

1550-1570

<u>Station</u>	<u>Main Studio</u>	<u>Freq</u>	<u>Power</u>	<u>Date</u>
CBE	Windsor, ON	1550	10 kW/DA-1	12/21/71
NEW	Calgary, AB	1550	10 kW/DA-1	1/29/60
KDAB	Arvada, CO	1550	10/50 kW/DA-N	11/29/65
KEDD	Dodge City, KS	1550	1 kW/DA-D	6/16/59
KGAR	Vancouver, WA	1550	10 kW/DA-N	6/16/76
KGMO	Cape Girardeau, MO	1550	5 kW/DA-D	1/29/60
KKHI	San Mateo, CA	1550	10 kW/DA-2	7/2/52
KKJO	St. Joseph, MO	1550	5 kW/DA-N	8/15/50
KOBY	Reno, NV	1550	10 kW/DA-D	11/26/75
KOKA	Shreveport, LA	1550	0.5/1 kW/DA-N	6/4/46
KQNB	West Fargo, ND	1550	5/10 kW/DA-N	11/2/79
KQWB	West Fargo, ND	1550	5 kW/DA-N	1/5/77
KXEX	Fresno, CA	1550	5 kW/DA-D	11/9/79
KXOJ	Sapulpa, OK	1550	0.5 kW/DA-D	7/7/60
WAAY	Huntsville, AL	1550	0.5/50 kW/DA-D	11/2/79
WAAY	Huntsville, AL	1550	0.5/10 kW/DA-2	9/50
WAAY	Huntsville, AL	1550	0.5/5 kW/DA-N	8/16/55
WAAY	Huntsville, AL	1550	5 kW/DA-2/ND	12/9/52
WBHM	Birmingham, AL	1550	50 kW/DA-D	2/26/60
WBSC	Bennettsville, SC	1550	10/5 kW/DA-N	2/6/50
WCTW	New Castle, IN	1550	0.25 kW/DA-2	11/9/79
WCTW	New Castle, IN	1550	0.25 kW/DA-N	1/30/67
WDLR	Delaware, OH	1550	0.5 kW/DA-D	1/16/61
WJIL	Jacksonville, IL	1550	0.25/1 kW/DA-2	1/8/59
WJIL	Jacksonville, IL	1550	1 kW/DA-D	3/30/62
WKBA	Vinton, VA	1550	10 kW/DA-D	6/14/61
WKVL	Clarksville, TN	1550	0.25 kW/DA-N	11/16/79

1550-1570

<u>Station</u>	<u>Main Studio</u>	<u>Freq</u>	<u>Power</u>	<u>Date</u>
WKYE	Bristol, TN	1550	1 kW/DA-D	9/12/80
WMAD	Madison, WI	1550	5 kW/DA-D	9/25/70
WMIR	Lake Geneva, WI	1550	1 kW/DA-D	7/8/59
WMOO	Mobile, AL	1550	50 kW/DA-D	9/25/58
WOKJ	Jackson, MS	1550	10/50 kW/DA-2	5/27/65
WOKI	Oak Ridge, TN	1550	1 kW/DA-D	9/26/69
WRHC	Coral Gables, FL	1550	0.25/10 kW/DA-2	9/12/80
WSER	Elkton, MD	1550	1 kW/DA-D	10/26/64
NEW	Evanston, IL	1550	0.5 kW/DA-D	2/26/60
NEW	Memphis, TN	1550	10 kW/DA-D	2/26/60
WYNA	Smyrna, GA	1550	0.5/10 kW/DA-N	7/10/80
XENU	Nuevo Laredo, Tamp.	1550	50 kW/DA-N	9/18/51
CFRS	Simcoe, ON	1560	0.25 kW	8/29/55
NEW	Iowa City, IA	1560	1 kW/DA-2	4/14/76
KAJN	Crowley, LA	1560	1 kW/DA-D	11/30/61
KCJJ	Iowa City, IA	1560	1 kW/DA-2	7/10/80
KEGG	Daingerfield, TX	1560	1 kW/DA-D	10/18/60
KKAA	Aberdeen, SD	1560	5/10 kW/DA-2	11/16/79
KPMC	Bakersfield, CA	1560	10 kW/DA-2	1/12/56
KQYX	Joplin, MO	1560	10 kW/DA-D	4/29/69
KWCO	Chickasha, OK	1560	0.25/1 kW/DA-N	8/21/74
WADD	Brockport, NY	1560	1 kW/DA-D	5/27/70
WAGL	Lancaster, SC	1560	10 kW/DA-D	5/31/68
WAGL	Lancaster, SC	1560	50 kW/DA-D	2/15/78
WBKC	Chardon, OH	1560	1 kW/DA-D	2/28/69
WBUK	Portage, MI	1560	2.5 kW/DA-D	11/9/79
WBUK	Portage, MI	1560	1 kW/DA-D	12/29/65

1550-1570

<u>Station</u>	<u>Main Studio</u>	<u>Freq</u>	<u>Power</u>	<u>Date</u>
WCNW	Fairfield, OH	1560	1/5 kW/DA-2	10/28/66
WDXR	Paducah, KY	1560	1/10 kW/DA-2	1/28/69
WDXR	Paducah, KY	1560	1 kW/DA-1	2/11/58
WGLB	Port Washington, WI	1560	0.25 kW/DA-D	10/25/61
WMIC	Sandusky, MI	1560	1 kW/DA-D	4/29/68
WQXR	Forest Hills, NY	1560	50 kW/DA-2	4/28/65
WRSJ	Bayamon, PR	1560	25/50 kW/DA-2	12/29/65
WRSJ	Bayamon, PR	1560	5 kW/DA-N	12/27/68
WSHY	Shelbyville, IL	1560	0.5 kW/DA-D	4/29/68
WSMD	La Plata, MD	1560	25 kW/DA-D	11/9/79
WTOD	Toledo, OH	1560	5 kW/DA-D	8/23/63
WTRQ	Warsaw, NC	1560	10 kW/DA-D	2/22/71
WWGM	Nashville, TN	1560	10 kW/DA-D	6/17/60
WYSE	Iverness, FL	1560	1 kW/DA-N	2/28/66
XEVIP	Naucalpan, MX	1560	50 kW/DA-N	9/79
XEVIP	Naucalpan, MX	1560	5 kW/DA-N	9/79
XEVIP	Naucalpan, MX	1560	10 kW/DA-N	3/28/69
NEW	Brandon, MB	1570	10 kW/DA-N	5/12/76
NEW	Selkirk, MB	1570	0.25 kW/ND	3/26/65
NEW	Thornhill, MB	1570	1 kW/DA-1	12/29/66
NEW	Burlington, ON	1570	1 kW/DA-2	4/29/68
CFOR	Orillia, ON	1570	10/5 kW/DA-N	6/27/77
CFOR	Orillia, ON	1570	1/5 kW	11/23/56
CHLO	St. Thomas, ON	1570	10 kW/DA-2	9/26/68
CHUB	Nanaimo, BC	1570	10 kW/DA-2	4/24/58
CKLM	Montreal, QU	1570	50 kW/DA-2	4/28/66
CKLM	Montreal, QU	1570	10 kW/DA-N	3/26/65

1550-1570

<u>Station</u>	<u>Main Studio</u>	<u>Freq</u>	<u>Power</u>	<u>Date</u>
CKTA	Taber, AB	1570	10/5 kW/DA-N	11/8/82
KACE	Riverside, CA	1570	5 kW/DA-D	3/28/69
KCVR	Lodi, CA	1570	5 kW/DA-D	6/14/61
KVLG	LaGrange, TX	1570	0.25 kW/DA-D	11/24/70
WBEE	Harvey, IL	1570	1 kW/DA-D	6/27/56
WBUX	Doylestown, PA	1570	5 kW/DA-D	3/30/62
WCLW	Mansfield, OH	1570	1 kW/DA-D	8/8/59
WFRL	Freeport, IL	1570	5 kW/DA-D	2/26/60
WGLX	Galion, OH	1570	0.25 kW/DA-D	1/22/71
WIFF	Auburn, IN	1570	0.5 kW/DA-D	8/26/70
WIFF	Auburn, IN	1570	0.25 kW/DA-D	11/29/68
WMLO	Beverly, MA	1570	0.5 kW/DA-D	11/29/62
WOBL	Oberlin, OH	1570	0.5 kW/DA-D	4/29/69
WPGC	Morningside, MD	1570	10 kW/DA-D	6/18/75
WRCN	Riverhead, NY	1570	1 kW/DA-D	6/16/59
WTCL	Warren, OH	1570	0.5 kW/DA-D	8/26/70
WTOW	Towson, MD	1570	5 kW/DA-D	7/28/66

ANTENNA DESCRIPTION SHEET

STATION: C B E

MAIN STUDIO: WINDSOR, ONTARIO

POWER: 10KW

FREQUENCY: 1550KC

CLASS: 1-B

NOTIFICATION LIST NO. 285

DATE: December 21, 1971.

LOCATION: WEST OF MAIDSTONE ONTARIO.

NORTH LATITUDE: 42° 12' 56"

WEST LONGITUDE: 82° 55' 15"

ANTENNA: AUTHORIZED FOR DAY AND NIGHT OPERATION. DA-1

TWO ELEMENTS, SERIES-FED, GUYED, UNIFORM CROSS-SECTION, INSULATED, VERTICAL STEEL TOWERS.

TOWER:

NORTHEAST

SOUTHWEST

HEIGHT ABOVE INSULATORS:

300'

300' (179°)

SPACING:

90°

OR

159'

PHASING:

-90°

0°

FIELD RATIO:

0.75

1.0

GROUND SYSTEM: 120 RADIALS PER TOWER, MAXIMUM LENGTH 250' INTERSECTING RADIALS BONDED ALONG LINE BETWEEN TOWERS.

PREDICTED EFFECTIVE FIELD: 745 XV/M (235.5 FOR 1KW)

ORIENTATION: ELEMENTS ON A LINE BEARING 40° TRUE.

NOTE: THIS CORRECTED DESCRIPTION SHEET SHOWS ONLY A CHANGE IN COORDINATES.

REVISED ANTENNA DESCRIPTION SHEET

CBE
1550 KC

STATION: C B E

MAIN STUDIO: WINDSOR, ONTARIO.

POWER: 10KW

FREQUENCY: 1550KC

CLASS: 1-B

AUTHORIZED: NOTIFICATION LIST NO. 52 #

LOCATION: WEST OF MAIDSTONE ONTARIO.

NORTH LATITUDE: 42° 12' 55"

WEST LONGITUDE: 82° 55' 00"

ANTENNA: AUTHORIZED FOR DAY AND NIGHT OPERATION. DA-1

TWO ELEMENTS, SERIES-FED, GUYED, UNIFORM CROSS-SECTION,
INSULATED, VERTICAL STEEL TOWERS.

TOWER:

NORTHEAST

SOUTHWEST

HEIGHT ABOVE INSULATORS:

300'

300' (179°)

SPACING:

90°

OR

159'

PHASING:

-90°

0°

FIELD RATIO:

0.75

1.0

GROUND SYSTEM: 120 RADIALS PER TOWER, MAXIMUM LENGTH 250'.
INTERSECTING RADIALS BONDED ALONG LINE BETWEEN
TOWERS.

PREDICTED EFFECTIVE FIELD: 745 MV/M. (235.5 FOR 1KW).

ORIENTATION: ELEMENTS ON A LINE BEARING 40° TRUE.

NOTE: THIS REVISION INVOLVES A CHANGE IN ORIENTATION, TOWER
HEIGHT, AND ANTENNA EFFICIENCY.

OFFICIAL COPY

REC'D 10-5-49 ACC 10-5-49

*52

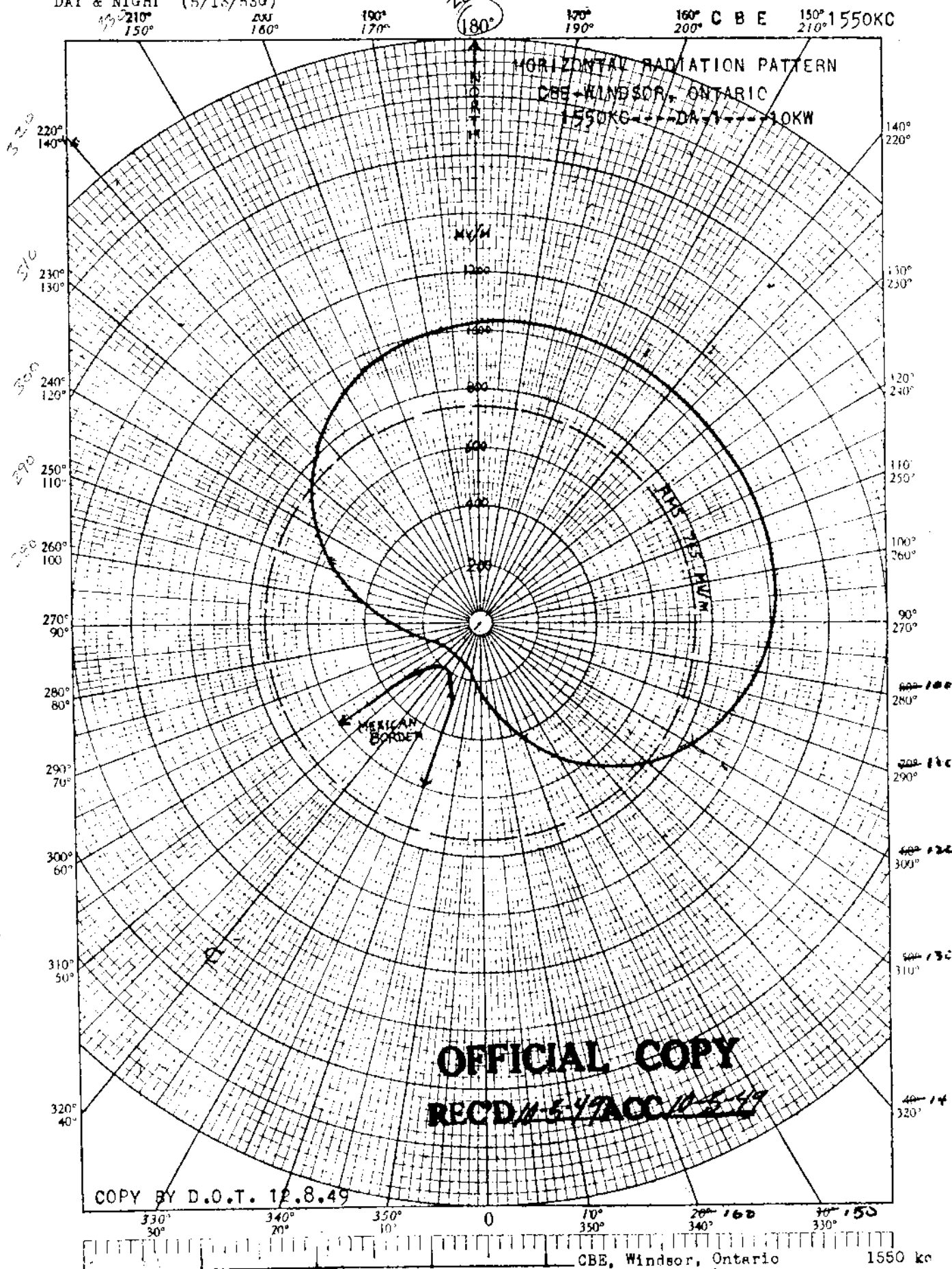
CBE

PROPOSED
DAY & NIGHT (5/13/53G)

CBE, WINDSOR, ONTARIO

10 kw, DA-1

1550 kc



#1A1

Calgary, Alberta

DESCRIPTION SHEET
(1-29-60g)New Station
Calgary, Alberta, Canada10kw, DA-1, U, Class II
1550 KC

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: NEW

Main Studio: Calgary, Alberta

Frequency: 1550 kc/s

Power: 10 KW

Class: II

Notification List No. 141

Date: December 4, 1959

GEOGRAPHICAL LOCATION
OF THE ANTENNA SYSTEM:

North Latitude: 50° 52' 55"

West Longitude: 114° 5' 54"

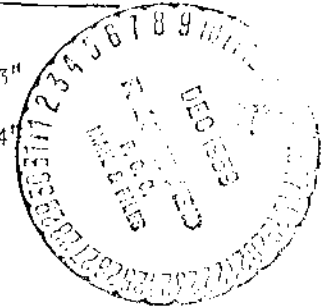
ANTENNA CHARACTERISTICS

Mode of Operation: DA-1

Number of elements: 3

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

TOWER:	#1 (S)	#2 (C)	#3 (N)
HEIGHT ABOVE INSULATORS:	289'	289'	289'
OVERALL HEIGHT:	292'	292'	292'
SPACING:	158'	158' (90°)	
PHASING:	+148°	0.0°	-148°
FIELD RATIO:	0.64	1.0	0.64
ORIENTATION:	On a line bearing True North		
GROUND SYSTEM:	120 Radials per tower, spaced every 3°, of #10 B&S soft copper, length 256' except those foreshortened at intersections. Radials buried 8" approx.		
Predicted effective field	712	mv/m	(225 mv/m for 1 kw)



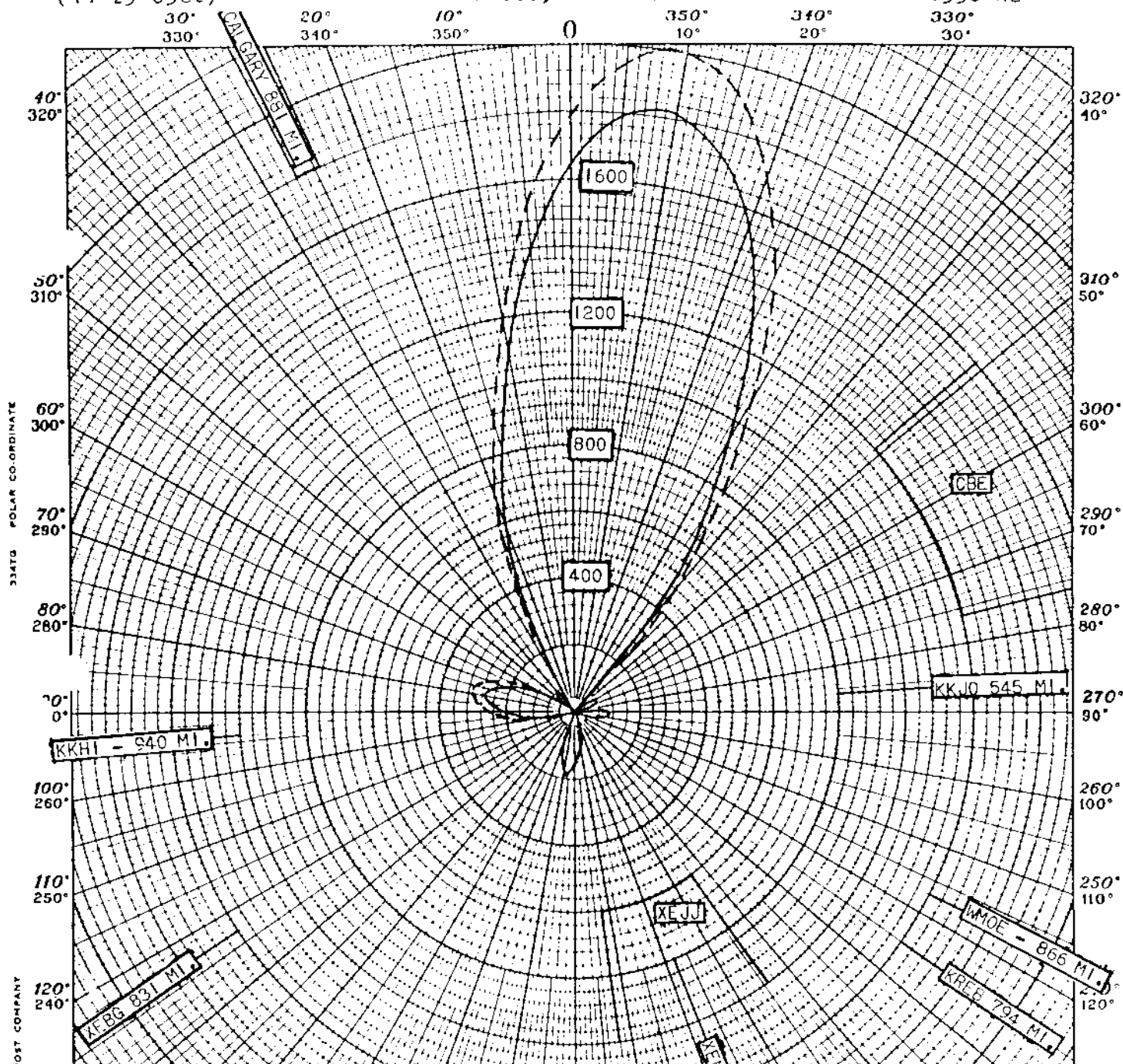
KDAB

Proposed Night
(11-29-65ct)

Station KDAB
Arvada, Colorado

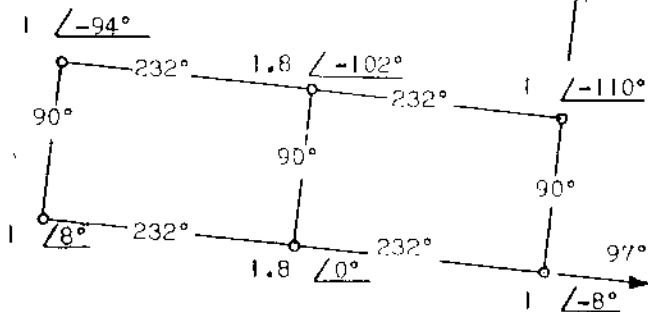
10kw, 50kw-LS, DA-N, U

1550 kc



13
23L

140°
220°



North Latitude 39° 33' 51.3"
West Longitude 105° 05' 53.6"

HORIZONTAL PATTERN
KDAB ARVADA, COLORADO
1550 KC 50 KW-LS, 10 KW DA-N
FIGURE 1 JULY 1963
PETE JOHNSON
CONSULTING ENGINEERS
Kanawha Hotel Bldg., Charleston, W. Va.

FCC File No. BMP-9769
Accepted 7-14-65 Amended

Station KDAB
Arvada, Colorado

1550 kc

KDAB

Proposed Night Nulls
(11-29-65ct)

Station KDAB
Arvada, Colorado

10kw, 50kw-LS, DA-N, U
1550 kc

EXPANDED PATTERN

KDAB ARVADA, COLORADO

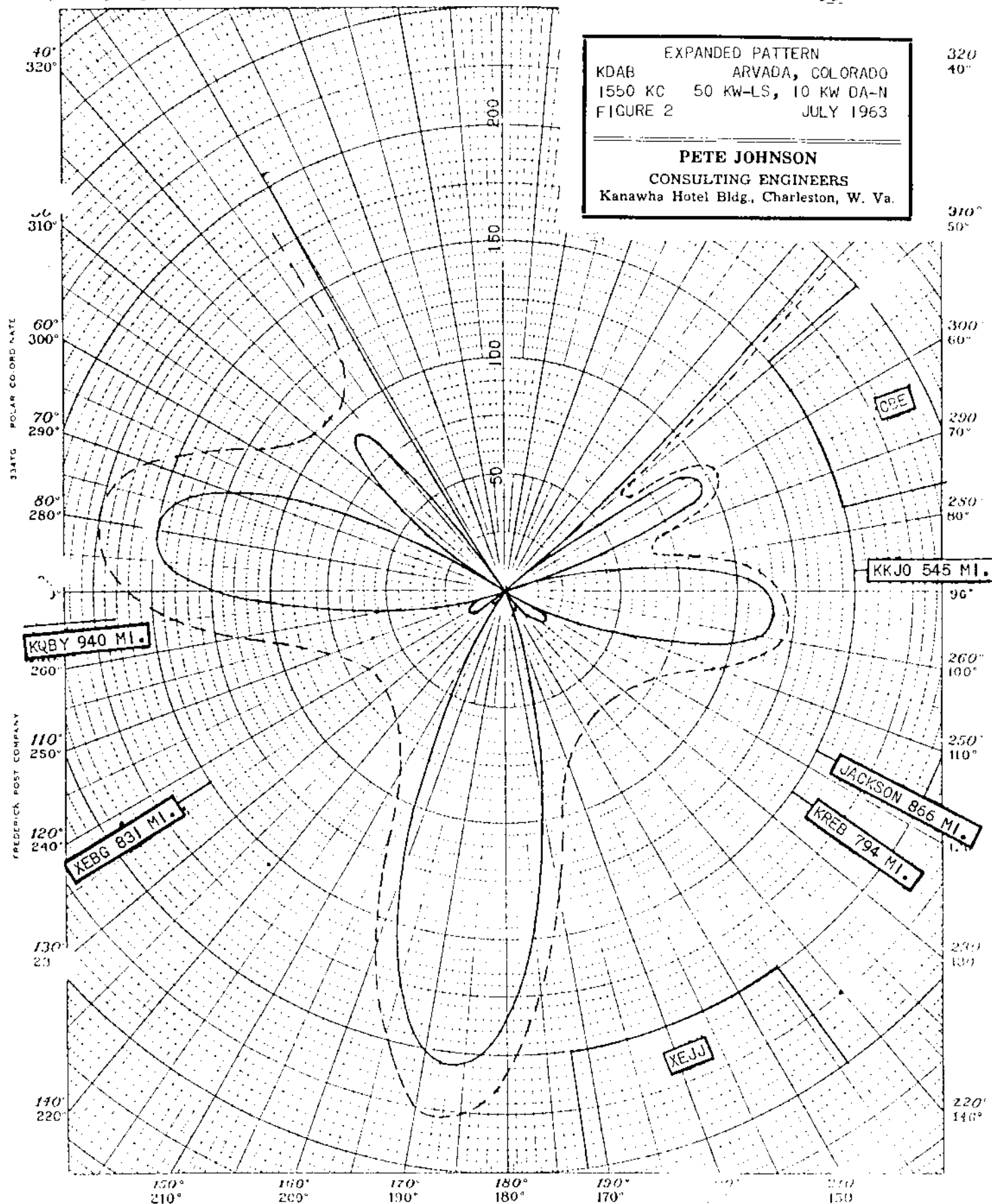
1550 KC 50 KW-LS, 10 KW DA-N

FIGURE 2 JULY 1963

PETE JOHNSON

CONSULTING ENGINEERS

Kanawha Hotel Bldg., Charleston, W. Va.



FCC File No. BMP-9769
Accepted 7-14-65 Amended

Station KDAB
Arvada, Colorado

1550 kc

KEDD

Dodge City, Kansas

PROPOSED DAY
(6-16-59g)

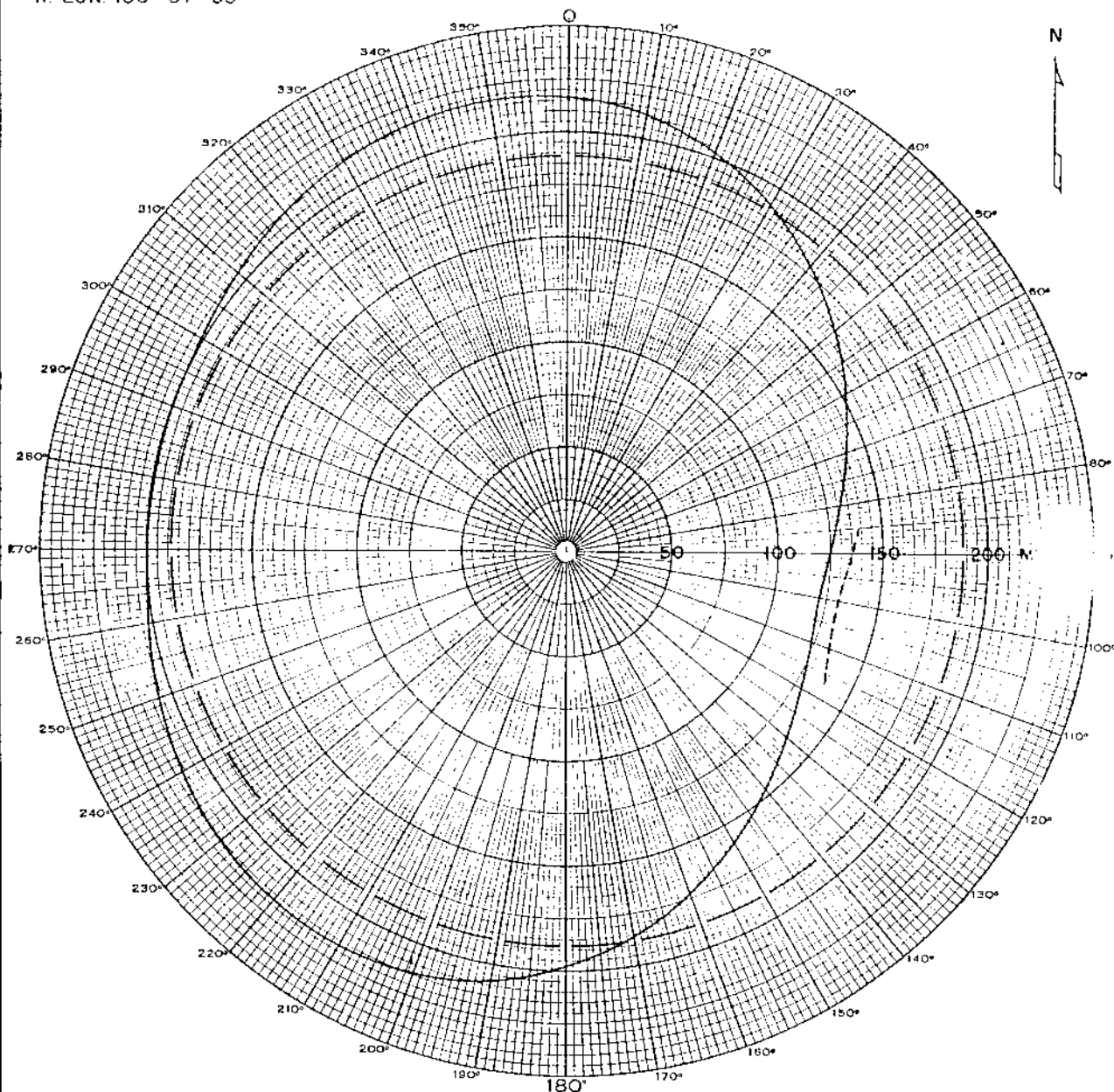
New; The Seward County B/C Co.
Dodge City, Kansas

1kw, DA-D, D
1550 KC

N. LAT. 37° 47' 09"
W. LON. 100° 01' 55"

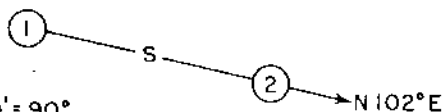
DAY

11-16-60
printed up for
new station



RMS 188 MV/M

PATTERN 590219
----- ME0V



G=160'=90°
S=141'=80°

TOWER	FIELD	PHASE
1	1.0	0°
2	1.0	32°

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

DODGE CITY, KANSAS
PROPOSED 1550 KC 1KW DA-D
590219 FIGURE 6A

FCC File No. BP-13039
Accepted 5-27-59

The Seward County Broadcasting Company
Dodge City, Kansas
1550 KC

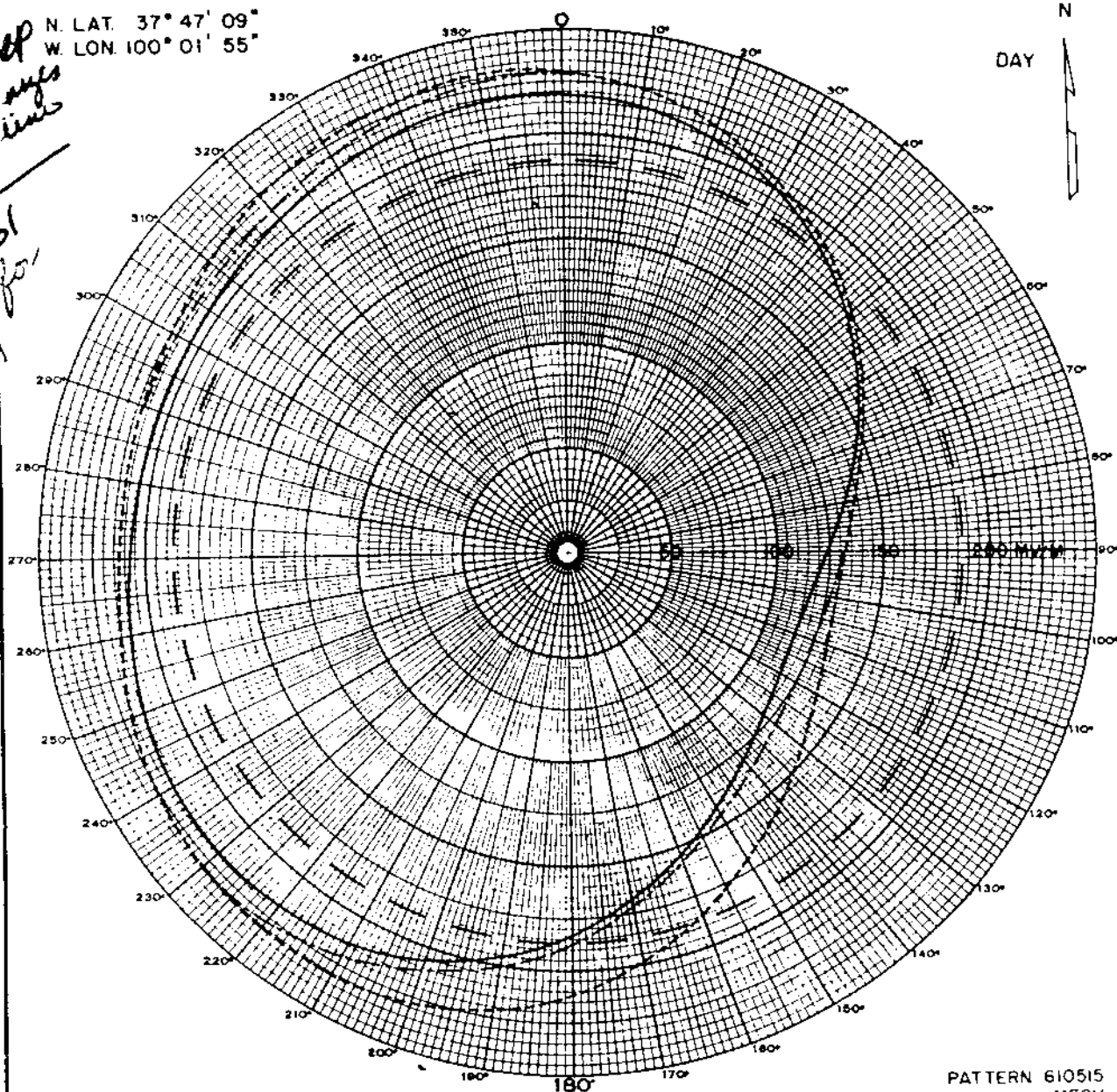
KEDD

PROPOSED DAY
(6-14-61g)

Station KEDD
Dodge City, Kansas

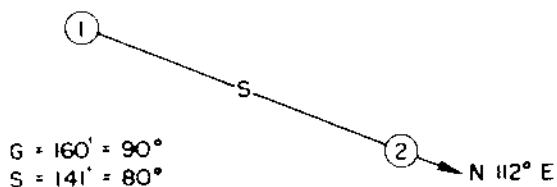
1kw, DA-D, D
1550 KC

N. LAT. 37° 47' 09"
W. LON. 100° 01' 55"



RMS = 187 MV/M

PATTERN 610515
BMP-9432
PROPOSED



TOWER	FIELD	PHASE
1	1.0	0°
2	1.0	37°

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

RADIO STATION KEDD
1550 KC 1.0 KW DA-D
610515 FIGURE 6A

FCC File No. BMP-9494
Accepted 5-26-61

KEDD
Dodge City, Kansas

1550 KC

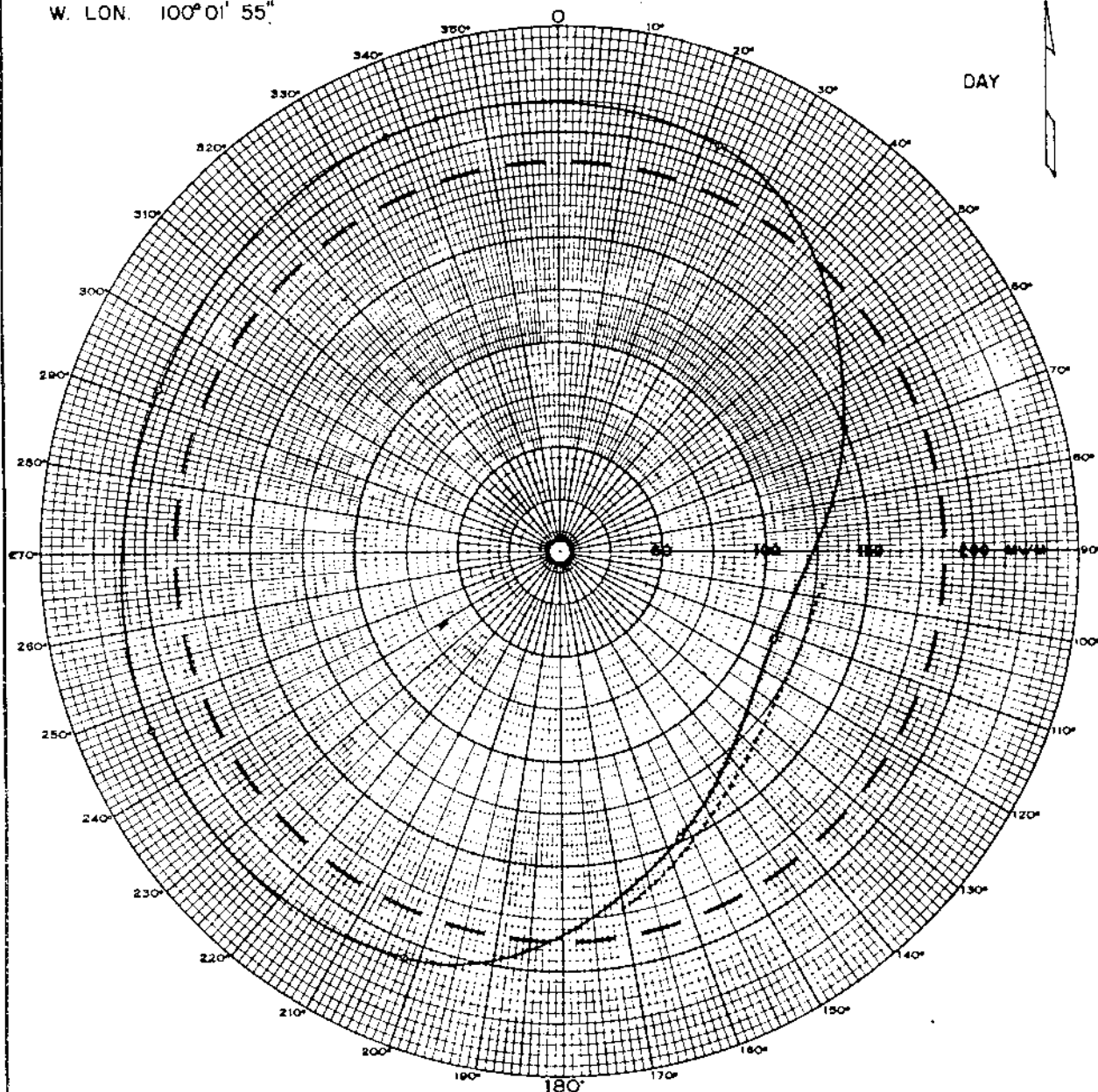
KEDD

MEASURED DAY
(8-22-61ct)

KEDD
Dodge City, Kansas

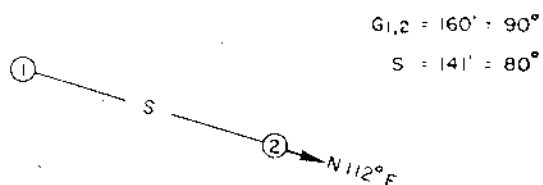
1kw, DA-D, D
1550 KC

N LAT. 37°47' 09"
W. LON. 100°01' 55"



RMS = 186 MV/M

----- ME0V



	DAYTIME ANTENNA PARAMETERS			
	THEORETICAL		MEASURED	
TOWER	1	2	1	2
BASE RATIO	1.00	1.00	1.00	1.007
LOOP RATIO	1.00	1.00	1.00	1.00
LOOP PHASE	0°	+37°	0°	+37°

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

FCC File No. BL-8520
Accepted 8-11-61

KEDD
Dodge City, Kansas

RADIO STATION KEDD
DODGE CITY, KANSAS

610530

FIGURE 4B

1550 KC

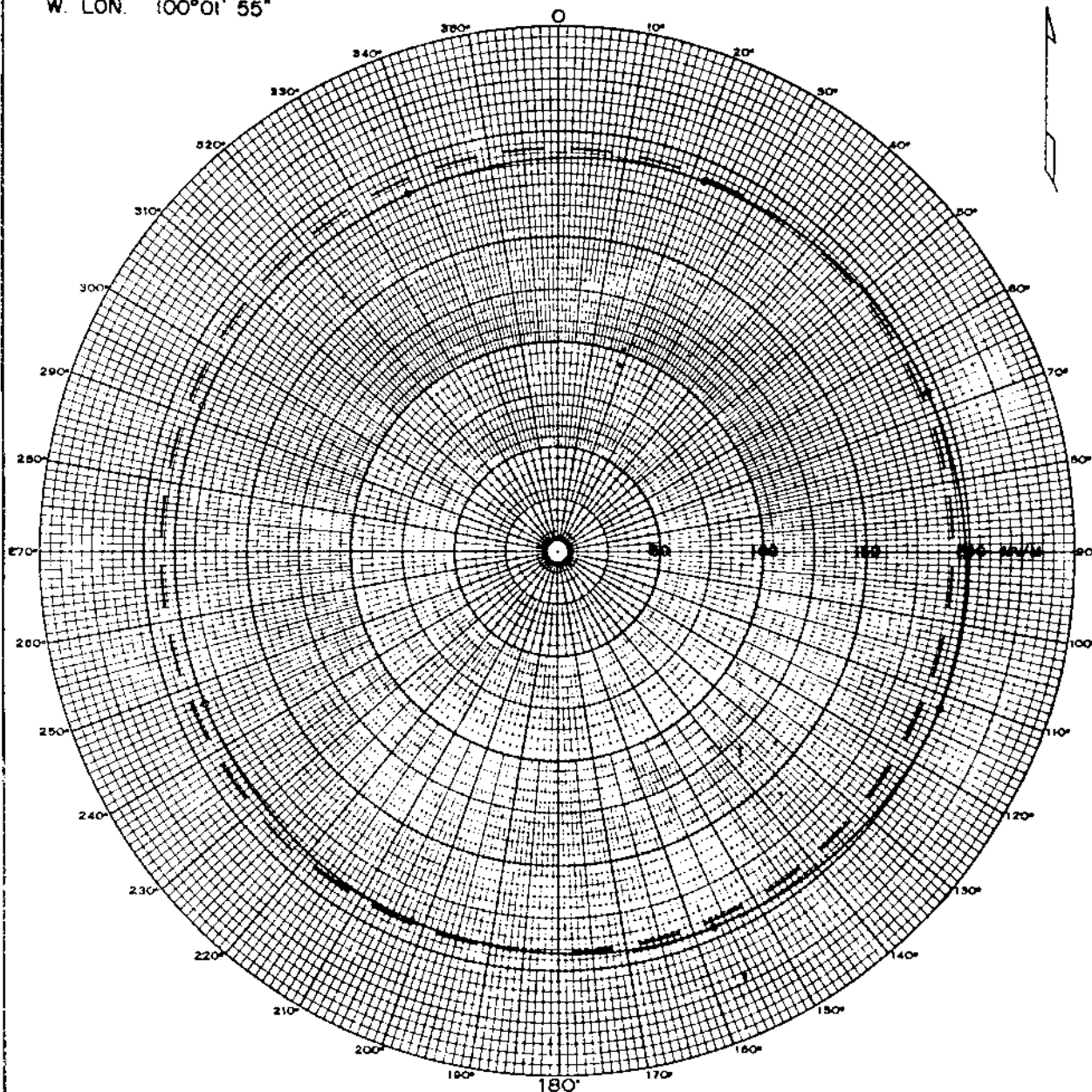
KEDD

MEASURED NON-DA
(8-22-61ct)

KEDD
Dodge City, Kansas

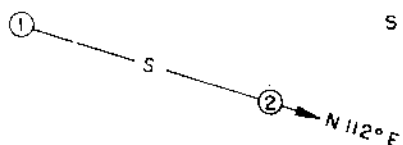
1kw, DA-D,D
1550 KC

N. LAT. 37°47' 09"
W. LON. 100°01' 55"



RMS = 192 MV/M

TEST PATTERN



G1,2 = 160° = 90°

S = 141° = 80°

1.0 KW NON-DIRECTIONAL TEST
TOWER 1 2
OPERATION SERIES FED DETUNED

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

CONSULTING ENGINEERS
FCC File No. BL-8520 KEDD
Accepted 8-11-61 Dodge City, Kansas

RADIO STATION KEDD
DODGE CITY, KANSAS

610530

FIGURE 4A

1550 KC

KGAR

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KGAR

Main Studio: Vancouver, Washington

Frequency: 1550 kHz

Power: 10 kW

Notification List No. 1689

Date: June 16, 1976

Class: II

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 45° 39' 05"
West Longitude: 122° 33' 10"

ANTENNA CHARACTERISTICS

Authorized for Nighttime operation. (DA-N)

Number of elements: 2

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

TOWER:	NW(#2)	SE(#1)
HEIGHT ABOVE INSULATORS:	260'	260' (147.6°)
PHASING:	-119°	0°
FIELD RATIO:	0.90	1.0

SPACING AND
ORIENTATION: Towers are spaced 158.75' (90°) on a line bearing 312.5°
true.

GROUND SYSTEM: 120-160' equally spaced copper radials plus a 24' square
ground screen about each tower. Radials are shortened
and bonded to a transverse strap along intersections
between towers.

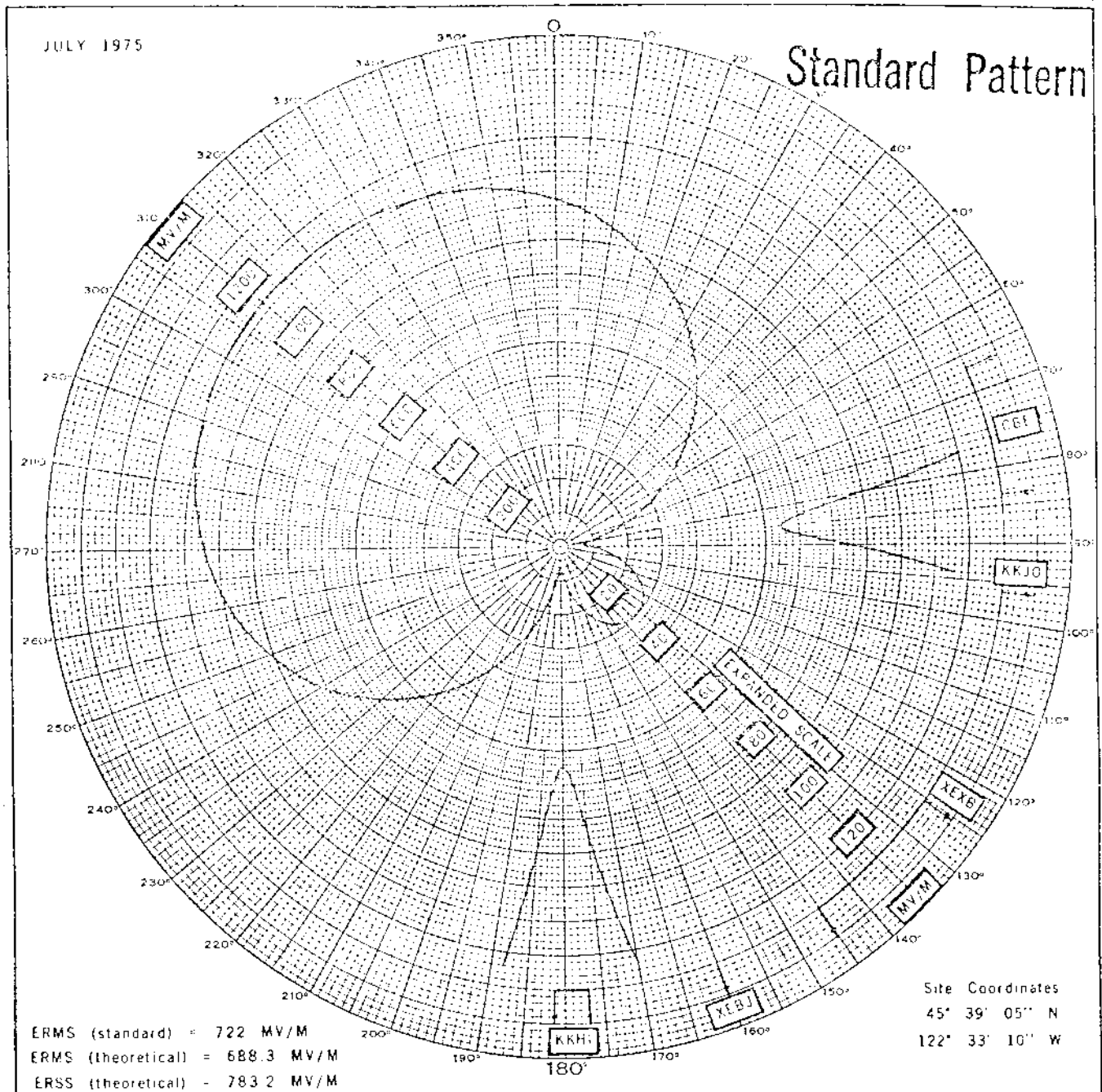
PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL		STANDARD
	<u>RMS</u>	<u>RSS</u>	<u>RMS</u>
Day	680 mv/m	---	---
Night	688.3 mv/m	783.2 mv/m	722 mv/m

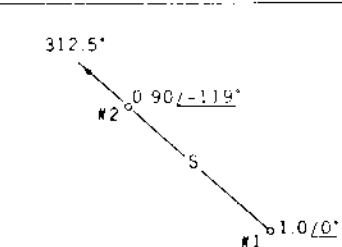
Note: This notification concerns an increase in daytime power and
addition of new nighttime operation.

CTR NO 30519A3

KGAR



PROPOSED NIGHTTIME HORIZONTAL PLANE STANDARD RADIATION PATTERN



S = 158.75' = 90°
G = 260' = 147.6°

GORDON A. ROGERS
RADIO STATION KGAR
VANCOUVER, WASHINGTON

Jules Cohen & Associates
Consulting Electronics Engineers

1550 KHZ
10 KW U DA-N

PATTERN No. 731011

KGMO

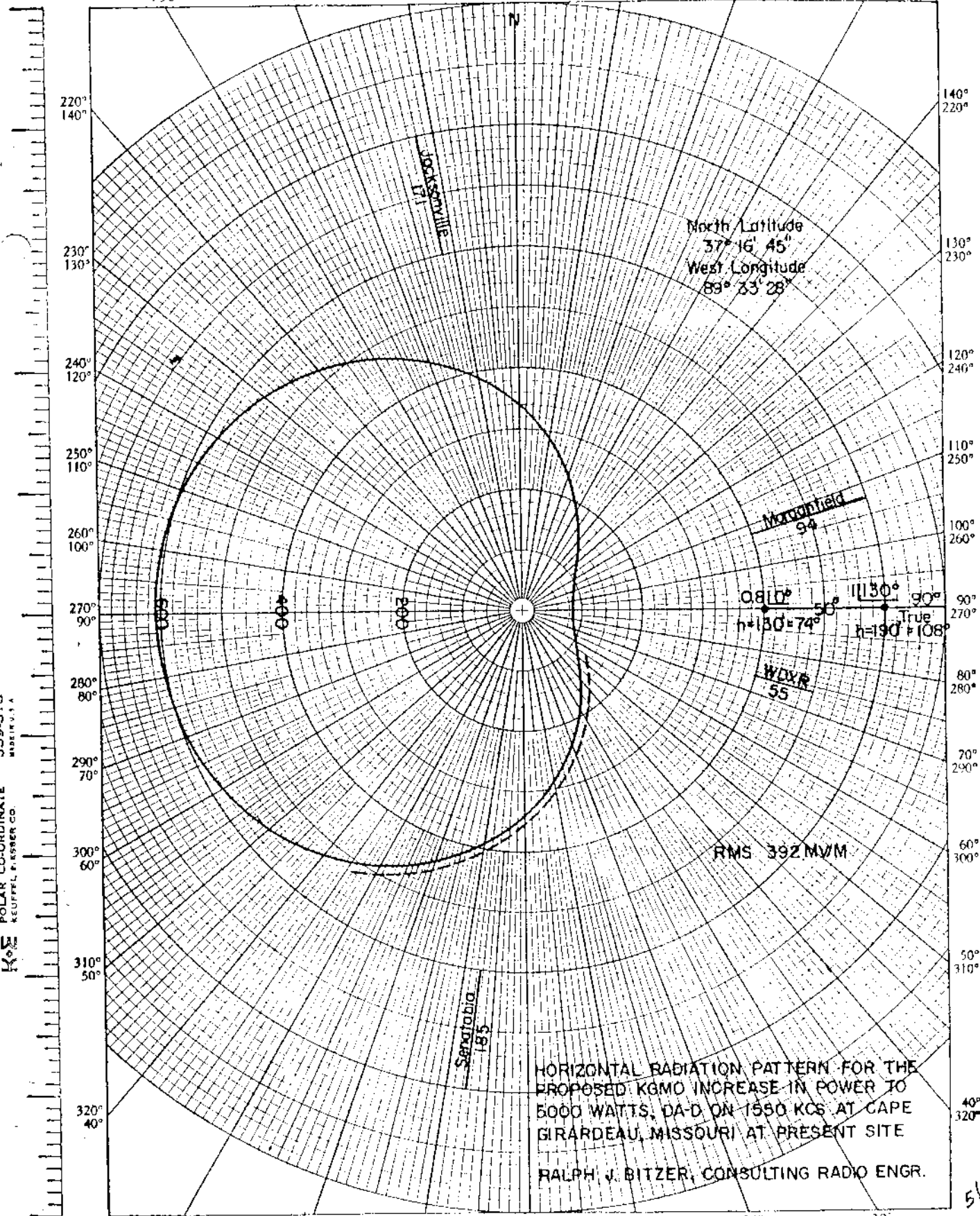
PROPOSED DAY
(1-29-60g)

Station KGMO
Cape Girardeau, Missouri

5kw, DA-D,D
1550 KC

*gained 11 dbm on 9-7-60
and installed DA-D 9-7-60*

359-31G
MADE IN U.S.A.
POLAR CO-ORDINATE
KEUFFEL & ESSNER CO.



HORIZONTAL RADIATION PATTERN FOR THE
PROPOSED KGMO INCREASE IN POWER TO
5000 WATTS, DA-D ON 1550 KCS AT CAPE
GIRARDEAU, MISSOURI AT PRESENT SITE

RALPH J. BITZER, CONSULTING RADIO ENGR.

FCC File No. BP-12483
Accepted 12-15-59 (Amended)

KGMO
Cape Girardeau, Missouri
1550 KC

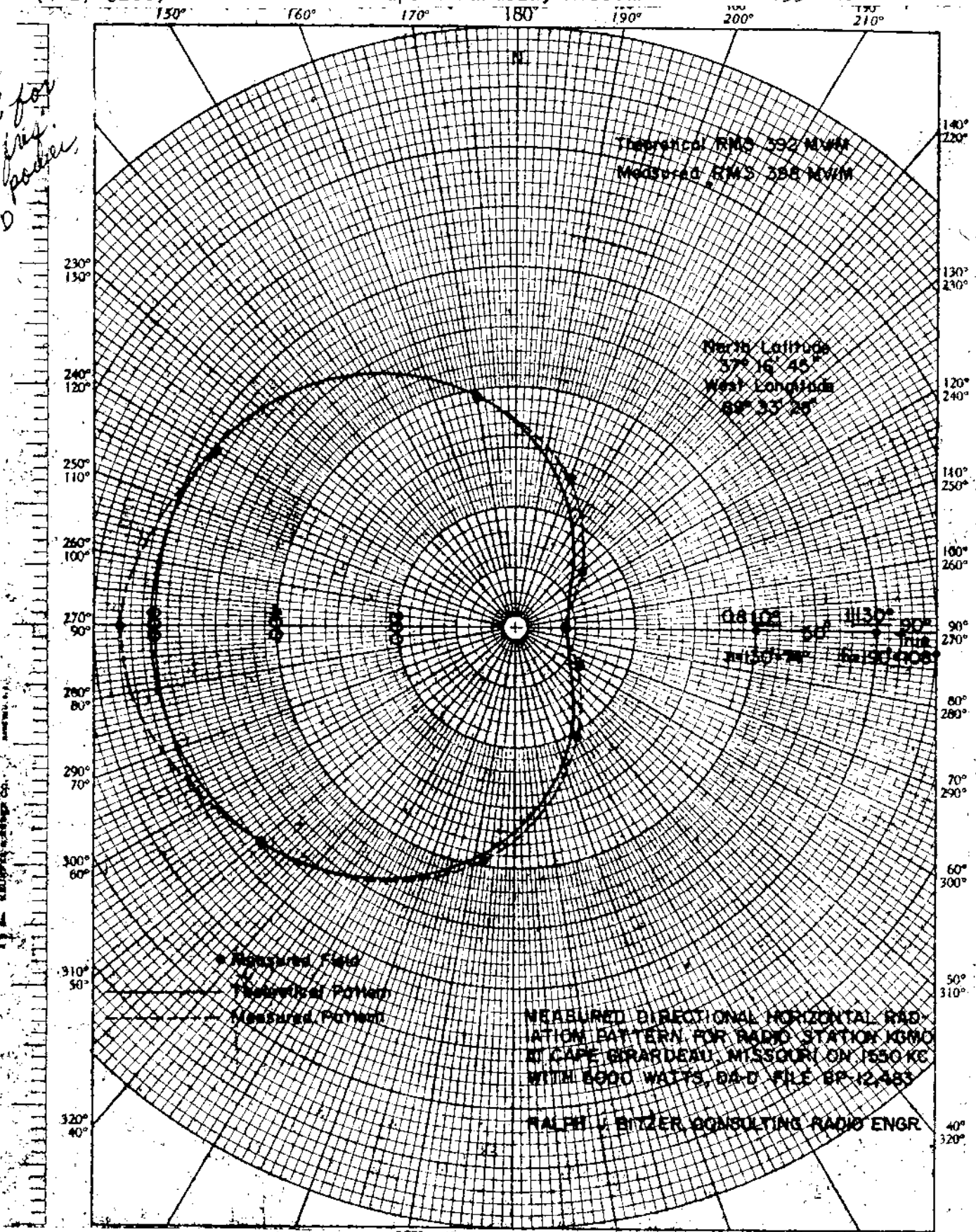
KGMO

Measured Day
(4-27-62ct)

Station KGMO
Cape Girardeau, Missouri

5kw, DA-D, D
1550 kc

5-17-62
revised L for
change in freq.
increase in power
and DA-D



FCC File No. BL-9184
Accepted 4-23-62

Station KGMO
Cape Girardeau, Missouri

1550 kc

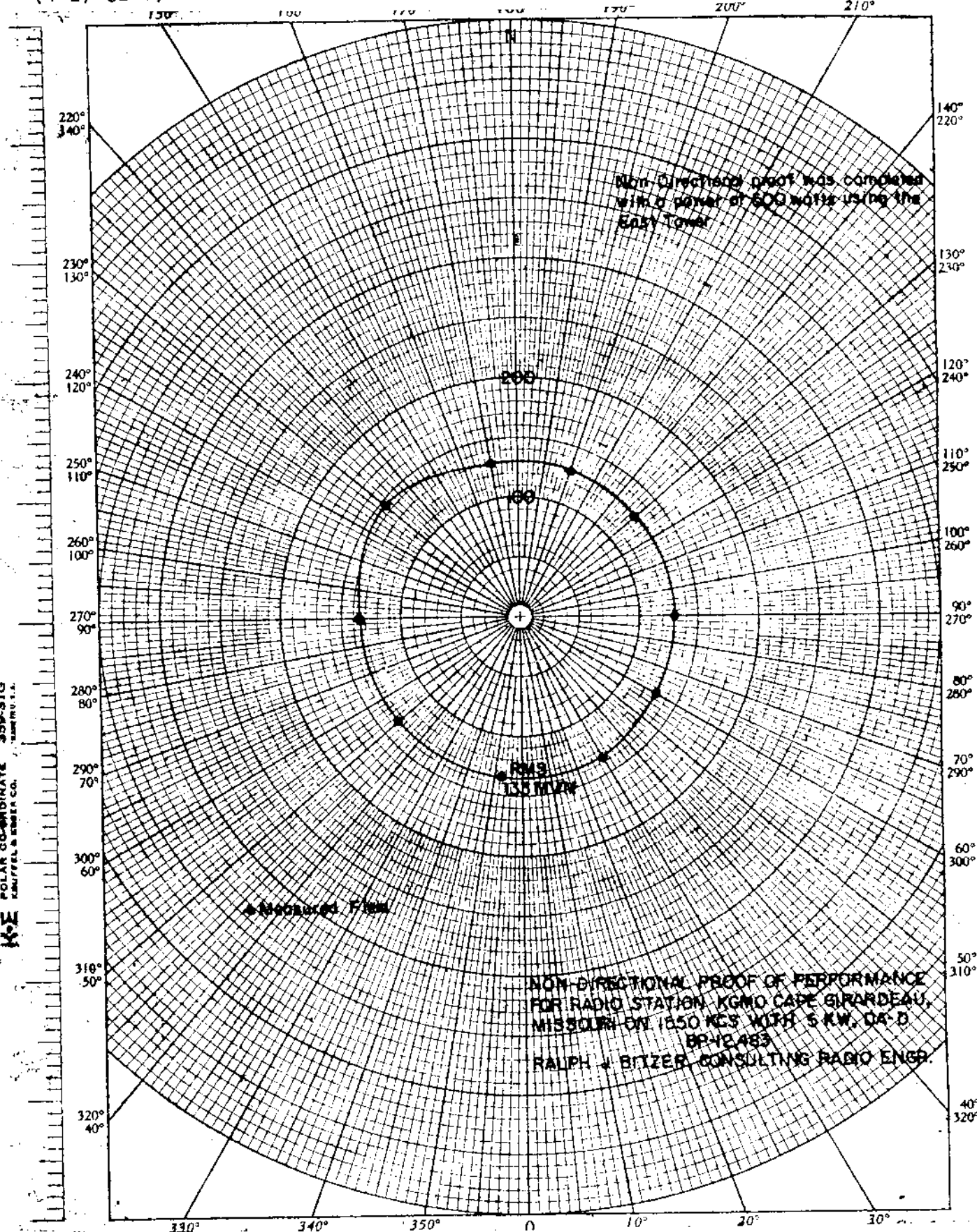
KGMO

Measured Non-DA
(4-27-62ct)

Station KGMO
Cape Girardeau, Missouri

5kw, DA-D, D
1550 kc

K&E POLAR CO-ORDINATE 359-31G KAUFFEL & EBERLE CO. MADE IN U.S.A.



FCC File No. 8L-9184
Accepted 4-23-62

Station KGMO
Cape Girardeau, Missouri

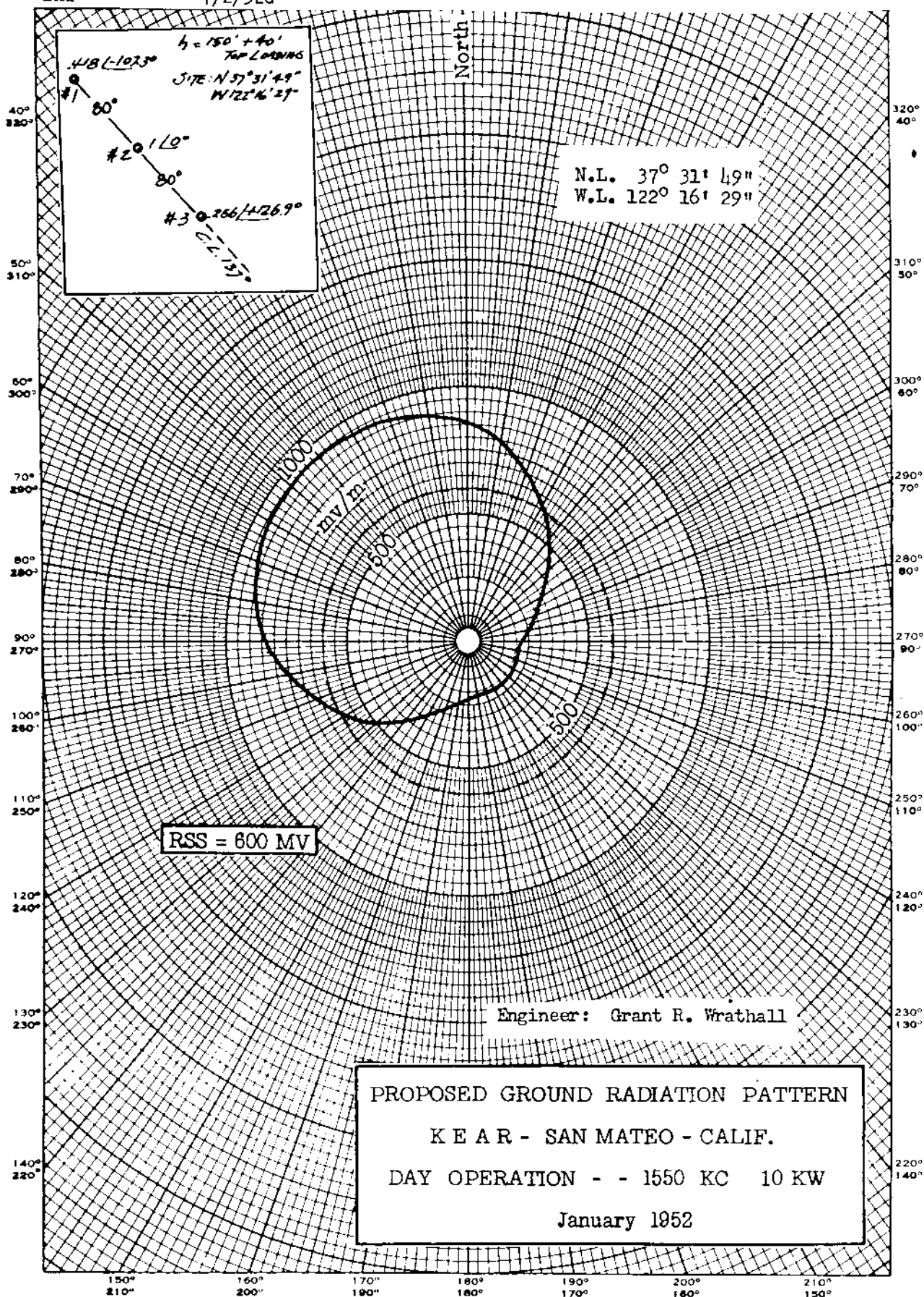
1550 kc

PROPOSED
DAY

KEAR, SAN MATEO, CALIF.
7/2/52G

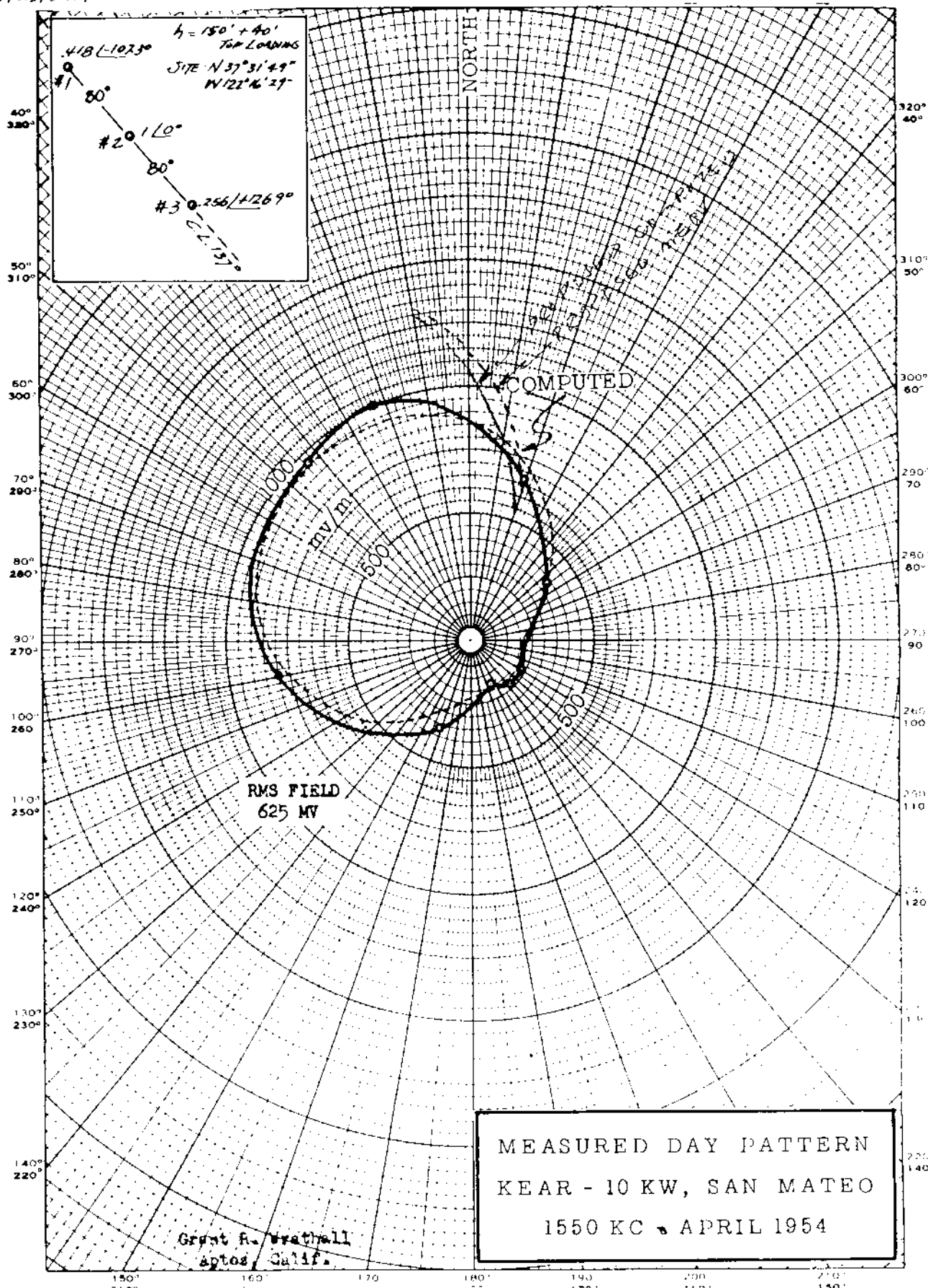
10 KW, U, DA-2.

1550 KC



KKHJ

MEASURED KEAR, San Mateo, Calif. 10KW, U, DA-2
 DAY (7/13/54G)

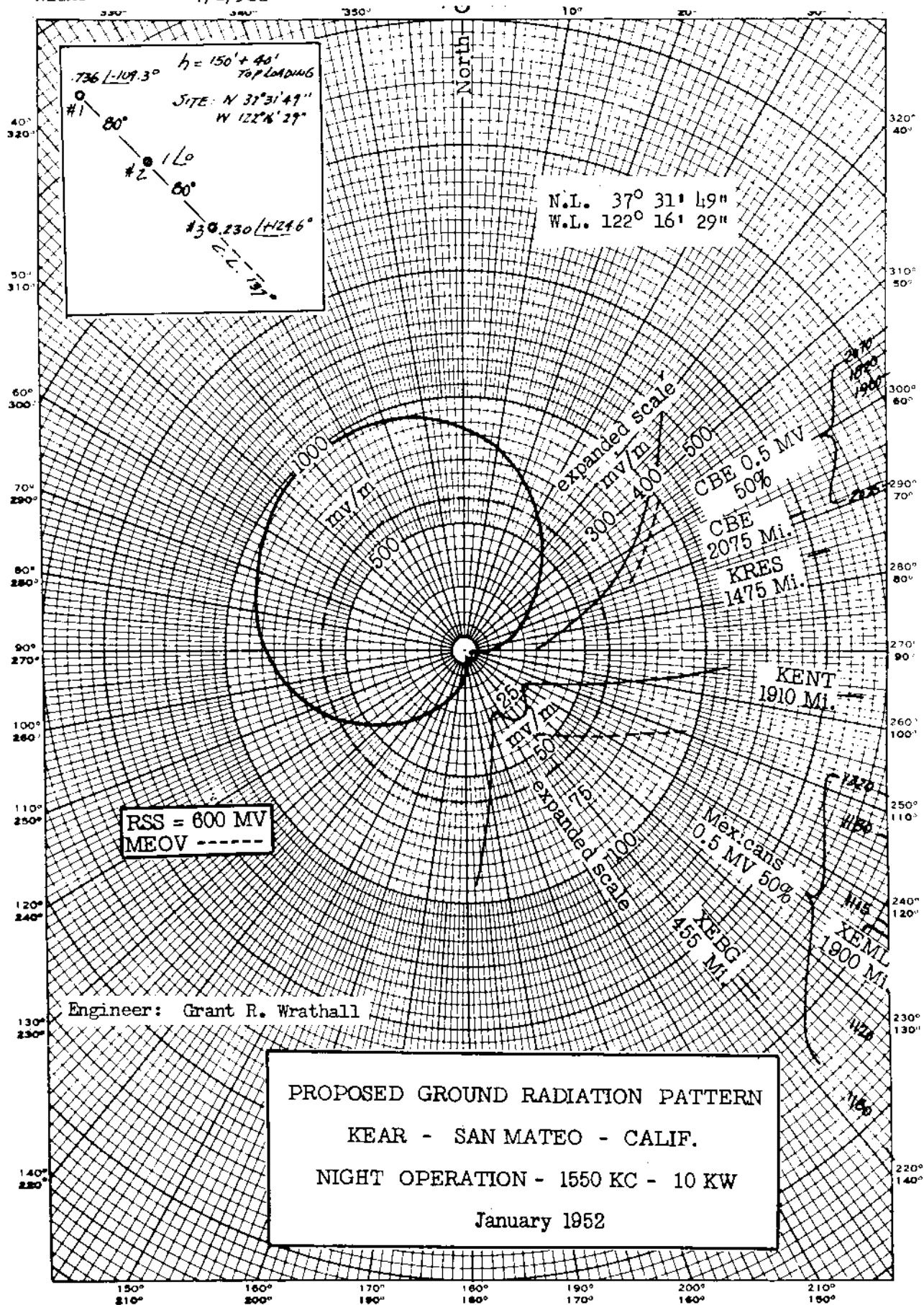


PROPOSED
NIGHT

KEAR, SAN MATEO, CALIF.
7/2/52G

10 KW, U, DA-2

KKH
1550 KC



APPL RECD FCC 6/5/52 ACC 6/19/52 BP-8514

KEAR, SAN MATEO, CALIF.

1550 KC

KKH1

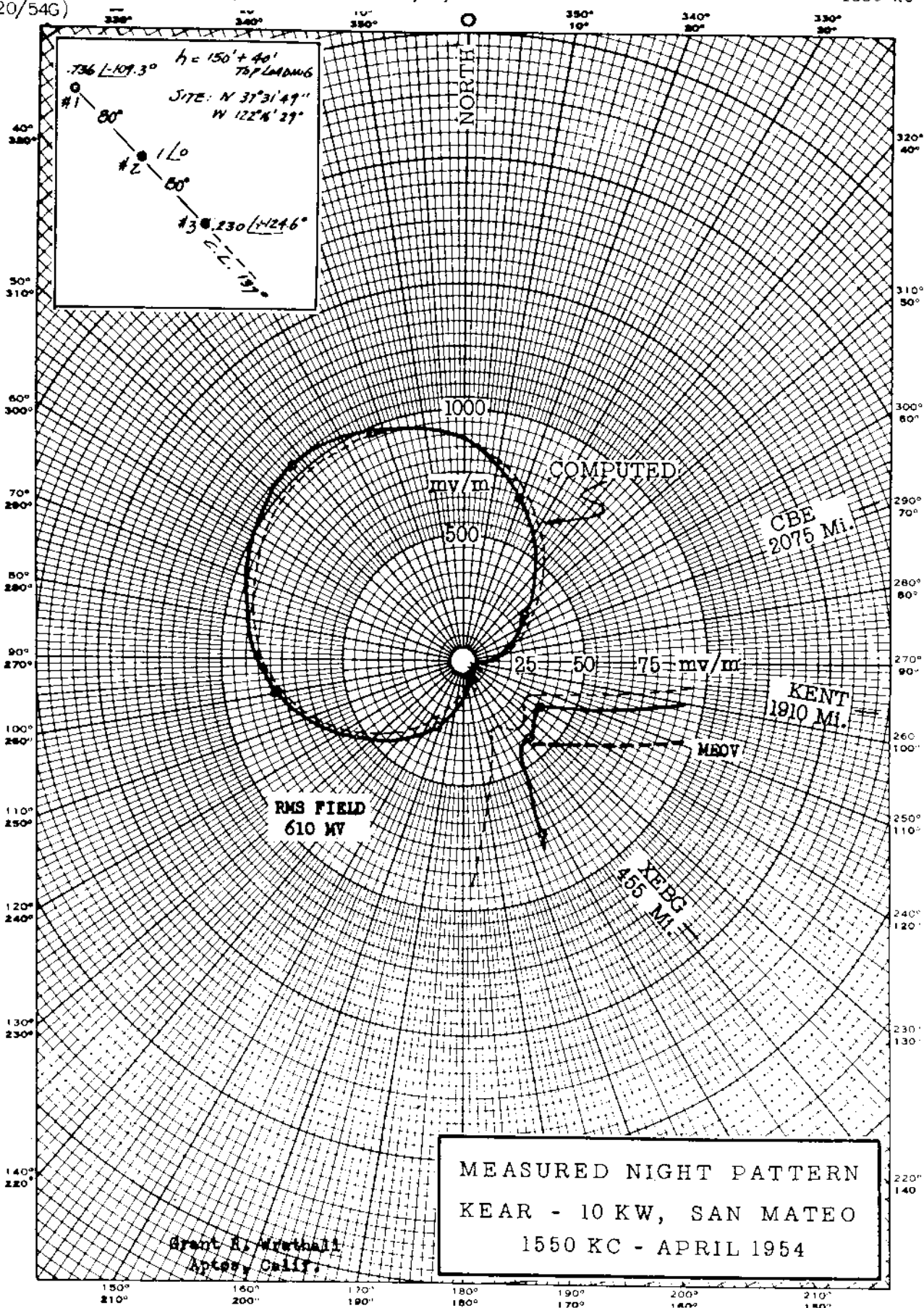
MEASURED
NIGHT

(5/20/54G)

KEAR, San Mateo, Calif.

10KW, U, DA-2

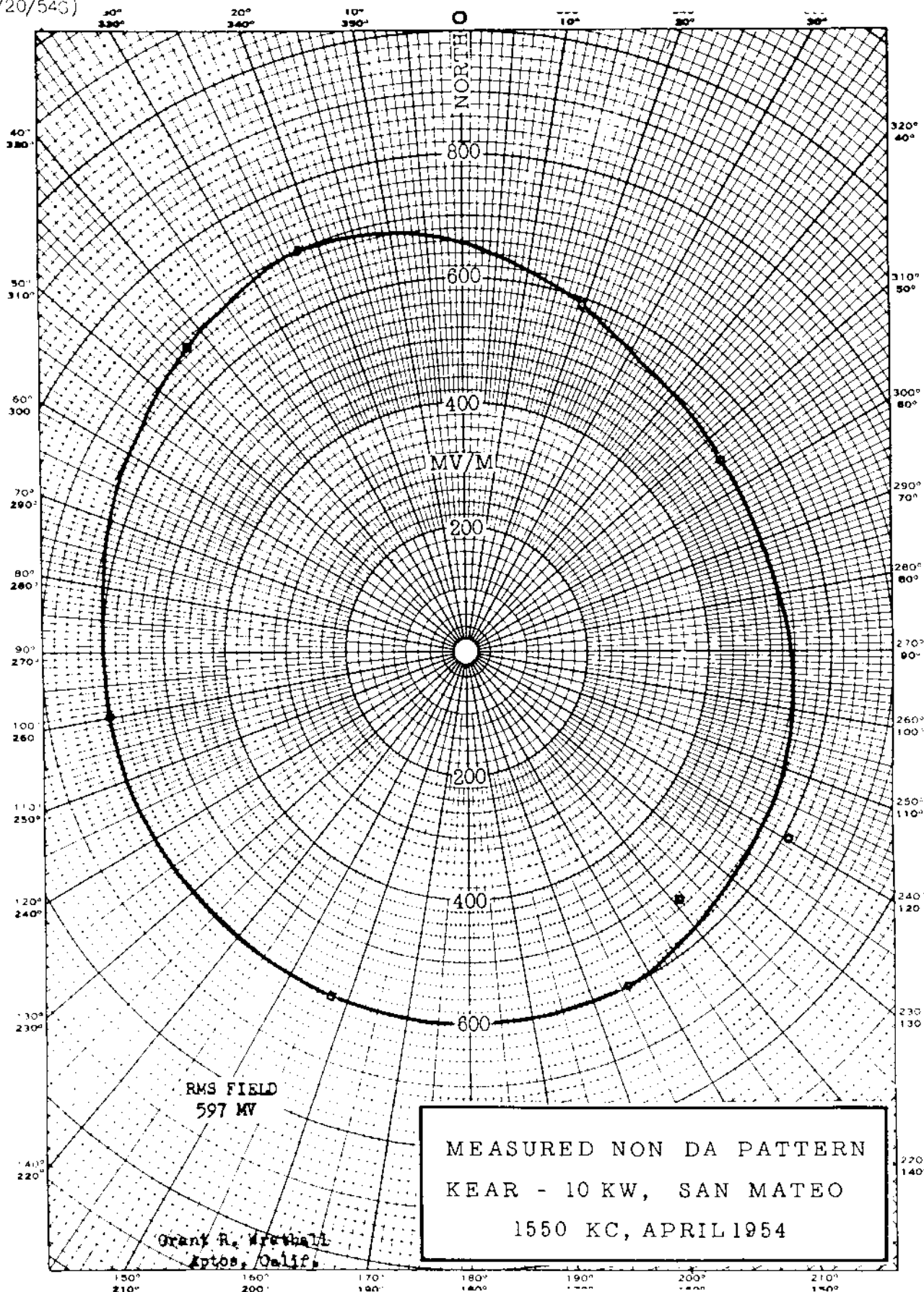
1550 Kc



KKHI

MEASURED KEAR, San Mateo, Calif. 10KW, U, DA-2
 NON-DA (5/20/54)

1550 KC



KRES, ST. JOSEPH, MO.

5kw, DA-N

1550 kc

KKO

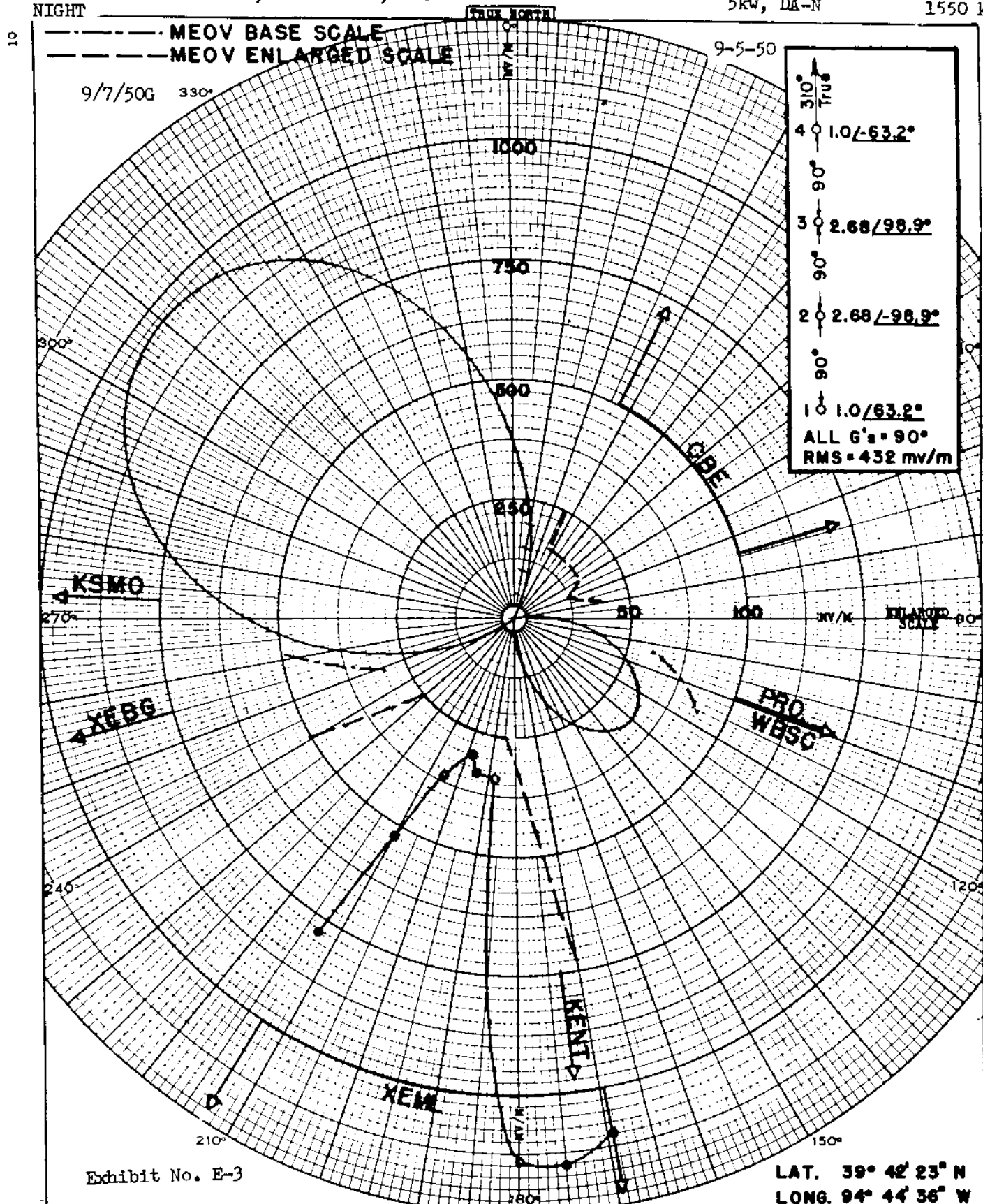


Exhibit No. E-3

LAT. 39° 42' 23" N
LONG. 94° 44' 36" W



COMMERCIAL RADIO EQUIPMENT CO.

RADIO ENGINEERING CONSULTANTS

KANSAS CITY WASHINGTON, D. C. HOLLYWOOD

PATTERN: PROPOSED NIGHTTIME

FOR: KRES, ST. JOSEPH, MISSOURI

POWER: 5 kw - U DA - N FREQ: 1550 kc

DATE: AUGUST 15, 1950

BY: ITN

KRES, St. Joseph, Mo. 1550 kc

PROPOSED
NIGHT NULLS
9/11/51G

KRES, ST. JOSEPH, MO.

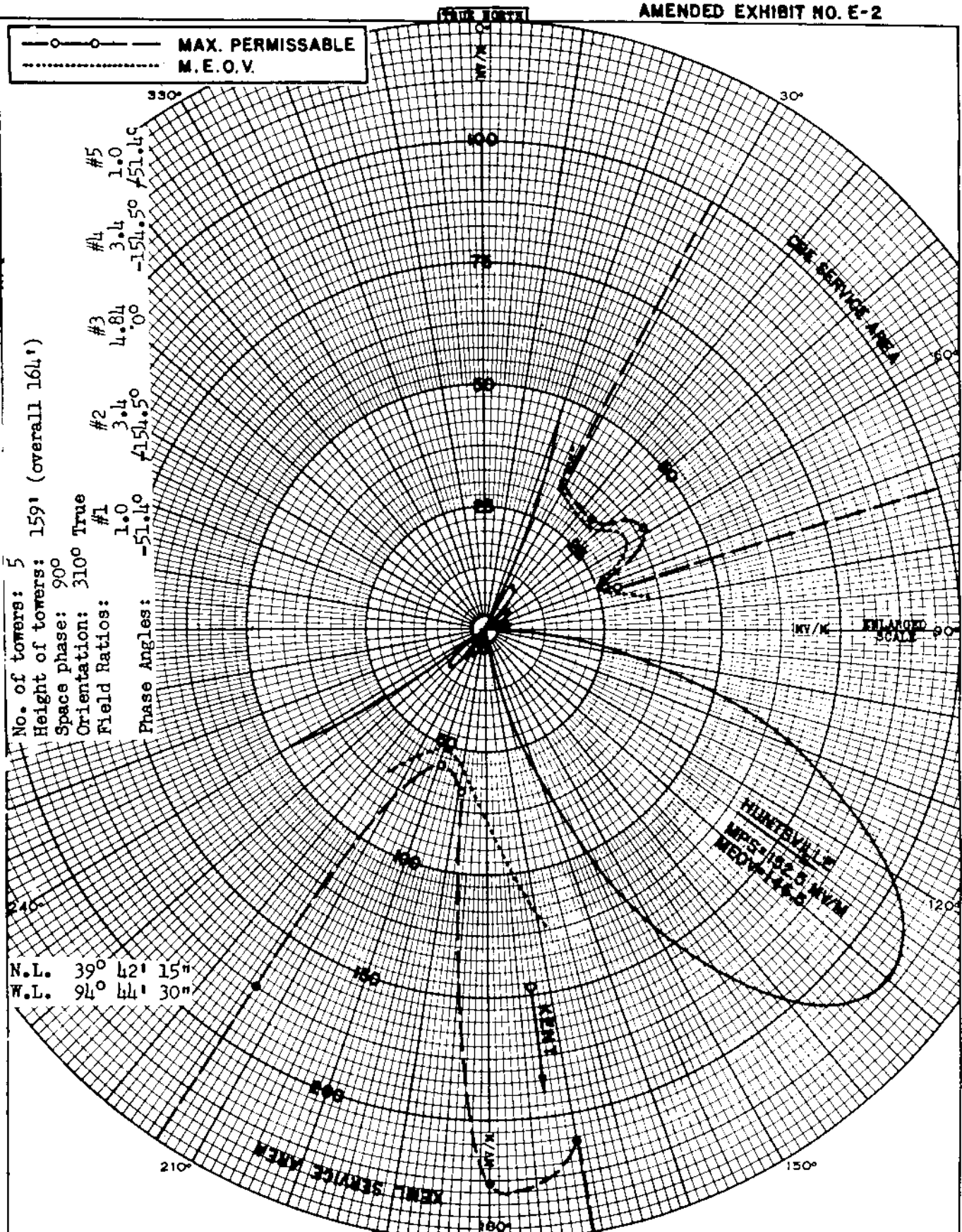
5 kw, U, DA-N

1550 kc

KKJO

AMENDED EXHIBIT NO. E-2

10



COMMERCIAL RADIO EQUIPMENT CO.

RADIO ENGINEERING CONSULTANTS

KANSAS CITY WASHINGTON, D. C.

PATTERN: EXPANDED Proposed Nighttime
FOR: KRES, ST. JOSEPH, MISSOURI
POWER: 5 KW DA-N FREQ: 1550 KC
DATE: August 13, 1951

AMENDMENT RECD 8/27/51

BMP-5622

KRES, ST. JOSEPH, MO.

1550 kc

KKJO

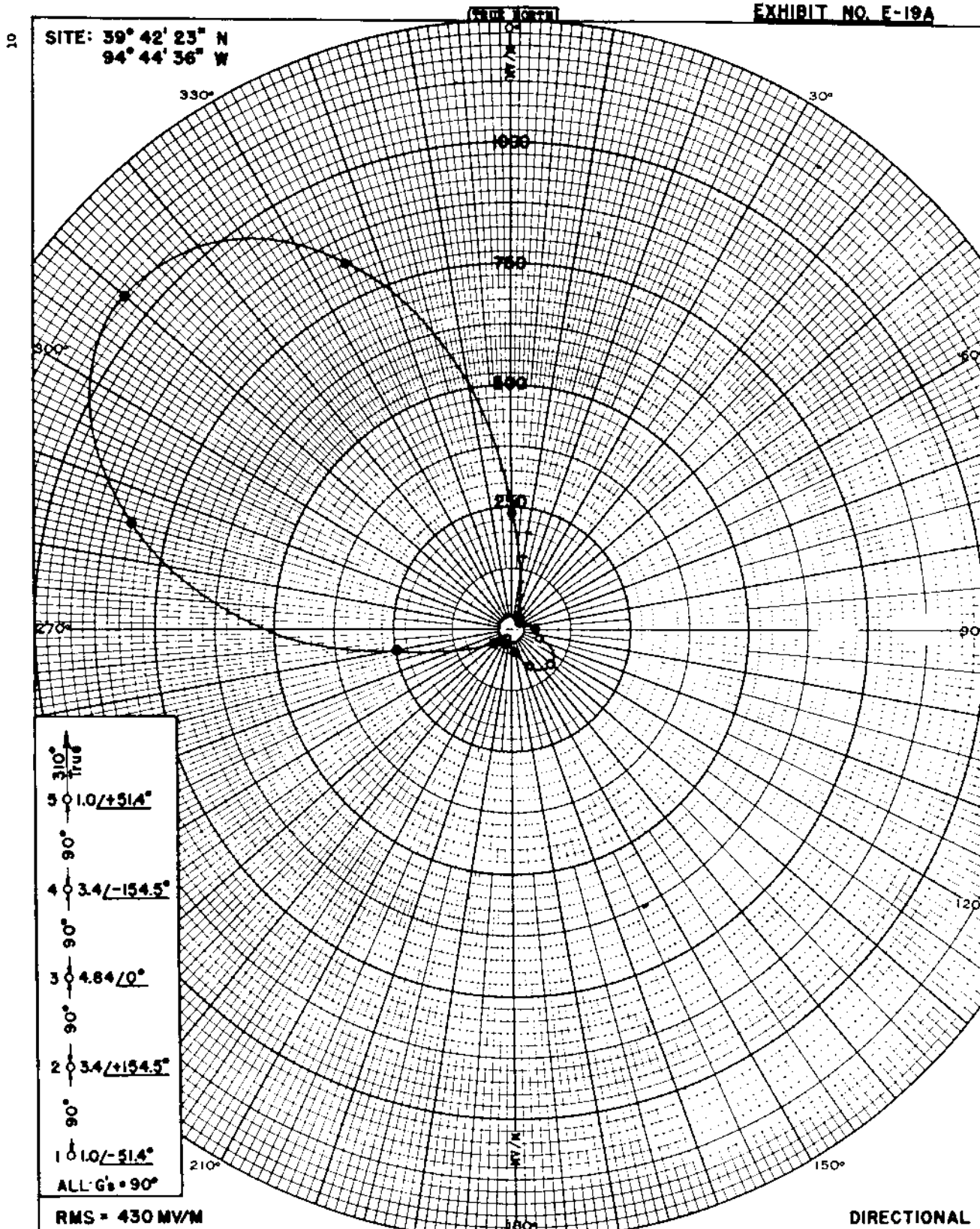
MEASURED
NIGHT

KRES, ST. JOSEPH, MO.
10/24/51g

5 KW, U, DA-N

1550 KC

EXHIBIT NO. E-19A



COMMERCIAL RADIO EQUIPMENT CO.

RADIO ENGINEERING CONSULTANTS

KANSAS CITY WASHINGTON, D. C.

PATTERN: MEASURED NIGHTTIME

FOR: KRES, ST. JOSEPH, MISSOURI

POWER: 5 KW-U DA-N FREQ: 1550 KC

DATE: SEPT. 10, 1951

BY: ITM

APPL RECD 9/21/51 HL-4562

KRES, ST. JOSEPH, MO.

1550 KC

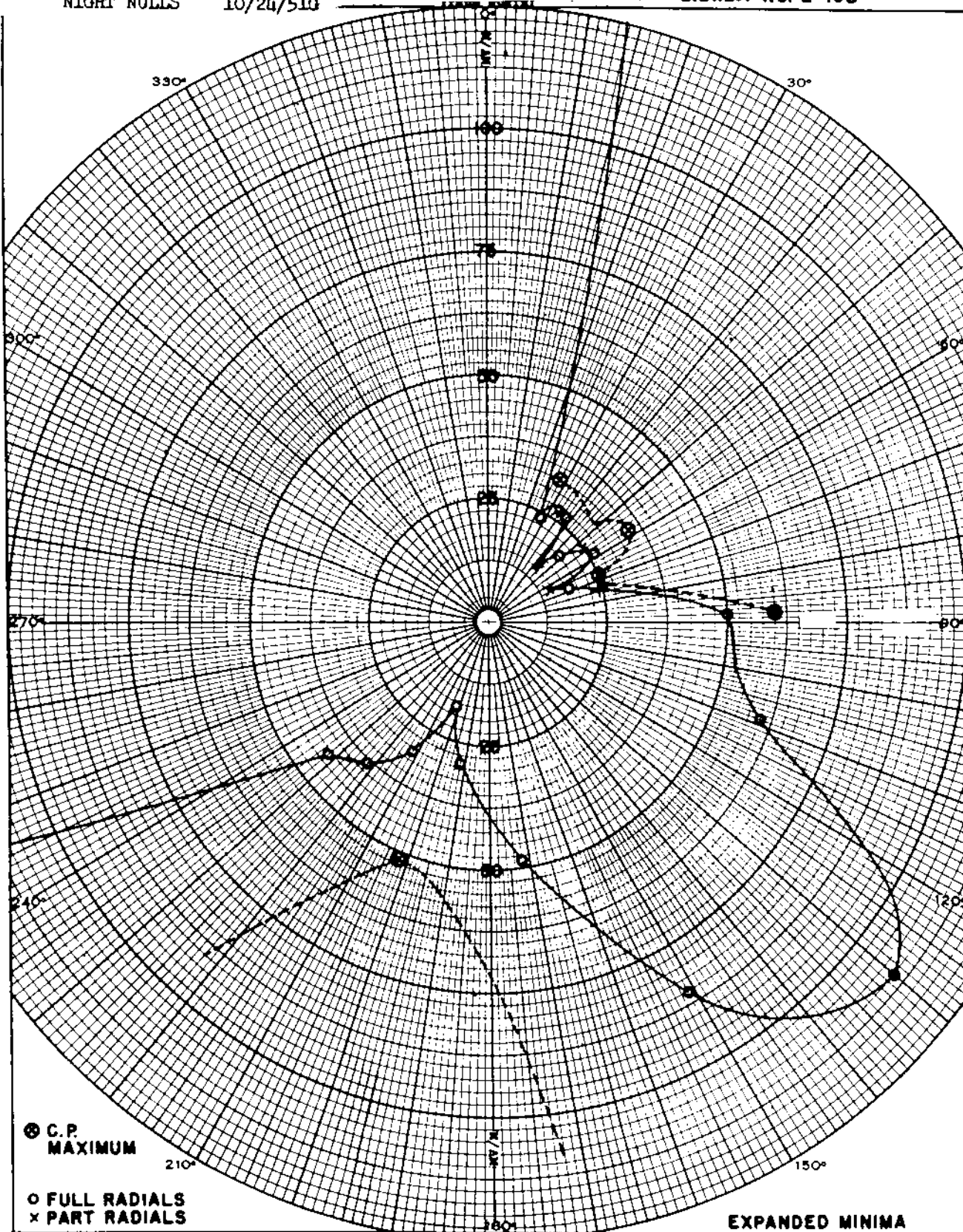
KKJO

MEASURED
NIGHT NULLS

KRES, ST. JOSEPH, MO.
10/24/51

5 KW, U, DA-N

1550 kc



⊙ C.P.
MAXIMUM

○ FULL RADIALS
x PART RADIALS

EXPANDED MINIMA



COMMERCIAL RADIO EQUIPMENT CO.

RADIO ENGINEERING CONSULTANTS

KANSAS CITY WASHINGTON, D. C.

PATTERN: MEASURED NIGHTTIME

FOR: KRES, ST. JOSEPH, MISSOURI

POWER: 5 KW-U DA-N FREQ: 1550 KC.

DATE: SEPT. 10, 1951

BY: ITM

APPL RECD 9/21/51 HL-4562

KRES, ST. JOSEPH, MO.

1550 KC

KKJO

MEASURED
DAY (NON-DA)

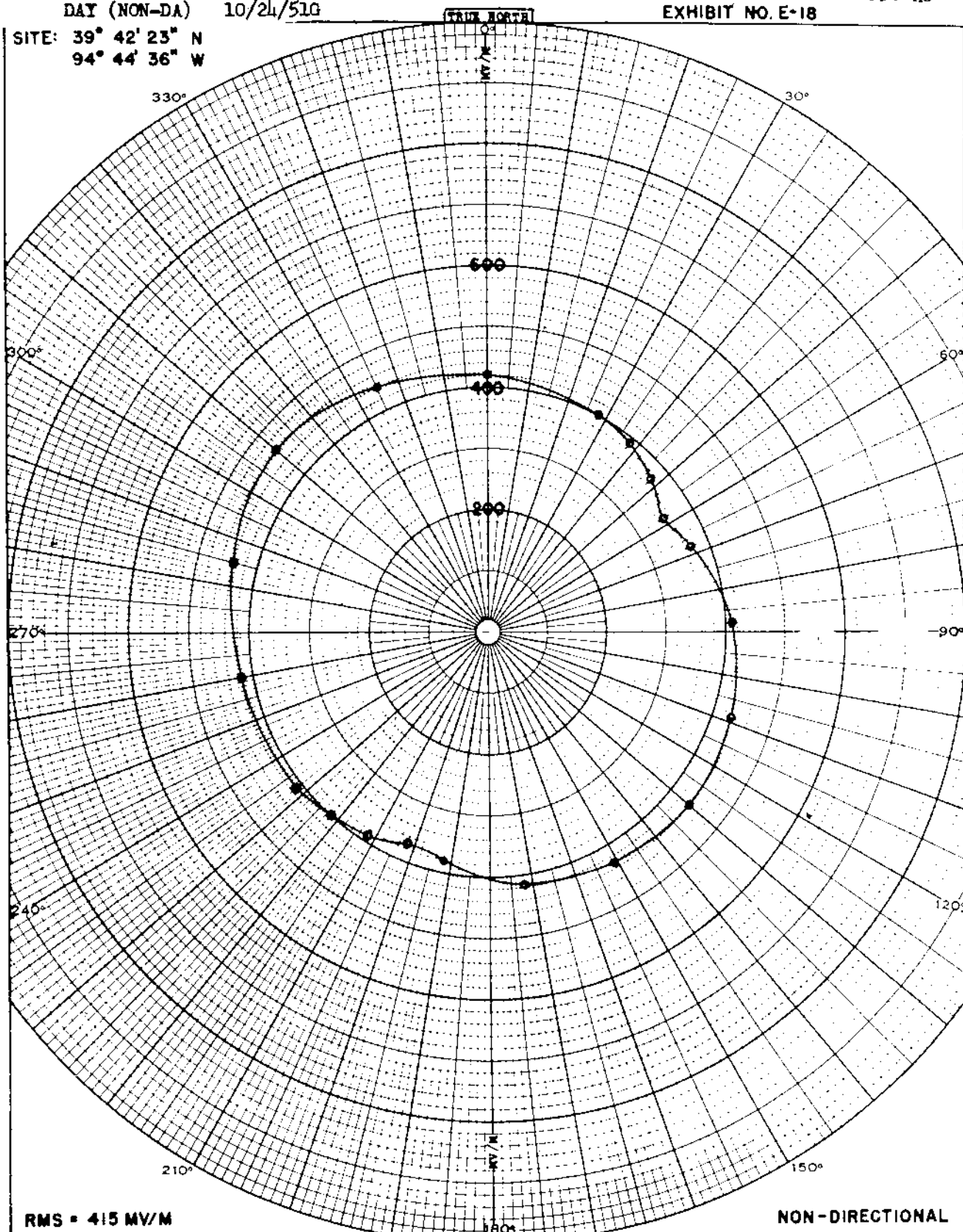
KRES, ST. JOSEPH, MO.
10/24/51G

5 KW, U, DA-N

1550 KC

EXHIBIT NO. E-18

SITE: 39° 42' 23" N
94° 44' 36" W



COMMERCIAL RADIO EQUIPMENT CO.

RADIO ENGINEERING CONSULTANTS

KANSAS CITY WASHINGTON, D. C.

PATTERN: MEASURED DAYTIME

FOR: KRES, ST. JOSEPH, MISSOURI

POWER: 5 KW-U DA-N FREQ: 1550 KC

DATE: SEPT. 10, 1951

BY: ITN

APPL RECD 9/21/51 BL-4562

KRES, ST. JOSEPH, MO.

1550 KC

KOBY

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KOBY

Main Studio: Reno, Nevada

Frequency: 1550 kHz

Power: 10 kW

Notification List No. 1660

Date: November 26, 1975

Class: II

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 39° 31' 14"

West Longitude: 119° 52' 22"

ANTENNA CHARACTERISTICS

Authorized for Daytime operation. (DA-D) STANDARD PATTERN
Number of elements: 2

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

TOWER:	W(#1)	E(#2)
HEIGHT ABOVE INSULATORS:	180'	180' (102°)
PHASING:	0°	-95°
FIELD RATIO:	1	1.1

SPACING AND

ORIENTATION: Elements are spaced 160' (90°) on a line bearing 90° true.

