600-610

Station	Main Studio	Freq	Power	Date
NEW	St. Anthony, NF	600	10 kW/DA-2	2/28/68
CFCF	Montreal, QU	600	50 kW/DA-2	8/11/82
CFCF	Montreal, QU	600	50/5 kW/DA-2	6/4/76
CFCF	North Bay, ON	600	5/10 kW/DA-2	3/28/60
CFQC	Saskatoon, Sask.	600	10 kW/DA-2	4/21/78
CJOR	Vancouver, BC	600	10 kW/DA-1	7/7/60
CKCL	Truro, NS	600	1/10 kW/DA-1	5/31/79
KCLS	Flagstaff, AZ	600	0.5/5 kW/DA-N	10/18/54
KERB	Kermit, TX	600	1 kW/DA-D	2/21/49
KGEZ	Kalispell, MT	600	1 kW/DA-2	10/16/50
KIIX	Fort Collins, CO	600	5 kW/DA-D	9/28/79
KOGO	San Diego, CA	600	5 kW	5/6/46
KROD	El Paso, TX	600	5 kW/DA-N	10/25/61
KSJB	Jamestown, ND	600	5 kW	12/75
KTBB	Tyler, TX	600	1/0.5 kW/DA-N	3/10/50
KVCV	Redding, CA	600	1 kW/DA-1	6/3/48
WAEL	Mayaguez, PR	600	1 kW/DA-1	6/25/53
WBDN	Edcanaba, MI	600	1 kW/DA-D	4/24/57
WCAO	Baltimore, MD	600	5 kW/DA-1	6/28/67
WICC	Bridgeport, CT	600	1/0.5 kW/DA-2	
WMBR	Jacksonville, FL	600	5 kW/DA-N	11/29/68
WMT	Cedar Rapids, IA	600	5 kW/DA-N	9/28/79
WSJS	Salem, NC	600	5 kW/DA-2	12/15/60
WSOM	Salem, NC	600	0.5 kW/DA-D	12/15/77
WTAC	Flint, MI	600	0.5/1 kW/DA-2	4/14/47
XERJ	MX	600	5 kW	
CKRW	Whitehorse, Yukon	610	1 kW	9/27/68

600-610

Station	Main Studio	Freq	Power	Date
CHNC	New Carlisle, PQ	610	5/10 kW/DA-1	6/29/64
CHNL	Kamloops, BC	610	25/5 kW/DA-2	6/5/78
CHTM	Thompson, MB	610	1 kW	2/28/62
CJAT	Trail, BC	610	1 kW	12/20/52
CKML	Mont-Laurier, QU	610	1 kW/DA-N	10/28/68
CKTB	St. Catherines, ON	610	5/10 kW/DA-1	3/28/60
CKYL	Peace River, AB	610	10 kW/DA-N	9/26/68
CKYL	Peace River, AB	610	1/10 kW/DA-N	3/26/65
KARV	Russelville, AR	610	5/1 kW/D-2	10/26/79
KAVL	Lancaster, CA	610	0.5 kW/DA-2	11/9/56
KAVL	Lancaster, CA	610	0.5/1 kW/DA-2	10/11/57
KDAL	Duluth, MN	610	5 kW/DA-N	2/18/47
KONA	Kennewick, WA	610	5 kW/DA-2	10/18/54
KILT	Houston, TX	610	5 kW/DA-2	1/48
KOJM	Havre, MT	610	1 kW/DA-2	9/25/70
KRKE	Dallas, TX	610	5 kW/DA-N	10/9/46
KILT	Houston, TX	610	5 kW/DA-2	4/28/71
KVNU	Logan, UT	610	1 kW	7/31/47
WAYS	Charlotte, NC	610	1/5 kW/DA-2	7/20/77
WGIR	Manchester, NH	610	1/5 kW/DA-2	3/3/76
WHPL	Winchester, VA	610	0.5 kW/DA-D	1/17/61
WIOD	Miami, FL	610	5 kW/DA-2	8/11/54
WIP	Philadelphia, PA	610	5 kW/DA-1	4/29/69
WSGN	Birmingham, AL	610	1/5 kW/DA-N	4/29/69
WSLC	Roanoke, VA	610	1/5 kW/DA-2	1/8/59
WSNG	Torrington, CT	610	1 kW/DA-2	6/16/59
WSNG	Torrington, CT	610	0.5/1 kW/DA-2	4/24/64

600-610

Station	Main Studio	Freq	Power	Date
WTVN	Columbus, OH	610	5 kW/DA-N	9/28/79

CANADIAN BROADCASTING CORPORATION
ENGINEERING DIVISION MONTREAL

TITLE NEW St. Anthony, Nfld.
600 kHz, 10 kW DA-2, Class III

DWG. No.
DATE Jan.31/68 ISS. 3
ENG. J.L. APP. R.E.S.

DESCRIPTION OF ANTENNA ARRAY

Station Call:	NEW	
Location:	St. Anthony, Nfld.	
Frequency:	600 kHz	
Power:	10 kW	
Mode:	DA - 2	
Class:	III	
Time:	Day and Night	
Notification List No: 238	Date: January 29, 1968	
Geographic Co-ordinates:	Lat. 51° 22' 04" N.	
	Long. 55° 37' 00" W.	
Tower:		
	South-West (No. 1)	North-East (No. 2)
Height of Radiating Element:	300 feet	300 feet
Physical Height:	65.8°	65.8°
Over-all Height:	310 feet	310 feet
Day Field Ratio:	1	0.49
Day Phasing:	0°	-158°
Night Field Ratio:	1	0.82
Night Phasing:	0°	-91.5°
Spacing:	410 feet, 90°	
Orientation:	43.5°	
Type of Elements:	Two guyed, base insulated, series fed, steel towers of constant cross section. They will meet the requirements of Broadcast Procedure 1, Rule 1.	
Ground System:	Each tower will have 120 radials, of length at least 500 feet except where limited by the bisectors between towers, the whole being equivalent in area to a 0.4 λ system. Radials will be no.10 B&S gauge, buried at least 8 inches deep.	

Expected Efficiency:

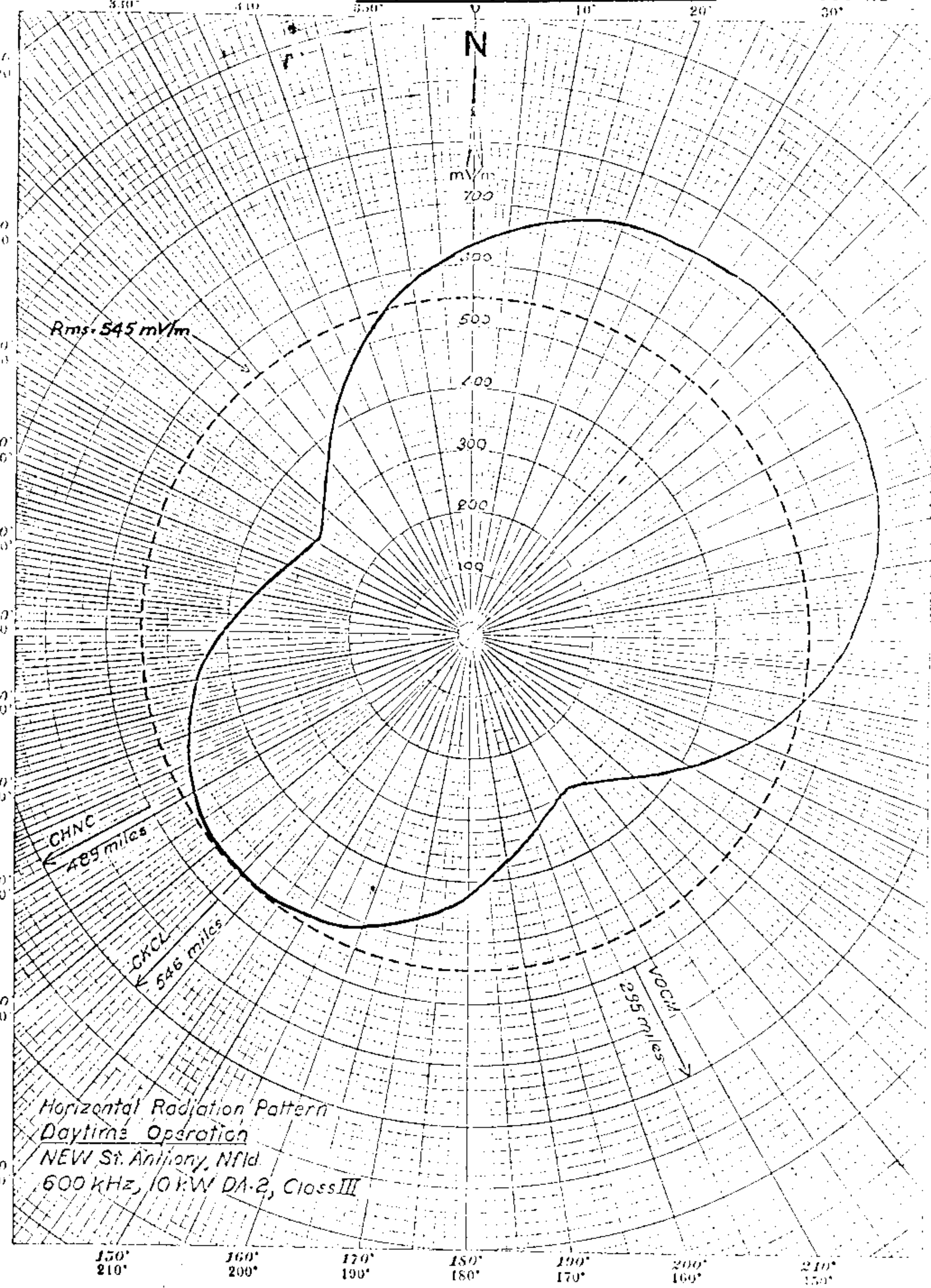
Day: 545 mV/m for 10 kW; 172 mV/m for 1 kW
Night: 590 mV/m for 10 kW; 186 mV/m for 1 kW

These values were obtained by assuming the loop-loss resistance to be 1.5 ohms. This is reasonable in view of the extremely low ground conductivity of 1 millimho per metre.

Proposed Day
(2-28-68ct)

New Station
St. Anthony, Newfoundland

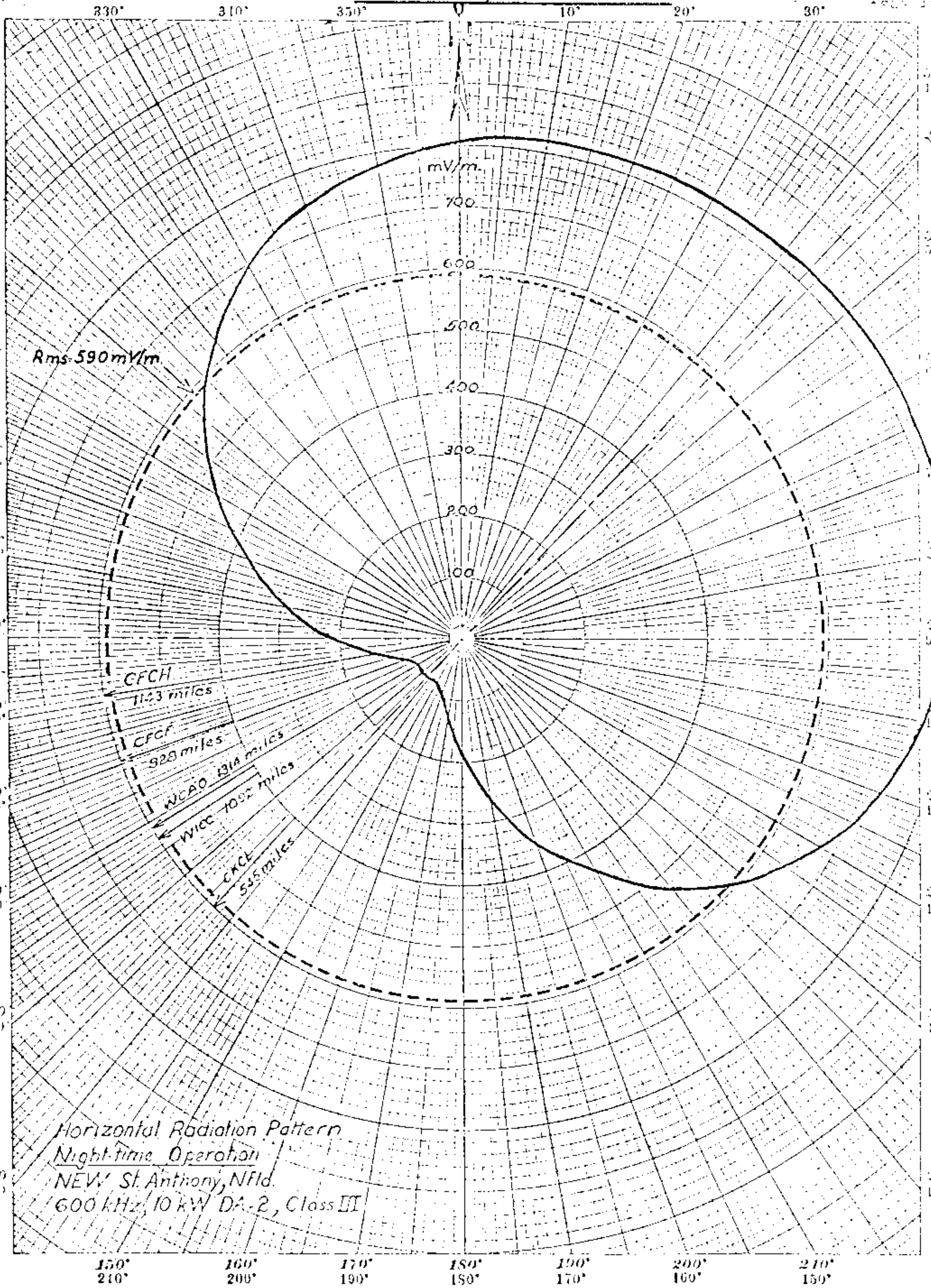
10kw,DA-2,U,Class III
600 kc



Proposed Night
(2-28-68ct)

New Station
St. Anthony, Newfoundland

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



CFCF
600

IFRB Serial No. 1 2 0 4 5

FORM FOR THE APPLICATION OF ARTICLE 4 OF THE AGREEMENT

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

PART I GENERAL INFORMATION

(01) Administration: CANADA — Sheet No. 421 — Date 830726

Assigned frequency (kHz)		(02)	6 0 0
Transmitting station	Name of the station	(03)	M O N T R E A L QU
	Call sign	(04)	C F C F
	Additional identification	(05)	
	Station class	(06)	B
	Operational Status	(07)	P
Country		(08)	CAN
Geographical coordinates of the transmitting station		(09)	7 3 W 4 8 4 0 4 5 N 1 3 0 1

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

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

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

STATION PARAMETERS	DAYTIME OPERATION		NIGHT-TIME OPERATION	
Station power (kW)	(21)	5 0 .	(31)	5 0 . Previously notified to and accepted by U.S.A.
r.m.s. value of radiation for station power (mV/m at 1 km)	(25)	1 9 3 0 . 8	(35)	1 9 7 9 . 0 7
Antenna type	(26)	B	(36)	B
Simple vertical antenna electrical height (degrees)	(27)	.	(37)	.

(44) Remarks

COORDINATION UNDER ARTICLE 4:

COUNTRY	USA						
IN PROGRESS	X						
ACCEPTANCE OBTAINED							

CFCF
600

IFRB Serial No. 12045

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

Sheet No.: 421

Date: 830726

(01) Name of transmitting station: MONTREAL QU

(02) Country: CAN

(03) Hours of operation: D

(04) Total number of towers: 6

(05) Tower No.	(06) Tower field ratio	(07) Phase difference of the field (± degrees)	(08) Electrical tower spacing (degrees)	(09) Angular tower orientation (degrees)	(10) Reference tower indicator	(11) Electrical height of tower (degrees)	(12) Tower structure
1	1.	0.	0.	0.	—	.	1
2	1.53	123.	80.	227.		.	1
3	.64	-113.	160.	227.		.	1
4	.35	132.	180.171	103.361		.	1
5	.84	8.	234.16	86.836		.	1
6	.35	-115.	300.	77.		.	1
	.	.	.	.		.	
	.	.	.	.		.	
	.	.	.	.		.	
	.	.	.	.		.	
	.	.	.	.		.	
	.	.	.	.		.	

(14) r.m.s value of radiation: 1930.8 mV/m at 1 km

(15) Type of pattern: E

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

(17) SUPPLEMENTARY INFORMATION

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

IFRB Serial no. 12045

PART II Section I

Description of a directional antenna consisting of vertical conductors

Sheet No. 421

Date 830726

(01) Name of transmitting station: MONTREAL QU

(02) Country: CAN

(03) Hours of operation: N

(04) Total number of towers: 6

(05) Tower No.	(06) Tower field ratio	(07) Phase difference of the field (± degrees)	(08) Electrical tower spacing (degrees)	(09) Angular tower orientation (degrees)	(10) Reference tower indicator	(11) Electrical height of tower (degrees)	(12) Tower structure
1	1.	0.	0.	0.		.	1
2	1.92	127.	80.	227.		.	1
3	1.	-107.	160.	227.		.	1
4	1.	142.	180.17	103.36		.	1
5	1.92	16.	234.16	86.836		.	1
6	1.	-111.	300.	77.		.	1
	.	.	.	.		.	
	.	.	.	.		.	
	.	.	.	.		.	
	.	.	.	.		.	
	.	.	.	.		.	
	.	.	.	.		.	

(14) r.m.s value of radiation: 1979.07 mV/m at 1 km

(15) Type of pattern: E

(16) Special quadrature factor: 57.9 mV/m at 1 km

(17) SUPPLEMENTARY INFORMATION

CFCF
600

CFCF
600

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

PART IV

L 2 0 4 5
IFRB Serial No.

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

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

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

(01) M O N T R E A L Q U
Name of transmitting station

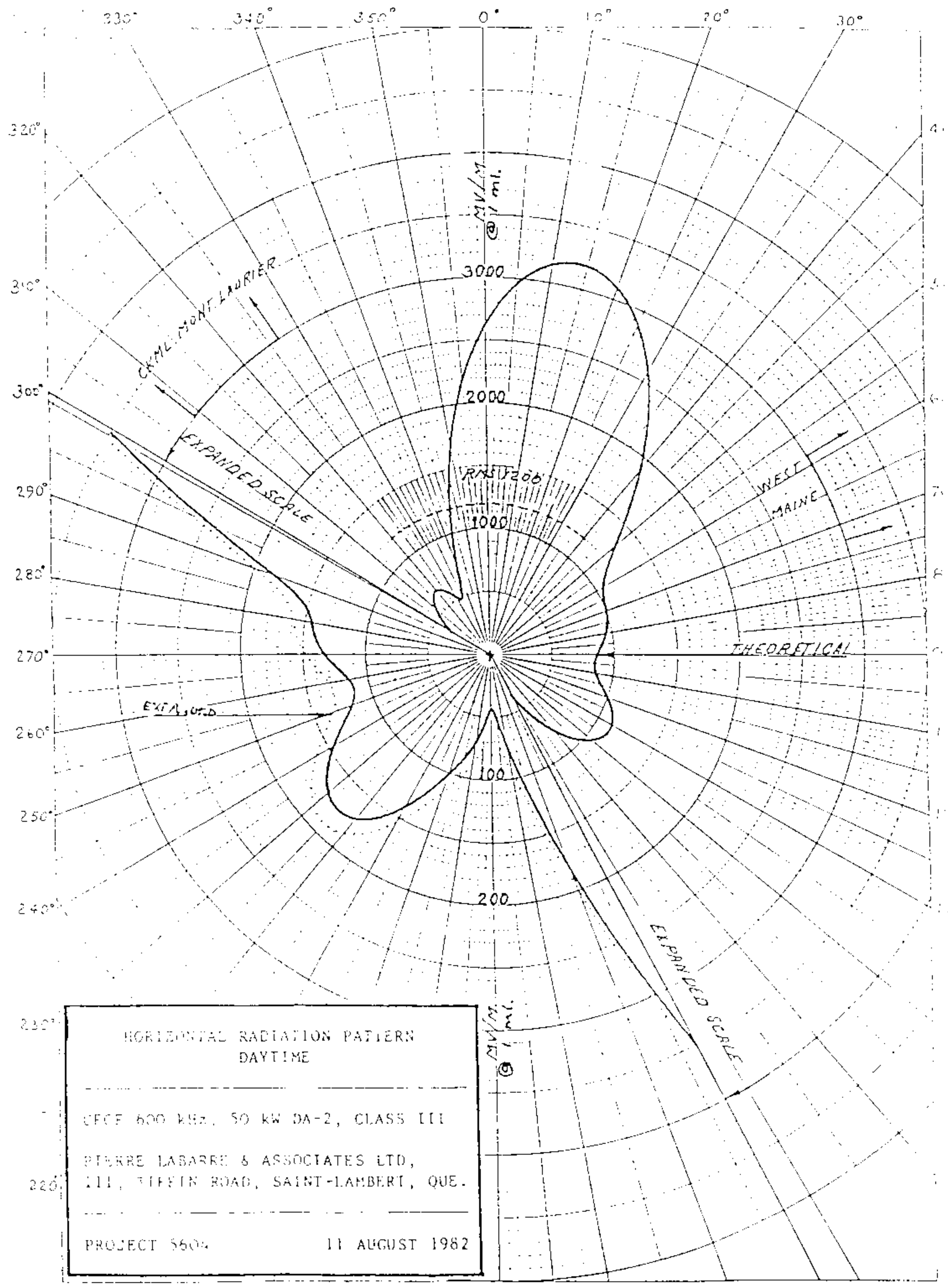
(02) C A N
Country

421
Sheet No.

(03) D N
Hours of Operation

(04) TOWER NUMBER	(05) A	(06) B	(07) C	(08) D
1	65.0	10.0		
2	65.0	10.0		
3	65.0	10.0		
4	65.0	10.0		
5	65.0	10.0		
6	65.0	10.0		

CFCF
600



HORIZONTAL RADIATION PATTERN
DAYTIME

CFCF 600 kHz, 50 kW DA-2, CLASS III

PIERRE LABARRE & ASSOCIATES LTD,
111, TIFFIN ROAD, SAINT-LAMBERT, QUE.

PROJECT 5604 11 AUGUST 1982

DESCRIPTION SHEET CFCF

Station:	CFCF	Main Studio:	Montreal, Quebec
Frequency:	600 kHz	Power:	50 kW N/5 kW D
Time:	Unlimited	Class:	III
Notification List No.: 355		Date: June 4, 1976	

Geographical Location: North Lat. 45° 13' 01" West Long. 73° 48' 40"

Nite Antenna System:

Nite Mode of Operation: DA-2

Elements: Six uniform cross-section, guyed steel towers, base insulated and series fed, with top loading using upper portion of guys.

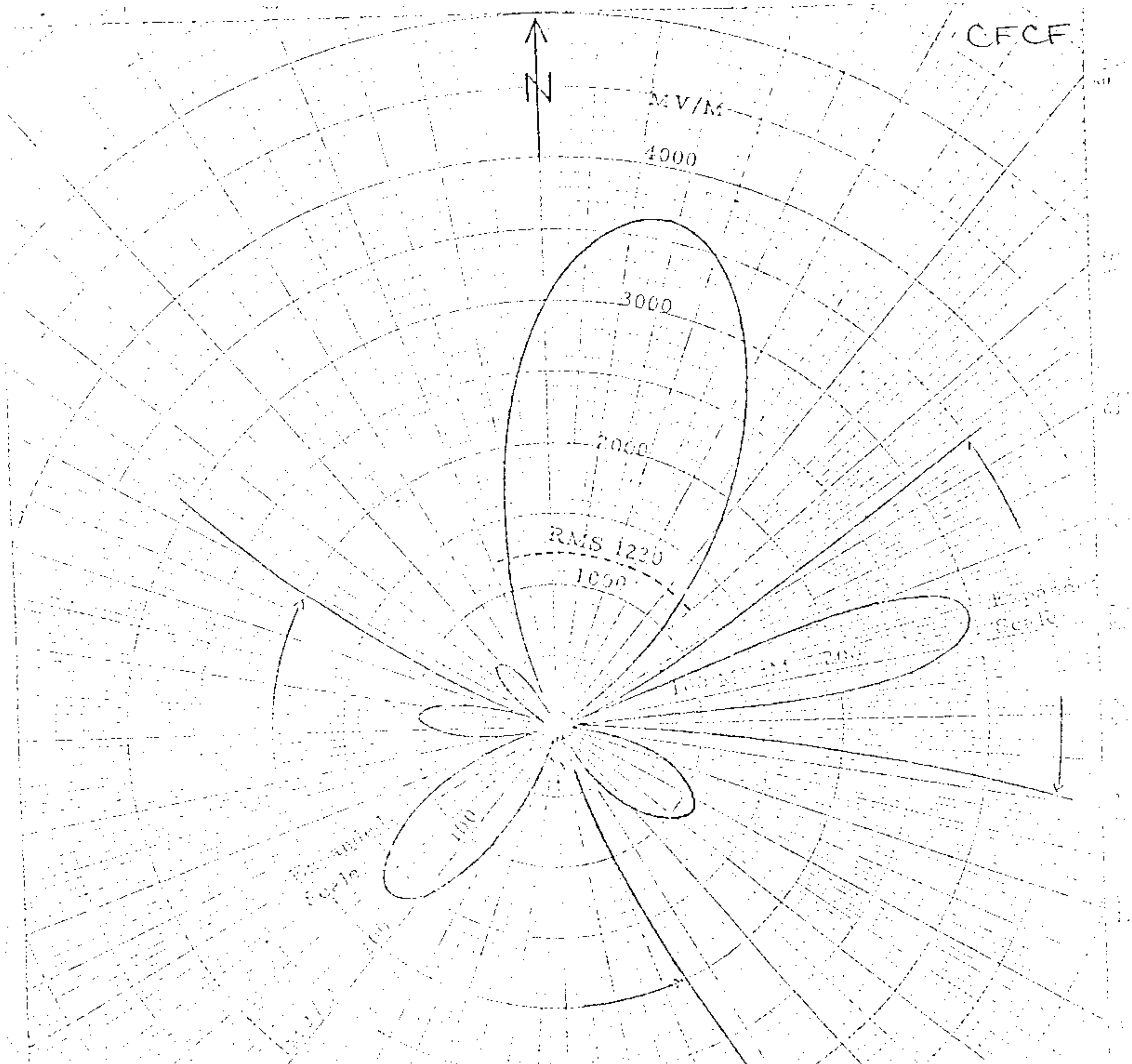
Towers	1	2	3	4	5	6
Height Above Insulators:	296'	296'	296'	296'	296'	296'
Top Loaded Electrical:	75°	75°	75°	75°	75°	75°
Overall Height:	300'	300'	300'	300'	300'	300'
Spacing:	0	80°	160°	180.171°	234.16°	300°
Orientation:	0	227°	227°	103.361°	86.836°	77°
Field Ratio: Night	1	1.92	1	1	1.92	1.0
Phase: Night	0	127	-107	-218	16	-111

Ground System: The ground system shall consist of 120, 0.4λ, No. 10 copper wire radials buried approximately 8" to 10" below grade. The radials shall be shortened between towers and bonded to transverse straps along the common chord between the towers.

Predicted Effective Night Field: 1230 mV/m for 50 kW
174 mV/m for 1 kW

Daytime Operation Remains as Before.

Revised March 1976



HOYLES NIBLOCK ASSOCIATES LTD.
TELECOMMUNICATION CONSULTING ENGINEERS
4664 LOUGHEED HIGHWAY, BURNABY, VANCOUVER, B.C. CANADA

HORIZONTAL RADIATION PATTERN
NIGHTTIME

CFCF Montreal, Quebec
600 KHz 50 N/5D kW DA-2 Class III

Project: 1248-05 Revised March '7

#13A SEE 211

DESCRIPTION SHEET
(3-28-60g)

Station CFCH 5kw,10kw-LS, DA-2,U, Class III
North Bay, Ontario, Canada 600 KC

CFCH

REVISED

DIRECTIONAL ANTENNA

DESCRIPTION SHEET

STATION: CFCH

MAIN STUDIO: NORTH BAY, ONT.

POWER: 10KW DAY/5KW NIGHT

FREQUENCY: 600Kc/s CLASS: III

NOTIFICATION REFERENCE: 134

DATE: June 5, 1959

LOCATION: North Latitude: 46° 10' 45"

West Longitude: 79° 28' 00"

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

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

TOWER	#1 (North)	#2 (Centre)	#3 (South)
HEIGHT ABOVE INSULATORS	300' (66°)	300' (66°)	300' (66°)
SPACING	441' (97°)	Reference	441' (97°)
DAY PHASING	Not used	-101°	0°
NIGHT PHASING	-131°	0°	+131°
DAY FIELD RATIO	Not used	0.825	1.0
NIGHT FIELD RATIO	0.51	1.0	0.69

GROUND SYSTEM: 120 equiangularly spaced #10 AWG solid bare copper radial wires extend from the base of each tower to a distance of 655 feet (0.4 wavelength) with the exception of those bonded along the common chords.

PREDICTED EFFECTIVE FIELD:

DAY OPERATION: 575 MV/M at 1 mile (182 for 1 KW)

NIGHT OPERATION: 434 MV/M at 1 mile (194 for 1 KW)

ORIENTATION: Towers on a line bearing true north

NOTE - Please retain nighttime radiation pattern notified for this station in Canadian Change List No. 134 of June 5, 1959 and attach to this revised description sheet and daytime pattern. This concerns only a change in the daytime pattern.

REVISED SEPTEMBER 1959
A.F. STEVENSON

CFCH

PROPOSED NIGHT
(7-8-59g)

Station CFCH 5kw, 10kw-LS, DA-2, U, Class III
North Bay, Ontario, Canada 600 KC

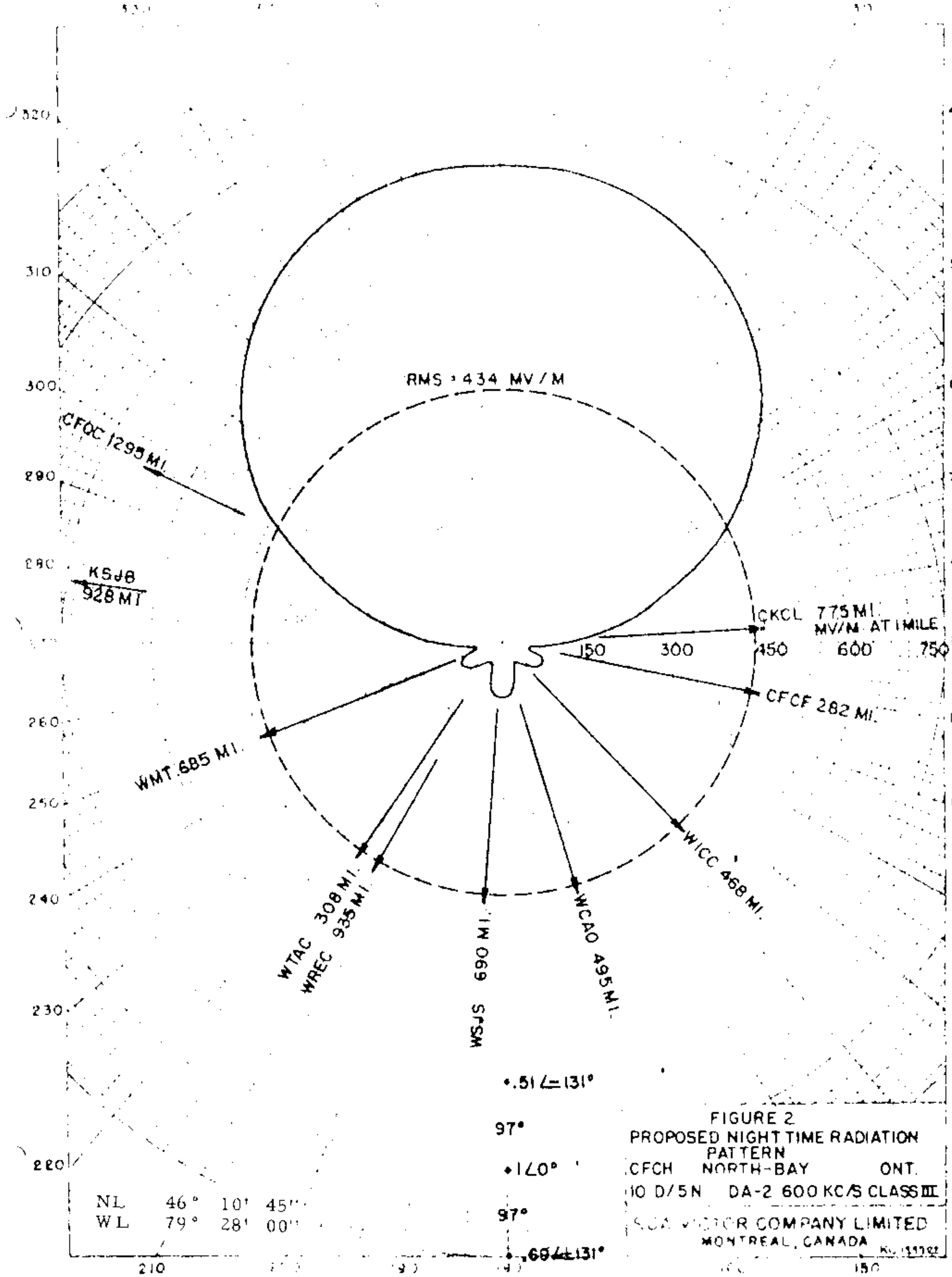
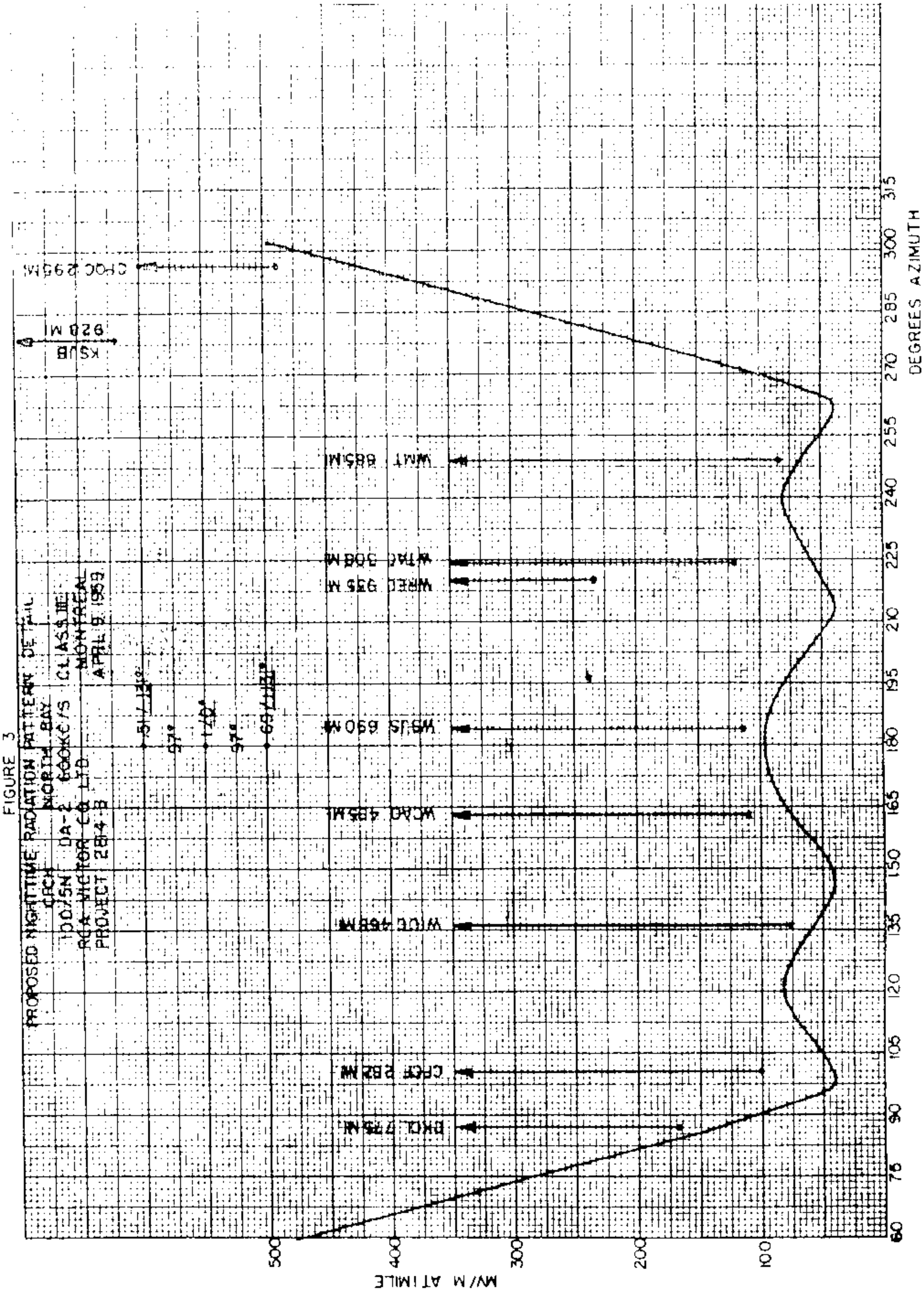


FIGURE 2
PROPOSED NIGHT TIME RADIATION PATTERN
CFCH NORTH-BAY ONT.
10 D/5 N DA-2 600 KC/S CLASS III
RCA VICTOR COMPANY LIMITED
MONTREAL, CANADA

#134

PROPOSED NIGHT NULLS
(7-8-59g)

Station CFCH 5kw-10kw-LS, DA-2, U, Class III
North Bay, Ontario, Canada 600 KC



K 13A

C F C H

PROPOSED DAY
(3-28-60g)

Station CFCH 5kw,10kw-LS, DA-2,U, Class III
North Bay, Ontario, Canada 600 KC

North Latitude 46° 10' 45''
West Longitude 79° 28' 00''

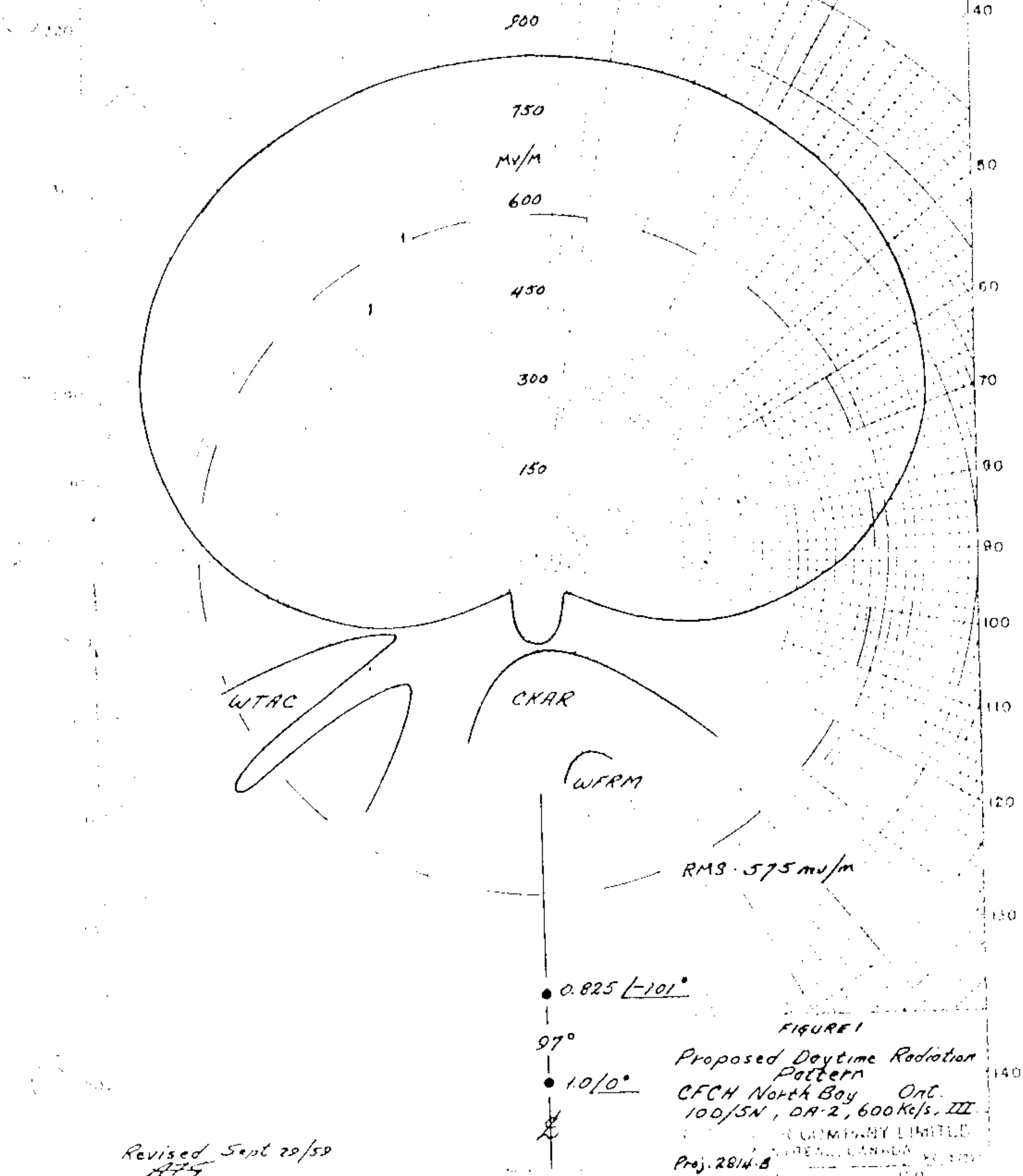


FIGURE 1
Proposed Daytime Radiation Pattern
CFCH North Bay Ont.
100/5N, DA-2, 600 Kc/s. III

Proj. 2814-B

... COMPANY LIMITED
... CANADA

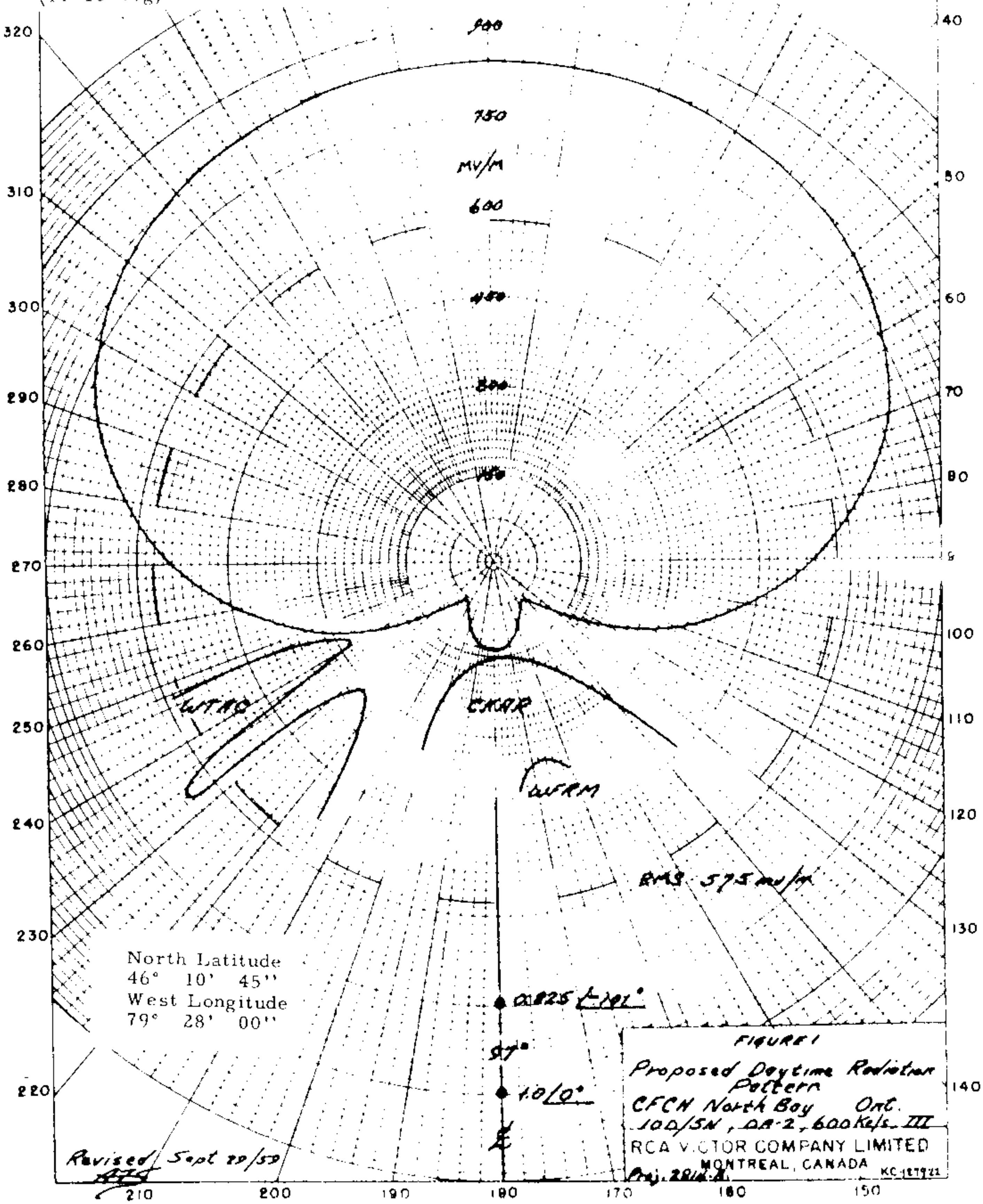
Revised Sept 29/59
AFS

KEPT FOR LEGIBILITY

PROPOSED DAY
(11-16-59g)

Station CFCH
North Bay, Ontario, Canada

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



CFQC

PROJECT #18902

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: CFQC

MAIN STUDIO: Saskatoon, Saskatchewan

FREQUENCY: 600 kHz

Power: 10 kW CLASS III

NOTIFICATION LIST NO. 373

DATE: April 21, 1978

GEOGRAPHICAL LOCATION:

Latitude 52° 06° 43" North
Longitude 106° 46° 25" West

ANTENNA CHARACTERISTICS:

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

TOWER	#1 (S)	#2 (N)	#3 (E)
Height above base insulator:	300' (66°)	300' (66°)	300' (66°)
Overall height:	305'	305'	305'
Day Field Ratio:	0.32	1.0	0.30
Day Phasing:	138.0°	Ref.	149°
Night Field Radio:	1.0	0.78	---
Night Phasing	139.5	Ref.	---
Spacing	Ref.	409.95' (90°)	476.13' (104.53°)
Orientation	Ref.	16.0°	70.5°

GROUND SYSTEM: 120 equally spaced radials of No. 10 B & S gauge bare copper wire extend from the base of each tower. The maximum length of any radial is 656 feet (0.4 wavelength), with the exception of those joined along the common chords.

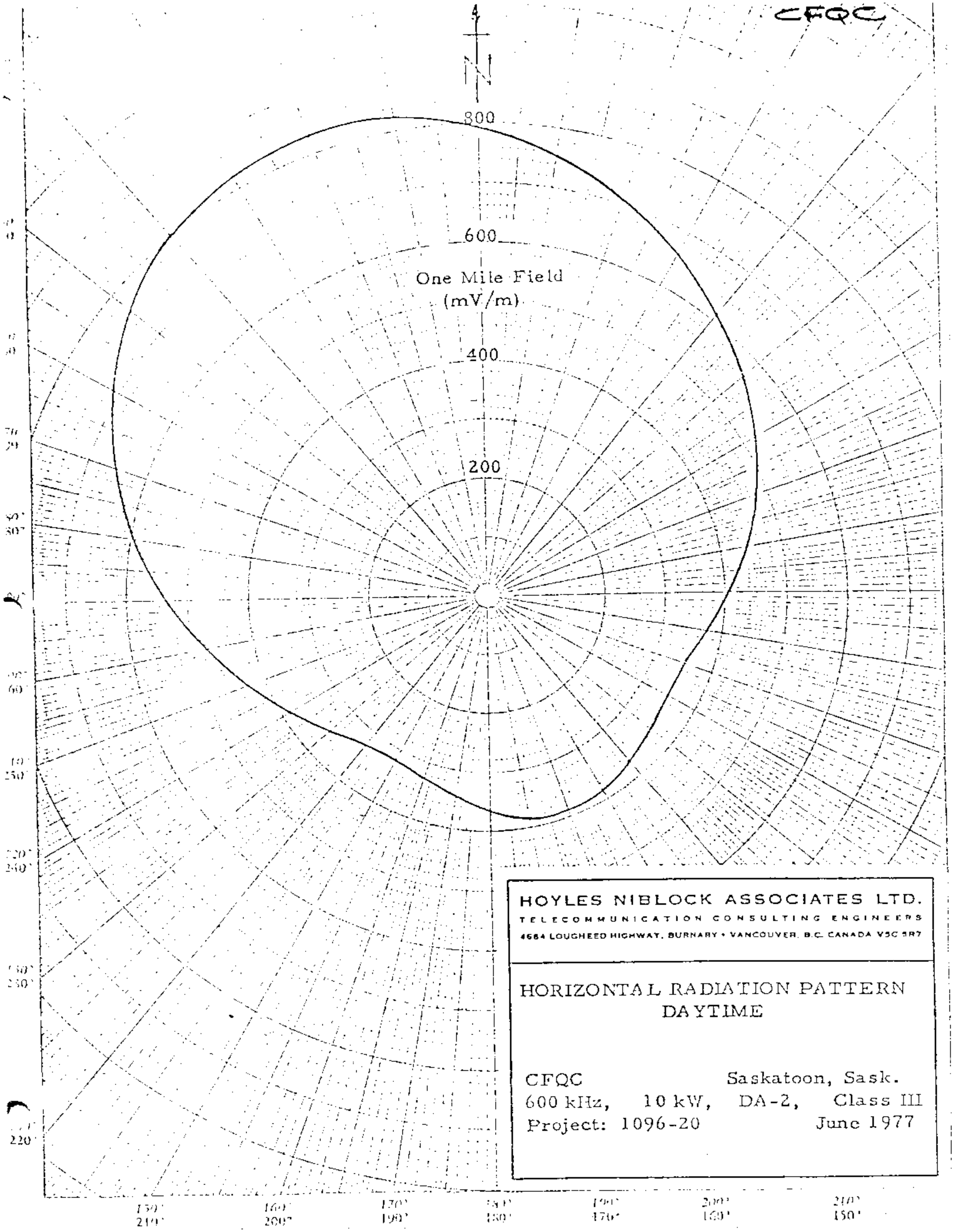
PREDICTED EFFECTIVE FIELD:

Daytime and Nighttime

550 mV/m at 1 mile for 10 kW
174 mV/m at 1 mile for 1 kW

Note: This notifications concerns a change in the night-time radiation pattern only. Please retain the day-time radiation pattern from Change List 364 dated June 27, 1977.

Revised April 7, 1978



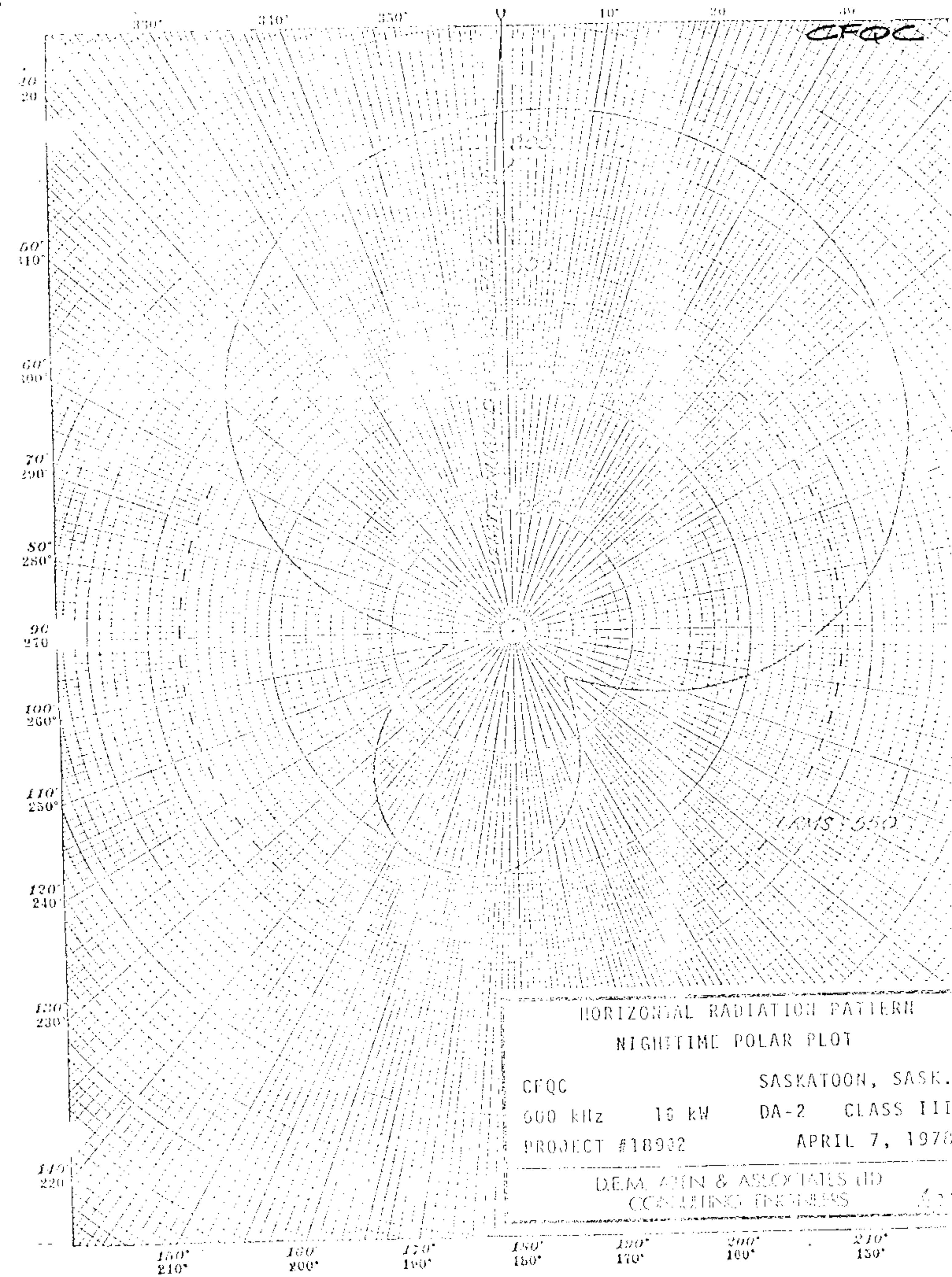
HOYLES NIBLOCK ASSOCIATES LTD.

TELECOMMUNICATION CONSULTING ENGINEERS

4684 LOUGHEED HIGHWAY, BURNABY • VANCOUVER, B.C. CANADA V5C 5R7

HORIZONTAL RADIATION PATTERN
DAYTIME

CFQC Saskatoon, Sask.
600 kHz, 10 kW, DA-2, Class III
Project: 1096-20 June 1977



HORIZONTAL RADIATION PATTERN

NIGHTTIME POLAR PLOT

CFQC SASKATOON, SASK.

600 kHz 10 kW DA-2 CLASS III

PROJECT #18932 APRIL 7, 1978

D.E.M. ALLEN & ASSOCIATES LTD

CONSULTING ENGINEERS

DIRECTIONAL ANTENNA DESCRIPTION SHEET

STATION: CJOR		MAIN STUDIO: Vancouver B. C.	
FREQUENCY: 600 Kcs	POWER: 10 KW		CLASS: III
NOTIFICATION LIST NO. 148		DATE: June 6, 1960	

GEOGRAPHICAL LOCATION
OF ANTENNA SYSTEM:

North Latitude: 49° 10' 00"
West Longitude: 123° 00' 54"

ANTENNA CHARACTERISTICS

Mode of Operation: DA-1
Number of Elements: 3
Type of Elements: Guyed, uniform cross-section series fed, no top loading.

TOWERS:	#1 (N)	#2	#3 (S)
HEIGHT OVER INSULATORS:	273' (60°)	273' (60°)	273' (60°)
OVERALL HEIGHT:	280 ft.	280 ft.	280 ft.
SPACING:	0	90° (410')	257.5° (1174')
PHASING:	0	136° (lead)	214.5° (lead)
FIELD RATIO:	1.0	.51	1.0

GROUND SYSTEM: 120 radials per tower 0.4 wavelengths long, buried two feet.

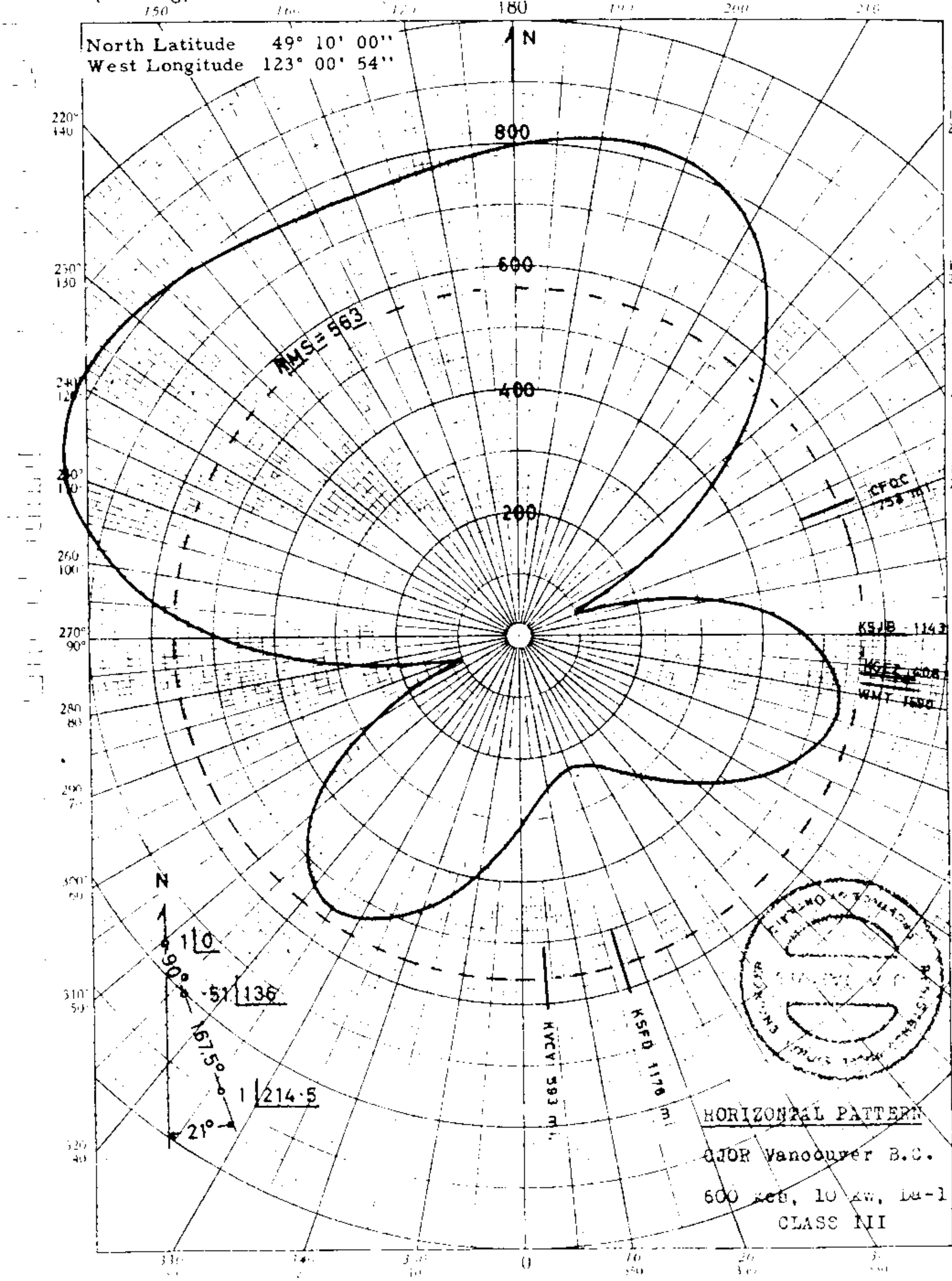
PREDICTED EFFECTIVE FIELD: 563 mv/m (178 mv/m for 1 KW) @ 1 mile

ORIENTATION: On a line bearing 159° true from North Tower (Reference).

148

CJOR

PROPOSED DAY & NIGHT (7-7-60g) | Station CJOR | 10kw, DA-1,U, Class III
Vancouver, B.C., Canada | 600 KC



ANTENNA DESCRIPTION SHEET

STATION CALL:	CKCL	
STUDIO LOCATION:	TRURO, NOVA SCOTIA	
FREQUENCY:	600 kHz	
POWER:	1N/10D kW	
CLASS:	III	
MODE:	DA-1	
TIME:	UNLIMITED	
NOTIFICATION LIST NO.:	385...	DATE: May 31, 1979...
GEOGRAPHICAL LOCATION:	Latitude: 45° 22' 28" North Longitude: 63° 20' 51" West	
ARRAY CHARACTERISTICS:	Two guyed steel towers of uniform cross section; base insulated; series fed; #1 top loaded to an effective height of approximately 75°; #2 not top loaded.	
TOWER:	#1 (SE)	#2 (NW)
HEIGHT ABOVE GRADE:	278'	278'
HEIGHT ABOVE INSULATOR:	273'	273' (60°)
SPACING:	205'(45°)	
ORIENTATION:	124° True	
FIELD RATIO:	1.00	0.87
PHASE ANGLE:	0°	+157.5°
GROUND SYSTEM:	120 equally spaced radials of 10 AWG soft copper per tower, of length 656' (0.4λ) where possible or extending to the property line, except those along the common chord.	
PREDICTED EFFECTIVE FIELD: (UNATTENUATED AT ONE MILE)	537.6 mV/m for 10 kW Day 170 mV/m for 1 KW Night	

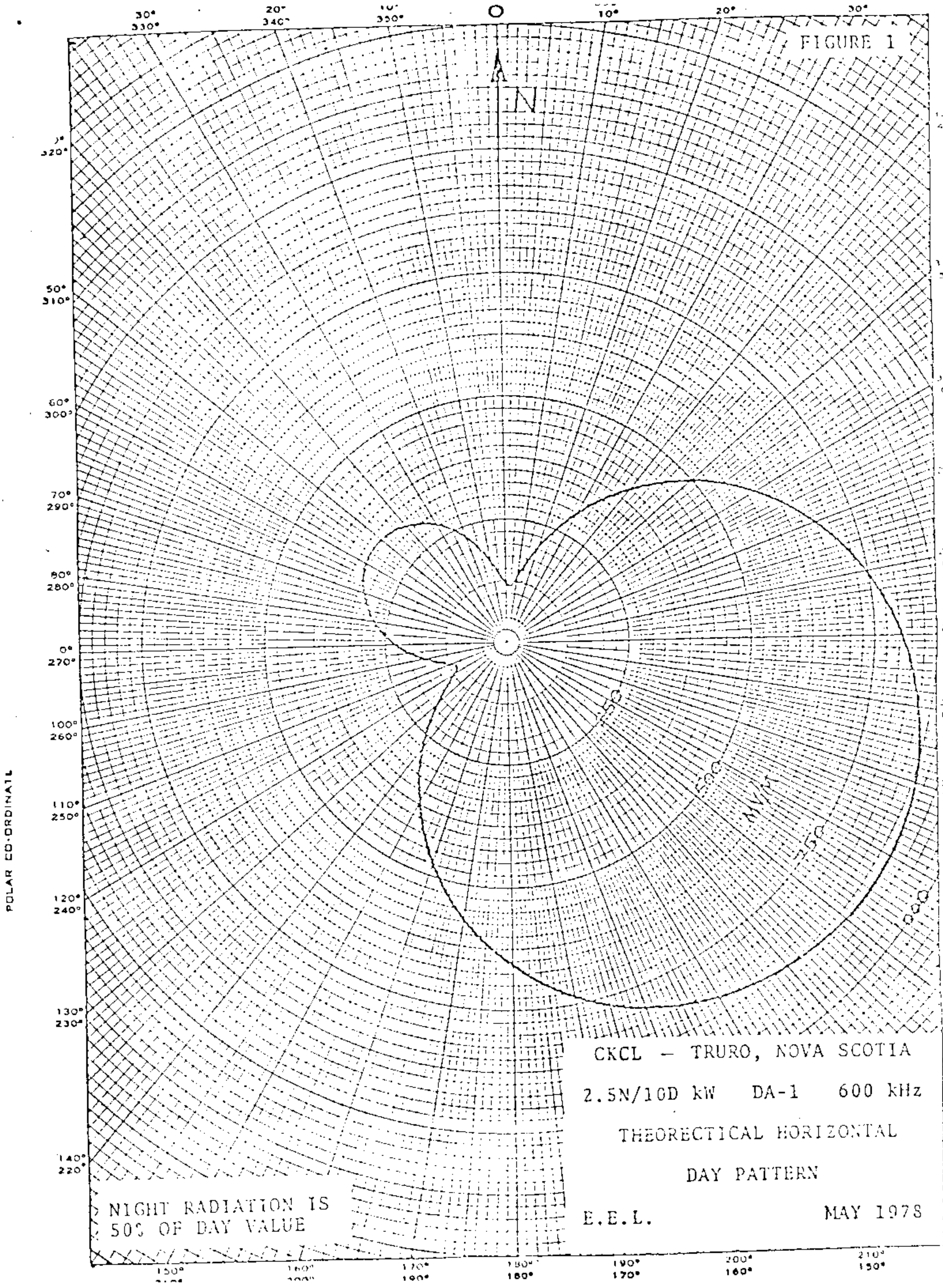
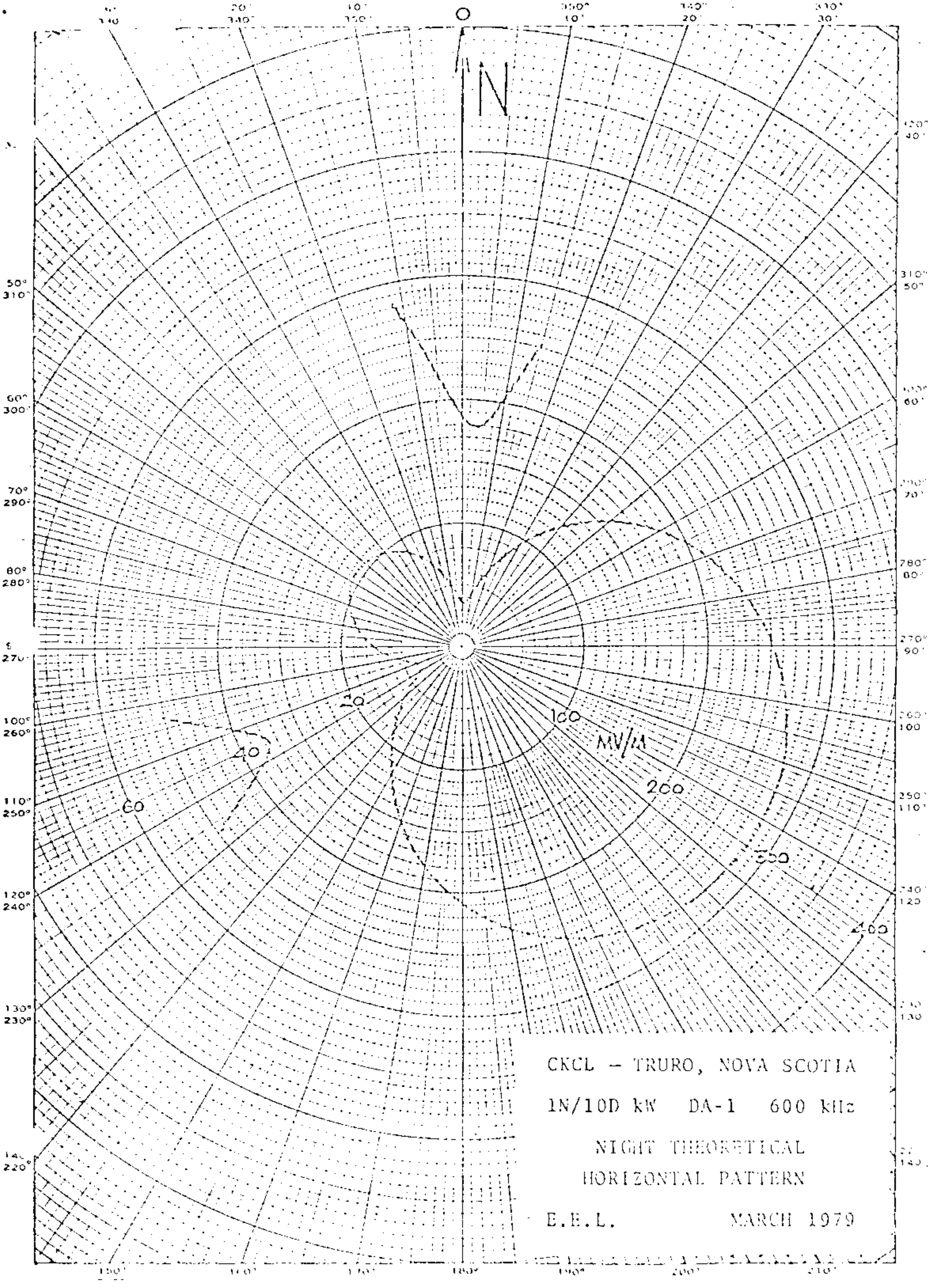


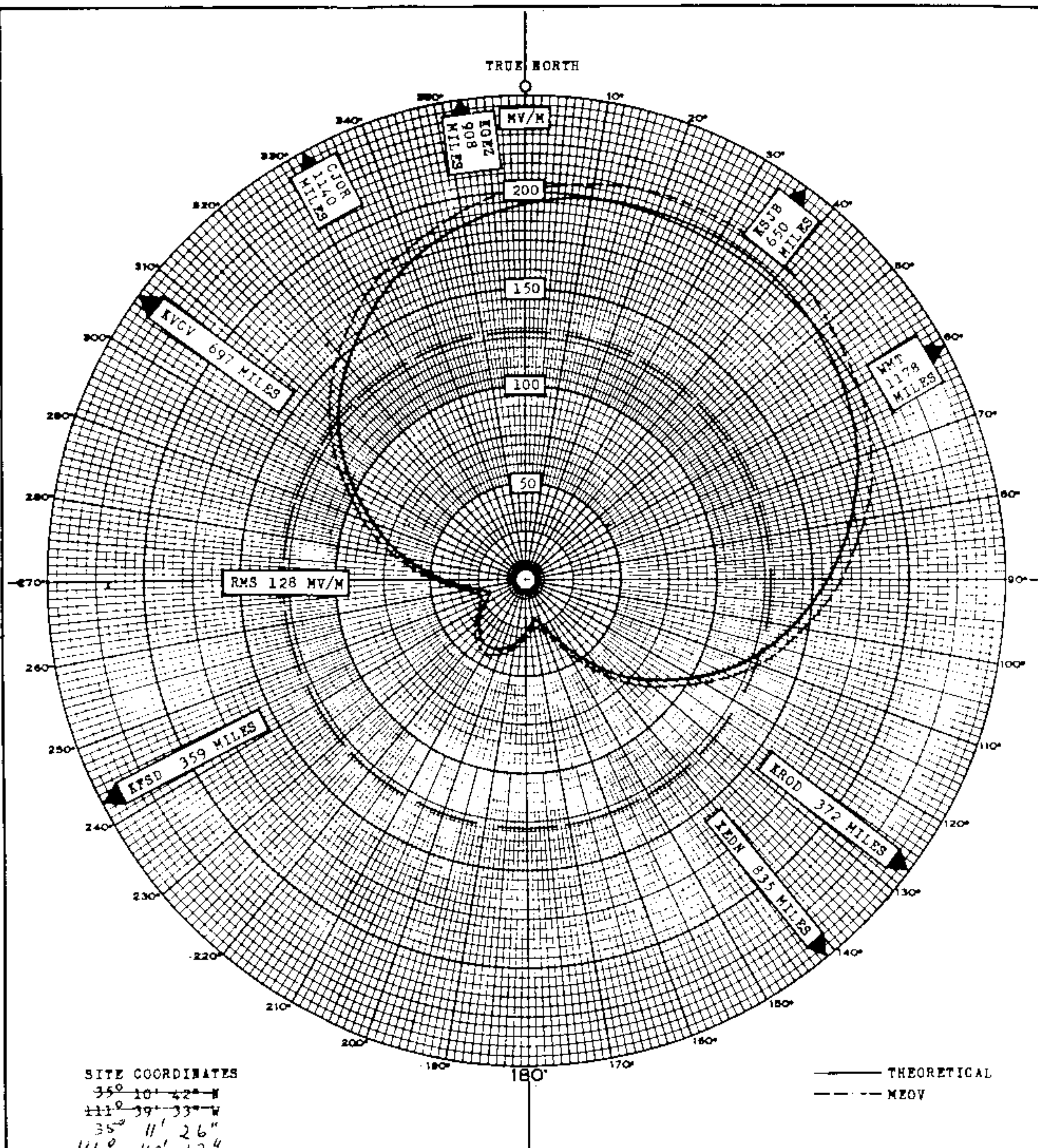
FIGURE 1
N
CKCL - TRURO, NOVA SCOTIA
2.5N/10D kW DA-1 600 kHz
THEORECTICAL HORIZONTAL
DAY PATTERN
E.E.L.
MAY 1978
NIGHT RADIATION IS
50% OF DAY VALUE
POLAR CO-ORDINATE
150
200
250
1000


CKCL - TRURO, NOVA SCOTIA
1N/10D kW DA-1 600 kHz
NIGHT THEORETICAL
HORIZONTAL PATTERN
E.E.L. MARCH 1979
N
MV/M
20
40
60
100
200
300
400

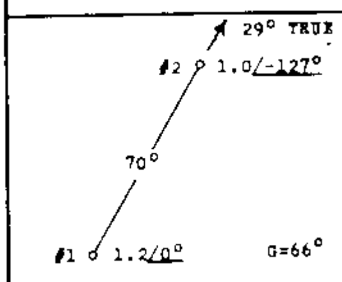
KCLS

PROPOSED NIGHT (10/18/54 G) | STATION KCLS FLAGSTAFF, ARIZONA | 500W, 5KW-LS DA-N U | 600 KC

BP-17771
7-3-67
application was accepted by F.C.C. for change in antenna - transmitter location to:
BP-17771 GRANTED CP 8-7-67



PROPOSED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN



SAUNDERS BROADCASTING COMPANY
FLAGSTAFF ARIZONA

Vandivere, Cohen and Wearn
Consulting Electronic Engineers

PROPOSED OPERATION
KCLS 600 KC
0.5 KW, 5 KW-LS DA-N

File No. BP-9160 (amended) Accepted 10/8/54 KCLS, Flagstaff, Arizona 600 KC

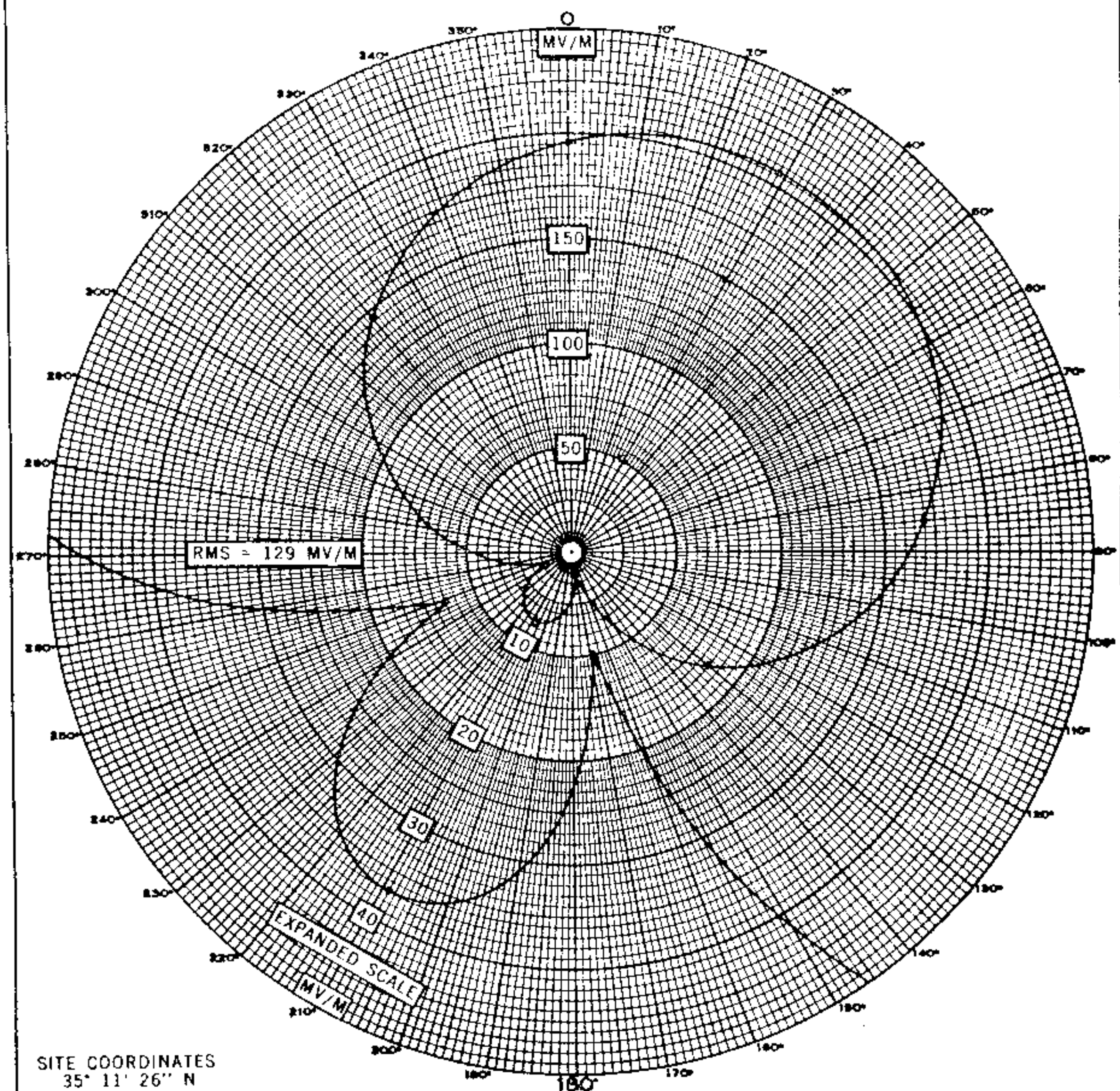
KCLS

Measured Night
(8-28-68ct)

Station KCLS
Flagstaff, Arizona

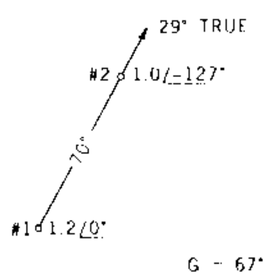
500w,5kw-LS,DA-N,U
600 kc
Figure 10

11-22-68
Granted
License



SITE COORDINATES
35° 11' 26" N
111° 40' 12" W

MEASURED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN



SAUNDERS BROADCASTING COMPANY
FLAGSTAFF, ARIZONA

Jules Cohen & Associates
Consulting Electronics Engineers

RADIO STATION KCLS
600 KHZ
0.5 KW, 5 KW LS U DA-N
JUNE 1968

FCC File No.BL-12043
Accepted 8-13-68

Station KCLS
Flagstaff, Arizona

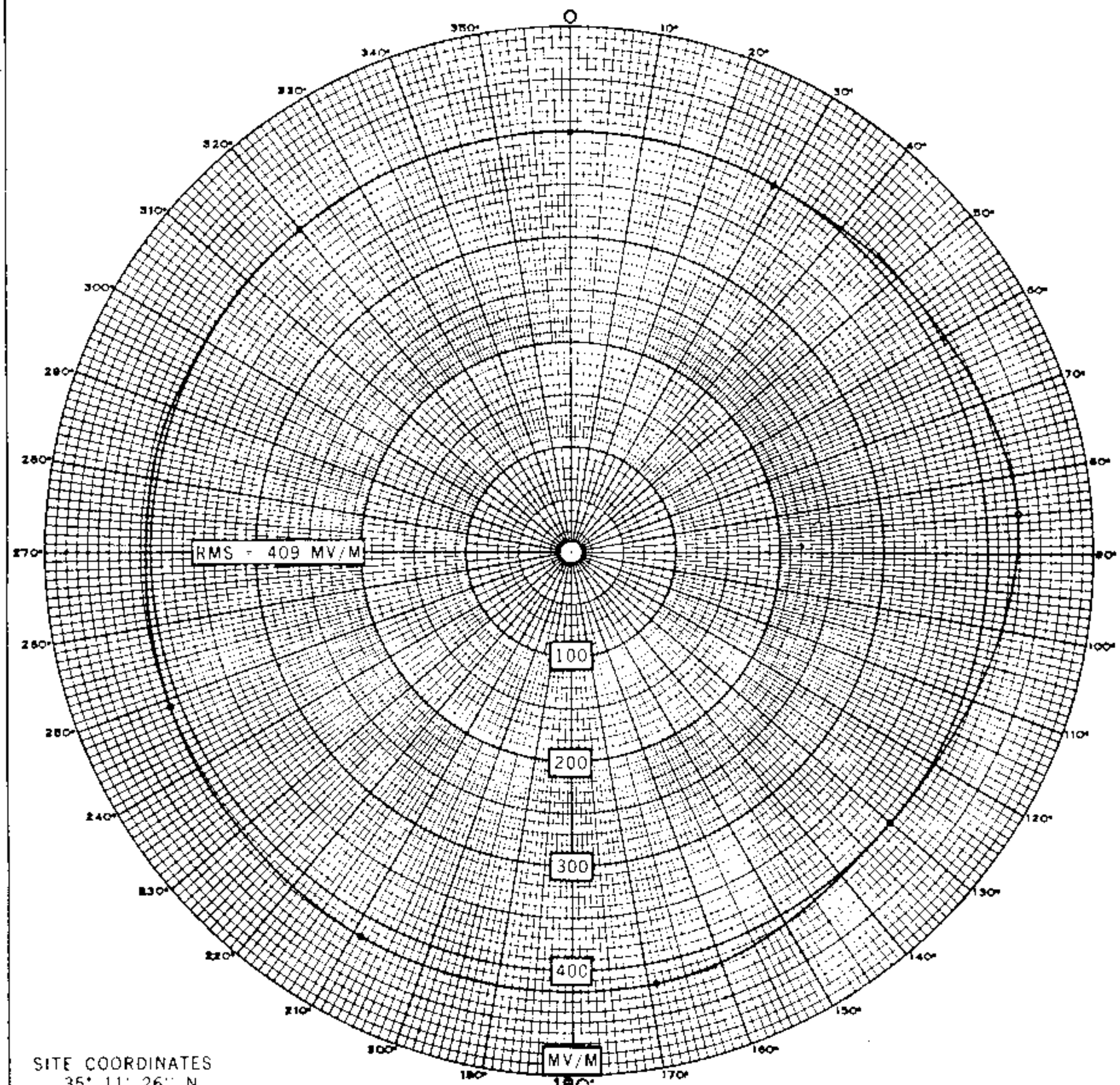
600 kc

KCLS

Measured Non-DA
(8-28-68ct)

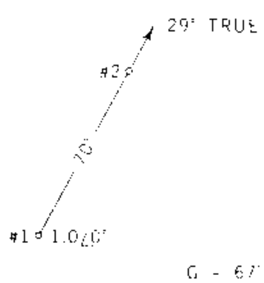
Station KCLS
Flagstaff, Arizona

500w,5kw-LS,DA-N,U
600 kc
Figure 8



SITE COORDINATES
35° 11' 26" N
111° 40' 12" W

MEASURED NONDIRECTIONAL HORIZONTAL PLANE RADIATION PATTERN



SAUNDERS BROADCASTING COMPANY
FLAGSTAFF, ARIZONA

Jules Cohen & Associates
Consulting Electronics Engineers

RADIO STATION KCLS
600 KHZ
0.5 KW, 5 KW LS U DA N
JUNE 1968

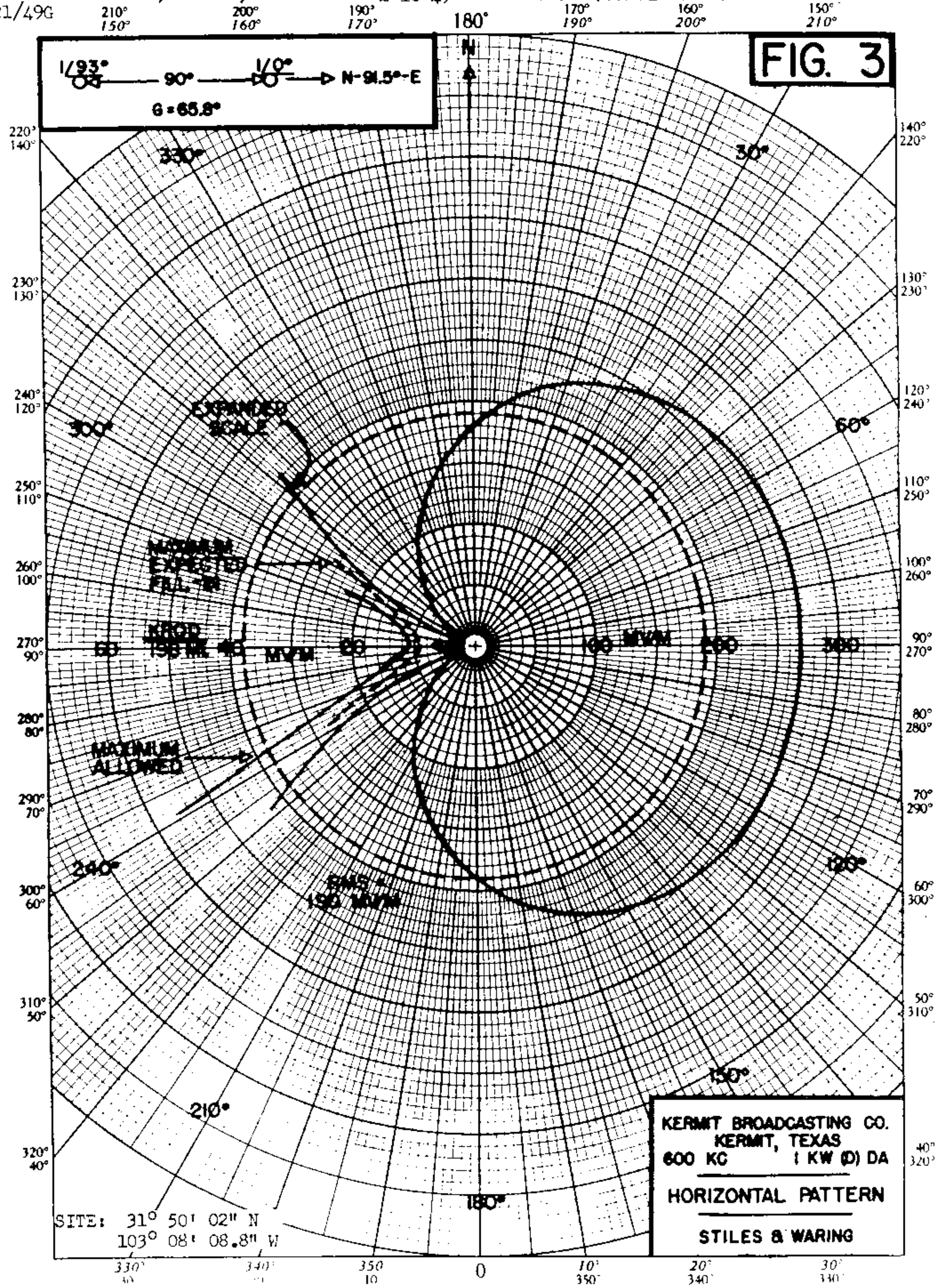
FCC File No.BL-12043
Accepted 8-13-68

Station KCLS
Flagstaff, Arizona

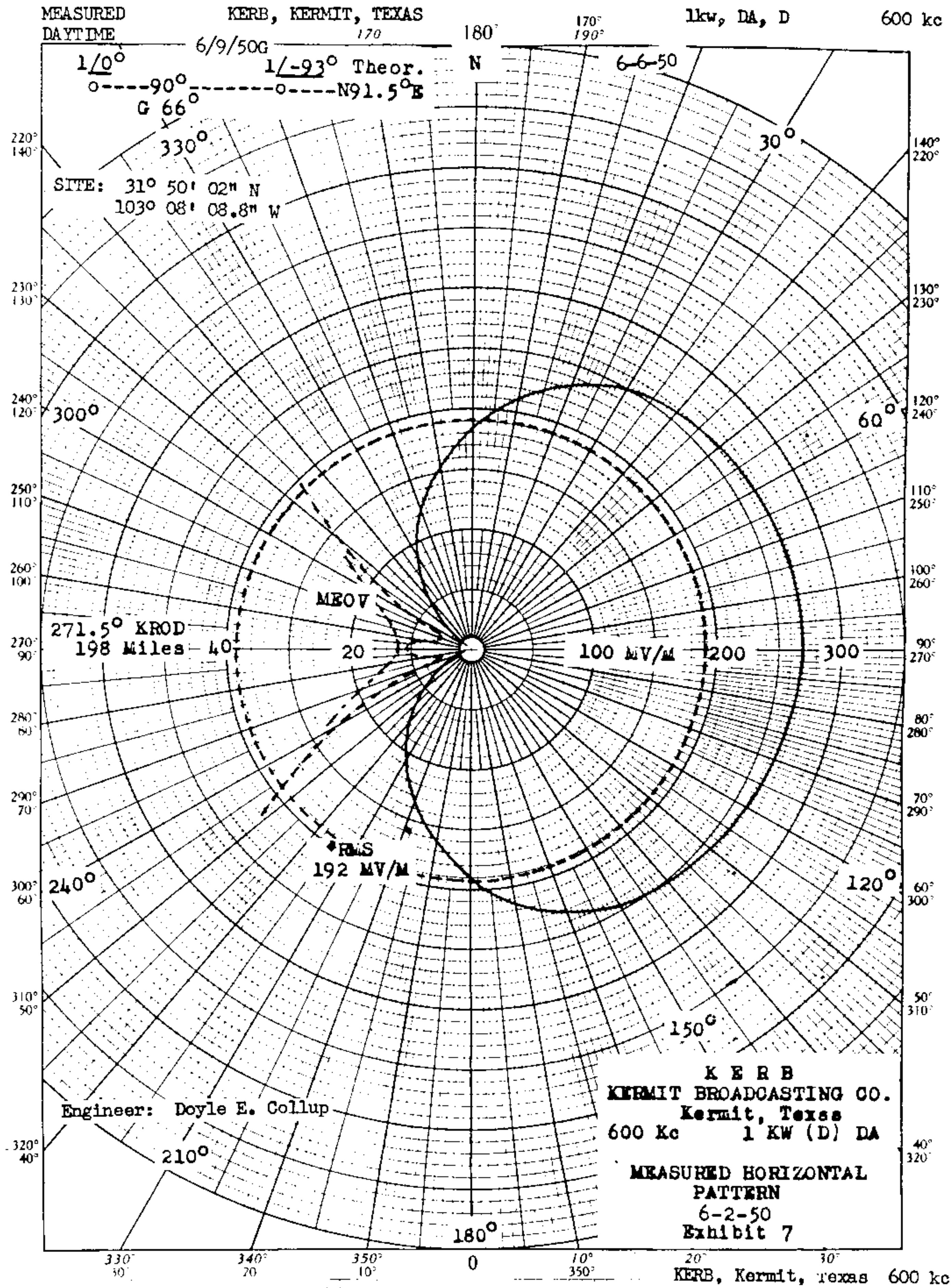
600 kc

KERB

PROPOSED
DAY 2/21/49G KERB, KERMIT, TEXAS 2-16-49 1kw,D,DA PATTERN NO. 021549 600 kc



KERB

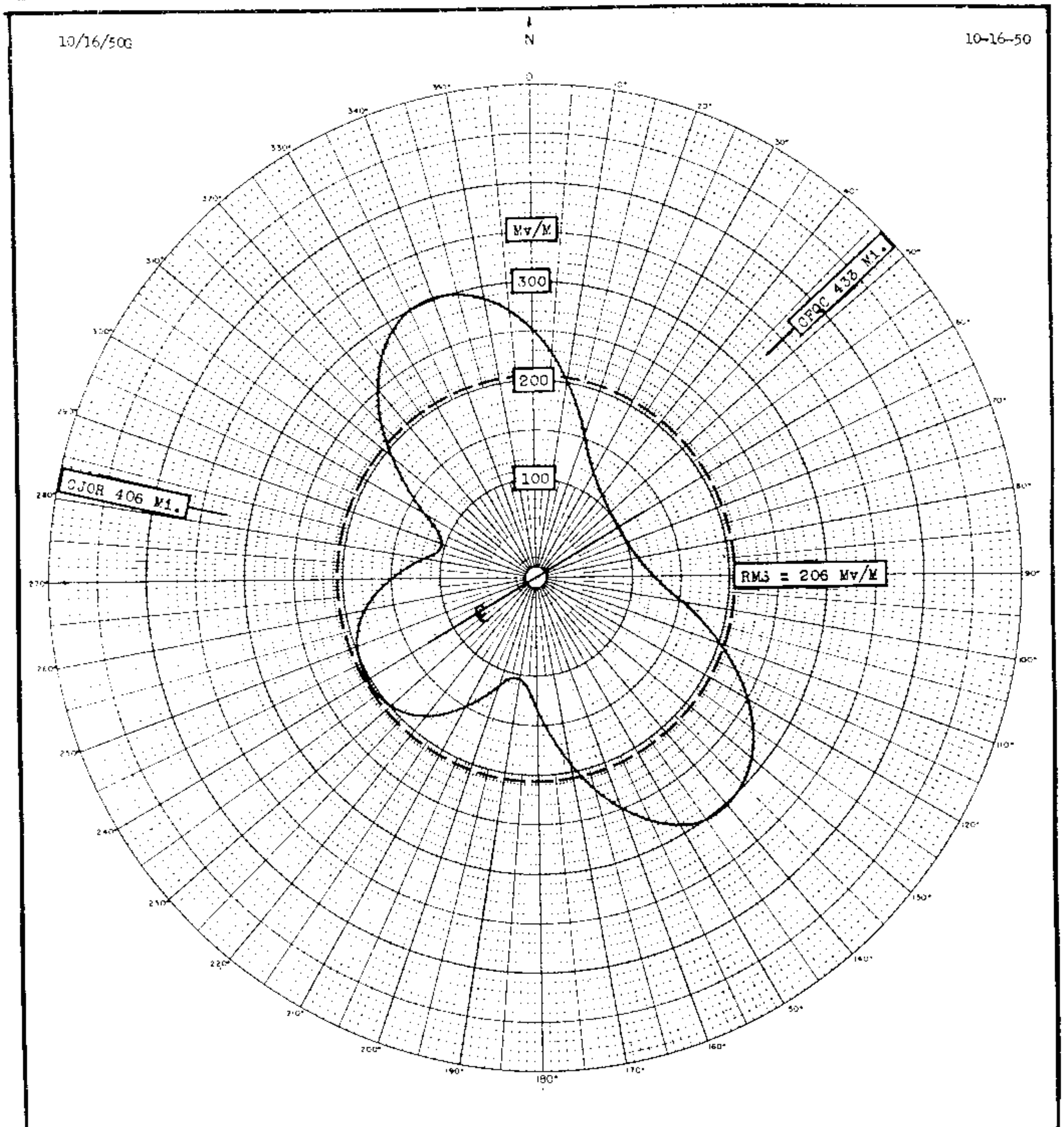


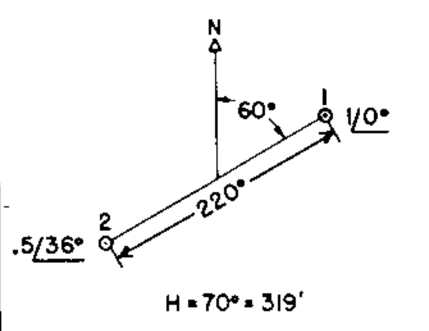
K E R B
KERMIT BROADCASTING CO.
Kermit, Texas
600 Kc 1 KW (D) DA

MEASURED HORIZONTAL PATTERN
6-2-50
Exhibit 7

KGEZ

PROPOSED DAY KGEZ, KALISPELL, MONT. 1kw, DA-2 600 kc





LATITUDE: ~~48°~~ 09' 48" N.
LONGITUDE: 114° 19' ~~01"~~ W.

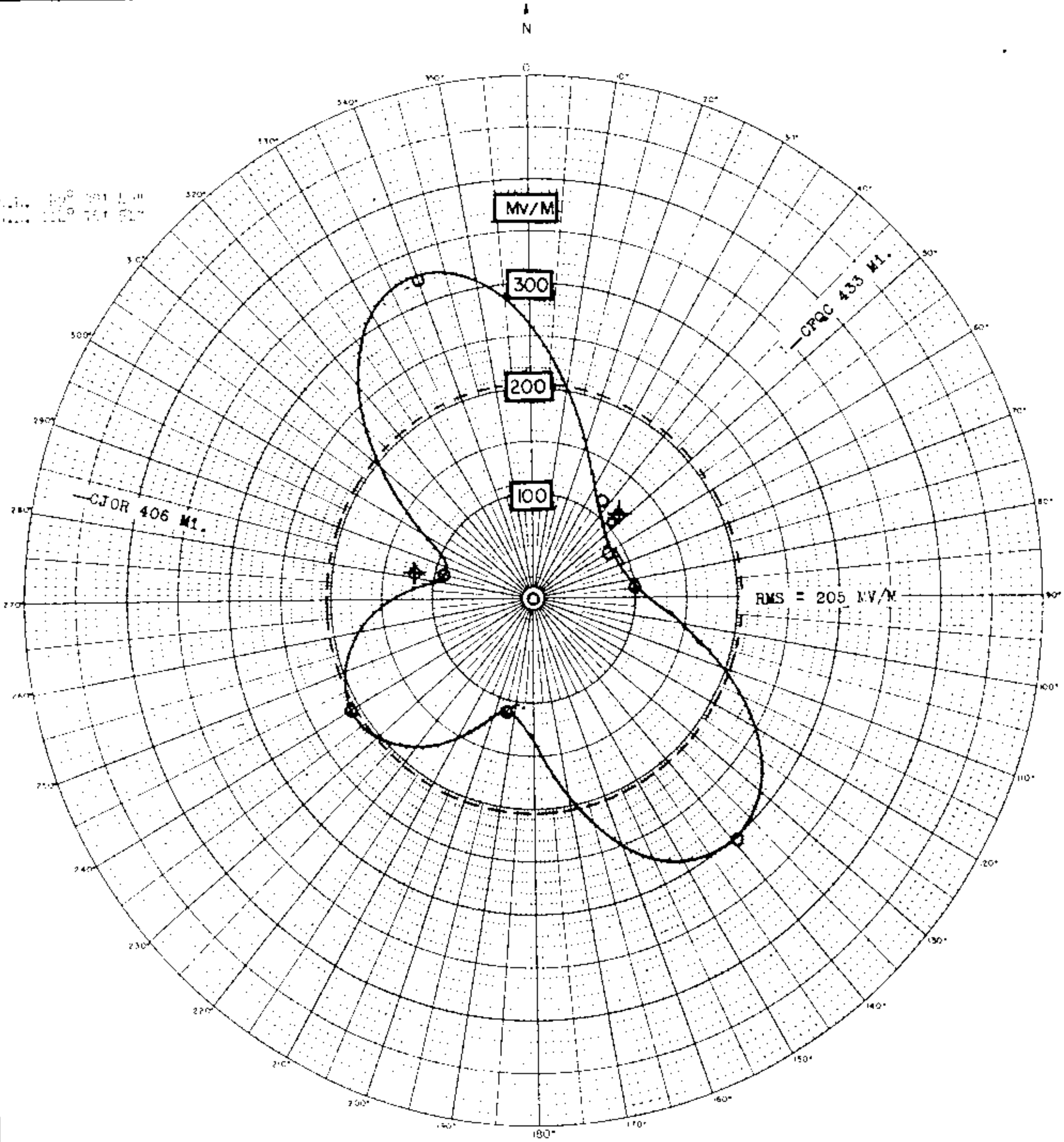
PATTERN NO. 491007

FIGURE 1

CALCULATED
HORIZONTAL PLANE PATTERN
PROPOSED DAYTIME OPERATION
KGEZ
KALISPELL, MONTANA
600 KC. 1 KW. DA-2 U

SPARLING & FRAZIER
CONSULTING RADIO ENGINEERS
SPOKANE, WASH.

KGEZ, Kalispell, Mont. 600 kc



O-----INVERSE FIELD VALUES OBTAINED FROM MEASURED RADIALS.

-◆-----CONSTRUCTION PERMIT SPECIFICATIONS. (MAXIMUM VALUES)

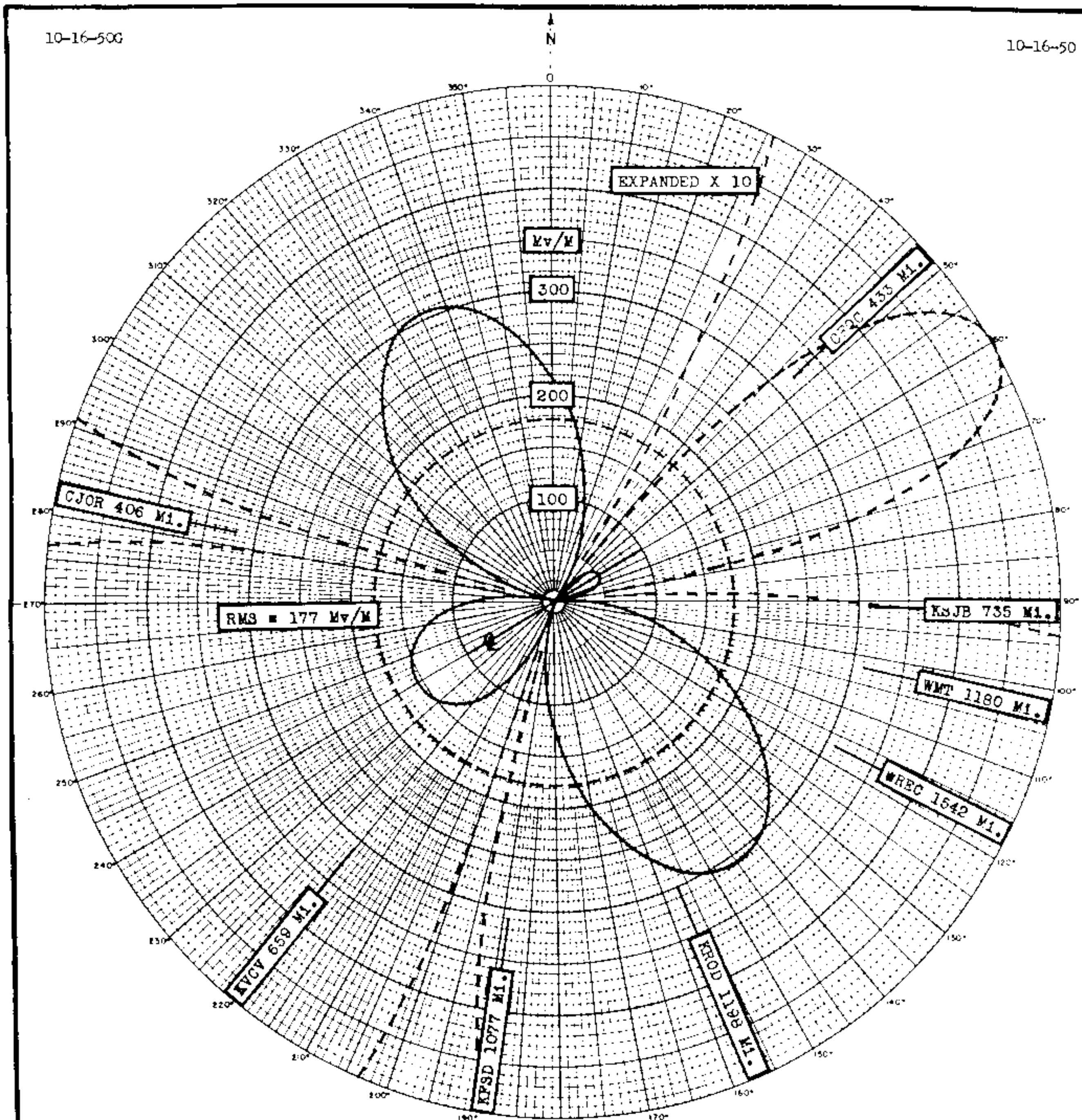
MEASURED
HORIZONTAL PLANE PATTERN
DAYTIME OPERATION
KGEZ
KALISPELL, MONT.
600 KC. 1 KW. DA-2 U
8-17-52

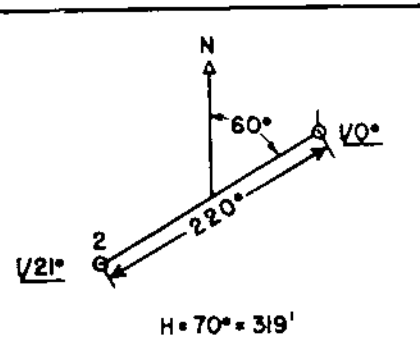
FIG. 2

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

KGEZ

PROPOSED NIGHT KGEZ, KALISPELL, MONT. 1kw, DA-2 600 kc





LATITUDE: ~~48°~~ 09' 48" N.
LONGITUDE: 114° 19' ~~01~~" W.

PATTERN NO. 491006

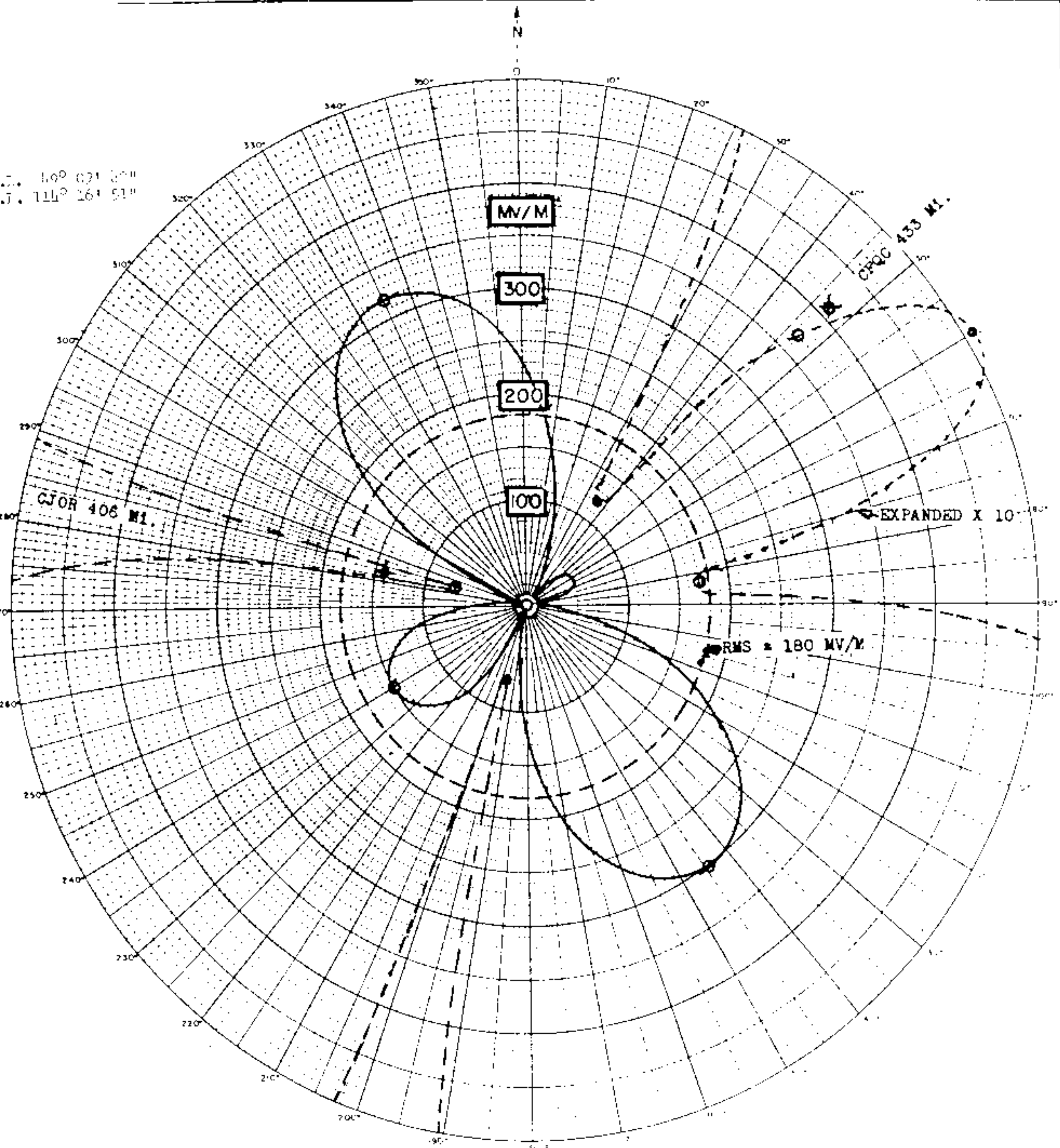
FIGURE 2

CALCULATED
HORIZONTAL PLANE PATTERN
PROPOSED NIGHTTIME OPERATION
KGEZ
KALISPELL, MONTANA
600 KC. 1 KW. DA-2 U

SPARLING & FRAZIER
CONSULTING RADIO ENGINEERS
SPOKANE, WASH.

KGEZ

MEASURED NIGHT KGEZ, KALISPELL, MONT. 10/20/52 1 KW, U, DA-2 600 KC



N.L. 48° 03' ..."
W.L. 114° 26' 51"

O---INVERSE FIELD VALUES OBTAINED FROM MEASURED RADIALS.

-◆---CONSTRUCTION PERMIT SPECIFICATIONS (MAXIMUM VALUES)

MEASURED
HORIZONTAL PLANE PATTERN
NIGHTTIME OPERATION
KGEZ
KALISPELL, MONTANA
600 KC. 1 KW. DA-2 U

8-17-52

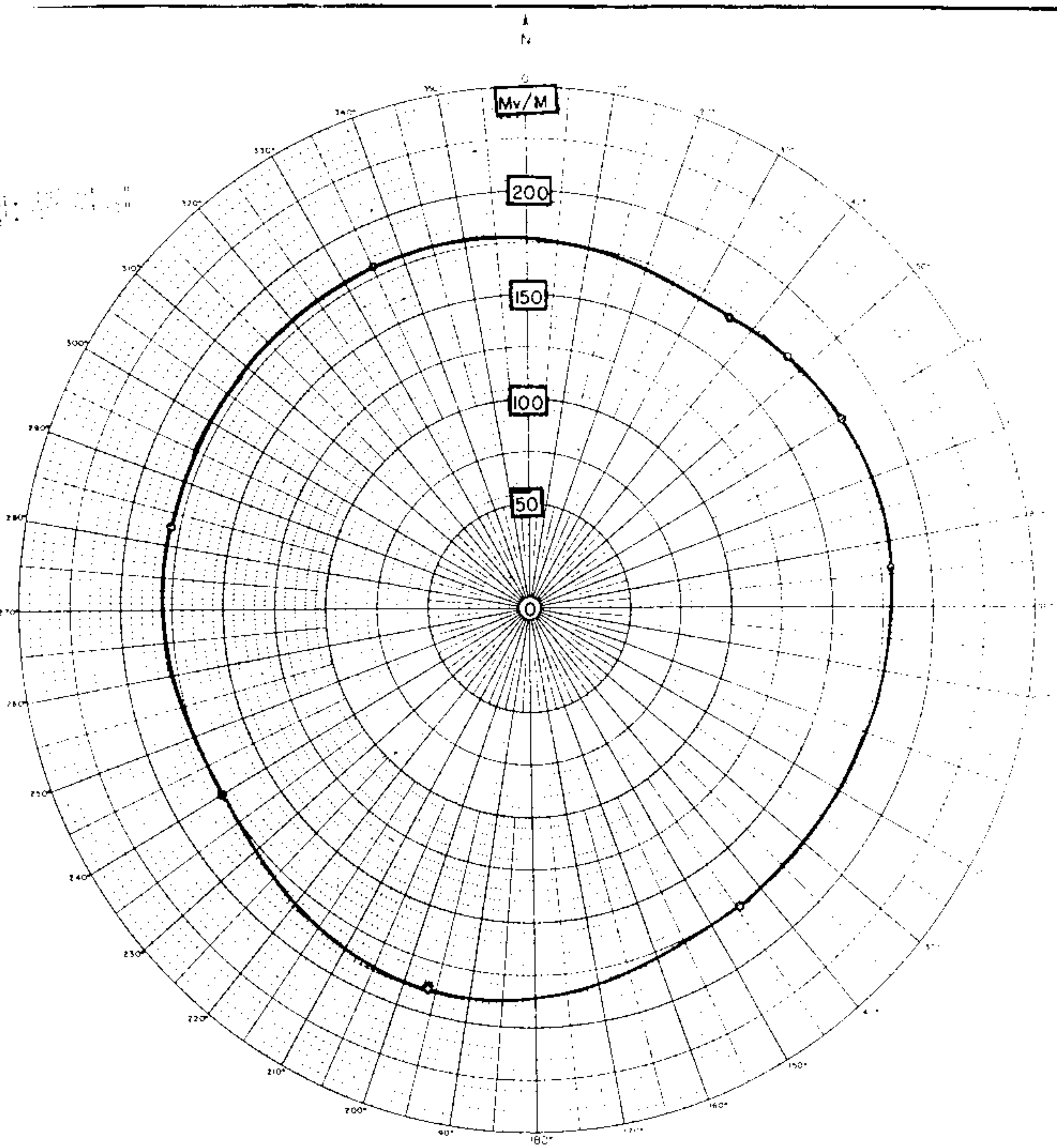
A. G. SPARLING
Consulting Radio Engineers

FIG. 3

APPL RECD AUG 9/4/52 ADD 10/9/52 BL-4761 KGEZ, KALISPELL, MONT. 600 KC

KGEZ

MEASURED NON-DA KGEZ, KALISPELL, MONT. 10/20/52G 1 KW, U, DA-2 600 KC



MEASURED
HORIZONTAL PLANE PATTERN
NON-DIRECTIONAL OPERATION
KGEZ
KALISPELL, MONTANA
600KC. 1 KW. DA-2 U

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

8/16/52

FIG. 1

APPL RECD FCC 9/5/52 ACC 10/8/52 BL-4764 KGEZ, KALISPELL, MONT.

KIIX

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station : KIIX   Main Studio: Fort Collins, Colorado

Frequency : 600 KHz   Power : ____ Night 5kW Day

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

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 40 34 17
West Longitude: 104 55 50

ANTENNA CHARACTERISTICS

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

TOWER	:	NW(#1)	NE(#2)	SW(#3)	SE(#4)		
HEIGHT ABOVE INSULATORS	:	360'	360'	360'	360'	(79.1°)	
PHASING	:	0°	+6°	+103°	109°		
FIELD RATIO	:	1.0	0.65	0.9	0.59		

SPACING AND ORIENTATION : The towers are located at the vertices of a parallelogram the long sides of which are 874.3' (192°) in length on a line bearing 40° true. The short sides are 364.3' (80°) in length on a line bearing 165° true.

