950

Station	Main Studio	Freq	Power	Date
CFAM	Altona, MB	950	10 kW/DA-2	8/28/67
CHER	Sydney, NS	950	10 kW/DA-1	5/25/67
CKBB	Barrie, ON	950	2.5/10 kW/DA-2	5/28/59
CKNB	Campbellton, NB	950	1/10 kW/DA-2	8/24/62
CMBF	Havana, Cuba	950	10 kW/DA-1	3/24/53
KAHI	Auburn, CA	950	5 kW/DA-D	6/14/61
KDSX	Denison, TX	950	0.5 kW/DA-2	12/7/50
KFSA	Fort Smith, AR	950	0.5/1 kW/DA-2	6/19/74
KIMN	Denver, CO	950	5 kW/DA-1	8/28/64
KJR	Seattle, WA	950	5 kW	7/16/76
KLER	Orofino, ID	950	0.5/1 kW/DA-N	8/28/68
KLIK	Jefferson City, MO	950	0.5/5 kW/DA-N	12/23/70
KMTX	Helena, MT	950	5 kW/DA-N	3/9/76
KOEL	Oelwein, IA	950	0.5/5 kW/DA-2	8/7/74
KPRC	Houston, TX	950	5 kW/DA-N	11/27/64
KRSI	Hopkins-Edina- St. Louis Park, MO	950	1 kW/DA-D	8/19/54
KSEL	Lubbock, TX	950	0.5 kW	10/46
KSEL	Lubbock, TX	950	5 kW/DA-D	8/27/56
KSEL	Lubbock, TX	950	0.5/5 kW/DA-2	2/26/60
KWAT	Watertown, SD	950	1 kW/DA-N	10/28/69
WAGM	Presque Isle, ME	950	5 kW/DA-1	4/58
WBBF	Rochester, NY	950	1 kW/DA-2	12/61
WCTN	Potomac-Cabin John, MD	950	1 kW/DA-D	9/28/65
WGOV	Valdosta, GA	950	1/5 kW/DA-2	4/27/48
WIBX	Utica, NY	950	5 kW/DA-1	4/5/48

950

Station	Main Studio	Freq	Power	Date
WJPC	Chicago, IL	950	5 kW/DA-N	12/75
WKAZ	Charleston, WV	950	1 kW/DA-N	4/12/46
WKTS	Sheboygan, WI	950	0.5 kW/DA-D	8/23/63
WLIT	Steubenville, OH	950	1 kW/DA-D	1/14/76
WLOF	Orlando, FL	950	5 kW/DA-N	6/23/49
WPEN	Philadelphia, PA	950	5 kW/DA-N	7/1/41
WRMA	Montgomery, AL	950	1 kW/DA-N	6/27/69
WSPA	Spartanburg, SC	950	5 kW/DA-N	7/31/44
WWJ	Detroit, MI	950	5 kW/DA-N	12/56
WXLW	Speedway, IN	950	0.5 kW/DA-D	9/28/79
WXLW	Speedway, IN	950	5 kW/DA-D	8/21/68
XEGM	Tijuana, BC	950	5/10 kW/DA-2	7/29/70
XEGM	Tijuana, BC	950	2.5 kW	

CFAM

Description Sheet
(8-28-67ct)

Station CFAM
Altona, Manitoba

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

er change
list 254
station
now in
peration
x new
frequency

ANTENNA DESCRIPTION SHEET

DIRECTIONAL DA-2

STATION CALL	C F A M
LOCATION	Altona, Manitoba.
FREQUENCY	950 kc/s
POWER	10,000 watts
CLASS	III
TIME	Unlimited

NOTIFICATION REFERENCE **NO. 229 Dated: July 31, 1967.**

GEOGRAPHICAL COORDINATES — Lat 49°01'57", Lon 97°56'57"

ARRAY CHARACTERISTICS — Six elements, guyed, uniform cross section, base insulated, series feed. Height 259 feet or 90 degrees. No top loading.

ELEMENT		ONE	TWO	THREE	FOUR	FIVE	SIX
bearing		ref	027°	029°	029°	236.5°	239.0°
spacing		ref	91.2° 262.5'	180° 518.0'	270° 777.1'	90.086° 259.27'	180.0° 518.0'
Night	R	4065	7440	5785	1940		
	Ø	+135.0°	5.0°	-135.0°	+99.0°		
Day	R	500				1000	500
	Ø	-147°				-02°	+147°

Ground System — 120 radials per tower, #10 AWG bare, soft copper wire, spaced uniformly, depth approximately 8 inches. Radials bonded along line between towers and bonded to soft copper strap at tower base. Maximum radial length 414 feet.

Predicted RMS
Night 585 mv/m at 1 mile for 10 kw
185 mv/m at 1 mile for 1 kw

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

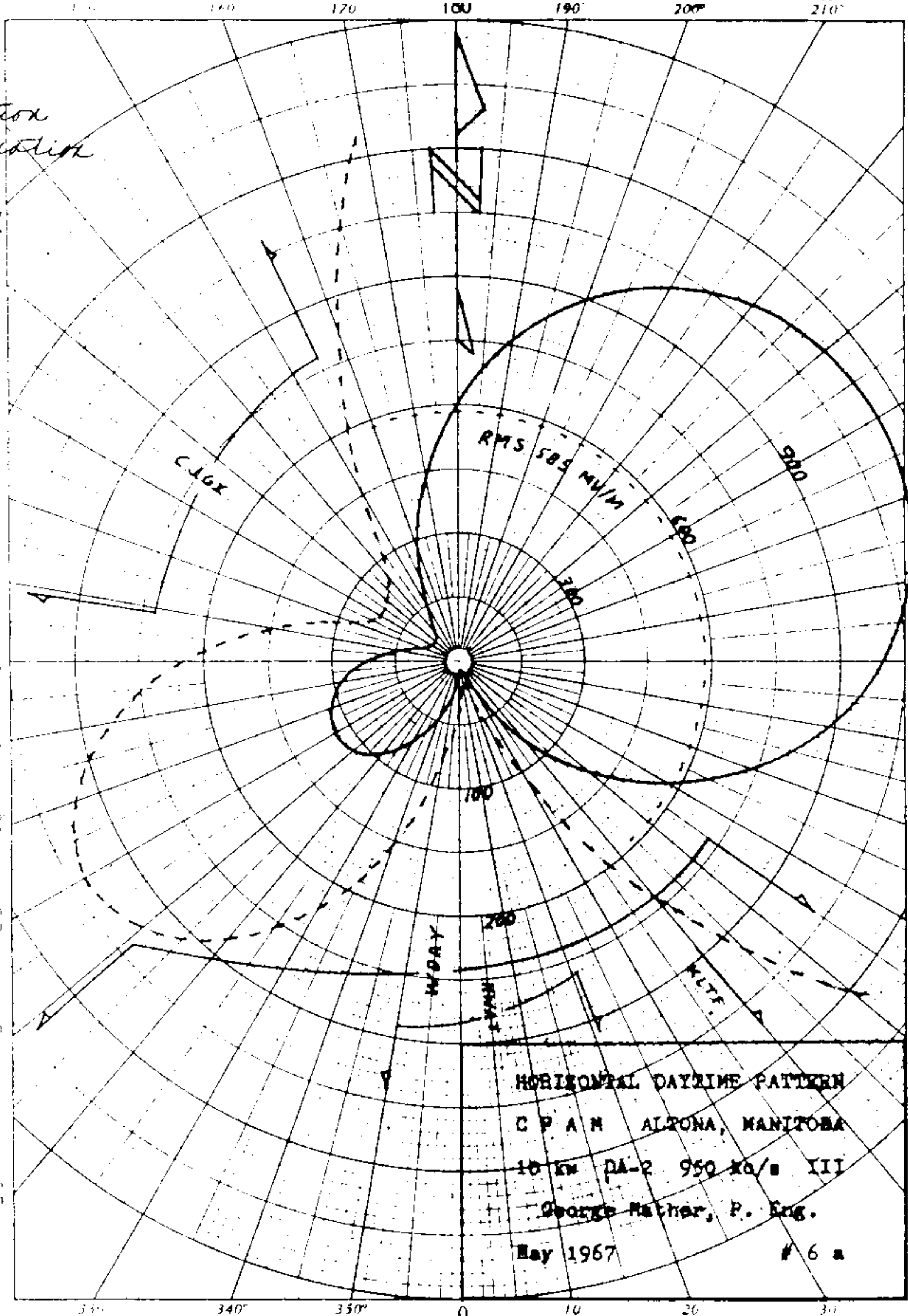
CFAM

Proposed Day
(8-28-67ct)

Station CFAM
Altona, Manitoba

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

Interchange list no. 254, Station no in operation on new frequency



K&E POLAR COORDINATE 46 4413

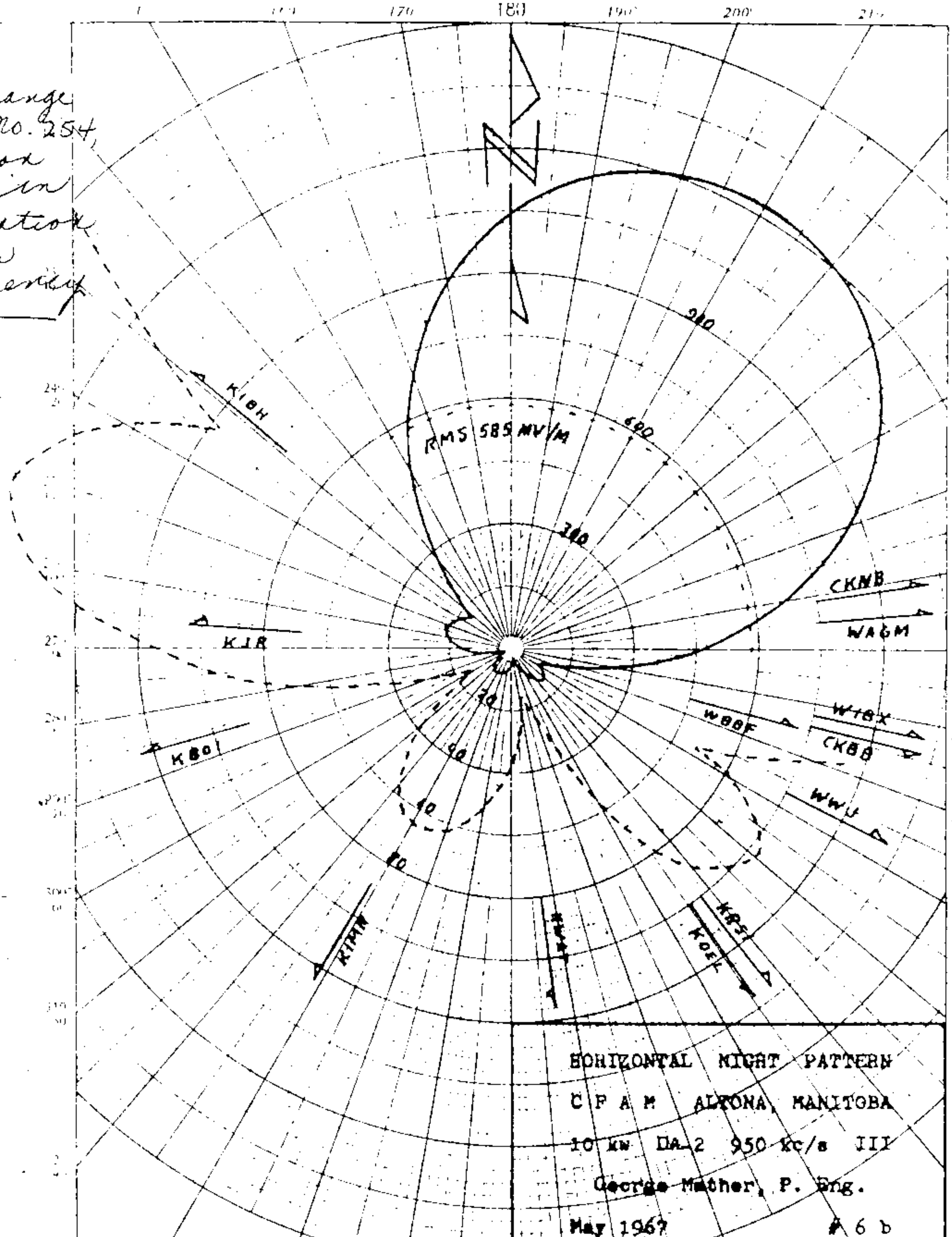
CFAM

Proposed Night
(8-28-67ct)

Station CFAM
Altona, Manitoba

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

Per Change List No. 254, Station now in operation on new frequency



HORIZONTAL NIGHT PATTERN
C F A M ALTONA, MANITOBA
10 kw DA-2 950 kc/s III
George Mather, P. Eng.
May 1967 # 6 b

CHER

Description Sheet
(5-25-67ct)

New Station
Sydney, N.S.

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

2.5 DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: NEW

Main Studio: Sydney, N.S.

Frequency: 950 Kc/s

Power: 10 KW, DA-1 Class III

Notification List No: 199

Date: **May 10, 1965**

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:

North Latitude: 46° 04' 44"

West Longitude: 60° 12' 00"

ANTENNA CHARACTERISTICS:

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

TOWER:	NO. 1 WEST	NO. 2 EAST
HEIGHT ABOVE INSULATORS:	175' (60.8°)	175'
OVERALL HEIGHT:	179'	179'
SPACING:	216' (75°)	
PHASING:	0	-127°
FIELD RATIO:	1	.9

ORIENTATION: Towers on a line bearing 70.5° east of True North.

GROUND SYSTEM: 120 radials No. 10 AWG copper wire per tower. Radials from each tower bonded to No. 4 AWG bus at right angles midway between towers. Effective radial length. .4λ (415')

Predicted Effective Field 570 mv/m (180 mv/m for 1 KW).

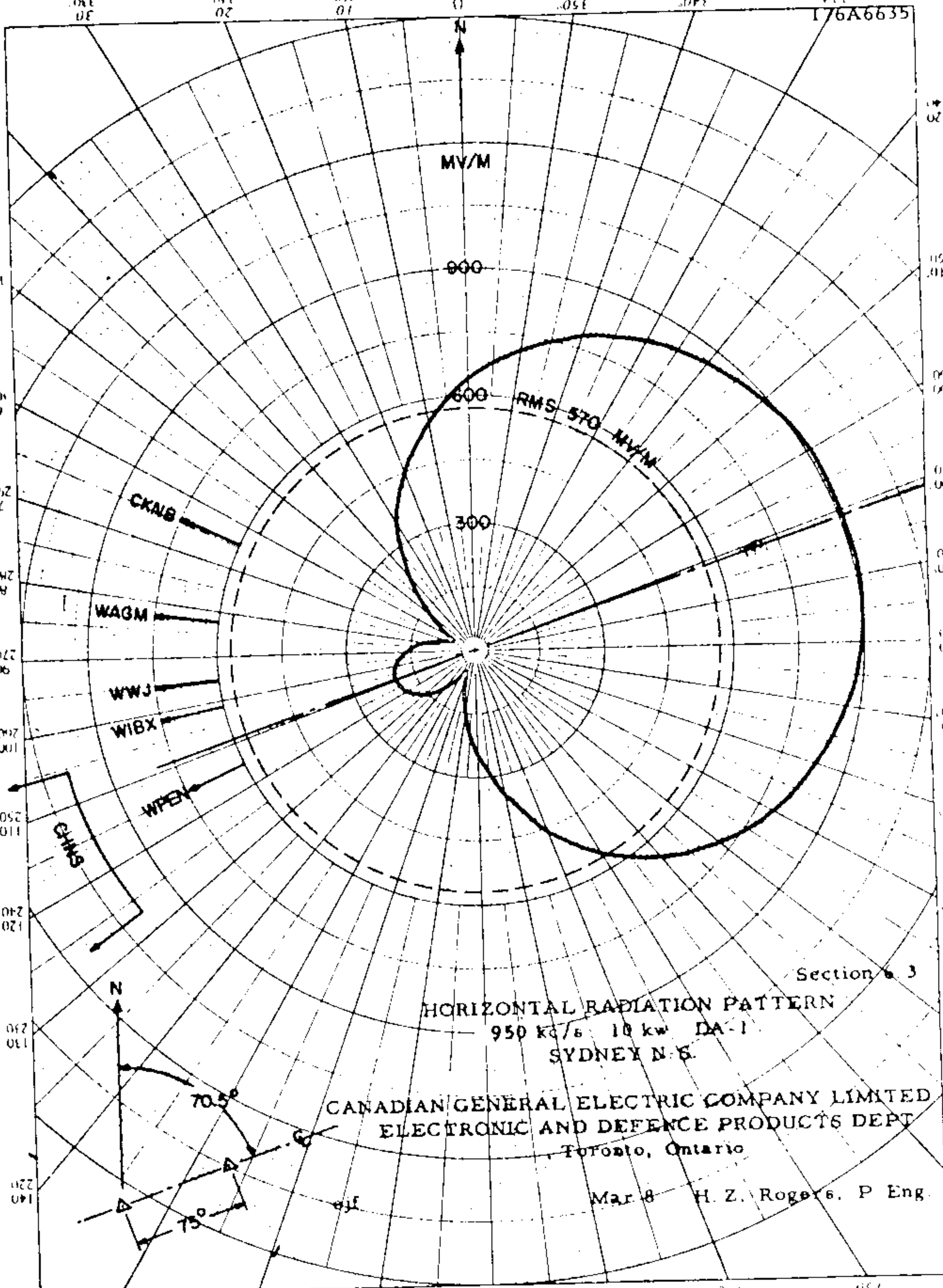
CHER

Proposed Day & Night
(5-25-67ct)

New Station
Sydney, N.S.

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

176A6635



K&E POLAR COORDINATE 359 31

8131

CKBB

DESCRIPTION SHEET (5-28-59g)

Station CKBB 2.5kw, 10kw-LS, DA-2, Class III
Barrie, Ontario, Canada 950 KC

RECEIVED

ANTENNA DESCRIPTION SHEET

DIRECTIONAL DA-2

STATION CALL	C K B B
FREQUENCY	950 kc/s
MAIN STUDIO	Barrie, Ontario.
POWER	Day 10 kw, 2.5 kw Night.
CLASS	III
TIME	Unlimited
NOTIFICATION REFERENCE	No. 131 DATE: February 27, 1959
GEOGRAPHICAL LOCATION	N.Lat. 44°18'06" W.Lon. 79°40'56"
ANTENNA CHARACTERISTICS	Three elements, guyed, uniform cross section, base insulated, series feed.

ELEMENT		NORTH	CENTRE	SOUTH
HEIGHT		259' 90°	259' 90°	259' 90°
SPACING		201.5' 70°	Ref.	172.7' 60°
BEARING		356°	Ref.	176°
DAY	ratio	1.0	1.77	1.0
	phasing	-155°	0°	165°
NIGHT	ratio	1.0	1.92	1.0
	phasing	-143.5°	0°	147.5°

GROUND SYSTEM: 120 radials per tower, #10 AWG bare, soft copper wire, uniformly spaced, depth approximately 8 in. Radials joined along line between towers and bonded to a soft copper strap at tower bases. Maximum radial length 415 feet.

PREDICTED R.M.S.: Day 595 mv/m at 1 mile for 10 kw
Night 297 mv/m at 1 mile for 2.5 kw

NOTE: Please retain the directional antenna radiation patterns previously notified for this station, and attach to this revised description sheet and daytime pattern. This notification is for the purpose of indicating a change in the daytime operation only.

GM 15/3/59

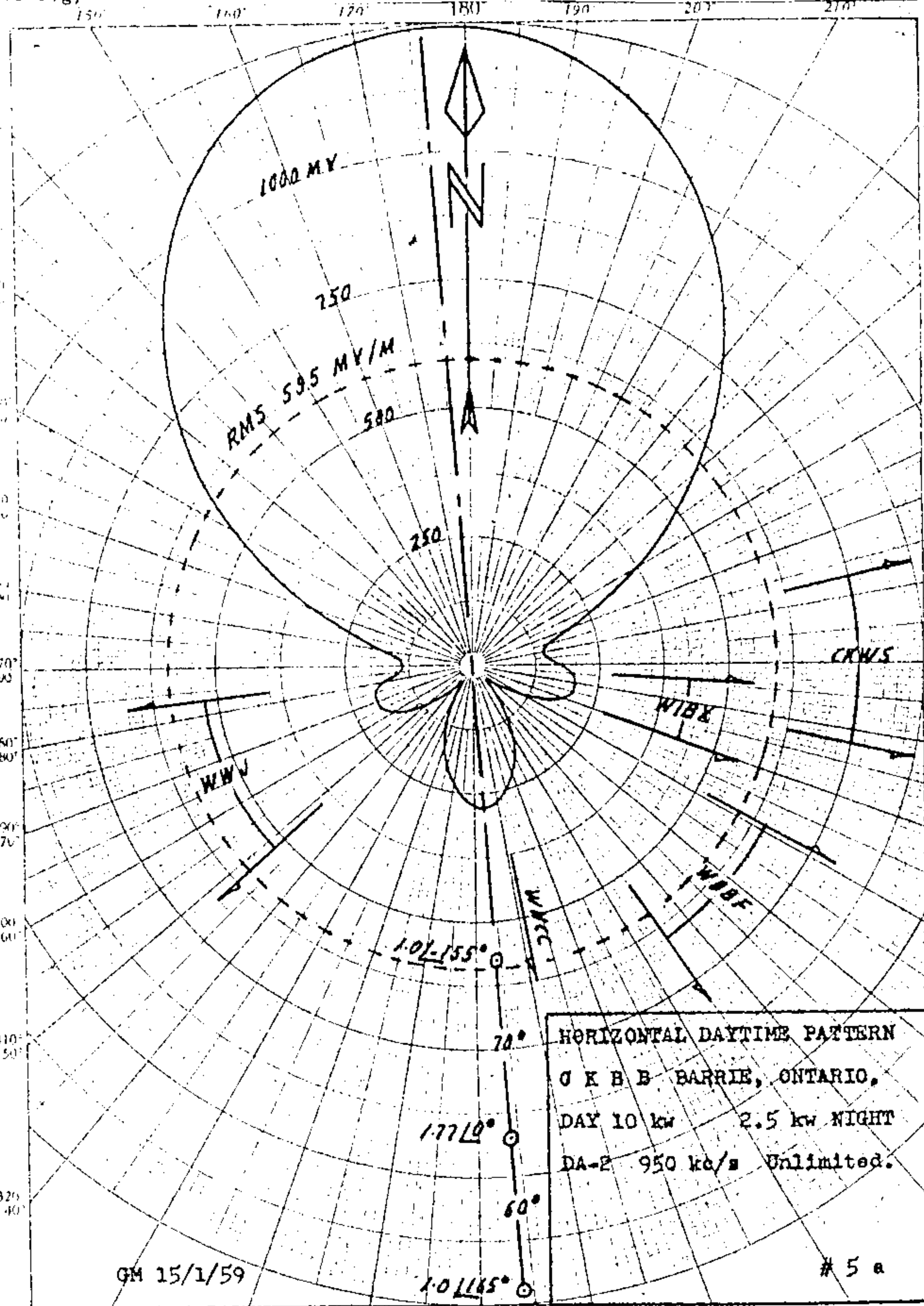
4

CKBB

31

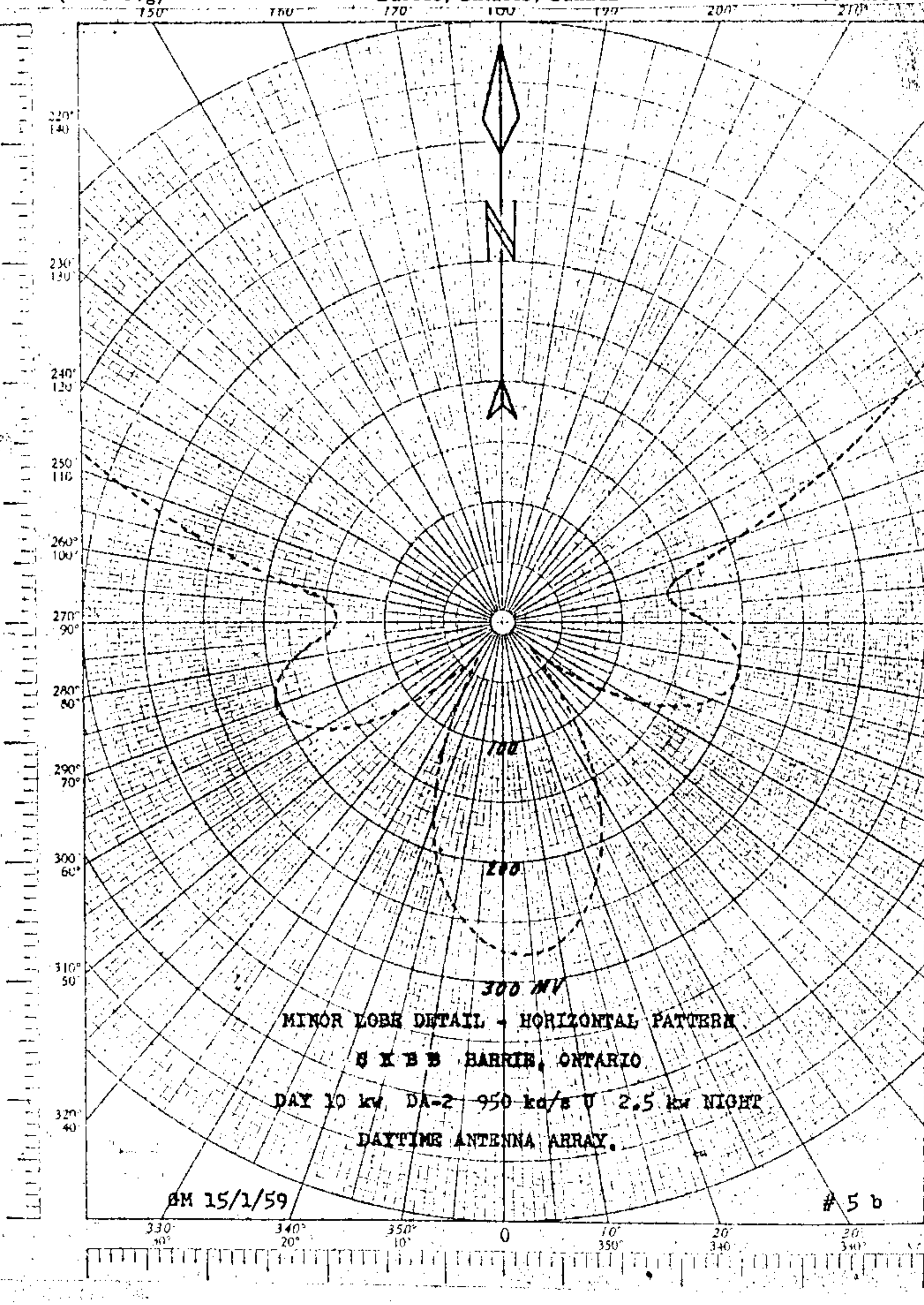
PROPOSED DAY
(5-28-59g)

Station CKBB 2.5 kw, 10kw-LS, DA-2,U, Class III
Barrie, Ontario, Canada 950 KC



CKBB

PROPOSED DAY NULLS (5-28-59g) Station CKBB Barrie, Ontario, Canada 2.5kw, 10kw-LS, DA-2,U,Class III 950 KC



MINOR LOBE DETAIL - HORIZONTAL PATTERN

C K B B BARRIE, ONTARIO

DAY 10 kw DA-2 950 kc/s U 2.5 kw NIGHT

DAYTIME ANTENNA ARRAY.

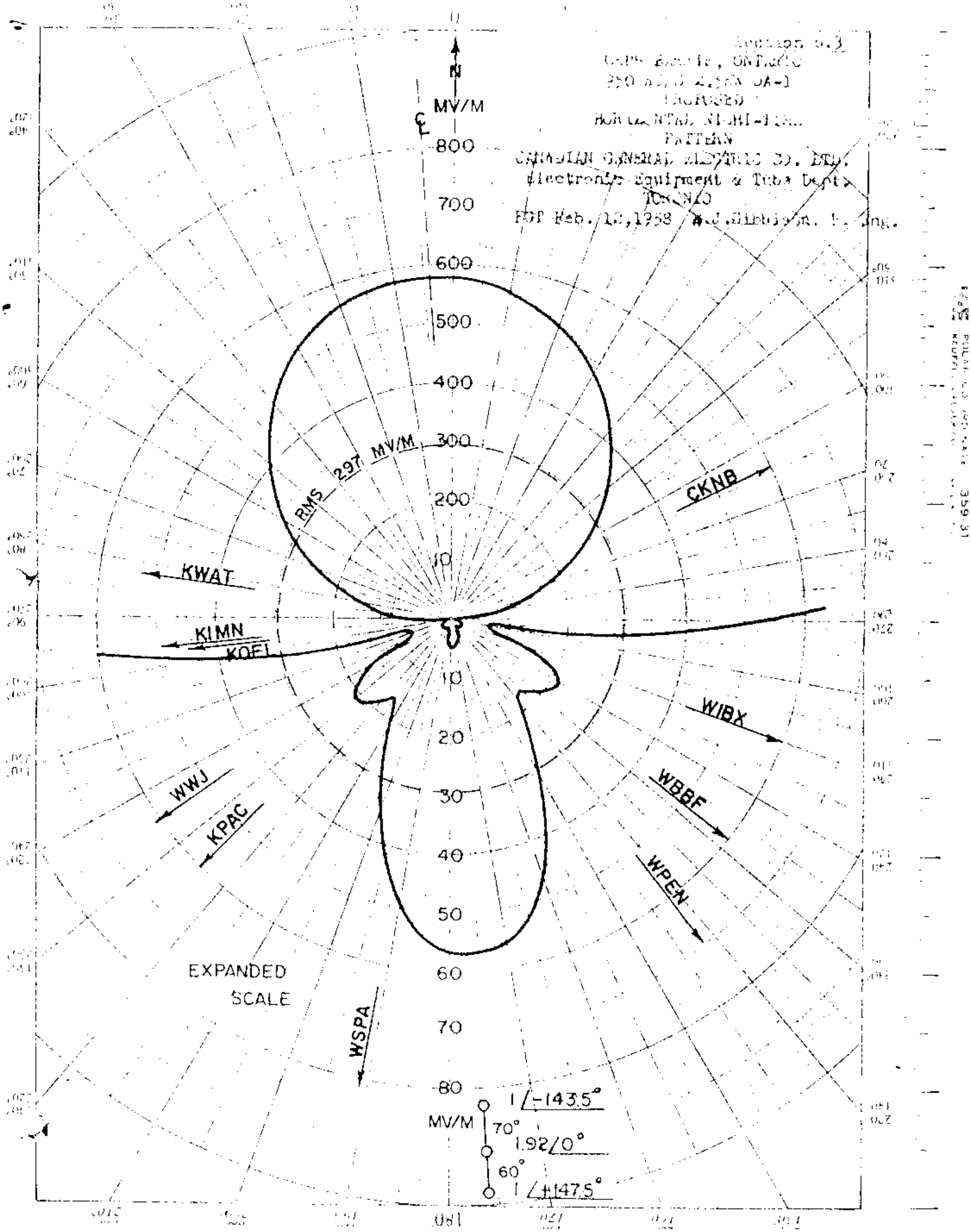
GM 15/1/59

5 b

CKBB

121

PROPOSED [redacted] & NIGHT Station CKBB 2.5kw, 5kw, DA-1,U, Class II
(7-8-58g) (Nightime Pattern) Barrie, Ontario, Canada 950 KC



172 CKNB

Description Sheet
(8-24-62ct)

Station CKNB
Campbellton, N.B.

1kw,10kw-LS,DA-2,U,Class III
950 kc

DIRECTIONAL ARRAY - DESCRIPTION SHEET

STATION: CKNB MAIN STUDIO: Campbellton, N.B.

FREQUENCY: 950 Kc/s POWER: 10 Kw-D/1 Kw-N CLASS: III

Notification List No.: 172 Date: July 9, 1962

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:

NORTH LATITUDE: 48° 00' 54"

WEST LONGITUDE: 66° 35' 09"

ANTENNA CHARACTERISTICS:

Mode of Operation: Directional full time, different pattern day and night. (DA-2)

Number of Elements: Two (2)

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

		West	East
TOWER:		West	East
HEIGHT ABOVE INSULATORS:		204'	204' (70°)
OVERALL HEIGHT:		213'	208'
SPACING:		135° (388 feet)	
PHASING:	Day :	0	- 106.5°
	Night:	0	- 112.5°
FIELD RATIO:	Day:	1	0.7
	Night:	0.45	1

ORIENTATION: On a line bearing 100 degrees East of True North.

GROUND SYSTEM: 120 radials 400 feet long spaced 3 degrees around each mast buried at a depth of 8 inches.

PREDICTED EFFECTIVE FIELD: Day: 590 mv/m at 1 mile for 10 Kw radiated or 186.5 mv/m at 1 mile per Kw radiated

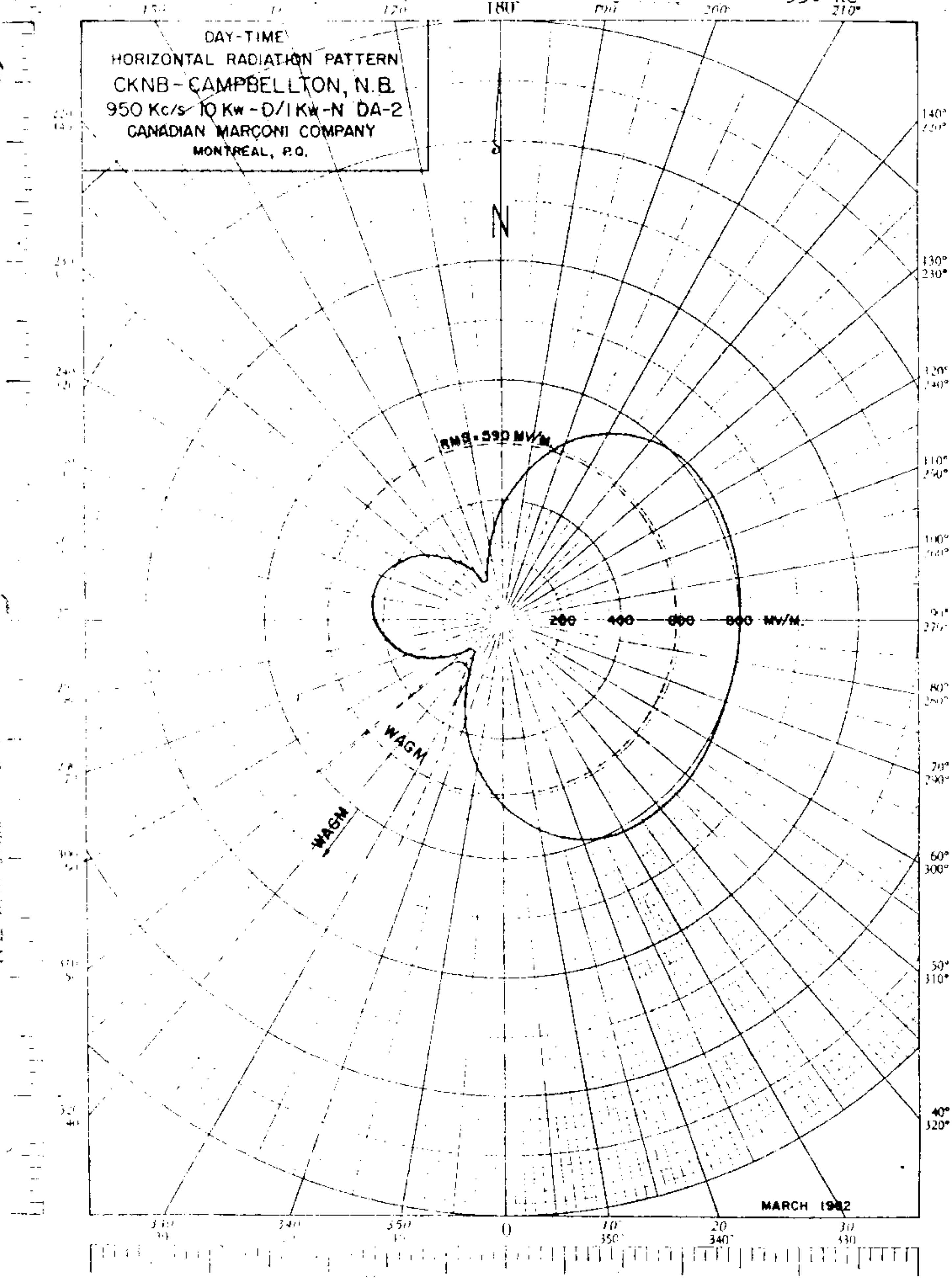
MEASURED EFFECTIVE FIELD: Night: 180 mv/m at 1 mile for 1 Kw radiated.

CKNB

Proposed Day
(8-24-62ct)

Station CKNB
Campbellton, N.B.

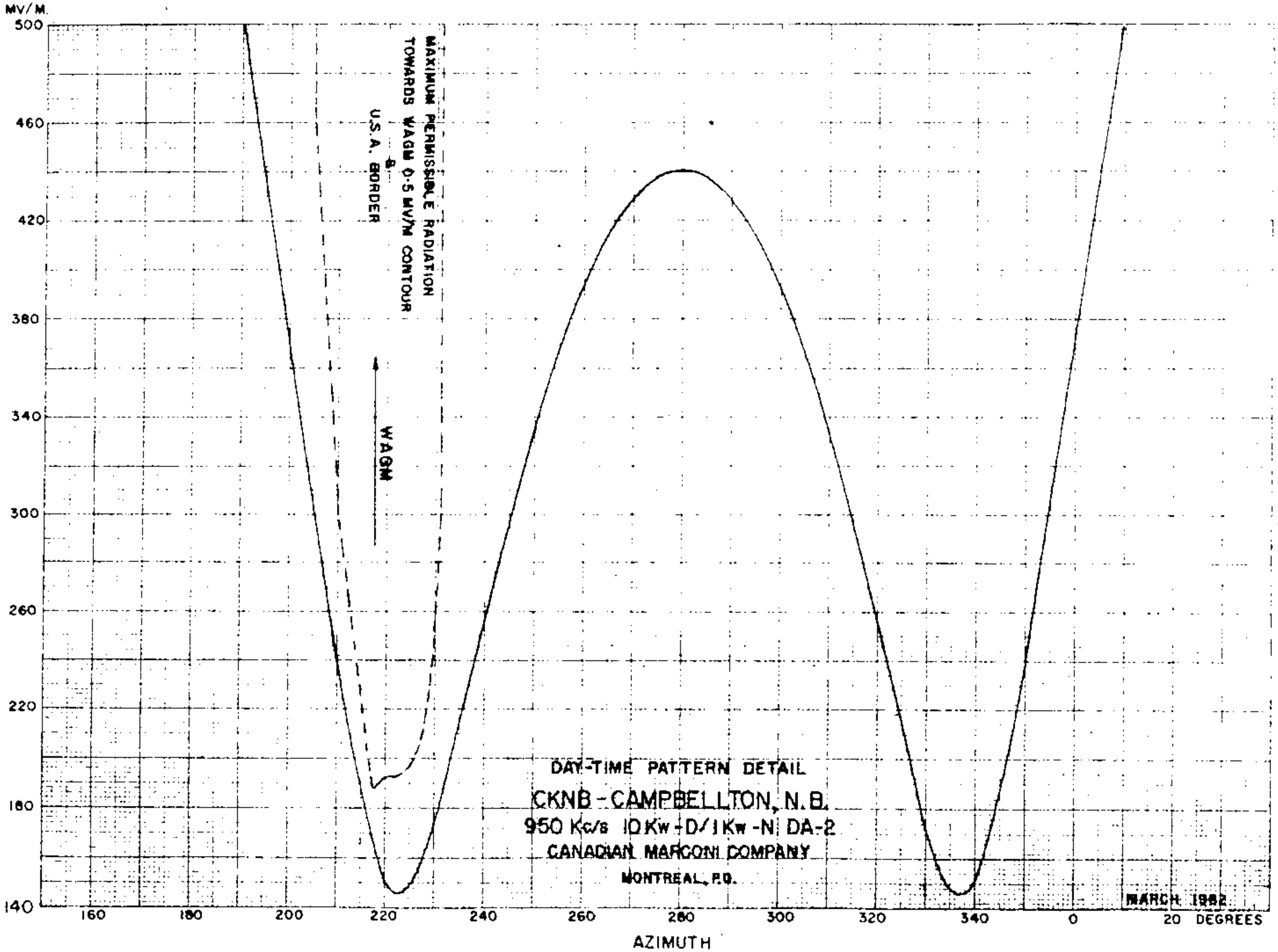
1kw,10kw-LS,DA-2,U,Class III
950 kc



Proposed Day Nulls
(8-24-62ct)

Station CKNB
Campbellton, N.B.

1kw, 10kw-LS, DA-2, U, Class III
950 kc



CKNB
950 KC
11

CKNB

DESCRIPTION SHEET (1-17-61g)

Station CKNB 1kw, DA-1,U, Class III
Campbellton, New Brunswick 950 KC

REVISED
DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: CKNB Main Studio: Campbellton, New Brunswick

Frequency: 950 kcs. Power: 1 kw Class: III

Notification List No. 1 Date: March 10, 1941

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:
North Latitude: 48° 00' 54"
West Longitude: 66° 35' 09"

ANTENNA CHARACTERISTICS

Authorized for Day & Night Operation. (DA-1)
Number of elements: Two (2)
Type of elements: Square uniform cross - section, guyed, base insulated for series feed.

Tower:	0 (East)	1 (West)
Height above insulators:	204' (70°)	204' (70°)
Height above ground level:	208'	213'
Spacing:	135°	
Phasing:	0	112.5° lead
Field Ratio:	1	0.45
Orientation:	Towers on a line bearing 100° true.	
Ground System:	120 radials, 400' long spaced 3°.	
Predicted effective field:	180 mv/m	

NOTE: The purpose of this revised description sheet is to show a correction in phasing and the geographical location of the antenna system.

November 22, 1960.

CKNB

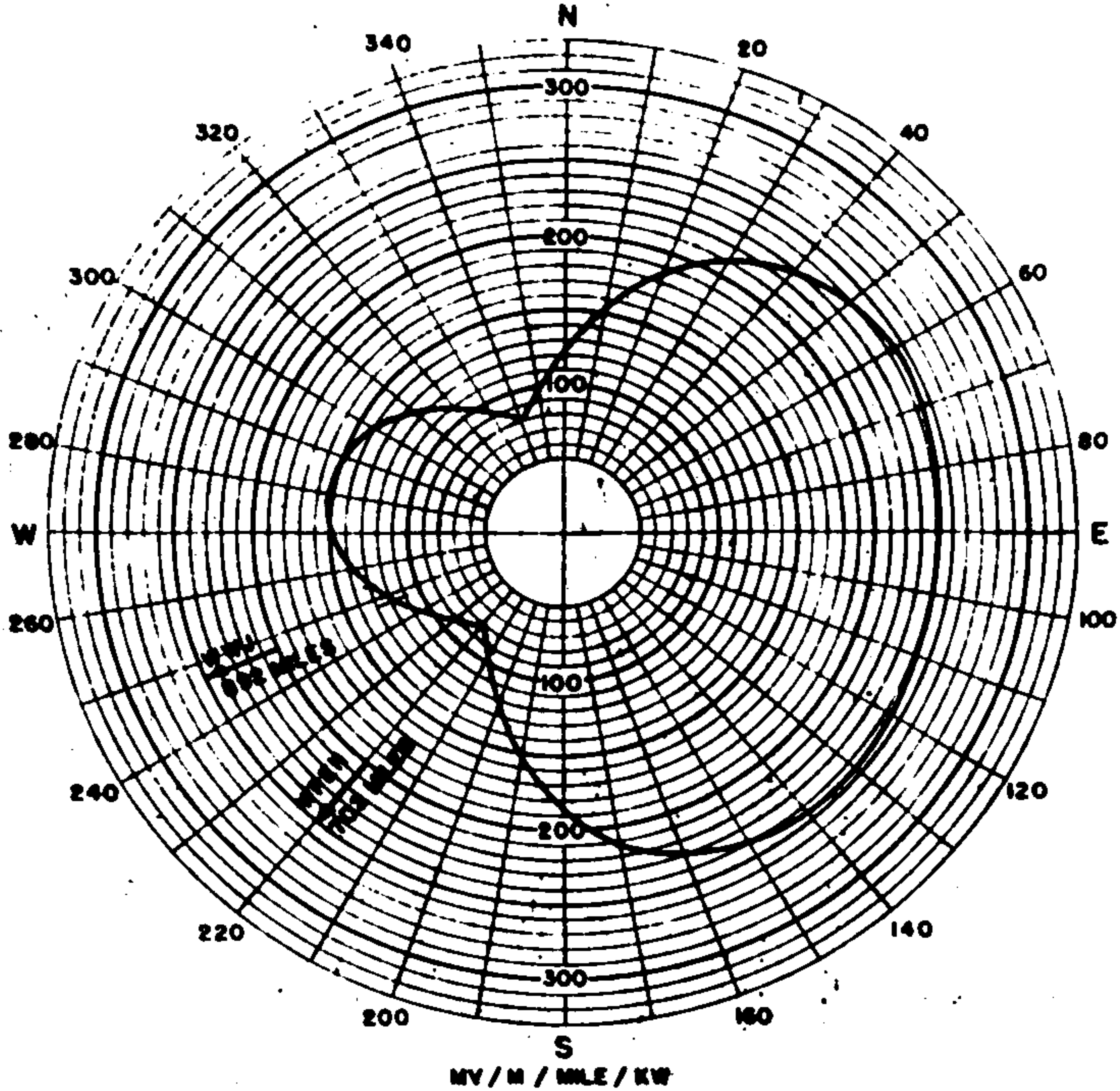
DESCRIPTION SHEET   Station CKNB   1kw, DA-1,U, Class III
Campbellton, New Brunswick   950 KC

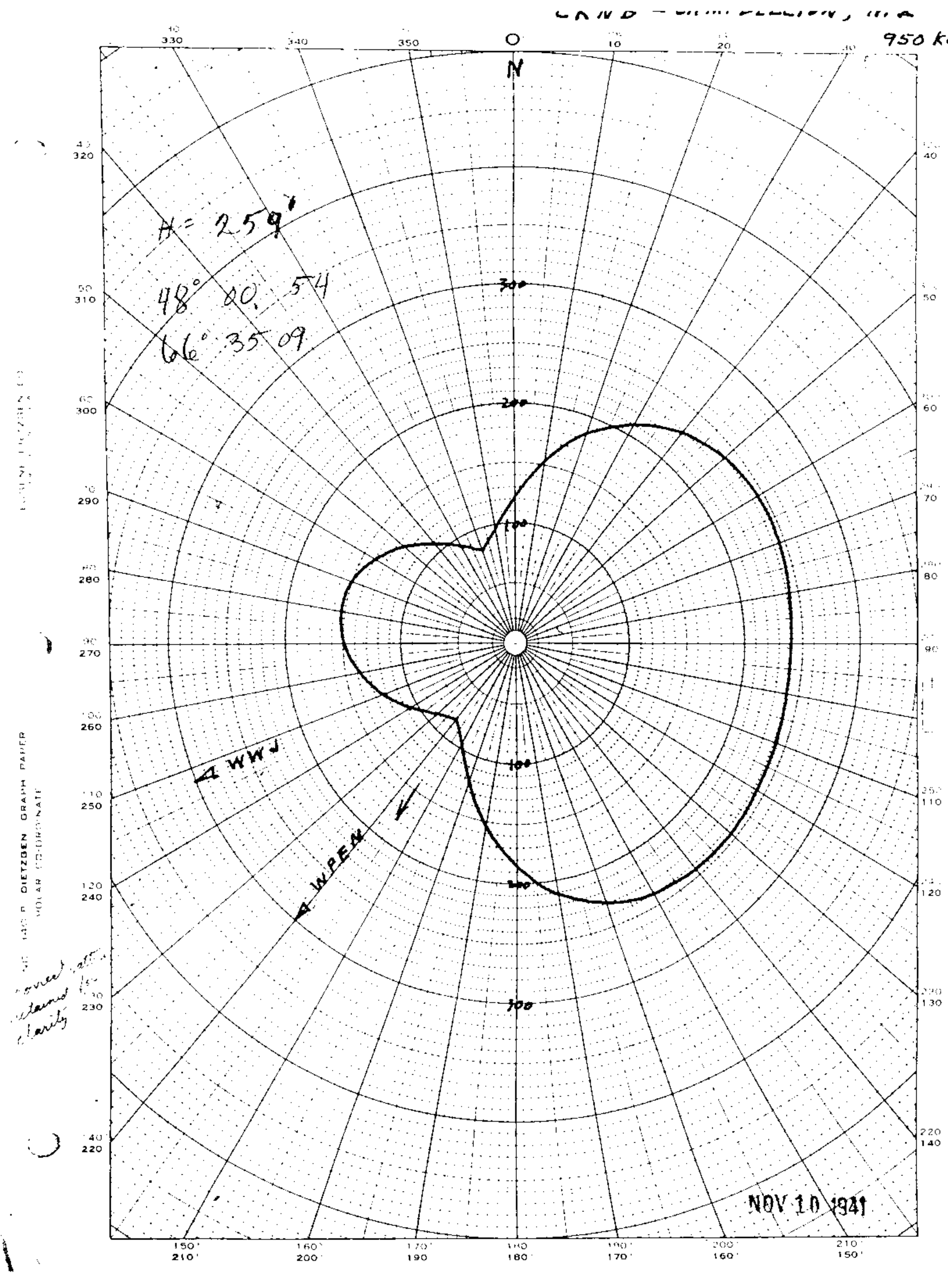
CKNB - Campbellton, N.B.

Power: 1 kilowatt
Frequency: 950 Kc.
Authorized: April, 1941
Commenced Operation: Not yet in operation
Location:
   Latitude: 48° 00' 54"
   Longitude: 65° 35' 03"
Antenna:
   2 elements uniform sectio guyed mast, base
   indulated for series feed.
   Height above insulators 259 feet
   Overall height 260 feet
   Spacing: 365 feet
   Orientation: line of masts 100° true
Phasing: West mast reference, East mast 112.5°
   Currents: East mast current 0.9 west mast current.
Ground: 120 radials 400 feet long per mast.

PATTERN DAY & NIGHT Station CKNB 1kw, DA-1,U, Class III
Campbellton, New Brunswick 950 KC

CKNB




950 kc
N
H = 259'
48° 00' 54
66° 35' 09
WWJ
WPEN
100
200
300
NOV 10 1941
DIETZGEN GRAPH PAPER
POLAR COORDINATE

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: CMBF Main Studio: Havana, Cuba

Frequency: 950 kc Power: 10 kw

See Annex NARBA, Washington, 1950. July, 1952; Class I-D

Location of antenna system: North Latitude: 23° 04' 57"
West Longitude: 82° 27' 41"

ANTENNA CHARACTERISTICS

Authorized for DA-1 operation

Elements: Two steel towers of uniform square cross section, self-supporting, shunt fed.

Tower:	Northwest	Southeast
Height:	104°	104°
Spacing:	120°	between towers
Phasing:	0	-70°
Field Ratio:	1.0	1.0

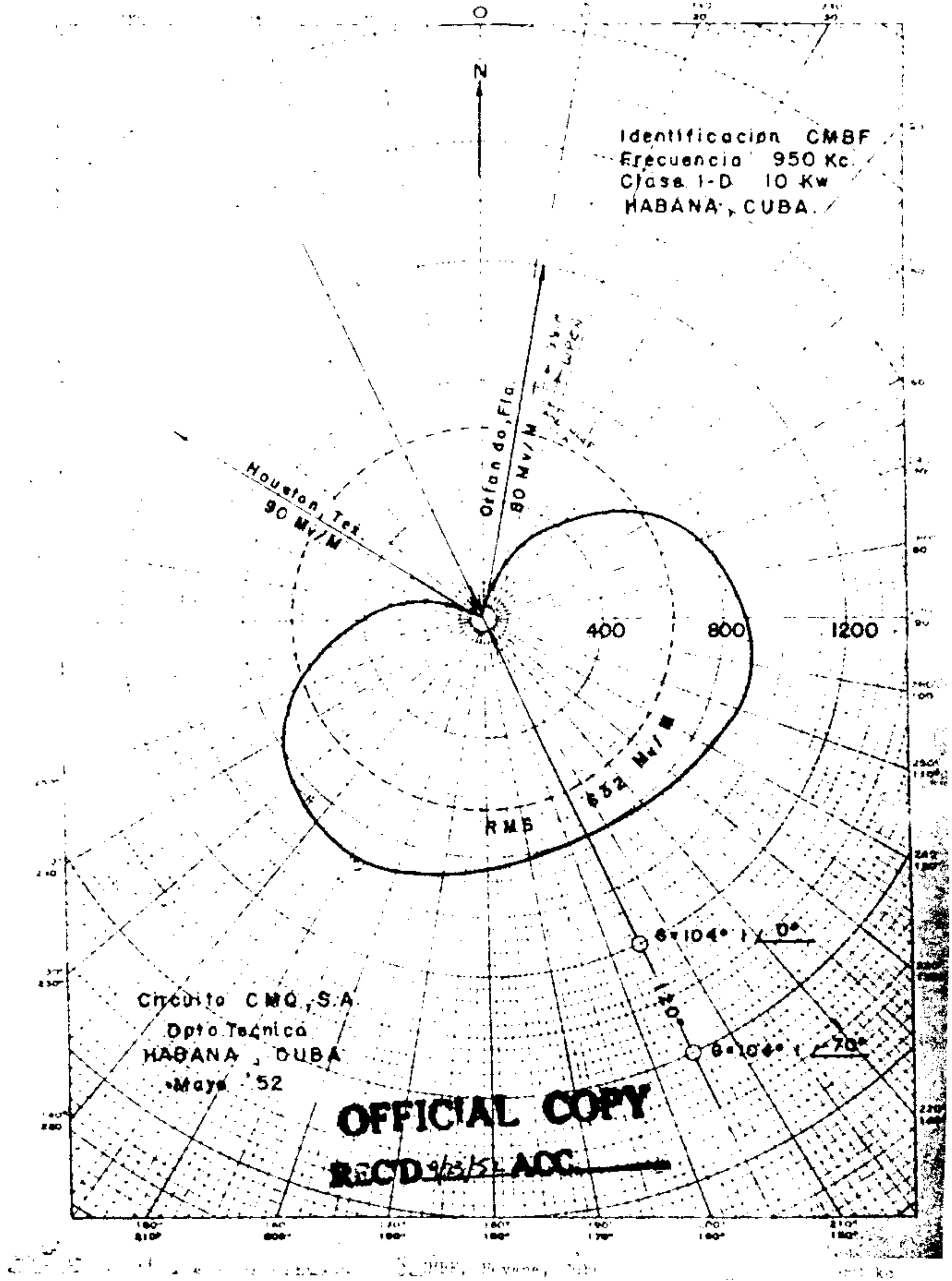
Orientation: Towers on a line bearing 155 degrees true.

Root mean square unattenuated feild at one mile for rated power 632 mv/m.

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

CMBF

CMBF, HAVANA, CUBA 10 kw, DA-1 950 kc



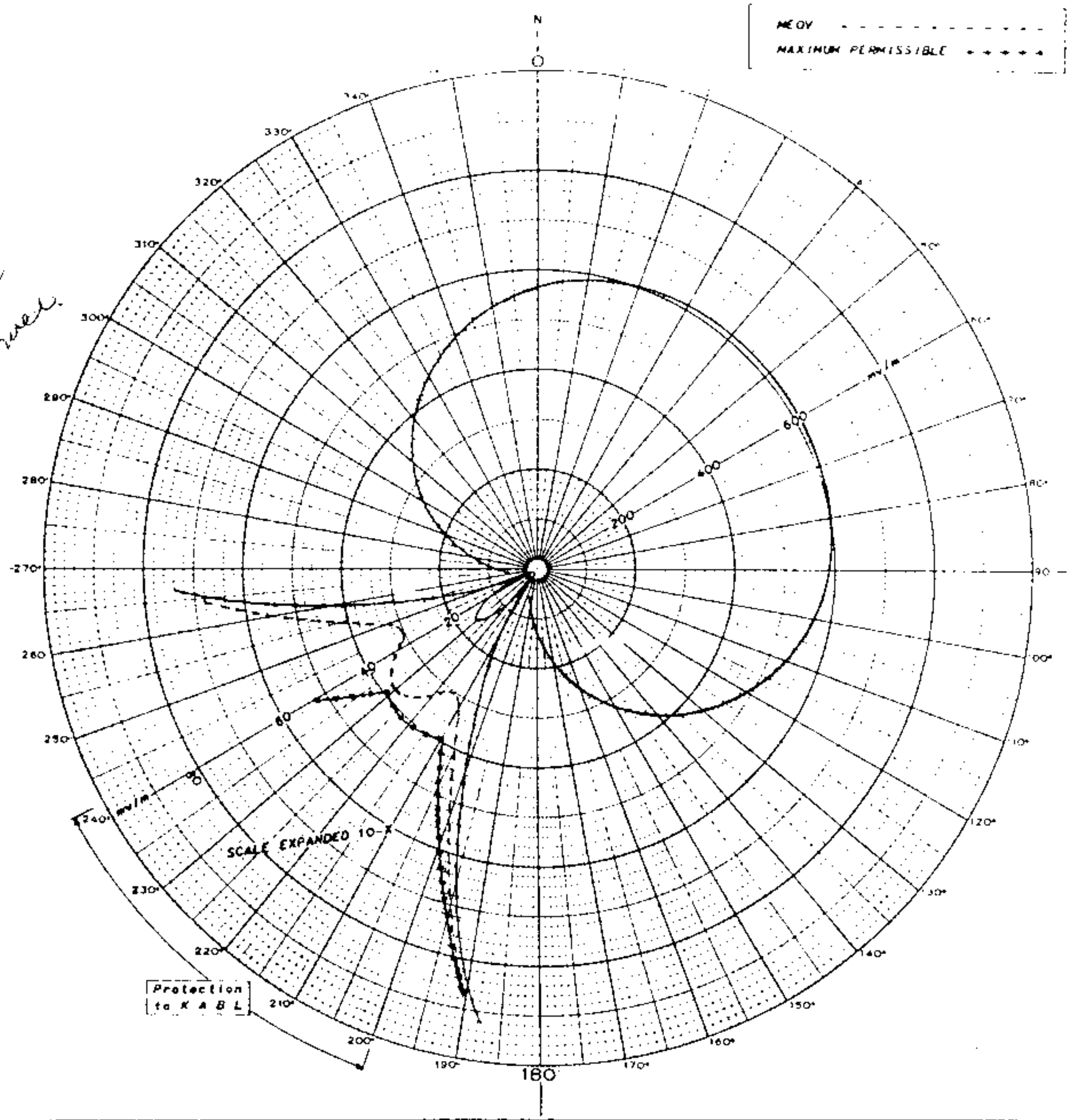
KAHI

PROPOSED DAY
(6-14-61g)

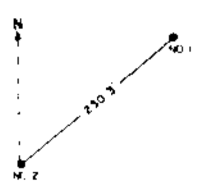
Station KAHI 5kw, DA-D,D
Auburn, California 950 KC

9-6-62 granted Cp for increase to 5 KW & DA-D

5/12/64 Lic granted for increase in power



TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

Tower No	Electrical Height $G°$	True Tower Orientation $\beta°$	Spacing $S°$	Phasing $\psi°$	Horizontal Field mv/m E	Field Ratio F
1	97.5	0	0	0		1.0
2	97.5	230	80	103		1.0
3						
4						
5						
6						
7						
8						
9						
10						

Elev Angle $\theta°$	Elevation RMS Field mv/m E_θ
0	416
10	
20	
30	
40	
50	
60	
70	
80	

STATION DATA

CALL	KAHI
FREQUENCY	950 kc
POWER	5 kw
TIME OF OPERATION	DAYTIME
TYPE OF OPERATION	DA-D
DAYTIME TOWERS	2
NIGHTTIME TOWERS	-
NO. RADIALS PER TOWER	120
LENGTH OF RADIALS	90° 260 ft
GROUND SCREEN DIMENSION	NONE
LAT	38° 56' 33"
LONG	121° 05' 24"
SUPERSEDES	
PATTERN No.	

CECIL LYNCH, CONSULTING ENGINEER
MODESTO, CALIFORNIA

STATION KAHI PROPOSED POWER INCREASE
5.0 kw DA-D 950 kc
AUBURN, CALIFORNIA
April, 1961

FIGURE NO. 2

FCC File No. BP-14839
Accepted 6-5-61

KAHI
Auburn, California 950 KC

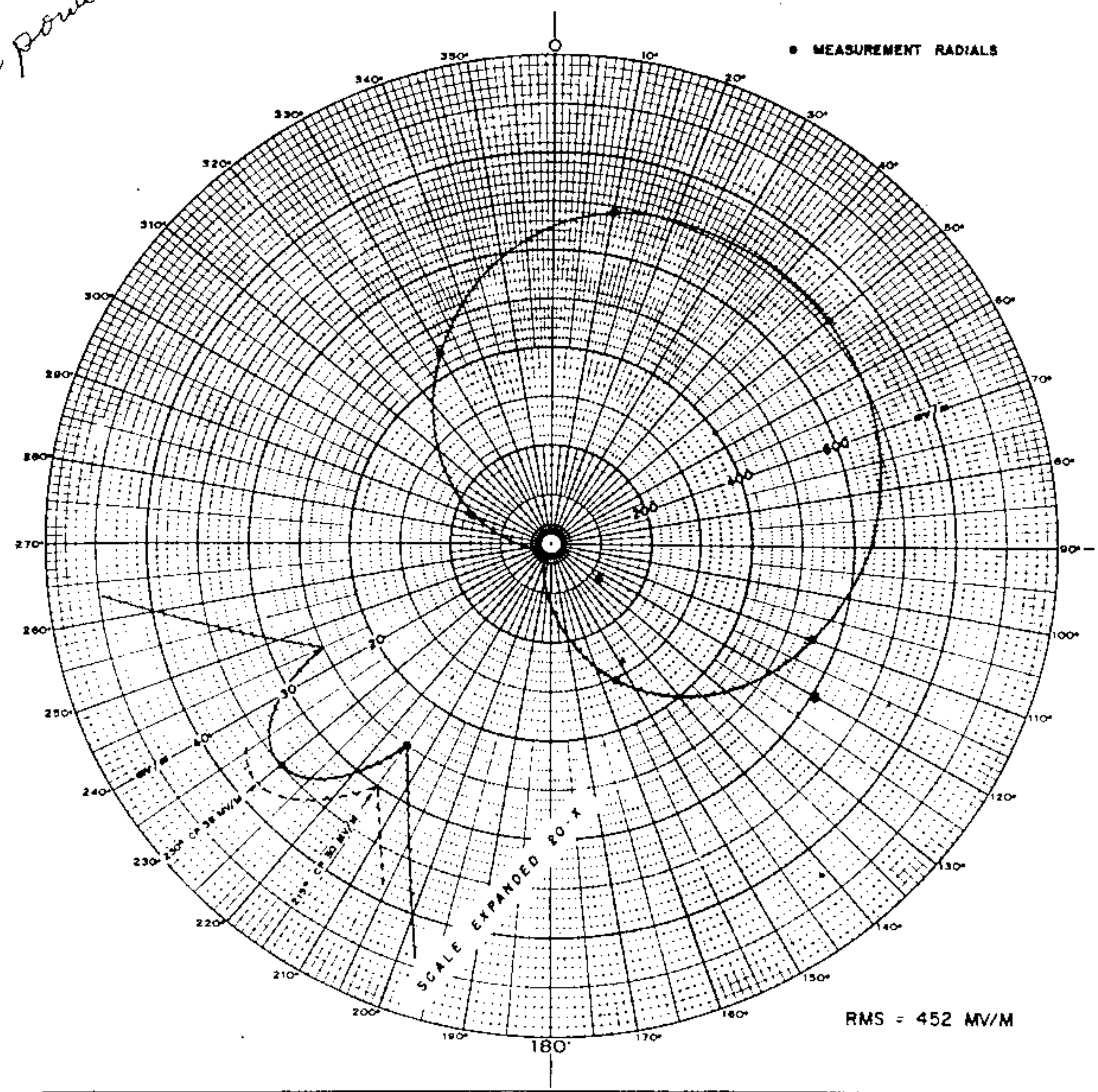
KAHI

Measured Day
(3-30-64ct)

Station KAHI
Auburn, California

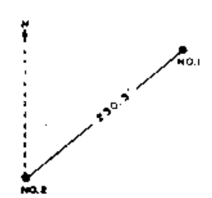
5kw,DA-D,D
950kc

6/12/64
Lg for me power



RMS = 452 MV/M

TOWER PLACEMENT SKETCH



DIRECTIONAL RADIATION PATTERN

THEORETICAL

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	97.5	0	0	0		1.0	0	
2	97.5	230	80	103		1.0	10	

OPERATING

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	97.5	0	0	0		0.92	0	
2	97.5	230	80	115		1.0	10	

DAYTIME OPERATION ☒ NIGHTTIME OPERATION ☐ P, + kw

STATION DATA

CALL	KAHI
FREQUENCY	950 kc
POWER	5.0 kw
TIME OF OPERATION	DAYTIME
TYPE OF OPERATION	DA-D
DAYTIME TOWERS	2
NIGHTTIME TOWERS	–
No RADIALS PER TOWER	
LENGTH OF RADIALS	ft
GROUND SCREEN DIMENSION	
LAT	38° 56' 33"
LONG	121° 05' 24"
SUPERSEDES	
PATTERN No	

CECIL LYNCH, CONSULTING ENGINEER
MODESTO, CALIFORNIA

STATION KAHI • ANTENNA PROOF OF PERFORMANCE
950 kc 5.0 kw DA-D
AUBURN, CALIFORNIA

File BP-14,839 November 1963

FIGURE NO. 9

FCC File No. BL-10434
Accepted 3-12-64

Station KAHI
Auburn, California

950kc

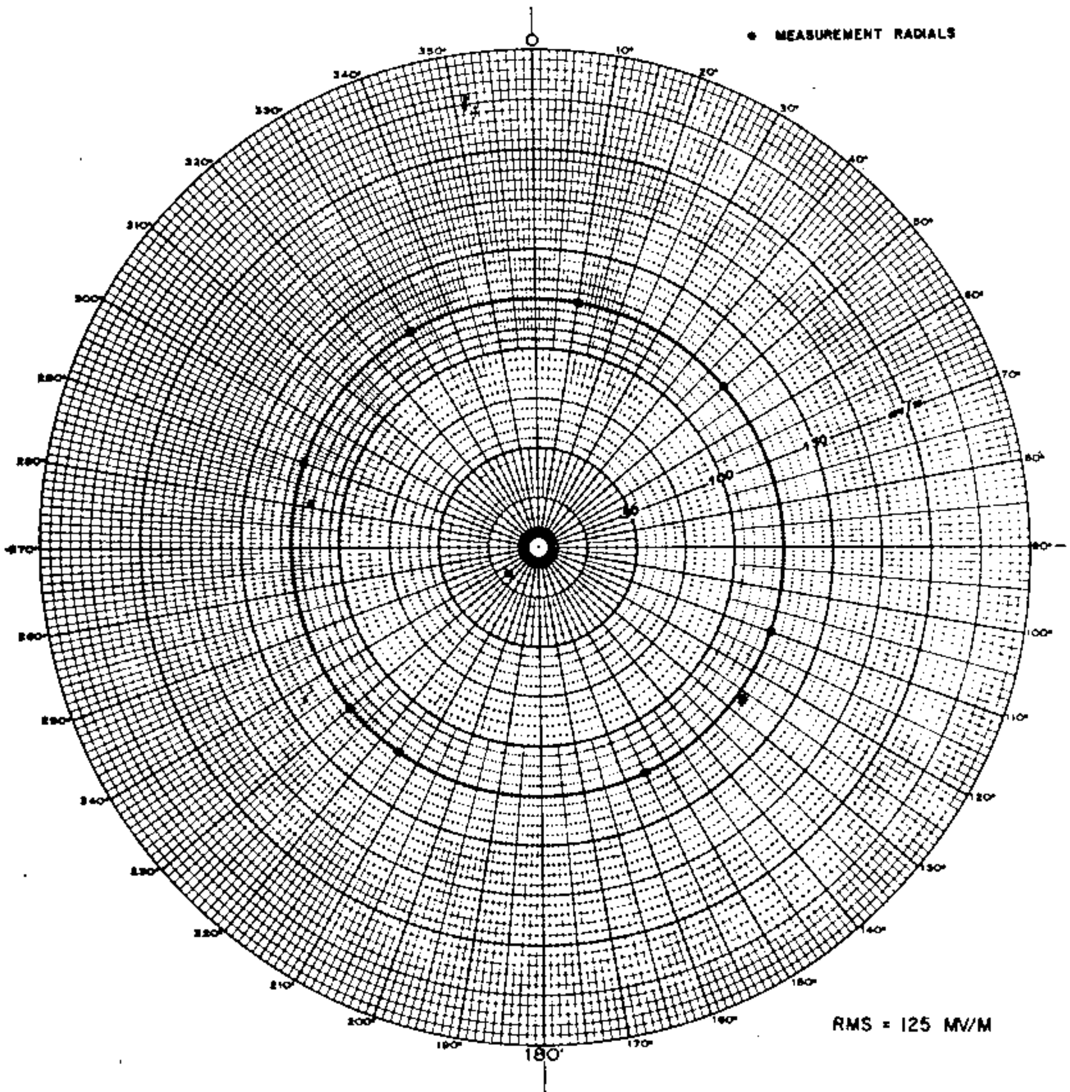
KAHI

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

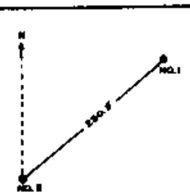
Station KAHI
Auburn, California

5kw,DA-D,D
950kc

6/12/64
JG for inc. in power



TOWER PLACEMENT SKETCH



NON-DIRECTIONAL PATTERN

TOWER No.	ELECTRICAL HEIGHT °	TRUE TOWER ORIENTATION °	SPACING °	PHASING °	HORIZONTAL FIELD mv/m E	FIELD RATIO F
1	87.5	0	0	0		1.0
2	87.5	230	80	103		1.0
3						
4						
5						
6						
7						
8						
9						
10						

Radiating Element, No. 2.
Power (Indirect Determination), 0.5 kw.

