

580-590

Station	Main Studio	Freq	Power	Date
CFRA	Ottawa, ON	580	50/10 kW/DA-2	2/26/63
CHLC	Hauterive, QU	580	5/2.5 kW/DA-2	4/16/74
CJFX	Antigonish, NS	580	10 kW/DA-1	8/28/64
CKAP	Kapuskasing, ON	580	10/1 kW/DA-N	11/8/74
CKPR	Fort William, ON	580	1 kW	11/19/52
CKWW	Windsor, ON	580	0.5 kW/DA-1	3/30/63
CKPR	Fort William, ON	580	1 kW	11/19/52
CKUA	Edmonton, AB	580	10 kW/DA-2	6/30/80
CKWW	Windsor, ON	580	0.5 kW/DA-1	3/30/63
CKXR	Salmon Arm, BC	580	1 kW/DA-2	3/26/65
CKY	Winnipeg, MB	580	50 kW/DA-2	12/5/77
KALB	Alexandria, LA	580	1/5 kW/DA-N	10/11/41
KCMX	Ashland, OR	580	1 kW/DA-2	6/16/59
KDAV	Lubbock, TX	580	0.5 kW/DA-D	11/28/52
KFXD	Nampa, ID	580	5 kW/DA-N	4/3/52
KIKX	Tucson, AZ	580	0.5/5 kW/DA-N	8/7/50
KUBC	Montrose, CO	580	1/5 kW/DA-N	4/3/56
WCHS	Charleston, WV	580	5 kW/DA-N	6/28/66
WDBO	Orlando, FL	580	5 kW/DA-N	12/53
WELO	Tupelo, MS	580	0.5/1 kW/DA-2	8/8/59
WGAC	Augusta, GA	580	5/1 kW/DA-N	12/45
WHP	Harrisburg, PA	580	5 kW/DA-N	7/26/78
WIBW	Topeka, KS	580	5 kW/DA-N	6/24/59
WILL	Urbana, IL	580	5 kW/DA-D	1/30/67
WKTY	LaCrosse, WI	580	1/5 kW/DA-2	4/16/57
WTAG	Worcester, MA	580	5 kW/DA-2	6/6/55
WTCM	Traverse City, MI	580	0.5/2.5 kW/DA-2	9/12/80

580-590

Station	Main Studio	Freq	Power	Date
XEAV	Guadalajara, Jalisco	580	25 kW/DA-1	12/9/52
CFAR	Flin Flon, MB	590	1/10 kW/DA-D	6/28/67
CFTK	Terrace, BC	590	1 kW/DA-1	6/28/63
CJCW	Sussex, NB	590	1/0.25 kW/DA-2	8/26/77
CKEY	Toronto, ON	590	10 kW/DA-2	4/29/68
CKRS	Jonquiere, QU	590	5/10 kW/DA-2	7/29/70
VOCM	St. John's, NF	590	10 kW/DA-N	2/2/59
CMCY	Santa Clara, LV	590	25 kW	10/16/52
KBHS	Hot Springs, AR	590	1/5 kW/DA-N	3/29/67
KCSJ	Pueblo, CO	590	1 kW/DA-2	5/30/74
KFXM	San Bernardino, CA	590	1 kW/DA-2	6/47
KID	Idaho Falls, ID	590	1/5 kW/DA-N	3/26/52
KLBJ	Austin, TX	590	1/5 kW/DA-N	8/23/63
KSUB	Cedar City, UT	590	1/5 kW/DA-N	10/16/46
KTHO	South Lake Tahoe, CA	590	0.5/2.5 kW/DA-N	4/13/77
KTHO	South Lake Tahoe, CA	590	0.5/1 kW/DA-N	9/26/68
KUGN	Eugene, OR	590	1 kW/DA-N	9/49
KUGN	Eugene, OR	590	1/5 kW/DA-N	4/10/61
WARM	Scranton, PA	590	5 kW/DA-2	6/3/75
WDLP	Panama City, FL	590	1 kW/DA-N	6/16/71
WEEI	Boston, MA	590	5 kW/DA-1	1/19/48
WGTM	Wilson, NC	590	5 kW/DA-2	
WJMS	Ironwood, MI	590	1/5 kW/DA-N	6/28/68
WKZO	Kalamazoo, MI	590	5 kW/DA-N	11/16/59
WLVA	Lynchburg, VA	590	1 kW/DA-2	2/13/74
WMBS	Uniontown, PA	590	1 kW	2/40
WPLO	Atlanta, GA	590	5 kW/DA-N	10/2/74

580-590

Station	Main Studio	Freq	Power	Date
WROW	Albany, NY	590	1/5 kW/DA-2	11/27/74
WRTH	Wood River, IL	590	1 kW/DA-2	9/28/79
WRTH	Wood River, IL	590	1/0.5 kW/DA-2	5/28/64
WVLK	Versailles, KY	590	1 kW/DA-1	11/20/47
WVLK	Versailles, KY	590	1/5 kW/DA-2	9/25/57
NEW	Fort Nelson, BC	590	0.25 kW	7/27/67

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

PART II Section I

Description of a directional antenna consisting of vertical conductors

830705420Date _____

48



8

C	A	H
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⑧

O	T	A	W	A						C	N
---	---	---	---	---	--	--	--	--	--	---	---

Name of transmitting stationHours of operationCountry[illegible]

(14) r.m.s value of radiation	(15) Type of pattern	(16) Special quadrature factor
2 1 0 4 • 5 7 mV/m at 1 km	E	mV/m at 1 km

17 SUPPLEMENTARY INFORMATION

Horizontal Daytime Pattern
 CERA Ottawa, Ontario
 50/10 kw DA-2 580 kHz V
 George Mather, P.Eng.
 Sep 1982 6.2

Mv/m

Standard Pattern

$Q^2 = 1800$

1000

Bearing in Degrees

50 100 150 200 250 300

Description Sheet
(2-26-63ct)

Station CFRA
Ottawa, Ontario

10kw, 50kw-LS, DA-2, U, Class II
580 kc

CFRA
580kHz

ANTENNA DESCRIPTION SHEET

DIRECTIONAL DA-2

COHEN AND DIPPEL
RECEIVED

STATION CALL:

C F B A

DEC 6 1961

MAIN STUDIO:

Ottawa, Ontario.

FREQUENCY:

580 kc/s

POWER:

Day 50 kw, 10 kw Night

CLASS:

III

TIME:

Unlimited

WASHINGTON, D.C.

NOTIFICATION REFERENCE: 175..... December 21, 1962

GEOGRAPHICAL LOCATION:

Lat. $45^{\circ}12'24''$ North

Lon. $75^{\circ}44'03''$ West

ARRAY CHARACTERISTICS:

Four elements, guyed, uniform cross section, base insulated, series feed. (Elements top loaded to effect equivalent electrical height of 70°)

ELEMENT	ONE	TWO	THREE	FOUR
Physical ht.	283'	283'	283'	283'
Spacing	ref.	424' 90°	848' 180°	1272' 270°
Bearing	ref.	09°	09°	09°
Day ratio	1.000	1.340	1.118	0.495
phase	00°	-66.7°	-132.4°	$+125.0^{\circ}$
Night ratio	1.000	1.917	1.675	0.719
phase	00°	-141.4°	$+70.15^{\circ}$	-72.0°

GROUND SYSTEM

120 radials per tower, #10 AWG bare, soft copper wire, uniformly spaced, depth 8 in. approximately. Radials joined along line between towers and bonded to soft copper strap at tower bases. Maximum radial length 700 feet.

TOP LOADING

Each element top loaded with three wires each 80 feet long at 45° to vertical.

R.M.S. DAY

1275 mv/m at 1 mile for 50 kw

R.M.S. NIGHT

571 mv/m at 1 mile for 10 kw.

GM 15/12/61

5

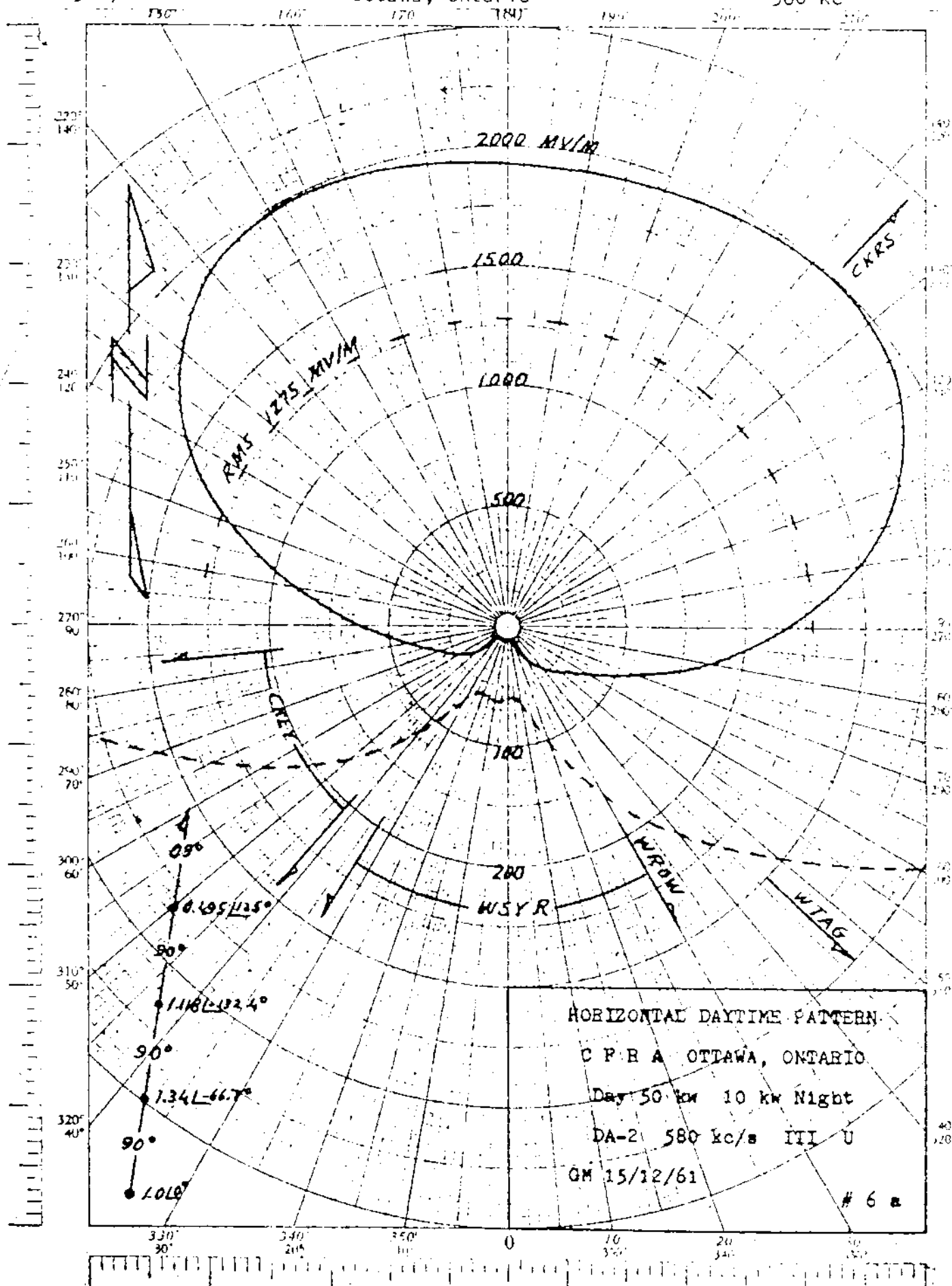
Proposed Day
(2-26-63ct)

Station CFRA
Ottawa, Ontario

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

CFRA
580kHz

K-E POLAR CO-ORDINATE
300.01
KILGILL & GIBSON CO.



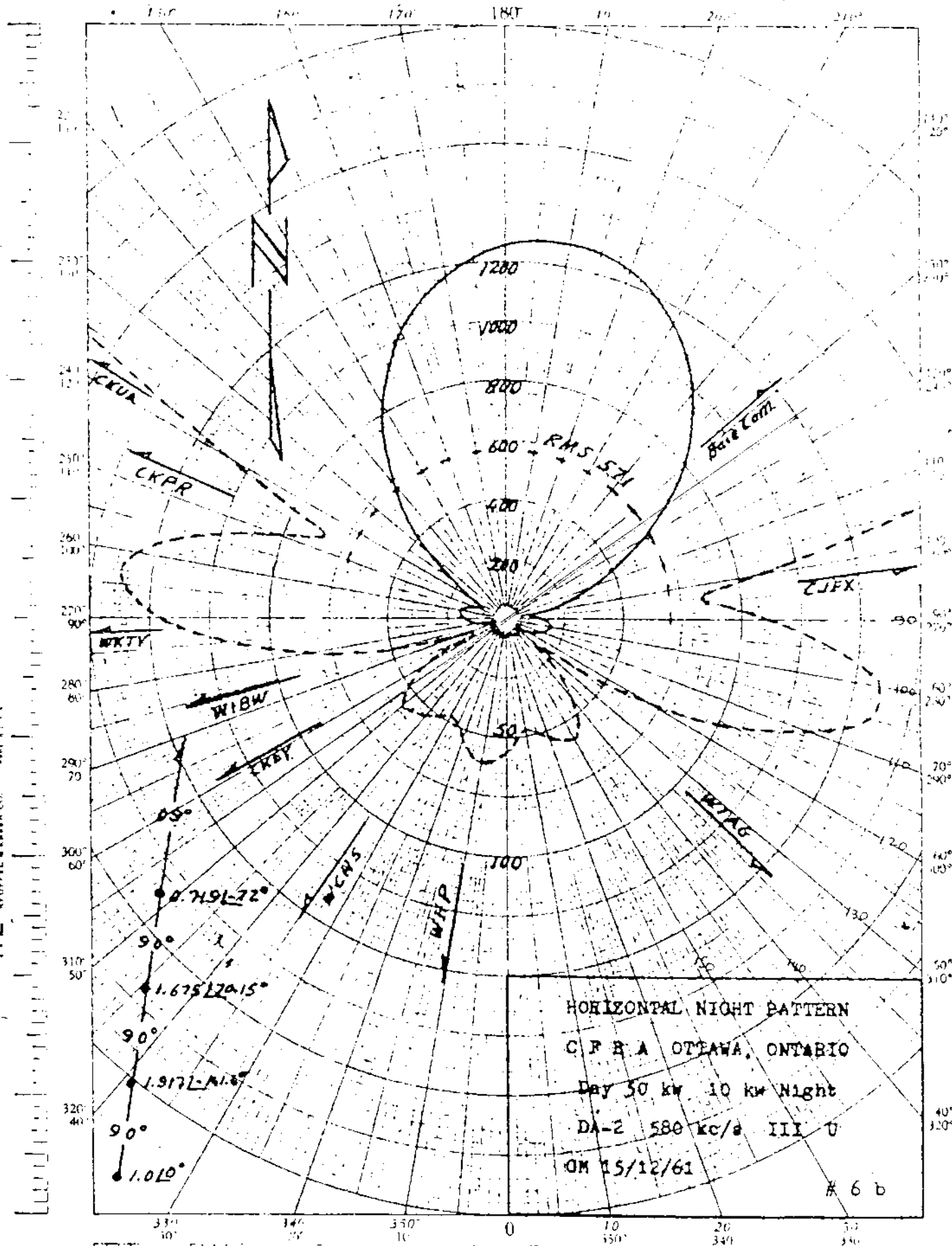
#175

Proposed Night
(2-26-63ct)

Station CFRA
Ottawa, Ontario

CFRA
580 kHz
10kw, 50kw-LS, DA-2, U, Class II
580 kc

KE POLAR CO-ORDINATE 350.31
MURTEL & GREEN CO. MADE IN U.S.A.



ANTENNA DESCRIPTION SHEET

DIRECTIONAL DA-2

STATION CALL: C F R A
MAIN STUDIO: Ottawa, Ontario.
FREQUENCY: 580 kc/s
POWER: Day 50 kw, 10 kw Night
CLASS: III
TIME: Unlimited

NOTIFICATION REFERENCE: 175 December 21, 1962

GEOGRAPHICAL LOCATION: Lat. $45^{\circ}12'24''$ North
Lon. $75^{\circ}44'03''$ West

ARRAY CHARACTERISTICS: Four elements, guyed, uniform cross section, base insulated, series feed. (Elements top loaded to effect equivalent electrical height of 70°)

ELEMENT	ONE	TWO	THREE	FOUR
Physical ht.	283'	283'	283'	283'
Spacing	ref.	424' 90°	848' 180°	1272' 270°
Bearing	ref.	09°	09°	09°
Day ratio	1.000	1.340	1.118	0.495
phase	00°	-66.7°	-132.4°	$+125.0^{\circ}$
Night ratio	1.000	1.917	1.675	0.719
phase	00°	-141.4°	$+70.15^{\circ}$	-72.0°

GROUND SYSTEM 120 radials per tower, #10 AWG bare, soft copper wire, uniformly spaced, depth 8 in. approximately. Radials joined along line between towers and bonded to soft copper strap at tower bases. Maximum radial length 700 feet.

TOP LOADING Each element top loaded with three wires each 80 feet long at 45° to vertical.

R.M.S. DAY 1275 mv/m at 1 mile for 50 kw

R.M.S. NIGHT 571 mv/m at 1 mile for 10 kw

OM 15/12/61

5

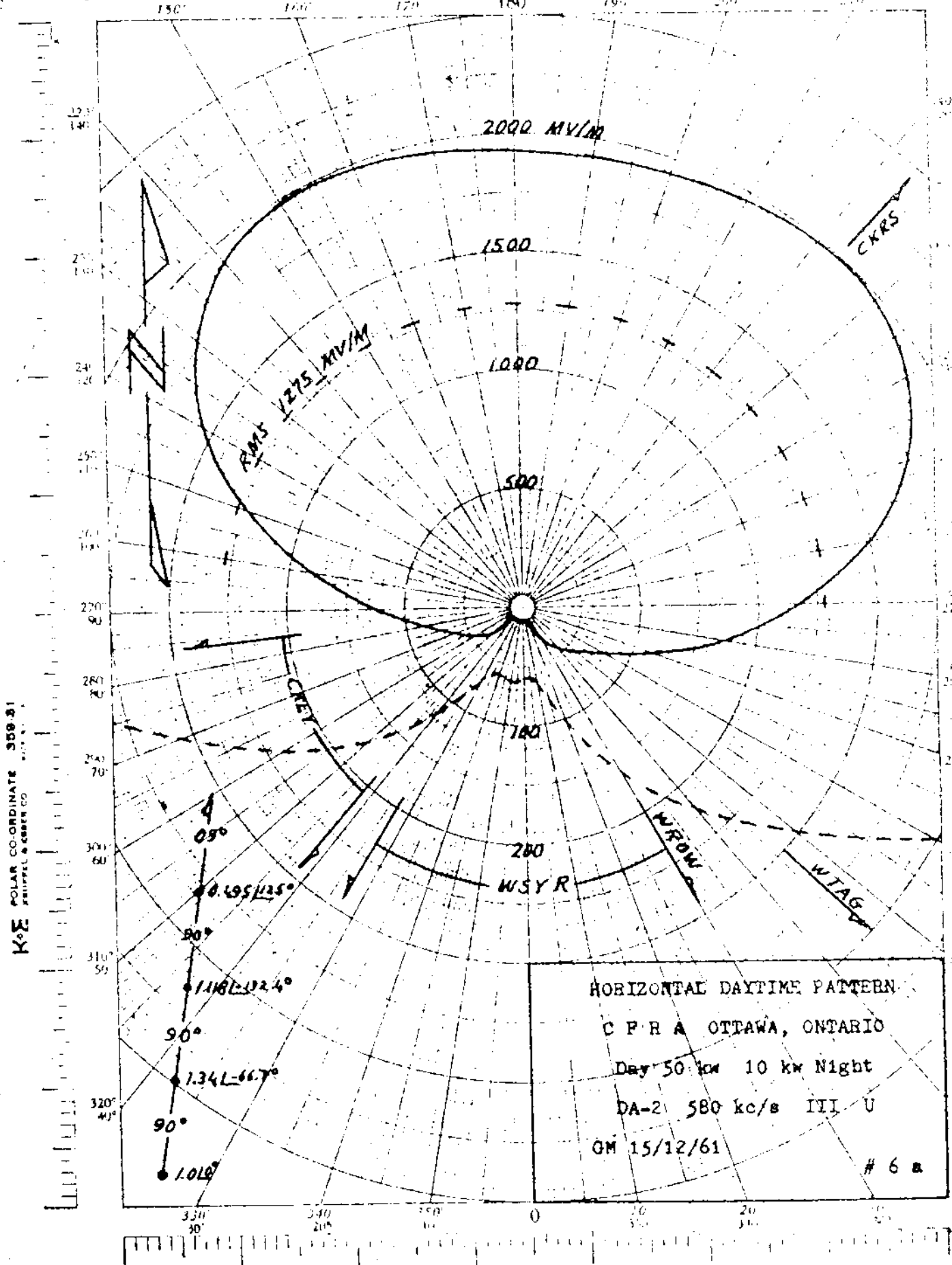
CFRA

#176

Proposed Day
(2-26-63ct)

Station CFRA
Ottawa, Ontario

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



CFRA

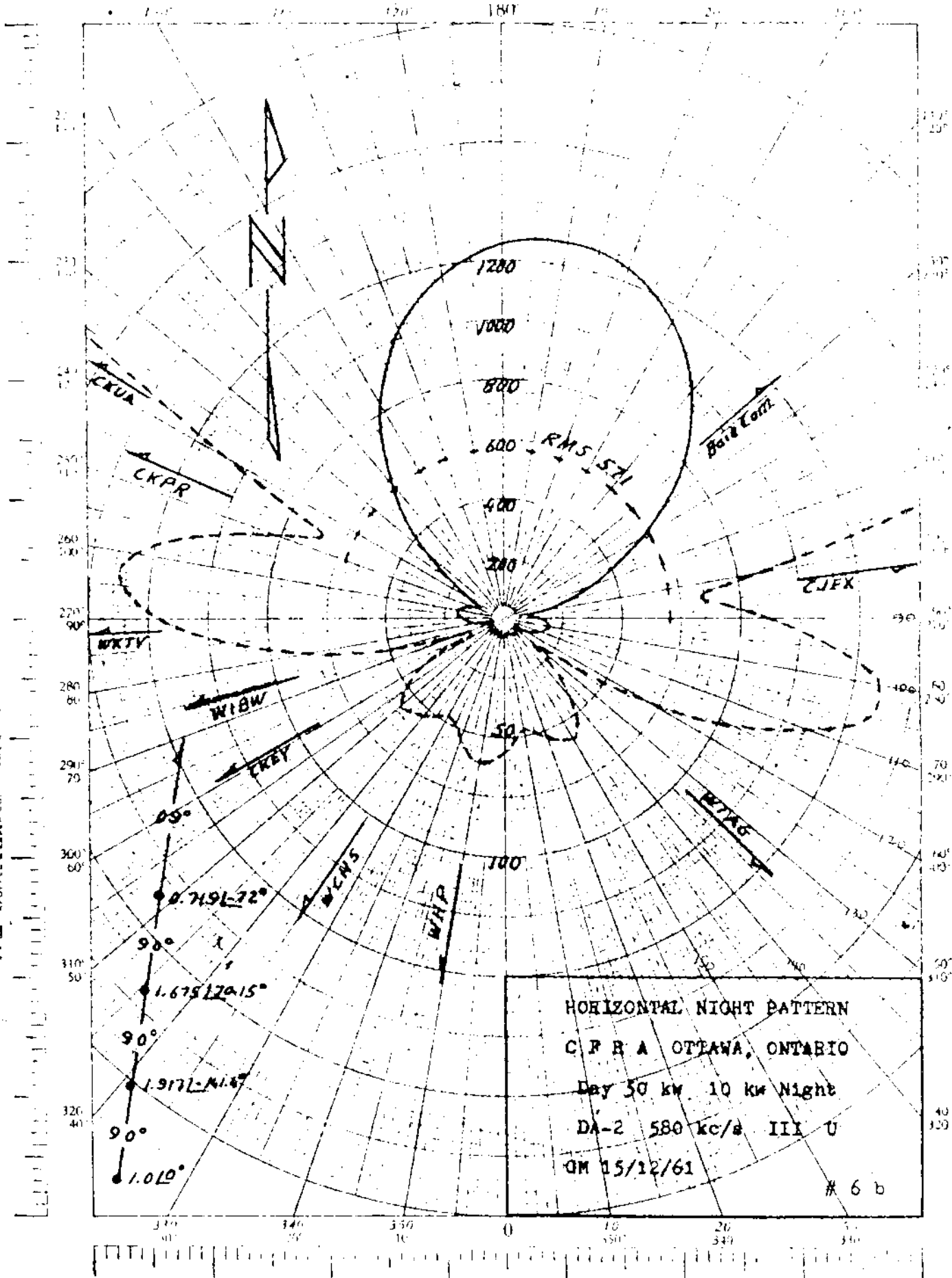
#175

Proposed Night
(2-26-63ct)

Station CFRA
Ottawa, Ontario

10kw, 50kw-LS, DA-2, U, Class II
580 kc

K-E POLAR COORDINATE
MUFFEL & LEBER CO.



CHLC

SUPPLEMENTAL DIRECTIONAL
ANTENNA DESCRIPTION SHEET

Station: CHLC

Main Studio: Hauterive, Que.

Frequency: 580 KHz

Power: 50/2.5N kw Class III

Notification List No: 322

Date: April 16, 1974.

Geographical Location of
the Center of the Antenna System:

North Latitude: 49° 10' 34"
West Longitude: 68° 18' 41"

Mode of Operation - DA-2

Note: Please retain the description sheet and directional antenna radiation patterns notified for station CHLC in Canadian Change List Number 158 dated April 7, 1961 and attach to this supplemental description sheet. This notification is for the purpose of indicating only a correction in the geographical coordinates.

COORDINATE
CORRECTION ONLY

DESCRIPTION SHEET
(8-22-61ct)

New Station 2.5kw, 5kw-LS, DA-2, U, Class III
Baie Comeau, Quebec, Canada 580 KC



DESCRIPTION SHEET

STATION: New MAIN STUDIO: (Hauterive, Quebec)
FREQUENCY: 580 kc POWER: 2.5 N(5.0) kw
NOTIFICATION LIST NO: 158 MODE: DA-2
CLASS: III DATE: Aug 11, 1961 34
ANTENNA LOCATION: latitude: 49 10 34 N
longitude 68 18 41 W

ANTENNA DESCRIPTION:

Number of Elements: Three
Type of Elements: Series fed. square, uniform cross section,
guyed steel tower base insulator, no top loading

Tower:	#1(N)	#2(SE)	#3(SW)
Height above insulator	300' (63.5)	300'	300'
Phasing day	-35	0	not used
Phasing night	0	45	90
Field ratio day	0.75	1.00	not used
Field ratio night	1.77	1.00	1.31

Spacing and Orientation:

With #1 (north) as reference, #2 (south-east) is spaced 850' (260')
on a line bearing 140 true and #3 (south-west) is spaced 637' (194')
on a line bearing 185 true

Ground System:

130 equally spaced radials per tower, of average length approx. 680'
(0.40 λ), with the exception of those joined along the common chord.
The radials are #10 B & S bare copper wire buried 6 to 8 inches

Predicted Effective Field:

402 mV/m for 5 kw; 184 mV/m for 2.5 kw.

180 mV/m for 1.0 kw.

Canadian Design Service Co. Ltd.,
J. G. Elder, P. Eng.

NOTE: Please attach nighttime radiation patterns previously supplied
for this assignment to this description sheet and revised daytime
pattern. 20.7.61

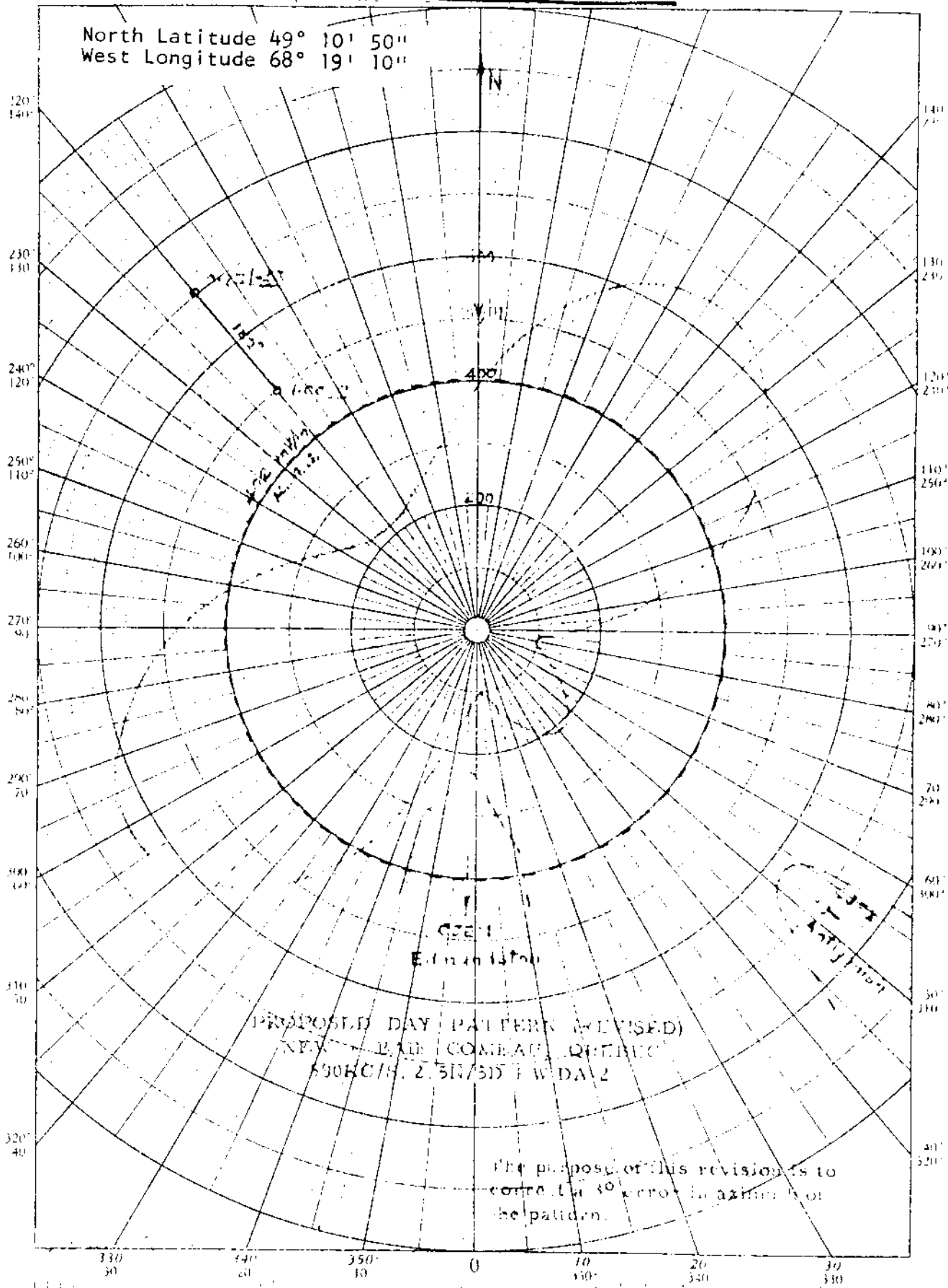
CHLC

158

PROPOSED DAY
(8-22-61ct)

New Station 2.5kw, 5kw-LS, DA-2, U, Class III
Baie Comeau, Quebec, Canada 580 KC

North Latitude 49° 10' 50"
West Longitude 68° 19' 10"



NO. 1 POLAR CO-ORDINATE 359-31
KUMON & ASSOCIATES

PROPOSED DAY PATTERN (REVISED)
NEW BAIE COMEAU, QUEBEC
580KC/LS, 2.5KW/5KW DA-2

The purpose of this revision is to
correct the 30° error in azimuth of
the pattern.

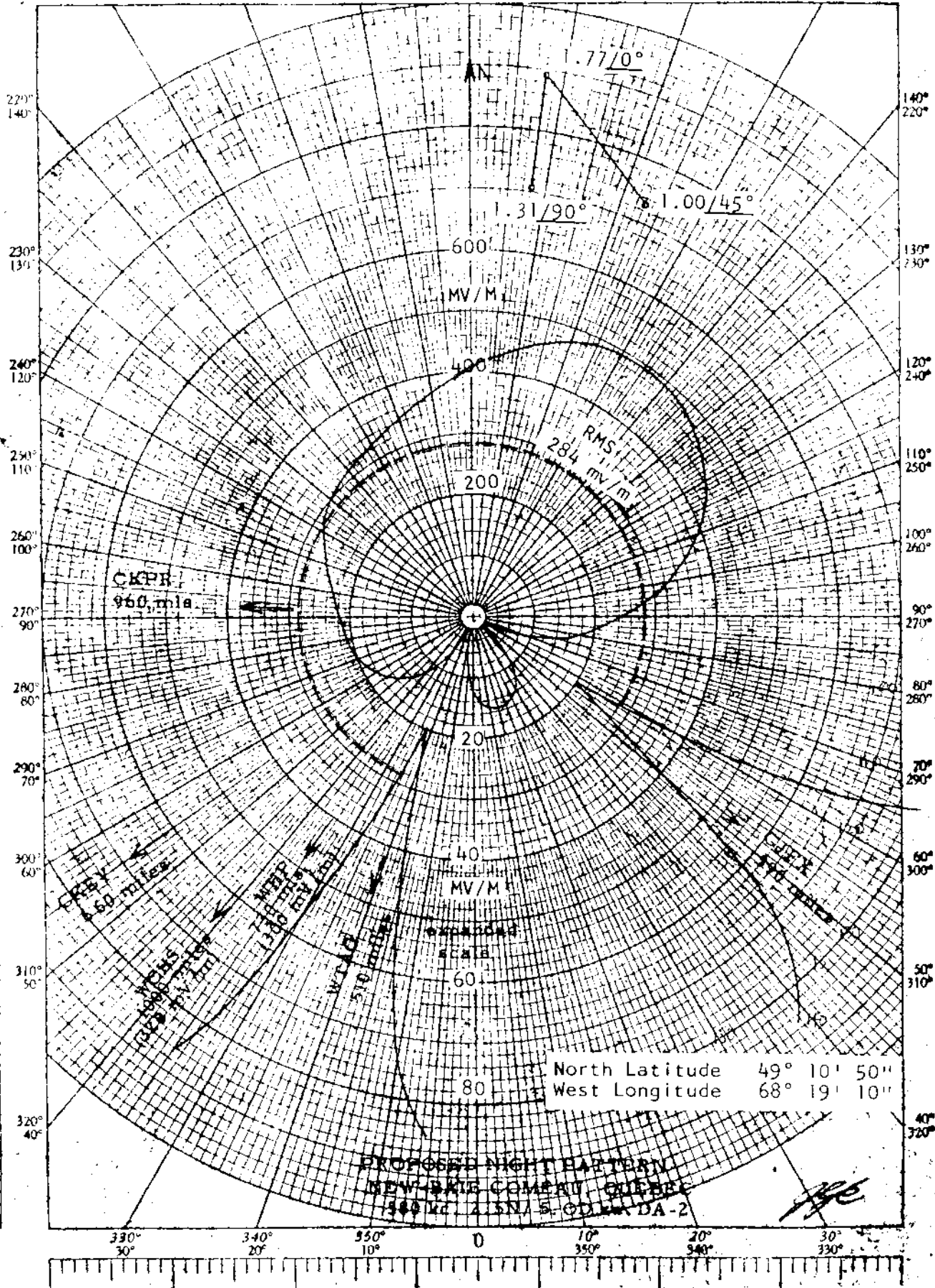
CHLCO

2515kW

PROPOSED NIGHT
(5-8-61g)

New Station ~~250w~~, 580w-LS, DA-2,U, Class III
Baie Comeau, Quebec, Canada 580 KC

150° 160° 170° 180° 190° 200° 210°



KOE PULSAR CO-ORDINATE 359-31
PULSAR CO-ORDINATE 359-31
PULSAR CO-ORDINATE 359-31

Description Sheet
(8-28-64ct)

Station CJFX
Antigonish, N. S.

10kw, DA-1, U, Class III-A
580 kc

CJFX

PROJ. #072-A

DIRECTIONAL ANTENNA DESCRIPTION SHEET

STATION: CJFX

MAIN STUDIO: Antigonish, N.S.

POWER: 10 Kw

FREQUENCY: 580 Kc/s

CLASS: III-A

NOTIFICATION LIST NO.: 189

DATE: July 20, 1964

GEOGRAPHICAL LOCATION: North Latitude 45° 36' 37"
West Longitude 62° 00' 45"

ANTENNA CHARACTERISTICS

MODE OF OPERATION:

DA-1

NUMBER OF ELEMENTS:

2

TYPE OF ELEMENTS:

Uniform cross-section, guyed steel towers
base insulated for series feed.

TOWERS:

#1 (NW)

#2 (SE)

HEIGHT ABOVE INSULATORS:

285' (60°)

285' (60°)

OVERALL HEIGHT:

290'

290'

OVERALL HEIGHT ABOVE M.S.L.:

440'

440'

SPACING:

Ref.

120°

PHASING:

Ref.

-122°

FIELD RATIO:

1.0

0.88

ORIENTATION:

Ref.

128°

GROUND SYSTEM:

120 equiangularly spaced radials extend from
the base of each tower to a distance of at
least 423 feet (.25 wavelength) except for
those joined along the common chord. The
proposed ground system covers an equivalent
area to radial wires extended to a distance of
673 feet (0.4 wavelength). Ground wires are
#10 B and S soft drawn copper wire.

PREDICTED EFFECTIVE FIELD:

600 mv/m for 10 Kw.
190 mv/m for 1 Kw.

PAINTING AND LIGHTING:

All towers painted and lighted to comply with
DOT Specification 16.

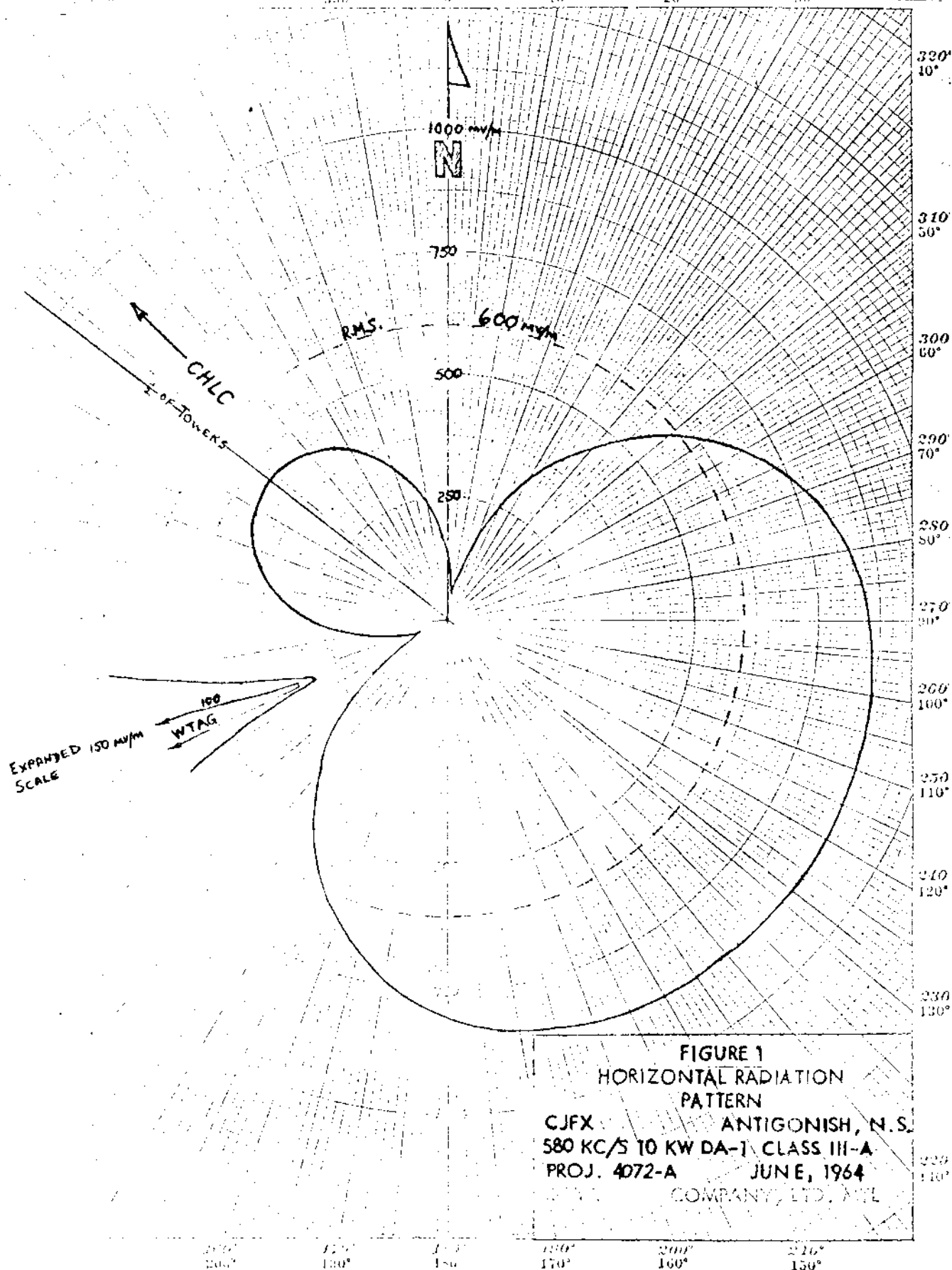
RCA VICTOR COMPANY, LTD.
MONTREAL, QUEBEC.

CJFX

#189 Proposed Day & Night
(8-28-64ct)

Station CJFX
Antigonish, N. S.

10kw, DA-1, U, Class III-A
580 kc



CKAP
580 kHz

FUNCTIONAL AREA - DOCUMENTATION SHEET

MAIN STUDIO: Kapuskasing, Ont.

POWER: 10 KW, D/1 KW N CLASS: III

Date: November 8, 1974.

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:

WEST LONGITUDE: 82° 23' 52"

ANTENNA CHARACTERISTICS:

Number of Elements: Two (2)

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

#1 (S)

#2 (N)

285 '

285' (60.50)

 $90^{\circ} \quad (423.9')$ ¹⁰

-142°

1

1

ORIENTATION: on a line bearing 14° East of True North

GROUND SYSTEM: 120 equally spaced radials per mast extending to a maximum of 678' (0.4 wavelength approx.) and bonded together at points equidistant between towers. Radials to be of #10 E & S bare soft drawn copper wire buried at a depth of approximately 8 inches.

PREDICTED EFFECTIVE FIELD: 175 mv/m at 1 mile for 1 Kw. radiated.
554 mv/m at 1 mile for 10 Kw. radiated.

CKAP
580 kHz

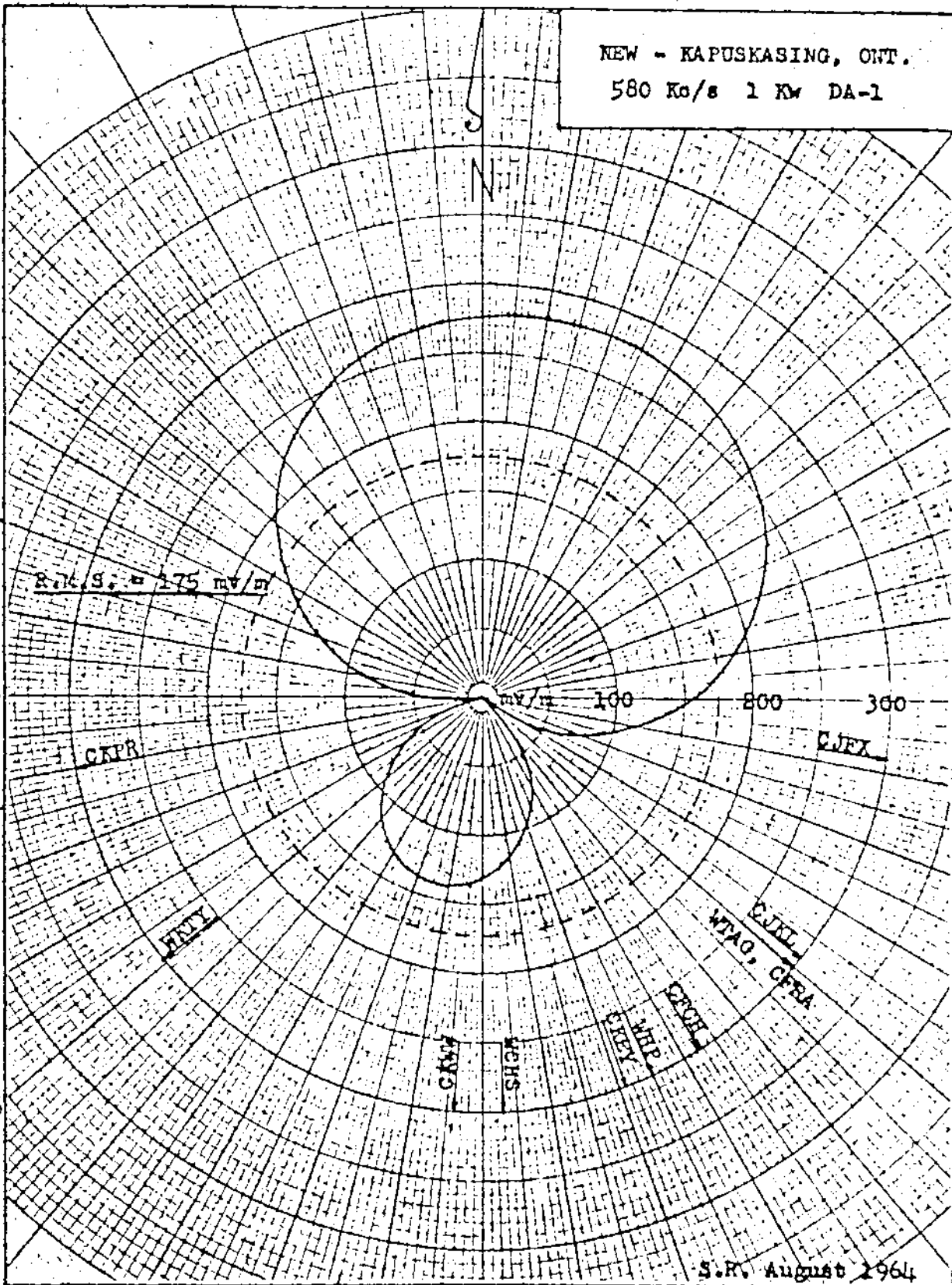
CKAP

Proposed Day & Night
(7-28-66ct)

New Station
Kapuskasing, Ontario

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

HORIZONTAL RADIATION PATTERN



SYSTEMS CANADIAN MARCONI COMPANY CONSULTING

CKAP

IDENTIFICATION - DESCRIPTION SHEETSTATION: CKAPMAIN STUDIO: Kapuskasing, Ont.FREQUENCY: 580 Kc/sPOWER: 10 KW, D/1 KW N CLASS: III

Notification List No.: 333

Date: November 8, 1974.GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:NORTH LATITUDE: $49^{\circ} 23' 17''$ WEST LONGITUDE: $82^{\circ} 23' 52''$ ANTENNA CHARACTERISTICS:

Mode of Operation: Directional Night (DA-N)

Number of Elements: Two (2)

Type of Element: Square uniform cross-section, guyed,
insulated from ground, series fed,
no top loading.TOWER:

#1 (S)

#2 (N)

HEIGHT ABOVE INSULATOR:

285'

285' (60.50)

SPACING: 90° (423.9')PHASING: 0° -142° FIELD RATIO:

1

1

ORIENTATION:on a line bearing 14° East of True NorthGROUND SYSTEM:120 equally spaced radials per mast extending to a
maximum of 678' (0.4 wavelength approx.) and bonded
together at points equidistant between towers.
Radials to be of #10 B & S bare soft drawn copper wire
buried at a depth of approximately 8 inches.PREDICTED EFFECTIVE FIELD:175 mv/m at 1 mile for 1 Kw. radiated.
554 mv/m at 1 mile for 10 Kw. radiated.

11-19-52

CKPR
580

Air Services
Telecommunications Division



REFER TO FILE NUMBER

DEPARTMENT OF TRANSPORT
OTTAWA

DESCRIPTIVE SHEET - OMNIDIRECTIONAL PATTERN

Station Call: CKPR
Main Studio: Fort William, Ontario.
Frequency: 580 Kc/s.
Power: 1 Kw.
Class: III
Time: U

Notification Reference: NARBA Annex 3

Geographical Location:

North Latitude: 48° 24' 40"

West Longitude: 82° 15' 37"

Antenna Characteristics:

Height: 300 ft. 70 degrees

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

or: 178 mv/m at 1 mi. for 1 Kw.

Ground System:

120 radials each 500 feet long laid on top
of ground (muskeg).

Type of Element:

Self-supporting, square cross-section
steel tower.

ALLOCATION: CTRM

November 19, 1952

Description Sheet
(3-30-63ct)

New Station
Windsor, Ontario

500w, DA-1, U, Class III
580 kc

Now in
operation
HG, LIST 190

ANTENNA DESCRIPTION SHEET

DIRECTIONAL DA-1

STATION CALL:
MAIN STUDIO: Windsor, Ontario.
FREQUENCY: 580 kc/s
POWER: 500 watts
CLASS: III
TIME: Unlimited

NOTIFICATION REFERENCE: 176 Date: February 26, 1963
GEOGRAPHICAL LOCATION: Lat $42^{\circ}10'22''$, Lon $83^{\circ}02'53''$

ARRAY CHARACTERISTICS: Four elements, guyed, uniform cross section, base insulated, series feed.

ELEMENT	ONE	TWO	THREE	FOUR
phys ht	183' 60°	183' 60°	183' 60°	183' 60°
spacing	ref	424.4' 90°	848.8' 180°	1273.2' 270°
bearing	ref	026.5°	026.5°	026.5°
field ratio	1.000	1.767	1.583	0.648
field phase	ref	-156.4°	+46.2°	-110.0°

Ground system 120 radials per tower, #10 AWG bare, soft copper wire, uniform spacing, depth approximately 8 inches. Radials bonded along line between towers and bonded to soft copper strap at tower base. Average radial length 679 feet.

Predicted H. F. S. 178 uv/m at 1 mile for 1 kw.



BROADCAST FACILITIES
DIVISION

MAR 6 1963

OM Nov 1962

5

CKWW

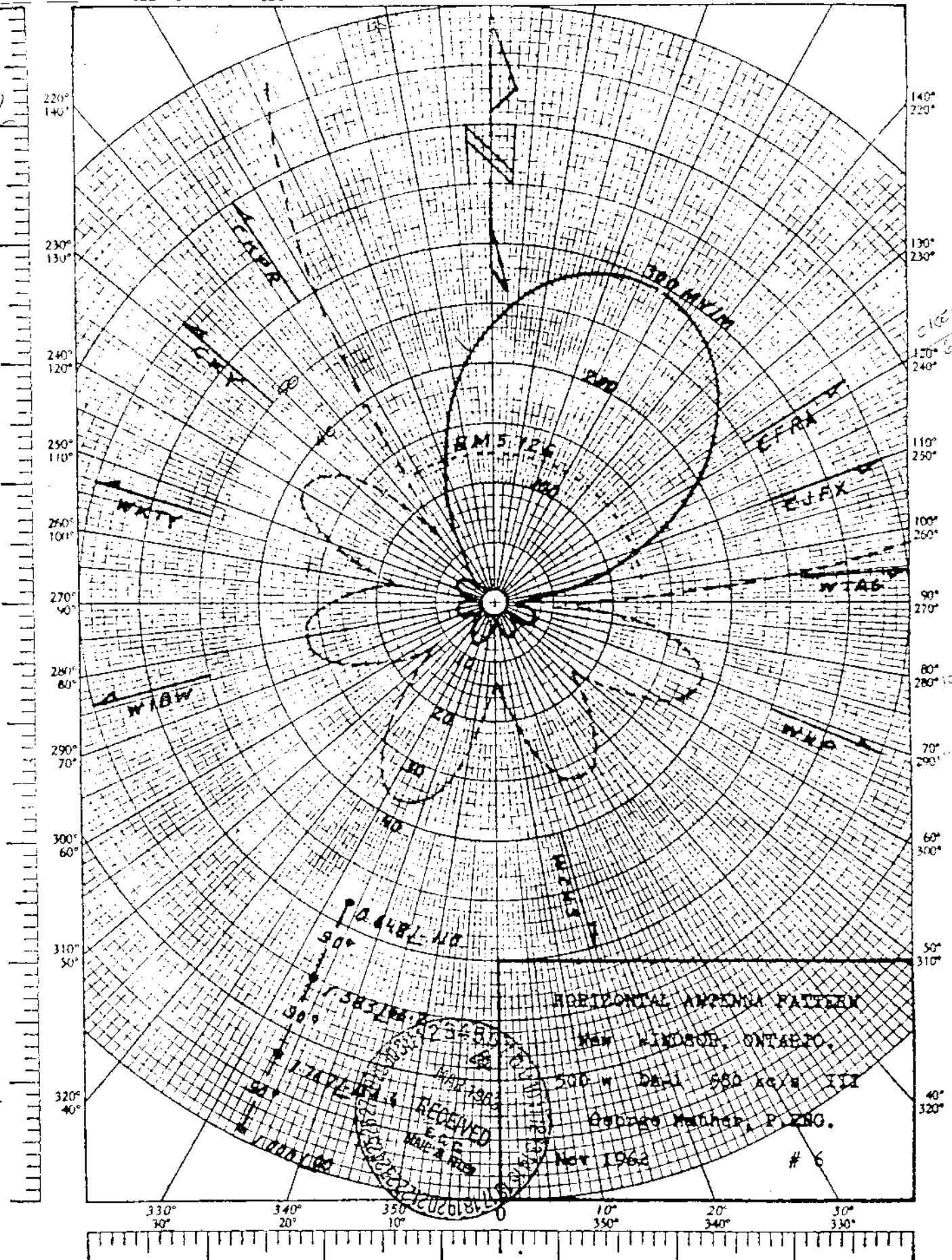
Proposed Day & Night
(3-30-63ct)

New Station
Windsor, Ontario

500w, DA-1, U, Class III
580 kc

DOWN IN
OPERATION
HB LIST 190

WINDSOR, ONTARIO

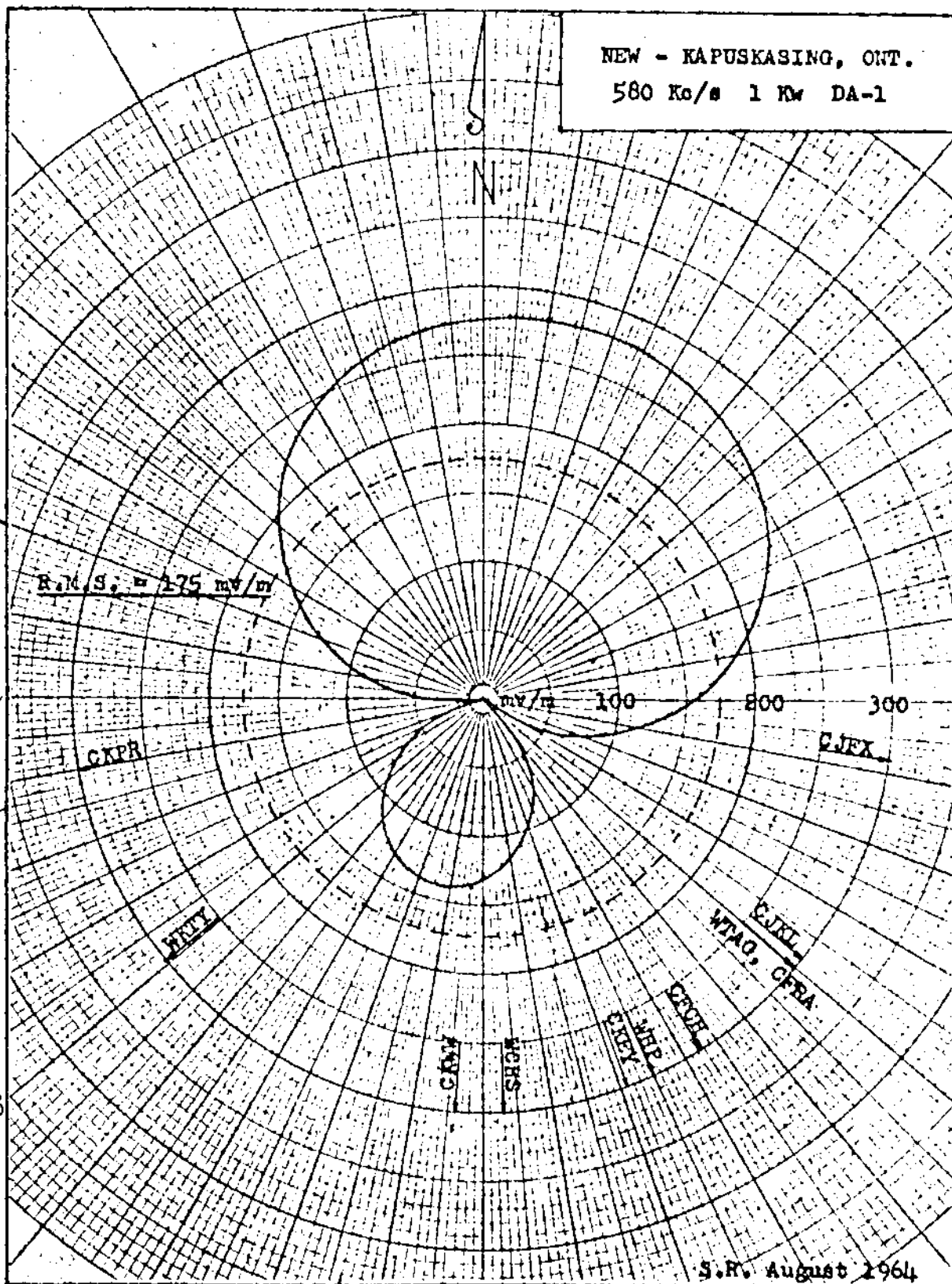


Proposed Day & Night
(7-28-66ct)

New Station
Kapuskasing, Ontario

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

HORIZONTAL RADIATION PATTERN



SYSTEMS CANADIAN MARCONI COMPANY CONSULTING

11-17-52

CKPR
580

REFER TO FILE NUMBER

Air Services
Telecommunications Division



DEPARTMENT OF TRANSPORT
OTTAWA

DESCRIPTIVE SHEET - OMNIDIRECTIONAL PATTERN

Station Call: CKPR
Main Studio: Fort William, Ontario.
Frequency: 580 Kc/s.
Power: 1 Kw.
Class: III
Time: U

Notification Reference: NARBA Annex 3

Geographical Location:

North Latitude: 48° 24' 40"
West Longitude: 89° 15' 37"

Antenna Characteristics:

Height: 200 ft. 70 degrees
Expected Efficiency: mv/m at 1 mi. for Kw.
or: 178 mv/m at 1 mi. for 1 Kw.

Ground System:

120 radials each 500 feet long laid on top
of ground (muskeg).

Type of Element:

Self-supporting, square cross-section
steel tower.

RECEIVED
NOV 19 1952

CKUA
580 kHz

PROJECT #13518

DESCRIPTION SITE - DIRECTIONAL ANTENNA

STATION: CKUA	STATION LOCATION: Edmonton, Alberta
FREQUENCY: 580 kHz	POWER: 10 kW CLASS: 12
IDENTIFICATION LIGHT: 397	DATE: June 30, 1980
GEOGRAPHICAL LOCATION:	Latitude: 53° 20' 34" North Longitude: 113° 27' 27" West

ANTENNA CHARACTERISTICS:

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

Tower:	#1 (South)	#2 (East)	#3 (West)
Height above base insulator	282' (60°)	282' (60°)	282' (60°)
Overall Height:	286'	286'	286'
Field Ratio:			
Nighttime	1.0	0.84	0.56
Daytime	unused	1.0	0.29
Phasing:			
Nighttime	0°	-147°	-133°
Daytime	unused	0°	-28°

GROUND SYSTEM:

120 equally spaced radials per tower of No.10 B & S gauge bare soft copper wire, buried approximately 2". Length of radials 672' (0.4 wavelength) with the exception of those joined along the common chords.

SPACING AND ORIENTATION OF TOWERS:

Tower #1 (South) and #2 (East) are on a line bearing 26° east of true north with a spacing of 423.9' (90°). Tower #1 (South) and #3 (West) are on a line bearing 64° west of true north with a spacing of 635.6' (135°).

PREDICTED EFFECTIVE FIELD:

175 mV/m at 1 mile for 1 kW	140 mV/m at 1 mile for 1 kW
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DATE: 10, 1979

330°
340°

270°
310°

180°
150°

0

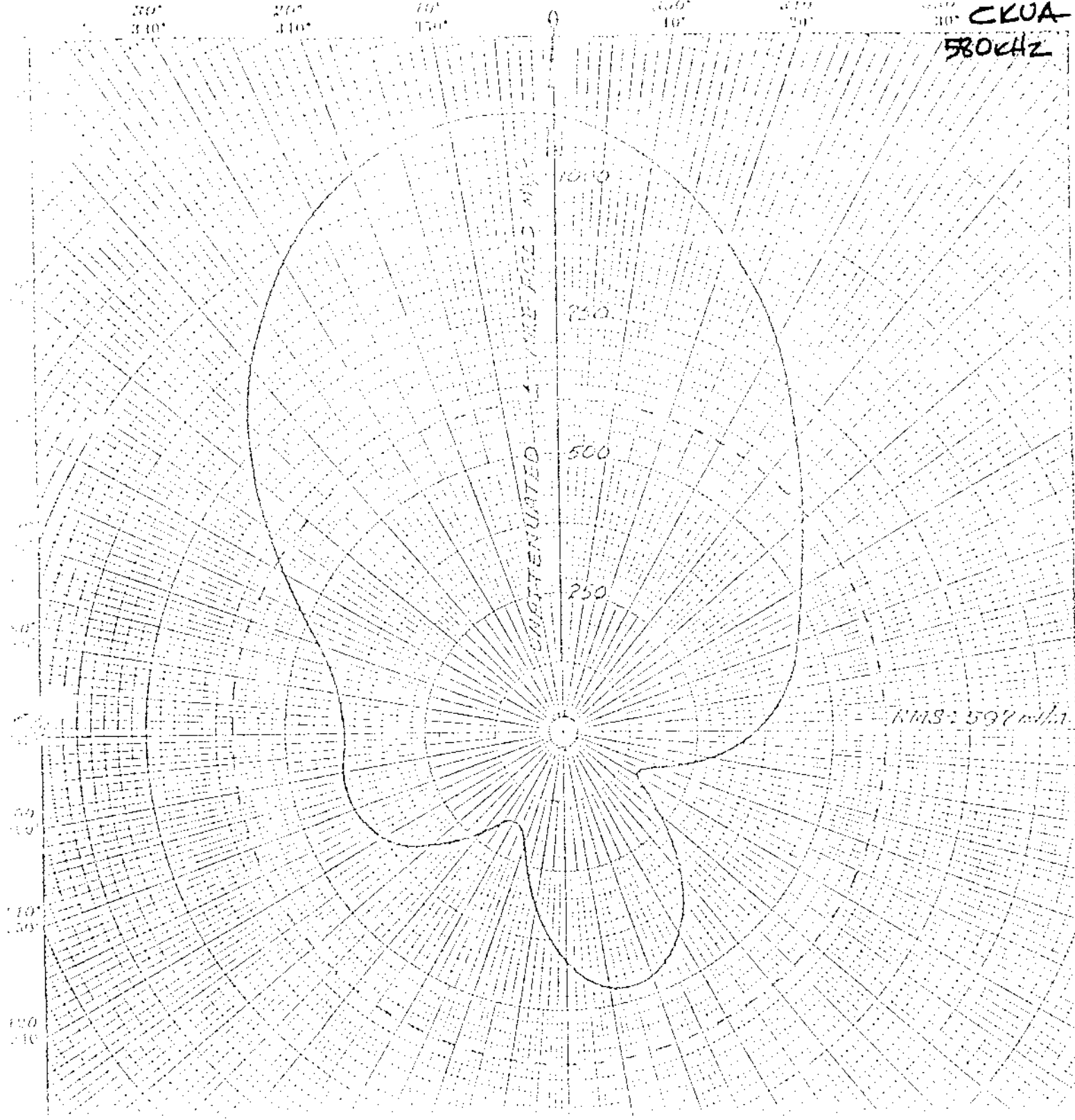
300°
10°

330°
20°

300°
30°

CKUA

580kHz

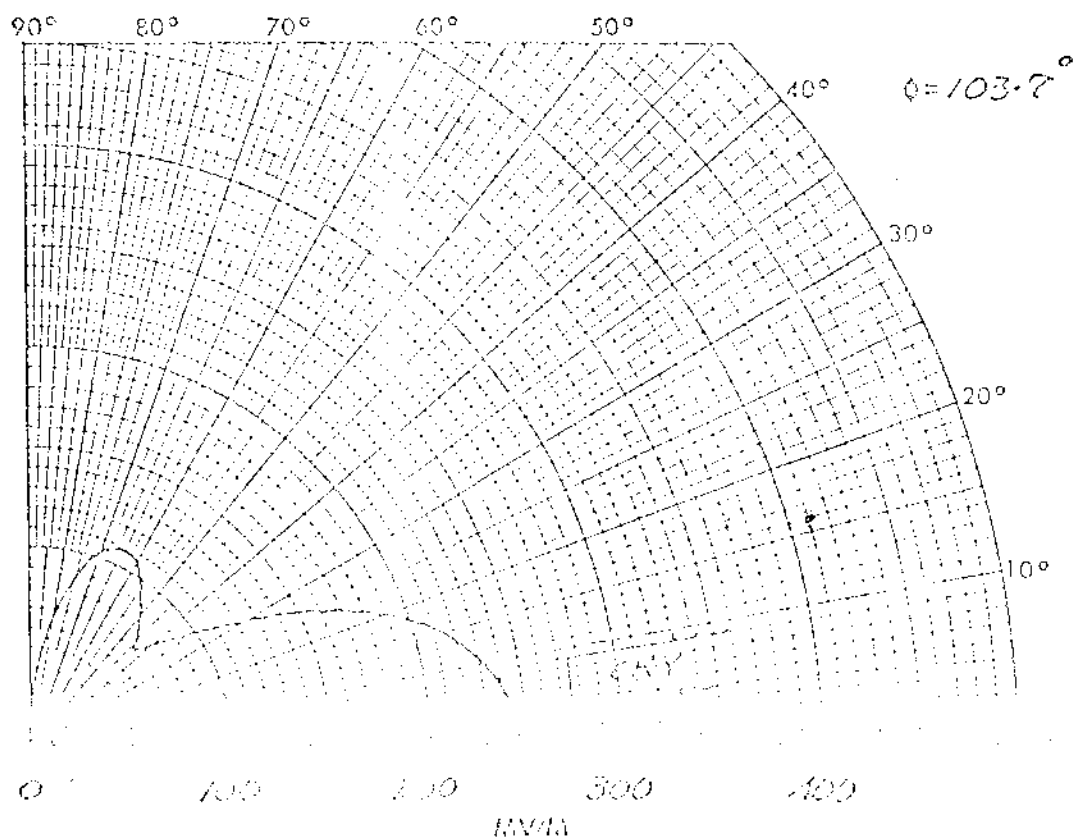
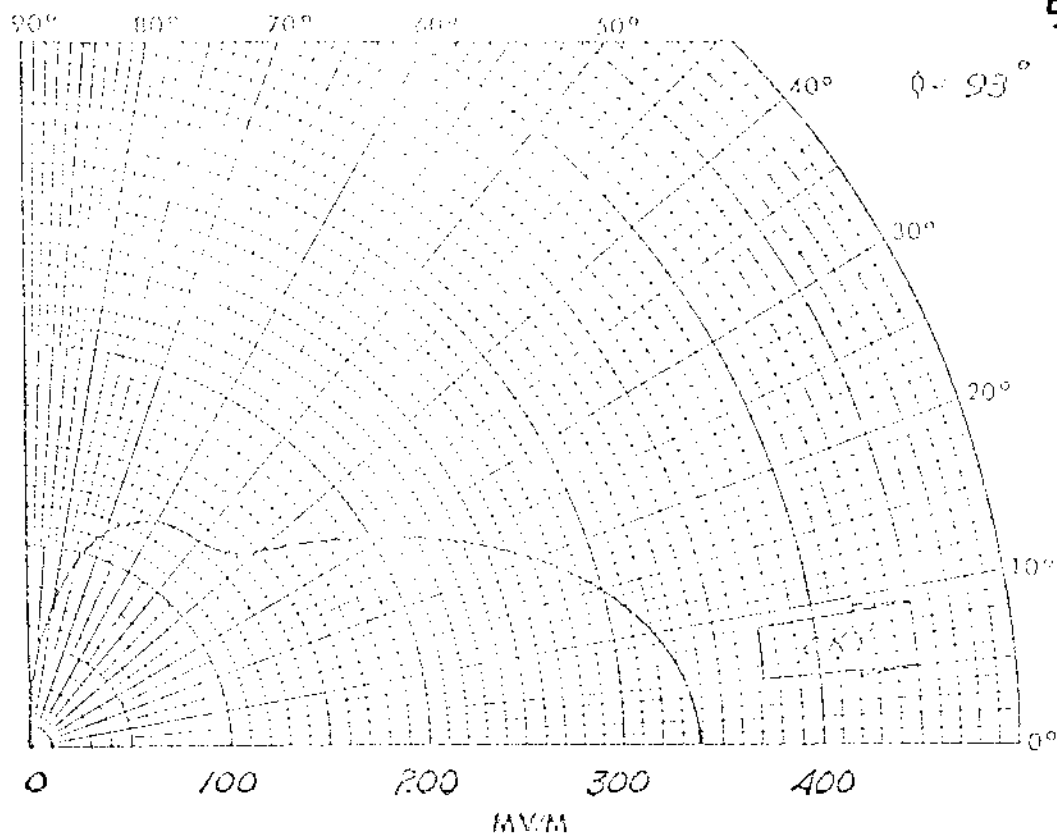


NRIS: 594 m/m

HORIZONTAL RADIATION PATTERN
NIGHTTIME - POLAR PLOT

CKUA
100 kW 10 PW PA-2 CLASS III
PROJECT 715518 EDMONTON, ALBERTA
OCTOBER 13, 1973

CKUA
580 kHz



VERTICAL RADIATION PATTERNS

FIGURE 4

CKUA

580 kHz

PROJECT 413512

10 LW

DA-2

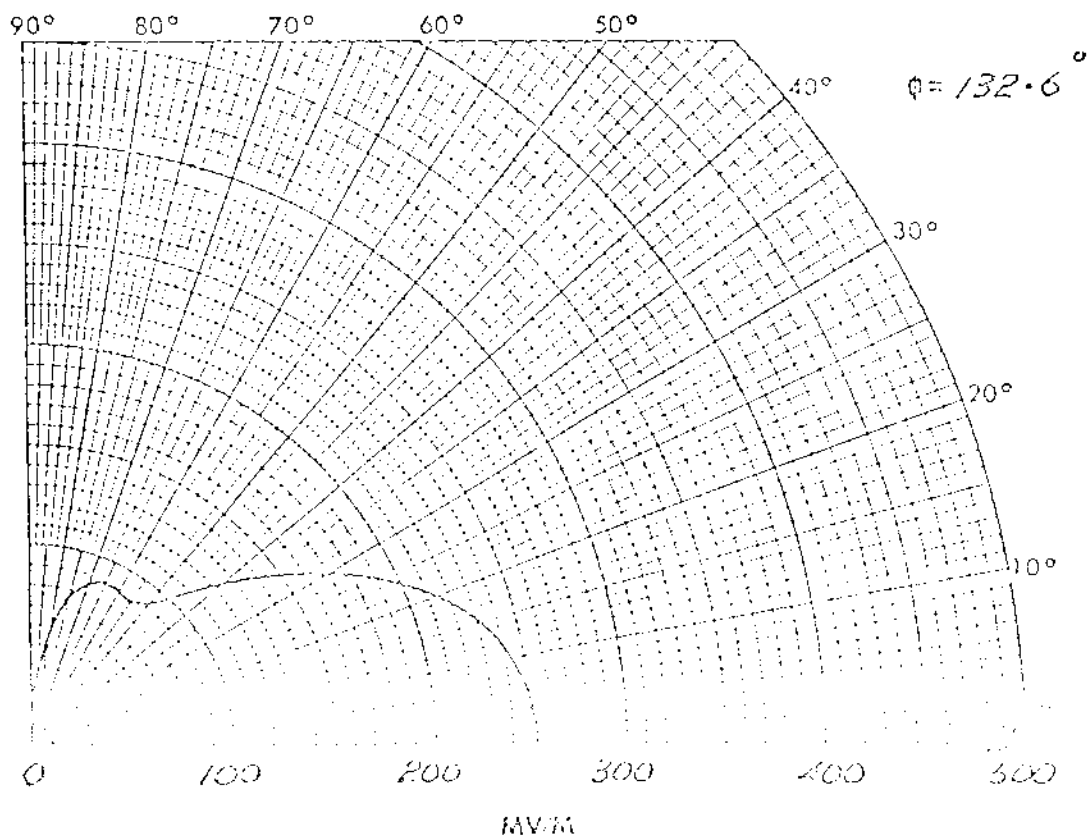
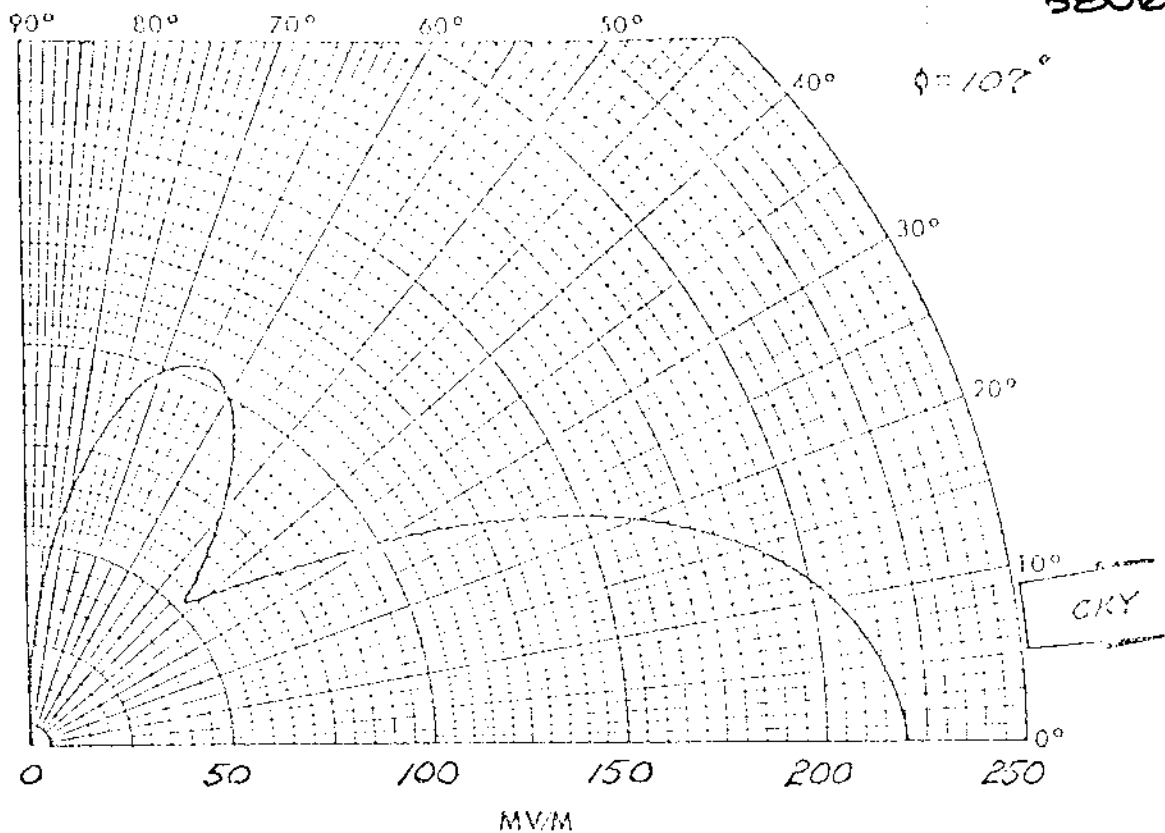
LONDON, ONTARIO

01/05/11

01/08/10 10:00 AM

D.E.R. ALLEN & ASSOCIATES LTD., TORONTO, ONTARIO

CKAU
580kHz



VERTICAL RADIATION PATTERNS

FIGURE 5

CKUA
580 kHz
PROJECT #15513

10 kW

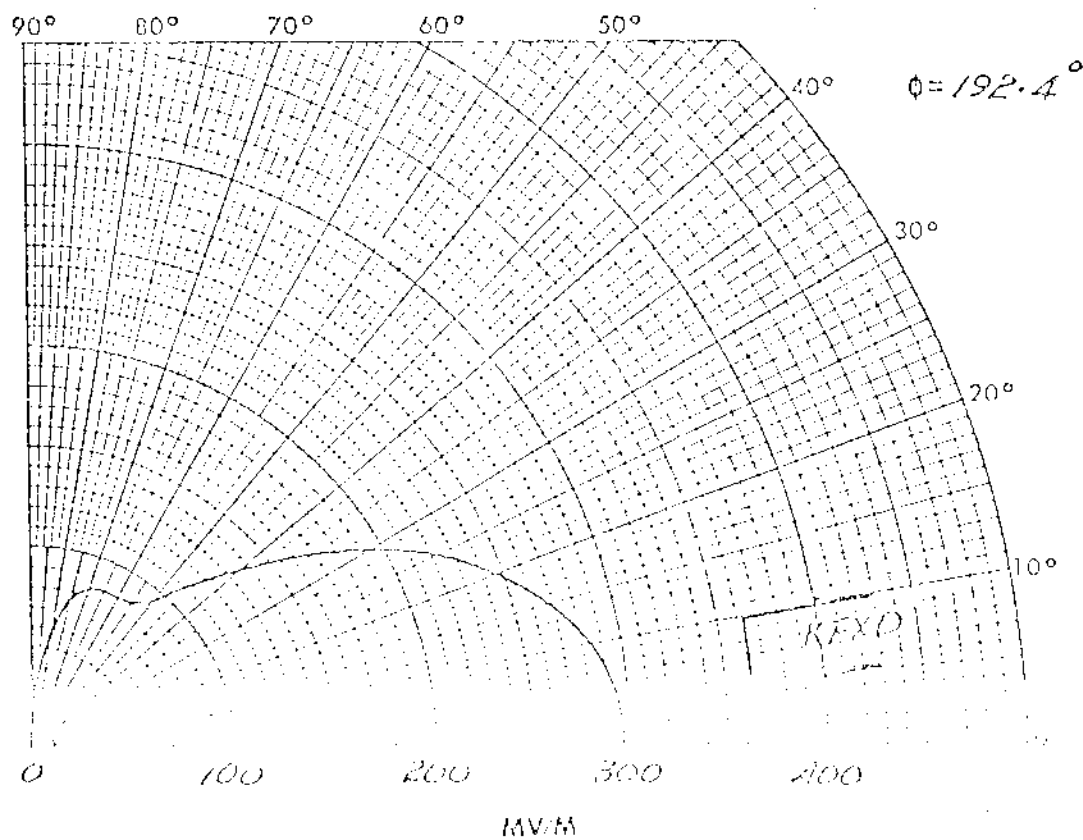
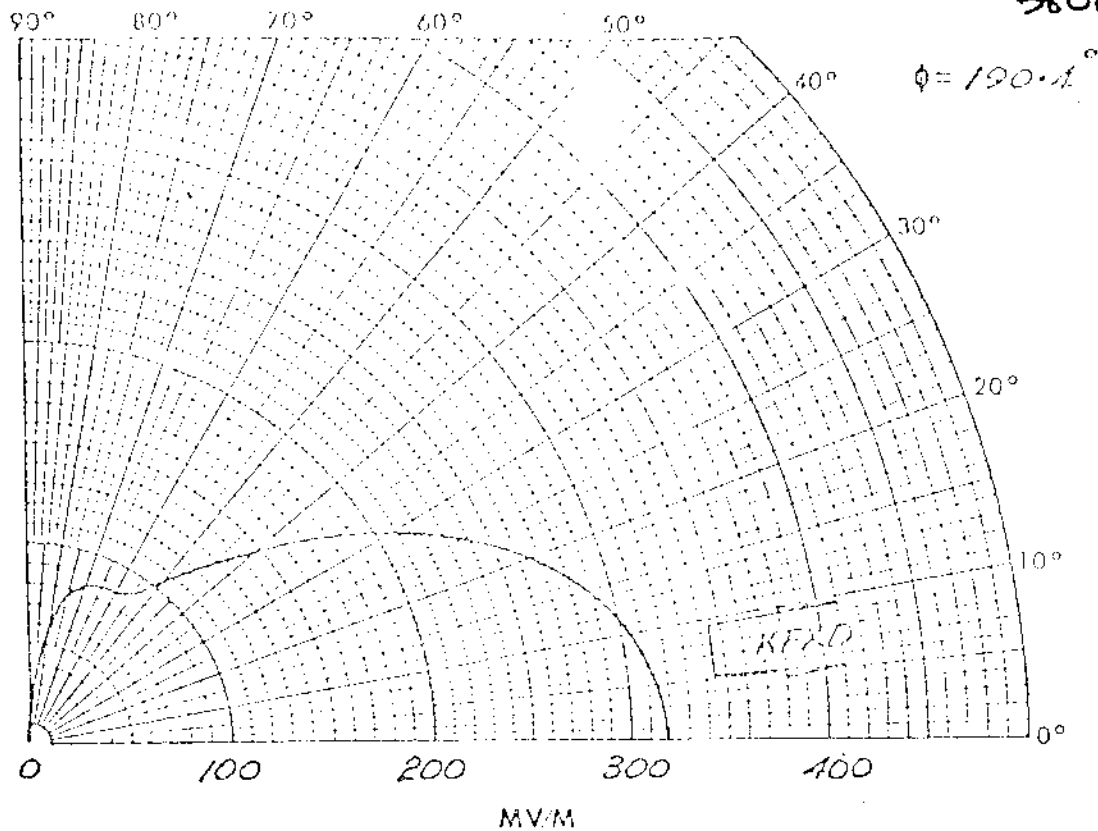
DA-2

EDMONTON, ALBERTA
CLASS 111
OCTOBER 11, 1977

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



CKAU
580KHZ



VERTICAL RADIATION PATTERNS

FIGURE 6

CKUA

580 KHz

PROJECT #13516

10 KW

DA-2

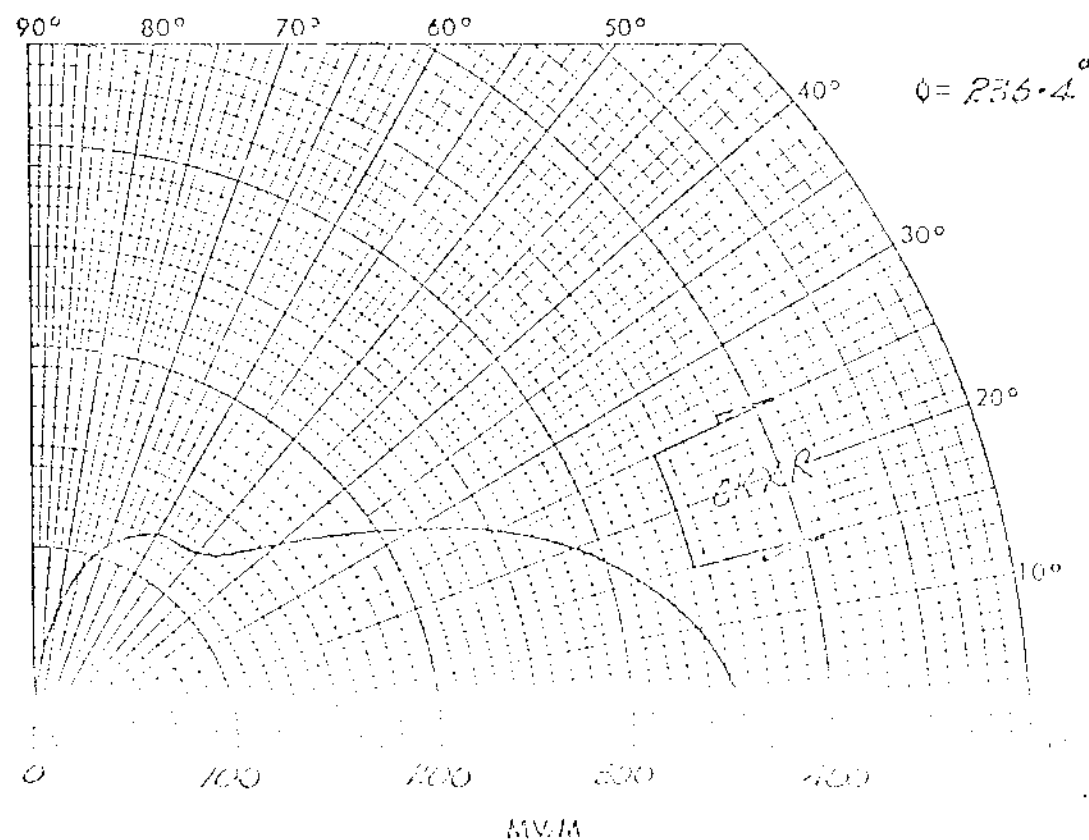
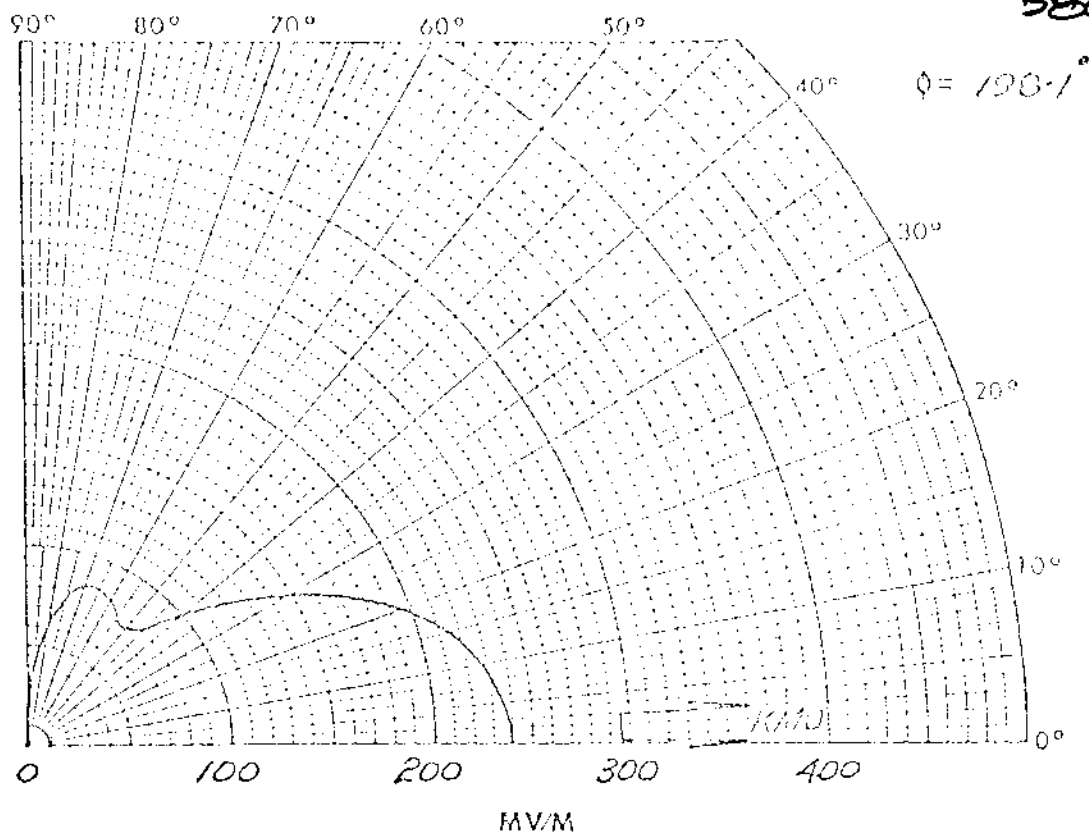
EDMONTON, ALBERTA

CLASS III

OCTOBER 19, 1961

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

CKAU
580KHZ



VERTICAL RADIATION PATTERNS

FIGURE 7

CKUA

580 KHZ

PROJECT 513515

10 ER

DA-2

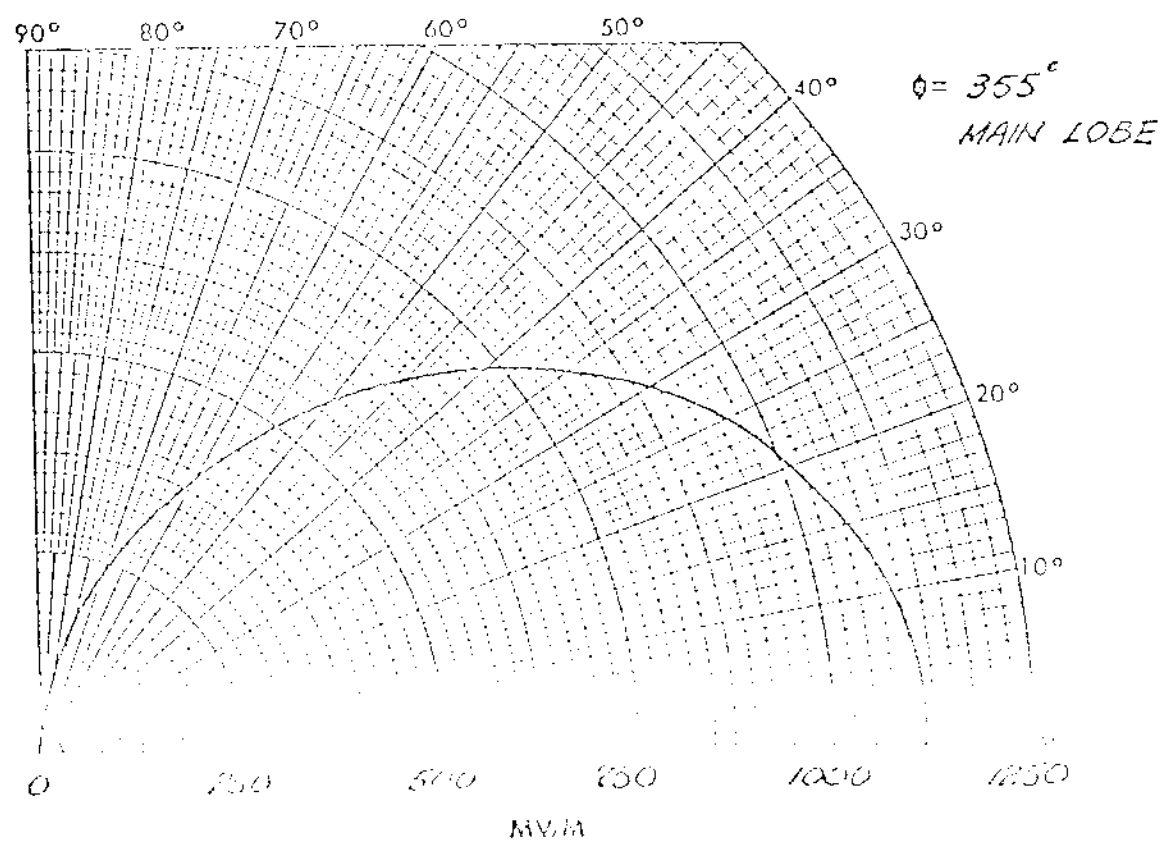
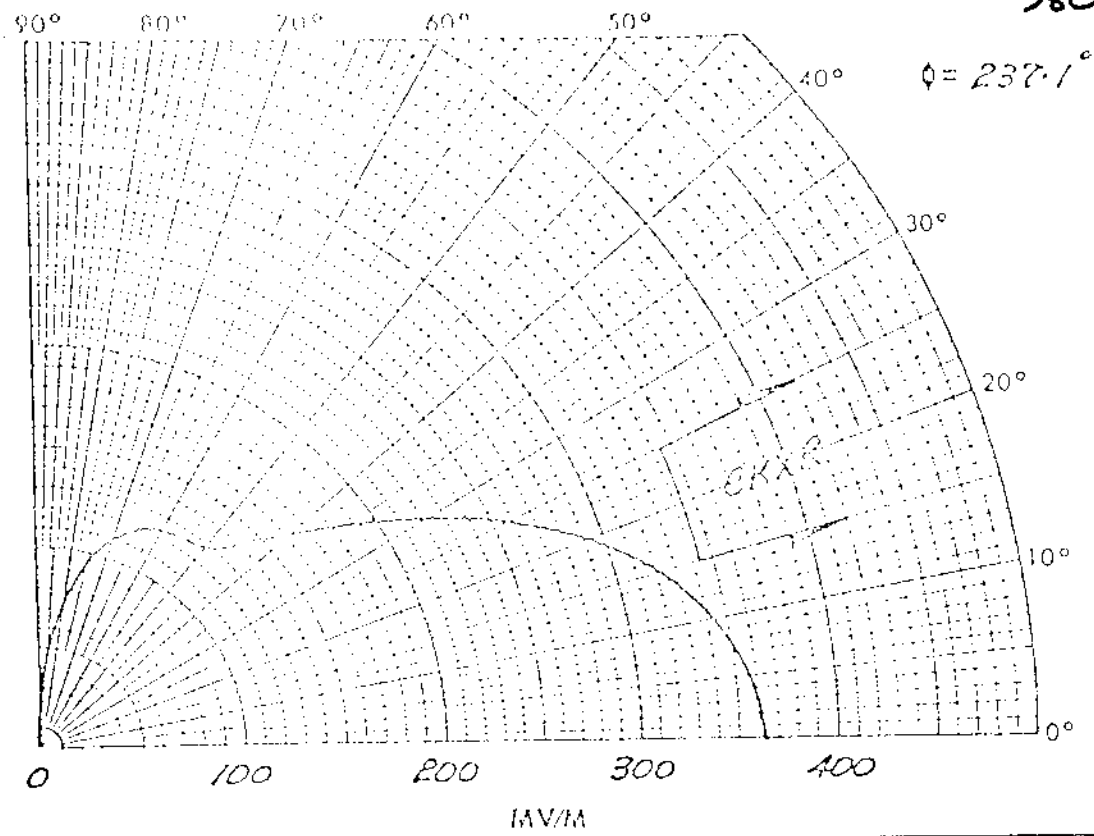
EDMONTON, ALBERTA

CLASS III

DRAWN BY 1072

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

CKAU
580kHz



VERTICAL RADIATION PATTERNS

FIGURE 8

CKUA	10 MW	DA-2	EDMONTON, ALBERTA
580 kHz			CLASS 1B
PROJECT 11311			OCTOBER 19, 1967
D.F.B. ALLEN & ASSOCIATES LTD., CONSULTING ENGINEERS			

60-10150 INC. 11/1/67

U.S. CO-ORDINATE
IN CANADA

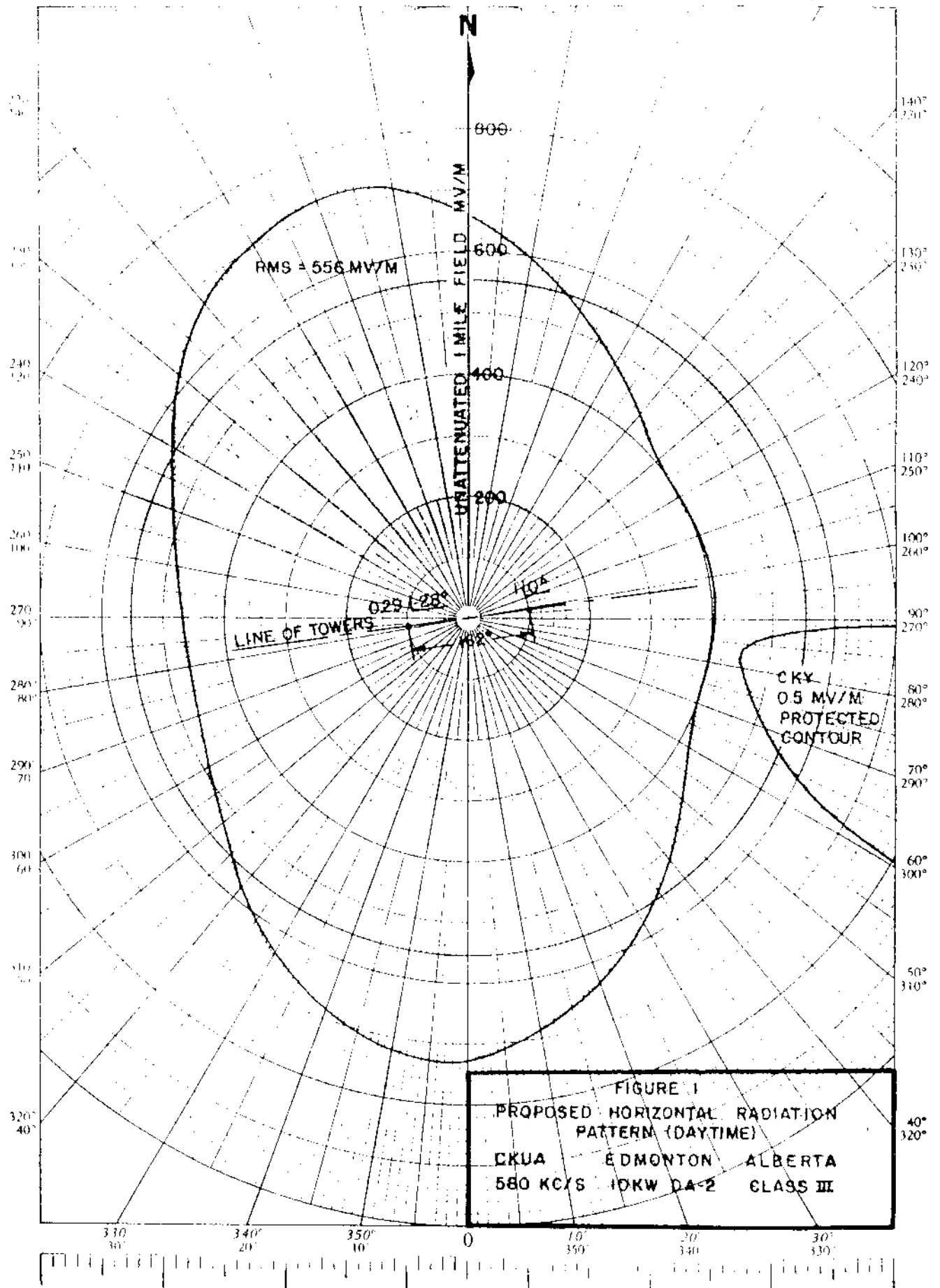


CKUA

PROPOSED DAY
(5-28-59g)

Station CKUA
Edmonton, Alberta, Canada

10kw, DA-2, U, Class III
580 KC



CKUA

60°

PROPOSED NIGHT
(5-28-59g)

Station CKUA
Edmonton, Alberta, Canada

10kw, DA-2,U, Class III

580 KC

150°

160°

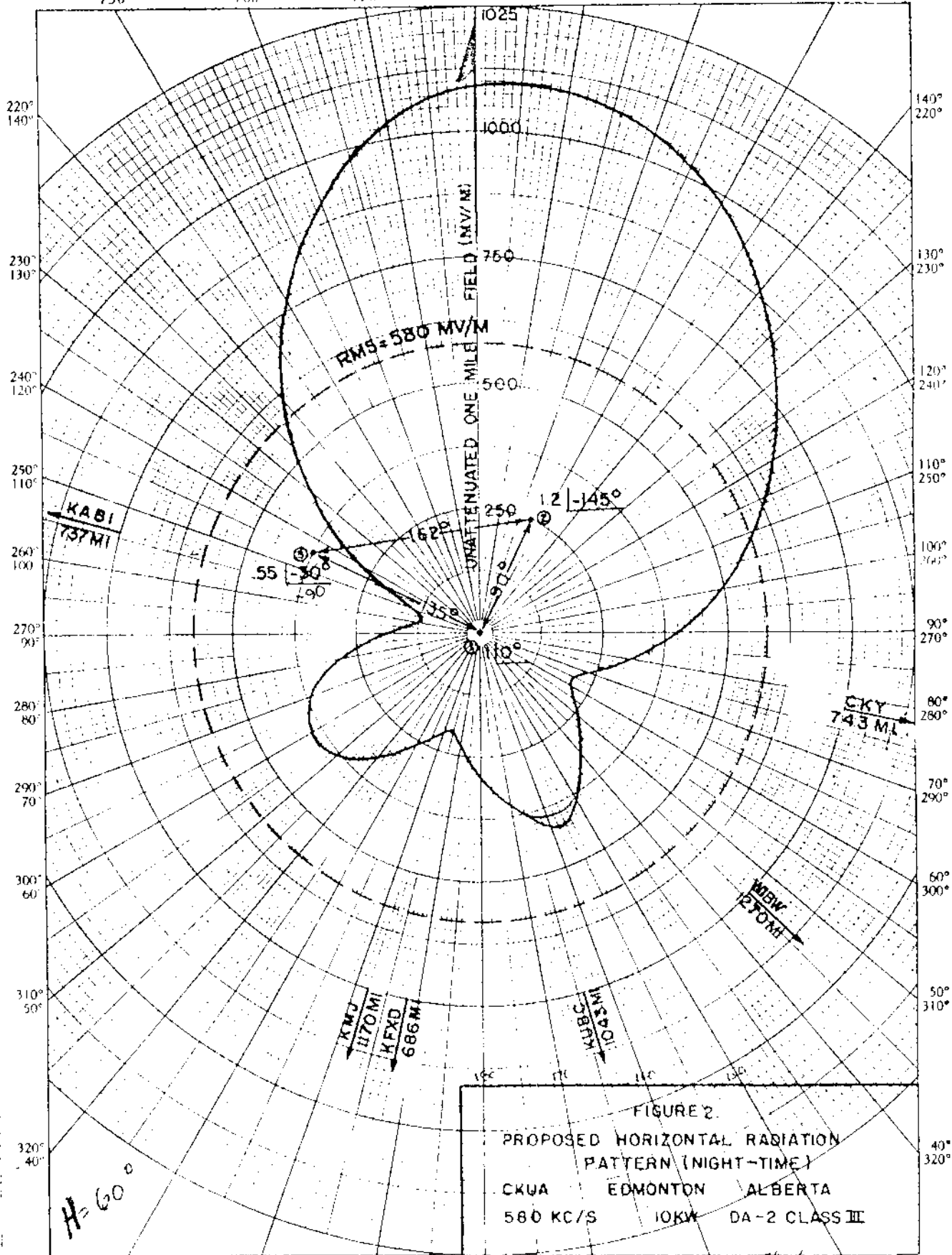
170°

180°

190°

200°

210°



H=60°

FIGURE 2
PROPOSED HORIZONTAL RADIATION
PATTERN (NIGHT-TIME)
CKUA EDMONTON ALBERTA
580 KC/S 10KW DA-2 CLASS III

TH 16 580° 58

CKWW

Description Sheet
(3-30-63ct)

New Station
Windsor, Ontario

500w, DA-1, U, Class III
580 kc

Now in
OPERATION
CHG. LIST 190

ANTENNA DESCRIPTION SHEET
DIRECTIONAL DA-1

STATION CALL:
MAIN STUDIO: Windsor, Ontario.
FREQUENCY: 580 kc/s
POWER: 500 watts
CLASS: III
TIME: Unlimited

NOTIFICATION REFERENCE: 176 Date: February 26, 1963

GEOGRAPHICAL LOCATION: Lat $42^{\circ}10'22''$, Lon $83^{\circ}02'53''$

ARRAY CHARACTERISTICS: Four elements, guyed, uniform cross section, base insulated, series feed.

