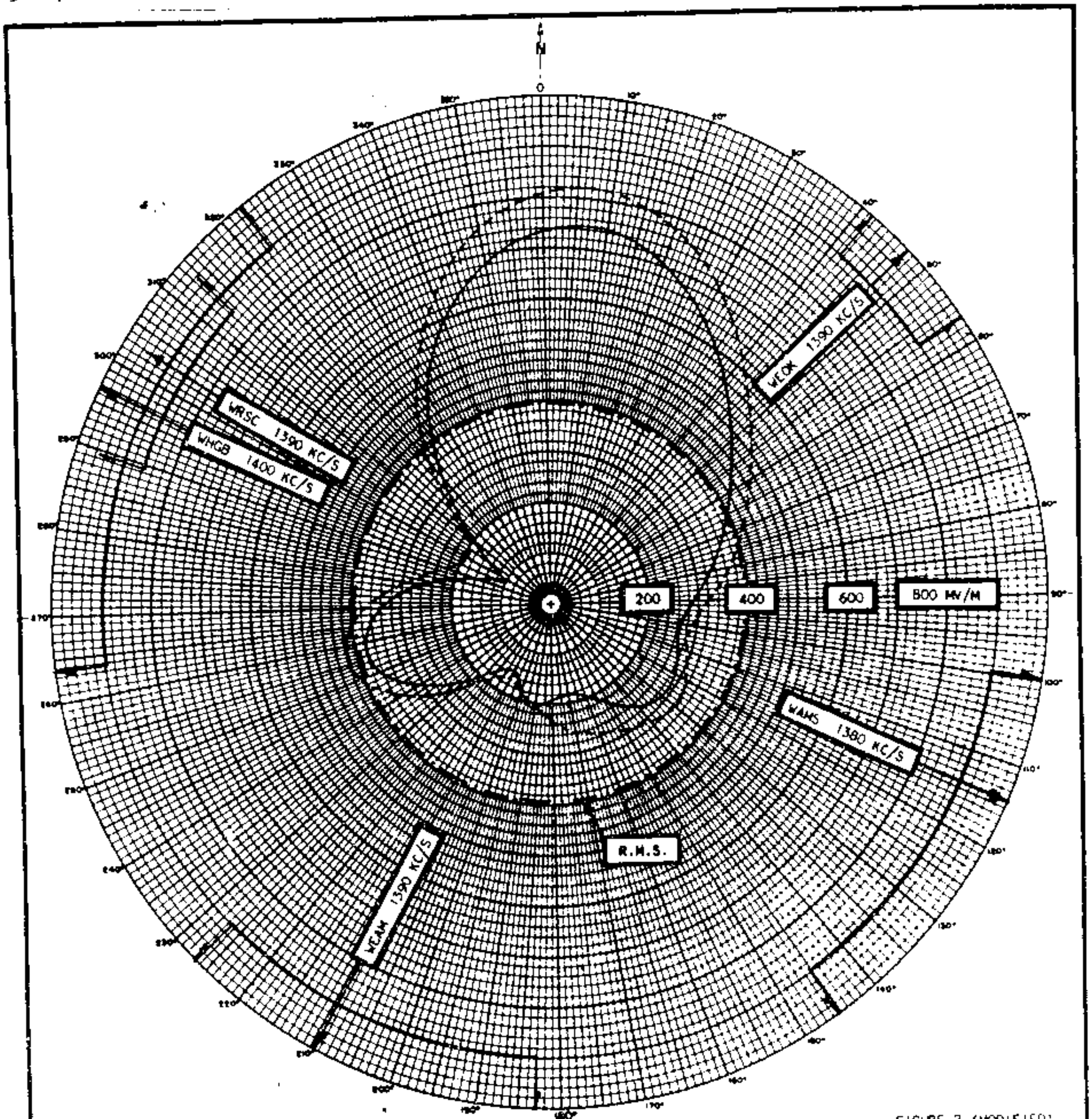
WLAN

Proposed Day
(1-28-65ct)

Station WLAN
Lancaster, Pennsylvania

1kw,5kw-LS,DA-2,U
1390 kc

BMP-11406
GRANTED McP
1-19-65
HG DAY DA

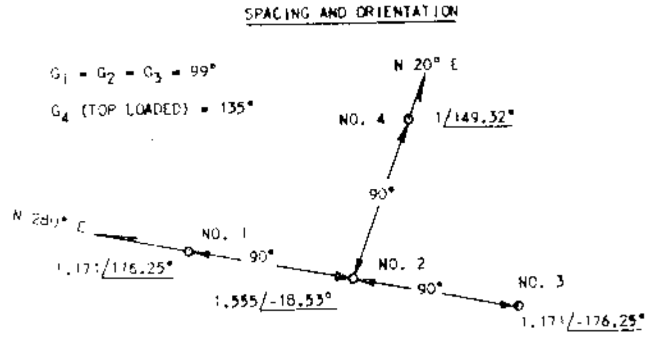


– – – – MAXIMUM EXPECTED OPERATING VALUES

FIGURE 2 (MODIFIED)

HORIZONTAL RADIATION PATTERN

SPACING AND ORIENTATION



APPLICANT	PEOPLES BCSTG. CO. (WLAN)
LOCATION	LANCASTER, PA.
FREQUENCY	1390 KC/S
POWER	5 KW-LS, 1 KW-N (DA-2)
LATITUDE	40 DEG 03 MIN 12 SEC
LONGITUDE	76 DEG 20 MIN 26 SEC
WHEN USED	DAYTIME
R.M.S FIELD	395 MV/M (CALCULATED)
DATE	OCTOBER 1964

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

FCC File No. BMP-11406
Accepted 1-11-65

Station WLAN
Lancaster, Pennsylvania

1390 kc

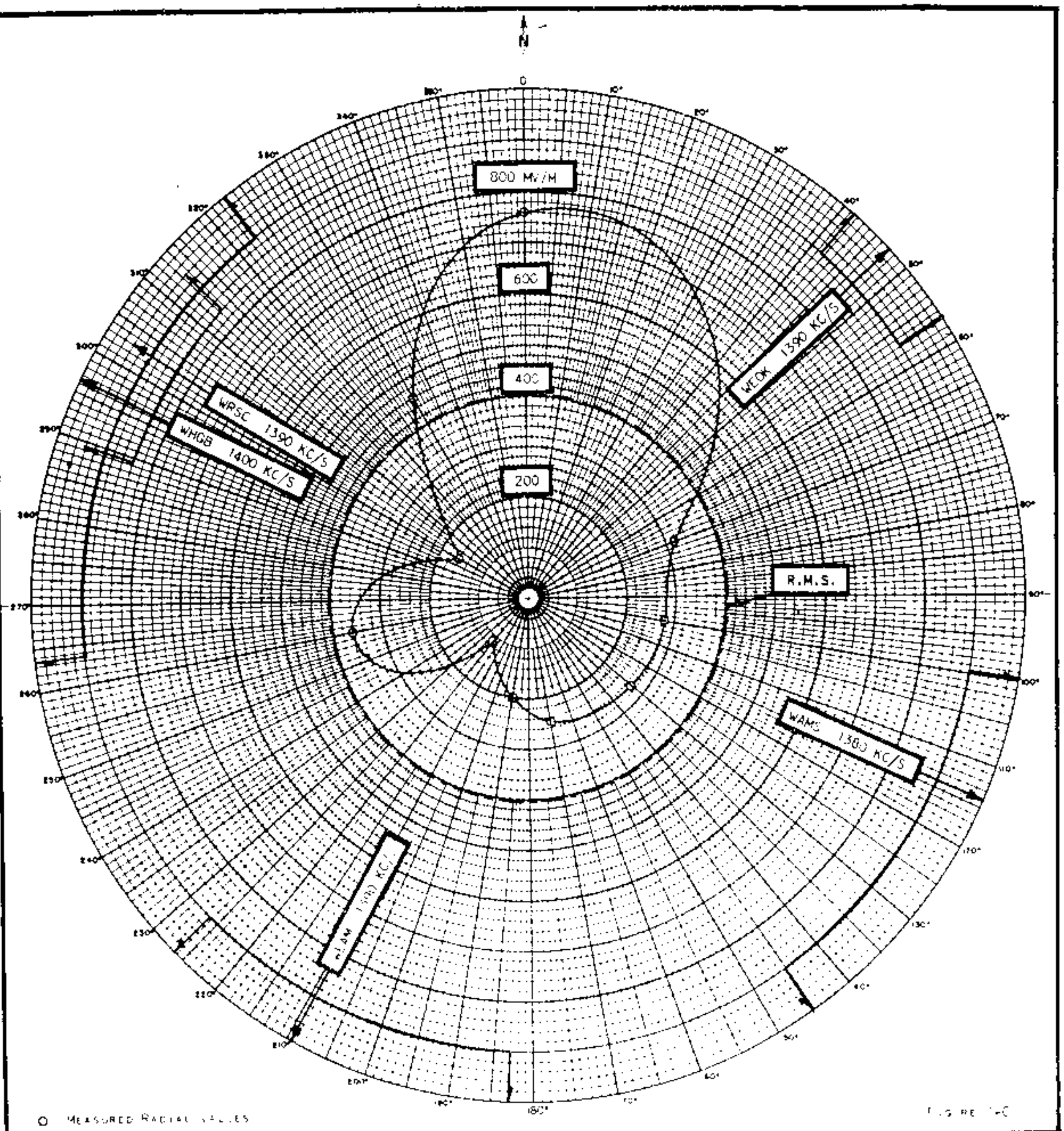
WLAN

Measured Day
(4-28-65ct)

Station WLAN
Lancaster, Pennsylvania

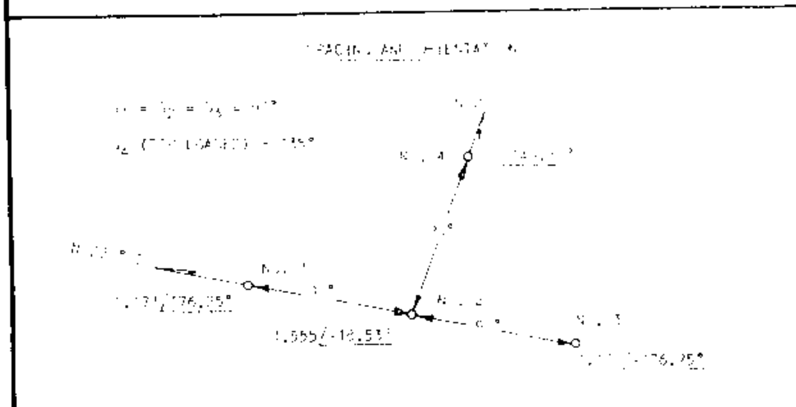
1kw,5kw-LS,DA-2,U
1390 kc

-IC 8-11-65
INCR PWR DAY
CHG DA



O Measured Radial Values

HORIZONTAL RADIATION PATTERN



APPLICANT	Peoples Bcstg. Co. (WLAN)
LOCATION	Lancaster, Pa.
FREQUENCY	1390 KC/S
POWER	5 KW-LS, 1 KW-N (DA-2)
LATITUDE	40 DEG 03 MIN 12 SEC
LONGITUDE	76 DEG 20 MIN 26 SEC
WHEN USED	Daytime
RMS FIELD	403 MV/M (Measured)
DATE	October 1964

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

FCC File No. BL-10864
Accepted 4-19-65

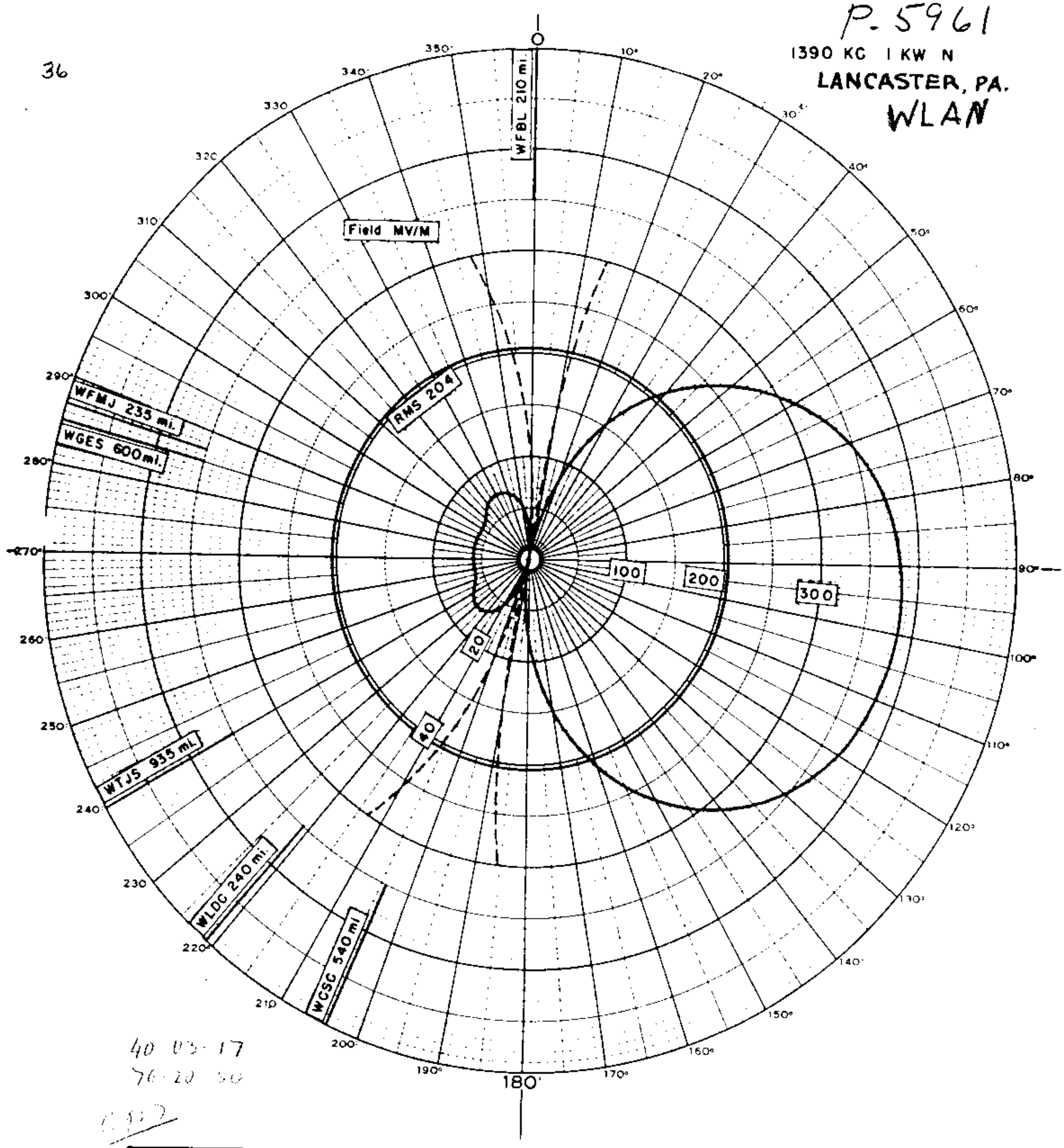
Station WLAN
Lancaster, Pennsylvania

1390 kc

36

P-5961

1390 KC 1 KW N
LANCASTER, PA.
WLAN

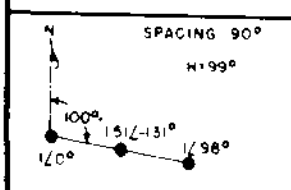


40 05 17
76 20 50

PEOPLES BROADCASTING CO.
LANCASTER, PA.

Figure 1
Series 470130C

1390 KC
1000 WATTS
NIGHT



PROPOSED

DIRECTIONAL ANTENNA PATTERN

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

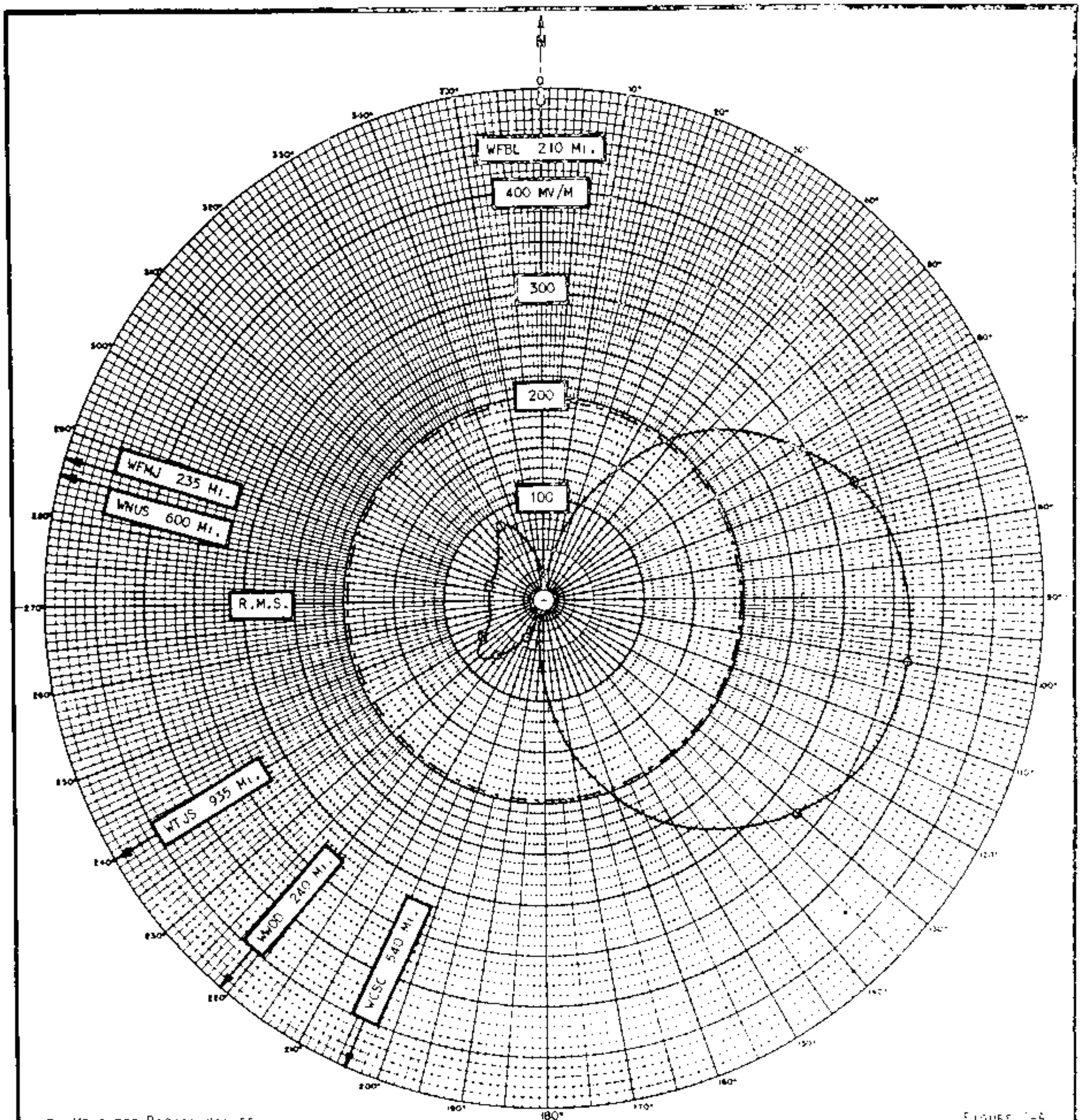
WLAN

Measured Night
(4-28-65ct)

Station WLAN
Lancaster, Pennsylvania

1kw,5kw-LS,DA-2,U
1390 kc

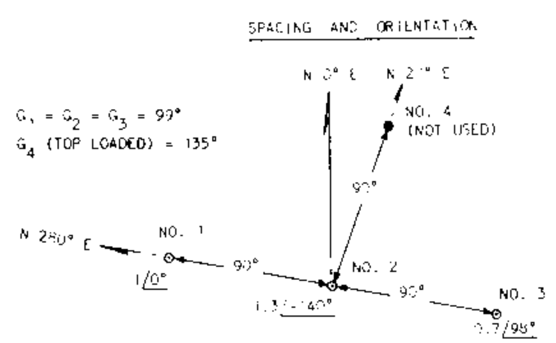
LIC 8-11-65
INCR PWR DAY
CHG DA



○ MEASURED RADIAL VALUES

FIGURE 1-A

HORIZONTAL RADIATION PATTERN



APPLICANT	Peoples Bcstg. Co. (WLAN)
LOCATION	Lancaster, Pa.
FREQUENCY	1390 KC/S
POWER	5 Kw-LS, 1 Kw-N (DA-2)
LATITUDE	40 DEG 03 MIN 12 SEC
LONGITUDE	76 DEG 21 MIN 25 SEC
WHEN USED	Nighttime
RMS FIELD	197 MV/M (Measured)
DATE	October 1964

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

FCC File No. BL-10864
Accepted 4-19-65

Station WLAN
Lancaster, Pennsylvania

1390 kc

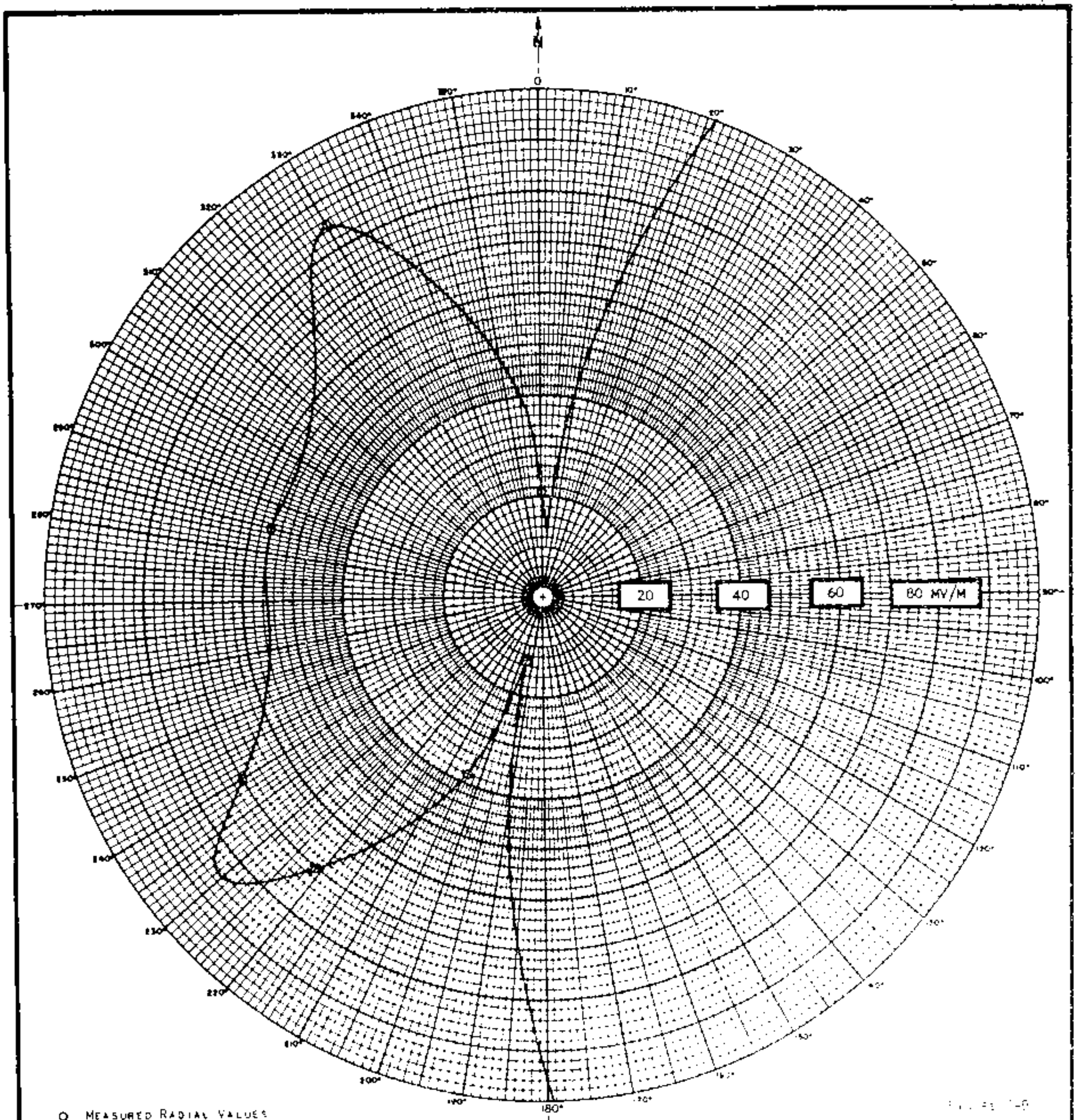
WLAN

Measured Night Nulls (4-28-65ct)

Station WLAN
Lancaster, Pennsylvania

1kw,5kw-LS,DA-2,U
1390 kc

LIC 8-11-65
INCR PWR DAY
CHG DA



HORIZONTAL RADIATION PATTERN

EXPANDED VIEW

APPLICANT	[illegible] CO. (WLAN)
LOCATION	[illegible], PA.
FREQUENCY	[illegible]
POWER	[illegible] (DA-2)
LATITUDE	[illegible] DEG [illegible] MIN [illegible] SEC
LONGITUDE	[illegible] DEG [illegible] MIN 25 SEC
WHEN USED	[illegible]
RMS FIELD	[illegible] (MEASURED)
DATE	[illegible]

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

FCC File No. BL-10864
Accepted 4-19-65

Station WLAN
Lancaster, Pennsylvania

1390 kc

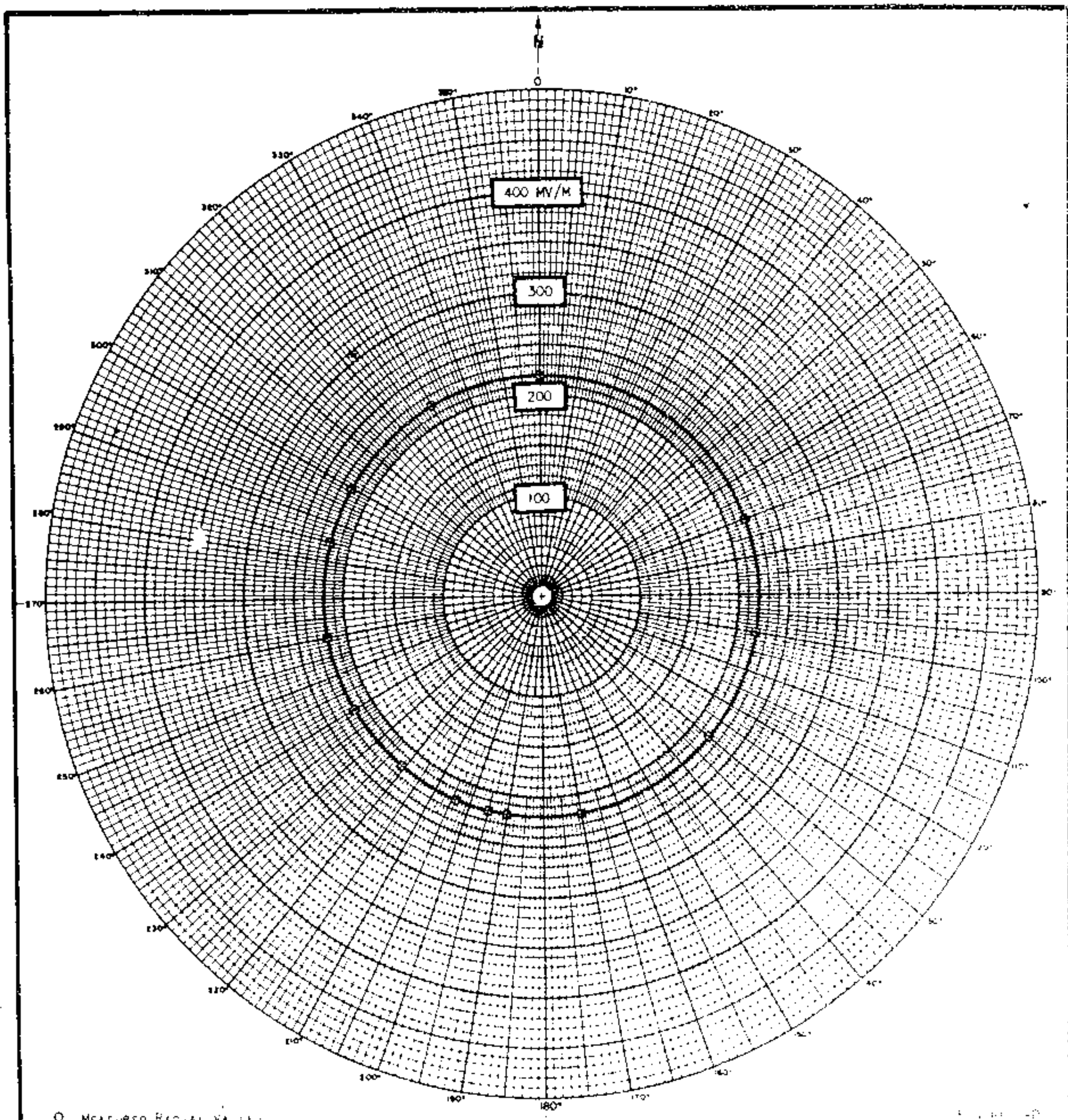
WLAN

Measured Non-DA
(4-28-65ct)

Station WLAN
Lancaster, Pennsylvania

1kw,5kw-LS,DA-2,U
1390 kc

LIC 8-11-65
INCR PWR DAY
CHG DA



HORIZONTAL RADIATION PATTERN

NON-DIRECTIONAL SURVEY

APPLICANT	[illegible]
LOCATION	[illegible]
FREQUENCY	[illegible] KC/S
POWER	[illegible]
LATITUDE	4[illegible] DEG [illegible] MIN [illegible] SEC
LONGITUDE	[illegible] DEG [illegible] MIN [illegible] SEC
WHEN USED	[illegible]
RMS FIELD	[illegible]
DATE	[illegible]

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

FCC File No. BL-10864
Accepted 4-19-65

Station WLAN
Lancaster, Pennsylvania

1390 kc

WPLM

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WPLM Main Studio: Plymouth, Massachusetts

Frequency: 1390 kHz Power: 5 kW

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

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:
North Latitude: 41° 58' 05"
West Longitude: 70° 42' 06"

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:	NW(#4)	(#3)	(#2)	SE(#1)
HEIGHT ABOVE INSULATORS:	All towers 373.5' (190°)			
NIGHT PHASING:	0.711°	-116.281°	+120.018°	0°
NIGHT FIELD RATIO:	0.404	1.330	1.775	1
DAY PHASING:	+86.610°	-66.622°	+150.120°	0°
DAY FIELD RATIO:	0.198	0.661	1.102	1

SPACING AND ORIENTATION: Adjacent elements are spaced 196.6' (100°) on a line bearing 130° true.

GROUND SYSTEM: 120-200' equally spaced copper radials plus a 120-60' inter-spaced radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers. Centers of systems are bonded together.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

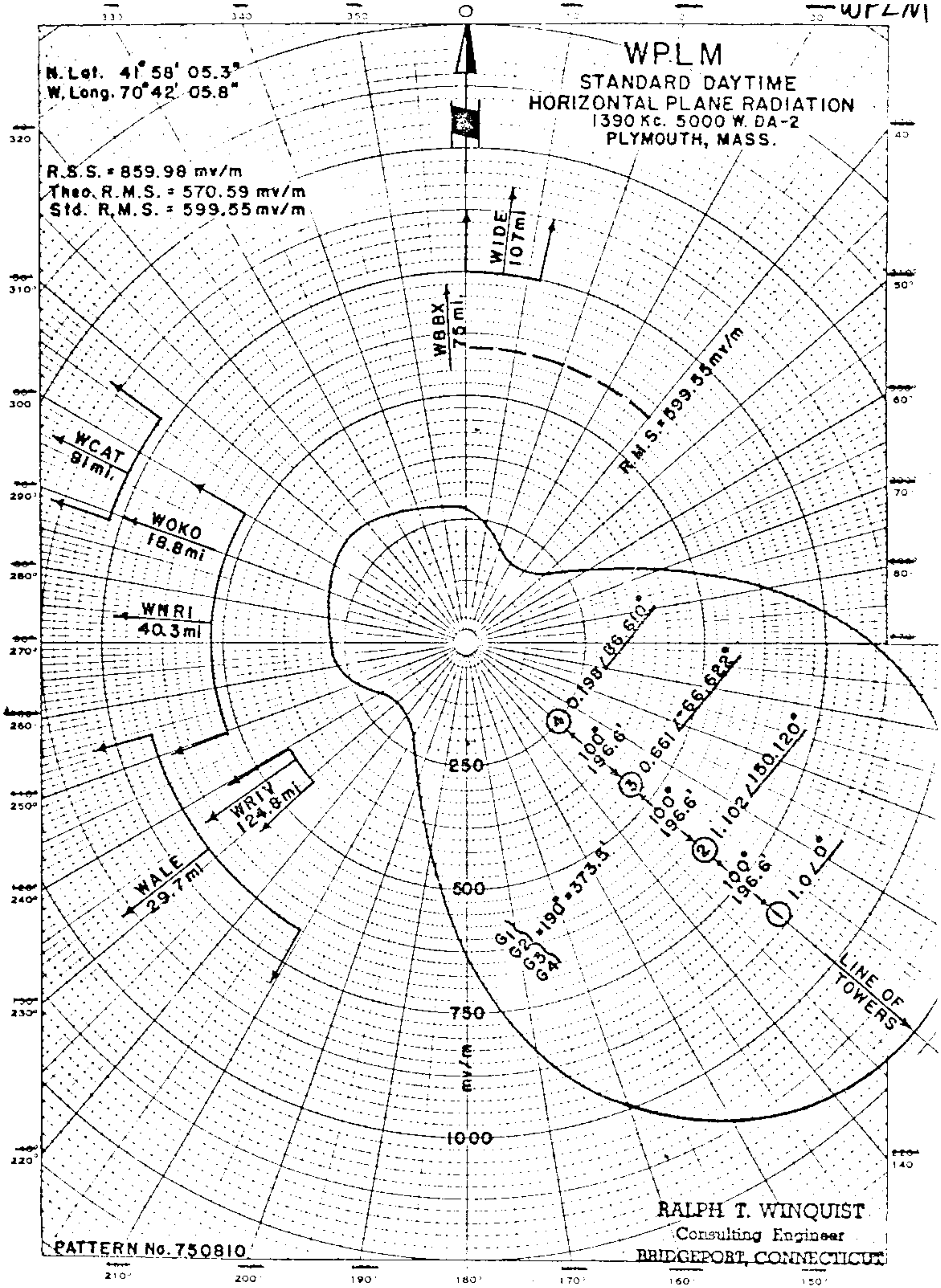
	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	570.59 mv/m	859.98 mv/m	599.55 mv/m
Night	563.57 mv/m	627.88 mv/m	591.98 mv/m

(Cont'd)

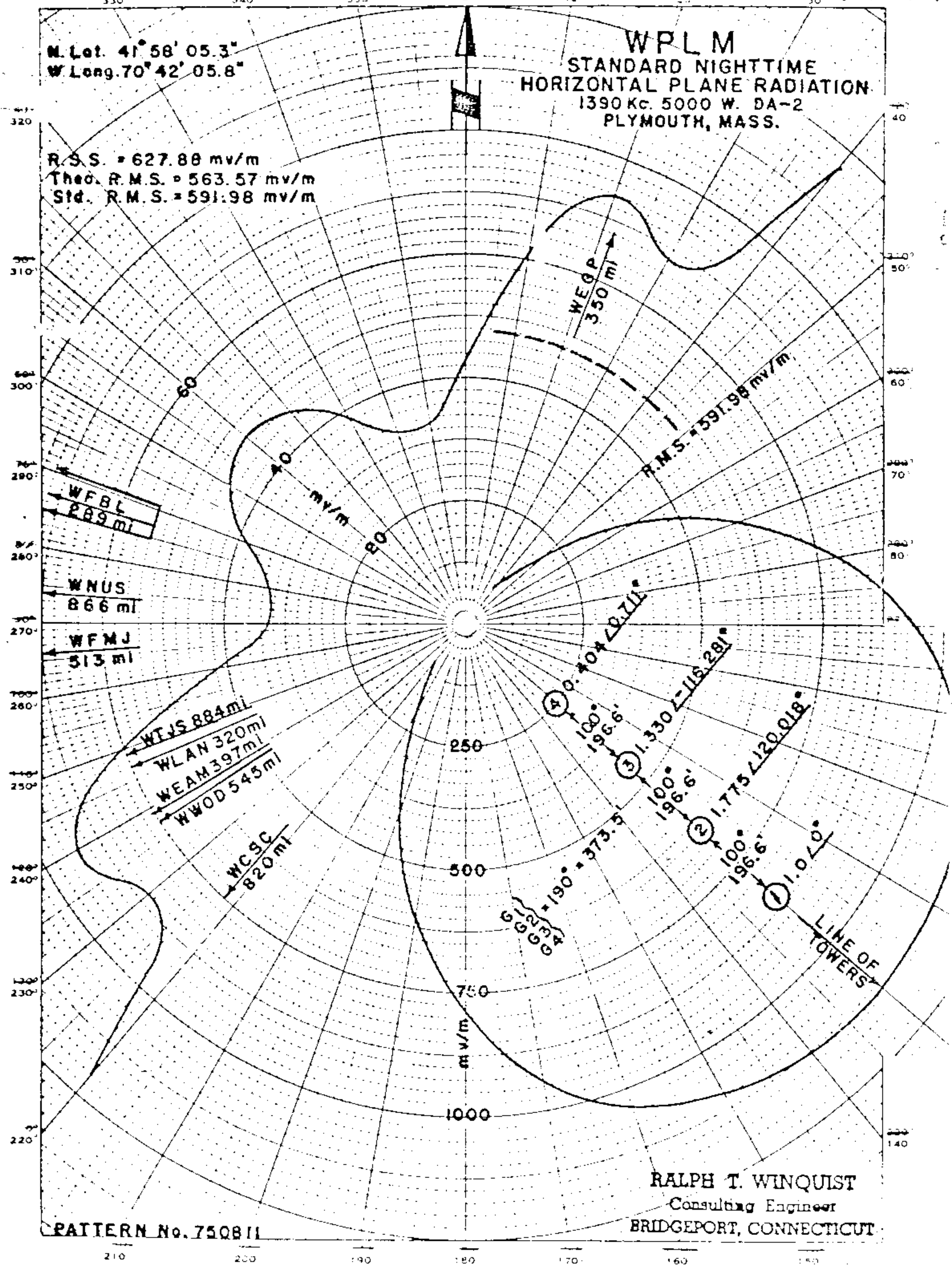
Note: This notification concerns only minor changes in the directional antenna system and radiation patterns and transmitter location.

CTR NO 31078A4

WPLM


WPLM
STANDARD DAYTIME
HORIZONTAL PLANE RADIATION
1390 Kc. 5000 W. DA-2
PLYMOUTH, MASS.
N. Lat. 41° 58' 05.3"
W. Long. 70° 42' 05.8"
R.S.S. = 859.98 mv/m
Theo. R.M.S. = 570.59 mv/m
Std. R.M.S. = 599.55 mv/m
WIDE 107mi
WBBX 75 mi
R.M.S. = 599.55 mv/m
WCAT 81 mi.
WOKO 18.8 mi
WNRI 40.3 mi
WRIV 124.8 mi
WALE 29.7 mi
0.198 / 86.610°
0.661 / -66.622°
1.102 / 150.120°
1.0 / 0°
100° 196.6'
100° 196.6'
100° 196.6'
G1 G2 G3 G4 = 190° = 373.5'
LINE OF TOWERS
250
500
750
1000
mv/m
0
330
340
350
10
20
30
40
50
60
70
80
320
310
300
290
280
270
260
250
240
230
220
210
200
190
180
170
160
150
140
PATTERN No. 750810
RALPH T. WINQUIST
Consulting Engineer
BRIDGEPORT, CONNECTICUT
POLAR CO-ORDINATE
MADE IN U.S.A.