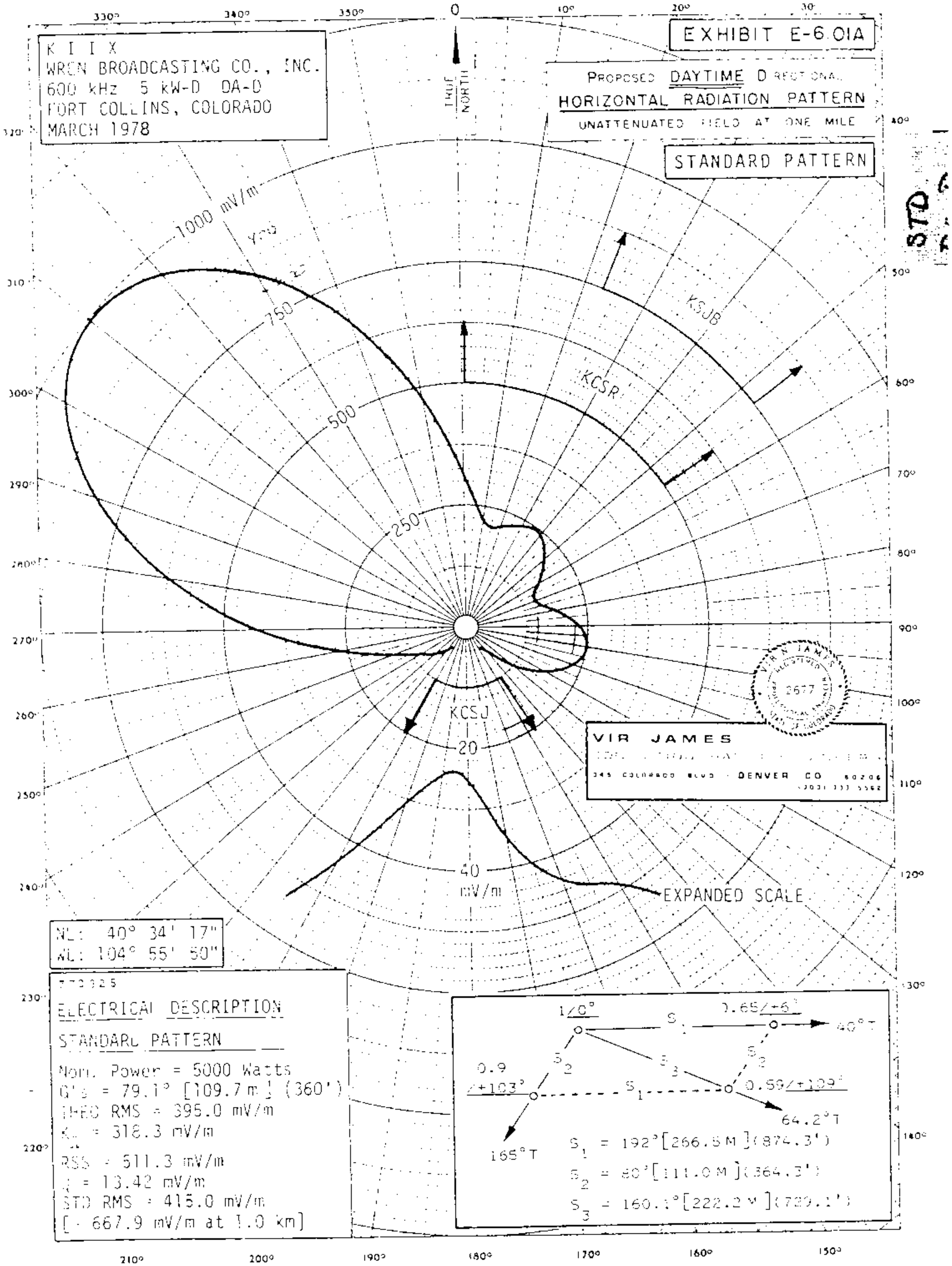
GROUND SYSTEM : 120 - 400 equally spaced copper radials plus 120 - 75' interspaced radials about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

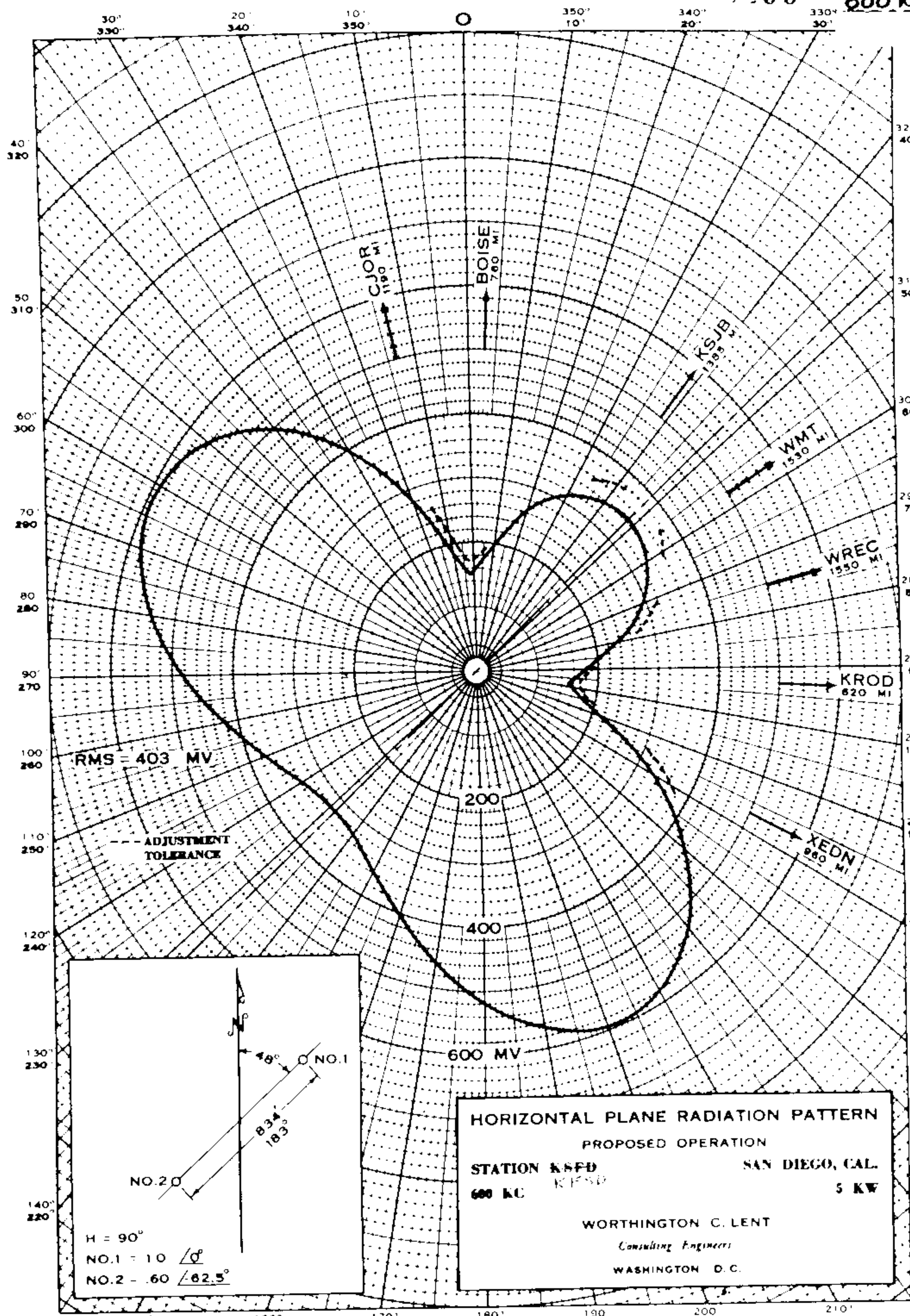
	THEORETICAL		STANDARD
	RMS	RSS	RMS
Day	395 mV/m	511.3 mV/m	415 mV/m

Note:

KIIX


K I I X
WREN BROADCASTING CO., INC.
600 kHz 5 kW-D DA-D
FORT COLLINS, COLORADO
MARCH 1978
EXHIBIT E-6.01A
PROPOSED DAYTIME DIRECTIONAL
HORIZONTAL RADIATION PATTERN
UNATTENUATED FIELD AT ONE MILE
STANDARD PATTERN
TRUE NORTH
1000 mV/m
750
500
250
20
40
mV/m
KSJB
KCSR
KCSJ
EXPANDED SCALE
VIR JAMES
345 COLORADO BLVD DENVER CO 80206
NL: 40° 34' 17"
WL: 104° 55' 50"
770325
ELECTRICAL DESCRIPTION
STANDARD PATTERN
Nom. Power = 5000 Watts
G's = 79.1° [109.7 m] (360')
THEO RMS = 395.0 mV/m
K = 318.3 mV/m
RSS = 511.3 mV/m
Q = 13.42 mV/m
STD RMS = 415.0 mV/m
[- 667.9 mV/m at 1.0 km]
1∠0°
0.65∠+6°
40° T
0.9 ∠+103°
0.59∠+109°
64.2° T
165° T
S1 = 192°[266.5 M](874.3')
S2 = 80°[111.0 M](364.3')
S3 = 160.1°[222.2 M](729.1')
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°

7399 - KOGO 600 KC

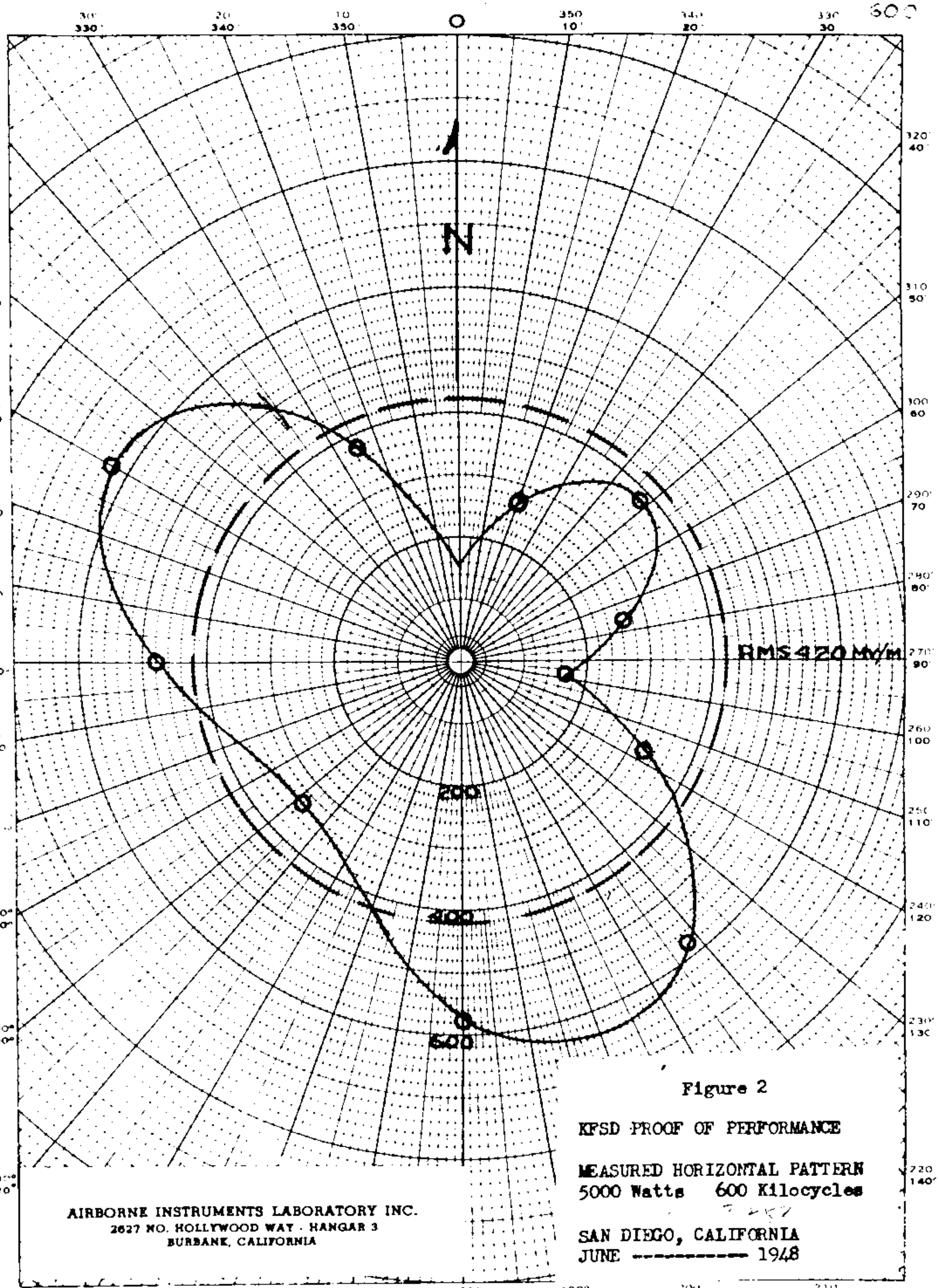


10701A26

FIGURE 5

KOGO
600

32 43 17
117 04 11



AIRBORNE INSTRUMENTS LABORATORY INC.
2627 NO. HOLLYWOOD WAY · HANGAR 3
BURBANK, CALIFORNIA

Figure 2

KFSD PROOF OF PERFORMANCE

MEASURED HORIZONTAL PATTERN
5000 Watts 600 Kilocycles

SAN DIEGO, CALIFORNIA
JUNE ---------- 1948

KROD

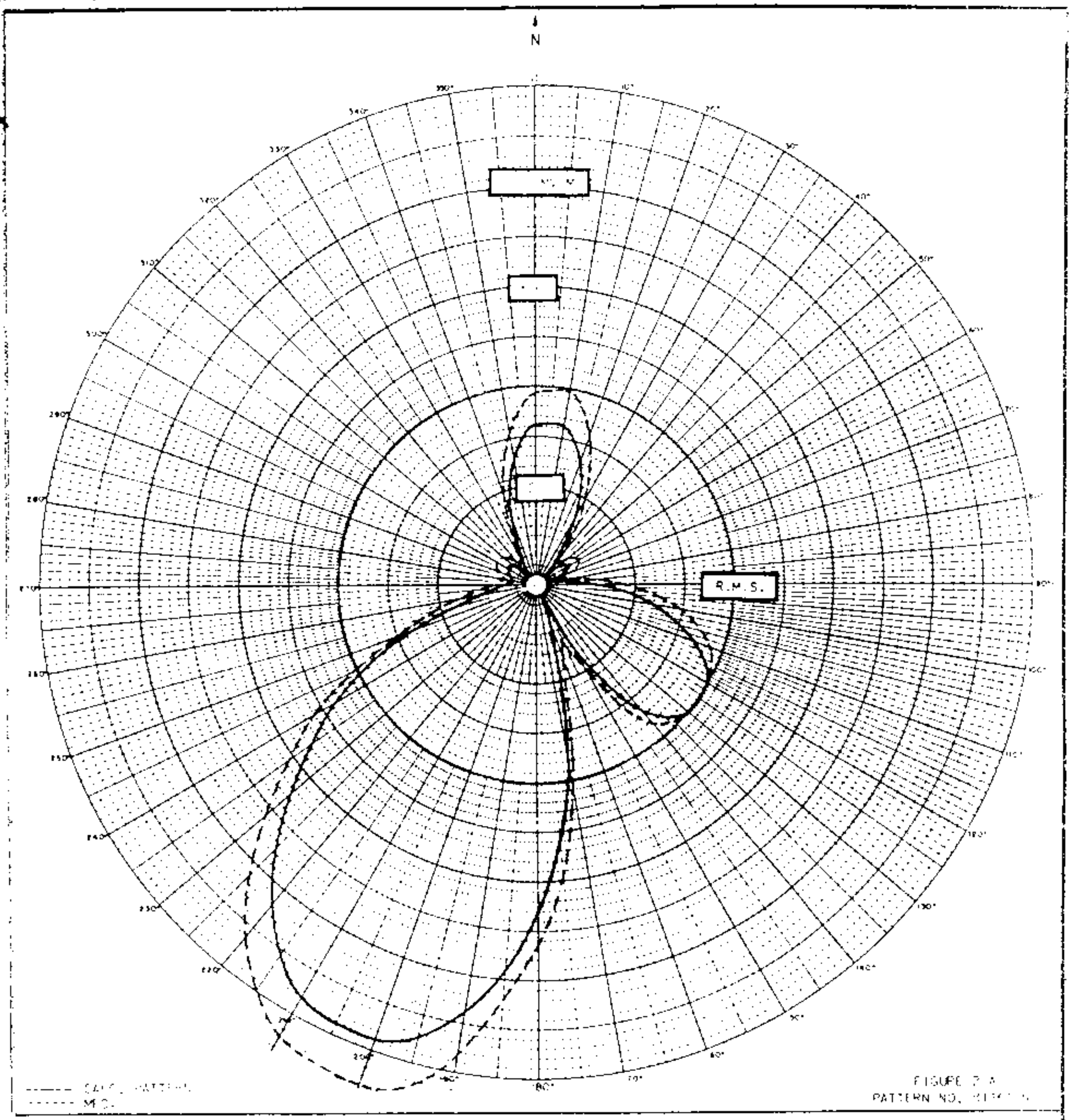
PROPOSED NIGHT
(10-25-61ct)

Station KROD
El Paso, Texas

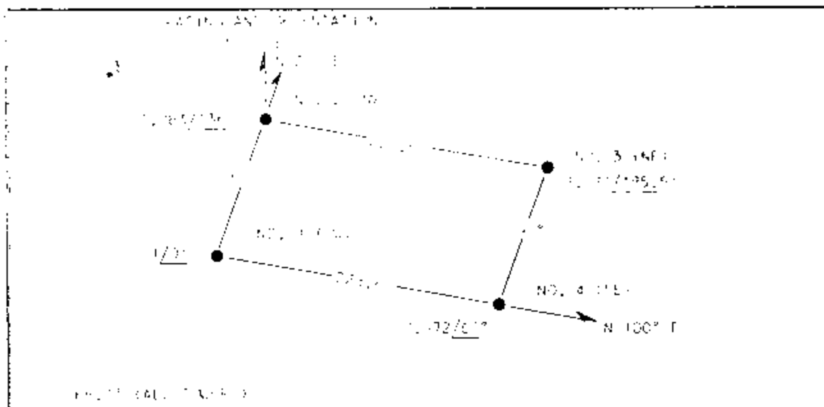
5kw,DA-N,U
600 kc

10-30-62 granted CP for change in Night DA

?-27-63 [illegible] DA-N



HORIZONTAL RADIATION PATTERN



APPLICANT	KROD
LOCATION	EL PASO, TEXAS
FREQUENCY	600 KC/S
POWER	5 KW, U (DA-N)
LATITUDE	31 DEG 54 MIN 54 SEC
LONGITUDE	106 DEG 25 MIN 34 SEC
WHEN USED	NIGHTTIME
RMS FIELD	400.32 MV/M
DATE	AUGUST 1961

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

FCC File No. BP-15109
Accepted 10-10-61

Station KROD
El Paso, Texas

600 kc

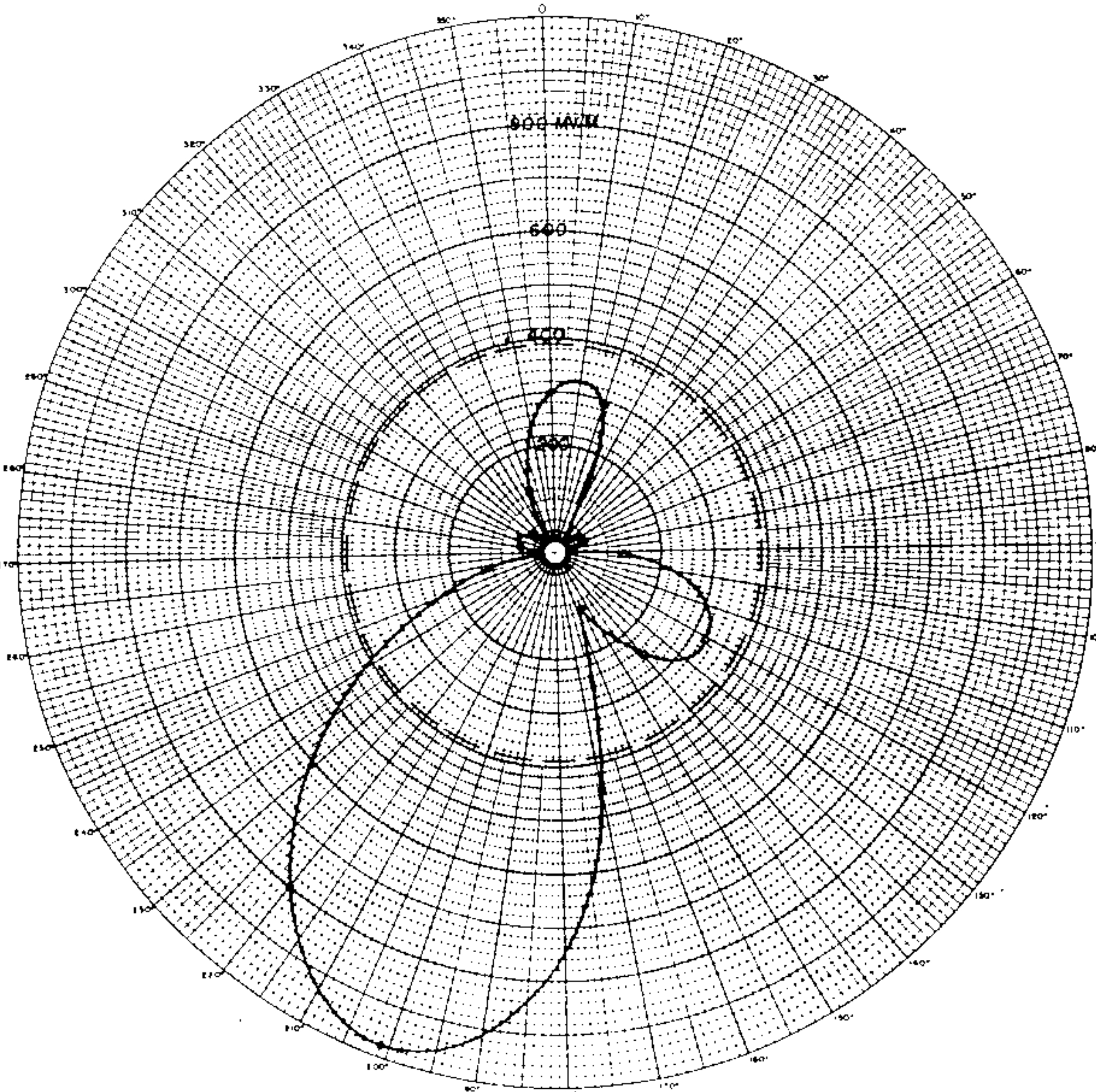
K R O D

Measured Night
(11-29-63ct)

Station KROD
El Paso, Texas

5kw,DA-N,U
600 kc

2/13/64 Granted license for change in DA-N

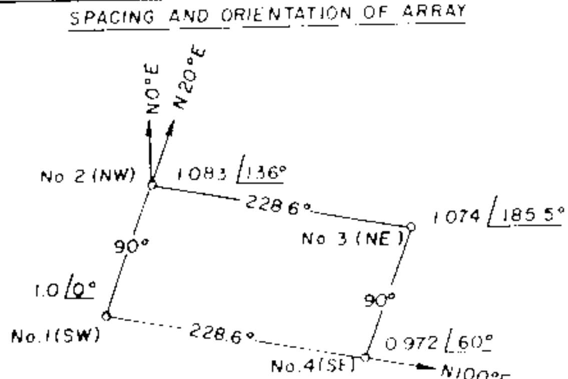


o MEASURED VALUES

FIGURE 1 — A

HORIZONTAL RADIATION PATTERN

SPACING AND ORIENTATION OF ARRAY



G = 66.7° (ALL TOWERS)

APPLICANT	KROD
LOCATION	EL PASO, TEXAS
FREQUENCY	600 KC/S
POWER	5 KW, U (DA — N)
LATITUDE	31 DEG 54 MIN 54 SEC
LONGITUDE	106 DEG 23 MIN 34 SEC
WHEN USED	NIGHTTIME
R.M.S. FIELD	392 MV/M
DATE	AUGUST 1963

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

FCC File No. BL-10,313
Accepted 11-5-63

Station KROD
El Paso, Texas

600 kc

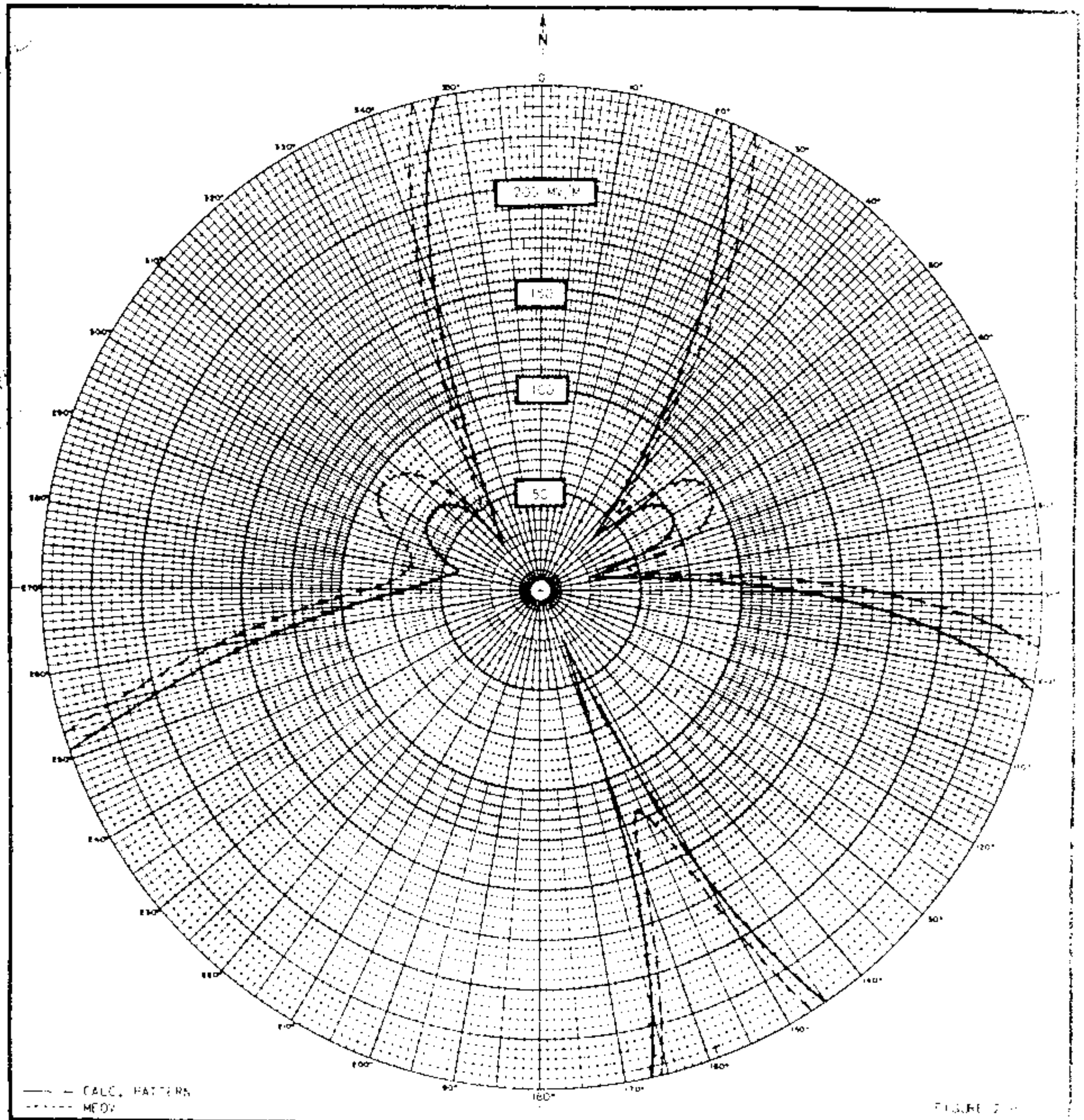
KROD

PROPOSED NIGHT NULLS
(10-25-61ct)

Station KROD
El Paso, Texas

5kw,DA-N,U
600 kc

application accepted by FCC for CP to replace expired CP BP-15109-
9-27-63
granted CP to replace expired permit to make changes in DA-N



EXPANDED VIEW

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

FCC File No. BP-15109
Accepted 10-10-61

Station KROD
El Paso, Texas

600 kc

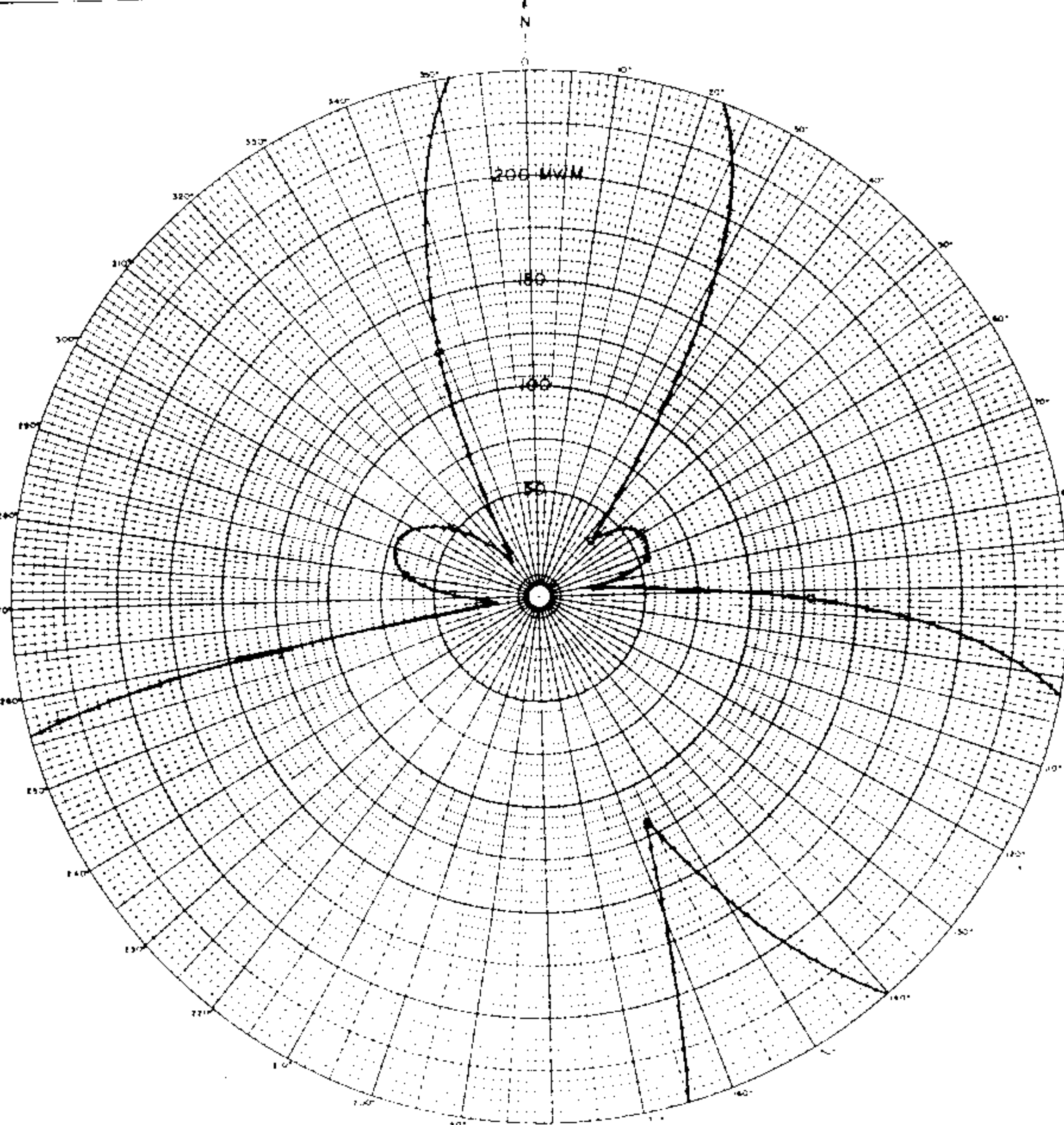
KROD

Measured Night Nulls
(11-29-63ct)

Station KROD
El Paso, Texas

5kw,DA-N,U
600 kc

2-13-64
granted
license for
change in DA-N



o MEASURED VALUES

FIGURE 1 - B

EXPANDED VIEW

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

Fcc File No. BL-10,313
Accepted 11-5-63

Station KROD
El Paso, Texas

600 kc

KROD

MEASURED NON-DA
(2-26-60g)

Station KROD
El Paso, Texas

5kw, DA-N,U
600 KC

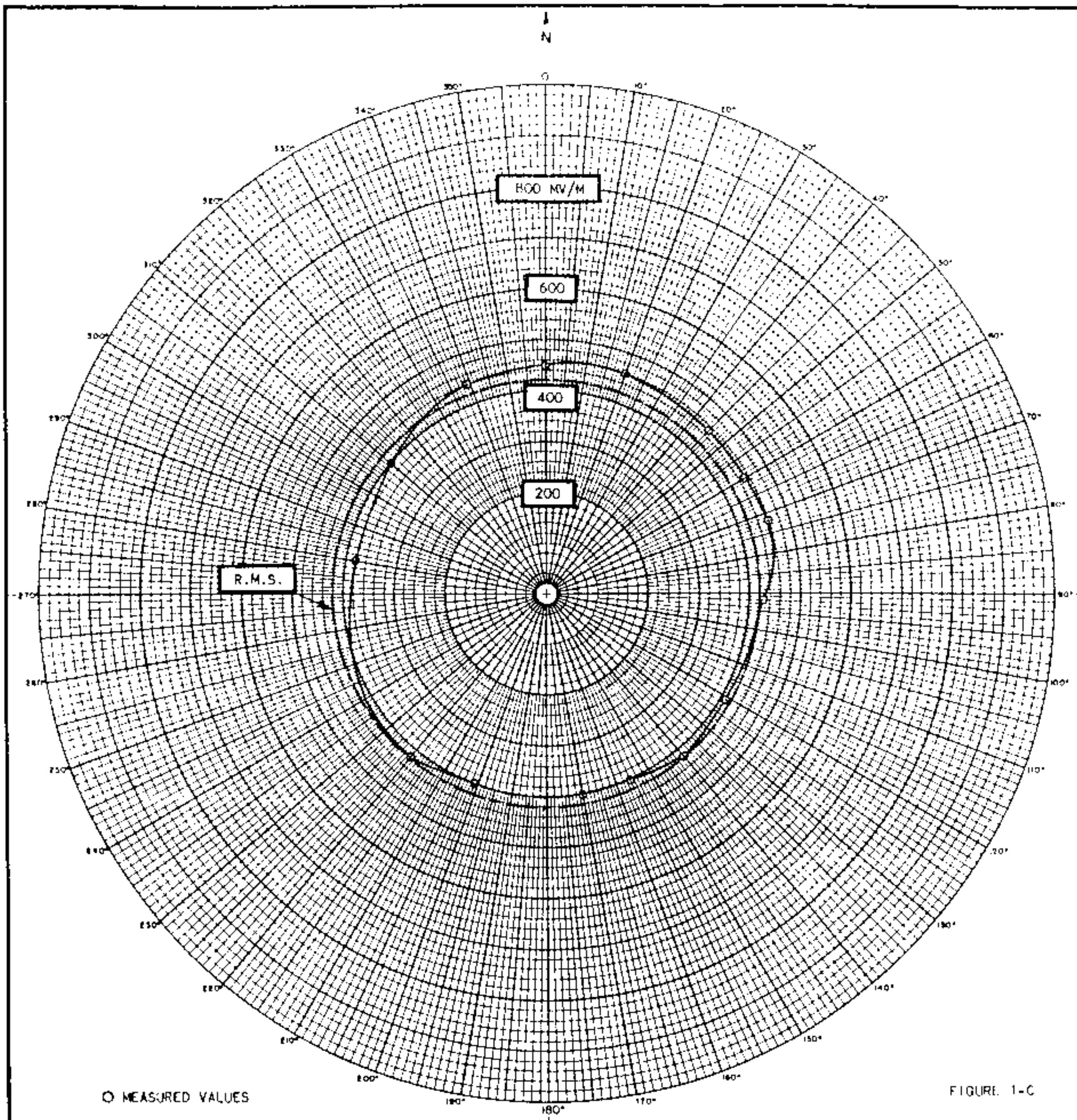


FIGURE 1-C

HORIZONTAL RADIATION PATTERN

NON - DIRECTIONAL SURVEY

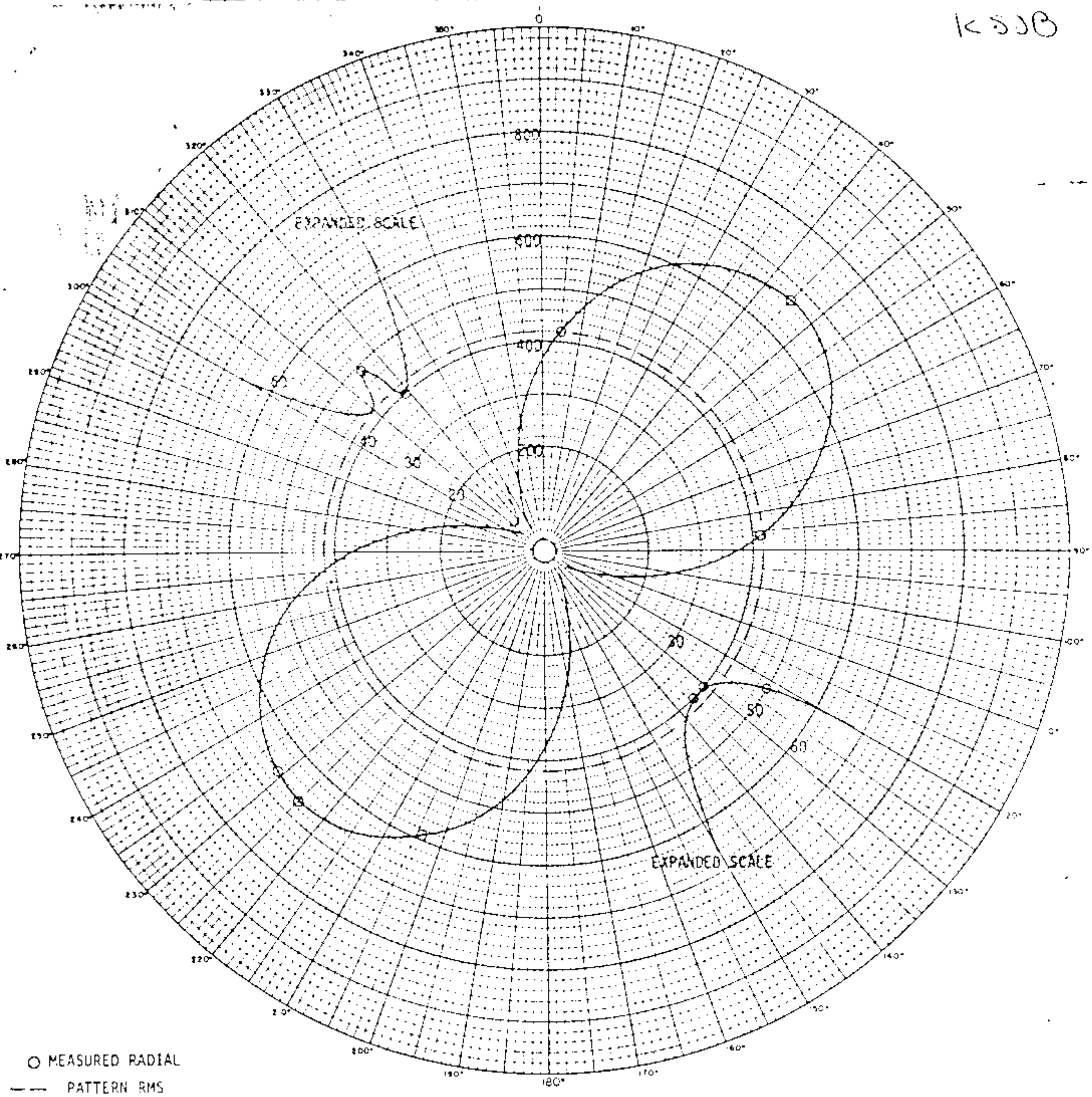
APPLICANT	K R O D
LOCATION	EL PASO, TEXAS
FREQUENCY	600 KC/S
POWER	5 KW, U (DA-N)
LATITUDE	31 DEG 54 MIN 54 SEC
LONGITUDE	106 DEG 25 MIN 50 SEC
WHEN USED	DAYTIME
R M S FIELD	420 MV/M
DATE	JANUARY 1960

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

Junked for change in antenna & xmtr location 9-22-63

FCC File No. BL-7820
Accepted 2-11-60

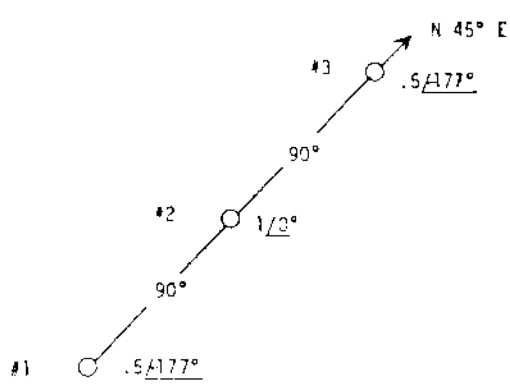
KSJB



○ MEASURED RADIAL

— — PATTERN RMS

MEASURED HORIZONTAL RADIATION PATTERN B2-9192



G's = 300' = 65.8°

APPLICANT	KSJB
LOCATION	JAMESTOWN, NORTH DAKOTA
FREQUENCY	600 KC/S
POWER	5 KW
LATITUDE	46 DEG 49 MIN 3 SEC
LONGITUDE	98 DEG 42 MIN 34 SEC
WHEN USED	DAY AND NIGHT
RMS FIELD	420 mv/m
DATE	DECEMBER, 1975

RALPH E. EVANS ASSOCIATES

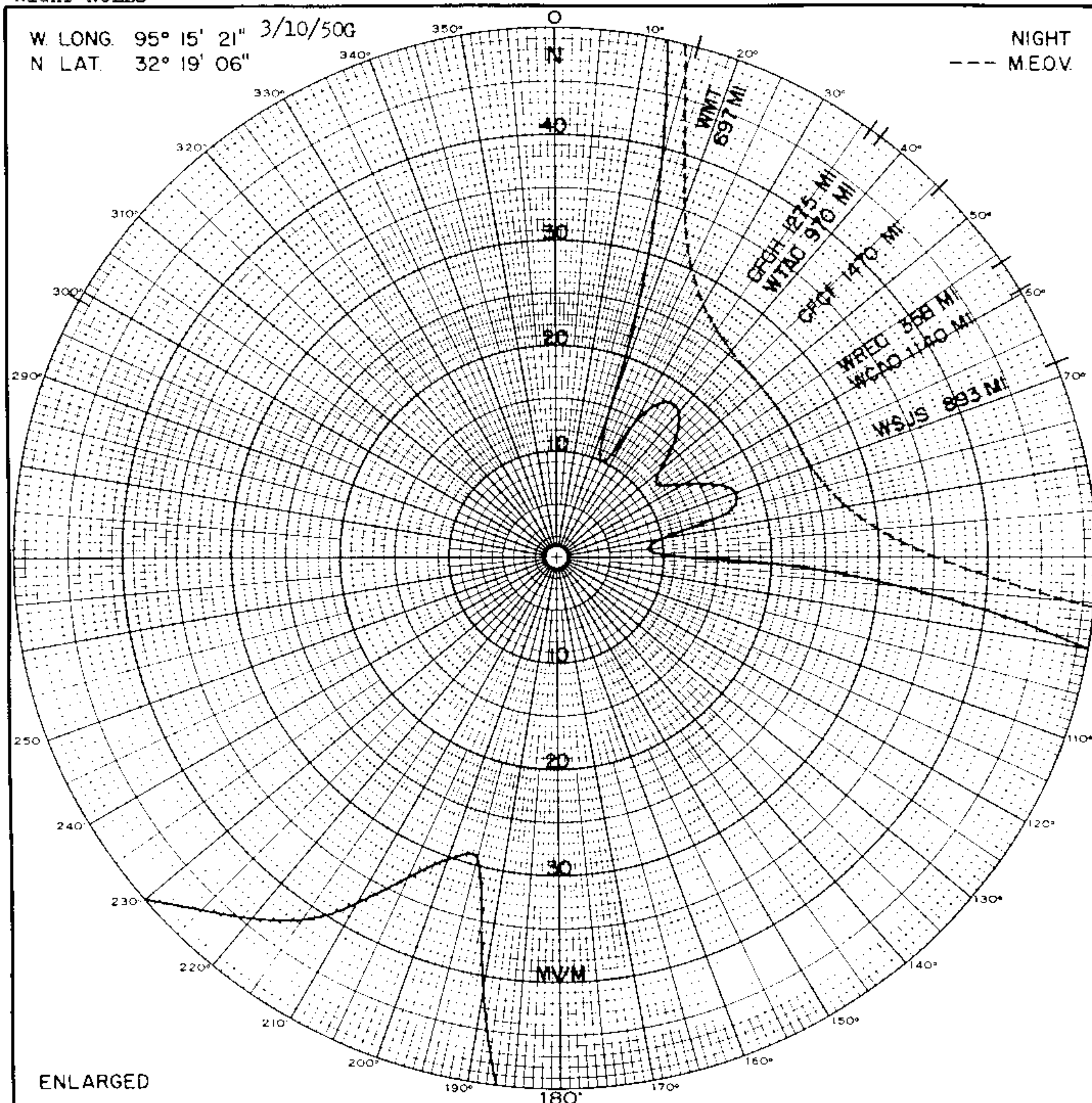
Consulting Radio Engineers

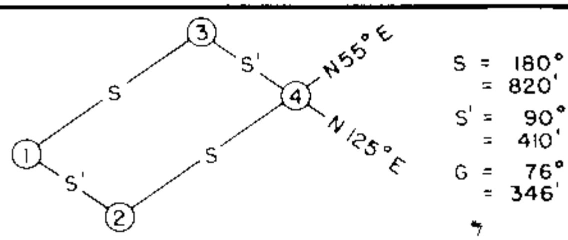
3500 North Sherman Boulevard

Milwaukee, Wisconsin 53216

Telephone 442-4210 (Area Code 414)

PROPOSED KTBB, TYLER, TEXAS 1kw, 500w-LS, DAN 600 kc
NIGHT NULLS





RADIO STATION KTBB
TYLER, TEXAS
PROPOSED 600 KC, 1 KW, DA-N

TOWER	1	2	3	4
FIELD	1.00	0.80	0.90	0.72
PHASE	0°	+150°	+25°	+175°

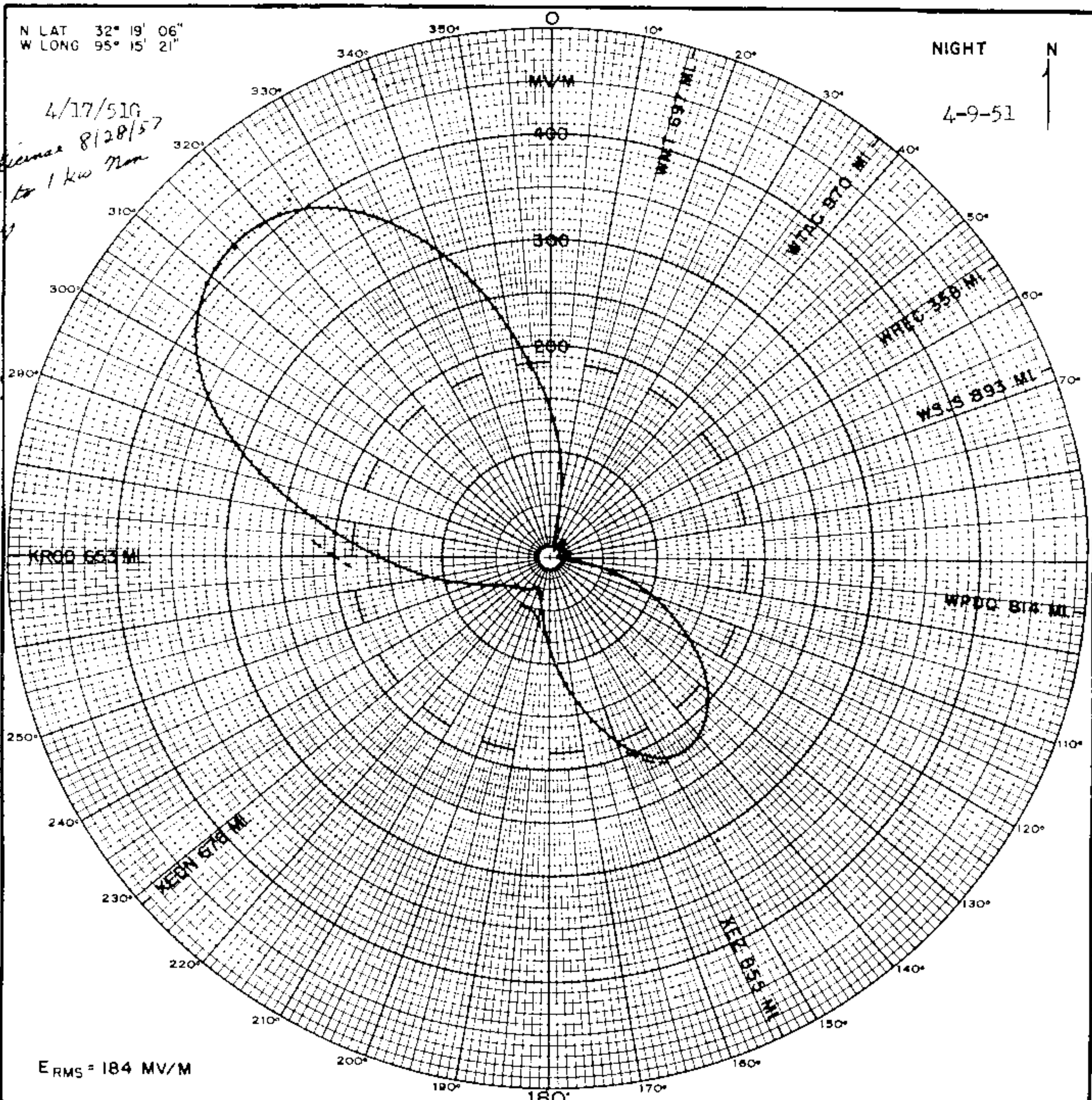
A. EARL CULLUM, JR.
CONSULTING RADIO ENGINEERS
500218.1 FIGURE 9B

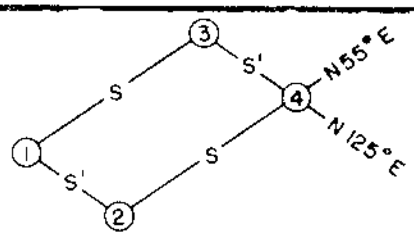
AMENDMENT RECD 2-23-50 ACC 3-3-50 BP-6873 KTBB, Tyler, Texas 600 kc

MEASURED NIGHT KTBB, TYLER, TEXAS 500w, 1kw-LS, DA-N 600 kc

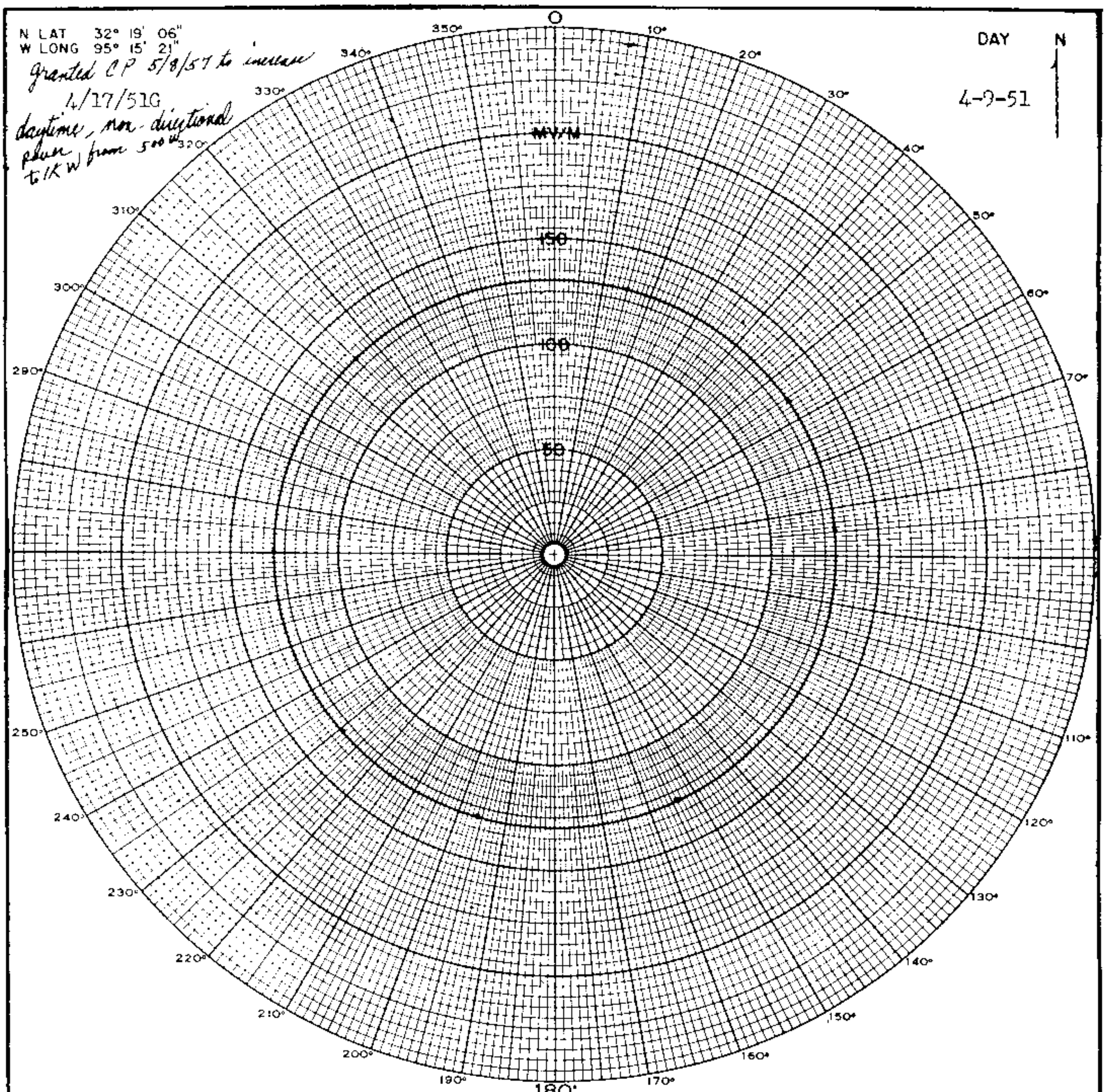
4/17/51G

Granted license 8/28/57 from .5 to 1 kw Nom OH day



PATTERN BASED ON FIELD INTENSITY MEASUREMENTS	RADIO STATION KTBB TYLER, TEXAS 600 KC 1 KW 0.5 KW-LS DA-N
	A. EARL CULLUM, JR. CONSULTING RADIO ENGINEERS 510402 FIGURE 2B

MEASURED KTBB, TYLER, TEXAS 500w, 1kw-LS, DA-N 600 kc
DAY (NON-DA)



PATTERN BASED ON

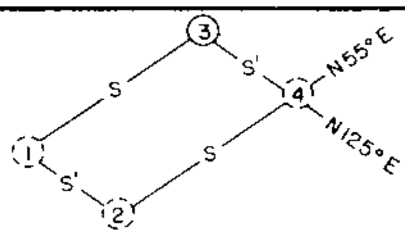
FIELD INTENSITY

MEASUREMENTS

RADIO STATION KTBB

TYLER, TEXAS

600 KC 1 KW 0.5 KW-LS DA-N



S = 180° = 820'
S' = 90° = 410'
G = 76° = 346'

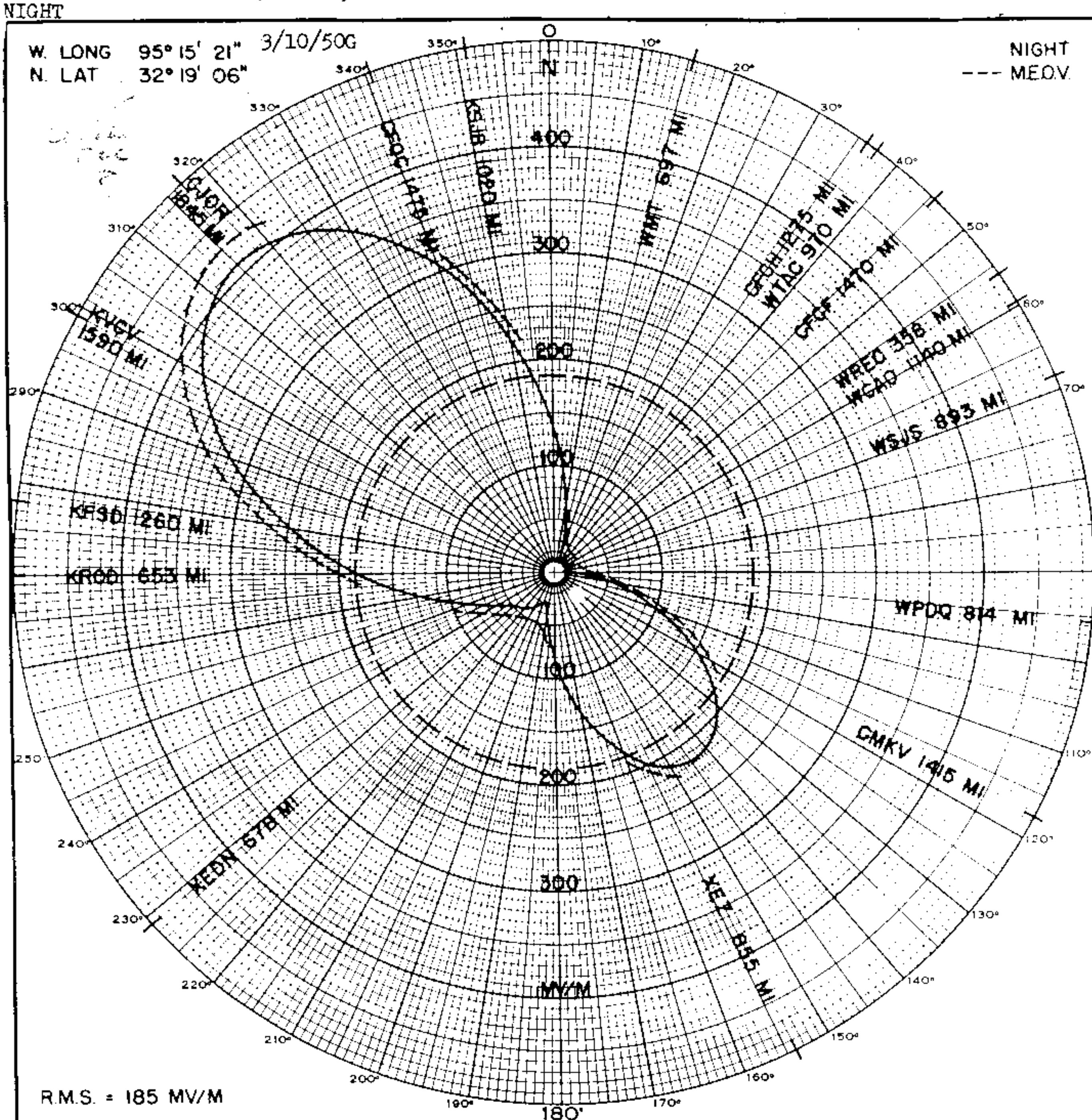
A. EARL CULLUM, JR.

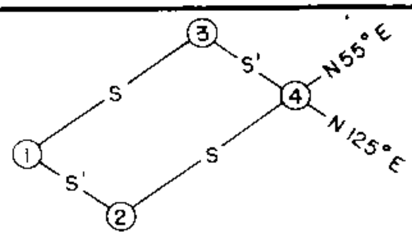
CONSULTING RADIO ENGINEERS

510402 FIGURE 2A

KTBB

PROPOSED NIGHT | KTBB, TYLER, TEXAS | 1kw, 500w-LS, DAN | 600 kc





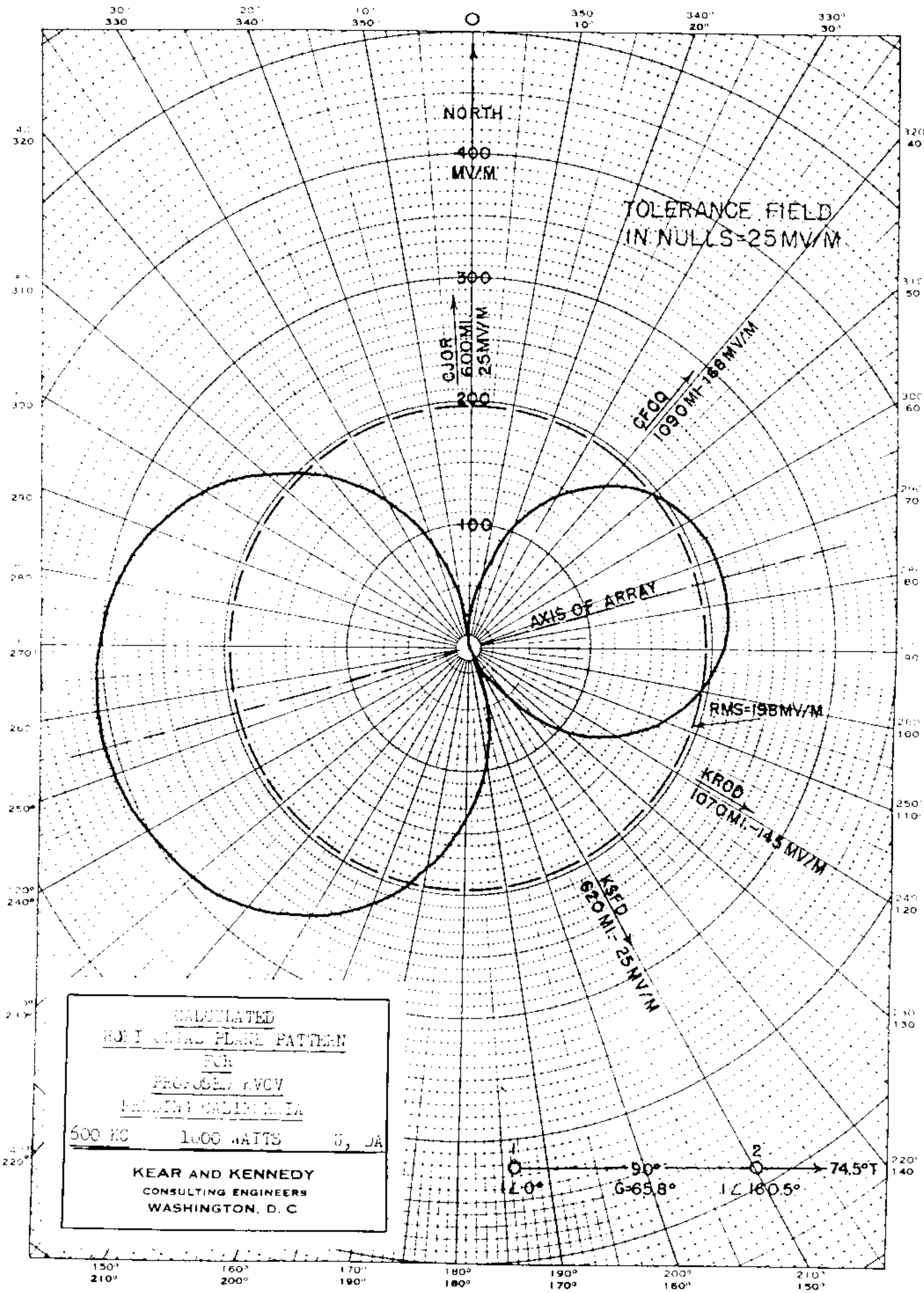
S = 180° = 820'
S' = 90° = 410'
G = 76° = 346'

RADIO STATION KTBB
TYLER, TEXAS
PROPOSED 600 KC, 1 KW, DA-N

TOWER	1	2	3	4
FIELD	1.00	0.80	0.90	0.72
PHASE	0°	+150°	+25°	+175°

A. EARL CULLUM, JR.
CONSULTING RADIO ENGINEERS
500218.1 FIGURE 9A

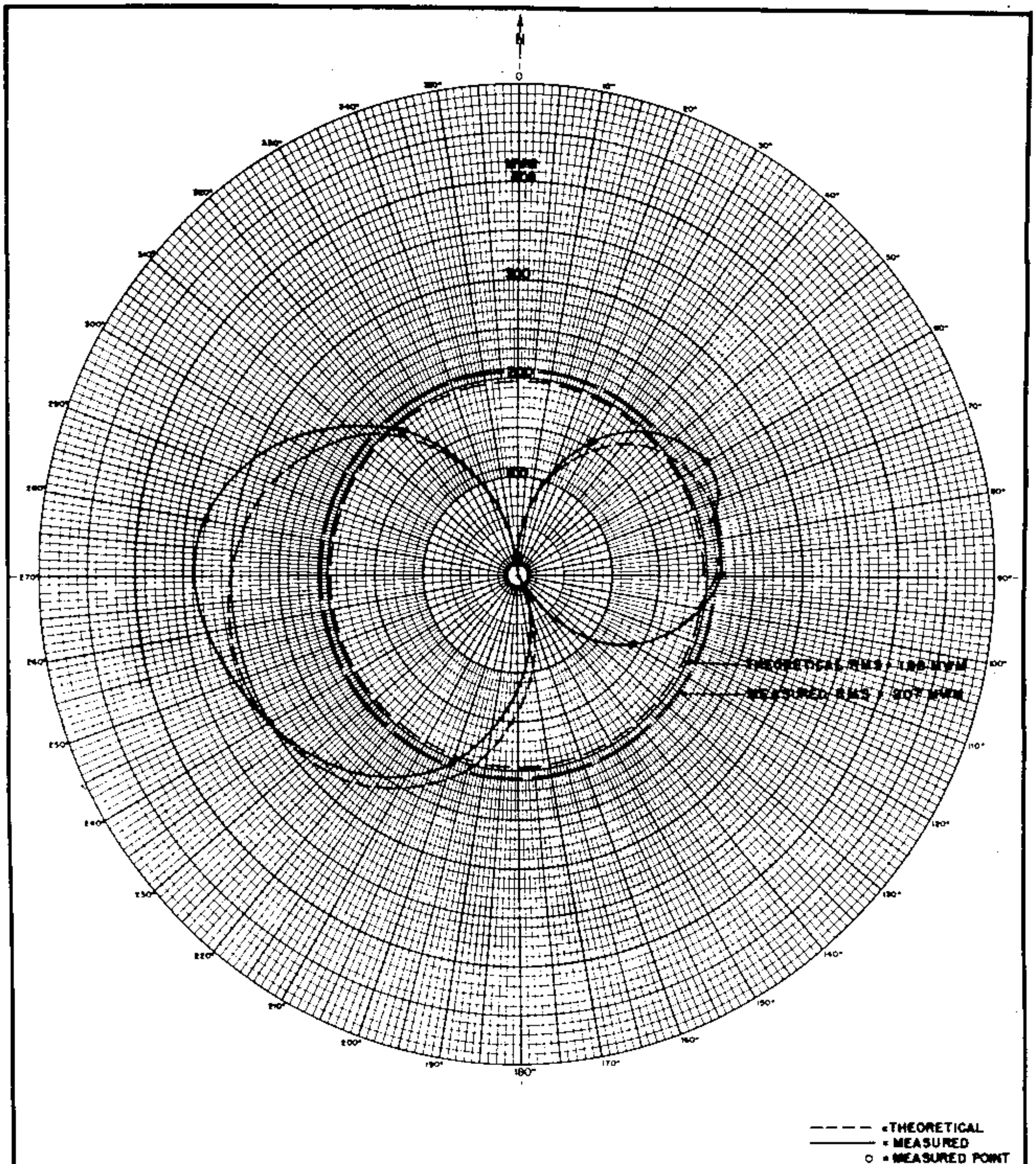
AMENDMENT RECD 2-23-50 ACC 3-3-50 BP-6873 | KTBB, TYLER, TEXAS 600 kc

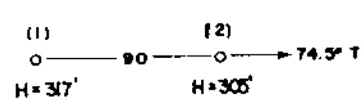

NORTH
400 MV/M
300
200
100
TOLERANCE FIELD
IN NULLS=25MV/M
CJOR 600MI 25MV/M
CFOQ 1090MI-168MV/M
AXIS OF ARRAY
RMS=198MV/M
KROD 1070MI-145MV/M
KSFD 620MI-25MV/M
1 1∠0°
90°
G=65.8°
2 1∠160.5°
74.5°T
KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D. C

KVCV
600

JUN 3 1948

License 5-28-48





LATITUDE 40° 37' 13"
LONGITUDE 122° 19' 55.5"

ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG
1	—	—	—	1	180	69.5
2	74.5	90°	160.5	1	180	67.0

MEASURED
HORIZONTAL PLANE PATTERN
FOR
STATION KVCV
REDDING, CALIFORNIA
600 KC 1 KW U, DA-1

KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D.C.

480520

License 5-28-48

MEASURED
NIGHT&DAY

KVCV, REDDING, CAL.

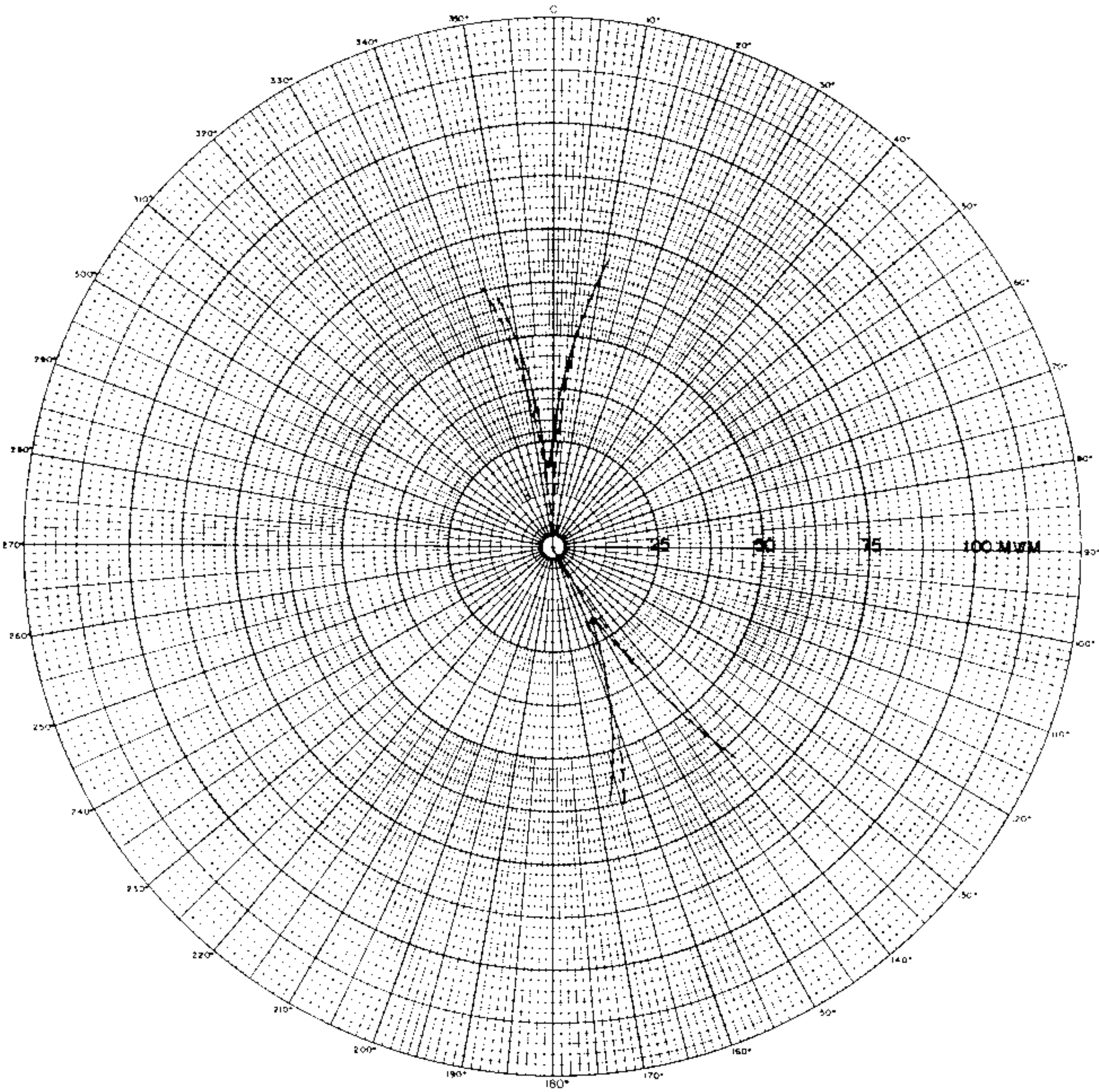
1kw,DA1

600 kc

KVCV

2-28-49G

License 5-28-48



------ = THEORETICAL
———— = MEASURED
O = MEASURED POINTS

LATITUDE
LONGITUDE
SITE: 40° 37' 13" N
122° 19' 55.5" W

ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG

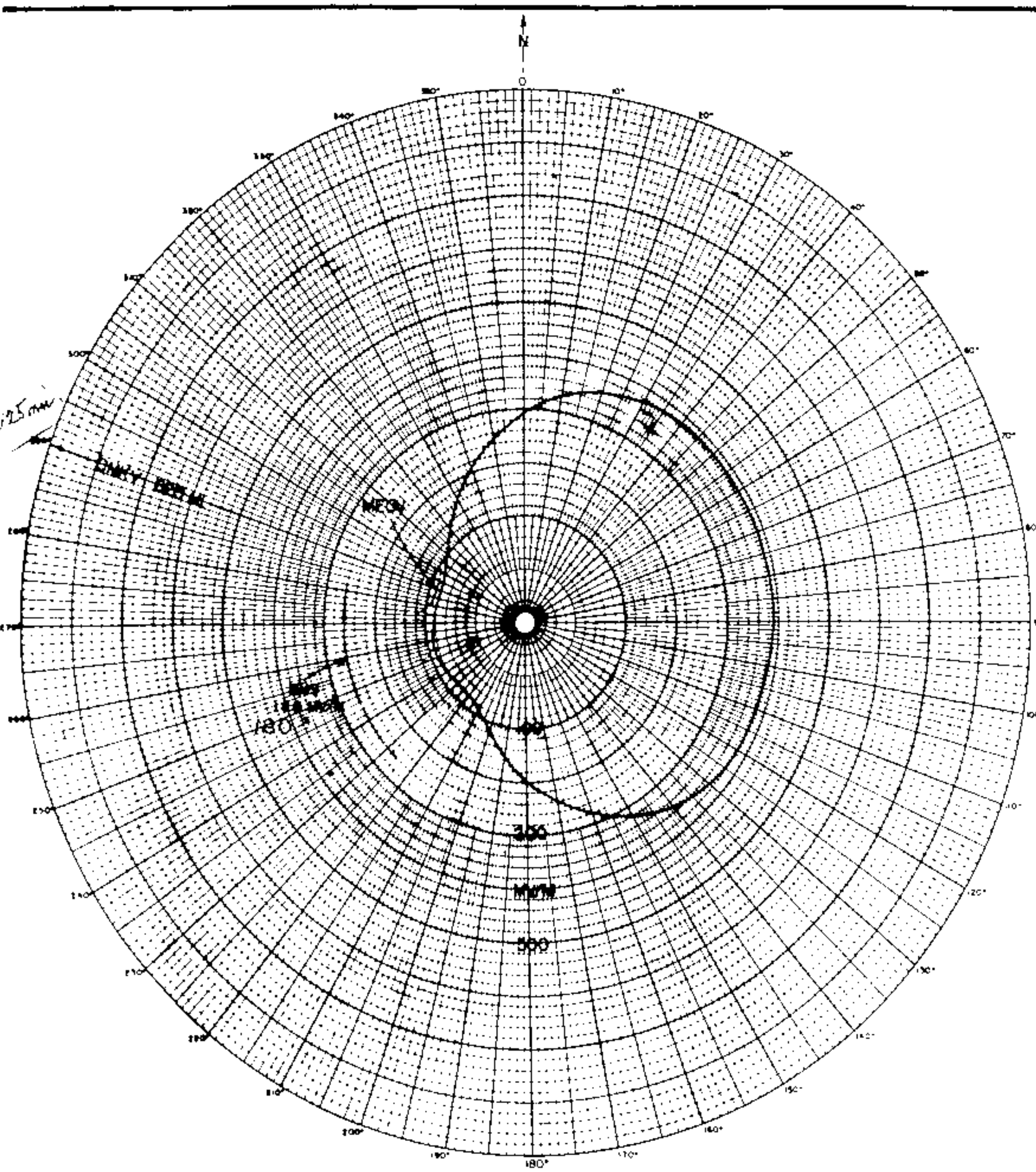
EXPANDED SCALE
MEASURED
HORIZONTAL PLANE PATTERN
FOR
STATION KVCV
REDDING, CALIFORNIA
600 KC 1 KW U,DA-1

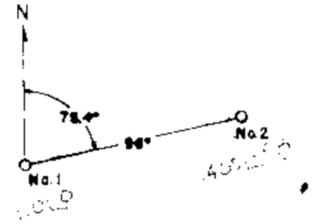
KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D. C.

480526

WAEL

PROPOSED MAYAGUEZ, PUERTO RICO 1kw, U, DA-1 600 kc
NIGHT DAY (6/25/53G)





ANTENNA PARAMETERS

ANTENNA	ELEC. HEIGHT	BEARING	SPACING	PHASING	FIELD RATIO
1	85°	REF.	REF.	0°	1.0
2	60°	78.4°	96°	-98°	0.465

LAT. ~~18° 11' 47"~~ NORTH
LONG. ~~67° 07' 42"~~ WEST

WAEL
MAYAGUEZ, PUERTO RICO
600KC. 1 KW-U-DAH

GILLETT & BERGQUIST
CONSULTING RADIO ENGINEERS
NATIONAL PRESS BUILDING
WASHINGTON 4, D.C.

PATTERN NO 520820
SUPERSEDES
APP. 2

FCC File No. BP-8883 Accepted 6/16/53 WAEL, MAYAGUEZ, PUERTO RICO 600 kc

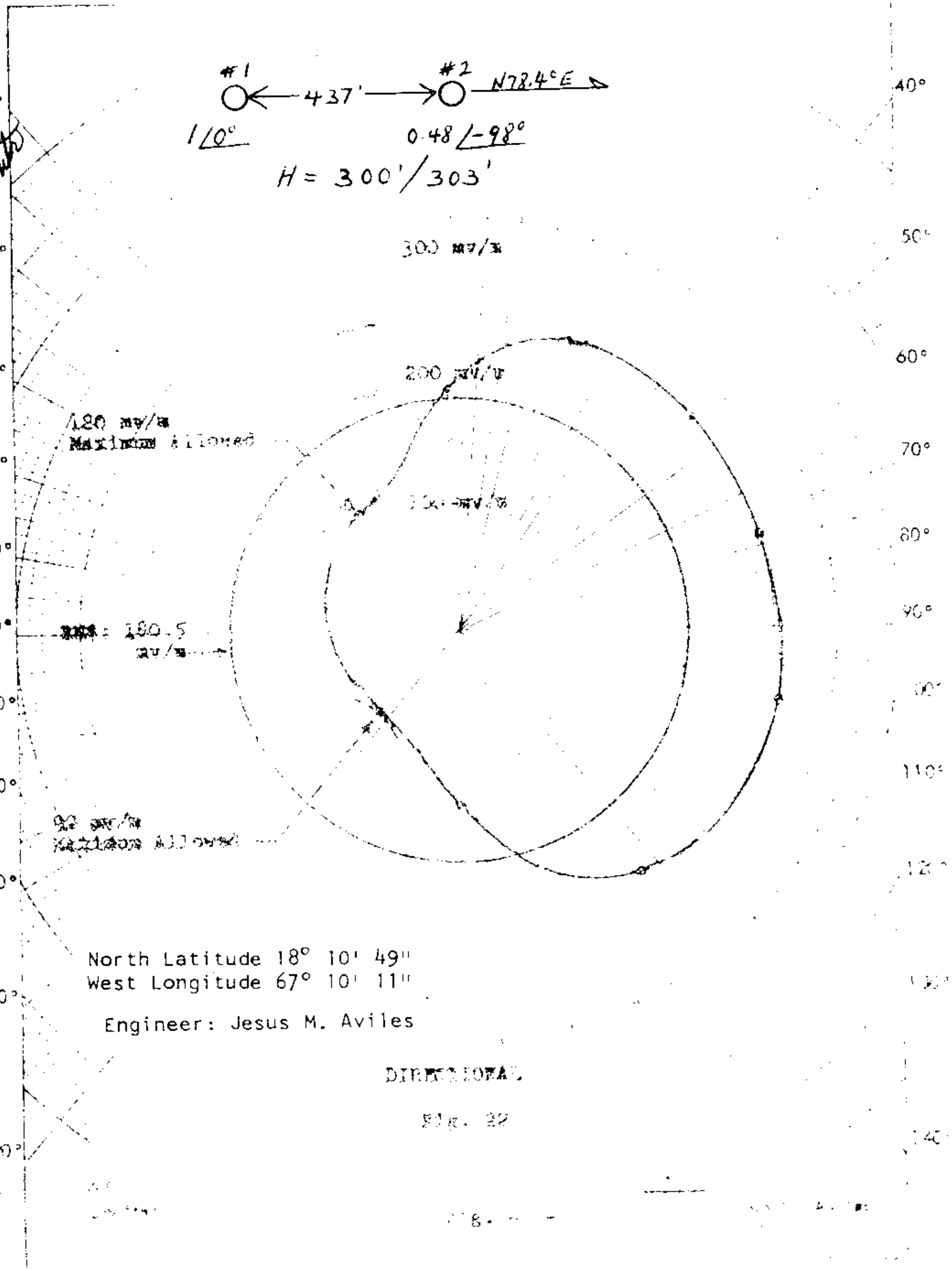
18° 10' 49"
67° 10' 11"

MEASURED DAY & NIGHT
(9-20-61ct)

Station WAEL
Mayaguez, Puerto Rico

WAEL
1kw, DA-1, U
600 kc

5. 20 63
unted L for
range in 9 units
ocations .



North Latitude 18° 10' 49"
West Longitude 67° 10' 11"

Engineer: Jesus M. Aviles

DIRECTIONAL [illegible]

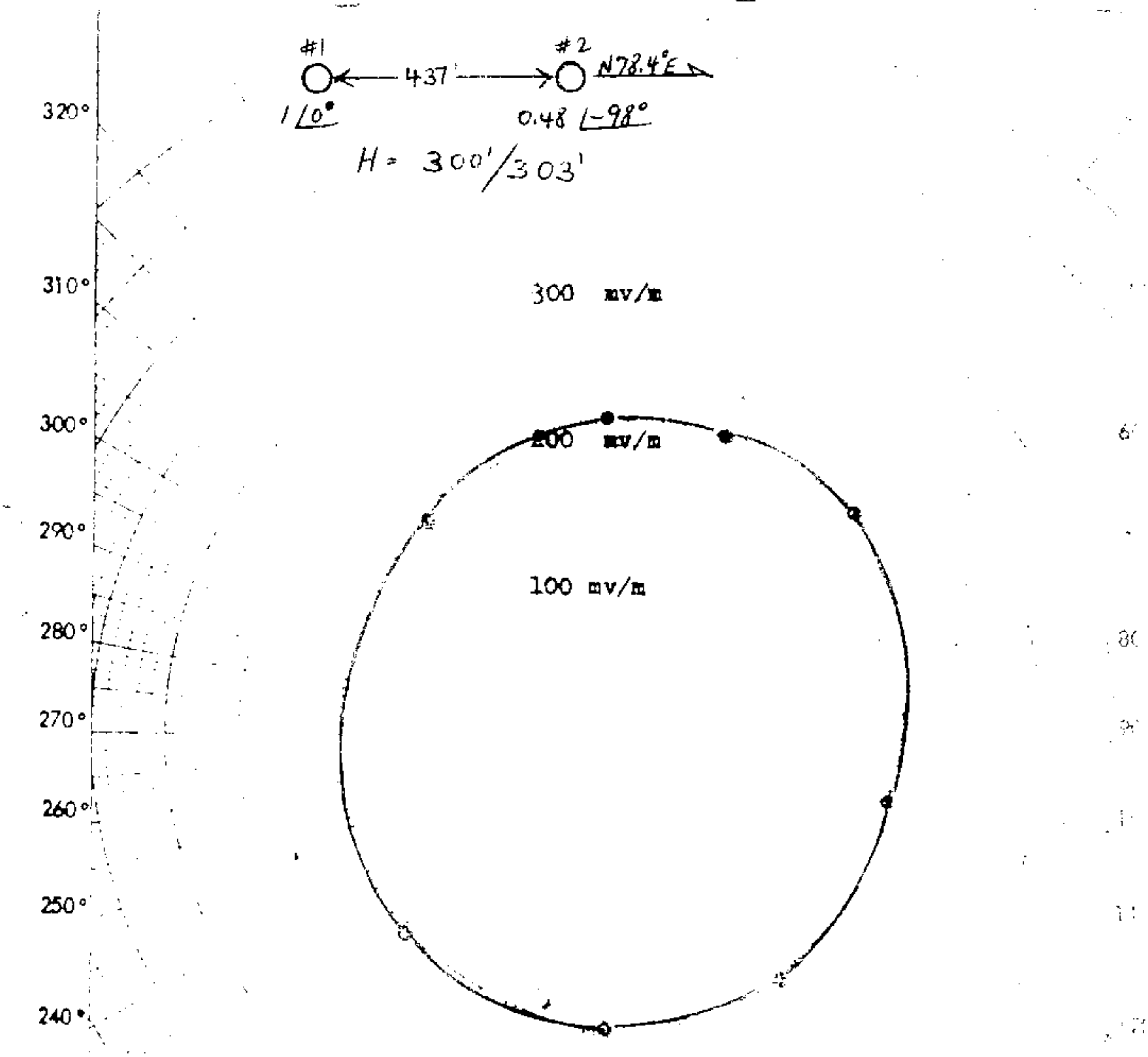
Fig. 22

FCC File No. BL-8620
Accepted 8-23-61

WAEL.
1kw,DA-1,U
600 kc

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

Station WAEL
Mayaguez, Puerto Rico



North Latitude 18° 10' 49"
West Longitute 67° 10' 11"

Engineer: Jesus M. Aviles

NON-DIRECTIONAL

Fig. 23

FCC File No.BL-8620
Accepted 8-23-61

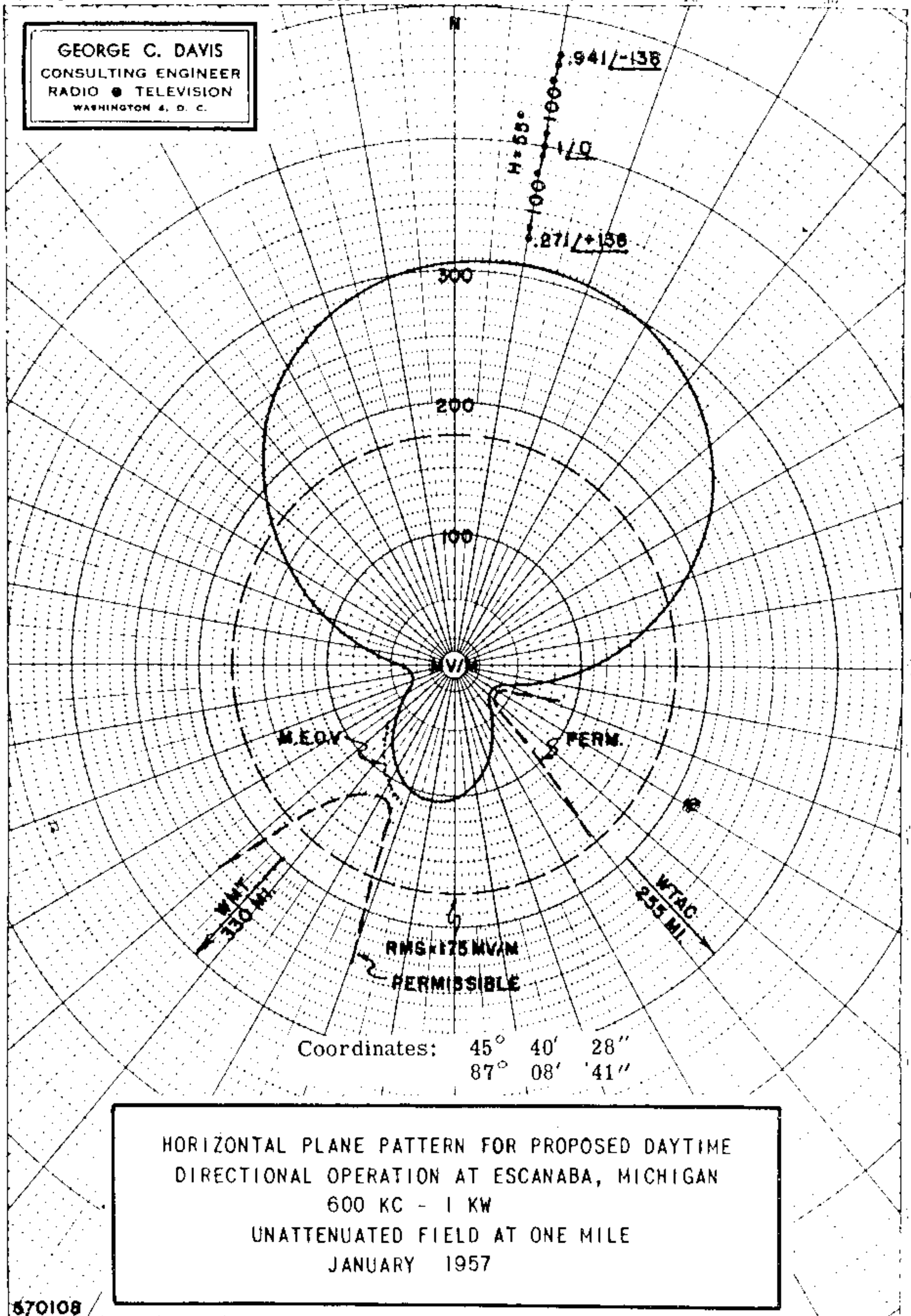
PROPOSED DAY
(4/24/57g)

Frank J. Russell, Jr.
Escanaba, Michigan

1kw, DA-D,D
600 KC

WBDN

Granted CP 1/17/58 for new station



HORIZONTAL PLANE PATTERN FOR PROPOSED DAYTIME
DIRECTIONAL OPERATION AT ESCANABA, MICHIGAN
600 KC - 1 KW
UNATTENUATED FIELD AT ONE MILE
JANUARY 1957

FCC File No. BP-11,194
Accepted 4/12/57

Frank J. Russell, Jr.
Escanaba, Michigan

600 KC

WBDN

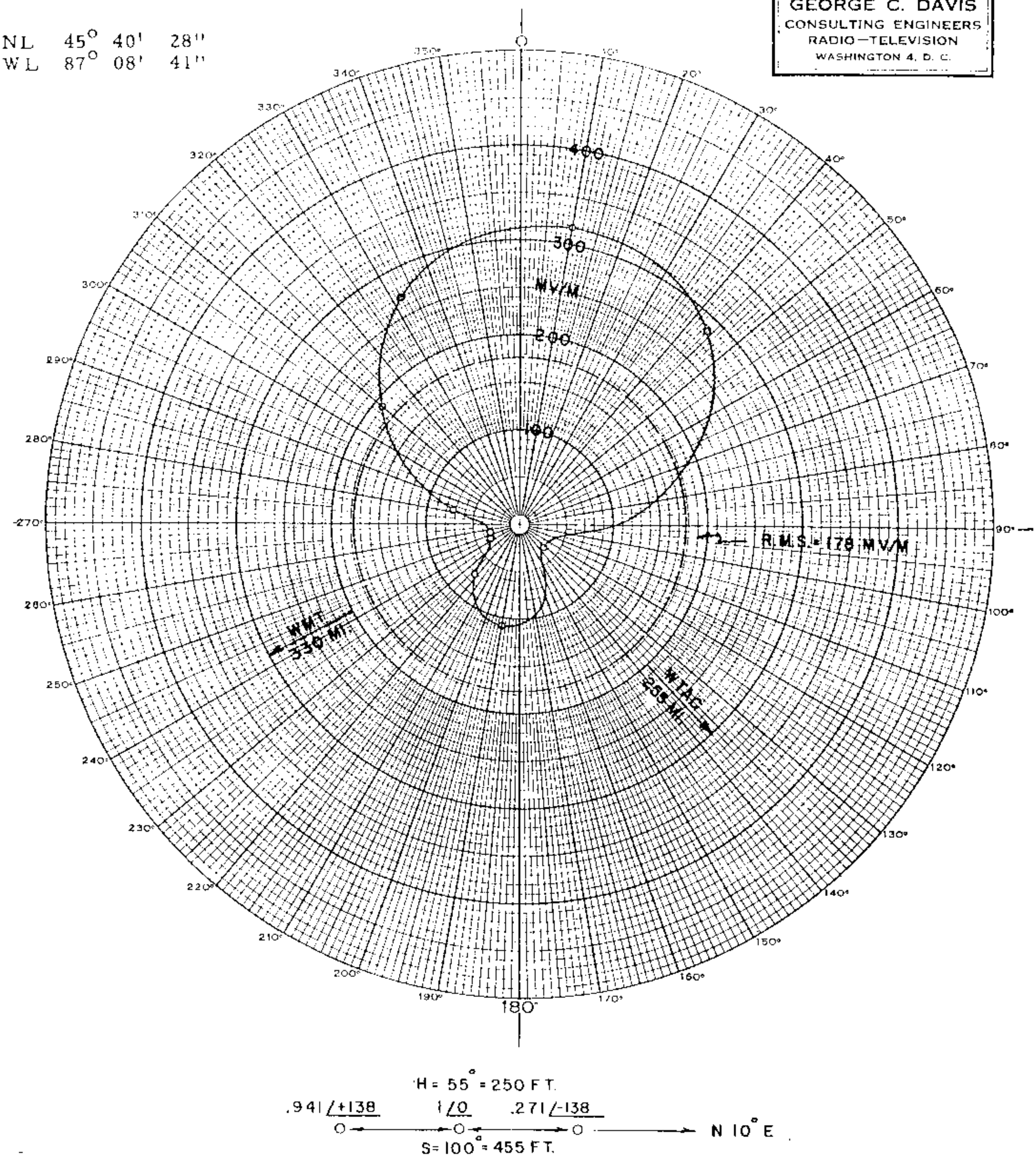
MEASURED DAY
(1-8-59g)

Station WLST
Escanaba, Michigan

1kw, DA-D, D
600 KC

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

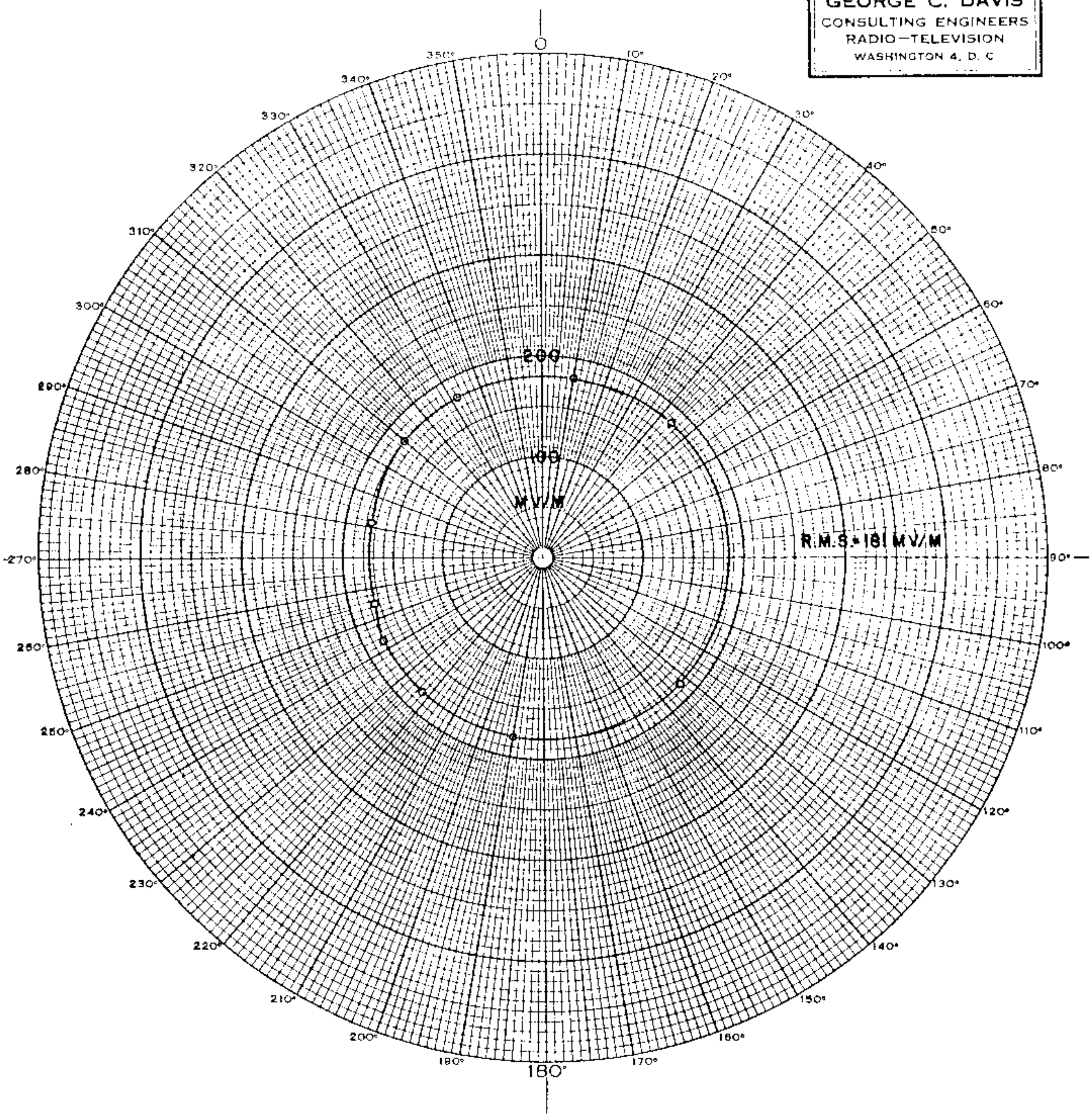
NL 45° 40' 28"
WL 87° 08' 41"



MEASURED
HORIZONTAL PLANE PATTERN
FOR WLST, ESCANABA, MICHIGAN
600 KC, 1000 W. DA-D
NOVEMBER, 1958

WBDN

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



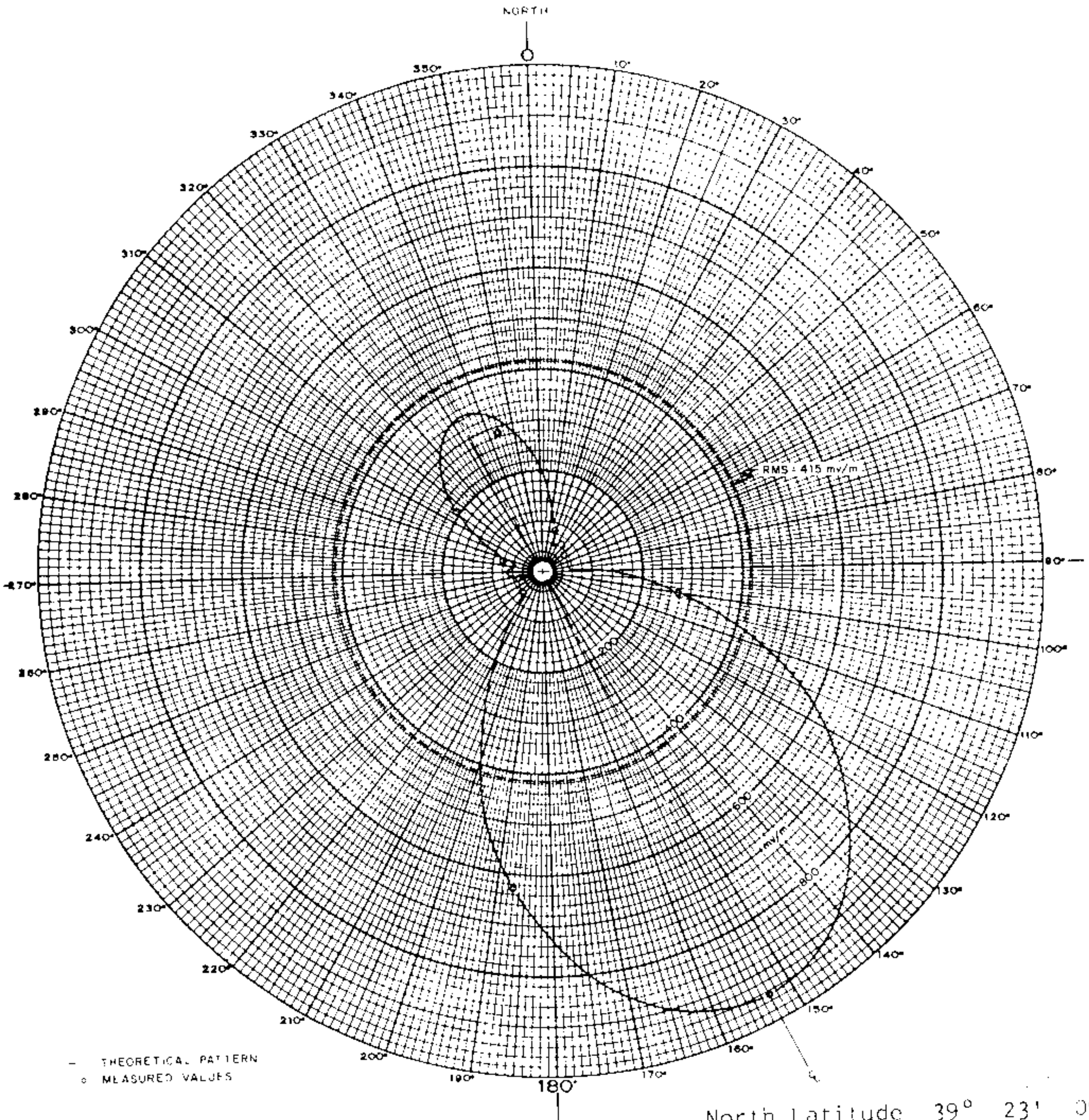
MEASURED
HORIZONTAL PLANE PATTERN
NON-DIRECTIVE OPERATION
WLST, ESCANABA, MICHIGAN
600 KC - 1000 WATTS
NOVEMBER, 1958

WCAO

Measured Day & Night
(6-28-67ct)

Station WCAO
Baltimore, Maryland

5kw,DA-1,U
600 kc



North Latitude 39° 23' 09"
West Longitude 76° 43' 09"

FIGURE 5
HORIZONTAL RADIATION PATTERN
PLOUGH BROADCASTING COMPANY, INC.
WCAO 5 KW-U, DA-1 600 KC
BALTIMORE, MARYLAND

Prepared by
Lohnes and Culver Washington, D. C.
January, 1967

FCC File No.BZ-6449
Accepted 6-14-67

Station WCAO
Baltimore, Maryland

600 kc

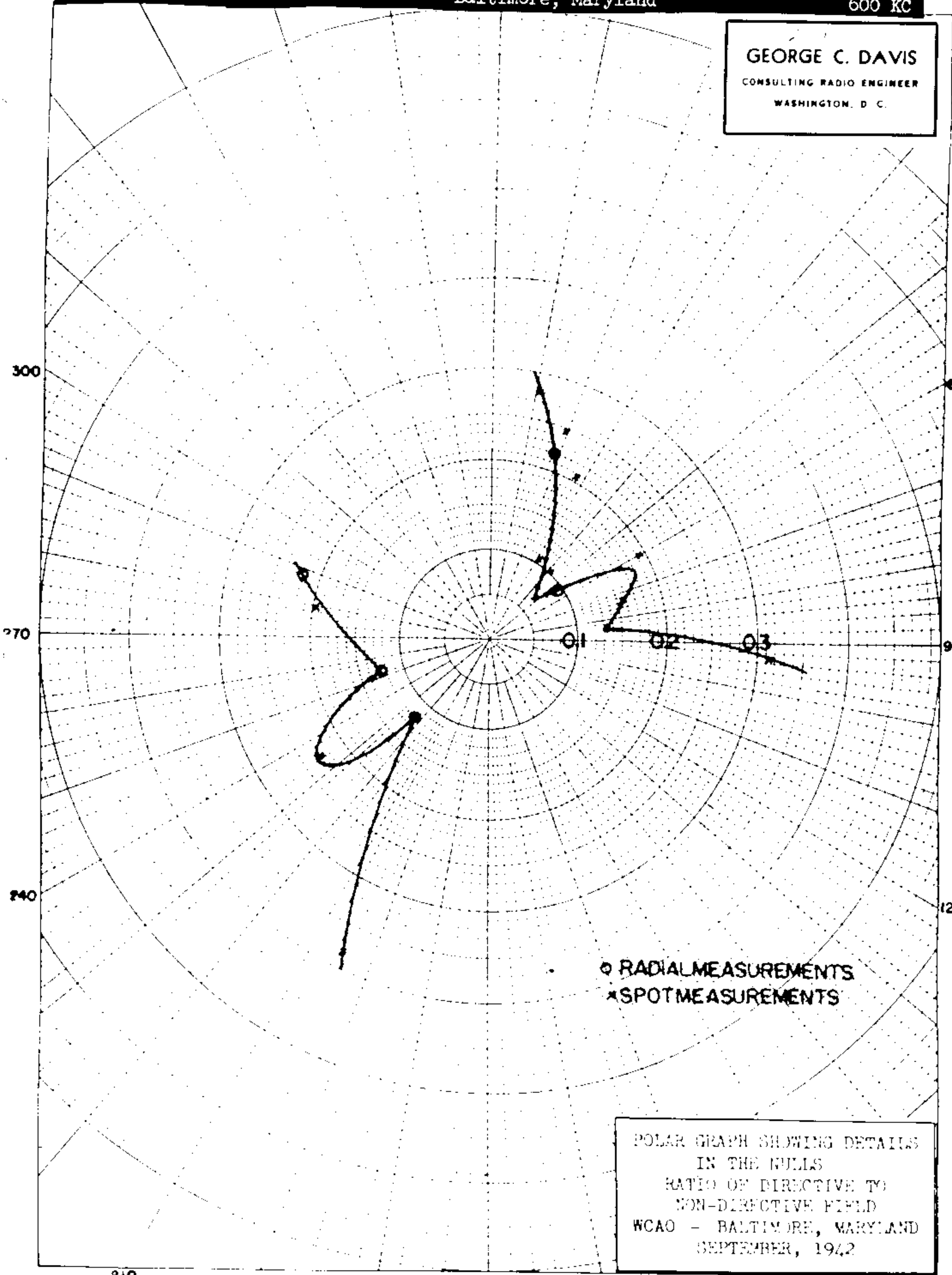
WCAO

MEASURED DAY & NIGHT NULLS

Station WCAO
Baltimore, Maryland

5kw, DA-1,U
600 KC

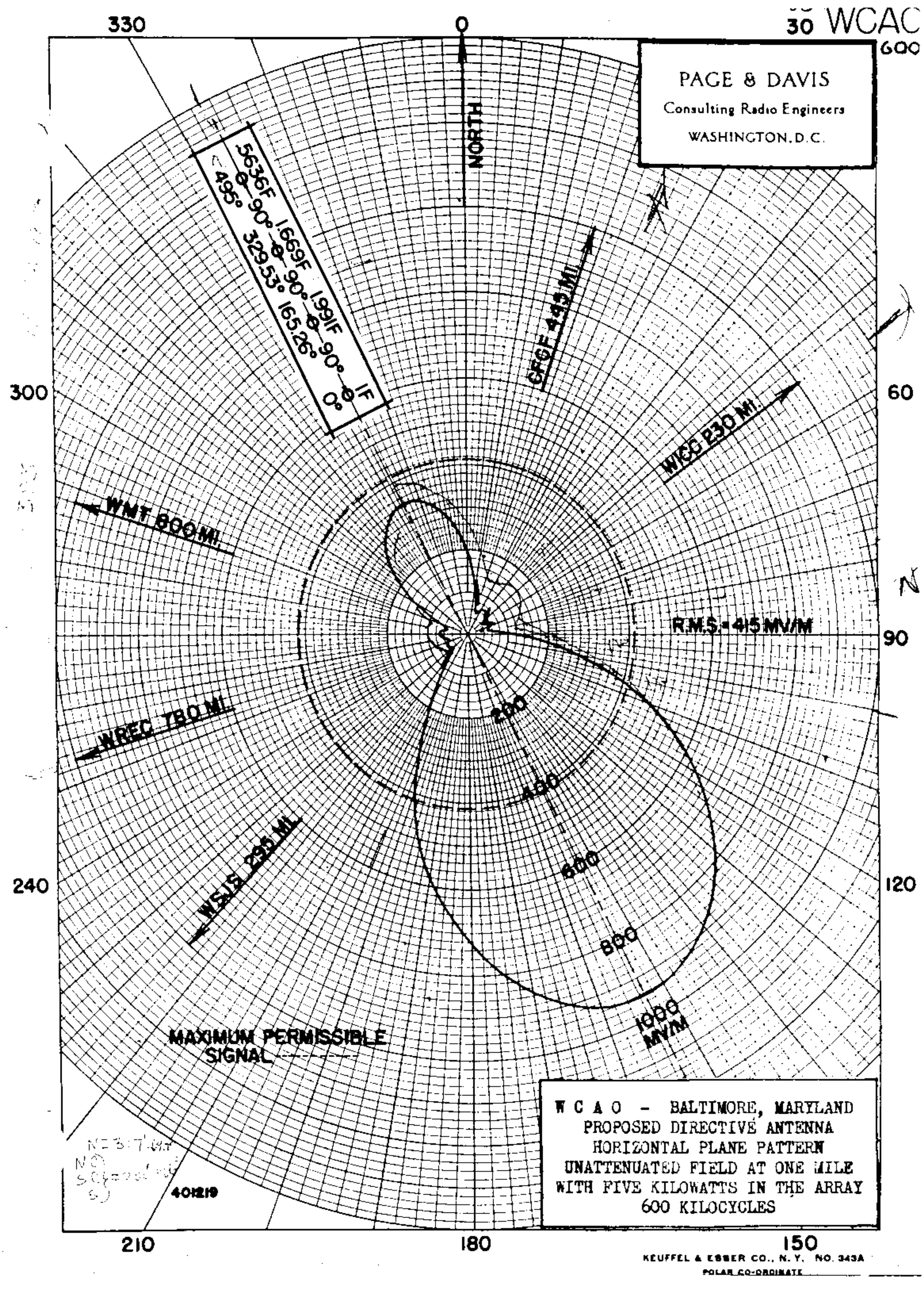
GEORGE C. DAVIS
CONSULTING RADIO ENGINEER
WASHINGTON, D. C.



POLAR GRAPH SHOWING DETAILS
IN THE NULLS
RATIO OF DIRECTIVE TO
NON-DIRECTIVE FIELD
WCAO - BALTIMORE, MARYLAND
SEPTEMBER, 1942

77

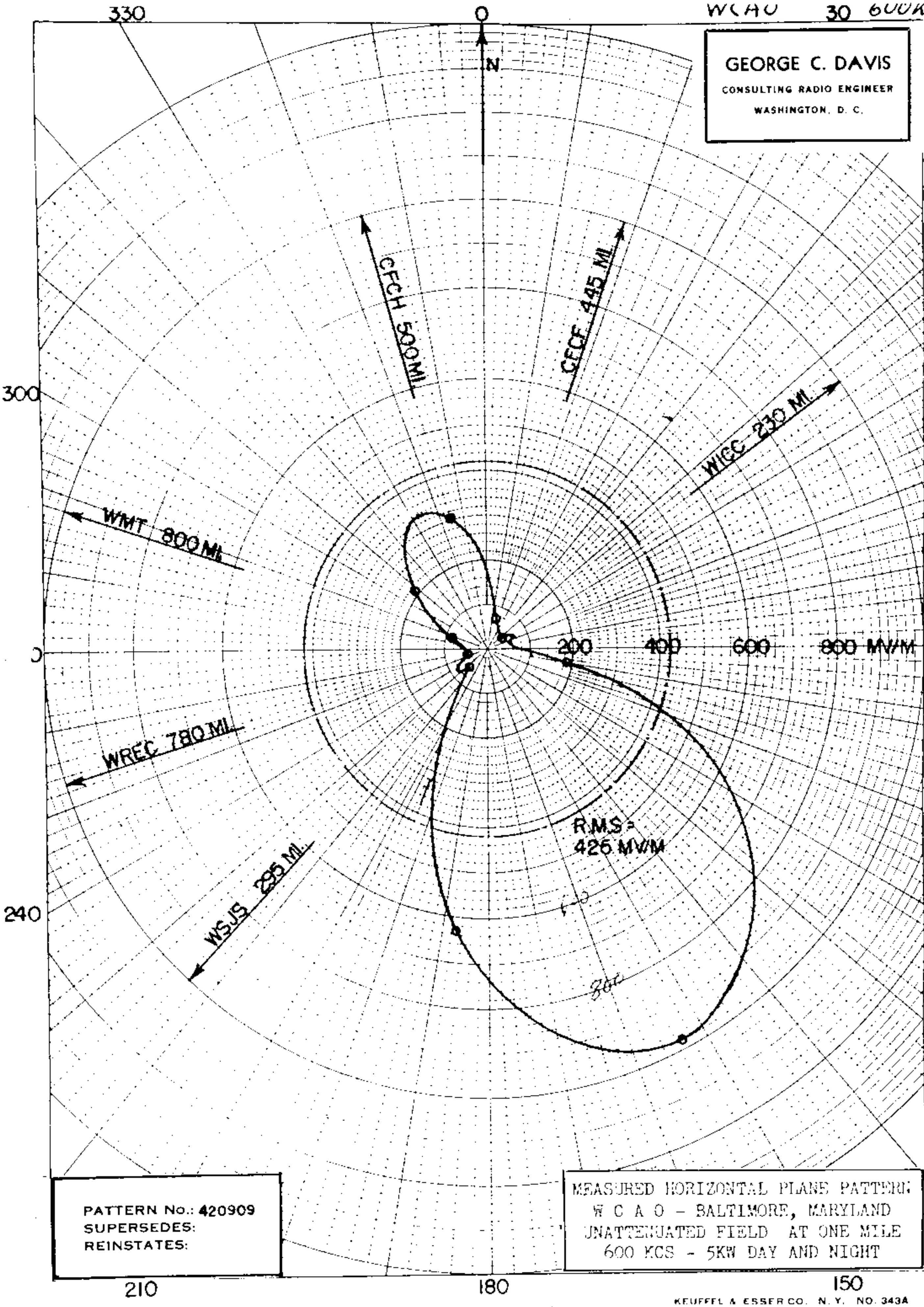
KEUFFEL & ESSER CO. N.Y. NO. 343A



WCAO
PAGE & DAVIS
Consulting Radio Engineers
WASHINGTON, D.C.
NORTH
5636F 1669F 1.991F 1F
-θ-90° -θ-90° -θ-90° -θ-0°
495° 329.53° 165.26° 0°
CFCF 445 MI.
WICC 230 MI.
WNT 800 MI.
R.M.S.=415 MV/M
WREC 780 MI.
WSJS 295 MI.
200
400
600
800
1000 MV/M
MAXIMUM PERMISSIBLE SIGNAL
330
0
30
300
60
90
240
120
210
180
150
600
401219
W C A O - BALTIMORE, MARYLAND
PROPOSED DIRECTIVE ANTENNA
HORIZONTAL PLANE PATTERN
UNATTENUATED FIELD AT ONE MILE
WITH FIVE KILOWATTS IN THE ARRAY
600 KILOCYCLES
KEUFFEL & ESSER CO., N.Y. NO. 343A
POLAR CO-ORDINATE

WCAO 30 600KC

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

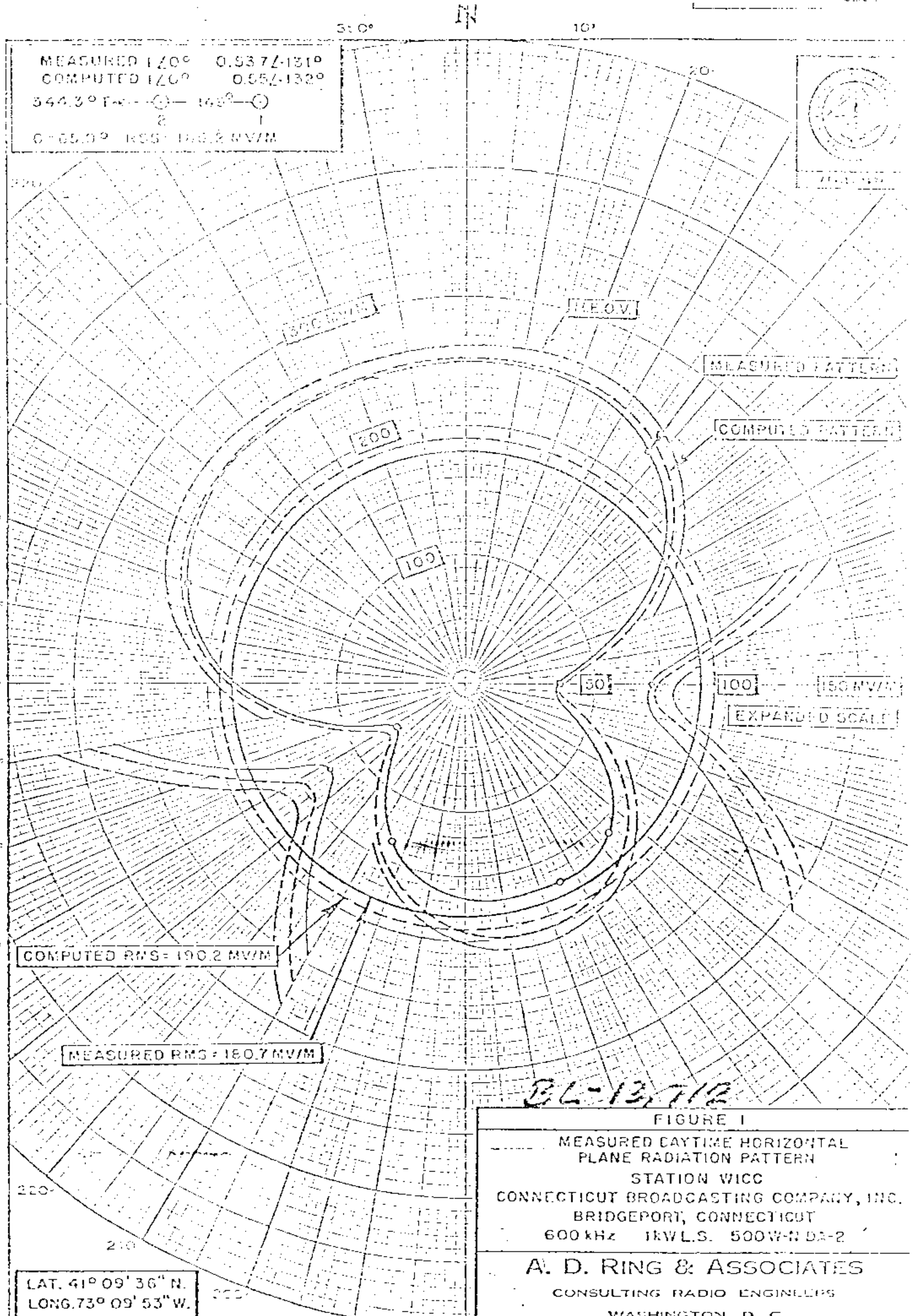


PATTERN No.: 420909
SUPERSEDES:
REINSTATES:

MEASURED HORIZONTAL PLANE PATTERN
W C A O - BALTIMORE, MARYLAND
UNATTENUATED FIELD AT ONE MILE
600 KCS - 5KW DAY AND NIGHT

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

WICC



BL-13,712

FIGURE I

MEASURED DAYTIME HORIZONTAL PLANE RADIATION PATTERN

STATION WICC

CONNECTICUT BROADCASTING COMPANY, INC.

BRIDGEPORT, CONNECTICUT

600 kHz 1kW L.S. 500W-N DA-2

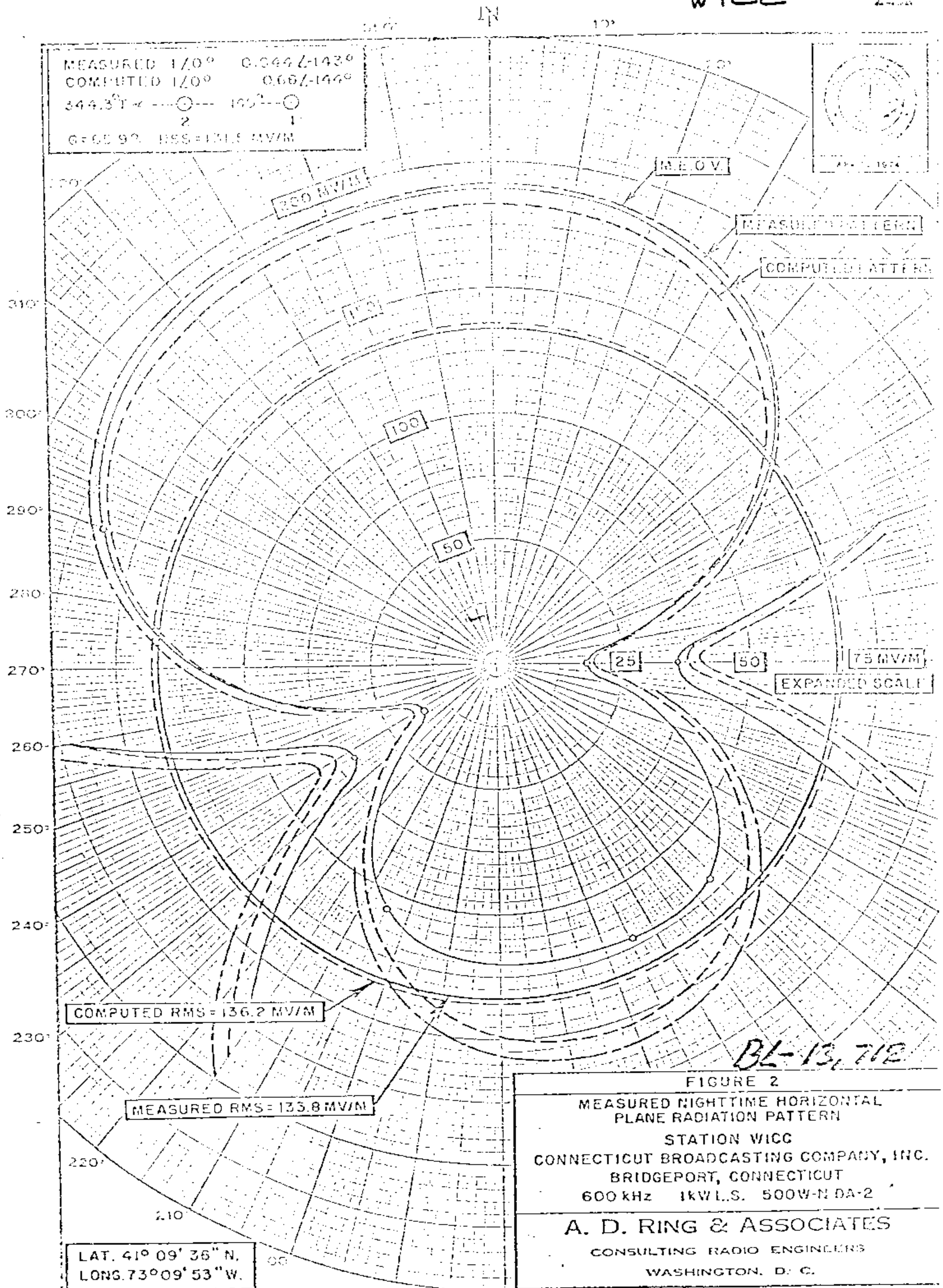
A. D. RING & ASSOCIATES

CONSULTING RADIO ENGINEERS

WASHINGTON, D. C.

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

WICC



BL-13,712

FIGURE 2

MEASURED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

STATION WICC

CONNECTICUT BROADCASTING COMPANY, INC.

BRIDGEPORT, CONNECTICUT

600 kHz 1kW L.S. 500W-N DA-2

A. D. RING & ASSOCIATES

CONSULTING RADIO ENGINEERS

WASHINGTON, D. C.

WMBR

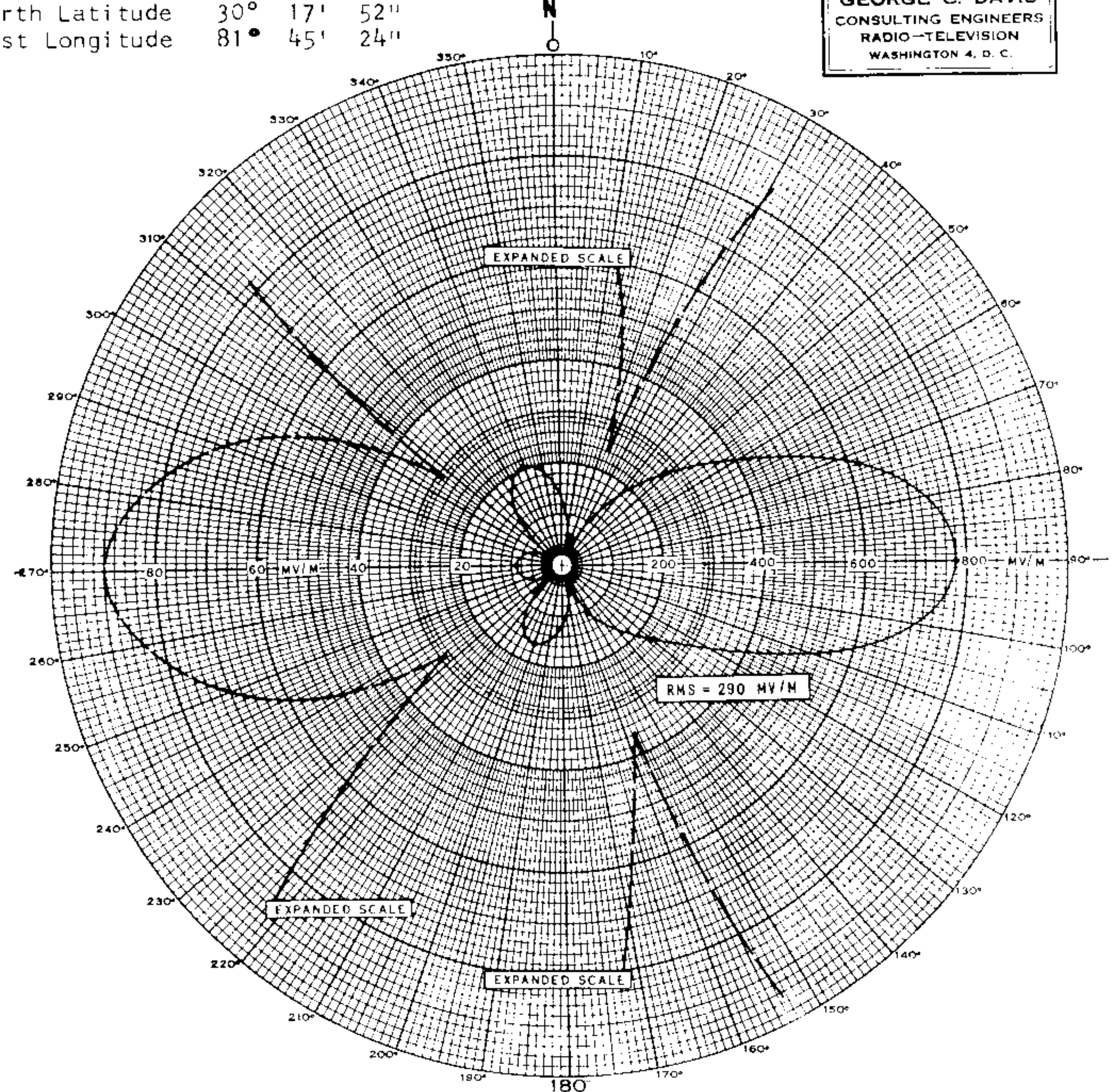
Measured Night
(11-29-68ct)

North Latitude 30° 17' 52"
West Longitude 81° 45' 24"

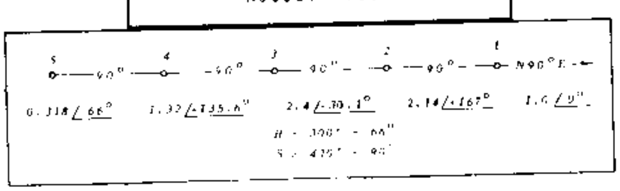
Station WPDQ
Jacksonville, Florida

5kw, DA-N, U
600 kc

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



MEASURED
HORIZONTAL PLANE PATTERN
FOR NIGHTTIME OPERATION
WPDQ. JACKSONVILLE, FLORIDA
600 KC - 5 KW - DA - N
AUGUST 1967



FCC File No. BL-12183
Accepted 11-18-68

Station WPDQ
Jacksonville, Florida

600 kc

WMBR

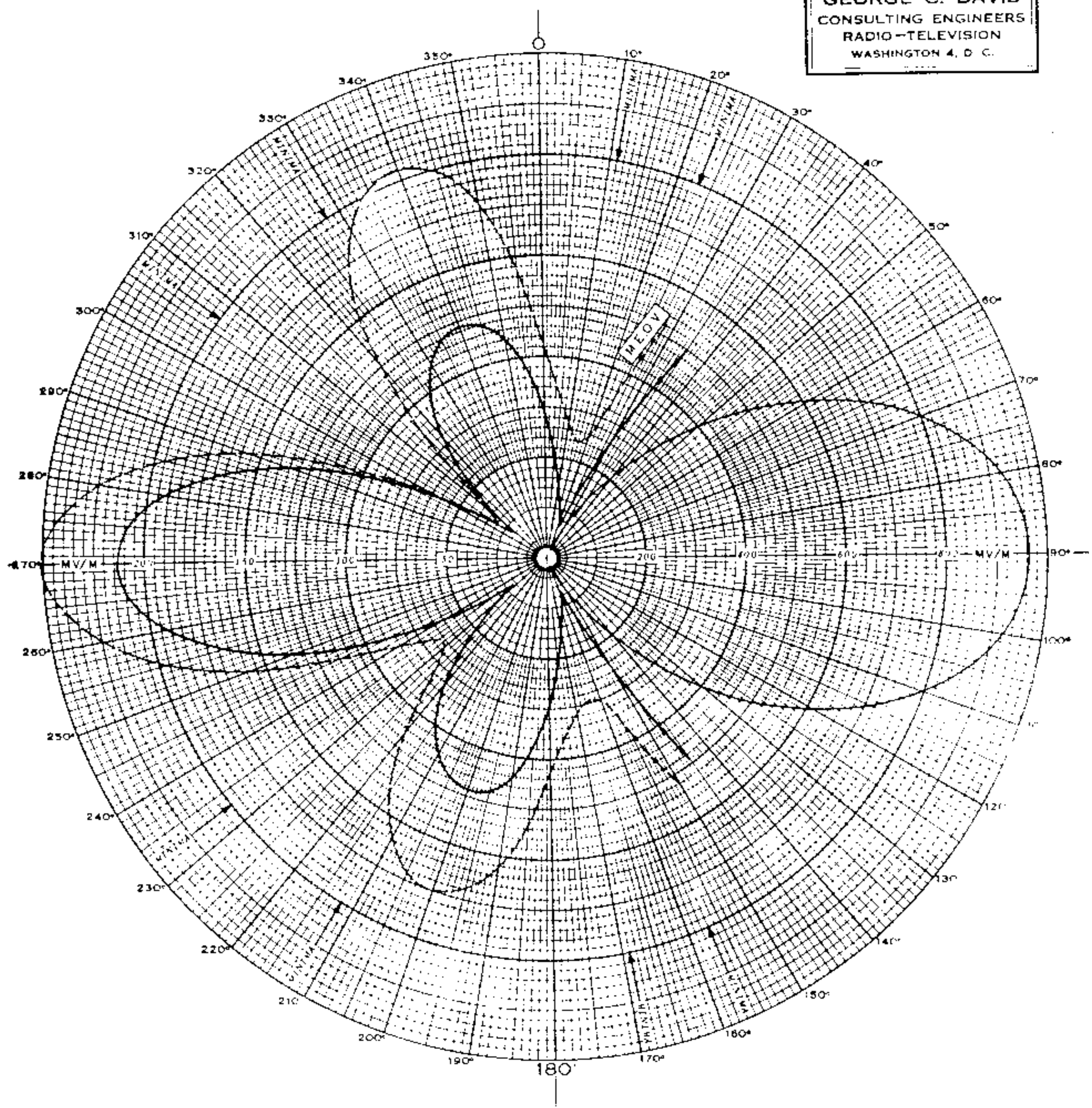
Proposed Night
(11-29-68ct)

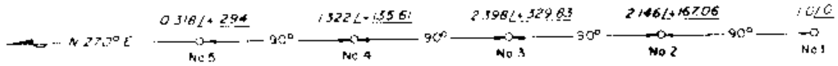
Station WPDQ
Jacksonville, Florida

5kw,DA-N,U
600 kc

THIS PATTERN WAS SUBMITTED TO CORRECT PATTERN PREVIOUSLY FILED WITH THE F.C.C. WHICH IN ONE DIRECTION INADVERTENTLY SHOWED TWO MAXIMUM EXPECTED OPERATING VALUES.

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





H - 300' - 66°
S - 410' - 90°

COMPUTED HORIZONTAL
PLANE RADIATION PATTERN
FOR THE PROPOSED OPERATION OF
600 KC - 5 KW - DA N U
WPDQ, JACKSONVILLE, FLORIDA
MARCH 1968

NORTH LATITUDE 30° 7' 52"
WEST LONGITUDE 8° 45' 24"

FCC File No.BP-17094
Submitted 4-11-68

Station WPDQ
Jacksonville, Florida

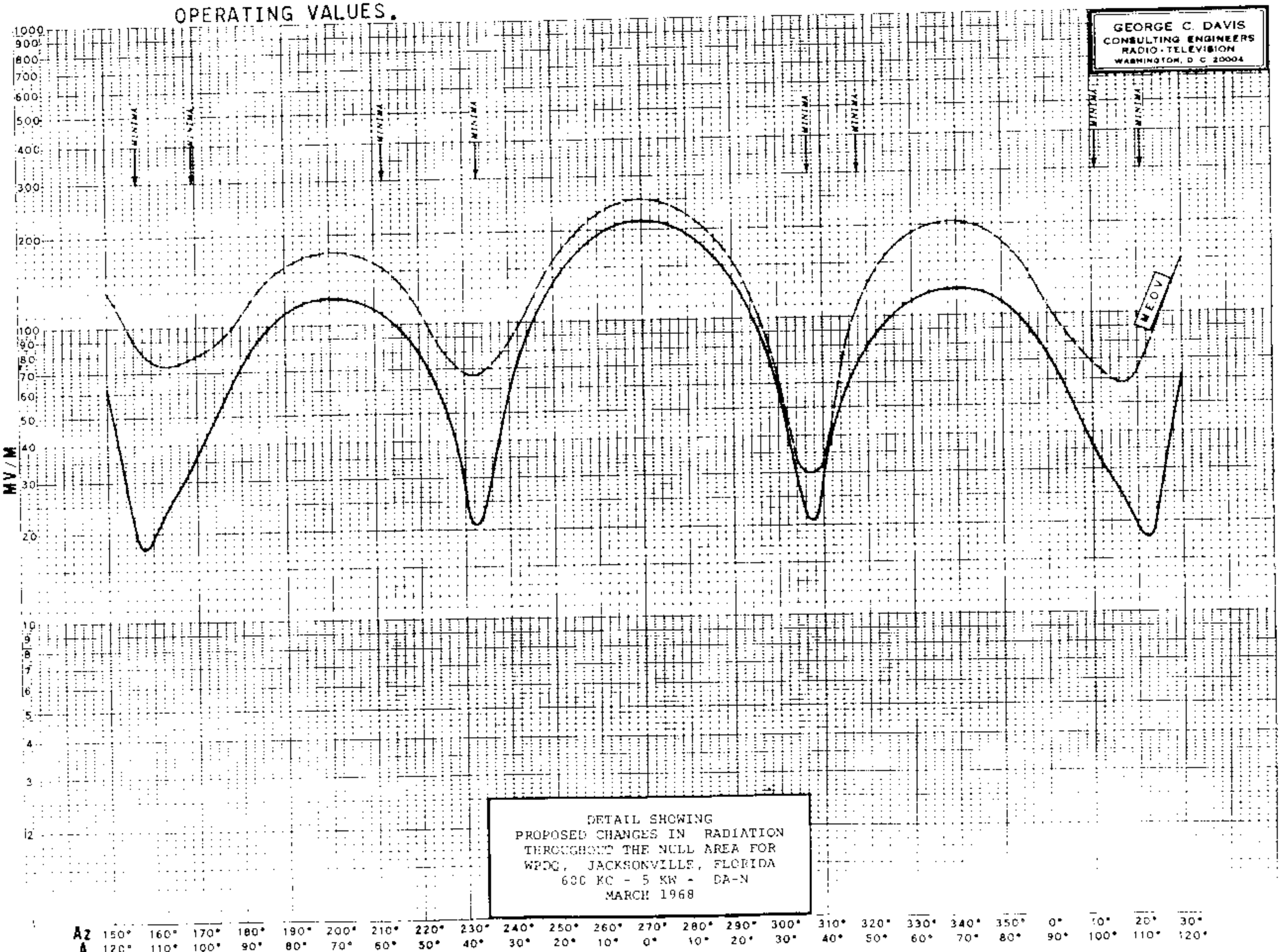
600 kc

Proposed Night Nulls
(11-29-68ct)

Station WPDQ
Jacksonville, Florida

5kw,DA-N,U
600 kc

THIS PATTERN WAS SUBMITTED TO CORRECT PATTERN PREVIOUSLY FILED WITH THE F.C.C. WHICH IN ONE DIRECTION INADVERTENTLY SHOWED TWO MAXIMUM EXPECTED OPERATING VALUES.