ELEMENT	ONE	TWO	THREE	FOUR
phys ht	483' 60°	483' 60°	483' 60°	483' 60°
spacing	ref	444.4' 90°	848.8' 180°	1273.2' 270°
bearing	ref	026.5°	026.5°	026.5°
field ratio	1.000	1.767	1.583	0.648
field phase	ref	-156.4°	+46.2°	-110.0°

Ground system 120 radials per tower, #10 AWG bare, soft copper wire, uniform spacing, depth approximately 8 inches. Radials bonded along line between towers and bonded to soft copper strap at tower base. Average radial length 679 feet.

Predicted R. M. S. 175 mv/m at 1 mile for 1 kw.



BROADCAST FACILITIES
DIVISION
MAR 6 1963

OM Nov 1962

5

CKWW

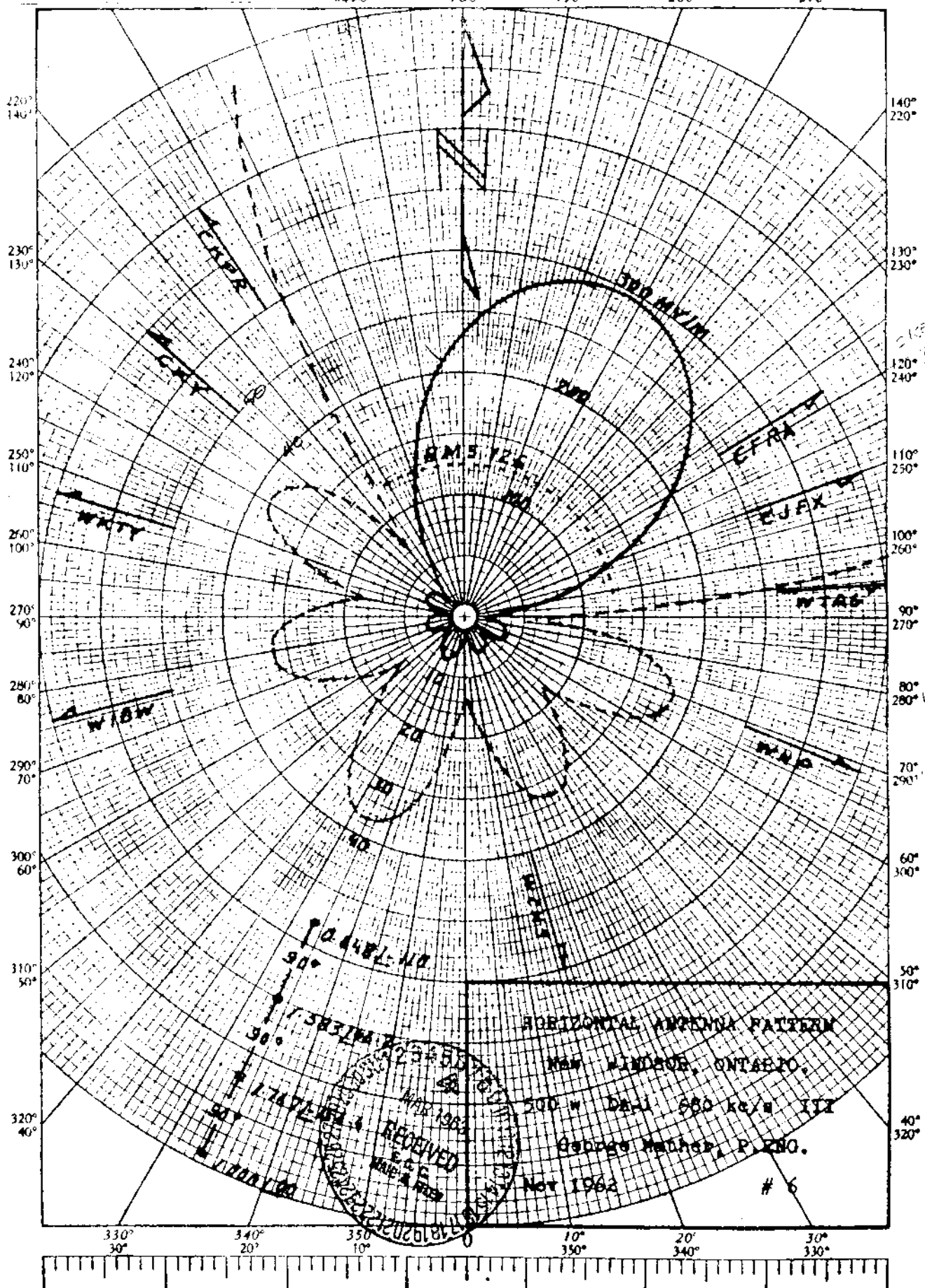
Proposed Day & Night
(3-30-63ct)

New Station
Windsor, Ontario

500w, DA-1, U, Class III
580 kc

LOW IN
OPERATION
CHG. LIST NO

WINDSOR, ONTARIO



Description Sheet
(3-26-65ct)

New Station
Salmon Arm, B. C.

1kw, DA-2, U, Class III
580 kc

DESCRIPTION SHEET

Directional Antenna System

Station: New

Main Studio: Salmon Arm, B. C.

Power: 1 kw

Frequency: 580 kc/s, Class III

Notification List No. 195

Date: February 22, 1965

Location: Latitude - 50° 43' 05" N
Longitude - 119° 20' 20" W

ANTENNA SYSTEM:

Mode of Operation - DA-2

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

TOWERS:

North

South

HEIGHT OVER
INSULATORS:

285' (60°)

285' (60°)

OVERALL HEIGHT:

292'

292'

SPACING:

865' (183°)

PHASING - DAY:

0°

-148°

PHASING - NIGHT:

0°

-58°

CURRENT - DAY:

1

0.5

CURRENT - NIGHT:

1

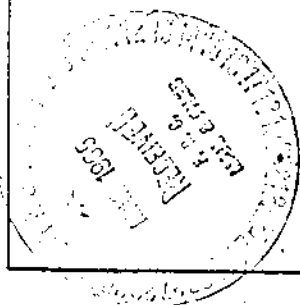
1

ORIENTATION:

182° True

GROUND SYSTEM:

The ground system shall consist of 120-0.4λ copper radials about each tower buried as practical considering ground characteristics. Some North-South radials will be slightly shortened but an equivalent area of ground system will be maintained by lengthening of quadrant radials.



TECHNICAL & ALLOCATIONS BR.
BROADCAST FACILITIES DIV.

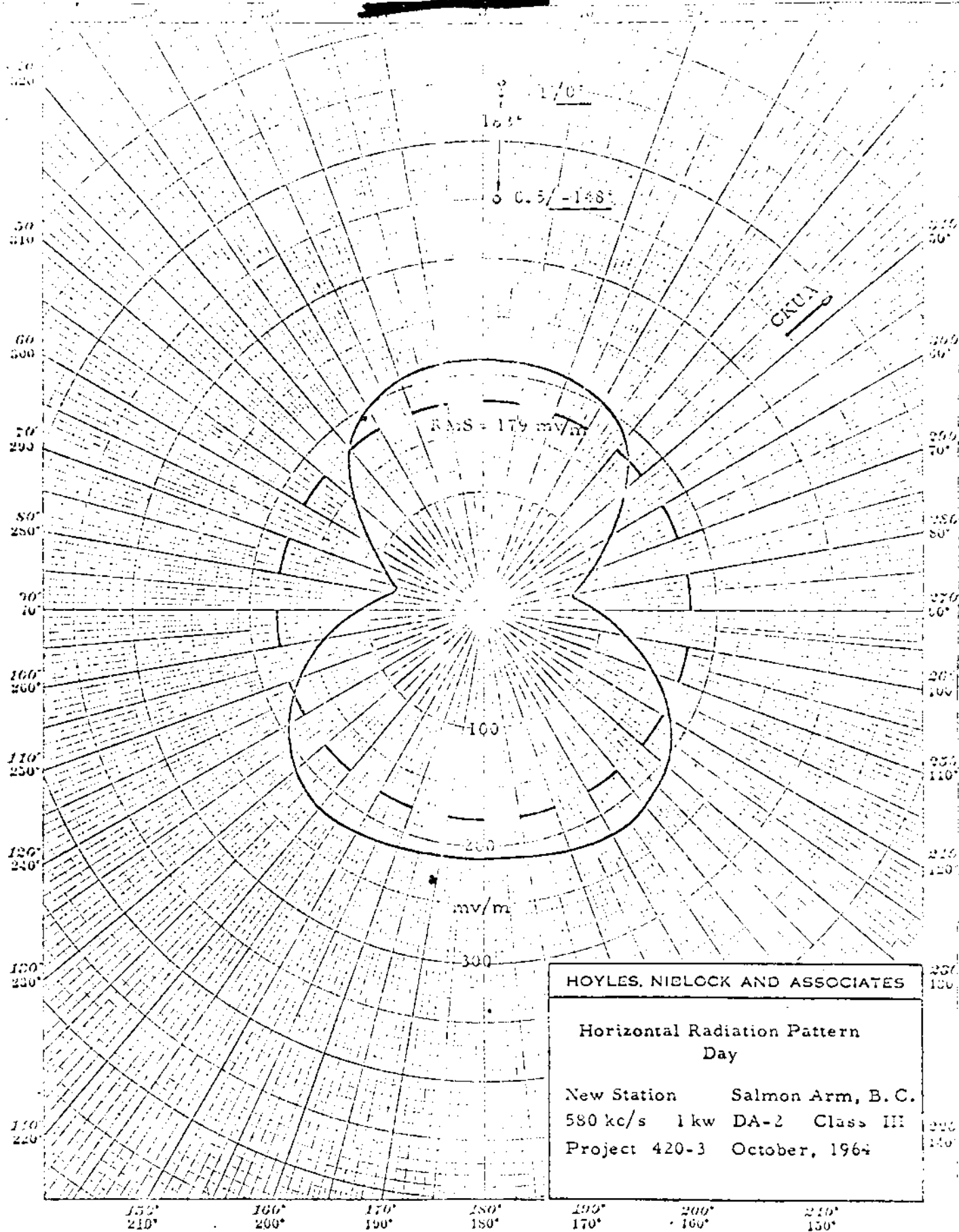
MAR 11 1965

CKXR

Proposed Day
(3-26-65ct)

New Station
Salmon Arm, B. C.

1kw, DA-2, U, Class III
580 kc



CKY

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: CKY

MAIN STUDIO: Winnipeg, Manitoba

FREQUENCY: 580 kHz

POWER: 50 kW

CLASS: III

NOTIFICATION LIST NO: 369

DATE: December 5, 1977

GEOGRAPHICAL LOCATION:

Latitude 49° 36' 09" North

Longitude 97° 09' 00" West

ANTENNA CHARACTERISTICS:

Mode of Operation: DA-2

Number of Elements: 4 (Four)

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

TOWER:	#1 (S)	#2 (SC)	#3 (NC)	#4 (N)
HEIGHT ABOVE BASE INSULATOR:	400' (84.9°)	400' (84.9°)	400' (84.9°)	315' (68°)
OVERALL HEIGHT:	405'	405'	405'	320'
FIELD RATIO:				
Nighttime	1.0	2.36	2.42	1.05
Daytime	1.0	.85	-	-
PHASING:				
Nighttime	0°	-124.4°	90.1°	-46.5°
Daytime	0°	-99°	-	-
ORIENTATION:	Ref.	7°	13.5°	13.5°
SPACING:	Ref.	95° (446')	180° (846')	270° (1270')

GROUND SYSTEM: 120 equally spaced radials of #10 copper wire from the base of each tower. Minimum radial length is 106° (500'), maximum radial length is 144° (678'), with the exception of those joined along the common chords.

PREDICTED EFFECTIVE
FIELD:

Nighttime	1492 mV/m at 1 mile for 50 kW
	211 mV/m at 1 mile for 1 kW
Daytime	1312 mV/m at 1 mile for 50 kW
	185.5 mV/m at 1 mile for 1 kW

June 30, 1977

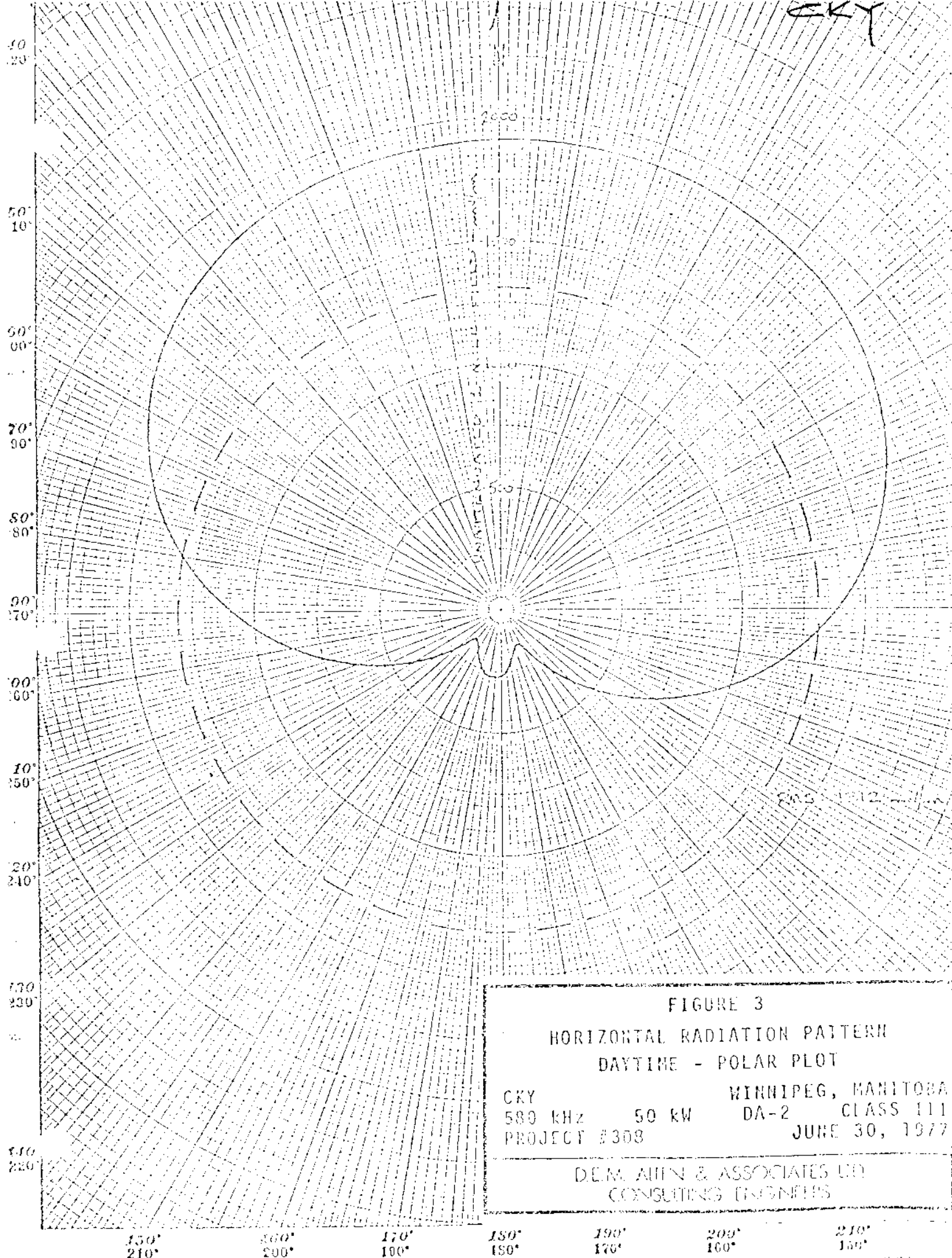


FIGURE 3
HORIZONTAL RADIATION PATTERN
DAYTIME - POLAR PLOT

CKY	580 kHz	50 kW	WINNIPEG, MANITOBA
		DA-2	CLASS 111
	PROJECT #308		JUNE 30, 1977

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



FIGURE 4

HORIZONTAL RADIATION PATTERN

DAYTIME - EXPANDED PLOT

CKY

580 KHz 50 kW

PROJECT #308

WINNIPEG, MANITOBA

DA-2 CLASS III

JUNE 30, 1977

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

CKY

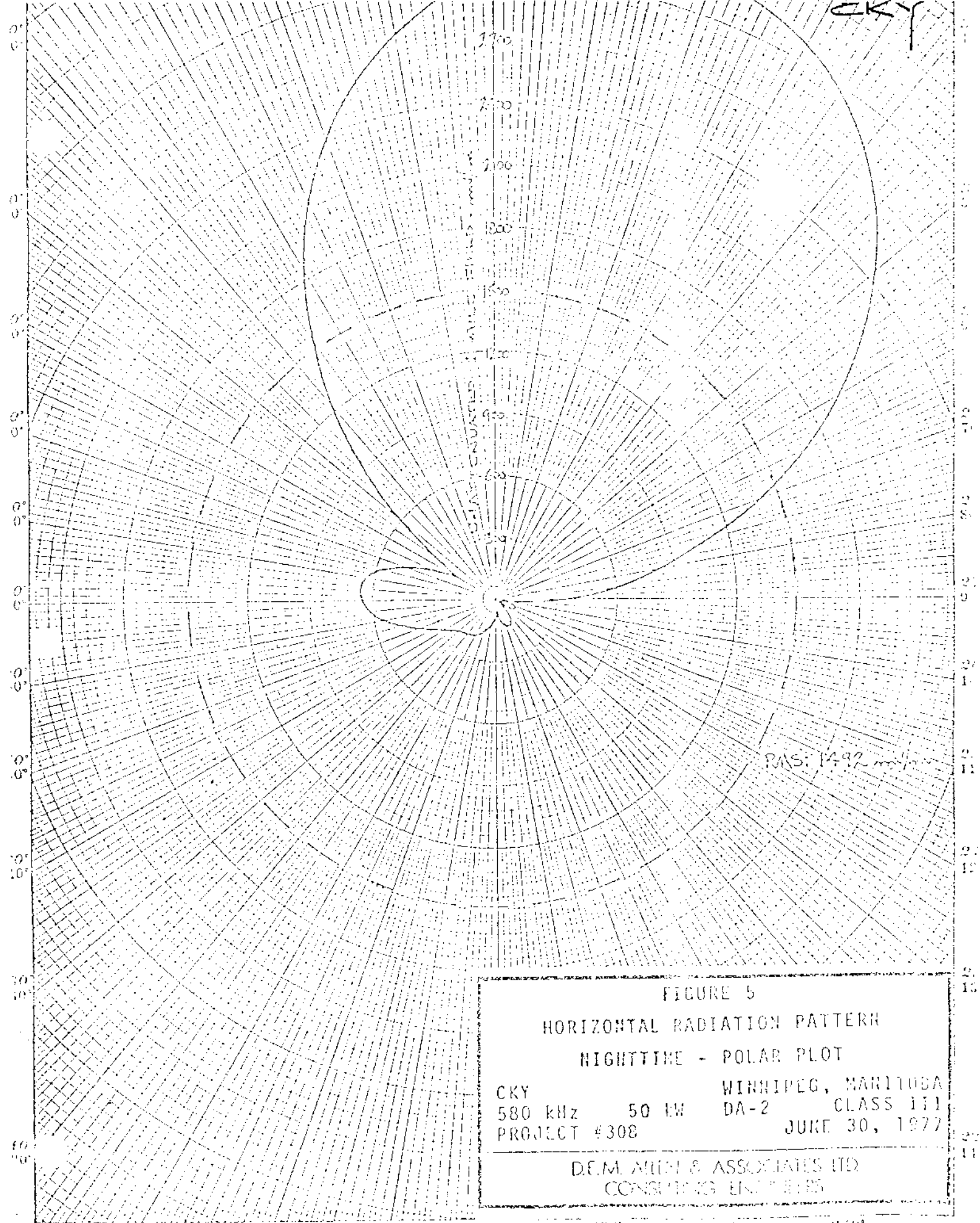
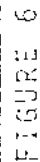


FIGURE 5
HORIZONTAL RADIATION PATTERN
NIGHTTIME - POLAR PLOT
CKY WINNIPEG, MANITOBA
580 kHz 50 kW DA-2 CLASS 111
PROJECT #308 JUNE 30, 1977
D.E.M. ALLEN & ASSOCIATES LTD
CONSULTING ENGINEERS

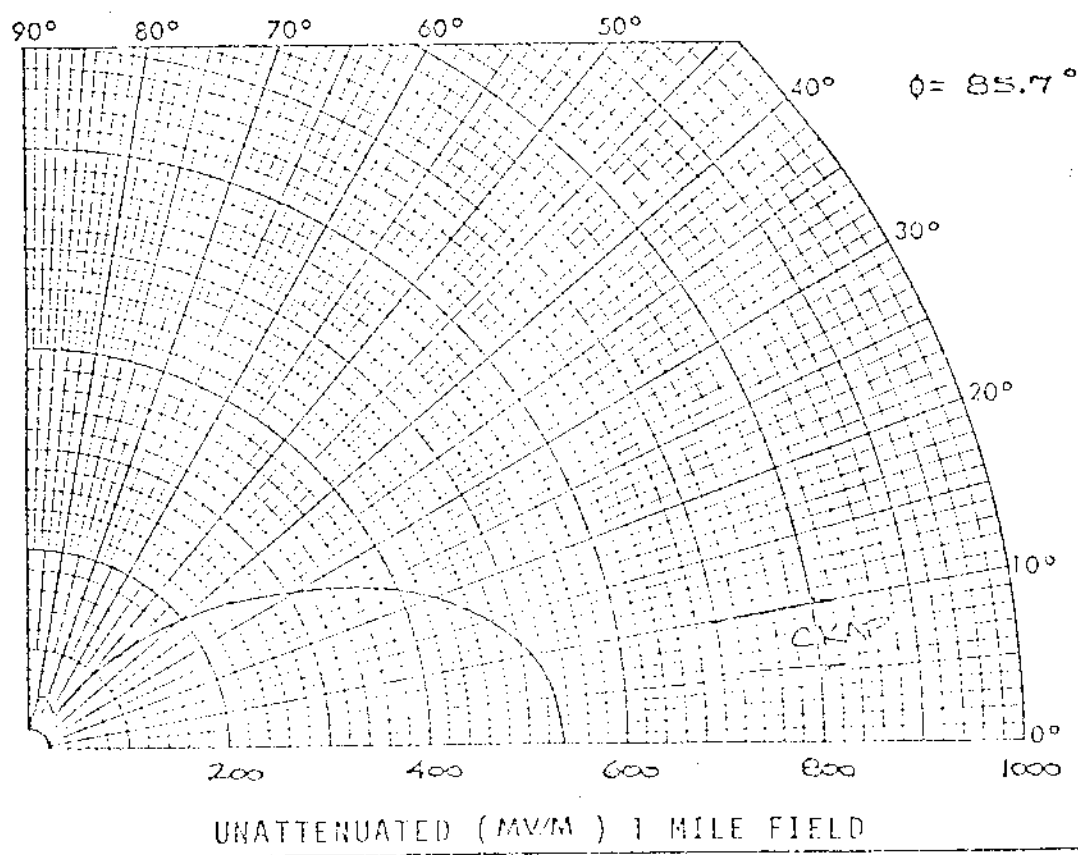
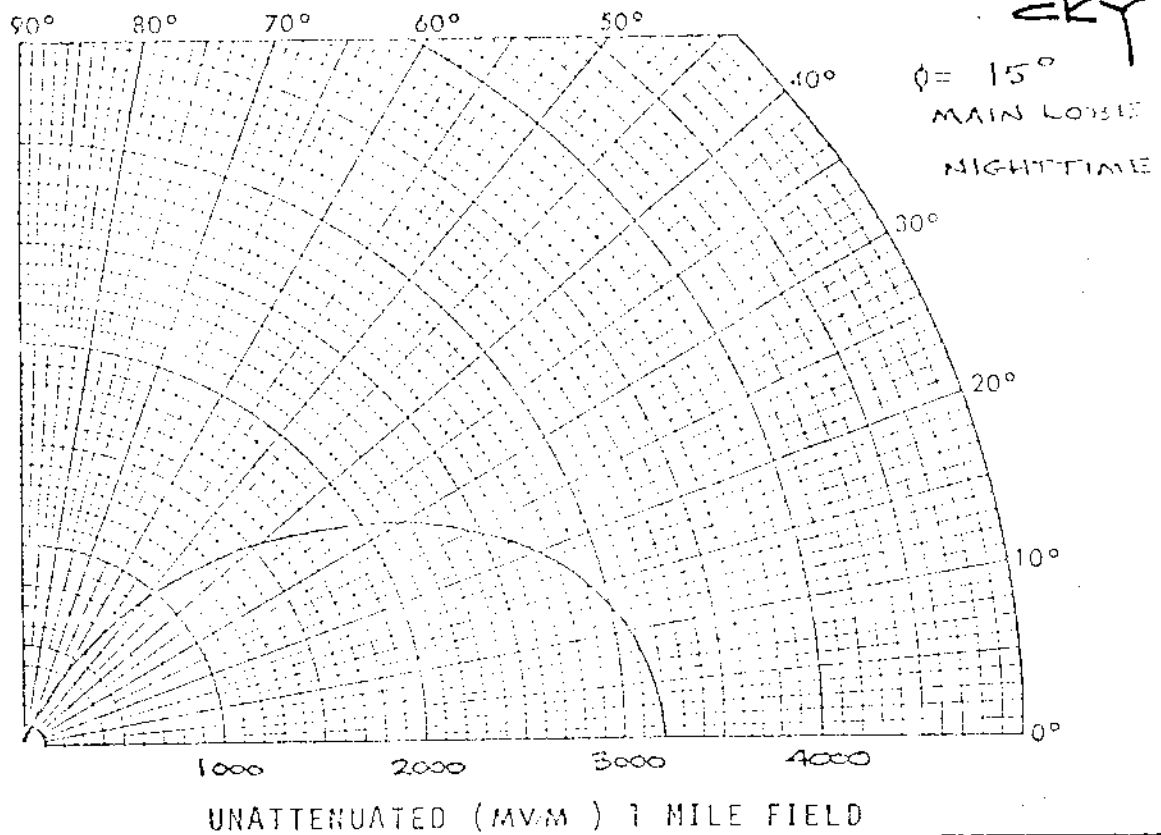
150° 160° 170° 180° 190° 200° 210°
210° 200° 190° 180° 170° 160° 150°



HORIZONTAL RADIATION PATTERN
NIGHTTIME - POLAR PLOT

CKY 580 KHZ 50 KW
PROJECT #308
WINNIPEG, CLASS DA-2
JUNE 30, 1977

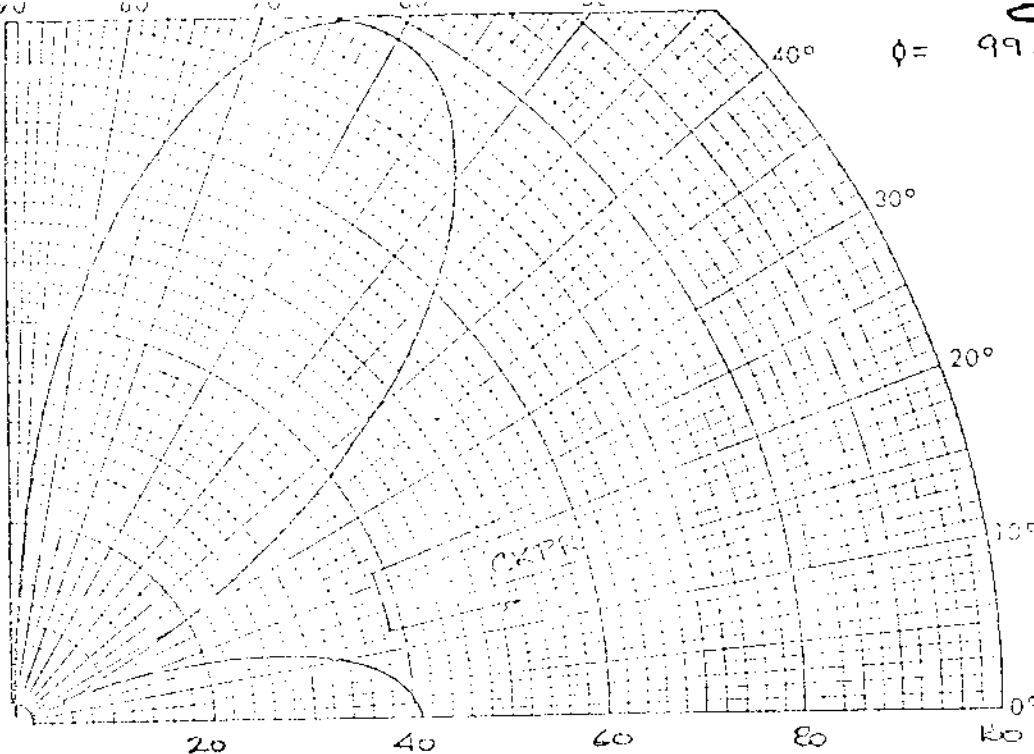
D.E.M. ALLEN & ASSOCIATES LTD.
CONSULTING ENGINEERS



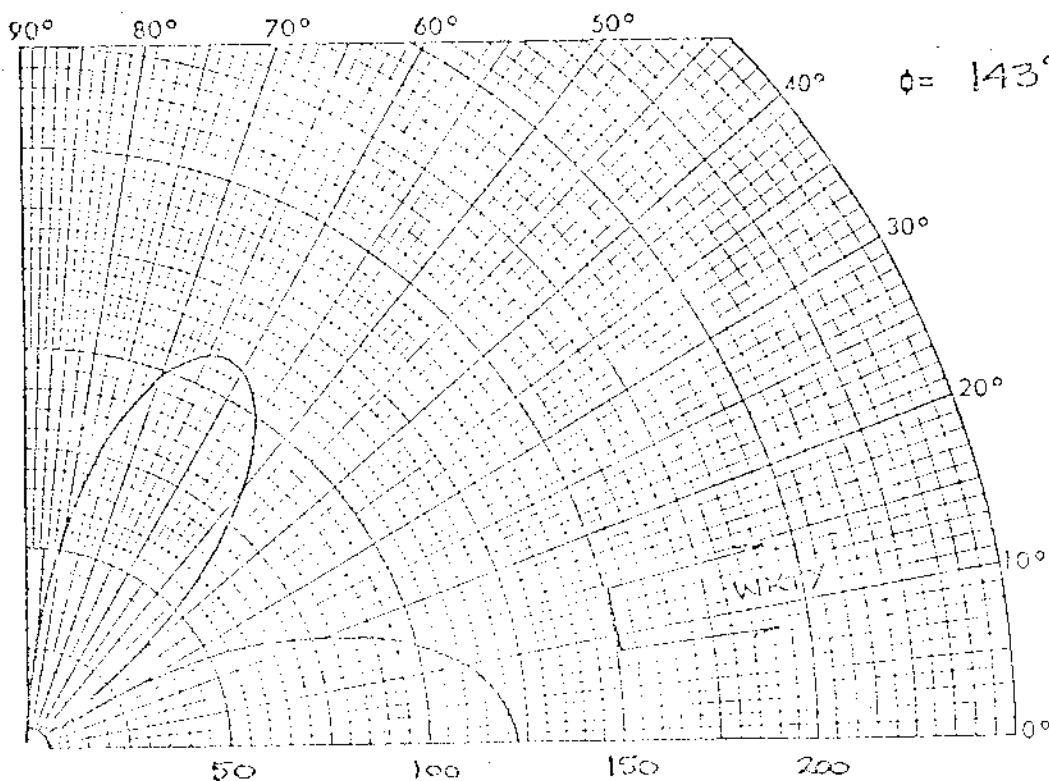
VERTICAL RADIATION PATTERNS

FIGURE 7

CKY		WINNIPEG, MANITOBA
580 KHz	50 kW	CLASS III
PROJECT #308		JUNE 30, 1977
D.E.M. ALLEN AND ASSOCIATES LTD., CONSULTING ENGINEERS		



UNATTENUATED (MVM) 1 MILE FIELD



UNATTENUATED (MVM) 1 MILE FIELD

VERTICAL RADIATION PATTERNS

FIGURE 8

CKY
580 kHz

50 kW

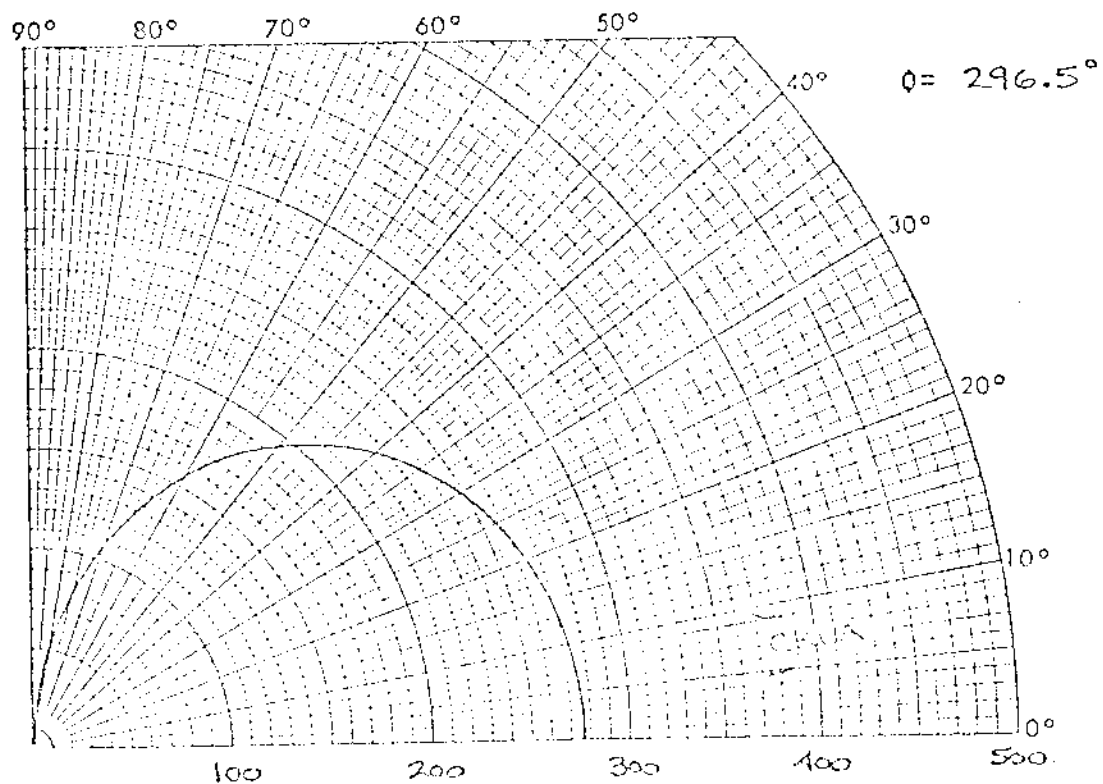
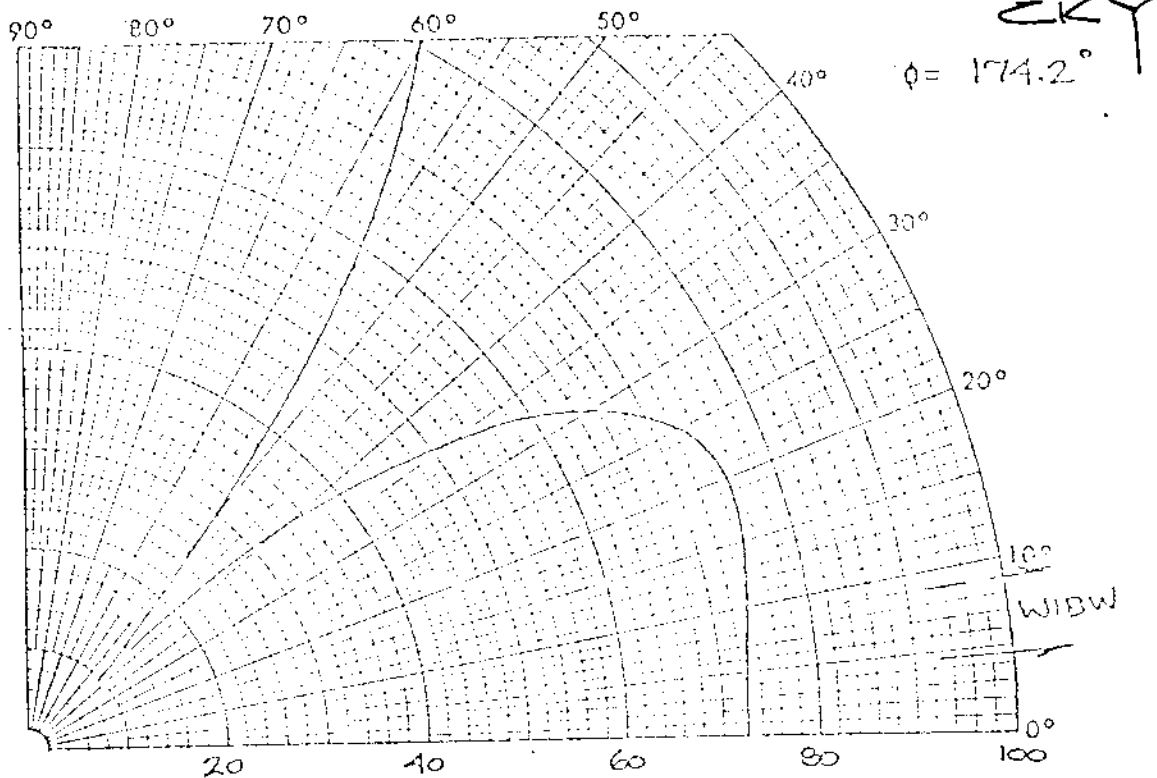
DA-2

WINNIPEG, MANITOBA
CLASS 111

PROJECT #308

JUNE 30, 1977

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



VERTICAL RADIATION PATTERNS

FIGURE 9

CKY
 580 kHz

50 kW

DA-2

WINNIPEG, MANITOBA
 CLASS III

PROJECT #308

JUNE 30, 1977

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

CORRECTED DESCRIPTION SHEET

Station K A L BMain Studio Alexandria, La.

Power 1 kw, 5 kw - LS

Frequency 580 kc

Notification List No. 219 indicates change in DA. Change consists of increased height of one tower, authorized on condition that existing pattern values (re: horizontal pattern on file bearing numbers "410908" and "Exhibit 6A") do not vary more than 5%. Antenna specifications are herewith restated and should be associated with above mentioned DA pattern.

Location: North Latitude $31^{\circ} 18' 25''$ West Longitude $92^{\circ} 25' 00''$

Antenna:

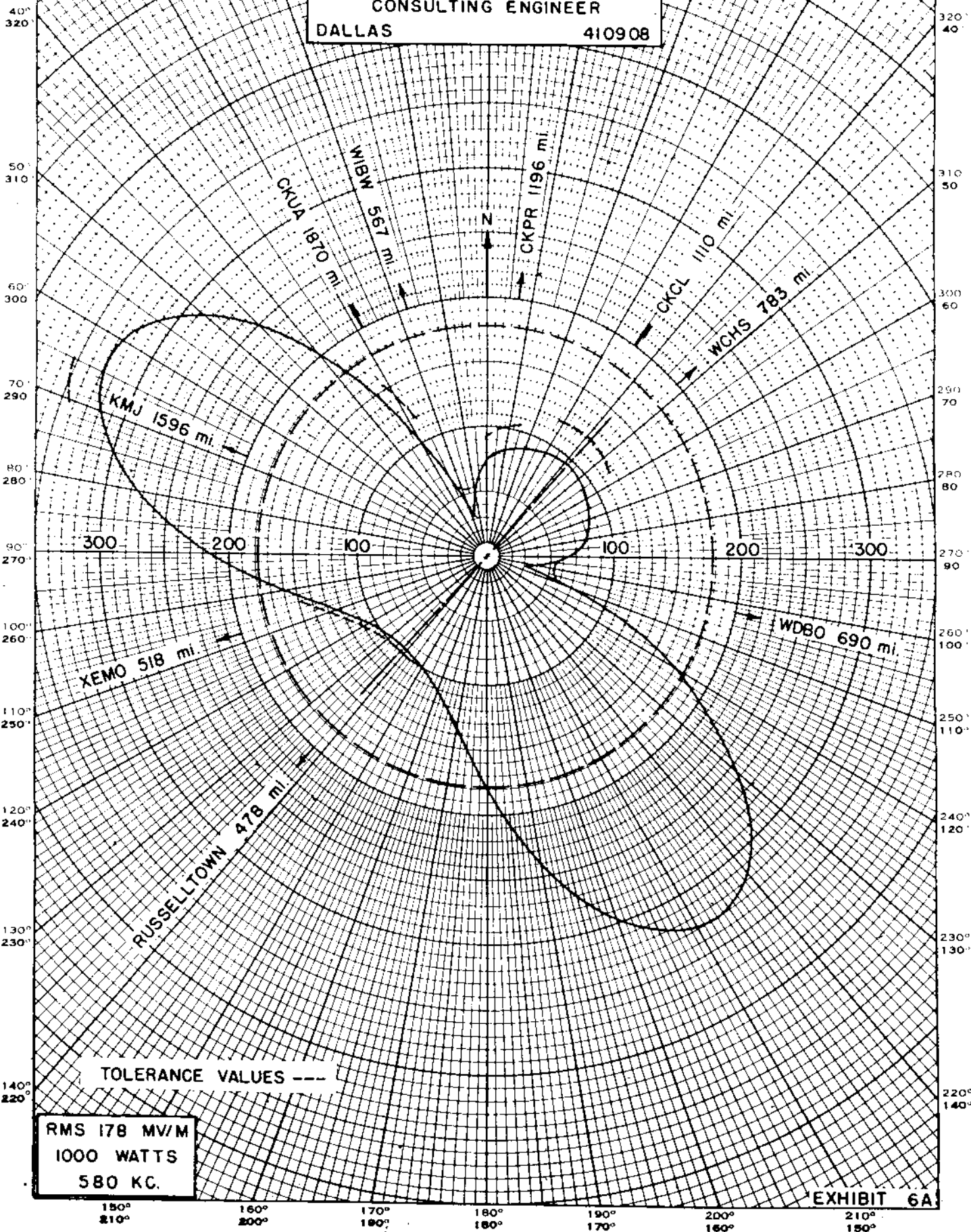
Authorized for nighttime operation (DA-N)

Three elements, guyed uniform cross-section

Tower:	S.W.	Center	N.E.
Overall height	325	386	325
Spacing:	180° between adjacent towers		
Phasing:	-69°	0°	21°
Current Ratio	0.8	1.071	0.48
Ground System:	120 radials 424 feet about each tower.		
Orientation:	Tower on a line bearing N- 42° -E		
Predicted effective field 192 mv/m			

30° 20° 10° 350° 340° 330° KALB 58C
330° 340° 350° 10° 20° 30°

RADIO STATION KALB
HORIZONTAL RADIATION PATTERN
A. EARL CULLUM, JR.
CONSULTING ENGINEER
DALLAS 410908



1 8/11/11
EUGENE A. LITZGEN

NO. 340-P DIETZEN GRAPH PAPER
PROPOSED
Proposed by

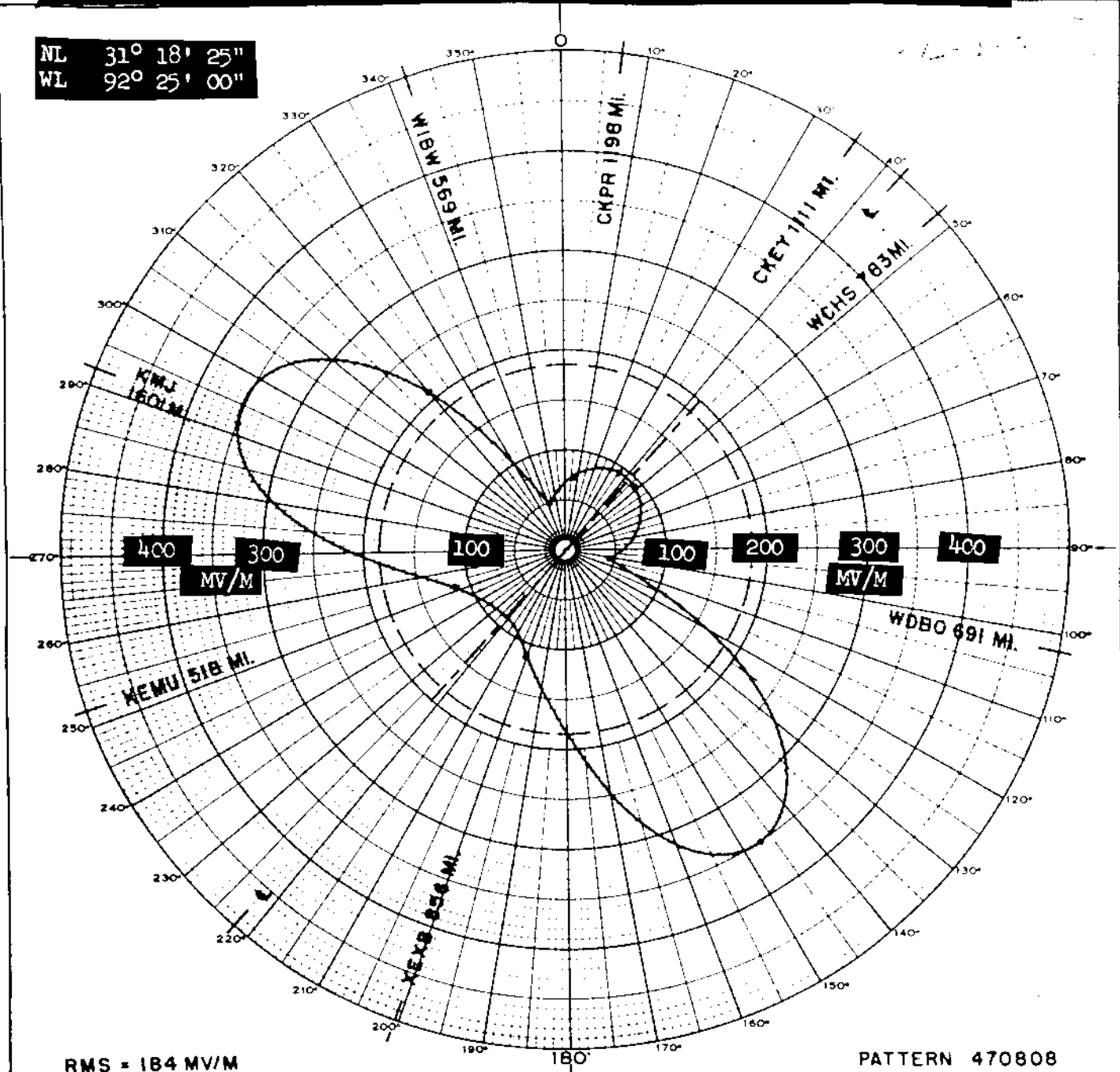
MEASURED NIGET

Station KALB
Alexandria, Louisiana

1KW, 5KW-LS, DA-N, O
580 KC

KALB

NL 31° 18' 25"
WL 92° 25' 00"



$\epsilon = N42^\circ E$
 $SI = S2 = 180^\circ$
 $(1) \circ 0.742 / -54^\circ$
 $(2) \circ 1.0 / 0^\circ$
 $(3) \circ 0.45 / 37^\circ$
 $G1 - G3 = 68^\circ$
 $G2 = 84^\circ$

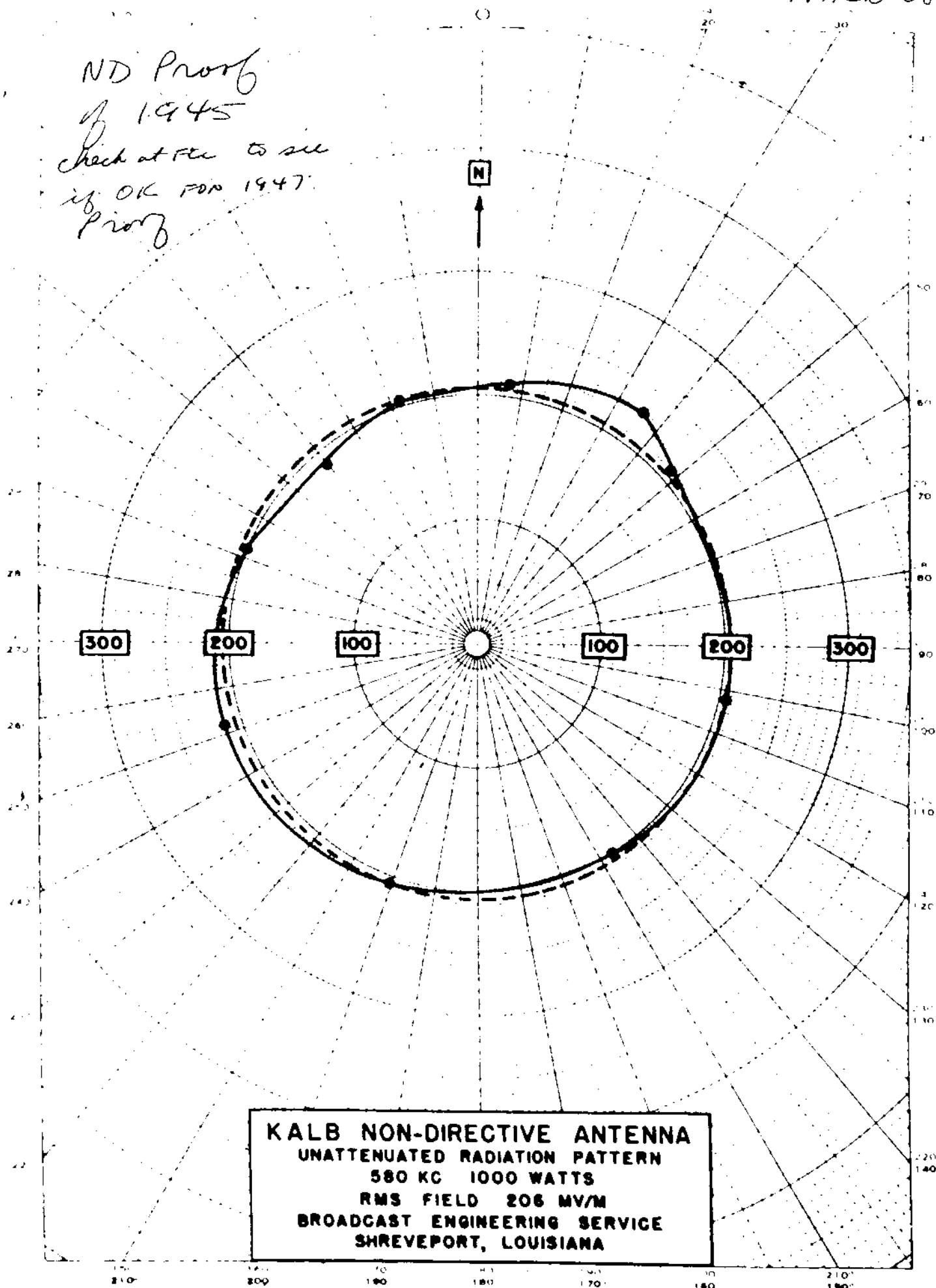
PATTERN BASED ON
FIELD INTENSITY MEASUREMENTS

BROADCAST ENGINEERING SERVICE
Radio Engineering Consultants
SHREVEPORT, LOUISIANA

RADIO STATION KALB
580 KC 5000 W LS 1000 W DA-N
470808

FIGURE 1A

ND Proof
 of 1945
 Check at FCC to see
 if OK FOR 1947
 Proof

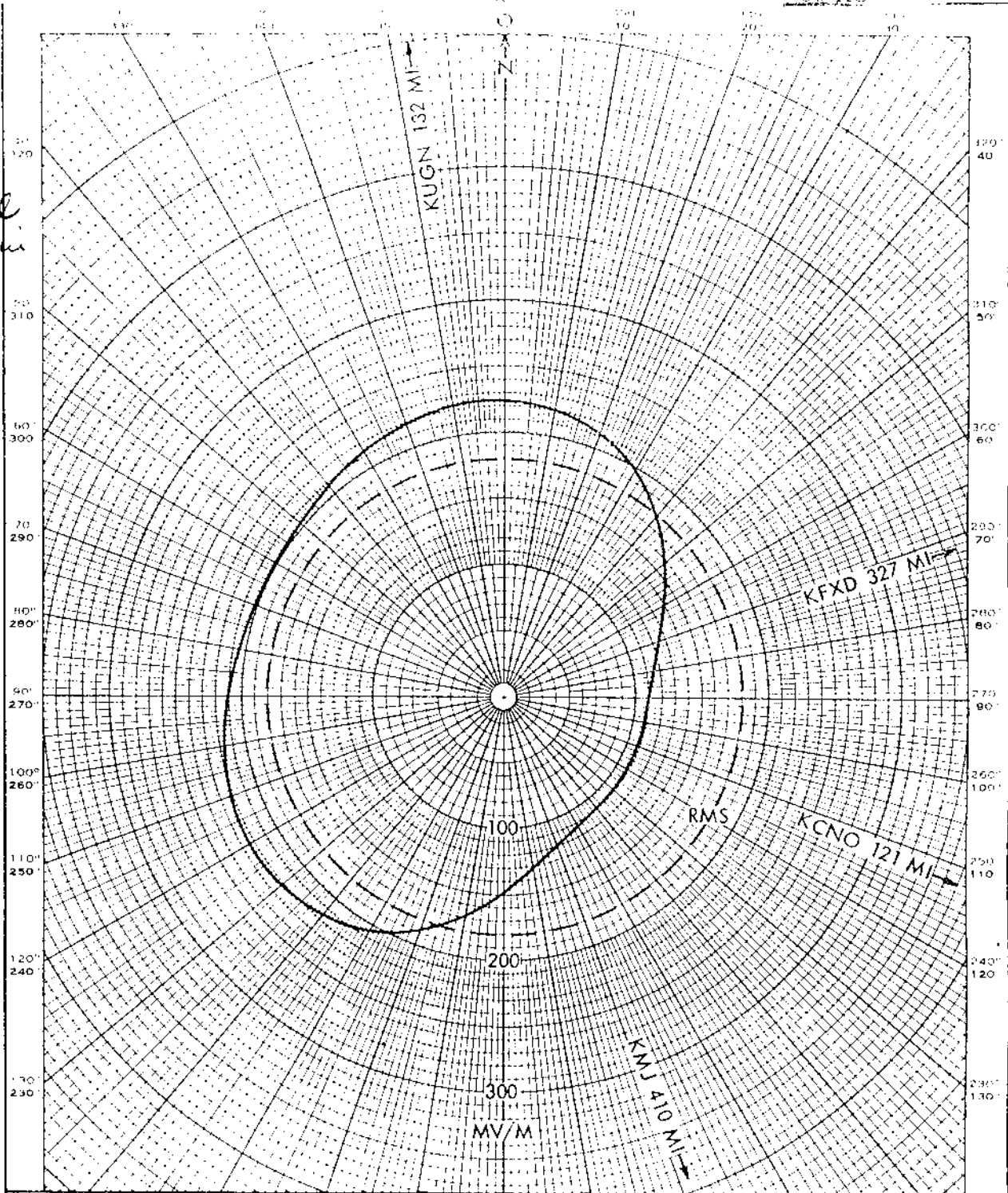


PROPOSED DAY
(6-16-59g)

Station KWIN
Ashland, Oregon

Hw, DA-2, U
580 KC

3-10-61 granted
power change
400kc.
6-21-62 granted
L for change in
freq., hours of op.
& install DA-2



N LAT 42° 09' 46"
W LONG 122° 38' 51"

S=120°=565'

G=64°=300'

RMS=180 MV/M

2.0 35/-60
N 297.5° E
1.00/0

HORIZONTAL RADIATION PATTERN DAYTIME

UNATTENUATED FIELD INTENSITY
AT ONE MILE

HAMMETT & EDISON
CONSULTING RADIO ENGINEERS
SAN FRANCISCO

RADIO STATION KWIN
580 KC, 1KW, DA-2
ASHLAND, OREGON

590428

FIGURE 5B

FCC File No. BP-11939
Accepted 5-18-59 (Amended)

KWIN
Ashland, Oregon

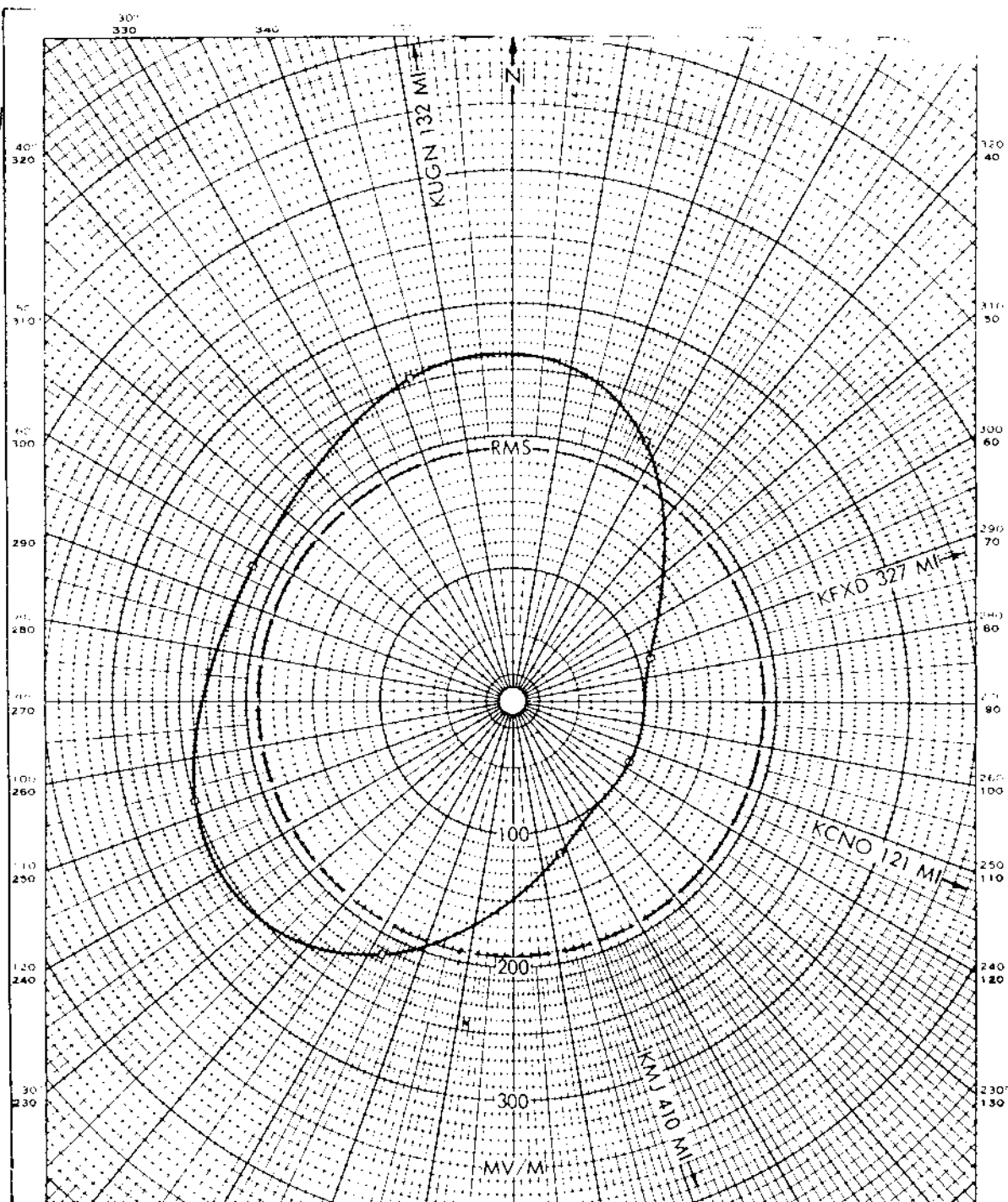
580 KC

Measured Day
(5-25-62ct)

Station KWIN
Ashland, Oregon

1kw, DA-2, U
580 kc

-21-62
wanted 2 for
change in
frequency, low
power, install
DA-2



N LAT 42° 09' 46"
W LONG 122° 38' 51"

S=120°=565'

G=64°=300'

RMS=192 MV/M

2 → 0.35 / -60
N297.5°E
S → 1.00 / 0

HAMMETT & EDISON
CONSULTING RADIO ENGINEERS
SAN FRANCISCO

RADIO STATION KWIN
580 KC, 1KW, DA-2
ASHLAND, OREGON

MEASURED HORIZONTAL RADIATION PATTERN DAYTIME

UNATTENUATED FIELD INTENSITY
AT ONE MILE

611027

FIGURE 11B

FCC File No. BL-9241
Accepted 5-7-62

Station KWIN
Ashland, Oregon

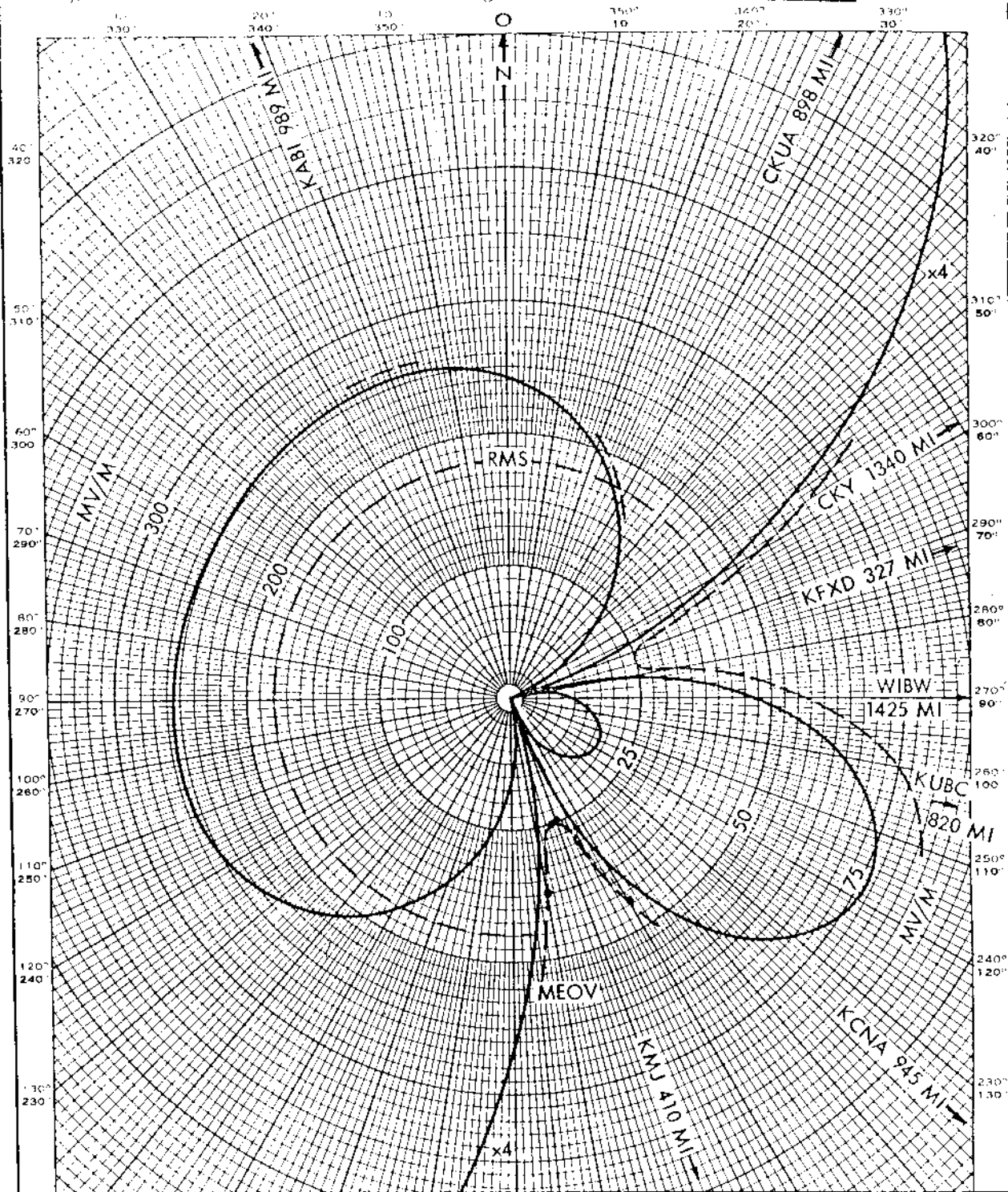
580 kc

KCMX

PROPOSED NIGHT
(6-16-59g)

Station KWIN
Ashland, Oregon

1kw, DA-2, U
580 KC



N. LAT. 42° 09' 46"
W. LONG. 122° 38' 51"

S=120°=565'

G=64°=300'

RMS=180 MV/M

2 • 1.0/-47.25
N 297.5° E
1 • 1.0/47.25

HORIZONTAL RADIATION PATTERN NIGHTTIME

UNATTENUATED FIELD INTENSITY
AT ONE MILE

HAMMETT & EDISON
CONSULTING RADIO ENGINEERS
SAN FRANCISCO

RADIO STATION KWIN
580KC, 1KW, DA-2
ASHLAND, OREGON

590428

FIGURE 5C

FCC File No. BP-11,939
Accepted 5-18-59 (Amended)

KWIN
Ashland, Oregon

580 KC

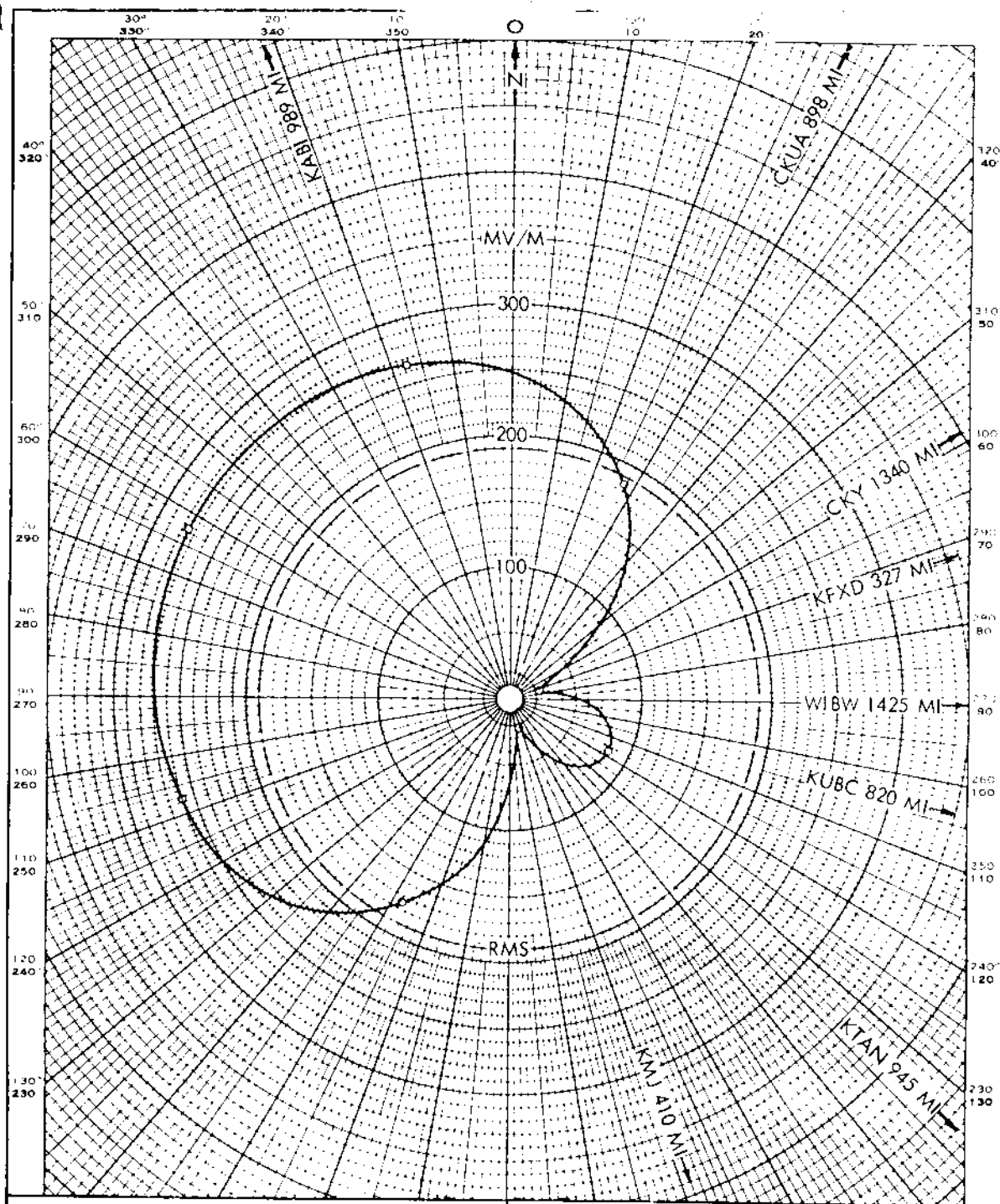
Measured Night
(5-25-62ct)

Station KWIN
Ashland, Oregon

1kw, DA-2, U
580 kc

BL-9241
5-11-62

8-21-62 printed
for change in
freq. hours of
op. install
DA-2



N.LAT. 42°09'46"
W.LONG. 122°38'51"
S = 120° = 565'
G = 64° = 300'
RMS = 190 MV/M

2 10 / -945
N 297.5° E
1 10 / 0

MEASURED HORIZONTAL RADIATION PATTERN NIGHTIME

UNATTENUATED FIELD INTENSITY
AT ONE MILE

HAMMETT & EDISON
CONSULTING RADIO ENGINEERS
SAN FRANCISCO

RADIO STATION KWIN
580 KC, 1KW, DA-2
ASHLAND, OREGON

611027

FIGURE IIC

FCC File No. BL-9241
Accepted 5-7-62

Station KWIN
Ashland, Oregon

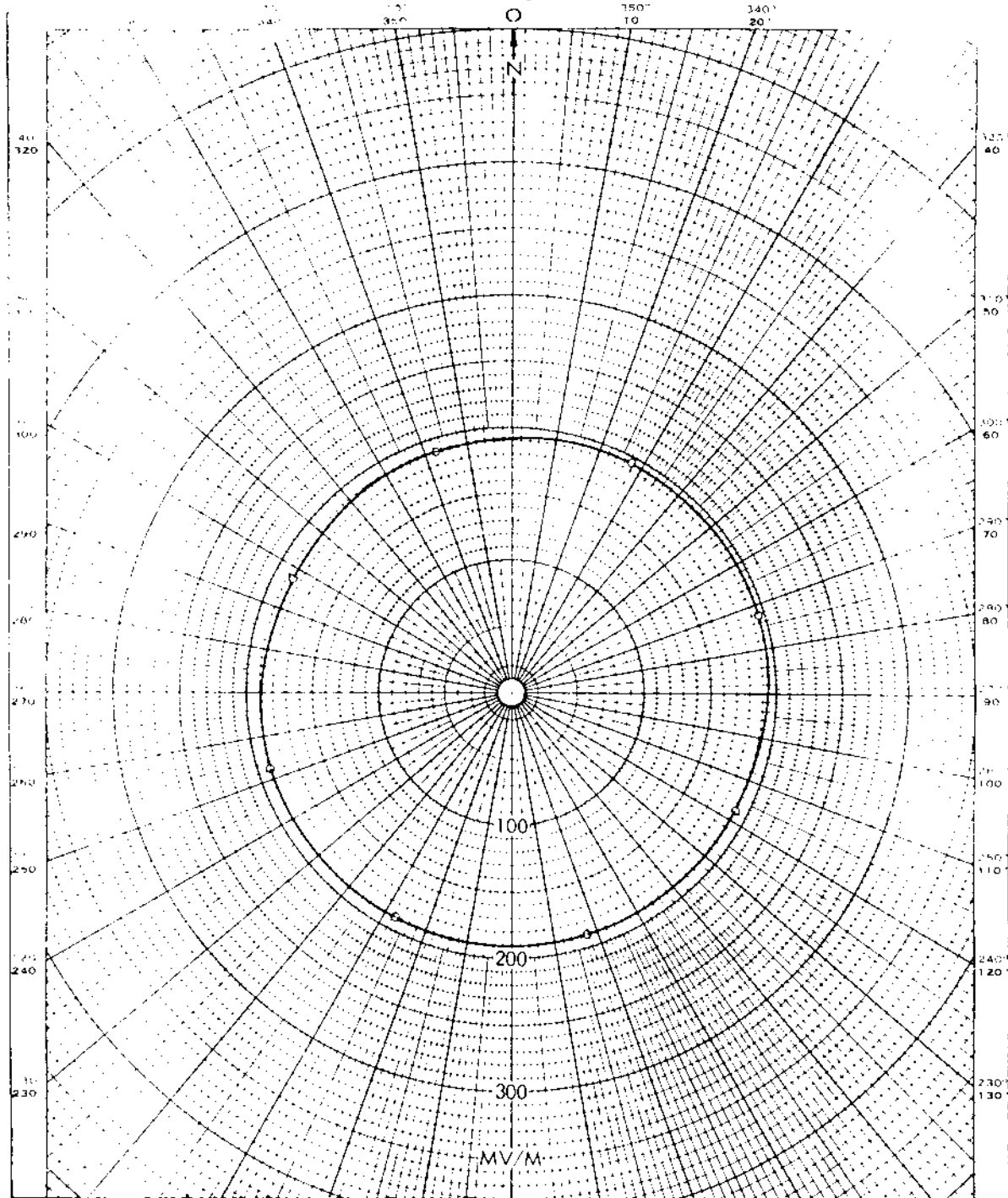
580 kc

Measured Non-DA
(5-25-62ct)

Station KWIN
Ashland, Oregon

1kw, DA-2, U
580 kc

KCMX



NLAT 42° 09' 46"
WLONG 122° 38' 51"

G=64°=300'

RMS=191 MV/M

TOWER 1 EXCITED, TOWER 2 FLOATING

HAMMETT B. EDISON
CONSULTING RADIO ENGINEERS
SAN FRANCISCO

RADIO STATION KWIN
580 KC, 1KW, DA-2
ASHLAND, OREGON

MEASURED
HORIZONTAL RADIATION PATTERN
NON-DIRECTIONAL

UNATTENUATED FIELD INTENSITY
AT ONE MILE

611027

FIGURE 11A

FCC File No. BL-9241
Accepted 5-7-62

Station KWIN
Ashland, Oregon

580 kc

KDAV

LUBBOCK

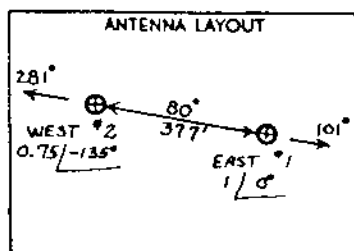
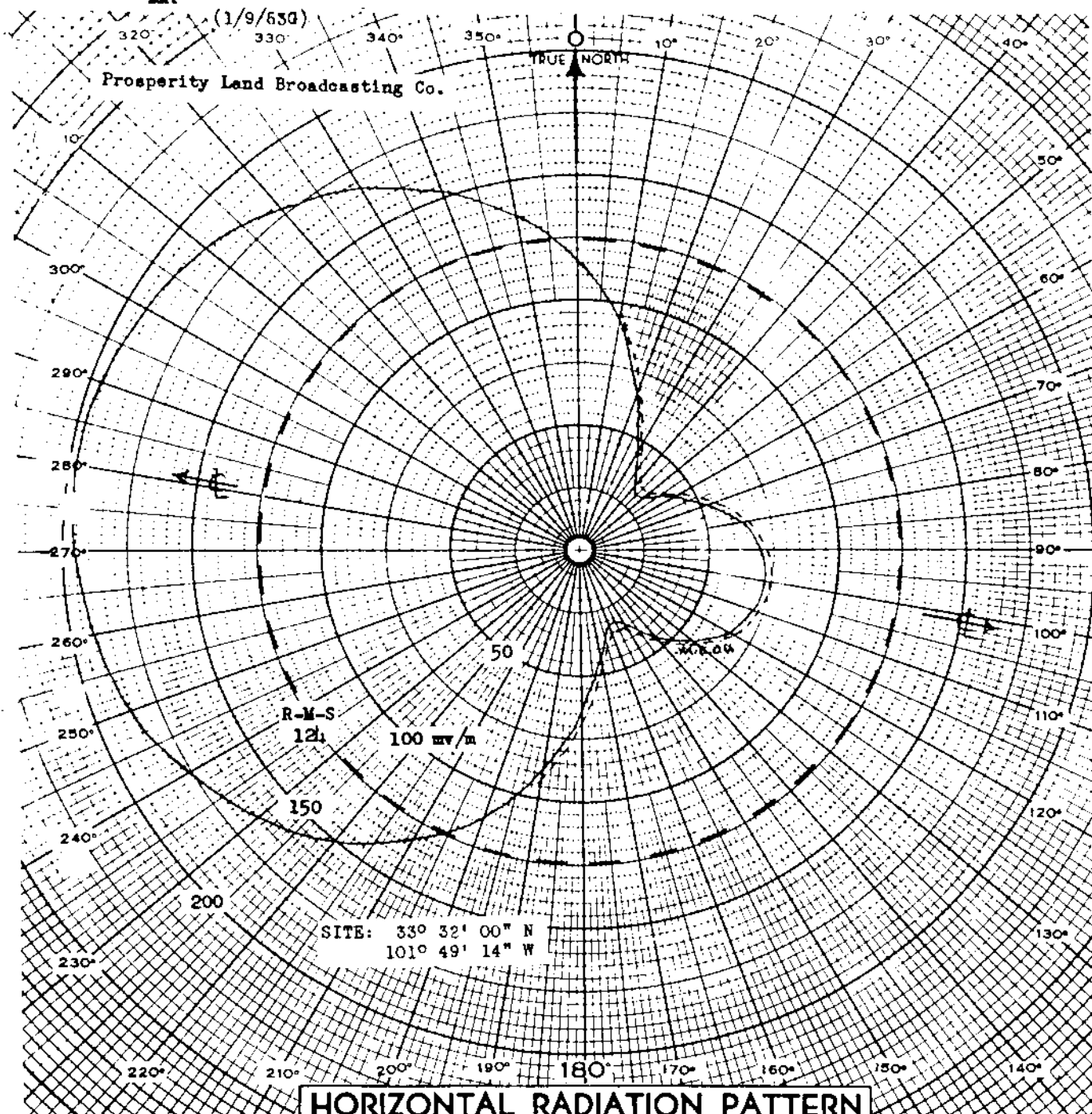
LEVELLAND, TEX

PROPOSED
DAY

NEW, LEVELLAND, TEXAS

500w, DA-D

580kc



New Lubbock, Texas		
Station	Location	
580 kc	0.5 kw	124 mv/m (175/kw)
Frequency	Power	R-M-S Field
2	304 ft., 0.1785 λ	or 64.5°
No. of Elements	Height of Antenna	
MEASURED ☐	CALCULATED ☒	521119.1
Pattern		
DAYTIME PATTERN		
Remarks		
GUY C. HUTCHESON CONSULTING RADIO ENGINEER ARLINGTON, TEXAS		

13 D-8 221
AMENDMENT RECD 11-28-52 BP-9221

Fig. 1
NEW, Levelland, Texas

580kc

KDAV

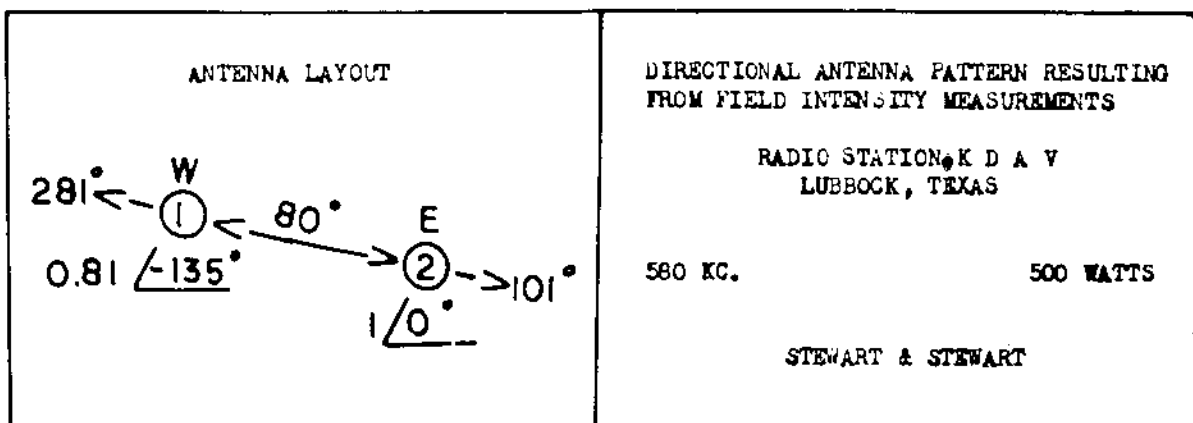
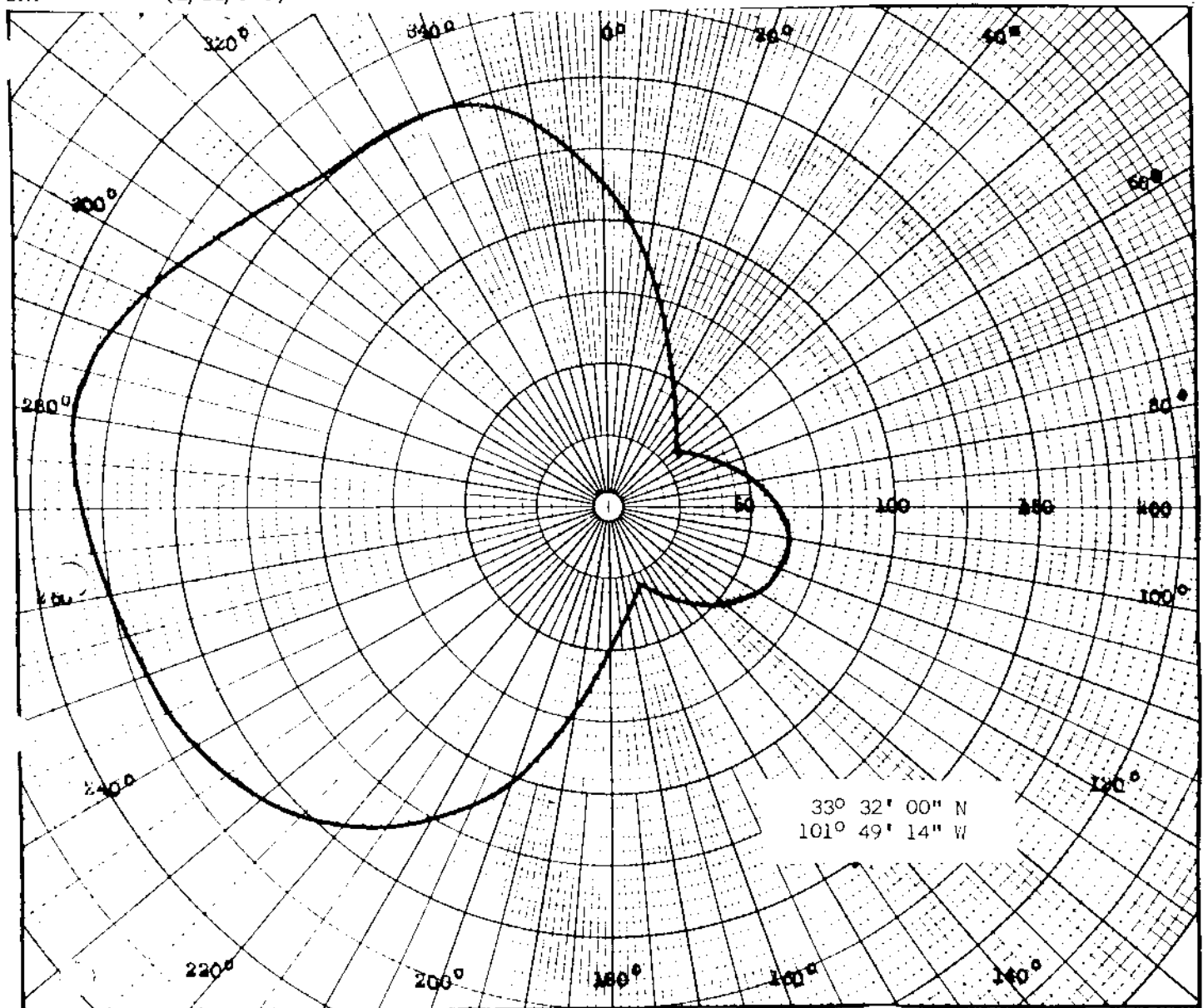
BL-5108

580 kc

MEASURED
DAY

KDAV, LUBBOCK, TEXAS
(2/11/54G)

500W, D, DA-D

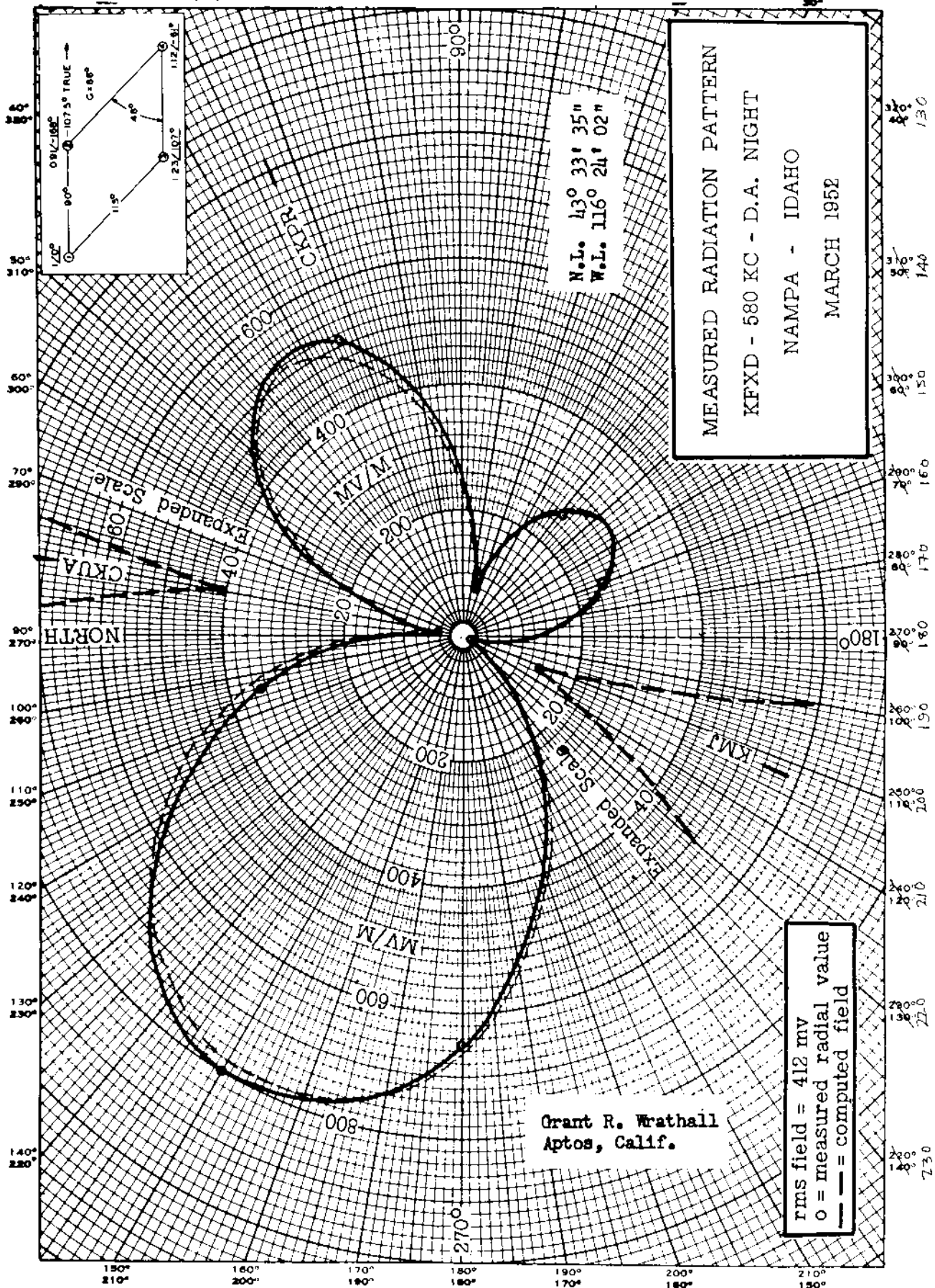


MEASURED
NIGHT

KFXD, NAMPA, IDAHO
4/3/52G

5 KW, U, DA-N

580 KC

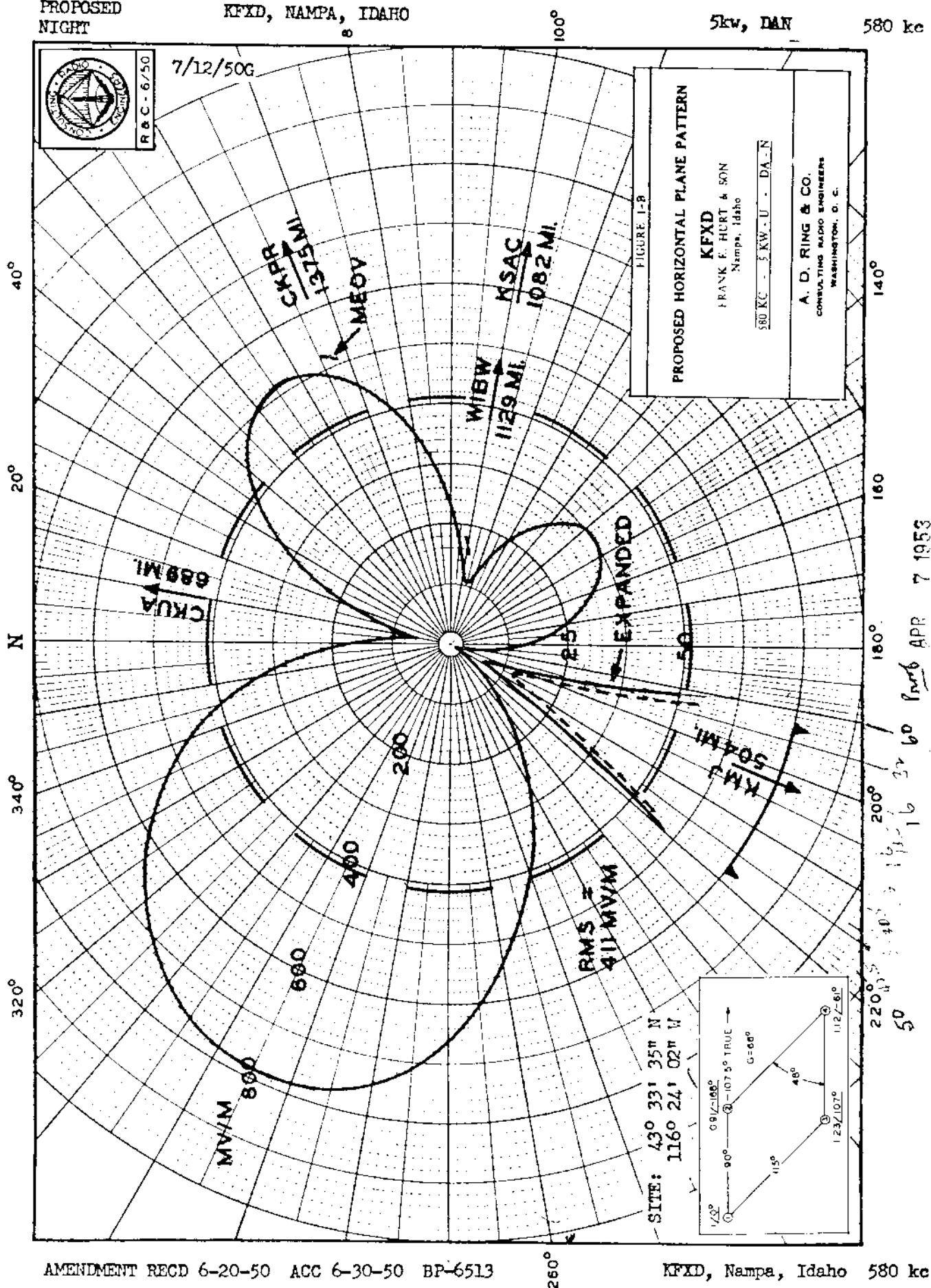


APPL RECD 3/11/52 ACC 4/2/52 BL-4694

KFXD, NAMPA, IDAHO

580 KC

580 ke



AMENDMENT RECD 6-20-50 ACC 6-30-50 BP-6513

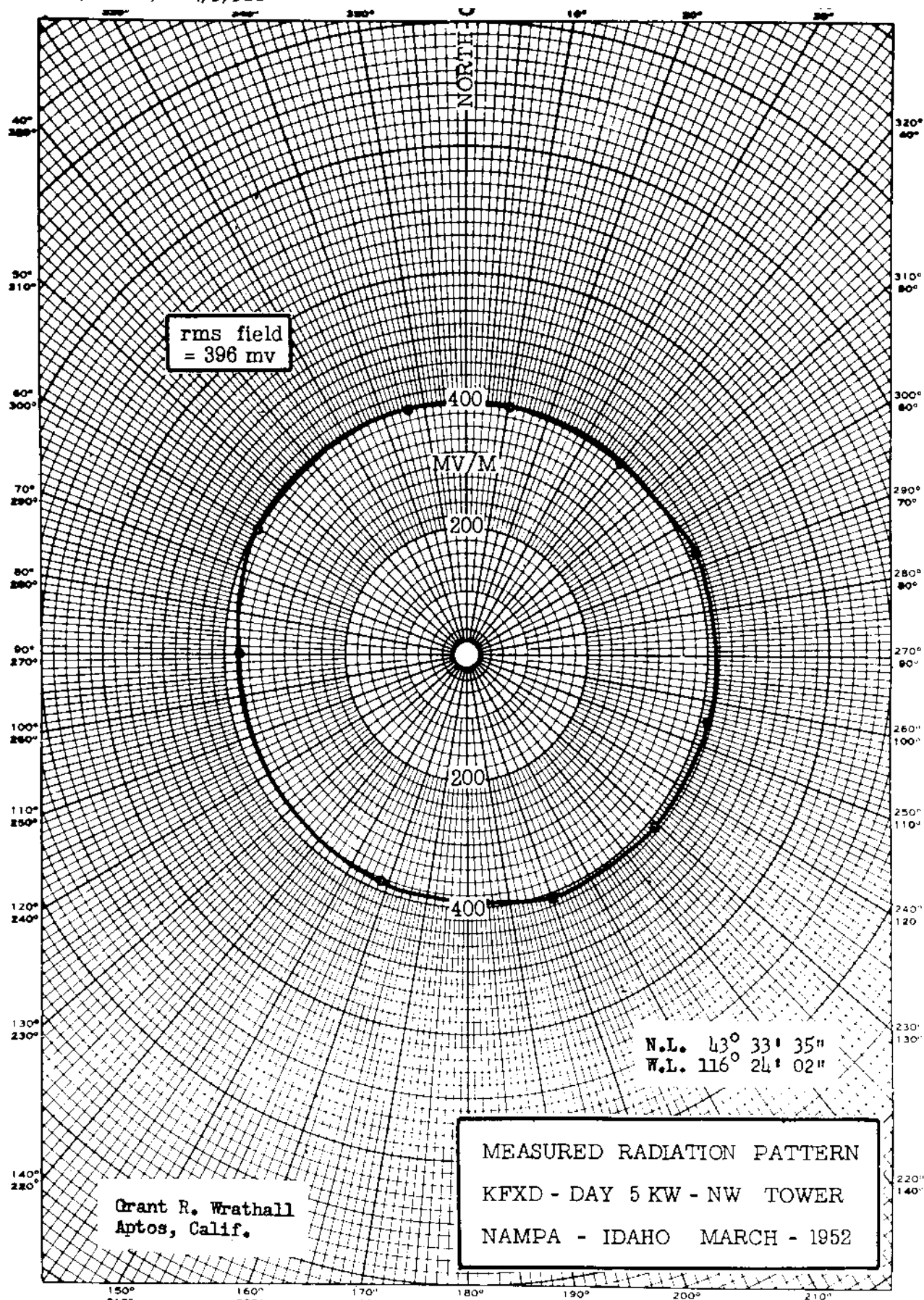
KFXD, Nampa, Idaho 580 kc

KFXD

MEASURED
DAY (NON-DA)KFXD, NAMPA, IDAHO
4/3/52G

5 KW, U, DA-N

580 KC



APPL RECD 3/14/52 ACC 4/2/52 BL-4694

KFXD, NAMPA, IDAHO

580 KC

KIKX

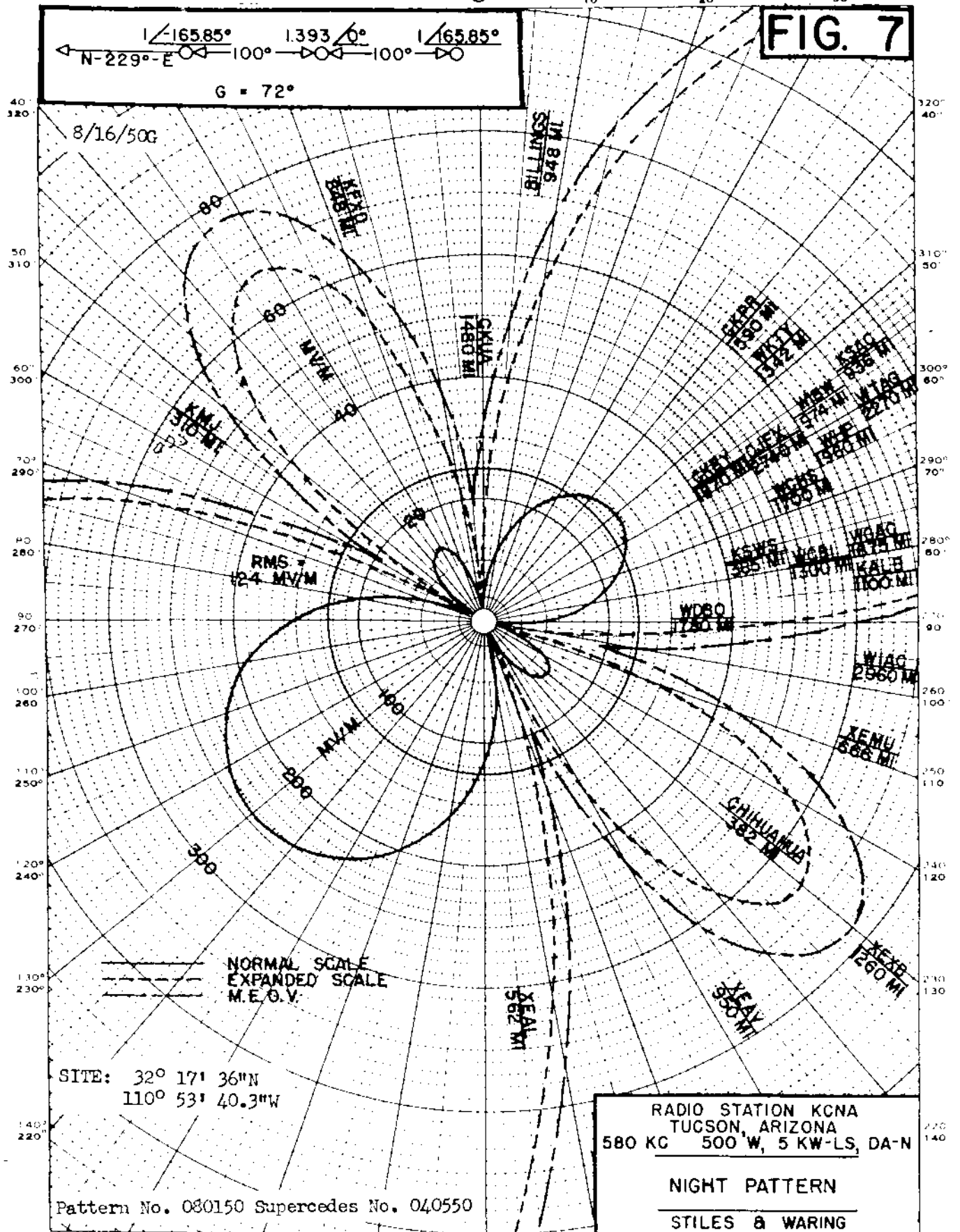
KTAN

PROPOSED
NIGHT

KCNA, TUCSON, ARIZONA

500w, 5kw-LS, DA-N

580 KC



AMENDMENT RCD. 8/7/50 P-7234 140

KCNA, Tucson, Ariz. 580 kc

~~KCNA~~

~~KIKX~~

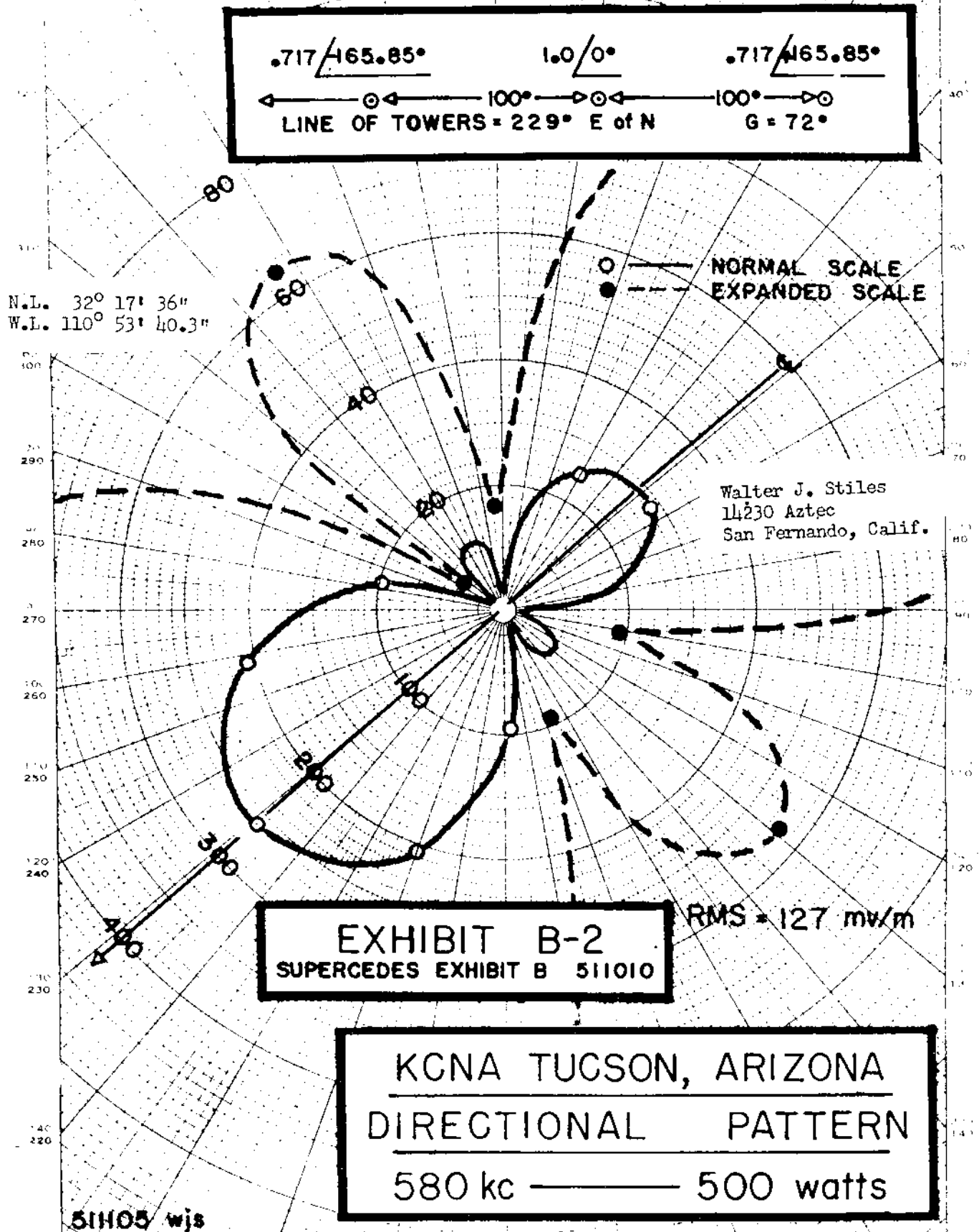
~~KTAN~~

MEASURED
NIGHT

KCNA, TUCSON, ARIZONA
12/20/51G

500W, 5KW-LS, U, DA-N
BL 4590

580 KC



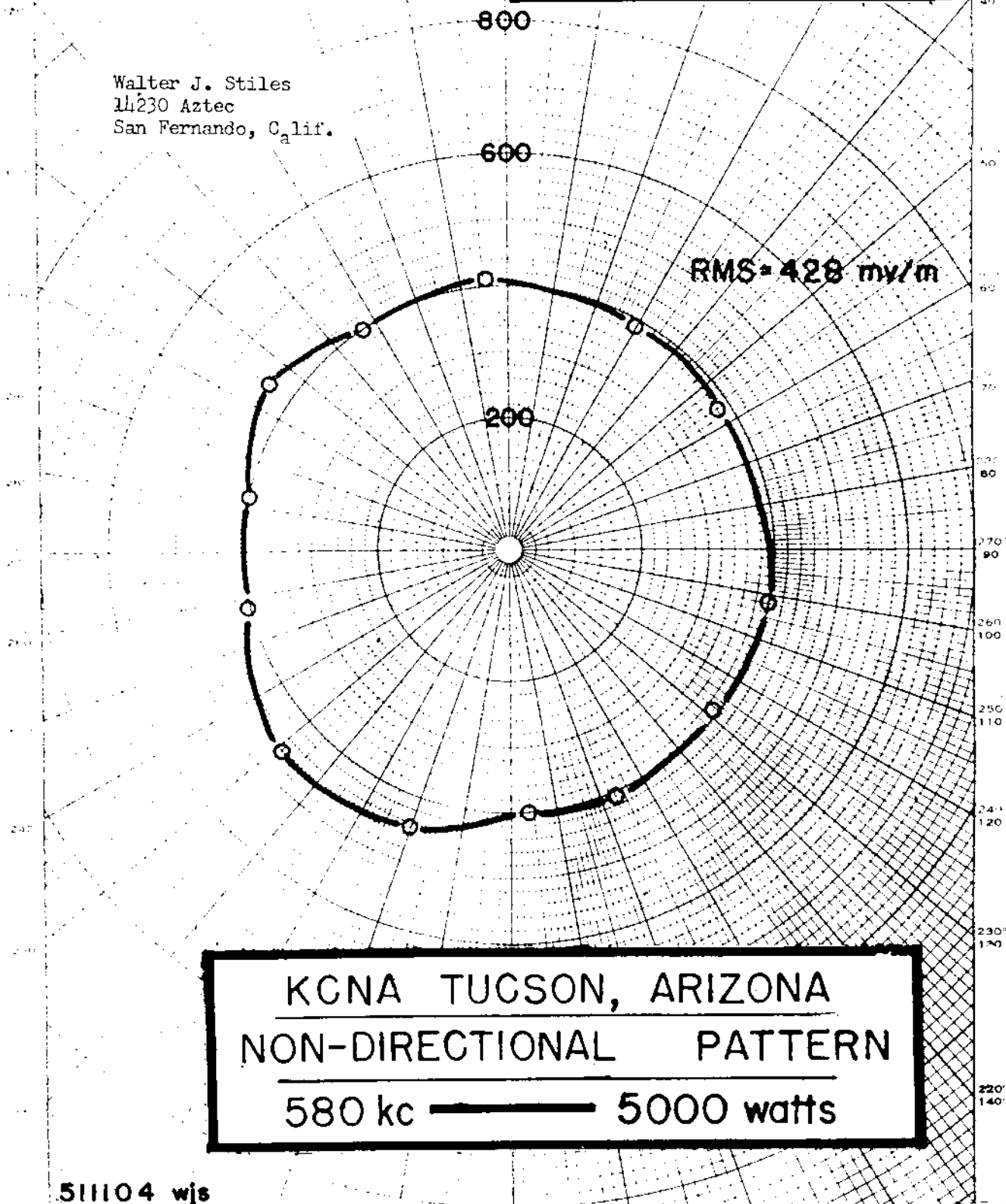
KIKX

KTAN

MEASURED
NON-DAKCNA, TUCSON, ARIZONA
12/20/51G

500W, 5KW-LS, U, DA-N

580 KC

N.L. 32° 17' 36"
W.L. 110° 53' 40.3"EXHIBIT A-2
SUPERCEDES EXHIBIT A 511001Walter J. Stiles
14230 Aztec
San Fernando, Calif.