WPLM


WPLM
STANDARD NIGHTTIME
HORIZONTAL PLANE RADIATION
1390 Kc. 5000 W. DA-2
PLYMOUTH, MASS.
N. Lat. 41° 58' 05.3"
W. Long. 70° 42' 05.8"
R.S.S. = 627.88 mv/m
Theo. R.M.S. = 563.57 mv/m
Std. R.M.S. = 591.98 mv/m
R.M.S. = 591.98 mv/m
WEGP 350 mi
WFBL 289 mi
WNUS 866 mi
WFMJ 513 mi
WTJS 884 mi
WLAN 320 mi
WEAM 397 mi
WWOD 545 mi
WCSC 820 mi
40
60
80
mv/m
250
500
750
1000
0.404 ∠0.711°
1.330 ∠-115.281°
1.775 ∠120.018°
1.0 ∠0°
100° 196.6'
G1 G2 G3 G4 = 190° = 373.5'
LINE OF TOWERS
RALPH T. WINQUIST
Consulting Engineer
BRIDGEPORT, CONNECTICUT
PATTERN No. 750811

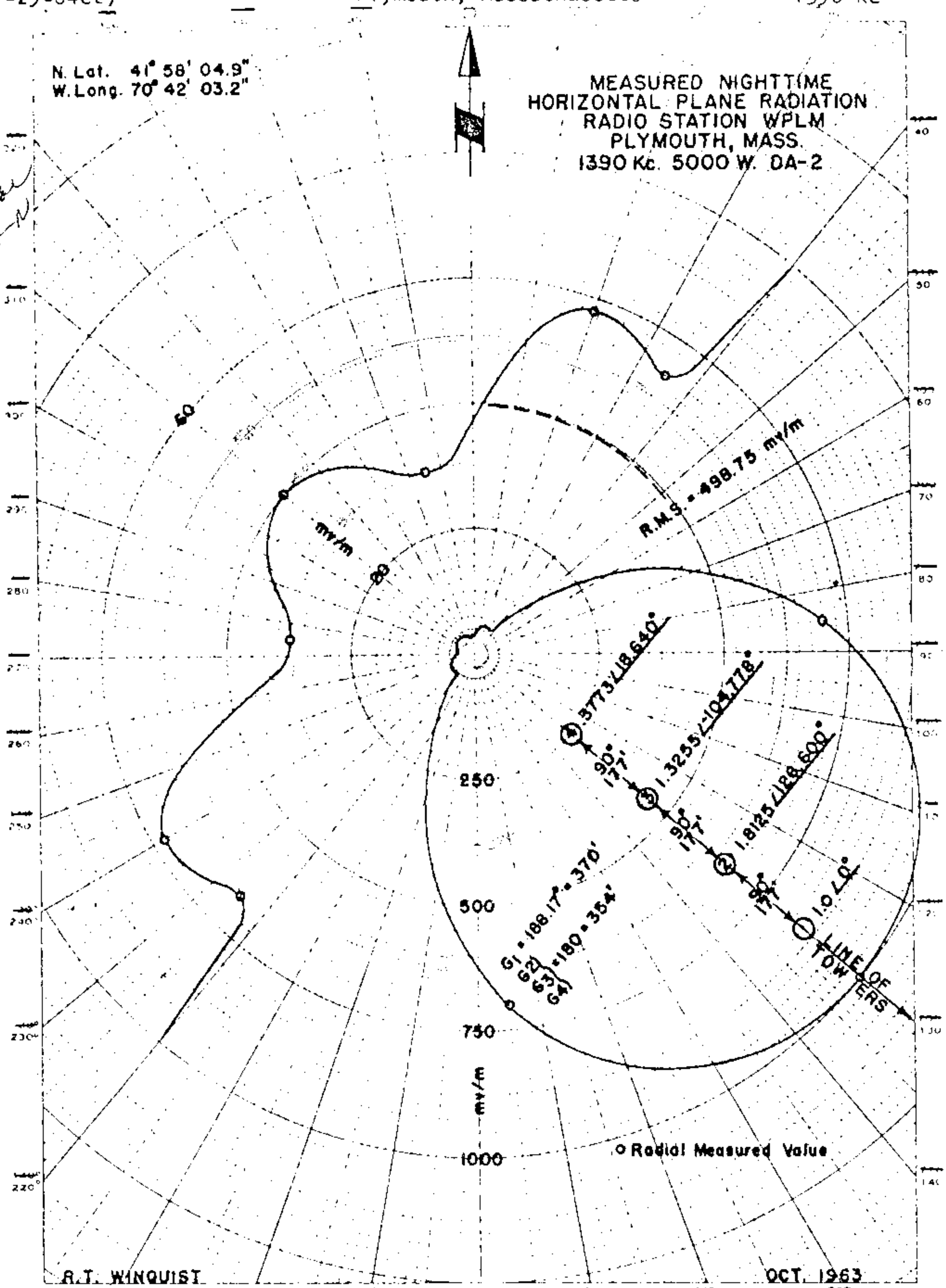
WPLM

Measured Night
(1-29-64ct)

Station WPLM
Plymouth, Massachusetts

5kw,DA-2,U
1390 kc

3/31/64
Granted
license for
Ing in DA-N



FCC File No. BL-10340
Accepted 12-31-63

Station WPLM
Plymouth, Massachusetts

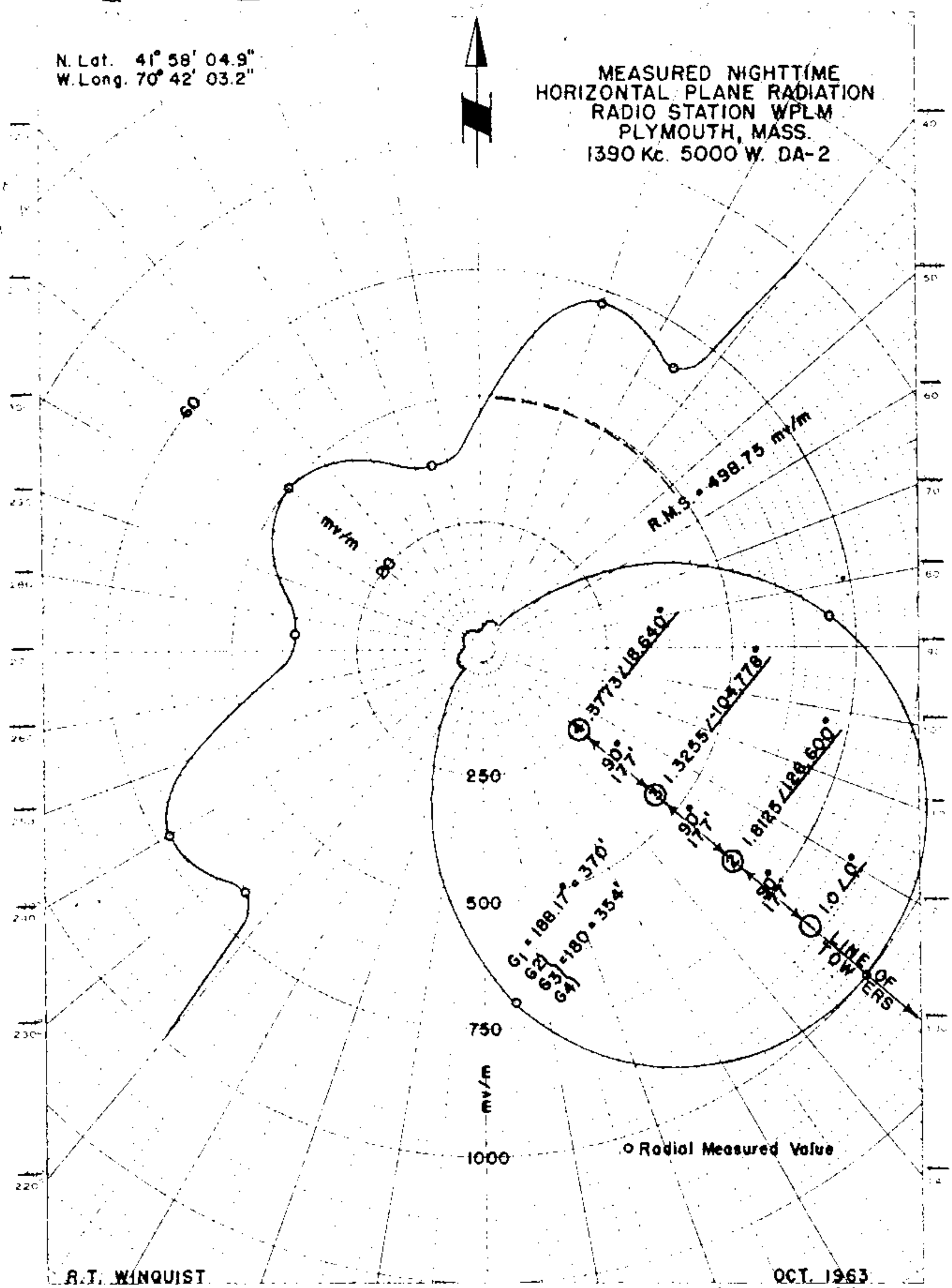
1390 kc

WPLM

Measured Night
(1-29-64ct)

Station WPLM
Plymouth, Massachusetts

5kw,DA-2,U
1390 kc



FCC File No.BL-10340
Accepted 12-31-63

Station WPLM
Plymouth, Massachusetts

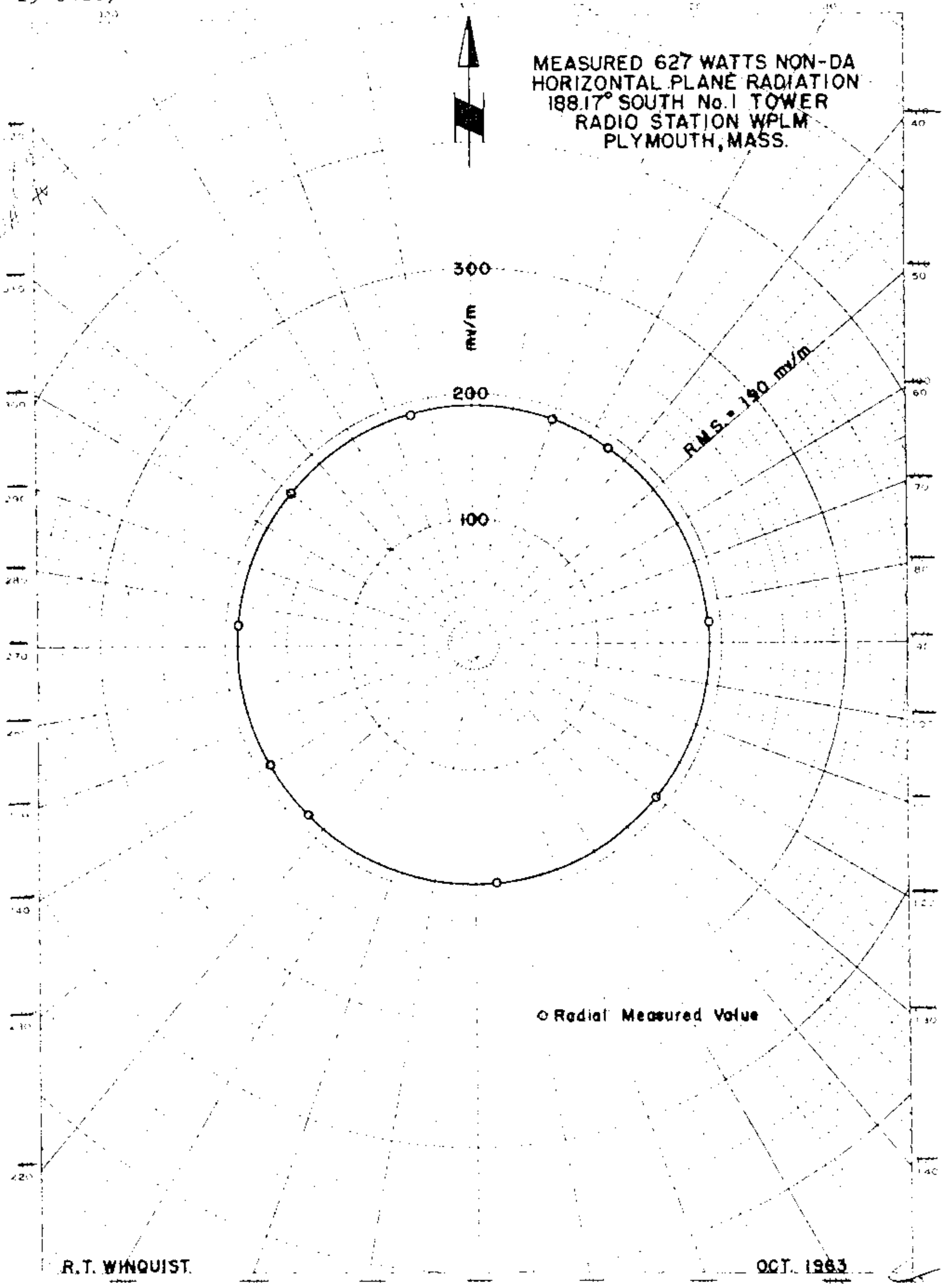
1390 kc

WPLM

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

Station WPLM
Plymouth, Massachusetts

5kw,DA-2,U
1390 kc



FCC File No. BL-10340
Accepted 12-31-63

Station WPLM
Plymouth, Massachusetts

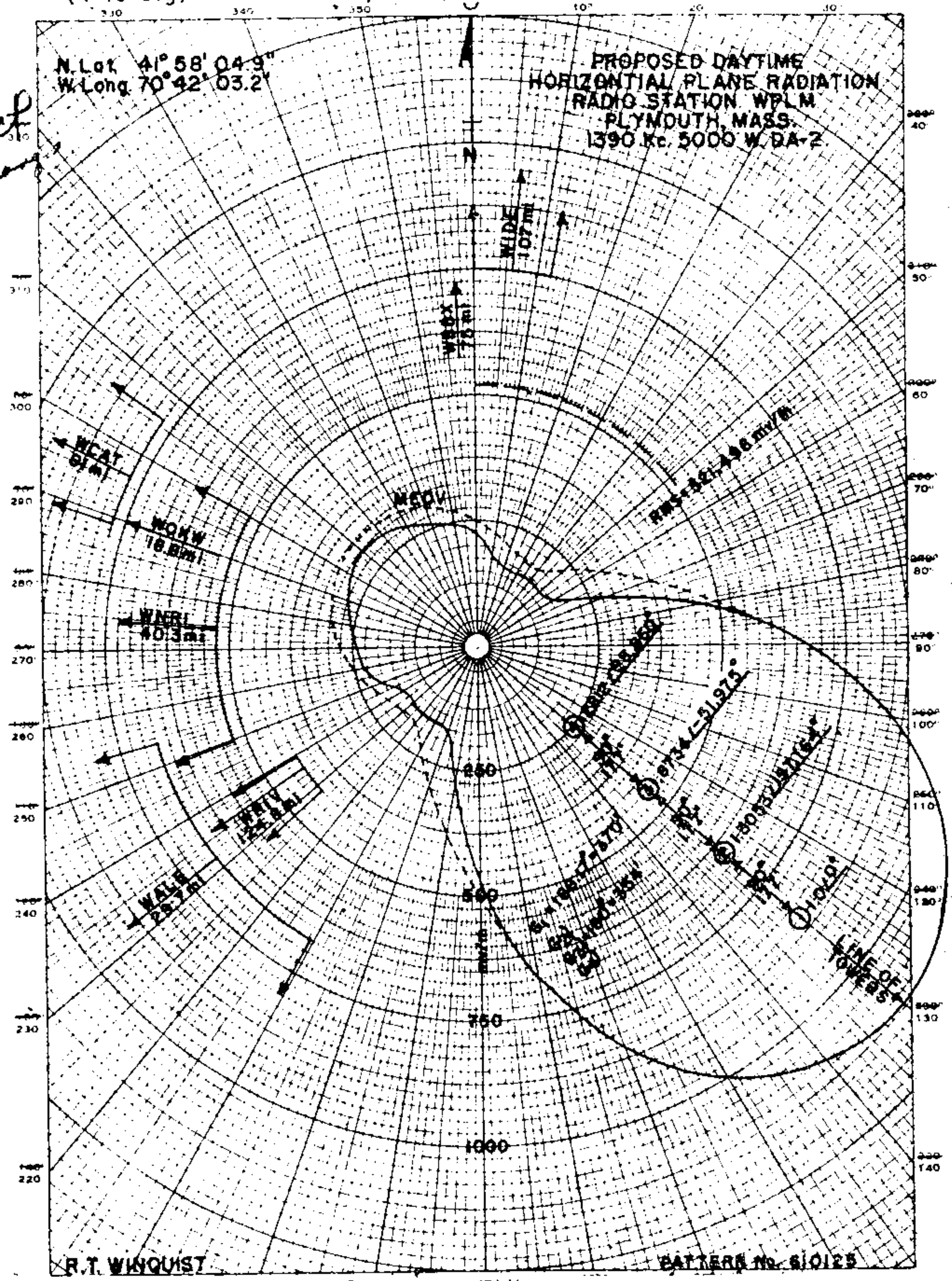
1390 kc

WPLM

PROPOSED DAY
(4-10-61g)

Station WPLM 5kw, DA-2,U
Plymouth, Massachusetts 1390 KC

-24-61
anted MCF
make chang
DA



FCC File No. BMP-9383
Accepted 3-24-61

WPLM
Plymouth, Massachusetts 1390 KC

for information on previous patterns see
"3 tower - 60° spacing" folder of old patterns.

WPLM

Measured Day
(2-28-62ct)

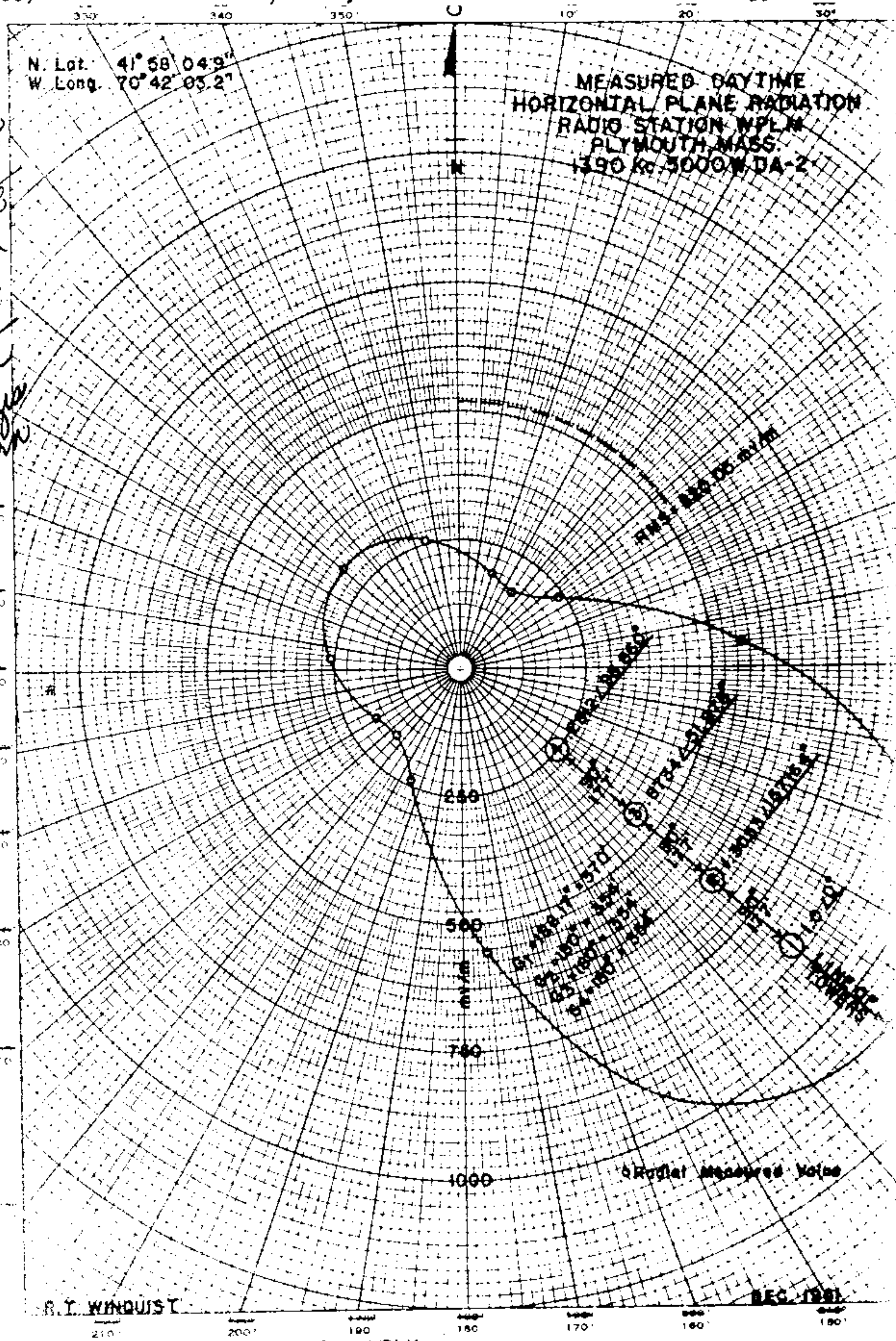
Station WPLM
Plymouth, Massachusetts

5kw,DA-2,U
1390 kc

granted mcp
1-22-62
o make changes in
DA pattern.

-21-62 - granted L
overning changes in
ey DA Pattern.

-21-63 granted
P to make changes
in night DA pattern



No. BL-8871
2-13-62

Station WPLM
Plymouth, Massachusetts

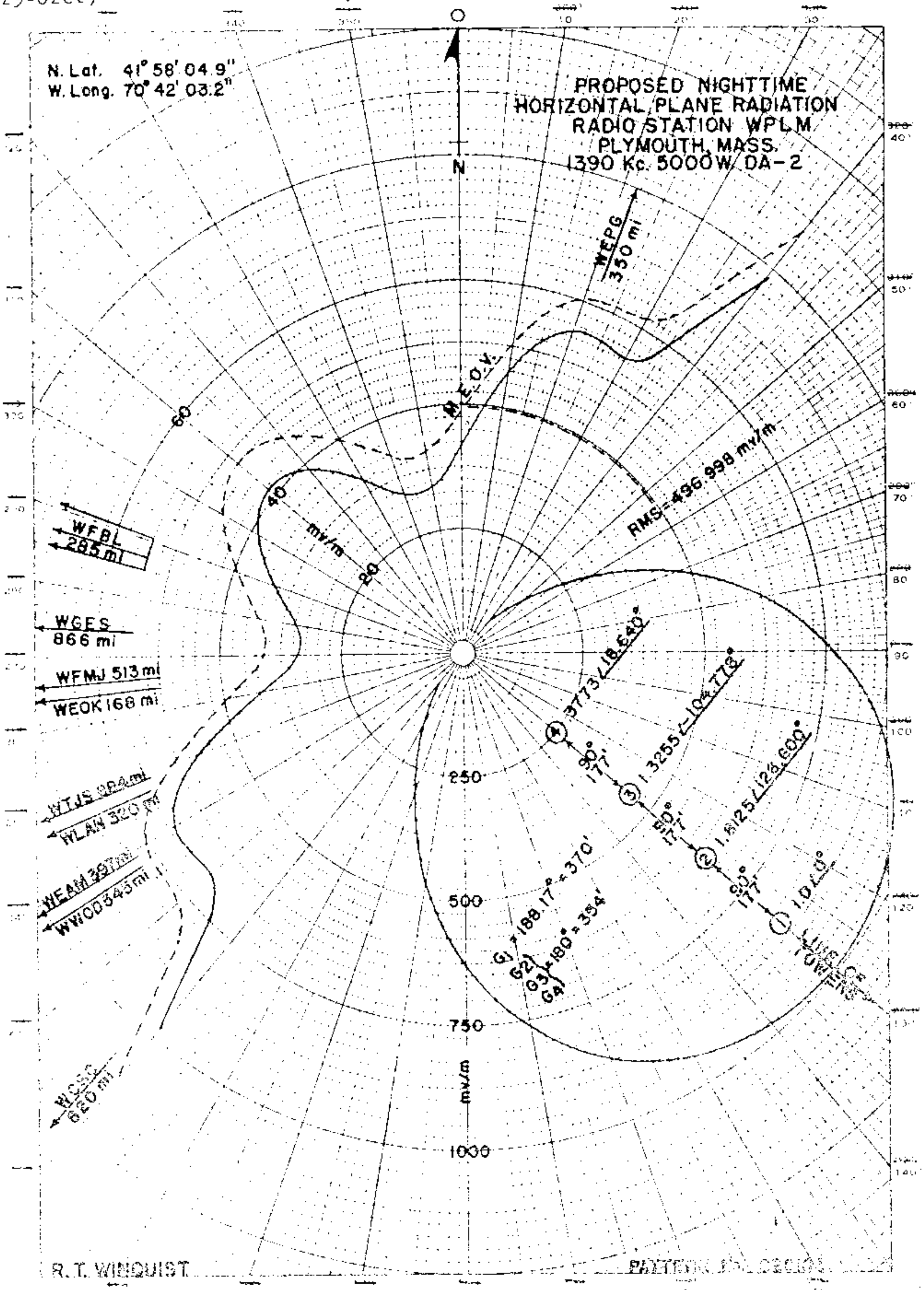
1390 kc

WPLM

Proposed Night
(11-29-62ct)

Station WPLM
Plymouth, Massachusetts

5kw,DA-2,U
1390 kc



FCC File No. BP-15758
Accepted 11-5-62

Station WPLM
Plymouth, Massachusetts

1390 kc

WROA

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WROA — Main Studio: Gulfport, Mississippi

Frequency: 1390 kHz — Power: 5 kW

Notification List No. 1541 — Date: August 8, 1973 — Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 30° 27' 30"
West Longitude: 89° 04' 45"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2)
Number of elements: 8
Typed of elements: Series-excited, uniform cross-section, guyed, vertical steel towers.

TOWER:	SW(#5)	(#6)	(#7)	NW(#8)	SE(#1)	(#2)	(#3)	NE(#4
HEIGHT ABOVE INSULATORS:	All towers 400' (203.8°)							
NIGHT PHASING:	+103.5°	+222.7°	+33.4°	+157.5°	0°	+119.2°	+289.9°	+5
NIGHT FIELD RATIO:	1.15177	1.77772	1.86421	1.56286	1	1.54347	1.61856	1.3569
DAY PHASING:	+96°	+211.21°	+15.13°	+138°	0°	+115.21°	+279.13°	+4
DAY FIELD RATIO:	1.55826	3.59774	4.04675	5.27392	1	2.30882	2.59697	3.3844

SPACING AND ORIENTATION: Towers are located in two rows with 4 towers per row. Adjacent elements in a row are spaced 216' (110°) on a line bearing 22° true. End towers in each row forming the short side of a parallelogram are spaced 196.5' (100°) on a line bearing 267° true.

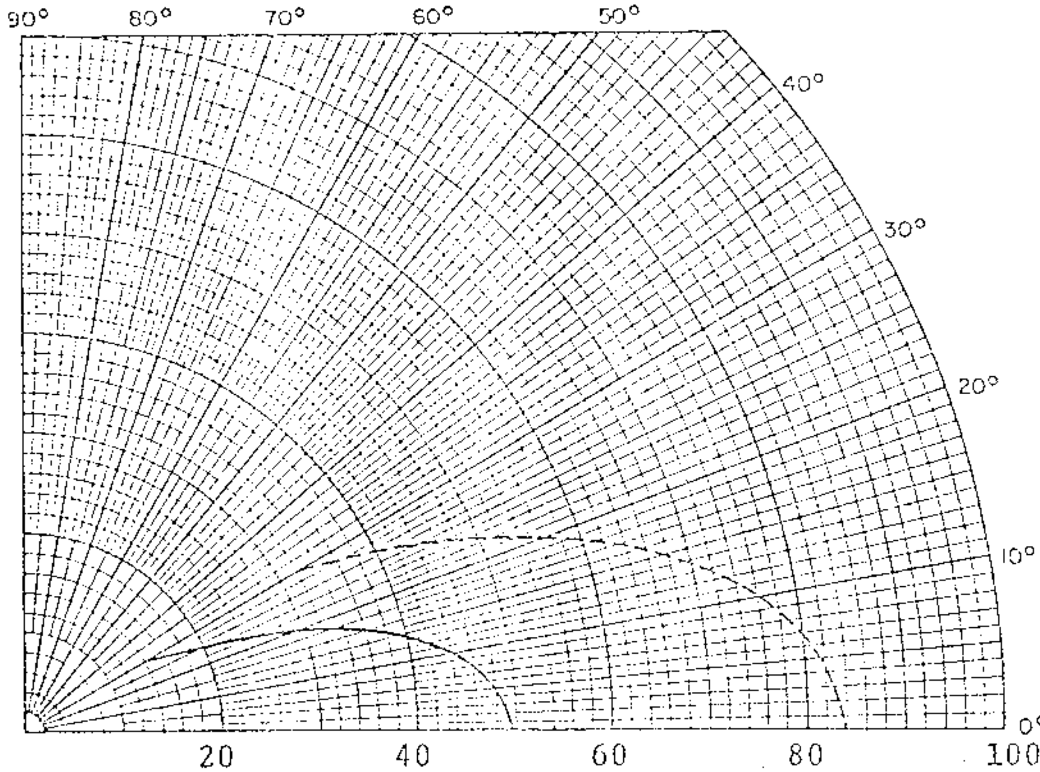
GROUND SYSTEM: 120-177' equally spaced copper radials plus a 24' square ground screen about each tower. Radials are shortened and bonded to transverse strap along intersections between towers.

Predicted effective Night Field: 555.3 mv/m at rated power by adjustment of input powe

Predicted effective Day Field: 593 mv/m at rated power by adjustment of input power.

Note: The attached nighttime horizontal and vertical patterns replace those previously notified. Please retain the remaining Daytime and Nighttime directional antenna radiation patterns notified for Station WROA in United States Change List No. 1440 dated September 1, 1971 and attach to this Revised Description Sheet and Nighttime patterns. This notification concerns only changes in MEOV's of radiation in the Nighttime operation of the station with Daytime operation continued as previously notified.

CTR NO 3130544



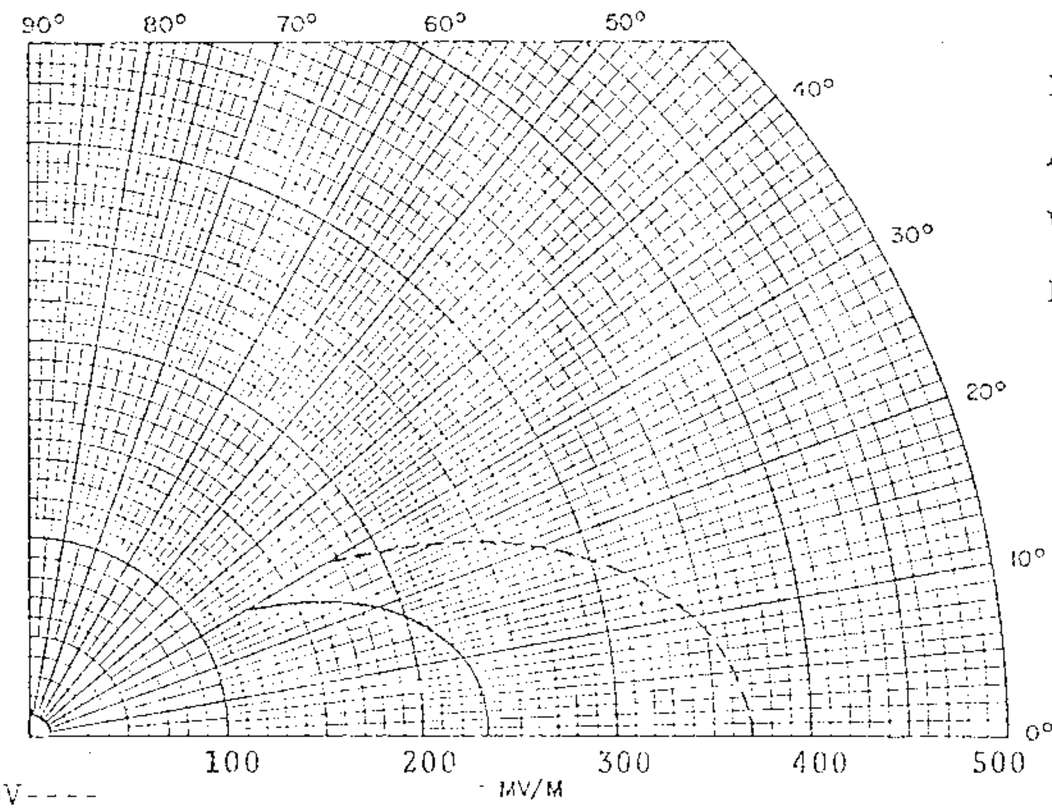
KCBC

AZ = 343.4°

V = 3.7°7.2°

DX = 807.8 MILES

MEOV----



XETL

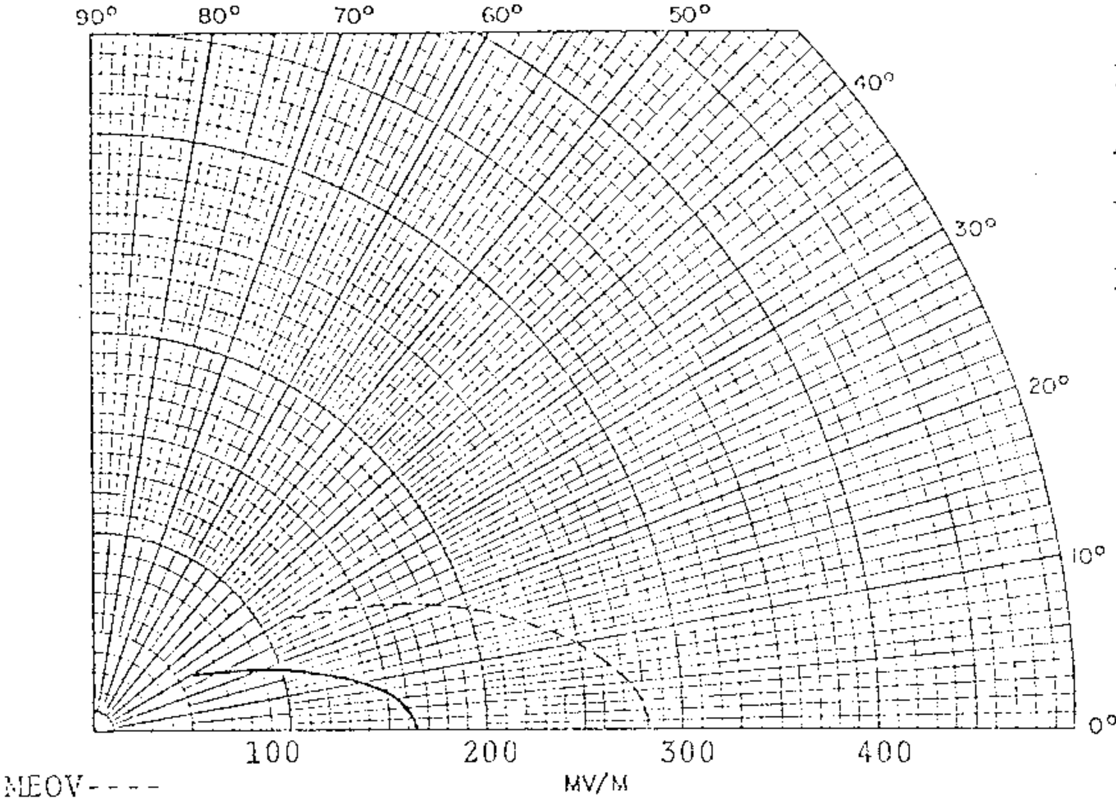
AZ = 220.2°

V = 5.1°

DX = 835.6 MILES

MEOV----

VERTICAL SECTIONS
FOR THE PROPOSED NIGHTTIME OPERATION OF
WROA, GULFPORT, MISSISSIPPI
1390 KHz - 5 KW - DA-2 U
JULY 1973

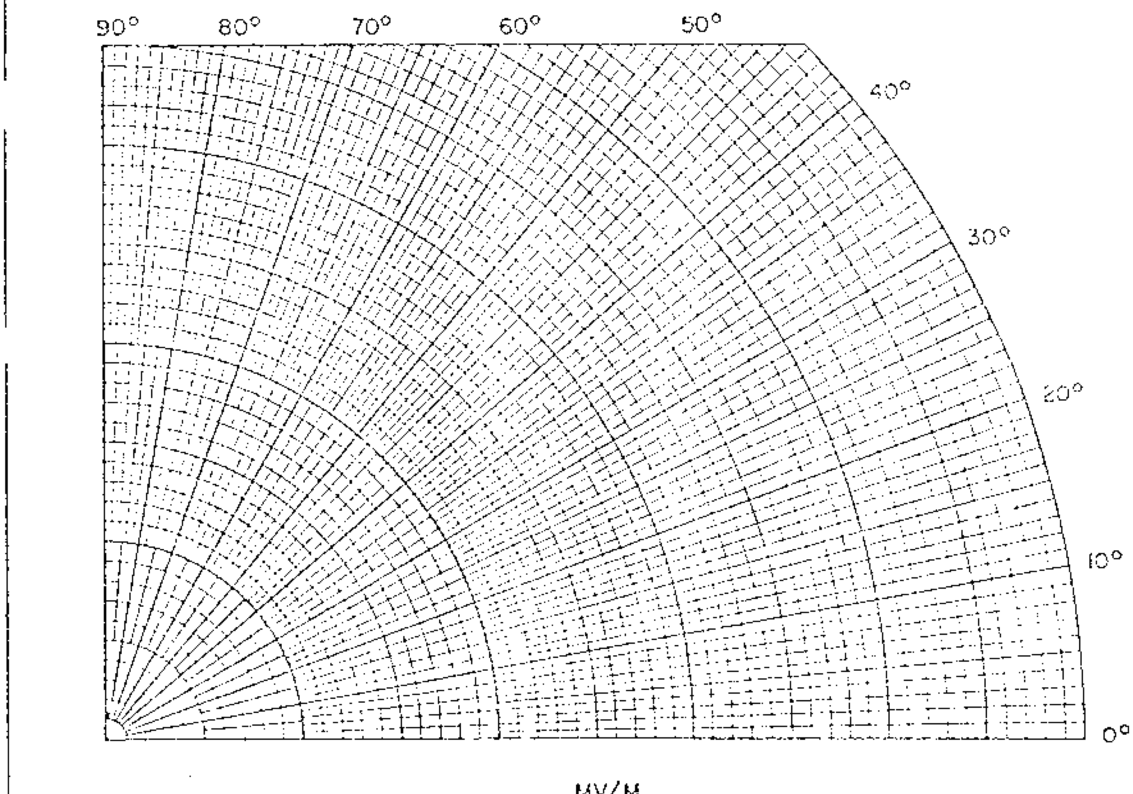


XEXO

AZ = 231.2°

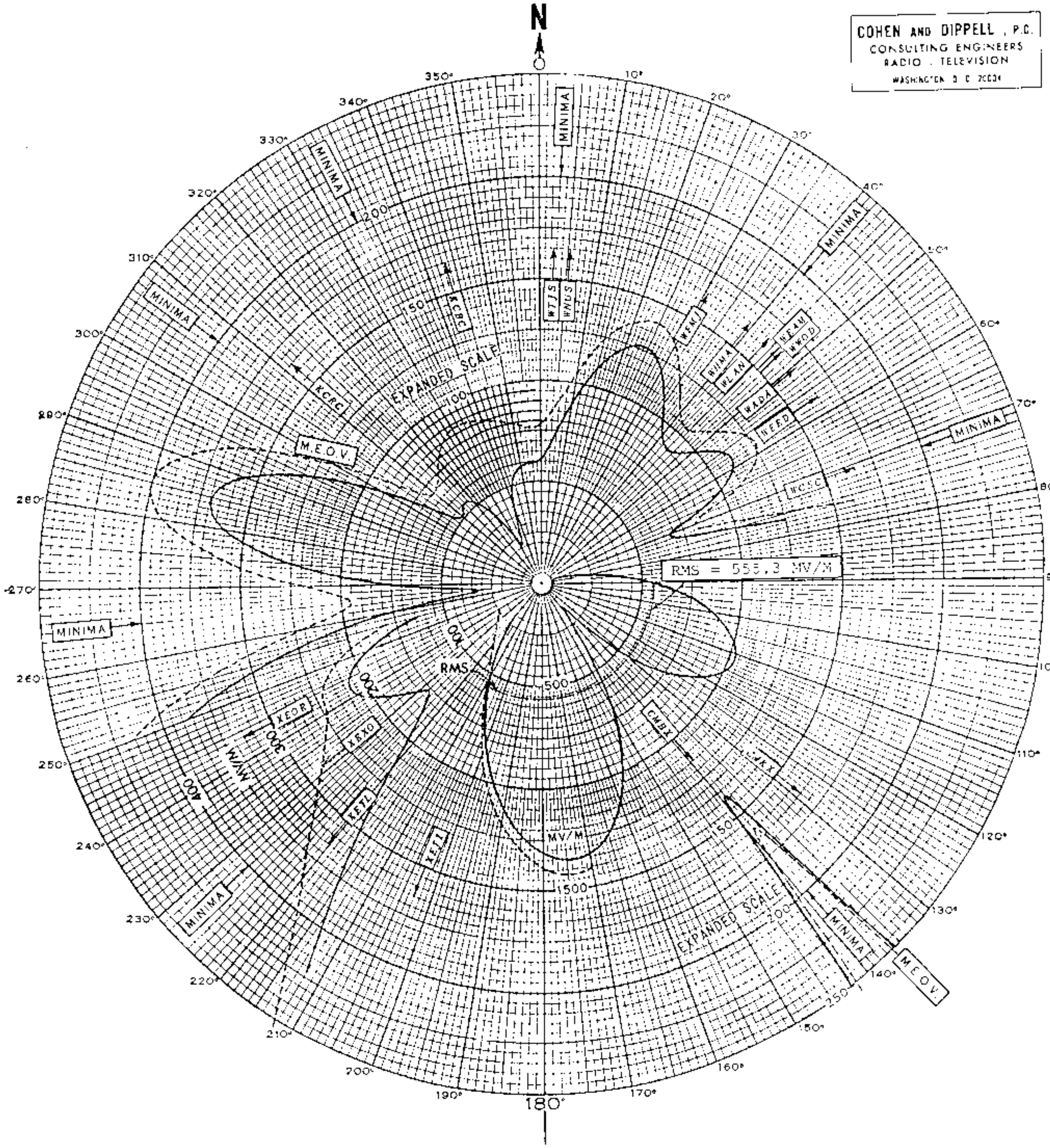
V = 5.4°

DX = 809.7 MILES

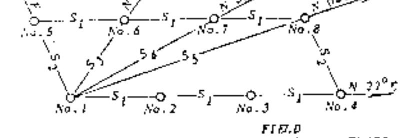


VERTICAL SECTIONS
FOR THE PROPOSED NIGHTTIME OPERATION OF
WROA, GULFPORT, MISSISSIPPI
1390 KHz - 5 KW - DA-2 U
JULY 1973

COHEN AND DIPPELL, P.C.
CONSULTING ENGINEERS
RADIO . TELEVISION
WASHINGTON D C 20036



NORTH LATITUDE 30° 27' 39"
WEST LONGITUDE 89° 04' 45"



			TOWER	FIELD RATIO	PHASE
S_1	110°	216'	No. 1	1.0	
S_2	100°	196.5'	No. 2	1.54347	119.2
S_3	113.15°	222'	No. 3	1.61856	289.9
S_4	199.51°	392'	No. 4	1.35692	54
S_5	301.67°	592'	No. 5	1.15177	103.5
			No. 6	1.77772	222.7
H = 203.8°			No. 7	1.86421	33.4
			No. 8	1.56236	157.5

COMPUTED HORIZONTAL
PLANE RADIATION PATTERN
FOR PROPOSED NIGHTTIME OPERATION OF
WROA, GULFPORT, MISSISSIPPI
1390 KHz - 5 KW - DA-2 U
JULY 1975