FCC File No.BP-17094
Submitted 4-11-68

Station WPDQ
Jacksonville, Florida

600 kc

WMBR

WMBR

Proposed Night
(11-28-67ct)

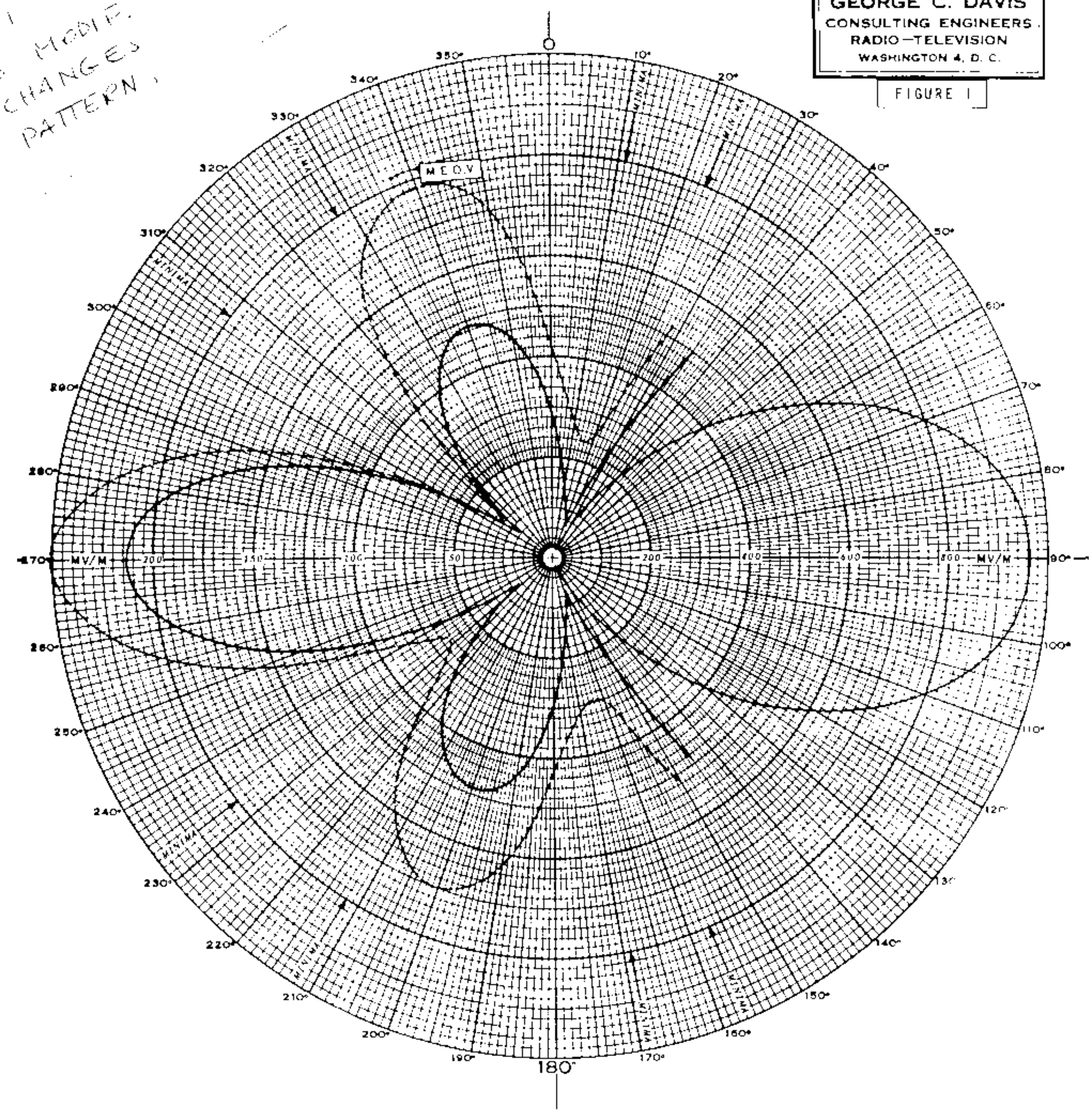
Station WPDQ
Jacksonville, Florida

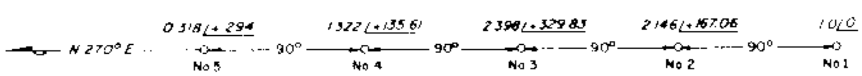
5KW,DA-N,U
600 kc

1-29-61
GRANTED MODIF.
OF CP CHANGES
IN DA PATTERN.

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

FIGURE I





H = 300 : 66°
S : 410 : 90°

COMPUTED HORIZONTAL
PLANE RADIATION PATTERN
FOR THE PRESENT OPERATION OF
WPDQ, JACKSONVILLE, FLORIDA
SHOWING PROPOSED CHANGES IN RADIATION
THROUGHOUT THE NULL AREA
DECEMBER 1965

NORTH LATITUDE 30° 17' 52"
WEST LONGITUDE 81° 45' 24"

FCC File No.BMP-12205
Accepted 11-8-67

Station WPDQ
Jacksonville, Florida

600 kc

WMBR

Proposed Night
(3-30-66CT)

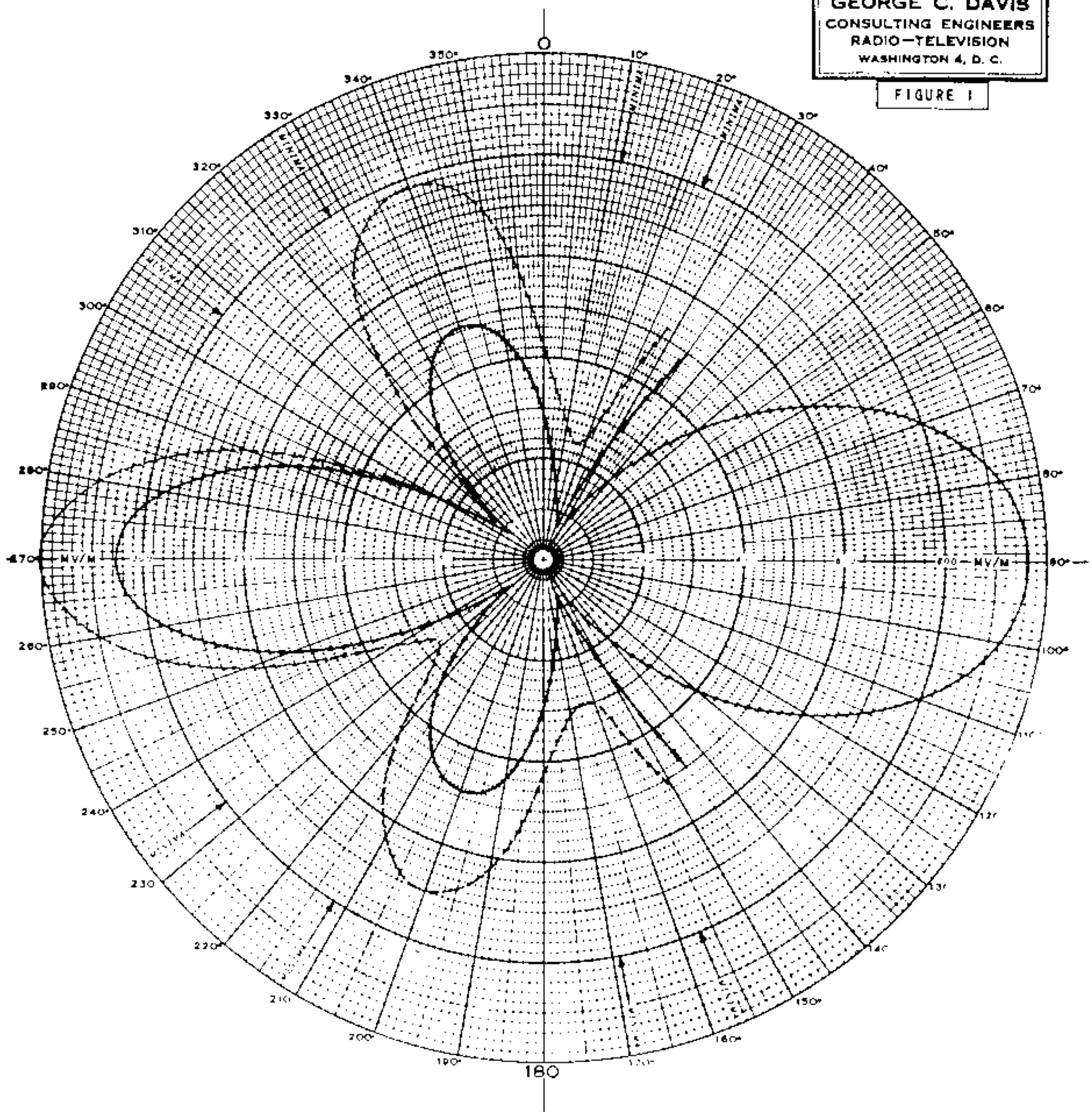
Station WPDQ
Jacksonville, Florida

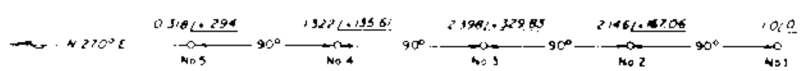
5kw,DA-N,U
600 kc

CP 3-18-66
CHG N DA PAT

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

FIGURE 1





H = 300 - 66°
S = 4.0 : 90°

COMPUTED HORIZONTAL
PLANE RADIATION PATTERN
FOR THE PRESENT OPERATION OF
WPDQ, JACKSONVILLE, FLORIDA
SHOWING PROPOSED CHANGES IN RADIATION
THROUGHOUT THE NULL AREA
DECEMBER 1965

NORTH LATITUDE 30° 17' 52"
WEST LONGITUDE 81° 45' 24"

FCC File No.BP-17094
Accepted 3-15-66

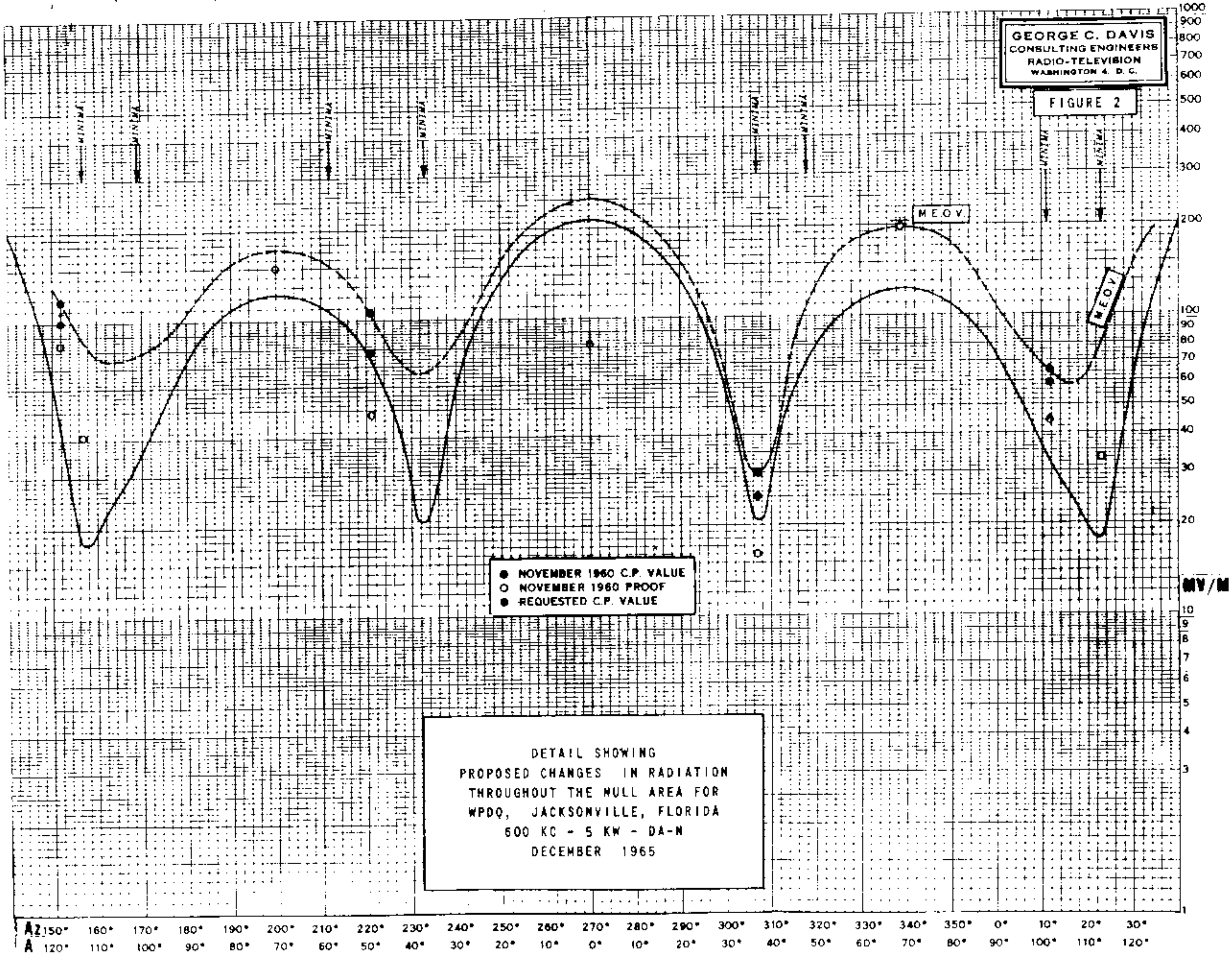
Station WPDQ
Jacksonville, Florida

600 kc

Proposed Night Nulls
(11-28-67ct)

Station WPDQ
Jacksonville, Florida

5kw,DA-N,U
600 kc



FCC File No.BMP-12205
Accepted 11-8-67

Station WPDQ
Jacksonville, Florida

600 kc

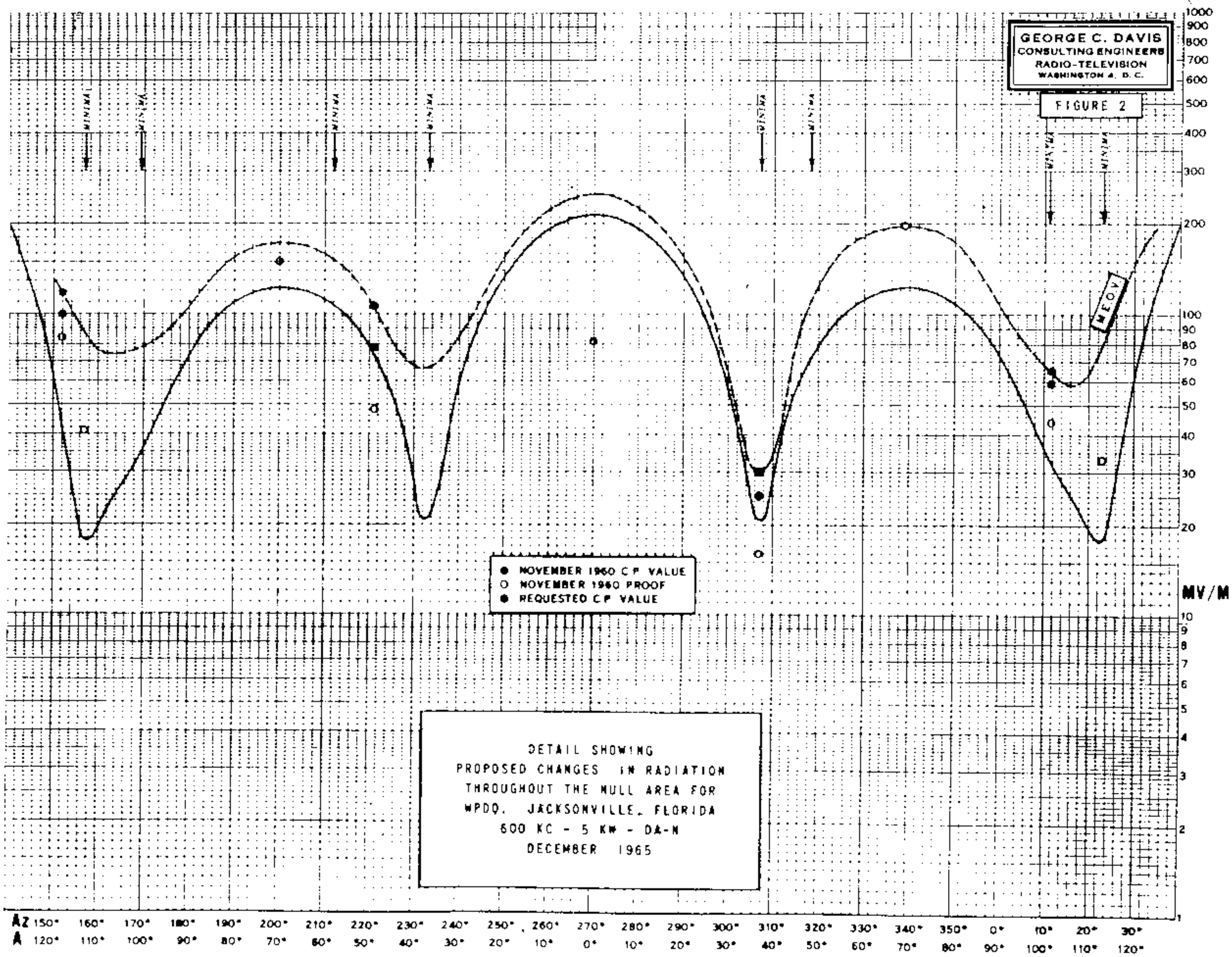
WMDK

Proposed Night Nulls
(3-30-66CT)

Station WPDQ
Jacksonville, Florida

5kw,DA-N,U
600 kc

CP 3-18-66
CHG N DA PAT



FCC File No.BP-17094
Accepted 3-15-66

Station WPDQ
Jacksonville, Florida

600 kc

WMBR

PROPOSED NIGHT (5-8-61g)

Station WPDQ
Jacksonville, Florida

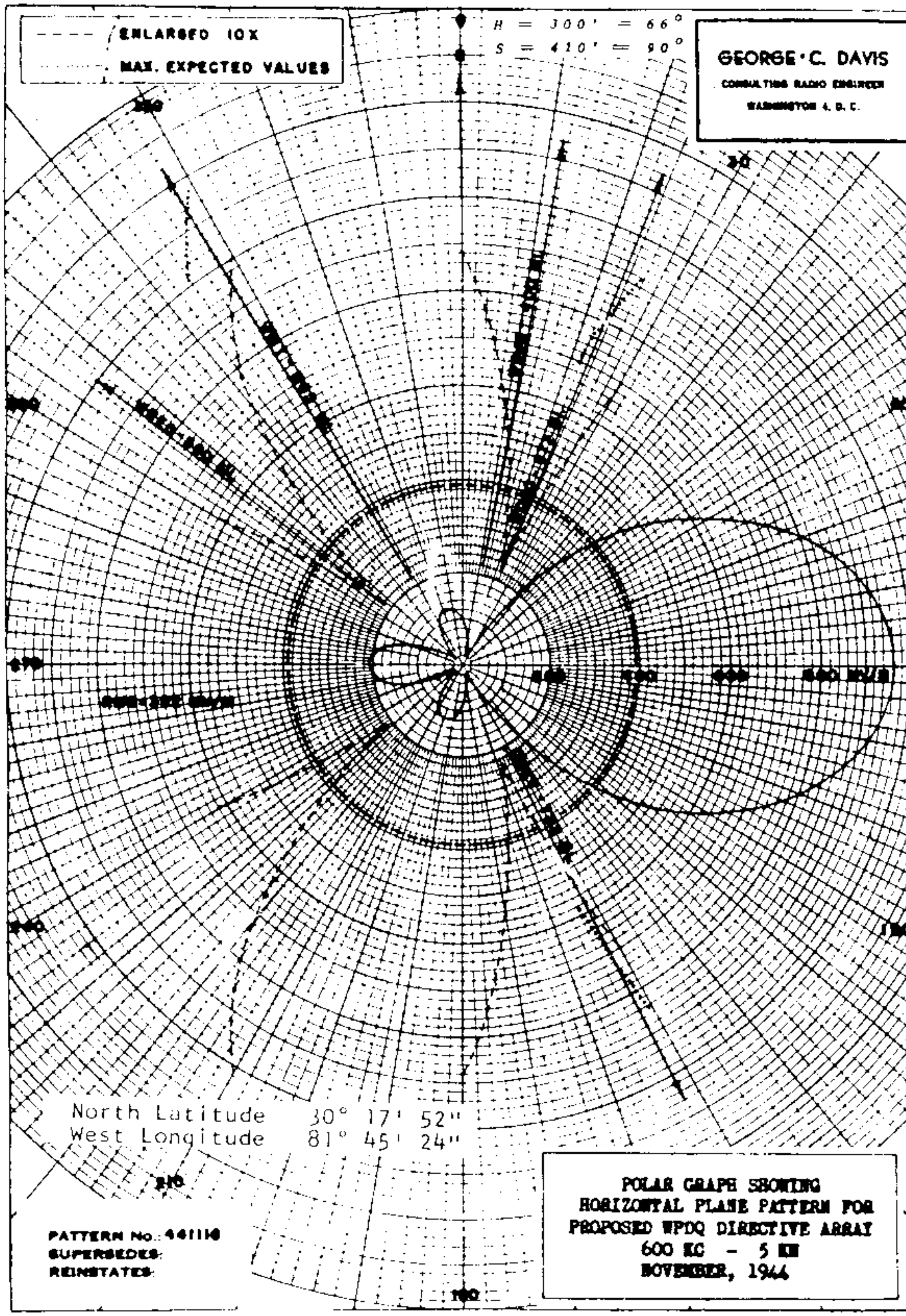
5kw, DA-N,U
600 KC

WMBK

5 — 90° — 4 — 90° — 3 — 90° — 2 — 90° — 1 — N 90°E →

0.38 /66° .32/-135.6° .24/-30.1 .214/-167° 1.0/0°

2-14-62 granted L to operate with reduced MEOV



FCC File No. BL-8300
Accepted 4-18-61

WPDQ
Jacksonville, Florida 600 KC

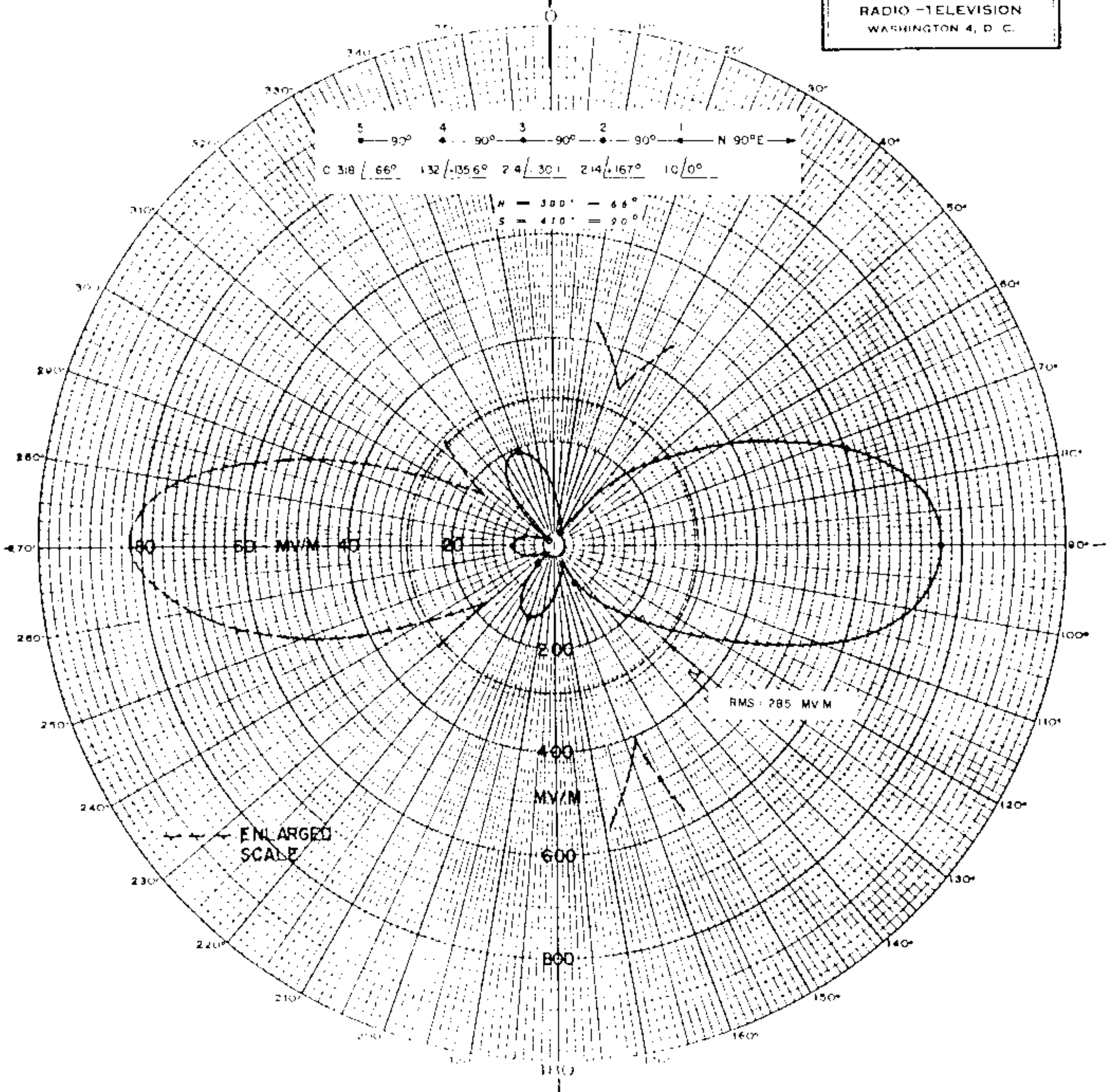
MEASURED NIGHT
(5-8-61g)

Station WPDQ
Jacksonville, Florida

5kw, DA-N,U
600 KC

WMBR

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



North Latitude 30° 17' 52"
West Longitude 81° 45' 24"

MEASURED
HORIZONTAL PLANE PATTERN
FOR NIGHTTIME OPERATION
WPDQ, JACKSONVILLE, FLORIDA
600 KC - 5 KW - DA - N
NOVEMBER 1960

FCC File No. BL-8300
Accepted 4-25-61

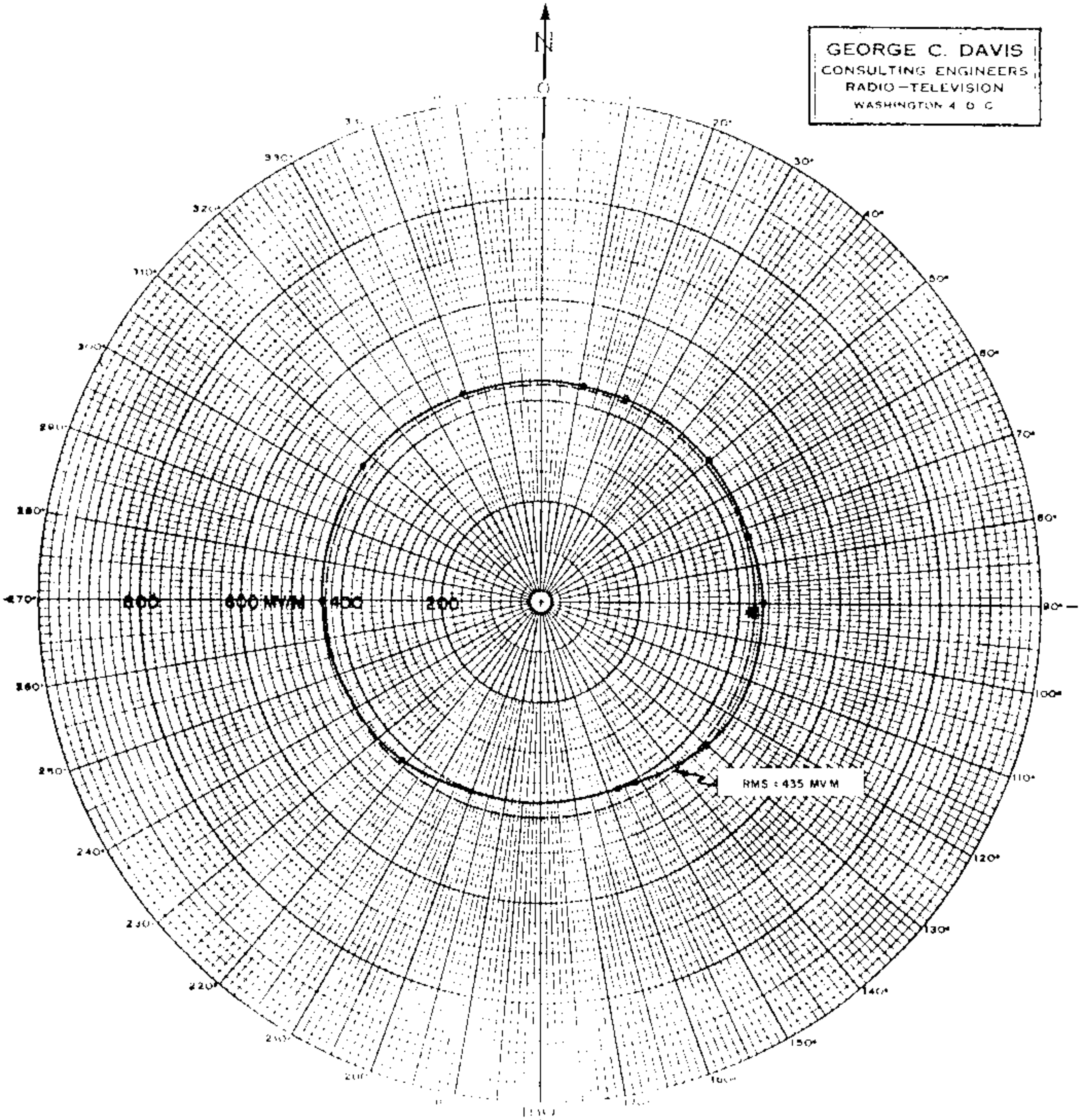
WPDQ
Jacksonville, Florida 600 kc

WMBR

MEASURED NON-DA
(5-8-61g)

Station WPDQ 5kw, DA-N,U
Jacksonville, Florida 600 KC

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



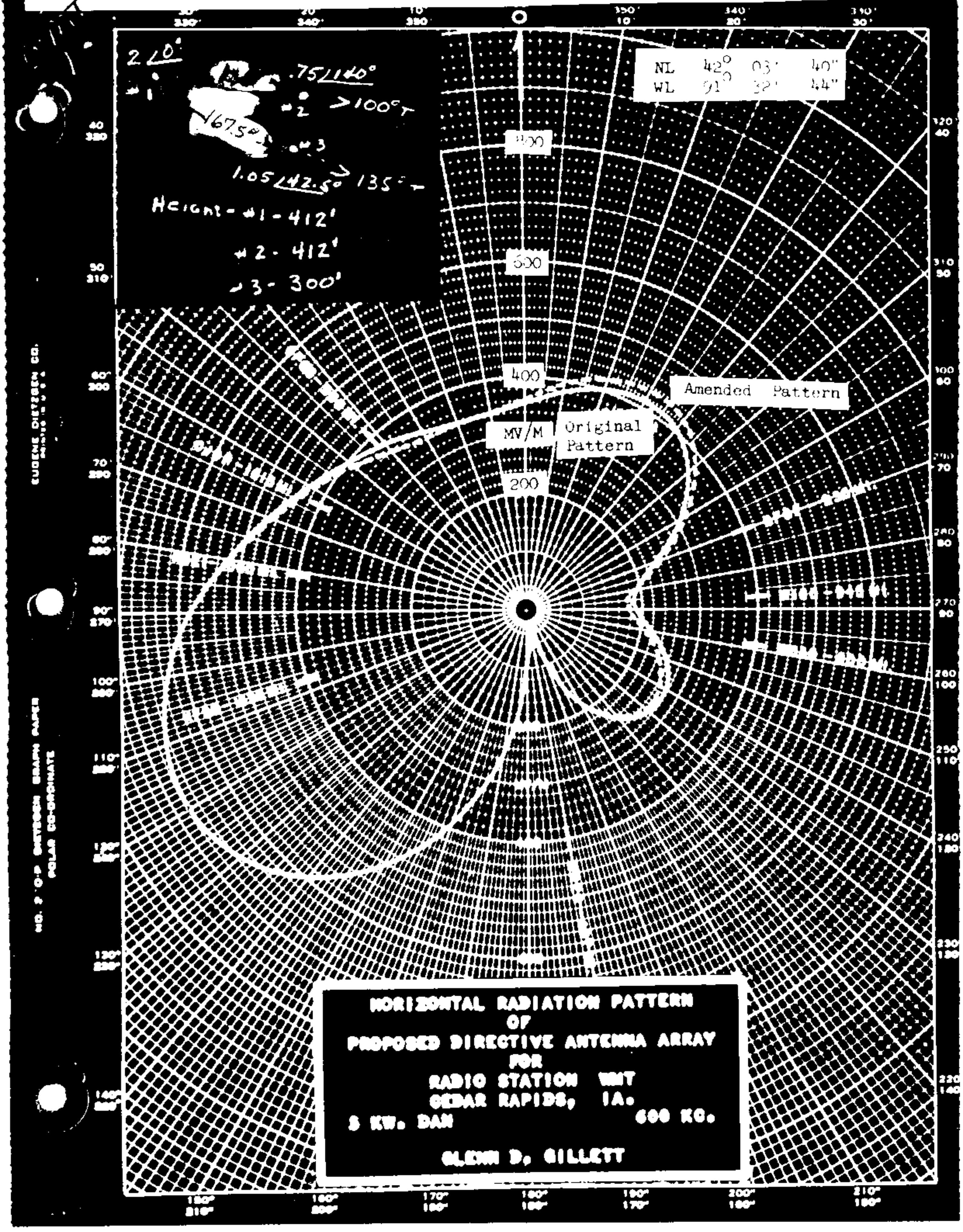
North Latitude 30° 17' 52"
West Longitude 81° 45' 24"

MEASURED
HORIZONTAL PLANE PATTERN
FOR NON-DIRECTIONAL DAYTIME OPERATION
WPDQ, JACKSONVILLE, FLORIDA
600 KC - 5 KW - DA - N
NOVEMBER 1960

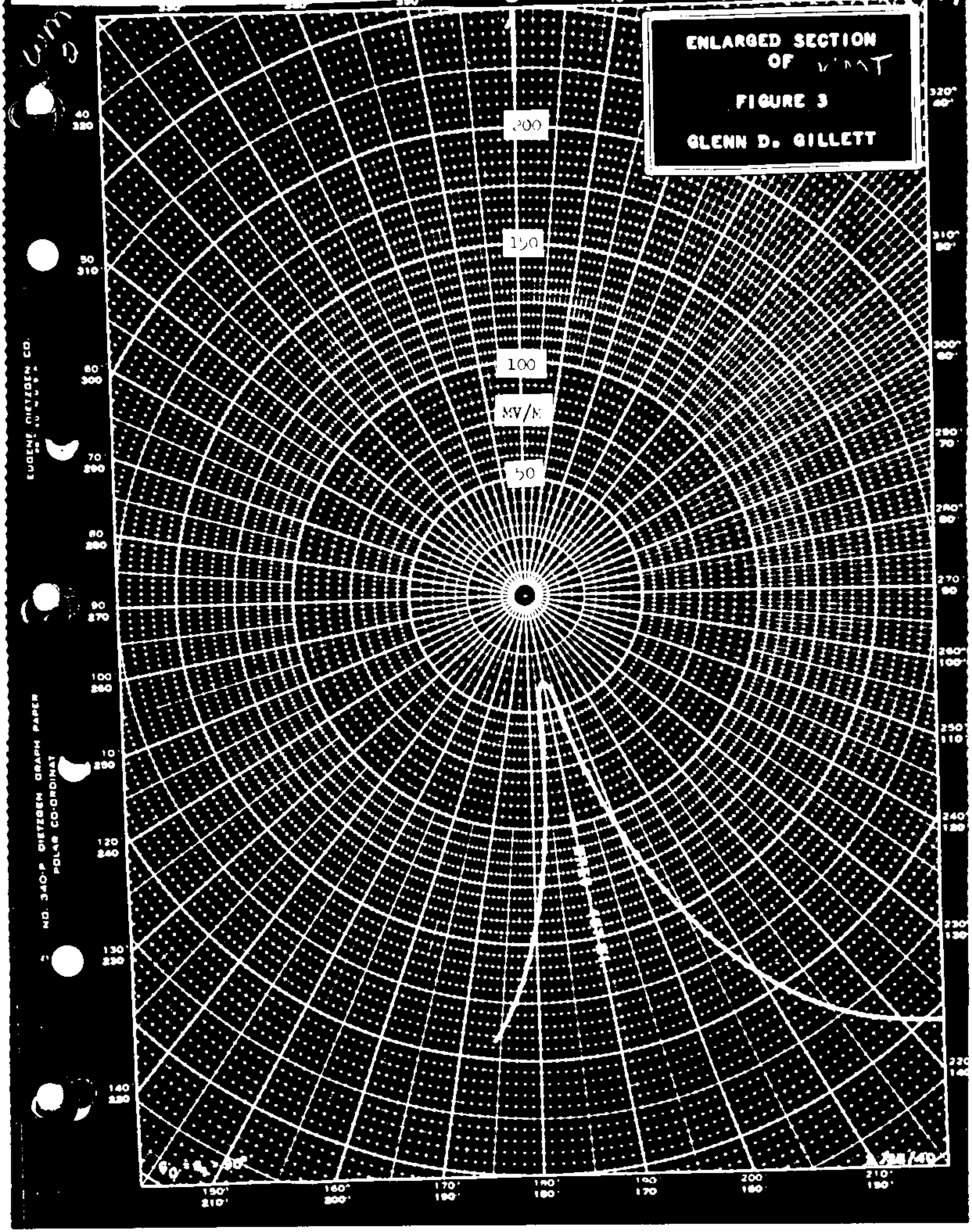
FCC File No. BL-8300
Accepted 4-25-61

WPDQ
Jacksonville, Florida 600 KC

PROPOSED NIGHT Station WMT Cedar Rapids, Iowa 5kw, DA-N, U WMT 600 KC

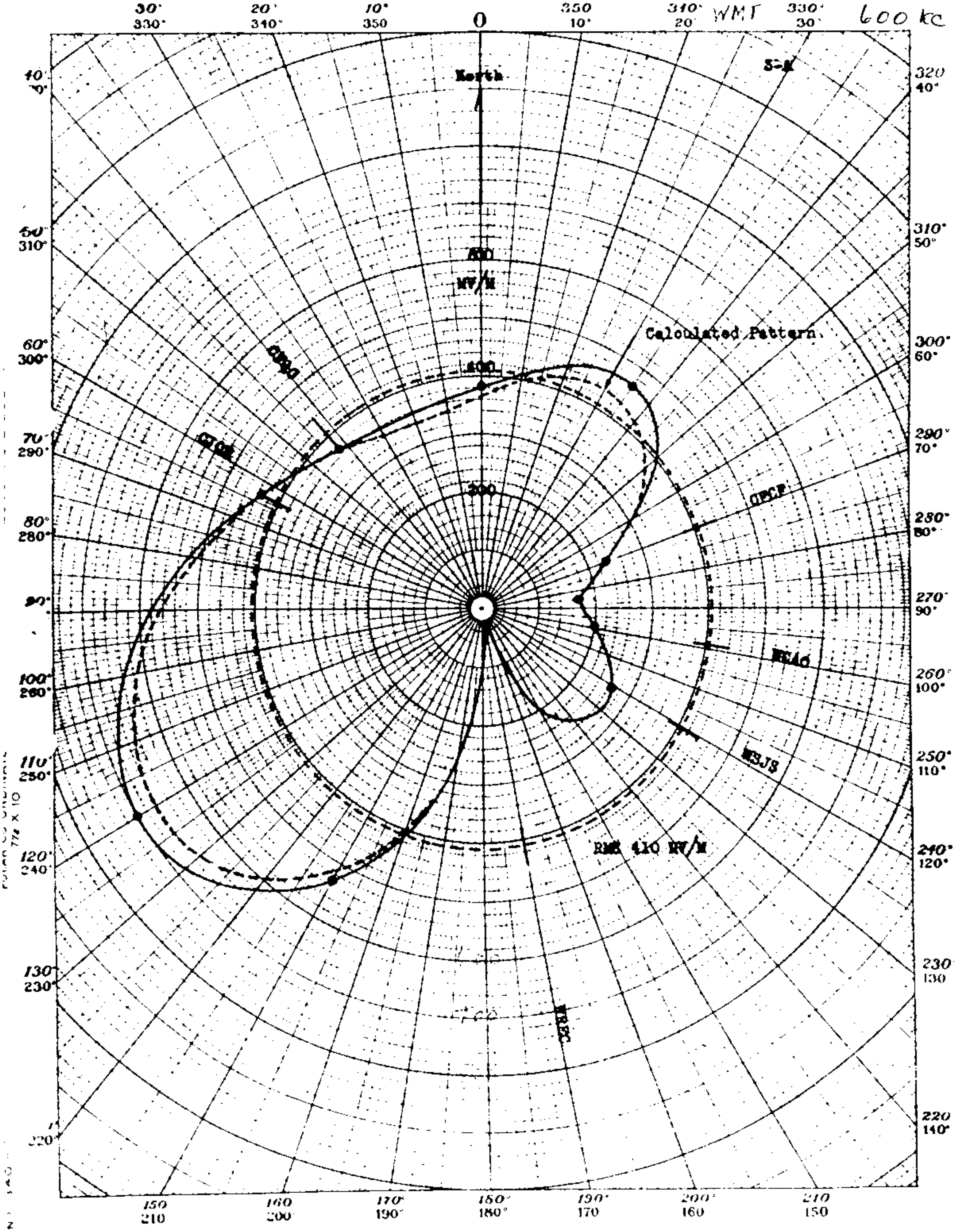


PROPOSED NIGHT NULLS Station WMT Cedar Rapids, Iowa 5kw, DA-N,U 600 KC WMT



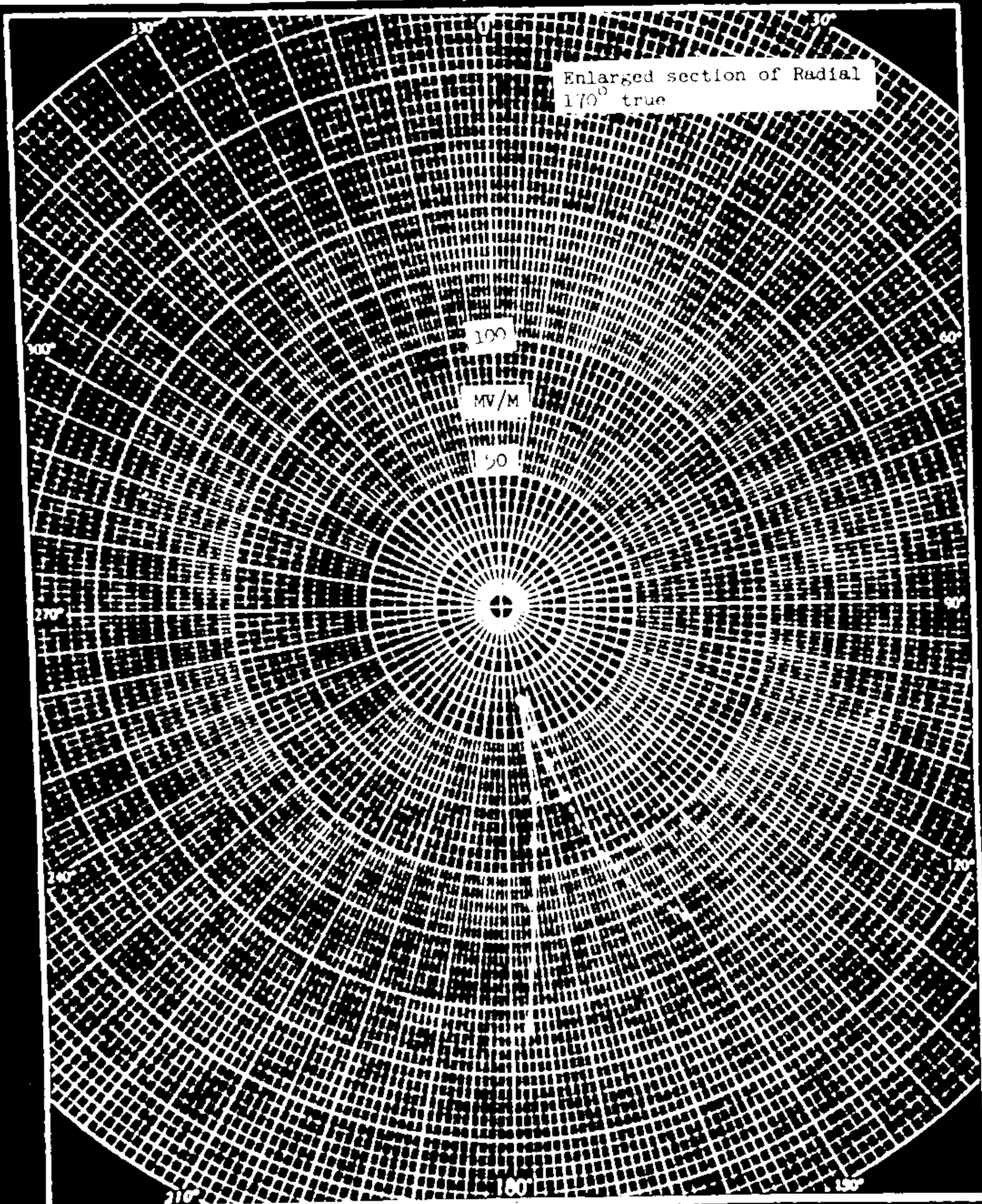
Meas. Nile

WMT
600 kc



MEASURED NIGHT NULLS Station WMT Cedar Rapids, Iowa 5kw, DA-N,U 600 KC

Ex. 3A-1 WMT



COMMERCIAL RADIO EQUIPMENT CO

Consulting Radio Engineers

KANSAS CITY WASHINGTON D. C. HOLLYWOOD

FOR:

DATE: BY:

SCALE:

600

WREC

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station : WREC		Main Studio:	Memphis, Tennessee
Frequency : 600 KHz		Power :	5 kW Night 5 kW Day
Notification : 1780		Date :	Sept. 28, 1979 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude:	35	11	51
West Longitude:	90	00	31

ANTENNA CHARACTERISTICS

Authorized for Nighttime and Daytime operation. (DA-2)
Number of elements: 2
Type of elements : Series excited. uniform cross-section, guyed. Shunt excited, Self supporting, tapered, vertical steel towers.
*Tower top loaded to 95°.

TOWER :	S(#1)	N(#2)					
HEIGHT ABOVE INSULATORS :	*414'	*414'	(90.9°)				
NIGHT PHASING :	0°	+109°					
NIGHT FIELD RATIO:	1.0	1.0					
DAY PHASING :	0°	0°					
DAY FIELD RATIO :	1.0	1.0					

SPACING AND ORIENTATION : Towers in a row are spaced 410' (90°) on a line bearing 24° true.

GROUND SYSTEM : 120 - 410 equally spaced copper radials about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers.

WREC

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS
Day	410 mV/m
Night	416 mV/m

Note: Please retain the Daytime directional antenna radiation pattern notified for Stateion WREC in Original United States Change List and attach to this revised Description Sheet and Nighttime pattern. This notification concerns only the addition of MEOV's to the Nighttime directional radiation patterns with Daytime operation continued as previously notified.

WREC 600 kHz WREC

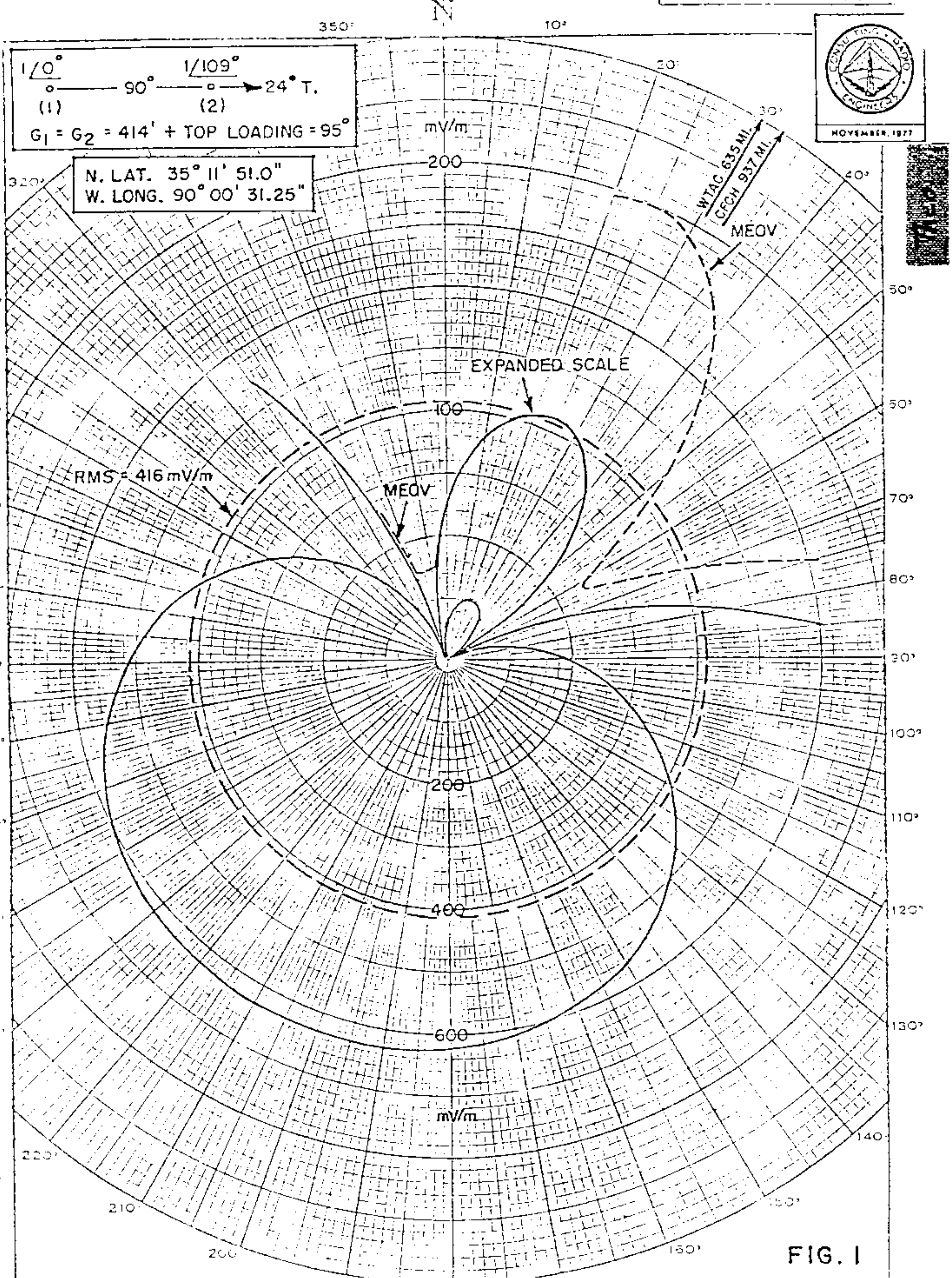
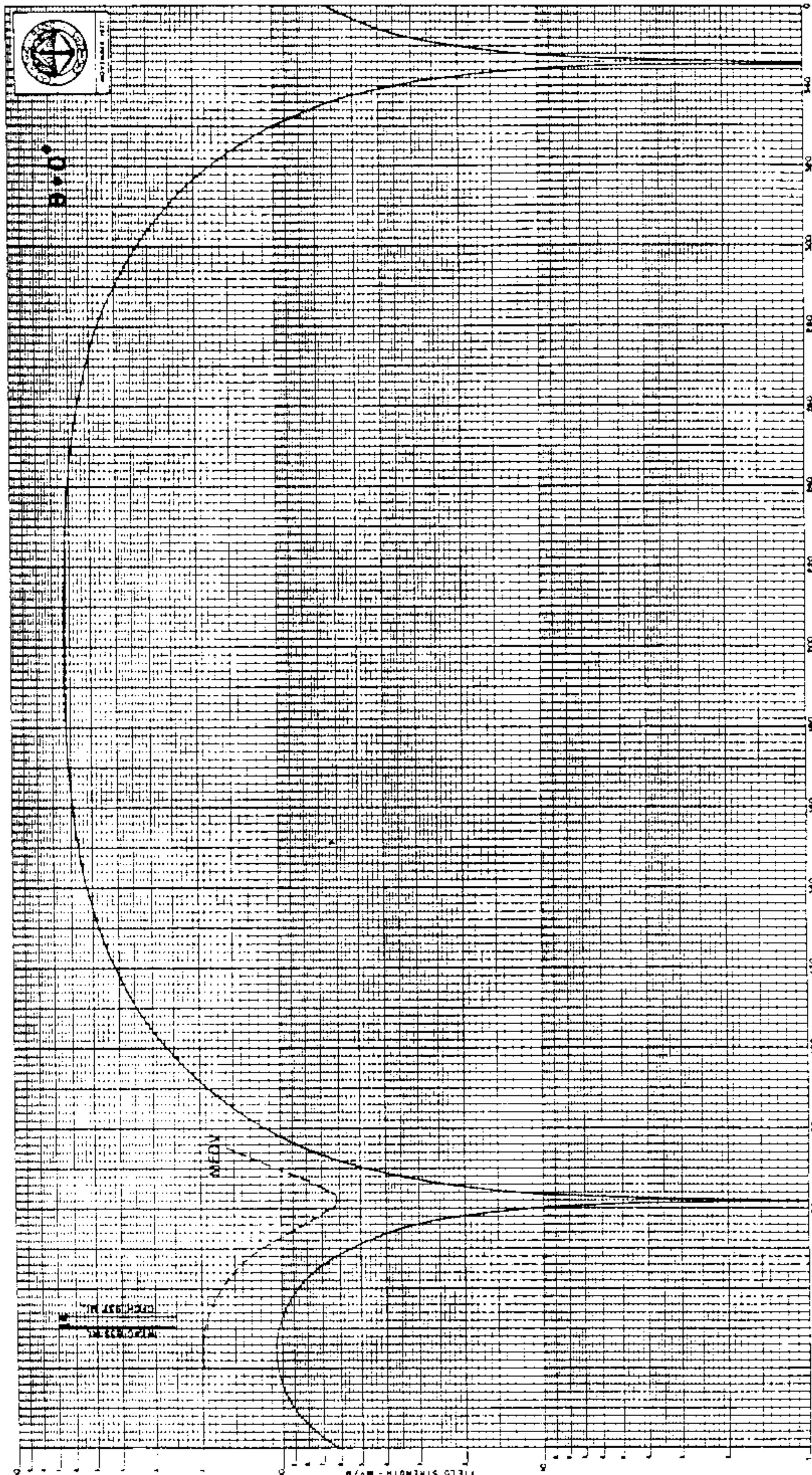


FIG. 1

WREC, MEMPHIS, TENN.
600 kHz 5 kW DA 2
NIGHTTIME

WREC

FIG. 2A



WREC, MEMPHIS, TENN
600KHZ 5KW DA-2 U

NIGHTTIME

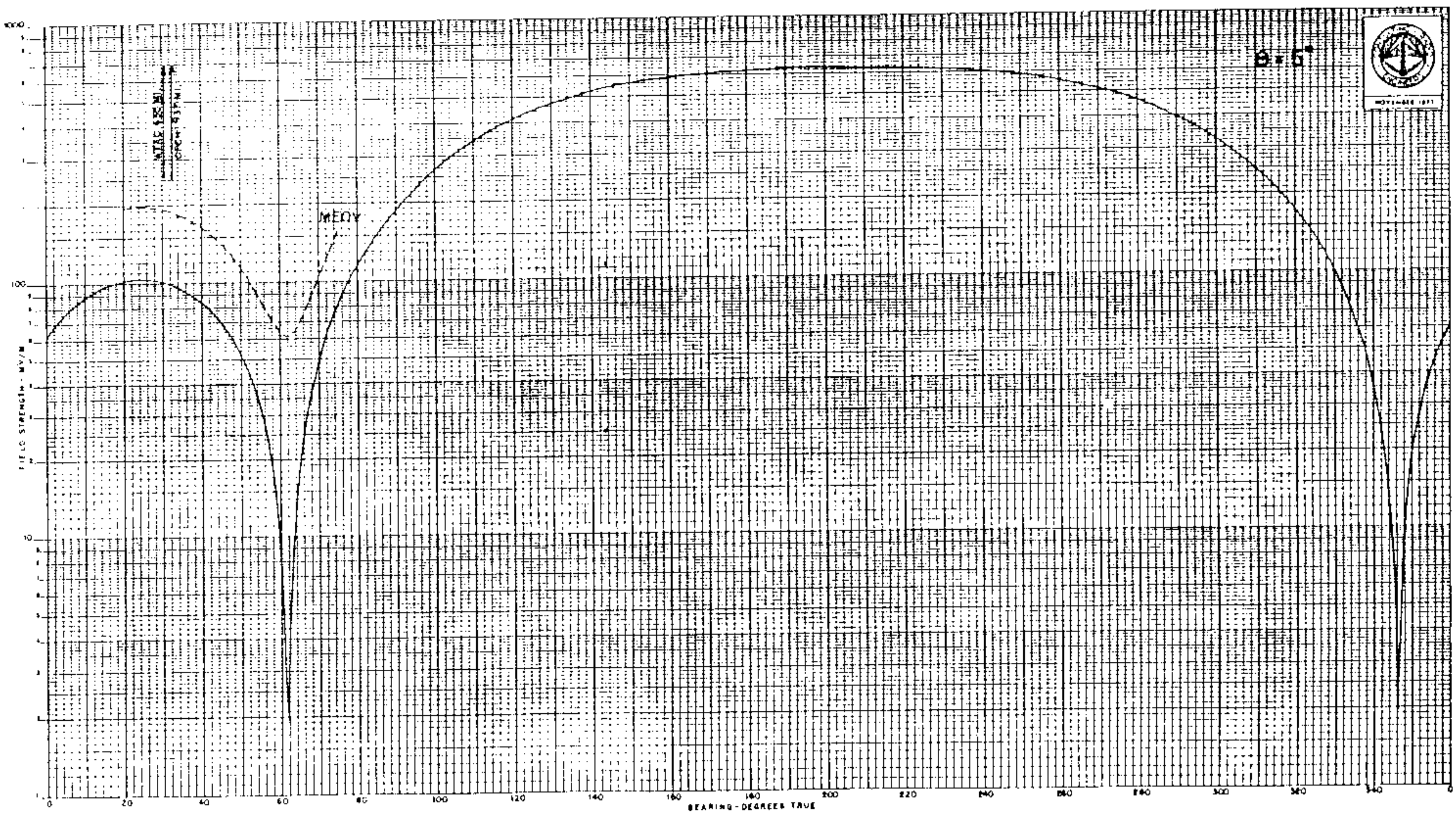


FIG. 2B

WREC

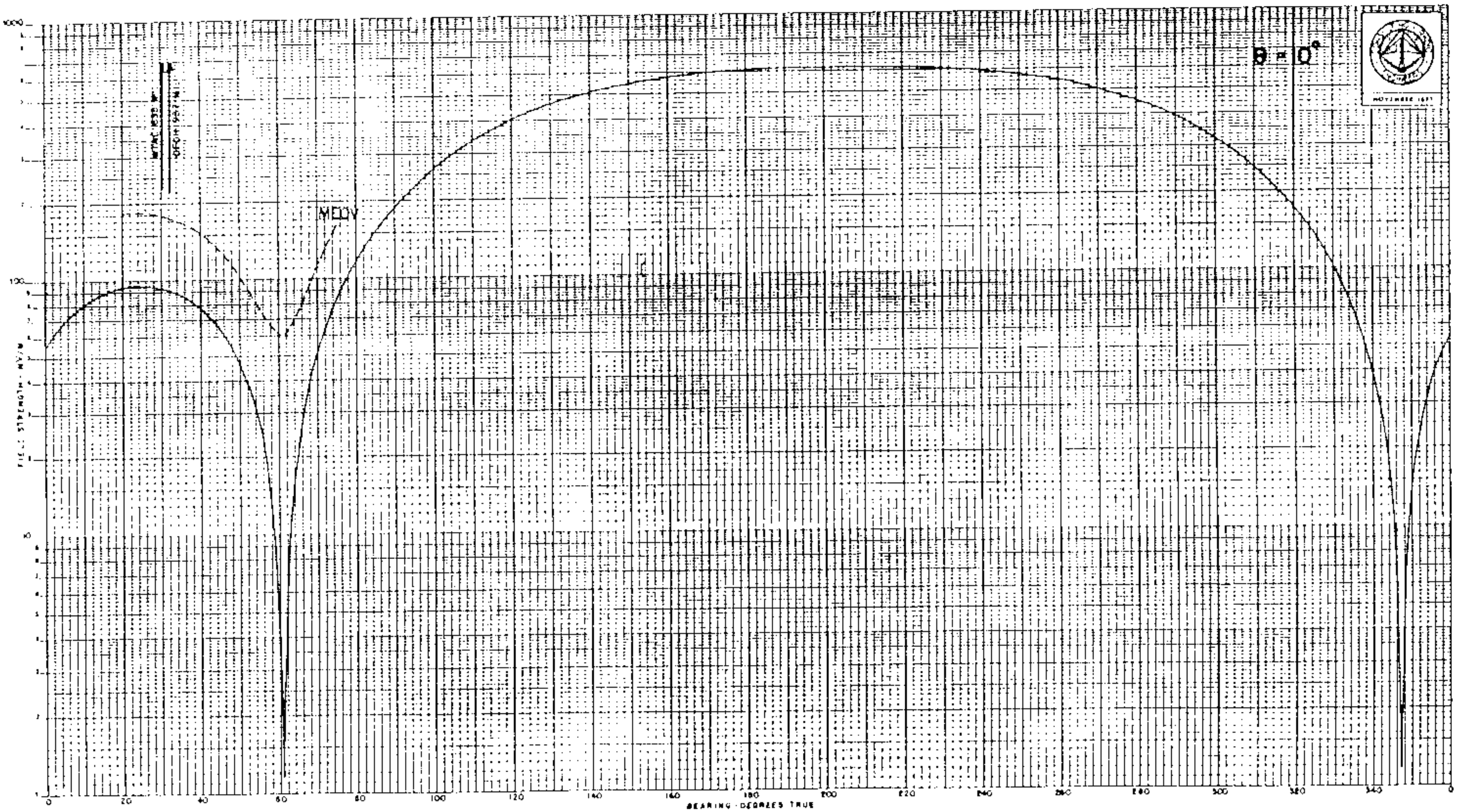
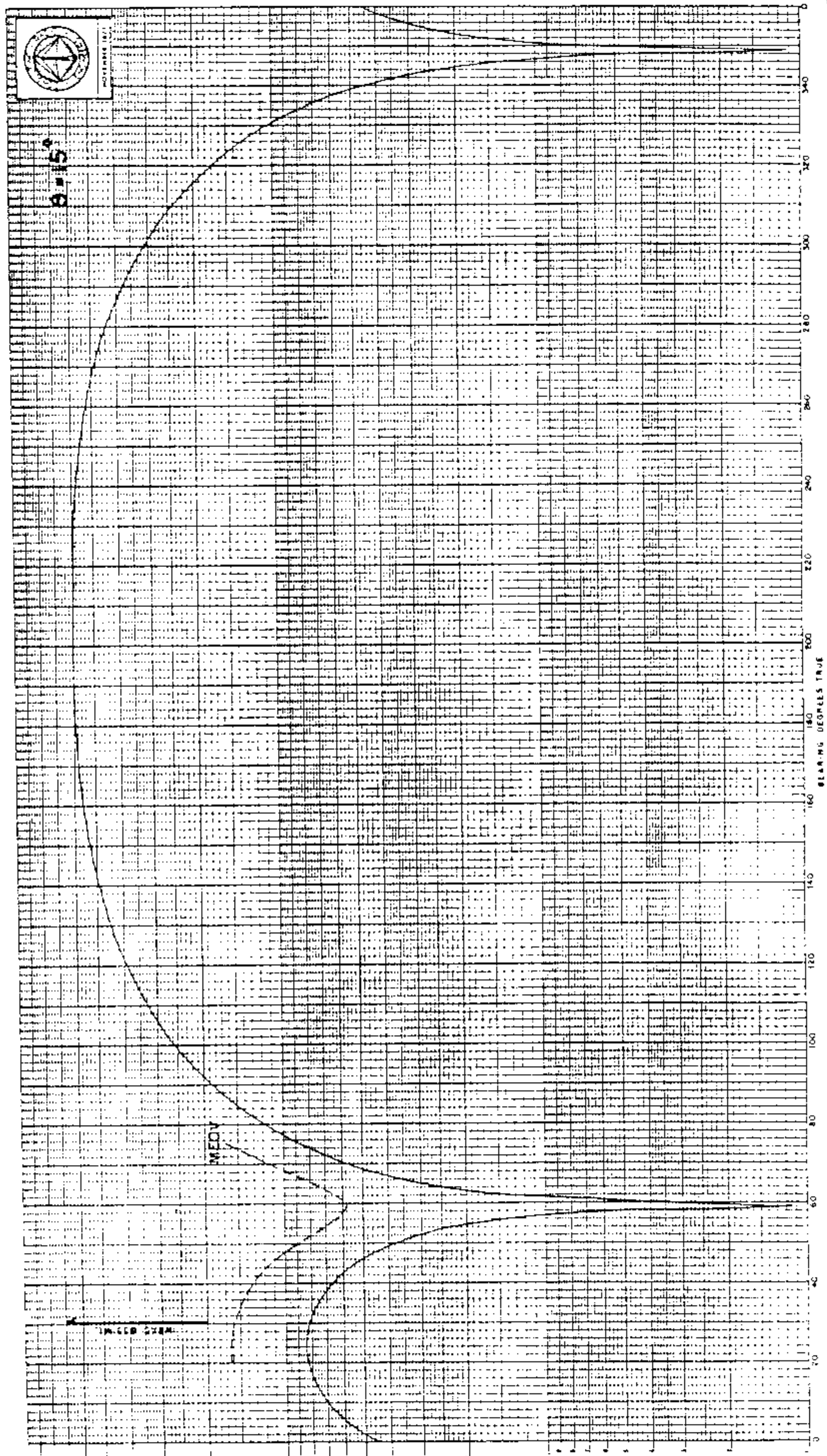


FIG. 2C

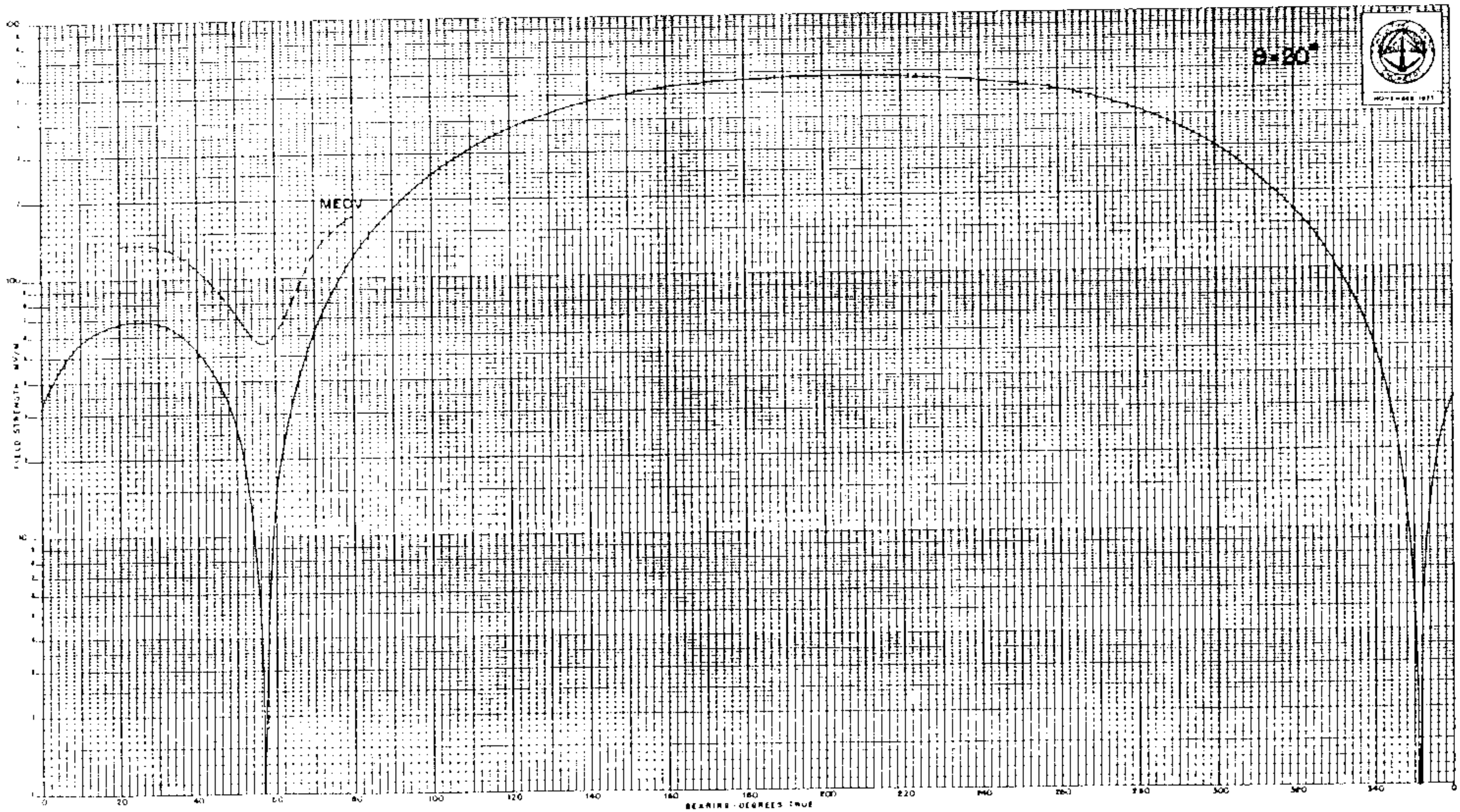
WREC

WREC



θ=15°
MEDV
FIELD STRENGTH - MV/M
BEARING DEGREES TRUE
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340

FIG. 2D


θ=20°
MECV
FIELD STRENGTH MV/M
BEARING - DEGREES TRUE
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
0
FIG. 2E

WREC

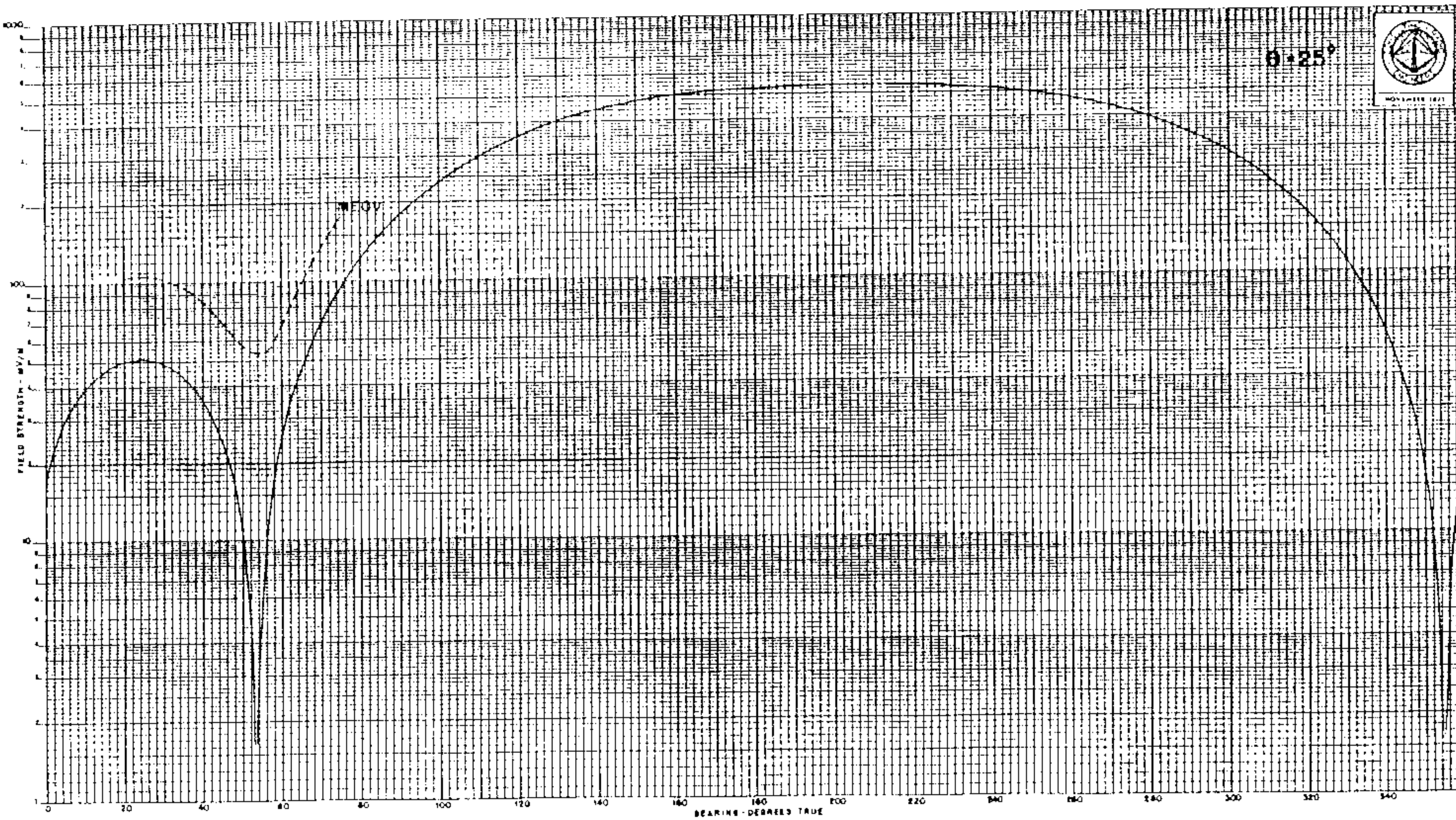


FIG. 2F

WREC

WREC

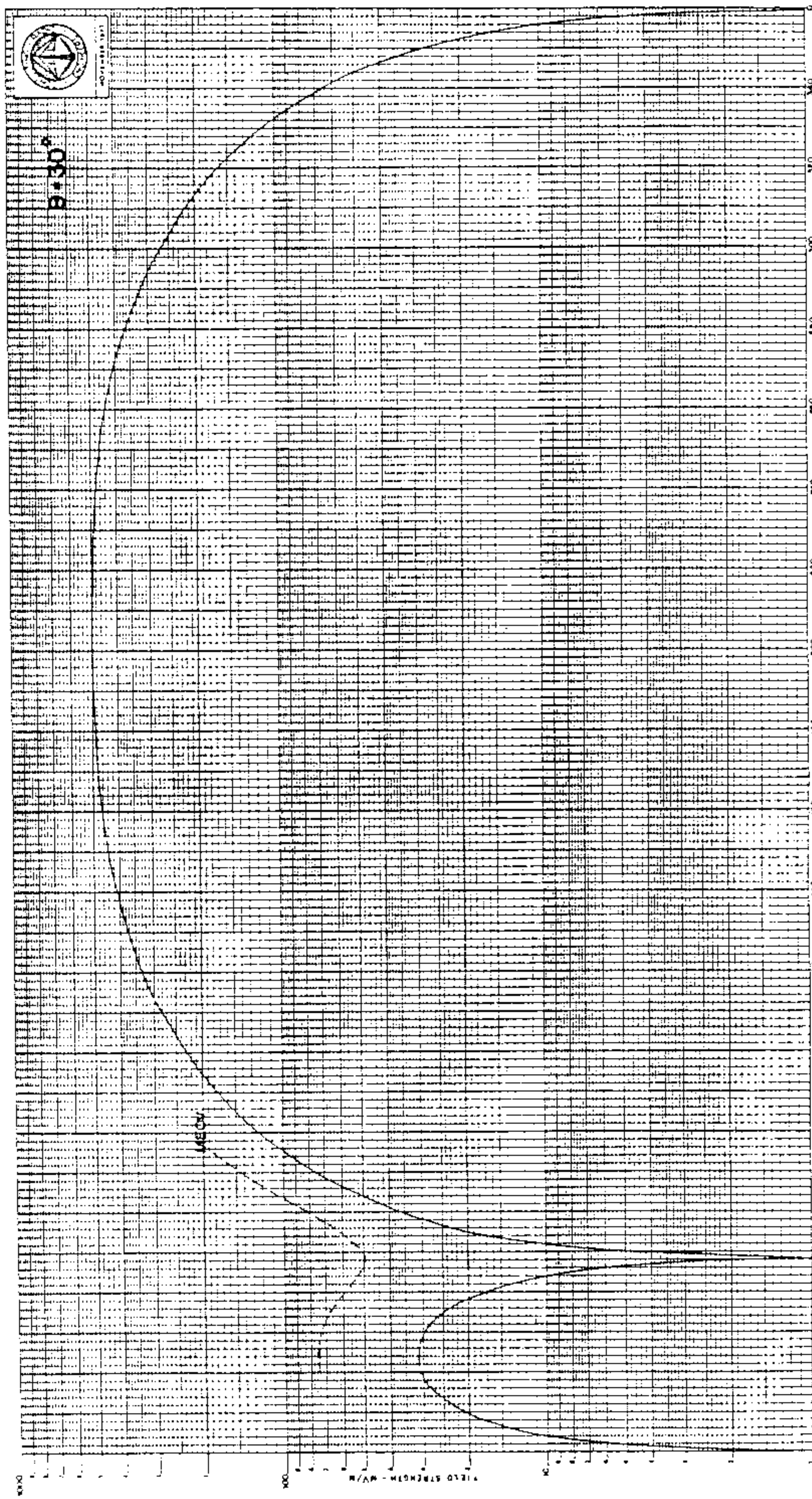


FIG. 2G

WREC

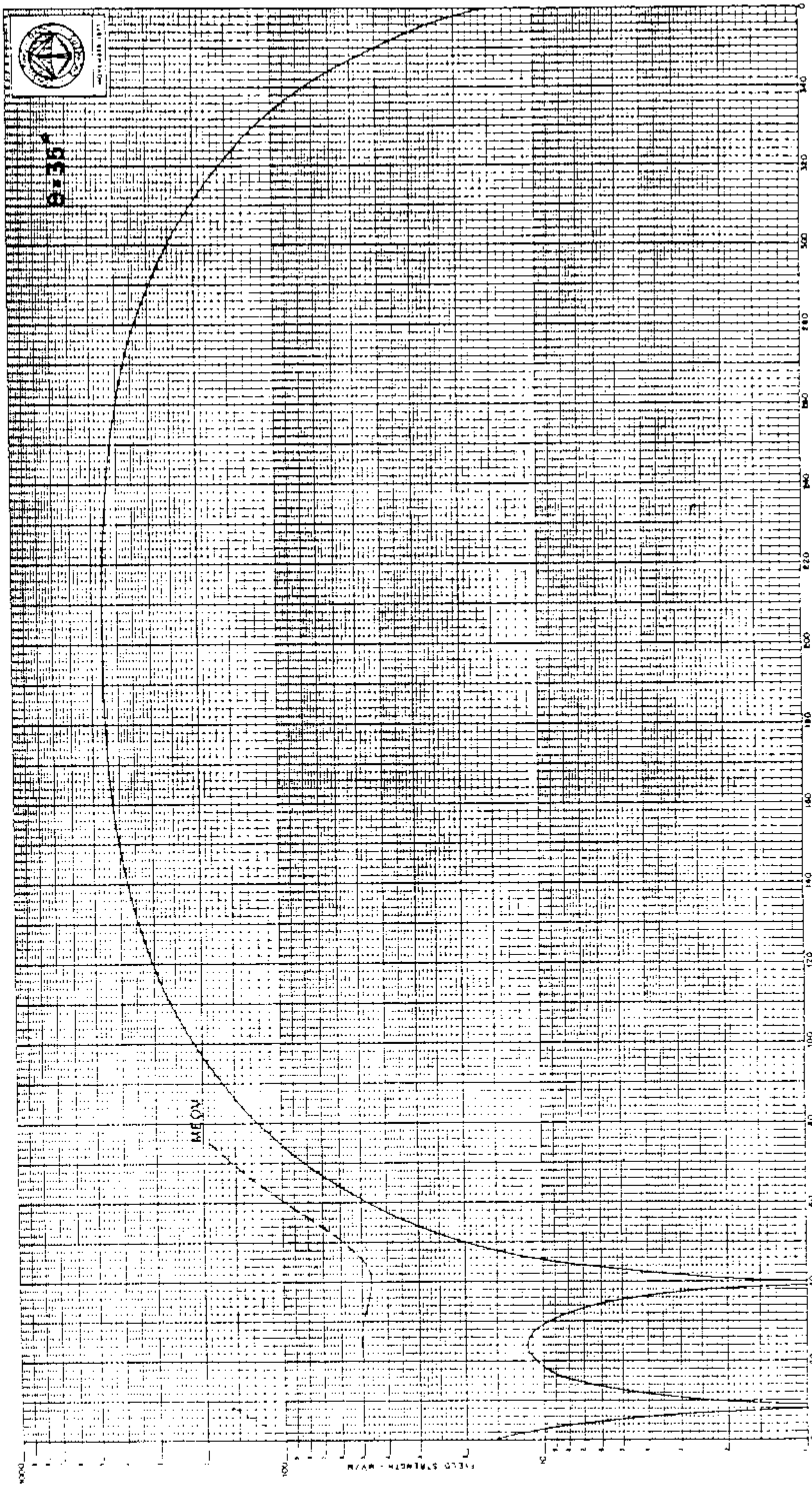
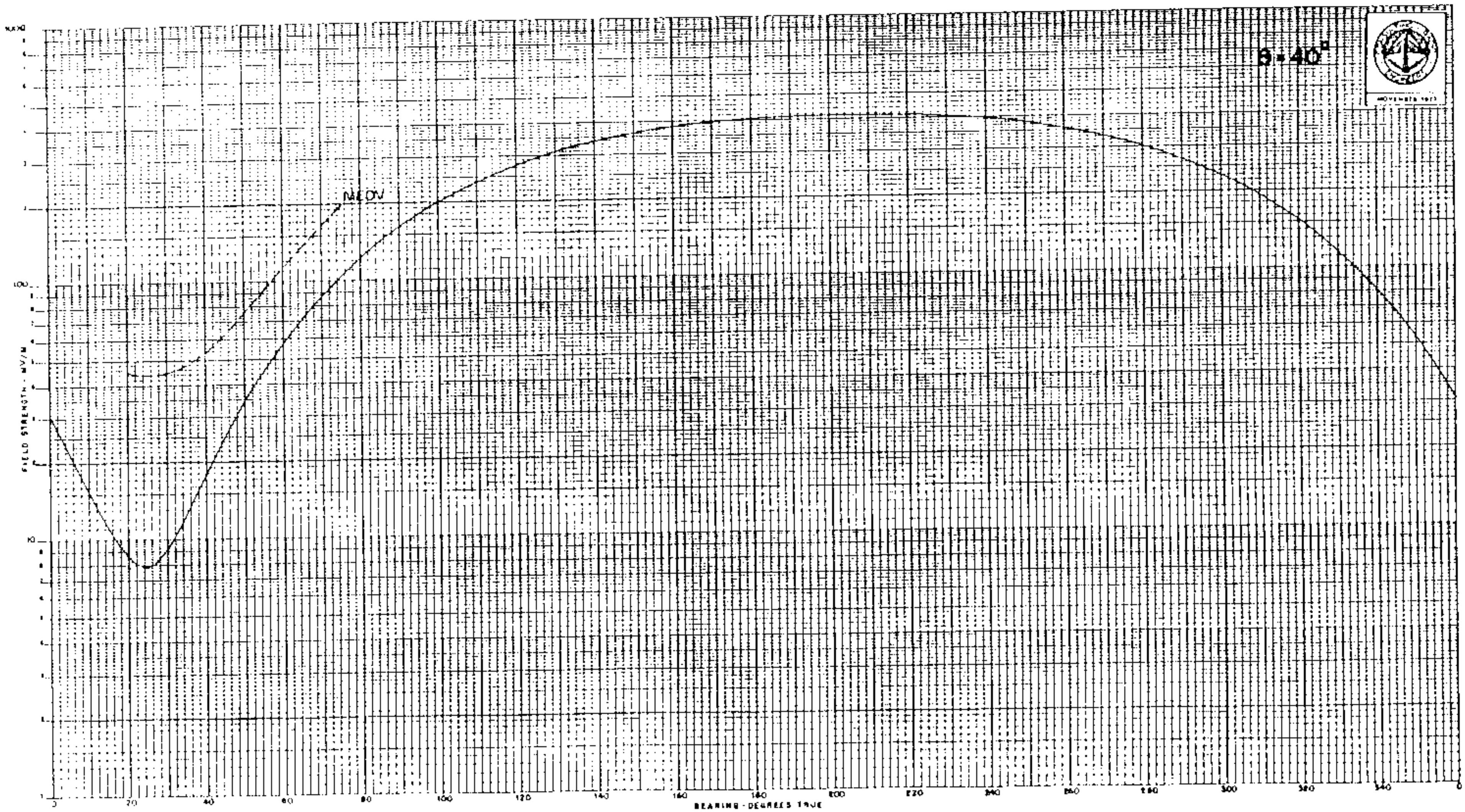


FIG. 2H

WREC



θ = 40°
MEOV
FIELD STRENGTH - MV/M
BEARING - DEGREES TRUE
1000
100
10
1
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
0

FIG. 21

WREC

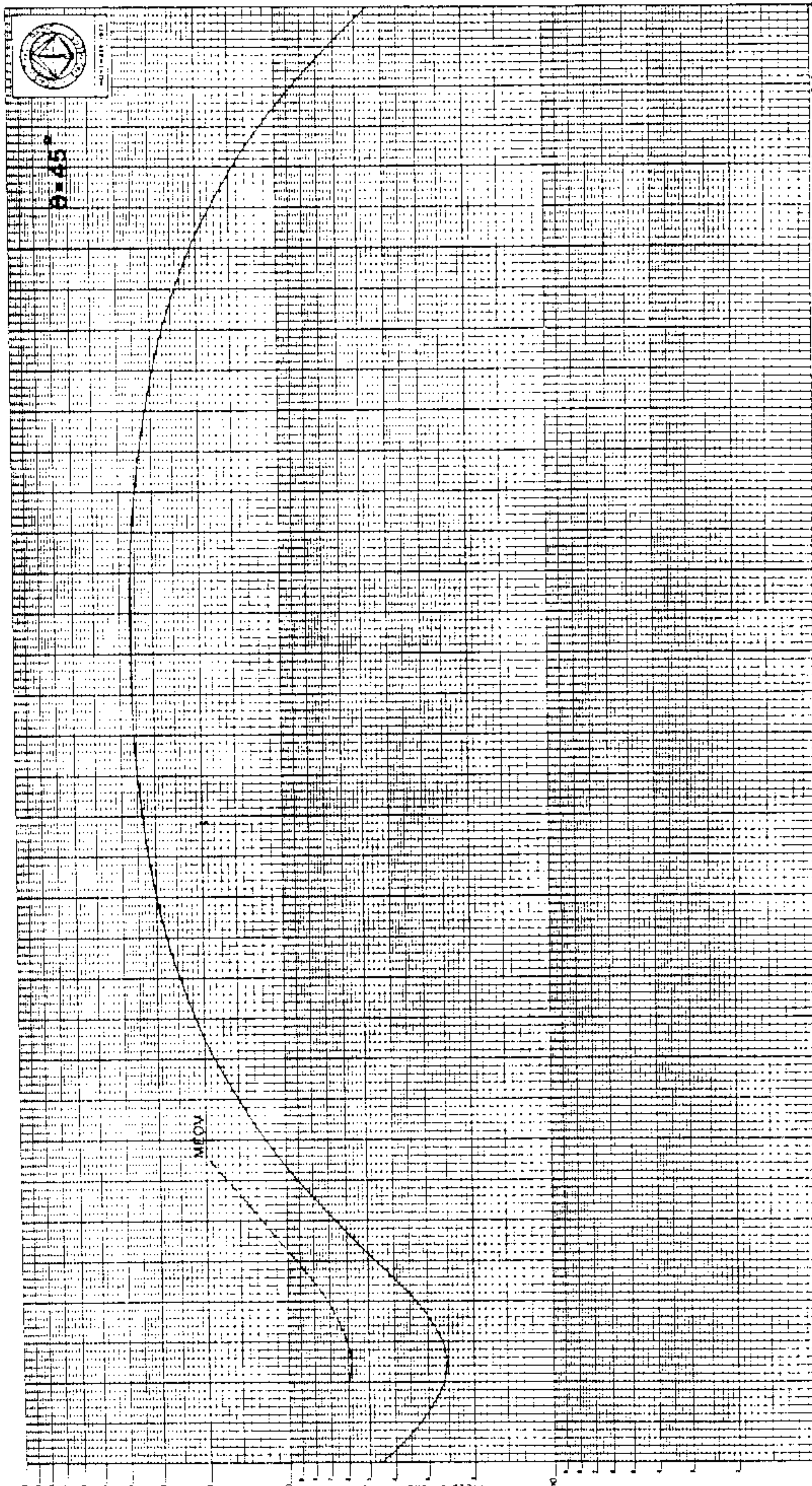

θ=45°
MEOV
BEARING - DEGREES TRUE
FIELD STRENGTH - MV/M
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
100
10
1000

FIG. 2J

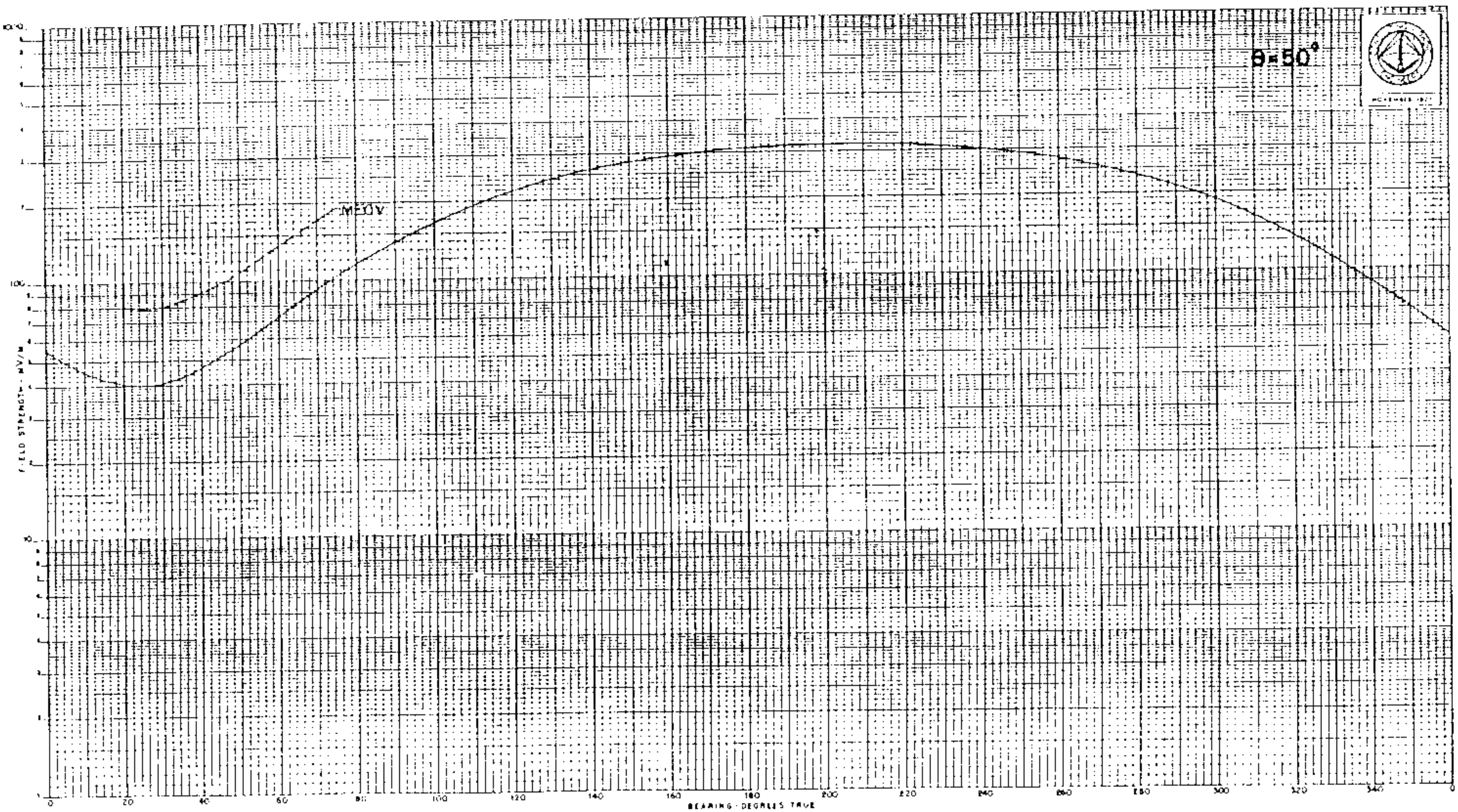


FIG. 2K

WREC

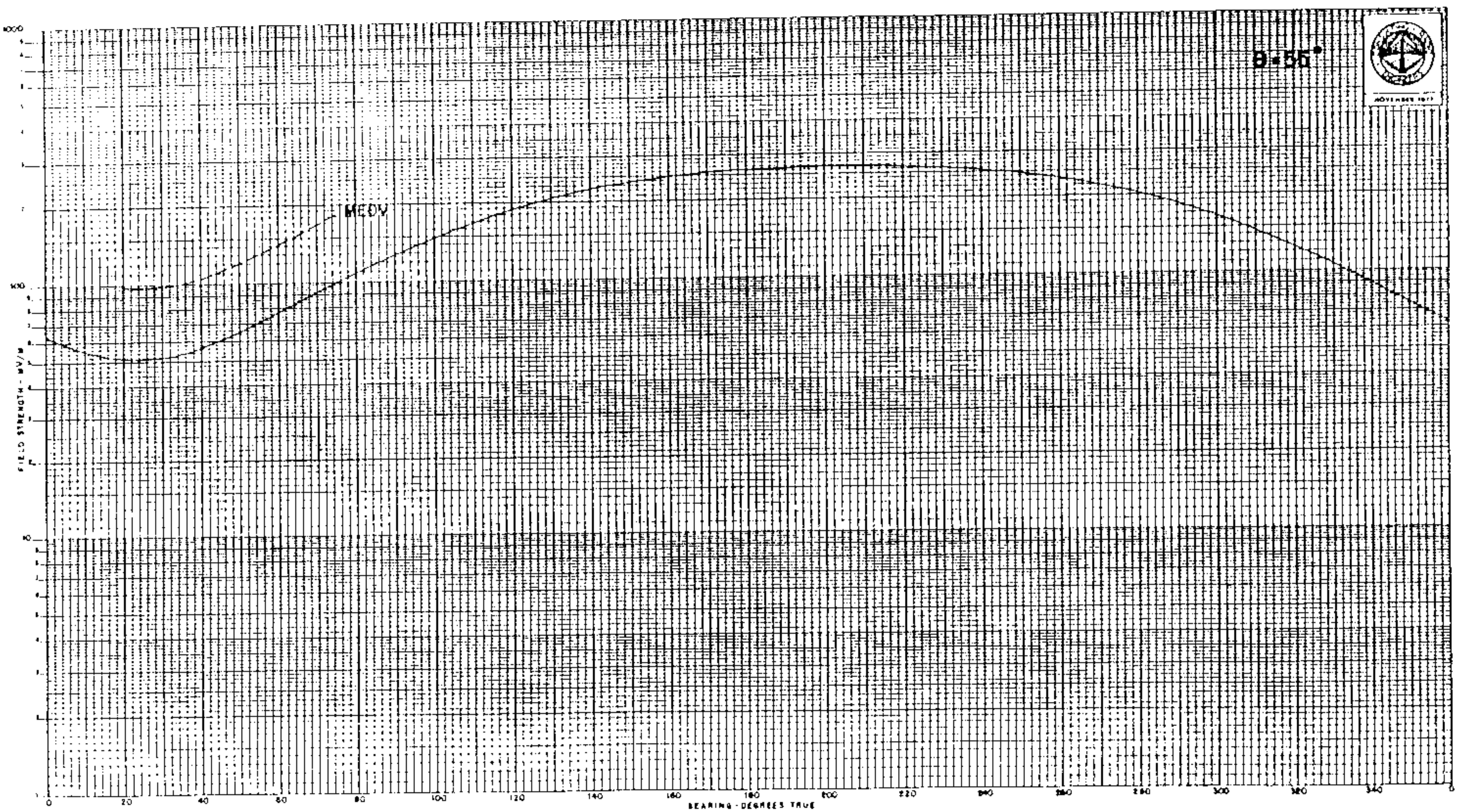
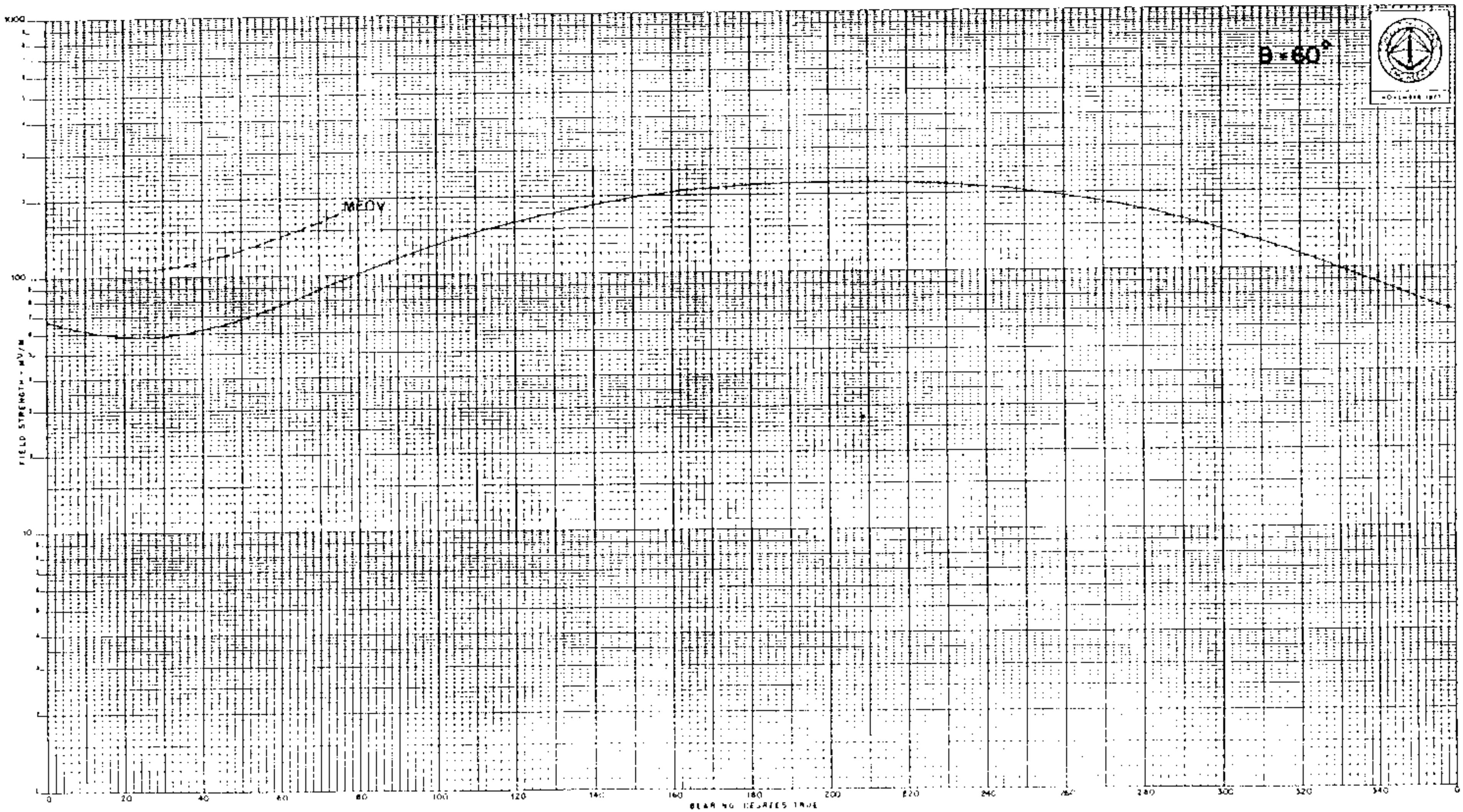

θ = 55°
MEDV
FIELD STRENGTH - MV/M
BEARING - DEGREES TRUE
1000
100
10
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340

FIG. 2L

WRE C

WREC



B = 60°
MEDV
1000
100
10
1
FIELD STRENGTH - mV/m
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
0
BEARING DEGREES TRUE

FIG. 2 M

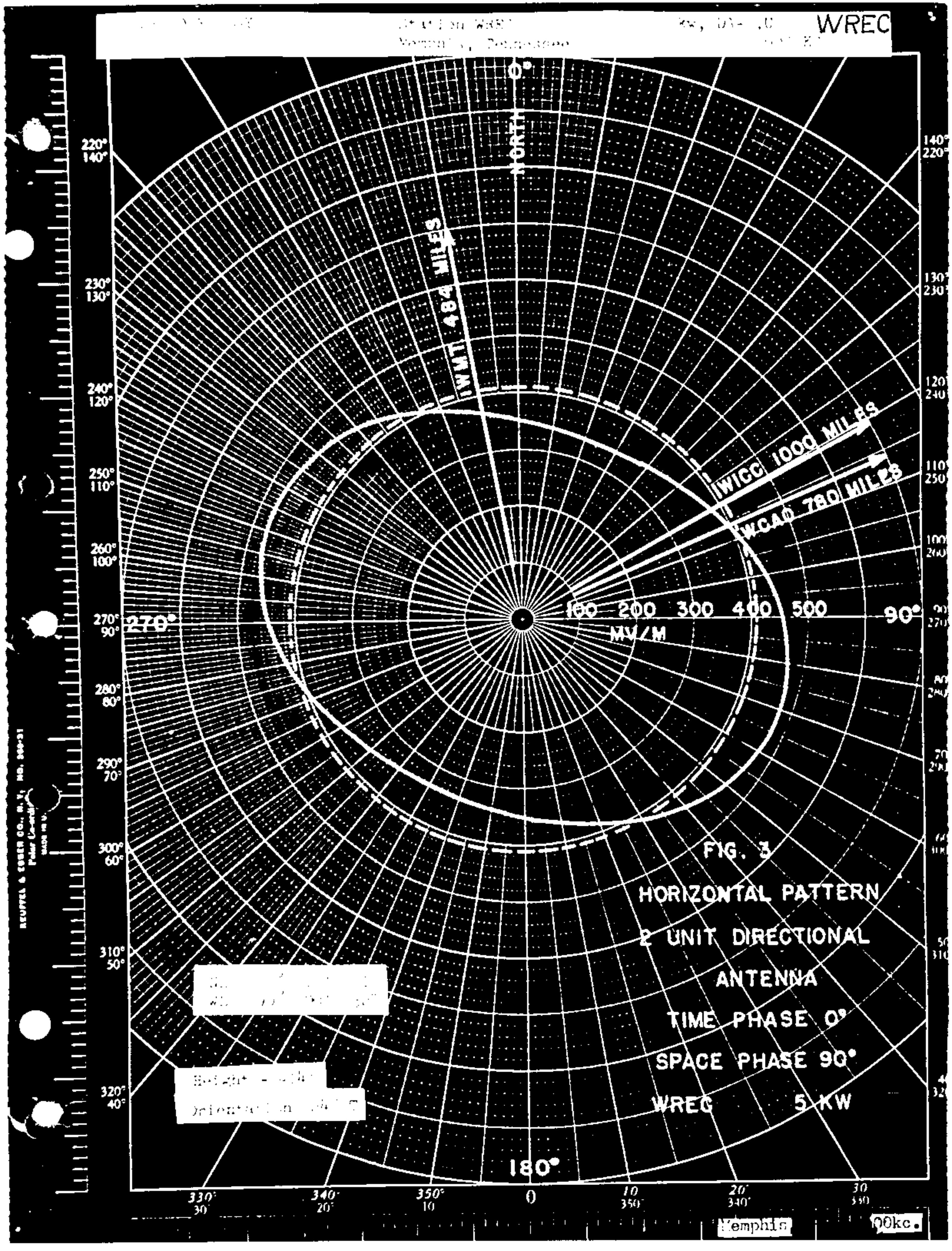
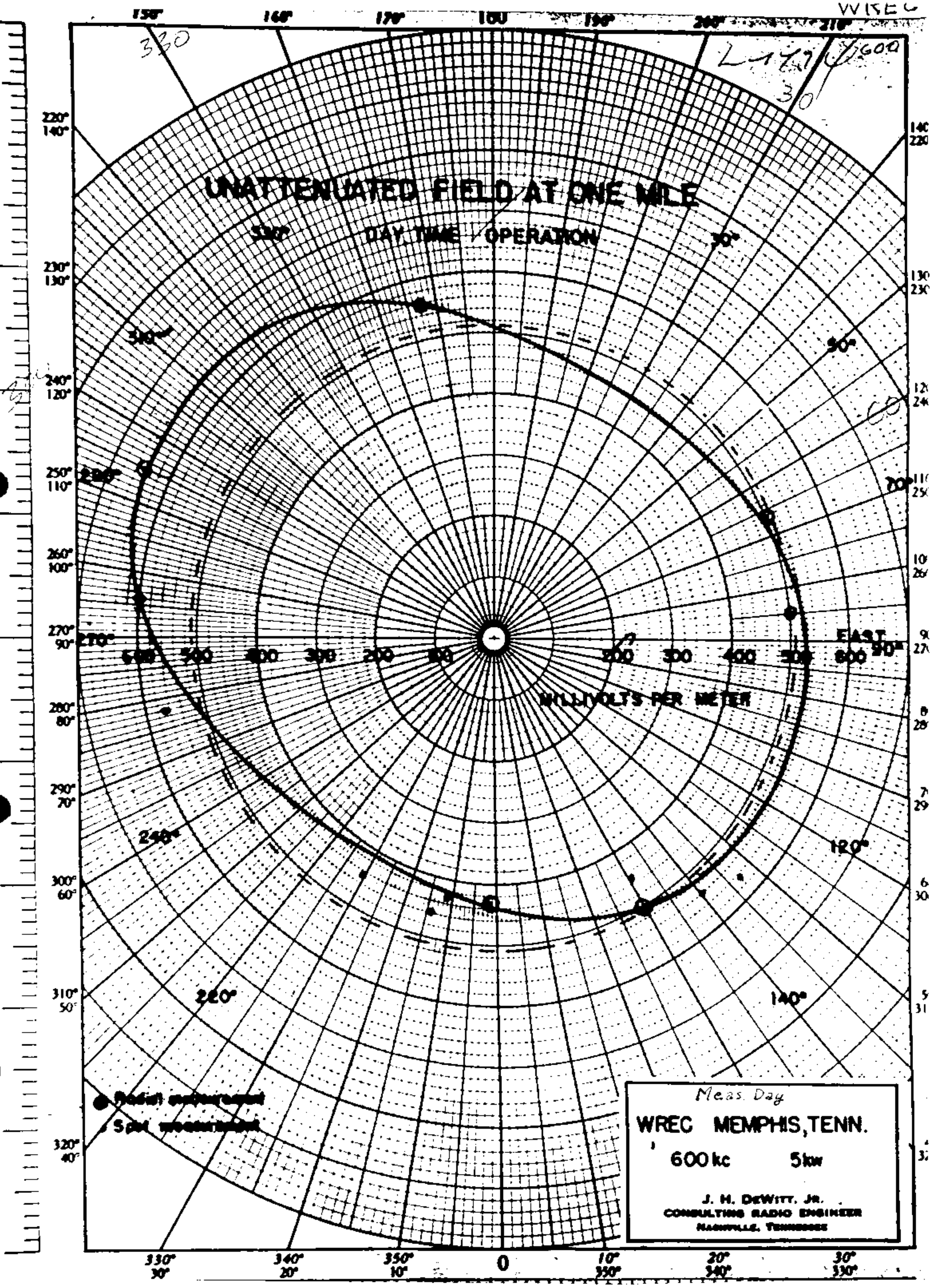


FIG. 3
HORIZONTAL PATTERN
2 UNIT DIRECTIONAL
ANTENNA
TIME PHASE 0°
SPACE PHASE 90°
WREC 5 KW

WREC



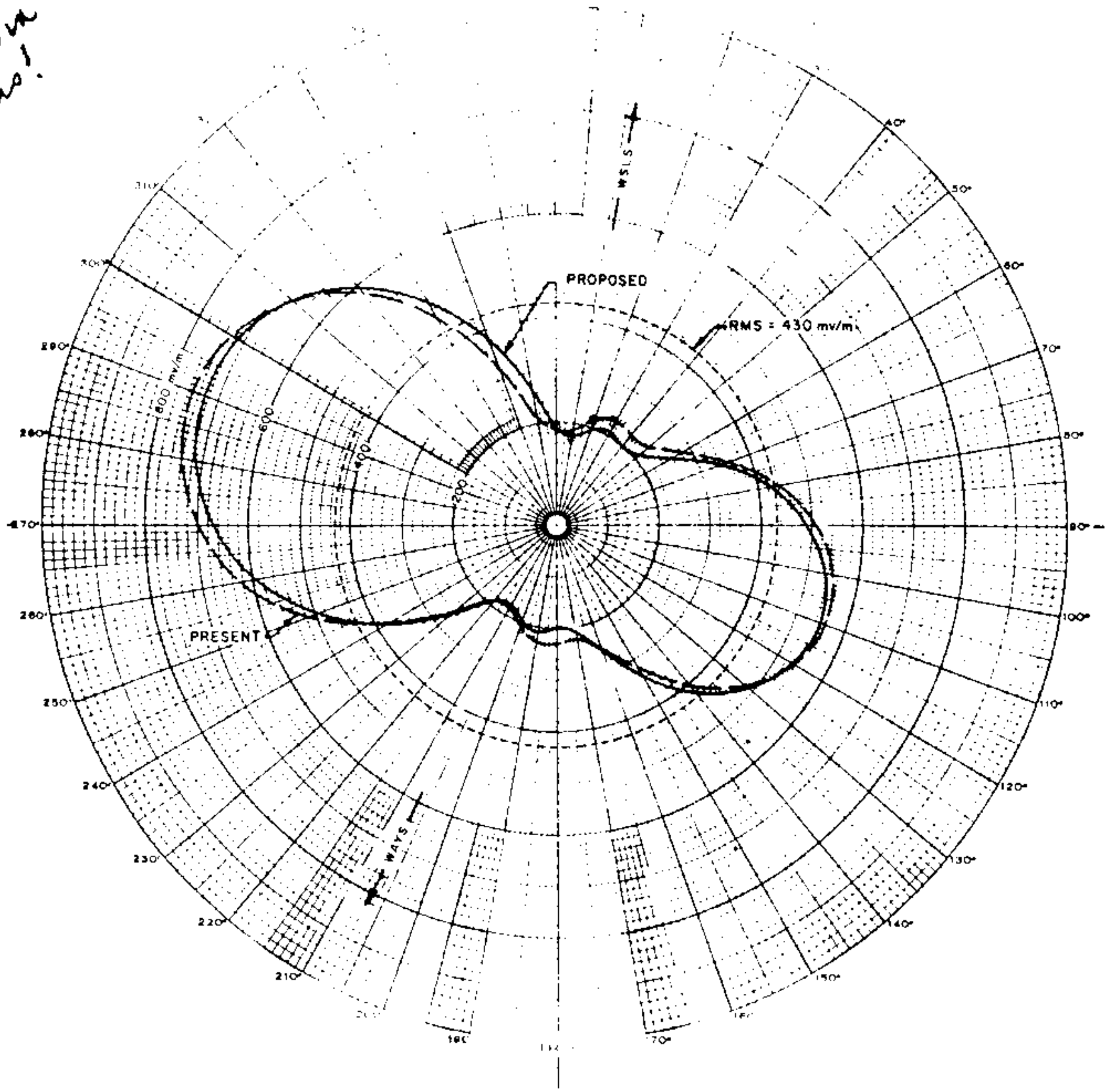
UNATTENUATED FIELD AT ONE MILE
DAY TIME OPERATION
MILLIVOLTS PER METER
EAST
600 500 400 300 200 100
200 300 400 500 600
Radial measurement
Spot measurement
Meas. Day
WREC MEMPHIS, TENN.
600 kc 5 kw
J. H. DeWITT, JR.
CONSULTING RADIO ENGINEER
NASHVILLE, TENNESSEE

WSJS

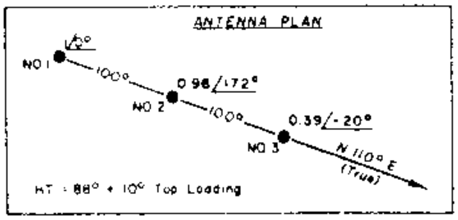
PROPOSED DAY
(12-15-60g)

Station WSJS 5kw, DA-2,U
Winston - Salem, North Carolina 600 KC

1-19-61
granted mePto
make Change in
DA patterns!



MEOV = PRESENT RADIATION IN NULL AREAS



North Latitude 36° 07' 00"
West Longitude 80° 21' 26"

FIGURE 4
DAYTIME HORIZONTAL PLANE
RADIATION PATTERN
PIEDMONT PUBLISHING COMPANY
WSJS 600 KC 5 KW, DA-2
WINSTON-SALEM, NORTH CAROLINA
Prepared by
Lohnes & Culver *Washington 4, D.C.*

FCC File No. BMP-9182
Accepted 11-14-60

WSJS
Winston - Salem, North Carolina 600 KC

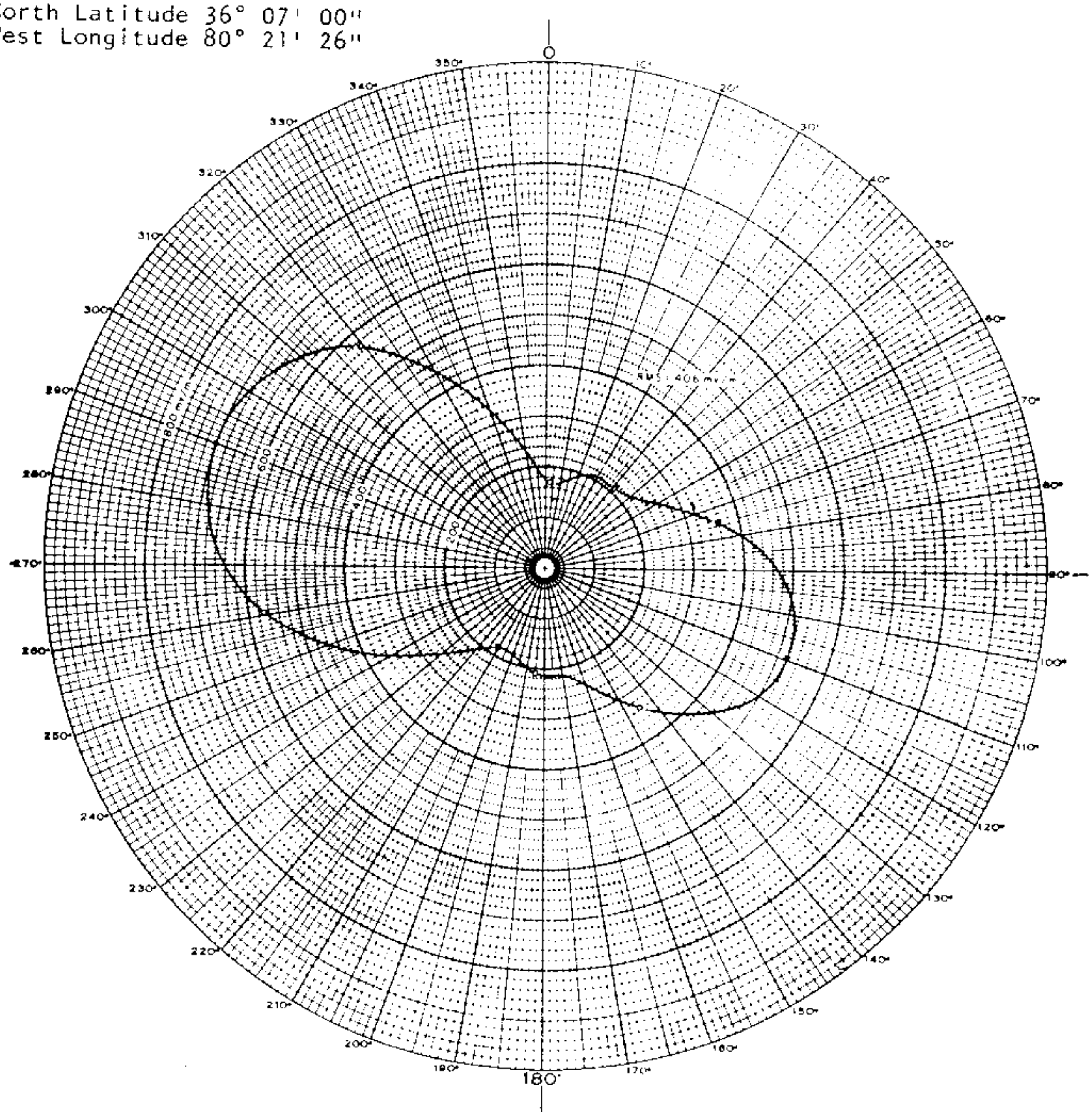
WSJS

MEASURED DAY
(8-22-61ct)

WSJS
Winston-Salem, North Carolina

5kw, DA-2,U
600 KC

North Latitude 36° 07' 00"
West Longitude 80° 21' 26"



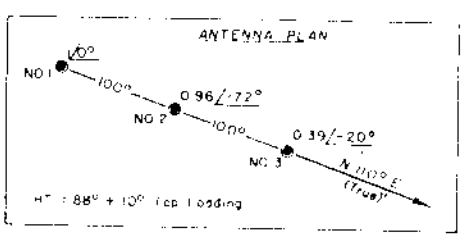


FIGURE 9
HORIZONTAL RADIATION PATTERN
(DAYTIME OPERATION)
PIEDMONT PUBLISHING COMPANY
WSJS 5KW-U,DA-2 600 KC
WINSTON-SALEM, NORTH CAROLINA

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

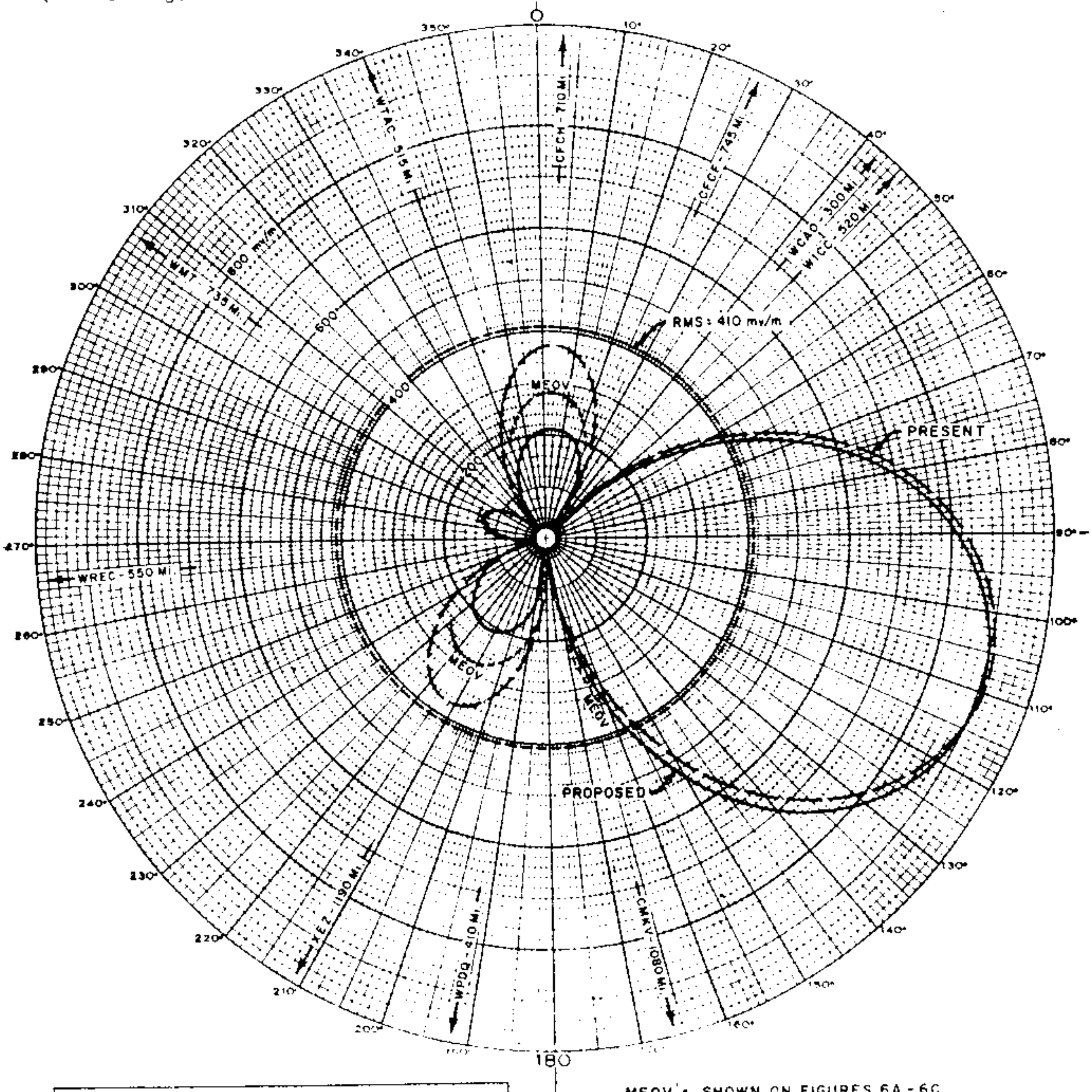
FCC File No. BL-8540
Accepted 8-11-61

WSJS
Winston-Salem, North Carolina 600 KC

WSJS

PROPOSED NIGHT
(12-15-60g)

Station WSJS 5kw, DA-2,U
Winston - Salem, North Carolina 600 KC



MEOV's SHOWN ON FIGURES 6A - 6C

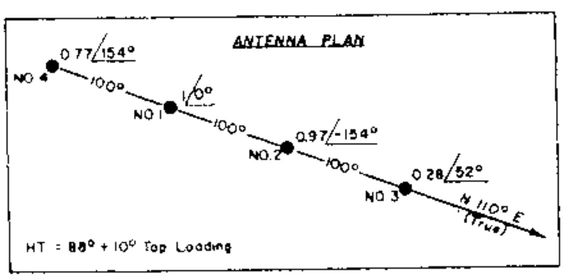


FIGURE 5
NIGHTTIME HORIZONTAL PLANE
RADIATION PATTERN
PIEDMONT PUBLISHING COMPANY
WSJS 600 KC 5 KW, DA-2
WINSTON-SALEM, NORTH CAROLINA
Prepared by
Lohnes & Culver *Washington 1, D.C.*

North Latitude 36° 07' 00"
West Longitude 80° 21' 26"

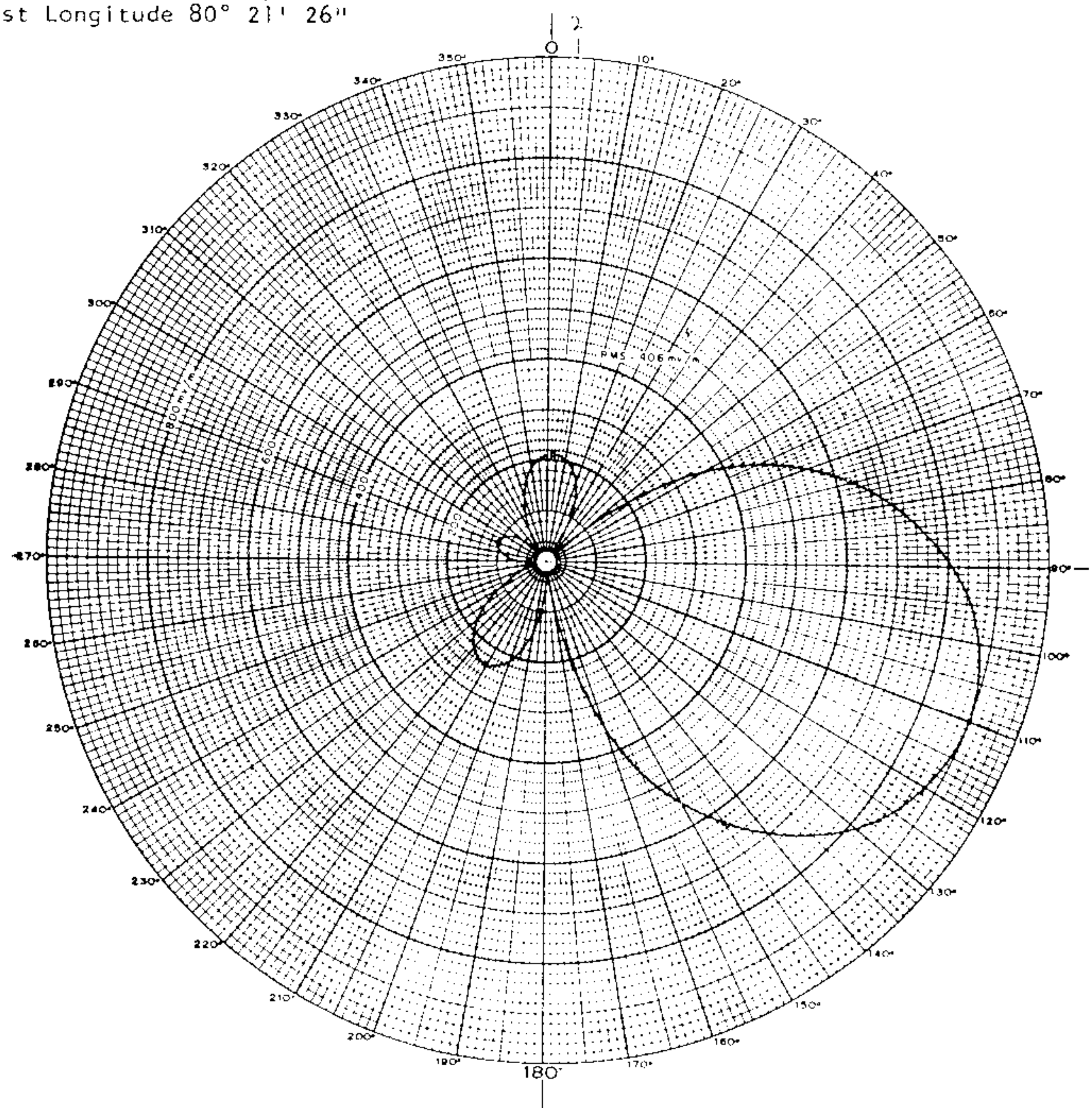
FCC File No. BMP-9182
Accepted 11-14-60

WSJS
Winston - Salem, North Carolina 600 KC

WSJS

MEASURED NIGHT (8-22-61ct) WSJS Winston-Salem, North Carolina 5kw, DA-2, U 600 KC

North Latitude 36° 07' 00"
West Longitude 80° 21' 26"



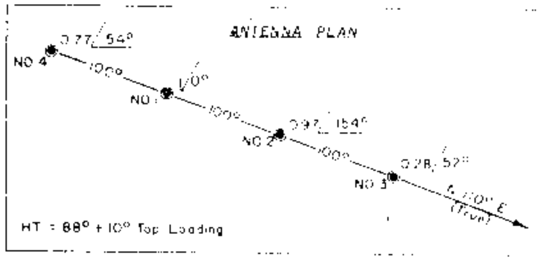


FIGURE 10
HORIZONTAL RADIATION PATTERN
(NIGHTTIME OPERATION)
PIEDMONT PUBLISHING COMPANY
WSJS 5KW-U, DA-2 600 KC
WINSTON-SALEM, NORTH CAROLINA

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

FCC File No. BL-8540
Accepted 8-11-61

WSJS
Winston-Salem, North Carolina

600 KC

MEASURED NON-DA (8-22-61ct) WSJS Winston-Salem, North Carolina 5kw, DA-2,U 600 KC

North Latitude 36° 07' 00"
West Longitude 80° 21' 26"

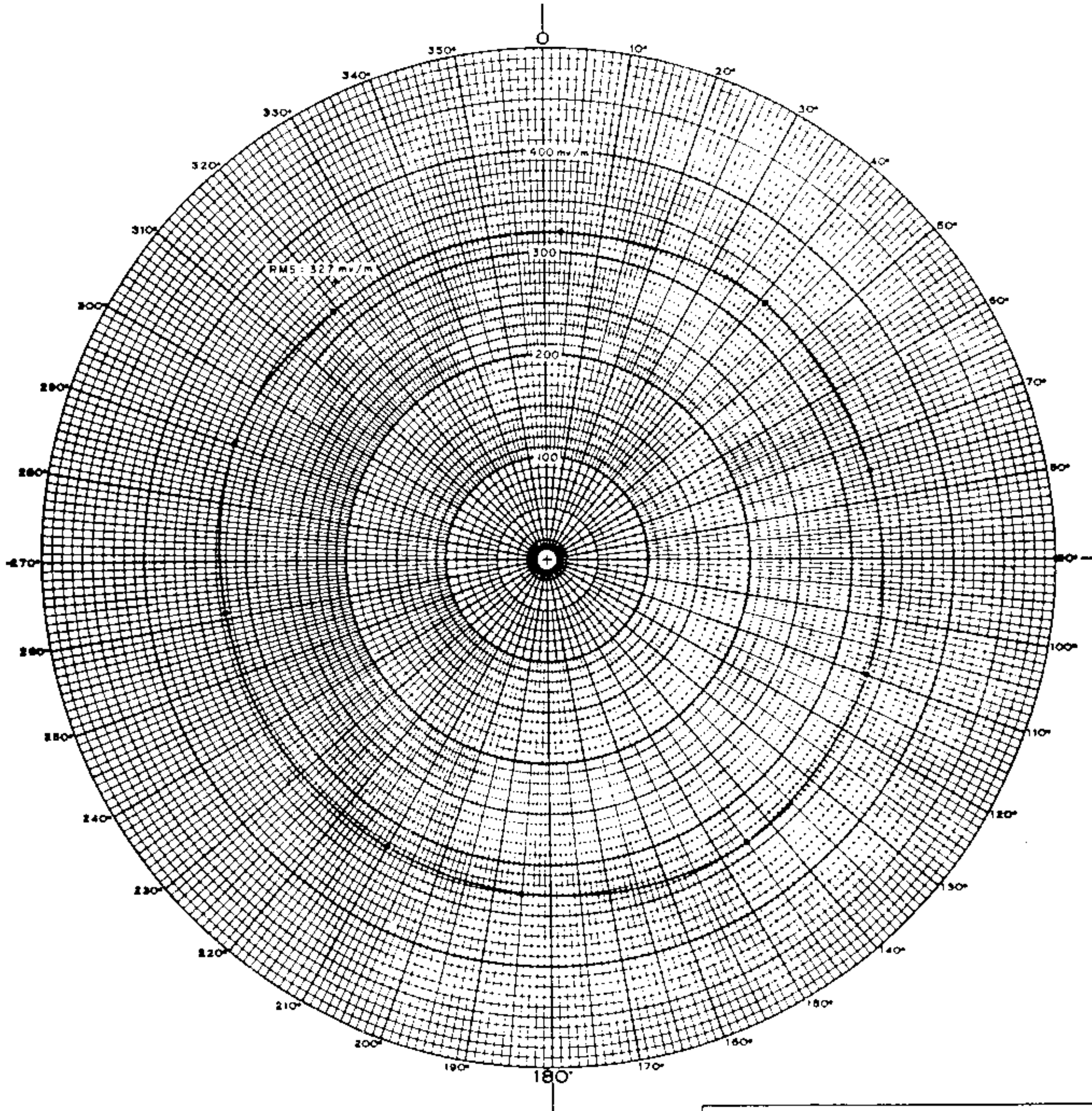


FIGURE 8
HORIZONTAL RADIATION PATTERN
(NON-DA OPERATION)
PIEDMONT PUBLISHING COMPANY
WSJS 5KW,DA-2 600 KC
WINSTON-SALEM, NORTH CAROLINA
Prepared by
Lohnes and Culver Washington 4, D. C.
July 1961

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WSOM	Main Studio: Salem, Ohio
Frequency: 600 kHz	Power: 0.5 kw
Notification List No. 1761	Date: December 15, 1977 Class III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitutde: 40° 49' 49"
West Longitude: 80° 55' 51"

ANTENNA CHARACTERISTICS

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

TOWER:	#1(N)	#2(E)	#3(W)	#4(S)
HEIGHT ABOVE INSULATORS:	320'	320'	320'	320' (70.2°)
PHASING:	0°	+31.5°	+97°	+128.5°
FIELD RATIO:	1	0.9	1	0.9

SPACING AND ORIENTATION: The towers are located at the vertices of a parallelogram the long sides of which are 1012' (222°) in length on a line bearing 127° true. The short sides are 410' (90°) in length on a line bearing 231° true.