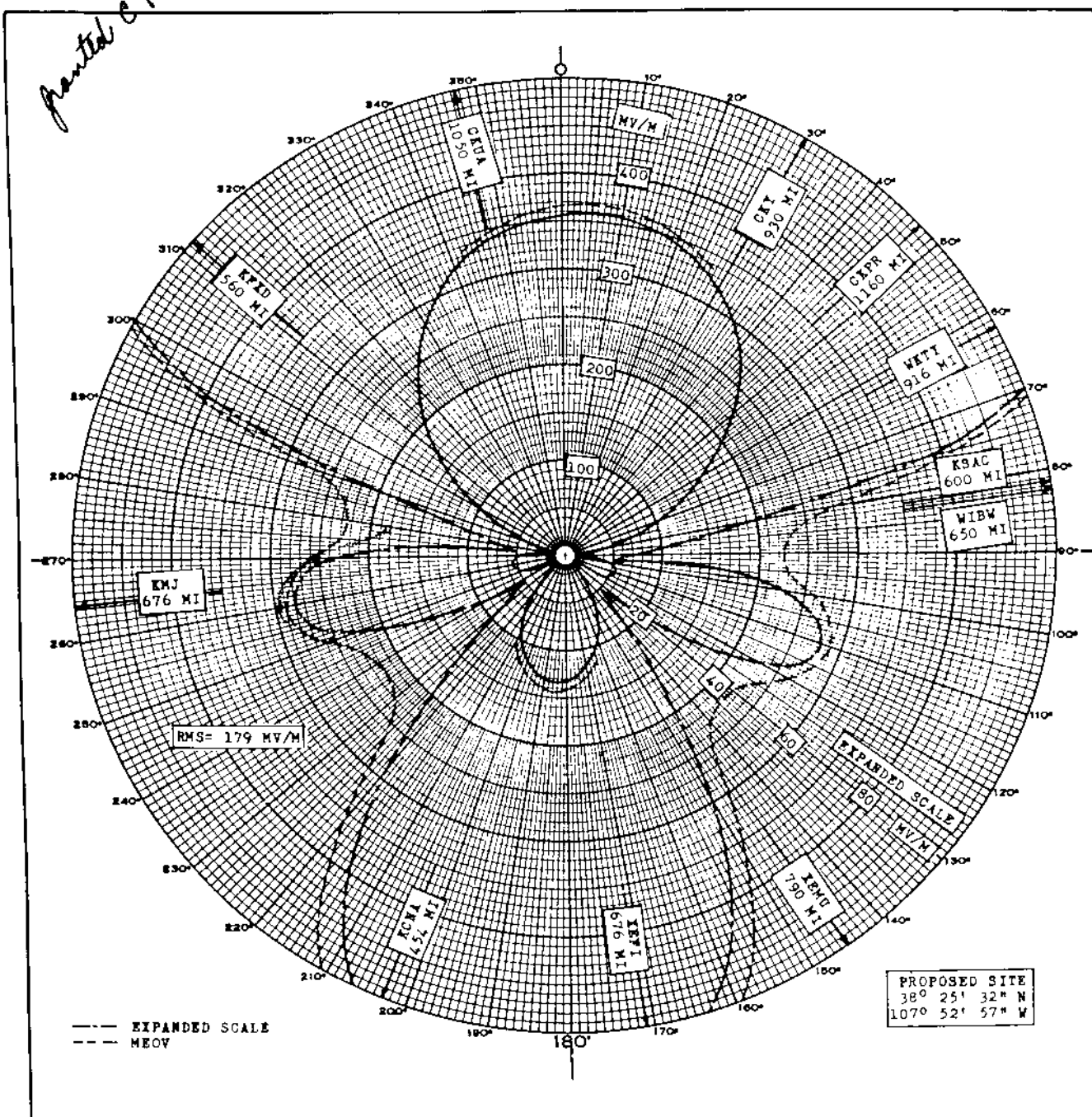
PROPOSED NIGHT
(4-3-56G)

STATION KUBC
MONTROSE, COLORADO

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

580 KC

KUBC



PROPOSED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

G=65° 5° True (3) 1.0/47.8° 95° (447.5') (2) 1.60/204° 95° (447.5') (1) 1.0/0°	THE UNCOMPANGRE BROADCASTING COMPANY MONTROSE COLORADO VANDIVERE, COHEN and WEARN CONSULTING ELECTRONIC ENGINEERS	PROPOSED OPERATION KUBC 580 KC 5 KW-LS, 1KW-N, DA-N MARCH, 1956
---	---	--

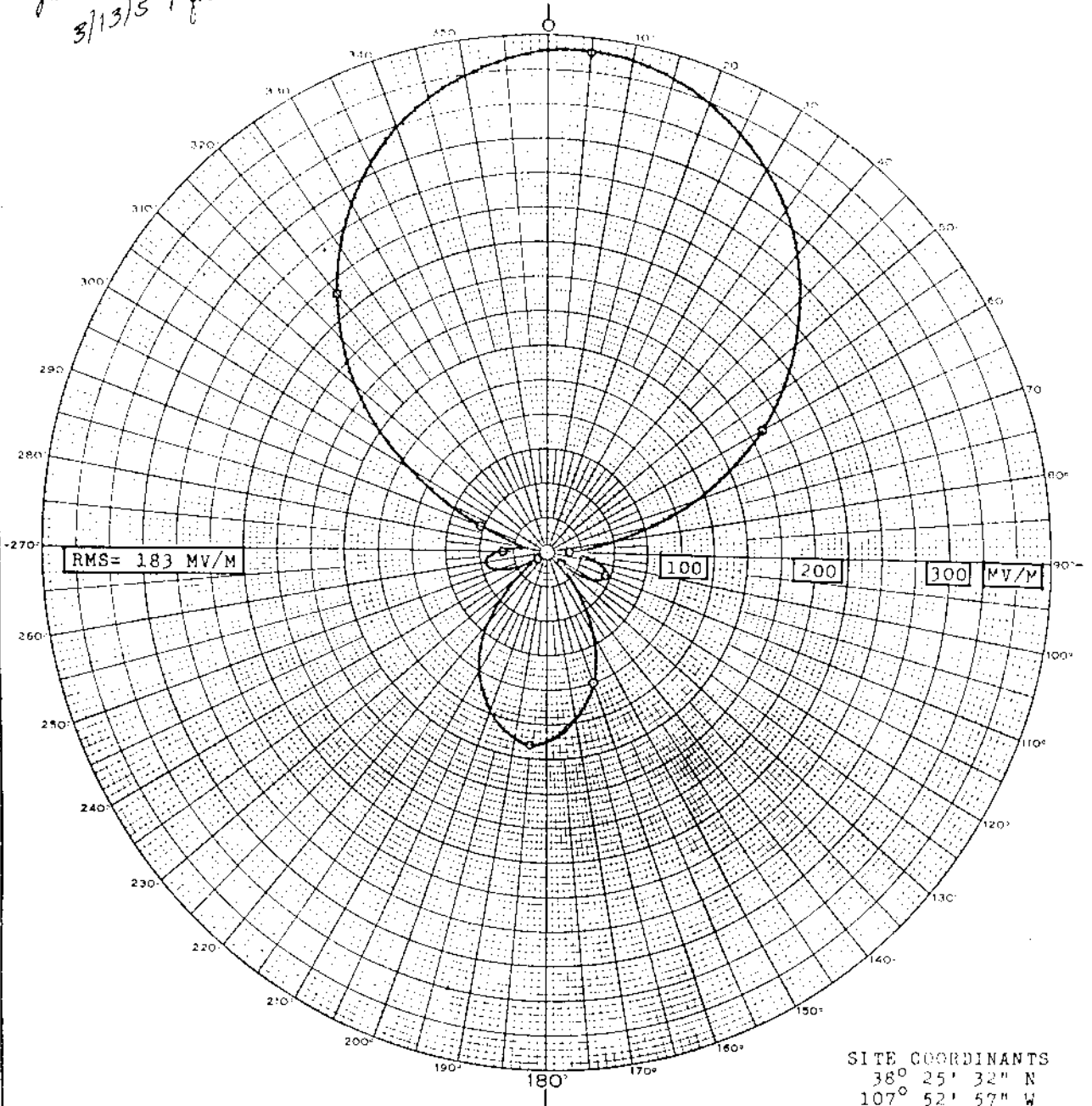
BL-6472

KUBC

MEASURED NIGHT Station K U B C
(1-29-57g) Montrose, Colorado

1 KW-N, 5 KW-D, U 580 K C Figure 6
Sheet 2 of 4

*granted license
3/13/57 for 580 KC*



MEASURED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

G = 65° 5° True (3) 1.0/47.8° 95° (447.5') (2) 1.60/204° 95° (447.5') (1) 1.0/0°	THE UNCOMPANRE BROADCASTING COMPANY MONTROSE COLORADO VANDIVERE, COHEN and WEARN CONSULTING ELECTRONIC ENGINEERS	RADIO STATION KUBC 580 KC 1 KW, 5 KW-1S DA-N
---	--	--

FCC File No.
BL-6472

Accepted 1-9-57

KUBC
Montrose, Colorado 580 K C

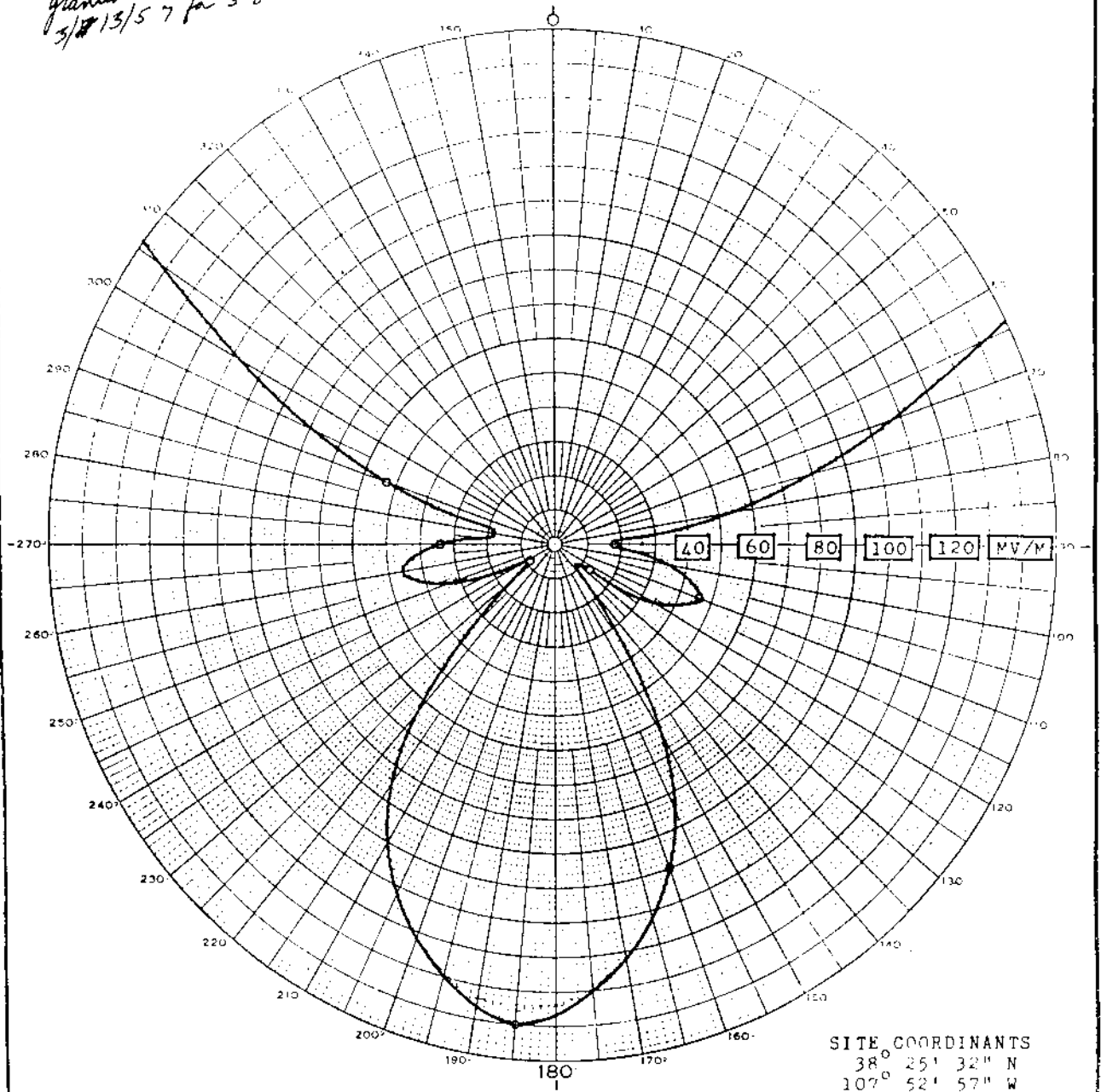
BL647

KUBC

MEASURED NIGHT NULL Station K U B C
(1-29-57g)
Montrose, Colorado

1KW-N, 5KW-D, U
580 K C of 4

*granted license
3/13/57 for 580 kc*



MEASURED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

DETAILS IN MINIMA	THE UNCOMPAGNE BROADCASTING COMPANY MONTROSE COLORADO	RADIO STATION KUBC 580 KC
	VANDIVERE, COHEN and WEARN CONSULTING ELECTRONIC ENGINEERS	1 KW, 5 KW-D, U 1A-N

FCC File No.
BL-6472

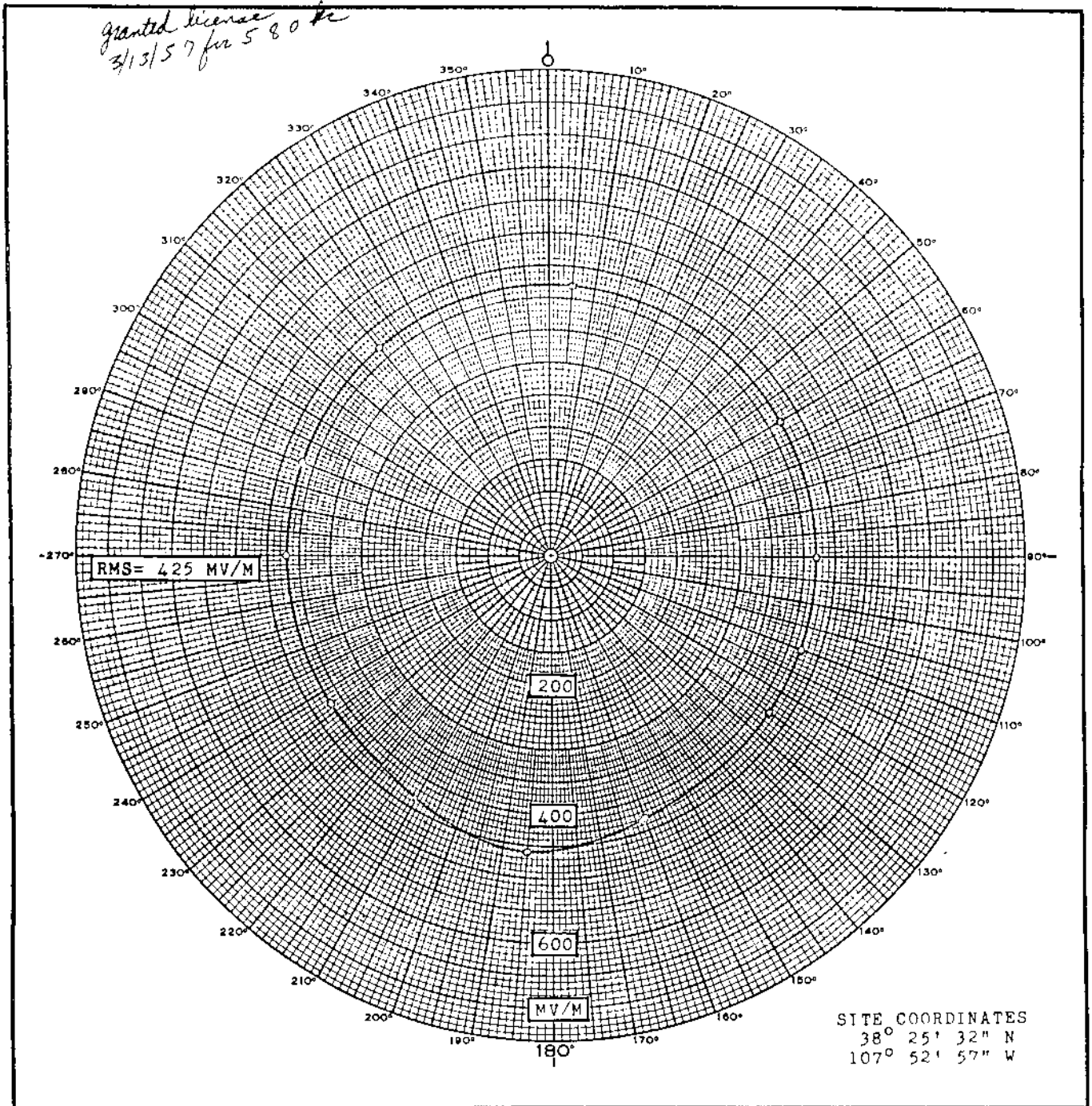
Accepted 1-9-57

KUBC
Montrose, Colorado 580 K C

MEASURED DAY Station K U B C
(1-29-57g) Montrose, Colorado

1 KW-N, 5KW-D, U

KUBC
580 K C



MEASURED DAYTIME HORIZONTAL PLANE RADIATION PATTERN

NONDIRECTIONAL	THE UNCOMPAGRE BROADCASTING COMPANY MONTROSE COLORADO	RADIO STATION KUBC 580 KC
	VANDIVERE, COHEN and WEARN CONSULTING ELECTRONIC ENGINEERS	1 KW, 5 KW-LS DA-N

FCC File No.
BL-6472

Accepted 1-9-57

Station K U B C
Montrose, Colorado 580 K C

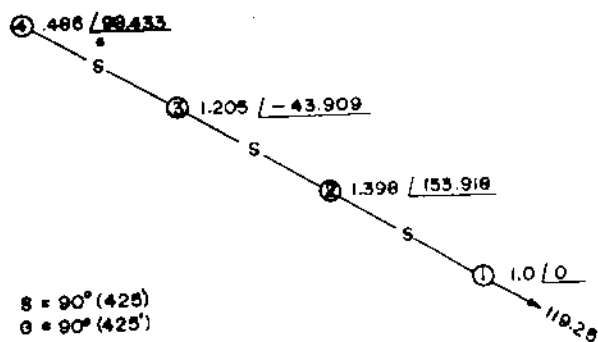
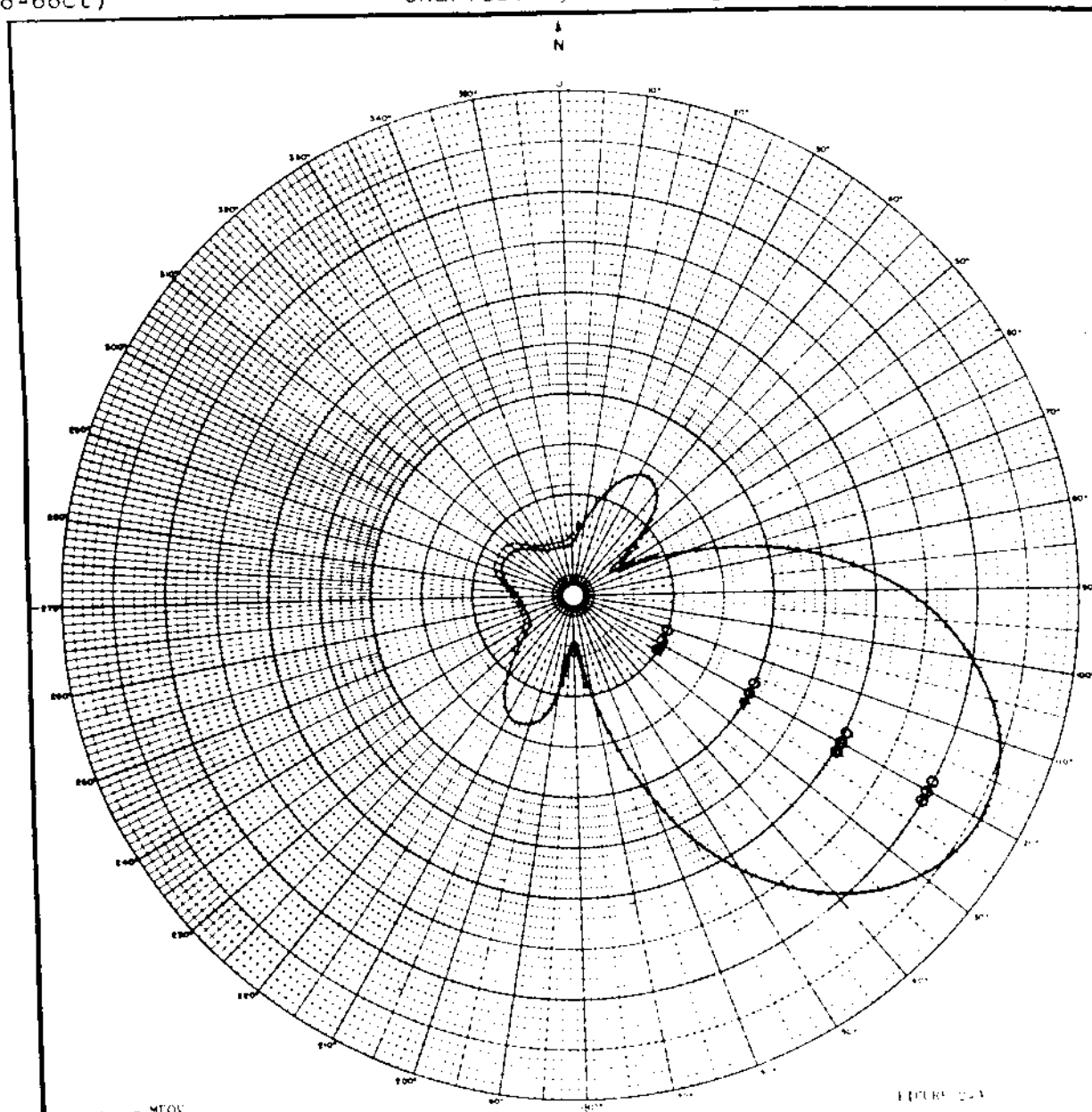
WCHS

Proposed Night
(6-28-66ct)

Station WCHS
Charleston, West Virginia

5kw, DA-N, U
580 kc

PG-29-6h
BP 17011



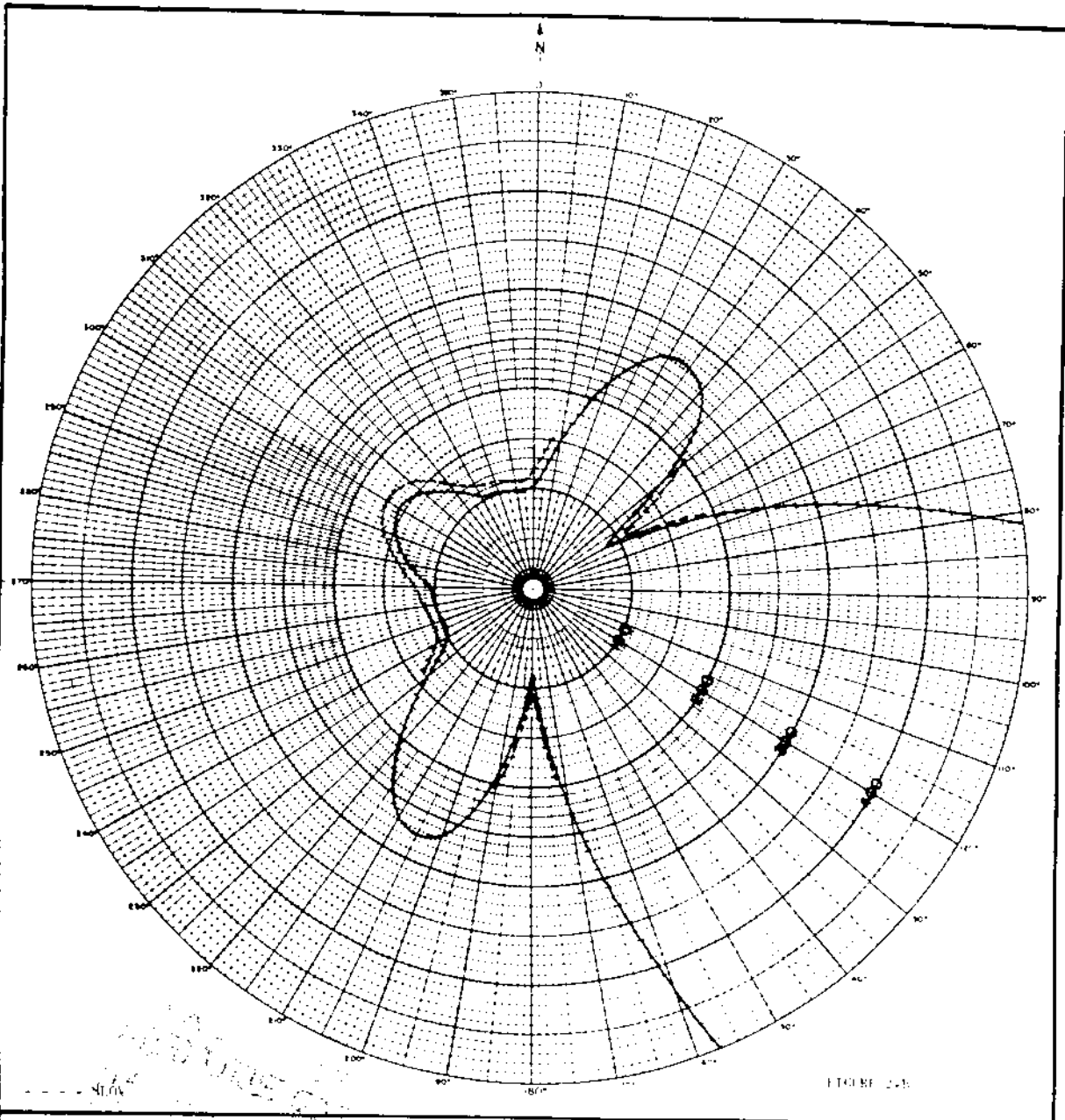
APPROX. 500-5000 CORPORATION
ATTS. CHARLESTON, WEST VIRGINIA
FREQUENCY 580 KC
POWER 5 KW. ANTEN. DA-N, U
APPROX. 200' 210' 40"
SLOPE 40' 40' 100"
WHEN USED NIGHT 11:00
MAX. FIELD 300' MAX. M
DATE April 1, 1966
HORIZONTAL RADIATION PATTERNS
G RUSSELL CHAMBERS
CONSULTING RADIO ENGINEERS
ALMINGTON, DELAWARE

Proposed Night Nulls
(6-28-66ct)

Station WCHS
Charleston, West Virginia

5kw, DA-N, U
580 kc

WCHS



EXPANDED SCALE

APPLICANT	WCHS-AM, INC. CORPORATION
STATION	Charleston, West Virginia
CALL LETTERS	WCHS
POWER	5 KW. AND 1000 WATT
FREQUENCY	580 kHz (200)
NOTES	SEE 4-1-66
WHEN USED	NIGHT ONLY
RMS FIELD	200 MV/M
DATE	Apr 1 1966
HORIZONTAL RADIATION PATTERN	
G RUSSELL CHAMBERS	
CONSULTING RADIO ENGINEERS	
WILMINGTON, DELAWARE	

FCC File No. BP-17011
Accepted 5-26-66 Amended

Station WCHS
Charleston, West Virginia

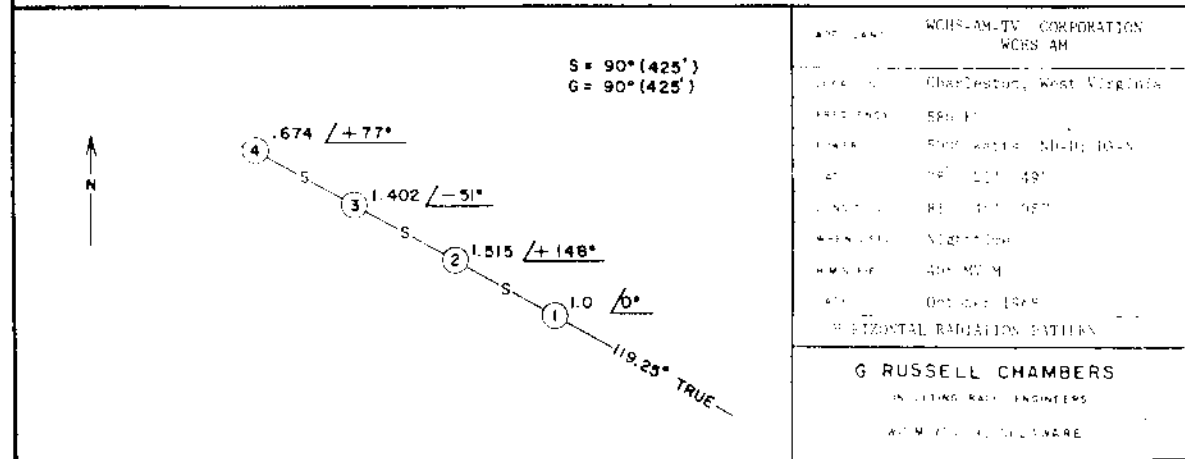
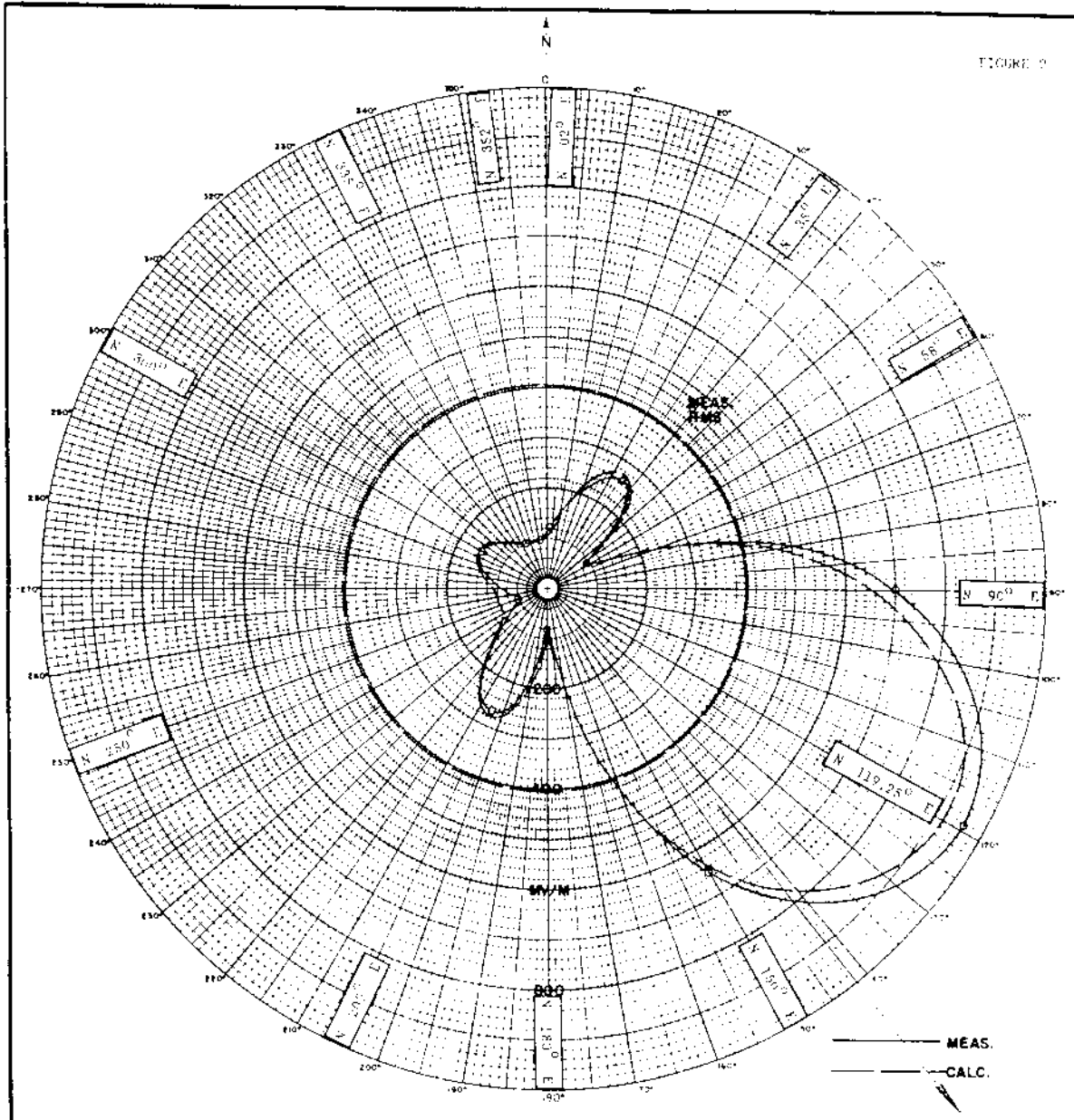
580 kc

Measured Night
(2-28-69ct)

Station WCHS
Charleston, West Virginia

WCHS
5kw, DA-N, U
580 kc

4-25-69
Granted
license
covering
changed.



FCC File No. BL-12251
Accepted 1-31-69

Station WCHS
Charleston, West Virginia

580 kc

BL-12251

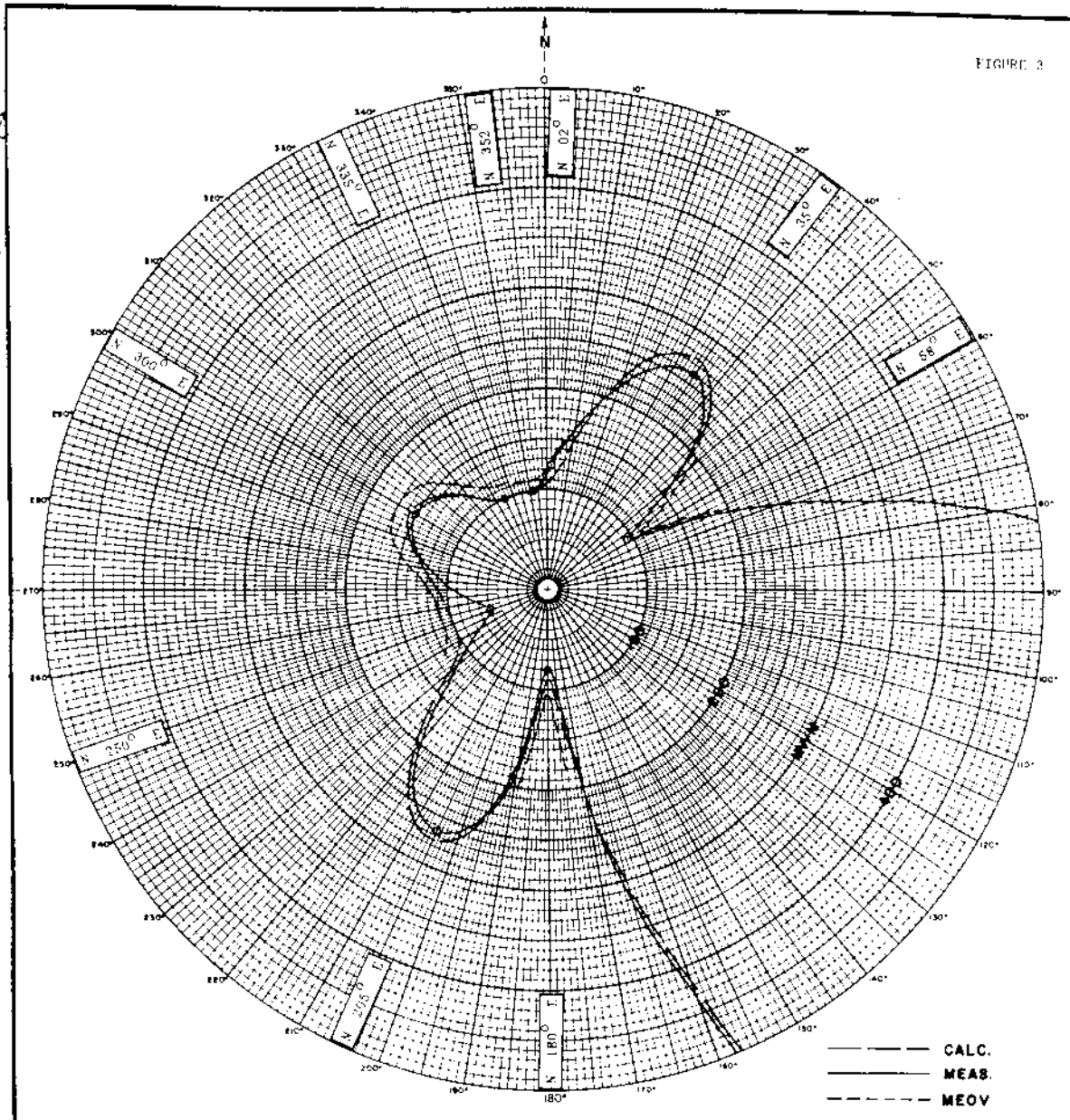
WCHS

Measured Night Nulls
(2-28-69ct)

Station WCHS
Charleston, West Virginia

5kw, DA-N, U
580 kc

4-25-69
Granted
license
covering
changes.



EXPANDED SCALE

APPLICANT	WCHS-AM-TV CORPORATION WCHS-AM
LOCATION	Charleston, West Virginia
FREQUENCY	580 KC
POWER	5000 Watts ND-D; DA-N
LATITUDE	38° 21' 49"
LONGITUDE	81° 46' 05"
WHEN USED	Nighttime
RMS FIELD	406 MV/M
DATE	October 1968
EXPANDED HORIZONTAL RADIATION PATTERN	

G. RUSSELL CHAMBERS
CONSULTING RADIO ENGINEERS
WILMINGTON, DELAWARE

FCC File No. BL-12251
Accepted 1-31-69

Station WCHS
Charleston, West Virginia

580 kc

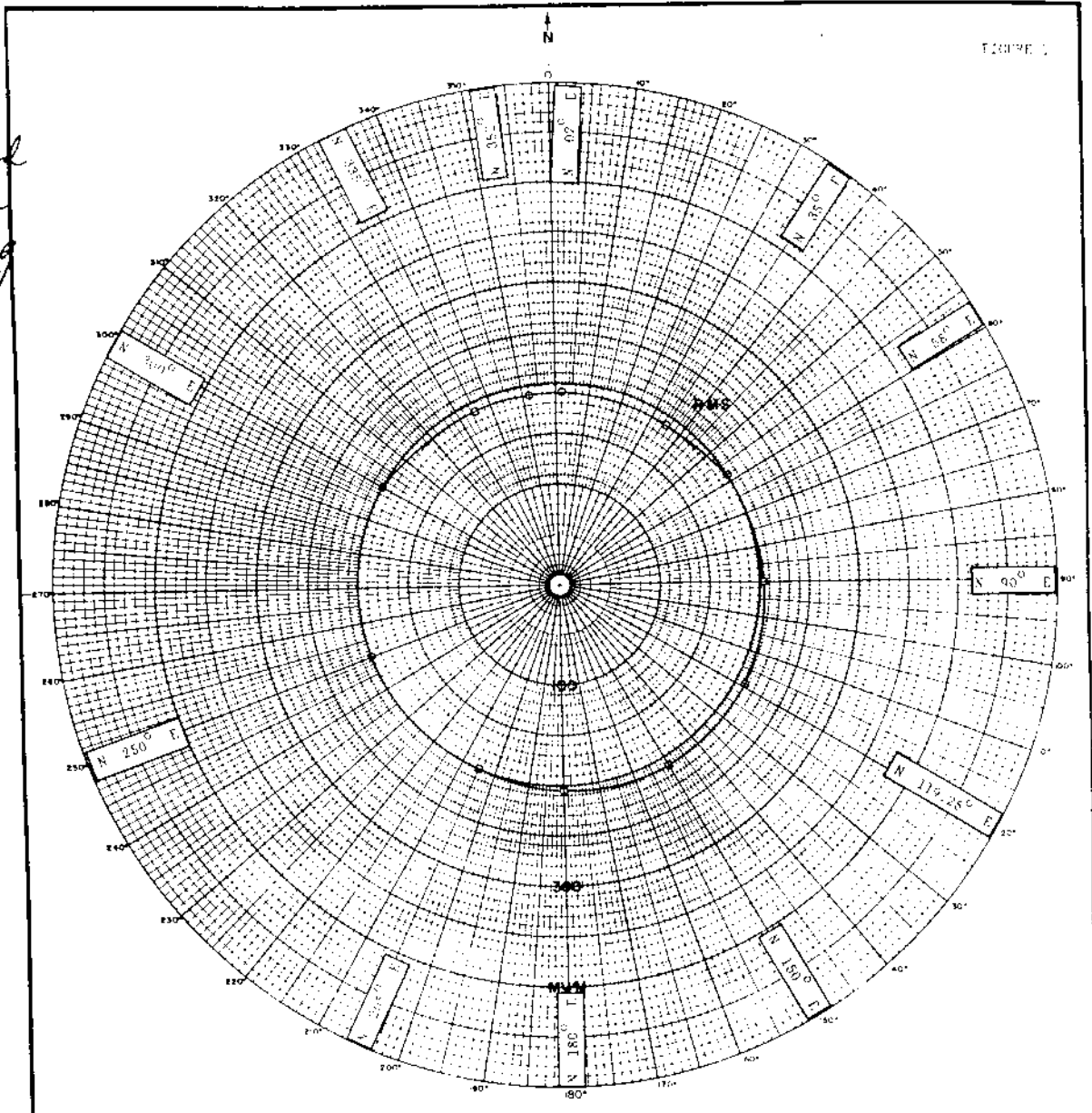
WCHS

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

Station WCHS
Charleston, West Virginia

5kw, DA-N, U
580 kc

4-25-69
Granted
license
covering
changes



MEASURED NON DIRECTIONAL PATTERN

APP. DATA	WCHS-AM-TV CORPORATION WCHS-AM
LOCATION	Charleston, West Virginia
FREQUENCY	580 KC
POWER	5000 Watts ND-D; DA-N
LATITUDE	38° 21' 49"
LONGITUDE	81° 46' 05"
WIND DIRECTION	Non-Directional Proof
RMS FIELD	200 MV/M
DATE	October 1968

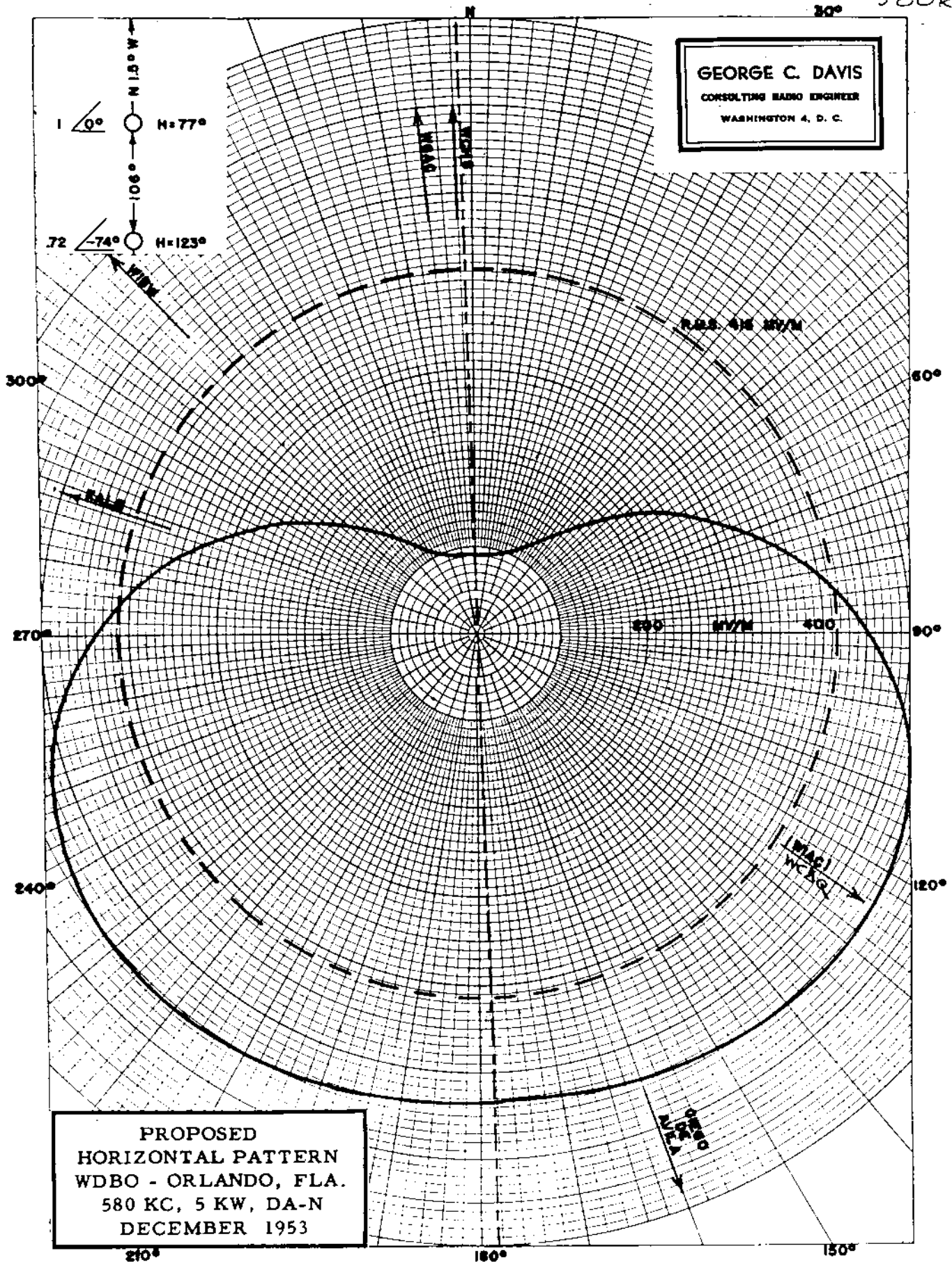
G RUSSELL CHAMBERS
CONSULTING RADIO ENGINEERS
NEWMISTON, DELAWARE

FCC File No. BL-12251
Accepted 1-31-69

Station WCHS
Charleston, West Virginia

580 kc

580Kc



MEASURED
NIGHT

WDBO, ORLANDO, FLA.
5/11/55G

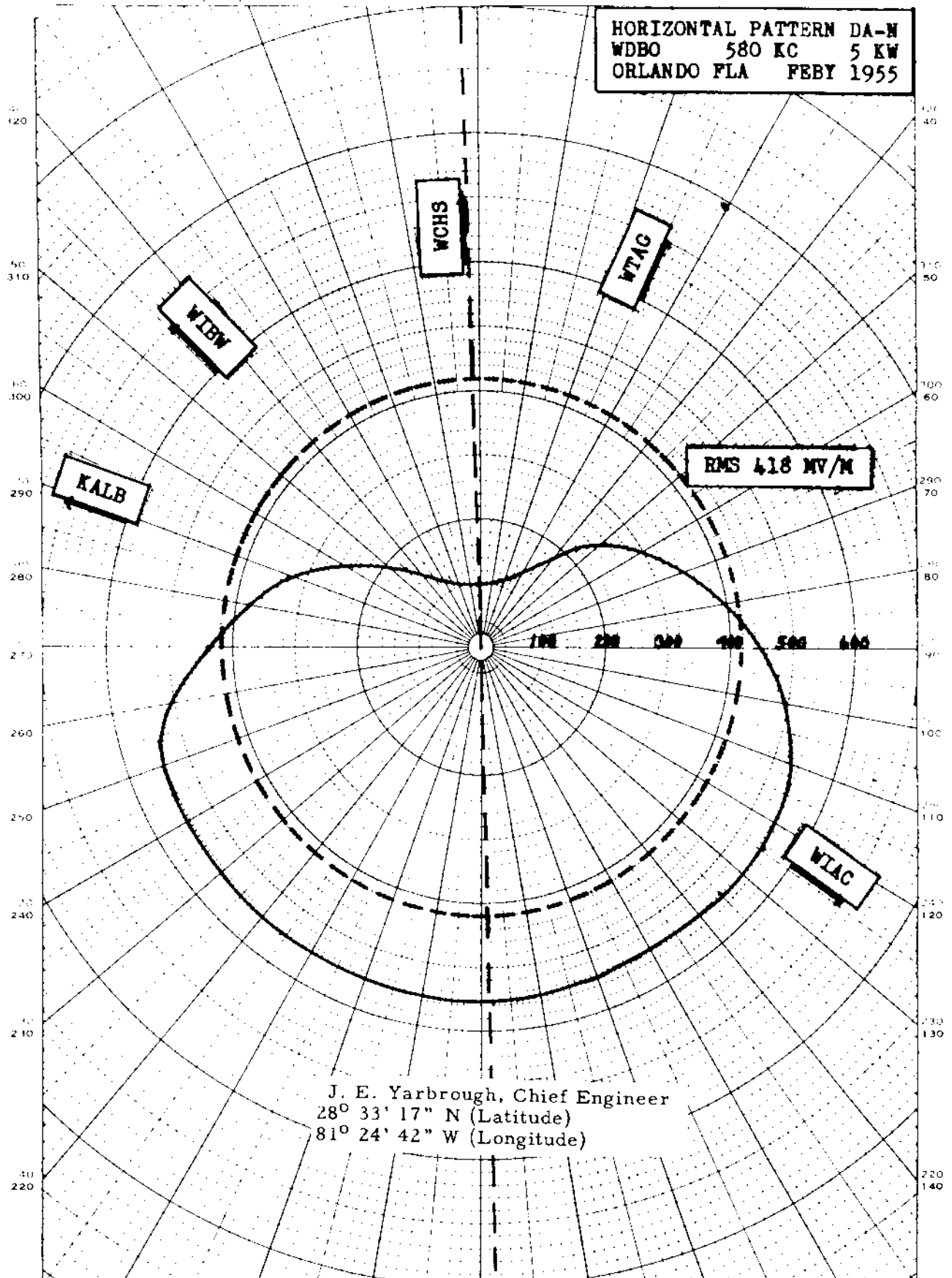
BL-5689

U, DA-N
5 KW

WDBO

580 KC

HORIZONTAL PATTERN DA-N
WDBO 580 KC 5 KW
ORLANDO FLA FEBY 1955



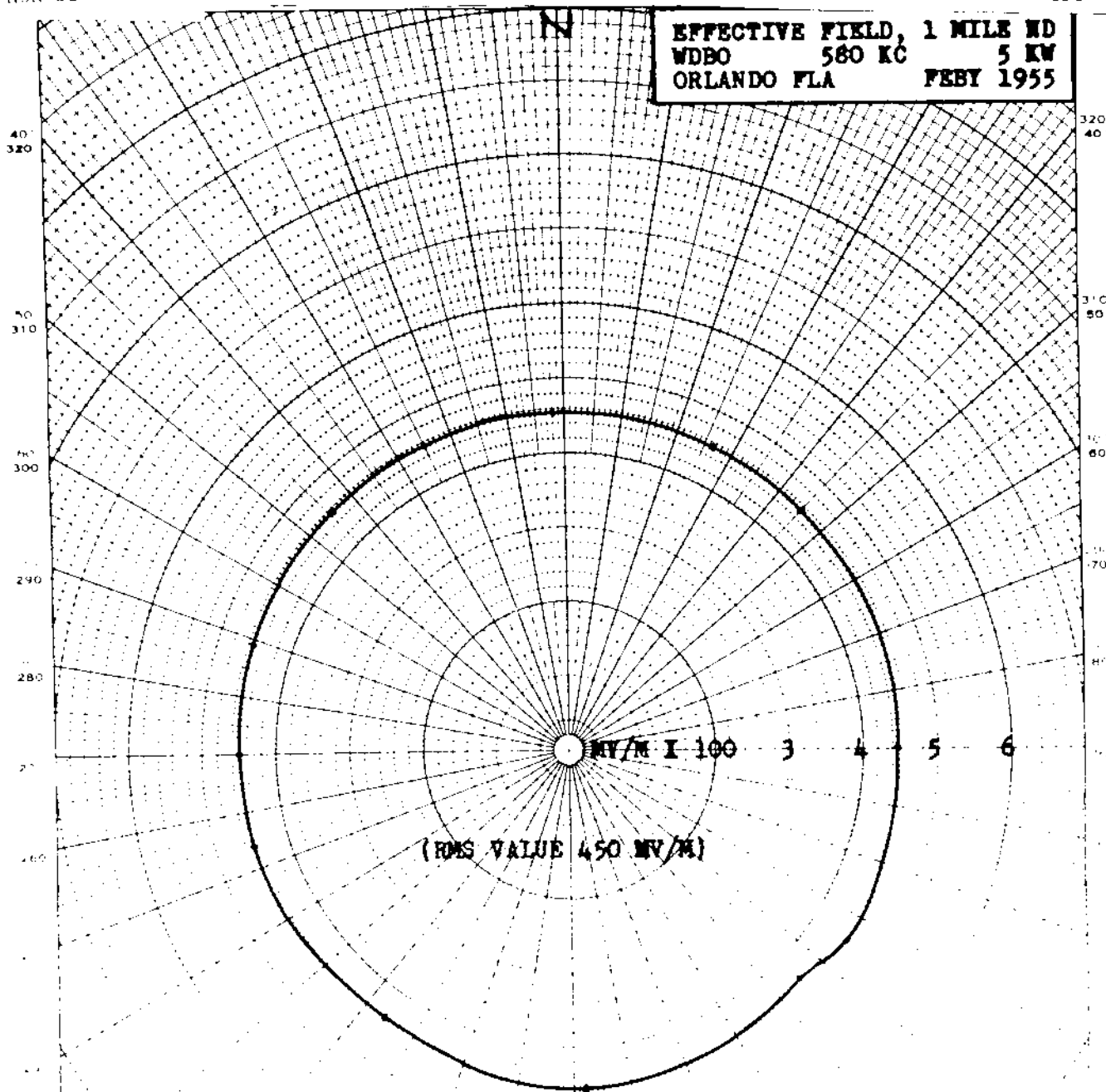
WDBO

MEASURED
NON-DIRECTIONAL

WDBO, ORLANDO, FLA.
5/11/55G

U, DA-N
5 KW

580 KC



Y. E. Yarbrough, Chief Engineer
28° 33' 17" N (Latitude)
81° 24' 42" W (Longitude)

Granted L for installation of DA-11-18-59

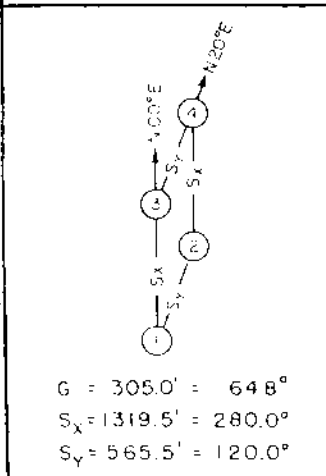
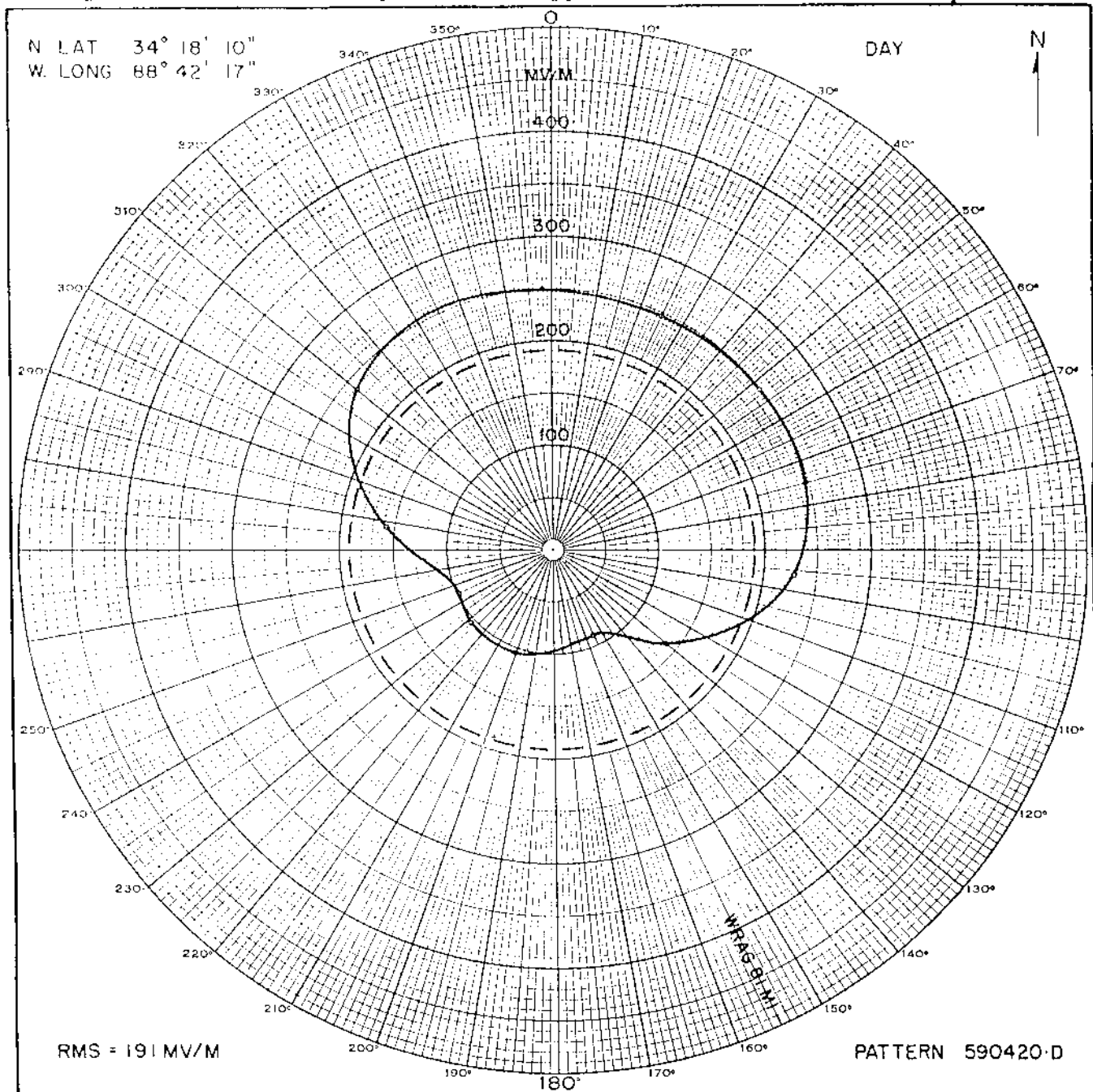
WELO

MEASURED DAY
(8-8-59g)

Station WELO
Tupelo, Mississippi

500w, 1kw-LS, DA-2, U
580 KC

BL-7555



PATTERN
BASED ON
MEASUREMENTS

RADIO STATION WELO
580 KC 0.5 KW 1.0 KW-LS DA-2
590420 FIGURE 4B

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

WELO

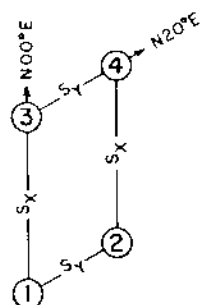
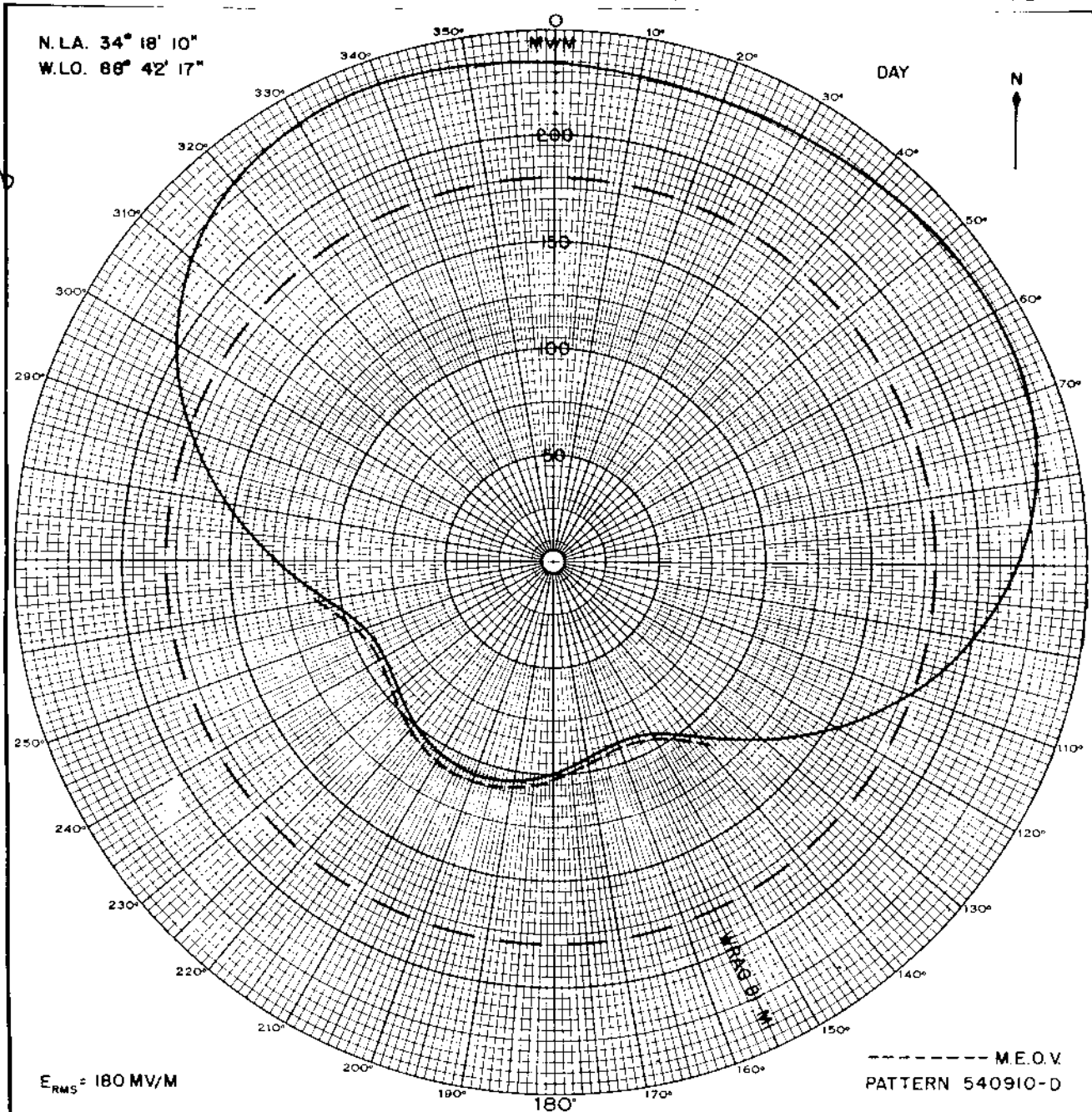
PROPOSED DAY
(1-24-55G)

WELO
TUPELO, MISSISSIPPI

500 W, 1 KW-LS
DA-2, U

580 KC

*granted C P
7/24/58*



$G = 305' = 64.8^{\circ}$
 $S_X = 1319.5' = 280^{\circ}$
 $S_Y = 565.5' = 120^{\circ}$

TOWER FIELD PHASE

1	0.45	90°
2	1.00	0°
3	0.00	—
4	0.00	—

RADIO STATION WELO

TUPELO, MISSISSIPPI

580KC 0.5KW 1.0KW-LS DA-2

A. EARL CULLUM, JR.

CONSULTING RADIO ENGINEERS

540910.1

FIGURE 7A

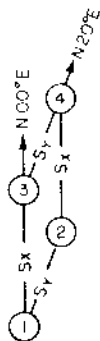
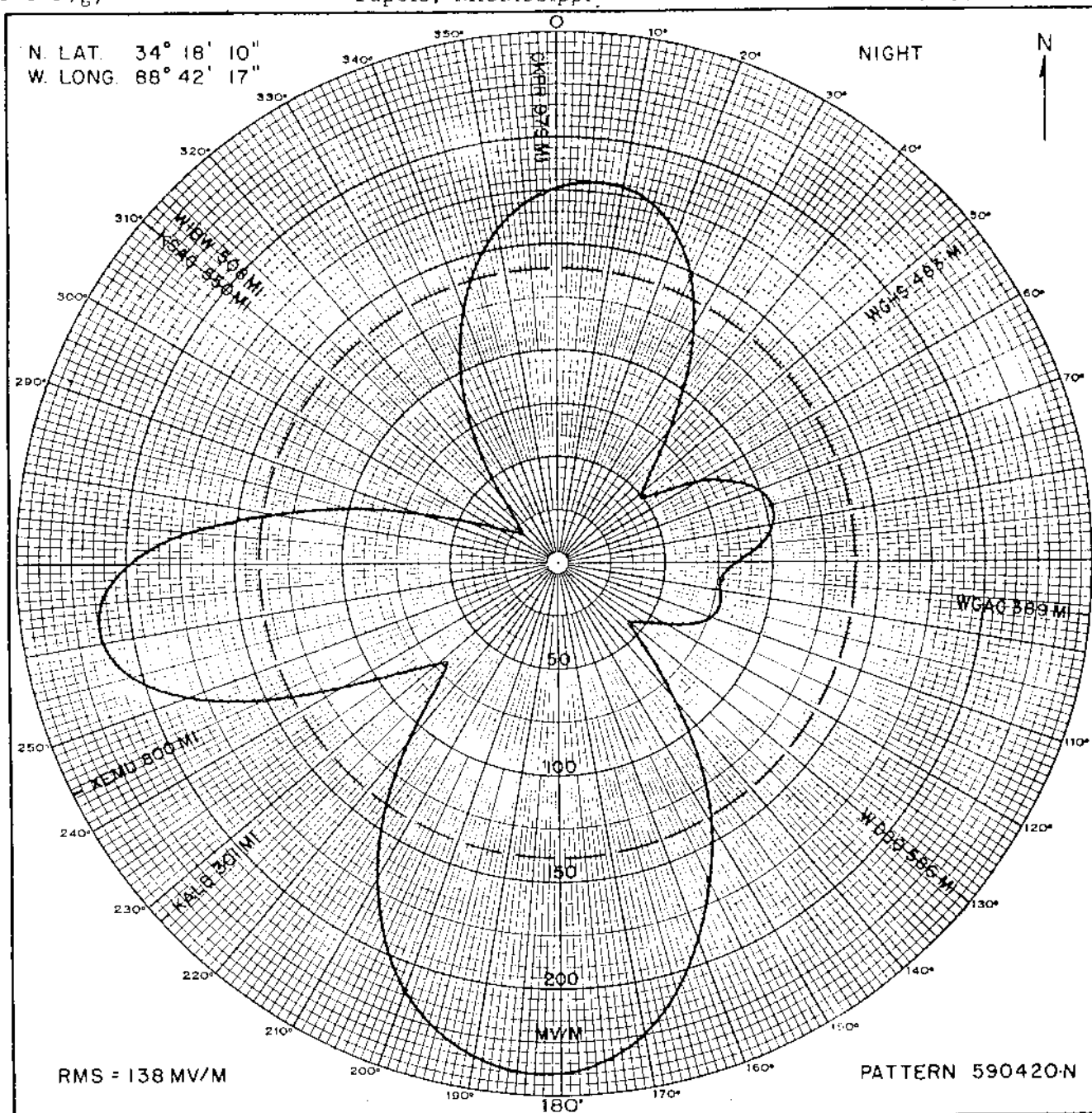
granted L for installation of DA 11-18-59

WEL0
BL 7555

MEASURED NIGHT
(8-8-59g)

Station WEL0
Tupelo, Mississippi

500w, 1kw-LS, DA-2, U
580 KC



$G = 305.0' = 64.8^{\circ}$
 $S_X = 1319.5' = 280.0^{\circ}$
 $S_Y = 565.5' = 120.0^{\circ}$

PATTERN
BASED ON
MEASUREMENTS

RADIO STATION WEL0
580 KC 0.5 KW 1.0 KW-LS DA-2
590420

FIGURE 4C

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

WELO

PROPOSED

WELO, TUPELO, MISS.

500W, 1KW-LS, U, DA-2

580 kc

NIGHT

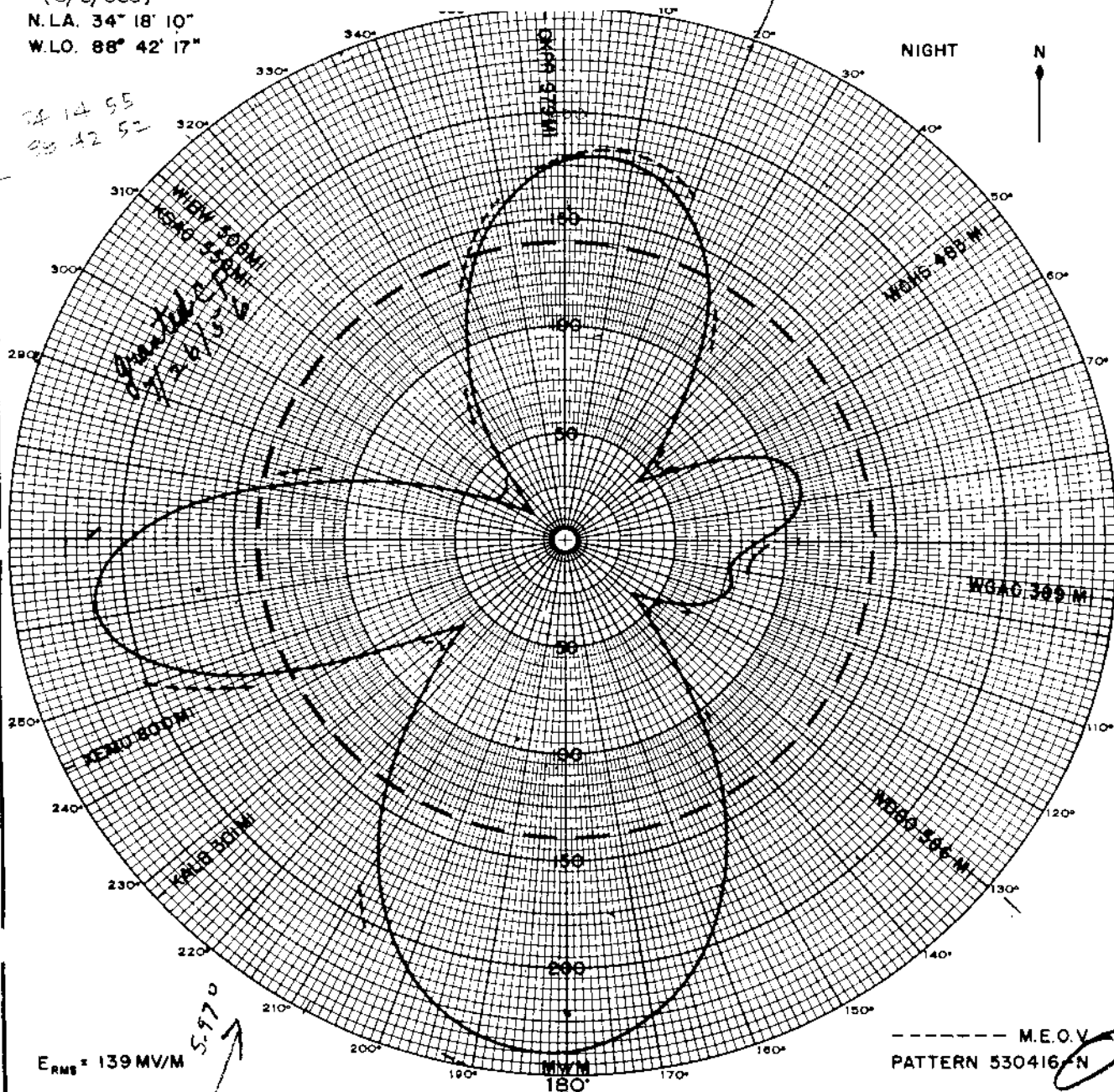
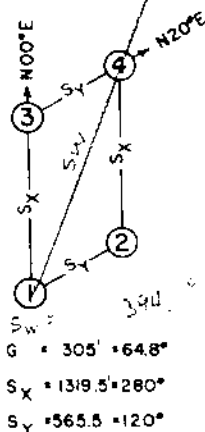
(8/3/53G)

N.L.A. 34° 18' 10"

W.L.O. 88° 42' 17"

NIGHT

N

 $E_{RMS} = 139 \text{ MV/M}$ ----- M.E.O.V.
PATTERN 530416-NTOWER FIELD PHASE

1	0.60	-152°
2	1.00	0°
3	0.39	-152°
4	0.65	0°

RADIO STATION WELO

TUPELO, MISSISSIPPI

580KC 0.5KW 1.0KW-LS DA-2

A. EARL CULLUM, JR.

CONSULTING RADIO ENGINEERS

530416.1

FIGURE 8A

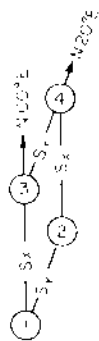
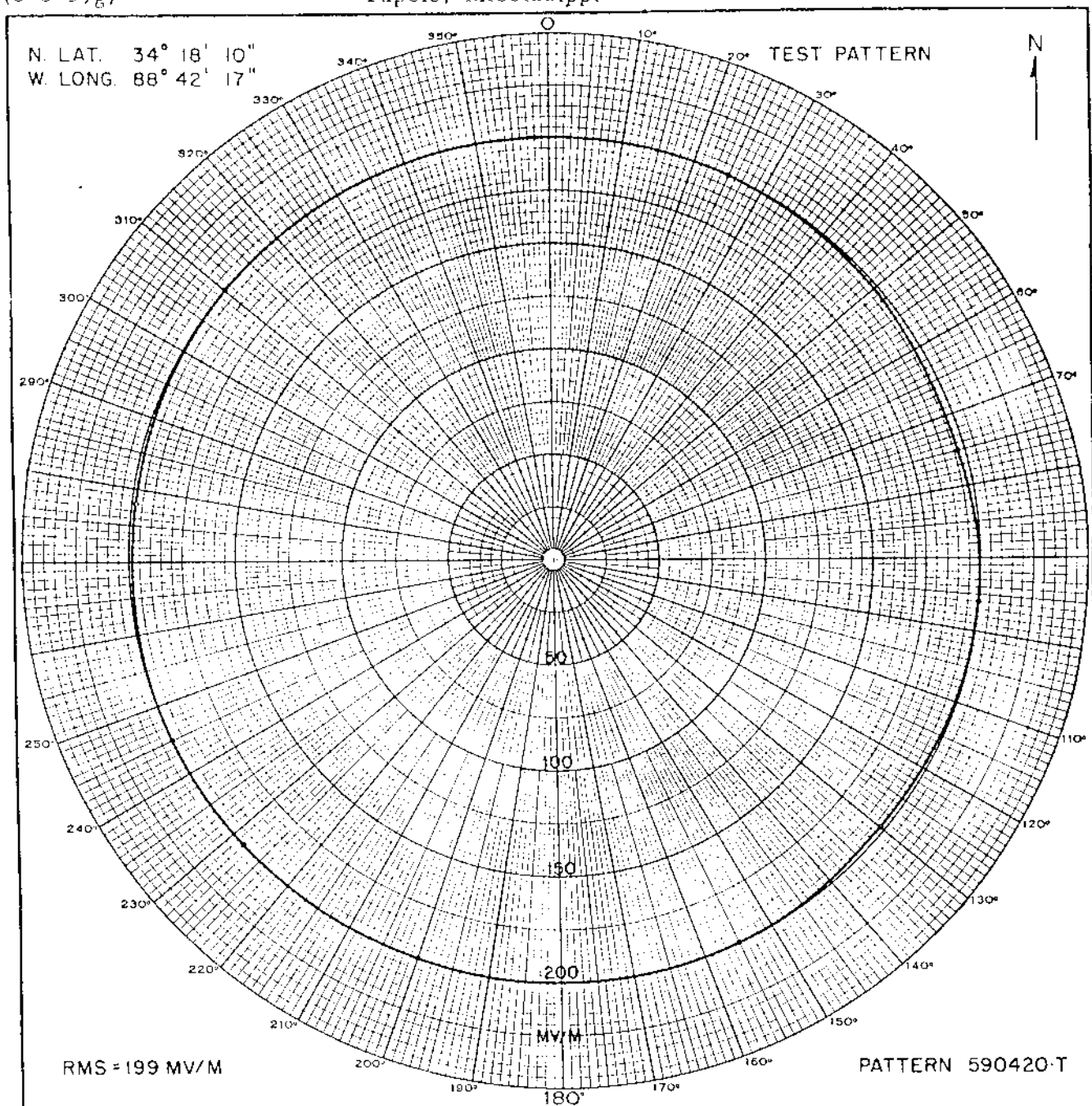
granted L for installation of DA-11-18-59

WEL O

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

Station WEL O
Tupelo, Mississippi

500w, 1kw-LS, DA-2, U
580 KC

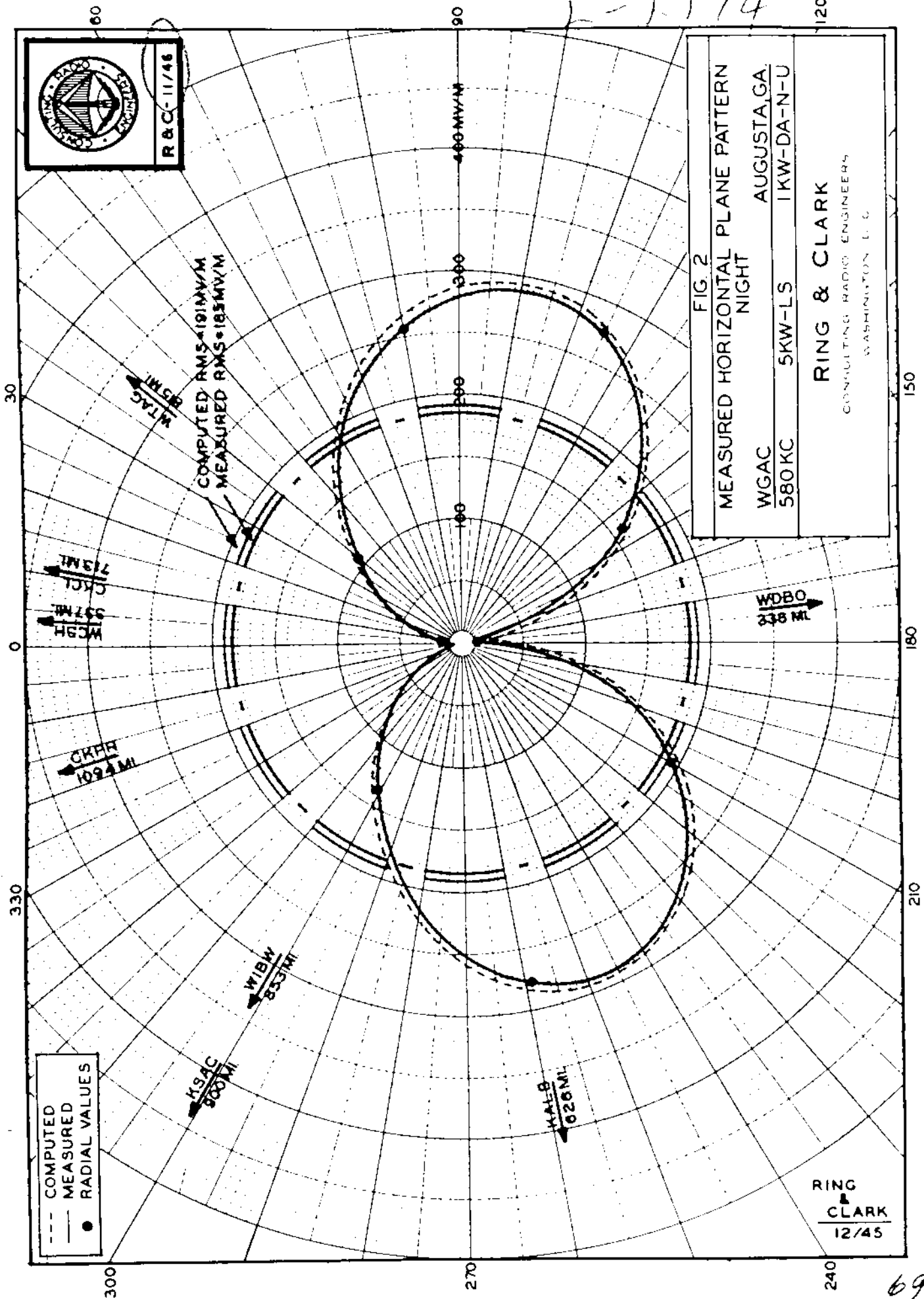
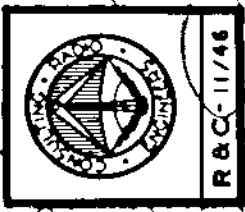


PATTERN
BASED ON
MEASUREMENTS

RADIO STATION WEL O
580 KC 0.5 KW 1.0 KW-LS DA-2
590420

FIGURE 4A

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



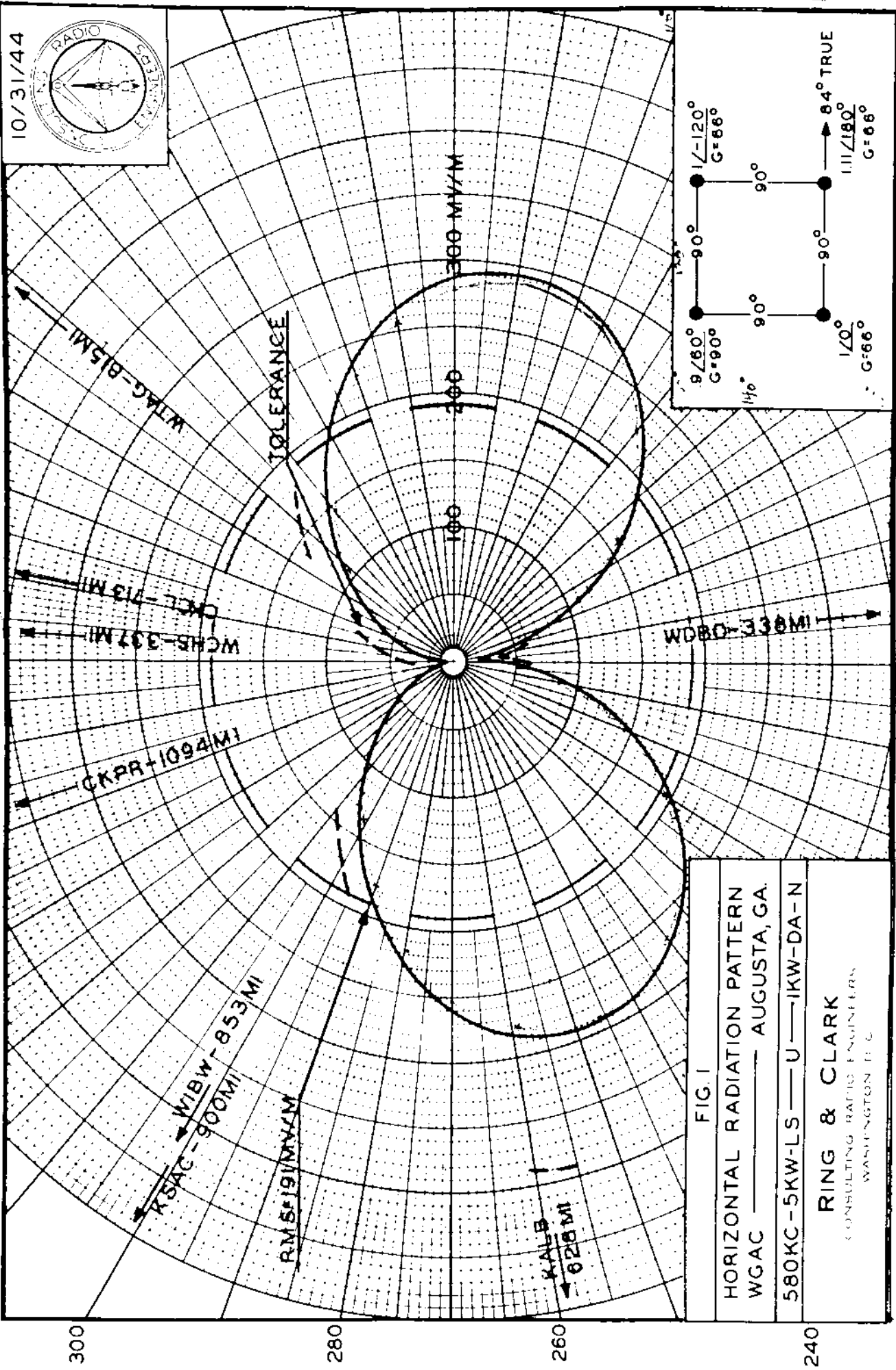
COMPUTED RMS=191MV/M
 MEASURED RMS=183MV/M

FIG. 2

MEASURED HORIZONTAL PLANE PATTERN	
WGAC	AUGUSTA, GA.
580 KC	5 KW-LS 1 KW-DA-N-U
RING & CLARK	
CONSULTING RADIO ENGINEERS	
WASHINGTON, D. C.	

RING & CLARK
 12/45

63L 2174
 1-174
 W-GAC



10/31/44

NO. 1 RADIO

100

100

100

FIG. 1

HORIZONTAL RADIATION PATTERN

WGAC — AUGUSTA, GA.

580KC-5KW-LS — U — IKW-DA-N

RING & CLARK

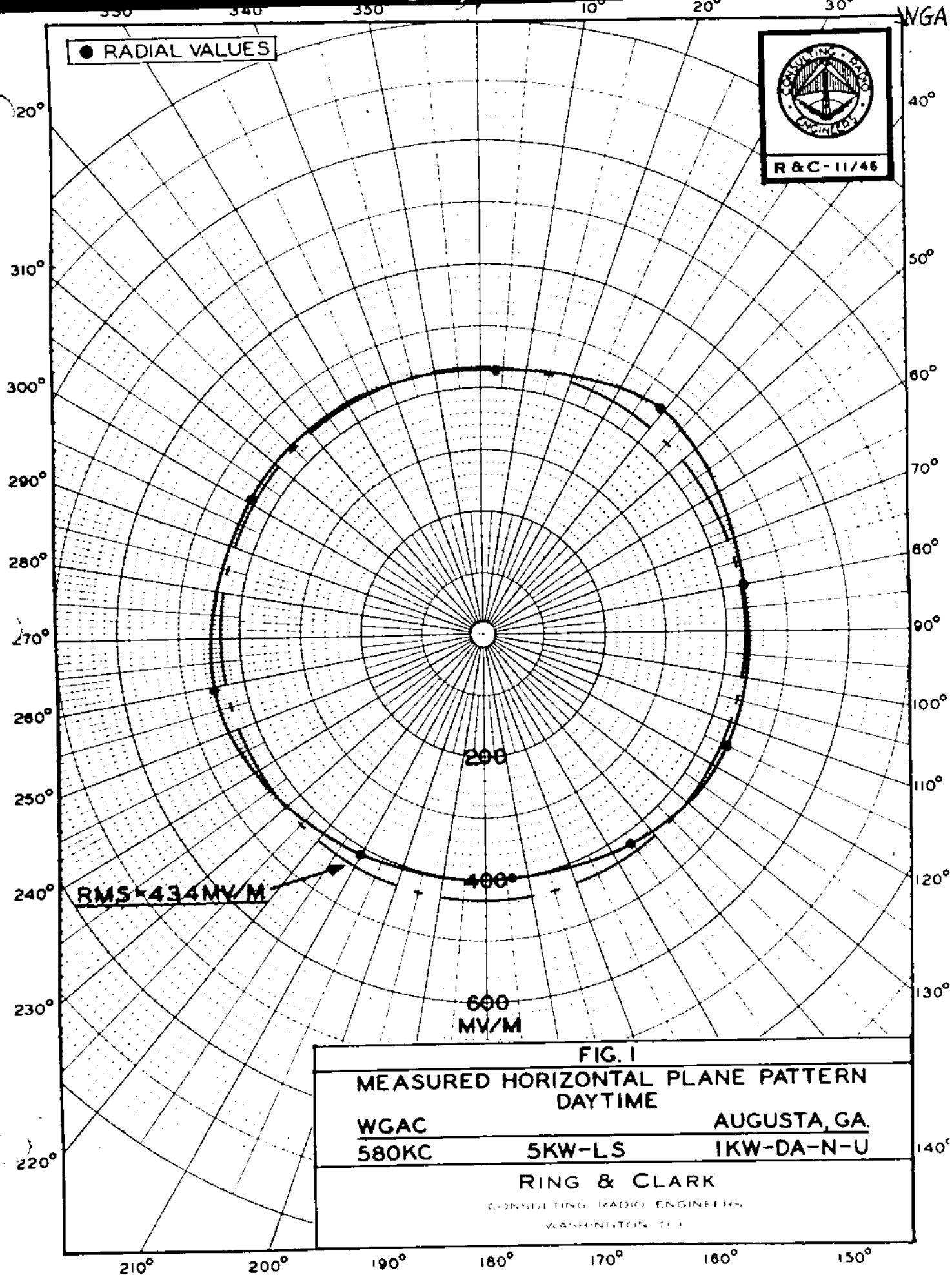
CONSULTING RADIO ENGINEERS

WASHINGTON, D. C.