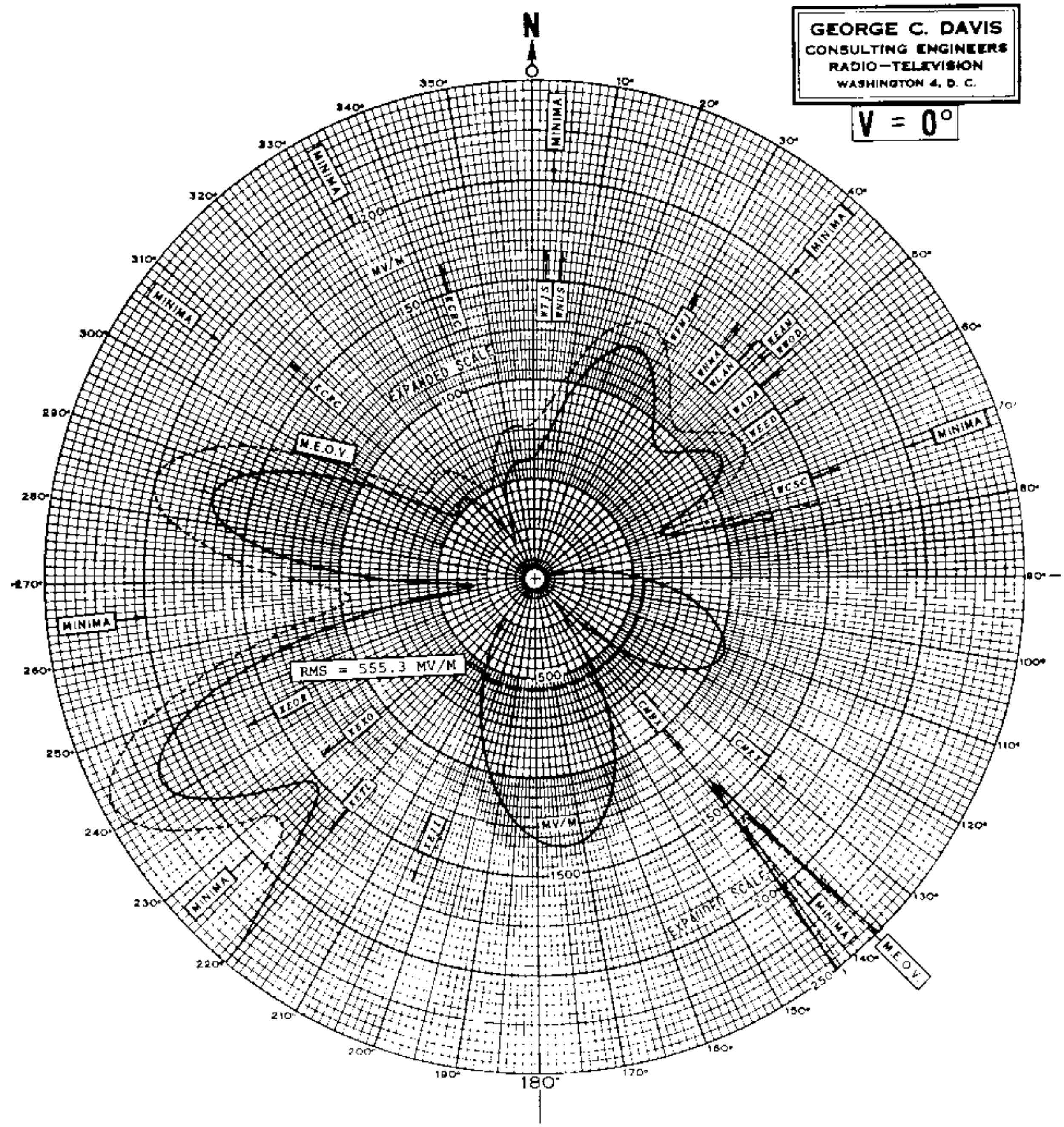
WZOA

WROA

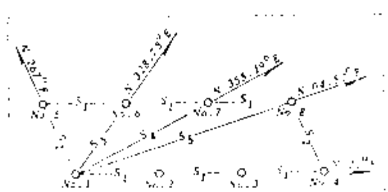
Proposed Night
(3-28-68ct)

Station WROA
Gulfport, Mississippi

5kw,DA-2,U
1390 kc



NORTH LATITUDE 30° 27' 33"
WEST LONGITUDE 89° 04' 45"



			TOWER	FIELD RATIO	PHASE
S_1	110°	216'	No. 1	1.0	
S_2	110°	196.5'	No. 2	1.54347	119.2
S_3	[illegible]°	222'	No. 3	1.61856	289.9
S_4	[illegible]°	[illegible]'	No. 4	1.15692	54
S_5	[illegible]°	[illegible]'	No. 5	[illegible]	193.5
			No. 6	[illegible]	221.7
H = 203.8°			No. 7	1.46421	33.4
			No. 8	[illegible]	[illegible]

COMPUTED HORIZONTAL
PLANE RADIATION PATTERN
FOR PROPOSED NIGHTTIME OPERATION OF
WROA, GULFPORT, MISSISSIPPI
1390 KHz - 5 KW - DA-2 U
FEBRUARY 1968

FCC File No.BP-17910
Accepted 3-22-68

Station WROA
Gulfport, Mississippi

1390 kc

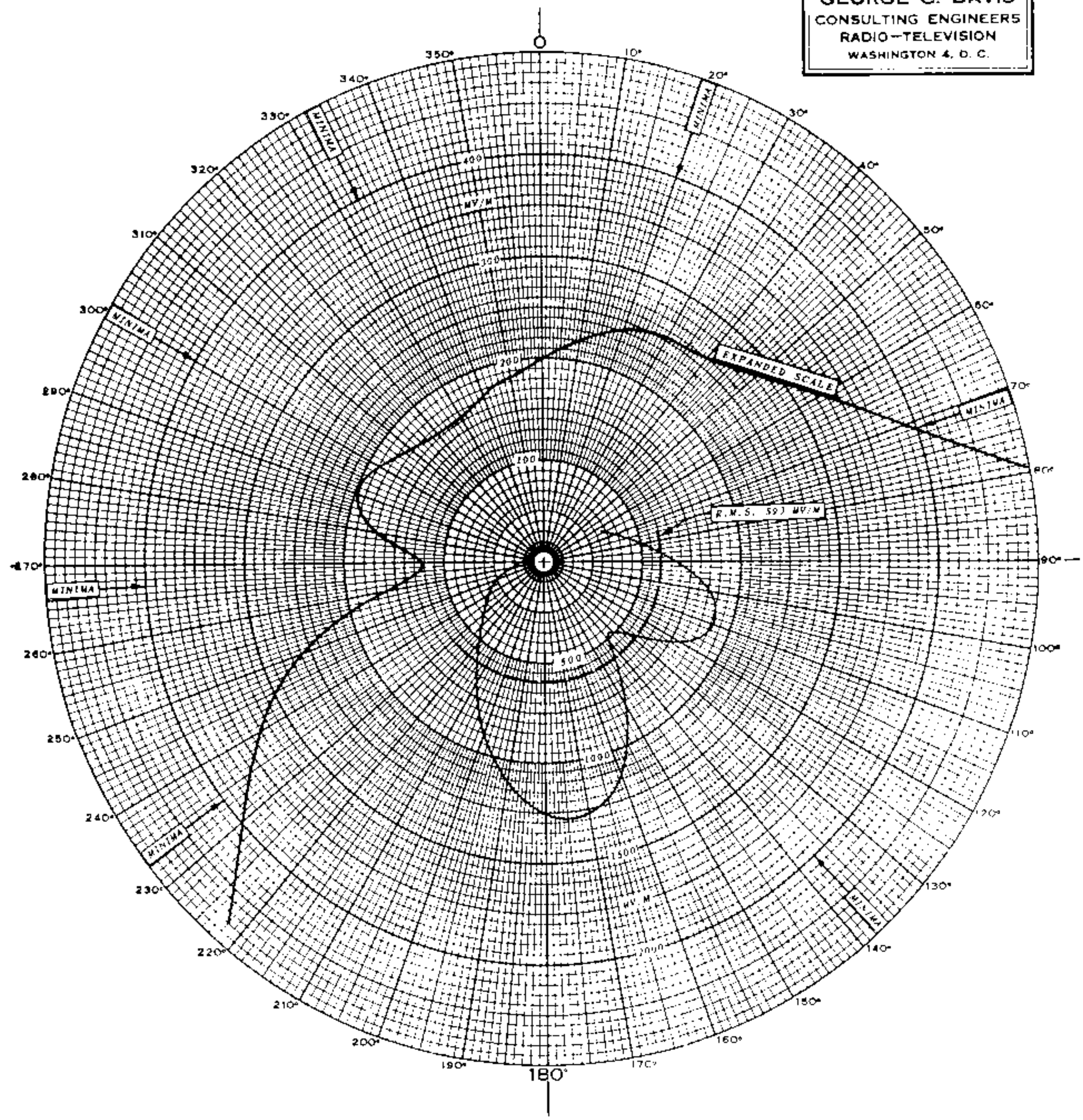
WROA

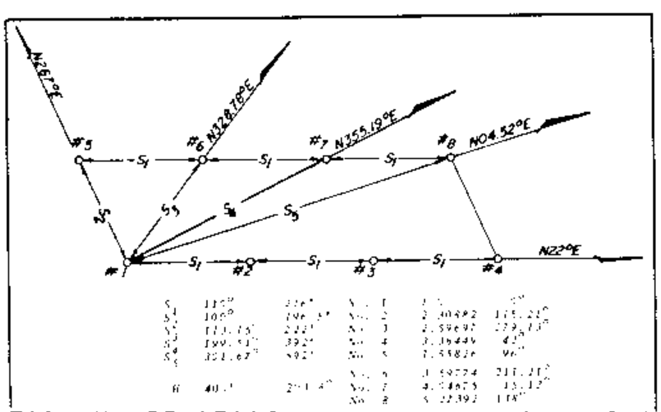
Proposed Day
(3-28-68ct)

Station WROA
Gulfport, Mississippi

5kw,DA-2,U
1390 kc

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





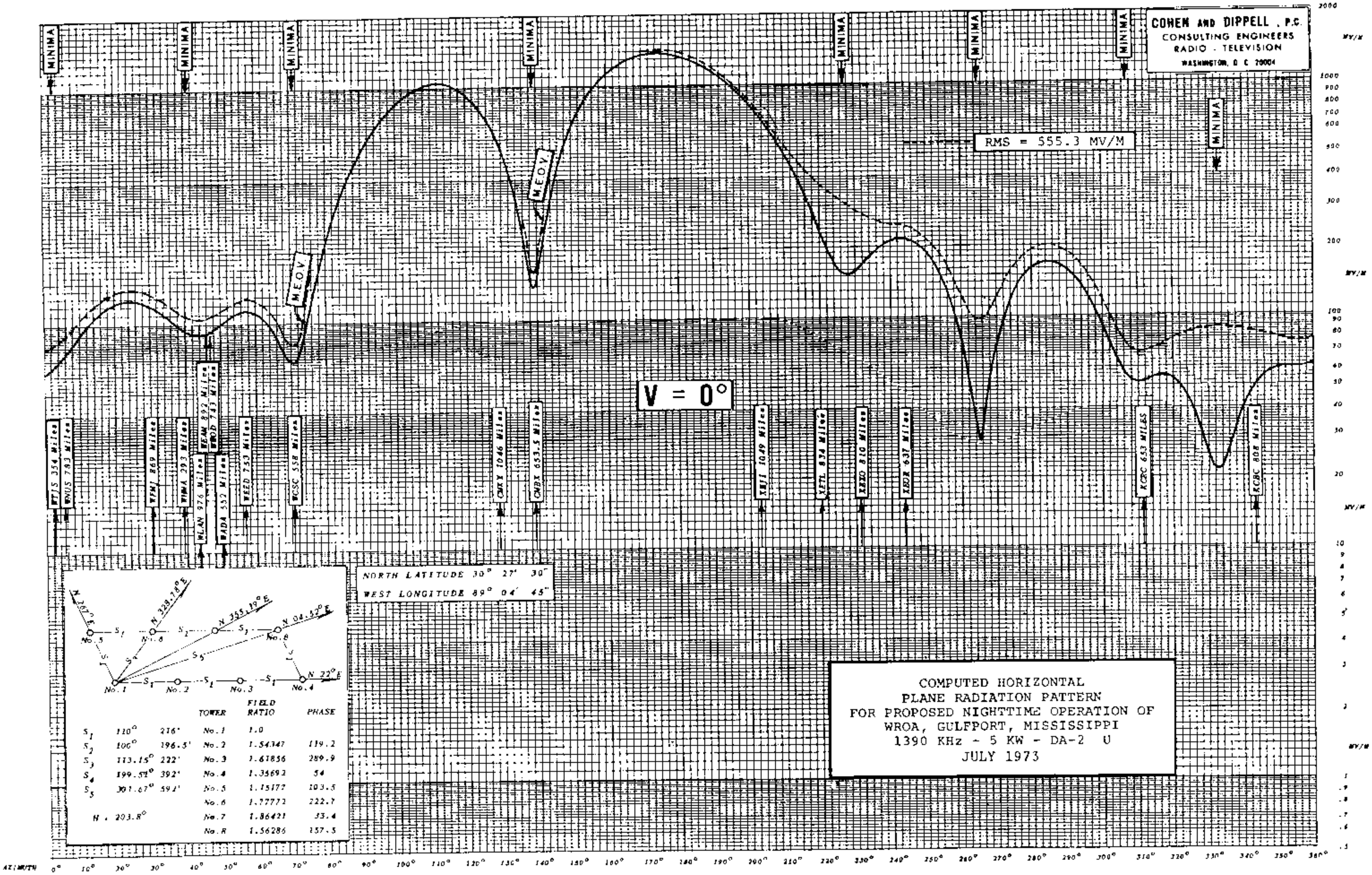
COMPUTED HORIZONTAL
PLANE RADIATION PATTERN
FOR PROPOSED DAYTIME OPERATION OF
WROA, GULFPORT, MISSISSIPPI
1390 KC - 5 KW - DA-2 U
MARCH 1967

NORTH LATITUDE
WEST LONGITUDE

FCC File No.BP-17910
Accepted 3-22-68

Station WROA
Gulfport, Mississippi

1390 kc



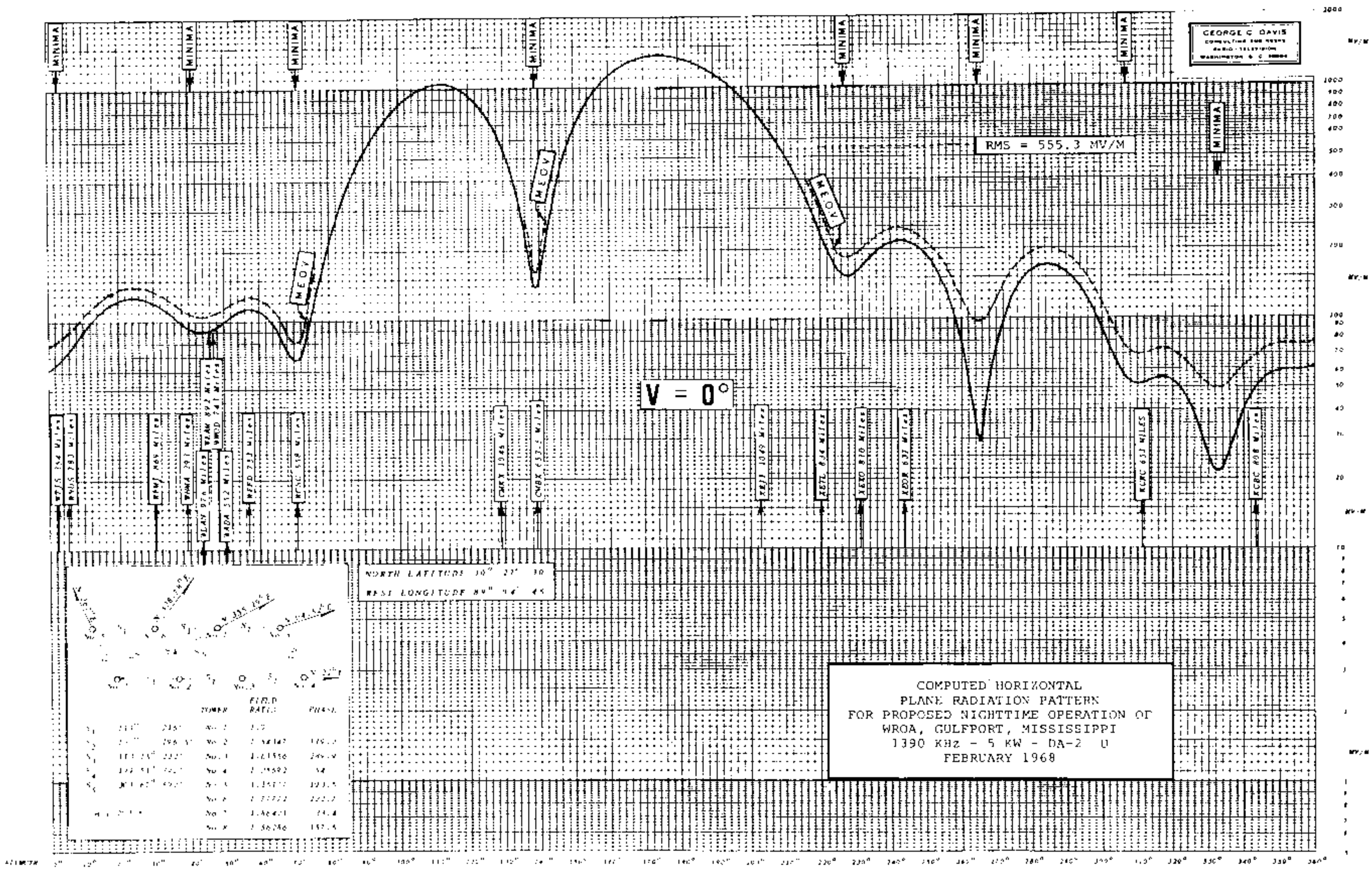
COHEN AND DIPPELL, P.C.
CONSULTING ENGINEERS
RADIO - TELEVISION
WASHINGTON, D. C. 20004
COMPUTED HORIZONTAL
PLANE RADIATION PATTERN
FOR PROPOSED NIGHTTIME OPERATION OF
WROA, GULFPORT, MISSISSIPPI
1390 KHz - 5 KW - DA-2 U
JULY 1973
RMS = 555.3 MV/M
V = 0°
MINIMA
M.E.O.V.
NORTH LATITUDE 30° 27' 30"
WEST LONGITUDE 89° 04' 45"
WTJS 354 Miles
WNUS 783 Miles
WTMJ 869 Miles
WIMA 293 Miles
WEAM 892 Miles
WROD 743 Miles
WLAN 976 Miles
WADA 552 Miles
WEED 753 Miles
WCSC 558 Miles
CMKX 1046 Miles
CMBX 653.5 Miles
XEJI 1049 Miles
XETL 834 Miles
XEZD 810 Miles
XEDR 637 Miles
KCBC 653 MILES
KCBC 808 Miles
TOWER / FIELD RATIO / PHASE
S1 110° 216' No.1 1.0
S2 100° 196.5' No.2 1.54347 119.2
S3 113.15° 222' No.3 1.61856 289.9
S4 199.58° 392' No.4 1.35693 54
S5 301.67° 592' No.5 1.15177 103.5
No.6 1.77771 222.7
H, 203.8° No.7 1.86421 33.4
No.8 1.56286 157.5
AZIMUTH
MV/M

WKOA

Proposed Night Nulls
(3-28-68ct)

Station WROA
Gulfport, Mississippi

5kw,DA-2,U
1390 kc



FCC File No.BP-17910
Accepted 3-22-68

Station WROA
Gulfport, Mississippi

1390 kc

WROA

WTJS

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WTJS

Main Studio: Jackson, Tennessee

Frequency: 1390 kHz

Power: 1 kW Night 5 kW Day

Notification List No. 1730

Date: April 20, 1977 Class: III

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

Daytime				NIGHTTIME			
North Latitude	35°	38'	46"	North Latitude	35°	38'	50"
West Longitude	88°	49'	57"	West Longitude	88°	50'	00"

NIGHTTIME ANTENNA CHARACTERISTICS

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

TOWER:	SW(#1)	NE(#2)
HEIGHT ABOVE INSULATORS:	186'	186' (96°)
NIGHT PHASING:	0°	+15°
NIGHT FIELD RATIO:	1	0.720

SPACING AND ORIENTATION: Towers are spaced 487.6' (248°) on a line bearing 60° true.

GROUND SYSTEM: 120-189' equally spaced copper radials plus a 24' square ground screen about each tower.

DAYTIME ANTENNA CHARACTERISTICS

Type of element: 594' tower supporting a shunt fed skirt 160' (81.5°) in height at bottom of tower plus a detuning skirt of height 124' (63°) mounted at the 524' level. Detuning skirt will be adjusted to produce an effective radiating height of 442' (225°).

GROUND SYSTEM: 120-170' equally spaced radials plus a 24' square ground screen about the tower.

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

(Cont'd)

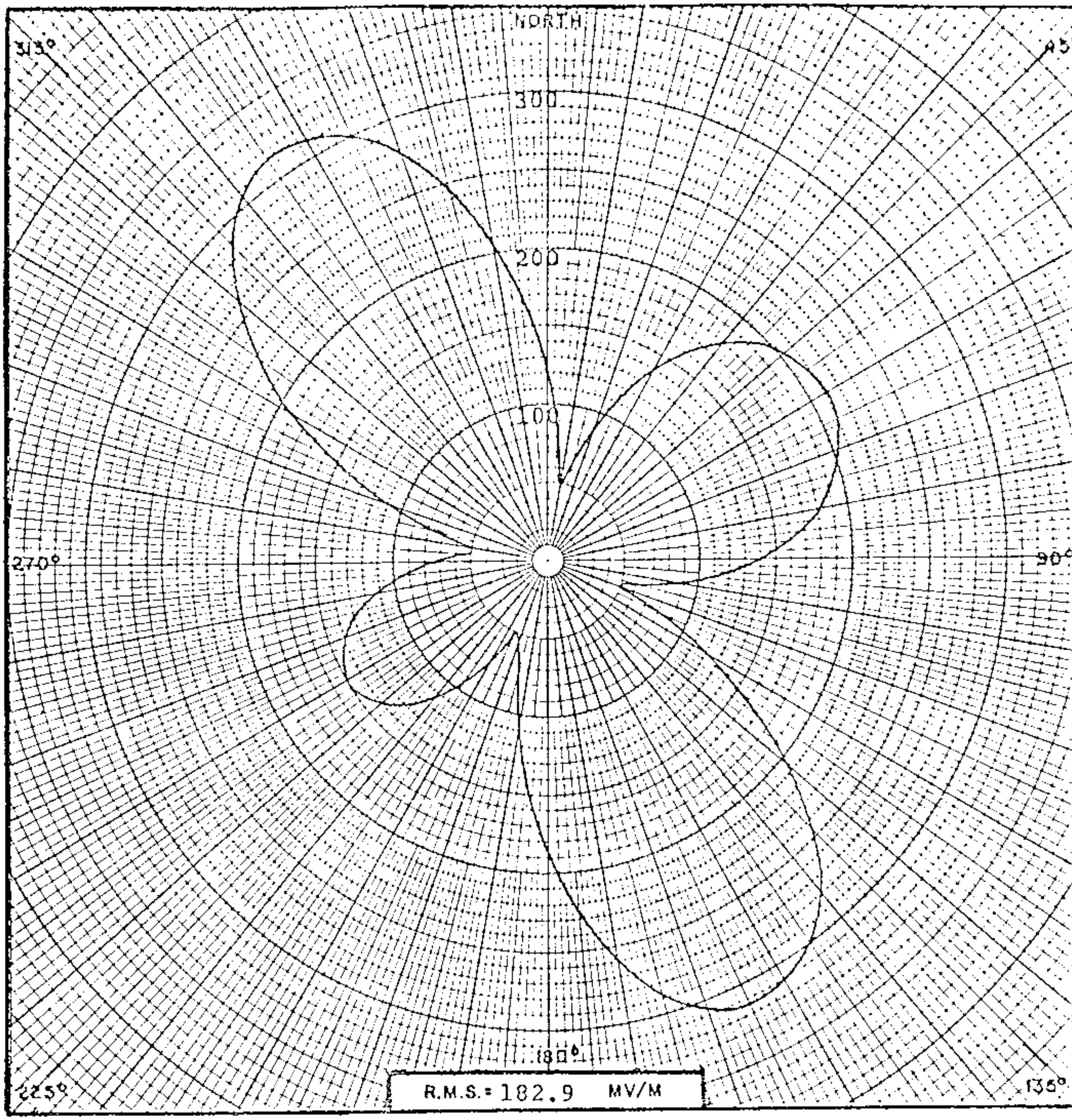
WTJS

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

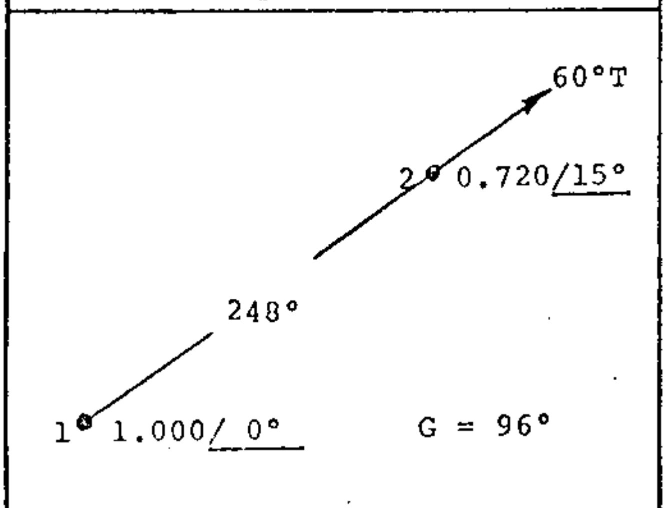
	THEORETICAL RMS
Day	610 mv/m
Night	182.9 mv/m

Note: This notification concerns only a change in the location of the nighttime operation with Daytime operation continued as previously notified. This opportunity is also taken to provide vertical angle directional antenna radiation patterns.

CTR NO 31085A4



PATTERN PARAMETERS



DIRECTIONAL
RADIATION PATTERN
RADIO STATION W T J S

[ ] MEASURED [X] PROPOSED

FREQ. 1390 (KHZ) POWER 1.0 (KW) [ ] DA-D
N. LAT. 35° 38' 50" [ ] DA-N
W. LONG. 88° 50' 00" [ ] N-D
LOCATION: Jackson, Tennessee
DATE: May 1975

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FIGURE 3

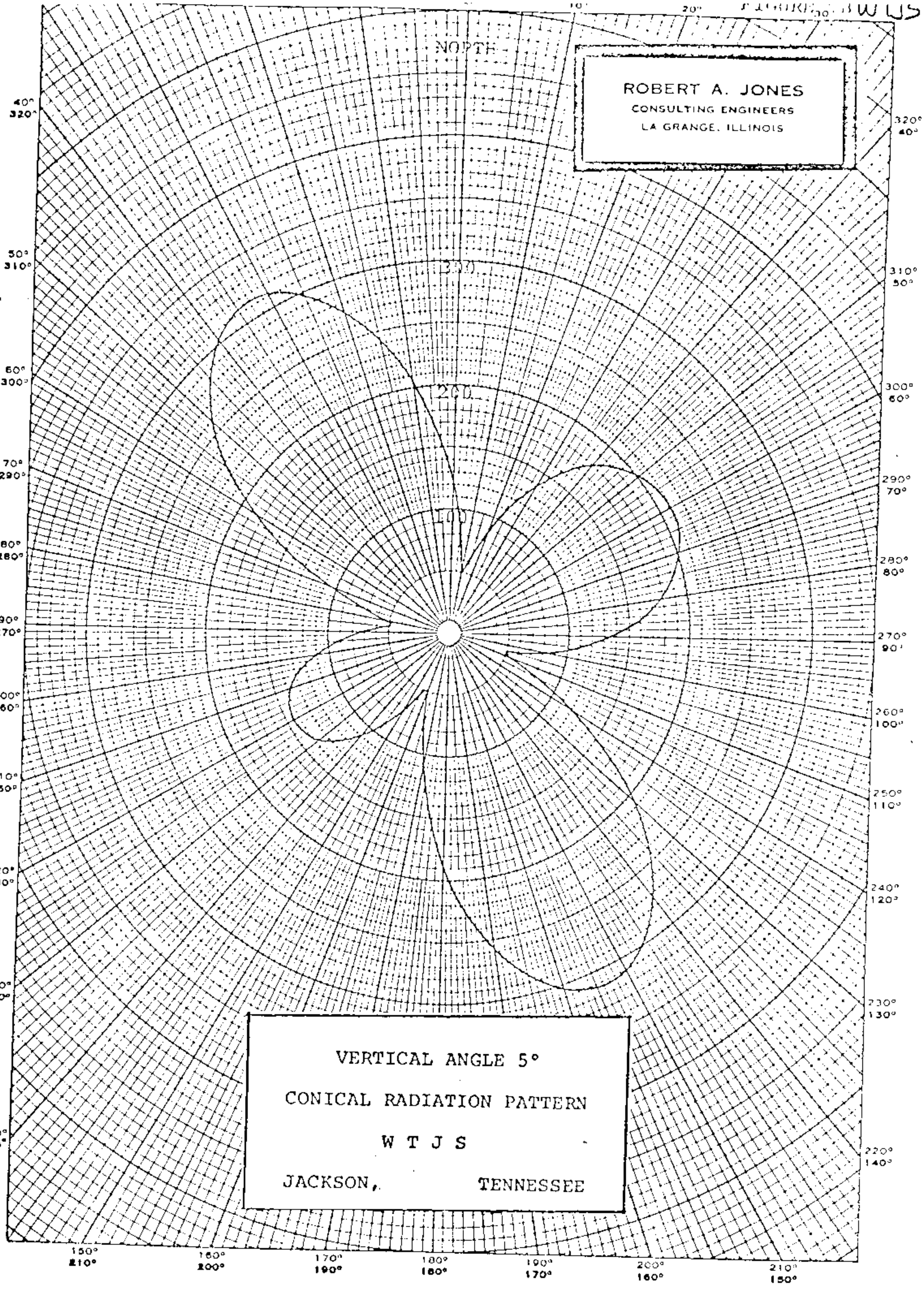

NORTH
100
200
300
ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS
VERTICAL ANGLE 5°
CONICAL RADIATION PATTERN
W T J S
JACKSON, TENNESSEE
EUGENE DIETZGEN CO.
MADE IN U. S. A.
POLAR CO-ORDINATE

FIGURE WTJS

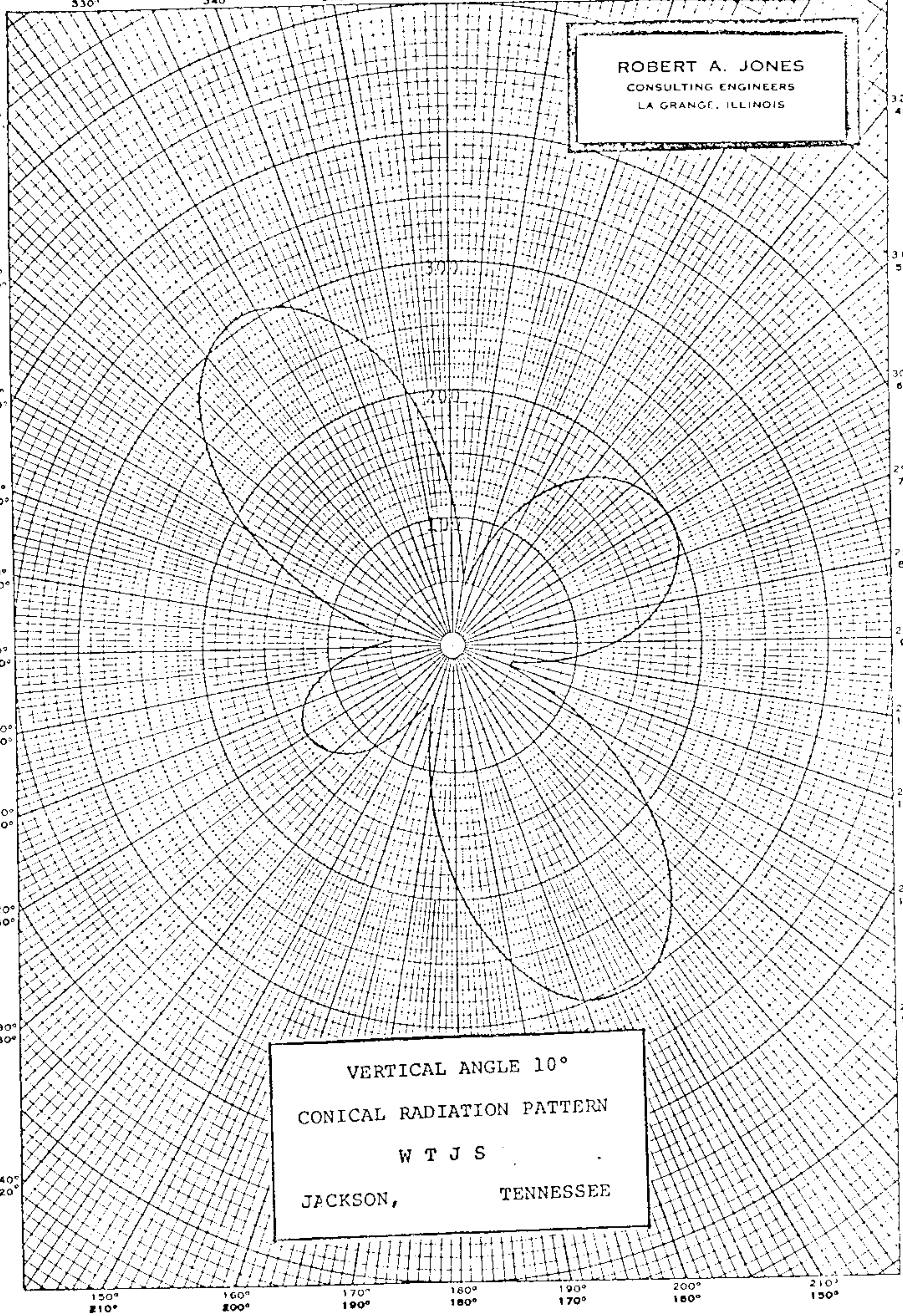
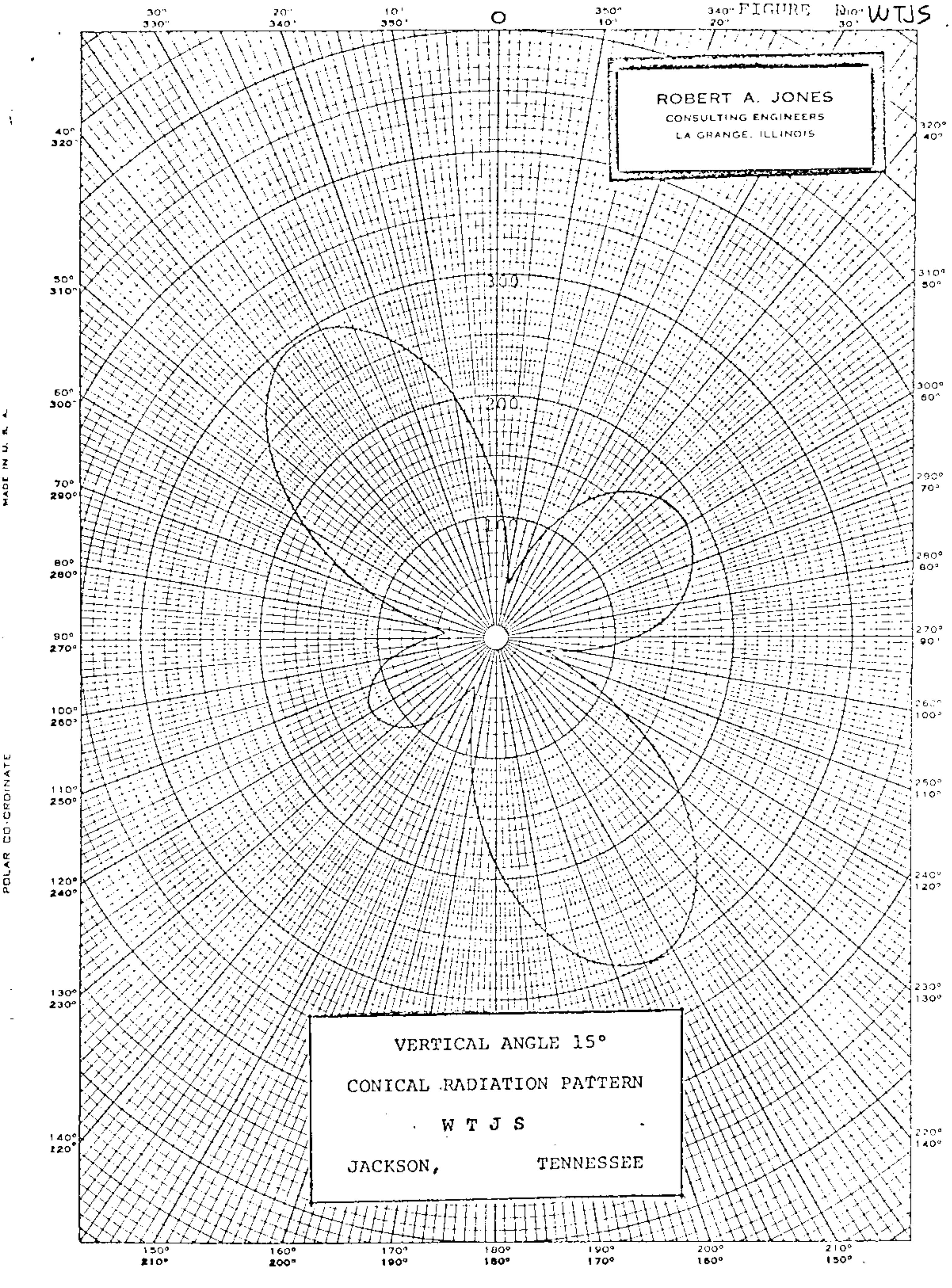
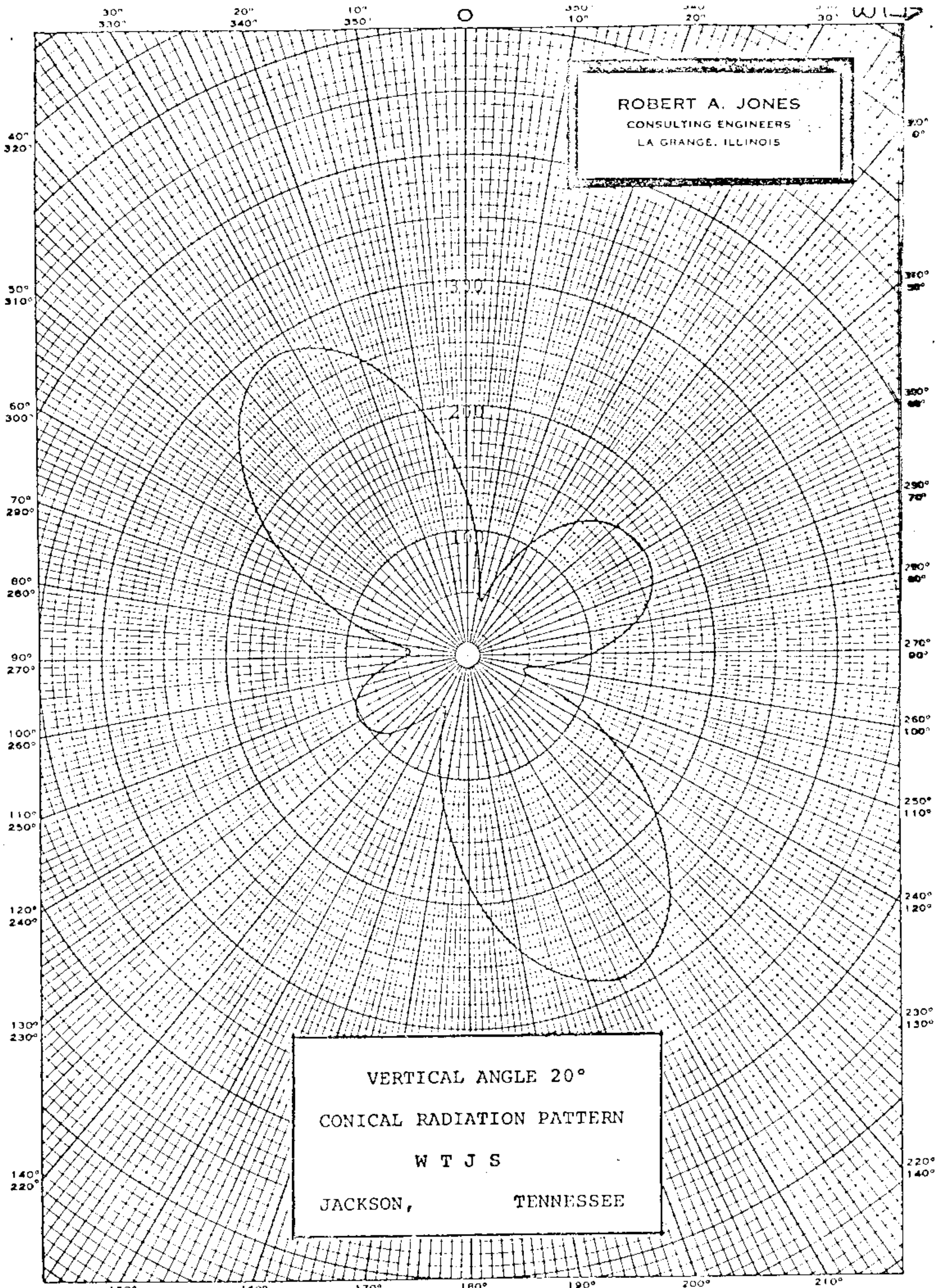
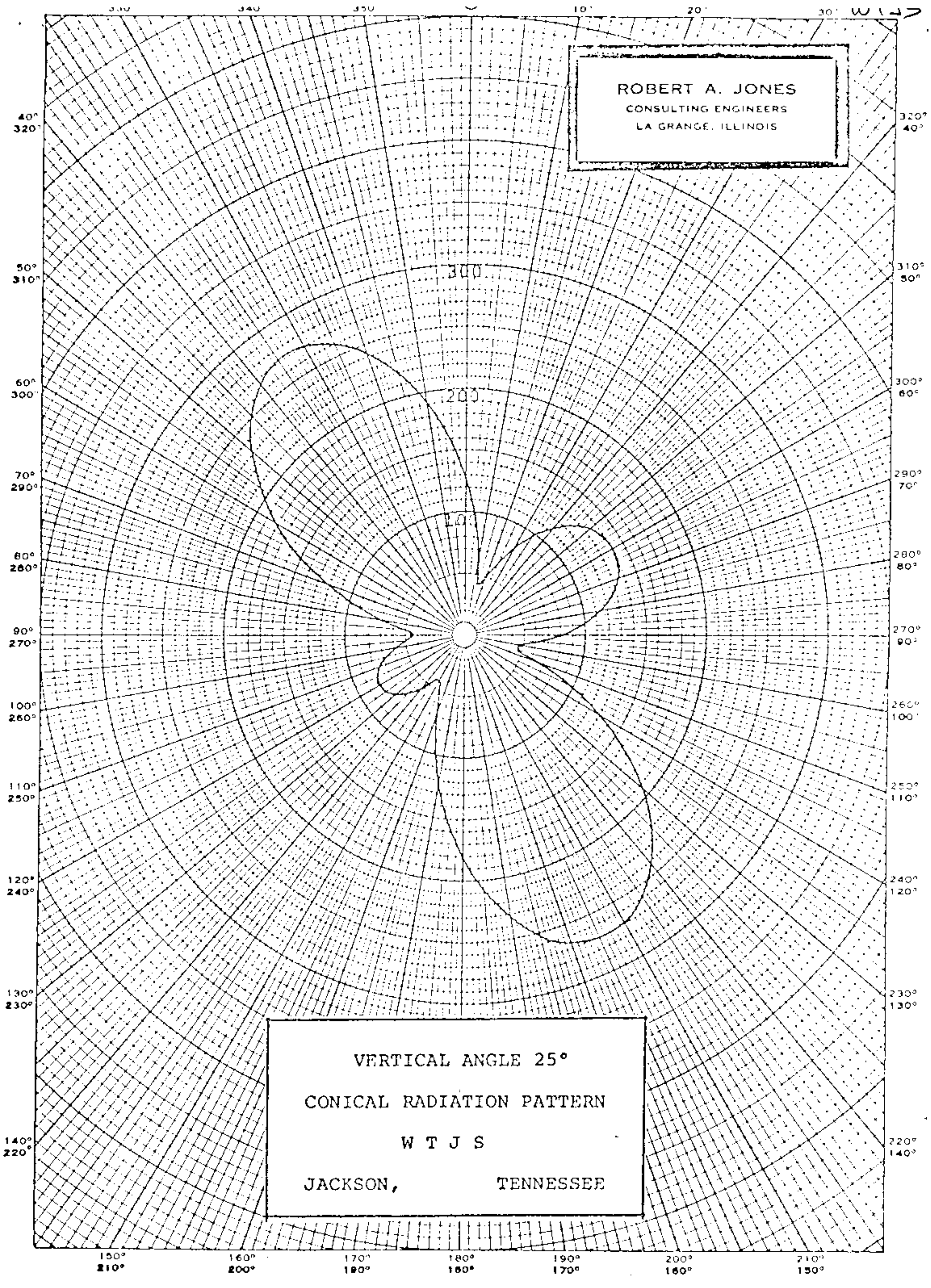
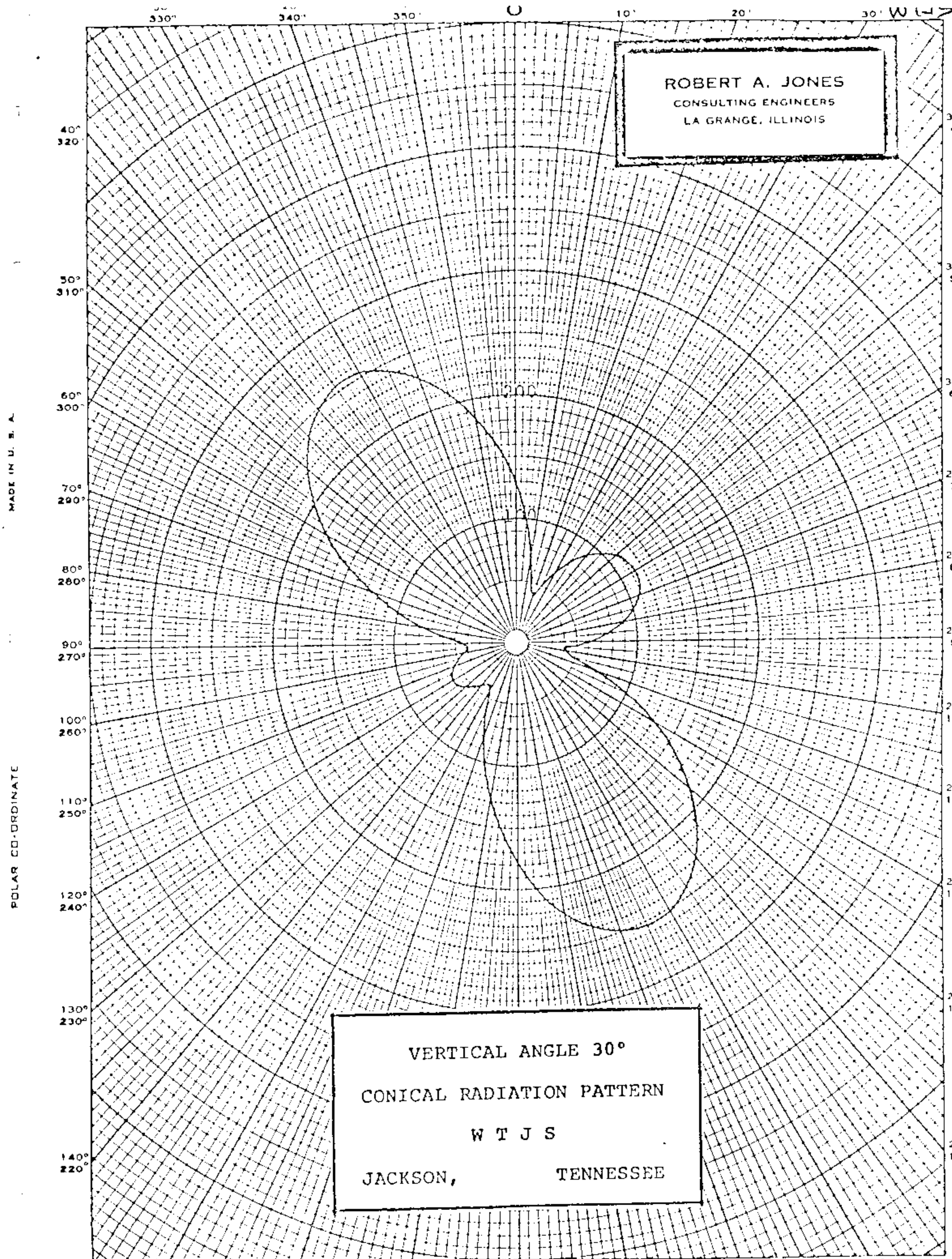