DAYTIME OPERATION ☒ NIGHTTIME OPERATION ☐

ELEV. ANGLE °	ELEVATION RMS FIELD mv/m E_θ
0	
10	
20	
30	
40	
50	
60	
70	
80	
E_s =	mv/m
P_s =	kw

STATION DATA

CALL	KAHI
FREQUENCY	950 kc
POWER	5.0 kw
TIME OF OPERATION	DAYTIME
TYPE OF OPERATION	DA-D
DAYTIME TOWERS	2
NIGHTTIME TOWERS	-
No. RADIALS PER TOWER	
LENGTH OF RADIALS	' ft.
GROUND SCREEN DIMENSION	
LAT	38° 56' 33"
LONG.	121° 05' 24"
SUPERSEDES	
PATTERN No	

CECIL LYNCH, CONSULTING ENGINEER
MODESTO, CALIFORNIA

STATION KAHI • ANTENNA PROOF OF PERFORMANCE
950 kc 5.0 kw DA-D
AUBURN, CALIFORNIA

File BP-14,839 November 1963

FIGURE NO. 8

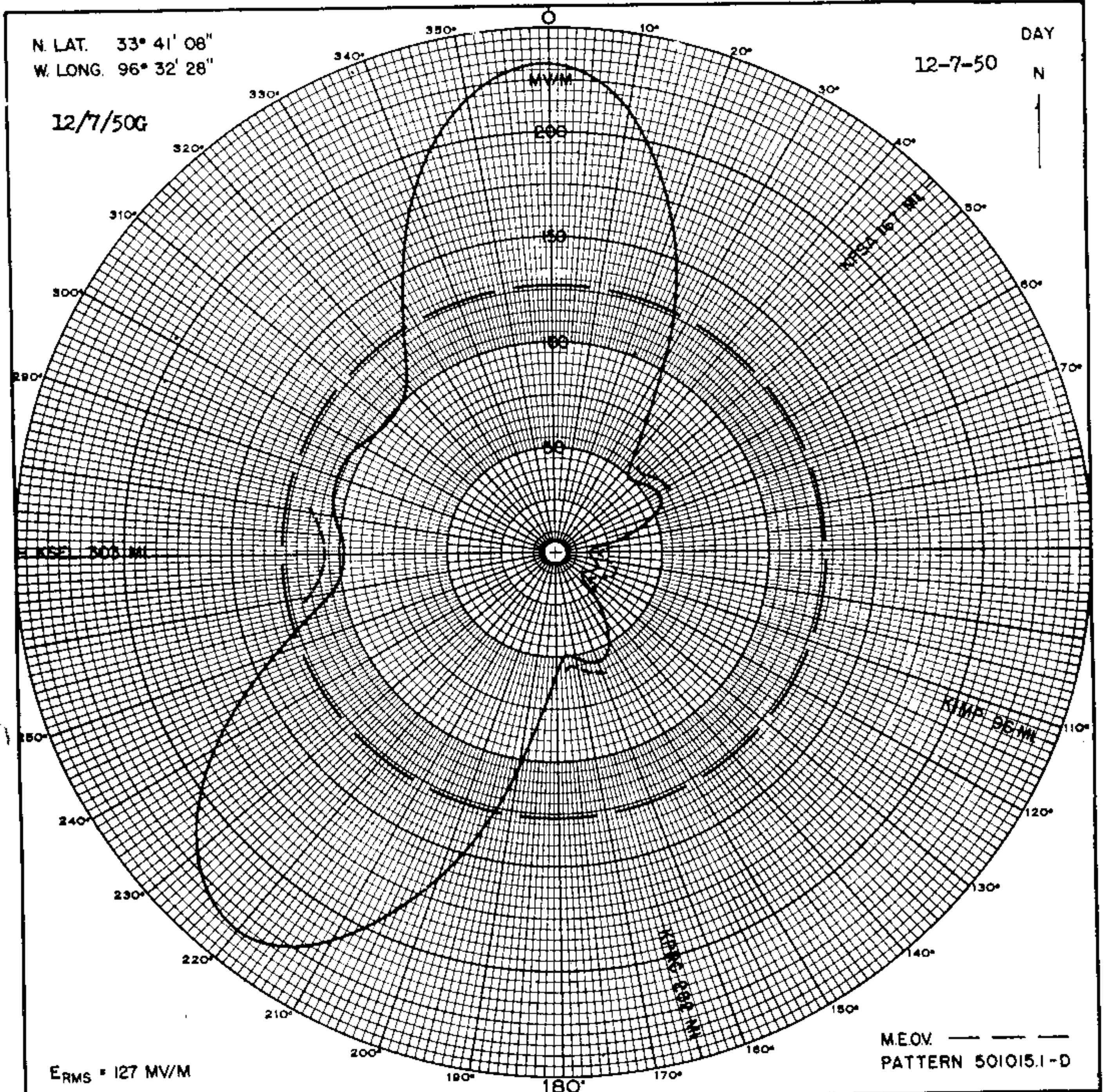
FCC File No. BL-10434
Accepted 3-12-64

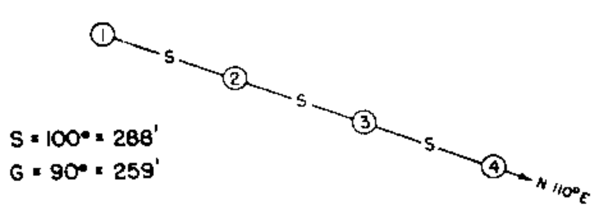
Station KAHI
Auburn, California

950kc

KDSX

PROPOSED DAY KDSX, DENISON, Sherman TEXAS 500w, DA-2 950 kc





RADIO STATION KDSX

DENISON, TEXAS

950 KC 500 WATTS DA-2

TOWER	1	2	3	4
RELATIVE FIELD	1.000	0.766	0.555	0.538
FIELD PHASE	0.0°	123.5°	-4.5°	138.0°

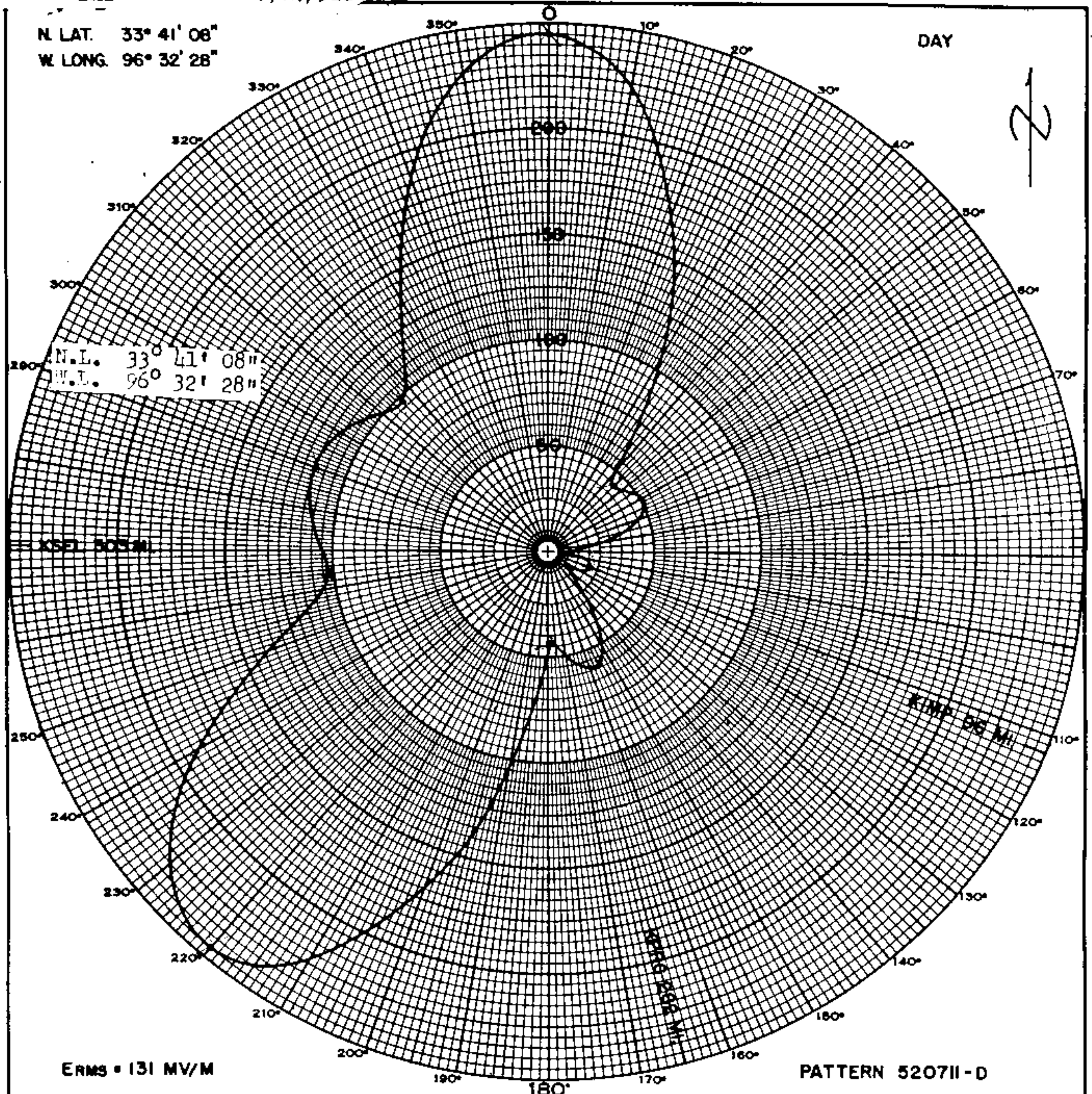
A. EARL CULLUM, JR.

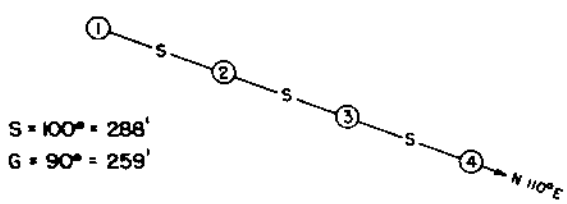
CONSULTING RADIO ENGINEERS

501015.1 FIGURE 9A

KDSX

MEASURED DAY | KDSX, DENISON, TEXAS 9/17/52G | 500W, U, DA-2 | 950 KC





RADIO STATION KDSX

DENISON, TEXAS

950 KC 500 WATTS DA-2

PATTERN BASED ON FIELD INTENSITY MEASUREMENTS

A. EARL CULLUM, JR.

CONSULTING RADIO ENGINEERS

520711 FIGURE 2B

RECD FCC 8/1/52 ACC 9/8/52 BL-4764 | KDSX, DENISON, TEX. | 950 KC

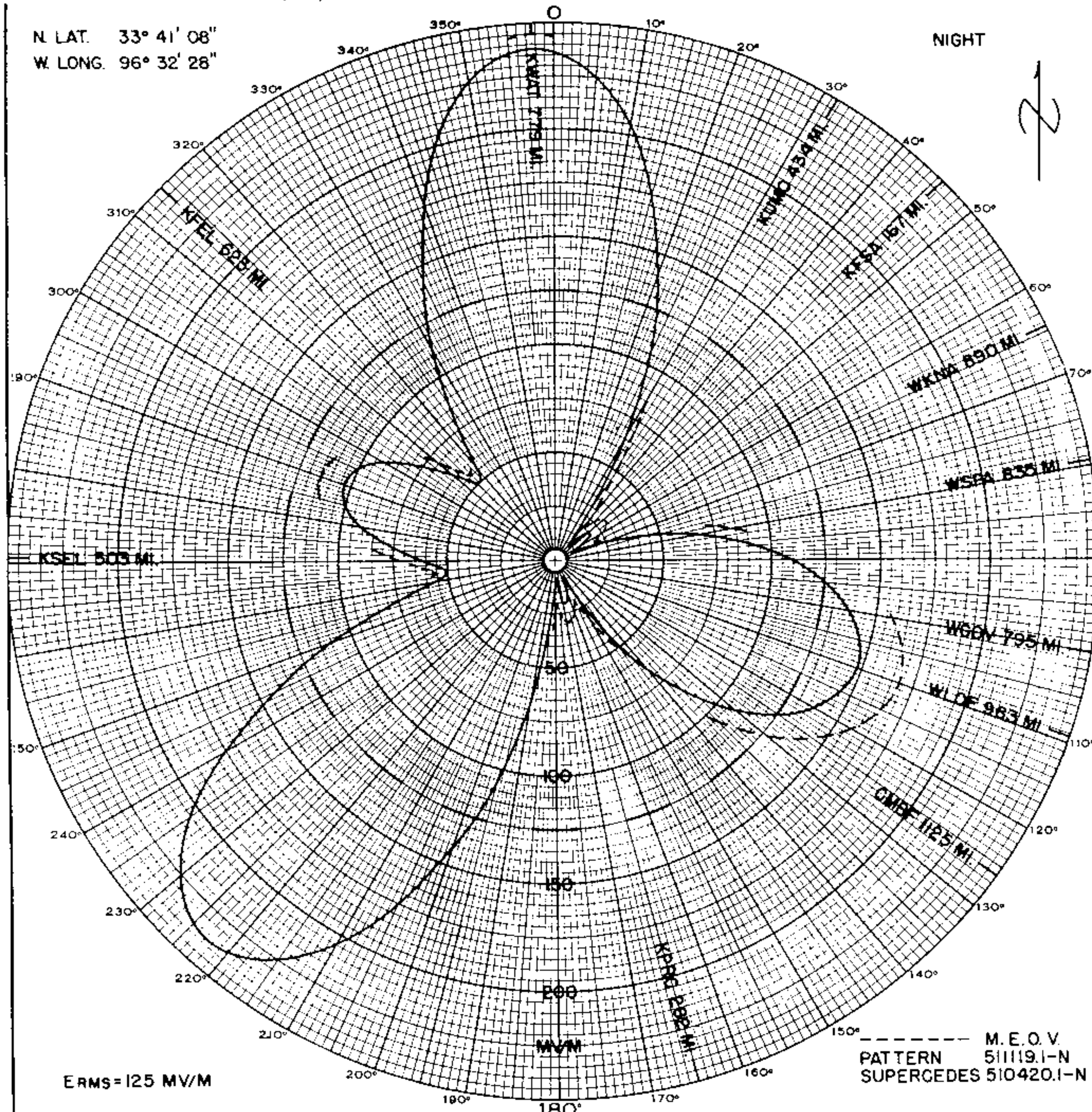
PROPOSED
NIGHT

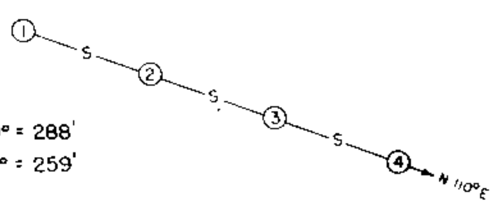
KDSX, DENISON, TEXAS
12/20/51G

500W, U, DA-2

950 KC

KDSX





S = 100° = 288'
G = 90° = 259'

RADIO STATION KDSX

DENISON, TEXAS

950 KC 500 WATTS DA-2

TOWER	1	2	3	4
RELATIVE FIELD	1.000	1.222	1.060	0.812
FIELD PHASE	0.0°	152.5°	6.1°	163.0°

A. EARL CULLUM, JR.

CONSULTING RADIO ENGINEERS

511119.1

FIGURE 10A

MP RECD 12/3/51 ACC 12/14/51 BMP-5762

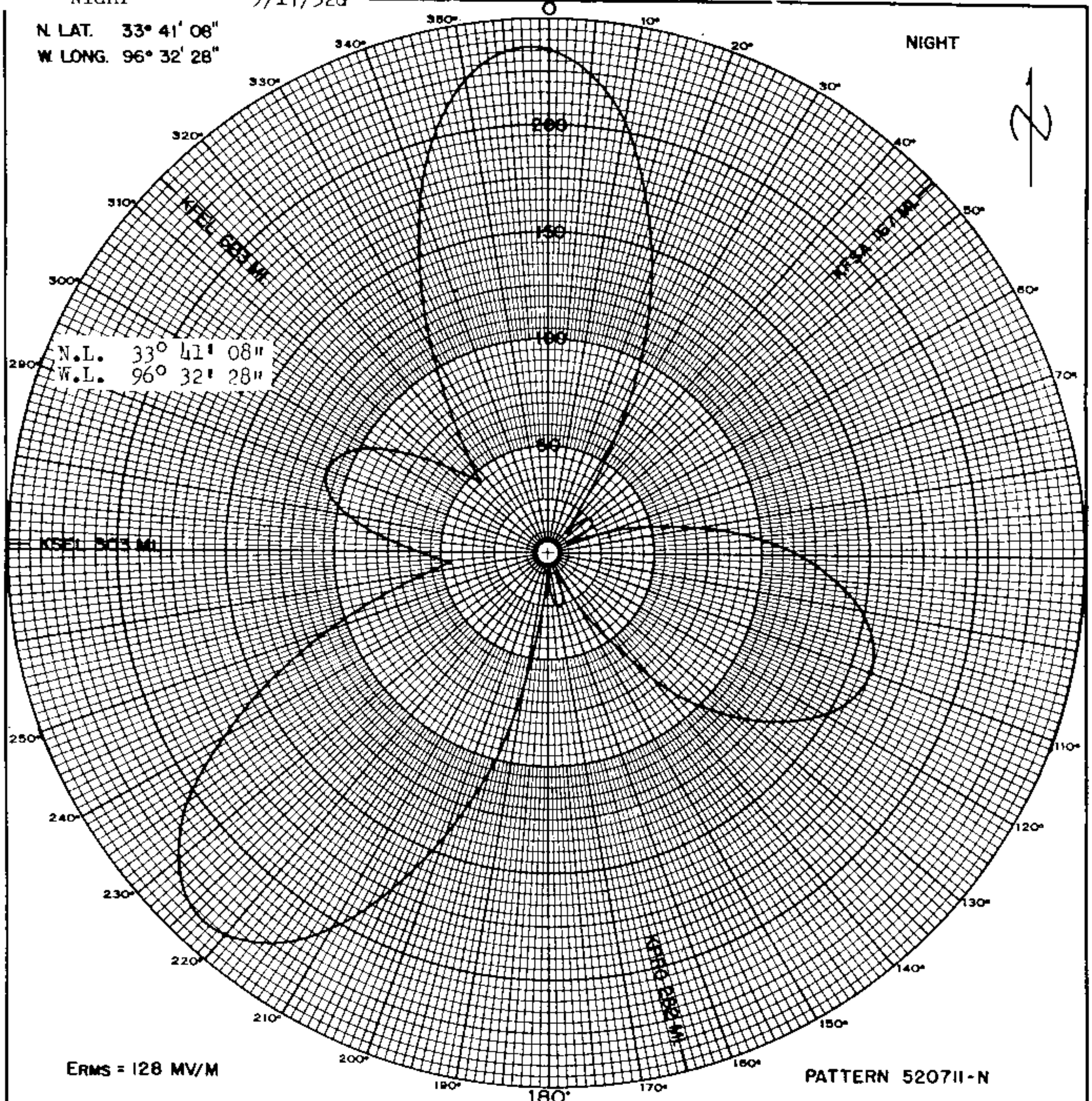
KDSX

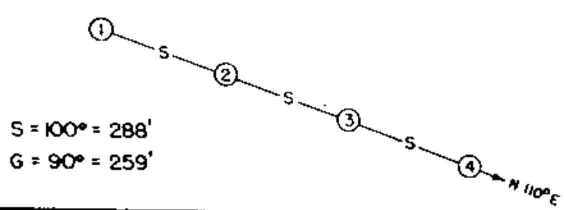
MEASURED NIGHT

KDSX, DENISON, TEXAS 9/17/52G

500W, U, DA-2

950 KC





RADIO STATION KDSX

DENISON, TEXAS

950 KC 500 WATTS DA-2

PATTERN BASED ON FIELD INTENSITY MEASUREMENTS

A. EARL CULLUM, JR.

CONSULTING RADIO ENGINEERS

520711 FIGURE 2C

RECD FCC 8/1/52 ACC 9/8/52 BL-4764

KDSX, DENISON, TEX.

950 KC

KDSX

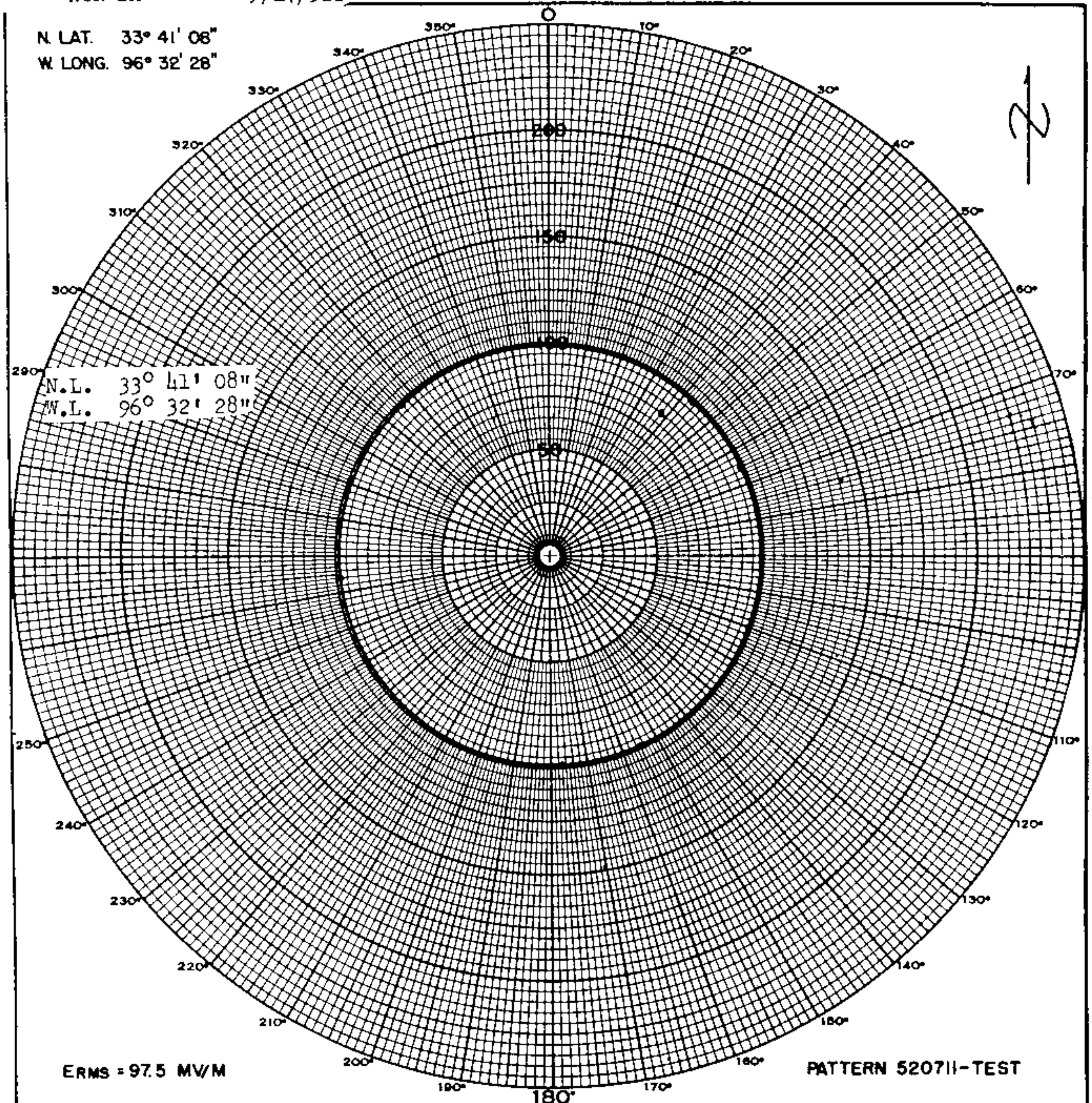
MEASURED
NON-DA

KDSX, DENISON, TEXAS
9/17/52G

500W, U, DA-2

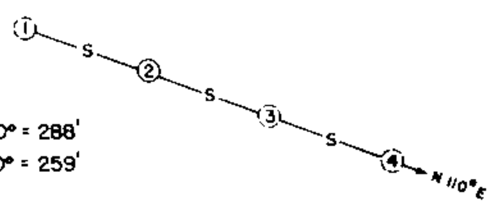
950 KC

N. LAT. 33° 41' 08"
W. LONG. 96° 32' 28"



ERMS = 97.5 MV/M

PATTERN 520711-TEST



S = 100° = 288'
G = 90° = 259'

RADIO STATION KDSX

DENISON, TEXAS

950 KC 250 WATTS ND

PATTERN BASED ON
FIELD INTENSITY MEASUREMENTS

A. EARL CULLUM, JR.

CONSULTING RADIO ENGINEERS

520711 FIGURE 2A

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KFSA

Main Studio: Fort Smith, Arkansas

Frequency: 950 kHz

Power: 0.5 kW Night 1 kW Day

Notification List No. 1585

Date: June 19, 1974 Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 35° 25' 58"
West Longitude: 94° 28' 13"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2) STANDARD PATTERN DAYTIME
Number of elements: 3
Type of elements: Series-excited, uniform cross-section, guyed, vertical steel towers.

TOWER:	NW(#3)	SW(#2)	E(#1)	
HEIGHT ABOVE INSULATORS:	266'(92.5°)	299'	299'	(104.0°)
NIGHT PHASING:	-88.2°	+48.6°	0°	
NIGHT FIELD RATIO:	0.217	0.975	1	
DAY PHASING:	0°	-93.6°	-50.0°	
DAY FIELD RATIO:	1	0.363	0.613	

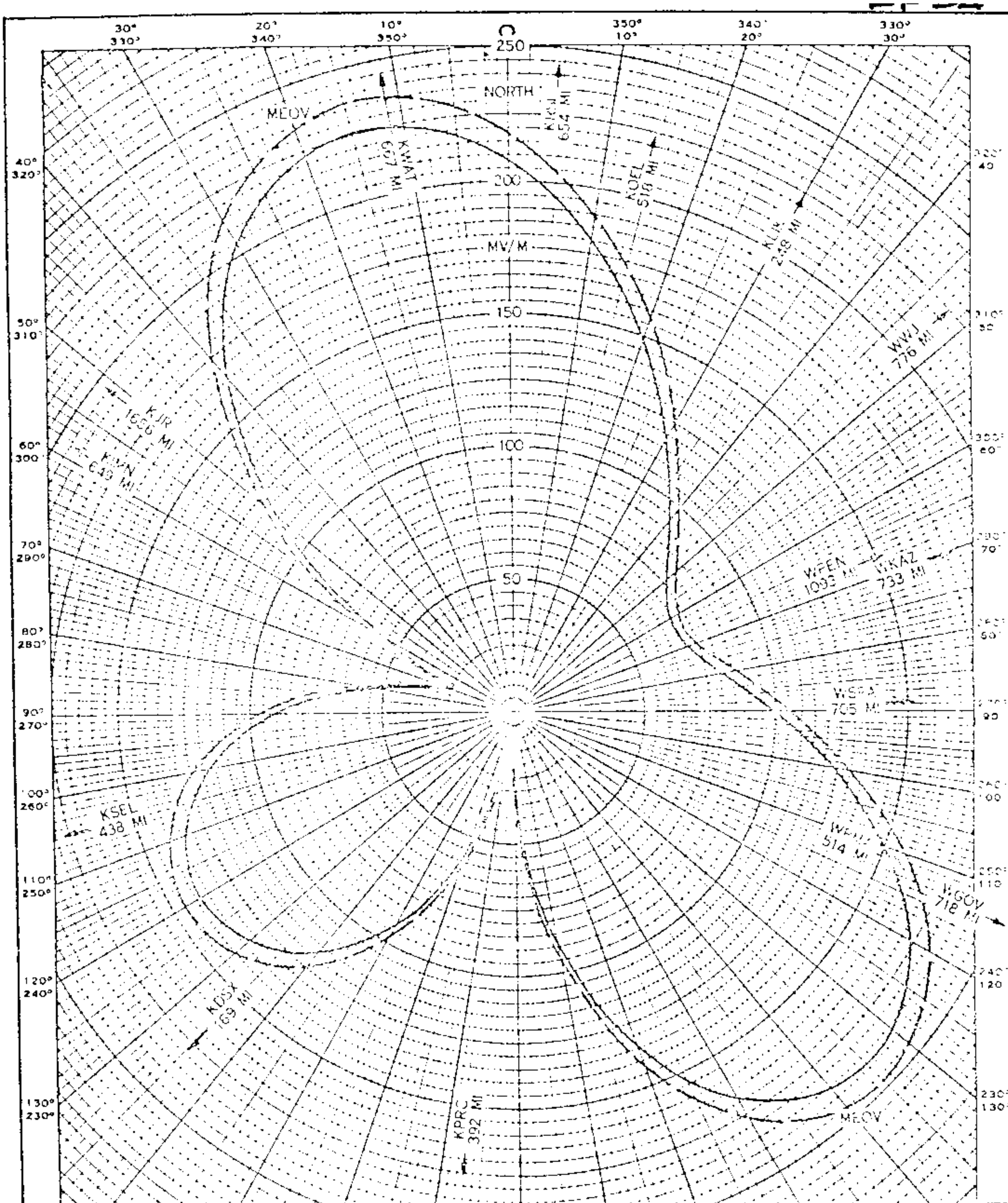
SPACING AND ORIENTATION: From tower #1, tower #2 is spaced 571'(198.5°) on a line 240.3° true and tower #3 is spaced 201'(70.0°) on a line bearing 294.7° true.

GROUND SYSTEM: 120-260' equally spaced copper radials plus 120-50' inter-spaced radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers. Centers of systems are bonded together.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Daytime	191.21 mv/m	169.53 mv/m	200.87 mv/m
Nighttime	133.0 mv/m	148.8 mv/m	-

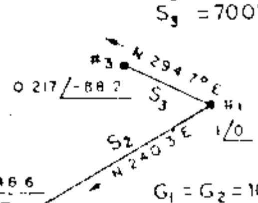
CTR NO 30788A4



N. LAT 35° 25′ 56″
W. LONG 94° 28′ 13″

S_2 = 198.5° = 571 FT
S_3 = 70.0° = 201 FT

RMS_{TH} = 133.0 MV/M
E_{RSS} = 148.8 MV/M



$G_1 = G_2$ = 104.0° = 299 FT
G_3 = 92.5° = 266 FT

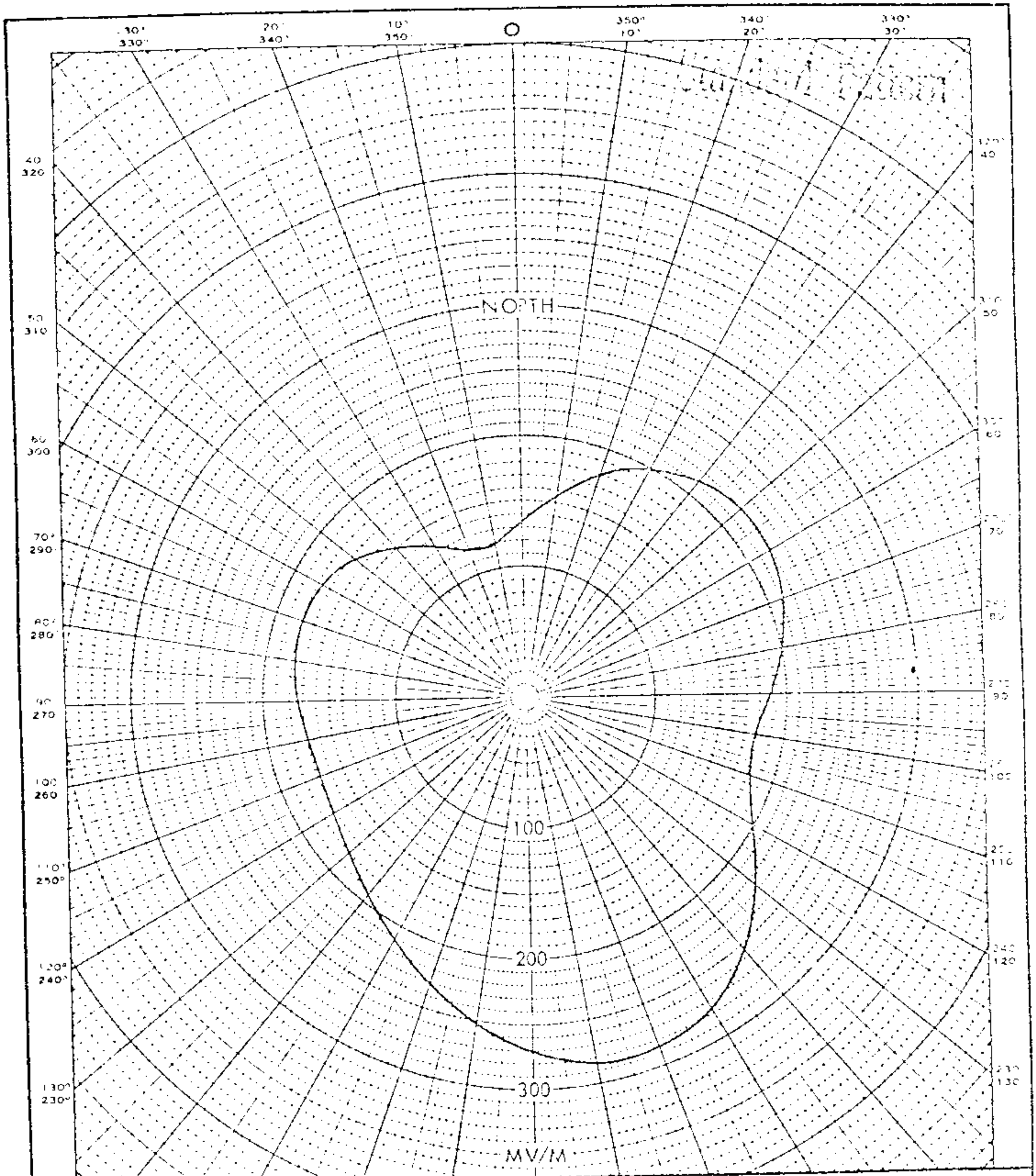
PROPOSED HORIZONTAL RADIATION

UNATTENUATED FIELD INTENSITY AT ONE MILE

HAMMETT & EDISON CONSULTING ENGINEERS SAN FRANCISCO	RADIO STATION KFSA 950 KHZ 0.5 KW 1 KW LS DA N FORT SMITH ARKANSAS

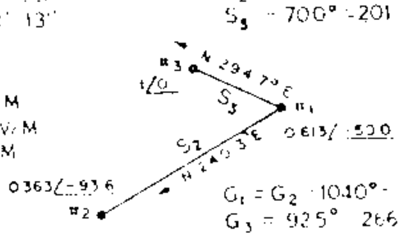
730621

FIGURE 7A



N LAT 35° 25' 58"
W LONG 94° 28' 13"

S_2 = 198.5° – 571 FT
S_3 – 70.0° – 201 FT



RMS_{TH} = 191.21 MV/M
RMS_{STD} = 200.87 MV/M
E_{RSS} = 169.53 MV/M

$G_1 = G_2$ – 104.0° – 299 FT
G_3 = 92.5° 266 FT

HAMMETT & EDISON
CONSULTING ENGINEERS
SAN FRANCISCO

RADIO STATION KFSA
950KHZ 0.5KW 1KW-LS DA-2
FORT SMITH ARKANSAS

PROPOSED DAYTIME
STANDARD
HORIZONTAL RADIATION

UNATTENUATED FIELD INTENSITY
AT ONE MILE

740325

FIGURE 4

KFSA
FT. SMITH, ARK.
PATTERN NO. 471006
950

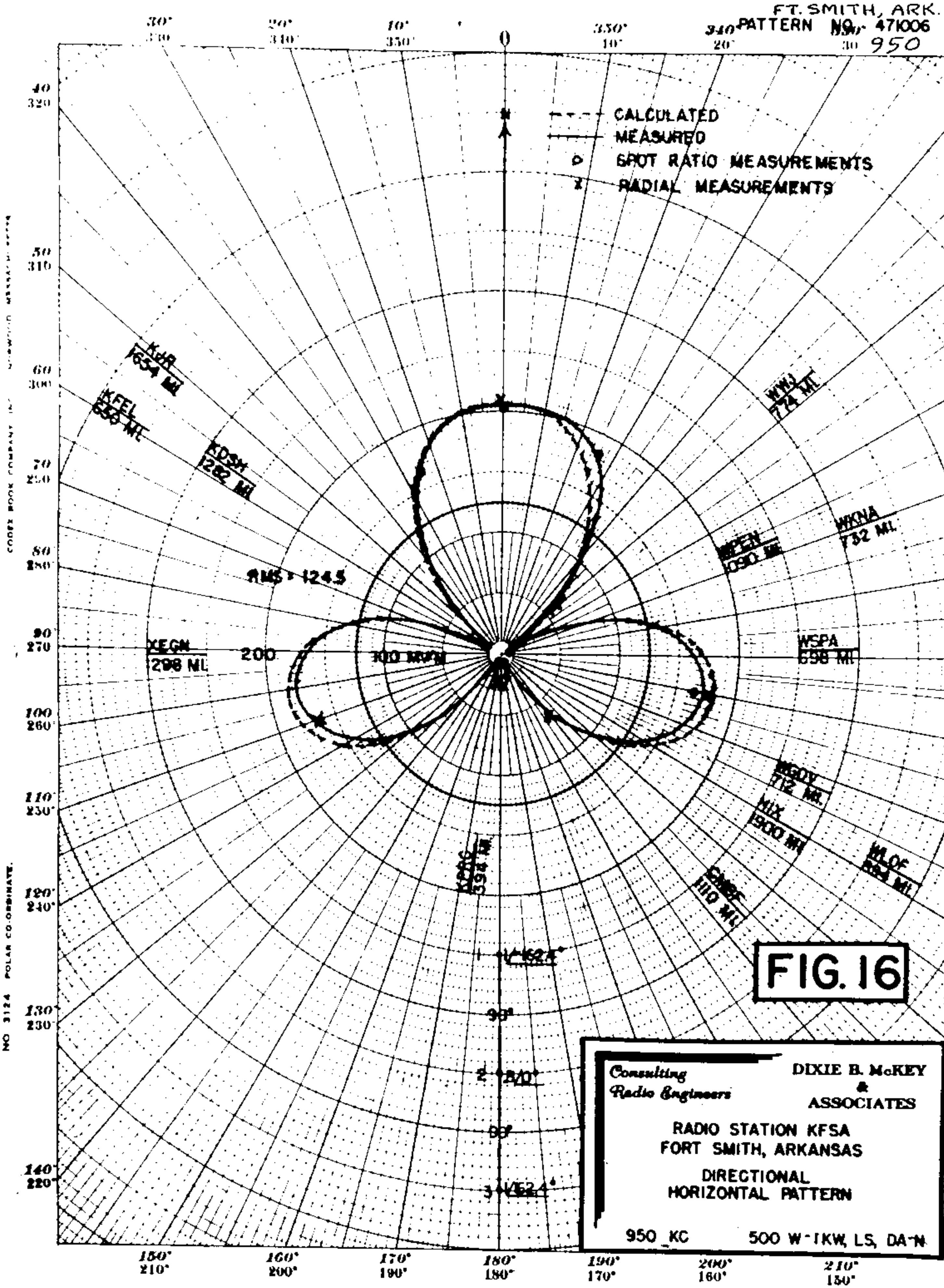
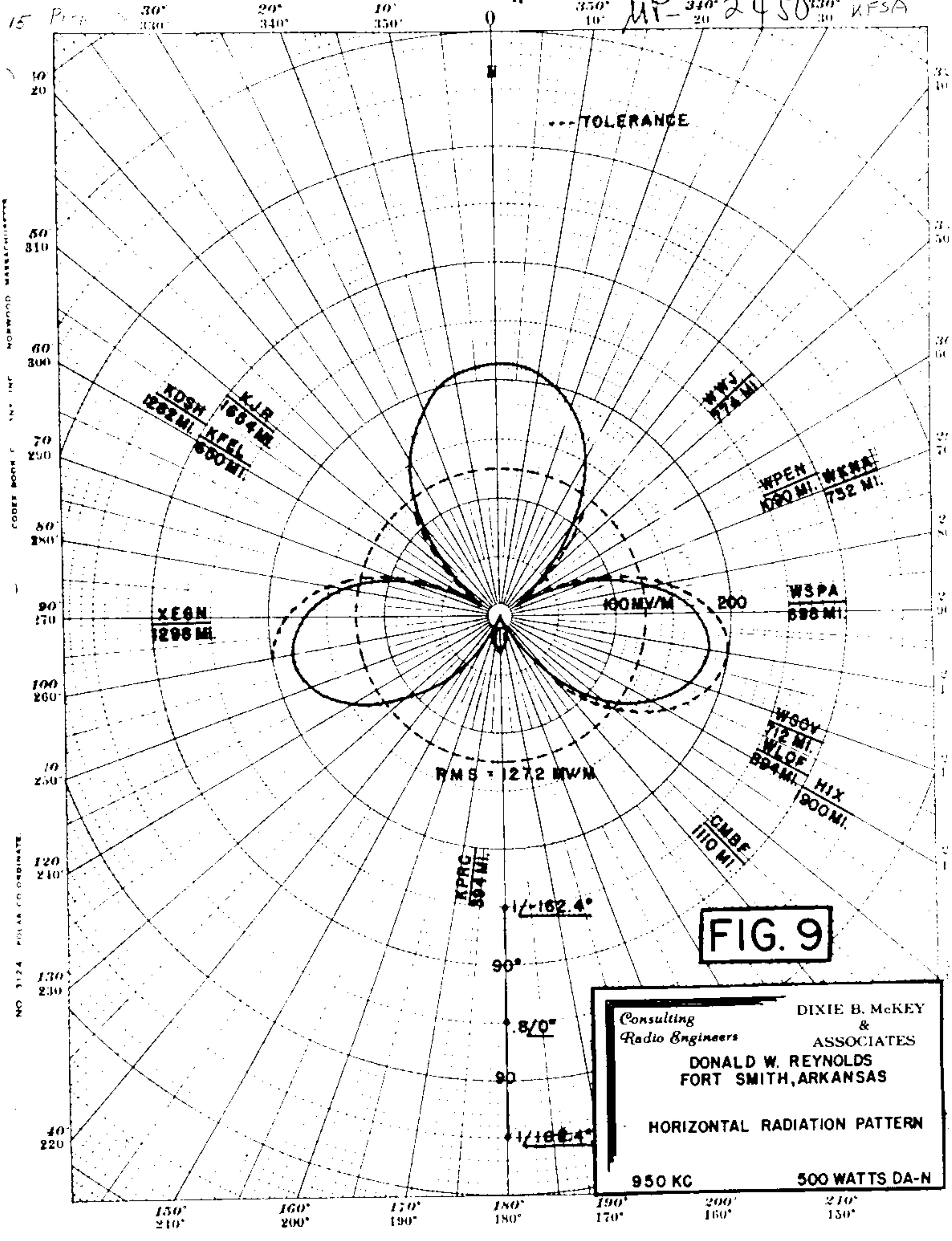


FIG. 16

FT. SMITH, ARKANSAS. 950 KC.
PATTERN NO. 470314

KFSA MP-2450 KFSA



KFSA MP 2450 PATTERN= 470314 FT. SMITH, ARKANSAS. 950 KC.

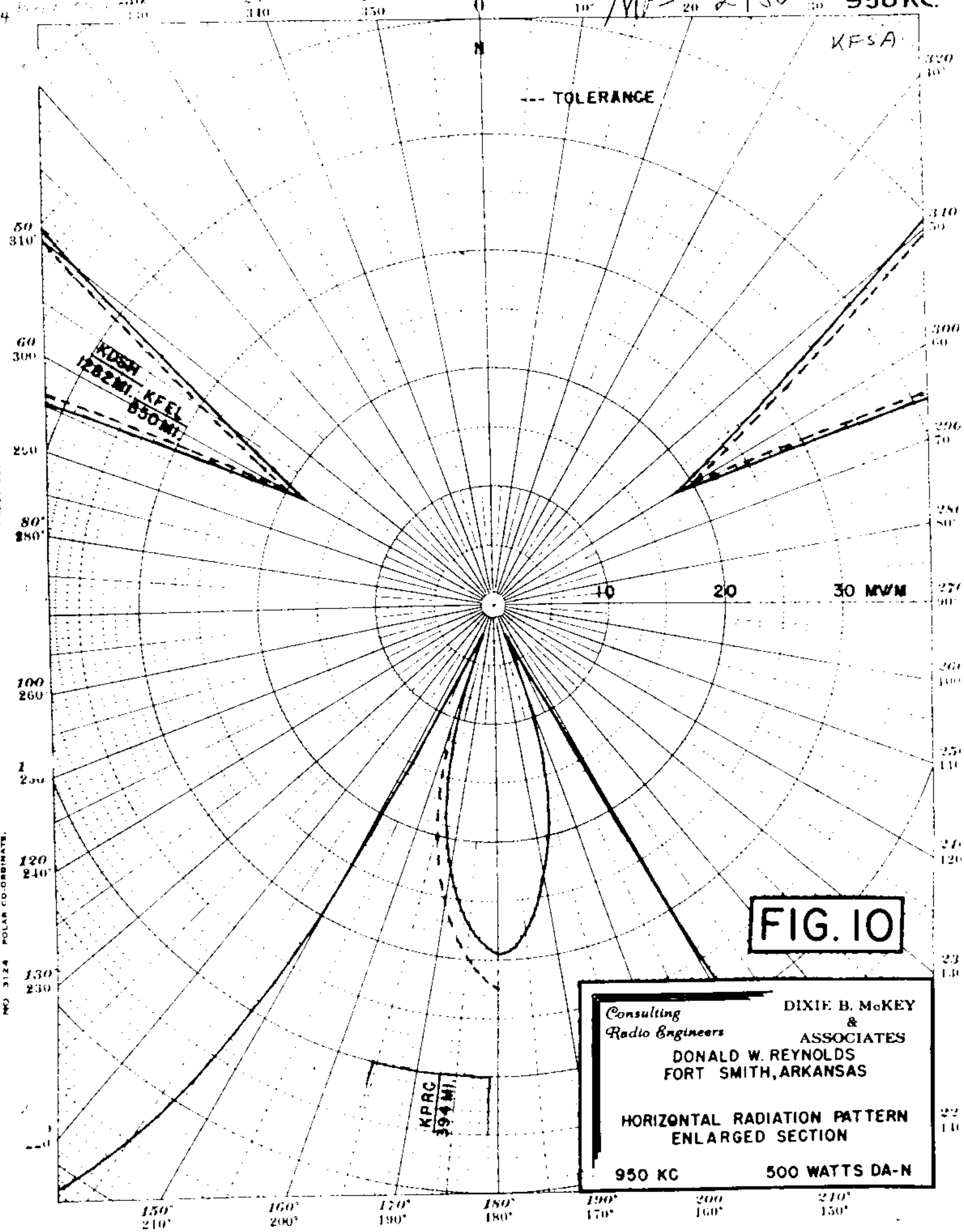


FIG. 10

KFSA
Ft. Smith, Ar
950

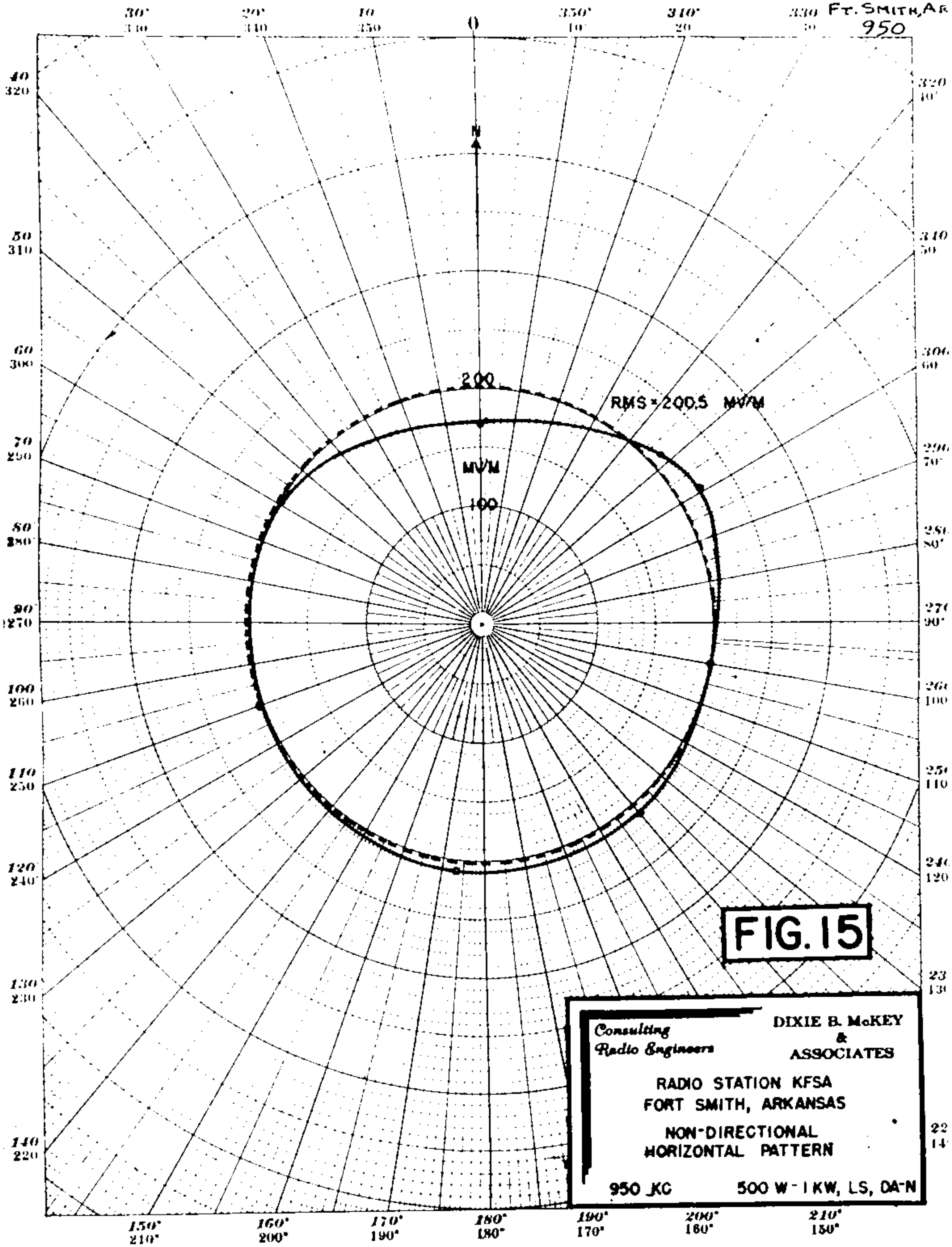


FIG. 15

KIMN

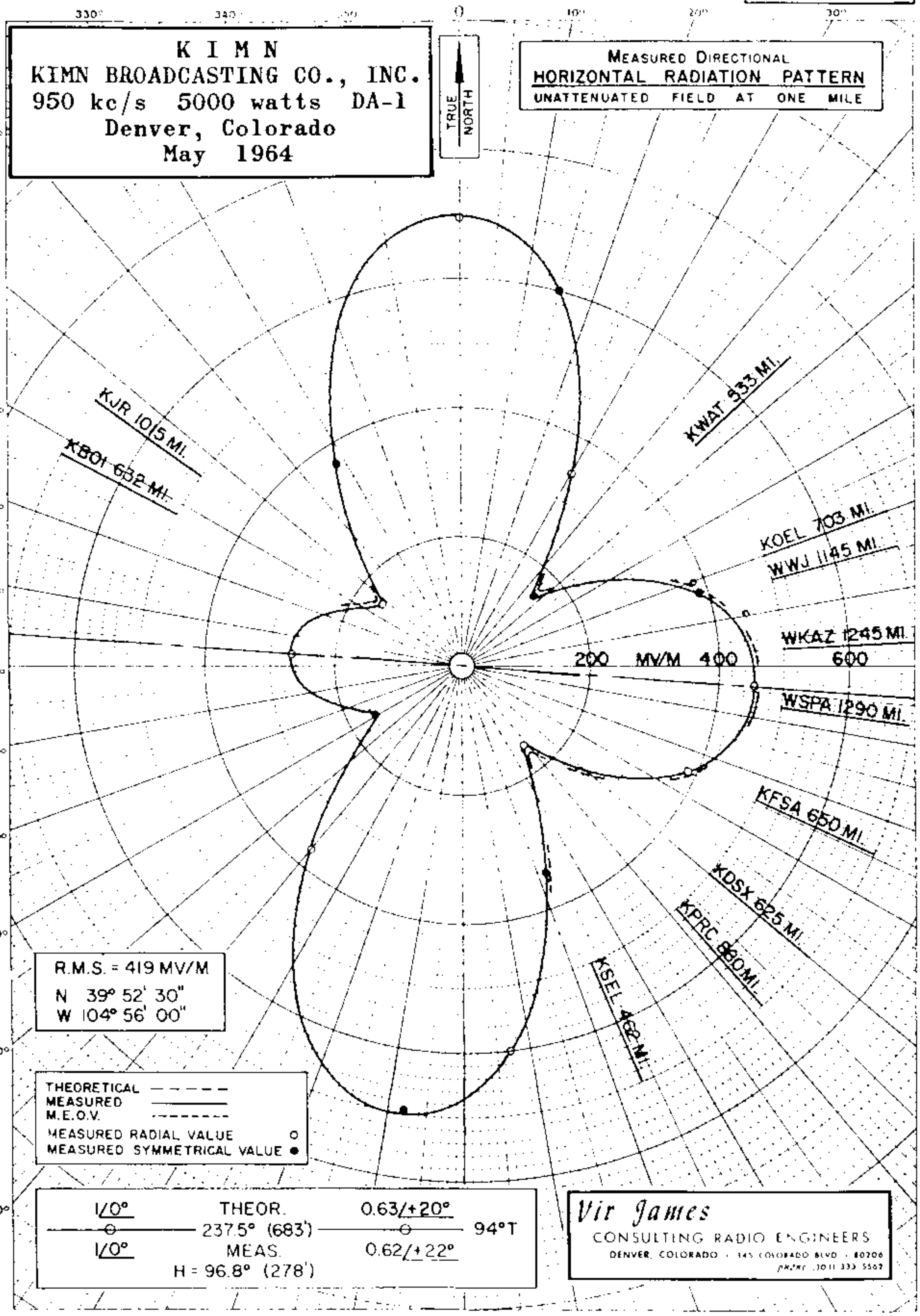
Proposed Day & Night
(8-28-64ct)

Station KIMN
Denver, Colorado

5kw,DA-1,U
950 kc

EXHIBIT E-5.1A

BP-16258
11-30-64
CP CHG
DA-N to DA-1
LIC 10-14-65



FCC File No.BP-16258
Accepted 8-14-64

Station KIMN
Denver, Colorado

950 kc

BC 11 030

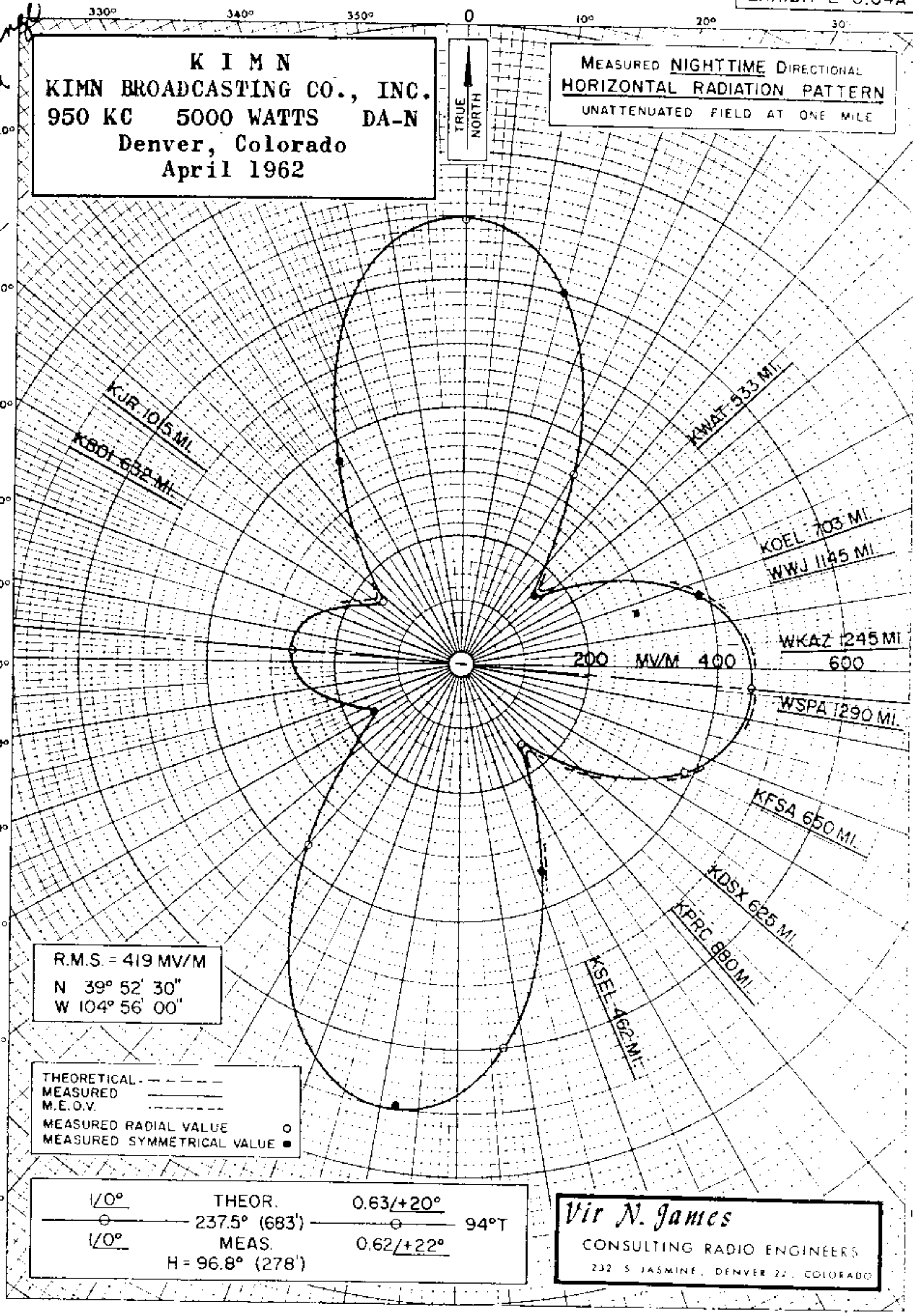
KIMN

Measured Night
(6-22-62ct)

Station KIMN
Denver, Colorado

5kw,DA-N,U
950 kc
EXHIBIT E-8.04A

10-1-62
granted L for change
& xmtr location
LIC 10-14-65
CHG DA-N to DA-1



FCC File No.BL-9367
Accepted 6-15-62
BL 11 030

Station KIMN
Denver, Colorado

950 kc

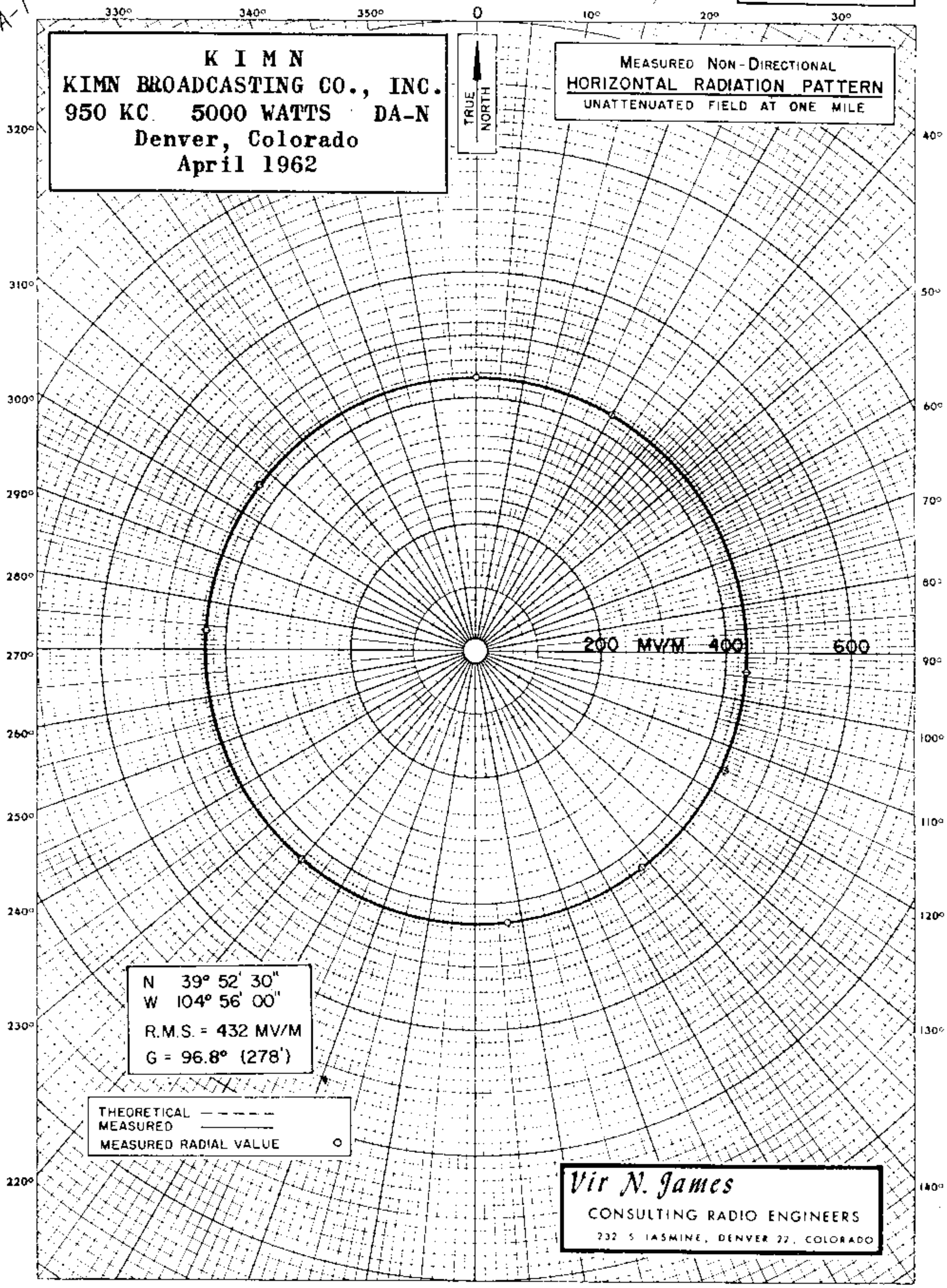
KIMN

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

Station KIMN
Denver, Colorado

5kw,DA-N,U
950 kc
EXHIBIT E-8.03A

1C 10-14-65
HG DA-N to DA-1



FCC File No.BL-9367
Accepted 6-15-62

Station KIMN
Denver, Colorado

950 kc

11030

KJR

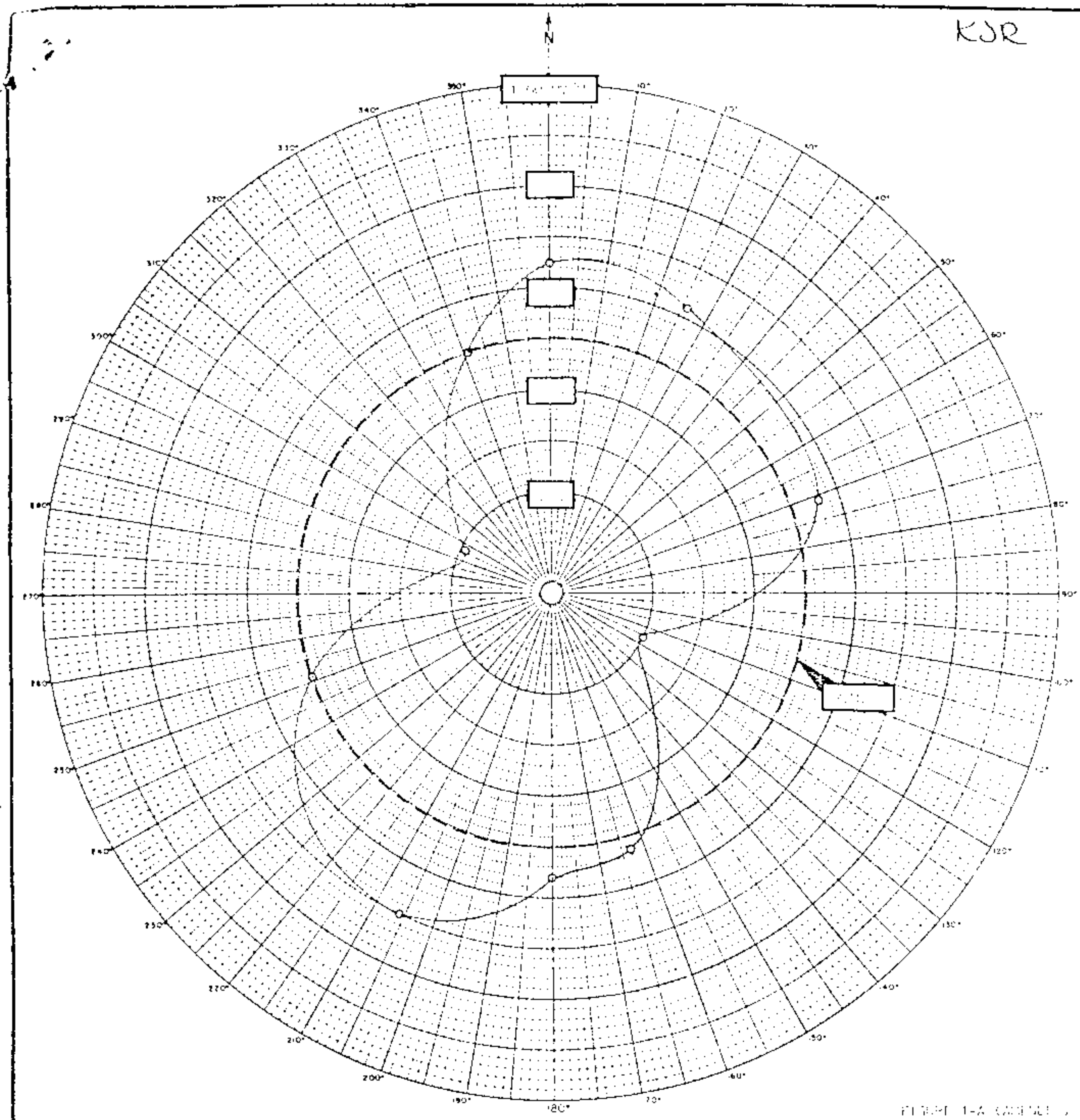
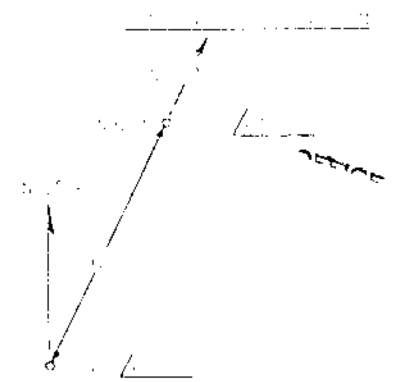


FIGURE 1-A (faint)

HORIZONTAL RADIATION PATTERN

BZ-9173



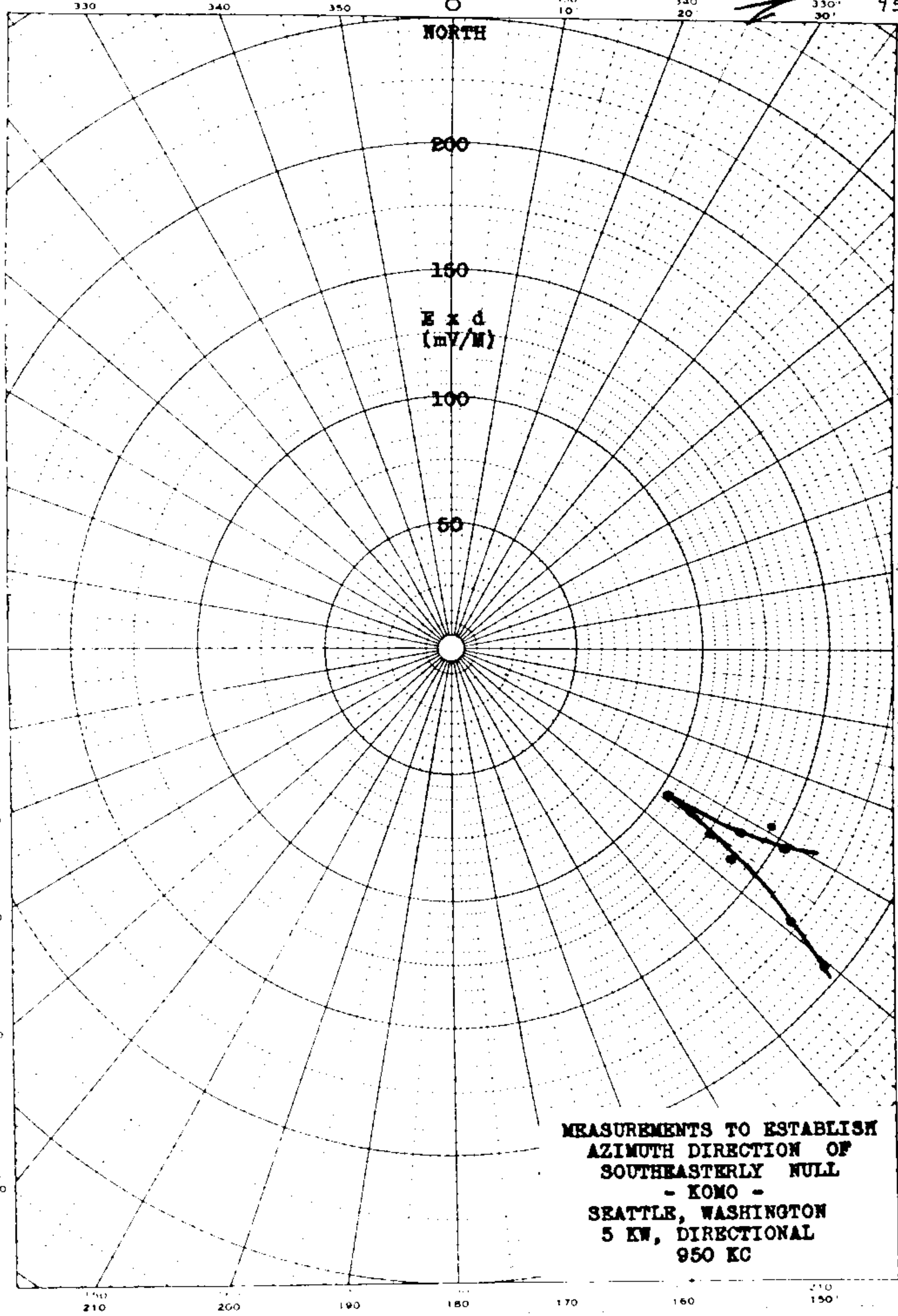
APPLICANT	
LOCATION	
FREQUENCY	KC/S
POWER	
LATITUDE	DEG MIN SEC
LONGITUDE	DEG MIN SEC
WHEN USED	
R M S FIELD	
DATE	

SILLIMAN, MOFFET & KOWALSKI

CONSULTING RADIO ENGINEERS

WASHINGTON, D.C.

BZ-9173


L-1455
KJR
~~KOMO~~
950
KJR
NORTH
200
150
E x d
(mV/M)
100
50
MEASUREMENTS TO ESTABLISH
AZIMUTH DIRECTION OF
SOUTHEASTERLY NULL
- KOMO -
SEATTLE, WASHINGTON
5 KW, DIRECTIONAL
950 KC

KLER

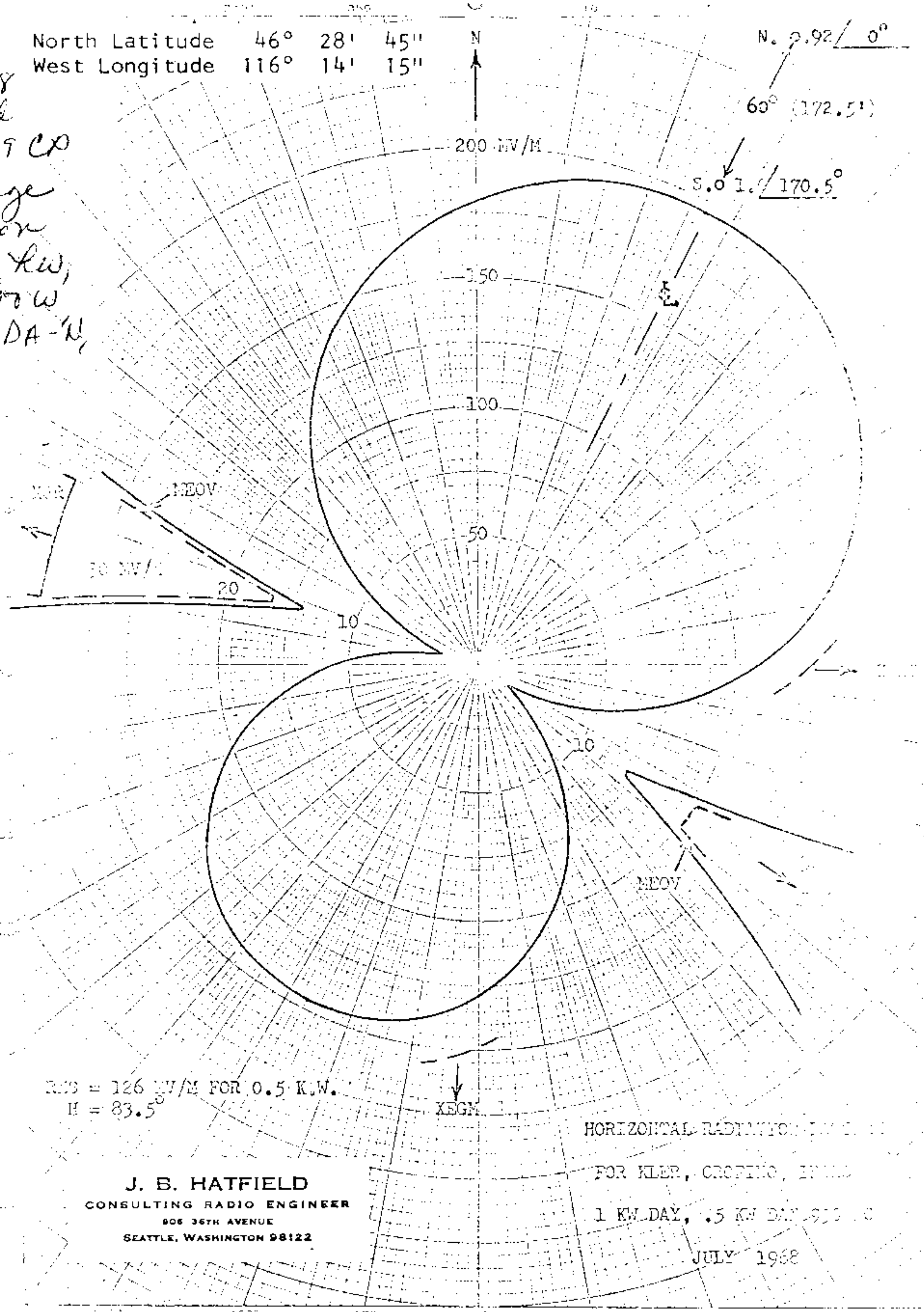
Proposed Night
(8-28-68ct)

Station KLER
Orofino, Idaho

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

North Latitude 46° 28' 45"
West Longitude 116° 14' 15"

BP-18098
Granted
6/25/69 CP
to change
operation
from 1 kw,
D to 500 w
1 kw-LS, DA-N,
U.