33-30-41

220 82-04-44

7386-1



DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WHP Main Studio: Harrisburg, Pennsylvania
 Frequency: 580 KHz Power: 5 Kw Night 5 kW Day
 Notification: 1777 Date: July 26, 1978 Class: III

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 40° $18'$ $11''$
 West Longitude: 76° $57'$ $07''$

PREDICTED EFFECTIVE DAY FIELD: (omnidirectional $420 \frac{mv}{m}$ at rated power

ANTENNA CHARACTERISTICS

Authorized for Nighttime operation. (DA-N)

Number of elements: 6

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

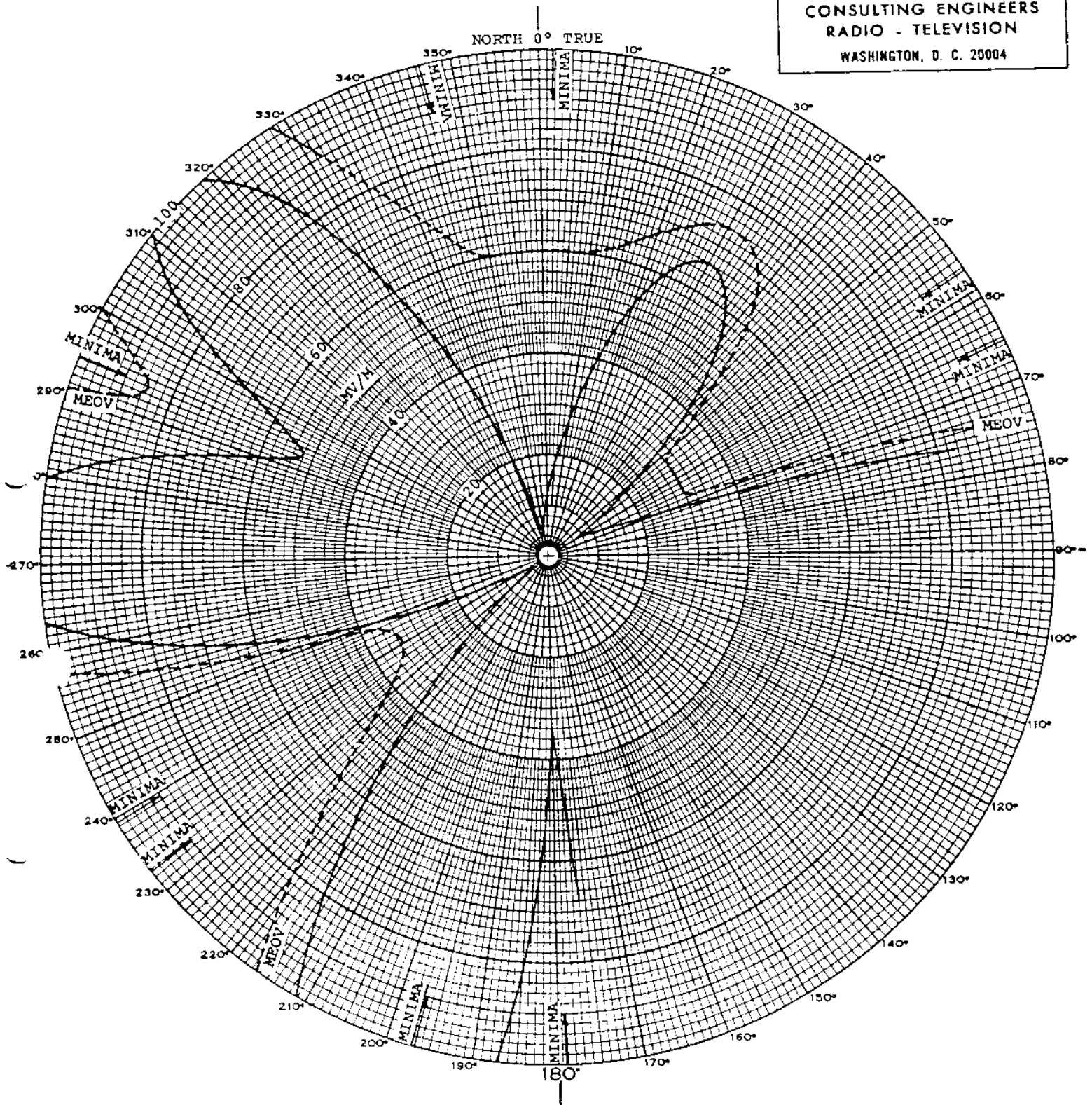
TOWER	:	<u>S (#1)</u>	<u>5C (#2)</u>	<u>SW (#3)</u>	<u>NE (#4)</u>	<u>NC (#5)</u>	<u>NW (#6)</u>
HEIGHT ABOVE INSULATORS	:	<u>400'</u>	<u>400'</u>	<u>400'</u>	<u>400'</u>	<u>400'</u>	<u>400' (84.9°)</u>
PHASING	:	<u>0°</u>	<u>+144.7</u>	<u>+289°</u>	<u>+13°</u>	<u>+157.7°</u>	<u>+302°</u>
FIELD RATIO	:	<u>1.0</u>	<u>1.517</u>	<u>0.827</u>	<u>0.939</u>	<u>1.424</u>	<u>0.777</u>
SPACING AND ORIENTATION	:	Towers are located in two parallel rows with three towers per row. Adjacent towers in a row are spaced 390.9' (83°) on a line bearing 328° true. End towers forming a side of the parallelogram are spaced 1017.5' (216°) on a line bearing 26° true.					
GROUND SYSTEM	:	120 - 425 equally spaced copper radials plus a 48° square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersection between towers.					

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	<u>RMS</u>	THEORETICAL <u>RSS</u>	STANDARD <u>RMS</u>
Night	400mv/m		

Note: This notification concerns a change in the directional nighttime and omnidirectional daytime antenna system.

COMPUTED HORIZONTAL
PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WHP, HARRISBURG, PENNSYLVANIA
580 kHz - 5 KW - DA-N
JULY 1977



DETAIL SHOWING
PROPOSED MEOV THROUGHOUT
THE NULL AREA FOR
WHP, HARRISBURG, PENNSYLVANIA
580 kHz - 5 KW - DA-N
JULY 1977

0000

LOWEN AND BIRRELL, P.E.
CONSULTING ENGINEERS
RADIO TELEVISION

M/AI

$$y=0$$

WD801-1-WCHS

YWINIW

MINIMA

TWINIS

WYNTAT

WINI

YWIN

— WWTN

WINTER

NY/N



0806

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3.

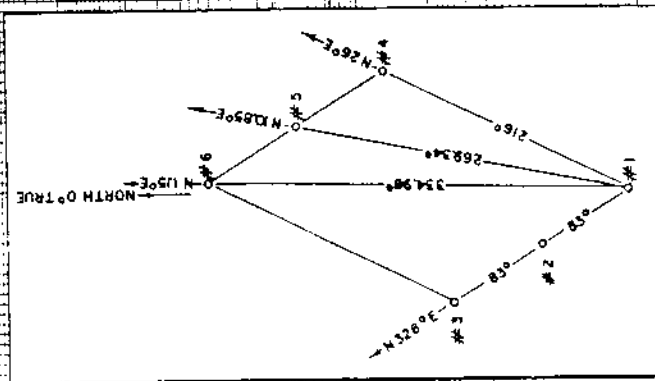
9.

5.

COMPUTED HORIZONTAL
PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WHP, HARRISBURG, PENNSYLVANIA
580 KHZ - 5 KW - DA-N
JULY 1977

TOWER	FIELD RATIO	PHASE
1	1.0	0
2	1.517	144.7
3	0.827	289
4	0.939	13
5	1.424	157.7
6	0.777	302

H=85°= 400'



RMS = 400 MV/M

NORTH LATITUDE 40°18'11"
WEST LONGITUDE 76°57'07"

Latitude	Longitude	Altitude	Temperature	Humidity	Wind	Clouds	Pressure	Time
10° 20'	110° 12'	130'	140°	150°	160°	170°	180°	190°
20°	210°	220°	230°	240°	250°	260°	270°	280°
30°	290°	300°	310°	320°	330°	340°	350°	360°

2000

COHEN and BUELL, P.E.
CONSULTING ENGINEERS
RADIO - TELEVISION
HARRISBURG, P. E. DIST.

V=5°

MV/M

1000

900

800

700

600

500

400

300

200

100

90

80

70

60

50

40

30

20

10

9

8

7

6

5

4

3

2

1

.9

.8

.7

.6

.5

MV/M

1000

900

800

700

600

500

400

300

200

100

90

80

70

60

50

40

30

20

10

9

8

7

6

5

4

3

2

1

.9

.8

.7

.6

.5

MV/M

1000

900

800

700

600

500

400

300

200

100

90

80

70

60

50

40

30

20

10

9

8

7

6

5

4

3

2

1

.9

.8

.7

.6

.5

MV/M

1000

900

800

700

600

500

400

300

200

100

90

80

70

60

50

40

30

20

10

9

8

7

6

5

4

3

2

1

.9

.8

.7

.6

.5

MV/M

1000

900

800

700

600

500

400

300

200

100

90

80

70

60

50

40

30

20

10

9

8

7

6

5

4

3

2

1

.9

.8

.7

.6

.5

MV/M

1000

900

800

700

600

500

400

300

200

100

90

80

70

60

50

40

30

20

10

9

8

7

6

5

4

3

2

1

.9

.8

.7

.6

.5

MV/M

1000

900

800

700

600

500

400

300

200

100

90

80

70

60

50

40

30

20

10

9

8

7

6

5

4

3

2

1

.9

.8

.7

.6

.5

MV/M

1000

900

800

700

600

500

400

300

200

100

90

80

70

60

50

40

30

20

10

9

8

7

6

5

4

3

2

1

.9

.8

.7

.6

.5

MV/M

1000

900

800

700

600

500

400

300

200

100

90

80

70

60

50

40

30

20

10

9

8

7

6

5

4

3

2

1

.9

.8

.7

.6

.5

MV/M

1000

900

800

700

600

500

400

300

200

100

90

80

70

60

50

40

30

20

10

9

8

7

6

5

2000

MV/M

1000

900

800

700

600

500

400

300

200

100

90

80

70

60

50

40

30

20

10

9

8

7

6

5

4

3

2

1

.9

.8

.7

.6

.5

CONLEY AND SIPPELL, P.A.
CONSULTING ENGINEERS
RADIO ENGINEERS
BOSTON, MASS. 02114

V=10°

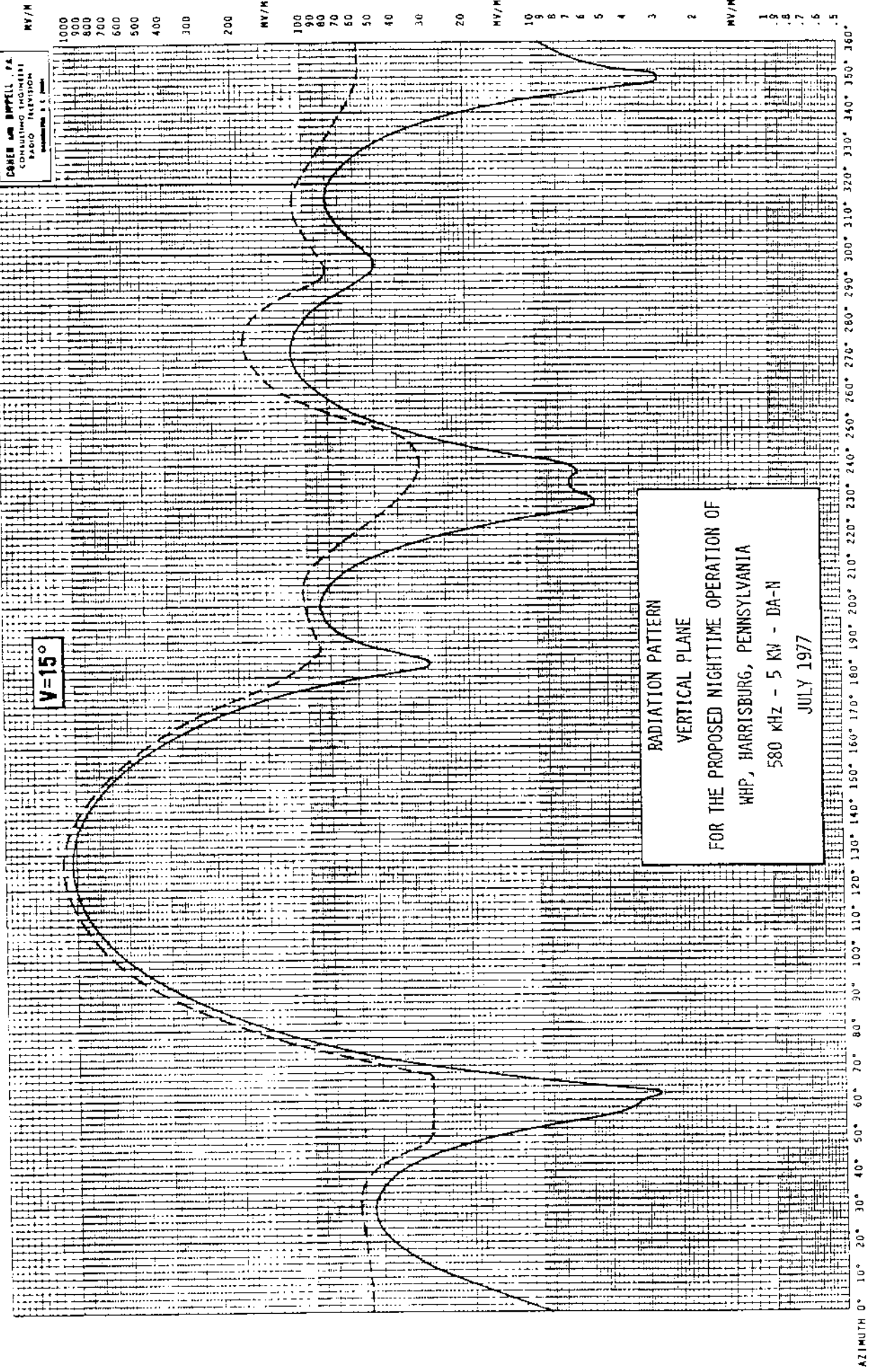
RADIATION PATTERN
VERTICAL PLANE
FOR THE PROPOSED NIGHTTIME OPERATION OF
WHP, HARRISBURG, PENNSYLVANIA
580 kHz - 5 kW - DA-N
JULY 1977

WHP

AZIMUTH

WHP

2000

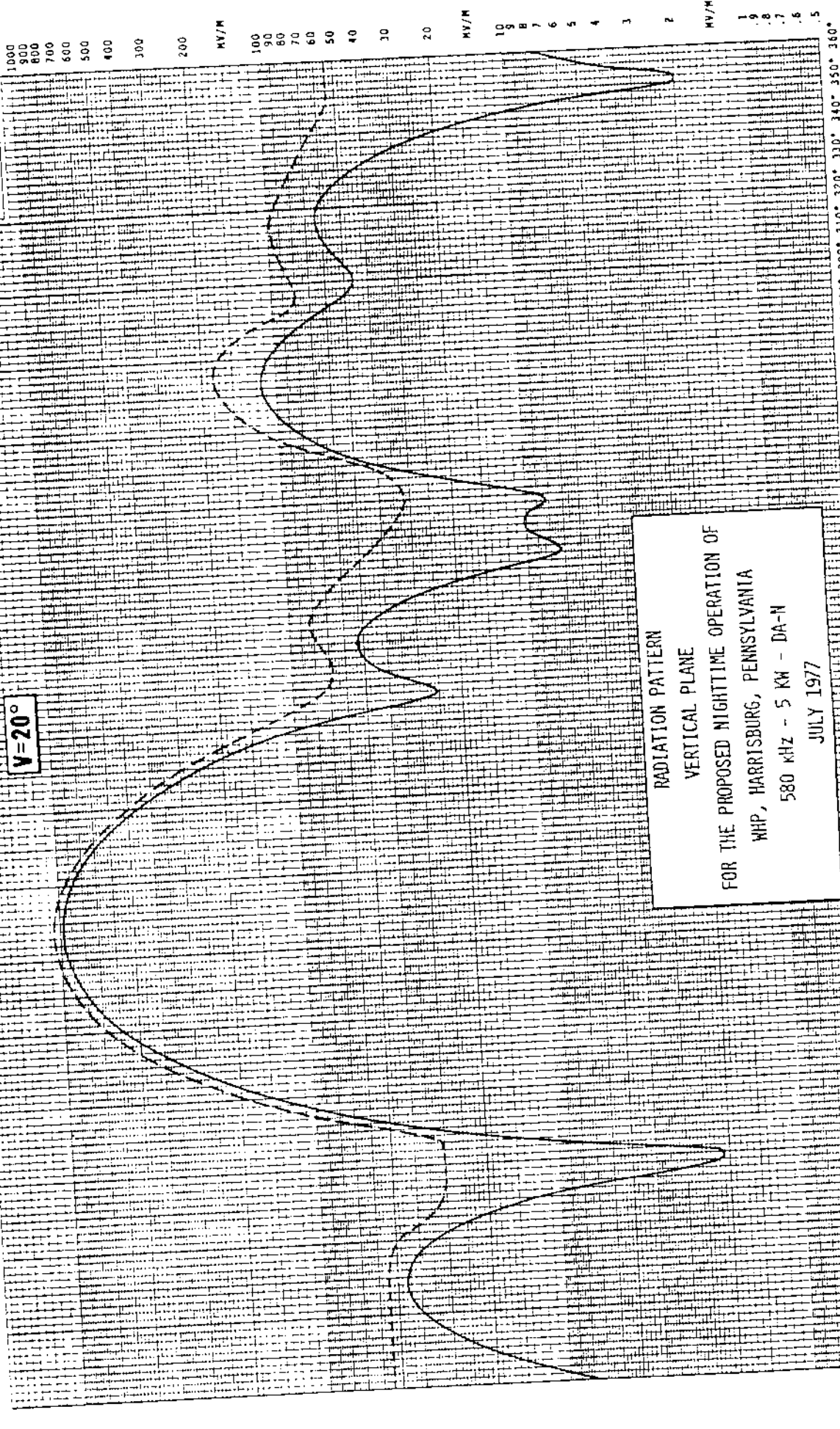


WHP

2000

CORBIN AND SUPPELL, P.E.
CONSULTING ENGINEERS
RADIO TELEVISION
HARRISBURG, PA.

V=20°



RADIATION PATTERN
VERTICAL PLANE
FOR THE PROPOSED NIGHTTIME OPERATION OF
WHP, HARRISBURG, PENNSYLVANIA
580 kHz - 5 KW - DA-N
JULY 1977

AZIMUTH 0° 10° 20° 30° 40° 50° 60° 70° 80° 90° 100° 110° 120° 130° 140° 150° 160° 170° 180° 190° 200° 210° 220° 230° 240° 250° 260° 270° 280° 290° 300° 310° 320° 330° 340° 350° 360°

2000

CHEN and BIPPELL, P.E.
CONSULTING ENGINEERS
RADIO - TELEVISION
Engineering, P.C. Inc.

V=25°

1000
900
800
700
600
500
400
300
200

MV/M

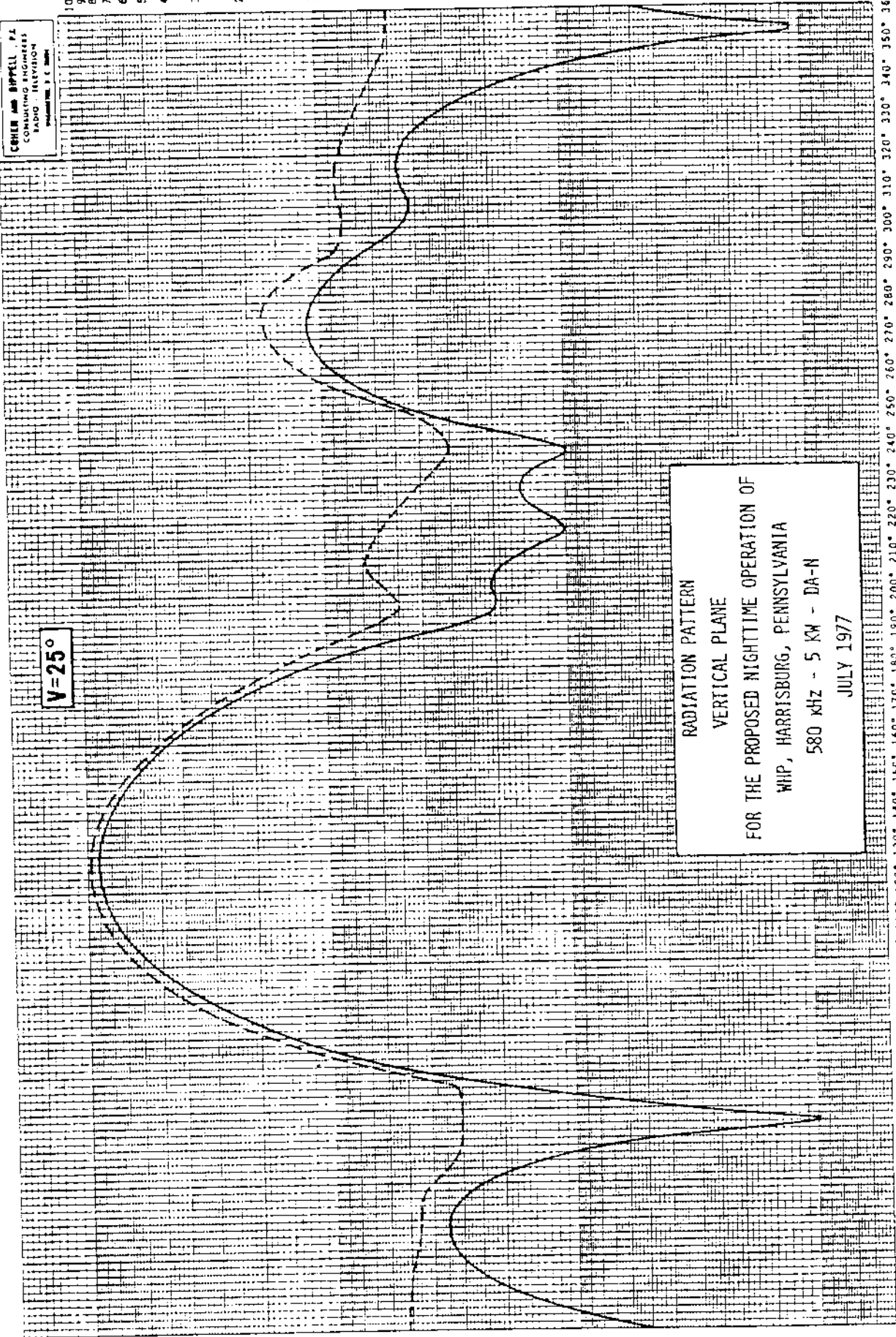
100
90
80
70
60
50
40
30
20

MV/M

10
9
8
7
6
5
4
3
2
1
0.9
0.8
0.7
0.6
0.5

MV/M

1
0.9
0.8
0.7
0.6
0.5



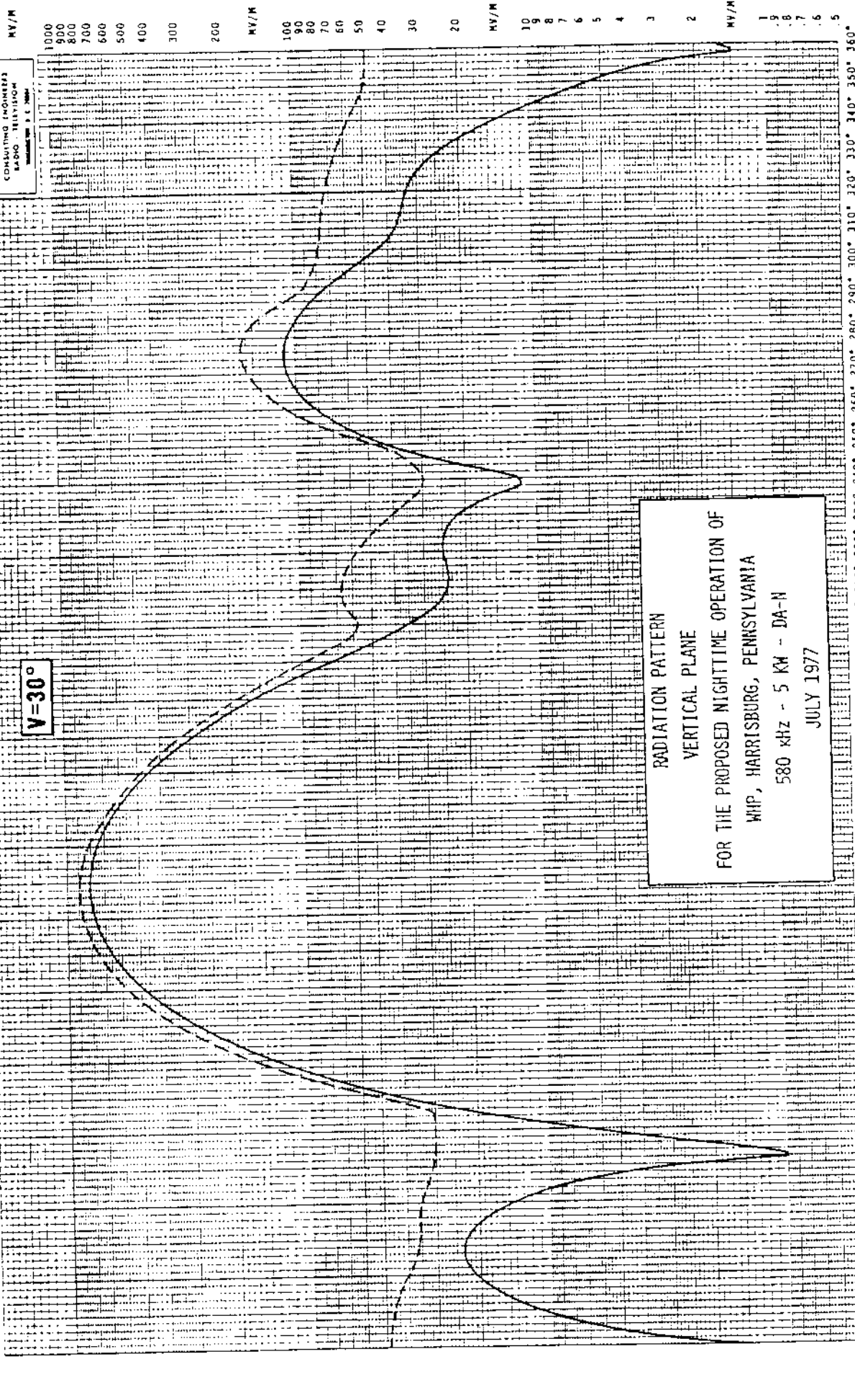
RADIATION PATTERN
VERTICAL PLANE
FOR THE PROPOSED NIGHTTIME OPERATION OF
WHIP, HARRISBURG, PENNSYLVANIA
580 kHz - 5 KM - DA-N
JULY 1977

WHP

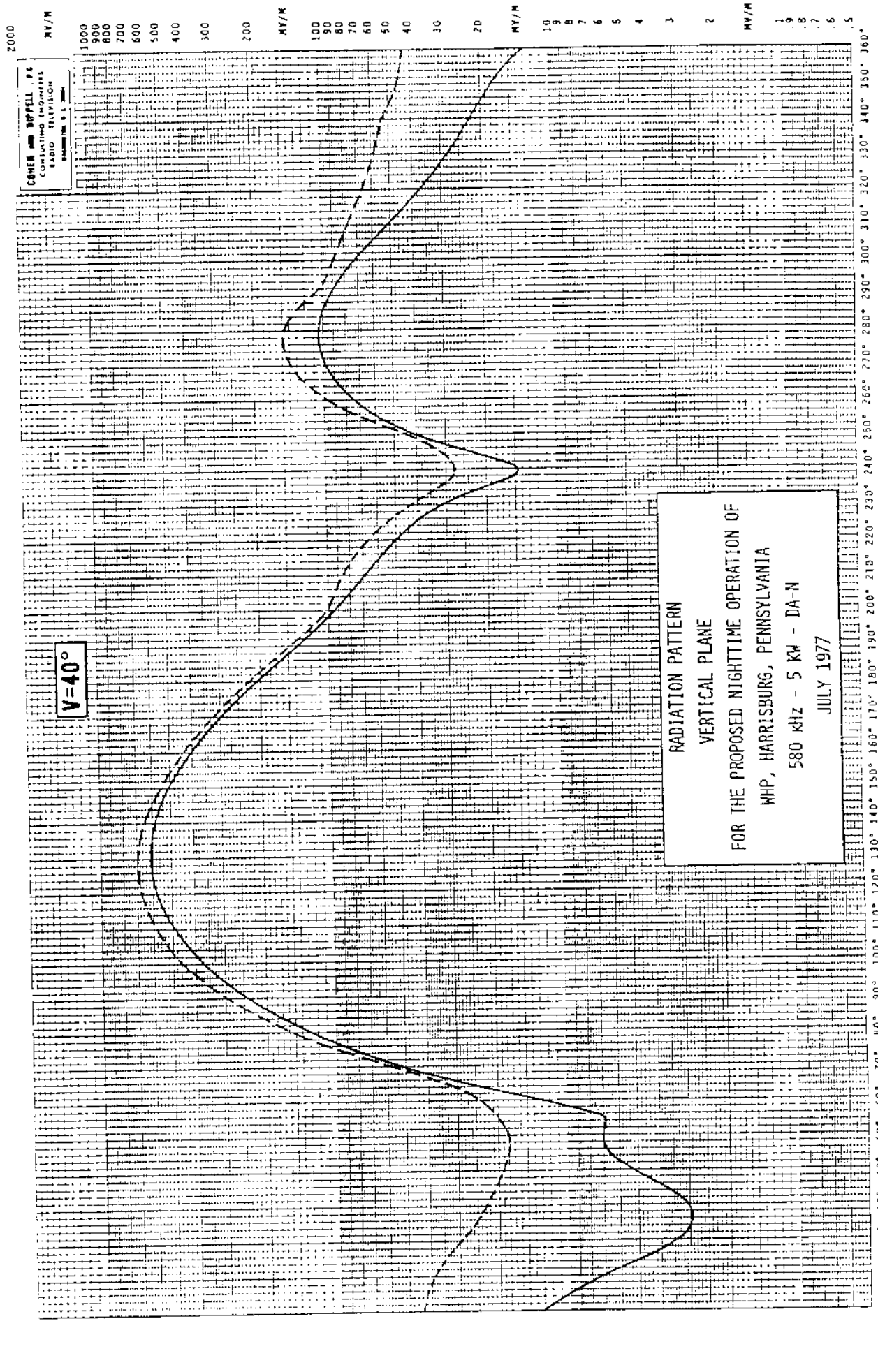
AZIMUTH 0° 10° 20° 30° 40° 50° 60° 70° 80° 90° 100° 110° 120° 130° 140° 150° 160° 170° 180° 190° 200° 210° 220° 230° 240° 250° 260° 270° 280° 290° 300° 310° 320° 330° 340° 350° 360°

2000

CORNER AND BIPPELL, P.C.
CONSULTING ENGINEERS
RADIO TELEVISION
WASHINGTON, D.C. 20004



WHP



2000
MV/M
1000
900
800
700
600
500
400
300
200
100
50
40
30
20
10
5
4
3
2
1
0.8
0.7
0.6
0.5
MV/M

V=40°

RADIATION PATTERN
VERTICAL PLANE
FOR THE PROPOSED NIGHTTIME OPERATION OF
WHP, HARRISBURG, PENNSYLVANIA
580 kHz - 5 kW - DA-N
JULY 1977

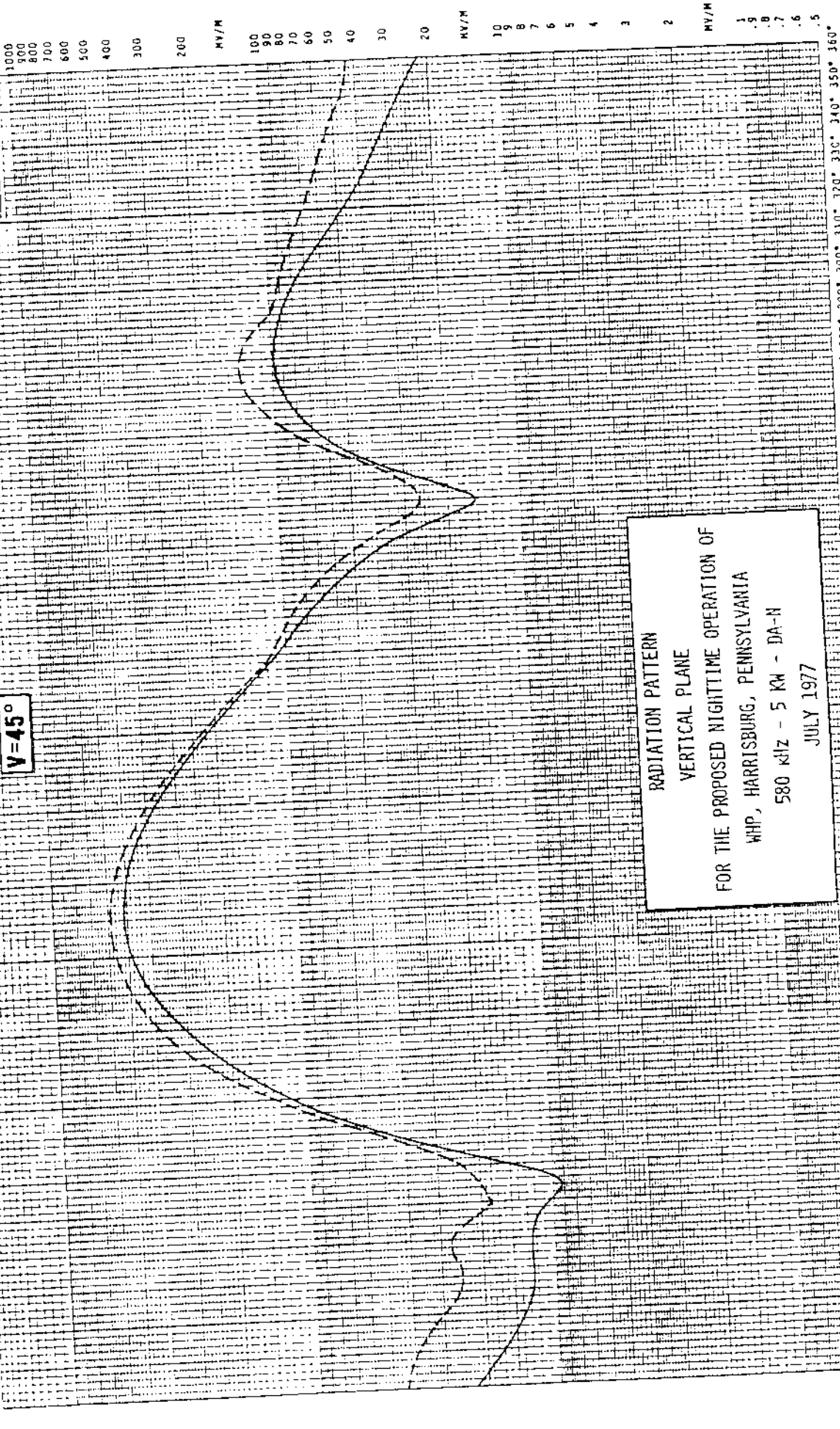
WHP

W4P

2000

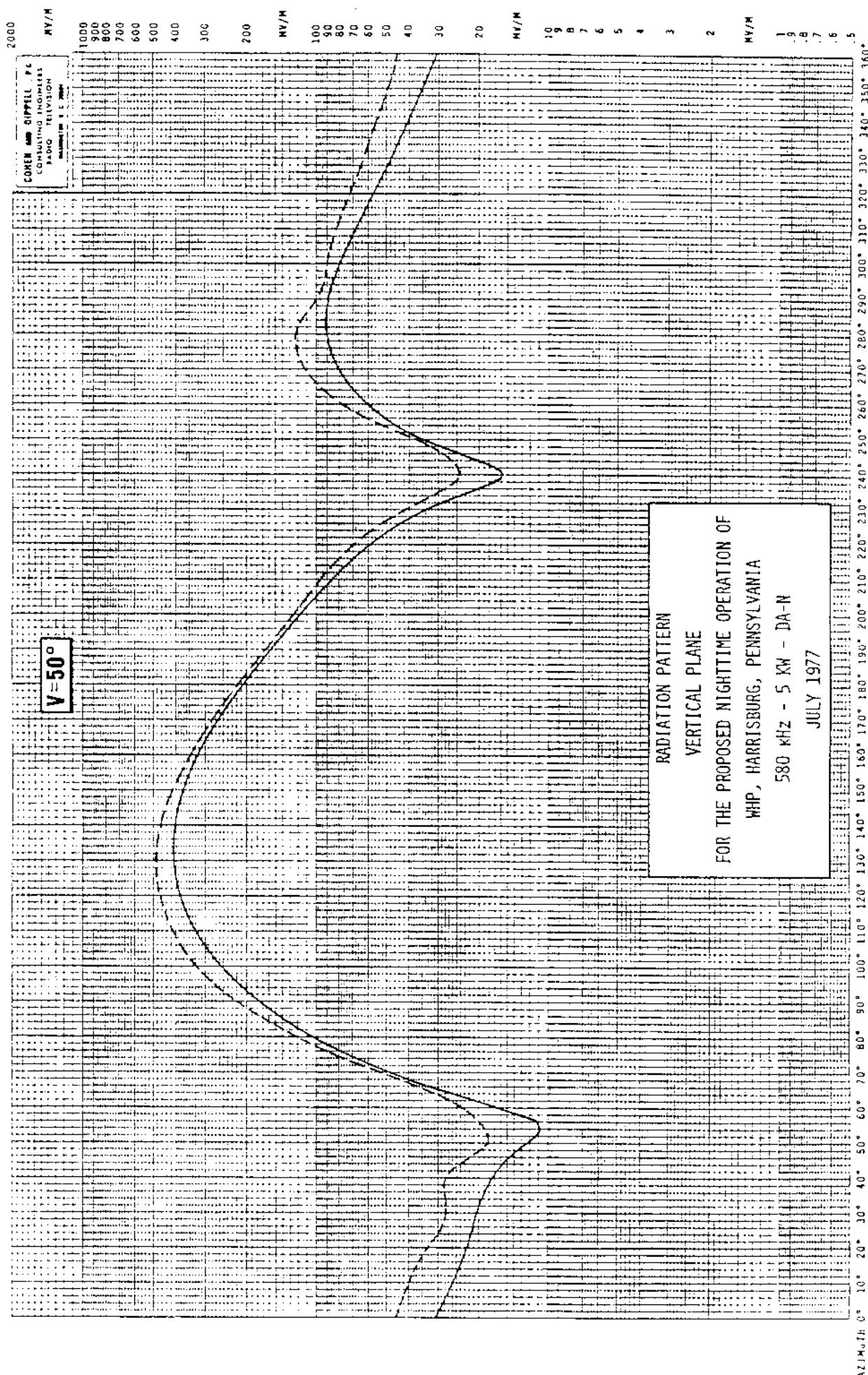
CORNER AND BOPELL, P.S.
CONSULTING ENGINEERS
RADIO TELEVISION
WASHINGTON, D.C.

V=45°



RADIATION PATTERN
VERTICAL PLANE
FOR THE PROPOSED NIGHTTIME OPERATION OF
WHP, HARRISBURG, PENNSYLVANIA
580 kHz - 5 kW - DA-N
JULY 1977

AZIMUTH 0° 10° 20° 30° 40° 50° 60° 70° 80° 90° 100° 110° 120° 130° 140° 150° 160° 170° 180° 190° 200° 210° 220° 230° 240° 250° 260° 270° 280° 290° 300° 310° 320° 330° 340° 350° 360°



WHP

2000

CARVER AND BIPPELL, P.C.
CONSULTING ENGINEERS
RADIO - TELEVISION
WASHINGTON, D. C. 20001

V=55°

1000
900
800
700
600
500
400
300
200

MY/M

100
90
80
70
60
50
40
30
20

MY/M

10
9
8
7
6
5
4
3
2

MY/M

1
0.9
0.8
0.7
0.6
0.5

AZIMUTH 0° 10° 20° 30° 40° 50° 60° 70° 80° 90° 100° 110° 120° 130° 140° 150° 160° 170° 180° 190° 200° 210° 220° 230° 240° 250° 260° 270° 280° 290° 300° 310° 320° 330° 340° 350° 360°

RADIATION PATTERN
VERTICAL PLANE
FOR THE PROPOSED NIGHTTIME OPERATION OF
WHIP, HARRISBURG, PENNSYLVANIA
580 kHz - 5 kW - DA-N
JULY 1977

WHIP

2000

CHEN AND BIRRELL, P.E.
CONSULTING ENGINEERS
RADIO TELEVISION
WASHINGTON, D.C. 20001

V=60°

MV/M

1000

900

800

700

600

500

400

300

200

100

90

80

70

60

50

40

30

20

10

9

8

7

6

5

4

3

2

1

0.9

0.8

0.7

0.6

0.5

0.4

0.3

0.2

0.1

0.05

0.02

0.01

0.005

0.002

0.001

0.0005

0.0002

0.0001

0.00005

0.00002

0.00001

0.000005

0.000002

0.000001

0.0000005

0.0000002

0.0000001

0.00000005

0.00000002

0.00000001

MV/M

MV/M

MV/M

RADIATION PATTERN
VERTICAL PLANE

FOR THE PROPOSED NIGHTTIME OPERATION OF
WHP, HARRISBURG, PENNSYLVANIA

580 kHz - 5 kW - DA-N

JULY 1977

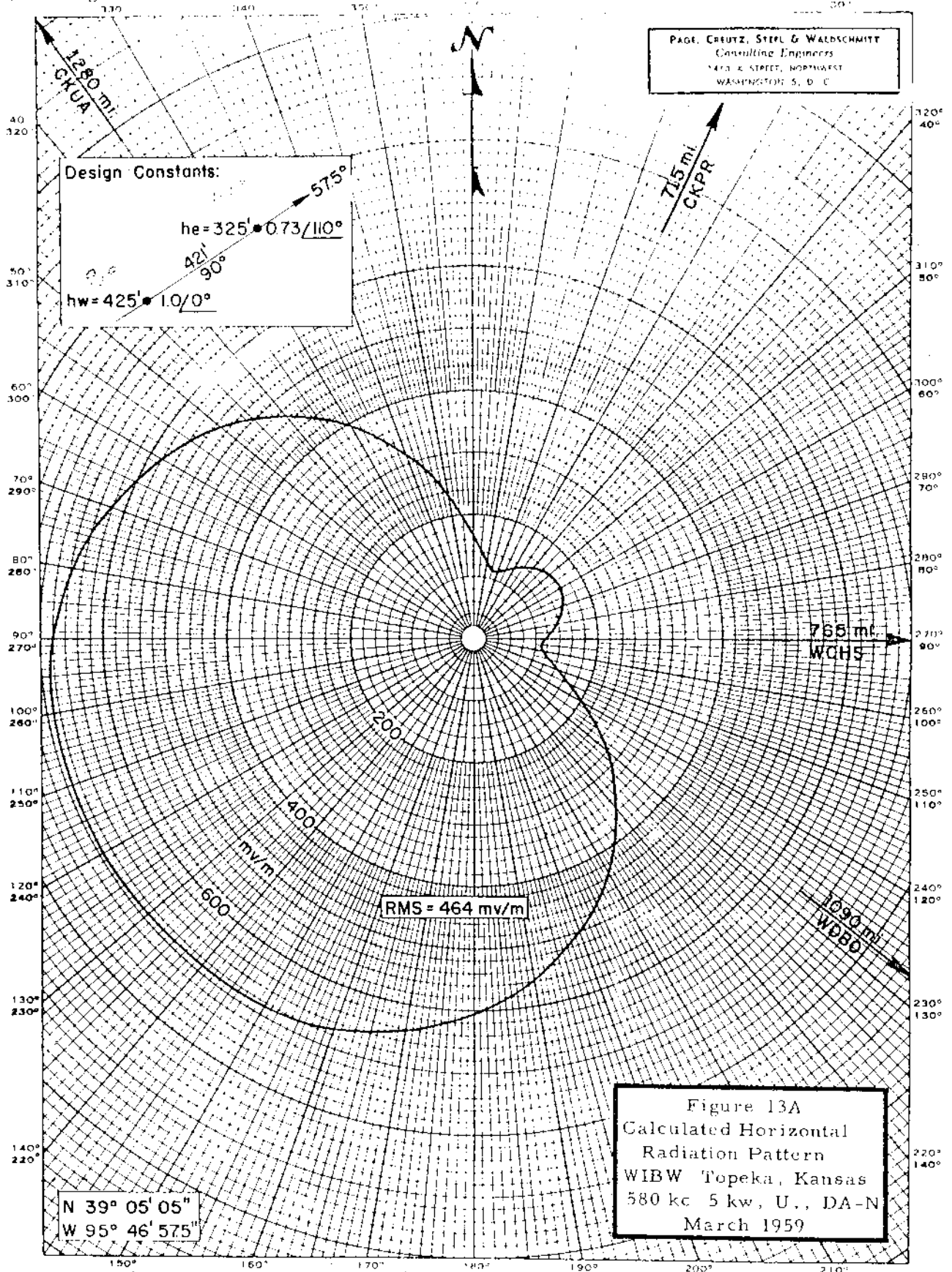
AZIMUTH 0° 10° 20° 30° 40° 50° 60° 70° 80° 90° 100° 110° 120° 130° 140° 150° 160° 170° 180° 190° 200° 210° 220° 230° 240° 250° 260° 270° 280° 290° 300° 310° 320° 330° 340° 350° 360°

WHP

PROPOSED NIGHT
(7-8-59g)

Station WIBW
Topeka, Kansas

5kw, DA-N, U
580 KC



FCC File No. BZ-4141
Accepted 6-24-59

WIBW
Topeka, Kansas

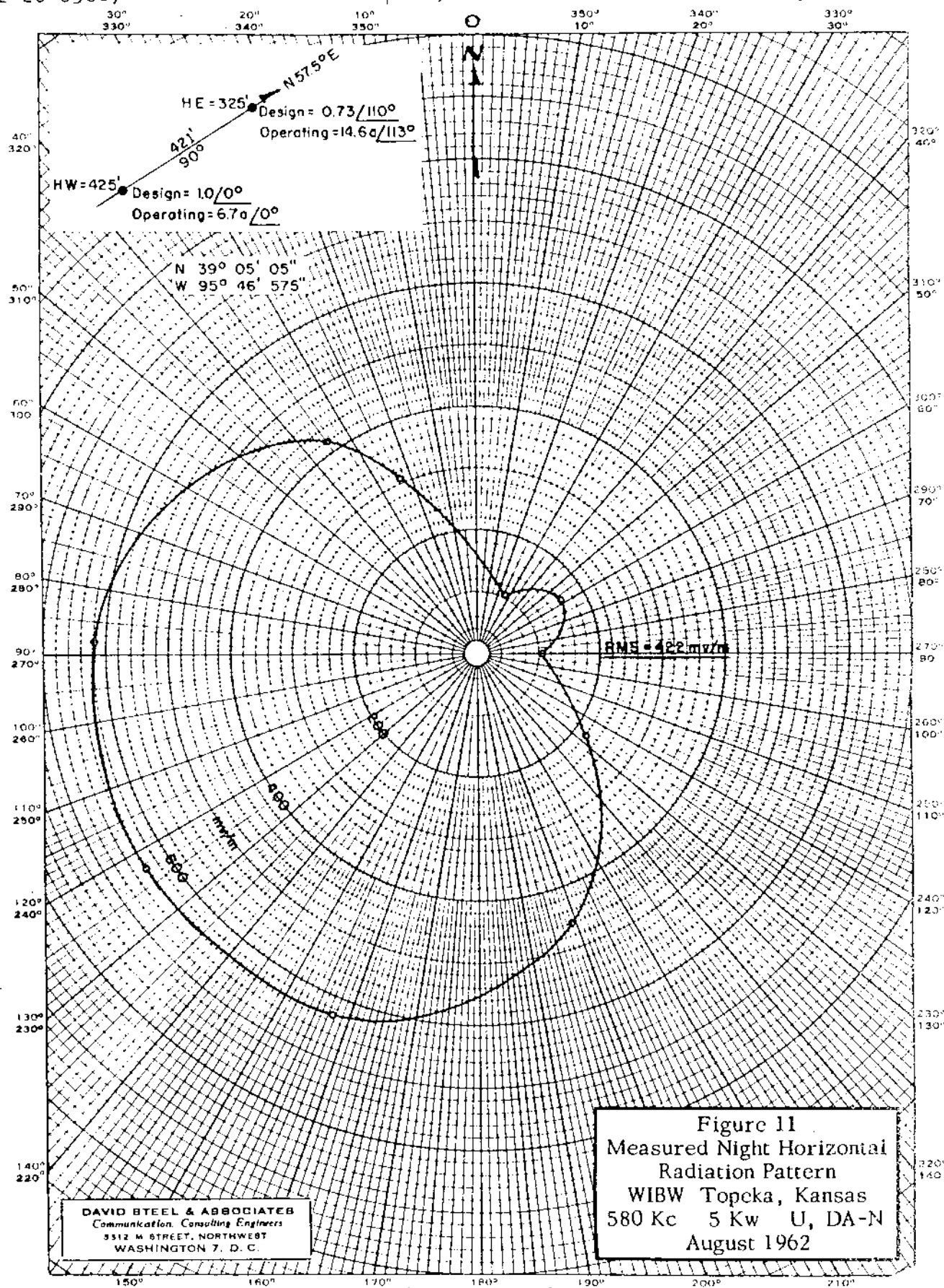
580 KC

WIBW

Measured Night
(2-26-63ct)

Station WIBW
Topeka, Kansas

5kw, DA-N, U
580 kc



FCC File No. BZ-4816
Accepted 2-5-63

Station WIBW
Topeka, Kansas

580 kc

WILL

Measured Day
(1-30-67ct)

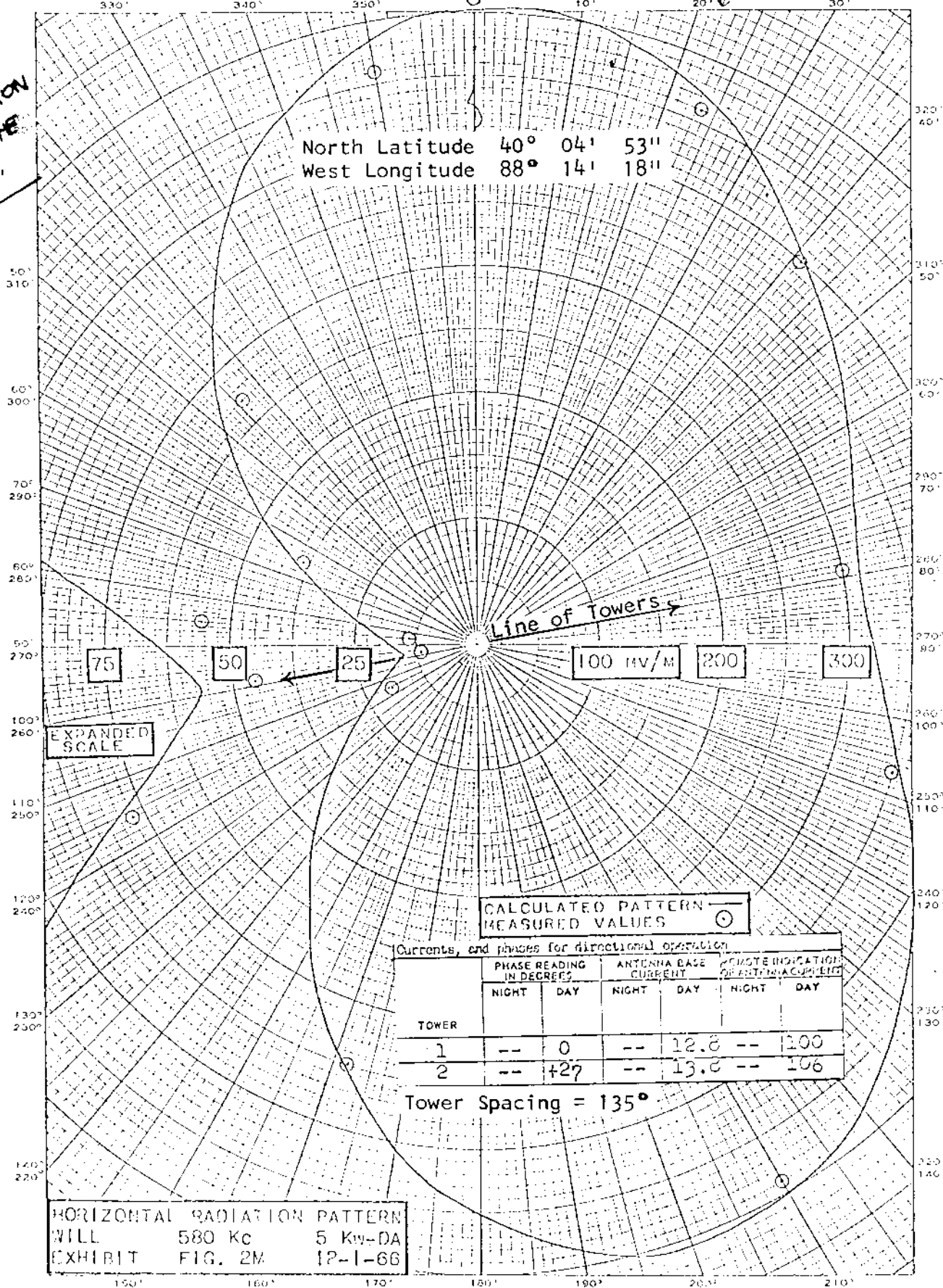
Station WILL
Urbana, Illinois

5kw, DA-D, D
580 kc

3-27-68
GRANTED
APPLICATION
FOR REMOTE
CONTROL.

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

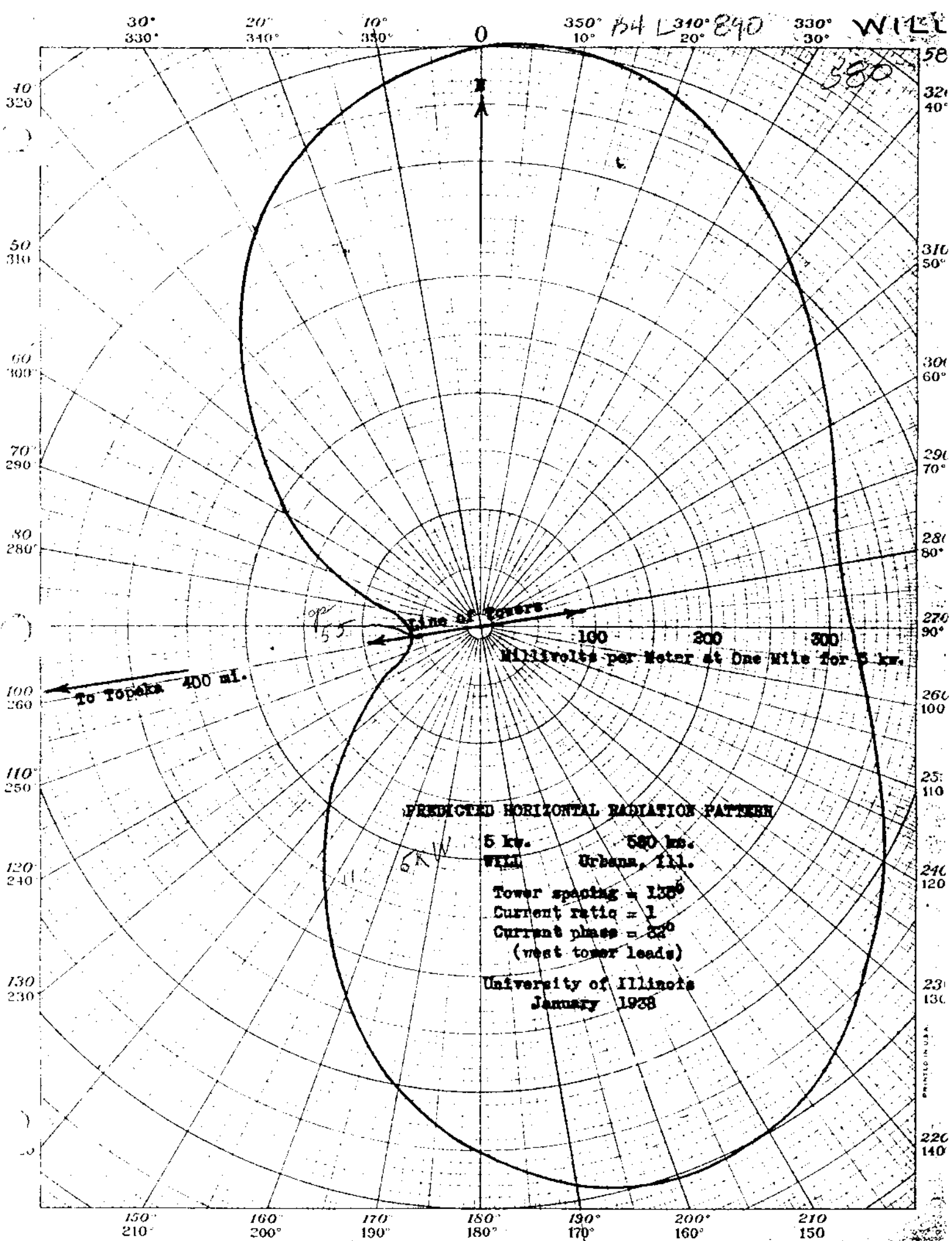
NO. 340-B DIETZGEN GRAPH PAPER
RELAX ED-CORD-NATE



FCC File No. BRC-3024
Accepted 1-4-67

Station WILL
Urbana, Illinois

580 kc



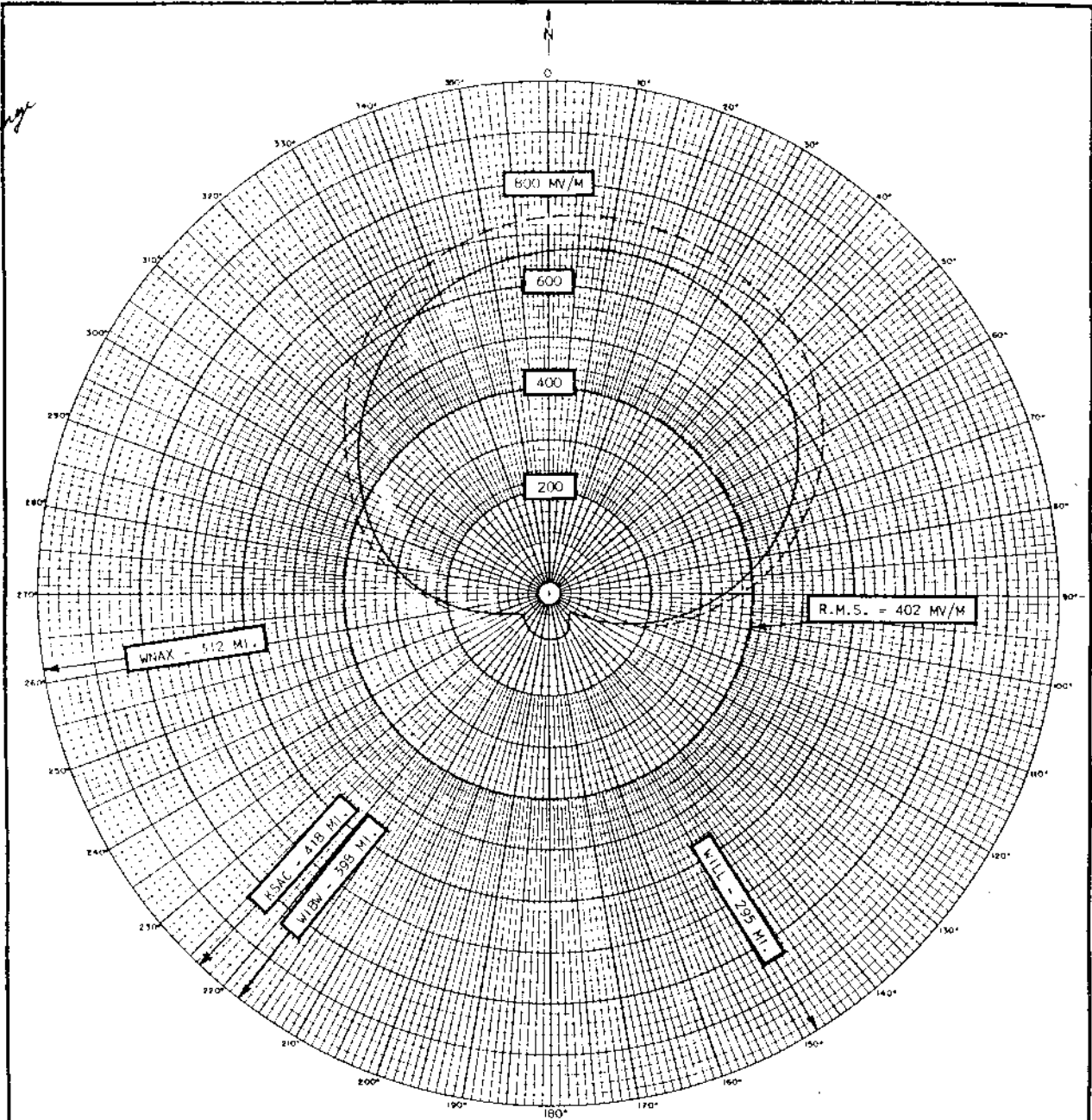
WKT Y

PROPOSED DAY
(4/16/57g)

Station WKTY
LaCrosse, Wisconsin

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

Granted CP
12/5/57 to change
from DA-1 to
DA-2
Granted CP
12/23/58 to
replace expired
CP.



SPACING AND ORIENTATION		WKTY - LACROSSE, WISCONSIN PROPOSED DAYTIME HORIZONTAL RADIATION PATTERN		FIGURE 1-A
				FREQUENCY 580 KC.
				ASSIGNMENT: 5 KW-LS, 1 KW-N (DA-2)
				LONGITUDE: 91 DEG 12 MIN 21 SEC.
				LATITUDE: 43 DEG 44 MIN 25 SEC.
				WHEN USED: DAYTIME
				R.M.S. FIELD 402 MV/M (CALCULATED)
				DATE: JANUARY 1957
				ROBERT M. SILLIMAN
				CONSULTING RADIO ENGINEERS
				WASHINGTON, D. C.

FCC File No. BP-11,161
Accepted 3/29/57

WKTY
LaCrosse, Wisconsin

580 KC

WKT 7

PROPOSED DAY NULLS
(4/16/57g)

Station WKTY
LaCrosse, Wisconsin

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

Granted C.P.
12/5/57 to
change from
DA-1 to DA-2

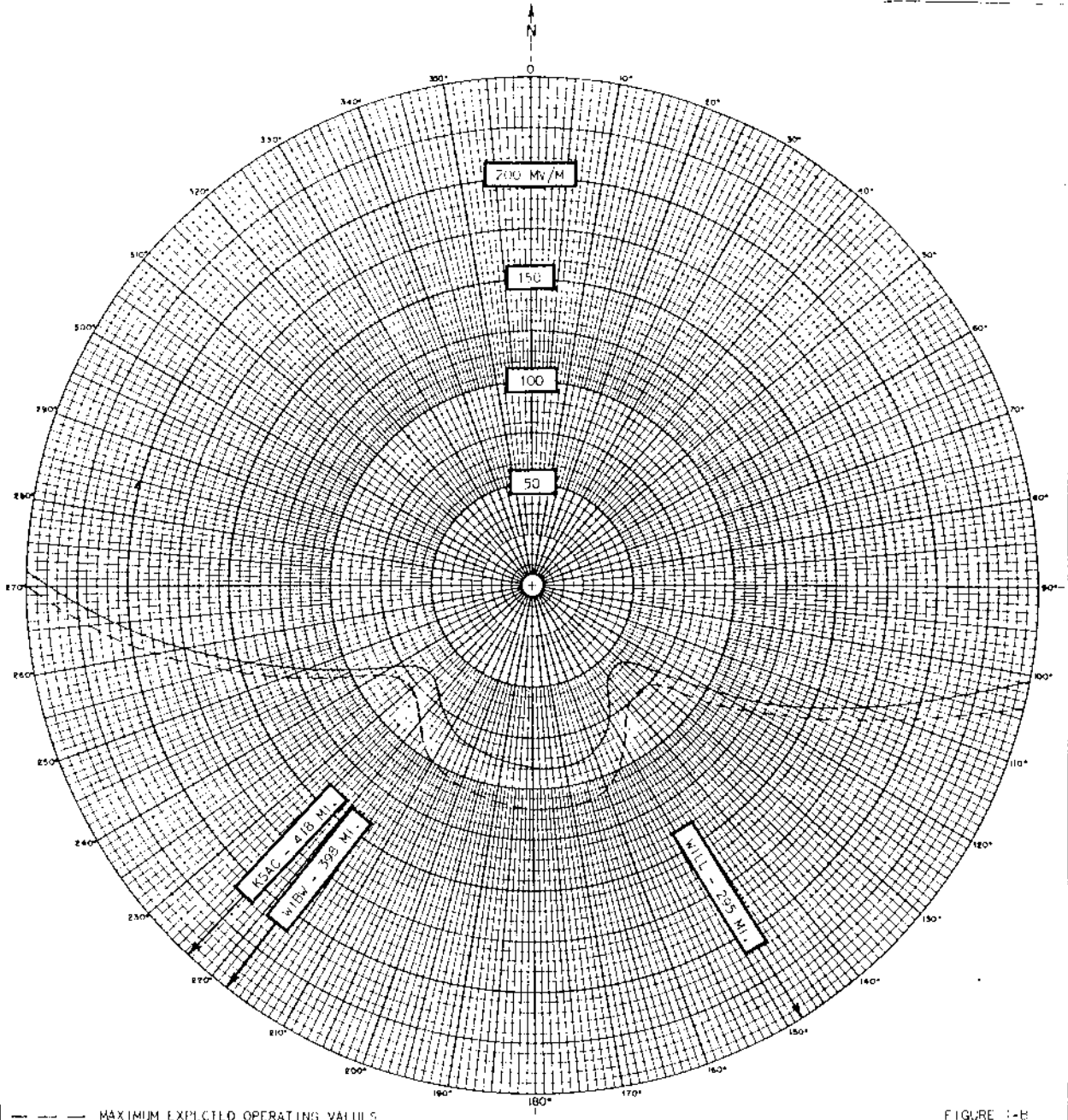


FIGURE 1-B

WKTY - LACROSSE, WISCONSIN
HORIZONTAL RADIATION PATTERN
(EXPANDED SCALE)

FREQUENCY: 580 KC.
ASSIGNMENT: 5 KW-LS, 1 KW-N (DA-2)
LONGITUDE: 91 DEG. 12 MIN. 21 SEC.
LATITUDE: 43 DEG. 44 MIN. 25 SEC.
WHEN USED: DAYTIME
R.M.S. FIELD: 402 MV/M (CALCULATED)
DATE: JANUARY 1957

ANTENNA	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
PHASE DEG.						
HEIGHT DEG.						
FIELD RATIO						
NON-DA ANT.						

SEE FIGURE 1-A

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

FCC File No. BP-11,161
Accepted 3/29/57

WKTY
LaCrosse, Wisconsin

580 KC

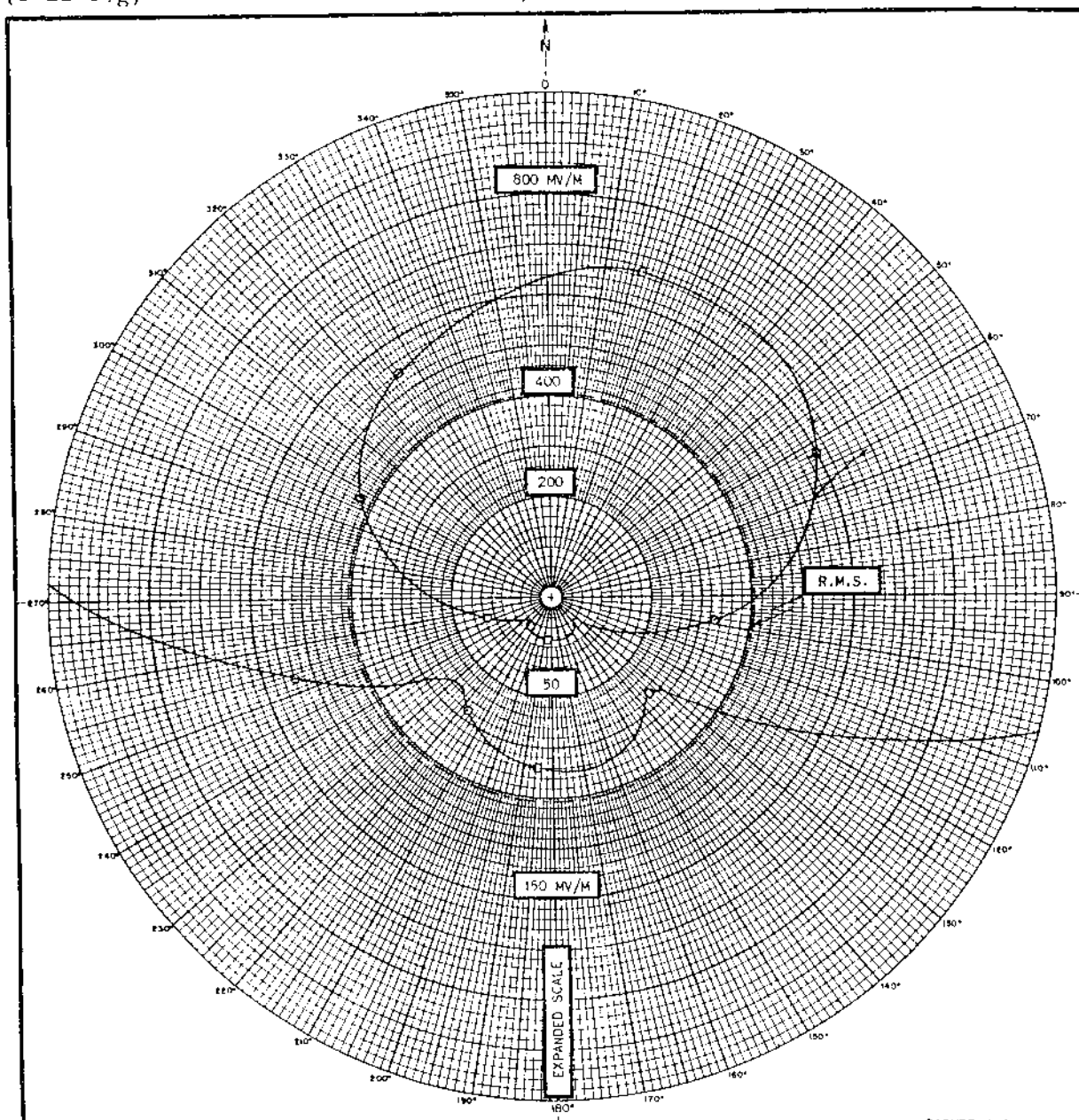
WKTY

MEASURED DAY
(4-22-59g)

Station WKTY
LaCrosse, Wisconsin

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

quantity in .000. increase on
daytime power and change to
DA-2. 7-17-59

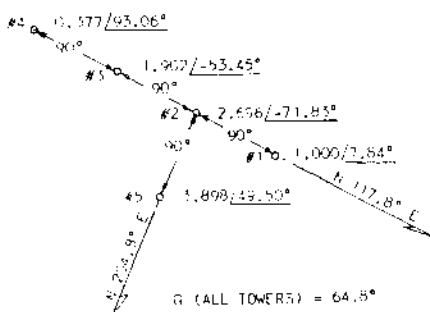


○ MEASURED RADIAL VALUES

FIGURE 1-A

HORIZONTAL RADIATION PATTERN

SPACING AND ORIENTATION



APPLICANT	LEE AND ASSOCIATES, INC.
LOCATION	LACROSSE, WISCONSIN (WKTY)
FREQUENCY	580 KC/S
POWER	5 KW-LS, 1 KW-N (DA-2)
LATITUDE	43 DEG 44 MIN 25 SEC
LONGITUDE	91 DEG 12 MIN 21 SEC
WHEN USED	DAYTIME
RMS FIELD	407 MV/M
DATE	JANUARY 1959

HERBERT H. LEE
LACROSSE, WISCONSIN

FCC File No. BL-7416
Accepted 4-13-59

WKTY
LaCrosse, Wisconsin

580 KC

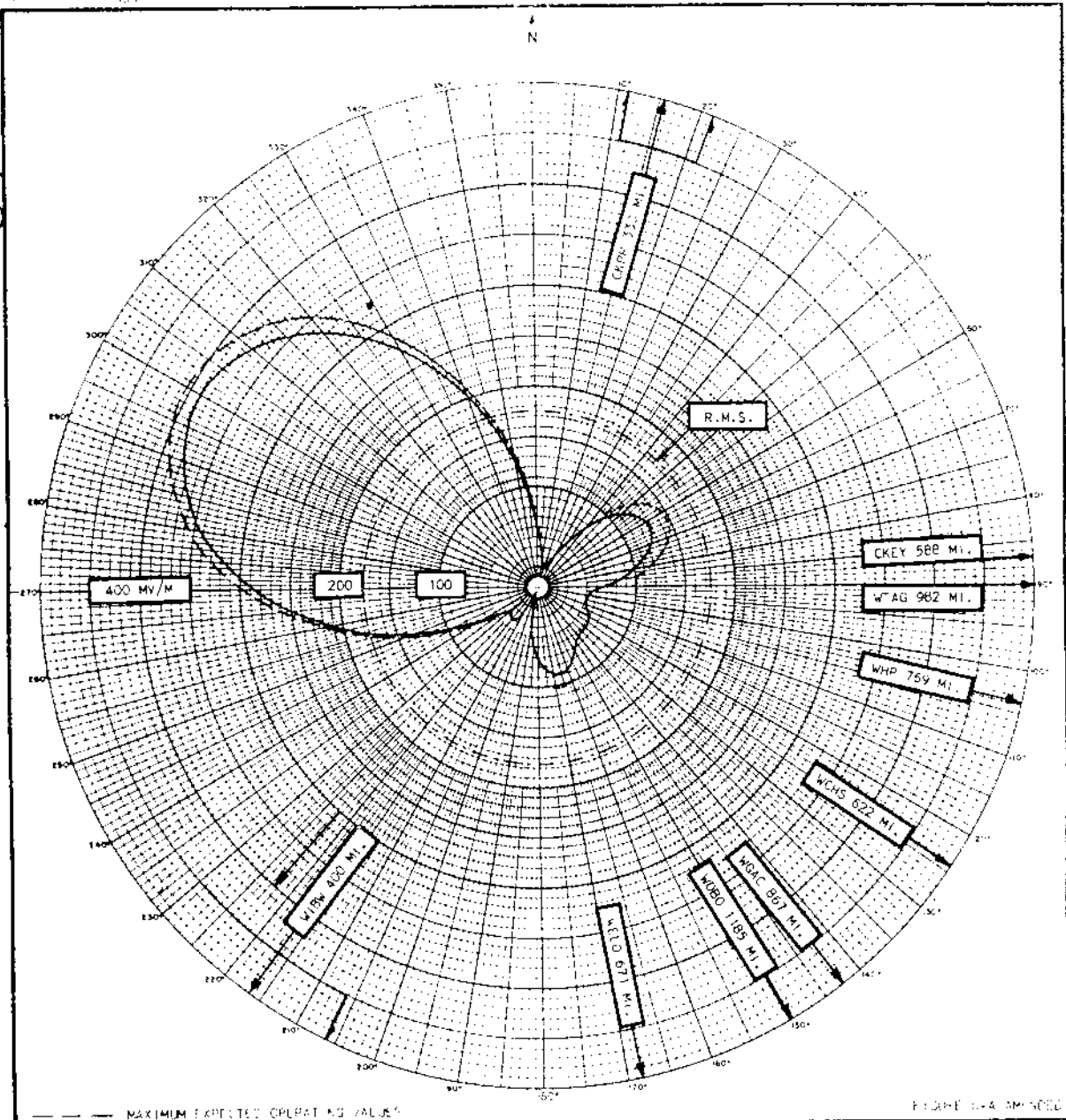
WKTY

PROPOSED NIGHT
(8-12-60g)

Station WKTY
LaCrosse, Wisconsin

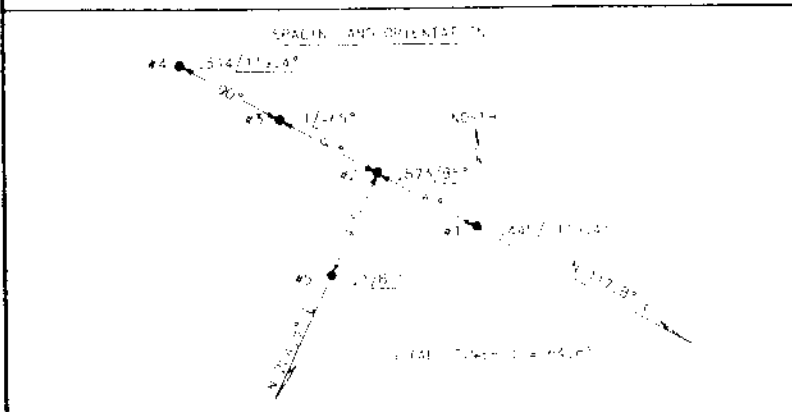
1kw, 5kw-LS, DA-2, U
580 KC

*u:MEOV
see over
11-30-60 granted
no more changes
in night DA*



HORIZONTAL RADIATION PATTERN

PATTERN NO. 224547-N



APPLICANT: LEE & ASSOCIATES, INC.
LOCATION: LACROSSE, WISCONSIN
FREQUENCY: 580 KC
POWER: 5 KW-LS, 1 KW-N (DA-2)
LATITUDE: 43 DEG 15 MIN 21 SEC
LONGITUDE: 91 DEG 12 MIN 21 SEC
WHEN USED: NIGHTTIME
RMS FELD: 175 MV/M (MAXIMUM)
DATE: JUNE 1960

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

FCC File No. BP-13215
Accepted 8-5-60 (Amended)

WKTY
LaCrosse, Wisconsin

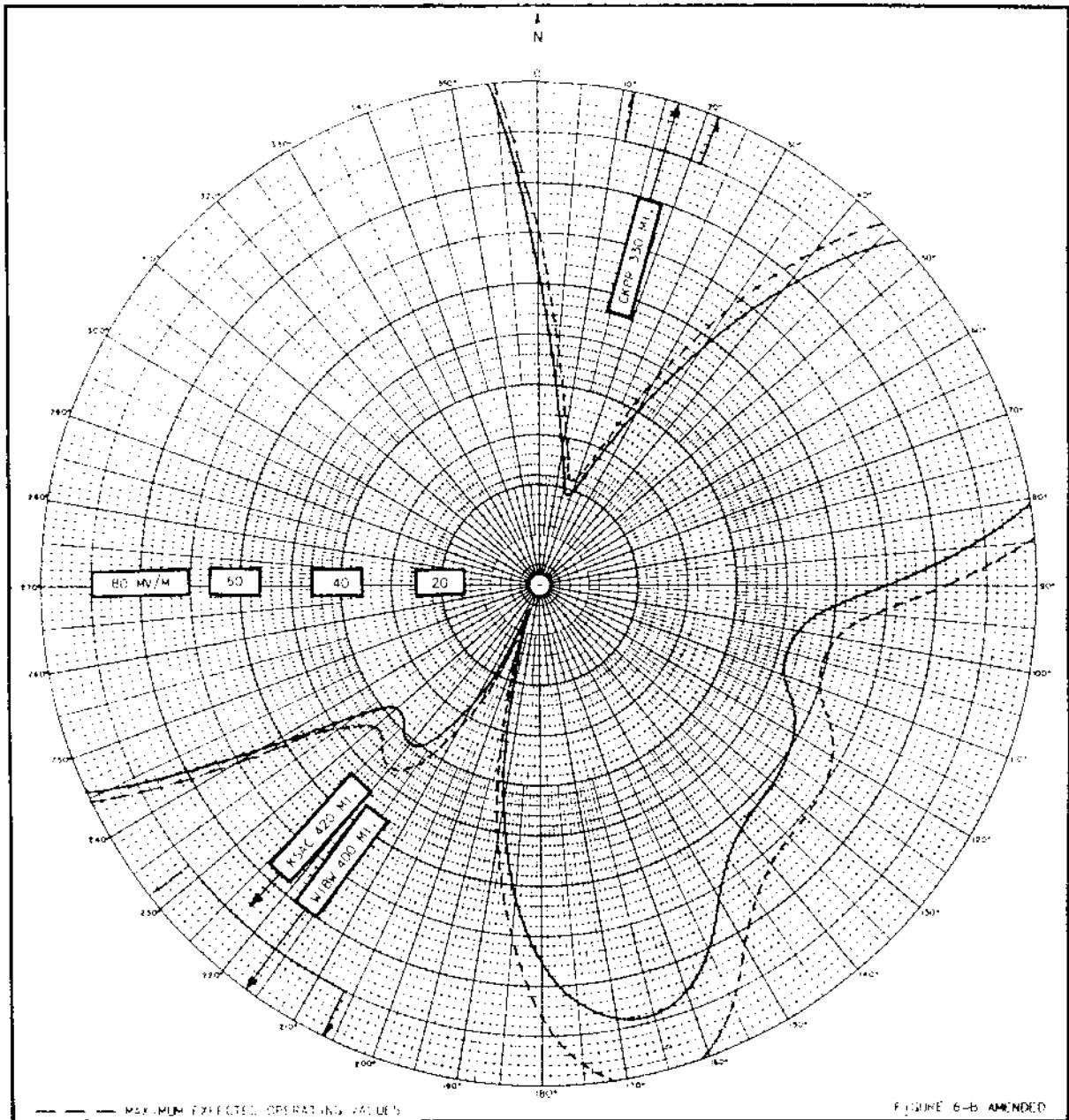
580 KC

WKTY

PROPOSED NIGHT NULLS
(8-12-60g)

Station WKTY
LaCrosse, Wisconsin

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



--- MAXIMUM EXPECTED OPERATING VALUES

FIGURE 6-B AMENDED

HORIZONTAL RADIATION PATTERN

PATTERN NO. 224597-1-N

EXPANDED VIEW

APPLICANT: EEE & ASSOCIATES, INC.
LOCATION: LA CROSSE, WISCONSIN
FREQUENCY: 580 KC
POWER: 1 KW-LS, 5 KW-N (DA-2)
LATITUDE: 43 DEG 51 MIN 25 SEC
LONGITUDE: 91 DEG 12 MIN 21 SEC
WHEN USED: NIGHT USE
RMS FIELD: 175 MV/M (100 VOLTS/FT)
DATE: March 1960

SILLIMAN, MOFFET & ROHRER
CONSULTING RADIO ENGINEERS

WASHINGTON, D.C.

FCC File No. BP-13215
Accepted 8-5-60 (Amended)

WKTY
LaCrosse, Wisconsin

580 KC

BL 8965

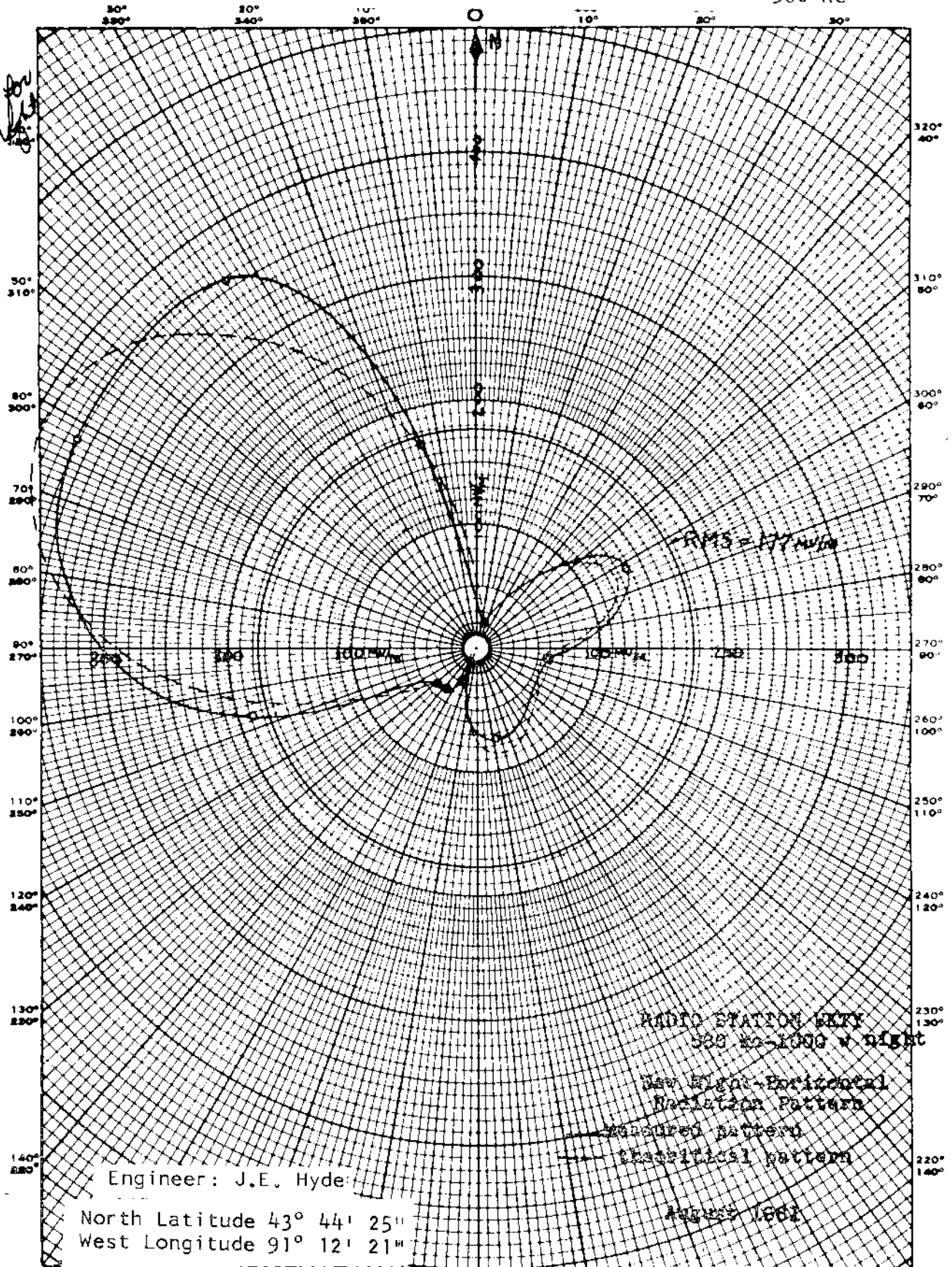
WKTY

Measured Night
(3-30-62ct)

Station WKTY
La Crosse, Wisconsin

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

*1-1-62
painted L for
brass in night
& Pattern*



FCC File No. BL-8965
Accepted 3-13-62

Station WKTY
La Crosse, Wisconsin

580 kc

WKTY

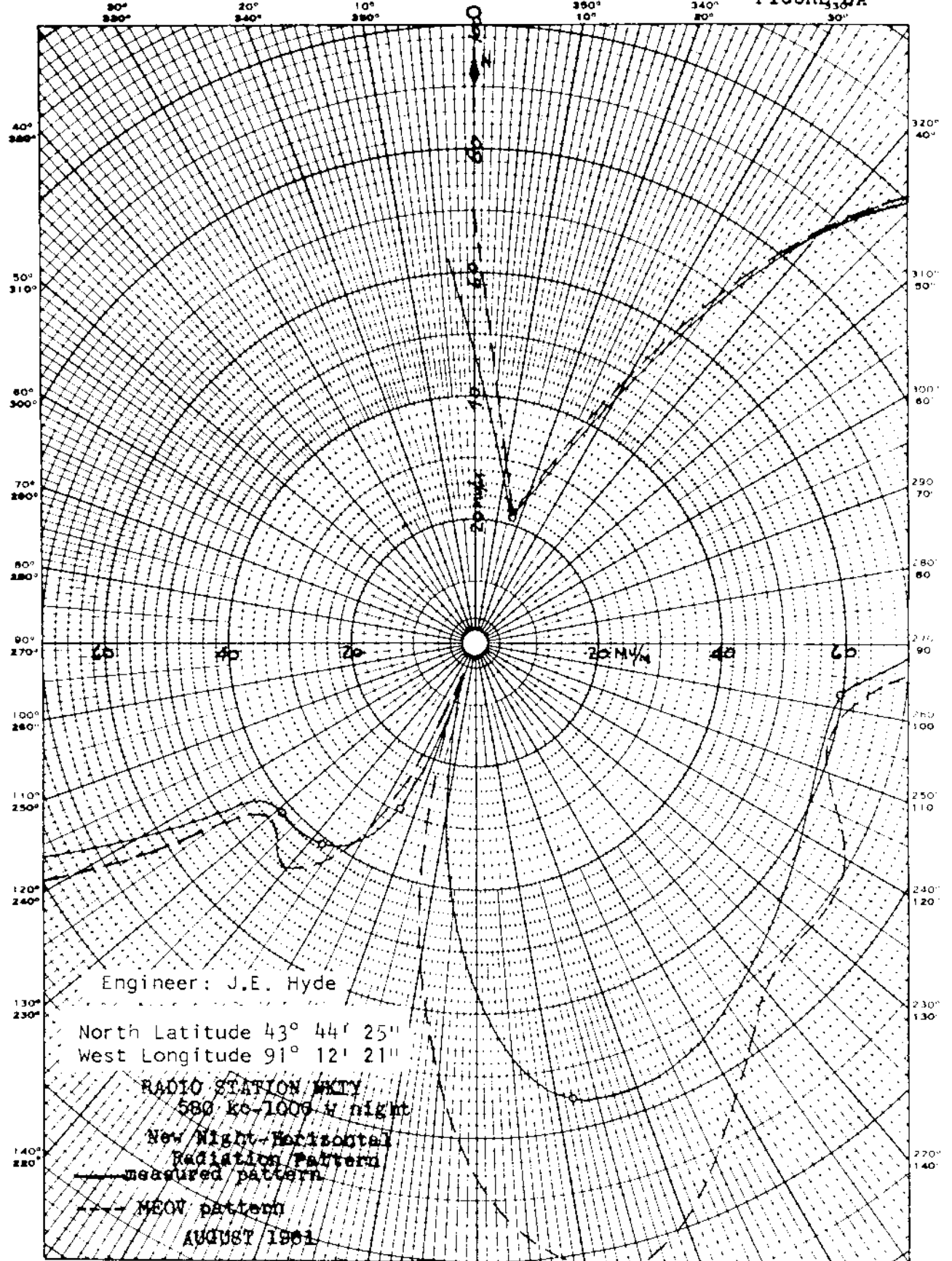
Measured Night Nulls
(3-30-62ct)

Station WKTY
La Crosse, Wisconsin

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

580 kc

+ 1000 Hz



FCC File No. BL-8965
Accepted 3-13-62

Station WKTY
La Crosse, Wisconsin

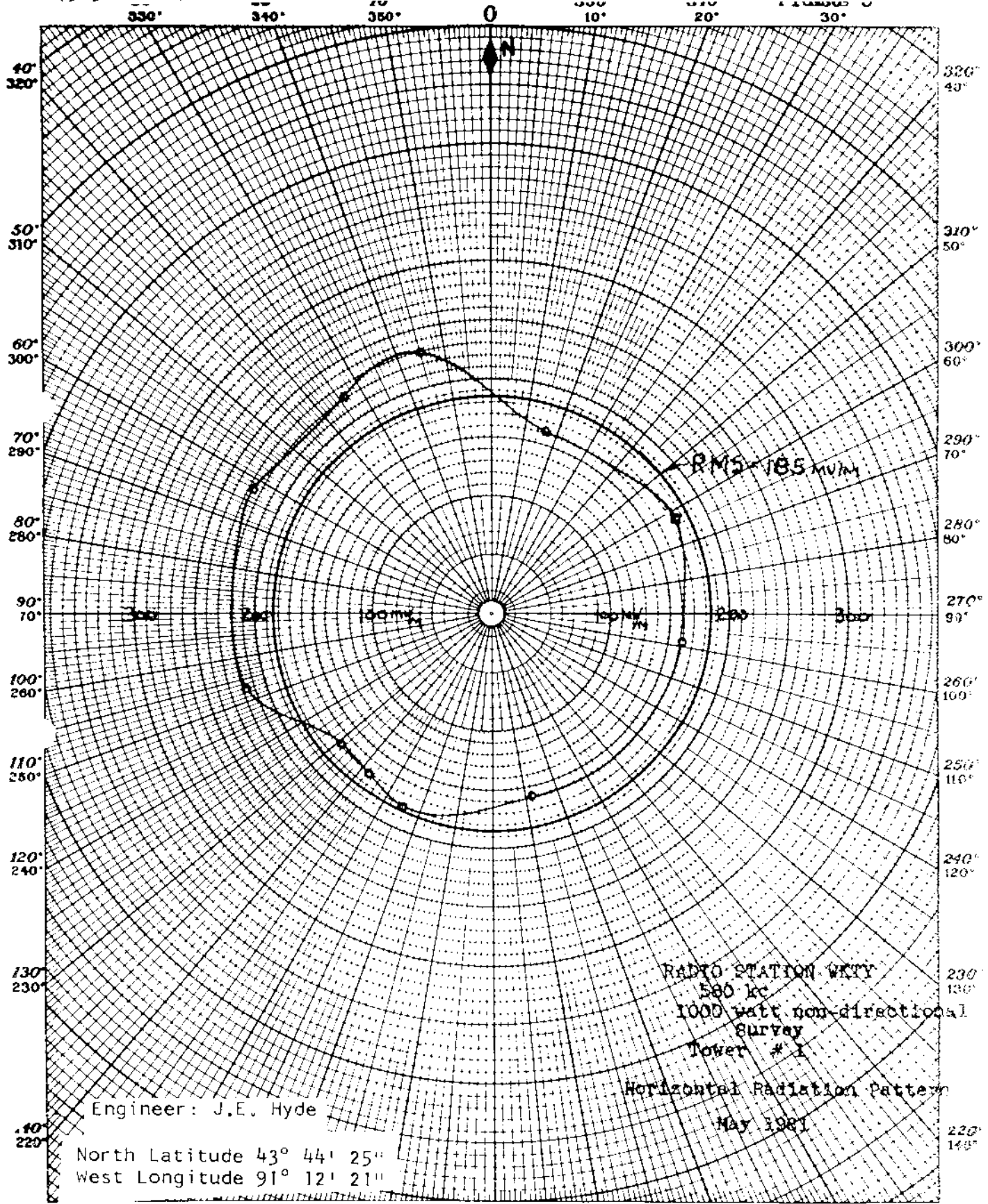
580 kc

WKTY

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

Station WKTY
La Crosse, Wisconsin

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



FCC File No. BL-8965
Accepted 3-13-62

Station WKTY
La Crosse, Wisconsin

580 kc

Prop E
MEASURED DAY

Station WTAG
Worcester, Massachusetts

BI-L 1174
5kw, DA-2,U
580 KC

W1

DAYTIME
FIG. 5

HORIZONTAL RADIATION PATTERN

WTAG 580 KC 5 KW (DA)

Janey and Bailey - Washington, D.C.
March 1940

RMS CALCULATED PATTERN
- 392 MV/M

To Boston
200 400 600 MV/M

RMS MEASURED PATTERN
- 408 MV/M

MEASURED PATTERN

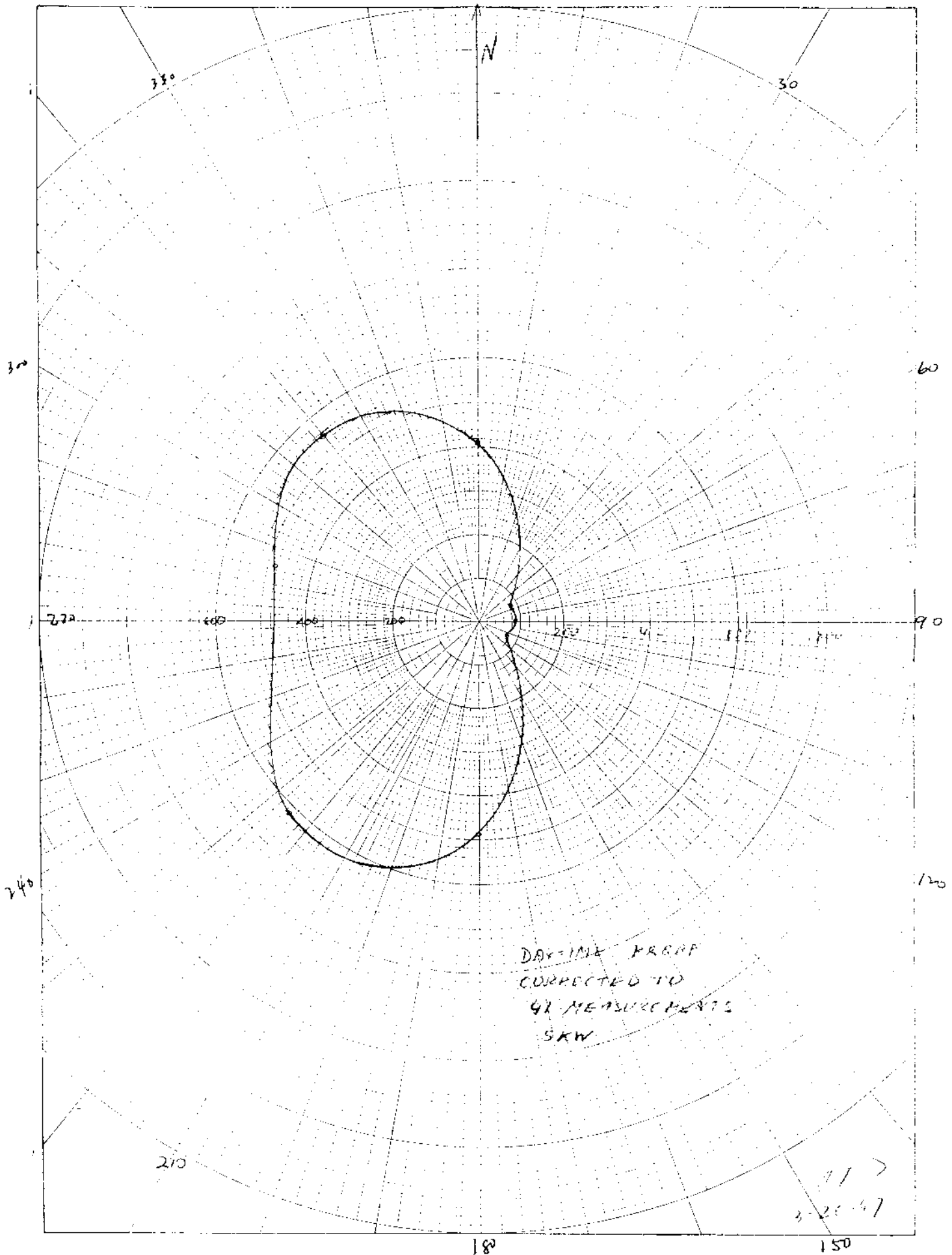
CALCULATED PATTERN

SITE: 42° 20' 13.2" N
71° 49' 14.5" W
Height - 375'

EUGENE D. STUBBS CO.