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS
0
100
200
300
VERTICAL ANGLE 10°
CONICAL RADIATION PATTERN
W T J S
JACKSON, TENNESSEE
NO. 340R-P DIETZGEN GRAPH PAPER POLAR CO-ORDINATE
EUGENE DIETZGEN CO. MADE IN U. S. A.

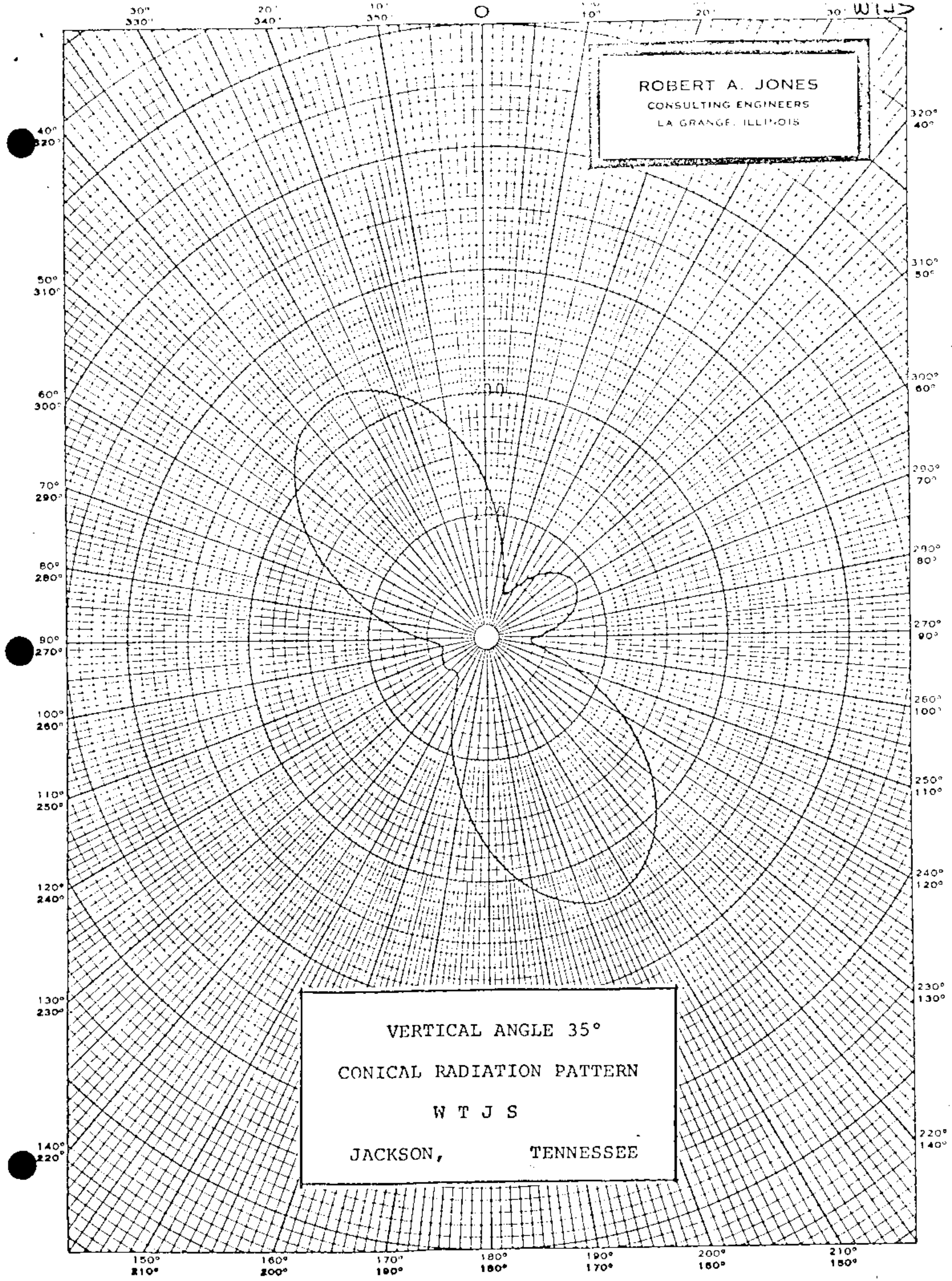
FIGURE No. 10 WTJS




ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS
VERTICAL ANGLE 20°
CONICAL RADIATION PATTERN
W T J S
JACKSON, TENNESSEE
POLAR CO-ORDINATE
MADE IN U. S. A.

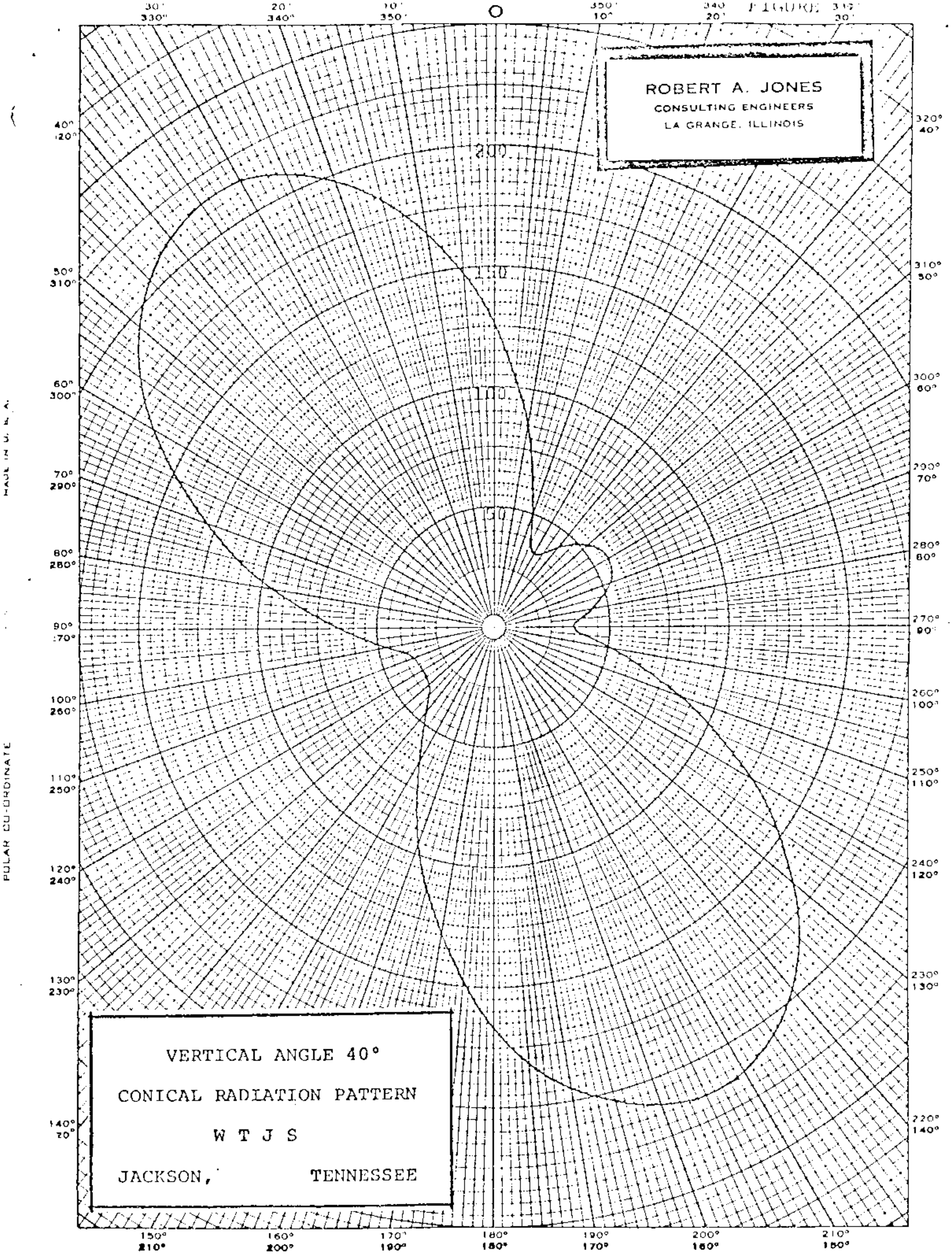

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS
300
200
VERTICAL ANGLE 25°
CONICAL RADIATION PATTERN
W T J S
JACKSON, TENNESSEE
POLAR CO-ORDINATE
MADE IN U. S. A.

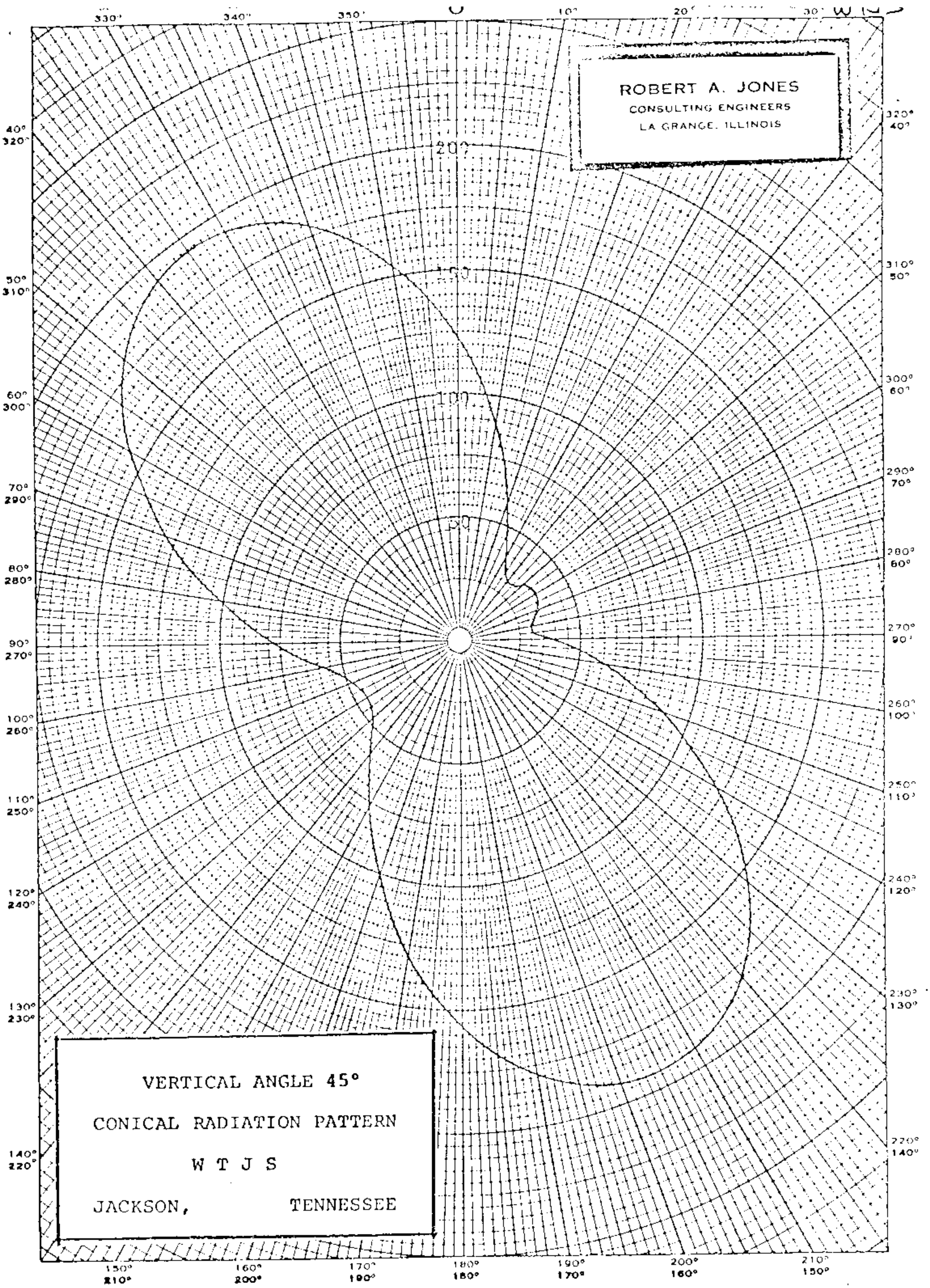

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS
VERTICAL ANGLE 30°
CONICAL RADIATION PATTERN
W T J S
JACKSON, TENNESSEE
POLAR CO-ORDINATE
MADE IN U. S. A.



WTJS
ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS
VERTICAL ANGLE 35°
CONICAL RADIATION PATTERN
W T J S
JACKSON, TENNESSEE
POLAR CO-ORDINATE
MADE IN U. S. A.

FIGURE 37


ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS
VERTICAL ANGLE 40°
CONICAL RADIATION PATTERN
W T J S
JACKSON, TENNESSEE
200
150
100
50
POLAR CO-ORDINATE
MADE IN U. S. A.



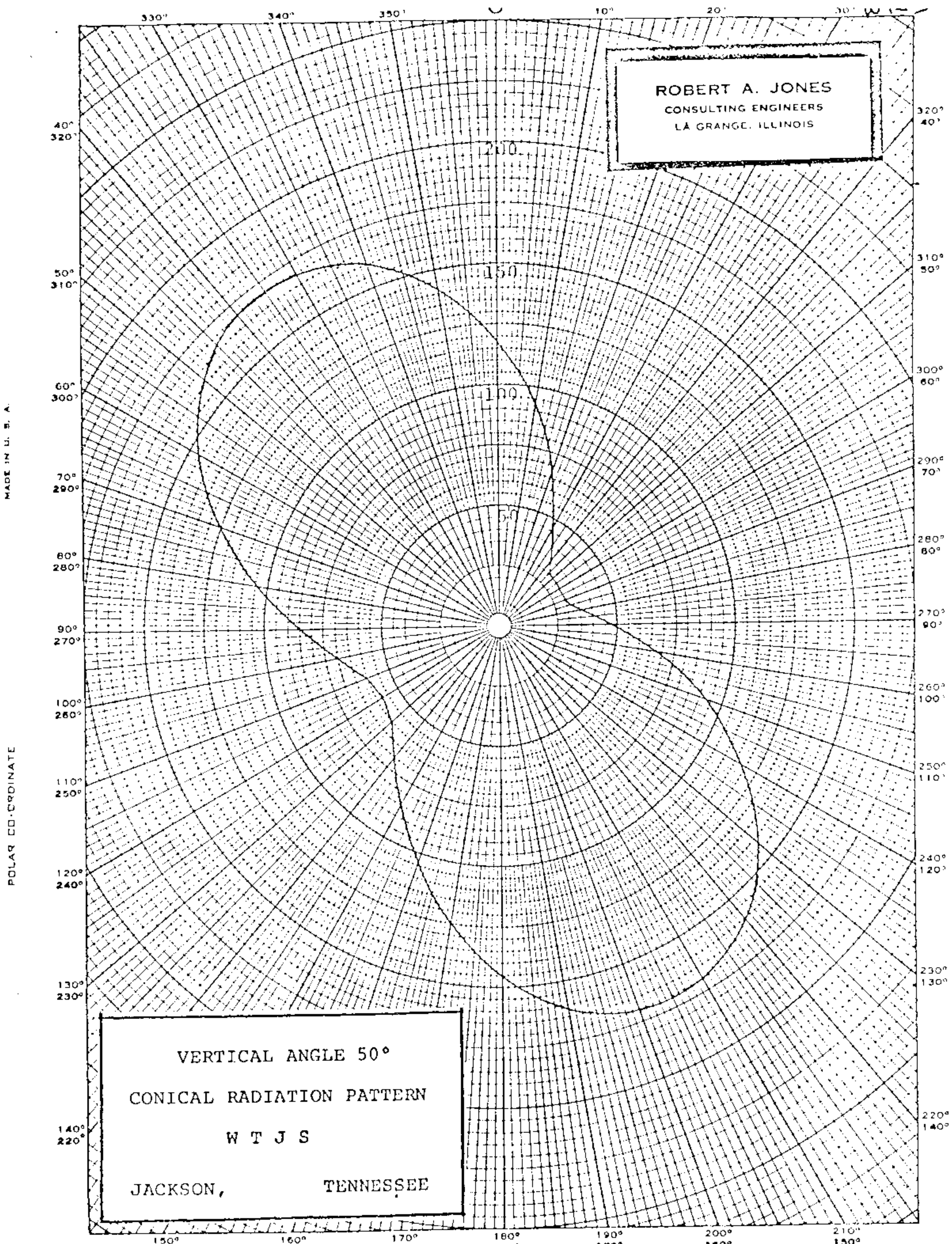
ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

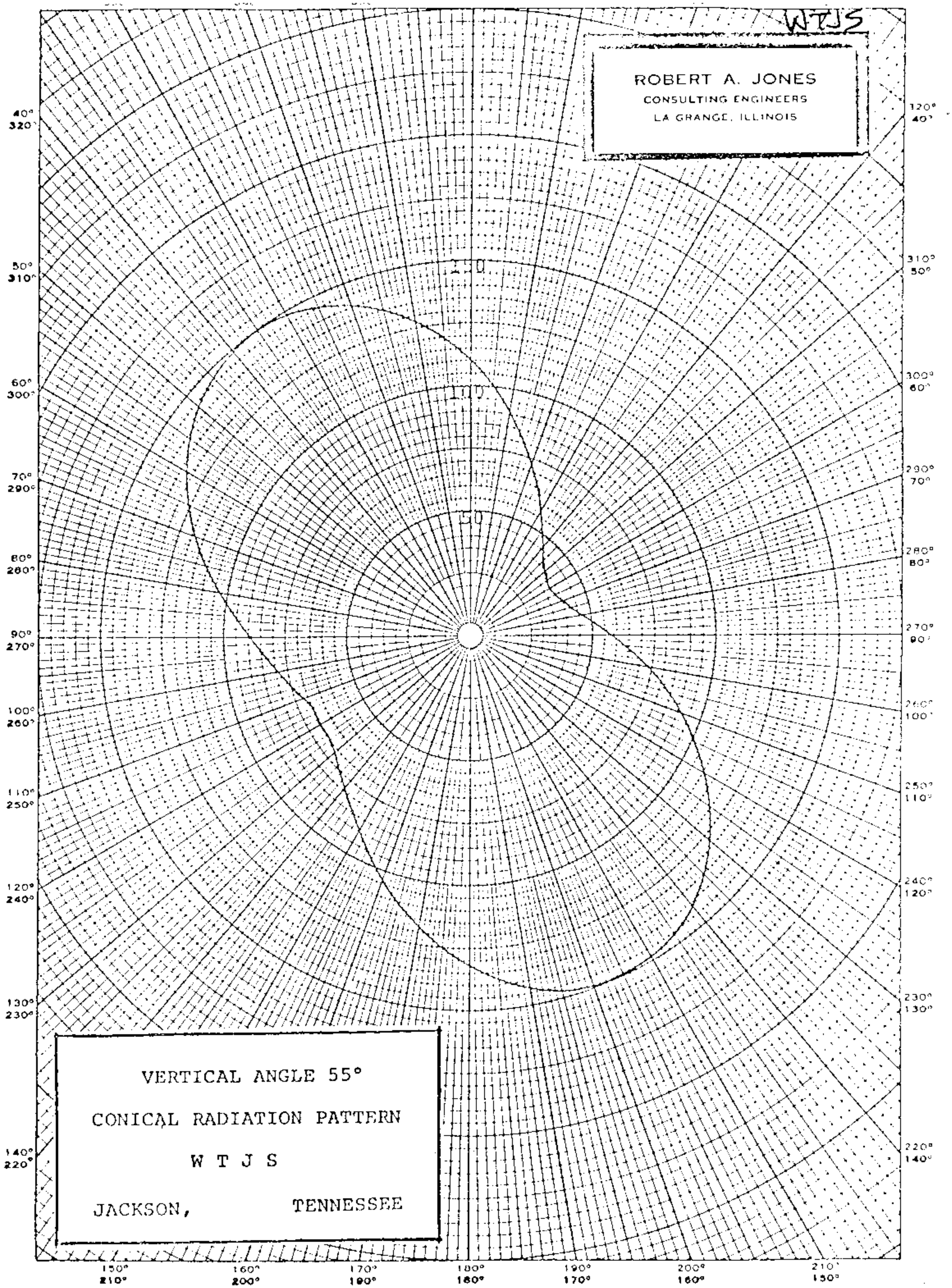
VERTICAL ANGLE 45°

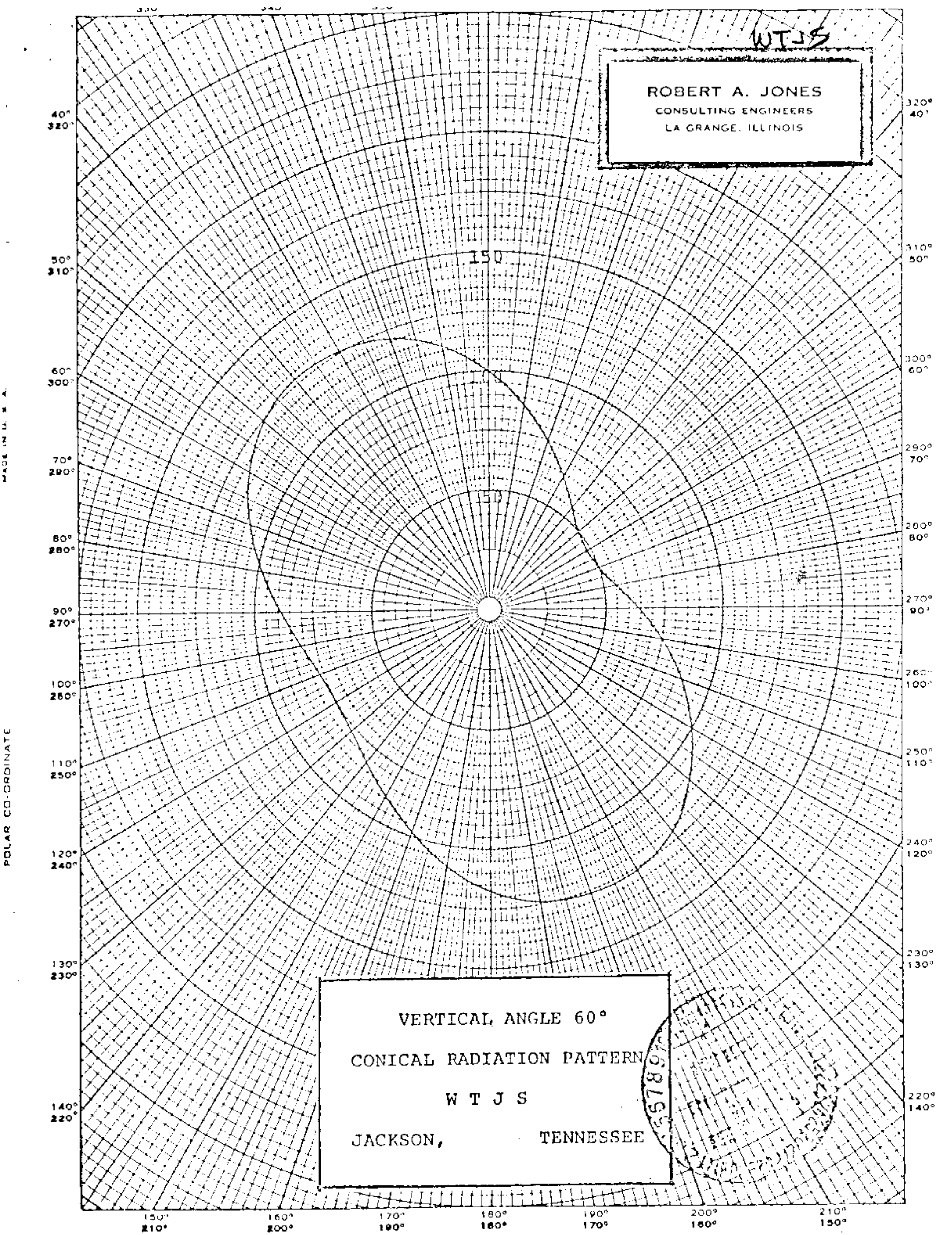
CONICAL RADIATION PATTERN

W T J S

JACKSON, TENNESSEE


ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS
250
150
100
50
VERTICAL ANGLE 50°
CONICAL RADIATION PATTERN
W T J S
JACKSON, TENNESSEE
MADE IN U. S. A.
POLAR CO-ORDINATE


WTJS
ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS
150
100
50
VERTICAL ANGLE 55°
CONICAL RADIATION PATTERN
W T J S
JACKSON, TENNESSEE
POLAR CO-ORDINATE
MADE IN U. S.



WTJS
ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS
150
100
50
VERTICAL ANGLE 60°
CONICAL RADIATION PATTERN
W T J S
JACKSON, TENNESSEE
POLAR CO-ORDINATE
MADE IN U. S. A.

WTJS

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WTJS | Main Studio: Jackson, Tennessee

Frequency: 1390 kHz | Power: 1 kW Night 5 kW Day

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

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

	DAYTIME		NIGHTTIME
North Latitude	35° 38' 46"	North Latitude	35° 34' 58"
West Longitude	88° 49' 57"	West Longitude	88° 48' 41"

NIGHTTIME ANTENNA CHARACTERISTICS

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

TOWER:	West	East
HEIGHT ABOVE INSULATORS:	189'	189' (96°)
PHASING:	0°	$+15^{\circ}$
FIELD RATIO:	1.0	0.72

SPACING AND ORIENTATION: Elements are spaced 487' (248°) on a line bearing 60° true.

GROUND SYSTEM: 120-200' equally spaced copper radials plus a 48' square ground screen about each tower.

Predicted effective Night Field: 185 mv/m at rated power.

DAYTIME ANTENNA CHARACTERISTICS

Type of element: 594' tower supporting a Shunt fed skirt 160' (81.5°) in height at bottom of tower plus a detuning skirt of height 124' (63°) mounted at the 524' level. Detuning skirt will be adjusted to produce an effective radiating height of 442' (225°).

Ground system: 120-170; equally spaced radials plus a 24' square ground screen about the tower.

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

Note: Please retain the Nighttime directional antenna radiation pattern originally notified for Station WTJS in 1941 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.

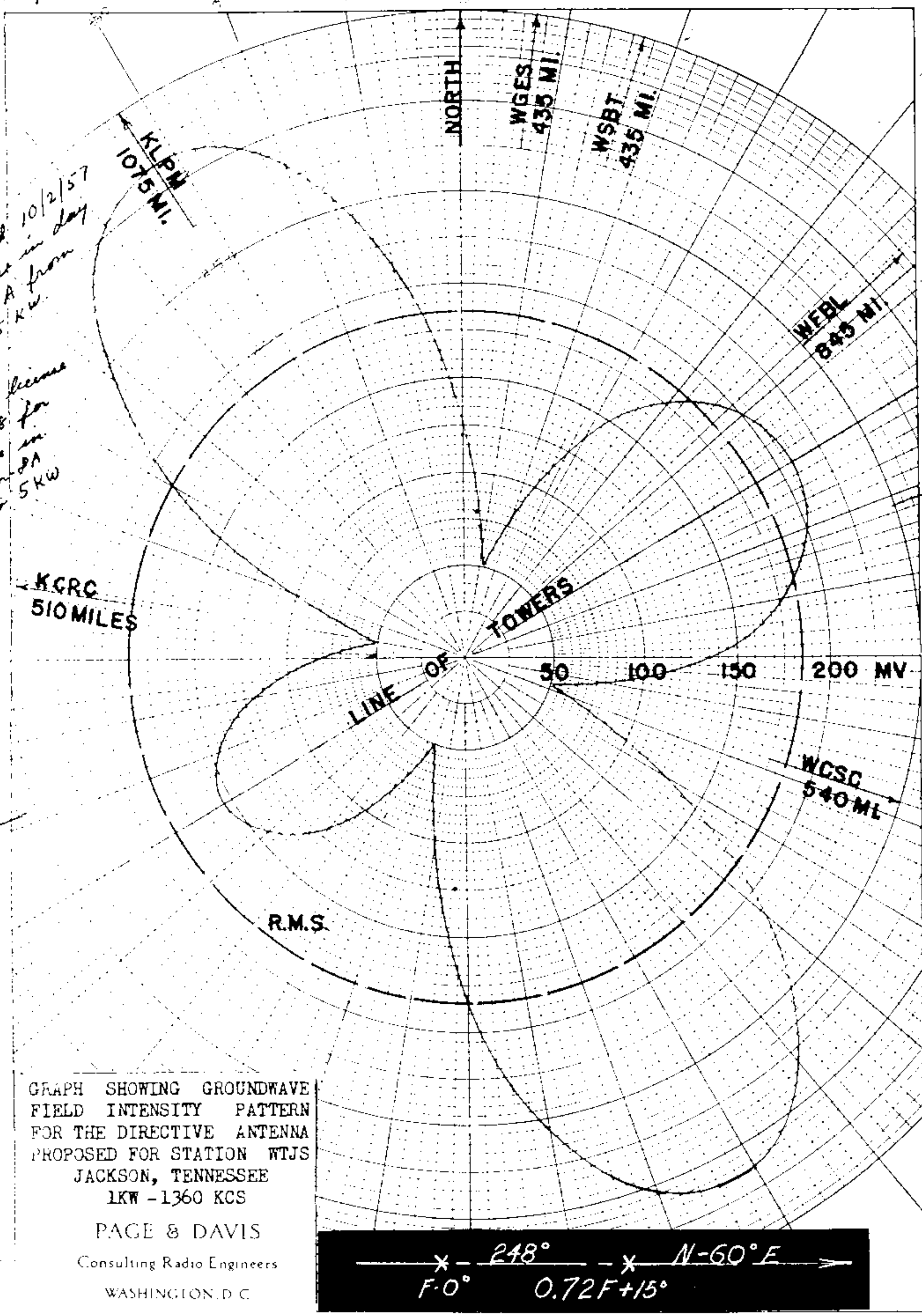
CTR NO. 31085A3

Prop Nite

WTJS 1390

Granted 10/2/57 increase in day Non DA from 1 to 5 KW.

Granted license 9-17-58 for increase in day Non DA power to 5 KW



GRAPH SHOWING GROUNDWAVE FIELD INTENSITY PATTERN FOR THE DIRECTIVE ANTENNA PROPOSED FOR STATION WTJS JACKSON, TENNESSEE 1KW - 1360 KCS

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

KEUFFEL & ESSER CO., N.Y. NO 343A
POLAR CO-ORDINATE
MADE IN U.S.A.

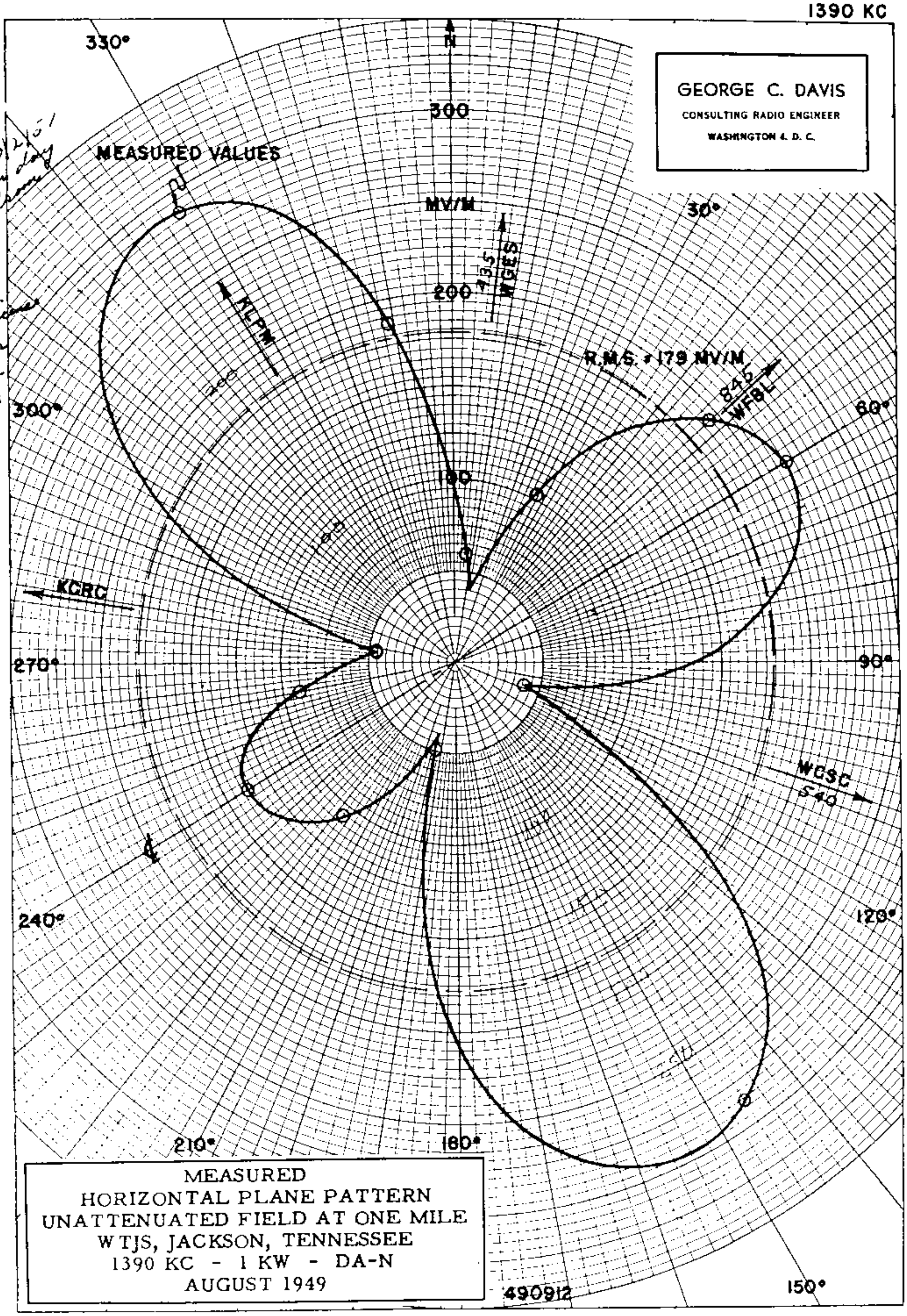
Meas. Nite

WTJS
1390 KC

GEORGE C. DAVIS
CONSULTING RADIO ENGINEER
WASHINGTON 4, D. C.

Granted 10/2/51 increase in day non DA from 1 to 5 KW

Granted license 9-17-58 for increase in day Non-DA power to 5 KW



MEASURED
HORIZONTAL PLANE PATTERN
UNATTENUATED FIELD AT ONE MILE
WTJS, JACKSON, TENNESSEE
1390 KC - 1 KW - DA-N
AUGUST 1949

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: W G E S | Main Studio: Chicago, Illinois

Frequency: 1390 Kcs. | Power: 5kw.

Notification List No. 334 | Date: September 21, 1949 Class: III-A

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 41° 44' 12.5"

West Longitude: 87° 42' 00.0"

* ANTENNA CHARACTERISTICS

Authorized for Day and Night operation. (DA-2)
Number of elements: Four (4)
Type of elements: Series-fed, self-supporting, tapered, vertical steel towers.