J. B. HATFIELD
CONSULTING RADIO ENGINEER
906 36TH AVENUE
SEATTLE, WASHINGTON 98122

FCC File No.BP-18098
Accepted 8-2168

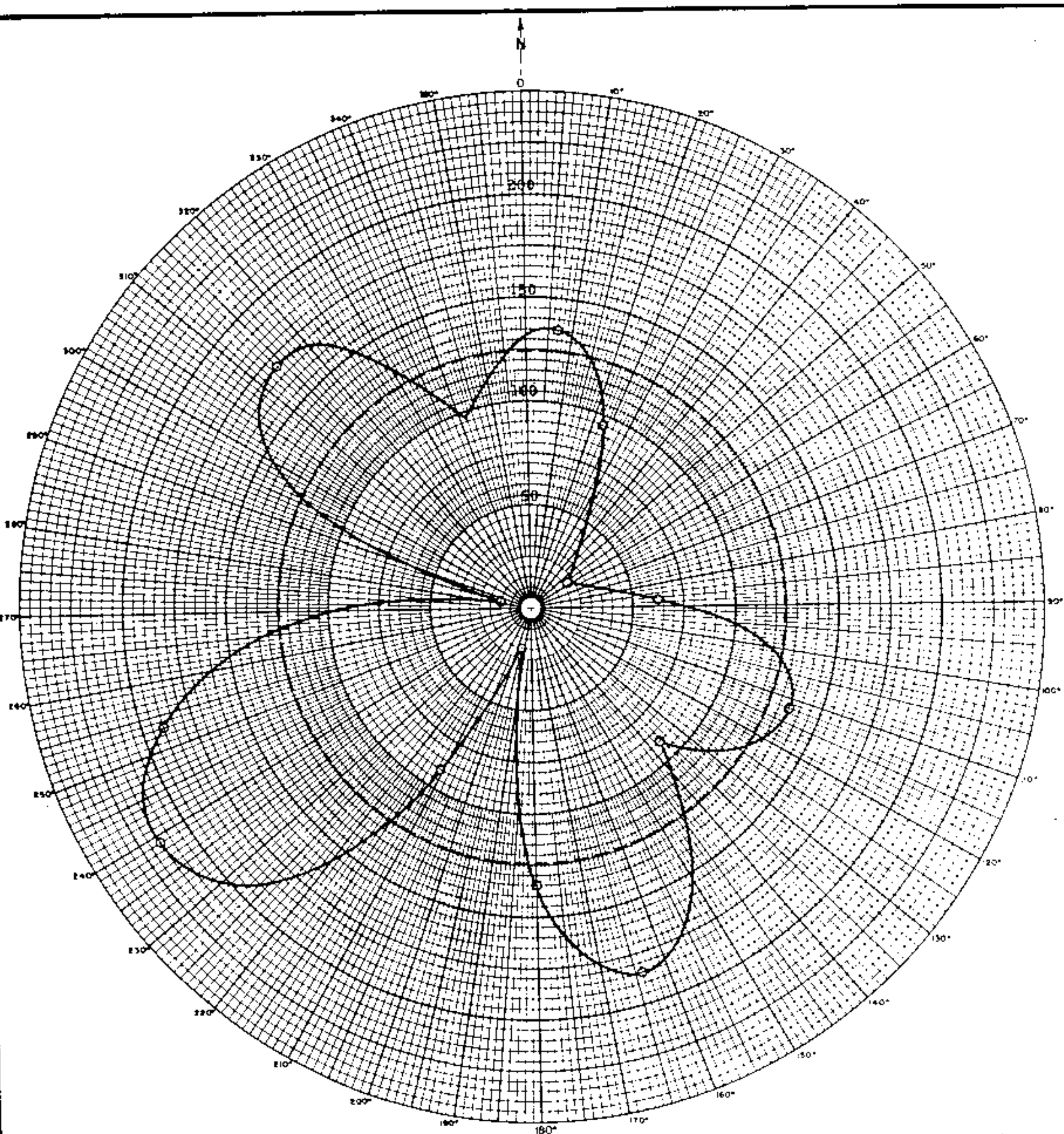
Station KLER
Orofino, Idaho

950 kc

KLIK
500w,5kw-LS,DA-N,U
950 kc

Measured Night
(12-23-70ct)

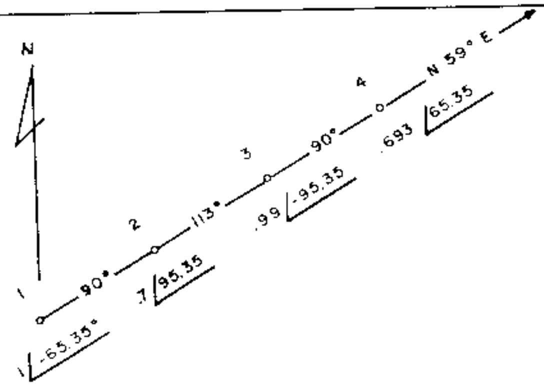
Station KLIK
Jefferson City, Missouri



0 measured radials

FIGURE 17

HORIZONTAL RADIATION PATTERN



APPLICANT	RADIO STATION KLIK
LOCATION	JEFFERSON CITY, MISSOURI
FREQUENCY :	950 KC/S
POWER	0.5 KW
LATITUDE	[illegible] DEG 31 MIN 13 SEC
LONGITUDE :	[illegible] DEG 10 MIN 42 SEC
WHEN USED	NIGHTTIME
RMS FIELD	124.5 MV/M
DATE	JUNE 1970

ROBERT L. PURCELL

WASHINGTON, D. C

FCC File No.BL-12799
Accepted 11-27-70

Station KLIK
Jefferson City, Missouri

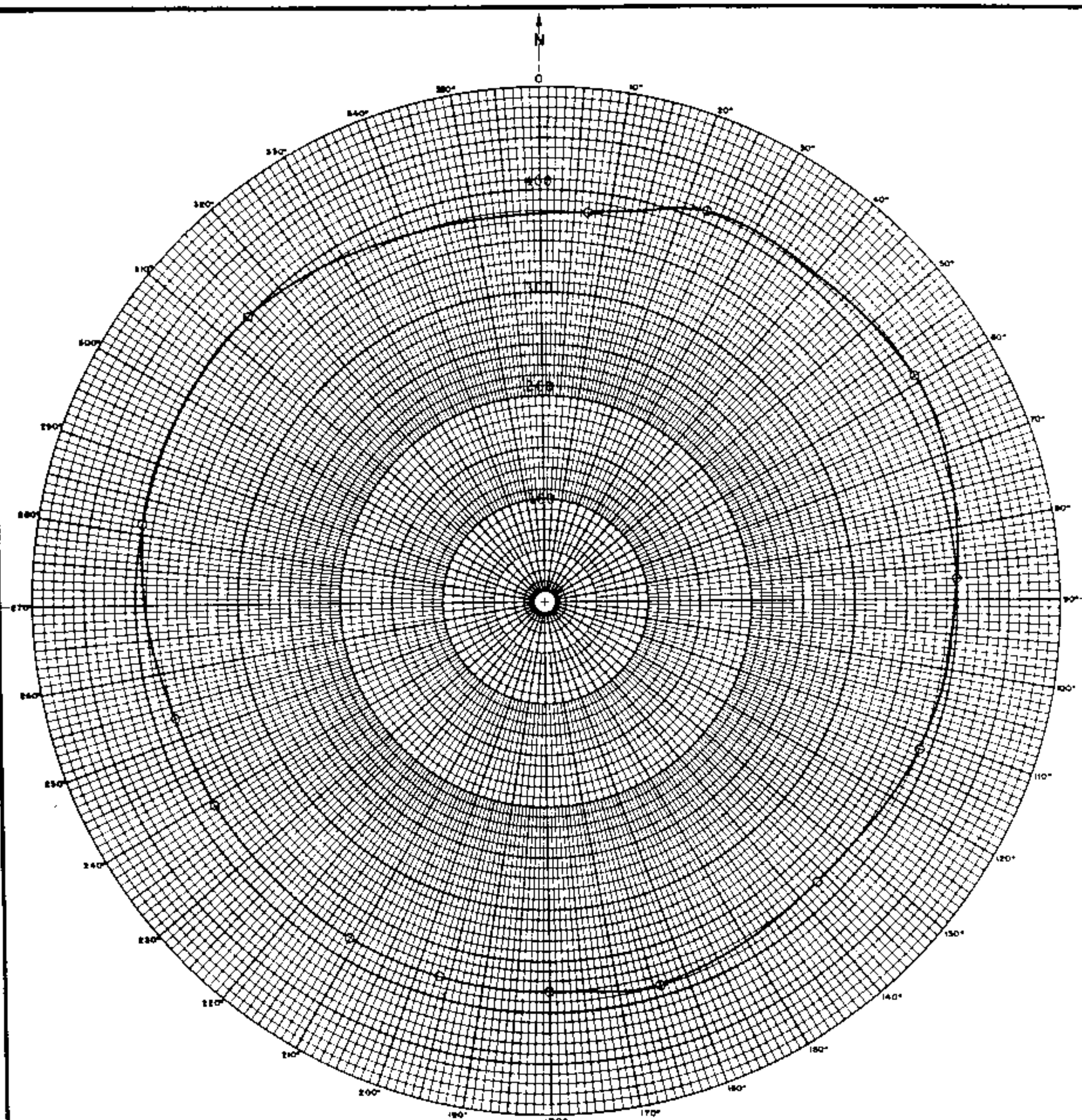
950 kc

KLIK

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

Station KLIK
Jefferson City, Missouri

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



0 measured radials

RMS 392 MV/M

Non-Directional Survey

FIGURE 18

ROBERT L. PURCELL
WASHINGTON, D. C.

FCC File No.BL-12799
Accepted 11-27-70

Station KLIK
Jefferson City, Missouri

950 kc

KLIK

Proposed Night
(6-28-68ct)

Station KLIK
Jefferson City, Missouri

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

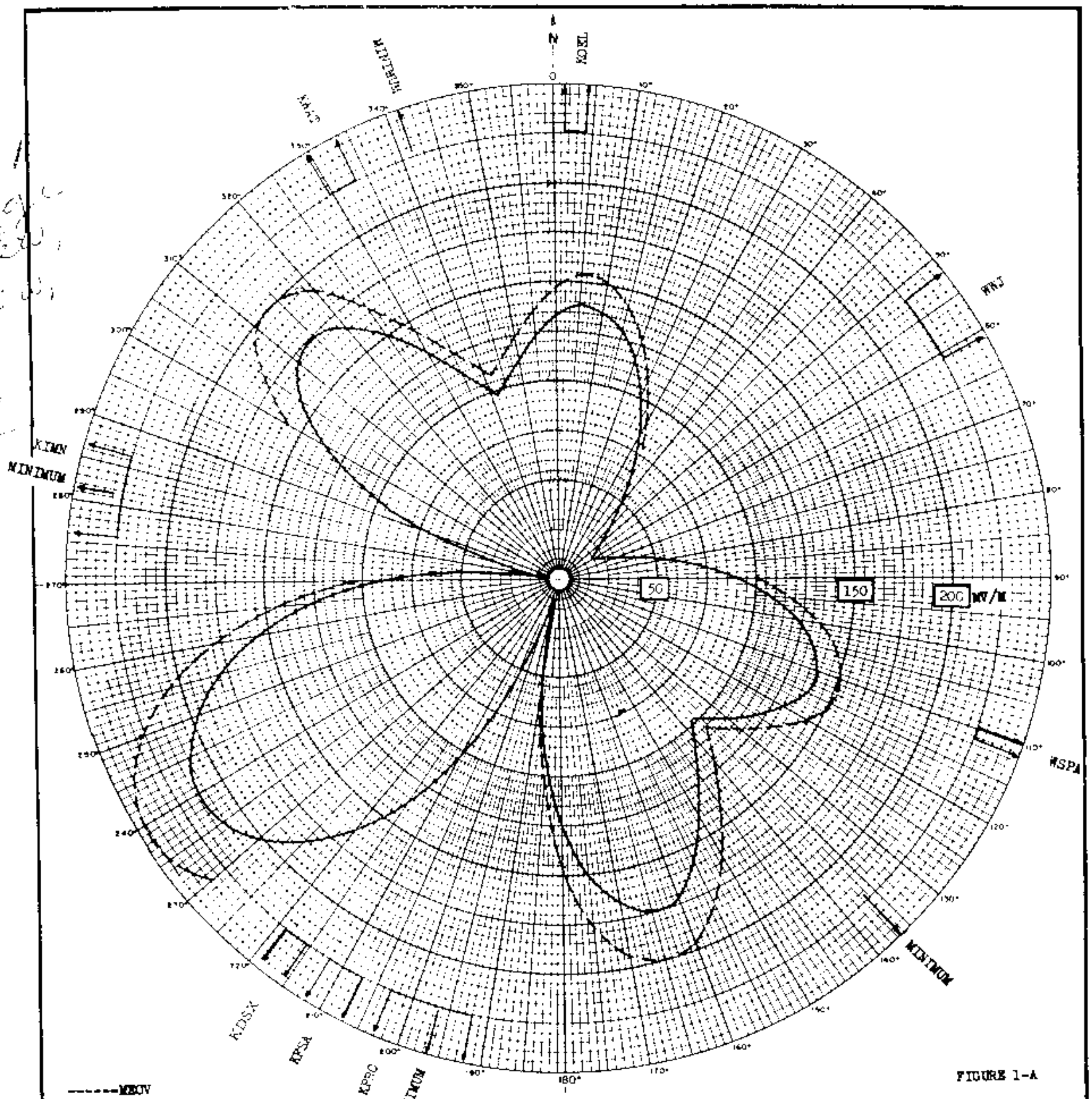
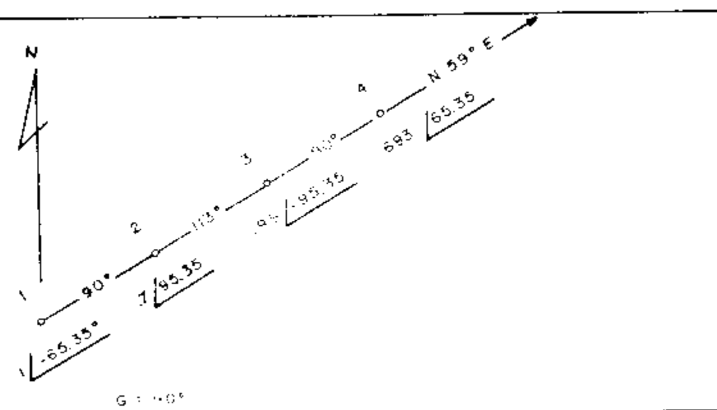


FIGURE 1-A

HORIZONTAL RADIATION PATTERN



APPLICANT	RADIO STATION KLIK
LOCATION	JEFFERSON CITY, MISSOURI
FREQUENCY	950 KC/S
POWER	0.5 KW
LATITUDE	38 DEG 31 MIN 11 SEC
LONGITUDE	92 DEG 10 MIN 33 SEC
WHEN USED	NIGHTTIME
R.M.S. FIELD	125 MV/M
DATE	MAY 1968

ROBERT L. PURCELL

WASHINGTON, D. C.

FCC File No.BP-18174
Accepted 6-19-68

Station KLIK
Jefferson City, Missouri

950 kc

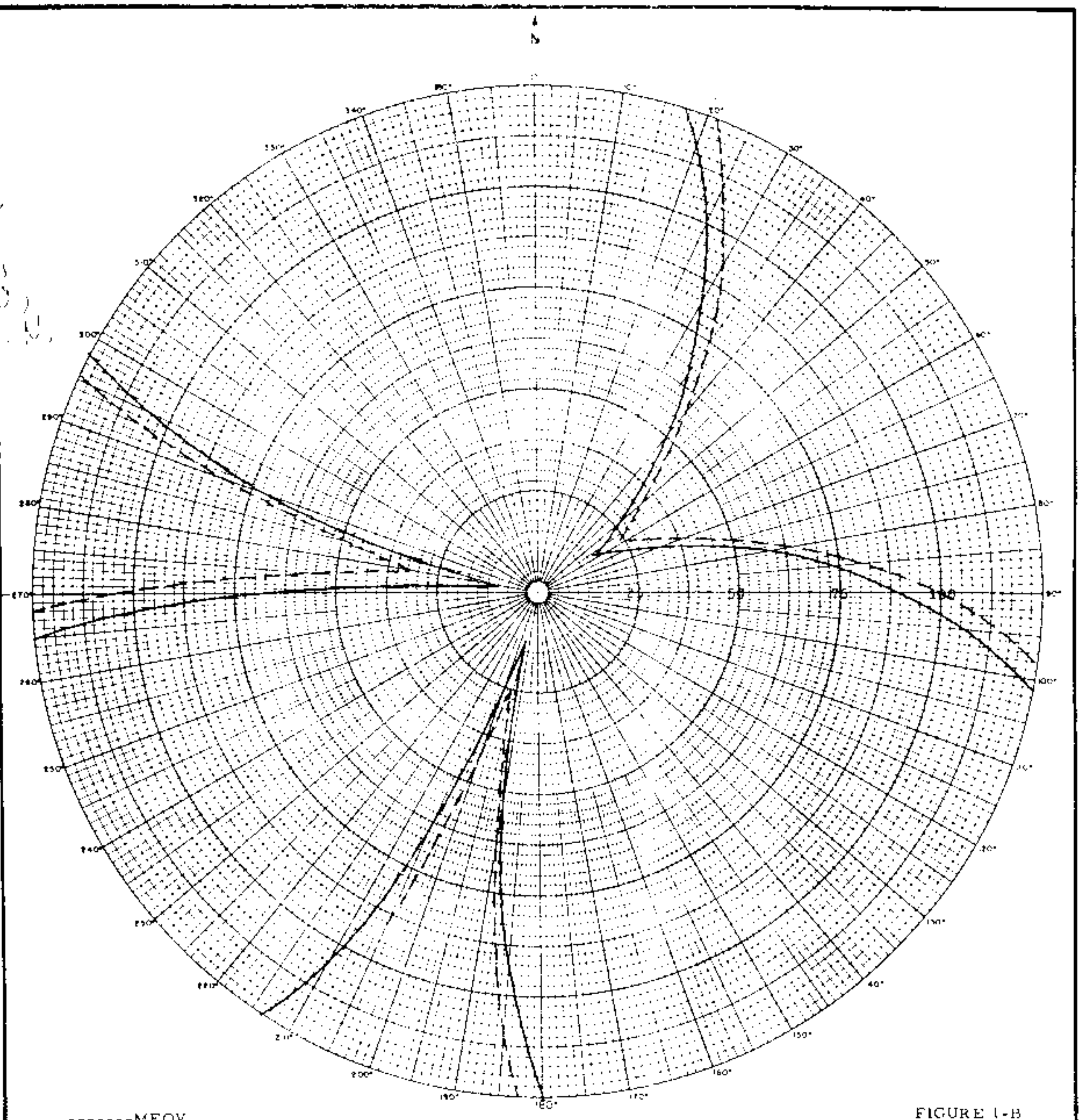
KLIK

Measured Night Nulls
(6-28-68ct)

Station KLIK
Jefferson City, Missouri

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

BP-18174 granted 9-2-69 to change from 5kw, 500w, DA-N, U, Day & 5kw U.



EXPANDED VIEW

Robert L. Purcell
Washington D. C.

FCC File No.BP-18174
Accepted 6-19-68

Station KLIK
Jefferson City, Missouri

950 kc

KMTX

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: (New) | Main Studio: Helena, Montana

Frequency: 950 kHz | Power: 5 kW

Notification List No. 1675 | Date: March 9, 1976 | Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 46° 40' 28"
West Longitude: 112° 01' 05"

ANTENNA CHARACTERISTICS

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

TOWER:	NW(#1)	SW(#4)	NE(#2)	SE(#3)
HEIGHT ABOVE INSULATORS:	260'	260'	260'	260' (90.5°)
NIGHT PHASING:	0°	+72.5°	-102.3°	+27.1°
NIGHT FIELD RATIO:	1.0	0.826	1.077	0.983

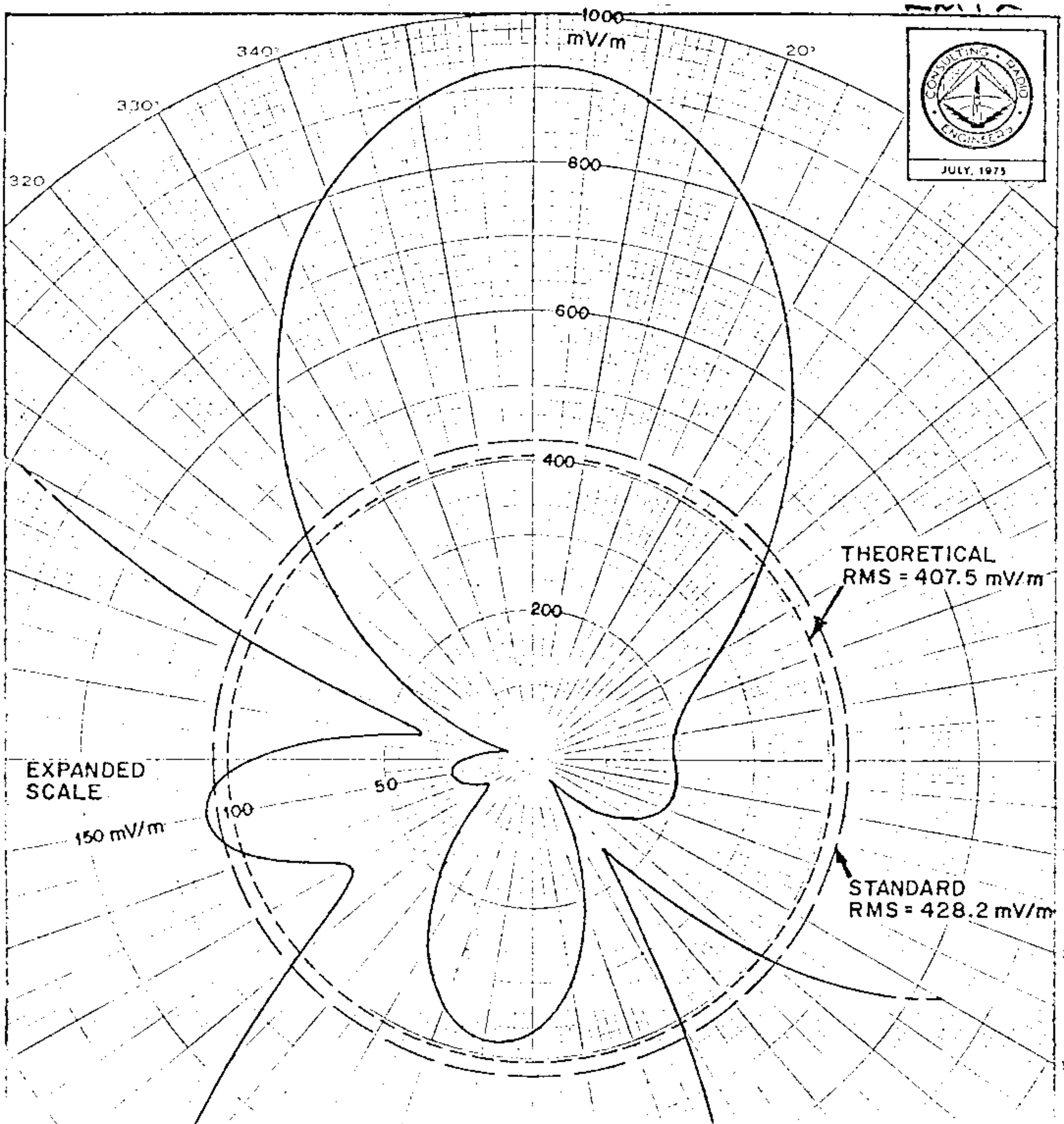
SPACING AND ORIENTATION: The towers are located at the vertices of a parallelogram the long sides of which are 331' (115°) in length on a line bearing 79° true. The short sides are 250' (87°) in length on a line bearing 112° true.

GROUND SYSTEM: 120-260' equally spaced copper radials plus a 40' square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersections between towers

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
Day	425 mv/m	–	–
Night	407.5 mv/m	622.8 mv/m	428.2 mv/m

CTR NO 30445A3



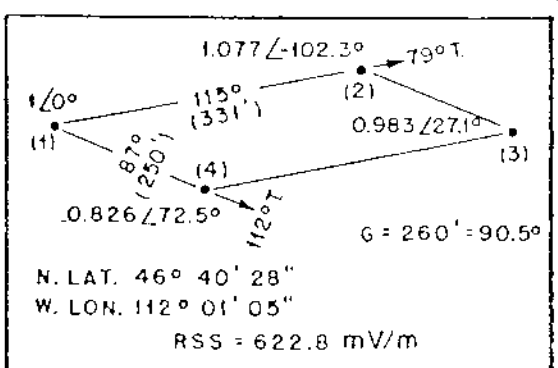


Figure 1

PROPOSED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

New Standard Broadcast Station
Capital Investments
Helena, Montana

950 kHz | 5 KW-U | DA-N

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

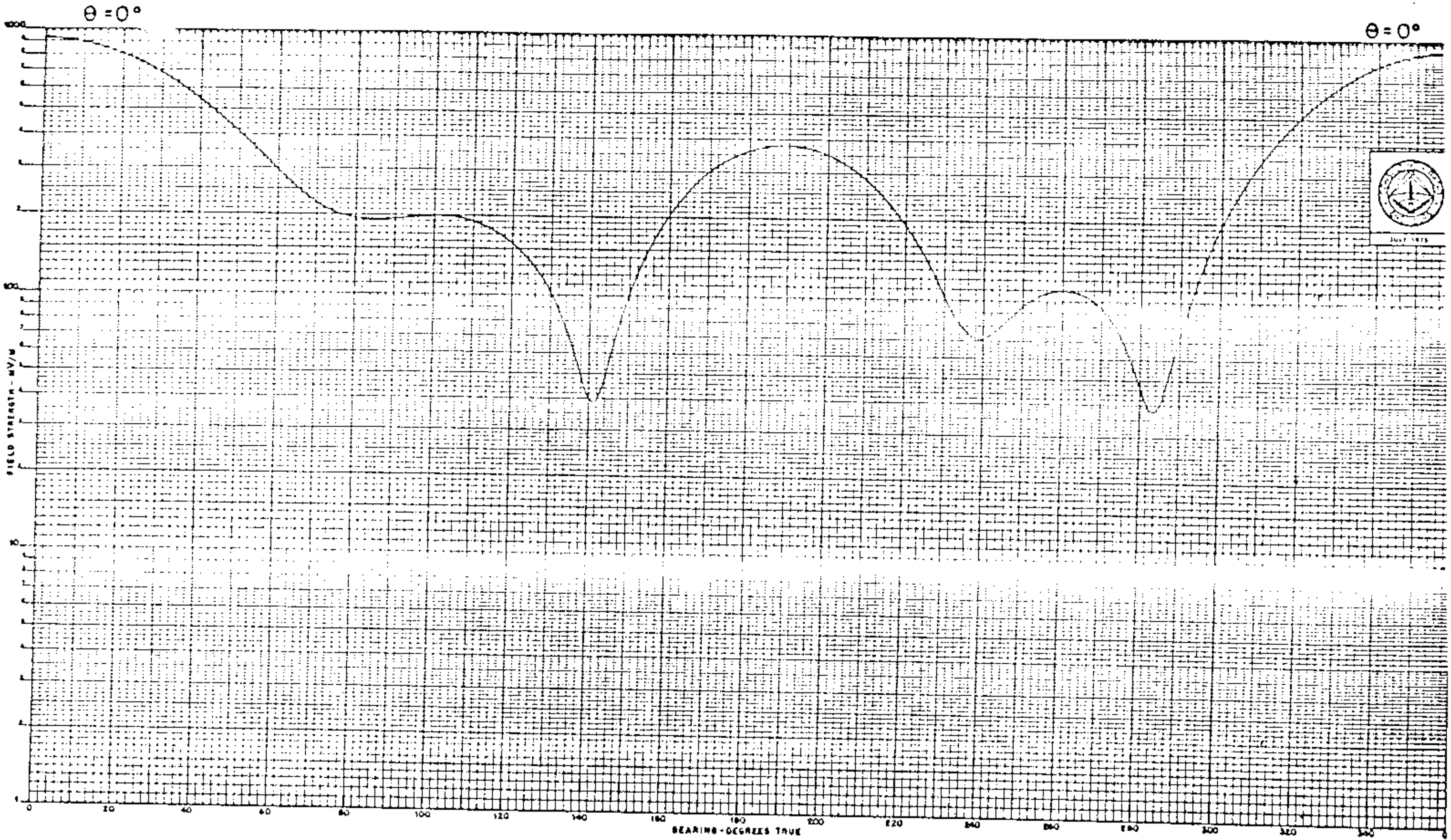


FIGURE - 2A

KMTX

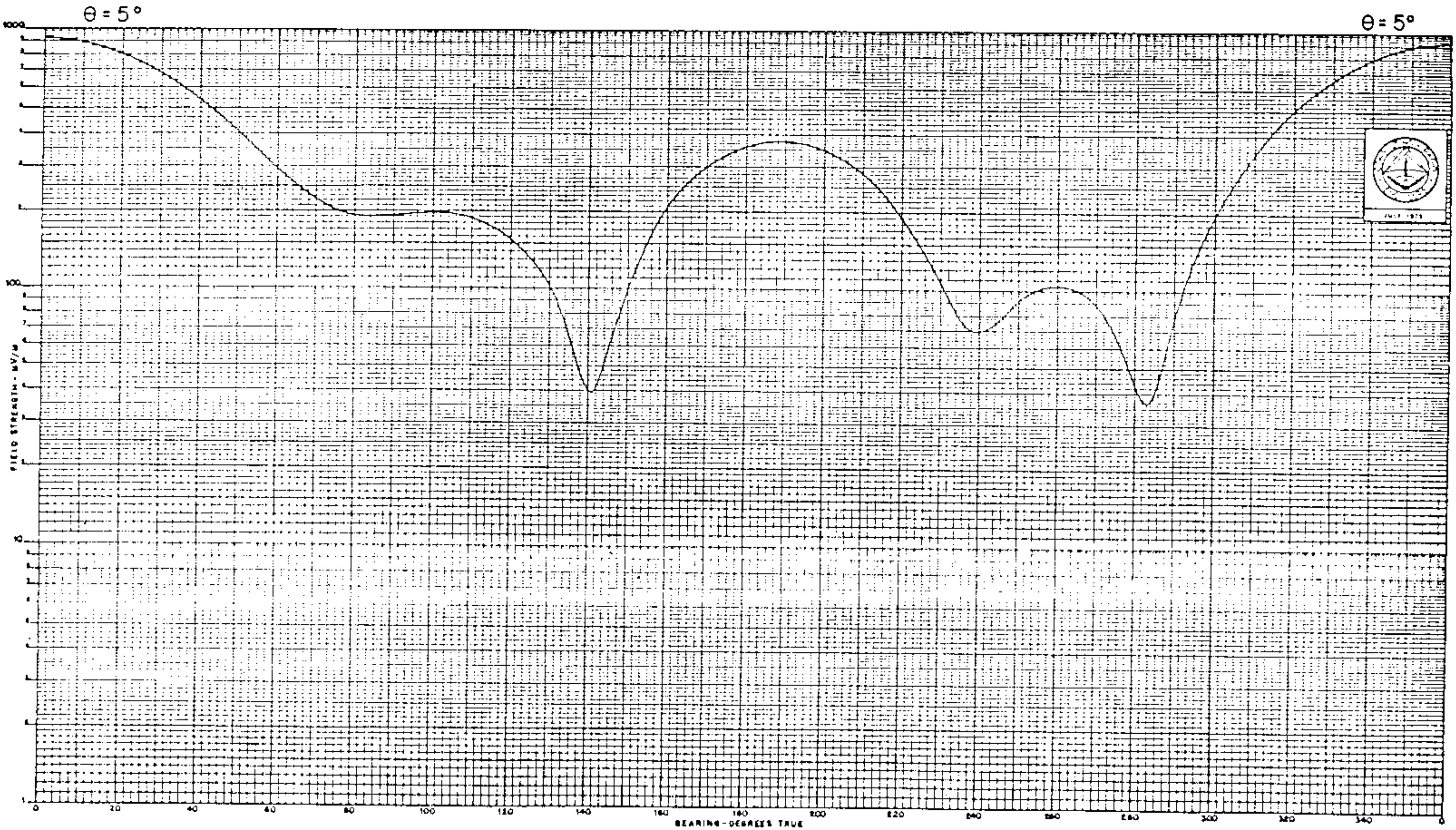
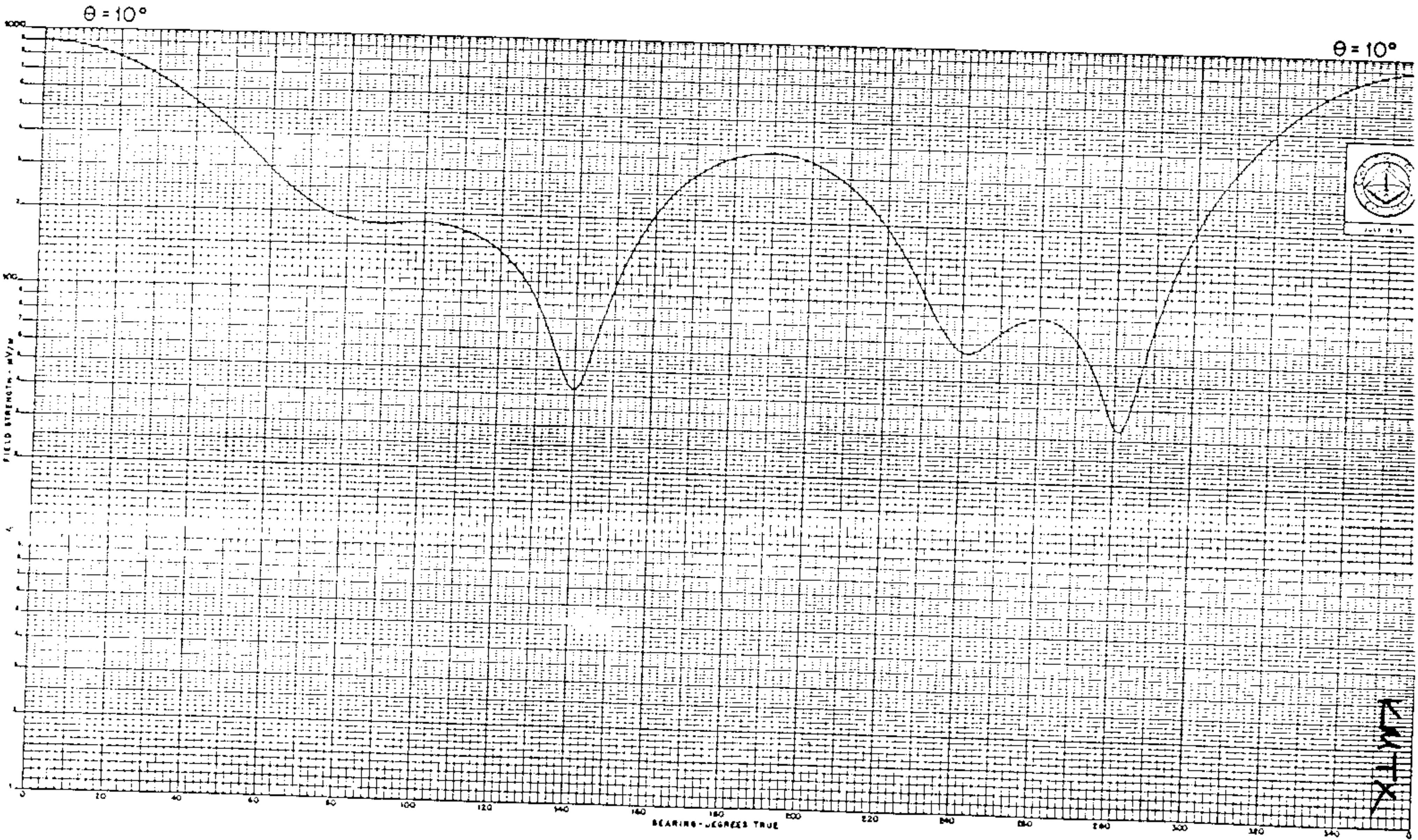


FIGURE- 2B

KUTI


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

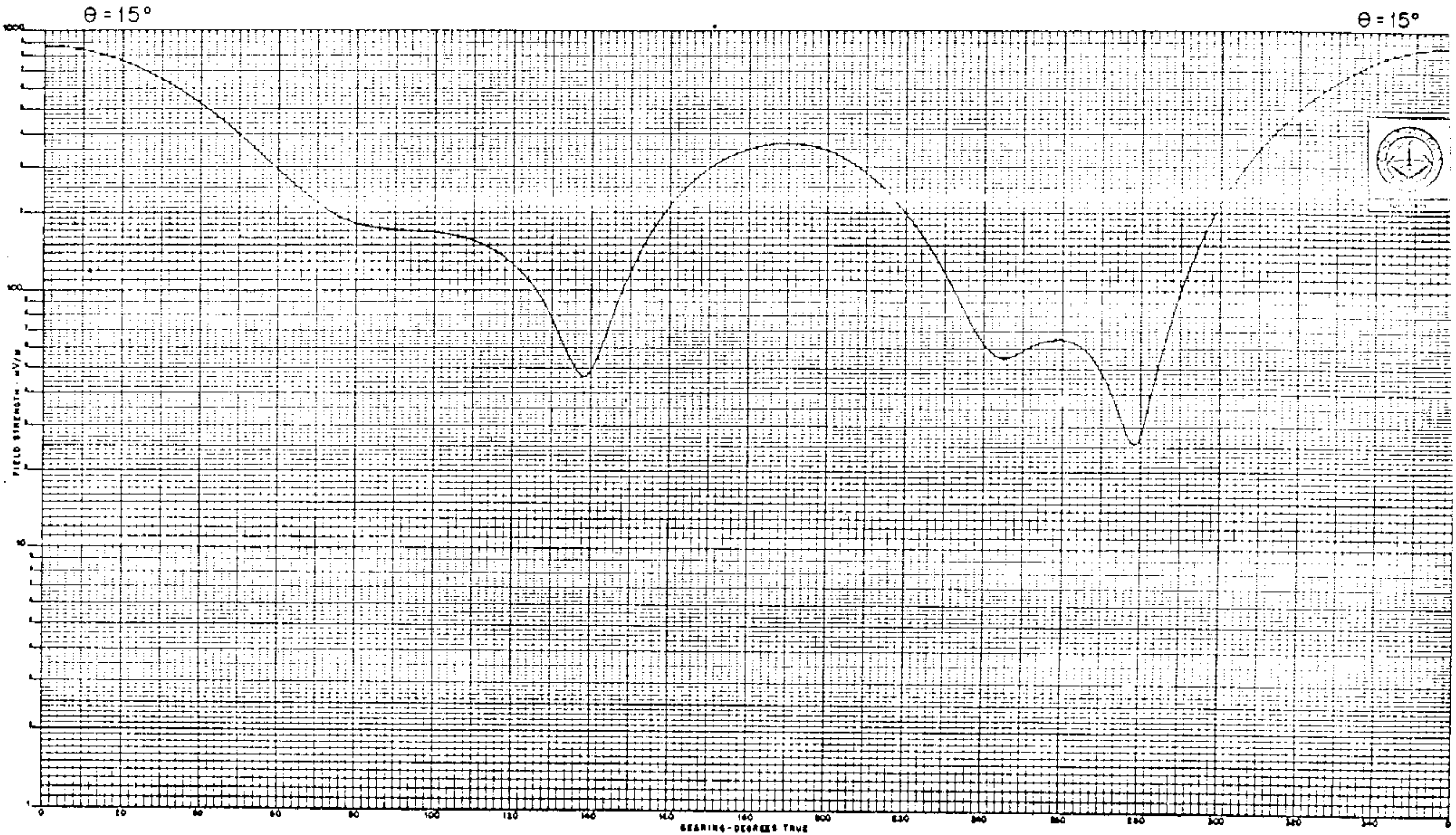


FIGURE-2D

KMTX

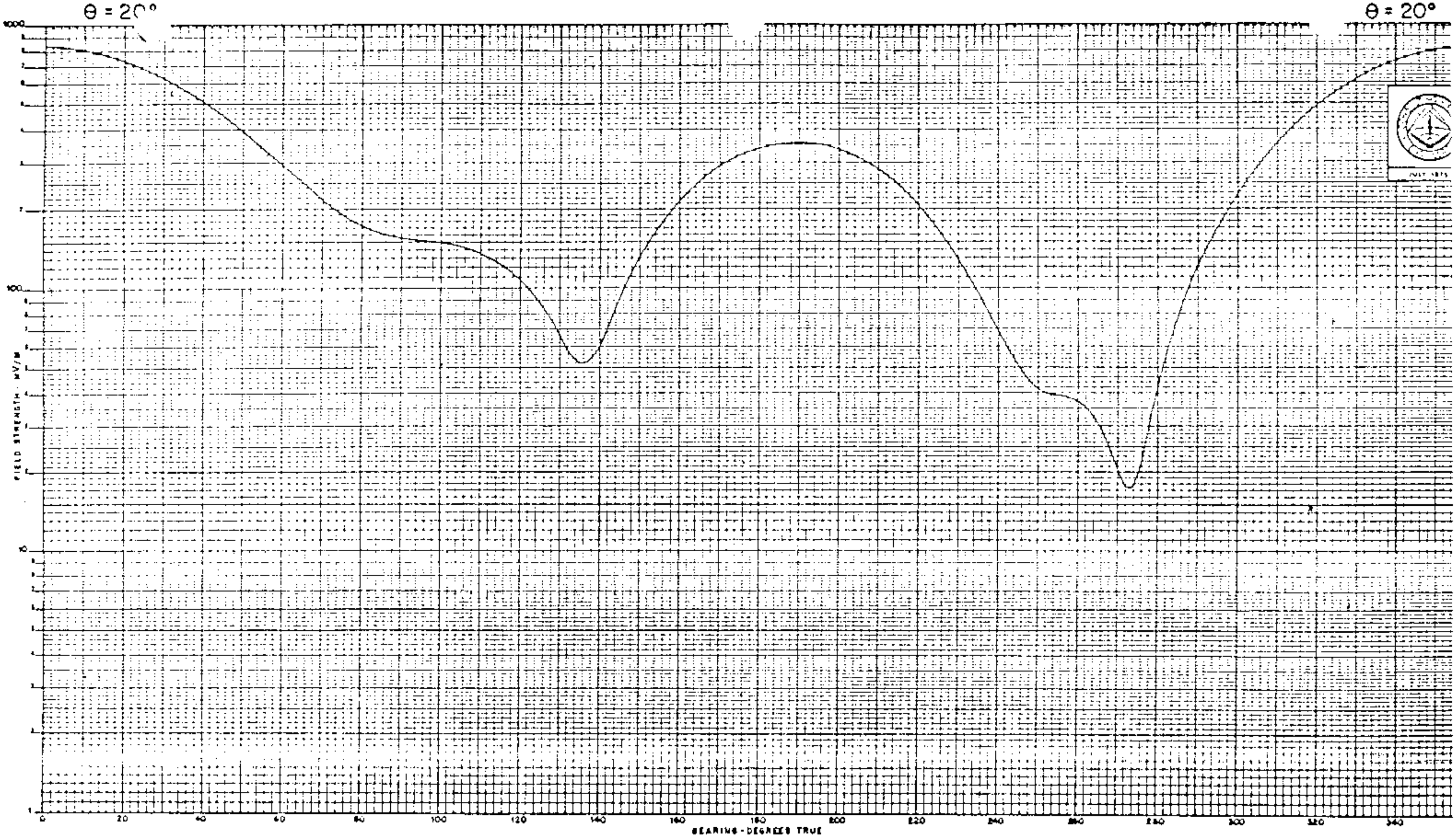

θ = 20°
θ = 20°
FIELD STRENGTH - MV/M
BEARING - DEGREES TRUE
1000
100
10
1
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340

FIGURE-

KMTX

KMTX

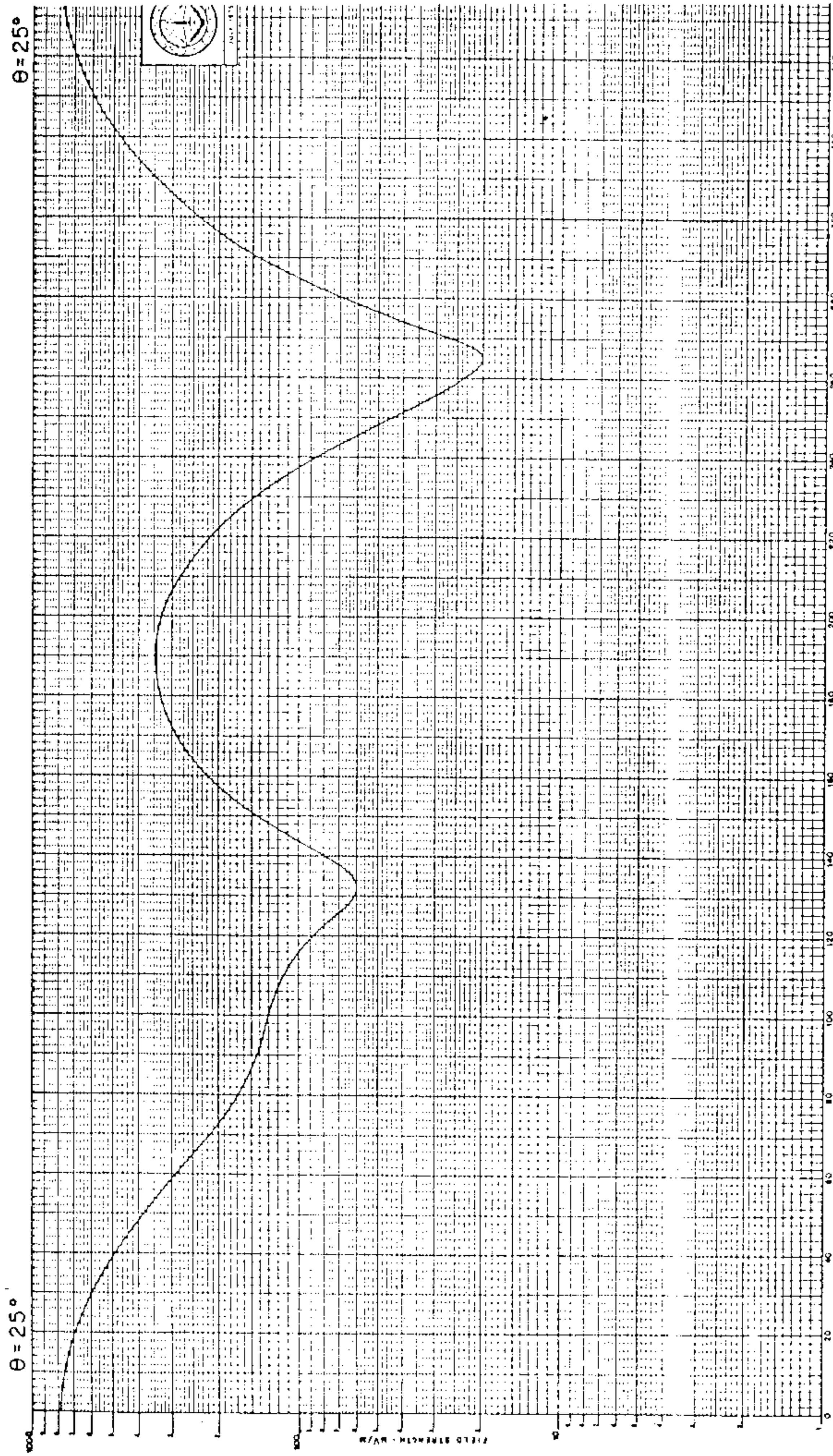


FIGURE - 2

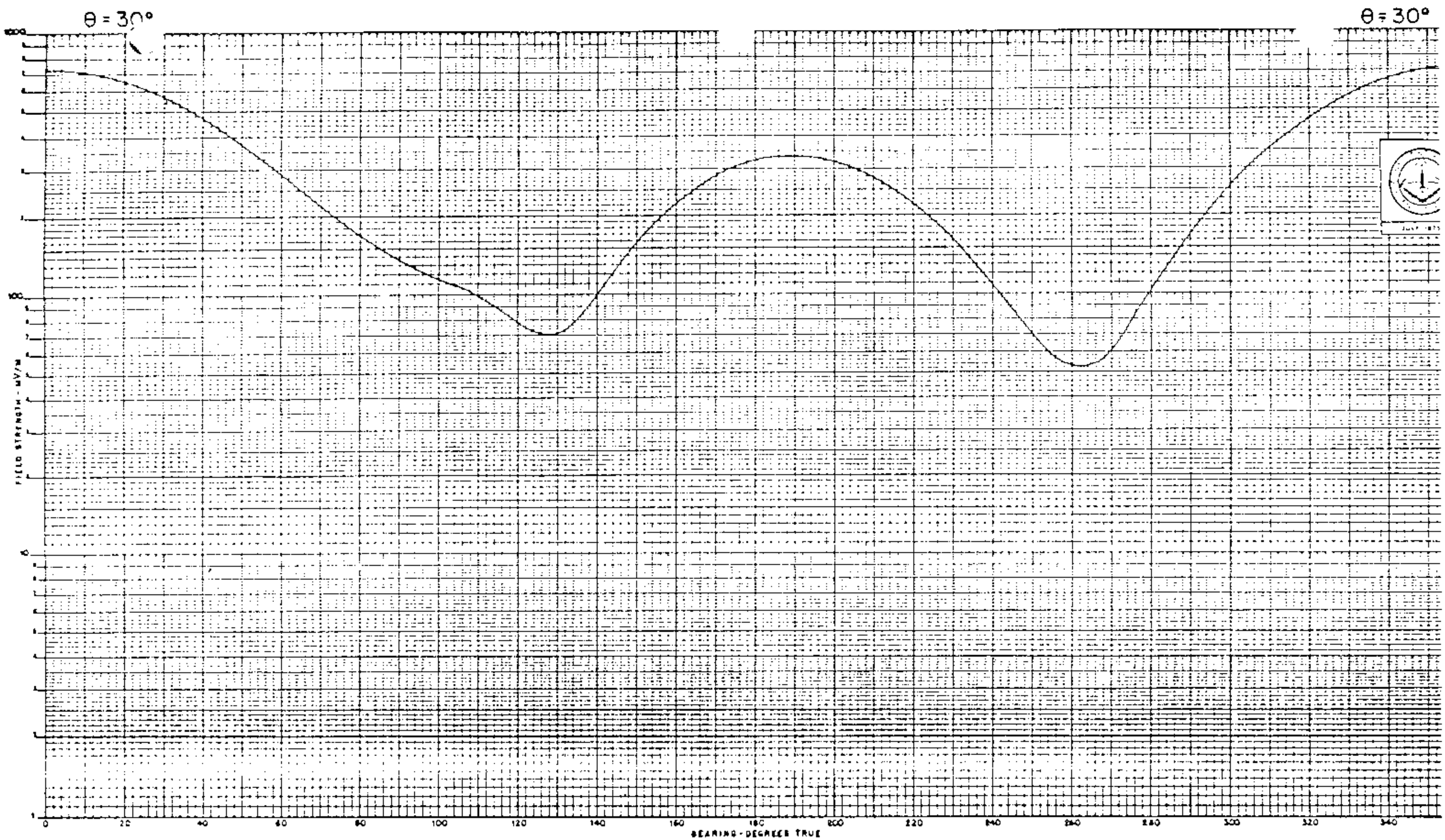


FIGURE- KMTX

KMTX

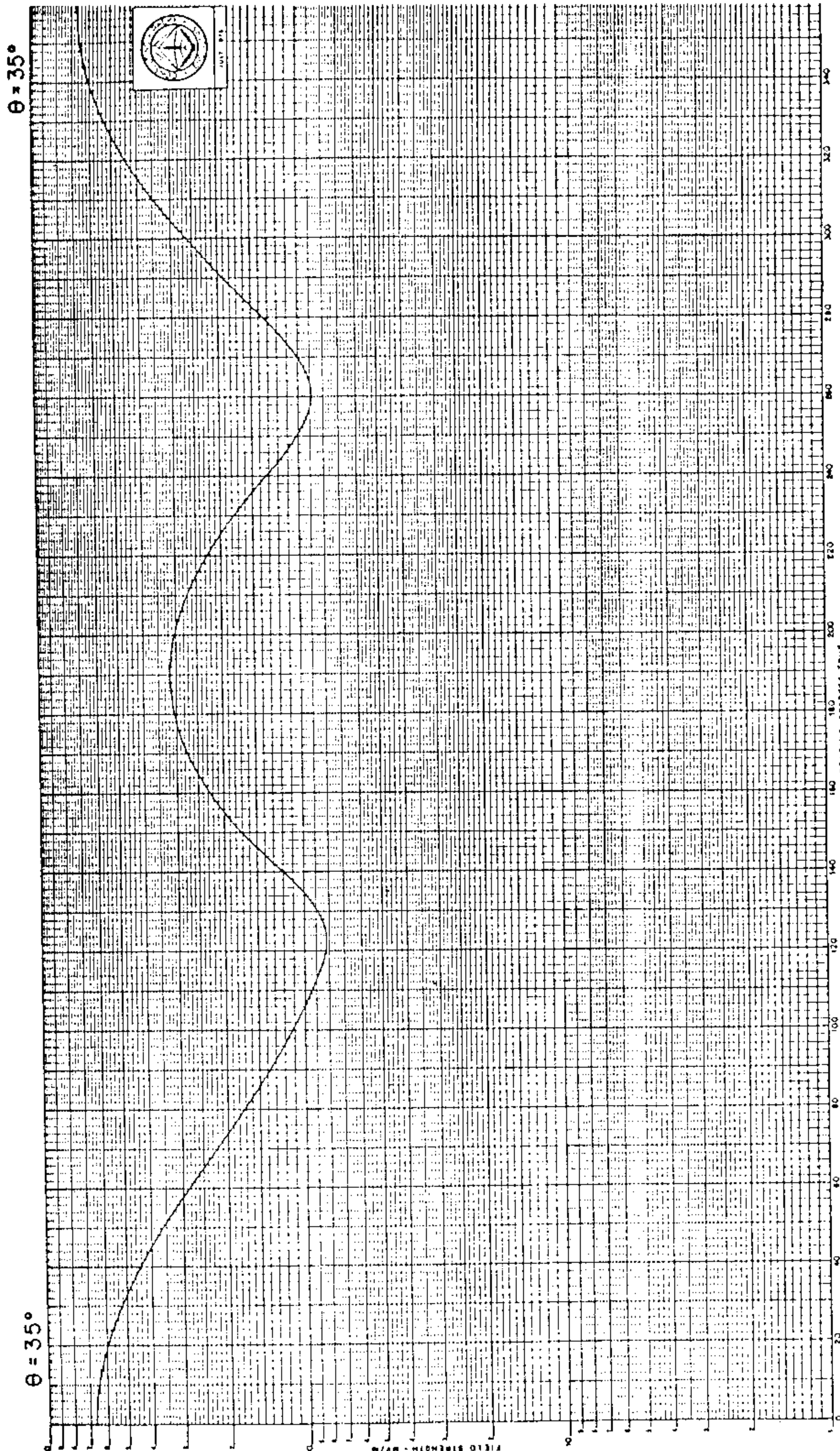


FIGURE-21

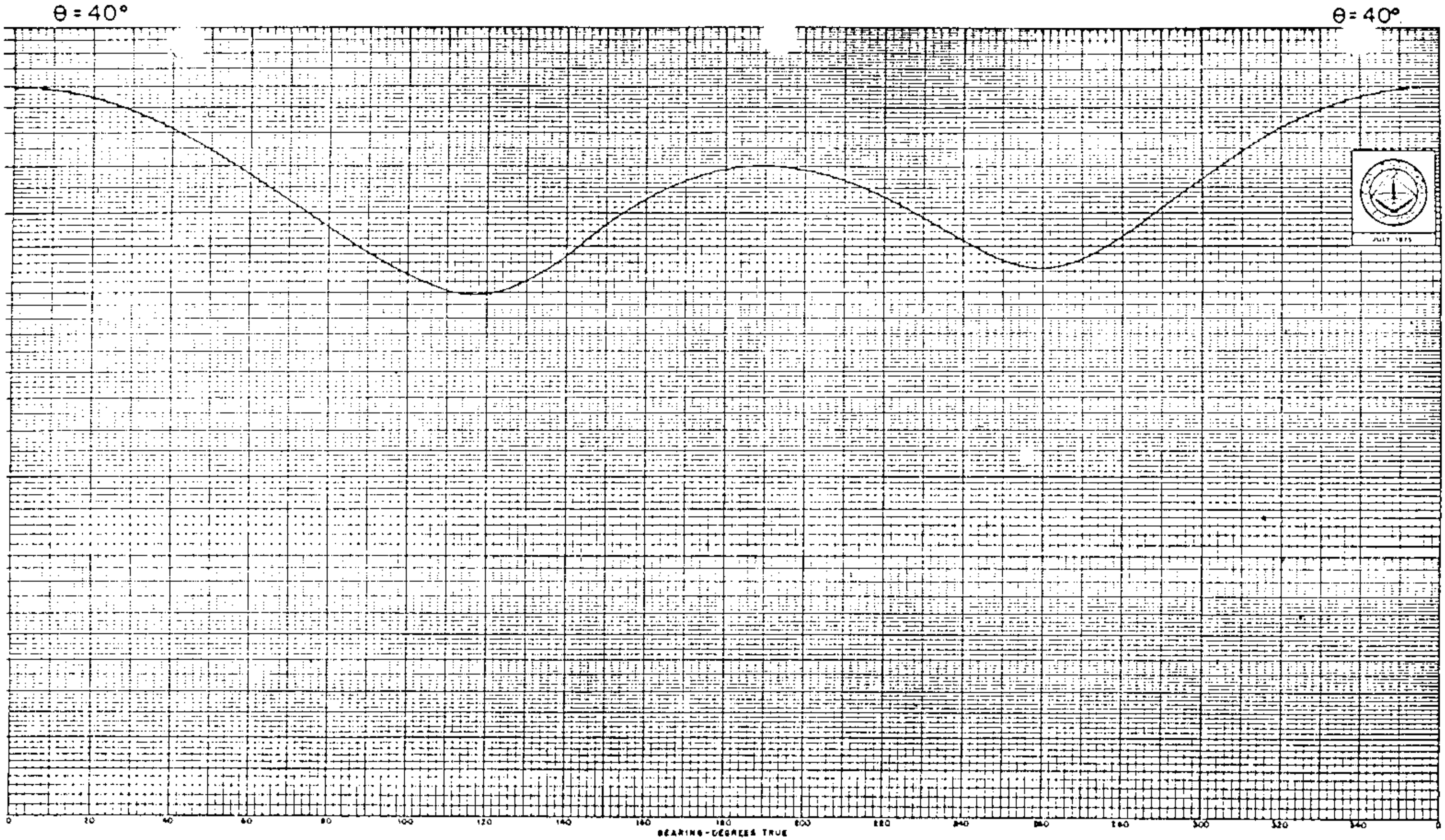


FIGURE-2I

KWTX

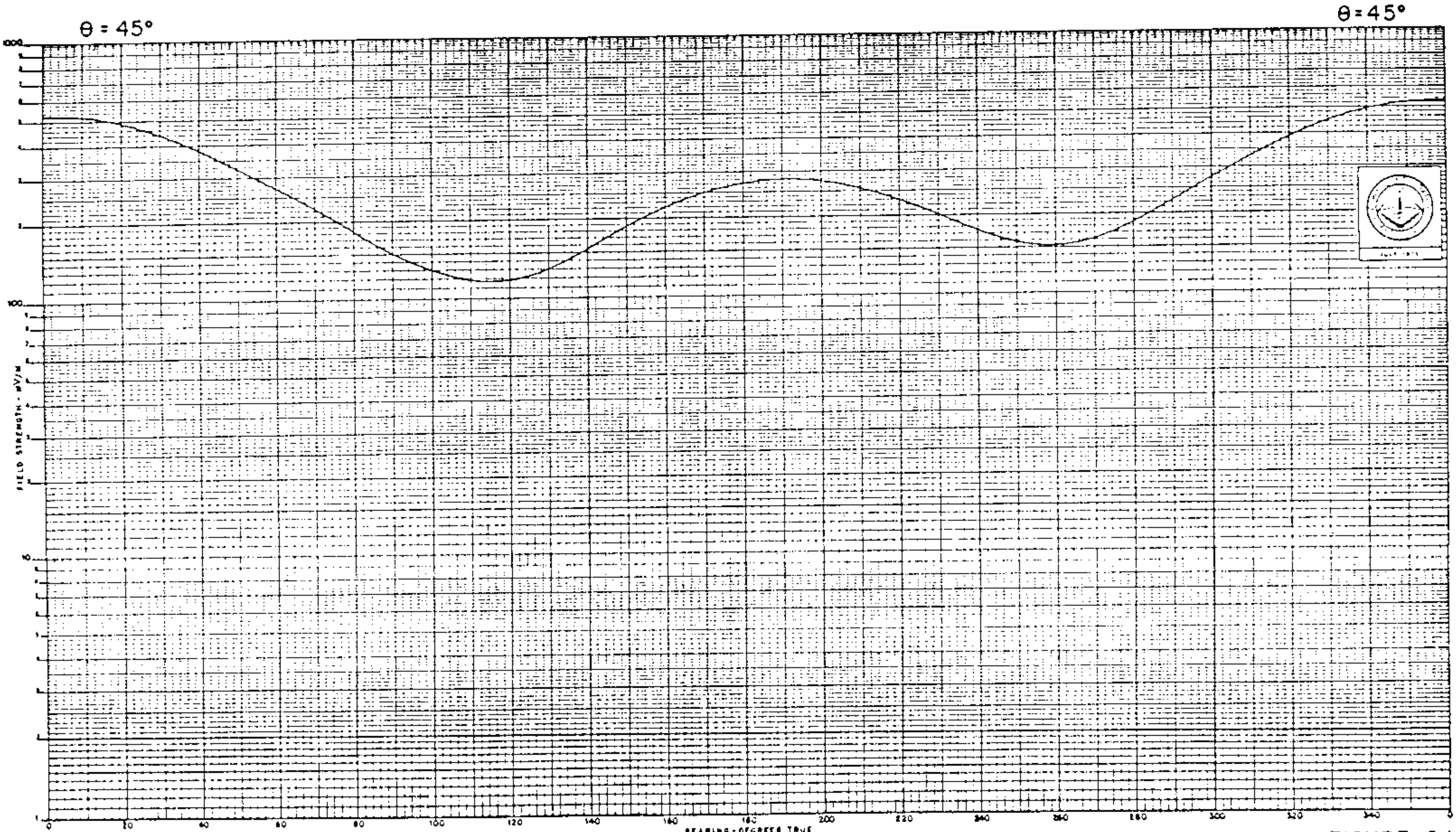


FIGURE-2J

KMTX

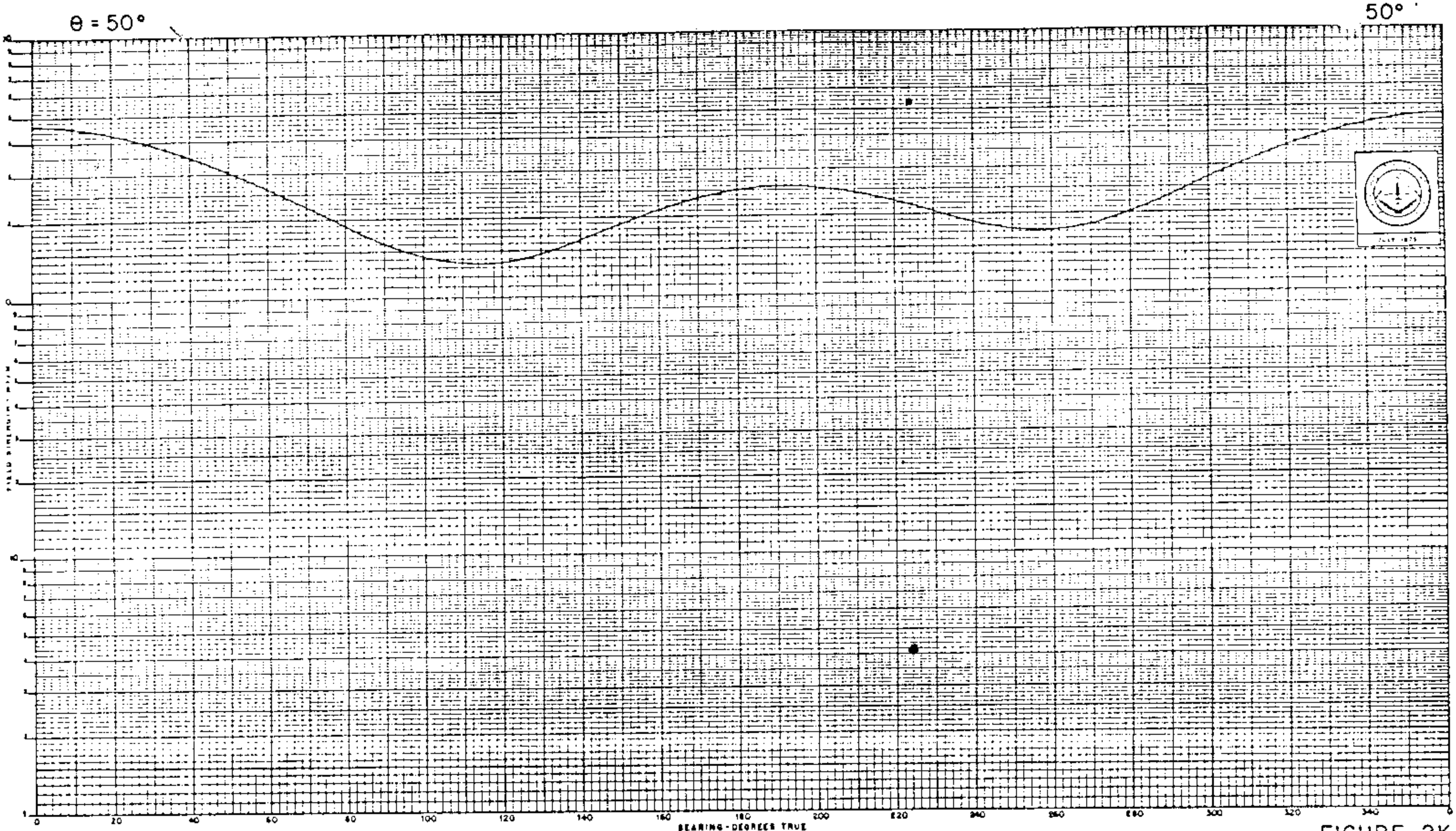


FIGURE - 2K

KMTX

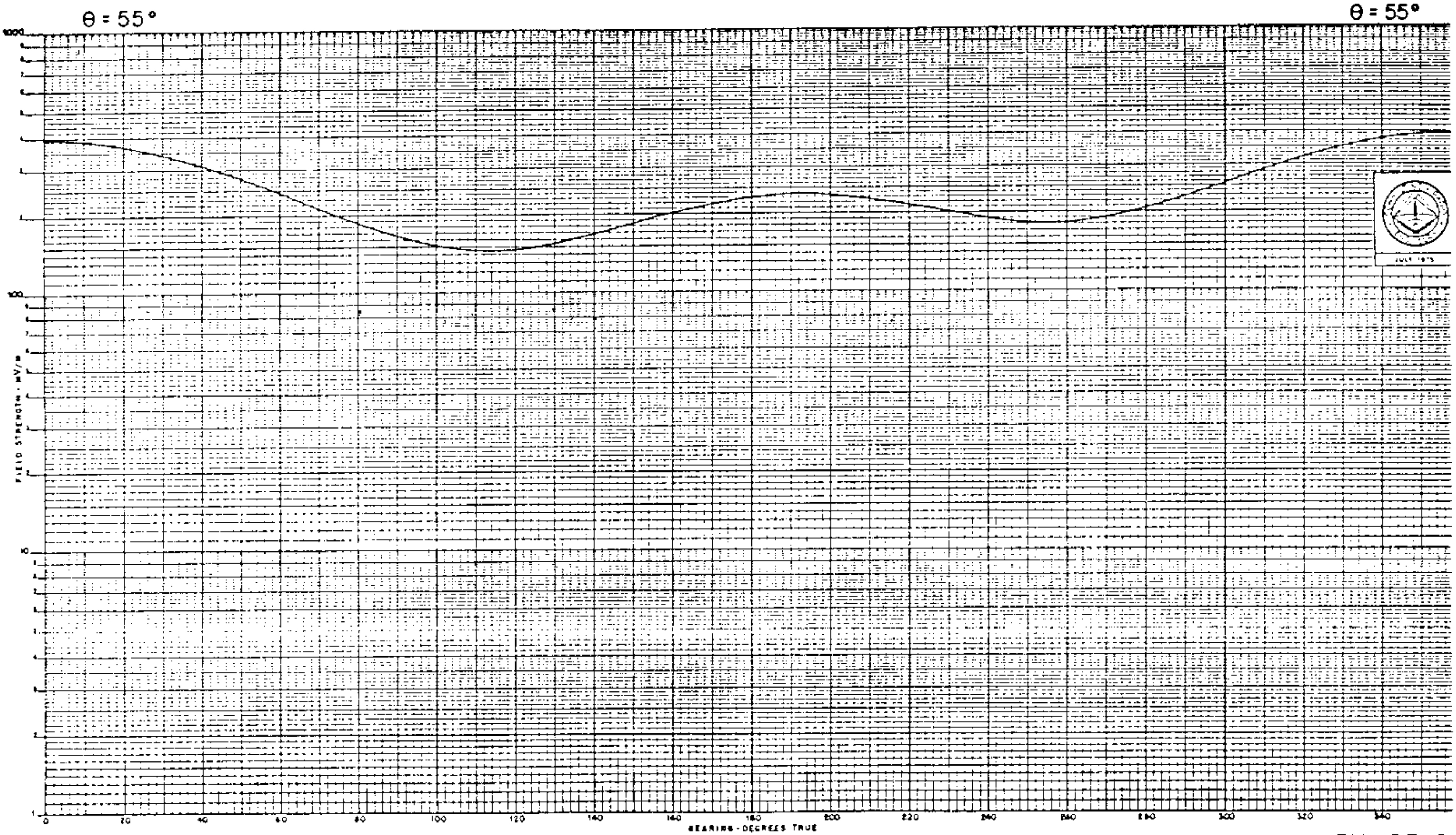


FIGURE-21

KMTX

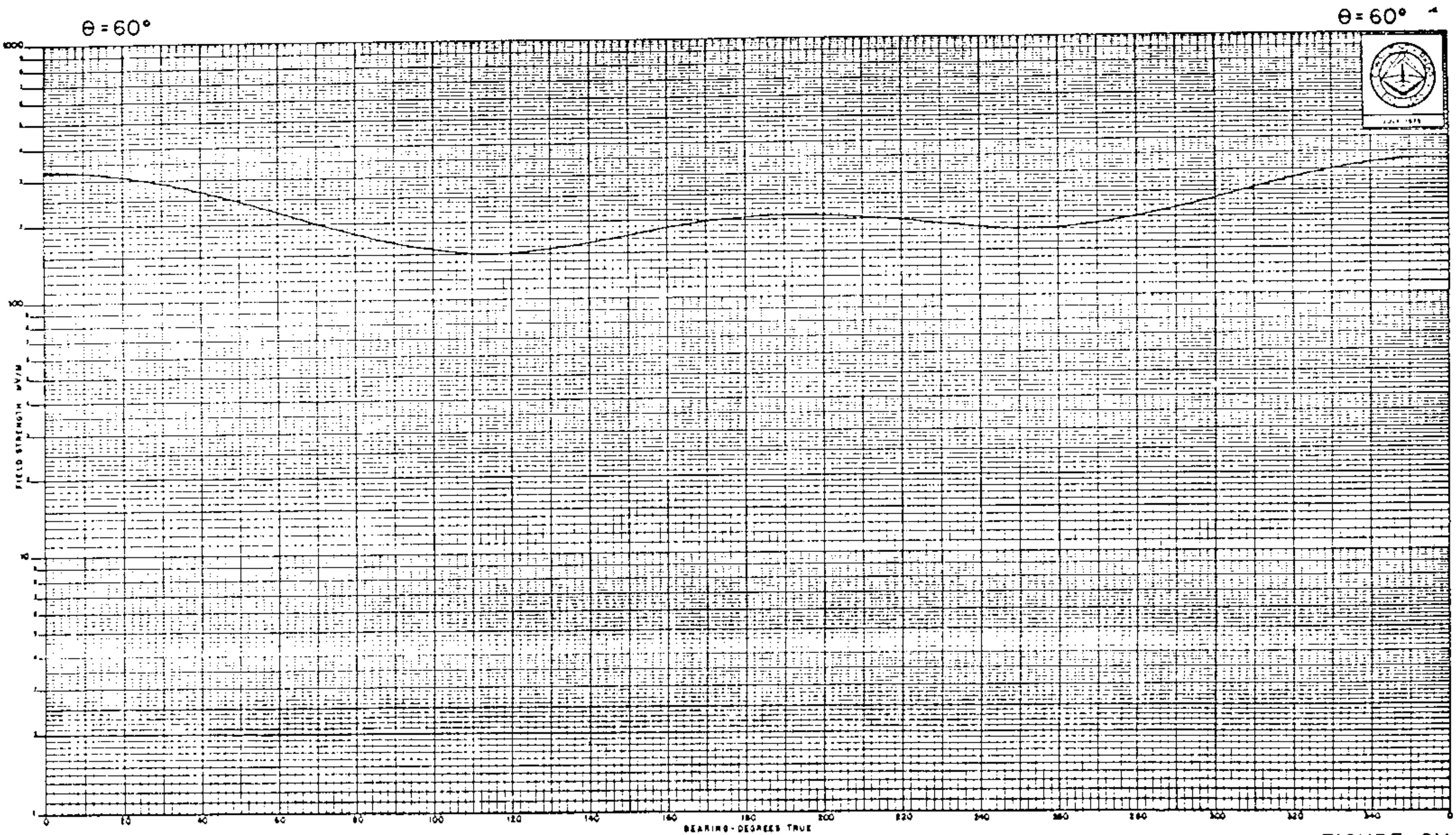


FIGURE-2M

KWTX

KOEL

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KOEL | Main Studio: Oelwein, Iowa

Frequency: 950 kHz | Power: 0.5 kW Night 5 kW Day

Notification List No. 1592 | Date: August 7, 1974 | Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 42° 39' 26" West Longitude: 91° 54' 02"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2)
Number of elements: 3
Type of elements: Series-excited, uniform cross-section, guyed, vertical steel towers.

TOWER:	S(#1)	C(#2)	N(#3)
HEIGHT ABOVE INSULATORS:	260'	260' (90.3°)	170' (59.1°)
NIGHT PHASING:	0°	-165.3°	+38.0°
NIGHT FIELD RATIO:	1.0	1.062	0.537
DAY PHASING:	+146°	0°	-140°
DAY FIELD RATIO:	0.66	1.00	0.60

SPACING AND ORIENTATION: From tower #1, tower #1, tower #2 is spaced 230' (80°) on a line bearing 7° true. From tower #2, tower #3 is spaced 259' (90°) on a line bearing 27° true.

GROUND SYSTEM: 120-260' equally spaced copper radials plus 120-50' inter-spaced radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

Predicted effective Night Field: 142.5 mv/m at rated power.

Predicted effective Day Field: 413 mv/m at rated power.

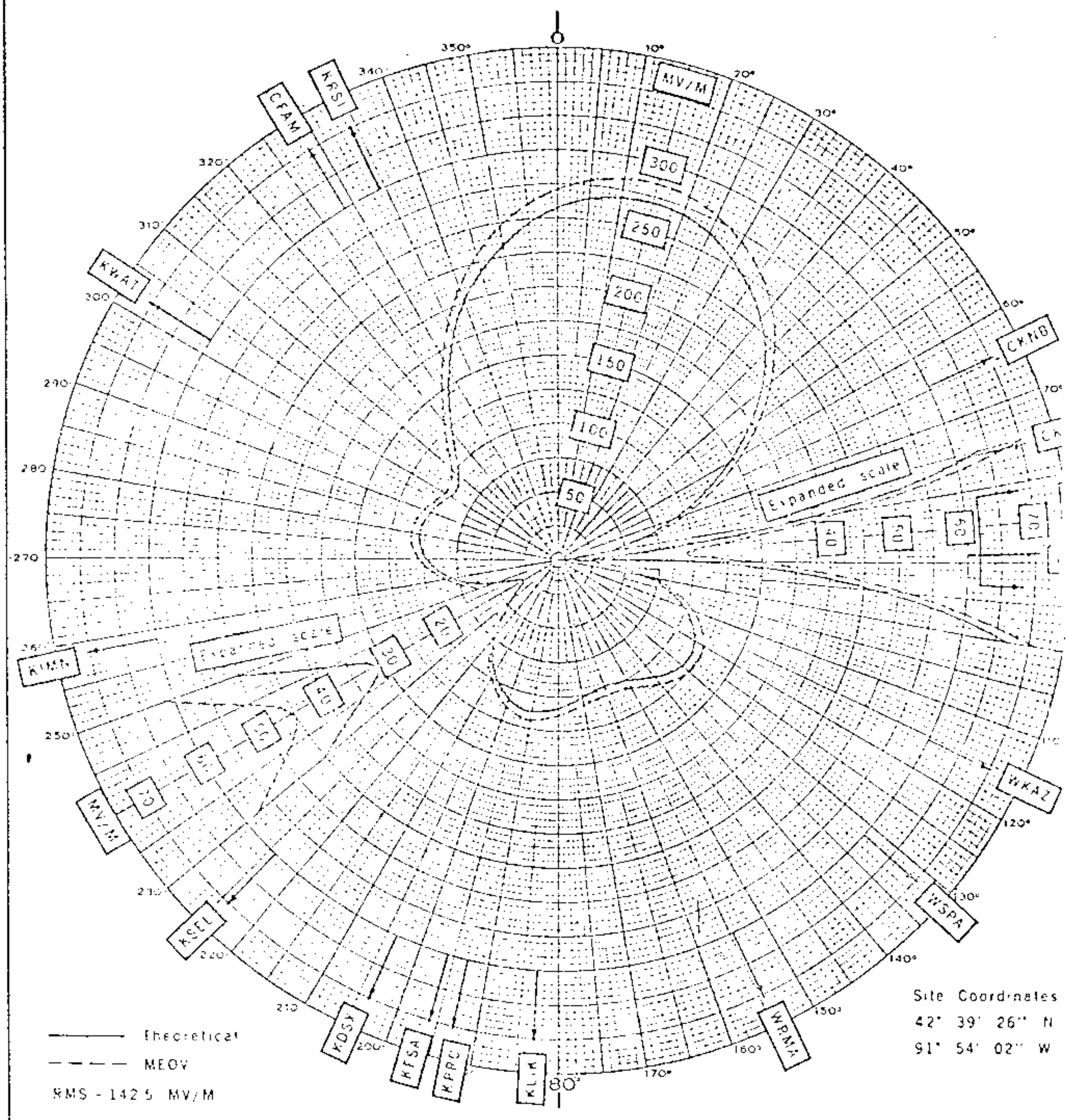
Note: Please retain the Daytime directional antenna radiation pattern notified for station KOEL in United Stated Change List Number 1039 dated December 4, 1963, and attach to this Revised Description Sheet and Nighttime pattern. This notification concerns only a change in the Nighttime operation of the station with Daytime operation continued as previously notified.