GROUND SYSTEM: 120-250' to 770' 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.

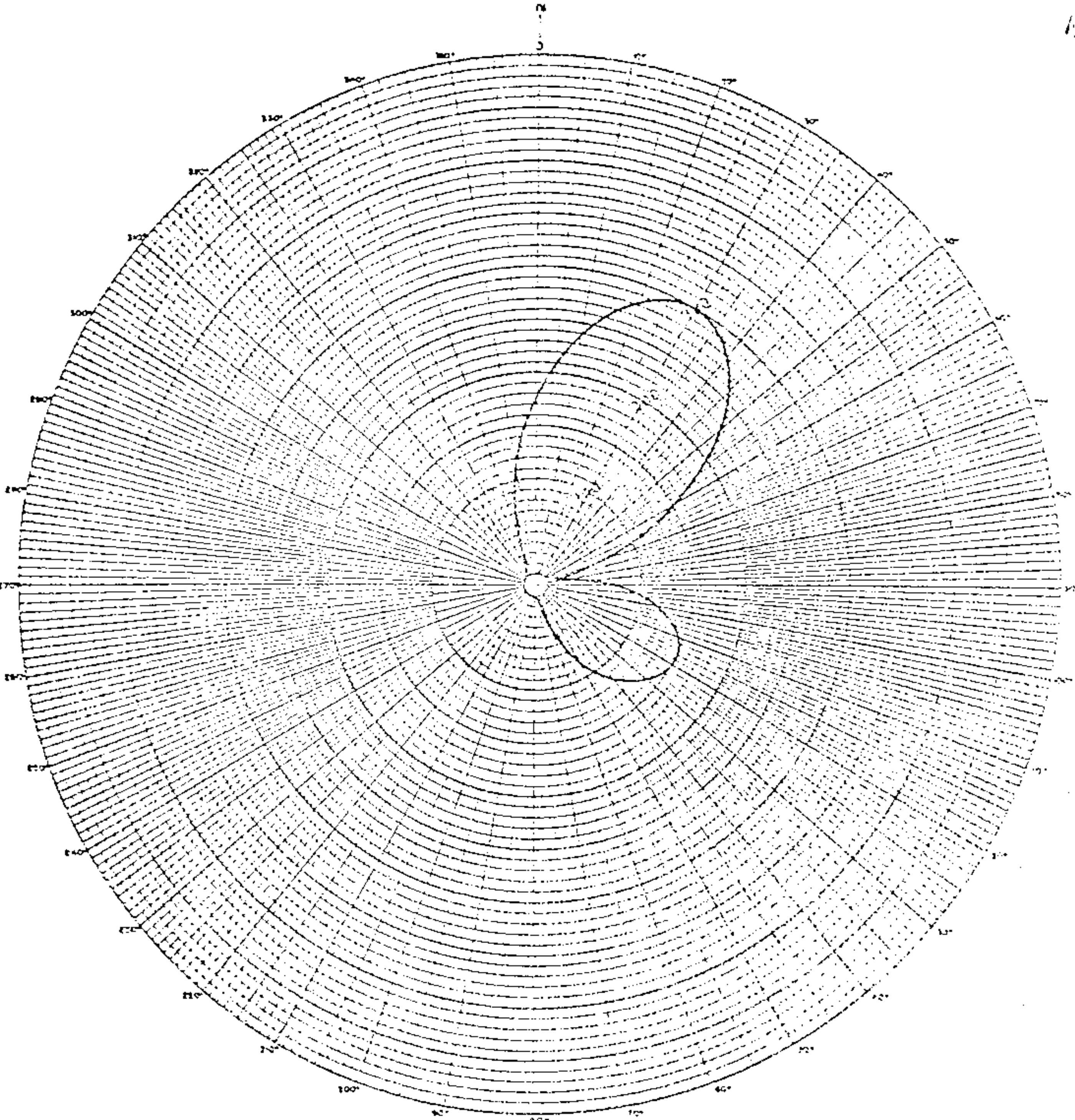
PREDICTED EFFECTIVE FIELDS AT RATED POWER:

THEORETICAL
RMS
123 mv/m

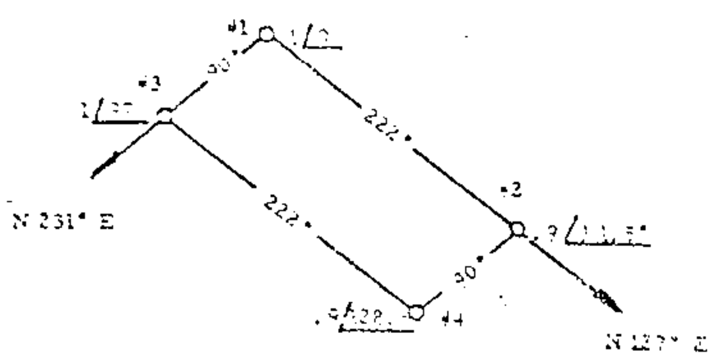
This notification concerns only changes in m.e.o.v.s of radiation in the directional antenna pattern.

105

THEO - D



HORIZONTAL RADIATION PATTERN



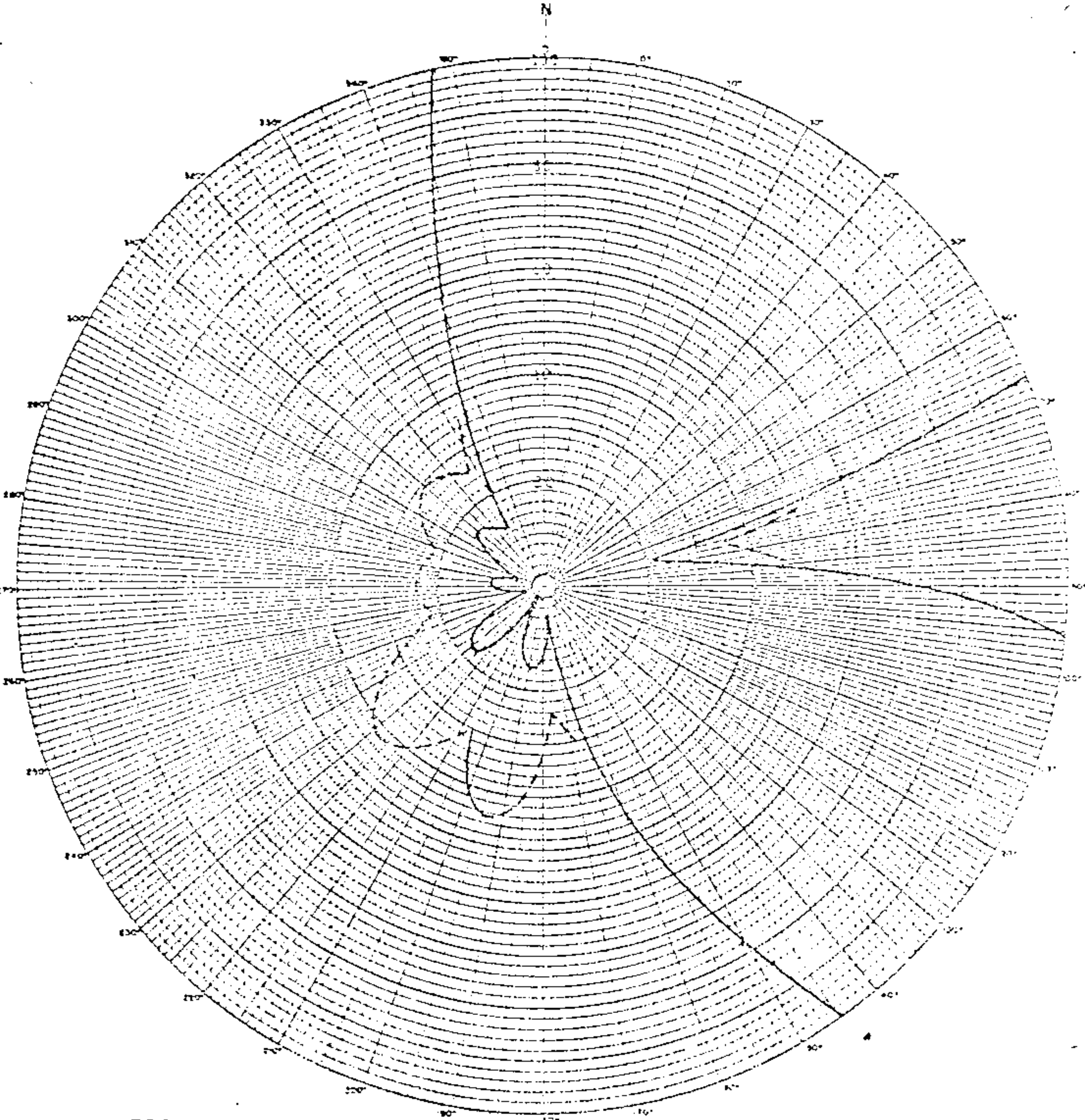
G = 70.2°

FIGURE [illegible]

APPLICANT	Salem Broadcasting Co.
LOCATION	Salem, Ohio
FREQUENCY	[illegible] KHz
POWER	[illegible] KW
LATITUDE	40 DEG [illegible] MIN [illegible] SEC
LONGITUDE	80 DEG [illegible] MIN [illegible] SEC
WHEN USED	Daytime
RMS FIELD	[illegible] MV/M
DATE	July 19[illegible]

ROBERT L. PURCELL

WASHINGTON, D. C.



------ MEOV

HORIZONTAL RADIATION PATTERN

FIGURE 1-B

EXPANDED NULL AREA

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

ROBERT L. PURCELL

WASHINGTON, D. C.

PROPOSED DAY Station WTAC Flint, Michigan 500w,1kw-LS, DA-2,U 600 KC

WTAC

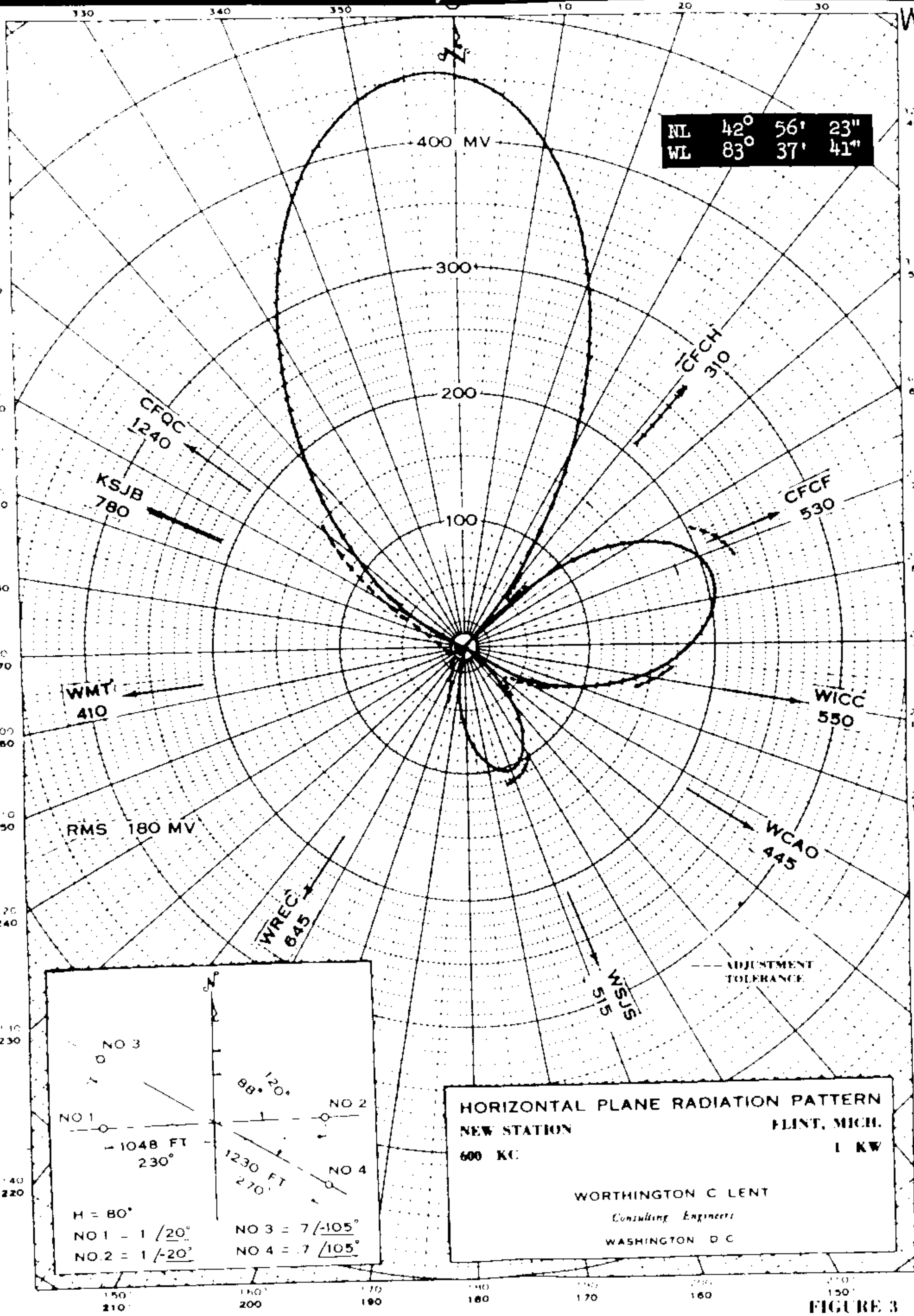
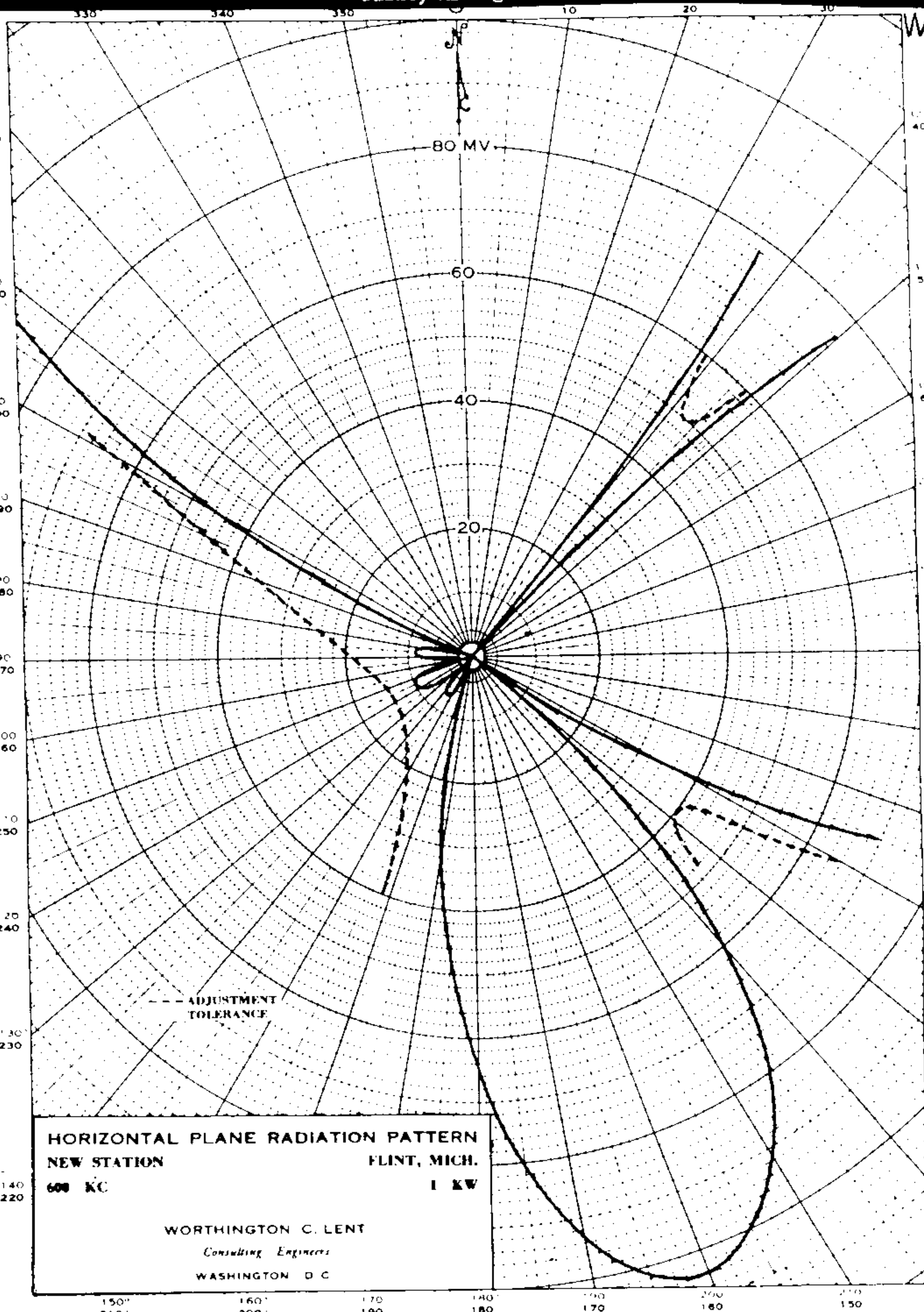


FIGURE 3

PROPOSED DAY NULLS   Station WTAC Flint, Michigan   500w, 1kw-LS, DA-2,U 600 KC



HORIZONTAL PLANE RADIATION PATTERN

NEW STATION   FLINT, MICH.

600 KC   1 KW

WORTHINGTON C. LENT

Consulting Engineers

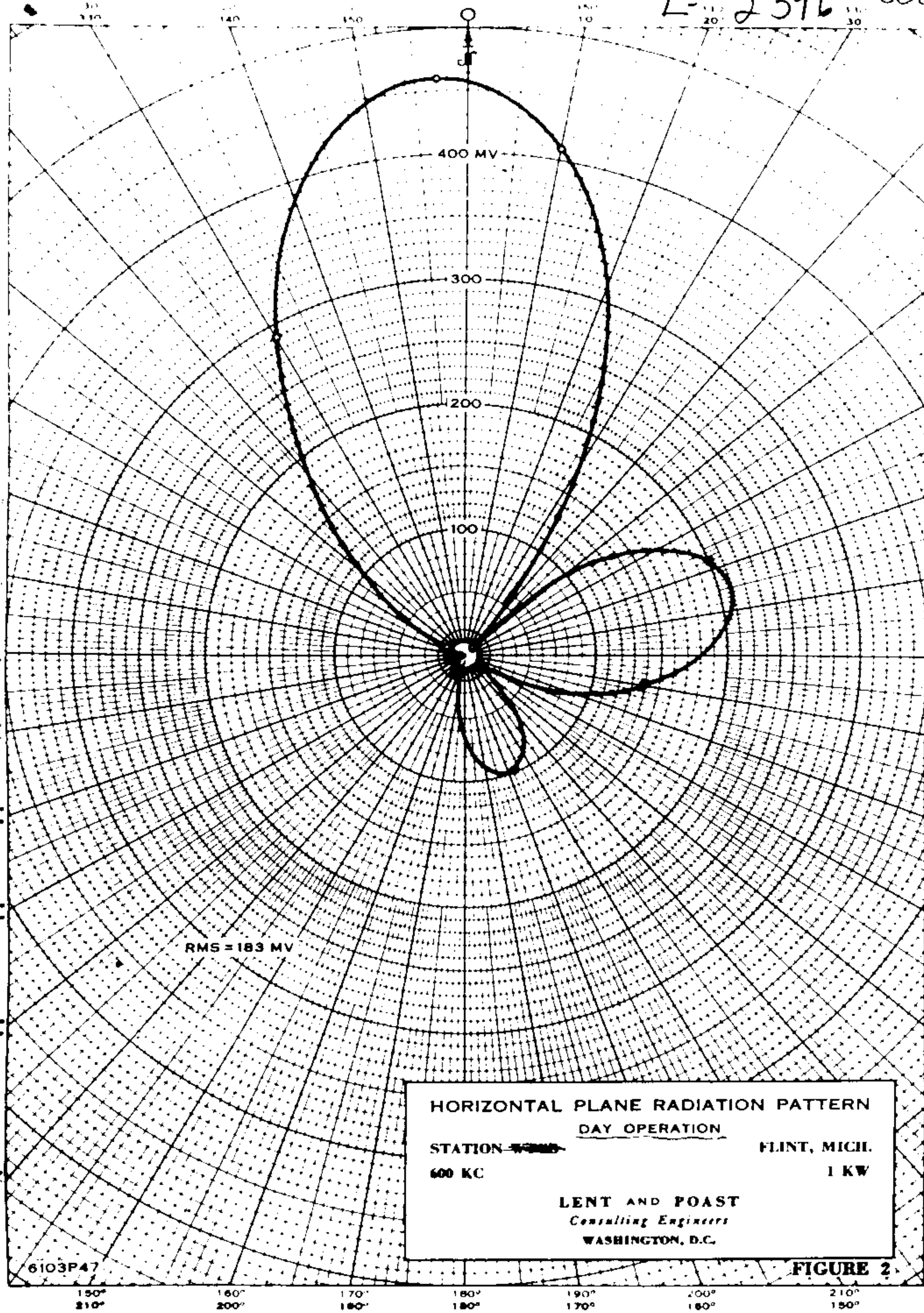
WASHINGTON D C

FIGURE 4

Meas Day
Rec'd 4-14-47

42-56-26
83-37-41

WTAC
L-2346 600



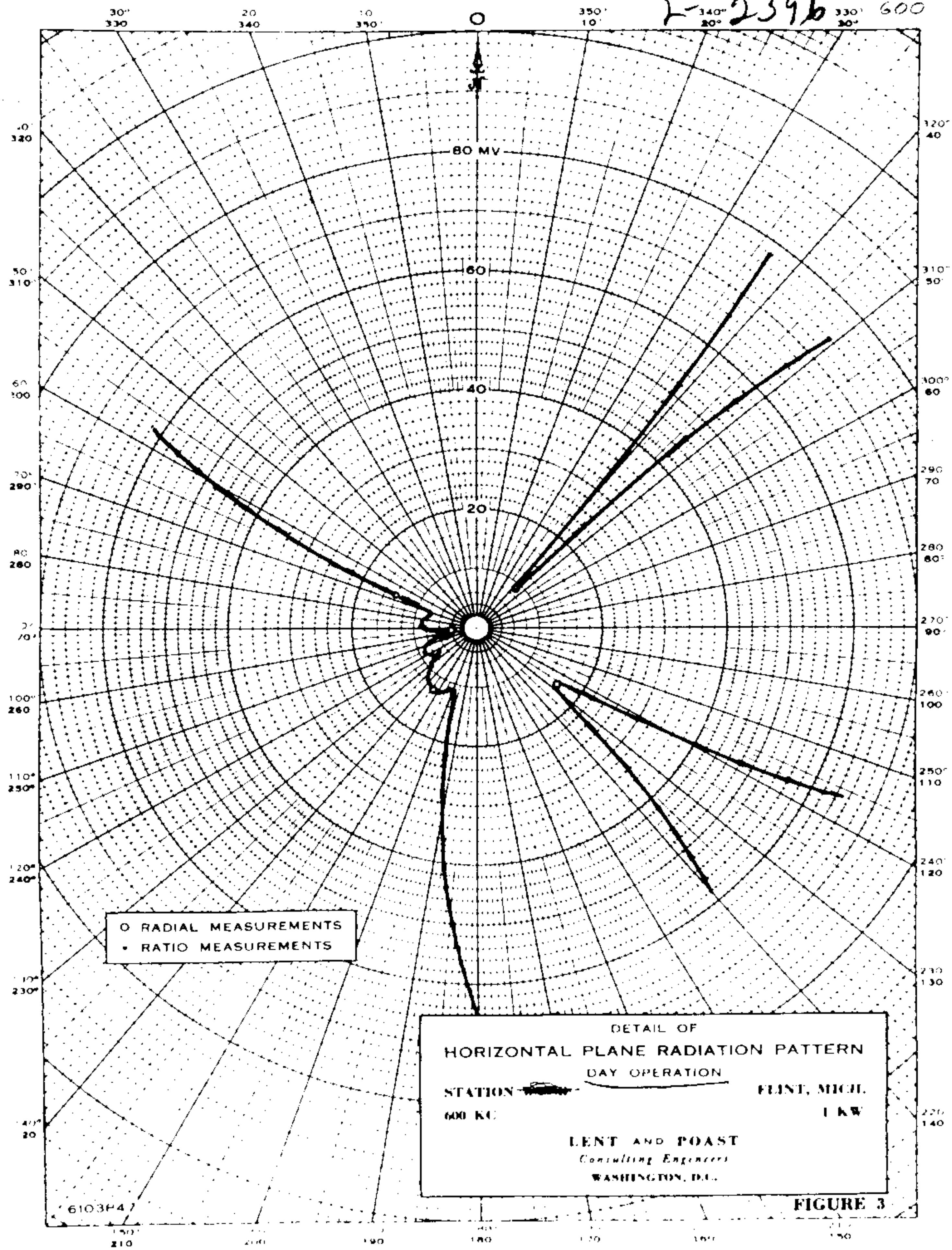
HORIZONTAL PLANE RADIATION PATTERN
DAY OPERATION
STATION [redacted] FLINT, MICH.
600 KC 1 KW

LENT AND POAST
Consulting Engineers
WASHINGTON, D.C.

FIGURE 2

Meas Day Nulls
Rec'd 4-14-47

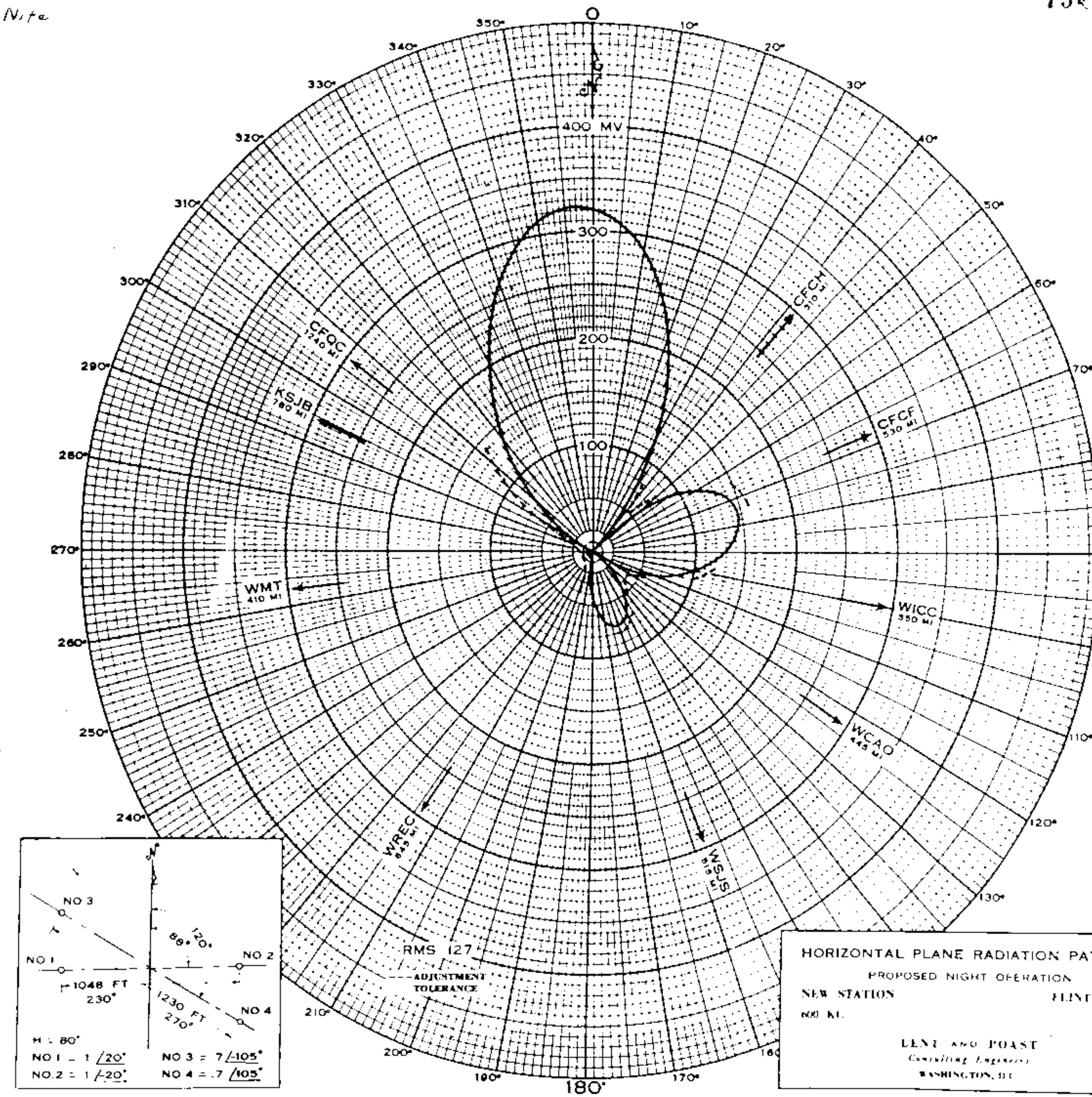
WTAC
239b 600



Prop Nite

75?3-?

WTAC



EQN on back

6003C46

HORIZONTAL PLANE RADIATION PATTERN

PROPOSED NIGHT OPERATION

NEW STATION FLINT, MICH.

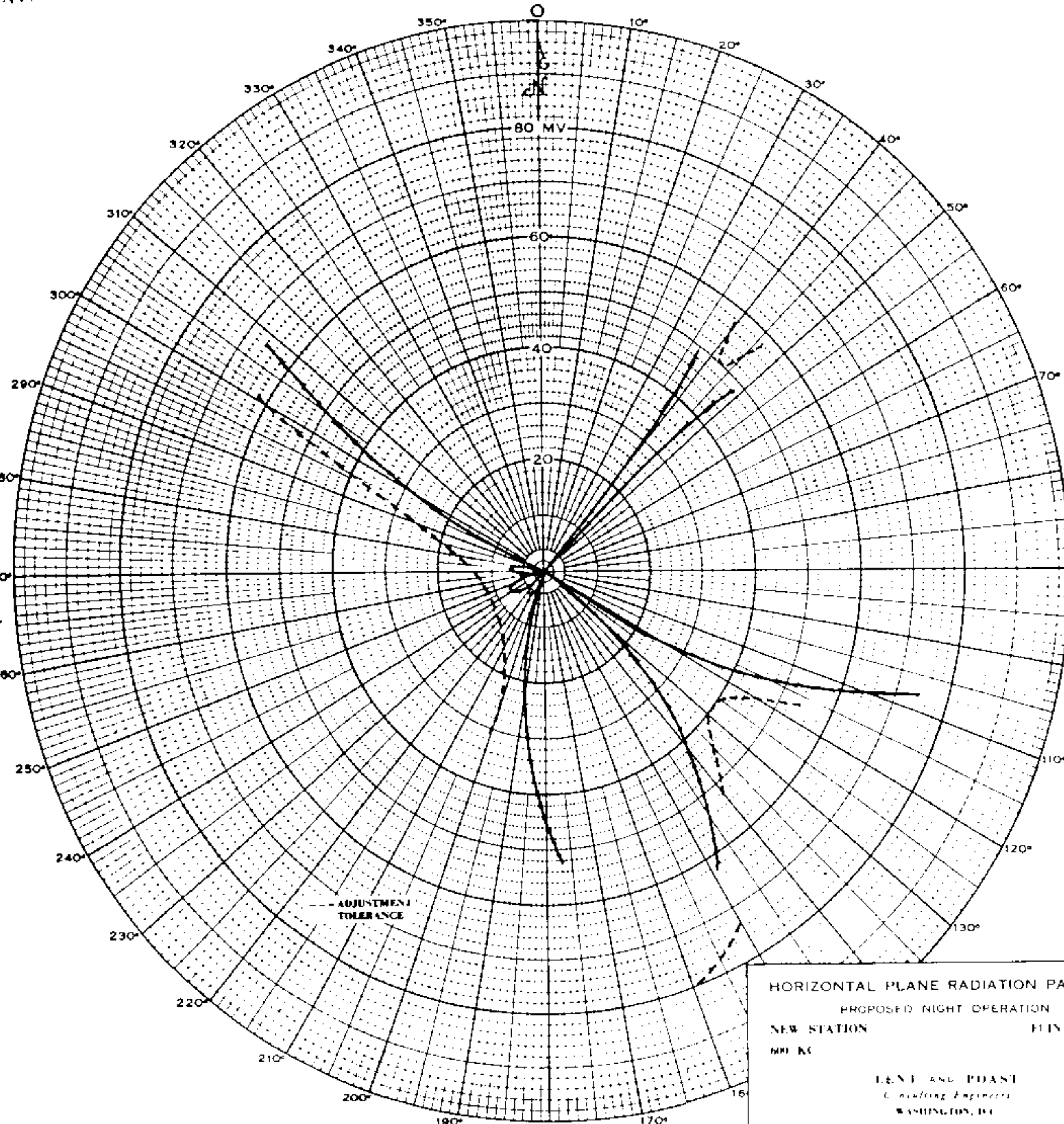
600 KC .5 KW

LENT AND POAST
Consulting Engineers
WASHINGTON, D.C.

FIGURE 3C

Prop Nite Nulls

754



HORIZONTAL PLANE RADIATION PATTERN

PROPOSED NIGHT OPERATION

NEW STATION FLINT, MICH.

600 KC .5 KW

LENT AND POAST
Consulting Engineers
WASHINGTON, D.C.

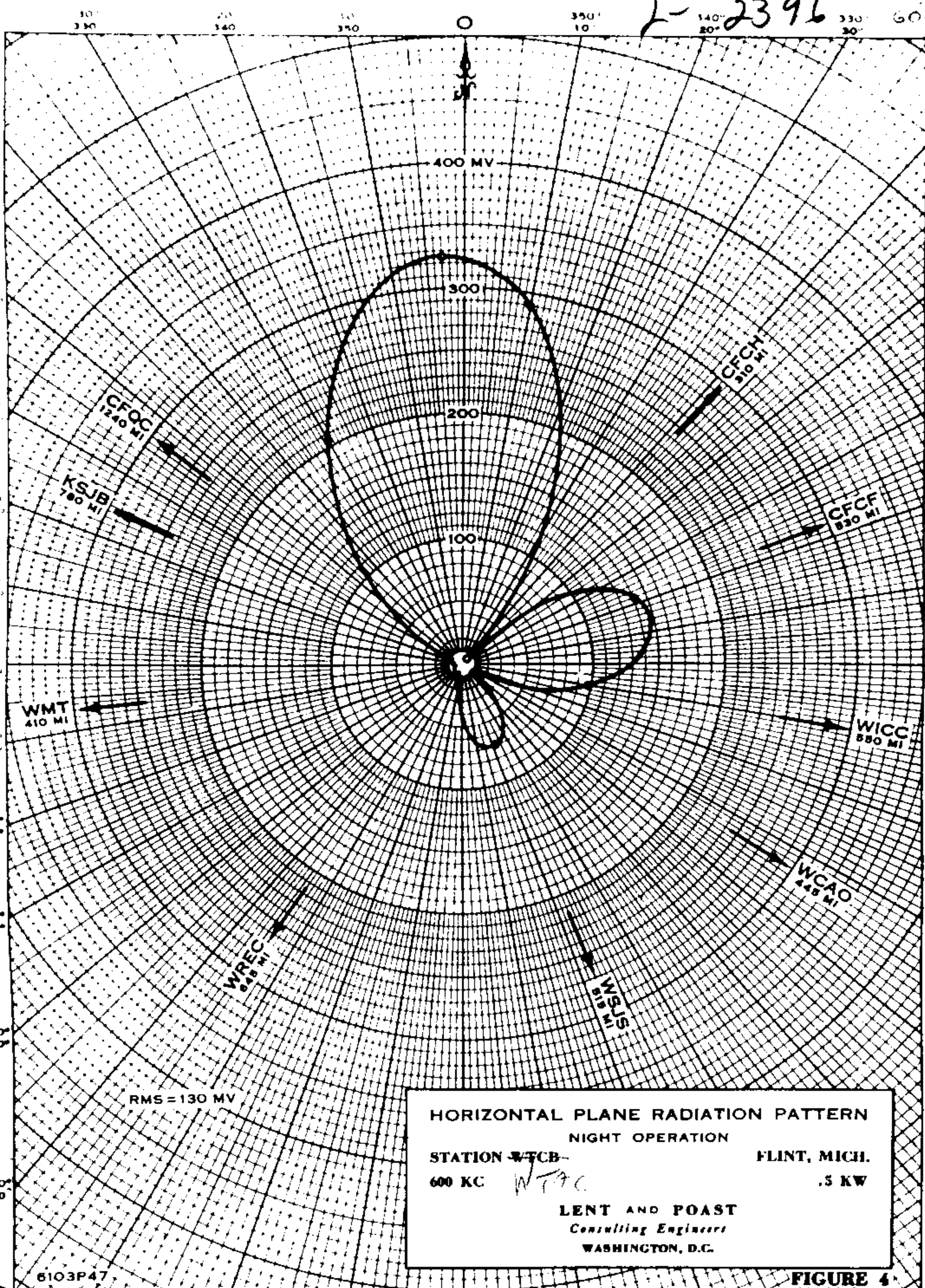
FIGURE 4C

6003C46

Meas Nite
Rec'd 4-14-47

WTAC

L-2396 600 KC



HORIZONTAL PLANE RADIATION PATTERN

NIGHT OPERATION

STATION ~~WTCB~~ WTAC FLINT, MICH.

600 KC .5 KW

LENT AND POAST

Consulting Engineers

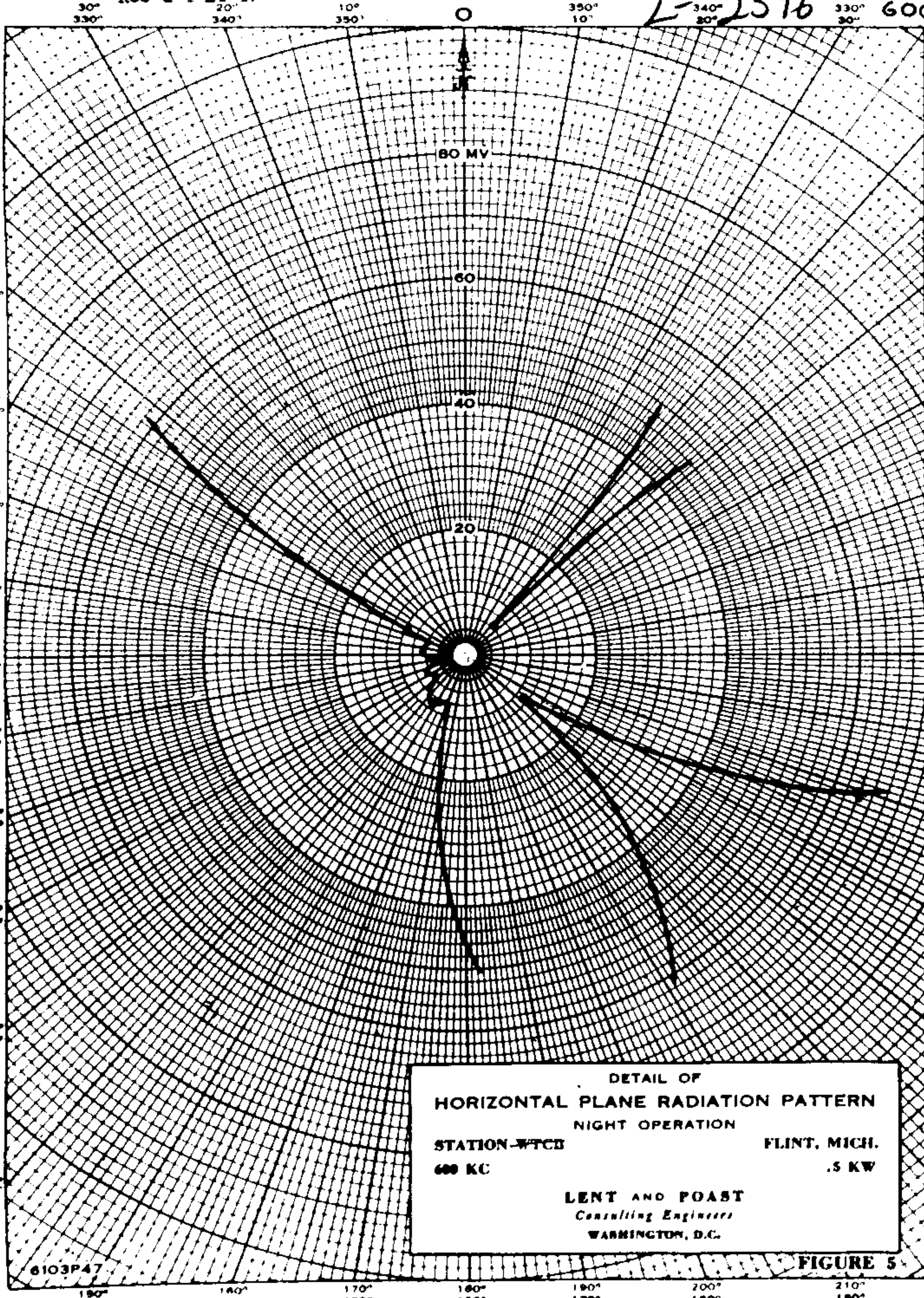
WASHINGTON, D.C.

FIGURE 4

Pleas Nite Nulls

Rec'd 4-24-47

L-2396 WTAC 600



EUGENE DIETZGEN CO.

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

MEX CL 293

DESCRIPCION DEL SISTEMA RADIADOR DIRECCIONAL

1. LISTA DE CAMBIOS ______
2. FECHA SEPTIEMBRE DE 1981.
3. FRECUENCIA 600 KHz.
4. DISTINTIVO XERJ
5. POBLACION MAZATLAN, SIN.
6. UBICACION KM 2 AL "CONCHI" LAT. NORTE 23° 15' 35"
7. POTENCIA 5000 WD. 150 WN. LONG. OESTE 106° 23' 12"
8. CLASE III

CARACTERISTICAS TECNICAS DEL RADIADOR

9. TIEMPO DE OPERACION 24 HORAS
10. SISTEMA DEL RADIADOR DIRECCIONAL
11. NUMERO DE ELEMENTOS 2

TIPO DE ELEMENTOS RADIADORES

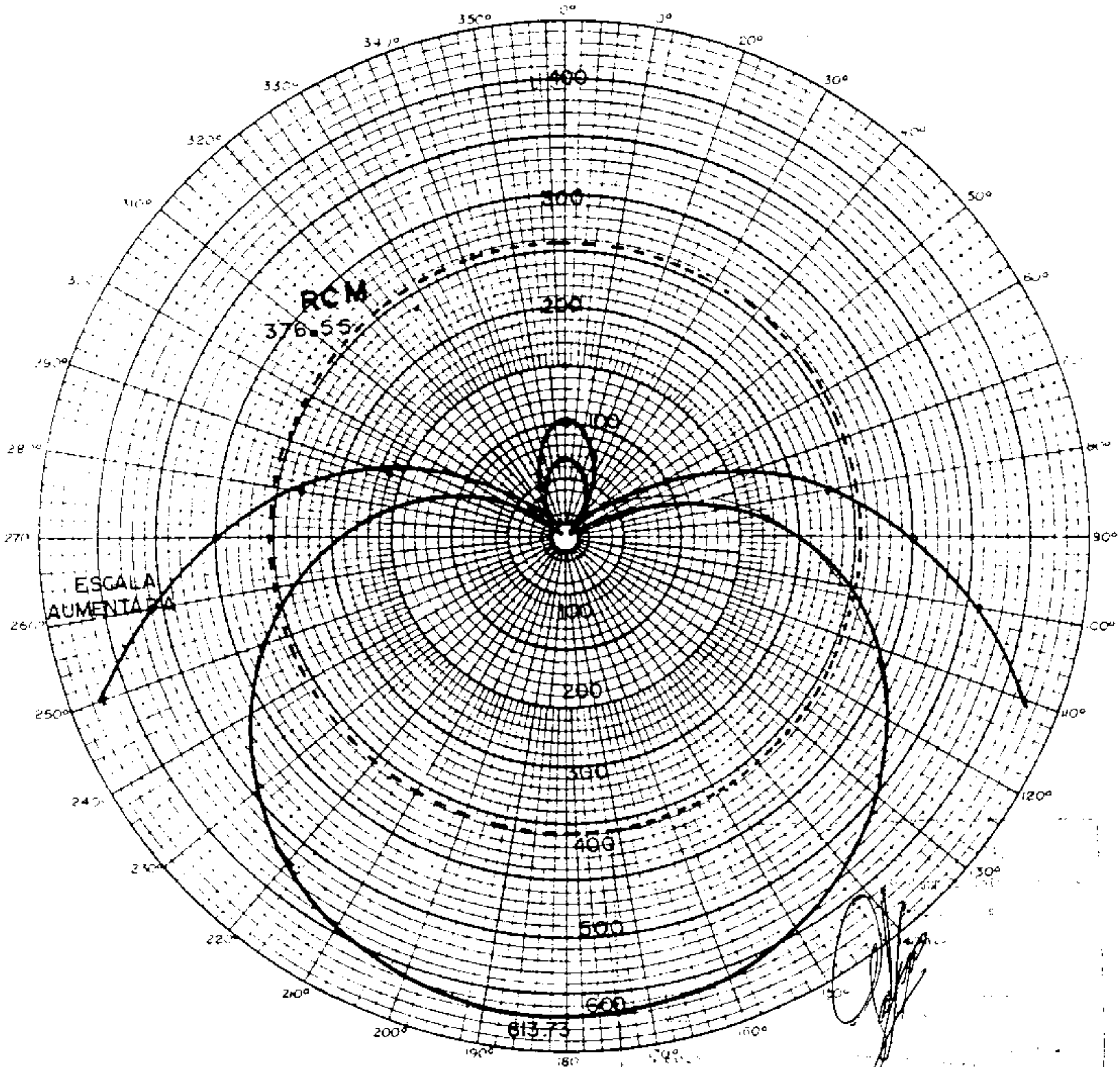
12. TIPO DE ALIMENTACION SERIE
13. SECCION TRANSVERSAL FORMA TRIANGULAR DIMENSIONES 60 CMS. POR LADO
14. TIPO DE ELEMENTO RADIADOR VERTICAL
15. TIPO DE SOPORTE RETENIDAS. TIPO DE RETENES CABLE ACERO DE 3/8.
16. LONGITUD DE TOPETE CAPACITIVO NO HAY
17. IMPEDANCIA MUTUA 12.98 − j 4.51 IMPEDANCIA PROPIA $Z_{11} = Z_{22} = 19 - j75$
18. NUMERO DE ELEMENTOS 2
19. ALTURA SOBRE EL AISLADOR 70° 97.22 MTS.
20. DEFASAMIENTO 135°
21. RELACION DE CAMPO 1 A 1
22. DESCRIPCION DE LA ORIENTACION DEL SISTEMA RADIADOR EL EJE DE LAS TORRES SE ENCUENTRA A 0° RESPECTO AL NORTE GEOGRAFICO. LA SEPARACION ENTRE TORRES ES DE 60°, 83.33 MTS., LA FASE ENTRE LAS CORRIENTES ES DE 135° Y SU RELACION ES LA UNIDAD.

SISTEMA DE TIERRA

23. NUMERO DE RADIALES POR ELEMENTO 120
24. LONGITUD DE LOS RADIALES 83.33 MTS.
25. TIPO DEL RADIAL ALAMBRE DE COBRE No. 8 AWG

RADIACION DEL SISTEMA

26. INTENSIDAD DE CAMPO EFECTIVO TEORICO (OMNIDIRECCIONAL) DE LA POTENCIA RADIADA (RCM) 376.55
27. INTENSIDAD DE CAMPO EFECTIVO TEORICO A 1609 mts POR KW DE POTENCIA RADIADA 192 MV/M
28. NOTA PATRON NUEVO.



PATRON DE RADIACION HORIZONTAL CALCULADO

ESQUEMA DE LAS TORRES Y SU ORIENTACION CON RESPECTO AL NORTE ASTRONOMICO

N

0°

XERJ

L N 23° 15' 35"
L W 106° 23' 12"

5000 WATTS

DISEÑO

ING. ANTONIO DE AVILA

PATRON DE RADIACION HORIZONTAL TABULADO

OPERACION DIURNA

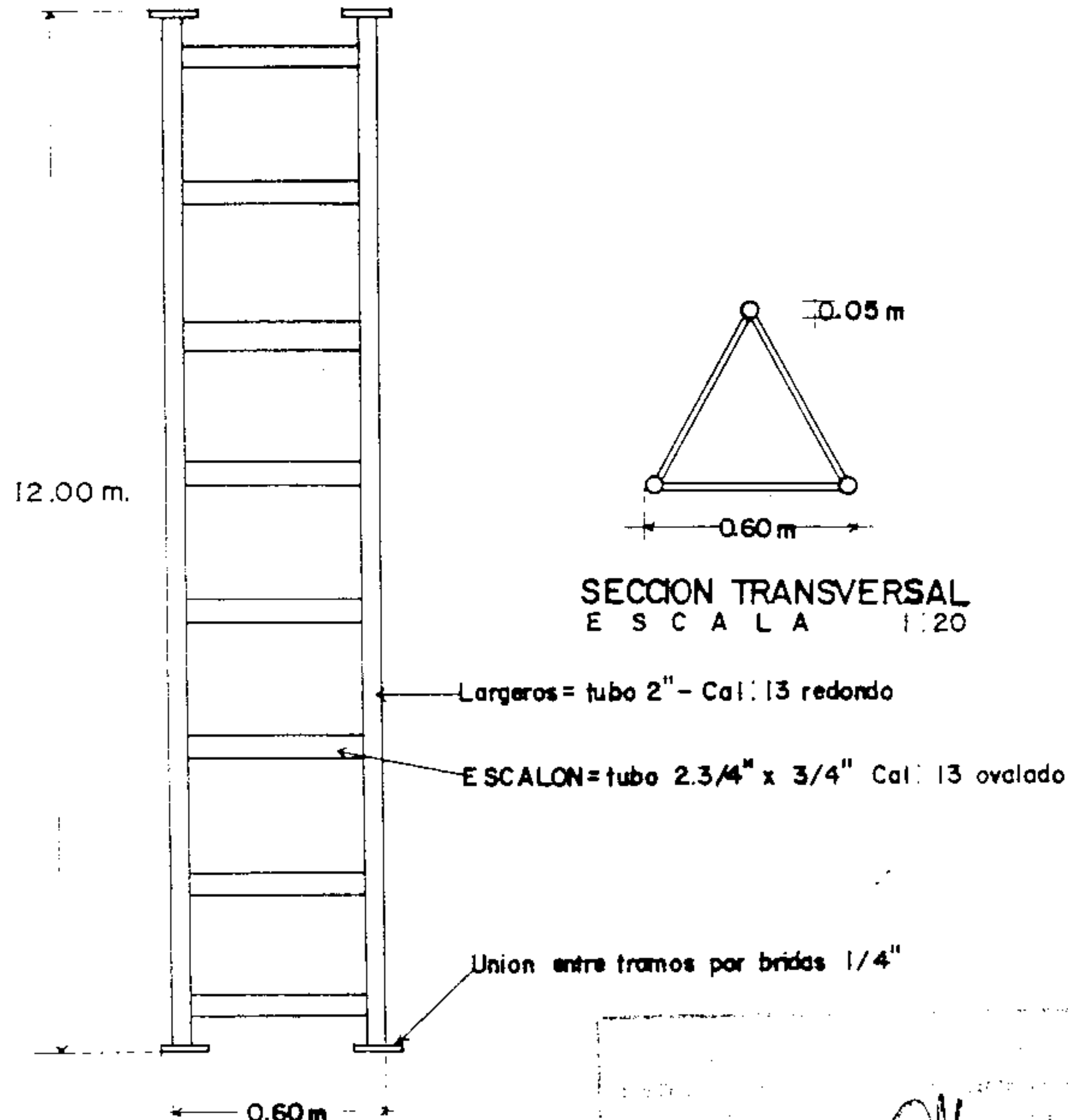
XERJ

600 KHz.

$$E_{\theta} = 2E \cos\left[\frac{s}{2}\cos(0^{\circ} - \theta) + \frac{\psi}{2}\right]$$

$E_1 = 386.804767$
$s = 60°$
$\psi = 135°$

AZIMUT	A	B	C	D	F	E (mV./M)
θ	$\cos(0° - \theta)$	$\frac{S}{2}A$	$B + \frac{\psi}{2}$	cos C	2D	$\lvert 386.80 \cdot F \rvert$
0°	0.9999	29.9999	97.5000	-0.1306	-0.2611	+100.9728
10°	0.9848	29.5442	97.0442	-0.1227	-0.2453	+ 94.8686
20°	0.9396	28.1907	95.6907	-0.0992	-0.1984	+ 76.7077
30°	0.8666	25.9807	93.4807	-0.0608	-0.1215	46.9659
40°	0.7666	22.9813	90.4813	-0.0084	-0.0168	6.4970
50°	0.6427	19.2836	86.7836	0.0561	0.1122	43.4058
60°	0.5000	15.0000	82.5000	0.1305	0.2610	100.9763
70°	0.3420	10.2606	77.7606	0.2119	0.4239	164.0017
80°	0.1736	5.2095	72.7095	0.2972	0.5944	229.9281
90°	0.0000	0.0000	67.5000	0.3826	0.7653	296.0443
100°	-0.1737	- 5.2094	62.2906	0.4649	0.9299	359.7149
110°	-0.3421	-10.2606	57.2394	0.5411	1.0822	418.6183
120°	-0.5000	-15.0000	52.5000	0.7086	1.2175	470.9378
130°	-0.6428	-19.2836	48.2164	0.6663	1.3326	515.4646
140°	-0.7661	-22.9813	44.5187	0.7130	1.4260	551.5938
150°	-0.8661	-25.9807	41.5193	0.7487	1.4974	579.2200
160°	-0.9397	-28.1908	39.3092	0.7737	1.5474	598.5640
170°	-0.9849	-29.5443	37.9557	0.7884	1.5769	609.9729
180°	-1.0000	-30.0000	37.5000	0.7933	1.5867	613.7386
190°	-0.9849	-29.5443	37.9557	0.7884	1.5769	609.9734
200°	-0.9397	-28.1909	39.3091	0.7737	1.5474	598.5650
210°	-0.8661	-25.9809	41.5191	0.7487	1.4974	579.2215
220°	-0.7661	-22.9815	44.5185	0.7130	1.4260	551.5958
230°	-0.6428	-19.2838	48.2162	0.6663	1.3326	515.4672
240°	-0.5001	-15.0002	52.4998	0.6087	1.2175	470.9409
250°	-0.3421	-10.2609	57.2391	0.5411	1.0822	418.6219
260°	-0.1737	- 5.2097	62.2903	0.4649	0.9249	359.7189
270°	0.0000	0.0000	67.4997	0.3826	0.7653	296.0485
280°	0.1736	5.2091	72.7091	0.2972	0.5944	229.9324
290°	0.3420	10.2603	77.7603	0.2120	0.4240	164.0059
300°	0.4999	14.9997	82.4997	0.1305	0.2610	100.9803
310°	0.6427	19.2834	86.7834	0.0561	0.11[illegible]	43.4093
320°	0.7660	22.9811	90.4811	-0.0084	-0.0168	6.4941
330°	0.8666	25.9806	93.4806	-0.0608	-0.1215	46.9636
340°	0.9396	28.1906	95.6906	-0.0992	-0.1984	76.7061
350°	0.9848	29.5441	97.0441	-0.1227	-0.2453	94.8678



T-60

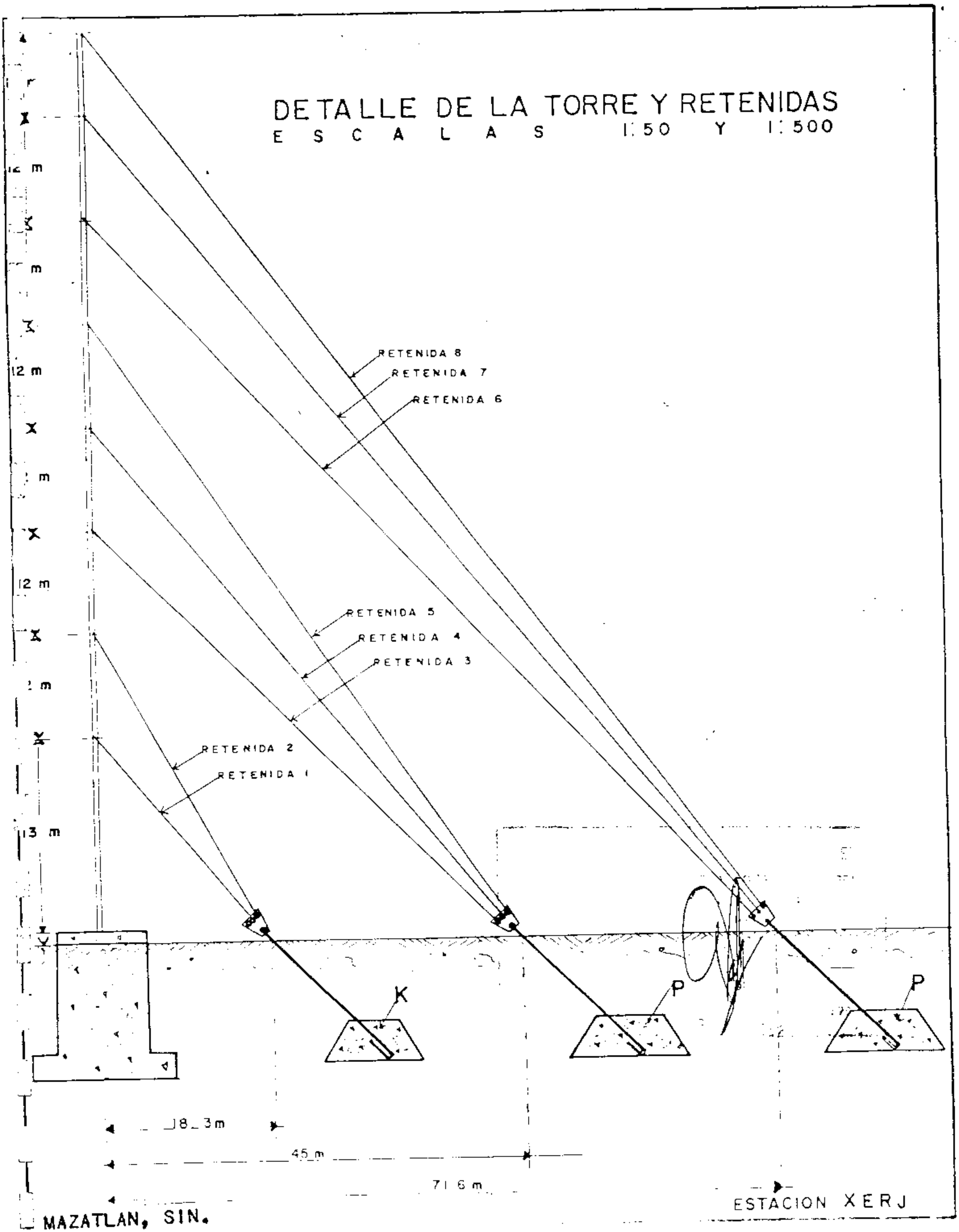
SECCION TRIANGULAR

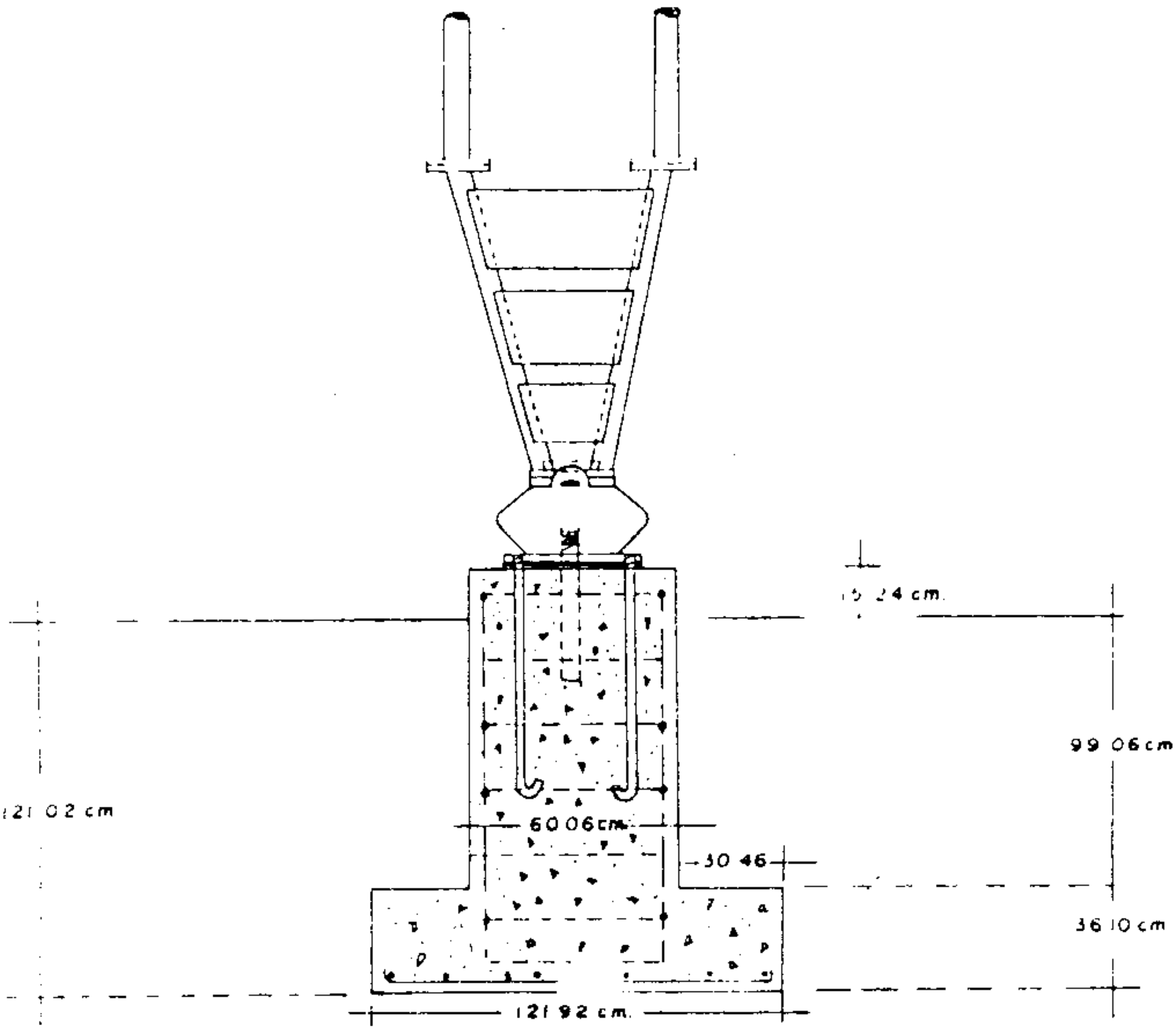
GALVANIZADO EN CALIENTE

E S C A L A 1:20

MAZATLAN, SIN.

ESTACION **XERJ**

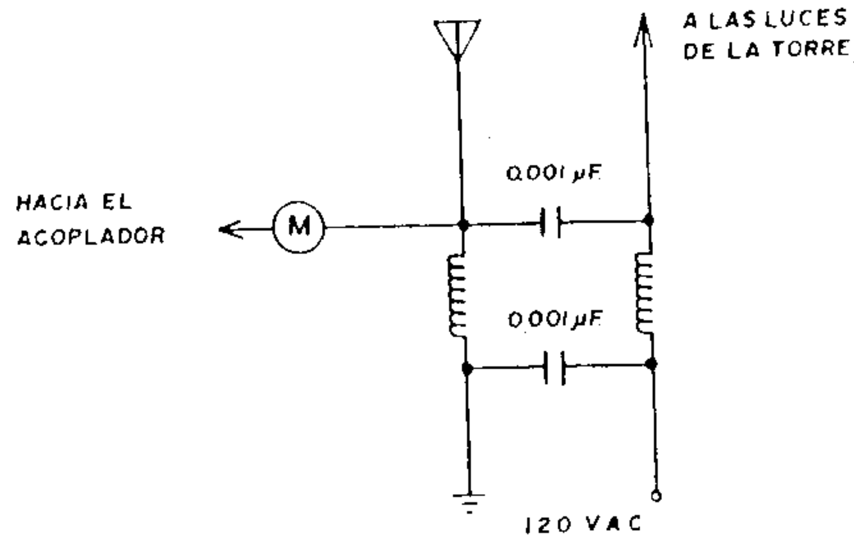

DETALLE DE LA TORRE Y RETENIDAS
E S C A L A S 1:50 Y 1:500
RETENIDA 8
RETENIDA 7
RETENIDA 6
RETENIDA 5
RETENIDA 4
RETENIDA 3
RETENIDA 2
RETENIDA 1
12 m
12 m
12 m
13 m
K
P
P
18.3 m
45 m
71.6 m
ESTACION XERJ
MAZATLAN, SIN.



DETALLE DE AISLADOR Y BASE.

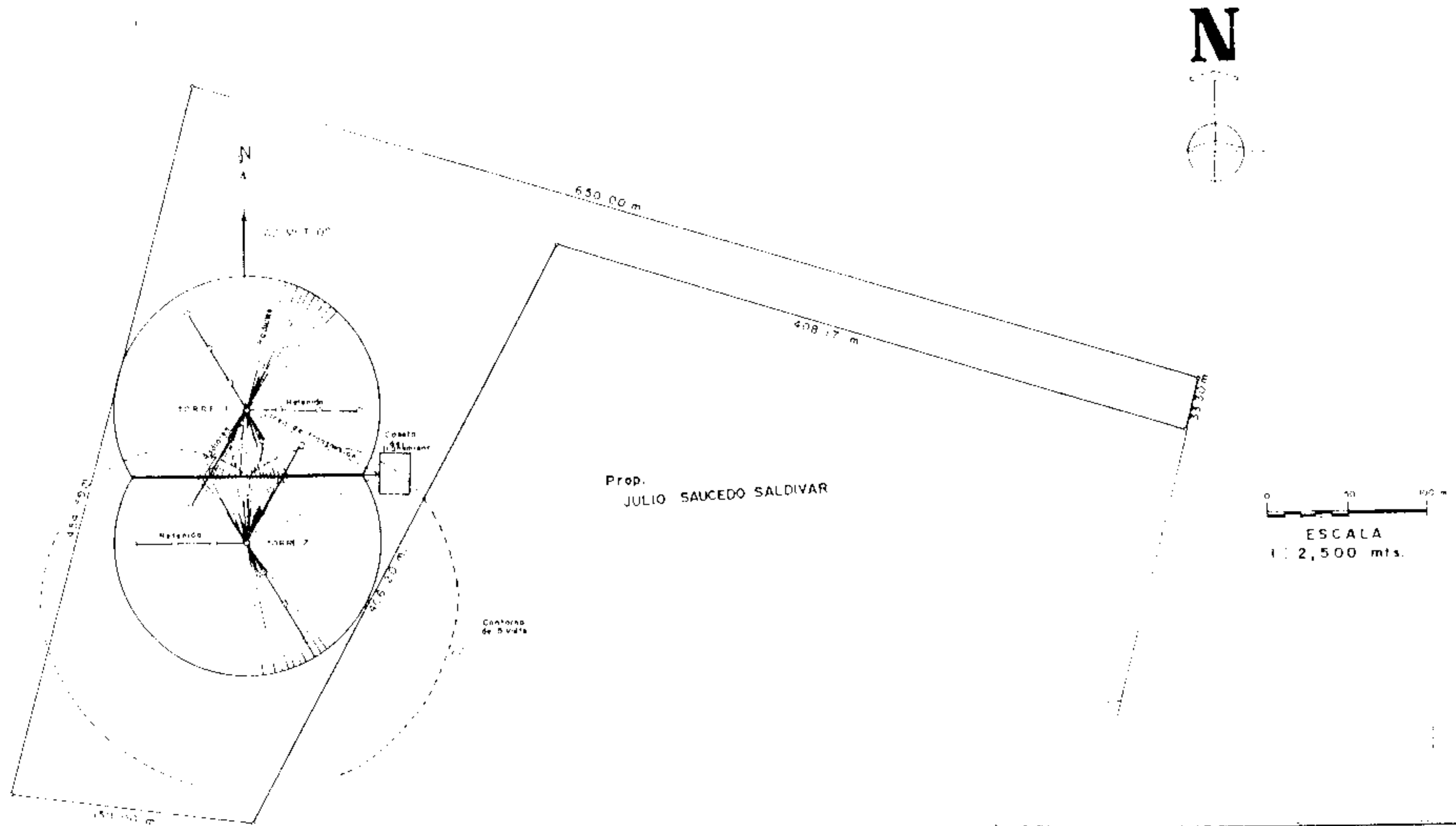
ESCALA 1:20

XERJ



SISTEMA DE ALIMENTACION DE 120 V.A.C
PARA EL ALUMBRADO DE LA TORRE

XERJ



SISTEMA DE TIERRA Y PLANO DEL TERRENO

DESCRIPCION DEL MATERIAL	DISTINTIVO	FRECUENCIA
120 RADIALES POR — TORRE IGUALMENTE ESPACIADAS PARTIENDO DE LA BASE DE CADA TORRE. 83m DE ALAMBRE No.10 ENTERRADO A10cm.	XERJ	600 KHz.
	COORD. GEOGRAFICAS	PERITO EN TELECOMUNICACIONES
	LN 23° 15' 35"	ING. ANTONIO DE AVILA
	LW 106° 23' 12"	FECHA
		SEPTIEMBRE 1981.

CKRW

Description Sheet
(10-28-68ct)

New Station
Whitehorse, Yukon Territory

1kw,U,Class III
610 kc

DESCRIPTION SHEET
Omnidirectional Antenna

Station Call:	New
Location:	Whitehorse, Yukon Territory
Frequency:	610 kc/s
Power:	1 kw
Class: III	Operation: Unlimited
Notification List No. 246	Date: September 27, 1968.
Geographic Co-ordinates Antenna System:	North Latitude 60° 41' 41" West Longitude 134° 58' 03"
Antenna Characteristics:	Height 250', top loaded to 60°
Type of Element:	A guyed uniform cross-section, steel tower, base insulated and fitted for series feed.
Ground System:	120, 0.4 copper radials buried approximately 8" below grade.
Expected Efficiency:	170 mv/m at one mile for 1 kw

Description Sheet (6-29-64ct) | Station ~~CHCN~~ New Carlisle, P.Q. | 5kw,10kw-LS,DA-1,U,Class III 610 kc

2.4 DIRECTIONAL ANTENNA DESCRIPTION SHEET:

Station: CHNC | Main Studio: New Carlisle, P.Q.

Frequency: 610 kc/s | Power: 10 kw D Class: III
5 kw N

Notification List No.: 188 | Date: May 22, 1964

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM: North Latitude: 48° 01' 19" N.

West Longitude: 65° 14' 52" W.

ANTENNA CHARACTERISTICS:

Mode of Operation: DA-1
Number of Elements: Two
Type of Elements: Uniform cross-section guyed, base insulated, series fed, no top loading.

TOWER:	S.E.	N.W.
HEIGHT ABOVE INSULATORS:	404'	404' (90°)
OVERALL HEIGHT:	408'	408'
SPACING:	1210.0(270°)	
PHASING:	0°	90°
FIELD RATIO:	1.0	0.66

ORIENTATION: Towers on a line bearing 113° East of True North

GROUND SYSTEM: 120 equi-angularly spaced radials extending from each tower base to a distance of 605'. 250 equi-angular spaced radials extending from each tower base to a distance of 60'. Radials are of No. 10 Band S gauge of solid copper wire and are buried to approx. 4-6 inches.

Predicted Effective Field (Day) 633 mv/m (200 mv/m for 1 Kw)

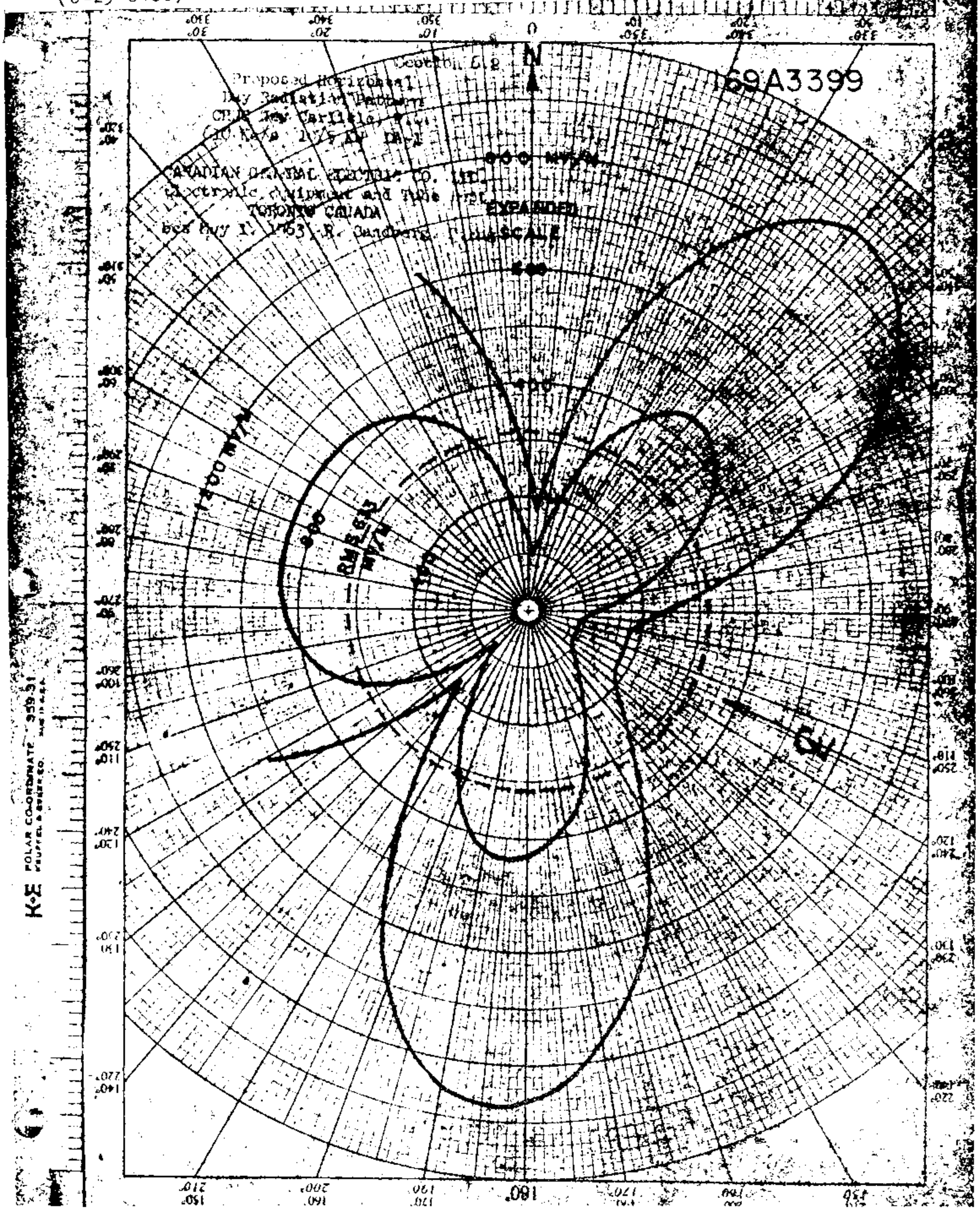
#188

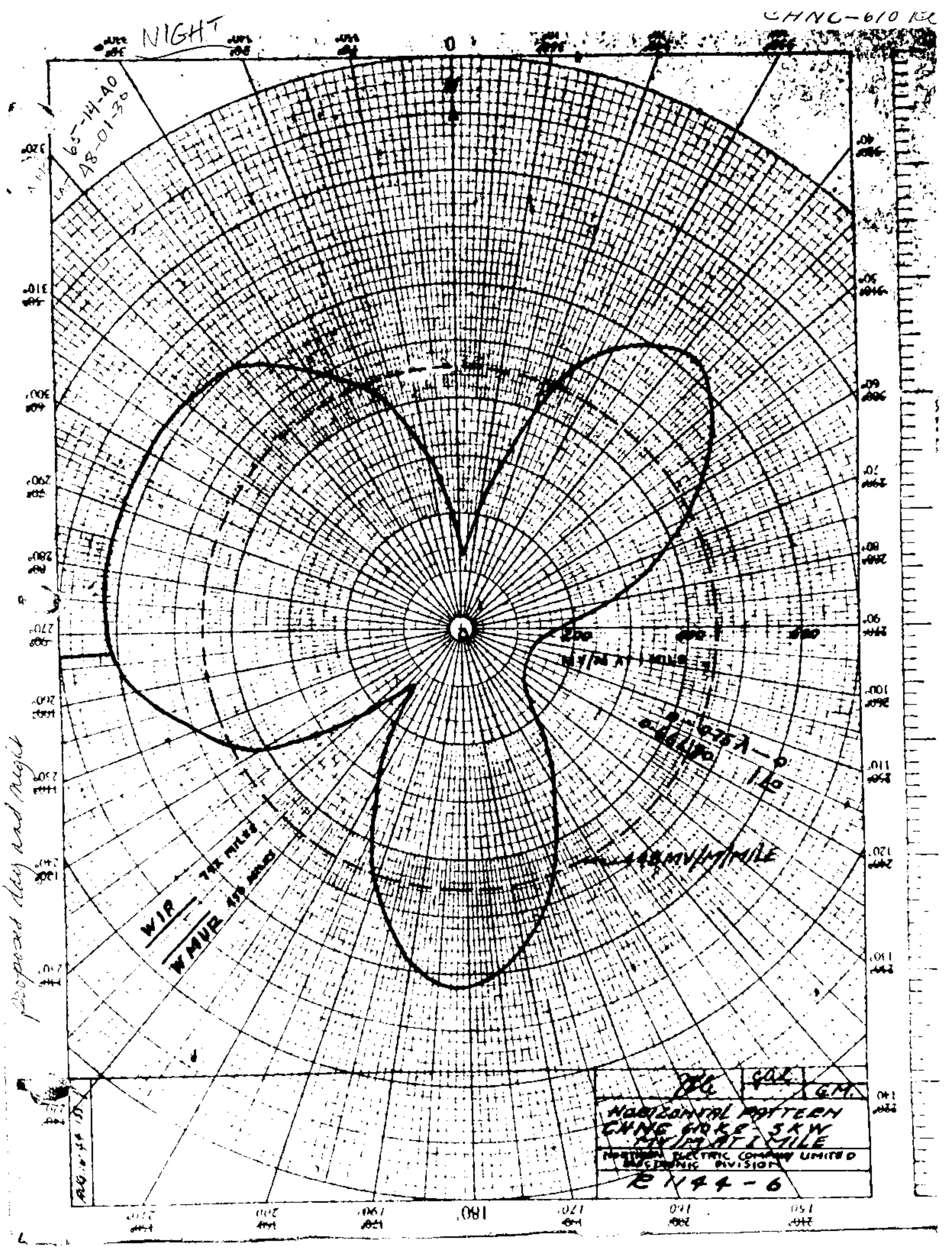
CHNC

Proposed Day
(6-29-64ct)

Station ~~CHCN~~
New Calisle, P.Q.

5kw,10kw-LS,DA-1,U,Class III
610 kc




CHNC-610 KC
NIGHT
proposed day and night
WIP
WMVP
1.0
HORIZONTAL PATTERN
CHNC 610KC 5KW
MV/M AT 1 MILE
NORTHERN ELECTRIC COMPANY LIMITED
ELECTRONIC DIVISION
R 144-6

PROJECT #6442

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: CHNL

STATION LOCATION: Kamloops, B.C.

FREQUENCY: 610 kHz

POWER: 25 kW Day/5 kW Night

NOTIFICATION LIST: 374

DATE: June 5, 1978

GEOGRAPHICAL LOCATION: Latitude 50° 38' 50" North, Longitude 120° 16' 15" West

ANTENNA CHARACTERISTICS:

Mode of Operation: DA-2
Number of Elements: 4 (Four)
Type of Elements: Guyed steel tower, uniform cross-sectioned, base insulated for series feed

TOWER:	#1 (S.W.)	#2 (S.E.)	#3 (N.E.)	#4 (N.W.)
Height above base insulator:	280'(62.5°)	280'(62.5°)	280'(62.5°)	280'(62.5°)
Overall Height:	285'	285'	285'	285'
Night Field Ratio:	1.0	1.1	.85	.80
Night Phasing:	0°	+130°	+22.5°	-105°
Day Field Ratio:	1.0	-	.60	-
Day Phasing:	0°	-	-57°	-
Orientation:	Ref.	73°T	27°T	333°T
Spacing:	Ref.	493'(110°)	551'(123°)	403'(90°)

GROUND SYSTEM:

120 equally spaced radials per tower of #10 bare soft copper wire, buried approximately 8". Maximum length of radials 645', minimum length 510', with the exception of those joined along the common chords.

PREDICTED EFFECTIVE FIELDS:

Day	Night
900 mV/m at 1 mile for 25 kW	426 mV/m at 1 mile for 5 kW
180 mV/m at 1 mile for 1 kW	190 mV/m at 1 mile for 1 kW

September 9, 1977

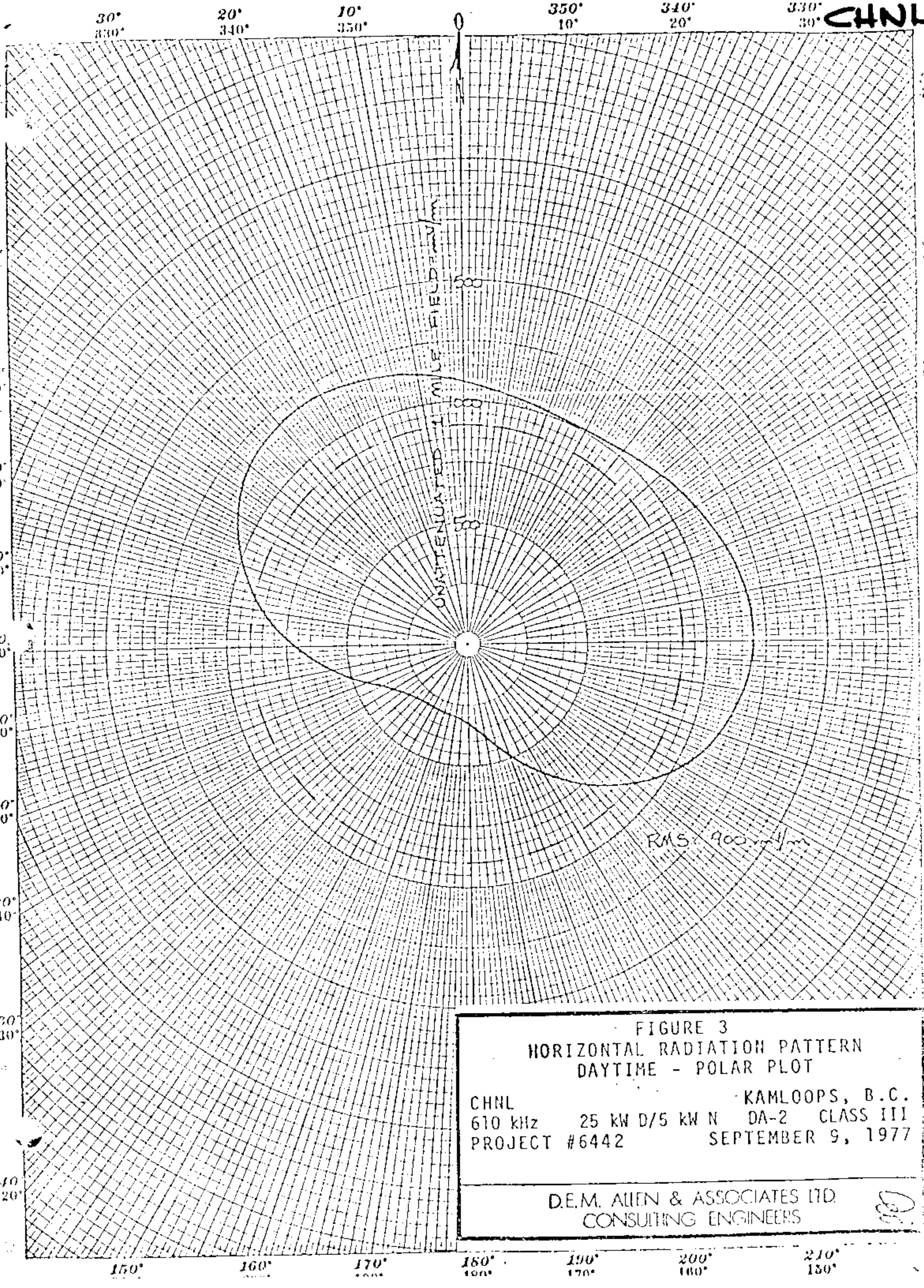


FIGURE 3
HORIZONTAL RADIATION PATTERN
DAYTIME - POLAR PLOT

CHNL KAMLOOPS, B.C.
610 kHz 25 kW D/5 kW N DA-2 CLASS III
PROJECT #6442 SEPTEMBER 9, 1977

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

: 6

CHTM

Description Sheet
(2-28-62ct)

New Station
Thompson, Manitoba

1kw,U,Class III
610 kc

NOW IN OPERATION
CHG. LIST 190

2.3 DESCRIPTION SHEET - OMNIDIRECTIONAL ANTENNA

Station Call: NEW

Main Studio: Thompson, Manitoba.

Frequency: 610 kc/s

Power: 1000 w

Class: III

Time: U

Notification List No: · 166

Date: January 5, 1962.

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:

North Latitude: 55° 43' 05"

West Longitude: 97° 52' 40"

ANTENNA CHARACTERISTICS:

Height: 270 feet 60 degrees

Type of Element: Guyed, uniform cross-section base insulated. Series fed. No top loading.

Ground System: 120 radials of No. 10 AWG soft drawn copper wire buried 8" and extending to the boundaries of the property. Effective length of ground system 645' (0.4λ)

Expected Efficiency:

180 mv/m at 1 mile for 1 kw

CJAT
610

AIR SERVICES

Telecommunications Division
(5-10-108)

CANADA

DEPARTMENT OF TRANSPORT

OTTAWA

DESCRIPTIVE SHEET - OMNIDIRECTIONAL ANTENNA

Station Call:	CJAT
Main Studio:	Trail, British Columbia
Frequency:	610 Kc/s.
Power:	1 Kw.
Class:	III
Time:	U

Notification Reference: NARBA Annex 3

Geographical Location:

North Latitude: 49° 06' 48"

West Longitude: 117° 44' 19"

Antenna Characteristics:

Height: 275 ft. 61.5 degrees

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

or: 175 mv/m at 1 mi. for 1 Kw.

Ground System:

120 radials, each 650 feet long, and buried approximately 12 inches. 120 radials each 50 feet long, lying on surface, serving as a screen

Type of Element:

A fabricated steel tower of uniform cross section, insulated at the base for series feed.

December 20, 1952

CORRECTED

DIRECTIONAL ANTENNA DESCRIPTION SHEET

STATION:	CKML	MAIN STUDIO:	MONT-LAURIER, QUE.
FREQUENCY:	610 kHz	POWER:	1 kW,
MODIFICATION LIST NO:	163	CLASS:	III
		DATE:	SEPTEMBER 15, 1961

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:
North Latitude: 46° 32' 41"
West Longitude: 75° 27' 11"

ANTENNA CHARACTERISTICS

Mode of Operation: Directional day, non-directional array at night: DA-N

NUMBER OF ELEMENTS: Two (2)

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

TOWER	NO.1	NO.2
HEIGHT ABOVE INSULATORS	308' (69°)	268' (60°)
OVERALL HEIGHT	311'	271'
SPACING	REF.	90°
ORIENTATION	REF.	309.5°
PHASING:	0	-126.5°
FIELD RATIO	1.0	0.85

GROUND SYSTEM: 120 No.10 copper wires extend from the base of each tower to a distance of 0.4 wavelength except those joined at a common chord.

120 additional No.10 wires extend around the base of tower No.1 to a distance of 0.1 wavelength

PREDICTED EFFECTIVE FIELD
DAY ND: 183 mv/m
NIGHT DA:181 mv/m

Note: This concerns correction of geographical co-ordinates and increase in height of one tower. Attach this description sheet to radiation patterns previously distributed.

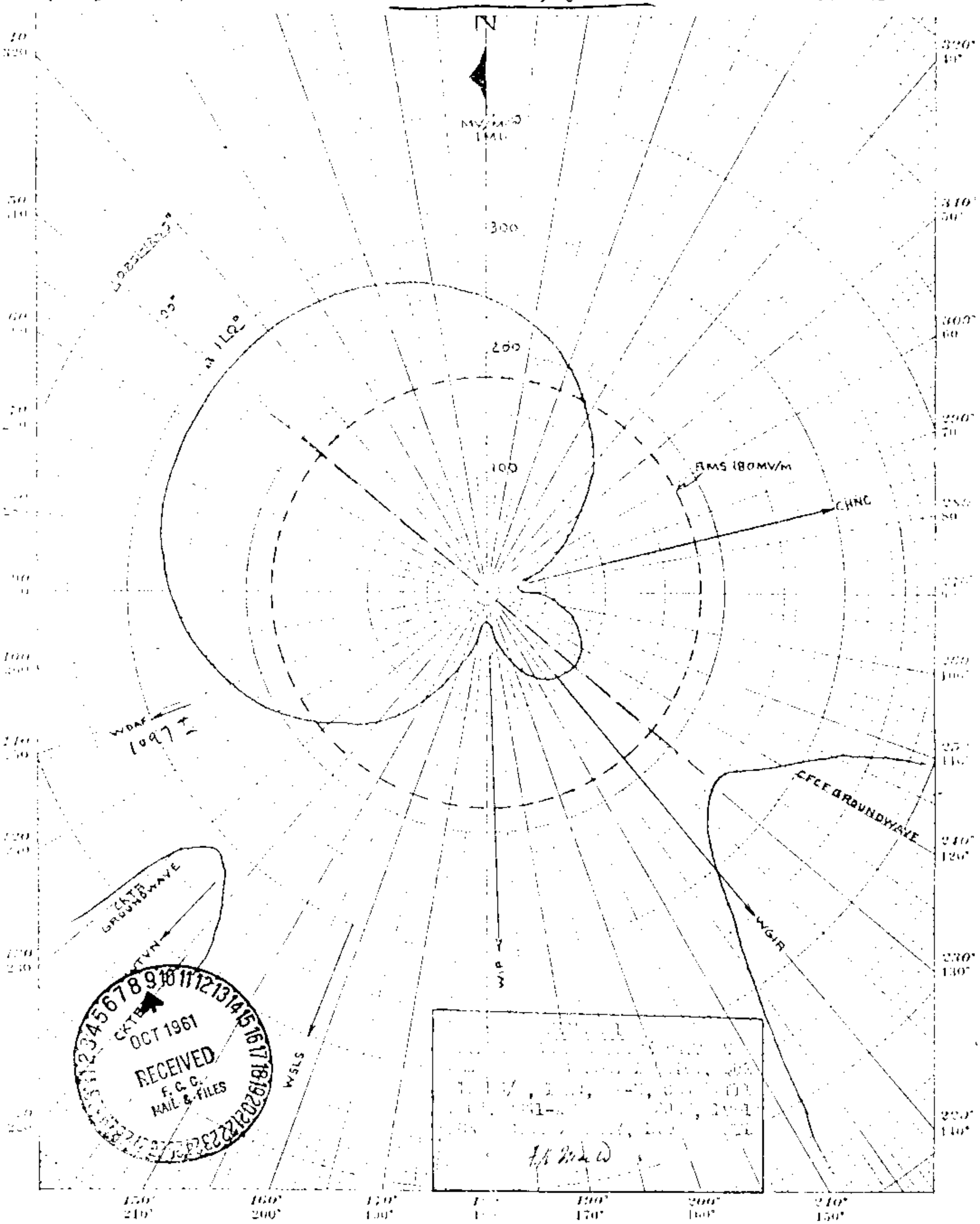
CKML

#163

Proposed Night
(11-30-61ct)

New Station
Mont-Laurier, Quebec

1kw,DA-N,U,Class III
610 kc



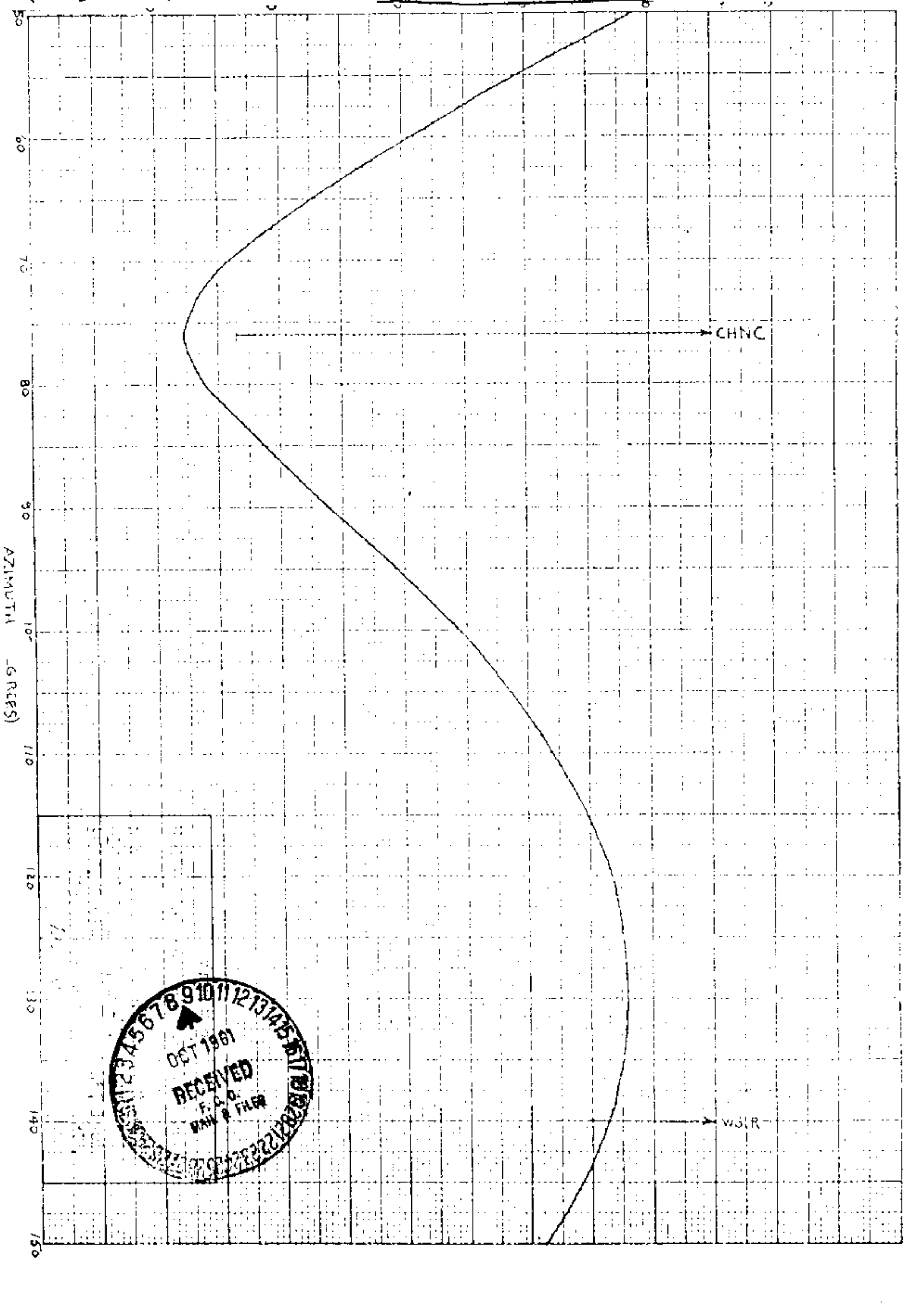
CKML

163

Proposed Night Nulls
(11-30-61ct)

New Station
Mont-Laurier, Quebec

1kw,DA-N,U,Class III
610 kc



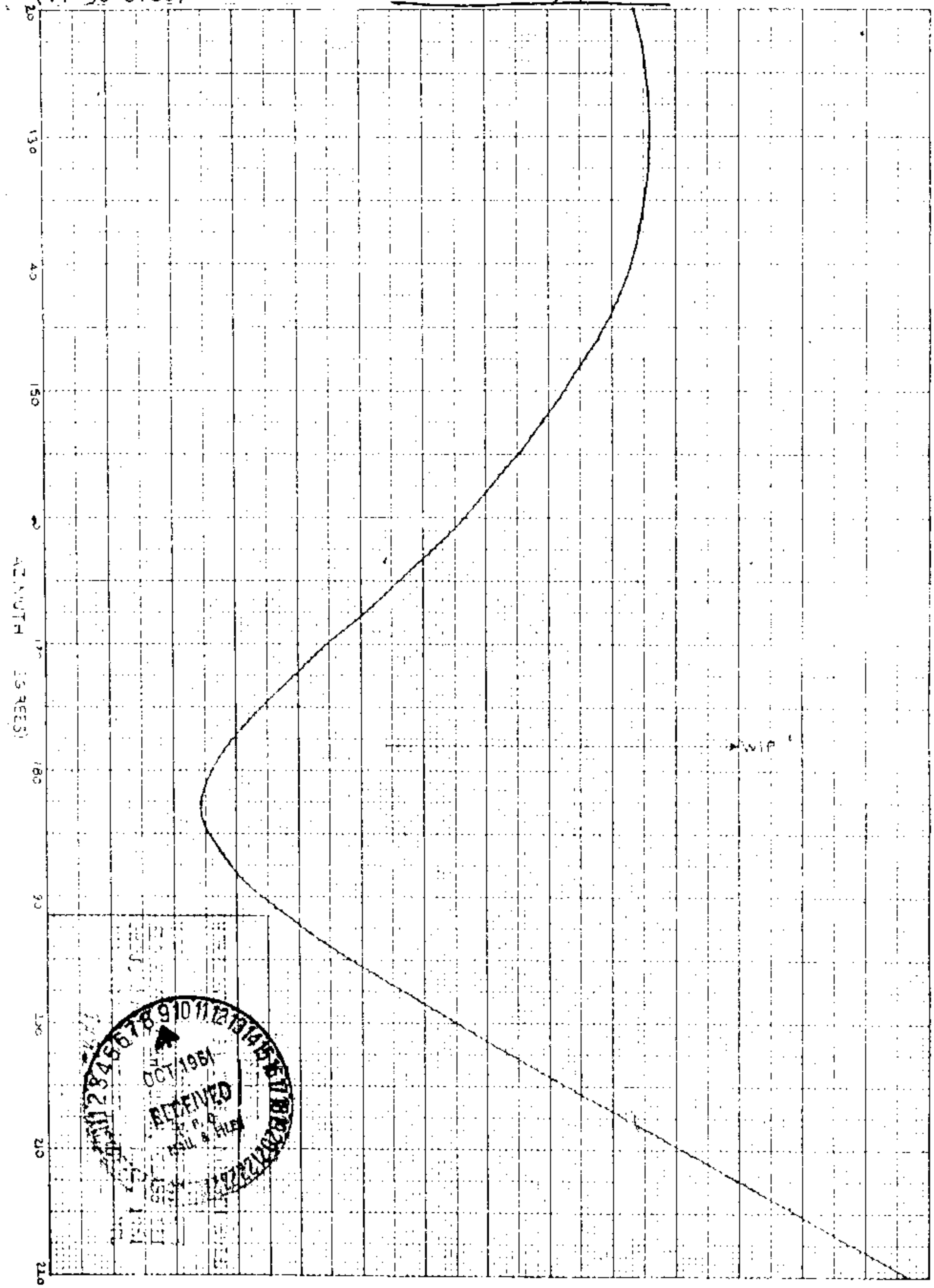
CKML

#163

Proposed Night Nulls
(11-30-61ct)

New Station
Mont-Laurier, Quebec

1kw,DA-N,U,Class III
610 kc



CKTB

SECTION 2 - TECHNICAL DETAILS (cont'd)

2.3 Description of Array

Station:	CKTB
Main Studio:	St. Catharines, Ontario
Power:	10 Kw Day/5 Kw Night
Frequency:	610 Kc/s
Location:	North Latitude 43° 2' 12" West Longitude 79° 10' 00"
Antenna:	Mode of Operation DA-1 5 guyed elements, uniform cross-section, base insulated, series fed

Notification List No. 143 Date: February 8, 1960

Tower	North	North Centre	Centre	South Centre	South
Height above Insulators	270'	270' 60.4	270'	270'	270'
Overall Height	274'	274'	274'	274'	274'
Spacing	100°	100°	100°	100°	
Phasing	-107.5°	36°	176.5°	-36°	107.5°
Field Ratio	1.0	2.825	3.86	2.825	1.0

Ground System:

120 radials per tower #10 AWG, bare soft-drawn copper wire, uniformly spaced, depth 8" approximately, 645' long (.4 wave lengths) except for shorter radials between towers (bonded at intersections).

An additional 120 radials per tower, 200' long, are interspaced between the above at each tower. In addition to the above, 3 centre towers have a ground mat of copper sheet 15 feet in radius.

Predicted Effective Field:	Day	553 mv/m (175 mv/m for 1 kw)
	Night	392 mv/m (175 mv/m for 1 kw)
Orientation of Towers:	Towers are on a line bearing 350° of true north.	

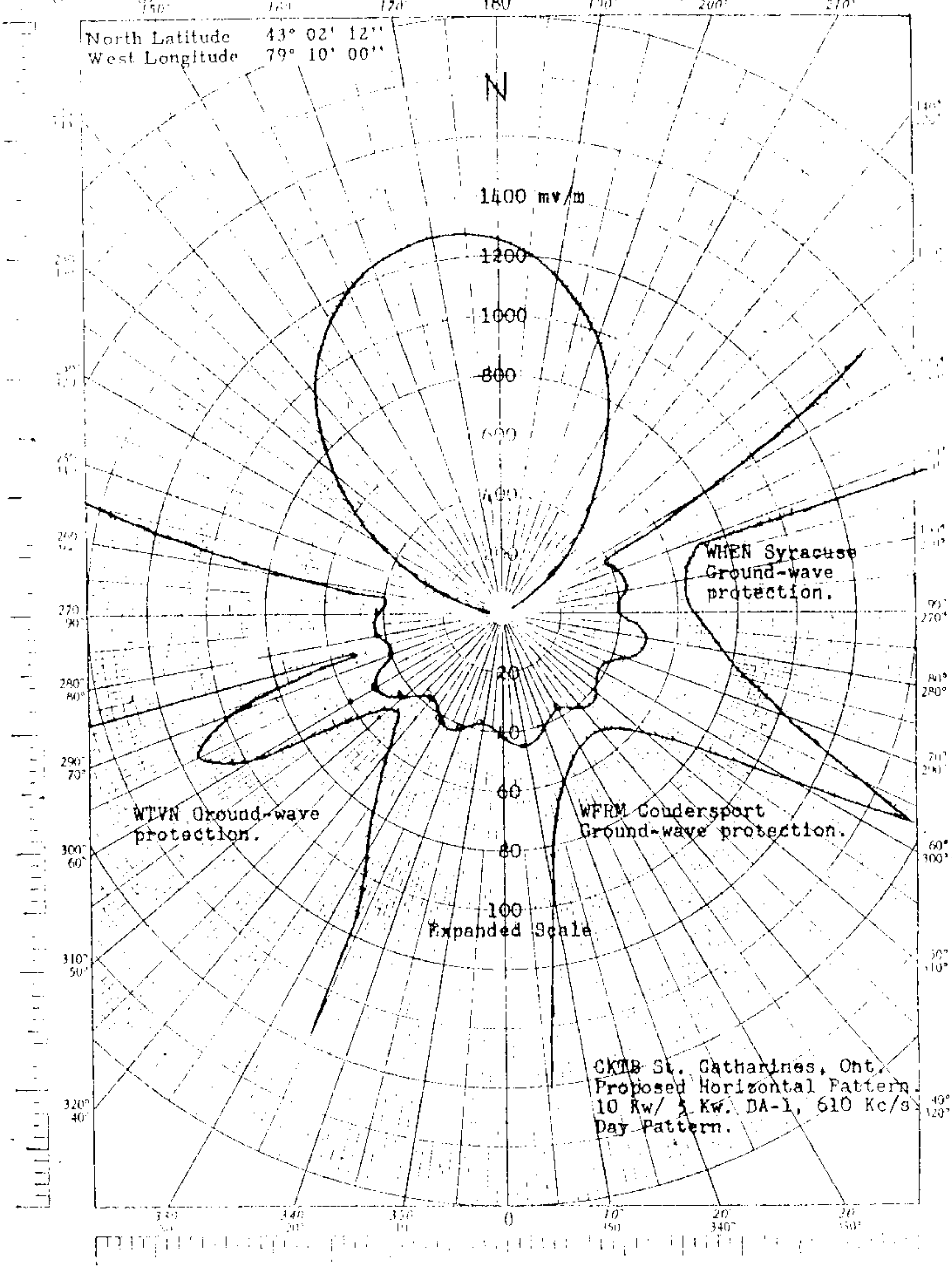
NOTE - There is no change in night-time operation from that previously notified.

143

CKTB

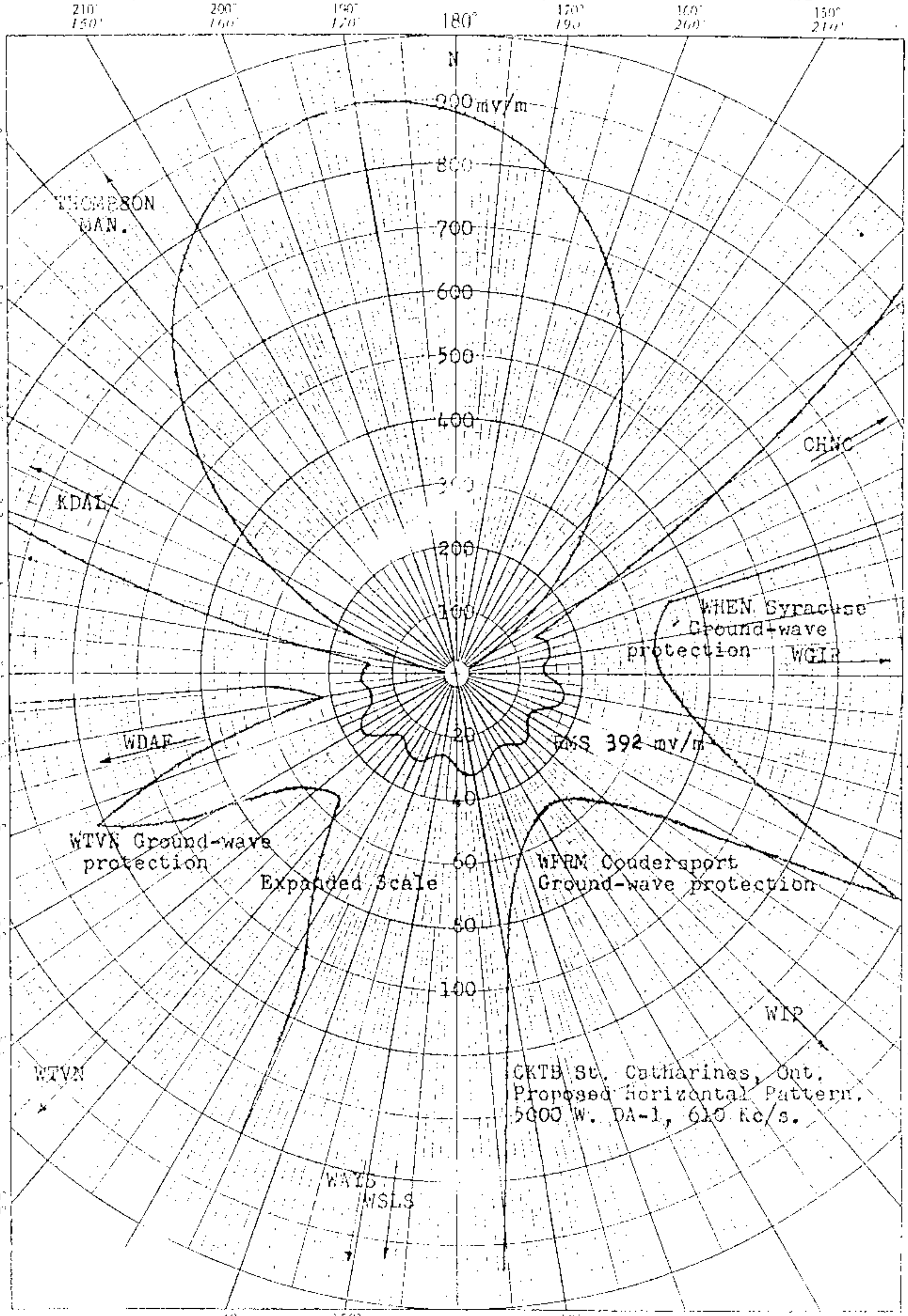
PROPOSED DAY
(3-28-60g)

Station CKTB 5kw,10kw-LS, DA-1,U, Class III
St. Catherines, Ontario, Canada 610 KC



CKTB

PROPOSED ~~DAY &~~ NIGHT   Station CKTB   5kw, DA-1,U
(3-3-58g)   St. Catherines, Ontario   610 KC



CKYL

Description Sheet
(9-26-68ct)

Station CKYL
Peace River, Alberta

10kw,DA-N,U,Class III
610 kc

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: CKYL Main Studio: Peace River, Alberta

Frequency: 610 kHz Power: 10 kW Class III

Notification List: Date: AUGUST ,1968

GEOGRAPHICAL LOCATION: Latitude: 56° 10' 40" North
Longitude: 117° 10' 56" West

ANTENNA CHARACTERISTICS:

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

TOWER:	#1 North	#2 South	#3 Northwest
HEIGHT ABOVE BASE INSULATOR:	269' (60°)	269' (60°)	280' (62.5°)
OVERALL HEIGHT:	274'	274'	285'
FIELD RATIO:	.25	1.0	1.45
PHASING:	-134°	0°	-83°

GROUND SYSTEM: 120 equally spaced radials per tower of No. 10 B & S gauge bare copper wire, buried approximately 8". Length of radials 645' (0.4 wavelength) except those joined along the common chords.

SPACING AND ORIENTATION OF TOWERS: Towers #1 and #2 are on a line bearing 18° west of True North. Towers #2 and #3 are on a line bearing 35° west of True North.

Spacing between towers #1 and #2 is 1110' (247.7°)
Spacing between towers #2 and #3 is 561' (125°)

PREDICTED EFFECTIVE FIELDS:

Day: 570 mv/m at 1 mile for 10 kW
180 mv/m at 1 mile for 1 kW

Night: 564 mv/m at 1 mile for 10 kW
178 mv/m at 1 mile for 1 kW

D. E. M. ALLEN, P. ENG. BROADCAST CONSULTING ENGINEER.

CKYL

Proposed Night
(9-26-68ct)

Station CKYL
Peace River, Alberta

10kw,DA-N,U,Class III
610 kc

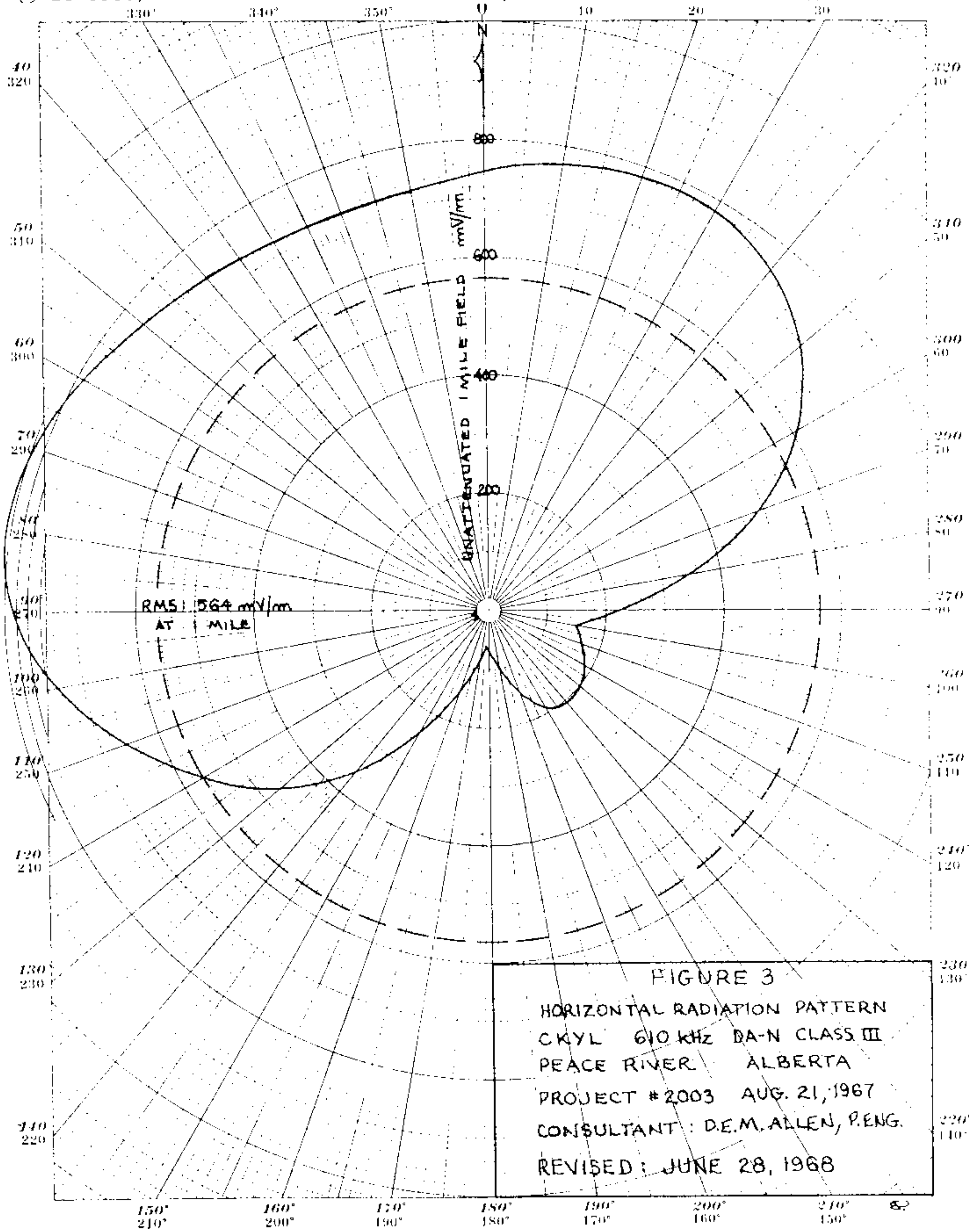


FIGURE 3
HORIZONTAL RADIATION PATTERN
CKYL 610 kHz DA-N CLASS III
PEACE RIVER ALBERTA
PROJECT #2003 AUG. 21, 1967
CONSULTANT : D.E.M. ALLEN, P.ENG.
REVISED : JUNE 28, 1968

K+E 10 X 10 TO ½ INCH 46 1323

Proposed Night Nulls
(9-26-68ct)

Station CKYL
Peace River, Alberta

10kw, DA-N, U, Class III
610 kc

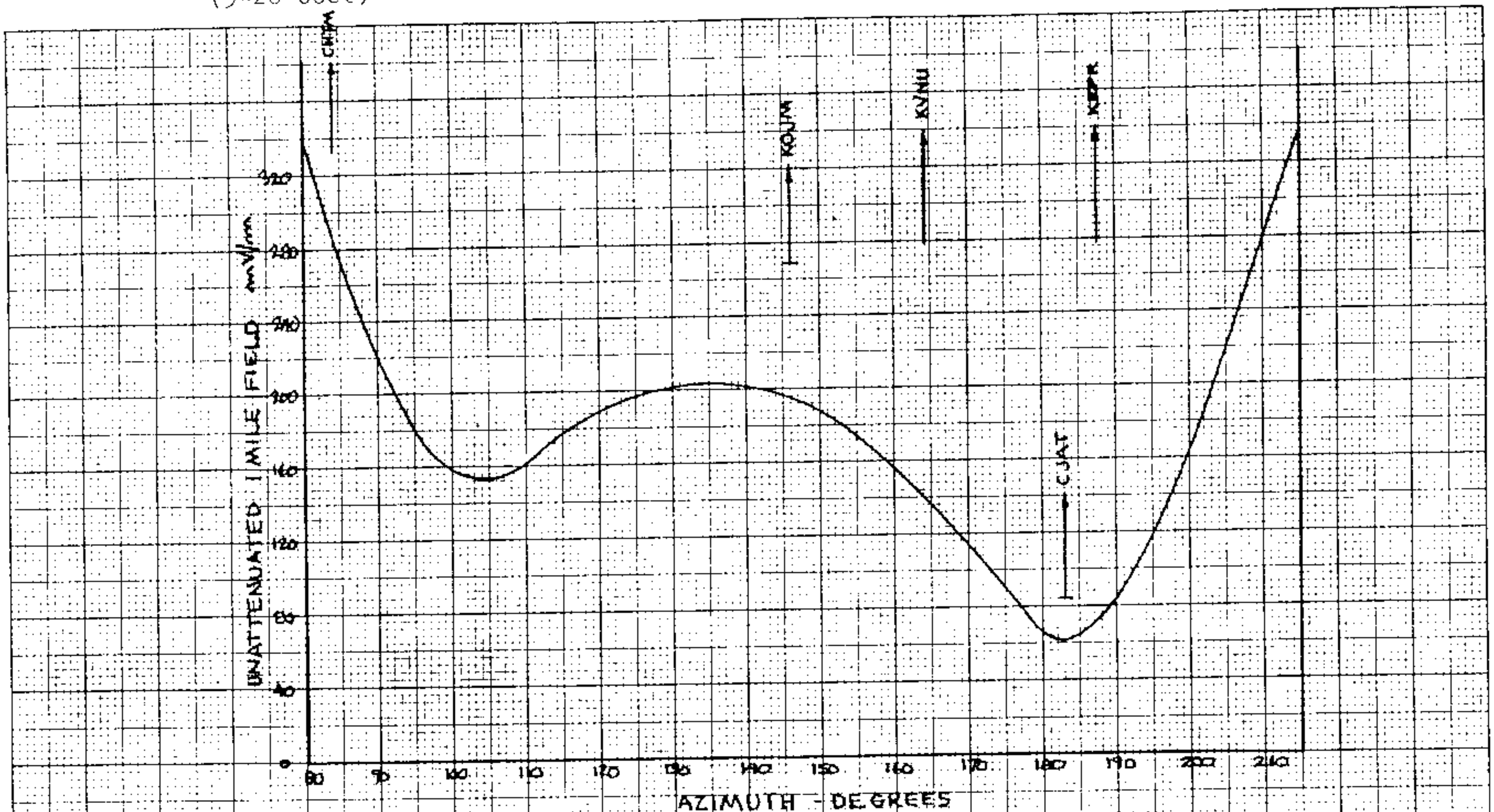


FIGURE 4
HORIZONTAL RADIATION PATTERN
EXPANDED PLOT
CKYL PEACE RIVER ALBERTA
610 KHZ 10 KW DA-N CLASS III
PROJECT # 2003 AUGUST 21, 1967
CONSULTANT: D.E.M. ALLEN, P.ENG.
REVISED: JUNE 28, 1968

CKYL

CKYL

Description Sheet
(3-26-65ct)

Station CKYL
Peace River, Alberta

1kw,10kw-LS,DA-N,U,Class III
610 kc

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: CKYL

Main Studio: Peace River, Alberta

Frequency: 610 kc.

Power: 10 kw Day 1 kw Night

Notification List No. 195

Date: February 22, 1965 Class: III

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:

North Latitude: 56° 10' 40"

West Longitude: 117° 10' 56"

ANTENNA CHARACTERISTICS

Mode of operation: DA-N
Number of elements: Two (2)
Type of elements: Guyed steel towers, uniform cross-section, base insulated for series feed.

Tower:	North #1	South #2
Height above insulators:	269' (60°)	269'
Overall Height:	274'	274'
Spacing:	1110' (247.7°)	
Field ratio (night)	0.73	1.0
Phasing: (night)	+ 42°	0°
Field ratio (day)	1.0	not used

Orientation: Towers are on a line bearing 18° west of true north.

Ground system: 120 equally spaced radials of #10 B & S gauge bare soft copper wire, buried approximately 8", extending from the base of each tower for a distance of 645' (0.4 wavelength) except those joined along the common chord.

Predicted effective field: Day: 570 mv/m at 1 mile for 10 kw
180 mv/m at 1 mile for 1 kw

Night: 176 mv/m at 1 mile for 1 kw

NOTE: Please retain patterns notified for CKYL in Canadian Change List No. 166, dated January 5, 1962 and attach to this revised description sheet. This notification supersedes that notified in Canadian Change List No. 172, dated July 9, 1962 and concerns an increase in daytime power only.

CKYL

Proposed Night
(2-28-62ct)

Station CKYL
Peace River, Alta.

1kw,DA-N,U,Class III
610 kc

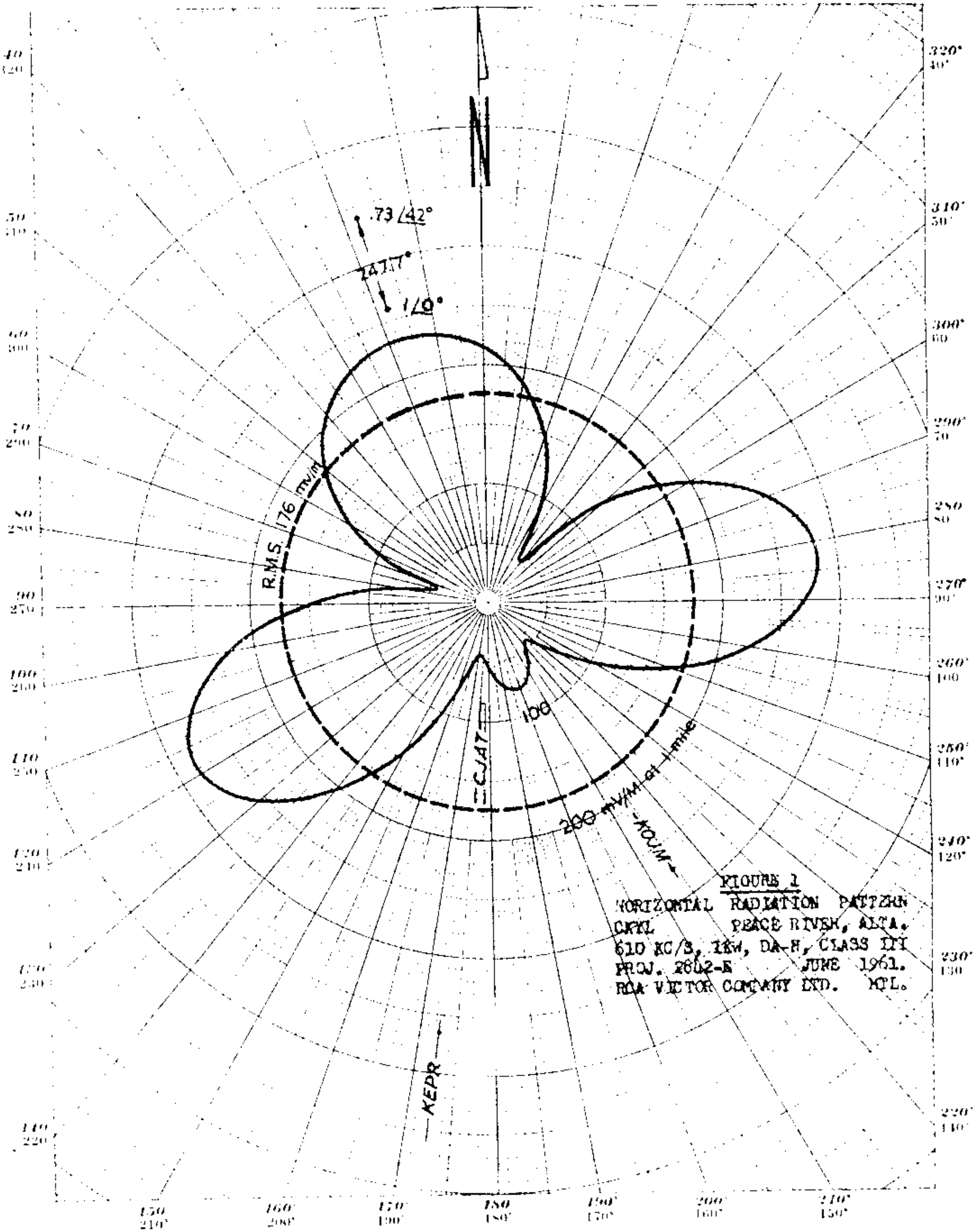


FIGURE 1
HORIZONTAL RADIATION PATTERN
CKYL PEACE RIVER, ALTA.
610 KC/S, 1KW, DA-N, CLASS III
PROJ. 2602-E JUNE 1961.
RCA VICTOR COMPANY LTD. MTL.