TOWER:	NORTH WEST	NORTH EAST	SOUTH EAST	SOUTH WEST
HEIGHT ABOVE INSULATORS:	198'	198'	198'	198' (101°)
SPACING:	(See "SPACING AND ORIENTATION" below)			
NIGHT PHASING:	00°	00°	96.3°	96.3°
NIGHT FIELD RATIO:	1.0	1.0	0.911	0.933
DAY PHASING:	00°	00°	109°	104.2°
DAY FIELD RATIO:	1.6	1.1	1.3	1.0

SPACING AND ORIENTATION: The towers are located at the vertices of a rectangle, the long sides of which are 361.9' (184°) long and are on a line bearing 99° true. The short sides are 177' (90°) long and are on a line bearing 09° true.

GROUND SYSTEM: 120 - 181' equally spaced radials about each tower base. Radials are shortened and bonded by a transverse strap along intersections between the East and West lines of towers. Radials are to be extended to a transverse bonding strap perpendicularly bisecting the line between the North and South lines of towers.

Predicted effective Night Field: 436 mv/m (at rated power)

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

*NOTE: This notification concerns only a change in the daytime directional antenna radiation pattern. A copy of the nighttime directional antenna pattern is attached however, for convenience.

Prop. Day

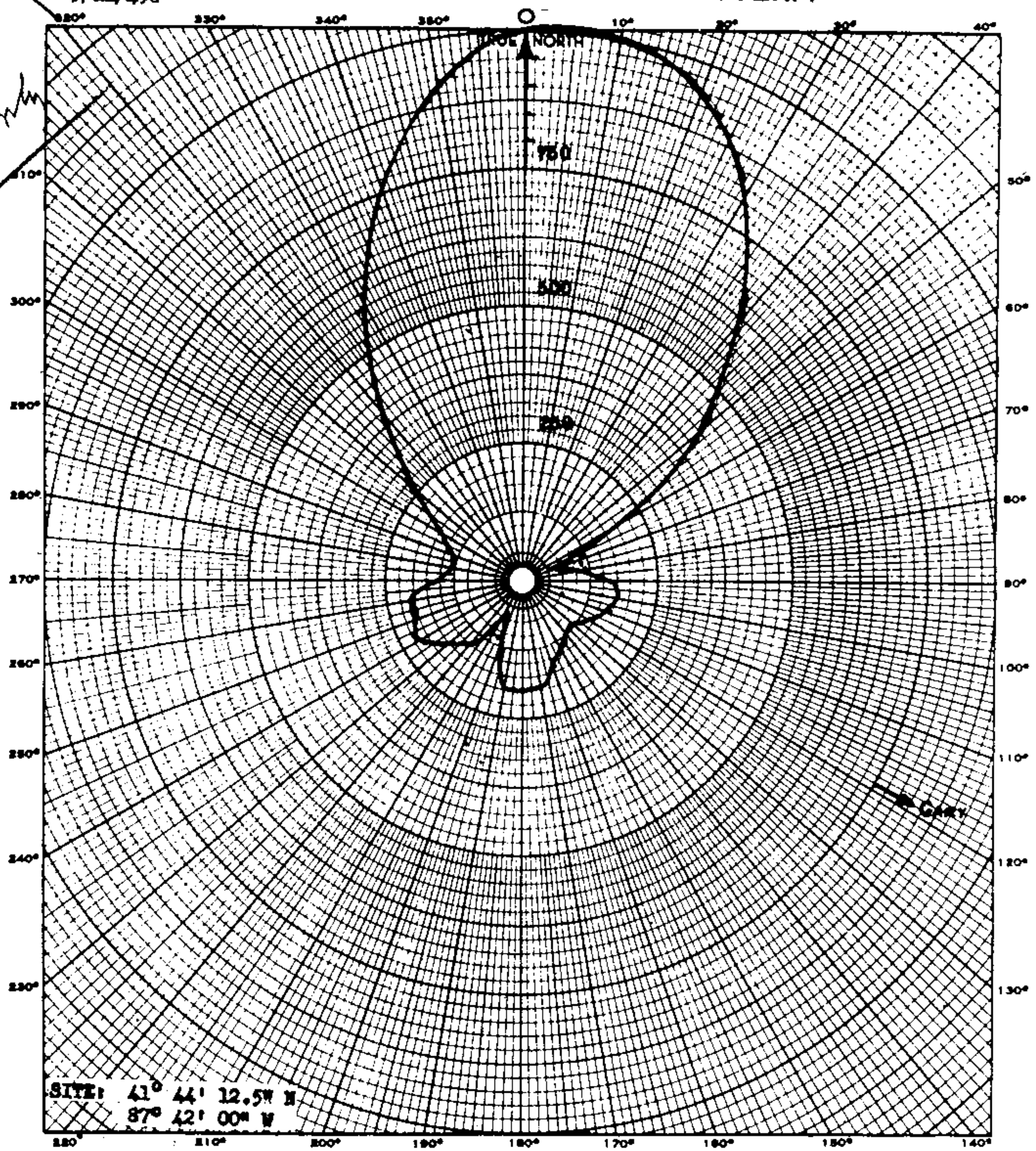
WVON

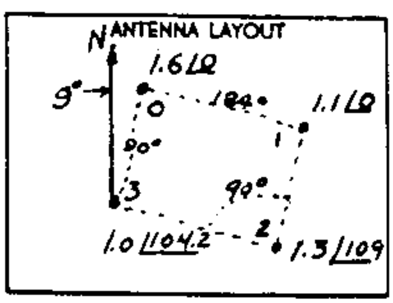
~~PROPOSED~~ ~~NIGHT~~DAY   WGES, CHICAGO, ILL.   5kw, DA(D)   1390 kc

5/11/49G

HORIZONTAL RADIATION PATTERN

Day





WGES — Station

Chicago, Illinois — Location

1390 kc — Frequency

5 KW — Power

436 mv/m — R-M-S Field

4 — No. of Elements

204 ft. — Height of Antenna

MEASURED ☐ CALCULATED ☒ — Pattern

490419 — Eng. Dept. No.

$\delta = 10 \times 10^{-14}$ — Remarks

ELLERY L. PLOTTS
CONSULTING ENGINEER
PARK RIDGE, ILLINOIS

Figure 1B

AMENDMENT TO BP-6700 RECD 4/28/49

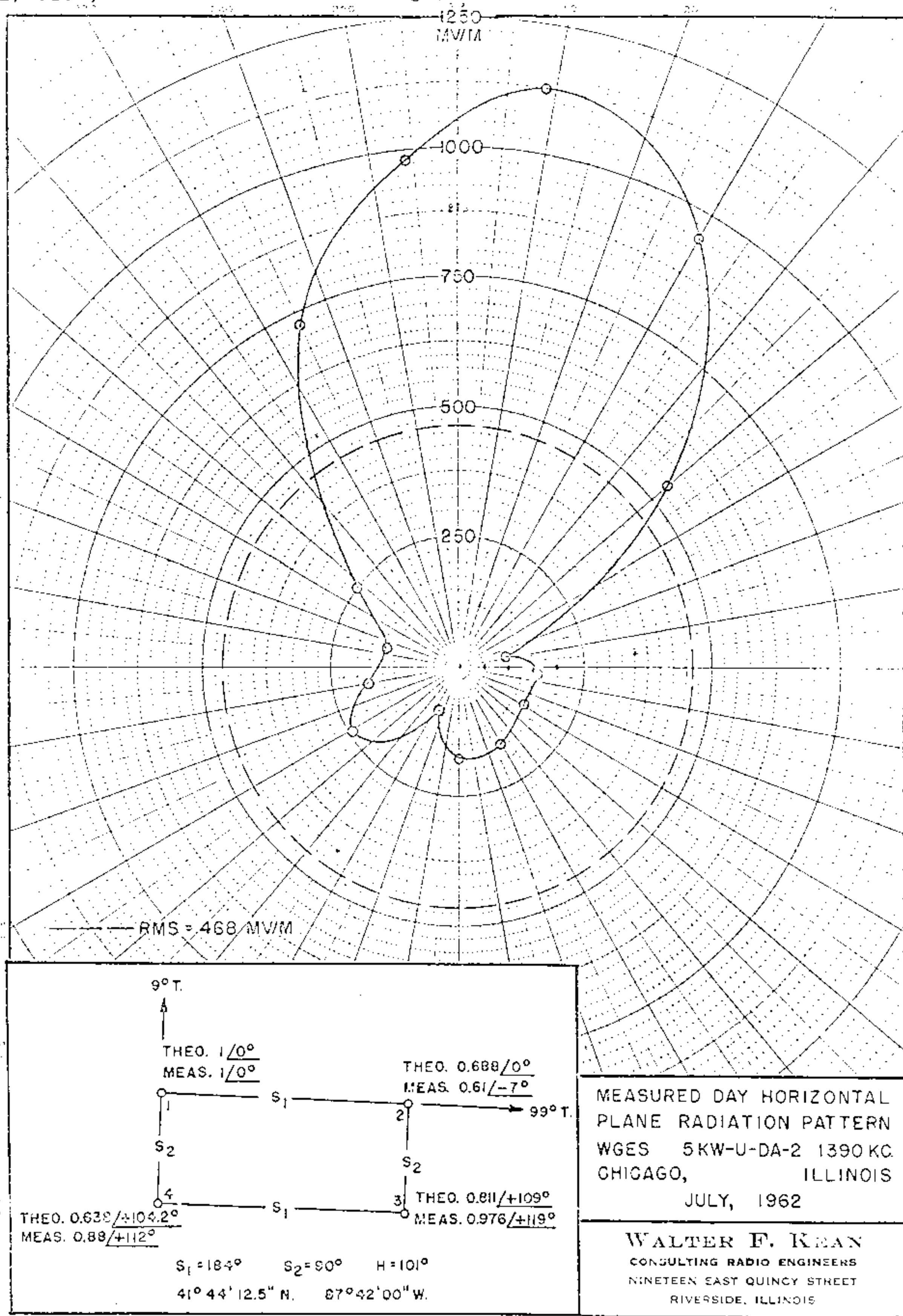
WGES, Chicago, Ill. 1390 kc

WVON

Measured Day
(9-27-62ct)

Station WGES
Chicago, Illinois

5kw,DA-2,U
1390 kc



FCC File No.BZ-4743
Accepted 8-29-62

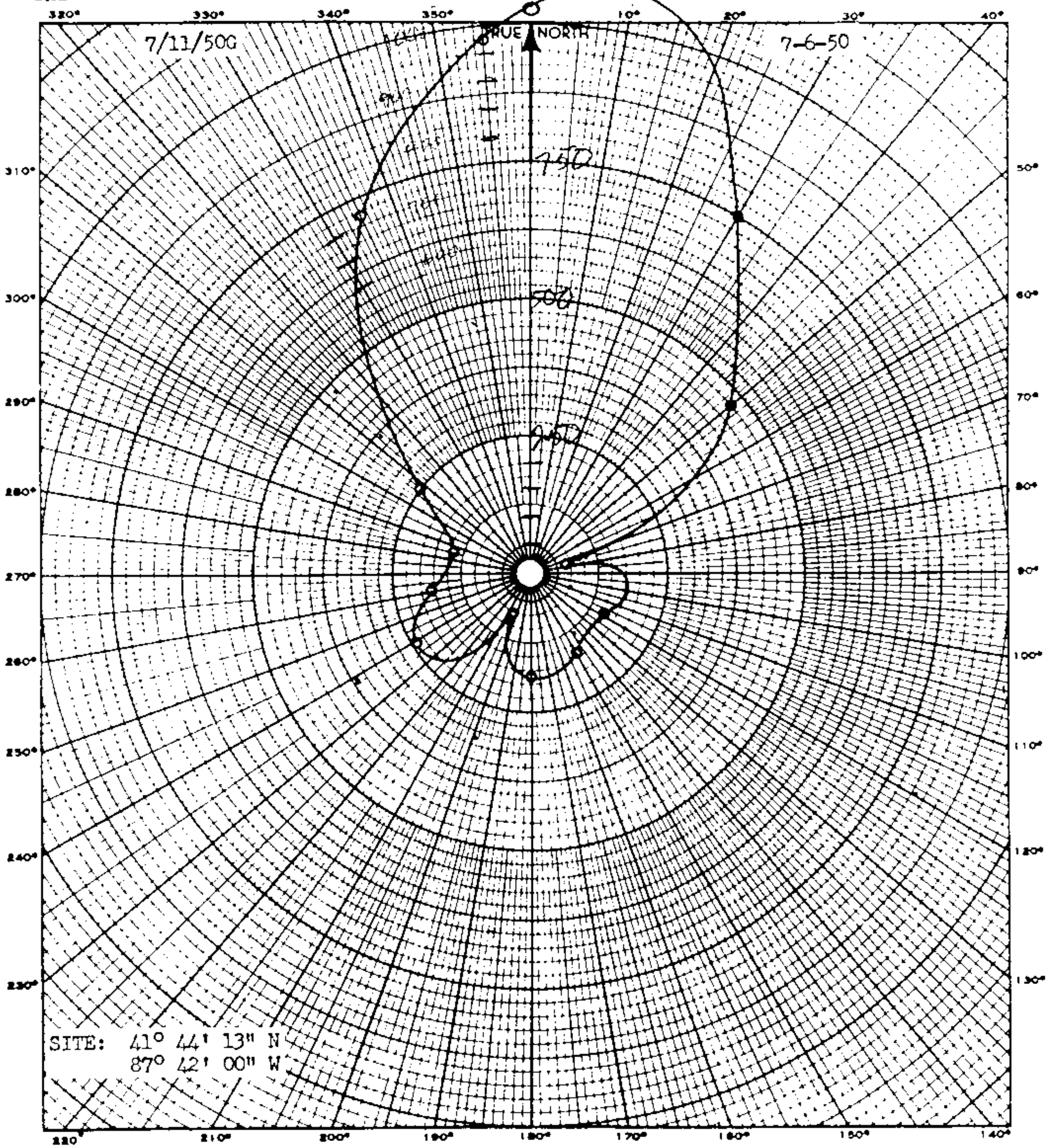
Station WGES
Chicago, Illinois

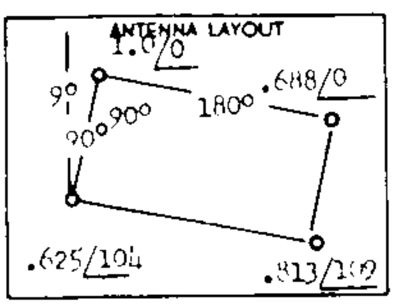
1390 kc

WVON

MEASURED DAY

WGES, CHICAGO, ILL. L RADIATION PAT 5kw, DA-2 1390 kc





WGES — Chicago, Illinois
Station — Location

1390 Kc — 5 KW — 450 mv/m
Frequency — Power — R-M-S Field

4 — 204'
No. of Elements — Height of Antenna

MEASURED ☒ CALCULATED ☐ 5006272
Pattern — Eng. Dept. No.

Day Pattern
Remarks

ELLERY L PLOTTS
CONSULTING ENGINEER
PARK RIDGE, ILLINOIS

Fig 3 C

WVON

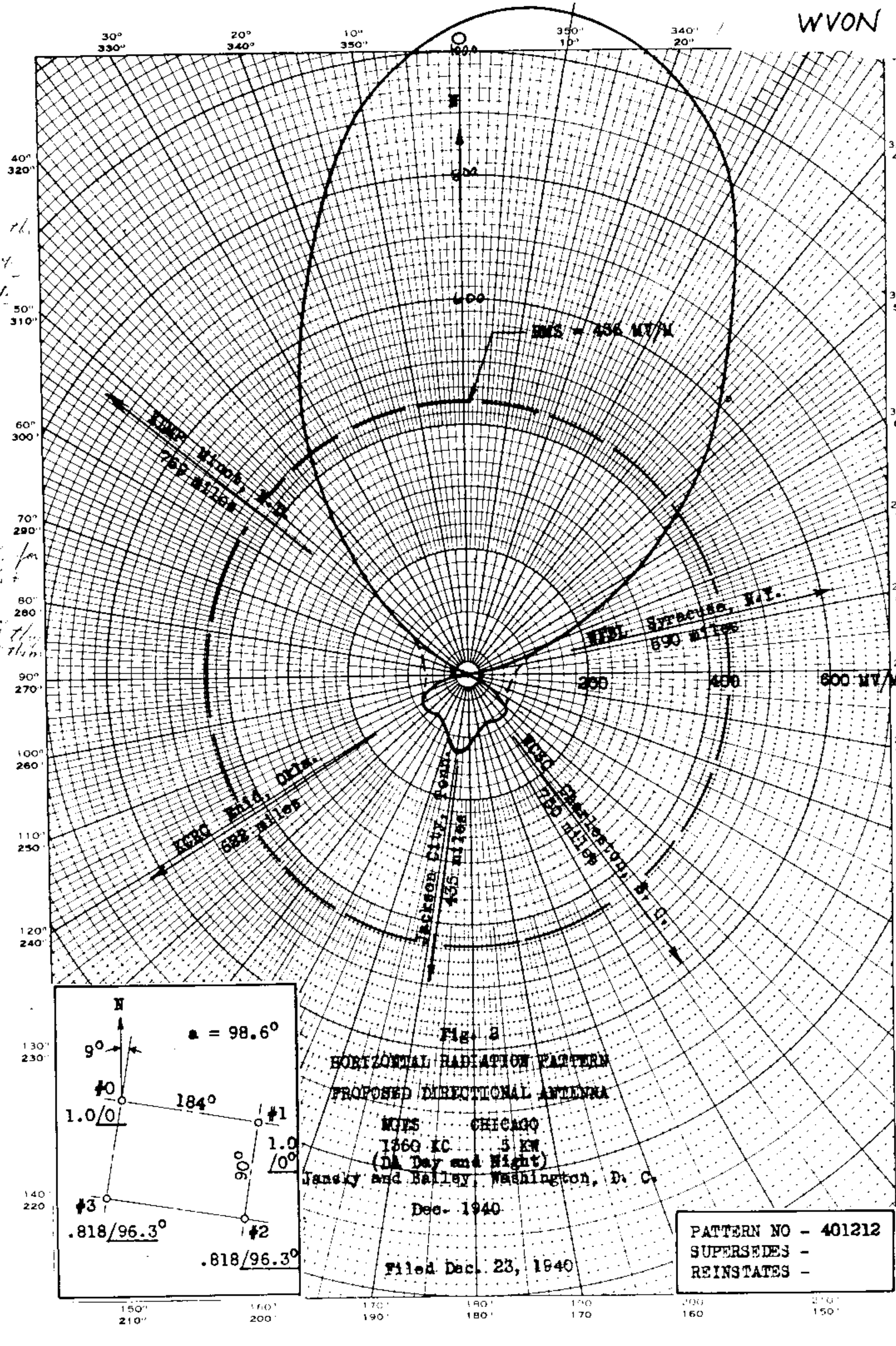


Fig. 2
HORIZONTAL RADIATION PATTERN
PROPOSED DIRECTIONAL ANTENNA
WGES CHICAGO
1360 KC 5 KW
(DA Day and Night)
Jansky and Bailey, Washington, D. C.
Dec. 1940

Filed Dec. 23, 1940

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

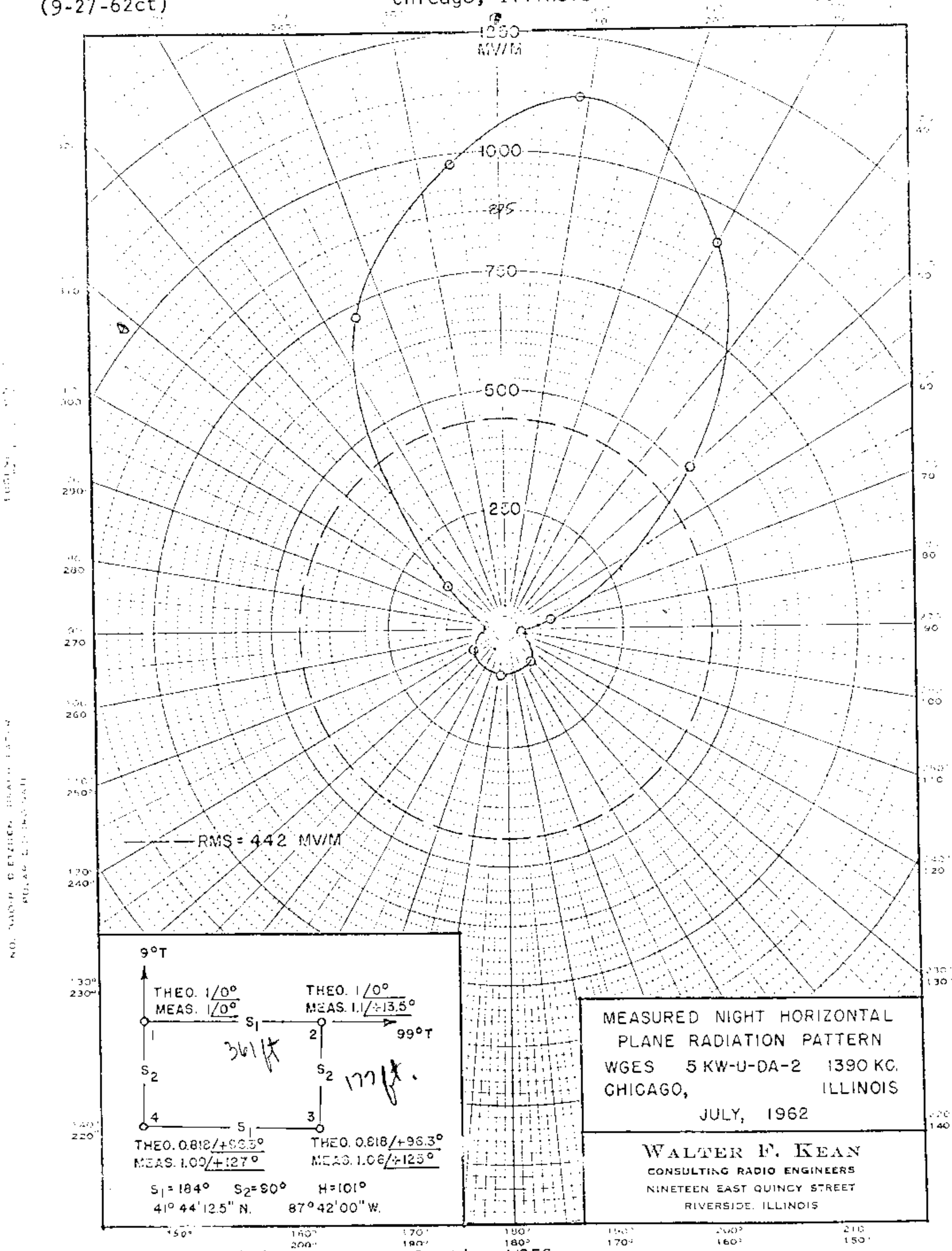
NO. 340-P DIETZGEN GRAPH PAPER
POLAR CO-ORDINATE

WVON

Measured Night
(9-27-62ct)

Station WGES
Chicago, Illinois

5kw,DA-2,U
1390 kc



FCC File No. BZ-4743
Accepted 8-29-62

Station WGES
Chicago, Illinois

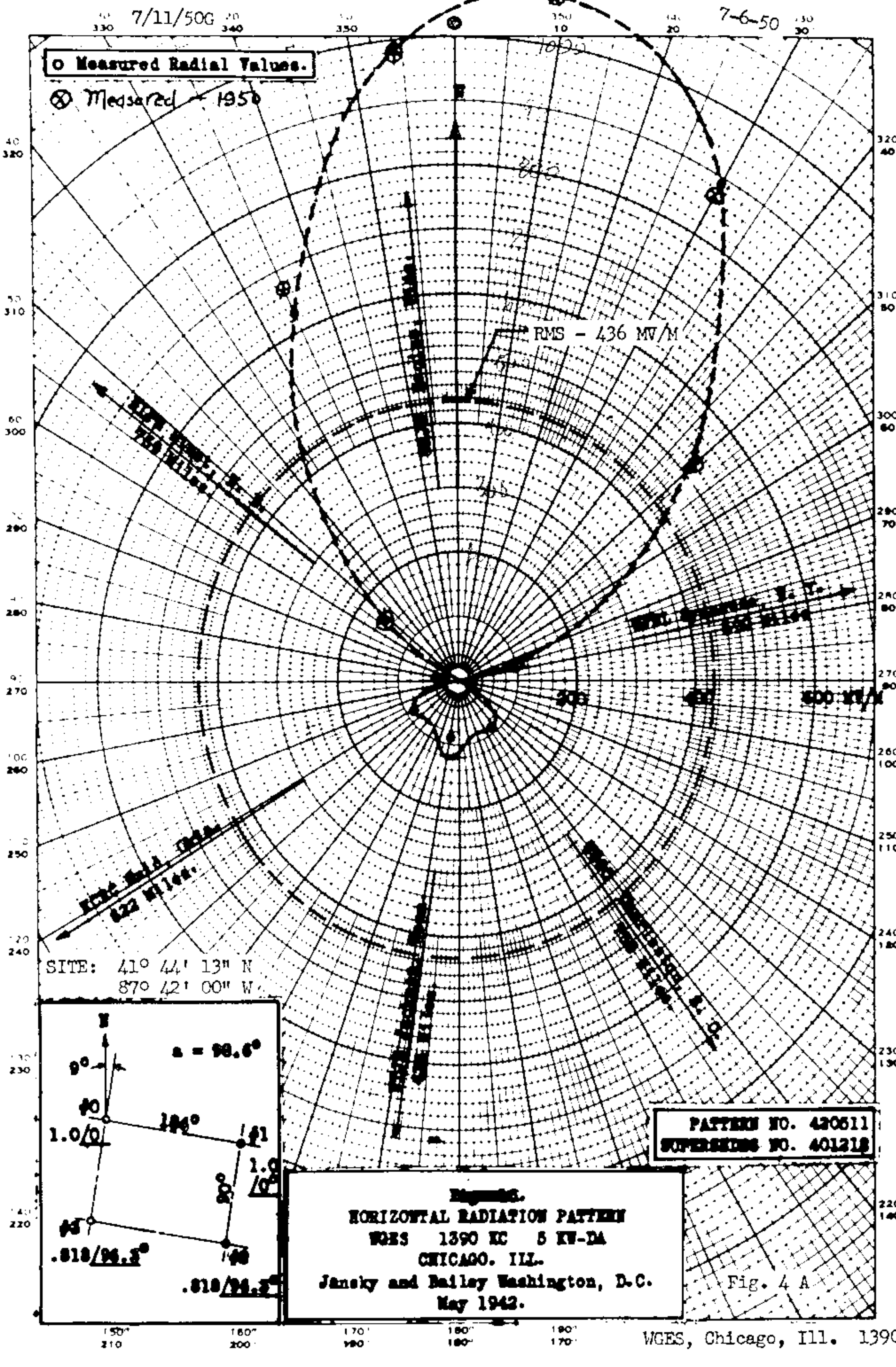
1390 kc

MEASURED
NIGHT

WGES, CHICAGO, ILL.

5kw, DA-2

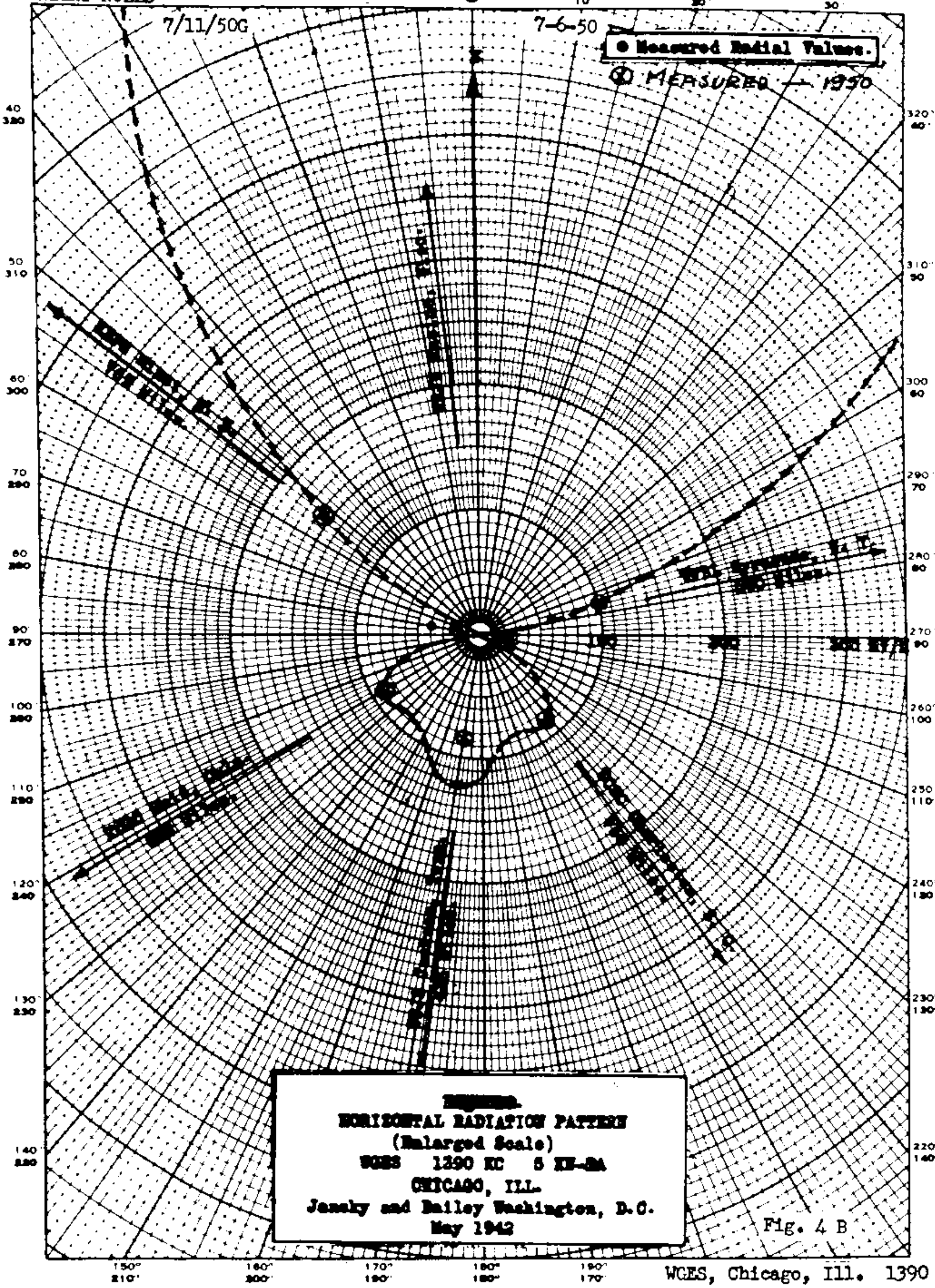
WVON



WGES, Chicago, Ill. 1390 kc

WVON

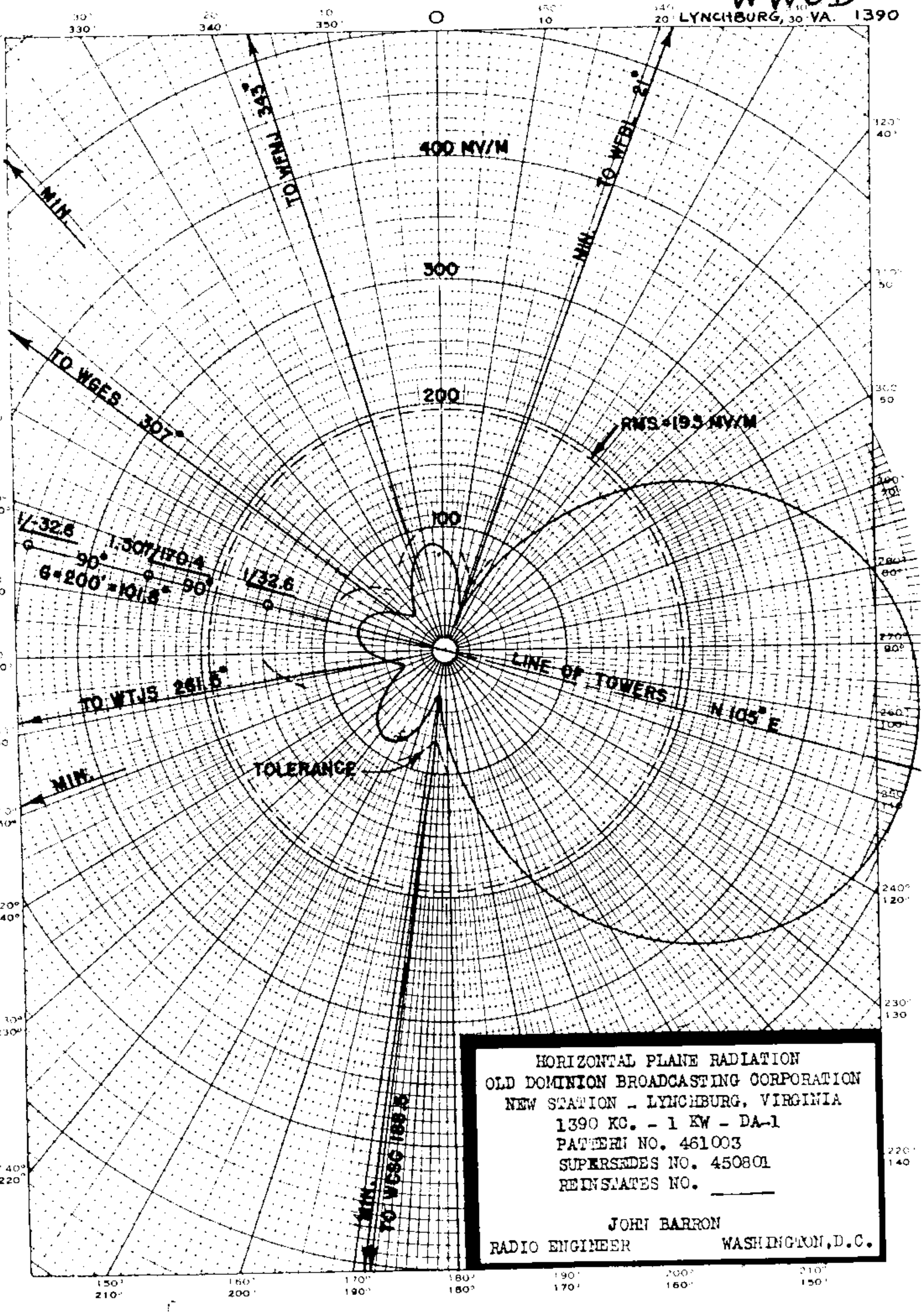
MEASURED NIGHT NULLS　WGES, CHICAGO, ILL.　5kw, DA-2　1390 kc



HORIZONTAL RADIATION PATTERN
(Enlarged Scale)
WGES 1390 KC 5 KW-DA
CHICAGO, ILL.
Jansky and Bailey Washington, D.C.
May 1942

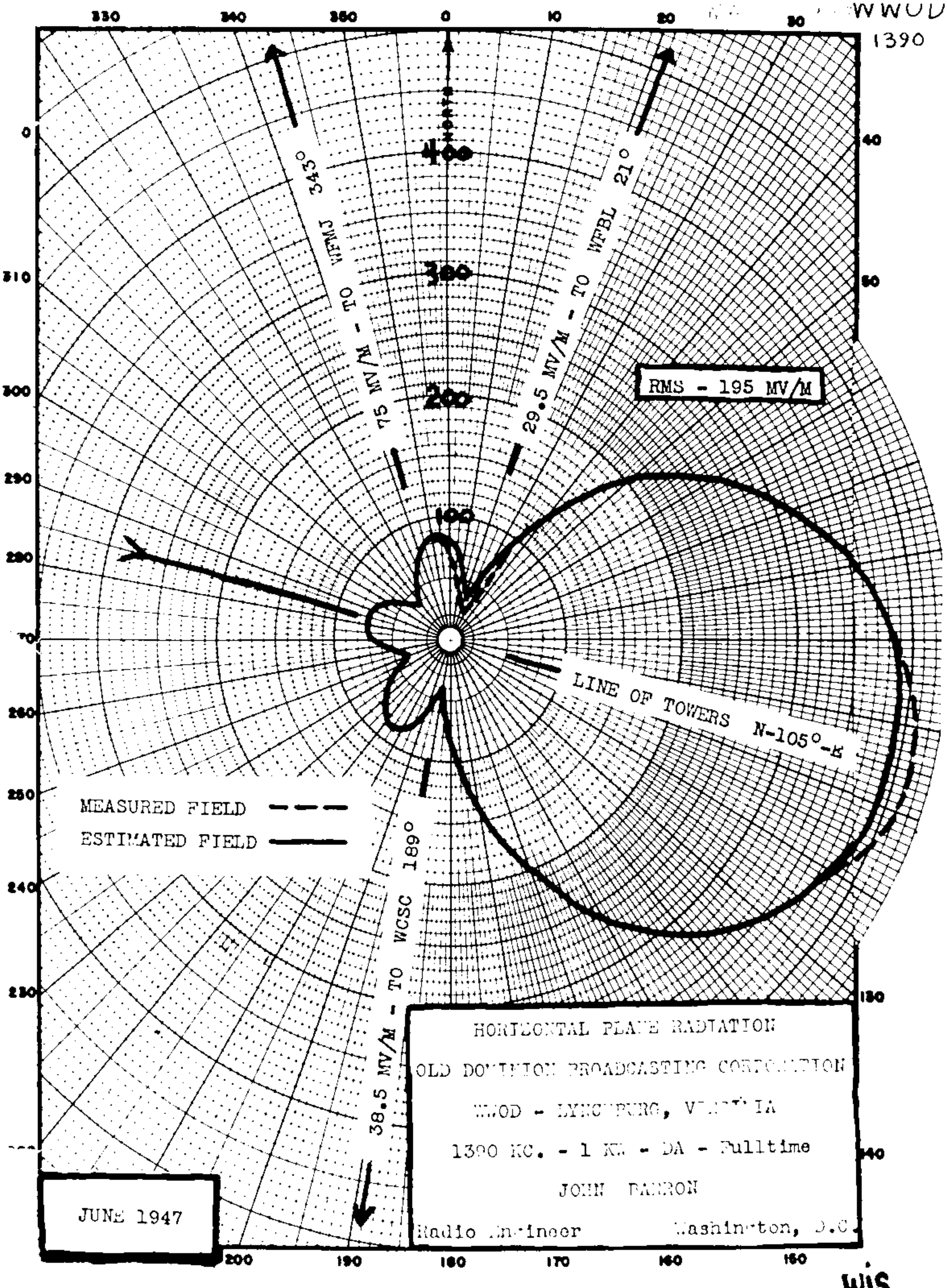
WGES, Chicago, Ill. 1390 kc

WWOD
LYNCHBURG, VA. 1390



HORIZONTAL PLANE RADIATION
OLD DOMINION BROADCASTING CORPORATION
NEW STATION - LYNCHBURG, VIRGINIA
1390 KC. - 1 KW - DA-1
PATTERN NO. 461003
SUPERSEDES NO. 450801
REINSTATES NO. ______

JOHN BARRON
RADIO ENGINEER WASHINGTON, D.C.


WWOD
1390
343°
75 MV/M - TO WFMJ
21°
29.5 MV/M - TO WFBL
400
300
200
100
RMS - 195 MV/M
LINE OF TOWERS N-105°-E
MEASURED FIELD
ESTIMATED FIELD
189°
38.5 MV/M - TO WCSC
HORIZONTAL PLANE RADIATION
OLD DOMINION BROADCASTING CORPORATION
WWOD - LYNCHBURG, VIRGINIA
1390 KC. - 1 KW - DA - Fulltime
JOHN BARRON
Radio Engineer
Washington, D.C.
JUNE 1947
wjs

NEW

IFRB Serial No. 1400

FORM FOR THE APPLICATION OF ARTICLE 4 OF THE AGREEMENT

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

PART I GENERAL INFORMATION

(01) Administration: CANADA | Sheet No. 420 | Date 830705

Assigned frequency (kHz)		02	1400
Transmitting station	Name of the station	03	SPARWOOD BC
	Call sign	04	
	Additional Identification	05	
	Station class	06	C
	Operational Status	07	P
Country		08	CAN
Geographical coordinates of the transmitting station		09	114W52 30 49N44 30

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

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

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

STATION PARAMETERS	DAYTIME OPERATION		NIGHT-TIME OPERATION	
Station power (kW)	21	1.	31	.25
r.m.s. value of radiation for station power (mV/m at 1 km)	25	289.68	35	144.84
Antenna type	26	A	36	A
Simple vertical antenna electrical height (degrees)	27	72.	37	72.

(44) Remarks

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

NEW

ANTENNA DESCRIPTION SHEET

Station: New

Main Studio: Moncton, N.B.

Frequency: 1400kHz

Power: 10 kW

Time: Unlimited

Class: IV

Notification List No.: 394 Date: February 20, 1980

Geographical Location:

North Latitude: 46° 03' 05"
West Longitude: 64° 53' 02"

ANTENNA CHARACTERISTICS

Mode of Operation: DA-2

Number of Elements: 3 night, 2 day

Type of Elements: Guyed steel tower, uniform cross section, base insulated for series feed.

Tower		No. 1 (West)	No. 2 (Centre)	No. 3 (East)
Height above insulators:		175' (90°)	175'(90°)	175' (90°)
Overall Height:		180'	180'	180'
Field ratio:	Day	---	1.0	0.5
	Night	0.505	1.0	0.505
Phasing:	Day	---	0°	-60°
	Night	96°	0°	-106°
Spacing:		175.7'(90°)	REF	175.7'(90°)
Orientation:		267°	REF	87°

Ground System:
120 equally spaced radials of no. 10 B & S gauge bare copper wire extending from the base of the tower. Maximum length of any radial is 281' (0.4 wavelength) burried approx. 6" below surface.