CTR NO 30318A3

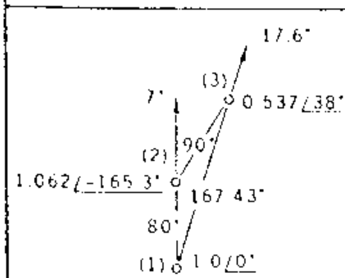
\KOEL

Figure 2
Sheet 1 of

JUNE 1974



PROPOSED NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN



G1, G2 = 90.3° (260°)
G3 = 59.1° (170°)

HAWKEYE BROADCASTING, INC.

RADIO STATION KOEL

OELWEIN, IOWA

Jules Cohen & Associates
Consulting Electronics Engineers

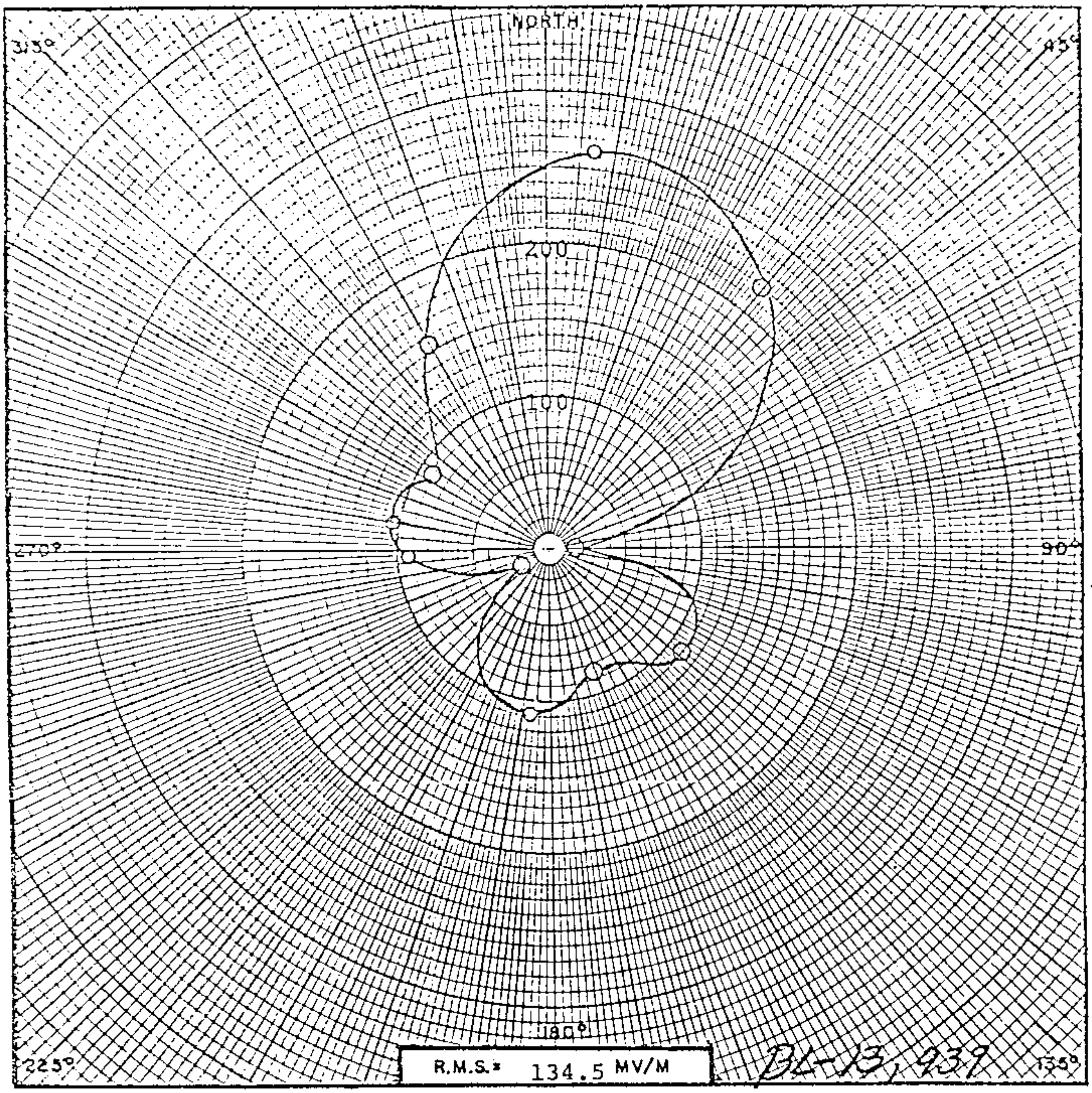
950 KHZ

0.5 KW, 5 KW-LS

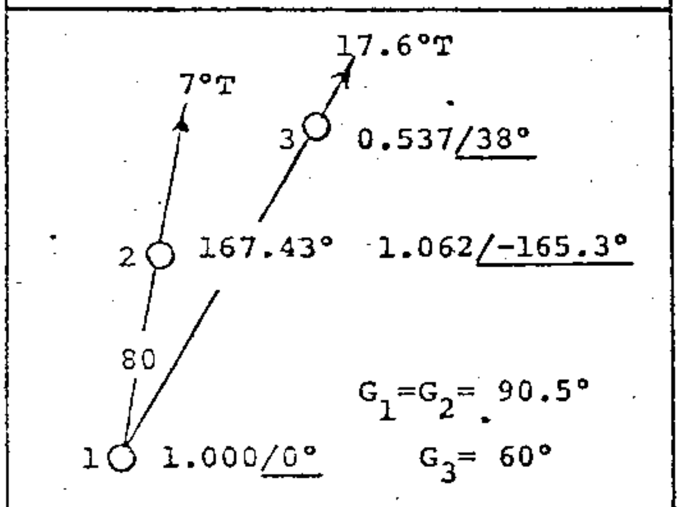
U DA-2

PATTERN No. 740606

KOEL



PATTERN PARAMETERS



DIRECTIONAL
RADIATION PATTERN
K O E L

[x] MEASURED [ ] PROPOSED

FREQ: 950 (KHZ) POWER 0.5 (KW) [ ] DA-D

N. LAT. 42° 39' 26" [x] DA-N

W. LONG 91° 54' 02" [ ] N-D

LOCATION: Oelwein, Iowa

DATE: February 1975

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

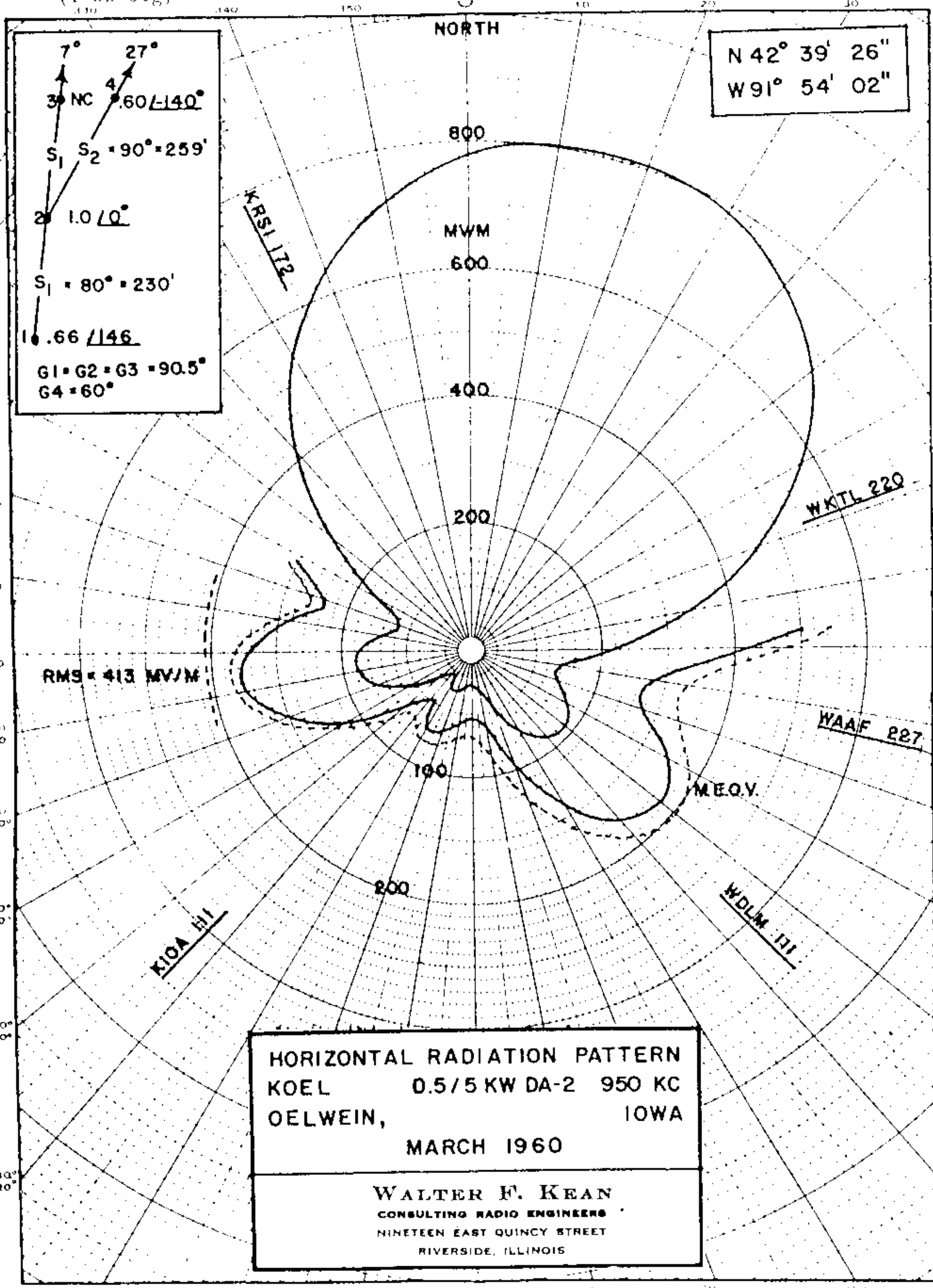
KOEL

PROPOSED DAY
(4-22-60g)

Station KOEL
Oelwein, Iowa

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

5-6-63 granted CP increase power to .5/5, DA-2

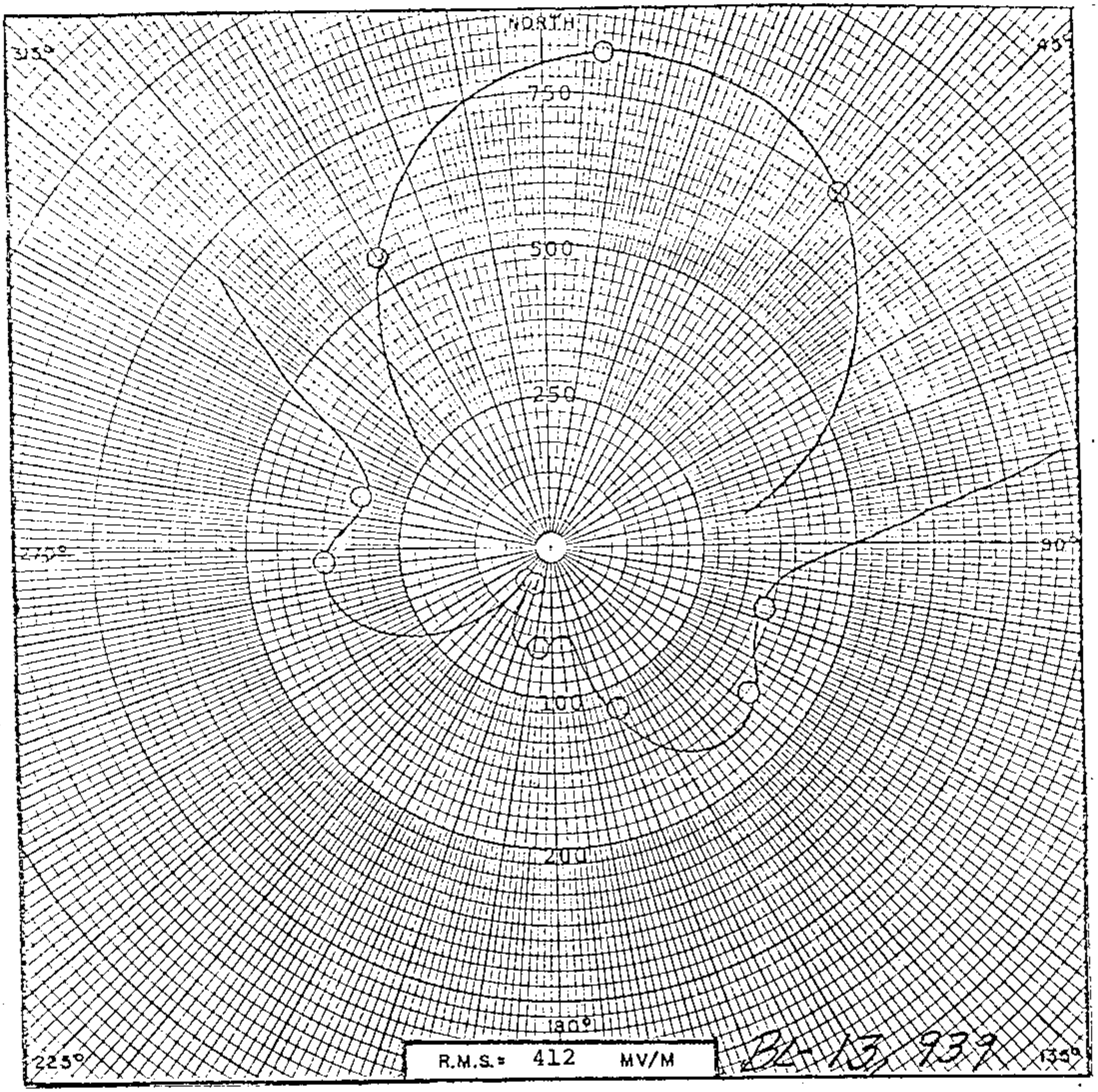


FCC File No. BP-14012
Accepted 4-6-60

KOEL
Oelwein, Iowa

950 KC

KOEL



BL-

PATTERN PARAMETERS

7°T

17.6°T

3 0.9/74°

2 167.43° 1.5/-146°

80°

$G_1 = G_2 = 90.5°$

1 1.0/0° $G_3 = 60°$

DIRECTIONAL RADIATION PATTERN

K O E L

[X] MEASURED [ ] PROPOSED

FREQ: 950 (KHZ) POWER 5.0 (KW) [X] DA-D

N. LAT. 42 ° 39 ' 26 " [ ] DA-N

W. LONG 91 ° 54 ' 02 " [ ] N-D

LOCATION: Oelwein, Iowa

DATE: February 1975

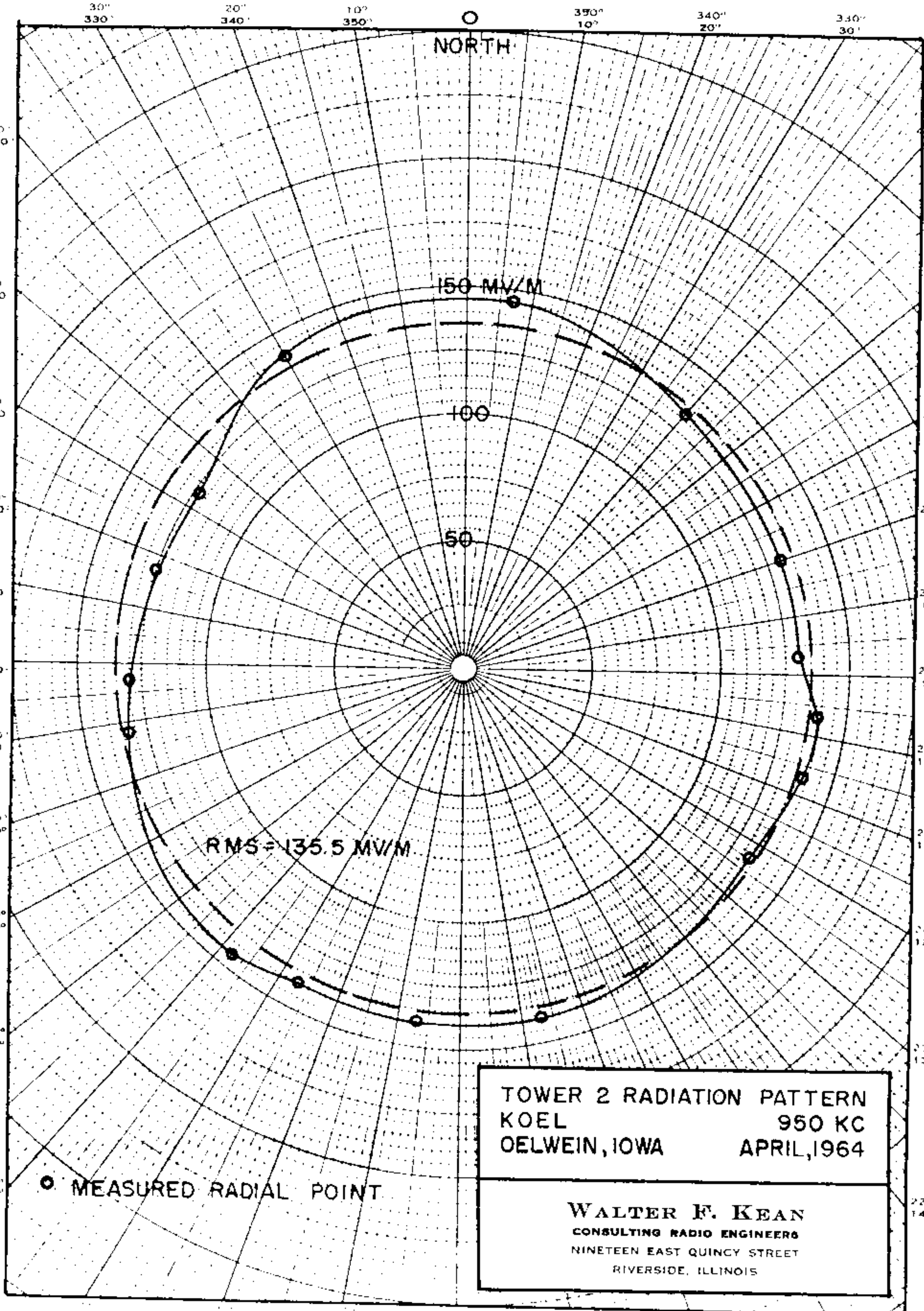
ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

KOEL

Measured Non-DA
(7-29-64ct)

Station KOEL
Oelwein, Iowa

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

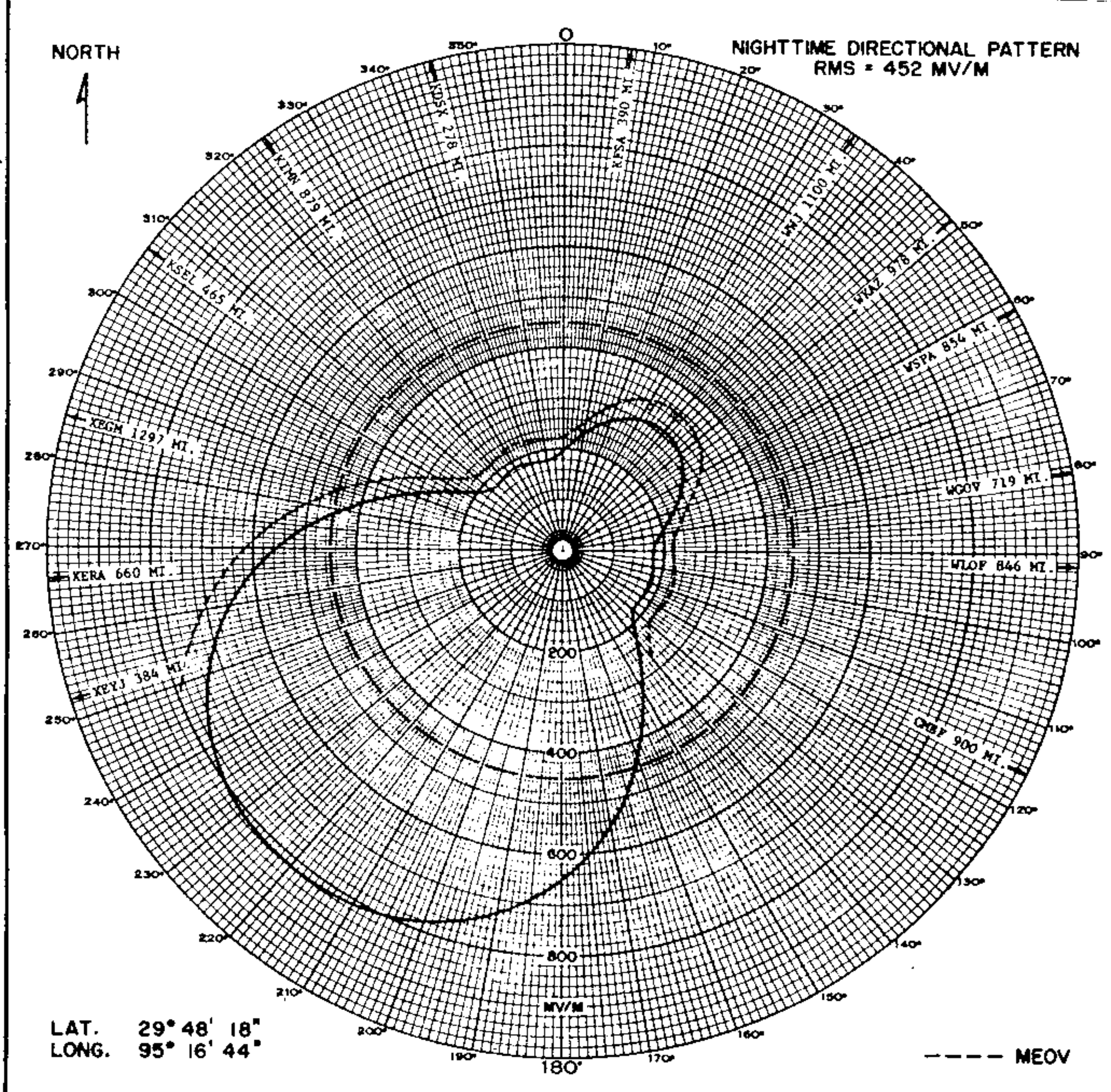


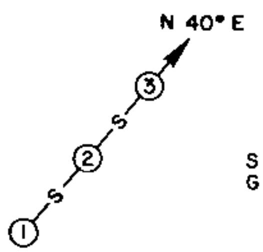
FCC File No.BL-10622
Accepted 6-24-64

Station KOEL
Oelwein, Iowa

950 kc

MP-11360
1-25-64
MCP CHG DA





S = 287.7' = 100°
G = 260' = 90°

THEORETICAL PARAMETERS

TOWER	FIELD	PHASE
1	1.00	-125°
2	1.94	0°
3	1.00	168°

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

RADIO STATION KPRC
950 KC 5 KW DA-N
640825.2 FIGURE 5

KPRC

Measured Night
(12-29-65ct)

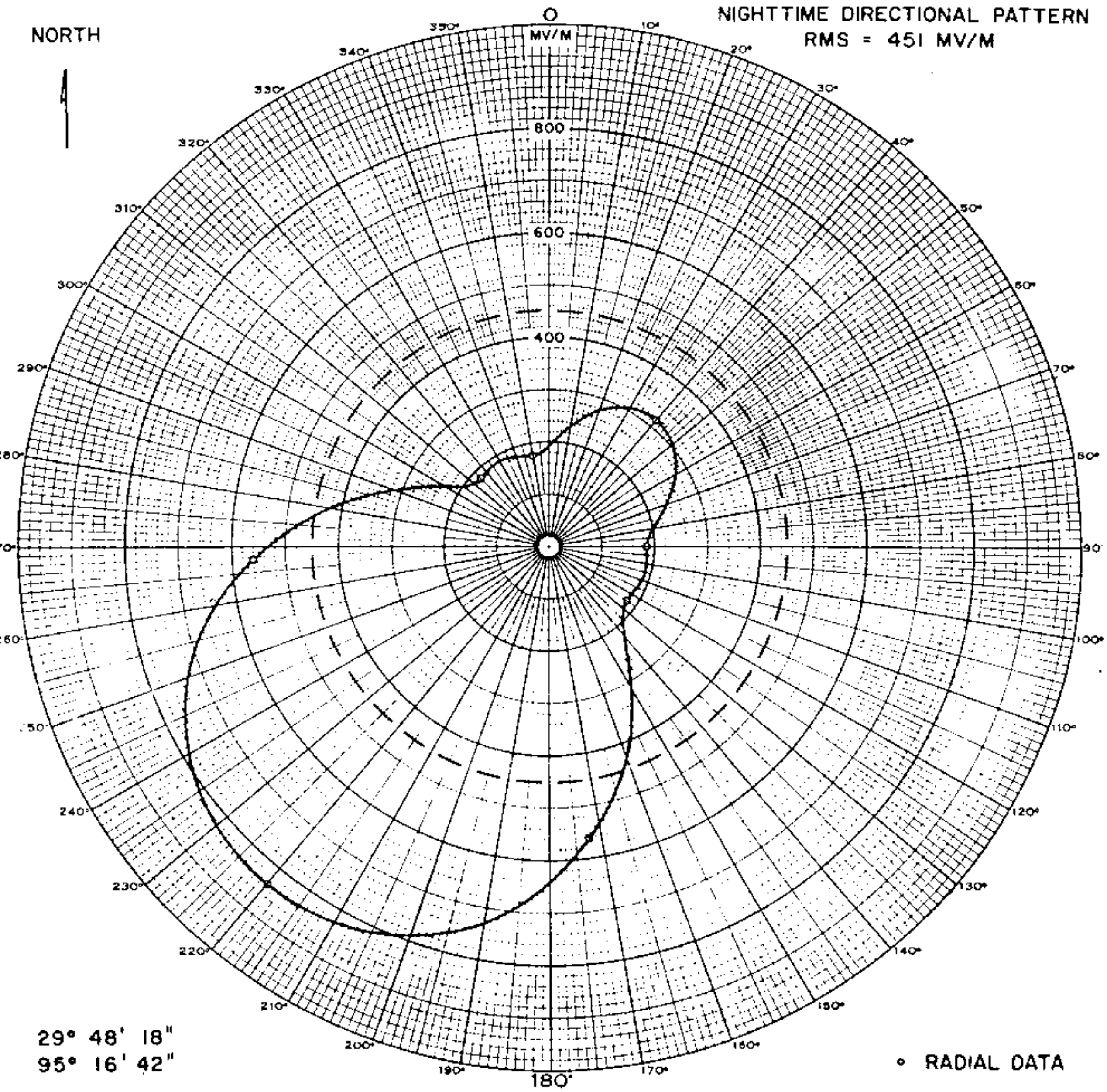
Station KPRC
Houston, Texas

5kw, DA-N, U
950 kc

LIC 2-4-66

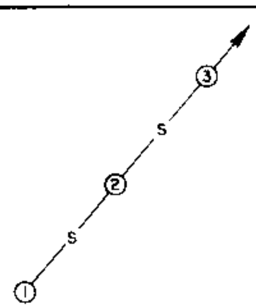
NORTH

NIGHTTIME DIRECTIONAL PATTERN
RMS = 451 MV/M



29° 48' 18"
95° 16' 42"

∘ RADIAL DATA



S = 287.7' = 100°
G = 260.0' = 90°

ANTENNA PARAMETERS

TOWER	THEORETICAL FIELD	THEORETICAL PHASE	OBSERVED FIELD	OBSERVED PHASE
1 (SW)	.515	-125°	.484	-129°
2 (C)	1.000	0°	1.000	0°
3 (NE)	.515	168°	.569	166°

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

RADIO STATION KPRC
950 KC 5.0 KW DA-N
651101 FIGURE 2B

FCC File No.BL-11179
Accepted 12-22-65

Station KPRC
Houston, Texas

950 kc

KPRC

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

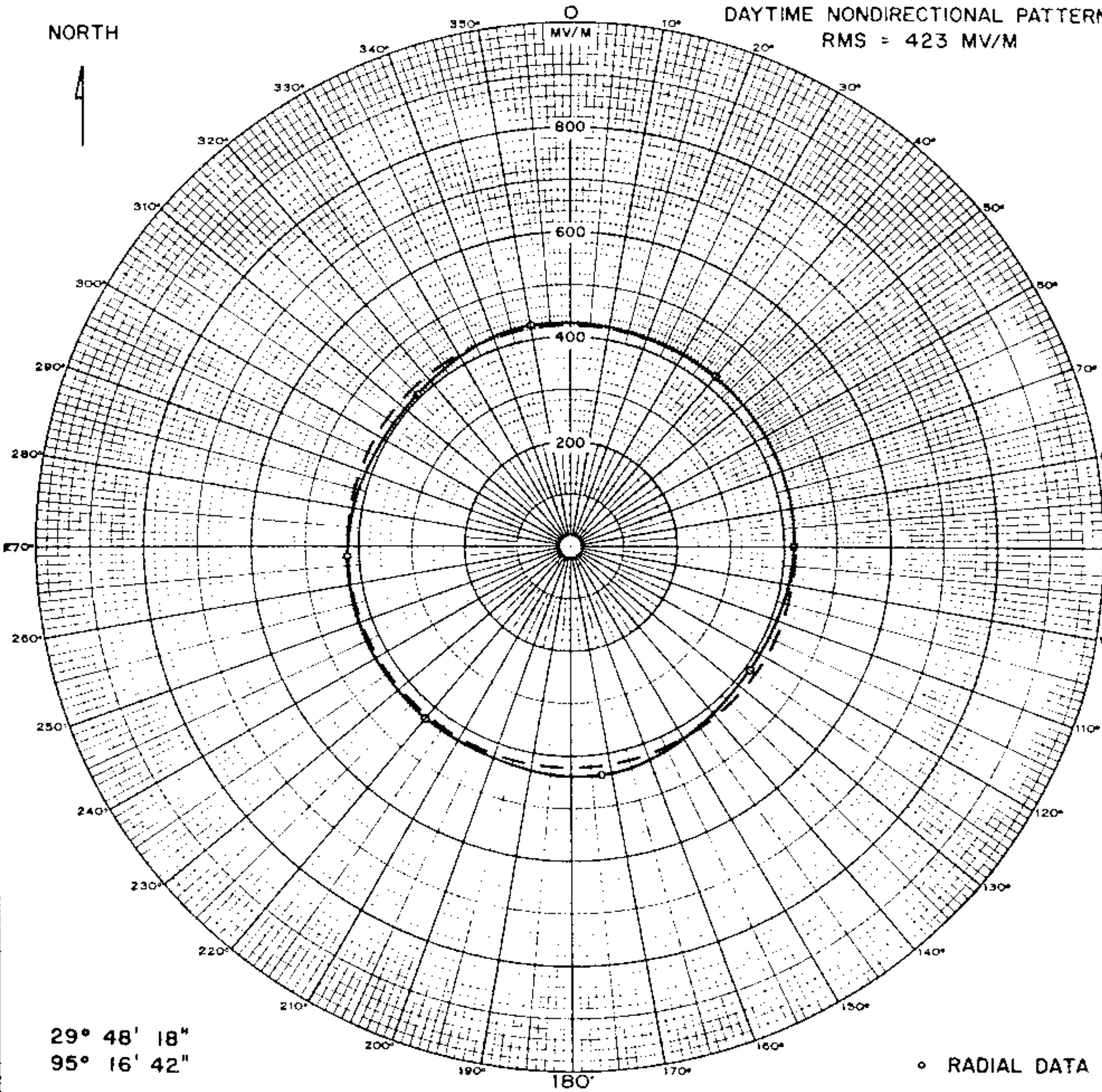
Station KPRC
Houston, Texas

5kw,DA-N,U
950 kc

LIC 2-4-66

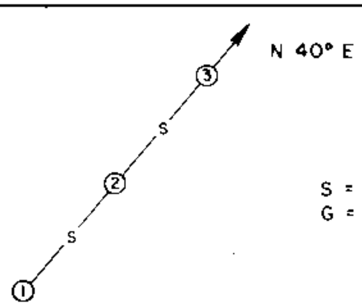
DAYTIME NONDIRECTIONAL PATTERN
RMS = 423 MV/M

NORTH



29° 48' 18"
95° 16' 42"

∘ RADIAL DATA



S = 287.7' = 100°
G = 260.0' = 90°

RADIATING ELEMENTS

NONDIRECTIONAL DAYTIME

TOWER	OPERATION
1 (SW)	DETUNED
2 (C)	SERIES FED
3 (NE)	DETUNED

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

RADIO STATION KPRC
950 KC 5.0 KW DA-N
651101 FIGURE 2A

FCC File No. BL-11179
Accepted 12-22-65

Station KPRC
Houston, Texas

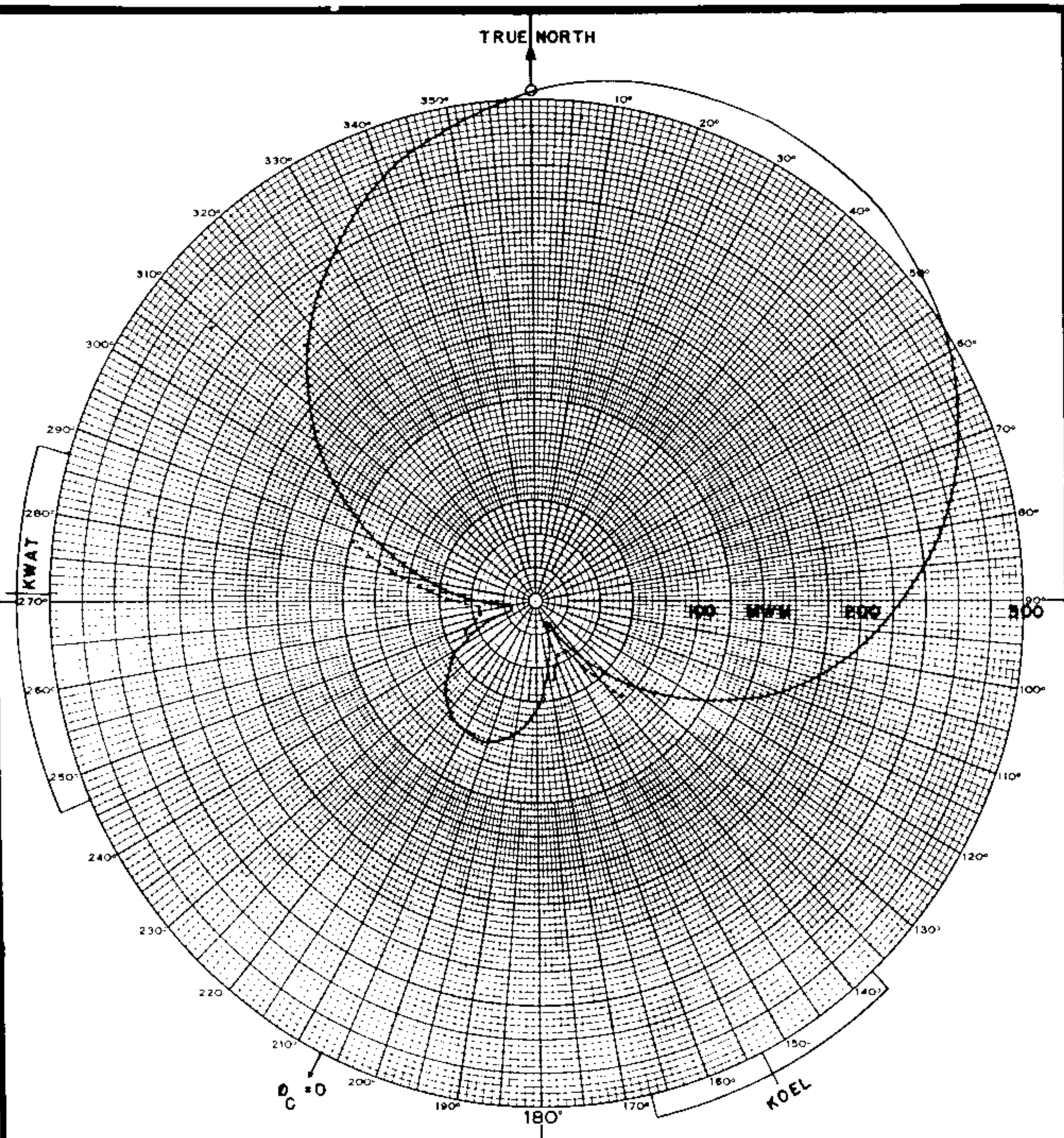
950 kc

Hopkins - Edina - St. Louis, KRSI
Minnesota

PROPOSED DAY HOPKINS EDIMAN ST. LOUIS B/C CO. 1KW DA-N
(8/19/54G) HOPKINS EDINA ST. LOUIS PARK, MINN. 950 KC

CP granted 10/3/56

Granted mod. of CP 11/25/58 to specify studio location "St. Louis Park Minn."



TRUE NORTH
NO.2 1 [72
60°
27°
G = 90°
NO.1 1.05 [72
$\phi_C = 0°$

—— COMPUTED
- - - MEOV
RMS = 195 MV/M
N. LAT. 44° 52' 02"
W. LONG. 93° 25' 00"
7/23/54

EDWARD SCHONS & WILLIAM E. SCHONS
DBA HOPKINS-EDINA-ST. LOUIS PARK, MINNESOTA
950 KC FIGURE I 1 KW DA-D

LYNNE C. SMEBY, CONSULTING RADIO ENGINEER
WASHINGTON, D. C.

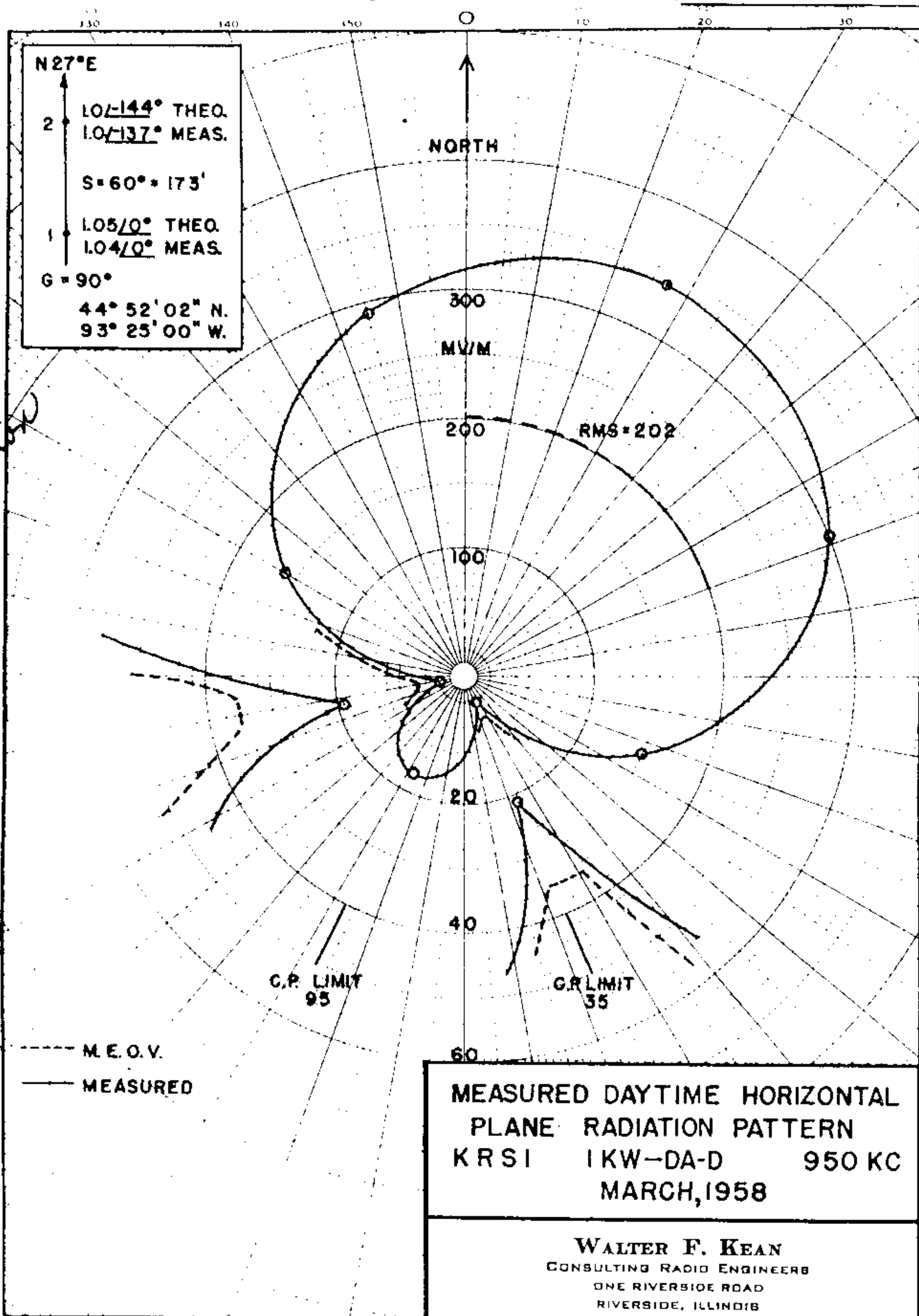
FCC FILE NO. BP-9405 DATE ACCEPTED 8--9--54 950 KC

KRSI

MEASURED DAY
(6-20-58g)

Station KRSI
Hopkins-Edina-St. Louis Park, Minnesota.

1kw, DA-D,D
950 KC



Granted Mod. of CP 11/25/58 to specify studio location as "St. Louis Park Minn."

granted license for new station 7-13-59

FCC File No. BL-7111
Accepted 5-26-58

KRSI
Hopkins-Edina-St. Louis Park, Minnesota

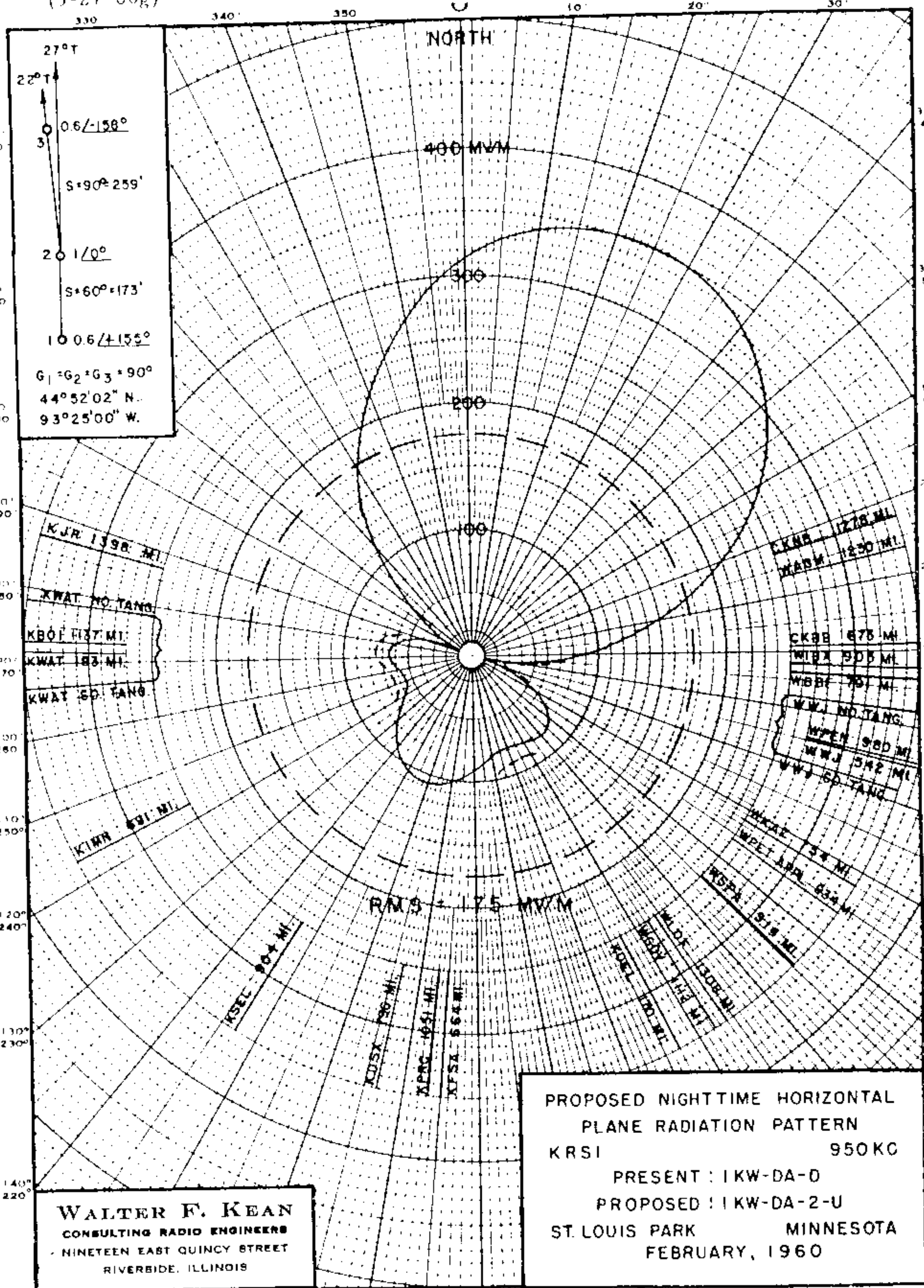
950 KC

KRSI

PROPOSED NIGHT
(5-27-60g)

Station KRSI 1kw, DA-2,U
St. Louis Park, Minnesota 950 KC

2-14-62 granted CP to change from DA-D to DA-2U



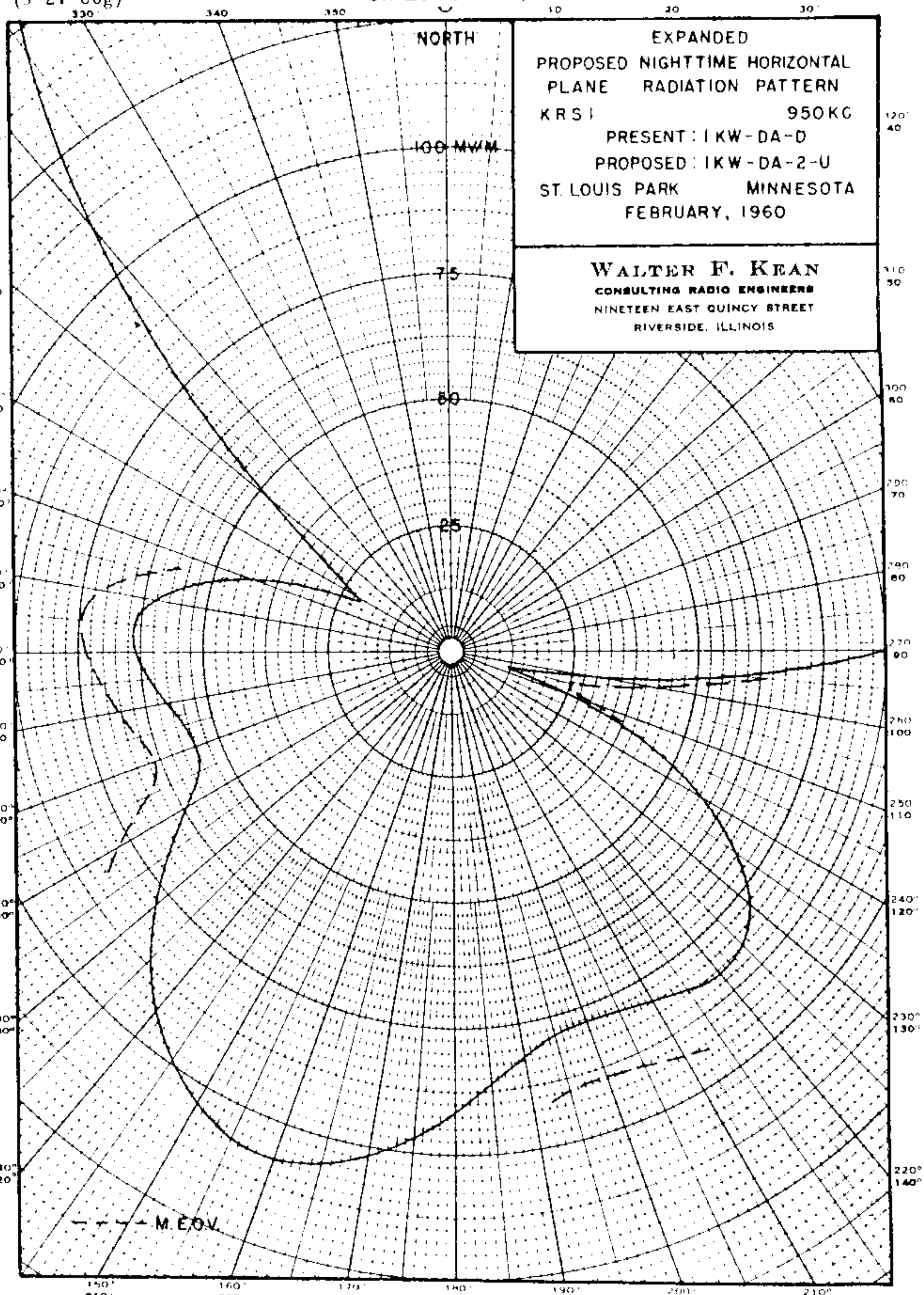
FCC File No. BP-14096
Accepted 5-10-60

KRSI
St. Louis Park, Minnesota 950 KC

K...

PROPOSED NIGHT NULLS
(5-27-60g)

Station KRSI — 1kw, DA-2,U
St. Louis Park, Minnesota — 950 KC



FCC File No. BP-14096
Accepted 5-10-60

KRSI
St. Louis Park, Minnesota — 950 KC

KRSI

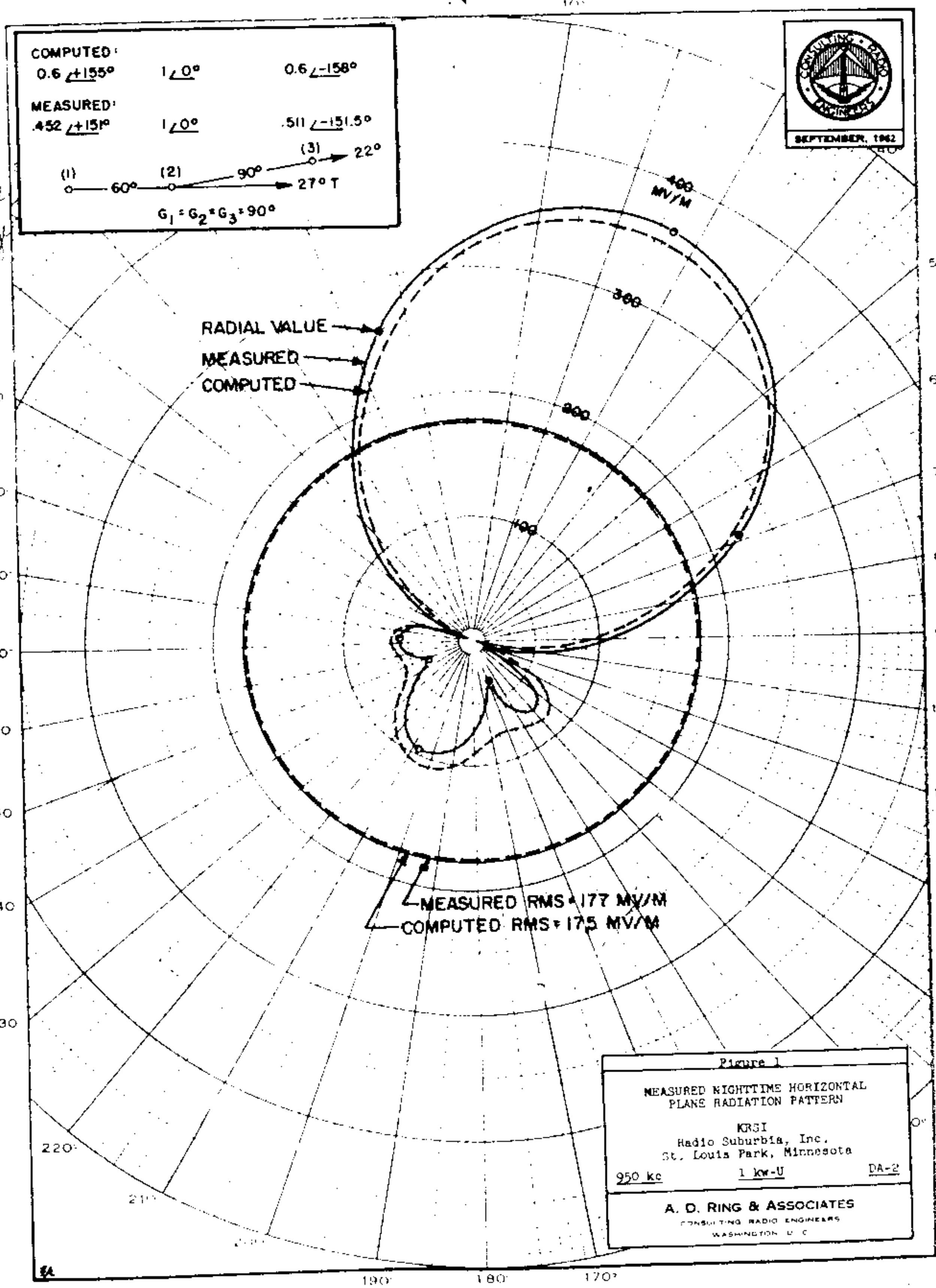
Measured Night
(1-30-63ct)

Station KRSI
St. Louis Park, Minnesota

1kw,DA-2,U
950 kc

KRSI - 950 KC

4-18-63
granted license
covering change
from DA-D to
DA-2



A. D. RING & ASSOCIATES - 10/60 - N

FCC File No.BL-9685
Accepted 1-15-63

Station KRSI
St. Louis Park, Minnesota

950 kc

KRSI

Measured Non-DA
(1-30-63ct)

Station KRSI
St. Louis Park, Minnesota

1kw,DA-2,U
950 kc

KRSI - 950 KC

1-18-63
Granted license
Covering change
from DA-D to
DA-2

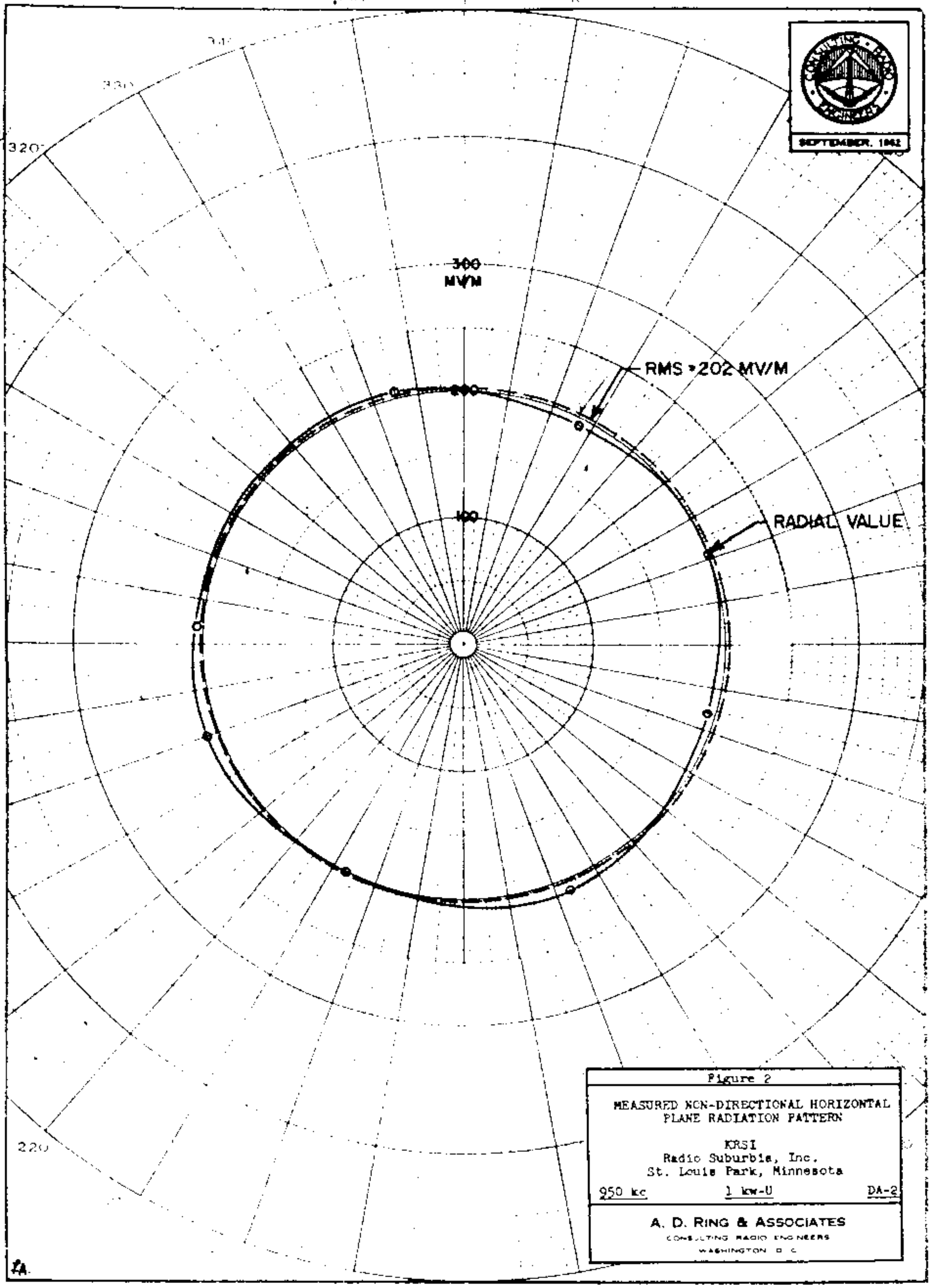


Figure 2

MEASURED NON-DIRECTIONAL HORIZONTAL PLANE RADIATION PATTERN

KRSI
Radio Suburbia, Inc.
St. Louis Park, Minnesota

950 kc | 1 kw-U | DA-2

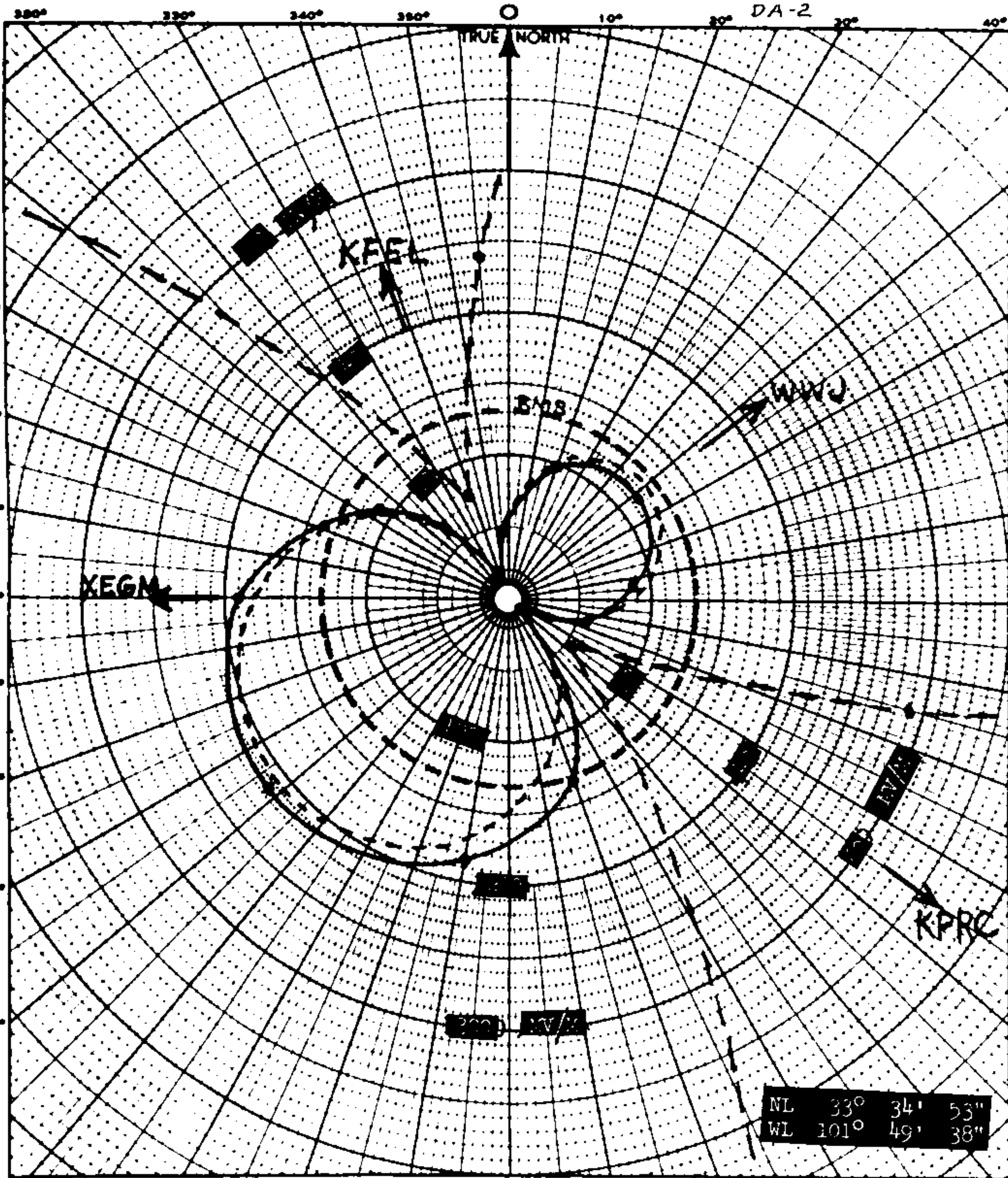
A. D. RING & ASSOCIATES
CONSULTING RADIO ENGINEERS
WASHINGTON D. C.

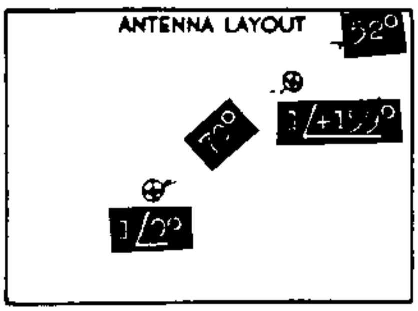
A. D. RING & ASSOCIATES - 10/60 - M

FCC File No. BL-9685
Accepted 1-15-63

Station KRSI
St. Louis Park, Minnesota

950 kc





KSE LUBBOCK, TEXAS
Station Location

950 KC .5 KW RMS Field 132 MV/M
Frequency Power R.M.S Field

2 250' - 0.24 λ
No. of Elements Height of Antenna

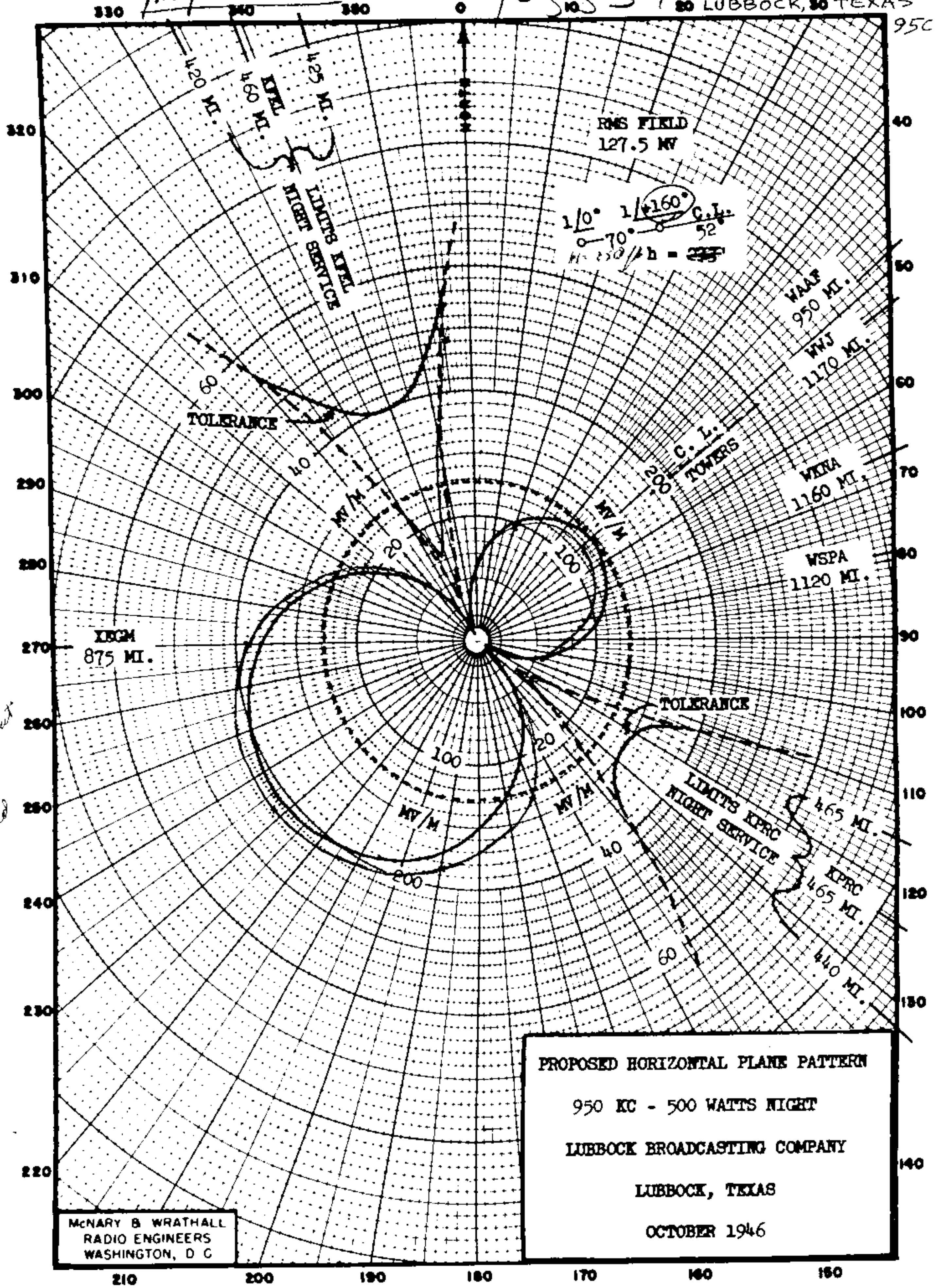
MEASURED ⊟—— CALCULATED ⊟- - - 471002.2
Pattern No.

DA NIGHT PATTERN
Remarks

FIG. 3
10-15-47

Mod - Oct '47 P-5537

KSEL
950



PROPOSED HORIZONTAL PLANE PATTERN

950 KC - 500 WATTS NIGHT

LUBBOCK BROADCASTING COMPANY

LUBBOCK, TEXAS

OCTOBER 1946

superseded but retained for added info.