NO. 1100 DIETZGEN GRAPH COMPASS
10.1 AM CO-ORDINATE

See
last
page
for
measurements



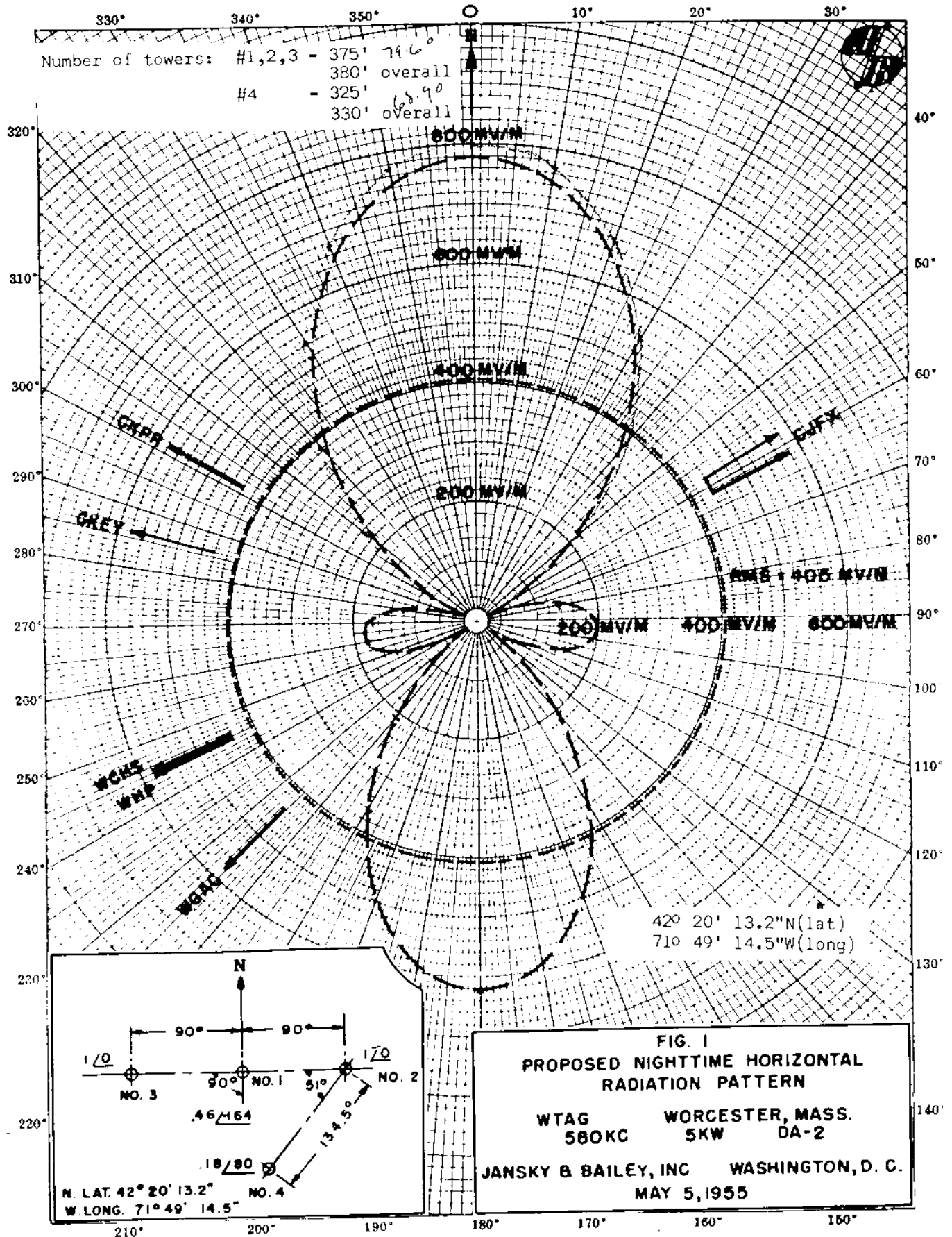
WTAG

PROPOSED NIGHT
(6/6/55G)

STATION WTAG
WORCESTER, MASSACHUSETTS

5 KW
DA-2, U

580 KC

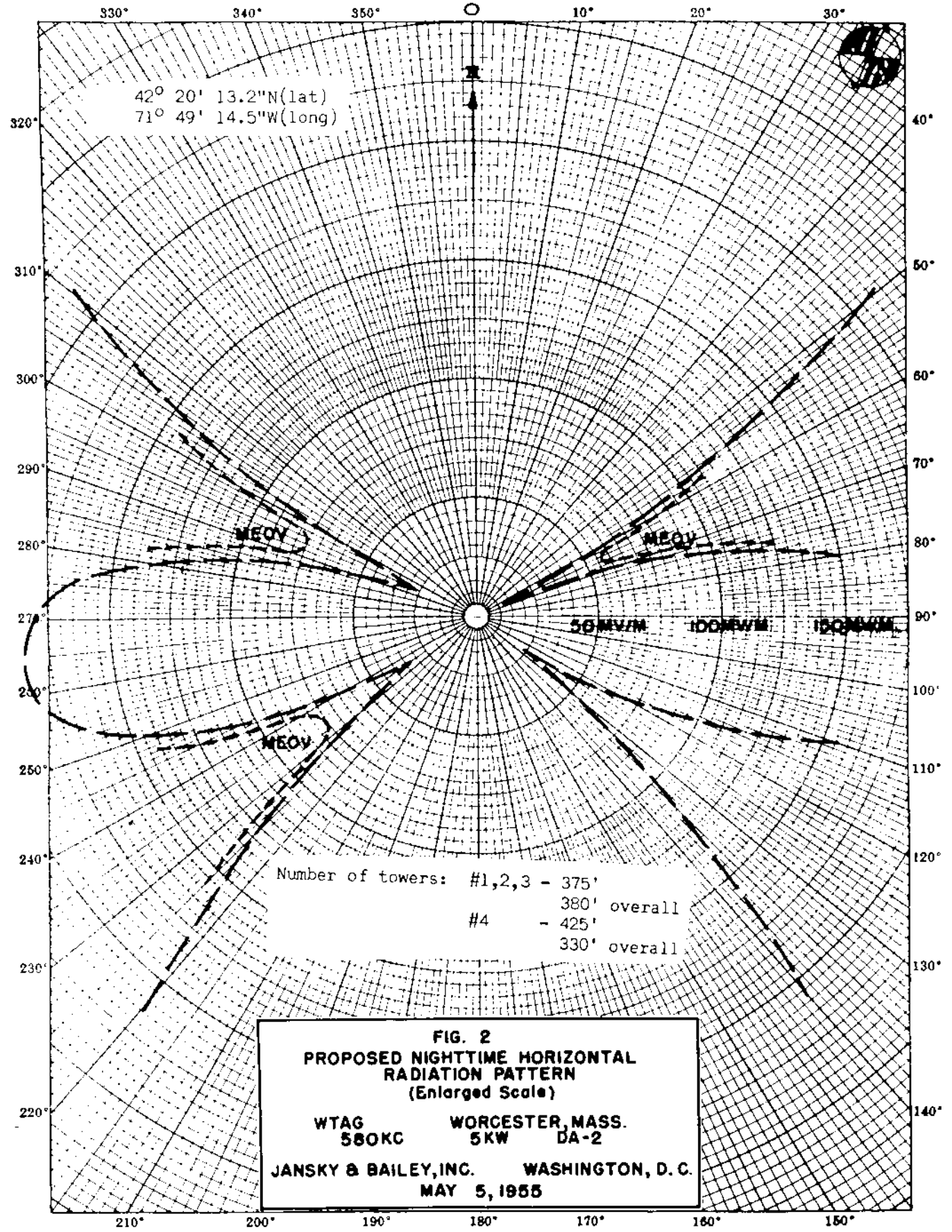


WTAG

PROPOSED NIGHT NULLS STATION WTAG
(6/6/55G) WORCESTER, MASSACHUSETTS

5 KW
DA-2, U

580 KC

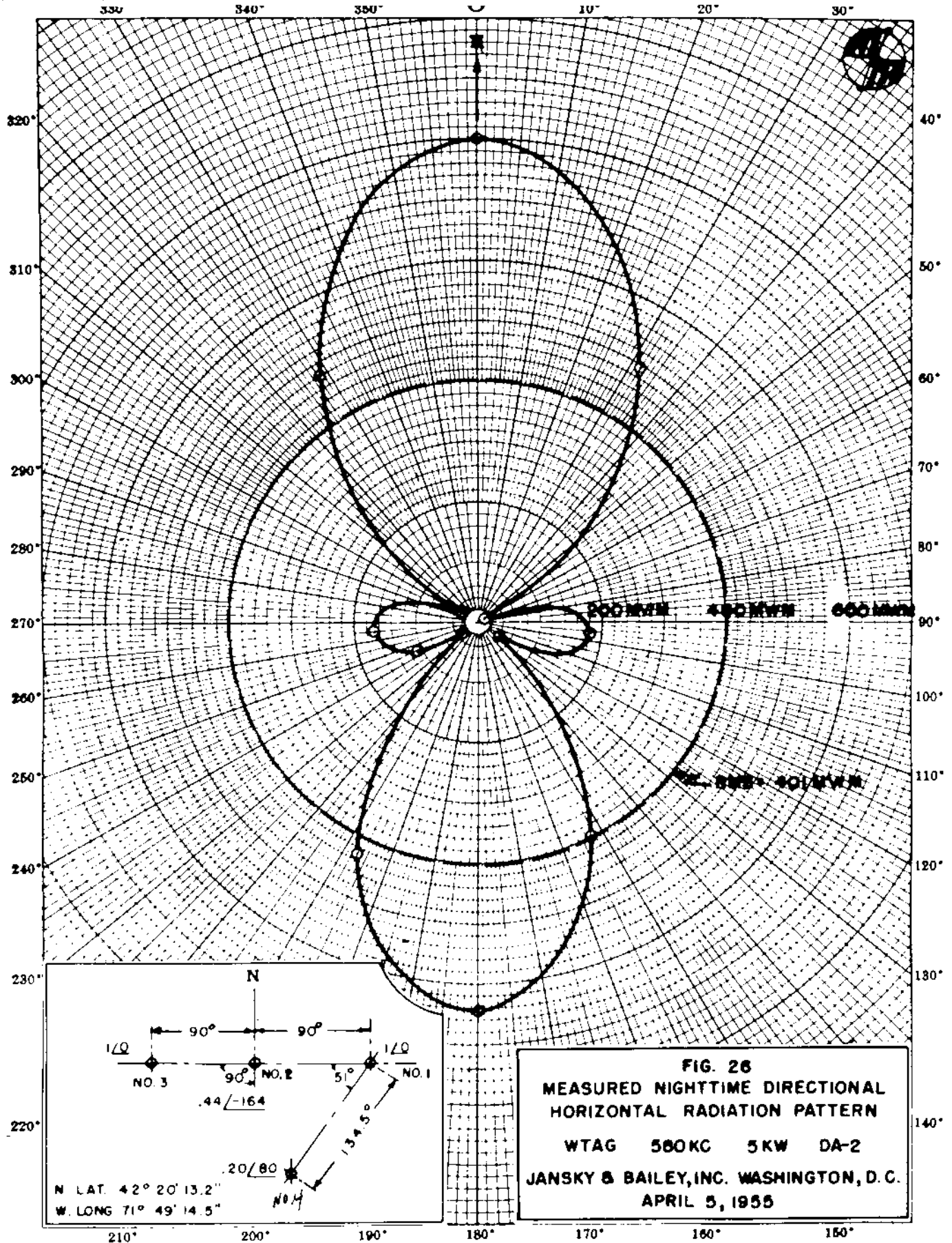


MEASURED NIGHT
(7-18-55G)

WTAG, WORCESTER,
MASS.

5 KW
DA-2, U

WTAG
BL-5758
580 KC

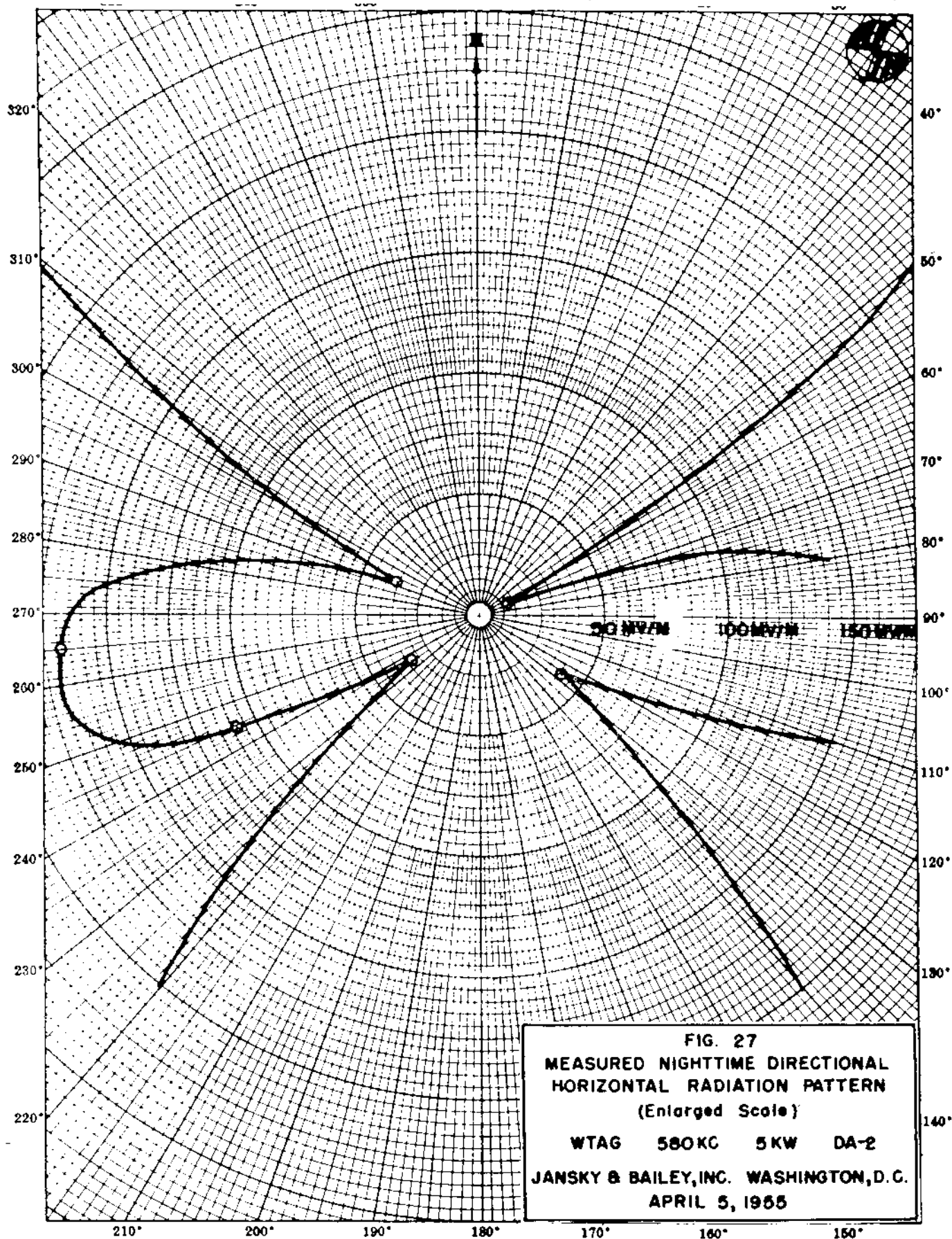


MEASURED NIGHT
NULLS (7-18-55G)

WTAG, WORCESTER,
MASS.

5 KW
DA-2, U

WTAG
BL-5758
580 KC



DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WTCM Main Studio: Traverse City, Michigan
Frequency: 580 kHz Power: 0.5kw Night 2.5kw Day
Notification List No. 1789 Date: September 12, 1980 Class: III

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 44° 43' 16"
West Longitude: 85° 42' 14"

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:	NE(#1)	NW(#2)	SE(#3)	SW(#4)
HEIGHT ABOVE INSULATORS:	424'	424'	424'	424' (90°)
NIGHT PHASING:	0°	+52°	+167°	+219°
NIGHT FIELD RATIO:	1.0	0.881	1.221	1.076
DAY PHASING:	0°	+33°	+110°	+143°
DAY FIELD RATIO:	1.0	0.819	1.624	1.330

SPACING AND
ORIENTATION:

With tower #1 as reference, tower #2 is spaced 214°
at a bearing of N 296° T, tower #3 is spaced 90°
at a bearing of N 250° T, tower #4 is spaced 284° at a
bearing of N 282.82° T.

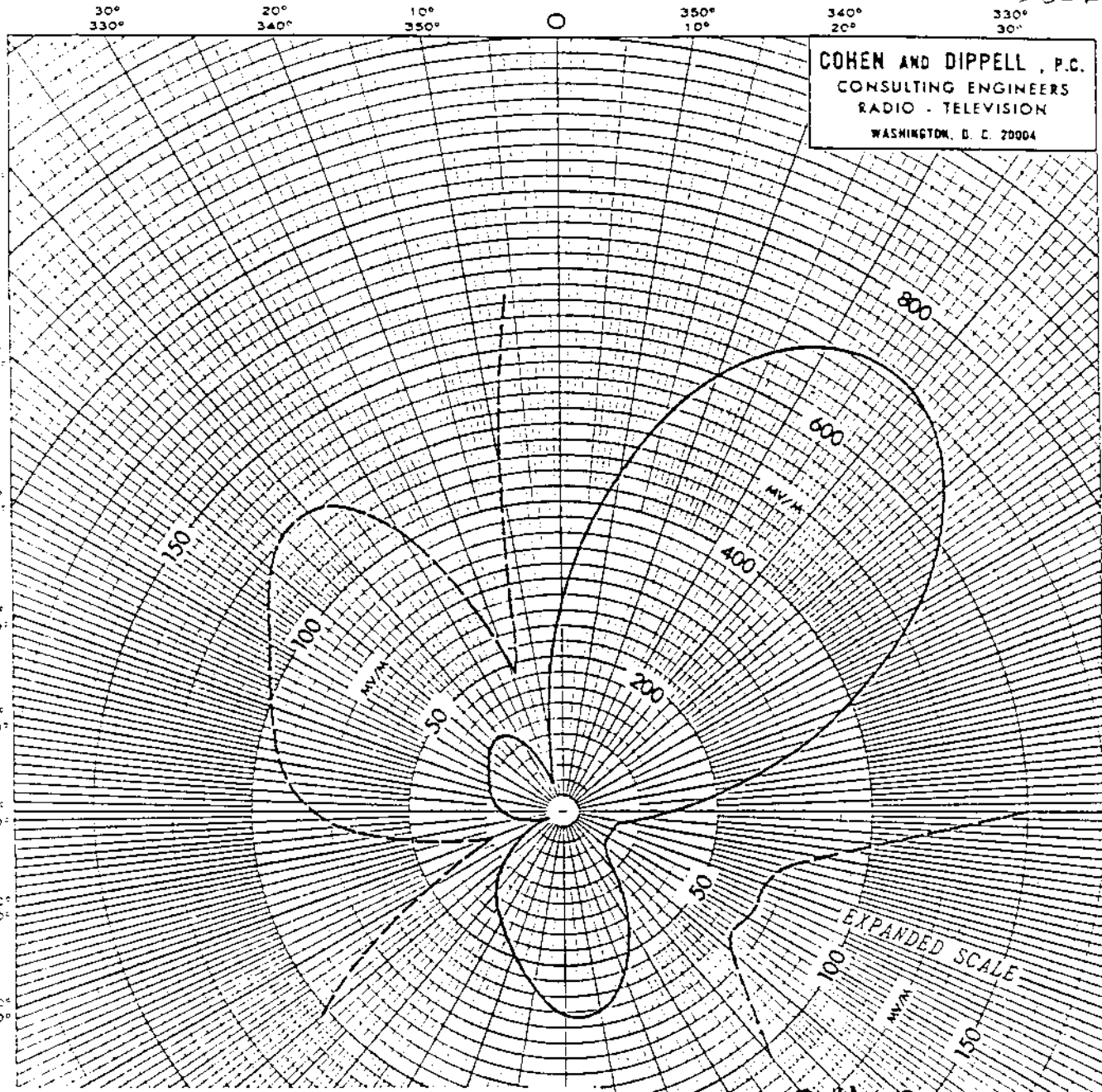
GROUND SYSTEM: 120 - 424' equally spaced copper radials plus a 48'
square ground screen about each tower. Radials are shortened
and bonded to transverse straps along intersections between
towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	<u>RMS</u>	<u>THEORETICAL</u> <u>RSS</u>	<u>STANDARD</u> <u>RMS</u>
Day	277.26 mv/m	366.55 mv/m	291.3 mv/m
Night	124.63 mv/m	192.11 mv/m	131.0 mv/m

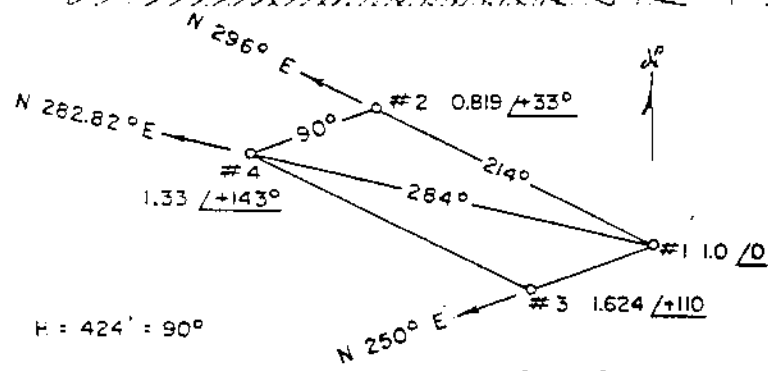
WTCM
580KHz

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



DITZGEN CORPORATION
MADE IN U.S.A.
DITZGEN GRAPH PAPER
POLAR CO-ORDINATE

Standard Pattern



N 44° 43' 16"
W 85° 42' 14"

RMS_{TH}	= 277.26 mv/m
RSS_{TH}	= 366.55 mv/m
RSS_{TH}/RMS_{TH}	= 1.32
RMS_{STD}	= 201.3 mv/m

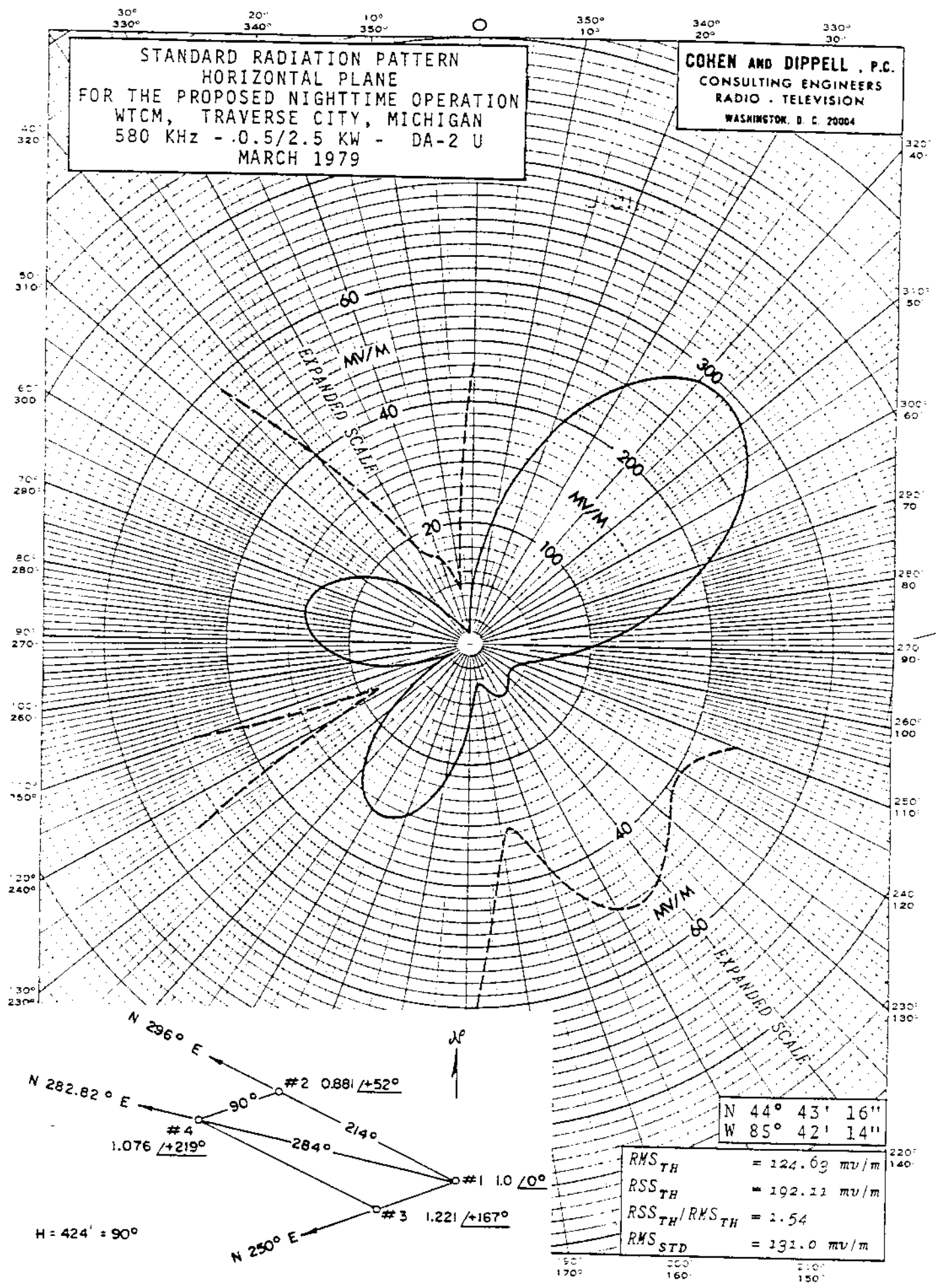
H = 424' = 90°

STANDARD RADIATION PATTERN
HORIZONTAL PLANE
FOR THE PROPOSED DAYTIME OPERATION
WTCM, TRAVERSE CITY, MICHIGAN
580 KHz - 0.5/2.5 KW - DA-2 U
JUNE 1979

WTCM
580 kHz

STANDARD RADIATION PATTERN
HORIZONTAL PLANE
FOR THE PROPOSED NIGHTTIME OPERATION
WTCM, TRAVERSE CITY, MICHIGAN
580 KHz - .0.5/2.5 KW - DA-2 U
MARCH 1979

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



DIETZGEN CORPORATION
MADE IN U.S.A.

FIG. 3-1-1 DIETZGEN STANDARD PAPER
FOR AIR TO AIR EQUIPMENT

FOREIGN XEAV, GUADALAJARA, JAL.
DESC. SHEET 12/9/52G

25 KW, U, DA-1

580 KC

DIRECTIONAL ANTENNA DESCRIPTION SHEET

83212

Station: XEAV

Main Studio: Guadalajara, Jalisco

Frequency: 580 kc/s

Power: 25kw

Date Received: November 10, 1952

Class: III-A

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 20° 40' 34"
West Longitude: 103° 23' 13"

ANTENNA CHARACTERISTICS

Authorized for Day and Night operation. (DA-1)

Number of elements: two (2)

Type of elements: Series-fed, guyed, vertical steel towers.

Tower:	North	South
Height Above Insulators:	305'	305' (65°)
Spacing:	212' or 45° between adjacent towers.	
Phasing:	150°	0°
Ratio:	1	1

Orientation: Elements on a line bearing 47° 23' 51" true.

Ground System: The ground system includes 60 radials 129.31 meters in length, spaced each 3 degrees through the outer 180 degrees about the base of each tower. The ground area between the towers is completely occupied by a copper screen with meshes 5 meters on a side, extending in the dimension normal to the line of towers to a distance equal to the length of the radials. The bases of the towers are connected by a copper bus.

Predicted effective Field: 875 mv/m (at rated power)

Note: The Federal Communications Commission has objected to operation of this regional channel station with power in excess of 5 kilowatts.

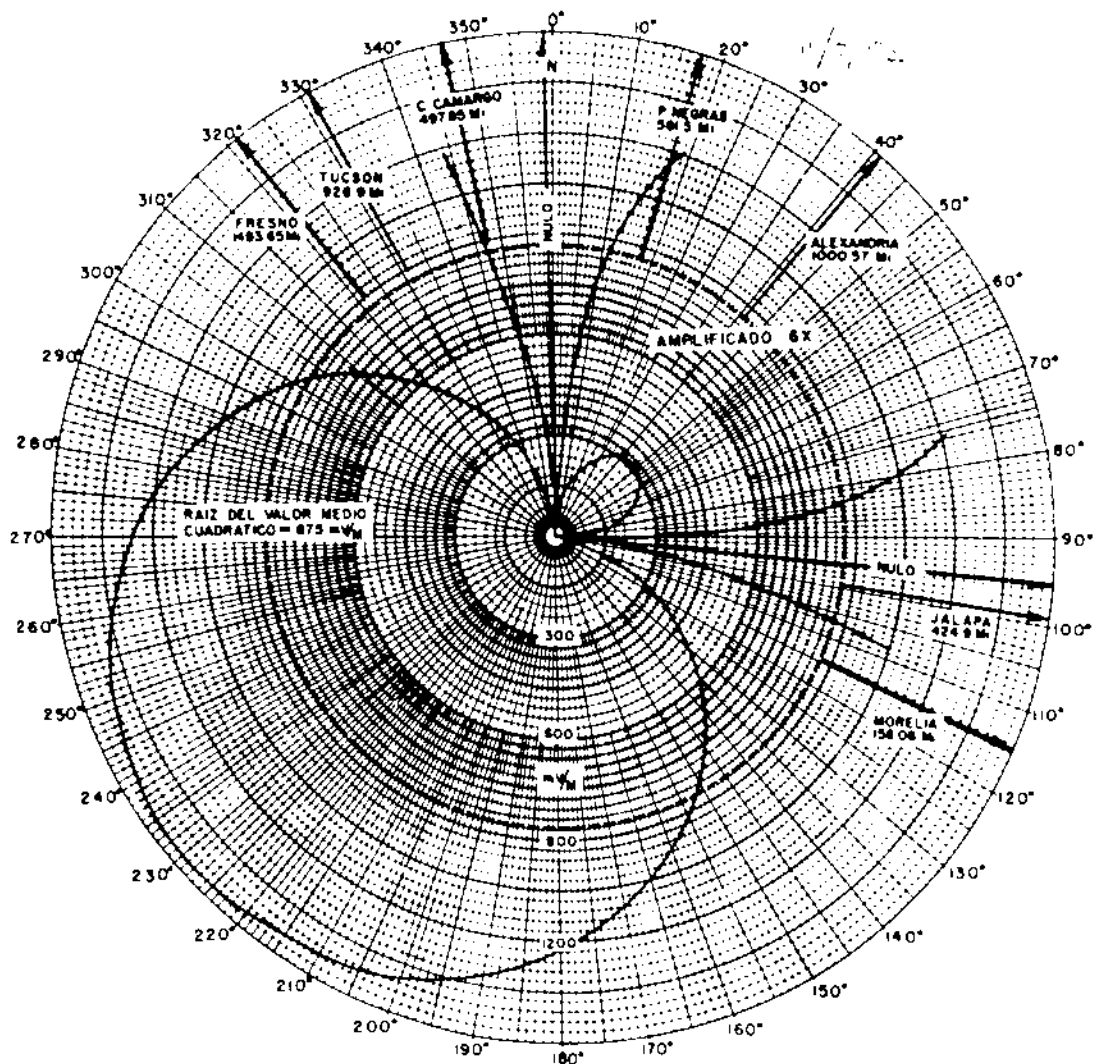
XEAV, GUADALAJARA, JAL. 580 KC

XEAV

FOREIGN XEAV, GUADALAJARA, JAL.
NIGHT & DAY 12/9/52G

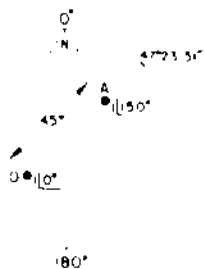
25 KW, U, DA-1

580 KC



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

POSICION RELATIVA
DE LAS TORRES



RADIODIFUSORA

XEAV

Guadalajara, Jal.

580 Kc

25000 Watts

MANUEL ZORRILLA C

INGENIERO CONSULTOR
CEDULA N° 36227

XEAV, GUADALAJARA, JAL. 580 KC

Description Sheet
(6-28-67ct)

Station CFAR
Flin Flon, Manitoba

1kw, 10kw-LS, DA-D, U, Class III
590 kc

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: CFAR MAIN STUDIO: Flin Flon, Manitoba
POWER: 10 KW D, 1 KW N FREQUENCY: 590 Kc/s CLASS: III
NOTIFICATION LIST NO. 199 DATE: May 10, 1965

GEOGRAPHICAL LOCATION:

North Latitude: 54° 48' 04"
West Longitude: 101° 51' 9.5"



MODE OF OPERATION: DA Daytime
 NO Night-time

NUMBER OF ELEMENTS: Two (2)

TYPE OF ELEMENTS: Guyed Steel Towers, uniform
 cross section, base insulated
 for series feed.

	<u>North #1</u>	<u>Southwest #2</u>
TOWER:		
Height above insulator:	278' (60°)	276' (60°)
Overall height:	280'	280'
Field Ratio Day	1.0	0.6
Phasing Day	0°	+45°
SPACING	695' (150°)	

Ground System: 120 equally spaced radials per
 tower of No. 10 BxS gaudy bare
 copper wire, buried to a depth
 of approximately 6 inches where
 the surface of the ground permits.
 Length of the radials 650' (2.1
 wavelength) with the exception of
 those joined along the common chord.

ORIENTATION: Towers are on a line bearing 43°
 East of True North.

Predicted Effective Field:

Daytime: 555 mv/m at 1 mile for 10 KW
 175 mv/m at 1 mile for 1 KW
Night-time: 180 mv/m at 1 mile for 1 KW

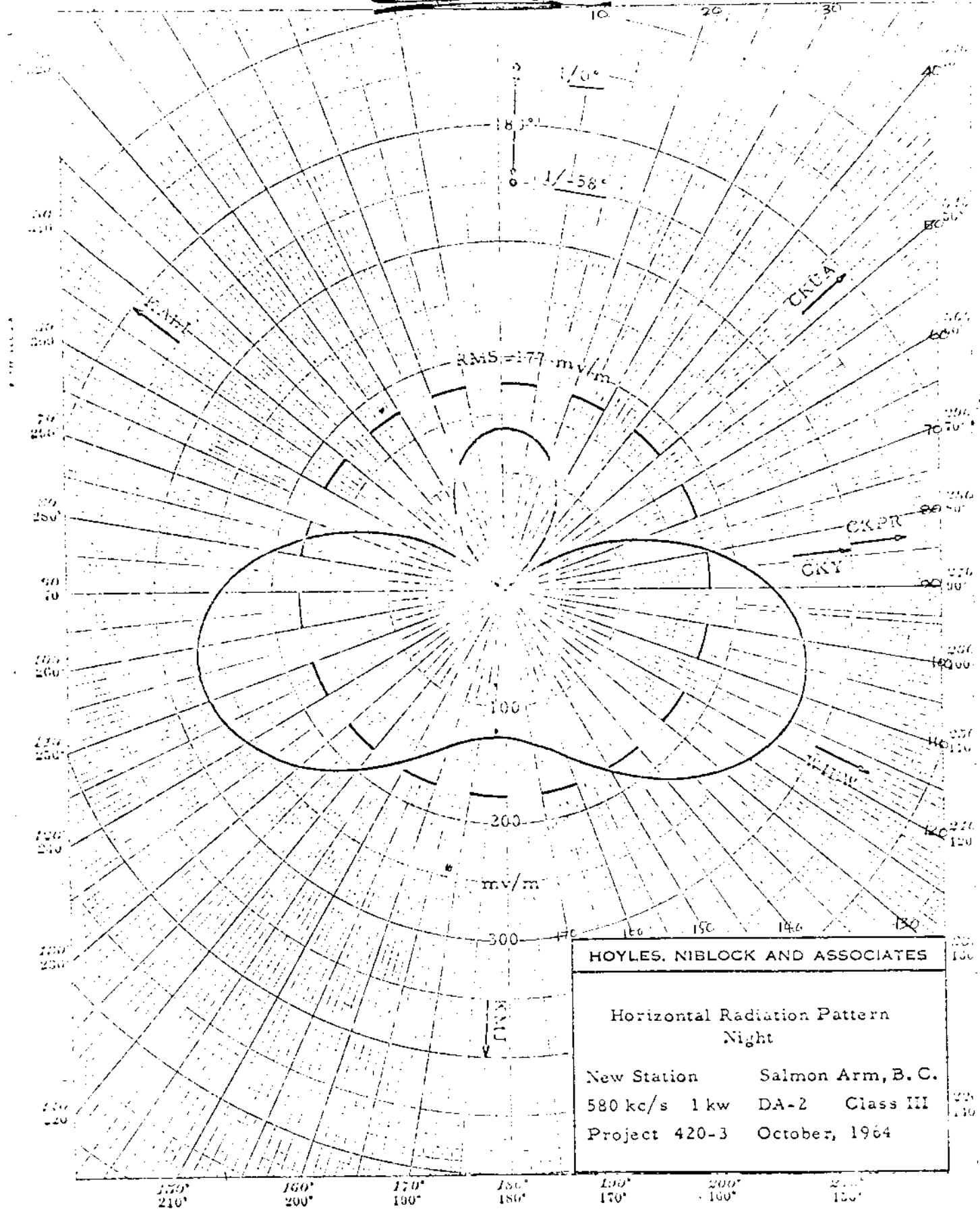
199

CKXR

Proposed Night
(3-26-65ct)

New Station
Salmon Arm, B.C.

1kw, DA-2, U, Class III
580 kc

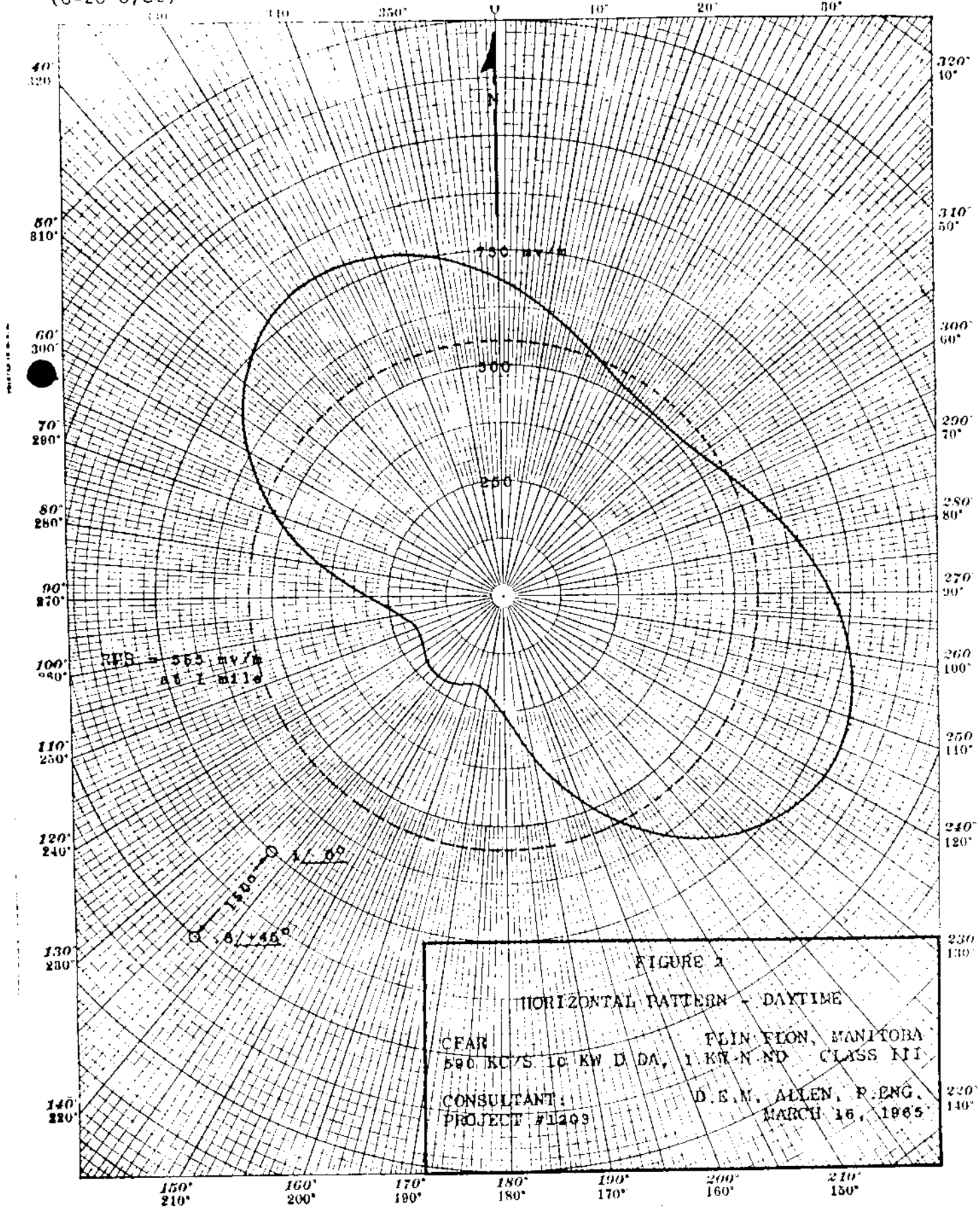


CFAR

Proposed Day
(6-28-67ct)

Station CFAR
Flin Flon, Manitoba

1kw, 10kw-LS, DA-D, U, Class III
590 kc



177
Description Sheet
(6-28-63ct)

Station CFTK
Terrace, B.C.

CFTK
1kw, DA-1, U, Class III
590 kc

HOYLES, NIBLOCK AND ASSOCIATES

DESCRIPTIVE SHEET

Directional Antenna System.

Station: CFTK

Main Studio: Terrace, B.C.

Power: 1 kw

Frequency: 590 kc/s Class III

Notification List No: 177

Date: May 7, 1963

Location: Latitude 54° 30' 05" N.
Longitude 128° 30' 50" W.

Antenna:

Mode of operation - DA-1 (same pattern day and night)

Elements - two uniform cross section guyed steel towers,
base-insulated and fitted for series feed.

Towers:	East	West
Height above insulators	278	278
Overall height	285	285
Spacing	278' (60°)	
Phasing	0°	-140°
Field (current) ratio	1	0.70
Orientation	Towers on a line bearing 270° true	

Ground System: The ground system shall consist of $120 \cdot 0.4\lambda$ copper radials about each tower buried approximately 8" x 10" below grade. Radials shall be bonded to a transverse strap at the common chord between the towers.

Predicted Effective Field: 179 mv/m at 1 mile for 1 kw

CFTK

177

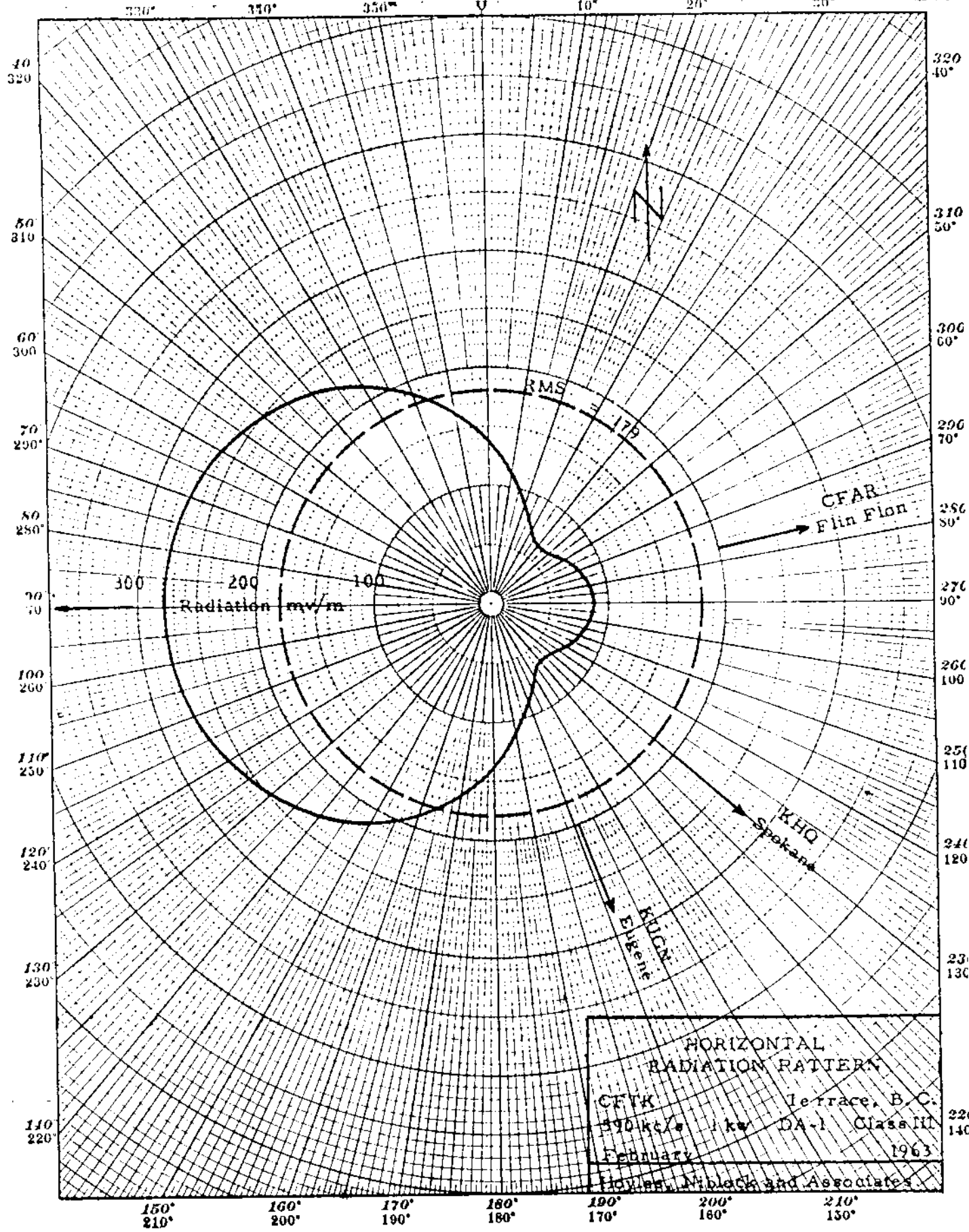
Proposed Day & Night
(6-28-63ct)

Station CFTK
Terrace, B.C.

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

EUDIX HOOK COMPANY, INC. NORWOOD, MASSACHUSETTS PRINTED IN U.S.A.

NO 3124 POLAR CO ORDINATE



CJCW - SUSSEX, N.B.

Directional Antenna Description Sheet

Station: CJCW Main Studio: Sussex, N.B.
Frequency: 590 kHz Power: 1 kW-D/250W-N
Time: Unlimited Class: III
Notification List No. 366 Date: August 26, 1977
Geographical Location: Lat. $45^{\circ} 41' 06''$ North
 Long. $65^{\circ} 31' 29''$ West

Antenna System:

Mode of Operation: DA-2

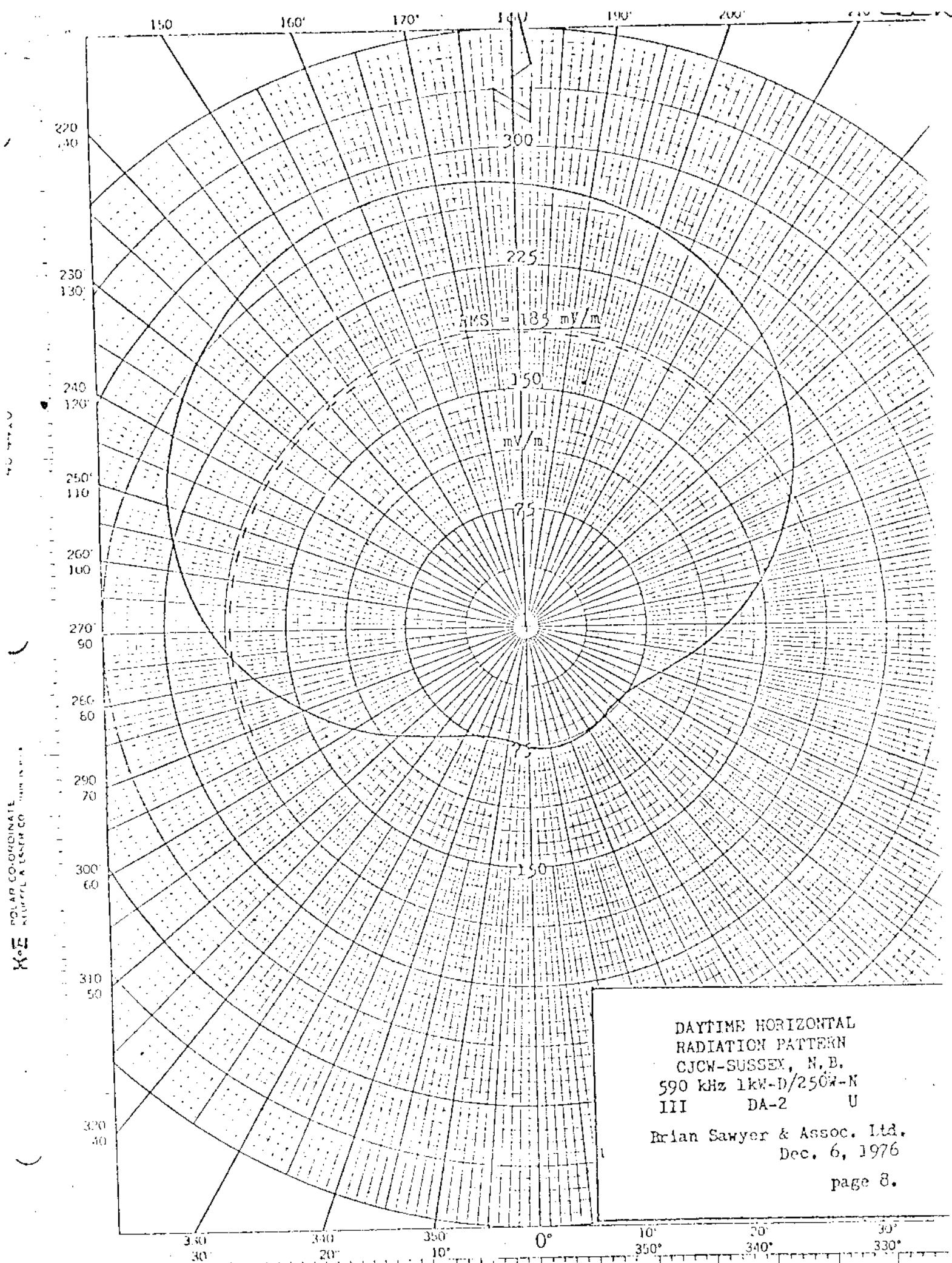
Elements: Two guyed elements, uniform cross-section, base
 insulated, series feed.

Tower No.	<u>1(N)</u>	<u>2(S)</u>
Height above Insulators:	278' (60°)	278' (60°)
Overall Height A.G.L.	283'	283'
Bearing:	345°	REF.
Spacing:	60°	REF.
Day Field Ratio:	0.64	1.0
Day Phase:	-128°	0°
Night Field Ratio:	0.9	1.0
Night Phase:	-151°	0°

Ground System: The ground system consists of an effective area of
 120 radials per tower, No. 10 AWC, bare soft-drawn
 copper wire, uniformly spaced at approximately
 8 inches below grade.

Predicted Effective Field: Day 185 mV/m at 1 mile for 1 kW
 Night 92.5 mV/m at 1 mile for 250 watts

Note: The proposed change is for the day-time operation of CJCW only.
Please retain the night-time radiation patterns, horizontal and
vertical, which were notified in Canadian Change List No. 326
dated May 30, 1974.



SUPPLEMENTAL DIRECTIONALANTENNA DESCRIPTION SHEETStation: CJCWMain Studio: Sussex, New BrunswickFrequency: 590 kHzPower: 100W/0.25N, Class: TT1Notification List No.: 372
366Date: April 27, 1978
August 26, 1977Geographical location of the
Center of the Antenna System:

North Latitude: 45° 41' 06"

West Longitude: 65° 31' 29"

Mode of Operation: DA-2Predicted Effective Field: Day - 185 mV/m at 1 mile for 1 kW
Night - 88 mV/m at 1 mile for 0.25 kW

Note: Please retain the description sheets and directional antenna radiation patterns notified for station CJCW in Canadian Change Lists Number 366 and 326 dated August 26, 1977 and May 30, 1974 and attach to this supplemental description sheet. This notification is for the purpose of indicating only a correction in the predicted effective night-time field which was incorrectly indicated as 92.5 mV/m in the List 366 Description Sheet.

Description Sheet
(4-29-68ct)

Station CKEY
Toronto, Ontario

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

TABLE 1

ANTENNA DESCRIPTION SHEET

STATION CALL: CKEY
MAIN STUDIO: TORONTO, ONTARIO
FREQUENCY: 590 kc/s
POWER: 10 kW
CLASS: III
MODE: DA-2
TIME: UNLIMITED
NOTIFICATION LIST NO.: 211
DATE: May 18, 66

Oficina Interamericana de Radio - P&U
OIR/NARBAZ
La Habana

GEOGRAPHICAL LOCATION: Latitude: 43° 36' 33" North
Longitude: 79° 23' 20" West

ARRAY CHARACTERISTICS: Five 1" diameter vertical copper elements, base insulated, series fed; mounted and insulated within self-supporting, sectionalized steel towers; each top-loaded by a series inductor and hat of 50 feet diameter. Vertical radiation characteristic approximately same as for 45° non-loaded antenna.

TOWER:	#1 NORTH	#2 N.C.	#3 CENTRE	#4 S.C.	#5 SOUTH
HEIGHT:	150'	150'	150'	150'	150' (32.4°)
SPACING:	416.7' 90°	reference	417.9' 90.2°	832.7' 179.9°	1250' 270°
TRUE BEARING:	346°	reference	163.5°	167.2°	166°
DAY RATIO:	0.17	1.00	2.90	2.64	1.02
DAY PHASE:	150°	175°	-70°	70°	-150°
NIGHT RATIO:	1.00	4.00	6.00	4.00	1.00
NIGHT PHASE:	0°	153°	-64.5°	79°	-153°

GROUND SYSTEM: 120 equally spaced #10 AWG bare copper radial wires per tower buried 6 - 8" deep or sunk in the lake bottom and of average effective length 0.4λ (670').

PREDICTED EFFICIENCY: 165 mV/m for 1 kW
521.5 mV/m for 10 kW

COPIES OF THE REPORT WILL BE
FORWARDED TO THE DIRECTOR,
BUREAU OF INVESTIGATION,
WASHINGTON, D.C.

LUCIEN BRETHERTON CO.
JAN 20 1964

Proposed Day
(4-29-68ct)

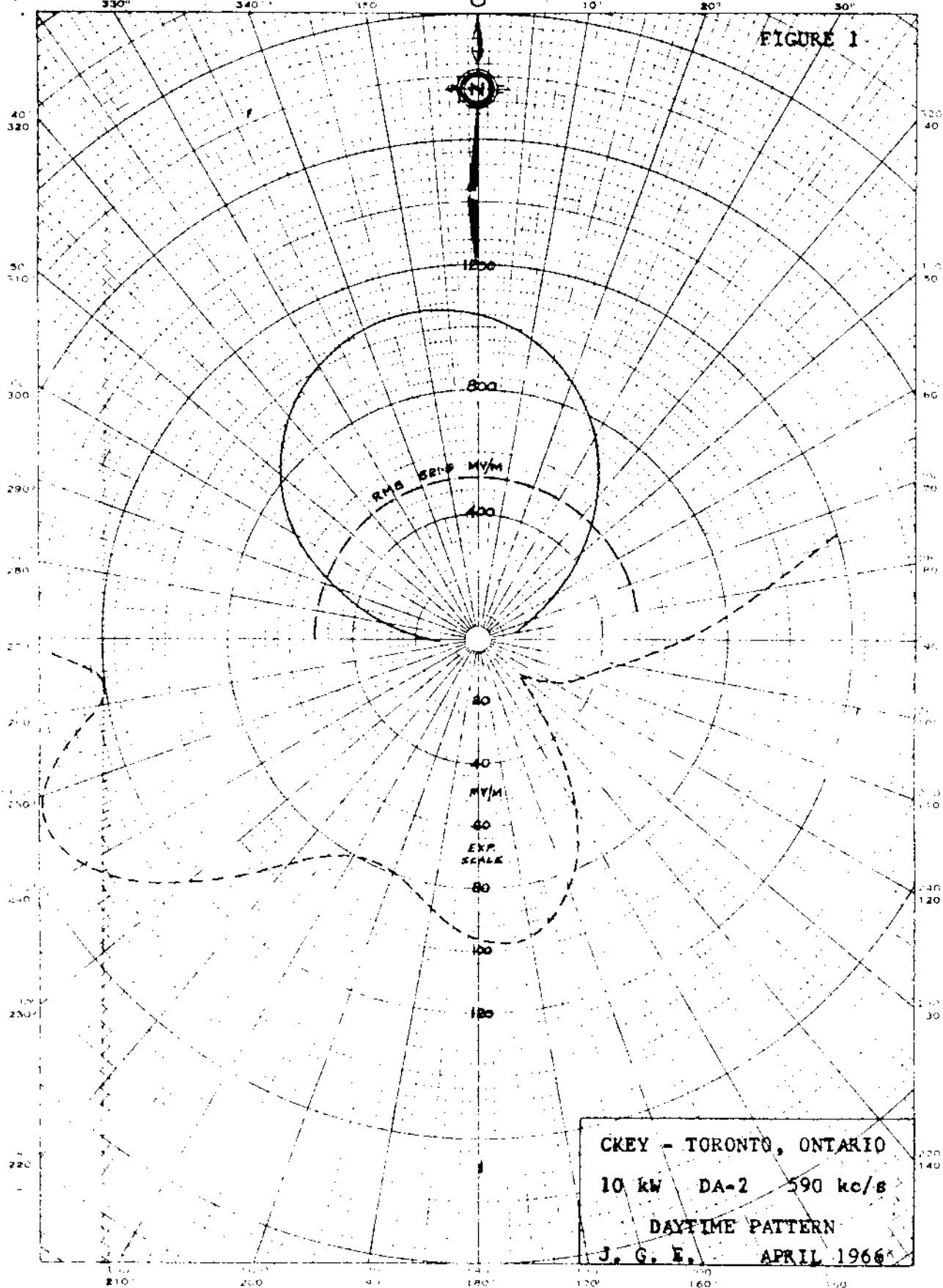
Station CKEY
Toronto, Ontario

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

FIGURE 1

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

NO. 710-P DIETZEN GRAPH PAPER
POLAR COORDINATE



Description Sheet
(7-29-70ct)

Station CKRS
Jonquiere, Quebec

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

CKRS

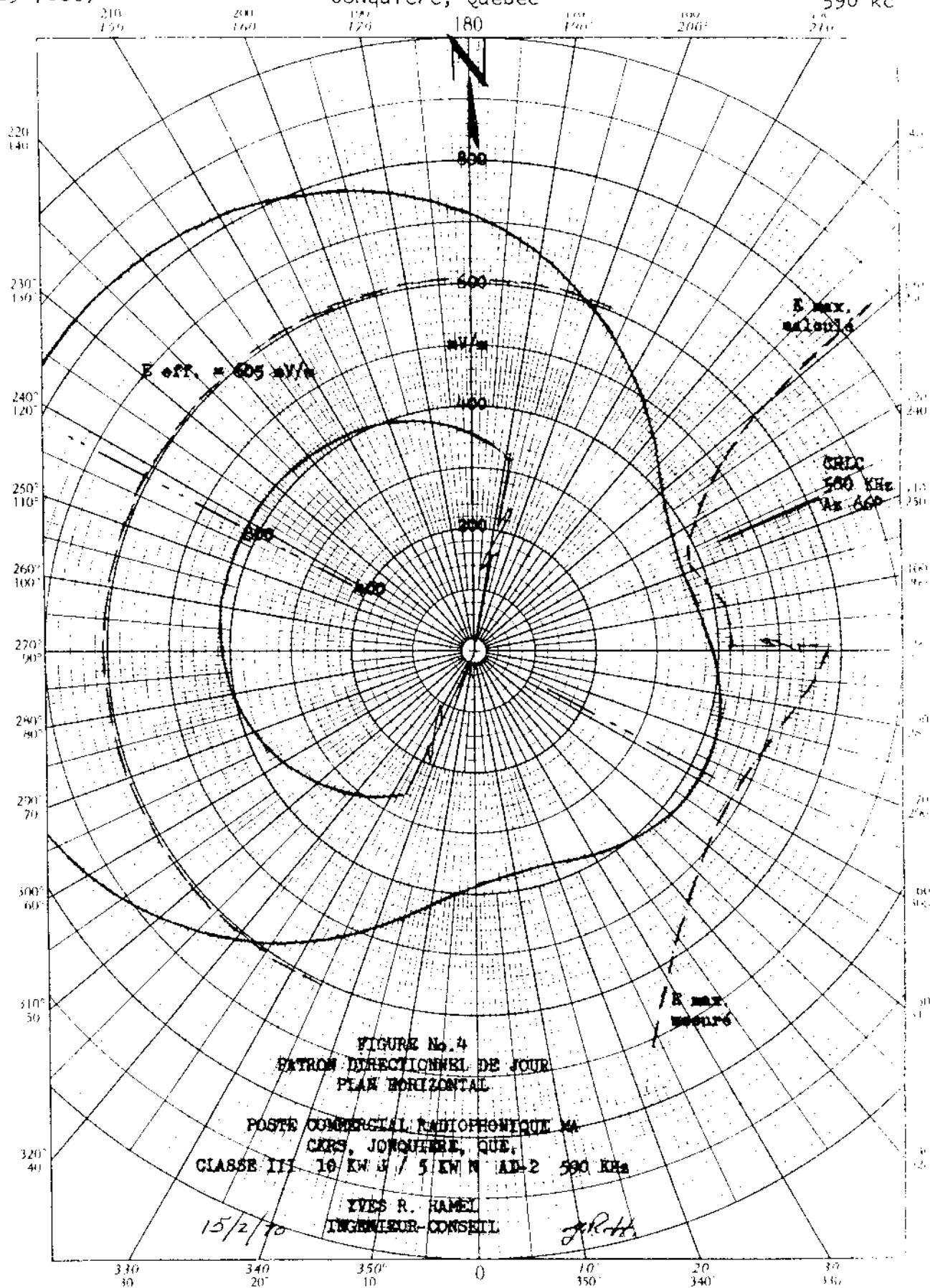
DIRECTIONAL ANTENNA DESCRIPTION

<u>STATION:</u> CKRS	<u>MAIN STUDIO:</u> Jonquiere, Quebec
<u>POWER:</u> 10 Kw D/5 Kw N	<u>FREQUENCY:</u> 590 Kc/s
<u>NOTIFICATION LIST NO:</u> 268	<u>DATE:</u> April 10, 1970.
<u>GEOGRAPHICAL LOCATION:</u>	North Latitude 48° 22' 15" West Longitude 71° 10' 20"
<u>MODE OF OPERATION:</u>	DA-2 <u>CLASS:</u> III
<u>ANTENNA SYSTEM:</u>	Four elements, guyed, uniform cross section, series fed.
<u>TOWER:</u>	No. 1 (NW) No. 2 (E) No. 3 (SE) No. 4 (W)
<u>HEIGHT ABOVE INSULATORS:</u>	300' (65°) 258' (58°) 258' (58°) 300' (65°)
<u>ORIENTATION:</u>	313° 89° 133° 269°
<u>SPACING:</u>	62.6° 33.5° 62.6° 33.5°
<u>PHASING DAY:</u>	-120° 0° - -
<u>PHASING NIGHT:</u>	-135° -25° +135° +14.5°
<u>FIELD RATIO DAY:</u>	0.403 1.0 - -
<u>FIELD RATIO NIGHT:</u>	1.0 0.781 1.0 1.41
<u>GROUND SYSTEM:</u>	120 uniformly spaced radials of #10 AWG solid copper wire of average length 0.4 wavelength centred on each tower and buried approximately 8" deep.
<u>PREDICTED EFFECTIVE FIELD:</u>	Night-time 400 mV/m Day-time 605 mV/m

Proposed Day
(7-29-70ct)

Station CKRS
Jonquiere, Quebec

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



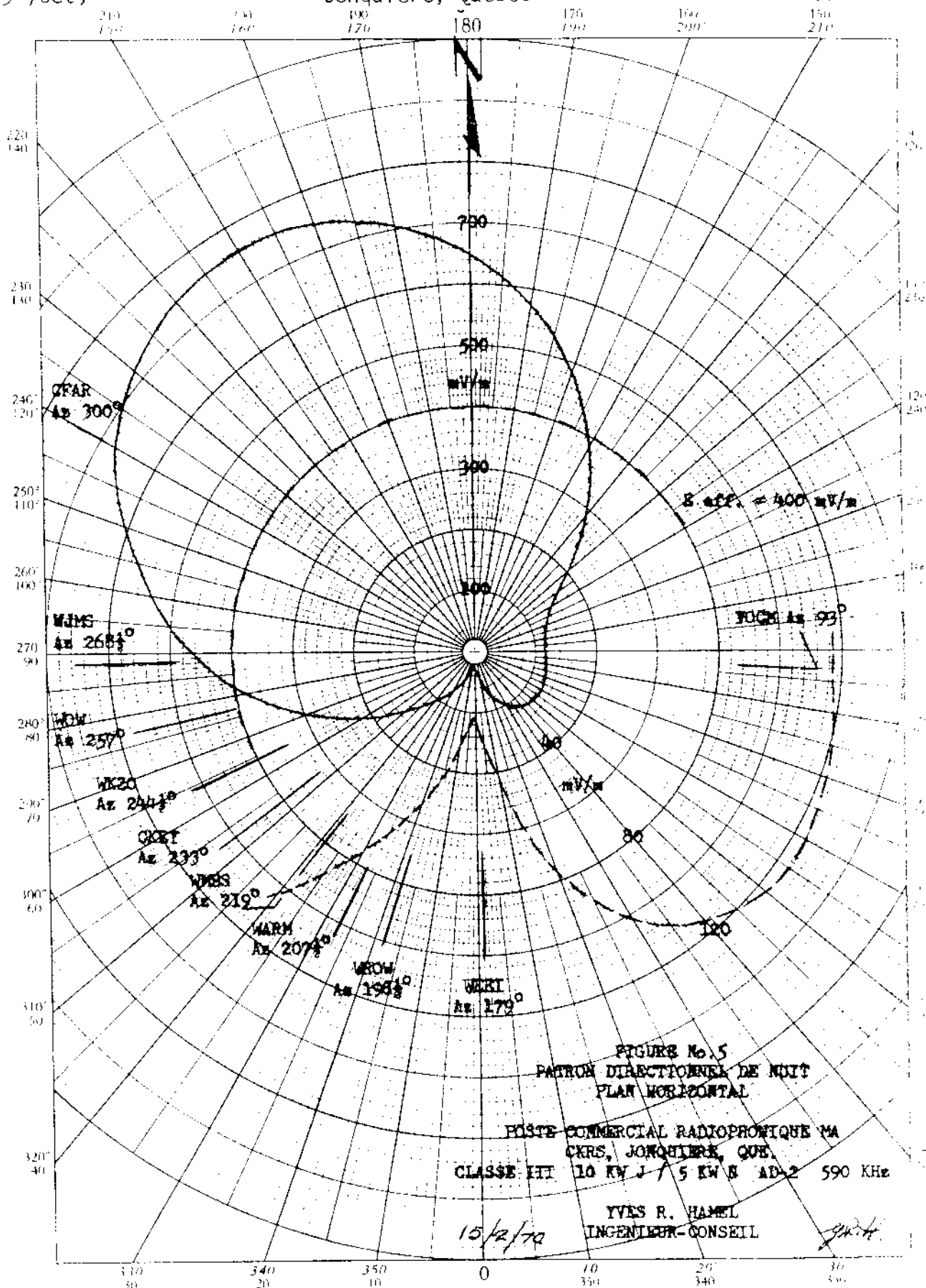
MAGNETIC POLAR CO-ORDINATE 45 4413

CKRS

Proposed Night
(7-29-70ct)

Station CKRS
Jonquiere, Quebec

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



127
DESCRIPTION SHEET
(2-2-59g)

Station VOXM 10kw, DA-N, U, Class III
St. John's Newfoundland, Canada 590 KC

VOXM

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: VOXM Main Studio: St. John's, Nfld.
Frequency: 590 KC Power: 10 KW Class: III
Notification List No. 127 Date: November 28, 1958

GEOGRAPHICAL LOCATION
OF THE ANTENNA SYSTEM:

North Latitude: 47° 32' 38"

West Longitude: 52° 46' 44"

ANTENNA CHARACTERISTICS

Mode of Operation: Directional at night (DA-N)
Number of elements: Two (2)
Type of elements: Uniform cross section guyed steel towers,
base insulated for series feed

TOWER:	# 1 (NE)	# 2 (SW)
HEIGHT ABOVE INSULATORS:	278' (60°)	278' (60°)
OVERALL HEIGHT:	282'	282'
SPACING:	625' (135°) between Towers	
PHASING:	0	+20°
FIELD RATIO:	1.0	1.0
ORIENTATION:	Towers on line bearing 75° East of True North	
GROUND SYSTEM:	120 equiangular spaced radials extend from the tower bases to either a distance of 667 feet (.4 wavelengths) or to the property line. The total area covered is at least equal to that covered by standard ground system (.4 wavelengths) and no radials are shorter than 475 feet (.285 wavelengths). Radials consist of solid copper wire #10 B&S gauge buried approx. 8 inches.	
Predicted effective field	(NIGHT) 547 MV/M (173 MV/M for 1 kw) (DAY) 585 MV/M (185 MV/M for 1 kw)	

127

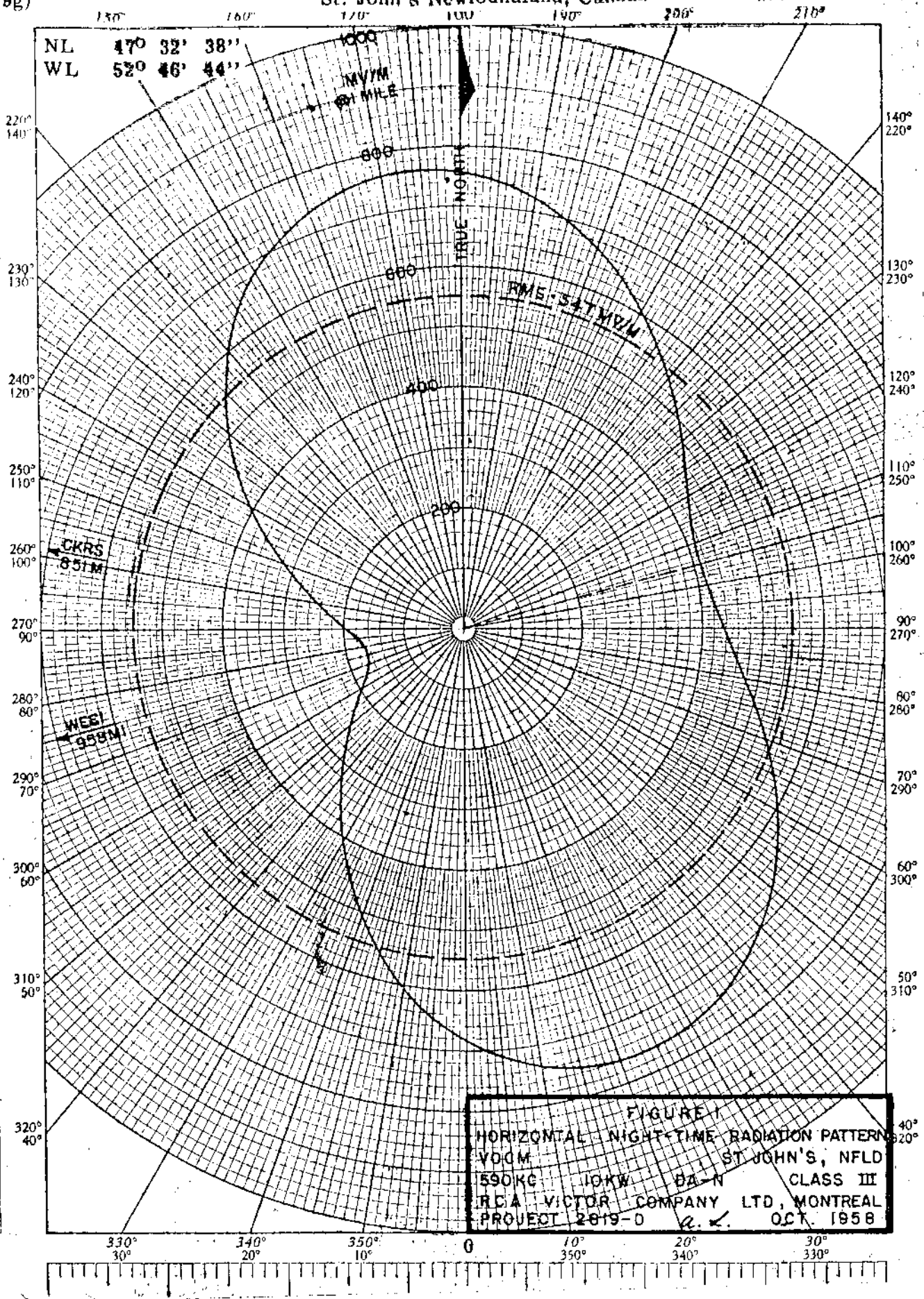
VOL M

PROPOSED NIGHT
(2-2-59g)

Station VOCM
St. John's Newfoundland, Canada

10kw, DA-N, U, Class III
590 KC

K.E. POLAR CO. ORDINATE 359-31
KEUPPEL & BISHOP CO. MADE IN U.S.A.



87019

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: CMCY Main Studio: Santa Clara, L.V.
Frequency: 590kc/s Power: 25kw
Date: Received October 16, 1952
Class: I-D
GEOGRAPHICAL LOCATION OF THE
ANTENNA SYSTEM: North Latitude: 23° 08'
West Longitude: 82° 25'

ANTENNA CHARACTERISTICS

Number of elements: Three (3)
Type of elements: Series-fed self supporting, semi-uniform cross-section,
vertical steel towers.

Tower:	East	Center	West
Height Above Insulators:	235'	415'	235'
Spacing:	415' or 90° between adjacent towers.		
Phasing:	152°	0°	-48°
Current Ratios:	1.0	.445	1.0

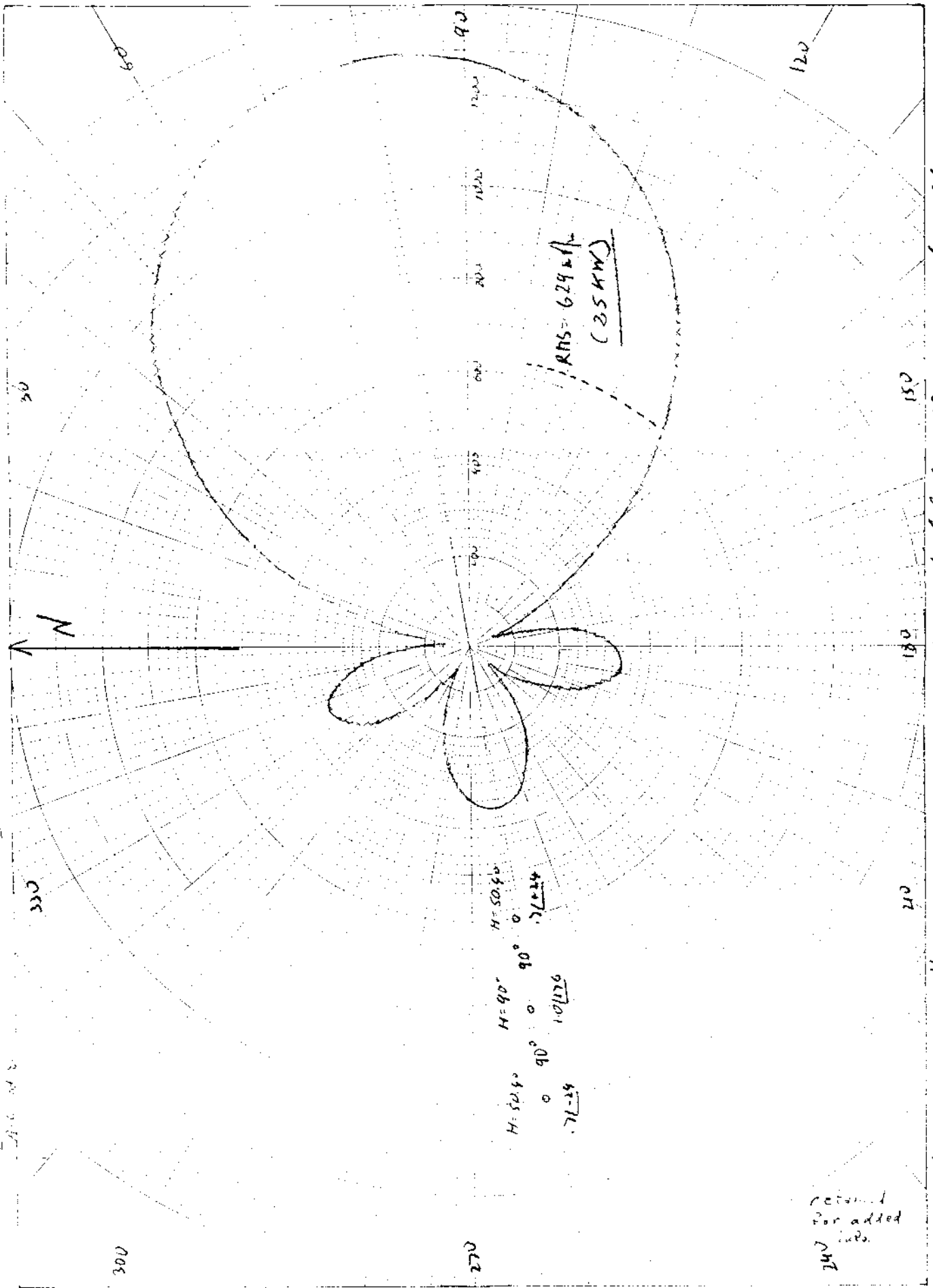
Orientation: Elements on a line bearing 81° true.

Predicted effective Field: 629 mv/m at rated power.

F.C.C. Note:

This pattern supplements the particulars
for this station set forth in Annex 3 to
the North American Regional Broadcasting
Agreement, Washington, D. C. 1950.

CMLY
CMLY-540Kc

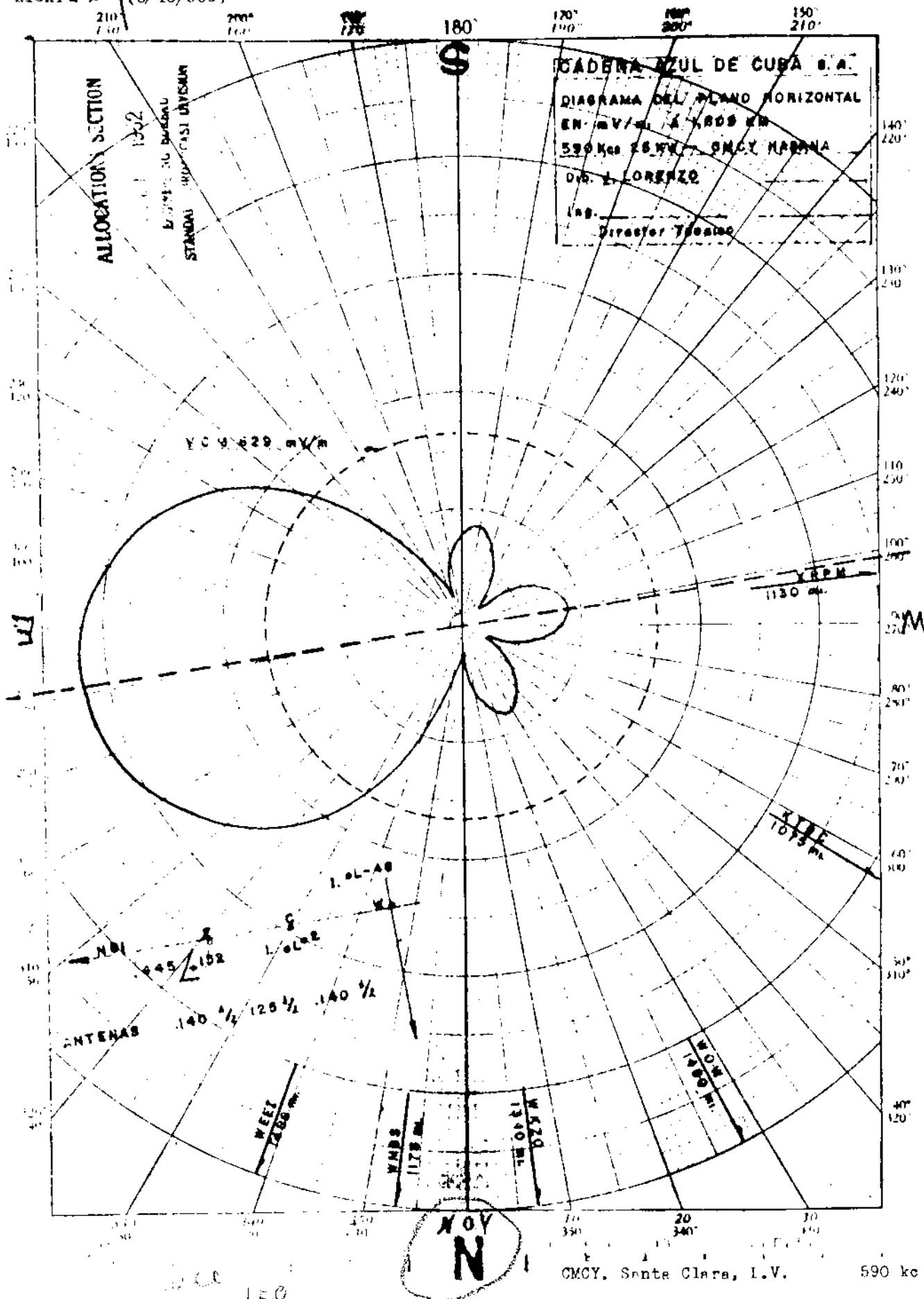


Note. This pattern not approved, but most likely the one actually in operation. Information from Layfield (FCC) 4-5-50 (LPS)

revised
for added
info.

CMGY

590 kc



590 kc

Proposed Night
(3-29-67ct)

Station KBHS
Hot Springs, Arkansas

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

N. LAT. 34° 27' 40"
W. LONG. 92° 58' 47"

--- EXPANDED
--- MEOV

N 50° E
● 1.15/163.3°

195°
903.6'

● 2.68/53.3°

195°
903.6'

● 2.35/-54.4°

195°
903.6'

● 1/-163.3°

ALL TOWERS:
G = 66°, 305'

NO. 340R-P DIETZEN GRAPH PAPER
POLAR CO-ORDINATE

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

RMS = 176 MV/M

SERGE BERGEN
CONSULTING ENGINEER
FAIRFAX VIRGINIA

PROPOSED OPERATION KBHS
590KC, 5KW-D, 1KW-N, DA-N
HOT SPRINGS ARKANSAS
TIM TIMOTHY, INC.

FCC File No. BP-17526
Accepted 3-14-67

Station KBHS
Hot Springs, Arkansas

590 kc

BP 17526
Amended
(1-31-69)
application
To change
antenna
site to:
N. Lat. 34° 28' 20"
W. Long. 92° 58' 25"

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KCSJ

Main Studio: Pueblo, Colorado

Frequency: 590 kHz

Power: 1 kW

Notification List No. 1582

Date: May 30, 1974

Class: III

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 38° 21' 30"

West Longitude: 104° 38' 13"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2)

Number of elements: 3

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

TOWER:	W(#1)	N(#2)	E(#3)	
HEIGHT ABOVE INSULATORS:	420'	420'	420'	(90.66°)
NIGHT PHASING:	-165°	-25°	+165°	
NIGHT FIELD RATIO:	0.5	0.5	0.5	
DAY PHASING:	0°	+90°	0°	
DAY FIELD RATIO:	1.0	0.6	0.5	

SPACING AND

ORIENTATION: From reference tower #1: tower #2 is spaced 532.768' (115°) on a line bearing 34.5° true, and tower #3 is spaced 741.243' (160°) on a line bearing 79.5° true.

GROUND SYSTEM: 120-420' equally spaced copper radials plus 120-100' inter-spaced radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers. Antennas of systems are bonded together.

KCSJ

2.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

THEORETICAL		STANDARD	
	<u>RMS</u>	<u>RSS</u>	<u>RMS</u>
Daytime	184.33 mv/m	296.77 mv/m	193.7 mv/m
Nighttime	175 mv/m	-	-

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

CTR NO. 30279A3

KCSJ

EXHIBIT NO. E-7

STANDARD RADIATION PATTERN
 $E(\theta, 0)_{std}$
 (Daytime Horizontal Ground Plane)

PROPOSED KCSJ OPERATION
 American Radio Corporation of Kansas
 590 kHz, 1 kW-U, DA-2
 Pueblo, Colorado
 September 1973

DAYTIME PATTERN

DAYTIME
 STANDARD RADIATION PATTERN
 $\theta = 0^\circ$

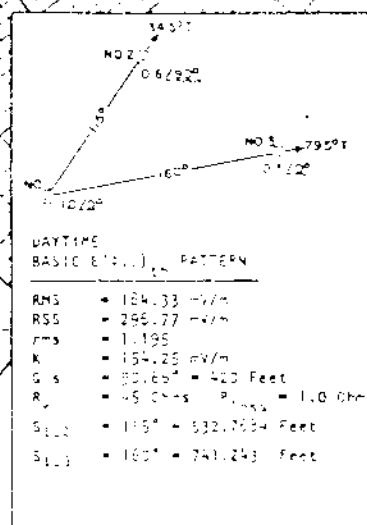
RMS = 193.7 mV/m
 RSS = 311.56 mV/m

$E(\theta, 0)_{std} = 1.05(E(\theta, 0)_{th}^2 + Q^2)^{1/2}$

$Q = 0.025F(5)296.77 \quad Q = 7.42$

$P_{KW} = 1.0$

N $38^\circ 21' 30''$
 W $104^\circ 38' 13''$



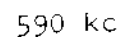


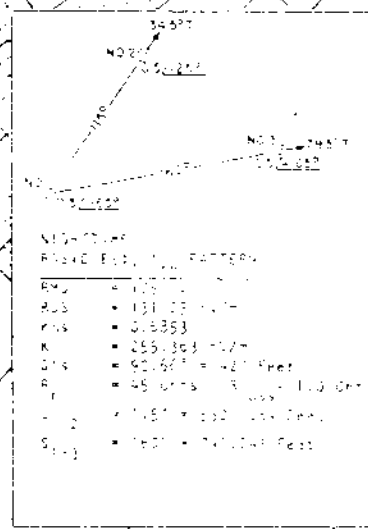
EXHIBIT NO. E-16

AMENDED

BASIC E(6.0)th NIGHTTIME PATTERN

PROPOSED KCSJ OPERATION
American Radio Corporation of Kansas
590 kHz, 1 kW-U, DA-2
Pueblo, Colorado
November 1973

N 38° 21' 30"
W 104° 53' 13"



NIGHTTIME - MEQV
 $E(f, f)_{MEQV} = 1.05(E(f, f)_{th} + Q^2)^{\frac{1}{2}}$
 $Q = 6.0 F(f) (P_{kw})^{\frac{1}{2}}$
 $P_{kw} = 1.0$



EXHIBIT No. E-17A
NIGHTTIME CONICAL SECTION OF E (Φ , O) _{std}
 $\Theta = 5^\circ$
Proposed KCSJ Operation
American Radio Corporation of Kansas
590 kHz, 1 kW-U, DA-2
Pueblo, Colorado
November 1973

KCSJ

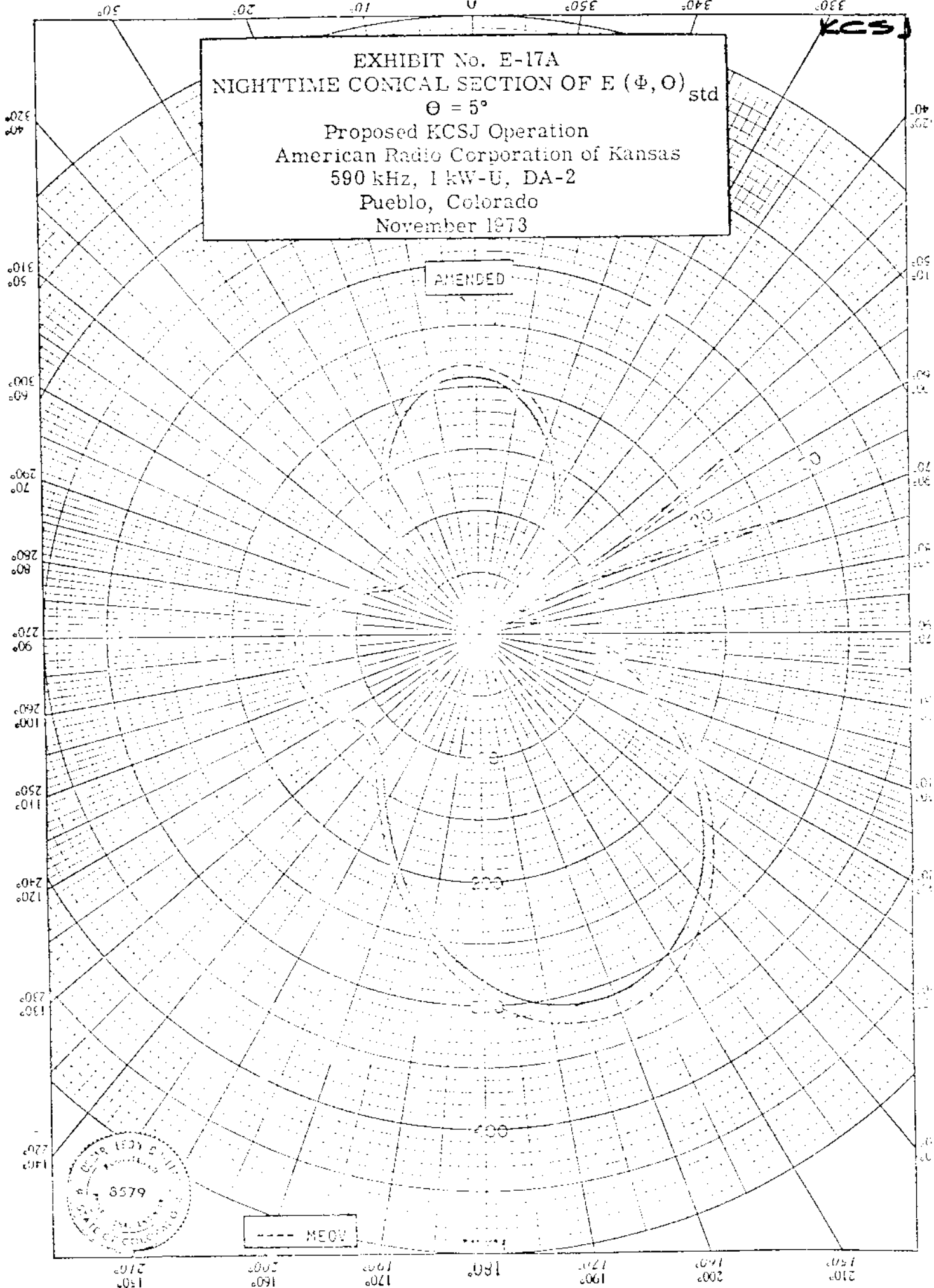


EXHIBIT No. E-17B
NIGHTTIME CONICAL SECTION OF E (Φ , O)_{std}
 $\Theta = 10^\circ$
Proposed KCSJ Operation
American Radio Corporation of Kansas
590 kHz, 1 kW-U, DA-2
Pueblo, Colorado
November 1973

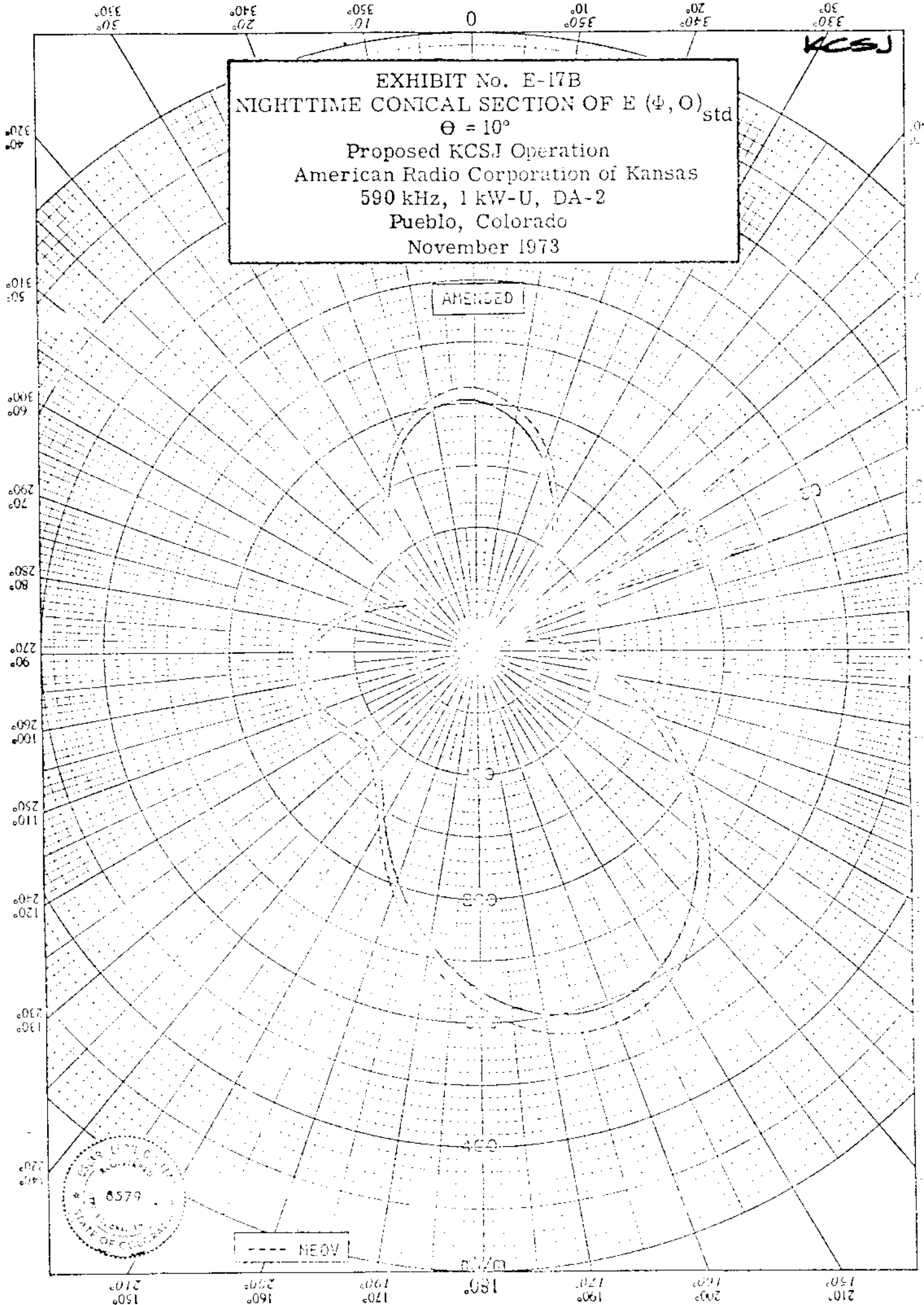


EXHIBIT No. E-17C
NIGHTTIME CONICAL SECTION OF E (Φ, Θ)_{std}

$\Theta = 15^\circ$

Proposed KCSJ Operation
American Radio Corporation of Kansas
590 kHz, 1 kW-U, DA-2
Pueblo, Colorado
November 1973

AMENDED



MEOV

EXHIBIT No. E-17D
NIGHTTIME CONICAL SECTION OF E (Φ , Θ)_{std}

$\Theta = 20^\circ$

Proposed KCSJ Operation
American Radio Corporation of Kansas
590 kHz, 1 kW-U, DA-2
Pueblo, Colorado
November 1973

AMENDED



NEGV

KCSJ

EXHIBIT No. E-17E
NIGHTTIME CONICAL SECTION OF E (Φ , Θ)_{std}
 $\Theta = 25^\circ$
Proposed KCSJ Operation
American Radio Corporation of Kansas
590 kHz, 1 kW-U, DA-2
Pueblo, Colorado
November 1973

AMENDED



NEOV

40°
50°
60°
70°
80°
90°
100°
110°
120°
130°
140°

330° 30° 20° 10° 0° 10° 20° 30° 350° 340° 330°

150° 160° 170° 180° 190° 200° 210°

EXHIBIT No. E-17F
NIGHTTIME CONICAL SECTION OF E (Φ , O)_{std}
 $\Theta=30^\circ$
Proposed KCSJ Operation
American Radio Corporation of Kansas
590 kHz, 1 kW-U, DA-2
Pueblo, Colorado
November 1973

AMENDED



MEGV

mV/m

EXHIBIT No. E-17G
NIGHTTIME CONICAL SECTION OF E (Φ , Θ)_{std}
 $\Theta=35^\circ$
Proposed KCSJ Operation
American Radio Corporation of Kansas
590 kHz, 1 kW-U, DA-2
Pueblo, Colorado
November 1973

AMENDED 11



MEOV

mV/m

KCSJ

EXHIBIT No. E-17H
NIGHTTIME CONICAL SECTION OF E (Φ, Θ)_{std}
 $\Theta = 40^\circ$
Proposed KCSJ Operation
American Radio Corporation of Kansas
590 kHz, 1 kW-U, DA-2
Pueblo, Colorado
November 1973

AMENDED



MEOV

mV/m

EXHIBIT No. E-171
NIGHTTIME CONICAL SECTION OF E (Φ, Θ)_{std}
 $\Theta = 45^\circ$
Proposed KCSJ Operation
American Radio Corporation of Kansas
590 kHz, 1 kW-U, DA-2
Pueblo, Colorado
November 1973

AMENDED



MEOV

mV/m

EXHIBIT No. E-17J
NIGHTTIME CONICAL SECTION OF E (Φ , O)_{std}
 $\Theta=50^\circ$
Proposed KCSJ Operation
American Radio Corporation of Kansas
590 kHz, 1 kW-U, DA-2
Pueblo, Colorado
November 1973

AMENDED

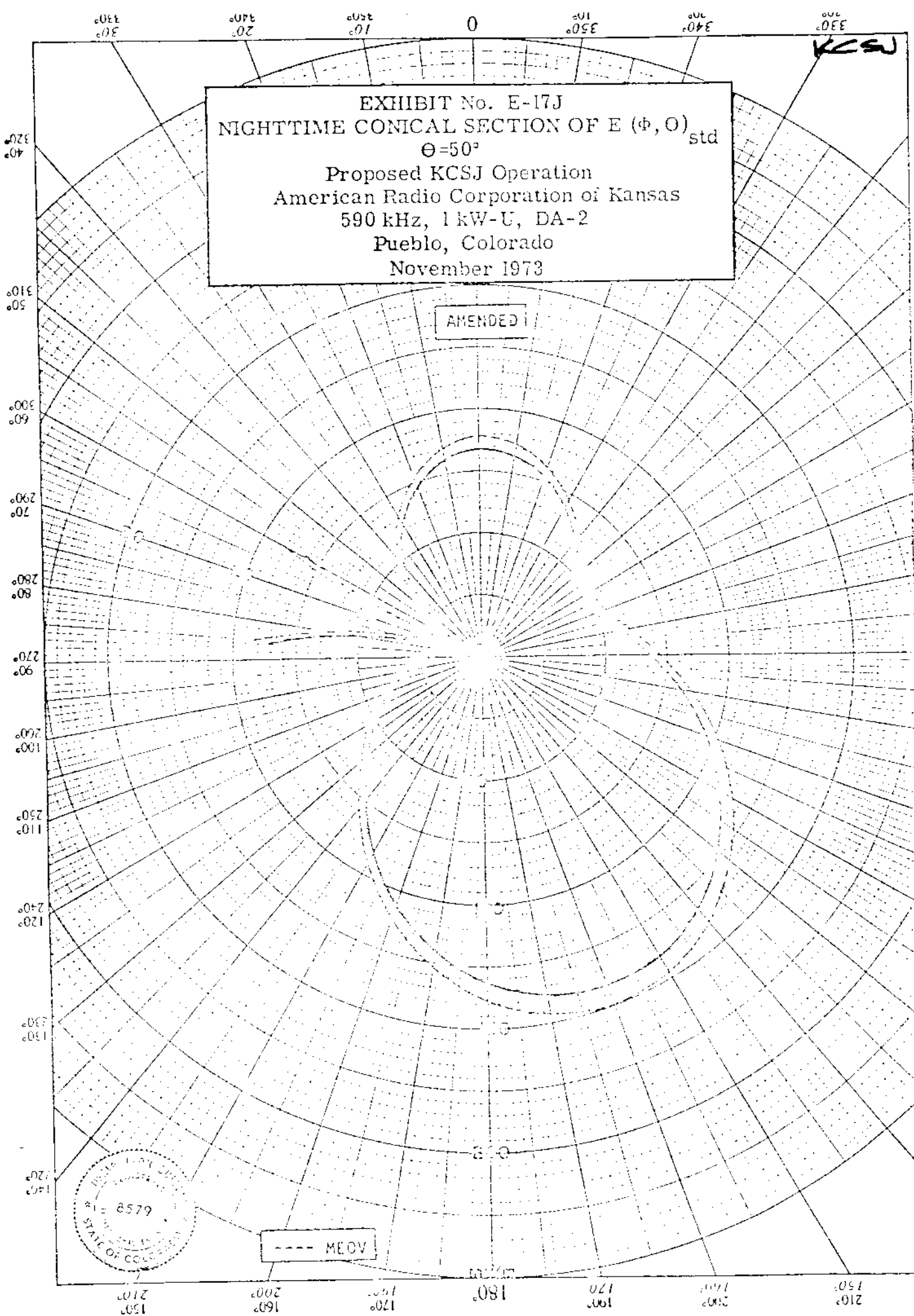


EXHIBIT No. E-17K
 NIGHTTIME CONICAL SECTION OF E (Φ , Θ)_{std}
 $Q=55^\circ$
 Proposed KCSJ Operation
 American Radio Corporation of Kansas
 590 kHz, 1 kW-U, DA-2
 Pueblo, Colorado
 November 1973

AMENDED



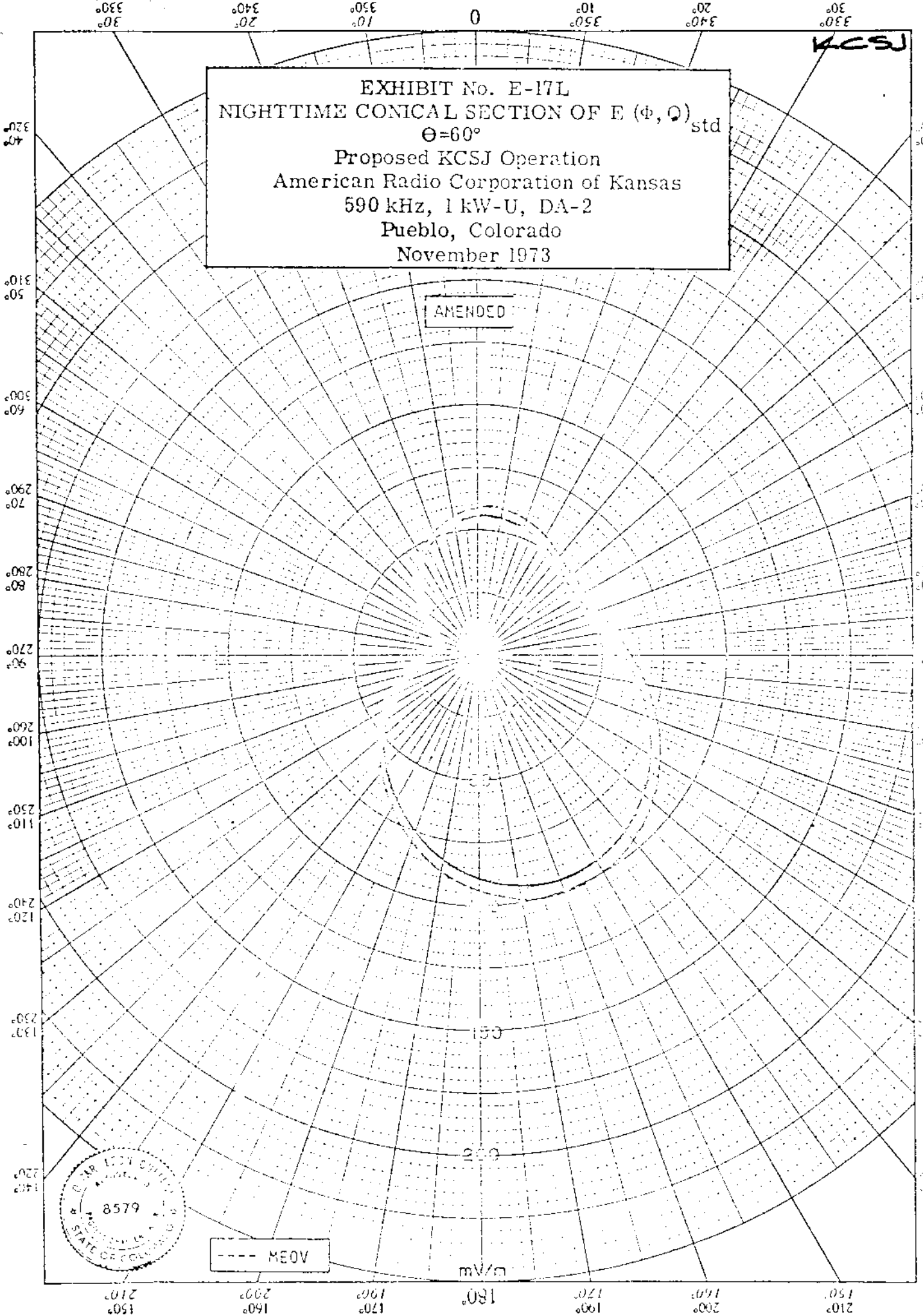
MEOV

m/m

KCSJ

EXHIBIT No. E-17L
NIGHTTIME CONICAL SECTION OF E (Φ , Θ)_{std}
 $\Theta=60^\circ$
Proposed KCSJ Operation
American Radio Corporation of Kansas
590 kHz, 1 kW-U, DA-2
Pueblo, Colorado
November 1973

AMENDED

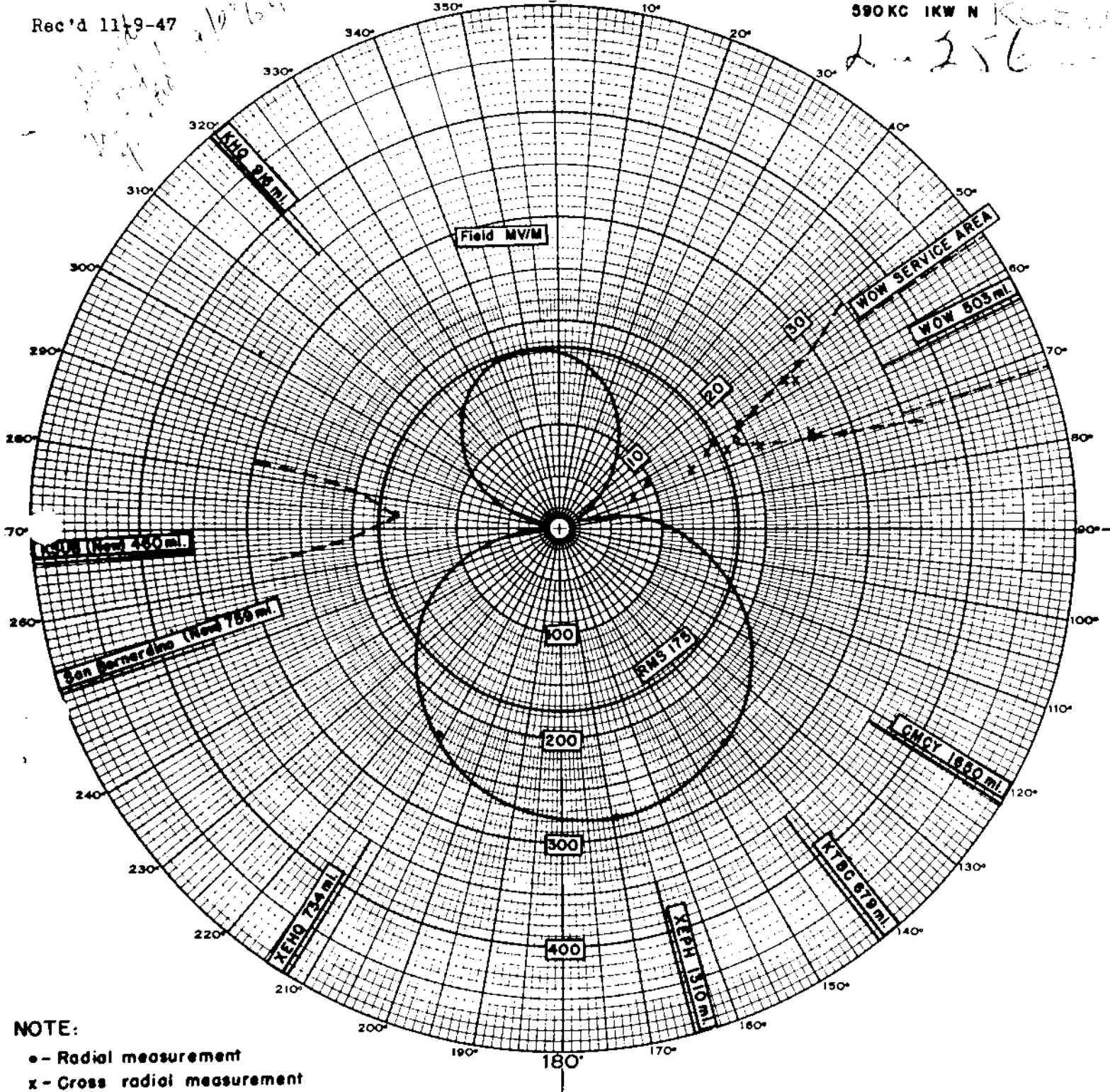


8579
STATE OF COLORADO

MEOV

mV/m

2-256



NOTE:

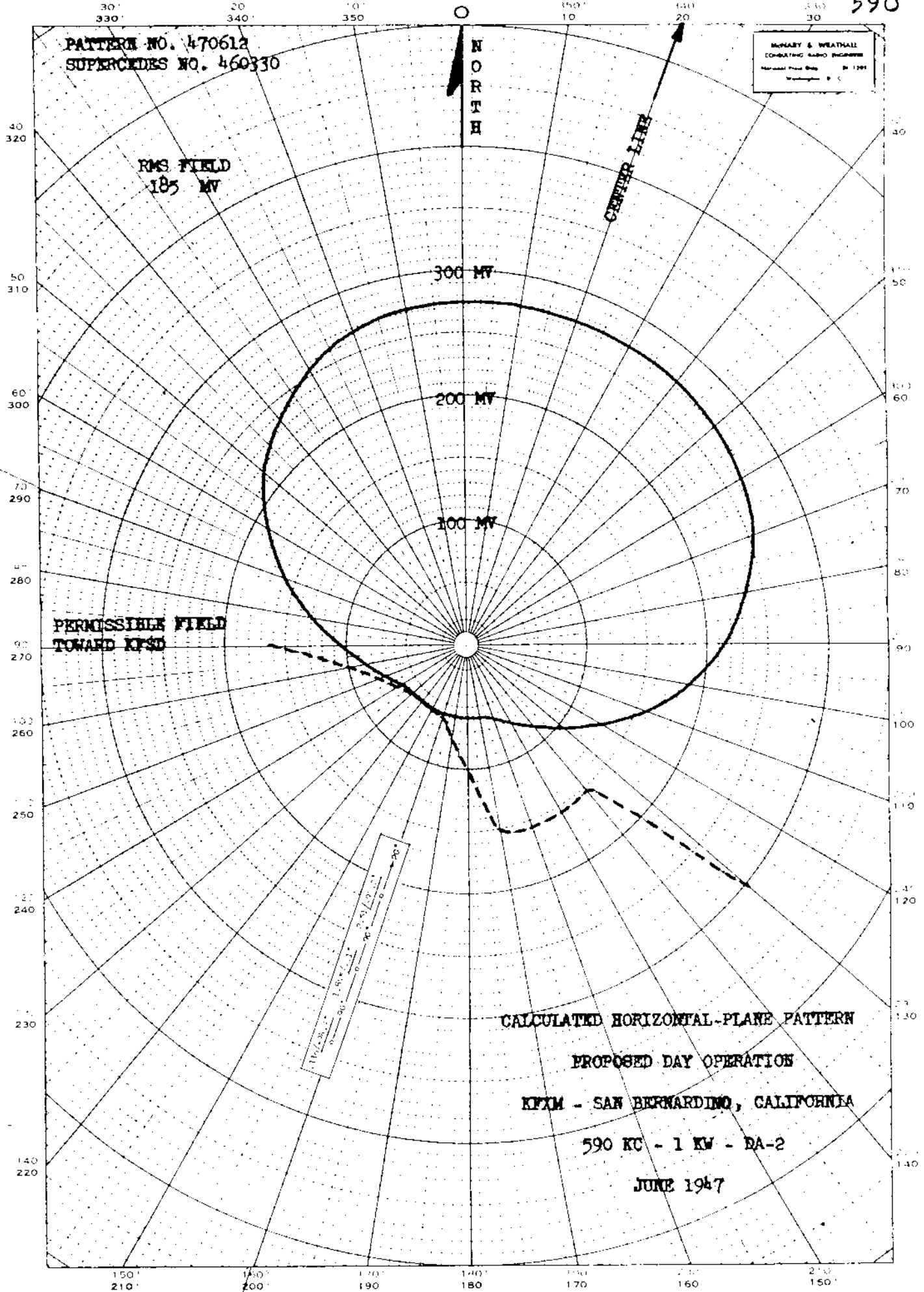
- - Radial measurement
- x - Cross radial measurement

STATION KCSJ PUEBLO, COLORADO		Figure 14 Series 470703C	
		590 KC 1000 WATTS NIGHT	
		MEASURED	
		DIRECTIONAL ANTENNA PATTERN	
		FRANK H. McINTOSH	
		Consulting Radio Engineer	
		Washington, D.C.	