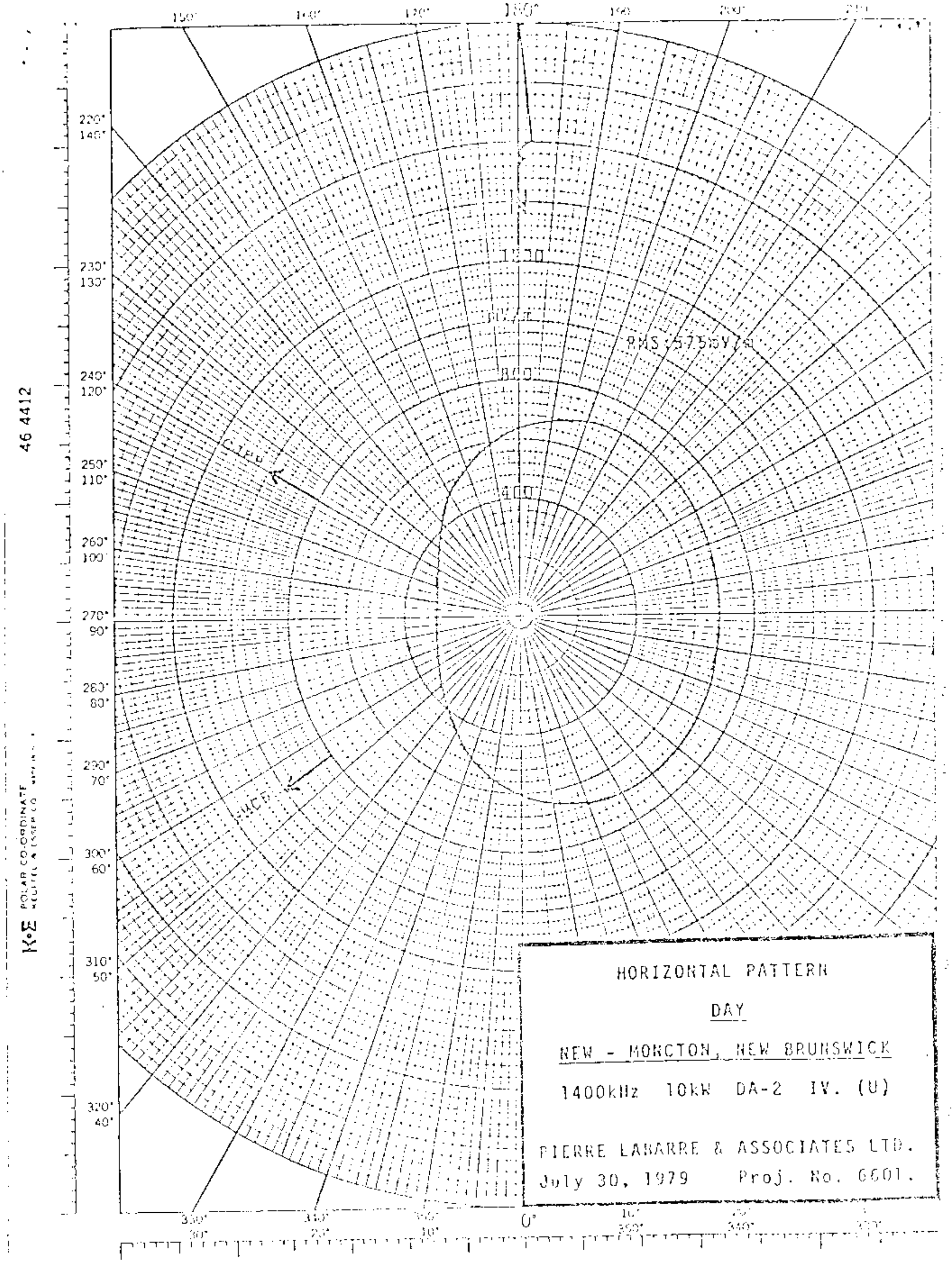
Predicted Effective Field:

Day: 575 mV/m at 1 mile for 10 kW
181.8 mV/m at 1 mile for 1 kW

Night: 600 mV/m at 1 mile for 10 kW
189.7 mV/m at 1 mile for 1 kW

CONSULTANT: Pierre Labarre & Associates Ltd
Broadcast Consultant
St-Lambert, Quebec

NEW



HORIZONTAL PATTERN

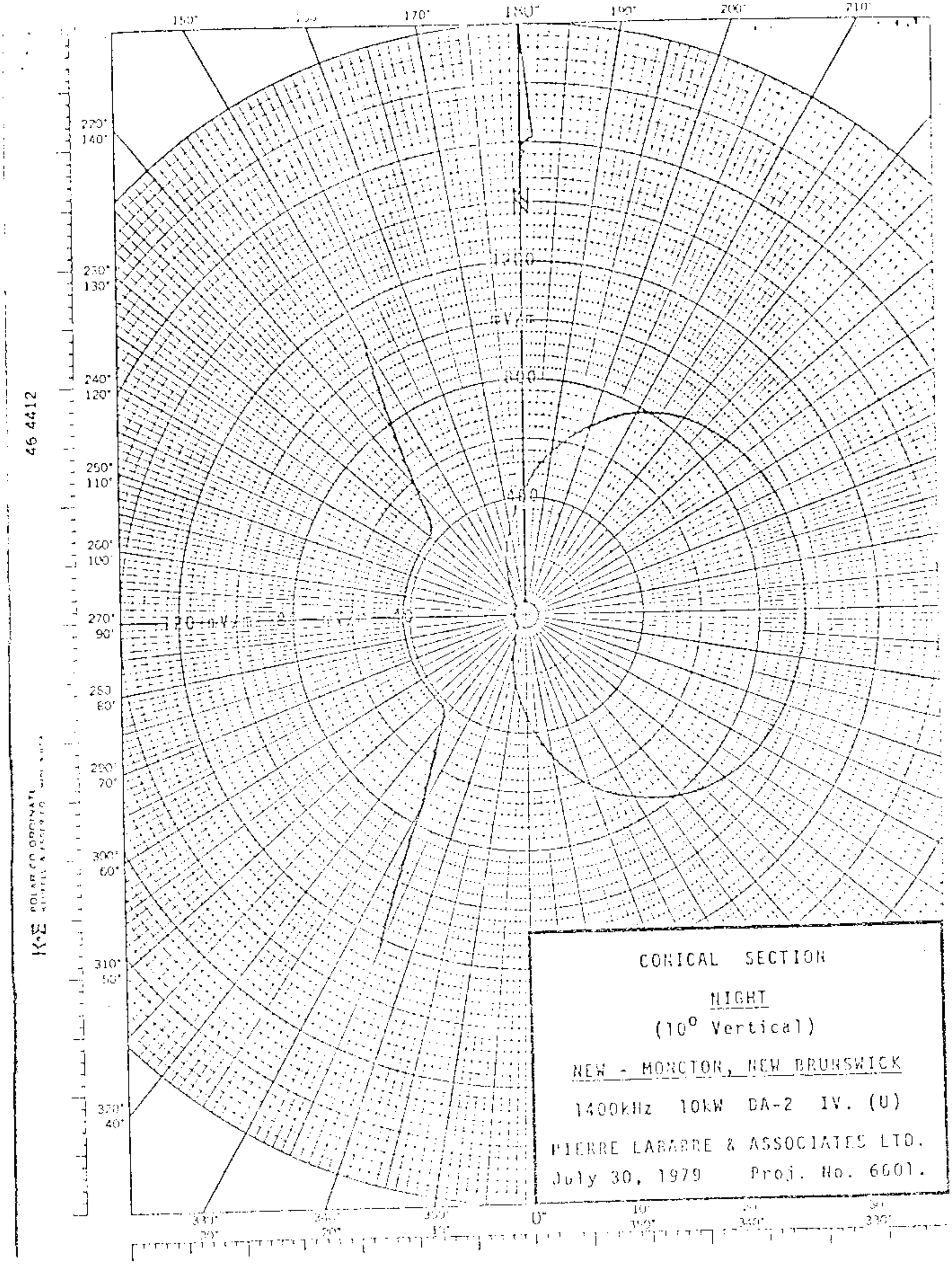
DAY

NEW - MONCTON, NEW BRUNSWICK

1400kHz 10kW DA-2 IV. (U)

PIERRE LABARRE & ASSOCIATES LTD.
July 30, 1979 Proj. No. 6601.

NEW



CONICAL SECTION

NIGHT

(10^{0} Vertical)

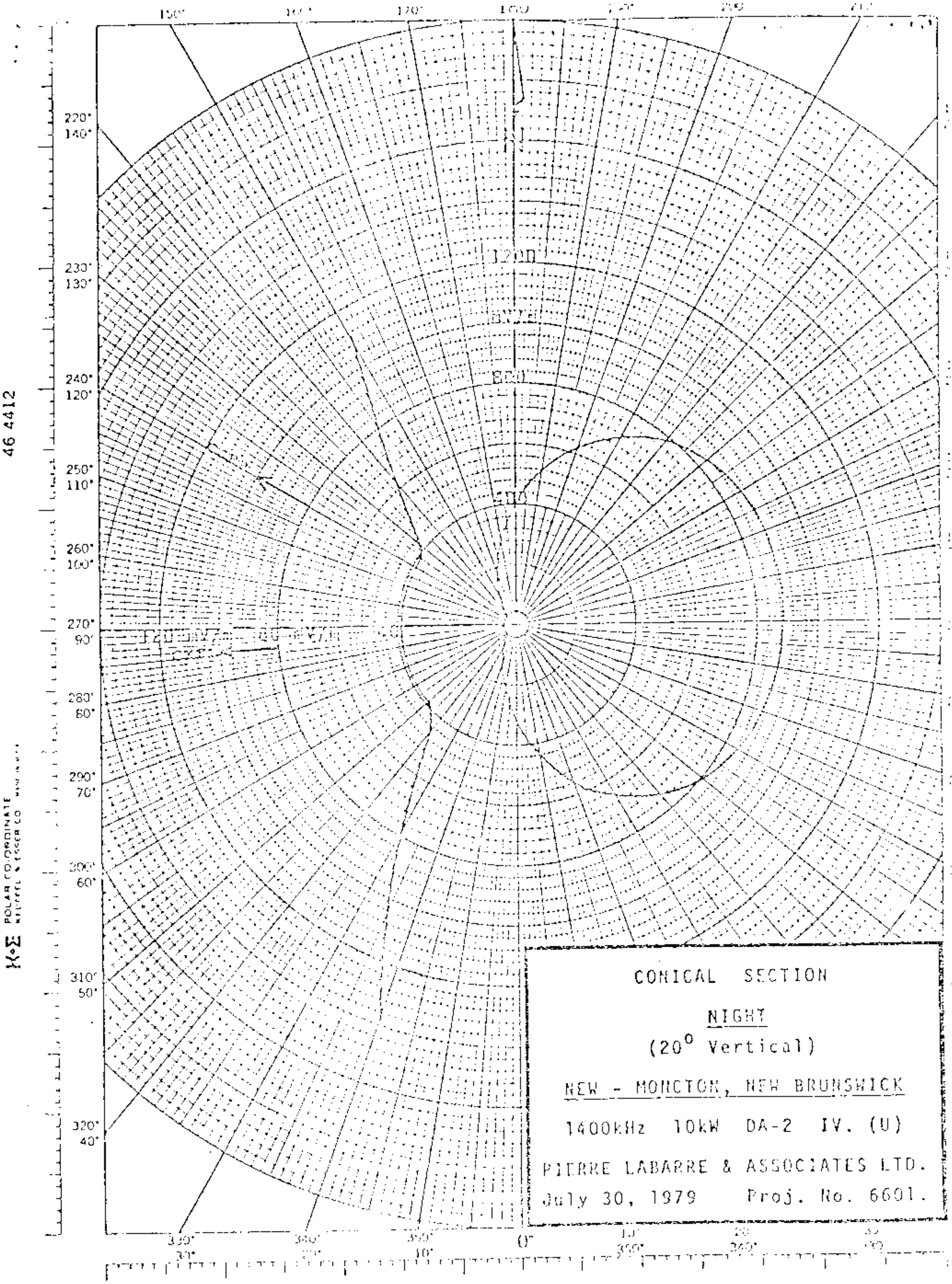
NEW - MONCTON, NEW BRUNSWICK

1400kHz 10kW DA-2 IV. (U)

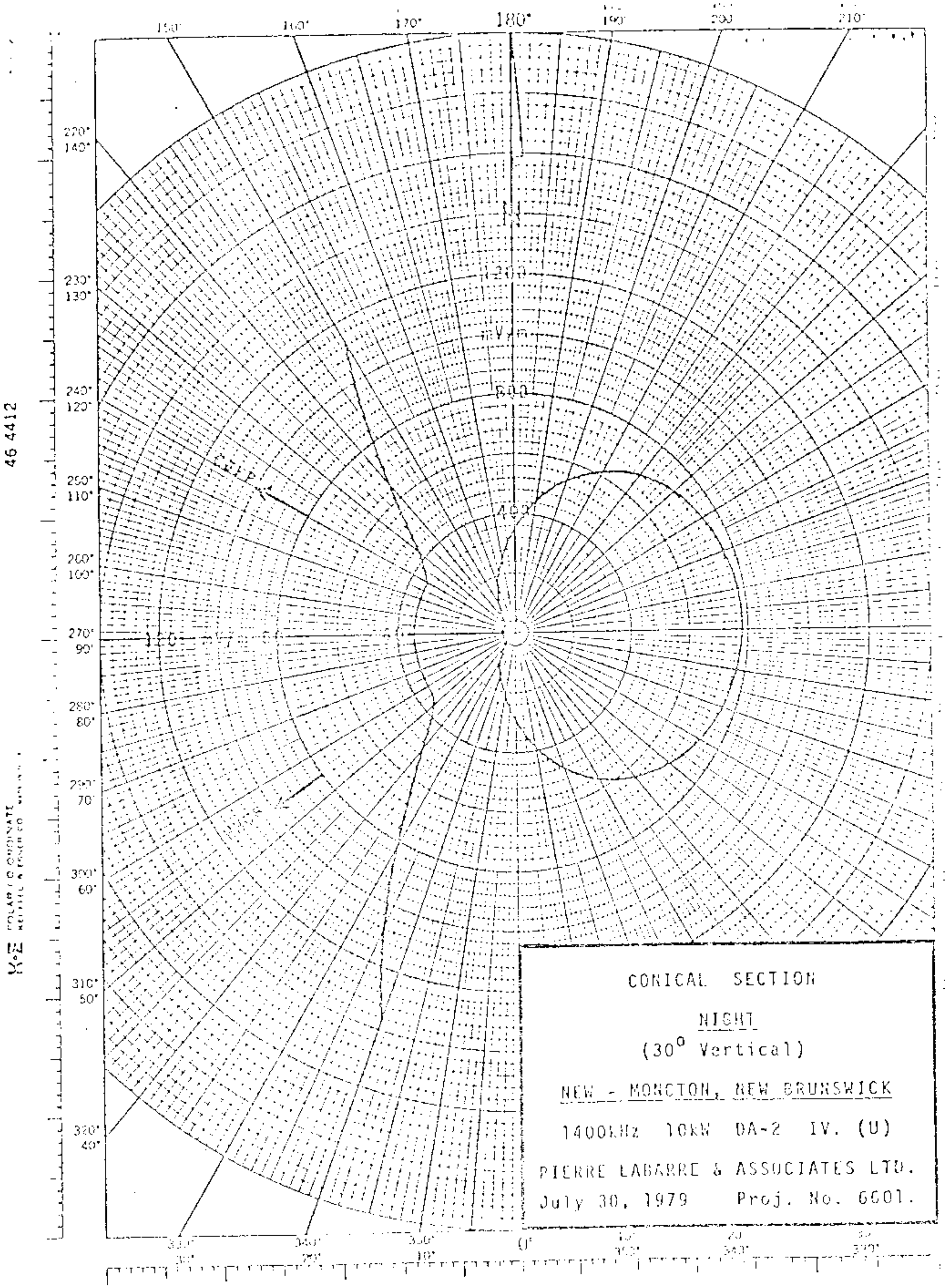
PIERRE LABARRE & ASSOCIATES LTD.

July 30, 1979 Proj. No. 6601.

NEW


CONICAL SECTION
NIGHT
(20° Vertical)
NEW - MONCTON, NEW BRUNSWICK
1400kHz 10kW DA-2 IV. (U)
PIERRE LABARRE & ASSOCIATES LTD.
July 30, 1979 Proj. No. 6601.
1200
800
400
46 4412
K·E POLAR CO-ORDINATE

NEW



CONICAL SECTION

NIGHT

(30^0 Vertical)

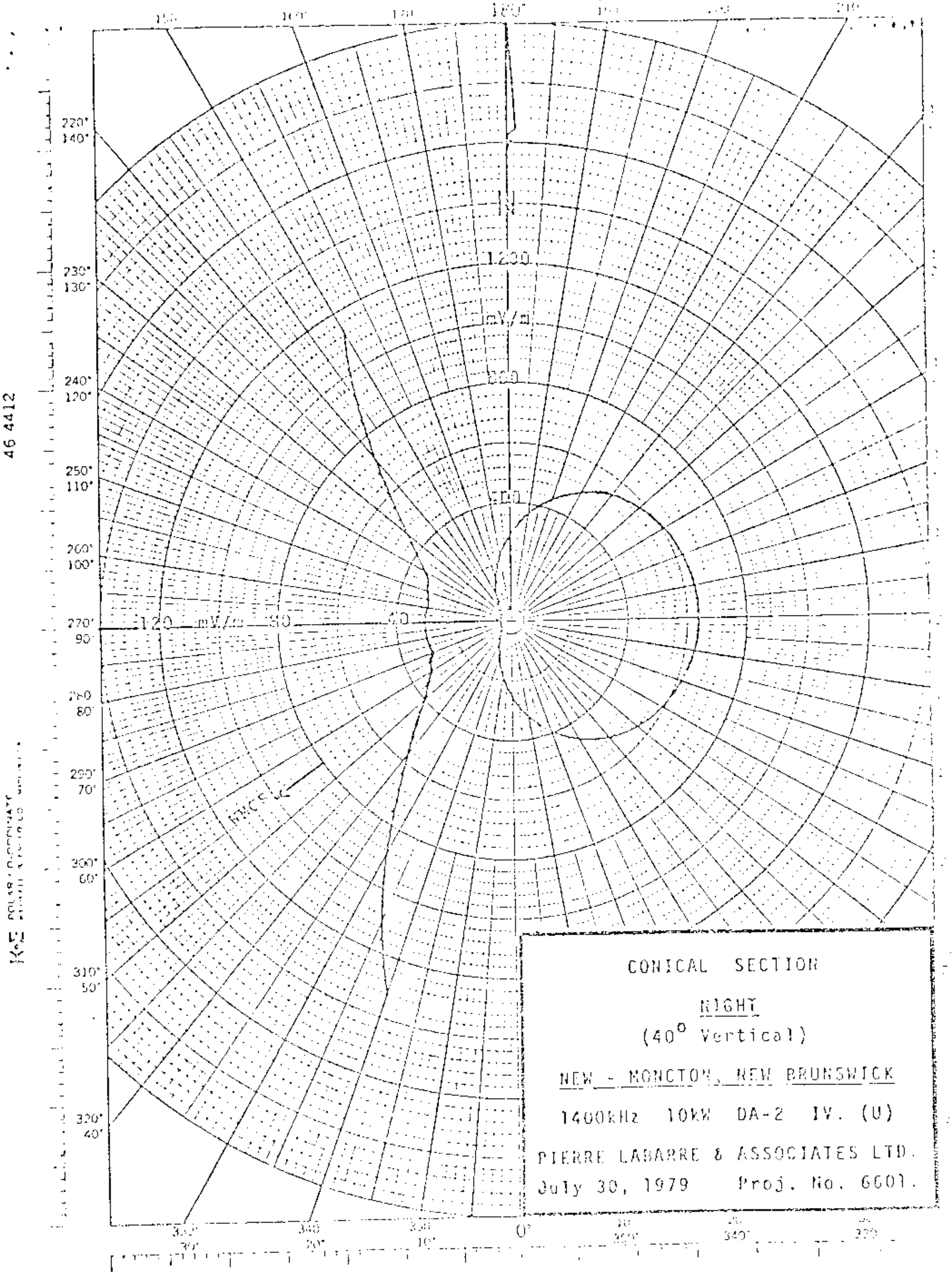
NEW - MONCTON, NEW BRUNSWICK

1400kHz 10kW DA-2 IV. (U)

PIERRE LABARRE & ASSOCIATES LTD.

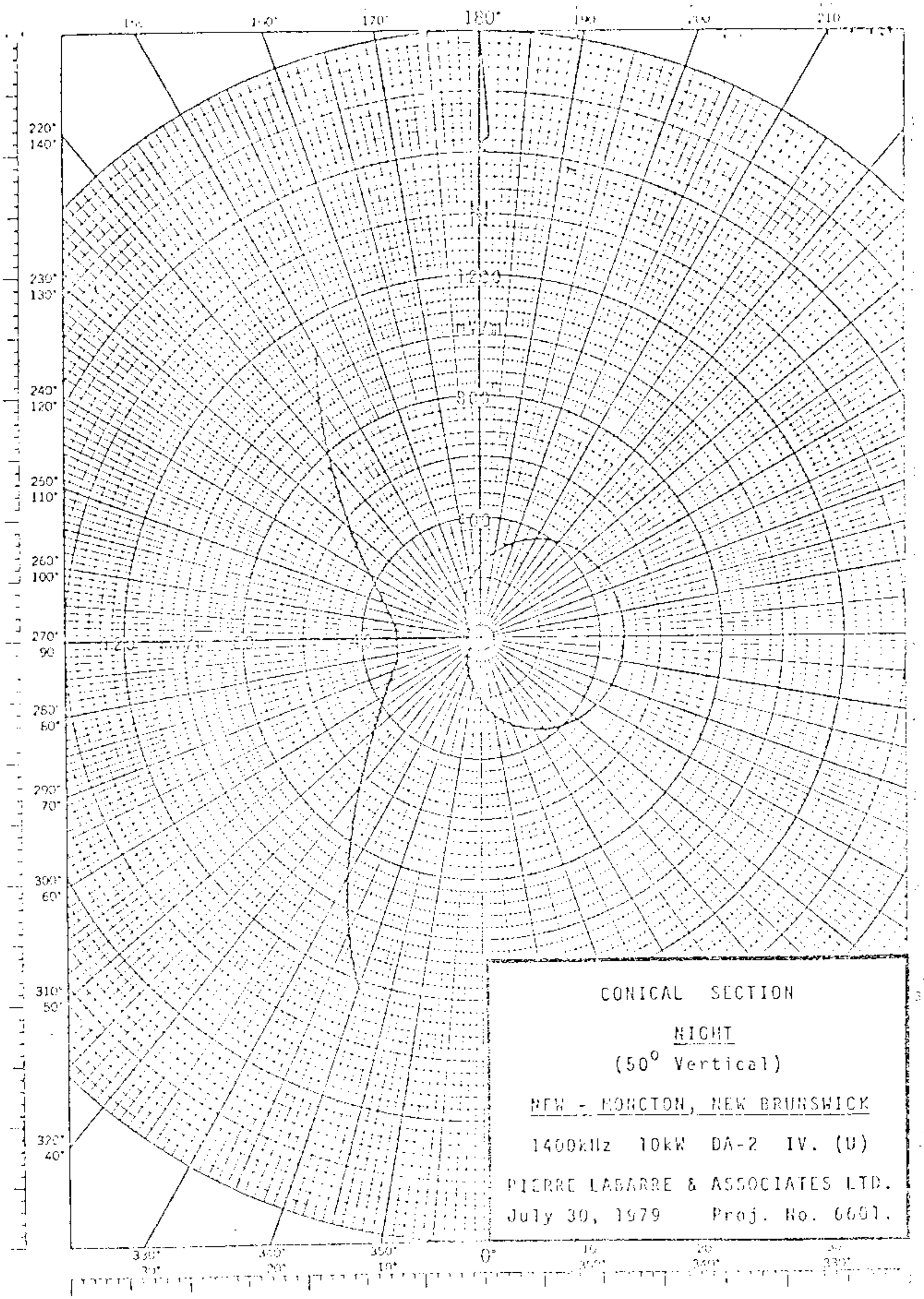
July 30, 1979 Proj. No. 6601.

NEW


1200
mV/m
800
400
120 mV/m 80
40
CONICAL SECTION
NIGHT
(40° Vertical)
NEW - MONCTON, NEW BRUNSWICK
1400kHz 10kW DA-2 IV. (U)
PIERRE LABARRE & ASSOCIATES LTD.
July 30, 1979 Proj. No. 6601.

46 4412

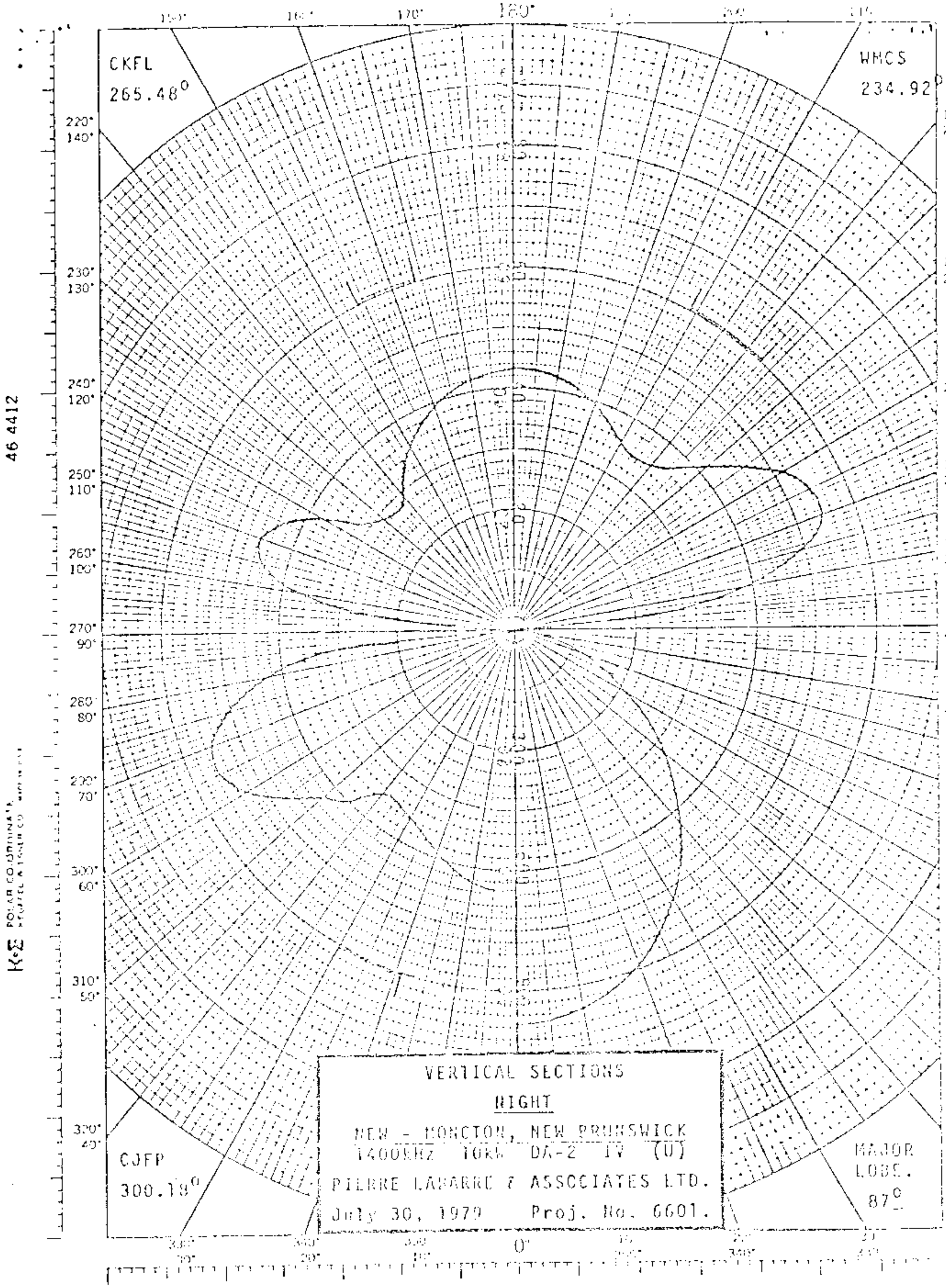
NEW



46 4412

K·E POLAR COORDINATE KEUFFEL & ESSER CO.

NEW



CKFL
265.48°
WHCS
234.92°
CJFP
300.18°
MAJOR
LOBE.
87°
180°
0°
VERTICAL SECTIONS
NIGHT
NEW - MONCTON, NEW BRUNSWICK
1400KHz 10KW DA-2 IV (U)
PIERRE LABARRE & ASSOCIATES LTD.
July 30, 1979 Proj. No. 6601.
46 4412
K+E POLAR COORDINATE

NEW

ANTENNA DESCRIPTION SHEET

Station: New | Main Studio: Moncton, N.B.

Frequency: 1400kHz | Power: 10 kW

Time: Unlimited | Class: IV

Notification List No.: 394 Date: February 20, 1980

Geographical Location:

North Latitude: 46° 03' 05"
West Longitude: 64° 53' 02"

ANTENNA CHARACTERISTICS

Mode of Operation: DA-2

Number of Elements: 3 night, 2 day

Type of Elements: Guyed steel tower, uniform cross section, base insulated for series feed.

Tower		No. 1 (West)	No. 2 (Centre)	No. 3 (East)
Height above insulators:		175' (90°)	175'(90°)	175' (90°)
Overall Height:		180'	180'	180'
Field ratio:	Day	---	1.0	0.5
	Night	0.505	1.0	0.505
Phasing:	Day	---	0°	-60°
	Night	96°	0°	-106°
Spacing:		175.7'(90°)	REF	175.7'(90°)
Orientation:		267°	REF	87°

Ground System:

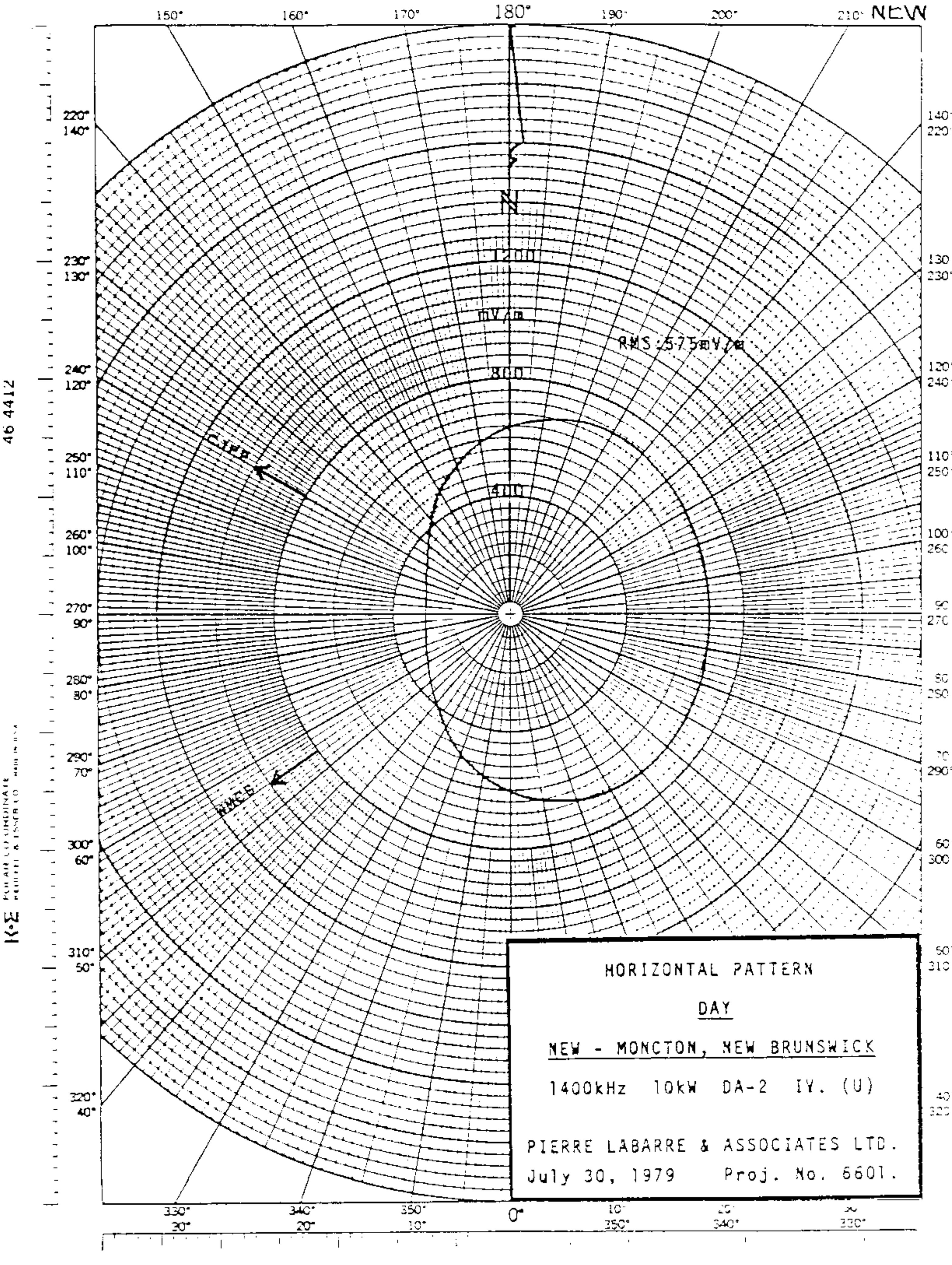
120 equally spaced radials of no. 10 B & S gauge bare copper wire extending from the base of the tower. Maximum length of any radial is 281' (0.4 wavelength) burried approx. 6" below surface.

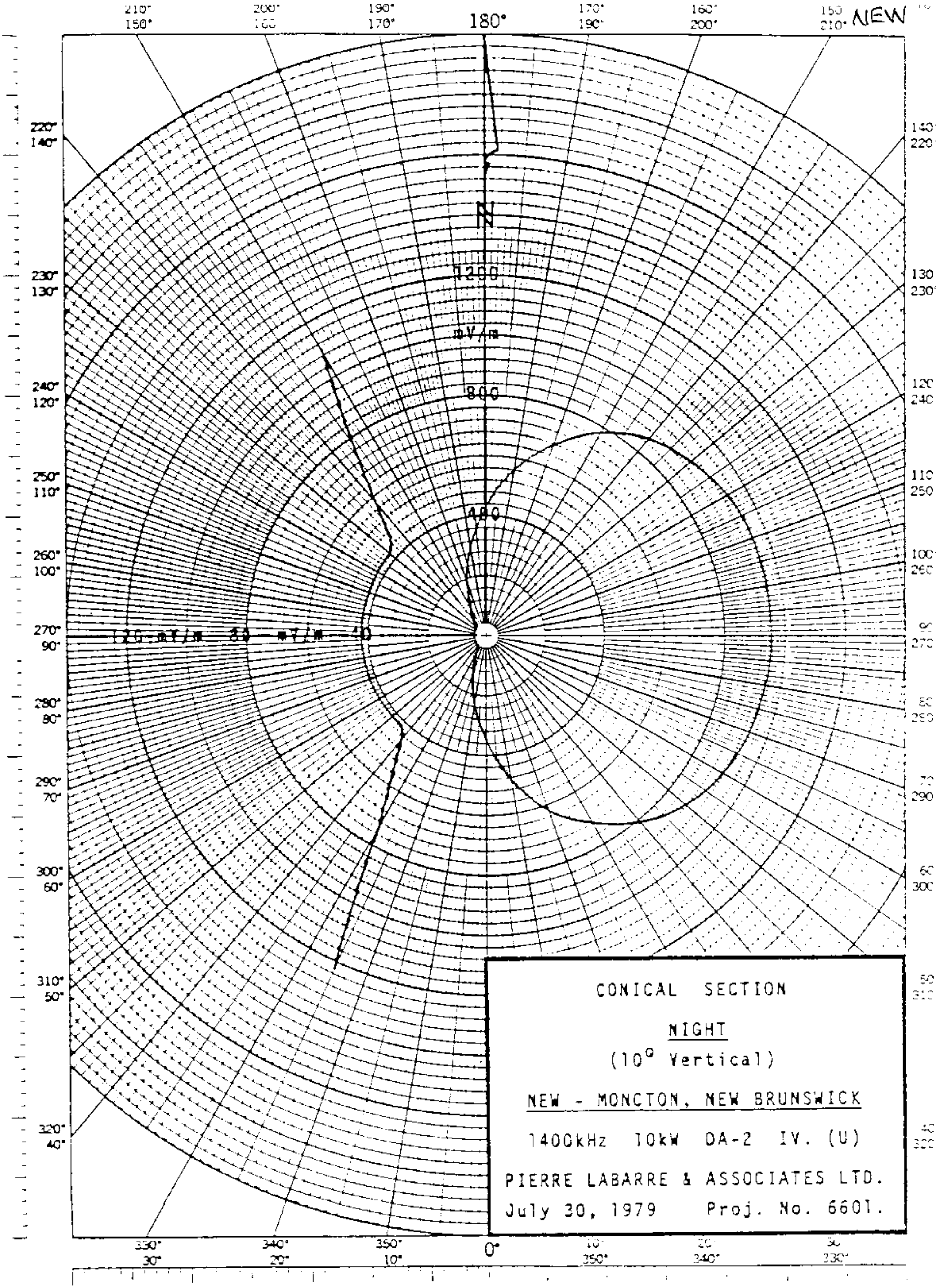
Predicted Effective Field:

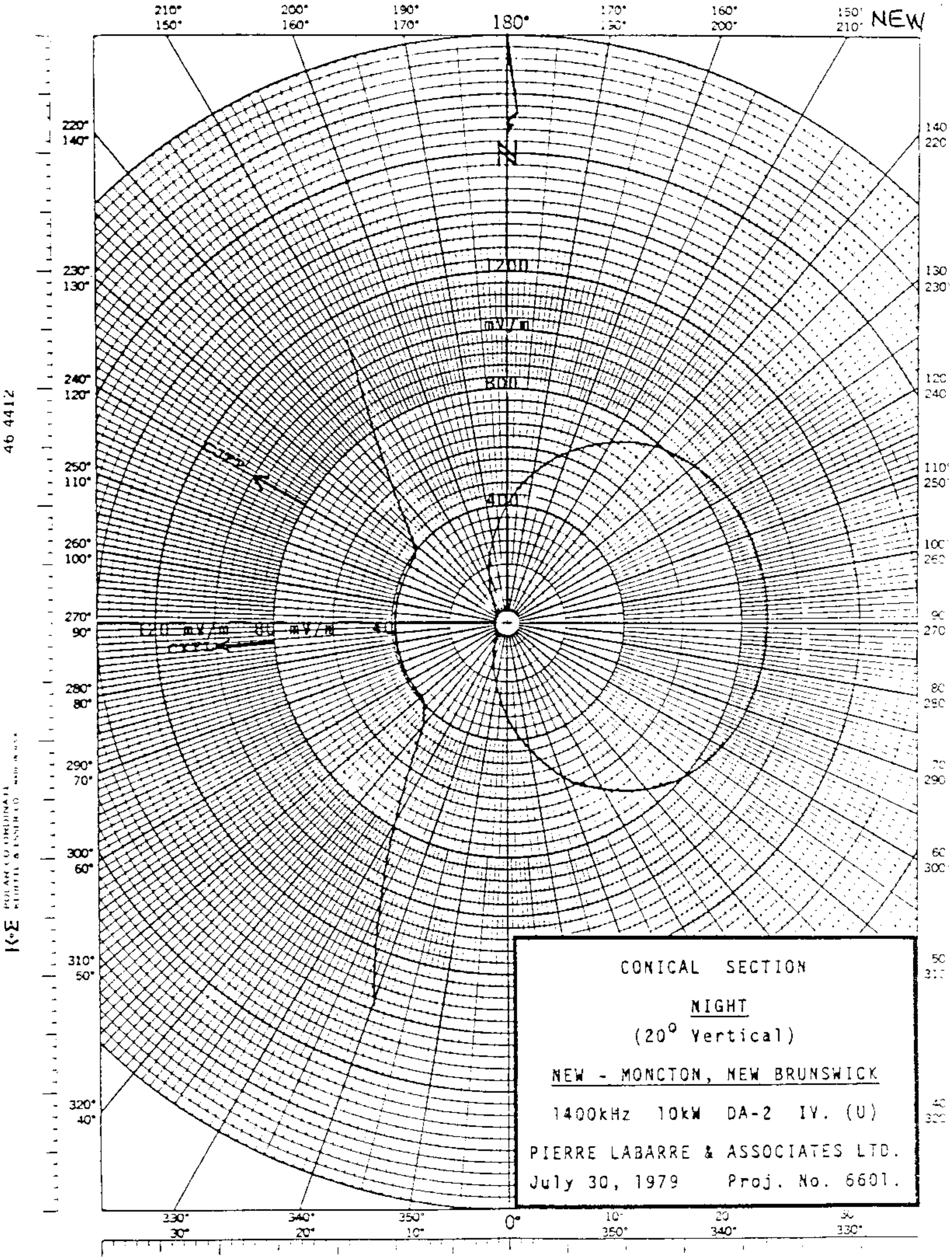
Day: 575 mV/m at 1 mile for 10 kW
181.8 mV/m at 1 mile for 1 kW

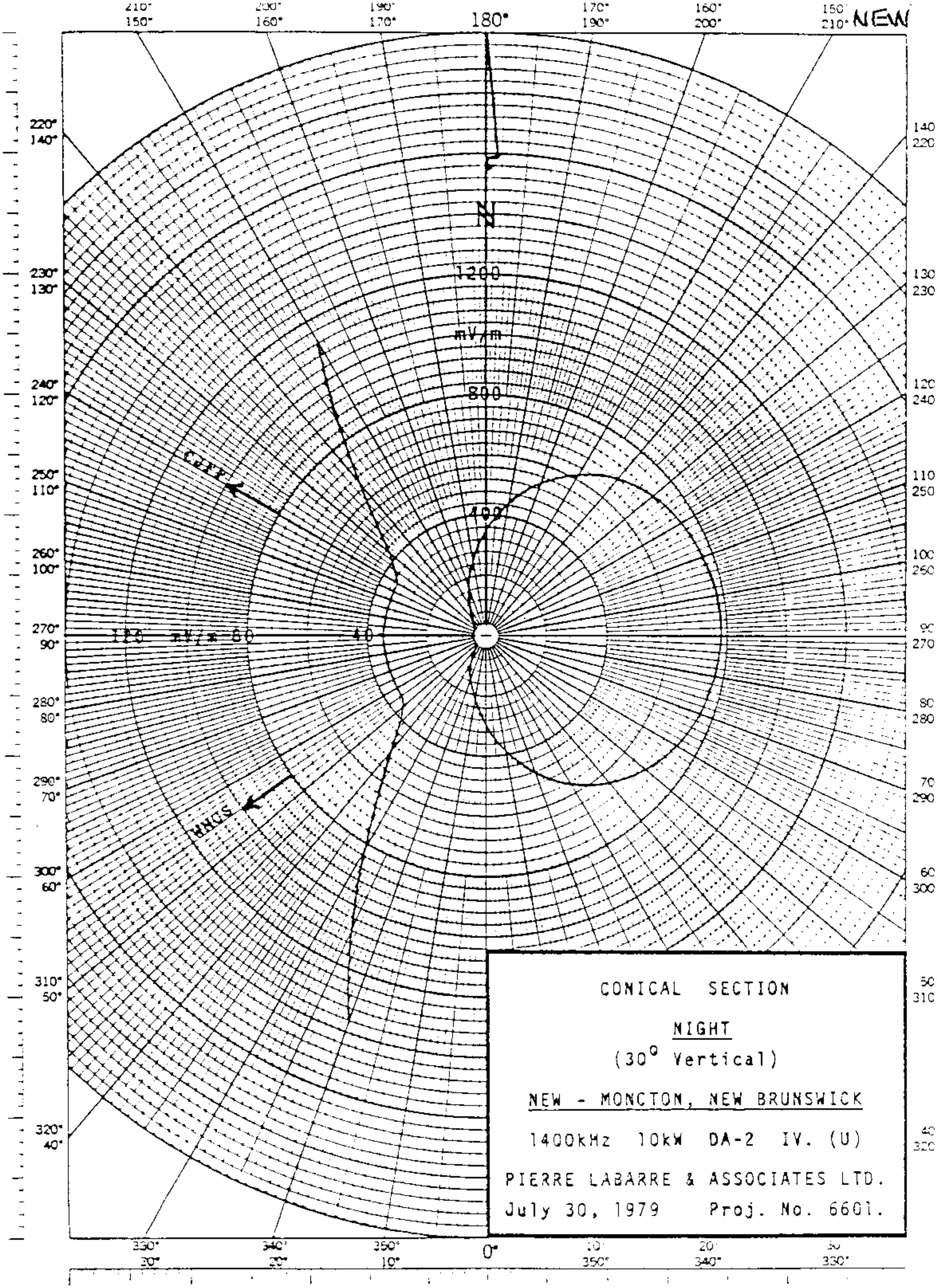
Night: 600 mV/m at 1 mile for 10 kW
189.7 mV/m at 1 mile for 1 kW

CONSULTANT: Pierre Labarre & Associates Ltd
Broadcast Consultant
St-Lambert, Quebec


NEW
180°
1200
mV/m
RMS:575mV/m
800
400
CJ??
WMCS
0°
HORIZONTAL PATTERN
DAY
NEW - MONCTON, NEW BRUNSWICK
1400kHz 10kW DA-2 IV. (U)
PIERRE LABARRE & ASSOCIATES LTD.
July 30, 1979 Proj. No. 6601.
46 4412
K&E


NEW
180°
1200
mV/m
800
400
0°
CONICAL SECTION
NIGHT
(10° Vertical)
NEW - MONCTON, NEW BRUNSWICK
1400kHz 10kW DA-2 IV. (U)
PIERRE LABARRE & ASSOCIATES LTD.
July 30, 1979 Proj. No. 6601.