KARV

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station : KARV Main Studio: Russelville, Arkansas

Frequency . 610 KHz Power : 5 kW Night 1 kW Day

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

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 35 ° 17 ' 56 "
West Longitude: 93 ° 09 ' 09 "

ANTENNA CHARACTERISTICS

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

TOWER :	N(C#1)	NC(#2)	SC(#3)	S(#4)		
HEIGHT ABOVE INSULATORS :	295'	295'	295'	295'(65.9°)		
NIGHT PHASING:	72.49°	-54.47°	124.84°	0.0°		
NIGHT FIELD RATIO:	0.343	0.7491	1.0501	1.00		
DAY PHASING :	0°	-95.5°	--	--		
DAY FIELD RATIO :	1.000	0.400	--	--		

SPACING AND ORIENTATION: Adjacent towers in a row are spaced 403.27' (90°) on a line bearing 153° true.

GROUND SYSTEM: 120 - 300' equally spaced copper radials plus 120 - 75' interspaced radials about each tower. Radials are shortened and bonded to a transverse strap along intersections between towers. Centers of system are bonded together.

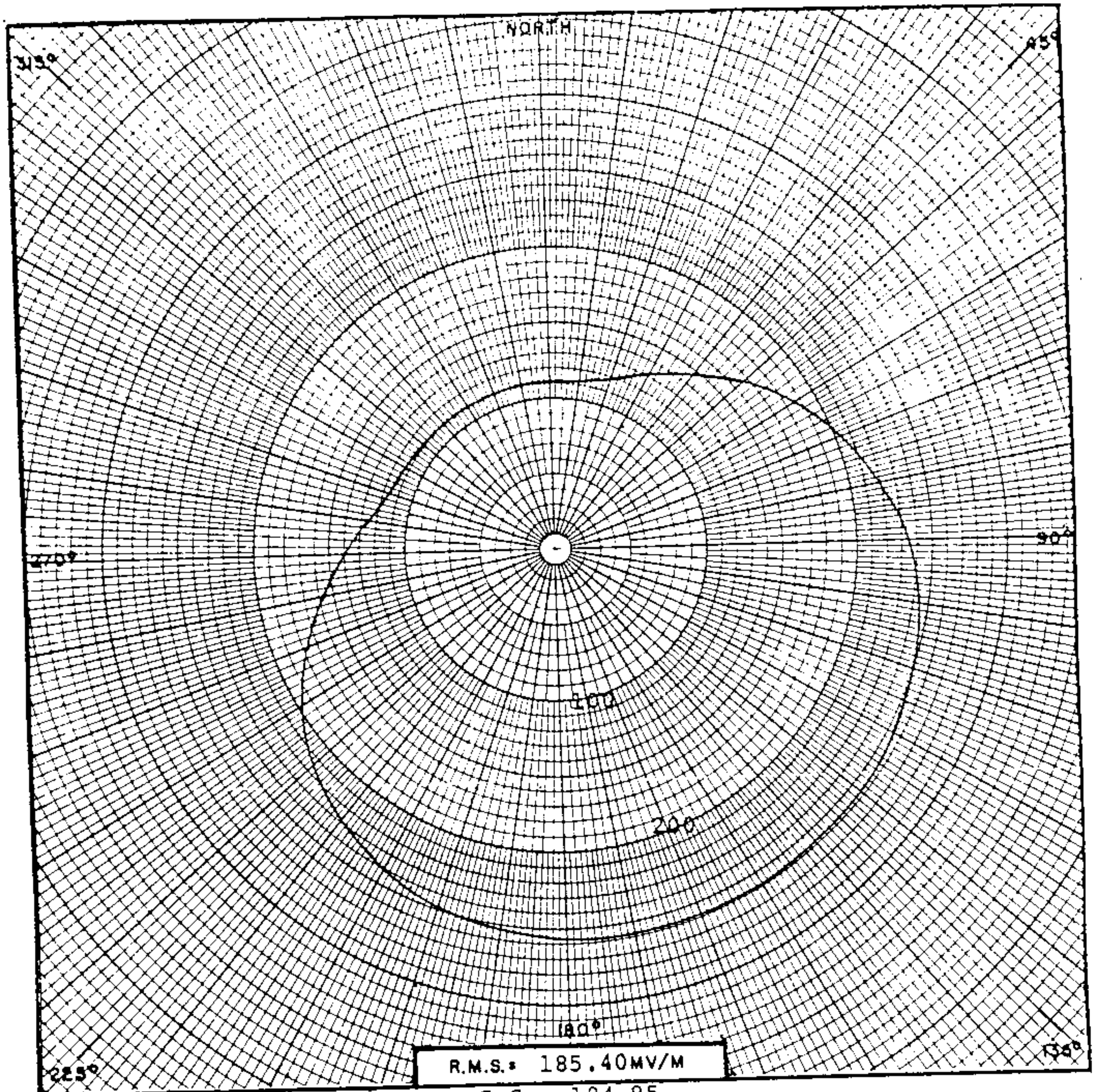
KARV

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS		THEORETICAL RSS		STANDARD RMS	
Day	185.4	mV/m	184.95	mV/m	195.1	mV/m
Night	128.2	mV/m	221.7	mV/m	135.5	mV/m

Note:

KARV



R.M.S.= 185.40MV/M

R.S.S.= 184.95

PATTERN PARAMETERS

#1. 1.000/ 0°

90°

#2 0.400/-95.5°

153°True

G = 66.9°

DIRECTIONAL RADIATION PATTERN

RADIO STATION KARV

[ ] MEASURED [x] PROPOSED

FREQ: 610 (KHZ) POWER 1.0 (KW) [X] DA-D

N. LAT. 35° 17 ' 56 " [ ] DA-N

W. LONG. 93° 09 ' 09 " [ ] N-D

LOCATION: Russellville, Arkansas

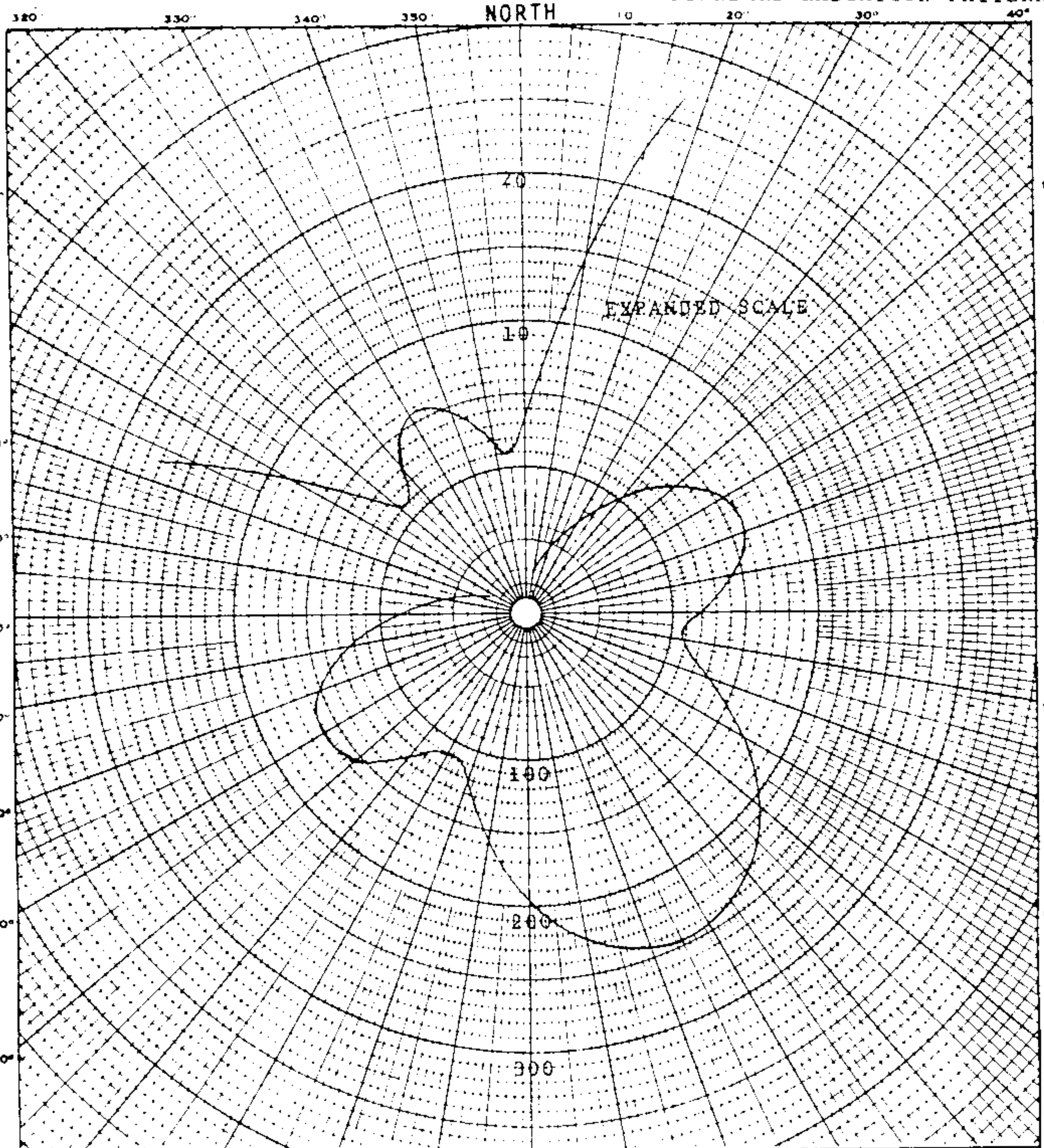
DATE: March, 1975

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FIGURE ______

STANDARD RADIATION PATTERN

KARV



R.M.S. (THEO) 128.2 MV/M R.M.S. (STND) 135.5 MV/M R.S.S. 221.7 MV/M

PATTERN PARAMETERS

333°True

4. 0.3430/+72.49

3. 0.7491/-54.47

2 1.0501/124.84

1 1.00/ 0°

S = 90°

G = 65.9°

HORNE INDUSTRIES, INC.

☐ MEASURED ☒ PROPOSED

FREQ. 610 (KHZ) POWER 0.5 (KW) ☐ DA-D

N. LAT. 35 ° 17 ' 56 " ☒ DA-N

W. LONG. 93 ° 09 ' 09 " ☐ N-D

LOCATION: Russellville, Arkansas

DATE: September, 1977

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

CP app. grant 11/29/57 KAVL

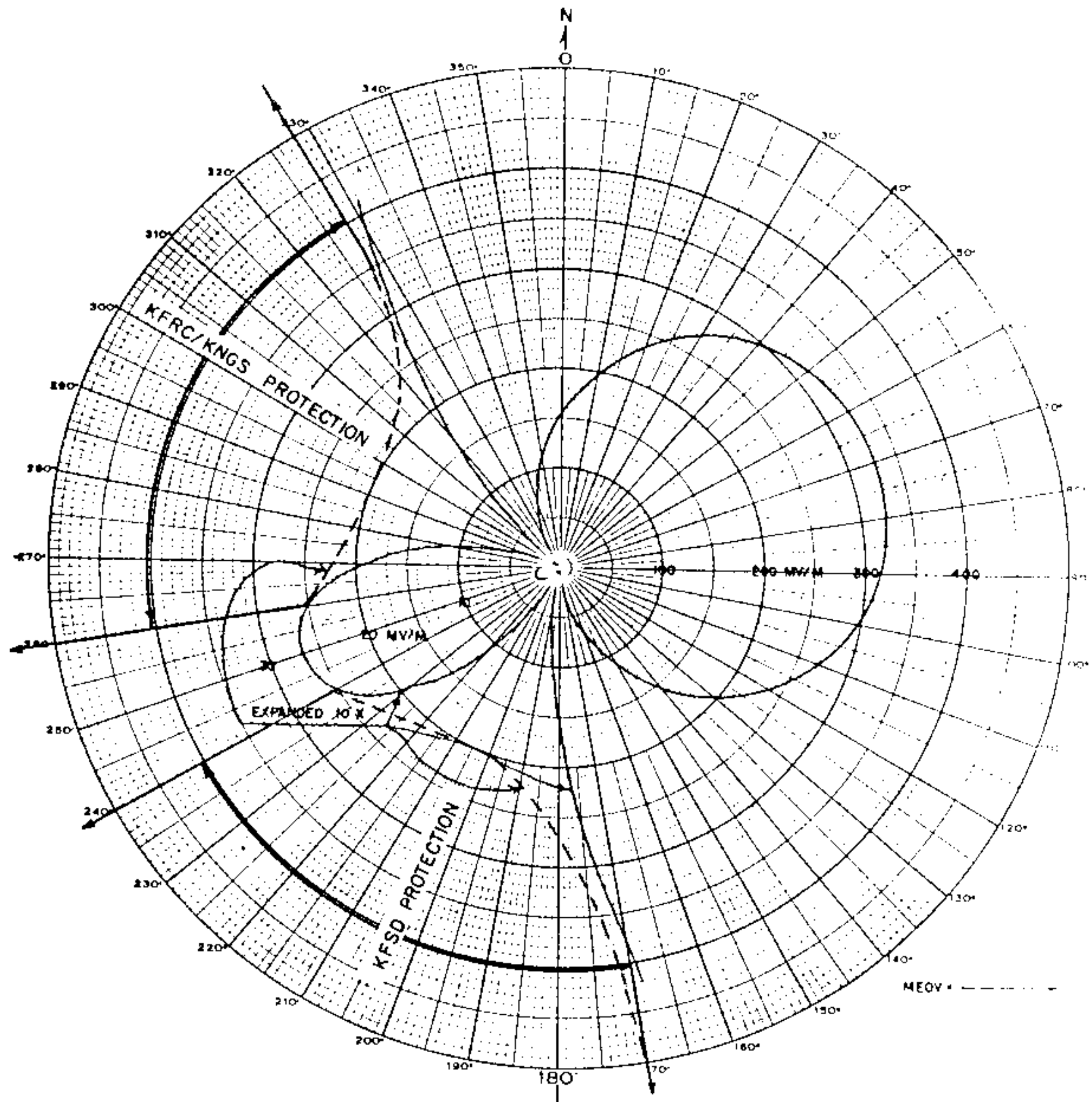
PROPOSED DAY
(11-9-56g)

Station K A V L
Lancaster, California

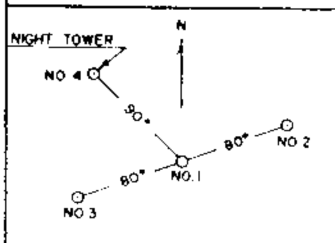
500 W, DA-2, U

610 KC

Granted CP 7/5/56



TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

Tower No	Electrical Height $G°$	True Tower Orientation $\phi°$	Spacing $S°$	Phasing $\psi°$	Horizontal Field mv/m E	Field Ratio F	Elev. Angle $\theta°$	Elevation RMS Field mv/m E_θ
1	90	0	0	0	199	1.0	0	177.5
2	90	70	80	-130		0.5	10	
3	90	250	80	130		0.5	20	
4							30	
5							40	
6							50	
7							60	
8							70	
9								
10								

DAYTIME OPERATION X NIGHTTIME OPERATION

STATION DATA

CALL	KAVL
FREQUENCY	610 KC
POWER	1.0 KW
TIME OF OPERATION	DAYTIME
TYPE OF OPERATION	DA-2
DAYTIME TOWERS	3
NIGHTTIME TOWERS	2
NO RADIALS PER TOWER	120
LENGTH OF RADIALS	90 - 403 FT
GROUND SCREEN DIMENSION	
LAT	34° 42' 21.9"
LONG	118° 10' 36.4"
SUPERSEDES	
PATTERN NO	

EXHIBIT NO. 1-A (AMENDED)

RADIO STATION KAVL
610 KC —— 1 KW —— DA - 2
LANCASTER, CALIFORNIA

SEPTEMBER - 1956

FCC File No.
BMP-7406

Accepted 10-24-56

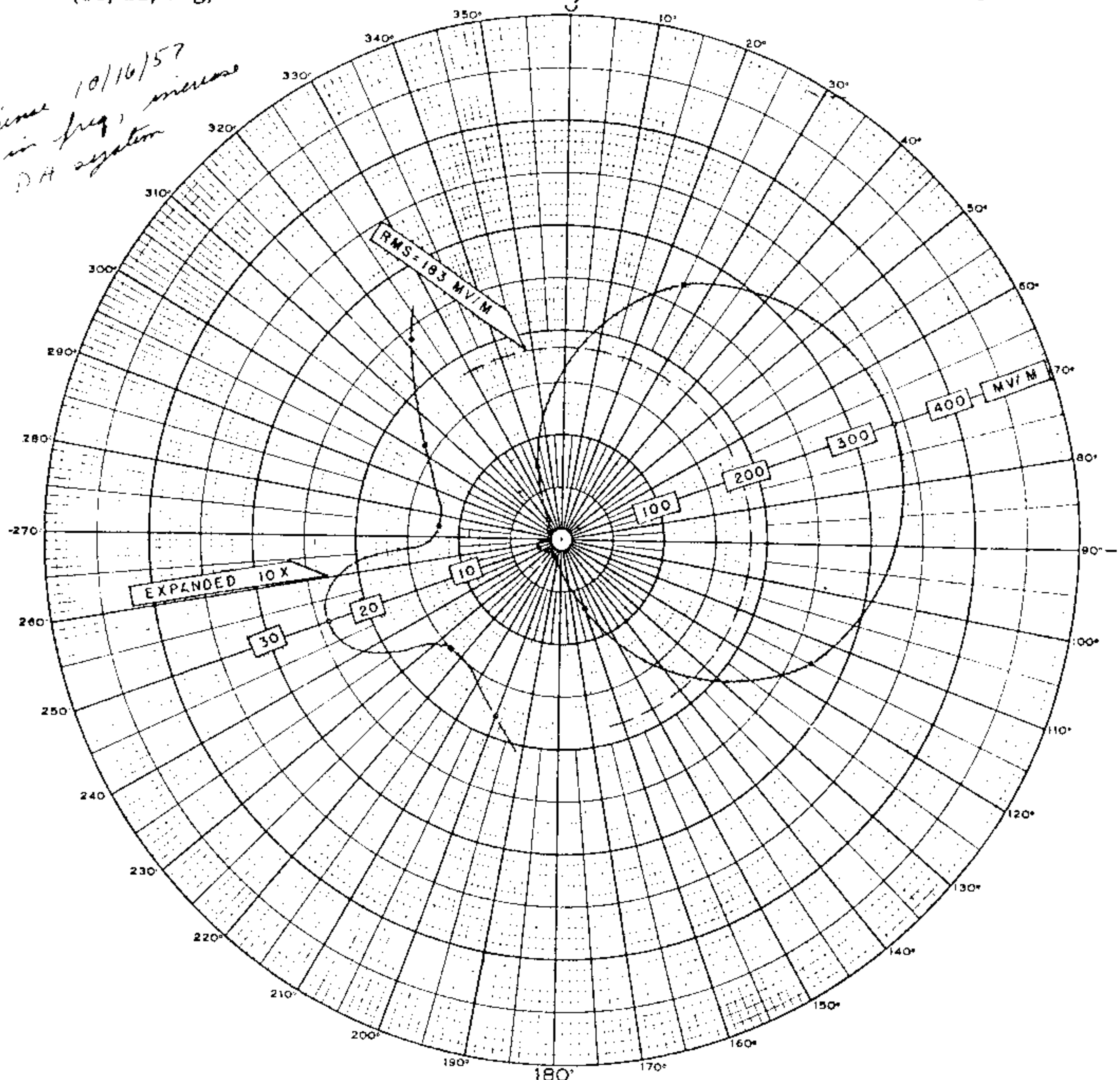
KAVL
Lancaster, Calif. 610 KC

~~Lancaster Calif~~ KAVL

MEASURED DAY
(10/11/57g)

Station KAVL 500w,1kw-LS, DA-2,U
Lancaster, California 610 KC

Granted license 10/16/57 for change in freq, increase power & DA system



LATITUDE: 34° 42' 21.9"
LONGITUDE: 116° 10' 36.4"

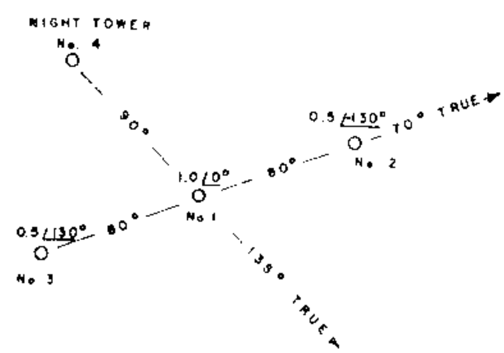


FIGURE 7

DAY PATTERN

DIRECTIONAL FIELD INTENSITY AT ONE MILE
KAVL LANCASTER, CALIF - 610 KC - 1.0 KW
JULY 1957

RON OAKLEY
Consulting Radio Engineer
4529 ENCINAS DRIVE
LA CANADA, CALIFORNIA

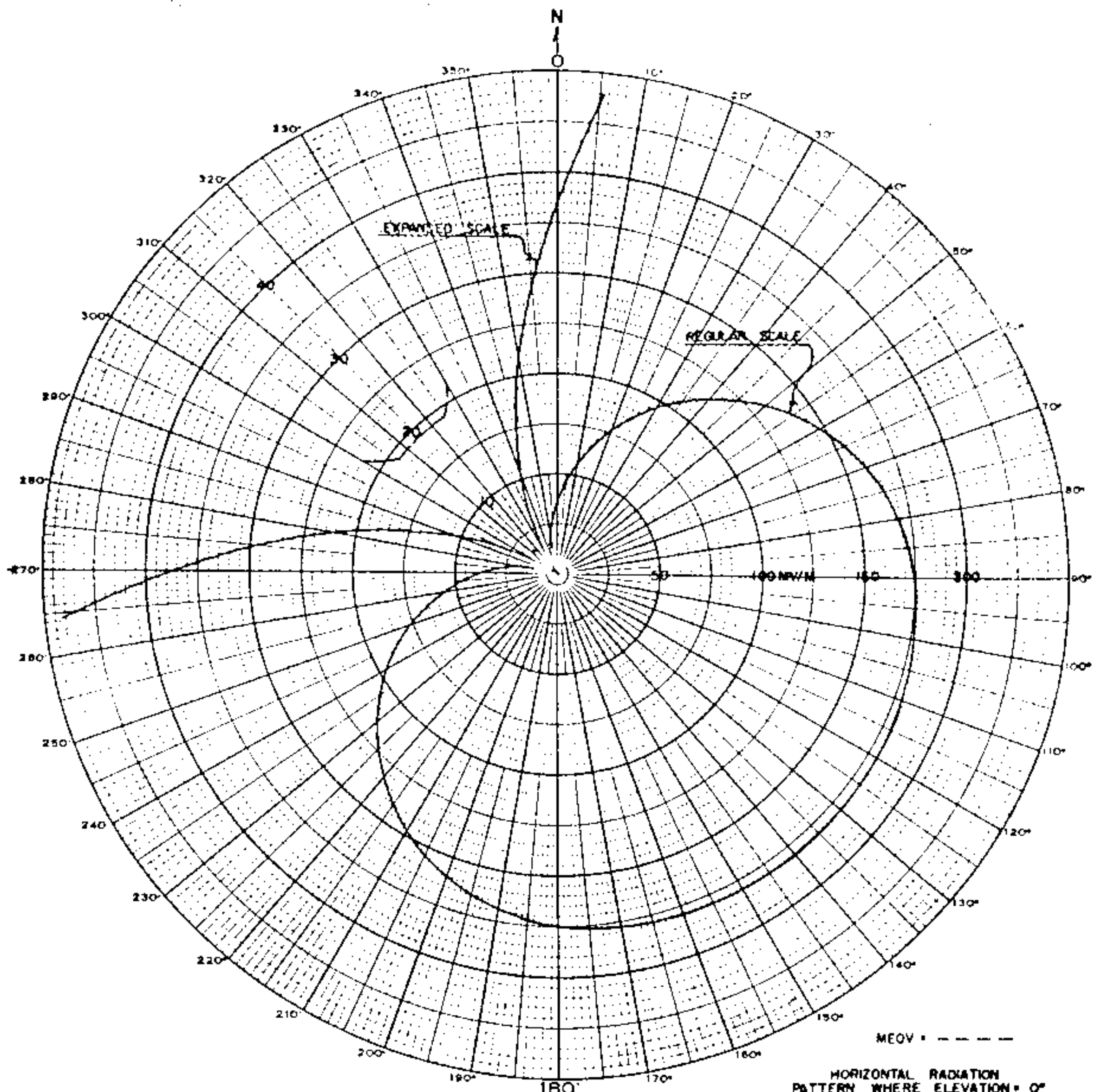
FCC File No. BL-6765
Accepted 9/27/57

KAVL
Lancaster, California 610 KC

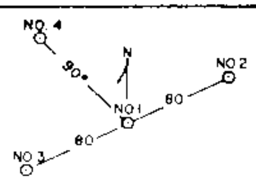
KAVL

PROPOSED NIGHT (11-9-56g) | Station K A V L Lancaster, California | 500W, DA-2, U | 610KC

Granted C.P. 7/5/56



TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

TOWER No	ELECTRICAL HEIGHT G°	TRUE TOWER ORIENTATION	SPACING S°	PHASING ψ°	HORIZONTAL FIELD E mv/m	FIELD RATIO r	ELEV ANGLE θ°	ELEVATION RMS FIELD mv/m E_θ
1	90	0	0	0	89.8	1.0	0	127
2							10	
3							20	
4	90	315	90	+92		1.0	30	
5							40	
6							50	
7							60	
8							70	
9							80	
10							90	

DAYTIME OPERATION [ ] NIGHTTIME OPERATION [X] E_r = mv/m R_r =

STATION DATA

CALL	KAVL
FREQUENCY	610 kc
POWER	0.5 kw
TIME OF OPERATION	NIGHT
TYPE OF OPERATION	DA-2
DAYTIME TOWERS	3
NIGHTTIME TOWERS	2
No. RADIALS PER TOWER	120
LENGTH OF RADIALS	90° - 403 ft
GROUND SCREEN DIMENSION	
LAT	34° 42' 21.9"
LONG	118° 10' 36.4"
SUPERSEDES	
PATTERN No.	

EXHIBIT NO. 1-B (AMENDED)

RADIO STATION KAVL
610 KC — 500 WATTS — DA-2
LANCASTER, CALIFORNIA

SEPTEMBER - 1956

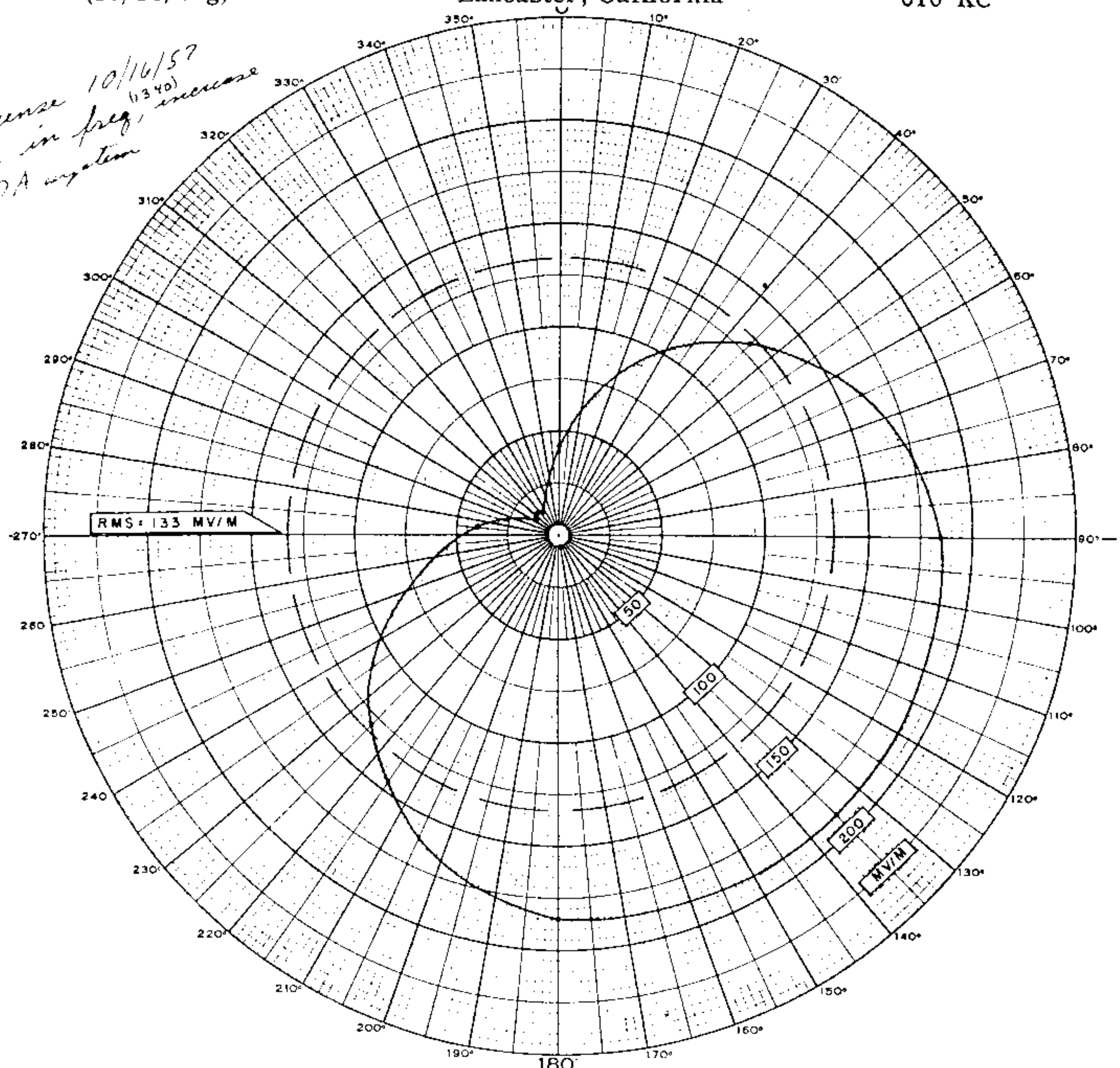
FCC File No. BMP-7406 | Accepted 10-24-56 | KAVL Lancaster, Calif. | 610 KC

~~Lancaster Calif.~~ KAVL

MEASURED NIGHT
(10/11/57g)

Station KAVL 500w,1kw-LS, DA-2,U
Lancaster, California 610 KC

Granted license 10/16/57 for change in freq (1340), increase power & DA system



LATITUDE: 34° 42' 21.9"
LONGITUDE: 118° 10' 36.4"

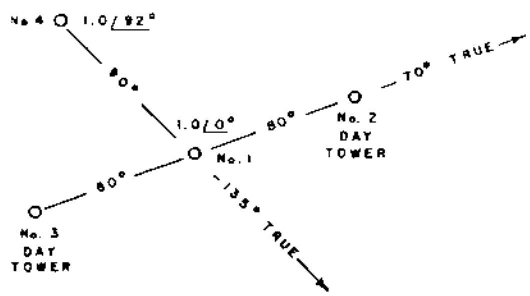


FIGURE 8

NIGHT PATTERN

DIRECTIONAL FIELD INTENSITY AT ONE MILE
KAVL LANCASTER, CALIF. – 610 KC – 0.5 KW
JUNE 1957

RON OAKLEY
Consulting Radio Engineer
4629 ENCINAS DRIVE
LA CANADA, CALIFORNIA

FCC File No. BL-6765
Accepted 9/27/57

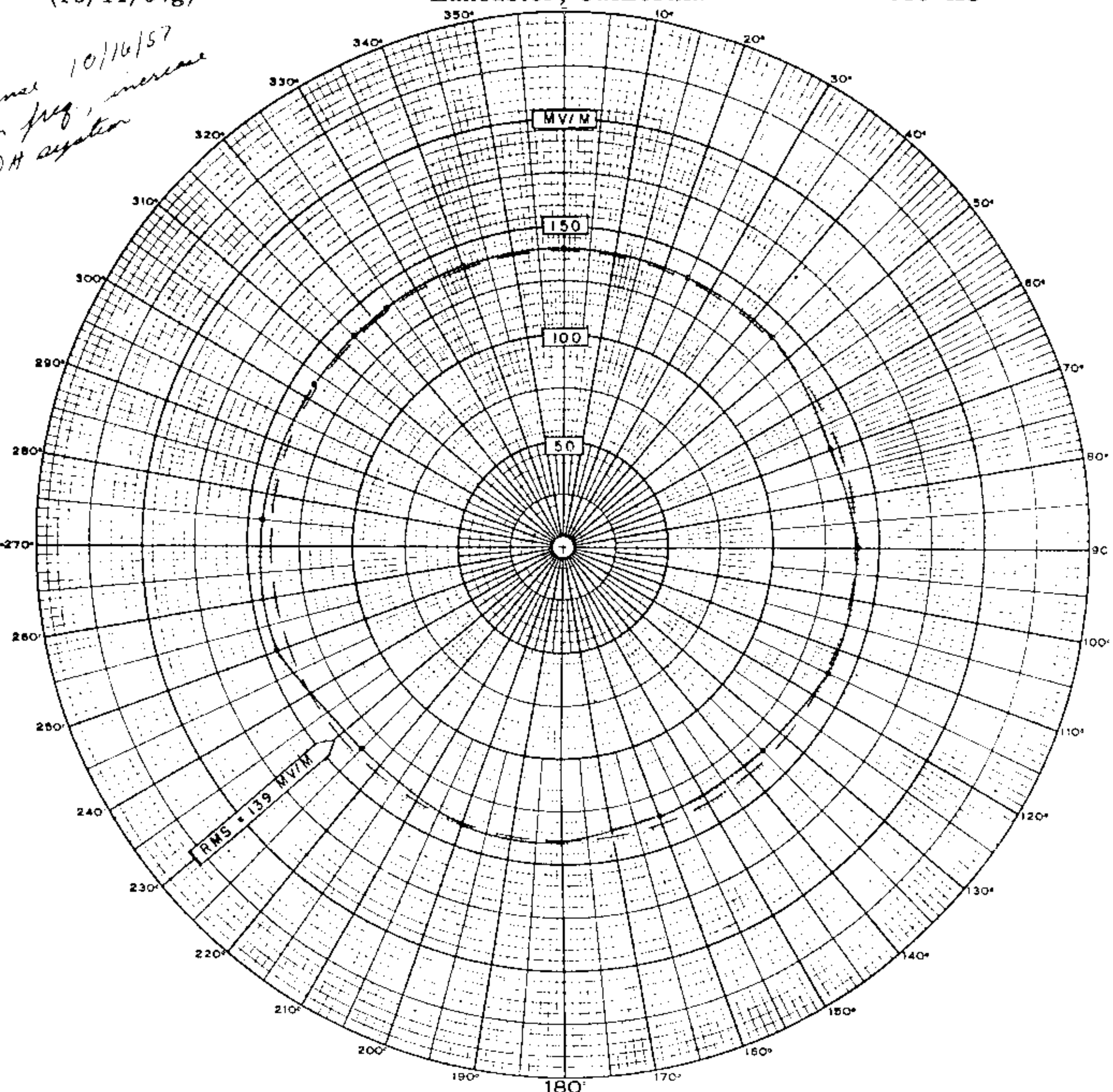
KAVL
Lancaster, California 610 KC

~~Lancaster Calif.~~ KAVL

MEASURED NON-DA
(10/11/57g)

Station KAVL 500w,1kw-LS, DA-2,U
Lancaster, California 610 KC

Granted license 10/16/57 for change in freq, increase power & DA system



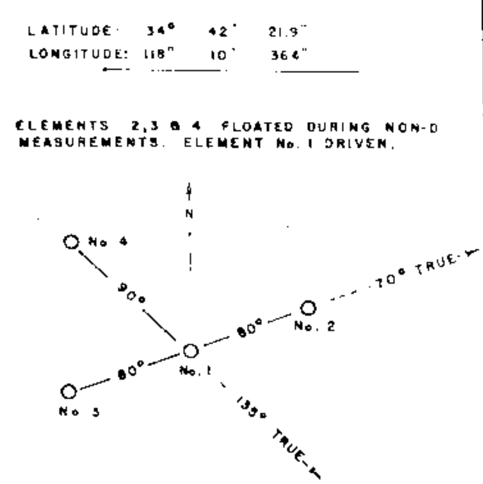


FIGURE 6

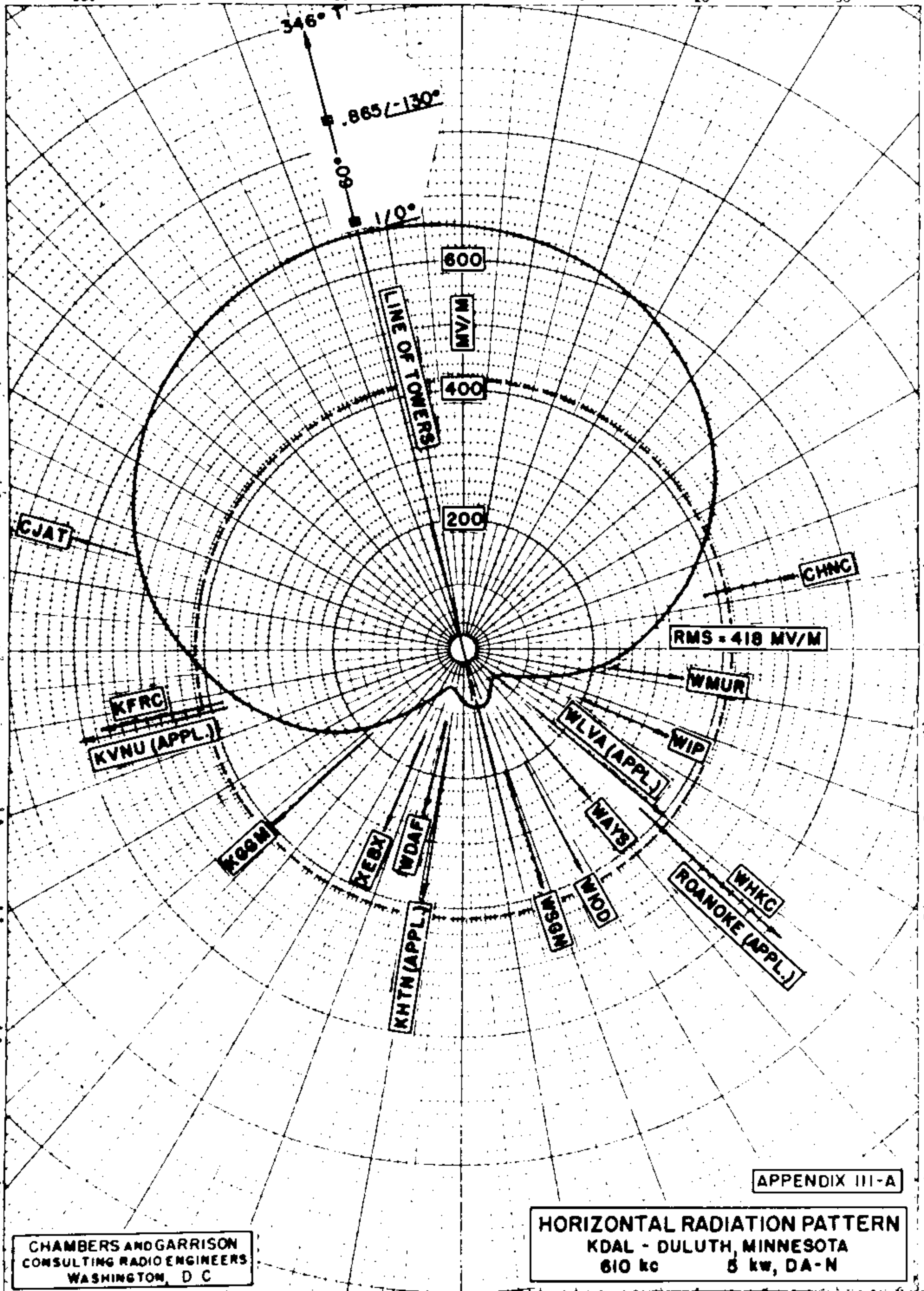
NON-DIRECTIONAL FIELD INTENSITY AT ONE MILE
KAVL LANCASTER, CALIF. — 610 KC — 0.5 KW
JUNE 1957

RON OAKLEY
Consulting Radio Engineer
4629 ENCINAS DRIVE
LA CANADA, CALIFORNIA

FCC File No. BL-6765
Accepted 9/27/57

KAVL
Lancaster, California 610 KC

7 / KDAL
610



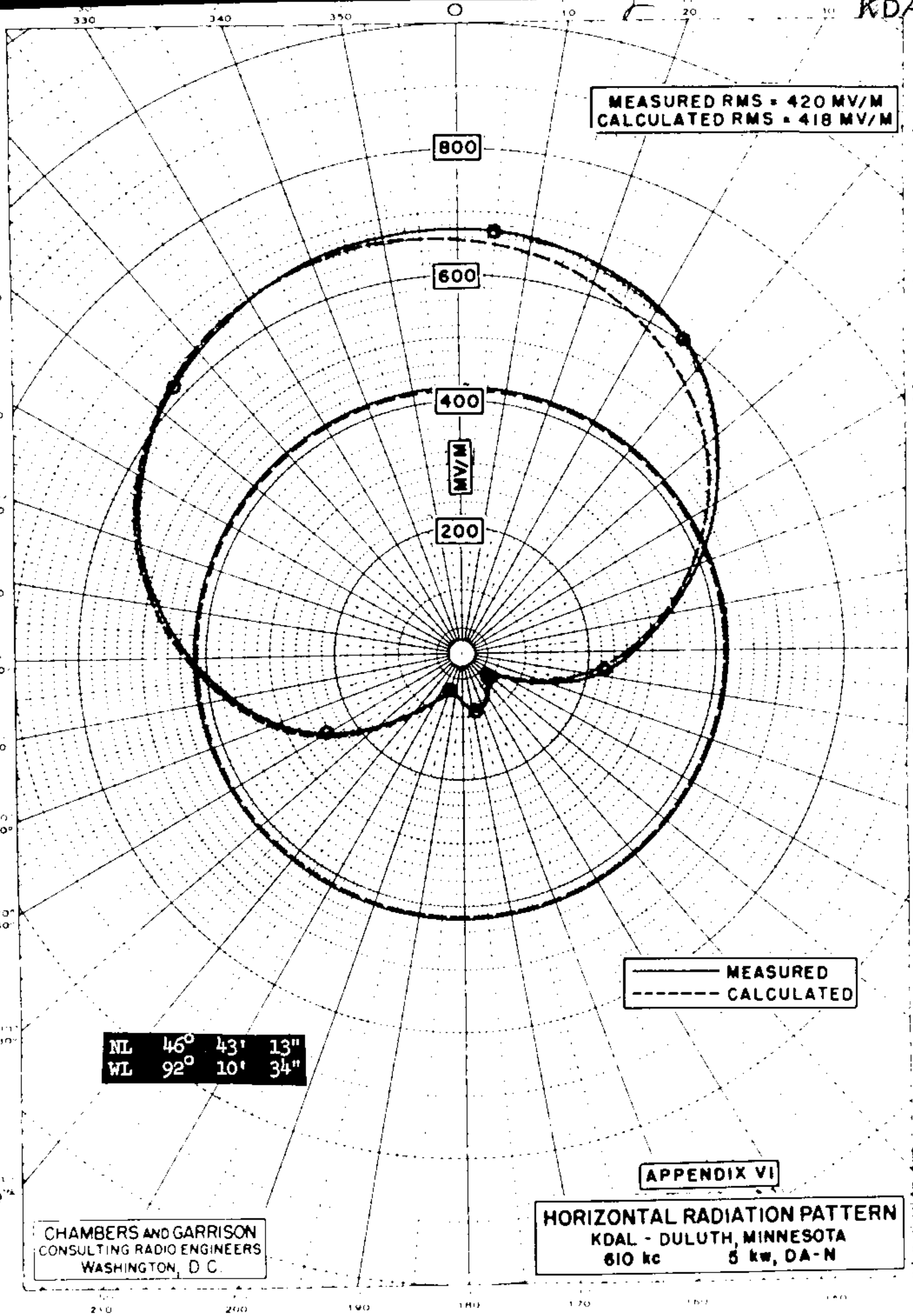
APPENDIX III-A

HORIZONTAL RADIATION PATTERN
KDAL - DULUTH, MINNESOTA
610 kc 5 kw, DA-N

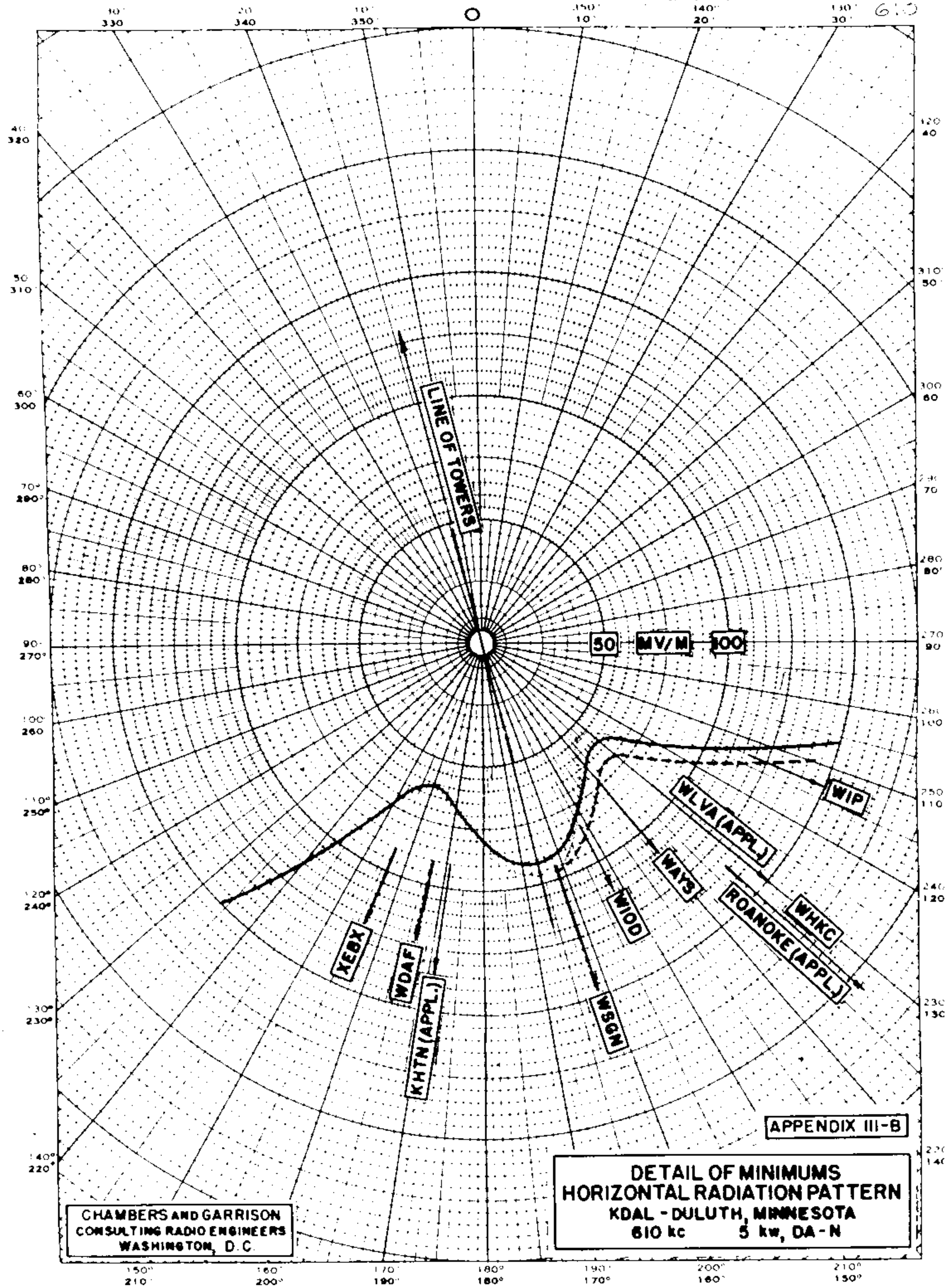
CHAMBERS AND GARRISON
CONSULTING RADIO ENGINEERS
WASHINGTON, D C

MEASURED NIGHT Station KDAL 5kw, DA-N,U
Duluth, Minnesota 610 KC

KDAL



KDAL 610



APPENDIX III-B

DETAIL OF MINIMUMS
HORIZONTAL RADIATION PATTERN
KDAL - DULUTH, MINNESOTA
610 kc 5 kw, DA-N

CHAMBERS AND GARRISON
CONSULTING RADIO ENGINEERS
WASHINGTON, D.C.

Proposed

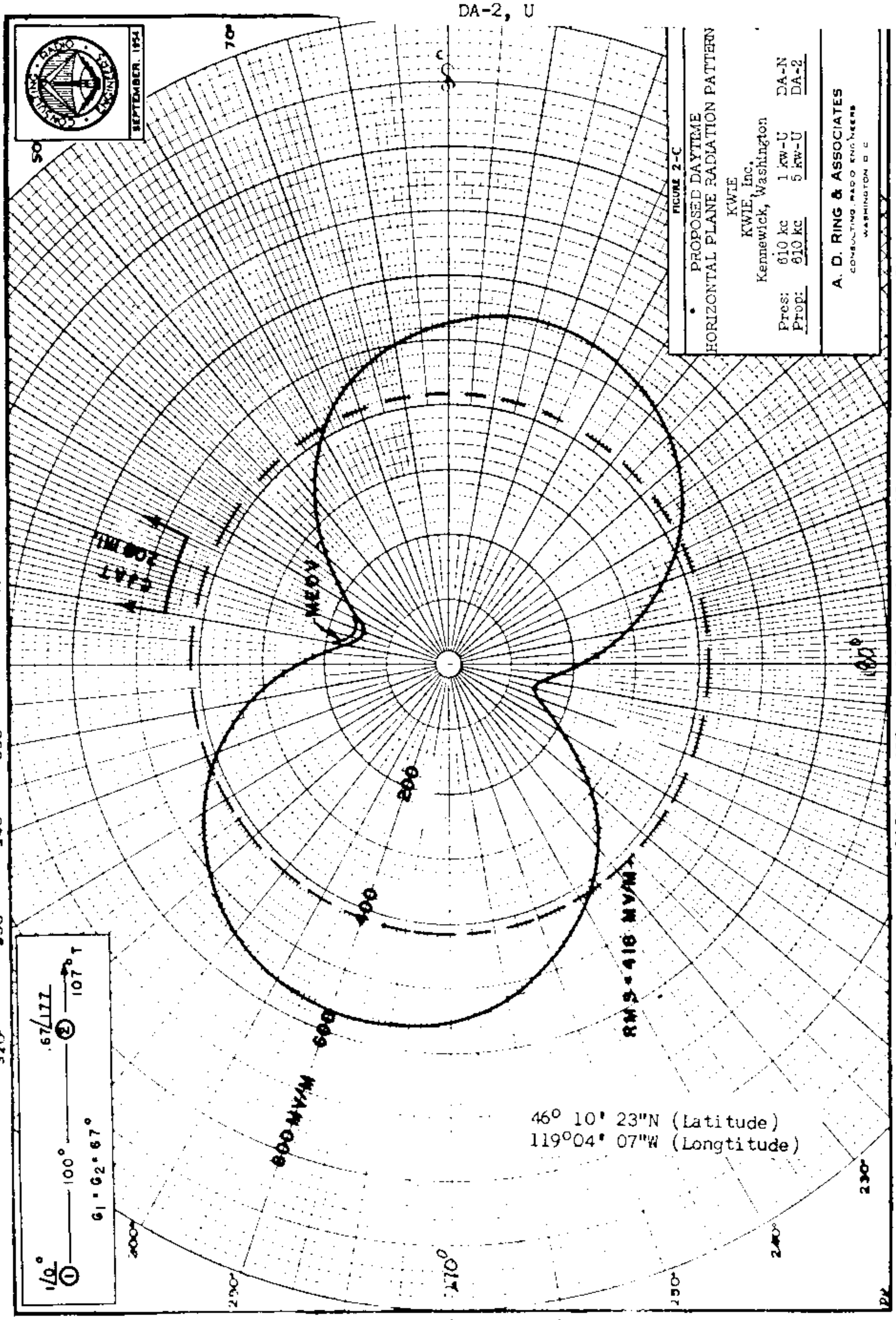
KONA ~~KWIE~~ KEPR

PROPOSED DAY
(10/18/54G)

STATION KWIE
KENNEWICK, WASHINGTON

5 KW
DA-2, U

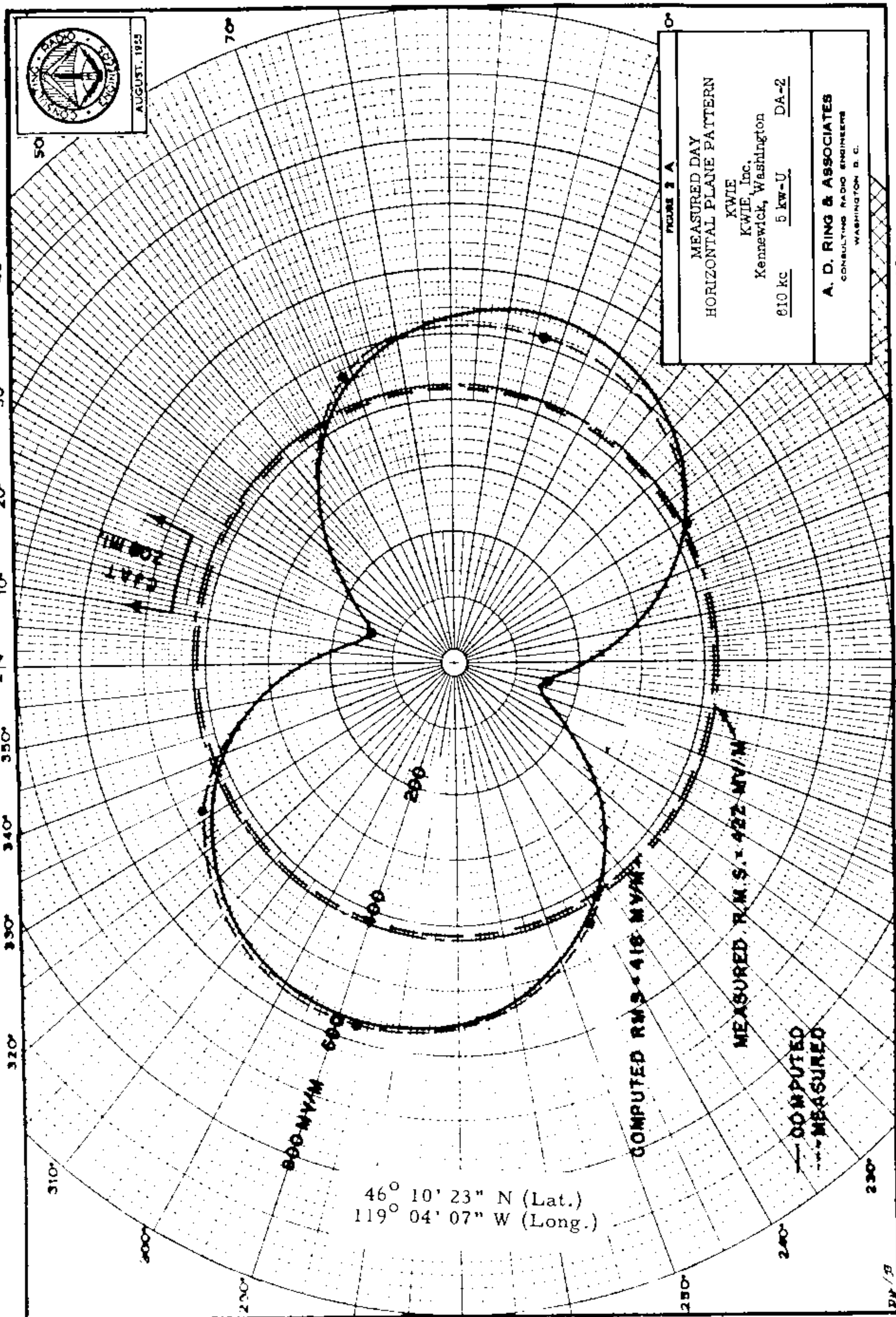
610 KC



Accepted 10/5/54 KWIE, Kennewick, Washington 610 KC

KONA ~~KWIE~~ KEFF

Measured Day (Corrected Pattern) 10/6/55G | STATION KWIE KENNEWICK, WASH. | 5 KW DA-2, U | 610 KC



A. D. RING & CO - 1/52 - 1000

File No. BL-5728 Accepted 8/25/55 KWIE, KENNEWICK, WASH. 610, KC

KONA

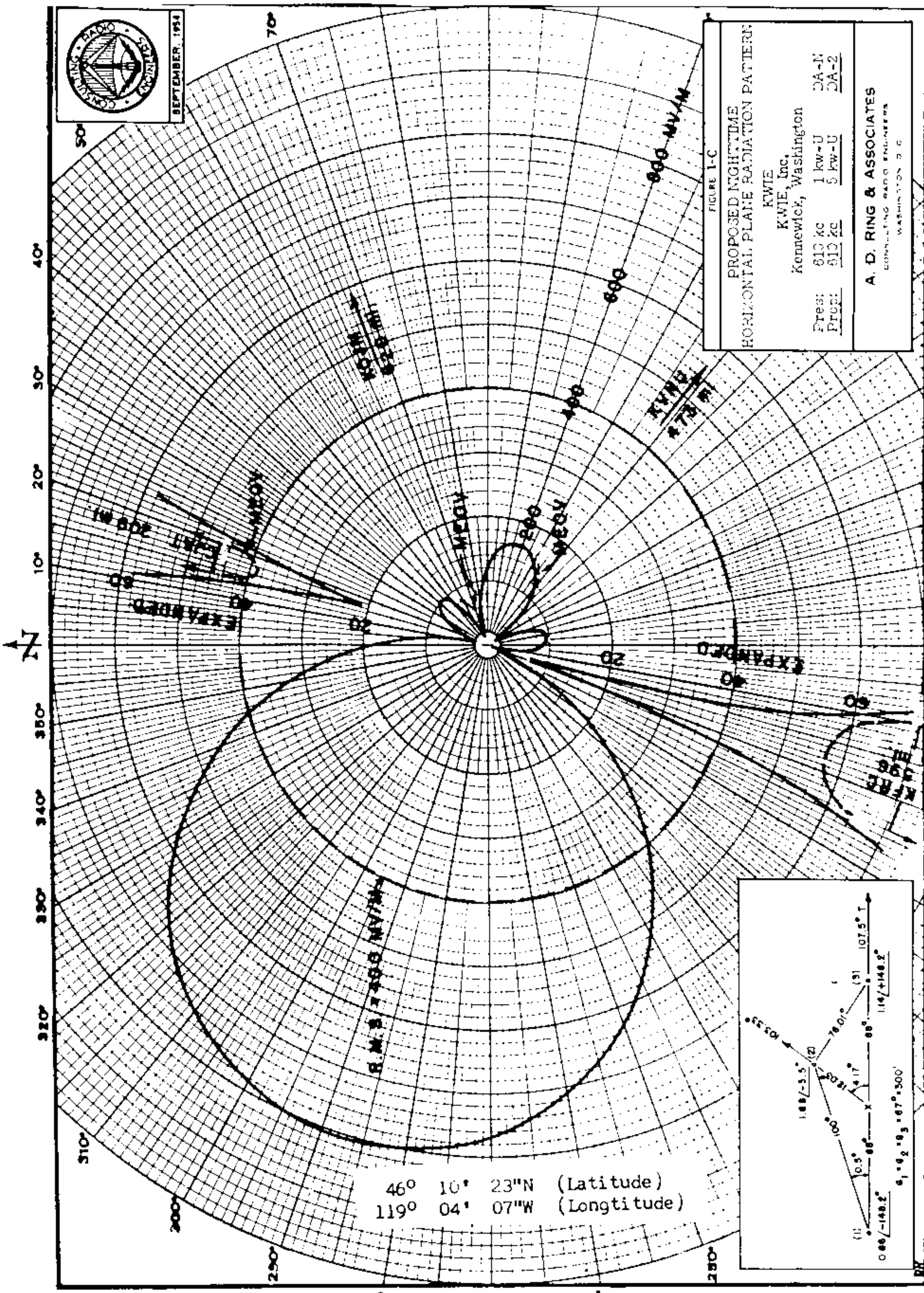
~~KWIE~~

PROPOSED NIGHT
(10/18/54G)

STATION KWIE
KENNEWICK, WASHINGTON

5 KW
DA-2, U

610 KC

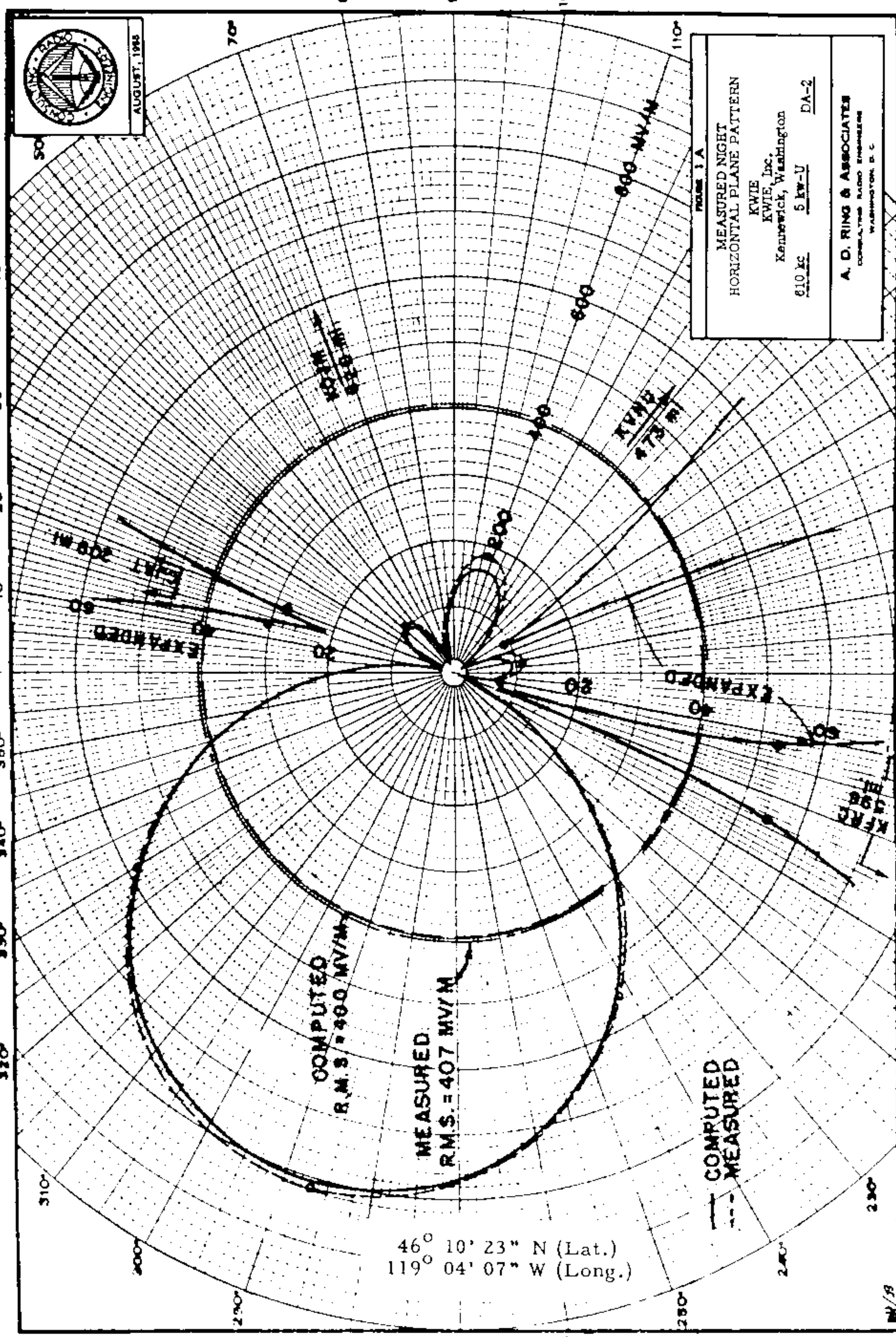


Accepted 10/5/54 KWIE, Kennewick, Washington 610 KC

KONA

~~KWIE~~ KEPF

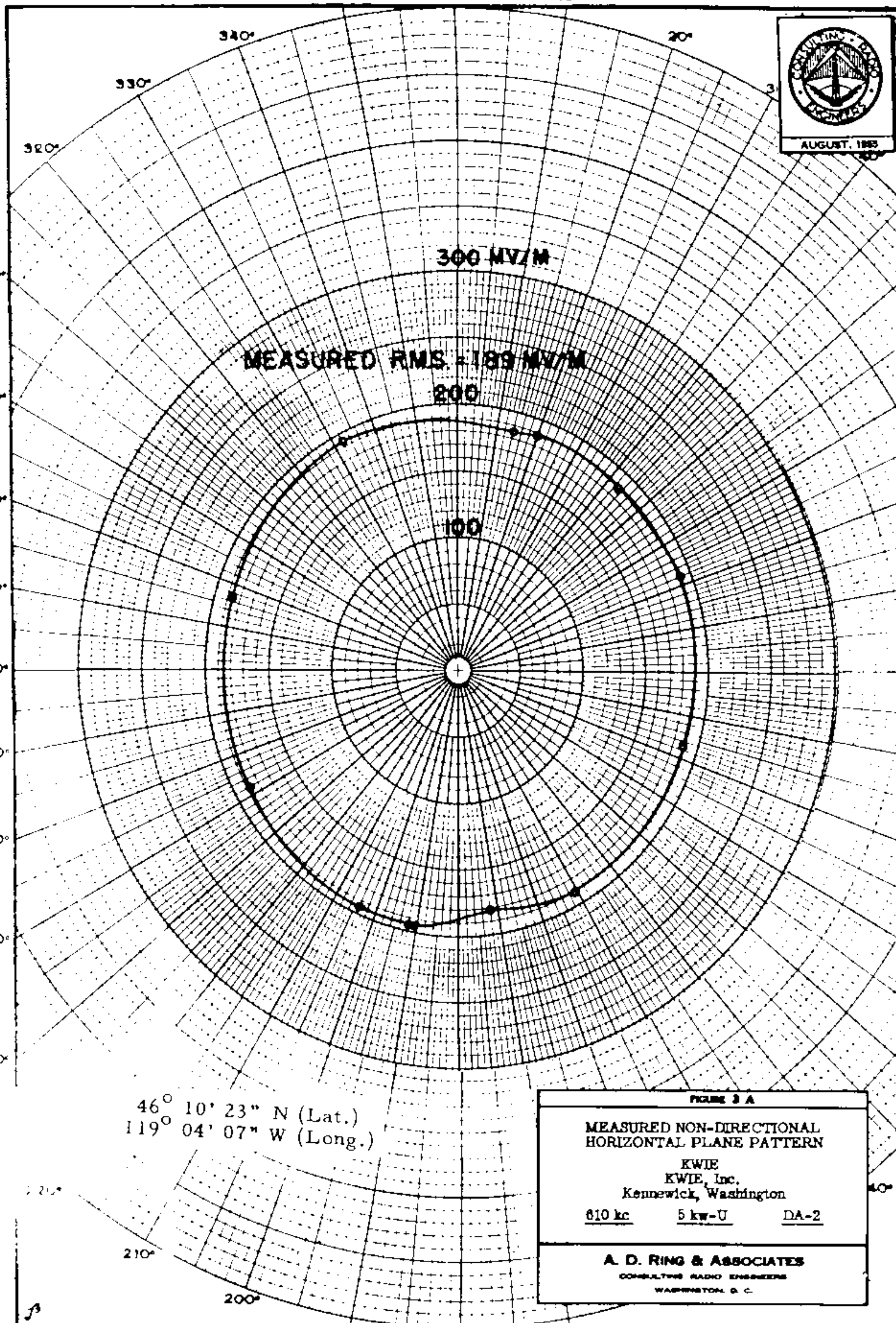
Measured Night (Corrected Pattern) STATION KWIE 5 KW
10/6/55G KENNEWICK, WASH. DA-2, U 610 KC



File No. BL-5728 Accepted 8/25/55 KWIE, KENNEWICK, WASH. 610 KC

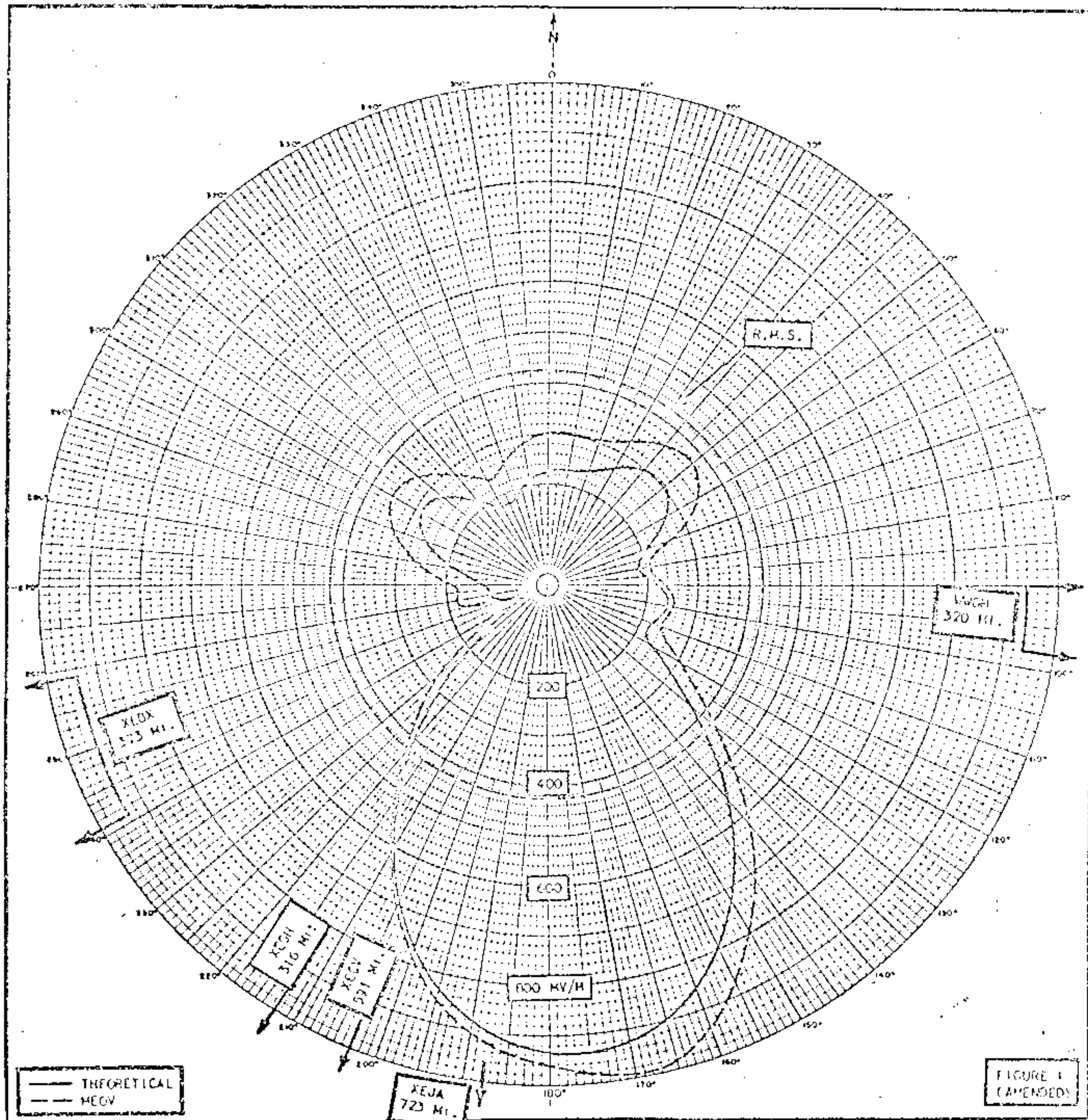
KONA ~~KWIE~~ ~~KEPF~~

Measured Non-Directional 10/6/55G (Corrected Pattern) | STATION KWIE KENNEWICK, WASH. | 5 KW DA-2, U | 610 KC



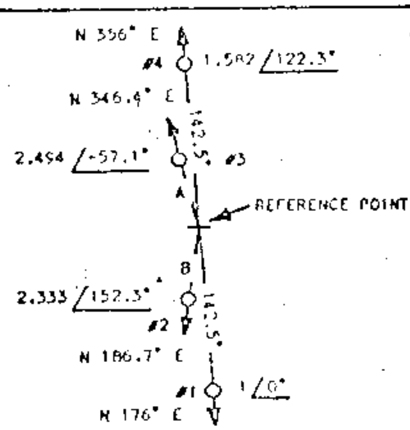
File No. BL-5728 | Accepted 8/25/55 KWIE, KENNEWICK, WASH. | 610 KC

~~KILT~~ KILT



HORIZONTAL RADIATION PATTERN

ALL G's = 69.3°
A = 40°
B = 46.8°



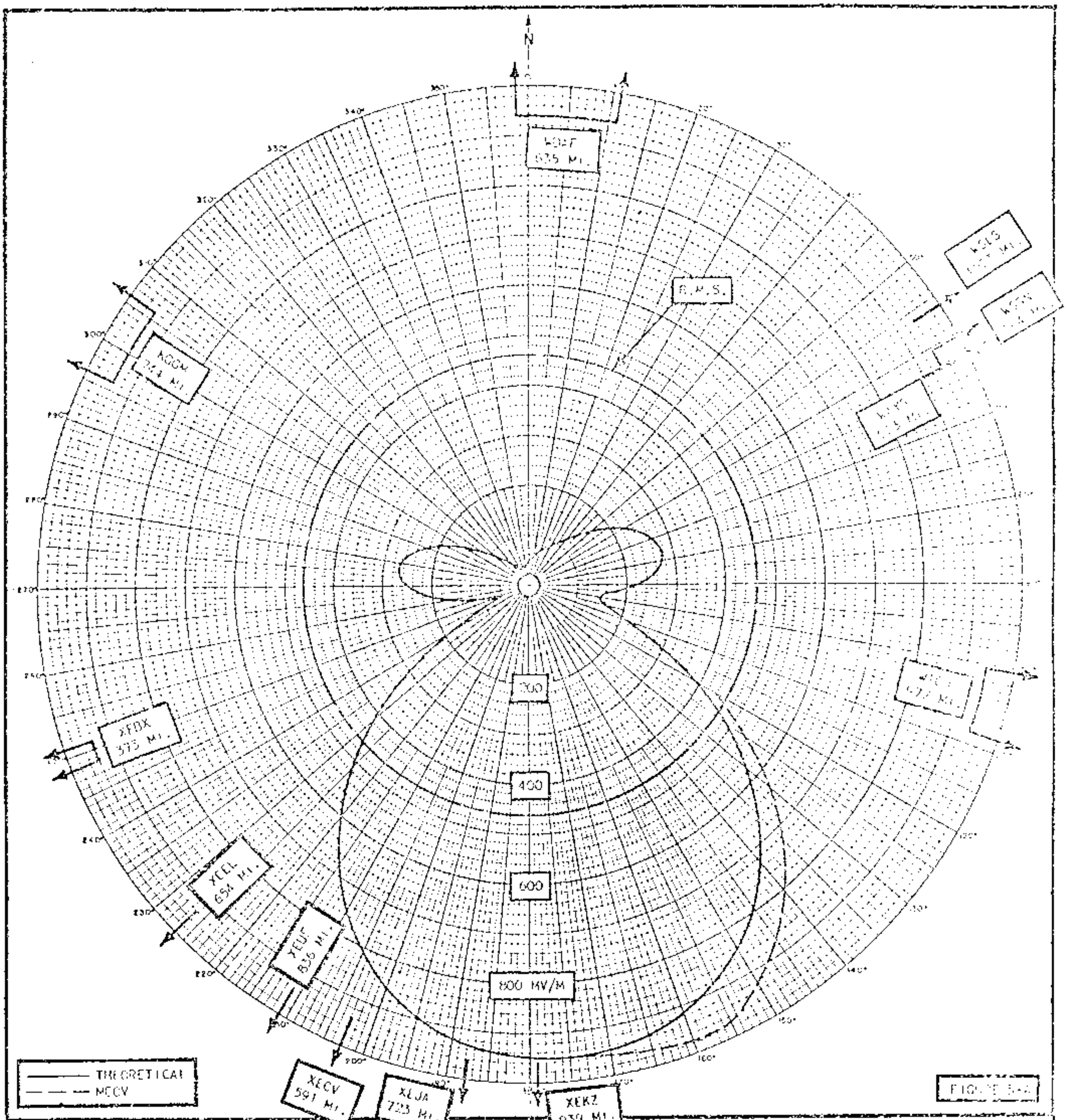
APPLICANT	: LIN - TEXAS BROADCASTING CORP.
LOCATION	: HOUSTON, TEXAS
FREQUENCY	: 610 KC/S
POWER	: 5 KW
LATITUDE	: 29 DEG 55 MIN. 04 SEC.
LONGITUDE	: 95 DEG. 25 MIN 33 SEC.
WHEN USED	: DAYTIME
R.M.S. FIELD	: 428.761 MV/M
DATE	: FEBRUARY 1971

SILLIMAN, MOFFET & KOWALSKI

CONSULTING RADIO ENGINEERS

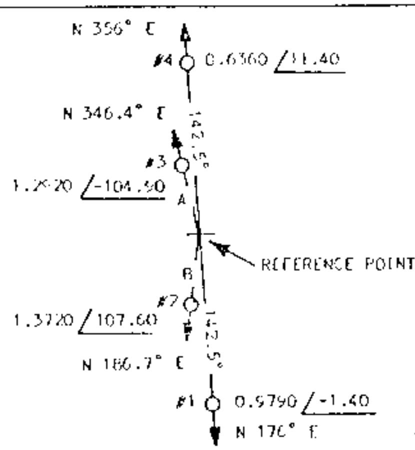
WASHINGTON, D.C.

KILT



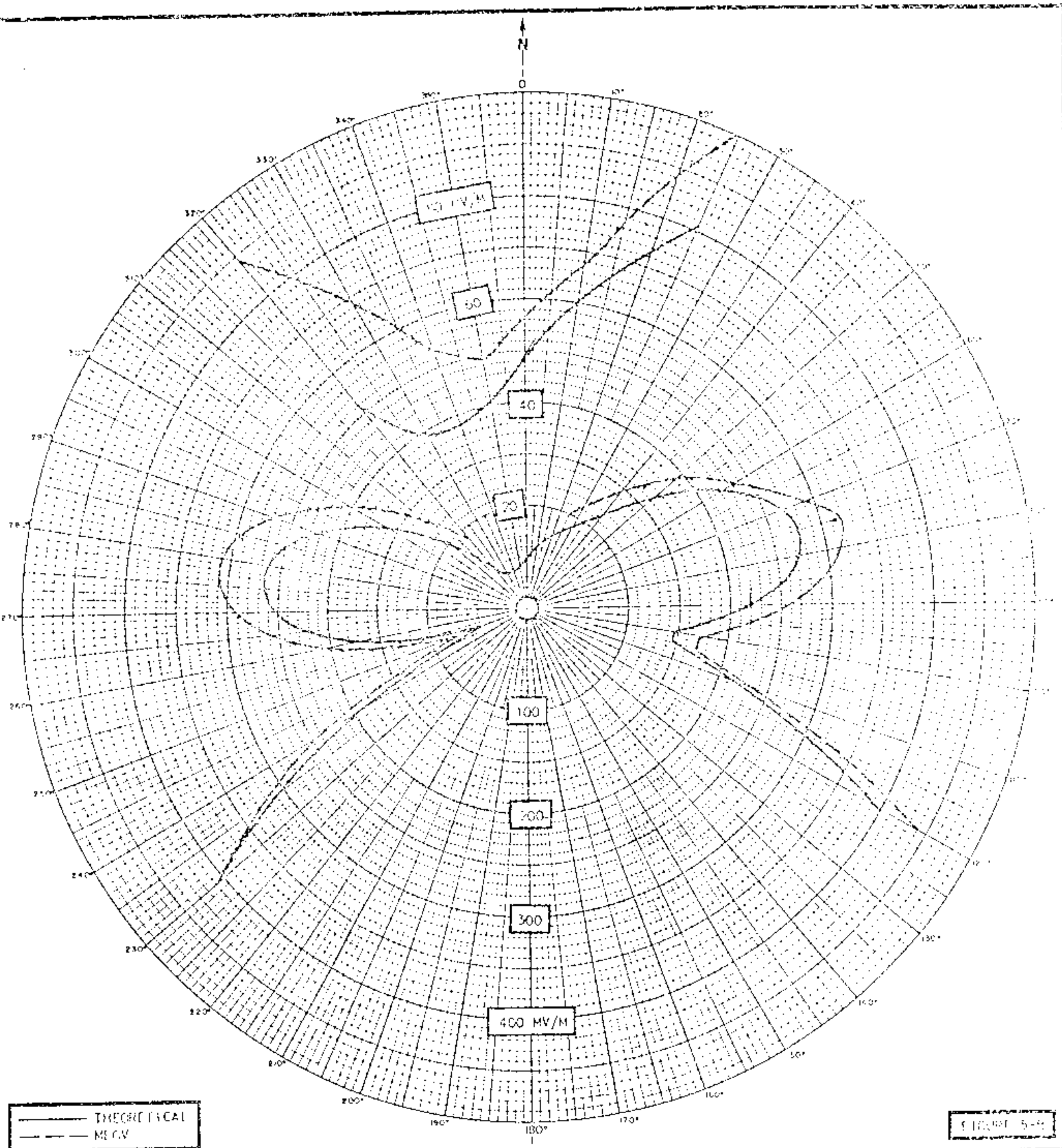
HORIZONTAL RADIATION PATTERN

ALL G's = 89.5°
A = 48°
B = 44.8°



APPLICANT : LIN - TEXAS BROADCASTING CORP.
LOCATION : HOUSTON, TEXAS
FREQUENCY : 650 KC/S
POWER : 5 KW
LATITUDE : 29 DEG 55 MIN. 04 SEC
LONGITUDE : 95 DEG 25 MIN 33 SEC
WHEN USED : NIGHTTIME
R.M.S. FIELD : 462.511 MV/M
DATE : JUNE 1970

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



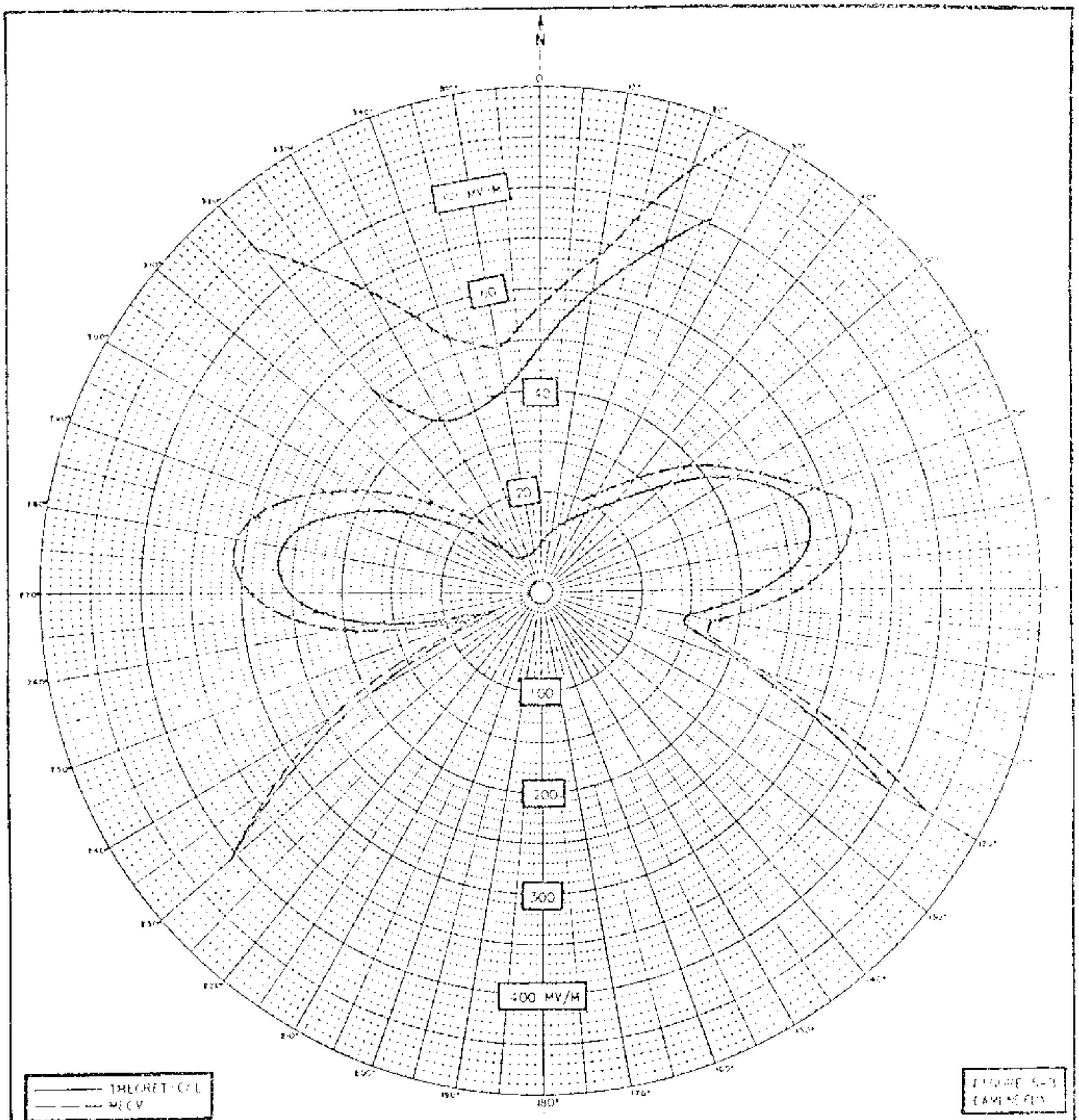
EXPANDED VIEW

SILLIMAN, MOFFET & ROHRER

CONSULTING RADIO ENGINEERS

WASHINGTON, D.C.

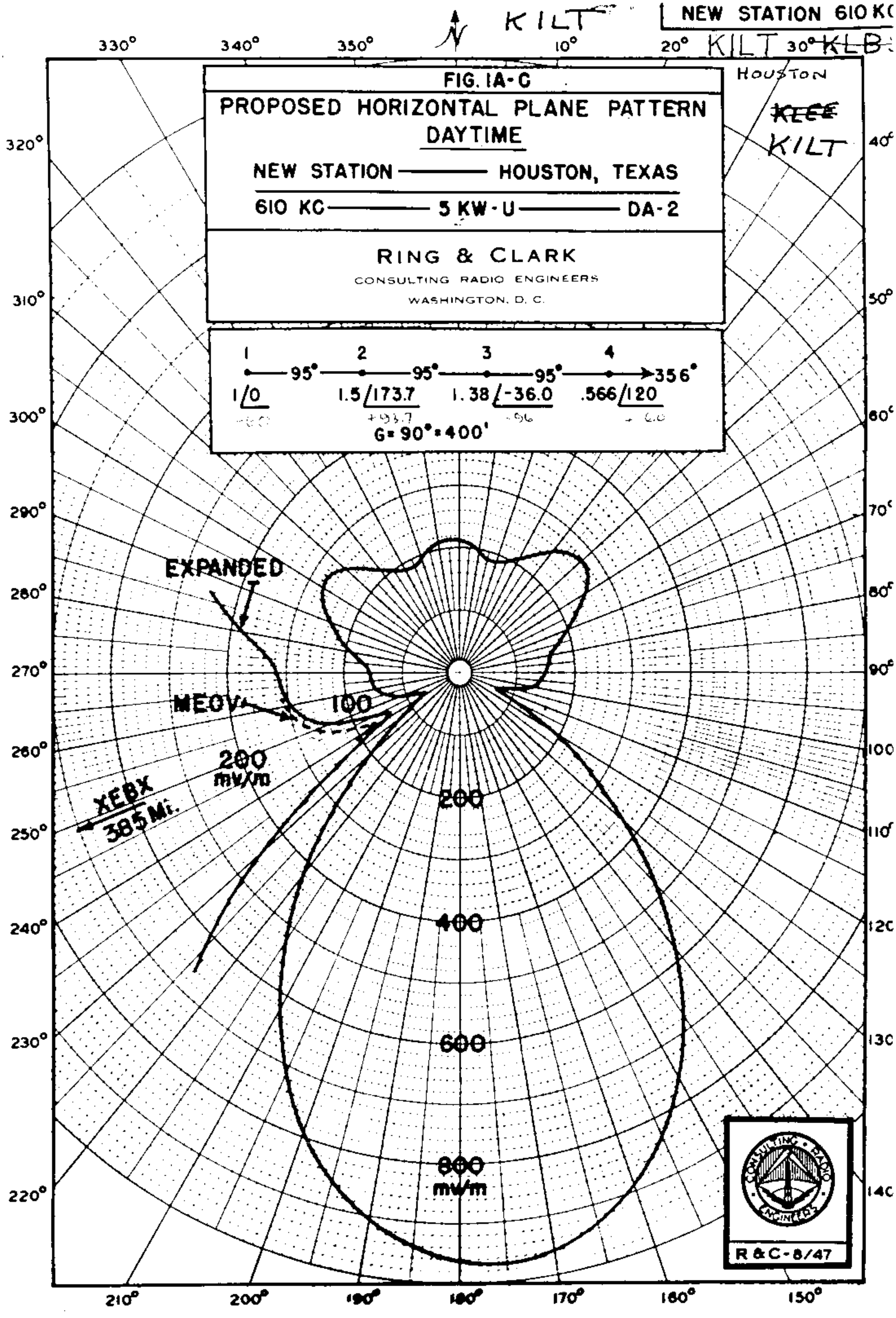
KILT



EXPANDED VIEW

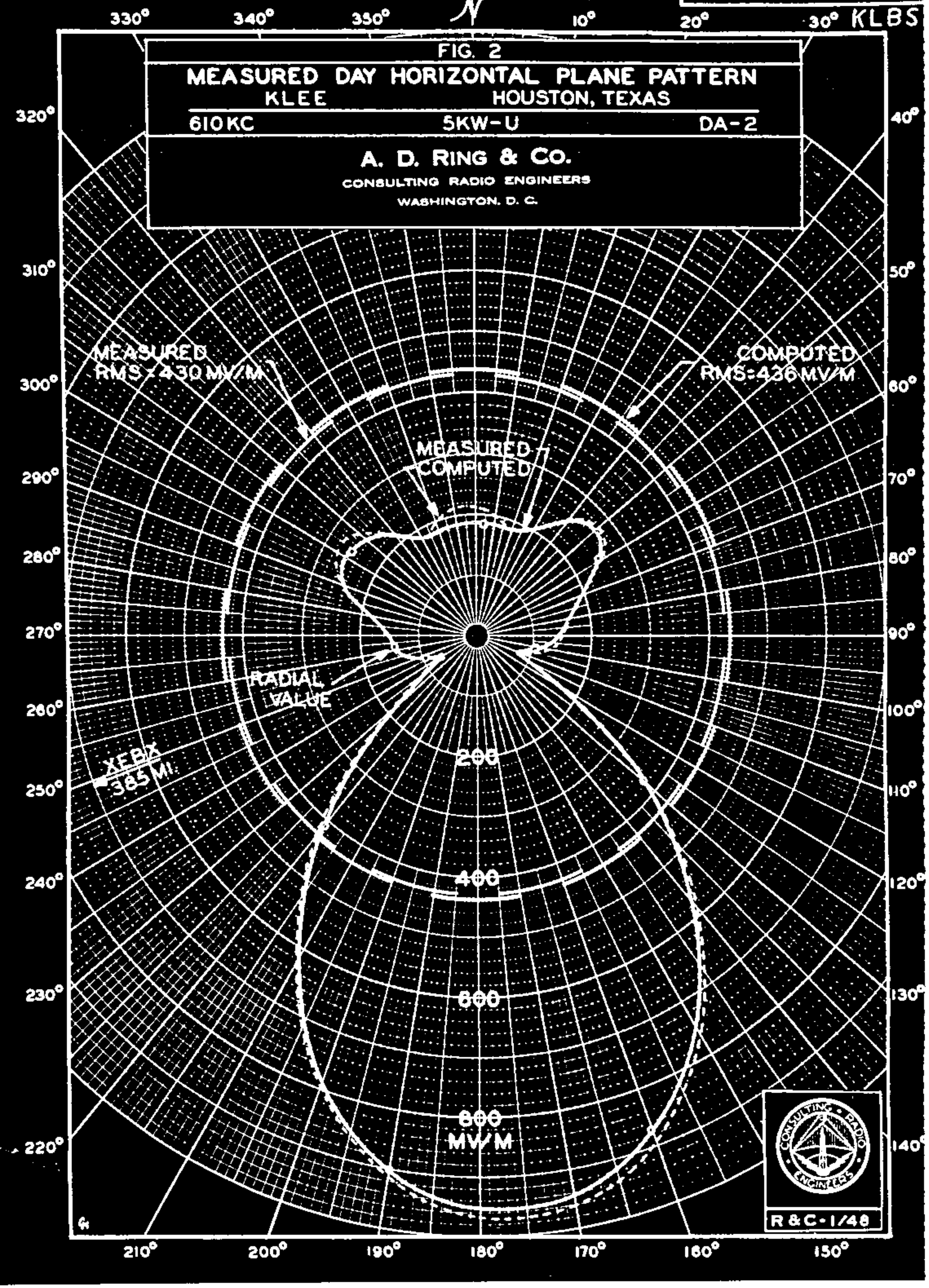
CONSULTING RADIO ENGINEERS

WASHINGTON, D.C.



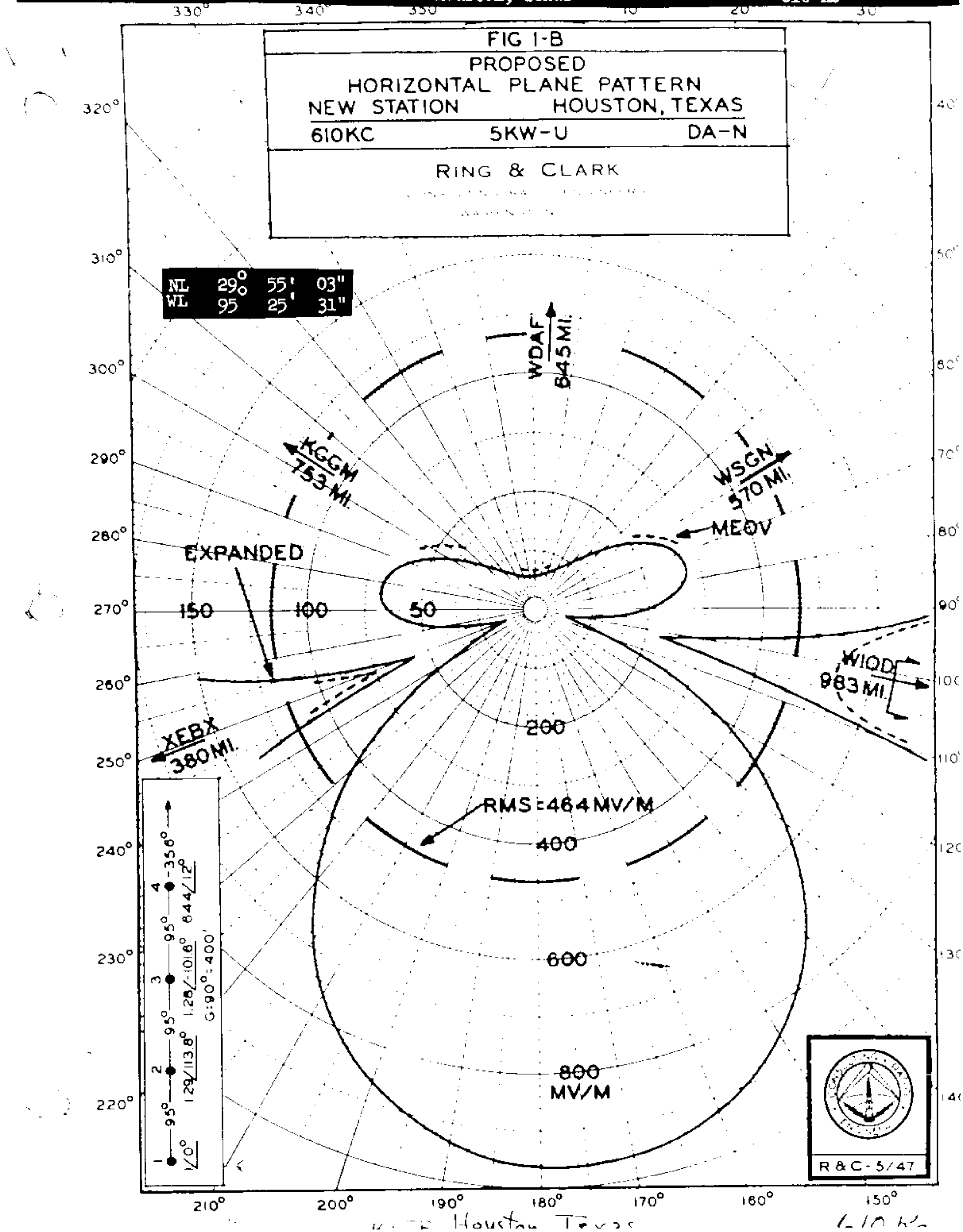
KILT
NEW STATION 610 KC
KILT
KLB
HOUSTON
KLEE
KILT
FIG. IA-C
PROPOSED HORIZONTAL PLANE PATTERN
DAYTIME
NEW STATION — HOUSTON, TEXAS
610 KC — 5 KW-U — DA-2
RING & CLARK
CONSULTING RADIO ENGINEERS
WASHINGTON, D. C.
1 2 3 4
95° 95° 95° 356°
1/0 1.5/173.7 1.38/-36.0 .566/120
+93.7
G = 90° = 400'
EXPANDED
MEOV
100
200 mv/m
XEBX 385 Mi.
200
400
600
800 mv/m
R & C-8/47
330° 340° 350° 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°

KLEE-610KC
KLBS



PROPOSED NIGHT Station ~~KILT~~ 5kw, DA-2,U
Houston, Texas 610 KC

KILT ~~KLBS~~



KILT Houston Texas 610 kc

KLEE - 610KC

KLBS

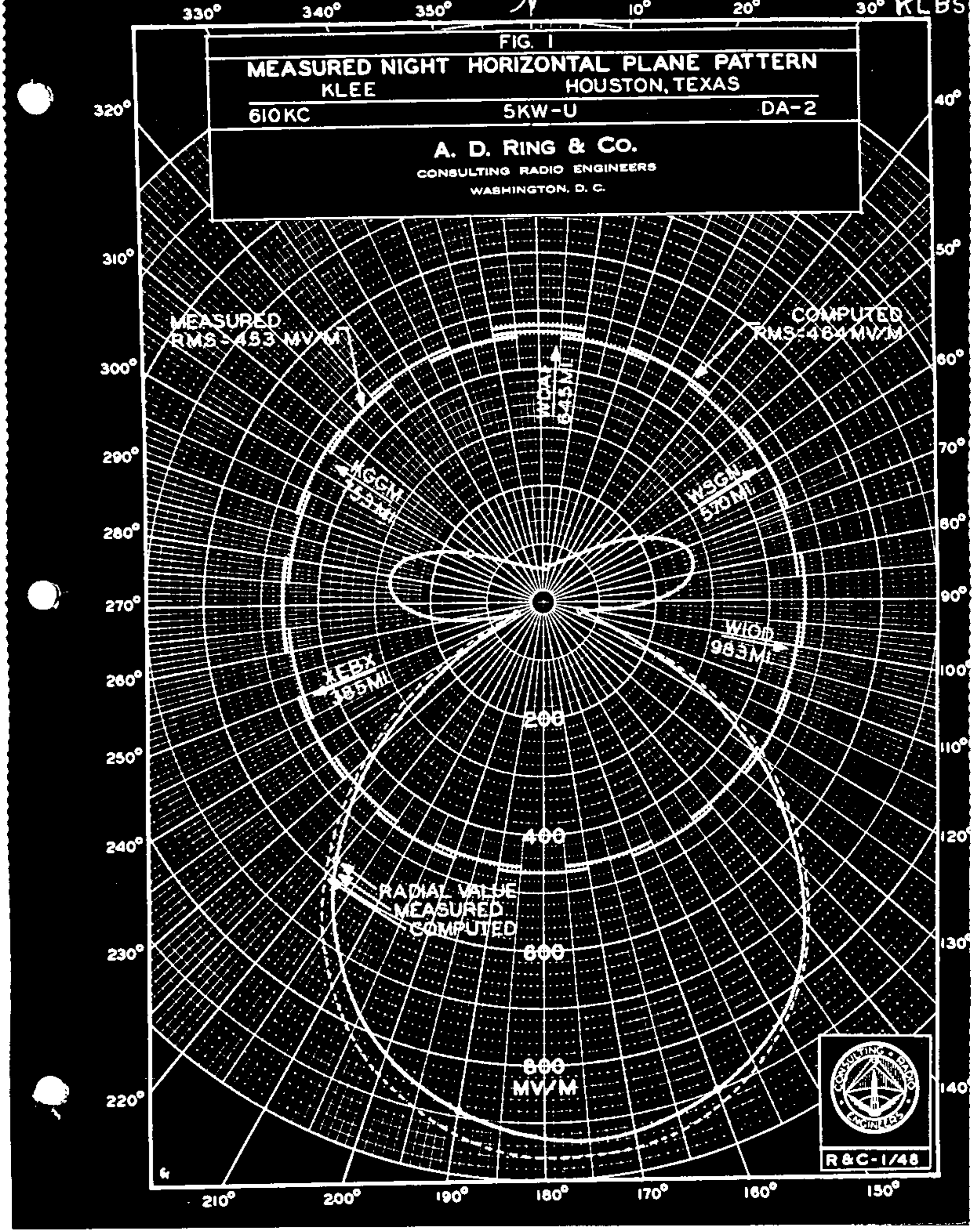


FIG. 1

MEASURED NIGHT HORIZONTAL PLANE PATTERN

KLEE HOUSTON, TEXAS

610 KC 5KW-U DA-2

A. D. RING & CO.

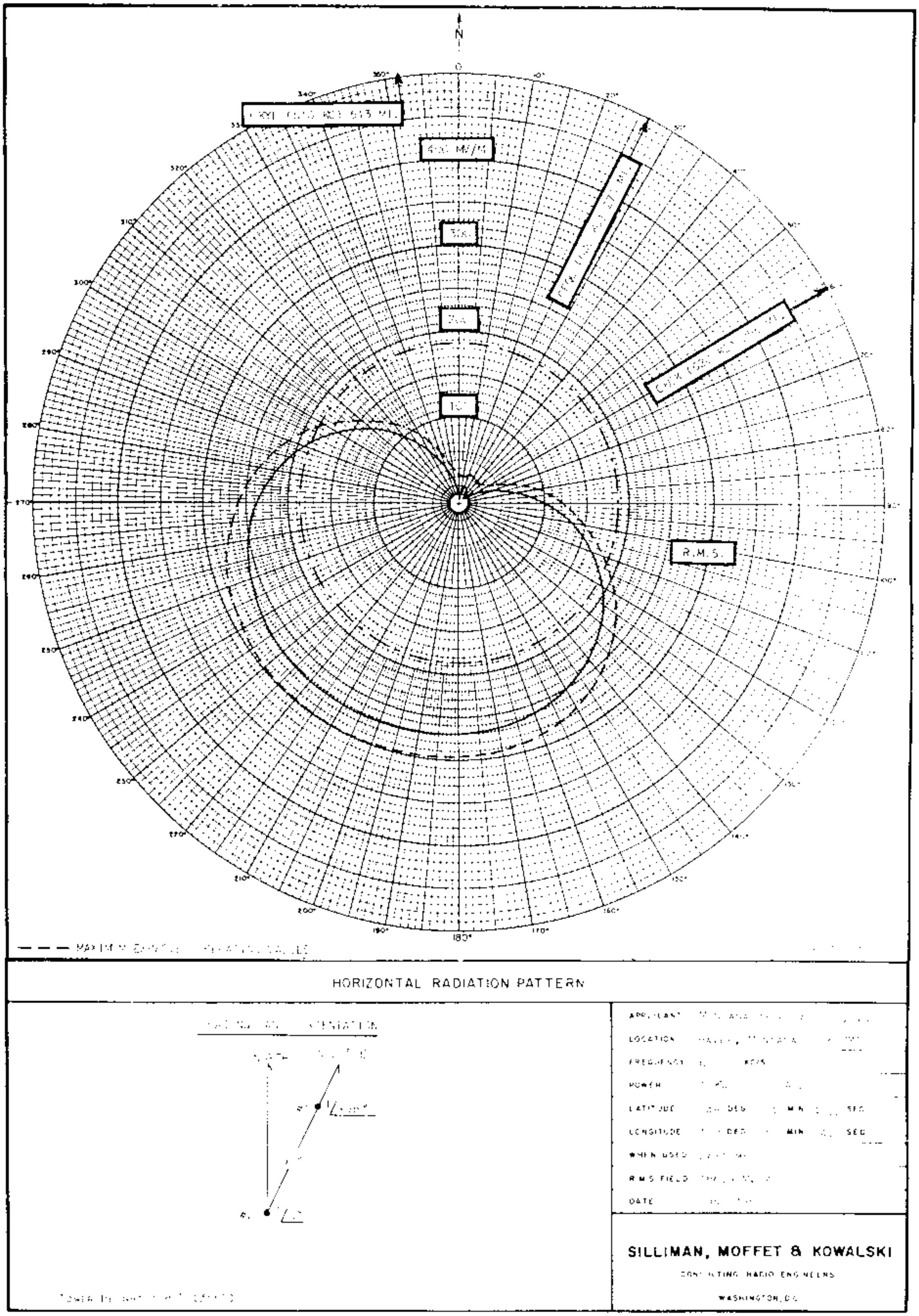
CONSULTING RADIO ENGINEERS

WASHINGTON, D. C.

Proposed Day
(9-25-70ct)

Station KOJM
Havre, Montana

KOJM
1kw,DA-2,U
610 kc



FCC File No.BP-18849
Accepted 9-16-70

Station KOJM
Havre, Montana

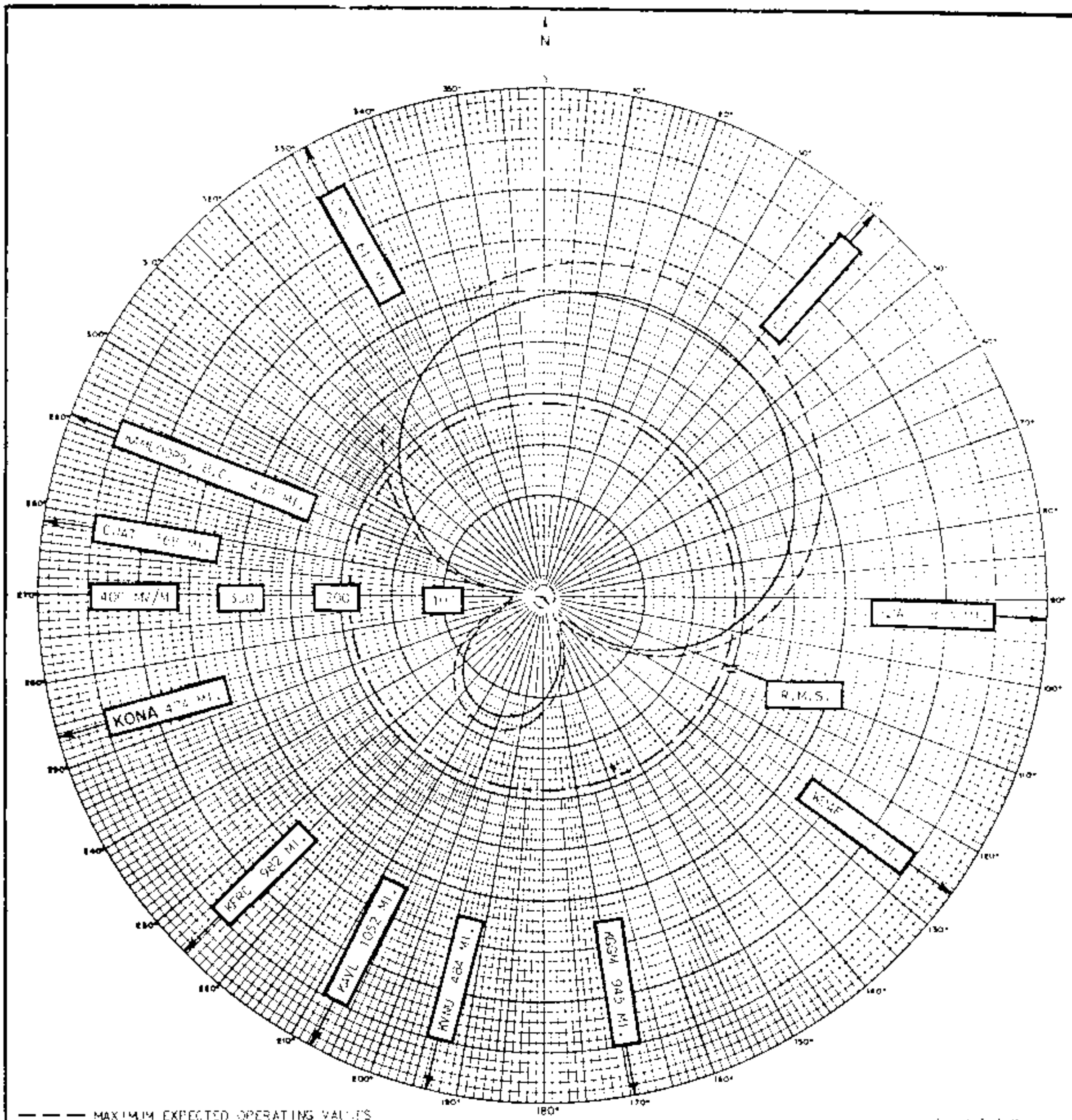
610 kc

KOJM

Proposed Night
(9-25-70ct)

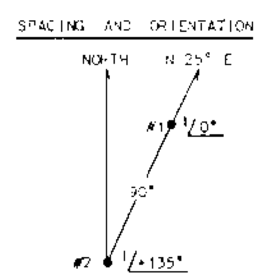
Station KOJM
Havre, Montana

1kw,DA-2,U
610 kc



— — — MAXIMUM EXPECTED OPERATING VALUES

HORIZONTAL RADIATION PATTERN



Tower Height = 80° (358')

APPLICANT	Montana Broadcasters, Inc.
LOCATION	Havre, Montana (KOJM)
FREQUENCY	610 KC/S
POWER	1 kw - U - DA/2
LATITUDE	48 DEG 33 MIN 44.2 SEC
LONGITUDE	109 DEG 39 MIN 54.3 SEC
WHEN USED	Nighttime
R.M.S. FIELD	190.6 MV/M
DATE	MARCH 1970

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

FCC File No.BP-18849
Accepted 9-16-70

Station KOJM
Havre, Montana

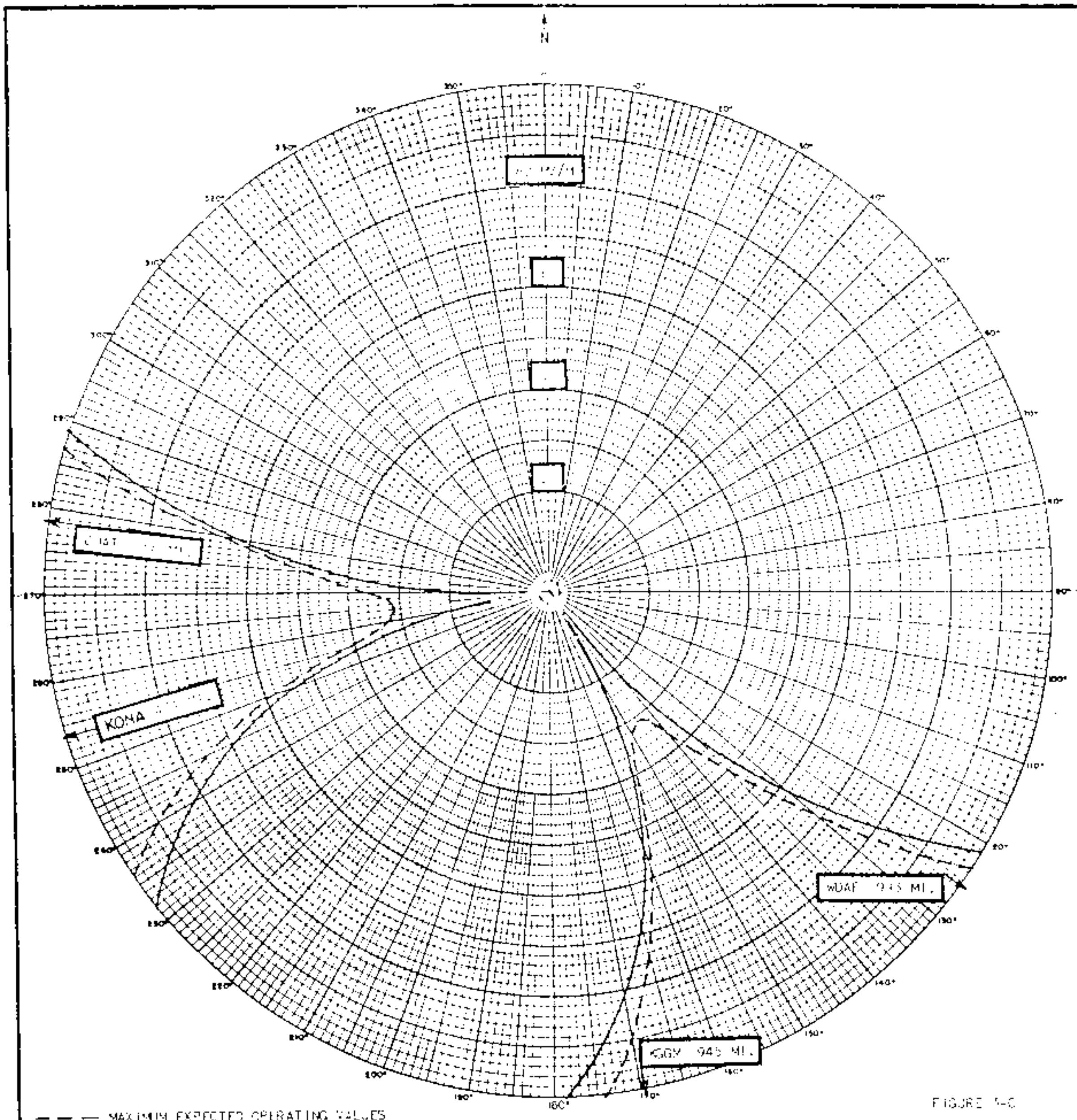
610 kc

KOJM

Proposed Night Nulls
(9-25-70ct)

Station KOJM
Havre, Montana

1kw,DA-2,U
610 kc



HORIZONTAL RADIATION PATTERN

EXPANDED VIEW

APPLICANT	MONTANA BROADCASTERS, INC.
LOCATION	HAVRE, MONTANA (KOJM)
FREQUENCY	610 KC/S
POWER	1 KW - U - DA-2
LATITUDE	48 DEG 34 MIN 49.2 SEC
LONGITUDE	109 DEG 38 MIN 54.3 SEC
WHEN USED	NIGHTTIME
RMS FIELD	190.6 MV/M
DATE	MARCH 1970

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

FCC File No.BP-18849
Accepted 9-16-70

Station KOJM
Havre, Montana

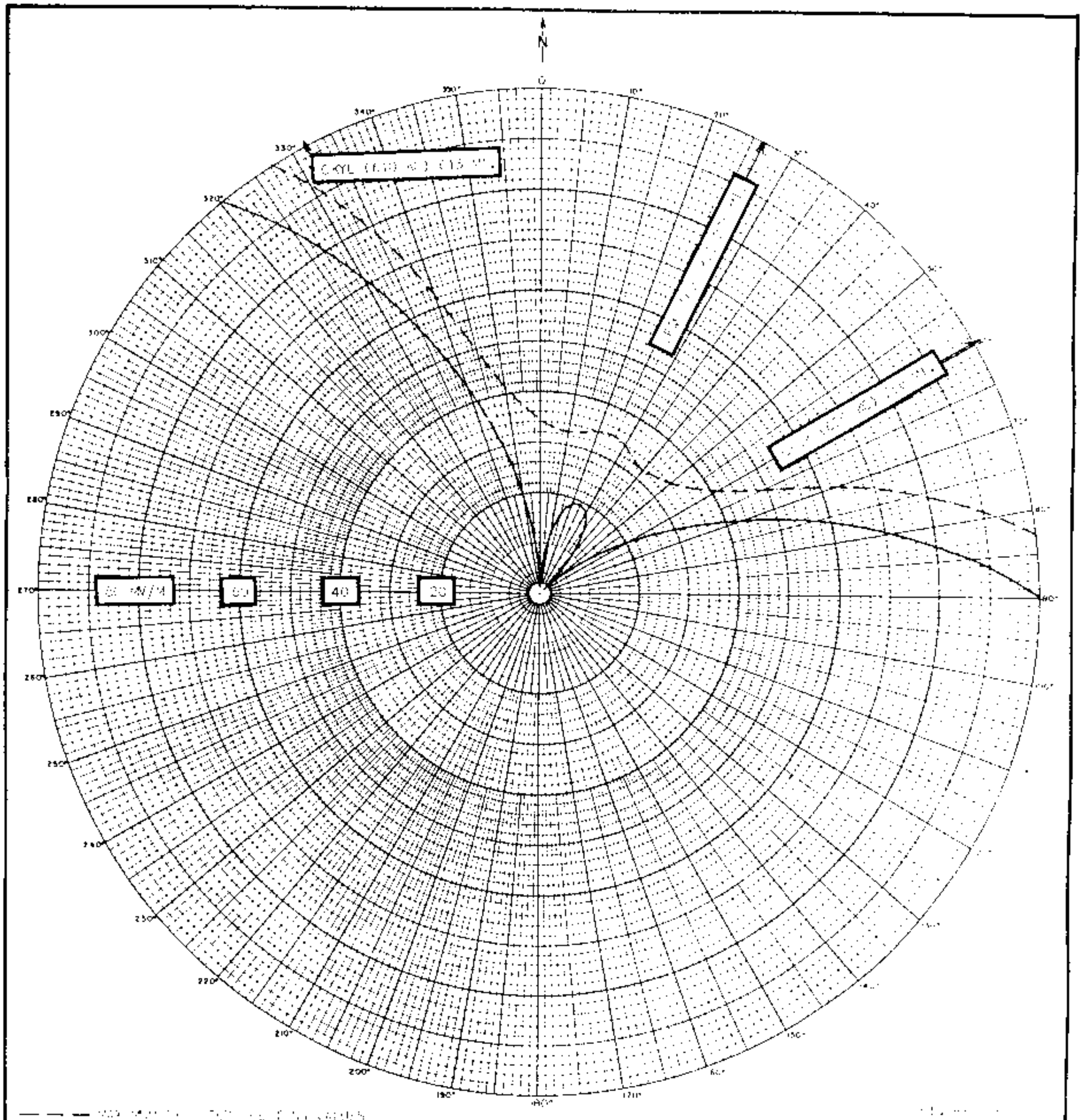
610 kc

KOJM

Proposed Day Nulls
(9-25-70ct)

Station KOJM
Havre, Montana

1kw,DA-2,U
610 kc



HORIZONTAL RADIATION PATTERN

EXPANDED VIEW

APPLICANT	
LOCATION	
FREQUENCY	
POWER	
LATITUDE	
LONGITUDE	
WHEN USED	
RMS FIELD	
DATE	

SILLIMAN, MOFFET & KOWALSKI

FCC File No.BP-18849
Accepted 9-16-70

Station KOJM
Havre, Montana

610 kc

KOJM

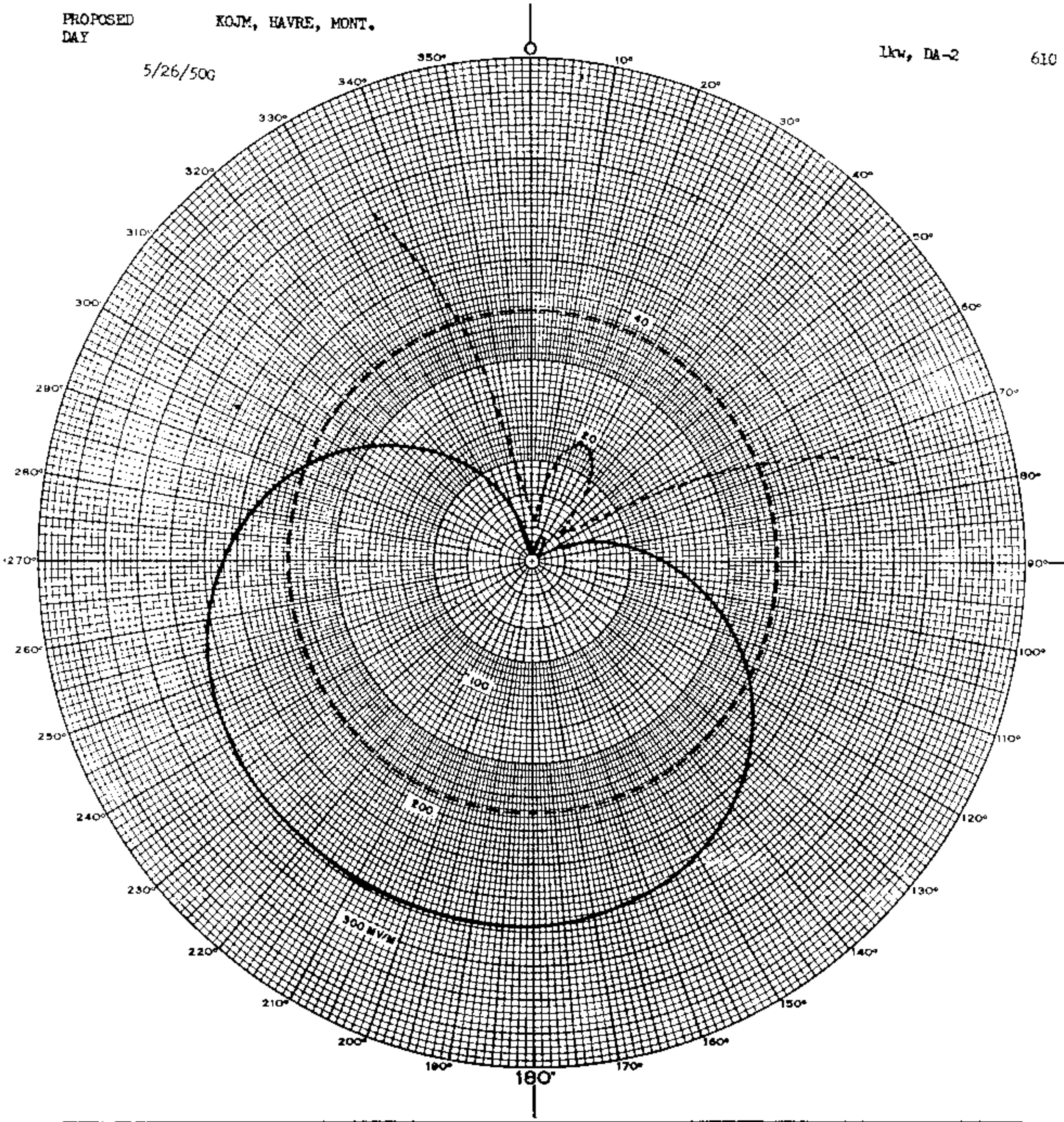
PROPOSED
DAY

KOJM, HAVRE, MONT.