GROUND SYSTEM: 120-180' equally spaced copper radials about each tower.
Radials are shortened and bonded to a transverse strap along
intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RADIATED POWER:

	THEORETICAL	STANDARD
<u>RMS</u>	<u>RSS</u>	<u>RMS</u>
638 mv/m	631 mv/m	649 mv/m

Note: This notification concerns minor changes in transmitter location
and directional antenna radiation pattern.

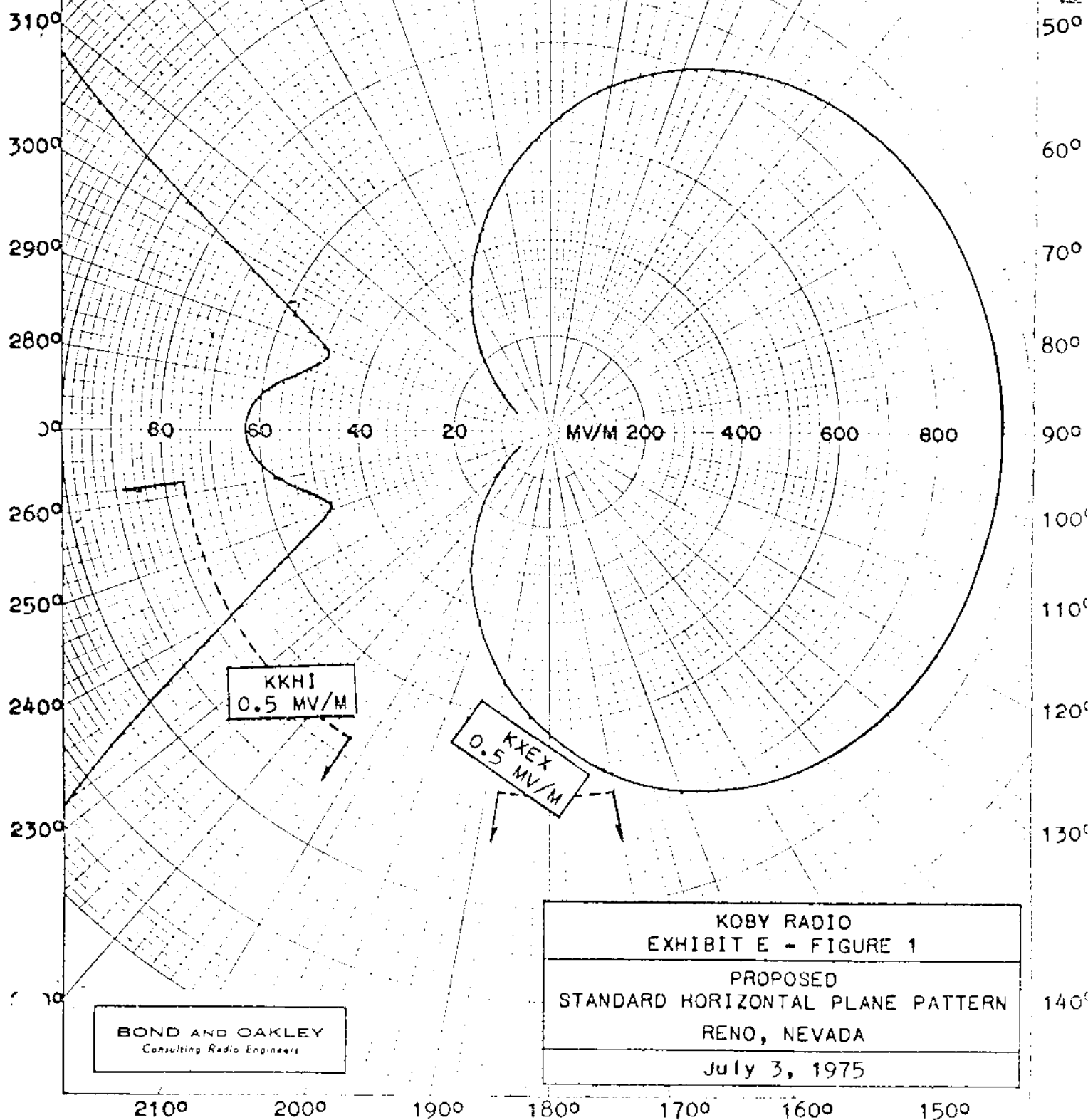
330° 340° 350° True 0°

Standard Pattern K0BY

#1 90° #2 90° true
 1/0° (160') 1.1/-95°
 Height (each) = 180' = 102° nom.
 Lat. 39°31'14"N, Long. 119°52'22"W

RMS_{th} = 618 mv/m
 RSS_{th} = 631 mv/m
 RMS_{std} = 649 mv/m

1550 KHZ - 10 KW - DA - D



KKHI
 0.5 MV/M

KXEX
 0.5 MV/M

BOND AND OAKLEY
 Consulting Radio Engineers

K0BY RADIO
 EXHIBIT E - FIGURE 1
 PROPOSED
 STANDARD HORIZONTAL PLANE PATTERN
 RENO, NEVADA
 July 3, 1975

KOBY

10kw, DA-D, D
1550 kc

Measured Day
(9-25-70ct)

Station KOBY
Reno, Nevada

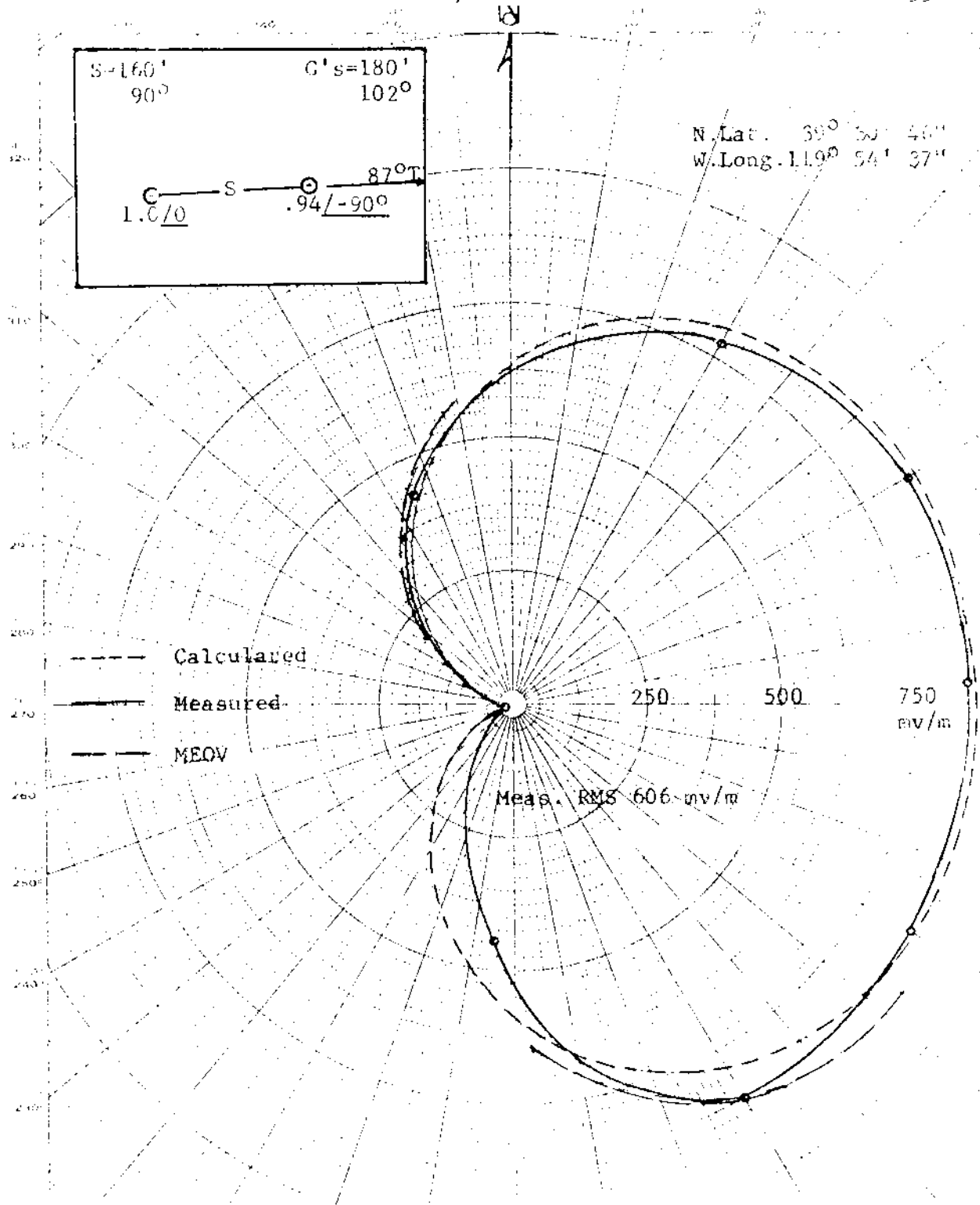


FIG. B

MEASURED DIRECTIONAL HORIZONTAL RADIATION
KOBY 1550 KC 10.0 KW-D RENO, NEVADA

Towne Associates Inc., Engineering Consultants, San Carlos

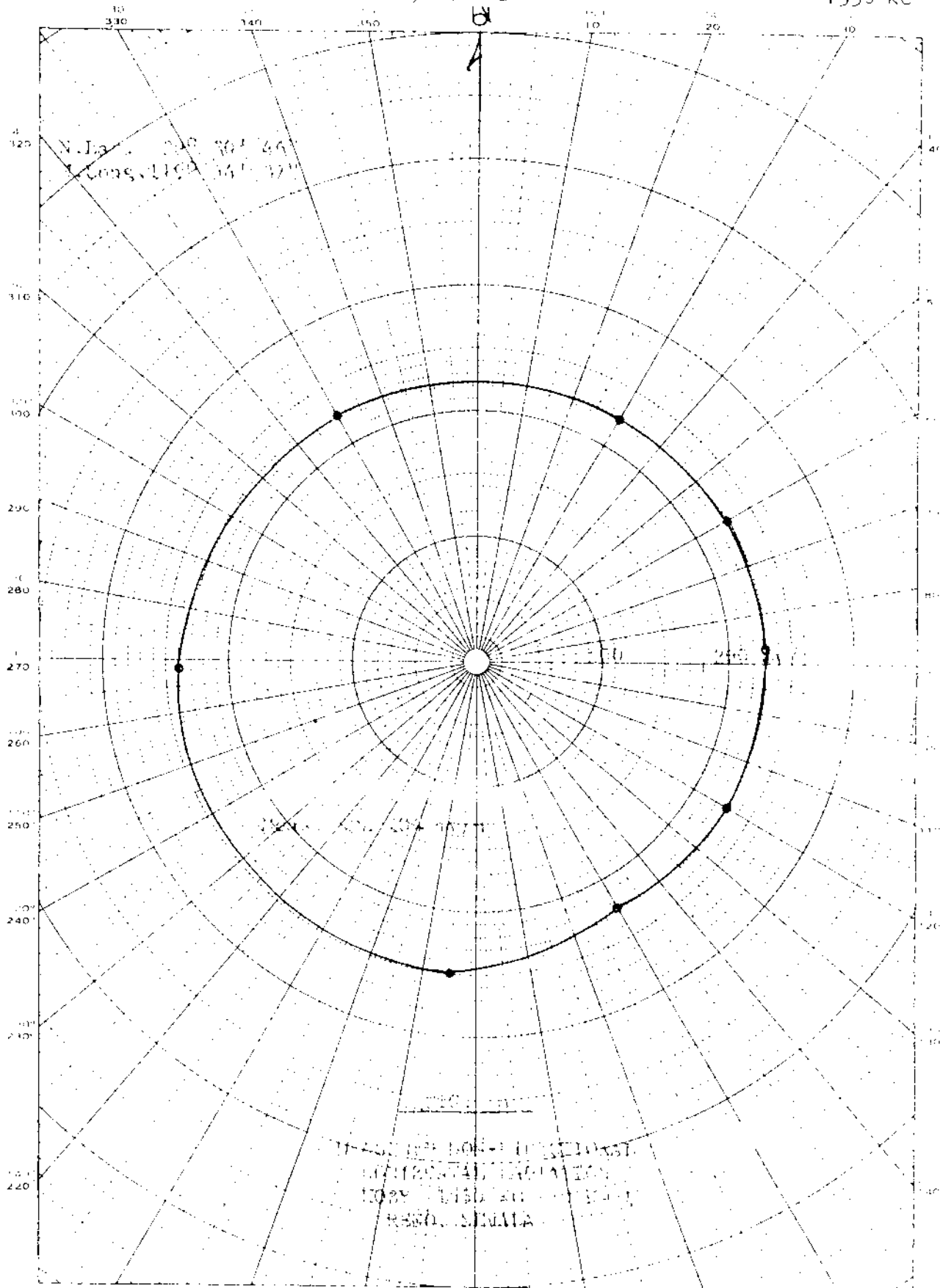
Measured Non-DA
(9-25-70ct)

Station KOBV
Reno, Nevada

KOBV
10kw, DA-D, D
1550 kc

EUGENE DIETZGEN CO
MADE IN U.S.A.

EUGENE DIETZGEN CO
MADE IN U.S.A.



FCC File No. BL-12715
Accepted 8-26-70

Station KOBV
Reno, Nevada

1550 kc

Proposed Day
(7-29-70ct)

Station KOBV
Reno, Nevada

KOBV
10kw, DA-D, D
1550 kc

SEE
REVERSE
SIDE

N. Lat. 39° 30' 52"
W. Long. 119 54 09

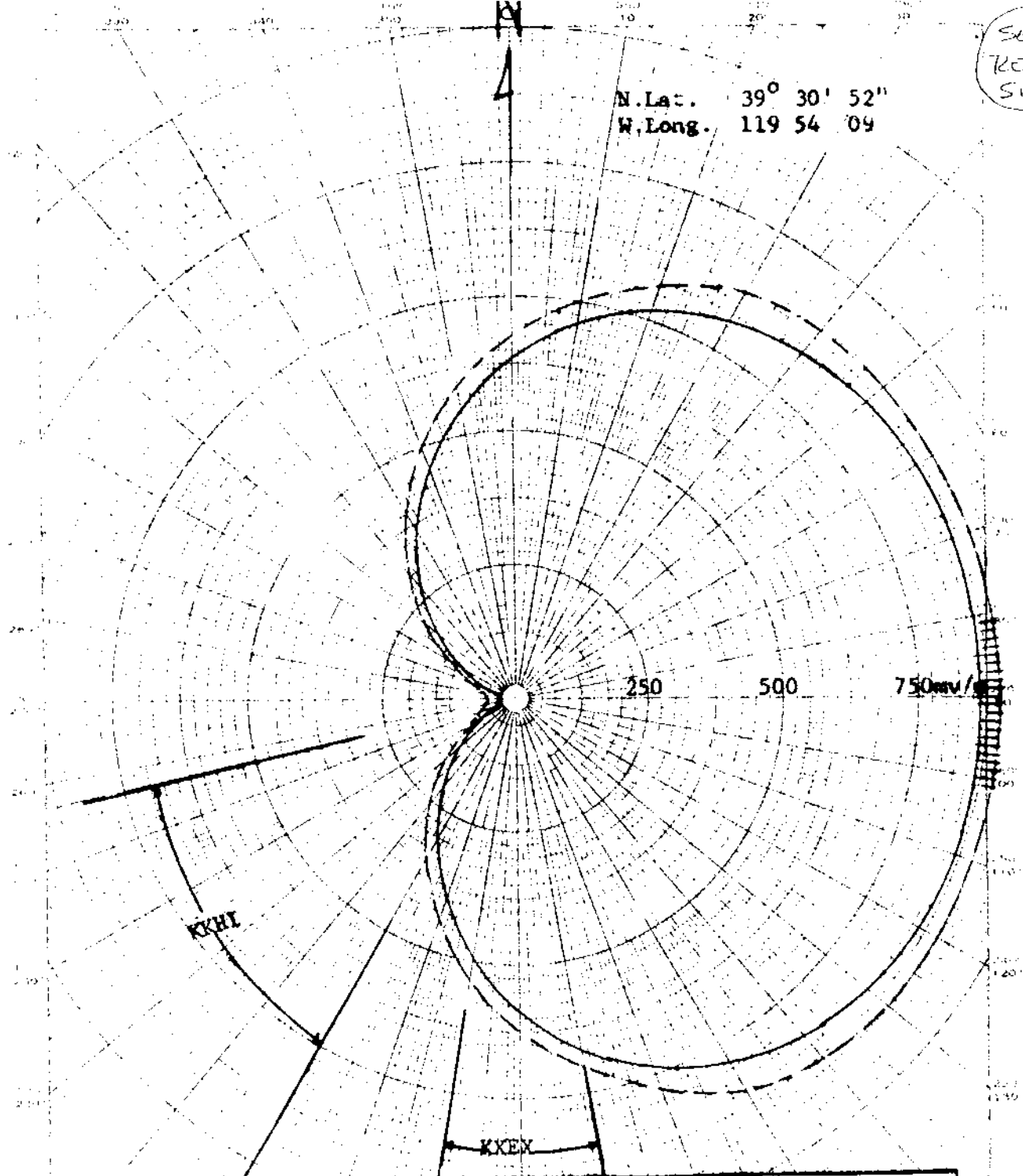


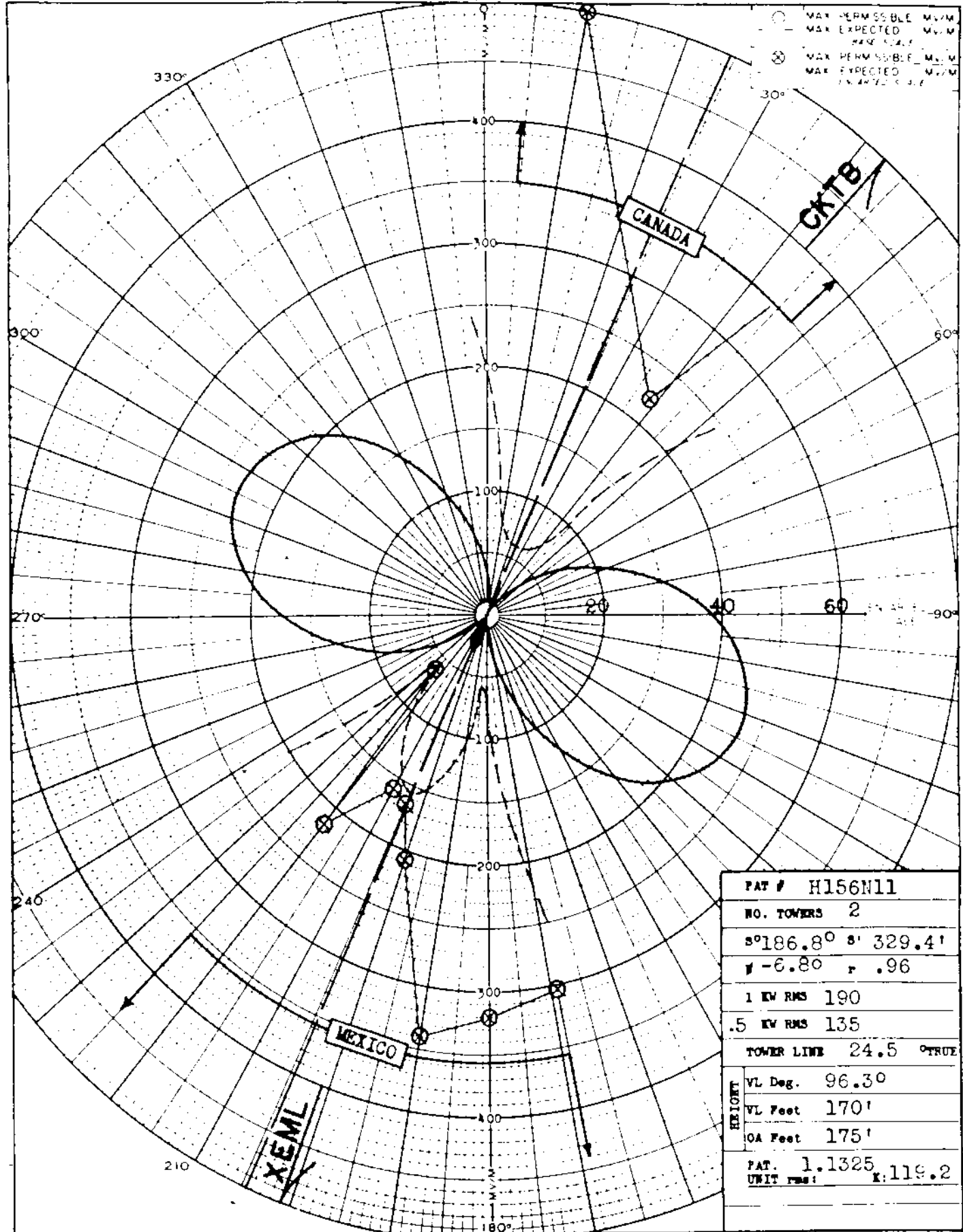
FIG. 1 (amended)

PROPOSED HORIZONTAL RADIATION
KOBV 1550 KC 10.0 KW DA-D
RENO, NEVADA

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

KOKA

SHREVEPORT, LA. 71114
 EXHIBIT No. 1-B 1550 KC



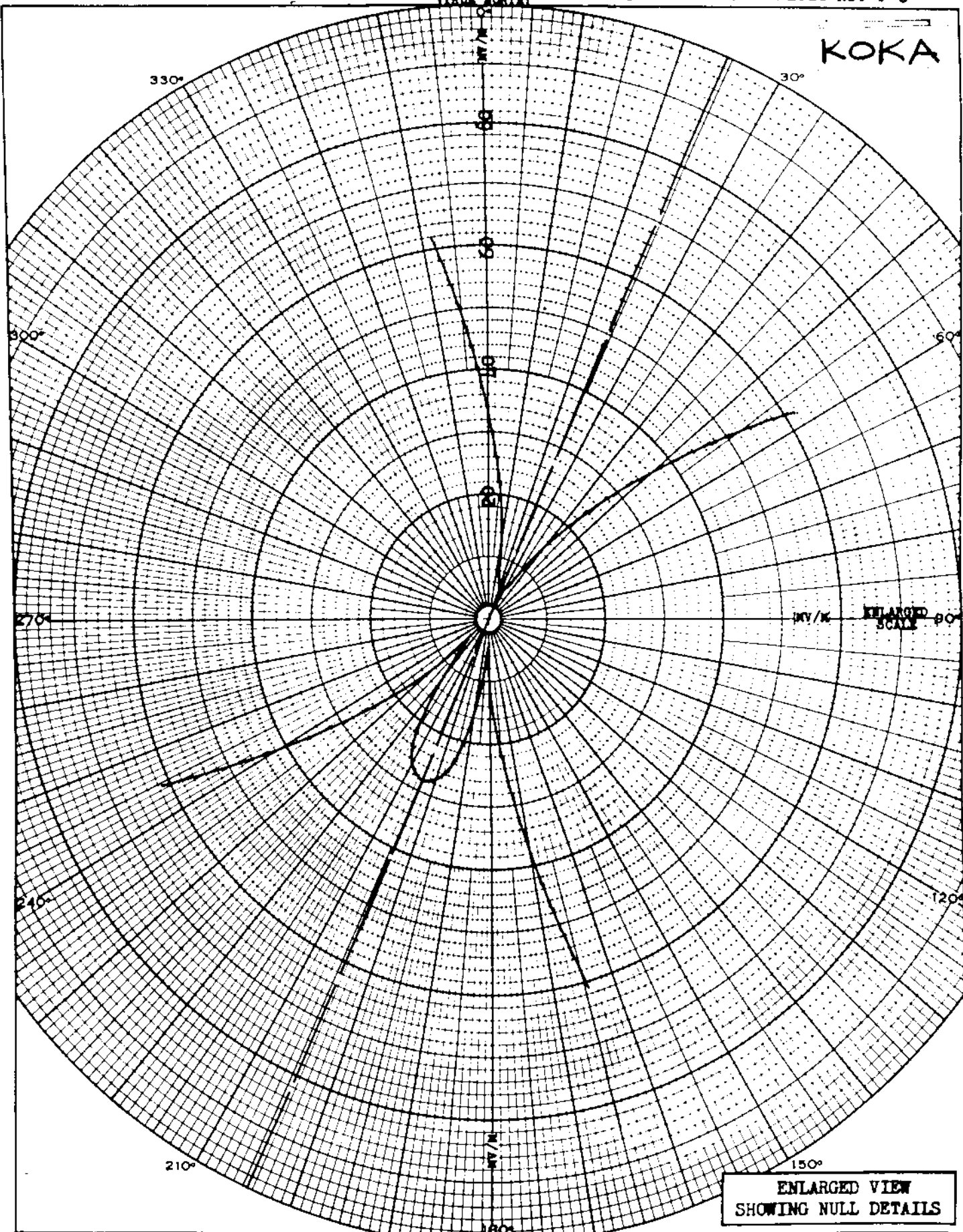
PAT #	H156N11
NO. TOWERS	2
S°	186.8°
S'	329.4'
Y	-6.8°
r	.96
1 KW RMS	190
.5 KW RMS	135
TOWER LINE	24.5 °TRUE
HEIGHT	
VL Deg.	96.3°
VL Feet	170'
OA Feet	175'
PAT.	1.1325
UNIT	ms
	K:119.2



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

PAT. PROPOSED NIGHTTIME
 ECP. SHREVEPORT, LOUISIANA
 POWER 500 W. FREQ 1550 KC
 DATE March 24, 1946 BY CID

KOKA



COMMERCIAL RADIO EQUIPMENT CO.

RADIO ENGINEERING CONSULTANTS

KANSAS CITY WASHINGTON, D. C. HOLLYWOOD

PATTERN: H156N11
FOR: SHREVEPORT, LOUISIANA
POWER: 500 Watts FREQ: 1550 Kcs.
DATE: 3/22/46 BY: ELD

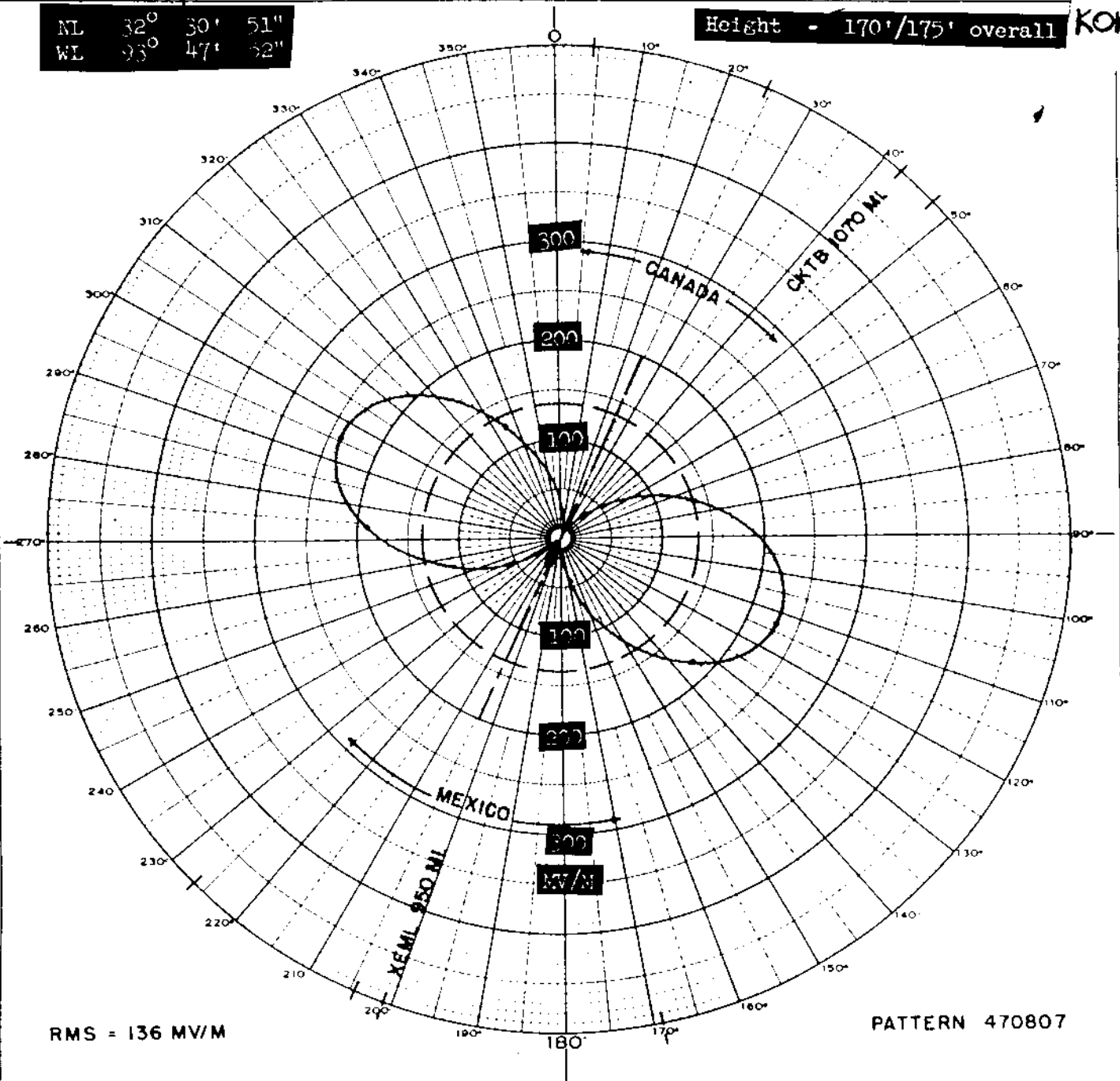
MEASURED NIGHT

Station KENT
Shreveport, Louisiana

500w, 1kw-LS, DA-N, U
1550 KC

NL 32° 30' 51"
WL 93° 47' 52"

Height - 170'/175' overall KOKI



RMS = 136 MV/M

PATTERN 470807

$\epsilon = N24.5^\circ E$

(2) $\circ 0.97/-7^\circ$

S = 186.8°

S

G1 = G2 = 96.3°

(1) $\circ 10/0^\circ$

PATTERN BASED ON
FIELD INTENSITY MEASUREMENTS

BROADCAST ENGINEERING SERVICE

Radio Engineering Consultants

SHREVEPORT, LOUISIANA

RADIO STATION KENT

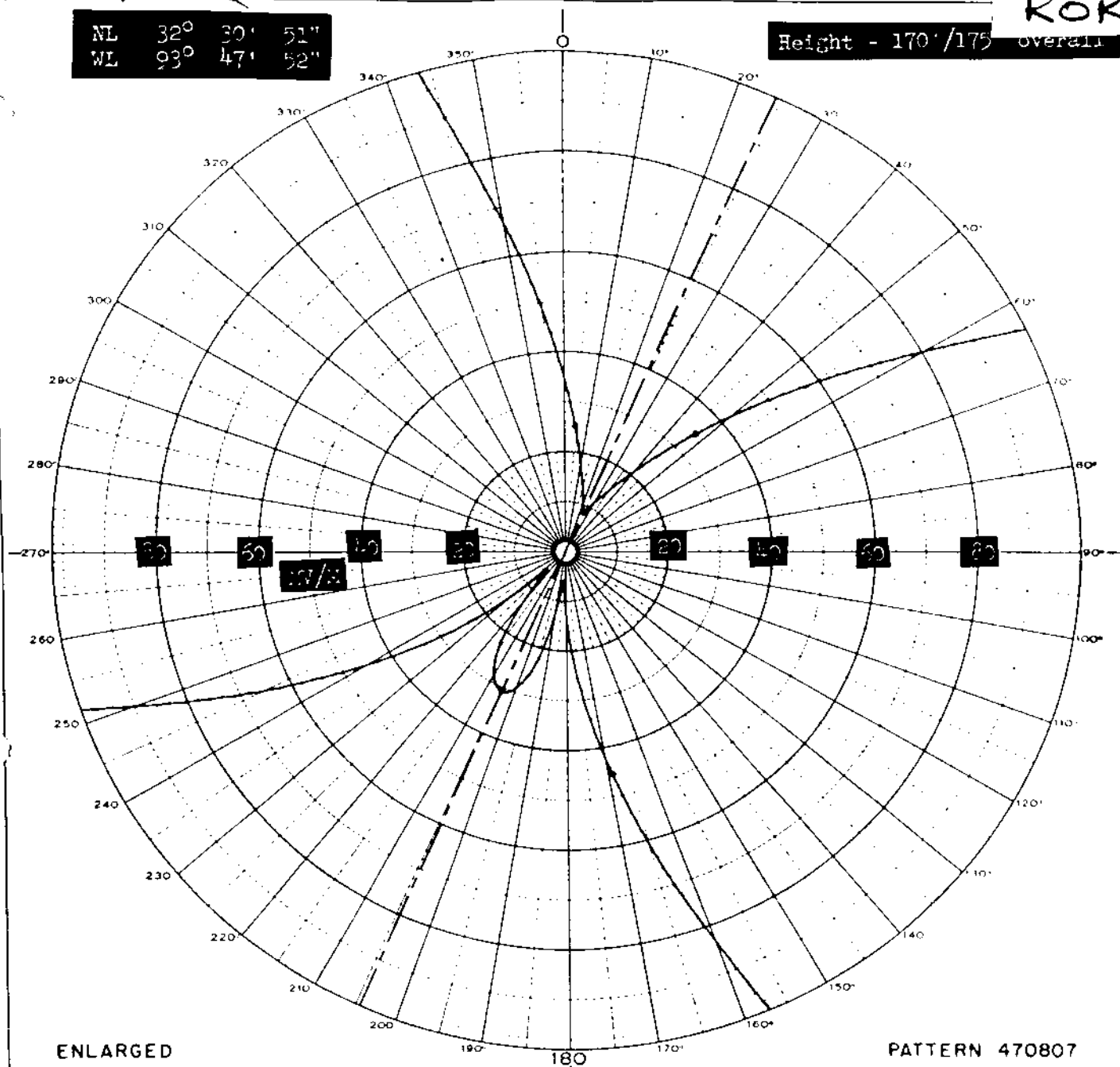
1550 KC 1000 W LS 500 W DA-N

470807

FIGURE 1A

NL	32°	30'	51"
WL	93°	47'	52"

Height - 170"/175 overall


$$\angle = N 24.5^{\circ} E$$

(2) $\phi 0.97 \angle -7^\circ$

$$S = 186.8^\circ$$

S

$$G1 = G2 = 96.3^\circ$$

(1) $\odot 1.0 \angle 0^\circ$

PATTERN BASED ON
FIELD INTENSITY MEASUREMENTS

BROADCAST ENGINEERING SERVICE

Radio Engineering Consultants

SHREVEPORT, LOUISIANA

RADIO STATION KENT

1550 KC 1000 W LS 500 W DA-N

470807

FIGURE 14

KQWB
1550 kHz

SUPPLEMENTAL AND CORRECTED
DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KQWB Main Studio: West Fargo, North Dakota
Frequency: 1550 kHz Power: 5kw Night 10kw Day
Notification List No. 1783 Date November 2, 1979, Class: II

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

DAYTIME

North Latitude: 46° 55' 29"
West Longitude: 96° 44' 56"

NIGHTTIME

North Latitude: 46° 58' 33"
West Longitude: 96° 35' 02"

PREDICTED EFFECTIVE DAY FIELD: (omnidirectional) 784.2 mv/m at rated power.

Note: Please retain the description sheet and directional antenna radiation patterns notified for station KQWB in United States Change List Number 1715 dated January 5, 1977 and attach to this supplemental Description Sheet. This notification is for the purpose of supplying additional information concerning the predicted effective field of the omnidirectional antenna employed daytime.

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KQWB

Main Studio: West Fargo, North Dakota

Frequency: 1550 kHz

Power: 5 kW

Notification List No. 1715

Date: January 5, 1977

Class: II

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

	<u>Daytime</u>			<u>Nighttime</u>		
North Latitude	46°	55'	29"	North Latitude	46°	58' 34"
West Longitude	96°	44'	56"	West Longitude	96°	34' 36"

Authorized for nighttime operation (DA-N).

NIGHTTIME ANTENNA CHARACTERISTICS

Number of elements: 5

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

TOWER:	W(#1)	WC(#2)	C(#3)	EC(#4)	E(#5)
HEIGHT ABOVE INSULATORS:	157'	157'	157'	157'	157' (89°)
PHASING:	+134.1°	-114.1°	0°	+114.1°	-134.1°
FIELD RATIO:	0.230	0.722	1.0	0.722	0.230

SPACING AND

ORIENTATION: Adjacent towers in a row are spaced 211.52' (120°) on a line bearing 90° true.

GROUND SYSTEM: 120-159' equally spaced copper radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

DAYTIME ANTENNA CHARACTERISTICS

Type of element: Series excited, uniform cross-section, guyed, vertical steel tower.

Height above insulators: 150'

Ground System: 120-168 (average) equally spaced copper radials about each tower.

(Cont'd)

KQWB

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	<u>RMS</u>	THEORETICAL	<u>RSS</u>	STANDARD <u>RMS</u>
Day	422 mv/m		- mv/m	-
Night	459.540 mv/m		421.941 mv/m	482.722 mv/m

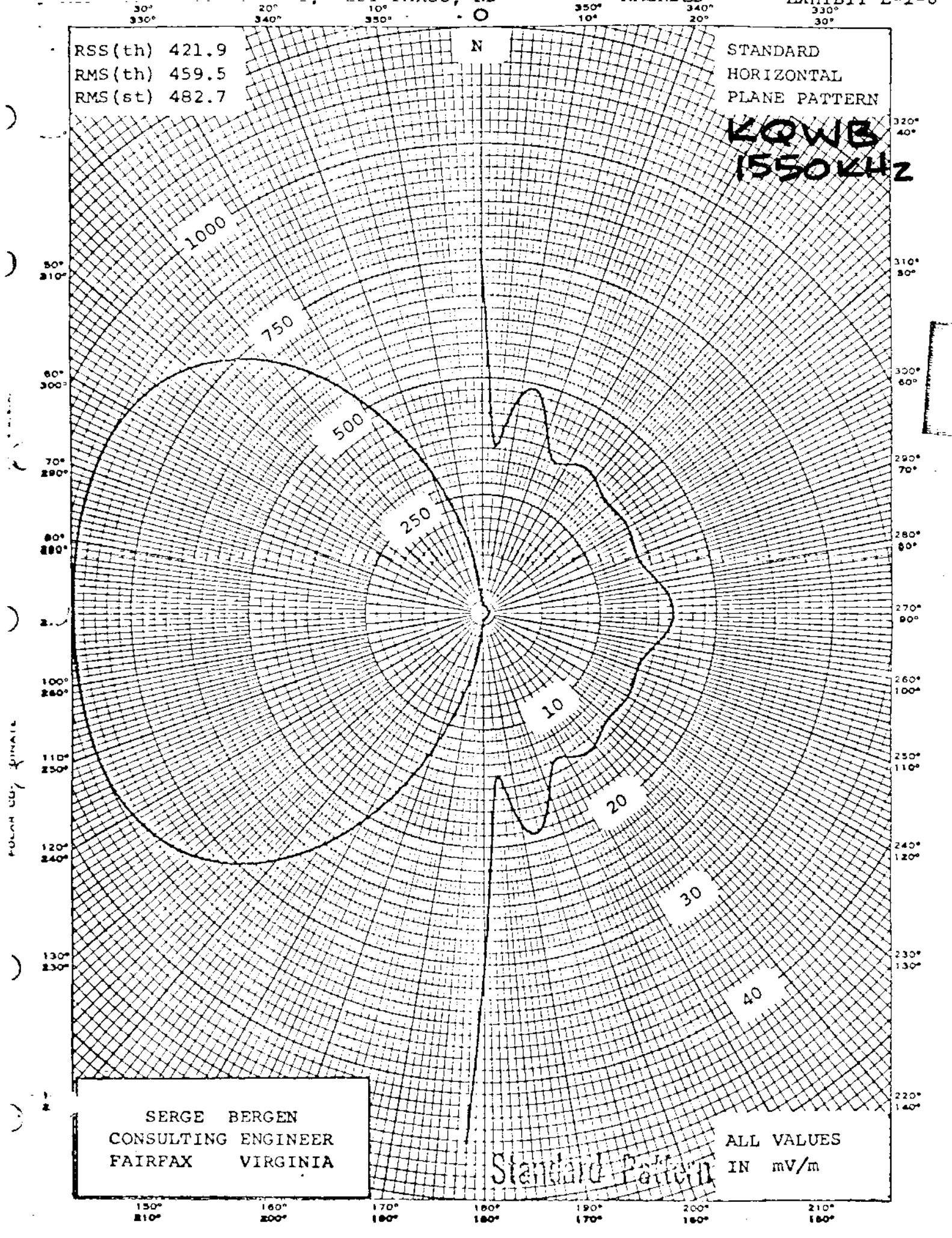
Note: This notification concerns only a change to add new nighttime operation of the station with Daytime operation continued as previously notified.

CTR NO 30665A3

RSS(th) 421.9
RMS(th) 459.5
RMS(st) 482.7

STANDARD
HORIZONTAL
PLANE PATTERN

KQWB
1550KHz



SERGE BERGEN
CONSULTING ENGINEER
FAIRFAX VIRGINIA

Standard Pattern

ALL VALUES
IN mV/m

SUPPLEMENTAL DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KQWB

Main Studio: West Fargo, North Dakota

Frequency: 1550 kHz

Power: 5kw

Notification List No. 1761

Date: December 15, 1977 Class: II

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE NIGHTTIME ANTENNA SYSTEM:

North Latitude: 46° 58' 33"
West Longitude: 96° 35' 02"

Authorized for Nighttime operation (DA-N).

Note: Please retain the description sheet and directional antenna radiation patterns notified for station KQWB in United States Change List Number 1715, dated January 5, 1977 and attach to this supplemental Description Sheet. This notification is for the purpose of indicating only a correction in the geographical coordinates of the center of the nighttime antenna system.

KXEX
1550 kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: K X E X

Main Studio: Fresno, California

Frequency: 1550 kHz

Power: 5 kW Day

Notification List No. 1784

Date: November 9, 1979 Class: II

GEOGRAPHICAL LOCATION OF THE

CENTER OF THE ANTENNA SYSTEM: North Latitude: 36° 38' 32"
West Longitude: 119° 48' 19"

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:	NE (#1)	C (#2)	SW (#3)
HEIGHT ABOVE INSULATORS:	360'	360'	360' (204.2°)
DAY PHASING:	-124.9°	0.422°	124.9°
DAY FIELD RATIO:	1.000	1.456	0.734

SPACING AND

ORIENTATION: Adjacent towers are spaced 158.64' (90.0°) on a line
bearing 215.0° true.

GROUND

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

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

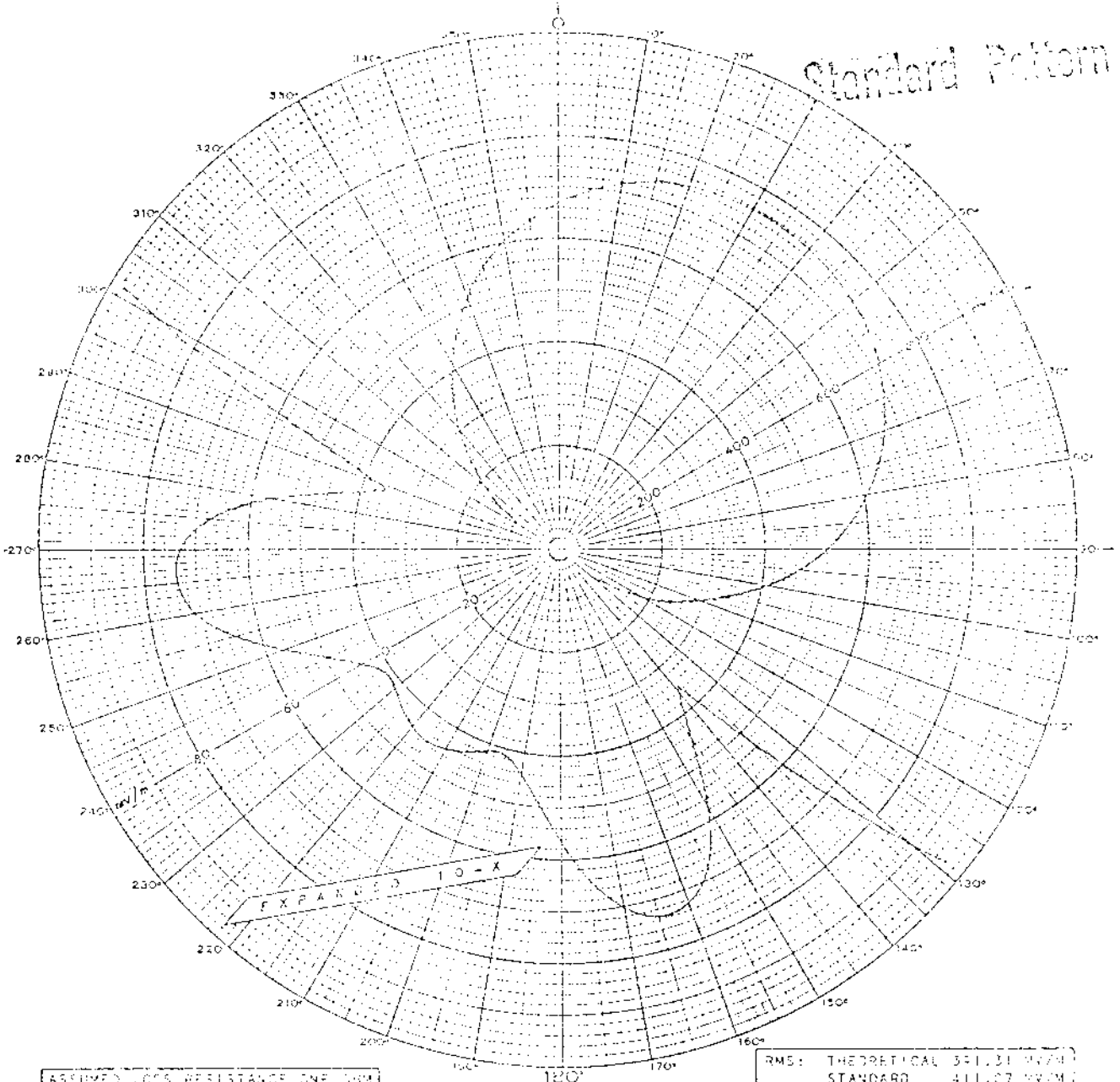
	THEORETICAL RMS	RSS	STANDARD RMS
Day	391.21 mV/m	478.47 mV/m	411.07 mV/m

August 29, 1973.

KXEX
1550KH

STANDARD HORIZONTAL PLANE PATTERN, 5.0 KW DA-D

Standard Pattern



ASSUMED LOSS RESISTANCE ONE OHM
POWER CONTROLLED TO 175 MV/M/KW

RMS: THEORETICAL 391.31 MV/M
STANDARD 411.67 MV/M
RSS: 478.47 MV/M

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS	STATION DATA																																																																																																																																	
S = 17.8 ft	<table><tr><th>TOWER</th><th>ELECTRIC FIELD (V/M)</th><th>ANGLE (DEG)</th><th>HEIGHT (FT)</th><th>PHASE (DEG)</th><th>HORIZONTAL FIELD (V/M)</th><th>FIELD PAT. D</th><th>ELEV. ANGLE (DEG)</th><th>PATTERN NO.</th></tr><tr><td>1</td><td>1.0</td><td>0</td><td>17.8</td><td>0</td><td>1.0</td><td>0</td><td>0</td><td>1</td></tr><tr><td>2</td><td>1.0</td><td>120</td><td>17.8</td><td>120</td><td>1.0</td><td>120</td><td>120</td><td>2</td></tr><tr><td>3</td><td>1.0</td><td>240</td><td>17.8</td><td>240</td><td>1.0</td><td>240</td><td>240</td><td>3</td></tr><tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>12</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	TOWER	ELECTRIC FIELD (V/M)	ANGLE (DEG)	HEIGHT (FT)	PHASE (DEG)	HORIZONTAL FIELD (V/M)	FIELD PAT. D	ELEV. ANGLE (DEG)	PATTERN NO.	1	1.0	0	17.8	0	1.0	0	0	1	2	1.0	120	17.8	120	1.0	120	120	2	3	1.0	240	17.8	240	1.0	240	240	3	4									5									6									7									8									9									10									11									12									<table><tr><th>STATION</th><th>NAME</th><th>ADDRESS</th><th>CITY</th><th>STATE</th><th>ZIP</th></tr><tr><td>KXEX</td><td>ATLAS BROADCASTING COMPANY</td><td>1550 K STREET</td><td>FRESNO</td><td>CA</td><td>93701</td></tr></table>	STATION	NAME	ADDRESS	CITY	STATE	ZIP	KXEX	ATLAS BROADCASTING COMPANY	1550 K STREET	FRESNO	CA	93701
TOWER	ELECTRIC FIELD (V/M)	ANGLE (DEG)	HEIGHT (FT)	PHASE (DEG)	HORIZONTAL FIELD (V/M)	FIELD PAT. D	ELEV. ANGLE (DEG)	PATTERN NO.																																																																																																																											
1	1.0	0	17.8	0	1.0	0	0	1																																																																																																																											
2	1.0	120	17.8	120	1.0	120	120	2																																																																																																																											
3	1.0	240	17.8	240	1.0	240	240	3																																																																																																																											
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LEWIS, LYNCH, CONSULTING ENGINEER MODOesto, CALIFORNIA	RADIO STATION KXEX ATLAS BROADCASTING COMPANY FRESNO, CALIFORNIA	FIGURE 1																																																																																																																																	

Sapulpa, Oklahoma

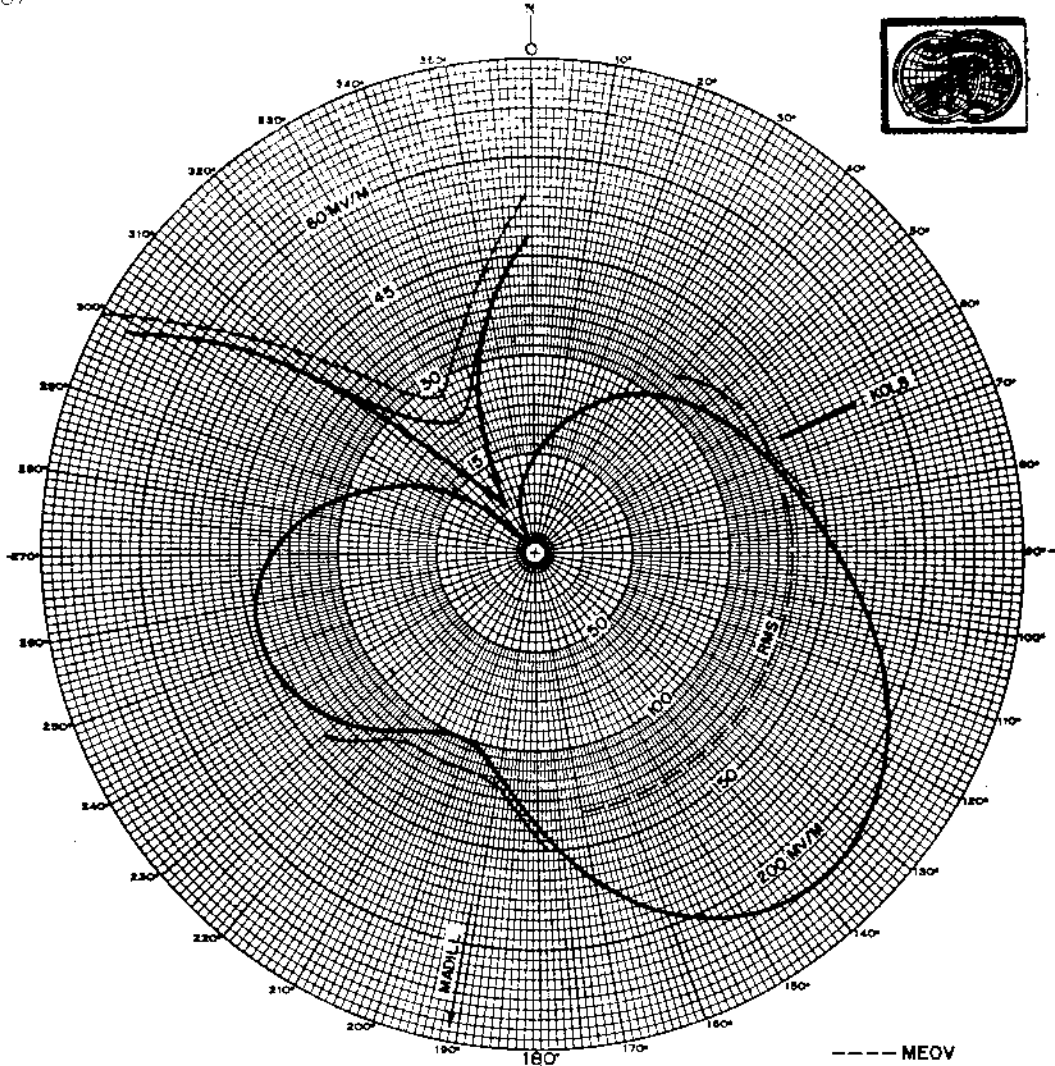
~~KXOK~~
KXOK

PROPOSED DAY
(7-7-60g)

New, Oklahoma Bcstng. Co.
Sapulpa, Oklahoma

500w, DA-D,D
1550 KC

1-1-61
checked for
new station



TOWER PLACEMENT SKETCH		PATTERN PARAMETERS								STATION DATA			
		TOWER	ELECTRICAL HEIGHT	TRUE TOWER ORIENTATION	SPACING	PHASING	HORIZONTAL FIELD RATIO	FIELD RATIO	ELEV. ANGLE	ELEVATION PER FIELD	CALL	NEW	AF
1	75'	N 0° E	0'	0°	62.5	1.0	0	13.8	15.5	FREQUENCY	1550	20	
2	75'	N 19° E	90'	+90°	106.2	1.7	10			POWER	0.5	20	
3	75'	N 64° E	180'	-45°	88.7	1.1	20			TIME OF OPERATION	DAY		
											TYPE OF OPERATION	DA	
											DAYTIME TOWERS	3	
											NIGHTTIME TOWERS	0	
											NO. RADIALS PER TOWER	120	
											LENGTH OF RADIALS	160 ft	
											BROADCAST SCREEN DIMENSION	251.25'	
											LAT.	31° 01' 08"	
											LONG.	96° 08' 55"	
											SUPERSEDES		
											PATTERN NO.	50060	
											DAYTIME OPERATION	☒	
											NIGHTTIME OPERATION	☐	

OKLAHOMA BROADCASTING COMPANY
Sapulpa, Oklahoma

FIGURE 8

FCC File No. BP-12403
Accepted 7-1-60 (Amended)

Oklahoma Broadcasting Company
Sapulpa, Oklahoma 1550 KC

Measured Day
(7-27-62ct)

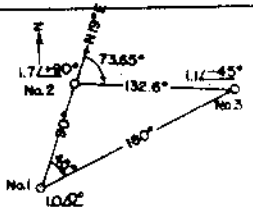
Station KREK
Sapulpa, Oklahoma

500w, DA-D, D
1550 kc

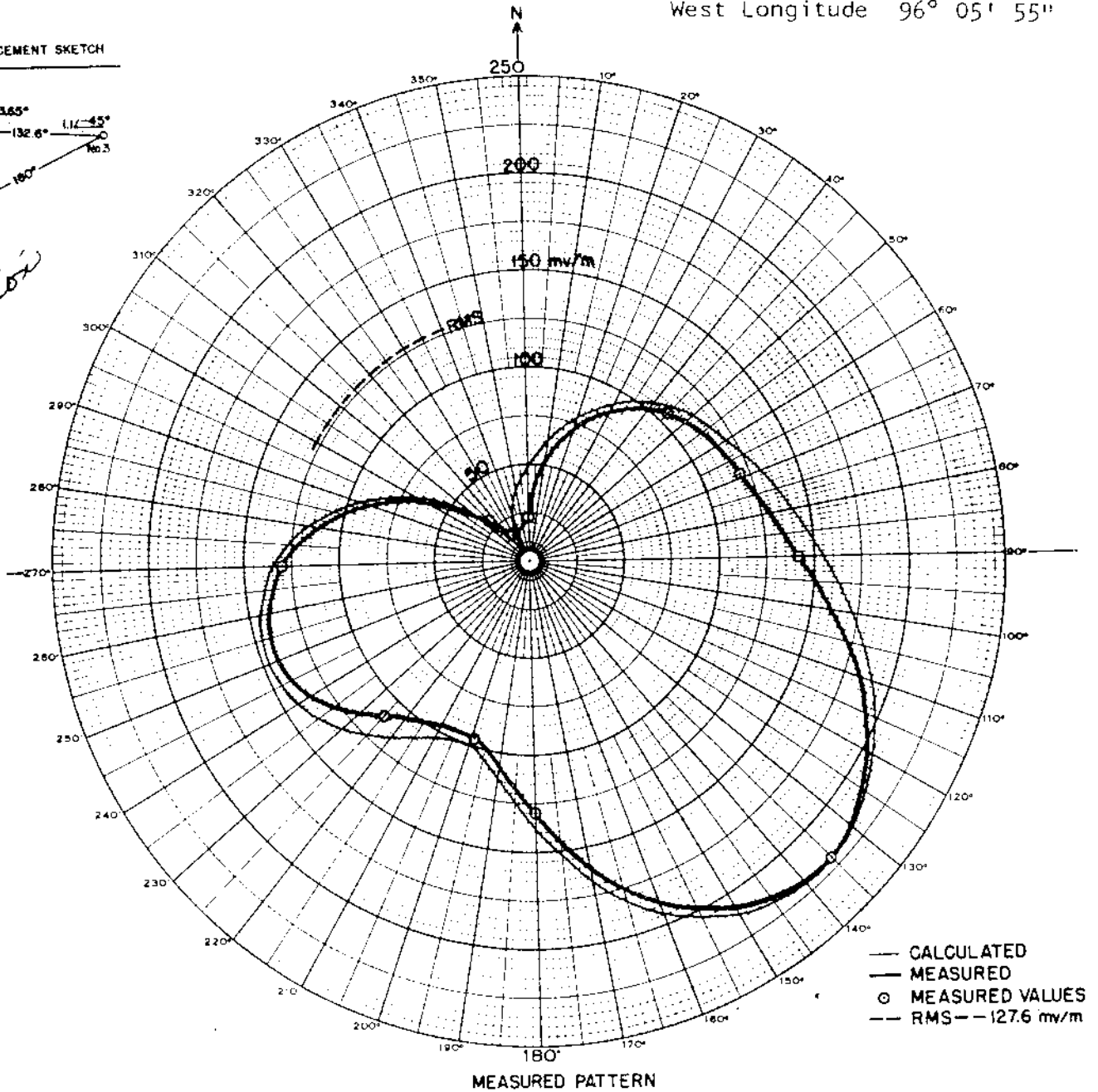
~~KREK~~
KXOJ

North Latitude 31° 01' 08"
West Longitude 96° 05' 55"

TOWER PLACEMENT SKETCH



8-15-62
ranted L
for new station



	CREEK COUNTY BROADCASTING COMPANY KREK SAPULPA, OKLAHOMA	FIGURE 25 DATE 5-24-62
CONSULTING ENGINEER	GEORGE P. ADAIR ENGINEERING COMPANY	WASHINGTON, D. C.

FCC File No. BL-9436
Accepted 7-25-62

Station KREK
Sapulpa, Oklahoma

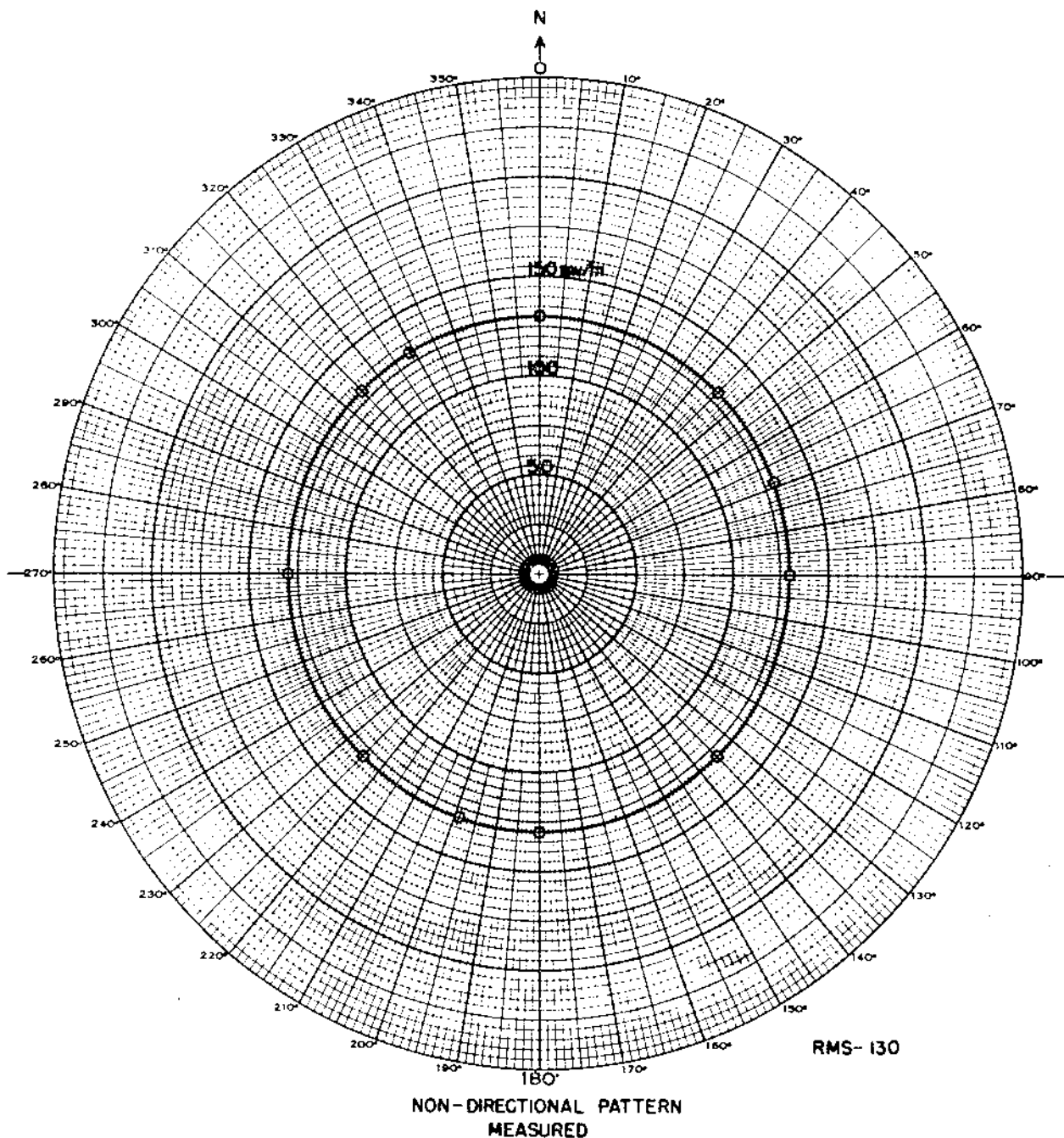
1550 kc

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

Station KREK
Sapulpa, Oklahoma

500w, DA-D, D
1550 kc

~~KREK~~
KXOJ



	CREEK COUNTY BROADCASTING COMPANY KREK SAPULPA, OKLAHOMA CONSULTING ENGINEERS GEORGE P. ADAIR ENGINEERING COMPANY	FIGURE 24 DATE 5-24-62 WASHINGTON, D. C.
--	---	--

FCC File No. BL-9436
Accepted 7-25-62

Station KREK
Sapulpa, Oklahoma

1550 kc

WAAV
1550 kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WAAV

Main Studio: Huntsville, Alabama

Frequency: 1550

Power: 0.5kw Night 50kw Day

Notification List No. 1783

Date: November 2, 1979 Class: II

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

DAYTIME	NIGHTTIME
North Latitude: 34° 51' 09"	North Latitude: 34° 44' 36"
West Longitude: 86° 39' 10"	West Longitude: 86° 35' 39"

DAYTIME ANTENNA CHARACTERISTICS

Authorized for Daytime operation (DA-D)

Number of elements: 4

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

TOWER:	N(#1)	NC(#2)	SC(#3)	S(#4)
HEIGHT ABOVE INSULATORS:	159'	159'	159'	159' (90°)
DAY PHASING:	0°	-151.787°	52.5637°	-105.183°
DAY FIELD RATIO:	1.00000	1.99488	1.75028	0.695431

SPACING AND ORIENTATION:

Adjacent towers are spaced 141.0' (80.0°) on a
line bearing 181.0° true.

GROUND SYSTEM:

120 - 159' equally spaced copper radials plus 120-30'
interspaced radials about each tower. Radials are shortened
and bonded to transverse straps along intersections between
towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL RMS	RSS	STANDARD RMS
Day	1429.37 mv/m	4113.93 mv/m	1504.72 mv/m

Note: Please retain the Nighttime directional antenna radiation pattern notified for Station WHBS in United States Change List Number 562 dated June 16, 1954 and attach to this Revised Description Sheet and Daytime pattern. This notification concerns only a change in the Daytime operation of the station with Nighttime operation continued as previously notified.

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:	NW(#1)	C(#2)	SE(#2)
HEIGHT ABOVE INSULATORS:	159'	159'	159' (90°)
NIGHT PHASING:	-15.8°	+180°	-15.8°
NIGHT FIELD RATIO:	1.0	1.825	1.0

SPACING AND
ORIENTATION:

Towers in a row are spaced 123.7' (70°) on a line
bearing 139.5° true.

GROUND SYSTEM:

120 - 159' equally spaced copper radials plus a 48'
square ground screen about each tower. Radials are
shortened and bonded to transverse straps along inter-
sections between towers. Centers of system are bonded
together.

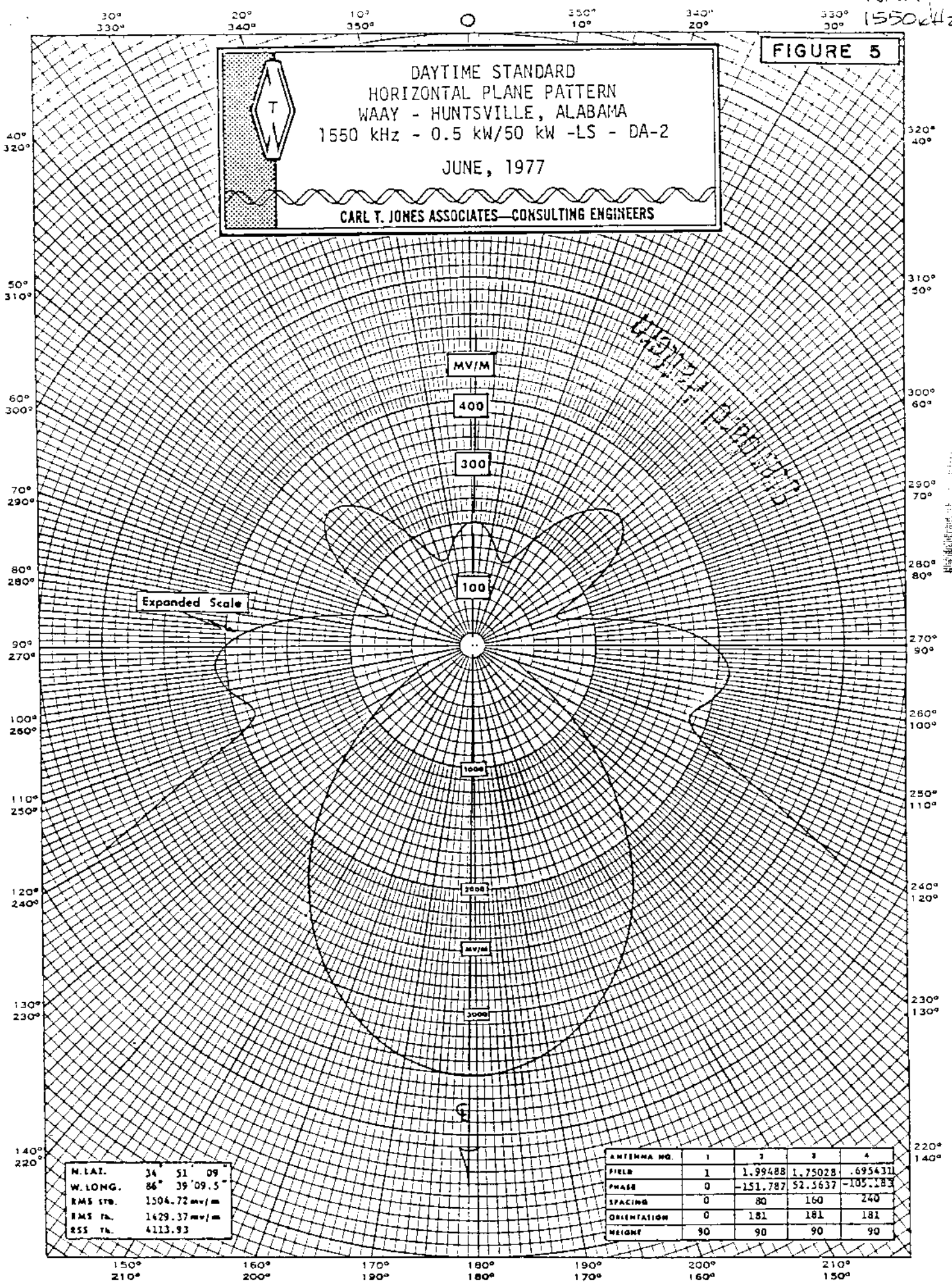
NAA 1550 kHz

FIGURE 5



DAYTIME STANDARD
HORIZONTAL PLANE PATTERN
WAAY - HUNTSVILLE, ALABAMA
1550 kHz - 0.5 kW/50 kW -LS - DA-2
JUNE, 1977
CARL T. JONES ASSOCIATES—CONSULTING ENGINEERS

DIETZEN CORPORATION
MADE IN U.S.A.
NO. 340-P DIETZEN GRAPH PAPER
POLAR CO-ORDINATE



N. LAT.	34° 51' 09"
W. LONG.	86° 39' 09.5"
RMS STB.	1504.72 mv/m
RMS TA.	1629.37 mv/m
RSS TA.	4113.93

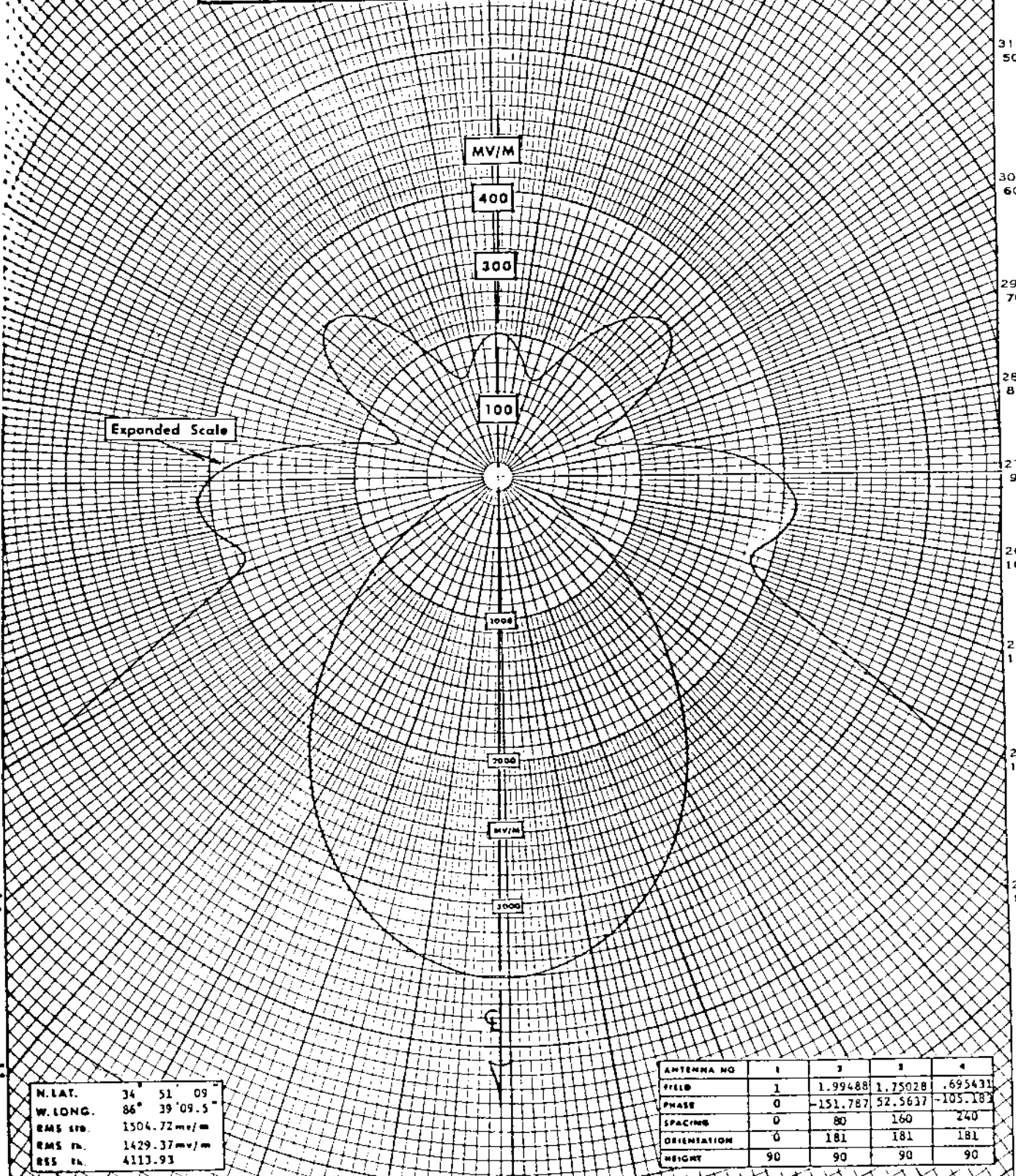
ANTENNA NO.	1	2	3	4
FIELD	1	1.99488	1.75028	.6954311
PHASE	0	-151.787	52.5637	-105.183
SPACING	0	80	160	240
ORIENTATION	0	181	181	181
HEIGHT	90	90	90	90

WAAY

FIGURE 5



DAYTIME STANDARD
HORIZONTAL PLANE PATTERN
WAAY - HUNTSVILLE, ALABAMA
1550 kHz - 0.5 kW/50 kW -LS - DA-2
JUNE, 1977
CARL T. JONES ASSOCIATES—CONSULTING ENGINEERS



N. LAT.	34	51	09
W. LONG.	86	39	09.5
RMS EIRP	1504.72	mw/m	
RMS EIRP	1429.37	mw/m	
RSS EIRP	4113.93		

ANTENNA NO	1	2	3	4
FIELD	1	1.99488	1.75028	.695431
PHASE	0	-151.787	52.5637	-105.183
SPACING	0	80	160	240
ORIENTATION	0	181	181	181
HEIGHT	90	90	90	90

WHBS, Huntsville, Ala. 1550 kc

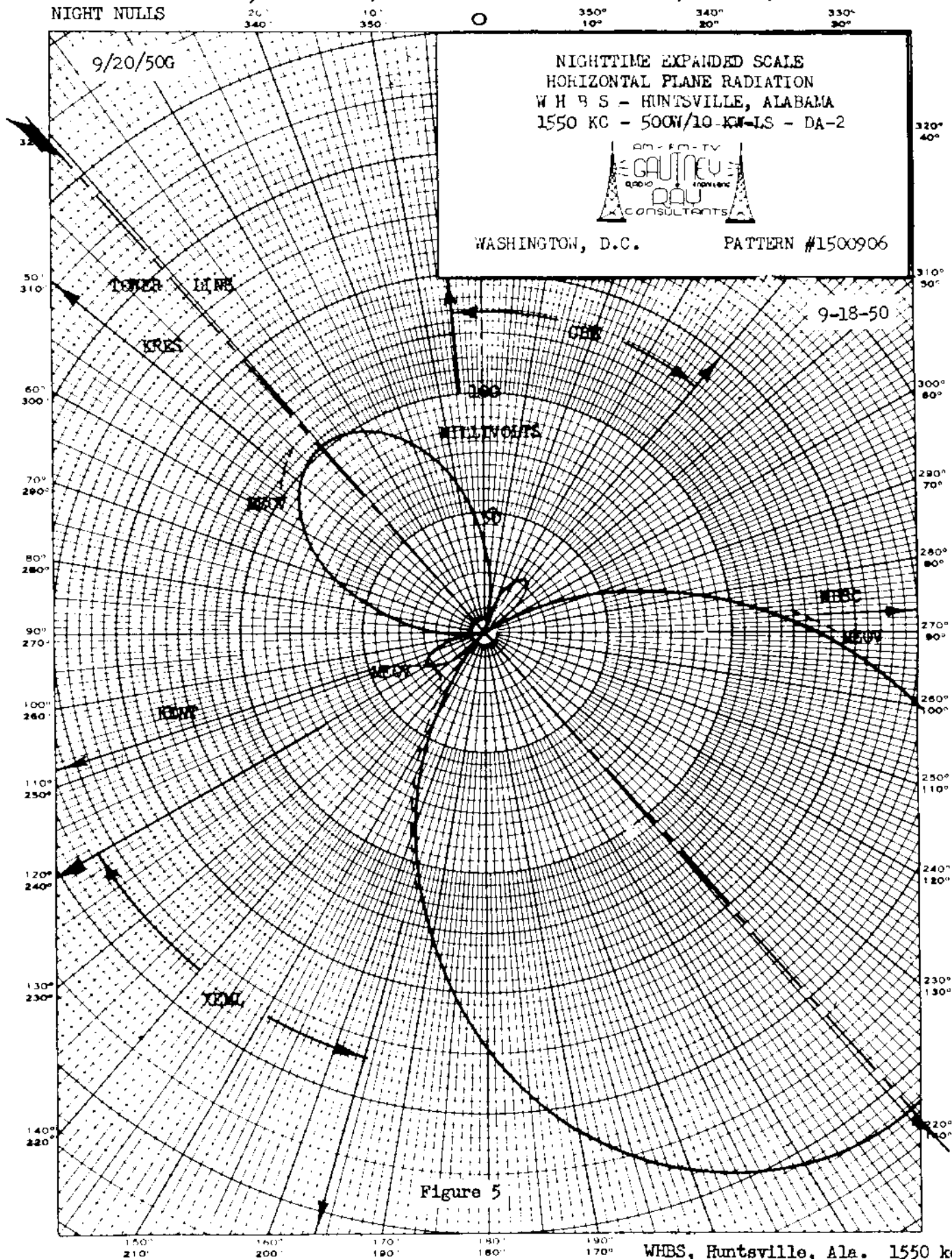
VV021

PROPOSED
NIGHT NULLS

WHBS, HUNTSVILLE, ALA.

500w, 10kw-LS, DA-2

1550 kc



1550 KC



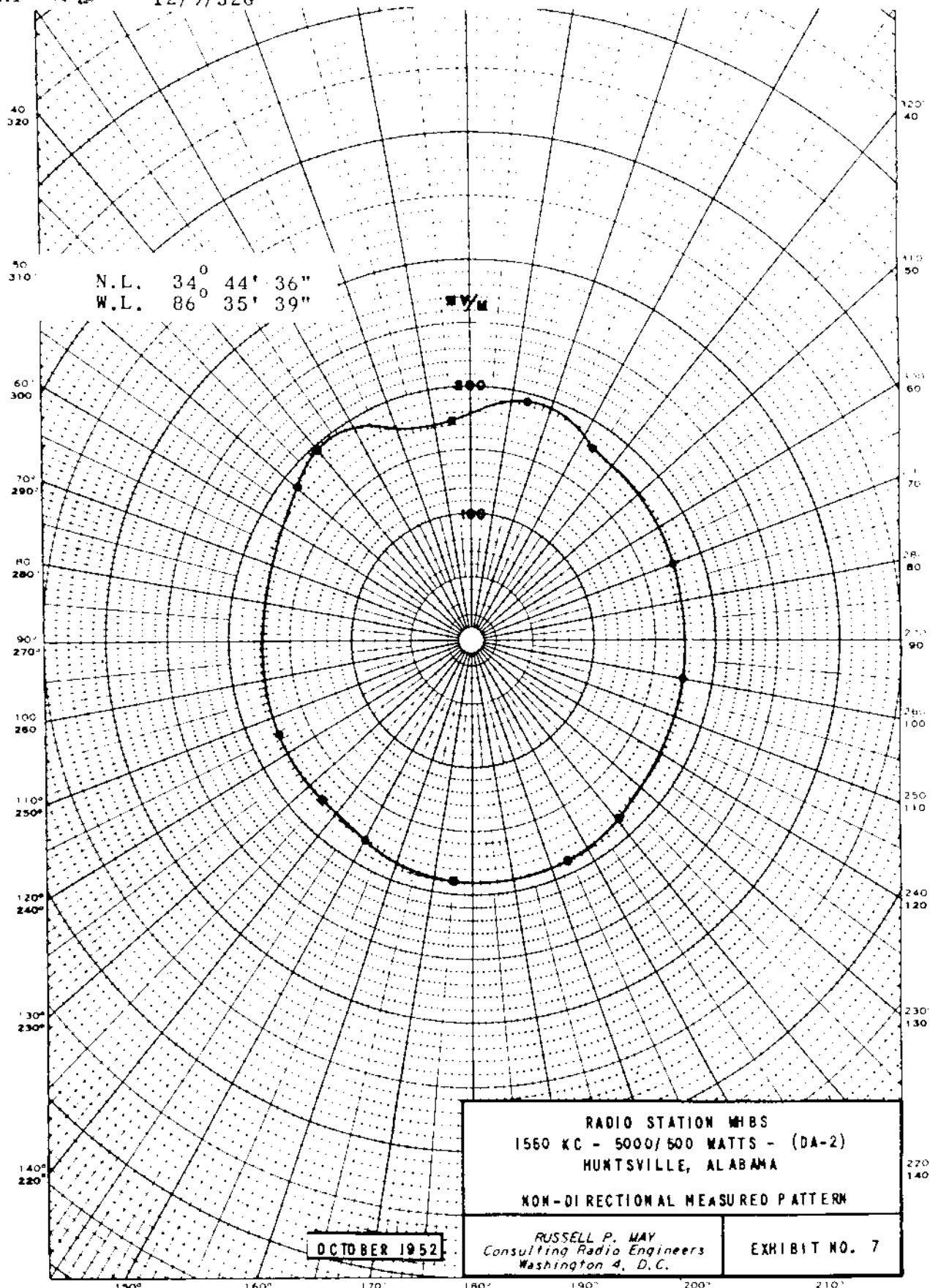
WHBS
WAAY

MEASURED
DAY ND

WHBS, HUNTSVILLE, ALA.
12/9/52G

5KW, U, DA-2

1550 KC



RECD FCC 11/3/52 ACC 11/19/52 BL--4832

WHBS, HUNTSVILLE, ALA. 1550 KC

WBHM

DELETED

JRU

PROPOSED DAY
(2-26-60g)

New; Birmingham B/C Co.
Birmingham, Alabama

50kw, DA-D,D

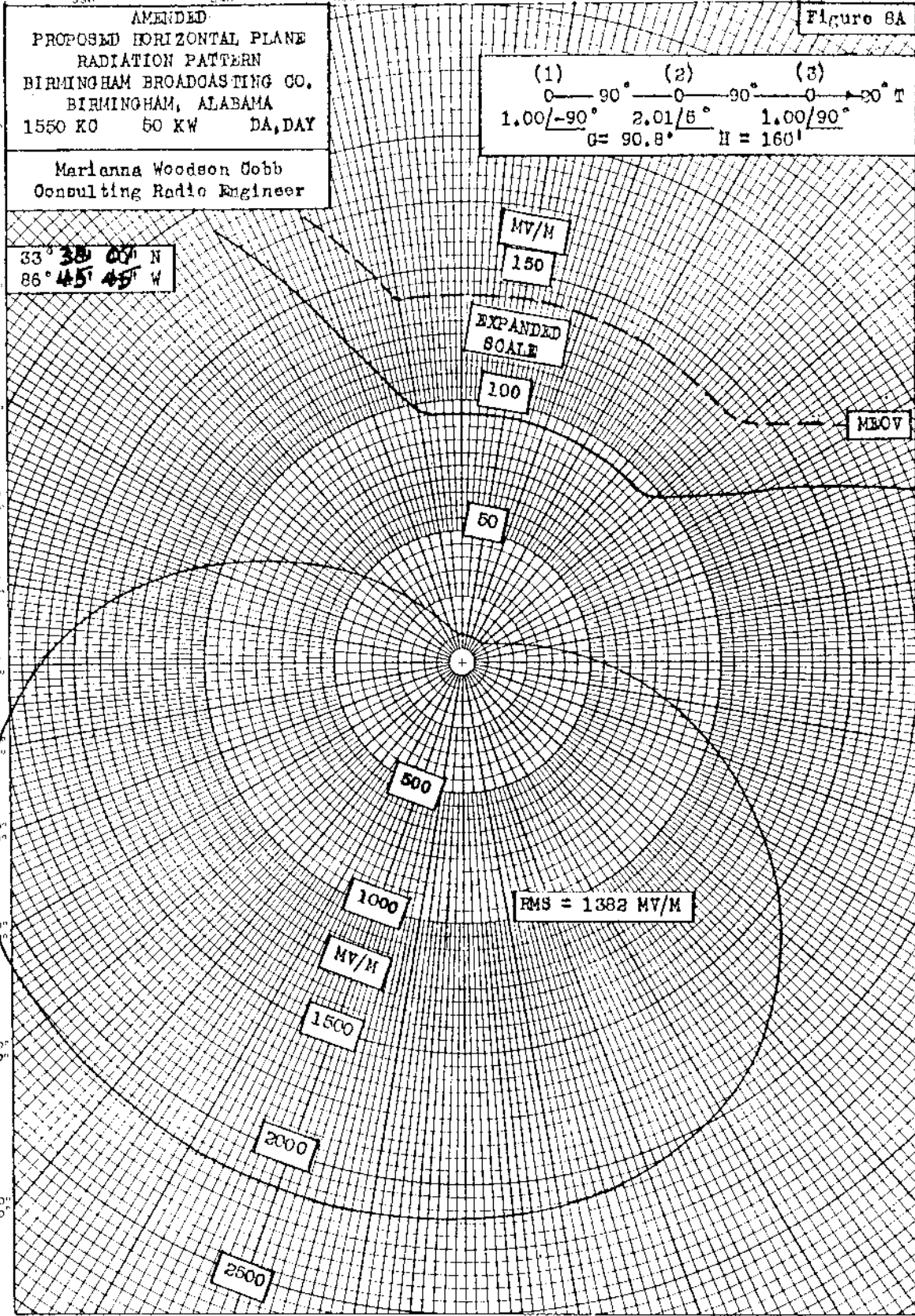
1550 KC

AMENDED
PROPOSED HORIZONTAL PLANE
RADIATION PATTERN
BIRMINGHAM BROADCASTING CO.
BIRMINGHAM, ALABAMA
1550 KC 50 KW DA, DAY
Marlanna Woodson Cobb
Consulting Radio Engineer

Figure 8A

(1) 0 90° 0 90° 0 90° T
1.00/-90° 2.01/5° 1.00/90°
G = 90.8° H = 160'

33° 38' 00" N
86° 45' 45" W



granted Cf. 4-7-60 for
a new station

1-15-62
granted MCP
to change
Print
33-38-07
86-45-45
locations

RECEIVED
11-6-63
APP FOR F.S. 11-1-63
DENIED

FCC File No. BP-13076
Accepted 2-3-60 (Amended)

Birmingham Broadcasting Company
Birmingham, Alabama
1550 KC

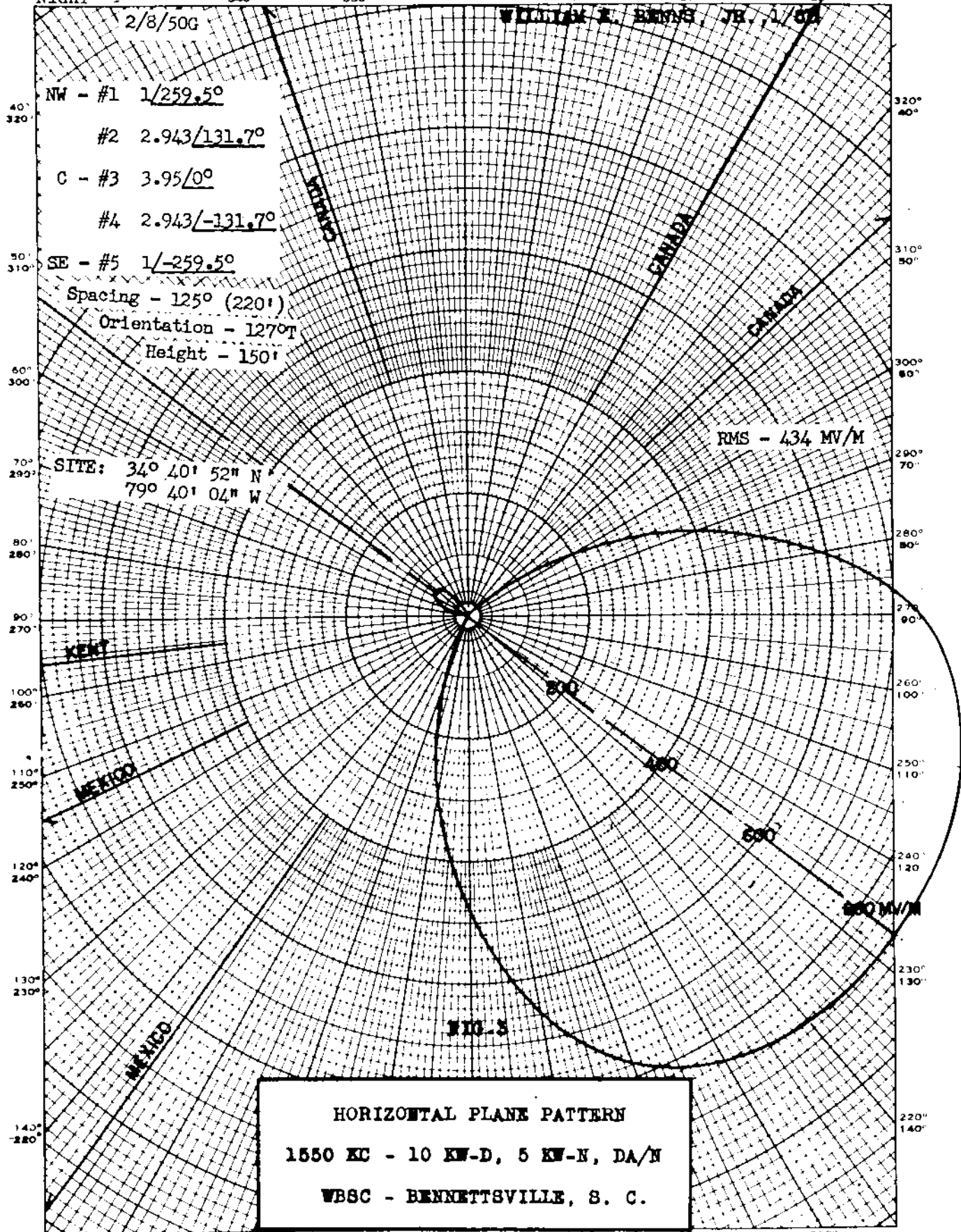
WBSC

PROPOSED
NIGHT

WBSC, BENNETTSVILLE, S. C.

5kw, 10kw-LS, DAN

1550 kc

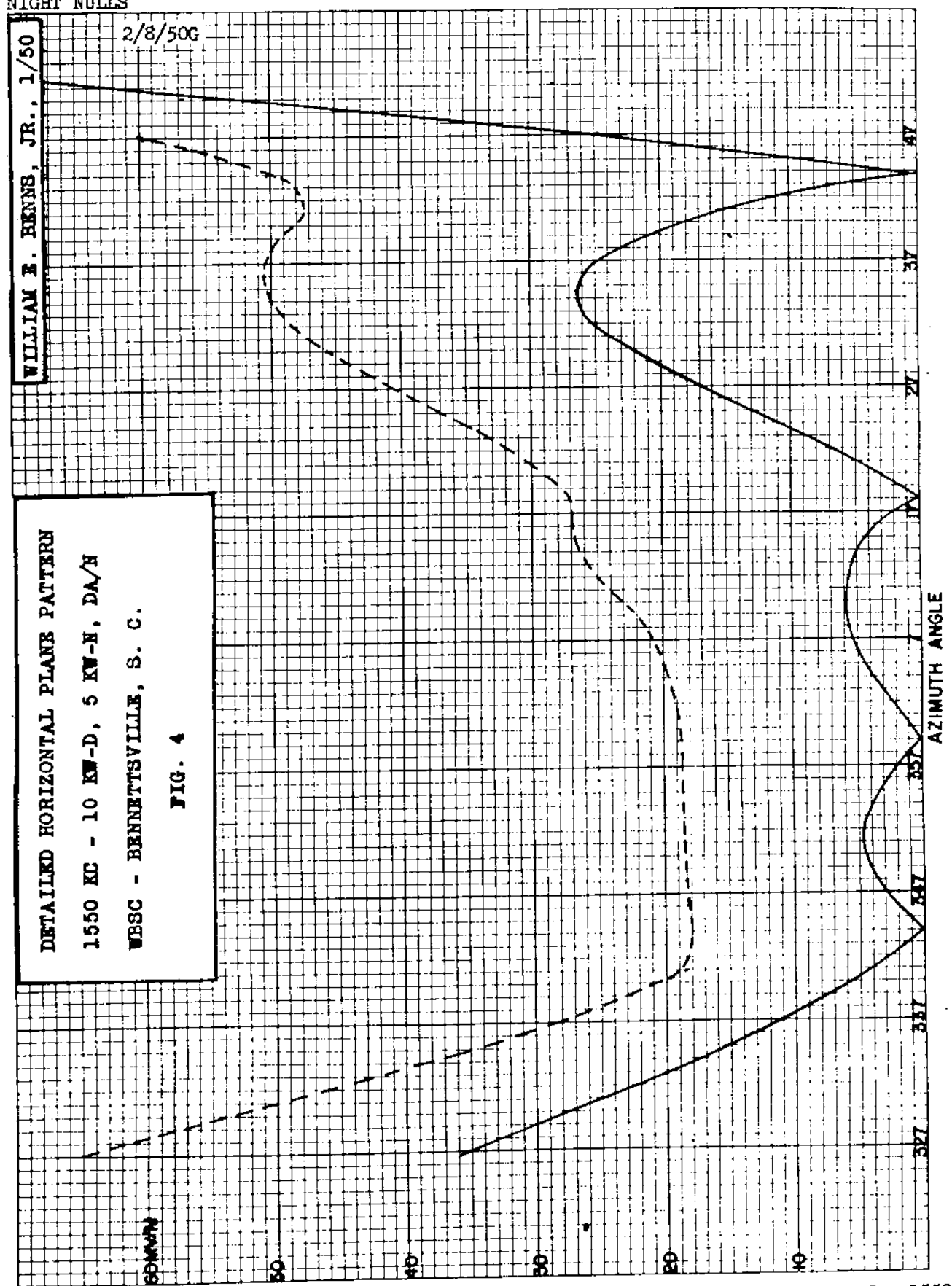


PROPOSED
NIGHT NULLS

WBSC, BENNETTSVILLE, S. C.

5kw, 10kw-LS, DAN

1550 kc



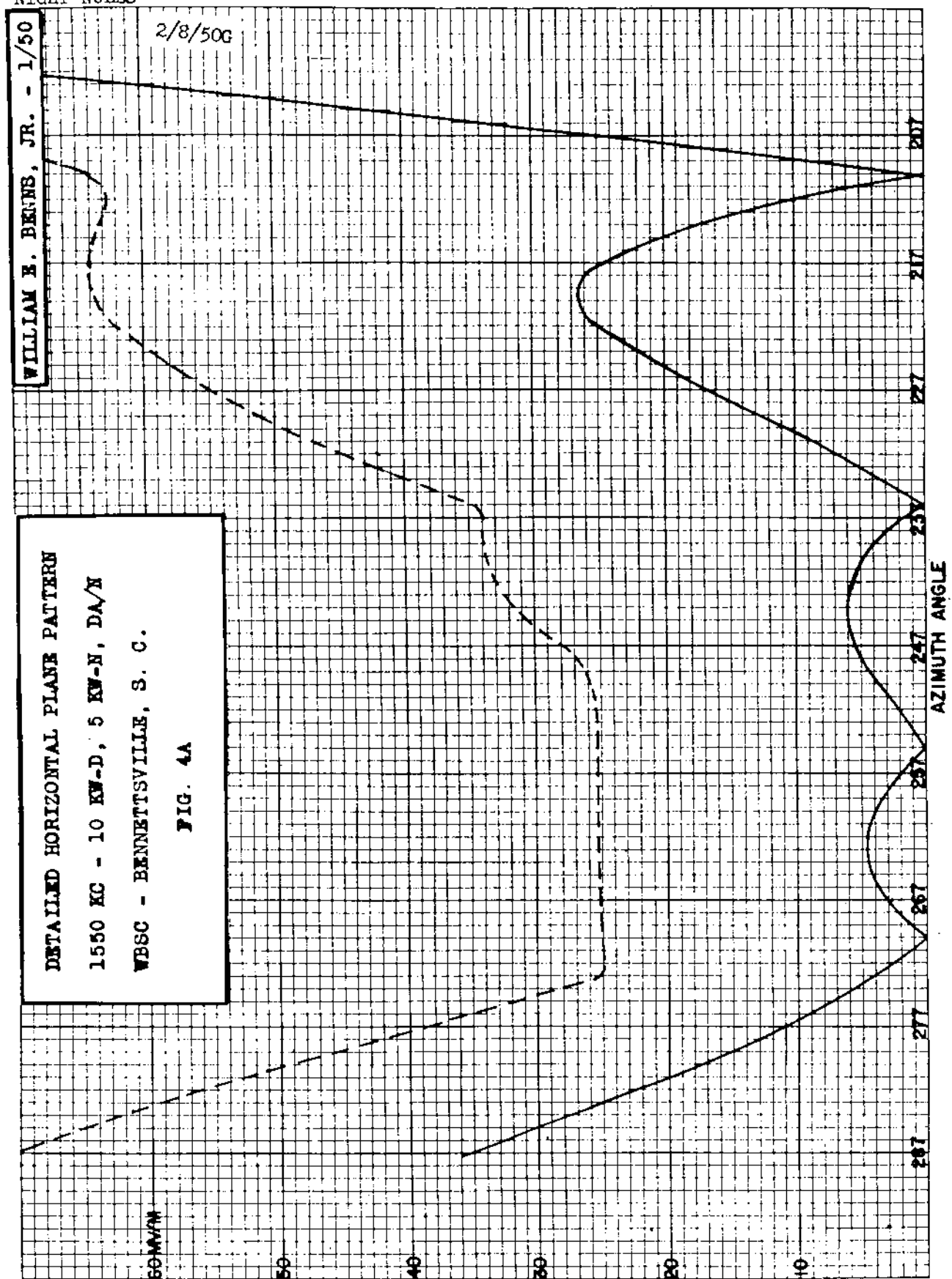
WBSC

PROPOSED
NIGHT NULLS

WBSC, BENNETTSVILLE, S. C.

5kw, 10kw-LS, DAN

1550 kc



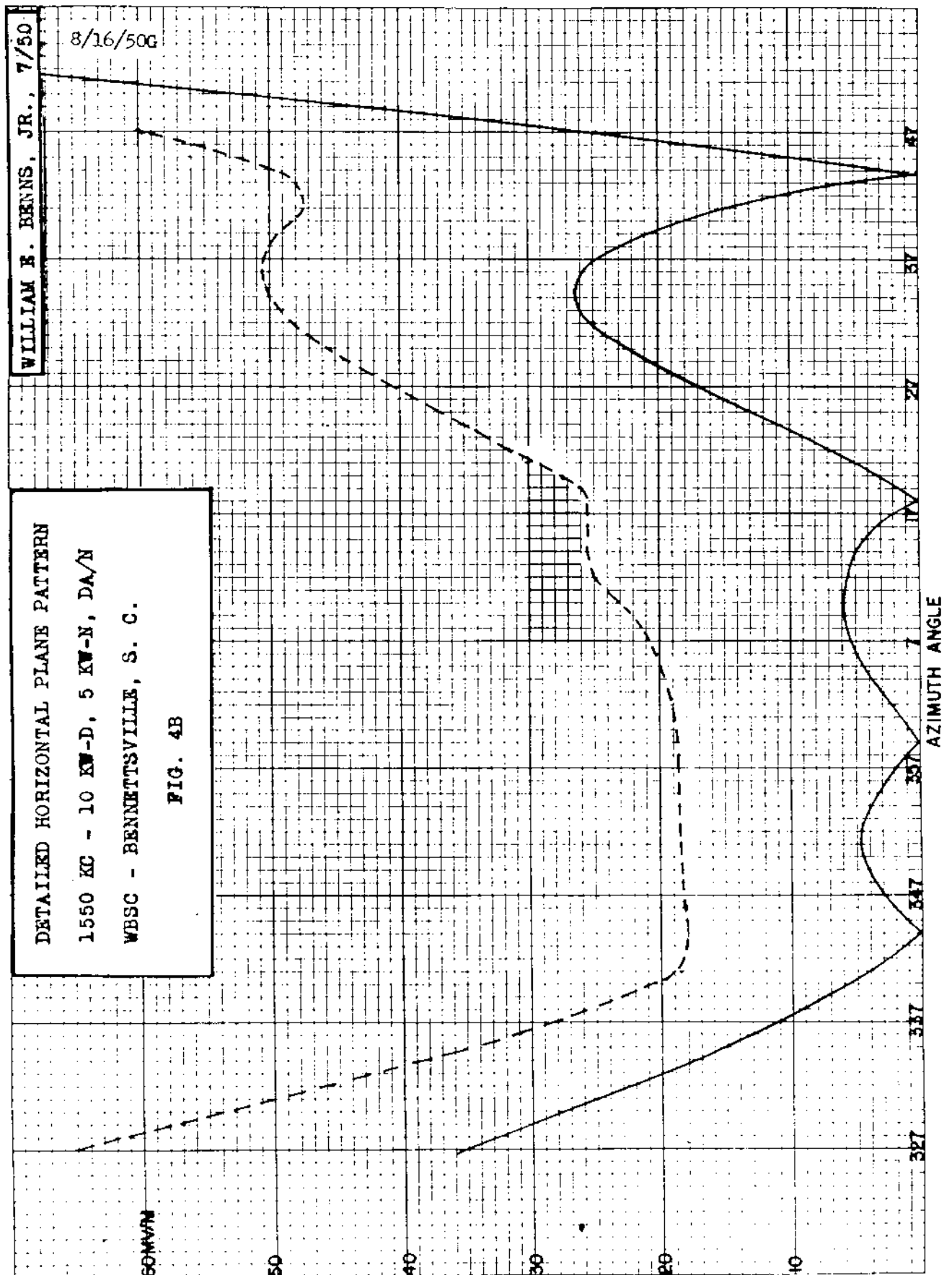
PROPOSED
NIGHT

WBSC, BENNETTSVILLE, S. C.

5kw, 10kw-LS, DAN

1550 kc

WBSC



AMENDMENT RECD. 8/1/50, ACC. 8/11/50 P-7518

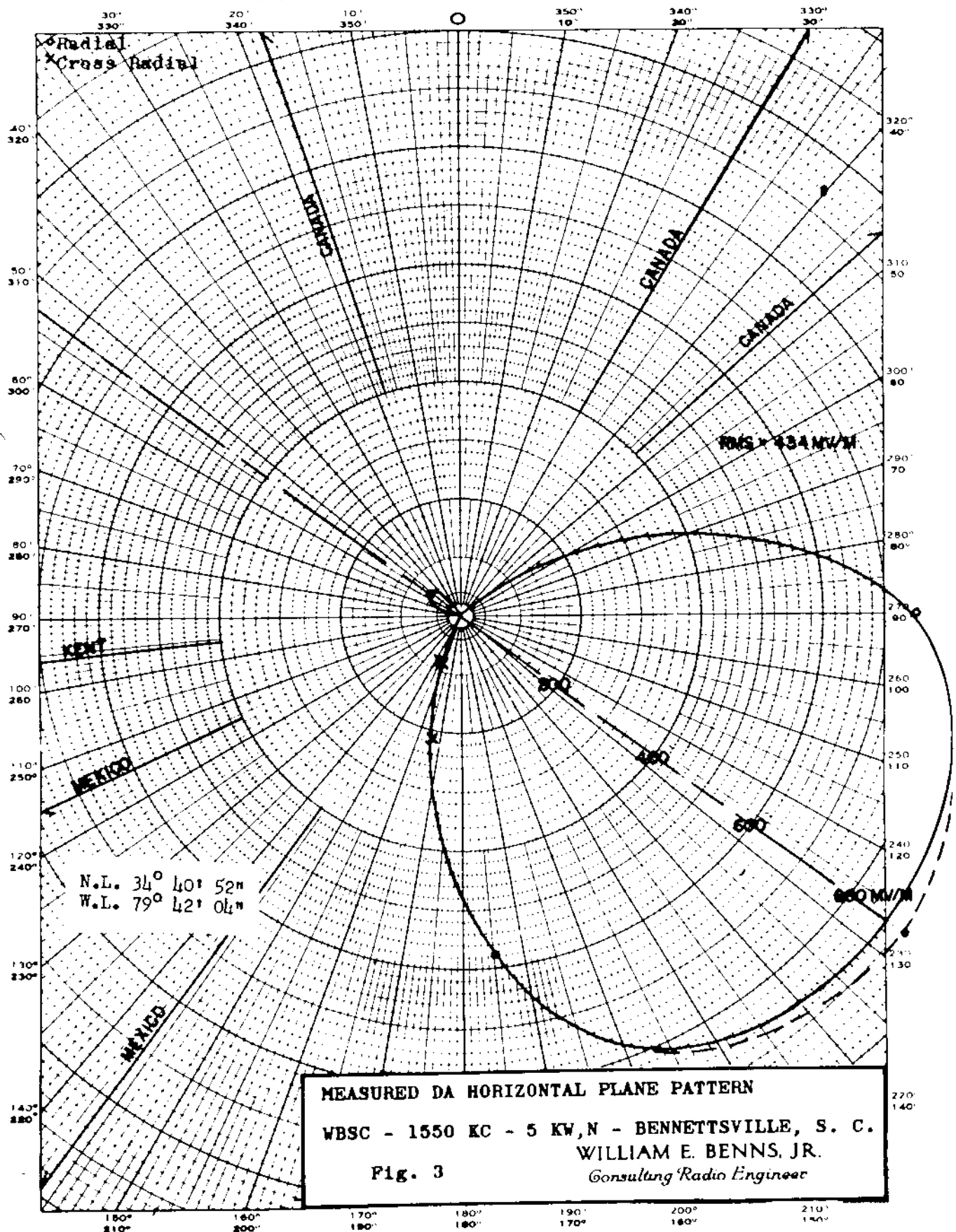
WBSC, Bennettsville, S. C. 1550 kc

MEASURED
NIGHT

WBSC, BENNETTSVILLE, S.C.
11/5/51G

5KW, 10KW-LS, U, DA-N

WBSC
1550 KC



APPL RECD 9/27/51 ACC 10/11/51 BL-4555

WBSC, BENNETTSVILLE, S.C.