NEW
180°
1200
mV/m
800
400
120 mV/m 80 mV/m 40
0°
46 4412
K+E
CONICAL SECTION
NIGHT
(20° Vertical)
NEW - MONCTON, NEW BRUNSWICK
1400kHz 10kW DA-2 IV. (U)
PIERRE LABARRE & ASSOCIATES LTD.
July 30, 1979 Proj. No. 6601.



CONICAL SECTION

NIGHT

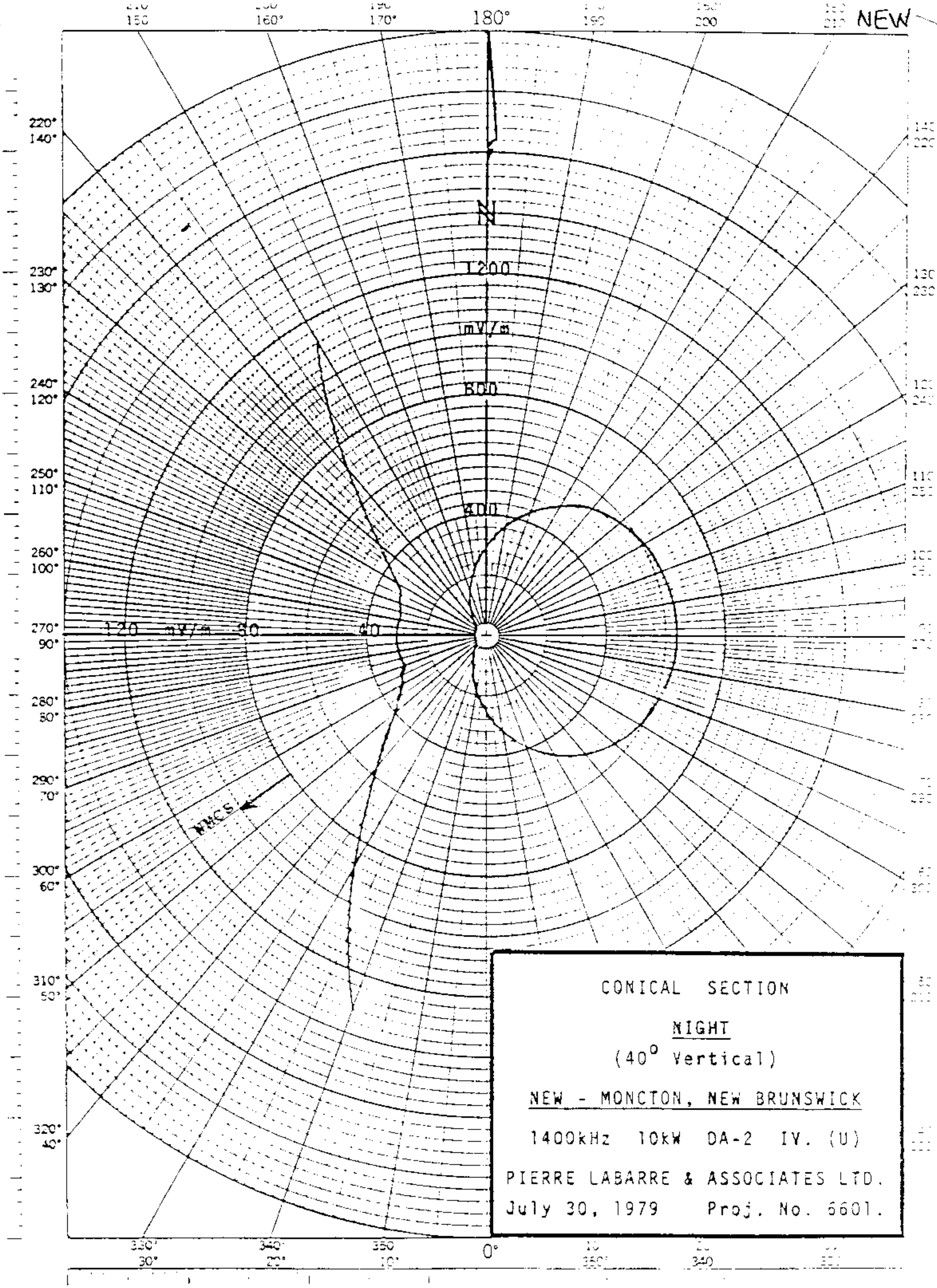
(30° Vertical)

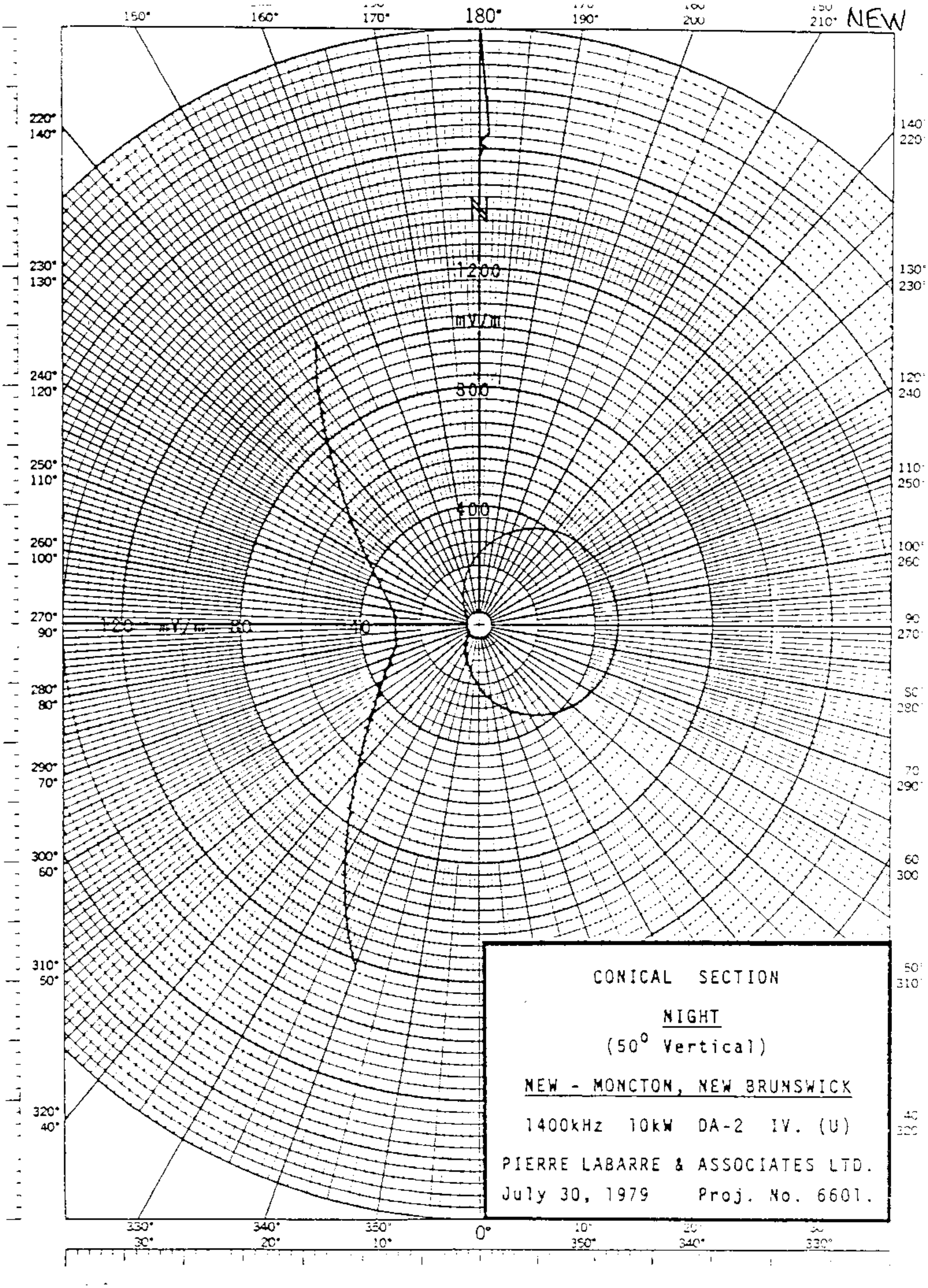
NEW - MONCTON, NEW BRUNSWICK

1400kHz 10kW DA-2 IV. (U)

PIERRE LABARRE & ASSOCIATES LTD.

July 30, 1979 Proj. No. 6601.


NEW
180°
N
1200
mV/m
800
400
120 mV/m 80
40
NMCS
0°
CONICAL SECTION
NIGHT
(40° Vertical)
NEW - MONCTON, NEW BRUNSWICK
1400kHz 10kW DA-2 IV. (U)
PIERRE LABARRE & ASSOCIATES LTD.
July 30, 1979 Proj. No. 6601.



CONICAL SECTION

NIGHT

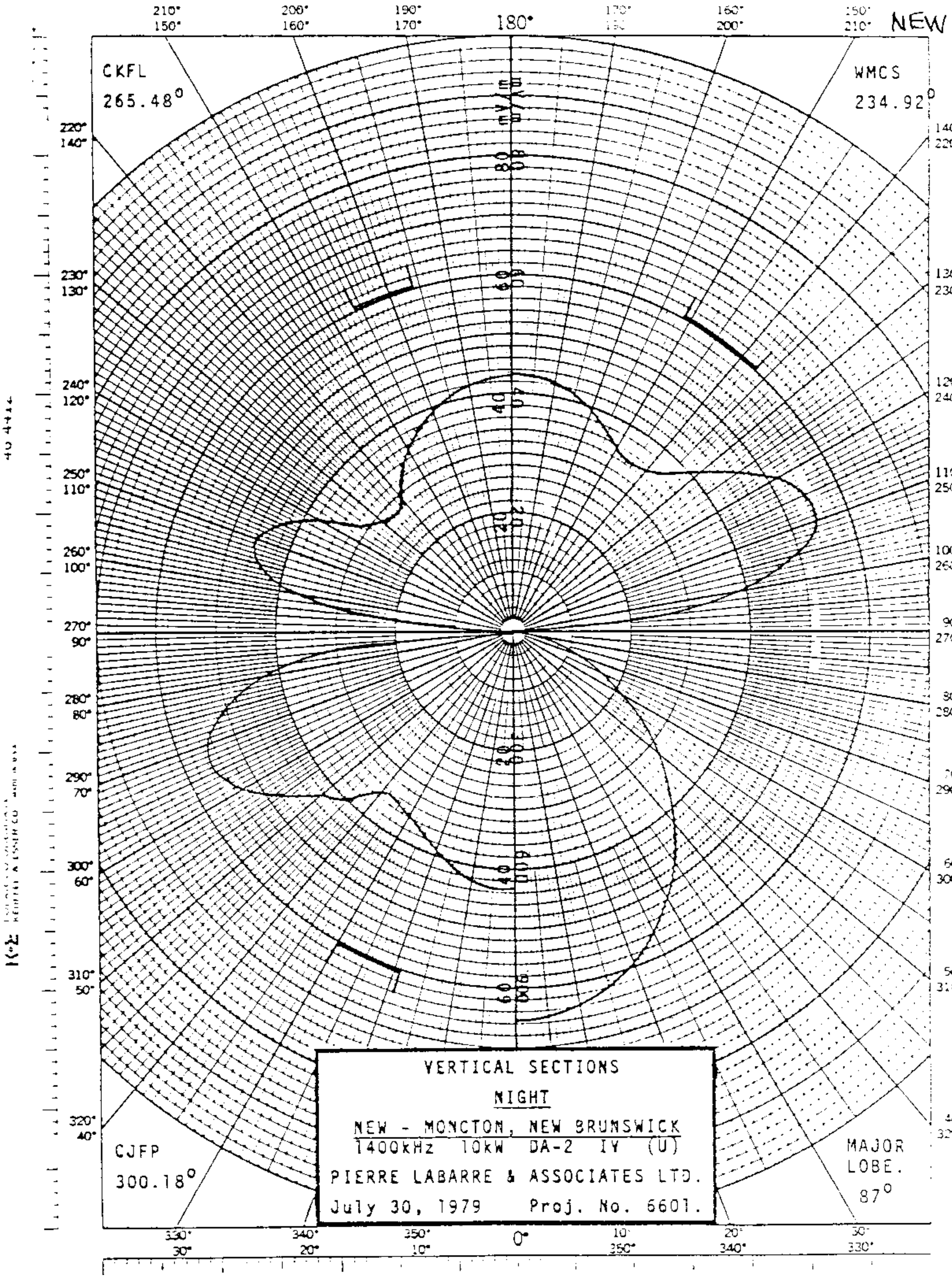
(50° Vertical)

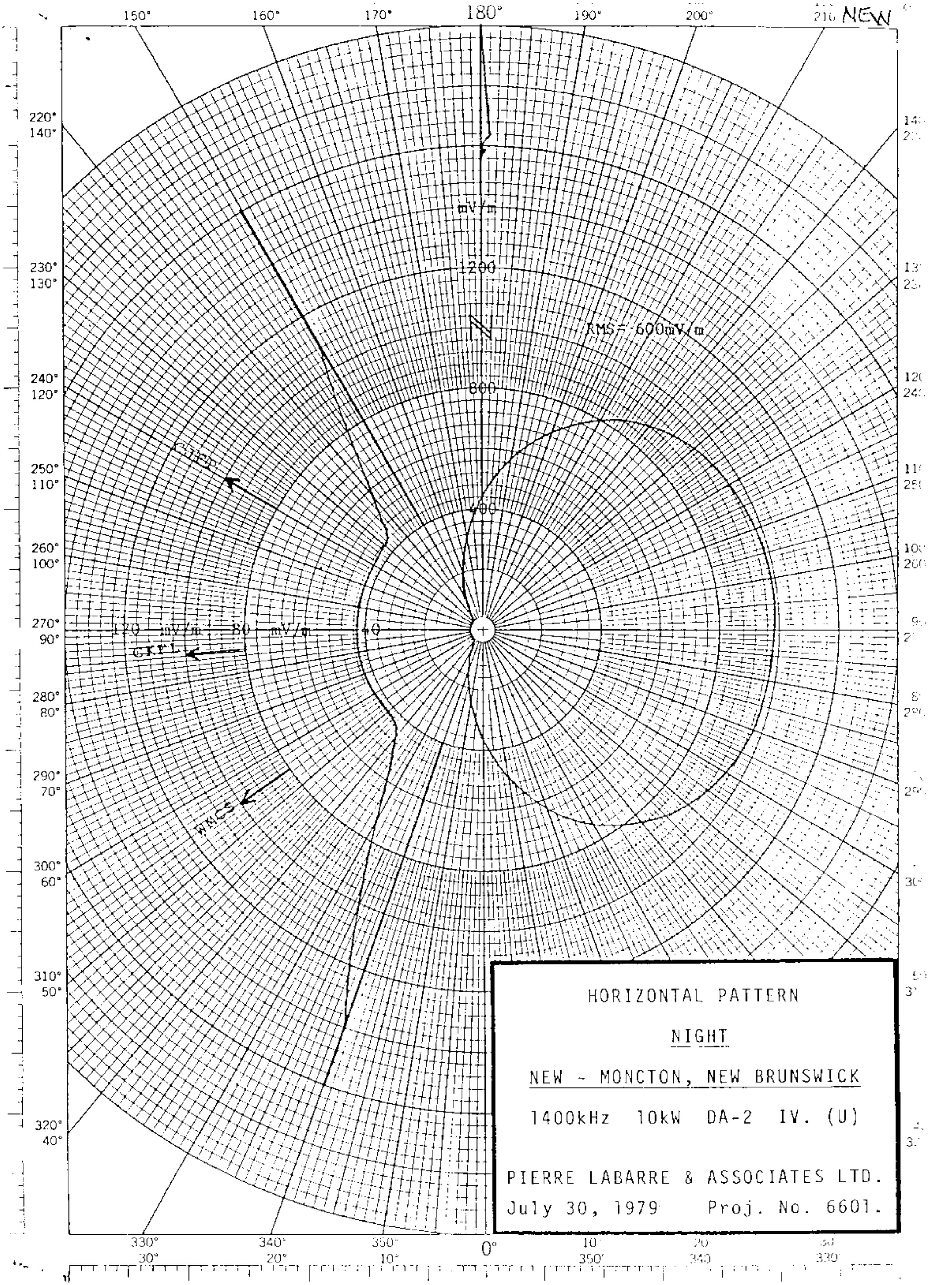
NEW - MONCTON, NEW BRUNSWICK

1400kHz 10kW DA-2 IV. (U)

PIERRE LABARRE & ASSOCIATES LTD.

July 30, 1979 Proj. No. 6601.


NEW
180°
0°
CKFL
265.48°
WMCS
234.92°
CJFP
300.18°
MAJOR
LOBE.
87°
VERTICAL SECTIONS
NIGHT
NEW - MONCTON, NEW BRUNSWICK
1400kHz 10kW DA-2 IV (U)
PIERRE LABARRE & ASSOCIATES LTD.
July 30, 1979 Proj. No. 6601.



HORIZONTAL PATTERN

NIGHT

NEW - MONCTON, NEW BRUNSWICK

1400kHz 10kW DA-2 IV. (U)

PIERRE LABARRE & ASSOCIATES LTD.

July 30, 1979 Proj. No. 6601.

DIRECTIONAL ANTENNA DESCRIPTION SHEET

1. Call Sign: (New Station)

2. Location: Drummondville, Quebec.

3. Frequency: 1400 KHz

4. Power: 0.250 Kw D/0.1 Kw N.

5. Class: IV (U)

6. Notification No. 297 Date: October 2, 1972.

7. Co-ordinates: North Latitude: 45° 52' 12"
   West Longitude: 72° 30' 48"

8. Antenna System:
   a) Mode: Directional DA-1
   b) Type: Two elements with triangular cross section and series fed.
   c) Ground system: 120 No. 10 equally spaced radials of a length of 280' (0.4) with interconnected straps buried approximately 8 inches below the surface.

9. Antenna Characteristics:

	No. 1	No. 2
Orientation (Az.):	Ref.	100°
Height above Insulator:	90°	90° (175')
Spacing:	Ref.	80° (156')
Phasing:	0°	-107°
Field Intensity Ratio:	1.0	0.9

10. Predicted Efficiency: Day: 92.5 mV/m
    Night: 58.5 mV/m

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

FCC Note:
Although the vertical section radiation pattern at azimuth 100° was received with the notification in Change List No. 297, no horizontal pattern was provided.

DIRECTIONAL ANTENNA DESCRIPTION SHEET

1. Call Sign: (New Station)

2. Location: Drummondville, Quebec.

3. Frequency: 1400 KHz

4. Power: 0.250 Kw D/0.1 Kw N.

5. Class: IV (U)

6. Notification No. 297 Date: October 2, 1972.

7. Co-ordinates: North Latitude: 45° 52' 12"
   West Longitude: 72° 30' 48"

8. Antenna System: a) Mode: Directional DA-1
   b) Type: Two elements with triangular cross section and series fed.

   c) Ground system: 120 No. 10 equally spaced radials of a length of 280' (0.4) with interconnected straps buried approximately 8 inches below the surface.

9. Antenna Characteristics:

	No. 1	No. 2
Orientation (Az.):	Ref.	100°
Height above Insulator:	90°	90° (175')
Spacing:	Ref.	80° (156')
Phasing:	0°	-107°
Field Intensity Ratio:	1.0	0.9

10. Predicted Efficiency: Day: 92.5 mV/m
    Night: 58.5 mV/m

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

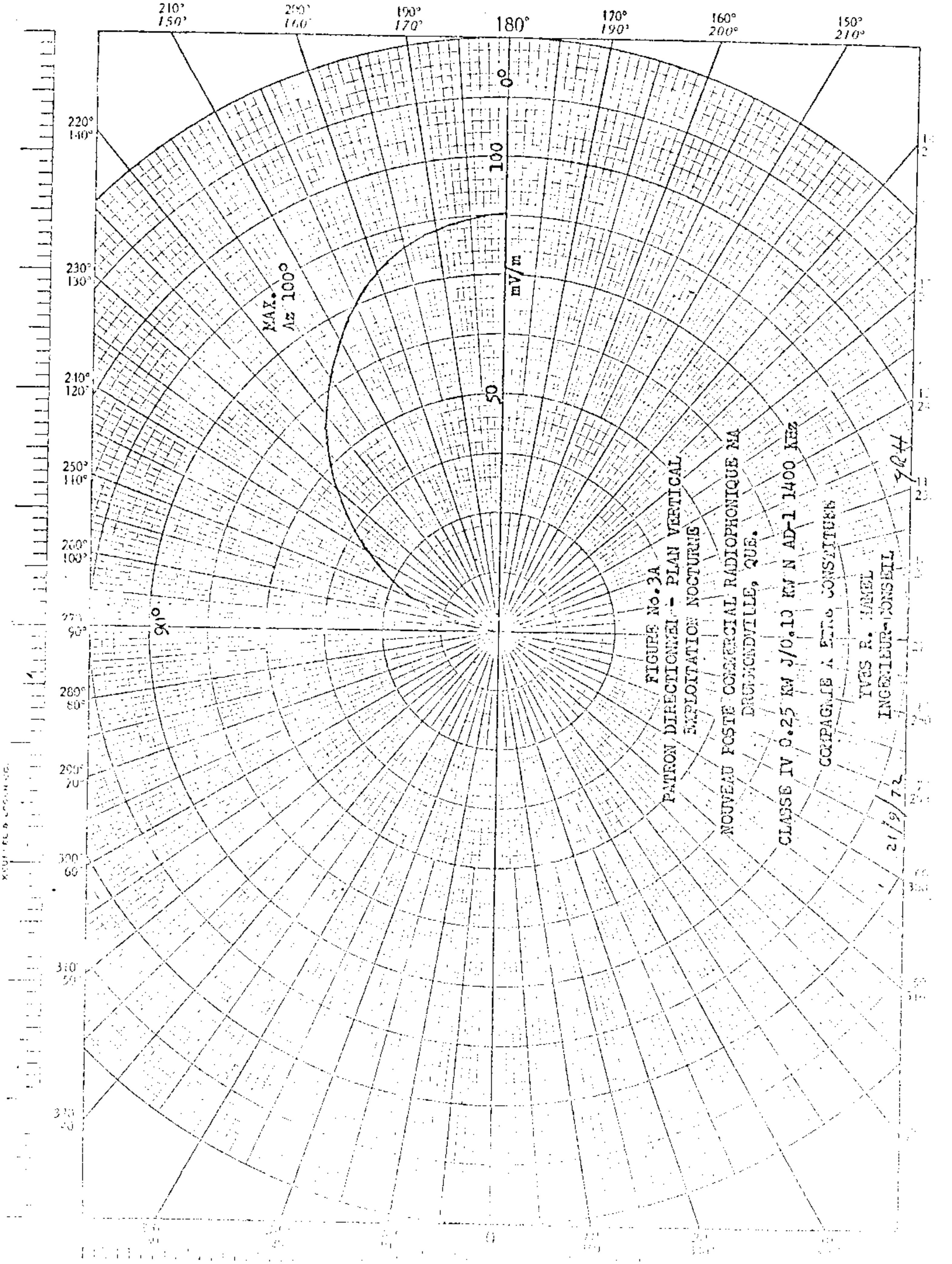


FIGURE No. 3A
PATRON DIRECTIONNEL - PLAN VERTICAL
EXPLOITATION NOCTURNE
NOUVEAU POSTE COMMERCIAL RADIOPHONIQUE MA
DRUMMONDVILLE, QUE.
CLASSE IV 0.25 KW J/0.10 KW N AD-1 1400 KHz
COMPAGNIE À ÊTRE CONSTITUÉE
YVES R. HAMEL
INGENIEUR-CONSEIL
21/9/72

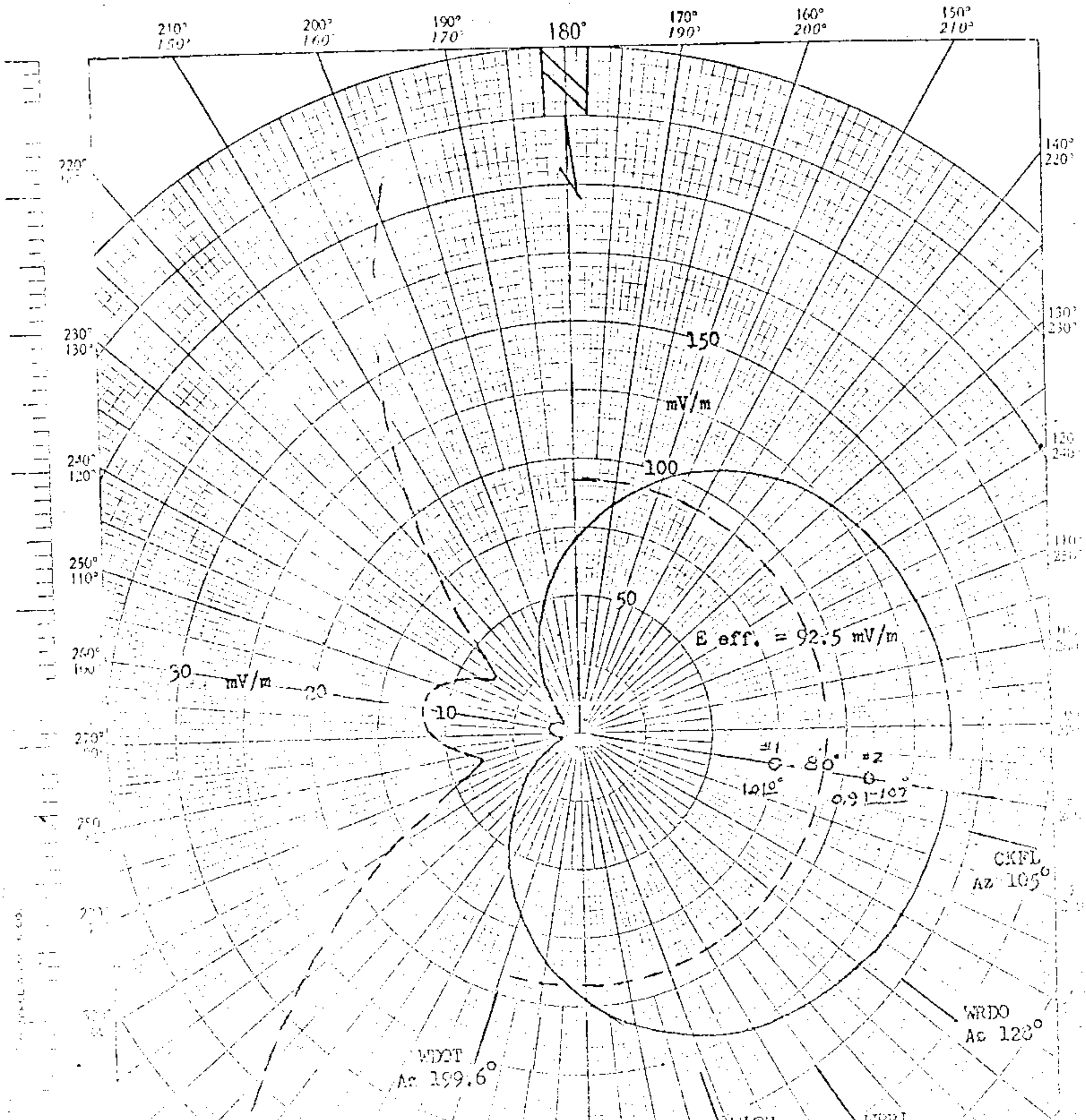


FIGURE No.2
PATRON DIRECTIONNEL - PLAN HORIZONTAL
EXPLOITATION DIURNE

NOUVEAU POSTE COMMERCIAL RADIOPHONIQUE MA
DRUMMONDVILLE, QUE.

CLASSE IV 0.25 KW J/0.10 KW N AD-1 1400 KHz

COMPAGNIE A ETRE CONSTITUEE

3/4/7?
YVES R. HAMEL
INGENIEUR-CONSEIL

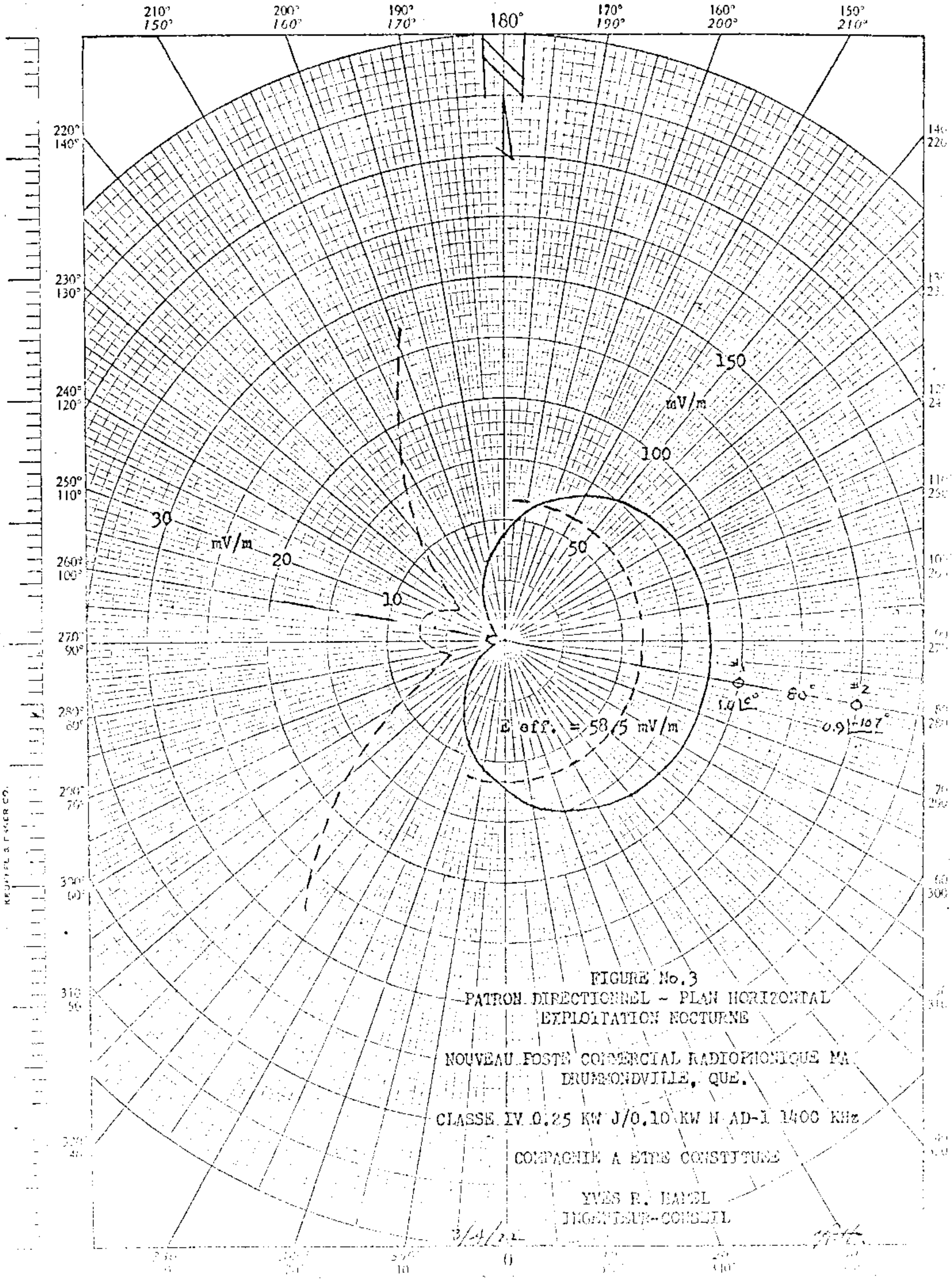


FIGURE No.3
PATRON DIRECTIONNEL - PLAN HORIZONTAL
EXPLOITATION NOCTURNE

NOUVEAU POSTE COMMERCIAL RADIOPHONIQUE MA
DRUMMONDVILLE, QUE.

CLASSE IV 0,25 KW J/0,10 KW N AD-1 1400 KHz

COMPAGNIE A ETRE CONSTITUEE

YVES R. HAMEL
INGENIEUR-CONSEIL

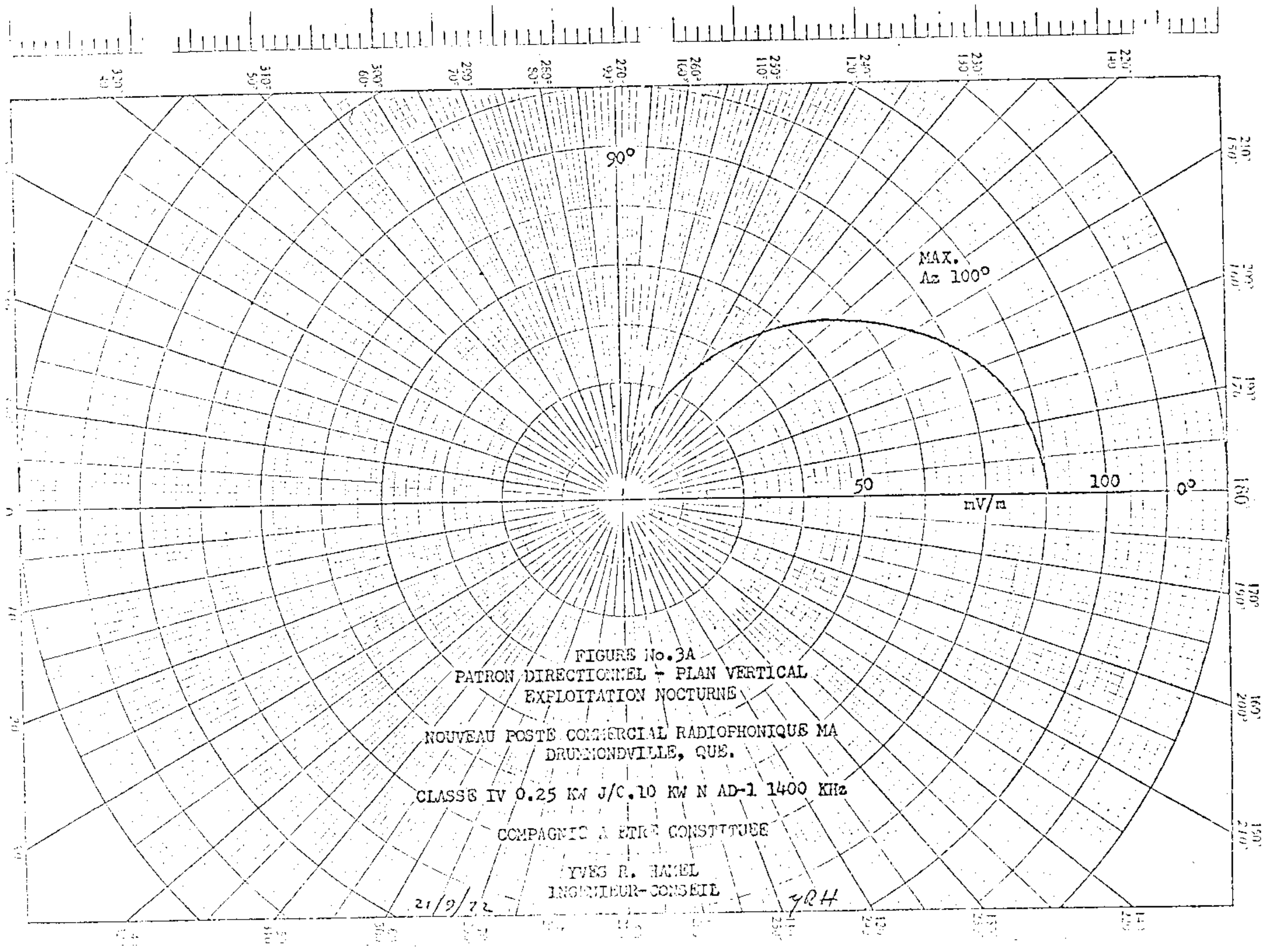


FIGURE No.3A
PATRON DIRECTIONNEL - PLAN VERTICAL
EXPLOITATION NOCTURNE

NOUVEAU POSTE COMMERCIAL RADIOPHONIQUE MA
DRUMMONDVILLE, QUE.