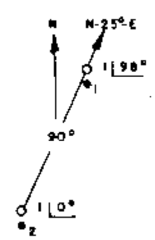
5/26/50G

1kw, DA-2

610 kc



TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

TOWER No.	ELECTRICAL HEIGHT $\theta°$	TRUE TOWER ORIENTATION $\phi°$	SPACING $S°$	PHASING $\psi°$	HORIZONTAL FIELD mv/m E	FIELD RATIO F	ELEV. ANGLE $\theta°$	ELEVATION RMS FIELD mv/m E_θ
1	80	25	90	98		1	0	186.9
2	80	25	90	0		1	10	
3							20	
4							30	
5							40	
6							50	
7							60	
8							70	
9							80	
10							E_f =	mv/m
DAYTIME OPERATION ☒			NIGHTTIME OPERATION ☐				P_f =	kw

STATION DATA

CALL	KOJM
FREQUENCY	610 kc
POWER	1 kw
TIME OF OPERATION	U
TYPE OF OPERATION	DA - 2
DAYTIME TOWERS	1 & 2
NIGHTTIME TOWERS	1 & 2
No. RADIALS PER TOWER	120
LENGTH OF RADIALS	90 ° 403 ft.
GROUND SCREEN DIMENSION	48'50
LAT.	48 ° 34 ' 32 "
LONG.	109 ° 39 ' 13 "
SUPERSEDES	500115
PATTERN No.	500503

FIG. 12A

Consulting Radio Engineers
DIXIE B. McKEY & ASSOCIATES

RADIO STATION KOJM
HAVRE, MONTANA

HORIZONTAL RADIATION PATTERN

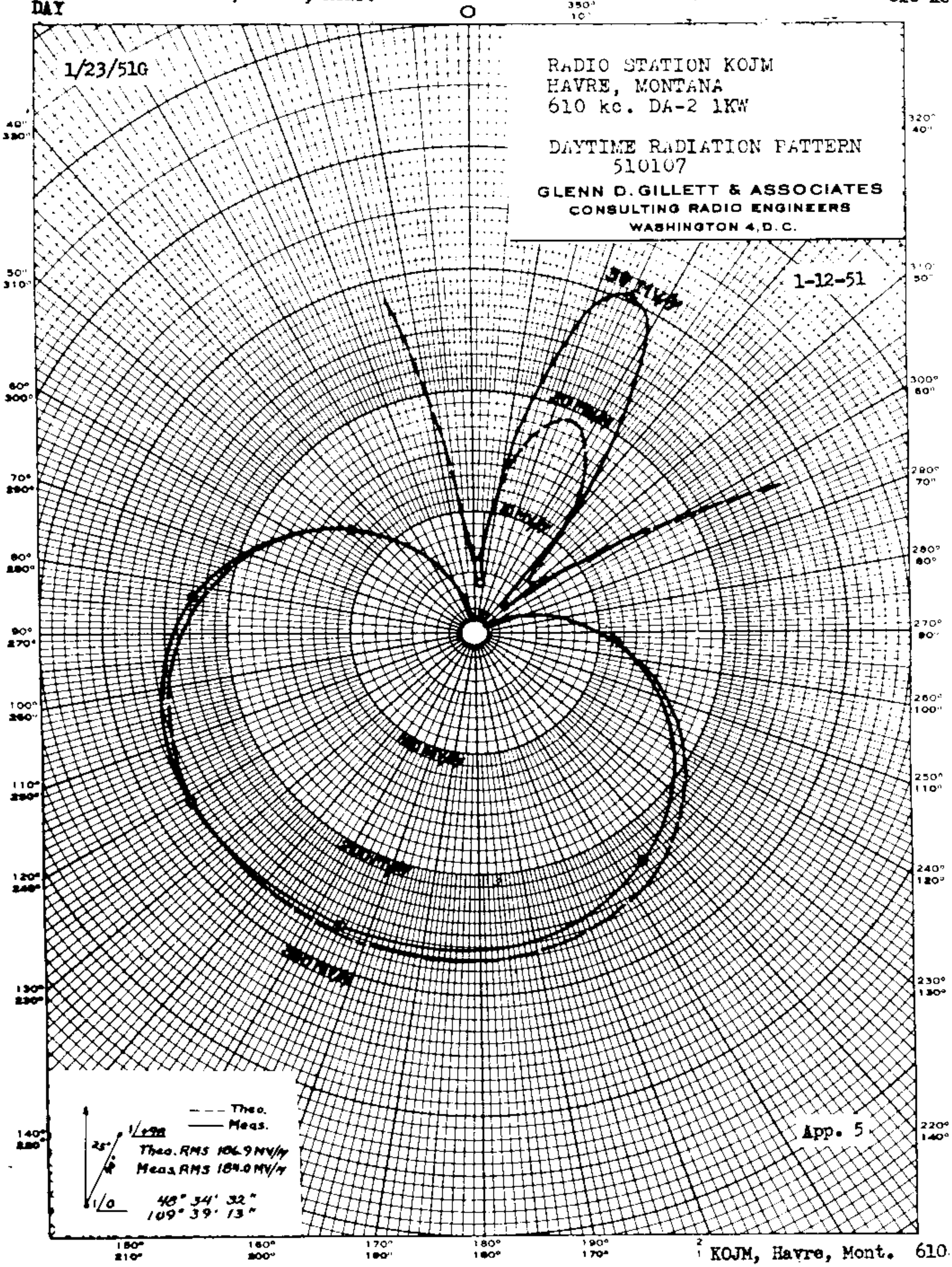
610 KC   1 KW-U, DA-2

AMENDMENT RECD 5-15-50 ACC 5-19-50 BP-7134

KOJH, Havre, Mont. 610 kc

KOJM

MEASURED DAY | KOJM, HAVRE, MONT. | 1kw, DA-2 | 610 kc



KOJM, Havre, Mont. 610 kc

KOJM

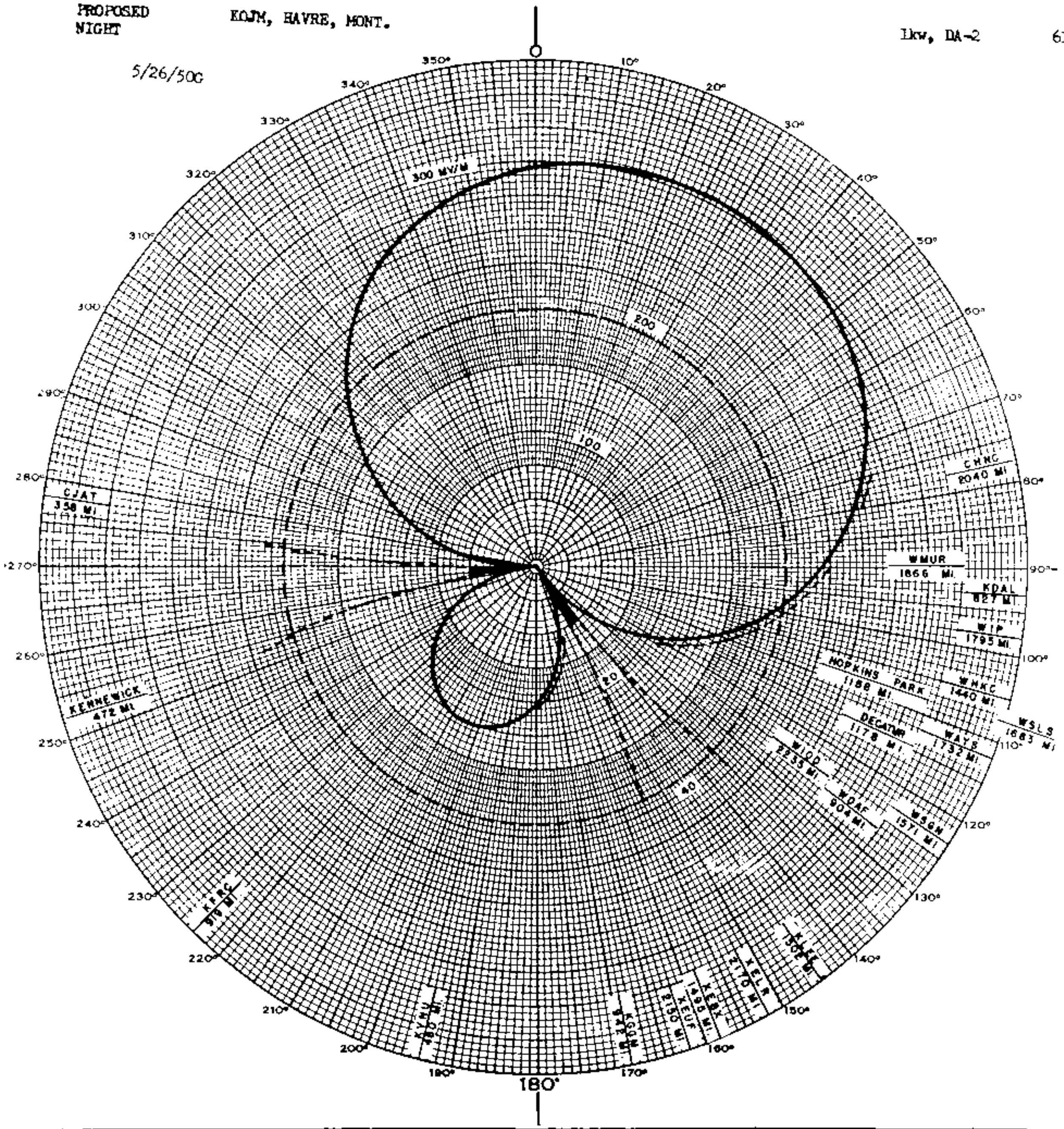
PROPOSED
NIGHT

KOJM, HAVRE, MONT.

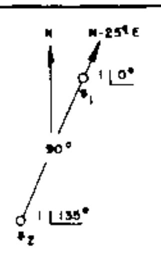
1kw, DA-2

610 kc

5/26/50C



TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

TOWER No.	ELECTRICAL HEIGHT	TRUE TOWER ORIENTATION	SPACING	PHASING	HORIZONTAL FIELD mv/m E	FIELD RATIO F	ELEV. ANGLE	ELEVATION RMS FIELD mv/m
1	90	25	90	0		1	0	190.8
2	90	25	90	135		1	10	
3							20	
4							30	
5							40	
6							50	
7							60	
8							70	
9							80	
10							E_r =	mv/m
DAYTIME OPERATION ☐			NIGHTTIME OPERATION ☒				P_r =	kw

STATION DATA

CALL	KOJM
FREQUENCY	610 kc
POWER	1 kw
TIME OF OPERATION	U
TYPE OF OPERATION	DA - 2
DAYTIME TOWERS	1 & 2
NIGHTTIME TOWERS	1 & 2
No. RADIALS PER TOWER	120
LENGTH OF RADIALS	90 - 403 ft
GROUND SCREEN DIMENSION	48' SQ.
LAT.	48° 34' 32"
LONG.	109° 39' 13"
SUPERSEDES	500115
PATTERN No.	500503

FIG. 12

Consulting Radio Engineers

DIXIE B. McKEY & ASSOCIATES

RADIO STATION KOJM
HAVRE, MONTANA

HORIZONTAL RADIATION PATTERN

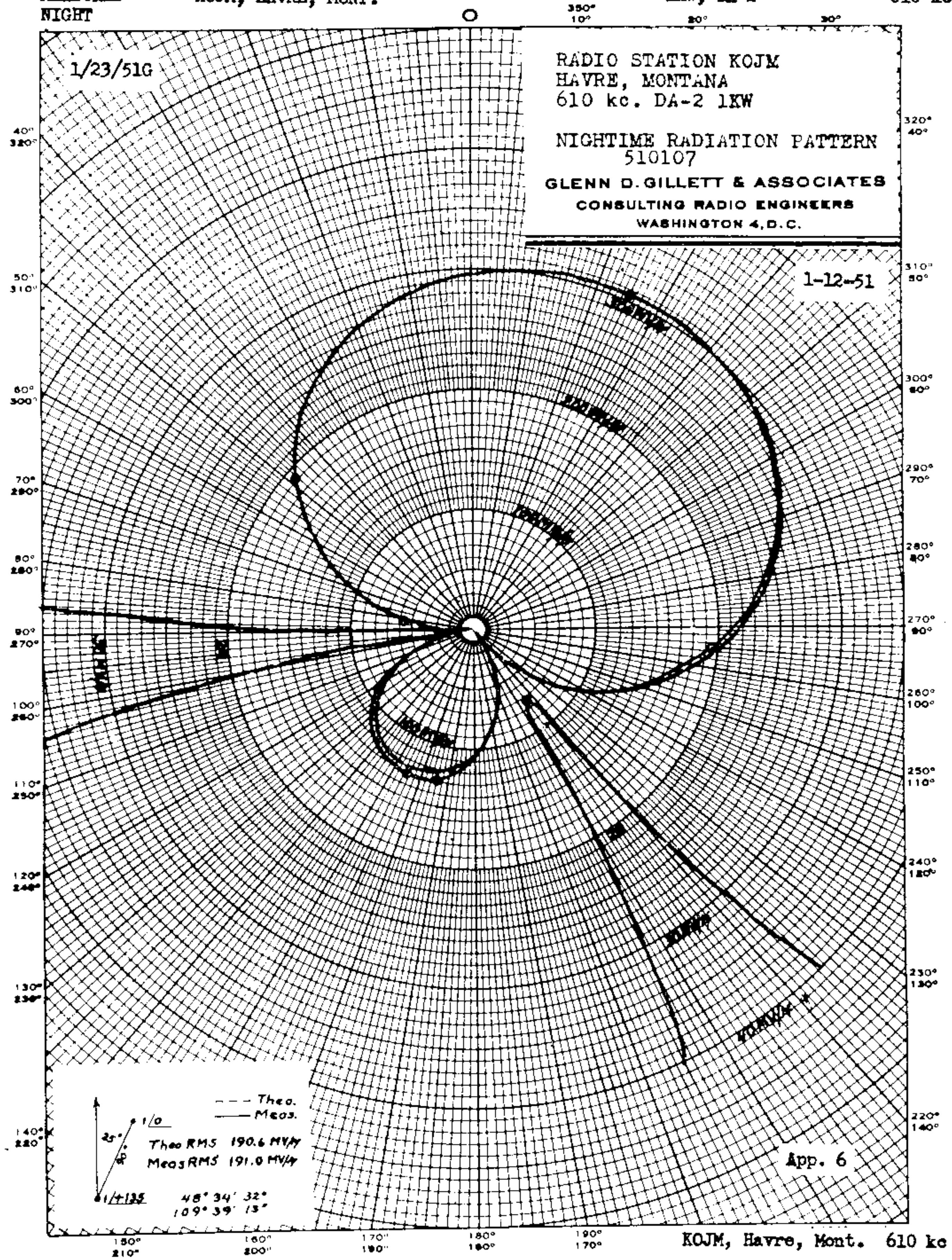
610 KC 1 KW - U, DA - 2

AMENDMENT RECD 5-15-50 ACC 5-19-50 BP-7134

KOJM, Havre, Mont. 610 kc

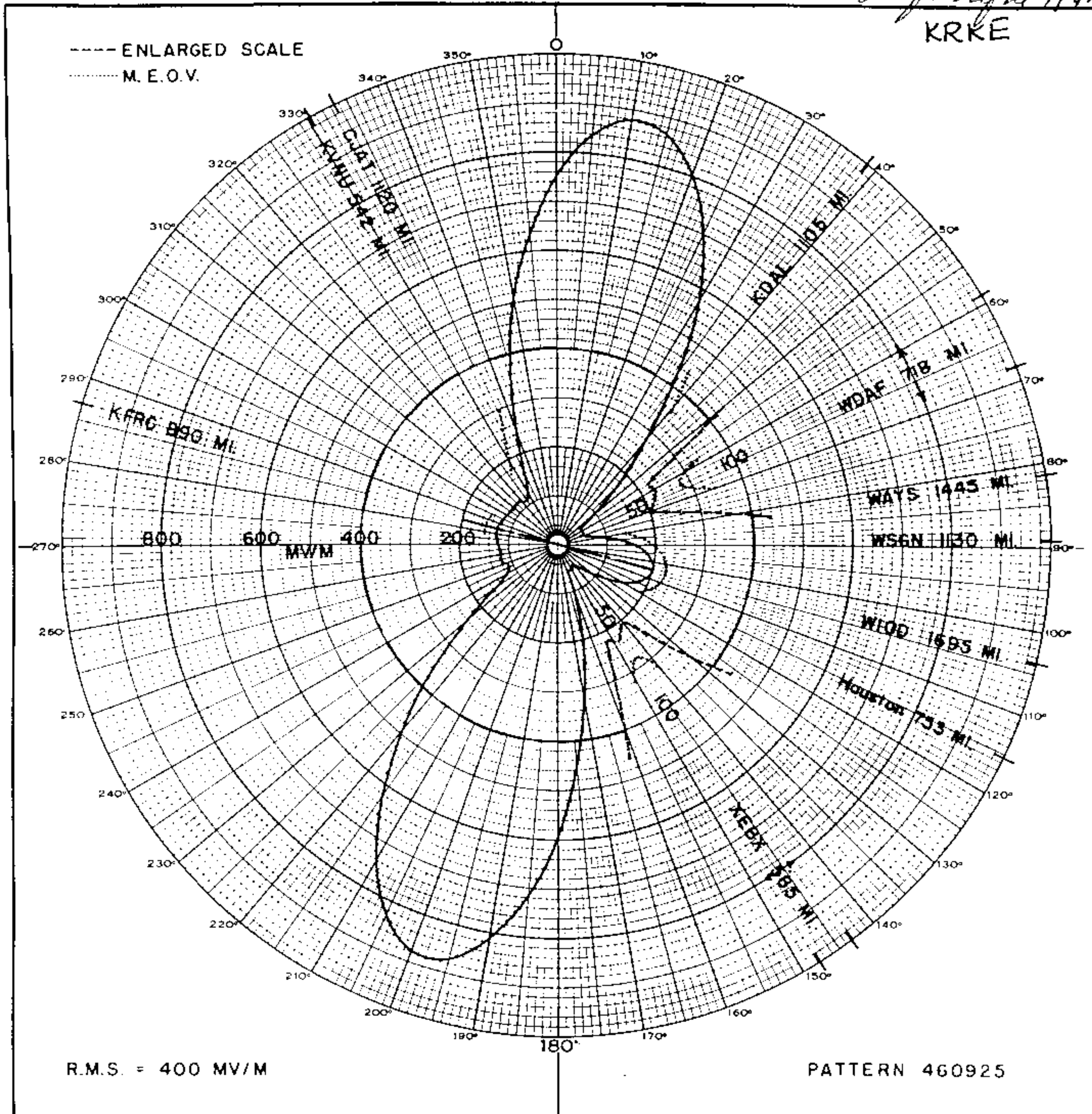
KOJM

MEASURED NIGHT | KOJM, HAVRE, MONT. | 1kw, DA-2 | 610 kc



KOJM, Havre, Mont. 610 kc

~~KGGM~~ 610 Kc.
Albuquerque N.M.
KRKE



Proposed night

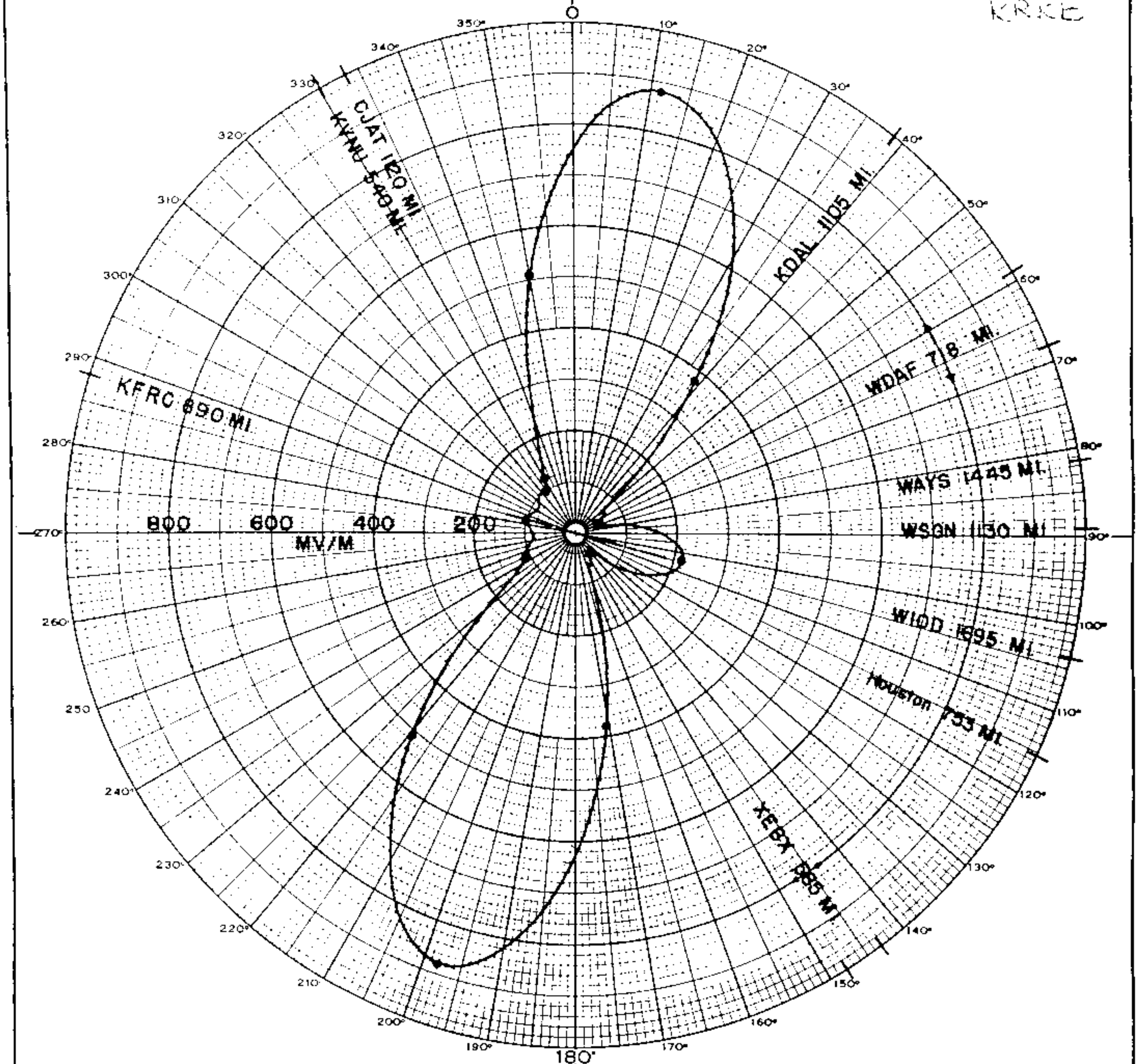
TOWER ARRANGEMENT	A. EARL CULLUM, JR.
①—220°—②—230°—③ → N104.7E	CONSULTING RADIO ENGINEERS
ALL G'S = 90°	DALLAS TEXAS

TOWER	1	2	3
FIELD	1.00	1.95	1.00
PHASE	-24°	0°	+2°

RADIO STATION KGGM
PROPOSED 610 KC. 5 KW. DA-N
FIGURE 5A

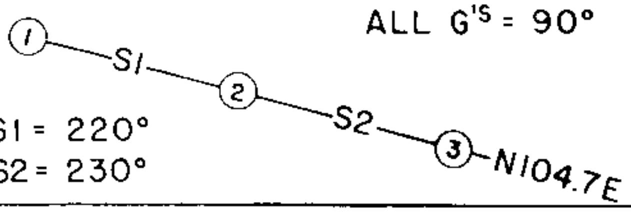
Albuquerque, N.M.

KGGM
610
KRKE



R.M.S. = 442 MV/M

PATTERN 470424



ALL G'S = 90°

S1 = 220°
S2 = 230°

PATTERN BASED ON

FIELD INTENSITY MEASUREMENTS

A. EARL CULLUM, JR.

CONSULTING RADIO ENGINEERS

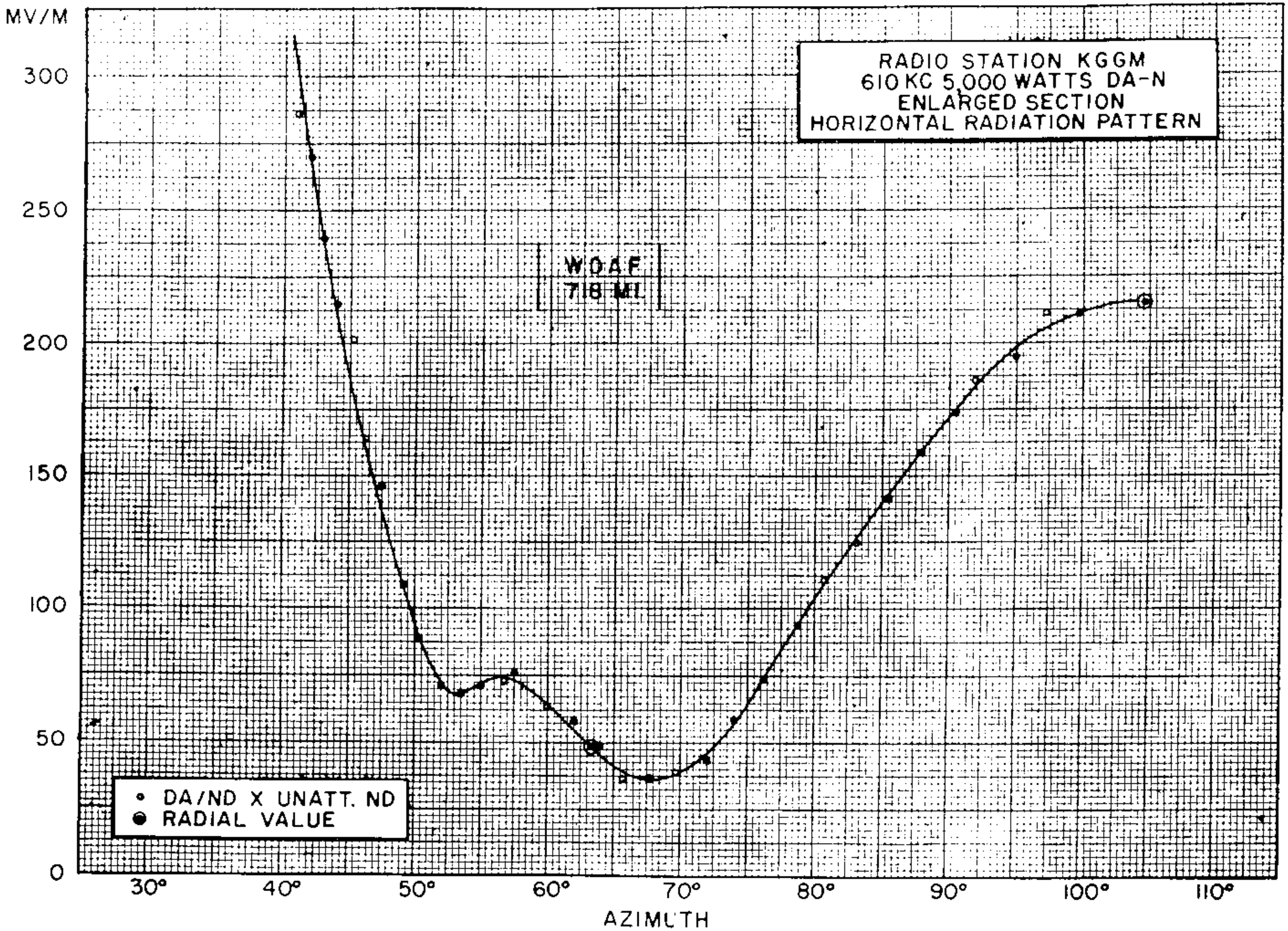
DALLAS TEXAS

RADIO STATION KGGM

610 KC 5,000 WATTS DA-N

FIGURE 1A

Measured night



470424

FIGURE 1C

Albuquerque, N.M. ~~KGGM~~ KRKE 610

Albuquerque N.M. ~~KGGM~~ KRKE 610

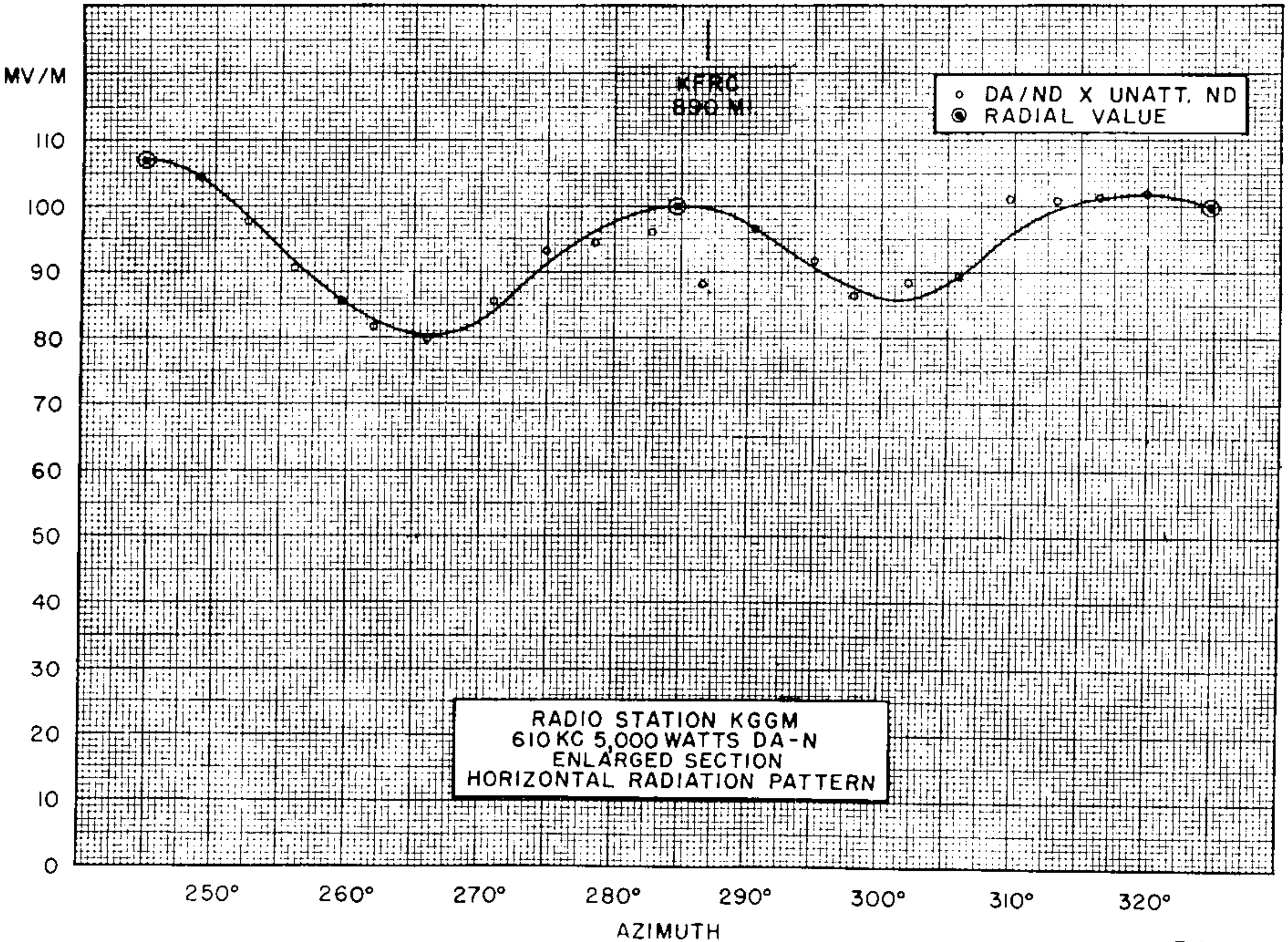


FIGURE 1E

FCC File Number BP-18999
August 10, 1971 K & E.

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KILT — Main Studio: Houston, Texas

Frequency: 610 kHz — Power: 5kw

Notification List No. 1422 — Date: April 28, 1971 — Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 29° 55' 04"
West Longitude: 95° 25' 33"

ANTENNA CHARACTERISTICS

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

TOWER:	S(#1)	SC(#2)	NC(#3)	N(#4)	
HEIGHT ABOVE INSULATORS:	400'	400'	400'	400'	(89.3°)
NIGHT PHASING:	-1.40°	+107.60°	-104.90°	+11.40°	
NIGHT FIELD RATIO:	0.9790	1.3720	1.2920	0.6360	
DAY PHASING:	0°	+152.3°	-57.1°	+122.3°	
DAY FIELD RATIO:	1	2.333	2.494	1.582	

SPACING AND ORIENTATION: From a center reference point, tower #1 is located 425.5' (142.5°) on a line bearing 176° true, tower #2 is located 200.7' (44.8°) on a line bearing 186.7° true, tower #3 is located 215' (48°)on a line bearing 346.4° true and tower #4 is located 425.5' (142.5°) on a line bearing 356° true.

GROUND SYSTEM: 120 - 210' to 403' equally spaced copper radials plus a 48' square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

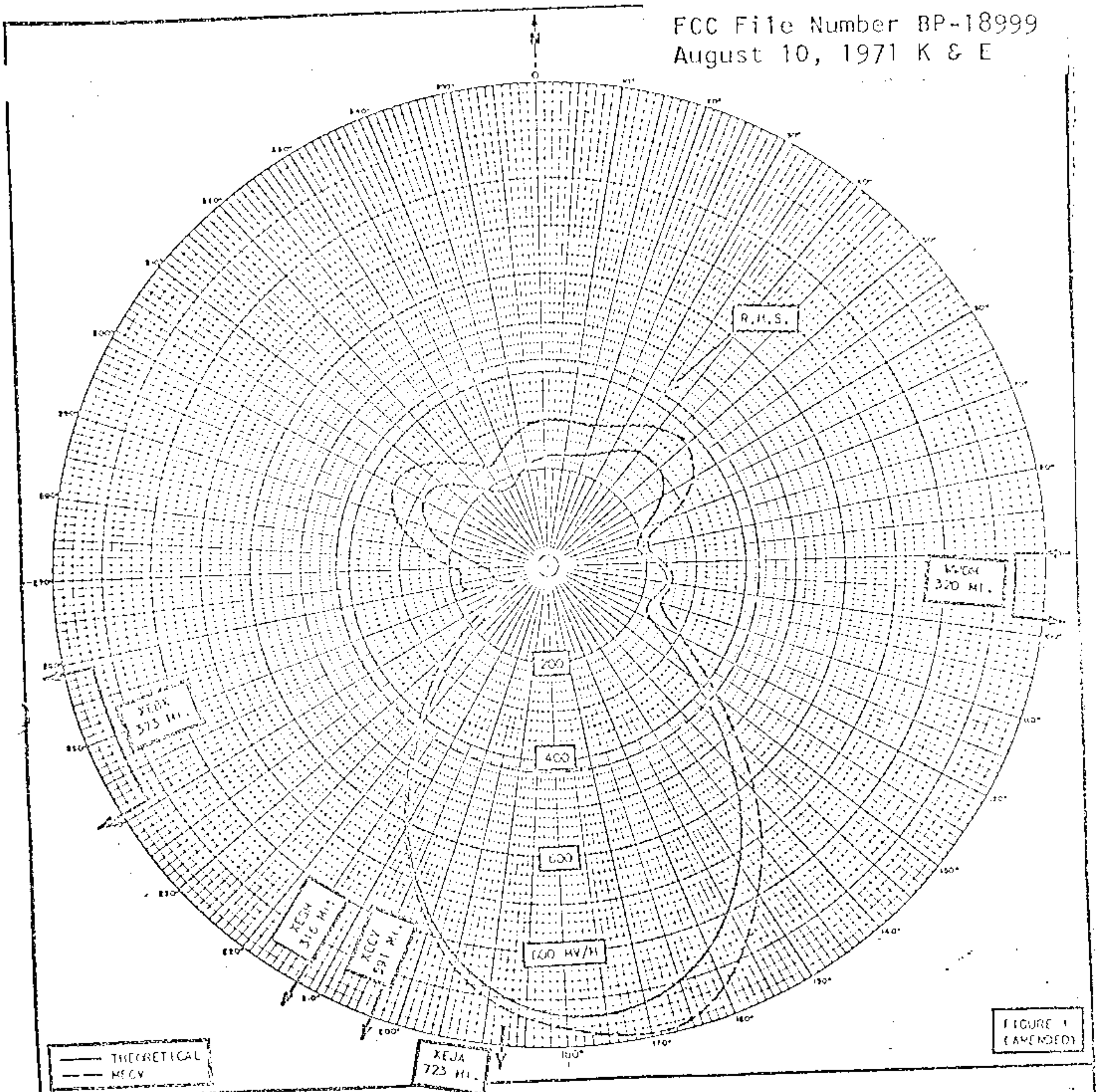
Predicted effective Night Field: 462.541 mv/m at rated power.

Predicted effective Day Field: 428.761 mv/m at rated power.

Note: This notification concerns only minor changes in the Daytime and Nighttime directional antenna systems and radiation patterns.

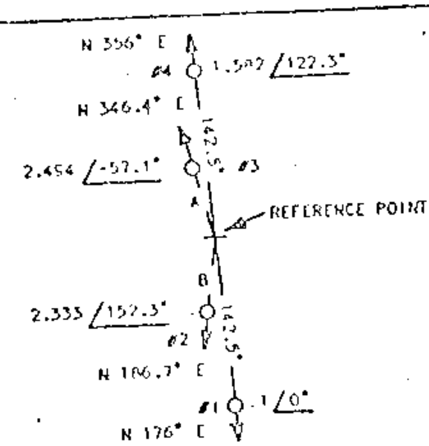
CTR NO 30582A3

FCC File Number BP-18999
August 10, 1971 K & E



HORIZONTAL RADIATION PATTERN

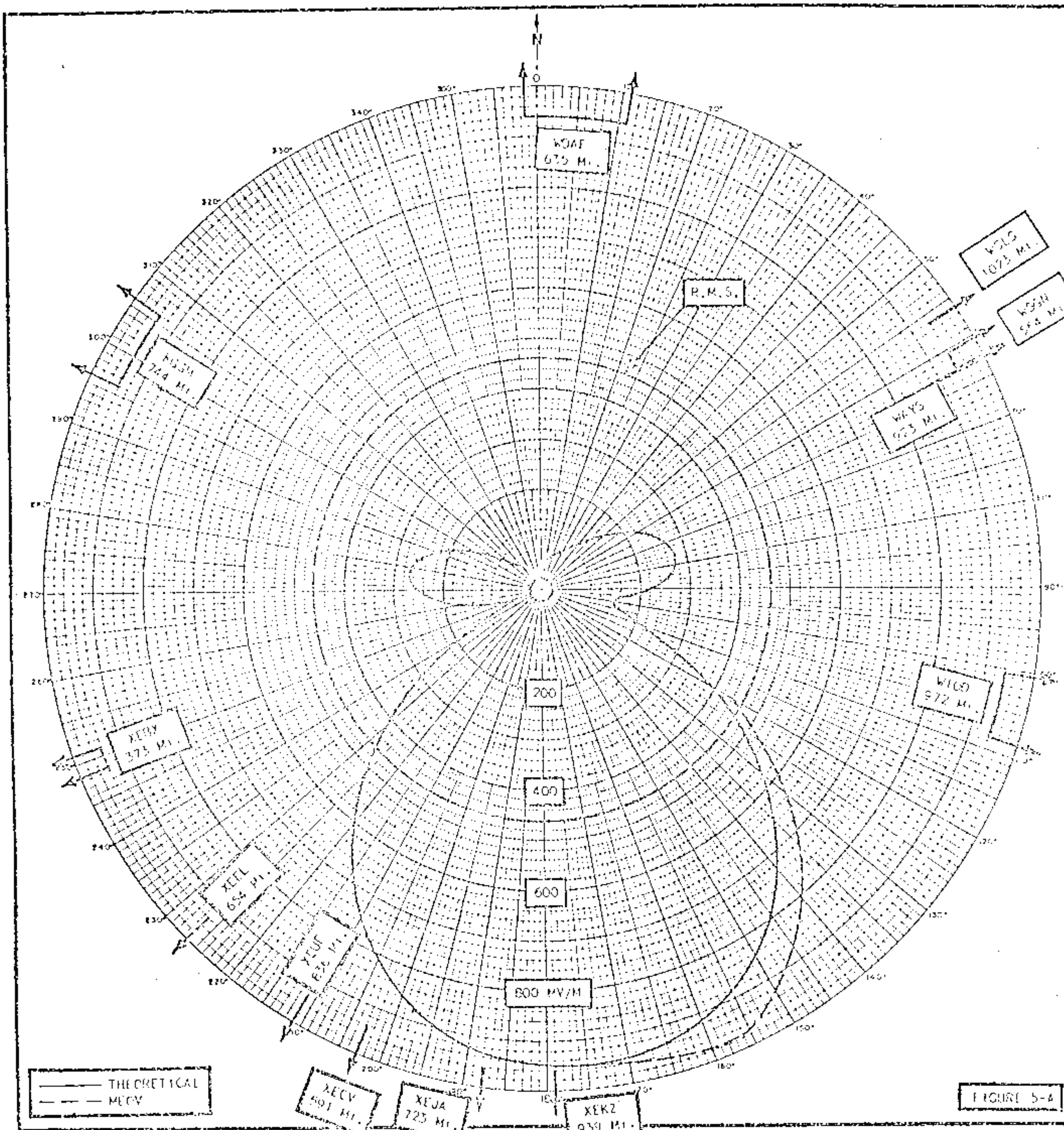
ALL G's = 89.3°
A = 48°
B = 46.8°



APPLICANT	LIN - TEXAS BROADCASTING CORP.
LOCATION	HOUSTON, TEXAS
FREQUENCY	610 KC/S
POWER	5 KW
LATITUDE	29 DEG 55 MIN 04 SEC
LONGITUDE	95 DEG 25 MIN 33 SEC
WHEN USED	DAYTIME
R.M.S. FIELD	428.761 MV/M
DATE	FEBRUARY 1971

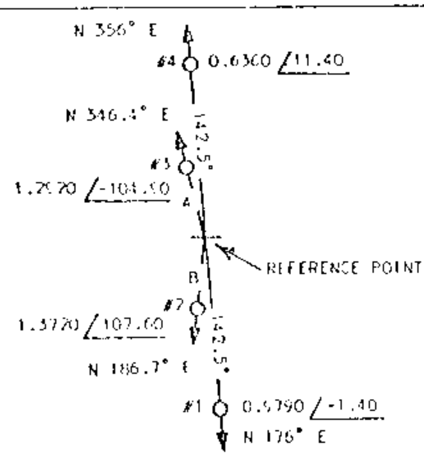
SILLIMAN, MOFFET & KOWALSKI
CONSULTING RADIO ENGINEERS
WASHINGTON, D.C.

FCC File Number BP-1899?
August 10, 1971 K & E



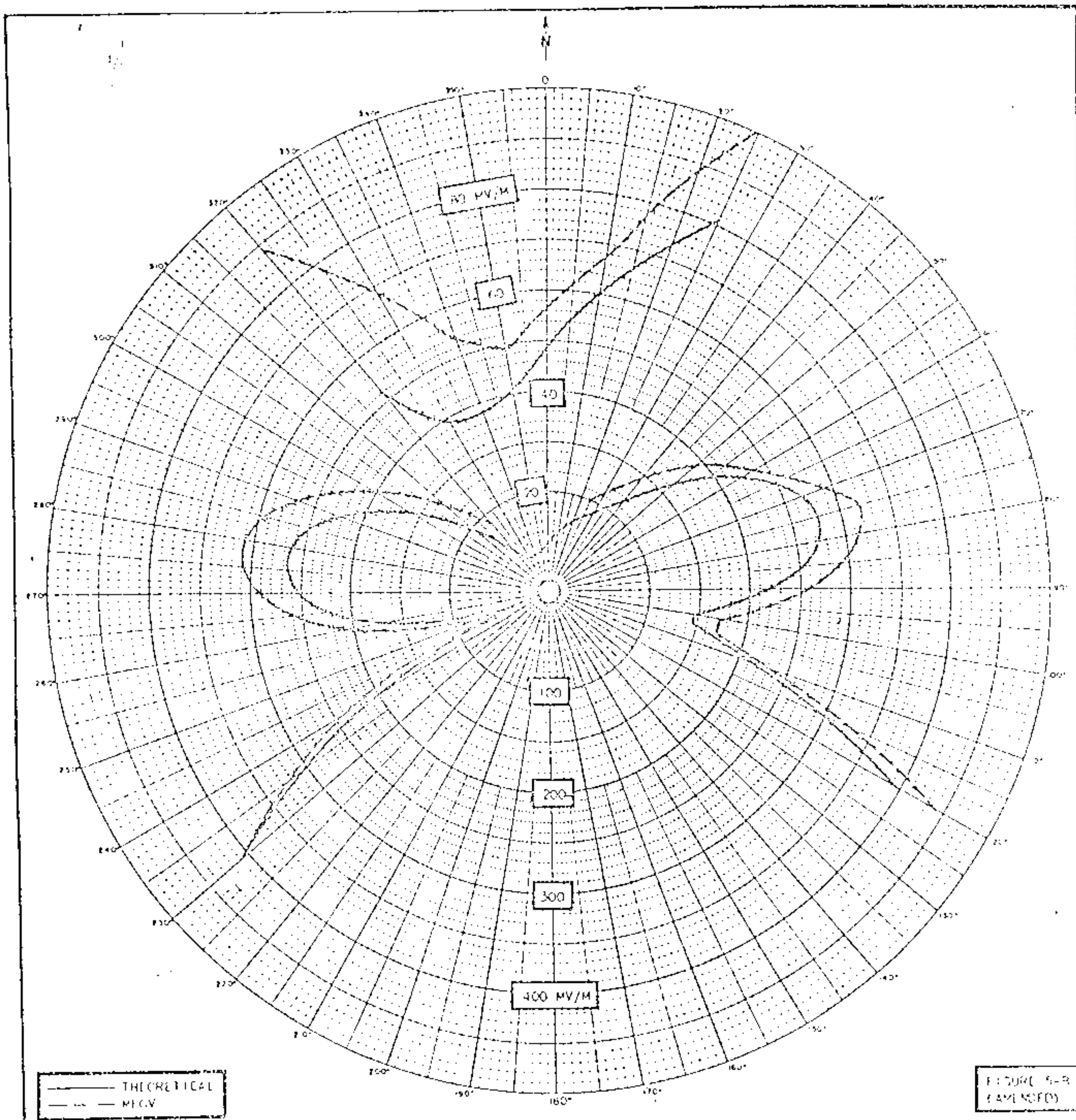
HORIZONTAL RADIATION PATTERN

ALL G's = 89.3°
A = 48°
B = 44.8°



APPLICANT : LIN - TEXAS BROADCASTING CORP.
LOCATION : HOUSTON, TEXAS
FREQUENCY : 610 KC/S
POWER : 5 KW
LATITUDE : 29 DEG 55 MIN 04 SEC
LONGITUDE : 95 DEG 25 MIN 33 SEC
WHEN USED: NIGHTTIME
RMS FIELD: 462.511 MV/M
DATE : JUNE 1970

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



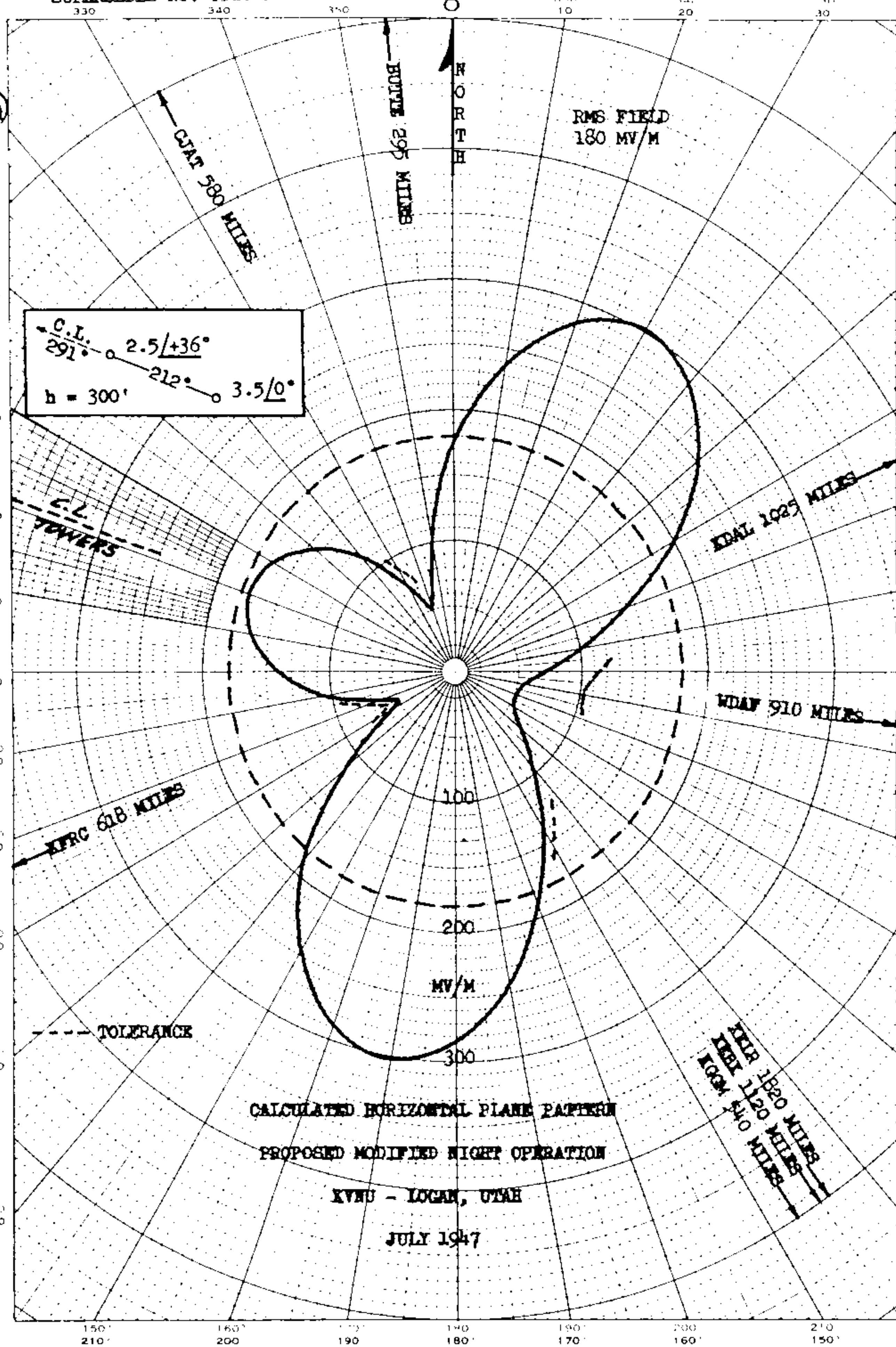
EXPANDED VIEW

CONSULTING RADIO ENGINEERS

WASHINGTON, D.C.

KVNU
610

PATTERN NO. 470701
SUPERSEDES NO. 461002



CALCULATED HORIZONTAL PLANE PATTERN

PROPOSED MODIFIED NIGHT OPERATION

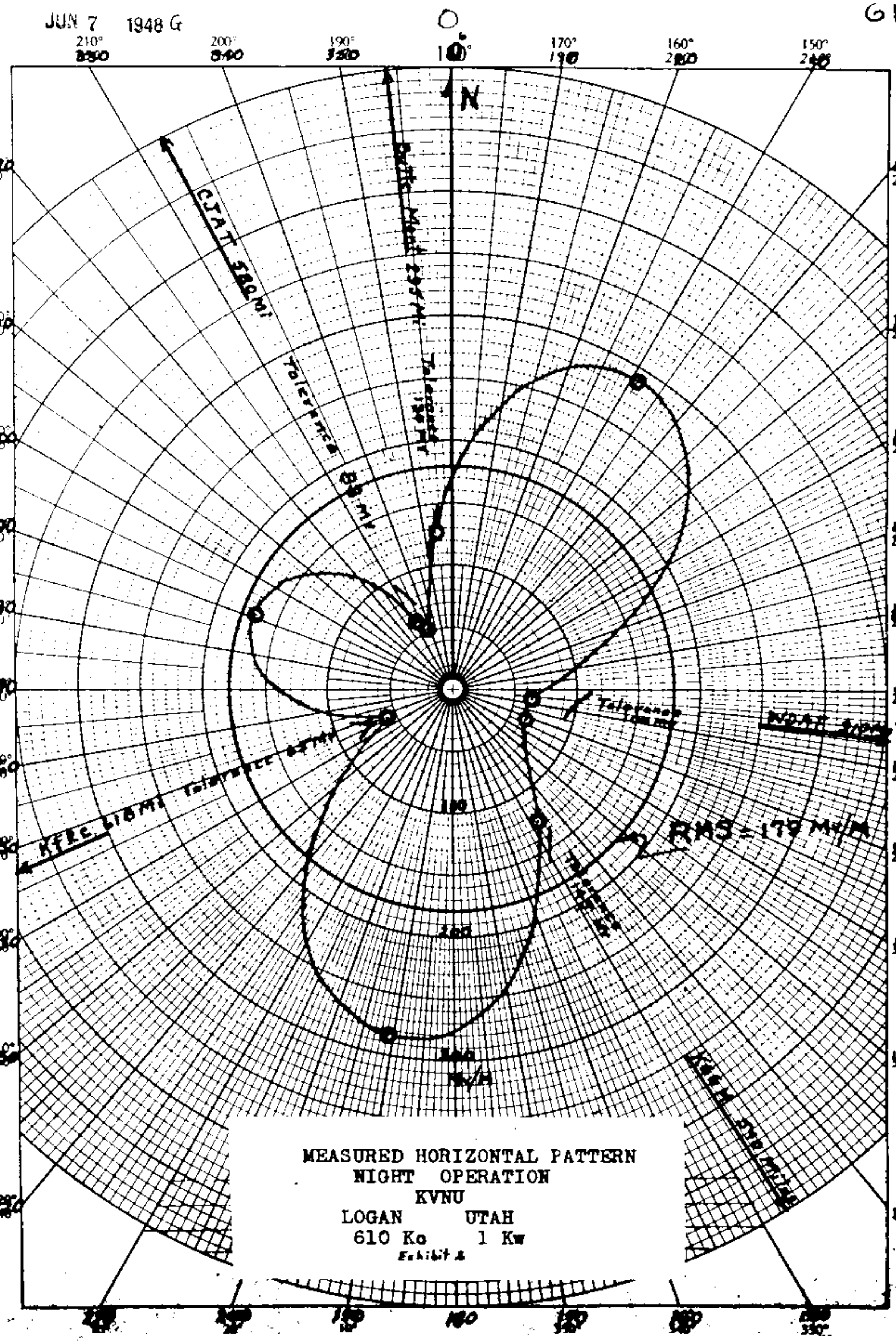
KVNU - LOGAN, UTAH

JULY 1947

KVNU
610

JUN 7 1948 G

granted CP 10-21-57 - to increase ND power - D - to 5 KW
granted ; for increase in Day
ND power 6/20/61



MEASURED HORIZONTAL PATTERN
NIGHT OPERATION
KVNU
LOGAN UTAH
610 Kc 1 Kw
Exhibit A

WAYS

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station	: WAYS	Main Studio:	Charlotte, North Carolina
Frequency	: 610 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:	35	17	53
West Longitude:	80	53	40

Note: Please retain the description sheet and daytime directional antenna radiation patterns notified for station WGIR in United States Change List Number 1674, dated March 3, 1976 and attach to this supplemental Description Sheet and daytime pattern. The addition of MEOV's to pattern.

WAYS

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WAYS	Main Studio: Charlotte, North Carolina
Frequency: 610 kHz	Power: 1 kW Night 5 kW Day
Notification List No. 1742	Date: July 20, 1977 Class: III
GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:	North Latitude: 35° 17' 5" West Longitude: 80° [illegible]' [illegible]"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2)
Number of elements: 4
Type of elements: Series excited, uniform cross-section, [illegible] vertical steel towers, top loaded [illegible] sections of guy wires to an effective electrical height of 77.2° (*)

TOWER:	SW(#1)	S(#2)	N(#3)	NE(#4)
HEIGHT ABOVE INSULATORS:	306'	306'	306'	[illegible] (*)
NIGHT PHASING:	0°	-98°	0°	[illegible]
NIGHT FIELD RATIO:	1.0	0.7	0.83	[illegible]
DAY PHASING:	0°	-115°	0°	-11[illegible]°
DAY FIELD RATIO:	1.0	0.40	0.75	0.3[illegible]

SPACING AND ORIENTATION: The towers are located at the vertices of a rectangle the long sides of which are 852' (190°) in length on a line bearing 25° true. The short sides are 403' (90°) in length on a line bearing 115° true.

GROUND SYSTEM: 100-403' equally spaced copper radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

THEORETICAL
RMS

396 mv/m

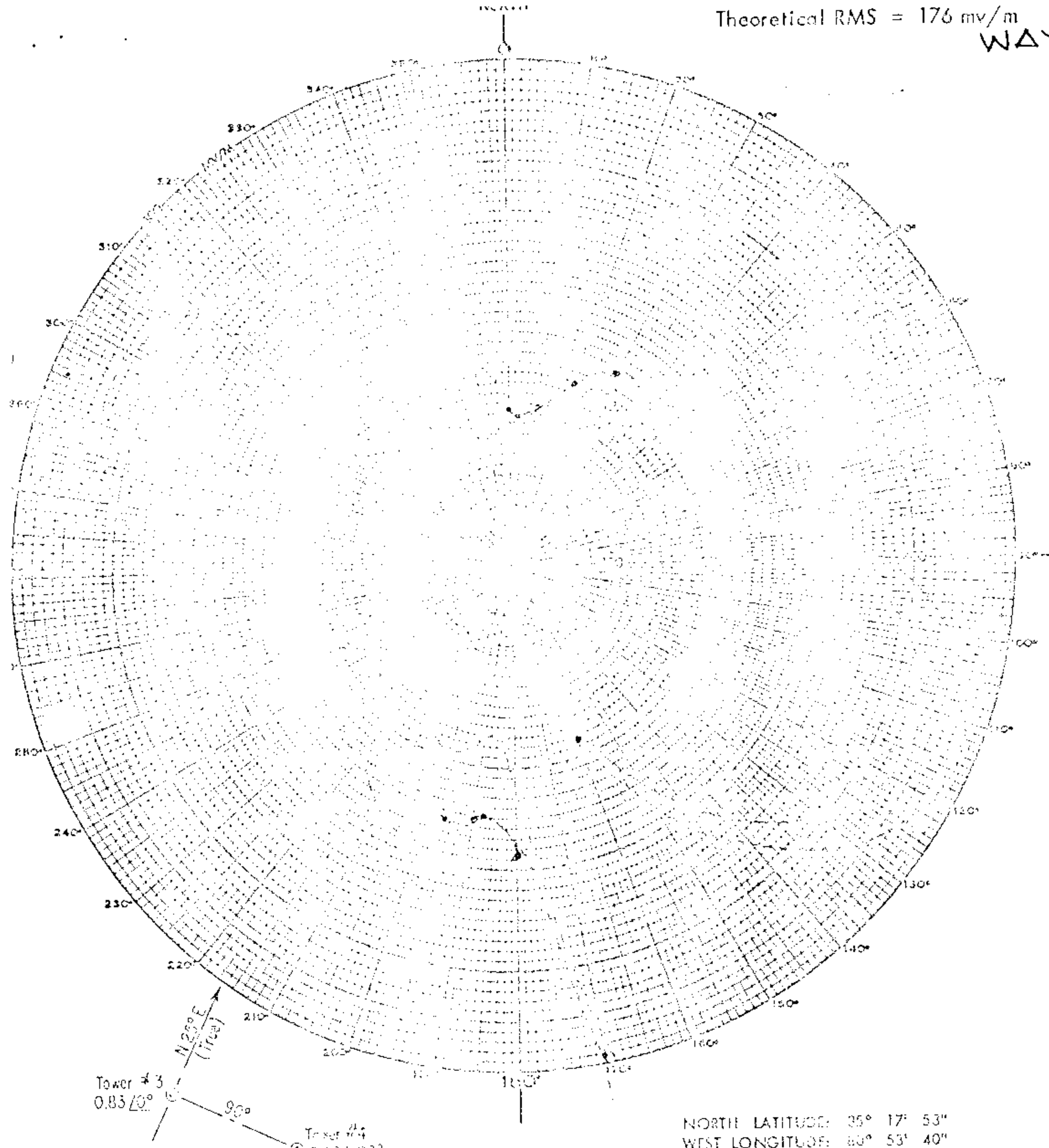
(Cont'd)

WAYS

Note: Please retain the Daytime directional antenna radiation pattern notified for Station WAYS in United States Change List No. [illegible] dated September 12, 195[illegible] and attach to this Revised Description Sheet and Nighttime pattern. This notification concerns only change in the Nighttime operation of the station with Daytime operation continued as previously notified.

Theoretical RMS = 176 mv/m

WAYS



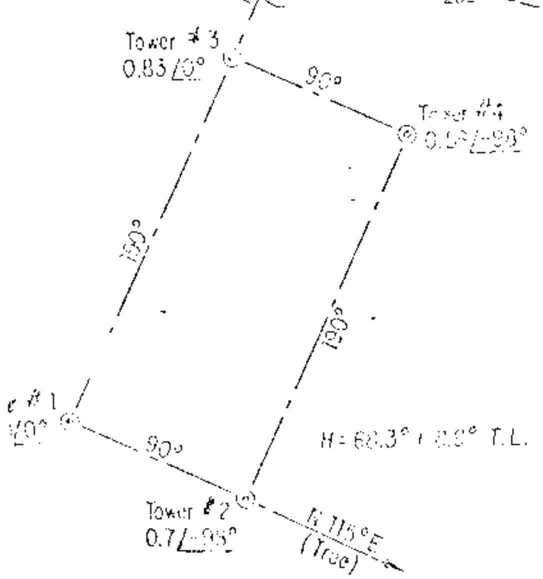
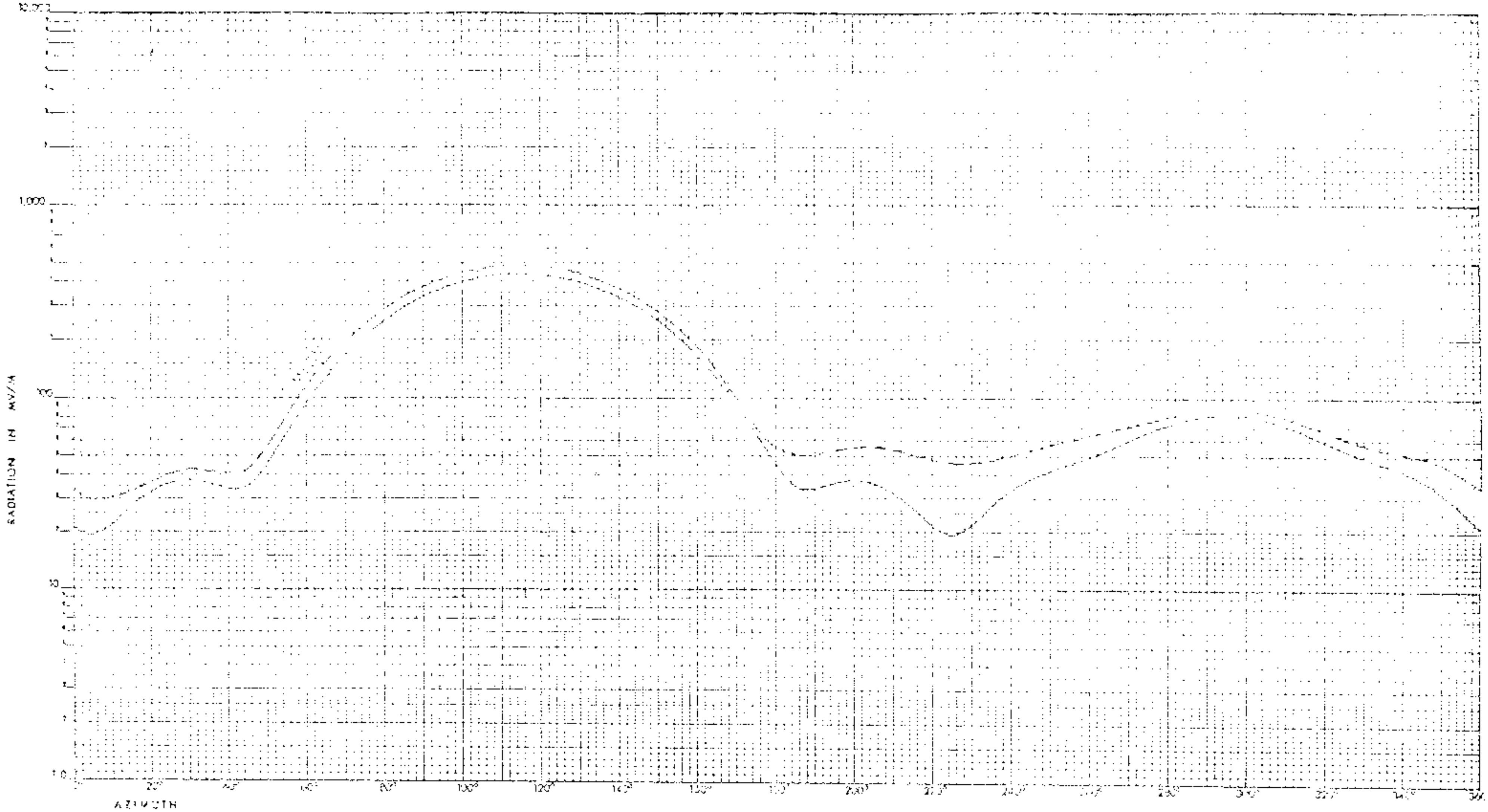


FIGURE 1
PROPOSED NIGHTTIME HORIZONTAL PLANE
RADIATION PATTERN
WAYS 1KW-N, 5KW-LS DA-2 610 KHz
CHARLOTTE, NORTH CAROLINA

Prepared by
Lohnes and Culver Washington, D. C.
February, 1977

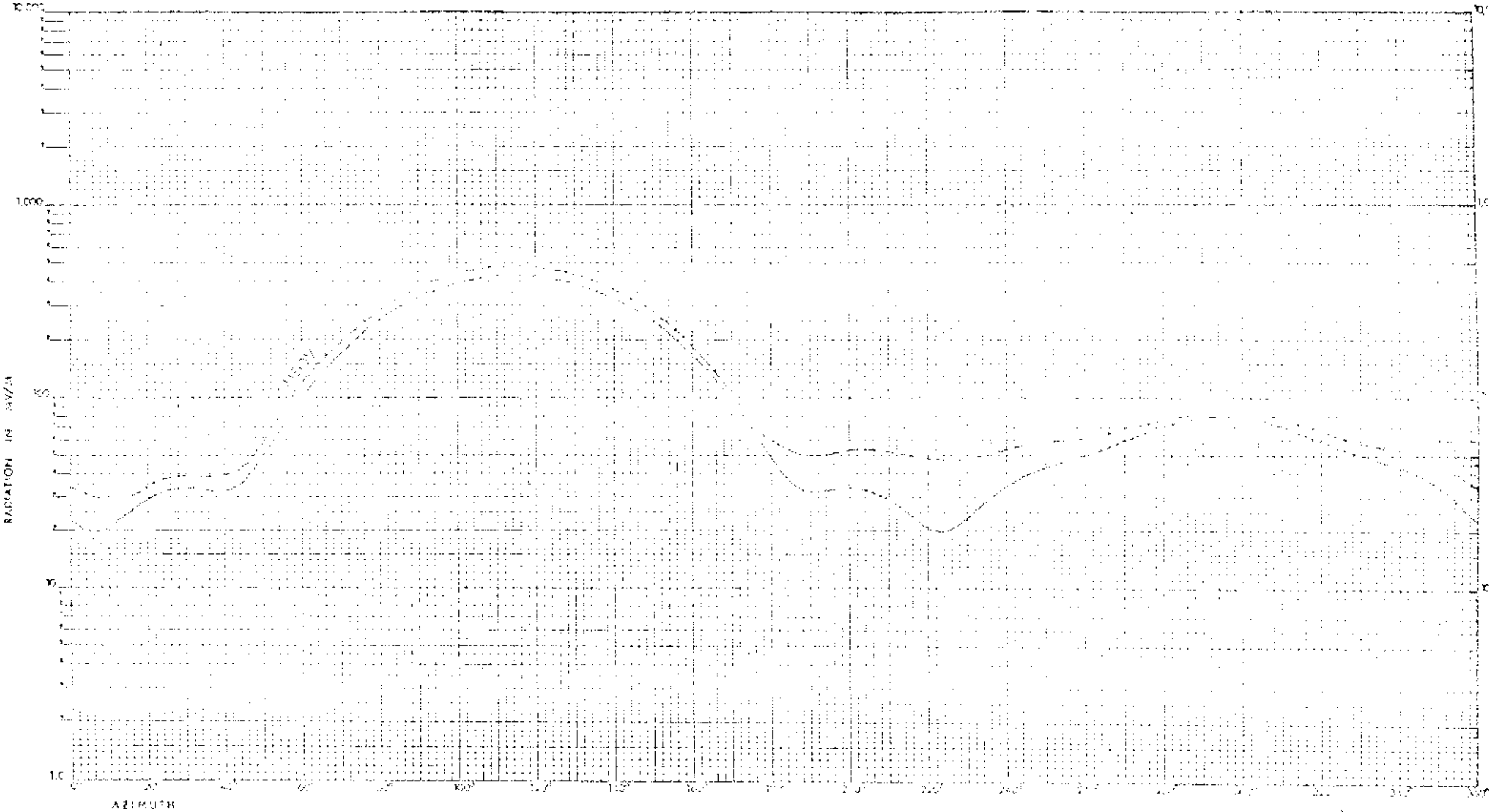


ELEVATION ANGLE = 5°

FIGURE 1A
PROPOSED NIGHTTIME RADIATION PATTERN
WAYS 1KW-N, 5KW-LS DA-2 610 KHz
CHARLOTTE, NORTH CAROLINA

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

WAYS

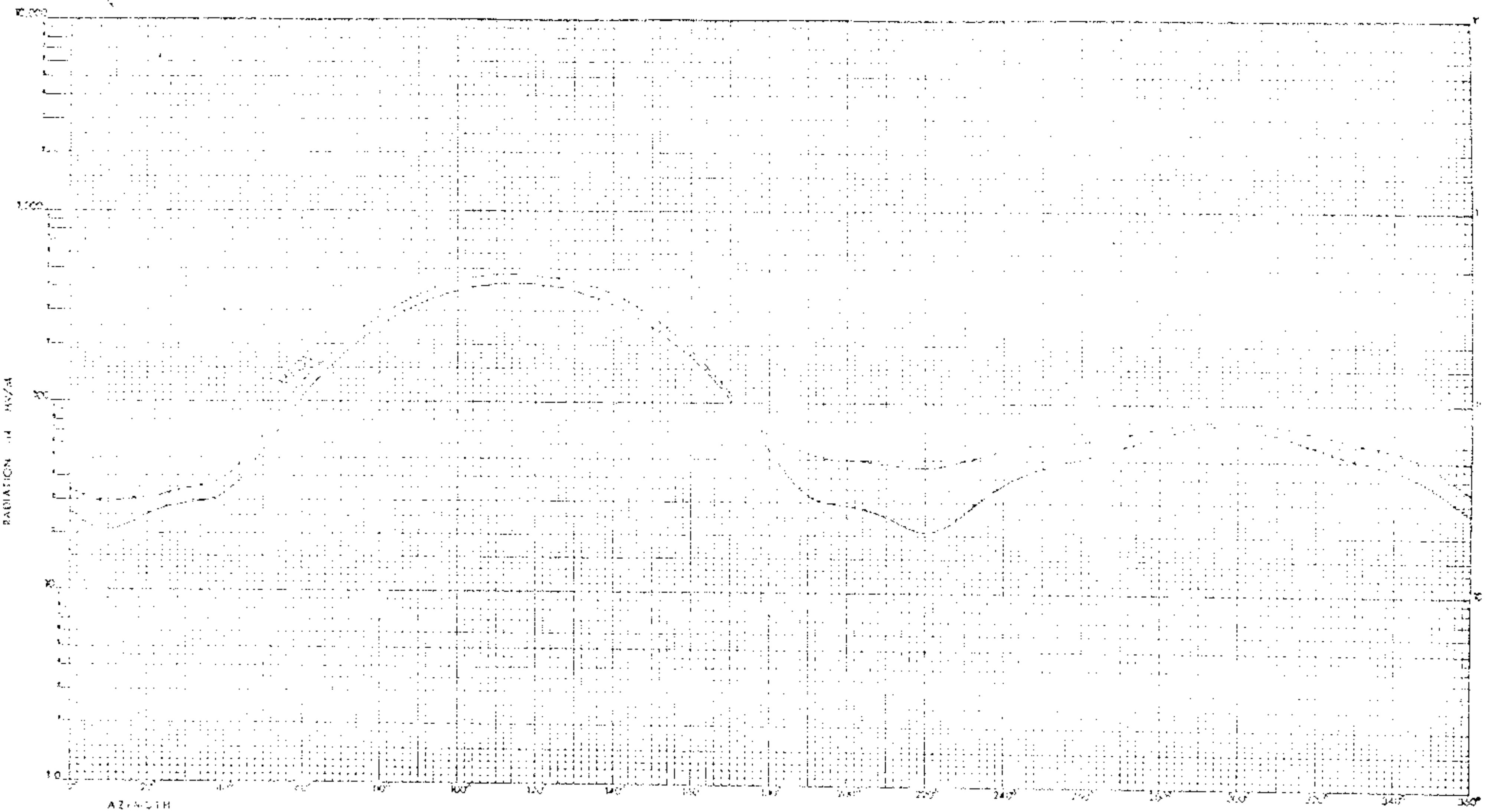


ELEVATION ANGLE = 10°

FIGURE 1B
PROPOSED NIGHTTIME RADIATION PATTERN
WAYS 1KW-N, 5KW-LS DA-2 610 KHz
CHARLOTTE, NORTH CAROLINA

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

WAYS



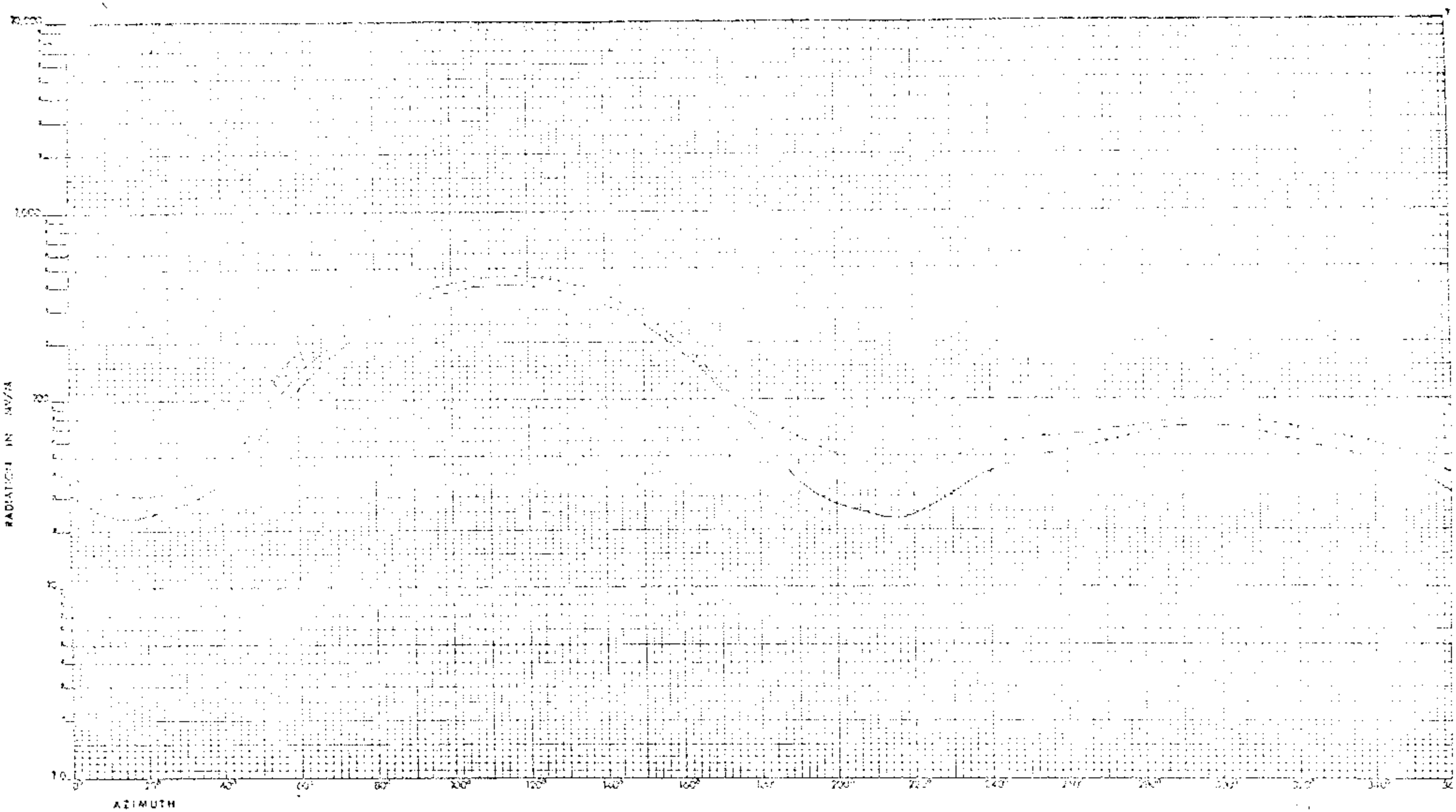
ELEVATION ANGLE = 15°

FIGURE 1C
PROPOSED NIGHTTIME RADIATION PATTERN
WAYS 1KW-N, 5KW-LS DA-2 610 KHz
CHARLOTTE, NORTH CAROLINA

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

WAYS

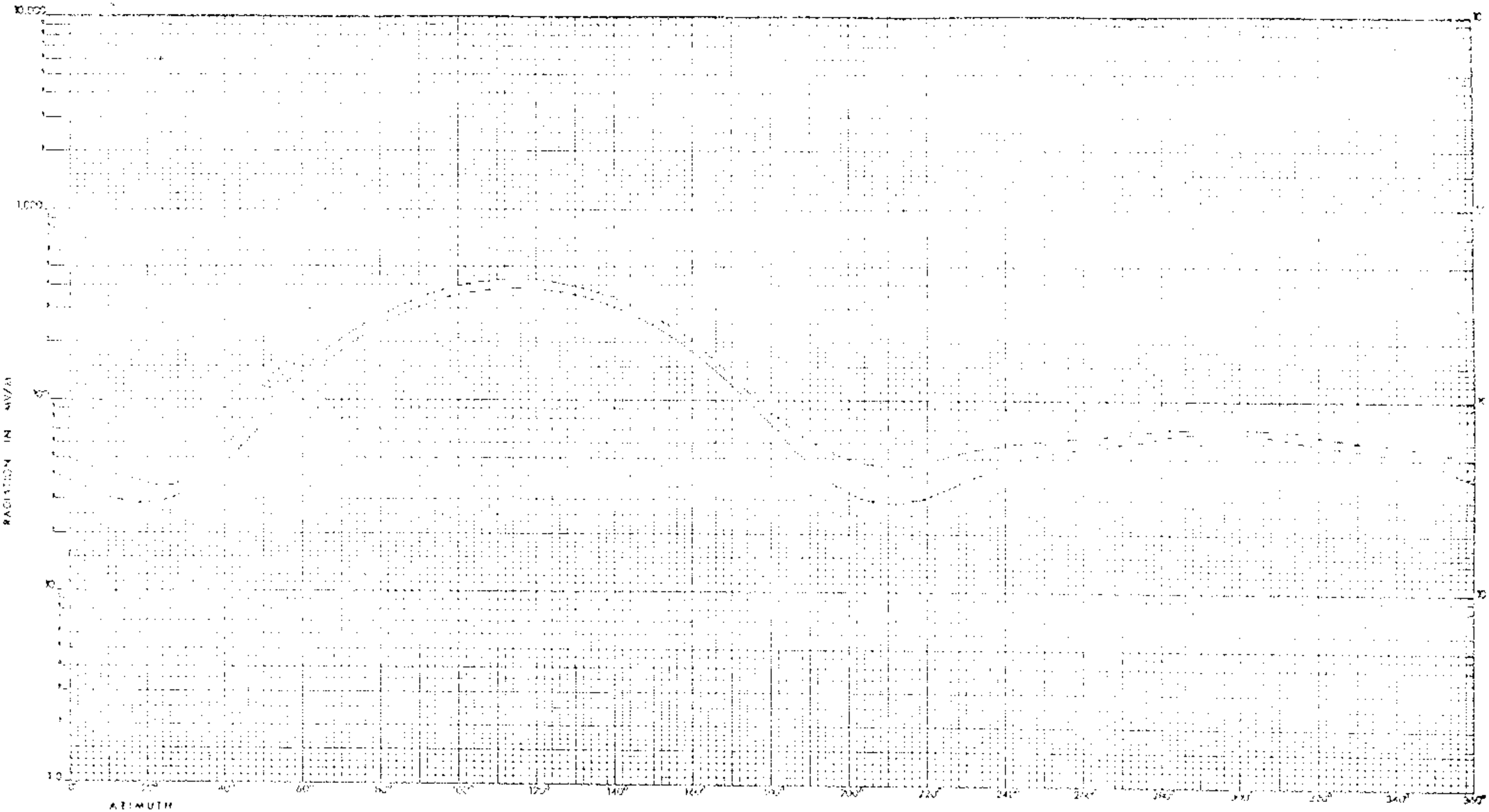
WAYS



ELEVATION ANGLE = 20°

FIGURE 1D
PROPOSED NIGHTTIME RADIATION PATTERN
WAYS 1KW-N, 5KW-LS DA-2 610 KHz
CHARLOTTE, NORTH CAROLINA

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

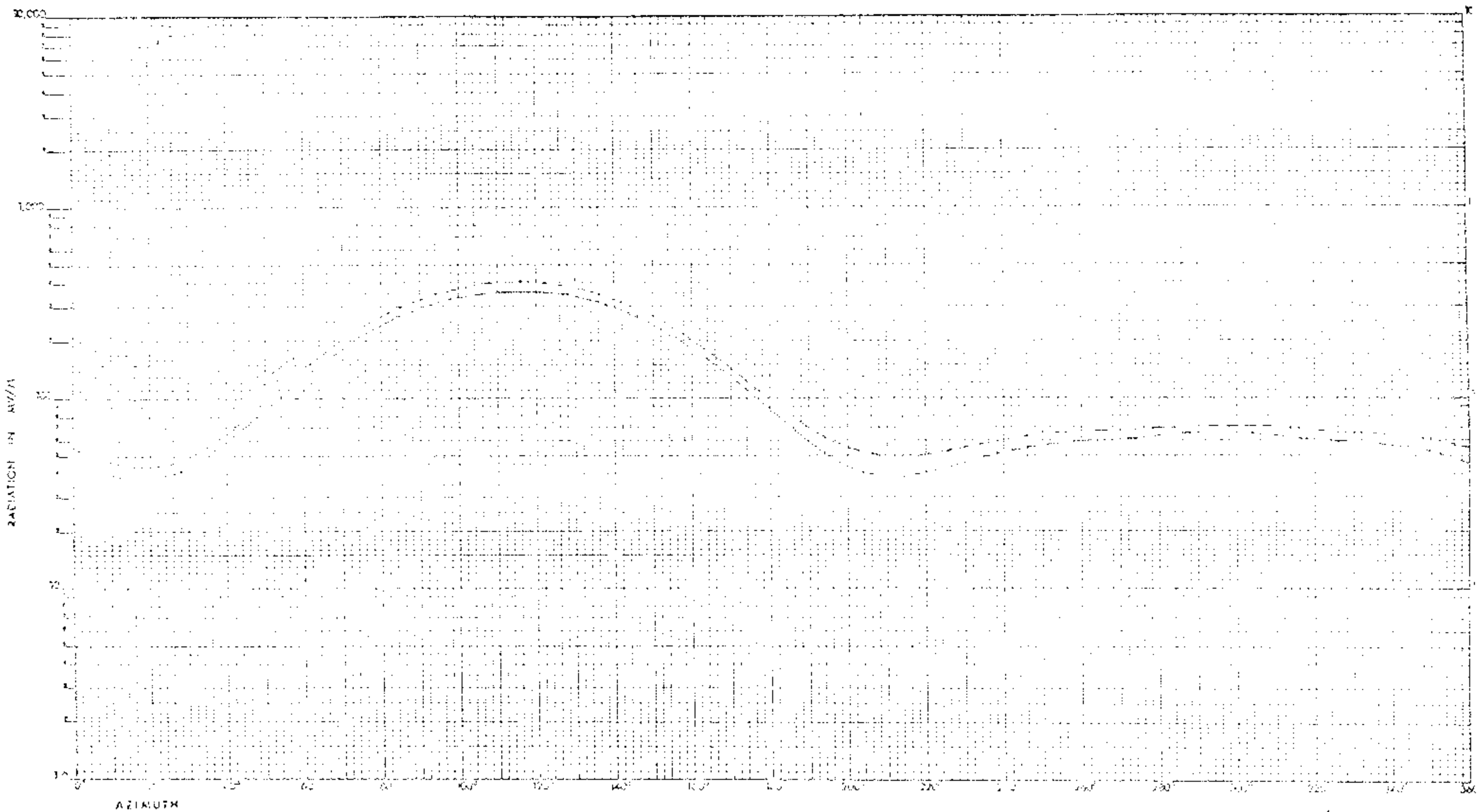


ELEVATION ANGLE = 25°

FIGURE 1E
PROPOSED NIGHTTIME RADIATION PATTERN
WAYS 1KW-N, 5KW-LS DA-2 610 KHz
CHARLOTTE, NORTH CAROLINA

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

WAYS

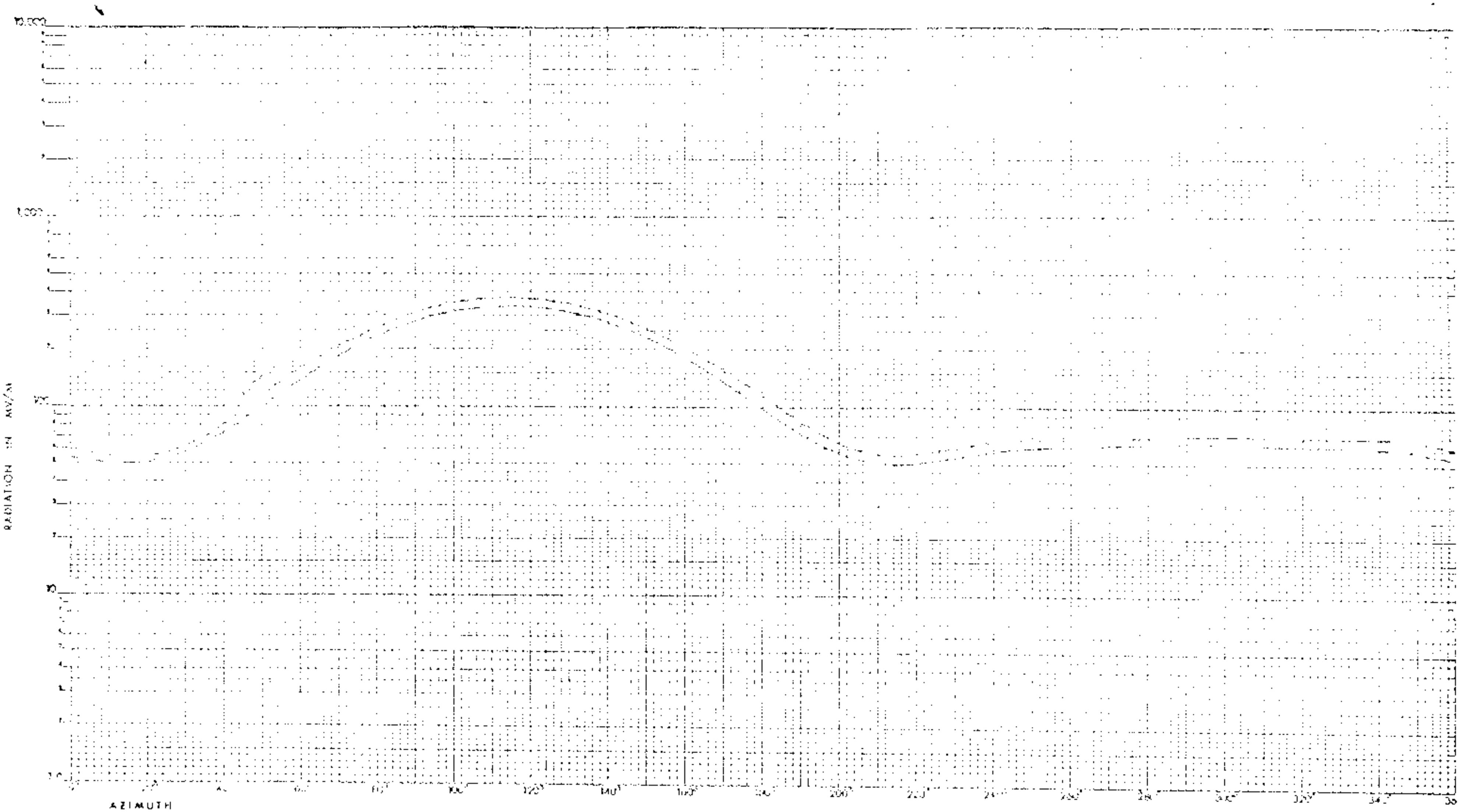


ELEVATION ANGLE • 30°

FIGURE 1F
PROPOSED NIGHTTIME RADIATION PATTERN
WAYS 1KW-N, 5KW-LS DA-2 610 KHz
CHARLOTTE, NORTH CAROLINA

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

WAYS



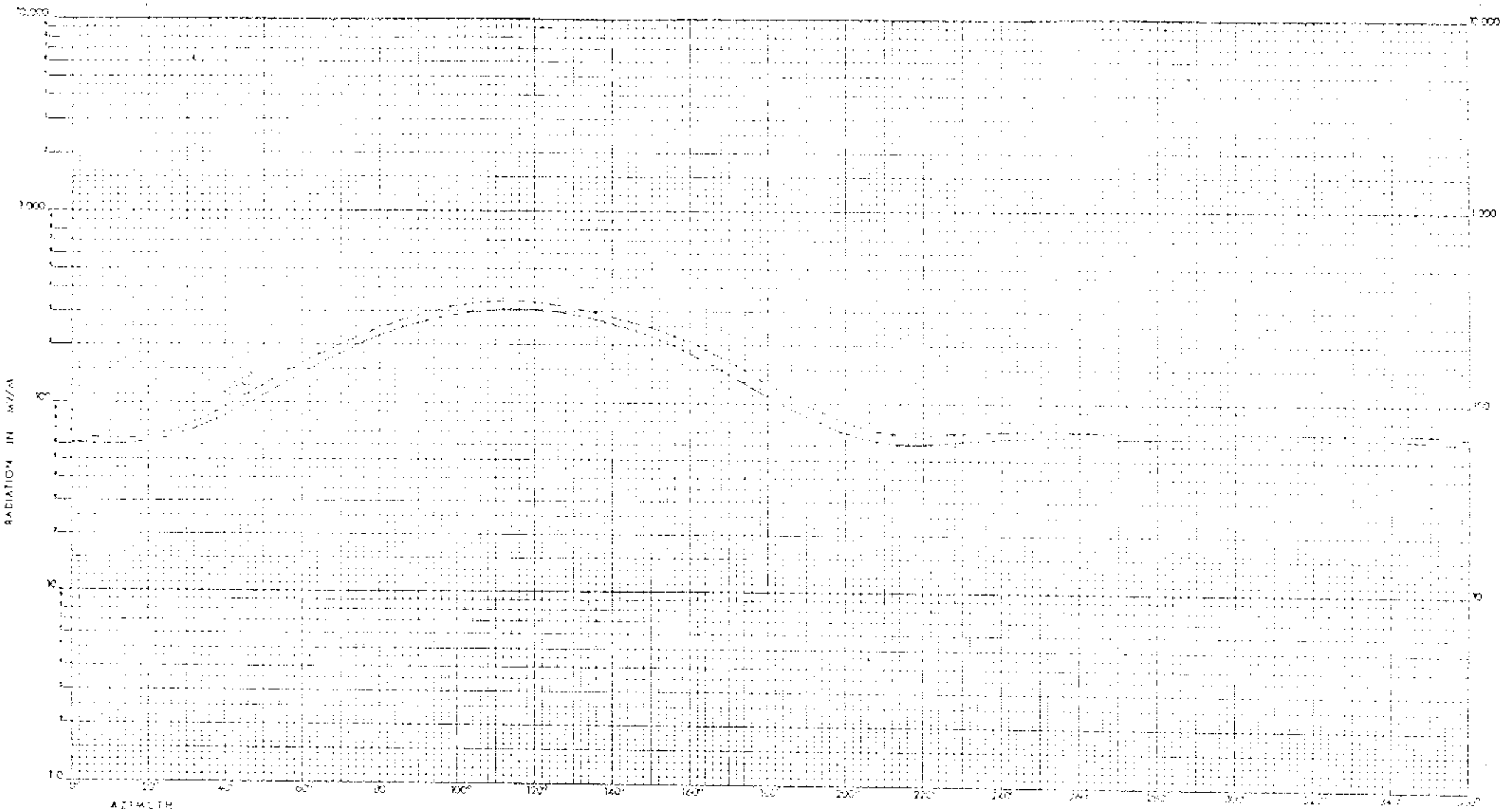
ELEVATION ANGLE = 35°

FIGURE 1G
PROPOSED NIGHTTIME RADIATION PATTERN
WAYS 1KW-N, 5KW-LS DA-2 610 KHz
CHARLOTTE, NORTH CAROLINA

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

WAYS

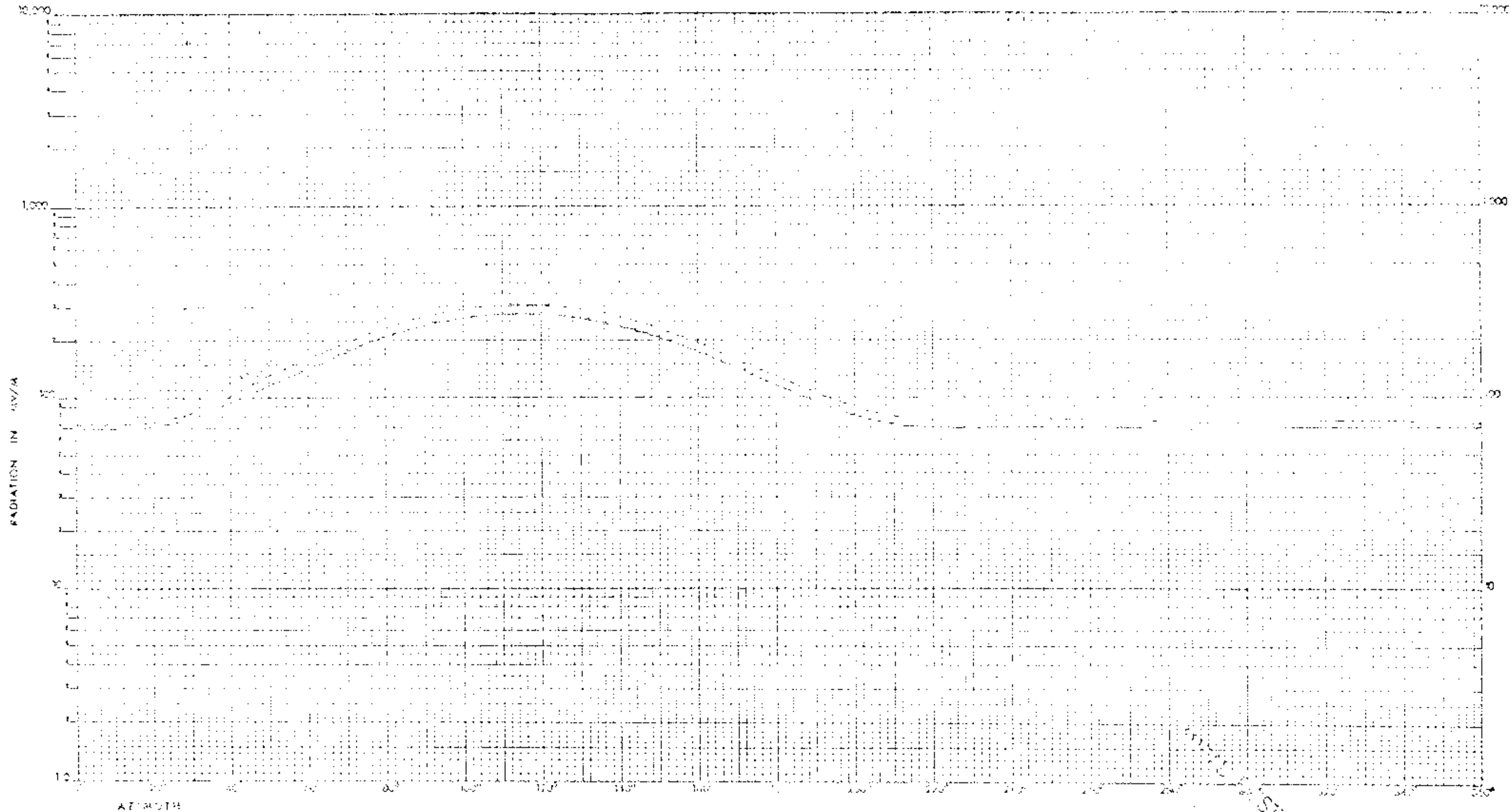
WAYS



ELEVATION ANGLE = 40°

FIGURE 1H
PROPOSED NIGHTTIME RADIATION PATTERN
WAYS 1KW-N, 5KW-LS DA-2 610 KHz
CHARLOTTE, NORTH CAROLINA

Prepared by
Lohnes and Culver Washington, D. C.
March, 1977



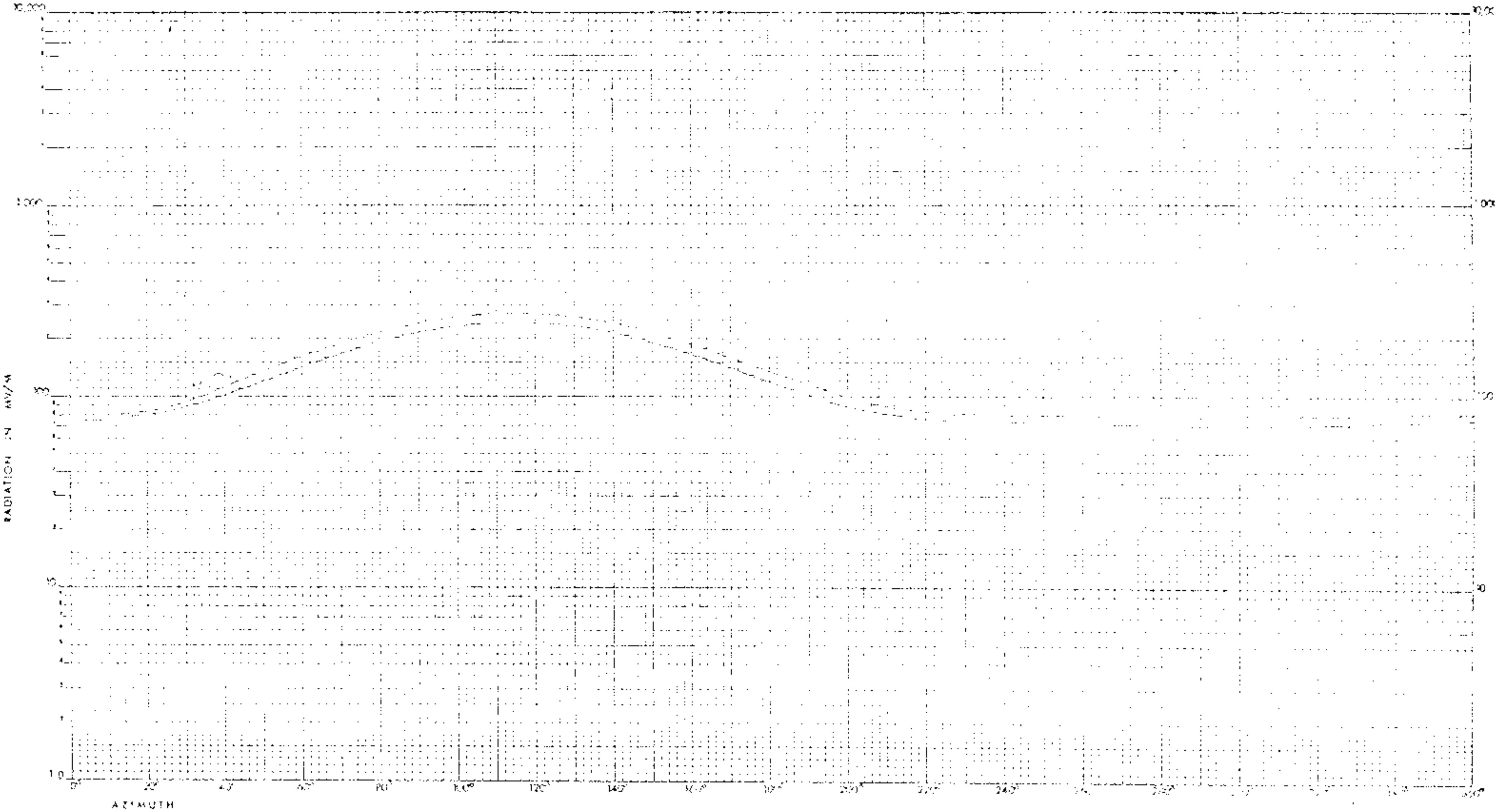
ELEVATION ANGLE = 45°

FIGURE 11
PROPOSED NIGHTTIME RADIATION PATTERN
WAYS 1KW, 5KW-LS DA-2 610 KHz
CHARLOTTE, NORTH CAROLINA

Prepared by
Lohnes and Culver Washington, D. C.
March, 1977

STING FACILITIES

WAYS



ELEVATION ANGLE = 50°

FIGURE 1J
PROPOSED NIGHTTIME RADIATION PATTERN
WAYS 1KW, 5KW-LS DA-2 610 KHz
CHARLOTTE, NORTH CAROLINA

Prepared by
Lohnes and Culver Washington, D. C.
March, 1977

WAYS

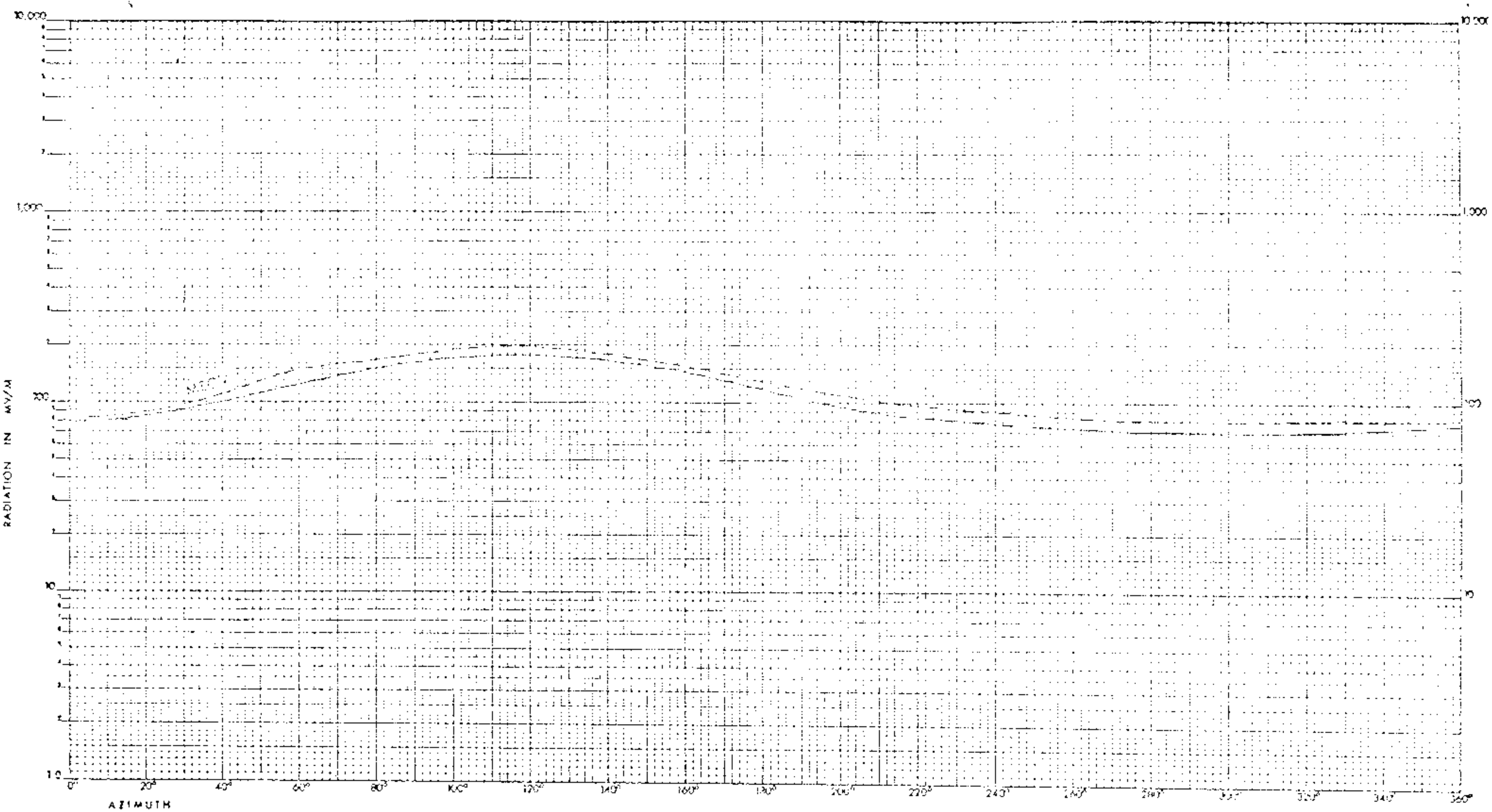
ELEVATION ANGLE = 55°

EXISTING FACILITIES

FIGURE 1K
PROPOSED NIGHTTIME RADIATION PATTERN
WAYS 1KW, 5KW-LS DA-2 610 KHz
CHARLOTTE, NORTH CAROLINA

Prepared by
Lohnes and Culver Washington, D. C.
March, 1977

WAYS



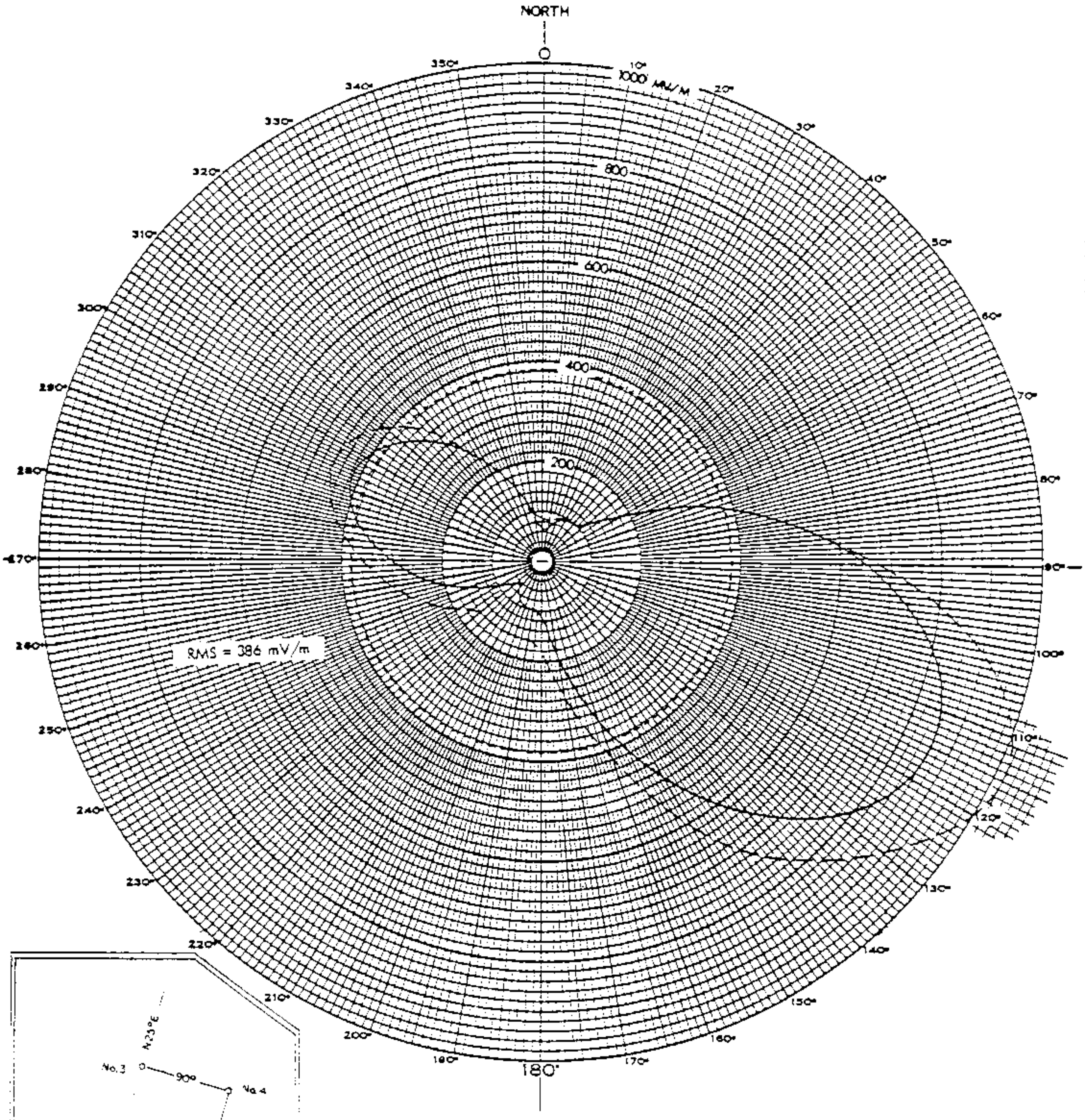
ELEVATION ANGLE = 60°

FIGURE 1L
PROPOSED NIGHTTIME RADIATION PATTERN
WAYS 1KW-N, 5KW-LS DA-2 610 KHz
CHARLOTTE, NORTH CAROLINA

Prepared by
Lohnes and Culver Washington, D. C.
March, 1977

WAYS

WAYS



NORTH LATITUDE: 35° 17' 53"
WEST LONGITUDE: 80° 53' 40"

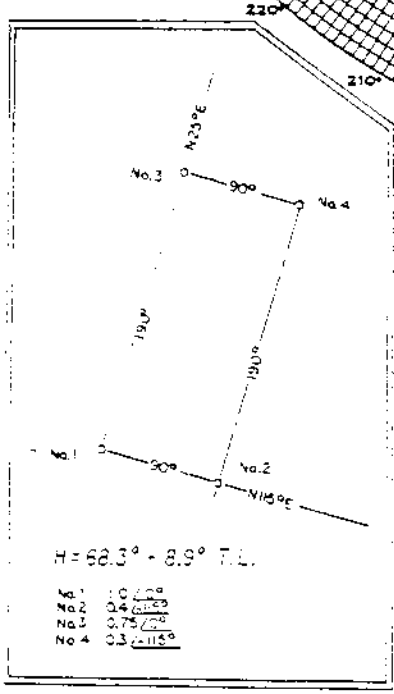


FIGURE 1
DAYTIME RADIATION PATTERN
WAYS 5kW-LS, 1kW-N DA-2 610 kHz
CHARLOTTE, NORTH CAROLINA

Prepared by
Lohnes and Culver Washington, D. C.

WGIR

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WGIR

Main Studio: Manchester, New Hampshire

Frequency: 610 kHz

Power: 1 kW Night 5 kW Day

Notification List No. 1674

Date: March 3, 1976

Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 43° 00' 57"
West Longitude: 71° 28' 48"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2)
Number of elements: 4
Type of elements: Series-excited, guyed, vertical steel towers, top loaded with upper 150' sections of 4 guy wires to an effective electrical height of 90 degrees. (*)

TOWER:	S(#1)	SC(#2)	NC(#3)	N(#4)
HEIGHT ABOVE INSULATORS:	All towers 300' (*)			
NIGHT PHASING:	0°	-191.5°	+191.5°	0°
NIGHT FIELD RATIO:	1.0	0.839	0.839	1.0
DAY PHASING:	0°	+220°	+200°	+65°
DAY FIELD RATIO:	1.0	0.55	0.55	0.28

SPACING AND ORIENTATION: Adjacent elements are spaced 202' (45°) on a line bearing 347° true.

GROUND SYSTEM: 200-140' to 340' equally spaced copper radials plus a 48' square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

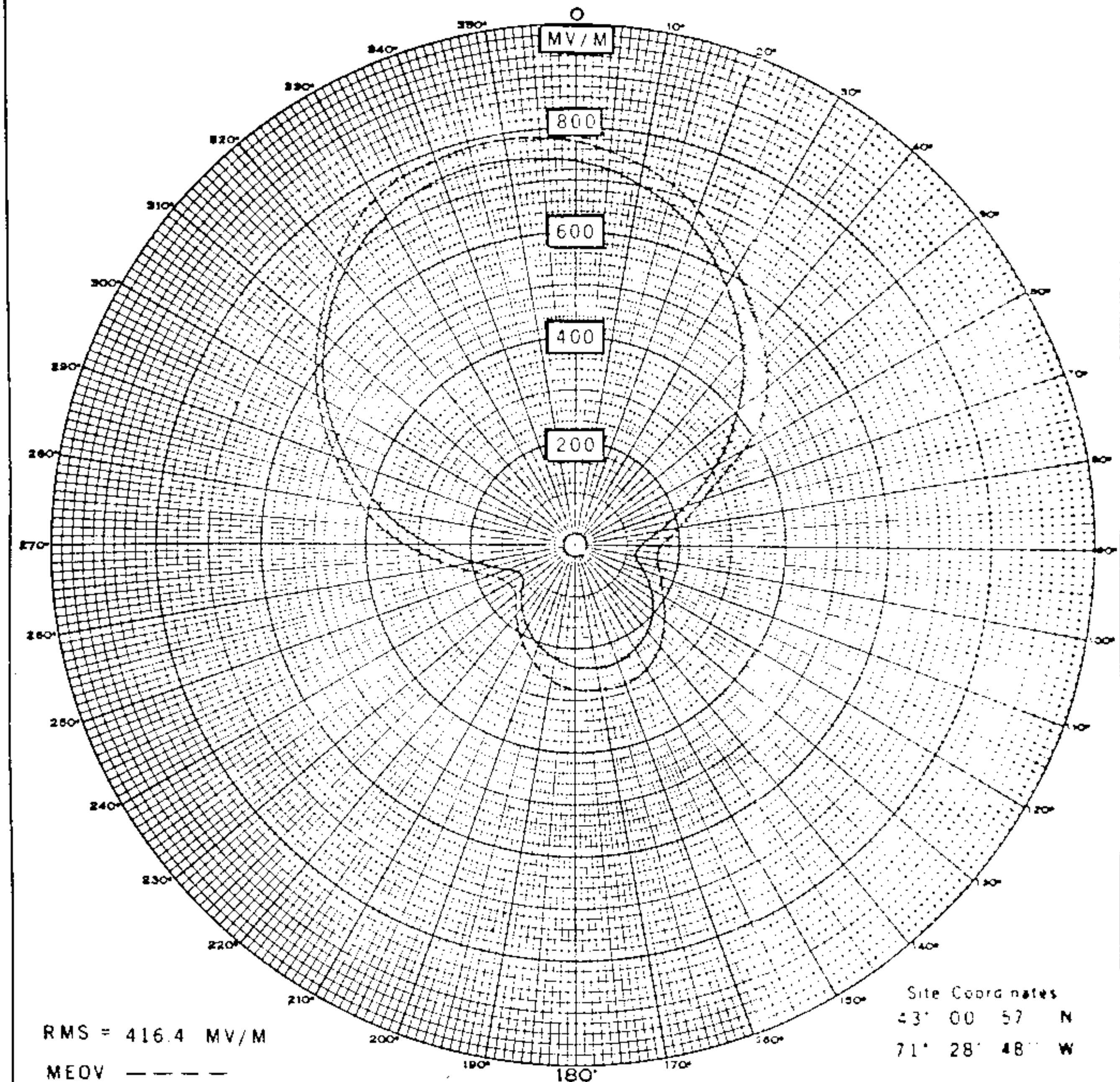
Predicted effective Night Field: 175 mv/m at rated power.

Predicted effective Day Field: 416.4 mv/m at rated power.

(Cont'd)

Note: Please retain the Nighttime directional antenna radiation pattern notified for Station WMUR (now WGIR) in United States Change List Number 25 dated October 15, 1941 and attach to this Revised Description Sheet and Daytime pattern. This notification concerns a change in the Daytime operation of the station with Nighttime operation continued as previously notified, and corrects the geographical coordinates of the transmitter location.

CTR NO 30554A3



PROPOSED DAYTIME HORIZONTAL PLANE RADIATION PATTERN

347° T 4 (N) 0.28/65° 45° 3 (NC) 0.55/200° 45° 2 (SC) 0.55/220° 45° 1 (S) 1.0/0° G=90° (including TL)	KNIGHT RADIO, INC. MANCHESTER, NEW HAMPSHIRE Jules Cohen & Associates Consulting Electronics Engineers	RADIO STATION WGIR 610 KHZ 1 KW, 5 KW LS U DA 2 FEBRUARY 1976

WGIR

WGIR

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station	: WGIR	Main Studio:	Manchester, New Hampshire
Frequency	: 610 KHz	Power	: 1 kW Night 5 kW Day
Notification	: 1780	Date	: Sept. 28, 1979 Class: III

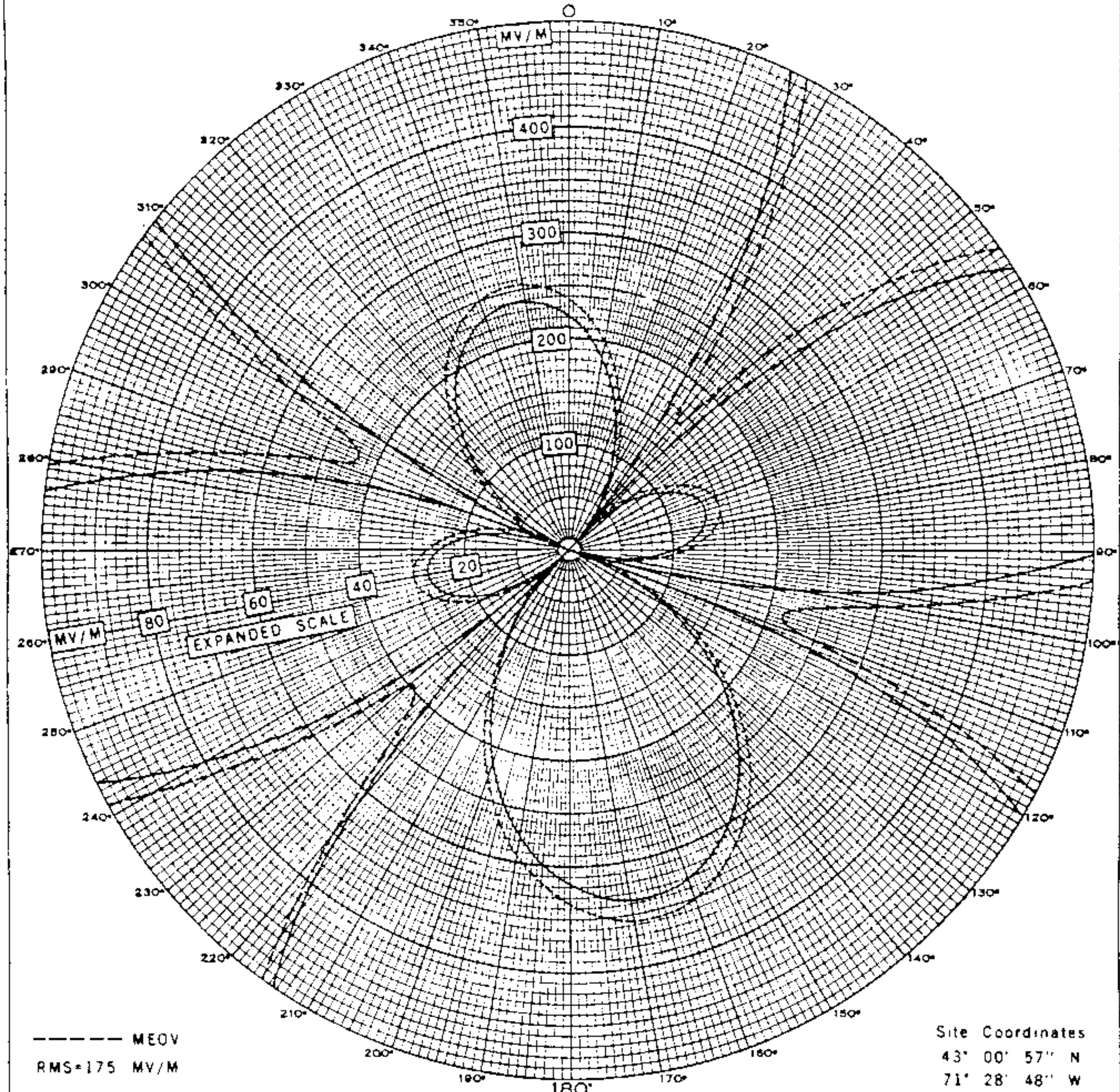
GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude:	43	00	57
West Longitude:	71	28	48

Note: Please retain the description sheet and daytime directional antenna radiation patterns notified for station WGIR in United States Change List Number 1674, dated March 3, 1976 and attach to this supplemental Description Sheet and nighttime directional radiation patterns. This notification is for the purpose of indicating only a change in the Nighttime directional radiation pattern MEOV'S.

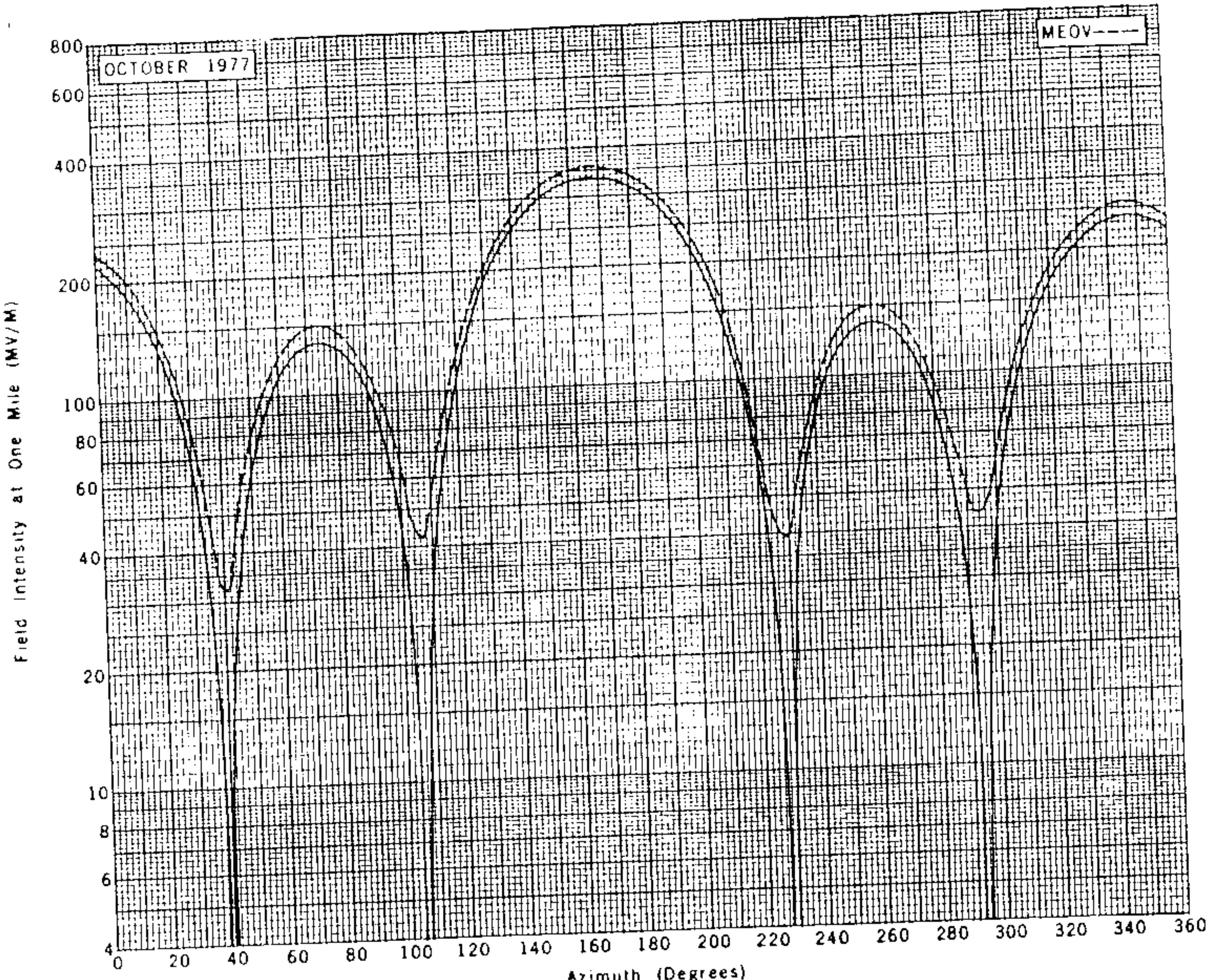
WGIR

Figure 1
Sheet 1 of 14



CALCULATED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

347° True 1.0/0° ○ 4(N) 45° 0.839/-168.5° ○ 3(NC) 45° 0.839/168.5° ○ 2(SC) 45° 1.0/0° ○ 1(S) G=90° (including TL)	KNIGHT RADIO, INC. MANCHESTER, NEW HAMPSHIRE Jules Cohen & Associates Consulting Electronics Engineers	RADIO STATION WGIR 610 KHZ 1 KW, 5 KW-LS U DA-2 OCTOBER 1977

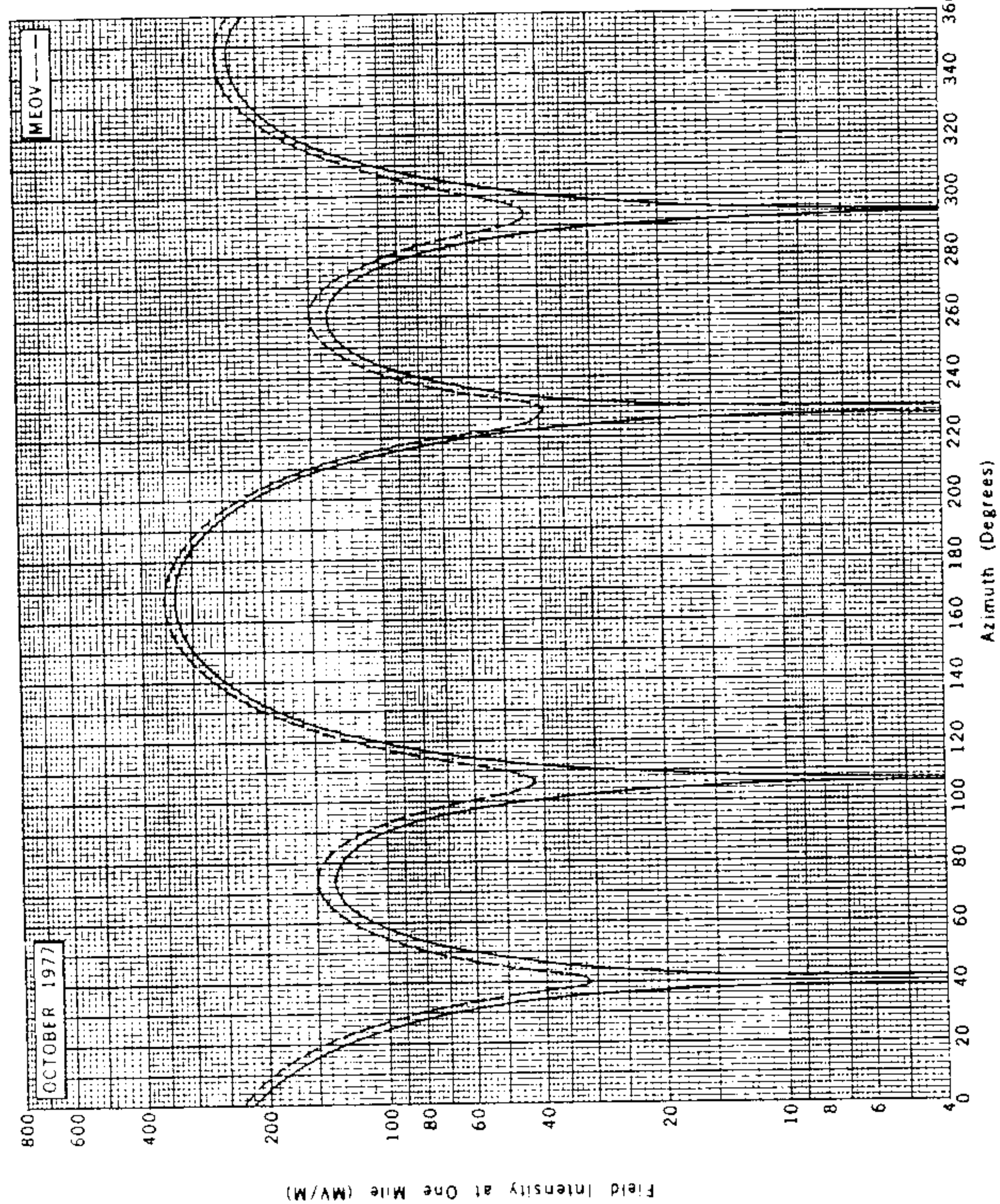


CALCULATED NIGHTTIME RADIATION PATTERN AT VERTICAL ANGLE OF 0 DEGREES

WGIR, MANCHESTER, NEW HAMPSHIRE

KNIGHT RADIO, INC

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

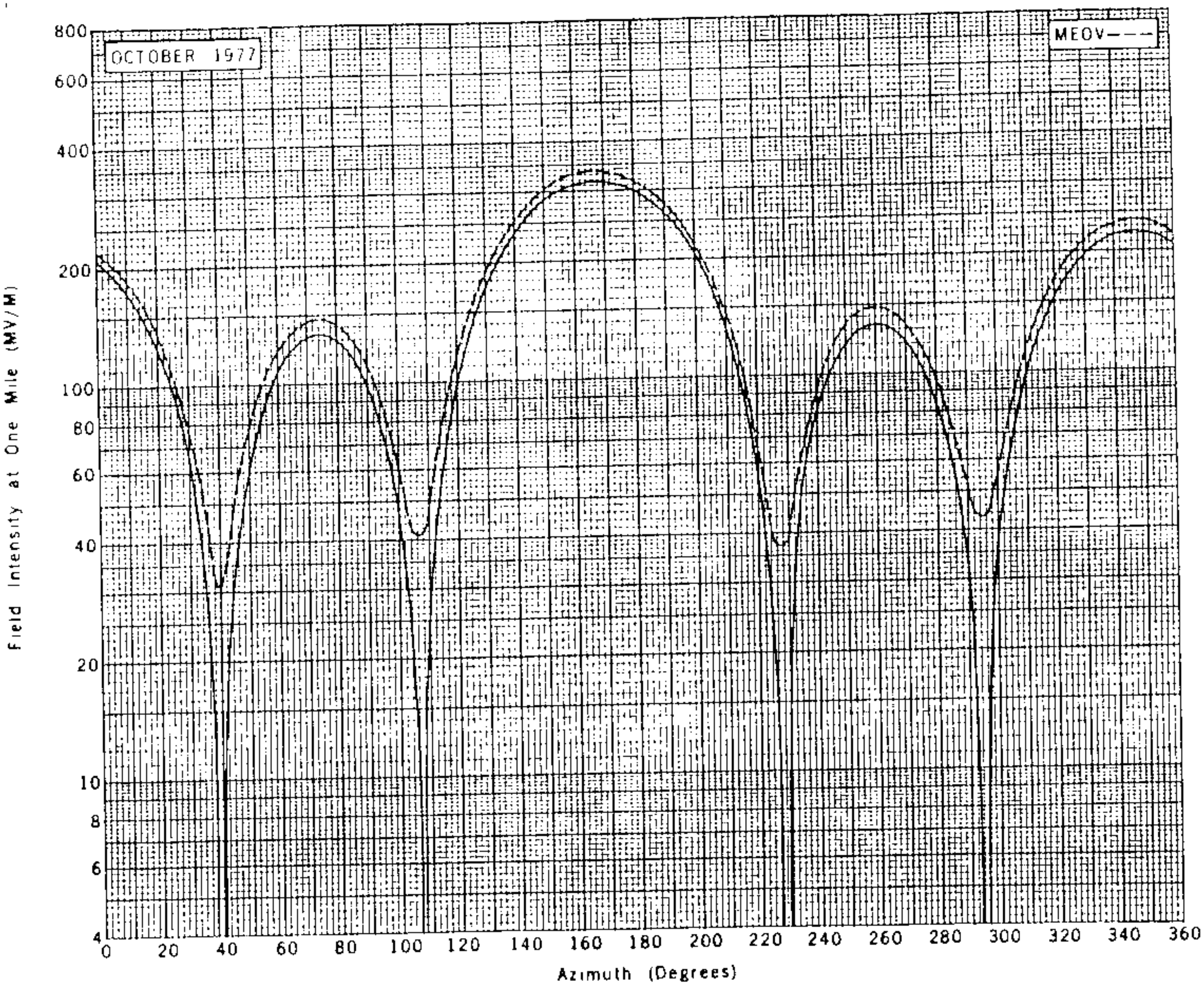


CALCULATED NIGHTTIME RADIATION PATTERN AT VERTICAL ANGLE OF 5 DEGREES

WGIR, MANCHESTER, NEW HAMPSHIRE

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

KNIGHT RADIO, INC.