Granted CP 10/23/57 to increase day power + change from DA-1 to DA-2

L granted L 7-1-60

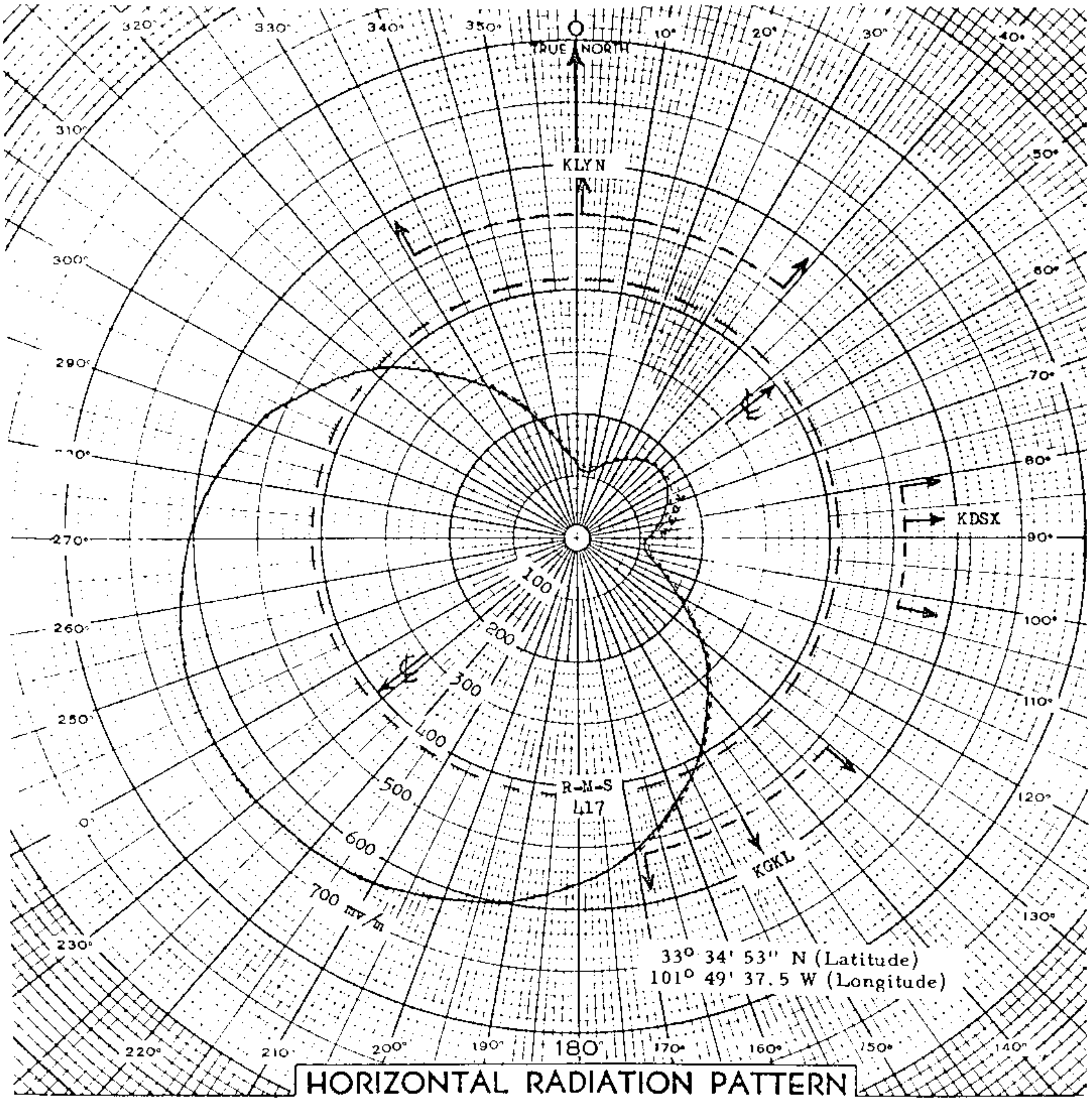
KSEL

PROPOSED
DAY (8-27-56g)

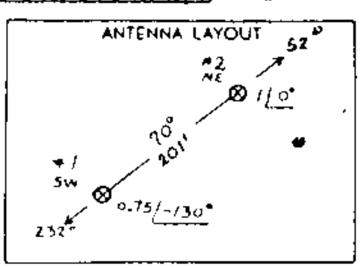
STATION KSEL
LUBBOCK, TEXAS

5 KW
DA-D, U

950 KC



HORIZONTAL RADIATION PATTERN



KSEL — Station
LUBBOCK, TEXAS — Location
950 kc — Frequency
5 kw LS — Power
417 mv/m (186/kw) — R.M.S Field
2 — No. of Elements
250 ft. or 0.24 λ — Height of Antenna
MEASURED ☐ CALCULATED ☒ — Pattern
560604.1 — No.
DAYTIME PATTERN — Remarks

GUY C. HUTCHESON
CONSULTING RADIO ENGINEER
ARLINGTON, TEXAS

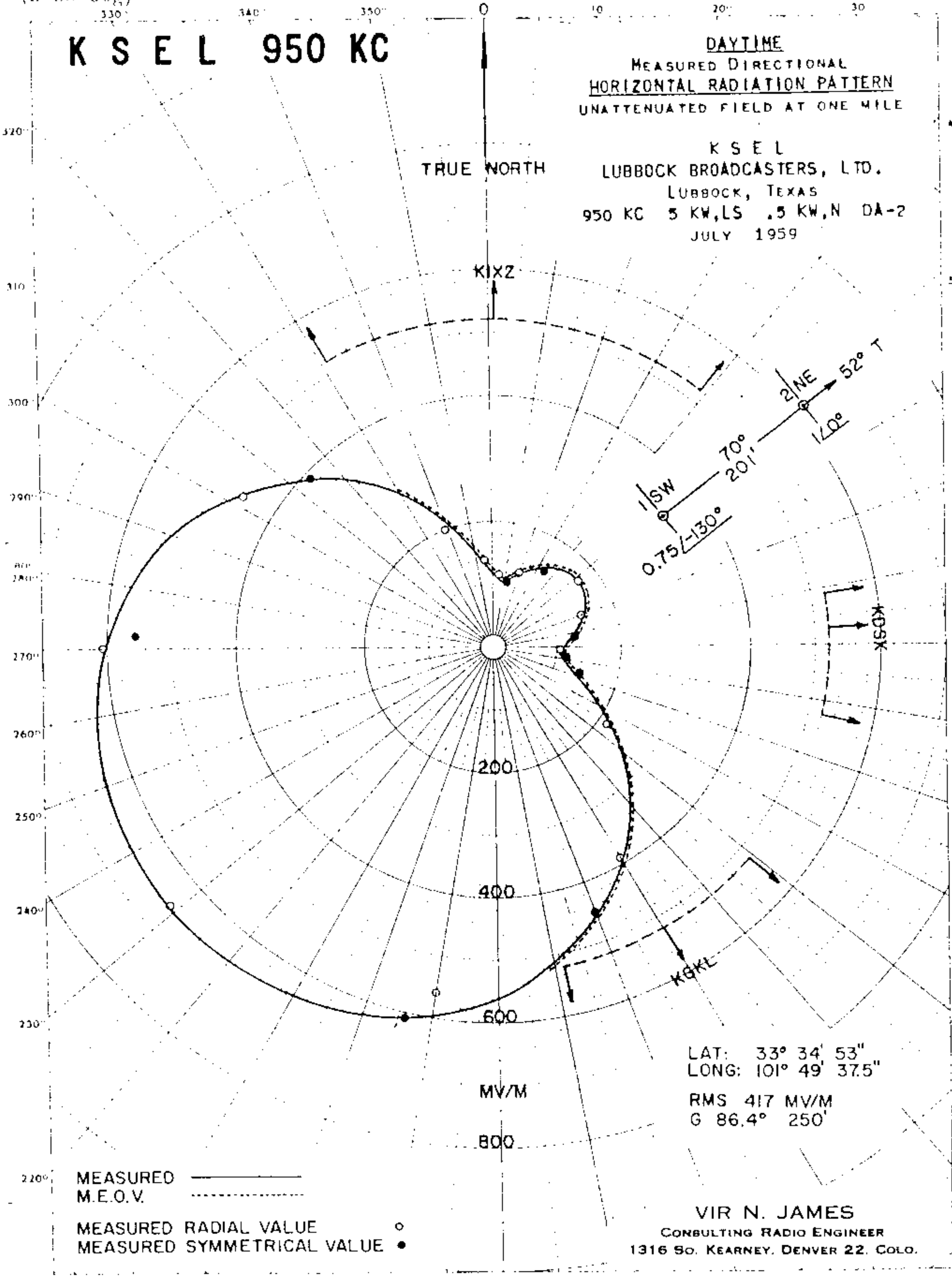
FCC File No. BP-10,724 Accepted 8-20-56 KSEL, Lubbock, Texas 950 KC

KSEL

MEASURED DAY
(2-26-60g)

Station KSEL
Lubbock, Texas

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



granted for increase in day power and DA-2 7-1-60

FCC File No. BL-7779
Accepted 1-20-60

KSEL
Lubbock, Texas

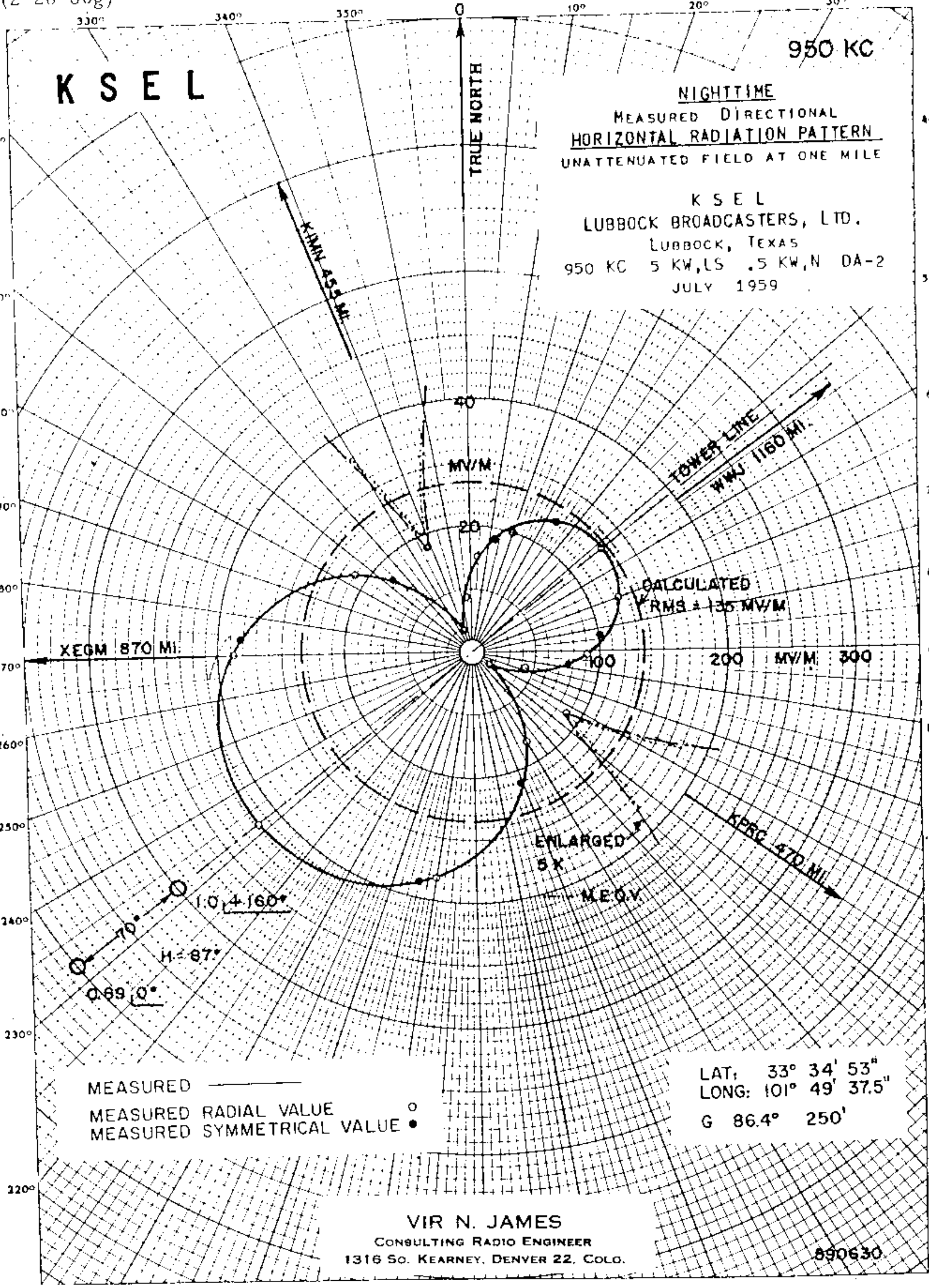
950 KC

KSEL

MEASURED NIGHT
(2-26-60g)

Station KSEL
Lubbock, Texas

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



granted for increase in day power and DA 2 7-1-60

FCC File No. BL-7779
Accepted 1-20-60

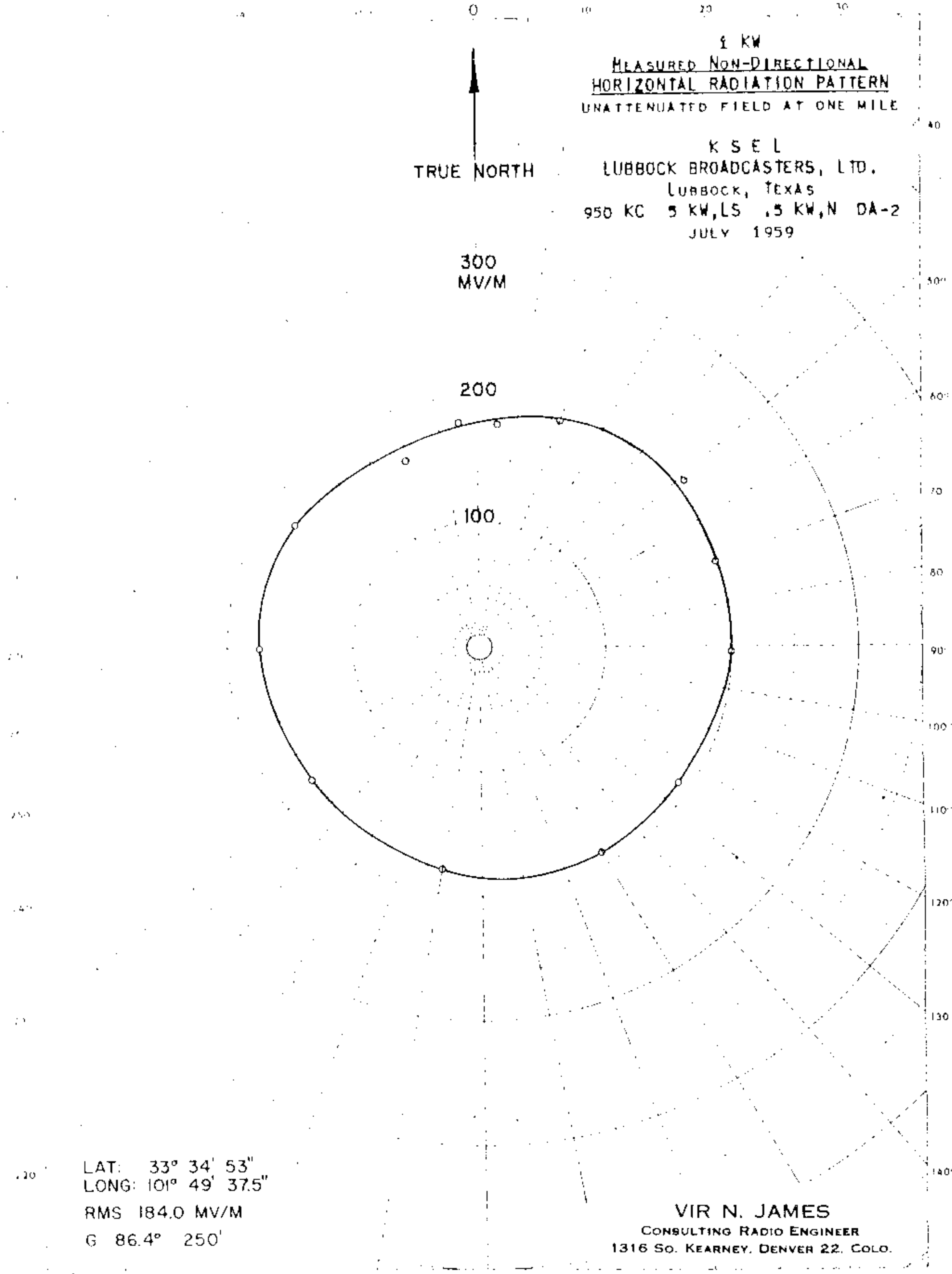
KSEL
Lubbock, Texas

950 KC

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

Station KSEL
Lubbock, Texas

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



FCC File No. BL-7779
Accepted 1-20-60

KSEL
Lubbock, Texas

950 KC

Granted for increase in day power and DA-2, 7-1-60

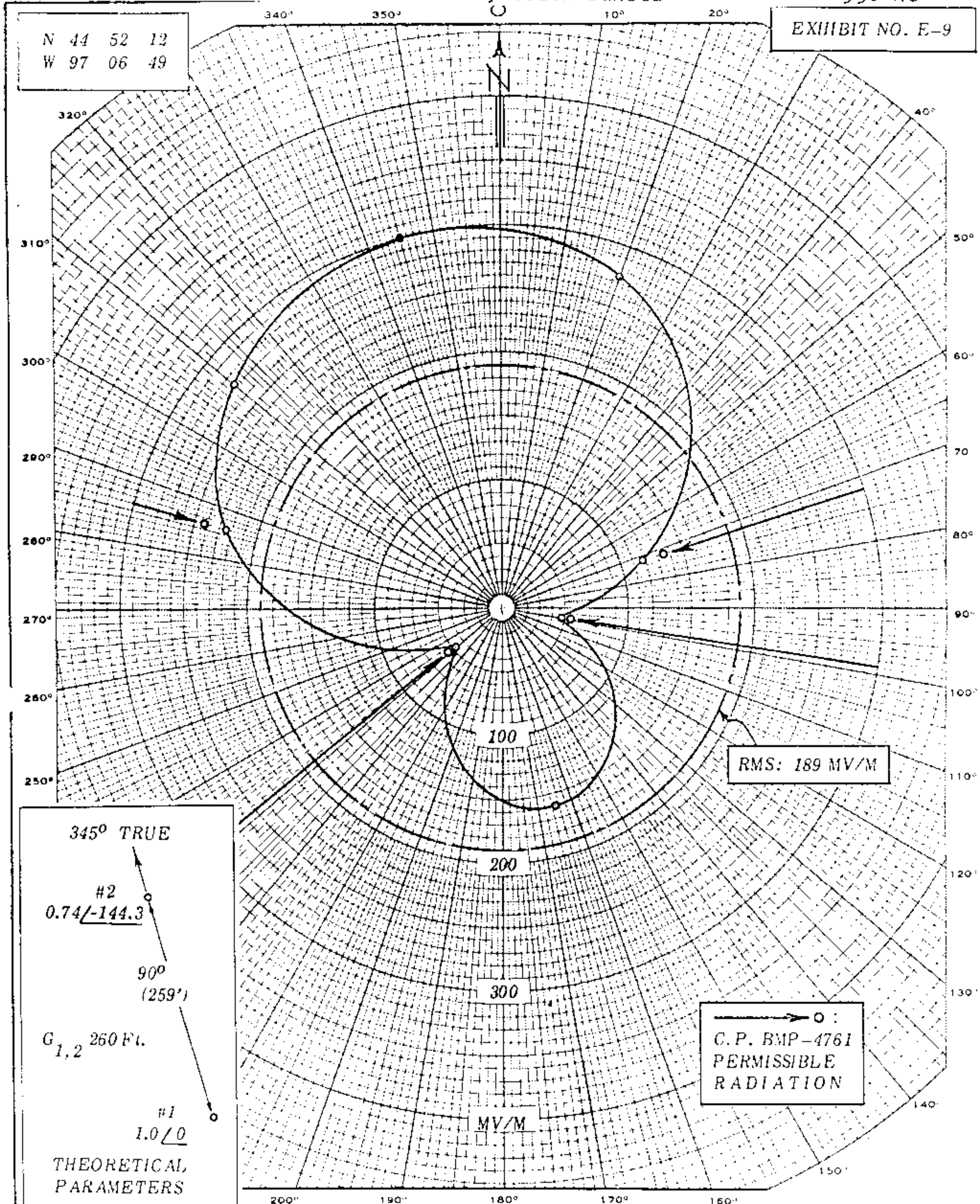
KWAT

Measured Night
(10-28-69ct)

Station KWAT
Watertown, South Dakota

1kw,DA-N,U
950 kc

EXHIBIT NO. E-9



COMMERCIAL RADIO EQUIPMENT CO.
Consulting Radio Engineers
Washington, D.C.

MEASURED HORIZONTAL DIRECTIONAL NIGHTTIME RADIATION PATTERN
RADIO STATION KWAT
WATERTOWN, SOUTH DAKOTA
950 kHz 1 KW, DA-N, U

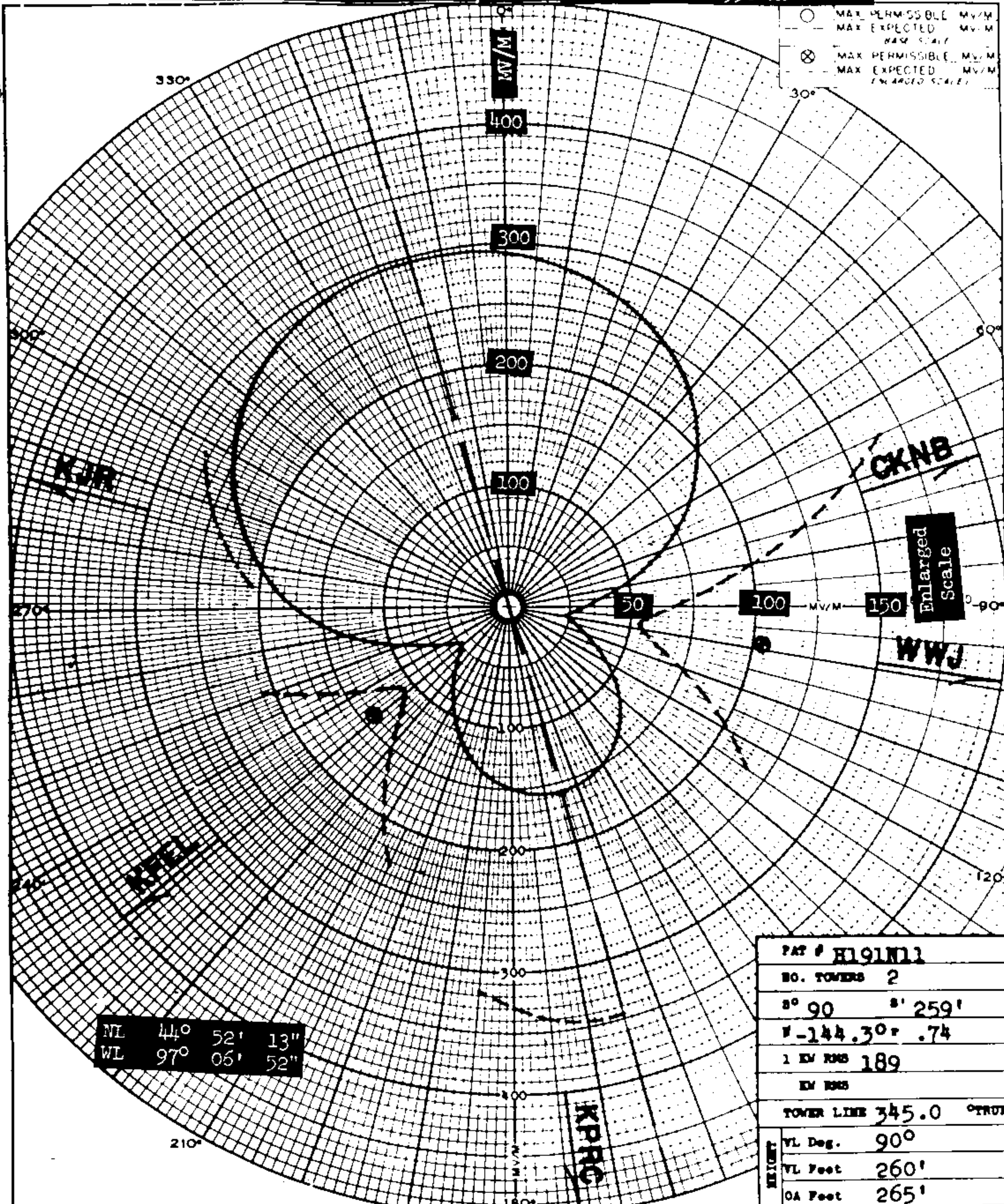
8 69

FCC File No. BZ-7289
Accepted 9-29-69 Amended

Station KWAT
Watertown, South Dakota

950 kc

PROPOSED NIGHT — Station KWAT — 1kw, DA-N,U — Watertown, South Dakota — 950 KC



PAT #	H191N11
NO. TOWERS	2
S° 90	S' 259'
ψ -144.3°	r .74
1 KW RMS	189
KW RMS	
TOWER LINE	345.0 °TRUE
HEIGHT — VL Deg.	90°
HEIGHT — VL Feet	260'
HEIGHT — OA Feet	265'

COMMERCIAL RADIO EQUIPMENT CO.

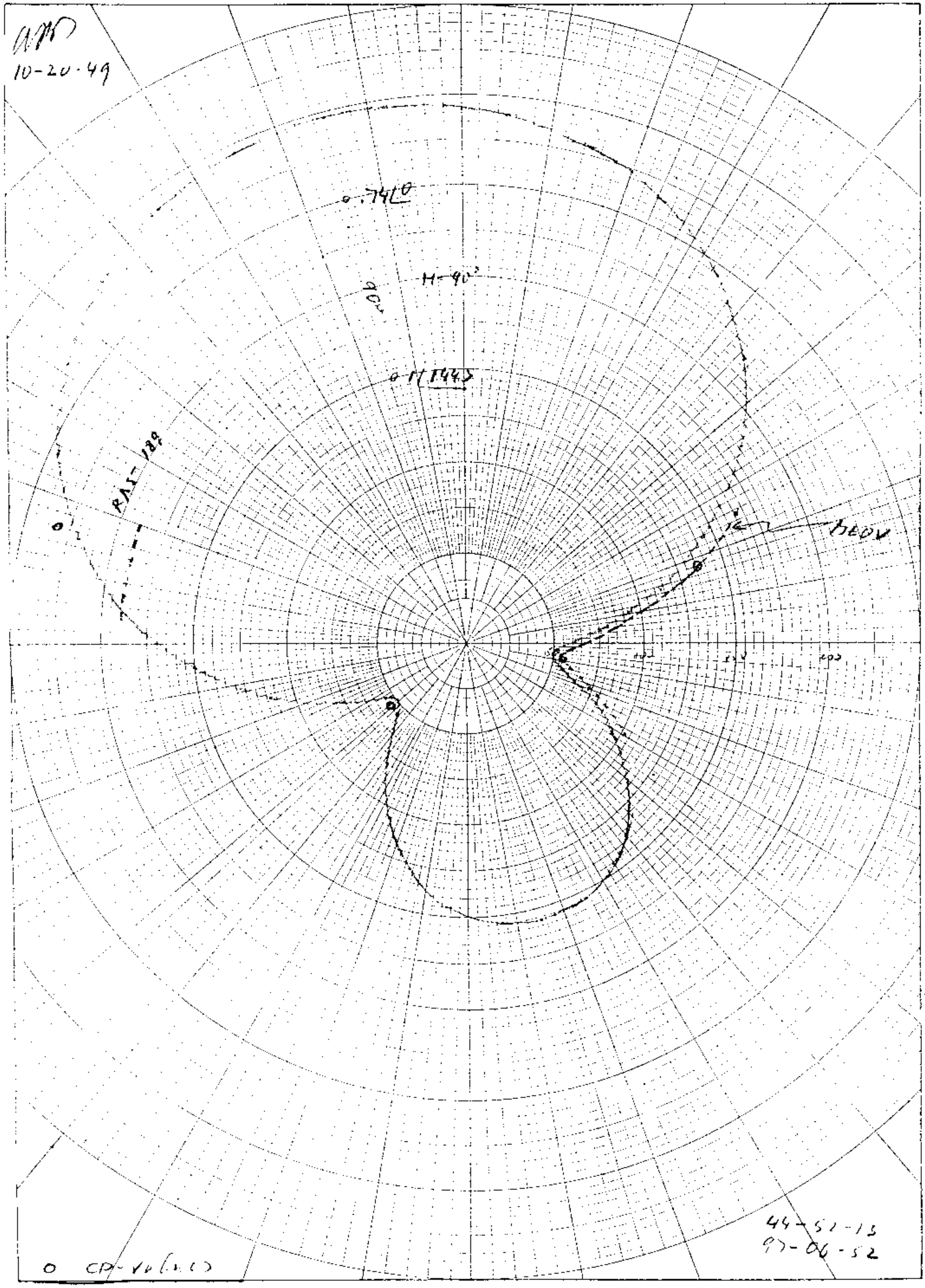
RADIO ENGINEERING CONSULTANTS

KANSAS CITY WASHINGTON, D.C. HOLLYWOOD

PATTERN	PROPOSED NIGHTTIME
FOR	KWAT, WATERTOWN, S.D.
POWER	1 KW, DA-N FREQ 950 KC
DATE	JULY 23, 1946 BY ITN

BAP - 4761

KWAT - 950KC



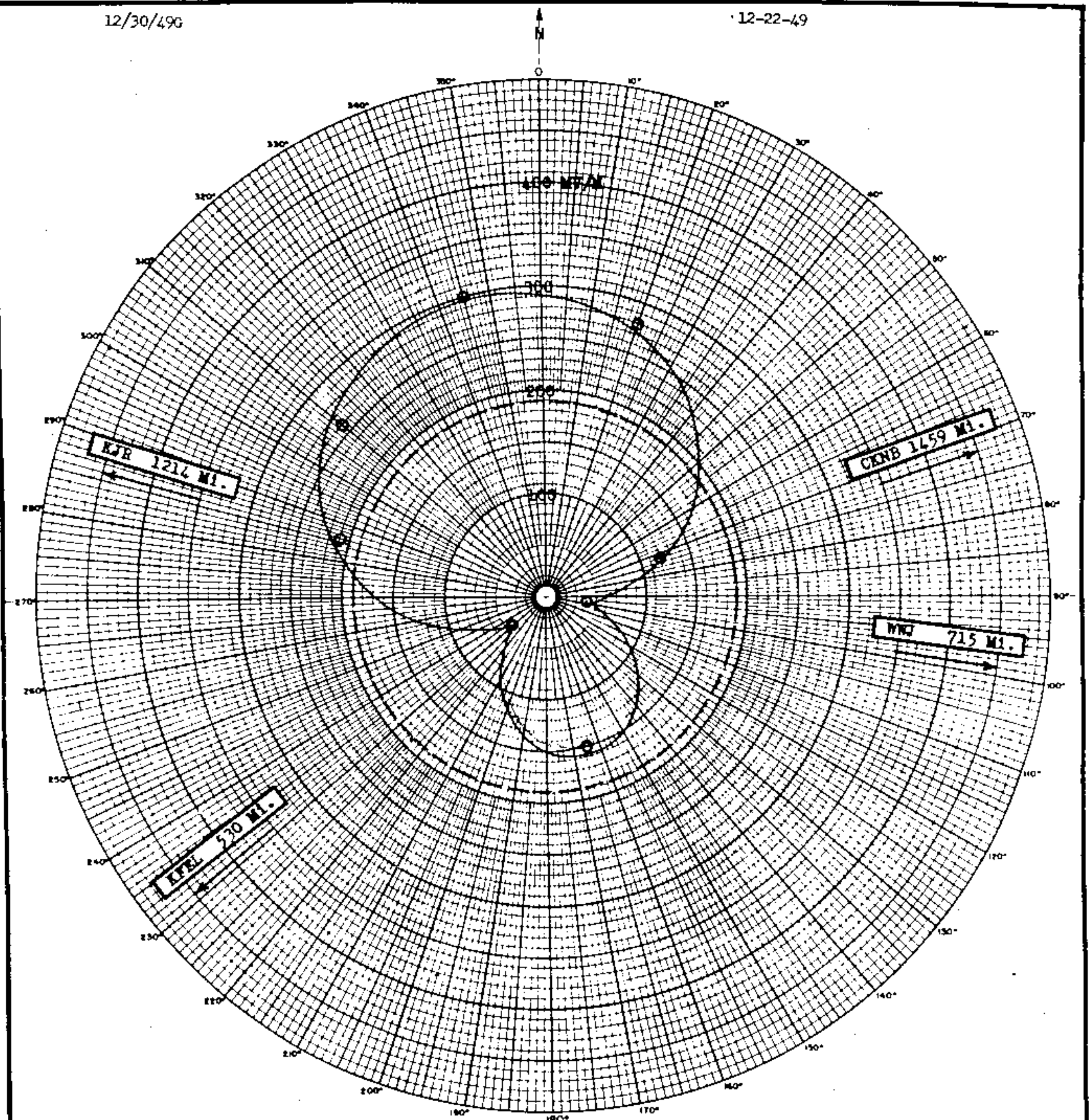
retained for clarity

KEUFFEL & ESSER CO., N.Y. NO. 343A
POLAR CO-ORDINATE

KWAT

MEASURED NIGHT — KWAT, WATERTOWN, S. D. — 1kw, DAN — 950 kc

12/30/49G — 12-22-49



O MEASURED POINTS

KWAT

HORIZONTAL RADIATION PATTERN

FREQUENCY: 950 KC
ASSIGNMENT: 1 KW-U(DA-N)
LONGITUDE: 97 DEG. 06 MIN. 52 SEC.
LATITUDE: 44 DEG. 52 MIN. 13 SEC.
WHEN USED: NIGHTIME
R.M.S. FIELD: 189 MV/M
DATE: DECEMBER 1949

Theoretical Values

ANTENNA	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
PHASE DEG	0°	-144.3°				
HEIGHT DEG	90°	90°				
FIELD RATIO	1.0	.74				
NON-DA ANT.	*					

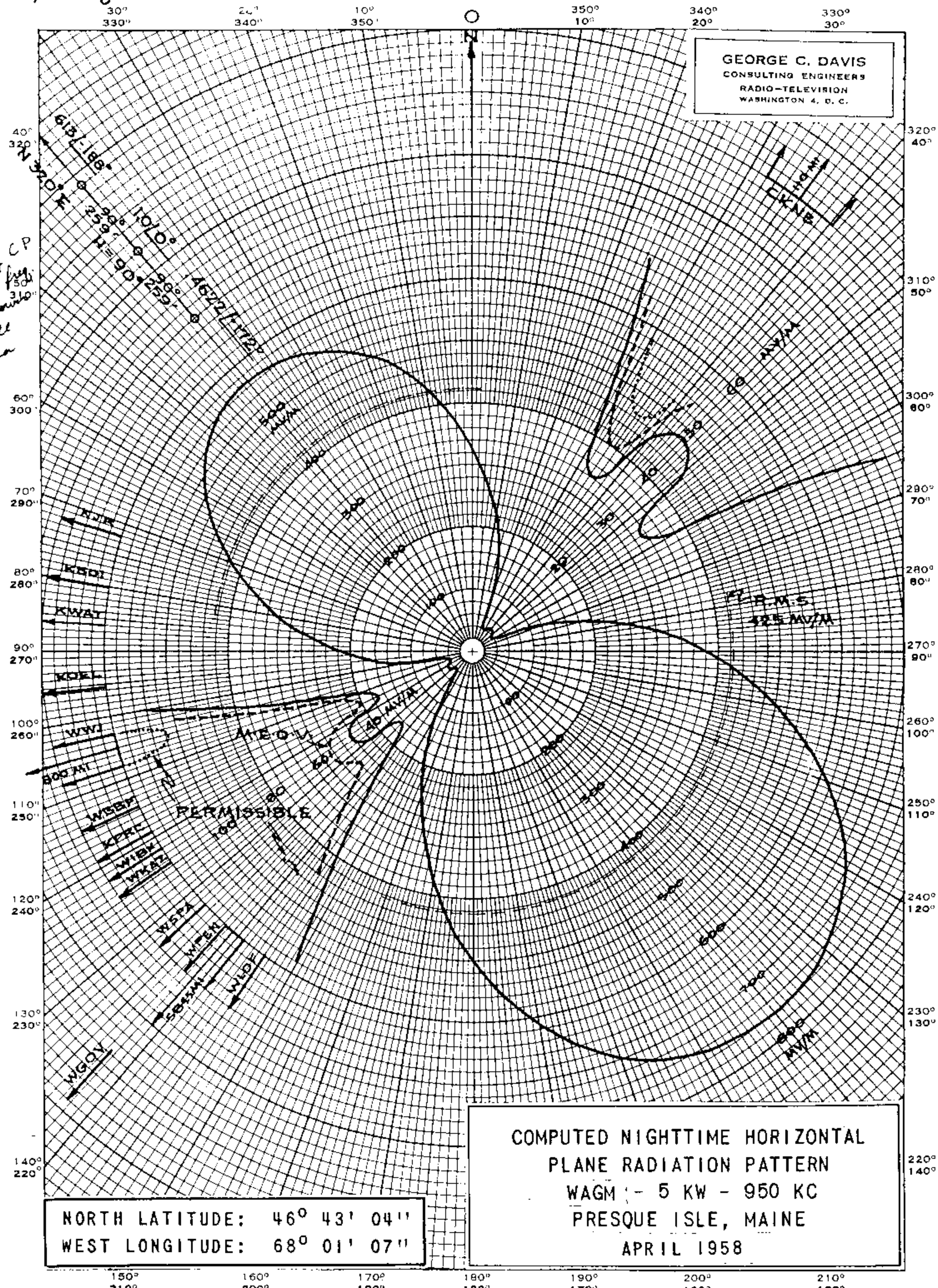
ORIENTATION 345° TRUE SPACING 90° TRUE

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

KWAT, Watertown, S. D. 950 kc

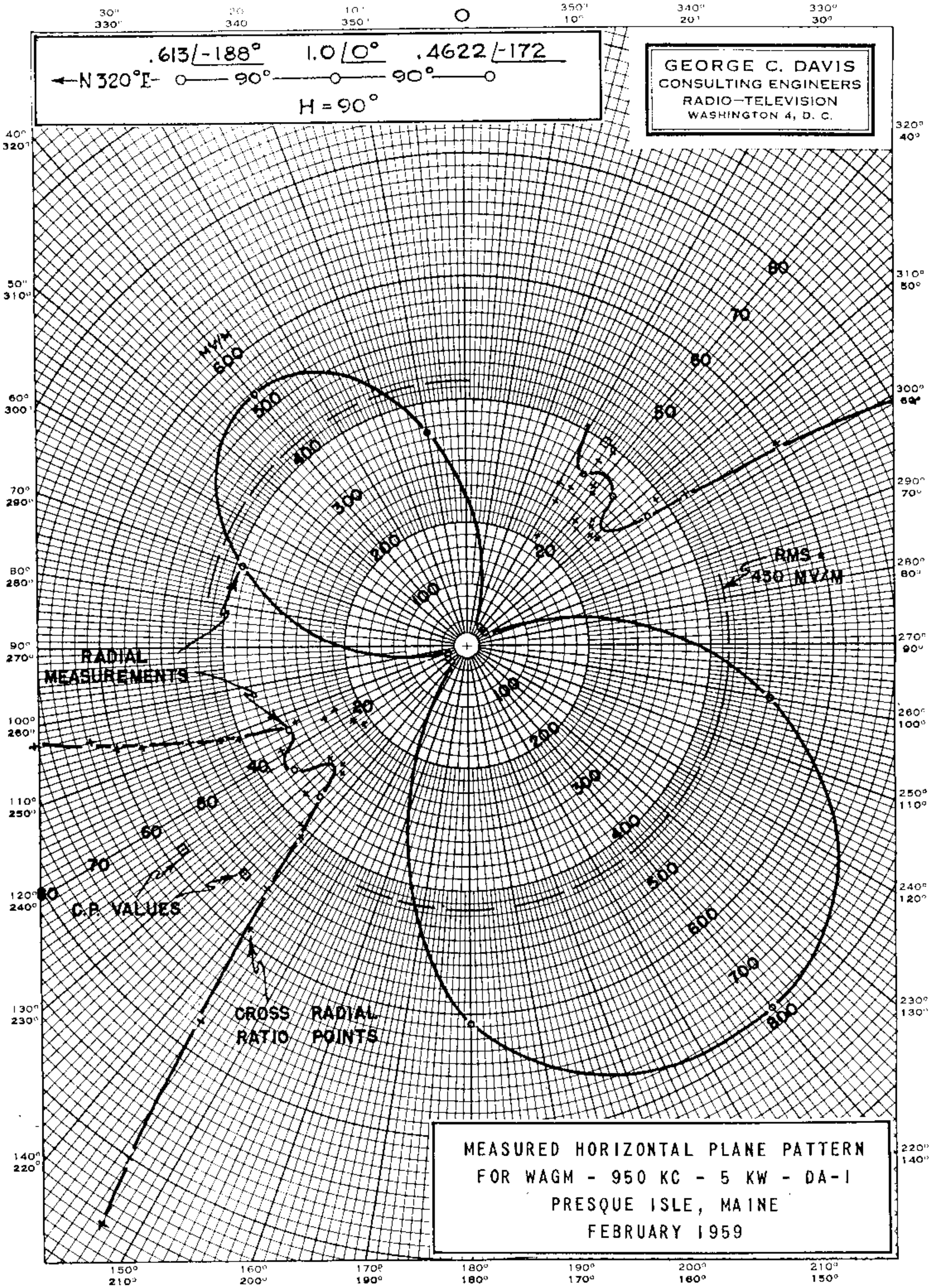
Prop. Night 5-DA-2 WAGM

Granted 1/3/58 of CP to change freq. increase power to install DA antenna

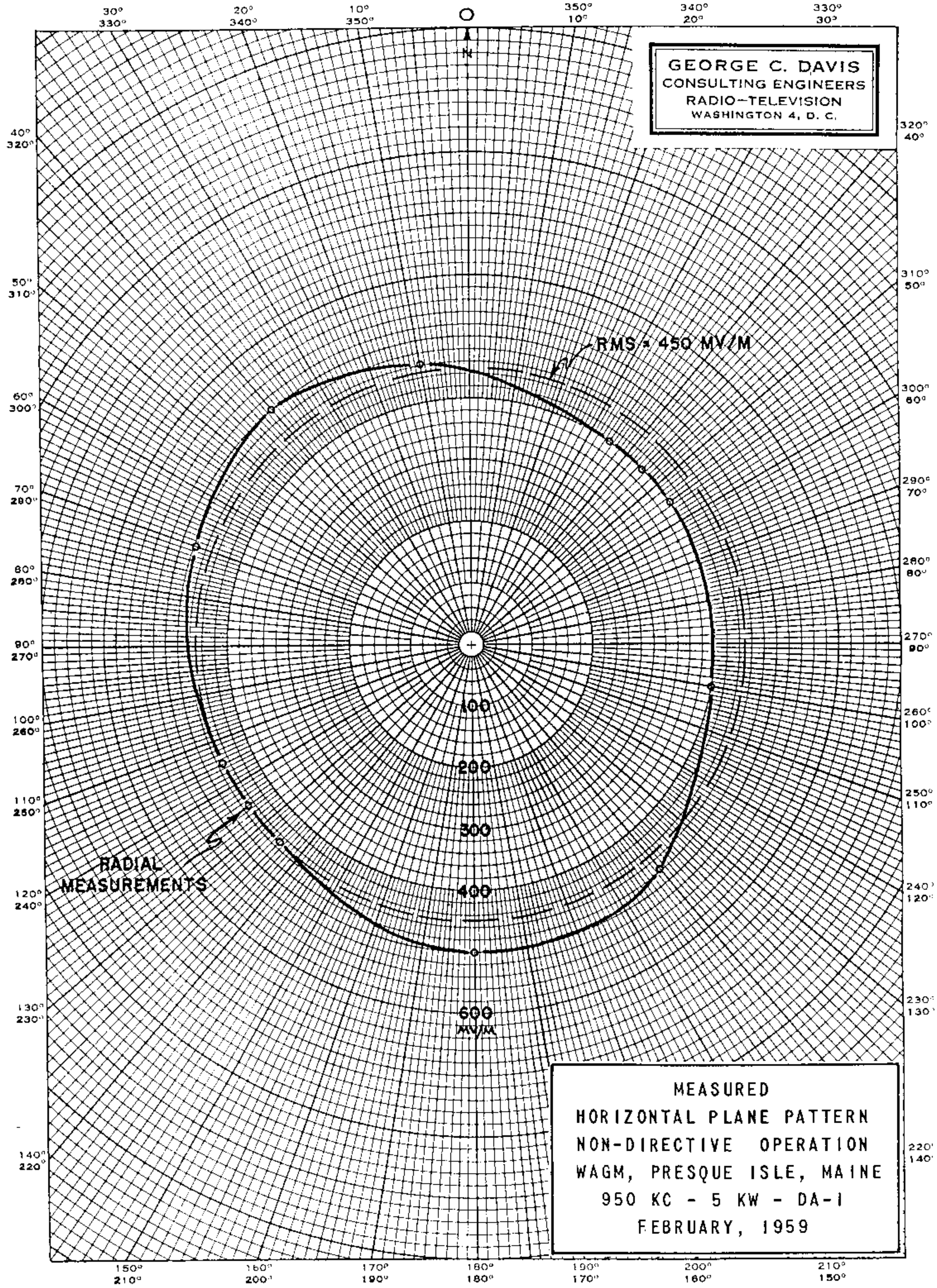


FCC file No. BMP-7924
Accepted 5-1-58

WAGM


.613/-188° 1.0/0° .4622/-172
←N 320°E 90° 90°
H = 90°
GEORGE C. DAVIS
CONSULTING ENGINEERS
RADIO—TELEVISION
WASHINGTON 4, D. C.
MV/M
RMS 450 MV/M
RADIAL MEASUREMENTS
C.P. VALUES
CROSS RADIAL RATIO POINTS
MEASURED HORIZONTAL PLANE PATTERN
FOR WAGM - 950 KC - 5 KW - DA-1
PRESQUE ISLE, MAINE
FEBRUARY 1959

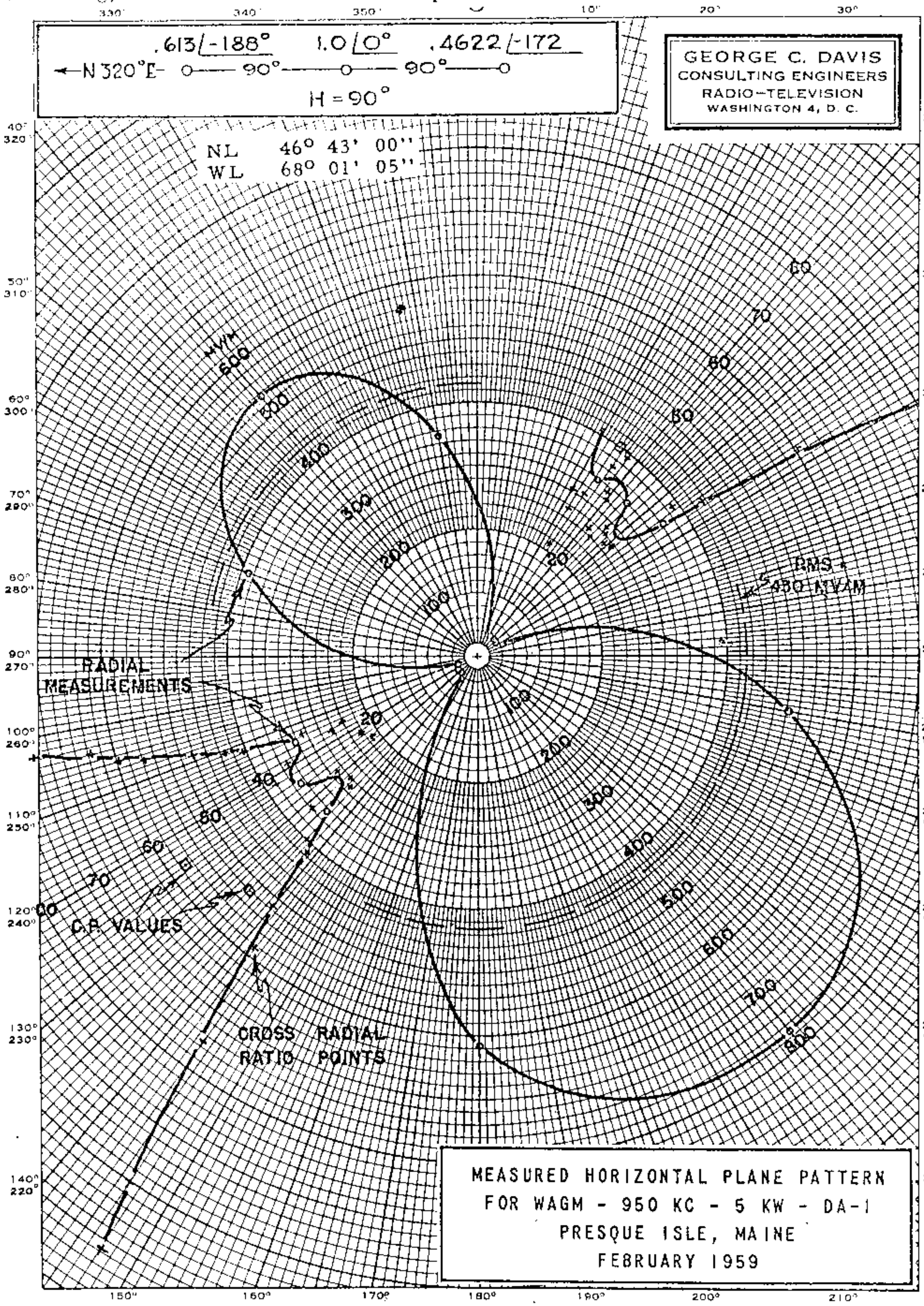
WAGM


GEORGE C. DAVIS
CONSULTING ENGINEERS
RADIO—TELEVISION
WASHINGTON 4, D. C.
RMS = 450 MV/M
RADIAL
MEASUREMENTS
100
200
300
400
600
MV/M
MEASURED
HORIZONTAL PLANE PATTERN
NON-DIRECTIVE OPERATION
WAGM, PRESQUE ISLE, MAINE
950 KC - 5 KW - DA-1
FEBRUARY, 1959

WAGM

MEASURED DAY & NIGHT (5-28-59g) | Station WAGM Presque Isle, Maine | 5kw, DA-1,U 950 KC

granted license for DA-1 7-17-59



FCC File No. BL-7425
Accepted 4-15-59

WAGM
Presque Isle, Maine

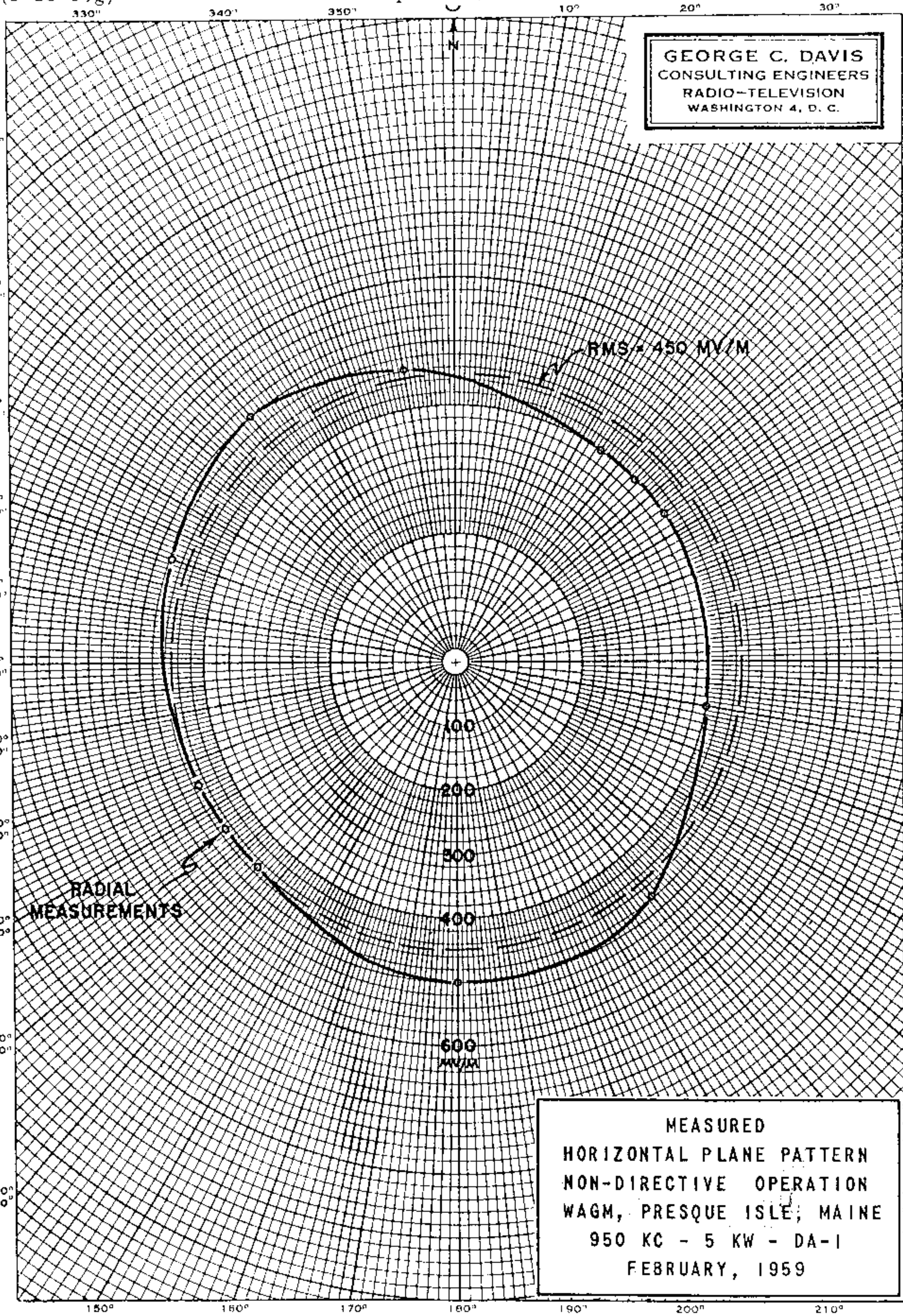
950 KC

WAGM

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

Station WAGM
Presque Ilse, Maine

5kw, DA-1,U
950 KC



Granted license for DA-1
7-17-59

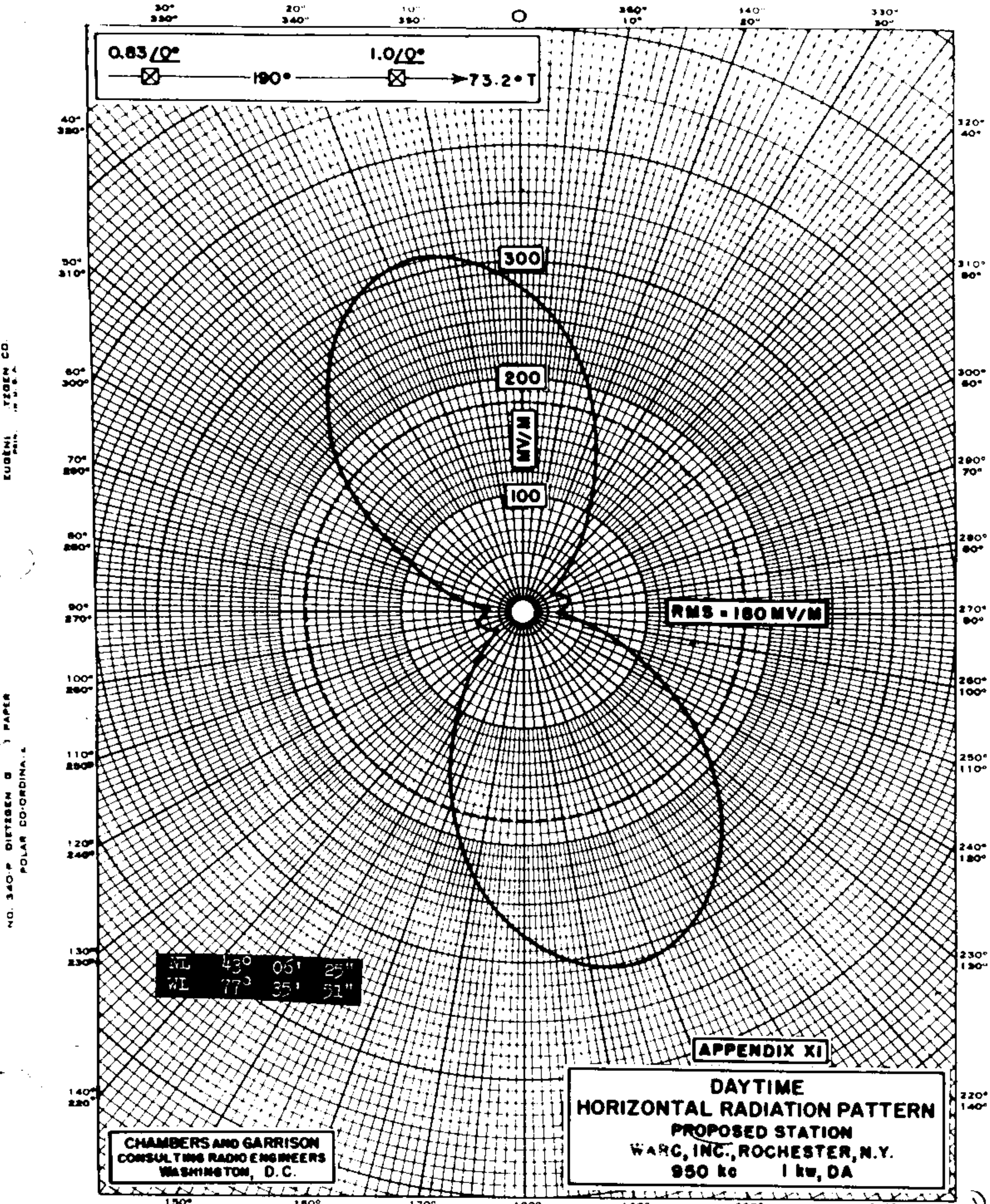
FCC File No. BL-7425
Accepted 4-15-59

WAGM
Presque Isle, Maine

950 KC

WBBF

PROPOSED DAY | Station WBBF | 1kw, DA-2,U
Rochester, New York | 950 KC



DAYTIME
HORIZONTAL RADIATION PATTERN
PROPOSED STATION
WARC, INC., ROCHESTER, N.Y.
950 kc 1 kw, DA

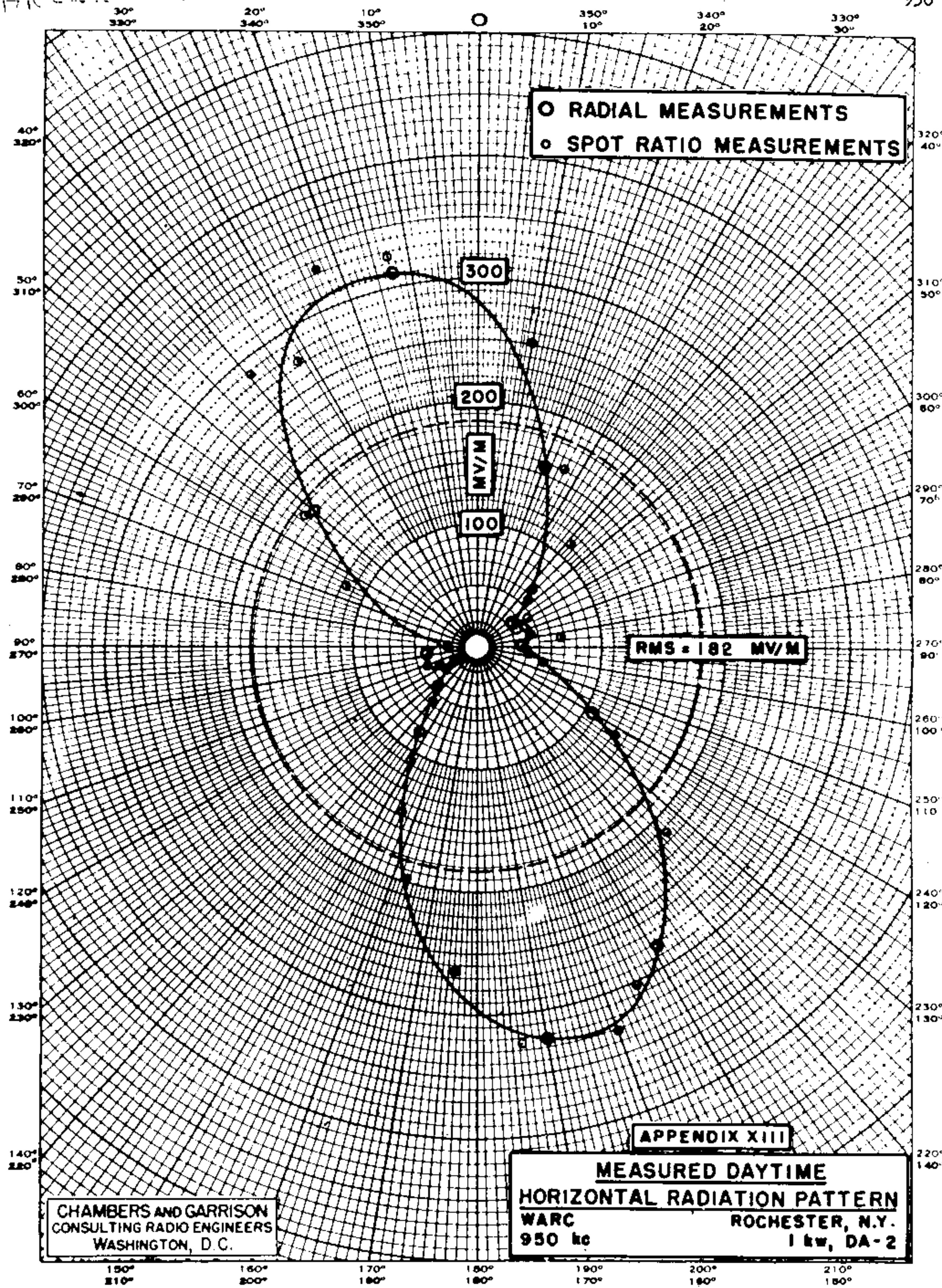
MEASURED [redacted], ROCHESTER, N.Y. 1kw,DA2

DAY

~~WARC~~

WBBF

950 kc

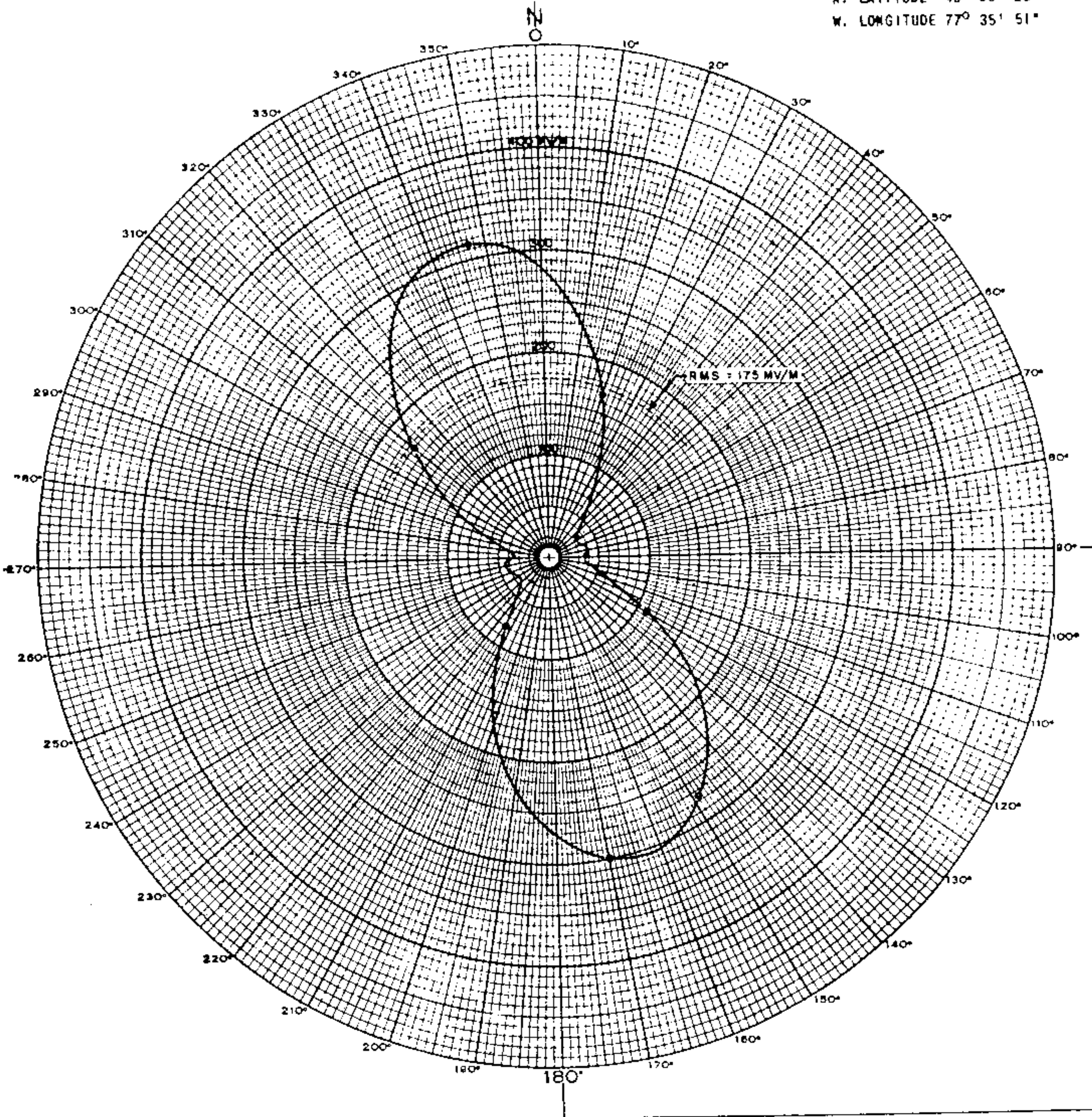


WBBF

Measured Day
(2-28-62ct)

Station WBBF
Rochester, New York

1kw, DA-2, U
950 kc
N. LATITUDE 43° 06' 25"
W. LONGITUDE 77° 35' 51"



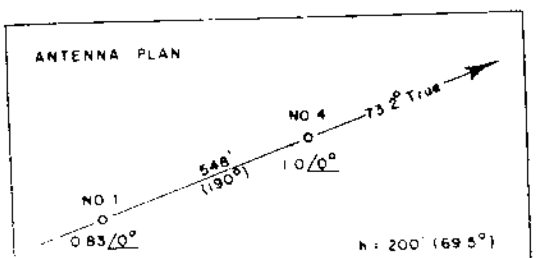


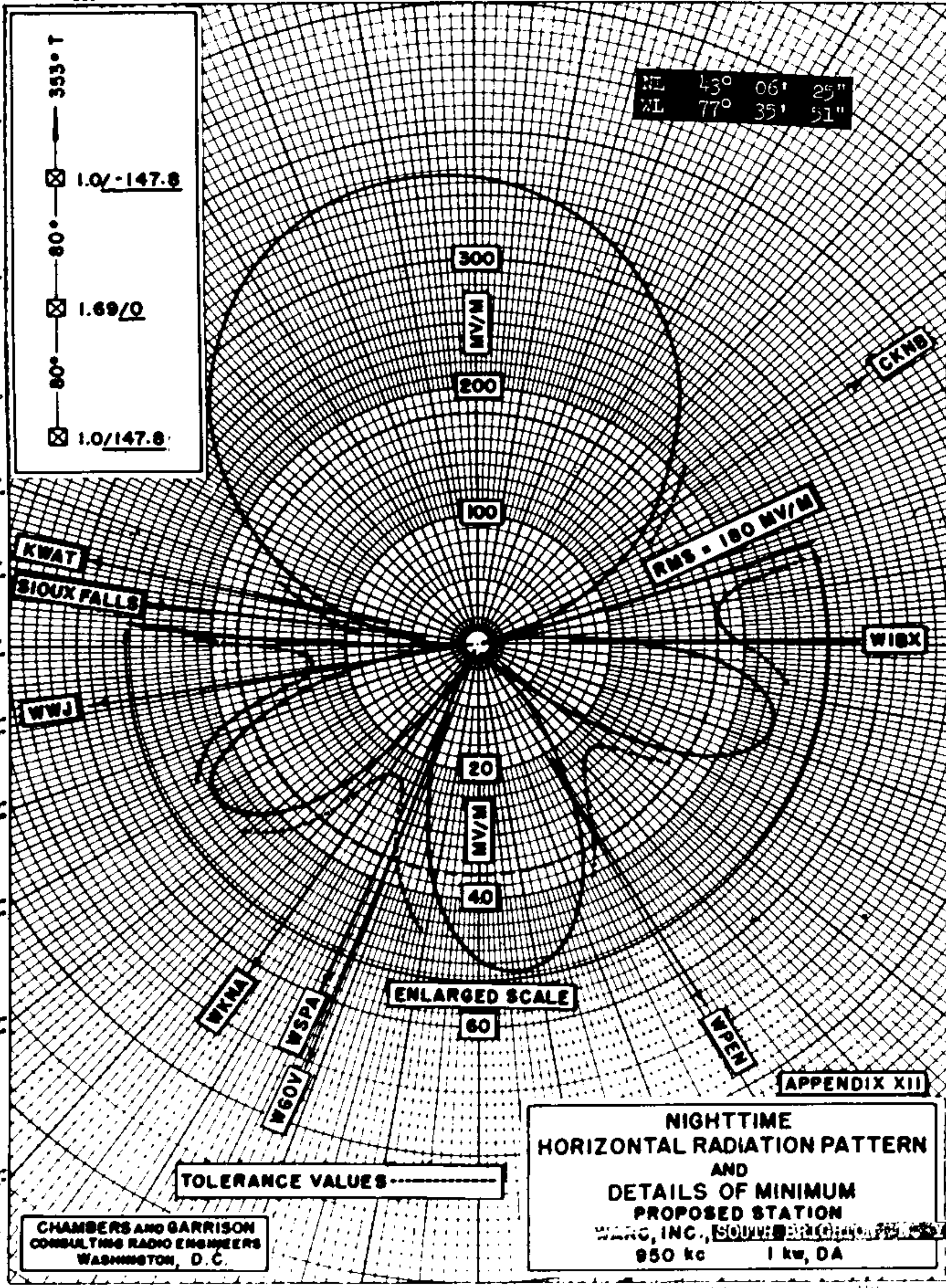
FIGURE 8
HORIZONTAL RADIATION PATTERN
DAYTIME OPERATION
WBBF, INCORPORATED
WBBF 1 KW-U, DA-2 950 KC
ROCHESTER, NEW YORK
Prepared by
Johnes and Culver *Washington 4, D.C.*
December 1961 950 kc

FCC File No.BZ-4578
Accepted 2-21-62

Station WBBF
Rochester, New York

PROPOSED NIGHT Station WBBF 1kW, DA-2,U
Rochester, New York 950 KC

WBBF



NO. 340-P DIETZGEN GRAPH PAPER POLAR CO-ORDINATE
EUGENE DIETZGEN CO. PRINTED IN U.S.A.

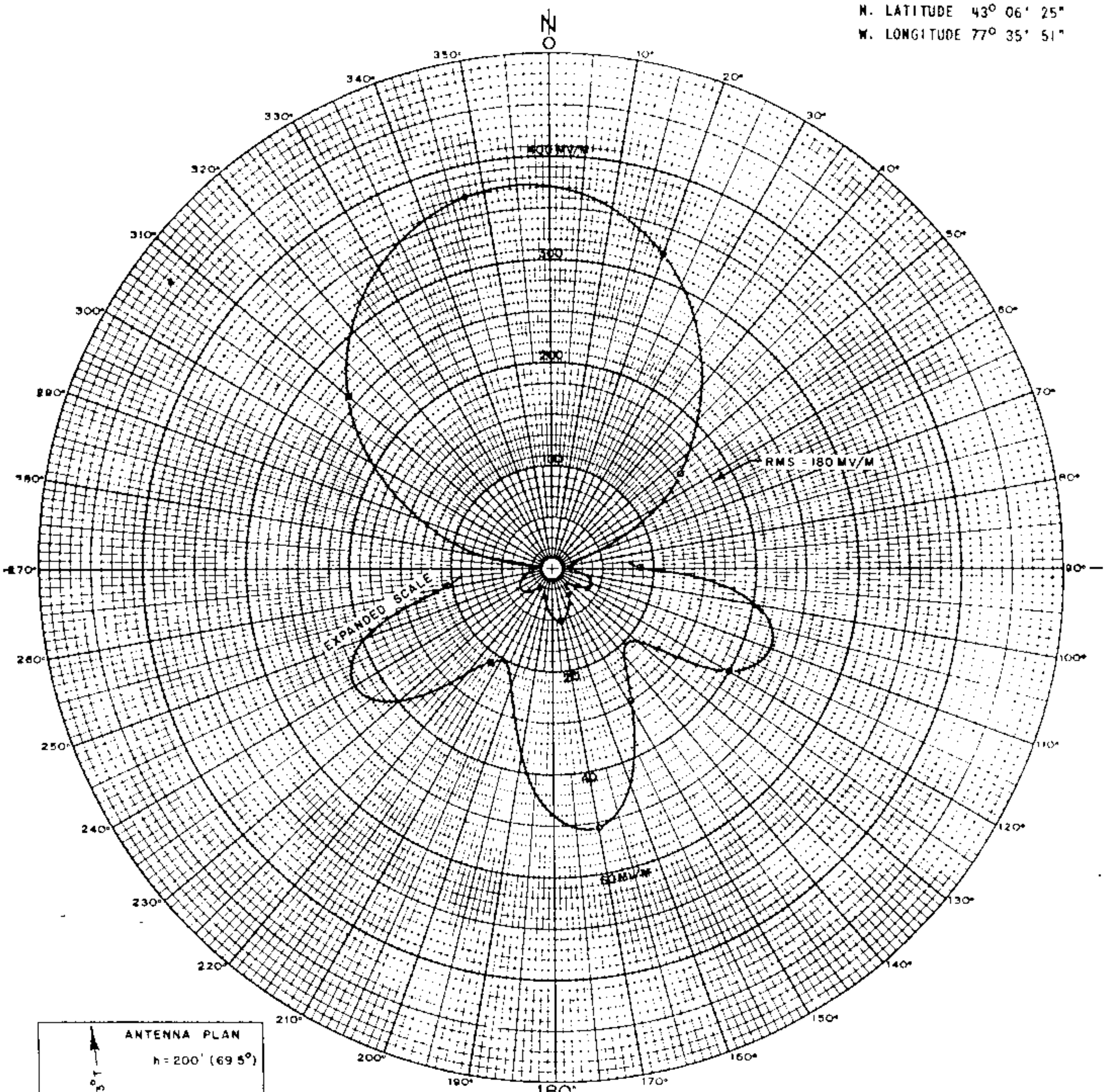
WBBF

Measured Night
(2-28-62ct)

Station WBBF
Rochester, New York

1kw,DA-2,U
950 kc

N. LATITUDE 43° 06' 25"
W. LONGITUDE 77° 35' 51"



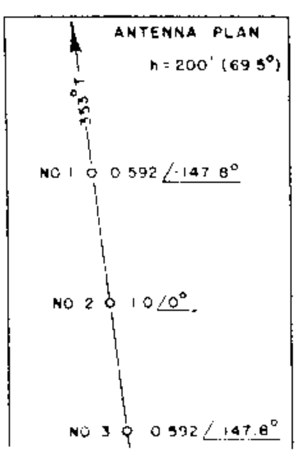


FIGURE 9
HORIZONTAL RADIATION PATTERN
NIGHTTIME OPERATION
WBBF, INCORPORATED
WBBF 1KW-U, DA-2 950 KC
ROCHESTER, NEW YORK
Prepared by
Lohnes and Culver *Washington 4, D.C.*
December 1961 950 kc

FCC File No.BZ-4578
Accepted 2-21-62

Station WBBF
Rochester, New York

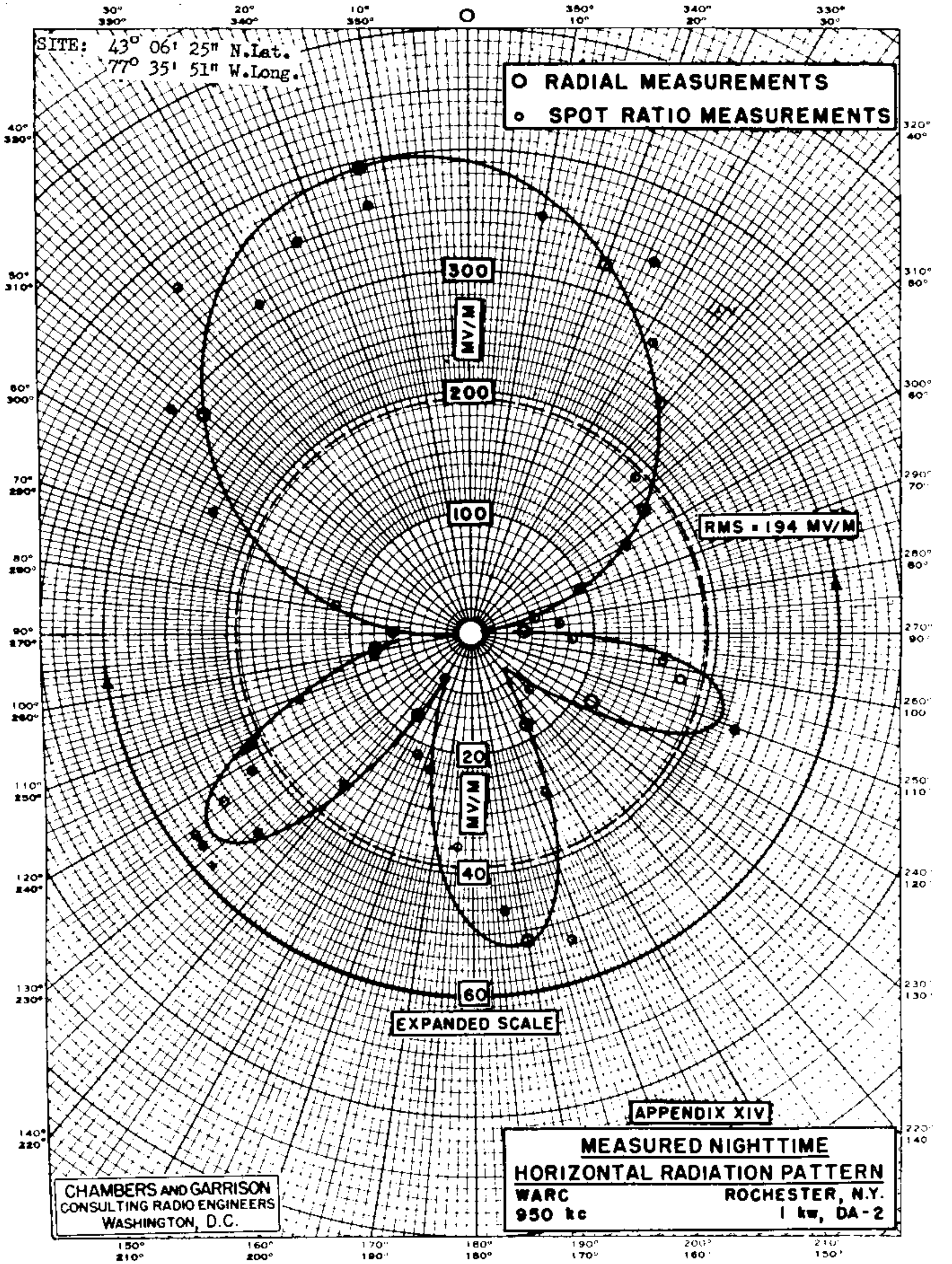
~~WARC~~
WBBF

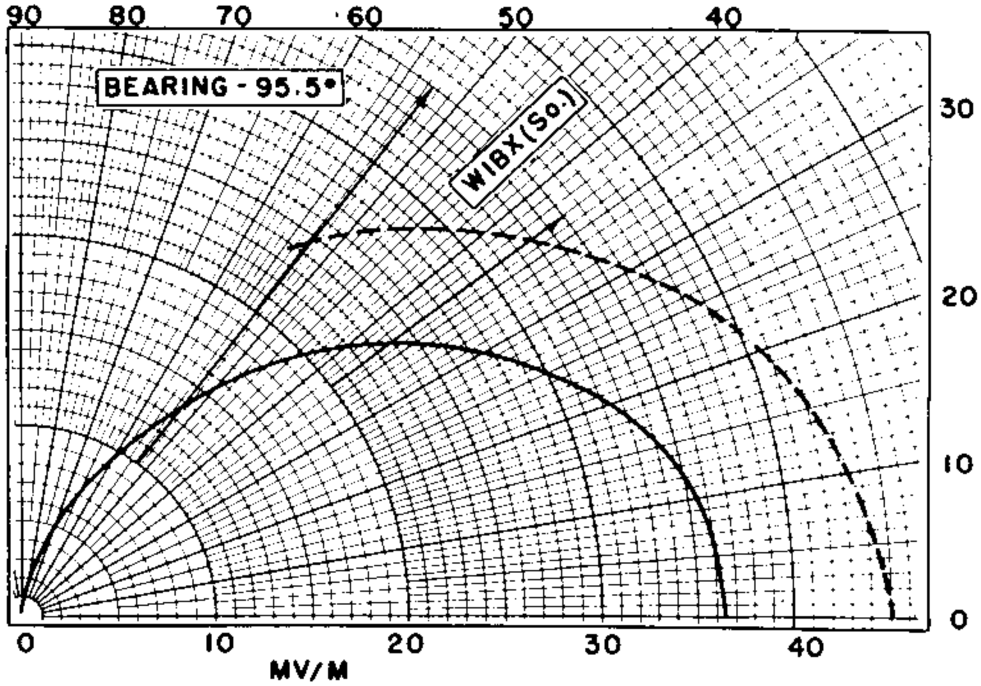
MEASURED
NIGHT

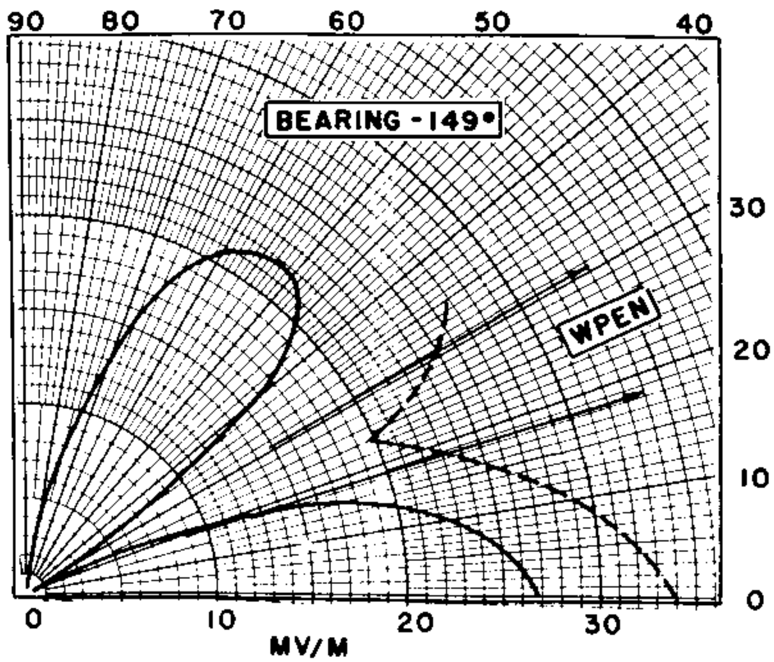
[redacted], ROCHESTER, N.Y.