CLASSE IV 0.25 KW J/C.10 KW N AD-1 1400 KHz

COMPAGNIE A ETRE CONSTITUEE

YVES R. HAMEL
INGENIEUR-CONSEIL

DIRECTIONAL ANTENNA DESCRIPTION SHEET

STATION:	NEW	MAIN STUDIO:	FREDERICTON, N.B.
POWER:	10 KWD/1 KWN	FREQUENCY:	1400 KHz CLASS IV

NOTIFICATION:
LIST NO. 353 DATE: April 1, 1976

GEOGRAPHICAL:
LOCATION:

North Latitude 45° 56' 32"
West Longitude 66° 42' 42"

ANTENNA CHARACTERISTICS

MODE OF OPERATION:		DA-2	
ANTENNA CHARACTERISTICS:		Two element, uniform cross-section, guyed steel tower; base insulated for series feed, no top loading.	
TOWERS:		No. 1	No. 2
HEIGHT ABOVE INSULATORS:		176' (90)	176'
OVERALL HEIGHT:		181'	181'
FIELD RATIO:	DAY	1.00	.60
	NIGHT	1.00	.775
PHASING:	DAY	0°	-130
	NIGHT	0°	-118.5
SPACING:		Ref.	100° (195')
ORIENTATION:		Ref.	80°
GROUND SYSTEM:		120 equiangularly spaced radials extend from the base of each tower to a maximum distance of 282 feet (0.4 wavelength). Ground wires are No. 10B and S Soft drawn copper wire, buried 8" in the ground.	
PREDICTED EFFECTIVE FIELD:		600 Mv/M for 10 Kw (Day) 190 Mv/M for 1 Kw (Night)	

RCA LIMITED
DECEMBER 1975
PROJECT 5287-A

REVISED MARCH 4, 1976

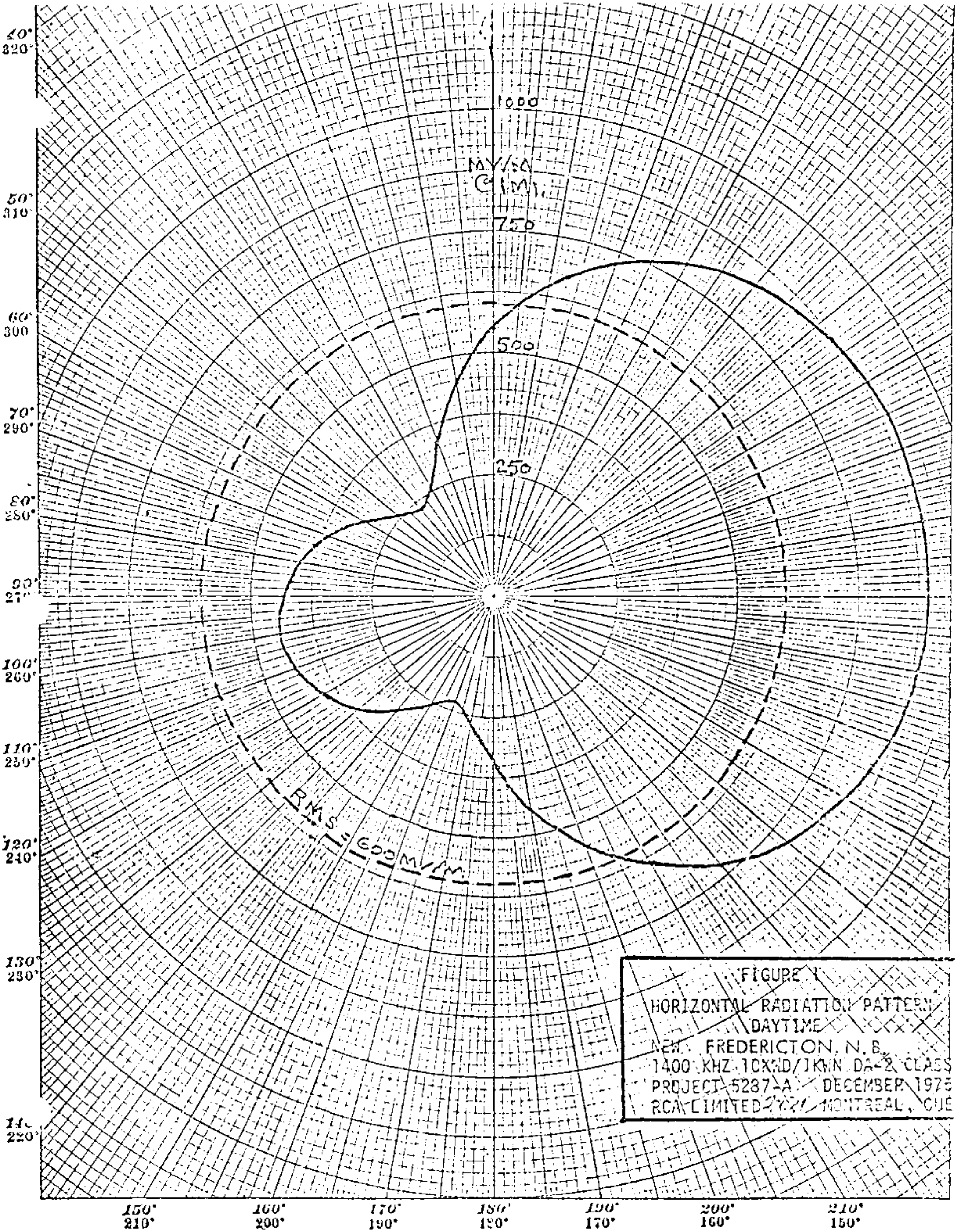


FIGURE 1
HORIZONTAL RADIATION PATTERN
DAYTIME
NEW FREDERICTON, N.B.
1400 KHZ 10KWD/1KWN DA-2 CLASS
PROJECT 5287-A DECEMBER 1975
RCA LIMITED MONTREAL, QUE

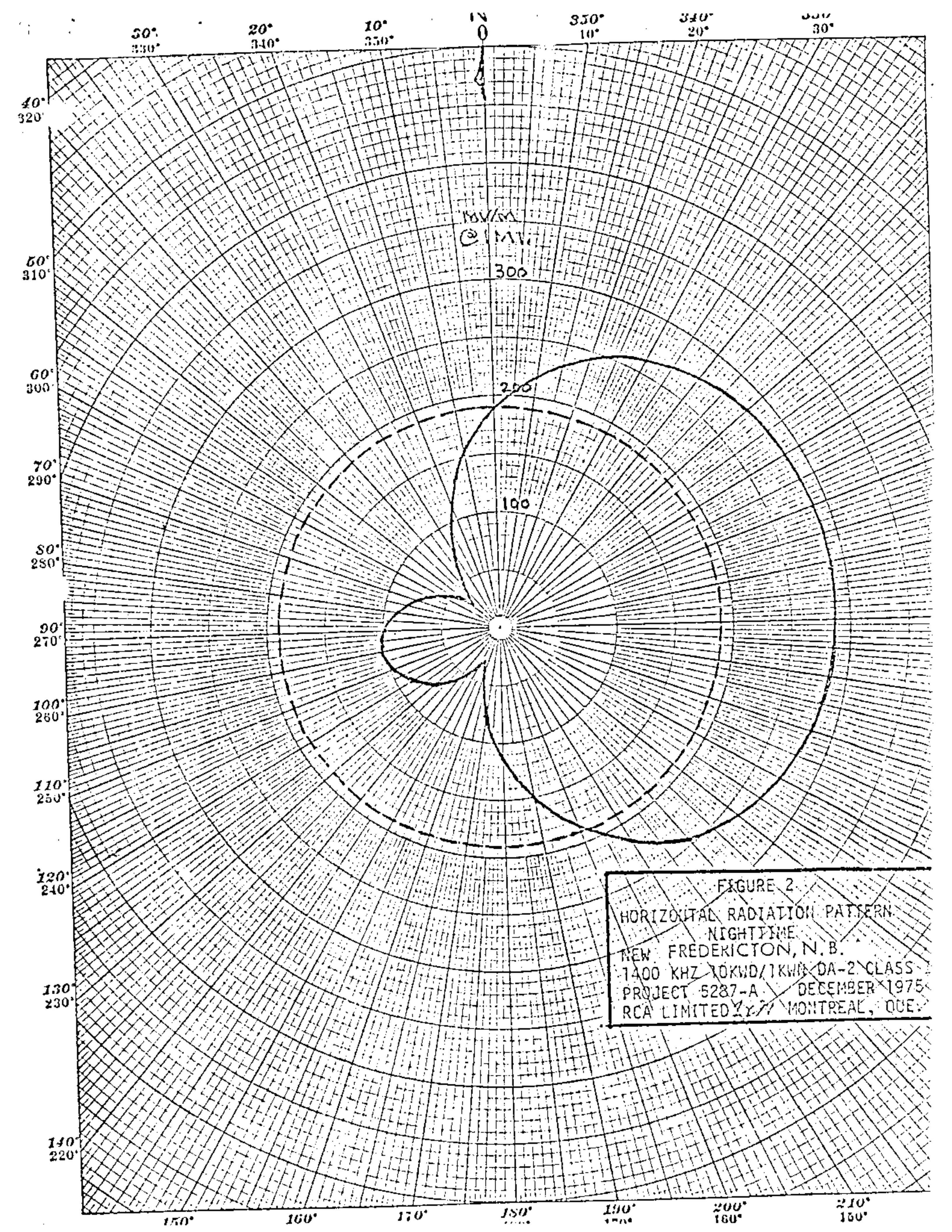


FIGURE 2
HORIZONTAL RADIATION PATTERN
NIGHTTIME
NEW FREDERICTON, N.B.
1400 KHZ 10KWD/1KWN DA-2 CLASS
PROJECT 5287-A DECEMBER 1975
RCA LIMITED MONTREAL, QUE.

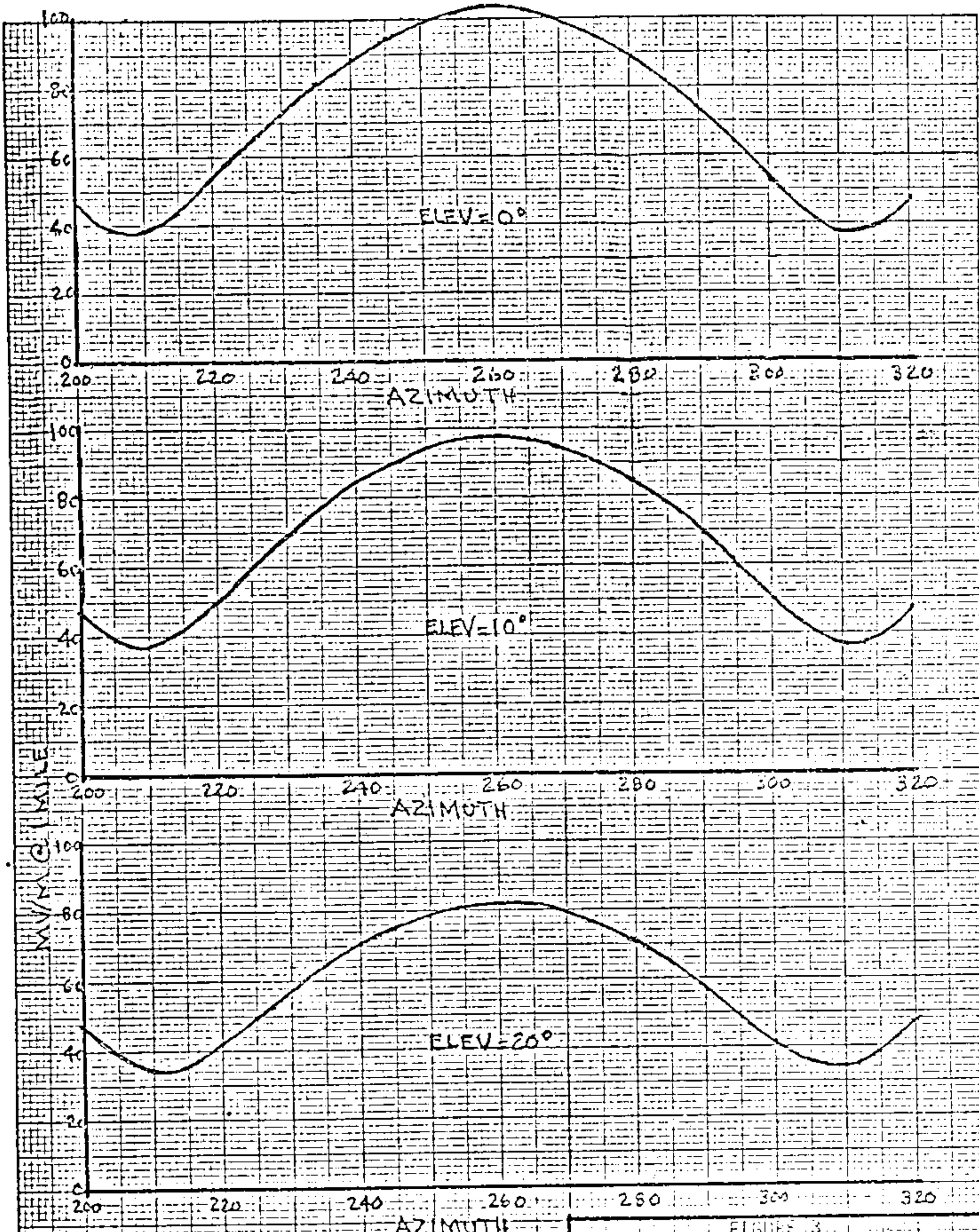


FIGURE 3

RADIATION PATTERN DETAIL NIGHTTIME
NEW-FREDERICTON, N.B.
1400 KHZ 10 KWD/1KWN DA-2 CLASS IV
PROJECT 5287-A DECEMBER 1975
RCA-LIMITED MONTREAL, QUE.

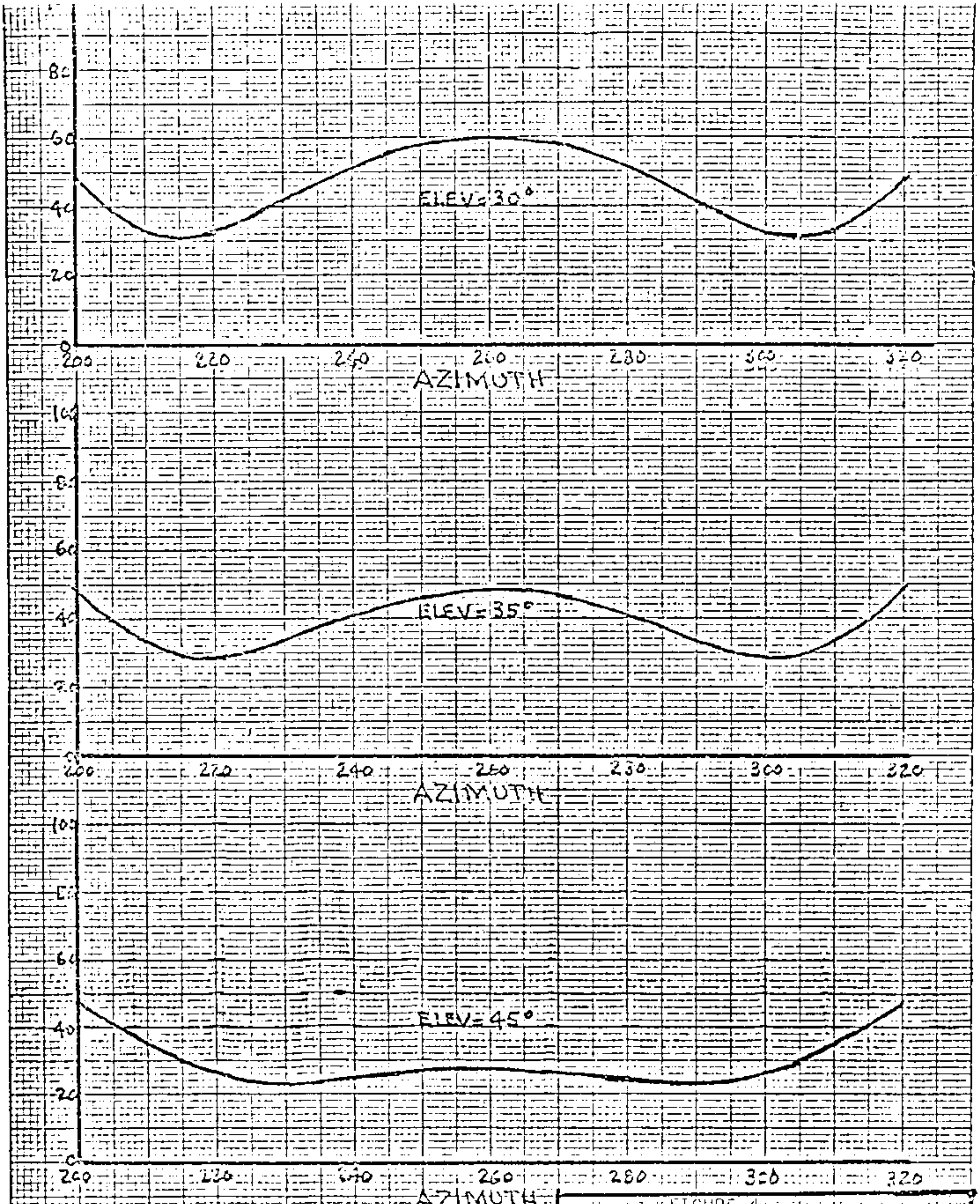


FIGURE 4
RADIATION PATTERN DETAIL NIGHTTIME
NEW FREDERICTON, N.B.
1400 KHZ 10 KWD/1KWN DA-2 CLASS IV
PROJECT 5287-A DECEMBER 1975
RCA LIMITED MONTREAL, QUE.

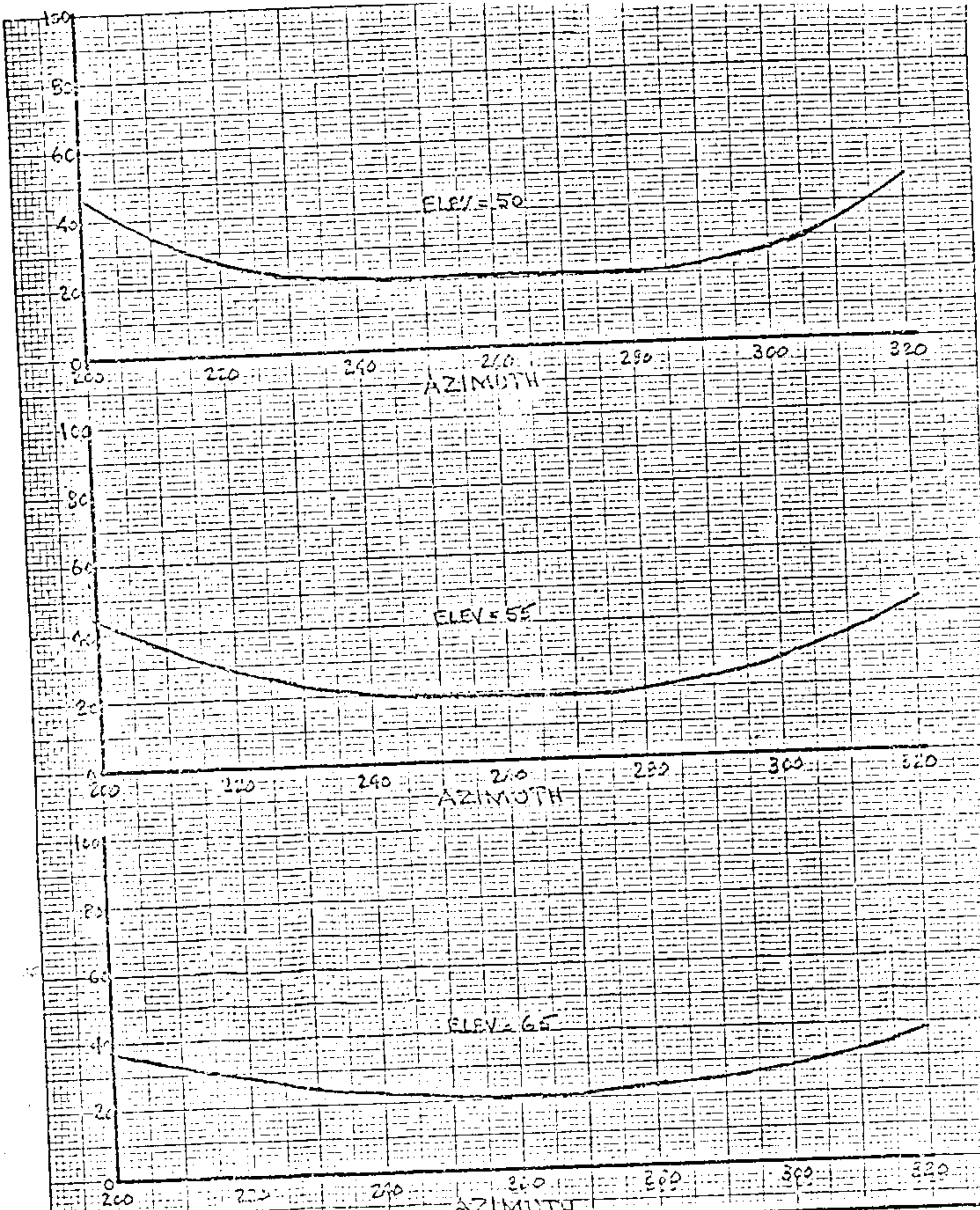


FIGURE 5

RADIATION PATTERN DETAIL - NIGHTTIM

NEW FREDERICTON, N.B.

1400 KHZ 10 KWD/1 KWN DA-2 CLASS IV

PROJECT 5287-A DECEMBER 1975

RCA LIMITED MONTREAL, QUE.

IFRB Serial No. 5179

FORM FOR THE APPLICATION OF ARTICLE 4 OF THE AGREEMENT | 12386 | 1401

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

PART I GENERAL INFORMATION

(01) Administration: CANADA | Sheet No.: 419 | Date: 830606

Assigned frequency (kHz)		(02)	1400
Transmitting station	Name of the station	(03)	GANDER NF
	Call sign	(04)	CBG
	Additional Identification	(05)	
	Station class	(06)	C
	Operational Status	(07)	P
Country		(08)	CAN
Geographical coordinates of the transmitting station		(09)	54W39 52 48N57 57

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

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

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

STATION PARAMETERS	DAYTIME OPERATION		NIGHT-TIME OPERATION	
Station power (kW)	(21)	1.	(31)	1.
r.m.s. value of radiation for station power (mV/m at 1 km)	(25)	293.7	(35)	293.7
Antenna type	(26)	A	(36)	A
Simple vertical antenna electrical height (degrees)	(27)	87.1	(37)	87.1

(44) Remarks

Change of frequency to avoid interference (second harmonic) with air-to-ground communications.

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

8195

CFLD

Description Sheet
(3-26-65ct)

New Station
Burns Lake, B.C.

250w,U,Class IV
1400 kc

DESCRIPTION SHEET

OMNIDIRECTIONAL ANTENNA

STATION CALL:	NEW
MAIN STUDIO:	Burns Lake, B.C.
FREQUENCY:	1400 Kc/s
POWER:	250 Watts Day/Night
CLASS:	IV
TIME:	Unlimited
NOTIFICATION LIST #195	Dated: February 22, 1965
GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:	54° 13' 13" North Lat. 125° 45' 05" West Long.
ANTENNA CHARACTERISTICS:	Height 120' Type: Single steel, guyed, uniform tower no top loading, grounded base shunt fed.
GROUND SYSTEM:	120 radials, spaced 3° buried 8" 0.4 wavelength long
EXPECTED EFFICIENCY:	175 mv/m @ 1 mi for 1 KW 87.5 mv/m @ 1 mi for 250 W

#18X

CJ

Description Sheet
(2-28-64ct)

Station CJFP
Riviere du Loup, Quebec

250w,10kw-LS,U, Class IV
1400kc

SECTION 2.4 - Description Sheet
Omnidirectional Antenna

Station Call: CJFP

Main Studio: Riviere du Loup, Quebec

Frequency: 1400 Kc/s

Power: 10 Kw day 0.25 Kw night

Class: IV

Time: Full-time (ND)

Notification List No. 184 Date: February 10, 1964

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM: North Latitude: 47° 51' 36"
West Longitude: 69° 32' 56"

Height: 120 ft
61.4°
70° with top loading

Type of Element: Square uniform cross-section, base insulated, series feed, top loaded by electrically connecting the upper 25' of each guy to the tower.

Ground System: 120 radials of #10 B & S base copper wire equally spaced around the tower, extending to a distance of 285' (0.4 wavelengths) and buried 6 - 8 inches.

Expected Efficiency:

572 mv/m at 1 mile for
or 181 mv/m at 1 mile for 1 Kw

?
#203, 11-27-64
now in operation
with increased power

#195

CK B

Description Sheet
(3-26-65ct)

New Station
Collingwood, Ontario

250w,U,Class IV
1400 kc

ANTENNA DESCRIPTION SHEET

OMNI-DIRECTIONAL

STATION CALL:	New
LOCATION:	Collingwood, Ontario
MAIN STUDIO:	Barrie, Ontario
FREQUENCY:	1400 kc/s
POWER:	250 watts
CLASS:	IV
TIME:	Unlimited
NOTIFICATION LIST # 195:	Dated: February 22, 1965.
GEOGRAPHICAL LOCATION:	Lat 44° 28' 54", Long 80° 14' 45"
ARRAY CHARACTERISTICS:	One element, guyed, uniform cross section, base insulated, series feed. Height 120 feet or 61 degrees. No top loading.
Ground System	120 radials per tower, #10 AWG bare, soft copper wire, spaced uniformly, depth approximately 8 inches. Radials bonded to a soft copper strap at tower base Average length of radial 281'
Predicted R M S	180 mv/m at 1 mile for 1000 w 90 mv/m at 1 mile for 250 w

CKOB
1400
IFRB Serial No. 1 2 3 6 1

FORM FOR THE APPLICATION OF ARTICLE 4 OF THE AGREEMENT

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

PART I GENERAL INFORMATION

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

Assigned frequency (kHz)		02	1400
Transmitting station	Name of the station	03	RENFREW ON
	Call sign	04	CKOB
	Additional Identification	05	
	Station class	06	C
	Operational Status	07	P
Country		08	CAN
Geographical coordinates of the transmitting station		09	76W4225 45N2820

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

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

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

STATION PARAMETERS		DAYTIME OPERATION		NIGHT-TIME OPERATION
Station power (kW)	21	1.	31	.25
r.m.s. value of radiation for station power (mV/m at 1 km)	25	297.73	35	148.87
Antenna type	26	A	36	A
Simple vertical antenna electrical height (degrees)	27	69.	37	69.

(44) Remarks

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

CKOD
1400

IFRB Serial No. 1 2 3 6 1

FORM FOR THE APPLICATION OF ARTICLE 4 OF THE AGREEMENT

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

PART I GENERAL INFORMATION

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

Assigned frequency (kHz)		(02)	1 4 00
Transmitting station	Name of the station	(03)	R E N F R E W O N
	Call sign	(04)	C K O B
	Additional Identification	(05)	
	Station class	(06)	C
	Operational Status	(07)	P
Country		(08)	CAN
Geographical coordinates of the transmitting station		(09)	7 6 W 4 2 2 5 4 5 N 2 8 2 0

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

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

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

STATION PARAMETERS		DAYTIME OPERATION		NIGHT-TIME OPERATION
Station power (kW)	(21)	1 . 0 0	(31)	. 2 5
r.m.s. value of radiation for station power (mV/m at 1 km)	(25)	2 8 9 . 6 8	(35)	1 4 4 . 8 4
Antenna type	(26)	A	(36)	A
Simple vertical antenna electrical height (degrees)	(27)	6 9 .	(37)	6 9 .

(44) Remarks

COORDINATION UNDER ARTICLE 4:

COUNTRY	USA							
IN PROGRESS								
ACCEPTANCE OBTAINED								

CKRN

DESCRIPTION SHEET - OMNIDIRECTIONAL ANTENNA

STATION CALL:	CKRN
MAIN STUDIO:	Rouyn, P.Q.
FREQUENCY:	1400 kHz
POWER:	1 kw D/0.25 Kw N
CLASS:	IV
TIME:	U
NOTIFICATION LIST NO. 251	DATE: January 28, 1969
GEOGRAPHICAL LOCATION OF ANTENNA SYSTEM:	North Lat. 48° 13' 15" West Long. 79° 03' 30"
ANTENNA CHARACTERISTICS:	
Height	150 feet (76.6 degrees)
Type of Element	Uniform cross section, guyed, series fed, vertical element.
Ground System	120 radials each 282 ft (0.4λ) spaced 3° apart, buried approx. eight inches, #10 AWG bare copper wire, soldered to bus ring around tower base.
Expected Efficiency	92.5 mv/m at one mile for 0.25 kw or 185 mv/m at one mile of 1 kw.

DEC 4 '52

CKRN
1400

AIR SERVICES
TELECOMMUNICATIONS DIVISION

CANADA

DEPARTMENT OF TRANSPORT

DESCRIPTIVE SHEET - OMNIDIRECTIONAL ANTENNA

Station Call: CKRN

Main Studio: Rouyn, Quebec.

Frequency: 1400 Kc.

Power: 0.25 Kw.

Class: IV

Time: U

Notification Reference: NARBA Annex 3

Geographical Location:

North Latitude: 48° 13' 15"

West Longitude: 79° 03' 37"

Antenna Characteristics:

Height: 150 ft. 76.6 degrees

Expected Efficiency: 92.5 mv/m at 1 mi. for 0,25 KW.

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

Ground System:

120 radials, 282 feet long, spaced 3 degrees.

Type of Element:

One radiator, uniform cross-section, steel tower, guyed.

December 4, 1952

F16A

CKSW

Description Sheet
(11-30-61ct)

Station CKSW
Swift Current, Saskatchewan

250w, 1kw-LS, U, Class IV
1400 kc

ANTENNA DESCRIPTION SHEET

OMNI-DIRECTIONAL

STATION CALL: C K S W

MAIN STUDIO: Swift Current, Saskatchewan.

FREQUENCY: 1400 kc/s

POWER: Day 1000 watts - 250 watts Night

CLASS: IV

TIME: Unlimited

CERTIFICATE OF REFERENCE: No. 164 Date: October 30, 1961

GEOGRAPHICAL LOCATION: Lat. 50°15' [illegible]"
Lon. 107°[illegible]' [illegible]"

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

Height: 196 feet ([illegible]°)

Ground system: 120 radials per tower, #10 AWG bare soft copper wire, uniformly spaced, depth approximately 5 inches. Maximum radial length 300 feet.

Orientation: One element

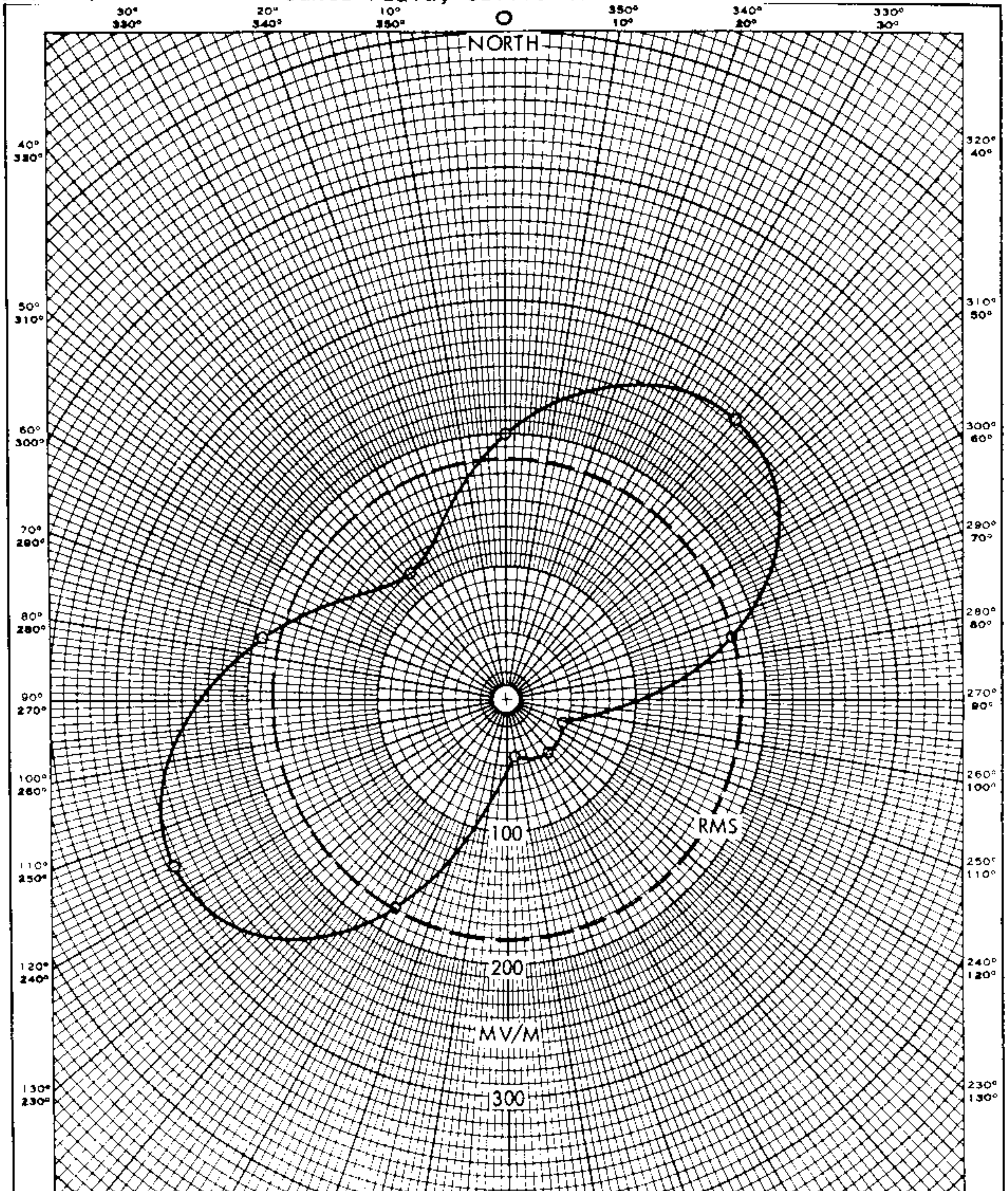
Predicted R.M.S.: [illegible] mv/m at 1 mile for 1 kw

KAAP

Measured Day
(12-23-70ct)

Station KQIQ
Santa Paula, California

250w,1kw-LS,DA-D,U
1400 kc



N. LAT. 34° 19' 48"		G = 75.3° = 147'
W. LONG. 119° 05' 31"	RMS = 182 MV/M	S = 165° = 322'

THEORETICAL: 2 0.75 ∠-35°; S; N 322° E; 1 1.00 ∠0°

OPERATING: 2 0.76 ∠-30°; S; N 322° E; 1 1.00 ∠0°

MEASURED DAYTIME DIRECTIONAL HORIZONTAL RADIATION

UNATTENUATED RADIATION AT ONE MILE IN MV/M

HAMMETT & EDISON
CONSULTING ENGINEERS
SAN FRANCISCO

RADIO STATION KQIQ
1400KHZ 0.25KW 1KW-LS DA-D U
SANTA PAULA, CALIFORNIA

700727

FIGURE 108

FCC File No.BL-12752
Accepted 10-15-70

Station KQIQ
Santa Paula, California

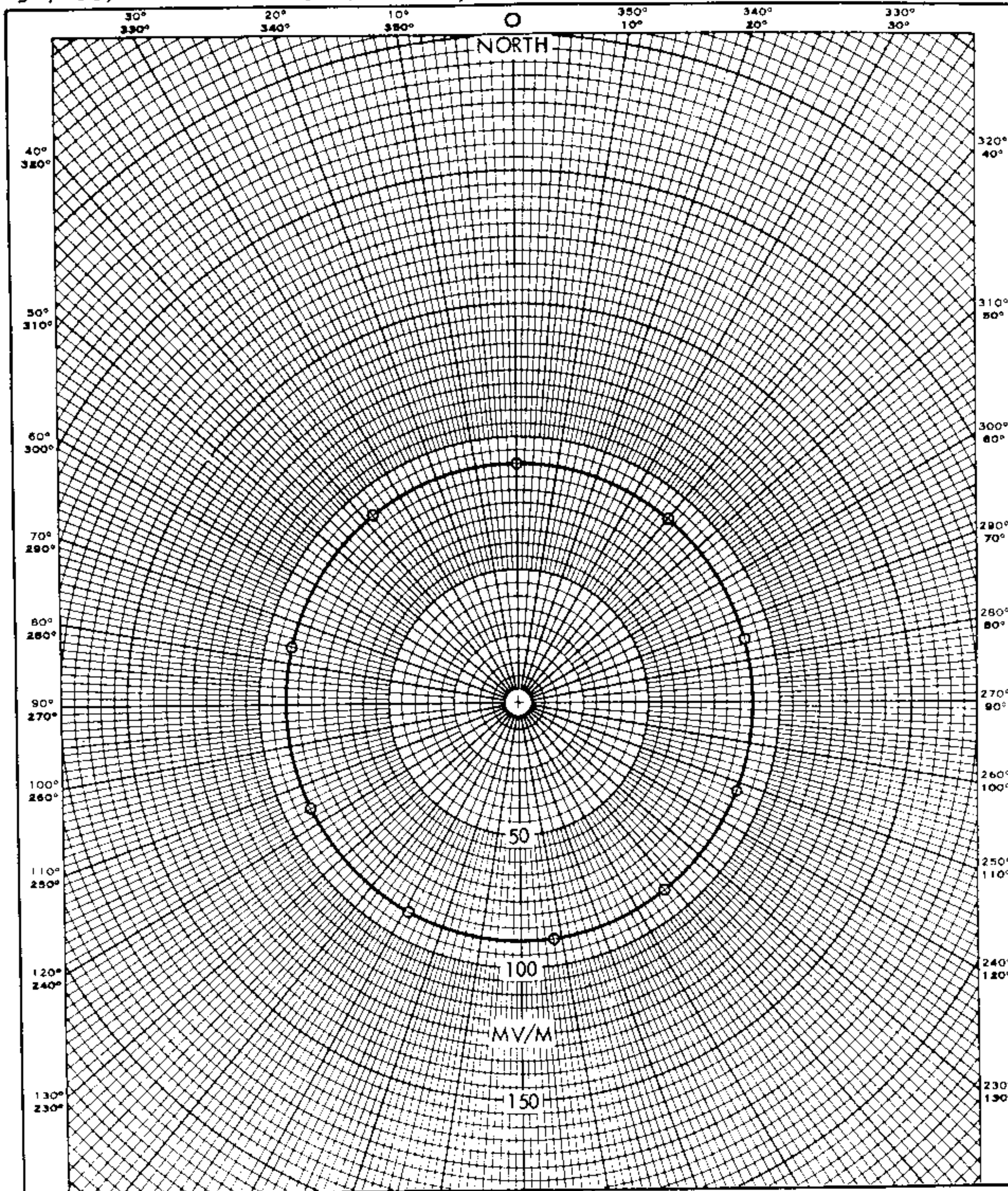
1400 kc

KAAP

Measured Non-DA
(12-23-70ct)

Station KQIQ
Santa Paula, California

250w,1kw-LS,DA-D,U
1400 kc



N. LAT. 34° 19′ 48″
W. LONG. 119° 05′ 31″
G = 75.3° = 147′
RMS = 90 MV/M
250 WATTS INTO TOWER 1
TOWER 2 FLOATING

MEASURED
NON-DIRECTIONAL
HORIZONTAL RADIATION

UNATTENUATED RADIATION
AT ONE MILE IN MV/M

HAMMETT & EDISON
CONSULTING ENGINEERS
SAN FRANCISCO

RADIO STATION KQIQ
1400KHZ. 0.25KW. 1KW-LS. DA-D. U
SANTA PAULA, CALIFORNIA

700727

FIGURE 10A

FCC File No. BL-12752
Accepted 10-15-70

Station KQIQ
Santa Paula, California

1400 kc

KAAP

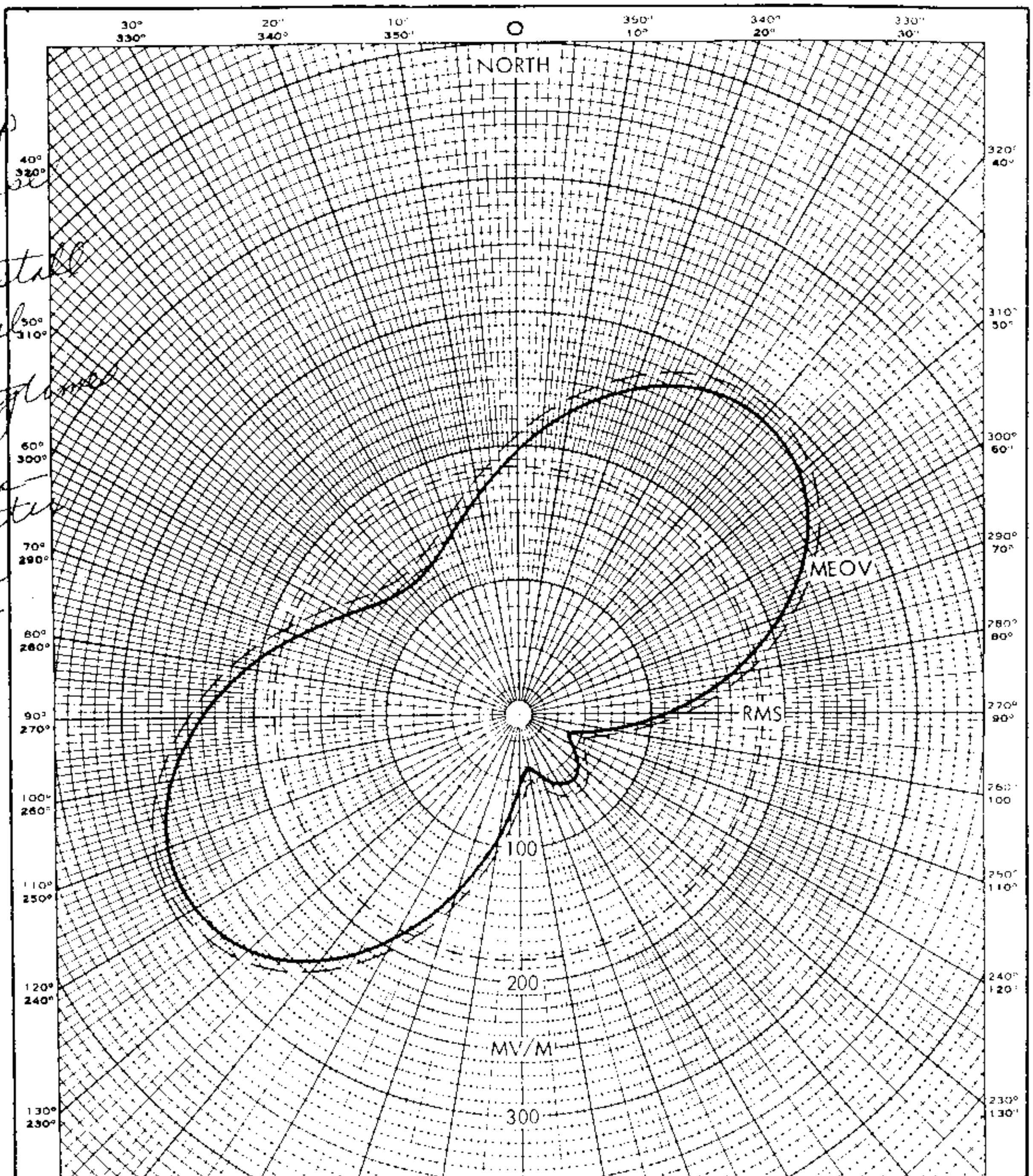
Proposed Day (6-27-69ct)

Station KQIQ
Santa Paula, California

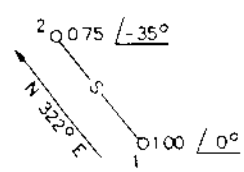
250w,1kw-LS,DA-D,U
1400 kc

BP-18571 Granted 1-22-69 CP to increase power to 1 kw; install directional antenna system daytime; change antenna-transmitter location

SEE REVERSE SIDE 6/24/70



N. LAT. 34° 19' 48"
W. LONG. 119° 05' 31"
G = 75.3° = 147'
S = 165° = 322'
RMS = 185 MV/M



PROPOSED DAYTIME
HORIZONTAL RADIATION

UNATTENUATED RADIATION
AT ONE MILE IN MV/M

HAMMETT & EDISON
CONSULTING ENGINEERS
SAN FRANCISCO

RADIO STATION KQIQ
1400KHZ 0.25KW. 1KW-LS DA-D U
SANTA PAULA, CALIFORNIA

690305

FIGURE 5B

FCC File No. BP-18571
Accepted 6-4-69

Station KQIQ
Santa Paula, California

1400 kc