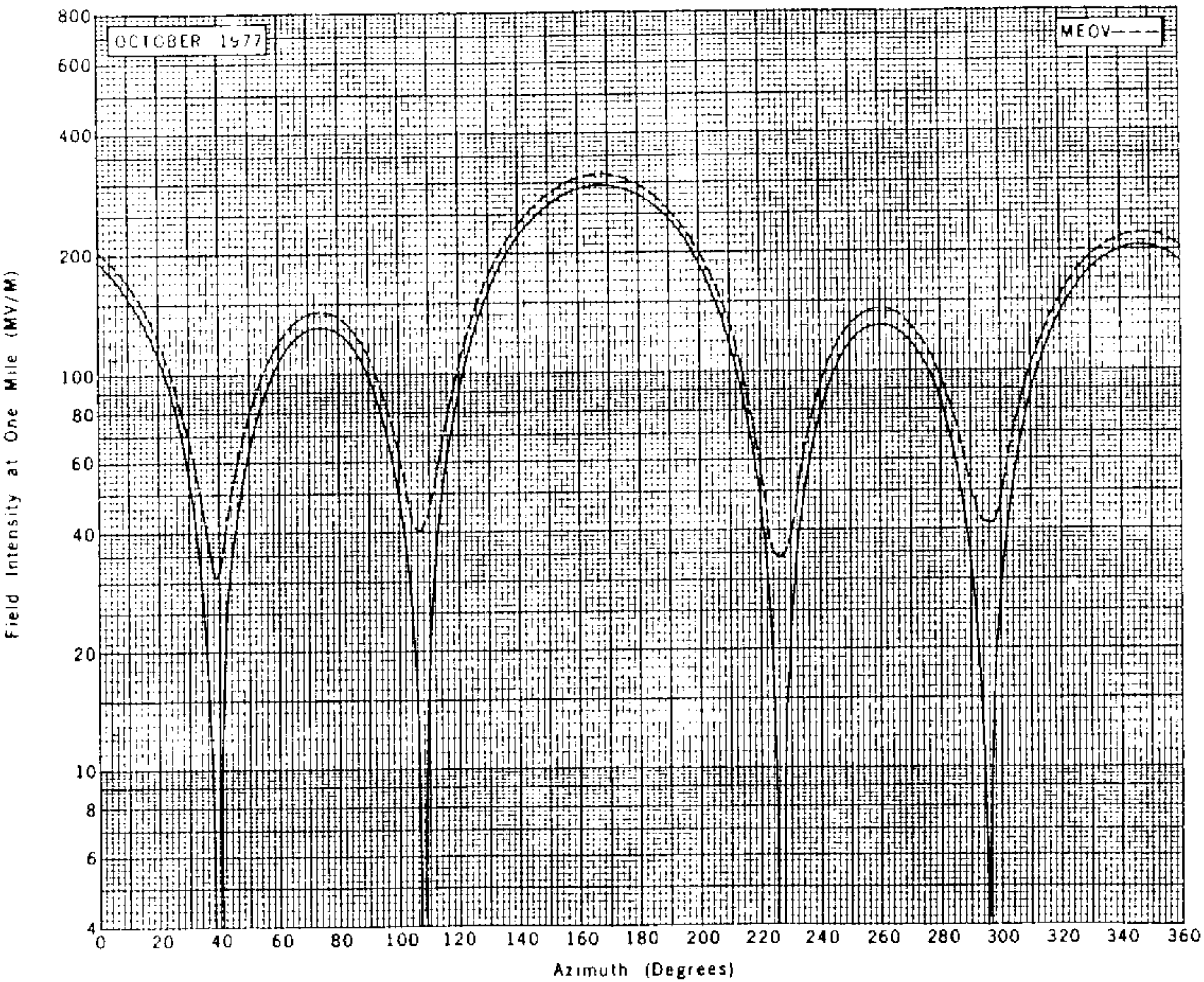


CALCULATED NIGHTTIME RADIATION PATTERN AT VERTICAL ANGLE OF 10 DEGREES

KNIGHT RADIO, INC.

WGIR, MANCHESTER, NEW HAMPSHIRE

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

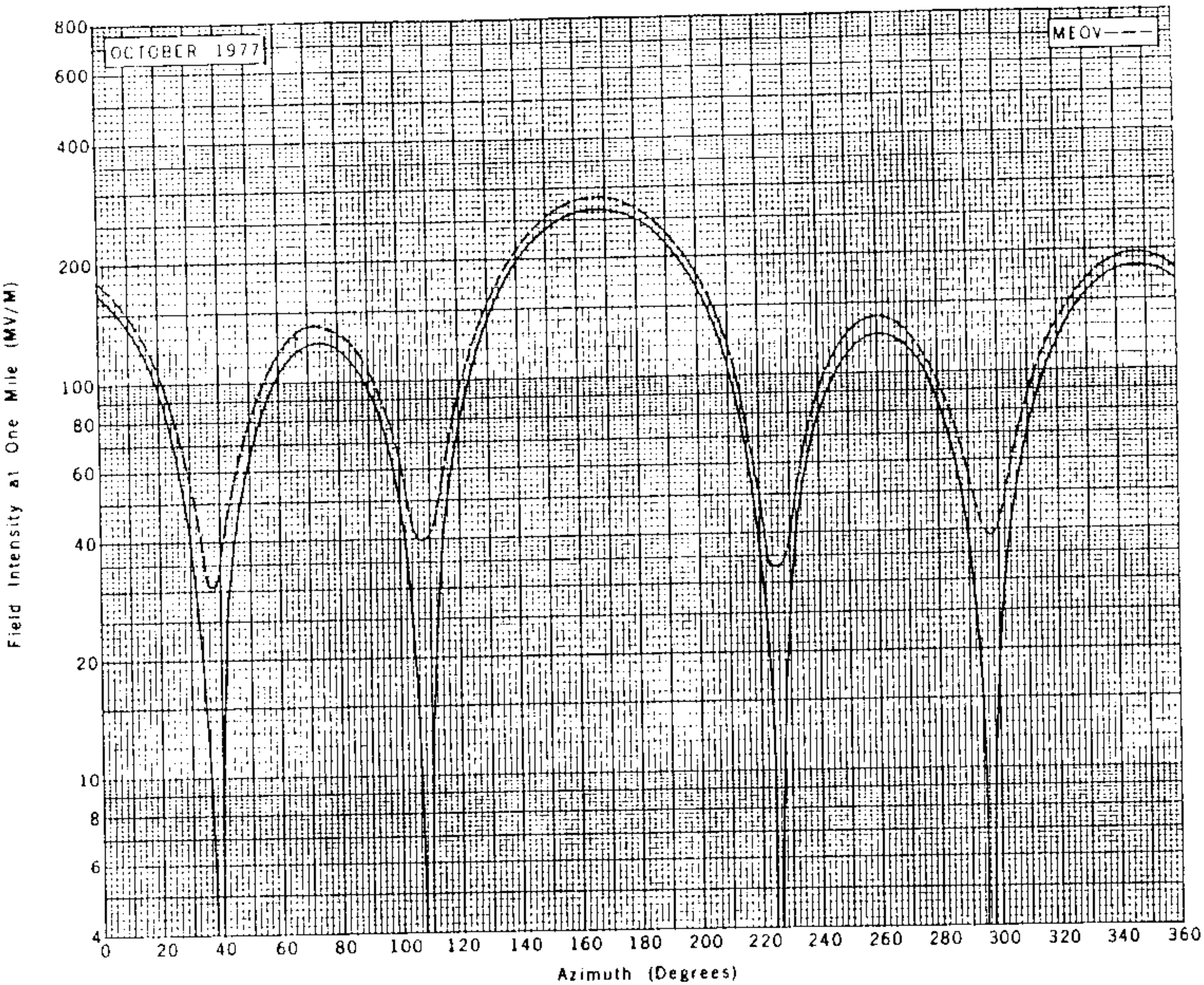


CALCULATED NIGHTTIME RADIATION PATTERN AT VERTICAL ANGLE OF 15 DEGREES

KNIGHT RADIO, INC.

WGIR, MANCHESTER, NEW HAMPSHIRE

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

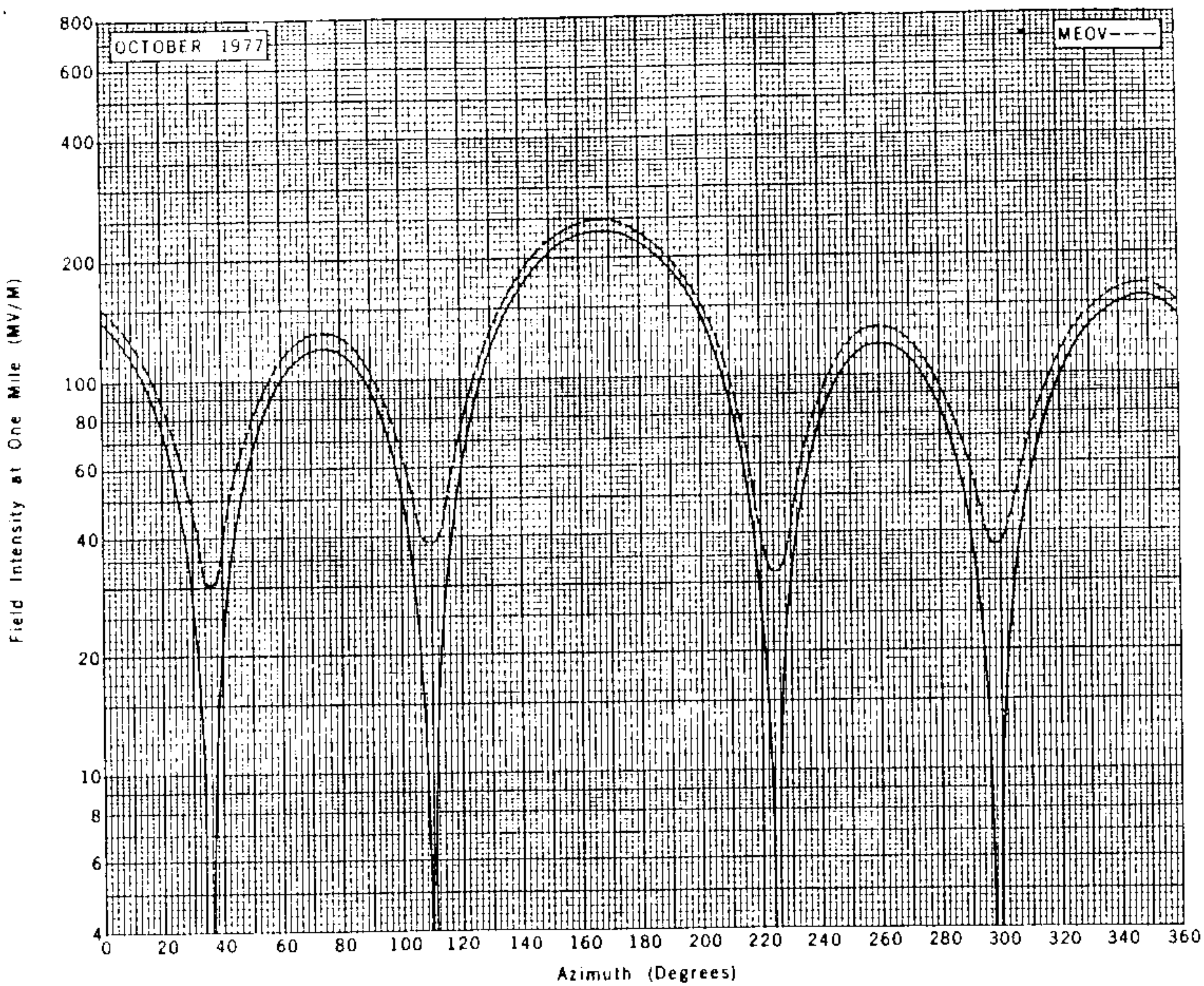


CALCULATED NIGHTTIME RADIATION PATTERN AT VERTICAL ANGLE OF 20 DEGREES

KNIGHT RADIO, INC

WGIR, MANCHESTER, NEW HAMPSHIRE

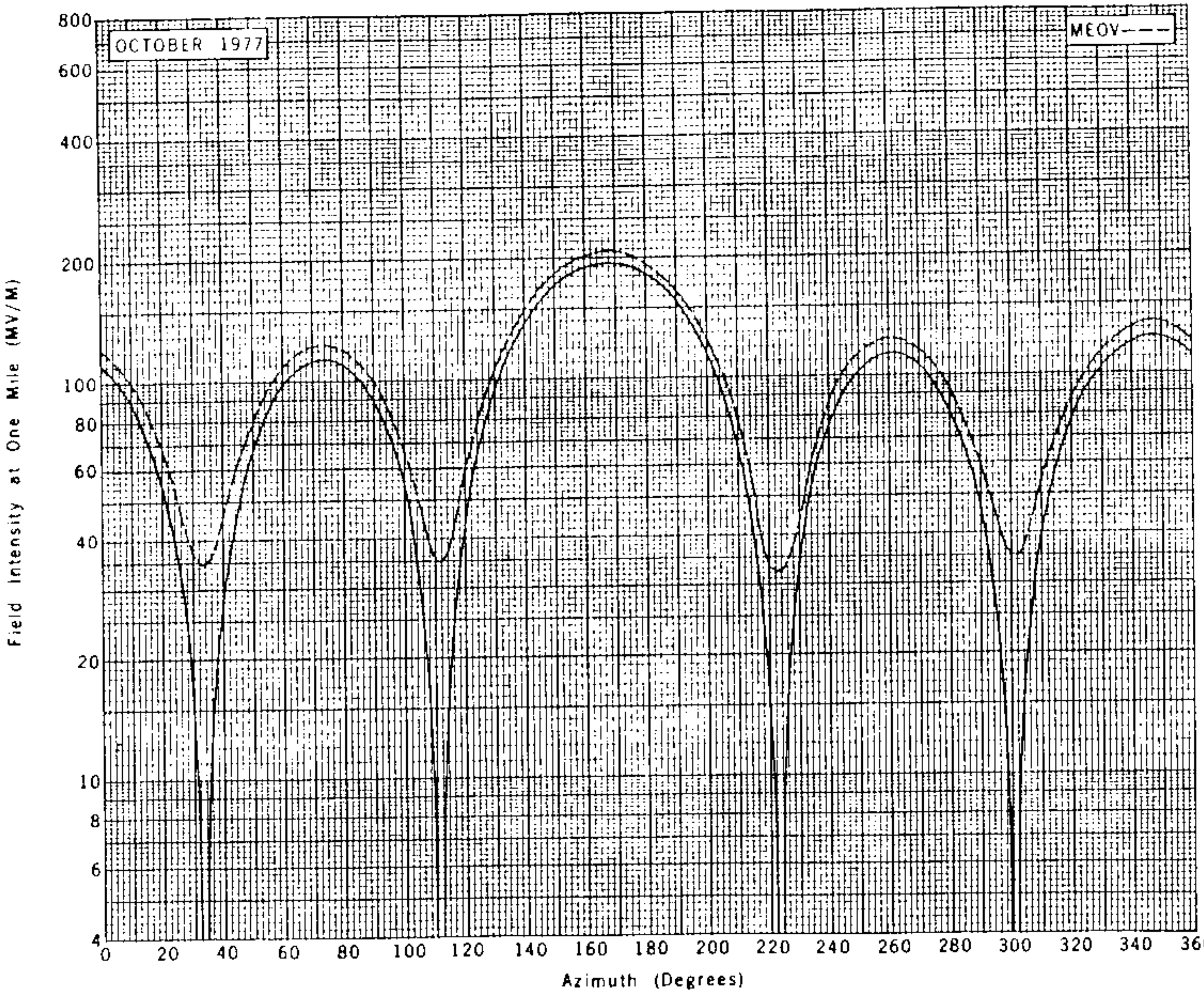
610 KHZ 1 KW, 5 KW-LS U DA-2



CALCULATED NIGHTTIME RADIATION PATTERN AT VERTICAL ANGLE OF 25 DEGREES

KNIGHT RADIO, INC.   WGIR, MANCHESTER, NEW HAMPSHIRE

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

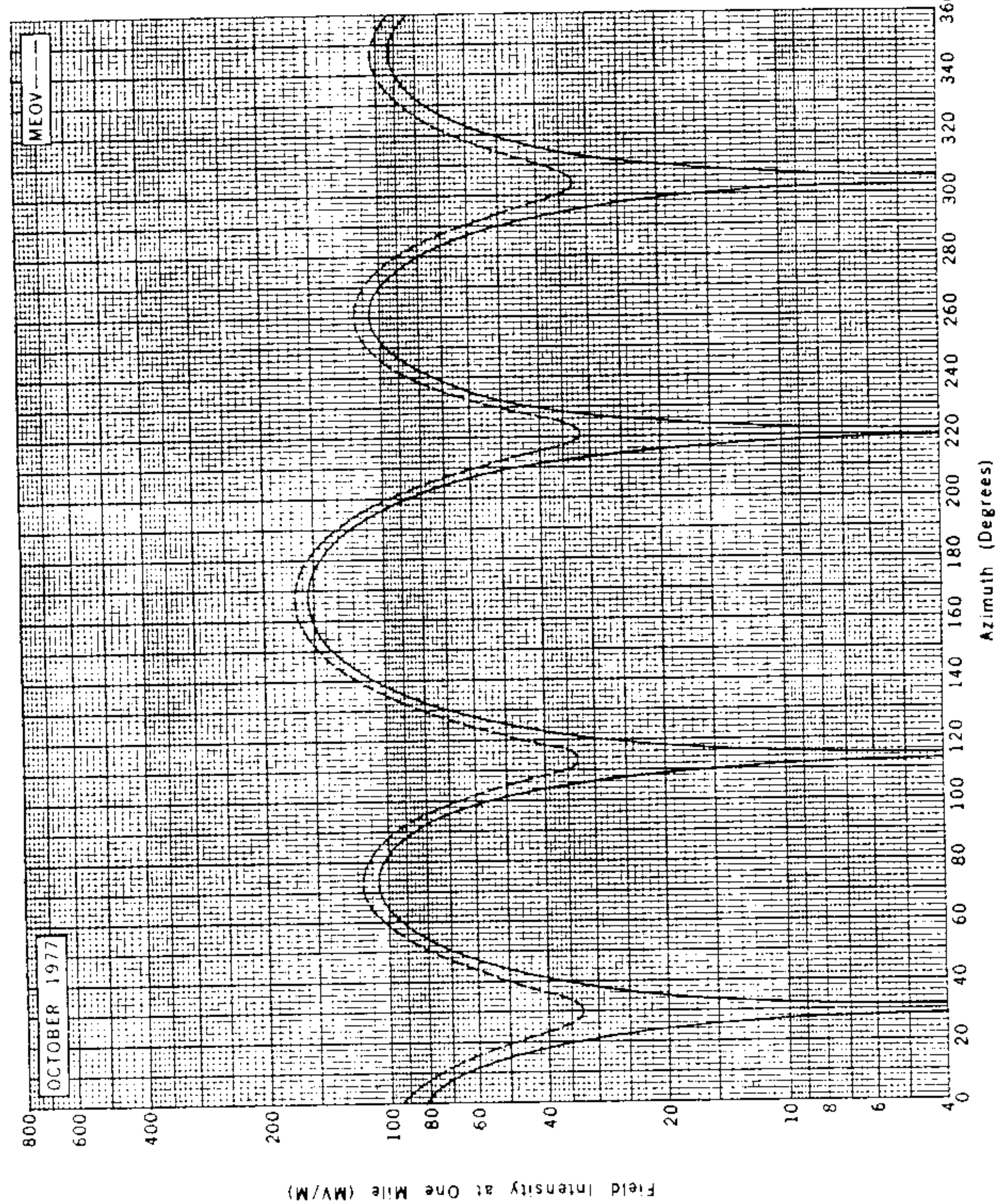


CALCULATED NIGHTTIME RADIATION PATTERN AT VERTICAL ANGLE OF 30 DEGREES

KNIGHT RADIO, INC.

WGIR, MANCHESTER, NEW HAMPSHIRE

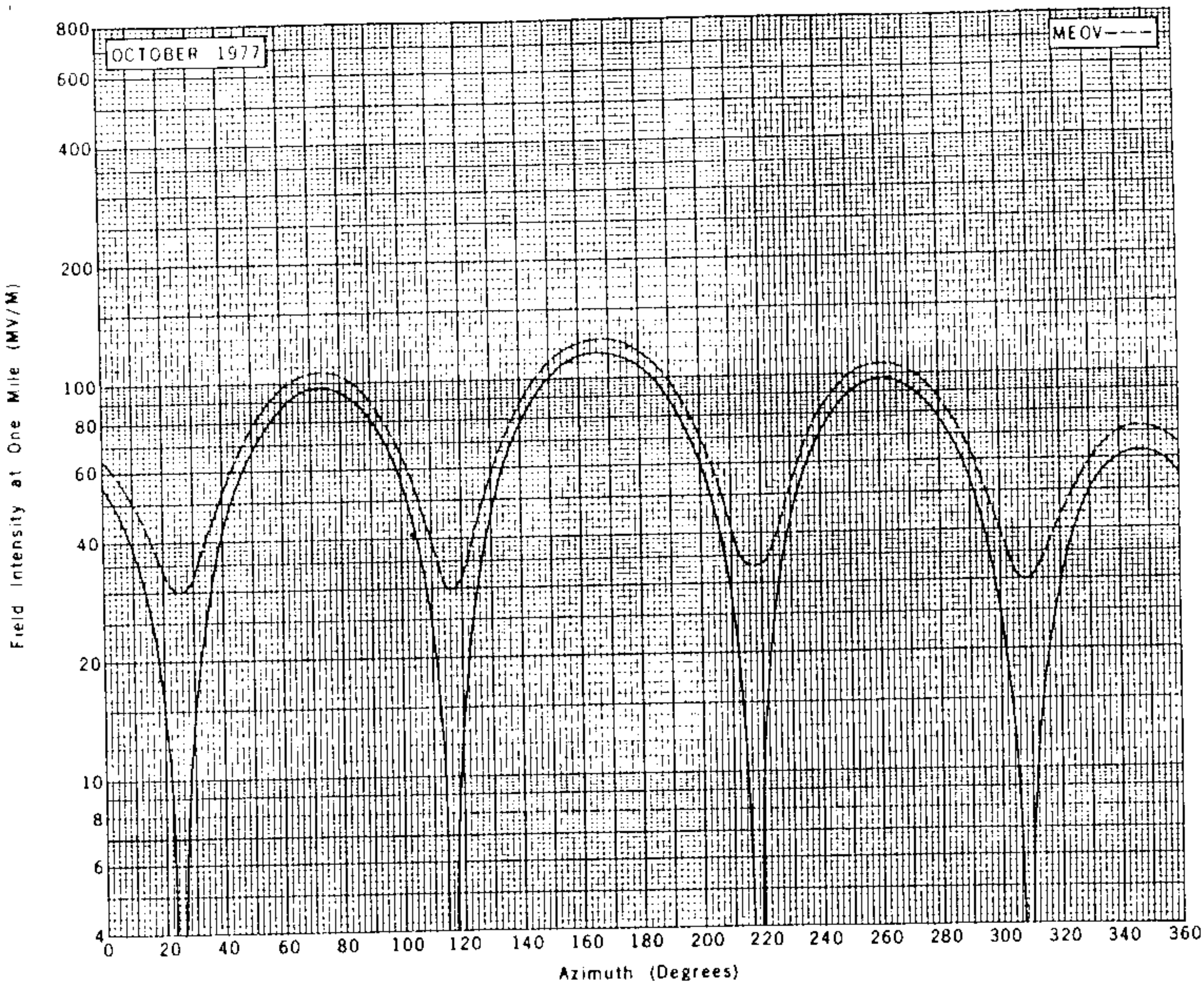
610 KHZ 1 KW, 5 KW-LS U DA-2



CALCULATED NIGHTTIME RADIATION PATTERN AT VERTICAL ANGLE OF 35 DEGREES

KNIGHT RADIO, INC. WGIR, MANCHESTER, NEW HAMPSHIRE

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

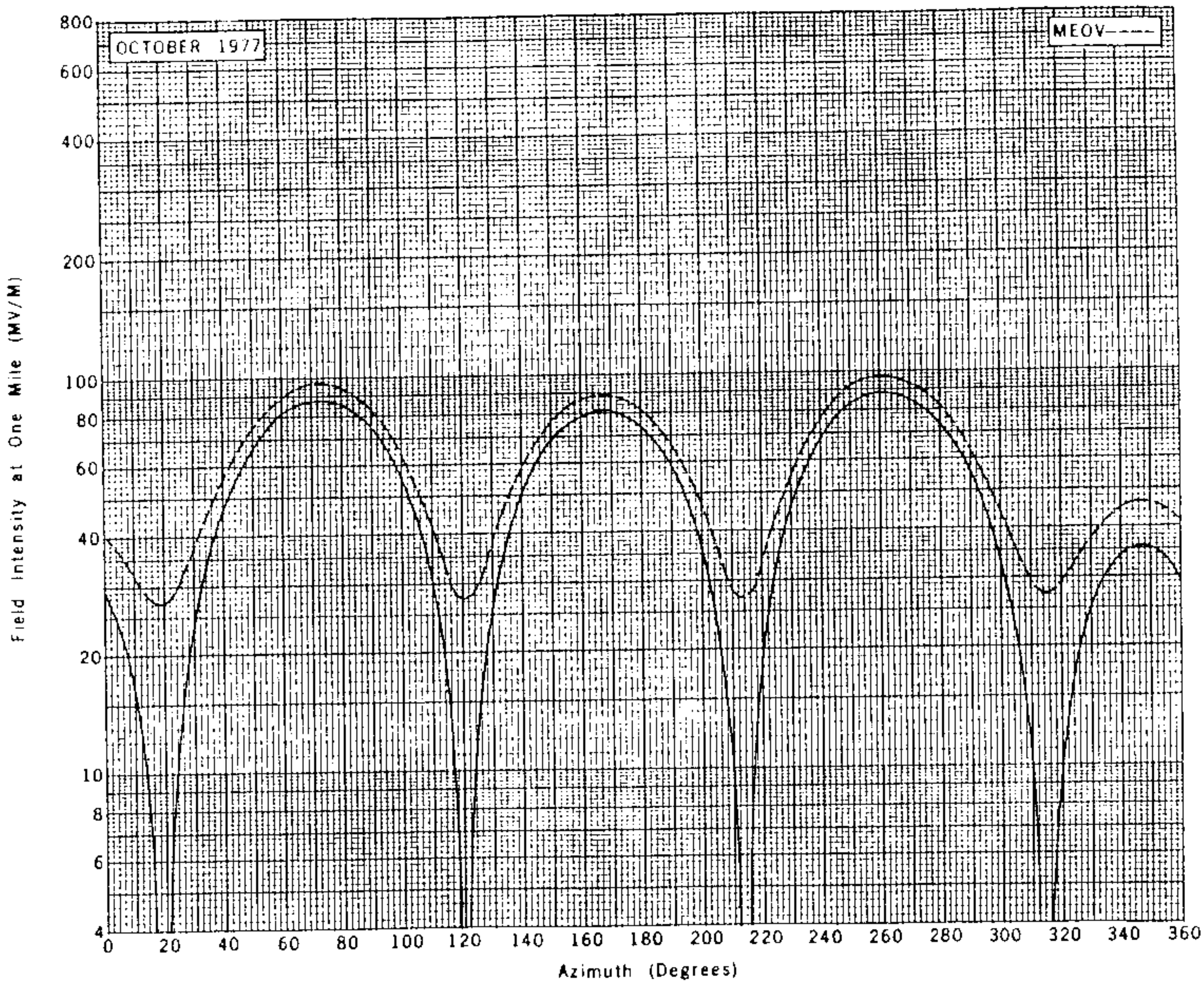


CALCULATED NIGHTTIME RADIATION PATTERN AT VERTICAL ANGLE OF 40 DEGREES

KNIGHT RADIO, INC.

WGIR, MANCHESTER, NEW HAMPSHIRE

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

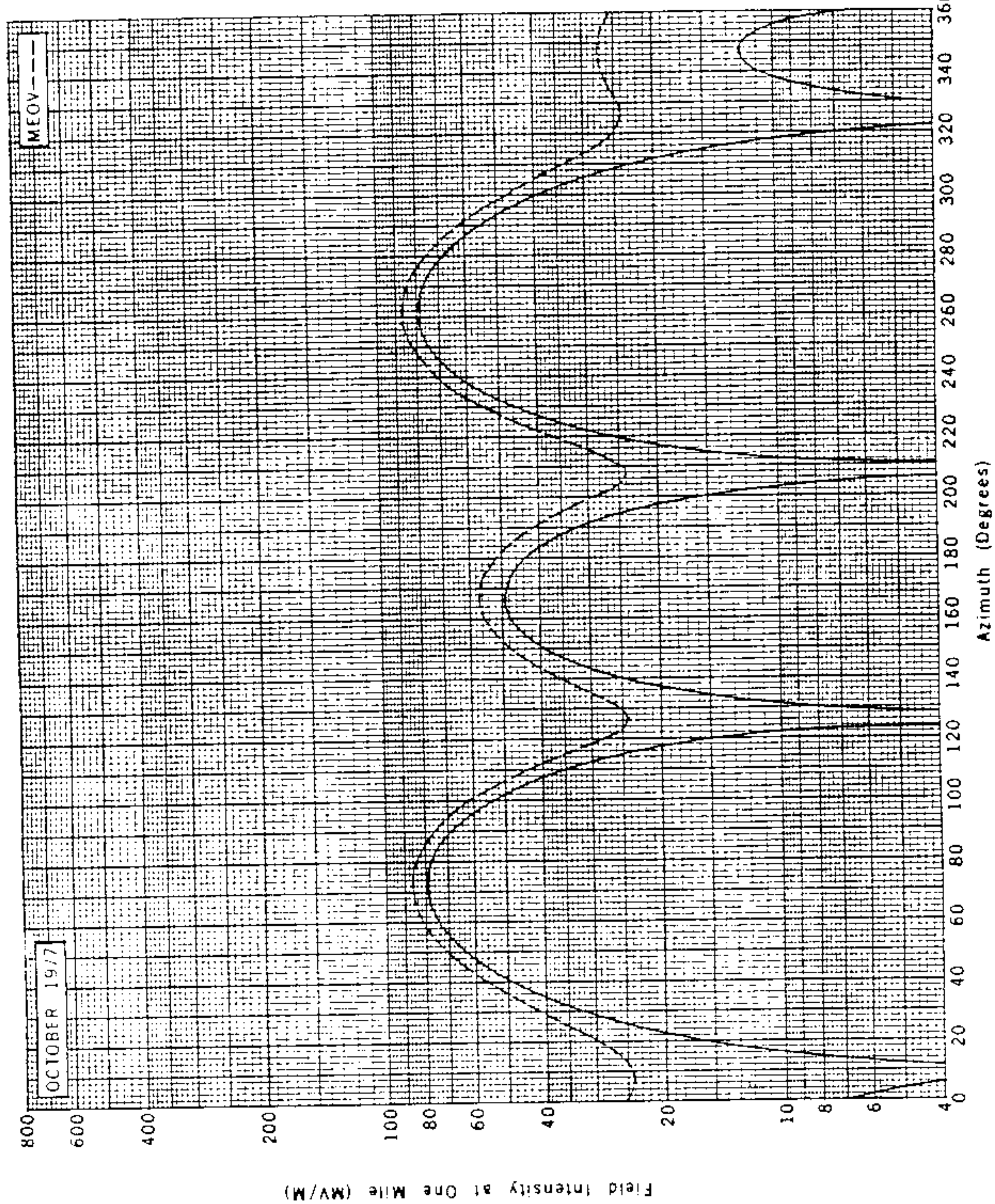


CALCULATED NIGHTTIME RADIATION PATTERN AT VERTICAL ANGLE OF 45 DEGREES

KNIGHT RADIO, INC.

WGIR, MANCHESTER, NEW HAMPSHIRE

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

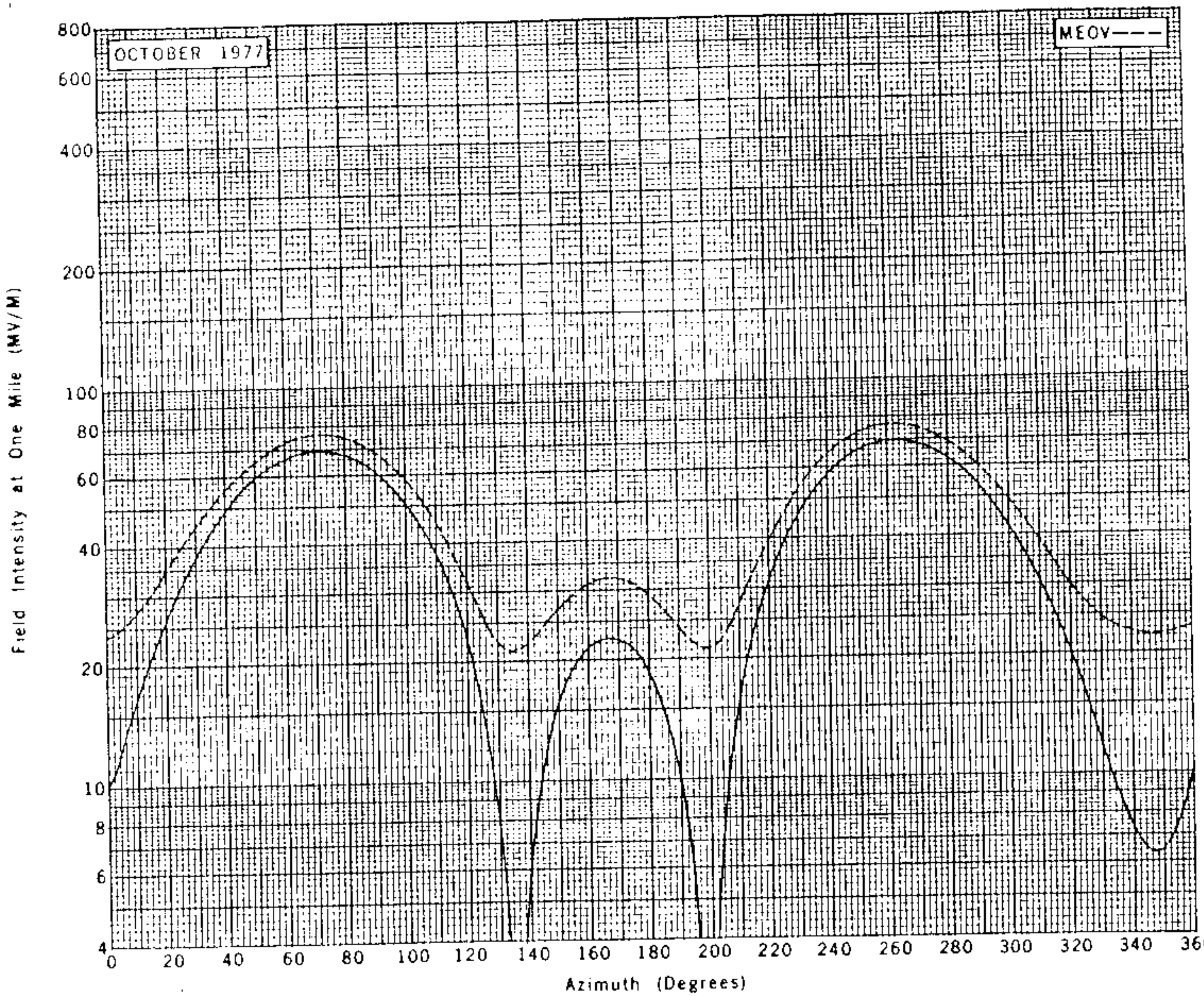


CALCULATED NIGHTTIME RADIATION PATTERN AT VERTICAL ANGLE OF 50 DEGREES

WGIR, MANCHESTER, NEW HAMPSHIRE

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

KNIGHT RADIO, INC.

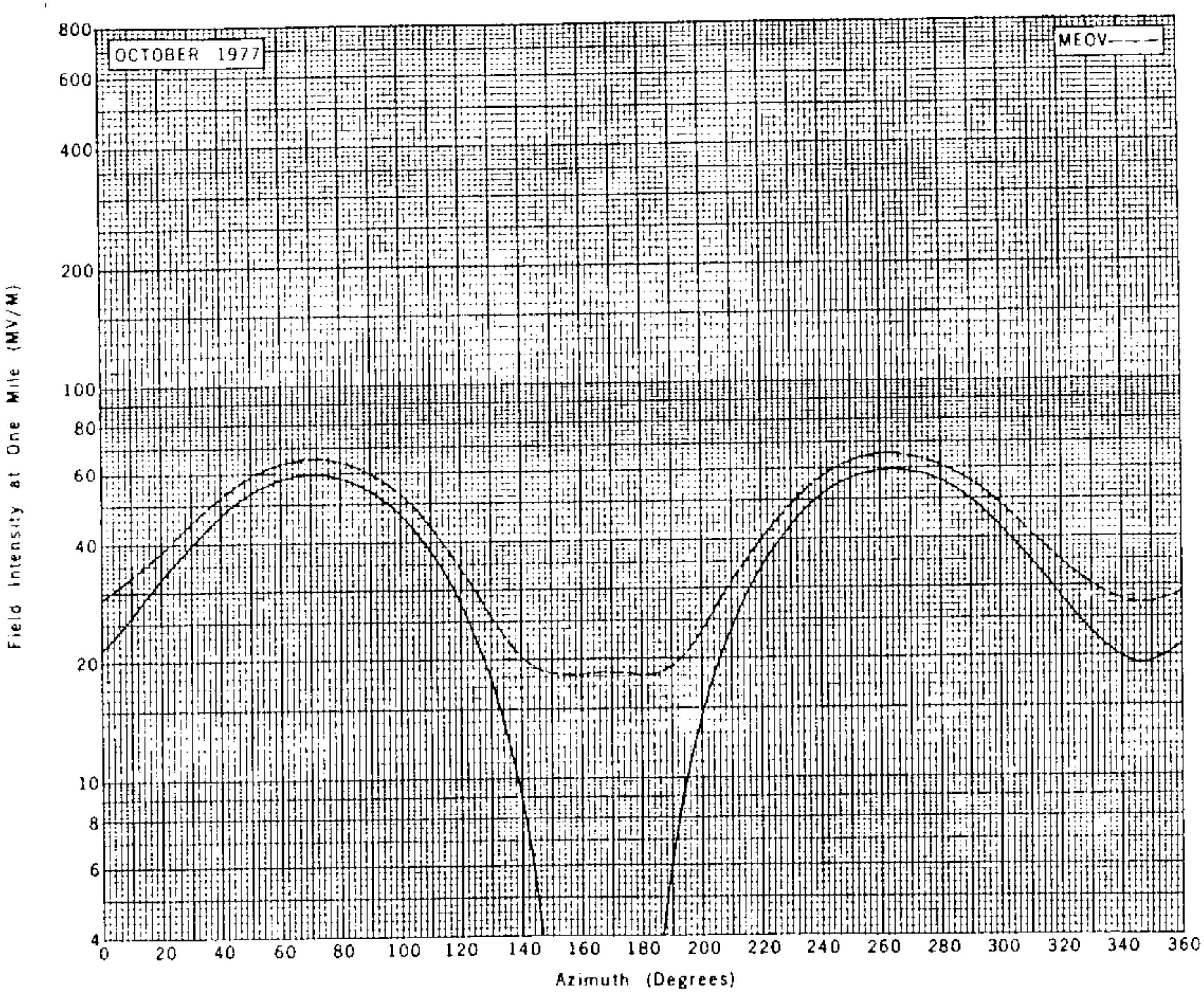


CALCULATED NIGHTTIME RADIATION PATTERN AT VERTICAL ANGLE OF 55 DEGREES

KNIGHT RADIO, INC.

WGIR, MANCHESTER, NEW HAMPSHIRE

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



CALCULATED NIGHTTIME RADIATION PATTERN AT VERTICAL ANGLE OF 60 DEGREES

KNIGHT RADIO, INC. WGIR, MANCHESTER, NEW HAMPSHIRE

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

WHPL

10-6-60 granted for new-
1-31-61 granted MEOV make
change in DA pattern.

PROPOSED DAY
(1-17-61a)

Station WHPL 500w, DA-D,D
Winchester, Virginia 610 KC

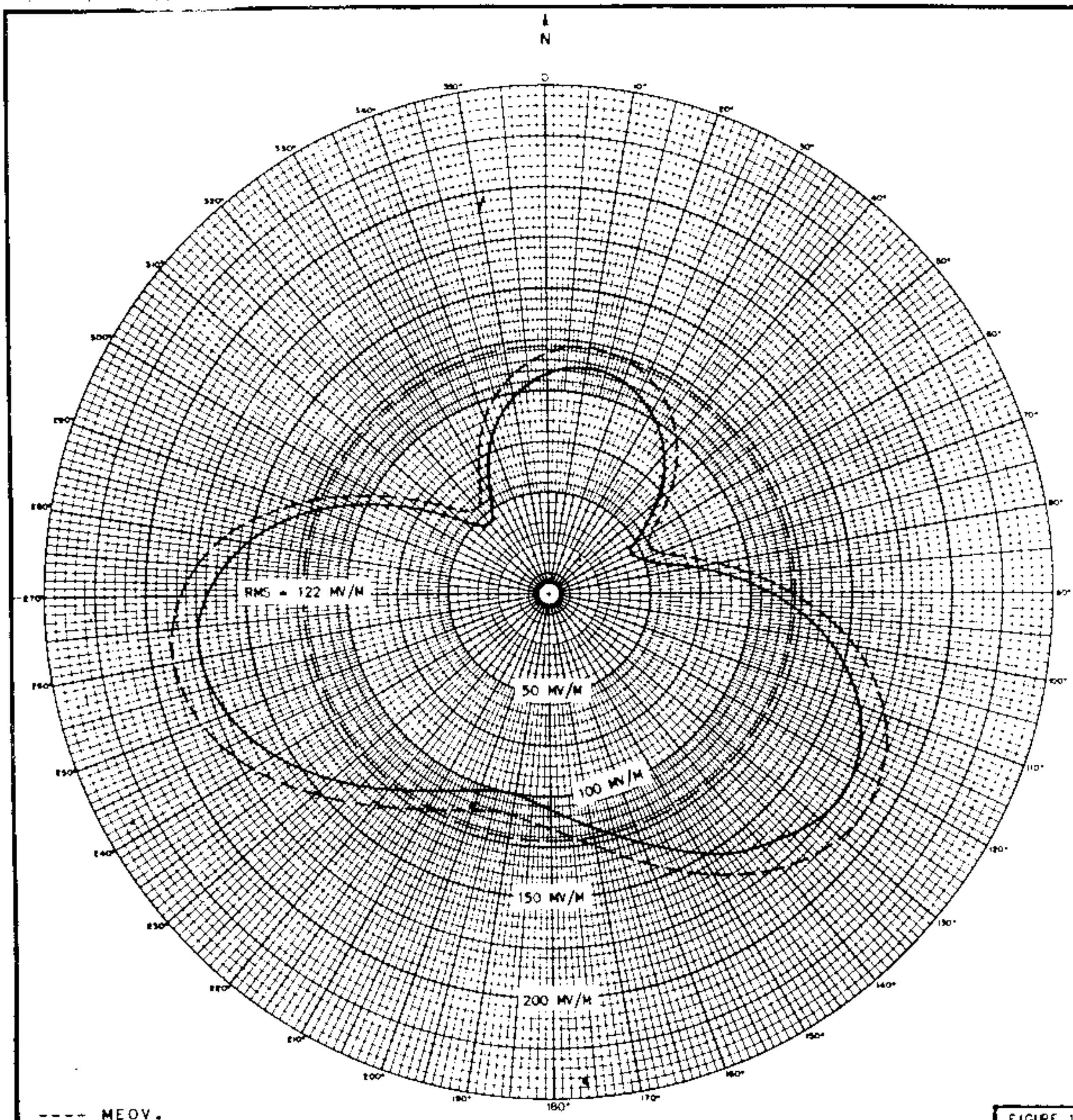
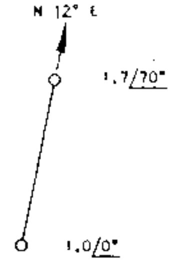


FIGURE 1

HORIZONTAL RADIATION PATTERN

S= 185°

G ALL TOWERS= 67°



APPLICANT	EDWIN R. FISCHER
LOCATION	WINCHESTER, VA.
FREQUENCY	610 KC/S
POWER	0.5 Kw.
LATITUDE	39 DEG 11 MIN 58.5 SEC.
LONGITUDE	78 DEG 12 MIN 45.5 SEC
WHEN USED	DAYTIME
R.M.S FIELD	122 MV/M
DATE	NOVEMBER 1960

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

FCC File No. BMP-9219
Accepted 12-19-60

WHPL
Winchester, Virginia 610 KC

WHPL

[illegible] New station 5-20-61

MEASURED DAY
(5-8-61g)

Station WHPL 500w, DA-D,D
Winchester, Virginia 610 KC

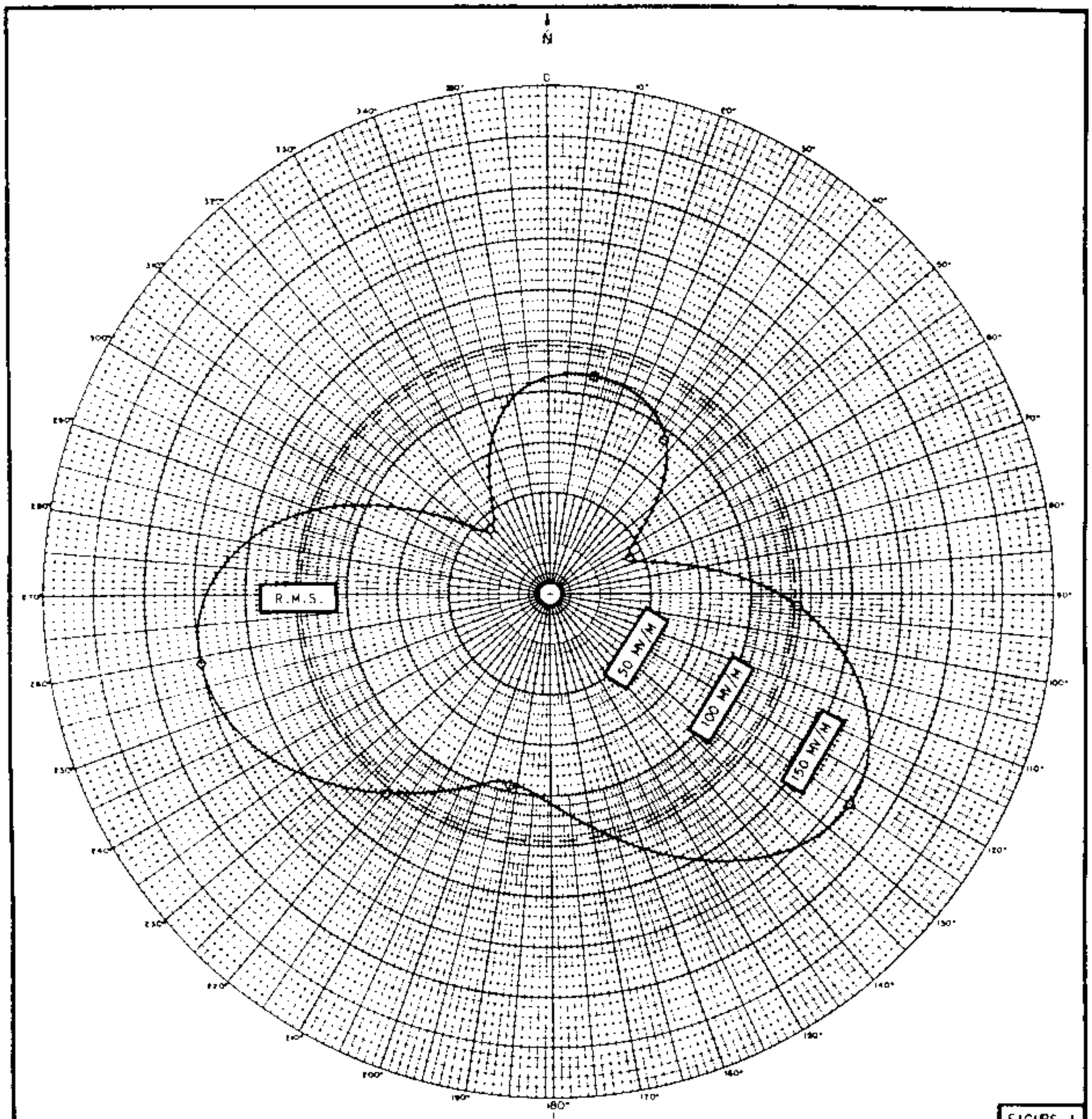
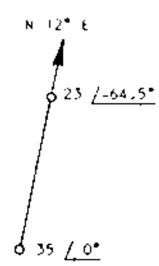


FIGURE 1

HORIZONTAL RADIATION PATTERN

S = 105°
G = 67° PLUS TOP LOADING
(ALL TOWERS)



APPLICANT	WHPL
LOCATION	WINCHESTER, VA.
FREQUENCY	610 KC/S
POWER	500 W
LATITUDE	39 DEG 11 MIN 55 SEC
LONGITUDE	78 DEG 13 MIN 13 SEC
WHEN USED	DAYTIME
R M S FIELD	123 MV/M
DATE	JANUARY 1960

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

FCC File No. BL-8312
Accepted 4-27-61

WHPL
Winchester, Virginia 610 KC

WHPL

Proposed Night (4-27-62ct)	Station WHPL Winchester, Virginia	500w,DA-2,U 610 kc

7-30-63
Granted CP for unlimited time and DA-2
8-25-64
granted L

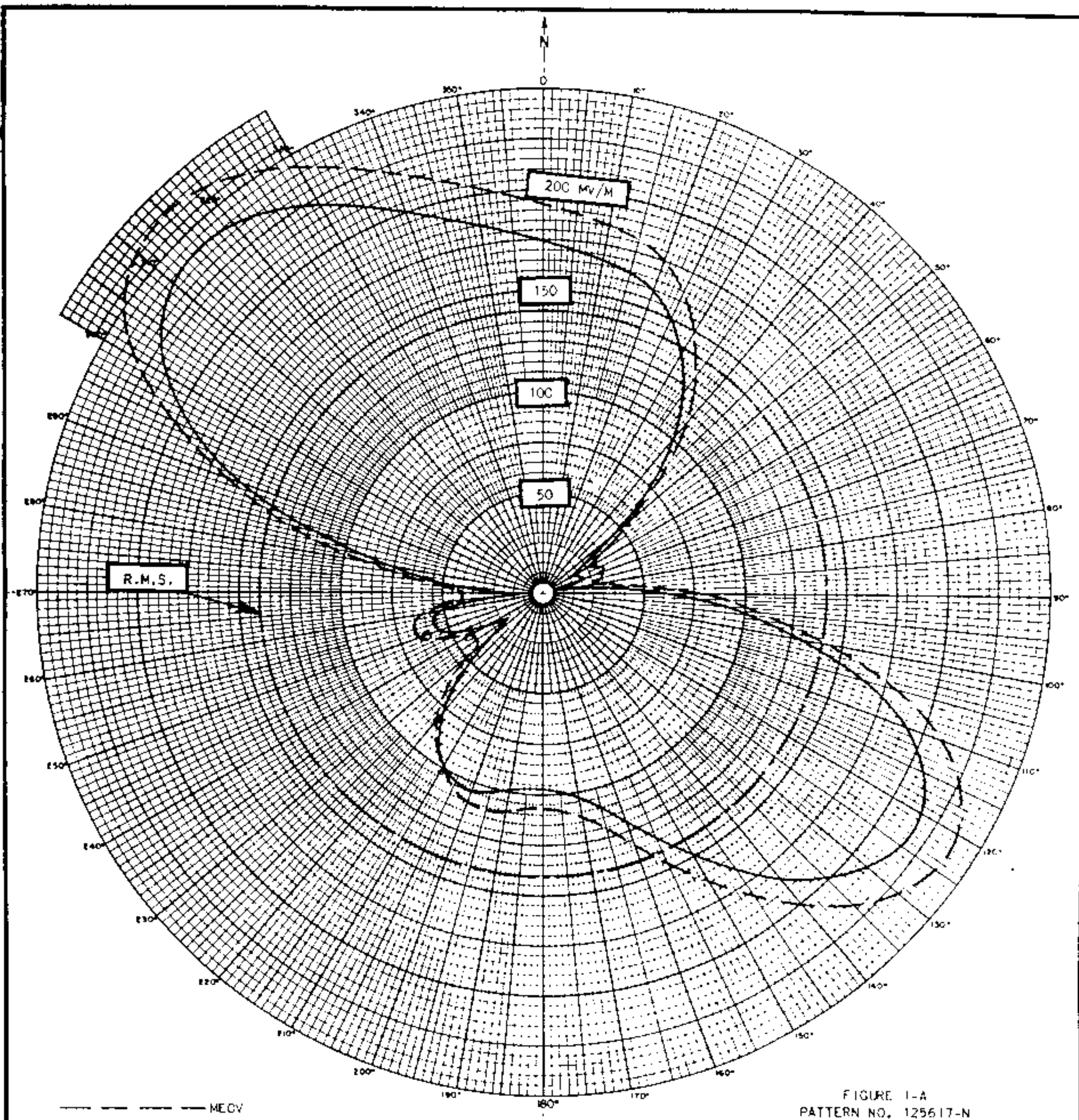
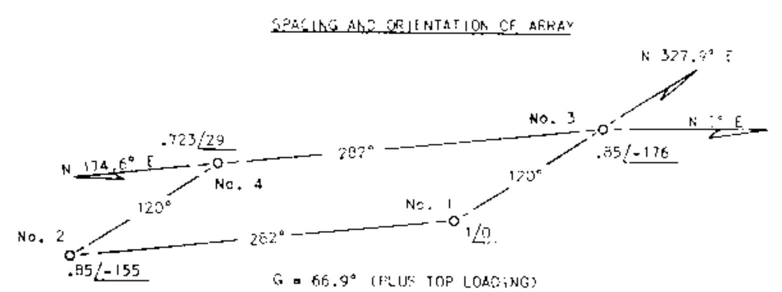


FIGURE 1-A
PATTERN NO. 125617-N

HORIZONTAL RADIATION PATTERN



APPLICANT	W H P L
LOCATION	WINCHESTER, VA.
FREQUENCY	610 KC/S
POWER	500 WATTS
LATITUDE	39 DEG 11 MIN. 53 SEC.
LONGITUDE	78 DEG . 13 MIN 13 SEC
WHEN USED	NIGHTTIME
RMS FIELD	140.4 MV/M
DATE	DECEMBER 1961

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

FCC File No.BP-15362 Accepted 4-10-62	Station WHPL Winchester, Virginia	610 kc

WHPL

Measured Night
(3-30-64ct)

Station WHPL
Winchester, Virginia

500w, DA-2, U
610kc

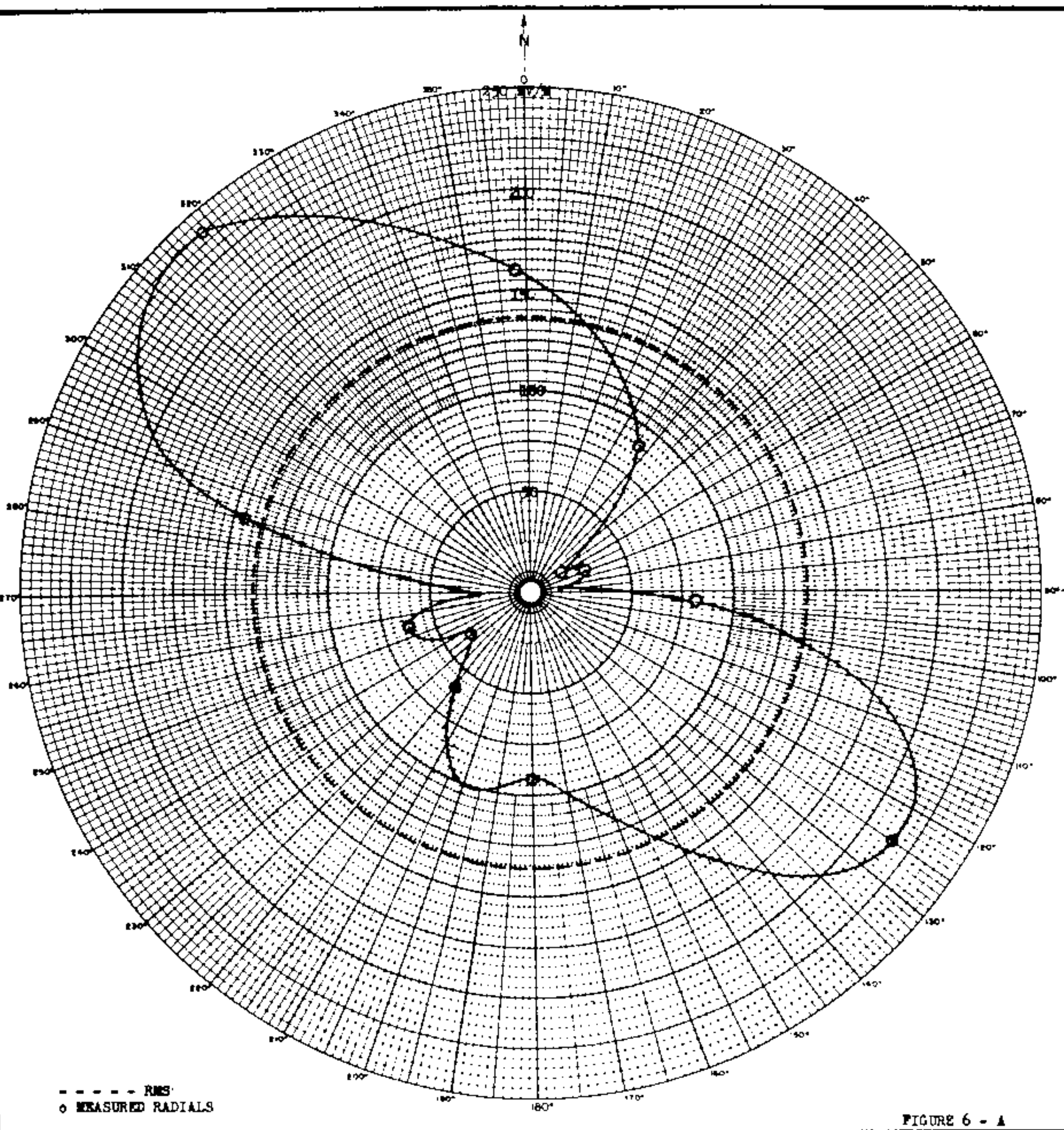
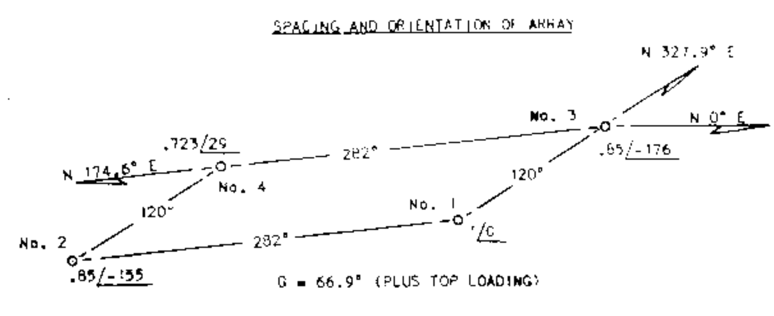


FIGURE 6 - A

HORIZONTAL RADIATION PATTERN



APPLICANT	WHPL
LOCATION	WINCHESTER, VIRGINIA
FREQUENCY	610 KC/S
POWER	500 WATTS
LATITUDE	39 DEG 11 MIN. 53 SEC.
LONGITUDE	78 DEG 13 MIN. 13 SEC
WHEN USED	NIGHTTIME
RMS FIELD	137.2 MV/M
DATE	DECEMBER 1963

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

FCC File No. BL-10440
Accepted 3-12-64

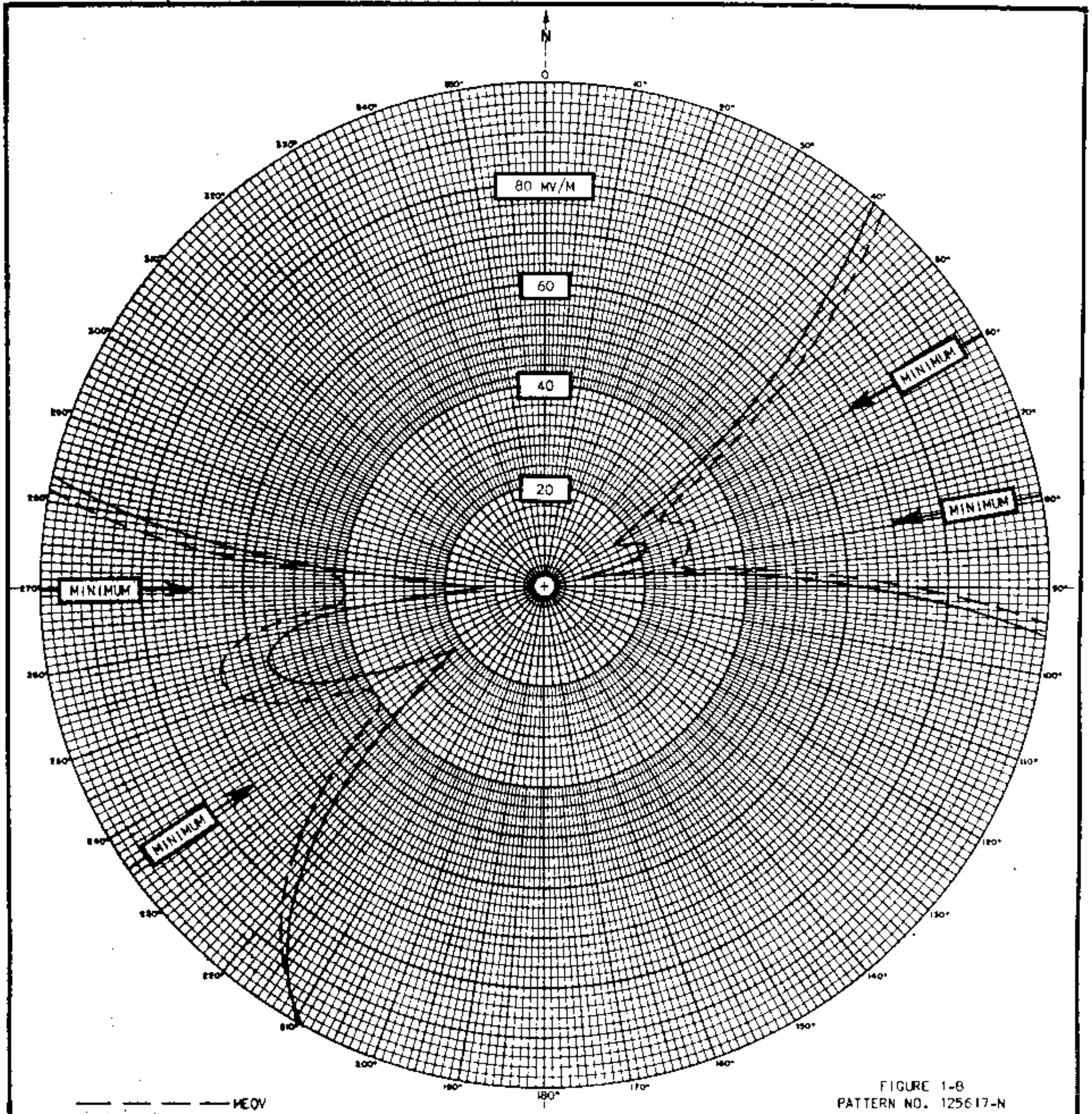
Station WHPL
Winchester, Virginia

610kc

WHPL

Proposed Night Nulls (4-27-62ct) | Station WHPL Winchester, Virginia | 500w,DA-2,U 610 kc

1-30-63 granted CP for unlimited time and DA-2



EXPANDED VIEW

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

FCC File No.BP-15362
Accepted 4-10-62

Station WHPL
Winchester, Virginia

610 kc

WHPL

Measured Night Nulls
(3-30-64ct)

Station WHPL
Winchester, Virginia

500w,DA-2,U
610kc

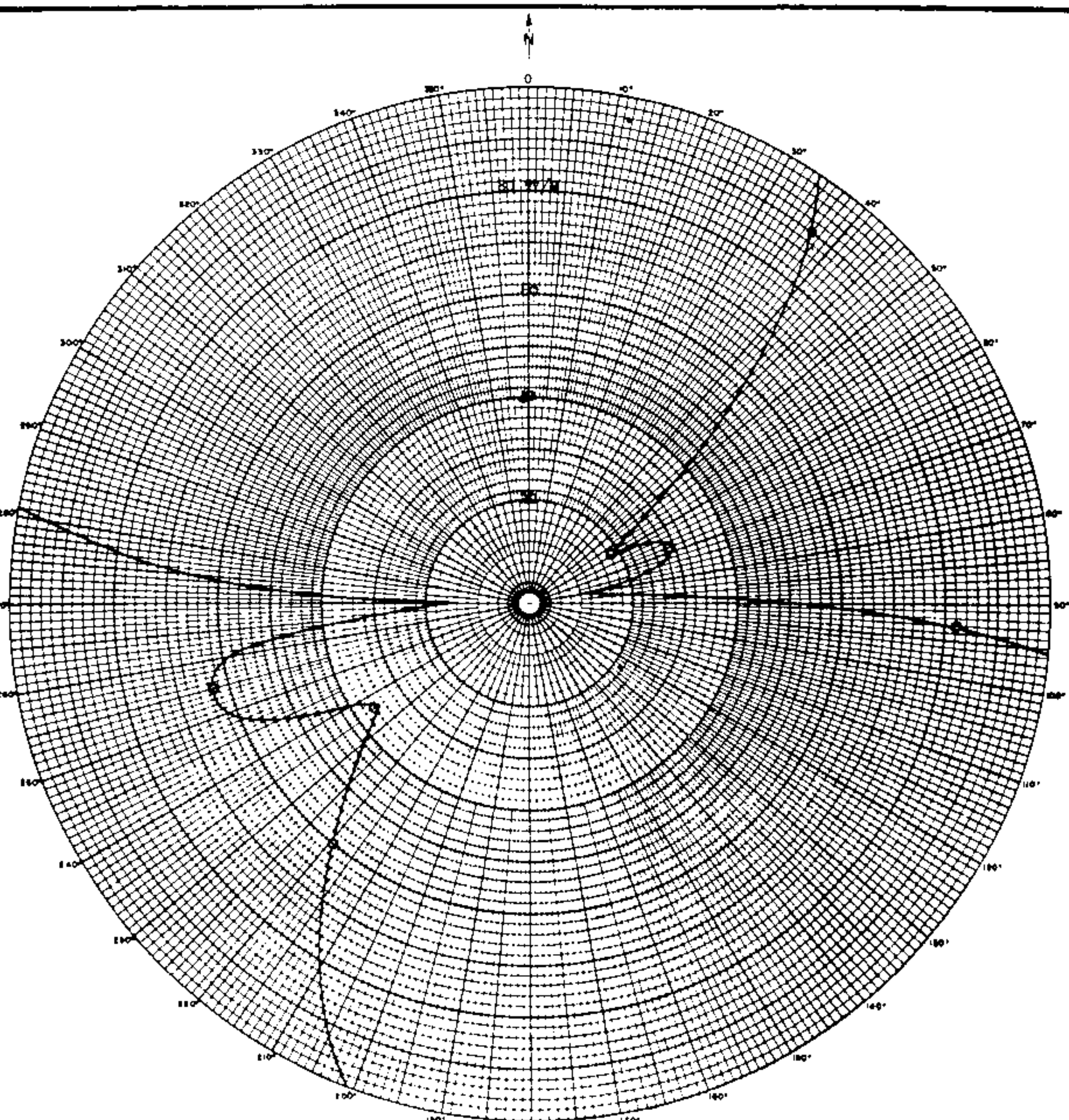


FIGURE 6 - B

EXPANDED VIEW

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

FCC File No. BL-10440
Accepted 3-12-64

Station WHPL
Winchester, Virginia

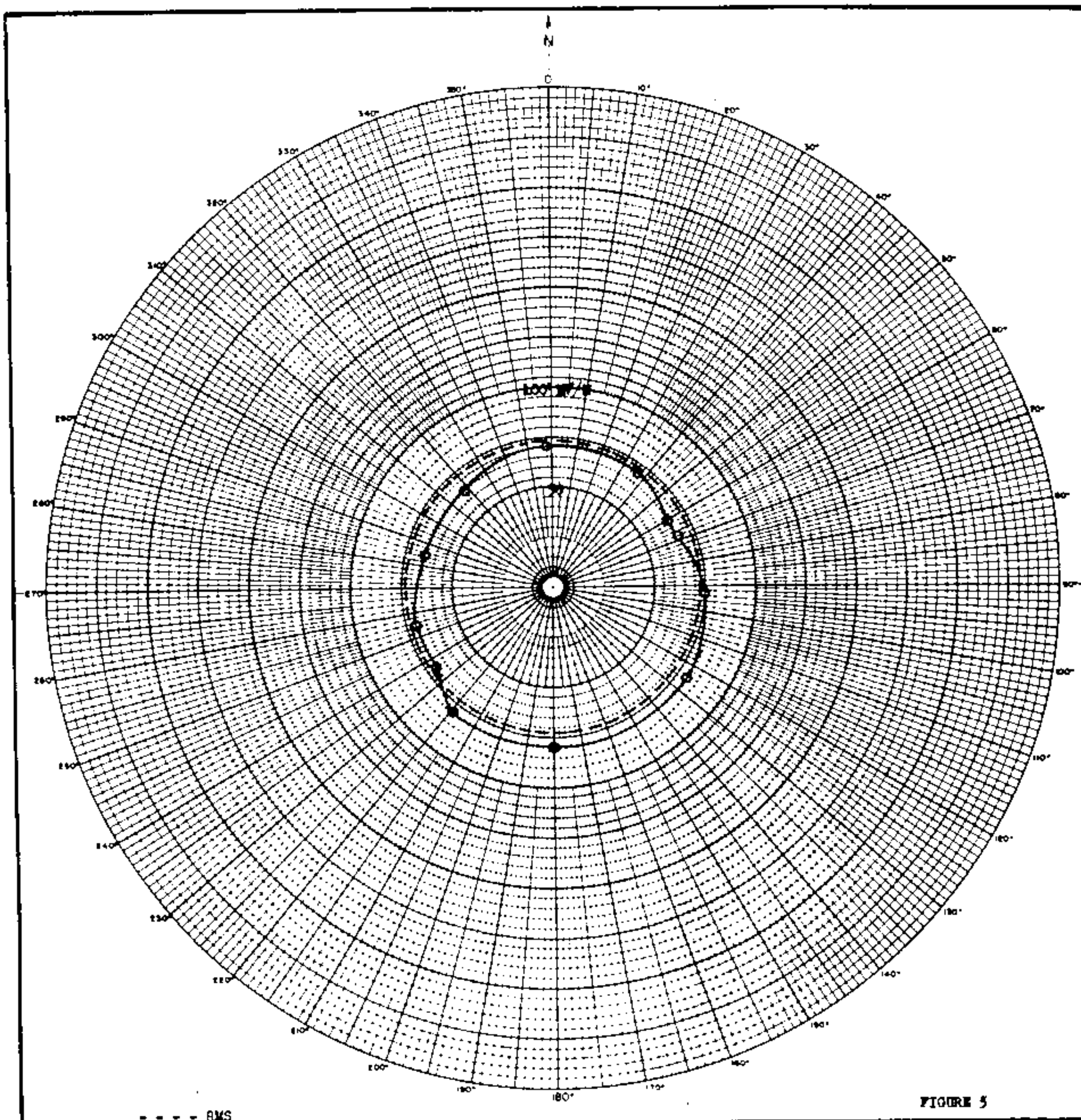
610kc

WHPL

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

Station WHPL
Winchester, Virginia

500w,DA-2,U
610kc



HORIZONTAL RADIATION PATTERN

NON-DIRECTIONAL SURVEY

APPLICANT	WHPL
LOCATION	WINCHESTER, VIRGINIA
FREQUENCY	610 KC/S
POWER	500 WATTS-U, DA-2
LATITUDE	39 DEG 11 MIN 53 SEC.
LONGITUDE	78 DEG 13 MIN 13 SEC.
WHEN USED	NON-DIRECTIONAL
R M S FIELD	73.2 MV/M
DATE	DECEMBER 1963

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

FCC File No. BL-10440
Accepted 3-12-64

Station WHPL
Winchester, Virginia

610kc

WHPL

MEASURED NON-DA
(5-8-61g)

Station WHPL 500w, DA-D,D
Winchester, Virginia 610 KC

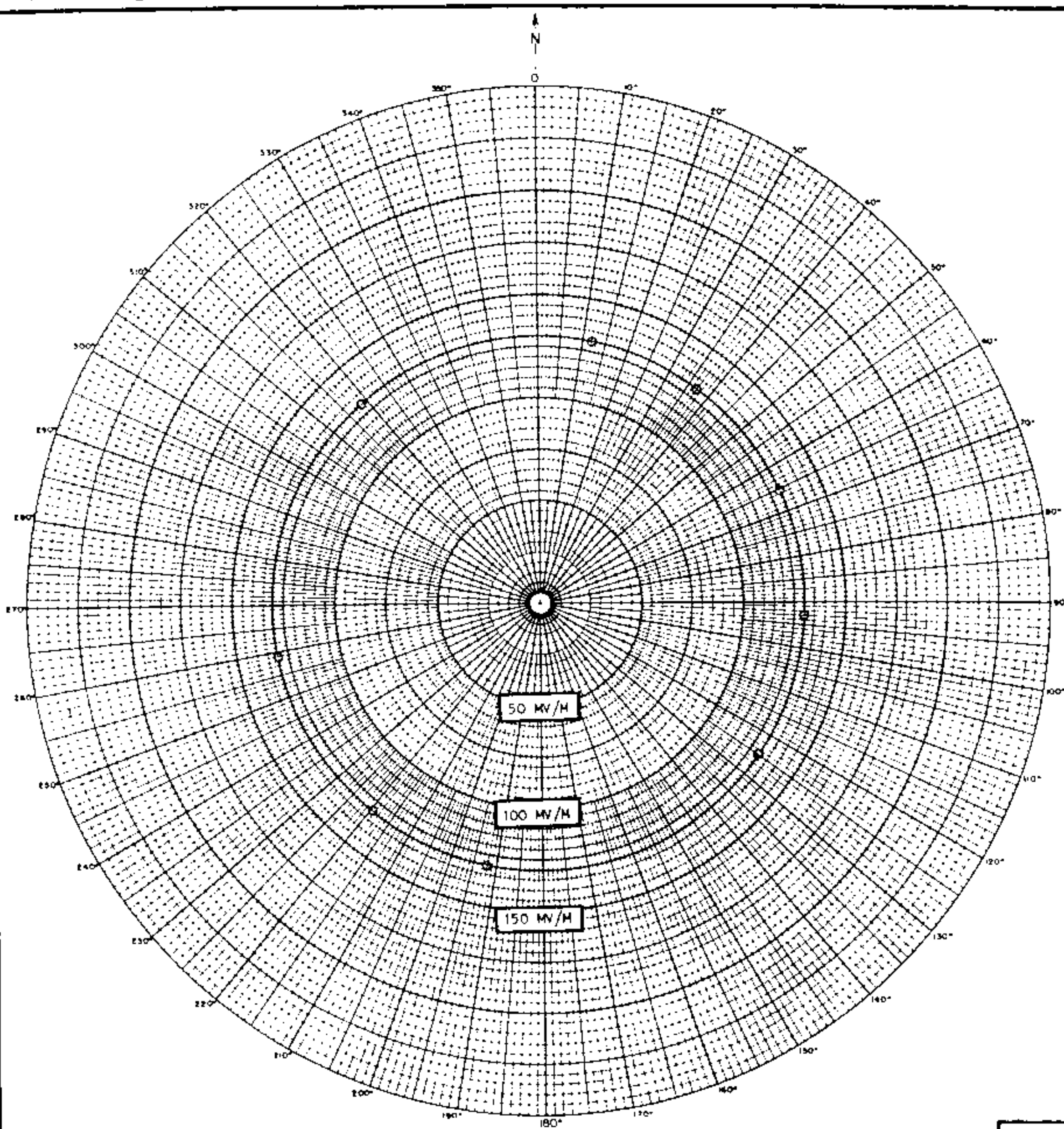


FIGURE 2

HORIZONTAL RADIATION PATTERN

NON-DIRECTIONAL SURVEY

APPLICANT : WHPL
LOCATION : WINCHESTER, VA.
FREQUENCY : 610 KC/S
POWER : 500 W.
LATITUDE : 39 DEG 11 MIN 53 SEC
LONGITUDE : 78 DEG 13 MIN 13 SEC
WHEN USED NON-DIRECTIONAL SURVEY
RMS FIELD 130 MV/M
DATE JANUARY 1961

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

FCC File No. BL-8312
Accepted 4-27-61

WHPL
Winchester, Virginia 610 KC

~~WCKR~~
WIOD

DIRECTIONAL ANTENNA DESCRIPTION SHEET
(Re-issue)

9699

Station: WCKR

Main Studio: Miami, Florida

Frequency: 610kc

Power: 5kw

Notification List No. 570

Date: August 11, 1954 Class: III-A

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 25° 50' 58"

West Longitude: 80° 09' 18"

ANTENNA CHARACTERISTICS

Authorized for Day and Night operation. (DA-2)
Number of elements: Two (2)
Type of elements: Series-fed; NE element is self-supporting, tapered; SW element is uniform cross-section, guyed.

TOWER:	NORTH EAST	SOUTH WEST
HEIGHT ABOVE INSULATORS:	300'	300' (67°)
SPACING:	336' or 75° between adjacent towers	
NIGHT PHASING:	0°	105°
NIGHT FIELD RATIO:	1.0	0.286
DAY PHASING:	0°	180°
DAY FIELD RATIO:	1.0	0.75
ORIENTATION:	Elements on a line bearing 35° true.	
GROUND SYSTEM:	120-350' equally spaced radials plus a 30' square ground screen about each tower base.	

Predicted effective Night Field: 435 mv/m (at rated power)

Predicted effective Day Field: 392 mv/m (at rated power)

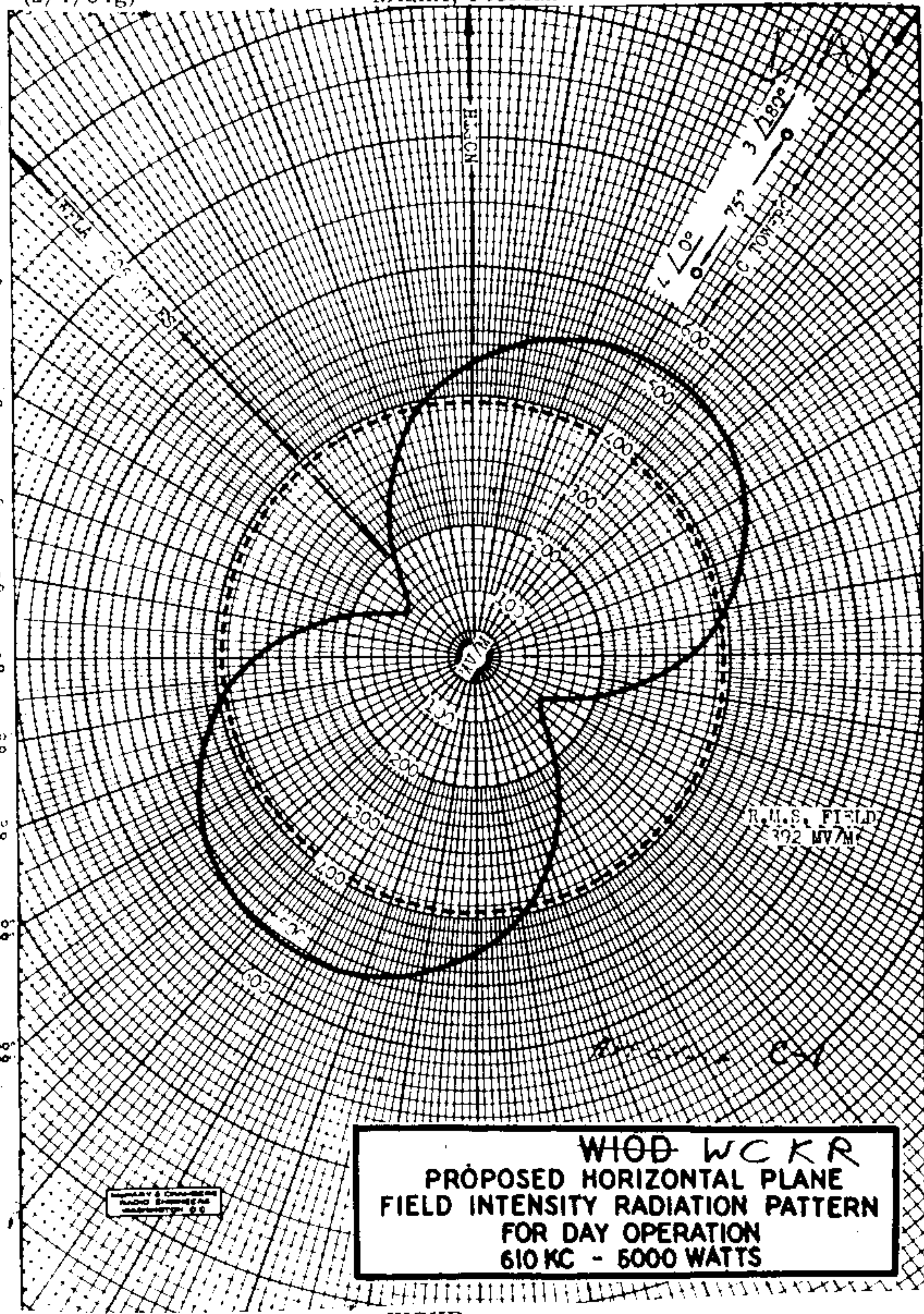
Note: This notification cancels the WIOD notification in U. S. Change List No. 470 dated September 5, 1952 and reinstates the notification in Change List No. 345 dated December 30, 1949 which in turn reinstated the original 1941 notification.

~~WCKR~~ WIOD

PROPOSED DAY (2/7/57g)

Station WCKR Miami, Florida

5KW, DA-2, U 610KC



~~WIOD~~ WCKR
PROPOSED HORIZONTAL PLANE
FIELD INTENSITY RADIATION PATTERN
FOR DAY OPERATION
610 KC - 5000 WATTS

FCC File No. BP-2476

WCKR. Miami, Florida

610KC

WIOD

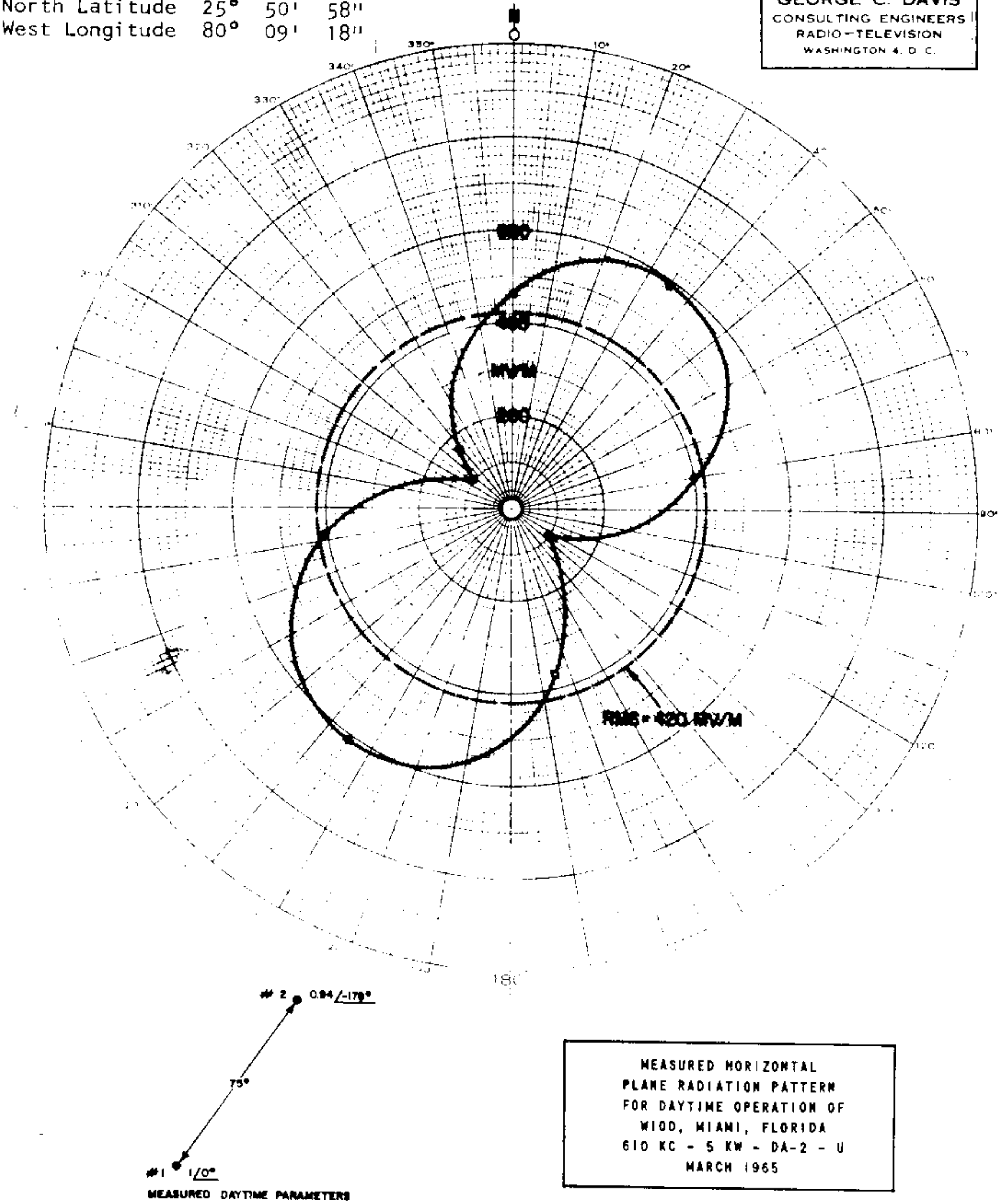
Measured Day
(3-28-69ct)

North Latitude 25° 50' 58"
West Longitude 80° 09' 18"

Station WIOD
Miami, Florida

5kw,DA-2,U
610 kc

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



MEASURED HORIZONTAL
PLANE RADIATION PATTERN
FOR DAYTIME OPERATION OF
WIOD, MIAMI, FLORIDA
610 KC - 5 KW - DA-2 - U
MARCH 1965

FCC File No.BS-432
Accepted

Station WIOD
Miami, Florida

610 kc

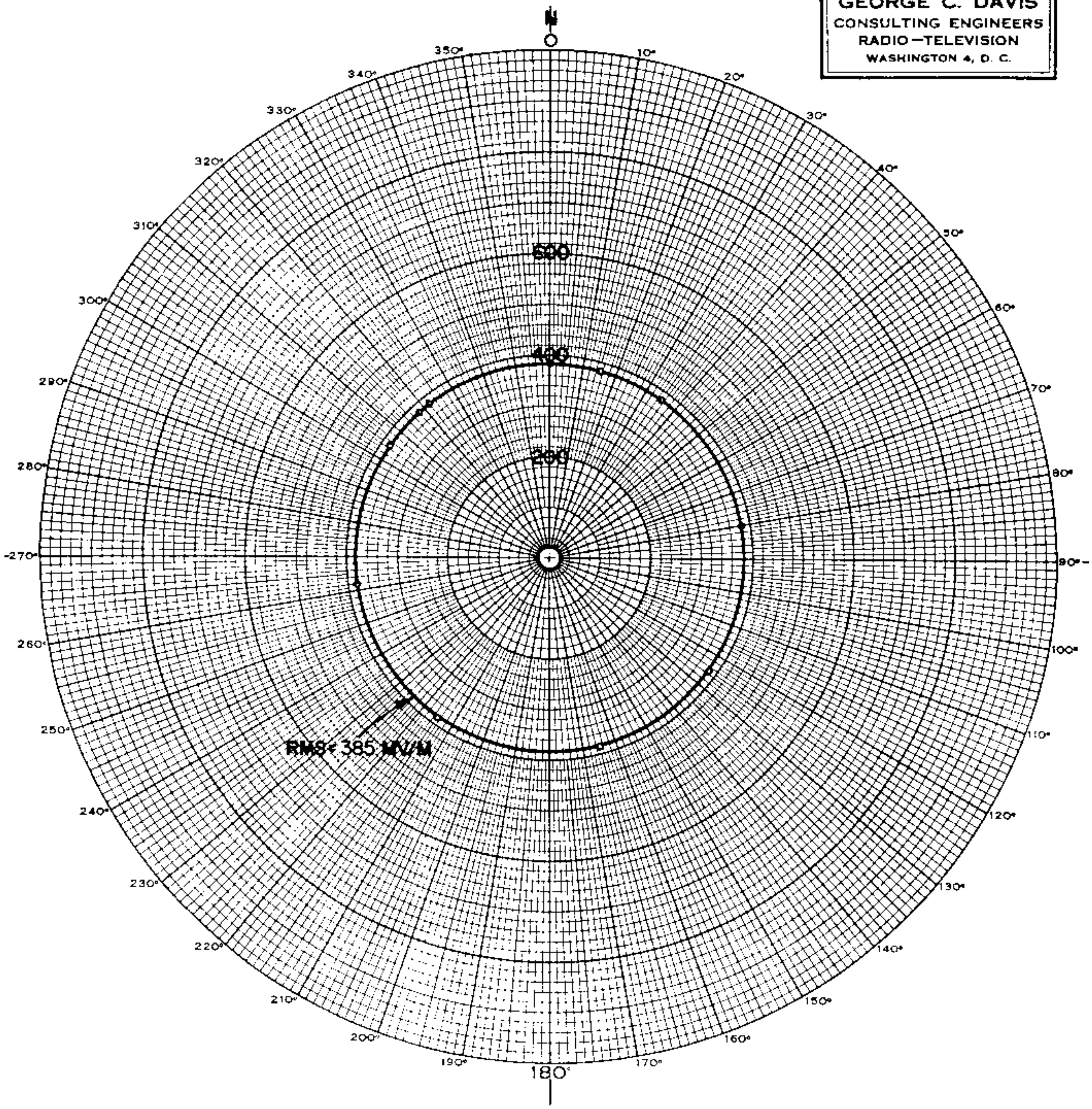
WIOD

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

Station WIOD
Miami, Florida

5kw,DA-2,U
610 kc

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



NON-DIRECTIONAL
INVERSE FIELD INTENSITY
AT ONE MILE
WITH REDUCED POWER
WIOD, MIAMI, FLORIDA
610 KC - 5 KW - DA-2 - U
MARCH 1965

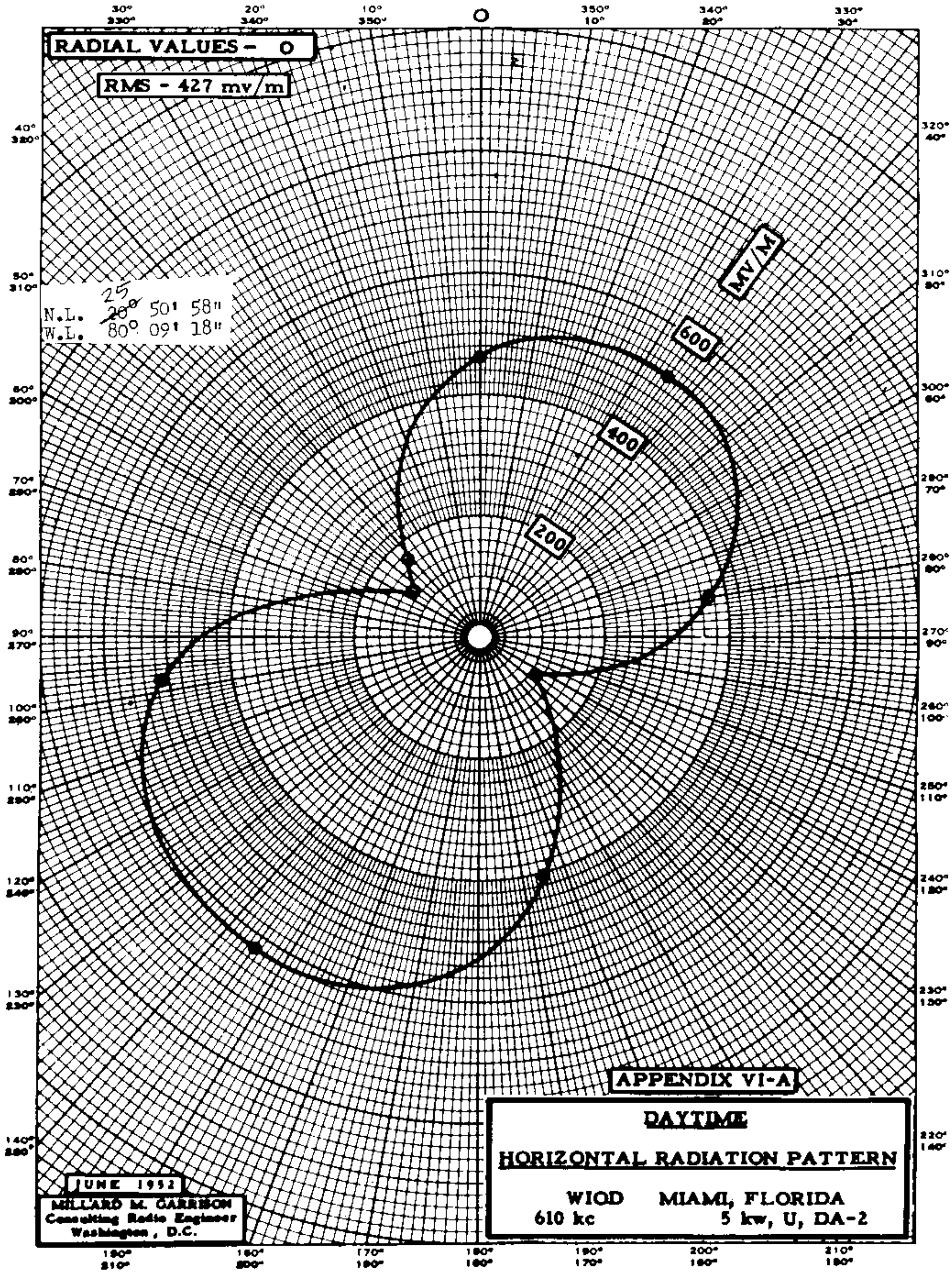
FCC File No.BS-432
Accepted

Station WIOD
Miami, Florida

610 kc

~~WGPT~~ WIOD

MEASURED DAY   WIOD, MIAMI, FLA.   5 KW, U, DA-2   610 KC
9/17/52G



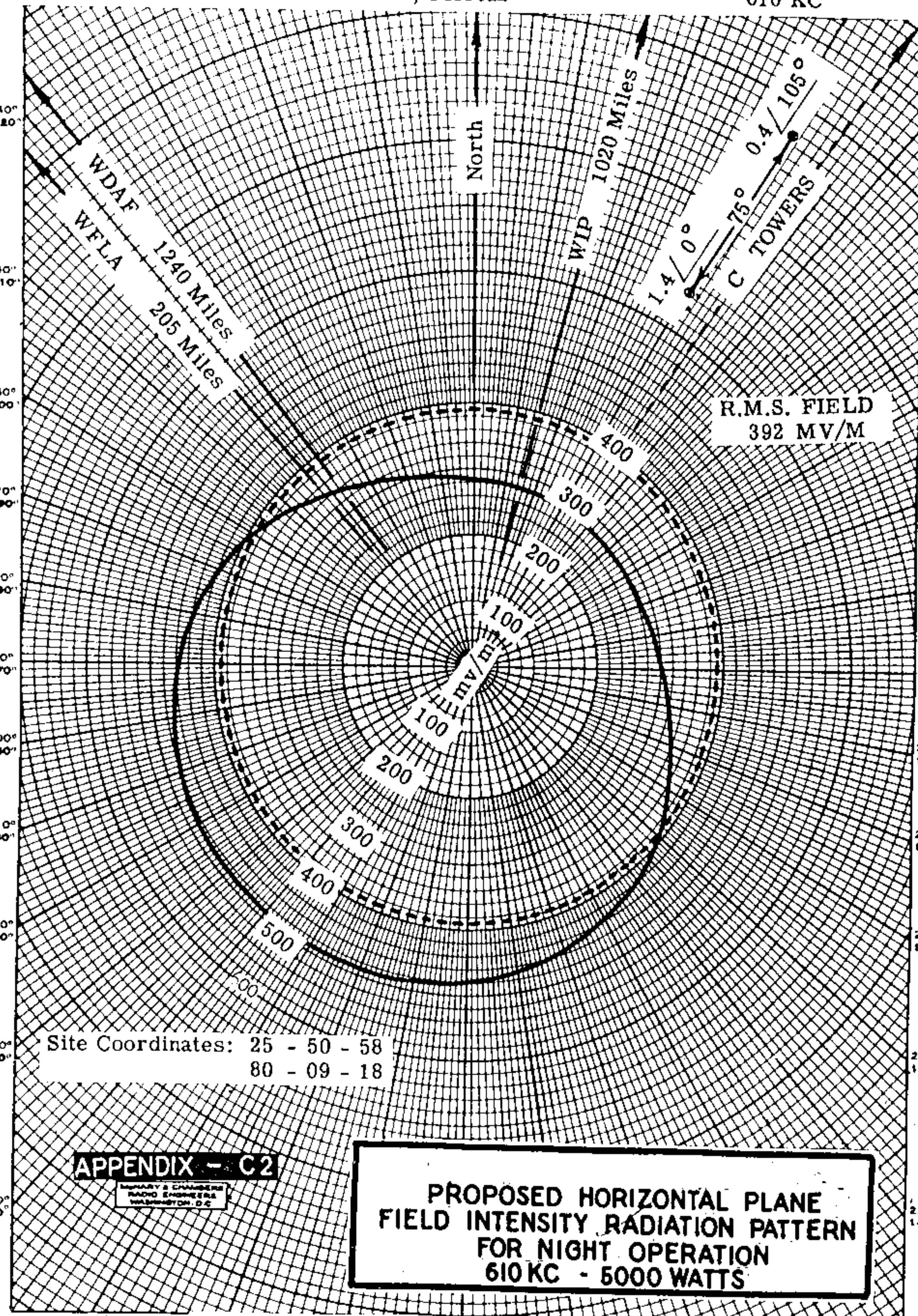
APPL RECD 7/1/52 ACC 8/25/52 BZ-3416   WIOD, MIAMI, FLA.   610 KC

~~WCKR~~ W10D

PROPOSED NIGHT
(2/7/57g)

Station
Miami, Florida

5KW, DA-2,U
610 KC

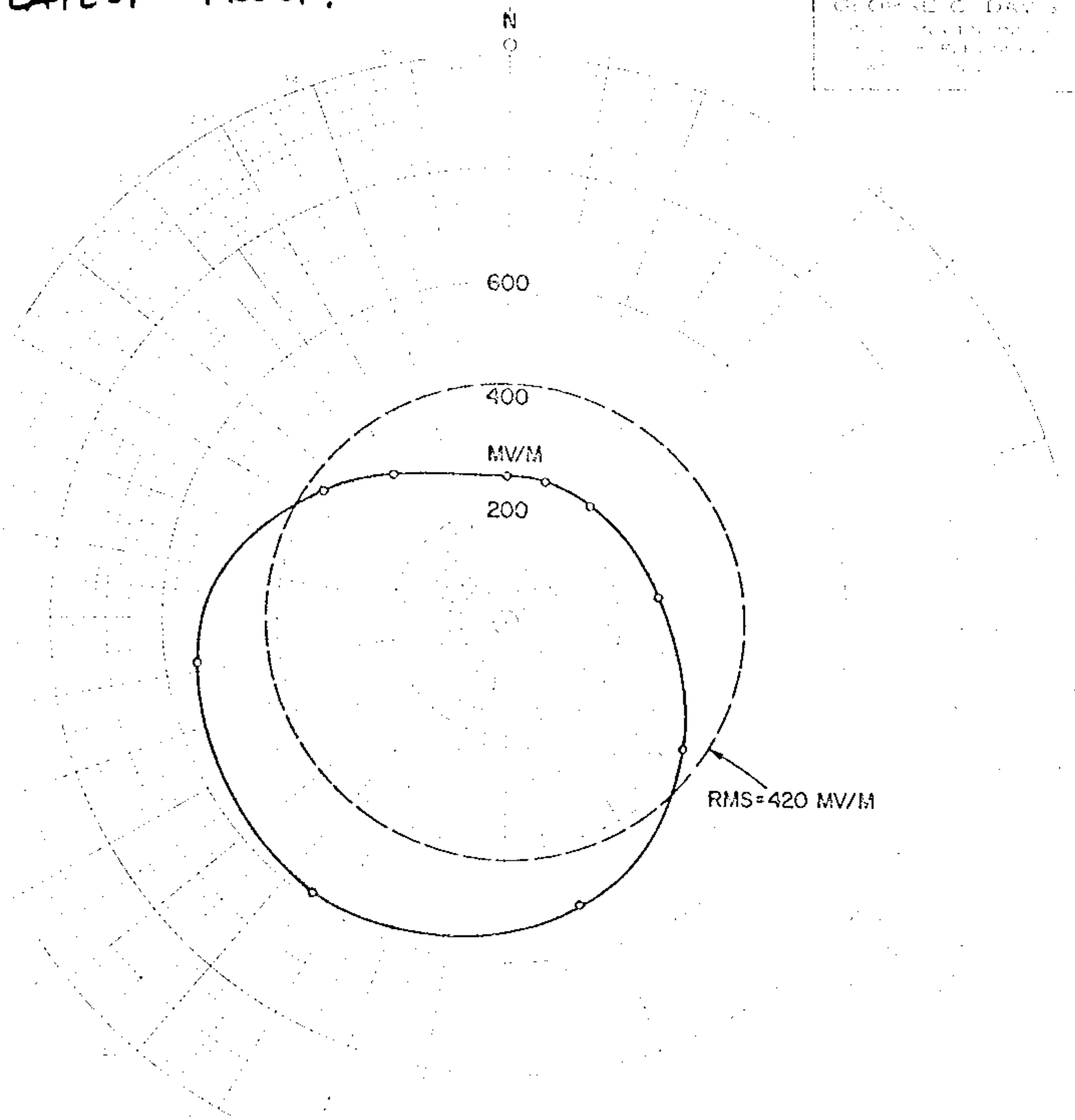


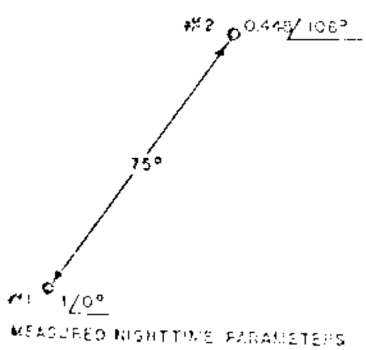
WCKR
Miami, Florida

610 KC

NOT FURNISHED BY COOPER TRENT
LATEST PROOF.

WIOD





MEASURED HORIZONTAL
PLANE RADIATION PATTERN
FOR NIGHTTIME OPERATION OF
WIOD, MIAMI, FLORIDA
610 KC - 5 KW - DA-2 - U
MARCH 1965

WIOD

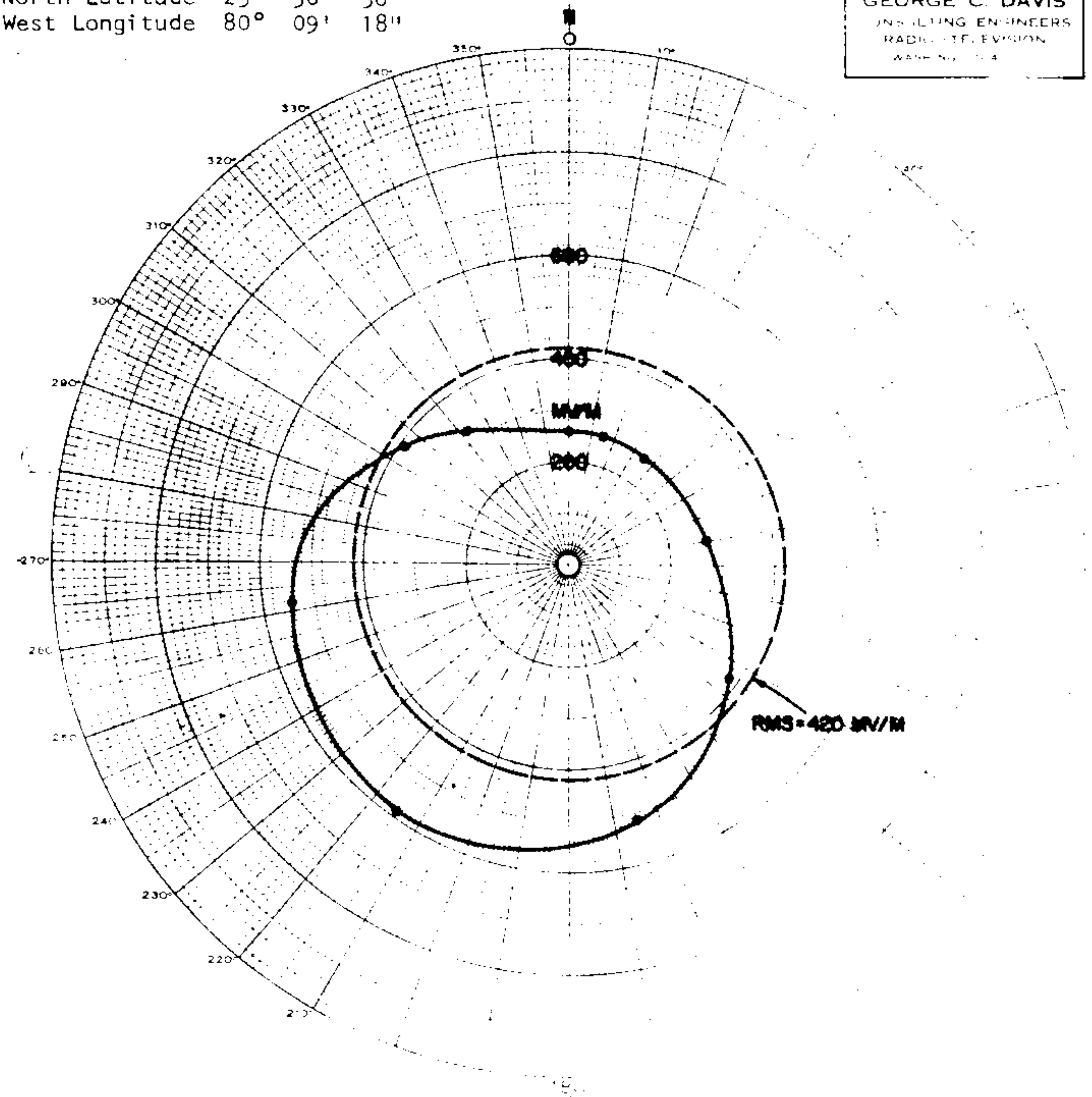
Measured Night
(3-28-69ct)

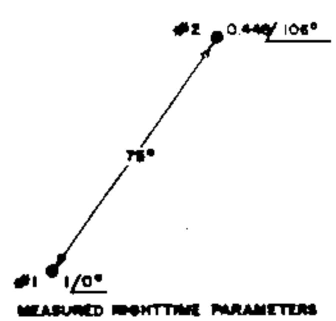
North Latitude 25° 50' 58"
West Longitude 80° 09' 18"

Station WIOD
Miami, Florida

5kw, DA-2, U
610 kc

GEORGE C. DAVIS
CONSULTING ENGINEERS
RADIO - TELEVISION
WASH. D.C.





MEASURED HORIZONTAL
PLANE RADIATION PATTERN
FOR NIGHTTIME OPERATION OF
WIOD, MIAMI, FLORIDA
610 KC - 5 KW - DA-2 - U
MARCH 1965

FCC File No. BS-432
Accepted

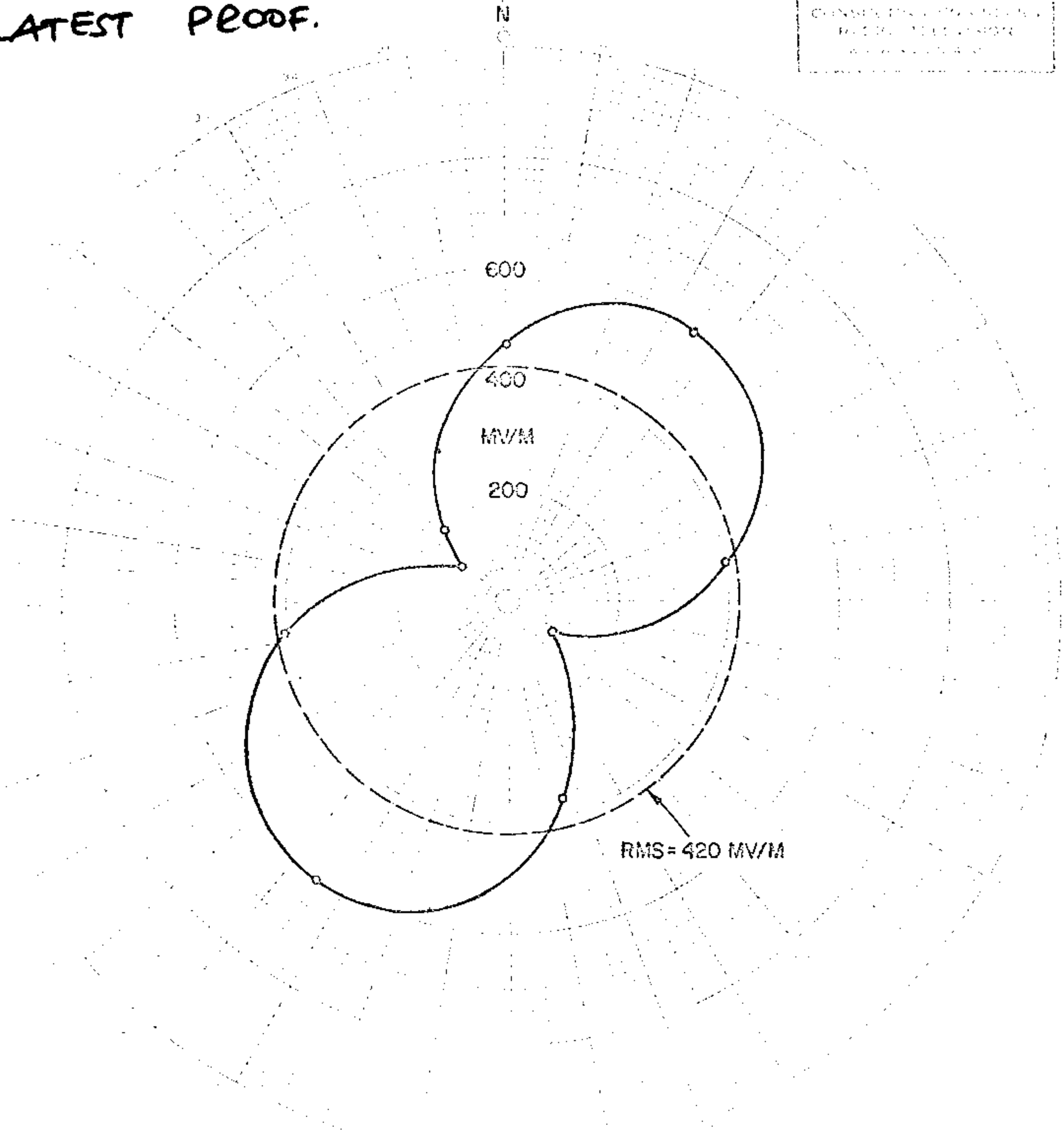
Station WIOD
Miami, Florida

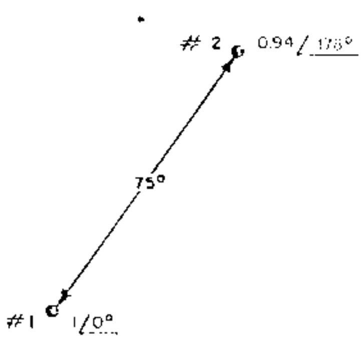
610 kc

NOT FURNISHED BY COOPER TRENT

LATEST PROOF.