KFXM
590

PATTERN NO. 470612
SUPERCEDES NO. 460330

MURPHY & WEAVER
CONSULTING RADIO ENGINEERS
Hartford, Conn. 61 1941
Washington, D. C.

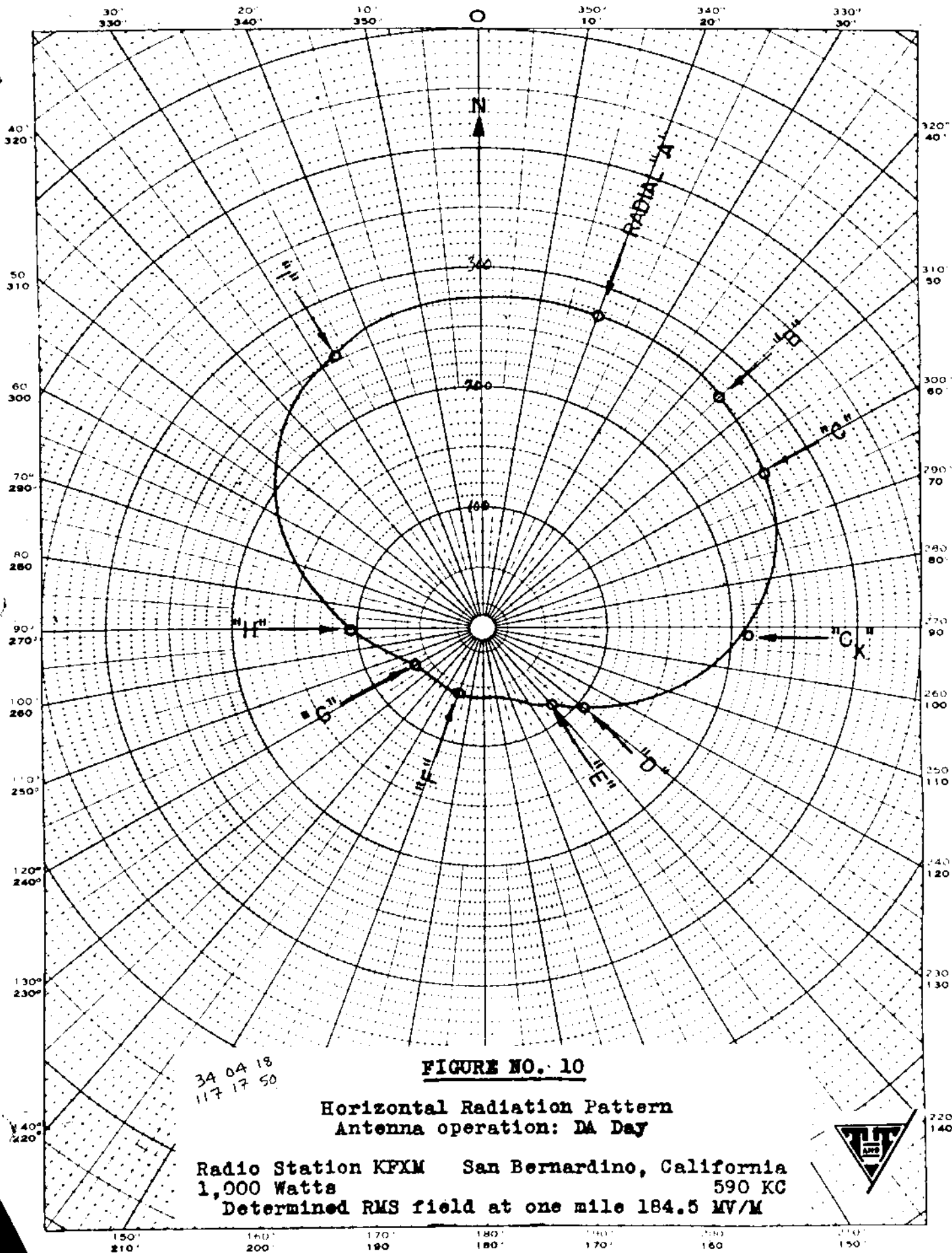


Rec'd 1-28-48

KFXM

EUGENE DIETZEN CO.
SAN BERNARDINO, CALIF.

NO. 3404 DIETZEN PAPER GATE
POLAR CO-ORDINATE



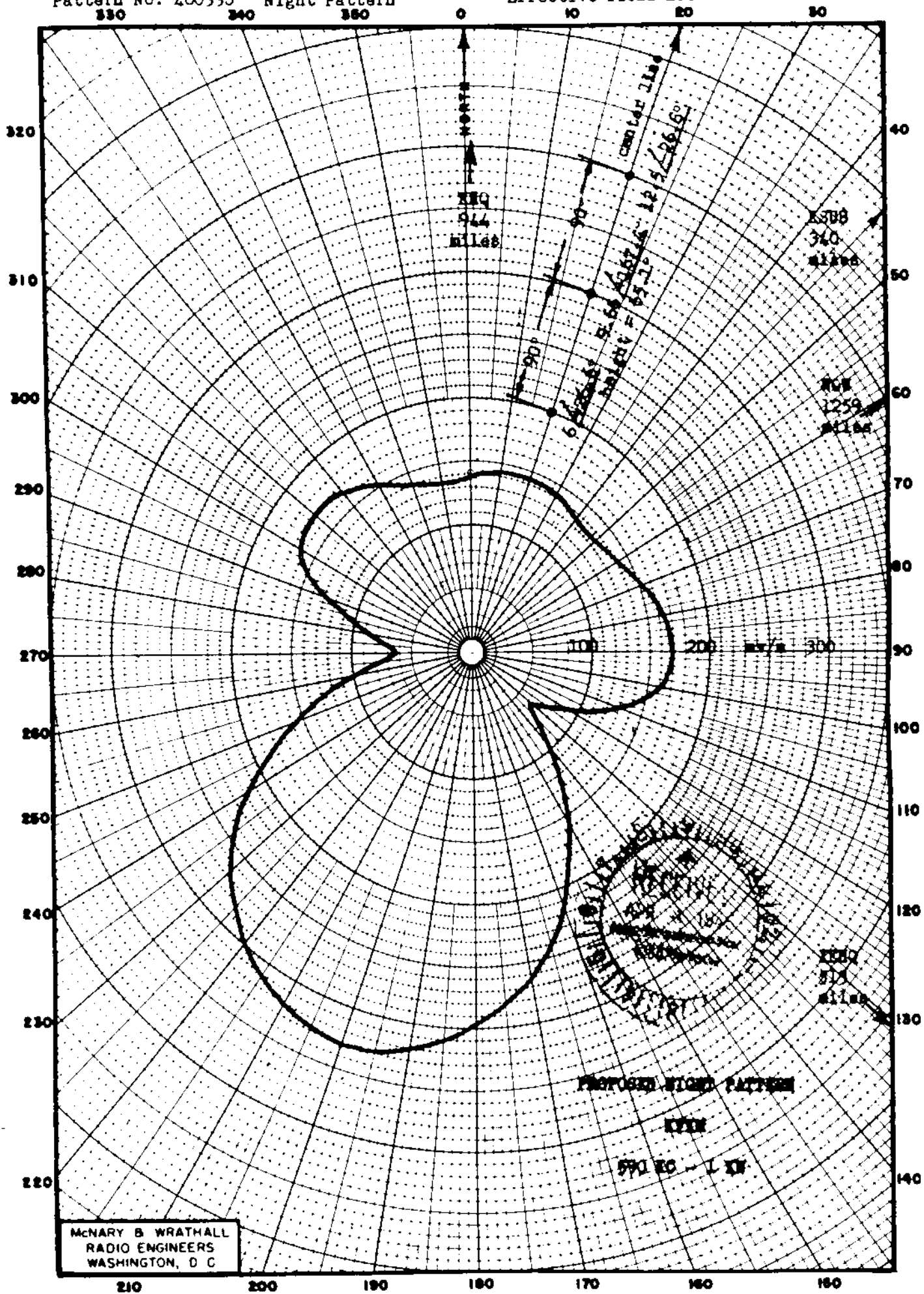
34 04 18
117 17 50

FIGURE NO. 10

Horizontal Radiation Pattern
Antenna operation: DA Day

Radio Station KFXM San Bernardino, California
1,000 Watts 590 KC
Determined RMS field at one mile 184.5 MV/M





EUGENE C. 17N CO

NO 340-P DIETZEN GRAPH PLW
POLAR CO-ORDINATE

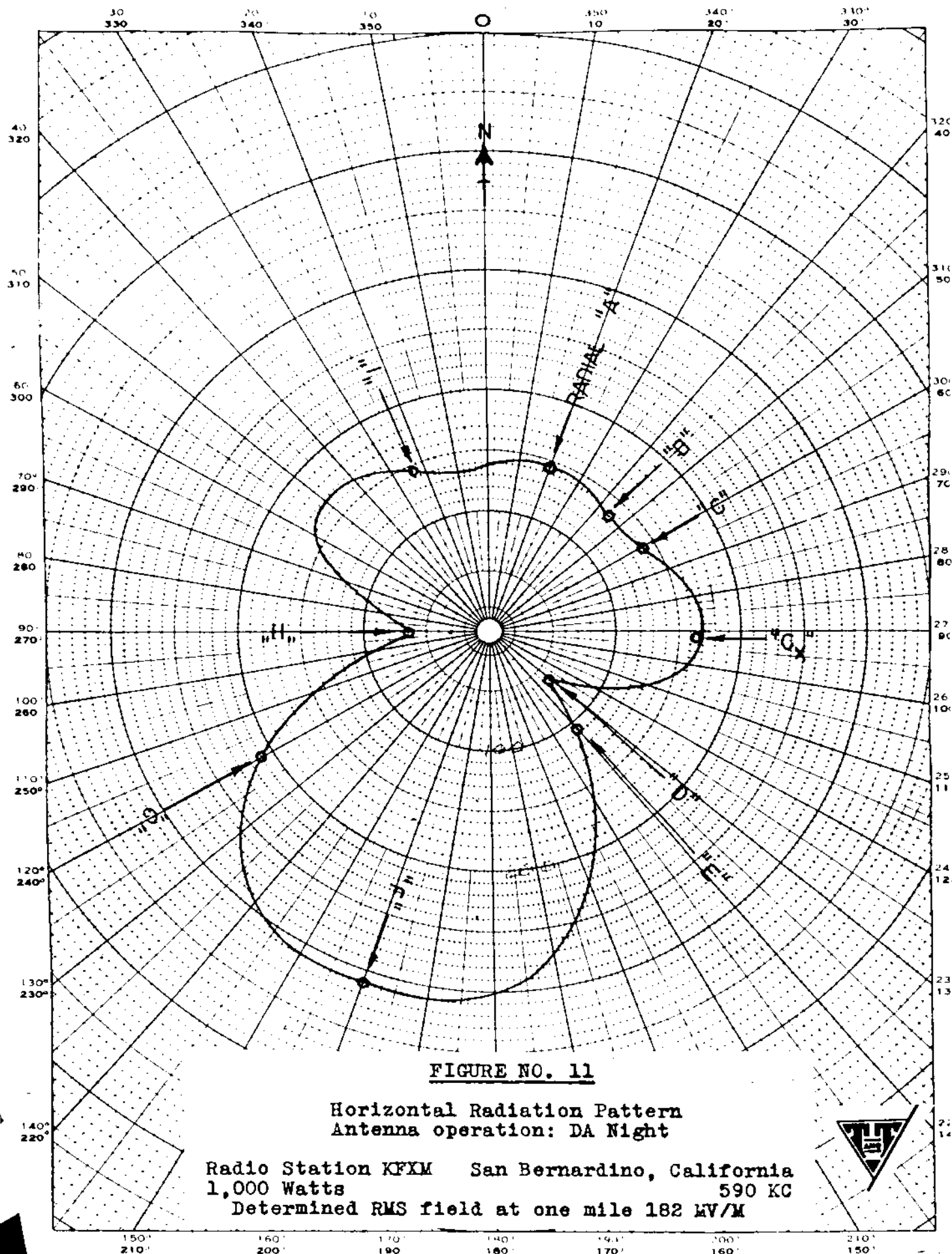


FIGURE NO. 11

Horizontal Radiation Pattern
Antenna operation: DA Night

Radio Station KFXM San Bernardino, California
1,000 Watts 590 KC
Determined RMS field at one mile 182 KV/M



KID

PROPOSED
NIGHT

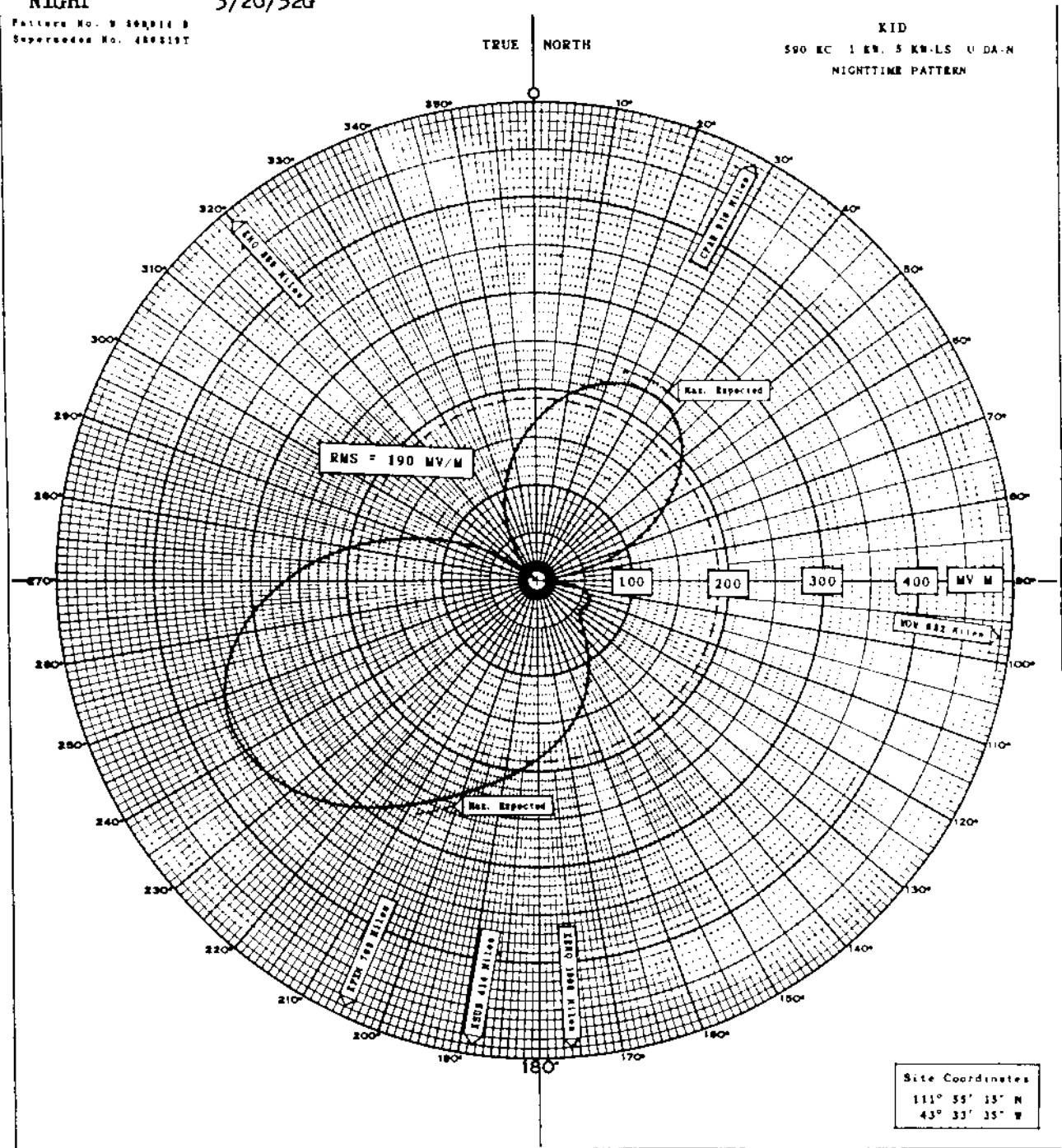
KID, IDAHO FALLS, IDAHO
3/26/52G

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

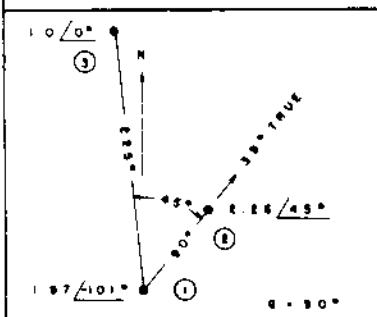
590 kc

Pattern No. 9 58914 9
Supersedes No. 486117

KID
590 KC 1 KW, 5 KW-LS U DA-N
NIGHTTIME PATTERN



CALCULATED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN



IDAHO RADIO CORPORATION

WELDON & CARR Consulting Radio Engineers
Dallas • Washington • Seattle

KID
IDAHO FALLS IDAHO
590 KC 1 KW, 5 KW-LS U DA-N

APPL RECD 10/4/50 CRTD 3/7/51 BMP-3308 Amended

KID, IDAHO FALLS, IDAHO

590 kc

KIL

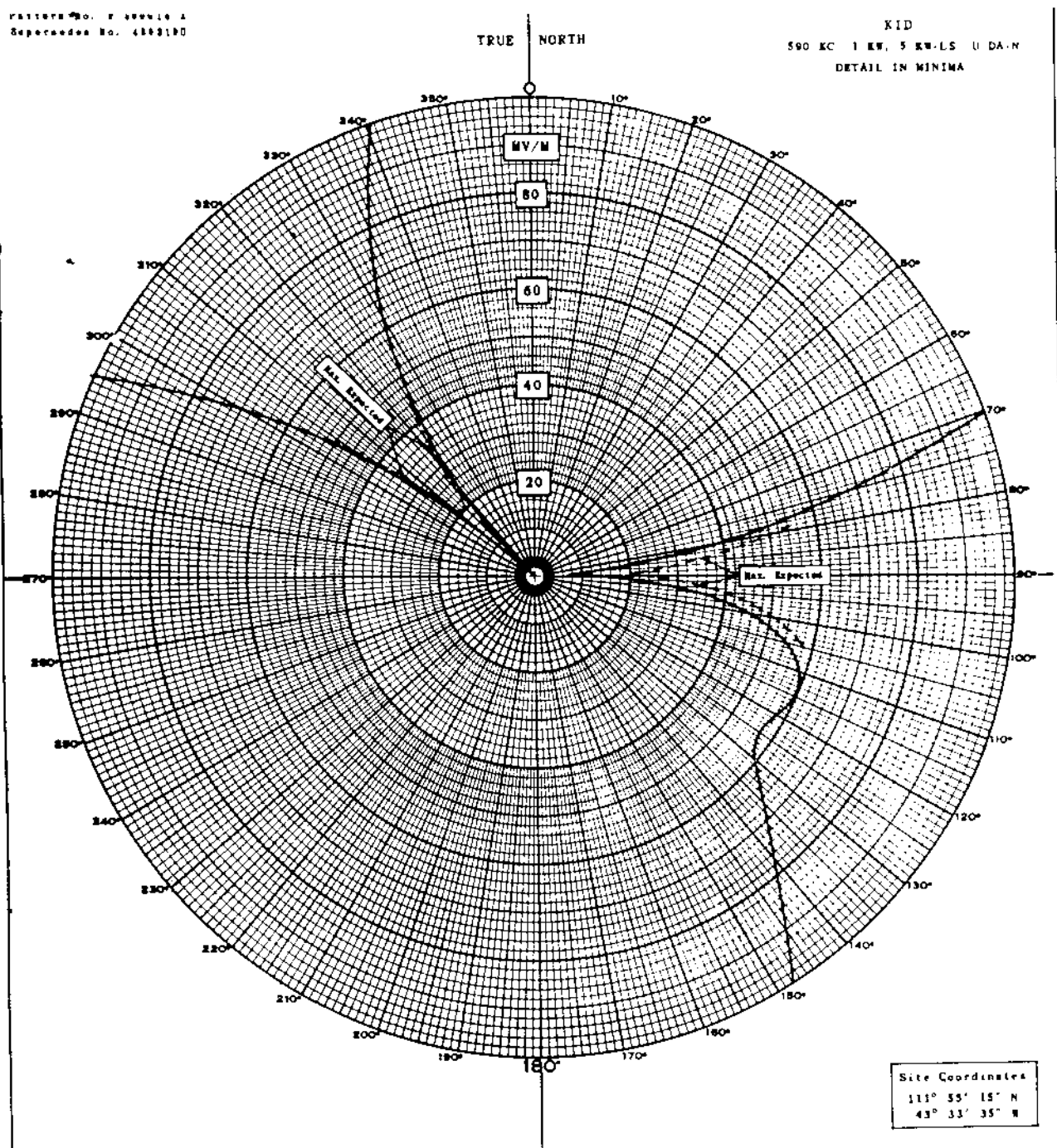
PROPOSED
NIGHT NULLS

KID, IDAHO FALLS, IDAHO
3/26/52G

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

590 kc

PATENT No. 2,400,110
Superceded No. 4,193,130



CALCULATED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

DETAIL IN MINIMA	IDAHO RADIO CORPORATION	KID
	WELDON & CARR Consulting Radio Engineers Dallas * Washington * Seattle	IDAHO FALLS IDAHO 590 KC 1 KW, 5 KW-LS U DA-N

APPL RECD 10/4/50 CRTD 3/7/51 EMP-3308 Amended

KID, IDAHO FALLS, IDAHO

590 kc

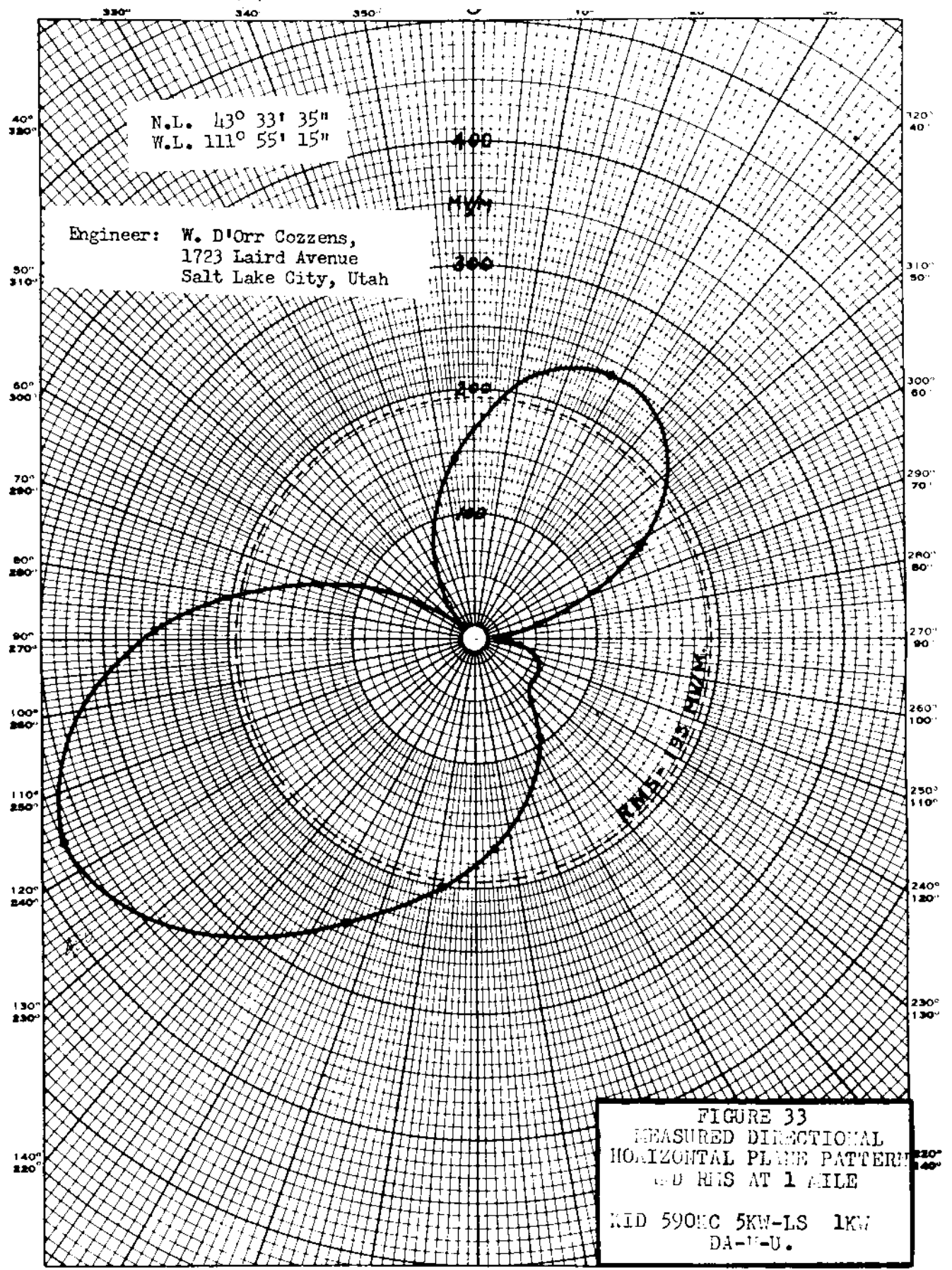
KID

MEASURED
NIGHT

KID, IDAHO FALLS, IDAHO
1/7/52G

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

590 KC



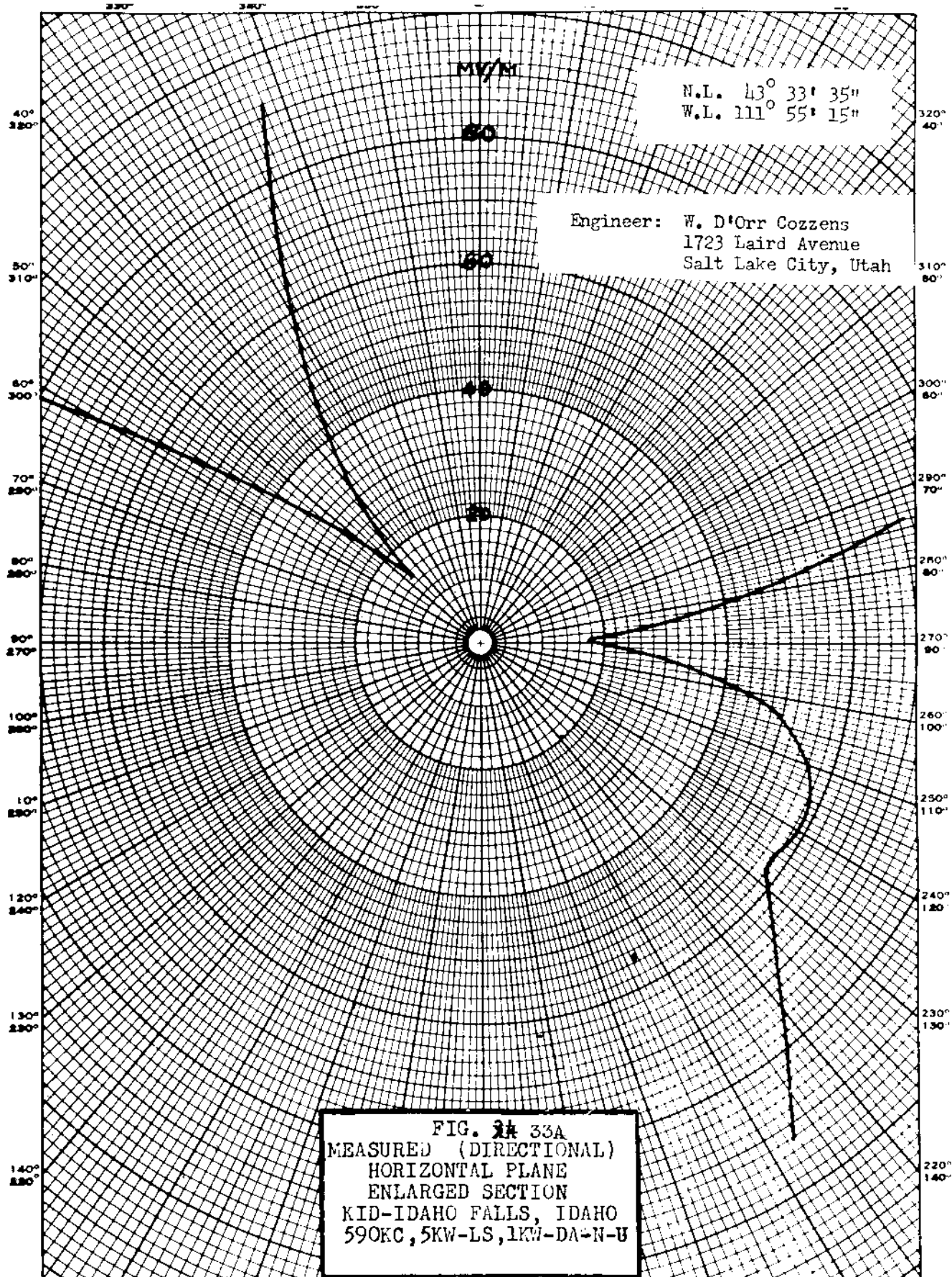
KID

MEASURED
NIGHT NULLS

KID, IDAHO FALLS, IDAHO
1/7/52G

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

590 KC



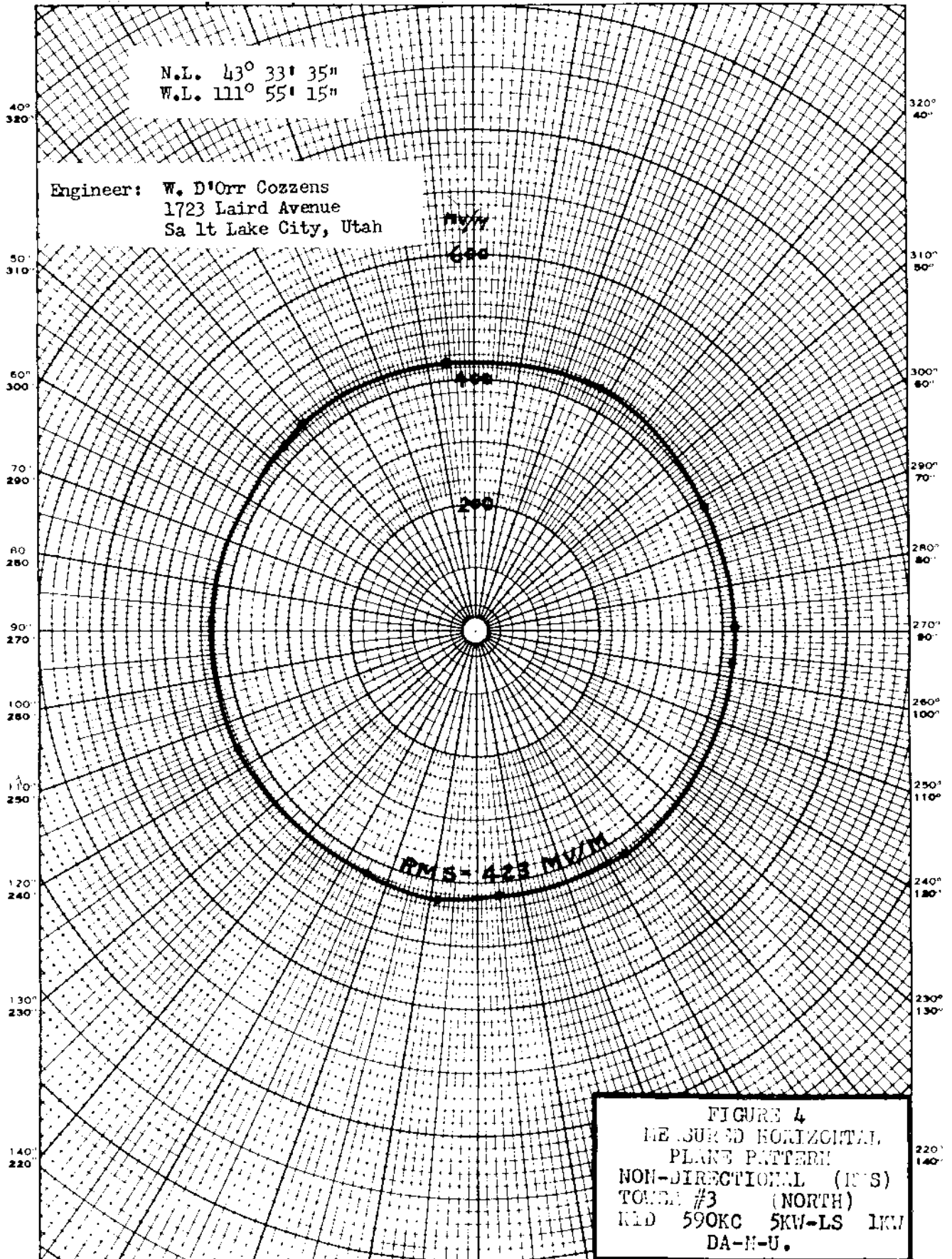
KID

MEASURED
NON-DA

KID, IDAHO FALLS, IDAHO
1/7/52G

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

590 KC



APPL RECD 12/13/51 ACC 12/26/51 BL-4618

KID, IDAHO FALLS, IDAHO

590 KC

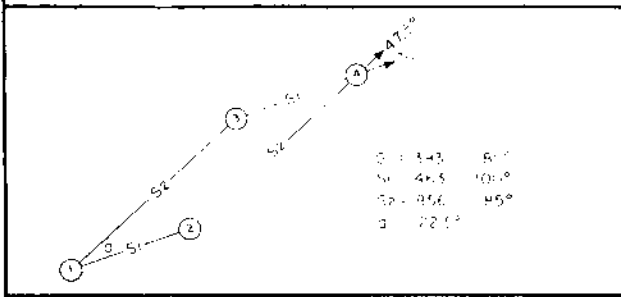
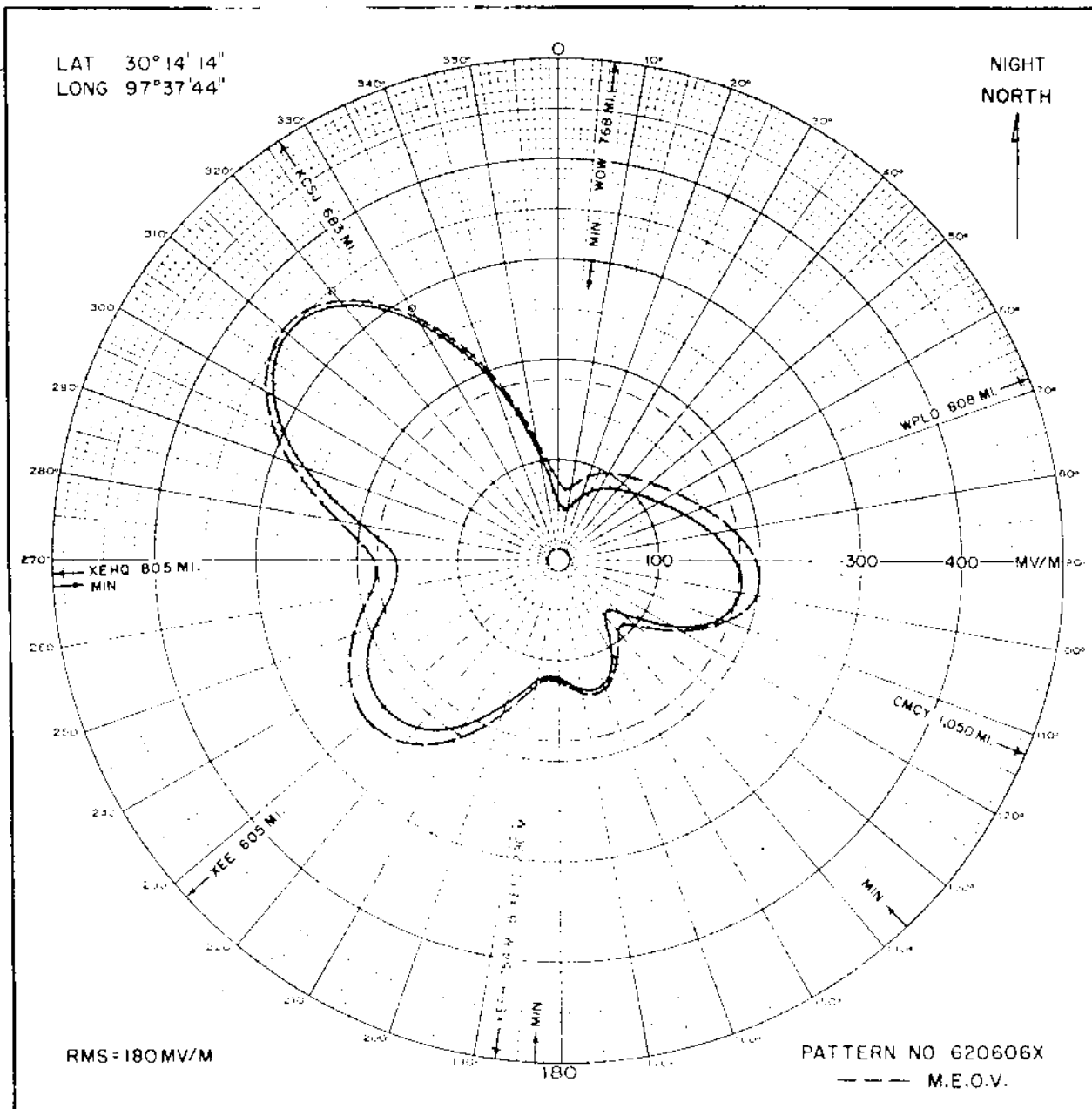
* KLBJ

Proposed Night
(8-23-63ct)

Station KTBC
Austin, Texas

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

*Started 2P
(9-18-63)
4 story antenna
relocated location
make changes in
pattern*



TOWER	1	2	3	4
PHASE	0	140	- 35	105
FIELD	1.00	.78	.53	.414

PREPARED BY
THE FIRM OF A. EARL CULLUM, JR.
CONSULTING ENGINEERS
Station KTBC
Austin, Texas

RADIO STATION KTBC
590 KC 1 KW 5 KW-LS DA-N
620606.2X
FIGURE 6A

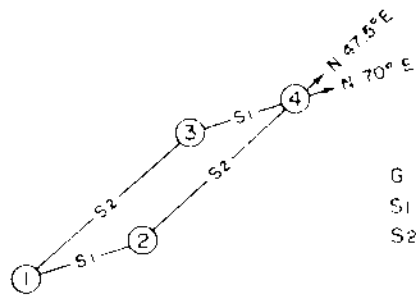
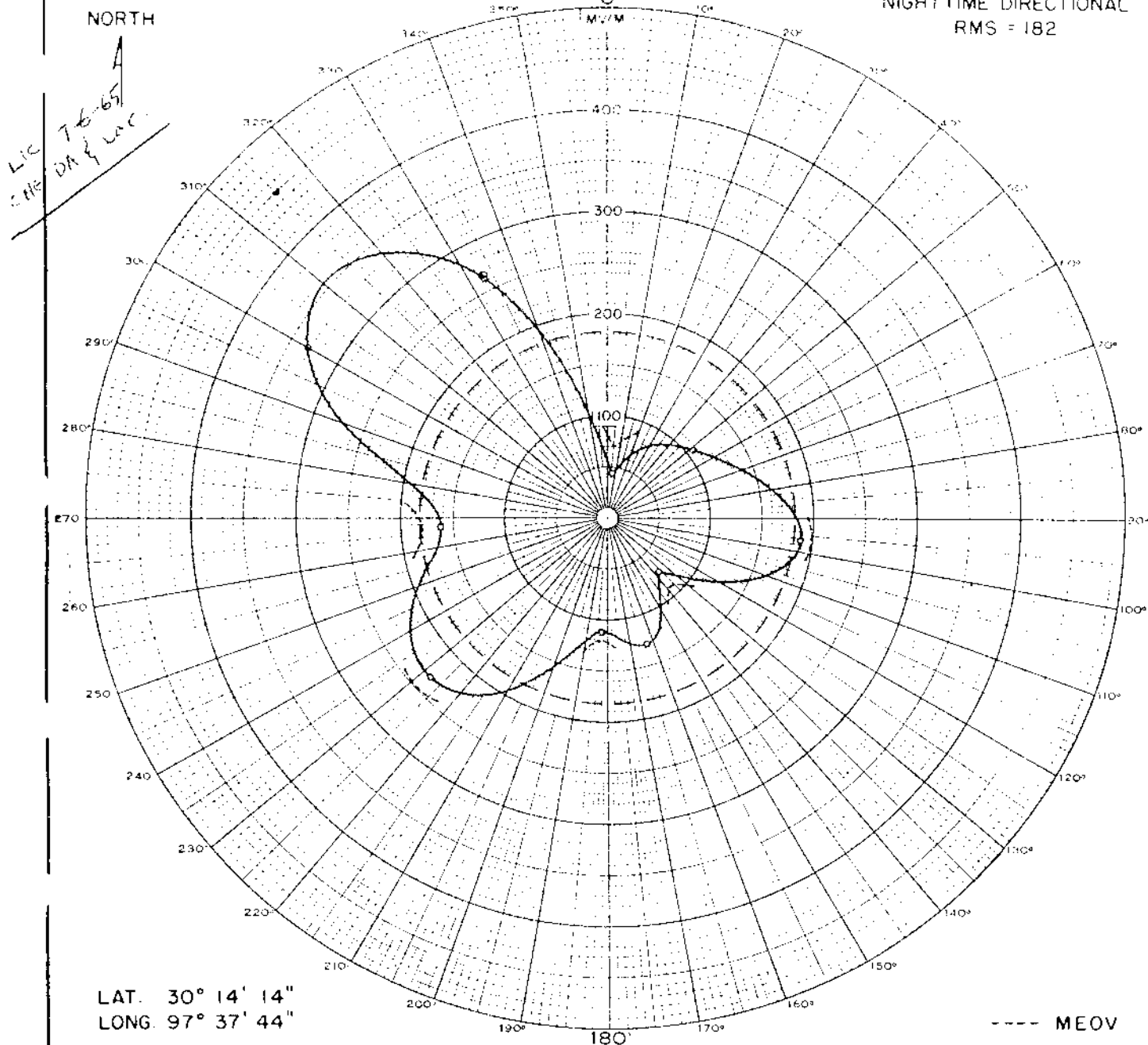
FCC File No. BP-15680
Accepted 8-9-63

590 kc

Measured Night
(1-28-65ct)

Station KTBC
Austin, Texas

1kw, KLBJ



G = 393' = 85°
S1 = 463' = 100°
S2 = 855' = 185°

ANTENNA PARAMETERS

TOWER	THEORETICAL		INDICATED	
	FIELD	PHASE	FIELD	PHASE
1	1.00	0°	1.00	0°
2	.78	140°	.80	140°
3	.53	-35°	.55	-35°
4	.414	105°	.44	105°

PREPARED BY

THE FIRM OF A. EARL CULLUM, JR.

CONSULTING ENGINEERS

RADIO STATION KTBC

AUSTIN, TEXAS

640710

FIGURE 2B

FCC File No. BL-10710
Accepted 12-22-64

Station KTBC
Austin, Texas

590 kc

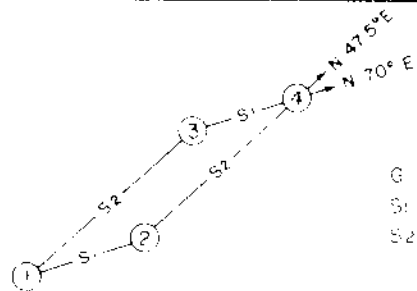
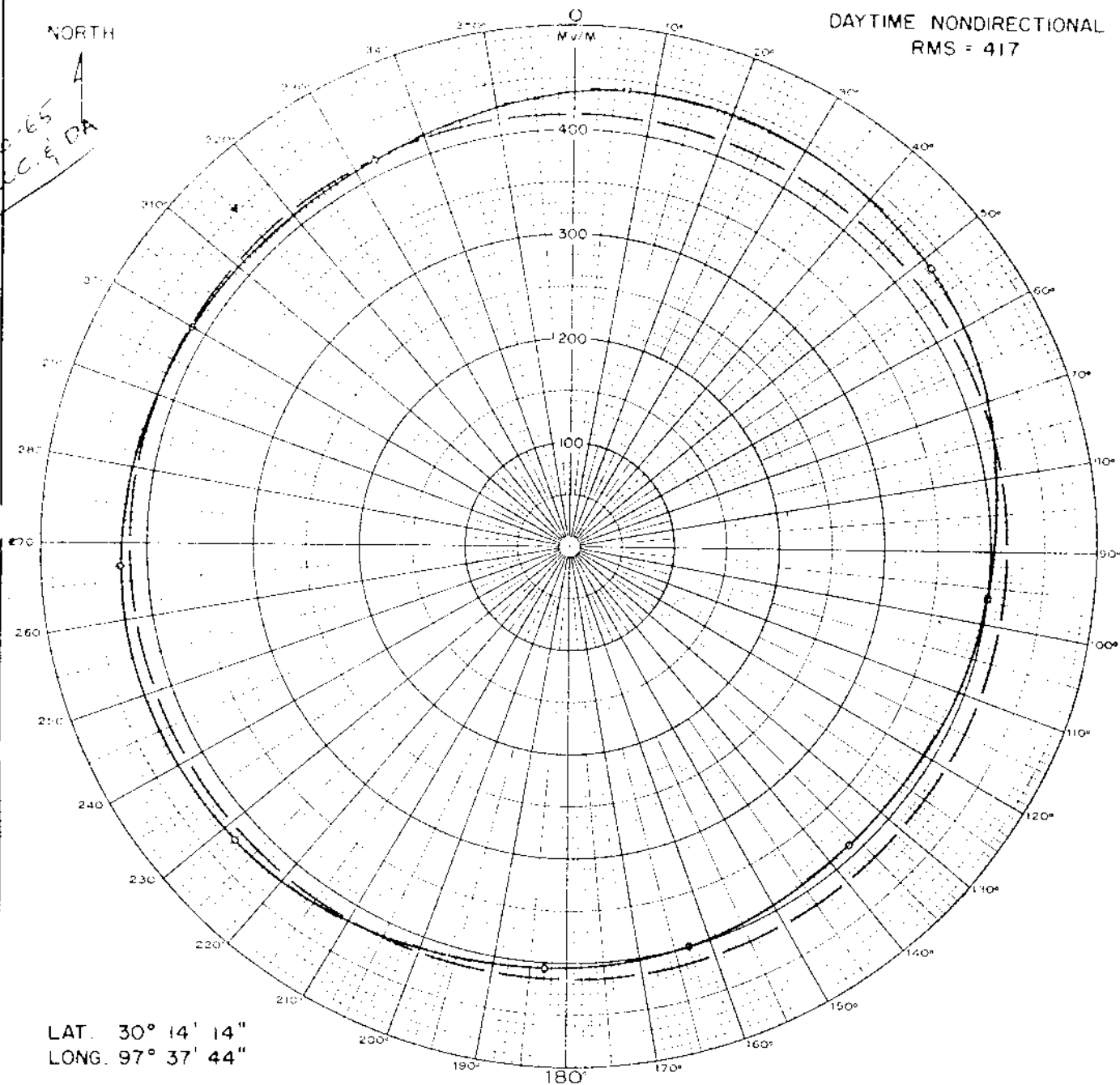
Measured Non-DA
(1-28-65ct)

Station KTBC
Austin, Texas

KLBJ

DAYTIME NONDIRECTIONAL
RMS = 417

-K 7-6-65
CHG. L.C. & DA



G = 393' - 85°
S1 = 463' - 100°
S2 = 856' - 185°

RADIATING ELEMENTS

NONDIRECTIONAL

TOWER	OPERATION
1	DETUNED
2	SERIES FED
3	DETUNED
4	DETUNED

PREPARED BY

THE FIRM OF A. EARL CULLUM, JR.

CONSULTING ENGINEERS

RADIO STATION KTBC

AUSTIN, TEXAS

640710

FIGURE 2A

FCC File No. BL-10710

Accepted 12-22-64

Station KTBC
Austin, Texas

590 KC

KSUB

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station : KSUB Main Studio: Cedar City, Utah
 Frequency : 590 KHz Power : 1 kW Night 5 kW Day
 Notification : 1780 Date : Sept. 28, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 37 41 55
 West Longitude: 113 10 44

Predicted effective Day Field: (omnidirectional) 403 mV/m at rated power.

Note: Please retain the description sheet and directional antenna radiation patterns notified for station KSUB in United States Change List Number 308, dated March 10, 1949 and attach to this supplemental Description Sheet. This notification is for the purpose an increase in daytime power and a corresponding increase in predicted effective field of the omnidirectional antenna employed daytime.

Station K S U B

Main Studio Cedar City, Utah

Power 1 kw

Frequency 590 kc

Authorized October 16, 1946

Notification No. 195

Location: North Latitude 37° 41' 07"

West Longitude 113° 08' 50"

Antenna:

Authorized for NightTime operation

Two elements, series-fed, uniform cross-section, guyed towers.

Tower:	<u>East</u>	<u>West</u>
--------	-------------	-------------

Height above
insulators: 300' 300'

Spacing: 1,204.1' 260°

Phasing: 0° 171°

Field Ratio: 1.00 0.65

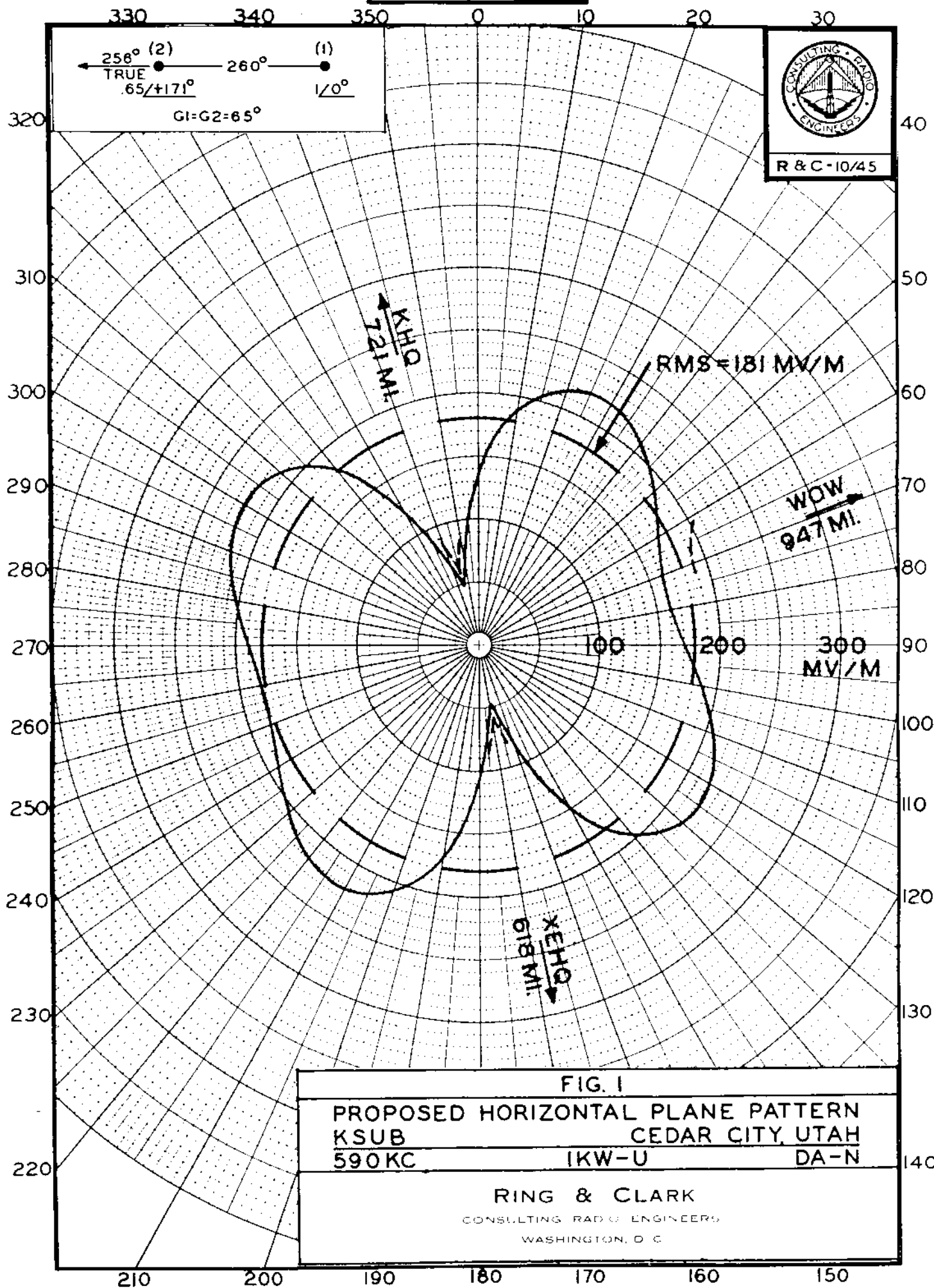
Ground System: 120 - 300' radials about each tower. Centers of individual systems connected by a copper bus.

Orientation: Elements on a line bearing 256° true.

Predicted effective field 181 mv/m.



R & C-10/45



MEASURED
NIGHT

KSUB, CEDAR CITY, UTAH

1kw, DAN

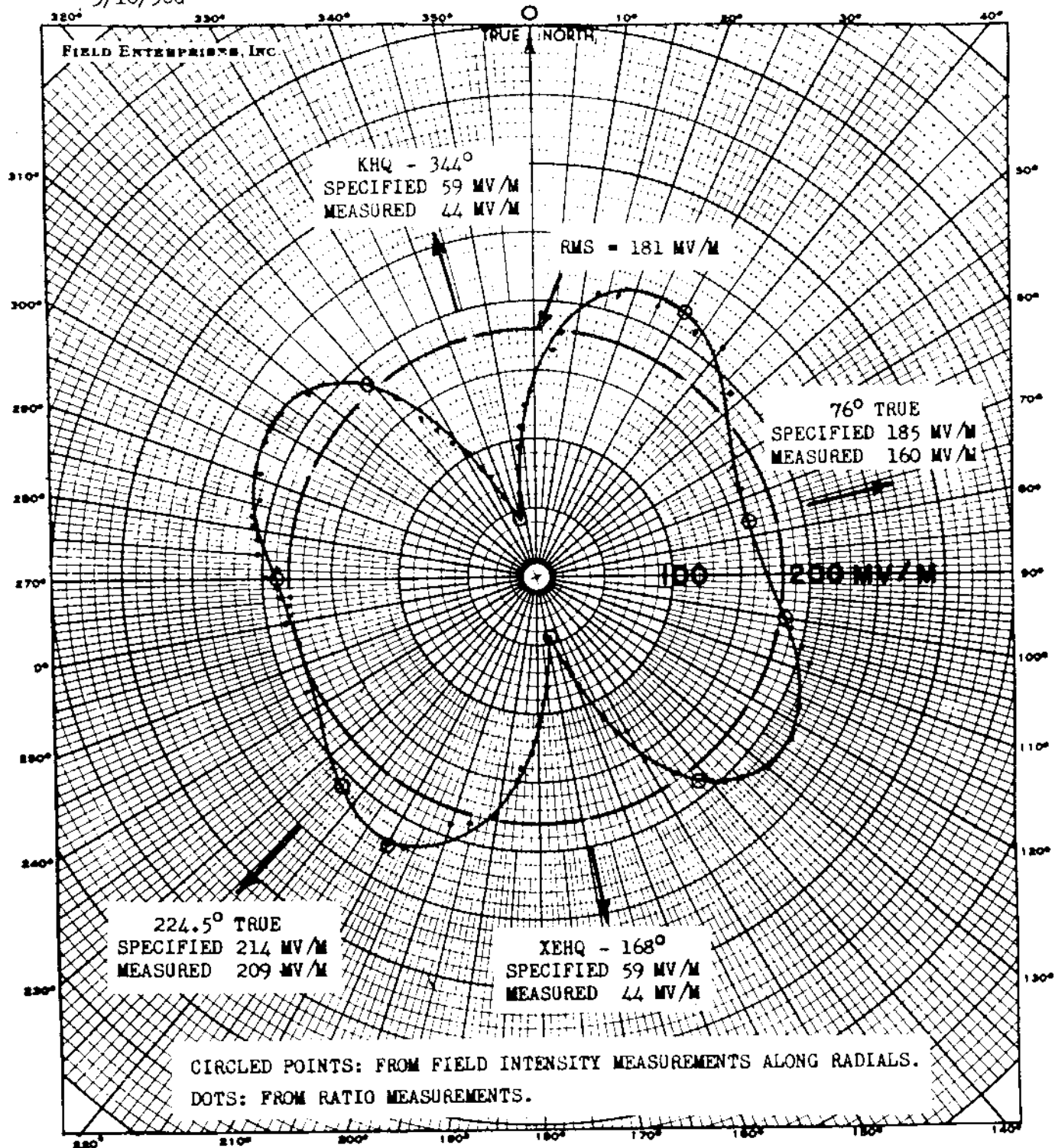
590 kc

KSUB

HORIZONTAL RADIATION PATTERN

2-28-50

3/10/50G



SITE: 37° 41' 55" N
113° 10' 44" W

DIRECTIONAL PATTERN

Engineer: Vincent C. Clayton
Chief Engineer KSL

K S U B CEDAR CITY, UTAH
590 KC 1 KW

FEBRUARY 10, 1950

FIGURE 2
KSUB, CEDAR CITY, UTAH 590 kc

MEASURED
DAY (non-DA)

3/10/50G

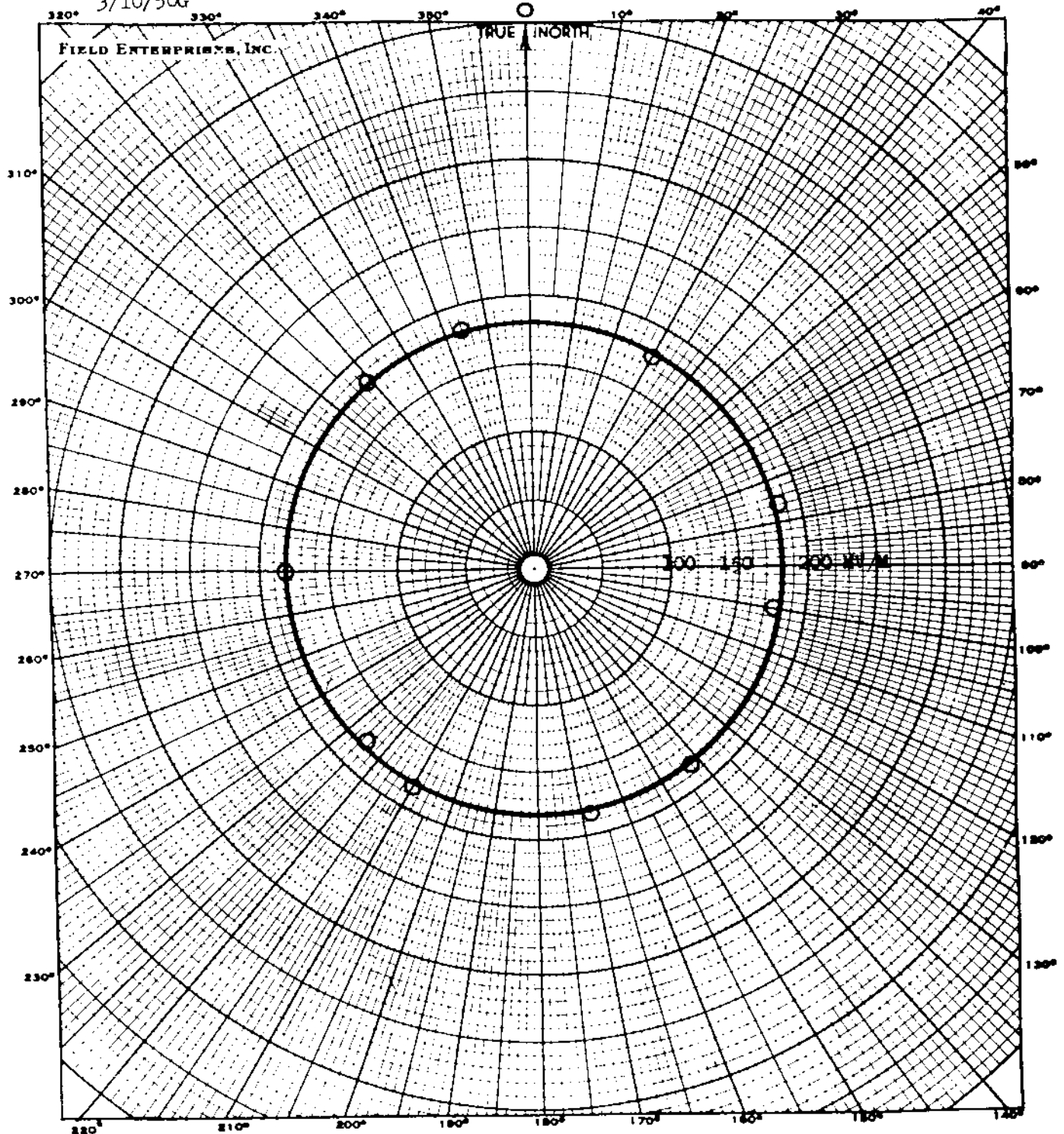
KSUB, CEDAR CITY, UTAH

HORIZONTAL RADIATION PATTERN

1kw, DAN

590 kc

2-28-50



SITE: 37° 41' 55" N
113° 10' 44" W

NON-DIRECTIONAL PATTERN
K S U B CEDAR CITY, UTAH
590 KC 1 KW

Engineer: Vincent C. Clayton
Chief Engineer KSL

RADIATION FROM EAST TOWER ALONE, WITH
WEST TOWER ISOLATED EXCEPT FOR LIGHTING
AND STATIC DRAIN CHOKES.

FEBRUARY 10, 1950

RMS FIELD: 181.5 MV/M

FIGURE 1
KSUB, Cedar City, Utah 590 k

SUPPLEMENTAL DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KTHO Main Studio: South Lake Tahoe, California

Frequency: 590 kHz Power: 0.5 kW Night 2.5 kW Day

Notification List No. 1729 Date: April 13, 1977 Class: III

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude 38⁰ 55' 00"
West Longitude 119⁰ 57' 46"

Authorized for Nighttime operation (DA-N).

Predicted effective Day Field: (omnidirectional) 281 mv/m at rated power.

Note: Please retain the description sheet and directional antenna radiation patterns notified for station KTHO in United States Change List Number 1373, dated May 20, 1970, and attach to this supplemental Description Sheet. This notification is for the purpose of indicating only an increase in daytime power with nighttime operation continued as previously notified.

CTR NO 30026A4

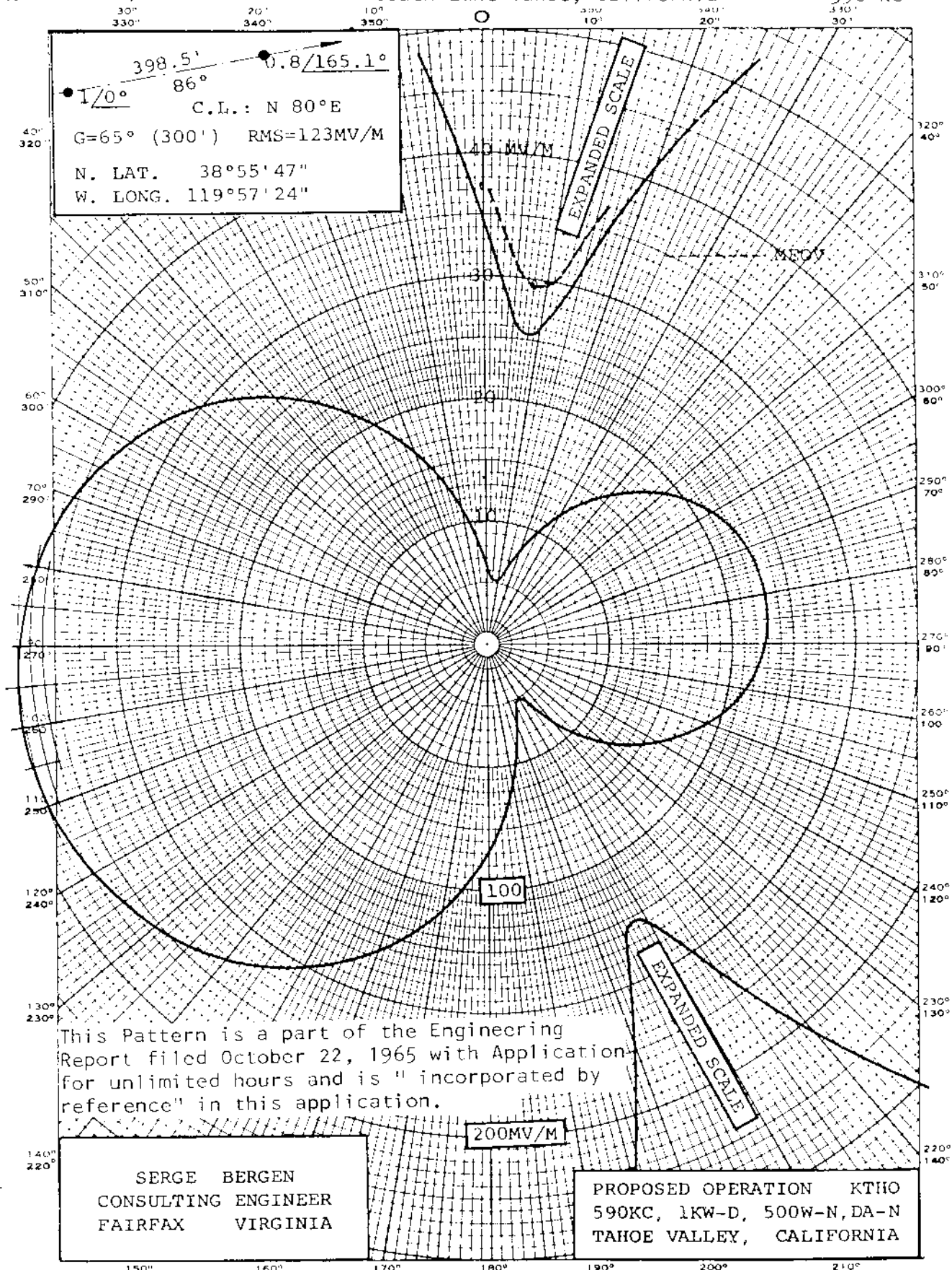
Proposed Night
(9-26-68ct)

Station KTHO
South Lake Tahoe, California

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

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

NO. 340R-E DIETZEN GRAPH PAPER
POLAR CO-ORDINATE



FCC File BP-17946
Accepted 3-1-68

Station KTHO
South Lake Tahoe, California

590 kc

(over)

PROPOSED
NIGHT

KUGN, EUGENE, OREGON

340°

350°

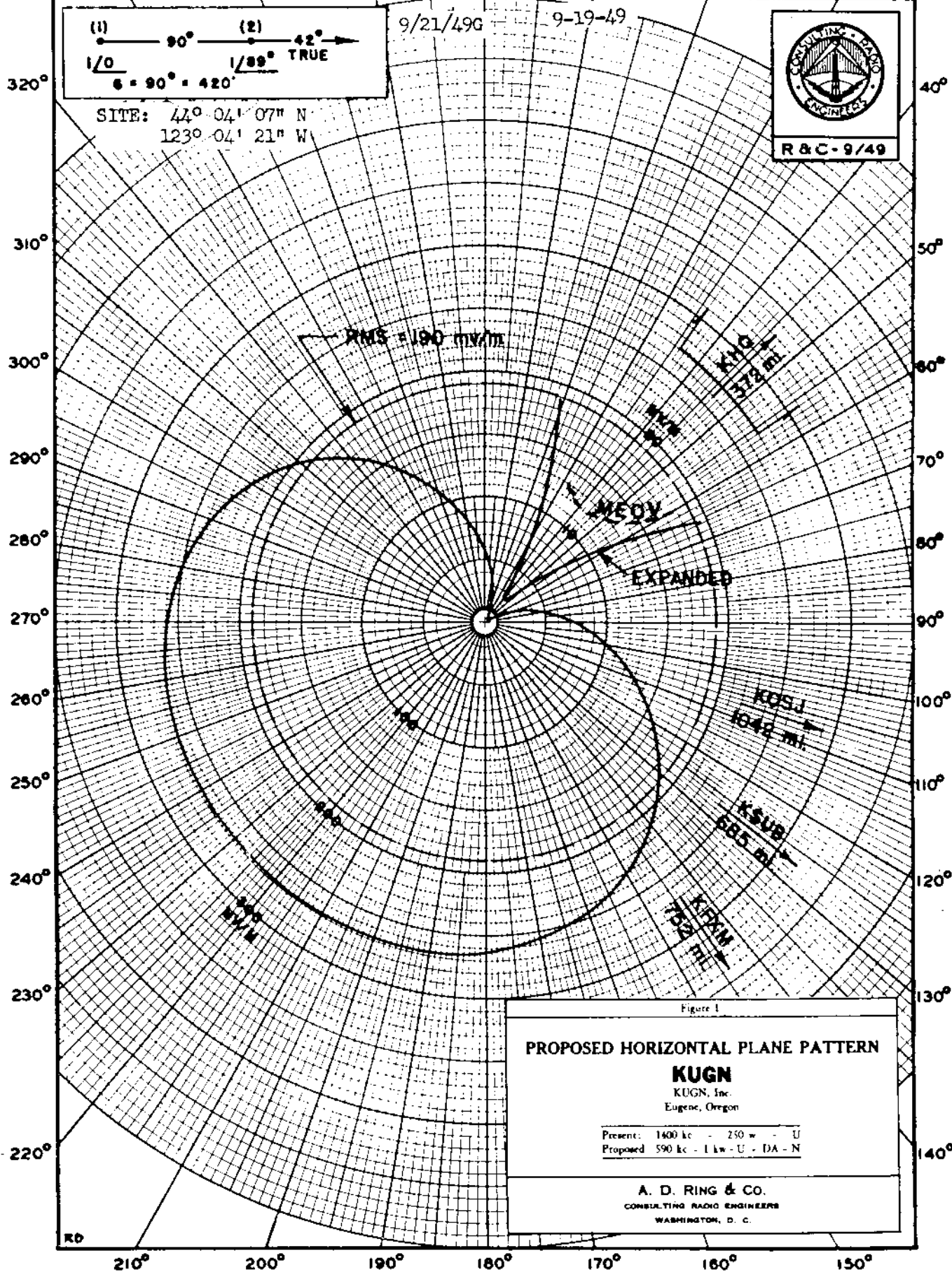
1kw, DAN

10°

20°

30°

KUGN - 590 kc



KUGN

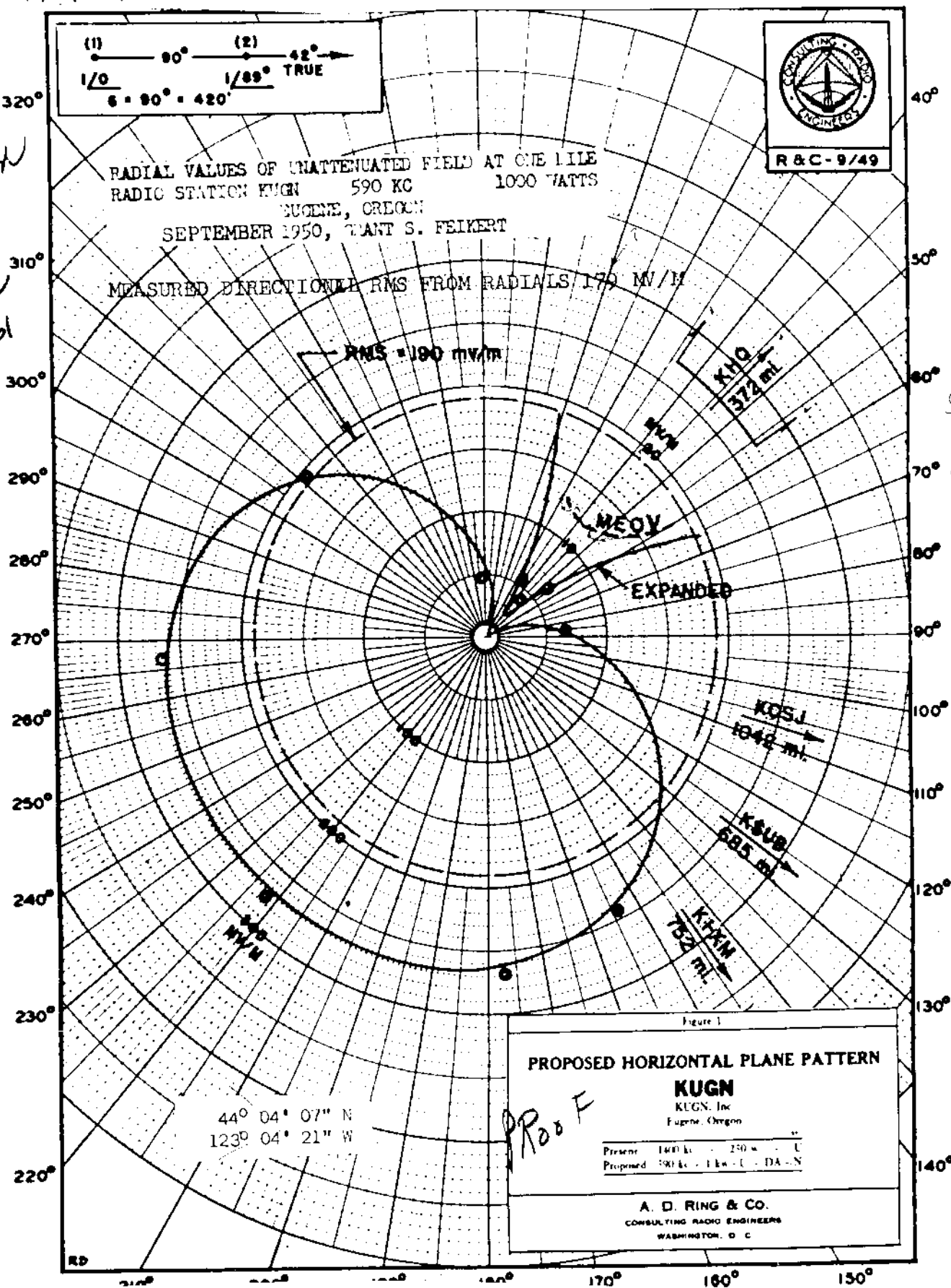
MEASURED
NIGHT

KUGN, EUGENE, OREGON
(2/11/54G)

1KW, U, DA-N

590 kc

*held for
information
only.
select - as per
#162 - 6/10/61*

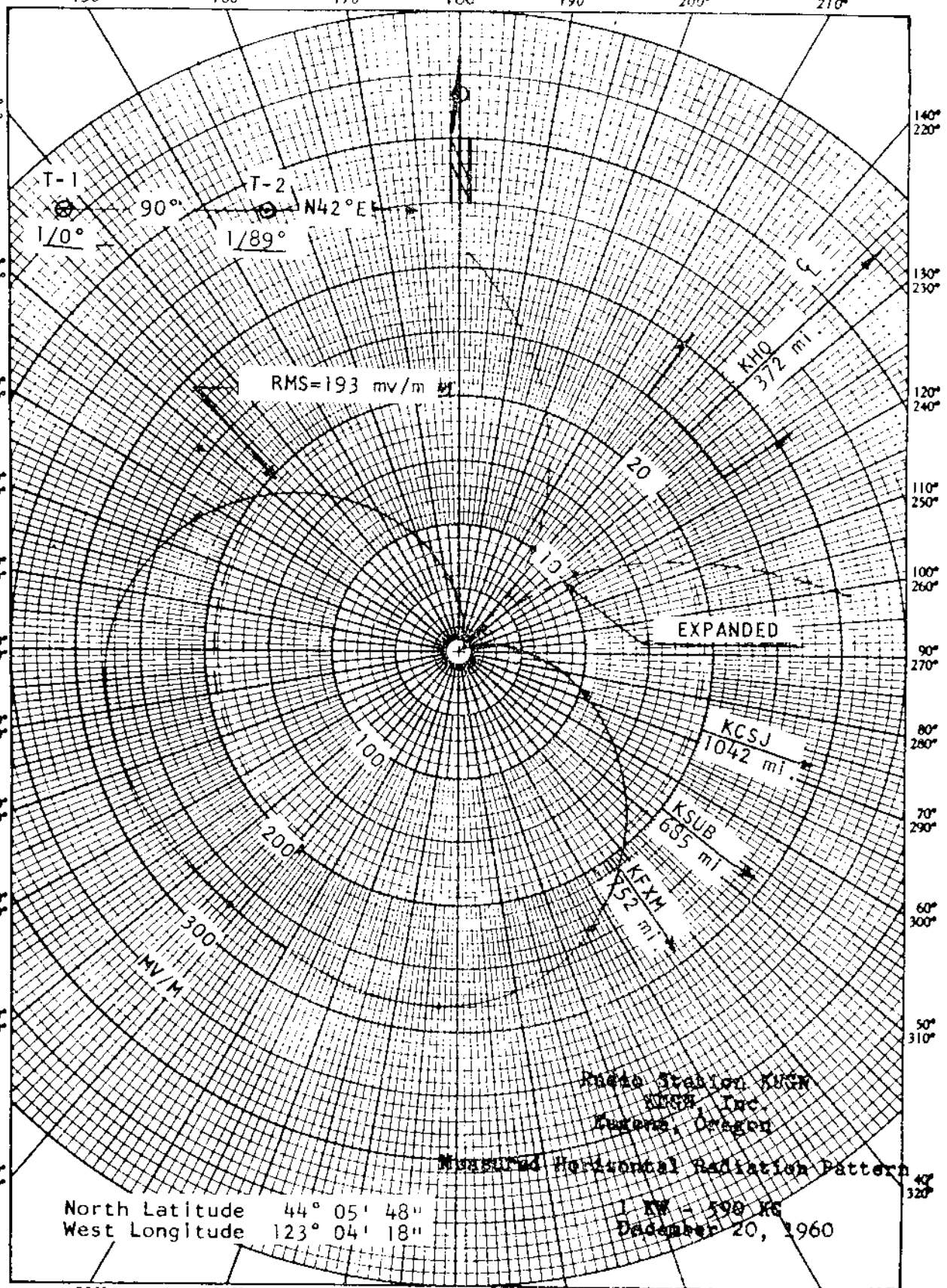


KUGN

MEASURED NIGHT
(4-10-61g)

Station KUGN
Eugene, Oregon

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



North Latitude 44° 05' 48"
West Longitude 123° 04' 18"

Radio Station KUGN
Eugene, Inc.
Eugene, Oregon

Measured Horizontal Radiation Pattern

1 KW - 590 KC
December 20, 1960

FCC File No. BL-8252
Accepted 3-28-61

KUGN
Eugene, Oregon

590 KC

ya re. 10-61

K-E POLAR CO-ORDINATE 359-31
REUPPEL & EGGEN CO. MADE IN U.S.A.

KUGN

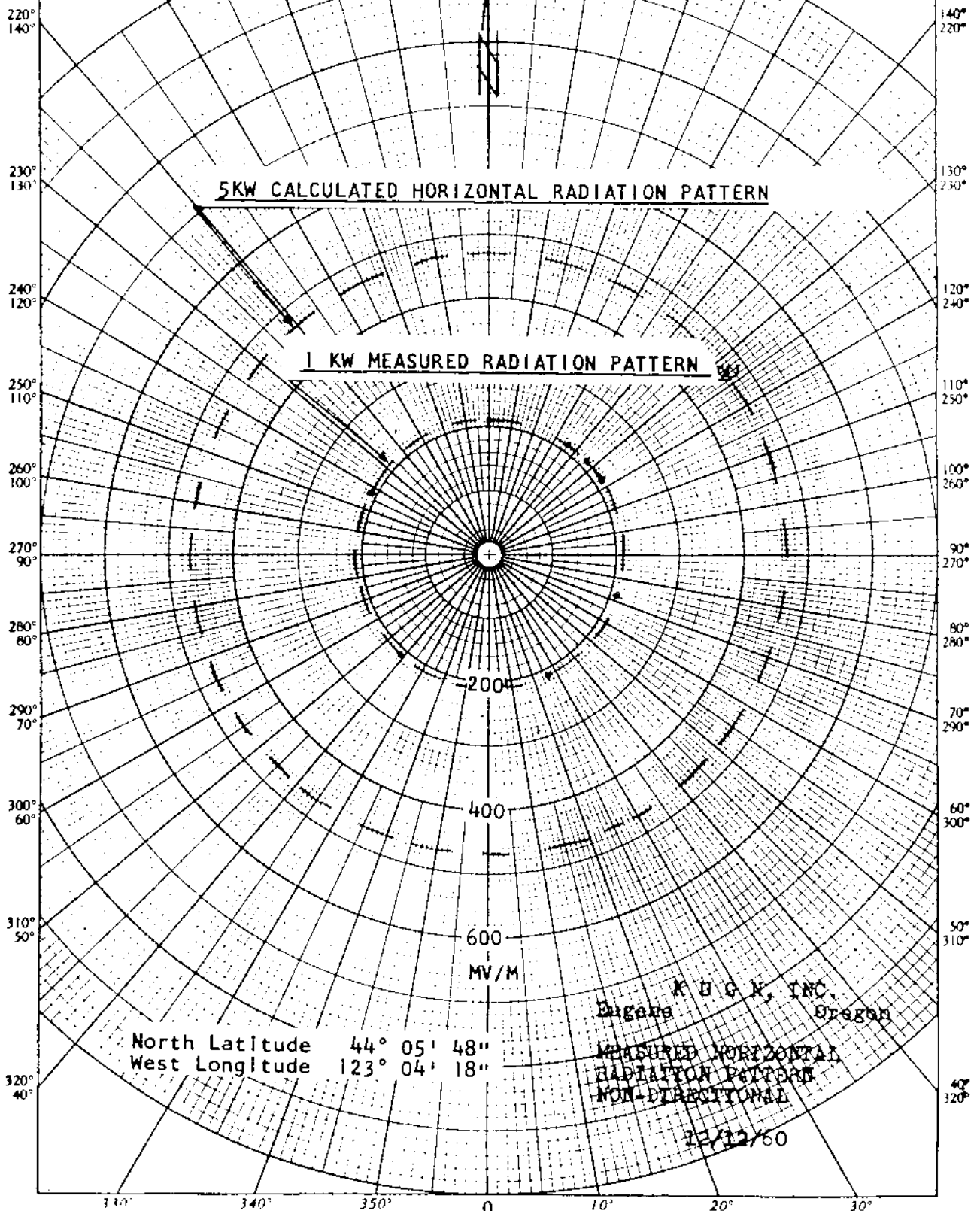
MEASURED NON-DA
(4-10-61g)

Station KUGN
Eugene, Oregon

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

150° 160 170° 180 190° 200° 210°

AMENDED EXHIBIT 3-2



K-E POLAR CO-ORDINATE 359-31
KEUFFEL & ESSER CO. MADE IN U.S.A.

FCC File No. BL-8252
Accepted 3-28-61

KUGN
Eugene, Oregon

590 KC

SUPPLEMENTAL DIRECTIONAL ANTENNA
DESCRIPTION SHEET

Station: WARM

Main Studio: Scranton, Pennsylvania

Frequency: 590 kHz

Power: 5 kW

Notification List No. 1635

Date: June 3, 1975

Class: III

GEOGRAPHICAL LOCATION OF THE

CENTER OF THE ANTENNA SYSTEM: North Latitude: 41° 28' 44"

West Longitude: 75° 52' 51"

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

Please retain the revised description sheet and directional antenna radiation patterns notified for station WARM in United States Change List Number 467, dated August 14, 1952, and attach to this supplemental Description Sheet. This notification is for the purpose of indicating only a change in the geographical coordinates of the center of the antenna system.

CTR NO 30285A3

590 KC

WARM

PROPOSED
NIGHT

WARM, SCRANTON, PA.
9/17/52G

5 KW, U, DA-2

590 KC

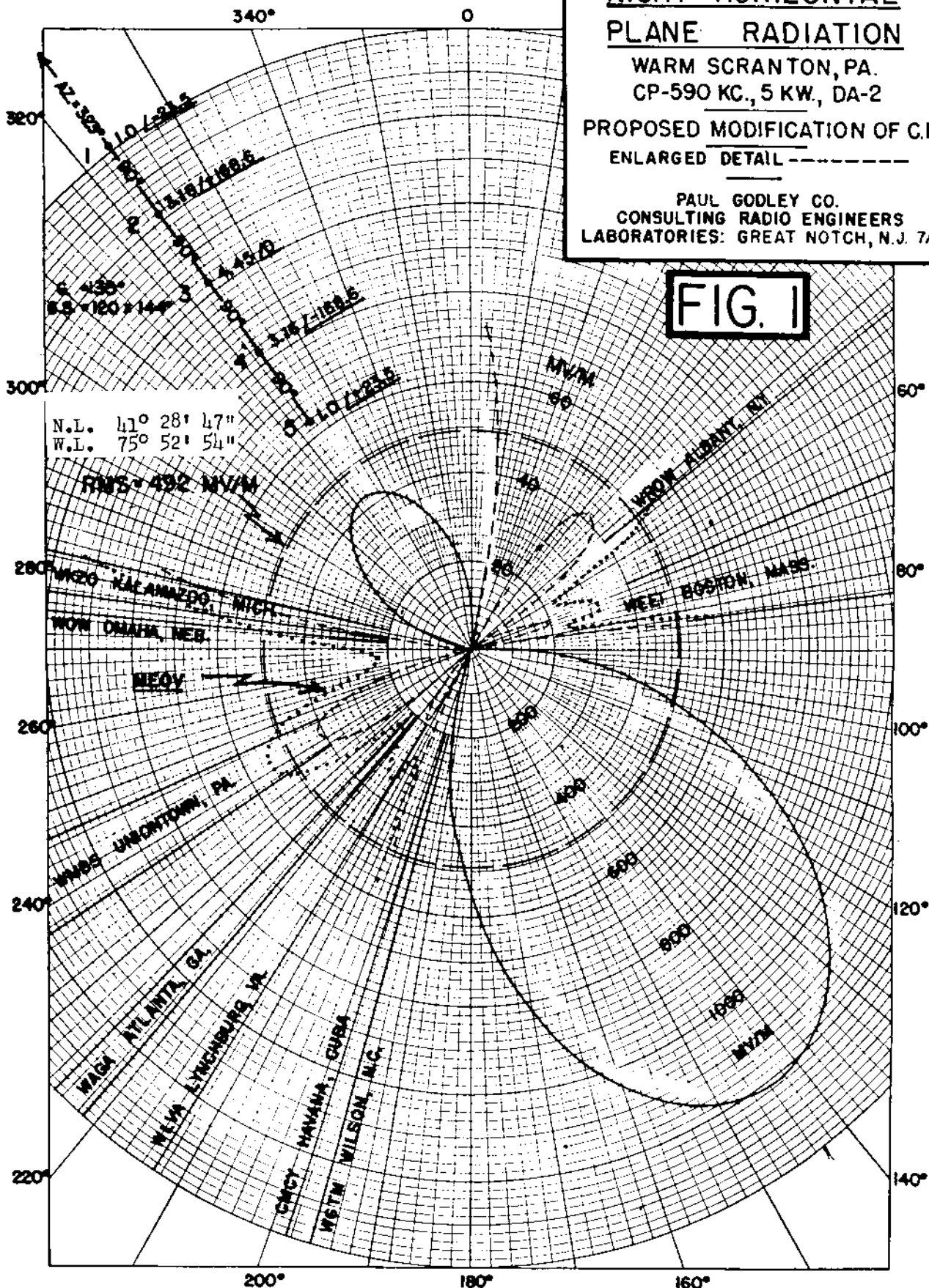
NIGHT HORIZONTAL PLANE RADIATION

WARM SCRANTON, PA.
CP-590 KC., 5 KW, DA-2

PROPOSED MODIFICATION OF C.P.
ENLARGED DETAIL -----

PAUL GODLEY CO.
CONSULTING RADIO ENGINEERS
LABORATORIES: GREAT NOTCH, N.J. 7/52

FIG. 1



APPL RECD FCC 8/5/52 ACC 8/11/52 BMP-5941

WARM, SCRANTON, PA.