1550 KC

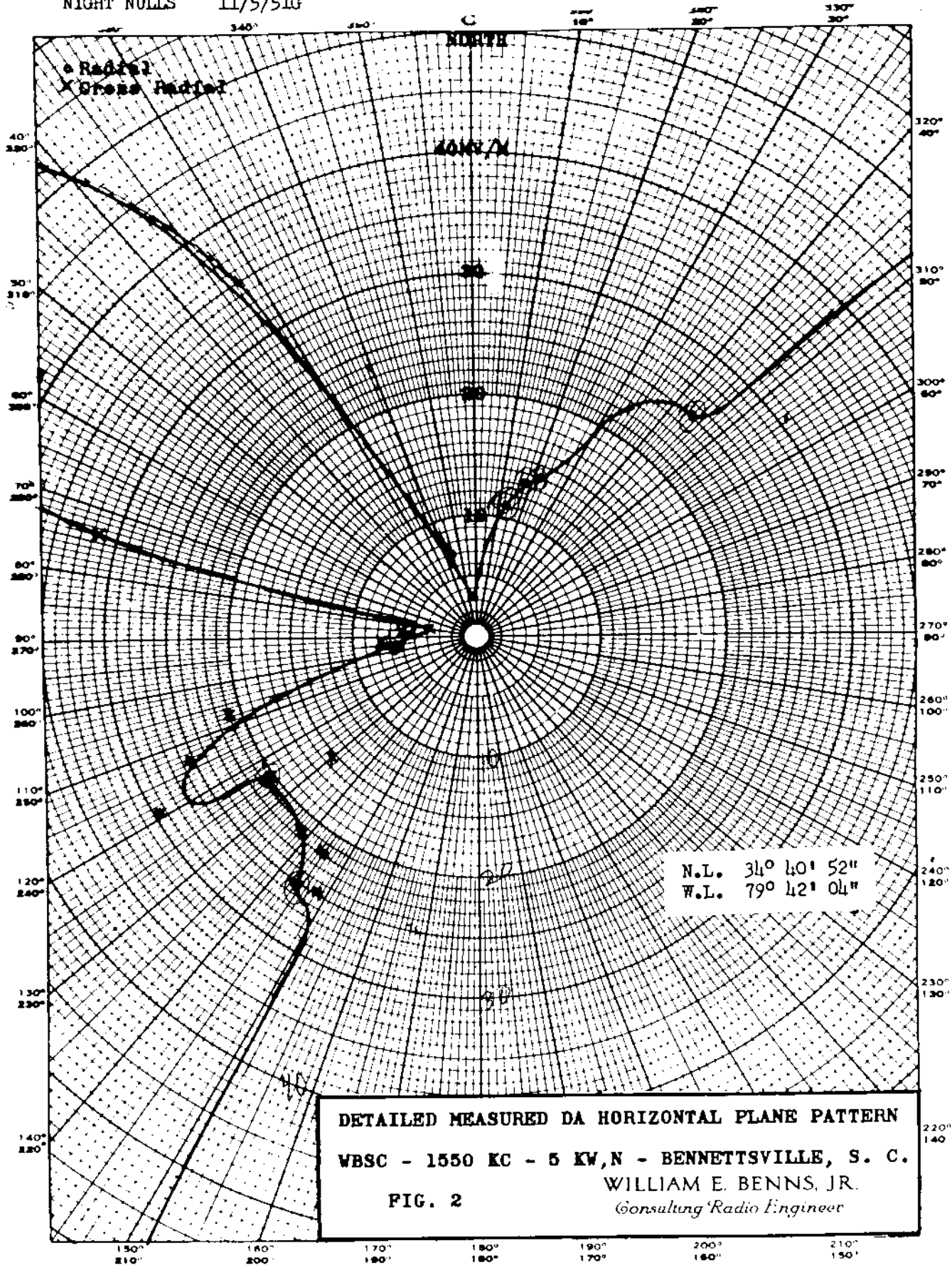
WBSC

MEASURED
NIGHT NULLS

WBSC, BENNETTSVILLE, S.C.
11/5/51G

5 KW, 10KW-LS, U, DA-N

1550 KC



DETAILED MEASURED DA HORIZONTAL PLANE PATTERN
WBSC - 1550 KC - 5 KW, N - BENNETTSVILLE, S. C.
WILLIAM E. BENNS, JR.
Consulting Radio Engineer

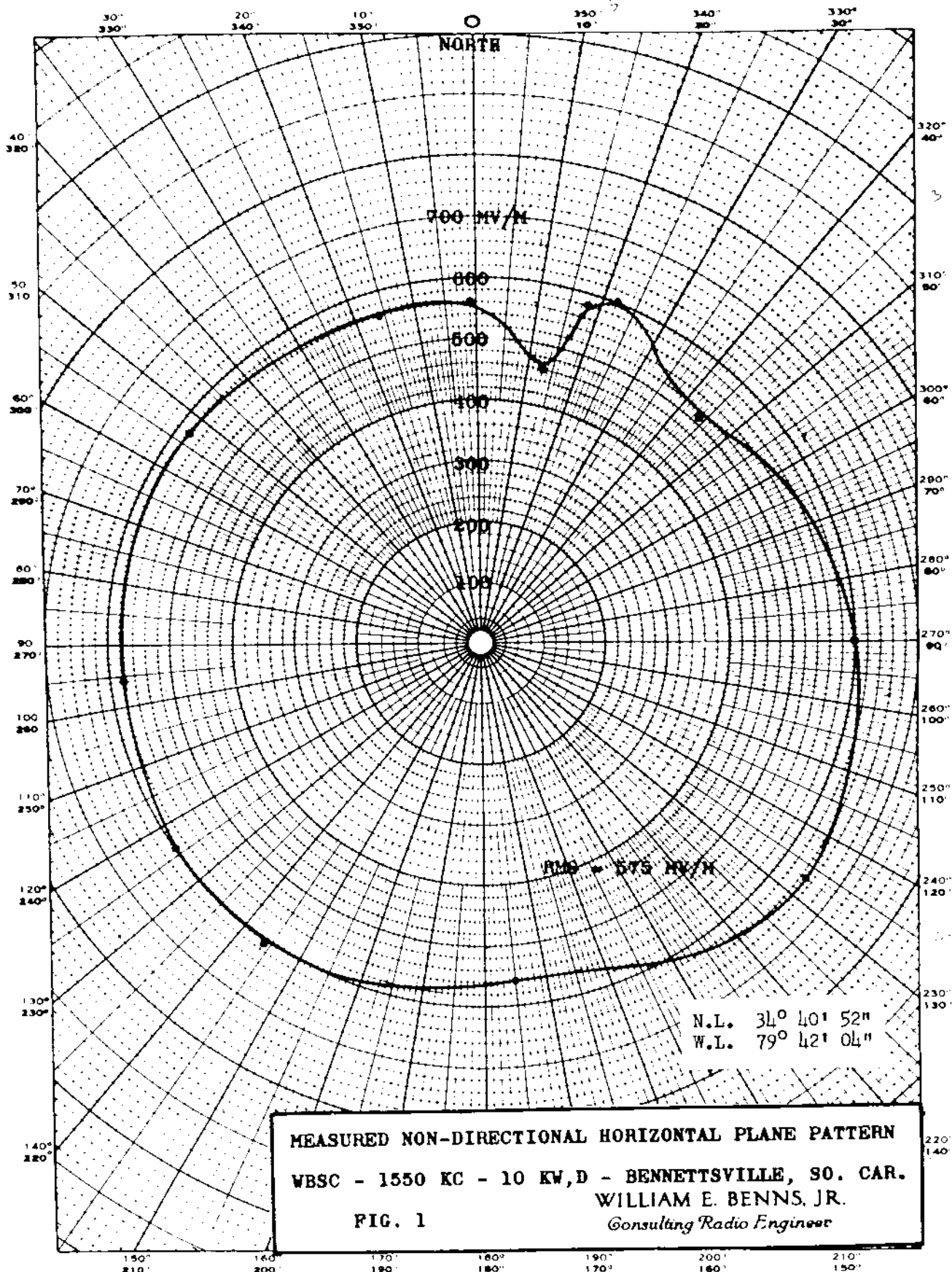
WBSC

MEASURED
DAY (NON-DA)

WBSC, BENNETTSVILLE, S.C.
11/5/51G

5 KW, 10KW-LS, U, DA-N

1550 KC



APPL RECD 9/27/51 ACC 10/11/51 BL-4555

WBSC, BENNETTSVILLE, S.C.

1550 KC

DIRECTIONAL ANTENNA DESCRIPTION SHEET

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

THEORETICAL
RMS

Day 92.0 mV/m

Night 1/ 88.0 mV/m

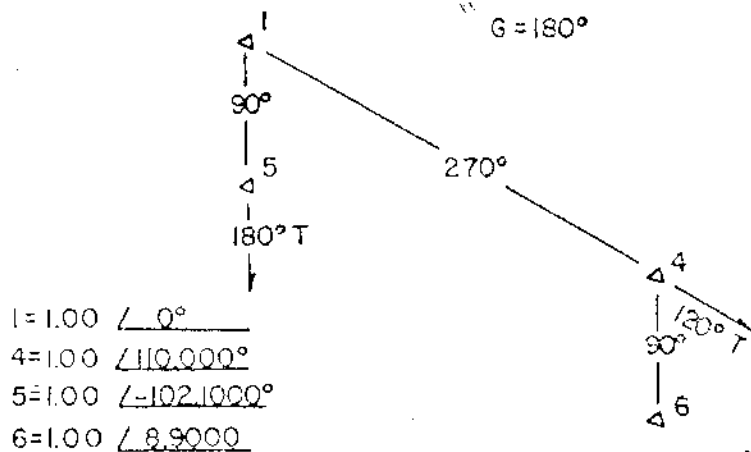
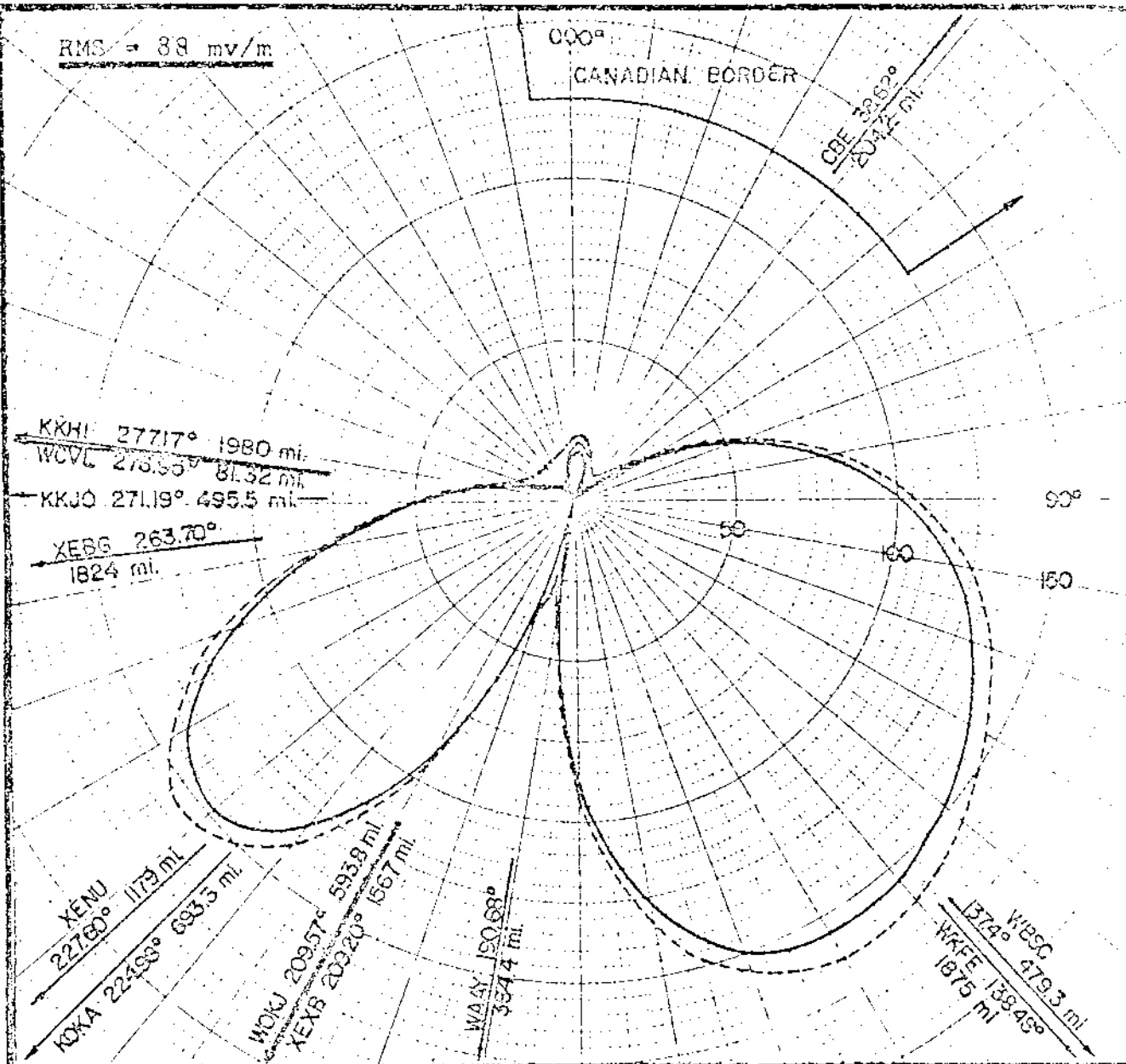
1/ By adjustment of input power.

Note: Please retain the Daytime directional antenna radiation pattern notified for Station WCTW in United States Change List Number 855 dated March 30, 1960 and attached to this Revised Description Sheet and Nighttime pattern. This notification concerns only a change in the Nighttime MEOV'S of the station with Daytime operation continued as previously notified, except for the increase in height of tower #2(WC) from 160 feet to 243 feet (138°) notified in United States Change List Number 1527, dated May 3, 1973.

CTR NO 30131A4

Donald L. Markley

Consulting Engineers



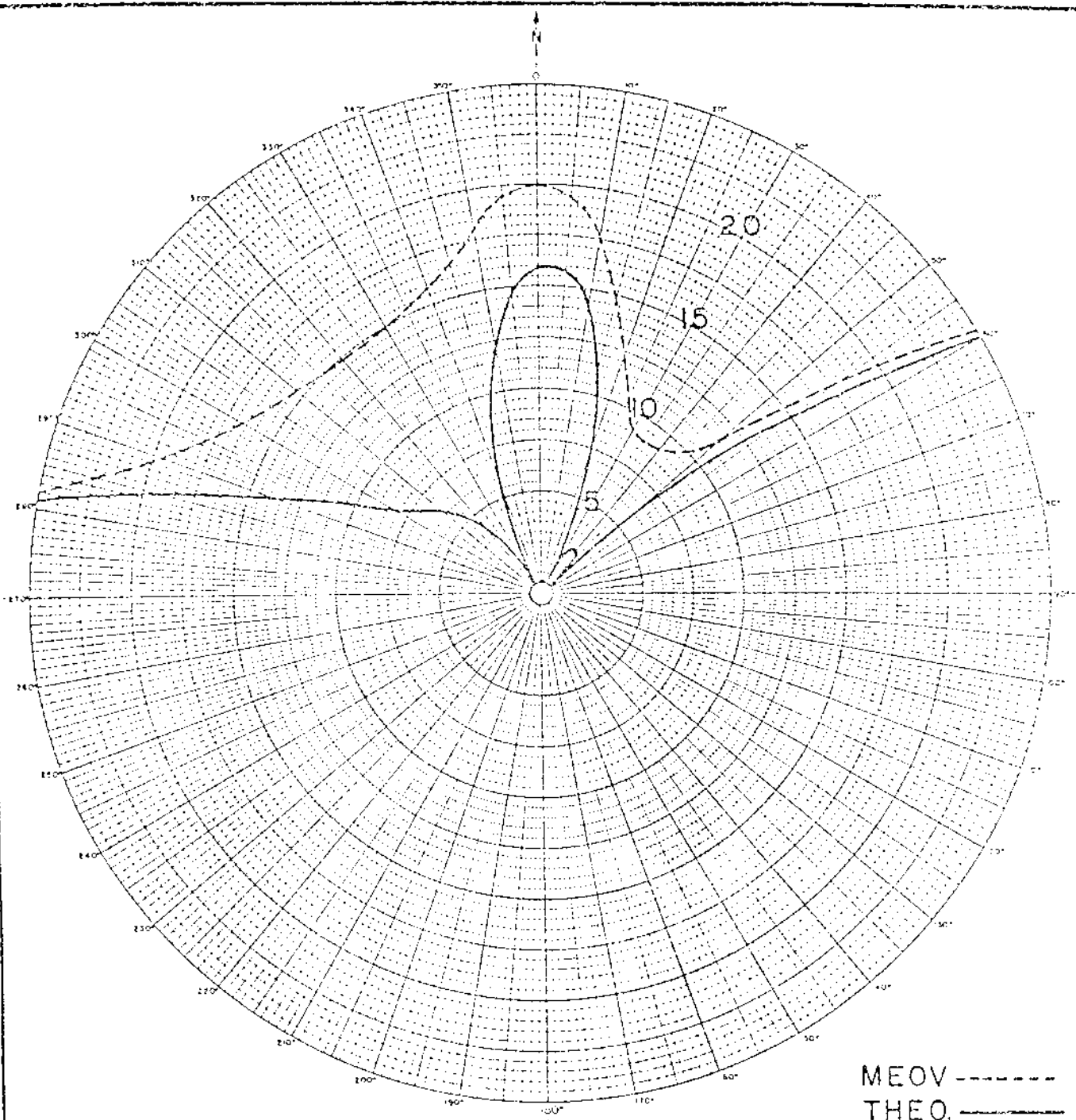
WCTW

PUBLIC SERVICE BROADCASTERS

1550 KHz 0.250 KW

NIGHTTIME ARRAY

NEW CASTLE, INDIANA



HORIZONTAL RADIATION PATTERN

Expanded Pattern Minima

APPLICANT	WCTW		
LOCATION	NEW CASTLE, IND.		
FREQUENCY	1550 kHz		
POWER	0.25KW		
LATITUDE	DEC	MIN	SEC
LONGITUDE	DEC	MIN	SEC
WHEN USED	NIGHTTIME		
RMS FIELD	88mv/m		
DATE	NOV. 18, 1978		

D. L. MARKLEY & ASSOC., INC.
Consulting Engineers

WCTW

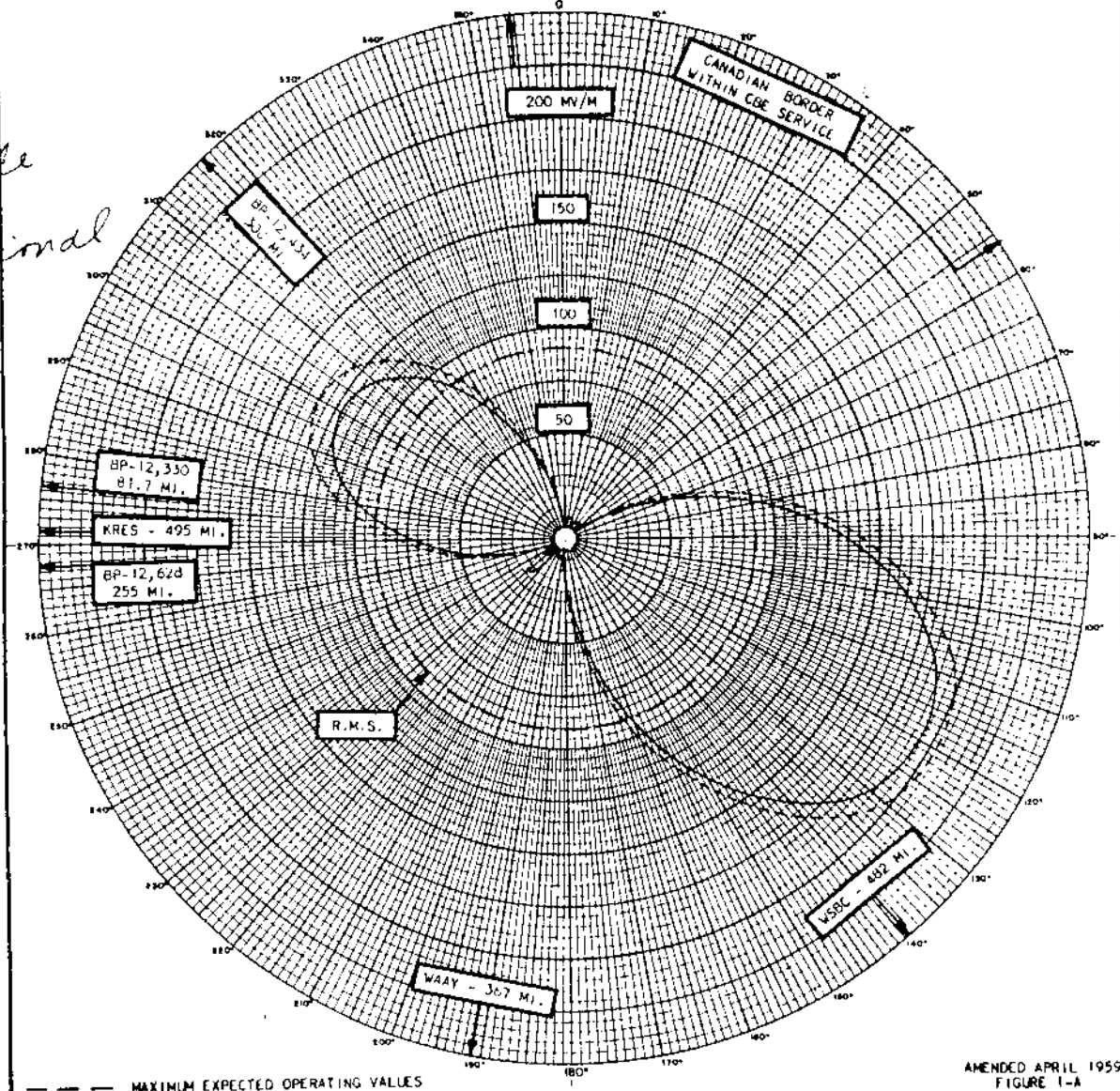
Proposed Night
(12-27-68ct)

Station WCTW
New Castle, Indiana

250w, DA-2, U
1550 kc

See Record 111

3p 18400
Granted
12-26-68
3p to make
changes
in directional
antenna
pattern



SPACING AND ORIENTATION NO. 1 .388/79.5° NO. 2 1/-93.6° NO. 3 .975/93.9° NO. 4 .388/-79.5° G (ALL TOWERS) = 90°		APPLICANT: COURIER-TIMES, INC. LOCATION: NEW CASTLE, INDIANA FREQUENCY: 1550 KC/S POWER: .25 KW-U (DA-2) LATITUDE: 39 DEG 55 MIN 57 SEC LONGITUDE: 85 DEG 24 MIN 24 SEC WHEN USED: NIGHTTIME R.M.S. FIELD: 90.8 MV/M DATE: MARCH 1959
MEOV AMENDED BY A. D. RING & ASSOCIATES CONSULTING RADIO ENGINEERS WASHINGTON, D. C.		
SILLIMAN, MOFFET & ROHRER CONSULTING RADIO ENGINEERS WASHINGTON, D. C.		

FCC File No. BP-18400
Accepted 12-17-68

Station WCTW
New Castle, Indiana

1550 kc

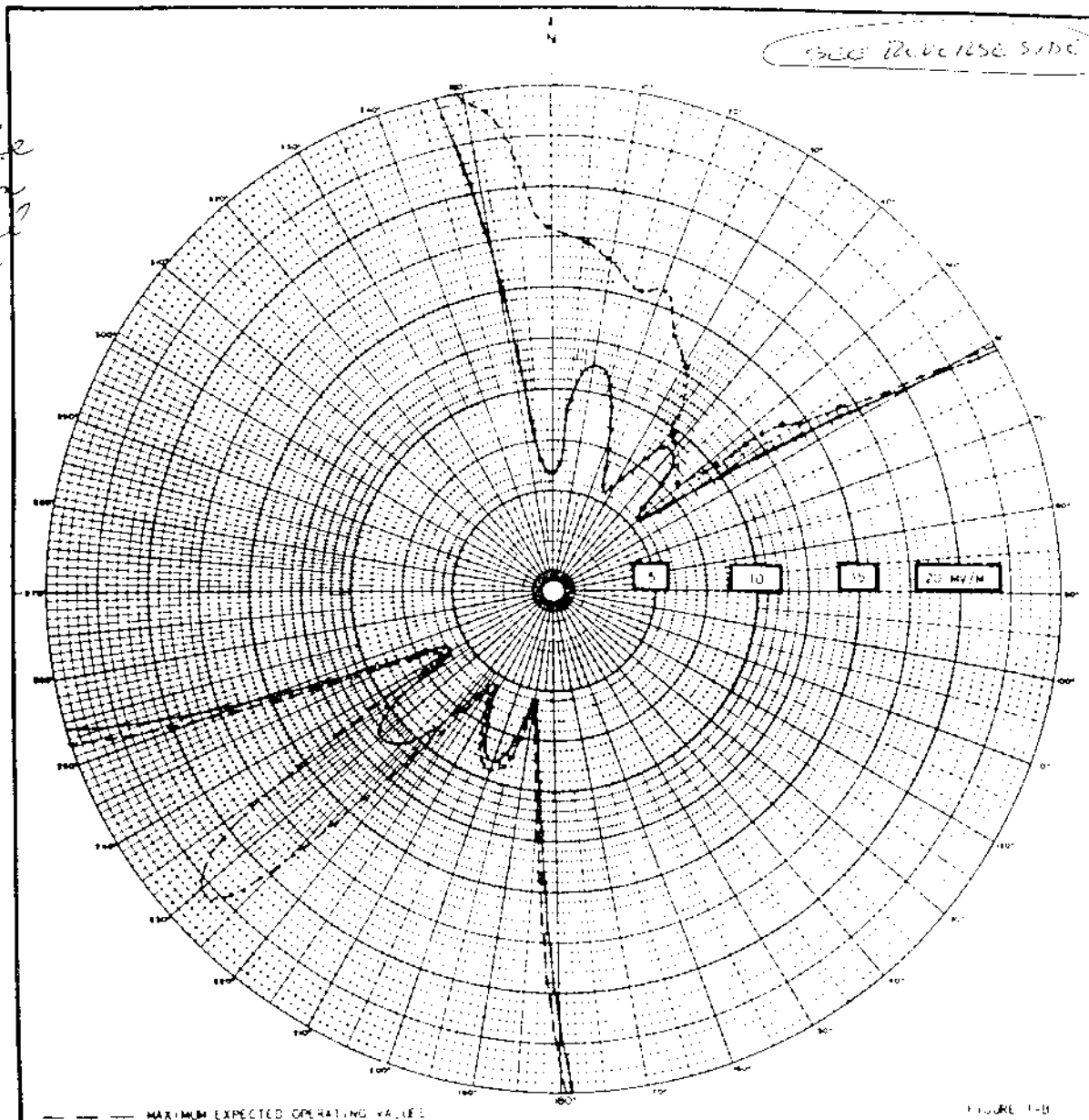
WCTW

Proposed Night Nulls
(12-27-68ct)

Station WCTW
New Castle, Indiana

250w, DA-2, U
1550 kc

BP-18400
Granted
12-26-68
CP to make
changes in
directional
antenna
pattern



HORIZONTAL RADIATION PATTERN

PATTERN NO. 5125/1111

EXPANDED VIEW

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

JULY, 1966 - MAY, 1968

Station WCTW
New Castle, Indiana

APPL. CANT. COURTESY-TIMES, INC.
LOCATION NEW CASTLE, INDIANA
FREQUENCY 1550 KHZ
POWER 125 KW-D (DA-2)
LATITUDE 39 DEG 55 MIN 57 SEC
LONGITUDE 85 DEG 24 MIN 24 SEC
WHEN USED NIGHTTIME
RMS FIELD 90.8 MV/M
DATE MARCH 1959

SILLIMAN, MOFFET & ROHRER
CONSULTING RADIO ENGINEERS

FCC File No. BP-18400
Accepted 12-17-68

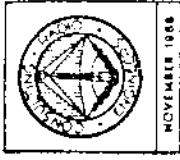
1550 kc

B P-18400

Granted. CP 12-26-68 to make
changes in directional antenna
pattern.

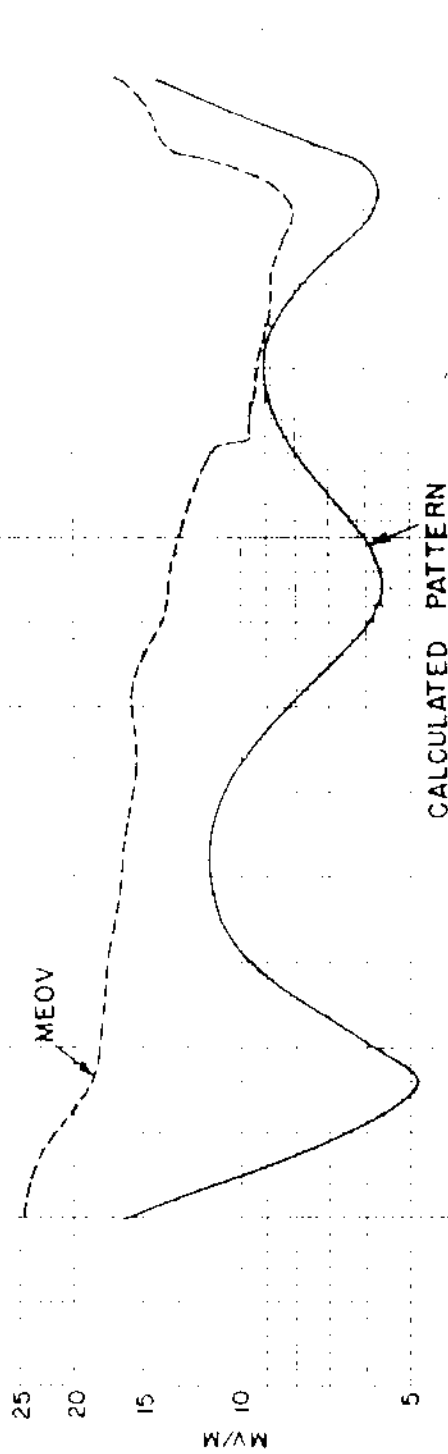
WCTW

250w, DA-2, U
1550 kc



Station WCTW
New Castle, Indiana

Proposed Night Nulls
(12-27-68ct)



FOR THE RECORD The following information was received from the applicant on 12-26-68: The proposed changes in the directional antenna pattern of WCTW, New Castle, Indiana, are as follows: The main beam of the antenna is to be directed at 0°. The proposed night nulls are to be directed at 10° and 20°.
A. D. RING & ASSOCIATES 1550 W. 10th St. New Castle, Indiana 47332

1550 kc

Station WCTW
New Castle, Indiana

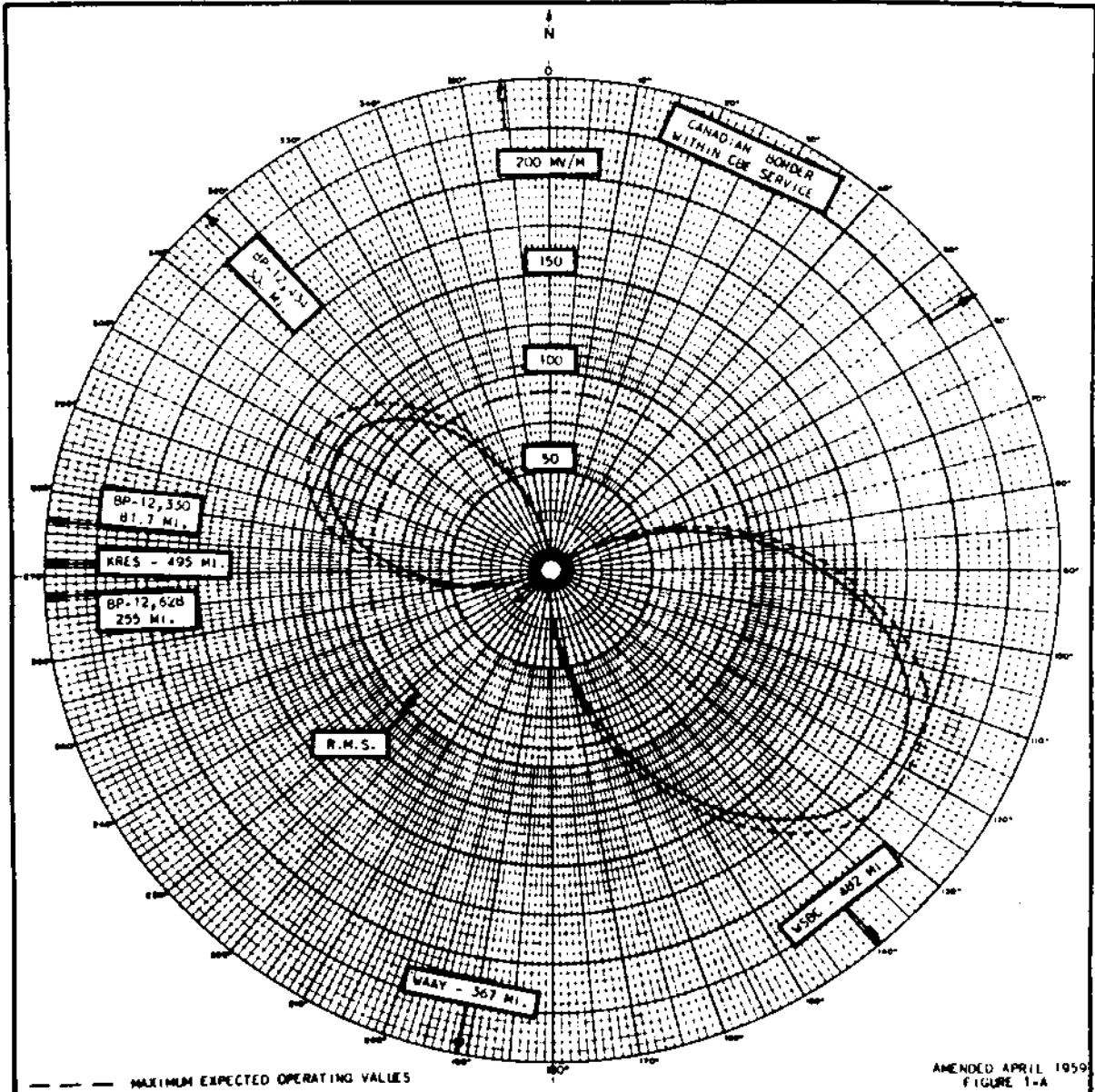
FCC File No. BP-18400
Accepted 12-17-68

Proposed Night
(10-28-66ct)

Station WCTW
New Castle, Indiana

250W, DA-2, U
1550 kc

P 10-3-66

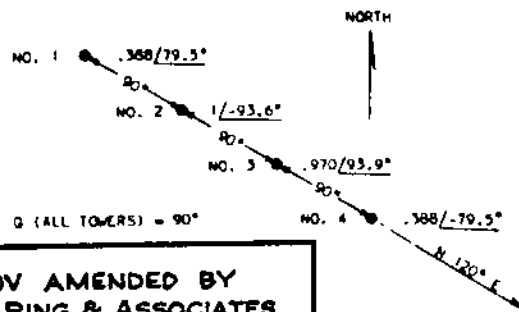


AMENDED APRIL 1959
FIGURE 1-A

HORIZONTAL RADIATION PATTERN

PATTERN NO. 312596-N

SPACING AND ORIENTATION



MEOV AMENDED BY
A. D. RING & ASSOCIATES
CONSULTING RADIO ENGINEERS
WASHINGTON, D. C.
JULY, 1966

APPLICANT	COURIER-TIMES, INC.
LOCATION	NEW CASTLE, INDIANA
FREQUENCY	1550 KC/H
POWER	.25 KW-U (DA-2)
LATITUDE	39 DEG 55 MIN 57 SEC
LONGITUDE	85 DEG 24 MIN 24 SEC
WHEN USED	NIGHTTIME
R.M.E. FIELD	90.8 MV/M
DATE	MARCH 1959

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

FCC File No. BP-17369
Accepted 9-29-66

Station WCTW
New Castle, Indiana

1550 kc

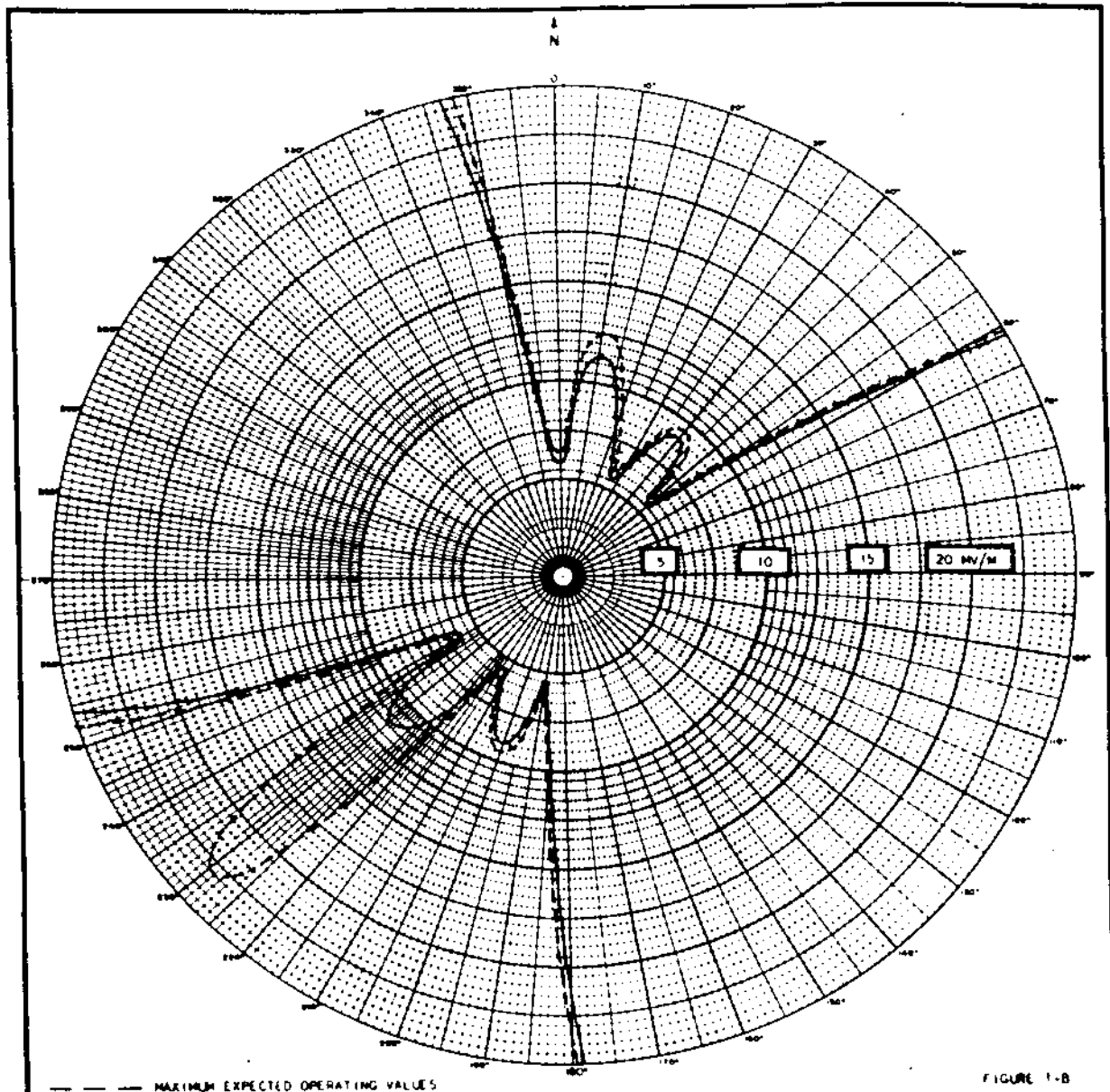
WCTW

Proposed Night Nulls
(10-28-66ct)

Station WCTW
New Castle, Indiana

250W, DA-2, U
1550 kc

CP 10-3-66



— — — MAXIMUM EXPECTED OPERATING VALUES

FIGURE 1-B

HORIZONTAL RADIATION PATTERN

PATTERN NO. 312590-N

EXPANDED VIEW

MEOV AMENDED BY
A. D. RING & ASSOCIATES
CONSULTING RADIO ENGINEERS
WASHINGTON, D. C.
JULY, 1966

APPLICANT	COURIER-TIMES, INC.
LOCATION	NEW CASTLE, INDIANA
FREQUENCY	1550 KC/M
POWER	.25 KW-U (DA-2)
LATITUDE	39 DEG 55 MIN 57 SEC
LONGITUDE	85 DEG 24 MIN 24 SEC
OPER USED	NIGHTTIME
AME FILE	90.6 MV/M
DATE	MARCH 1959

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

FCC File No. BP-17369
Accepted 9-29-66

Station WCTW
New Castle, Indiana

1550 kc

OVER

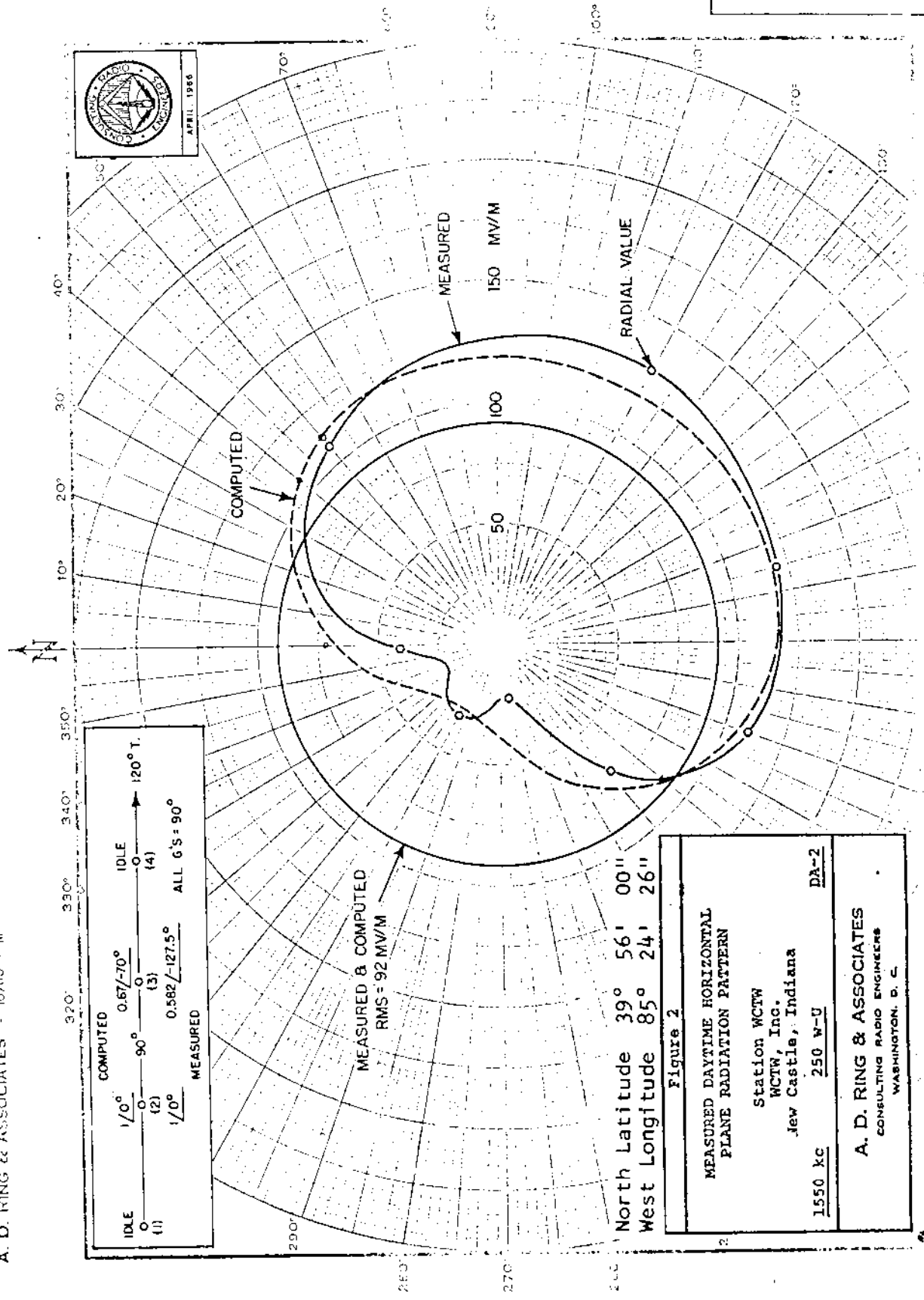
WCTW

250W, DA-2, U
1550 kc

Station WCTW
New Castle, Indiana

Measured Day
(2-28-67ct)

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



IDLE		COMPUTED		IDLE	
0	1/0°	0.67/-70°	0	0	120° T.
(1)	90°	(2)	(3)	(4)	
		1/0°	0.582/-127.5°		ALL G'S = 90°
		MEASURED			

MEASURED & COMPUTED
RMS = 92 MV/M

North Latitude 39° 56' 00"
West Longitude 85° 24' 26"

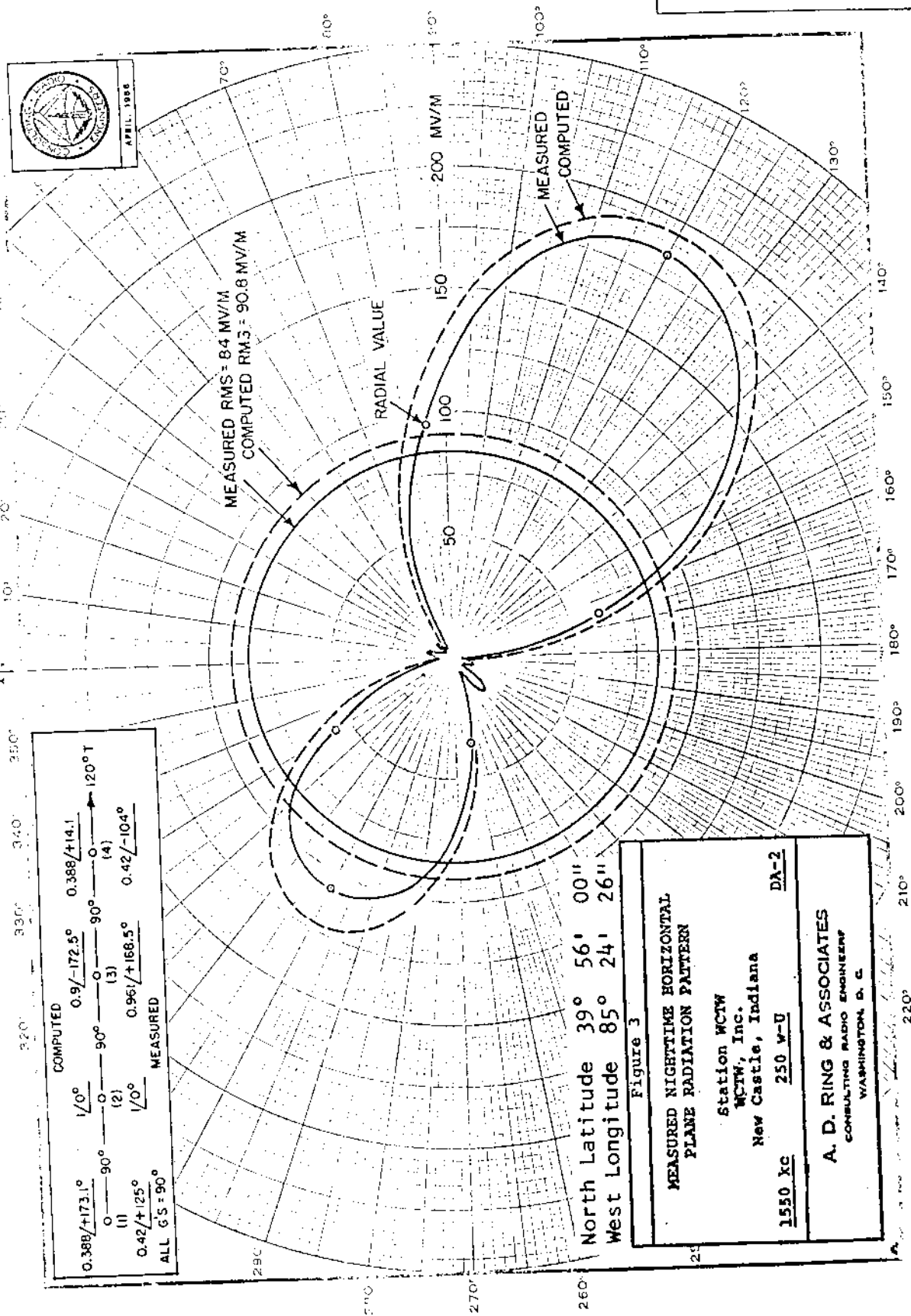
Figure 2	
MEASURED DAYTIME HORIZONTAL PLANE RADIATION PATTERN	
Station WCTW WCTW, Inc. New Castle, Indiana	
1550 kc	250 W-U
DA-2	
A. D. RING & ASSOCIATES CONSULTING RADIO ENGINEERS WASHINGTON, D. C.	

250W, DA-2, U
1550 kc

Station WCTW
New Castle, Indiana

Measured Night
(2-28-67ct)

A. D. RING & ASSOCIATES - 10/00 - 11



Station WCTW
New Castle, Indiana

FCC File No. BL-11538
Accepted 2-7-67

1550 kc

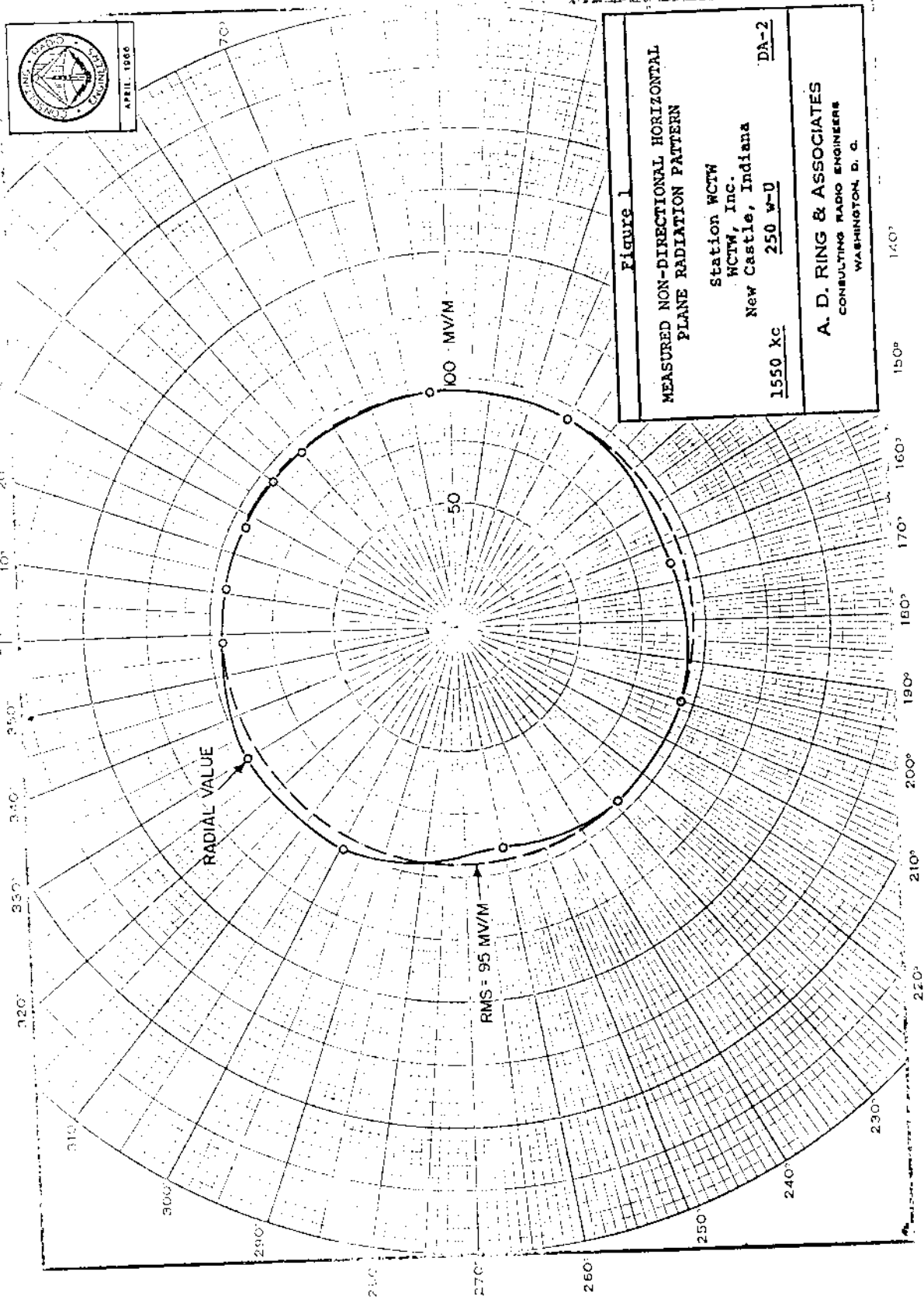
WCIW

250W, DA-2, U
1550 KC

Station WCTW
New Castle, Indiana

Measured Non-DA
(2-28-67ct)

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



Station WCTW
New Castle, Indiana

FCC File No. BL-11538
Accepted 2-7-67

1550 KC

OVER

WCTW

PROPOSED DAY
(6-16-59g)

New; Courier-Times, Inc.
New Castle, Indiana

250w, DA-2, U
1550 KC

*granted CP for new Sta.
3-25-60*

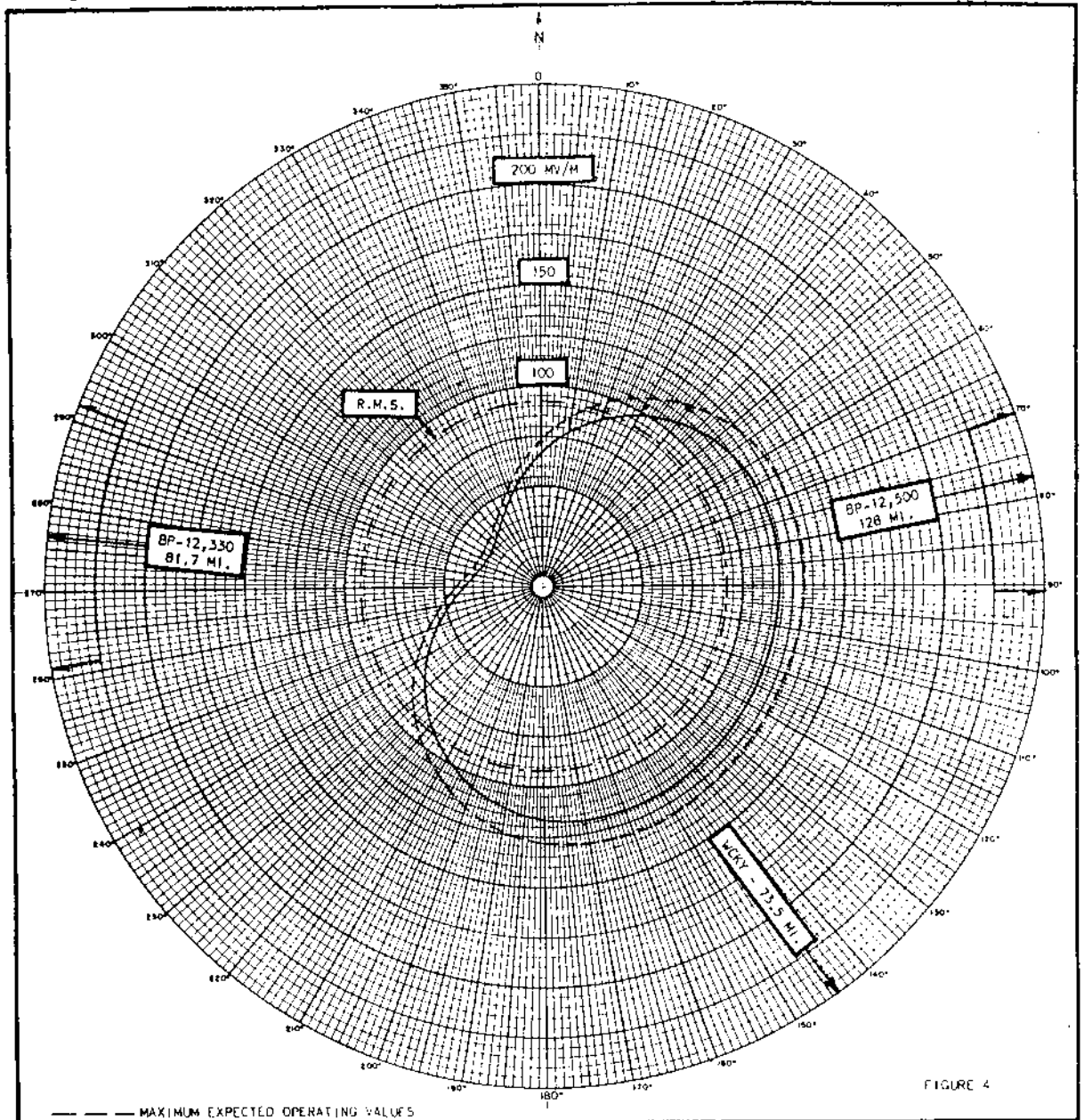
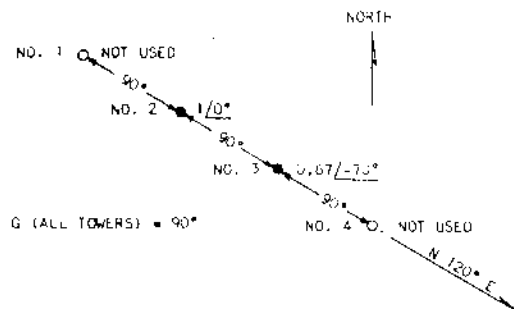


FIGURE 4

HORIZONTAL RADIATION PATTERN

PATTERN NO. 31393-0

SPACING AND ORIENTATION



APPLICANT: COURIER-TIMES, INC.

LOCATION: NEW CASTLE, INDIANA

FREQUENCY: 1550 KC/S

POWER: .25 KW-U (DA-2)

LATITUDE: 39 DEG 55 MIN 57 SEC

LONGITUDE: 85 DEG 24 MIN 24 SEC

WHEN USED: DAYTIME

P.M.S. FIELD: 92.0 MV/M

DATE: MARCH 1959

SILLIMAN, MOFFET & ROHRER

CONSULTING RADIO ENGINEERS

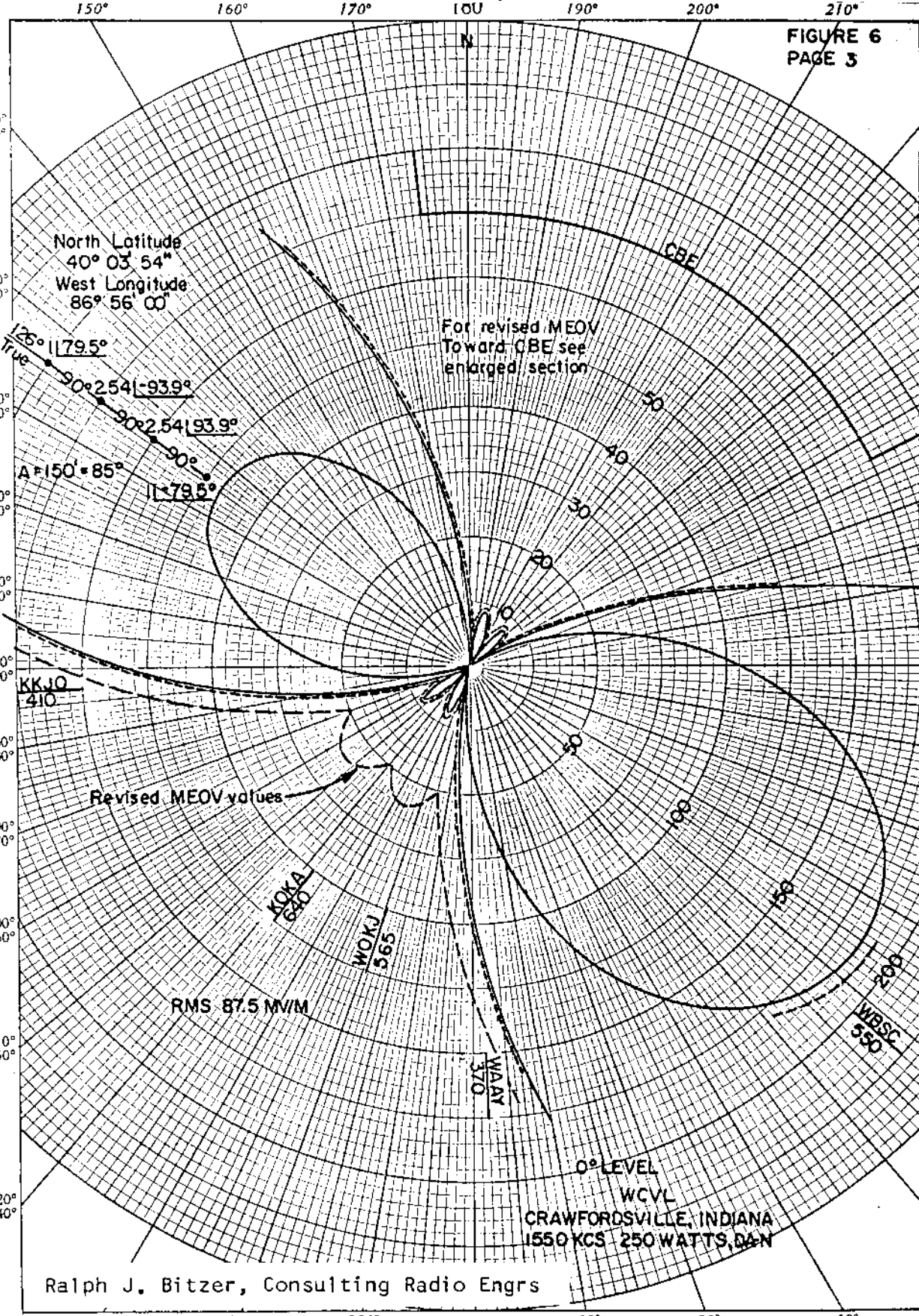
WASHINGTON, D.C.

FCC File No. BP-12292
Accepted (Amended)

Courier - Times, Incorporated
New Castle, Indiana

1550 KC

250w, DA-N, U
1550 kc



FCC File No. BP-17541
Accepted 1-11-67

Station WCVL
Crawfordsville, Indiana

1550 kc

VV CVL

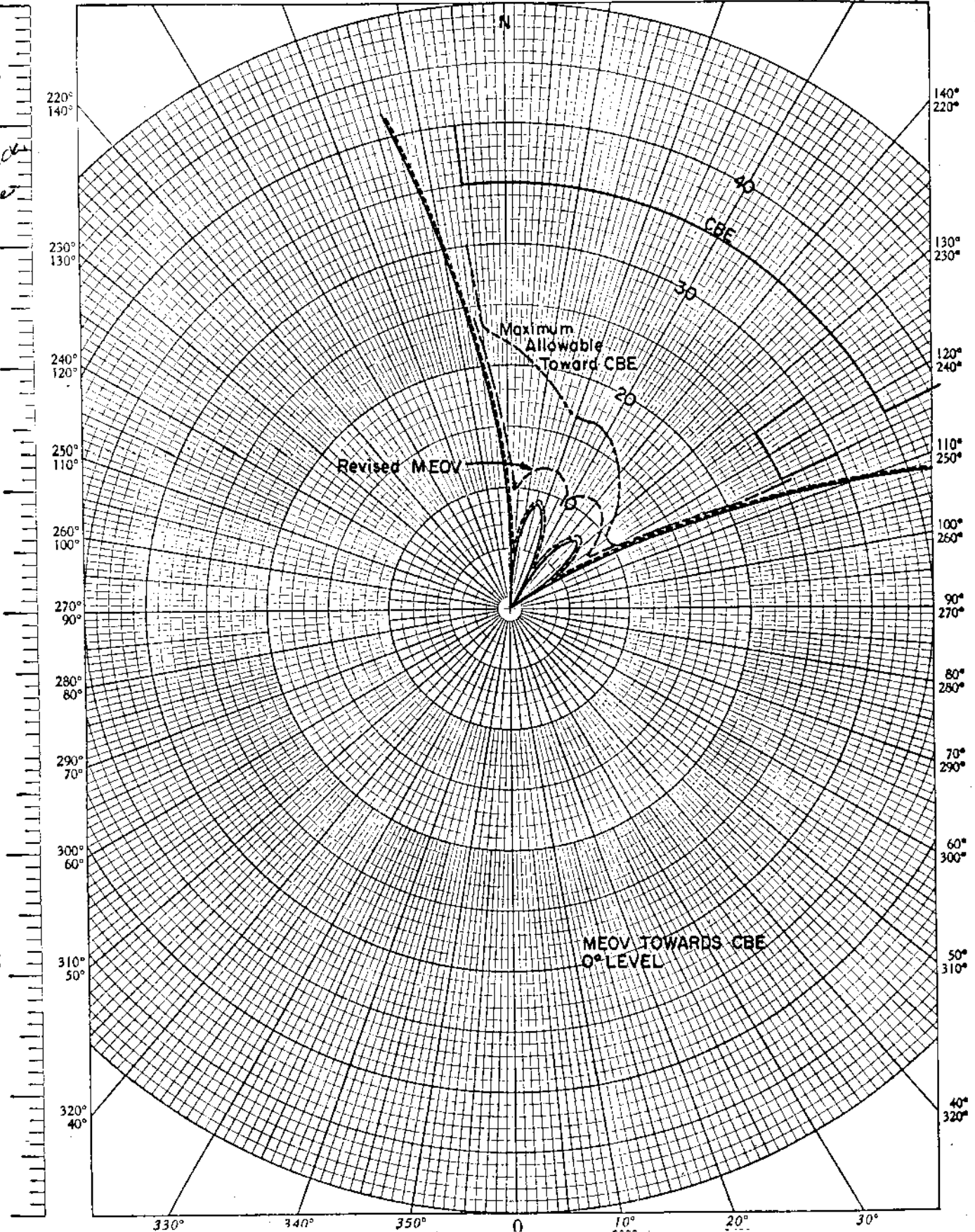
Proposed Night Nulls
(1-30-67ct)

Station WCVL
Crawfordsville, Indiana

250w, DA-N, U
1550 kc

P-17541
PANTED
1-20-67
-P TO INCK
LIGHTHOUSE
MEOV

KOE POLAR CO-ORDINATE
KEUFFEL & ESSER CO.
MADE IN U.S.A.
359-31G



FCC File No. BP-17541
Accepted 1-11-67

Station WCVL
Crawfordsville, Indiana

1550 kc

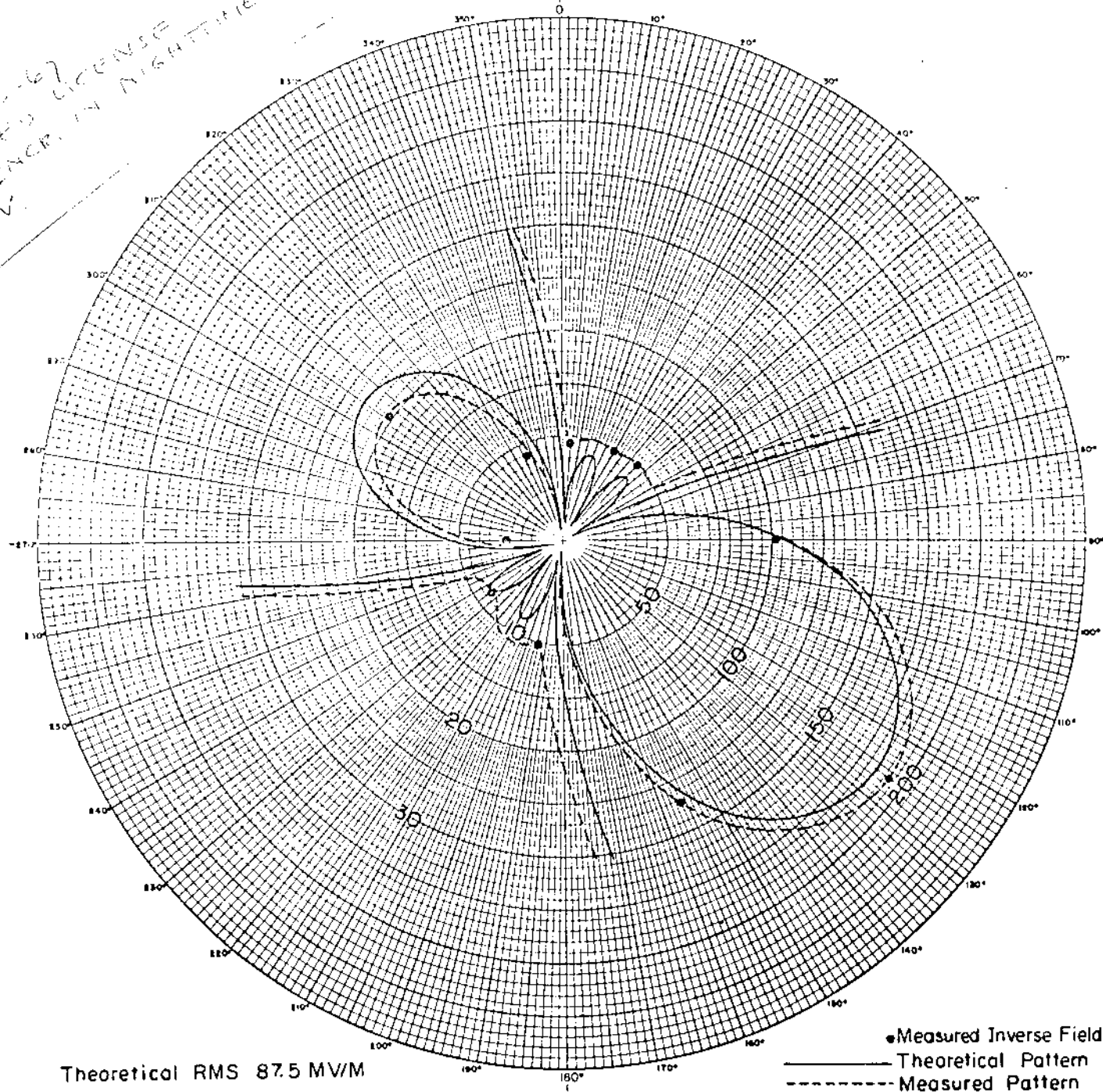
measured night
(9-28-67ct)

Crawfordsville, Indiana

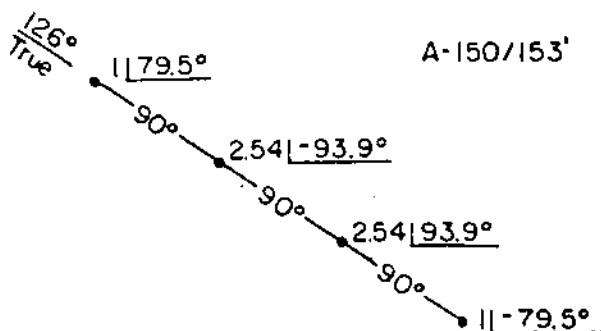
1550 kc

Page 37

1-30-67
GRANTED LICENSE
CON. INCR. IN NIGHTTIME
MEOV



HORIZONTAL RADIATION PATTERN



APPLICANT :	WCVL
LOCATION :	Crawfordsville, Inc.
FREQUENCY :	1550 KC/S
POWER :	0.25 KW, DA-N
LATITUDE :	40 DEG. 03 MIN. 54 SEC.
LONGITUDE :	86 DEG. 56 MIN. 00 SEC.
WHEN USED:	Nighttime
R.M.S. FIELD:	88.5 MV/M
DATE :	June 23rd, 1967

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

FCC File No. BL-11731
Accepted 9-28-67

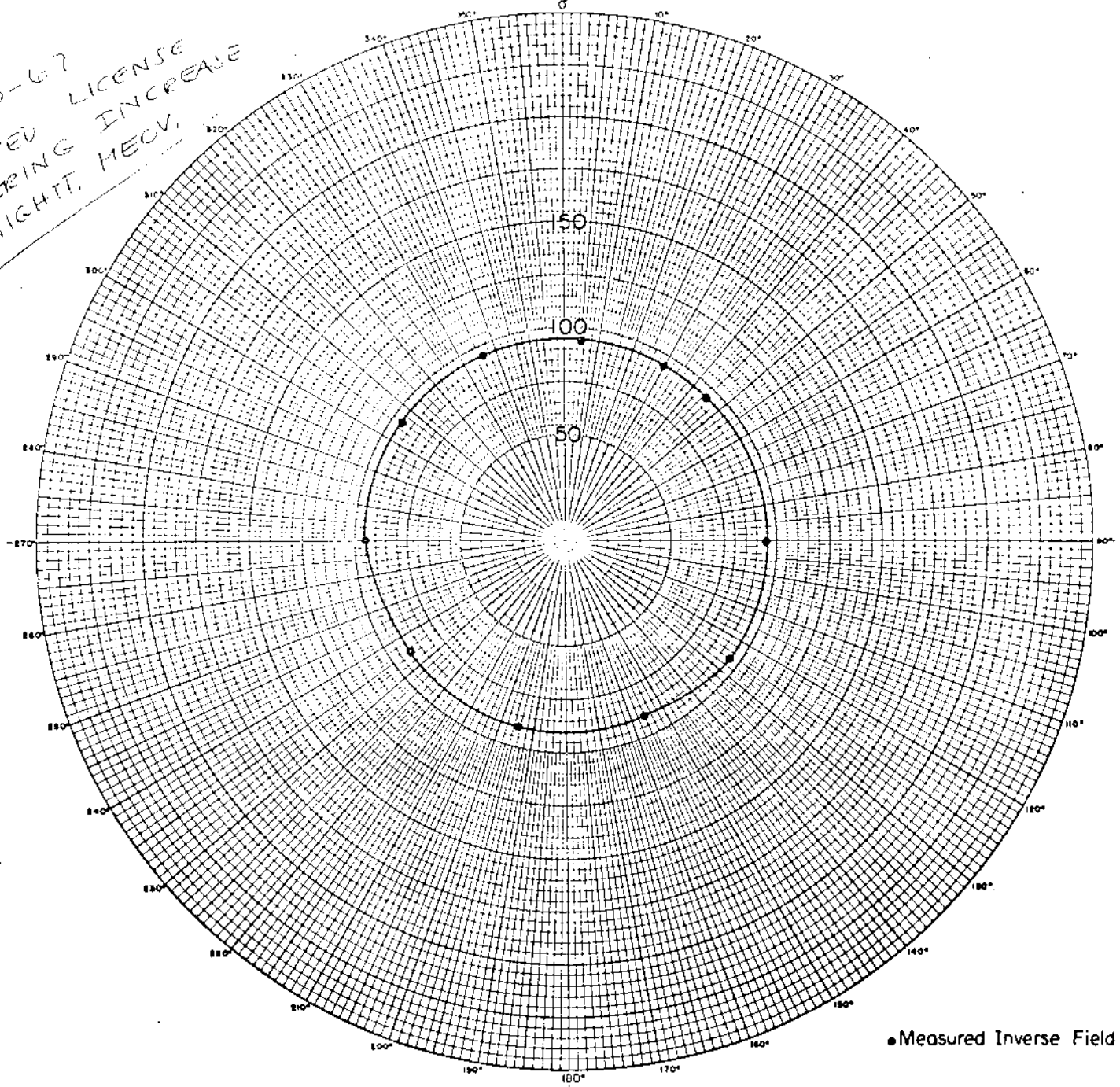
Station WCVL
Crawfordsville, Ind.

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

Station WCVL
Crawfordsville, Indiana

WCVL
250w, DA-N, U
1550 kc

11-30-67
GRANTED LICENSE
COVERING INCREASE
IN NIGHT. HECV.



HORIZONTAL RADIATION PATTERN

APPLICANT :	WCVL
LOCATION :	Crawfordsville, Ind.
FREQUENCY :	1550kc/s
POWER :	0.25 KW, Non-D
LATITUDE :	40deg. 03 MIN. 54 SEC.
LONGITUDE :	86deg. 56 MIN. 00 SEC.
WHEN USED:	Daytime
R.M.S. FIELD:	93.5 MV/M
DATE :	June 23rd, 1967

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

FCC File No. BL-11731
Accepted 8-29-67

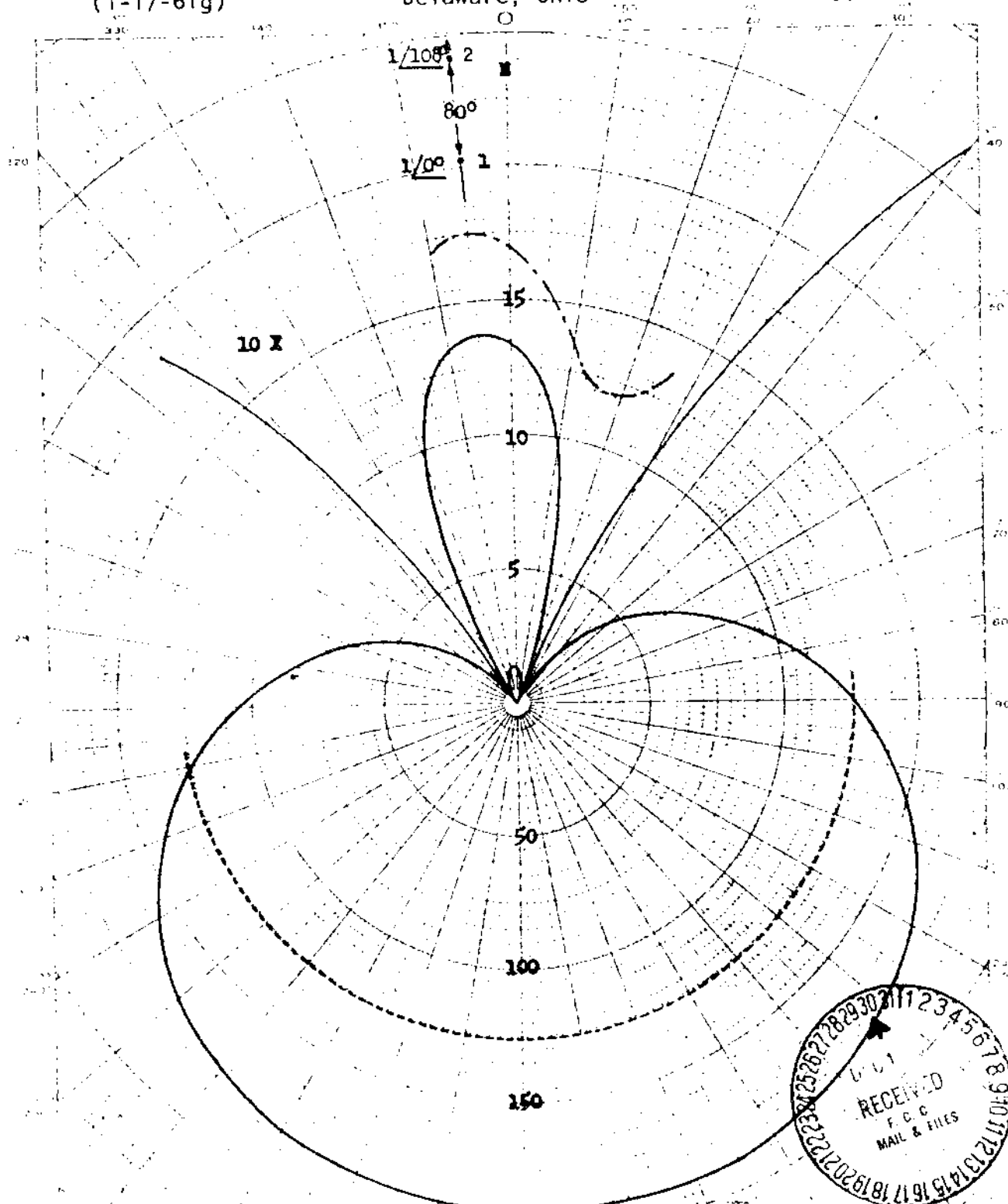
Station WCVL
Crawfordsville, Indiana

1550 kc

PROPOSED DAY
(1-17-61g)

Station WDLR
Delaware, Ohio

500w, DA-D, D
1550 KC



RCS 126 mv/m

MINOR

N. L. 40° 17' 56"
W. L. 83° 02' 46"
12-60

200

mv/m

FIGURE 4A

PROPOSED RADIATION PATTERN
RADIO STATION WDLR
Delaware, Ohio
1550 kc - 0.5 Kw - DA-D
E. H. Mann, Jr.

FCC File No. BMP-9266
Accepted 1-16-61

WDLR
Delaware, Ohio

1550 KC

POLAR CO-ORDINATE
MAGNITUDE

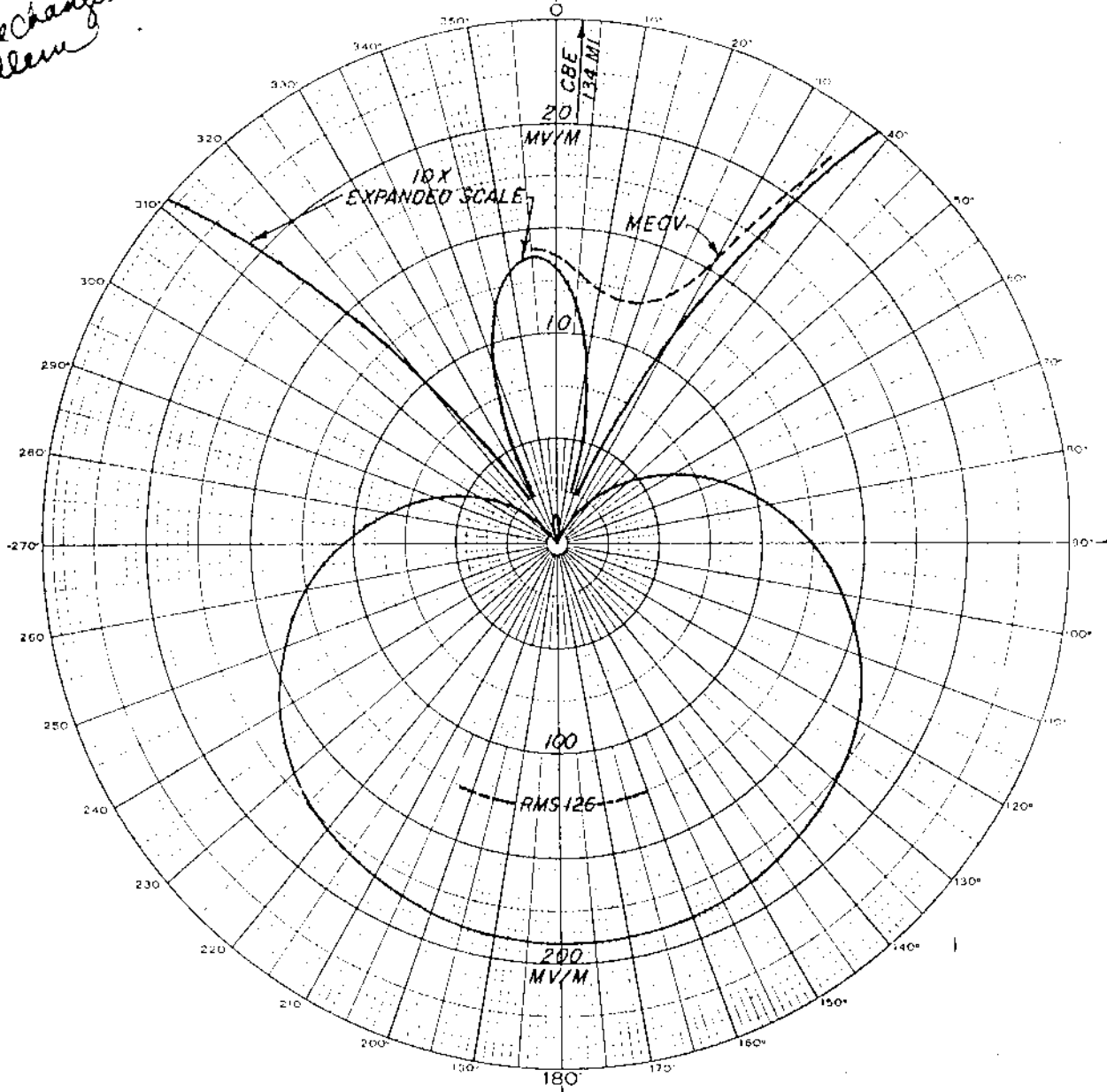
NC OHP

CLEVELAND INSTITUTE OF RADIO ELECTRONICS
CLEVELAND OHIO

PROPOSED DAY
(3-23-59g)

New Somerset B/C Co.
Delaware, Ohio

500w, DA-D, D
1550 KC



TOWER PLACEMENT SKETCH		PATTERN PARAMETERS								STATION DATA	
		TOWER NO.	ELECT. CA. HEIGHT	TRUE TOWER ORIENTATION	SPACING	PHASING	HORIZONTAL FIELD ANGLE	FIELD RATIO	FLEV. ANGLE	ELEVATION	CALL
		1	67	0	0	0	98.4	1.0	0	126	NEW
		2	67	355	80	108	98.4	1.0	10		FREQUENCY 1550
		3							20		POWER 0.5
		4							30		TIME OF OPERATION DA-D
		5							40		TYPE OF OPERATION CLASS II
		6							50		DAYTIME TOWERS TWO
		7							60		NIGHTTIME TOWERS NONE
		8							70		NO RADIALS CLR TOWER 120
		9							80		LENGTH OF MAIN AXIS 10' 158"
10							90		GROUND WAVE LENGTH 24' x 24'		
		CARL E. SMITH CONSULTING RADIO ENGINEERS FIG. V-3.1 SOMERSET BROADCASTING CO DELAWARE, OHIO								SUPPLEMENTAL PATTERN NO. 590218	

*1-12-61
granted map
w/ make changes in
DA pattern*

granted up for new n. 1-2-24-60

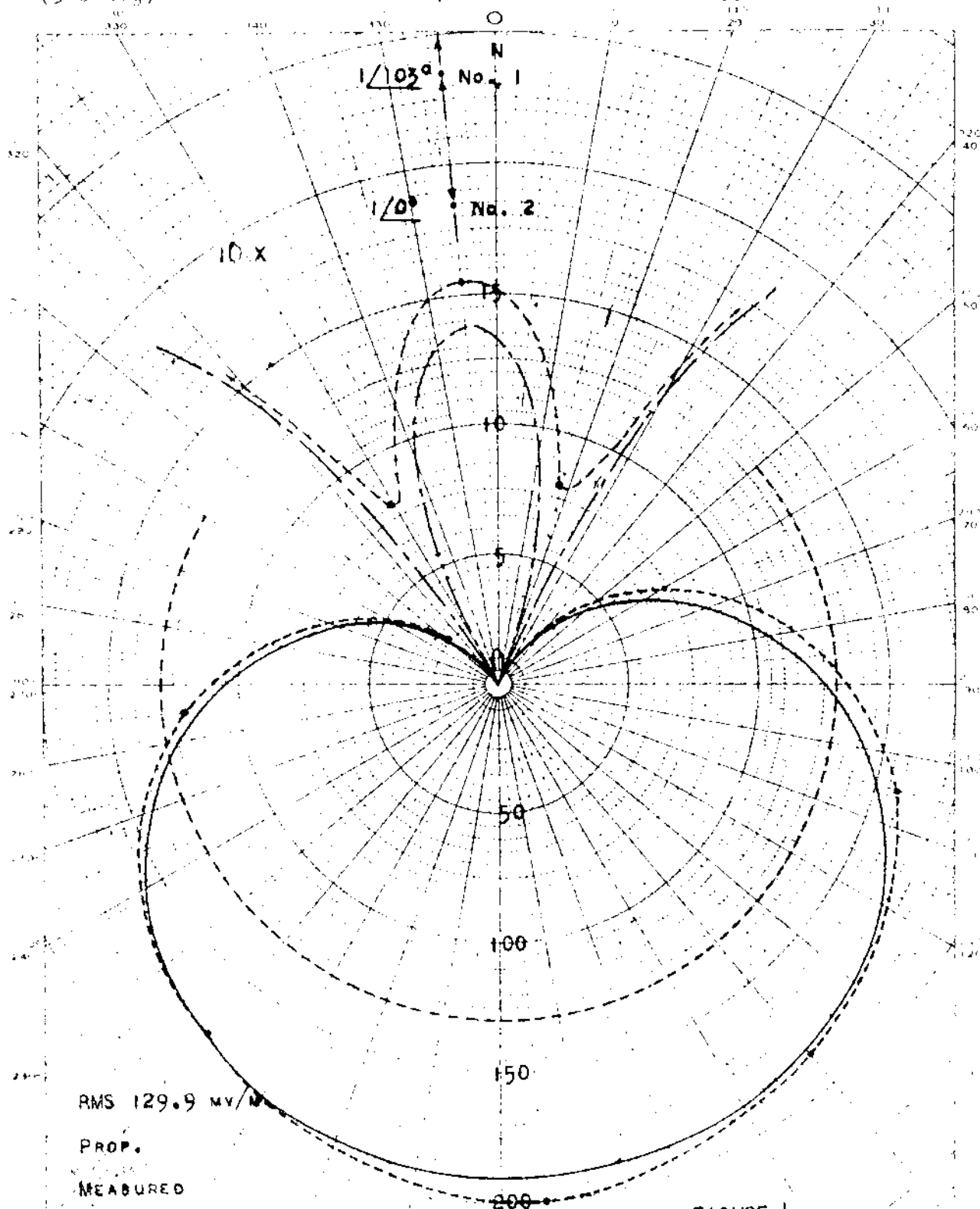
WDLR

MEASURED DAY
(5-8-61g)

Station WDLR
Delaware, Ohio

500w, DA-D,D
1550 KC

*2-10-61
radio & low
in station*



RMS 129.9 MV/M

PROP.

MEASURED

N. L. $40^{\circ} 17' 56''$
W. L. $83^{\circ} 02' 46''$

E. H. MUNN, JR.
12-60

FIGURE 4
MEASURED WDLR RADIATION PATTERN
1550 KC - 0.5 KW - DA-D

MV/M

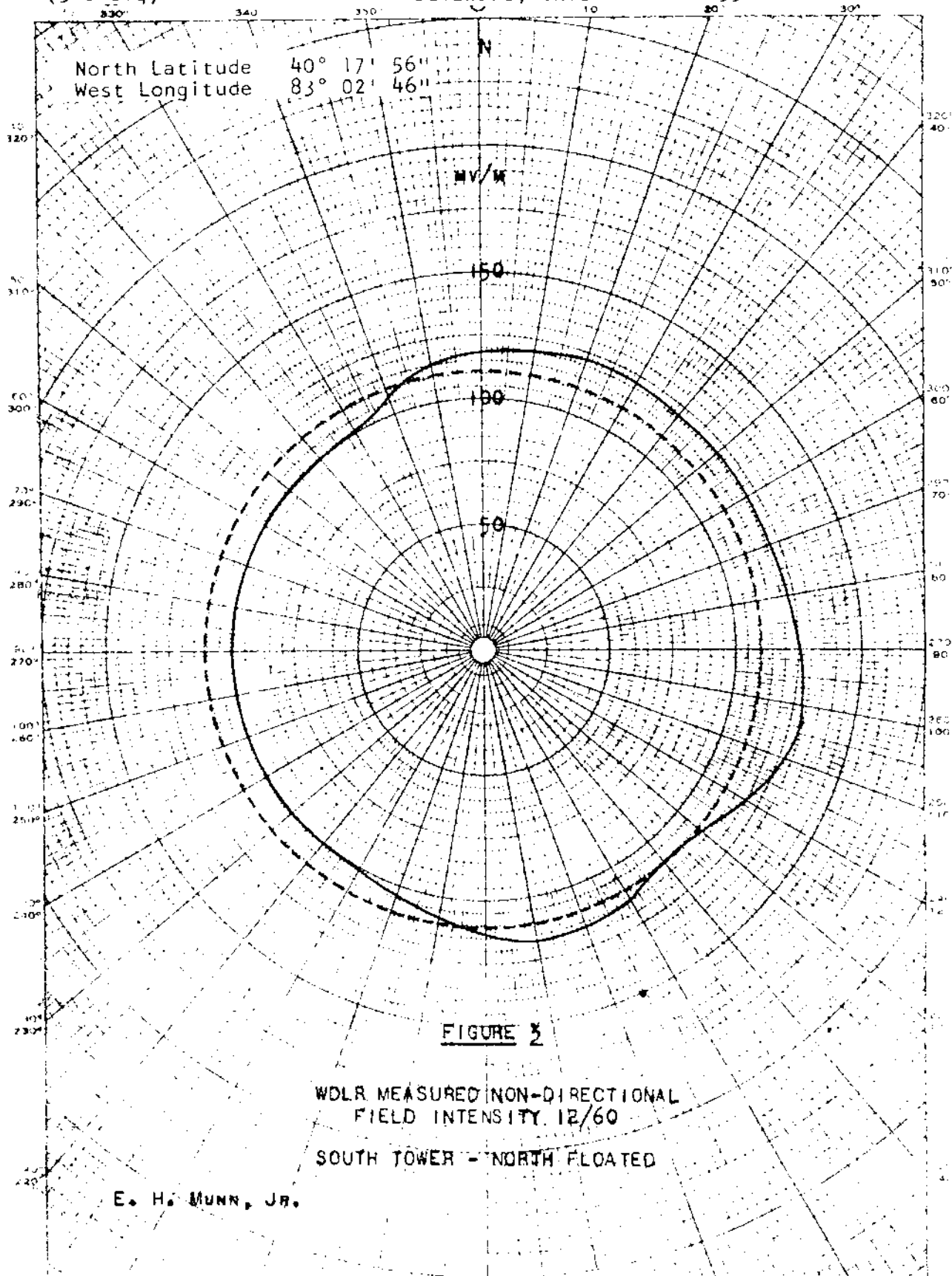
FCC File No. BL-8285
Accepted 4-18-61

WDLR
Delaware, Ohio

1550 KC

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

WDLR 500w, DA-D, D
Delaware, Ohio 1550 KC



FCC File No. BL-8285
Accepted 4-18-61

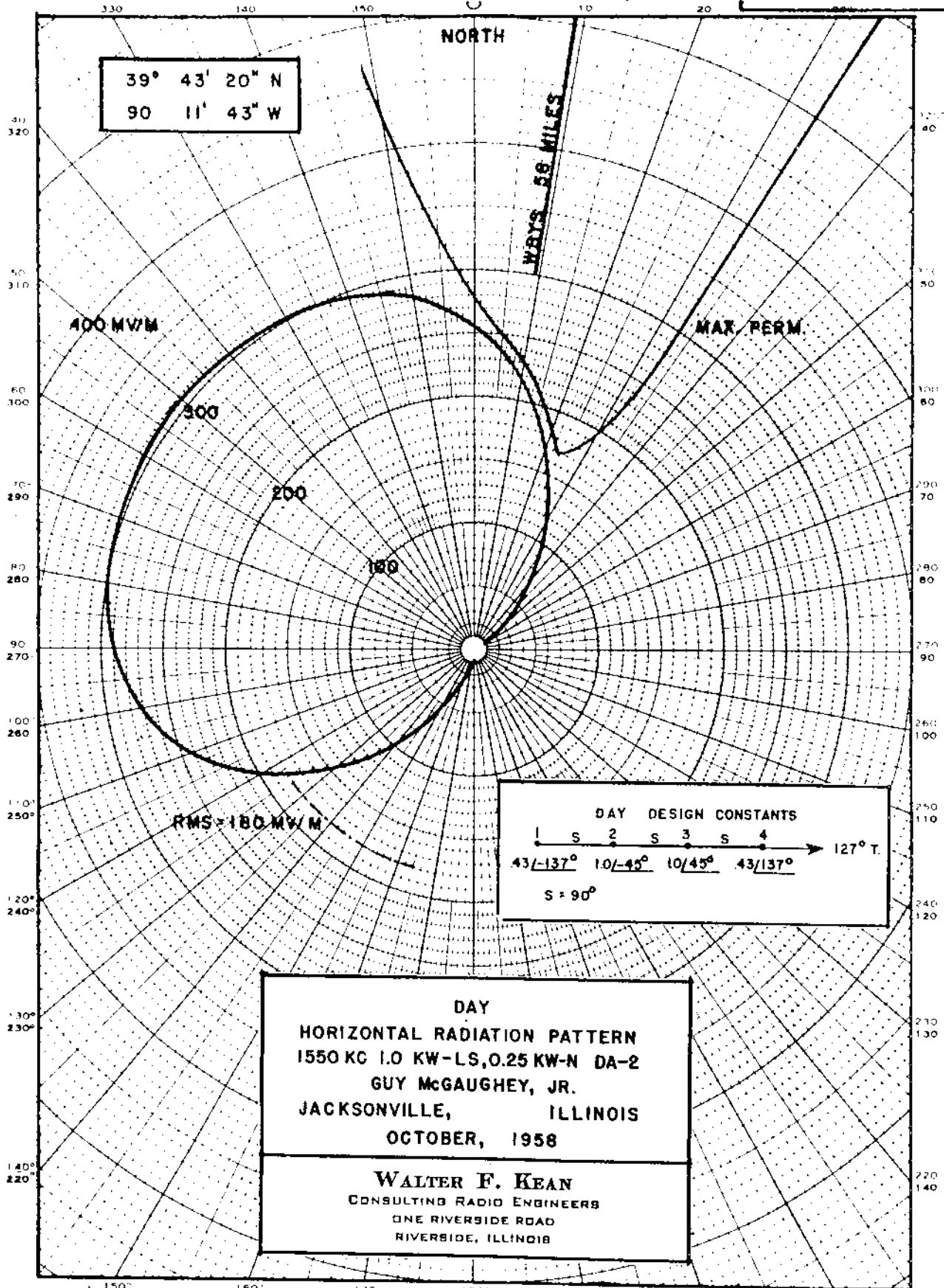
WDLR
Delaware, Ohio

1550 KC

PROPOSED DAY
(1-8-59g)

New; Guy E. McGaughey, Jr.
Jacksonville, Illinois

250w, 1kw-LS, DA-2, U
1550 KC



FCC File No. BP-12628
Accepted 12-23-58

Guy E. McGaughey, Jr.
Jacksonville, Illinois

FIGURE 1
1550 KC

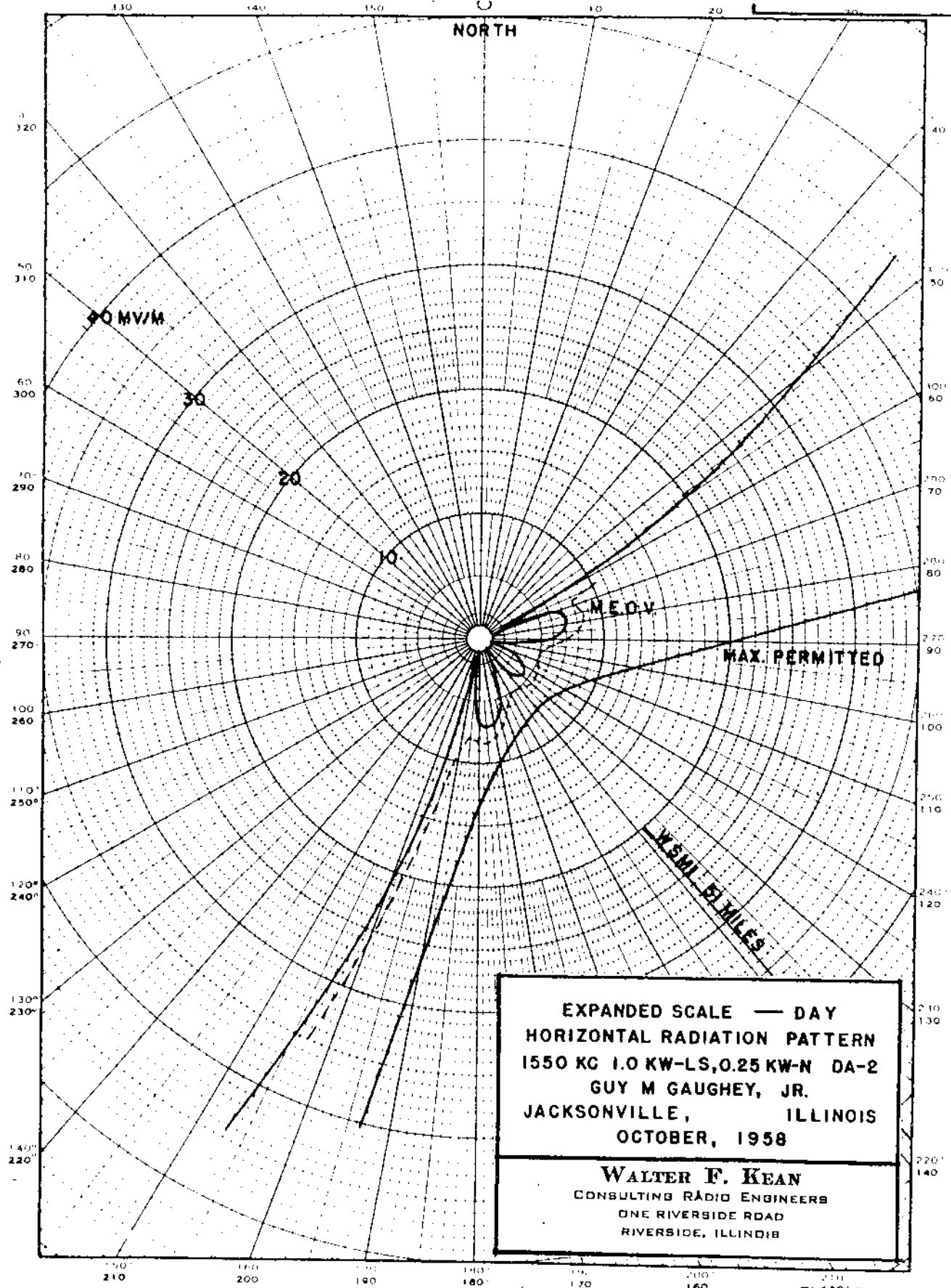
granted CP for new station
1-13-60

DA-D, D delete nighttime

PROPOSED DAY NULLS
(1-8-59g)

New; Guy E. McGaughey, Jr.
Jacksonville, Illinois

250w, 1kw-LS, DA-2, U
1550 KC



FCC File No. BP-12628
Accepted 12-23-58

Guy E. McGaughey, Jr.
Jacksonville, Illinois

FIGURE 1A
1550 KC

WJIL

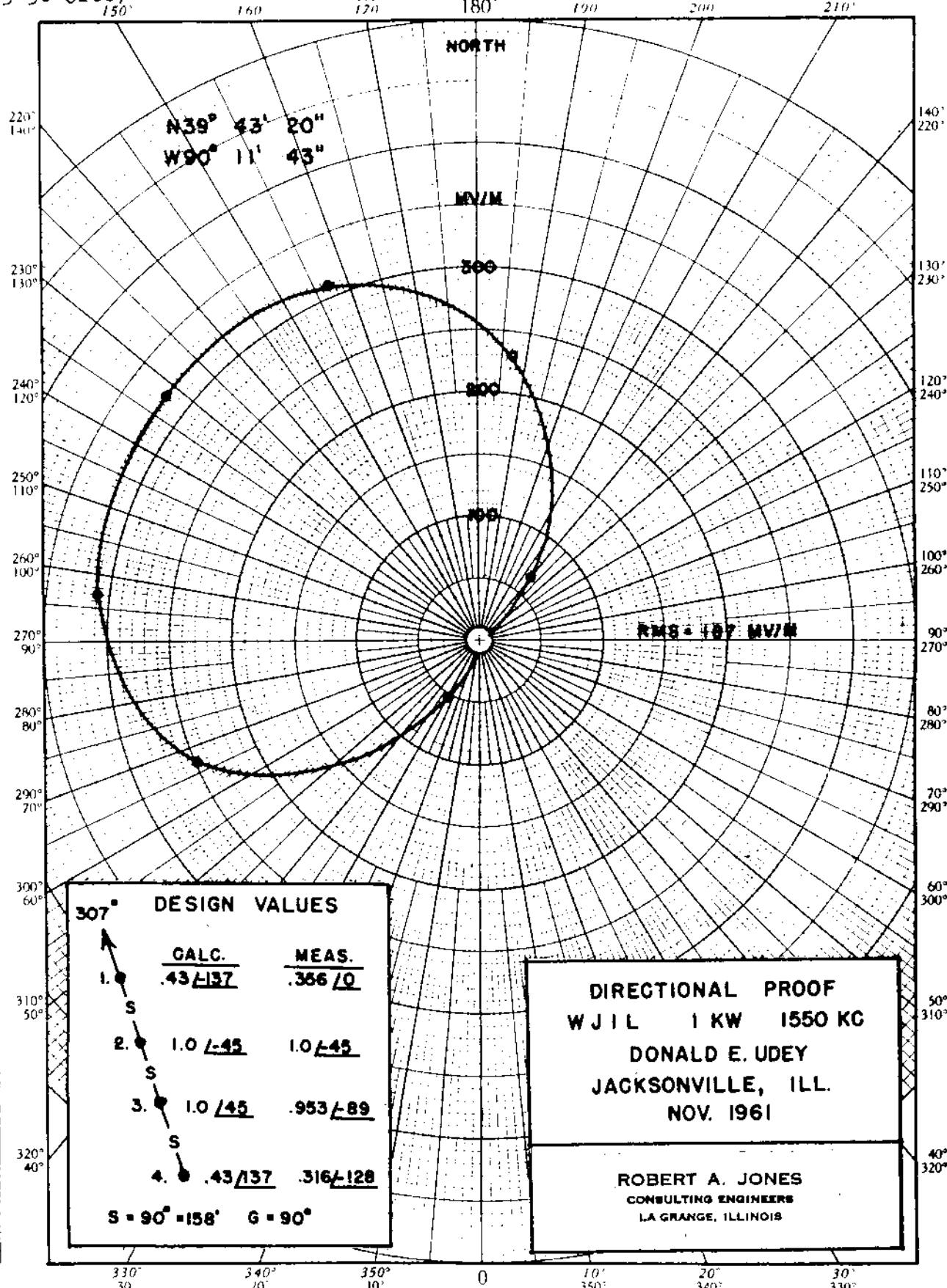
Measured Day
(3-30-62ct)

Station WJIL
Jacksonville, Illinois

1kw, DA-D, D
1550 kc

4-5-62
anted L for
this station

K-E POLAR CO-ORDINATE
KEUFFEL & ESSER CO.
-ANN ARBOR, I.A.