1kw,DA2

950 kc







APPENDIX V-D

VERTICAL RADIATION PATTERNS

PROPOSED STATION
WARC, INC., ROCHESTER, N.Y.
950 kc   1 kw, DA

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

WBBF

Measured Non-DA
(2-28-62ct)

Station WBBF
Rochester, New York

1kw,DA-2,U
950 kc

N. LATITUDE 43° 06' 25"
W. LONGITUDE 77° 35' 51"

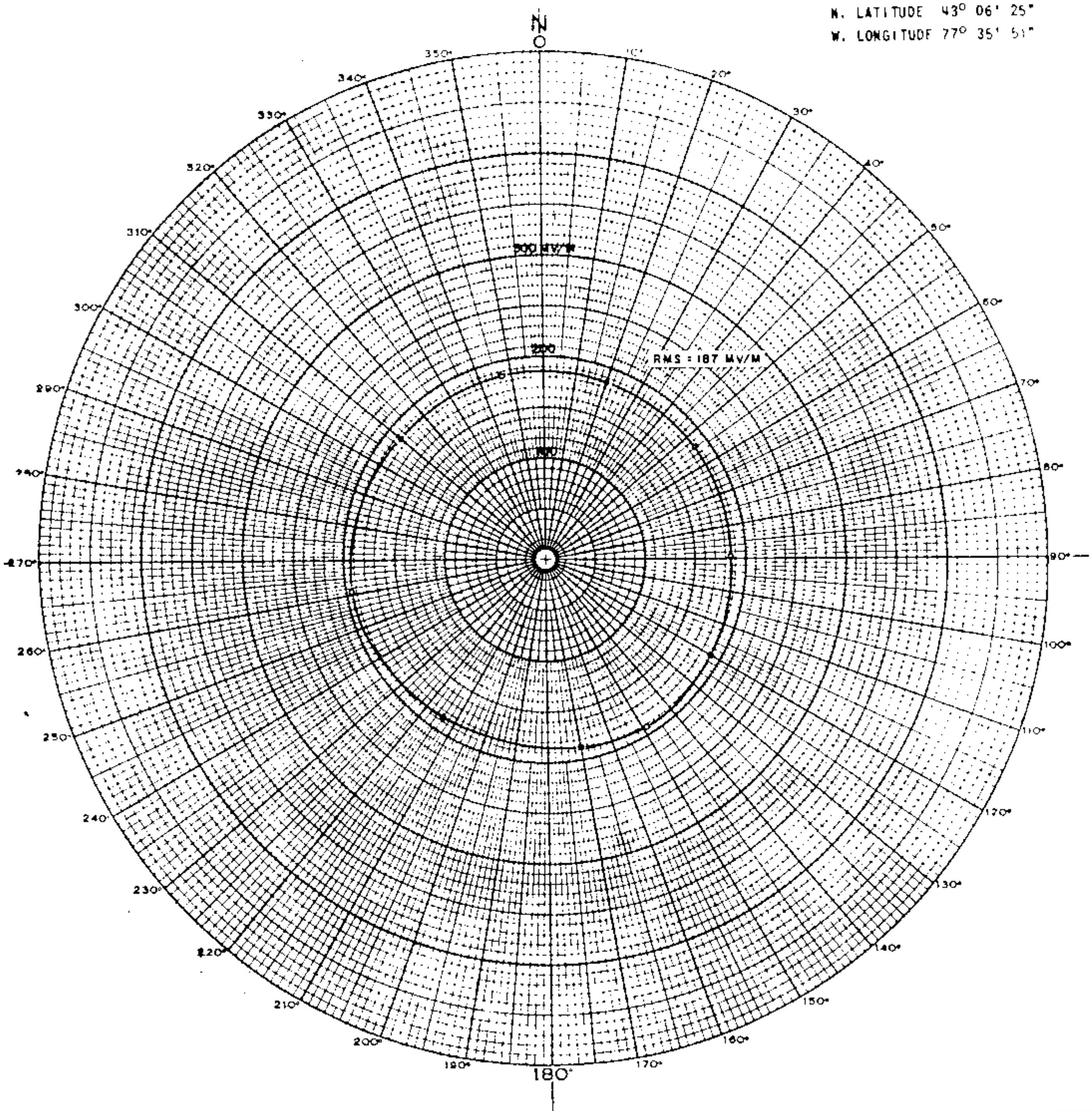


FIGURE 7
HORIZONTAL RADIATION PATTERN
NON-DIRECTIONAL TEST OPERATION
WBBF, INCORPORATED
WBBF 1 KW-U, DA-2 950 KC
ROCHESTER, NEW YORK
Prepared by
Lohnes and Culver *Washington 4, D.C.*
December 1961

FCC File No.BZ-4578
Accepted 2-21-62

Station WBBF
Rochester, New York

950 kc

WCT M

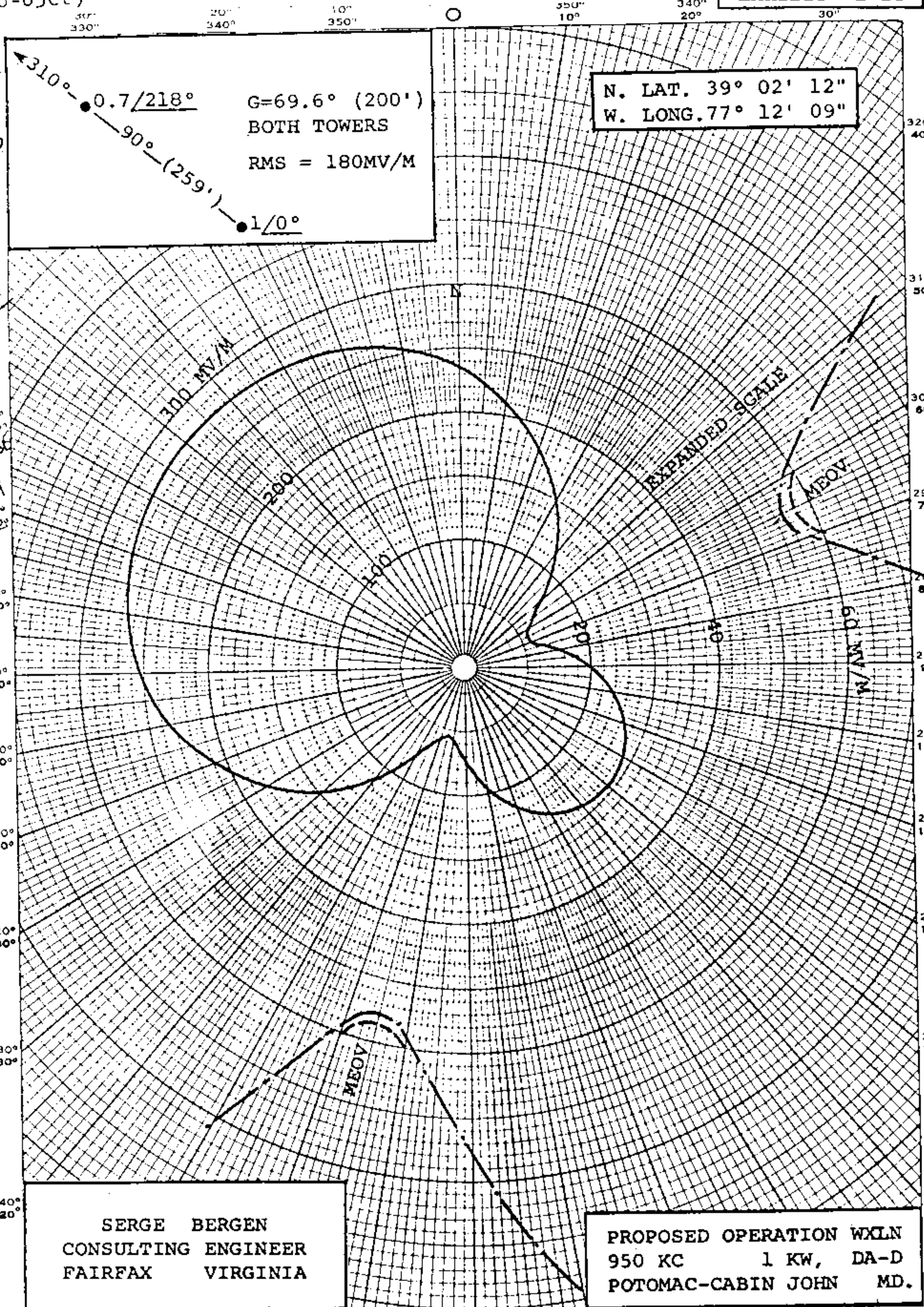
Proposed Day
(9-28-65ct)

Station WXLN
Potomac-Cabin John, Maryland

1kw,DA-D,D
950 kc

ACP 10-12-65
CHG LOC
BMP-12165
APPL. ACCEPTED
1-19-67 to
MODIFY CP
(BP-11877)

9-27-67
GRANTED
MODIFIED
CP OF CHANGE
NT. SYSTEM



FCC File No. BMP-11581
Accepted 8-26-65

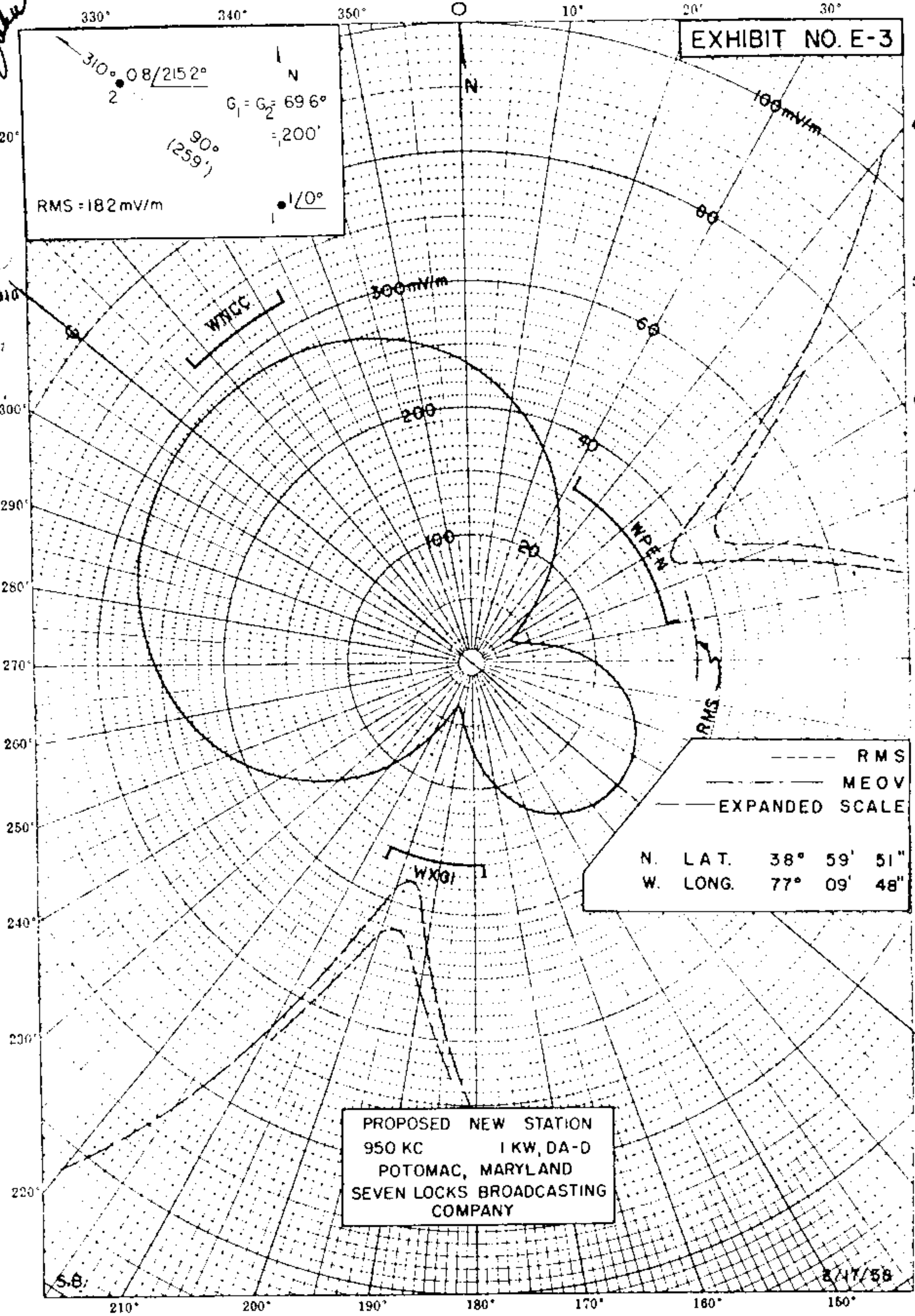
Station WXLN
Potomac-Cabin John, Maryland 950 kc

Potomac, Md.

WCTN

PROPOSED DAY (3-26-58g) New; Seven Locks B/Cstng. Co. Potomac, Maryland 1kw, DA-D,D 950 KC

...mmend - change studio location "Potomac - Cabin John"



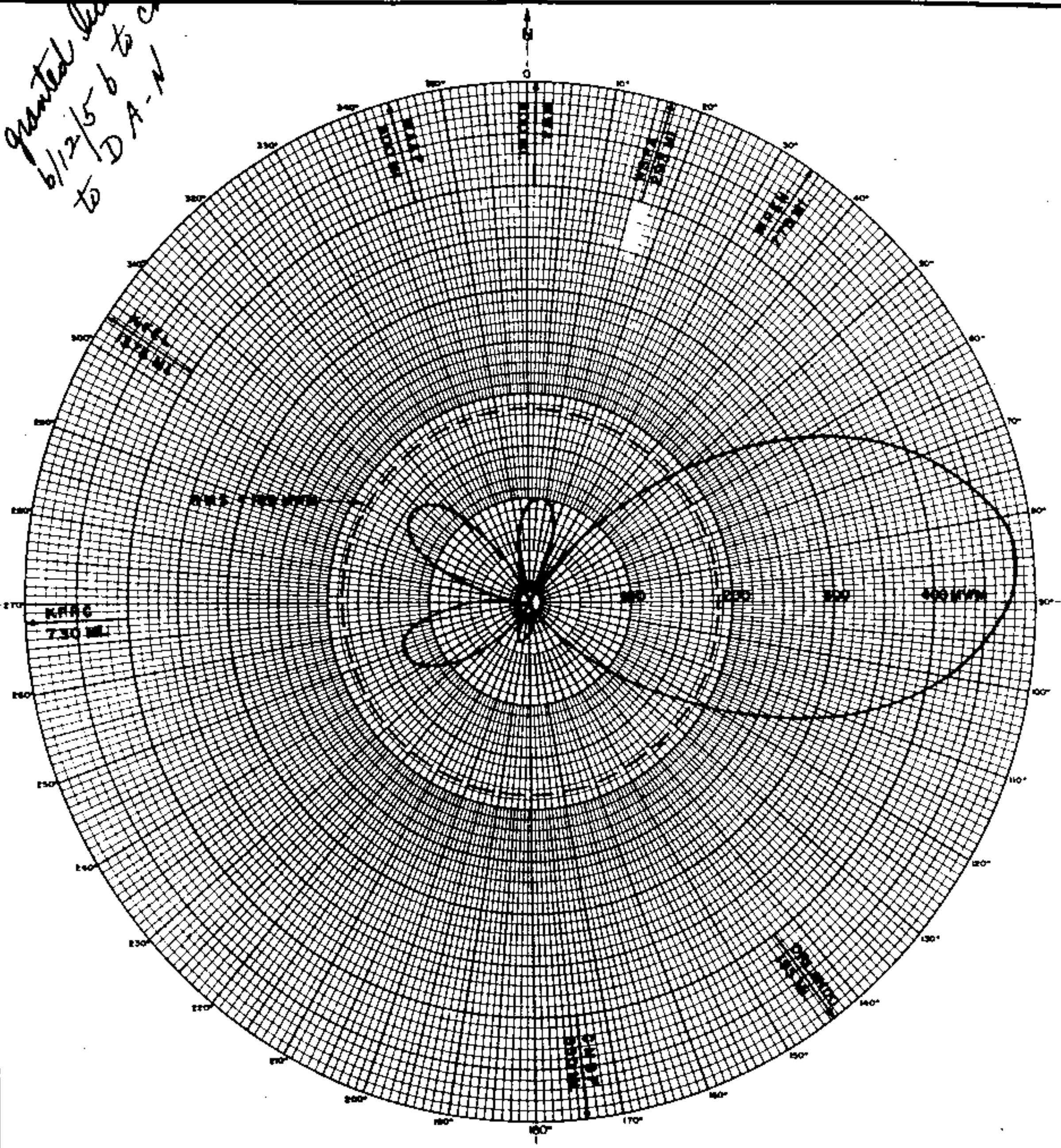
FCC File No. BP-11,877 Seven Locks Broadcasting Company
Accepted 3-19-58 Potomac, Maryland 950 KC

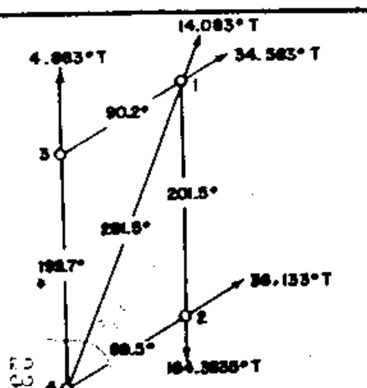
WGOV
950

MAY 3 1948 G

granted license 6/12/56 to change to DA-N

4-27-48





LATITUDE 30° 48' 09" N.
LONGITUDE 83° 21' 17" W.

ANTENNA NUMBER	AZIMUTH DEG.	SPACING DEG.	PHASING DEG.	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG.
1	SEE DIAGRAM	SEE DIAGRAM	-137.8	1	190	102
2			-137.8	1	190	92.8
3			0	1	190	92.8
4			0	1	190	92.8

CALCULATED NIGHTTIME
HORIZONTAL PLANE PATTERN
PROPOSED WGOV
VALDOSTA, GEORGIA
950 KC 1KW, 5KW-LS U, DA-2

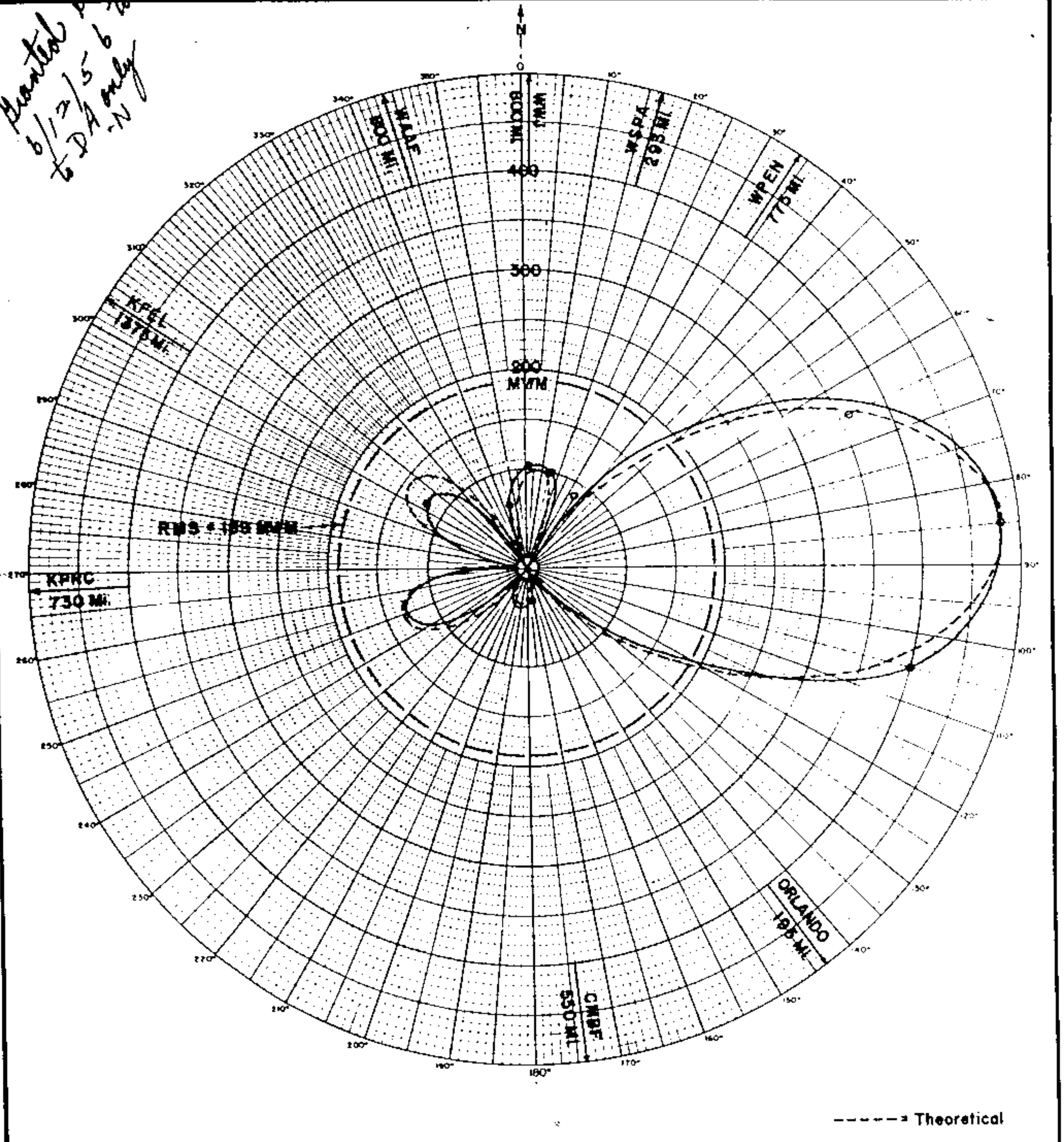
KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D. C.

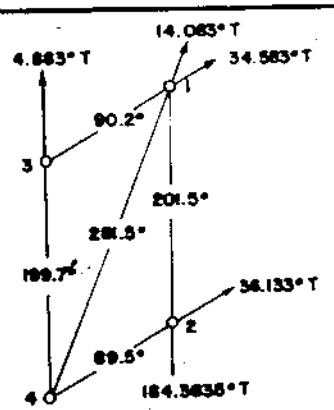
480402 4-27-48

WGOV
950

Granted license 6/12/56 to change to DA only -N

9/7/48G





LATITUDE 30° 48' 09" N.
LONGITUDE 83° 21' 17" W.

ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG
1	SEE DIAGRAM	SEE DIAGRAM	-137.8	1	190	102
2			-137.8	1	190	92.8
3			0	1	190	92.8
4			0	1	190	92.8

MEASURED NIGHTTIME
HORIZONTAL PLANE PATTERN
WGOV
VALDOSTA, GEORGIA
950KC 1KW,5KW-LS U,DA-2

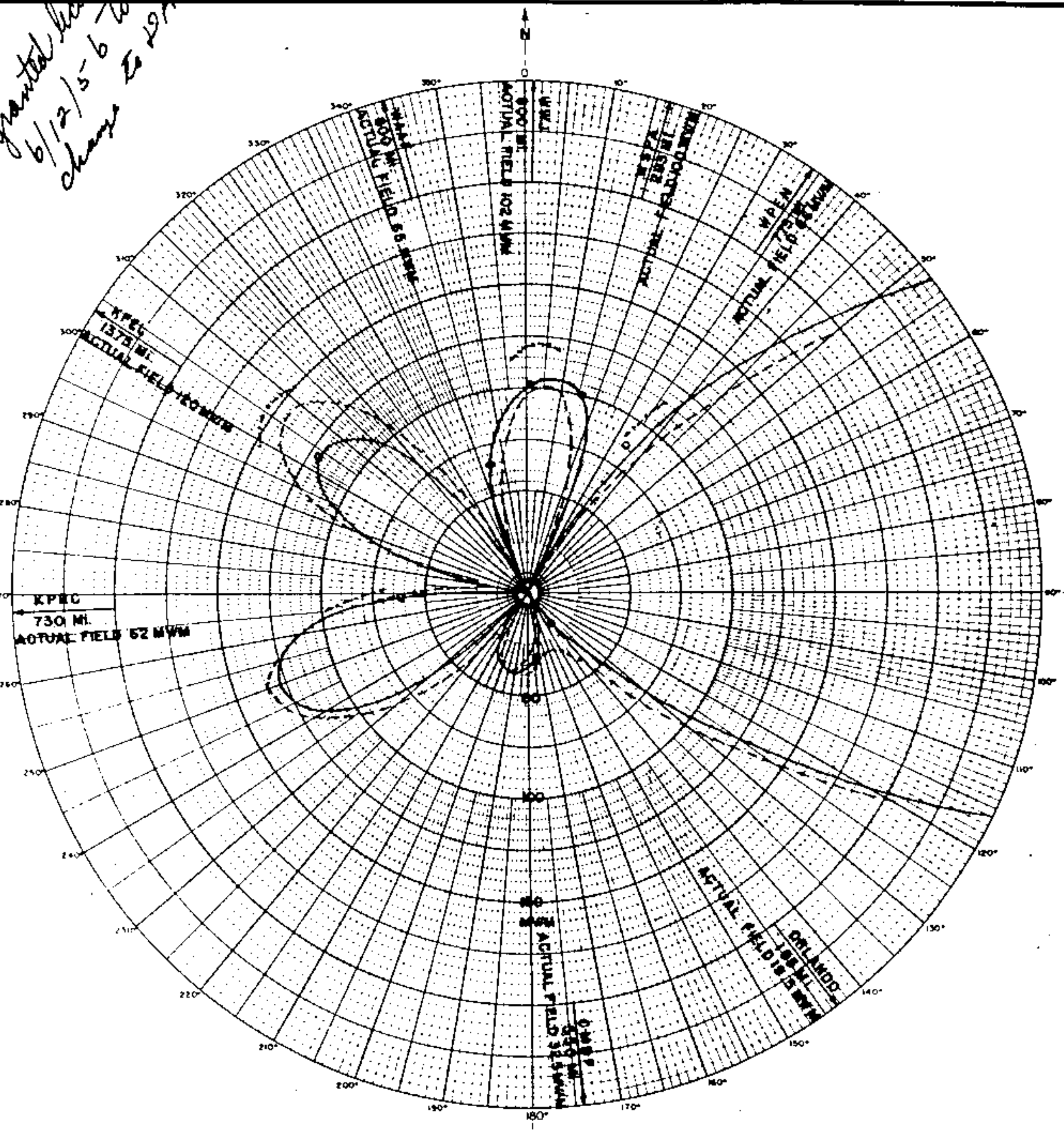
KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D.C

480614 REV. 480726

WGOV
950

9/7/48G

granted license
6/12/56 to
change to 2A-N



----- CALCULATED PATTERN
-·-·-·- MEOV

LATITUDE
LONGITUDE

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

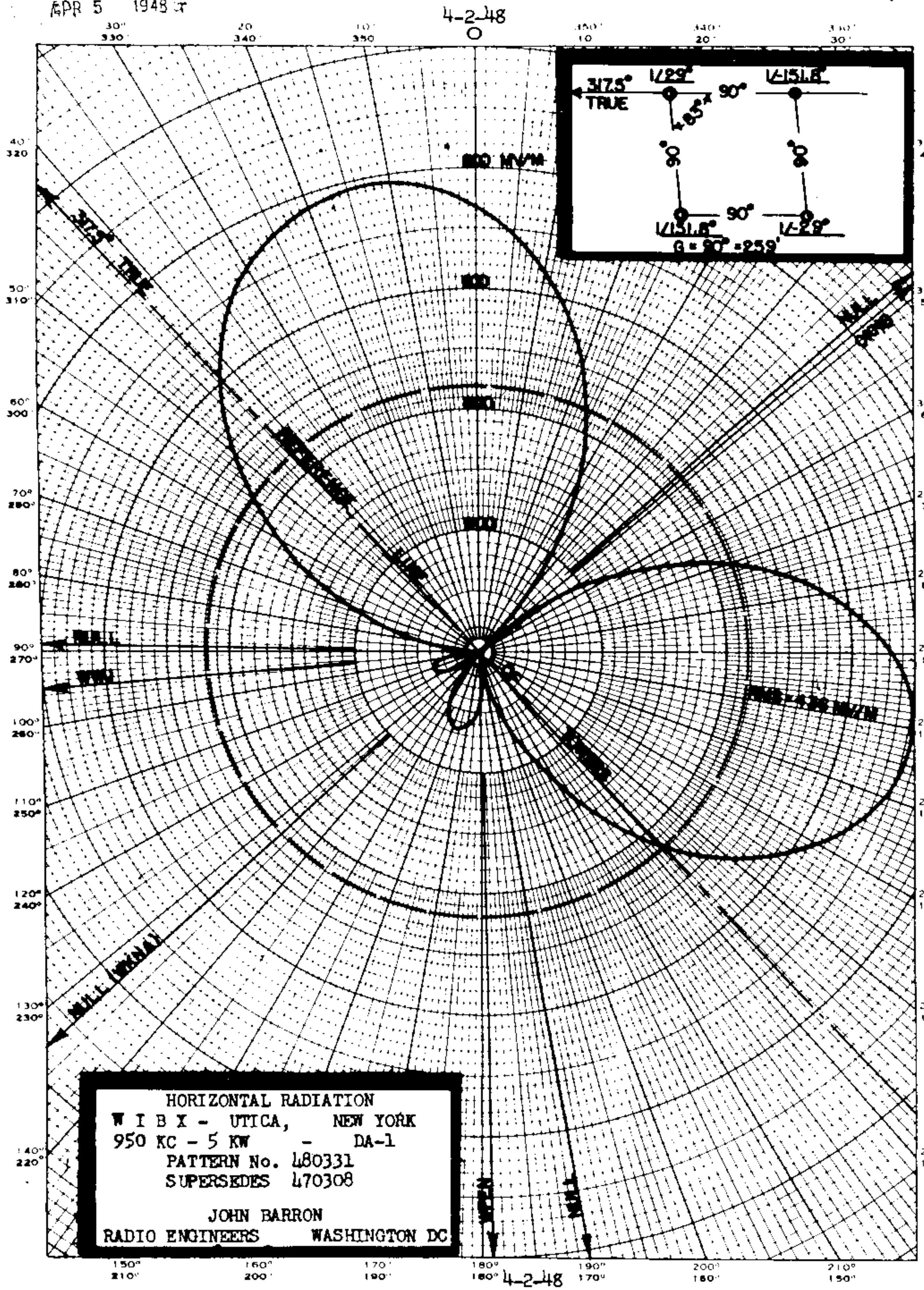
EXPANDED SCALE
MEASURED NIGHTTIME
HORIZONTAL PLANE PATTERN
WGOV
VALDOSTA, GEORGIA
950KC 1KW, 5KW — LS U, DA-2

KEAR AND KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D.C.

480618 REV. 480726

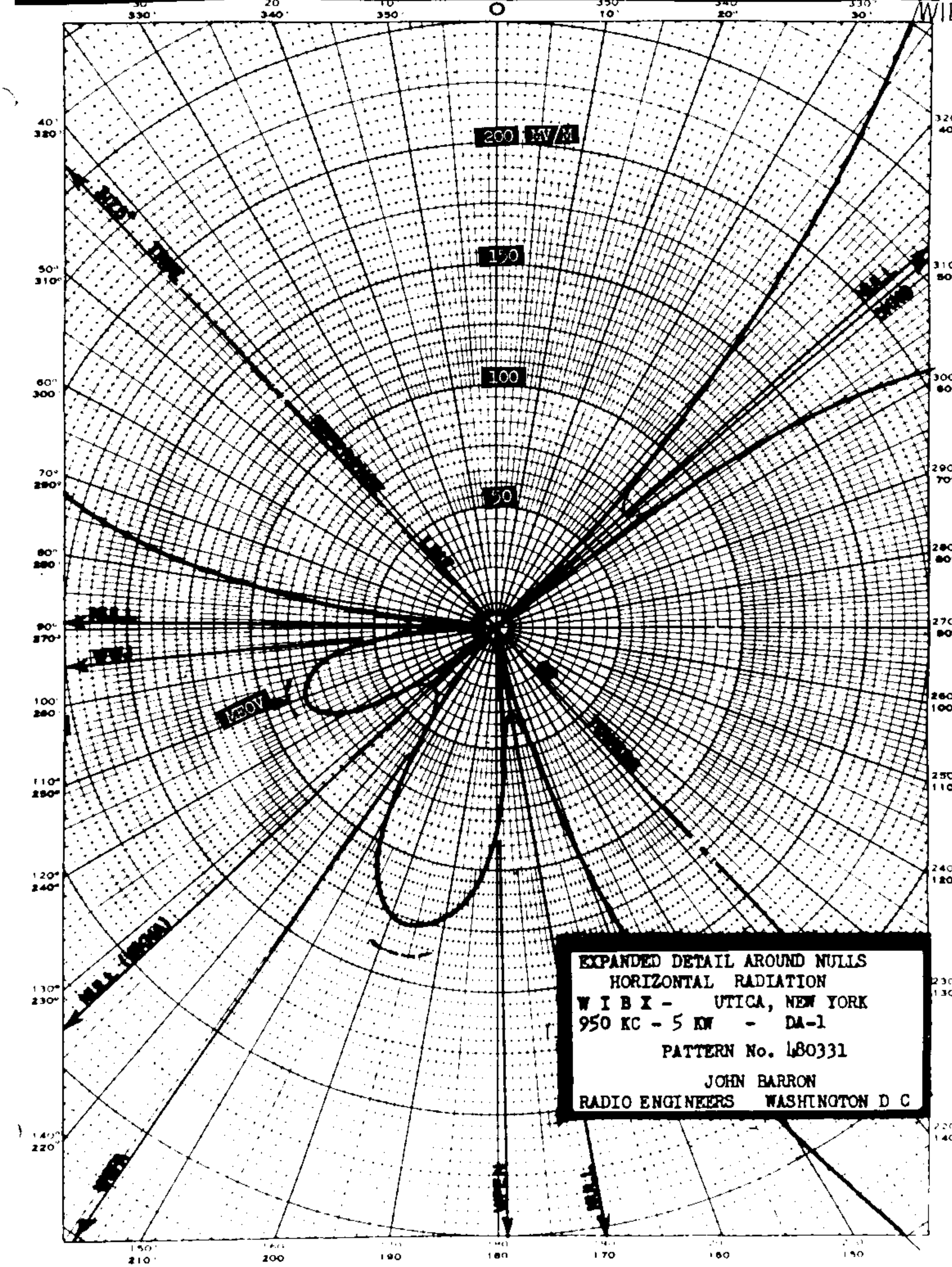
WIBX
950

APR 5 1948



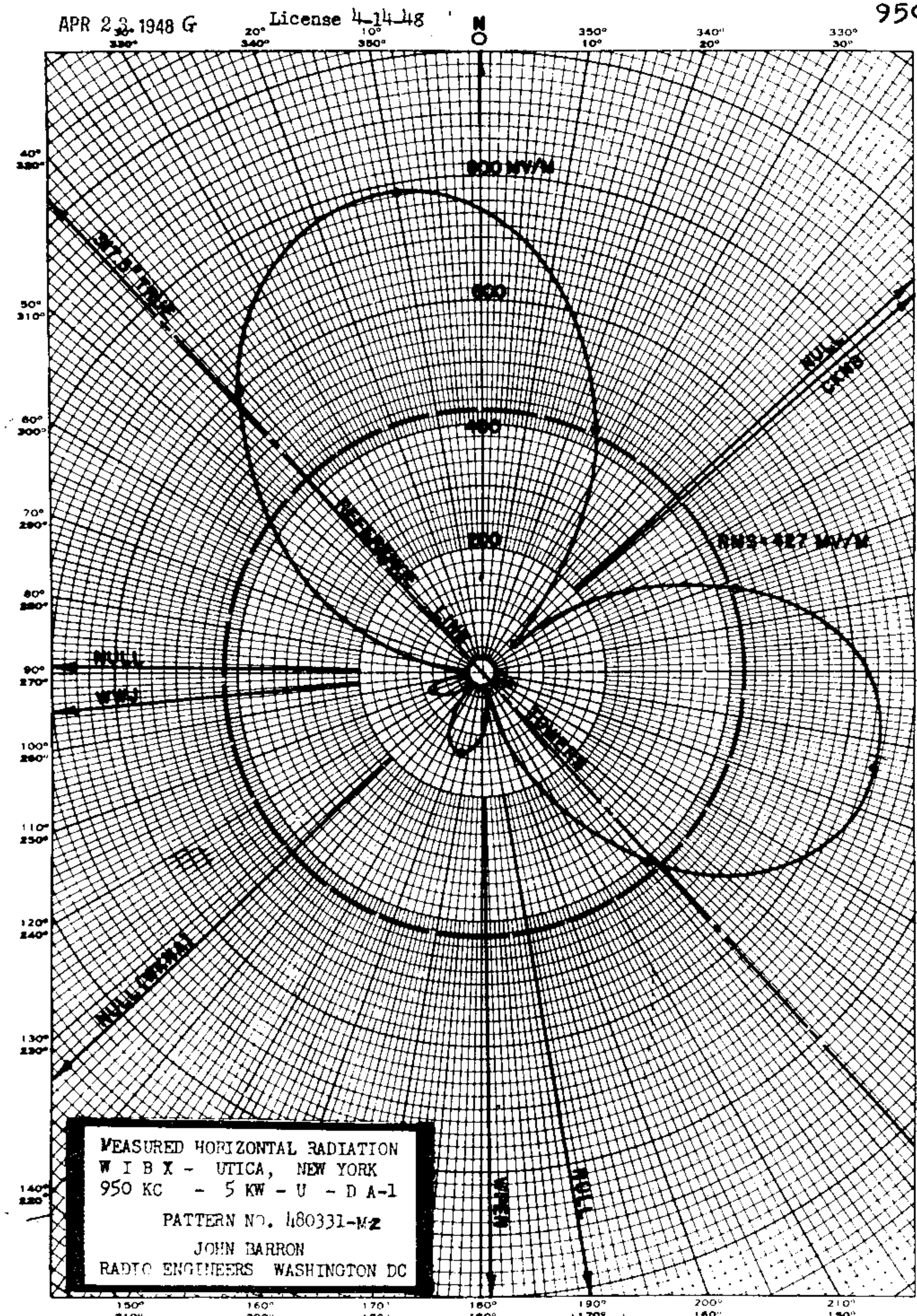
NULLS Utica, New York 950 KC

WIB



WIBX
950

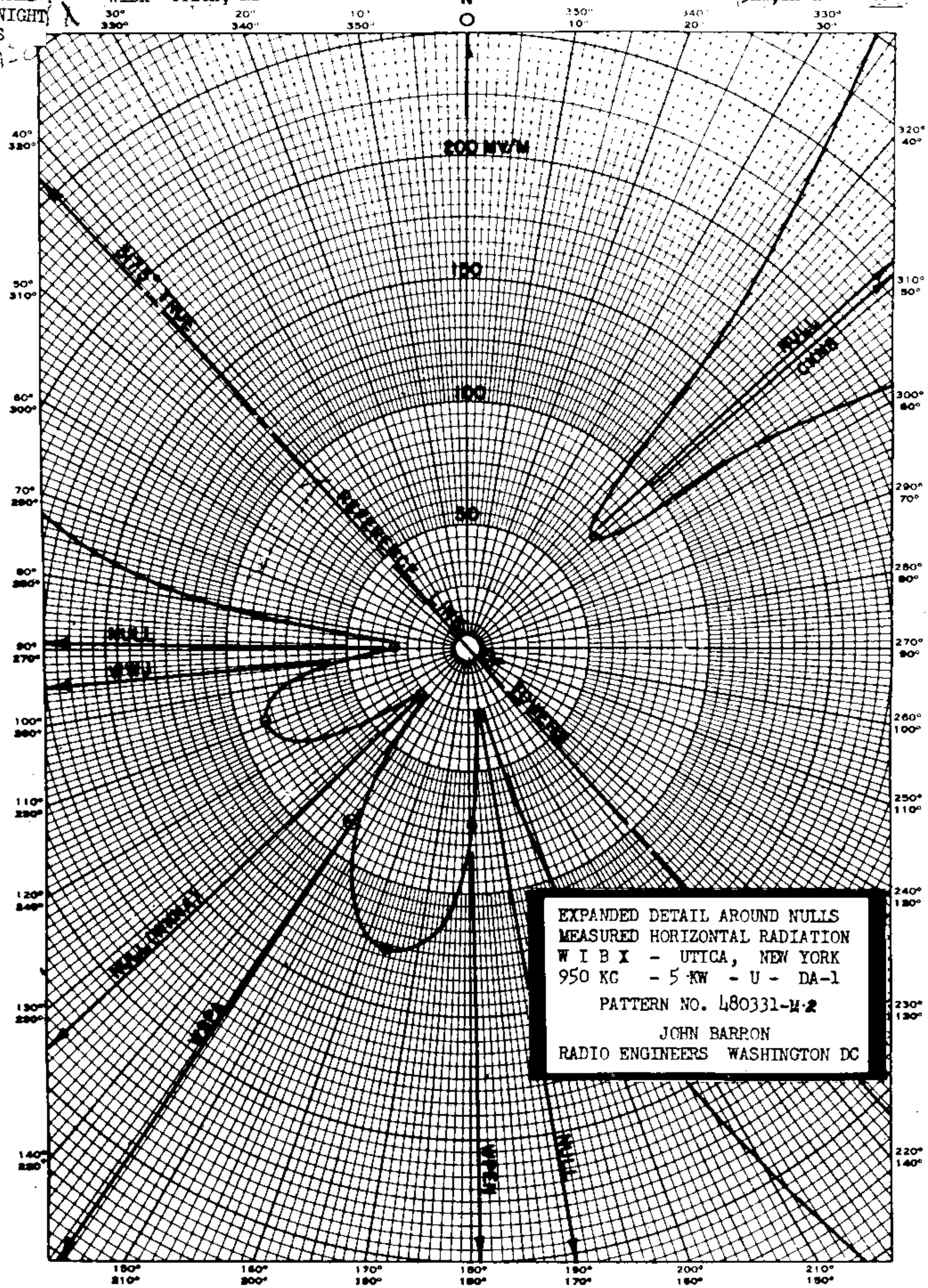
APR 23 1948 G   License 4-14-48



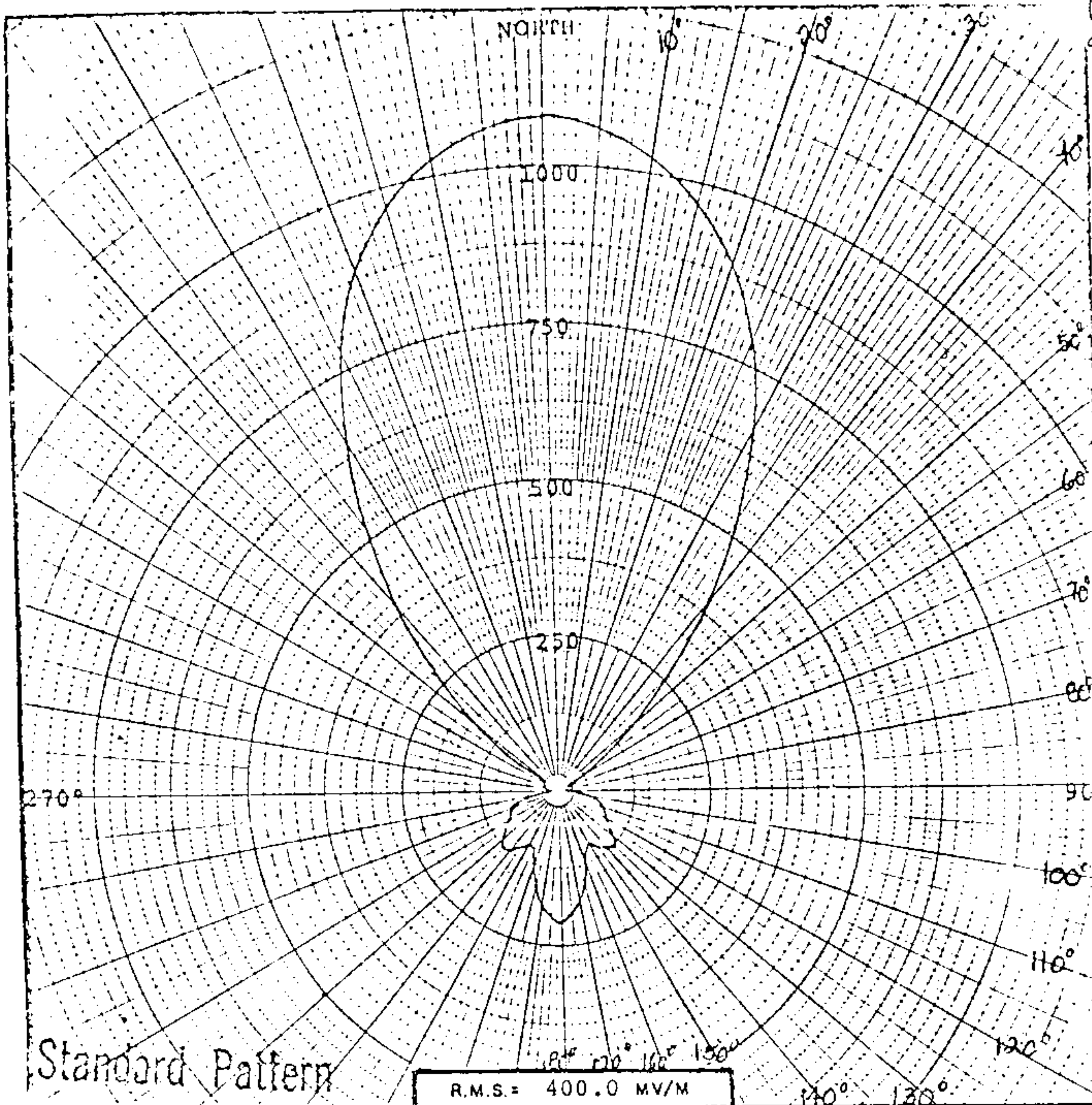
License 4-14-48

WIBX

MEASURED DAY&NIGHT NULLS WIBX UTICA, NY 5kw,DA-1 950 kc



WJPC
950kc



R.M.S. = 400.0 MV/M

E(std) = 420.0mv/m RSS=756 mv/m BL800727AB

PATTERN PARAMETERS	
10° True	S = 120°
1. 1.000/0	G = 86.9°
2. 2.5125/180.16	
3. 3.1921/18.03	
4. 3.0090/-140.13	
5. 1.7591/59.44	
6. 0.5933/-100.48	

0° True

DIRECTIONAL
RADIATION PATTERN
JOHNSON PUBLISHING COMPANY

WJPC

☐ MEASURED ☒ PROPOSED

FREQ: 950 (KHZ) POWER 5.0 (KW) ☐ DA-D
N. LAT. 41 ° 38 ' 29 " ☒ DA-N
W. LONG. 87 ° 33 ' 14 " ☐ N-D

LOCATION: Chicago, Illinois

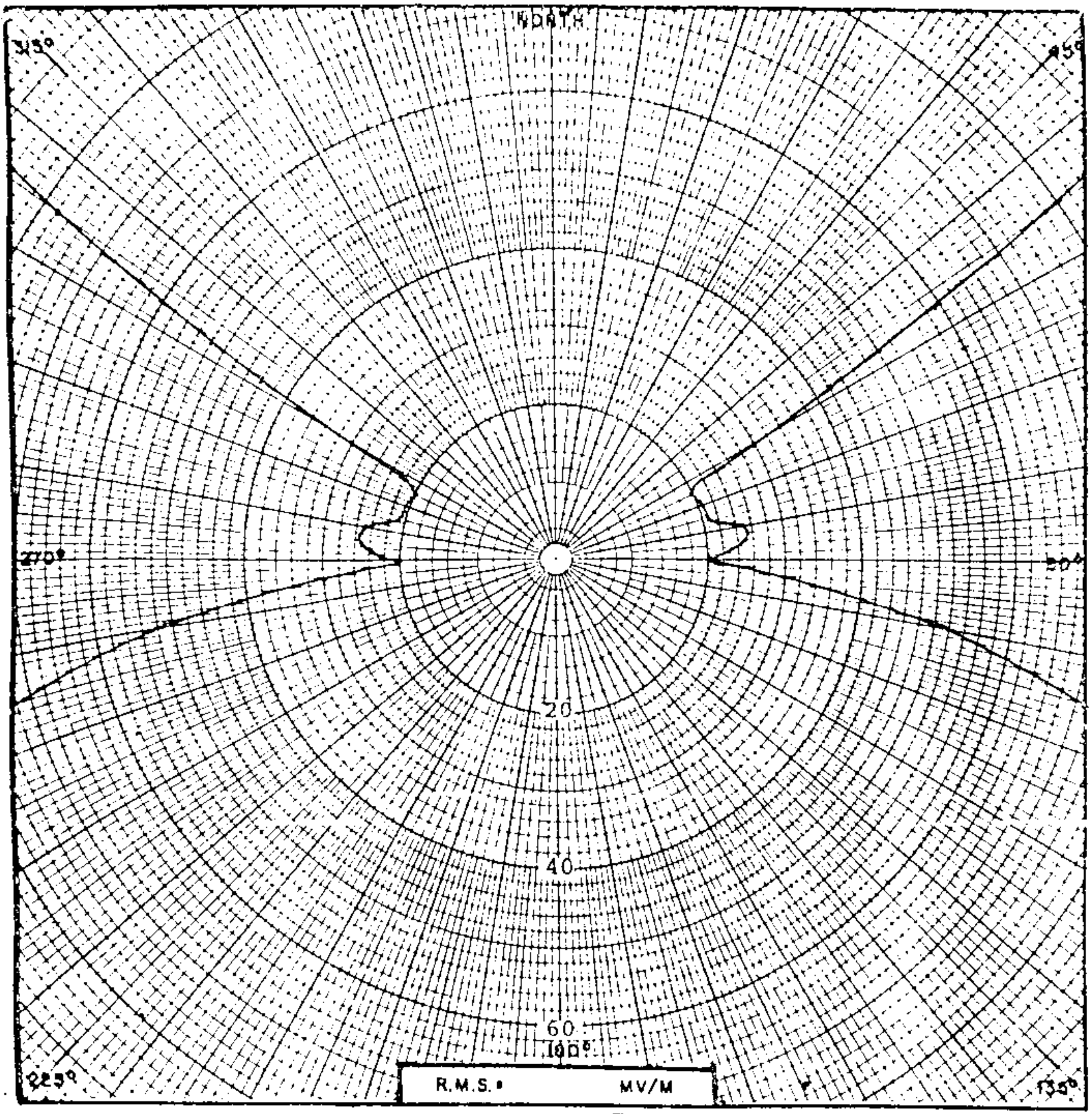
DATE: December 1975

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

STANDARD PATTERN NIGHT

FIGURE ______

WJPC
950 KHz



BL. 8007274B

PATTERN PARAMETERS
EXPANDED VIEW OF PATTERN MINIMA

DIRECTIONAL RADIATION PATTERN

JOHNSON COMMUNICATIONS, INC.

☐ MEASURED ☒ PROPOSED

FREQ: 950 (KHZ) POWER 5.0 (KW) ☐ DA-D

N. LAT. ° ' " ☑ DA-N

W. LONG. ° ' " ☐ N-D

LOCATION: Chicago, Illinois

DATE: December 1975

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

EXPANDED STANDARD PATTERN

FIGURE

2

WJPC

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station : WJPC	Main Studio: Chicago, Illinois		
Frequency : 950	Power : 5 kW Night 1 kW Day		
Notification : 1780	Date : Sept. 28, 1979	Class: III	

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

DAYTIME				NIGHTTIME			
North Latitude:	41	51	38	North Latitude:	41	38	29
West Longitude:	87	41	13	West Longitude:	87	33	14

DAYTIME ANTENNA CHARACTERISTICS

Authorized for Daytime operation. (ND-D)
Number of elements: 1
Type of elements : Series excited, uniform cross-section, guyed, vertical steel tower.

HEIGHT ABOVE INSULATORS : 280'

GROUND SYSTEM : Rooftop ground system.

PREDICTED EFFECTIVE FIELDS AT RATED POWER (omnidirectional): 215 mV/m.

NIGHTTIME ANTENNA CHARACTERISTICS

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

TOWER :	S(#1)	SM(#2)	SC(#3)	NC(#4)	NM(#5)	N(#6)
HEIGHT ABOVE INSULATORS :	250'	250'	250'	250'	250'	250'(86.9)
PHASING :	0°	+180.2°	+18.0°	-140.1°	59.4°	-100.5°
FIELD RATIO :	1.0	2.51	3.19	3.01	1.76	0.59

SPACING AND ORIENTATION : Towers in a row are spaced 345.2' (120°) on a line bearing 0° true.

WJPC

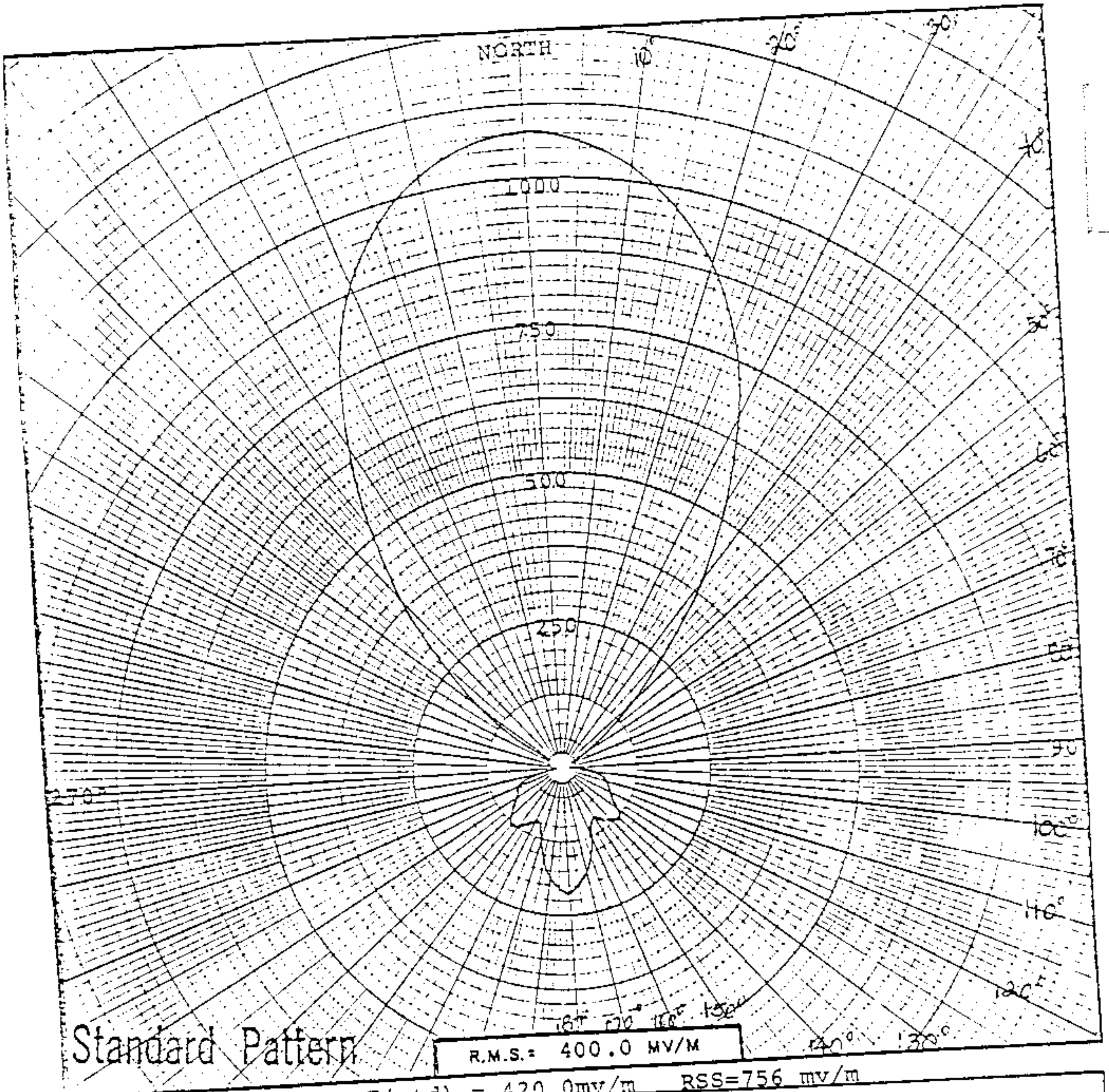
GROUND
SYSTEM: 120 - 250' equally spaced copper radials plus a 24' square ground screen about each tower. Radials are shortened and bonded to trasverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL		STANDARD
	RMS	RSS	RMS
Night	400 mV/m	756 mV/m	420 mV/m

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

FIGURE A WJPC



E(std) = 420.0mv/m RSS=756 mv/m

PATTERN PARAMETERS

180° True S = 120°

G = 86.9°

1. 1.000/0
2. 2.5125/180.16
3. 3.1921/18.03
4. 3.0090/-140.13
5. 1.7591/59.44
6. 0.5933/-100.48

0° True

DIRECTIONAL RADIATION PATTERN

JOHNSON PUBLISHING COMPANY

☐ MEASURED ☒ PROPOSED

FREQ: 950 (KHZ) POWER 5.0 (KW) ☐ DA-D

N. LAT. 41 ° 38 ' 29 " ☒ DA-N

W. LONG. 87 ° 33 ' 14 " ☐ N-D

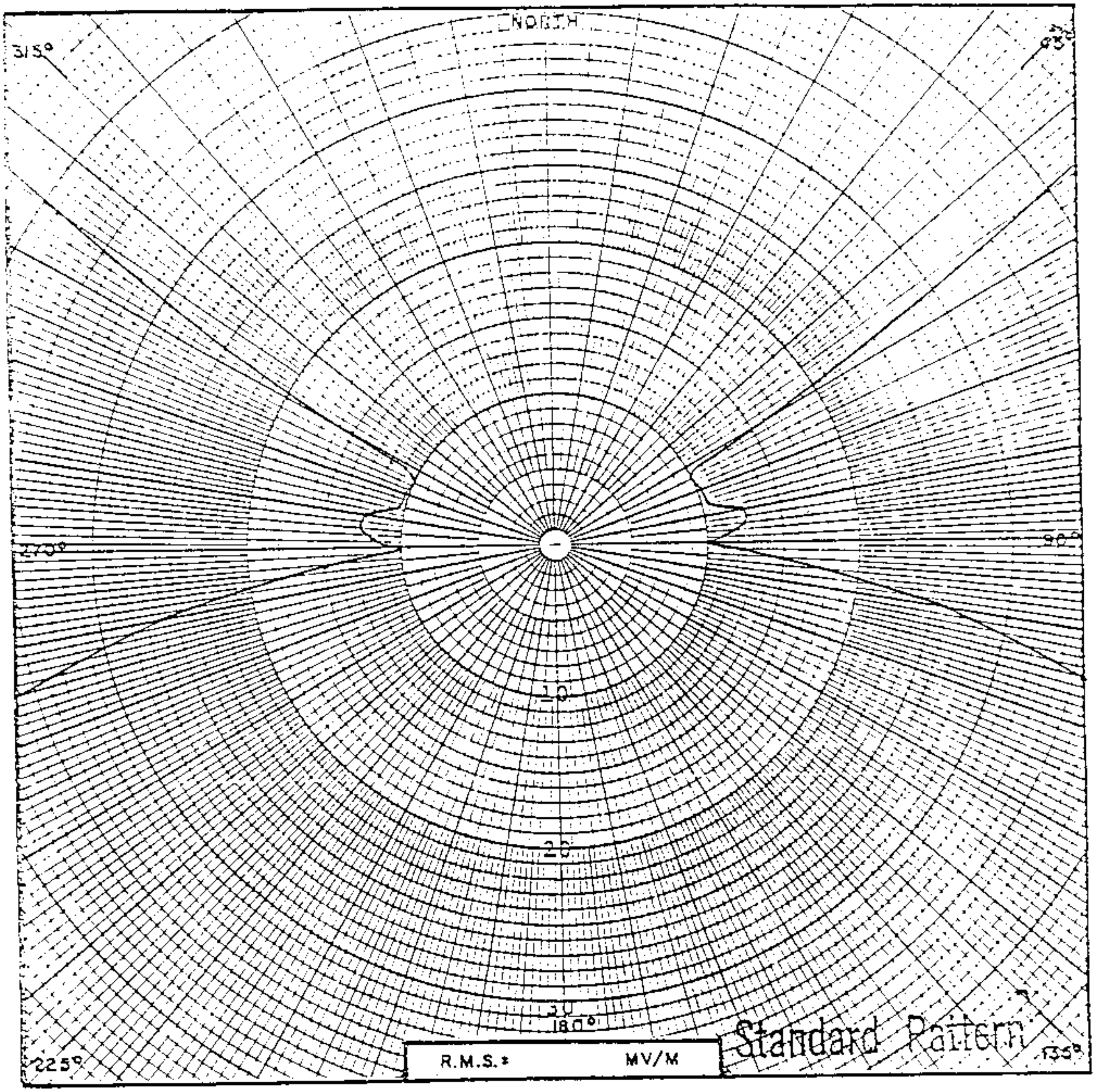
LOCATION: Chicago, Illinois

DATE: December 1975

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

FIGURE ____

FIGURE B WJPC



PATTERN PARAMETERS

EXPANDED VIEW OF PATTERN

MINIMA

DIRECTIONAL
RADIATION PATTERN
JOHNSON PUBLISHING COMPANY

[ ] MEASURED [x] PROPOSED

FREQ: 950 (KHZ) POWER 5.0 (KW) [ ] DA-D
N. LAT. ° ' " [ ] DA-N
W. LONG. ° ' " [ ] N-D

LOCATION: Chicago, Illinois

DATE: December 1975

ROBERT A. JONES
CONSULTING ENGINEERS
LA GRANGE, ILLINOIS

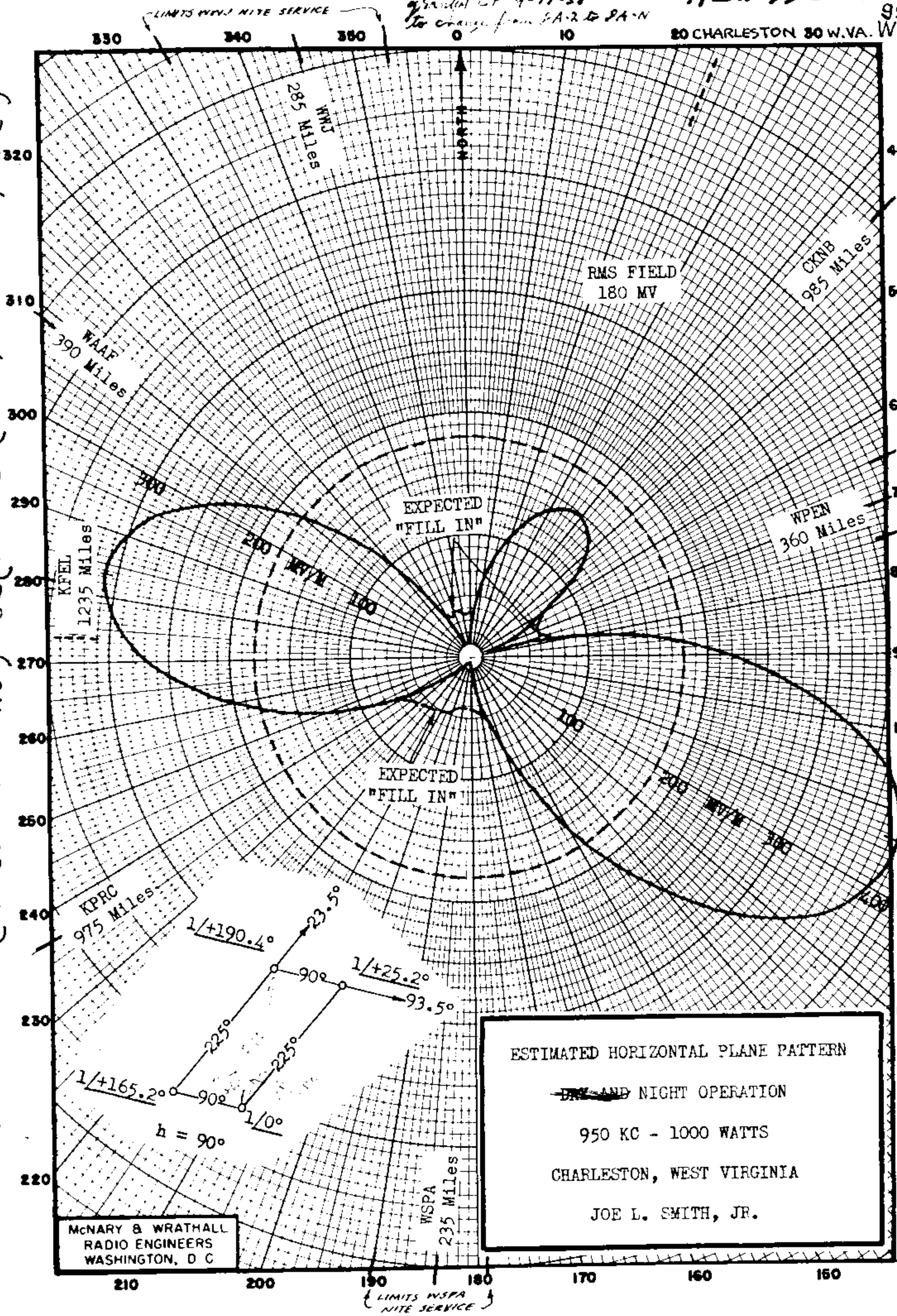
FIGURE ______

A.F.B. 7/29/46

granted CP 9-17-58 to change from DA-2 to DA-N

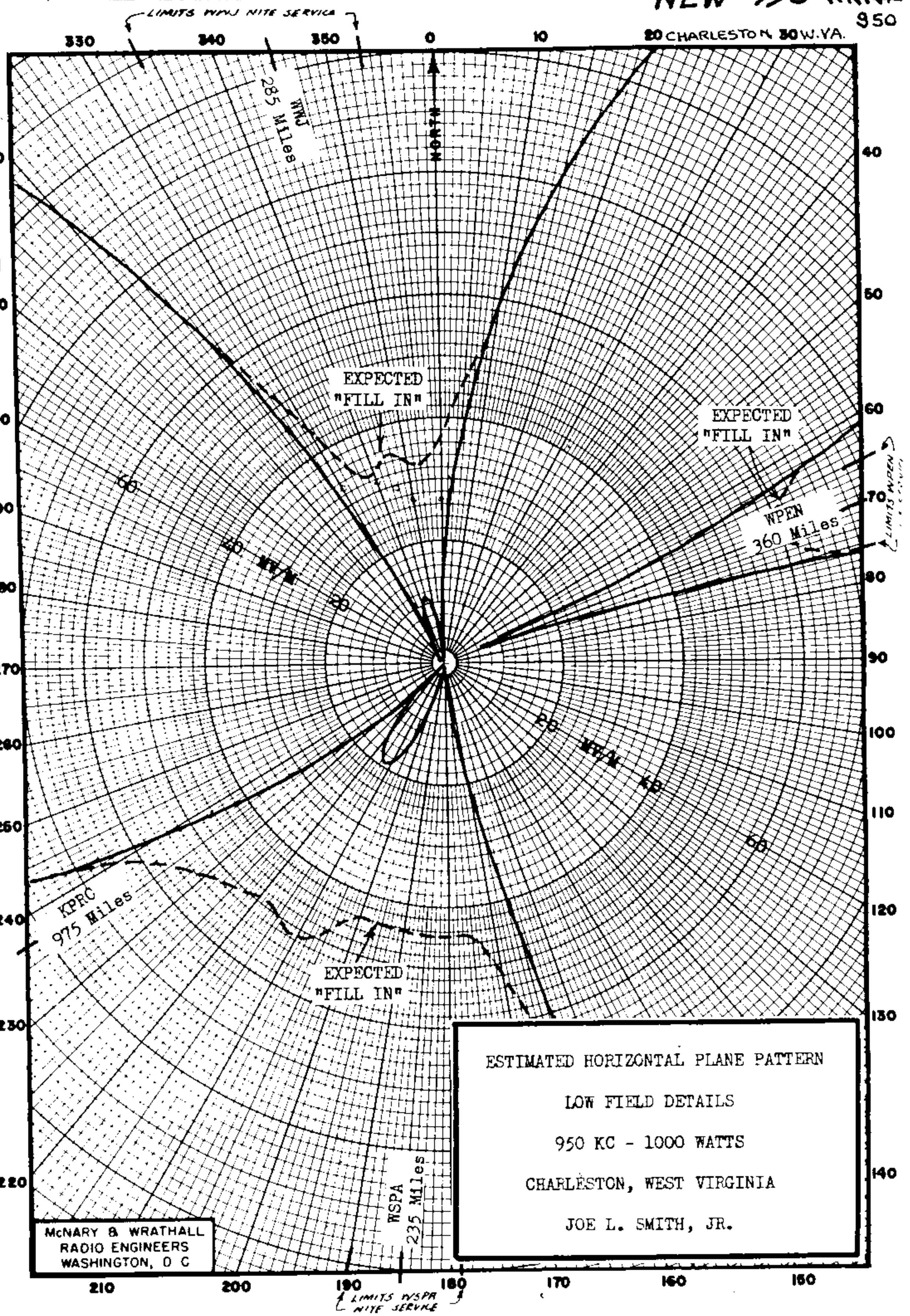
New 950 ~~WKNA~~ 950 WKAZ

$E = 520 \cdot \cos(45^\circ \cos A \cos \theta + 32.6^\circ) \cdot \cos(112.5 \cos(A - 110^\circ) \cos \theta + 12.6^\circ) \cdot f(\theta)$



NEW 950 ~~WKNA~~ 950

Granted CP 9-17-58 to change from DA-2 to DA-N



ESTIMATED HORIZONTAL PLANE PATTERN

LOW FIELD DETAILS

950 KC - 1000 WATTS

CHARLESTON, WEST VIRGINIA

JOE L. SMITH, JR.

McNARY & WRATHALL
RADIO ENGINEERS
WASHINGTON, D C

Granted license 7-13-59 change to DA-N

~~WKNA~~ WKNA.