590 KC

NEUFFEL & EBER CO., N. Y. NO. 343A

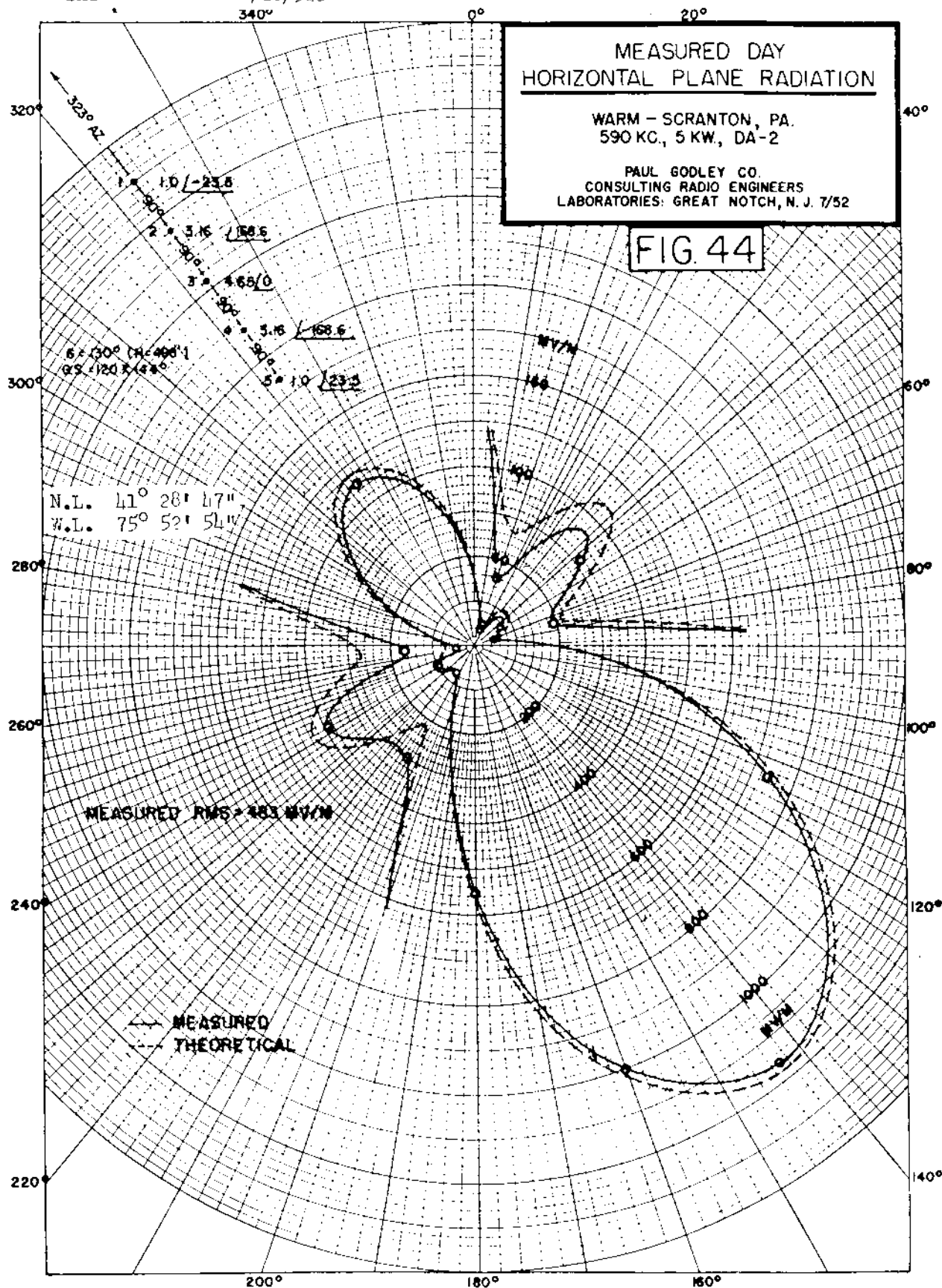
WARM

MEASURED
DAY

WARM, SCRANTON, PA.
10/20/52G

5 KW, U, DA-2

590 KC



APPL RECD FCC 8/5/52 ACC 10/9/52 BL-4783

WARM, SCRANTON, PA.

590 KC

KEUFFEL & ESSER CO., N. Y. NO. 343A

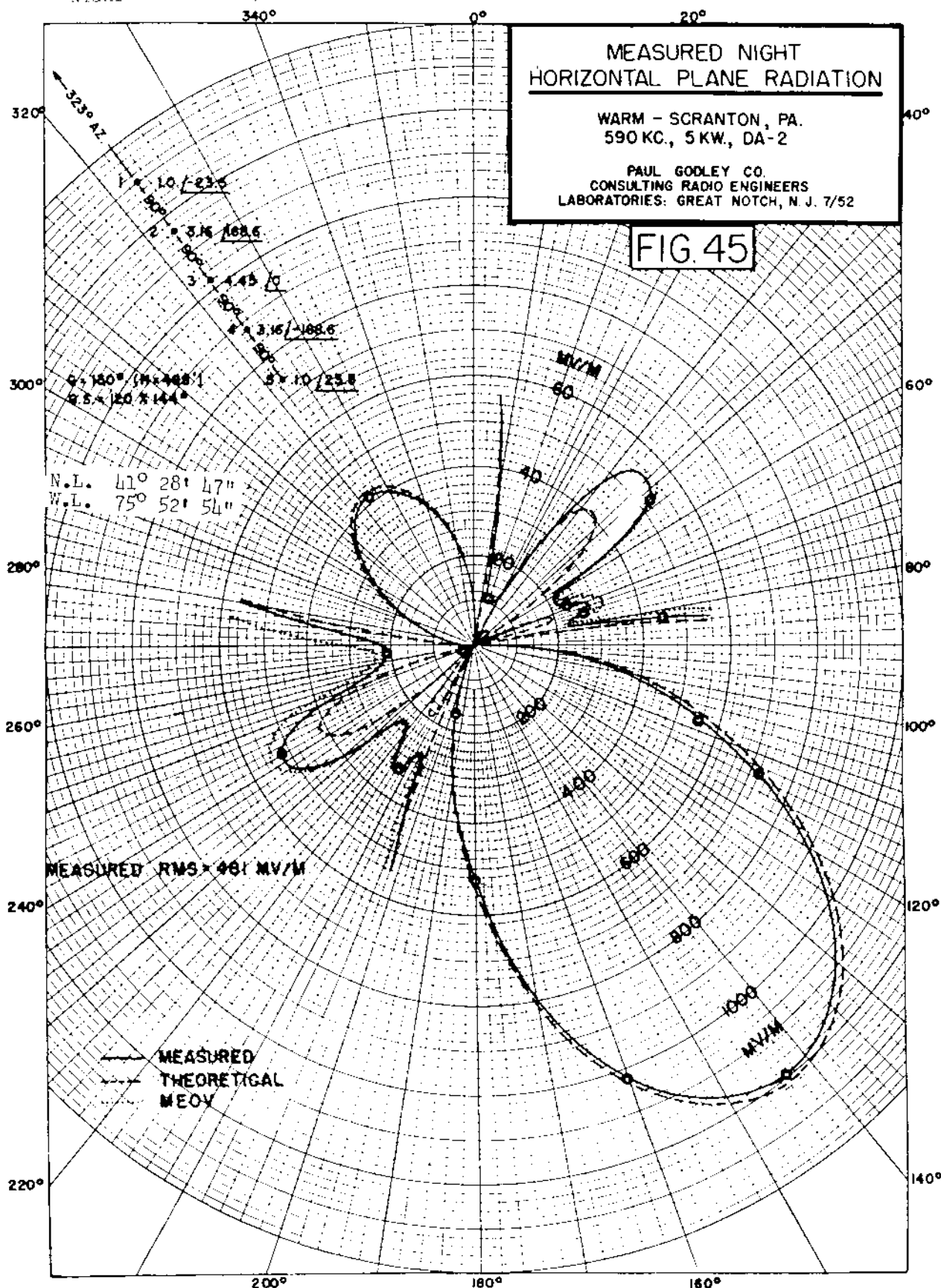
WARM

MEASURED
NIGHT

WARM, SCRANTON, PA.
10/20/52G

5 KW, U, DA-2

590 KC



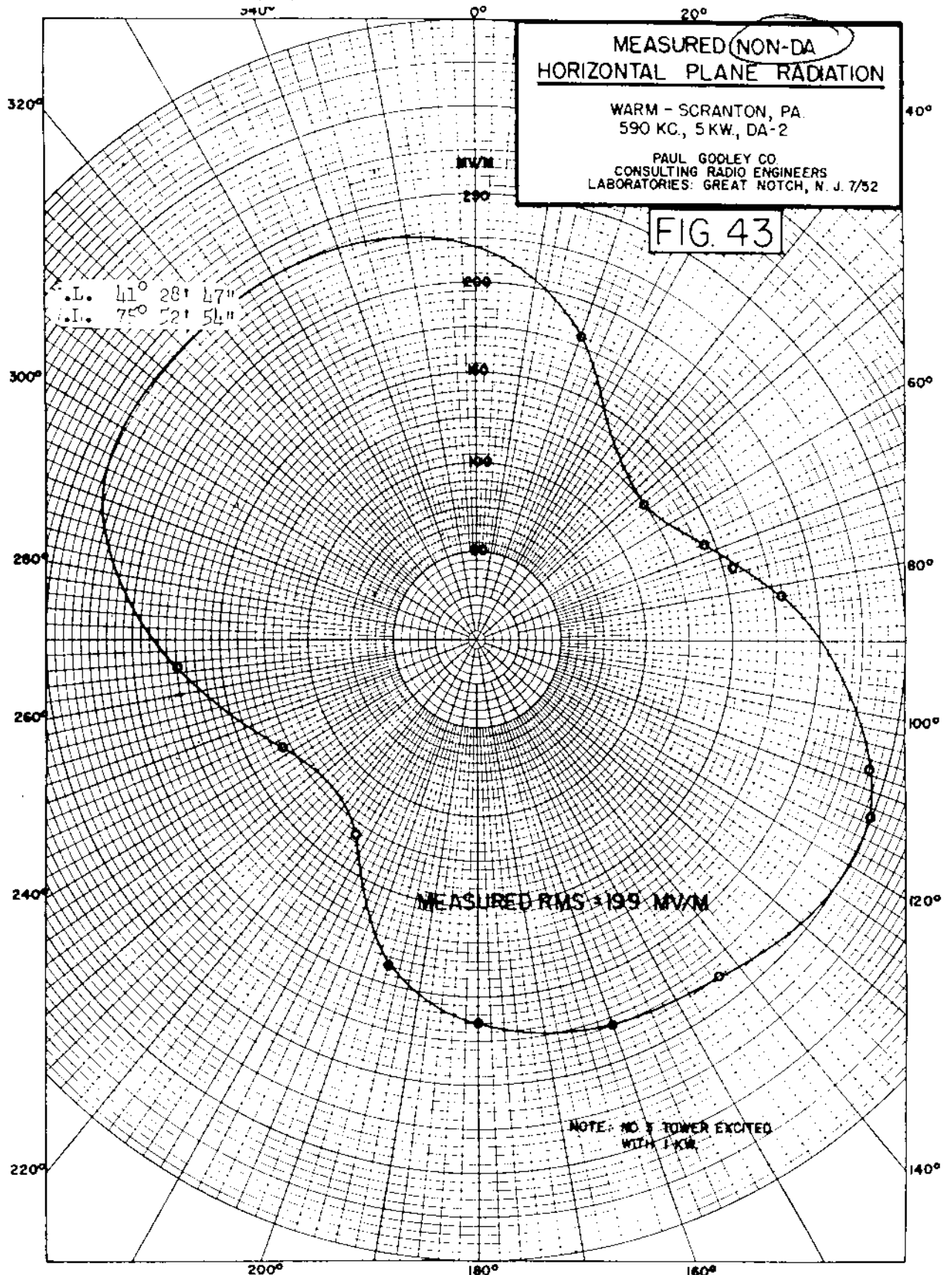
WARM

MEASURED
NON-DA

WARM, SCRANTON, PA.
10/20/52

5 KW, U, DA-2

590 KC



APPL RECD FOR 8/5/52 ACC 10/9/52 BL-4783

WARM, SCRANTON, PA.

590 KC

KEUFFEL & ESSER CO., N. Y. NO. 343A

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WDLP Main Studio: Panama City, Florida
 Frequency: 590 kHz Power: 1 kw
 Notification List No. 1429 Date: June 16, 1971 Class: III

GEOGRAPHICAL LOCATION OF THE
 CENTER OF THE ANTENNA SYSTEM: North Latitude: 30° 10' 20"
 West Longitude: 85° 36' 49"

ANTENNA CHARACTERISTICS

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

TOWER:	S(#1)	N(#2)
HEIGHT ABOVE INSULATORS:	300'	300' (64.7°)
PHASING:	0°	-1°
FIELD RATIO:	0.9	1
SPACING AND ORIENTATION:	Elements are spaced 888.4' (191.8°) on a line bearing 355° true.	
GROUND SYSTEM:	120 - 420' equally spaced copper radials plus 120 - 50' interspaced radials plus a 24' square ground screen about each tower.	

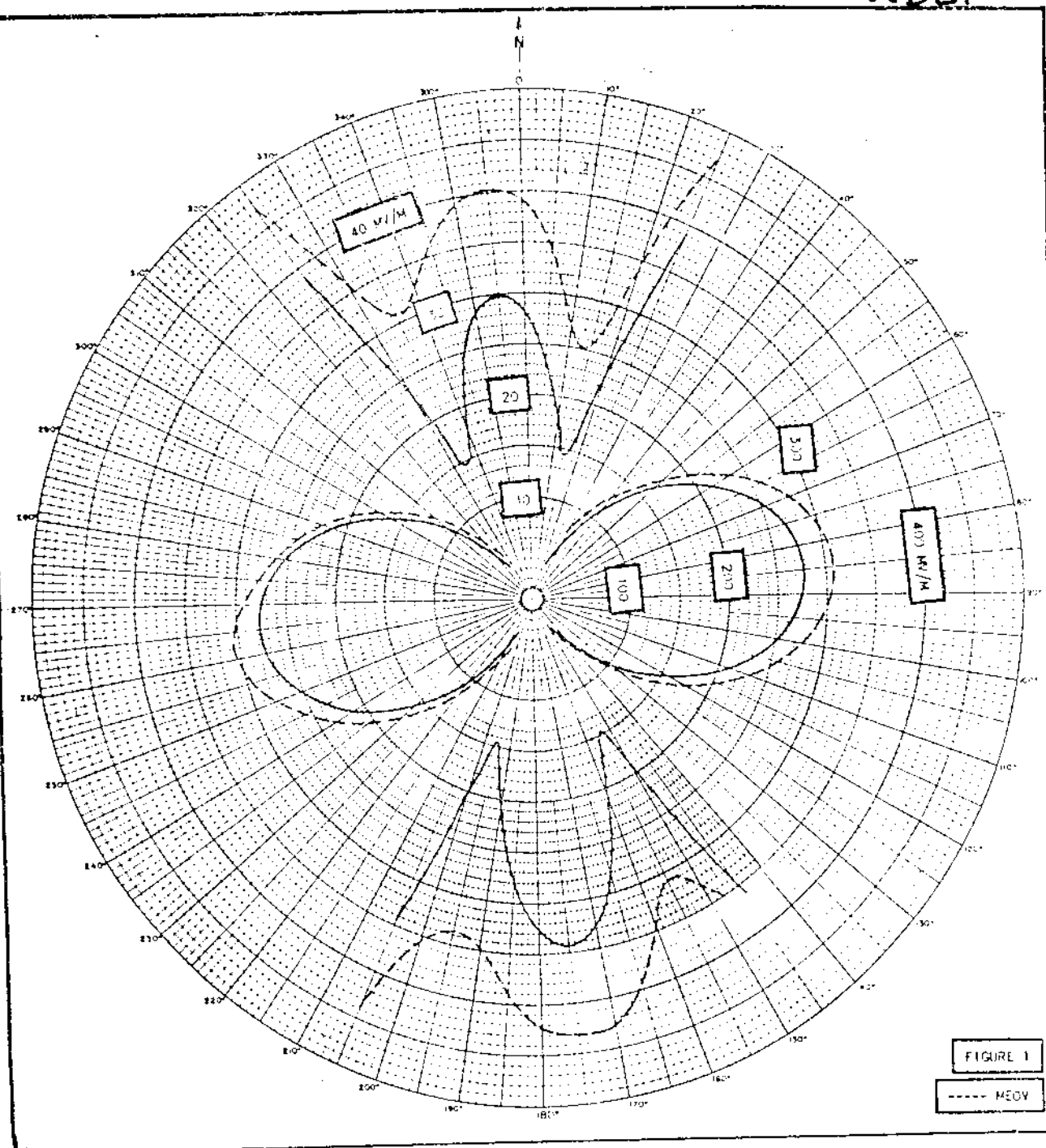
Predicted effective Night Field: 175 mv/m at rated power.

Predicted effective Day Field: (omnidirectional) 180 mv/m at rated power.

Note: Please retain the Nighttime vertical angle directional antenna radiation patterns notified for Station WDLP in United States Change List Number 1261 dated March 27, 1968 and attach to this Revised Description Sheet and horizontal Nighttime pattern. This notification concerns only a correction to current phasing in the towers with Daytime operation continued as previously notified.

CTR NO 30253A3

WDLF



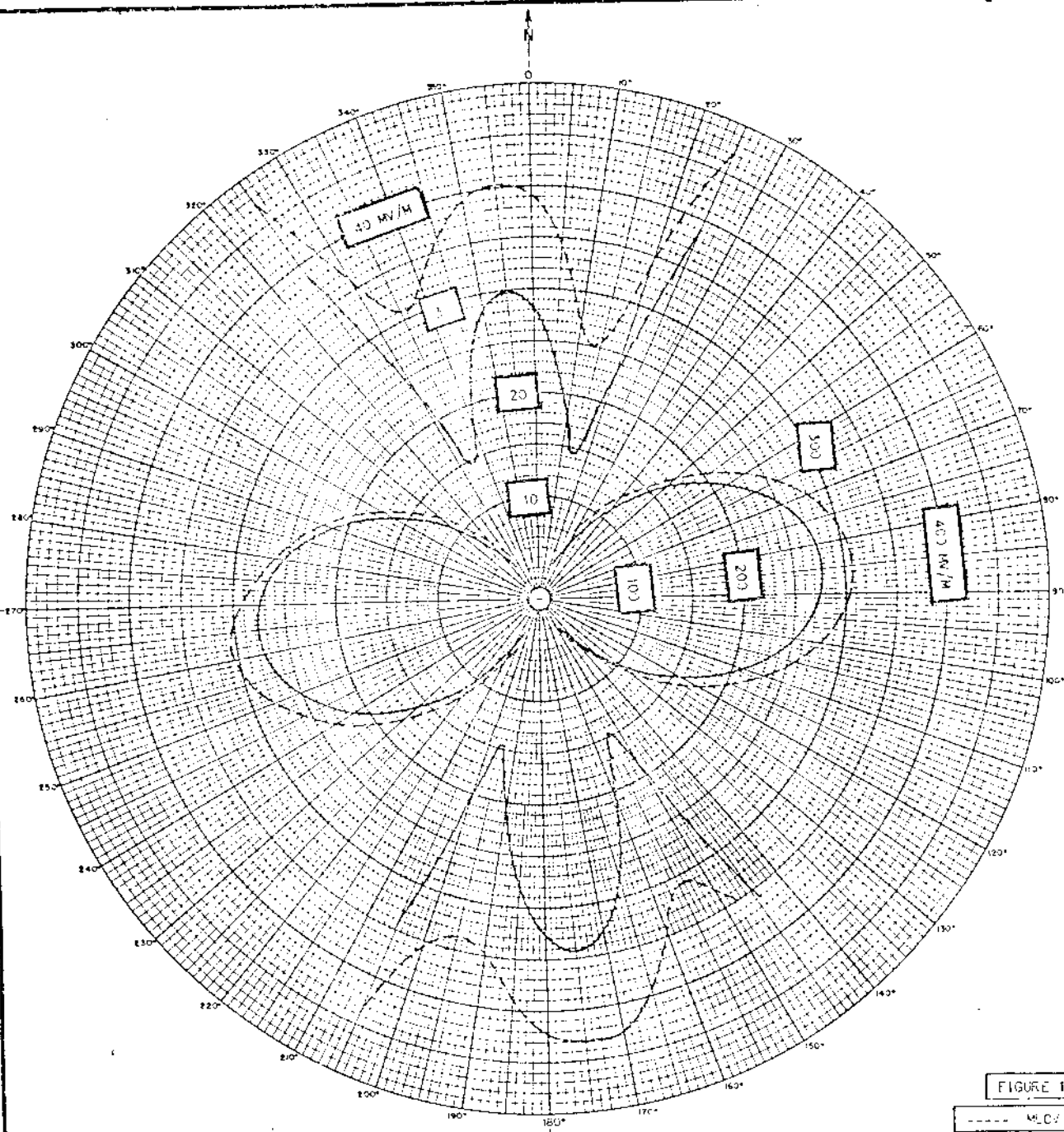
HORIZONTAL RADIATION PATTERN

	APPLICANT : WDLF LOCATION : PANAMA CITY, FLORIDA FREQUENCY : 540 KC/S POWER : 1 KW - 0 LATITUDE : 30 DEG MIN 2 SEC LONGITUDE : 85 DEG 30 MIN 40 SEC WHEN USED : NIGHT, M RMS FIELD : 154.5 M/M DATE : NOVEMBER 1967
	SILLIMAN, MOFFET & KOWALSON CONSULTING RADIO ENGINEERS WASHINGTON, D.C.

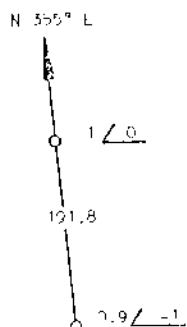
FEB 9, 73

PERMITS ACCEPTED FOR FILING - BAPL-418
 INCLUDE BP 18086 - DA CHGES.

WDL P



HORIZONTAL RADIATION PATTERN



APPLICANT :	WDLP		
LOCATION :	PANAMA CITY, FLORIDA		
FREQUENCY :	590 KC/S		
POWER :	1 KW - U		
LATITUDE :	30 DEG 10	MIN.	20 SEC.
LONGITUDE :	85 DEG 36	MIN.	43 SEC.
WHEN USED:	NIGHTTIME		
R.M.S. FIELD:	153.5 M/M		
DATE :	NOVEMBER 1967		

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

PROPOSED NIGHT
(3-28-68 ct)

STATION WDLP
PANAMA CITY, FLORIDA

WDLP
1 KW, DA-N, U
590 KC

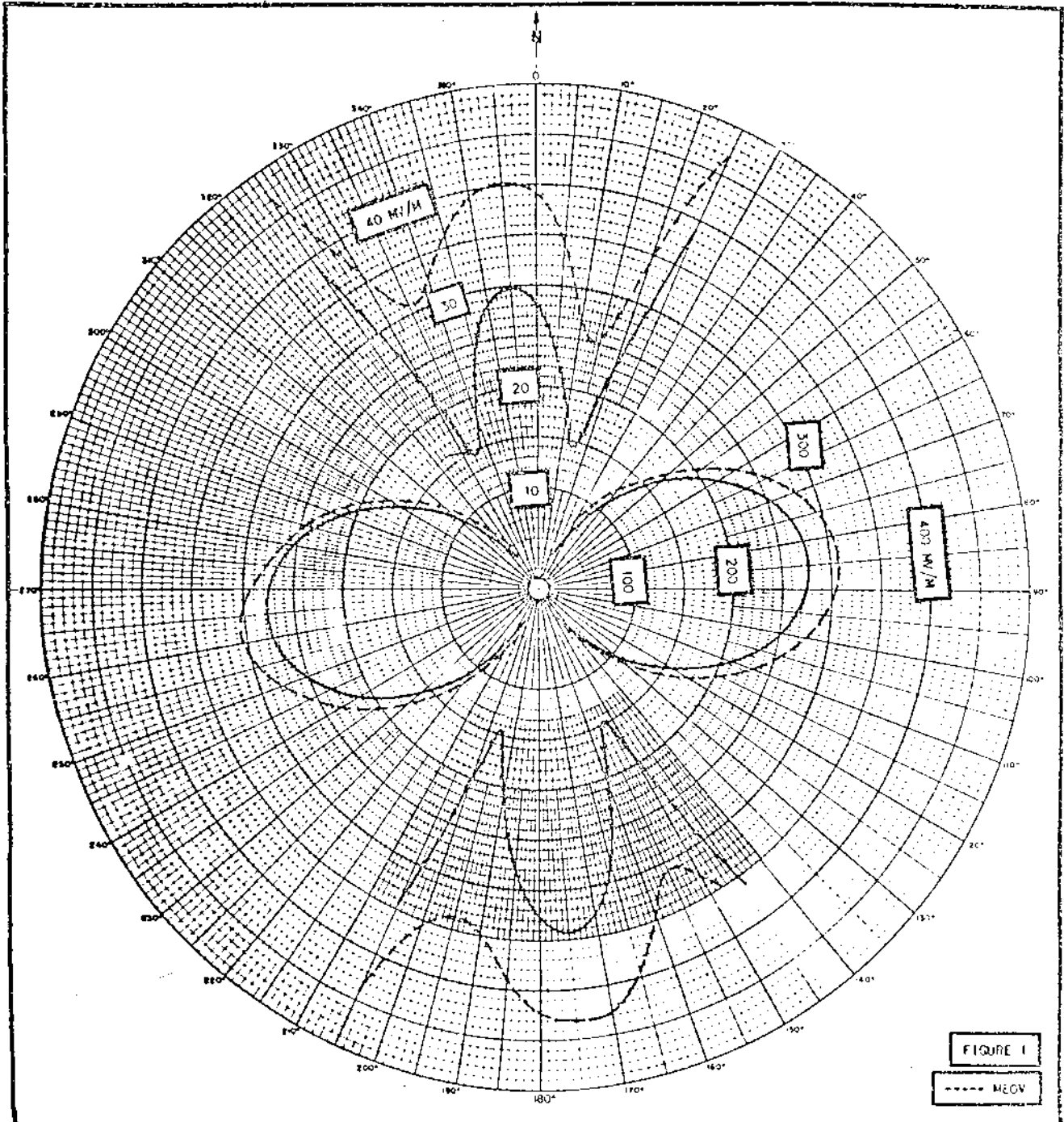
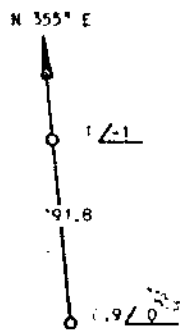


FIGURE 1

----- MUF

HORIZONTAL RADIATION PATTERN



APPLICANT :	WDLP
LOCATION :	PANAMA CITY, FLORIDA
FREQUENCY :	590 KC/S
POWER :	1 KW - U
LATITUDE :	30 DEG 10 MIN 20 SEC
LONGITUDE :	85 DEG 36 MIN 49 SEC
WHEN USED :	NIGHTTIME
RMS FIELD :	158.5 M/M
DATE :	NOVEMBER 1967

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

WDLP

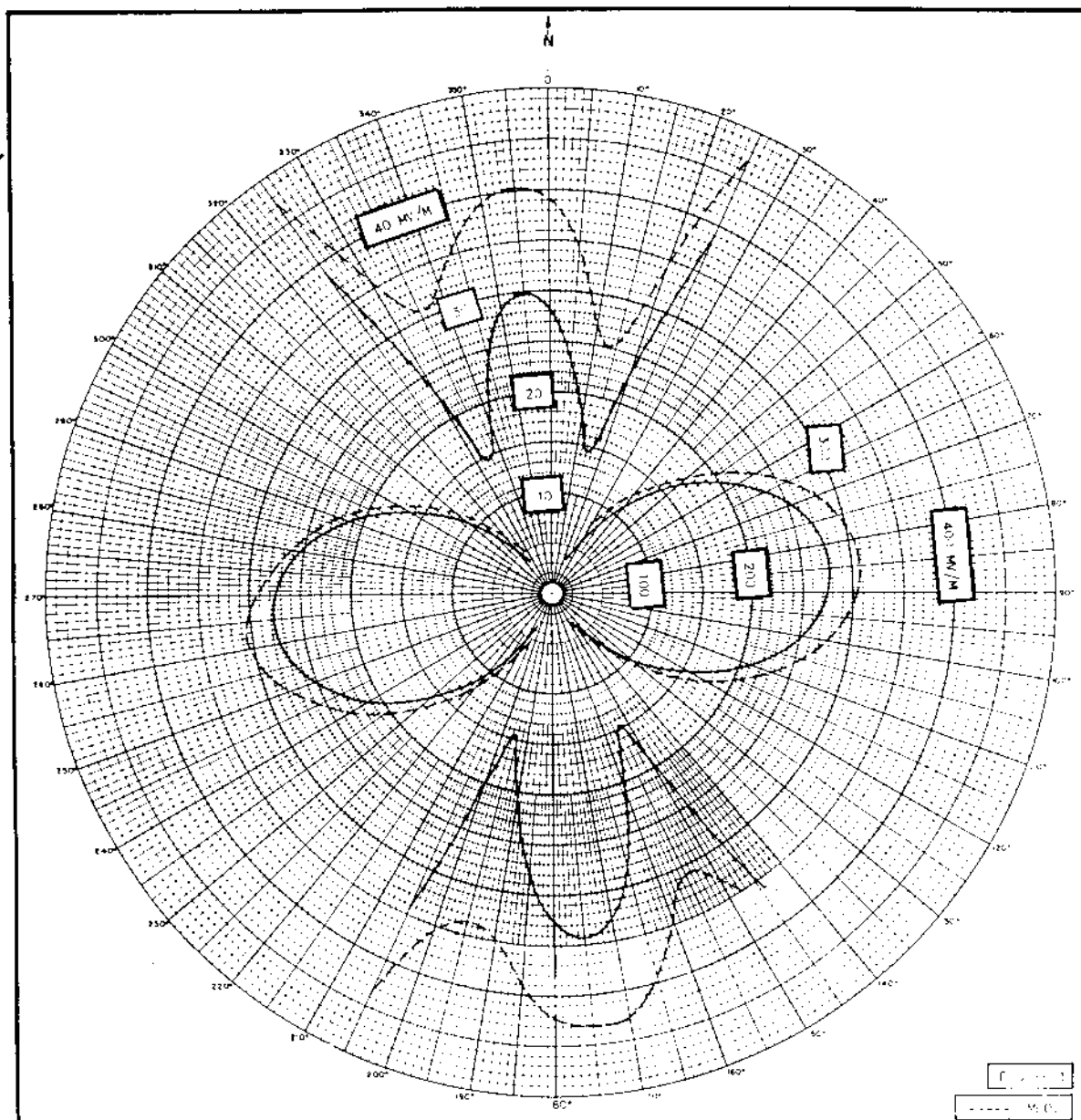
Proposed Night
(3-28-68ct)

Station WDLP
Panama City, Florida

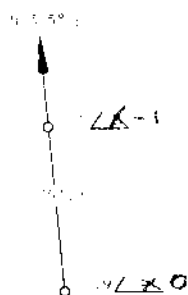
1kw, DA-N, U
590 kc

3-21-68
GRANTED CP
CHANGES IN
DA SYSTEM

HOLD FOR
CLASS



HORIZONTAL RADIATION PATTERN



APPLICANT: _____
LOCATION: PANAMA CITY, FLORIDA
FREQUENCY: 590 KCS
POWER: 1 KW
LATITUDE: 31 DEG MIN SEC
LONGITUDE: 87 DEG MIN SEC
WHEN USED: NIGHTTIME
RMS FIELD: 59.5 M/M
DATE: NOVEMBER 1968

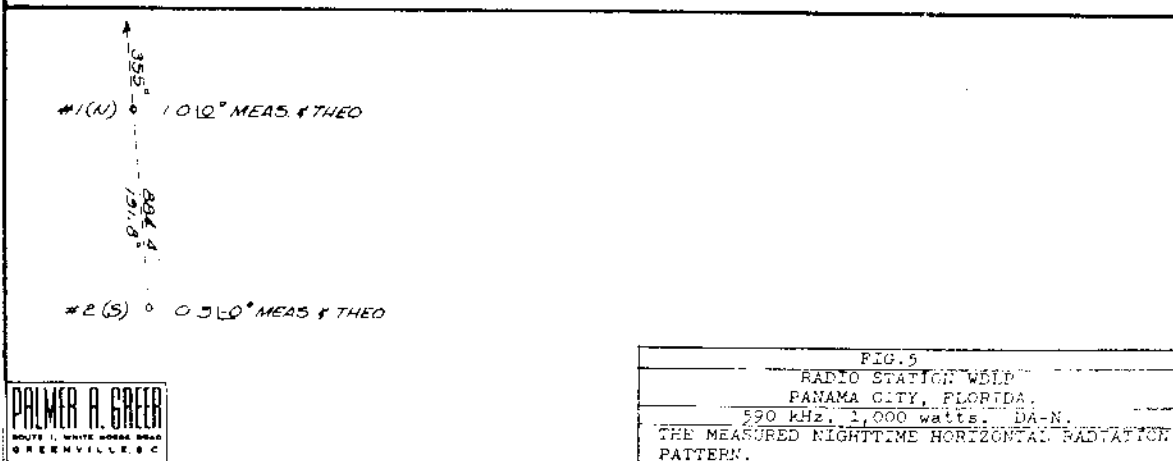
SILLIMAN, MOFFET & KOWALSKI
CONSULTING RADIO ENGINEERS
WASHINGTON, D.C.

FCC File No. BP18086
Accepted 3-12-68

Station WDLP
Panama City, Florida

590 kc

1kw, DA-N, U
590 kc

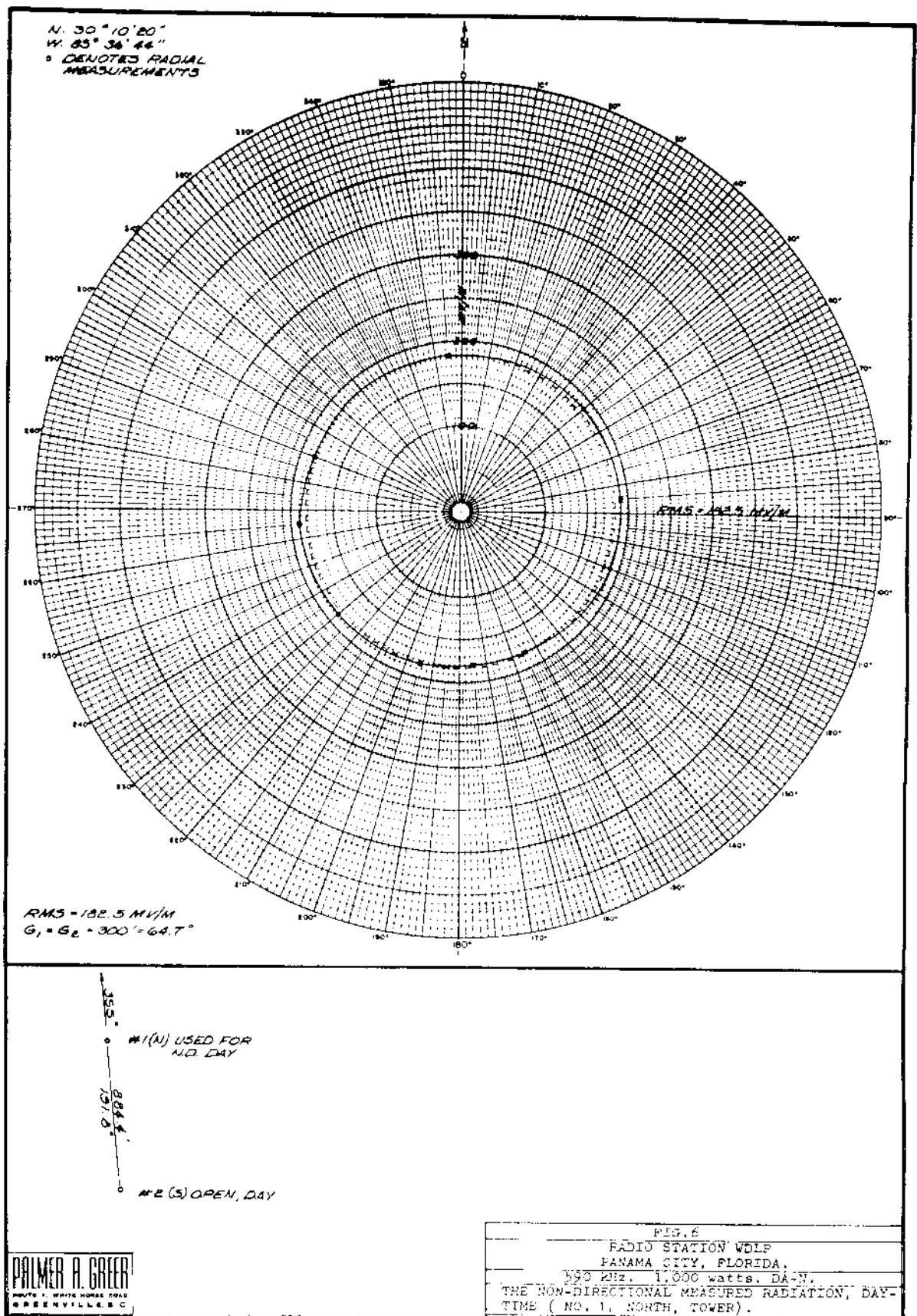


590 kc

Measured Non-DA
(11-24-70 Oct)

Station WDLP
Panama City, Florida

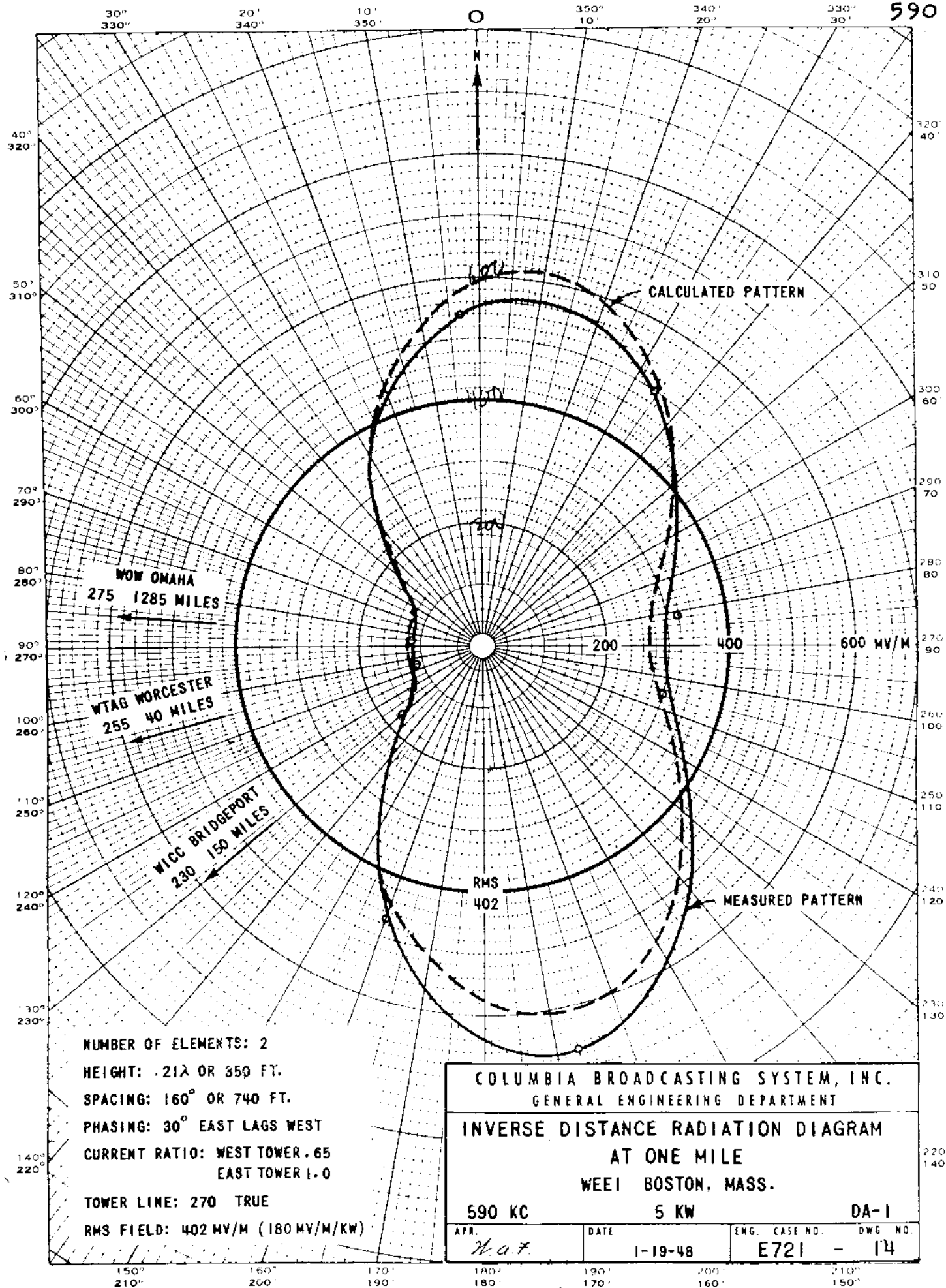
WDLP
1kw, DA-N, U
590 kc

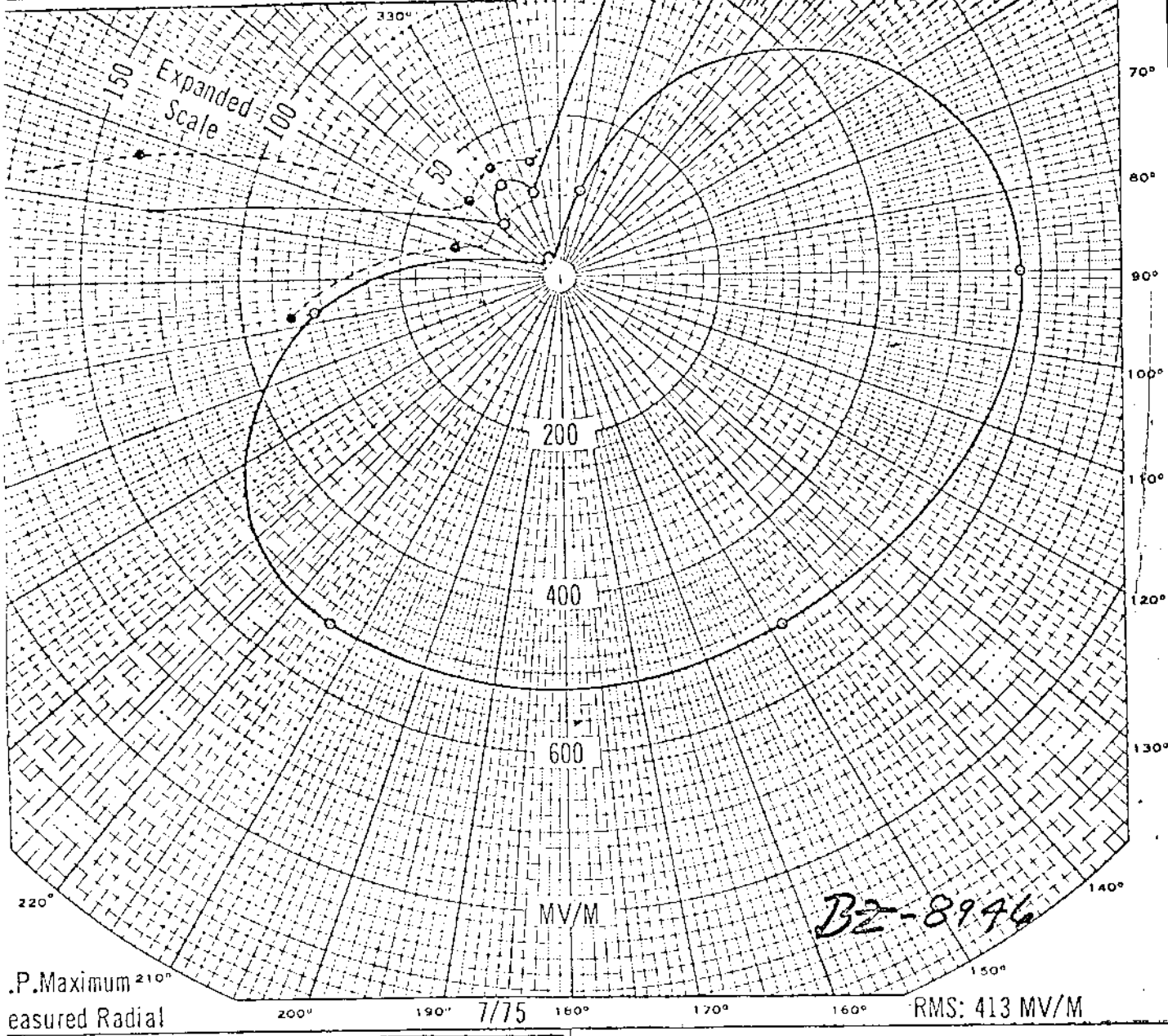
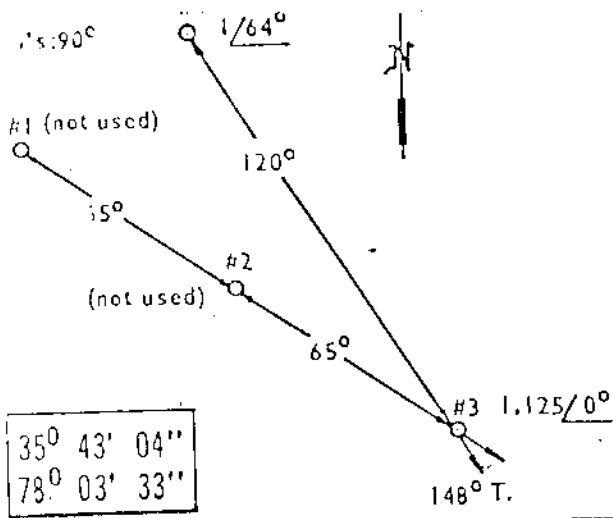


FCC File No. BL-12791
Accepted 11-18-70

Station WDLP
Panama City, Florida

590 kc



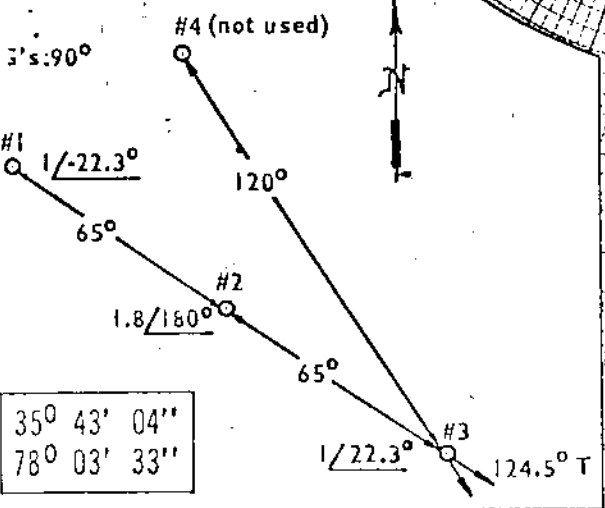
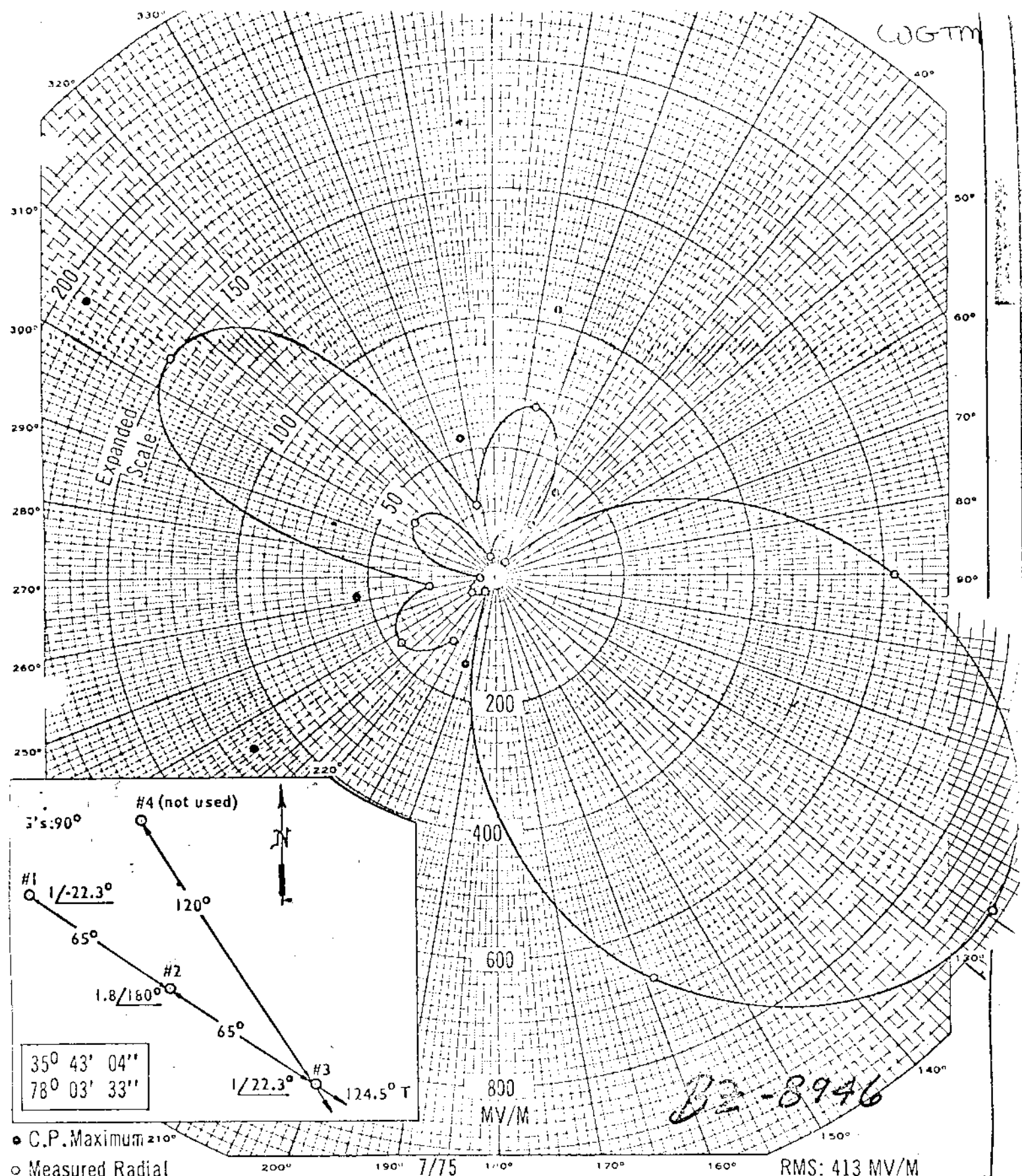


WARD F. LORENTZ & ASSOCIATES
Consulting Radio Engineers
Washington, D.C.

MEASURED DAYTIME PATTERN
WGTM, WILSON, NORTH CAROLINA
590 kHz 5 KW-U, DA-2

330°

LOG-TM



● C.P. Maximum
○ Measured Radial

200° 190° 7/75 170° 160° RMS: 413 MV/M

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

MEASURED NIGHTTIME PATTERN
WGTM, WILSON, NORTH CAROLINA
590 kHz 5 KW-U, DA-2

590 kc

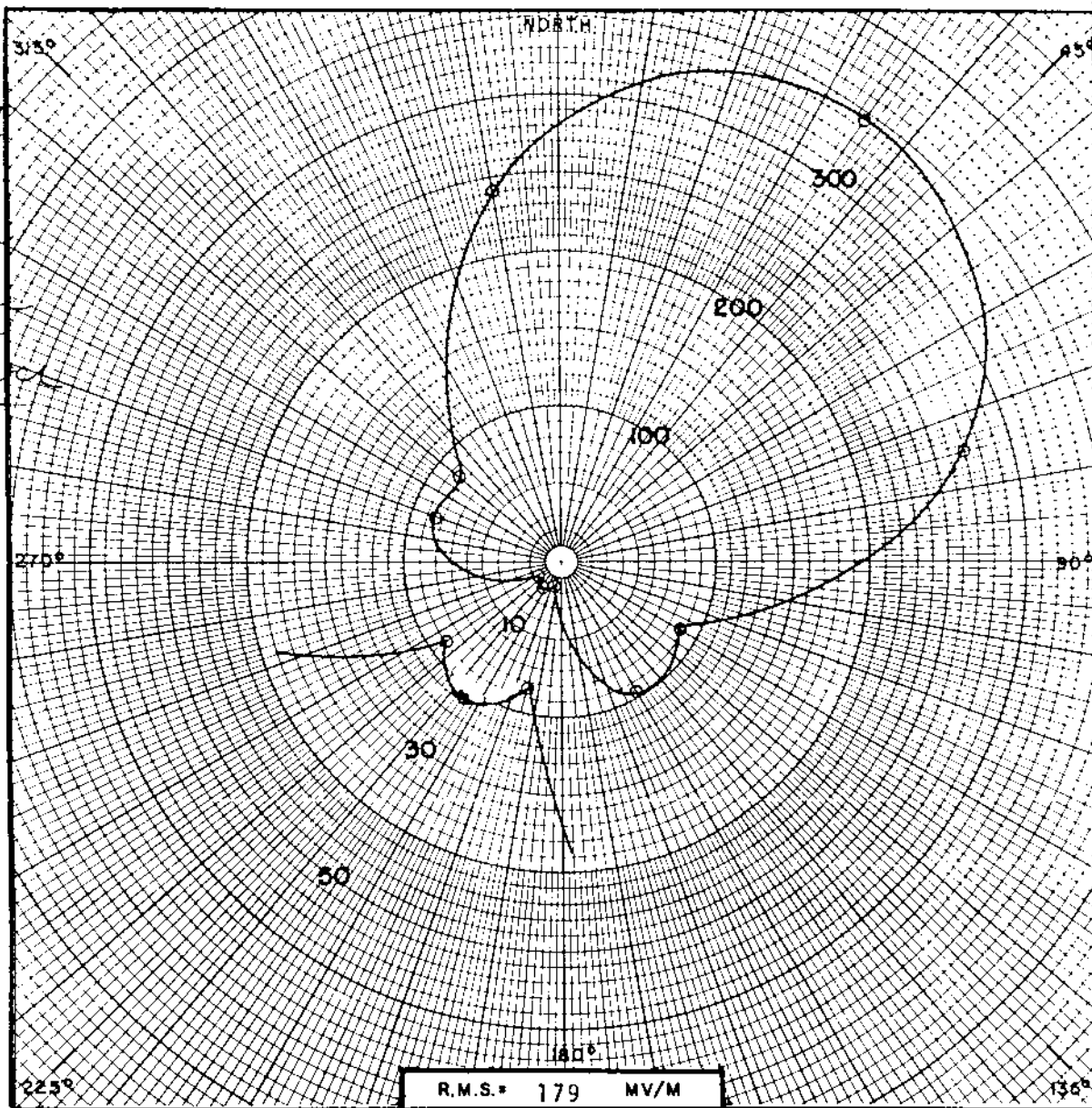
WJMS

Measured Night
(10-28-68ct)

Station WJMS
Ironwood, Michigan

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

4-24-69
Granted
license
covering
range in
freq &
increase
in day-
time power



PATTERN PARAMETERS			
35° True			
1.	Theo. 1.000 / 0°	Meas. 1.000 / 0°	
2.	1.133 / 132.8	1.22 / 131°	
3.	0.600 / -64.4°	0.600 / -75°	

S=84°, G = 66°

DIRECTIONAL RADIATION PATTERN	
UPPER MICHIGAN-WISCONSIN B/C, Inc	
☒ MEASURED	☐ PROPOSED
FREQ: 590 (KHZ)	POWER: 1.0 (KW)
N. LAT. 46 ° 25 ' 25 "	☒ DA-N
W. LONG. 90 ° 12 ' 30 "	☐ N-D
LOCATION: Ironwood, Michigan	
DATE: September, 1968	
ROBERT A. JONES CONSULTING ENGINEERS LA GRANGE, ILLINOIS	

FCC File No. BL-12127
Accepted 10-24-68

Station WJMS
Ironwood, Michigan

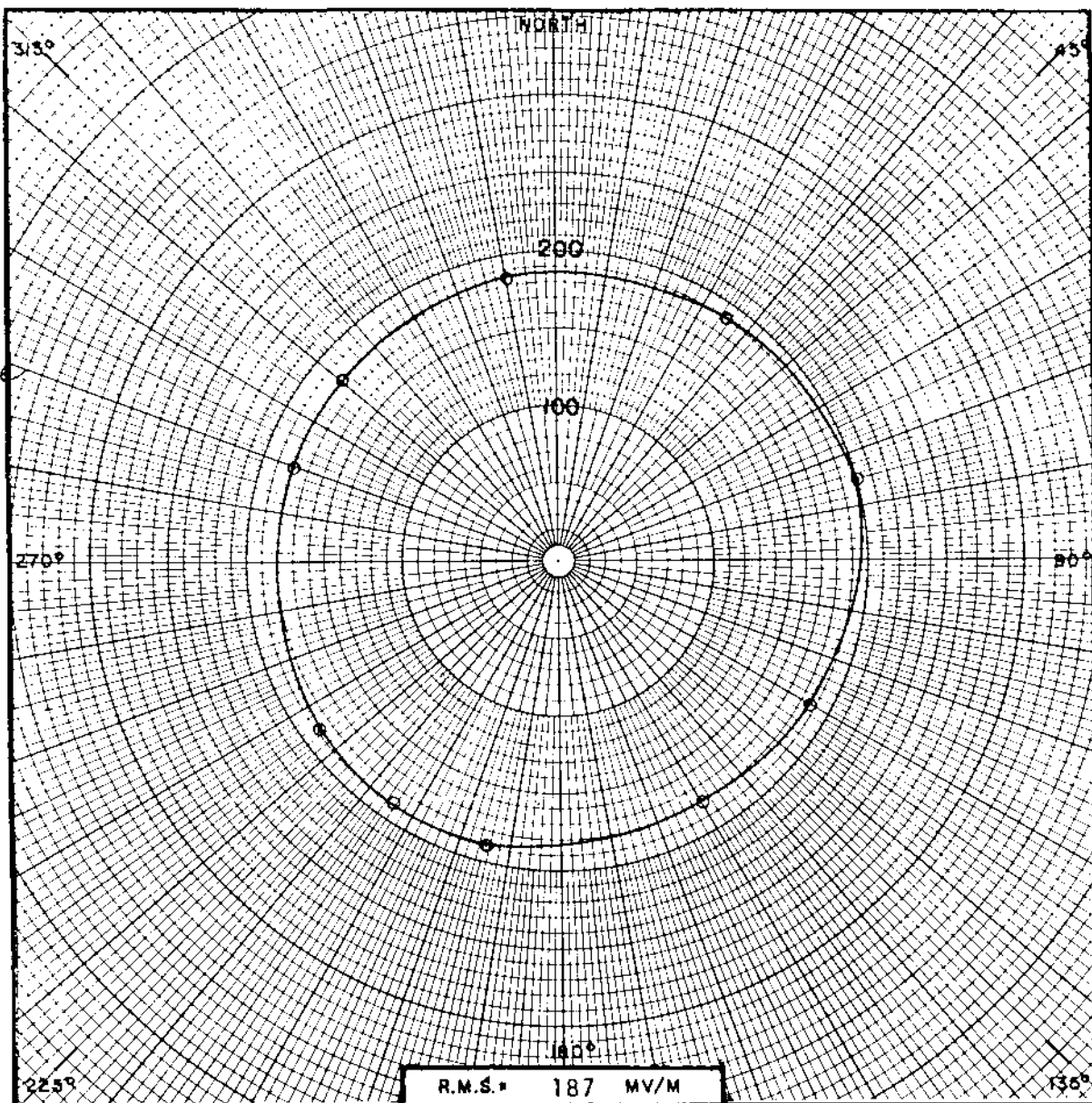
590 kc

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

Station WJMS
Ironwood, Michigan

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

3-26-68
Granted
license
covering
change in
freq. &
increase
in daytime
power



PATTERN PARAMETERS

DIRECTIONAL
RADIATION PATTERN
UPPER MICHIGAN-WISCONSIN B/C, Inc

☒ MEASURED ☐ PROPOSED

FREQ: 590 (KHZ) POWER: 1.0 (KW) ☐ DA-D
N. LAT. 46° 25 '25 " ☐ DA-N
W. LONG. 90° 12 '30 " ☒ N-D

LOCATION: Ironwood, Michigan

DATE: September, 1968

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FCC File No. BL-12127
Accepted 10-24-68

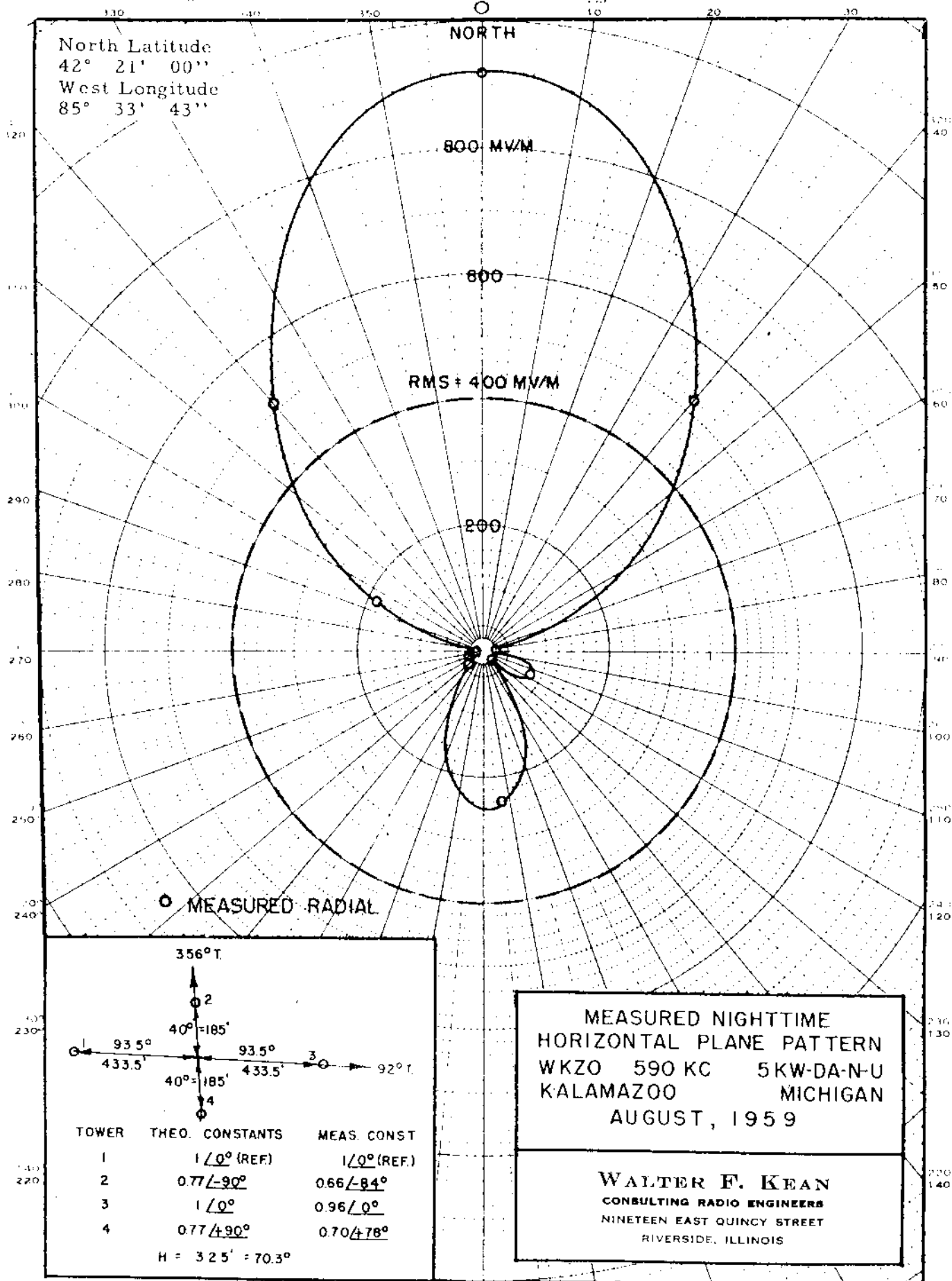
Station WJMS
Ironwood, Michigan

590 kc

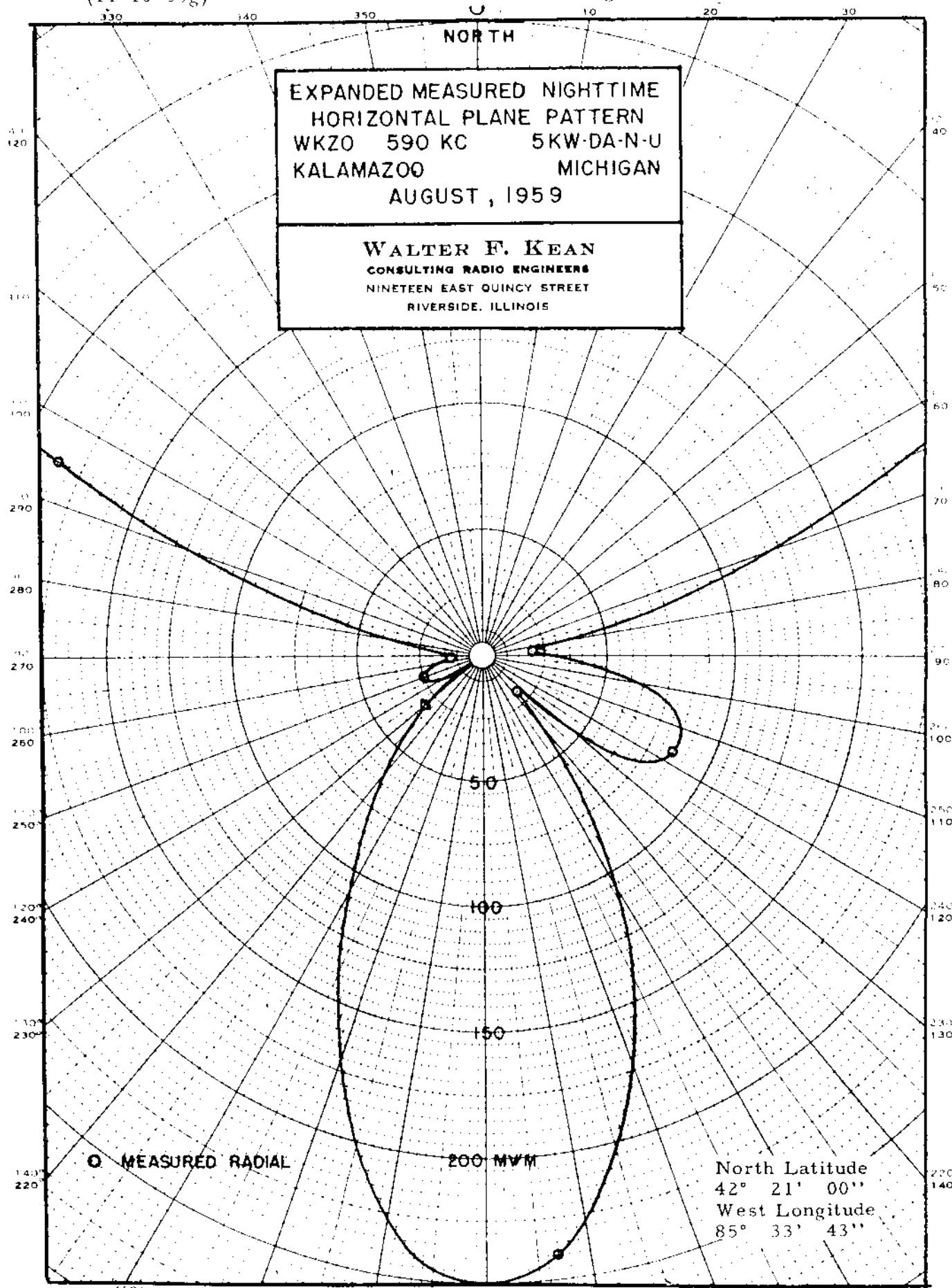
MEASURED NIGHT
(11-16-59g)

Station WKZO
Kalamazoo, Michigan

5kw, DA-N,U
590 KC

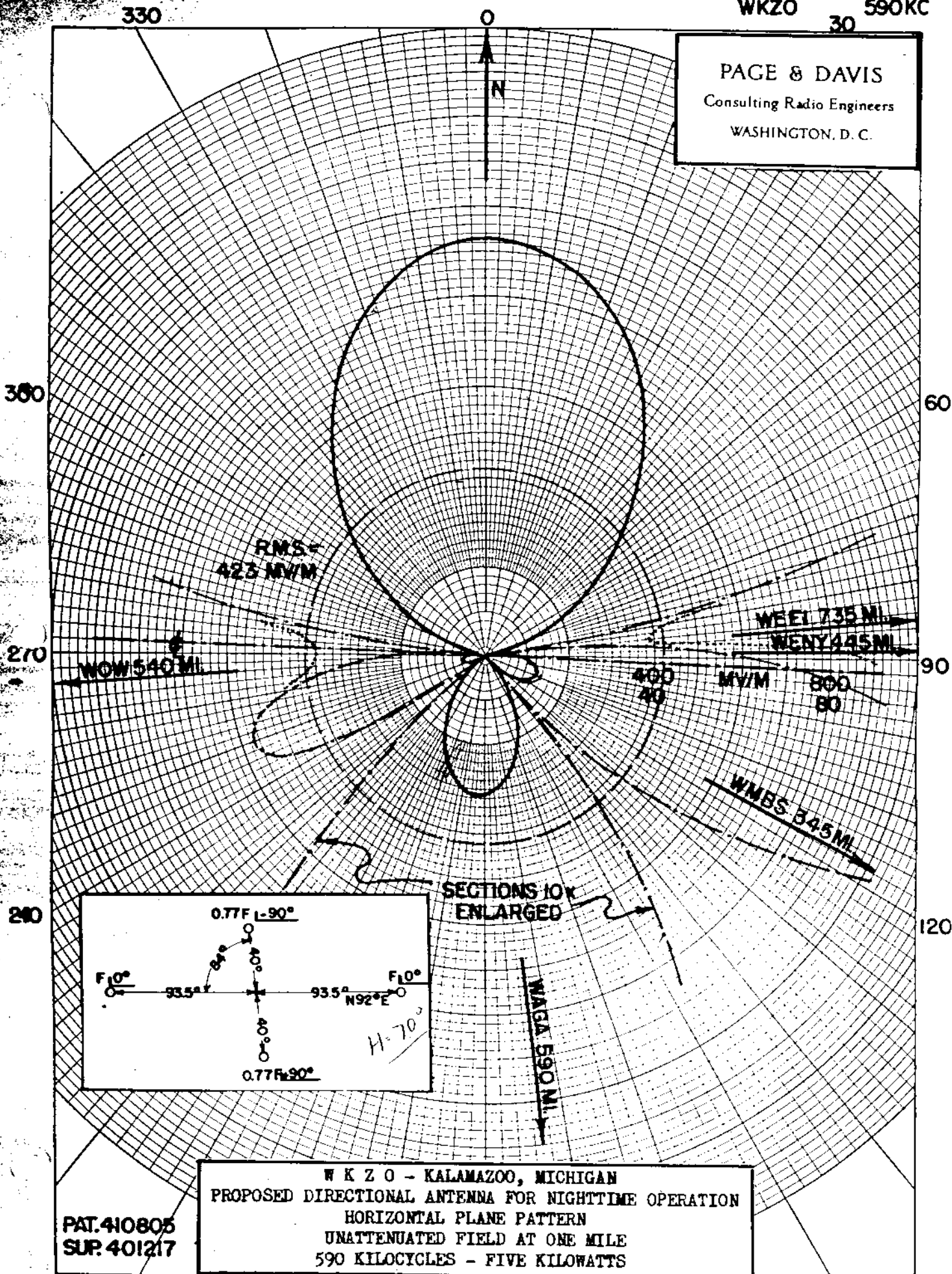


WKZO

MEASURED NIGHT NULL
(11-16-59g)Station WKZO
Kalamazoo, Michigan5kw, DA-N,U
590 KCFCC File No. BZ-4189
Accepted 10-28-59WKZO
Kalamazoo, Michigan

590 KC

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

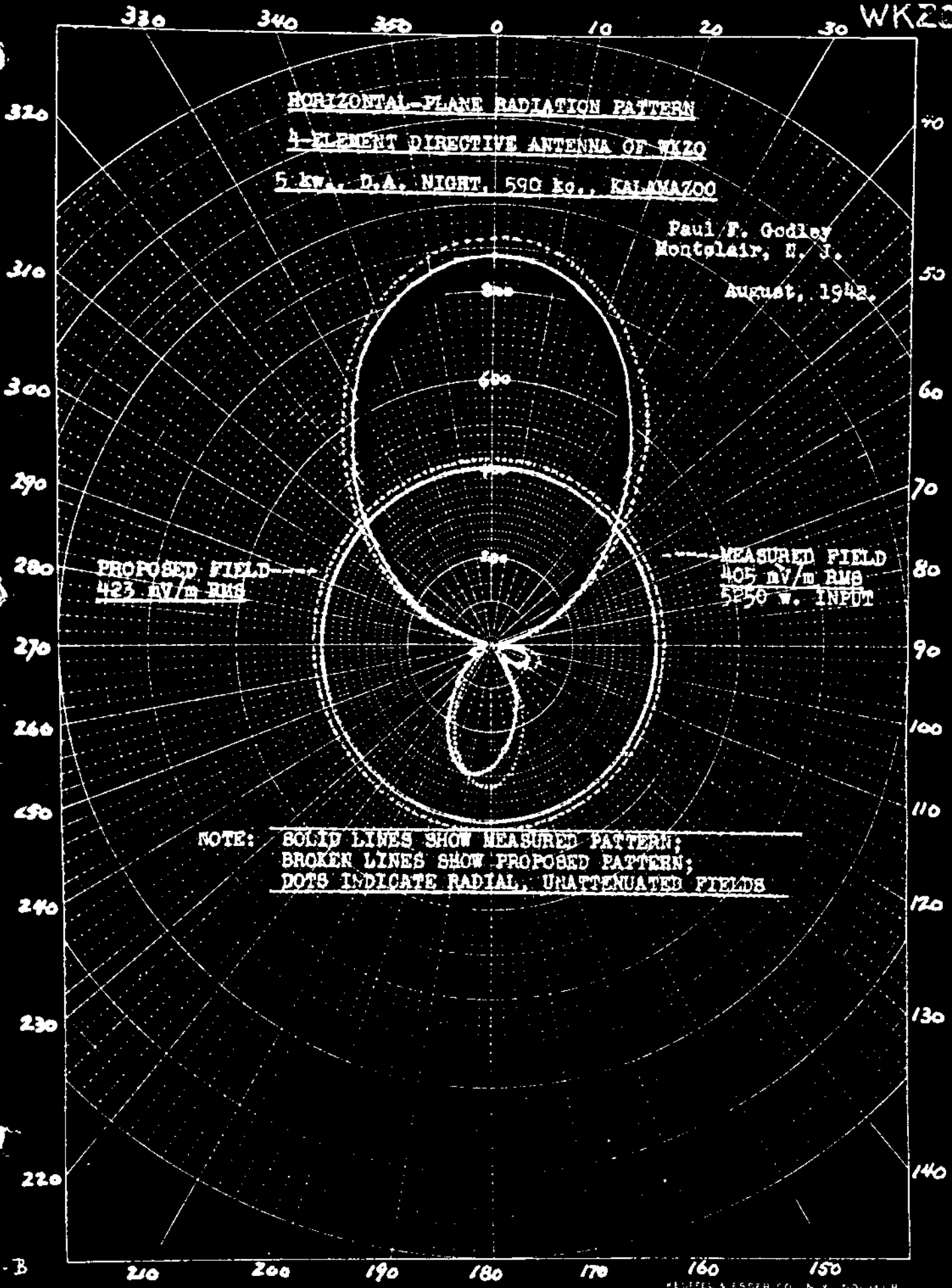


PAT. 410805
SUP. 401217

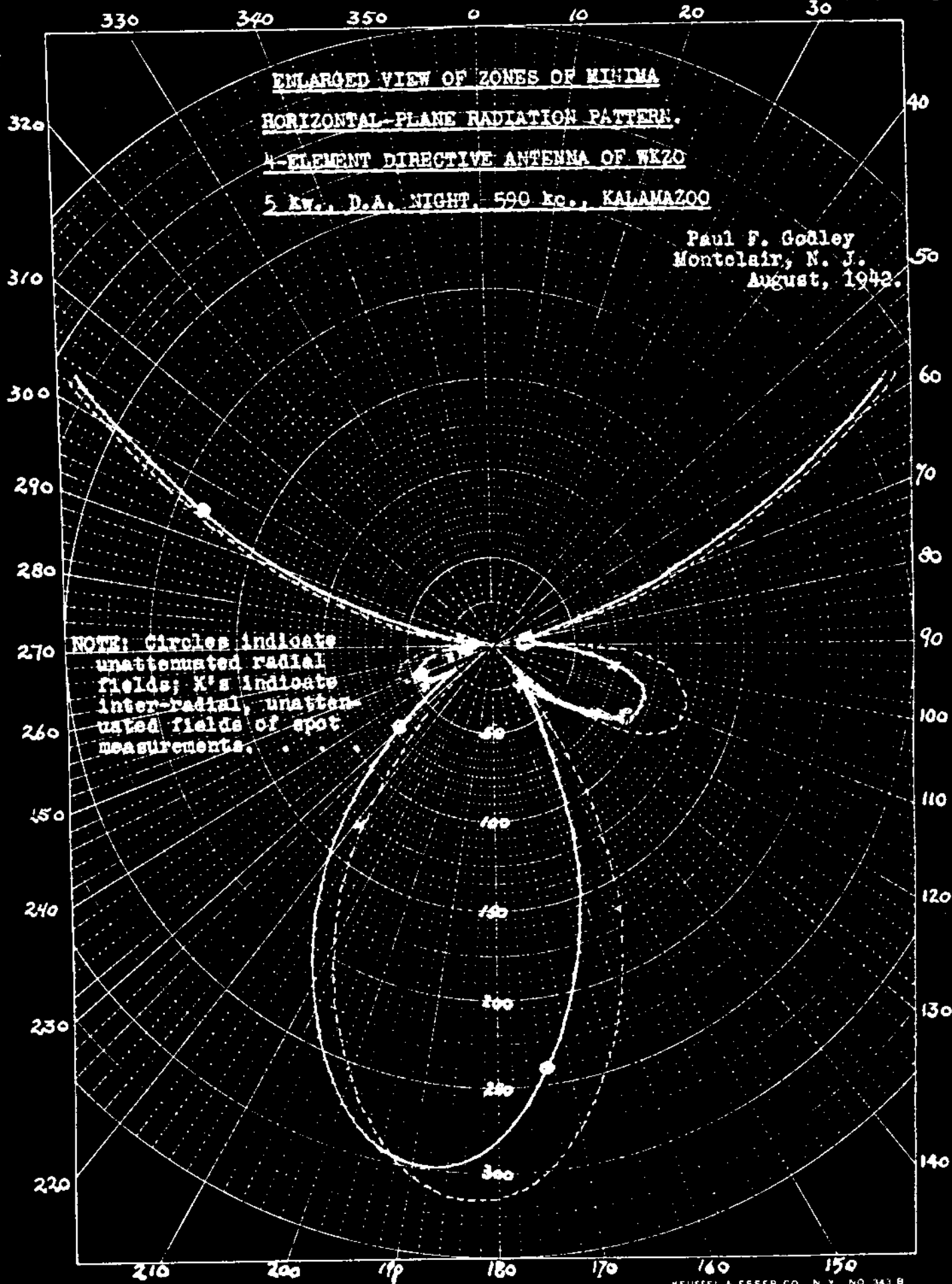
WKZO - KALAMAZOO, MICHIGAN
PROPOSED DIRECTIONAL ANTENNA FOR NIGHTTIME OPERATION
HORIZONTAL PLANE PATTERN
UNATTENUATED FIELD AT ONE MILE
590 KILOCYCLES - FIVE KILOWATTS

390 KC

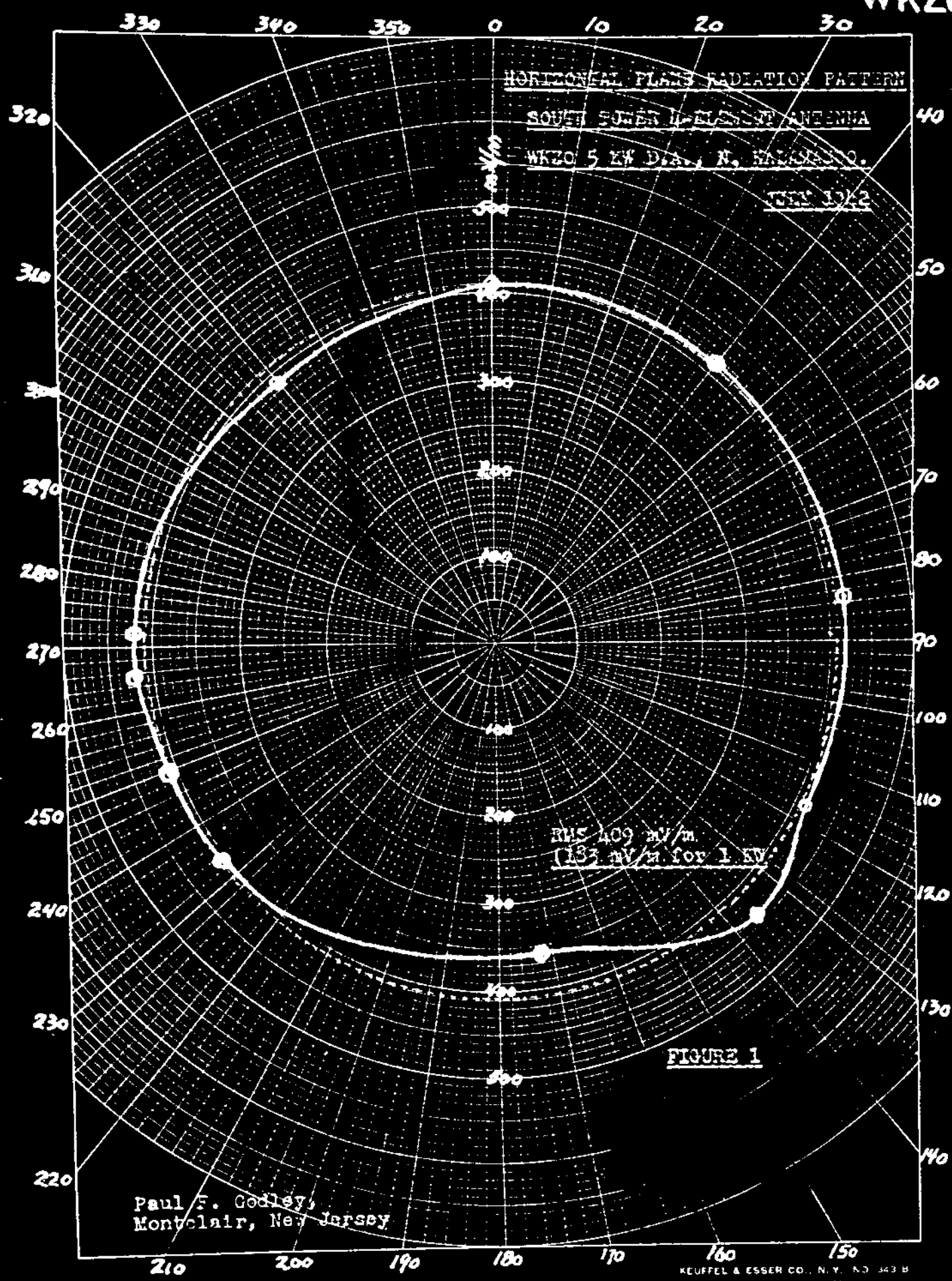
WKZO



590 KC
WKZO



590 KC
WKZO



WLYA

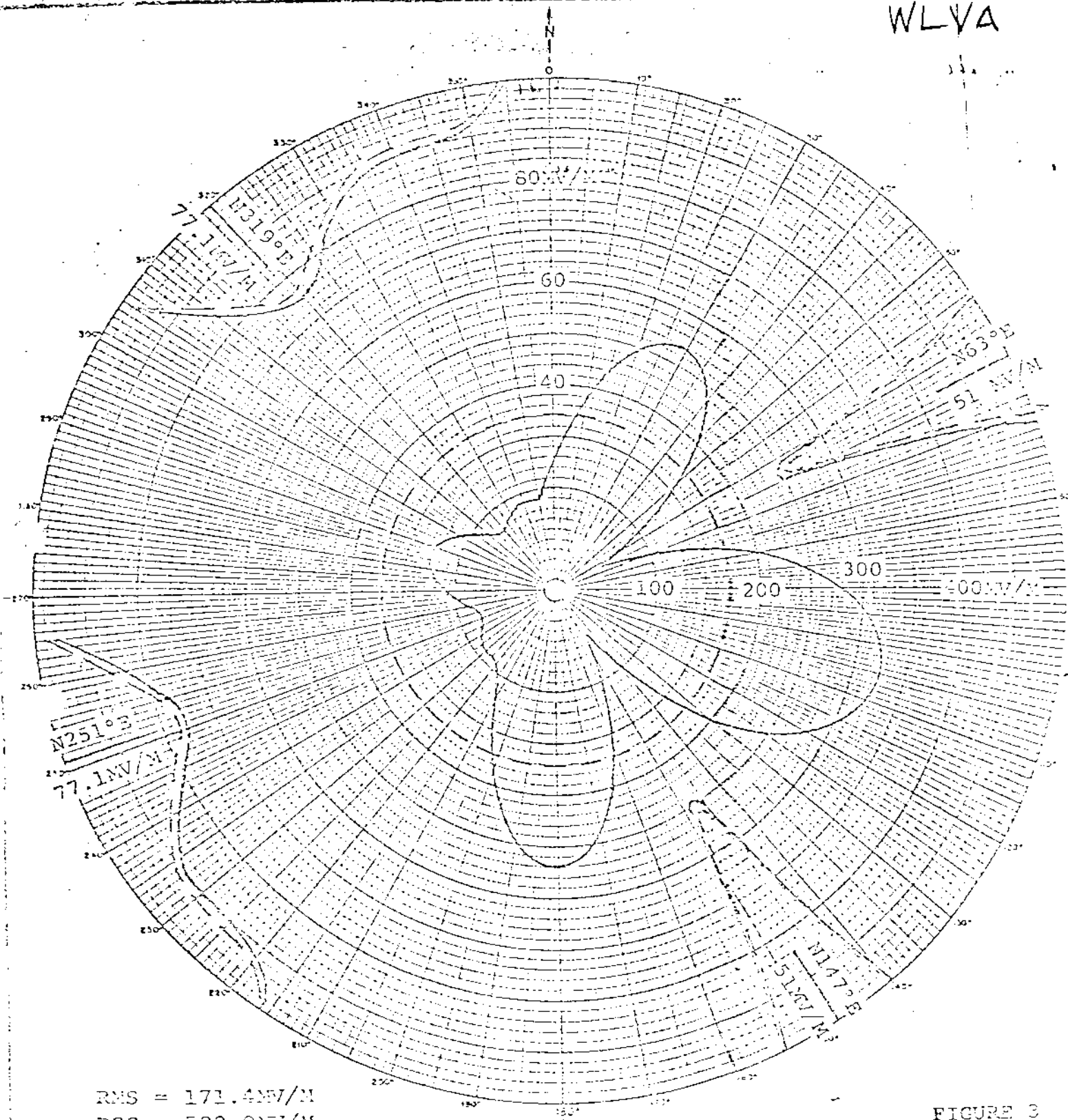


FIGURE 3

TOWER	RATIO	PHASE
1	.877	-163.2°
2	1.0	0°
3	.965	170.9°
4	.456	-30.2°

DAYTIME HORIZONTAL RADIATION PATTERN

AUGUST 1973

Prepared by

LOC-N285°E
C - 92° (PLUS TL)

WLYA
LYNCHBURG, VA.

590KHZ 1KW

DA-1

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WLVA

Main Studio: Lynchburg, Virginia

Frequency: 590 kHz

Power: 1 kW

Notification List No. 1567

Date: February 13, 1974

Class: III

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 37° 25' 39"
West Longitude: 79° 13' 23"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2)

Number of elements: 4

Type of elements: Series-excited, guyed, tapered, vertical steel towers, top loaded by upper sections of guy wires to an effective height of 130.4 degrees. (*)

TOWER:	NW(#4)	WC(#3)	EC(#2)	SE(#1)
HEIGHT ABOVE INSULATORS:	380'	380'	380'	380' (*)
NIGHT PHASING:	-40.5°	+164.9°	0°	-166.5°
NIGHT FIELD RATIO:	0.389	0.851	1.0	0.571
DAY PHASING:	-30.2°	+179.9°	0°	-163.2°
DAY FIELD RATIO:	0.456	0.965	1.0	0.877

SPACING AND

ORIENTATION: Adjacent elements are spaced 417' (90°) on a line bearing 285° true.

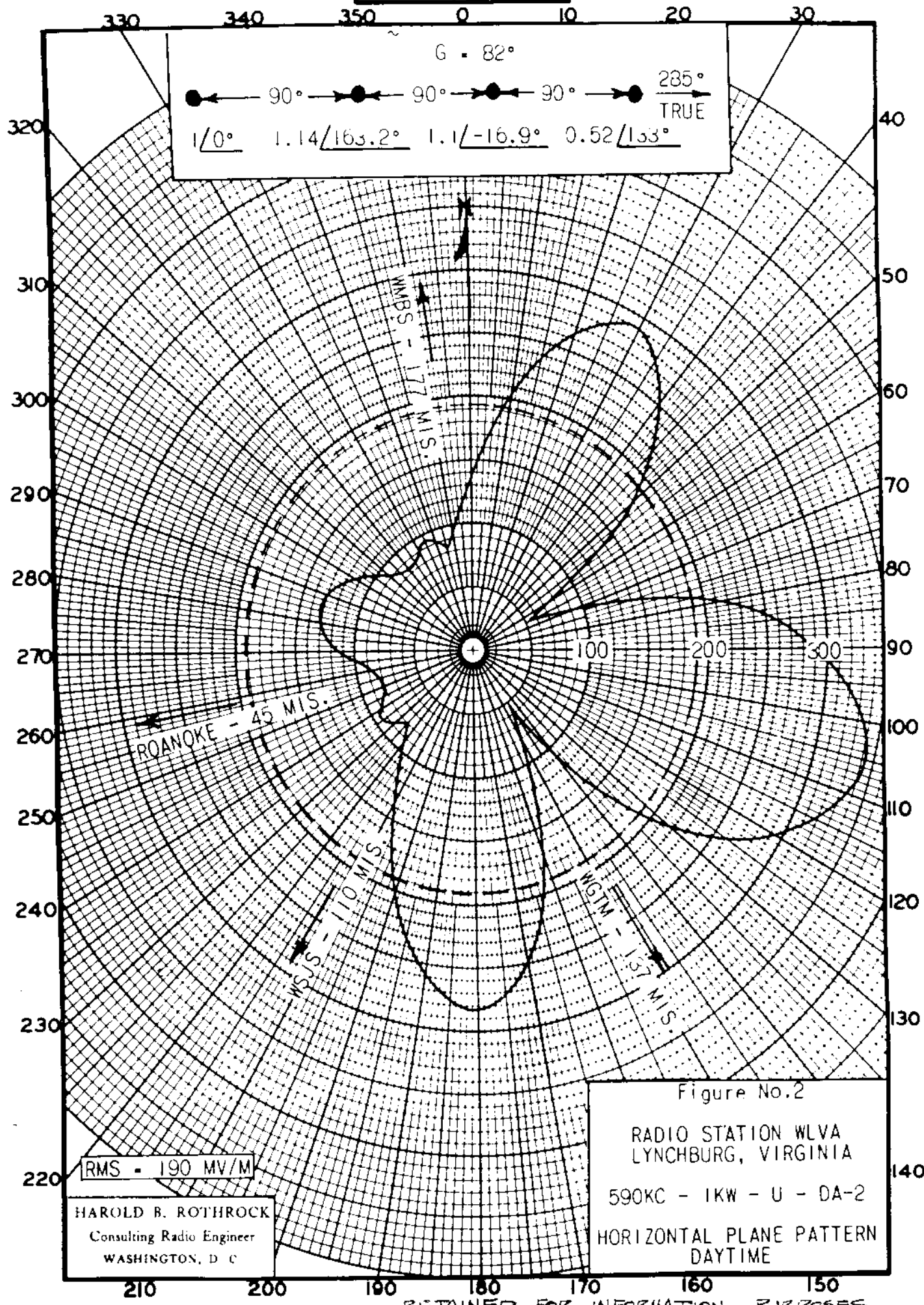
GROUND SYSTEM: 120-400' equally spaced copper radials plus 120-100' inter-spaced radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

Predicted effective Night Field: 193.0 mv/m at rated power.

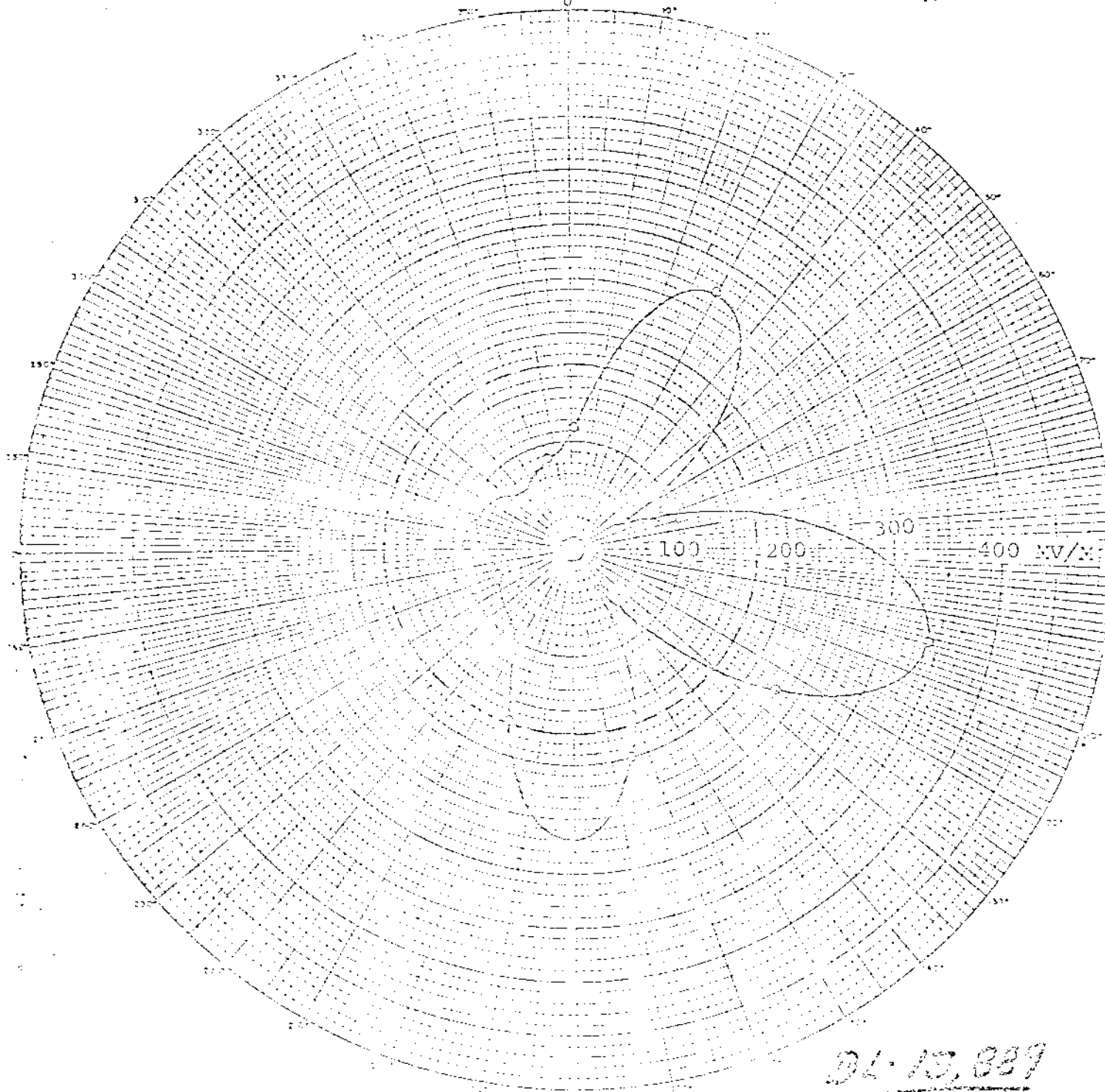
Predicted effective Day Field: 171.4 mv/m at rated power.