FCC File No. BL-8966
Accepted 3-13-62

Station WJIL
Jacksonville, Illinois

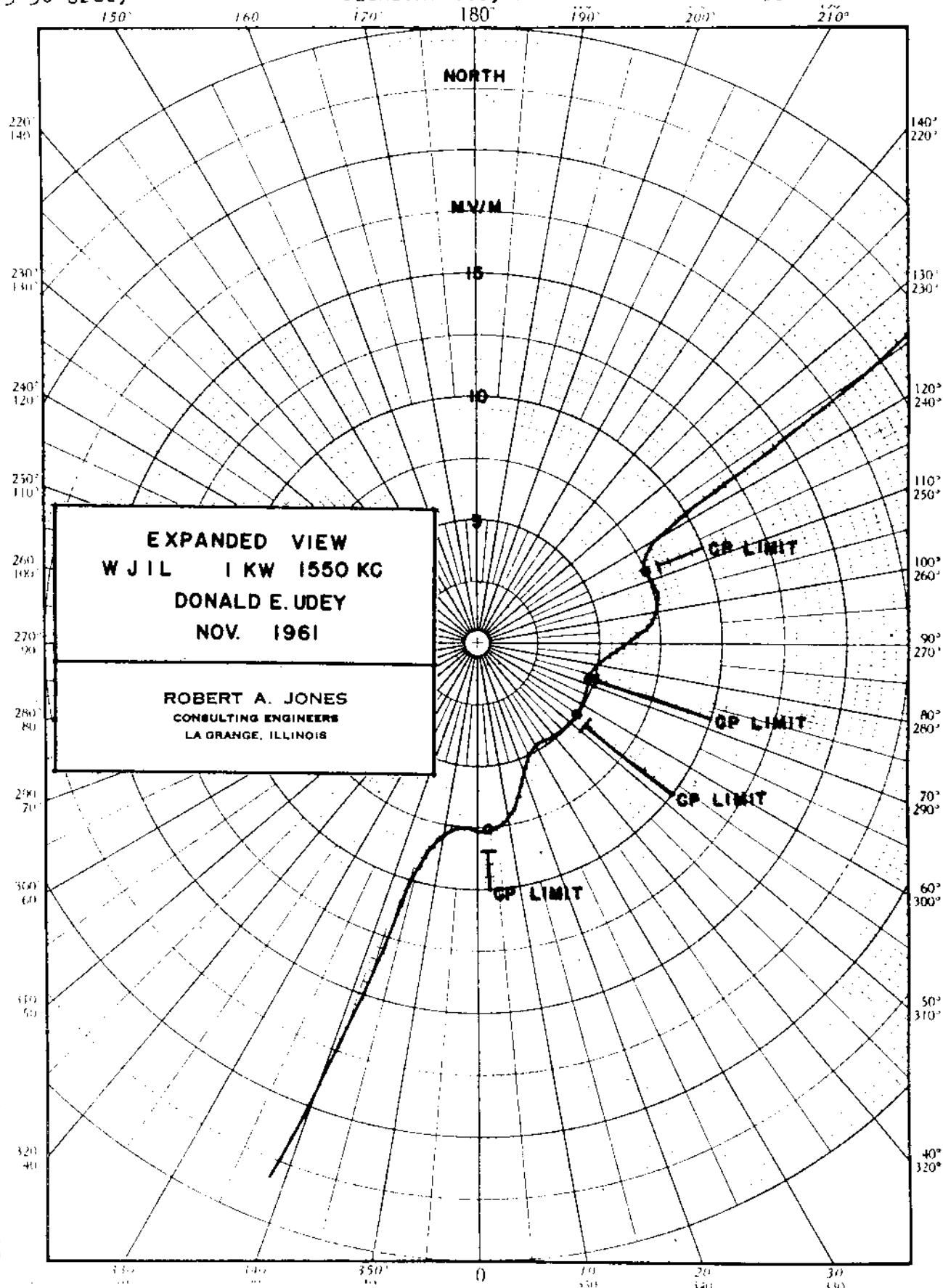
1550 kc

WJIL

Measured Day Nulls
(3-30-62ct)

Station WJIL
Jacksonville, Illinois

1kw, DA-D, D
1550 kc



FCC File No. BL-8966
Accepted 3-13-62

Station WJIL
Jacksonville, Illinois

1550 kc

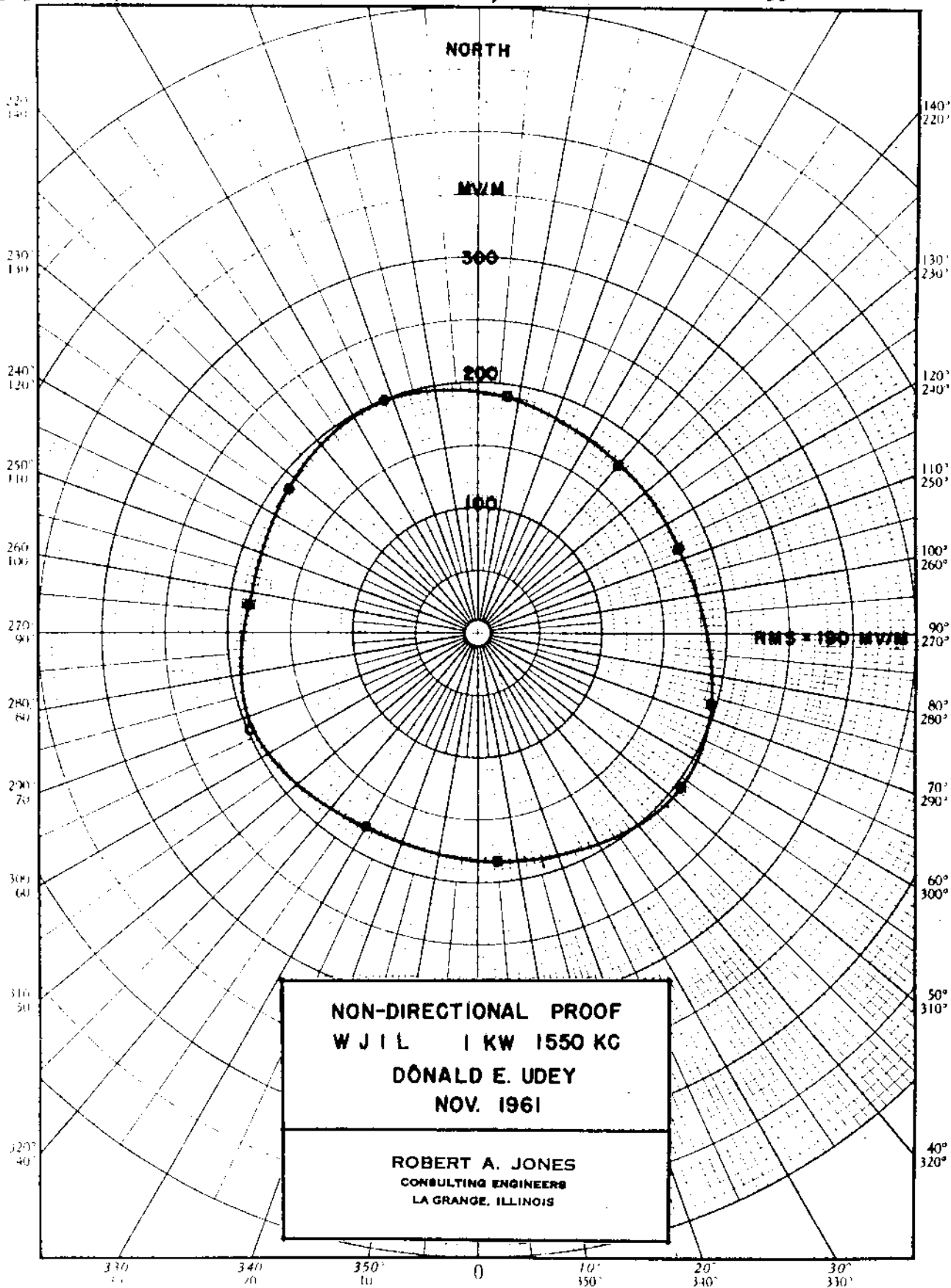
WJIL

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

Station WJIL
Jacksonville, Illinois

1kw, DA-D, D
1550 kc

POLAR CO-ORDINATE 350-31G
KALITEL & ESSER CO.
CHICAGO, ILL.



FCC File No. BL-8966
Accepted 3-13-62

Station WJIL
Jacksonville, Illinois

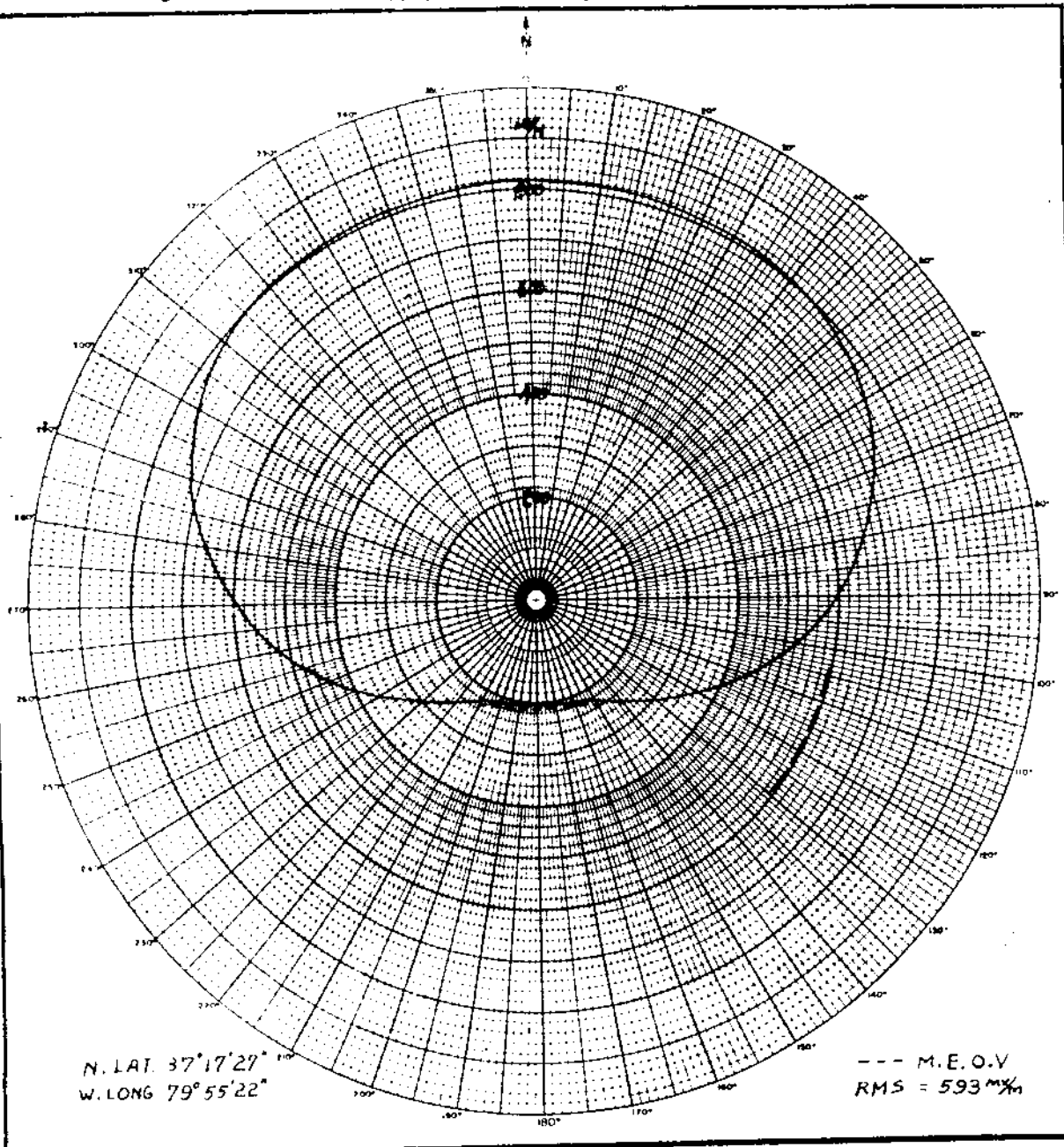
1550 kc

WKBA

PROPOSED DAY
(6-14-61g)

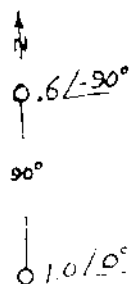
Station WKBA
Vinton, Virginia

10kw, DA-D,D
1550 KC



N. LAT. 37°17'27"
W. LONG 79°55'22"

--- M.E.O.V
RMS = 593 mV



1550 KC
HORIZONTAL PLANE PATTERN
MAIN STATION WKBA
1550 KC 10 KW-DA-DAY VINTON, VA.

WILLIAM L. FOSS, INC.
Electronic Consultants
WASHINGTON D. C.
927 15th Street, N.W. RE 3483

PATTERN NO
SUPERSEDES
APP

FCC File No. BMP-9486
Accepted 5-19-61

WKBA
Vinton, Virginia

1550 KC

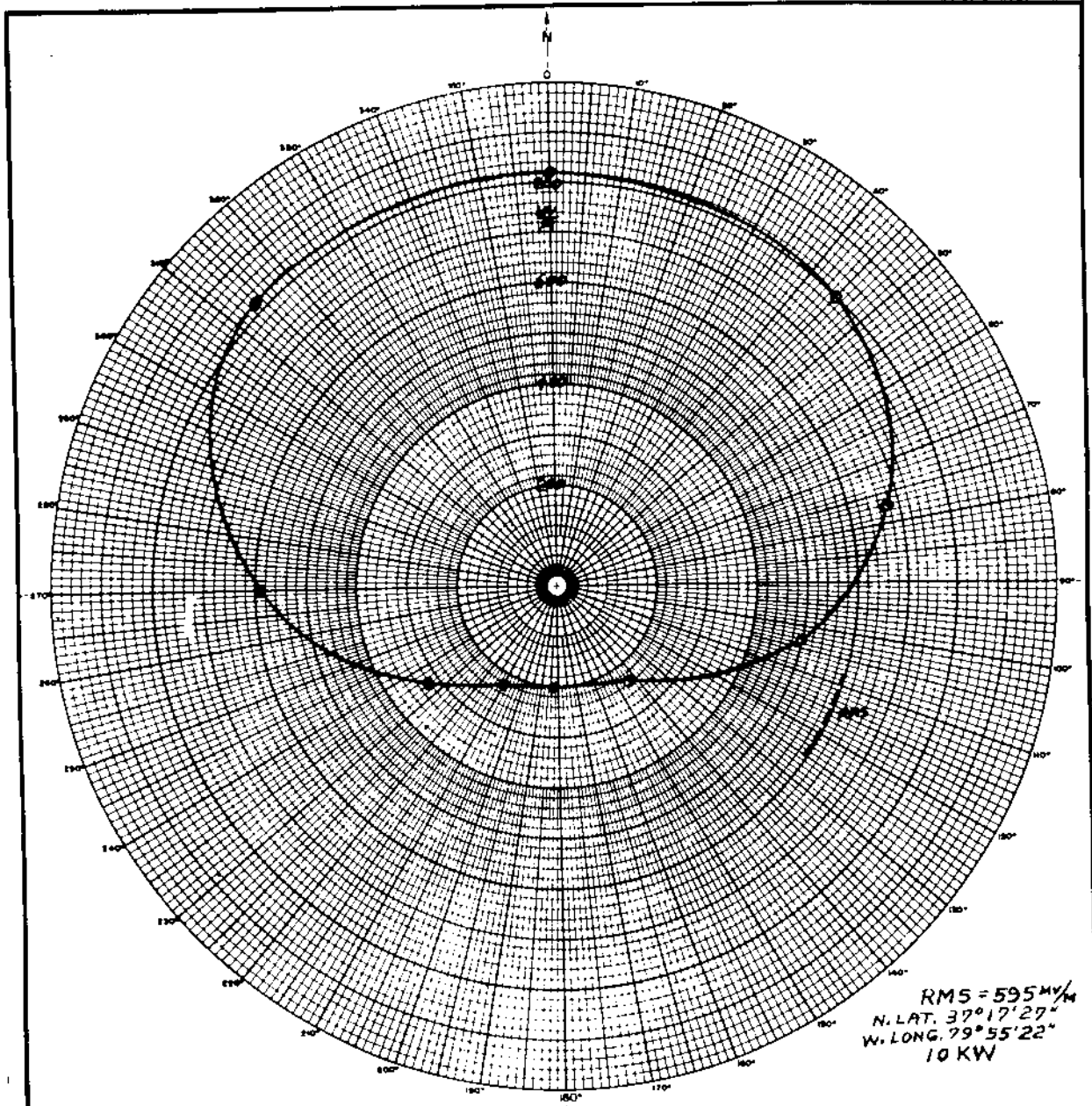
Granted License 2-23-67

WKBA

Measured Day
(2-28-67ct)

Station WKBA
Vinton, Virginia

10kw, DA-D, D
1550 kc



0°E
1.0 / -90°
90°
0.6 / 0°
h = 160 FT.

EXHIBIT XVII
MEASURED RADIATION PATTERN
10KW DIRECTIONAL
WKBA 10KW-DA-D 1550KC VINTON, VA.

WILLIAM L. FOGG, INC.
Electronic Consultants
WASHINGTON, D. C.
DET 100 Street, N. W. RE. 3002

PATTERN NO
SUPERSEDES
APP.

FCC File No. BL-11527
Accepted 2-1-67

Station WKBA
Vinton, Virginia

1550 kc

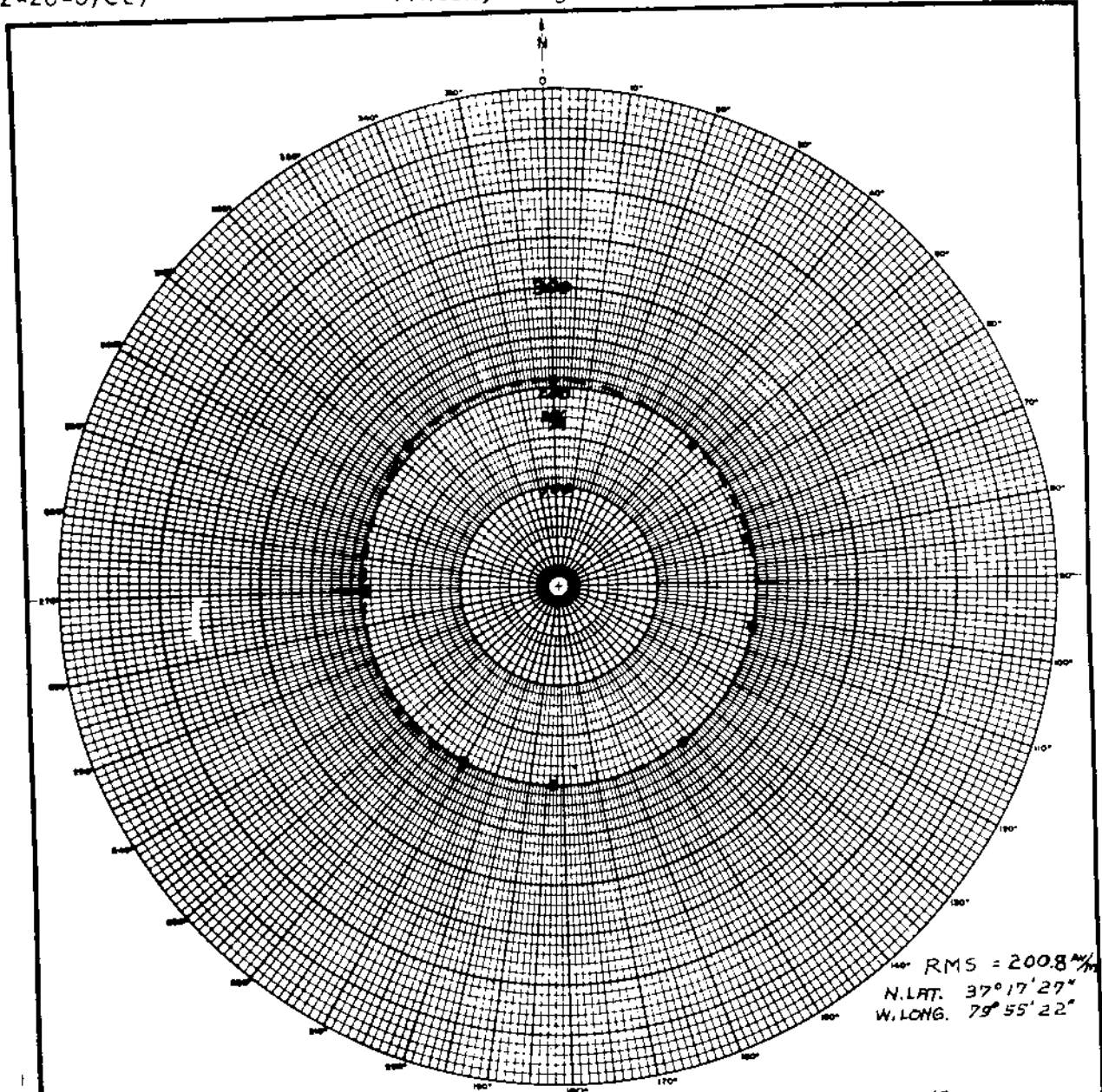
Granted License 2-23-67

WKBA

Measured Non-DA
(2-28-67ct)

Station WKBA
Vinton, Virginia

10kw, DA-D, D
1550 kc



MEASUREMENTS OBTAINED FROM WKBA 200 FT. ANTENNA.
THIS ANTENNA REDUCED TO 160 FT FOR DIRECTIONAL.

EXHIBIT XVI
MEASURED RADIATION PATTERN
NORTH TOWER
1,000 WATTS
WKBA 1550KC 10KW-DA-D VINTON, VA.

WILLIAM L. FORD, INC.
Electronic Consultants
WASHINGTON D. C.
REV 1000 Series, N. W. 22, 2003

PATTERN NO.
SUPERSEDES
APP.

FCC File No. BL-11527
Accepted 2-1-67

Station WKBA
Vinton, Virginia

1550 kc

WKVL
1550412

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: NEW

Main Studio: Clarksville, Tennessee

Frequency: 1550 kHz

Power: .25kw Night .25kw Day

Notification List No. 1785

Date: November 16, 1979 Class: II

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 36° 32' 12"

West Longitude: 87° 22' 24"

ANTENNA CHARACTERISTICS

Authorized for Nighttime operation. (DA-N)

Number of elements: 3

Type of elements: Series excited, uniform cross-section,
guyed, vertical steel towers. * All towers
are top loaded plus 30°

TOWER:	(NW(#1)	CTR(#2)	SE(#3)
HEIGHT ABOVE INSULATORS:	335'	335'	335' (189.9°) *
NIGHT PHASING:	0°	-166.3°	27.5°
NIGHT FIELD RATIO:	1.0	1.7337	0.7832

SPACING AND
ORIENTATION:

Three towers in a row are spaced 105.34' (60°) on a
line bearing 130° true.

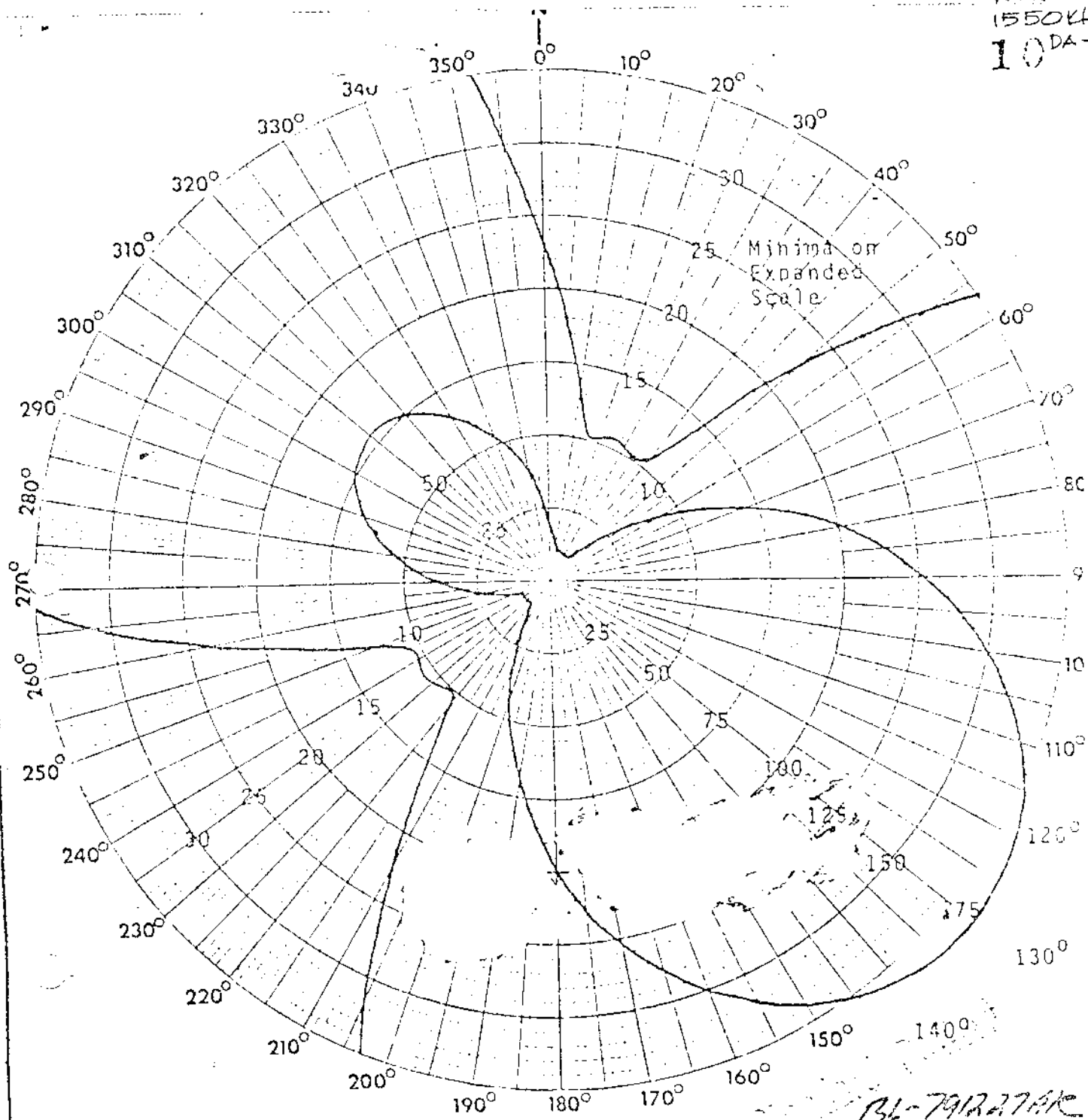
GROUND SYSTEM:

120 - 159' to 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. Centers of system are bonded together.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL	
	<u>RMS</u>	<u>RSS</u>
Night	87.6 mv/m	303.1 mv/m
		STANDARD
		<u>RMS</u>
		92.5 mv/m

WKVL
1550KHz
10 DA-N



STANDARD HORIZONTAL PLANE PATTERN

N. Lat. 36°53'12"
W. Lng. 87°22'24"

RMS Th. 87.6 mV/m
RMS Std. 92.3 mV/m
RSS Th. 303.1 mV/m
FCC 'Q' 7.58 mV/m
@ horiz.

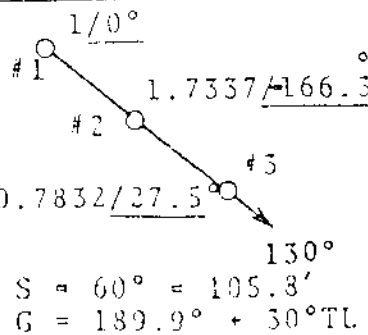


EXHIBIT E-1 FIGURE 5

PROPOSED NIGHTTIME PATTERN
WKVL - 1550 KC 250W DA-N
TWO RIVERS BROADCASTING COMPANY
CLARKSVILLE, TENNESSEE

B. SCOTT BAXTER
AND ASSOCIATES
P. O. BOX 413
BRENTWOOD, TENN 37027

WKYE
1550 kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WKYE

Main Studio: Bristol, Tennessee

Frequency: 1550 kHz

Power: 1kw Day

Notification List No. 1789

Date: September 12, 1980 Class: II

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 36° 36' 40"

West Longitude: 82° 16' 26"

ANTENNA CHARACTERISTICS

Authorized for Daytime operation (DA-D)

Number of elements: 4

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

TOWER:	NW(#3)	NC(#2)	SC(#1)	SE(#4)
HEIGHT ABOVE INSULATORS:	246.8'	246.8	246.8'	246.8' (140°)
NIGHT PHASING:	-50°	+160°	0°	-130°
NIGHT FIELD RATIO:	0.70	1.30	1.0	0.41

SPACING AND
ORIENTATION:

Towers #1, #2 and #3 in a row are spaced 156.64' (90°) on
a line bearing 290° true. Towers #4 is spaced 264.4' (150°)
from Tower #1 on an azimuth of 120° true.

GROUND SYSTEM: 120 - 158.71' equally spaced copper radials plus 120-50'
interspaced radials about each tower. Radials are shortened
and bonded to transverse straps along intersections between
towers.

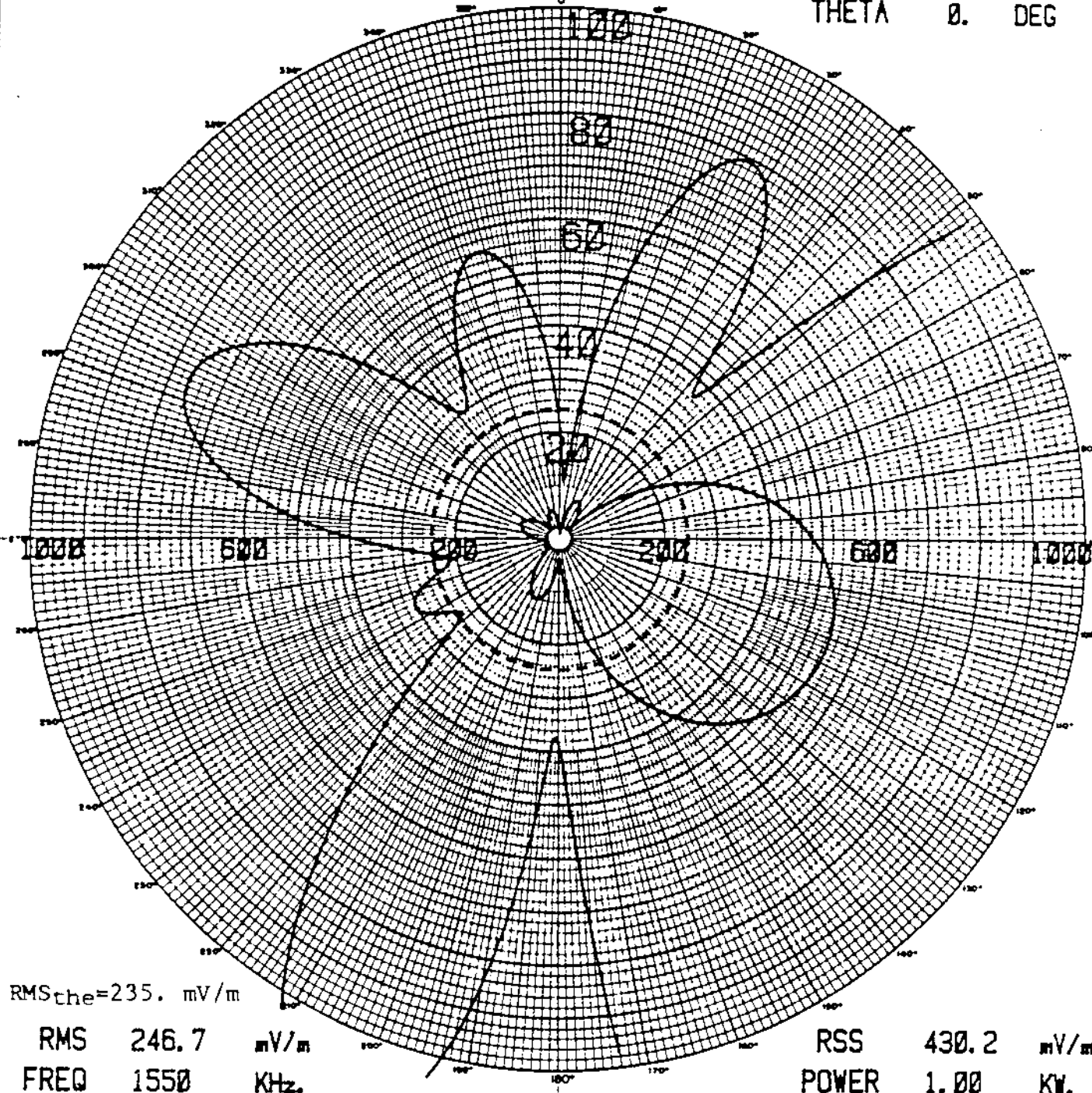
PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL		STANDARD
	<u>RMS</u>	<u>RSS</u>	<u>RMS</u>
Day	235.0 mv/m	430.2 mv/m	246.7 mv/m

WKYE
1550 kHz

LAT: 36 36' 48"
LON: 82 16' 26"

STANDARD
THETA 0. DEG



TABULATION OF ANTENNA PARAMETERS

TOWER #	HEIGHT DEGREES	FIELD RATIO	SPACING DEGREES	BEARING DEGREES	PHASING DEGREES
1	140.00	1.000	0.000	0.000	0.000
2	140.00	1.300	90.000	290.000	160.000
3	140.00	0.700	180.000	290.000	-50.000
4	140.00	0.410	150.000	120.000	-130.000

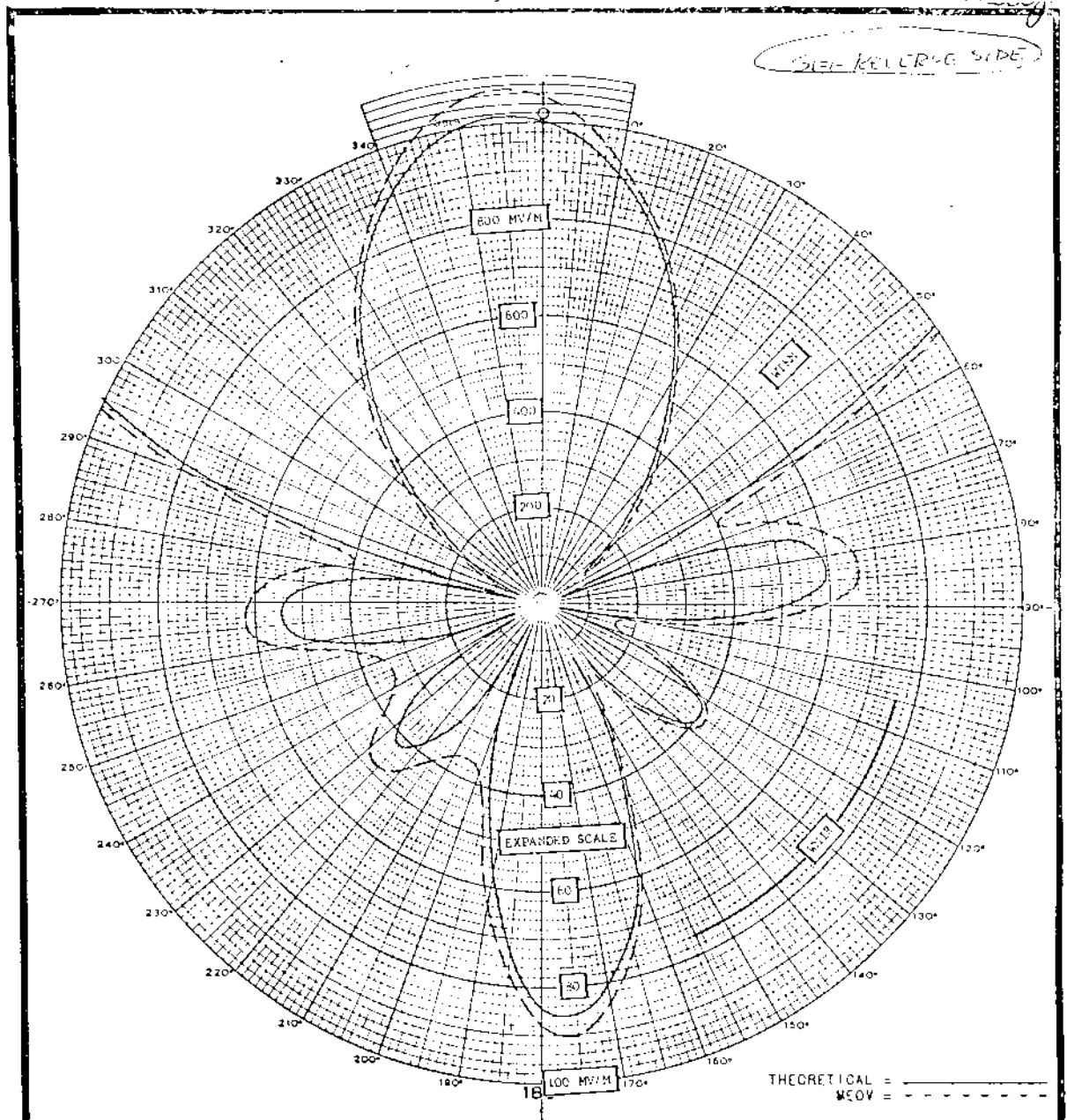
FIGURE 4
PLOT OF
DAYTIME STANDARD PATTERN
RADIO STATION WKYE
BRISTOL, TENNESSEE
1550 KHz. 1KW DA-D

JOHN H. MULLANEY
CONSULTING
RADIO ENGINEERS, INC.
POTOMAC, MARYLAND

Proposed Day
(9-25-70ct)

Station WMAD
Madison, Wisconsin

WMAD
5kw, DA-D, D
1550 kc



$E_{RMS} = 400 \text{ MV/M}$

NULL BEARINGS: $64^{\circ}T$, $106^{\circ}T$, $145^{\circ}T$, $205^{\circ}T$, $246^{\circ}T$, $284^{\circ}T$

LATITUDE: $43^{\circ} 09' 08''$ LONGITUDE: $89^{\circ} 23' 08''$	ANTENNA PARAMETERS $G = 90^{\circ}$ #3 = $1.0 \angle 0.6^{\circ}$ #1 = $1.0 \angle 0^{\circ}$ #4 = $1.0 \angle +122.1^{\circ}$ #2 = $1.0 \angle +128^{\circ}$	FIGURE 2 MODIFIED DIRECTIONAL ANTENNA PATTERN RADIO STATION WMAD MADISON, WISCONSIN 1550 KHz 5 KW, DA-D
JOHN H. MULLANEY AND ASSOCIATES		

FCC File No. BP-18853
Accepted 9-10-70

Station WMAD
Madison, Wisconsin

1550 kc

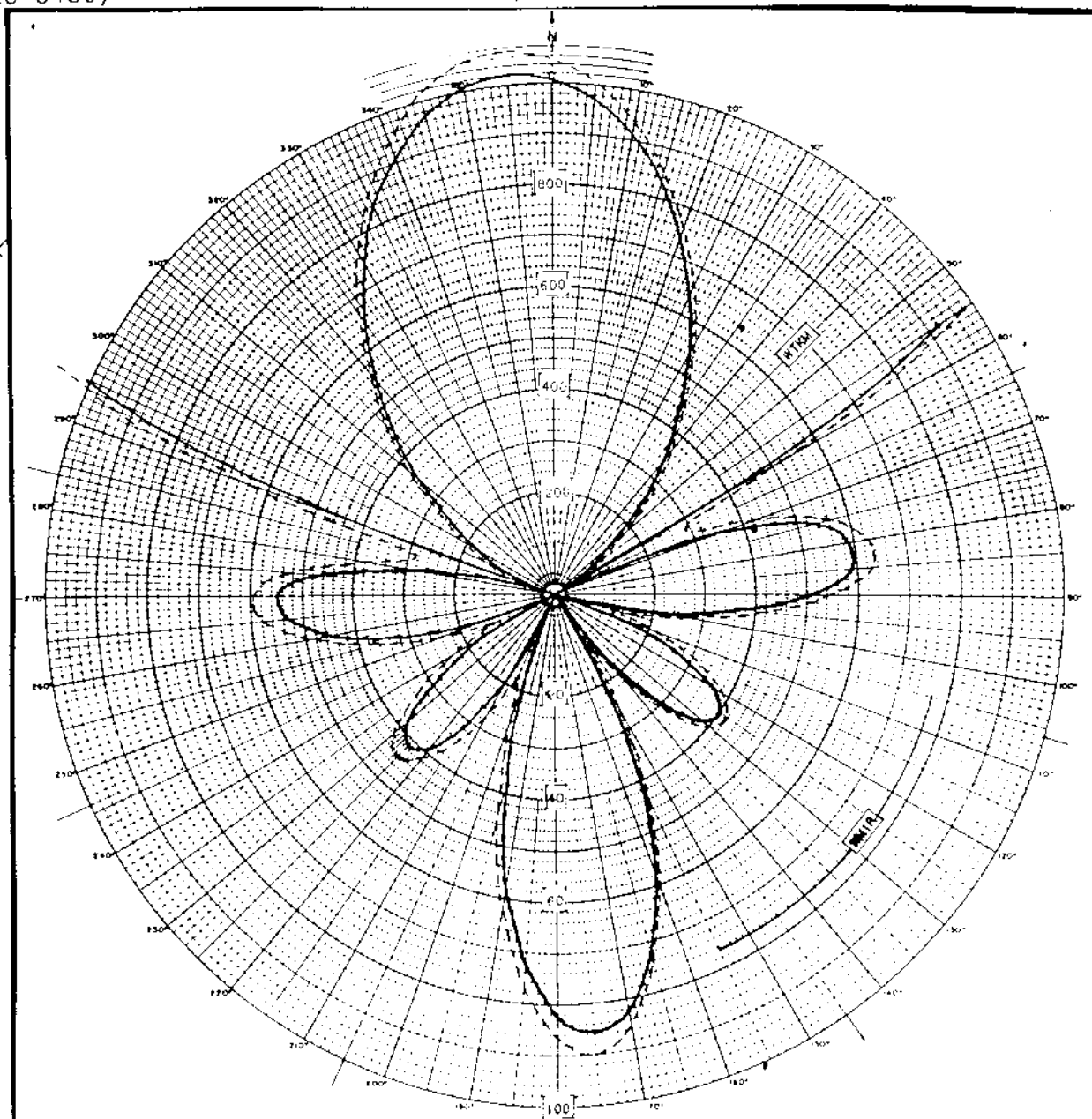
WMAD

Proposed Day
(8-28-64ct)

Station WMAD
Madison, Wisconsin

5kw, DA-D, D
1550 kc

#200
8-10-64
granted MCP
to make changes
in DA pattern &
change TX mtr
site.



NULL BEARINGS: 44°T, 108°T, 145°T, 205°T, 246°T, 284°T

$E_{RMS} = 400 \text{ MV/m}$

AMENDMENT TO CONSTRUCTION PERMIT

LATITUDE: 43° 00' 28" LONGITUDE: 89° 23' 38"	ANTENNA PARAMETERS #3 = $1.0 \angle 192^\circ$ #1 = $1.0 \angle 0^\circ$ #4 = $1.0 \angle 355^\circ$ #2 = $1.0 \angle 128^\circ$	FIGURE 1 MODIFIED DIRECTIONAL RADIATION PATTERN RADIO STATION WMAD MADISON, WISCONSIN 1550 KC 5000 DA-D
CHARLES E. BRENNAN CONSULTING RADIO ENGINEER MILWAUKEE, WISCONSIN		

FCC File No. BMP-11291
Accepted 7-28-64

Station WMAD
Madison, Wisconsin

1550 kc

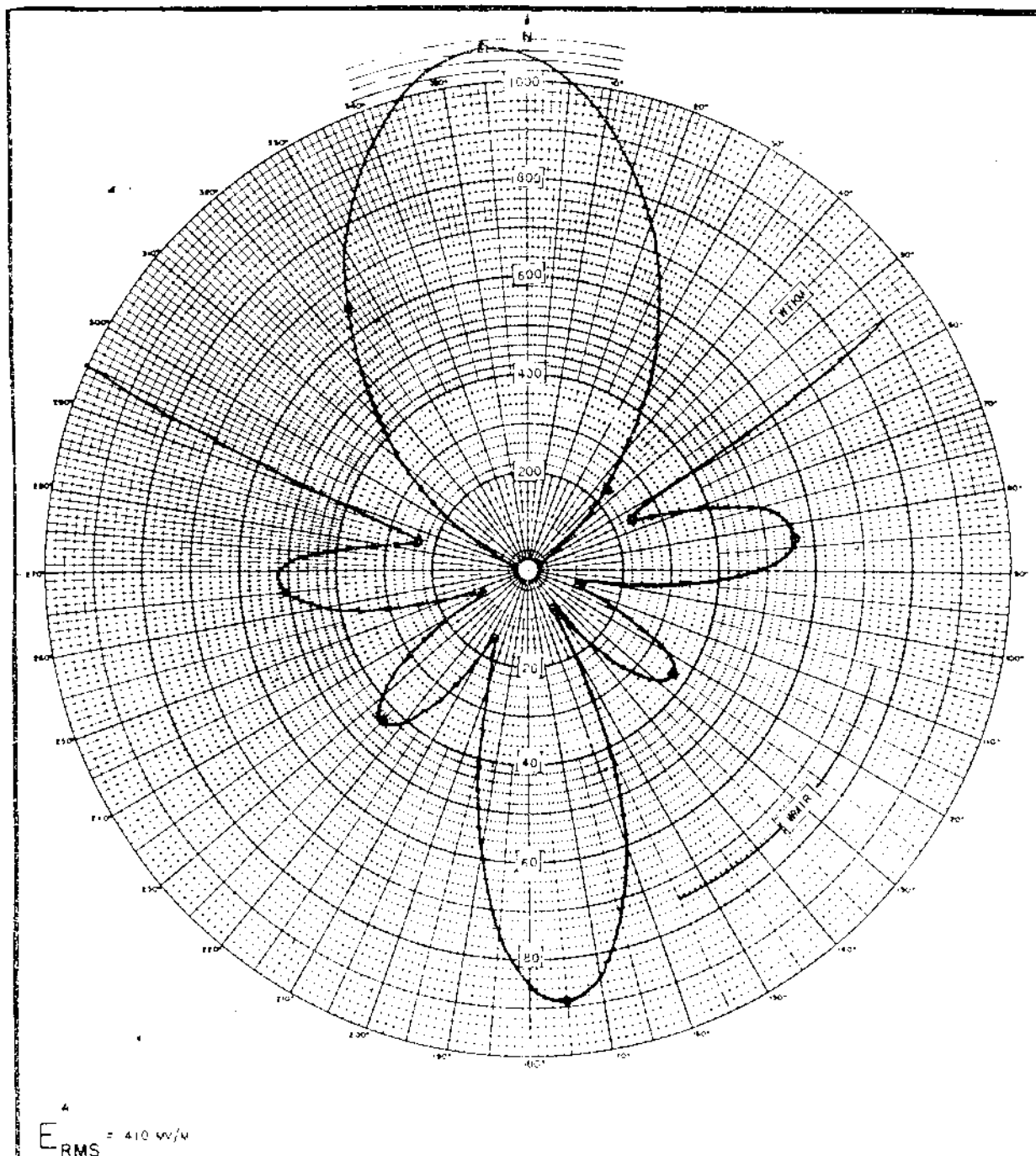
WMAD

Measured Day
(1-28-65ct)

Station WMAD
Madison, Wisconsin

5kw, DA-D, D
1550 kc

BL-10709
1-27-65 L1C



$E_{RMS} = 410 \text{ mV/m}$

LATITUDE: 43° 00' 08"

LONGITUDE 89° 23' 05"

ANTENNA PARAMETERS

ALL θ 's = 90°

$\theta_1 = 132^\circ$ $\theta_2 = 85^\circ$
 $\theta_3 = 50^\circ$ $\theta_4 = 192^\circ$
 $\theta_5 = 170^\circ$ $\theta_6 = 170^\circ$
 $\theta_7 = 170^\circ$ $\theta_8 = 170^\circ$

CHARLES E. BRENNAN
CONSULTING RADIO ENGINEER
MILWAUKEE, WISCONSIN

640612

FIGURE 2

MEASURED DIRECTIONAL RADIATION

RADIO STATION WMAD
MADISON, WISCONSIN

1550 KC

5000 DA-D

FCC File No. BL-10709
Accepted 12-22-64

Station WMAD
Madison, Wisconsin

1550 kc

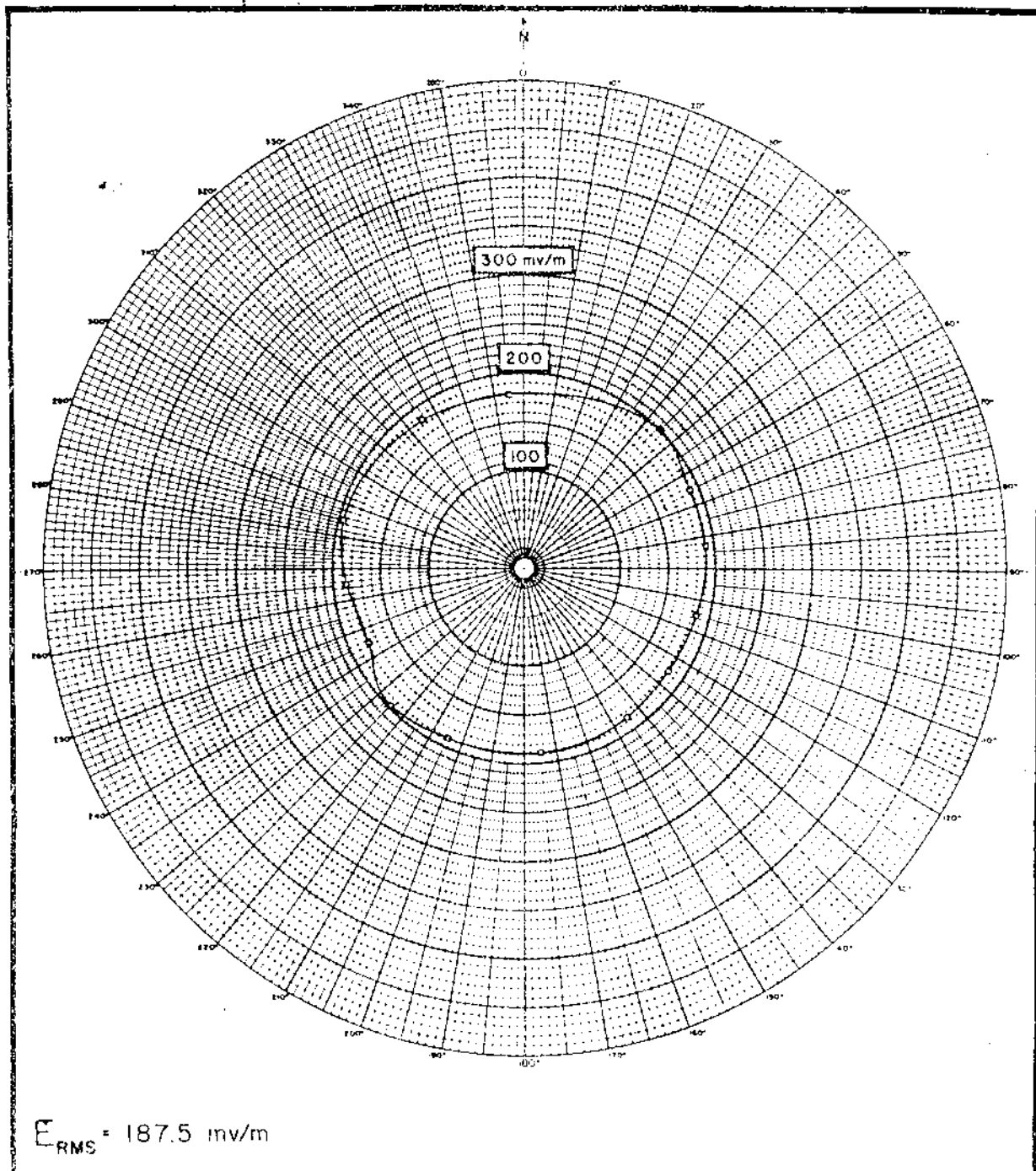
WMAD

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

Station WMAD
Madison, Wisconsin

5kw, DA-D, D
1550 kc

BL-10709
1-27-65 LIC.



LATITUDE LONGITUDE	ANTENNA PARAMETERS ALL $\Delta \theta = 90^\circ$ #1 #2 MEASUREMENTS WITH 1000 GATES TO TOWER 2	640612 FIGURE 1 MEASURED NON-DIRECTIONAL RADIATION RADIO STATION WMAD MADISON, WISCONSIN 1550 Kc. 5,000 DA-D
CHARLES E. BRENNAN CONSULTING RADIO ENGINEERS MILWAUKEE, WISCONSIN		

FCC File No. BL-10709
Accepted 12-22-64

Station WMAD
Madison, Wisconsin

1550 kc

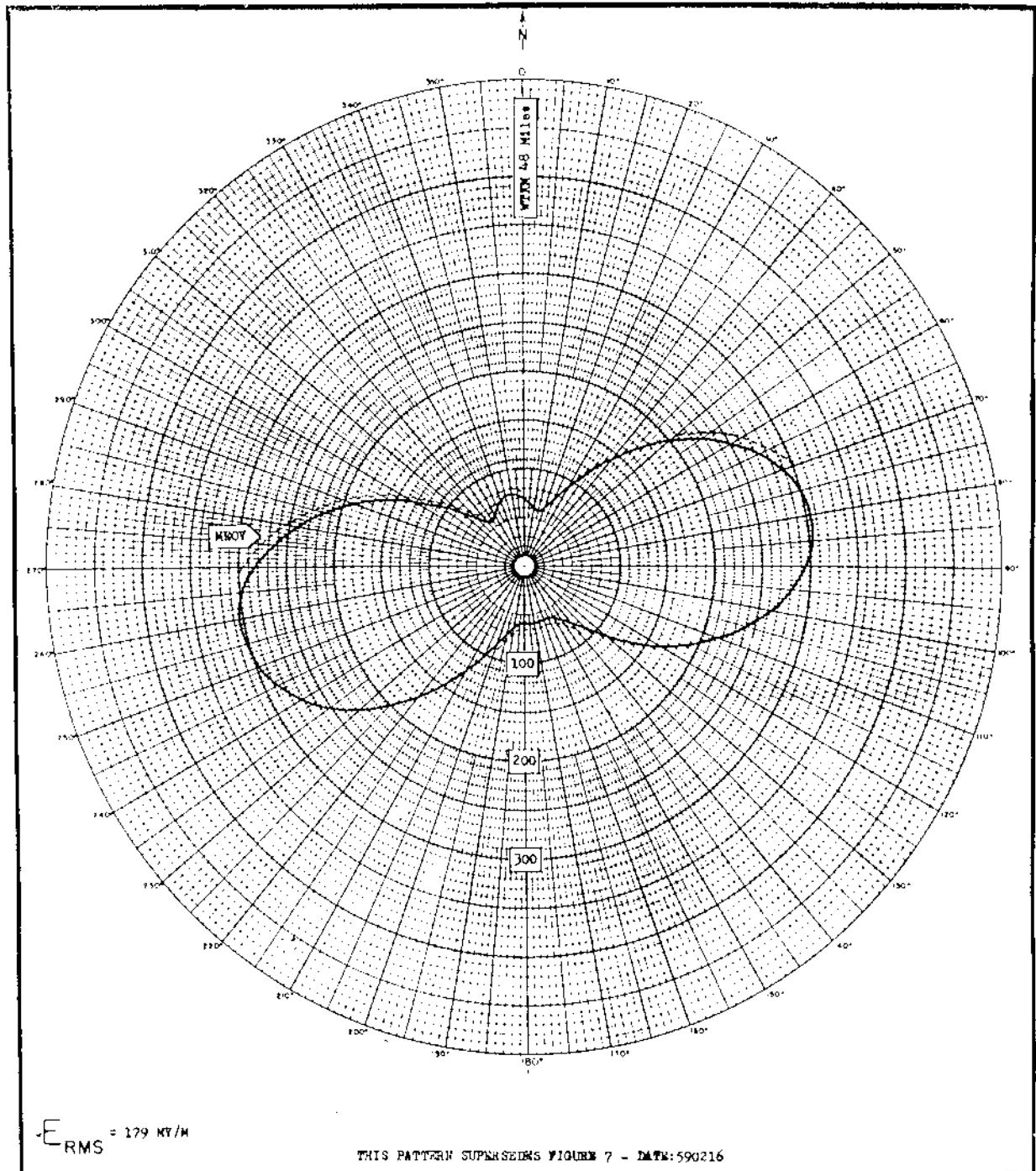
1. 5-22-63
 Proposed for
 station
 mile

3/3/64
 granted CP
 to replace
 station
 BP-12585

LAKE GENEVA, WIS.
 New; Southern Wisconsin Co., Inc.
 Lake Geneva, Wisconsin

WMIR
 1kw, DA-D, D
 1550 KC

PROPOSED DAY
 (7-8-59g)



$E_{RMS} = 179 \text{ MV/M}$

THIS PATTERN SUPERSEDES FIGURE 7 - DATE: 590216

LATITUDE 42° 35' 40" LONGITUDE 88° 23' 19"	ANTENNA PARAMETERS	590507 FIGURE 7
CHARLES E. BRENNAN & ASSOCIATES MILWAUKEE 7, WISCONSIN	$\theta = 0.68 / 7^\circ$ $S = 191^\circ (336.9')$ $\phi = 1.0 / 9^\circ$	SOUTHERN WISCONSIN CO., INC. LAKE GENEVA, WISCONSIN 1550 KC 1000 W DA-D

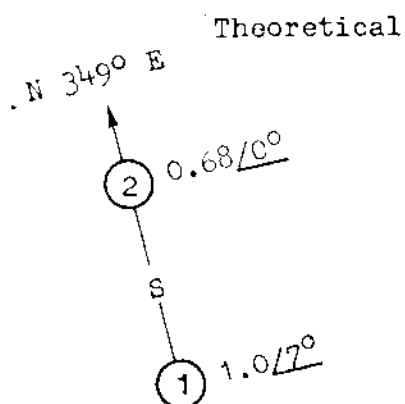
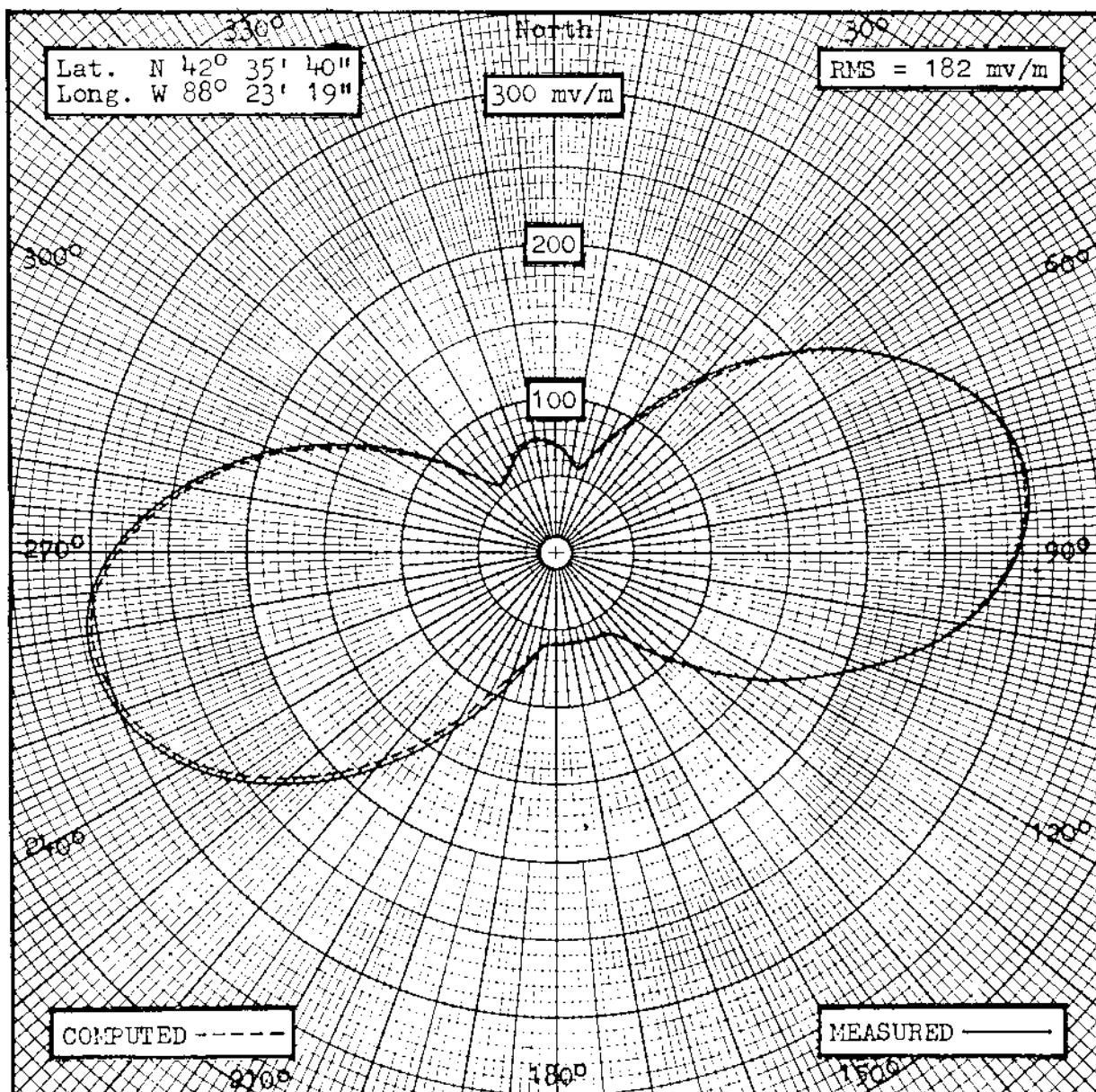
WMIR

Measured Day
(9-29-64ct)

Station WMIR
Lake Geneva, Wisconsin

1kw, DA-D, D
1550 kc

BL-10636
12-7-64 LIC



$G = 96.2^\circ = 170'$
 $S = 191^\circ = 336.9'$

RADIO STATION WMIR
LAKE GENEVA, WISCONSIN

MEASURED DIRECTIONAL
HORIZONTAL PLANE RADIATION PATTERN
1550 KC 1000 WATTS

640425-3

FIGURE 3

MERL SAXON

CONSULTING RADIO ENGINEER
LUFKIN, TEXAS

FCC File No. BL-10636
Accepted

Station WMIR
Lake Geneva, Wisconsin

1550 kc

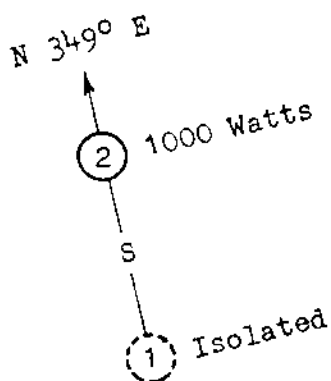
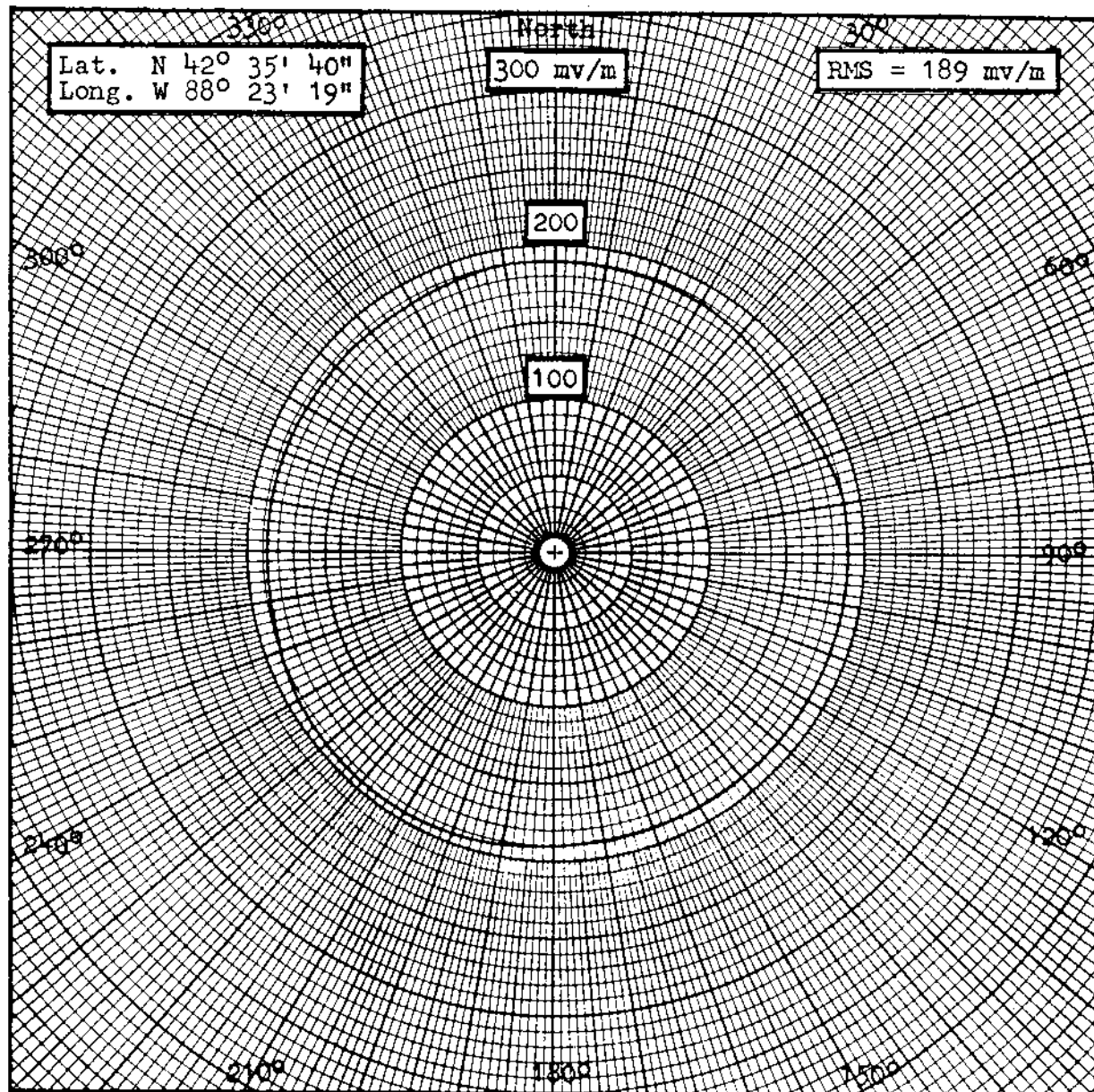
WMIR

Measured Non-DA
(9-29-64ct)

Station WMIR
Lake Geneva, Wisconsin

1kw, DA-D, D
1550 kc

BL-10636
12-7-64 LIC.



$$G = 96.2^\circ = 170'$$

$$S = 191^\circ = 336.9'$$

RADIO STATION WMIR
LAKE GENEVA, WISCONSIN
MEASURED NON-DIRECTIONAL
HORIZONTAL PLANE RADIATION PATTERN
1550 KC 1000 WATTS

640425-2

FIGURE 2

MERL SAXON
CONSULTING RADIO ENGINEER
LUFKIN, TEXAS

FCC File No. 8L-10636
Accepted

Station WMIR
Lake Geneva, Wisconsin

1550 kc

Mobile, Ala.

WMOG

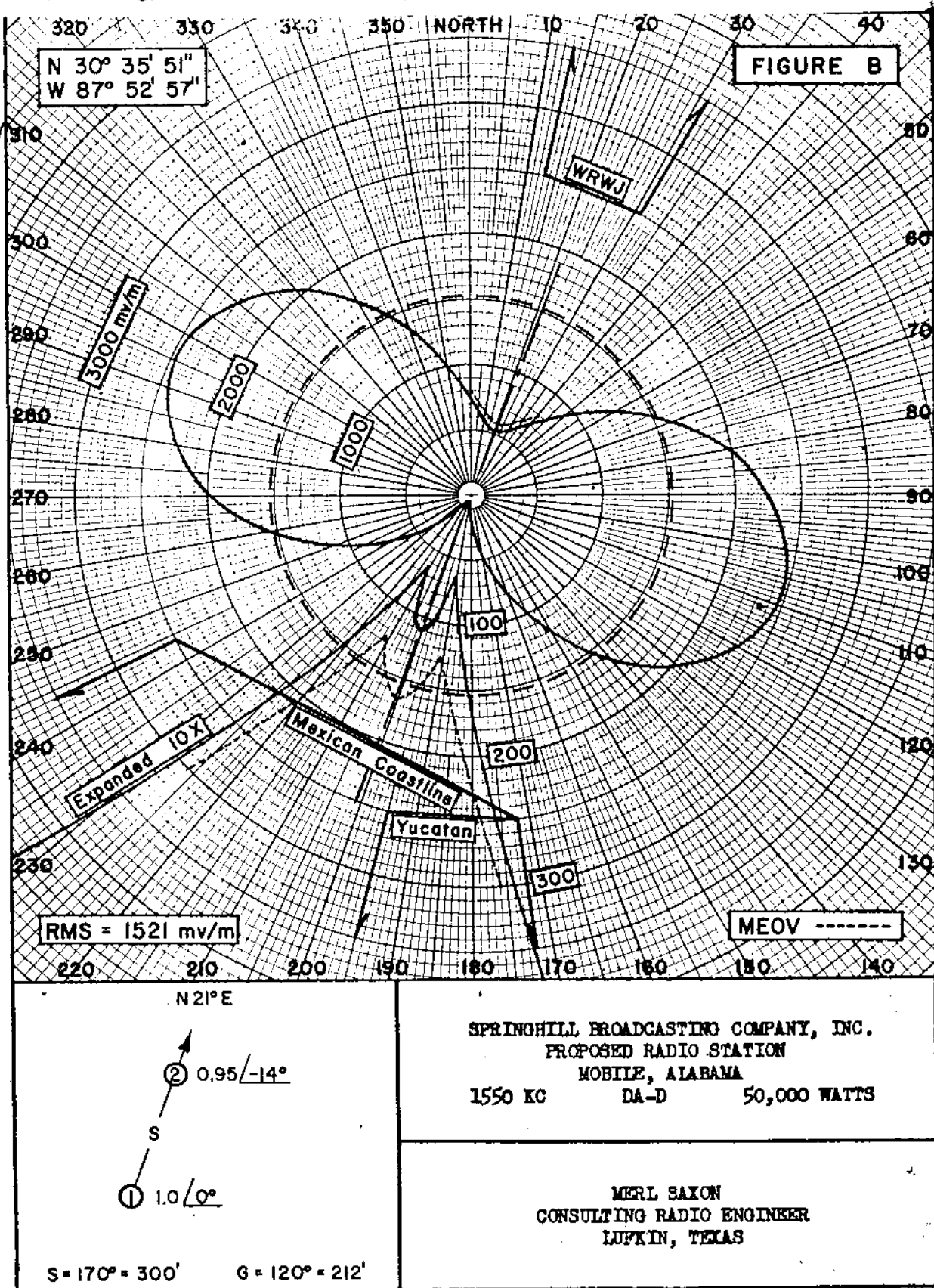
WMOG

PROPOSED DAY
(9-25-58g)

New; Springhill B/C Co.
Mobile, Alabama

50kw, DA-D,D
1550 KC

S = 61
granted CP
for new station



FCC File No. BP-11,528
Accepted 9-16-58 Amended

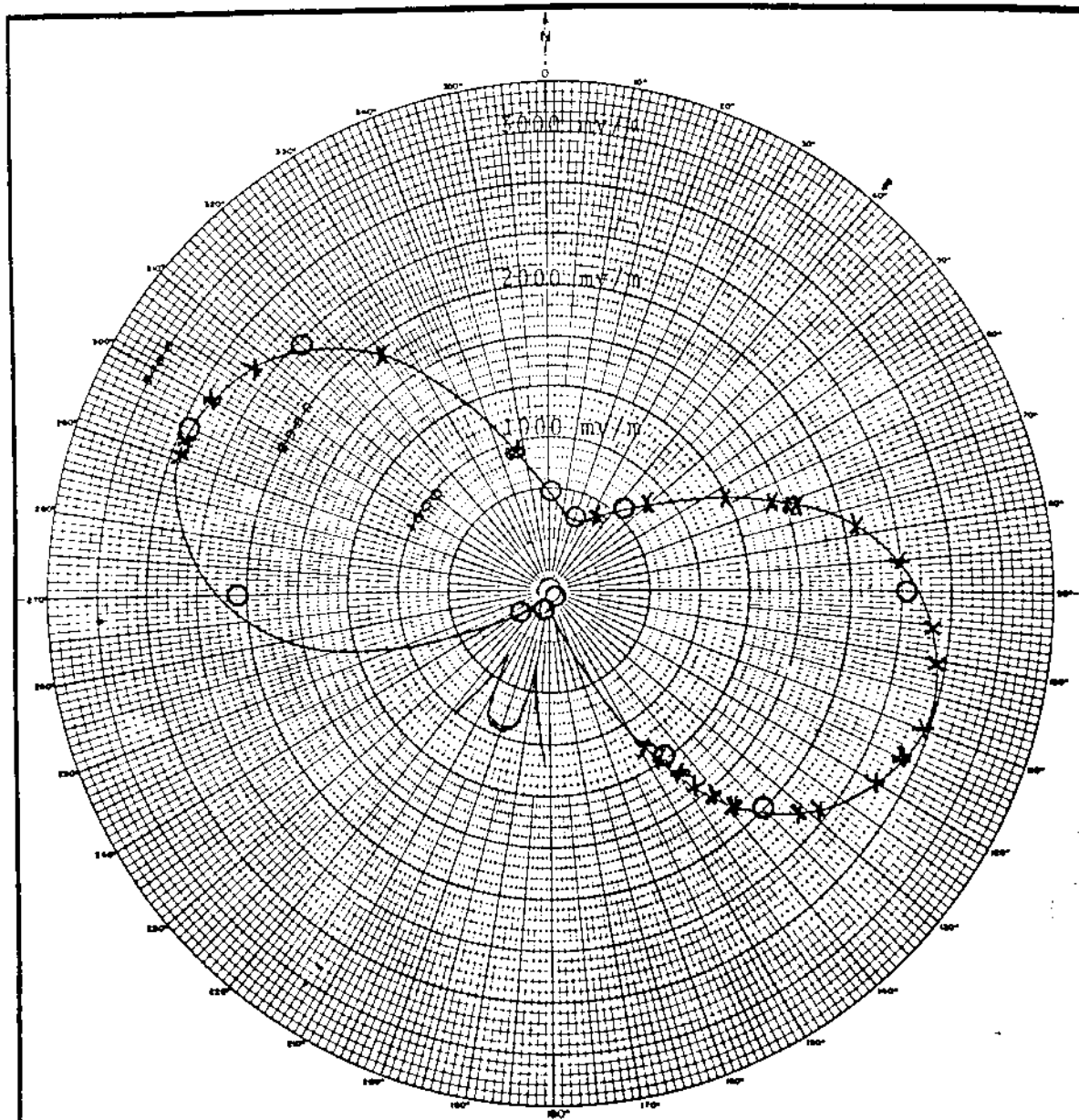
Springhill Broadcasting Company
Mobile, Alabama 1550 KC

WMOO

Measured Day
(4-28-65ct)

Station WMOO
Mobile, Alabama

50kw, DA-D, D
1550 kc



$E_{RMS} = 1525 \text{ mV/m}$

O=MEASURED RADIALS
X=CROSS RADIALS

LATITUDE: $30^{\circ}35'51''$ LONGITUDE: $87^{\circ}52'57''$	ANTENNA PARAMETERS 1.0 $\angle -14^{\circ}$ $\text{N}021^{\circ}\text{E}$ ② S ① 0.96 $\angle 0^{\circ}$ S=170°=300' G=120°=212'		FIGURE-32 MEASURED DIRECTIONAL POLAR PATTERN WMOO, MOBILE, ALABAMA BP-11,528 50 kw. 1550 kc/s., D.A.-D.-D. 21, DECEMBER 1964
AMBROSE W. KRAMER CONSULTING RADIO ENGINEER WASHINGTON, D. C.			

FCC File No. BL-10841
Accepted 3-31-65

Station WMOO
Mobile, Alabama

1550 kc

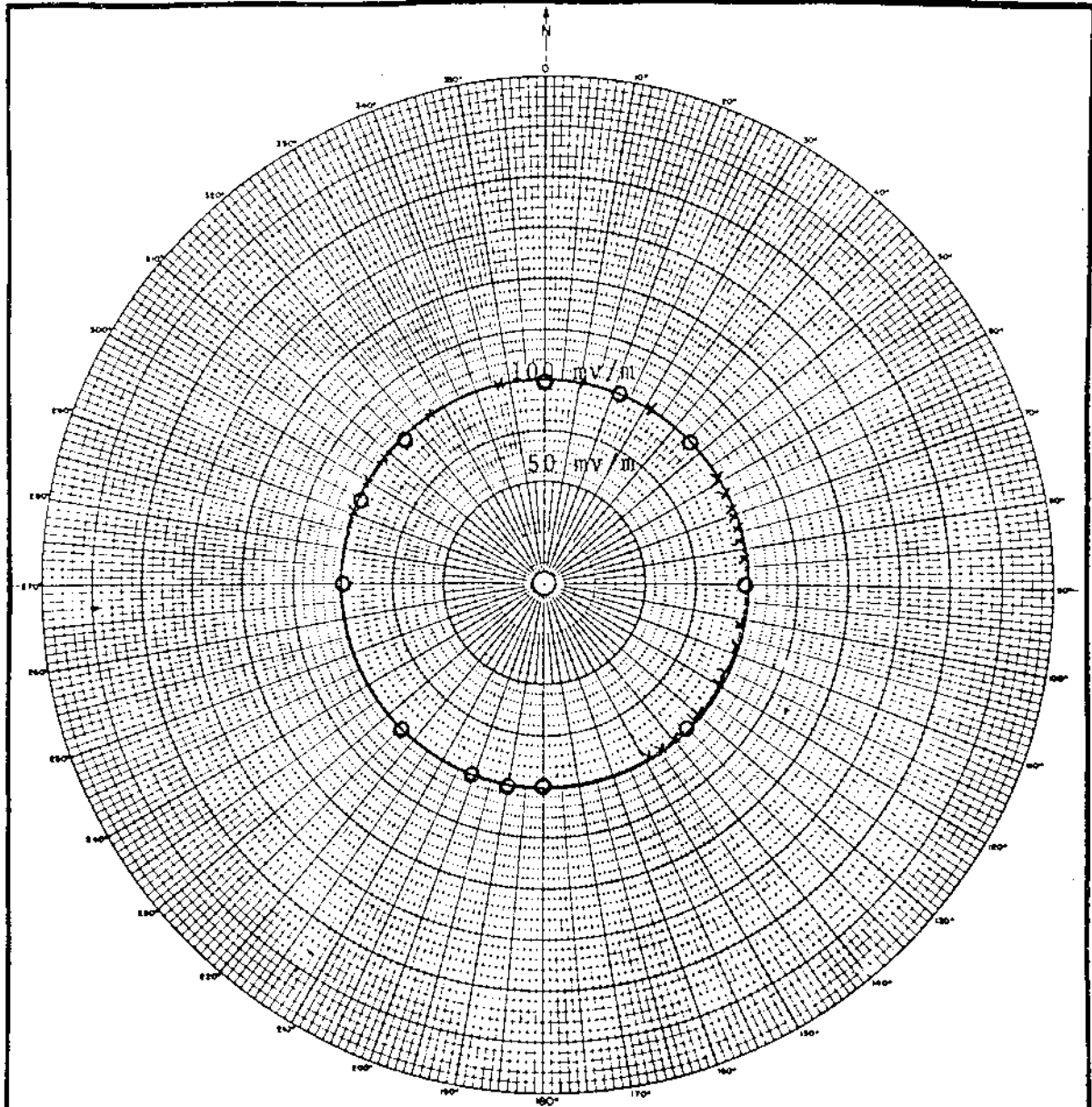
WMOO

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

Station WMOO
Mobile, Alabama

50kw, DA-D, D
1550 kc

BL-10841
4-22-65 LIC



$E_{RMS} = 103.25 \text{ mV/m}$

O=MEASURED RADIALS
X=CROSS RADIALS

LATITUDE: $30^{\circ}35'51''$ LONGITUDE: $87^{\circ}52'57''$	ANTENNA PARAMETERS #2 ISOLATED N 021° E ② S ① S = $170^{\circ} = 300'$ G = $120^{\circ} = 212'$	FIGURE-30 MEASURED NON-DIRECTIONAL POLAR PATTERN WMOO, MOBILE, ALABAMA BP-11,528 50 kw. MEASURED AT 0.25 kw. 1550 kc/s., D.A.-D.-D. 21, DECEMBER 1964
AMBROSE W. KRAMER CONSULTING RADIO ENGINEER WASHINGTON, D. C.		

FCC File No. BL-10841
Accepted 3-31-65

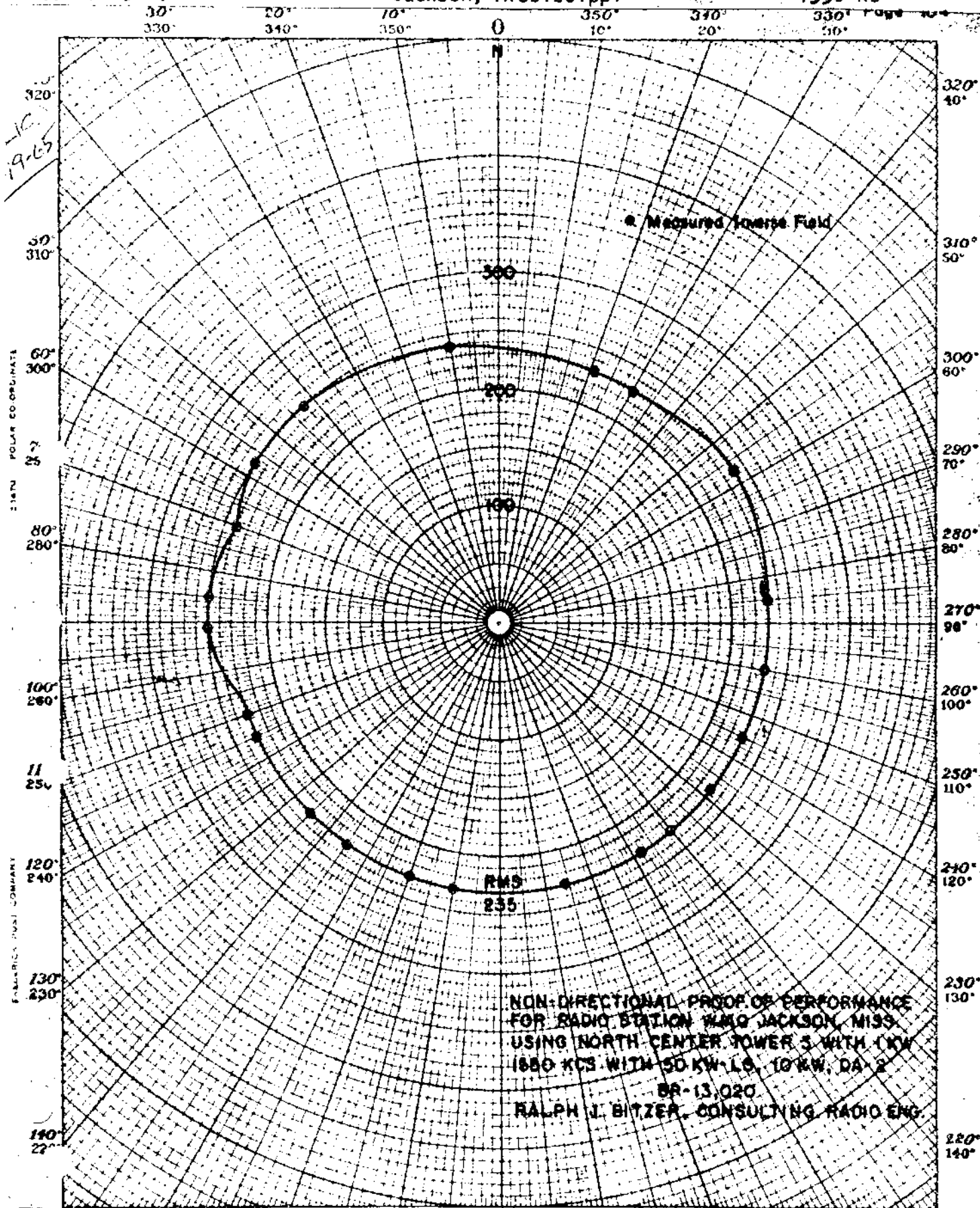
Station WMOO
Mobile, Alabama

1550 kc

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

Station WJAQ
Jackson, Mississippi

WOKJ
10kW, 50kW-L3, DA-2, U
1550 kc



FCC File No. BL-10887
Accepted 5-3-65

Station WJAQ
Jackson, Mississippi

1550 kc

WOKJ

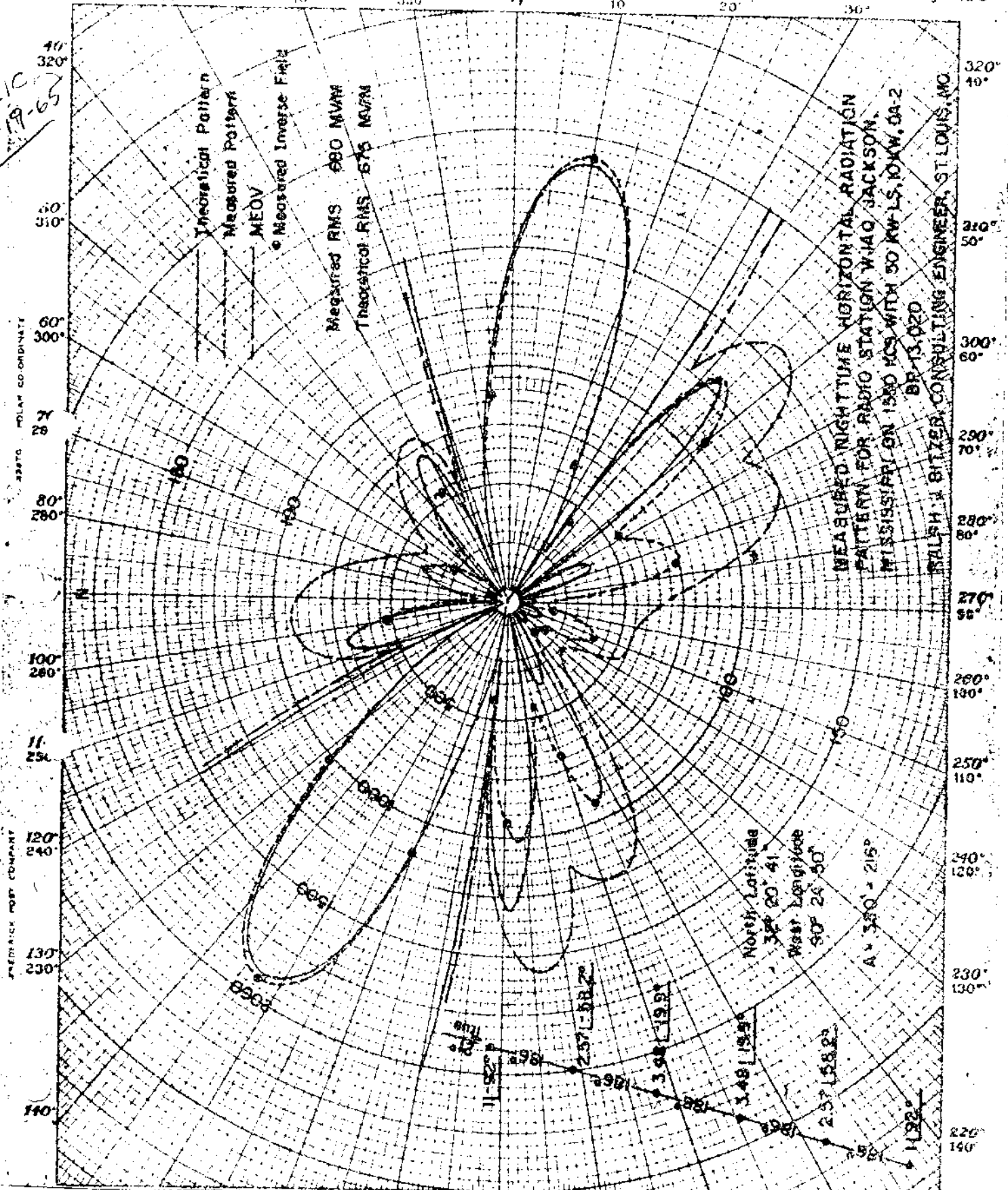
Measured Night
(5-27-65ct)

Station WJAQ
Jackson, Mississippi

10kw, 50kw-LS, DA-2, U
1550 kc

Page 103

LIC
5-19-65



FCC File No. BL-10887
Accepted 5-3-65

Station WJAQ
Jackson, Mississippi

1550 kc

WOKI

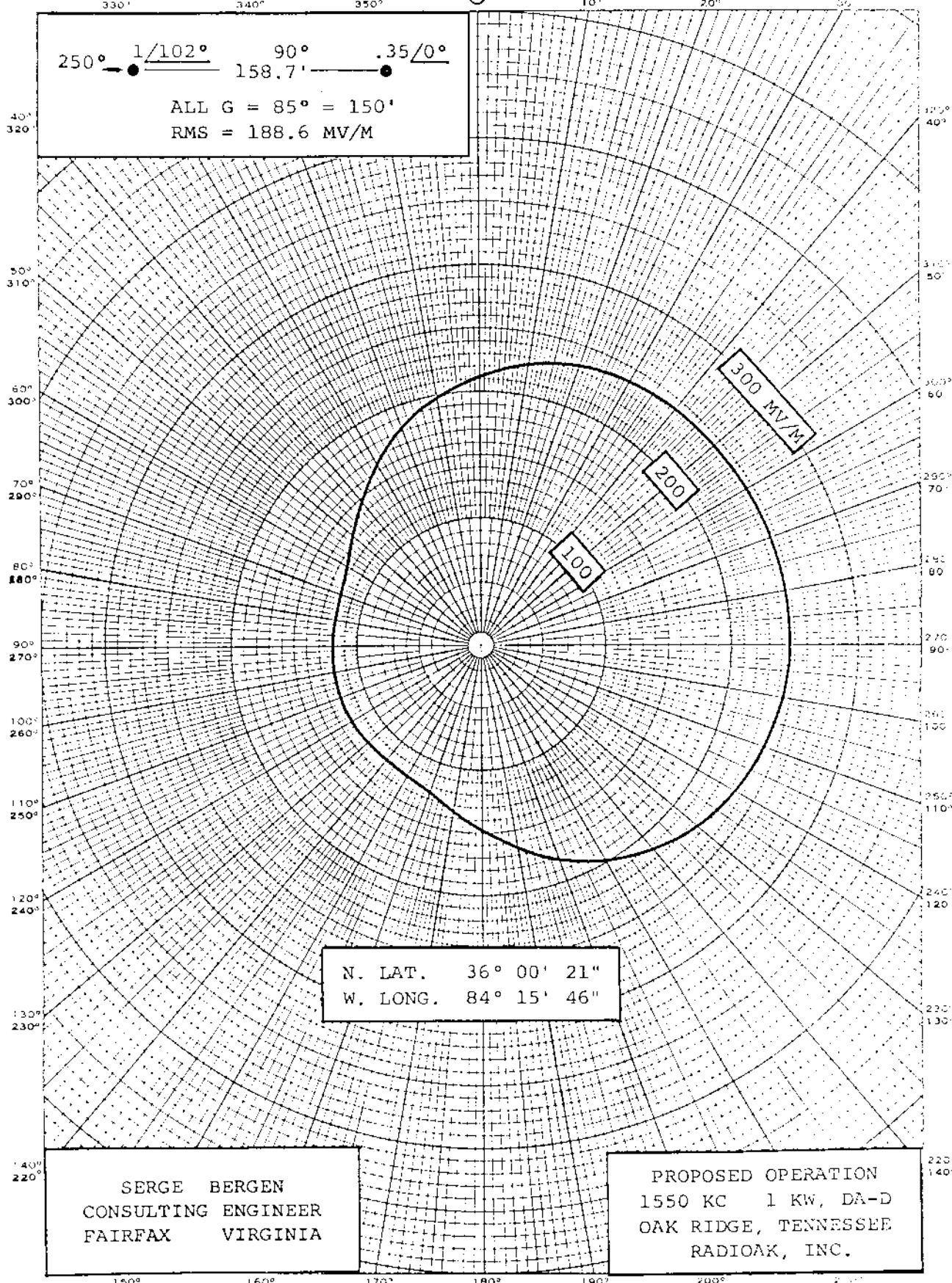
Proposed Day
(9-26-69ct)

New; Radioak, Inc.
Oak Ridge, Tennessee

1kw, DA-D, D
1550 kc

EUGENE DIETZGEN CO.
MADISON, U. S. A.

NO. 34CR-P DIETZGEN GRAPH PAPER
POLAR COORDINATE



FCC File No. BP-18603
Accepted 9-11-69

New; Radioak, Inc.
Oak Ridge, Tennessee

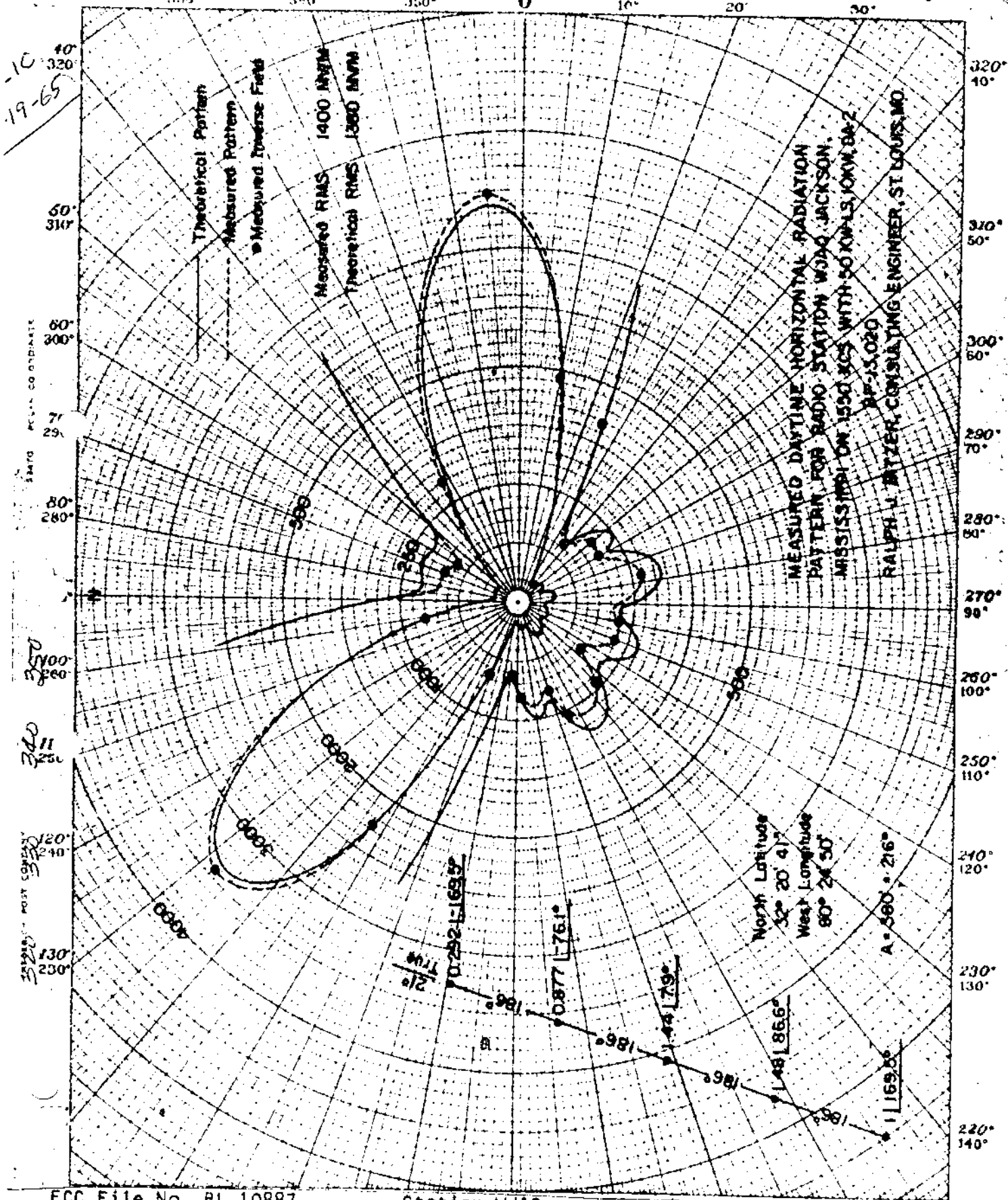
1550 kc

Measured Day
(5-27-65ct)

Station WJAQ
-Jackson, Mississippi

10kw, 50kw-LS, DA-2, U
1550 kc

Page 10



FCC File No. BL-10887
Accepted 5-3-65

Station WJAQ
Jackson, Mississippi

1550 kc

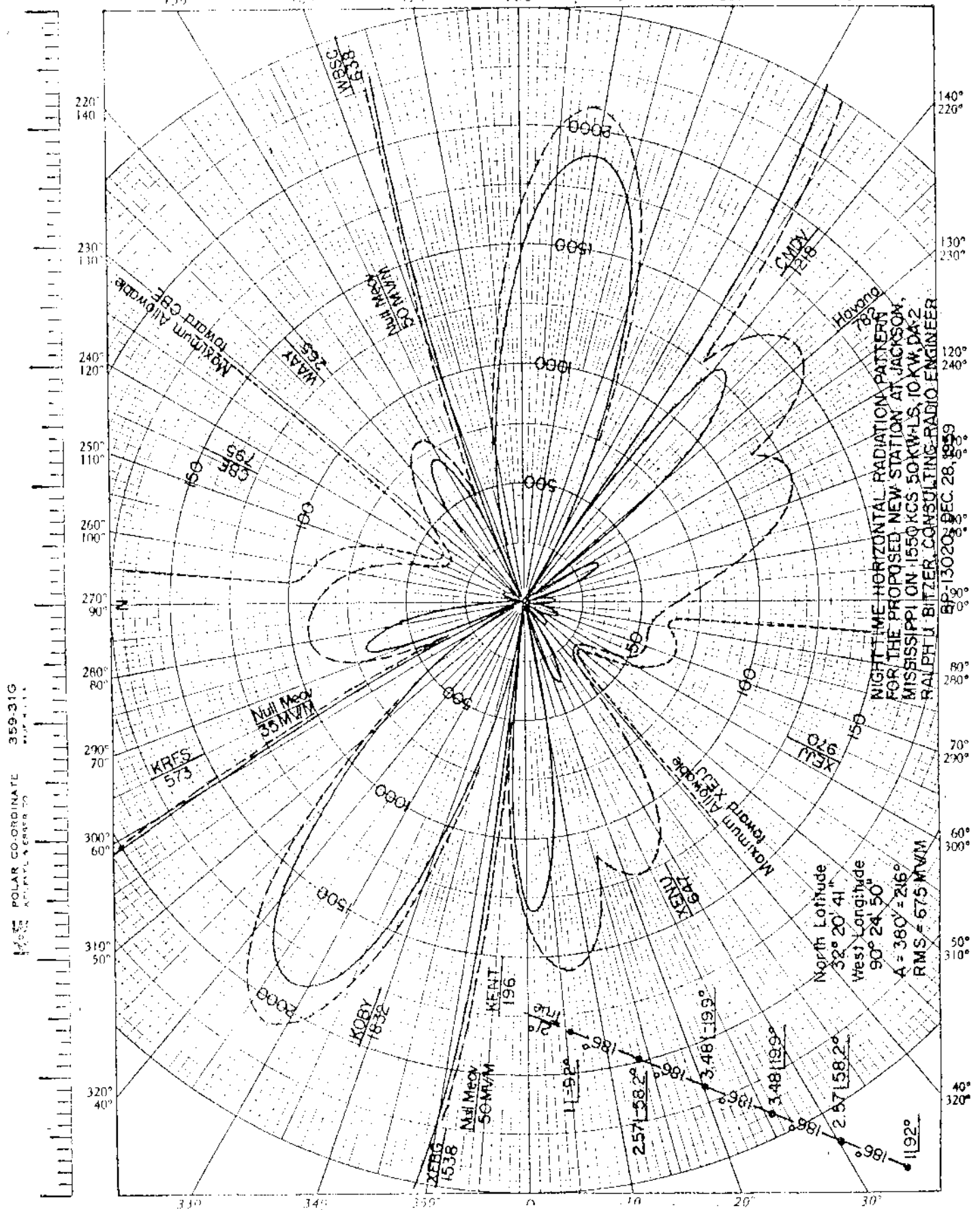
Jackson, Miss

WOKU

PROPOSED NIGHT
(2-26-60g)

New; Radio Mississippi
Jackson, Mississippi

10kw, 50kw-LS, DA-2,U
1550 KC



NIGHT-TIME HORIZONTAL RADIATION PATTERN
FOR THE PROPOSED NEW STATION AT JACKSON,
MISSISSIPPI ON 1550 KCS 50KW-LS, 10KW, DA-2
RALPH J. BITZER CONSULTING RADIO ENGINEER
BP-13020 DEC. 28, 1959

FCC File No. BP-13020
Accepted 2-3-60 (Amended)

Radio Mississippi
Jackson, Mississippi

1550 KC

WOKJ

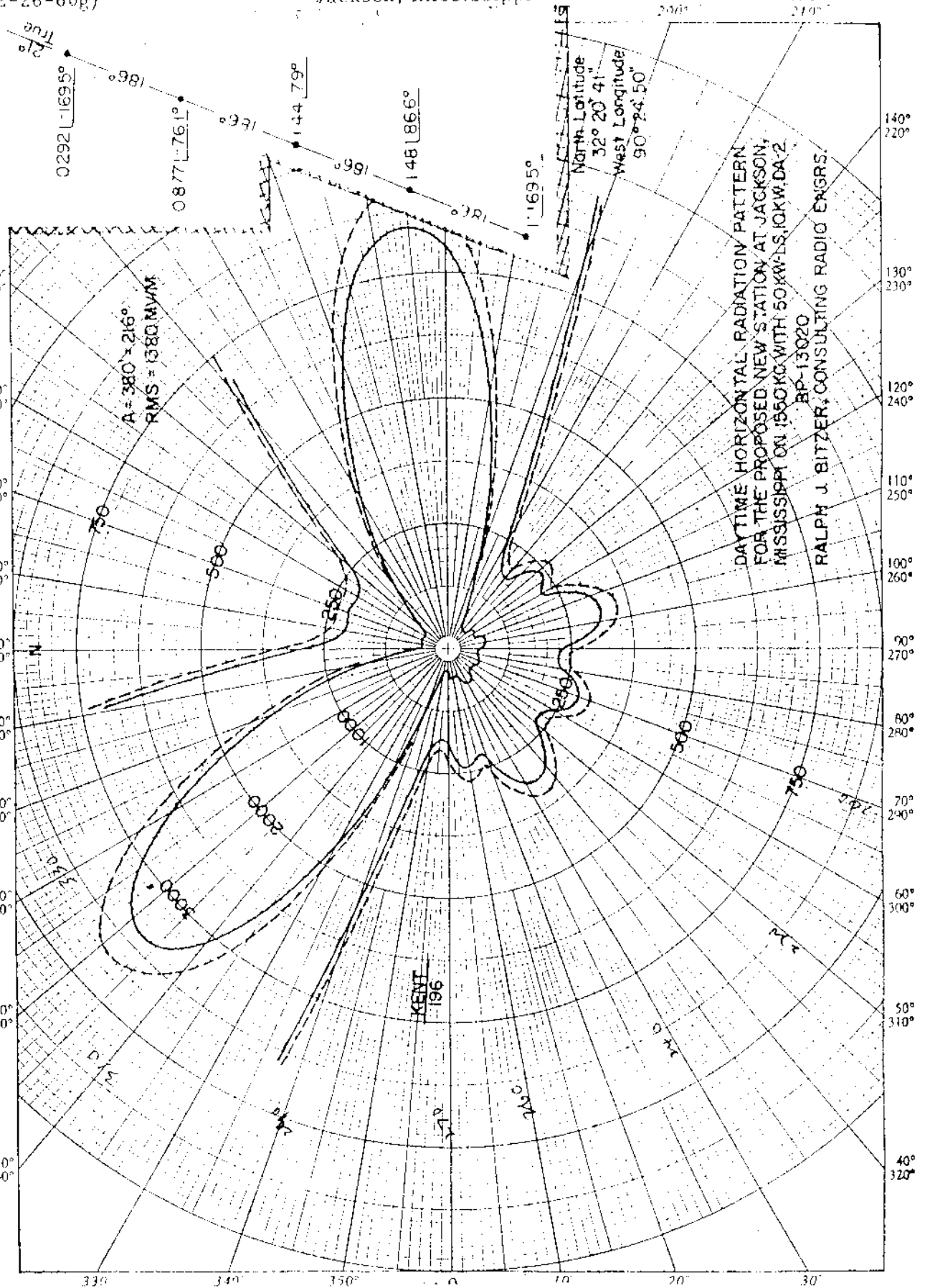
PROPOSED DAY
(2-26-60g)

New; Radio Mississippi
Jackson, Mississippi

10kw, 50kw-LS, DA-2, U
1550 KC

5-3-61
printed up
or new station

POLAR CO-ORDINATE
359-31G
KENT 196



DAYTIME HORIZONTAL RADIATION PATTERN
FOR THE PROPOSED NEW STATION AT JACKSON,
MISSISSIPPI ON 1550 KC WITH 50 KW-LS, 10 KW, DA-2
BP-13020
RALPH J. BITZER, CONSULTING RADIO ENGRS.