Granted CP 7-17-58 to change from DA-2 to DA-N

MEASURED NIGHT — WKNA, CHARLESTON, W. VA. — 1kw,5kw-LS,DA-2 — 950 kc

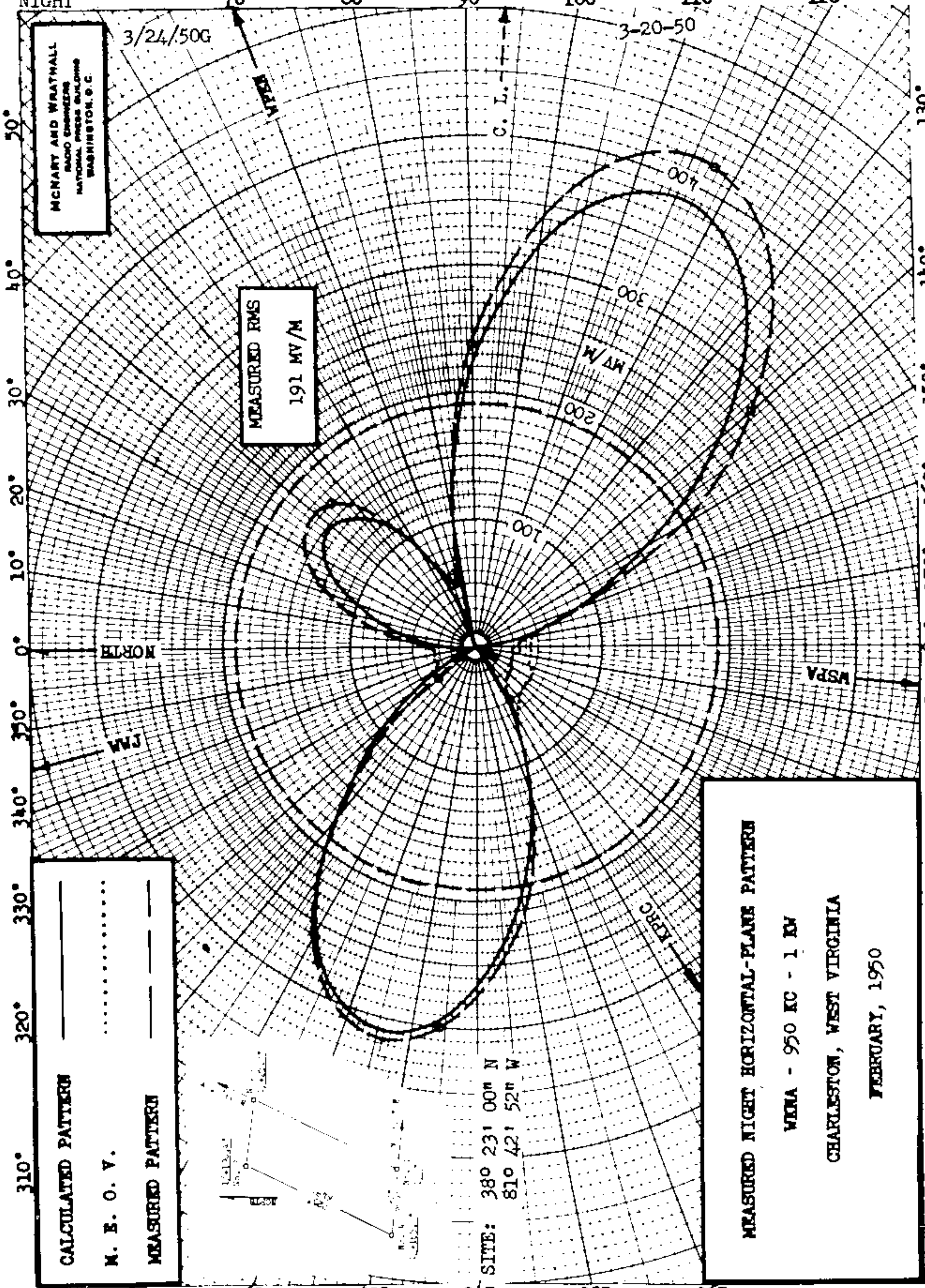


EXHIBIT NO. 32

WKNA, Charleston, W. Va. 950 kc

granted license change to DA-N
7-13-59

WKNA

MEASURED
NIGHT NULLS

WKNA, CHARLESTON, W. VA.

1kw, 5kw-LS, DA-2 950 kc

Granted CP 9-17-58 to change from DA-2 to DA-N

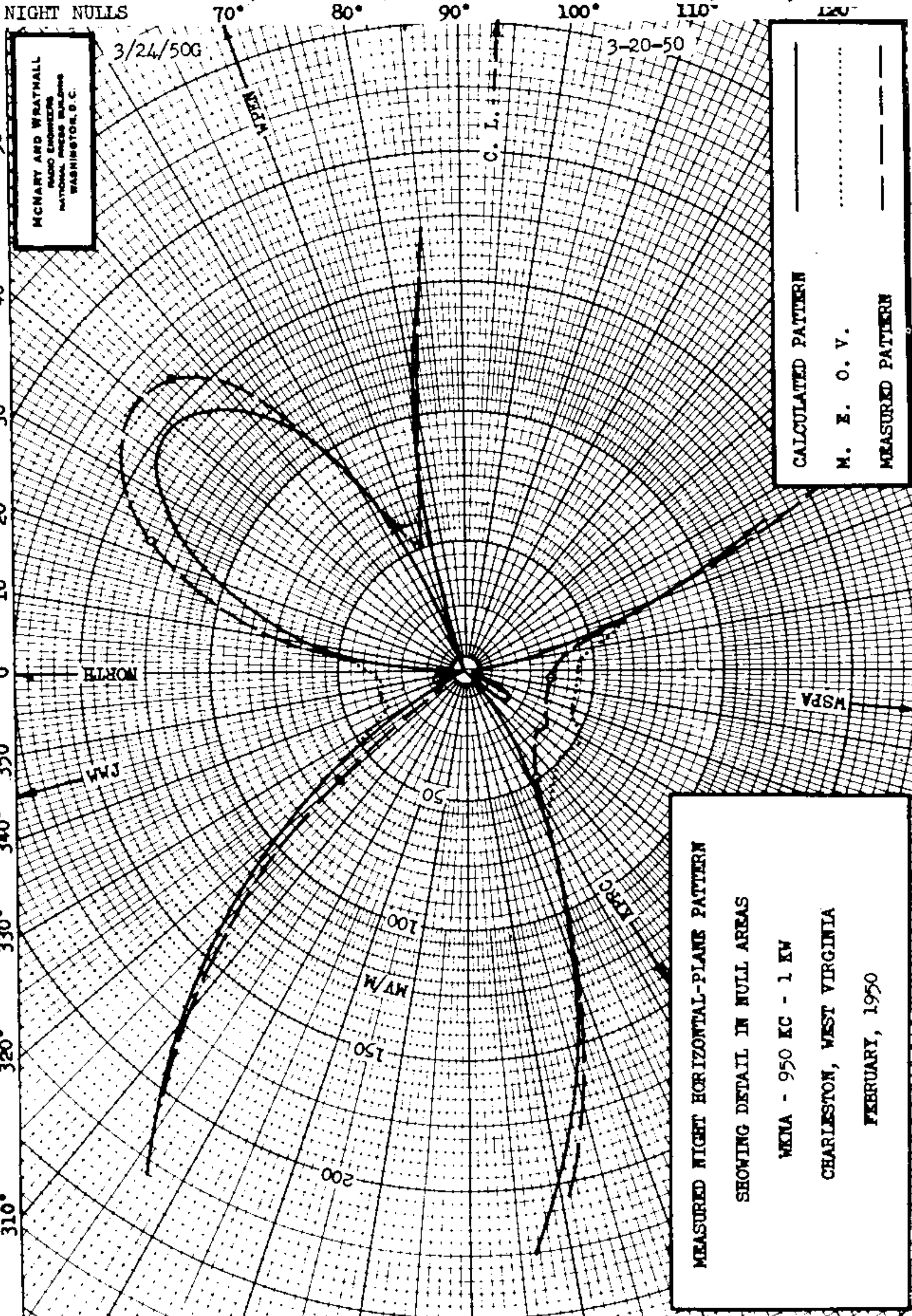


EXHIBIT NO. 33

WKNA, Charleston, W. Va. 950 kc

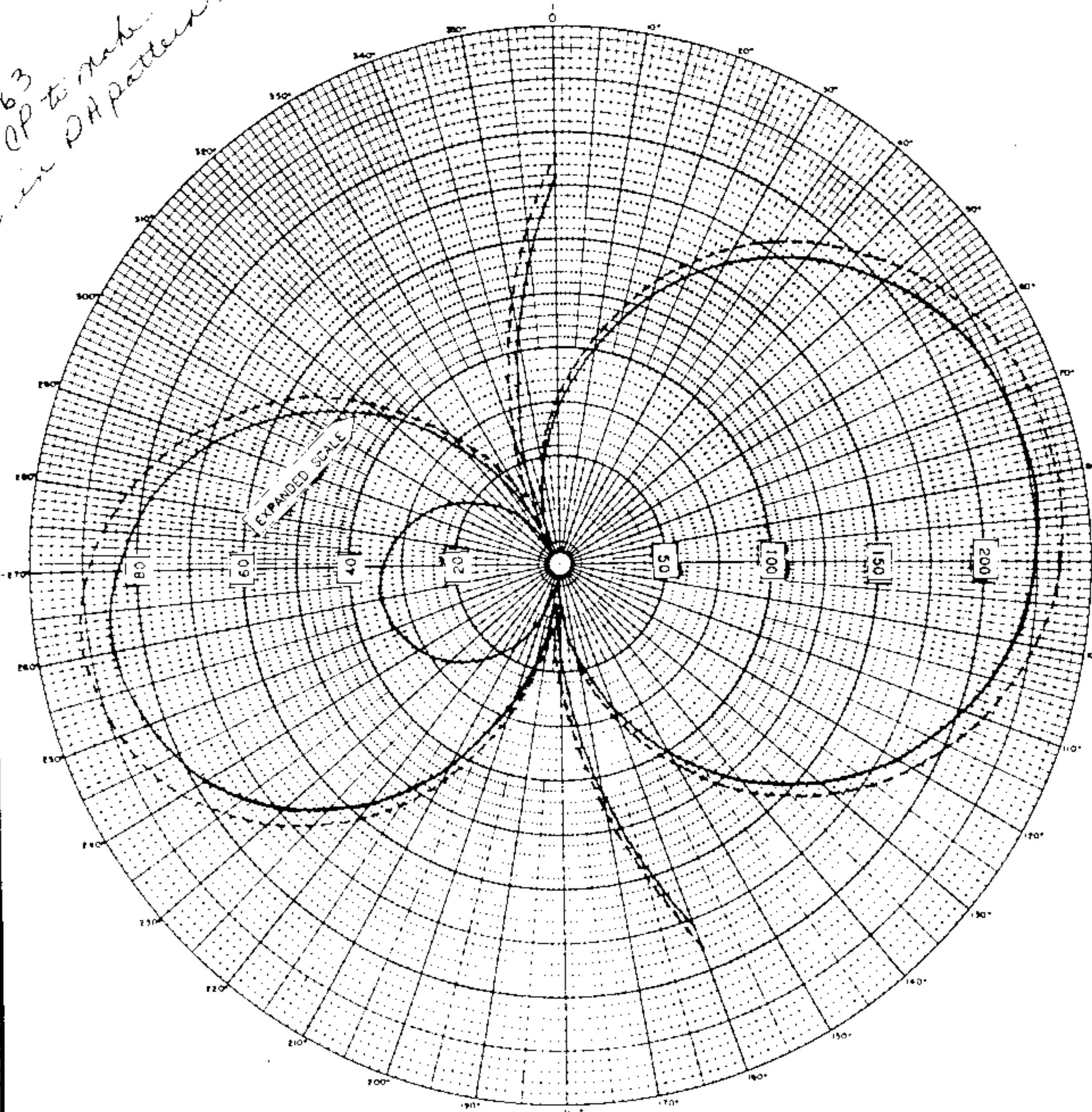
WKTS

Proposed Day
(8-23-63ct)

Station WKTS
Sheboygan, Wisconsin

500w,DA-D,D
950 kc

9-20-63
Granted CP to make change in DA pattern



E_{RMS} = 120 MV/M

LATITUDE 43° 44' 33"
LONGITUDE 87° 48' 00"

CHARLES E. BRENNAN
CONSULTING RADIO ENGINEERS
MILWAUKEE, WISCONSIN

ANTENNA PARAMETERS

S = 70°

0.251/-265°
→ 60°

1.0/0°
1

1.166/-151.75°
2

3

630607

FIGURE 5

PROPOSED AMENDMENT
TO
DIRECTIONAL ANTENNA PATTERN
RADIO SHEBOYGAN, INC.
RADIO STATION WKTS
SHEBOYGAN, WISCONSIN

950 KC

500 DA-D

FCC File No.BP-15962
Accepted 7-29-63

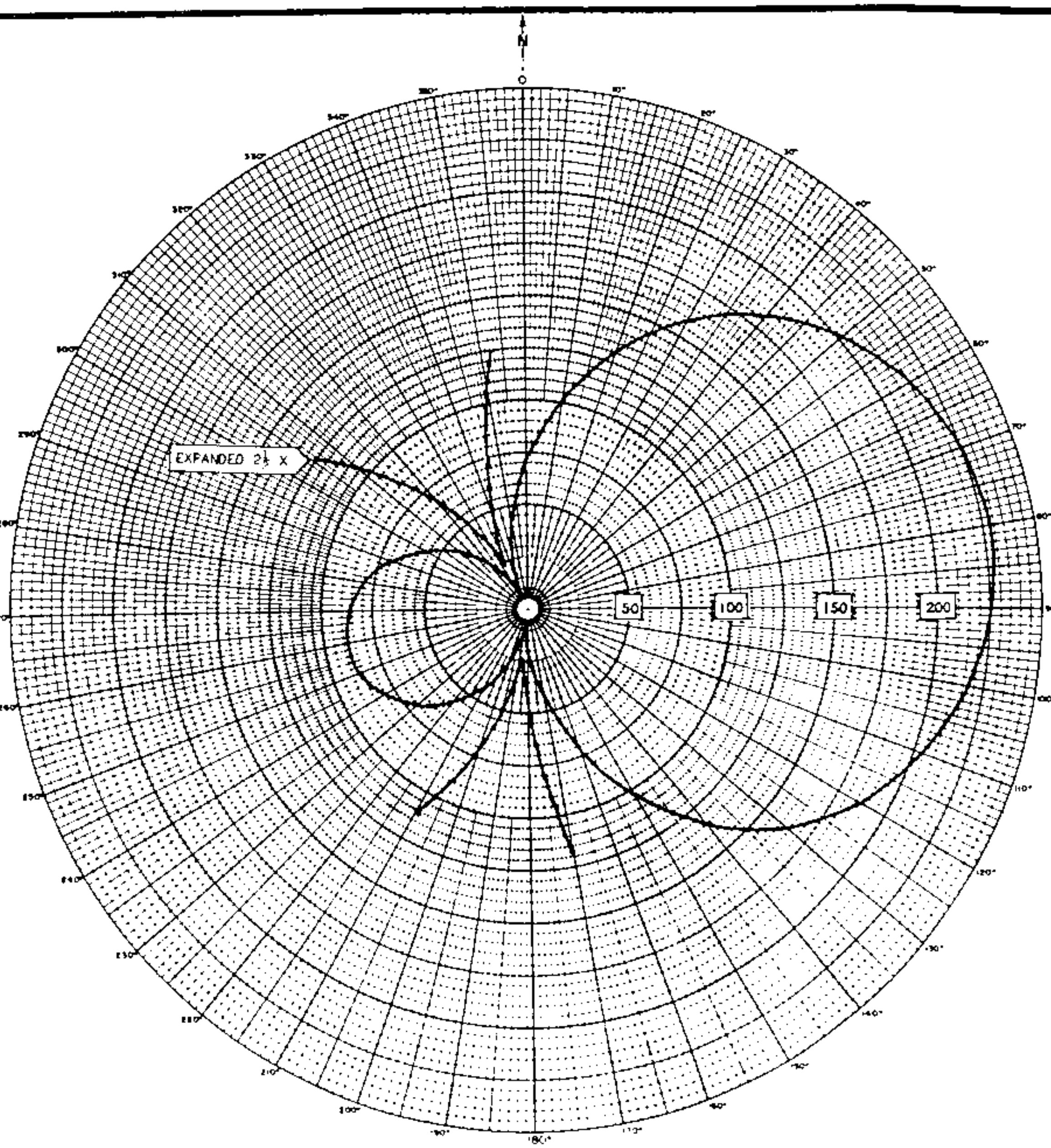
Station WKTS
Sheboygan, Wisconsin

950 kc

WKTS

5/20/64
granted
base for
hang in DA

Measured Day (4-24-64ct)	Station WKTS Sheboygan, Wisconsin	500w, DA-D, D 950 kc



E_{RMS} = 126.5 MV/M

LATITUDE 43° 44' 33"
LONGITUDE 87° 49' 00"

CHARLES E. BRENNAN
CONSULTING RADIO ENGINEERS
MILWAUKEE, WISCONSIN

ANTENNA PARAMETERS

ALL G's = 70°
SPACING BETWEEN ADJACENT TOWERS = 72°

3
0.858/+151.75°

1
1.0/0°

2 → 80°
0.215/-133.25°

640116 FIGURE 4

MEASURED DIRECTIONAL RADIATION

RADIO STATION WKTS
SHEBOYGAN, WISCONSIN

950 KC 500 DA-D

FCC File No. BL-10515 Accepted 4-14-64	Station WKTS Sheboygan, Wisconsin	950 kc

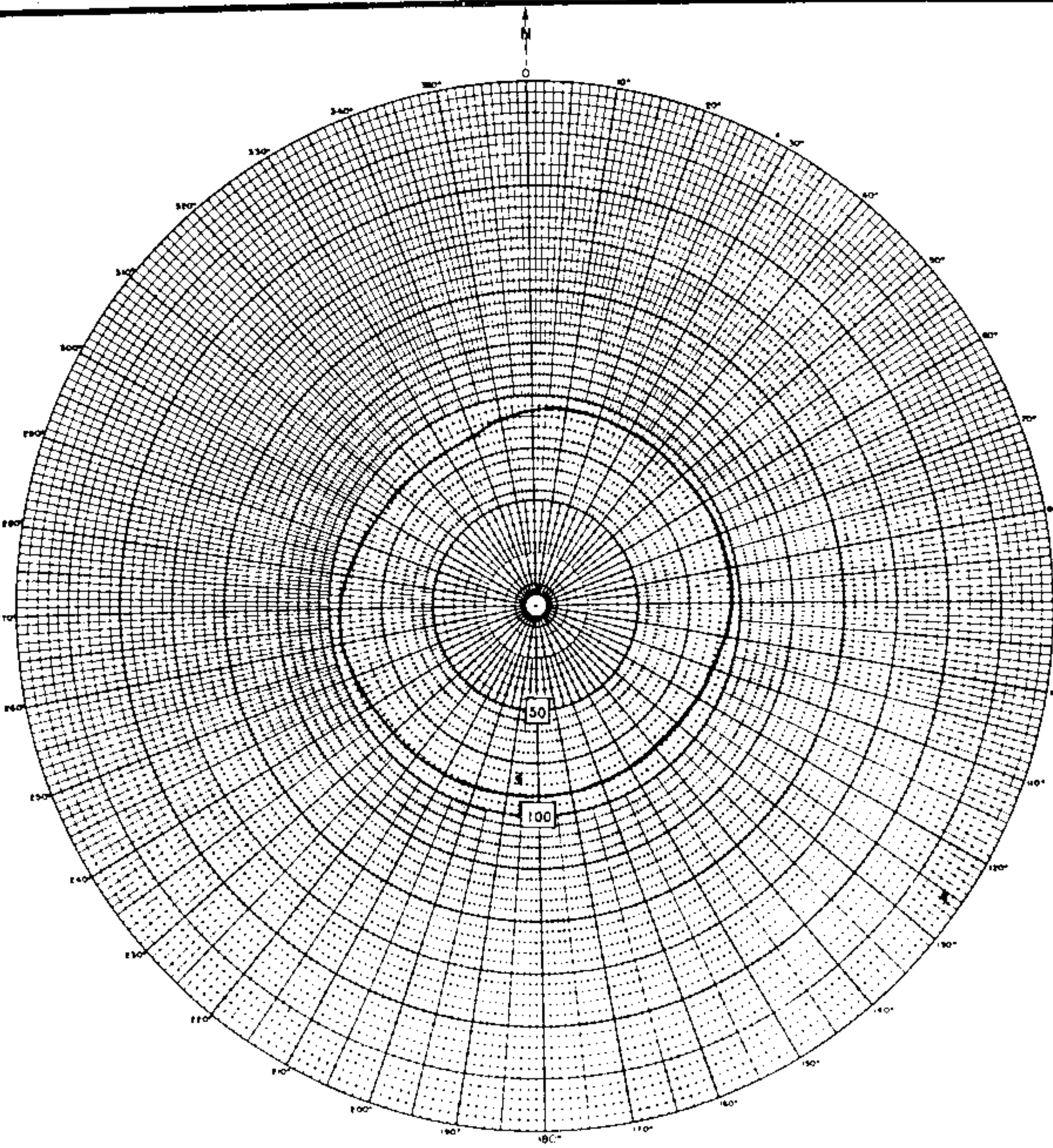
WKTS

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

Station WKTS
Sheboygan, Wisconsin

500w,DA-D,D
950 kc

3/30/64 granted license for change in DA



E_{RMS} = 91.3 MV/M

LATITUDE: 43° 44' 33"

LONGITUDE: 87° 49' 00"

CHARLES E. BRENNAN
CONSULTING RADIO ENGINEERS
MILWAUKEE, WISCONSIN

ANTENNA PARAMETERS

S = 70°

MEASURED WITH 250 WATTS INPUT TO TOWER 1

640116 FIGURE 3

MEASURED NON-DIRECTIONAL RADIATION

RADIO STATION WKTS
SHEBOYGAN, WISCONSIN

950 KC 500 DA-D

WLIT

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WLIT

Main Studio: Steubenville, Ohio

Frequency: 950 kHz

Power: 1 kW

Notification List No. 1667

Date: January 14, 1976

Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 40° 26' 49"
West Longitude: 80° 34' 06"

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:	SW	NW	SE	NE
HEIGHT ABOVE INSULATORS:	All towers 259' (90°)			
PHASING:	0°	+128°	0°	+128°
FIELD RATIO:	1.0	0.893	0.864	0.772

SPACING AND ORIENTATION: The towers are located at the vertices of a parallelogram the long sides of which are 554' (192°) in length on a line bearing 110° true. The short sides are 173' (60°) in length on a line bearing 20° true.

GROUND SYSTEM: 120-260' equally spaced copper radials plus a 24' square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

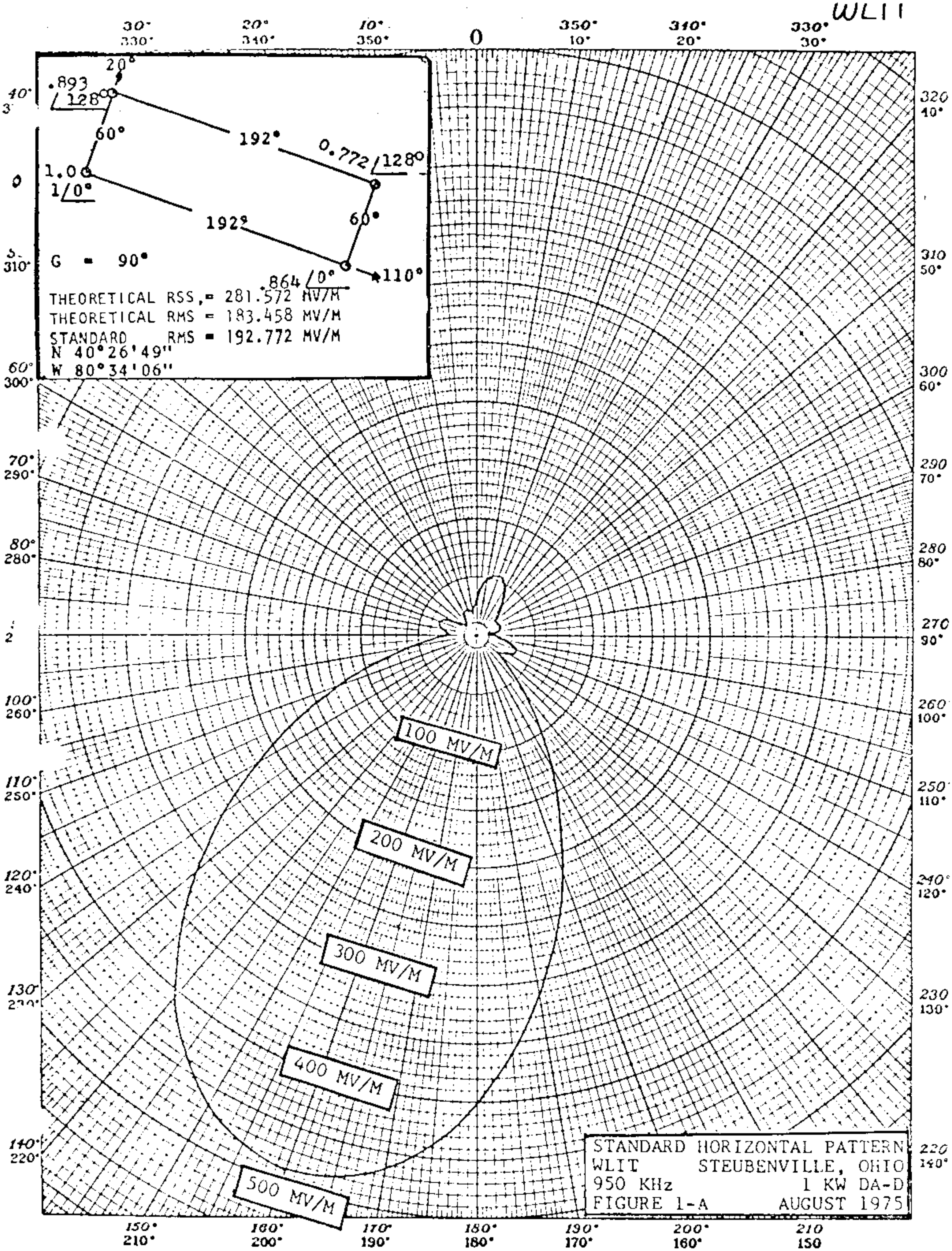
THEORETICAL RMS	THEORETICAL RSS	STANDARD RMS
183.458 mv/m	281.572 mv/m	192.772 mv/m

Note: This notification concerns an increase in power from 0.5 kW.

NOV 5 1976

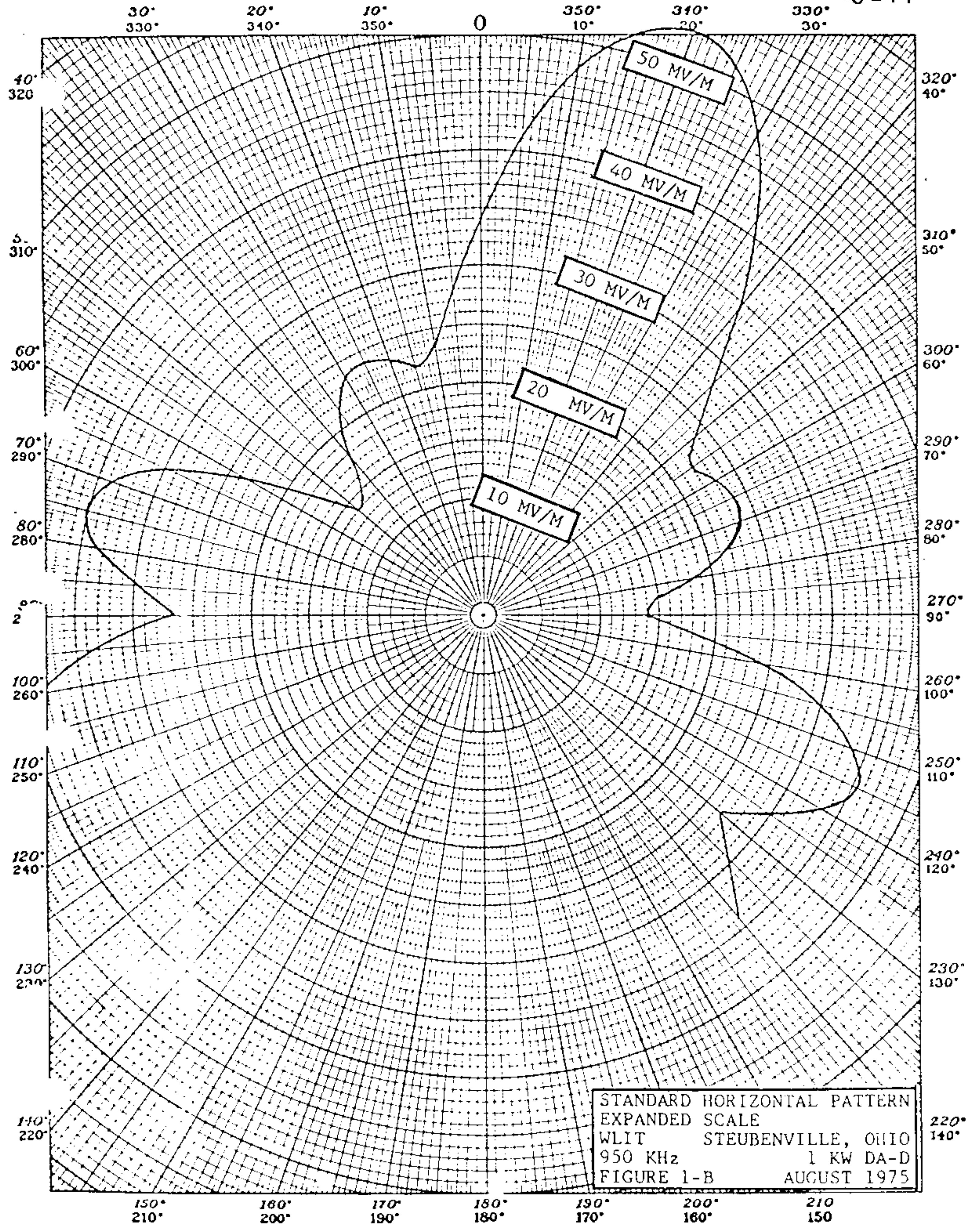
D.C.

WLI1

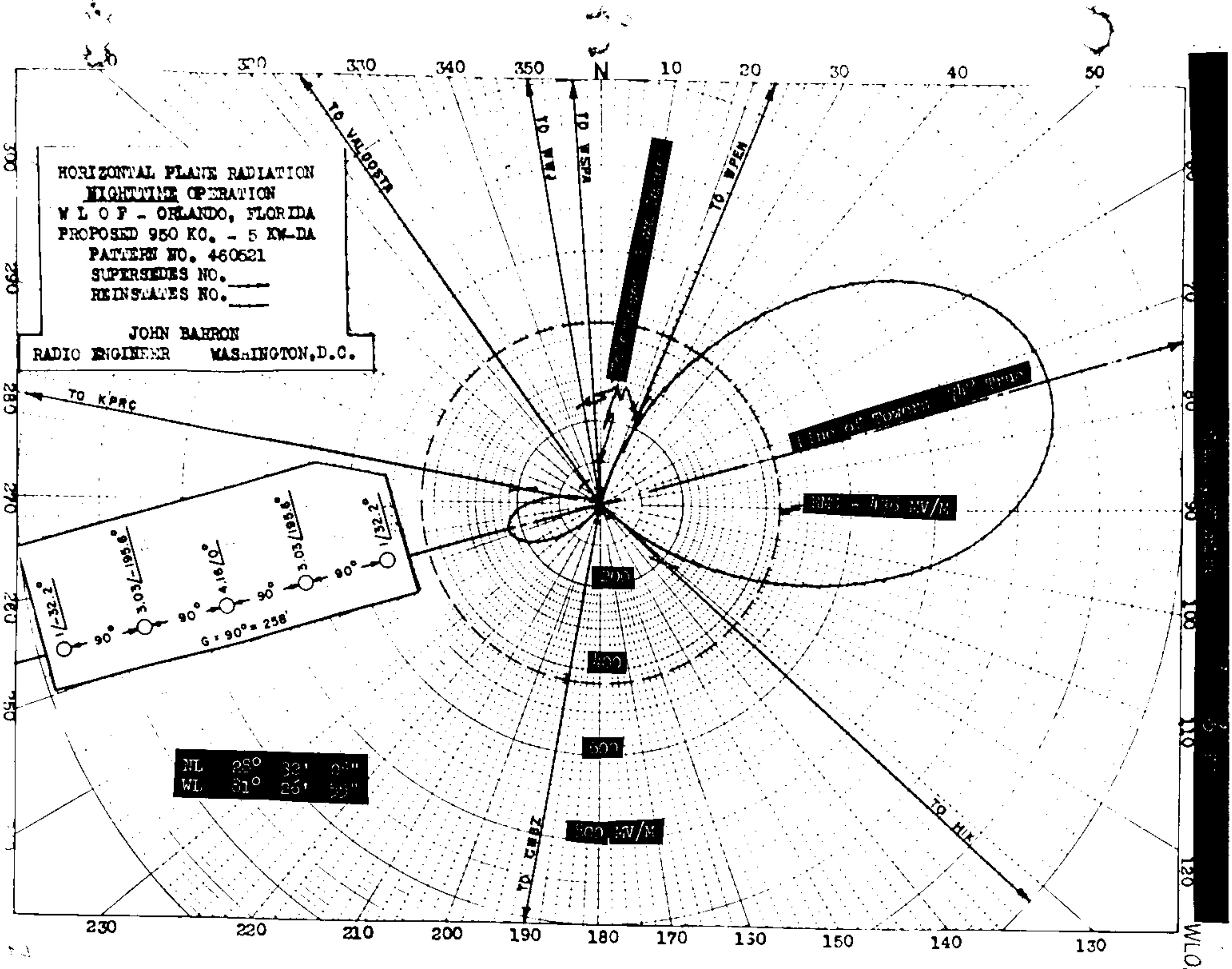


STANDARD HORIZONTAL PATTERN
WLIT STEUBENVILLE, OHIO
950 KHz 1 KW DA-D
FIGURE 1-A AUGUST 1975

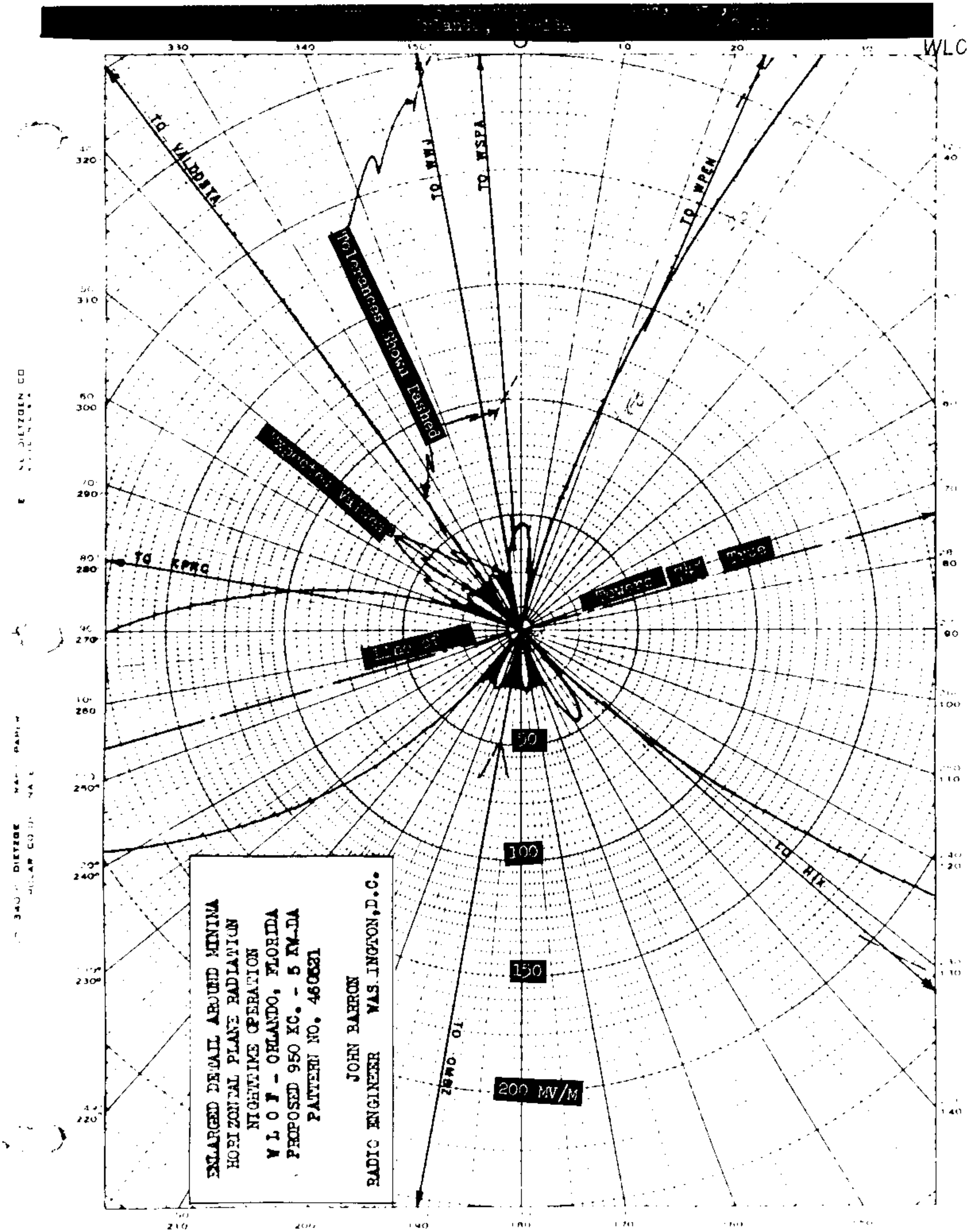
WLIT



STANDARD HORIZONTAL PATTERN
EXPANDED SCALE
WLIT STEUBENVILLE, OHIO
950 KHz 1 KW DA-D
FIGURE 1-B AUGUST 1975

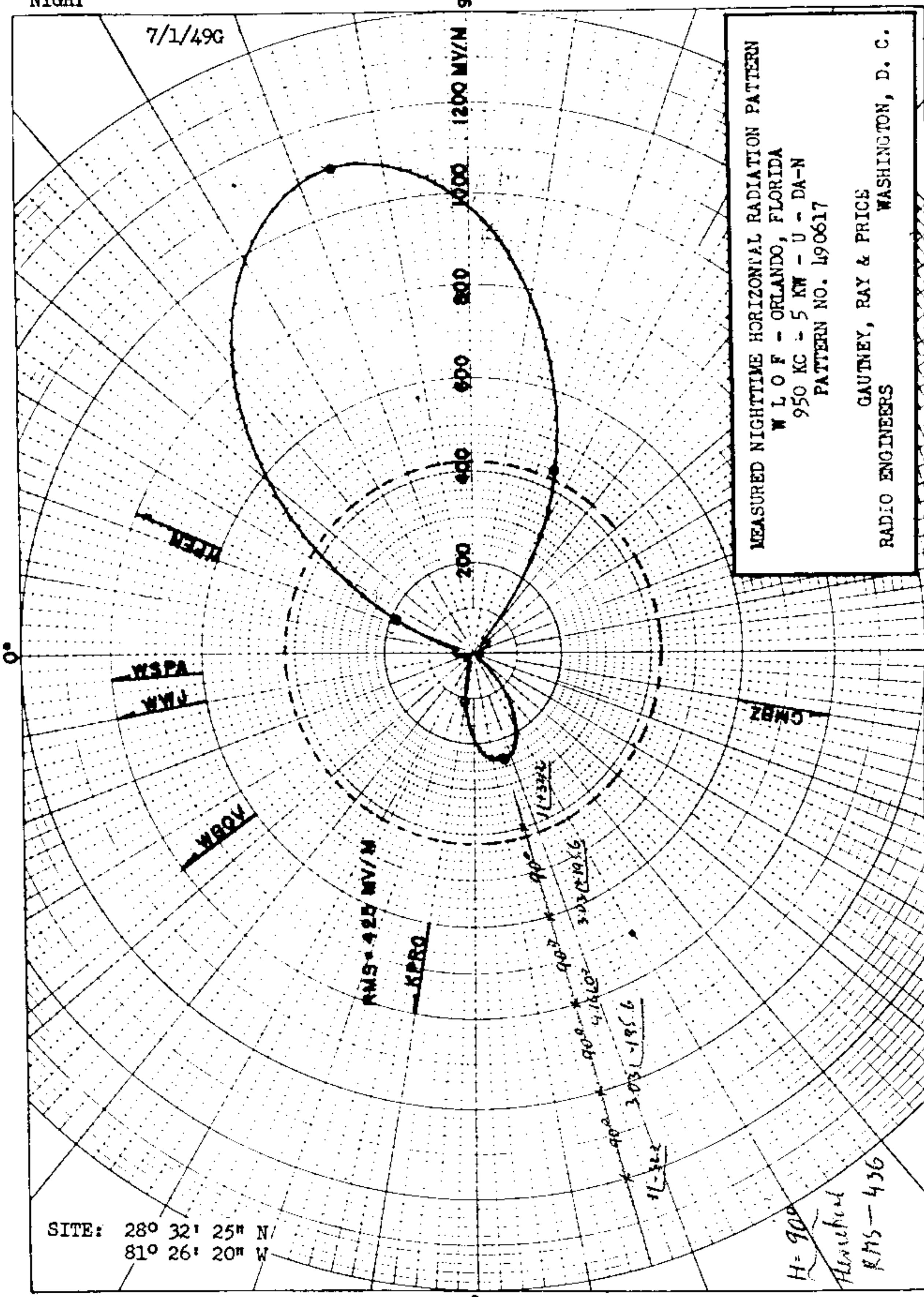

HORIZONTAL PLANE RADIATION
NIGHTTIME OPERATION
W L O F - ORLANDO, FLORIDA
PROPOSED 950 KC. - 5 KW-DA
PATTERN NO. 460521
SUPERSEDES NO.
REINSTATES NO.
JOHN BARRON
RADIO ENGINEER WASHINGTON, D.C.
TO VALDOSTA
TO WWJ
TO WSPA
TO WPEN
TO KPRC
TO WMBZ
TO HUK
N
1/-32.2°
90°
3.03/-195.6°
4.16/0°
3.03/195.6°
1/32.2°
G = 90° = 258'
200
400
600
800 MV/M
NL 28°
WL 81°
KEUFFEL & ESSER CO. N.Y. NO. 343A
POLAR CO-ORDINATE
MADE IN U.S.A.
WLOF

WLC


TO VALDOSTA
TO WWJ
TO WSPA
TO WPEN
TO KPRC
Tolerances shown dashed
50
100
150
200 MV/M
ENLARGED DETAIL AROUND MINIMA
HORIZONTAL PLANE RADIATION
NIGHTTIME OPERATION
W L O F - ORLANDO, FLORIDA
PROPOSED 950 KC. - 5 KW-DA
PATTERN NO. 460621
JOHN BARRON
RADIO ENGINEER WASHINGTON, D.C.

WLOF

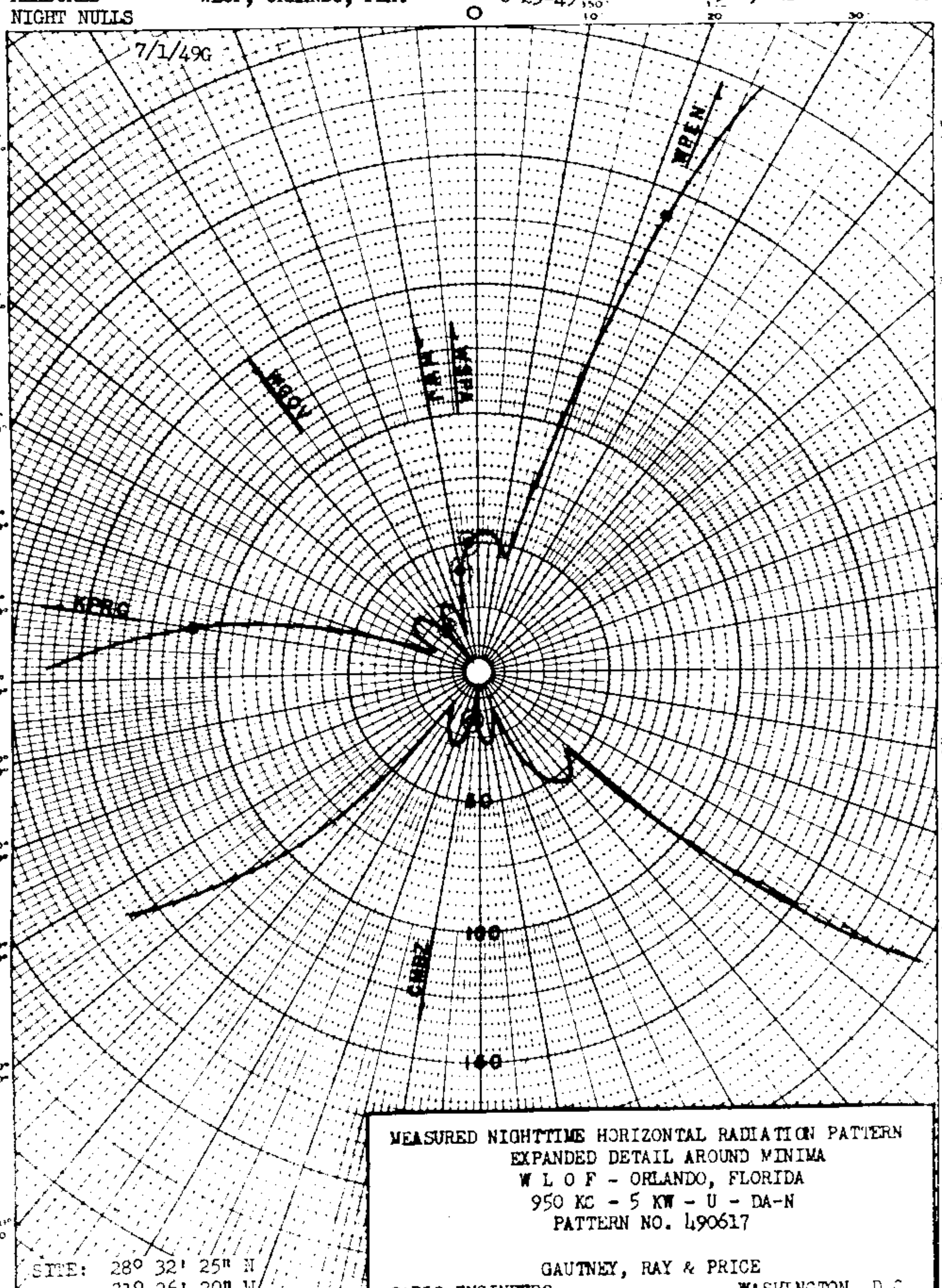
MEASURED NIGHT | WLOF, ORLANDO, FLA. | 6-23-49 | 5kw, DAN | 950 kc



WLOF, Orlando, Fla. 950 kc

WLOF

MEASURED NIGHT NULLS   WLOF, ORLANDO, FLA.   6-23-49   5kw, DAN   950 kc



MEASURED NIGHTTIME HORIZONTAL RADIATION PATTERN
EXPANDED DETAIL AROUND MINIMA
W L O F - ORLANDO, FLORIDA
950 KC - 5 KW - U - DA-N
PATTERN NO. 490617

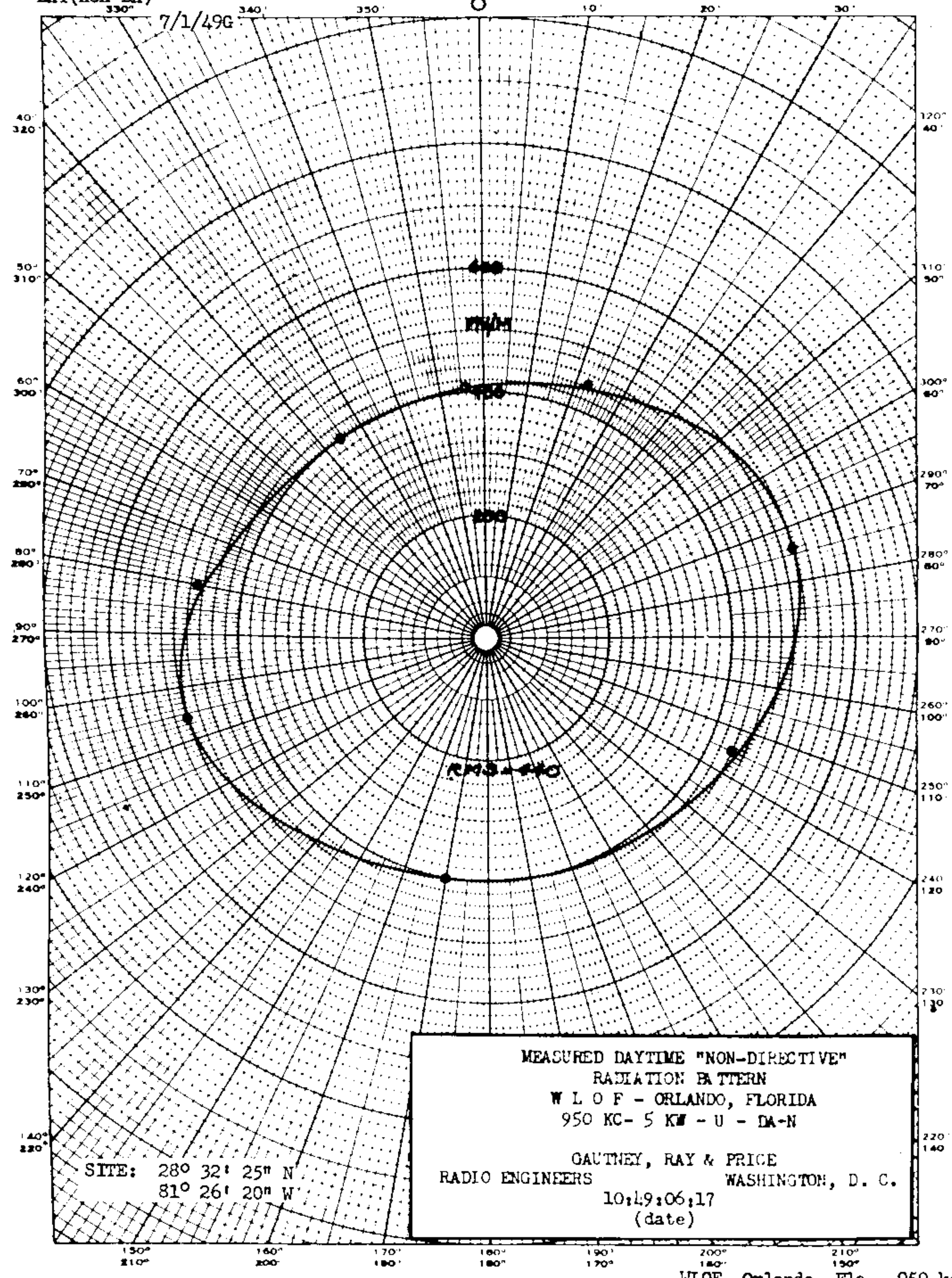
GAUTNEY, RAY & PRICE
RADIO ENGINEERS   WASHINGTON, D.C.

WLOF, Orlando, Fla. 950 kc

WLOF

MEASURED DAY(non-DA) — WLOF, ORLANDO, FLA. — 6-23-49 — 5kw, DAN — 950 kc

7/1/49G

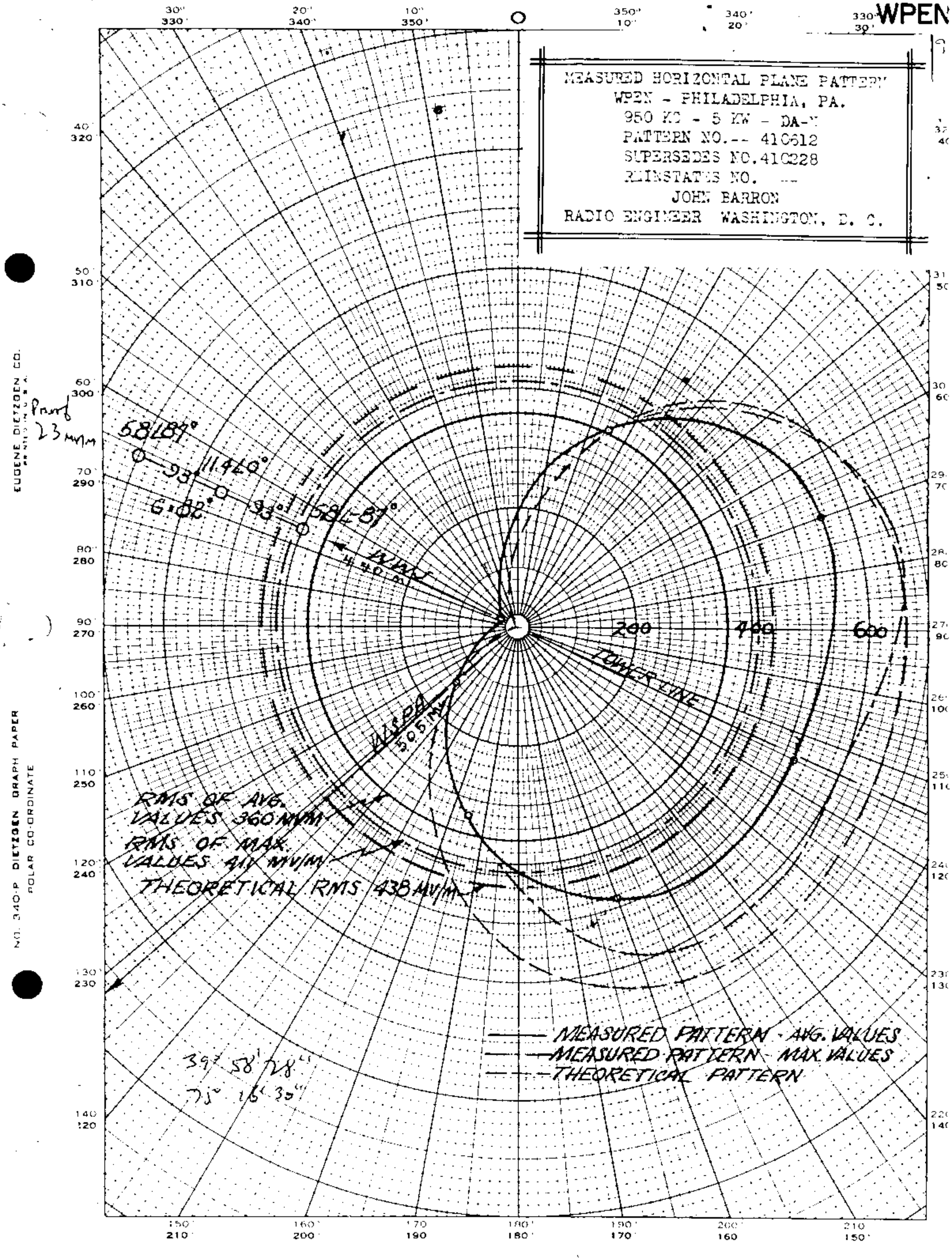


MEASURED DAYTIME "NON-DIRECTIVE"
RADIATION PATTERN
W L O F - ORLANDO, FLORIDA
950 KC- 5 KW - U - DA-N

GAUTNEY, RAY & PRICE
RADIO ENGINEERS — WASHINGTON, D. C.
10;49;06;17
(date)

SITE: 28° 32' 25" N
81° 26' 20" W

WPEN

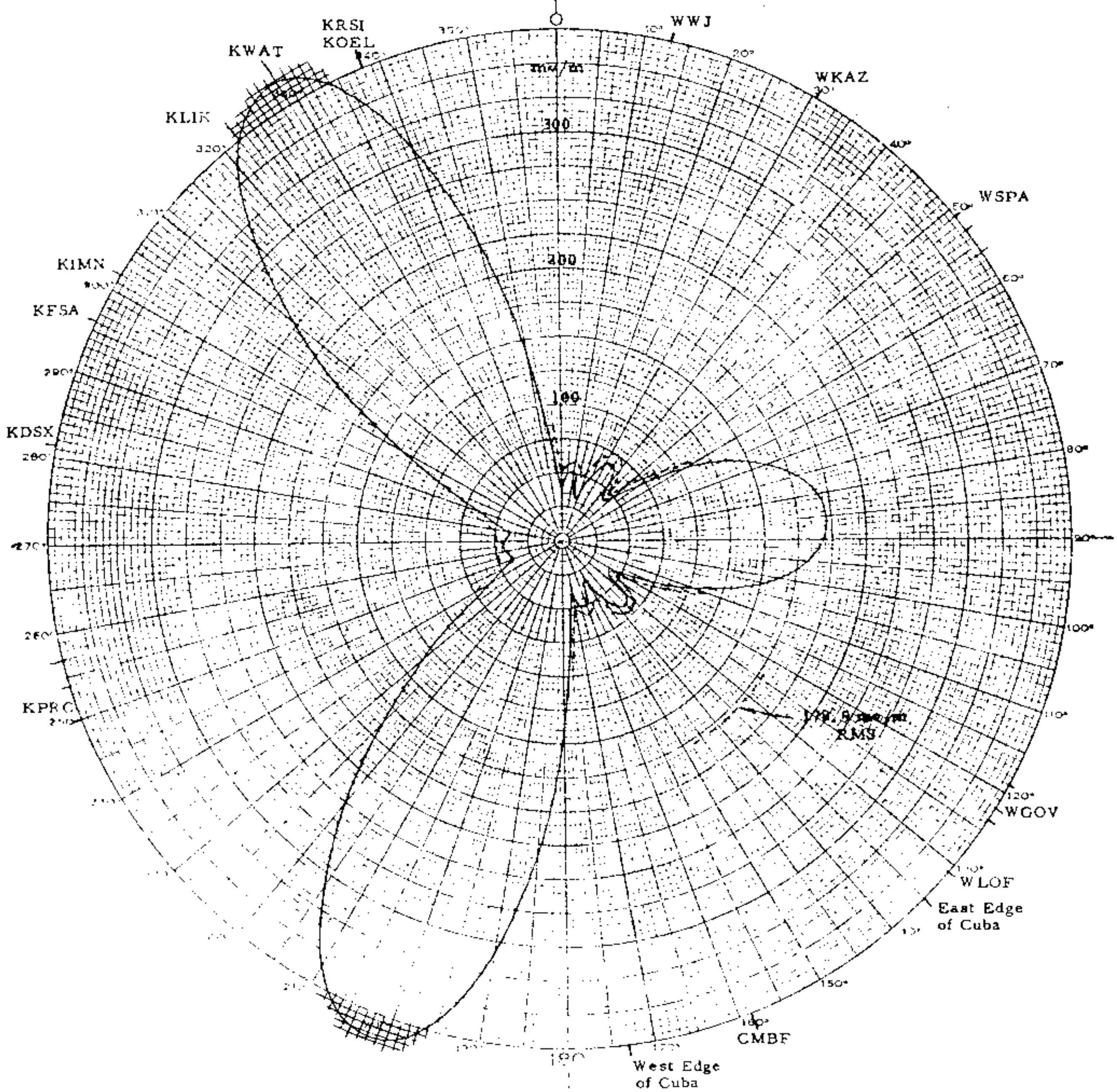

MEASURED HORIZONTAL PLANE PATTERN
WPEN - PHILADELPHIA, PA.
950 KC - 5 KW - DA-N
PATTERN NO.-- 410612
SUPERSEDES NO.410228
REINSTATES NO. --
JOHN BARRON
RADIO ENGINEER WASHINGTON, D. C.
200
400
600
POWER LINE
WSPB
505 MV
WAA
440 MV
68∠87°
Proof
23 MV/M
93°
11 ∠ 60°
6 ∠ 82°
93°
158 ∠ 87°
RMS OF AVG. VALUES 360 MV/M
RMS OF MAX. VALUES 411 MV/M
THEORETICAL RMS 438 MV/M
MEASURED PATTERN - AVG. VALUES
MEASURED PATTERN - MAX VALUES
THEORETICAL PATTERN
39° 58' 28"
75° 15' 35"
EUGENE DIETZGEN CO.
NO. 340-P DIETZGEN GRAPH PAPER
POLAR CO-ORDINATE

WRMA

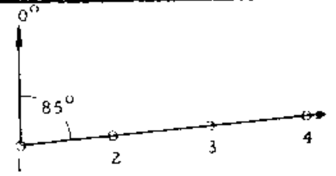
Proposed Night
(6-27-69ct)

Station WRMA
Montgomery, Alabama

1kw,DA-N,U
950 kc



TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

Tower	Electrical Height	Tower Orientation	Spacing	Phasing	Horizontal Field	Field Ratio
1	90	-	0.0	0.0		1.00
2	90	85	204.6	94.7		1.18
3	90	85	409.1	184.0		0.99
4	90	85	613.7	279.1		0.50
5						
6						
7						
8						
9						

Elevation Angle	Elevation RMS Field
0	178.9

STATION DATA

Call	WRMA
Frequency	950 kHz
Power	1
Time of Operation	U
Type of Operation	DA-N
Daytime Towers	1
Nighttime Towers	4
No. Radials per Tower	120
Length of Radials	90 - 260 ft.
Ground Screen Dimension	24 x 24
Lat.	32° 26' 23"
Long.	86° 15' 49"
[illegible]	671128
[illegible]	690305

Carl E. Smith
Consulting Radio Engineers
Cleveland, Ohio

FIG. 4.1

HORIZONTAL PLANE PATTERN

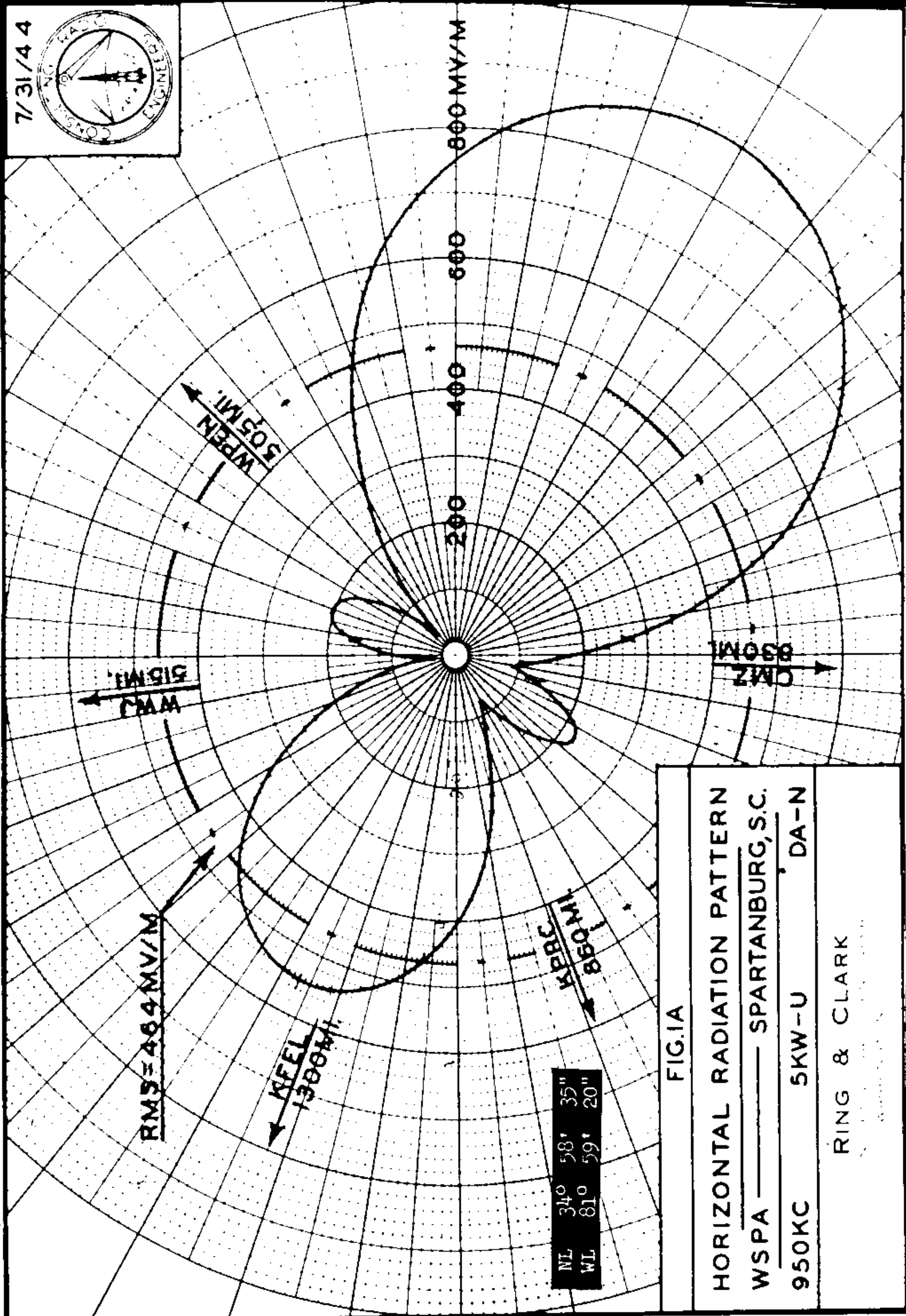
WRMA Broadcasting Company
Montgomery, Alabama
950 kHz 1 kw DA-N U

FCC File No.BP-18336
Accepted 6-19-69

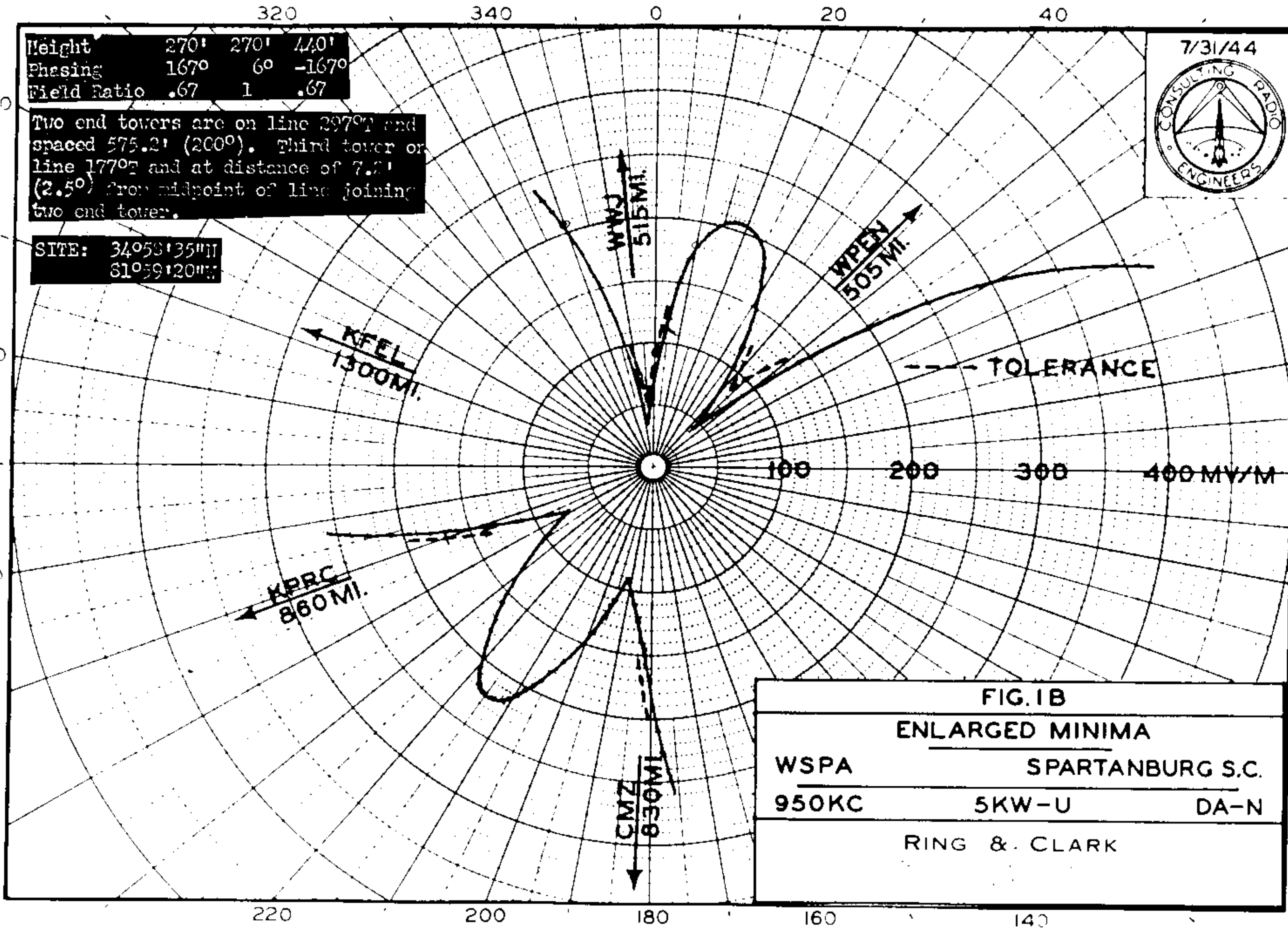
Station WRMA
Montgomery, Alabama

950 kc

PROPOSED NIGHT Station WSPA 5kw, DA-N,U
Spartanburg, South Carolina 950 KC



Spartanburg, South Carolina



WSF

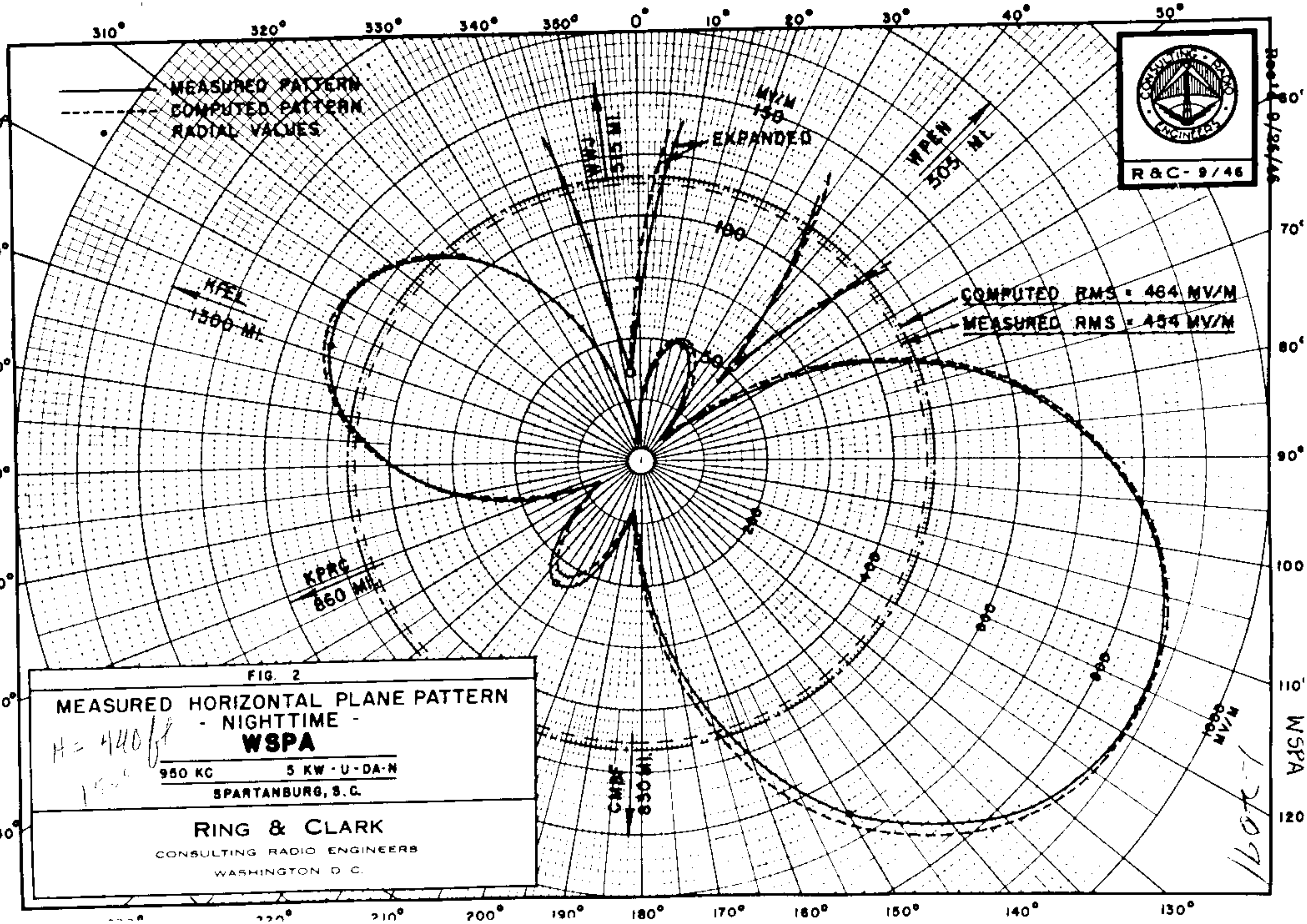


FIG. 2

MEASURED HORIZONTAL PLANE PATTERN
- NIGHTTIME -
WSPA

H = 440 ft

950 KC 5 KW - U - DA - N

SPARTANBURG, S. C.

RING & CLARK
CONSULTING RADIO ENGINEERS
WASHINGTON D. C.