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

CTR NO 31278A3



WLVA



94-13,889

FIGURE 5-

PLS = 172.5 KV/M

FORM	WAVE	UNIT
1	.817	-142.10°
2	1.0	0°
3	.817	142.10°
4	.817	-31.12°

MEASURED
LA. TIME OF DAY: 11:00 AM

LA. TIME OF DAY: 11:00 AM

LA. TIME OF DAY: 11:00 AM

LA. TIME OF DAY: 11:00 AM

LA. TIME OF DAY: 11:00 AM

LA. TIME OF DAY: 11:00 AM

LA. TIME OF DAY: 11:00 AM

LA. TIME OF DAY: 11:00 AM

LA. TIME OF DAY: 11:00 AM

WLVA

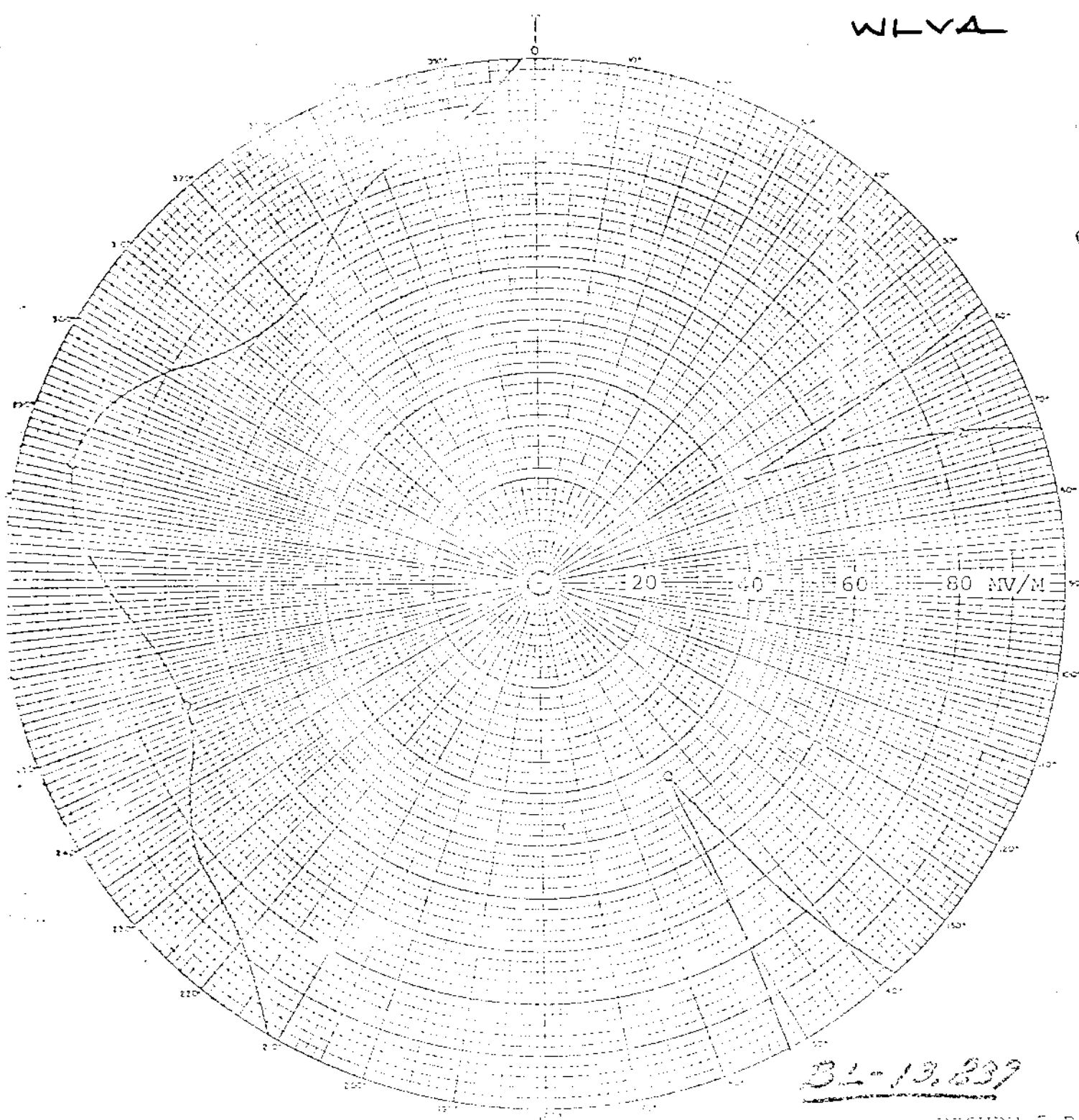


FIGURE 5-B

MEASURED
DAYTIME HORIZONTAL RADIATION PATTERN
(E-PLANE SECTION)

NOVEMBER 1974
Prepared by
SPITZER ASSOCIATES, INC.
Channahon, O. C.

WLVA
LYNCHBURG, VA.
500 MHz 1 KW DA-2

WLVA

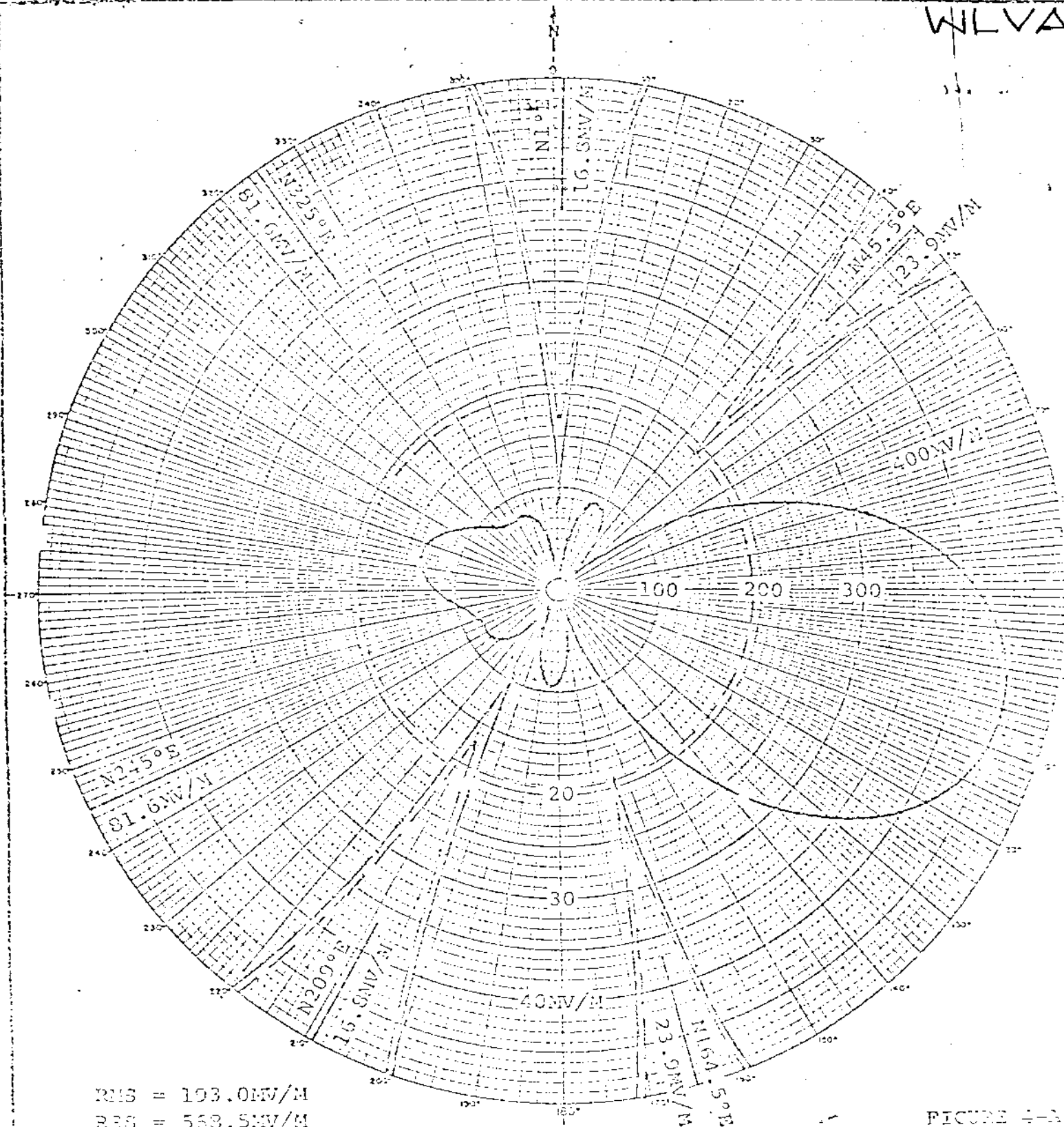


FIGURE 4-2

TOWER	RATIO	PHASE
1	.571	-166.5°
2	1.0	0°
3	.851	164.9°
4	.389	-40.5°

NIGHTTIME HORIZONTAL RADIATION PATTERN

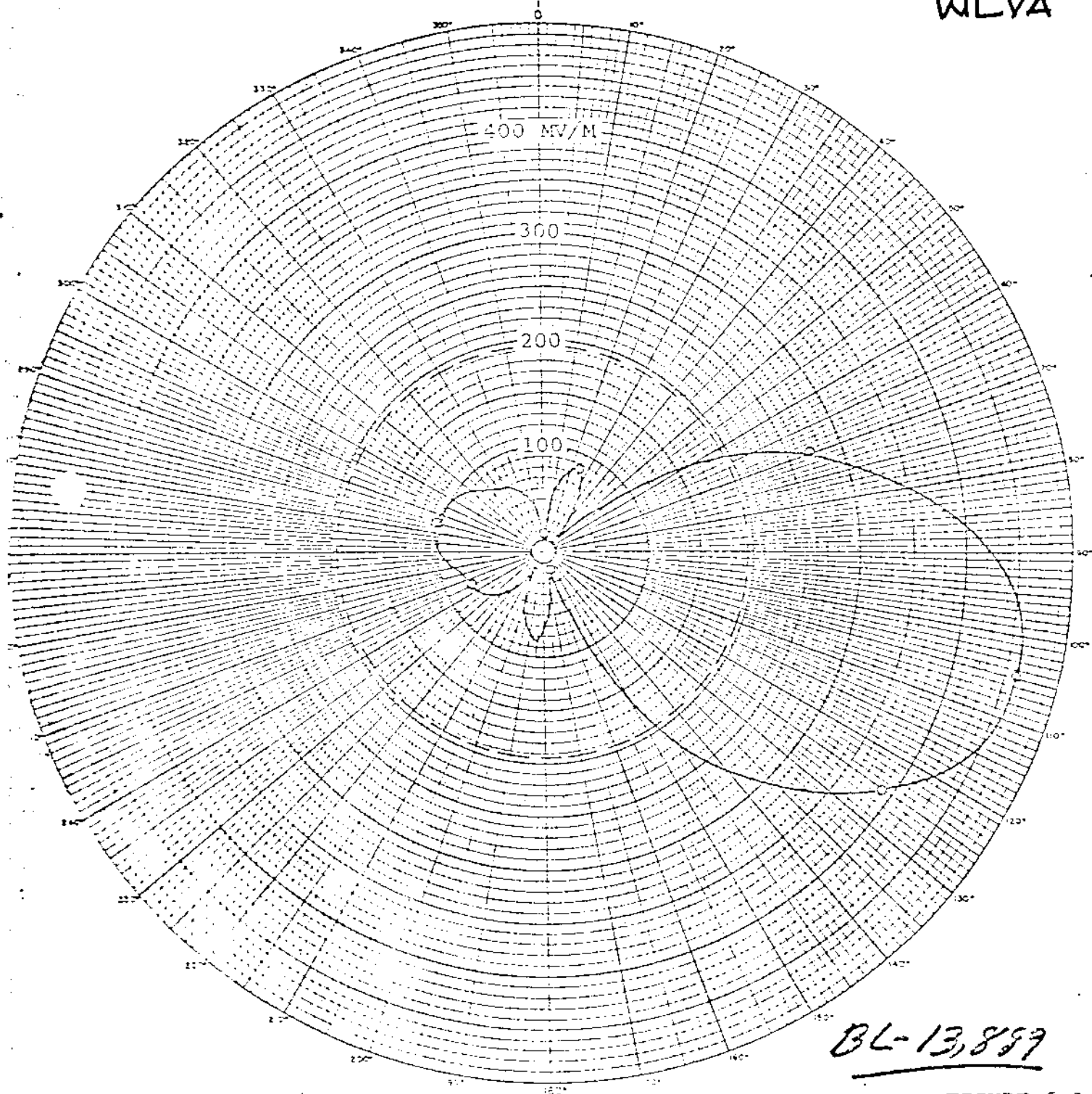
SEE OLD PATTERN
BOOK FOR STACKED
SECTIONS

AUGUST 1973

Barclay Assoc., Inc., Arlington, D.C.

LOC-N203°E
G = 32° (PLUS TL)

WLVA
LYNCHBURG, VA.
590KHZ 1KW DA-



RMS = 193.6 MV/M

FIGURE 6-A

POWER	RATIO	PHASE
1	.371	-166.5°
2	1.1	0°
3	.181	164.9°
4	.388	-41.5°

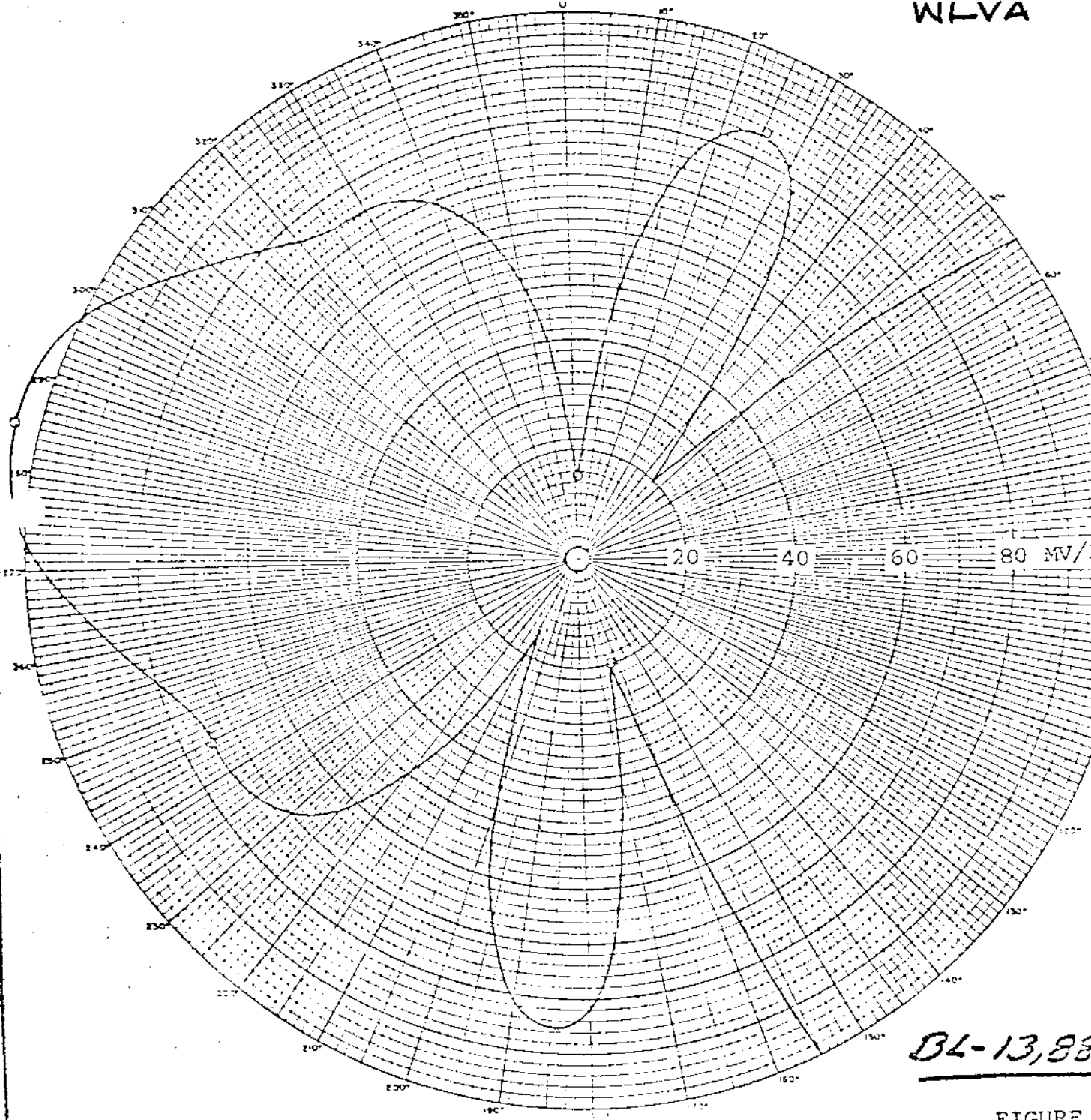
MEASURED
NIGHTTIME HORIZONTAL RADIATION PATTERN

DECEMBER 1974
Prepared by
URLESON ASSOCIATES, INC.
Washington, D. C.

117 = 3285°E
G = 107.6° (INCL TL)

WLYA
LYNCHBURG, VA.
590 KHZ 1 KW DA-2

WLVA



MEASURED
NIGHTTIME HORIZONTAL RADIATION PATTERN
(EXPANDED SECTION)

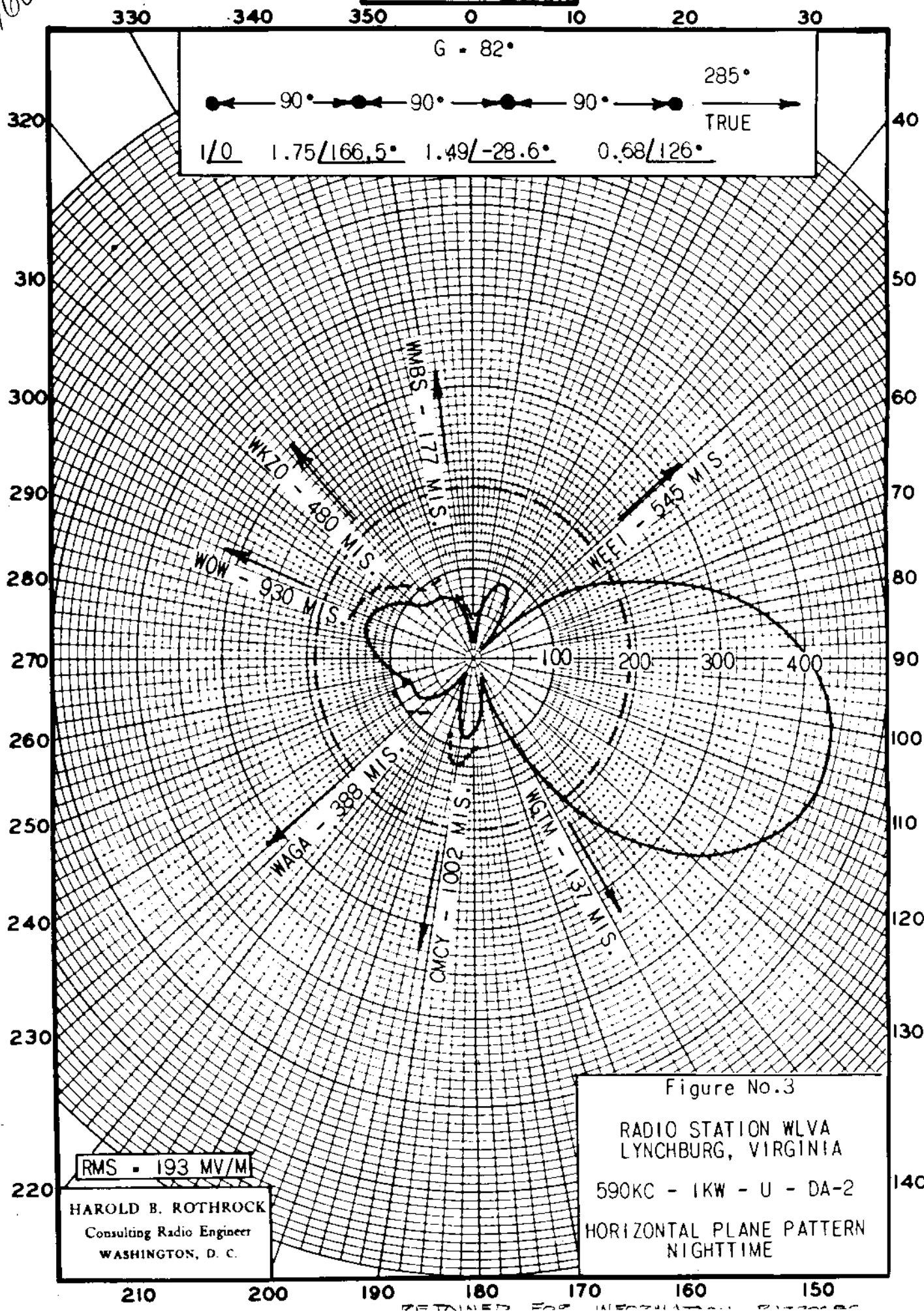
DECEMBER 1974
Prepared by
EURECON ASSOCIATES, INC.
Washington, D. C.

WLVA
LYNCHBURG, VA.
590 KHZ 1 KW

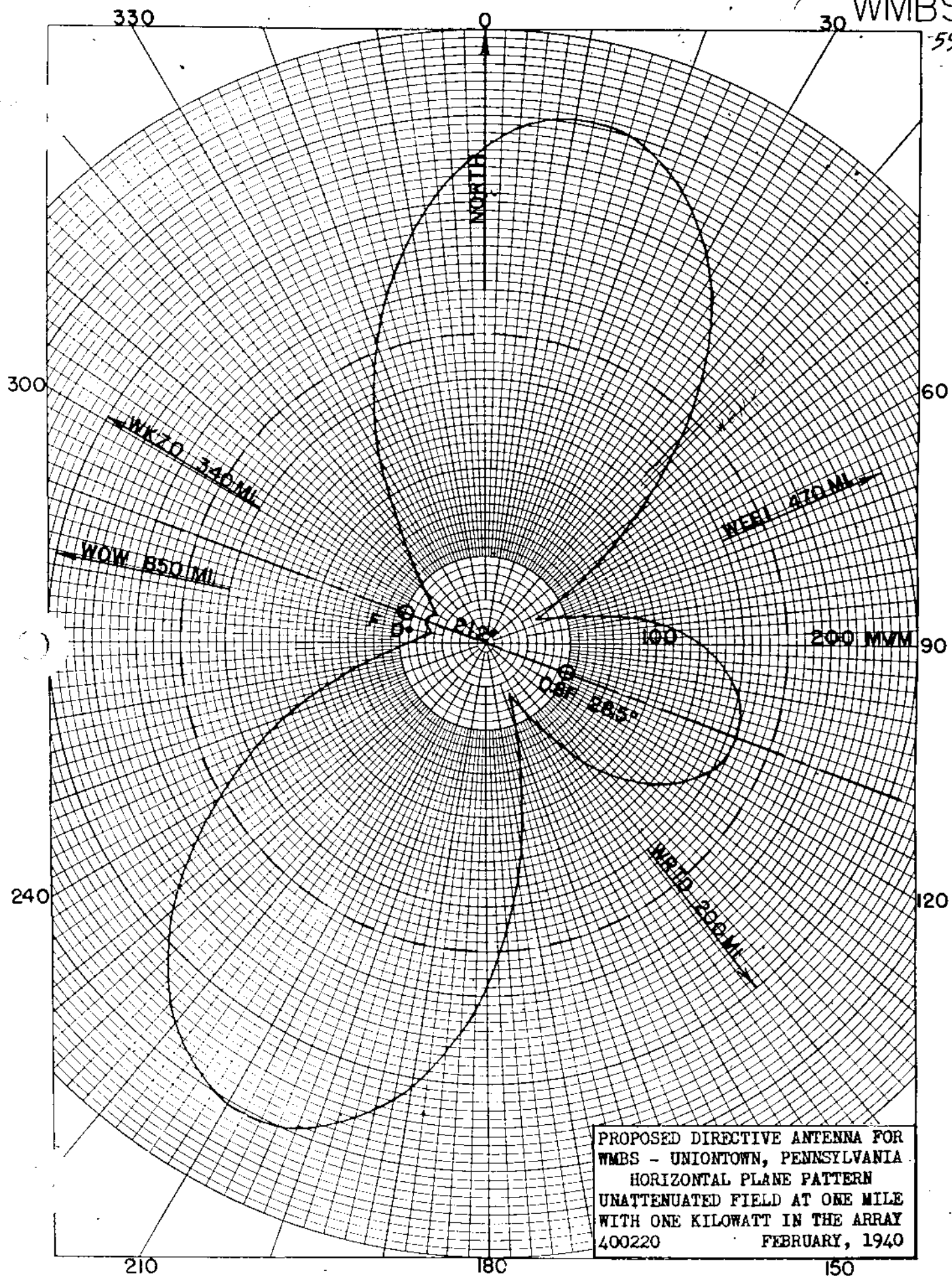
PATTERN No. 470827
SUPERSEDES: 460320

WLVA - 590KC

MP-3/60



590 WMBS 590



PROPOSED DIRECTIVE ANTENNA FOR
WMBS - UNIONTOWN, PENNSYLVANIA
HORIZONTAL PLANE PATTERN
UNATTENUATED FIELD AT ONE MILE
WITH ONE KILOWATT IN THE ARRAY
400220 FEBRUARY, 1940

PAGE 8 DAVIS

Consulting Radio Engineers

WASHINGTON, D. C.

300

60

WKZO 340 MI.

WOW 850 MI.

WEET 470 MI.

100 MV/M

200

90

R.M.S. = 175 MV/M

120

240

210

180

150

GRAPH OF MEASURED GROUNDWAVE FIELD INTENSITY
PATTERN FOR W M B S PROOF OF PERFORMANCE
MARCH, 1941

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WPLO

Main Studio: Atlanta, Georgia

Frequency: 590 kHz

Power: 5 kW

Notification List No. 1600

Date: October 2, 1974

Class: III

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:North Latitude: 33° 49' 34"
West Longitude: 84° 18' 56"

ANTENNA CHARACTERISTICS

Authorized for Nighttime operation. (DA-N)

Number of elements: 3

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

TOWER:	S(#1)	C(#2)	N(#3)
HEIGHT ABOVE INSULATORS:	305'	500' (108°)	305' (65.9°)
NIGHT PHASING:	0°	+31°	+85°
NIGHT FIELD RATIO:	1.0	1.68	0.95

SPACING AND

ORIENTATION: Adjacent elements are spaced 797' (172°) on a line bearing
0° true.GROUND SYSTEM: 120-305' equally spaced copper radials plus 120-40' interspaced
radials about each tower.

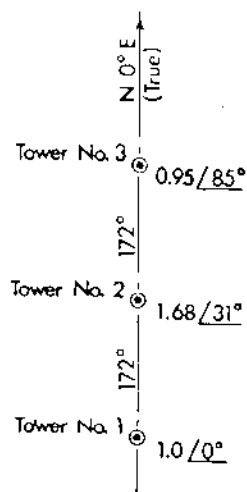
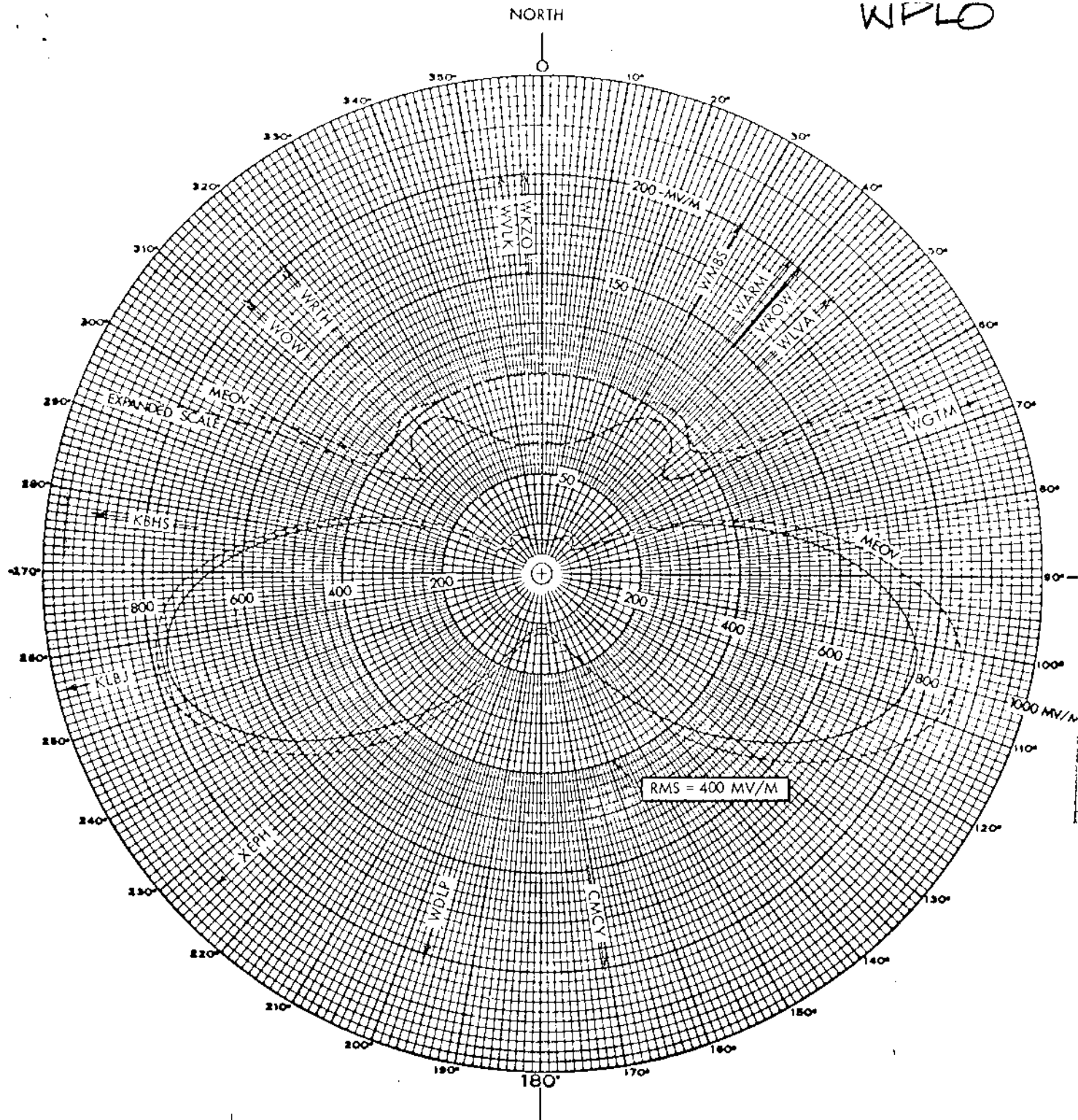
Predicted effective Night Field: 400 mv/m at rated power.

Predicted effective Day Field: (omnidirectional tower #2) 441 mv/m at rated
power.

Note: This notification concerns only changes to add meows of radiation to
the Nighttime directional antenna pattern with Daytime operation
continued as previously notified.

CTR NO 30469A3

WPLO



$H_1 = 65.9^\circ$
 $H_2 = 108^\circ$
 $H_3 = 65.9^\circ$

FIGURE 1
 NIGHTTIME HORIZONTAL
 PLANE RADIATION PATTERN
 WPLO 5KW-U, DA-N 590 KHz
 ATLANTA, GEORGIA

Prepared by
 Lohnes and Culver Washington, D. C.
 September, 1974

Station WPL0
Atlanta, Georgia

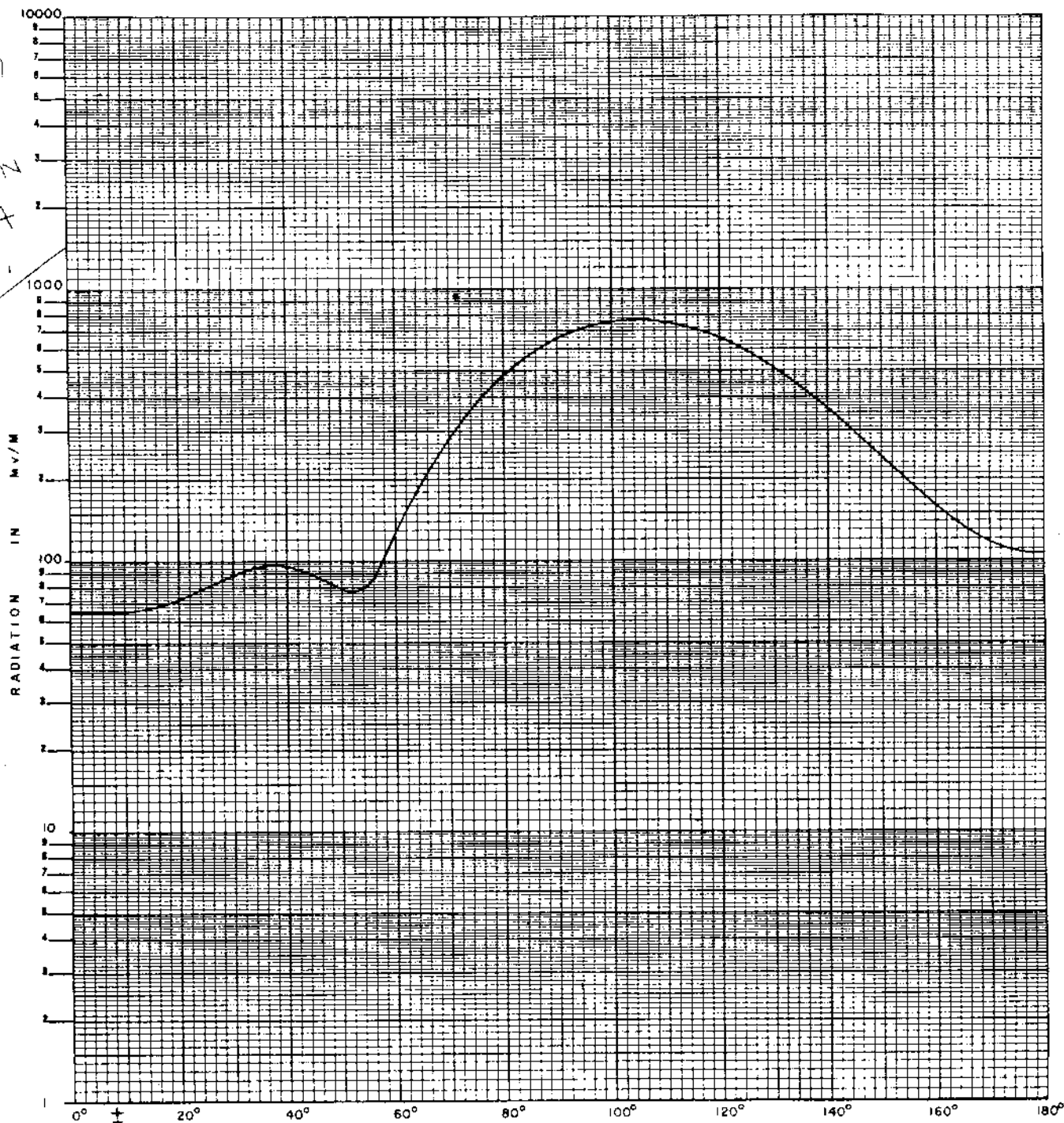
WPL0

Proposed Night Nulls
(11-28-67ct)

Station WPL0
Atlanta, Georgia

5kw, DA-N, U
590 kc

11-29-67
GRANTED
CP
CHANGE IN
ANTENNA
SYSTEM.



ϕ 0° at N 0° E

FIGURE 4A
PROPOSED WPL0 NIGHTTIME RADIATION PATTERN
ELEVATION ANGLE = 0°

FCC File No. BP-17895
Accepted 11-7-67

Station WPL0
Atlanta, Georgia

590 kc

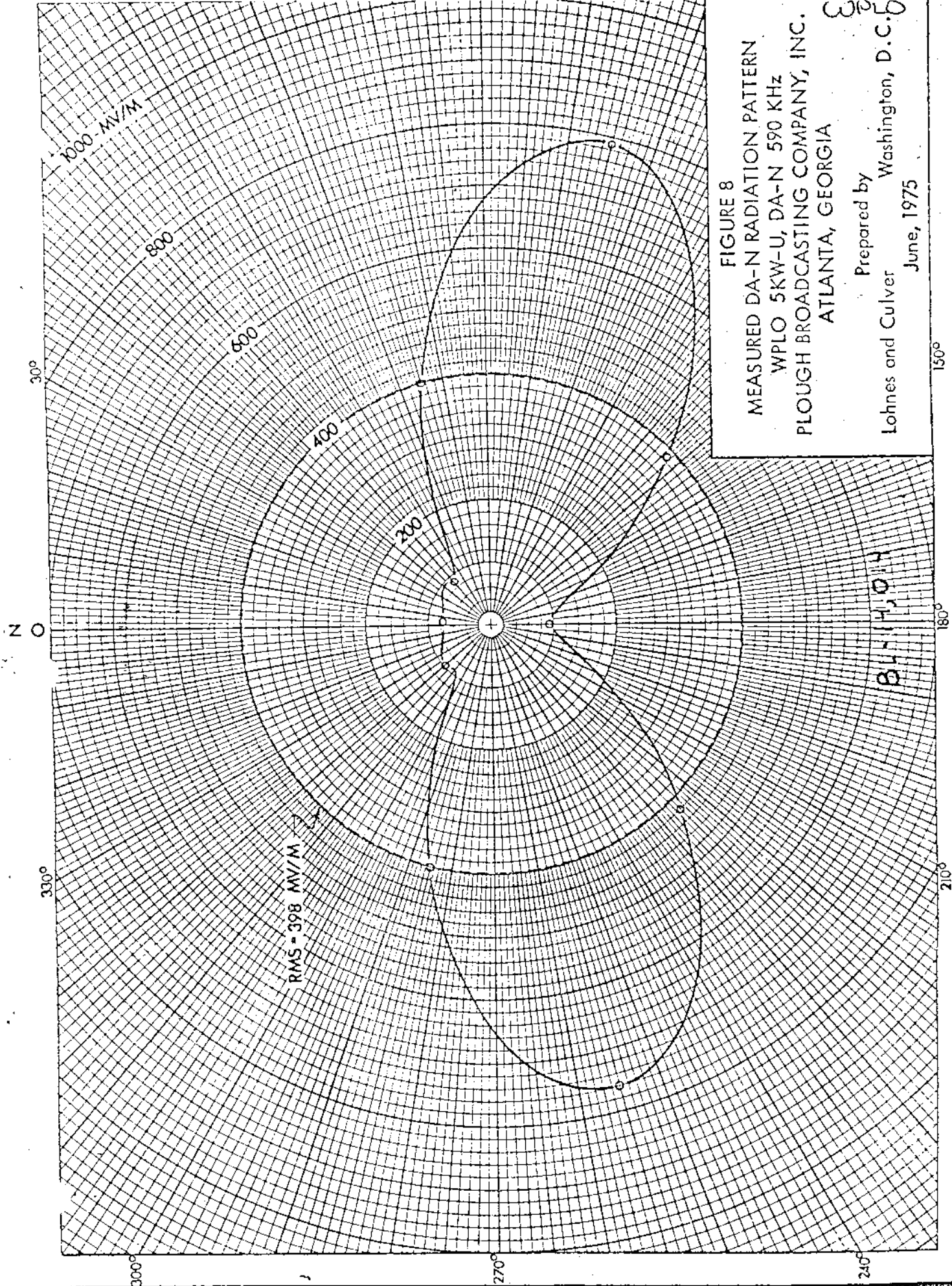


FIGURE 8

MEASURED DA-N RADIATION PATTERN
WPLO 5KW-U, DA-N 590 KHz
PLOUGH BROADCASTING COMPANY, INC.
ATLANTA, GEORGIA

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

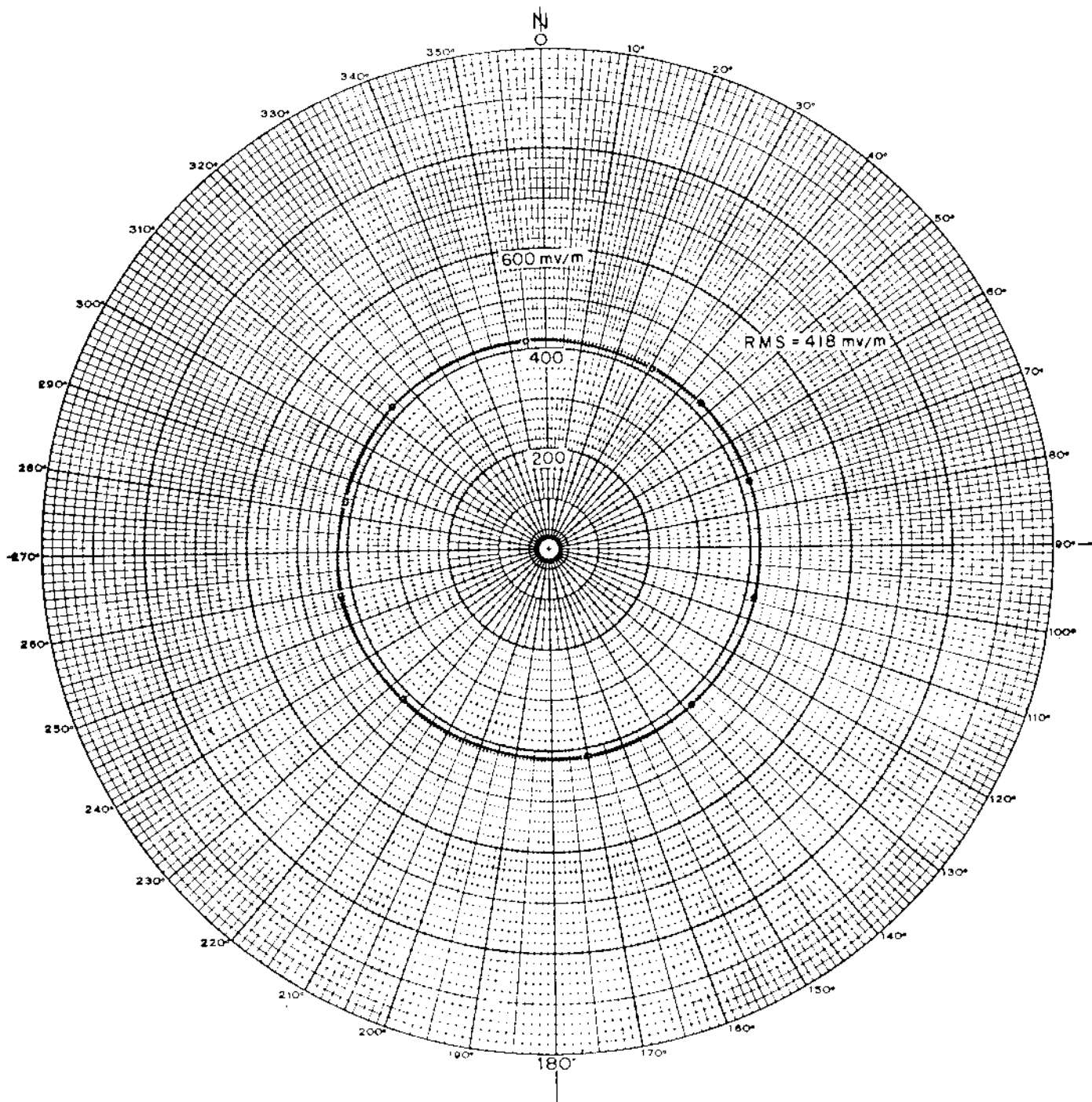
84-14,014

WPLC

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

Station WPL0
Atlanta, Georgia

5kw, DA-N, U
590 kc



North Latitude 33° 49' 34"
West Longitude 84° 18' 56"

FIGURE 6
HORIZONTAL RADIATION PATTERN
(NON-DA DAY OPERATION)
PLOUGH BROADCASTING COMPANY, INC.
WPL0 5 KW-U, DA-N 590 KC
ATLANTA, GEORGIA

Prepared by
Lohnes and Culver Washington 4, D.C.
December 1963
590 kc

File No. 87-5159
Accepted 3-26-64

Station WPL0
Atlanta, Georgia

WROW

SUPPLEMENTAL DIRECTIONAL
ANTENNA DESCRIPTION SHEET

Station: WROW

Main Studio: Albany, New York

Frequency: 590 kHz

Power: 1 kW Night 5 kW Day

Notification List No. 1608

Date: November 27, 1974 Class: III

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 42° 34' 24"
West Longitude: 73° 47' 12"

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

Predicted effective Day Field: 435 mv/m at rated power.

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

Note: Please retain the description sheet and directional antenna radiation patterns notified for station WROW in United States Change List Number 1516, dated February 14, 1973 and attach to this supplemental Description Sheet. This notification is for the purpose of indicating only a correction in the geographical coordinates of the center of the antenna system.

CTR NO 30283A4

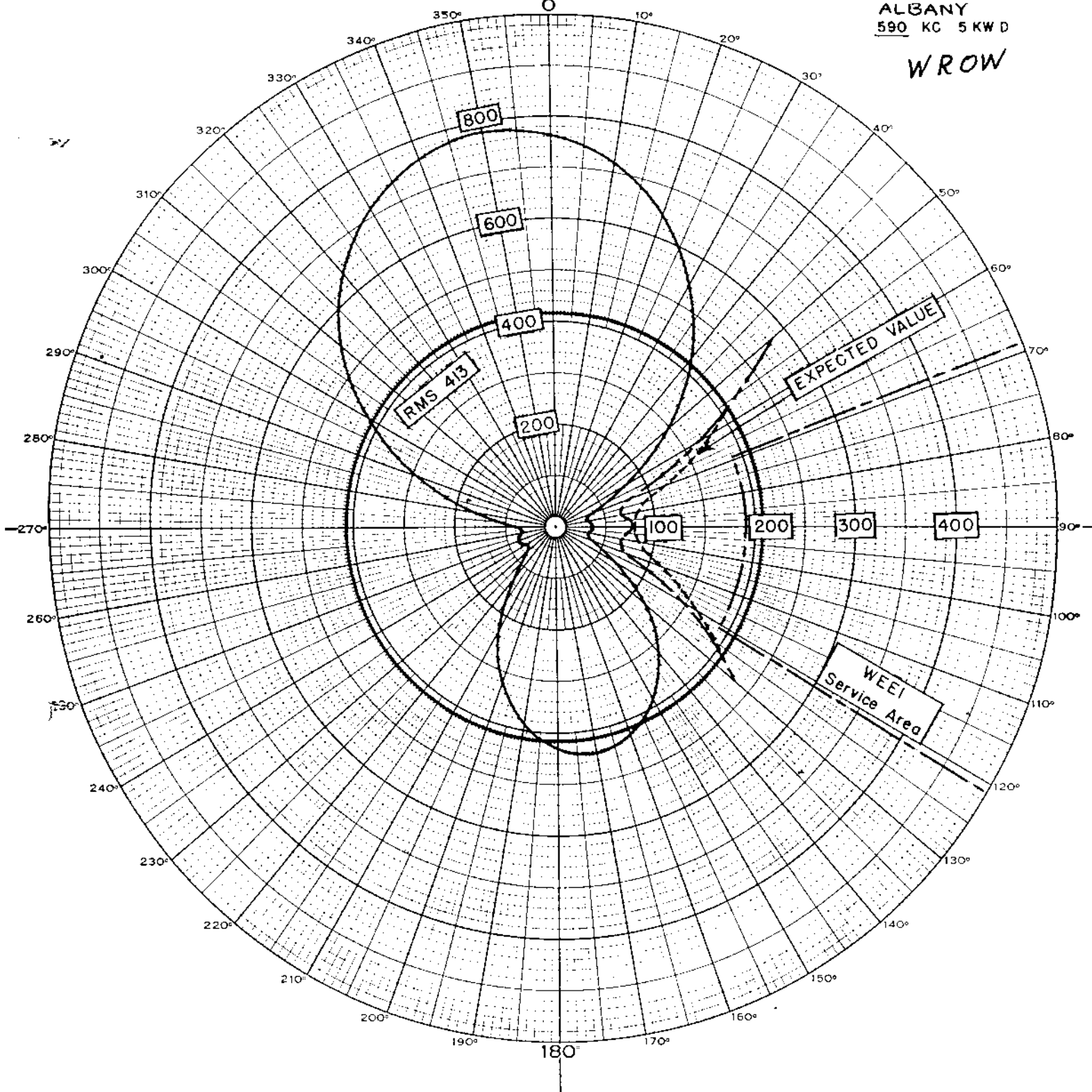
COHEN AND DIPPELL
REGISTERED

MAY 22 1975

WASHINGTON, D.C.

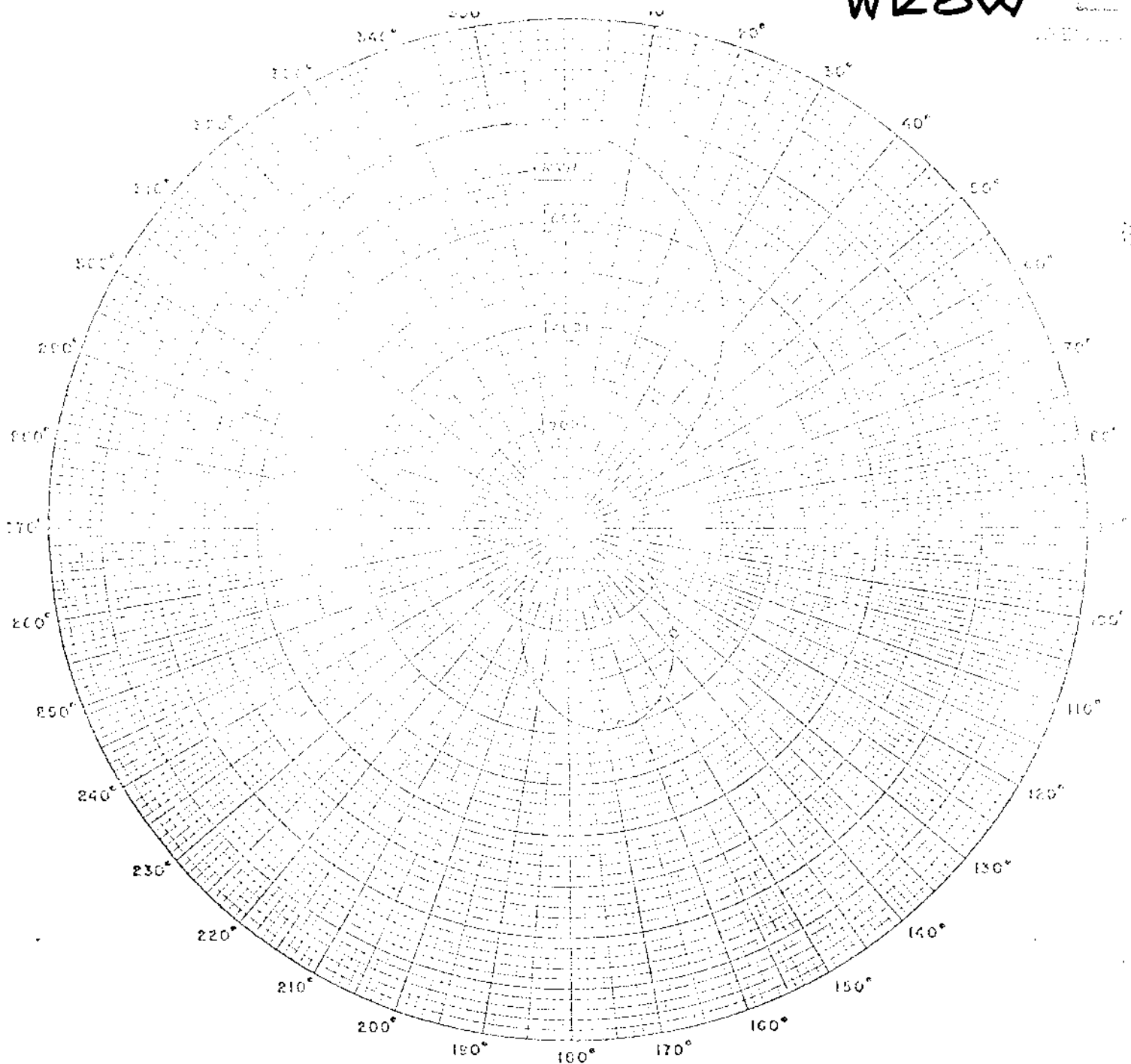
ALBANY
590 KC 5 KW D

WROW



HUDSON VALLEY BROADCASTING CO. INC. ALBANY, NEW YORK		Exhibit E 3 Series 460801C
PROPOSED DIRECTIONAL ANTENNA PATTERN		590 KC 5000 WATTS DAY
		FRANK H. McINTOSH Consulting Radio Engineer Washington, D.C.

WZOW



N. LAT.	42° 54' 24.5"
W. LONG.	72° 17' 32"
RMS	(381) 440 mv/m

DAY	THEORETICAL			MEASURED		
ANTENNA NO	1	2	3	1	2	3
FIELD	0.5181	1.000	0.5181	0.453	1.000	0.444
PHASE	-166.47°	0°	-135.86°	-166°	0°	139.50°



MEASURED DAYTIME PATTERN
WZOW - ALBANY, NEW YORK
590 MHz - 1 KW/5 KW - LS - BA-2

FEBRUARY, 1974

GAUDIN & JONES - CONSULTING ENGINEERS

BL-13645

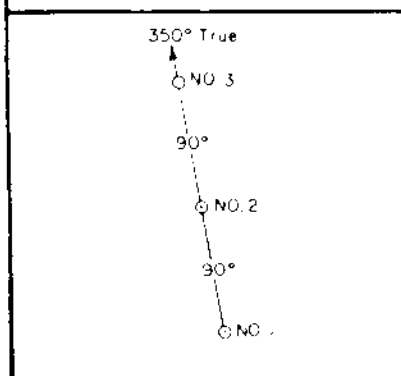
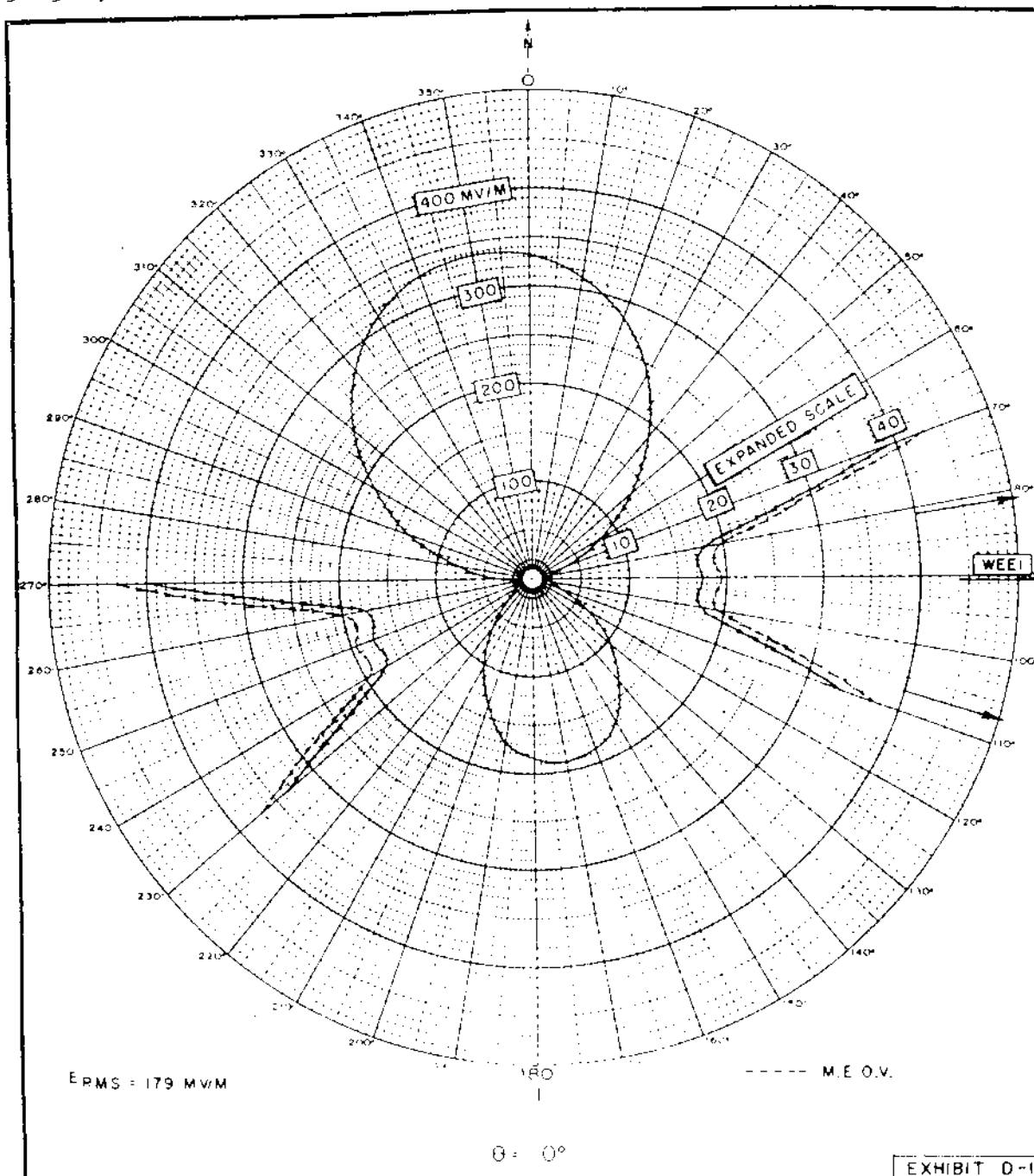
WROW

Proposed Night
(9-25-63ct)

Station WROW
Albany, New York

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

12-12-63
Sched CP
change
DA-N.



	42°	36°	4°	North
	73°	47°	10°	West
1			1640	100
2	350	90	3.7	1.97
3	350	180	1640	100
				179

EXHIBIT D-1

CALCULATED
NIGHTTIME HORIZONTAL
PLANE PATTERN
FOR
PROPOSED **WROW**
ALBANY, NEW YORK
590 KC 1KW, 5KW-LS, DA-2, U
630830

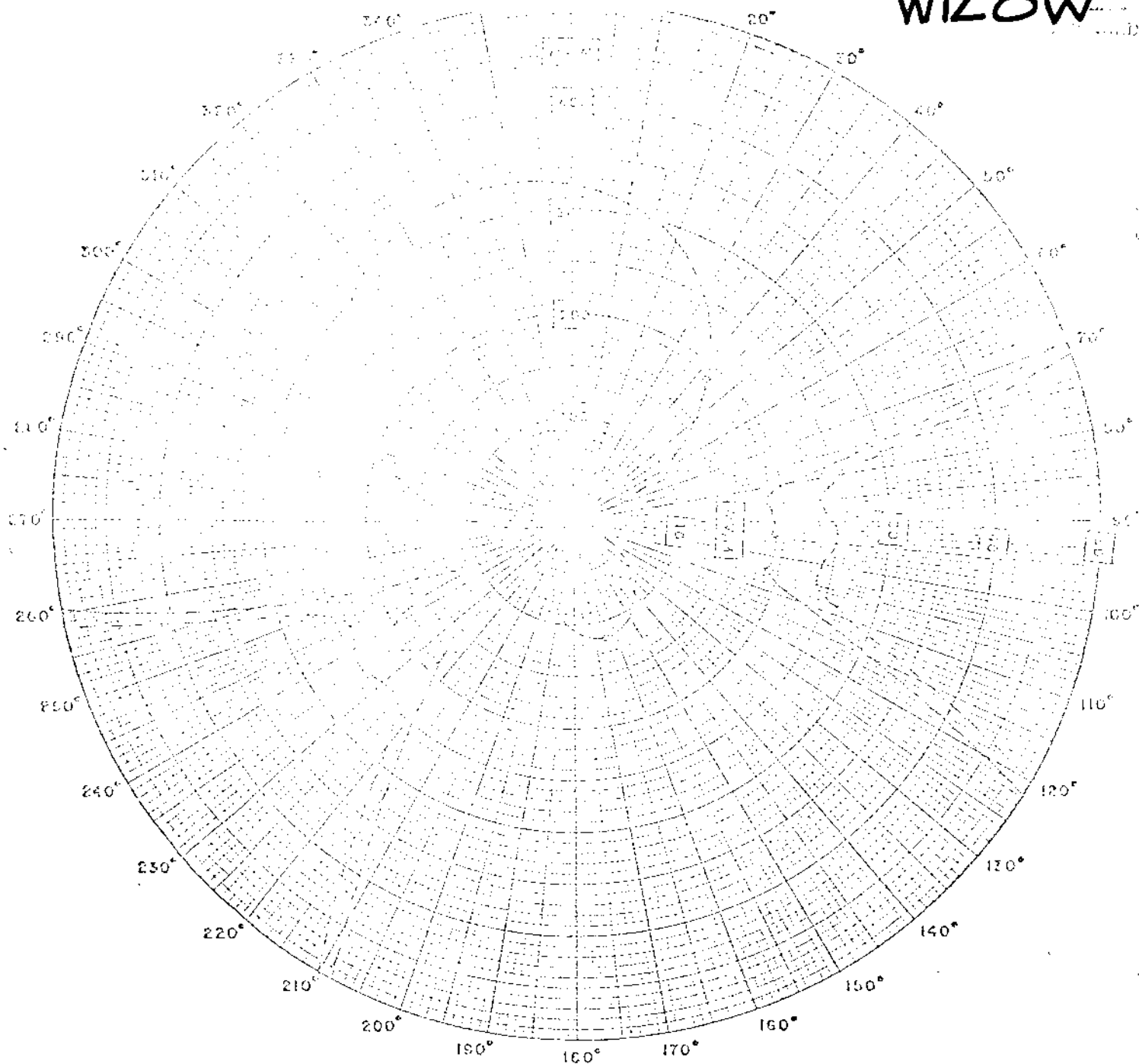
KEAR & KENNEDY
ENGINEERS
ALBANY, N. Y.

FCC File No. BP-15990
Accepted 9-18-63

Station WROW
Albany, New York

590 kc

WIZOW



N. LAT. 42° 34' 24.5"
 W. LONG. 73° 47' 12"
 RMS (A3) 178.5 mV/m

meov

BL-13,645

NIGHT	THEORETICAL			MEASURED		
ANTENNA NO	1	2	3	1	2	3
FIELD	0.0025	1.000	0.4323	0.610	1.000	0.343
PHASE	+145.11°	0°	145.34°	+137°	0°	132.5°

MEASURED NIGHTTIME PATTERN
 WIZOW - ALBANY, NEW YORK
 590 KHz - 1 KHz BW - LS - DA-2
 FEBRUARY, 1974
 GAUTHEY & JONES - CONSULTING ENGINEERS

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station : WRTH Main Studio: Wood River, Illinois
 Frequency : 590 KHz Power : 1 kW Night 1 kW Day
 Notification : 1780 Date : Sept. 28, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 38 55 43
 West Longitude: 90 05 08

ANTENNA CHARACTERISTICS

Authorized for Nighttime and Daytime operation. (DA-2)
 Number of elements: 4

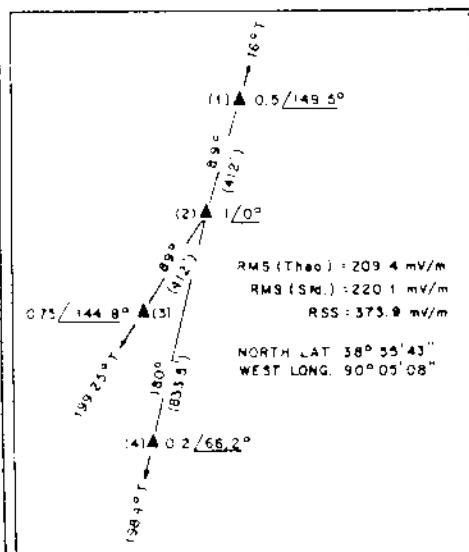
Type of elements : Series excited, uniform cross-section,
 guyed, vertical steel towers, top loaded
 by 100' top section of guy wires.

TOWER	N(#1)	NC(#2)	SC(#3)	S(#4)	
HEIGHT ABOVE INSULATORS	<u>300'</u>	<u>300'</u>	<u>300'</u>	<u>300'</u>	<u>(65°)</u>
NIGHT PHASING	<u>+161.75°</u>	<u>0°</u>	<u>-165.75°</u>		
NIGHT FIELD RATIO:	<u>1.00</u>	<u>1.90</u>	<u>1.00</u>		
DAY PHASING	<u>+149.5°</u>	<u>0°</u>	<u>-144.8°</u>	<u>66.2°</u>	
DAY FIELD RATIO	<u>0.50</u>	<u>1.00</u>	<u>0.75</u>	<u>0.20</u>	
SPACING AND ORIENTATION	With the NC(#2) as reference the N(#1) is spaced 412' (89°) on a line bearing 16° true, bearing 199.25°T and the S(#4) tower is spaced 833.5' (180°) on a line bearing 198.4 T.				
GROUND SYSTEM	<u>120 - 412</u> equally spaced copper radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers. Centers of system are bonded together.				

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL		STANDARD
	RMS	RSS	RMS
Day	<u>209.4</u> mV/m	<u>373.9</u> mV/m	<u>220.1</u> mV/m
Night	<u>175</u> mV/m		

Note: Please retain the Nighttime directional antenna radiation pattern notified for Station WBBY in United States List Number 1065 dated June 17, 1964 and attach to this Revised Description Sheet and Daytime pattern. This notification concerns only a change in the Daytime operation of the station with Nighttime operation continued as previously notified.



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

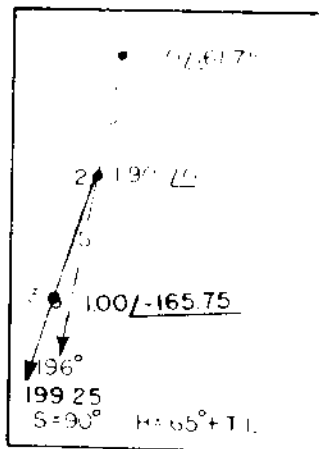
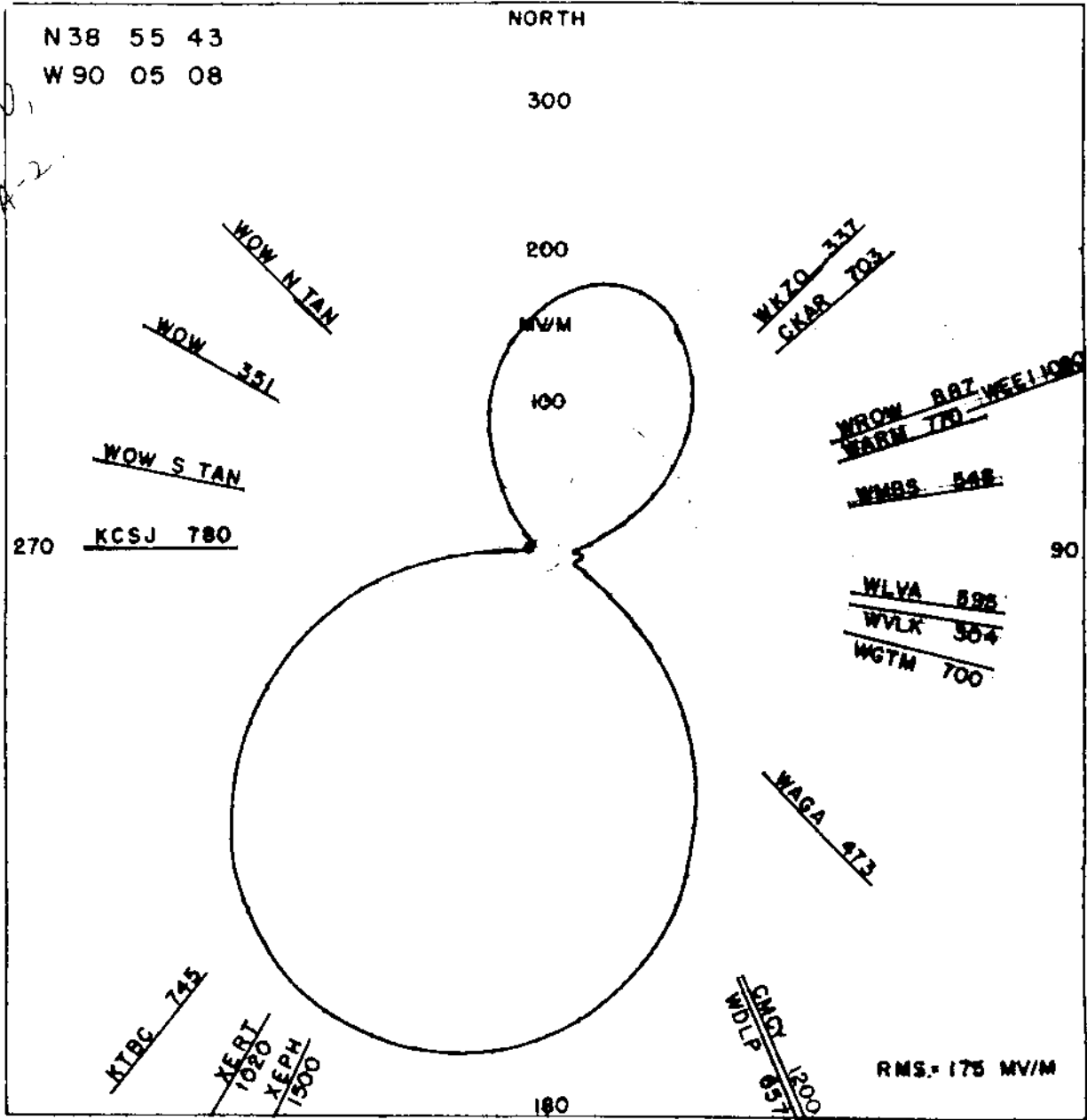
W R T H ~~W B B Y~~

Proposed Night
(5-23-64ct)

Station WBBY
Wood River, Illinois

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

6-17-64
proposed change
from D line to U,
1kw, 500w-LS, DA-2.



W B B Y
NIGHT RADIATION PATTERN
590KC 10 KW
WOOD RIVER, ILLINOIS
APRIL 1964

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FCC File No. BP-15473
Accepted 5-4-64

Station WBBY
Wood River, Illinois

590 kc

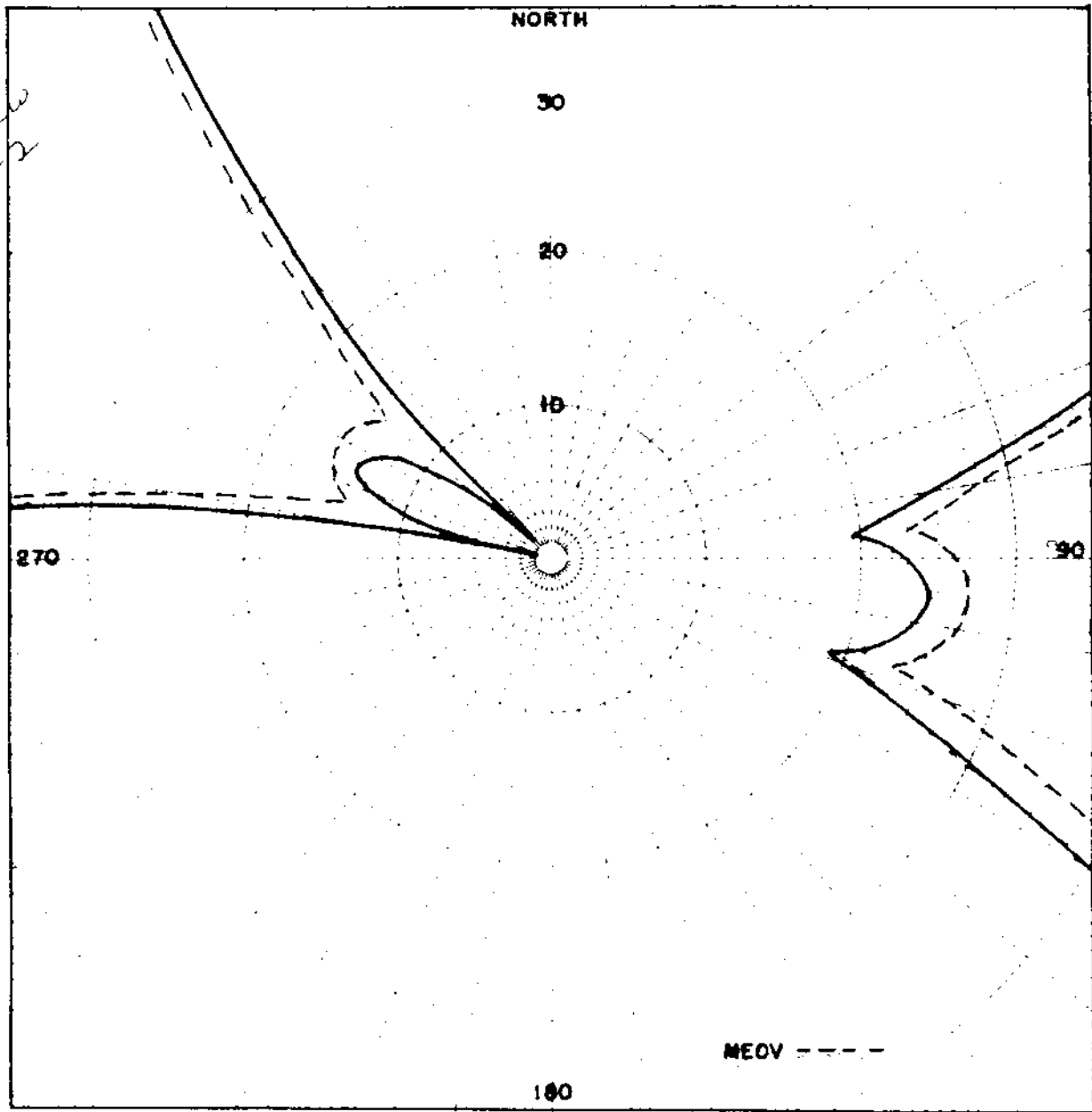
WRTH ~~WBBY~~

Proposed Night Nulls
(5-28-64ct)

Station WBBY
Wood River, Illinois

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

6/11/64
Noted chg
in Dth. V, 1kw
500w-LS, DA-2



WBBY EXPANDED VIEW
OF PATTERN MINIMA
APRIL 1964

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE ILLINOIS

FCC File No. BP-15473
Accepted 5-4-64

Station WBBY
Wood River, Illinois

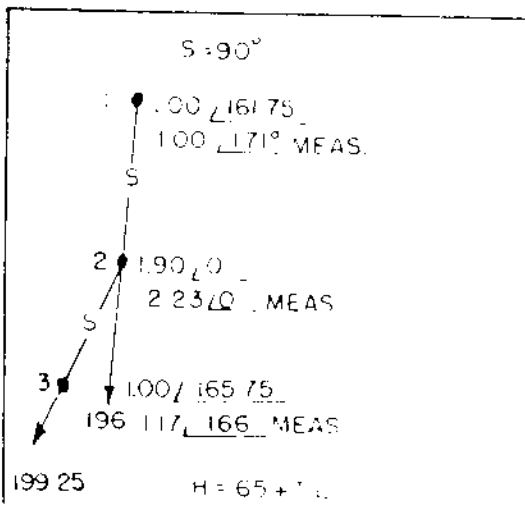
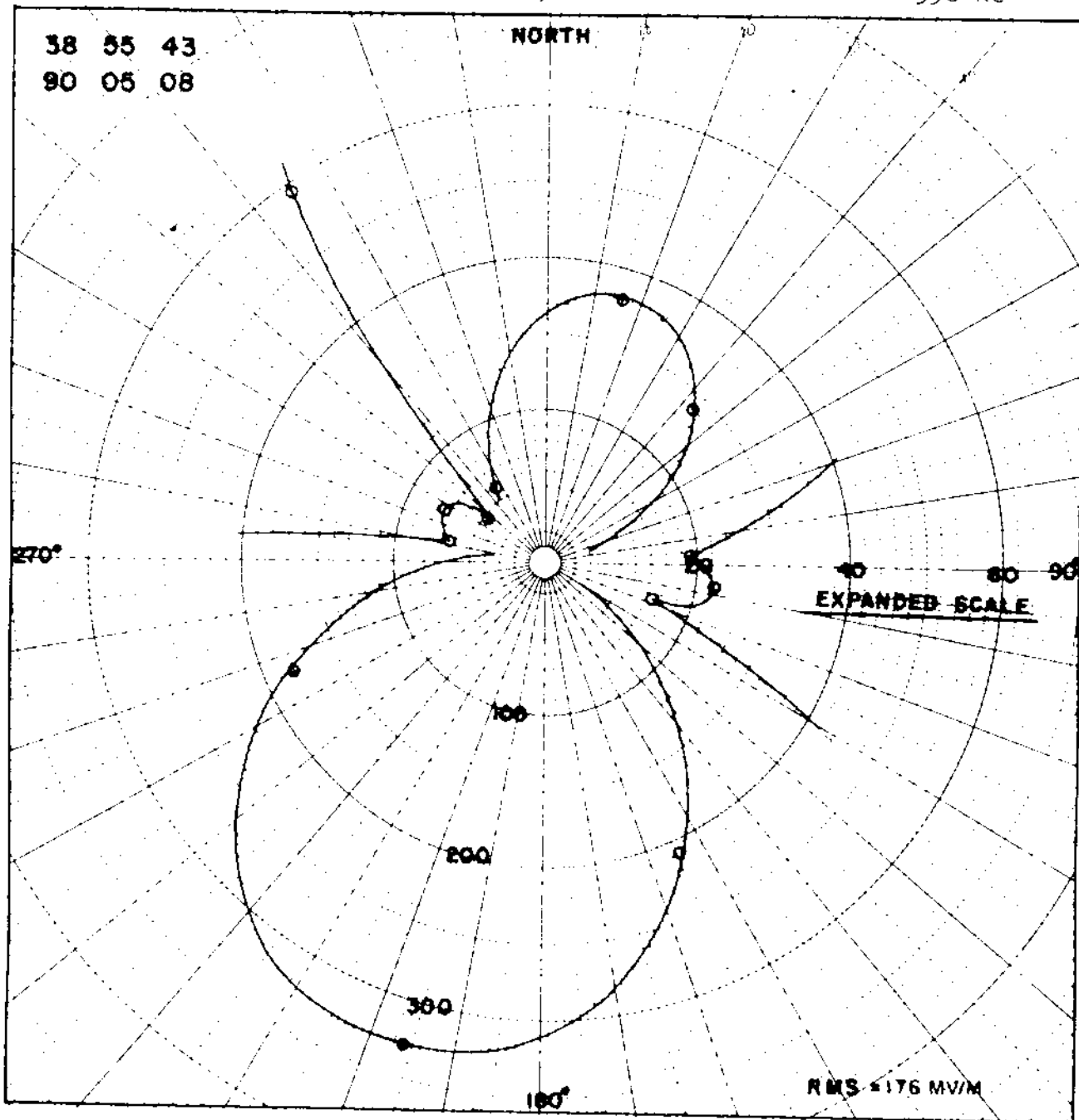
590 kc

Measured Night
(1-28-65ct)

Station WBBY
Wood River, Illinois

WRT H WBSY
1kw, 500w-LS, DA-2, U
590 kc

BL-10731
LIC 3-8-65
CHG HRS.
CHG TO DA-2



NIGHT
HORIZONTAL RADIATION
PATTERN

WBBY 1 KW 590 KC
WOOD RIVER, ILL
AUG. 1964

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FCC File No. BL-10731
Accepted 1-18-65

Station WBBY
Wood River, Illinois

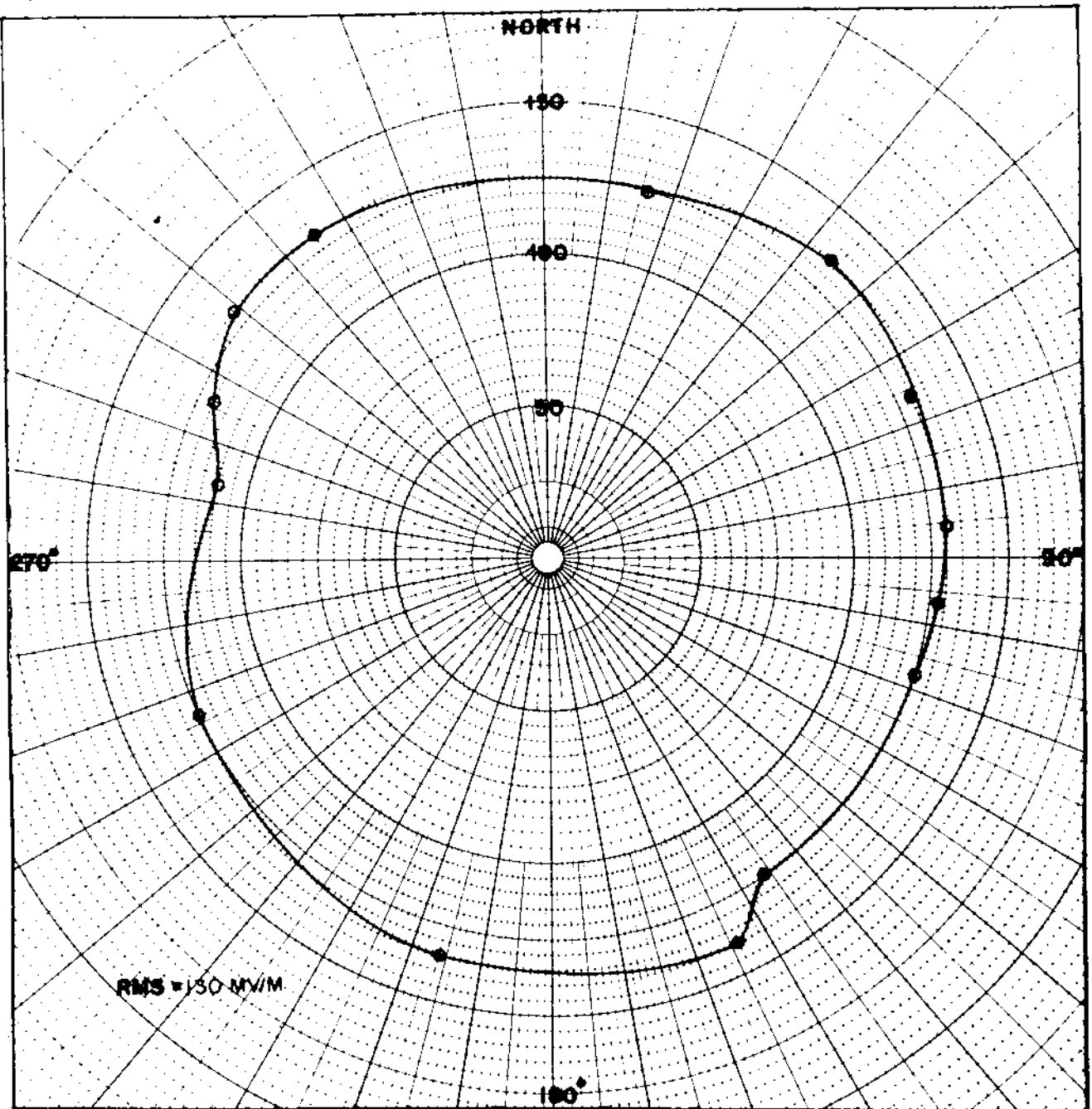
590 kc

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

Station WBBY
Wood River, Illinois

WKBH ~~WBSB~~
1kw, 500w-LS, DA-2, U
590 kc

BL-10731
3-8-65LIC
CHG HRS
HG TO DA-2



HORIZONTAL NON-DIRECT
PATTERN

WBBY 0.5KW 590KC
WOOD RIVER, ILL
AUG. 1964

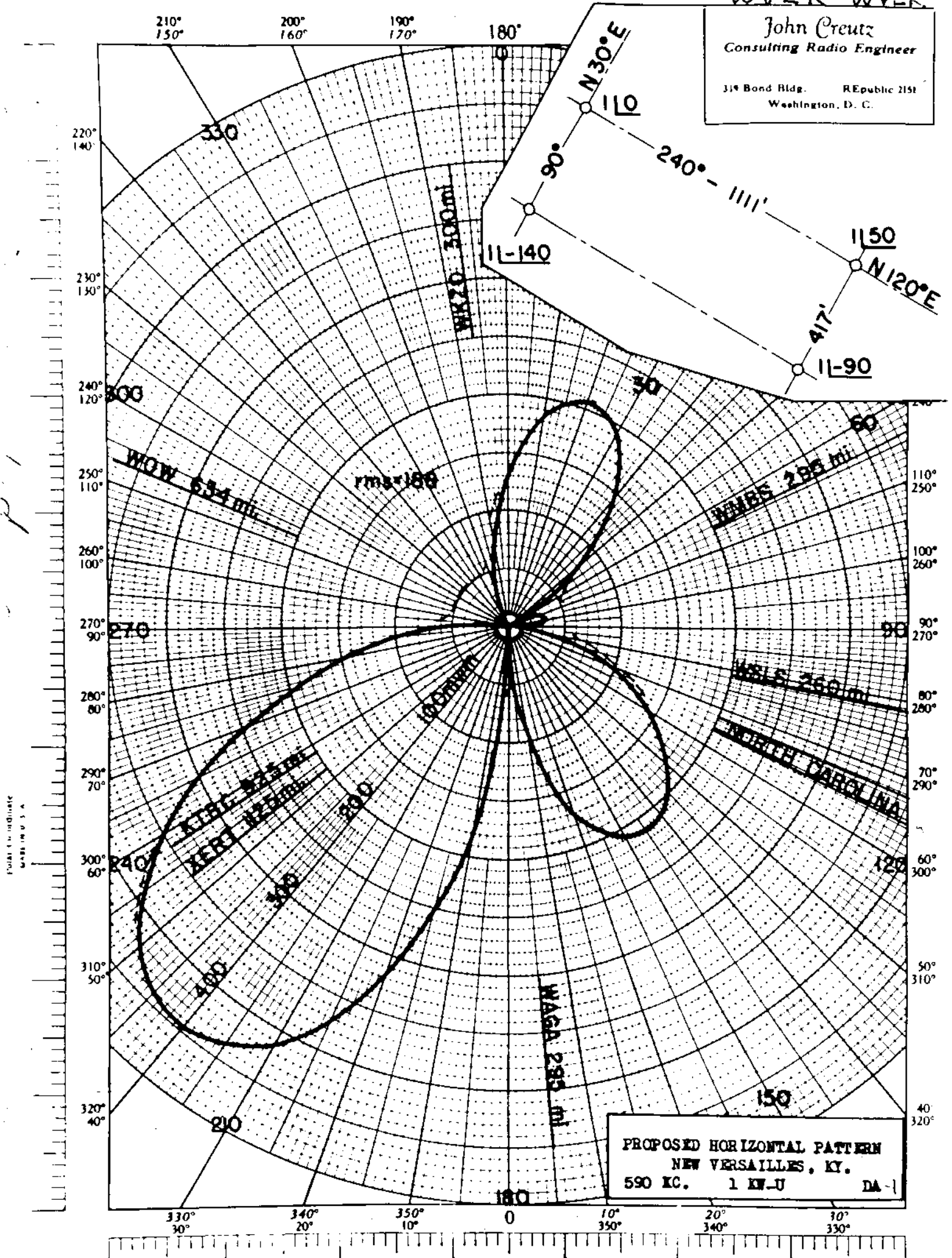
ROBERT A JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FCC File No. BL-10731
Accepted 1-18-65

Station WBBY
Wood River, Illinois

590 kc

314 Bond Bldg. Republic 2151
Washington, D. C.



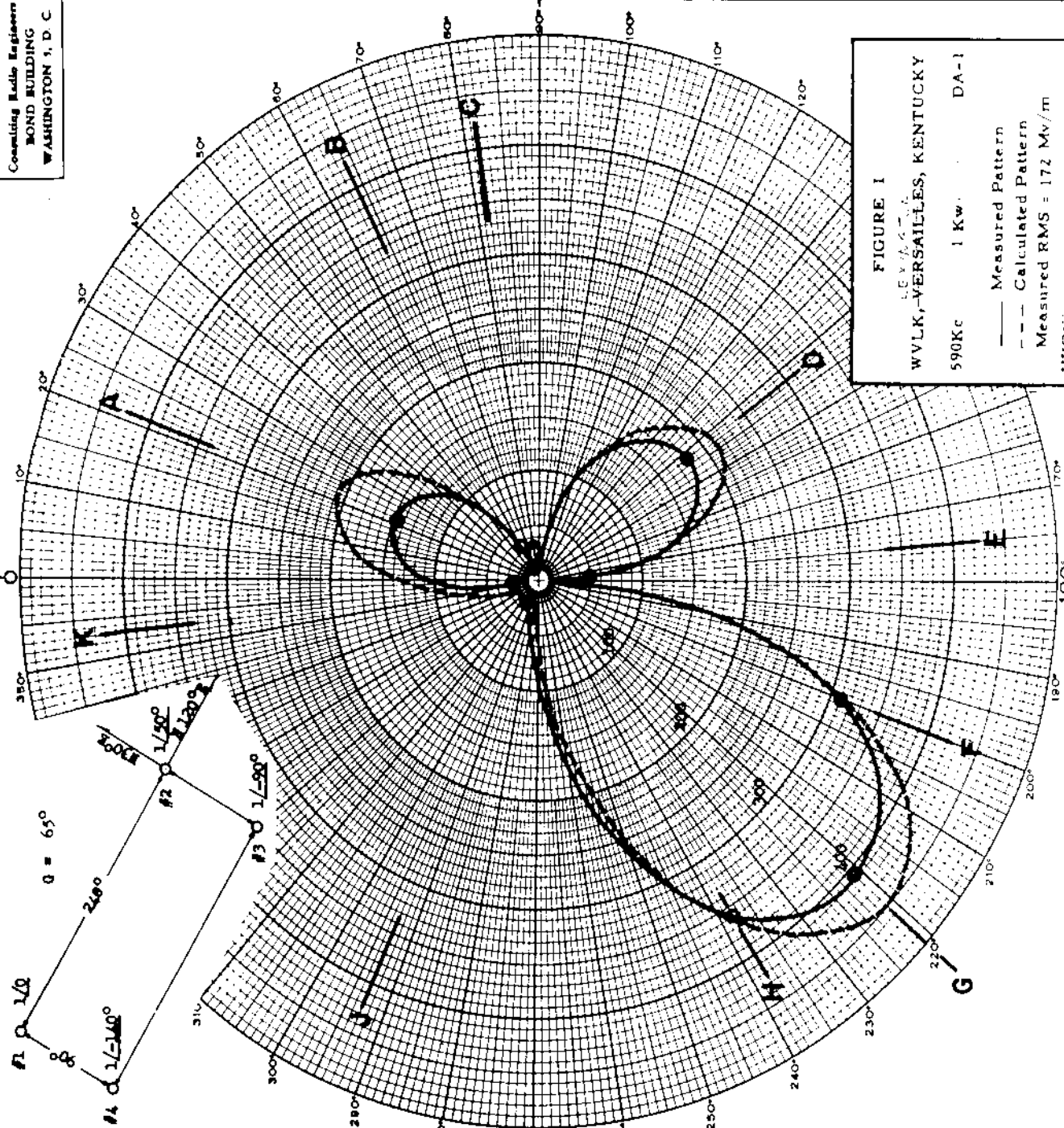


FIGURE 1

WVWK, VERSAILLES, KENTUCKY

590Kc 1 Kw DA-1

____ Measured Pattern

--- Calculated Pattern

Measured RMS = 172 Mv/m

HUG:jj
Nov. 20, 1947

WVLK

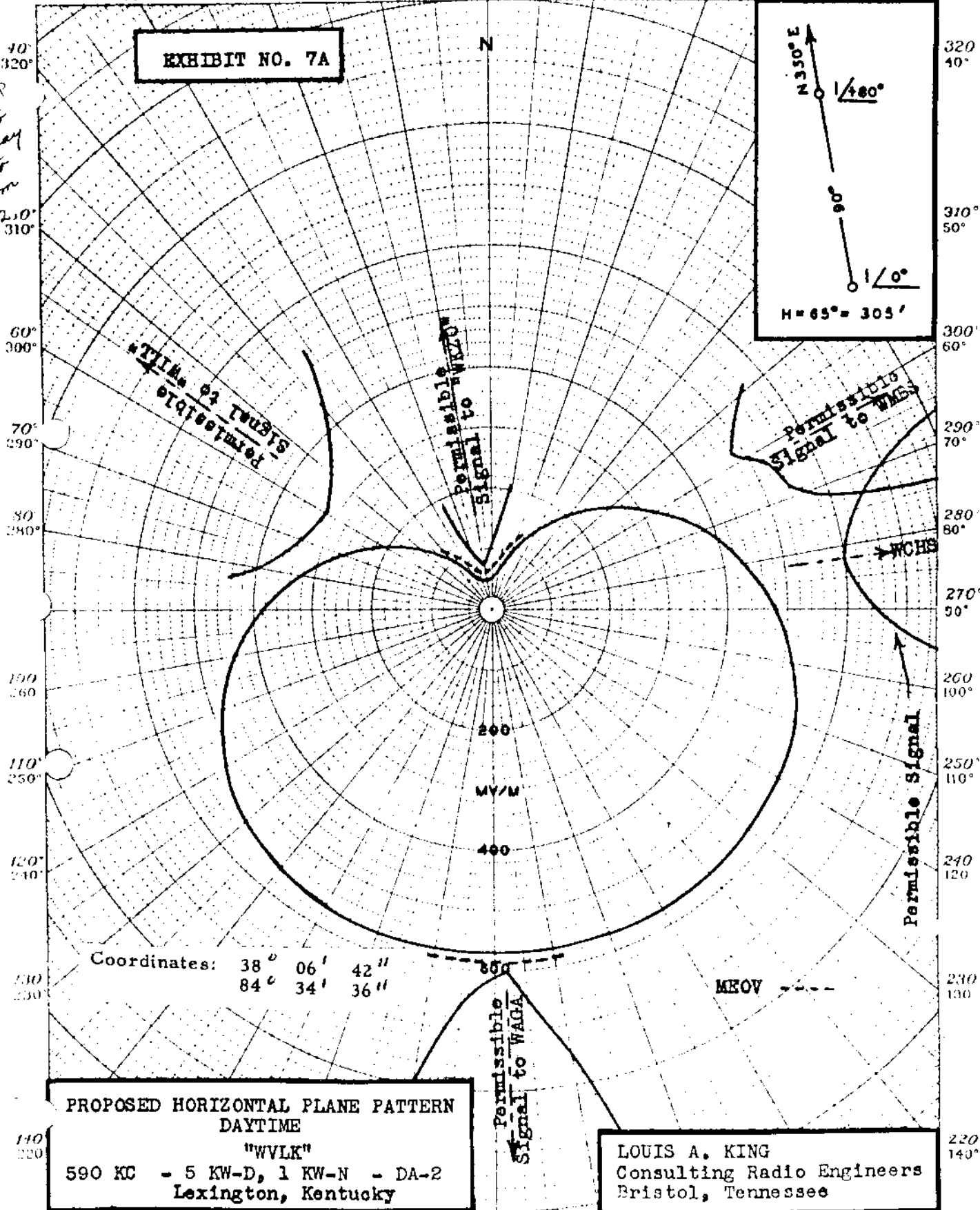
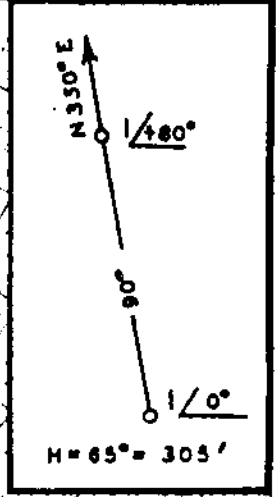
PROPOSED DAY
(9/25/57g)

Station WVLK
Lexington, Kentucky

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

EXHIBIT NO. 7A

*Granted CP
(7/31/58) to
increase day
power & to
change from
PA-1 to PA-2 10.*



PROPOSED HORIZONTAL PLANE PATTERN
DAYTIME
"WVLK"
590 KC - 5 KW-D, 1 KW-N - DA-2
Lexington, Kentucky

LOUIS A. KING
Consulting Radio Engineers
Bristol, Tennessee

FCC File No. BP-11,521
Accepted 9/11/57

WVLK
Lexington, Kentucky

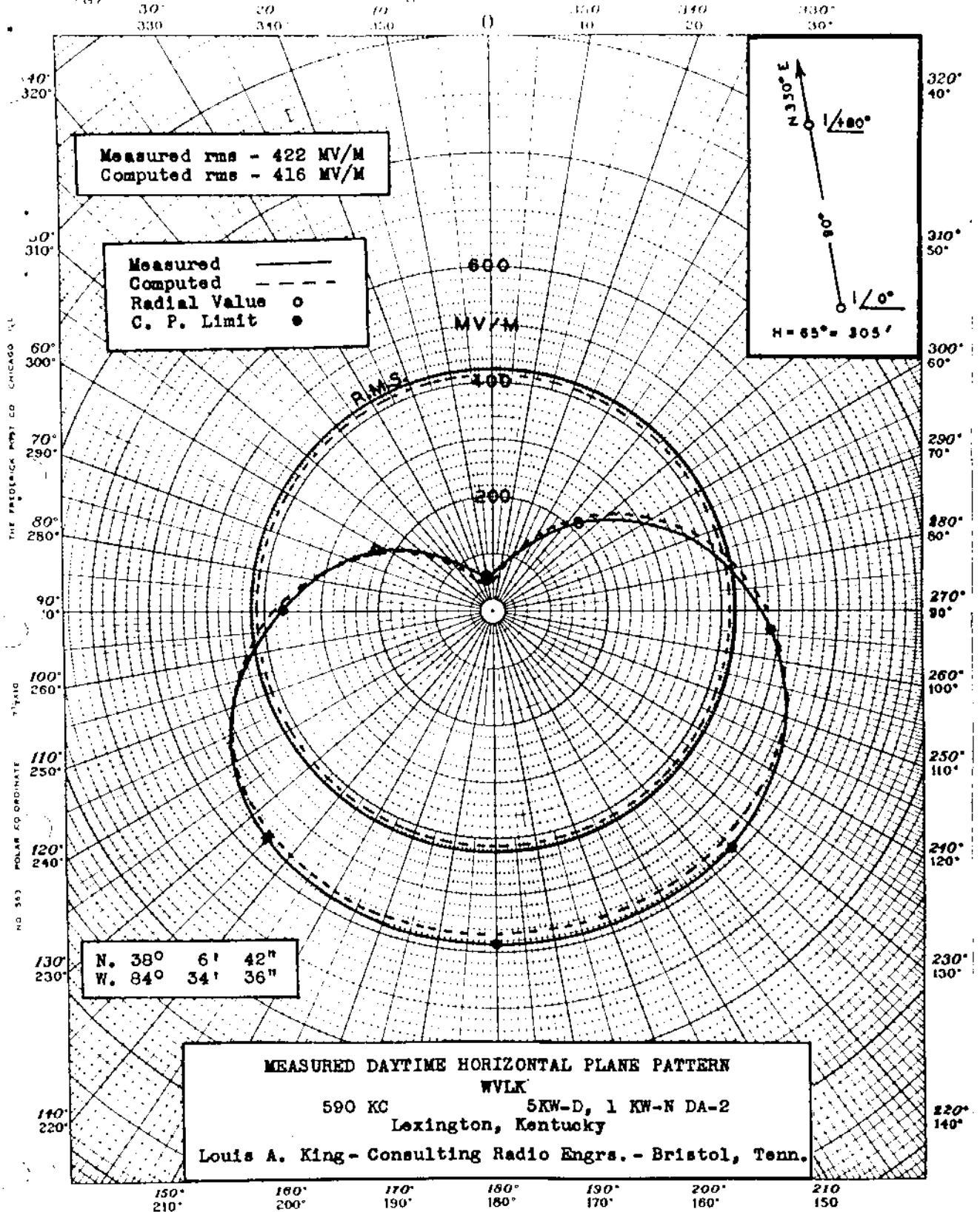
590 KC

WVLK

MEASURED DAY
(3-23-59g)

Station WVLK
Lexington, Kentucky

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



FCC File No. BL-7360
Accepted 1-30-59

WVLK
Lexington, Kentucky

590 KC

250w,U,Class IV
590 kc

GEORGE C. DAVIS
RECEIVED
JUL 1977
U.S. DEPT. OF JUSTICE
WASHINGTON, D. C.

Station Call: New Location: Port Nelson, B.C.
Frequency: 590 kc/s Power: 0.25 kw
Class: IV Operation: Unlimited
Notification List No. 226 Date: May 17, 1967

Geographic Coordinates: 58° 48' 51" N. Lat.
122° 42' 32" W. Long.

ANTENNA CHARACTERISTICS: Height 200', top loaded to 600'

TYPE OF ELEMENT: A guyed uniform cross-section, steel tower, base insulated and fitted for series feed.

GROUND SYSTEM: 120, 0.4λ copper radials buried approximately 8" below grade.

EXPECTED EFFICIENCY: 85 mv/m at one mile for 250 watts (170 mv/m at one mile for 1 kw).



Description Sheet
(6-28-67ct)

New Station
Fort Nelson, B. C.

250w, U, Class IV
590 kc

DESCRIPTION SHEET

Omnidirectional Antenna

Station Call: New	Location: Fort Nelson, B.C.
Frequency: 590 kc/s	Power: 0.25 kw
Class: IV	Operation: Unlimited
Notification List No. 226	Date: May 17, 1967
Geographic Coordinates: 58° 48' 51" N. Lat. 122° 42' 32" W. Long.	
ANTENNA CHARACTERISTICS:	Height 200', top loaded to 60°
TYPE OF ELEMENT:	A guyed uniform cross-section, steel tower, base insulated and fitted for series feed.
GROUND SYSTEM:	120, 0.4λ copper radials buried approximately 8" below grade.
EXPECTED EFFICIENCY:	85 mv/m at one mile for 250 watts (170 mv/m at one mile for 1 kw).