FCC File No. BP-13020
Accepted 2-3-60 (Amended)

Radio Mississippi
Jackson, Mississippi

1550 KC

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WRHC Main Studio: Coral Gables, Florida
Frequency: 1550 kHz Power: 0.25 kw Night 10kw Day
Notification List No. 1789 Dated: September 12, 1980 Class: II

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

	DAYTIME	NIGHTTIME
North Latitude:	25° 39' 02"	25° 44' 36"
West Longitude:	80° 09' 36"	80° 18' 52"

DAYTIME ANTENNA CHARACTERISTICS

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

TOWER:	SE(#1)	CE(#2)	CW(#3)	NW(#4)
HEIGHT ABOVE INSULATORS:	150'	150'	150'	150' (85°)
DAY PHASING:	0°	-126.4°	+104.9°	-21°
DAY FIELD RATIO:	1.00	2.128	1.784	0.578
SPACING AND ORIENTATION:	Adjacent elements are spaced 158.71' (90°) on a line bearing 318° true.			
GROUND SYSTEM:	120 - 159' equally spaced copper radials plus 120 - 85' interspaced radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.			

NIGHTTIME ANTENNA CHARACTERISTICS

Authorized for Nighttime operation (DA-2)
Number of elements: 3
Type of elements: 2 series excited, uniform cross-section,
guyed towers and 1 series excited self-
supporting vertical steel tower.

TOWER:	E(#1)	C(#2)	W(#3)
HEIGHT ABOVE INSULATORS:	100' (56.7°)	150'	150' (85.1°)
NIGHT PHASING:	0°	+81.8°	+158.8°
NIGHT FIELD RATIO:	1.0	1.6	0.83

SPACING AND
ORIENTATION: With tower #1 as reference Tower #2 is spaced 310.2' (176°) on an azimuth of 286° true and tower #3 is spaced 650.4' (369°) on an azimuth of 293.5° true.

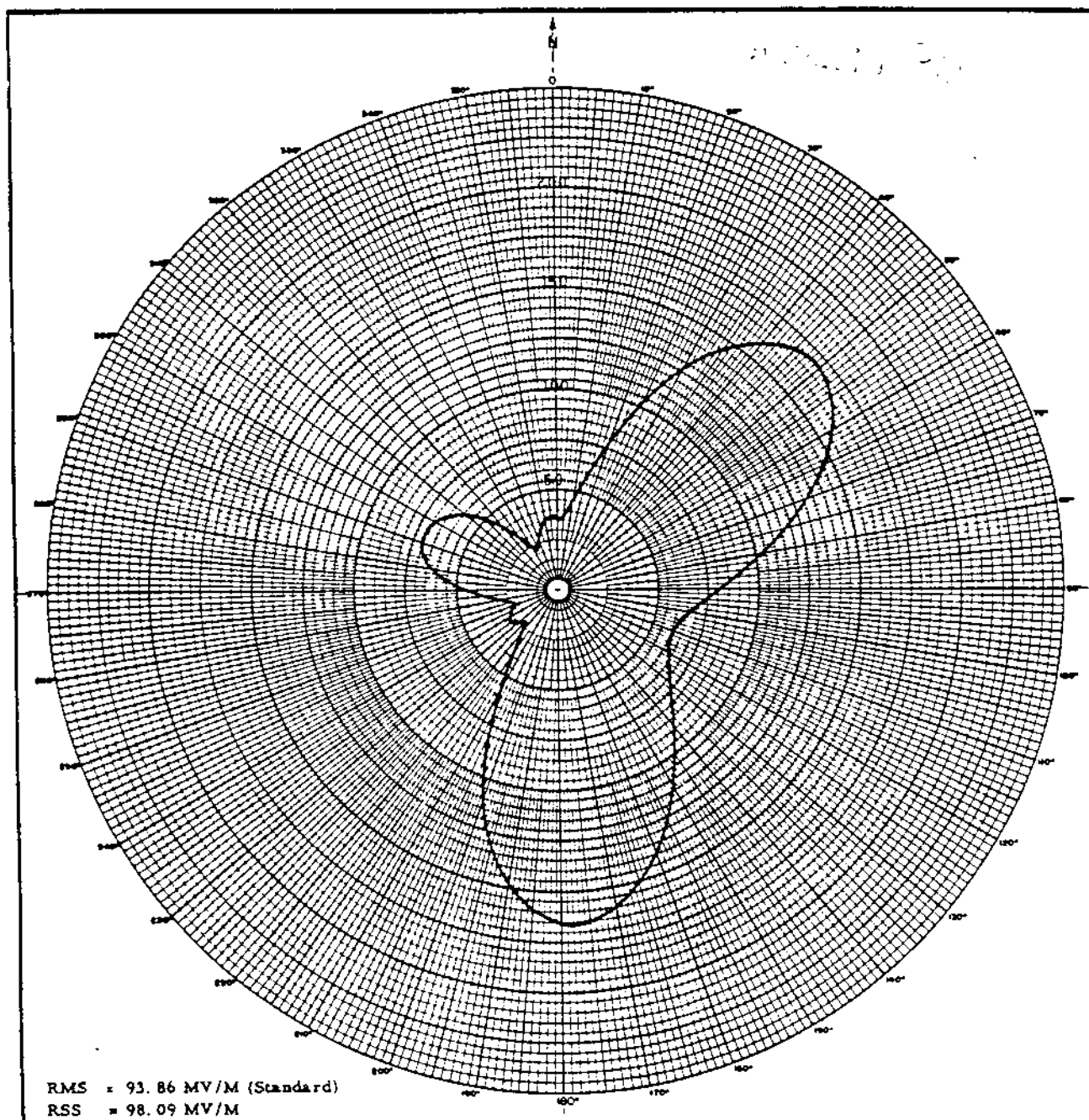
GROUND SYSTEM: 120 - 160' equally spaced copper radials plus 120-50' interspaced radials about each tower.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL		STANDARD
	<u>RMS</u>	<u>RSS</u>	<u>RMS</u>
Day	655 mv/m		
Night	89.19 mv/m	98.09 mv/m	93.86 mv/m

Note: Please retain the Daytime directional antenna radiation pattern notified for Station WRIZ in United States Change List Number 1209 dated March 29, 1967 and attach to this Revised Description Sheet and Nighttime pattern. This notification concerns only the modification of the proposed Nighttime operation of the station with Daytime operation continued as previously notified.

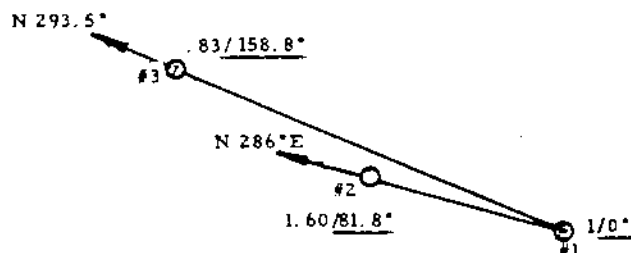
WKHC
1550kHz



RMS = 93.86 MV/M (Standard)
RSS = 98.09 MV/M

HORIZONTAL RADIATION PATTERN

FIGURE 1A



S 1-2 176° (310.2')
S 1-3 369° (650.4')
G 1 56.7° (100')
G 2&3 85.1° (150')

APPLICANT :	RADIO STATION WRHC
LOCATION :	CORAL GABLES, FLA.
FREQUENCY :	1550 KHz
POWER :	25 KW
LATITUDE :	25 DEG 44 MIN. 36 SEC.
LONGITUDE :	80 DEG 18 MIN. 52 SEC.
WHEN USED :	NIGHT
RMS FIELD :	89.19 MV/M theoretical
DATE :	APRIL 1979

ROBERT L. PURCELL

WASHINGTON, D. C.

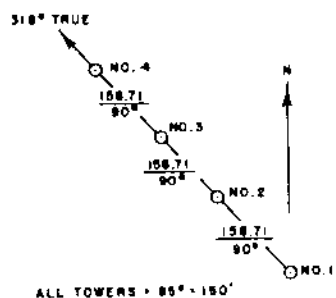
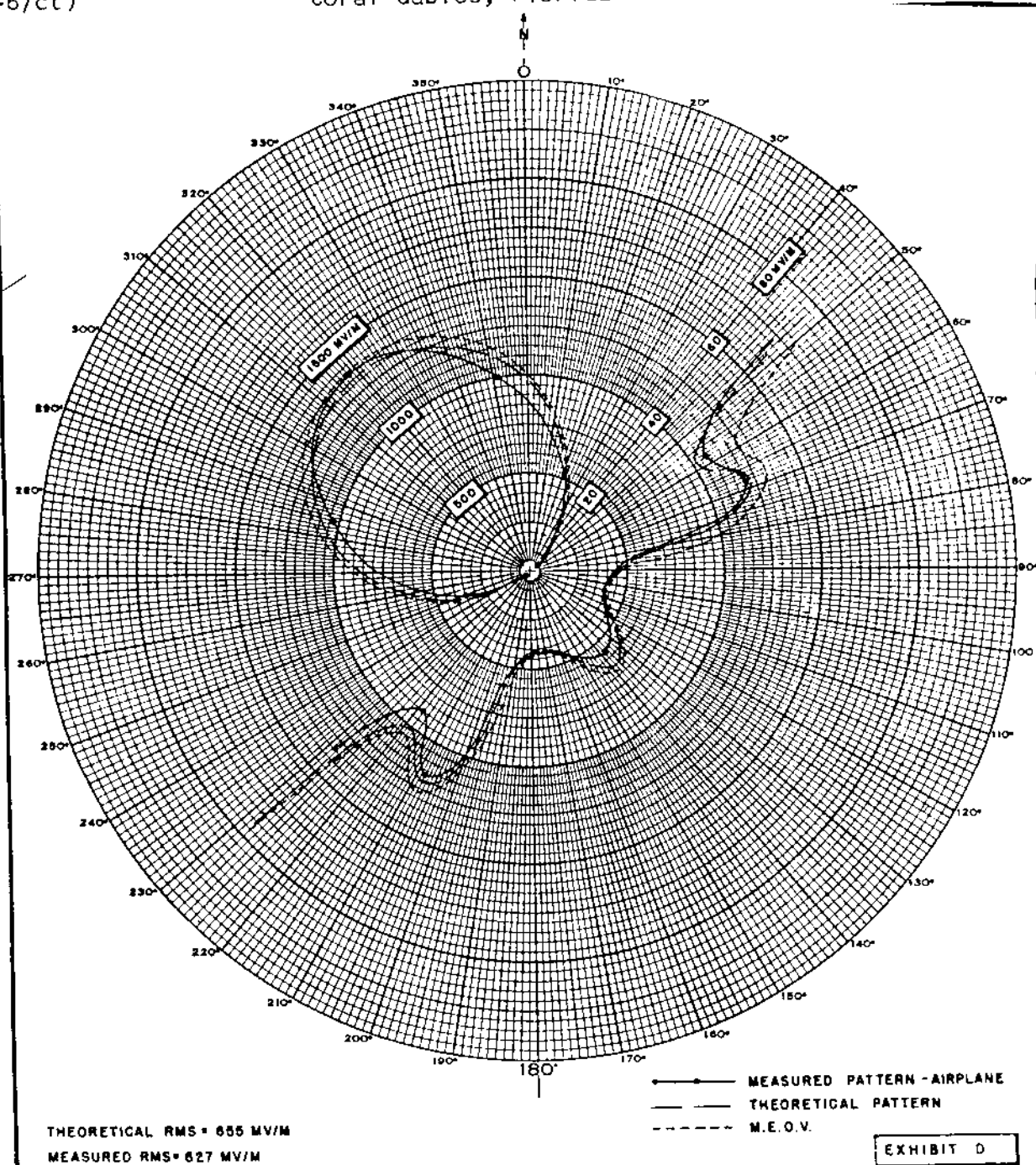
WRHC

Proposed Day
(2-28-67ct)

Station WRIZ
Coral Gables, Florida

10kw, DA-D, D
1550 kc

BMP-11984
GRANTED
CP
3-28-67



LATITUDE		25° 39' 02" NORTH				
LONGITUDE		80° 09' 36" WEST				
ANTENNA NUMBER	AZIMUTH DEG	SPACING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG
1	S E E	S E E	0	1.00	—	85
2			-126.4	2.128	—	85
3	D I A G R A M	D I A G R A M	104.8	1.784	—	85
4			-21	0.878	—	85

DAYTIME
MEASURED & THEORETICAL
HORIZONTAL
PLANE PATTERN
WRIZ
CORAL GABLES, FLORIDA
1550 KC 10 KW, DA-D
670123

KEAR & KENNEDY
CONSULTING ENGINEERS
WASHINGTON D C

FCC File No. BMP-11984
Accepted 2-13-67

Station WRIZ
Coral Gables, Florida

1550 kc

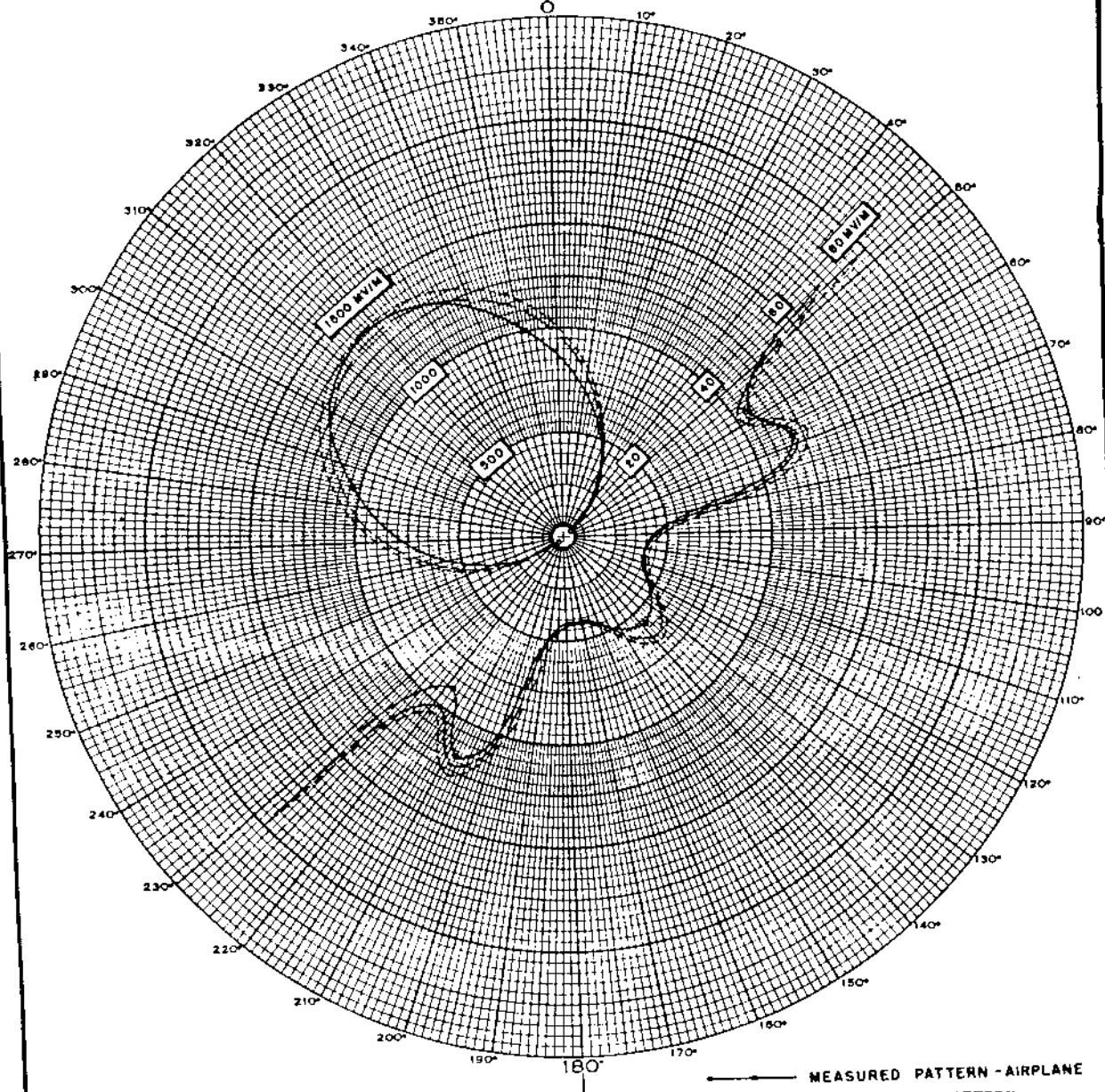
WRHC

Measured Day
(3-29-67ct)

Station WRIZ
Coral Gables, Florida

10kw
1550 kc

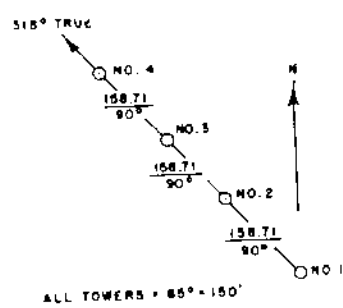
OVER



THEORETICAL RMS = 656 MV/M
MEASURED RMS = 627 MV/M

— MEASURED PATTERN - AIRPLANE
— THEORETICAL PATTERN
--- M.E.O.V.

EXHIBIT K



LATITUDE 25° 39' 02" NORTH
LONGITUDE 80° 09' 36" WEST

ANTENNA NUMBER	AZIMUTH DEG	SWING DEG	PHASING DEG	FIELD RATIO	MV/M FOR 1 KW	HEIGHT DEG
1	SEE	SEE	-114.2	0.583	—	85
2	SEE	SEE	128.0	0.99	—	85
3	DIAGRAM	DIAGRAM	0	1.0	—	85
4	DIAGRAM	DIAGRAM	-114.7	0.280	—	85

DAYTIME
MEASURED & THEORETICAL
HORIZONTAL
PLANE PATTERN
WRIZ
CORAL GABLES, FLORIDA
1550 KC 10 KW, DA-D
661219

KEAR & KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D. C.

FCC File No. BL-11524
Accepted 1-19-67

Station WRIZ
Coral Gables, Florida

1550 kc

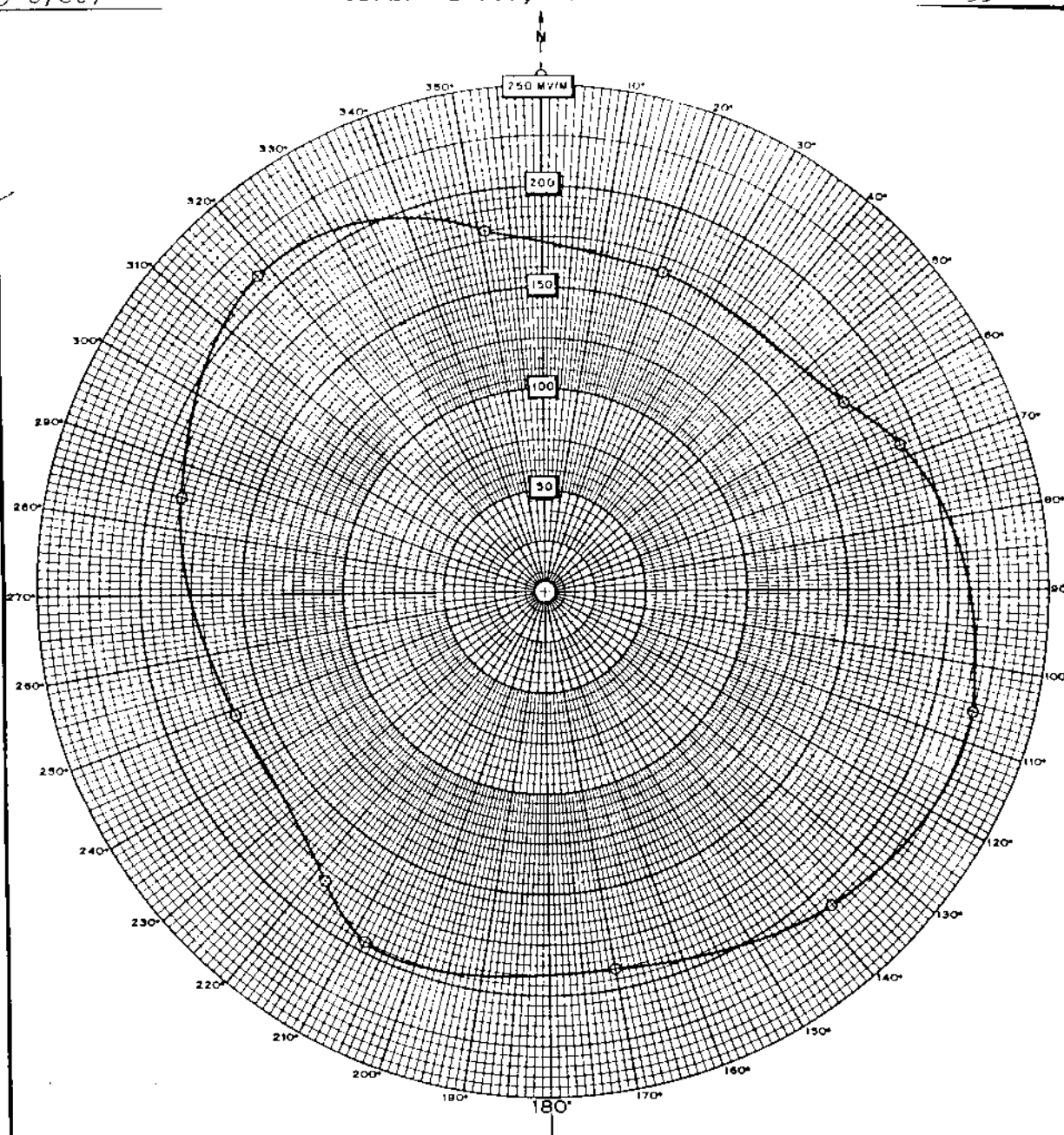
WRHC

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

Station WRIZ
Coral Gables, Florida

1550 kc

OVER



MEASURED RMS = 200 MV/M

EXHIBIT H

LATITUDE 25° 39' 02" NORTH
LONGITUDE 80° 09' 36" WEST

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

MEASURED
NON-DIRECTIONAL PATTERN
FOR
WRIZ
CORAL GABLES, FLORIDA
1550 KC 10 KW, DA-0
661219

KEAR & KENNEDY
CONSULTING ENGINEERS
WASHINGTON, D. C.

FCC File No. BL-11524
Accepted 1-19-67

Station WRIZ
Coral Gables, Florida

1550 kc

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WRHC

Main Studio: Coral Gables, Florida

Frequency: 1550 kHz

Power: 0.25kw Night 10kw Day

Notification List No. 1774

Date: April 26, 1978 Class: II

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

DAYTIME

NIGHTTIME

North Latitude: 25° 39' 02"
West Longitude: 80° 09' 36"North Latitude: 25° 46' 46"
West Longitude: 80° 15' 27"

DAYTIME ANTENNA CHARACTERISTICS

Authorized for Daytime operation. (DA-2)

Number of Elements: 4

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

TOWER:	SE (#1)	CE (#2)	CW (#3)	NW (#4)
HEIGHT ABOVE INSULATORS:	150	150	150	150 (85°)
DAY PHASING:	0°	-126.4°	+104.9°	-21°
DAY FIELD RATIO:	1.00	2.128	1.784	0.578
SPACING AND ORIENTATION:	Adjacent elements are spaced 158.71' (90°) on a line bearing 318° true.			
GROUND SYSTEM:	120 - 159' equally spaced copper radials plus 120-85' interspaced radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.			

NIGHTTIME ANTENNA CHARACTERISTICS

Authorized for Nighttime operation. (DA-2)

Number of elements: 3

Type of elements: Series excited, Self supporting, tapered,
vertical steel towers.

TOWER:	E (#1)	W (#2)	NW (#3)
HEIGHT ABOVE INSULATORS:	120	120	120 (All towers are 68.1° plus 5.6° of top loading)
NIGHT PHASING:	0°	+22.5°	+125.5°
NIGHT FIELD RATIO:	1	1.85	0.86

SPACING AND
ORIENTATION:

With the East (#1) tower as reference, the West (#2) tower is spaced 332.6' (188.7°) in length on a line bearing 275.5° true. Northwest (#3) tower is spaced 654.1' (371.1°) on a line bearing 285.8 true.

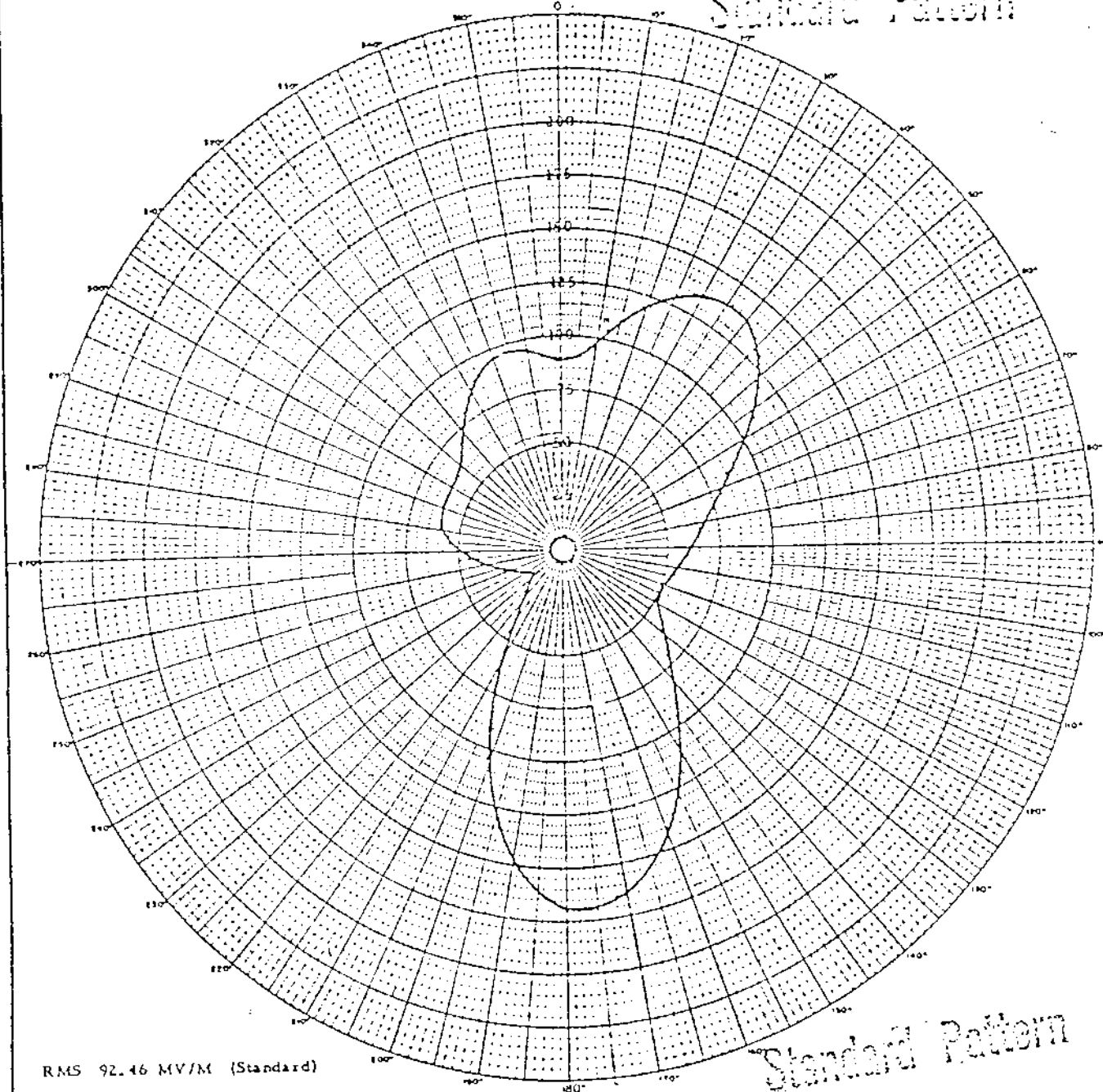
GROUND SYSTEM: 120-133' to 165' equally spaced copper radials plus 120-50' interspaced radials about each tower. Center of system are bonded together.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL		STANDARD
	<u>RMS</u>	<u>RSS</u>	<u>RMS</u>
Day	655 mv/m		
Night	87.9 mv/m	100.07 mv/m	92.46 mv/m

Note: Please retain the Daytime directional antenna radiation pattern notified for Station WRIZ in United States Change List Number 1209 dated March 29, 1967 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.

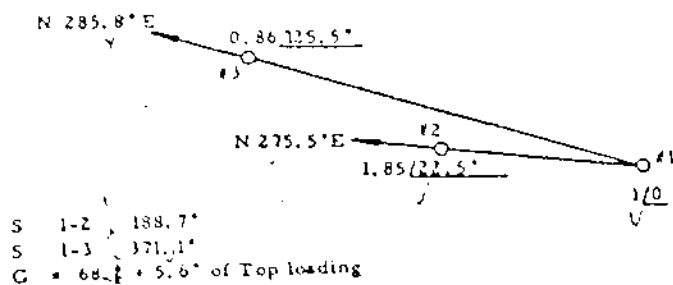
Standard Pattern



RMS 92.46 MV/M (Standard)
RSS 100.07

HORIZONTAL RADIATION PATTERN

FIGURE 1



APPLICANT	Radio Station WRHC
LOCATION	Coral Gables, Florida
FREQUENCY	1550 KC/S
POWER	.25 KW
LATITUDE	25 DEG 46 MIN 40 SEC
LONGITUDE	80 DEG 15 MIN 27 SEC
WHEN USED	Nighttime
RMS FIELD	87.9 MV/M (Theoretical)
DATE	January 1978

ROBERT L. PURCELL

WASHINGTON, D. C.

FOR VERTICAL SECTIONS, REFER TO 1/76 AMENDMENT

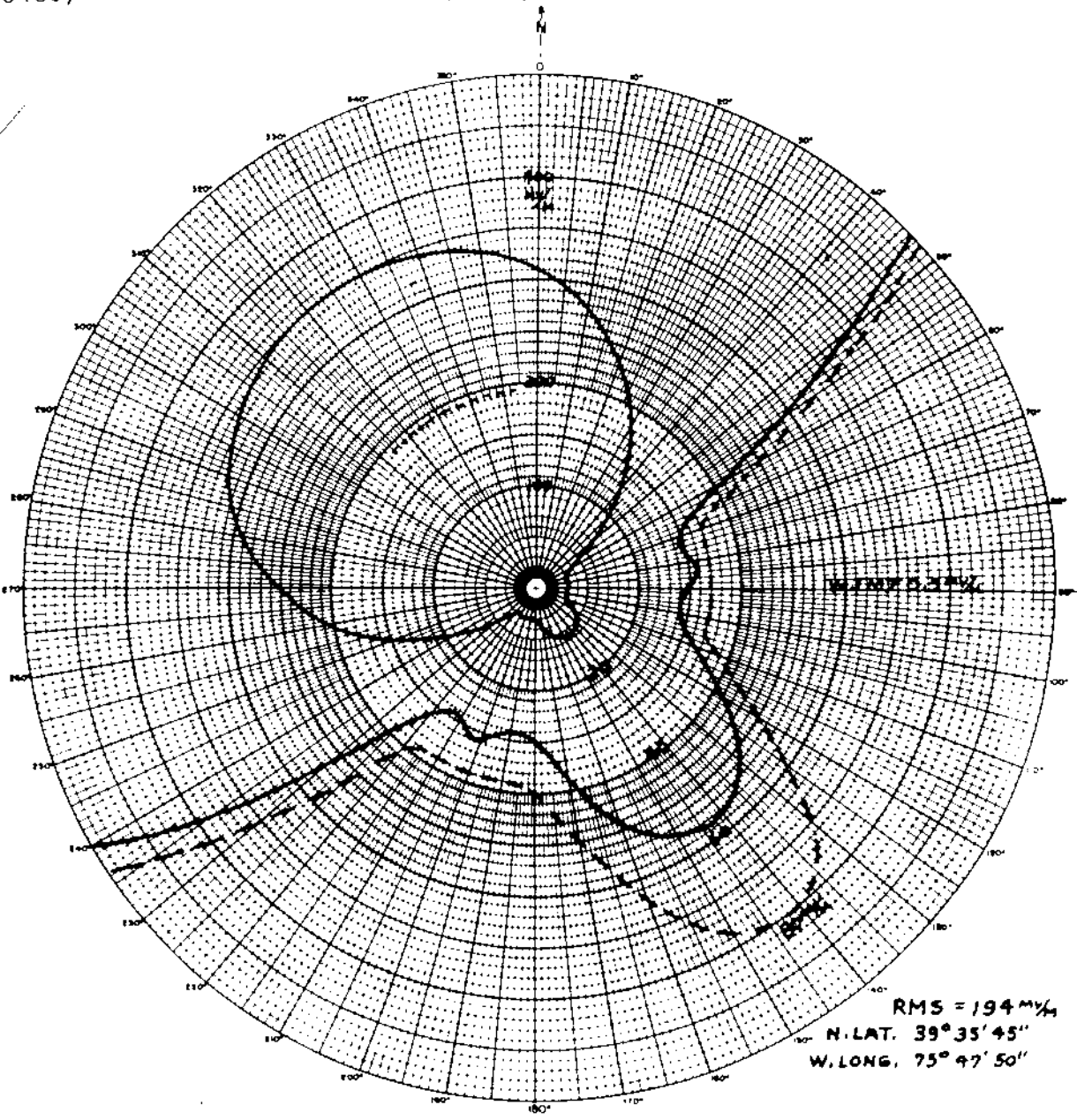
WSEK

Proposed Day
(10-26-64ct)

Station WSEK
Elkton, Maryland

1kw, DA-D, D
1550 kc

BP-16300
APP 2-8-65
INCR. PWR 250w to 1kw
DA-D, D
GRANTED



1.0 / 128°
100°
1.875 / 9°
100°
h = 90° 0.10 / 128°

EX 100 V
HORIZONTAL RADIATION PATTERN
WSEK ELKTON, MARYLAND
1550 KC 1KW-DA-DAT

WILLIAM L. FERG, INC.
Electronic Consultants
WASHINGTON D. C.
801 15th Street, N. W. 20005

PATTERN NO
SUPERSLOES

FCC File No. BP-16300
Accepted 9-25-64

Station WSEK
Elkton, Maryland

1550 kc

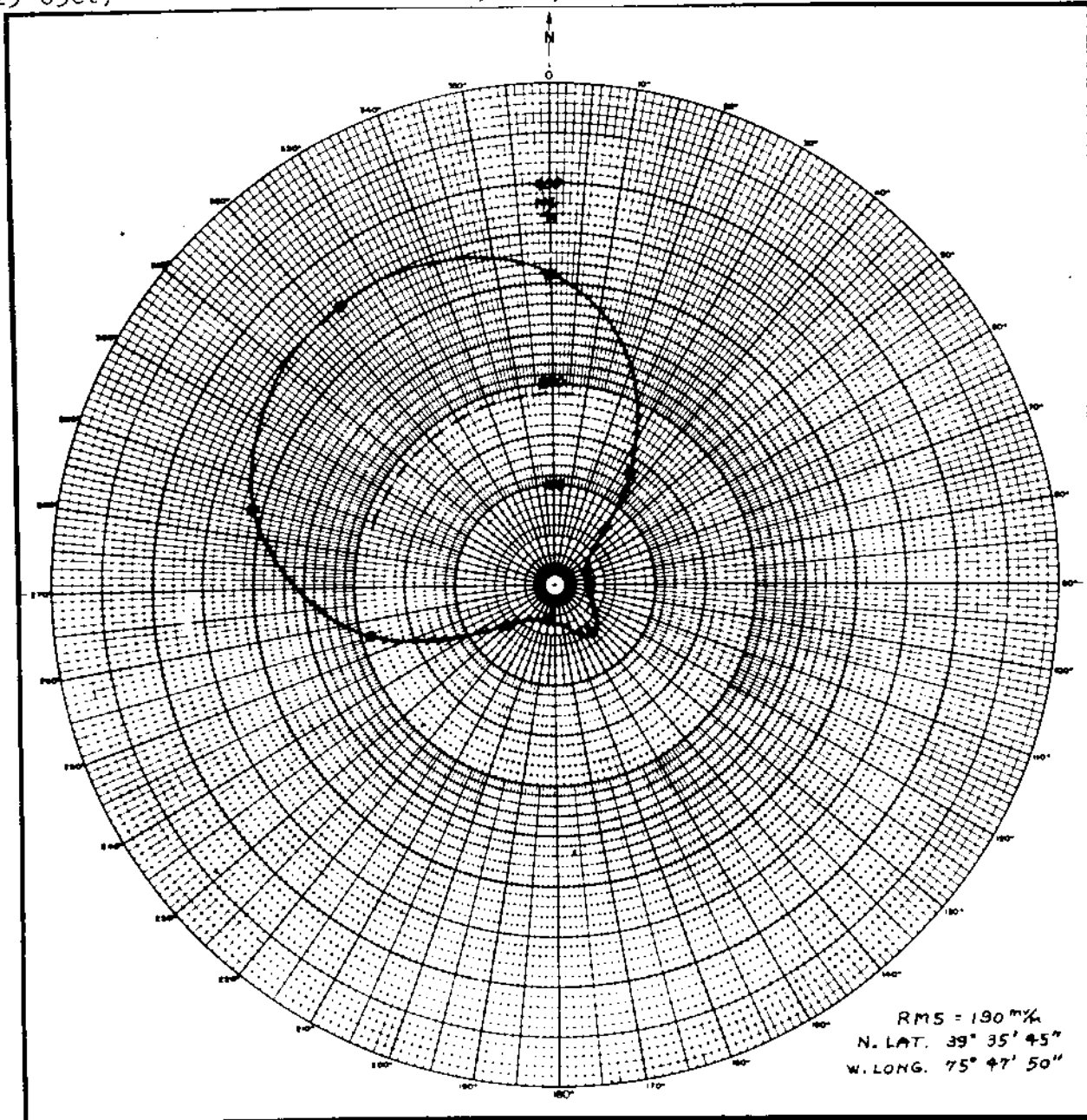
WSER

Measured Day
(11-29-65ct)

Station WSER
Elkton, Maryland

1kw, DA-D, D
1550 kc

410 11-1-65



RMS = 190 mV
N. LAT. 39° 35' 45"
W. LONG. 75° 47' 50"

4323 E
1.0 / 128°
1.875 / 9°
1.0 / 128°

REVISION
UNCLASSIFIED
ANTENNA LOCATION PATTERN
WSER ELKTON, MARYLAND
11/29/65 DA-DAY

WILLIAM L. FORD, INC.
Electronic Consultants
WASHINGTON 8, D. C.
907 14th Street, N.W. SE 3003

PATTERN NO
SUPERSEDES
APP

FCC File No. BL-11051
Accepted 10-26-65

Station WSER
Elkton, Maryland

1550 kc

Measured Non-DA
(11-29-65ct)

Station WSER
Elkton, Maryland

WSER
1kw, DA-D, D
1550 kc

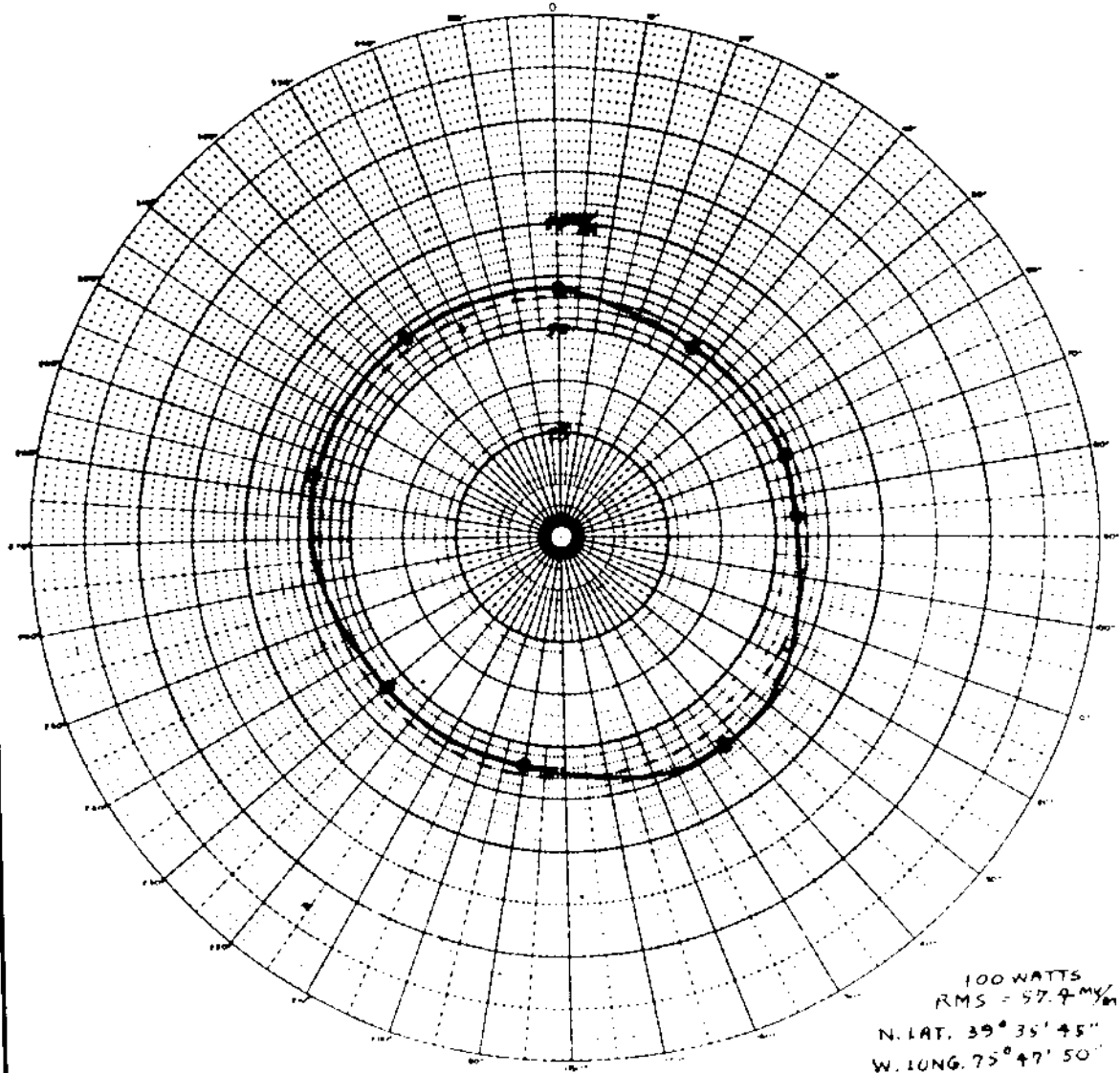


EXHIBIT D

HORIZONTAL PATTERN
CENTER TOWER ONLY
WSER ELKTON MARYLAND
1550 KC 1.0 KW DA-DAY

WILLIAM L. FOSS, INC.
Electronic Consultants
WASHINGTON D C
227 14th Street N.W. NE 3003

PATTERN NO.
SUPERSEDES
APP

FCC File No. BL-11051
Accepted 10-26-65

Station WSER
Elkton, Maryland

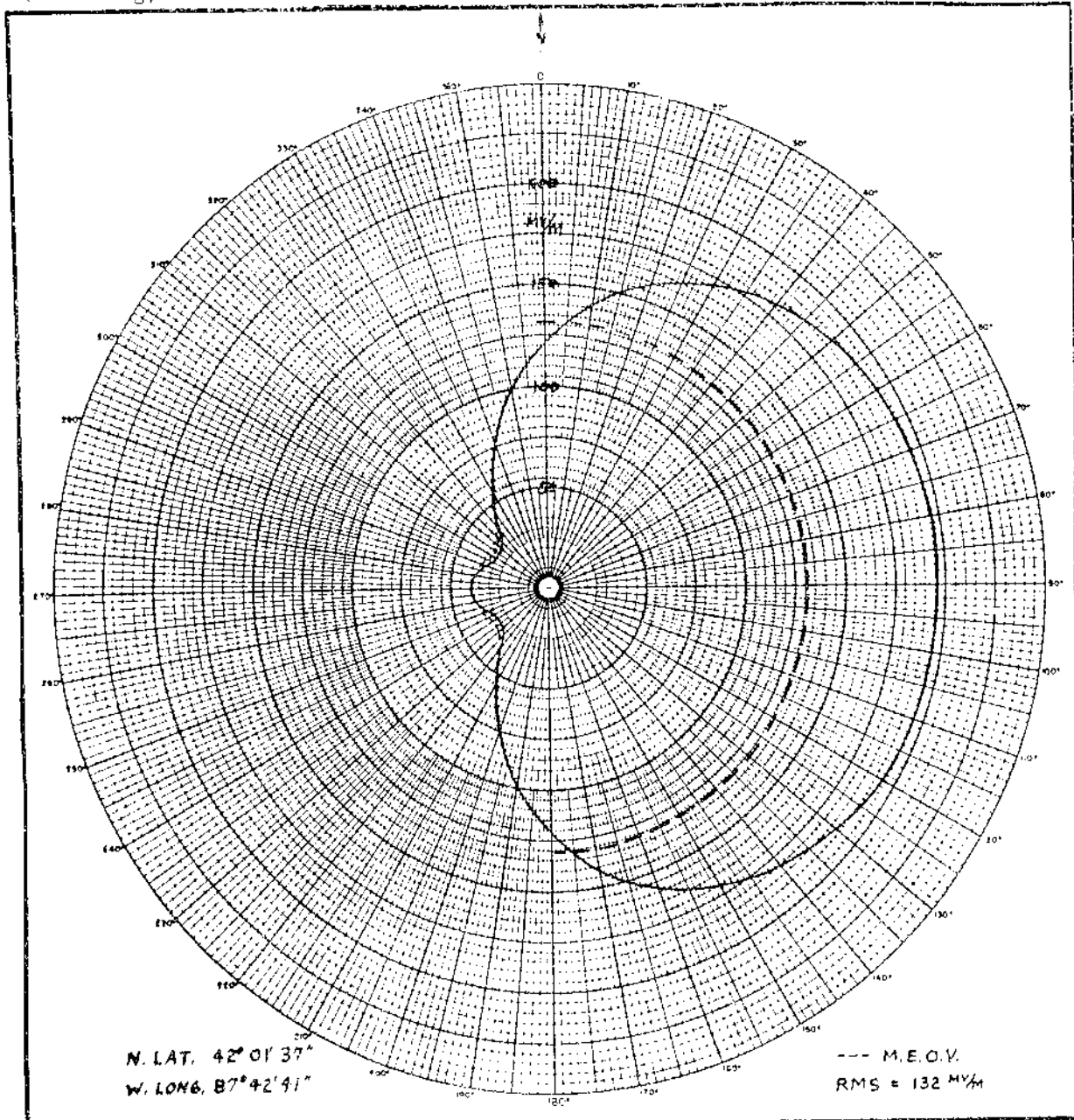
1550 kc

Evanston, Ill.

PROPOSED DAY
(2-26-60g)

New; Skokie Valley B/C Co.
Evanston, Illinois

500w, DA-D,D
1550 KC



N. LAT. 42° 01' 37"
W. LONG. 87° 42' 41"

--- M.E.O.V.
RMS = 132 MV/m

EXHIBIT IV
HORIZONTAL RADIATION PATTERN
SKOKIE VALLEY BROADCASTING CO.
1550 KC - 1550 EVANSTON, ILL.

0 - 30° - 0 - 150° E
10/0° 075/126°

WILLIAM L. FOSS, INC.
Electronic Consultants
WASHINGTON, D. C.
927 15th Street, N. W. R. 2. 5683

PATTERN NO
SUPERSEDES
APP

FCC File No. BP-12524
Accepted 1-26-60 (Amended)

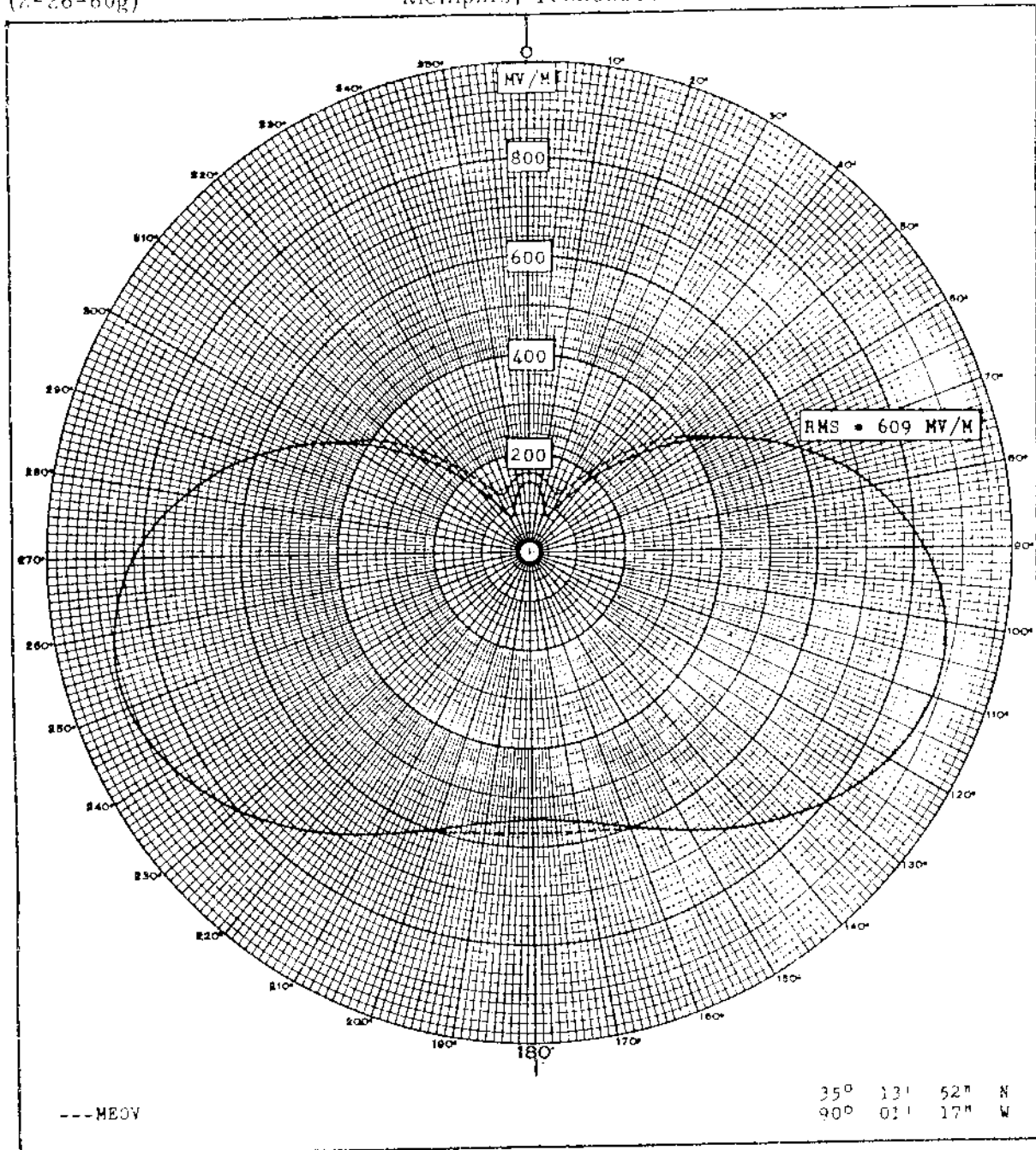
Skokie Valley Broadcasting Company
Evanston, Illinois

1550 KC

PROPOSED DAY
(2-26-60g)

New; Cosmopolitan B/C Co.
Memphis, Tennessee

10kw, DA-D,D
1550 KC



PROPOSED HORIZONTAL PLANE RADIATION PATTERN

G = 120° 0° (2) 1.2/45° S (1) 1.0/90° S = 150° = 264.5'	COSMOPOLITAN BROADCASTING CO. MEMPHIS TENNESSEE	PROPOSED OPERATION 1550 KC
	Jules Cohen Consulting Electronic Engineer	10 KW DECEMBER, 1951

FCC File No. BP-12666
Accepted 2-26-60 (Amended)

Cosmopolitan Broadcasting Company
Memphis, Tennessee 1550 KC

WYNX
1550 kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WYNX Main Studio: Smyrna, Georgia
Frequency: 1550 kHz Power: 0.5kw Night 10kw Day
Notification List No. 1787 Date: July 10, 1980 Class: II

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

DAYTIME	NIGHTTIME
North Latitude: 33° 55' 58"	North Latitude: 33° 53' 29"
West Longitude: 84° 30' 08"	West Longitude: 84° 31' 19"

NIGHTTIME ANTENNA CHARACTERISTICS

Authorized for Nighttime operation. (DA-N)
Number of elements: 4
Type of elements: Series excited, uniform cross-section,
guyed, vertical steel towers. * Top
loading of 36.5°

TOWER:	(#1)	(#2)	(#3)	(4)
HEIGHT ABOVE INSULATORS:	*195'	195'	195'	195' (110.6°)
NIGHT PHASING:	0°	+5.1°	+130.3°	+135.4°
NIGHT FIELD RATIO:	1.00	0.70	0.825	0.5775

SPACING AND
ORIENTATION: With tower #1 as reference, tower #2 is spaced 352.53' (200°)
on a line bearing 217° True; tower #3 is spaced 105.76'
(60°) on a line bearing 315° True; Tower #4 is spaced 352.53'
(200.6°) on a line bearing 234.2° True.

GROUND SYSTEM: 120 - 158.64' 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.

DAYTIME ANTENNA CHARACTERISTICS

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

HEIGHT ABOVE
INSULATORS: 300' (170°)

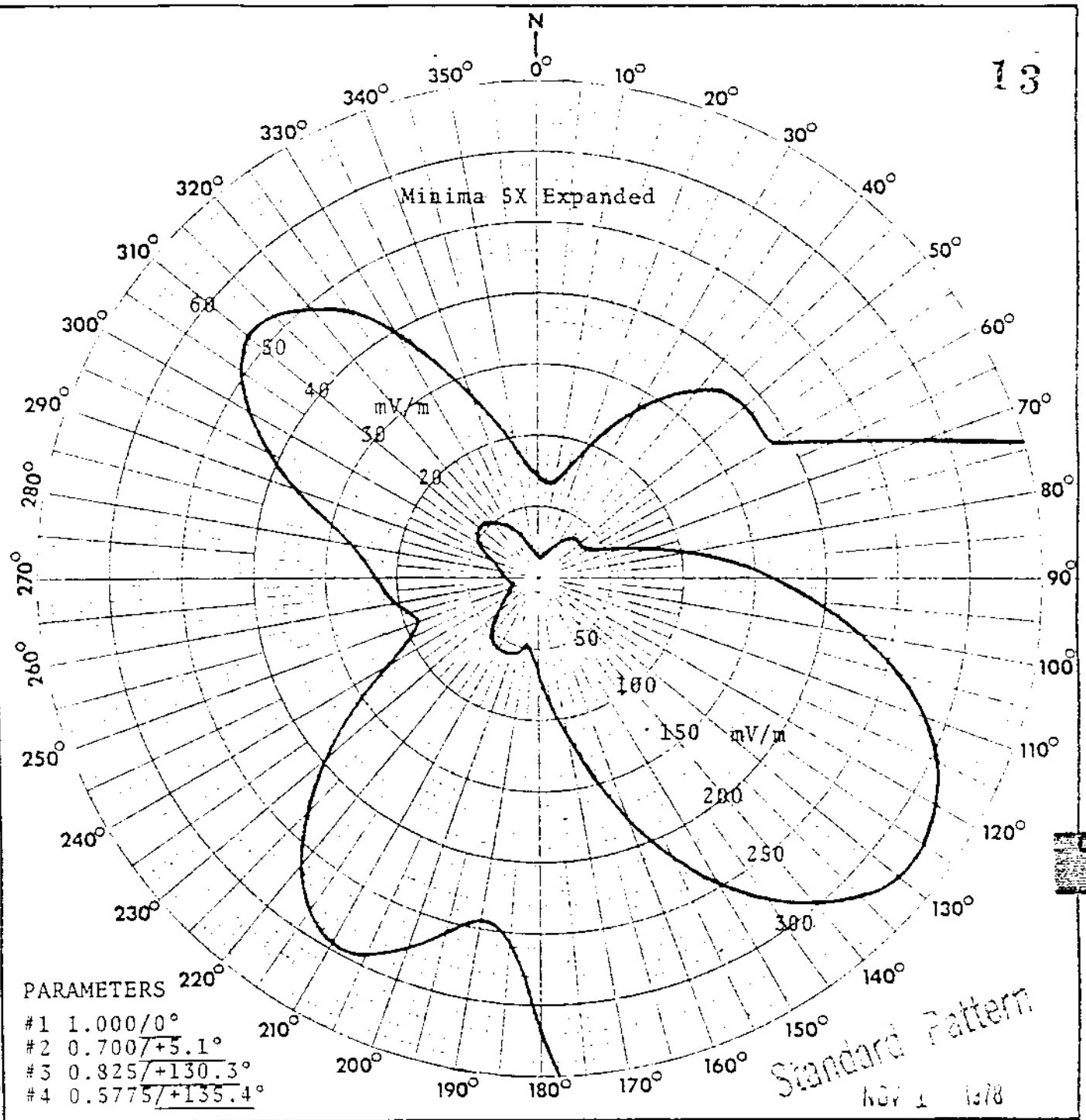
GROUND SYSTEM: 120 - 190' equally spaced copper radials about each tower.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	<u>THEORETICAL</u> <u>RMS</u>	<u>RSS</u>	<u>STANDARD</u> <u>RMS</u>
Day <u>1</u> /	626.14 mv/m		
Night	123.74 mv/m	194.52 mv/m	130.1 mv/m

1/ By adjustment of input power.

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

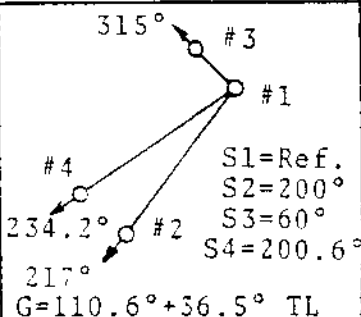


STANDARD HORIZONTAL PLANE PATTERN

N. Lat. 33°53'29"
W. Lng. 84°31'19"

Th. RMS 123.74 mV/m
Std RMS 130.1 mV/m
Th. RSS 194.52 mV/m
Mult. 122.92 mV/m
FCC 'Q' @H 6.000

1550 KHz .5 KW DA-N



PROPOSED NIGHTTIME PATTERN

JONQUIL BROADCASTING CO., INC.

WYNX - SMYRNA, GEORGIA

EXHIBIT E-1 FIGURE 4

B. SCOTT BAXTER

AND ASSOCIATES
P. O. BOX 413
BRENTWOOD, TENN 37027

NOTIFIED
NIGHT
9/18/51G

XEXO, NUEVO LAREDO, TAMP.

50 KW, U, DA-N

XENU
1550 KC

DESCRIPCION DEL SISTEMA DIRECCIONAL DE RADIACION

ESTACION XEXO ESTUDIOS EN Nuevo Laredo, Tam. S.
FRECUENCIA 1550 kc/s POTENCIA 50 KW
LISTA DE NOTIFICACION No. CLASE I-B
FECHA

LOCALIZACION GEOGRAFICA DEL LAT. NORTE 27° 24' 49"
CENTRO DEL SISTEMA RADIADOR: LONG. OESTE 99° 24' 56.5"

CARACTERISTICAS DEL SISTEMA

AUTORIZADO PARA OPERACION NOCTURNA DA-N

NUMERO DE ELEMENTOS RADIADORES TRES

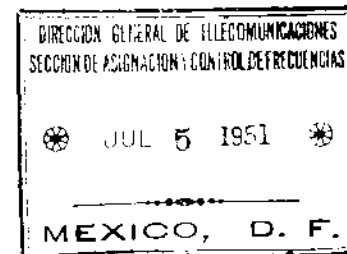
TIPO DE ELEMENTOS RADIADORES TORRES VERTICALES, DE ACERO,
SOPORTADAS POR RETENIDAS. ALI-
MENTACION TIPO SERIE.

TORRE	CENTRAL	OESTE	ESTE
ALTURA SOBRE LOS AISLADORES	61 M	61 M	61 M
ESPACIAMIENTO	-	90°	90°
DEFASAMIENTO	-	150°	200°
MAGNITUDES DEL COMPLEJO E	1	1	1.2
ORIENTACION	INDICADA EN EL PATRON HORIZONTAL DE RADIACION.		

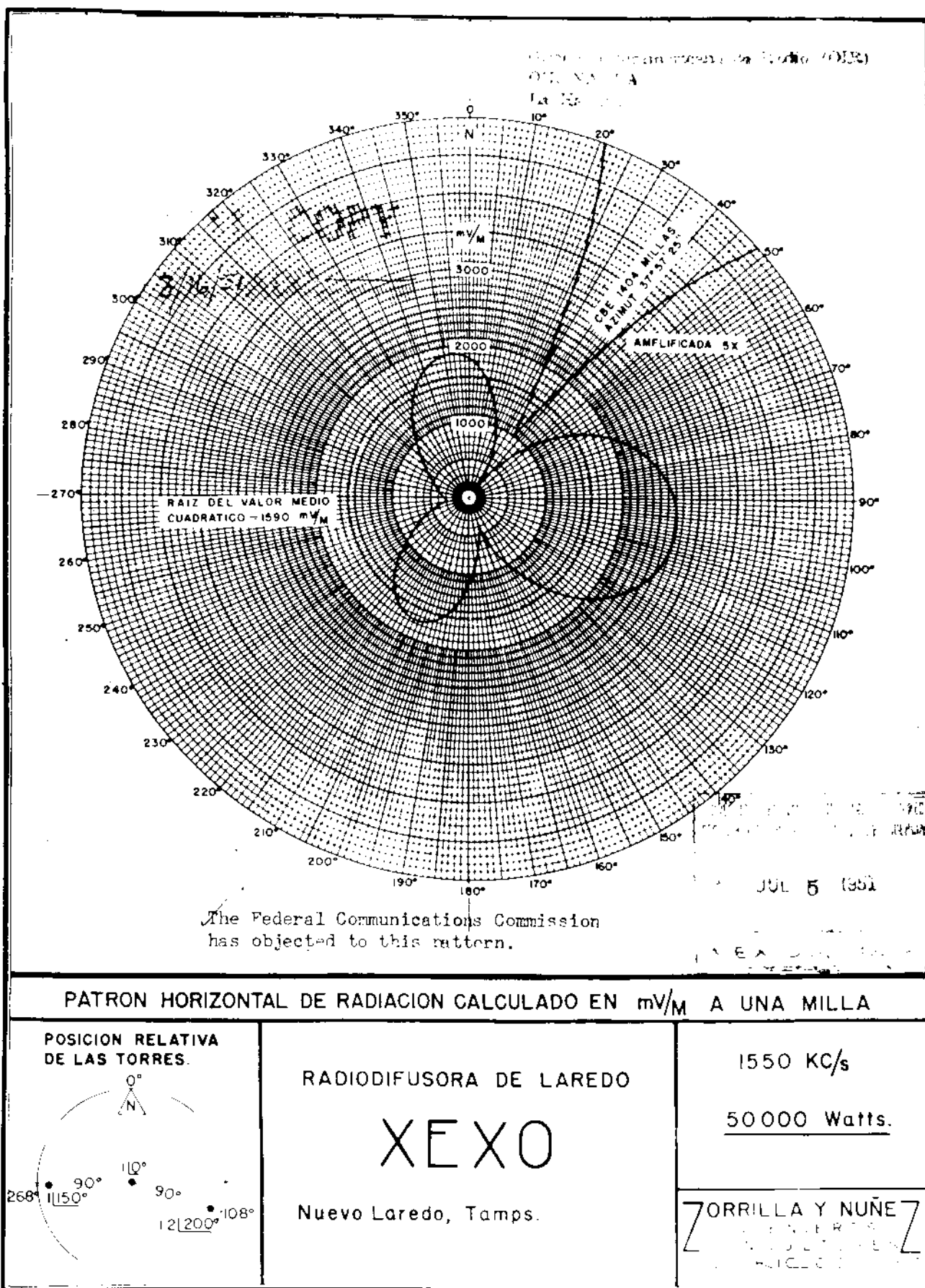
RAIZ DEL VALOR MEDIO CUADRATICO CALCULADA 1590 μ V/s.

SISTEMA DE TIERRA: 268 RADIALES DE 65 M DE LONGITUD, CON 3 MA-
LLAS DE COBRE DE 10x10 M EN LA BASE DE LAS
TORRES.

OFFICIAL COPY
R. C. D. 8/16/51 ACC.



1550 KC



XEXO, NUEVO LAREDO, TAMP.

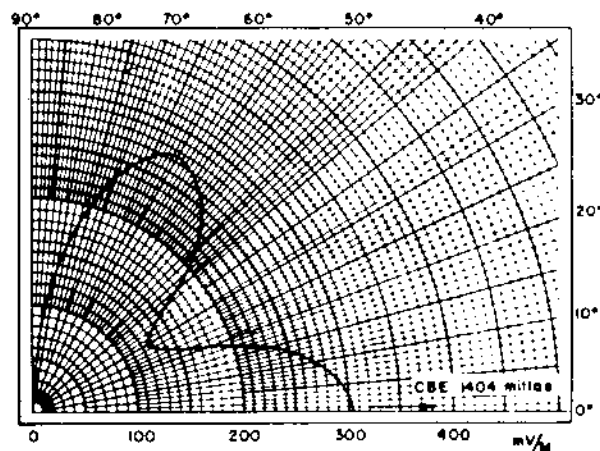
1550 KC

XENU

XEXO, NUEVO LAREDO, TAMP.

50 KW, U, DA-N

1550 KC

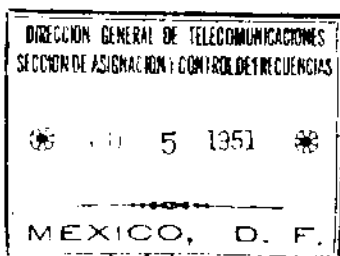


LOBULO DE RADIACION EN EL PLANO VERTICAL

AZIMUT = 37.96°

OFFICIAL COPY

R. 00 8/16/51 ACC.

The Federal Communications Commission
has objected to this pattern.RADIACION EN EL PLANO
VERTICALESTACION
RADIODIFUSORA
DE
LAREDO.

Nuevo Laredo, Tamps

1550 Kc/s
50 000 Watts.ZORRILLA Y NUÑEZ
INGENIEROS
CONSULTORES
México, D. F.

XEXO, NUEVO LAREDO, TAMP.

1550 KC

DIB SESMA

CFRS

#95
DESCRIPTION SHEET
(6-16-59g)

AIR SERVICES
TELECOMMUNICATIONS DIVISION

5-10-245

Station CFRS
Simcoe, Ontario, Canada



CANADA

DEPARTMENT OF TRANSPORT

250w, D, Class II
1560 KC

REFER TO FILE NUMBER

DESCRIPTIVE SHEET - OMNIDIRECTIONAL ANTENNA

Station Call: CFRS

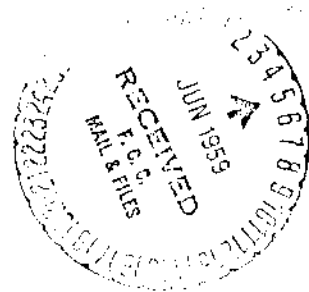
Main Studio: Simcoe, Ontario

Frequency: 1560 kc.

Power: 250 watts

Class: II

Time: Day only



Notification List No. 95

Date: August 29, 1955

Geographical Location:

North Latitude: 42° 50' 28"

West Longitude: 80° 15' 50"

Antenna Characteristics:

Height: 158' 90°

Expected Efficiency: 95 mv/m at 1 mi. for 250 watts

or: 190 mv/m at 1 mi. for 1 KW

Ground System: 120 radials, #10 AWG bare soft copper wire
uniformly spaced, depth 8 inches approximately.
Wire radials 252' in length.

Type of element: Guyed, uniform cross section, base insulated,
series feed.

SUPPLEMENTAL DIRECTIONAL ANTENNA
DESCRIPTION SHEET

Station: (New)

Main Studio: Iowa City, Iowa

Frequency: 1560 kHz

Power: 1 kW

Notification List No. 1680

Date: April 14, 1976

Class: II

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude 41° 36' 03"
West Longitude 91° 30' 02"

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

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

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

Note: Please retain the description sheet and directional antenna radiation patterns notified for a new station at Iowa City, Iowa in United States Change List Number 1557, dated December 5, 1973, and attach to this supplemental Description Sheet. This notification is for the purpose of indicating only a change in the geographical coordinates of the center of the antenna system.

CTR NO 30224A4

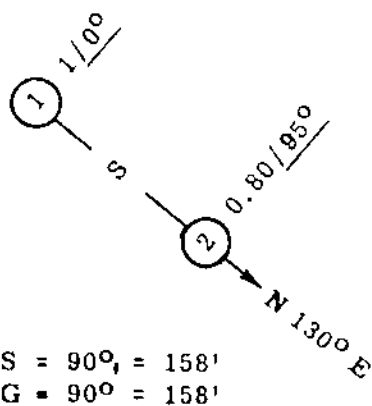
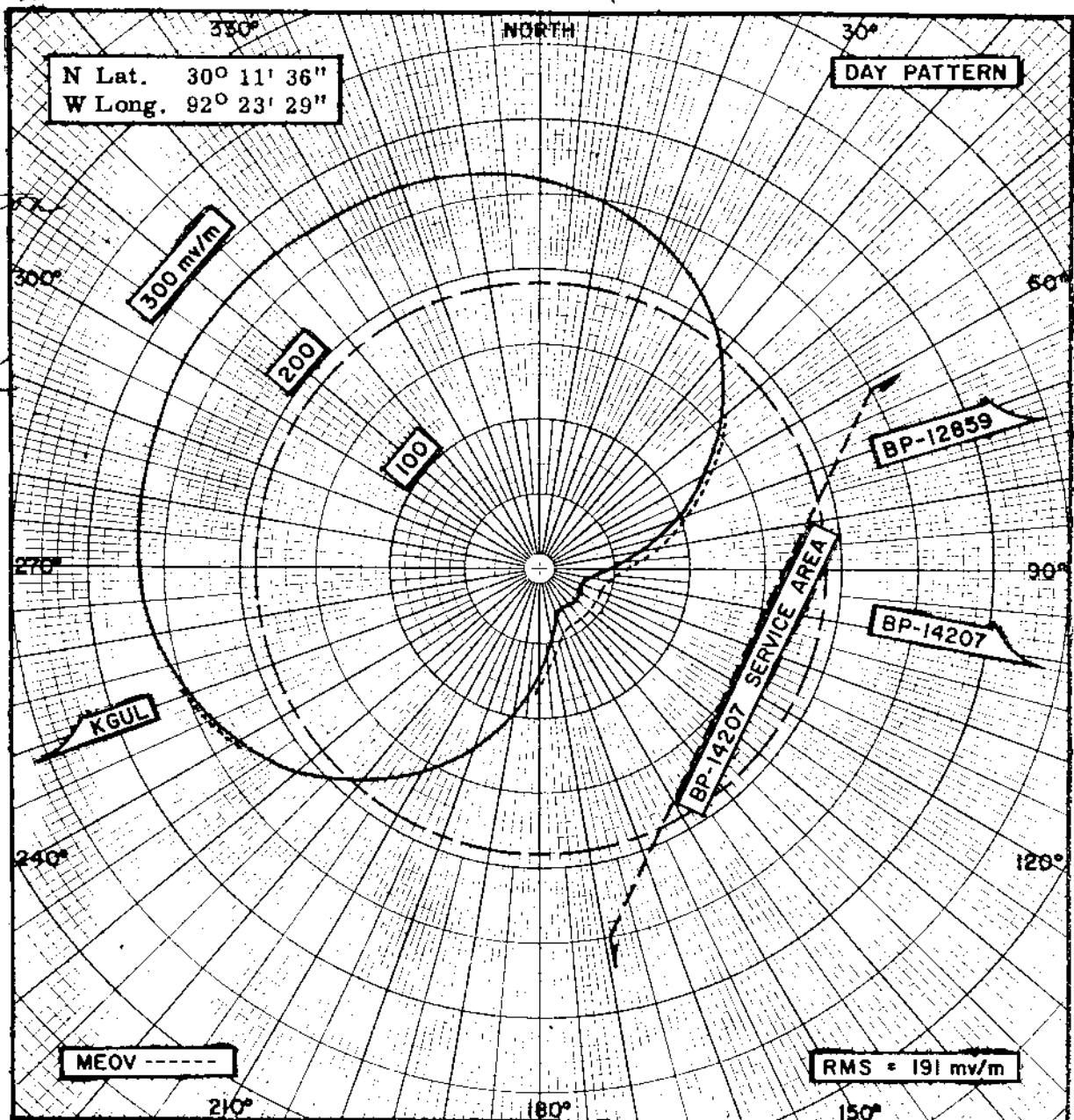
KAJN

Proposed Day
(11-30-61ct)

Rice Capital Broadcasting Co.
Crowley, Louisiana

1kw, DA-D, D
1560 kc

BP-15130
Granted
5-20-69
application
for CP
for a
new AM
station



RICE CAPITAL BROADCASTING COMPANY
CROWLEY, LOUISIANA

PROPOSED DAYTIME DIRECTIONAL
HORIZONTAL PLANE RADIATION PATTERN
1560 KC DA-D 1000 WATTS

072061

FIGURE B

MERL SAXON
CONSULTING RADIO ENGINEER
LUFKIN, TEXAS

FCC File No. BP-15130
Accepted 10-27-61

Rice Capital Broadcasting Co.
Crowley, Louisiana

1560 kc

KCJJ
1560 kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KCJJ Main Studio: Iowa City, Iowa
 Frequency: 1560 kHz Power: 1kw Night 1kw Day
 Notification List No. 1787 Date: July 10, 1980 Class: II

GEOGRAPHICAL LOCATION OF THE
 CENTER OF THE ANTENNA SYSTEM:

North Latitude: 41° 36' 03"
 West Longitude: 91° 30' 02"

ANTENNA CHARACTERISTICS

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

TOWERS:	NW(#1)	NC(#2)	C(#3)	SC(#4)	SW(#5)
HEIGHT ABOVE INSULATORS:	140'	140'	140'	140'	140' (80°)
NIGHT PHASING:	+87°	-134.5°	0°	+130.5°	-91°
NIGHT FIELD RATIO:	0.302	0.785	1.0	0.785	0.302
DAY PHASING:	---	-109°	0°	+125°	---
DAY FIELD RATIO:	---	0.225	1.0	1.279	---

SPACING AND
 ORIENTATION:

Adjacent towers in a row are spaced 158' (90°) on a line
 bearing 155° true.

GROUND SYSTEM:

120 - 160' equally spaced copper radials plus a 20' square
 ground screen about each tower. Radials are shortened and
 bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL		STANDARD
	<u>RMS</u>	<u>RSS</u>	<u>RMS</u>
Day 175 mv/m			
Night 1/ 175.04 mv/m	288.62 mv/m		184.09 mv/m
1/ By adjustment of input power.			

- 2 -

AUGMENTATION:

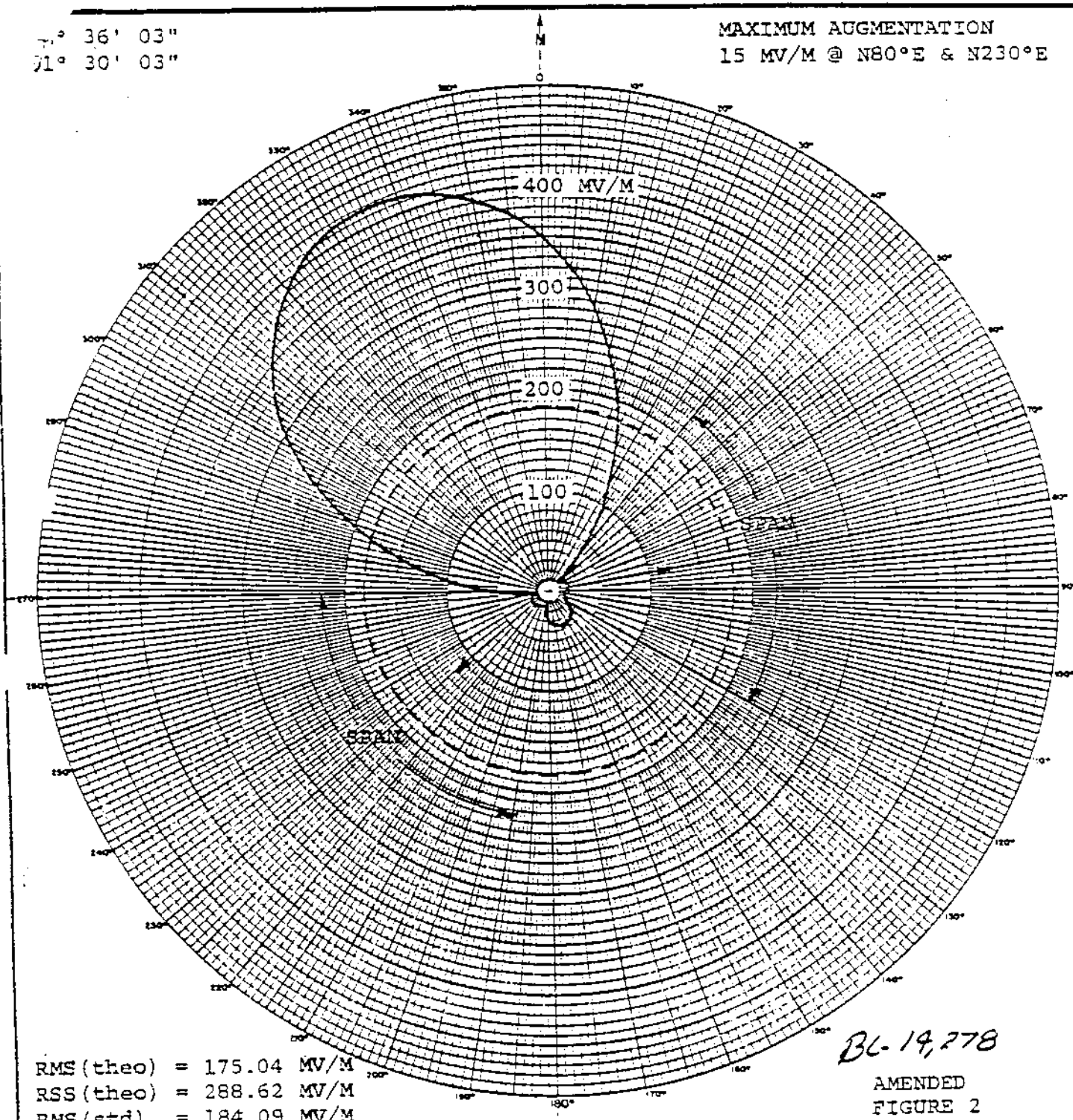
Span	Maximum Augmentation
40° - 120° True	15 $\frac{\text{mV}}{\text{m}}$
190° - 270° True	15 $\frac{\text{mV}}{\text{m}}$

Note: Please retain the Daytime directional antenna radiation pattern notified for new station in Iowa City, Iowa on 1560 kHz in United States Change List Number 1557, dated December 5, 1973 and attach to this Revised Description Sheet and Nighttime pattern. This notification concerns only a change in the patterns of the station with Daytime operation continued as previously notified.

KCJJ
1560 KHz
DA-N

36' 03"
01° 30' 03"

MAXIMUM AUGMENTATION
15 MV/M @ N80°E & N230°E



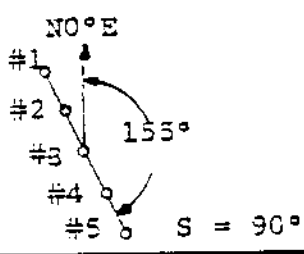
RMS(theo) = 175.04 MV/M
RSS(theo) = 288.62 MV/M
RMS(std) = 184.09 MV/M

AMENDED
FIGURE 2

NIGHTTIME MODIFIED STANDARD HORIZONTAL RADIATION PATTERN

INPUT POWER ADJUSTED TO 825 WATTS

- #1 .302/87°
- #2 .785/-134.5°
- #3 1.0/0°
- #4 .785/130.5° #5 .302/-91°



OCTOBER 1979

RAYMOND E. ROHRER

G = 80°

KCJJ
IOWA CITY, IOWA

1560 KHz LKW-SR DA-2

FIGURE 1A

1560 KHZ
IOWA CITY, IOWA

STANDARD HORIZONTAL RADIATION PATTERN
WITH AUGMENTATION

DA-2

KW 50

FEBRUARY 1971
RAYMOND E. ROHRER

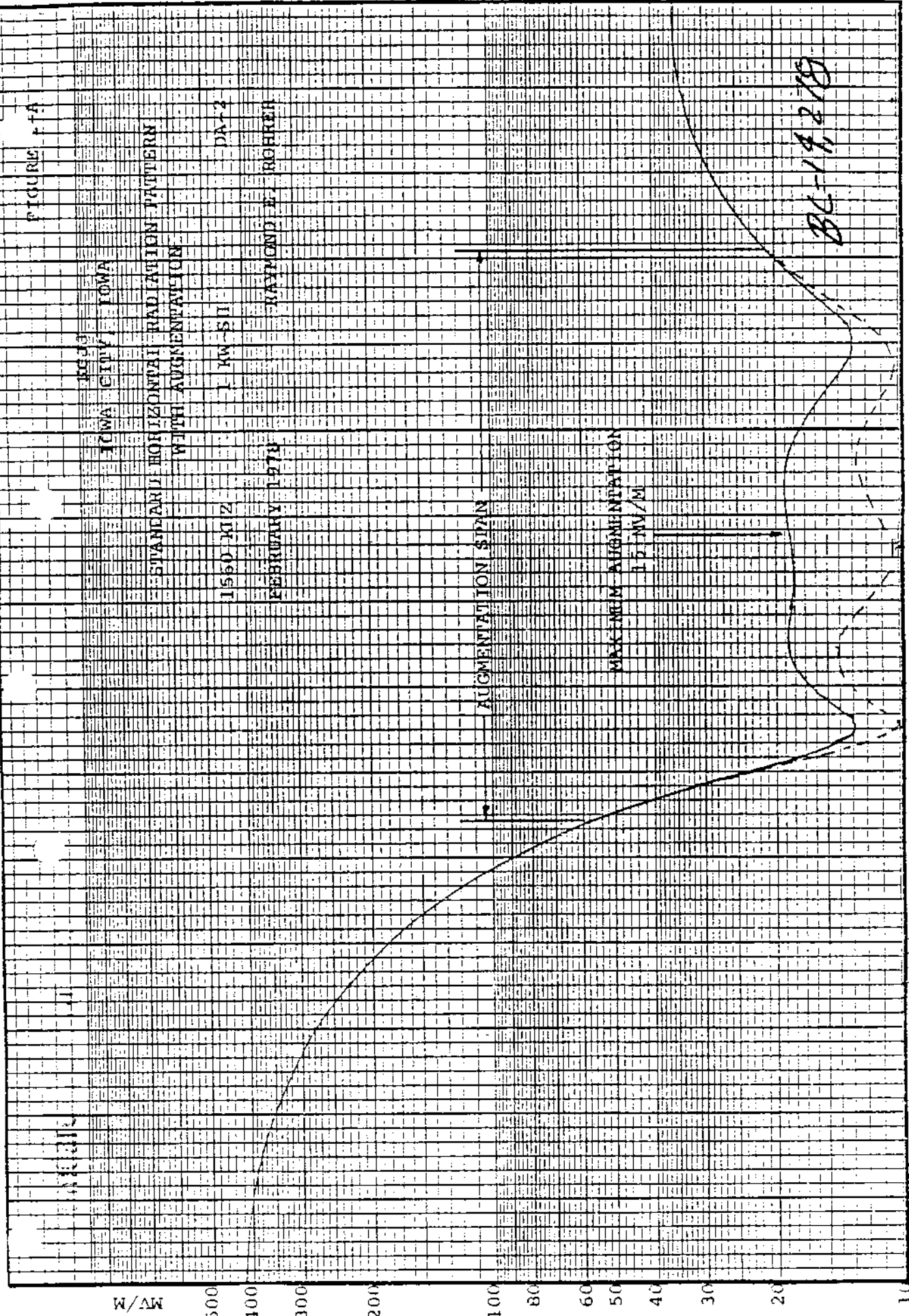
AUGMENTATION SPAN

MAXIMUM AUGMENTATION
1.5 MW/M

BL-19278

AZIMUTH - DEGREES

KCJJ
1560 KHz
DA-N



KEGG

Advertising Incorporated

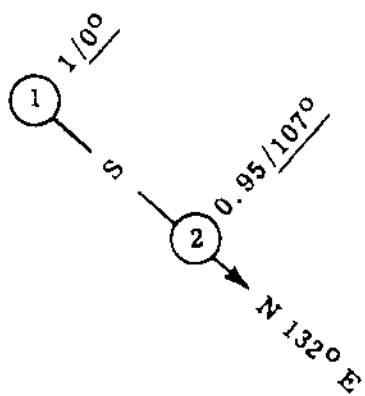
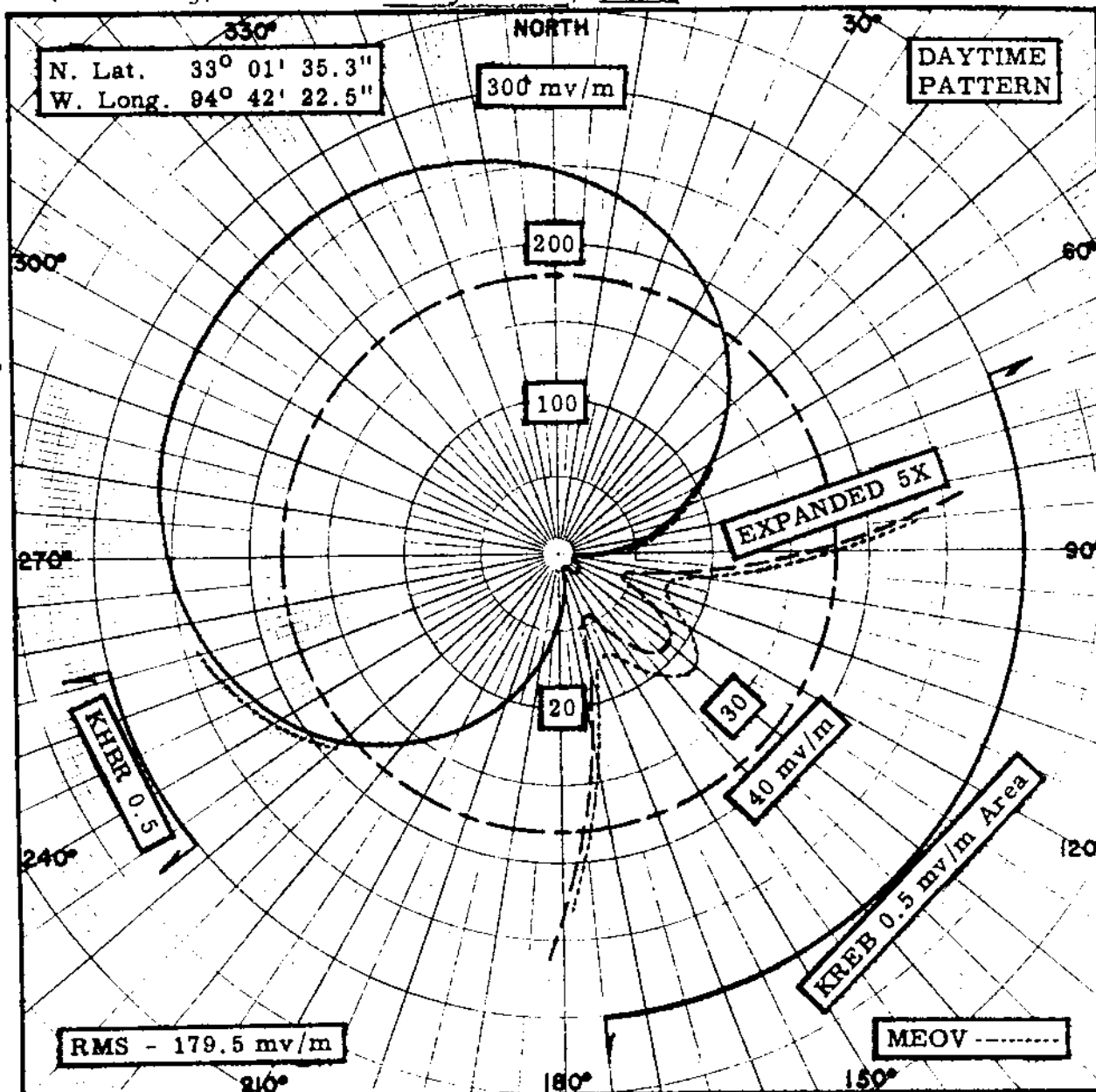
PROPOSED DAY
(10-18-60g)

New; Beamon Bcstng. Co.
Daingerfield, Texas

1kw, DA-D, D
1560 KC

5-14-62
Mend to
change name
1-23-64
Amended:
N 33 01 34.5
W 94 42 22.3
GR. APPL.
7-1-65

OVER



G = 70° = 123'
S = 80° = 140.3'

BEAMON BROADCASTING COMPANY
DAINGERFIELD, TEXAS

PROPOSED DAYTIME DIRECTIONAL
HORIZONTAL PLANE RADIATION PATTERN
1560 KC DA-D 1000 WATTS

081760

FIGURE B

MERL SAXON
CONSULTING RADIO ENGINEER
LUFKIN, TEXAS

FCC File No. BP-14359
Accepted 10-4-60

Beamon Bcstng. Co.
Daingerfield, Texas

1560 KC

KEGG

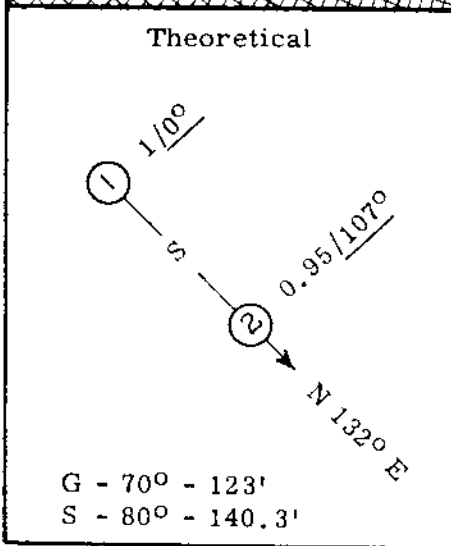
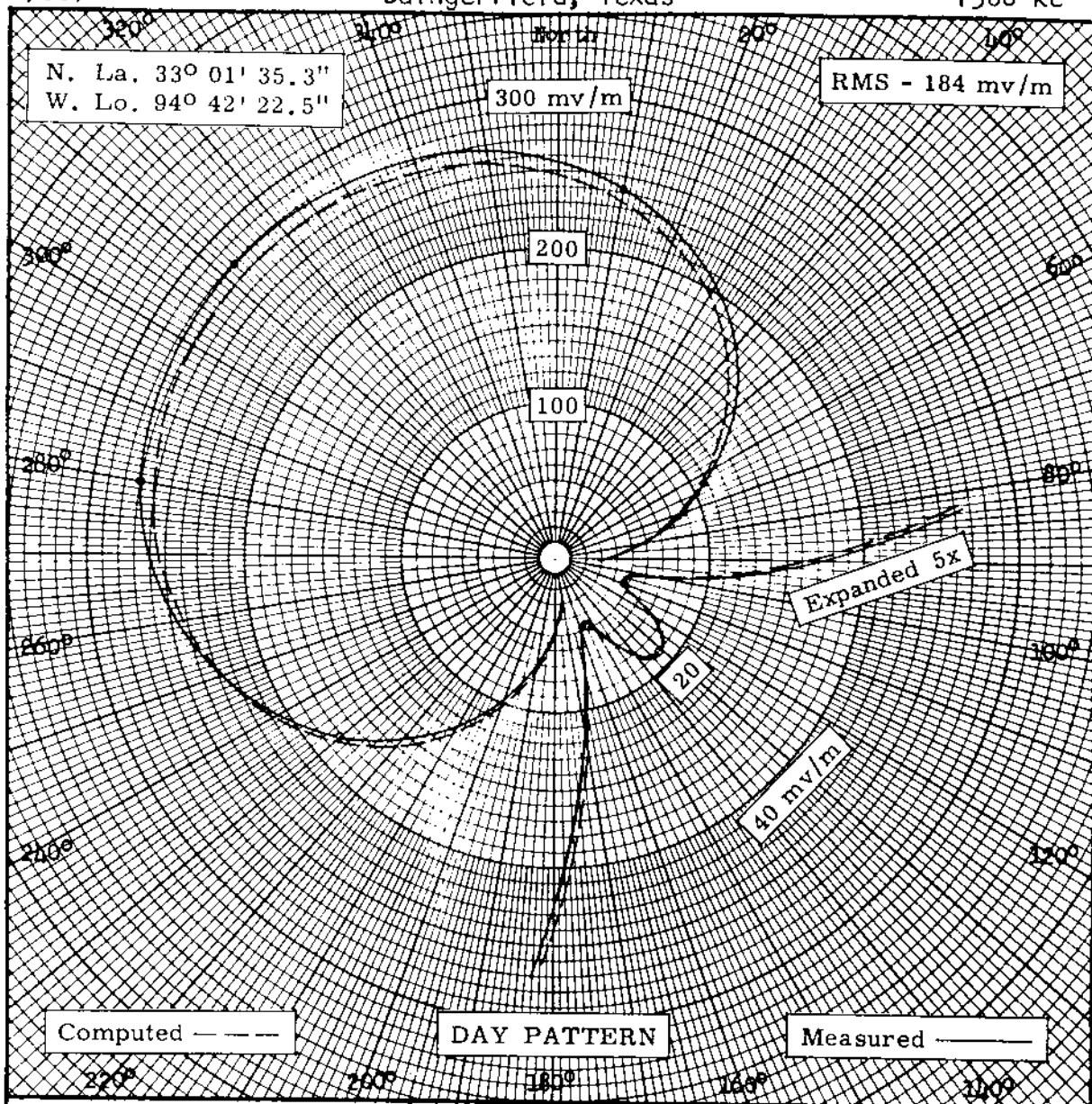
Measured Day
(1-30-67ct)

Station KEGG
Daingerfield, Texas

1kw, DA-D, D
1560 kc

RECEIVED
FEB 1 1967
COMM-FED
LICEVNE
COP
FOR A
CITY

OVER



THEORETICAL

RADIO STATION KEGG
DAINGERFIELD, TEXAS

MEASURED DIRECTIONAL
HORIZONTAL PLANE RADIATION PATTERN
1560 KC 1000 WATTS

120766

FIGURE 3

MERL SAXON
CONSULTING RADIO ENGINEER
LUFKIN, TEXAS

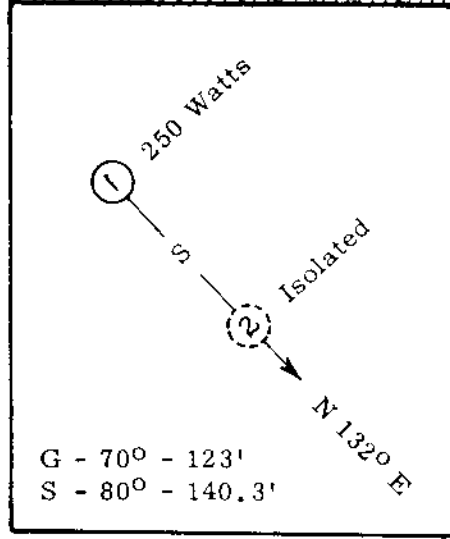
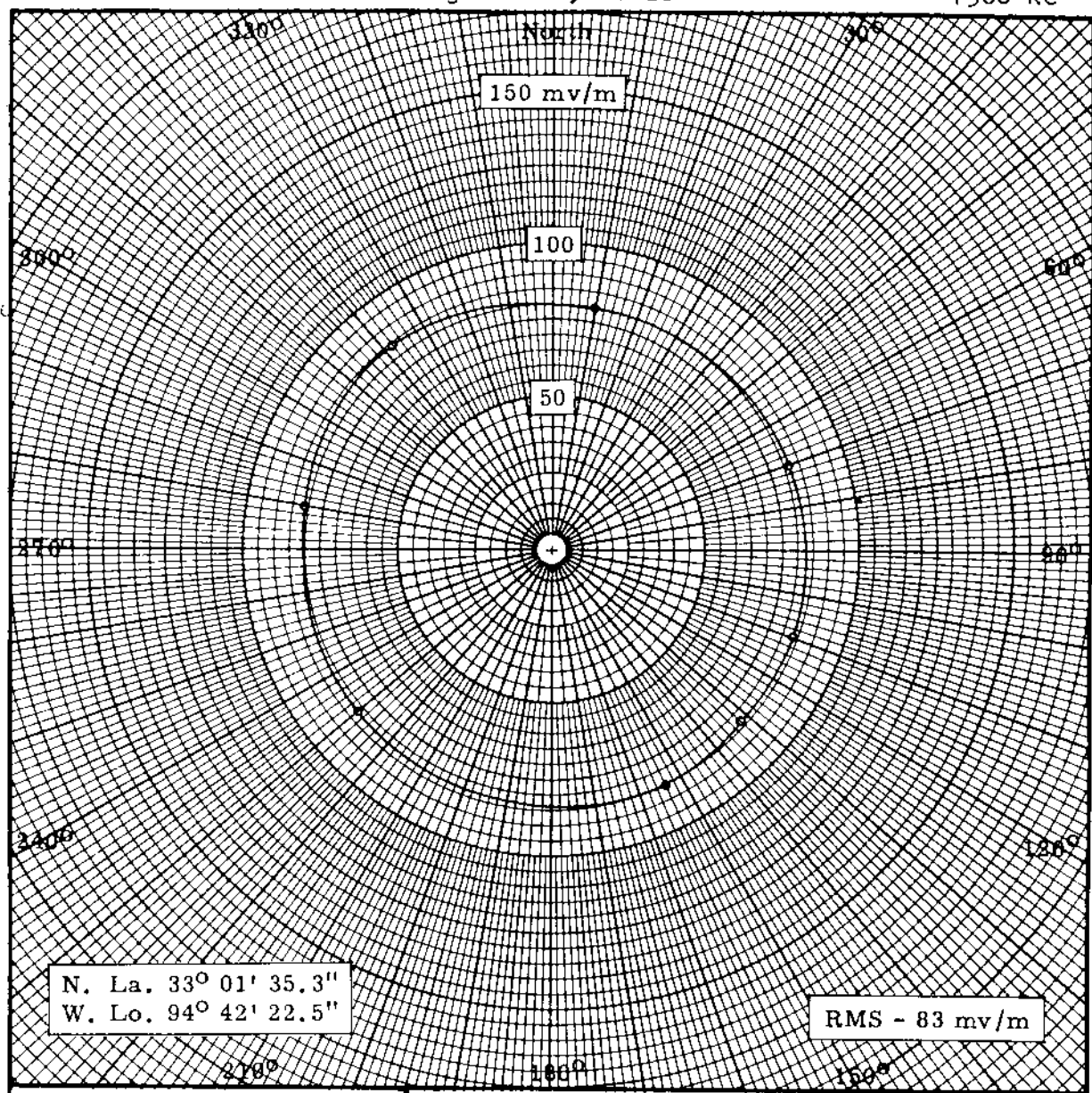
KEGG

Measured Non-DA
(1-30-67ct)

Station KEGG
Daingerfield, Texas

1kw, DA-D, D
1560 kc

526
LED
267
145E
CP
Tactical
-
FR



RADIO STATION KEGG
DAINGERFIELD, TEXAS

MEASURED NON-DIRECTIONAL
HORIZONTAL PLANE RADIATION PATTERN
1560 KC 250 WATTS

120766

FIGURE 2

MERL SAXON
CONSULTING RADIO ENGINEER
LUFKIN, TEXAS

FCC File No. BL-11526
Accepted 1-19-67

Station KEGG
Daingerfield, Texas

1560 kc

KKAA
1560kHz

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KKAA Main Studio: Aberdeen, South Dakota
Frequency: 1560 kHz Power: 5kw Night 10kw
Notification List No. 1785 Date: November 16, 1979 Class: II

GEOGRAPHICAL LOCATION OF THE CENTER OF THE ANTENNA SYSTEM:

North Latitude: 45° 25' 05"
West Longitude: 98° 28' 36"

ANTENNA CHARACTERISTICS

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

TOWER:	NW(#1)	NC(#2)	NE(#3)	SW(#4)	SC(#5)	SE(#6)
HEIGHT ABOVE INSULATORS:	140'	140'	140'	140'	140'	140' (80°)
NIGHT PHASING:	0°	0°	0°	+105.0°	105.0°	+105.0°
NIGHT FIELD RATIO	0.51	1.00	0.51	1.00	1.00	0.51
DAY PHASING:	-60°	0°	---	-60°	---	---
DAY FIELD RATIO:	0.3	1	---	0.3	---	---

SPACING AND ORIENTATION:

The towers are located in two parallel rows with three towers per row. Adjacent towers in a row are spaced 341.651' (195°) on a line bearing 85° true. End towers forming a side of the parallelogram are spaced 157.7" (90°) on a line bearing 150° true.