GEORGE C. DAVIS



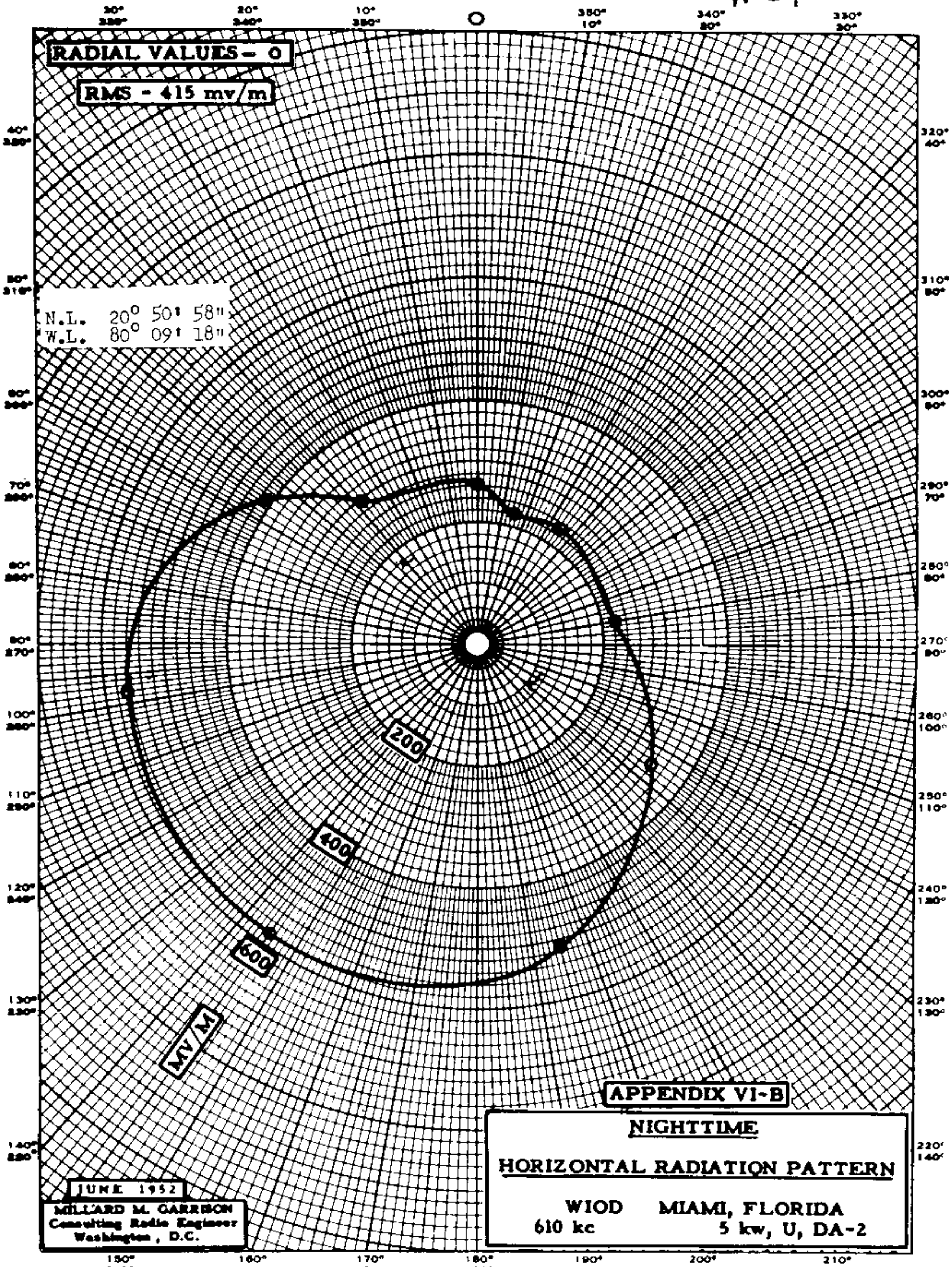


MEASURED DAYTIME PARAMETERS

MEASURED HORIZONTAL
PLANE RADIATION PATTERN
FOR DAYTIME OPERATION OF
WIOD, MIAMI, FLORIDA
610 KC - 5 KW - DA-2 - U
MARCH 1965

~~WIOD~~ WIOD

MEASURED ~~WIOD~~, MIAMI, FLA. 5 KW, U, DA-2 ~~610 KC~~
NIGHT 9/17/52G ~~WCKF~~



APPL RECD 7/1/52 ACC 8/25/52 BZ-3416 WIOD, MIAMI, FLA. 610 KC

WIP

Measured Day & Night
(4-29-69ct)

Station WIP
Philadelphia, Pennsylvania

5kw,DA-1,U
610 kc

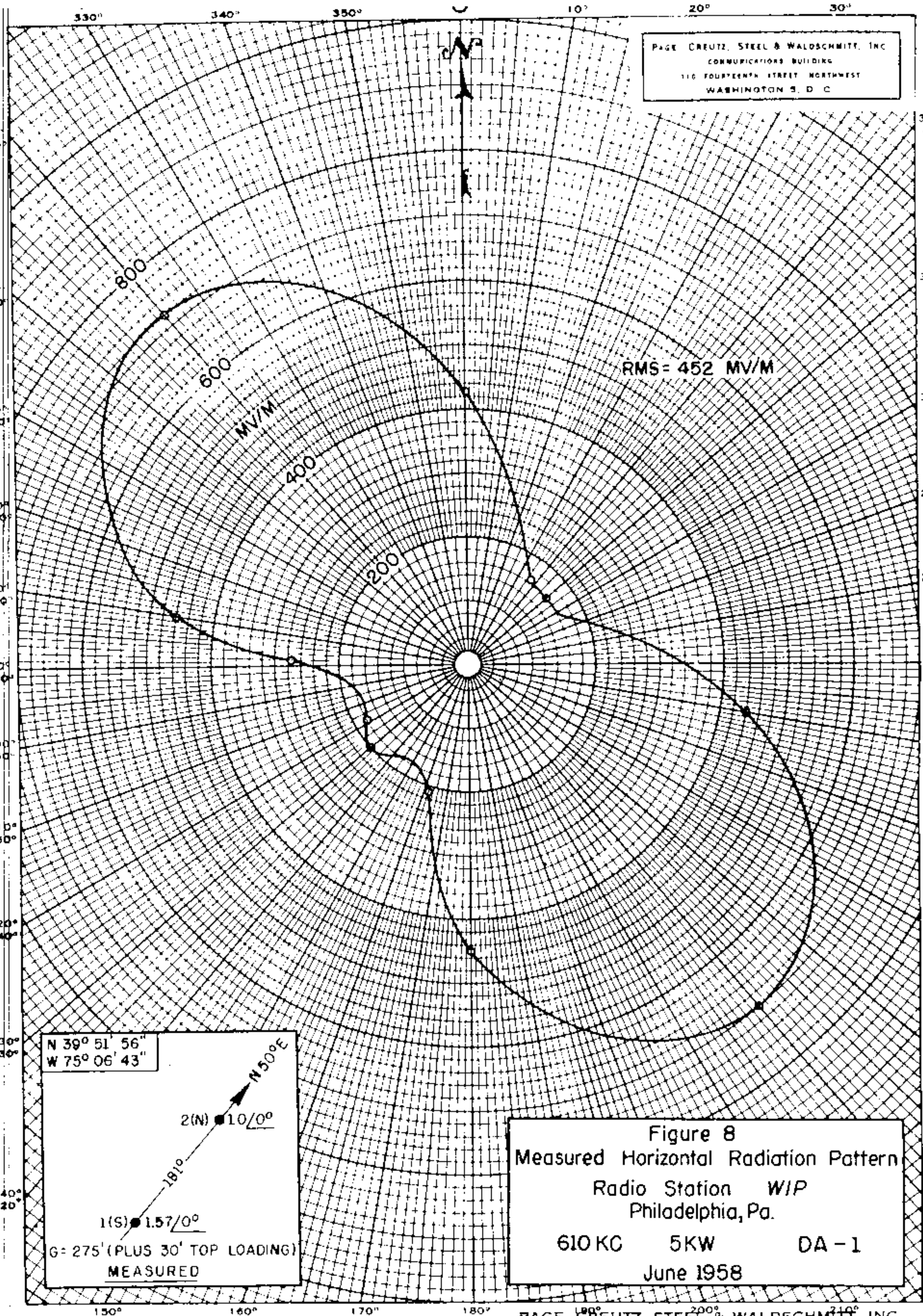
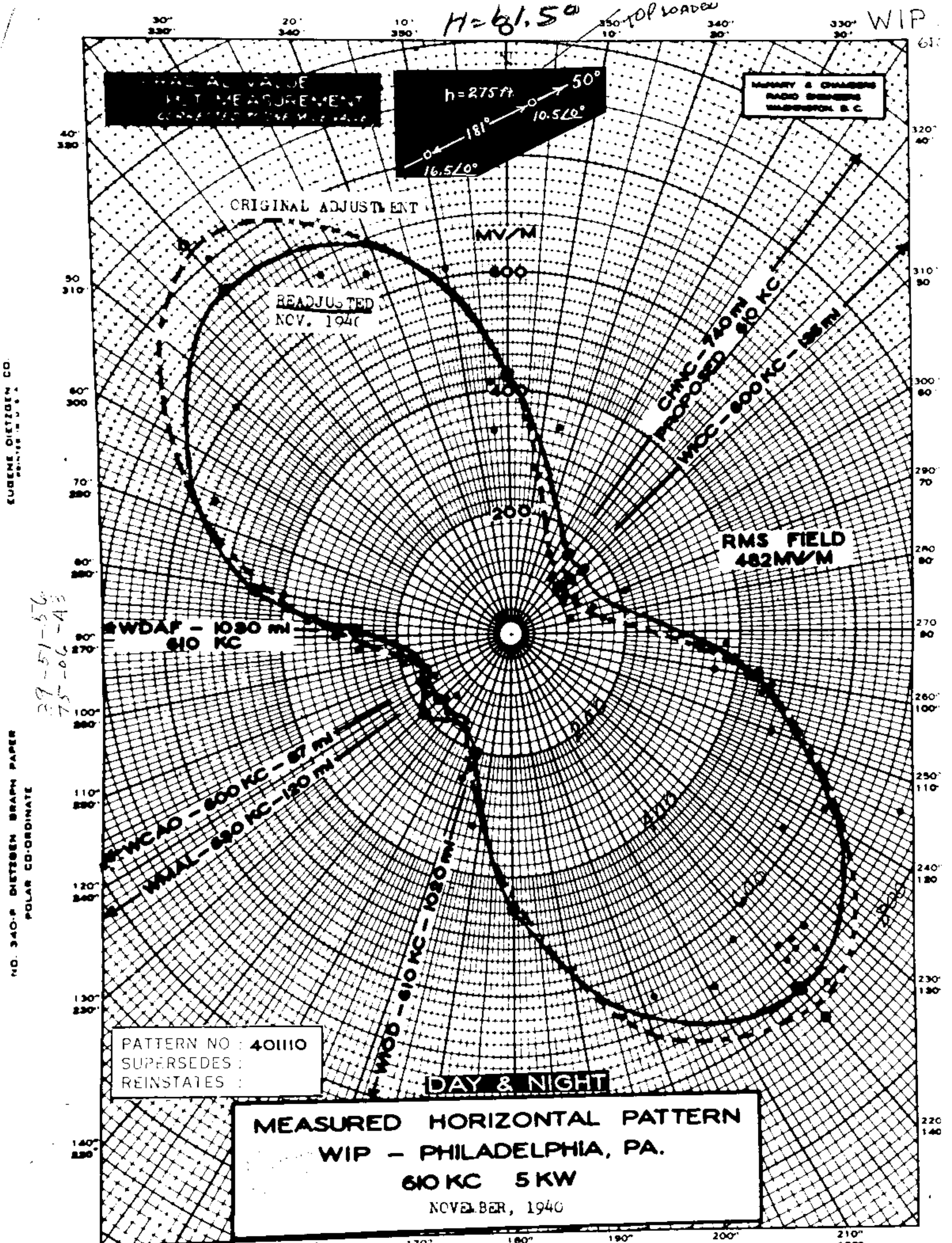


Figure 8
Measured Horizontal Radiation Pattern
Radio Station WIP
Philadelphia, Pa.
610 KC 5KW DA-1
June 1958

FCC File BRC-1319
Granted 6-17-59

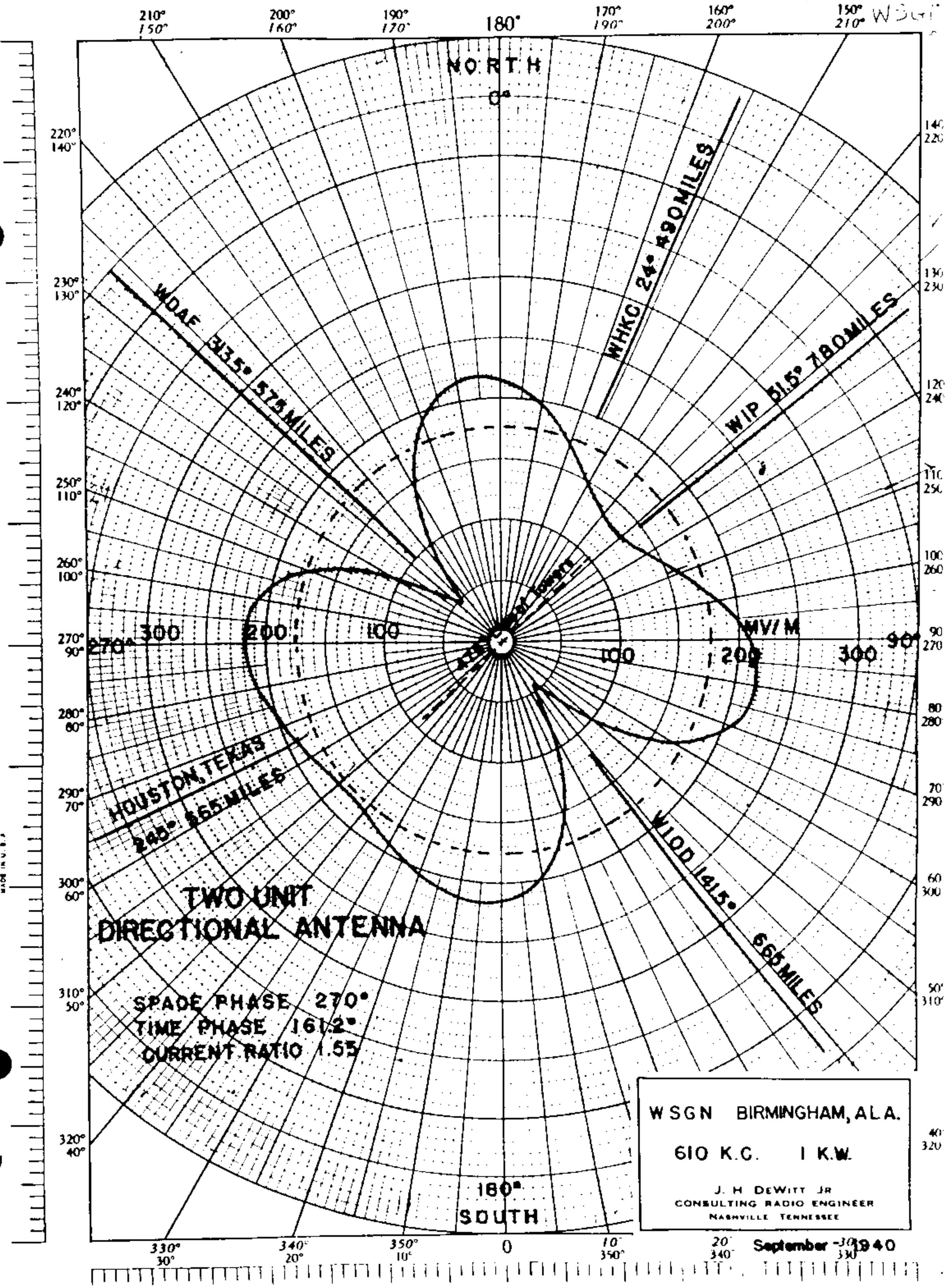
Station WIP
Philadelphia, Pennsylvania

610 kc

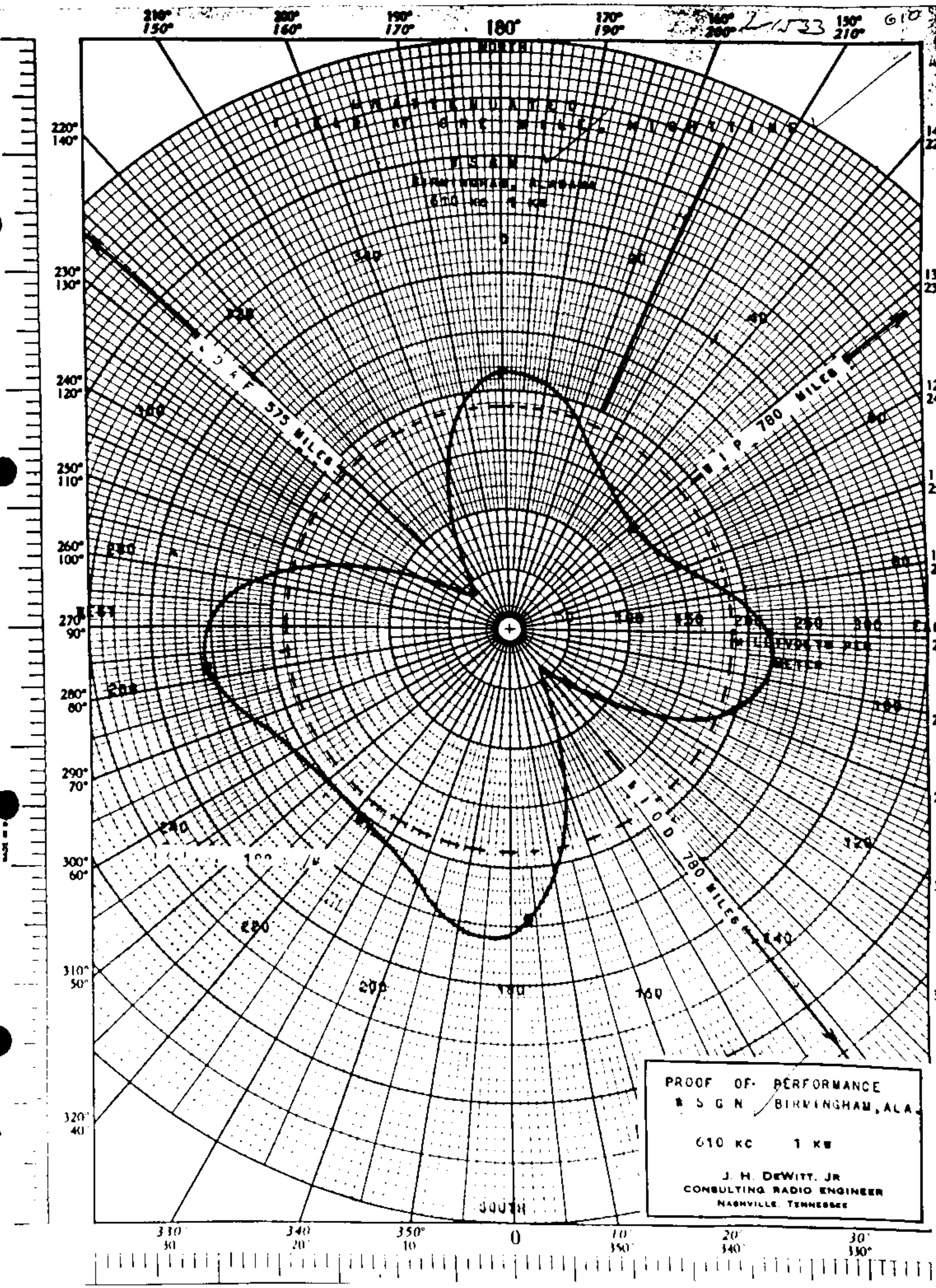


H=61.5°
TOP LOADED
WIP
h=275 ft.
50°
10.5∠0°
181°
16.5∠0°
McNARY & CHAMBERS
RADIO ENGINEERS
WASHINGTON, D. C.
ORIGINAL ADJUSTMENT
READJUSTED
NOV. 1940
MV/M
600
400
200
CHNC – 740 MI
PROPOSED 610 KC
WICC – 600 KC – 135 MI
RMS FIELD
482 MV/M
WDAF – 1030 MI
610 KC
WCAO – 600 KC – 87 MI
WMAL – 630 KC – 120 MI
WOOD – 610 KC – 1080 MI
PATTERN NO: 40III0
SUPERSEDES:
REINSTATES:
DAY & NIGHT
MEASURED HORIZONTAL PATTERN
WIP – PHILADELPHIA, PA.
610 KC 5 KW
NOVEMBER, 1940
39-51-56
75-06-43
EUGENE DIETZGEN CO.
NO. 340-P DIETZGEN GRAPH PAPER
POLAR CO-ORDINATE

Proposed night



WSGN



2-1533
610

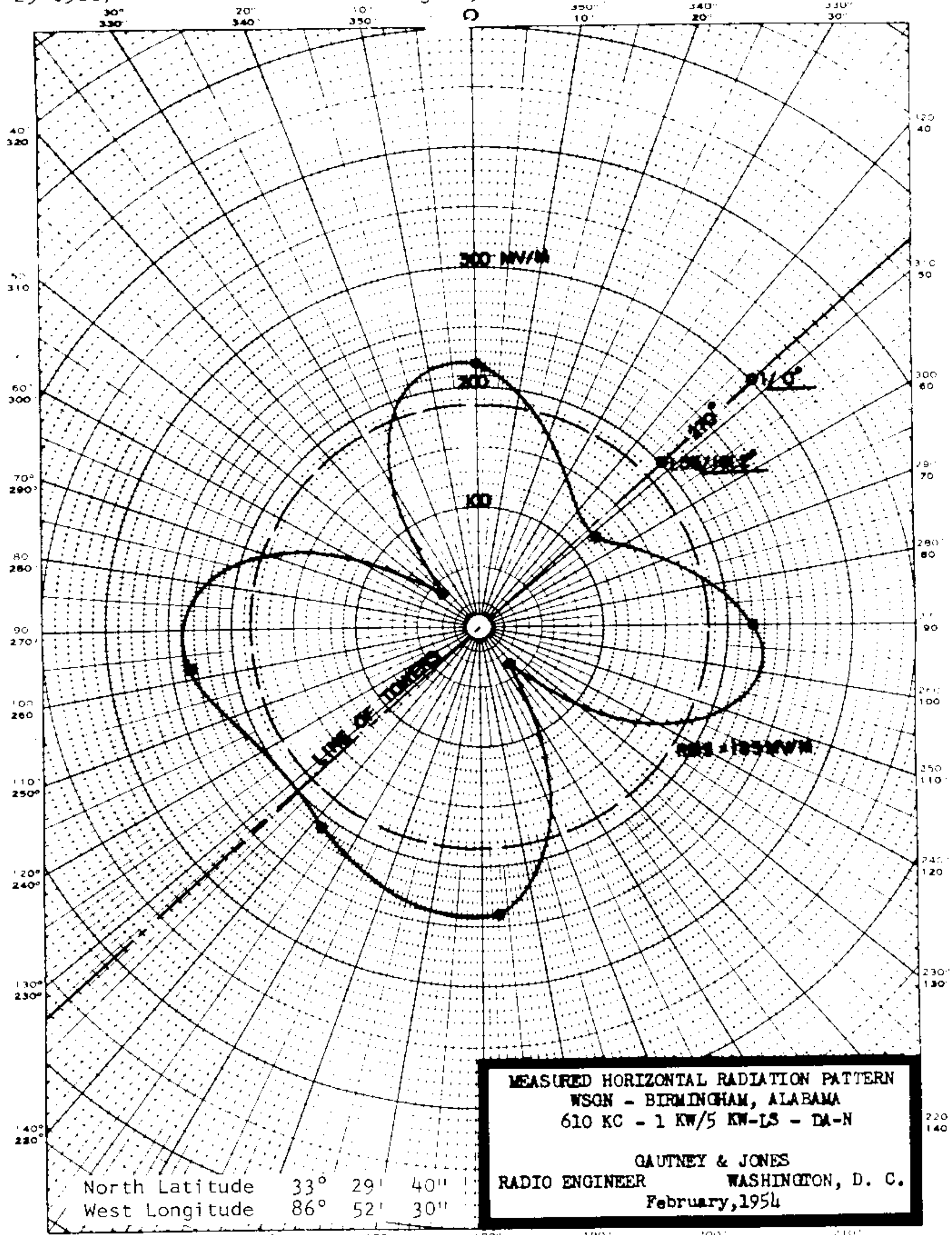
measured night

WSGN

Measured Night
(4-29-69ct)

Station WSGN
Birmingham, Alabama

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



MEASURED HORIZONTAL RADIATION PATTERN
WSGN - BIRMINGHAM, ALABAMA
610 KC - 1 KW/5 KW-LS - DA-N

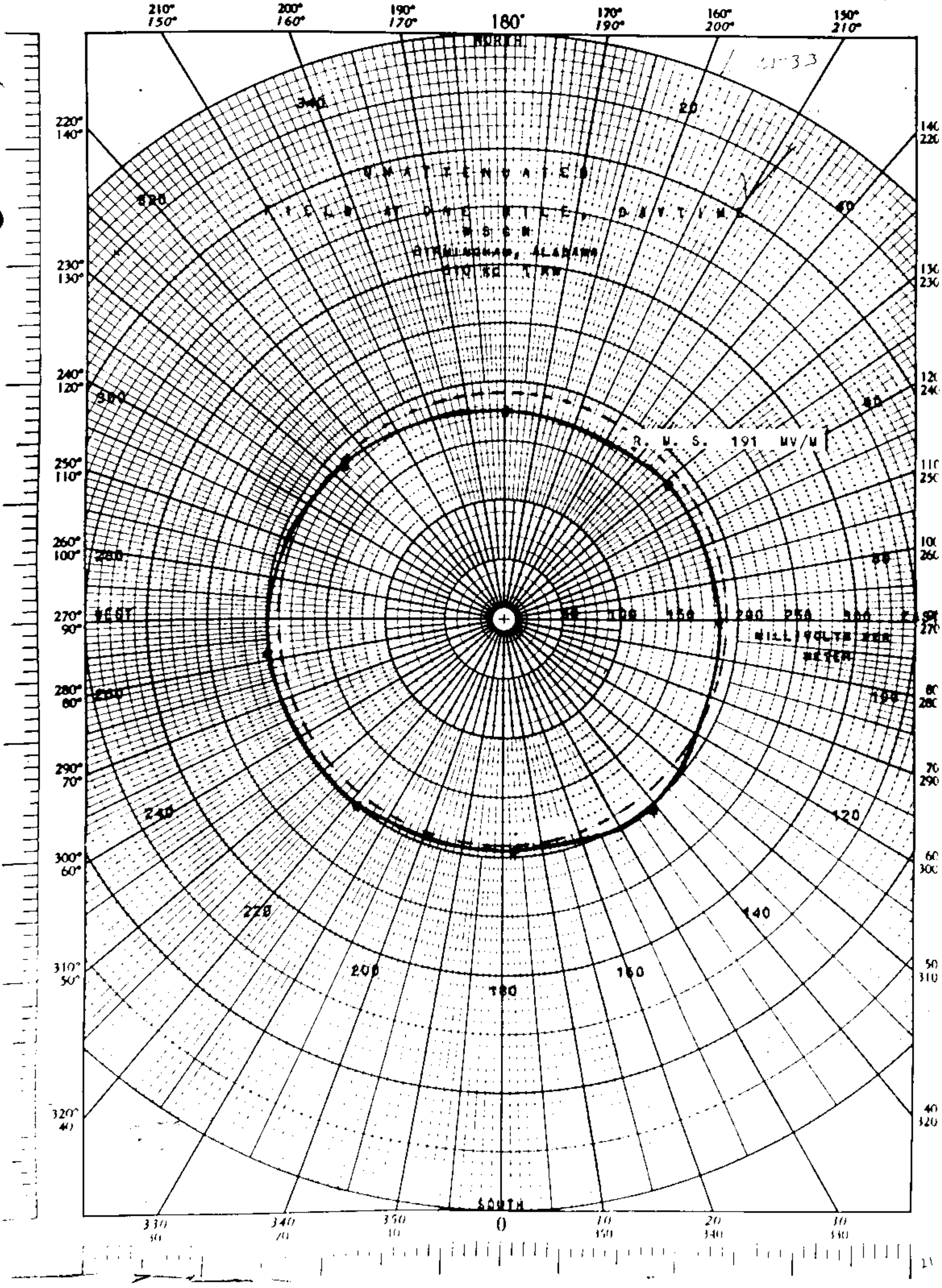
GAUTNEY & JONES
RADIO ENGINEER WASHINGTON, D. C.
February,1954

FCC File No.BZ-3497
Granted 4-29-54

Station WSGN
Birmingham, Alabama

610 kc

WSGN- 610 KC



Measured Nov- UA

21

WSLC

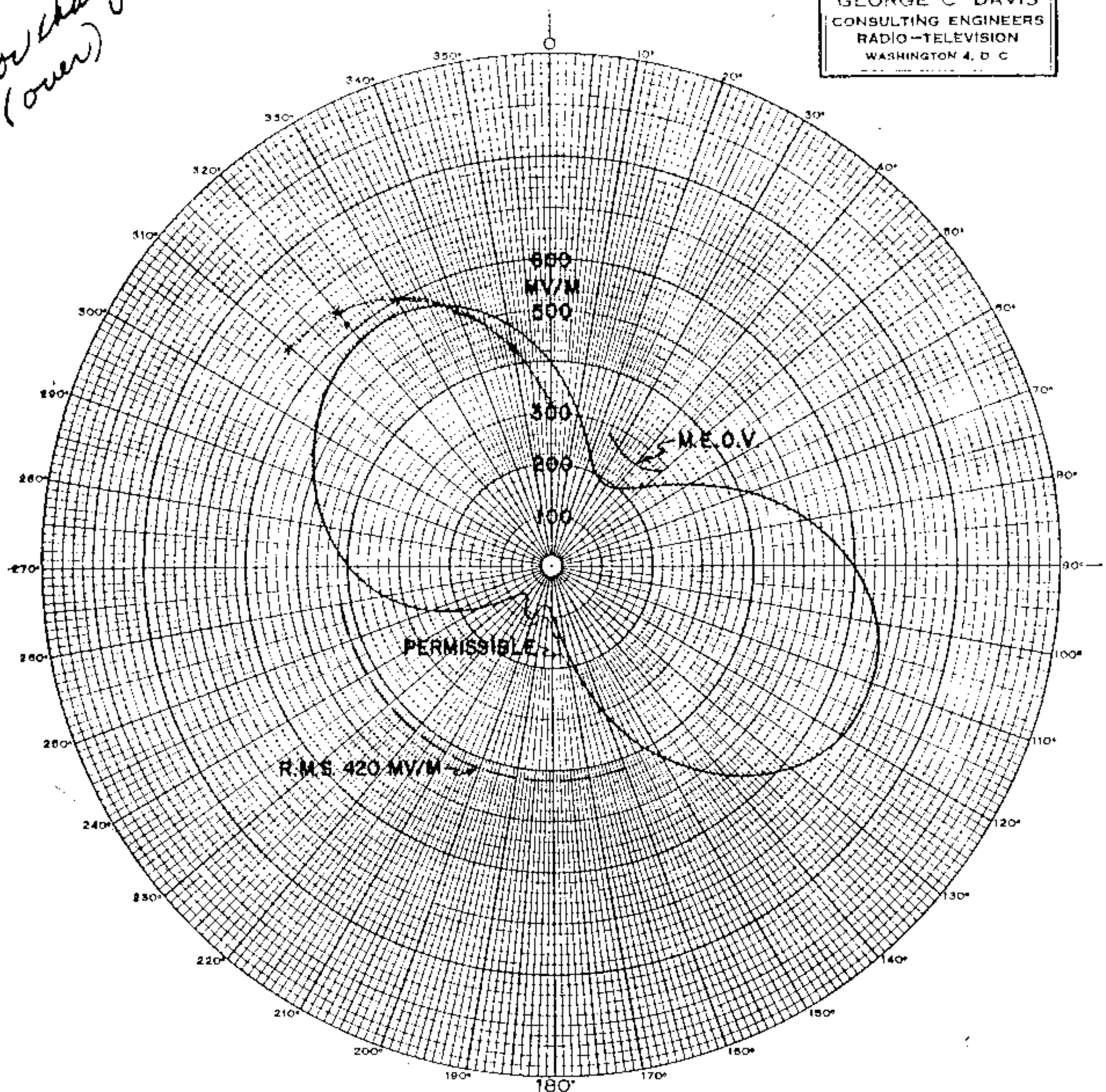
PROPOSED DAY
(1-8-59g)

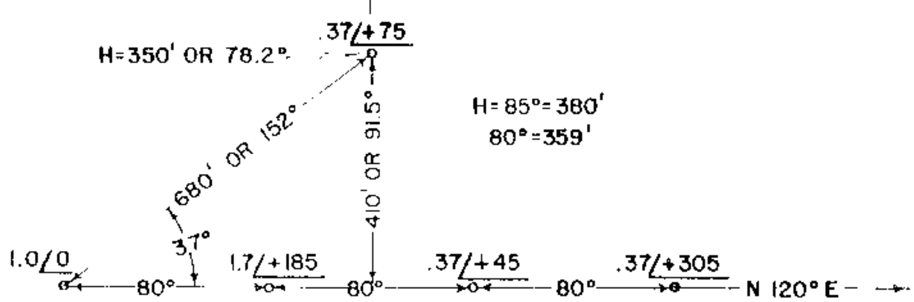
12-7-60
granted CP for changes
in day DA (over)

Station WSLS
Roanoke, Virginia

1kw, 5kw-LS, DA
610 KC

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





NORTH LAT. 37° 18' 11"
WEST LONG. 80° 07' 33"

COMPUTED DAYTIME
HORIZONTAL PLANE RADIATION PATTERN
FOR PROPOSED OPERATION OF
WSLS ROANOKE, VIRGINIA
610 KC. 1-5 KW. DA-2
OCTOBER 1958

FCC File No. BP-12610
Accepted 12-12-58

WSLS
Roanoke, Virginia

610 KC

WSLC

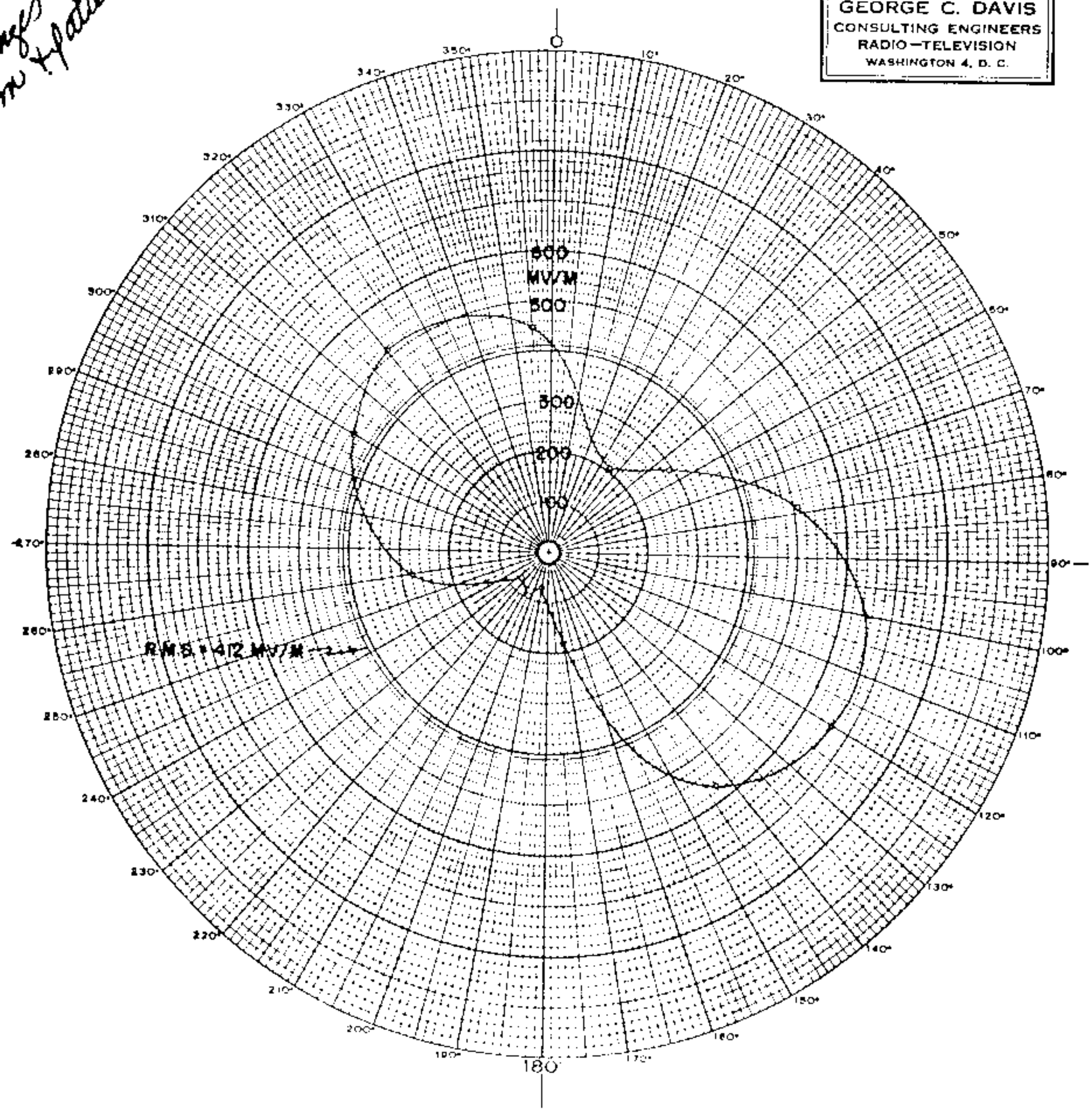
Measured Day
(6-22-62ct)

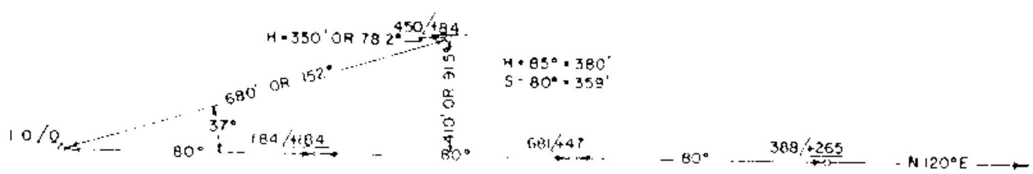
Station WSLS
Roanoke, Virginia

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

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

2/27/62 wanted L for changes
L day DA system + pattern.





NORTH LAT. 37° 18' 11"
WEST LONG. 80° 02' 33"

MEASURED DAYTIME
HORIZONTAL PLANE RADIATION PATTERN
FOR DAYTIME OPERATION OF
WSLS, ROANOKE, VIRGINIA
610 KC, 1-5 KW, DA-2
APRIL 1962

FCC File No. BL-9357
Accepted 6-15-62

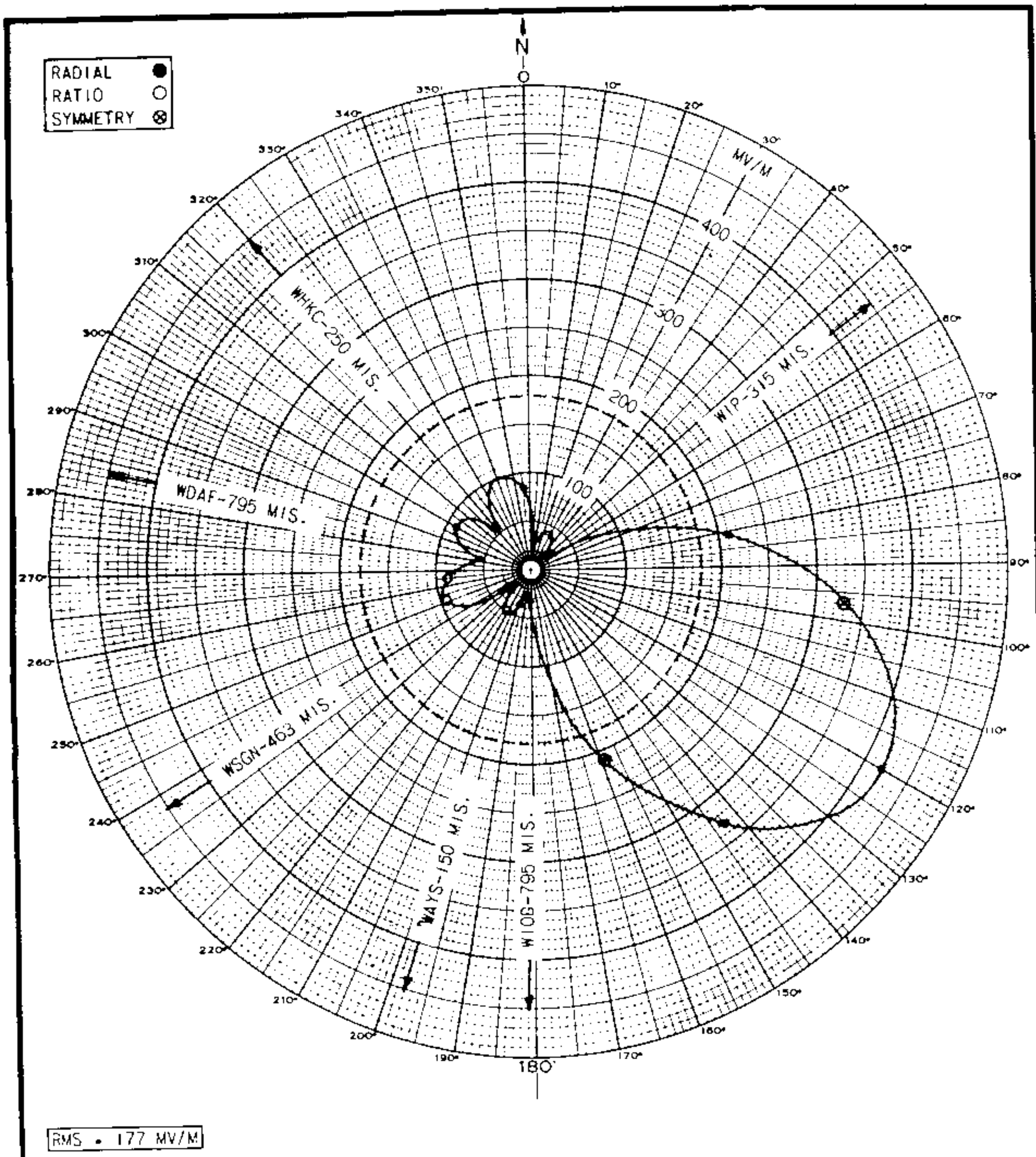
Station WSLS
Roanoke, Virginia

610 kc

WSLC

9/14/48

September 2, 1948



PATTERN NO. 480831NP
LATITUDE: 37° 18' 11"
LONGITUDE: 80° 02' 33"

ROTHROCK & BAIREY
Consulting Radio Engineers
WASHINGTON, D. C.

Exhibit No. 12

STATION WSLS
ROANOKE, VIRGINIA

610KC - 1KW - DA-2

MEASURED NIGHTTIME PATTERN

Prop. Night Nulls

WSLC

PATTERN No.: 471003
SUPERSEDES:

WSLS - 610KC

Rec'd 12-3-47

P3159

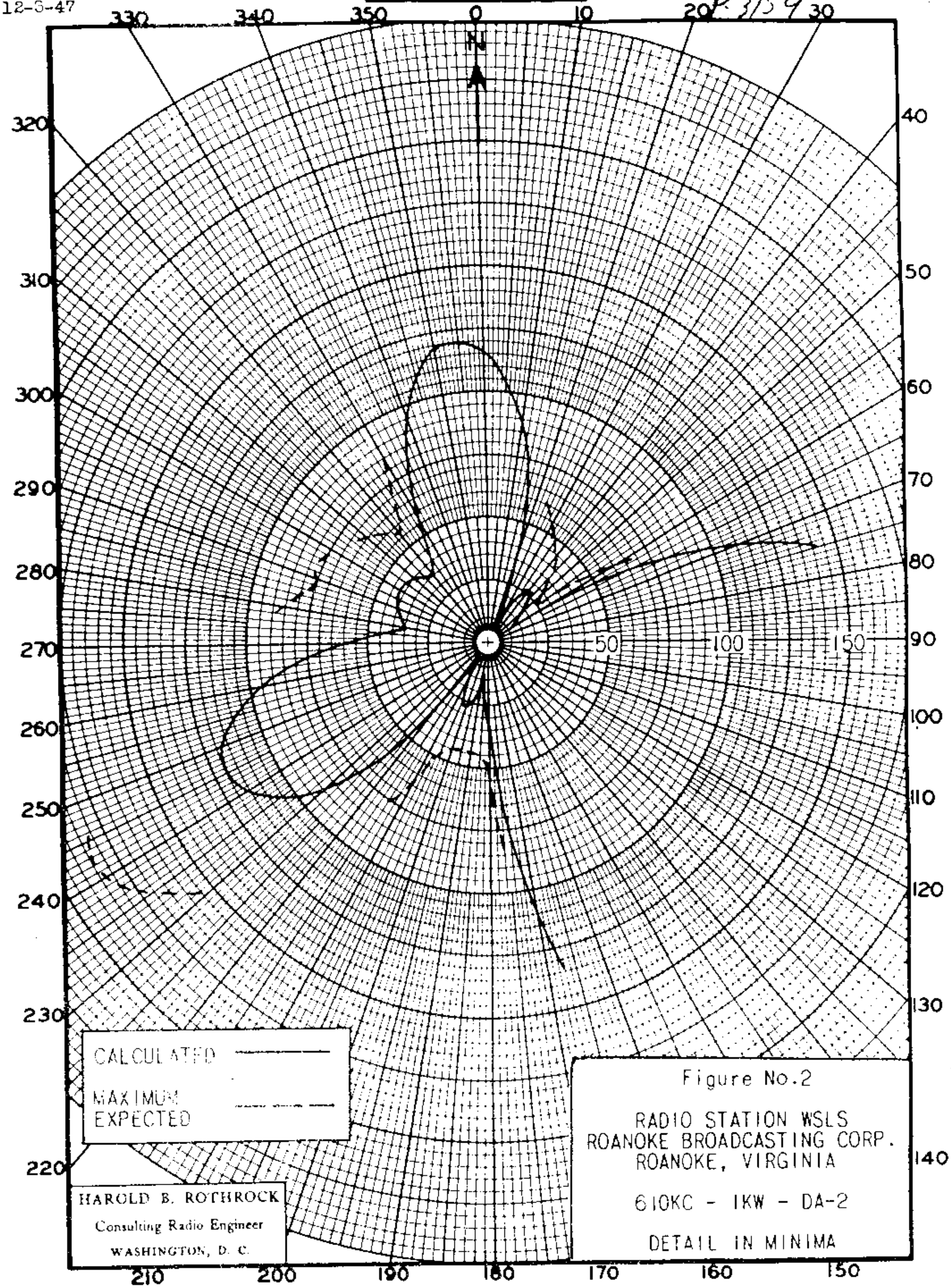


Figure No.2

RADIO STATION WSLS
ROANOKE BROADCASTING CORP.
ROANOKE, VIRGINIA

610KC - 1KW - DA-2

DETAIL IN MINIMA

WSLC

PATTERN No. 471002
SUPERSEDES 460329

Rec'd 12-3-47

P-3159

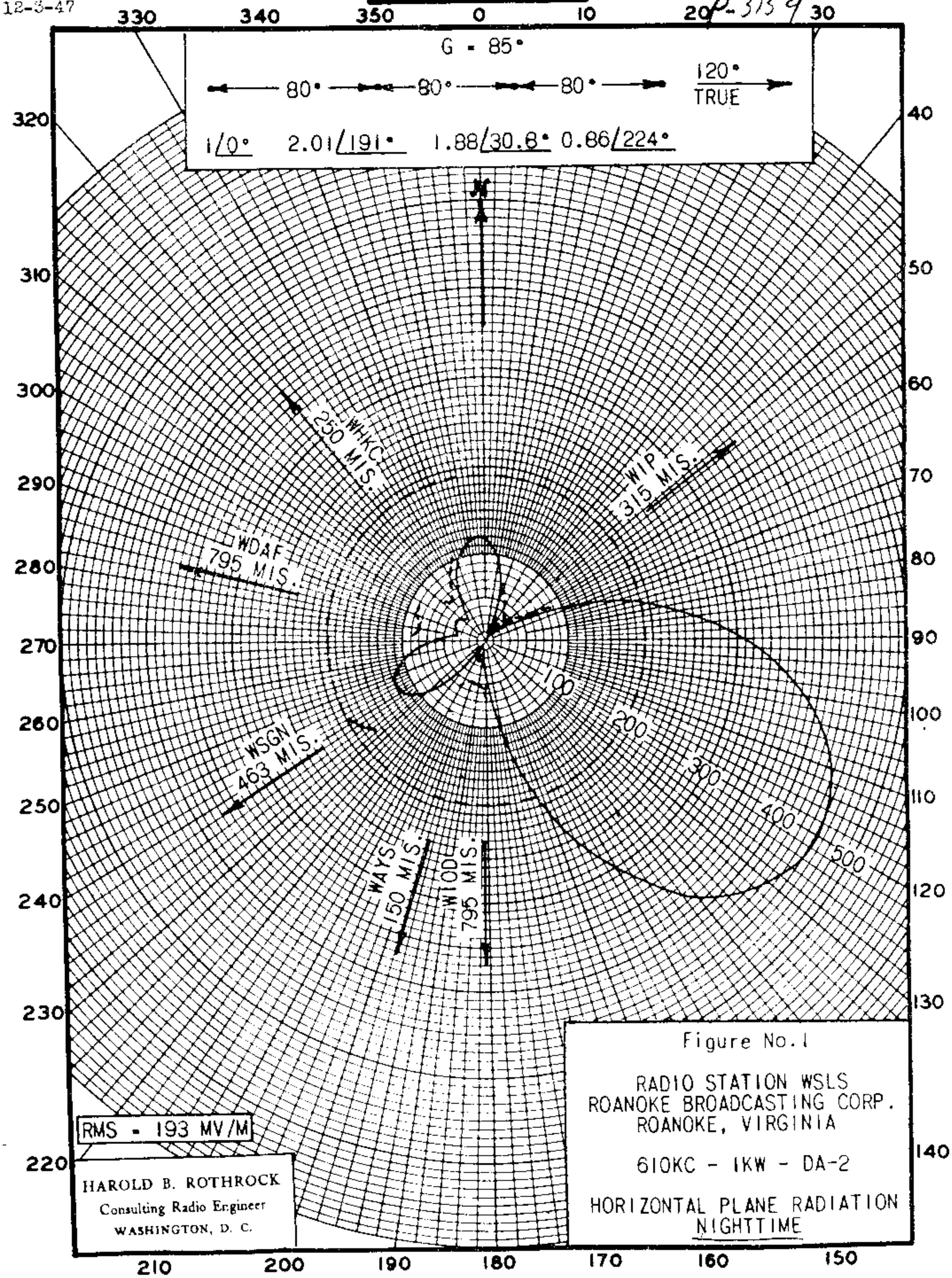


Figure No. 1

RADIO STATION WSLS
ROANOKE BROADCASTING CORP.
ROANOKE, VIRGINIA

610KC - 1KW - DA-2

HORIZONTAL PLANE RADIATION
NIGHTTIME

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

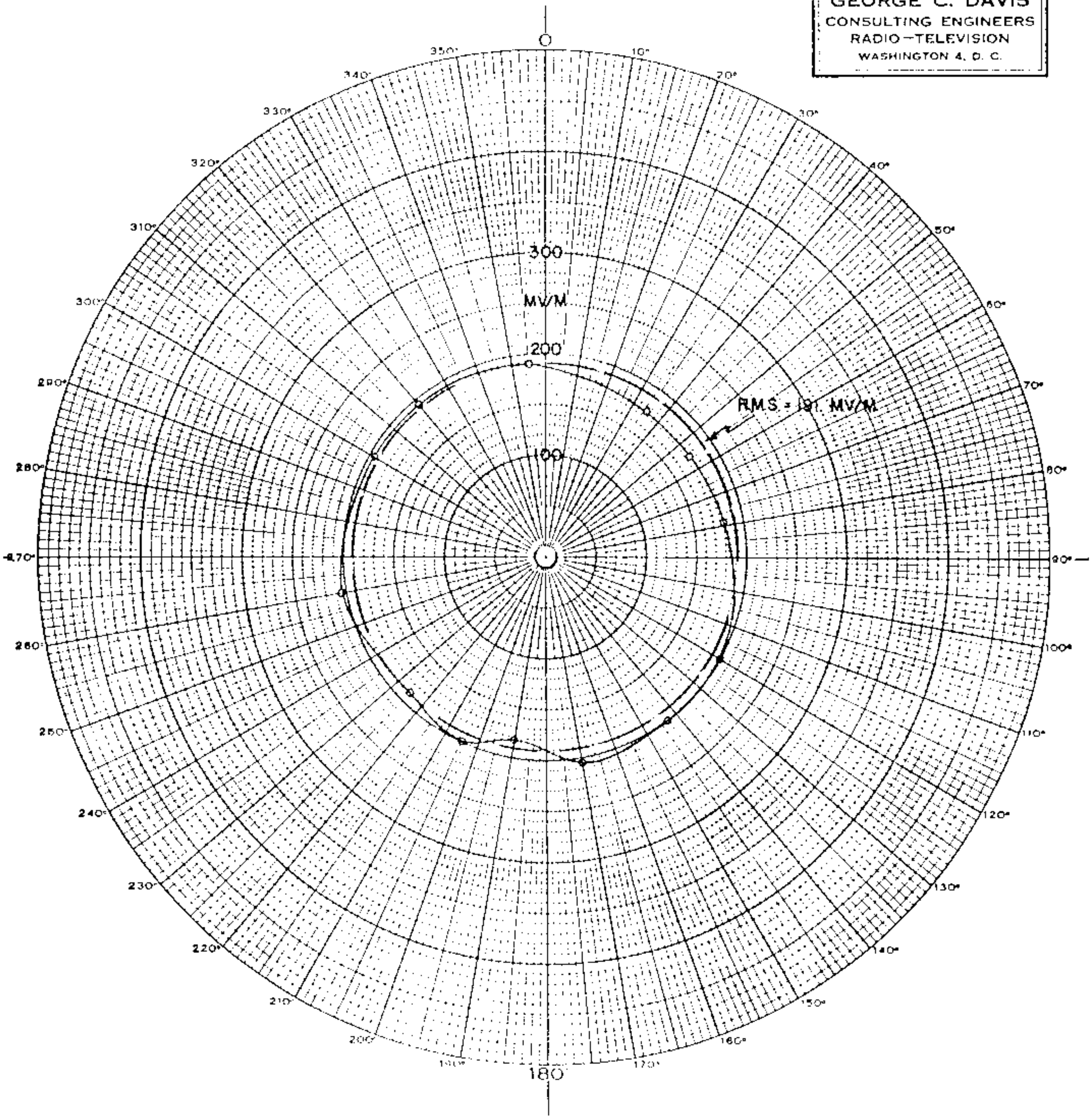
WSLC

Measured Non-DA
(6-22-62ct)

Station WSLS
Roanoke, Virginia

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

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



PLOT OF MEASURED UNATTENUATED FIELD INTENSITY
AT ONE MILE FOR 1 KW NON-DIRECTIONAL OPERATION
WSLS 610 KC
ROANOKE, VIRGINIA
APRIL, 1962

FCC File No.BL-9357
Accepted 6-15-62

Station WSLS
Roanoke, Virginia

610 kc

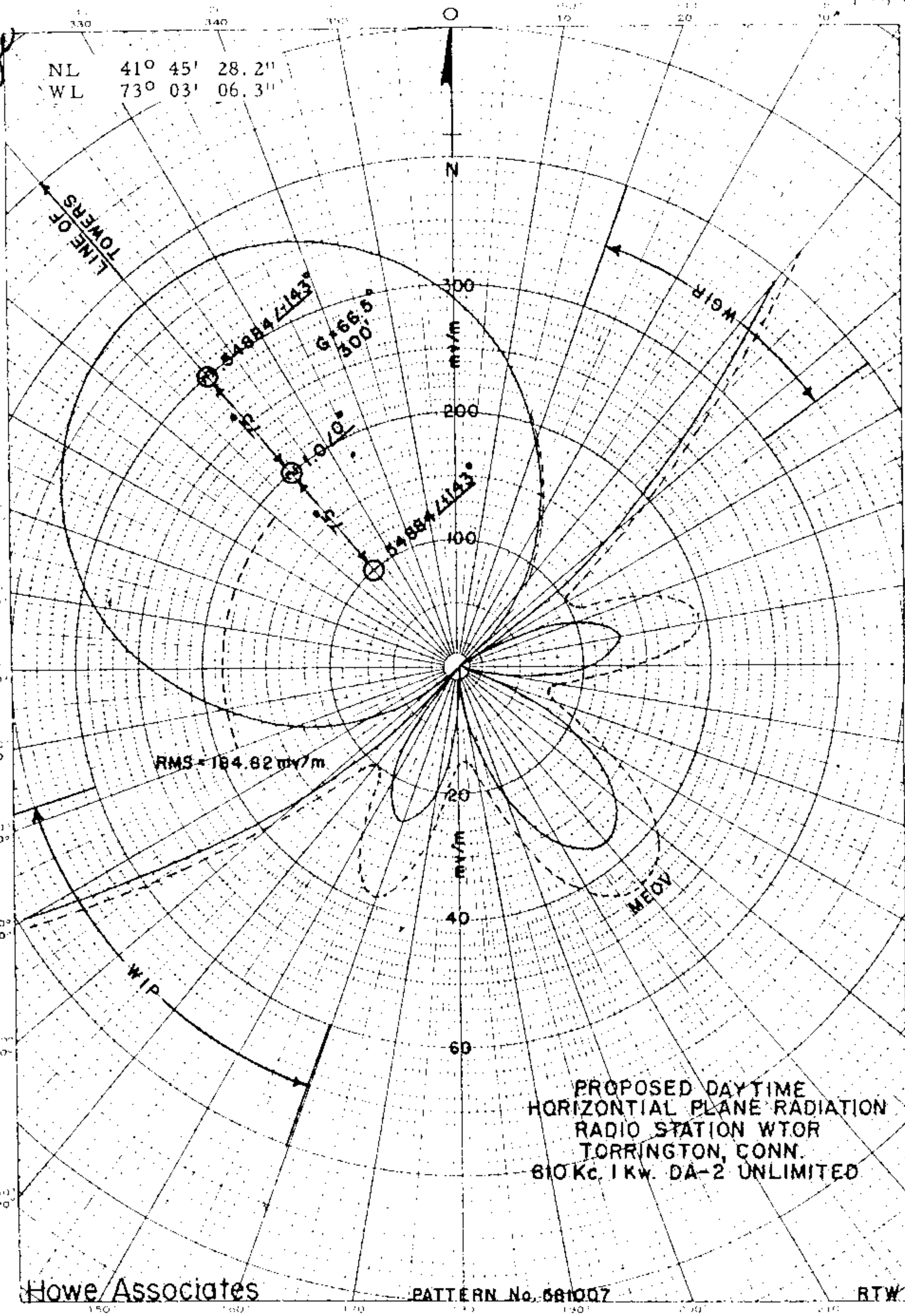
WSNG

PROPOSED DAY
(6-16-59g)

Station WTOR
Torrington, Connecticut

1kw, DA-2, U
610 KC

3-14-63 granted change 610KC



FCC File No. BP-12023
Accepted 5-25-59

WTOR
Torrington, Connecticut

610 KC

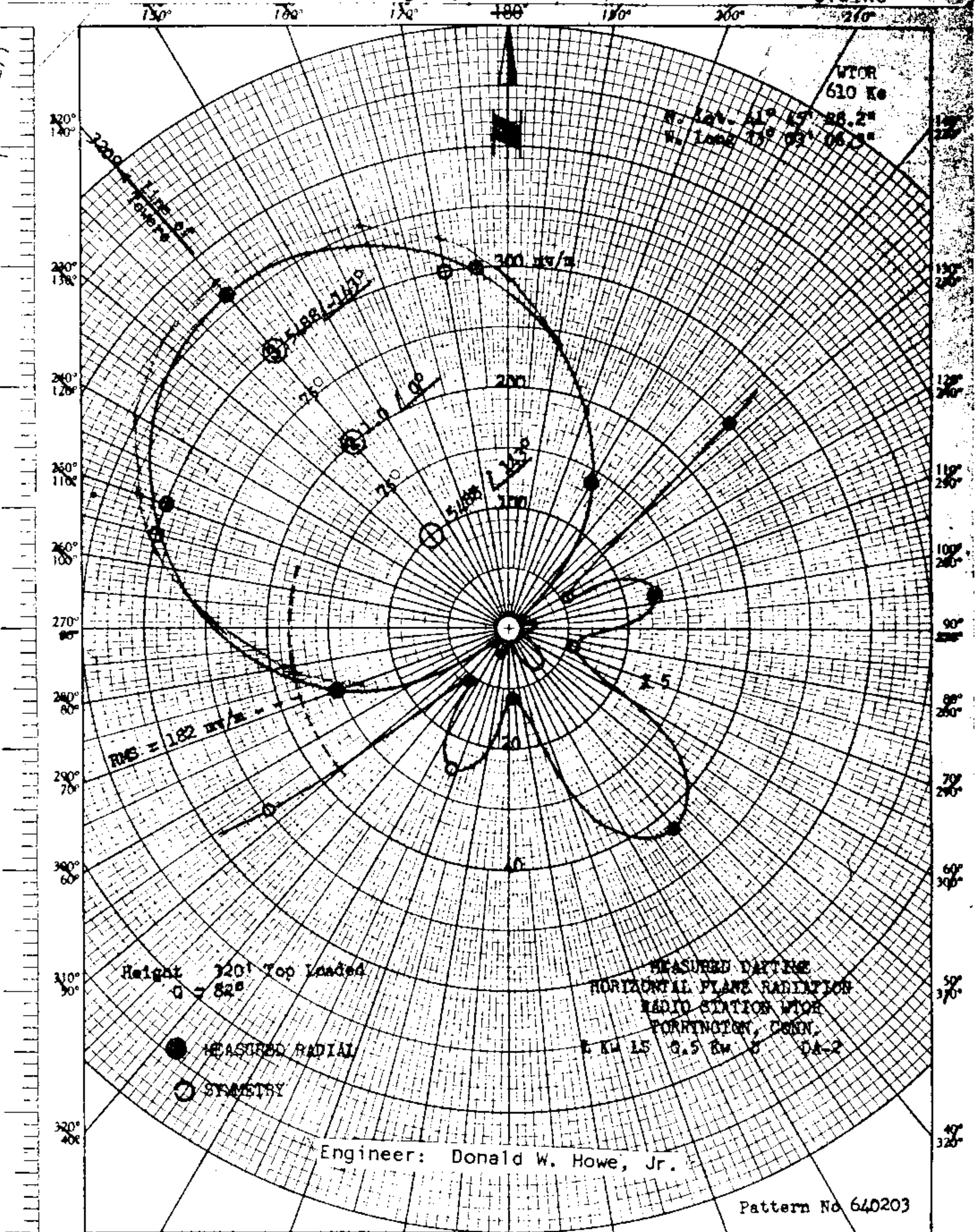
WSNG

Measured Day
(4-24-64ct)

Station WTOR
Torrington, Connecticut

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

GRANTED LICENSE
5-3-67 COV. CHANGES
IN FREQUENCY



FCC File No. BL-10511
Accepted 4-10-64

Station WTOR
Torrington, Connecticut

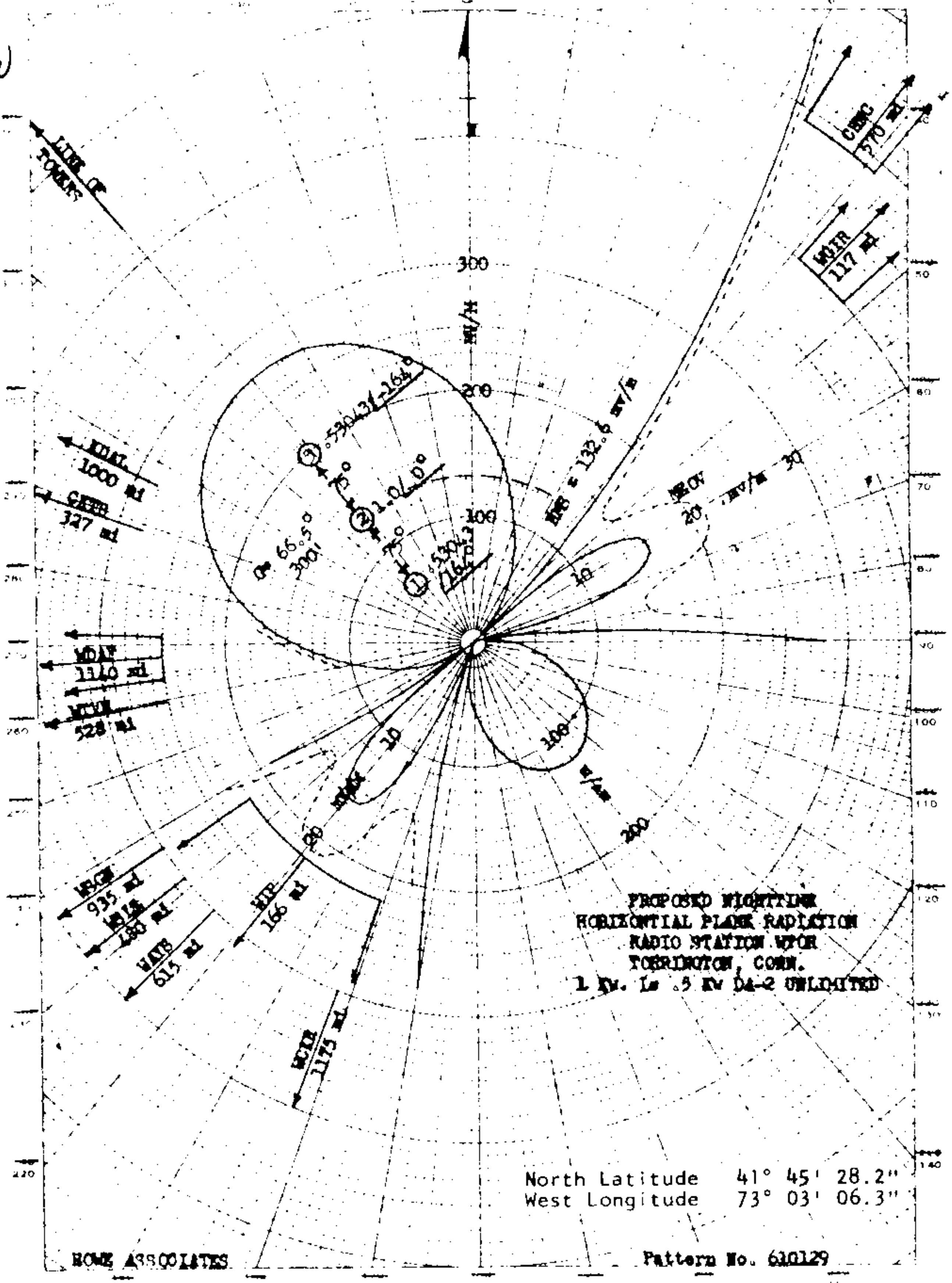
610 kc

WSNG

3-14-63 granted change to 610 KC

PROPOSED NIGHT
(3-8-61q)

Station WTOR 500w, 1kw-LS, DA-2, U
Torrington, Connecticut 610 KC



FCC File No. BP-13023
Accepted 2-23-61 (Amended)

WTOR
Torrington, Connecticut 610 KC

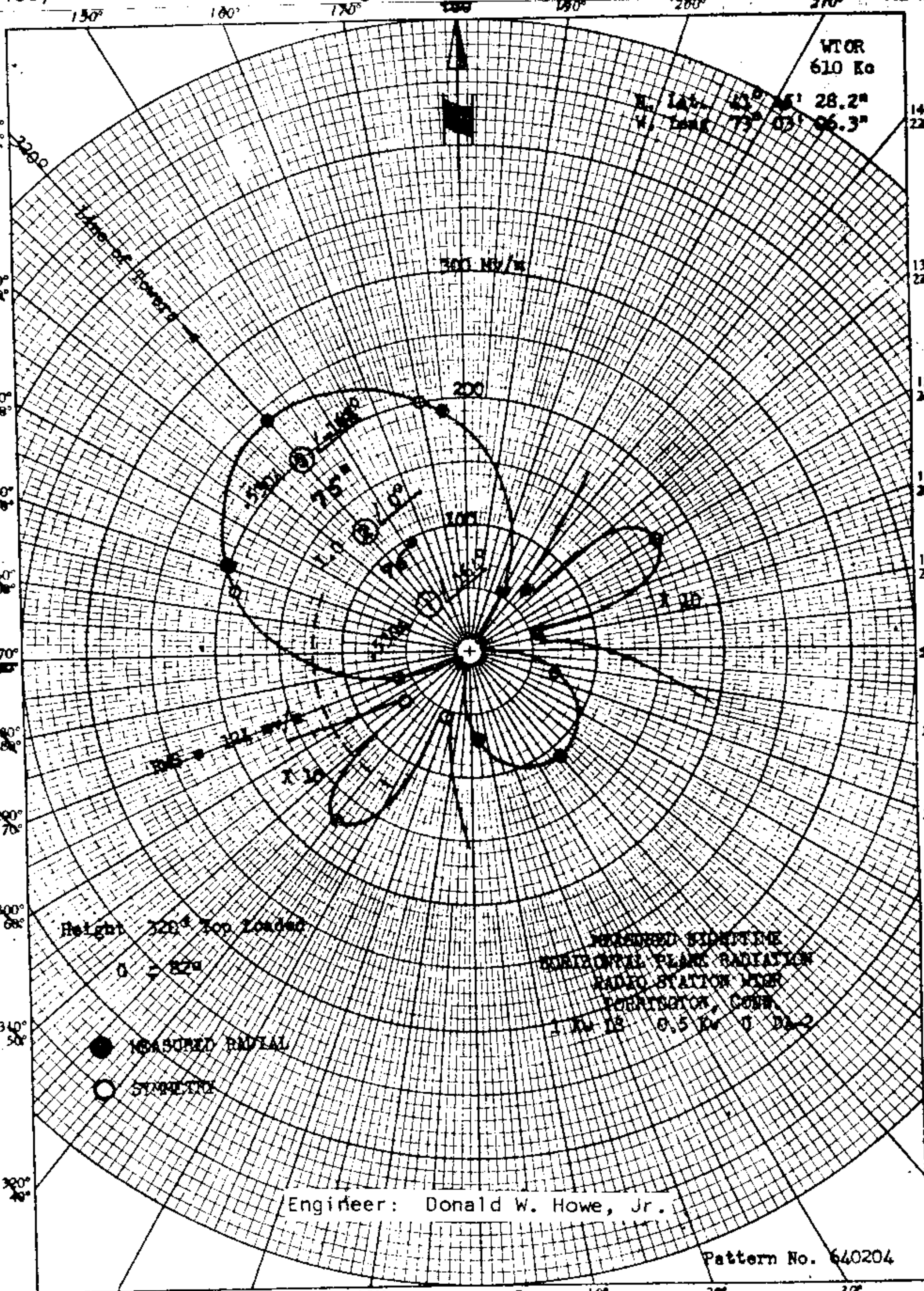
WSNG

Measured Night
(4-24-64ct)

Station WTOR
Torrington, Connecticut

500w, 1kw-LS, DA-2
610 kc

GRANTED LICENSE 5-3-67
COV. CHANGES IN FREQUENCY



K+E POLAR CO-ORDINATE 359-31

FCC File No. BL-10511
Accepted 4-10-64

Station WTOR
Torrington, Connecticut

610 kc

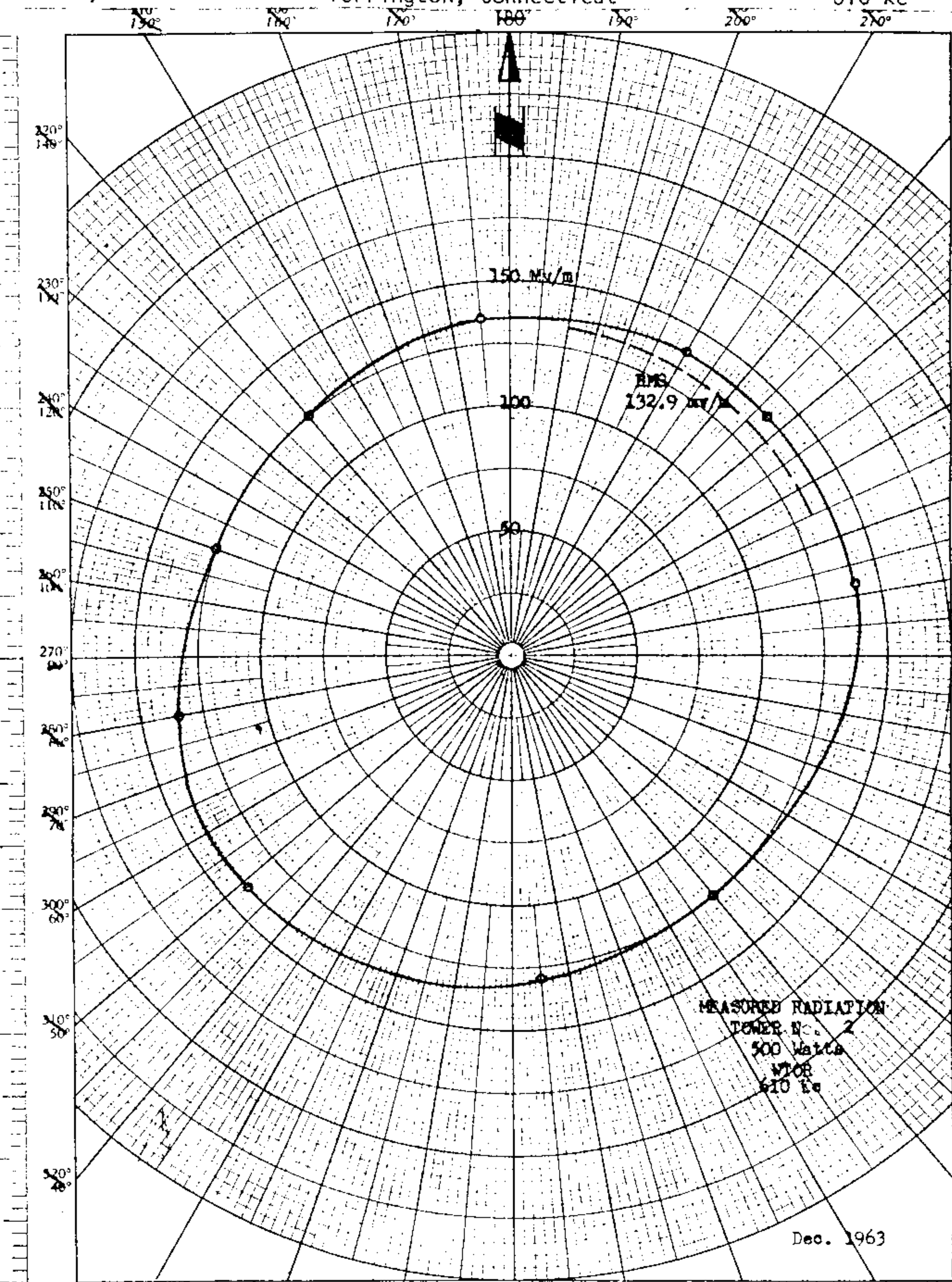
WSNG ~~WTOR~~

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

Station WTOR
Torrington, Connecticut

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

GRANTED LICENCE
5-3-67,



FCC File No. BL-10511
Accepted 4-10-64

Station WTOR
Torrington, Connecticut

610 kc

WTVN

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station : WTVN Main Studio: Columbus, Ohio

Frequency : 610 KHz Power : 5 kW Night 5 kW Day

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

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 39 52 26
West Longitude: 82 58 36

PREDICTED DAYTIME AND NIGHTTIME EFFECTIVE FIELD: 475 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, Shunt excited, Self supporting, tapered, vertical steel towers.

TOWER :	NE(#1)	SE(#2)	SC(#3)	SW(#4)	NW(#5)	NC(#6)
HEIGHT ABOVE INSULATORS :	195'	195'(45.0°)	390'	390'(90°)	634'(138°)	230'(52°)
PHASING :	133.3°	226.7°	226.7°	226.7°	133.3°	133.3°
FIELD RATIO :	1.0	1.06	2.12	1.06	1.0	2.0

SPACING AND ORIENTATION : The towers are located in two parallel rows with three towers per row. Adjacent towers in a row are spaced 823.86' (184°) and 788.46' (176°) on a line bearing 94.22° true. End towers forming a side of the parallelogram are spaced 447.3' (100°) on a line bearing 178.38° true. (See diagram on horizontal pattern).

GROUND SYSTEM : 120 - 75' to 400' equally spaced copper radials 240 - 75' interspaced radials about each tower. Radials are shortened and bonded to a transverse straps along intersections between towers. SW towr excluded.

WTVN

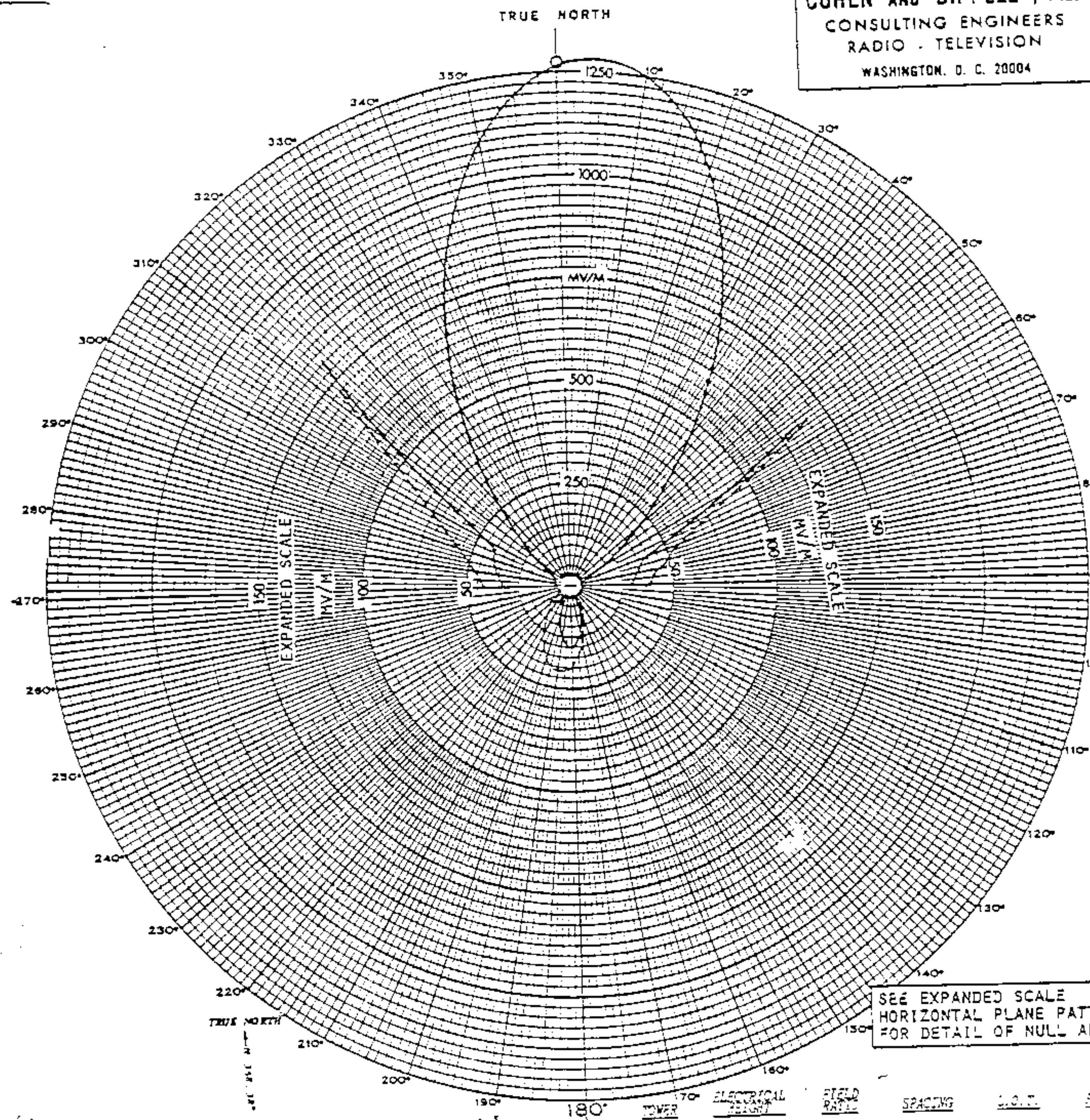
PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	456		
Night	___ mV/m	___ mV/m	___ mV/m

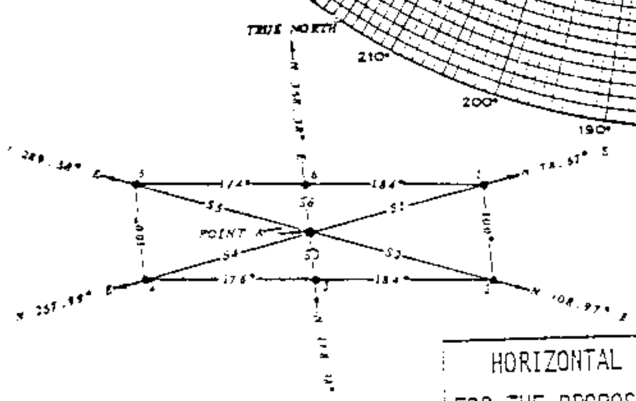
WTVN

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

Theo.



SEE EXPANDED SCALE
HORIZONTAL PLANE PATTERN
FOR DETAIL OF NULL AREAS



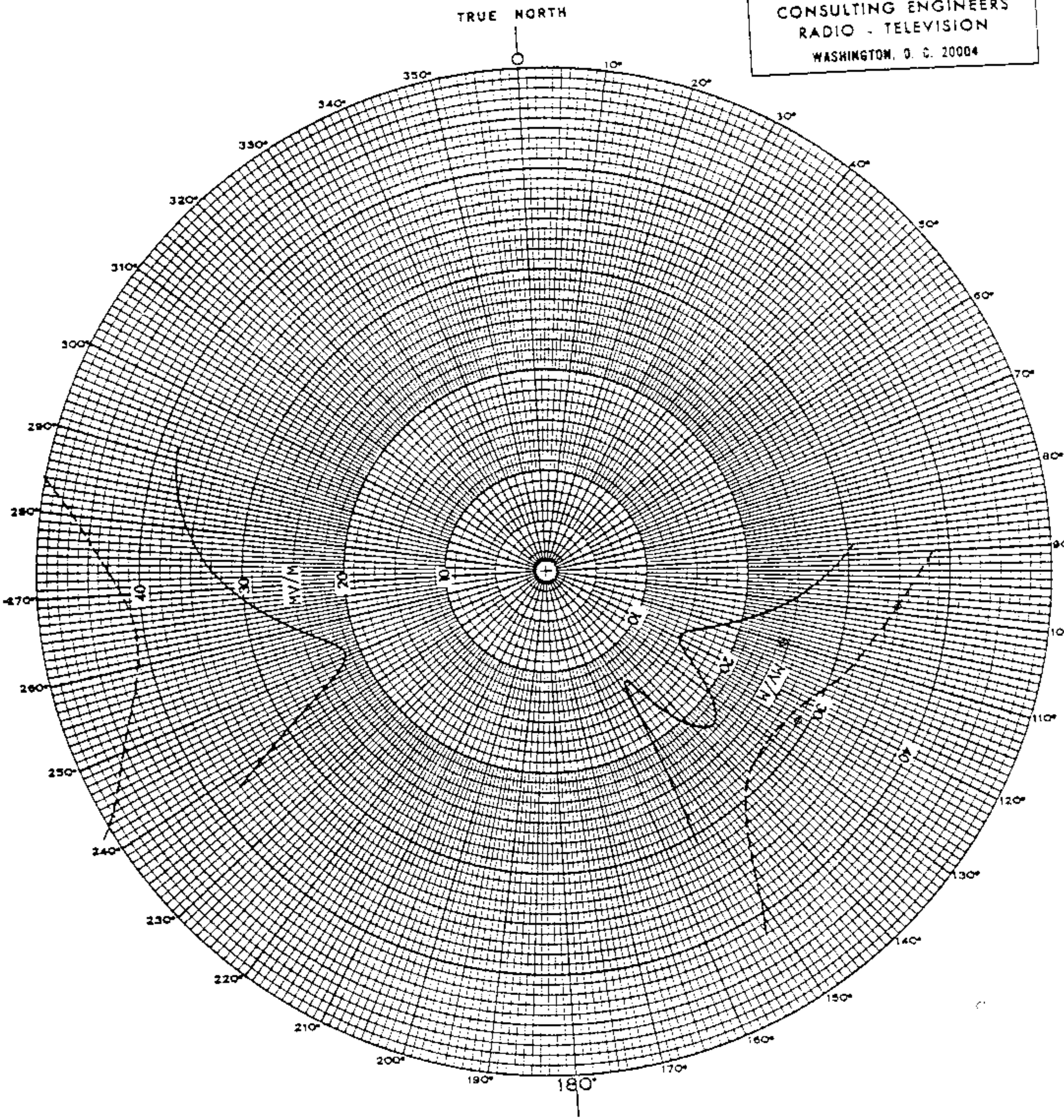
TOWER	ELECTRICAL HEIGHT	FIELD RATIO	SPACING	L.O.T.	PHASING
1	45	1.00	135.7	-8.66	133.3
2	45	1.00	135.53	106.47	226.7
3	90	0.12	50	178.36	226.7
4	90	1.06	178.08	257.09	226.7
5	138	1.00	157.79	280.55	135.3
6	52	[illegible]	50	353.45	133.3

PATTERN PARAMETERS FROM CENTER OF ARRAY (POINT A)

HORIZONTAL PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1978

WTVN

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

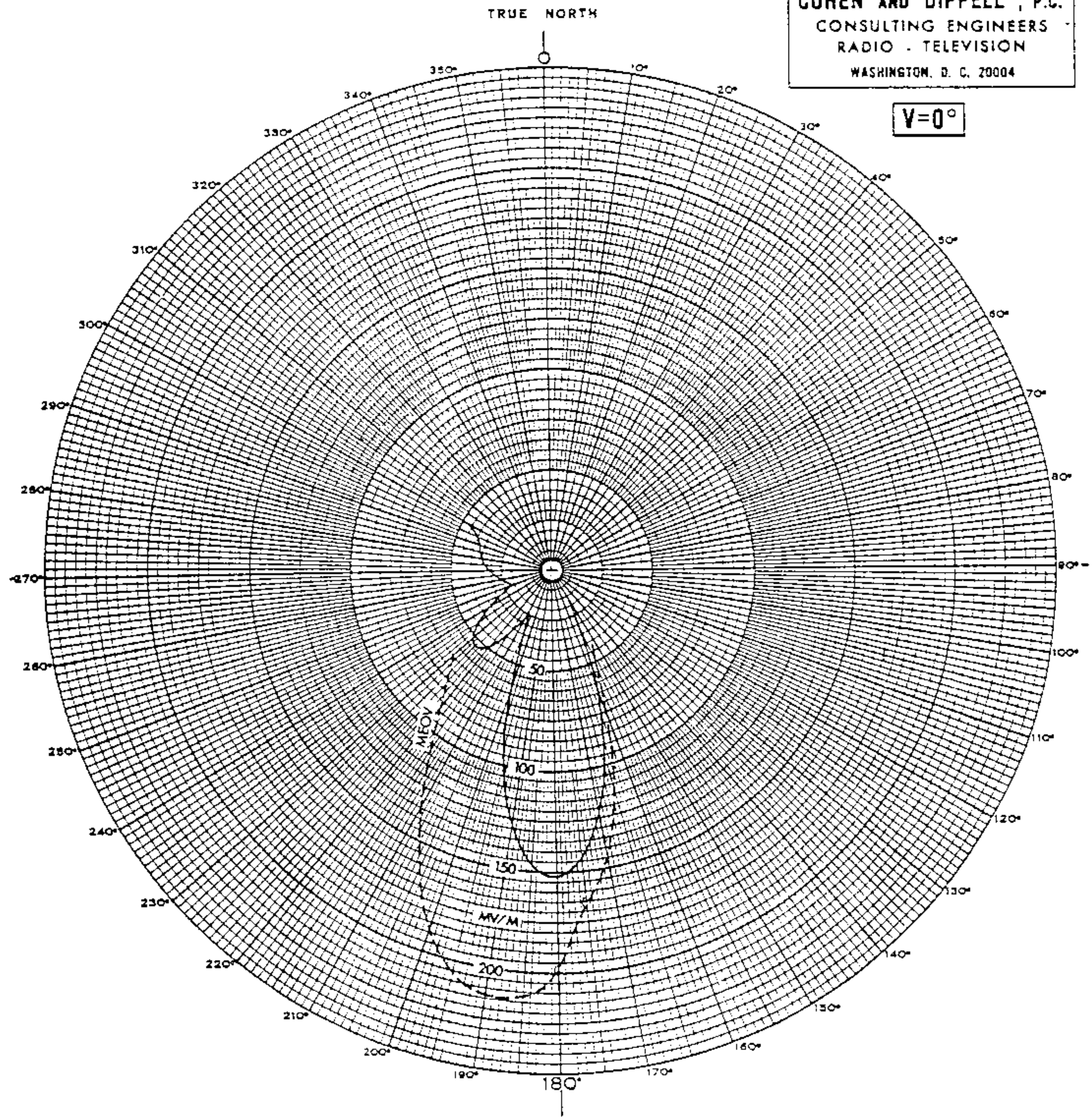


HORIZONTAL PLANE RADIATION PATTERN
DETAILING THE NULL AREAS
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1977

WTVN

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

V=0°

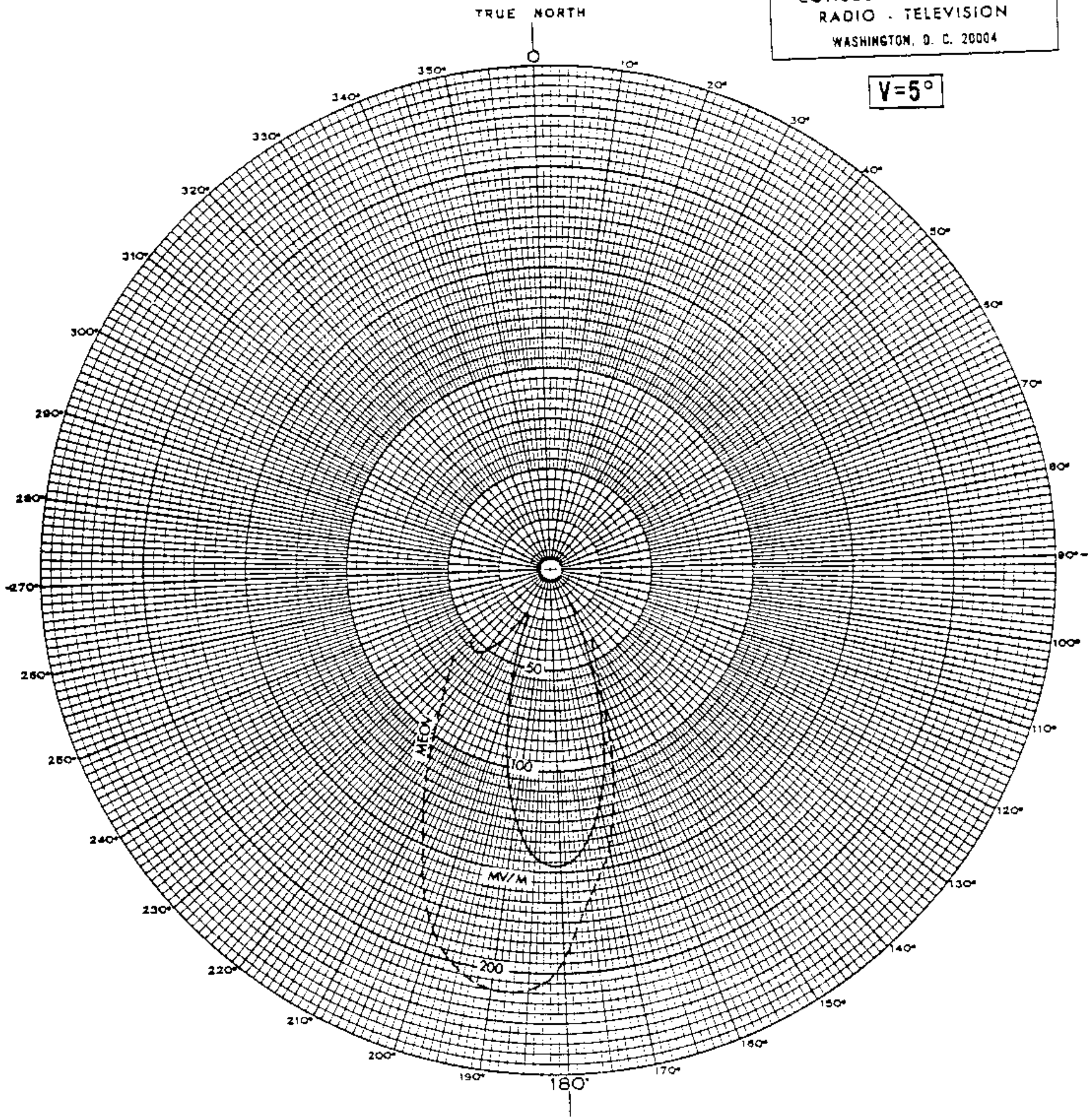


HORIZONTAL PLANE RADIATION PATTERN
DETAILING THE AREA OF PROPOSED MEOV
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1977

WTVN

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

V=5°

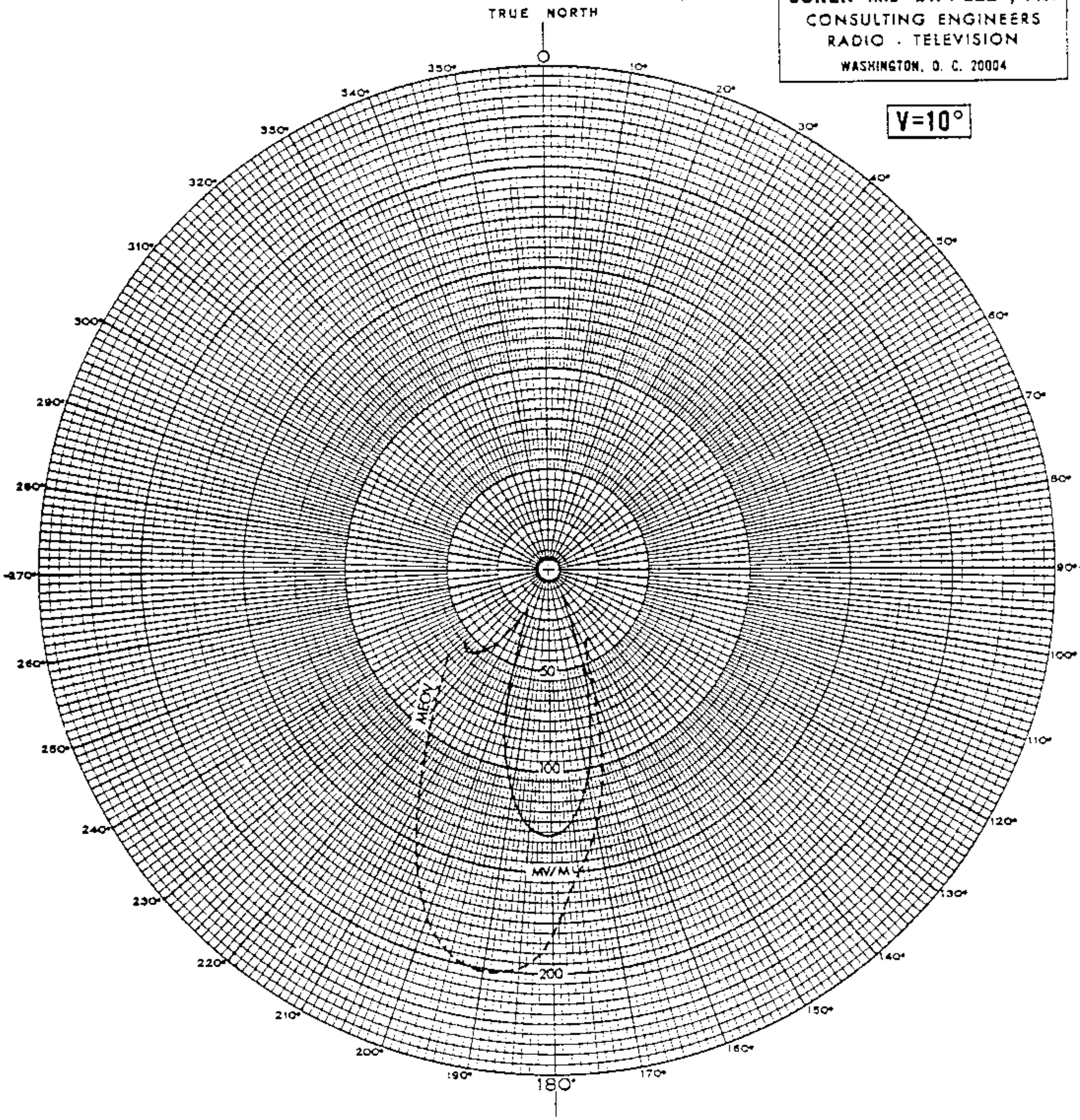


VERTICAL PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1977

WTVN

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

V=10°

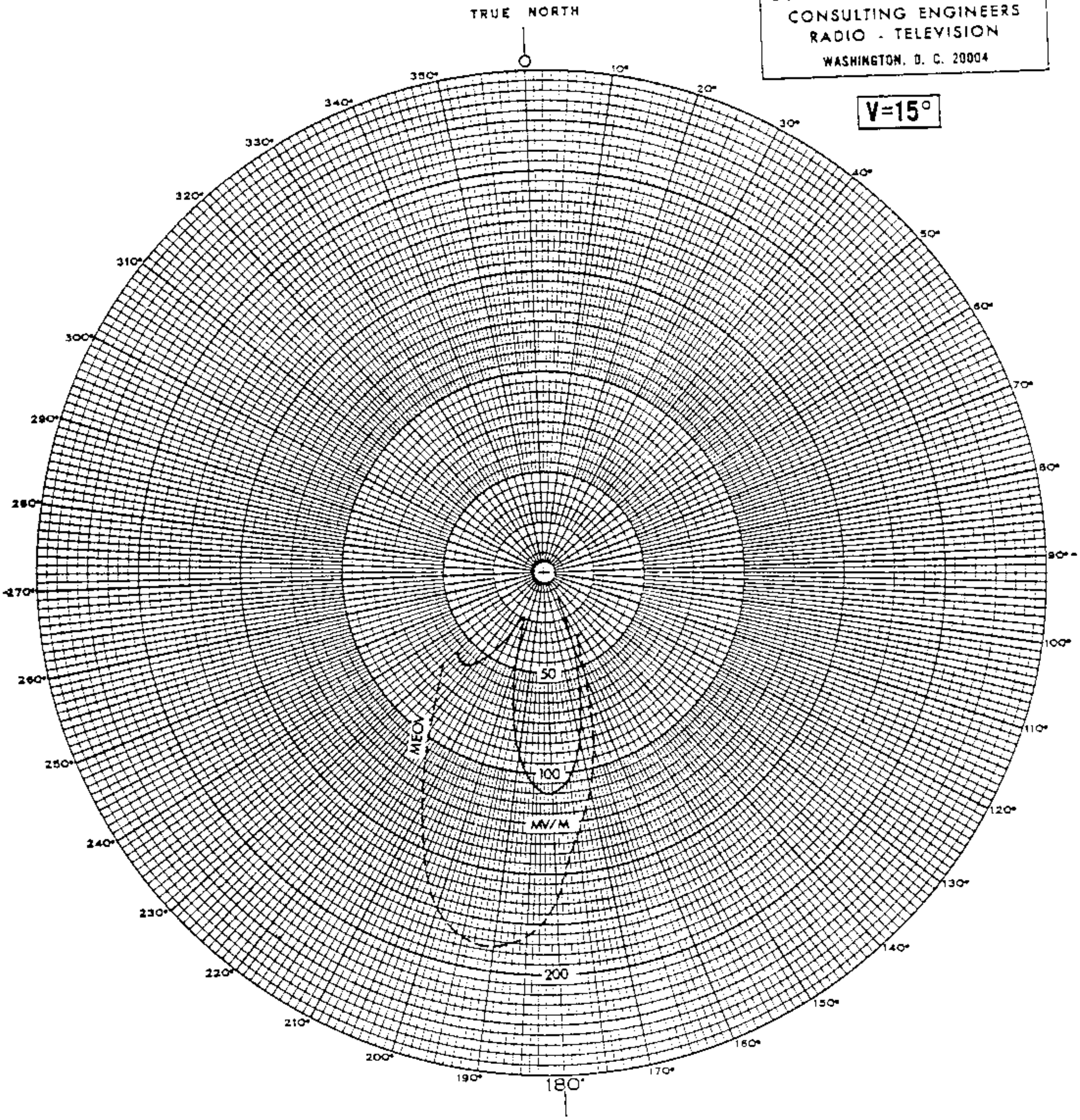


VERTICAL PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1977

WTVN

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

V=15°

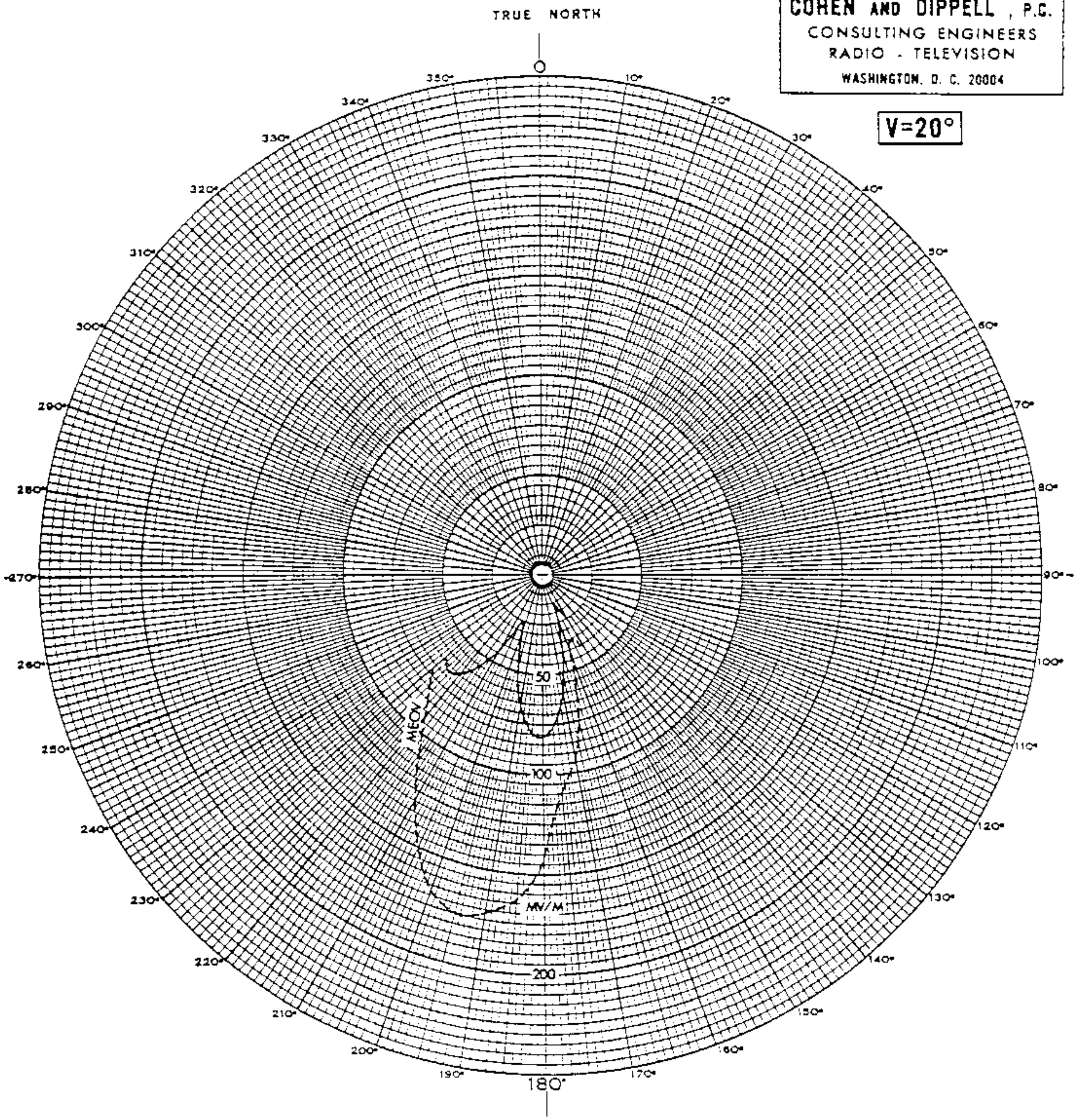


VERTICAL PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1977

WTVN

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

V=20°

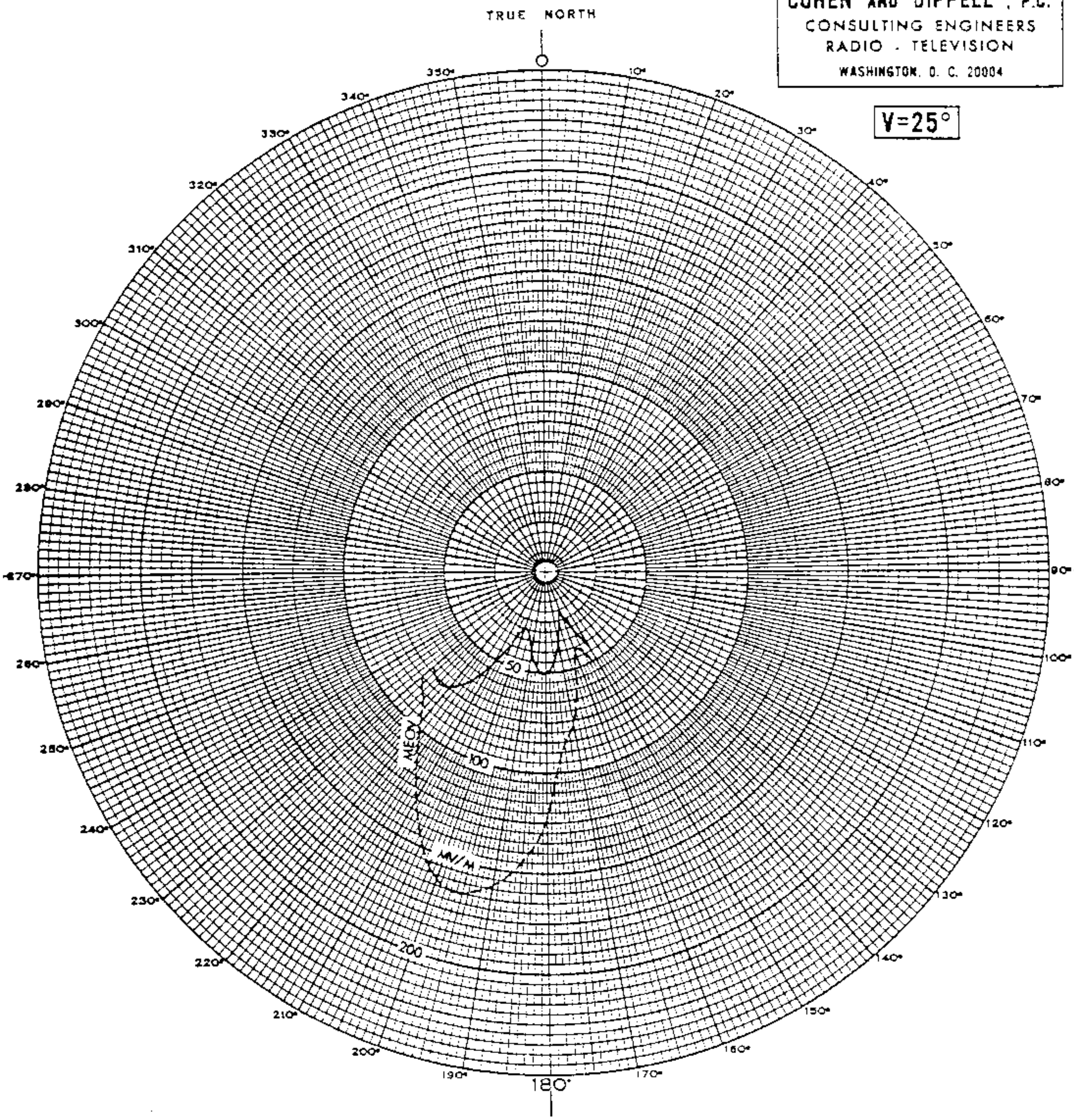


VERTICAL PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1977

WTVN

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

V=25°

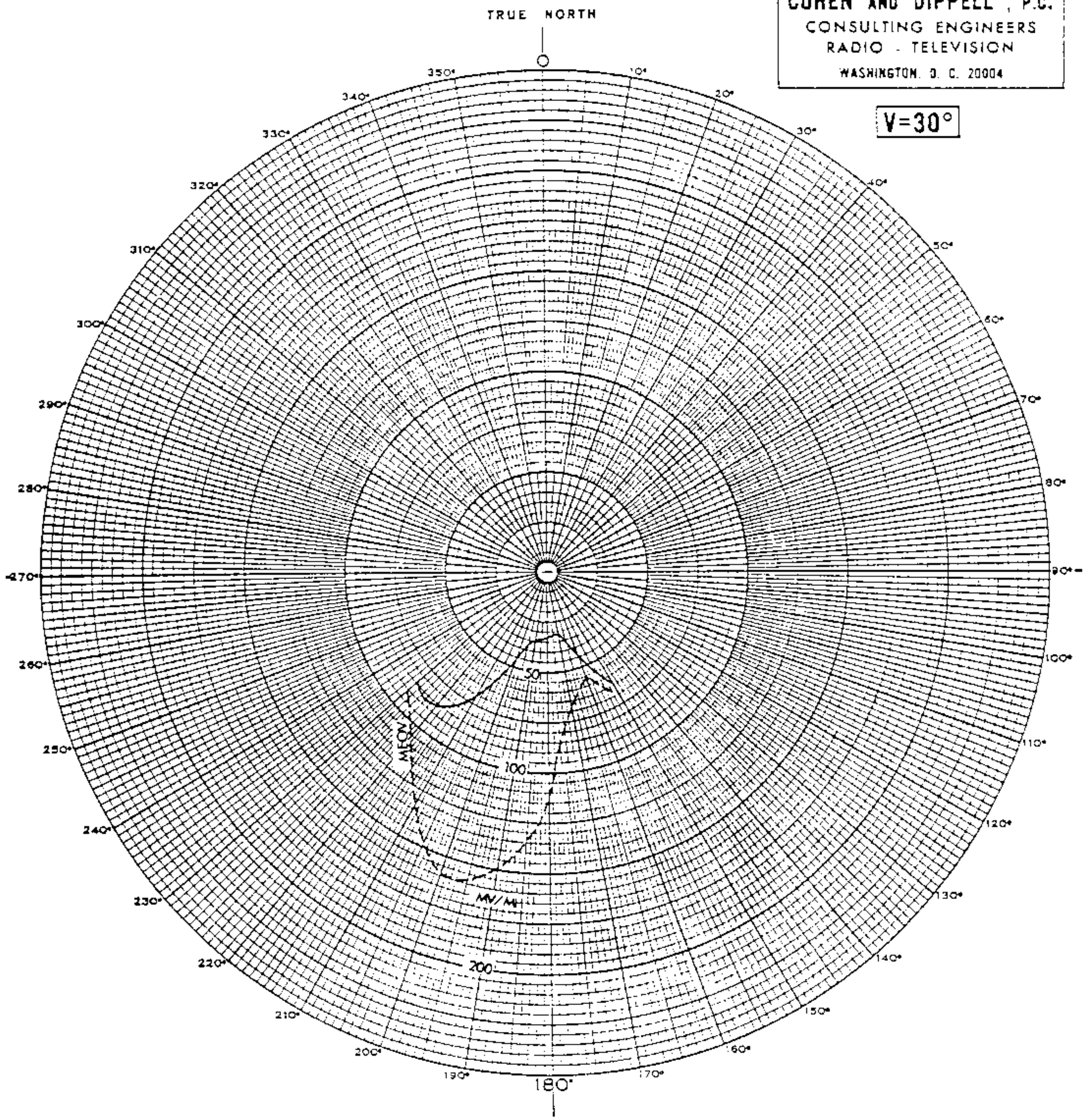


VERTICAL PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1977

WTVN

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

V=30°

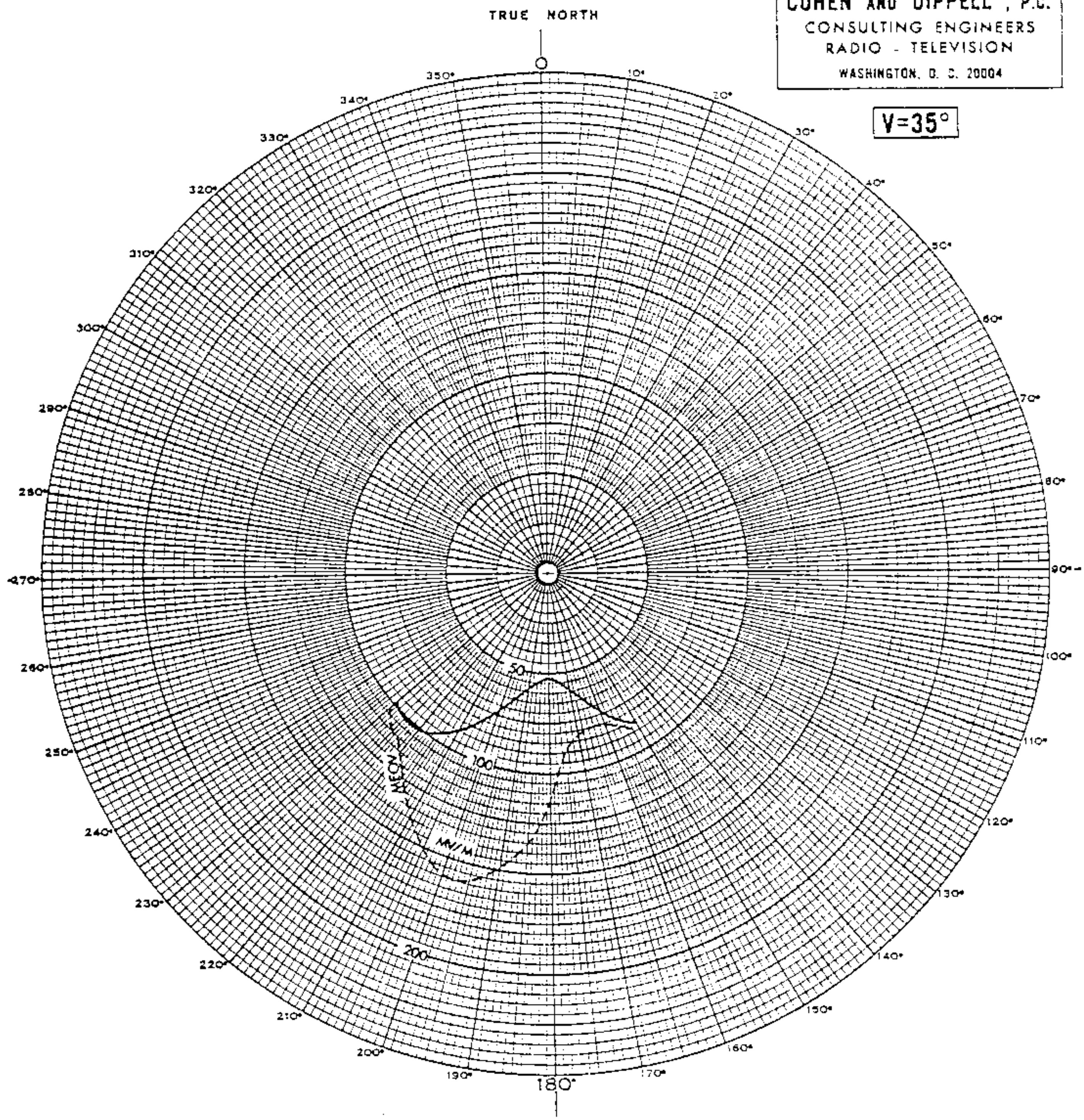


VERTICAL PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1977

WTVN

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

V=35°

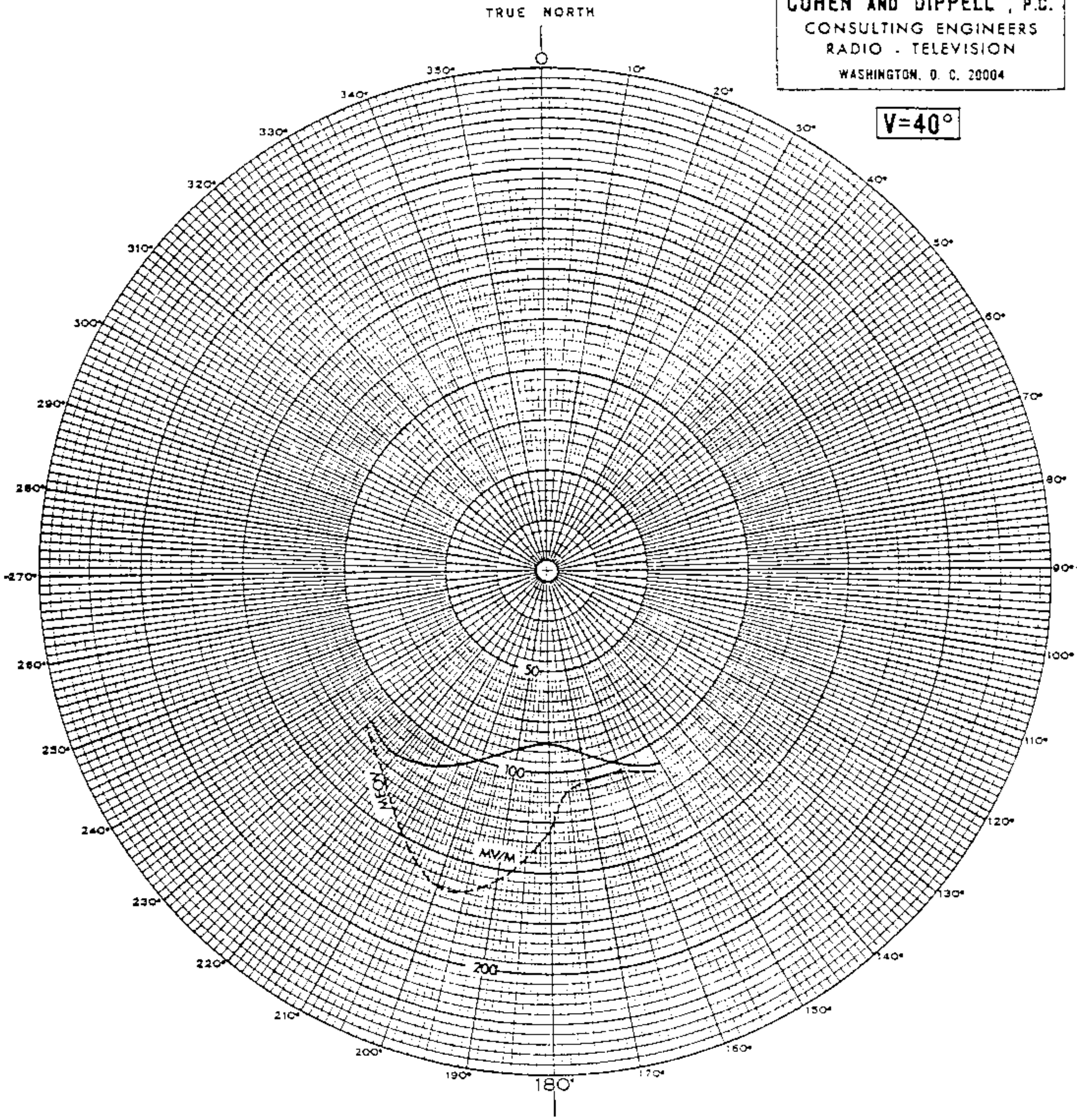


VERTICAL PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1977

WTVN

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

V=40°

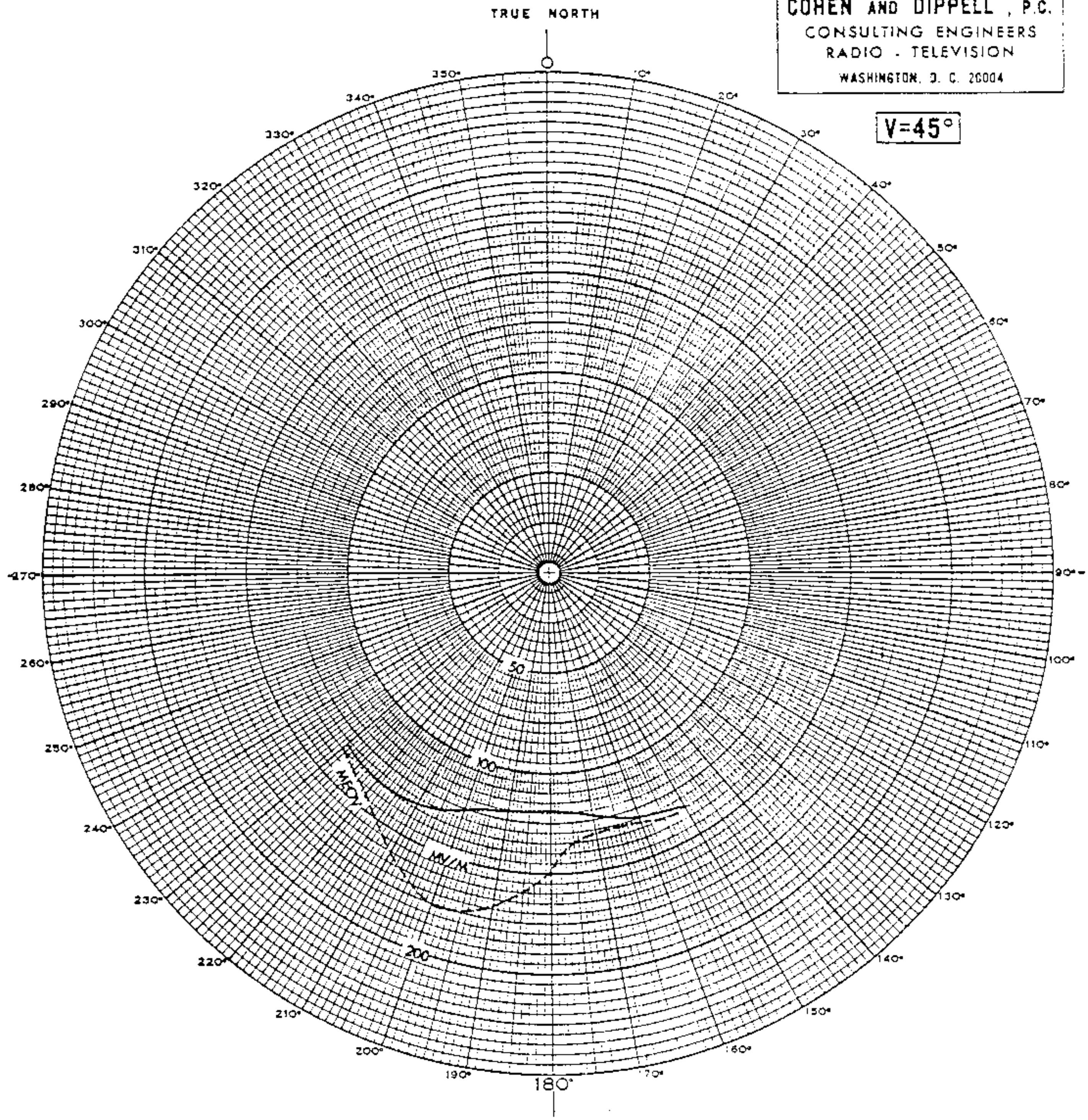


VERTICAL PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1977

WTVN

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

V=45°

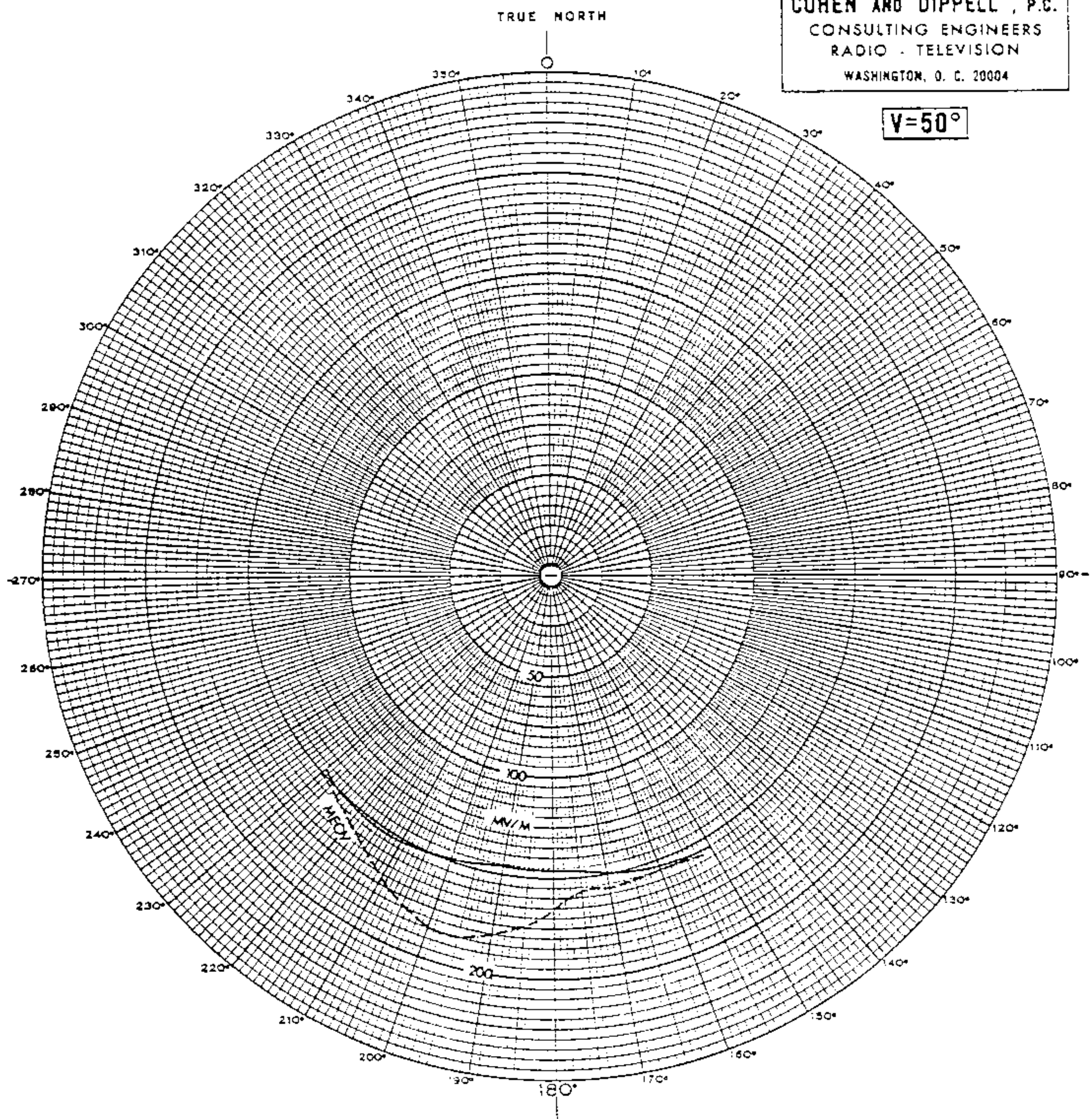


VERTICAL PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1977

WTVN

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

V=50°

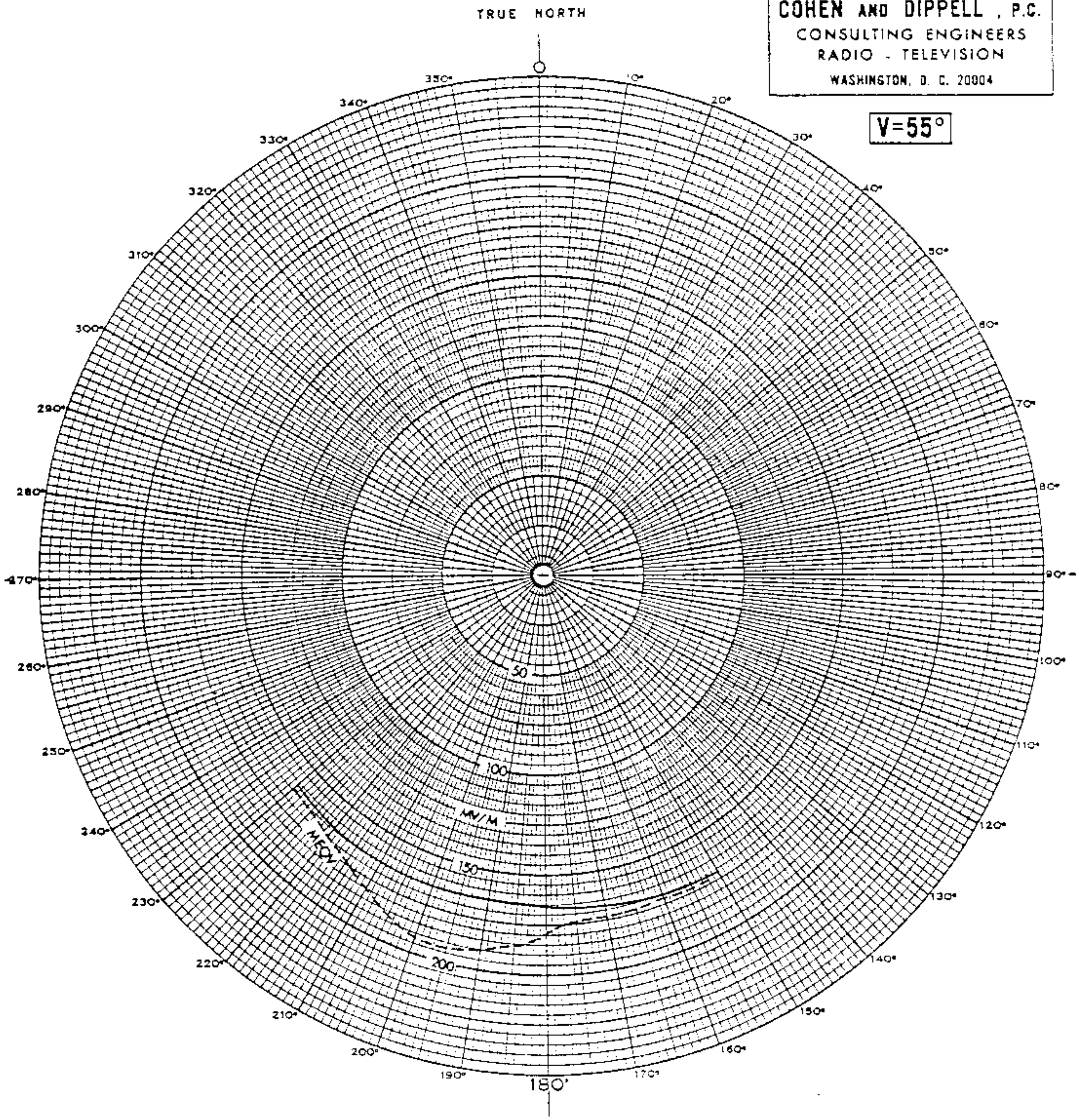


VERTICAL PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1977

WTVN

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

V=55°

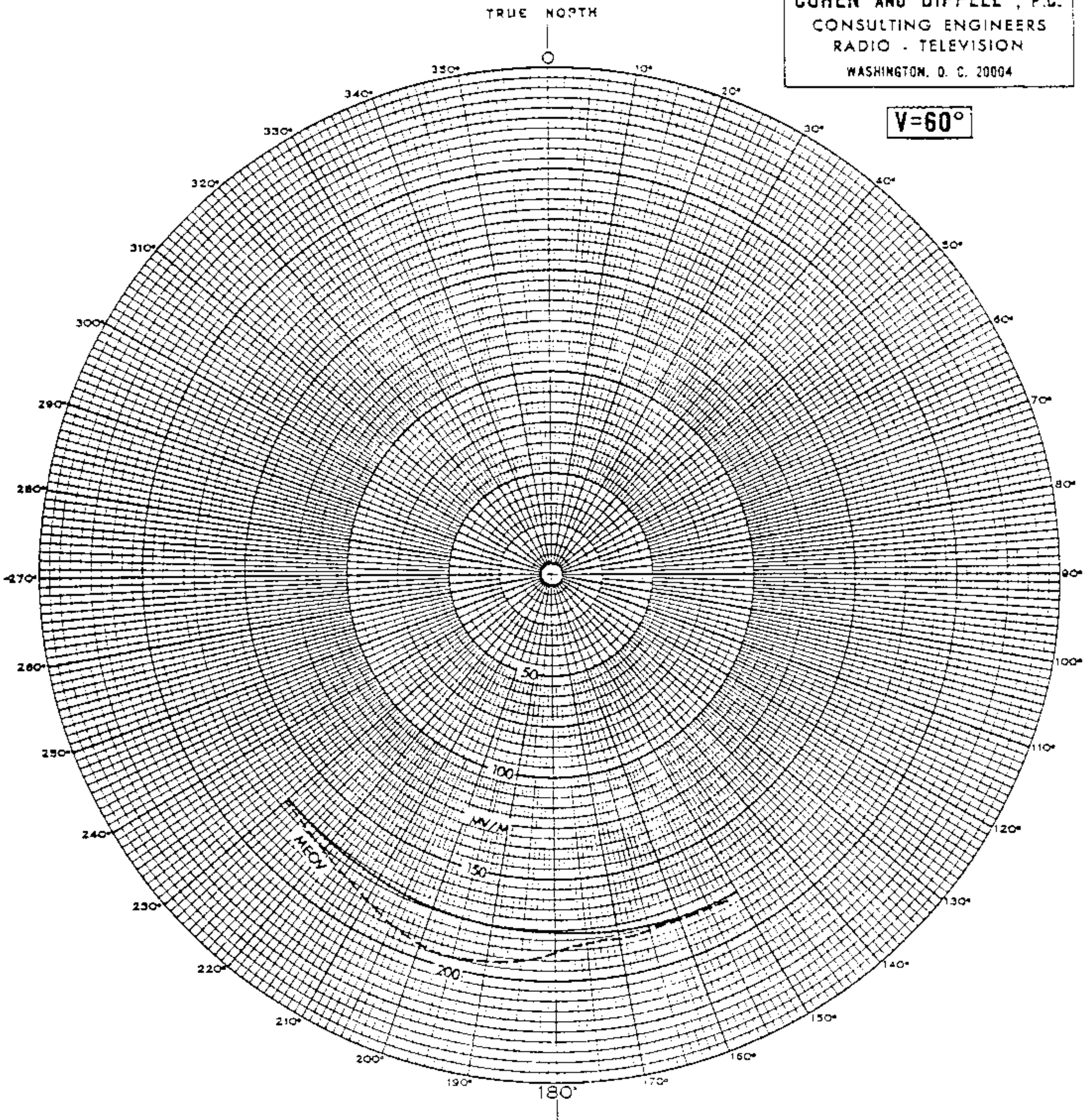


VERTICAL PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1977

WTVN

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

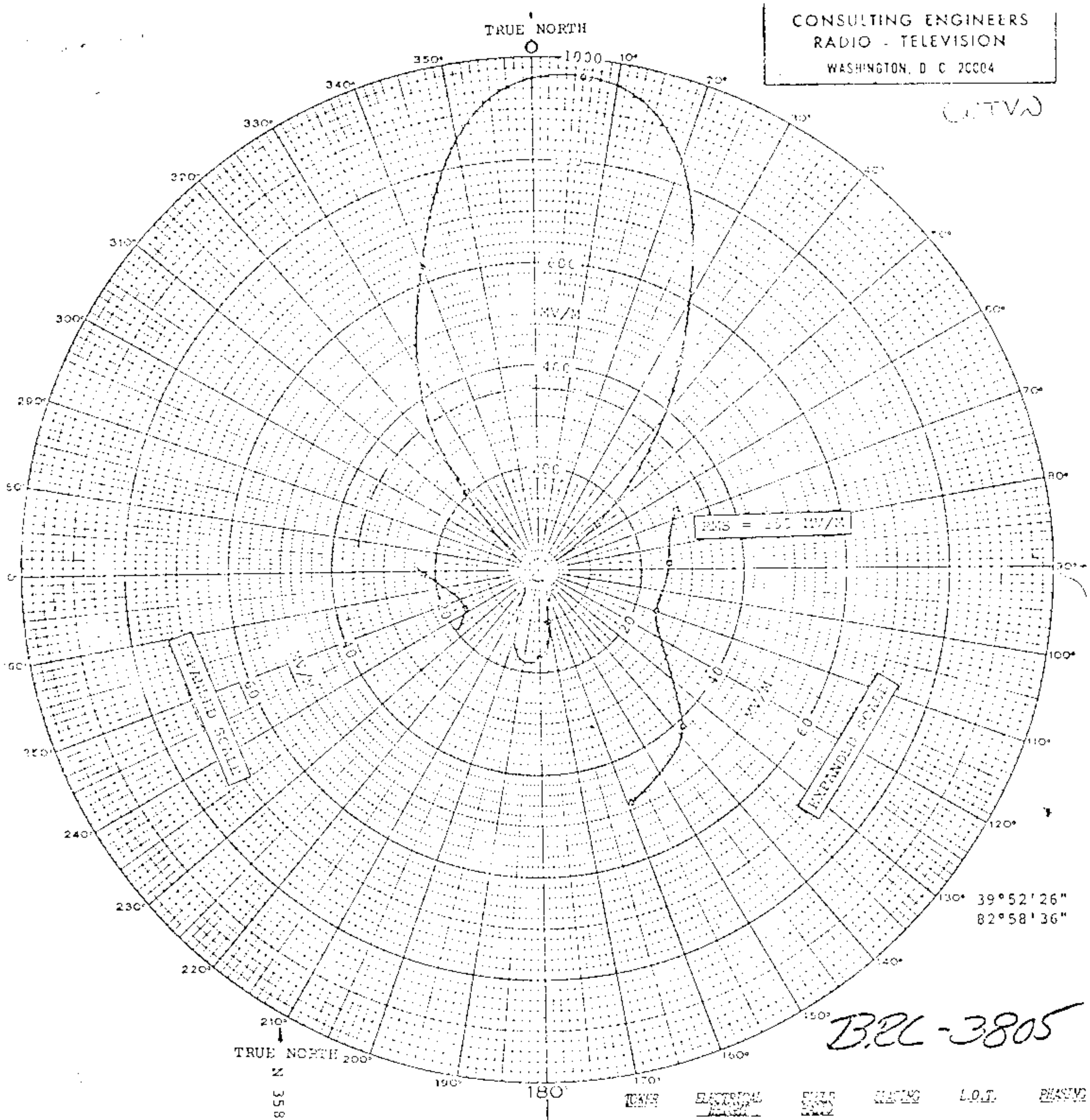
V=60°



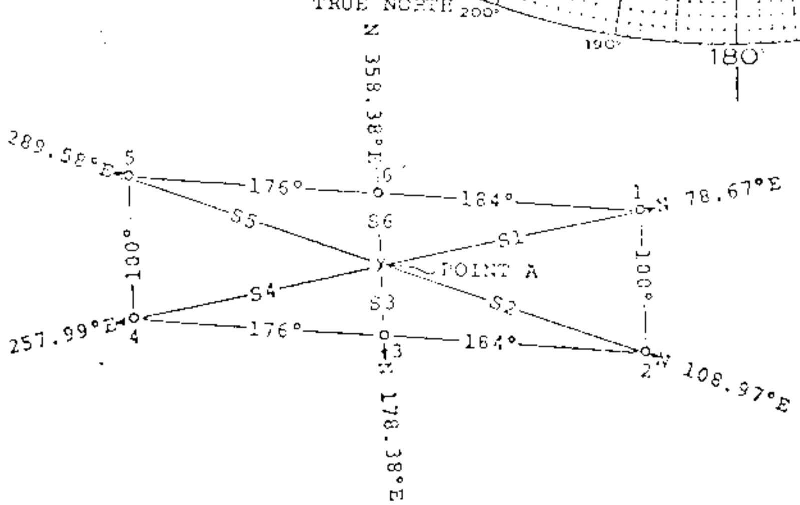
VERTICAL PLANE RADIATION PATTERN
FOR THE PROPOSED NIGHTTIME OPERATION OF
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
APRIL 1977

CONSULTING ENGINEERS
RADIO - TELEVISION
WASHINGTON, D. C. 20004

(WTVN)



B.RC-3805



TOWER	ELECTRICAL HEIGHT	FIELD RATIO	SPACING	L.O.T.	PHASING
1	45	1.00	155.7	78.58	133.3
2	45	1.06	107.59	108.97	226.7
3	90	2.12	[illegible]	175.38	226.7
4	90	1.06	176.03	257.99	226.7
5	118	1.00	137.79	289.58	133.3
6	52	2.00	52	358.38	133.3

PATTERN PARAMETERS FROM CENTER OF ARRAY (POINT A)

MEASURED NIGHTTIME RADIATION PATTERN
WTVN, COLUMBUS, OHIO
610 KHz - 5 KW - DA-N U
AUGUST 1976