MEASURED NON-DA Station WSPA 5kw, DA-N,U NDWSP
Spartanburg, South Carolina 950 KC

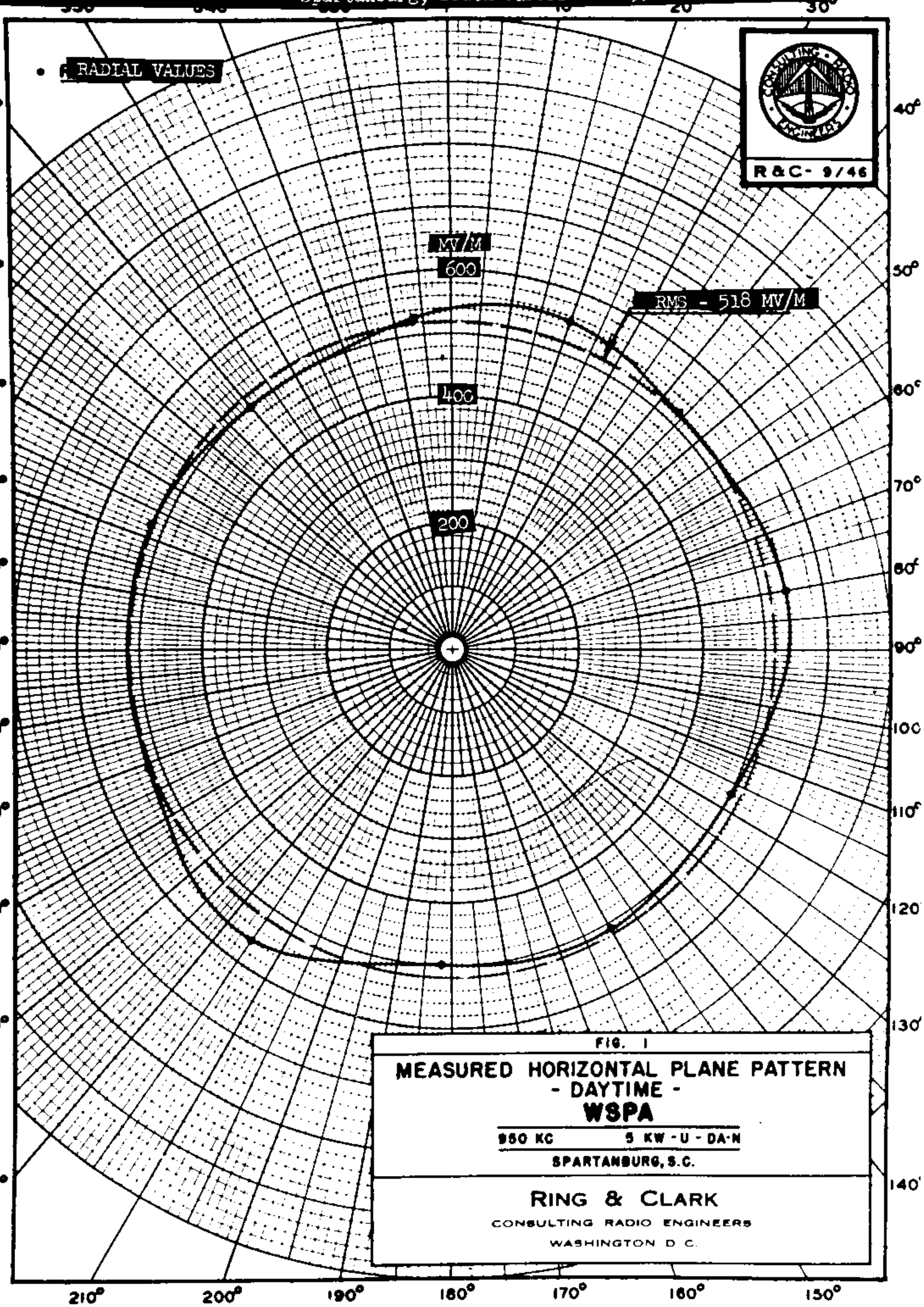


FIG. I

MEASURED HORIZONTAL PLANE PATTERN
- DAYTIME -
WSPA

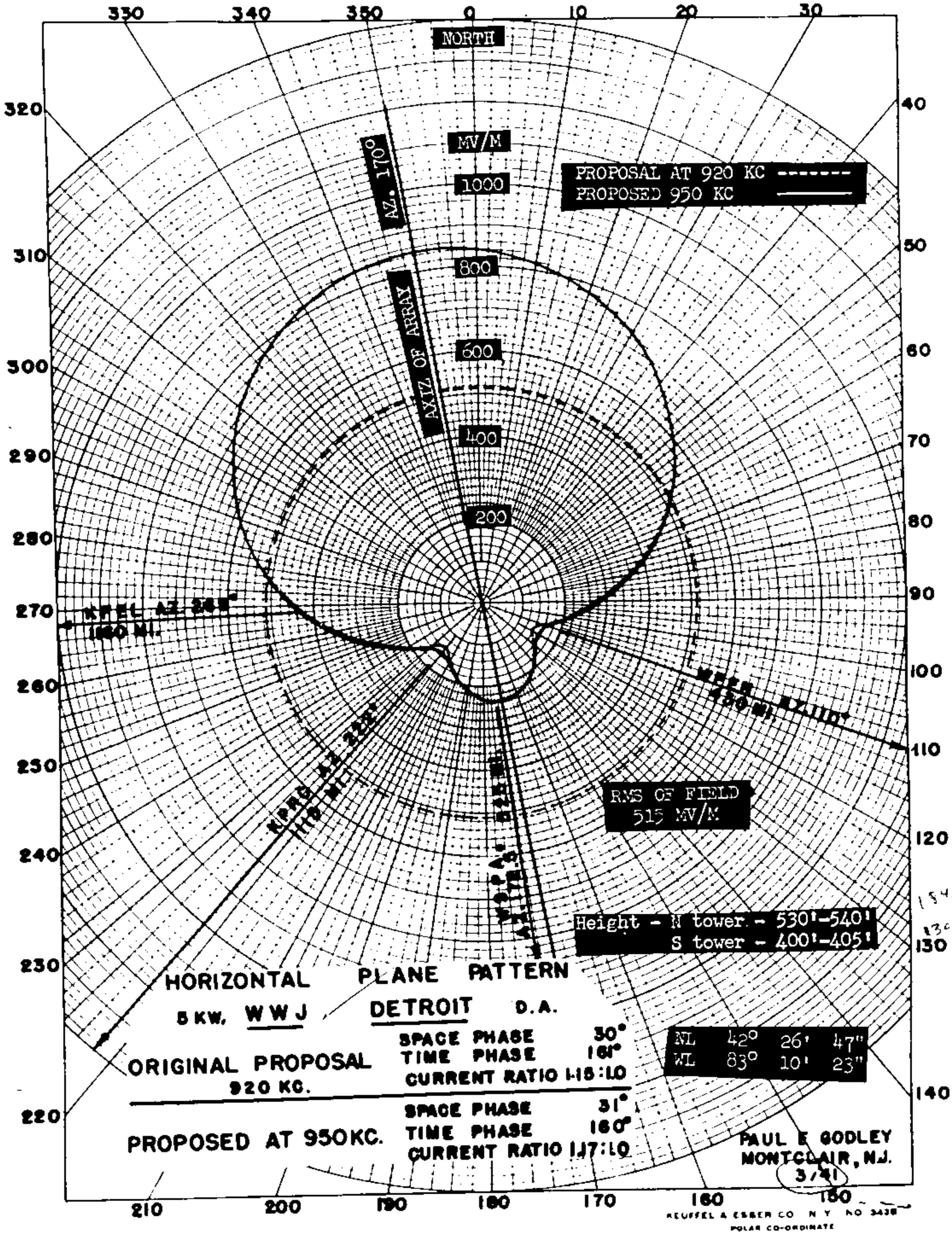
950 KC 5 KW - U - DA-N

SPARTANBURG, S.C.

RING & CLARK
CONSULTING RADIO ENGINEERS
WASHINGTON D.C.

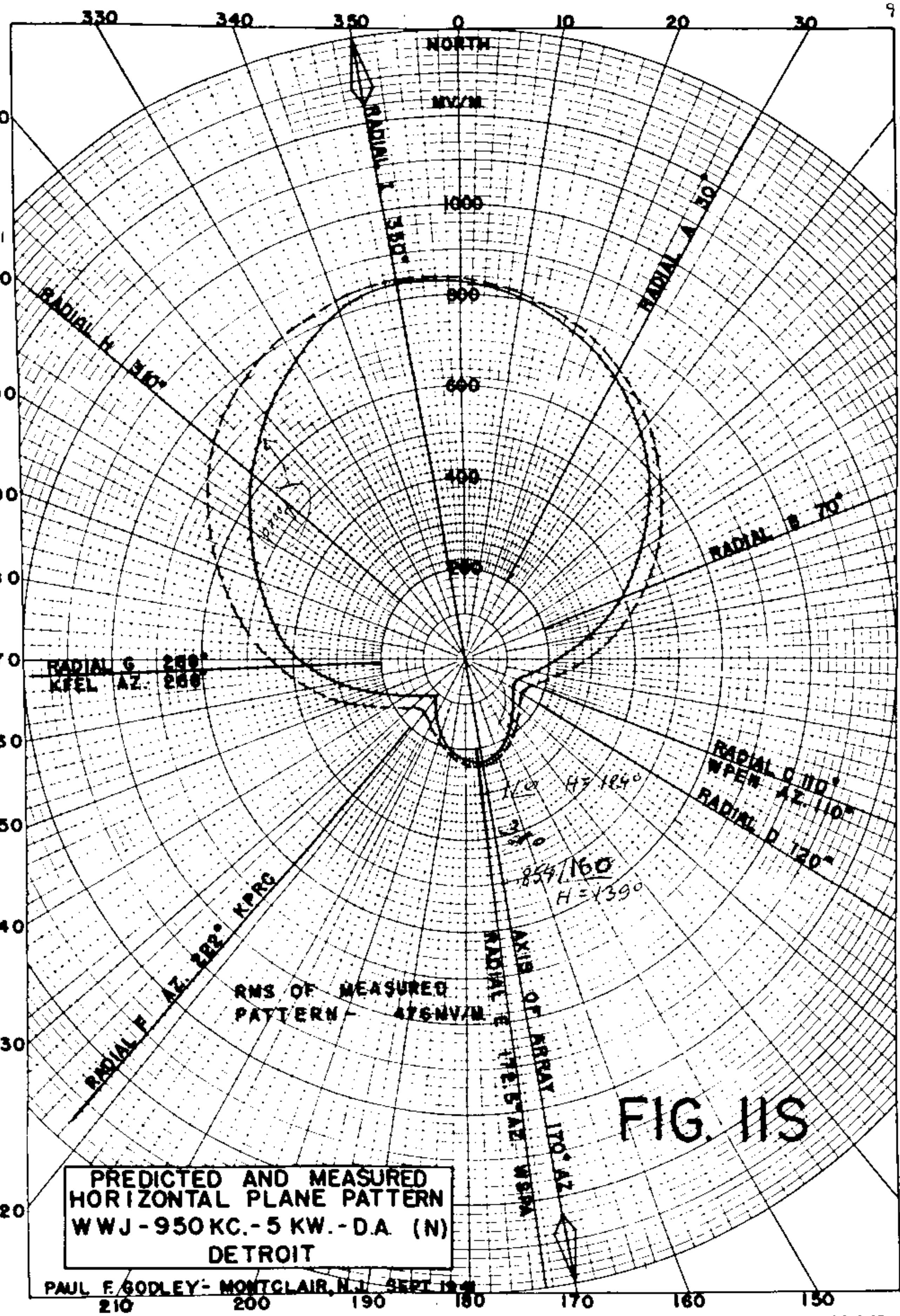
W WJ

PROPOSED NIGHT — Station WWJ, Detroit, Michigan — 5kw, DA-N,U — 950 KC



L-1047 WWJ
950

proof superseded (see 2/11/57) see also p. 7 night 3/41 for added info.



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

$E = 1095\sqrt{\cancel{1.730 + 1.708\cos(}31\cos A\cos V + 160)} \cdot f(V)$

av. H = 163° ~~H = 0 at 170° T~~

WWJ
950

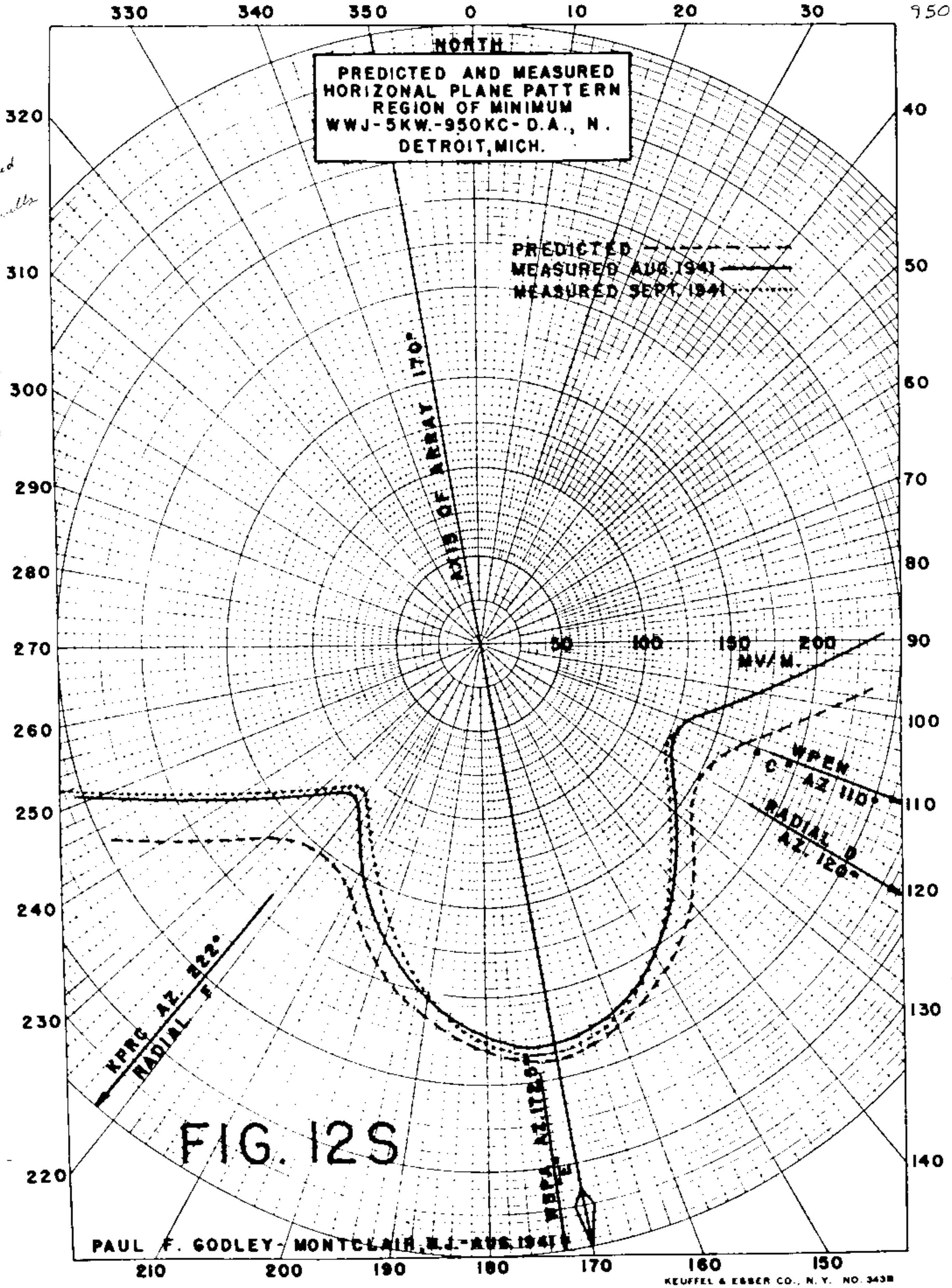
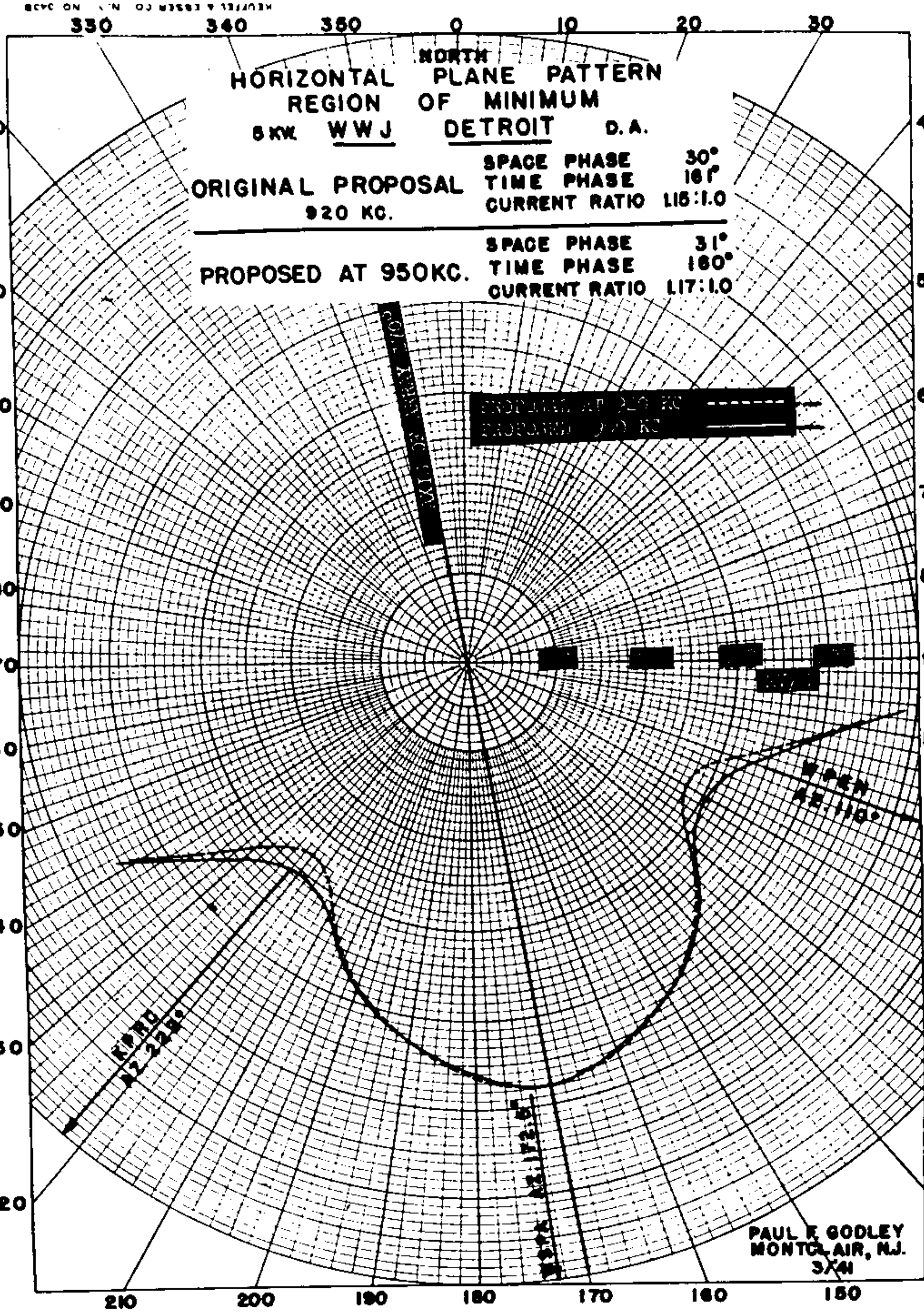


FIG. 12S

PROPOSED NIGHT NULLS Station WWJ 5kw, DA-N,U
Detroit, Michigan 950 KC

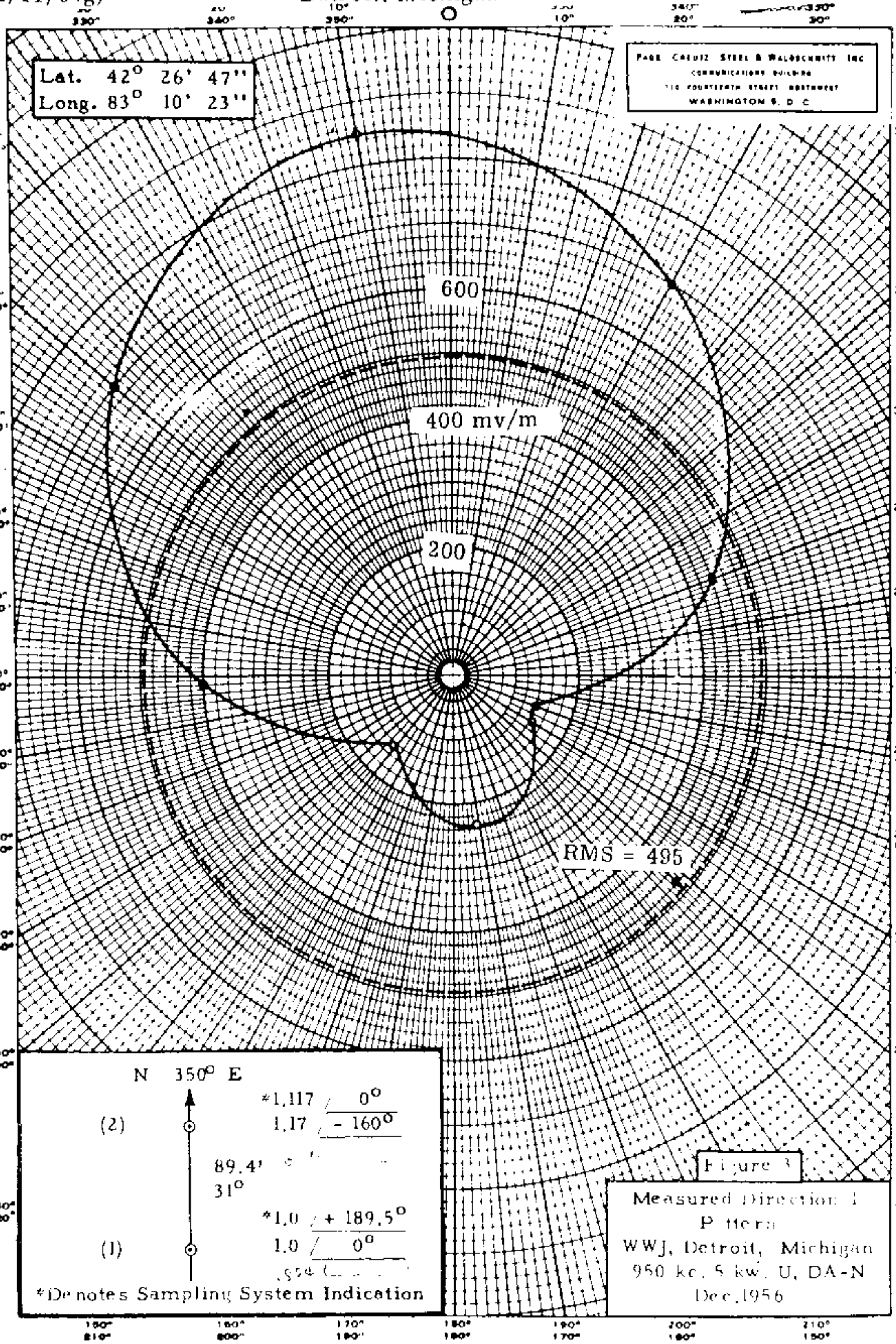


WWJ

MEASURED NIGHT
(2/11/57g)

Station WWJ
Detroit, Michigan

5KW, DA-N,U
950 KC



FCC File No. BL-6499
Accepted 1/29/57

WWJ
Detroit, Michigan

950 KC

WWJ

MEASURED NON-DIRECTIONAL Station WWJ 5KW,DA-N,U
(2/11/57g) Detroit, Michigan 950 KC

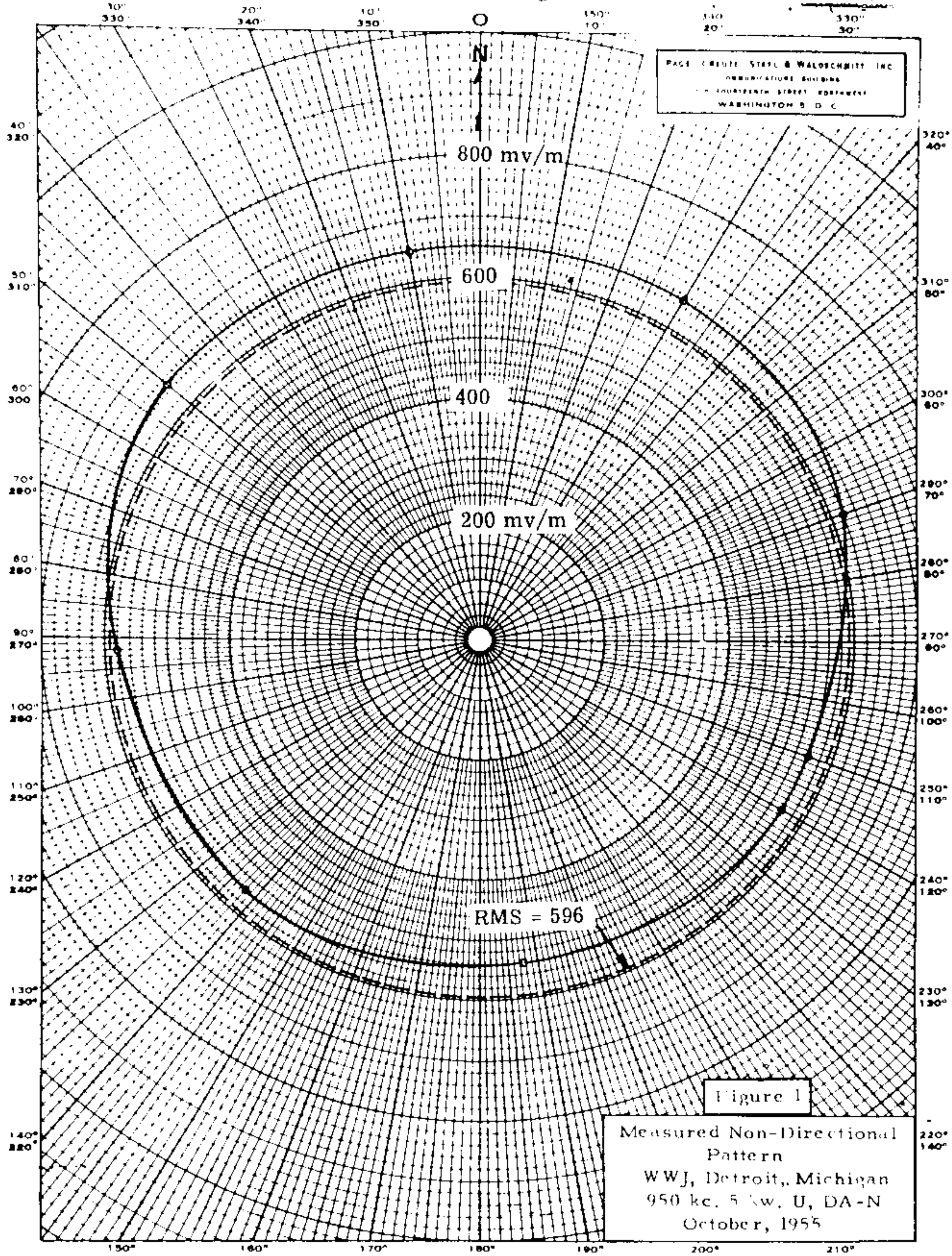


Figure 1

Measured Non-Directional Pattern
WWJ, Detroit, Michigan
950 kc. 5 kw. U, DA-N
October, 1955

FCC File No. BL-6499
Accepted 1/29/57

WWJ
Detroit, Michigan 950 KC

WXLW

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station	: WXLW	Main Studio:	Speedway, Indiana
Frequency	: 950 KHz	Power	: 0.5 KW Night 5 KW Day
Notification	: 1780	Date	: Sept. 28, 1979 Class: III

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

DAYTIME				NIGHTTIME			
North Latitude:	39°	51'	05"	North Latitude:	39°	50'	08"
West Longitude:	86°	14'	39"	West Longitude:	86°	10'	56"

DAYTIME ANTENNA CHARACTERISTICS

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

TOWER	:	S(#1)	C(#2)	N(#3)			
HEIGHT ABOVE INSULATORS	:	240'	240'	240'(83.5°)			
DAY PHASING	:	-107.6	+1.25	+107.6°			
DAY FIELD RATIO	:	0.5	0.97	0.5			

SPACING AND ORIENTATION : Towers in a row are spaced 259' (90°) on a line bearing 0° true.

GROUND SYSTEM : 120 - 259 equally spaced copper radials plus 120 - 50' interspaced radials about each tower. Radials are shortened and bonded to a transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	RSS	STANDARD RMS
Day	438 mv/m		
Night	123.75 mv/m	111.813 mv/m	130.1 mv/m

NIGHTTIME ANTENNA CHARACTERISTICS

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

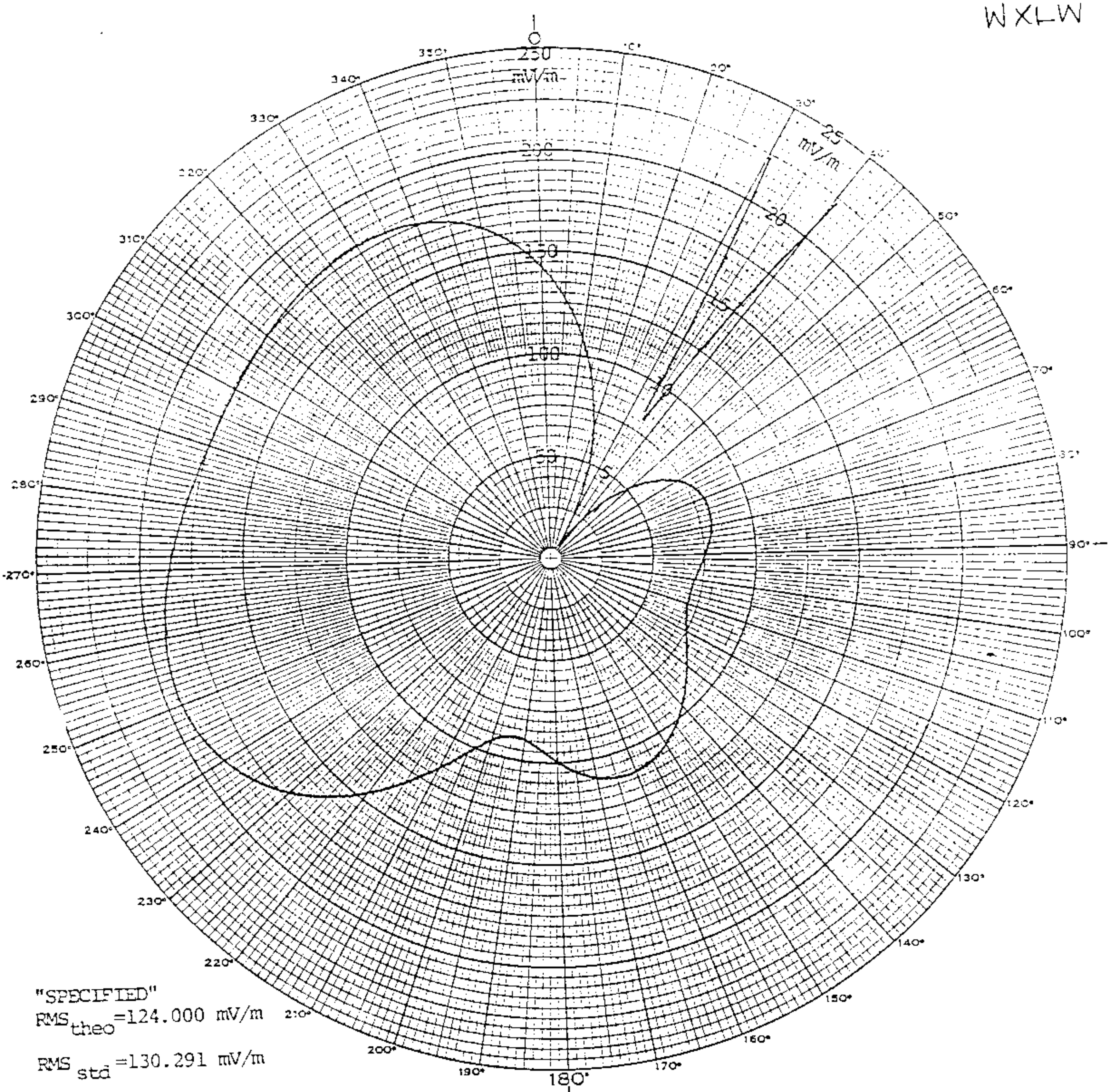
TOWER	:	C(#1)	SE(#2)	W(#3)			
HEIGHT ABOVE INSULATORS	:	489'	489'	489'	(170°)		
NIGHT PHASING	:	0°	+83°	-90°			
NIGHT FIELD RATIO:		1.0	0.8	1.5			

SPACING AND ORIENTATION : With the center (#1) towr as reference, the SE(#2) tower is spaced 431.58' (150°) in length on a line bearing 134.75° true, and the W(#3) tower is spaced 316.5' (110°) in length on a line bearing 270° true.

GROUND SYSTEM: 120 - 259' equally spaced copper radials about each tower. Radials are shortened and bonded to transverse straps along intesections between towers.

Note: Please retain the Daytime directional antenna radiation pattern notified for Station WXLW in United States Change List Number 1279 dated July 31, 1968 and attach to this Revised Description Sheet and Nighttime pattern. This notification concerns only the addition of Nighttime operation to the station with Daytime operation continued as previously notified.

WXLW



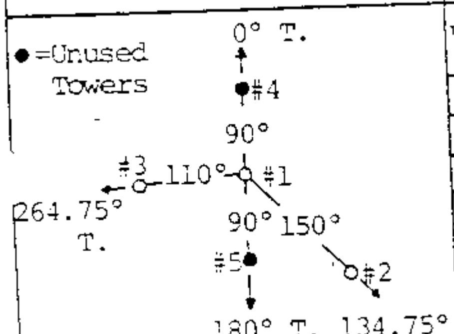
"SPECIFIED"

RMS_{theo}=124.000 mV/m

RMS_{std}=130.291 mV/m

RSS_{theo}=111.089 mV/m

TOWER PLACEMENT SKETCH



PATTERN PARAMETERS

TOWER No.	ELECTRICAL HEIGHT G°	SPACING S°	PHASING ψ°	FIELD RATIO F
1	170°		0°	1.0
2	170°		83°	0.8
3	170°		-85°	1.5
4				
5				
6				

DAYTIME OPERATION ☐ NIGHTTIME OPERATION ☒

FIGURE 13

PROPOSED
NIGHTTIME
HORIZONTAL
PLANE
STANDARD
PATTERN

SPEEDWAY, INDIANA

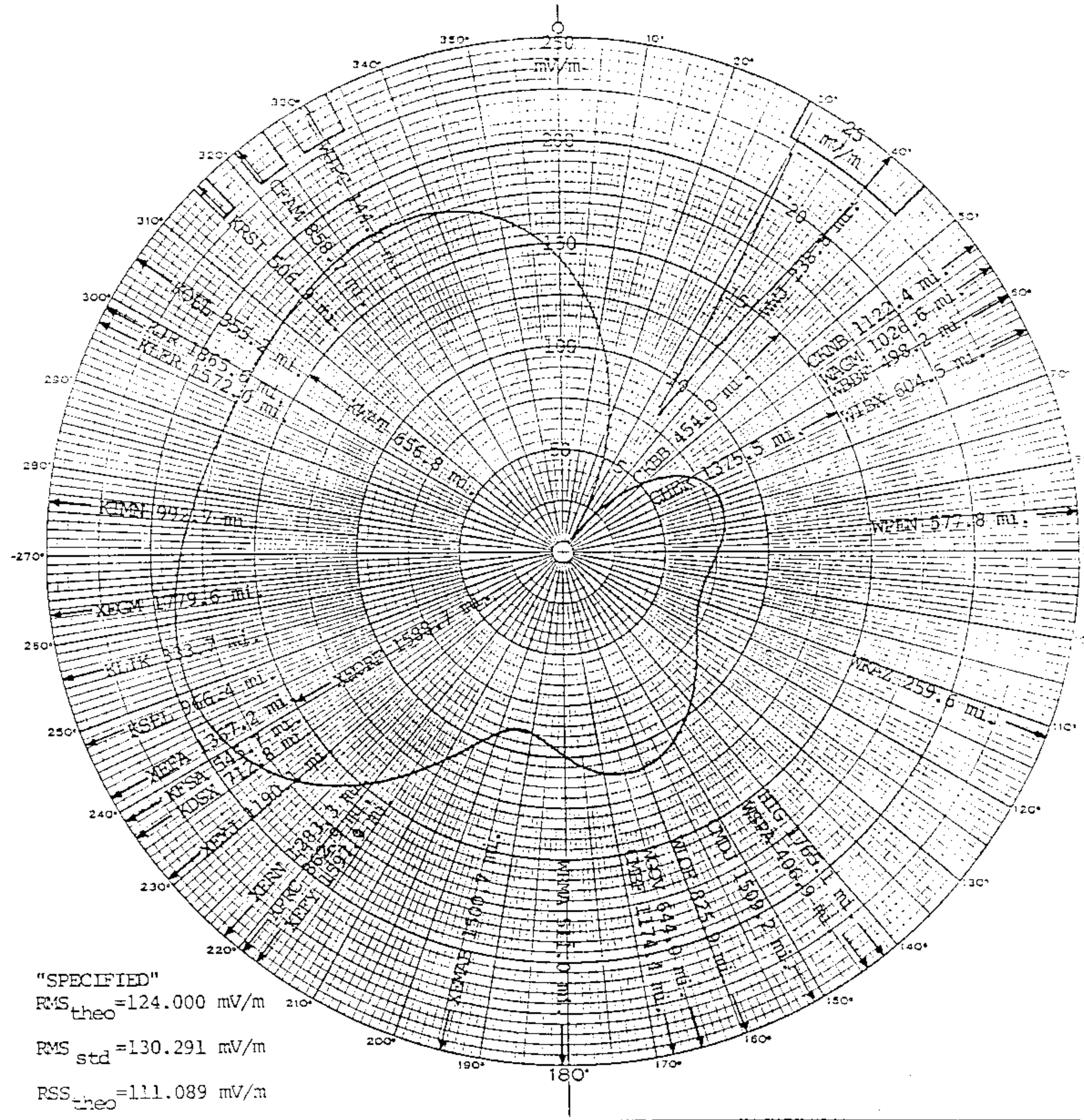
$\theta°$ = 0

STATION DATA

CALL	WXLW
FREQ	950 kHz
POWER	0.5 kW
TYPE	DA-2
TIME	UNLIMITED
LAT.	N 39°50'08"
LONG.	W 86°10'56"

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

WXLW



"SPECIFIED"

RMS_{theo}=124.000 mV/m

RMS_{std}=130.291 mV/m

RSS_{theo}=111.089 mV/m

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS	FIGURE 13A	STATION DATA
● =Unused Towers; 0° T.; #4; 90°; #3; 110°; #1; 264.75° T.; 90°; 150°; #5; #2	(see table below)	PROPOSED NIGHTTIME HORIZONTAL PLANE STANDARD PATTERN SPEEDWAY, INDIANA	CALL WXLW FREQ 950 kHz POWER 0.5 kW TYPE DA-2 TIME UNLIMITED LAT. N 39°50'08" LONG. W 86°10'56" E. HAROLD MUNN, JR. & ASSOCIATES, INC.

TOWER No.	ELECTRICAL HEIGHT G°	SPACING S°	PHASING ψ°	FIELD RATIO F
1	170°		0°	1.0
2	170°		83°	0.8
3	170°		-85°	1.5
4				
5				
6				

WXLW
5kw,DA-D,D
950 kc

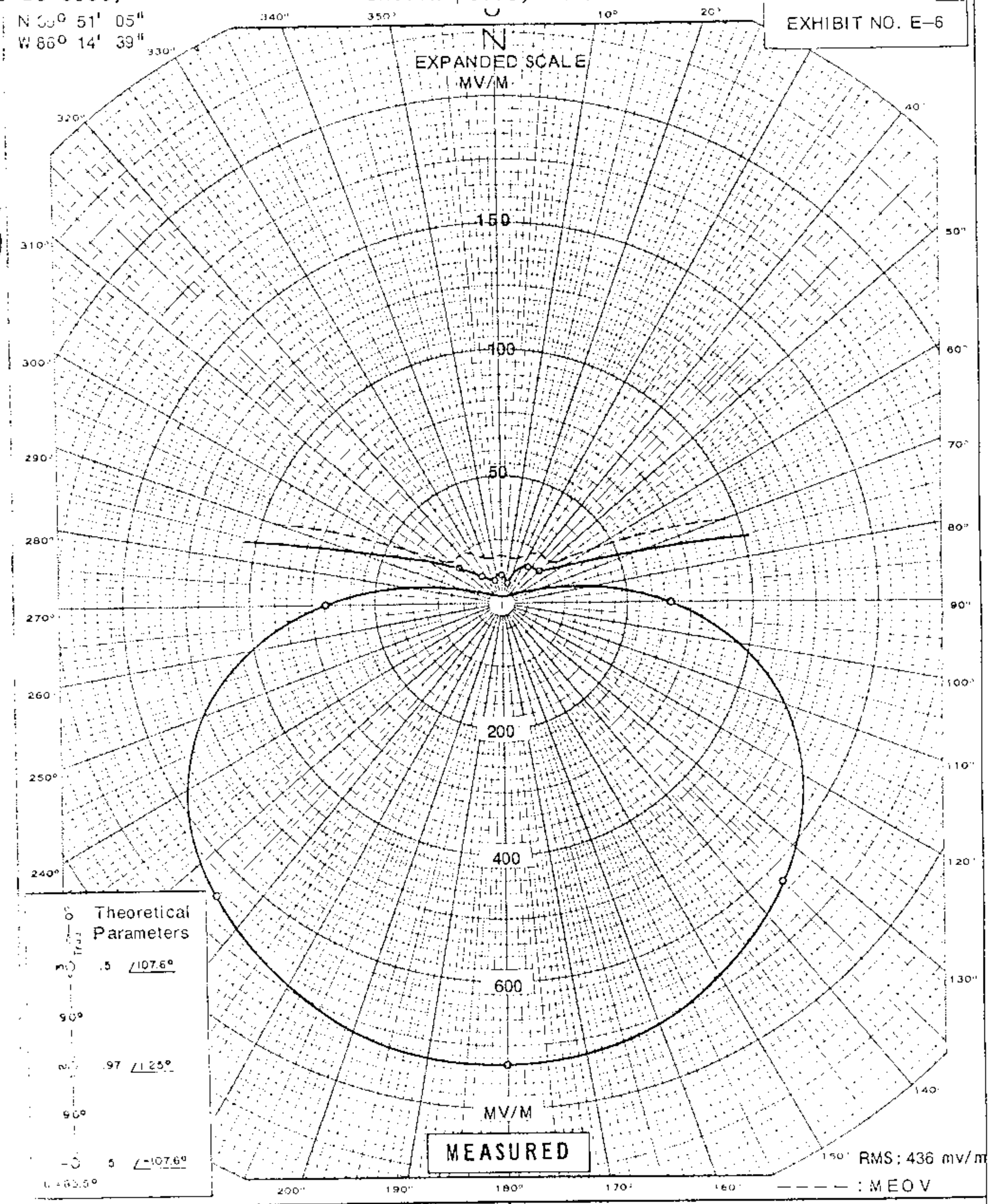
Measured Day
(8-28-68ct)

Station WXLW
Indianapolis, Indiana

EXHIBIT NO. E-6

N 39° 51' 05"
W 86° 14' 39"

12-9-68
BL-12070
Granted
license
covering
changes



COMMERCIAL RADIO EQUIPMENT CO.
Consulting Radio Engineers
Washington, D.C.

JUNE 1968

DAYTIME HORIZONTAL RADIATION PATTERN
RADIO STATION WXLW
INDIANAPOLIS, INDIANA
950 kHz 5 KW, DA-D

FCC File No.BL-12070
Accepted 8-21-68

Station WXLW
Indianapolis, Indiana

950 kc

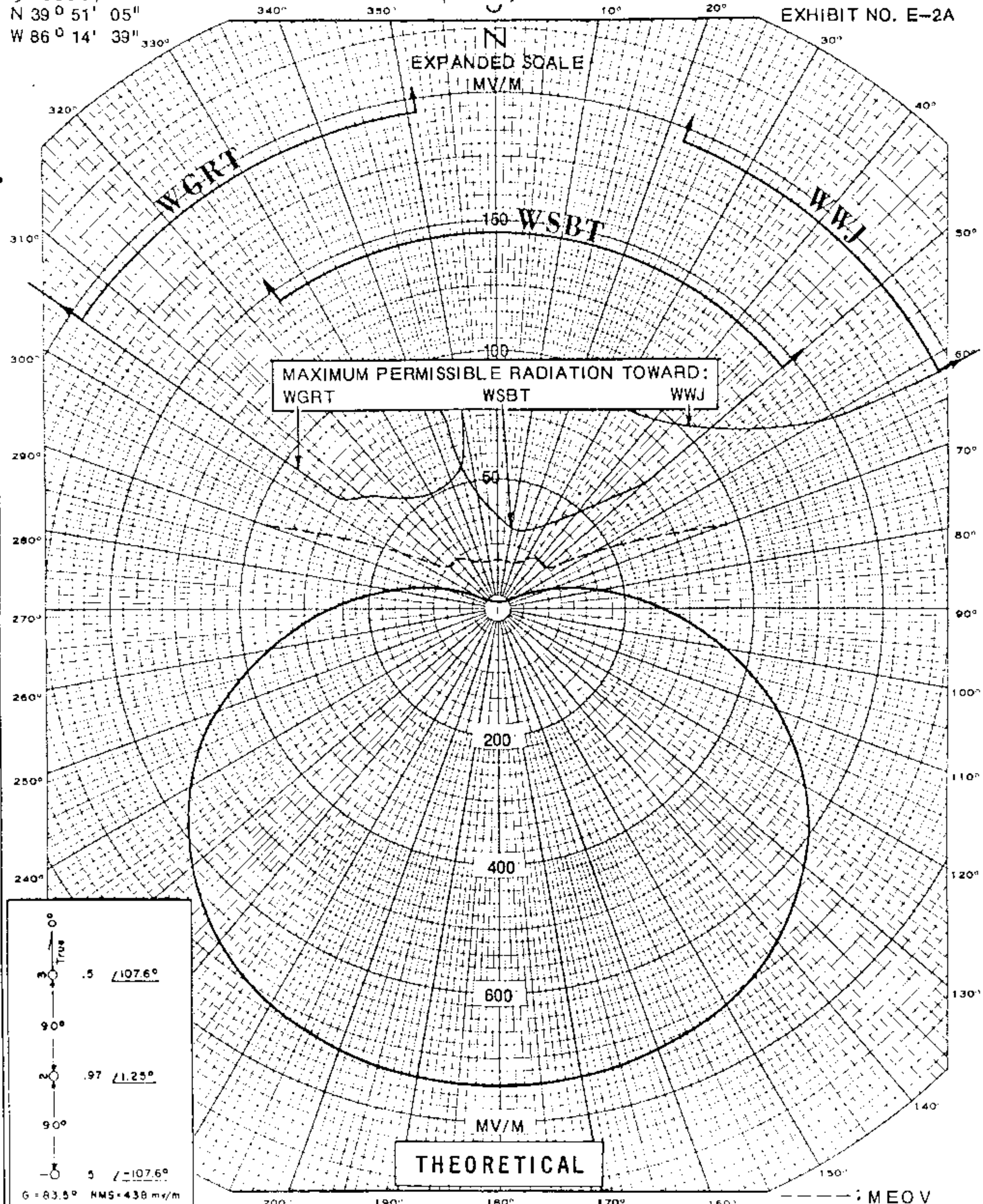
WXLW

Proposed Day
(7-29-68ct)

Station WXLW
Indianapolis, Indiana

5kw,DA-D,D
950 kc
EXHIBIT NO. E-2A

7-25-68
GRANTED
CP



COMMERCIAL RADIO EQUIPMENT CO.
Consulting Radio Engineers
Washington, D.C.

DAYTIME HORIZONTAL RADIATION PATTERN
RADIO STATION WXLW
INDIANAPOLIS, INDIANA
950 kHz 5 KW, DA-D

6 68

FCC File No.BP-18247
Accepted 7-15-68

Station WXLW
Indianapolis, Indiana

950 kc

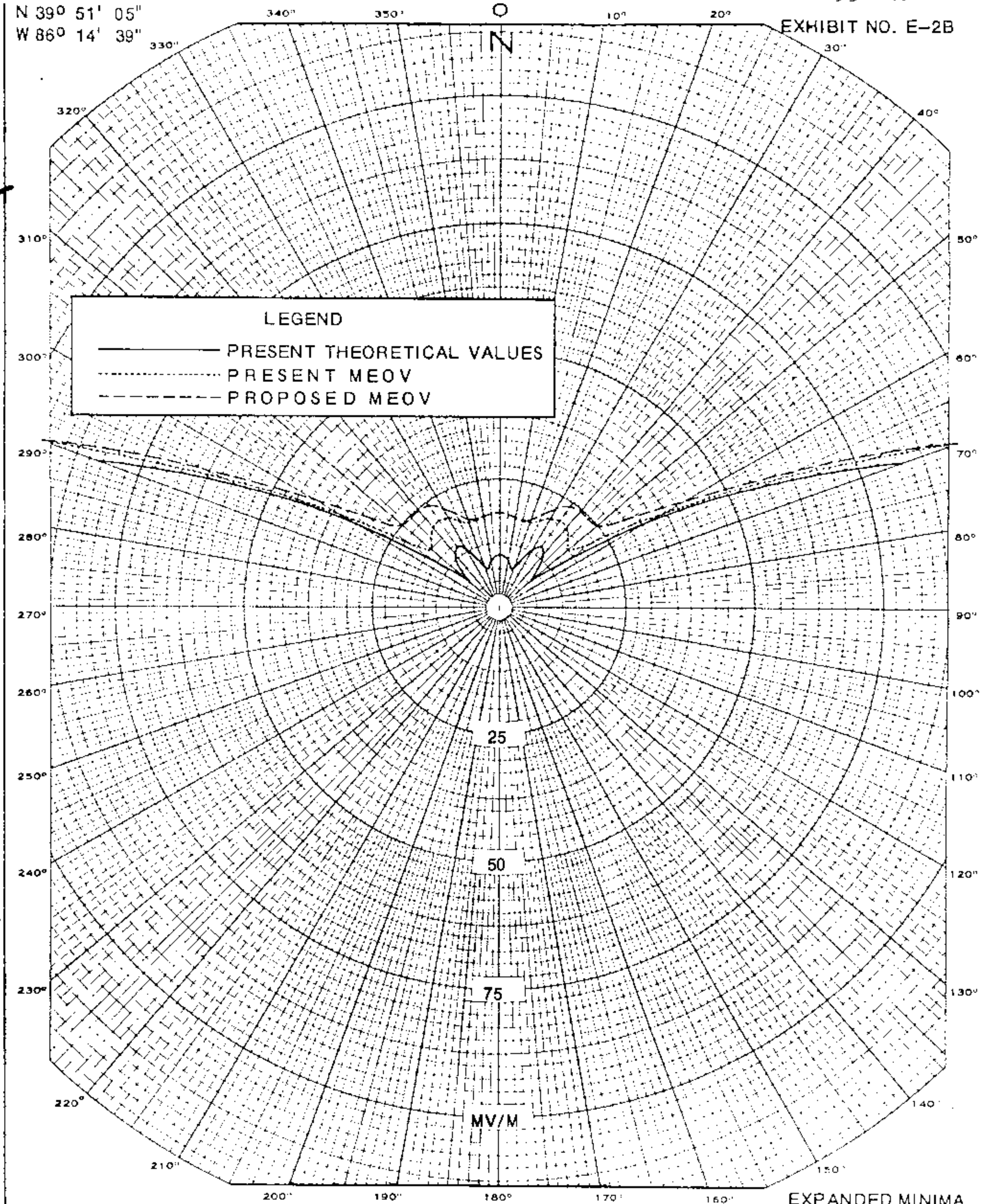
WXLW

Proposed Day Nulls
(7-29-68ct)

Station WXLW
Indianapolis, Indiana

5kw,DA-D,D
950 kc

7-25-68
GRANTED
CP



COMMERCIAL RADIO EQUIPMENT CO.
Consulting Radio Engineers
Washington, D.C.

DAYTIME HORIZONTAL RADIATION PATTERN
RADIO STATION WXLW
INDIANAPOLIS, INDIANA
950 kHz 5 KW, DA–D

6 68

FCC File No.BP-18247
Accepted 7-15-68

Station WXLW
Indianapolis, Indiana

950 kc

WXLWW

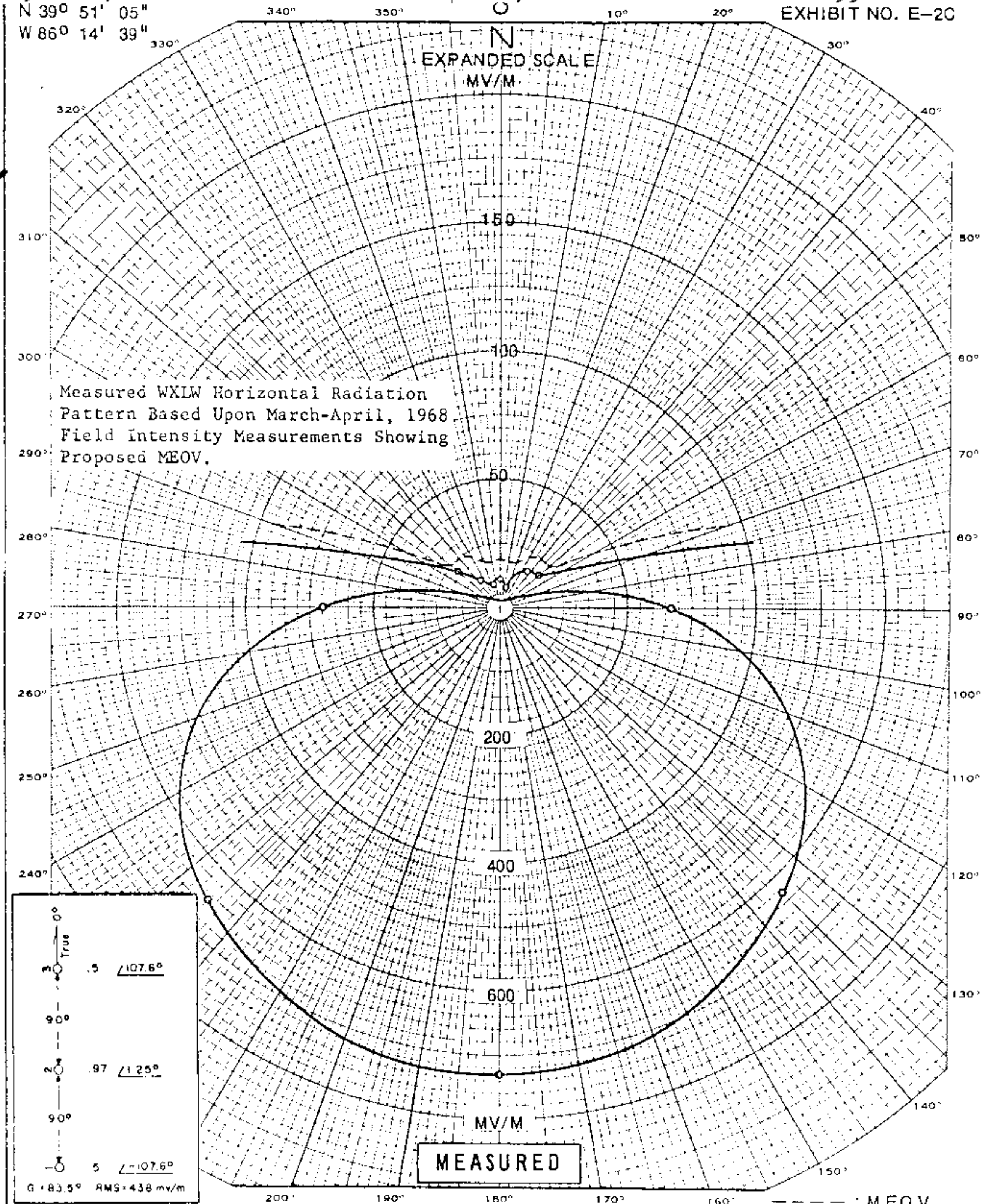
Measured Day
(7-29-68ct)

Station WXLW
Indianapolis, Indiana

5kw-DA-D,D
950 kc
EXHIBIT NO. E-2C

N 39° 51' 05"
W 86° 14' 39"

7-25-68
GRANTED
CP



COMMERCIAL RADIO EQUIPMENT CO.
Consulting Radio Engineers
Washington, D.C.

DAYTIME HORIZONTAL RADIATION PATTERN
RADIO STATION WXLW
INDIANAPOLIS, INDIANA
950 kHz 5 KW, DA-D

6 68

FCC File No.BP-18247
Accepted 7-15-68

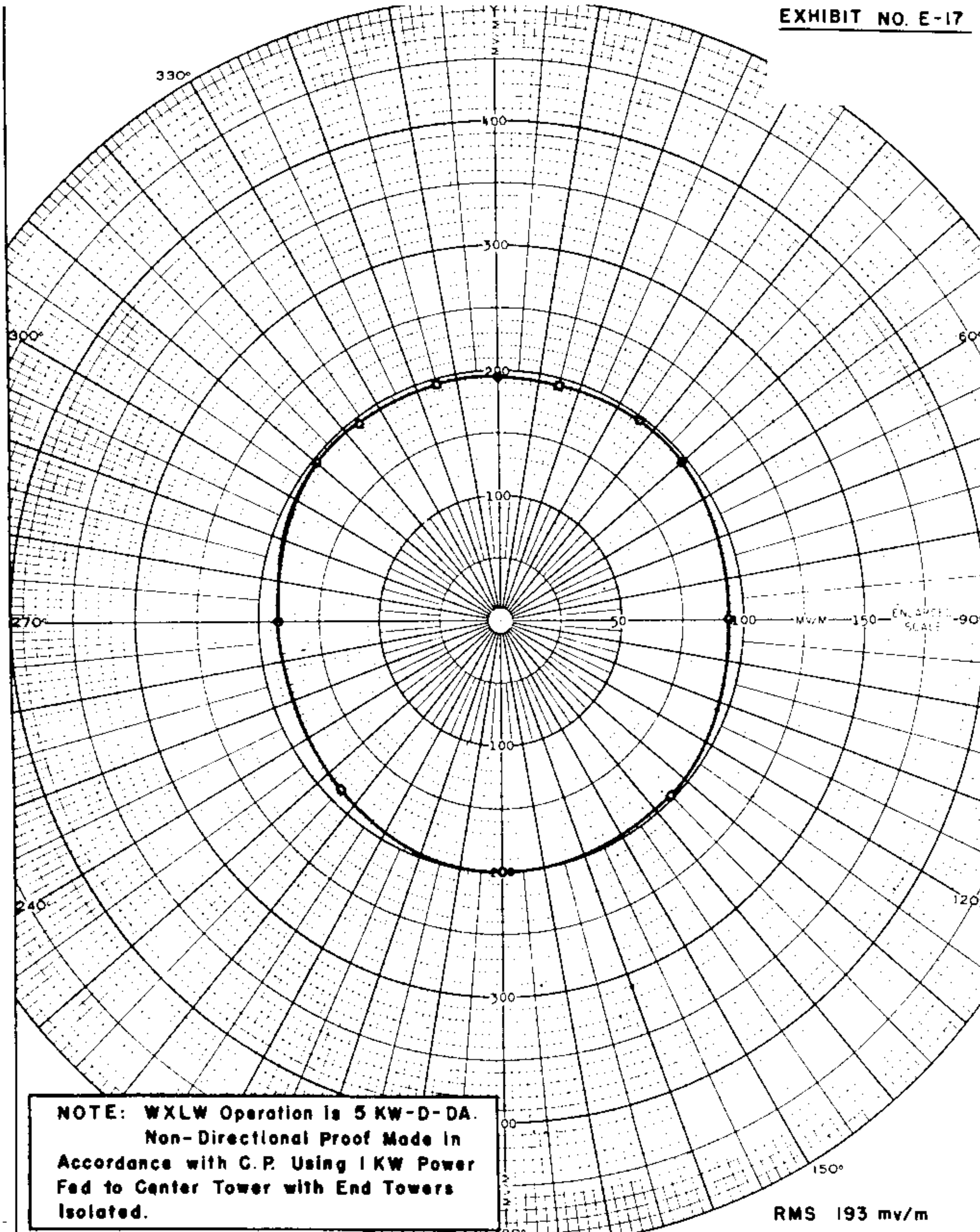
Station WXLW
Indianapolis, Indiana

950 kc

MEASURED NON-DIRECTIONAL STATION WXLW 5KW
(4/11/55G) INDIANAPOLIS, INDIANA DA-D, U 950 KC

10

EXHIBIT NO. E-17



NOTE: WXLW Operation is 5 KW-D-DA. Non-Directional Proof Made in Accordance with C.P. Using 1 KW Power Fed to Center Tower with End Towers Isolated.

RMS 193 mv/m

COMMERCIAL RADIO EQUIPMENT CO.

RADIO ENGINEERING CONSULTANTS

KANSAS CITY WASHINGTON, D.C.

PATTERN **Measured 1 KW Non-DA**
FOR **WXLW, Indianapolis, Indiana**
POWER **1 KW** FREQ **950 KC**
DATE **February 1955** BY **CCW**

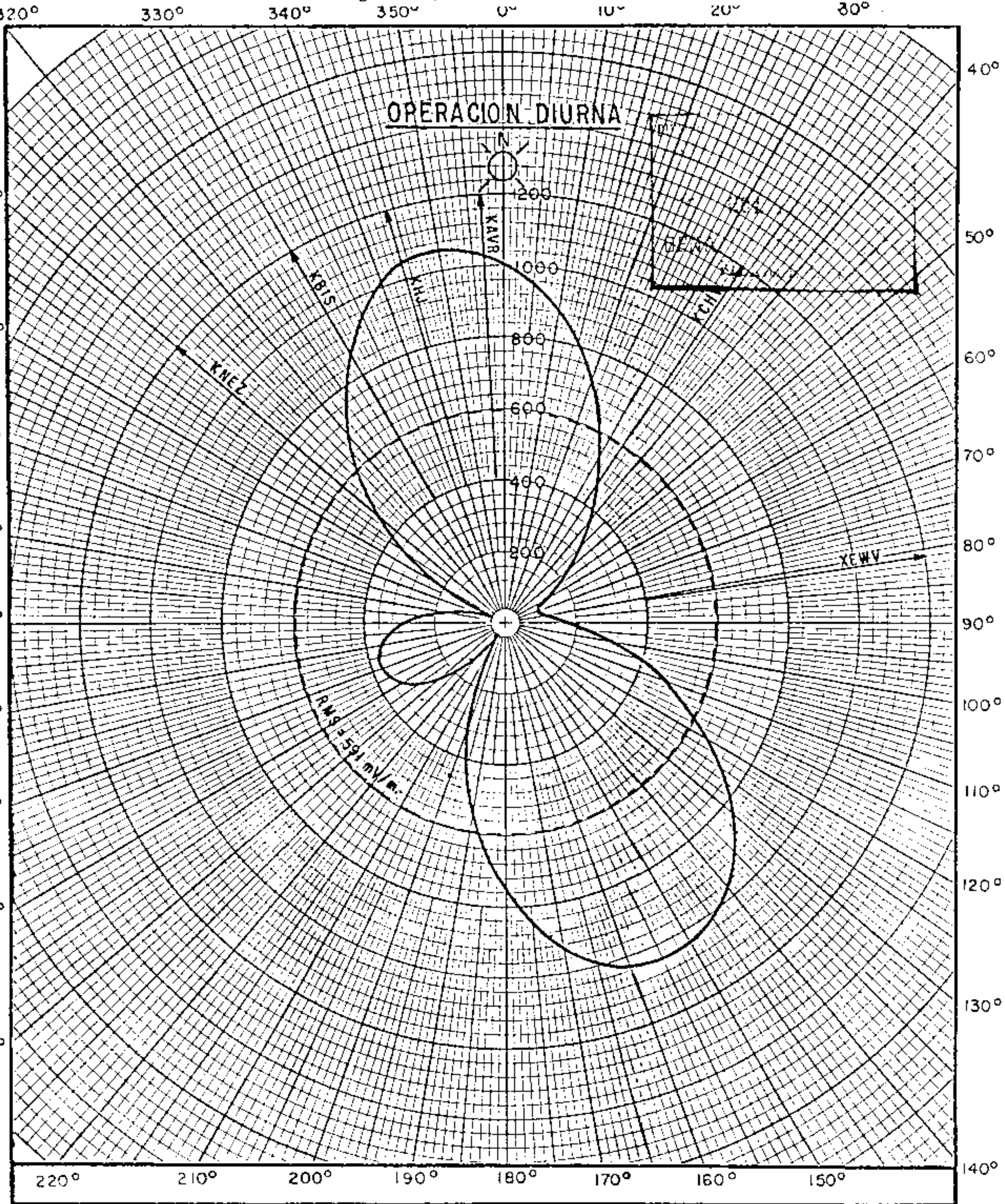
FILE NO. BP-5655 Accepted 3/21/55 FCC WXLW, Indianapolis, Inc. 950 KC

XEGM

Proposed Day
(7-29-70ct)

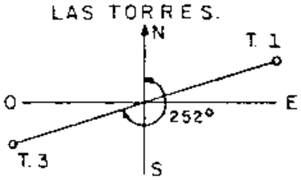
Station XEGM
Tijuana, B.C.

5kw,10kw-LS,DA-2,U,ClassIII
950 kc



— PATRON DE RADIACION HORIZONTAL —

ESQUEMA DE UBICACION DE LAS TORRES.



Radiodifusora.

XEGM

TIJUANA, B.C.

Frecuencia.

950 KHz.

Diseño.

Ing. Carlos A. Caballero
Ced. Prof. 26855

Dibujo:

J. C. J.

XEGM

Description Sheet (7-29-70ct) | Station XEGM Tijuana, B.C. | 5kw,10kw-LS,DA-2,U,ClassIII 950 kc

DIRECTIONAL ANTENNA DESCRIPTION SHEET

(ISSUED: JULY 8, 1970)

Station: XEGM | Main Studio: Tijuana, B. C.

Frequency: 950 kHz | Power: 5 Kw Night 10 Kw Day

Notification List No. | Date: | Class: III

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM: North Latitude: 32° 25' 30"
West Longitude: 117° 05' 20"

ANTENNA CHARACTERISTICS

Authorized for Daytime and Nighttime operation. (DA-2)
Number of elements: 3
Type of elements: Series-excited, uniform cross-section, guyed, vertical steel towers.

TOWER:	SW(#3)	C(#2)	NE(#1)	
HEIGHT ABOVE INSULATORS:	259'	259'	259'	(90°)
NIGHT PHASING:	---	+88°	0°	
NIGHT FIELD RATIO:	---	1	1	
DAY PHASING:	+ 26°	---	0°	
DAY FIELD RATIO:	1	---	1	

SPACING AND ORIENTATION: From reference tower #1, element #2 is spaced 100° and element #3 is spaced 195° on a line bearing 252° true.

GROUND SYSTEM: 120-259' equally spaced copper radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

Predicted effective Night Field: 425 mv/m at rated power.

Predicted effective Day Field: *

---

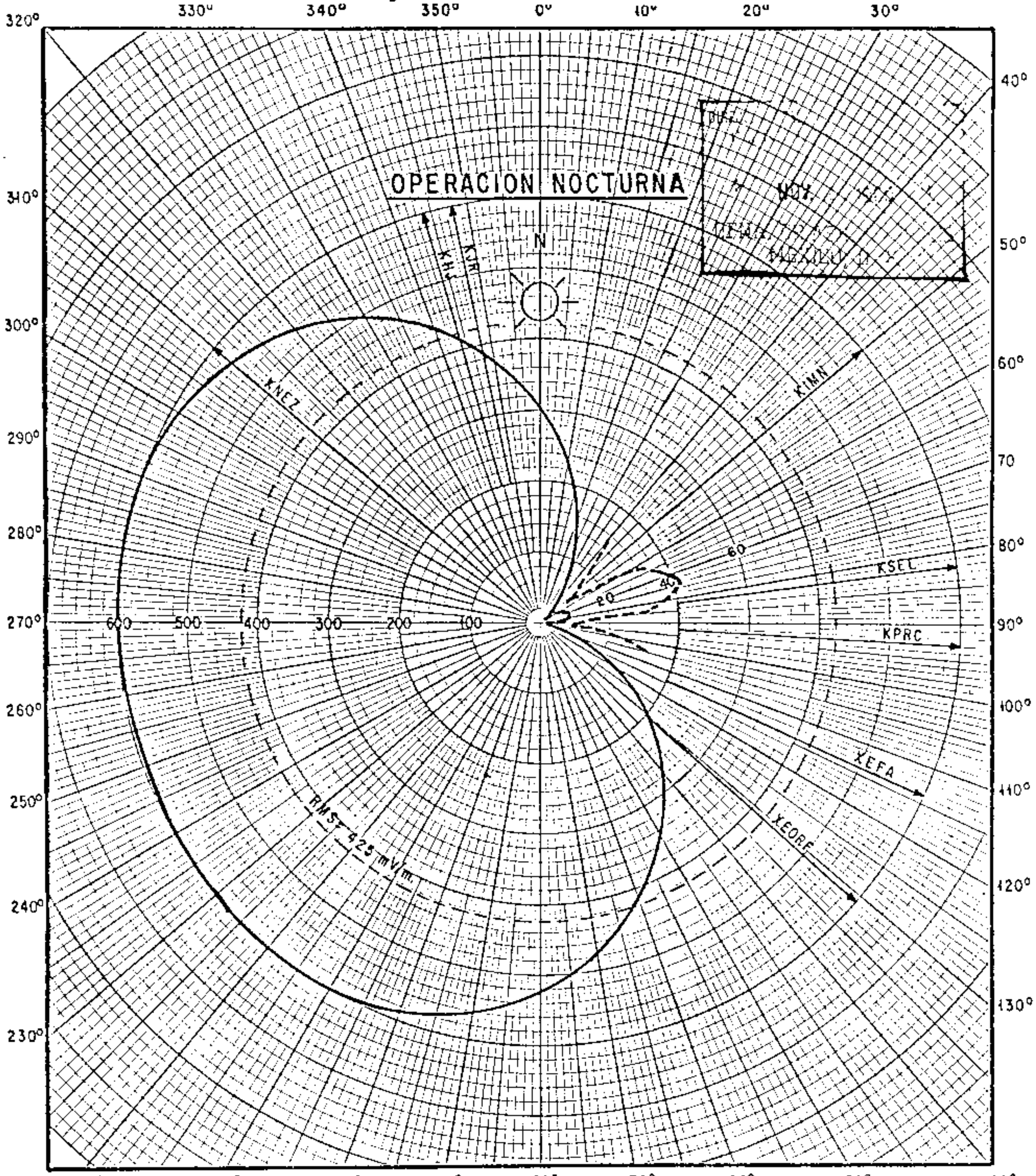
* Note: The attached description sheet shows an rms predicted effective day field of 600 mv/m whereas the daytime directional antenna radiation pattern shows an rms predicted effective field of 591 mv/m.

XEGM

Proposed Night (7-29-70ct)

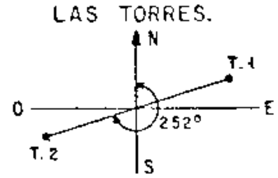
Station XEGM
Tijuana, B.C.

5kw,10kw-LS,DA-2,U,ClassIII
950 kc



— PATRON DE RADIACION HORIZONTAL —

ESQUEMA DE UBICACION DE LAS TORRES.



X E G M

TIJUANA, B. C.

Frecuencia: 950 KHz.

Diseñó: Ing. Carlos A. Caballero
Céd. Prof. 26855

Dibujó: A. D. J.

750 Kc
XEGM

STATION XEGM Principal Studio Tijuana, B. C.

Power 2.5 kw Frequency 950 kilocycles

Authorization:

Geographical Location: Latitude North 32° 30' 57"

Longitude West 117° - 01' - 14"

Antenna:

Authorized for day and night service.

2 insulated elements, with six guys at 3 heights.

Elements:	N W (1)	S E (2)	(3)	(4)
		(Bearings of each one)		
Height above the insulators	60 m.	60 m.		
Spacing	22.5°	22.5° (in degrees)		
Phasing	-90	+90 (in degrees)		
Relation of currents	K = 1	K = 1		

Ground System: 90 radials of 1/4 wavelength each tower
(description)

Bearings: 40° - 14' - 17" West of North of Tijuana
(degrees, minutes and seconds with relation to true North)

Theoretical Effective Field 175 mv/m (mile per Kw)

REVISED APPROVED:

L. Barajas G.

Translated by L. Conley
International Division
Engineering Department

XEGM
950

Estación XEGM   Estudio principal   Tijuana, B. C.

Potencia 2.5 k.w.   Frecuencia   950 kilociclos

Autorización:

Situación Geográfica: Latitud Norte   32° - 30' - 57"

Longitud Oeste 117° - 01' - 14"

Antena:

Autorizada para Servicio Diurno y Nocturno.

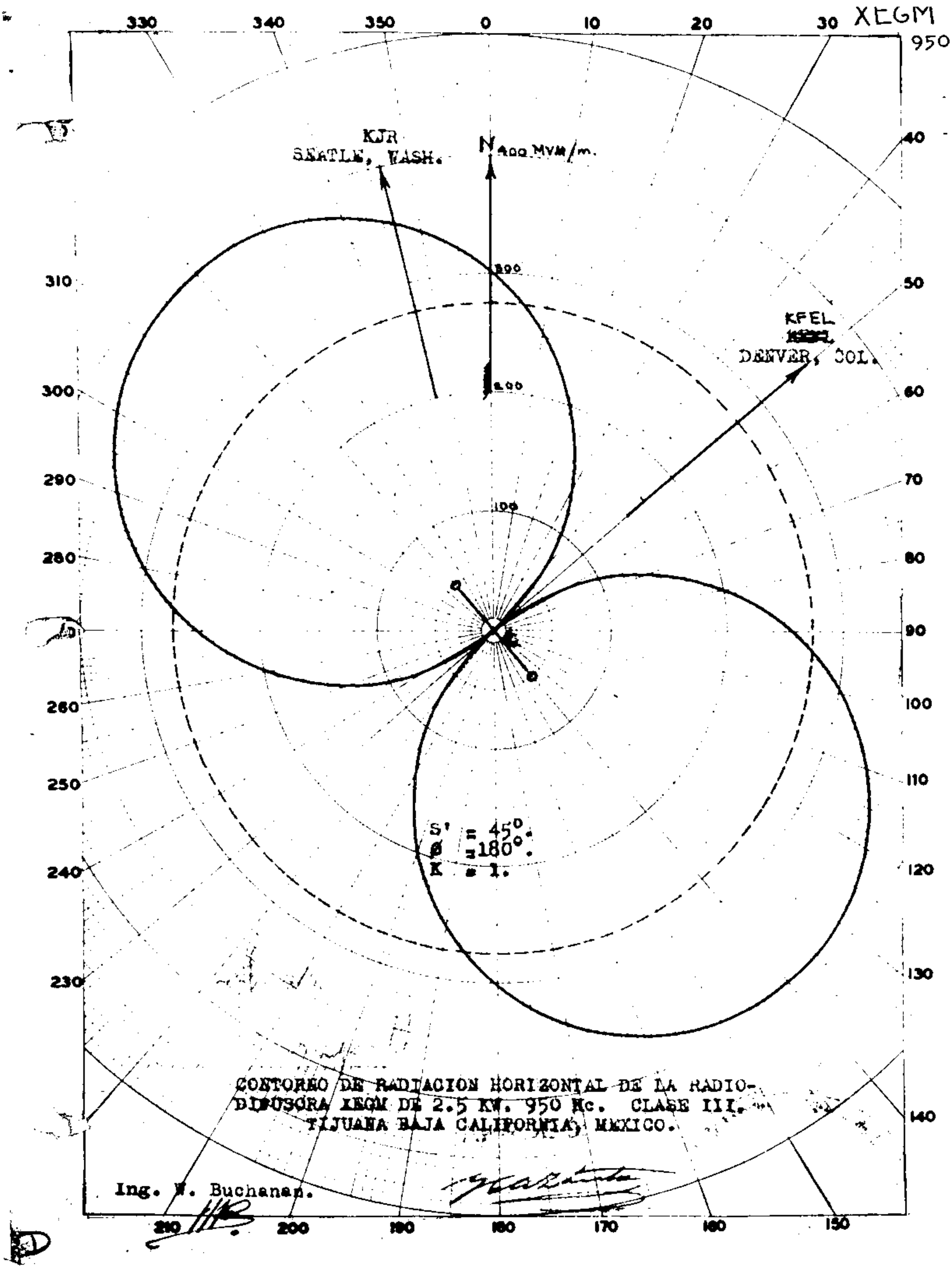
2 elementos aislados, con seis juegos de 3 retenidas.

Elementos:	N O (1)	S E (2)	(3)	(4)
	(orientación de cada uno)			
Altura sobre los aisladores	60 m.	60 m.		
Espaciado (en grados)	22.5°	22.5°		
Defasamiento (en grados)	-90	+90		
Relación de corrientes	K = 1	K = 1		

Sistema de tierra: 90 radiales de 1/4 de longitud de onda cada radiador.
(descripción)

Orientación: 40° - 14' - 17" Oeste del Norte de Tijuana
(grados, minutos y segundos con relación al Norte verdadero)

REVISO
Campo efectivo precalculado 175 mv/m (milla por Kw)



CONTORNO DE RADIACION HORIZONTAL DE LA RADIO-
DIFUSORA XEGM DE 2.5 KW. 950 Kc. CLASE III.
TIJUANA BAJA CALIFORNIA, MEXICO.

Ing. W. Buchanan.