GROUND SYSTEM:

120 - 157.7' equally spaced copper radials about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL			STANDARD
	RMS	RSS		RMS
Day	573.97 mv/m	603.04 mv/m		603.00 mv/m
	395.39 mv/m	519.17 mv/m		441.4 mv/m

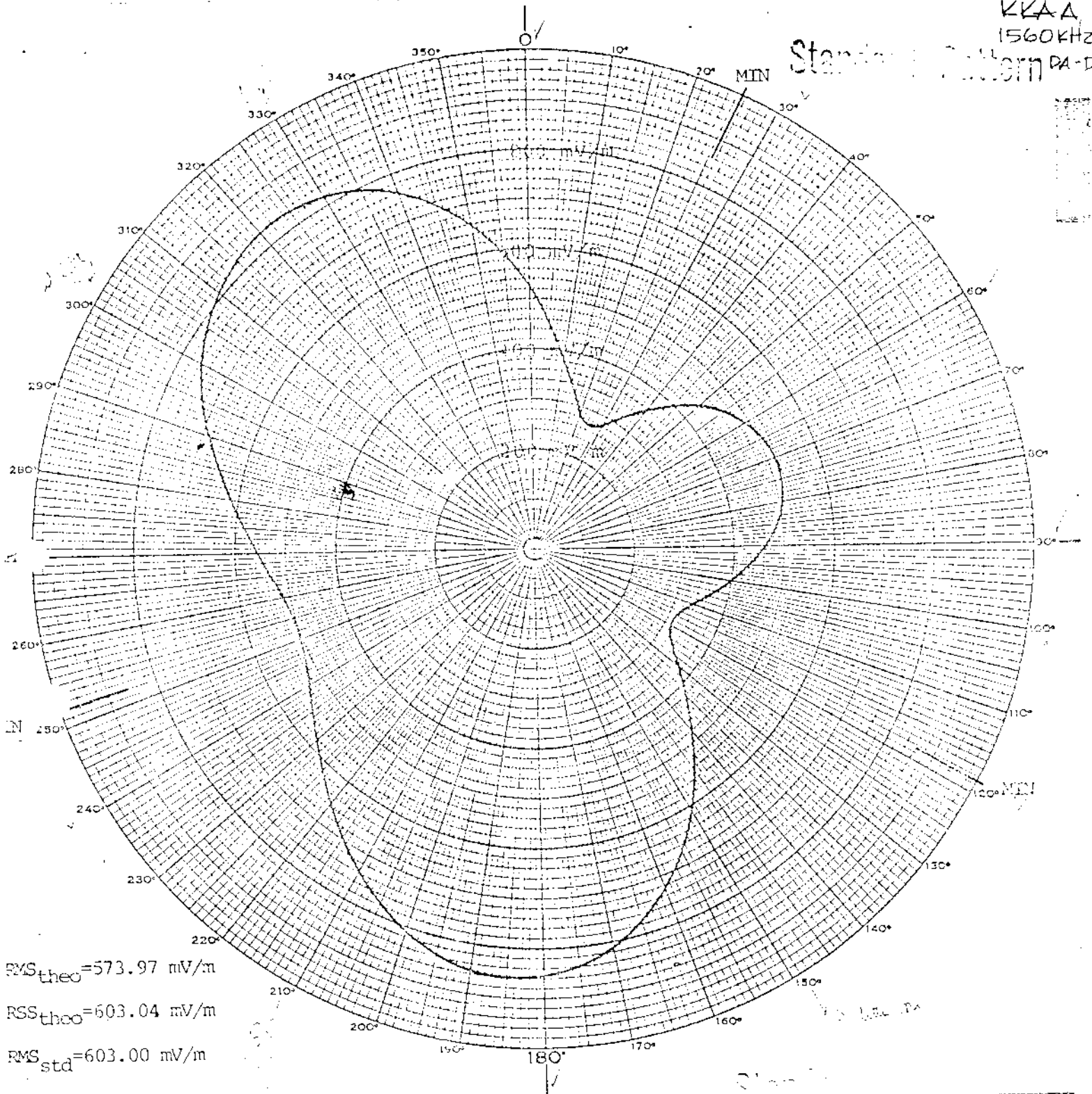
MODIFIED PATTERN AUGMENTATION:

<u>Azimuth of Maximum Augmentation</u>		<u>Augmented Radiation E₂</u>	<u>Span of Augmentation From - To</u>	
Nighttime	10°	1107.680 $\frac{\text{mV}}{\text{m}}$	340°	40°
Nighttime	295°	31.974 $\frac{\text{mV}}{\text{m}}$	265°	325°

NOTE: Please retain the Nighttime directional antenna radiation pattern notified for Station KKAA in United States Change List Number 1597 dated September 11, 1974 and attach to this Revised Description Sheet and Daytime pattern. This notification concerns only a change in the Daytime operation of the station with Nighttime operation continued as previously notified.

KKAA
1560 KHz

Standard Pattern DA-2



$E_{MS_{theo}} = 573.97 \text{ mV/m}$

$RSS_{theo} = 603.04 \text{ mV/m}$

$RMS_{std} = 603.00 \text{ mV/m}$

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 5	STATION DATA
237.54° T. ° = not used	TOWER	ELECTRICAL HEIGHT	SPACING	PHASING	FIELD RATIO	PROPOSED STANDARD RADIATION PATTERN KKAA JUNE, 1976 $\theta^\circ = 0$	CALL KKAA FREQ 1560 KHz POWER 10 KW TYPE DA-2 TIME DAY LAT. N45°25'05" LONG. W98°23'26" E. HAROLD MUNN, JR. & ASSOCIATES, INC. COLDWATER, MICH.
	1	80	0	0	1.0		
	2	80	195	-60	0.3		
	3	80	176.89	-60	0.3		
	4						
	5						
	6						

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KKAA Main Studio: Aberdeen, South Dakota
 Frequency: 1560 kHz Power: 5 kW
 Notification List No. 1597 Date: September 11, 1974 Class: II

GEOGRAPHICAL LOCATION OF THE
 CENTER OF THE ANTENNA SYSTEM: North Latitude: 45° 25' 05"
 West Longitude: 98° 28' 36"

ANTENNA CHARACTERISTICS

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

TOWER:	NW(#1)	NC(#2)	NE(#3)	SW(#4)	SC(#5)	SE(#6)
HEIGHT ABOVE INSULATORS:	All towers 140' (80°)					
NIGHT PHASING:	0°	0°	0°	+105.0°	+105.0°	+105.0°
NIGHT FIELD RATIO:	0.51	1.00	0.51	0.51	1.00	0.51
DAY PHASING:	0°	+85.82°	+171.64°	-	-	-
DAY FIELD RATIO:	1.00	1.01	0.45	-	-	-

SPACING AND
 ORIENTATION: Towers are arranged in two parallel rows with three towers
 per row. Adjacent elements in a row are spaced 341.651' (195°)
 on a line bearing 85° true. End towers in each row forming
 the short side of the parallelogram are spaced 157.7' (90°) on
 a line bearing 150° true.

GROUND SYSTEM: 120-157.7' equally spaced copper radials about each tower.
 Radials are shortened and bonded to transverse straps along
 intersections between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

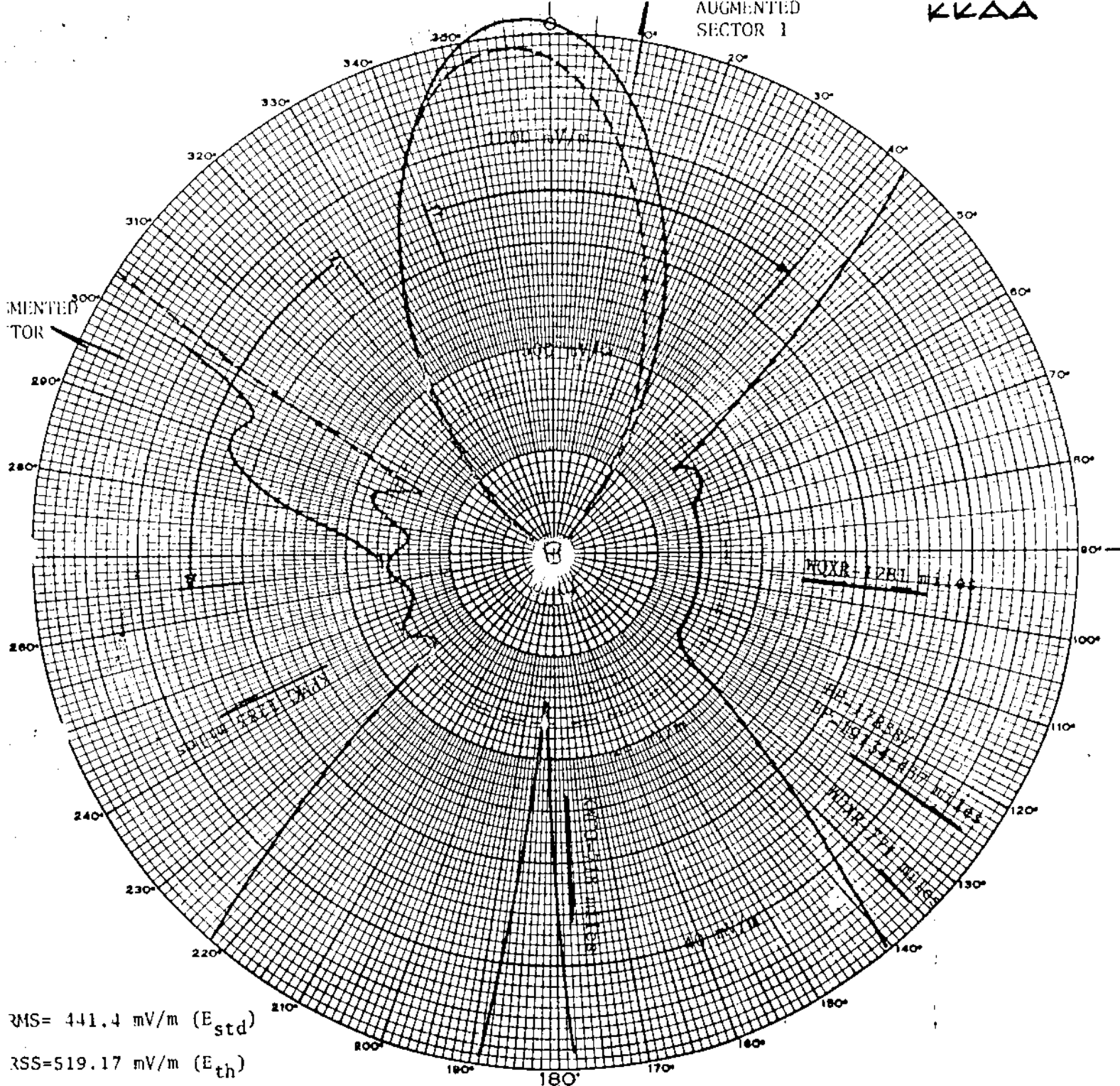
	THEORETICAL	STANDARD
	RMS	RMS
Daytime	406.580 mv/m	486.000 mv/m
Nighttime	395.39 mv/m	441.4 mv/m

MODIFIED PATTERN AUGMENTATION

Azimuth of Maximum Augmentation	Augmented Radiation E ₂	Span of Augmentation	
		From	To
Daytime 85°	490.000 mv/m	40°	130°
Daytime 210°	850.000 mv/m	170°	250°
Daytime 320°	850.000 mv/m	280°	0°
Nighttime 10°	1107.680 mv/m	340°	40°
Nighttime 295°	31.974 mv/m	265°	325°

Note: This notification concerns only a change in directional antenna radiation patterns from Standard Patterns to Modified Standard Patterns.

CTR NO 30223A4



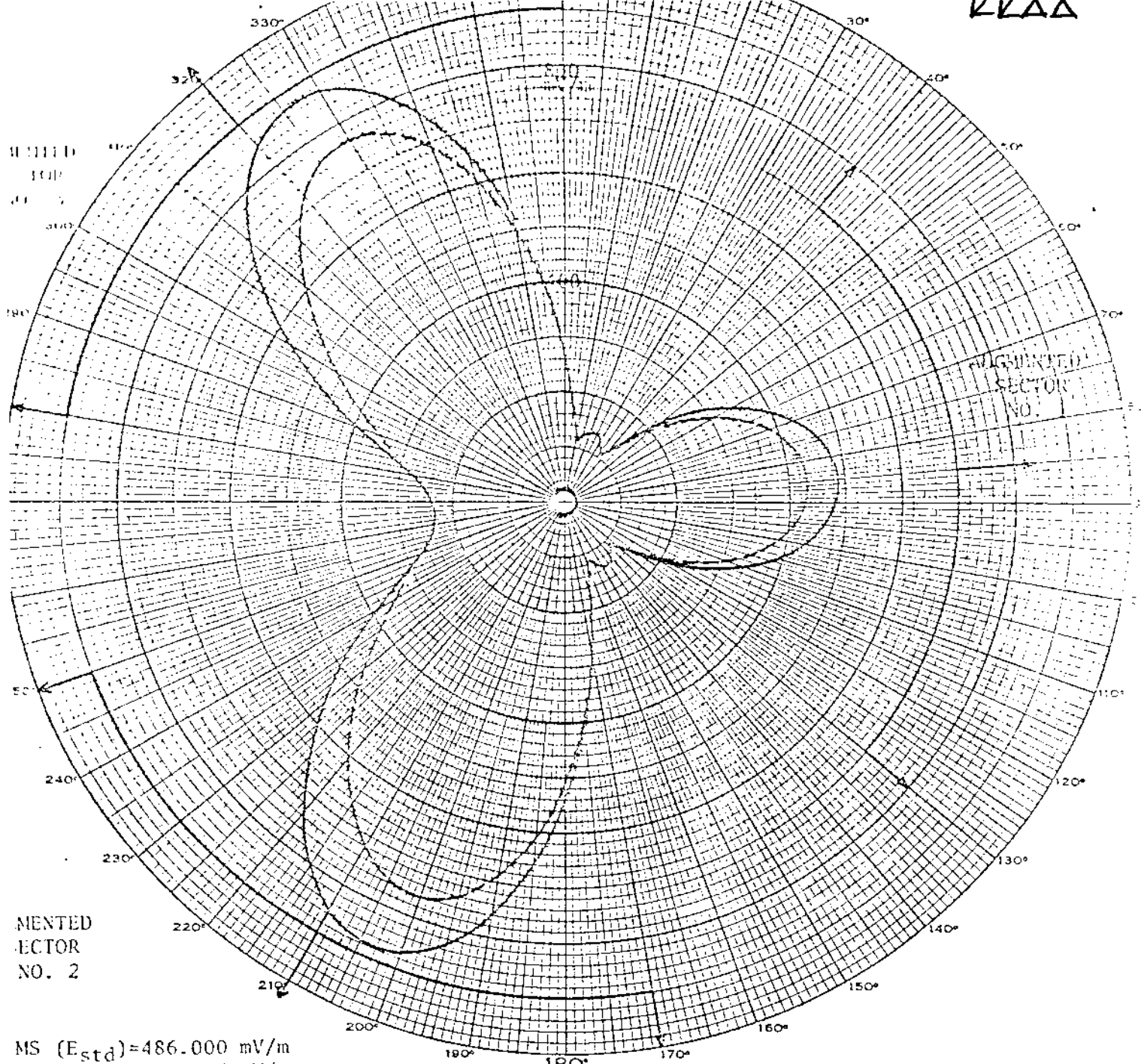
RMS= 441.4 mV/m (E_{std})

RSS=519.17 mV/m (E_{th})

RMS=395.39 mV/m (E_{th})

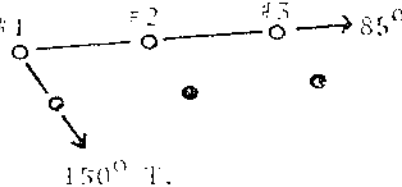
TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 4	STATION DATA
$S_1 = 195^\circ; S_2 = 90^\circ$	TOWER #	ELECTRICAL HEIGHT ft	SPACING ft	PHASING deg	FIELD RATIO F	STANDARD HORIZONTAL PLANE PATTERN --MODIFIED-- $\theta^\circ = 0$	CALL NEW
	1	80.		0.0	0.51		FREQ 1560 kHz
	2	80.		0.0	1.00		POWER 5.0 kW
	3	80.		0.0	0.51		TYPE DA-2
	4	80.		105.0	0.51		TIME NIGHTTIME
	5	80.		105.0	1.00		LAT. N45°25'05"
	6	80.		105.0	0.51		LONG. W98°28'36"
DAYTIME OPERATION ☐ NIGHTTIME OPERATION ☐						E.H.MUNN, JR. RADIO ENGINEER COLDWATER, MICH.	

KEAA

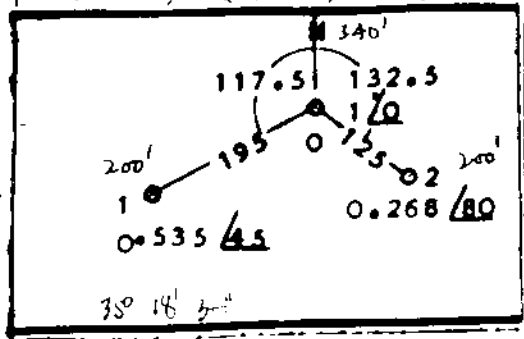
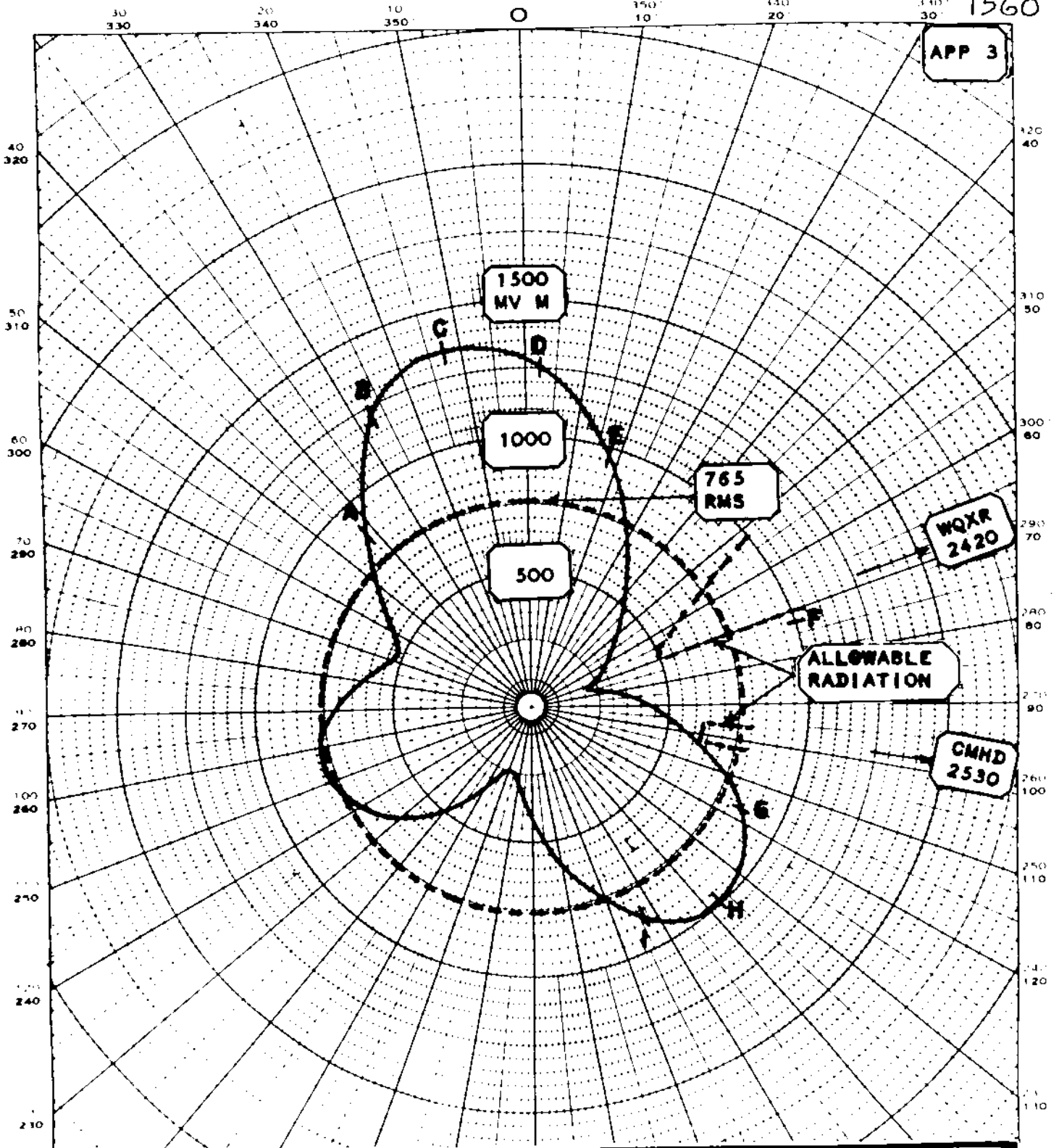


MENTED
ECTOR
NO. 2

MS (E_{std}) = 486.000 mV/m
 SS (E_{th}) = 441.657 mV/m
 MS (E_{th}) = 406.580 mV/m

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE ①	STATION DATA
	TOWER #	ELECTRICAL HEIGHT G	SPACING S	PHASING P	FIELD RATIO F	MODIFIED STANDARD HORIZONTAL RADIATION PATTERN ABERDEEN, S. D. $\theta^{\circ} = 0$	CALL KEAA
	1	80	0	0	1.0		FREQ 1560 kHz
	2	80	195	85.82	1.011		POWER 5.0 kW
	3	80	390	171.6	0.45		TYPE DA-2
	4						TIME DAYTIME
	5						LAT. 45°25'00"
	6						LONG. 98°28'50"
	LATITUDE: 45°25'00" N LONGITUDE: 98°28'50" W						E.H. MUNN, JR. RADIO ENGINEER COLDWATER, MICH.

APP 3



RADIO STATION KPMC
BAKERSFIELD, CALIFORNIA

HORIZONTAL RADIATION PATTERN
10 KW DA DAY AND NIGHT 1560 KC

GLENN D. GILLET AND ASSOCIATES
CONSULTING RADIO ENGINEERS
WASHINGTON, D.C.

KPMC

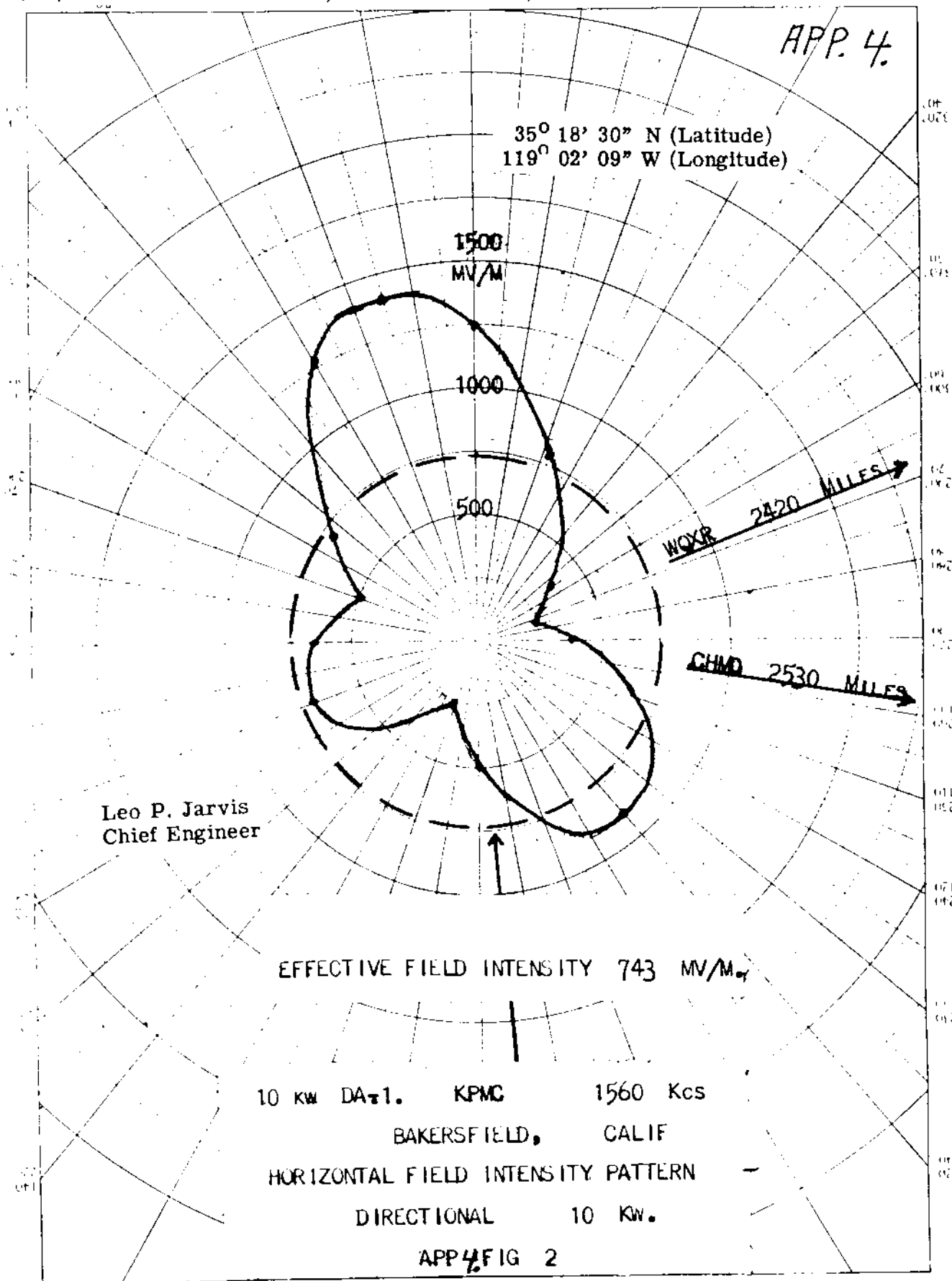
Measured Night
& Day 1/12/56G

Station KPMC
Bakersfield, Calif.

10 KW
DA-1, U

1560 KC

APP. 4.



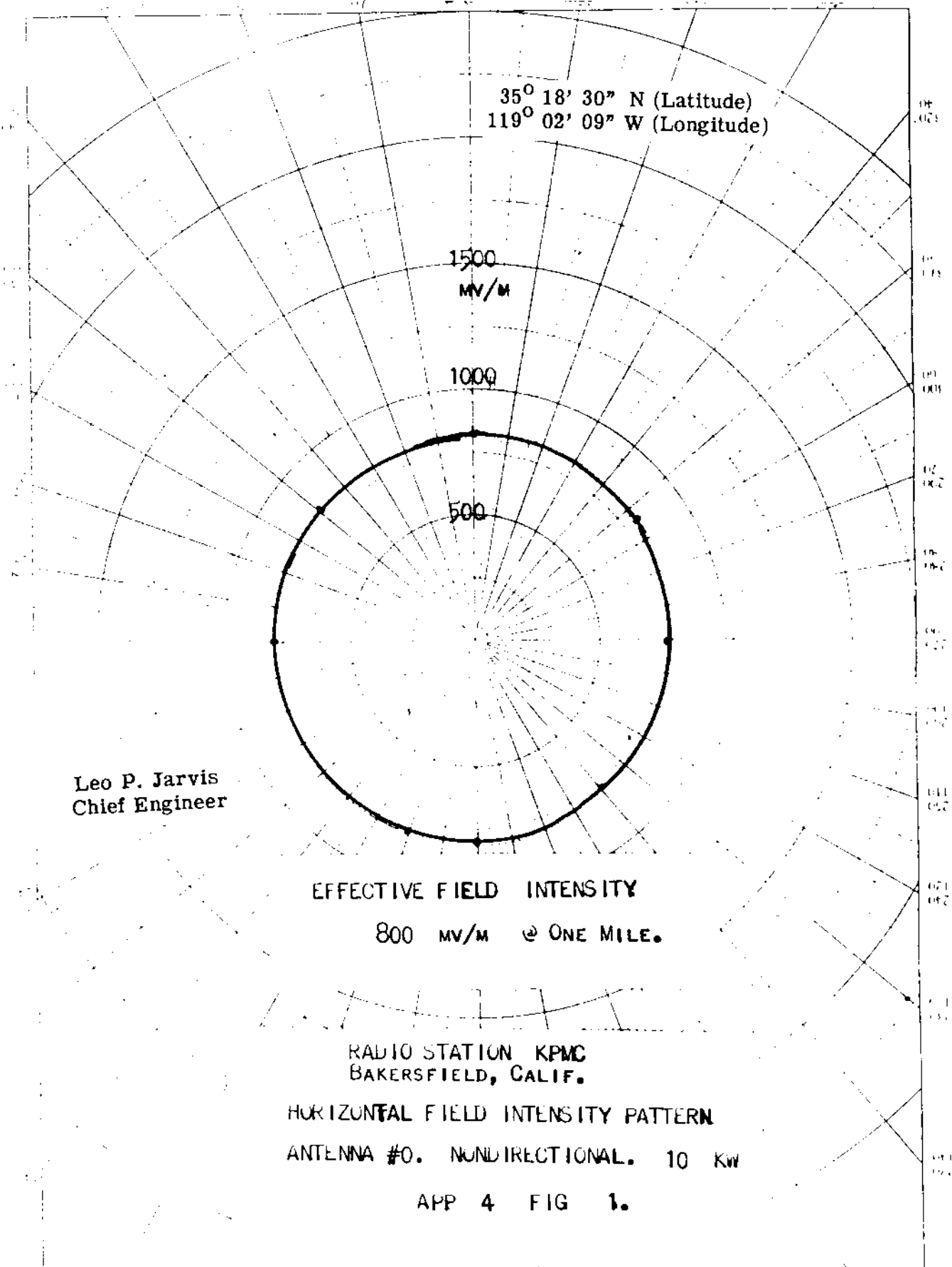
KPMC

Measured
Non-Da 1/12/56G

Station KPMC
Bakersfield, Calif.

10 KW
DA-1, U

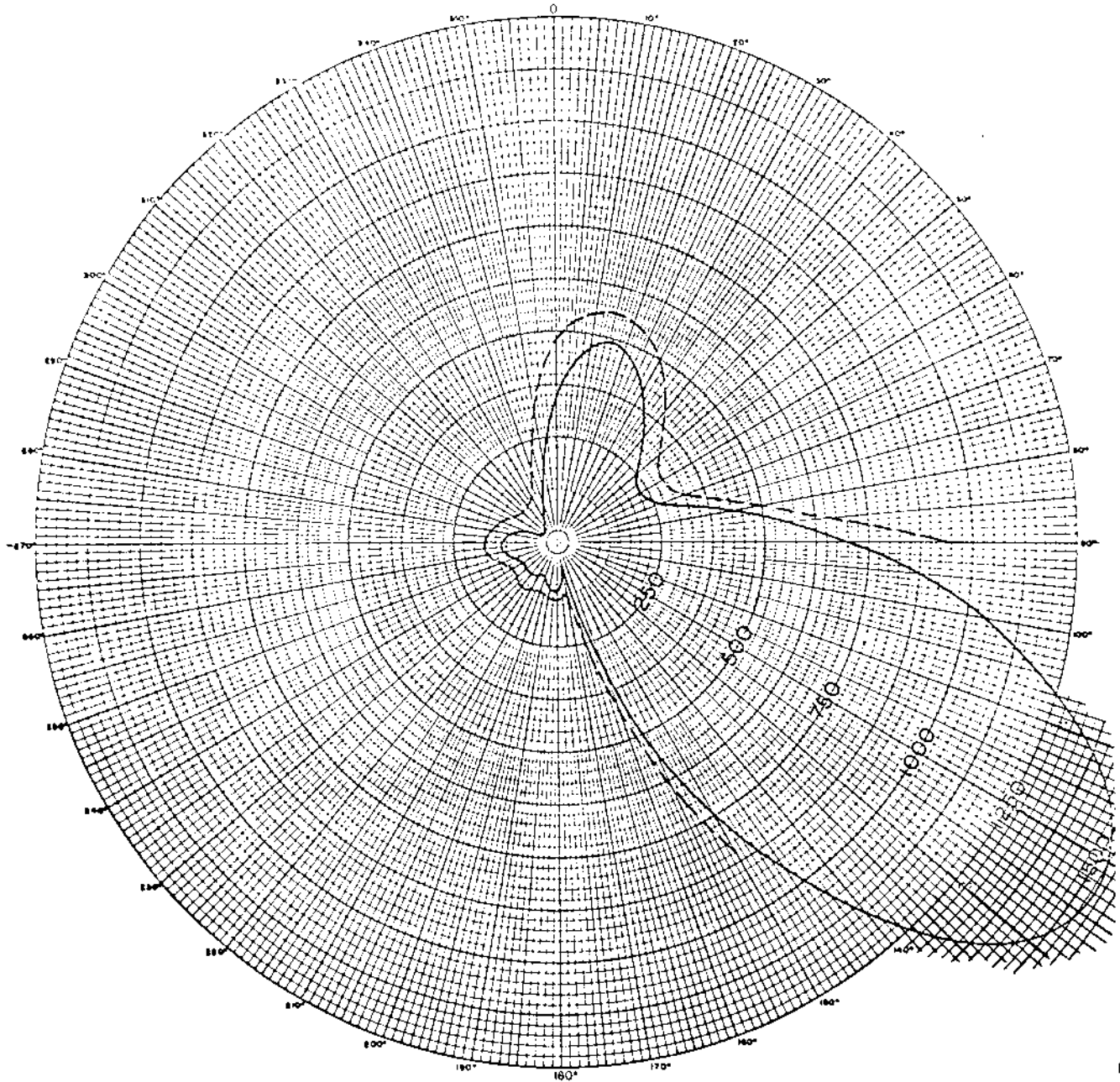
1560 KC



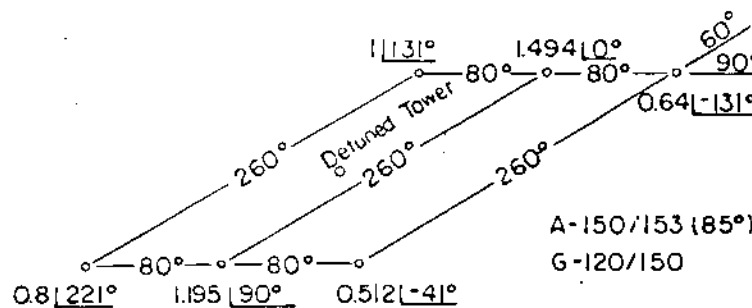
Proposed Day
(4-29-69ct)

Station KQYX
Joplin, Missouri

KQYX
10kw, DA-D, D
1560 kc



HORIZONTAL RADIATION PATTERN



APPLICANT	William B. Neal
LOCATION	KQYX Joplin, Mo.
FREQUENCY	1560 KC/S
POWER	10 KW
LATITUDE	37 DEG 04 MIN 10 SEC
LONGITUDE	94 DEG 32 MIN 49 SEC
WHEN USED	Daytime
R.M.E. FIELD	560 MV/M
DATE	December 4th, 1968

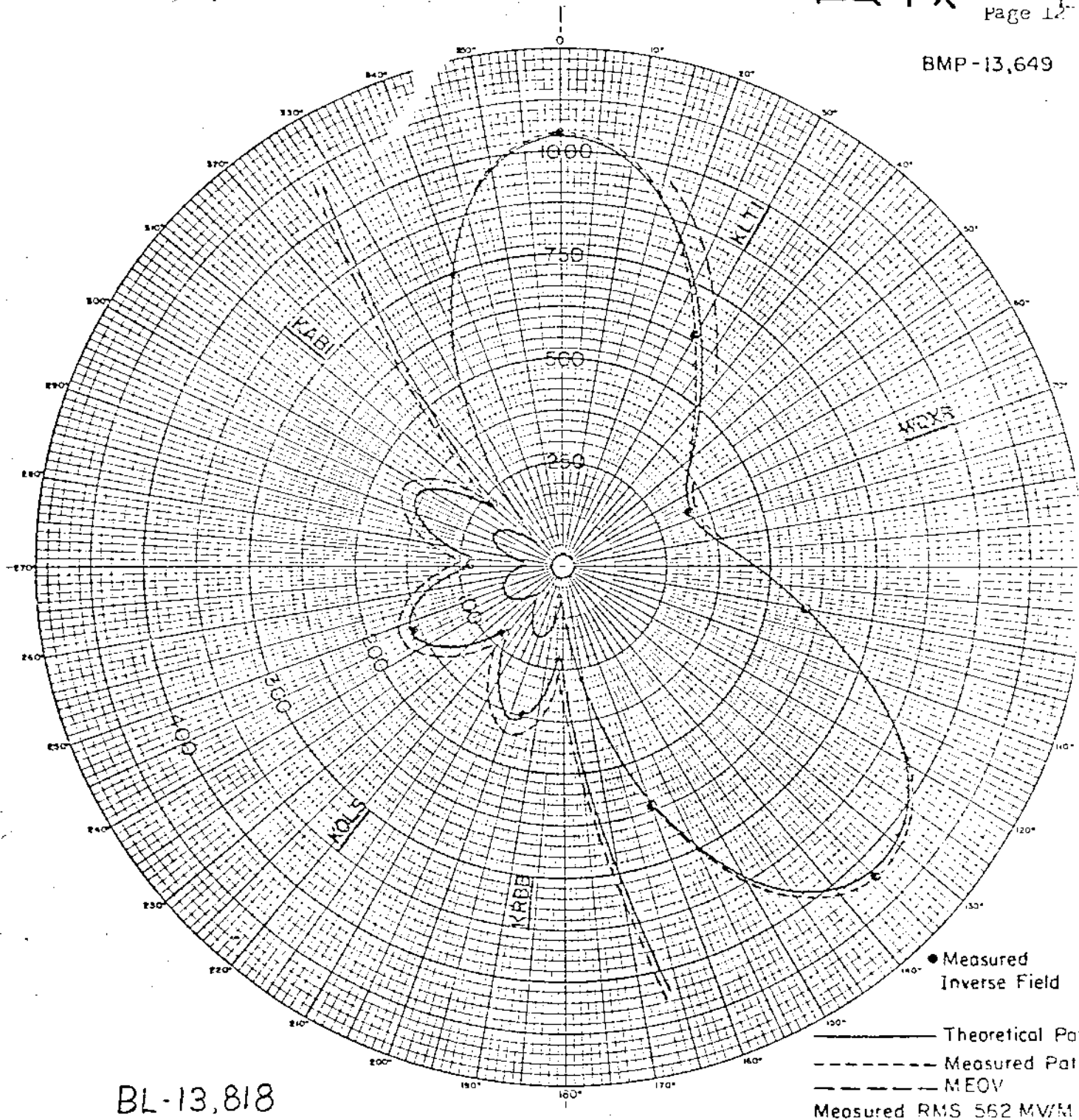
RALPH J. BITZER
CONSULTING RADIO ENGINEERS

FCC File No. BP-18480
Accepted 4-4-69

Station KQYX
Joplin, Missouri

1560 kc

BMP-13,649



HORIZONTAL RADIATION PATTERN

Modification

BP-18,490

APPLICANT William P. Neal

LOCATION : KQYX Joplin, Mo.

FREQUENCY : 1560 KC/S

POWER : 10 KW

LATITUDE : 37 DEG 04 MIN 10 SEC.

LONGITUDE : 01 DEG 00 MIN 10 SEC

WHEN USED: Daytime

R.M.S. FIELD: 560 Theoretical.

DATE: May 14th, 1973

Proof : October 195, 1974

RALPH J. BITZER

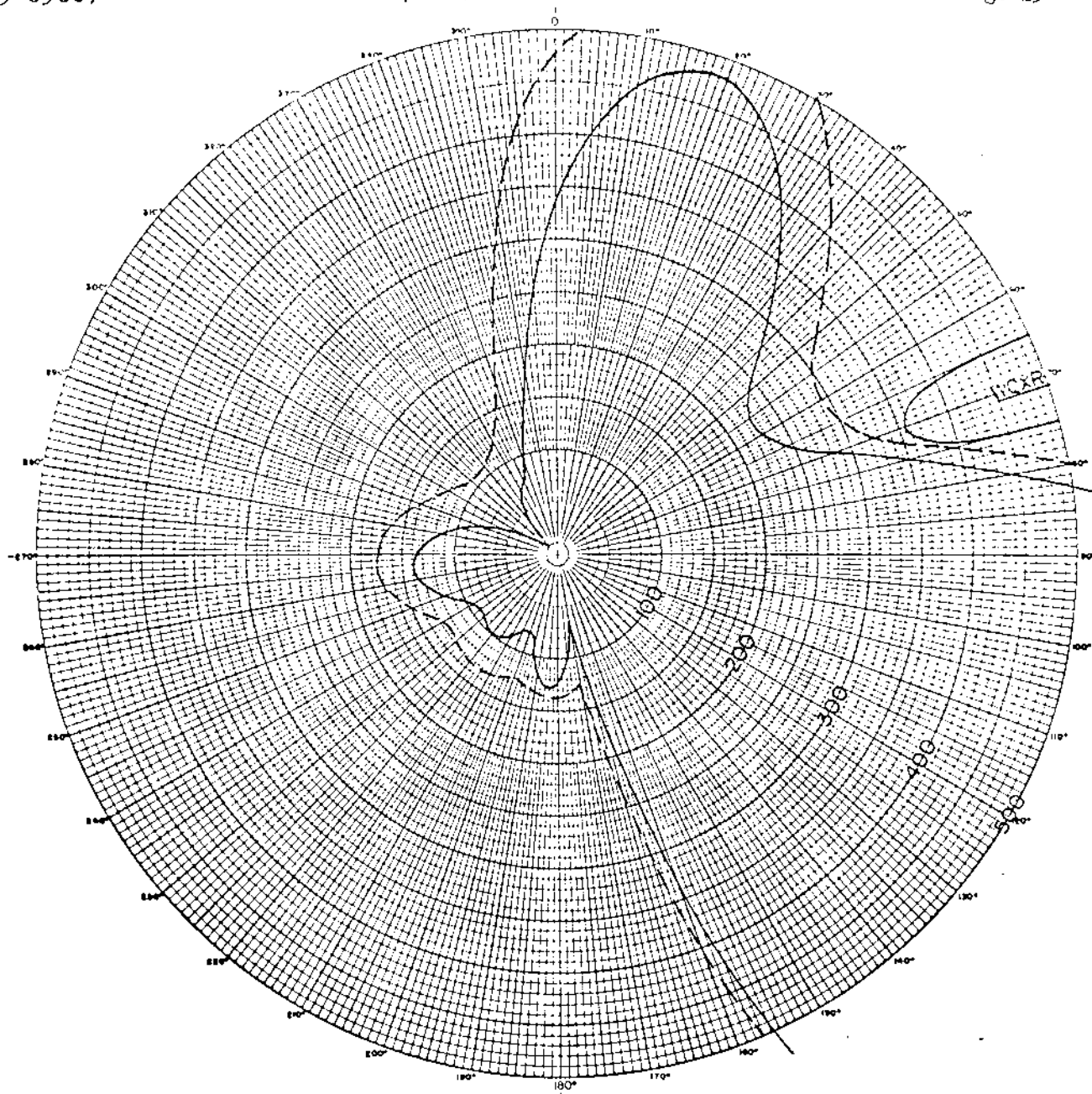
CONSULTING RADIO ENGINEER

[illegible]

Proposed Day Nulls
(4-29-69ct)

Station KQYX
Joplin, Missouri

KQYX
10kw, DA-D, D
1560 kc



HORIZONTAL RADIATION PATTERN

Expanded Scale

APPLICANT	William B. Neal
LOCATION	KQYX Joplin, Mo.
FREQUENCY	1560 KC/B
POWER	10 KW
LATITUDE	37 DEG 04 MIN 10 SEC
LONGITUDE	94 DEG 32 MIN 49 SEC
WHEN USED	Daytime
R.M.S. FIELD	560 MV/M
DATE	December 4th, 1968

RALPH J. BITZER
CONSULTING RADIO ENGINEER

FCC File No. BP-18480
Accepted 4-4-69

Station KQYX
Joplin, Missouri

1560 kc

SUPPLEMENTAL DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: KWCO Main Studio: Chickasha, Oklahoma
Frequency: 1560 kHz Power: 0.25 kW Night 1 kW Day
Notification List No. 1594 Date: August 21, 1974 Class: II

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 35° 00' 58"
West Longitude: 97° 56' 15"

Authorized for Nighttime operation (DA-N).

Predicted effective Day Field: (omnidirectional) 198 mv/m at rated power.

*Note: Please retain the description sheet and directional antenna radiation patterns notified for station KWCO in United States Change List Number 370, dated August 17, 1950, and attach to this supplemental Description Sheet. This notification is for the purpose of indicating only a change in the geographical coordinates of the center of the antenna system.

CTR NO 31221A4

PROPOSED
NIGHT

KWCO, CHICKASHA, OKLA.

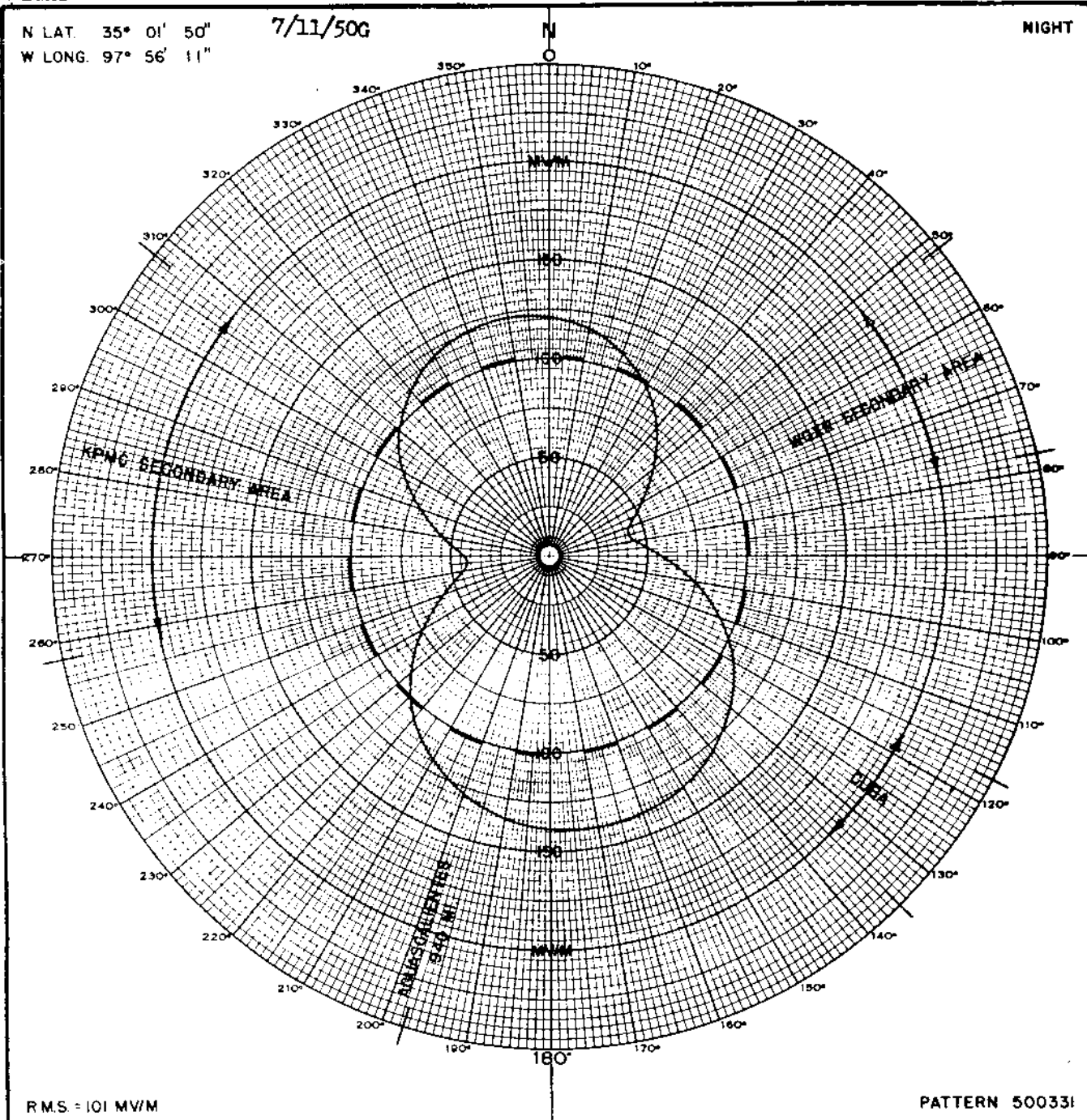
250w, DAN

KWCO
1560 kc

N LAT. 35° 01' 50"
W LONG. 97° 56' 11"

7/11/50G

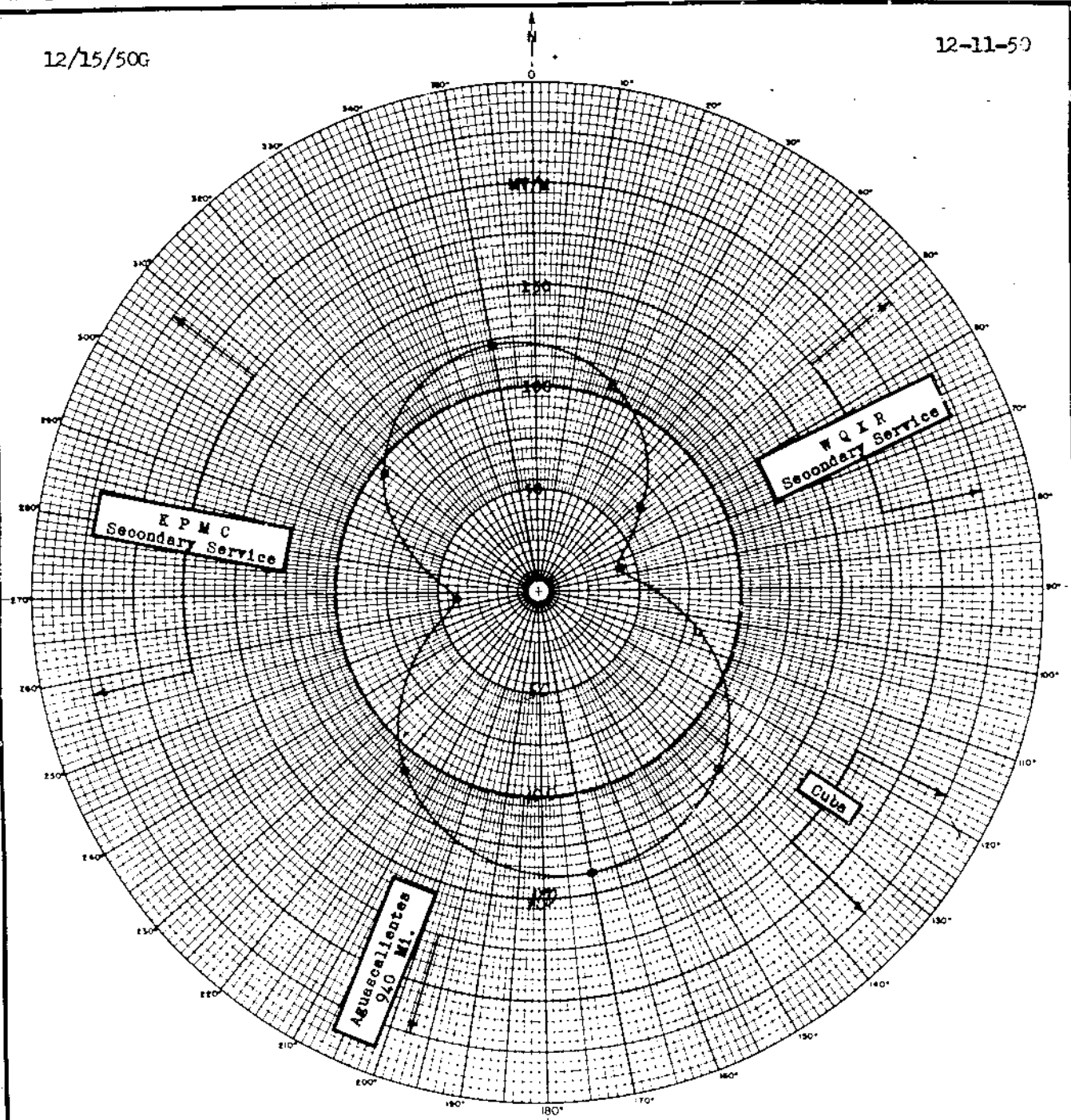
NIGHT



	<table> <tr> <th>TOWER</th><th>I</th><th>ψ</th></tr> <tr> <td>1</td><td>1.00</td><td>0.0°</td></tr> <tr> <td>2</td><td>0.60</td><td>+170°</td></tr> </table> ALL G'S = 109.6°	TOWER	I	ψ	1	1.00	0.0°	2	0.60	+170°	A. EARL CULLUM, JR. CONSULTING RADIO ENGINEERS DALLAS TEXAS RADIO STATION KWCO PROPOSED 1560 KC. 250 WATTS DA-N FIGURE 5A
TOWER	I	ψ									
1	1.00	0.0°									
2	0.60	+170°									

KWCO
1560 kc

12-11-53



KWCO, Chickasha, Okla. 1560 kc

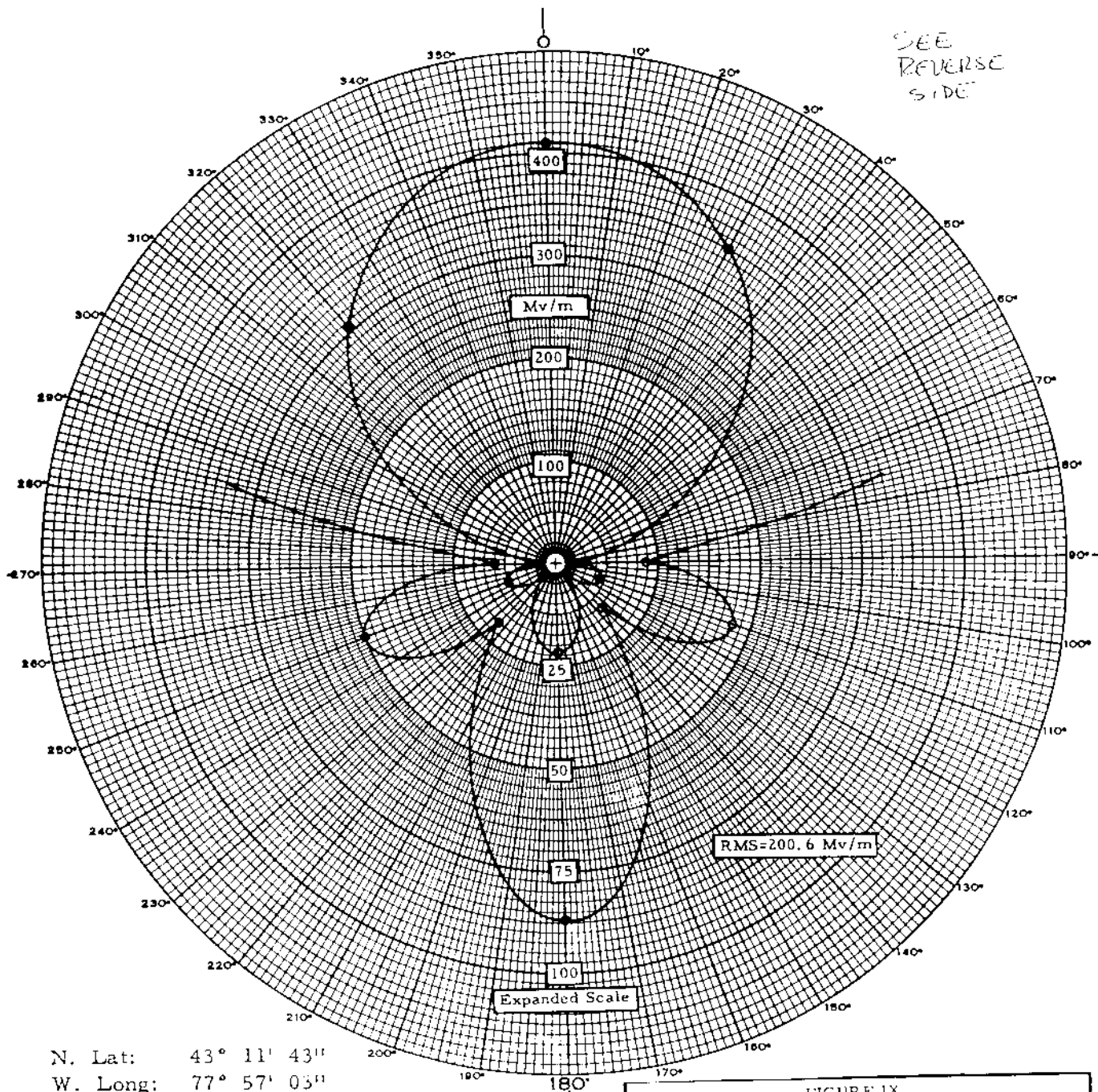
Measured Day
(5-27-70ct)

Station WADD
Brockport, New York

WADD

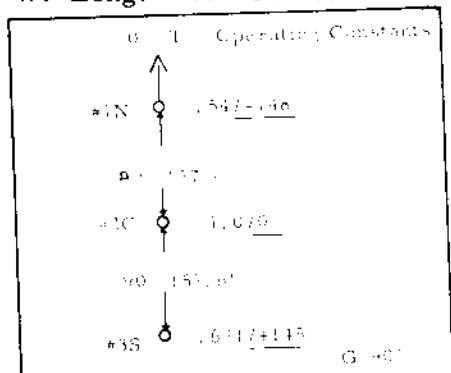
1kw, DA-D, D
1560 kc

SEE
REVERSE
SIDE



N. Lat: 43° 11' 43"

W. Long: 77° 57' 03"



FCC File No. BL-12606
Accepted 5-6-70

Station WADD
Brockport, New York

1560 kc

FIGURE IX
MEASURED DA-D HORIZONTAL PATTERN
BROCKPORT BROADCASTING, INC.
RADIO STATION WADD
BROCKPORT, NEW YORK
1560KHZ 1KW DA-D
JANUARY 1970

WILLIS C. BECKER
CONSULTING ENGINEER

Measured Non-DA
(5-27-70ct)

Station WADD
Brockport, New York

WADD
1kw, DA-D, D
1560 kc

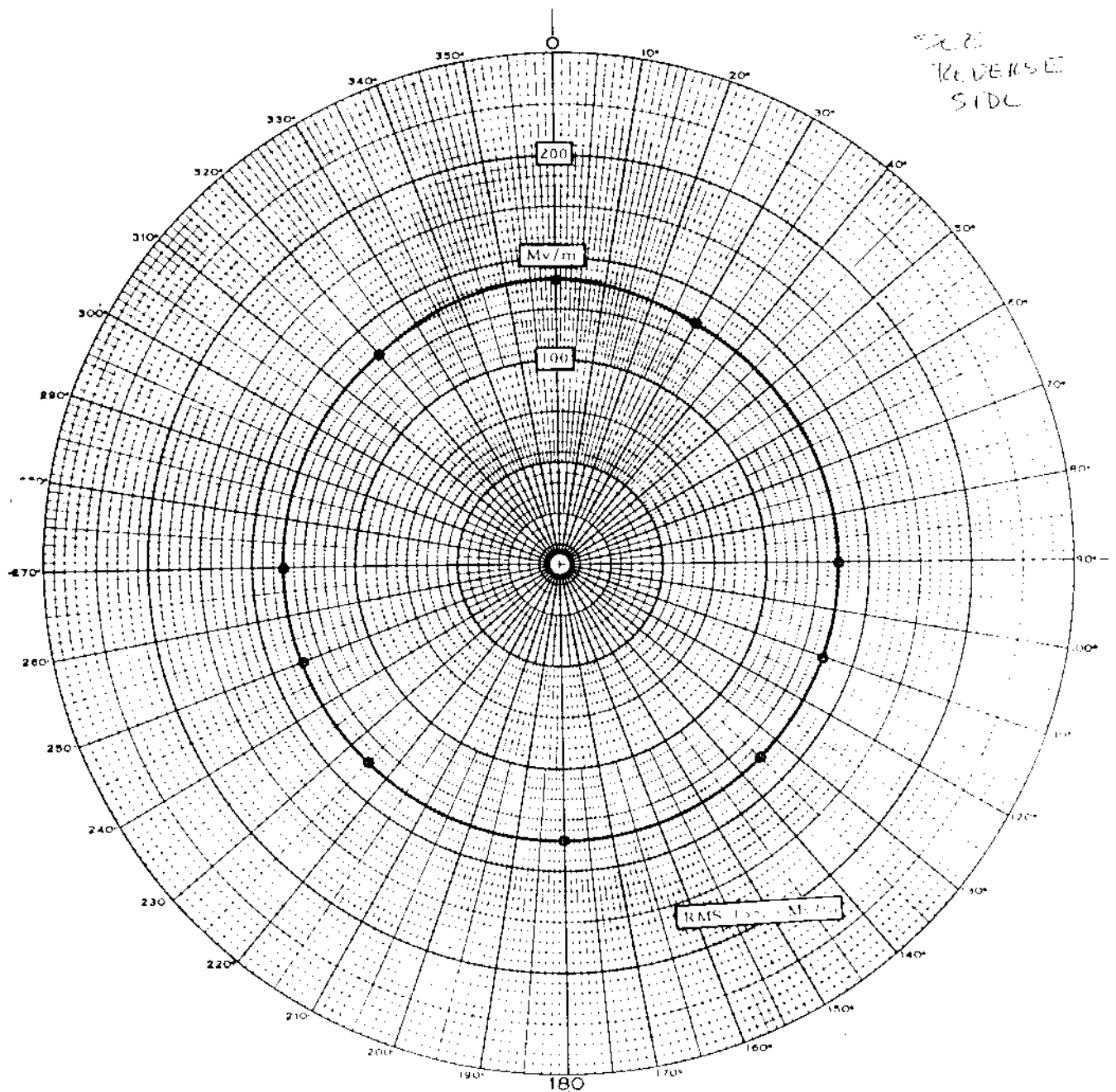


FIGURE 177
MEASURED NON-DIRECTIONAL RADIATION PATTERN
BROCKPORT FROM DATA OF
RADIO SIGNAL DATA
PROCEDURES, 1964-1965
FBI/DOJ
FBI/DOJ

WILLIS C. BECHER
CONSULTING ENGINEER
BROCKPORT, N.Y.

FCC File No. BL-12606
Accepted 5-6-70

Station WADD
Brockport, New York

1560 kc

Proposed Day
(5-28-68ct)

New; Brockport Broadcasting, Inc.
Brockport, New York

WADD

1kw, DA-D, D
1560 kc

*transmission started
on 5-28-68 at 12:00
and continued
until 12:00*

*BMP-12778
an application
was accepted
0-14-69 by
the FCC to
notify CP
to change
antenna
trans.
location
to*

*43-11-43
77-57-03*

*BMP-12798
started 1-23-69
transmission of
the 1560 kc
transmission*

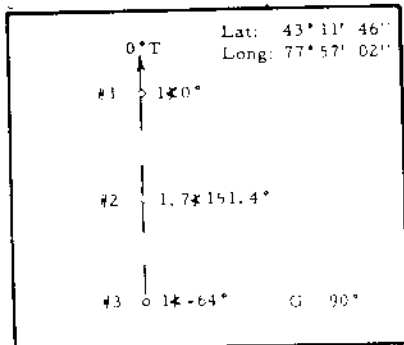
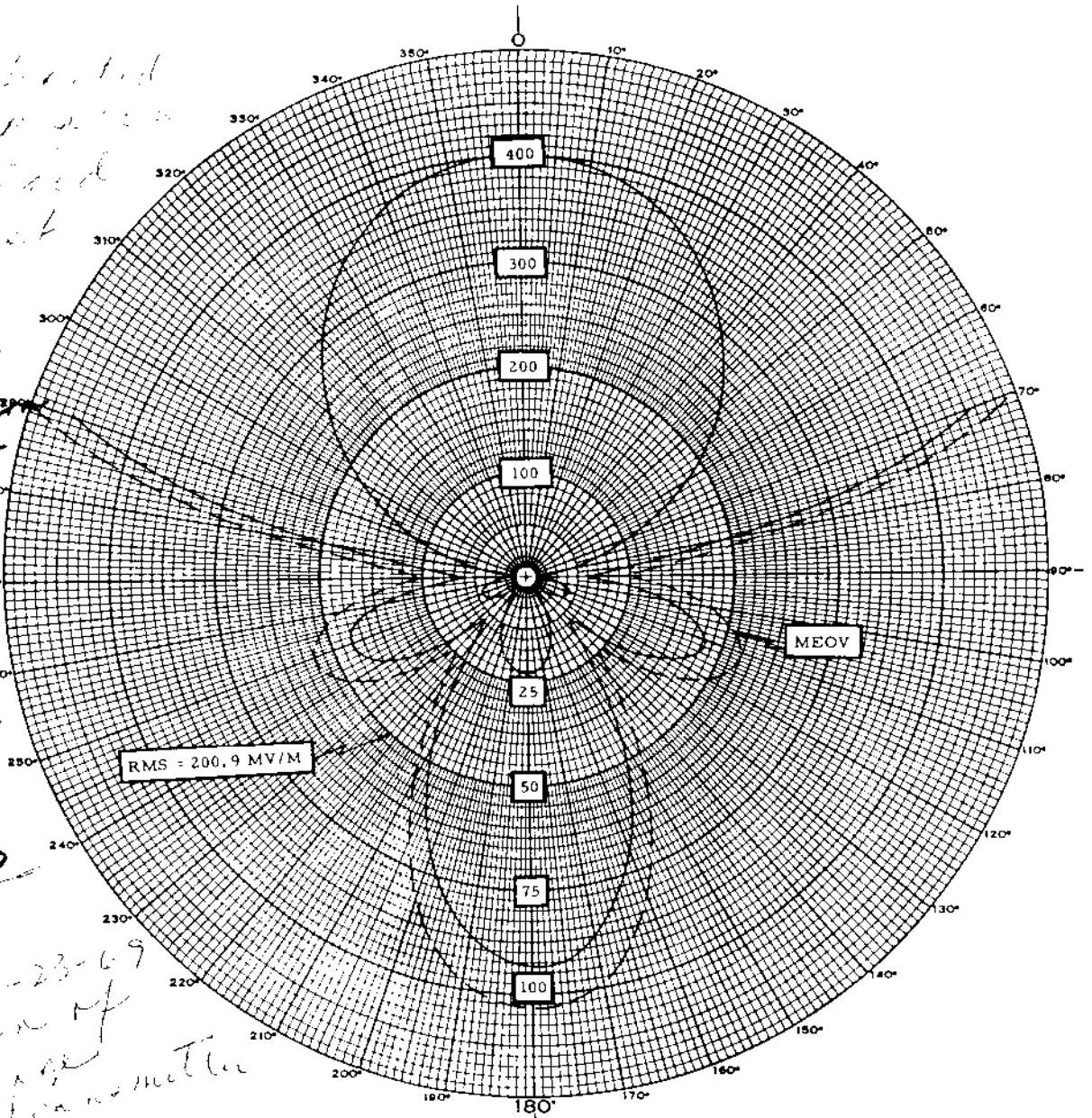


FIGURE 6
CALCULATED HORIZONTAL PLANE PATTERN
BROCKPORT BROADCASTING, INC.
BROCKPORT, NEW YORK
1560KC 1KW D, DA-D
DECEMBER 1967

WILLIS C. BEESHER
CONSULTING ENGINEER
WASHINGTON, D. C.

FCC File No. BP-18081
Accepted 5-3-68

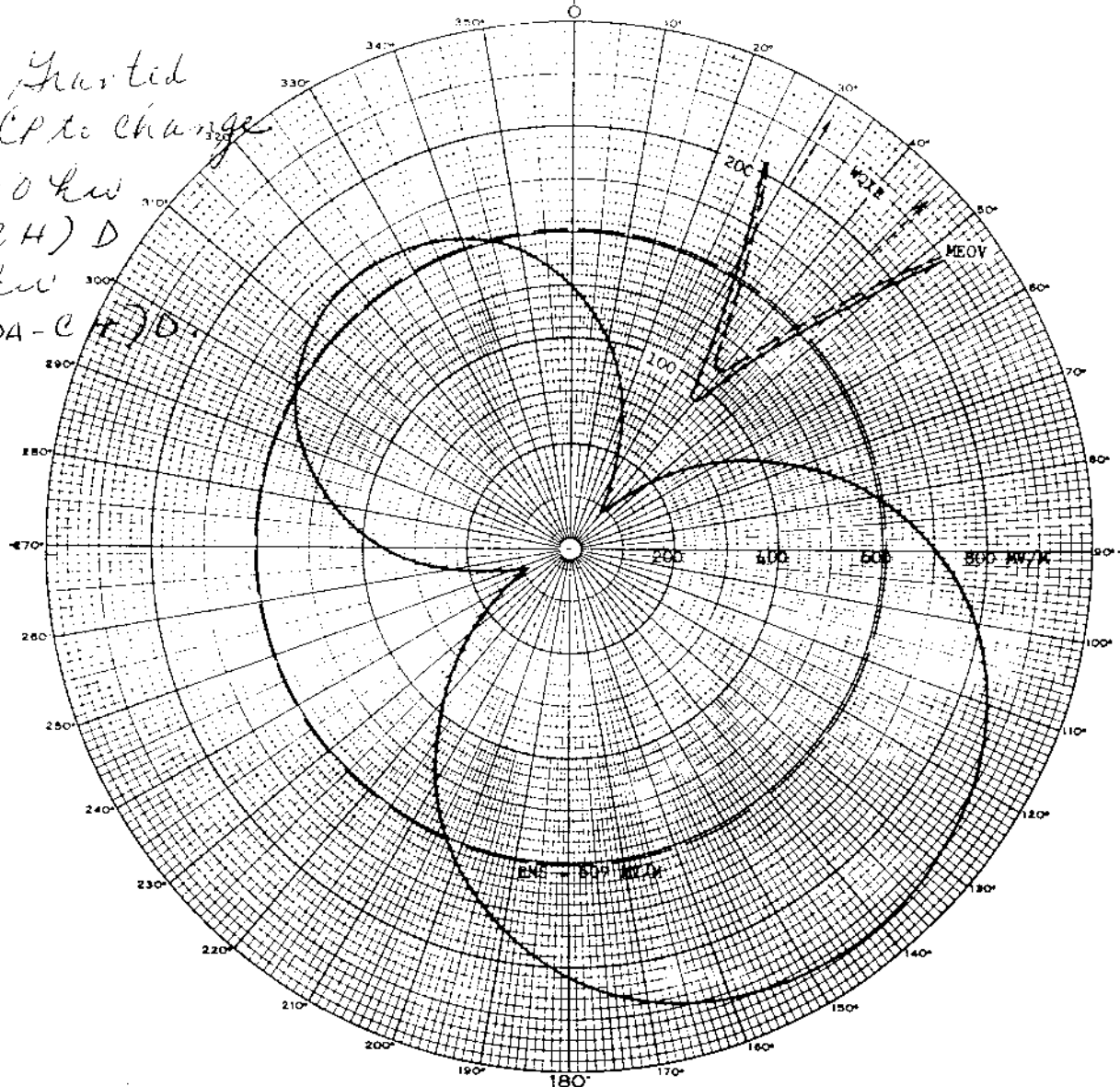
New; Brockport Broadcasting, Inc.
Brockport, New York

1560 kc

WAGL

Proposed Day
(5-28-68ct)Station WAGL
Lancaster, South Carolina10kw, DA-CH, D
1560 kc

BP-18128, Granted
6/9/69 CPE change
from 10 kw
(500w CH) D
to 10 kw
(10 kw DA-CH) D.



TOWER PLACEMENT SKETCH		PATTERN PARAMETERS								STATION DATA	
		TOWER No.	ELECTRICAL HEIGHT G'	TRUE TOWER ORIENTATION	SPACING S'	PHASING P'	HORIZONTAL FIELD RMS F _h	FIELD RATIO F	ELEV. ANGLE θ°	ELEVATION RMS FIELD F _h	CALL WAGL
		1	85.9	0	0	0	617	1	0	607	FREQUENCY 1560
		2	85.9	141.83	90	-160	524	0.85	10		POWER 10.0
		3							20		TIME OF OPERATION DA-D CH
		4							30		TYPE OF OPERATION
		5							40		DAYTIME TOWERS 2
		6							50		NIGHTTIME TOWERS
		7							60		NO. RADIALS PER TOWER 120
		8							70		LENGTH OF RADIALS 114' - 200"
		9							80		GROUND SCREEN DIMENSION
10							90		LA' 34' 42" 51.6'		
		CH	DAYTIME OPERATION ☒				NIGHTTIME OPERATION ☐		SUPERSEDES		
								PATTERN No.			

ROBERT D. LAMBERT, JR.
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 1, B.O.A. 332
COLUMBIA, S.C. 29201

Figure 7
Palmetto Broadcasting System, Inc.
Lancaster, S. C.

FCC File No. BP-18128
Accepted 5-24-68Station WAGL
Lancaster, South Carolina

1560 kc

12A6 DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WAGL

Main Studio: Lancaster, South Carolina

Frequency: 1560 kHz

Power: 50 kw

Notification List No. 1770

Date: February 15, 1978 Class: II

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 34 49 53
West Longitude: 80 52 08

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(#1)	NW(#2)	NE(W3)	SE(#4)
HEIGHT ABOVE INSULATORS	170'	170'	170'	170' (97.10)
PHASING:	0°	+61.4°	+114.0°	+14.8°
FIELD RATIO:	1.00	3.10	4.01	3.24

SPACING AND
ORIENTATION:

From reference tower #1, tower #2 is spaced 150.6' on a line bearing 350.2° true, tower #3 is spaced 390.4' on a line bearing 44.5° true, and tower #4 is spaced 341' on a line bearing 69.8° true.

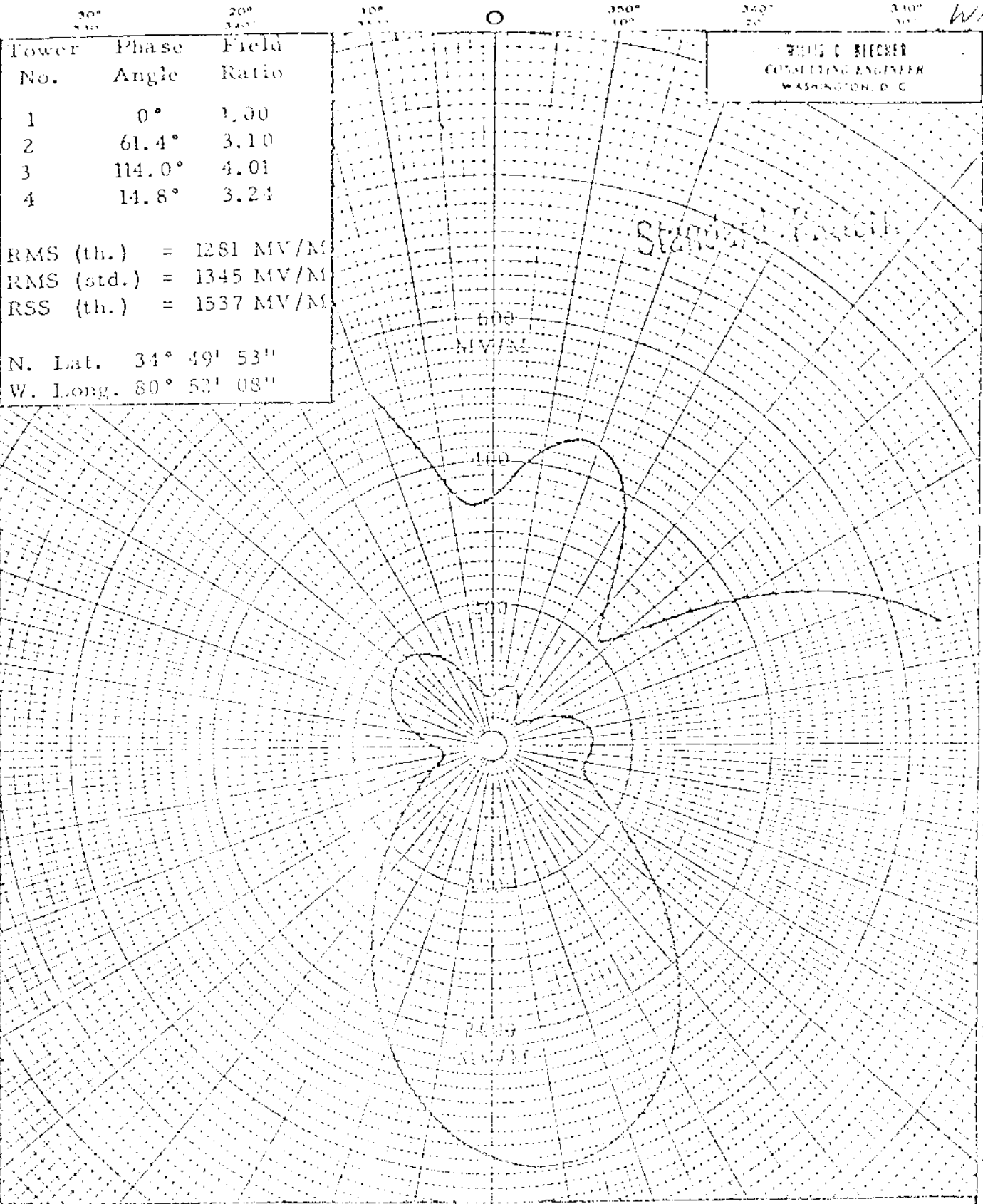
GROUND SYSTEM: 120 - 250' equally spaced copper radials plus a 24' square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersections between towers.

PREDICTED EFFECTIVE FIELDS AT DATED POWER:

THEORETICAL		STANDARD
<u>RMS</u>	<u>RSS</u>	<u>RMS</u>
1281 mv/m	1537 mv/m	1345 mv/m

Note: This notification concerns an increase in power and change to add a new directional antenna system.

WAGL



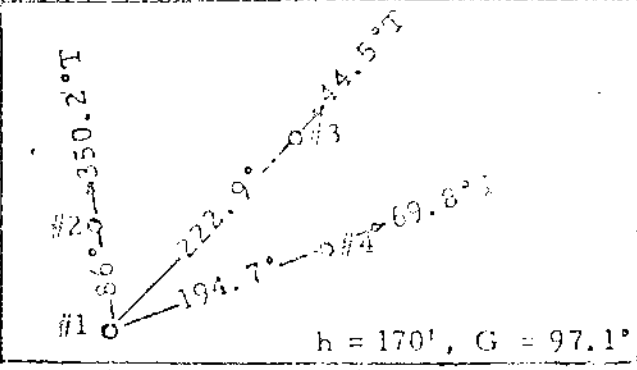
Tower No.	Phase Angle	Field Ratio
1	0°	1.00
2	61.4°	3.10
3	114.0°	4.01
4	14.8°	3.24

RMS (th.) = 1281 MV/M
RMS (std.) = 1345 MV/M
RSS (th.) = 1537 MV/M

N. Lat. 34° 49' 53"
W. Long. 80° 52' 08"

WILLIAM C. BEECHER
CONSULTING ENGINEER
WASHINGTON, D. C.

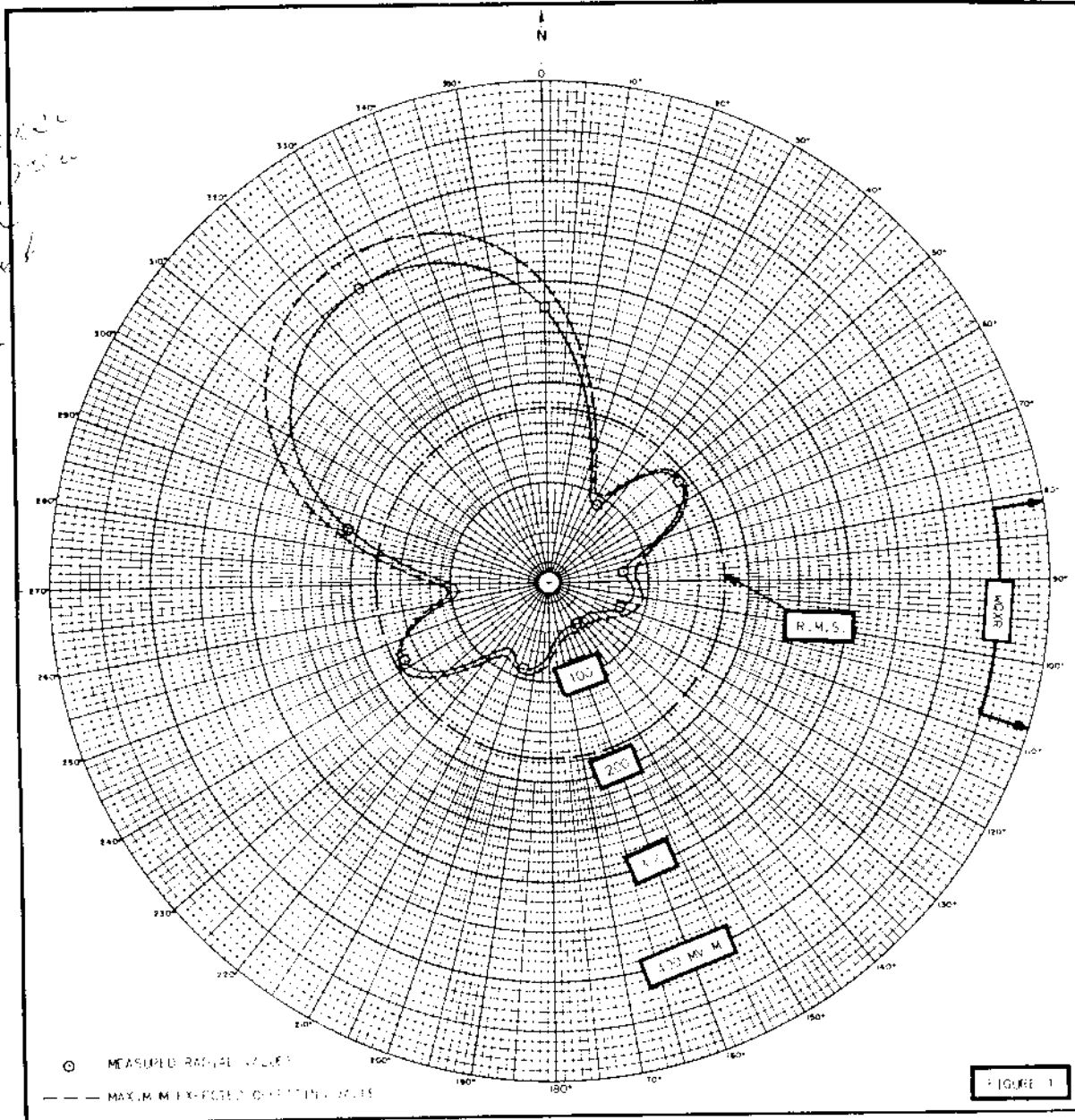
Figure 7
Daytime Standard
Horizontal Radiation Pattern
Palmetto Broadcasting System, Inc.
WAGL, Lancaster, South Carolina
1560 KHz 50 KW D, DA-D
April 1976



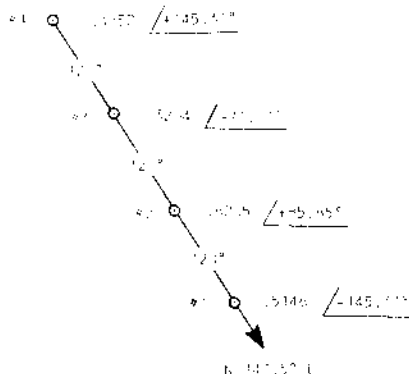
WBKC

Measured Day
(2-28-69ct)Station WBKC
Chardon, Ohio1kw, DA-D, D
1560 kc

10



HORIZONTAL RADIATION PATTERN

ORIENTATION AND PLACING
OF DIRECTIONAL ARRAY

APPLICANT	B-K BROADCASTING CO. (WBKC)		
LOCATION	CHARDON, OHIO		
FREQUENCY	1560 KC/S		
POWER	1kw		
LATITUDE	41° DEG	12 MIN	00 SEC
LONGITUDE	81° DEG	11 MIN	33 SEC
WHEN USED	DAYTIME		
RMS FIELD	175 MV/M		
DATE	JANUARY 1969		

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

FCC File No. BL-12282
Accepted 2-25-69Station WBKC
Chardon, Ohio

1560 kc

WBKC

Proposed Day
(4-28-66ct)

New; B-K Broadcasting Co.
Chardon, Ohio

1kw, DA-D, D
1560 kc

GRANTED
CP FOR NEW
AM STATION
1-10-68

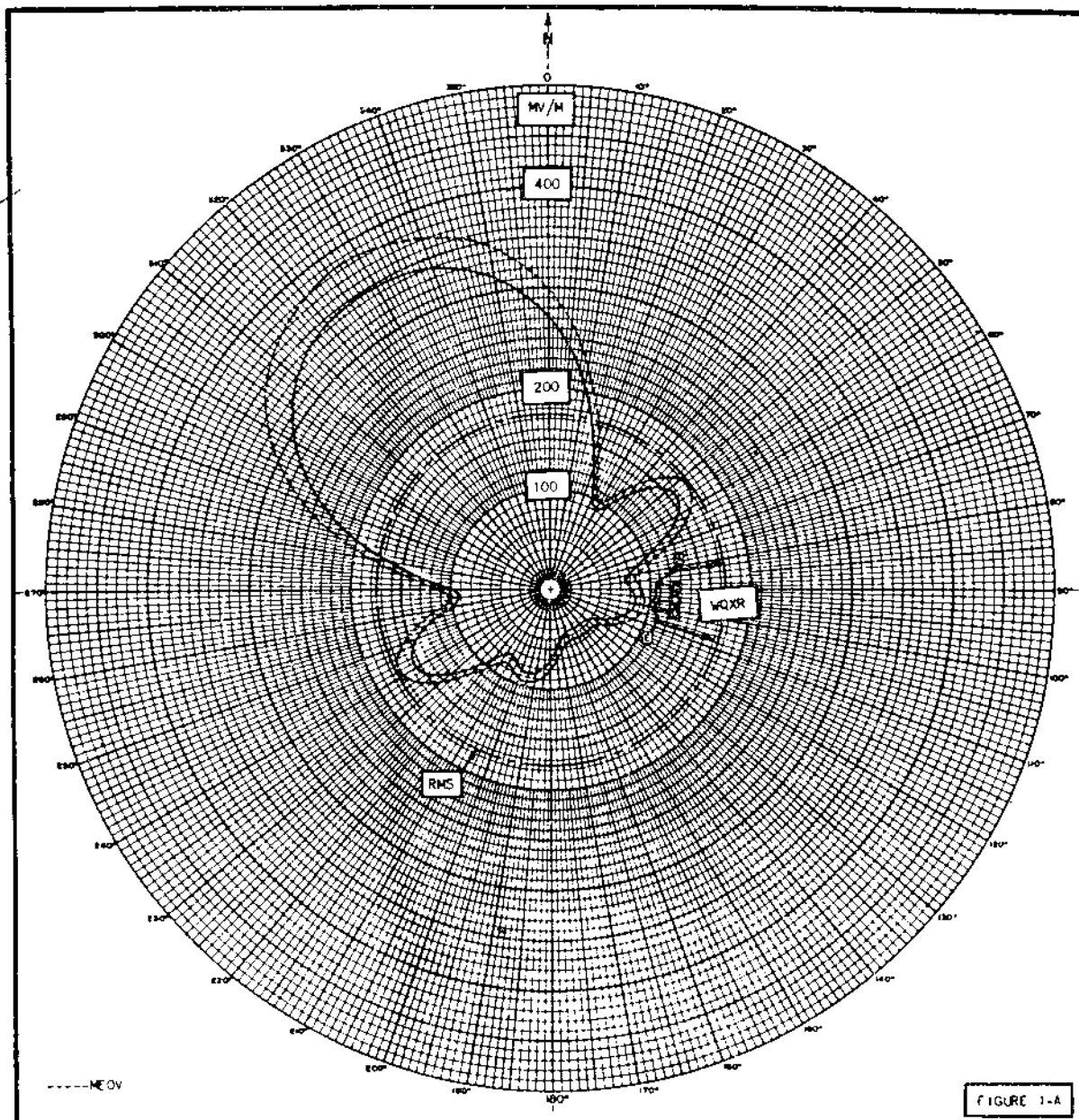
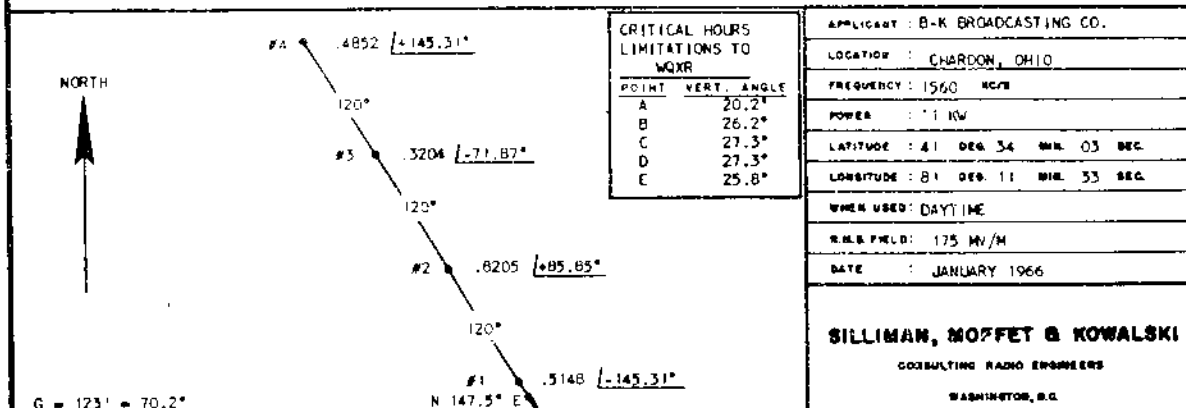


FIGURE 1-A

HORIZONTAL RADIATION PATTERN

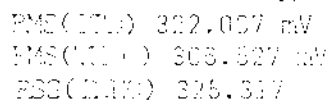


FCC File No. BP-17104
Accepted 3-31-66

New; B-K Broadcasting Co.
Chardon, Ohio

1560 kc

Standard Pattern:



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 1	STATION DATA	
$S = 1000$ $\theta = 145^\circ$	TOWER NO.	ELECTRICAL HEIGHT	SPACING	PHASING	FIELD RATIO	PROPOSED STANDARD PATTERN FOOTAGE, MILES PER HOUR	CALL LETTERS FREQ. MHz POWER kW TYPE TIME LAT. LONG.	
	1	35.6	0	0	1.00			
	2	35.6	180°	180°	0.50			
	3							
	4							
	5							
	6							
1. HARRIS ENGINEERING CO. 2. ASSOCIATES, INC. COLUMBIA, MISSOURI						0° 0°		

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: W B U K

Main Studio: Portage, Michigan

Frequency: 1560 kHz

Power: 2.5 kW Day

Notifications List No. 1784

Date: November 9, 1979 Class: II

GEOGRAPHICAL LOCATION OF THE

CENTER OF THE ANTENNA SYSTEM: North Latitude: 42° 10' 59"
West Longitude: 85° 35' 30"

ANTENNA CHARACTERISTICS

Authorized for Daytime operation. (DA-D)

Number of elements: 2

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

TOWER:	NW (#1)	SE (#2)
--------	---------	---------

HEIGHT ABOVE INSULATORS:	150' (85.5°)	150'
-----------------------------	--------------	------

DAY PHASING:	0°	110°
--------------	----	------

DAY FIELD RATIO:	1.00	0.60
---------------------	------	------

SPACING AND

ORIENTATION: The towers are spaced 175.2' (100°) on a line bearing
145° true.

GROUND

SYSTEM: 180-200' equally spaced copper radials about each tower.
Radials are shortened and bonded to transverse strap along
the intersection between towers.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	THEORETICAL		STANDARD
	<u>RMS</u>	<u>RSS</u>	<u>RMS</u>
Day	306.527 mV/m	325.317 mV/m	322.007 mV/m

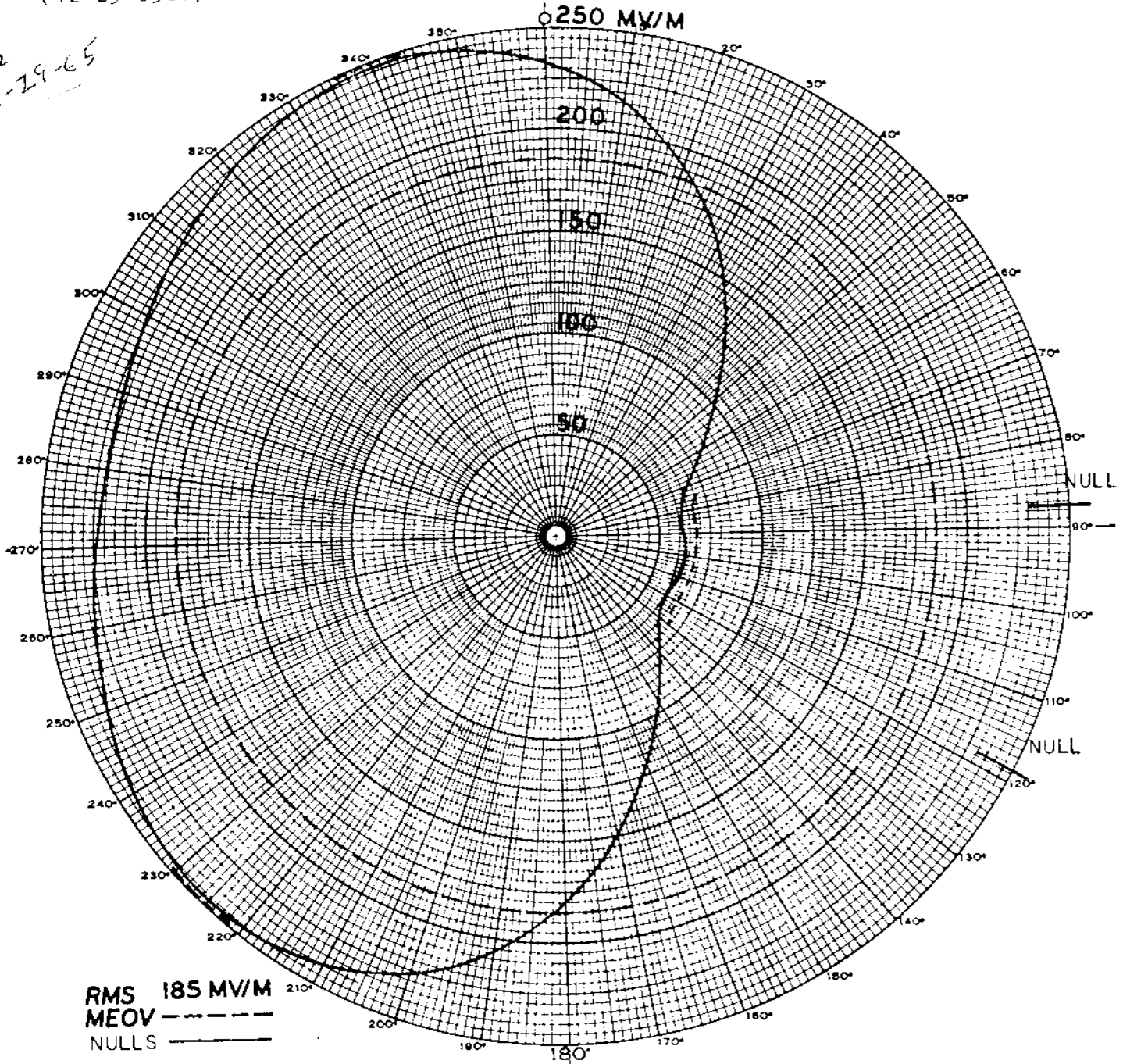
WBUK

Proposed Day
(12-29-65ct)

Station WTPS
Portage, Michigan

1kw, DA-D, D
1560 kc

1P 11662
MCP 12-29-65



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 3	STATION DATA
G's: 85.5° 282° NO. 1 1.0 / 0° 120° NO. 2 0.6 / 65°	TOWER	ELECTRICAL HEIGHT	SPACING	PHASING	FIELD RATIO	PROPOSED DAYTIME DIRECTIONAL RADIATION FOR NEW BROADCAST STATION AT PORTAGE, MICH.	CALL NEW FREQ 1560 KC/S POWER 1 KW TYPE DA-D TIME DAYTIME. LAT. 42°11'02.8" LONG. 85°35'31.2" E.H. MUNN, JR. RADIO ENGINEER COLDWATER, MICH.
	No.	h'	s'	φ'	r'		
	1						
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
10							
DAYTIME OPERATION ☒					NIGHTTIME OPERATION ☐		θ° = 0

FCC File No. BMP-11662
Accepted 12-17-65

Station WTPS
Portage, Michigan

1560 kc

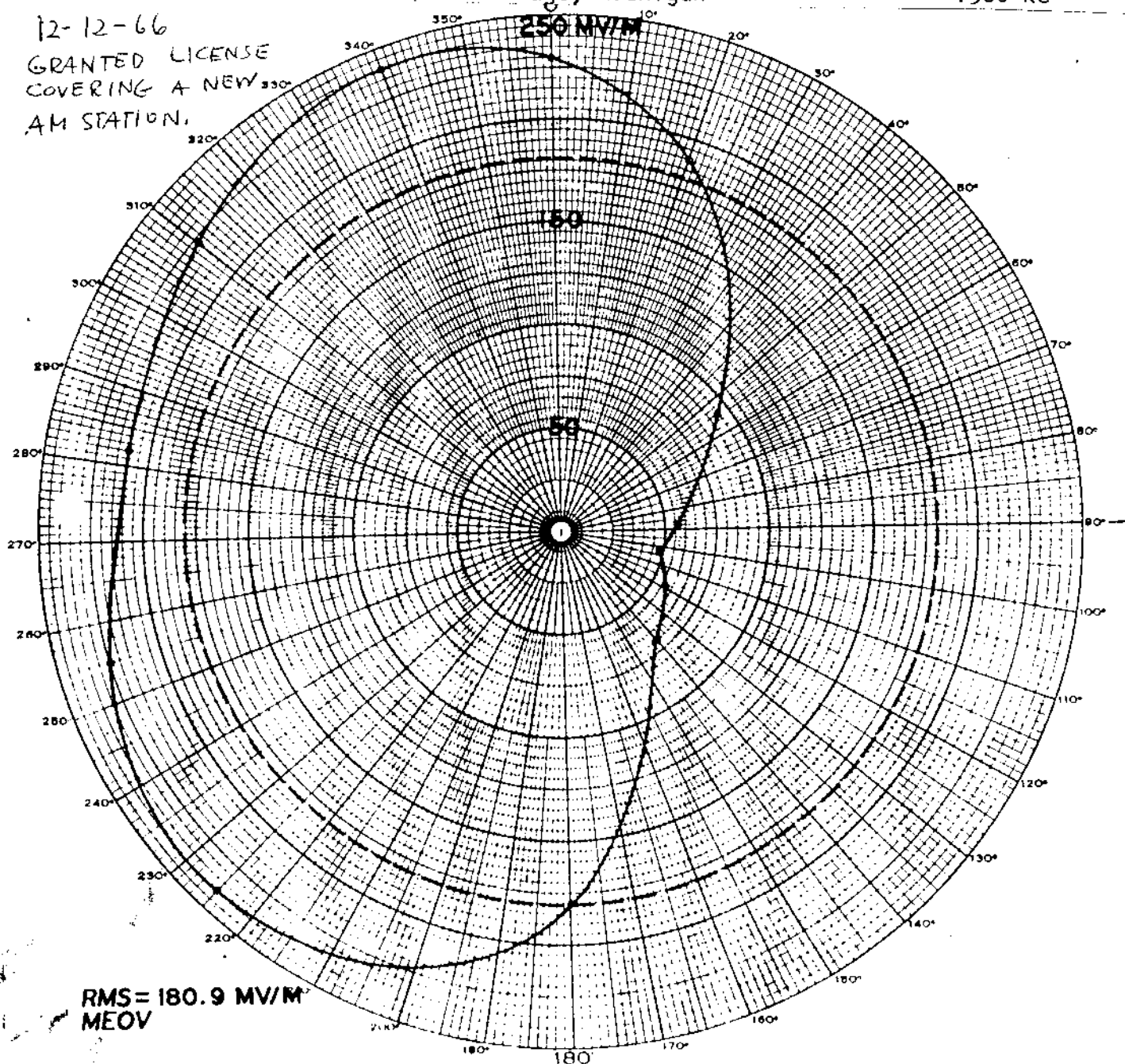
WB3UK

Measured Day
(8-26-66ct)

Station WTPS
Portage, Michigan

1kw, DA-D, D
1560 kc

12-12-66
GRANTED LICENSE
COVERING A NEW
AM STATION.



RMS = 180.9 MV/M
MEQV

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 4	STATION DATA
$G = 85.5^\circ$ 282° NO.1 NO.2 120° 0.68/-69° 1.0/0°	TOWER	ELECTRICAL	SPACING	PHASING	FIELD	WTPS MEASURED DAYTIME DIRECTIONAL PATTERN JUNE - 1966 $\theta = 0^\circ$	CALL WTPS FREQ 1560 Kc/S POWER 1 Kw TYPE DA-D TIME DAYTIME LAT. 42°11'02.8" LONG. 85°35'31.2" E.H. MUNN, JR. RADIO ENGINEER COLDWATER, MICH.
	No.	G°	S°	W°	F		
	1						
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						

FCC File No. BL-11390
Accepted 8-19-66

Station WTPS
Portage, Michigan

1560 kc

WBUK

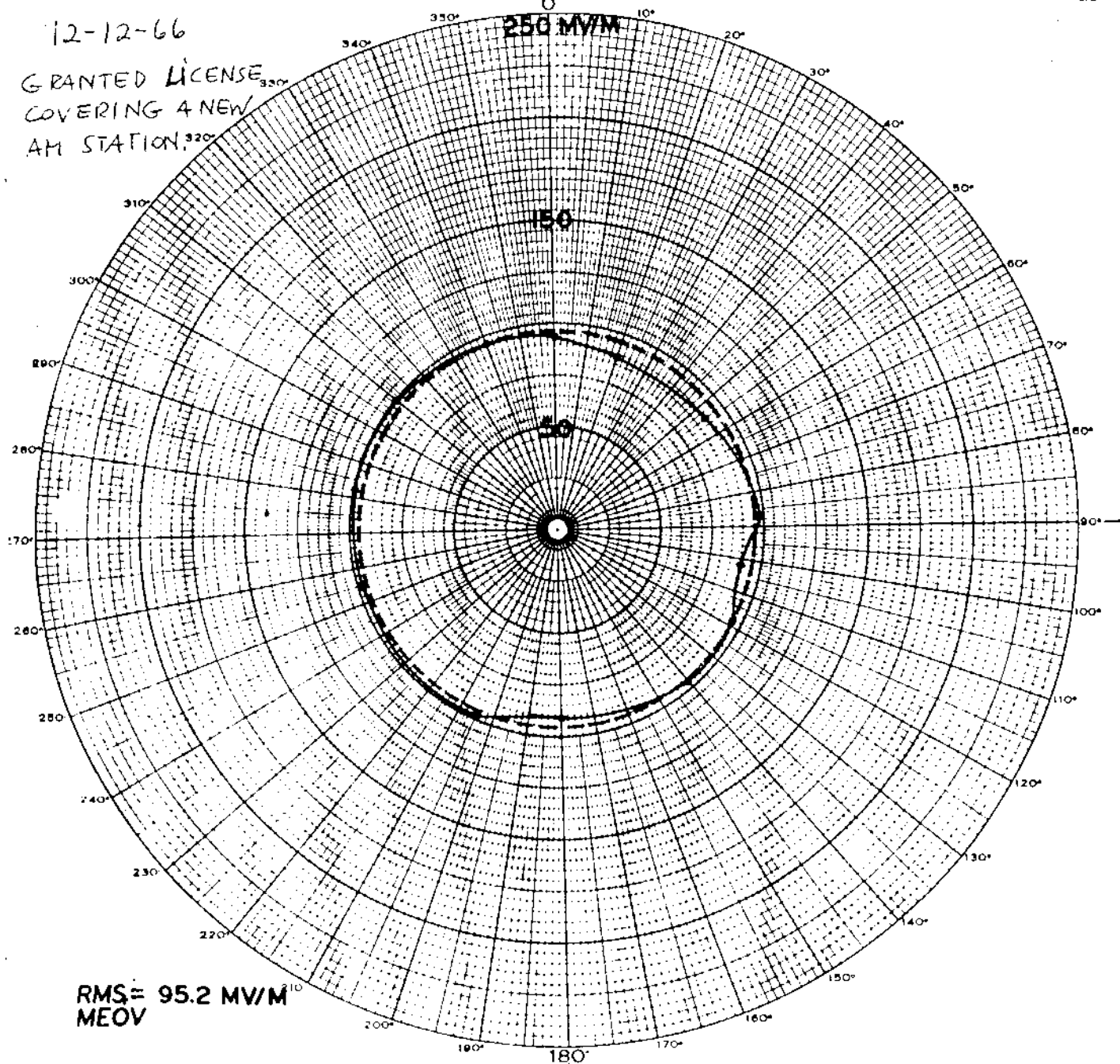
Measured Non-DA
(8-26-66ct)

Station WTPS
Portage, Michigan

1kw, DA-U, U
1560 kc

12-12-66

GRANTED LICENSE
COVERING 4 NEW
AM STATIONS



RMS = 95.2 MV/M
MEOV

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 5	STATION DATA	
282° NU 120° NDA G 85.5°	TOWER	ELECTRICAL HEIGHT	SPACING	PHASING	FIELD RATIO	WTPS MEASURED NON-DIRECTIONAL PATTERN USING EAST TOWER	CALL WTPS FREQ 1560 Kc/S POWER 0.25 Kw TYPE DA-D TIME DAYTIME LAT. 42°11'02.8" LONG. 85°35'31.2"	
	AP	H'	S'	P'	F'			
	1							JUNE - 1966
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
10								
DAYTIME OPERATION ☒					NIGHTTIME OPERATION ☐	$\theta = 0^\circ$	E.H. MUNN, JR. RADIO ENGINEER COLDWATER, MICH.	

FCC File No. BL-11390
Accepted 8-19-66

Station WTPS
Portage, Michigan

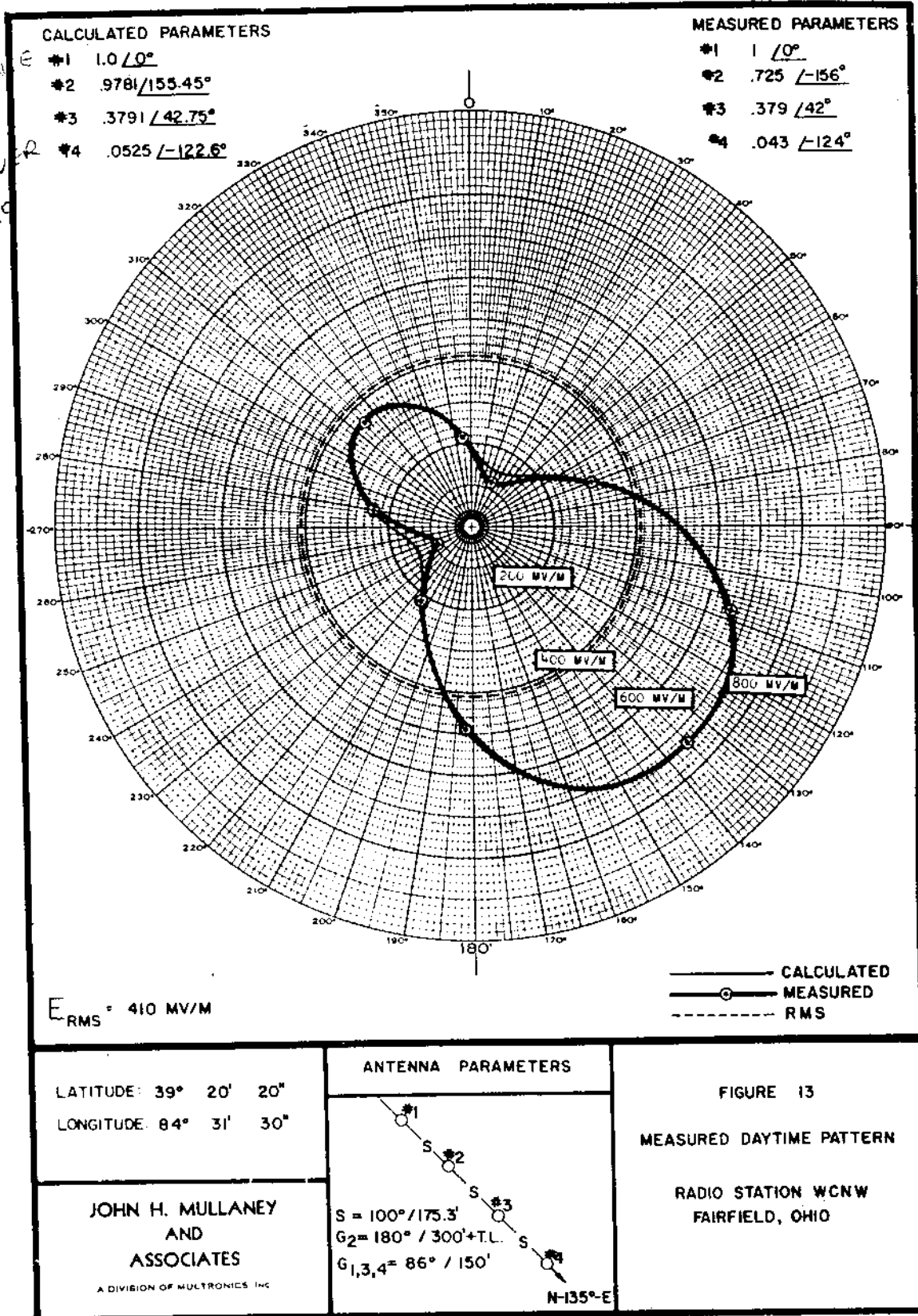
1560 kc

Measured Day
(10-28-66ct)

Station WCNW
Fairfield, Ohio

WCNW
1kw CH 5kw, DA-2, D
1560 kc

IC 10-28-66
GRANTED LICENSE
10-28-66
BY INC. IN POWER
AND CHANGE TO
DA-2



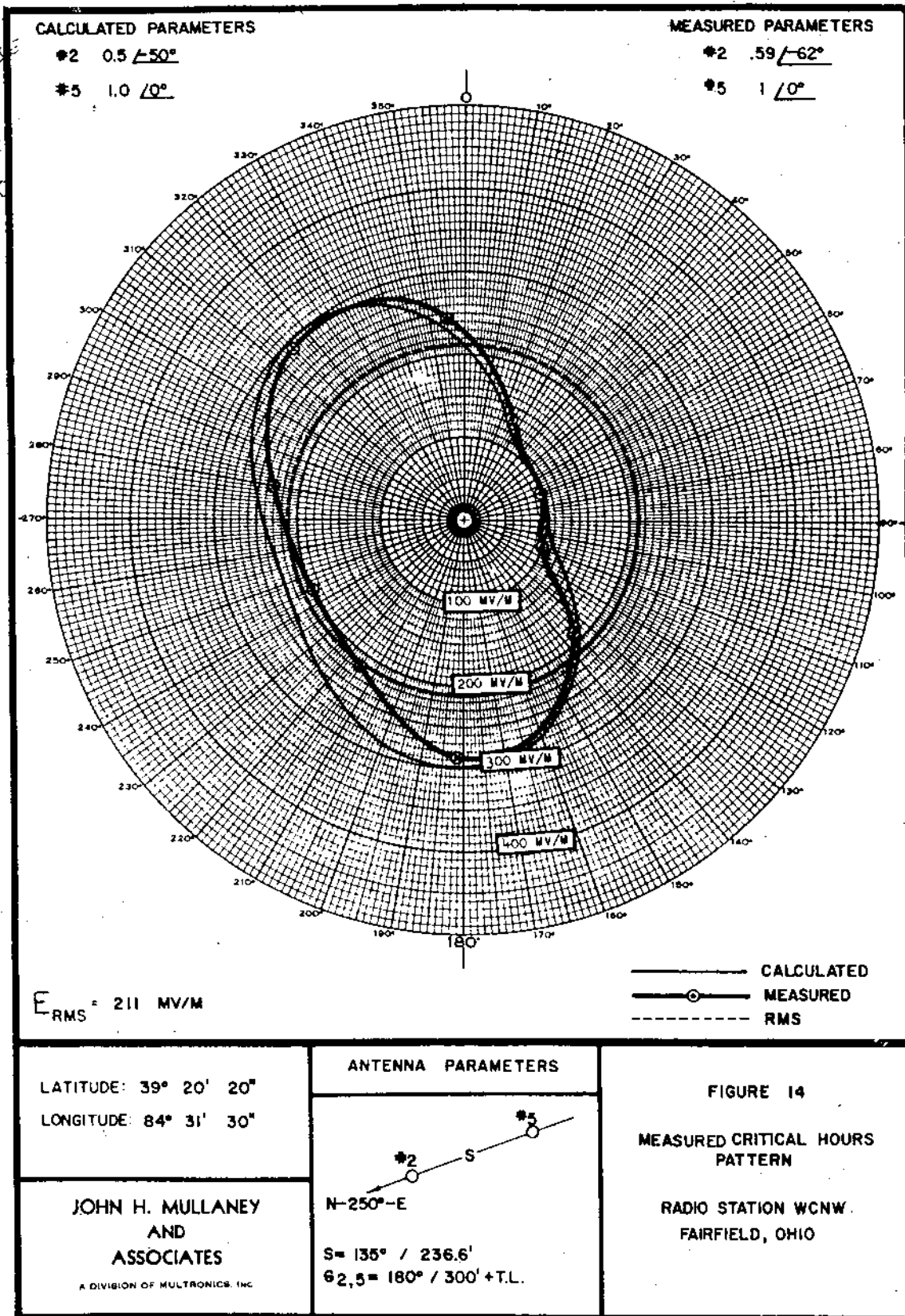
Measured Day (CH)
(10-28-66ct)

Station WCNW
Fairfield, Ohio

1kw CH 5kw, DA-2, D
1560 kc

WCNW

1010-28-66
-RANTED LICENSE
10-28-66
OVERING INCR
IN POWER AND
CHANGE TO
DA-2



FCC File No. BL-11420
Accepted 10-20-66

Station WCNW
Fairfield, Ohio

1560 kc

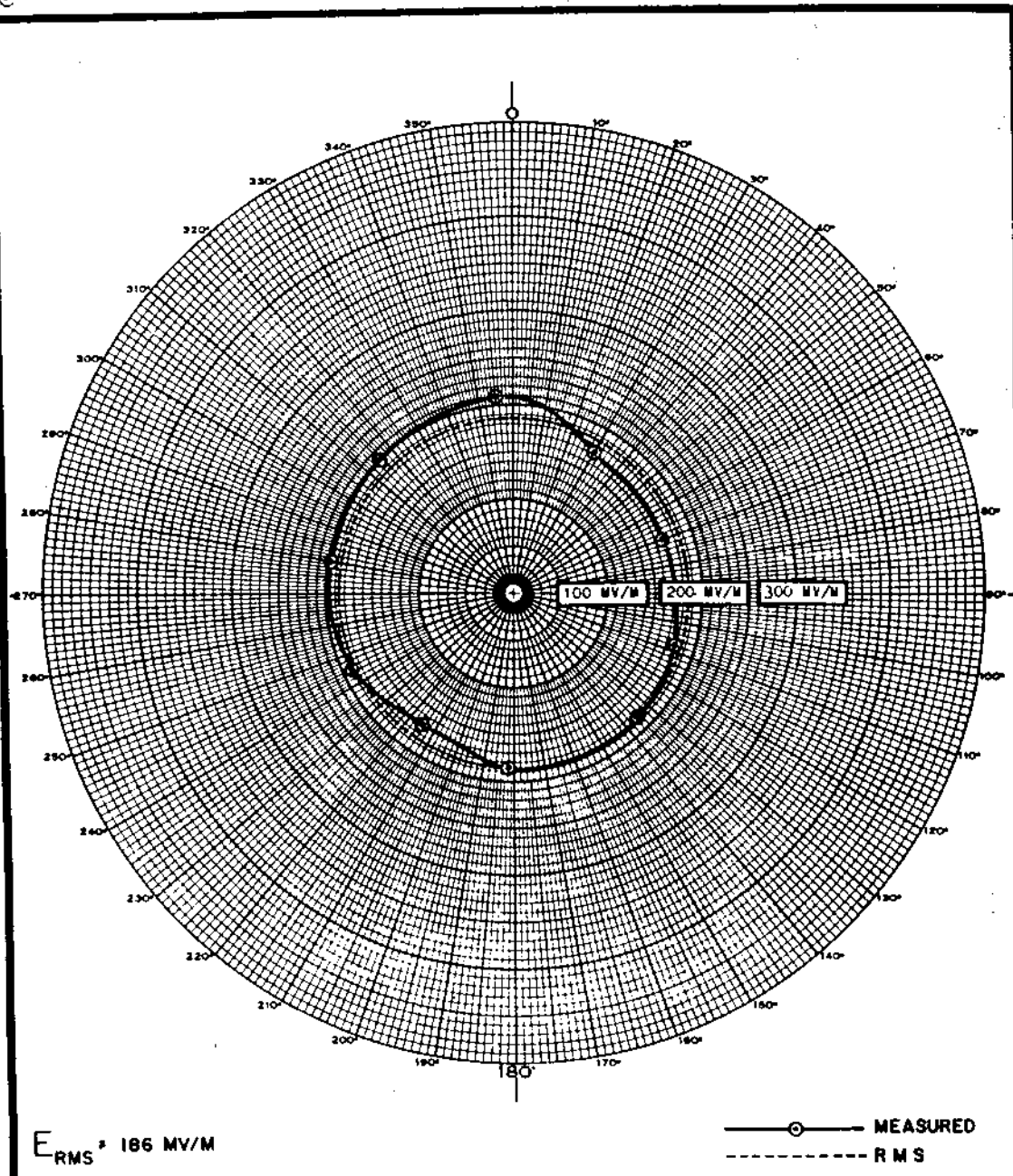
WCNW

Measured Non-DA
(10-28-66ct)

Station WCNW
Fairfield, Ohio

1kwCH, 5kw, DA-2, D
1560 kc

0-28-66
GRANTED
OVERING INCR.
N POWER AND
CHANGE TO
DA-2



LATITUDE: 39° 20' 20" LONGITUDE: 84° 31' 30"	ANTENNA PARAMETERS	FIGURE 12 MEASURED NONDIRECTIONAL PATTERN RADIO STATION WCNW FAIRFIELD, OHIO
JOHN H. MULLANEY AND ASSOCIATES A DIVISION OF MULTRONICS INC.	TOWER #2 (580 WATTS)	

FCC File No. BL-11420
Accepted 10-20-66

Station WCNW
Fairfield, Ohio

1560 kc

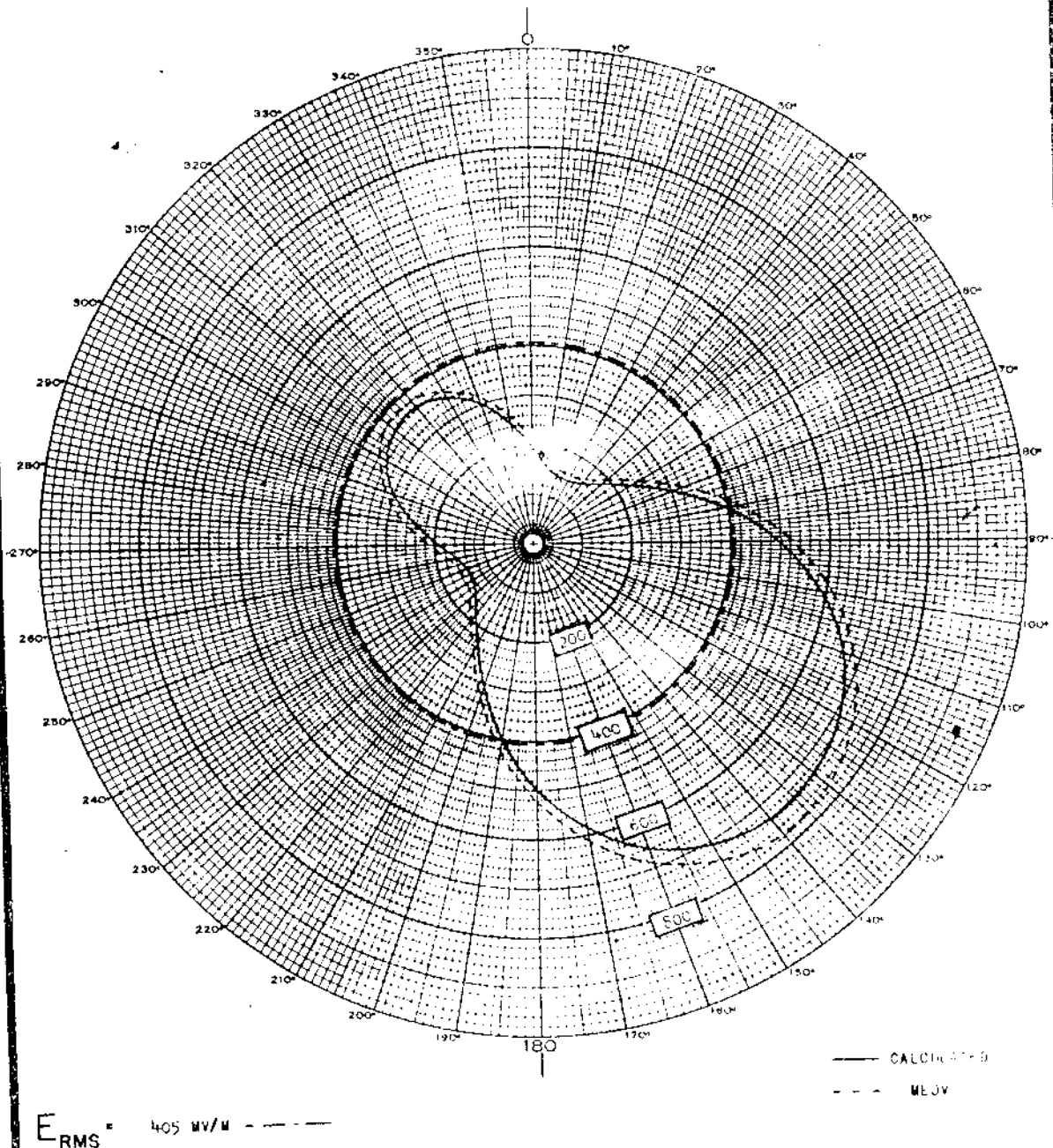
WCNW

Proposed Day
(1-28-65ct)

Station WCNW
Fairfield, Ohio

5kw, 1kw CH, DA-2, D
1560 kc

INCR PWR
10-13-65
DA-2
FAIRFIELD



$E_{RMS} = 405 \text{ MV/M}$ - - - -

LATITUDE: 39° 20' 20" LONGITUDE: 84° 31' 30"	ANTENNA PARAMETERS $g_1 = 100^\circ / 175.3'$ $g_2 = 180^\circ / 316'$ $g_{1,3,4} = 86^\circ / 160'$	FIGURE 9 PROPOSED DAYTIME PATTERN RADIO STATION WCNW FAIRFIELD, OHIO
JOHN H. MULLANEY AND ASSOCIATES A DIVISION OF MULTRONICS INC.		

FCC File No. BP-16424
Accepted 1-21-65

Station WCNW
Fairfield, Ohio

1560 kc

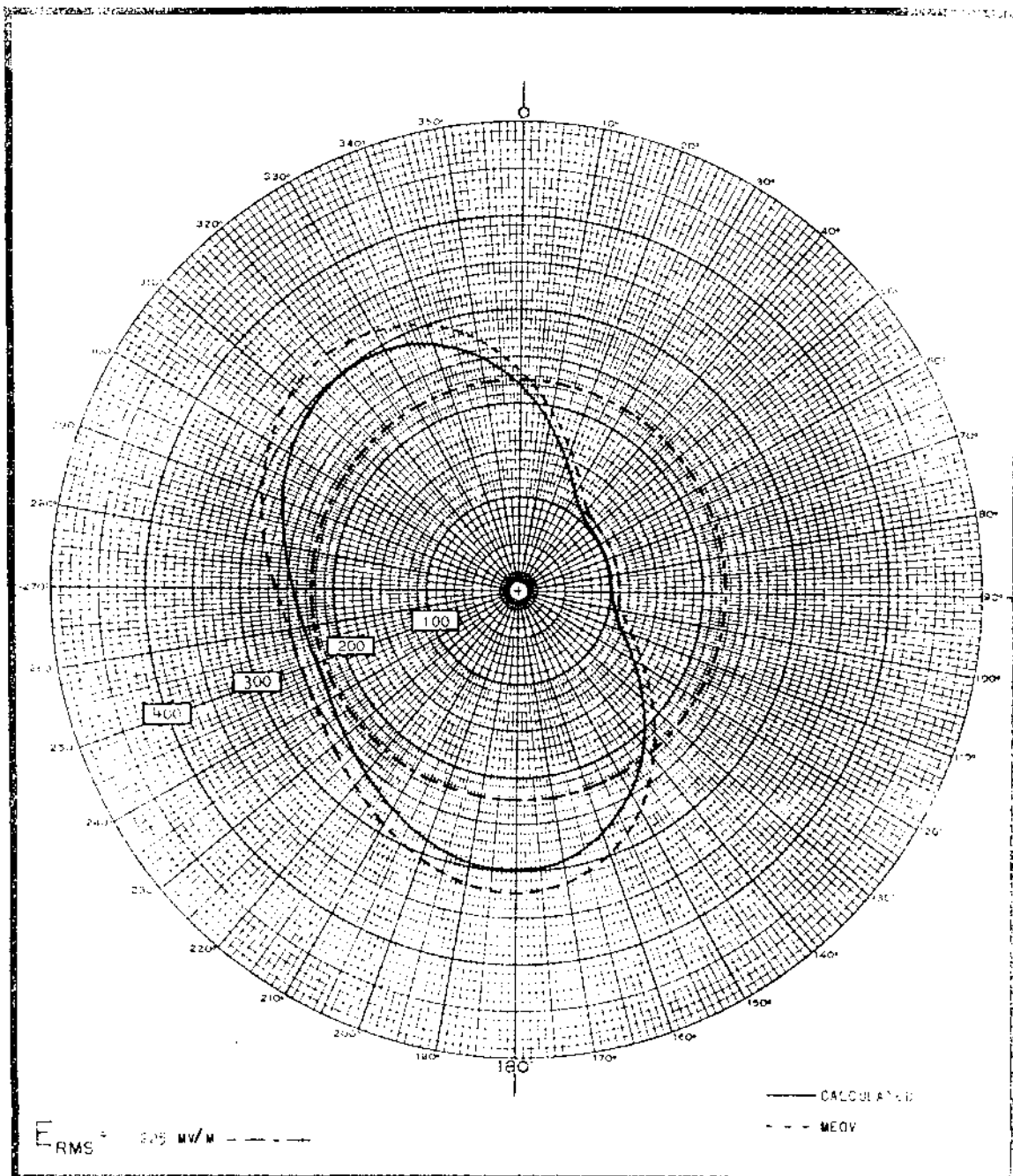
WCNW

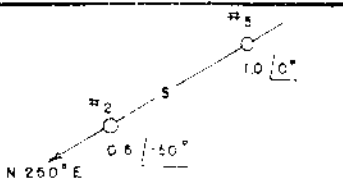
Proposed Day (CH)
(3-26-65ct)

Station WCNW
Hamilton, Ohio

5kw, 1kw-CH, DA-2, D
1560 kc

INCR PWR
10-13-65
DA-2
FAIRFIELD



LATITUDE 39° 20' 20" LONGITUDE 85° 31' 35"	ANTENNA PARAMETERS  N 250° E S = 135° / 256.6 Q _{2.5} = 180° / 300' + T.L.	FIGURE 5 (AMENDED) PROPOSED CRITICAL AREA PATTERN RADIO STATION 300, FAIRFIELD, OHIO
JOHN H. MULLANEY AND ASSOCIATES A DIVISION OF MULTIRONICS, INC.		

FCC File No. BP-16424
Accepted 3-19-65 Amended

Station WCNW
Hamilton, Ohio

1560 kc

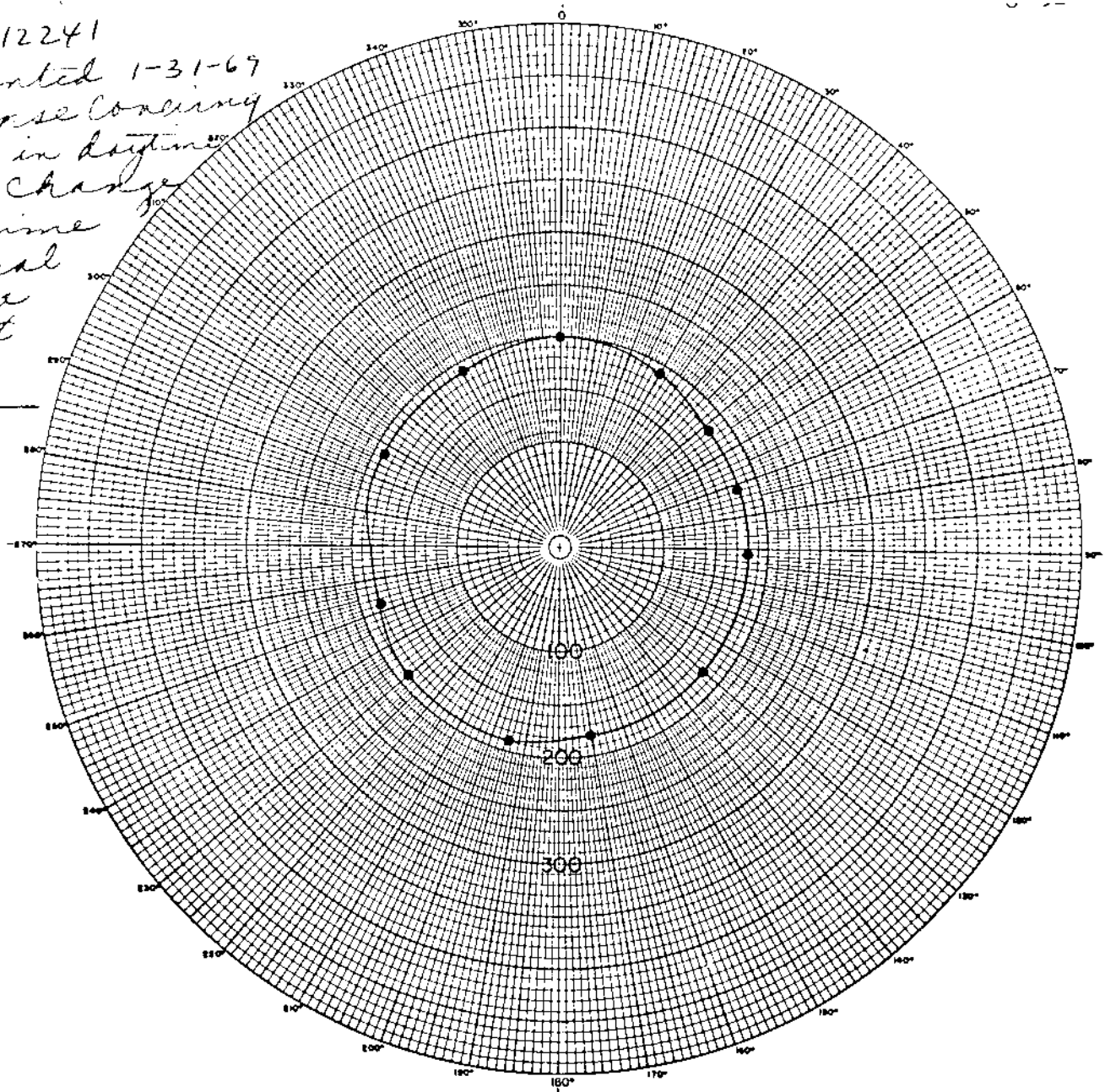
Measured Non-DA
(1-28-69ct)

Station WDXR
Paducah, Kentucky

WDXR
1kw, 10kw-LS, DA-2, U
1560 kc

BL-12241

Granted 1-31-69
license concerning
increase in daytime
power & change
in daytime
directional
antenna
pattern &
MEOV



HORIZONTAL RADIATION PATTERN

APPLICANT :	WDXR, Inc.
LOCATION :	Paducah, Kentucky
FREQUENCY :	1560 KC/S
POWER :	1 KW
LATITUDE :	37 DEG. 03 MIN. 08 SEC.
LONGITUDE :	88 DEG. 36 MIN. 03 SEC.
WHEN USED :	Non-directional Proof
R.M.S. FIELD :	187 MV/M
DATE :	2/10/68

RALPH J. BITZER
CONSULTING RADIO ENGINEER

FCC File No. BL-12241
Accepted 1-16-69

Station WDXR
Paducah, Kentucky

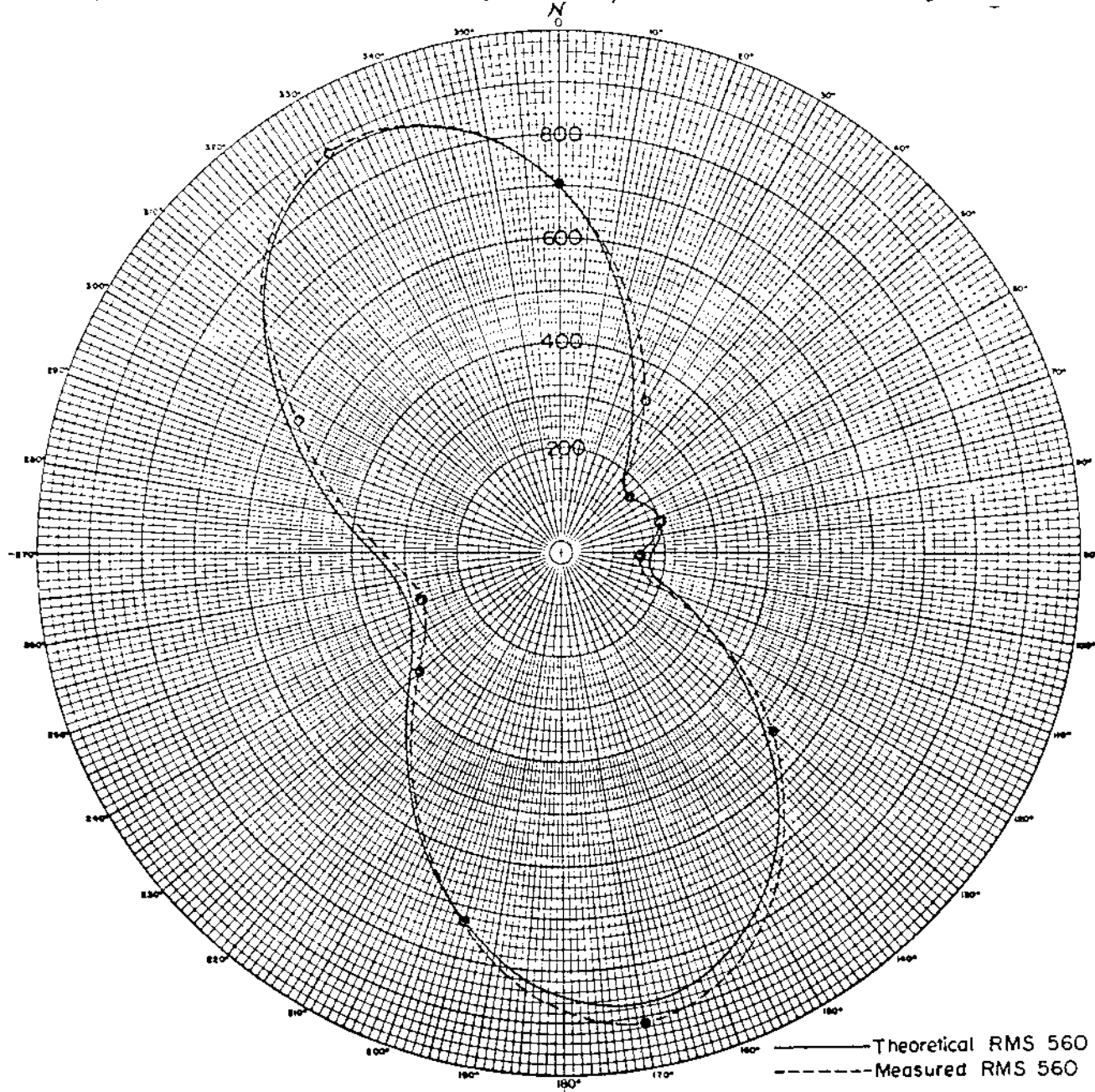
1560 kc

WDXR

Proposed & Measured Day
(6-28-68ct)

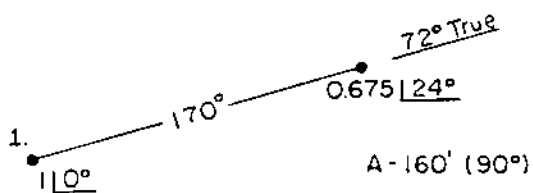
Station WDXR
Paducah, Kentucky

1kw, 10kw-LS, DA-2, U
1560 kc



HORIZONTAL RADIATION PATTERN

3. • Not Used in Daytime



APPLICANT :	WDXR, Inc.
LOCATION :	Paducah, Kentucky
FREQUENCY :	1560 KC/S
POWER :	10 KW
LATITUDE :	37 DEG 03 MIN. 08 SEC.
LONGITUDE :	88 DEG 36 MIN. 03 SEC.
WHEN USED :	Daytime
R.M.S. FIELD :	560 MV/M
DATE :	2/10/68

RALPH J. BITZER

FCC File No. BMP-12430
Accepted 6-24-68

Station WDXR
Paducah, Kentucky

1560 kc

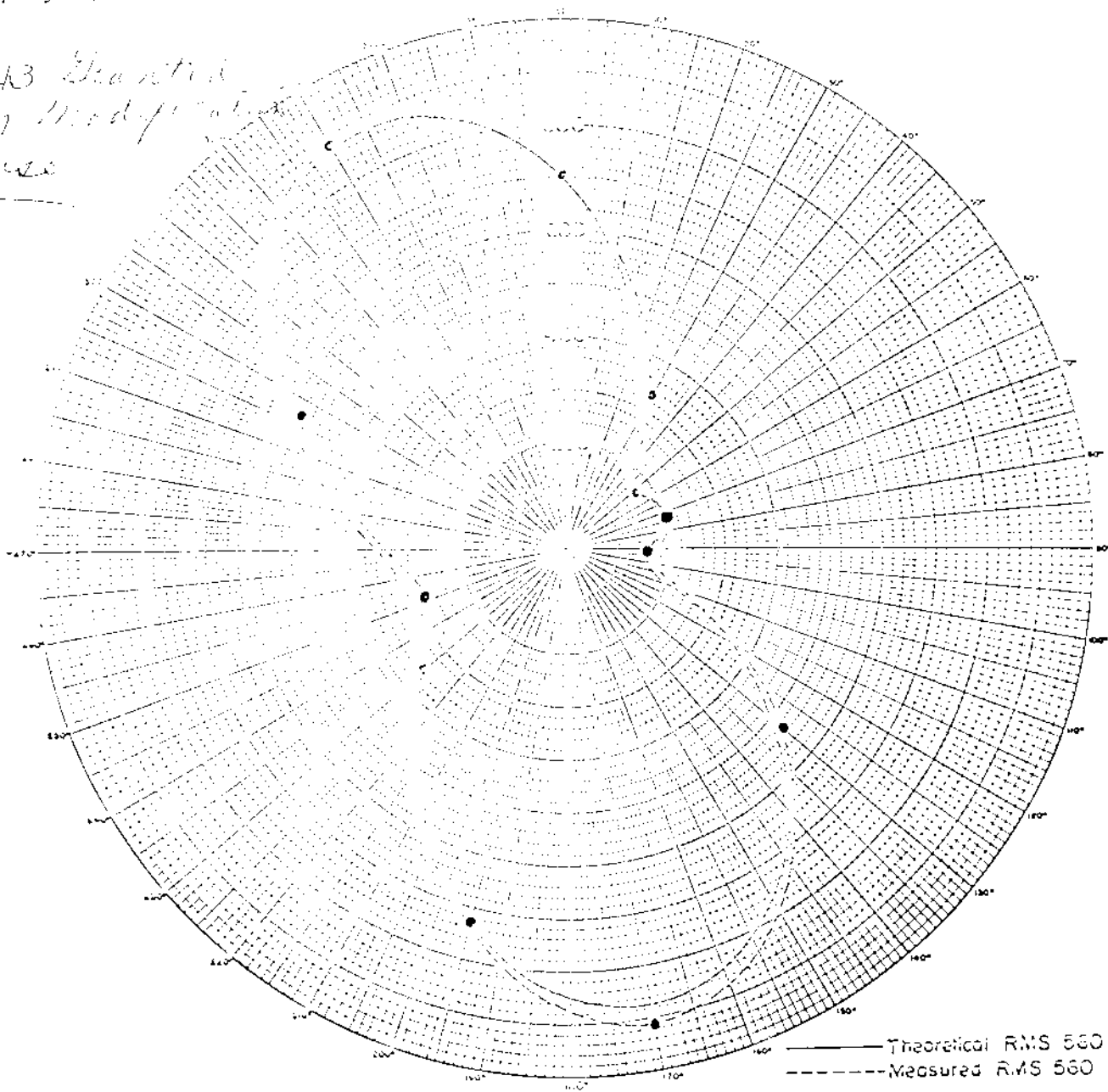
WDXR

Measured Day
(6-27-69ct)

Station WDXR
Paducah, Kentucky

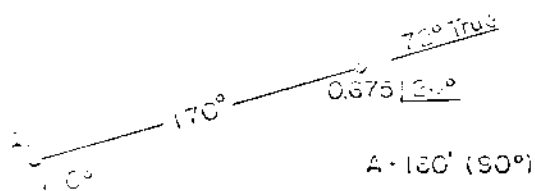
1kw, 10kw-LS, DA-2, U
1560 kc

*RC-3343 Granted
on 7-6-69 Modification
to license*



HORIZONTAL RADIATION PATTERN

3. Not Used in Daytime



APPLICANT	WDXR, Inc.
LOCATION	Paducah, Kentucky
FREQUENCY	1560 KC/S
POWER	10 KW
LATITUDE	37 DEG 05 MIN 08 SEC
LONGITUDE	88 DEG 36 MIN 08 SEC
WHEN USED	Daytime
RMS FIELD	560 MV/K
DATE	12/1/68

RALPH J. BITZER

FCC File No. BRC-3343
Accepted 5-27-69

Station WDXR
Paducah, Kentucky

1560 kc

WDXR

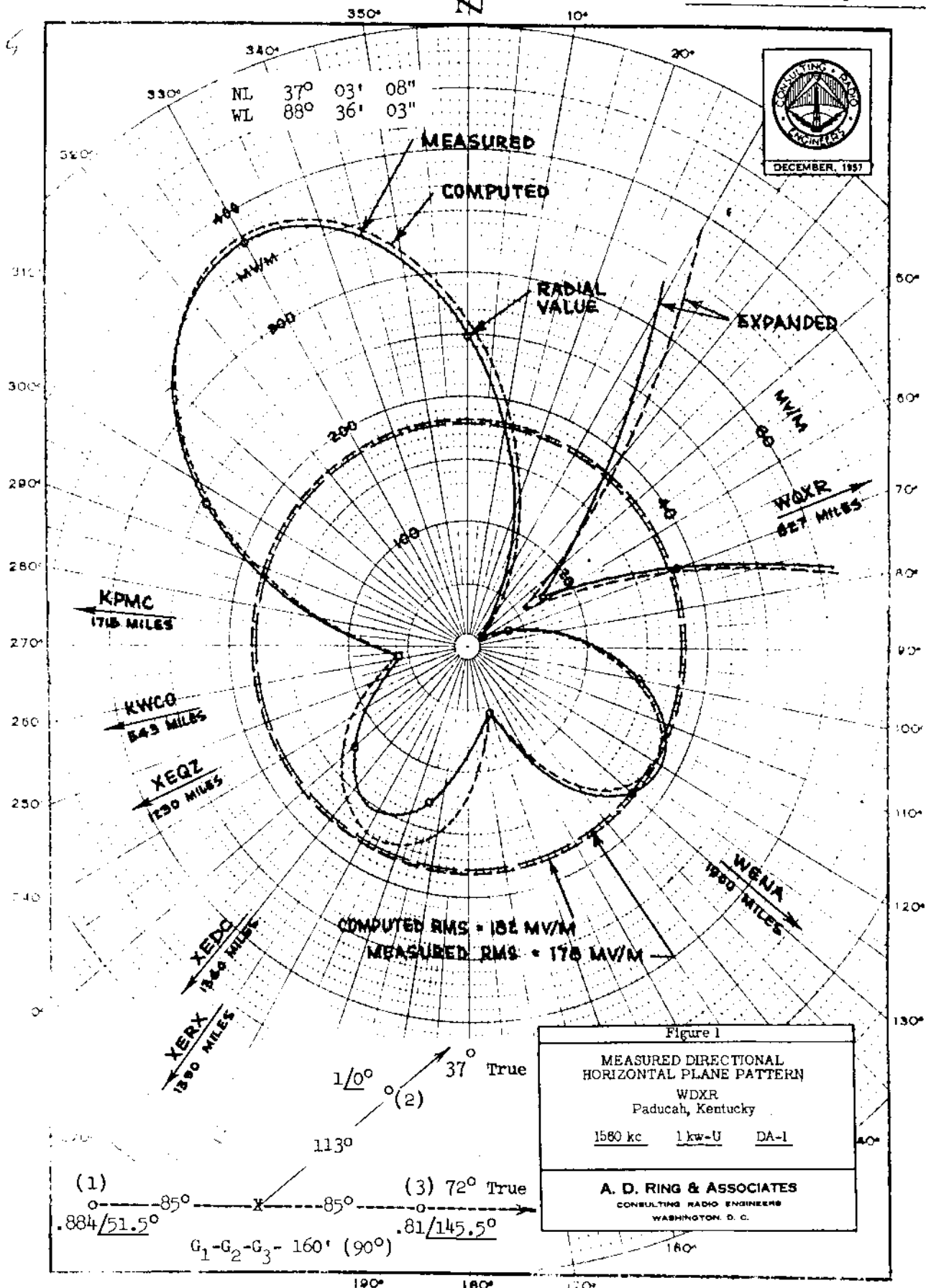
MEASURED NIGHT & DAY
(2-11-58g)

Station WDXR
Paducah, Kentucky

1kw, DA-1, U

1560 KC

BL 11043
LC 10 28 65



FCC File No. BL-6974
Accepted 1-30-58

WDXR
Paducah, Kentucky

1560 KC

WDXR

PROPOSED NIGHT AND DAY
(10/18/54 G)

STATION NEW
PADUCAH, KENTUCKY
E. Weeks McKinney-Smith

1 KW
DA-1, U

1560 KC

Granted CP 2/13/57
for new station
LIC 10-28-65

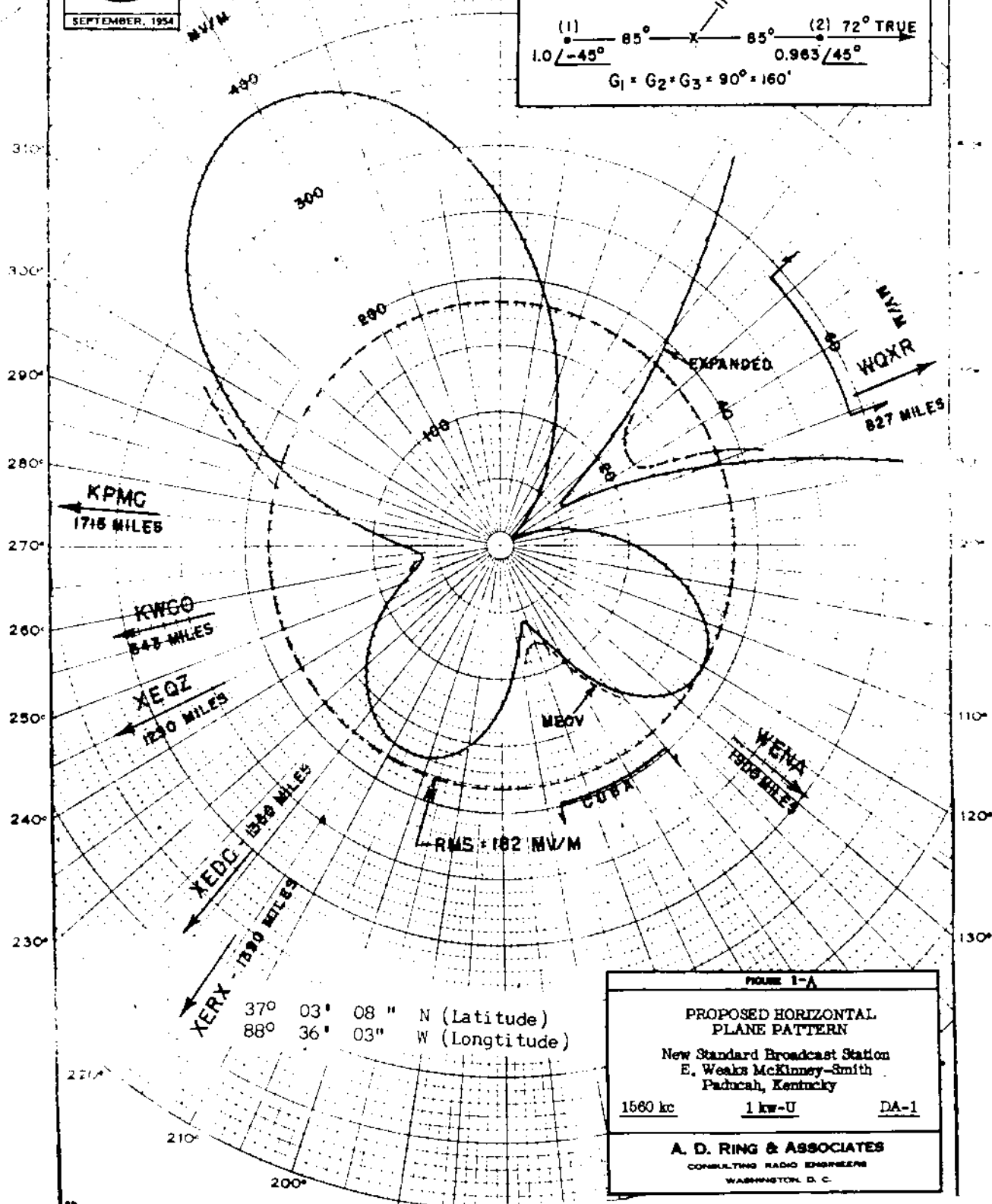
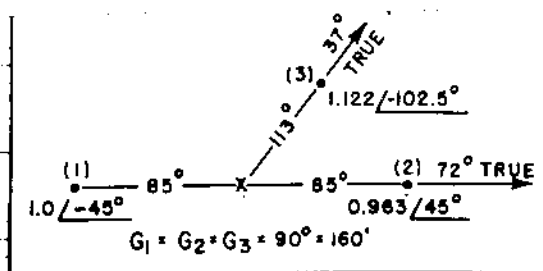


FIGURE 1-A

PROPOSED HORIZONTAL
PLANE PATTERN

New Standard Broadcast Station
E. Weeks McKinney-Smith
Paducah, Kentucky

1560 kc 1 kw-U DA-1

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

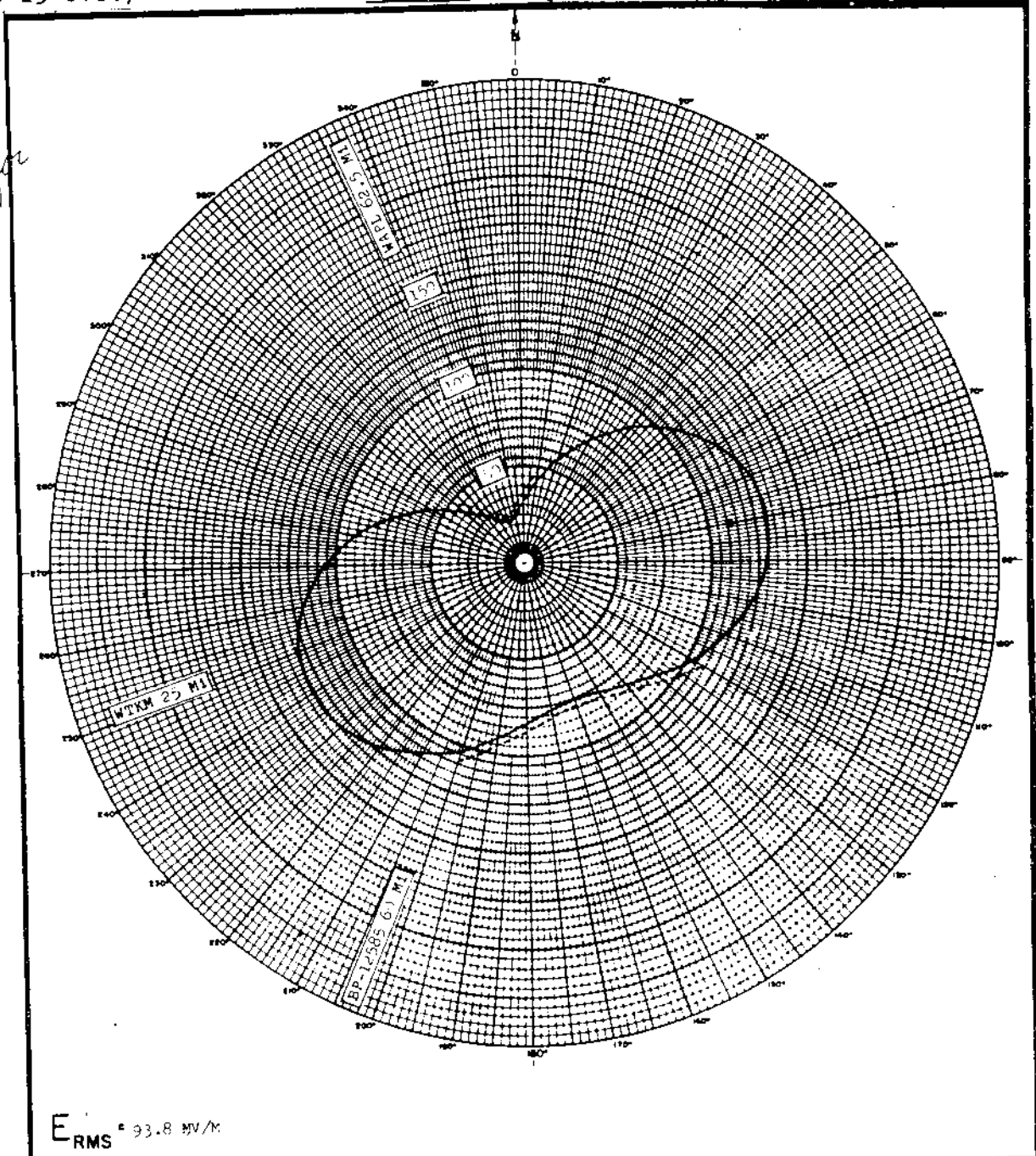
WGLB

PROPOSED DAY
(10-25-61ct)

New; Great Lakes B/C Corp.
Port Washington, Wisconsin

250w, DA-D, D
1560 kc

6-12-63
granted CP for
new station



$E_{RMS} = 93.8 \text{ MV/M}$

LATITUDE: $43^{\circ} 23' 11''$
LONGITUDE: $87^{\circ} 55' 10''$

CHARLES E. BRENNAN
CONSULTING RADIO ENGINEERS
MILWAUKEE, WISCONSIN

ANTENNA PARAMETERS

$G'_{13} = 110^{\circ}$

#2 $\odot 1.0 / 425^{\circ}$

$\beta = 135^{\circ}$

#1 $\odot 1.0 / 90^{\circ}$

$\downarrow$
N160°E

610502

FIGURE 6

PROPOSED HORIZONTAL RADIATION
GREAT LAKES BROADCASTING CORP.
PORT WASHINGTON, WISCONSIN

1560 KC

250 DA-D

FCC File No. BP-15074
Accepted 9-20-61

New; Great Lakes B/C Corp.
Port Washington, Wisconsin

1560 kc

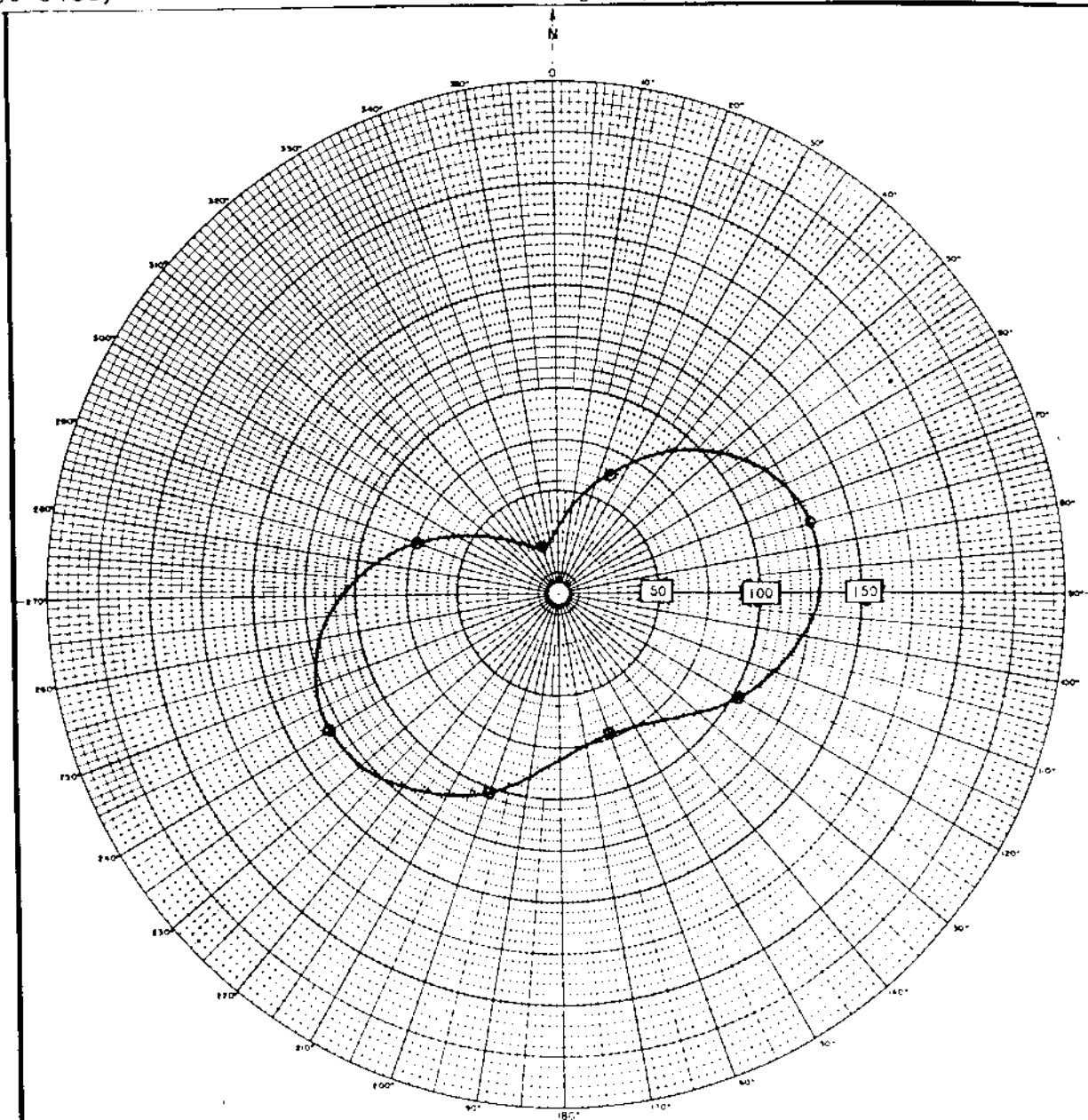
WGLB

Measured Day
(3-30-64ct)

Station WGLB
Port Washington, Wisconsin

250w, DA-D, D
1560kc

BL-10427
12-7-64 LIE



$E_{RMS} = 93.5 \text{ w/m}^2$

LATITUDE: $42^{\circ} 29' 11''$

LONGITUDE: $87^{\circ} 52' 15''$

CHARLES E. BRENNAN
CONSULTING RADIO ENGINEERS
MILWAUKEE, WISCONSIN

ANTENNA PARAMETERS

$\theta_{1/2} = 11^{\circ}$

$\theta = 1.0/45^{\circ}$

$\theta = 1.35^{\circ}$

$\theta = 1.0/0^{\circ}$

$\theta = 1.0/0^{\circ}$

FIGURE 3

FIGURE 3

MEASURED DIRECTIONAL RADIATION
RADIO STATION WGLB
PORT WASHINGTON, WISCONSIN

1560 KC

1560 KC

FCC File No. BL-10427
Accepted 3-11-64

Station WGLB
Port Washington, Wisconsin

1560kc

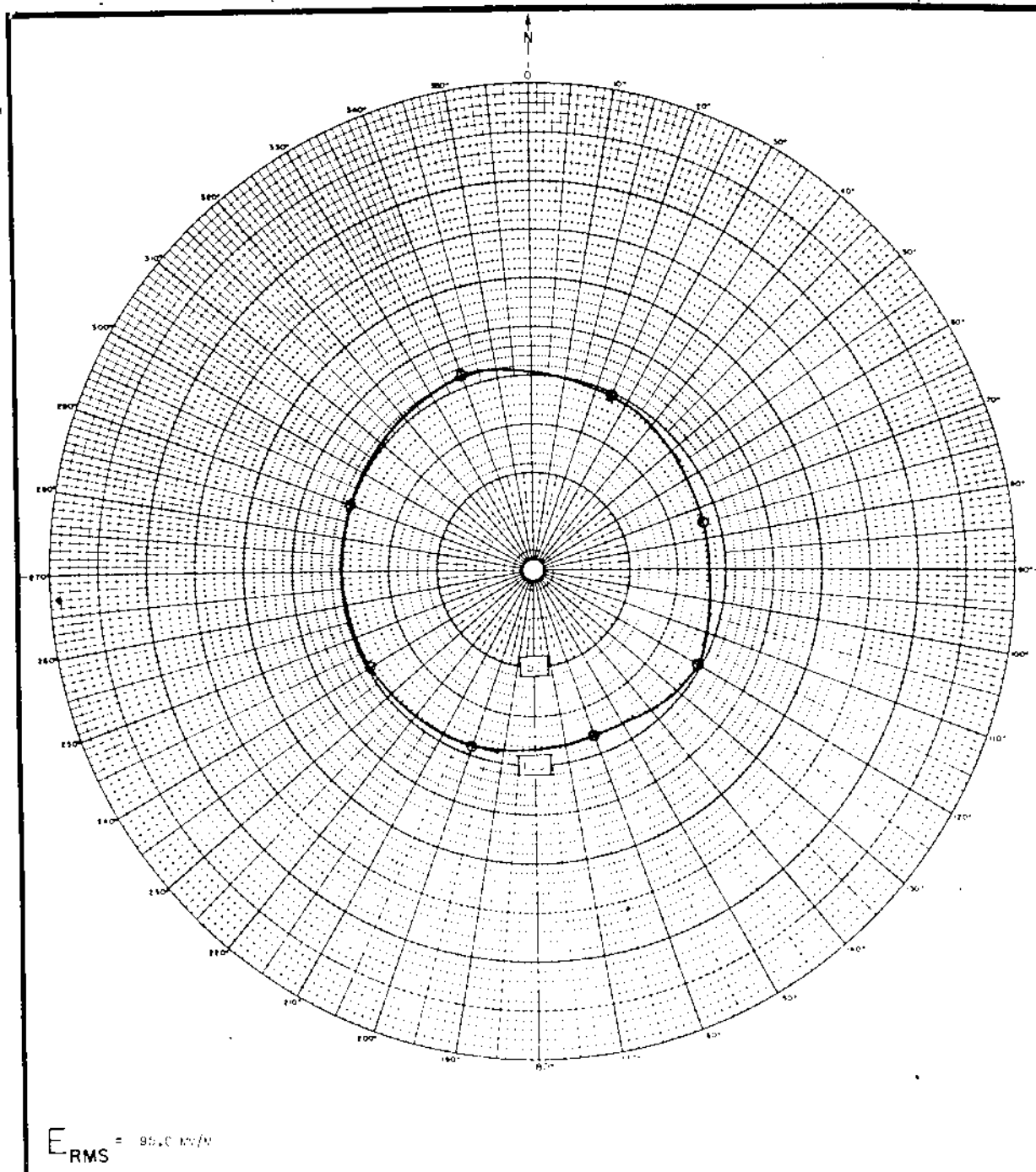
WGLB

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

Station WGLB
Port Washington, Wisconsin

250w, DA-D, D
1560kc

BL-10427
12-7-64 LIO



LATITUDE: LONGITUDE:	ANTENNA PARAMETERS h = 110' O : • TOWER 1 USED FOR NON-DIRECTIONAL MEASUREMENTS	CALLS: FIGURE 12 MEASURED ALL-DIRECTIONAL RADIATION RADIO STATION WGLB PORT WASHINGTON, WISCONSIN 1560 KC 1560 DA-D
CHARLES E. BRENNAN CONSULTING RADIO ENGINEERS MILWAUKEE, WISCONSIN		

FCC File No. BL-10427
Accepted 3-11-64

Station WGLB
Port Washington, Wisconsin

1560kc

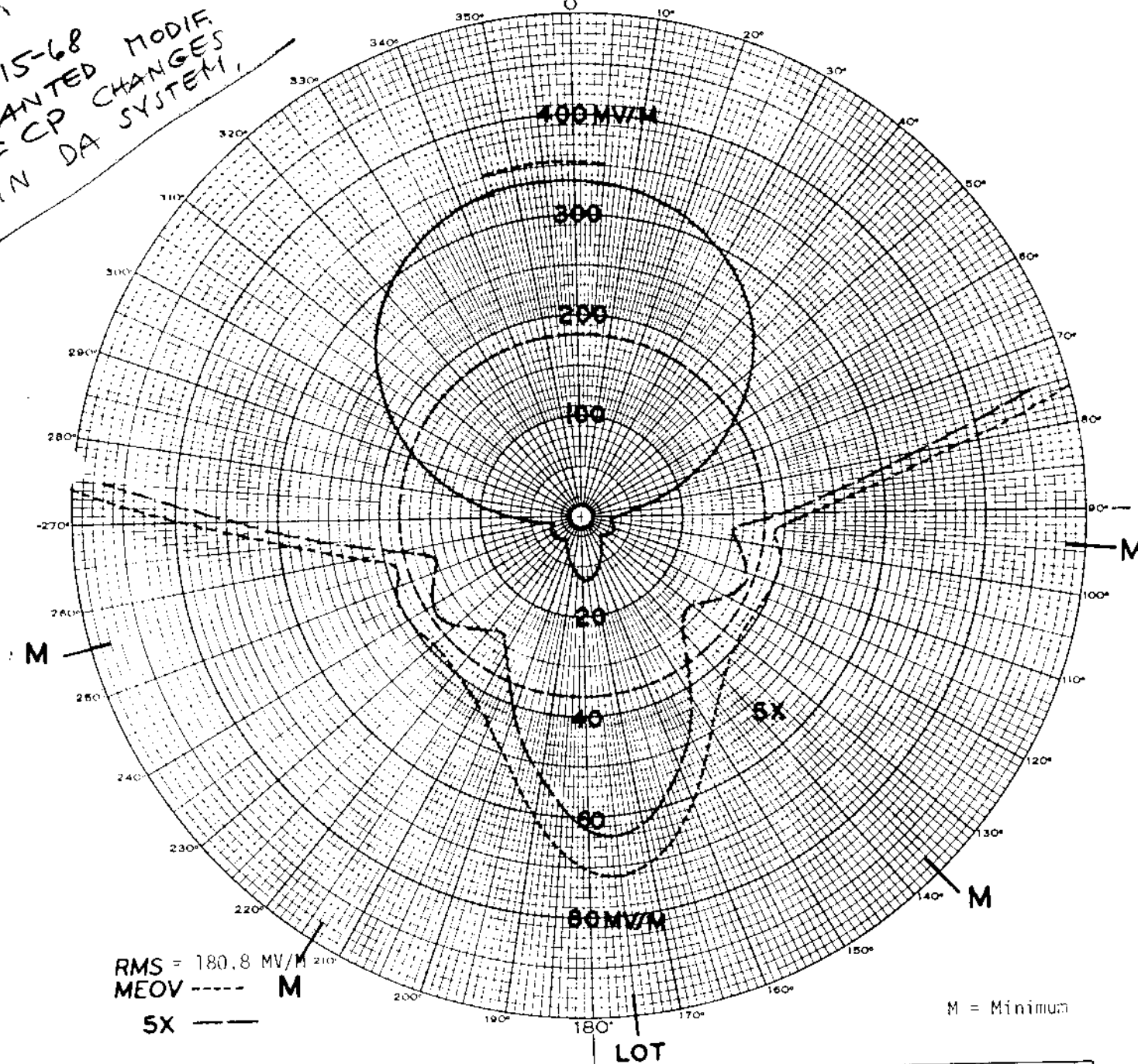
WMIC

Proposed Day
(4-29-68ct)

Station WMIC
Sandusky, Michigan

1kw, DA-D, D
1560 kc

3-15-68 MODIF.
GRANTED
OF CP CHANGES
IN DA SYSTEM



TOWER PLACEMENT SKETCH		PATTERN PARAMETERS					FIGURE 3	STATION DATA
6'S 91.2°		TOWER	ELECTRICAL	SPACING	PHASING	FIELD	PROPOSED DAYTIME DIRECTIONAL	CALL WMIC FREQ 1560 KHz. POWER 1.0 Kw TYPE DA-D TIME daytime LAT. 82-50-04.3 LONG. 43-23-33.8
		No.	G°	S°	V°	F°		
#1	1.000/0°	1						
	100	2						
#2	1.283/132.55°	3						
	100	4						
#3	0.562/206°	5						
		6						
		7						
		8						
		9						
		10						
		DAYTIME OPERATION ☒ NIGHTTIME OPERATION ☐					APRIL - 1967	E.H.MUNN, JR. RADIO ENGINEER COLDWATER, MICH.

FCC File No. BMP-12126
Accepted

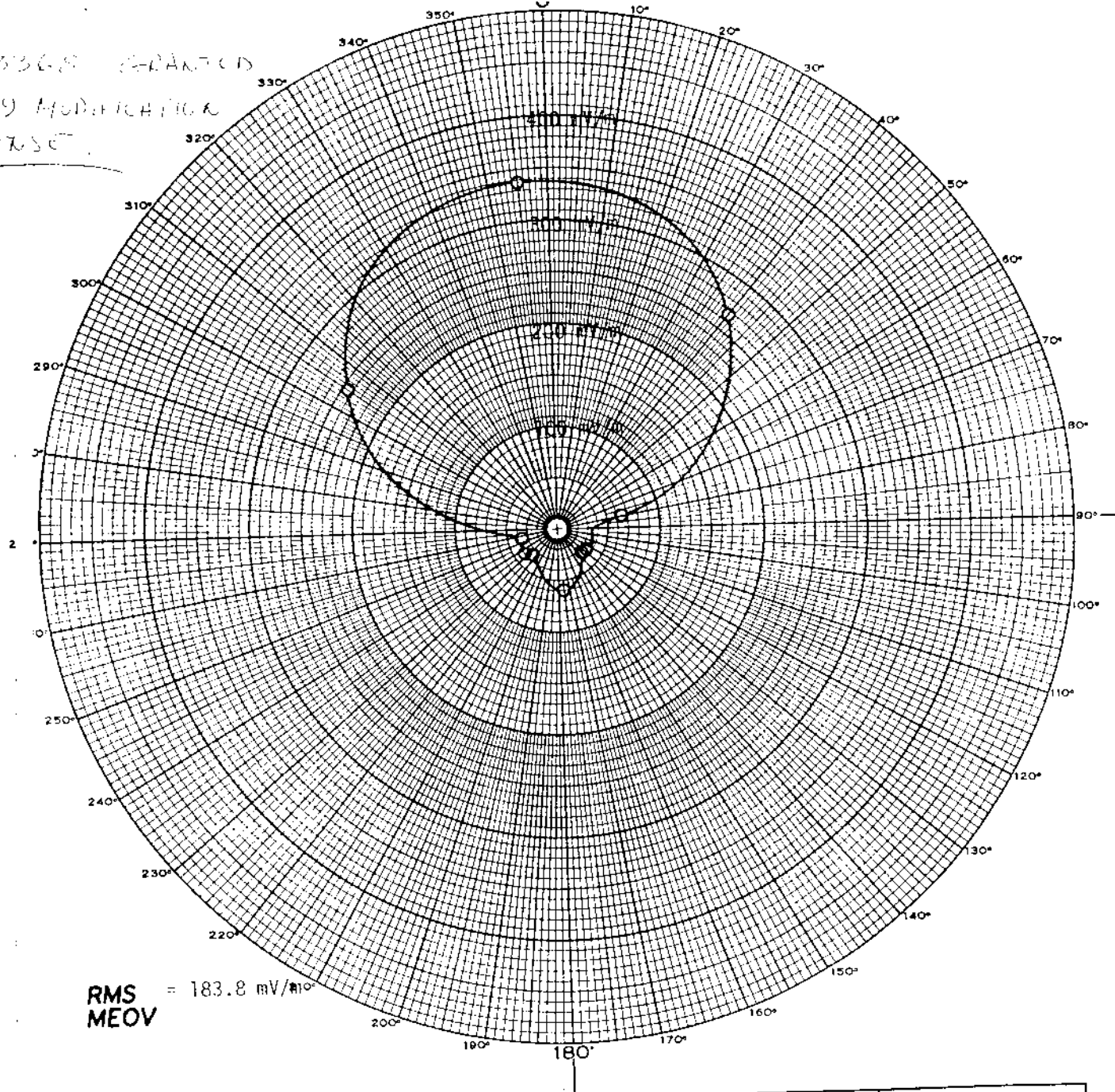
Station WMIC
Sandusky, Michigan

1560 kc

WMIC

Measured Day
(9-26-69ct)Station WMIC
Sandusky, Michigan1kw, DA-D, D
1560 kc

APR 3368 GRANTED
12-69 MODIFICATION
OF LICENSE



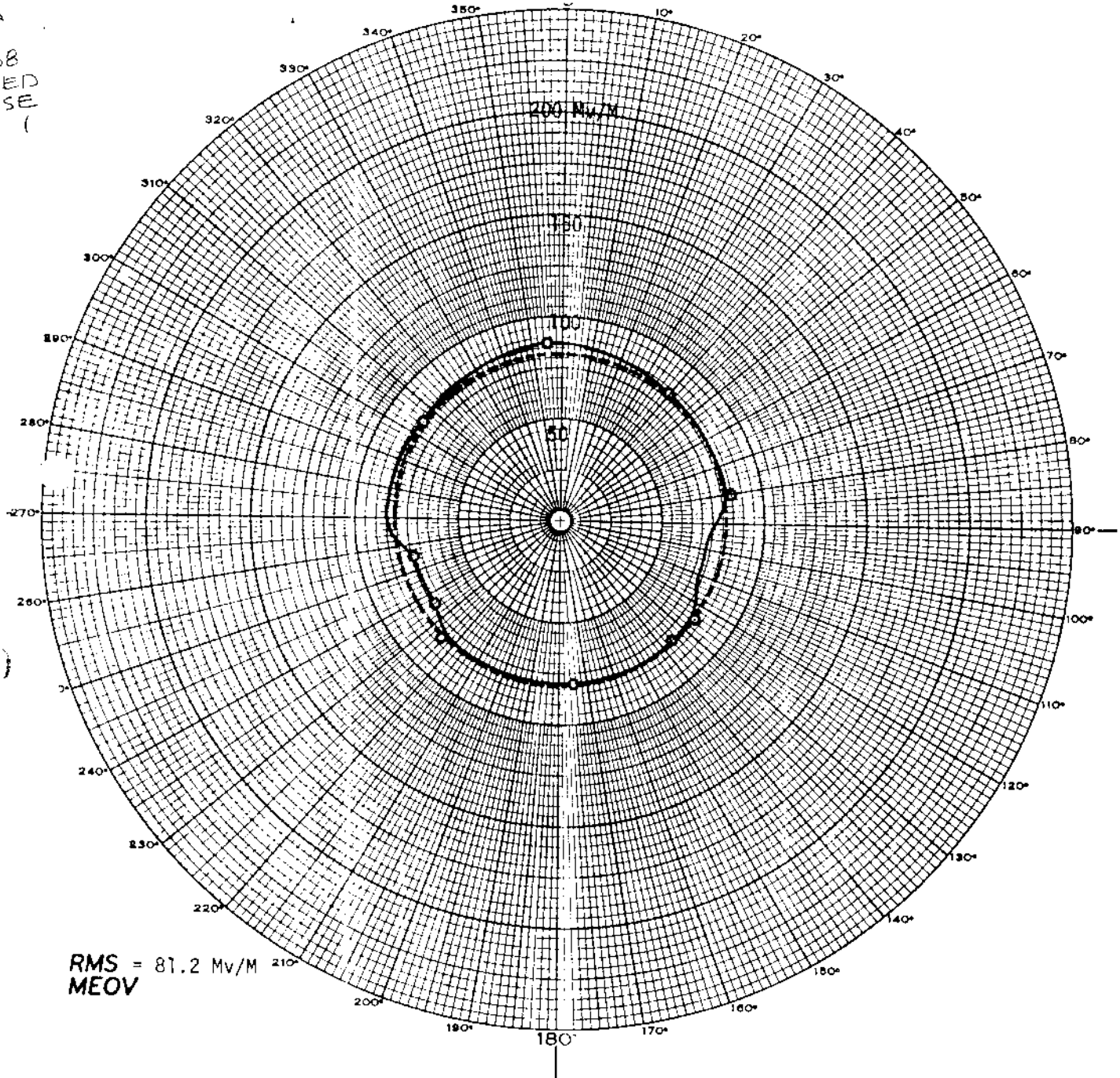
TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 1	STATION DATA																																																				
G's=91.2° #1 1.000/0° 100° #2 1.296/+130° 100° #3 0.717/-96° 175°	<table border="1"> <thead> <tr> <th>TOWER No.</th> <th>ELECTRICAL HEIGHT G'</th> <th>SPACING S'</th> <th>PHASING V'</th> <th>FIELD RATIO F'</th> </tr> </thead> <tbody> <tr><td>1</td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	TOWER No.	ELECTRICAL HEIGHT G'	SPACING S'	PHASING V'	FIELD RATIO F'	1					2					3					4					5					6					7					8					9					10					MEASURED DAYTIME DIRECTIONAL SANDUSKY, MICHIGAN JULY -----1969 θ° = 0°		CALL WMIC FREQ 1560 kHz POWER 1.0 kW TYPE DA-D TIME DAYTIME LAT. 82-50-04.3 LONG. 43-23-33.8 E.H. MUNN, JR. RADIO ENGINEER COLDWATER, MICH.
TOWER No.	ELECTRICAL HEIGHT G'	SPACING S'	PHASING V'	FIELD RATIO F'																																																							
1																																																											
2																																																											
3																																																											
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8																																																											
9																																																											
10																																																											

FCC File No. BRC-3368
Accepted 8-26-69

Station WMIC
Sandusky, Michigan

1560 kc

WMIC

Measured Non-DA
(8-28-68ct)Station WMIC
Sandusky, Michigan1kw, DA-D, D
1560 kc3/30/68
RATED
LICENSE

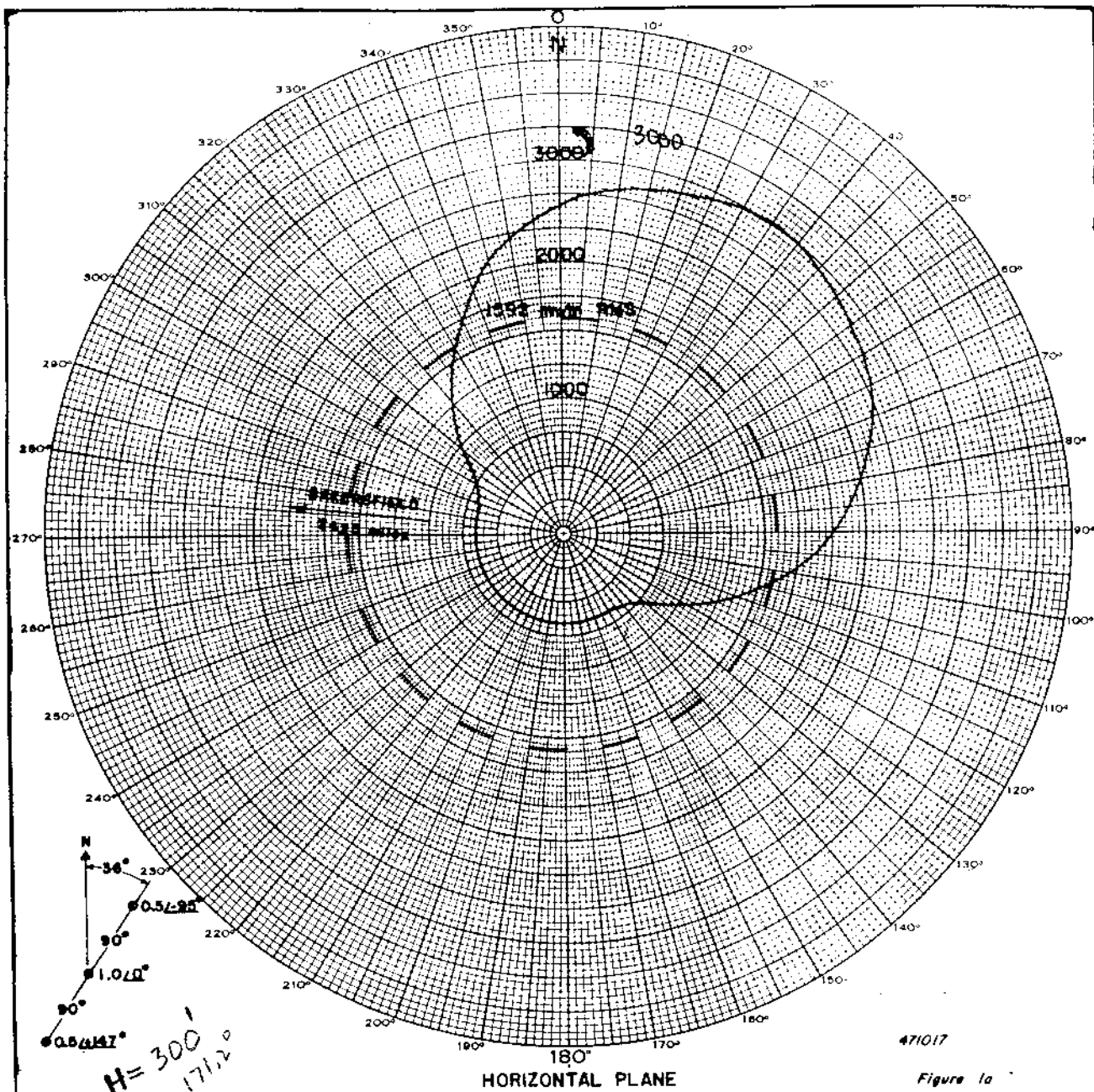
TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 2	STATION DATA
G's=91.2° #1 • NU 100° #2 • NDA 100° #3 • NU 175° I.	TOWER No.	ELECTRICAL HEIGHT ft	SPACING ft	PHASING °	FIELD RATIO %	WMIC MEASURED NON-DIRECTIONAL ***** June - 1968 $\theta = 0^\circ$	CALL WMIC
	1						FREQ 1560 KHz.
	2						POWER 0.25 Kw
	3						TYPE NDA
	4						TIME DAYTIME
	5						LAT. 82-50-04.3
	6						LONG. 43-23-33.8
	7						E.H. MUNN, JR.
	8						RADIO ENGINEER
	9						COLDWATER, MICH.
	10						
	DAYTIME OPERATION ☒ NIGHTTIME OPERATION ☐						

FCC File No. BL-12073
Accepted 8-23-68Station WMIC
Sandusky, Michigan

1560 kc

PROP NIGHT

WQXR
1560



471017

Figure 1a

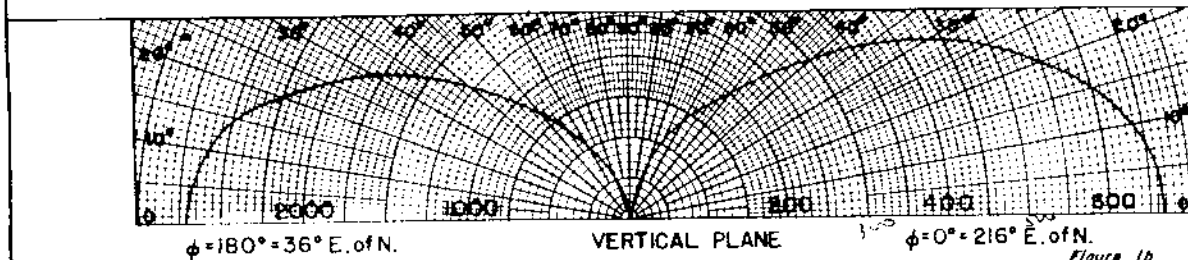


Figure 1b

STATION WQXR
ESTIMATED EFFECTIVE FIELD AT ONE MILE

FREDERIC D. SCHOTTLAND
Consulting Radio Engineer
FOREST HILLS, N.Y.

1560 KC

50 KW

WQXR

Measured Night
(4-28-65ct)

Station WQXR
New York, New York

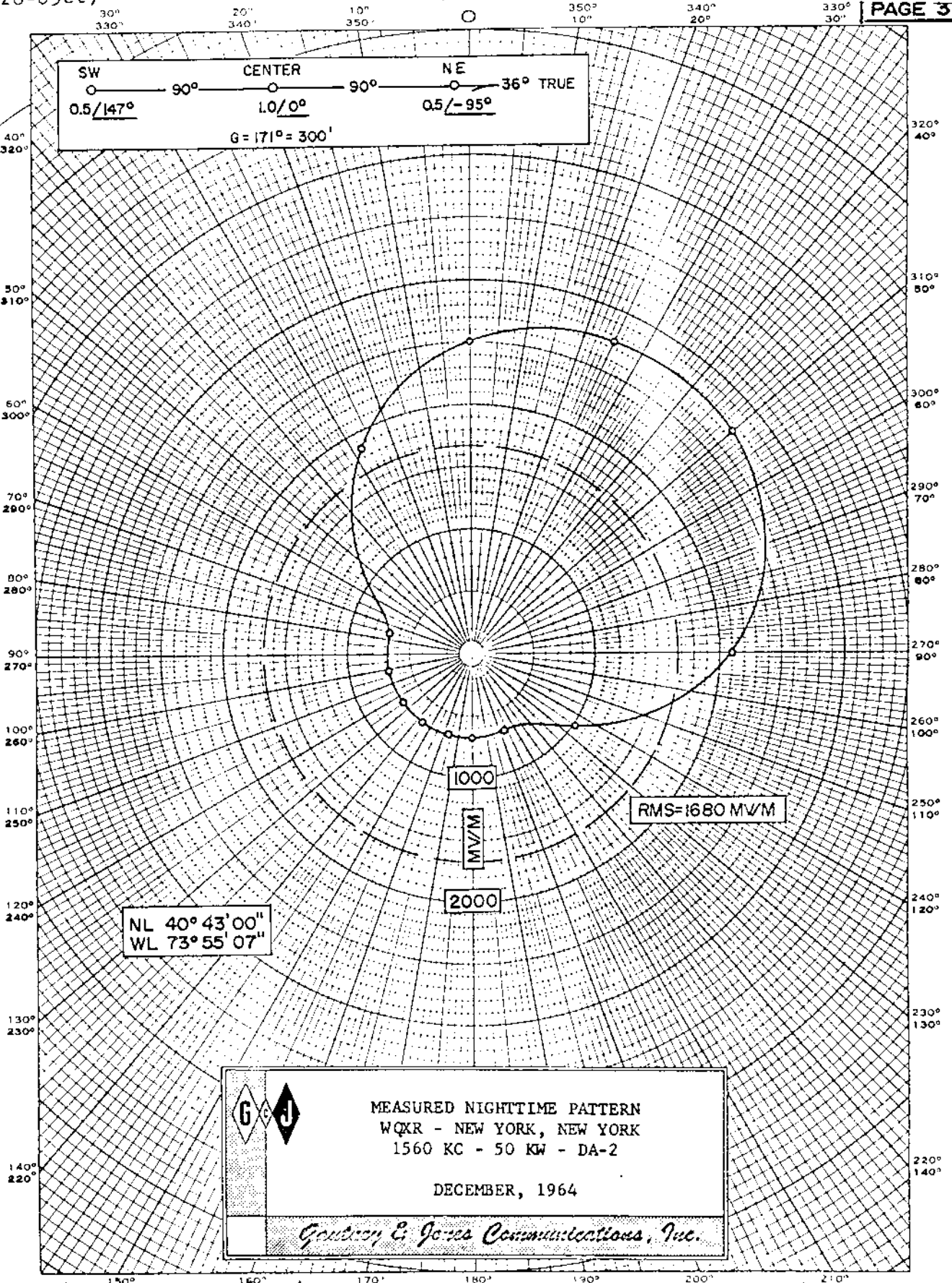
50kw, DA-2, U
1560 kc

PAGE 3

3L-10 843
4-22-65 L.C.
CHG. DA.

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

NO. 340-P DIETZEN'S GRAPH PAPER
POLAR CO-ORD. TYPE



FCC File No. BL-10843
Accepted 3-30-65

Station WQXR
New York, New York

1560 kc

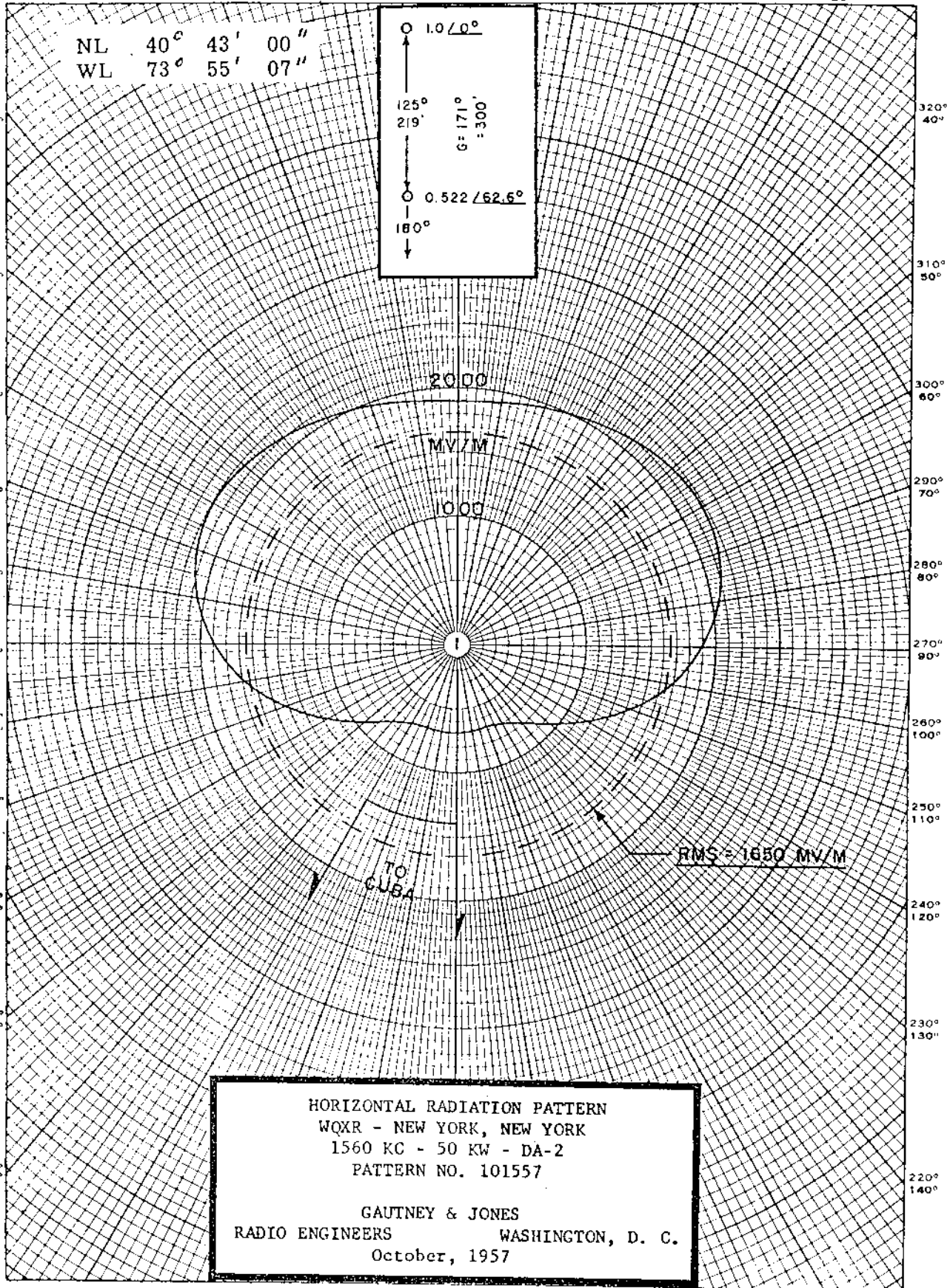
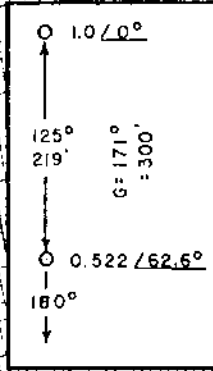
WQXR

PROPOSED DAY
(12-20-57g)

Station WQXR
New York, New York

50kw, DA-2, U
1560 KC

NL 40° 43' 00"
WL 73° 55' 07"



*8-1-63
wanted
app. for
new DA-A
pattern
for day
op. unit
L.S.*

HORIZONTAL RADIATION PATTERN
WQXR - NEW YORK, NEW YORK
1560 KC - 50 KW - DA-2
PATTERN NO. 101557

GAUTNEY & JONES
RADIO ENGINEERS WASHINGTON, D. C.
October, 1957

FCC File No. BP-11,707
Accepted 12-12-57

WQXR
New York, New York

1560 KC

WQXR

Measured Day
(4-28-65ct)

Station WQXR
New York, New York

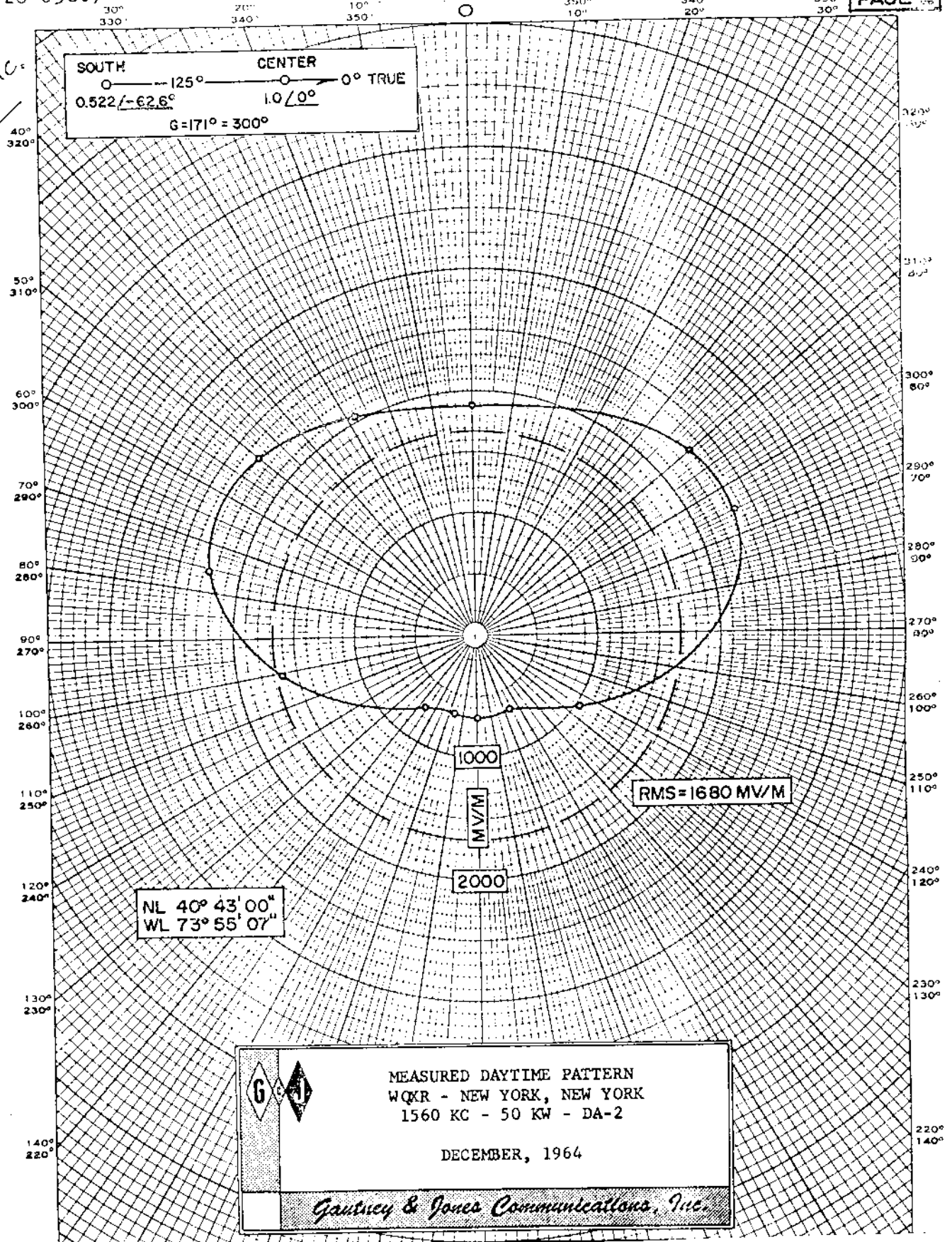
50kw, DA-2, U
1560 kc

PAGE 3

2L-10843
4-22-65 L.C.
CHG. DA.

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

NO. 340-P DIETZEN GRAPH PAPER
POLAR CO-ORD. TE



FCC File No. BL-10843
Accepted 3-30-65

Station WQXR
New York, New York

1560 kc

WQXR

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

Station WQXR
New York, New York

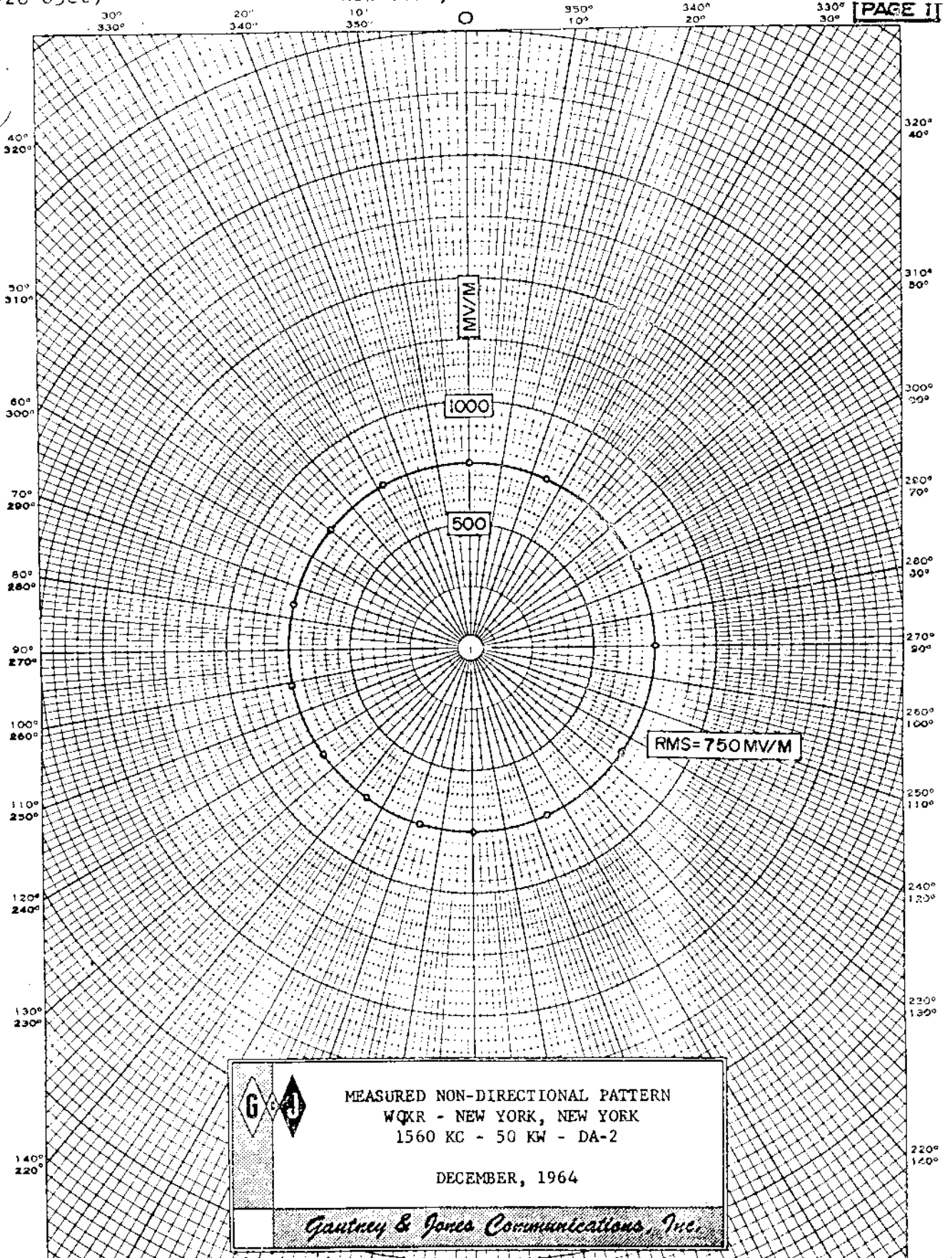
50kw, DA-2, U
1560 kc

PAGE II

L-10843
F-22-65 L.C.
CHG DA.

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

NO. 375 P. DIETZGEN DRAFT PAPER
POLAR CO-ORDINATE



FCC File No. BL-10843
Accepted 3-30-65

Station WQXR
New York, New York

1560 kc

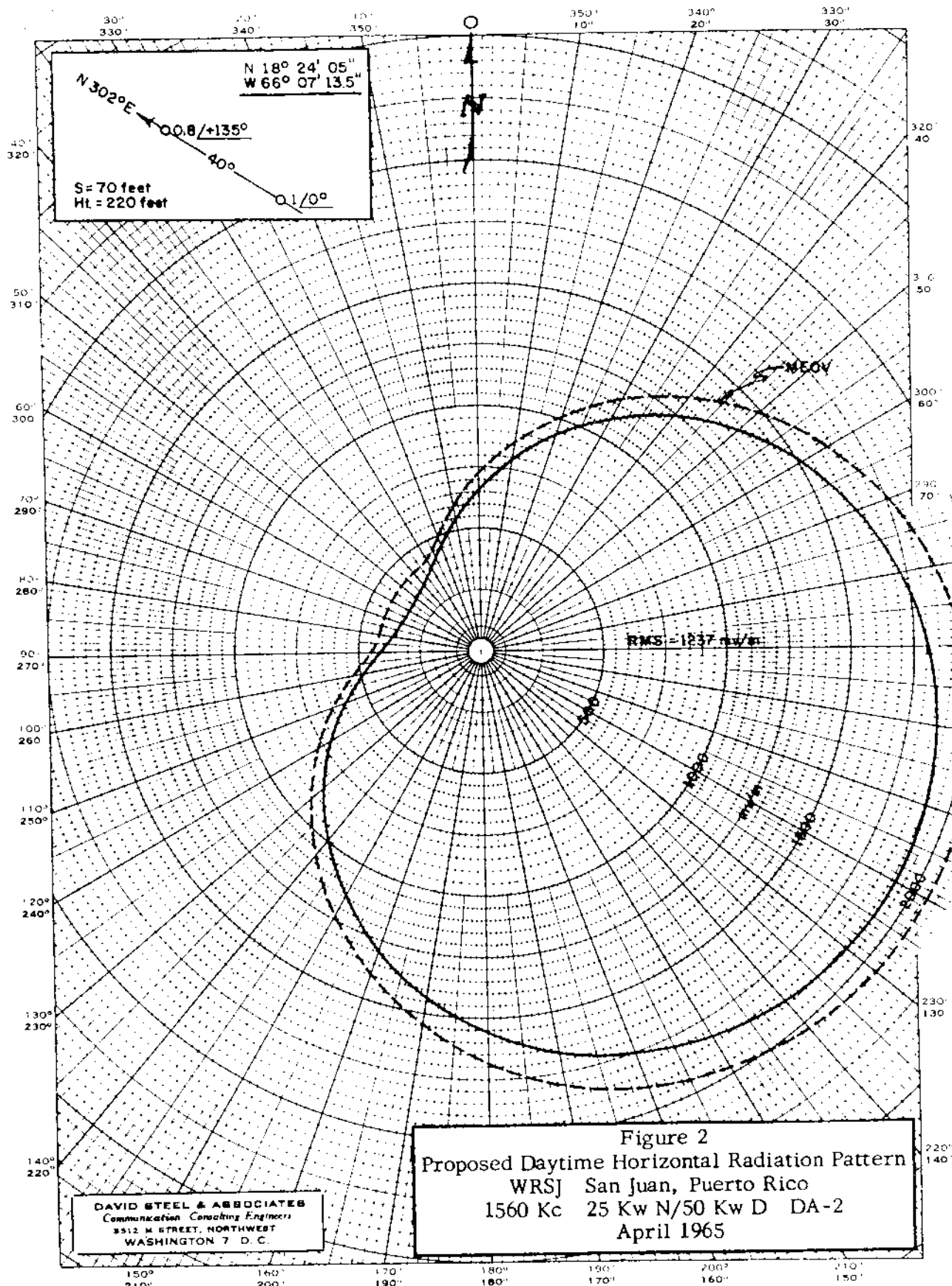
WRSJ

Proposed Day
(12-29-65ct)

Station WRSJ
Bayamon, Puerto Rico

25kw, 50kw-LS, DA-2, U
1560 kc

EUBENE DIETZGEN CO.
MADE IN U. S. A.
NO. 340-P DIETZGEN GRAPH PAPER
POLAR CO. ORIGINATE



FCC File No. BP-16770
Accepted 12-9-65

Station WRSJ
Bayamon, Puerto Rico

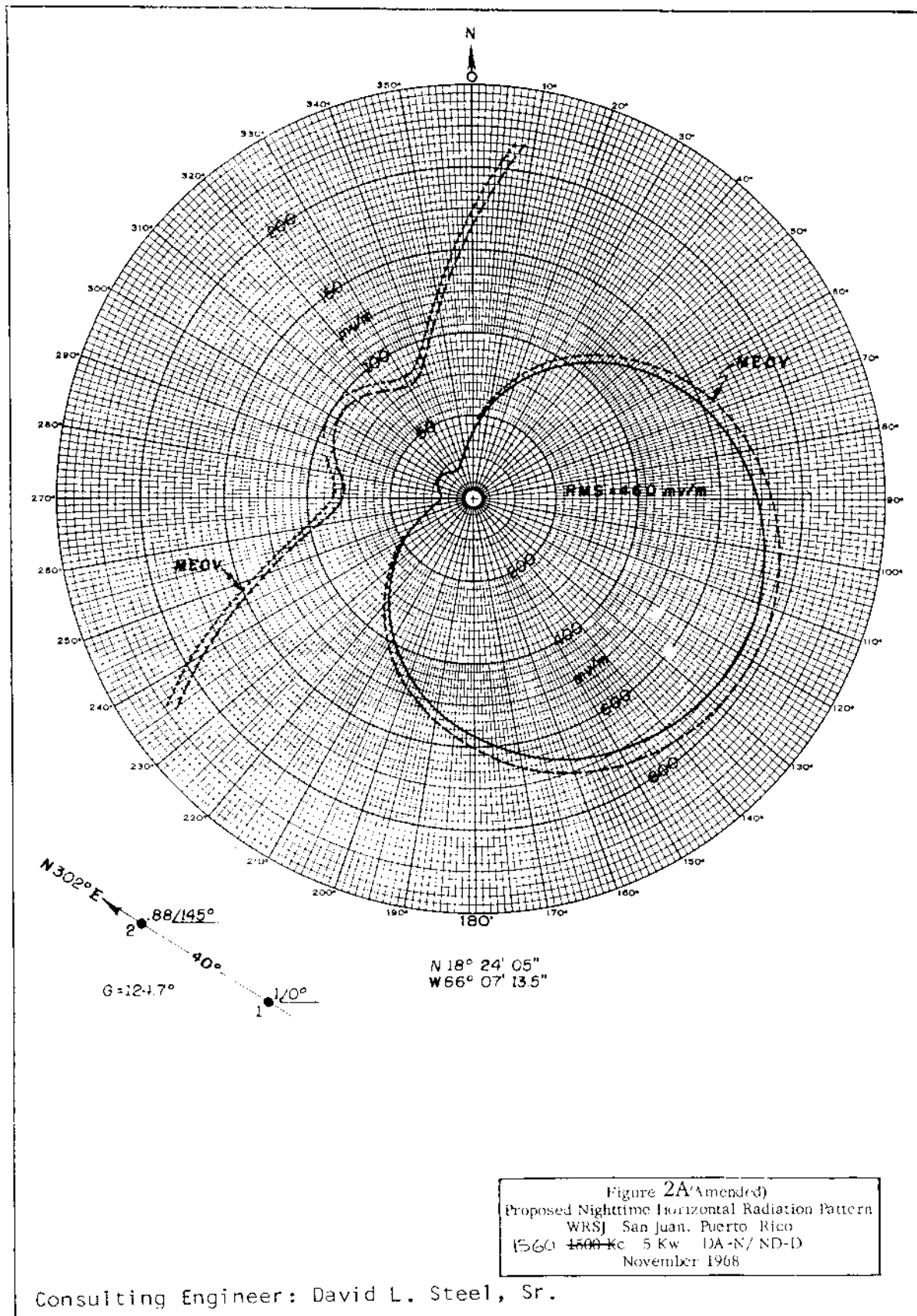
1560 kc

WRSJ

Proposed Night
(12-27-68ct)

Station WRSJ
Bayamon, Puerto Rico

5kw, DA-N, U
1560 kc



FCC File No. BP-16770
Accepted 12-5-68 Amended

Station WRSJ
Bayamon, Puerto Rico

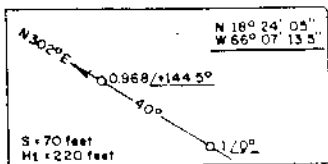
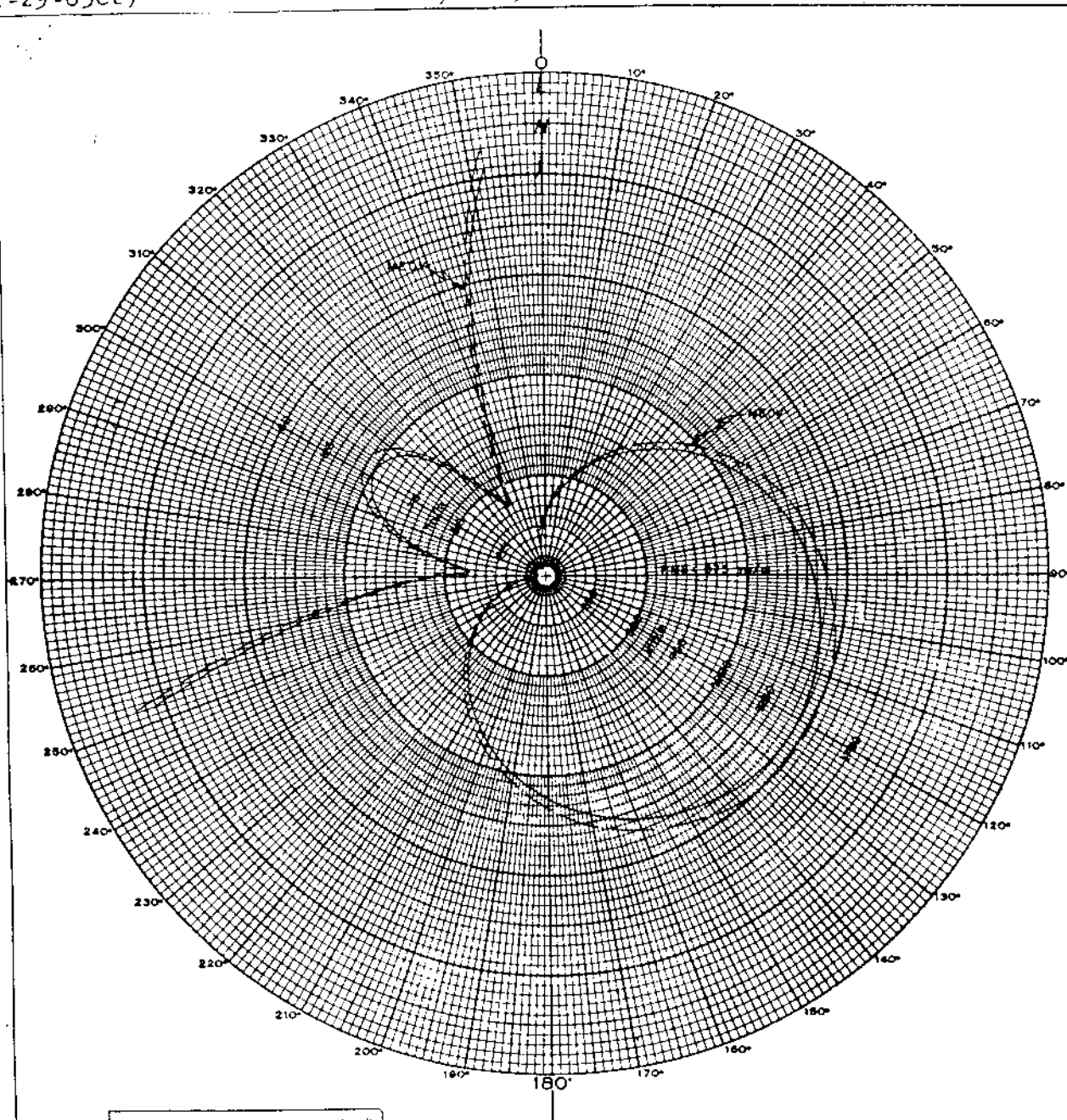
1560 kc

WRSJ

Proposed Night
(12-29-65ct)

Station WRSJ
Bayamon, Puerto Rico

25kw, 50kw-LS, DA-2, U
1560 kc



DAVID STEEL & ASSOCIATES
Communications Consulting Engineers
3313 M STREET, NORTHWEST
WASHINGTON, D. C.

Figure 4A
Proposed Nighttime Horizontal Radiation Pattern
WRSJ San Juan, Puerto Rico
1560 Kc 25 Kw N/50 Kw D DA-2
April 1965

FCC File No. BP-16770
Accepted 12-9-65

Station WRSJ
Bayamon, Puerto Rico

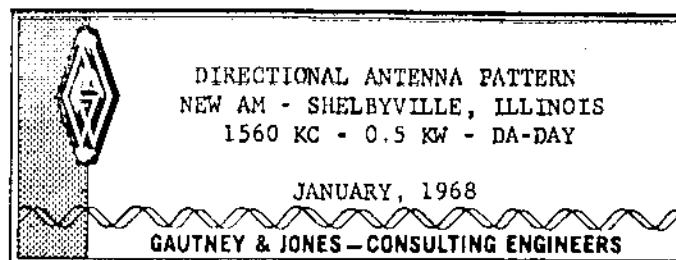
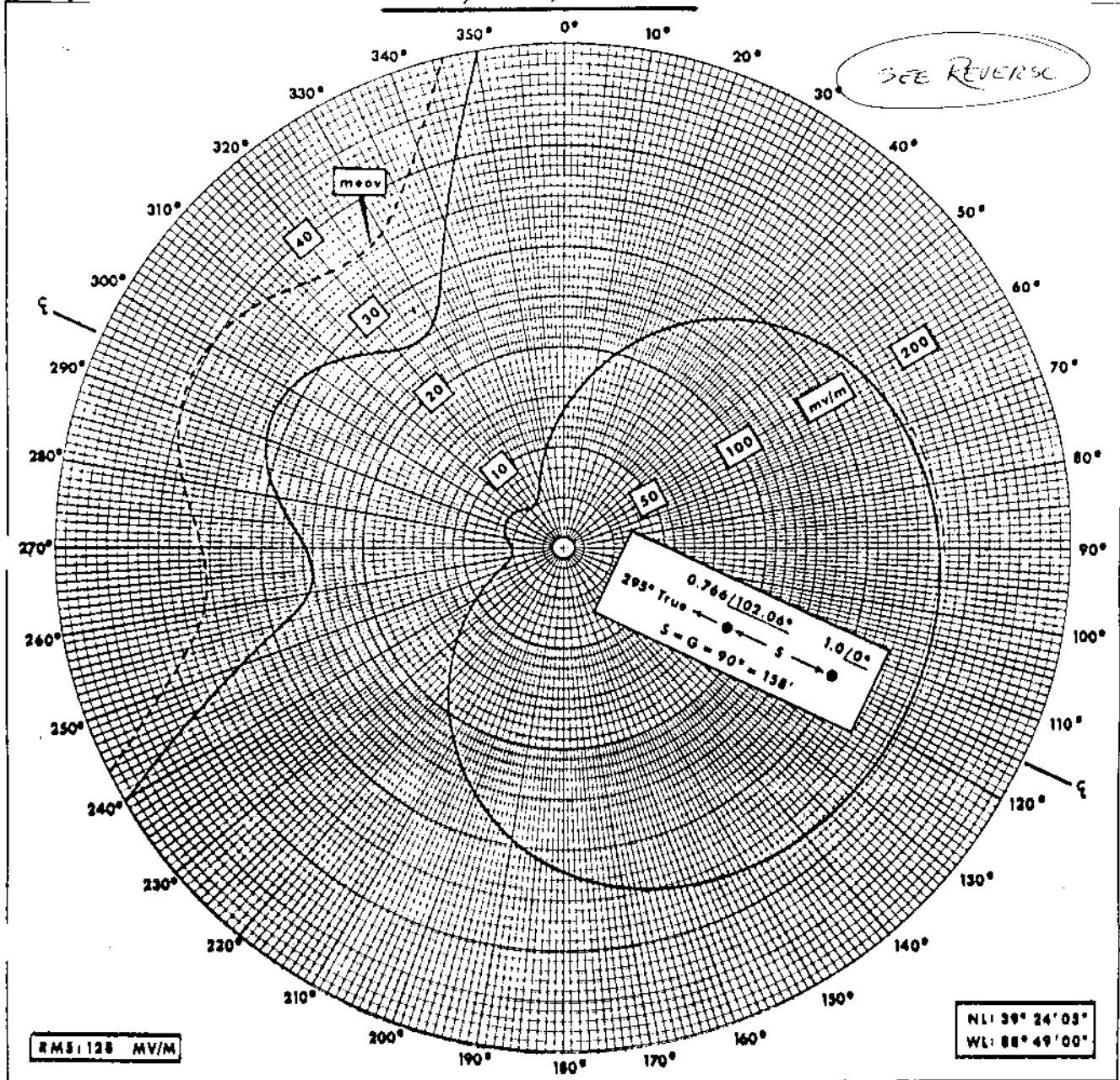
1560 kc

WSHY

Proposed Day
(4-29-68ct)

New; Shelbyville Broadcasting Co.
Shelbyville, Illinois

500w, DA-D, D
1560 kc



FCC File No. BP-18068
Accepted 4-15-68

New; Shelbyville Broadcasting Co.
Shelbyville, Illinois

1560 kc

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: W S M D

Main Studio: La Plata, Maryland

Frequency: 1560 kHz

Power: 25 kW Day

Notification List No. 1784

Date: November 9, 1979 Class: II

GEOGRAPHICAL LOCATION OF THE

CENTER OF THE ANTENNA SYSTEM: North Latitude: 38° 32' 36"
West Longitude: 76° 59' 37"

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:	SW (#1)	C (#2)	NE (#3)
HEIGHT ABOVE INSULATORS:	200'	200'	200' (114°)
DAY PHASING:	0°	46.5°	93.0°
DAY FIELD RATIO:	1.00	1.02	0.26

SPACING AND

ORIENTATION: Adjacent towers are spaced 234.7' (134°) on a line bearing
40.0° true.

GROUND

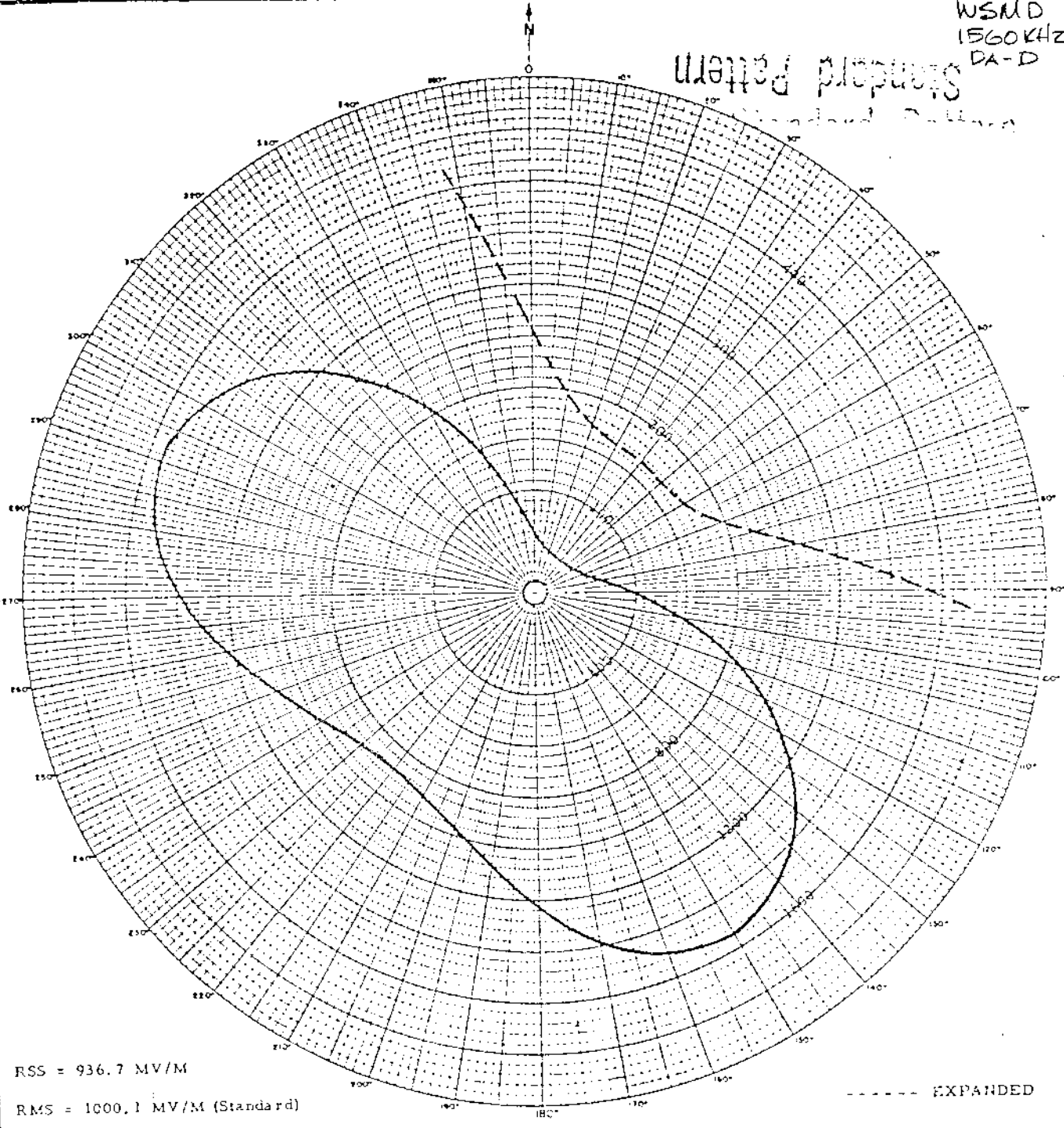
SYSTEM: 120-120' to 158' equally spaced copper radials plus 120-50'
interspaced radials about each tower. Ground system bonded
with a 4 inch copper strap.

PREDICTED EFFECTIVE FIELDS AT RATED POWER:

	<u>THEORETICAL</u> <u>RMS</u>	<u>RSS</u>	<u>STANDARD</u> <u>RMS</u>
Day 952 mV/m	936.7 mV/m		1000.1 mV/m

WSMD
1560 KHz
DA-D

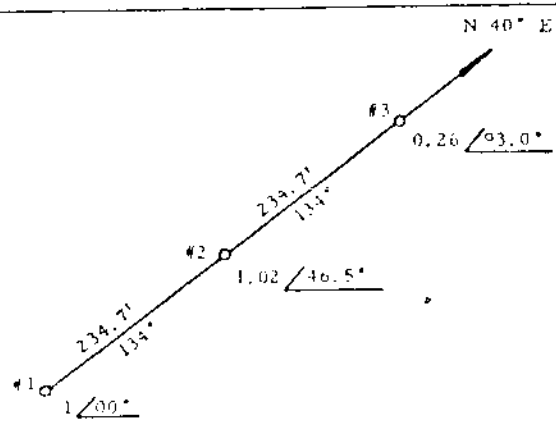
Standard Pattern
Standard Pattern



RSS = 936.7 MV/M
RMS = 1000.1 MV/M (Standard)

HORIZONTAL RADIATION PATTERN

FIGURE 1



G = 114°

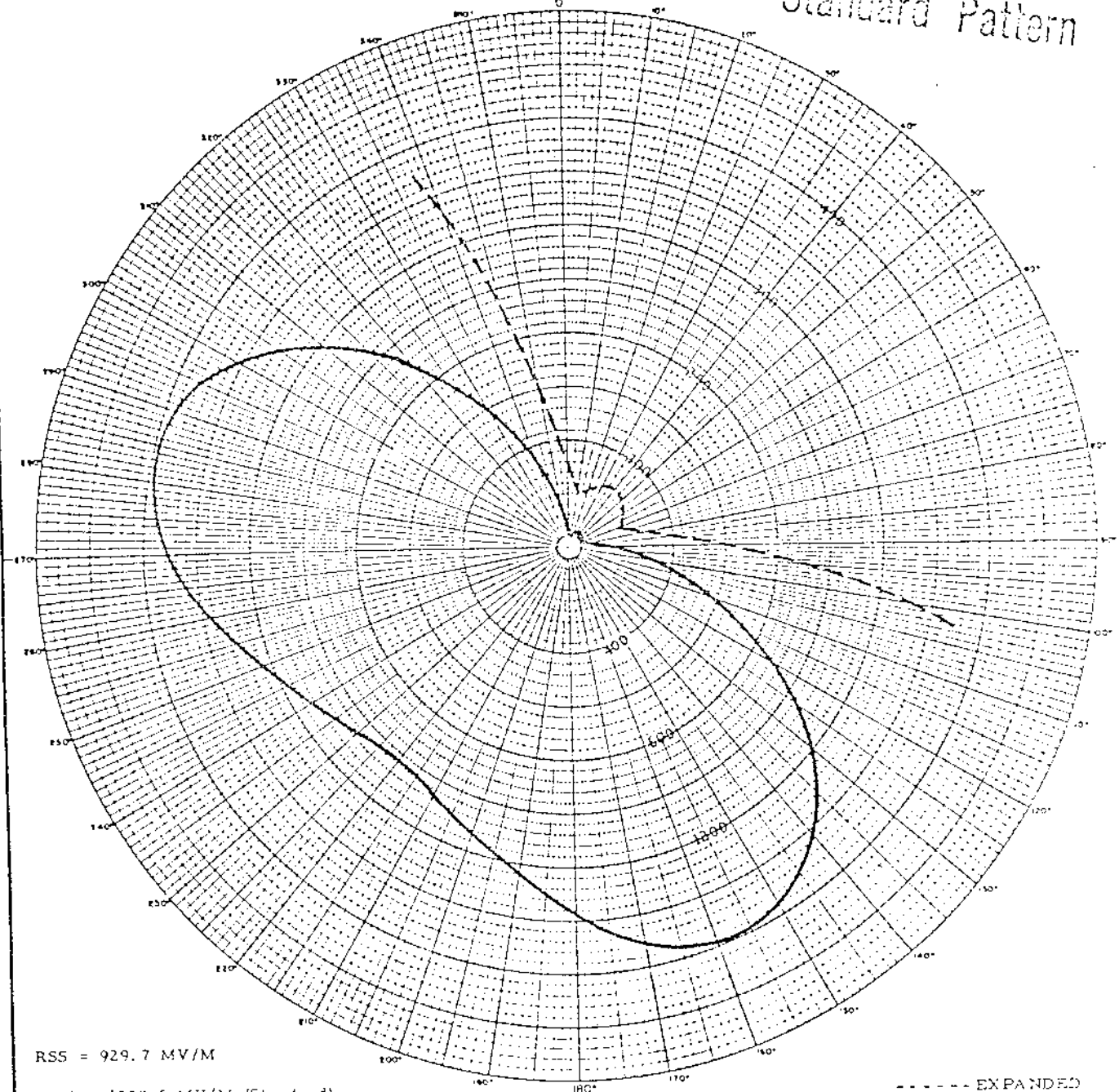
APPLICANT	Radio Station WSMD
LOCATION	La Plata, Maryland
FREQUENCY	1560 KHz
POWER	25 KW
LATITUDE	36 DEG 32 MIN 35 SEC
LONGITUDE	76 DEG 59 MIN 37 SEC
WHEN USED	Daytime
RMS FIELD	952 MV/M Theoretical
DATE	June 1976

ROBERT L. PURCELL

WASHINGTON D.C.

WSMD
1560 KHz
DA-CH

Standard Pattern



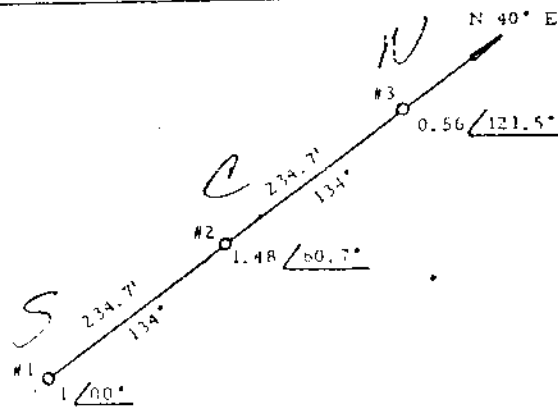
RSS = 929.7 MV/M

RMS = 1009.5 MV/M (Standard)

----- EXPANDED

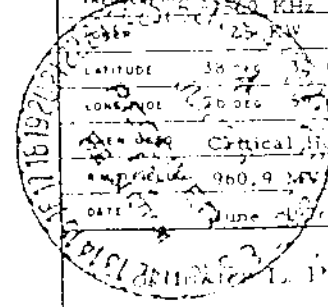
HORIZONTAL RADIATION PATTERN

FIGURE 3A



G = 114°

APPLICANT	Radio Station WSMD
LOCATION	La Plata, Maryland
FREQUENCY	1560 KHz
MODE	AM
LATITUDE	38° 25' 36" N
LONGITUDE	76° 05' 37" W
OPERATOR	Critical Hours
AMPLITUDE	960.9 MV/M Theoretical
DATE	June 1977



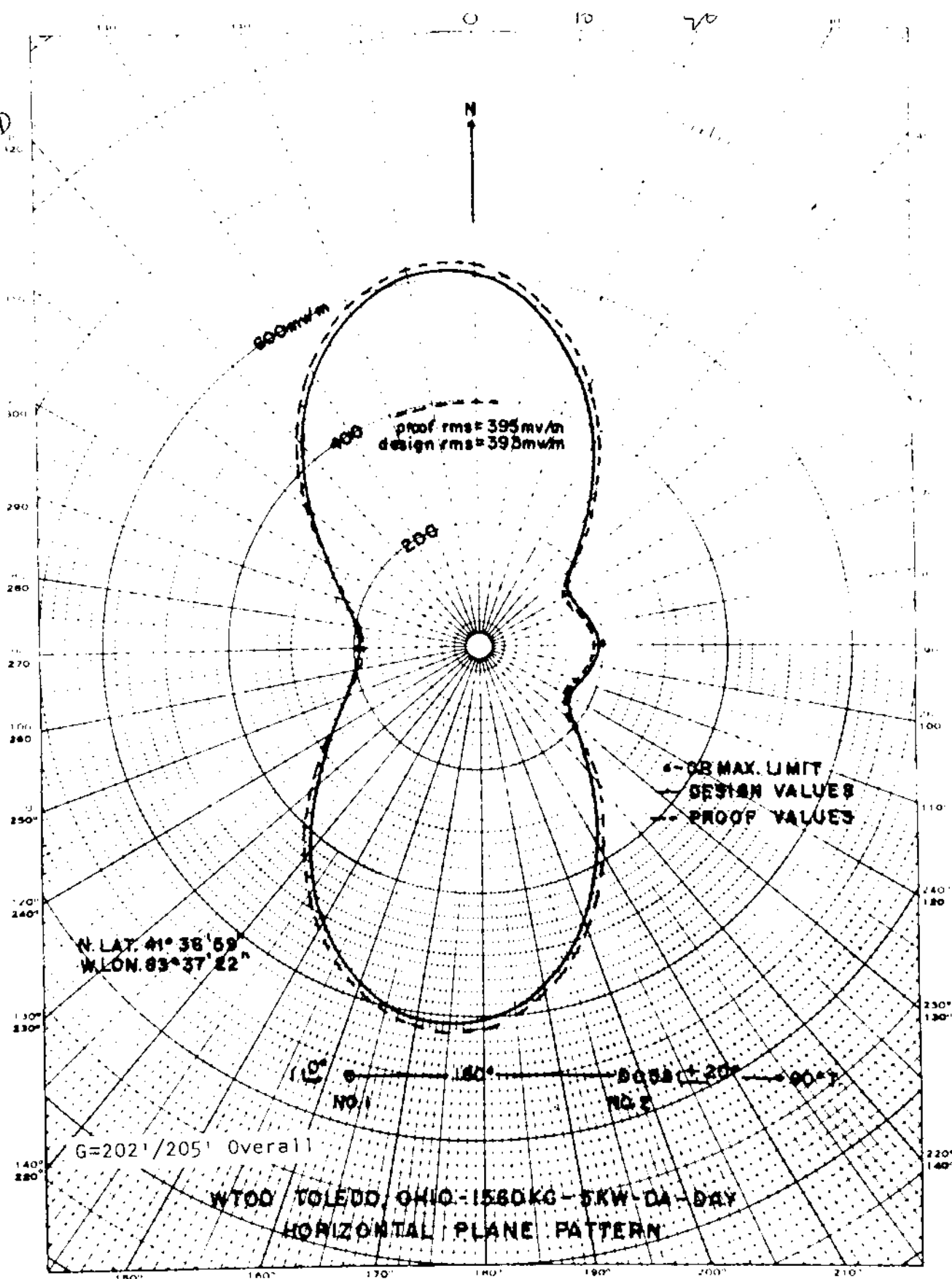
WASHINGTON D. C.

Measured Day
(8-23-63ct)

Station WTOD
Toledo, Ohio

5kw, DA-D, D
1560 kc

2-14-64
LG for
increased
power & DA-D



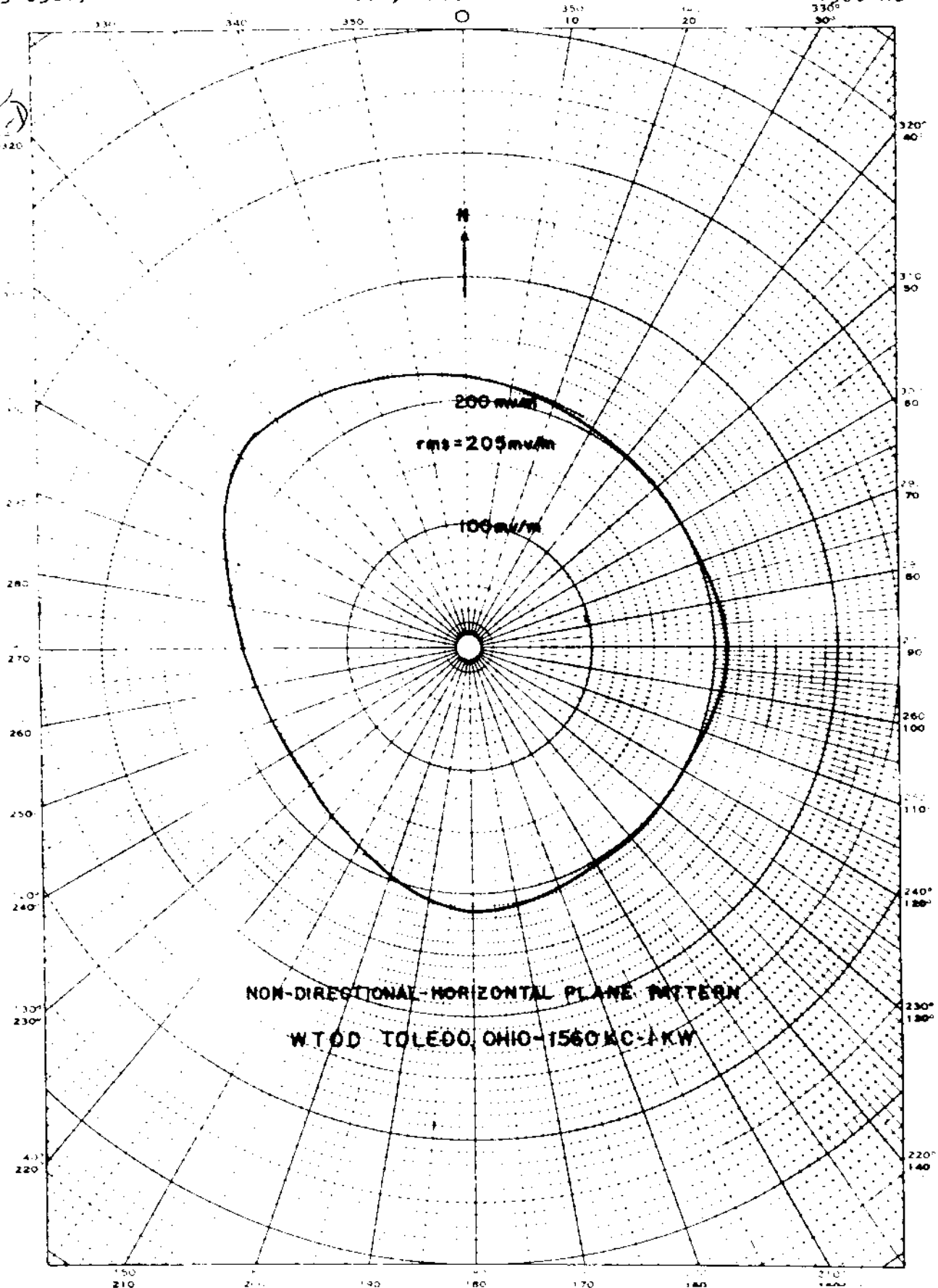
W100

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

Station WTOD
Toledo, Ohio

5kw, DA-D, D
1560 kc

2-14-64
JG for
increased
power & DA-D



FCC File No. BL-10214
Accepted 8-14-63

Station WTOD
Toledo, Ohio

1560 kc

WTOD

PROPOSED DAY
(6-20-58g)

Station WTOD
Toledo, Ohio

5kw, DA-D,D
1560 KC

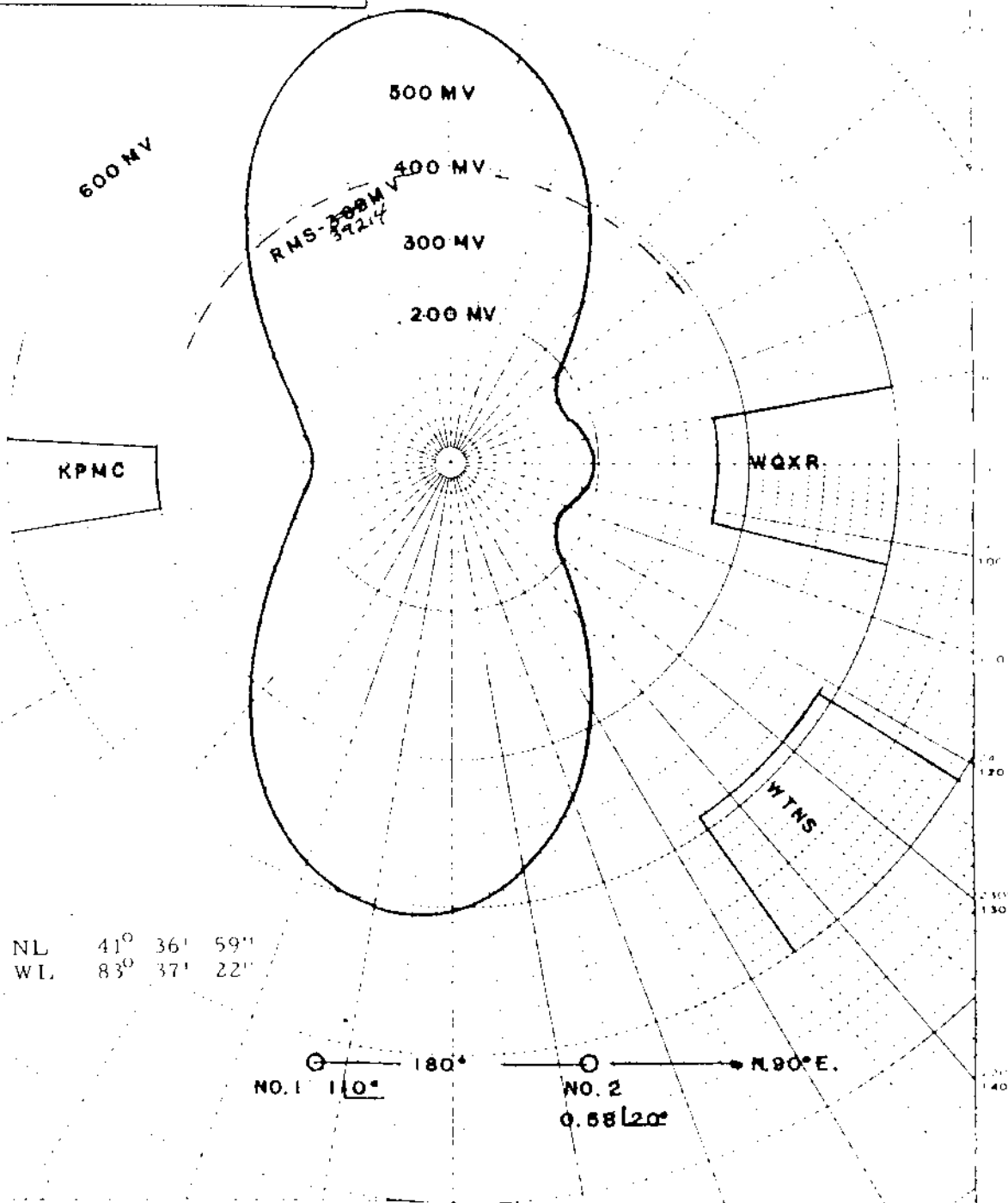
Proposed Daytime
Horizontal Plane Pattern For
WTOD - 1560 KC - 5 KW

Booth Broadcasting Company
Toledo, Ohio

May 1958

TRUE NORTH

*3-8-61
guaranteed
for install*



FCC File No. BP-42,035
Accepted 6-16-58 10 214

WTOD
Toledo, Ohio

1560 KC

WTRQ

Description Sheet
(2-22-71ct)

Station WTRQ
Warsaw, North Carolina

10kw, DA-CH, D
1560 kc

DESCRIPTION OF ANTENNA SYSTEM

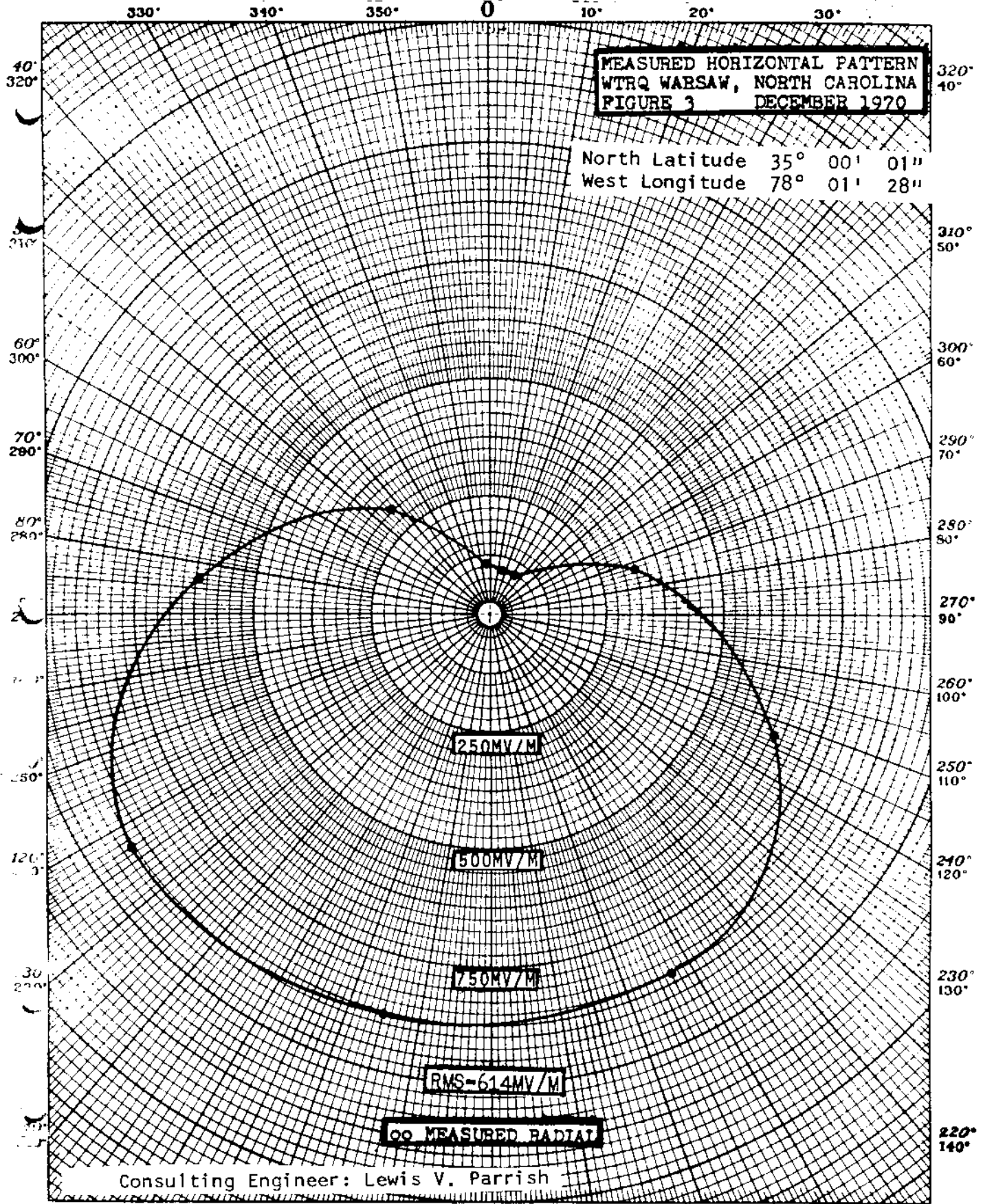
Number of elements:	Two
Type of elements	Uniform, cross-section, guyed vertical steel radiator, base insulated.
Top loading:	None
Height of elements above insulators:	157.5 Feet
Overall height of elements:	162 Feet
Orientation and spacing of array:	Two towers located on a line bearing 150° true, and spaced 175' (100°) between towers.
Details of ground system:	120-160' equally spaced buried copper radials about the base of each tower. Radials are shortened and bonded at points of intersection to a transverse copper midway between towers.

	<u>TOWER</u>	
	NORTH	SOUTH
Computed field ratio:	1.28	1.0
Computed phase:	85°	0°
Measured base current ratio:	1.13	1.0
Measured loop current ratio:	100.	80.
*Measured phase current:	85°	0°
*Phase monitor reading		

Measured Day
(2-22-71ct)

Station WTRQ
Warsaw, North Carolina

WTRQ
10kw, DA-CH, D
1560 kc



FCC File No. BL-12856
Accepted 1-27-71

Station WTRQ
Warsaw, North Carolina

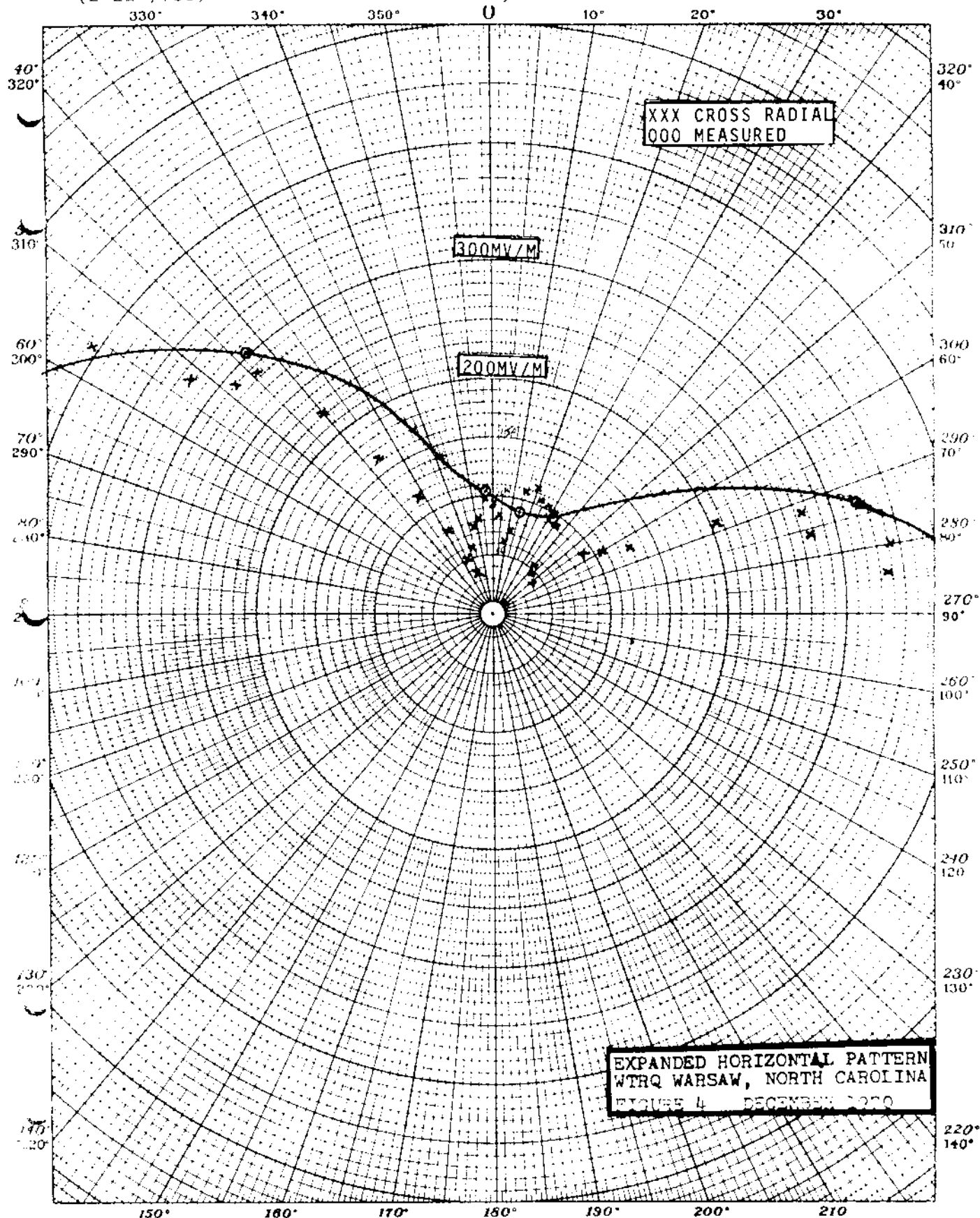
1560 kc

WTRQ

Measured Day Nulls
(2-22-71ct)

Station WTRQ
Warsaw, North Carolina

10kw, DA-CH, D
1560 kc



FCC File No. BL-12856
Accepted 1-27-71

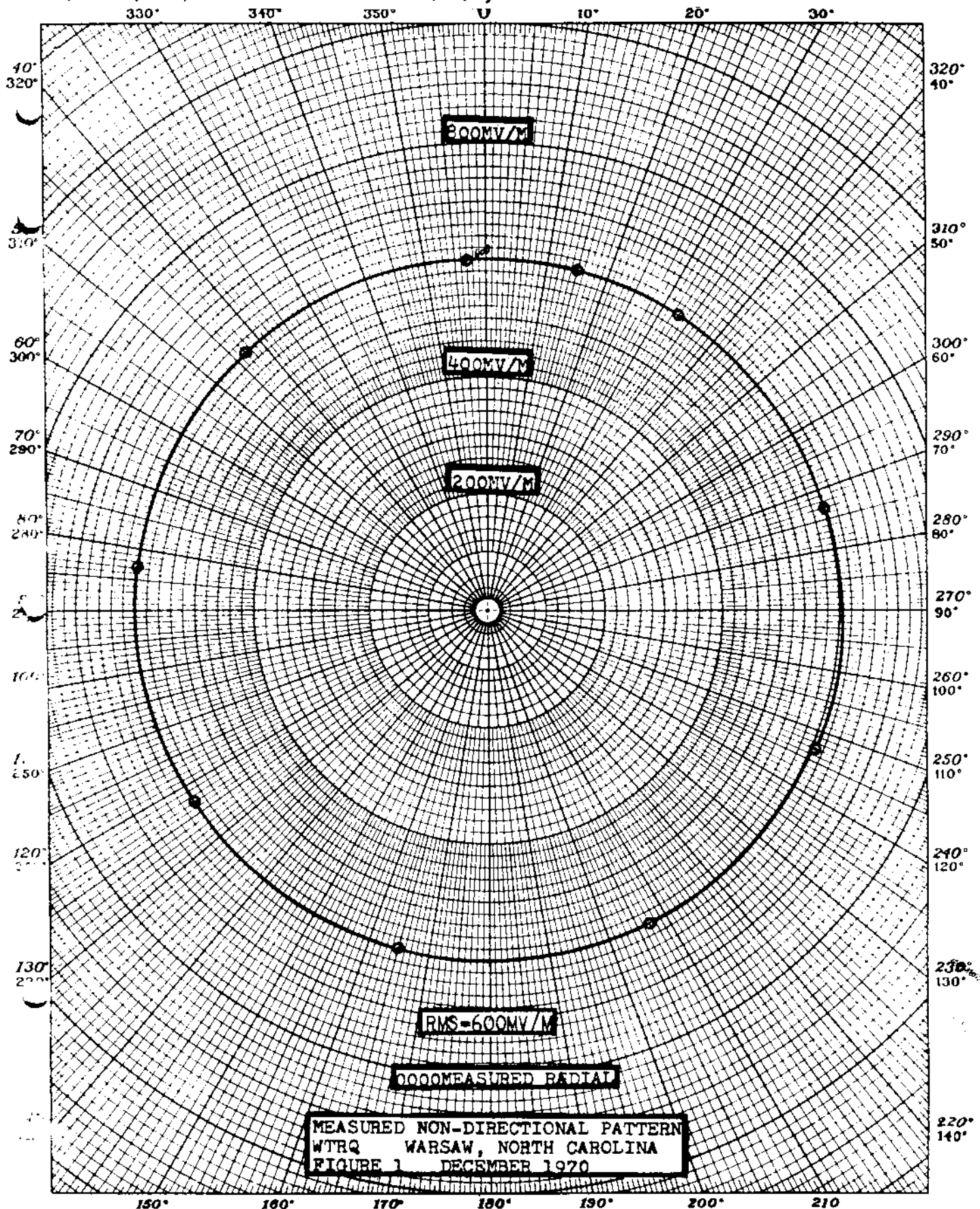
Station WTRQ
Warsaw, North Carolina

1560 kc

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

Station WTRQ
Warsaw, North Carolina

WTRQ
10kw, DA-CH, D
1560 kc



FCC File No. BL-12856
Accepted 1-27-71

Station WTRQ
Warsaw, North Carolina

1560 kc

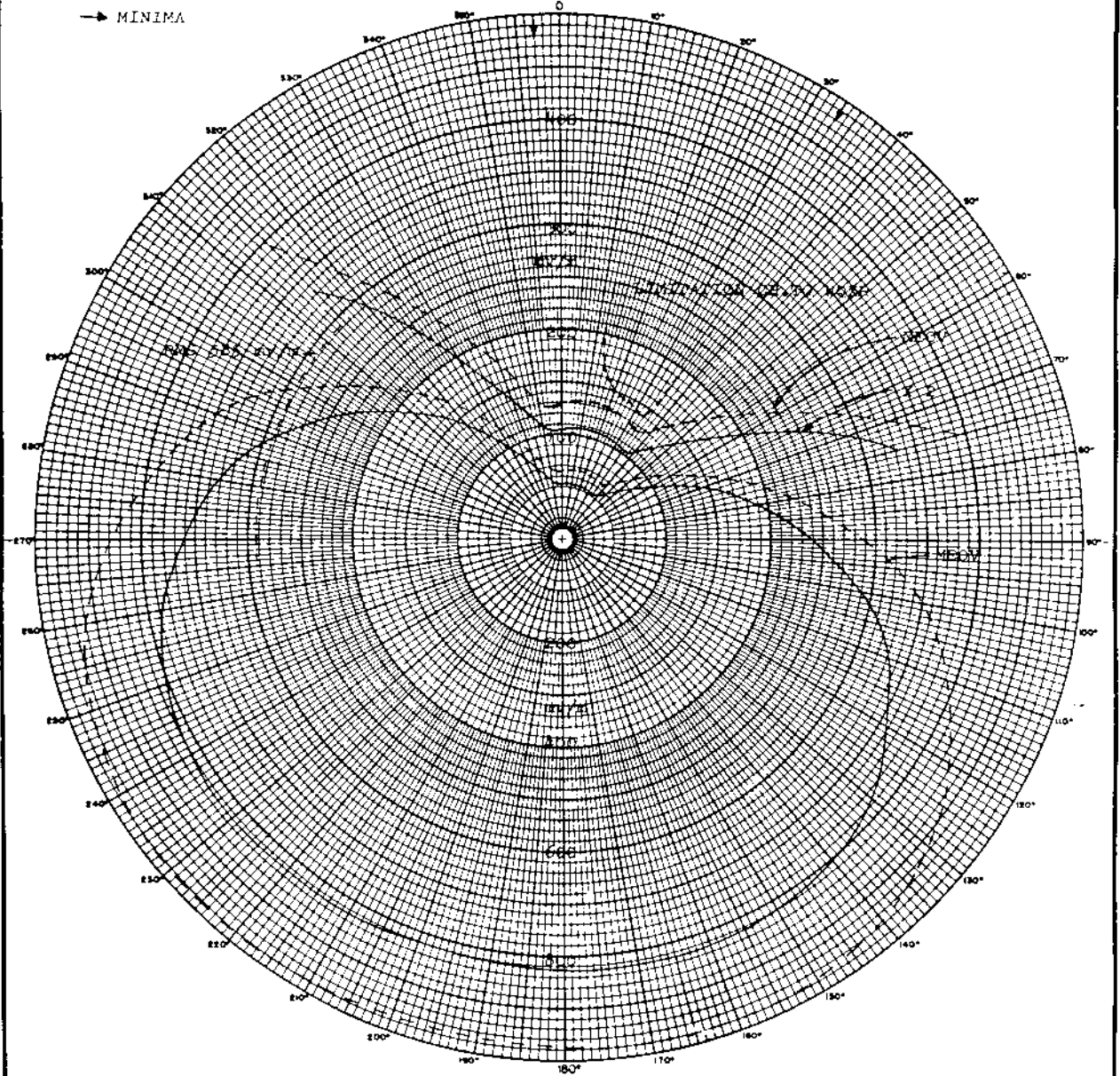
BP-18065
GP. (1-E 10) CP for New STA-

WTRQ

Proposed Day
(3-28-68ct)

New; Quinn Broadcasting
Warsaw, North Carolina

10kw, DA-CH, D
1560 kc



RMS 585 mv/m

FEB 1 1968

15°t

1.28/85°

North Latitude 35° 00' 01"
West Longitude 78° 01' 28"

100°
175°

110° 0°

$G_1 = G_2 = 90^\circ = 157.5'$

PALMER A. GREER
ROUTE 1, WHITE HORSE ROAD
GREENVILLE, S.C.

FCC File No. BP-18065
Accepted 3-12-68

New; Quinn Broadcasting
Warsaw, North Carolina

1560 kc

FIG. 3
QUINN BROADCASTING
WARSAW, N. C.
1560 kHz. 10 kw. (DA-CH) DAY.
HORIZONTAL RADIATION PATTERN

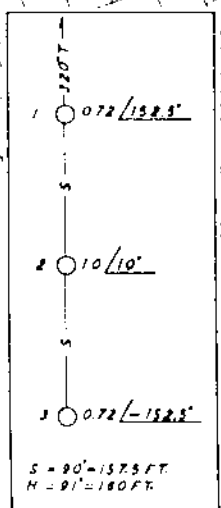
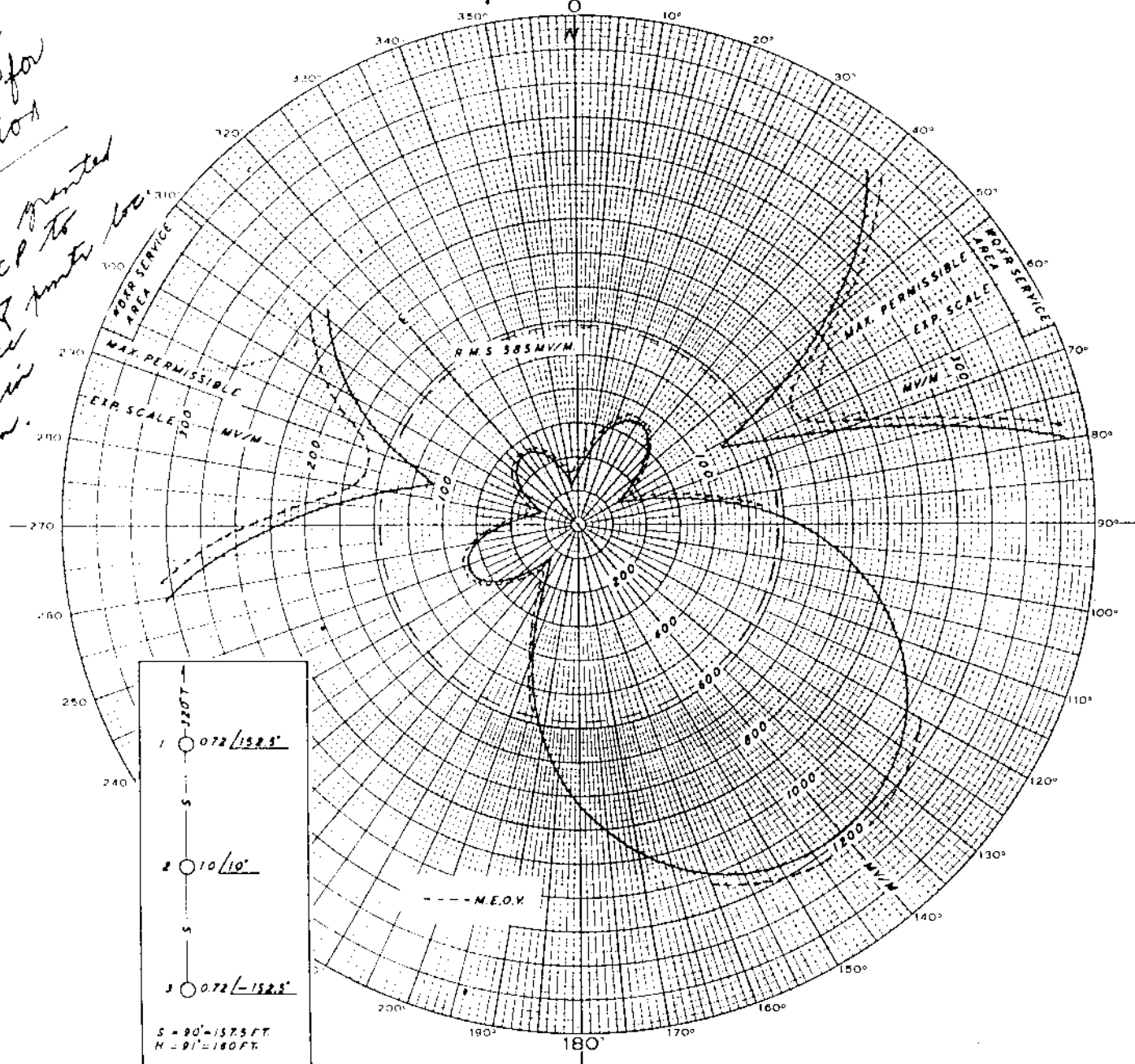
WWGM

PROPOSED DAY
(6-17-60g)

New; Second Thursday Corp.
Nashville, Tennessee

10kw, DA-D,D
1560 kc

4-12-62
granted CP for
new station
7-12-62 granted
mod. of CP to
change
and make
changes in
DA system.



North Latitude 36° 09' 46"
West Longitude 86° 43' 52"

HORIZONTAL RADIATION PATTERN

NASHVILLE, TENN.

1560 KC. 10 KW. DA-D.

W. J. HOLEY
MAR 1960

θ = 90°

FCC File No. BP-14168
Accepted 6-13-60

Second Thursday Corporation
Nashville, Tennessee

1560 KC

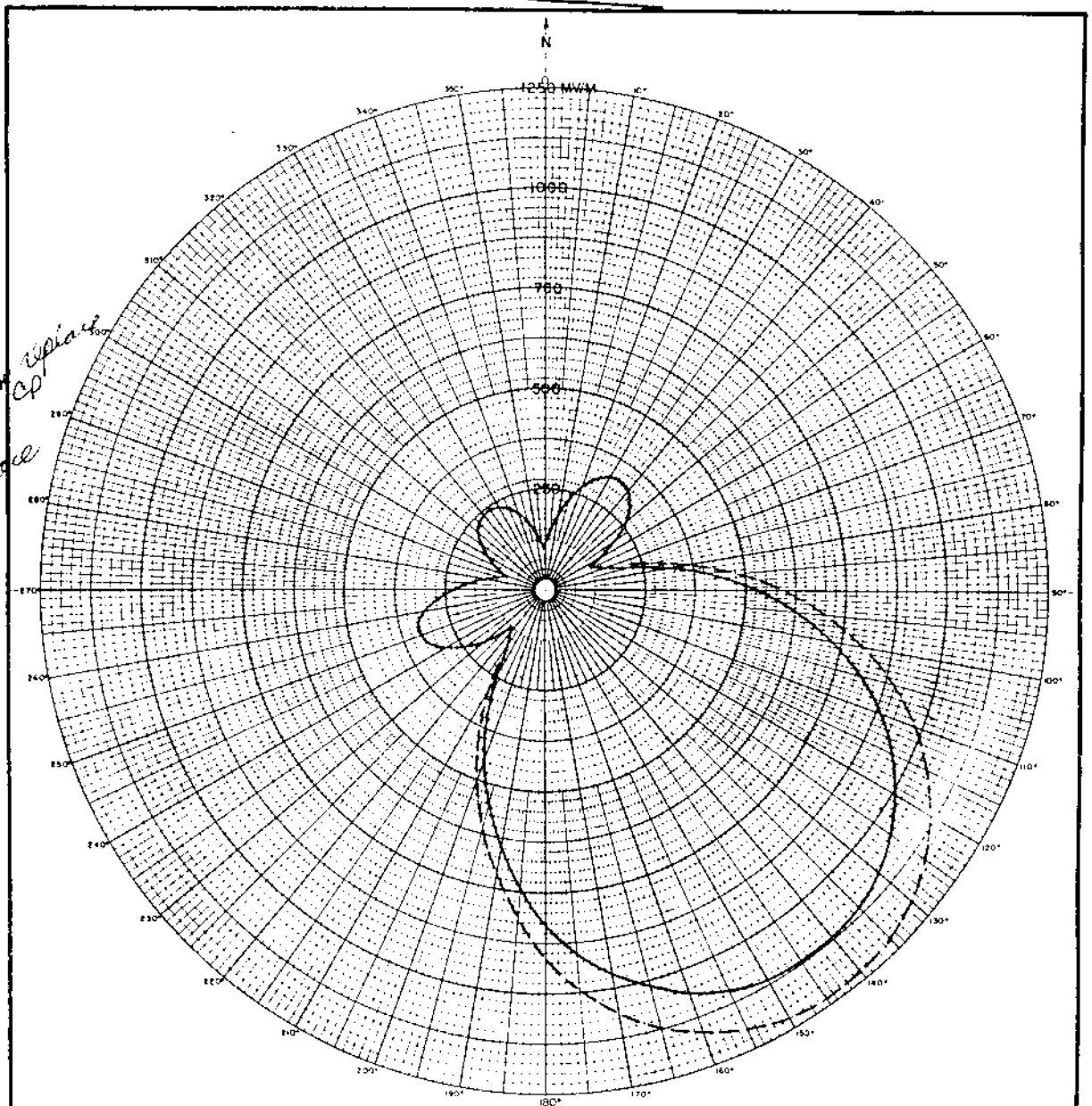
W WGM

Proposed Day
(6-22-62ct)

New; Second Thursday Corporation
Nashville, Tennessee

10kw, DA-D, D
1560 kc

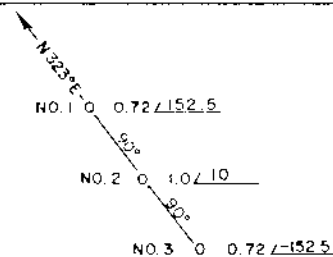
7-12-62
revised mod.
CP to change
transmitter
loc. & make
change in
DA system.
Application accepted
4-22-63
granted CP to replace
expired permit



--- MEOV

FIGURE 1-A

HORIZONTAL RADIATION PATTERN



G (ALL TOWERS) * 91°

APPLICANT	SECOND THURSDAY CORP
LOCATION	NASHVILLE, TENNESSEE
FREQUENCY	1560 KC/S
POWER	10 KW, DA-D
LATITUDE	36 DEG 12 MIN 32 SEC
LONGITUDE	86 DEG 52 MIN 21 SEC
WHEN USED	DAYTIME
RMS FIELD	553.4
DATE	APRIL 1962

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

FCC File No. BMP-10295
Accepted 5-29-62

New; Second Thursday Corporation
Nashville, Tennessee

1560 kc

W. WGM

Measured Day
(6-28-63ct)

Station WLVN
Nashville, Tennessee

10kw, DA-D, D
1560 kc

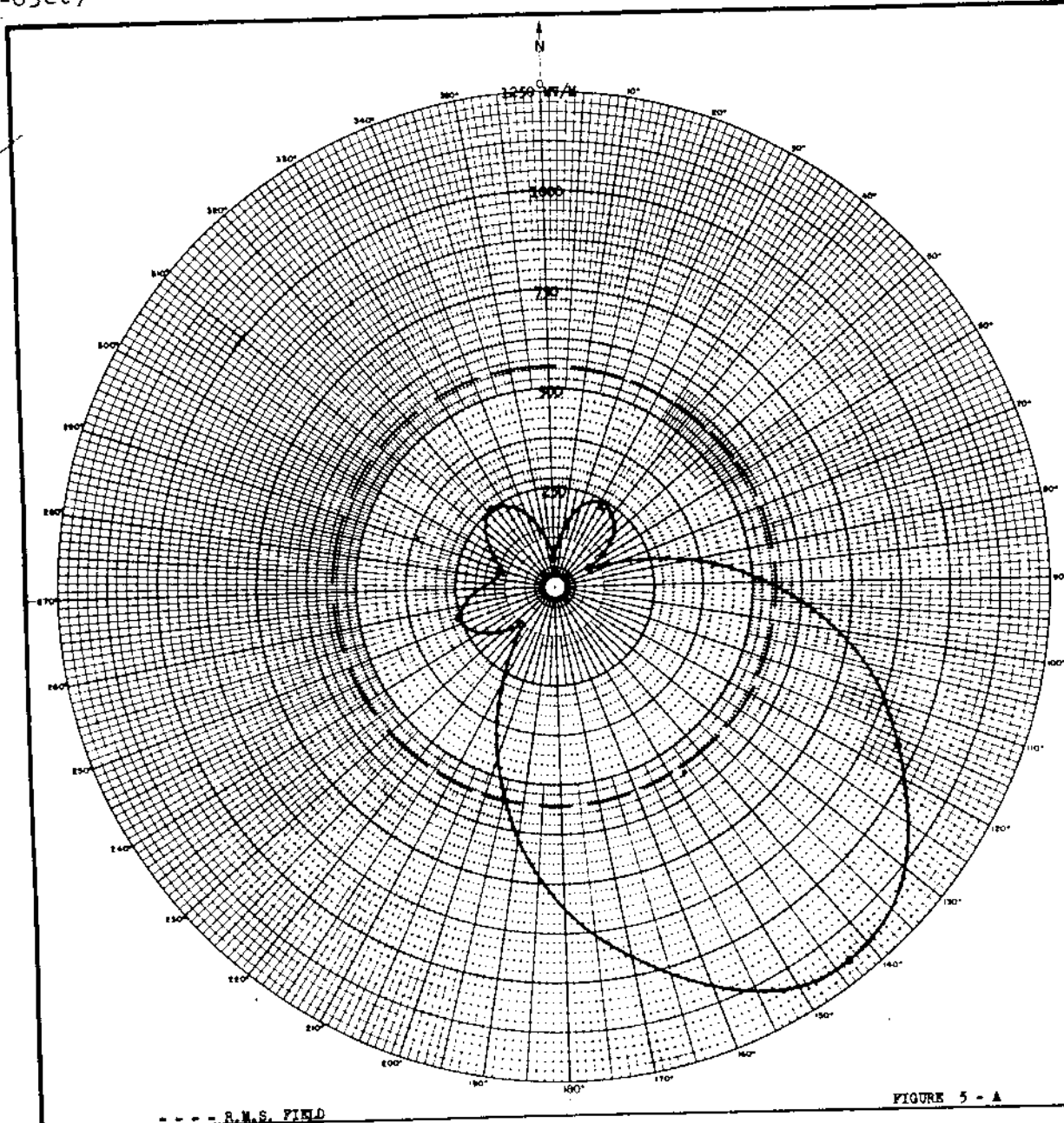
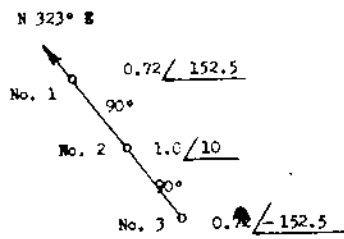


FIGURE 5 - A

--- R.M.S. FIELD

HORIZONTAL RADIATION PATTERN



G (ALL TOWERS) = 91°

APPLICANT	WLVN
LOCATION	NASHVILLE, TENNESSEE
FREQUENCY	1560 KC/S
POWER	10 KW, DA-D
LATITUDE	36 DEG 12 MIN 32 SEC
LONGITUDE	86 DEG 52 MIN 21 SEC
WHEN USED	DATTIME
R.M.S. FIELD	559.5 MV/M
DATE	APRIL 1963
RAYMOND E. ROHRER & ASSOCIATES	
CONSULTING RADIO ENGINEERS	
WASHINGTON, D. C.	

FCC File No. BL-10075
Accepted 6-18-63

Station WLVN
Nashville, Tennessee

1560 kc

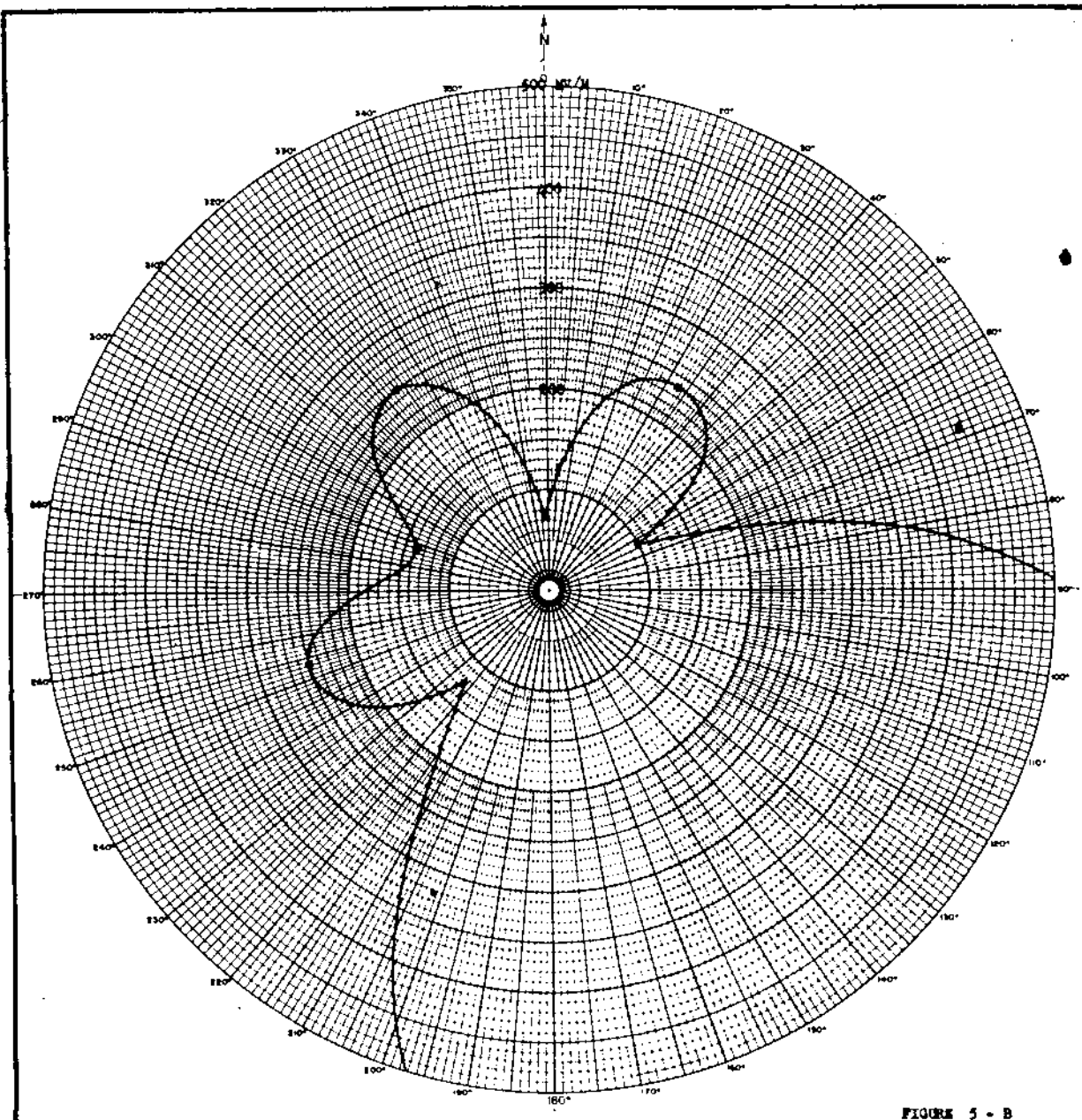
W WGM

Measured Day Nulls
(6-28-63ct)

Station WLVN
Nashville, Tennessee

10kw, DA-D, D
1560 kc

LIC.
8-5-64



EXPANDED VIEW

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

FCC File No. BL-10075
Accepted 6-18-63

Station WLVN
Nashville, Tennessee

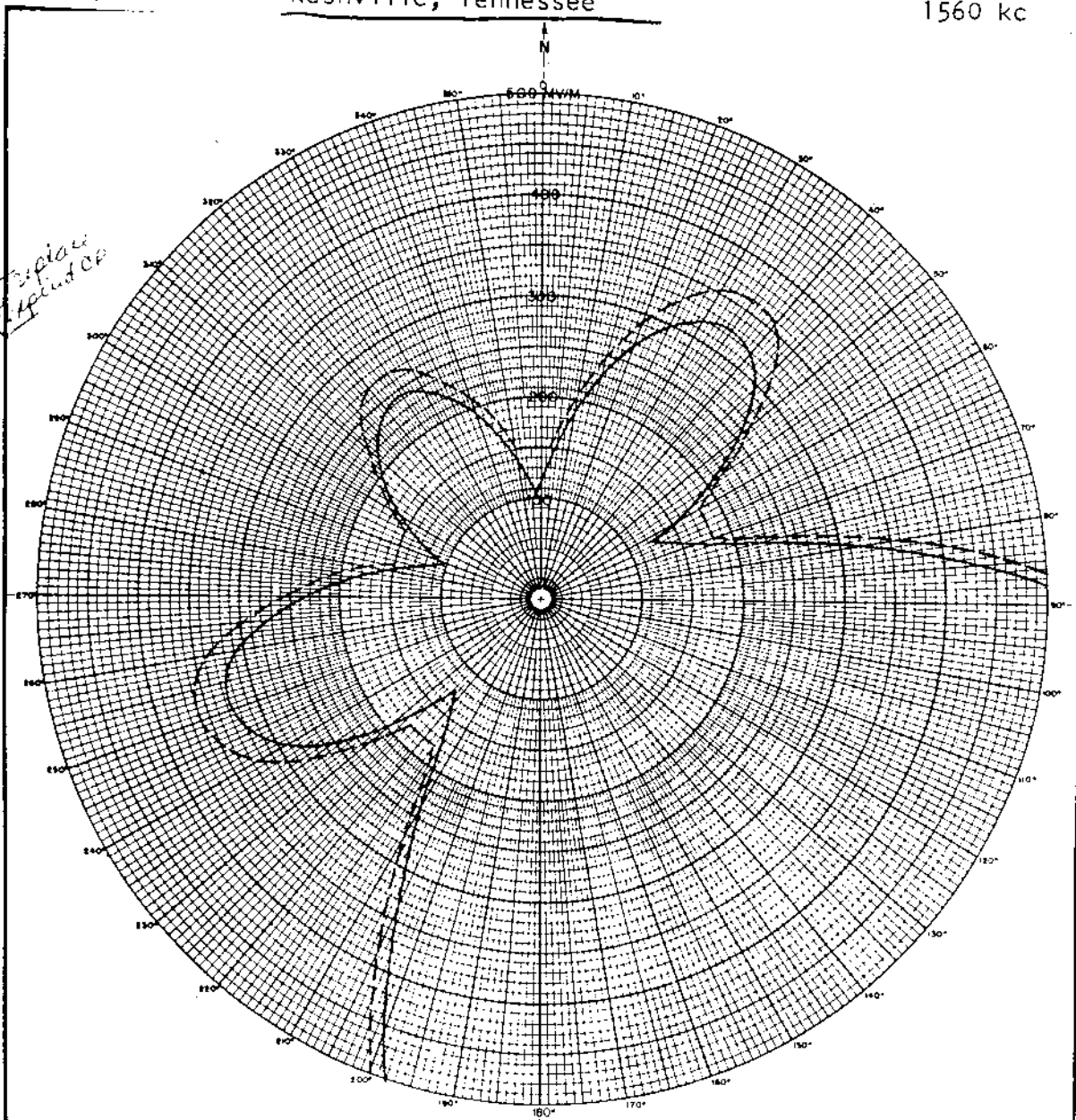
1560 kc

W WGM

Proposed Day Nulls
(6-22-62ct)

New; Second Thursday Corporation 10kw, DA-D, D
Nashville, Tennessee 1560 kc

-12-62
granted mod. of
3P to change
to 7mhz for
to make change
in DA system
application accepted
1-22-63 granted
3P to replace
expired permit



EXPANDED SCALE

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

FCC File No. BMP-10295
Accepted 5-29-62

New; Second Thursday Corporation
Nashville, Tennessee

1560 kc

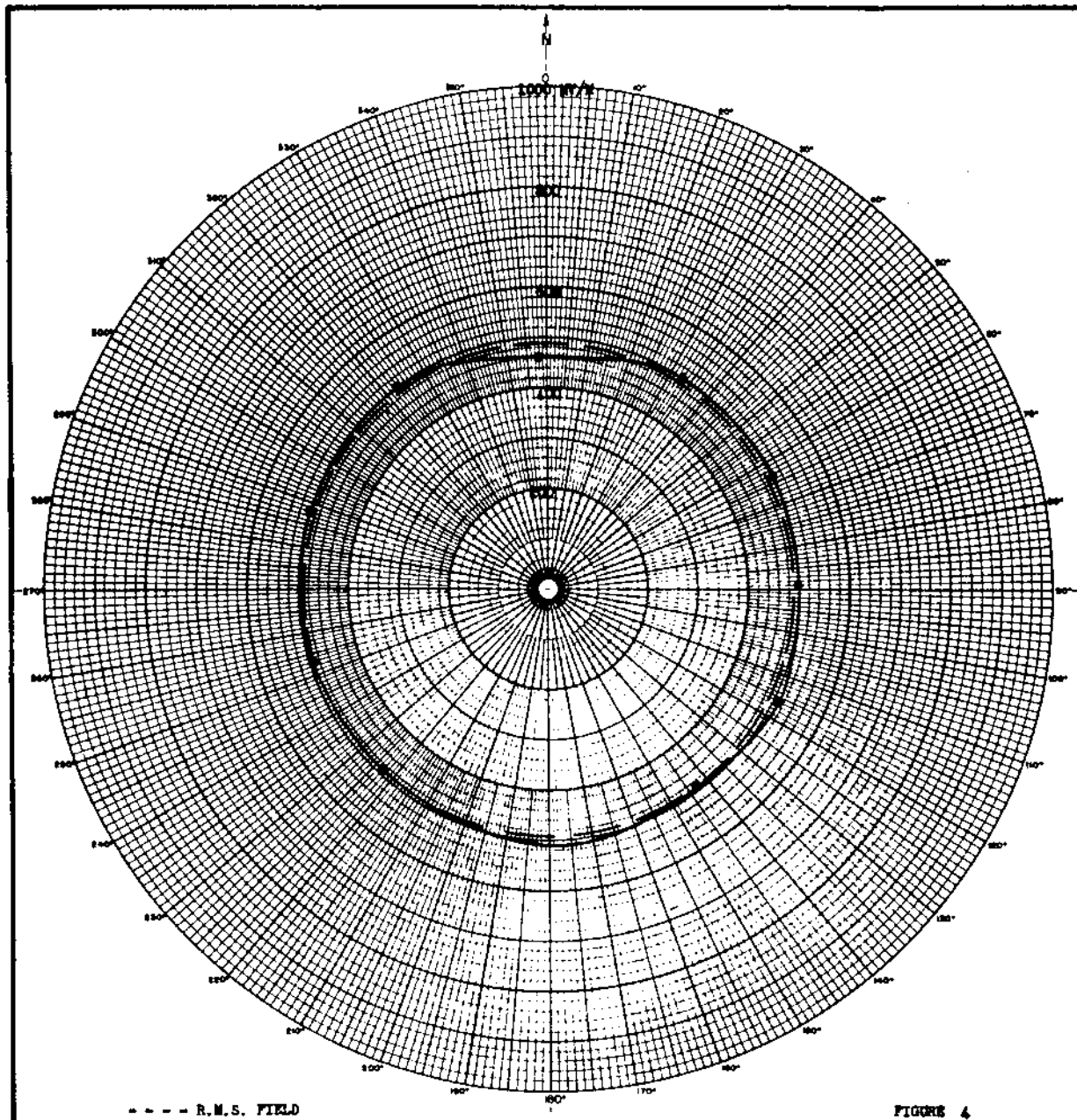
W WGM

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

Station WLVN
Nashville, Tennessee

10kw, DA-D, D
1560 kc

LIC. 8-5-64



HORIZONTAL RADIATION PATTERN

NON-DIRECTIONAL FIELD SURVEY

APPLICANT :	WLVN
LOCATION :	NASHVILLE, TENNESSEE
FREQUENCY :	1560 KC/SEC
POWER :	10 KW, DA-D
LATITUDE :	36 DEG. 12 MIN. 32 SEC.
LONGITUDE :	86 DEG. 52 MIN. 21 SEC.
WHEN USED :	NON-DIRECTIONAL PROOF
R.M.S. FIELD :	193 MV/M
DATE :	APRIL 1963

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

FCC File No. BL-10075
Accepted 6-18-63

Station WLVN
Nashville, Tennessee

1560 kc

BP-18378
 GR(1-3-70) Appl. To DISCONTINUE NIGHTTIME OPERATION

WYSE

Measured Night
 (2-28-66ct)

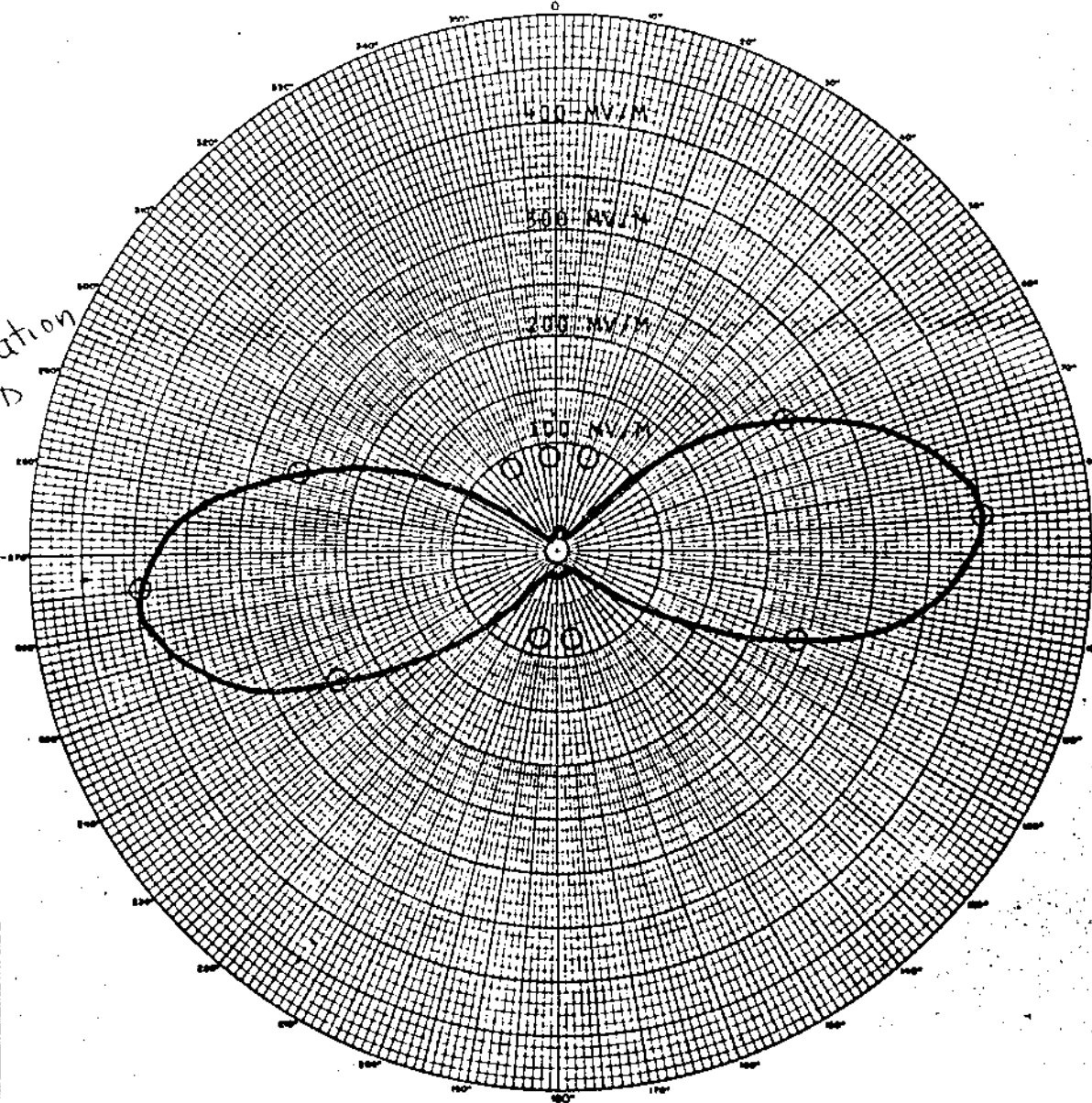
Station WYSE
 Iverness, Florida

1kw, DA-N, U
 1560 kc

LIC 325-66

BP-18378

An application
 was accepted
 12-5-68 by
 the F.C.C.
 for a new CP
 to change
 hours of operation
 from UNLIMITED
 to Daytime
 only



$E_{RMS} = 192 \text{ MV/M}$

○ = MEASURED RADIALS

LATITUDE: N $28^{\circ}50'30''$
 LONGITUDE: W $82^{\circ}22'16''$

ANTENNA PARAMETERS

N 354° E $G = 143^{\circ}$
 $S = 195^{\circ}$
 #3 ● $0.4 / 2^{\circ}$
 ● $1.0 / 0^{\circ}$
 ● $0.62 / -3^{\circ}$

AMBROSE W. KRAMER
 CONSULTING RADIO ENGINEER
 WASHINGTON, D. C.

FIGURE 37

Graph, DA-N Horizontal
 Polar Pattern
 Radio Station W Y S E
 Iverness, Florida
 1560 kc/s, 1 kw, U, DA-N
 BP-16,242
 September 25, 1965

FCC File No. BL-11114
 Accepted 2-11-66

Station WYSE
 Iverness, Florida

1560 kc

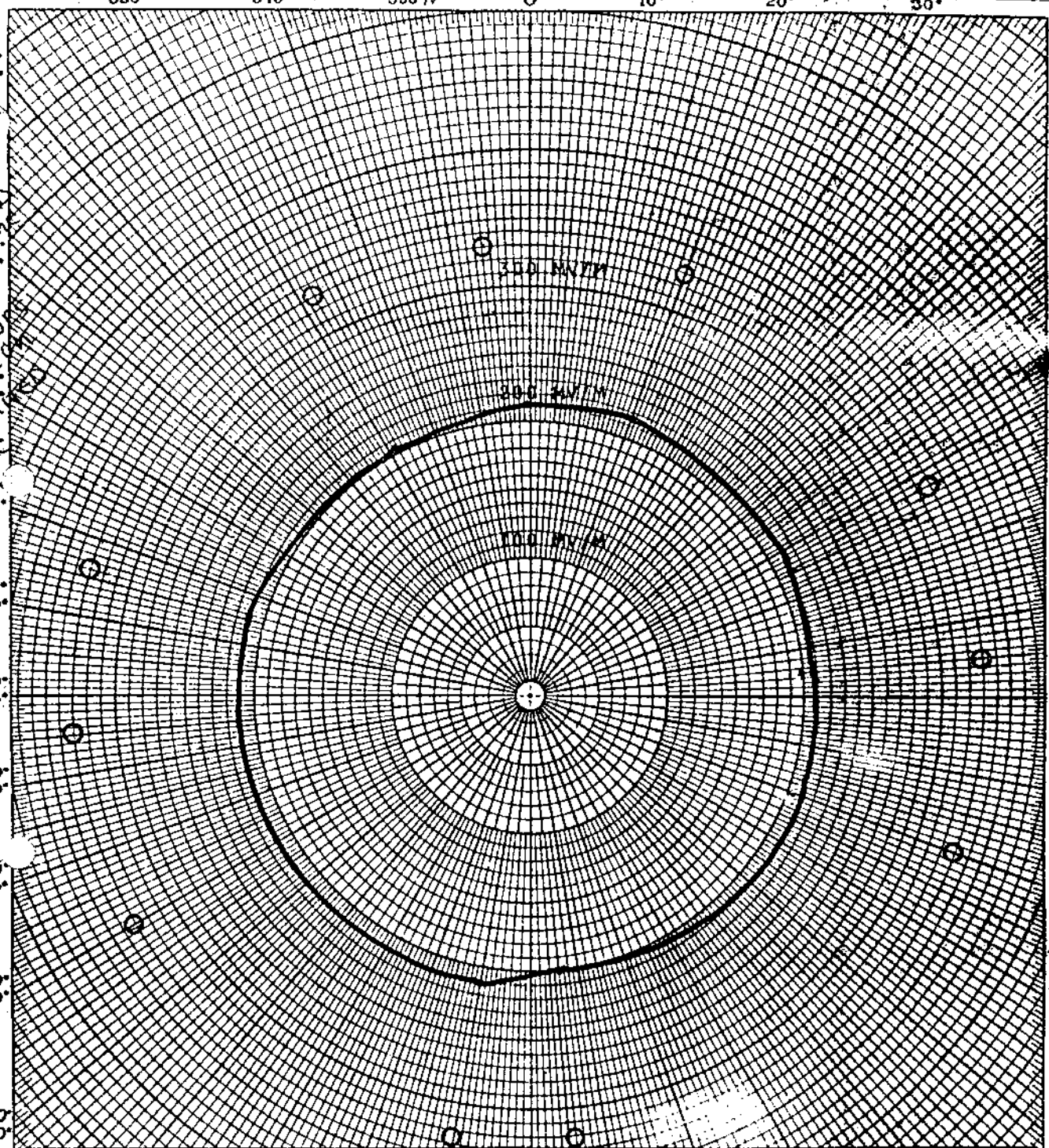
BP-18318
GR. (1-8-70) Appl. To discontinue nighttime operation

WYSE

Measured Non-DA
(2-28-66ct)

Station WYSE
Iverness, Florida

1kw, DA-N, U
1560 kc



○ = MEASURED RADIALS

G = 143°

E_{RMS} = 210 MV/M/M

AMBROSE W. KRAMER
CONSULTING RADIO ENGINEER

FIGURE 35

Graph of N.D.A. Horizontal
Polar Pattern
Radio Station W Y S E
Iverness, Florida
1560 kc/s, 1 kw U, DA-N
BP-16,242

FCC File No. BL-11114
Accepted 2-11-66

Station WYSE
Iverness, Florida

1560 kc

BP 18310
 GE (1-8-70) Appl. to discontinue Nighttime operation

WYSE

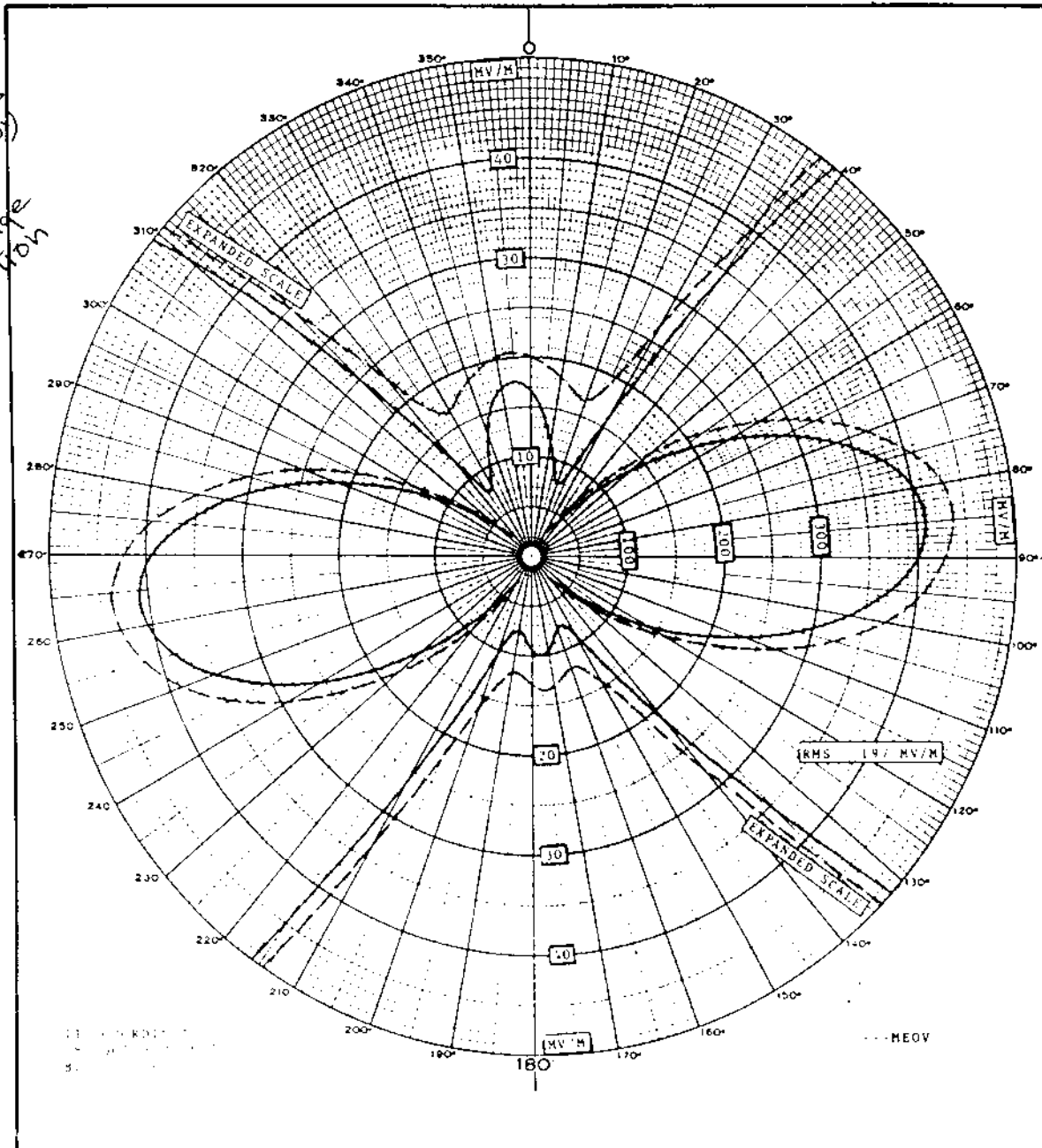
Proposed Night
 (9-29-64ct)

New; Citrus Broadcasting Co.
 Inverness, Florida

WYSE
 1kw, DA-N, U
 1560 kc

Figure 7
 Sheet 1 of 14

BP-16242
 2-8-65 CP
 An application was
 accepted 12-5-68 by
 the F.C.C. for a
 new CP to change
 hours of operation
 from Unlimited to
 Daytime only



PROPOSED HORIZ. DIST. STA. 1 RAP. A. 1560 KC.		
	CITRUS BROADCASTING COMPANY INVERNESS, FLORIDA	
	J. L. Fisher & Associates Consulting Electronic Engineers	
	PROPOSED OPERATION 1560 KC. 1 KW. DA-N, U PRACTICAL 1560 KC.	

FCC File No. BP-16242
 Accepted 9-22-64

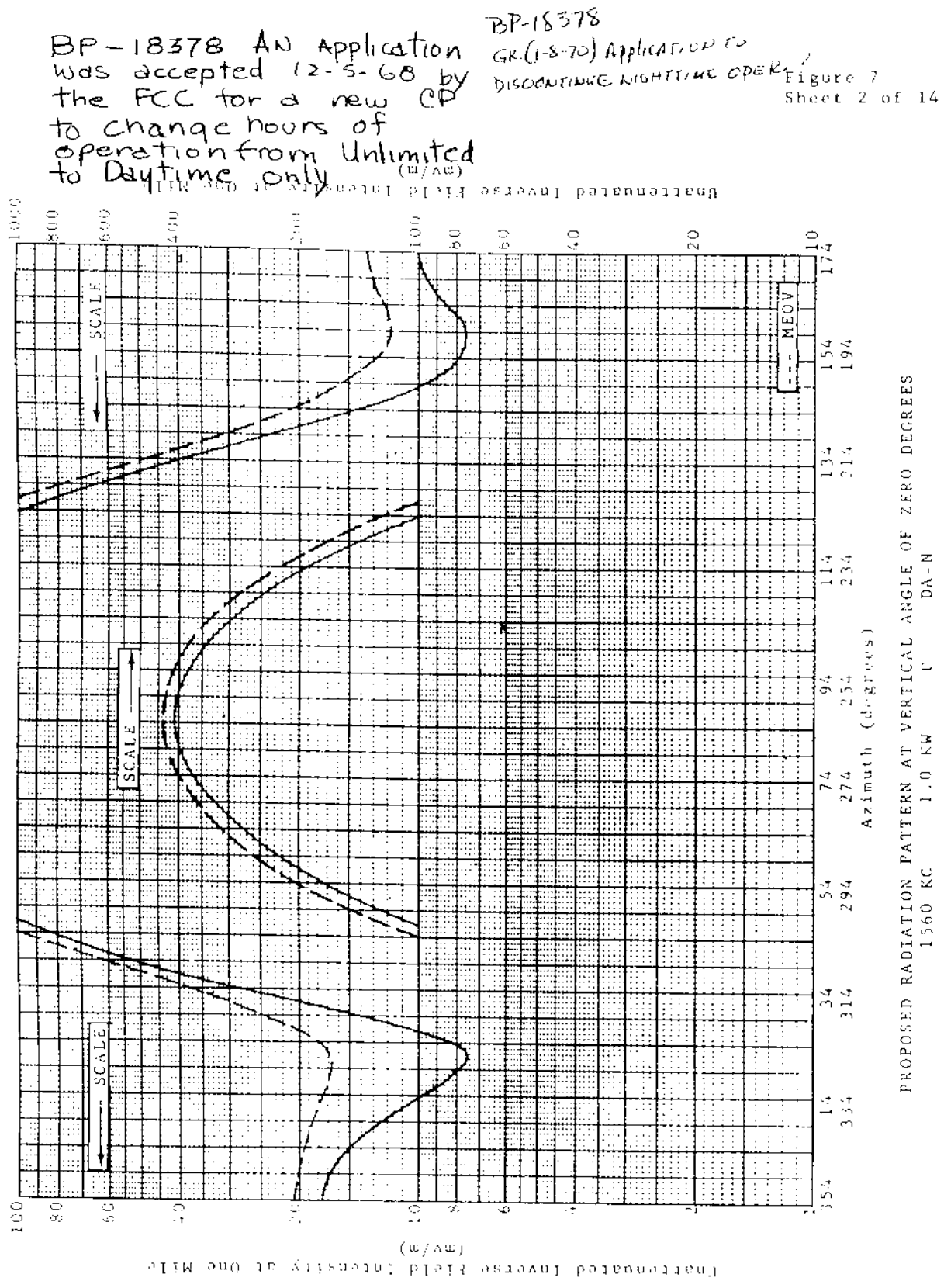
New; Citrus Broadcasting Co.
 Inverness, Florida

1560 kc

WYSE

BP-16242
2-8-65 CP

Proposed Night Nulls (9-29-64ct) 1kw, DA-N, U 1560 kc
New; Citrus Broadcasting Co. Inverness, Florida



CITRUS BROADCASTING COMPANY
FCC File No. BP-16242
Accepted 9-22-64
New; Citrus Broadcasting Co.
Inverness, Florida
1560 kc
INVERNESS, FLORIDA

XEVIP
1560 KHz

XEVIP
1560 KHz. 50KW. AD.

DESCRIPCION DEL SISTEMA DIRECCIONAL

SAN RAFAEL CHAMAPA
NAUCALPAN MEX.

SEPTIEMBRE DE 1979

DESCRIPCION DEL SISTEMA RADIADOR DIRECCIONAL

1. LISTA DE CAMBIOS 293 1.II.80
2. FECHA SEPTIEMBRE DE 1979
3. FRECUENCIA 1560 KHz
4. DISTINTIVO XEVIP
5. POBLACION NAUCALPAN, MEX.
6. UBICACION SAN RAFAEL CHAMAPA
7. POTENCIA 50 KW. AD-D 5 KW. AD-N
8. CLASE II

LAT. 99° 13' 03" LN
LONG. 19° 30' 00" LN

CARACTERISTICAS TECNICAS DEL RADIADOR

9. TIEMPO DE OPERACION 50 KW. AD-D y 5 KW. AD-N
10. SISTEMA DEL RADIADOR AD-I
11. NUMERO DE ELEMENTOS DOS

TIPO DE ELEMENTOS RADIADORES

12. TIPO DE ALIMENTACION SERIE
13. SECCION TRANSVERSAL FORMA TRIANGULAR DIMENSIONES 25 cm. POR SECC.
14. TIPO DE ELEMENTO RADIADOR VERTICAL
15. TIPO DE SOPORTE RETENIDAS TIPO DE RETENES CABLE DE
16. LONGITUD DE TOPE TE CAPACITIVO NO HAY ACERO DE 0 6.3 mm.
17. IMPEDANCIA MUTUA $Z_{12} = 29.05 - j5.12$ IMPEDANCIA PROPIA $R_b = R_{bi} = 45 + j30$
18. NUMERO DE ELEMENTOS DOS $Z_1 = 26.84 + j53.25$
19. ALTURA SOBRE EL AISLADOR 42.7 m. 42.7 m. $Z_2 = 19.98 + j14.37$
20. DEFASAMIENTO 0° 138°
21. RELACION DE CAMPO 1 1
22. DESCRIPCION DE LA ORIENTACION DEL SISTEMA RADIADOR EL EJE DE
LAS TORRES SE ENCUENTRA A 295° RESPECTO DEL NORTE
GEOGRAFICO; LA SEPARACION ENTRE TORRES ES DE 60°; LA
FASE DE LAS CORRIENTES ES DE 138° Y SU RELACION ES LA
UNIDAD.

SISTEMA DE TIERRA

23. NUMERO DE RADIALES POR ELEMENTO 120
24. LONGITUD DE LOS RADIALES 42.74 m (80°)
25. TIPO DEL RADIAL ALAMBRE DE COBRE No 8 Awg.

RADIACION DEL SISTEMA

26. INTENSIDAD DE CAMPO EFECTIVO TEORICO (OMNIDIRECCIONAL) DE LA POTENCIA RADIADA (RCM) 1,248.29
27. INTENSIDAD DE CAMPO EFECTIVO TEORICO A 1609 mts POR KW. DE POTENCIA RADIADA 180 mV/m
28. NOTA PATRON NUEVO

ALV
1560 KHz

PATRON DE RADIACION HORIZONTAL TABULADO

XE VIP

OPERACION DIURNA

1560 KHz

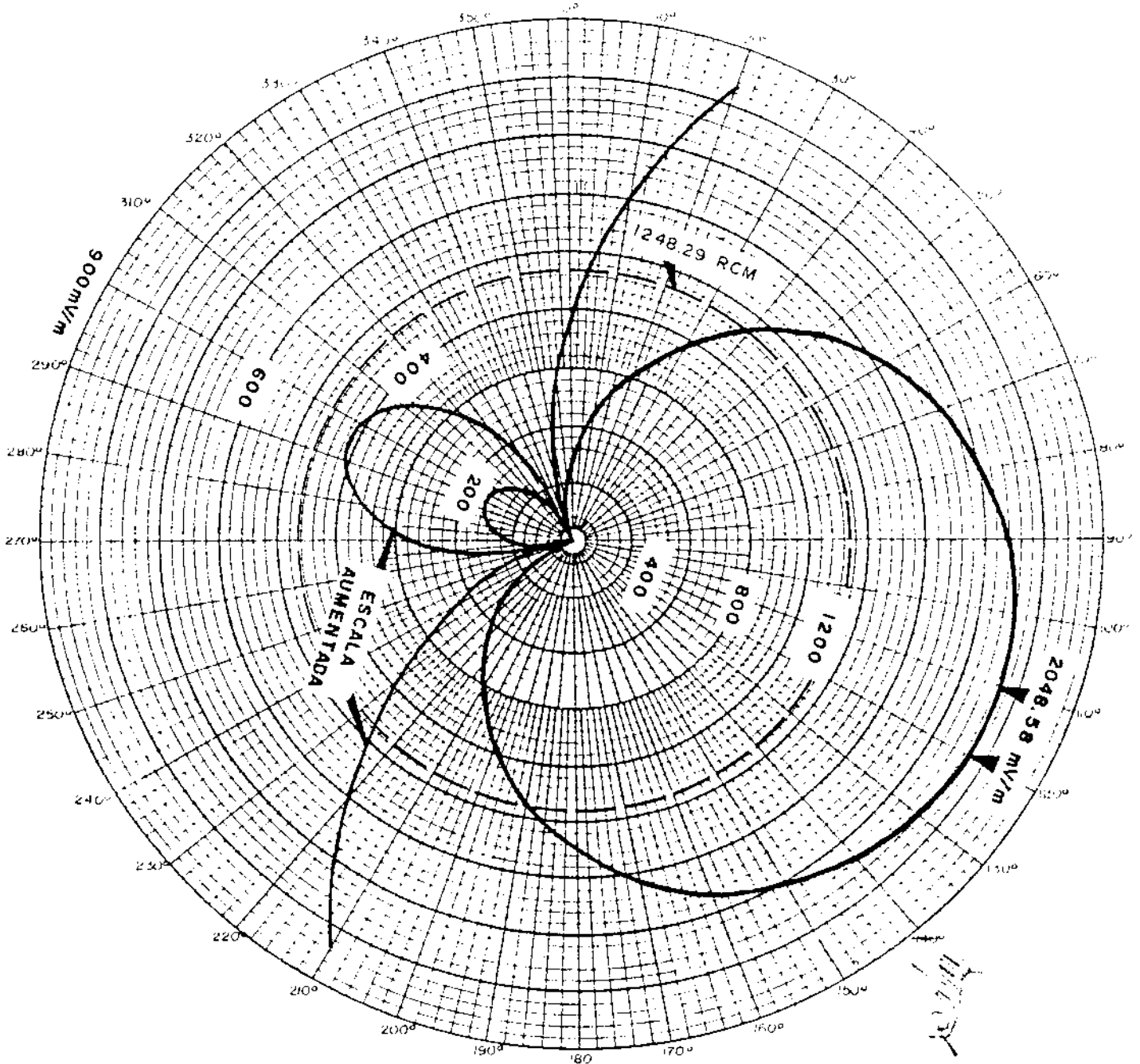
$$E_{\theta} = 2E \cos \left[\frac{S}{2} \cos(295 - \theta) + \frac{\psi}{2} \right]$$

$E_1 = 1320.1537$

$S = 60^{\circ}$

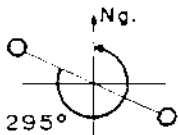
$\psi = 138^{\circ}$

AZIMUT	A	B	C	D	F	E (mV/m)
θ	$\cos(295 - \theta)$	$\frac{S}{2} A$	$B + \frac{\psi}{2}$	$\cos C$	2D	F
0	0.4226	12.6785	81.6785	0.1447	0.2894	382.1229
10	0.2588	7.7645	76.7645	0.2289	0.4579	604.5059
20	0.0871	2.6146	71.6146	0.3154	0.6308	832.7689
30	-0.0871	-2.6146	66.3853	0.4005	0.8011	1057.6641
40	-0.2588	-7.7645	61.2354	0.4812	0.9624	1270.5469
50	-0.4226	-12.6785	56.3214	0.5545	1.1090	1464.1373
60	-0.5735	-17.2072	51.7927	0.6185	1.2370	1633.0524
70	-0.7071	-21.2132	47.7867	0.6718	1.3437	1773.9995
80	-0.8191	-24.5745	44.4254	0.7141	1.4283	1885.6071
90	-0.9063	-27.1892	41.8107	0.7453	1.4907	1967.9551
100	-0.9659	-28.9777	40.0222	0.7657	1.5315	2021.9343
110	-0.9961	-29.8858	39.1141	0.7758	1.5517	2048.5895
120	-0.9961	-29.8858	39.1141	0.7758	1.5517	2048.5895
130	-0.9659	-28.9777	40.0222	0.7657	1.5315	2021.9343
140	-0.9063	-27.1892	41.8107	0.7453	1.4907	1967.9551
150	-0.8191	-24.5745	44.4254	0.7141	1.4283	1885.6071
160	-0.7071	-21.2132	47.7867	0.6718	1.3437	1773.9995
170	-0.5735	-17.2072	51.7927	0.6185	1.2370	1633.0524
180	-0.4226	-12.6785	56.3214	0.5545	1.1090	1464.1373
190	-0.2588	-7.7645	61.2354	0.4812	0.9624	1270.5469
200	-0.0871	-2.6146	66.3853	0.4005	0.8011	1057.6641
210	0.0871	2.6146	71.6146	0.3154	0.6308	832.7689
220	0.2588	7.7645	76.7645	0.2289	0.4579	604.5059
230	0.4226	12.6785	81.6785	0.1447	0.2894	382.1229
240	0.5735	17.2072	86.2079	0.0661	0.1322	174.6481
250	0.7071	21.2132	90.2132	-0.0037	-0.0074	-9.8248
260	0.8191	24.5745	93.5745	-0.0623	-0.1246	-164.6163
270	0.9063	27.1892	96.1892	-0.1078	-0.2156	-284.6583
280	0.9659	28.9777	97.9777	-0.1387	-0.2775	-366.4455
290	0.9961	29.8858	98.8858	-0.1544	-0.3089	-407.8383
300	0.9961	29.8858	98.8858	-0.1544	-0.3089	-407.8383
310	0.9659	28.9777	97.9777	-0.1387	-0.2775	-366.4455
320	0.9063	27.1892	96.1892	-0.1078	-0.2156	-284.6583
330	0.8191	24.5745	93.5745	-0.0623	-0.1246	-164.6163
340	0.7071	21.2132	90.2132	-0.0037	-0.0074	-9.8248
350	0.5735	17.2072	86.2079	0.0661	0.1322	174.6481



PATRON DE RADIACION HORIZONTAL CALCULADO

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



XE VIP

1560 KHz
50 KW

ING. ANTONIO DE AVILA S.

PATRON DE RADIACION HORIZONTAL TABULADO

OPERACION XXXXXXXXXX
NOCTURNA

$$E_{\theta} = 2E \cos \left[\frac{s}{2} \cos(295^{\circ} - \theta) + \frac{\psi}{2} \right]$$

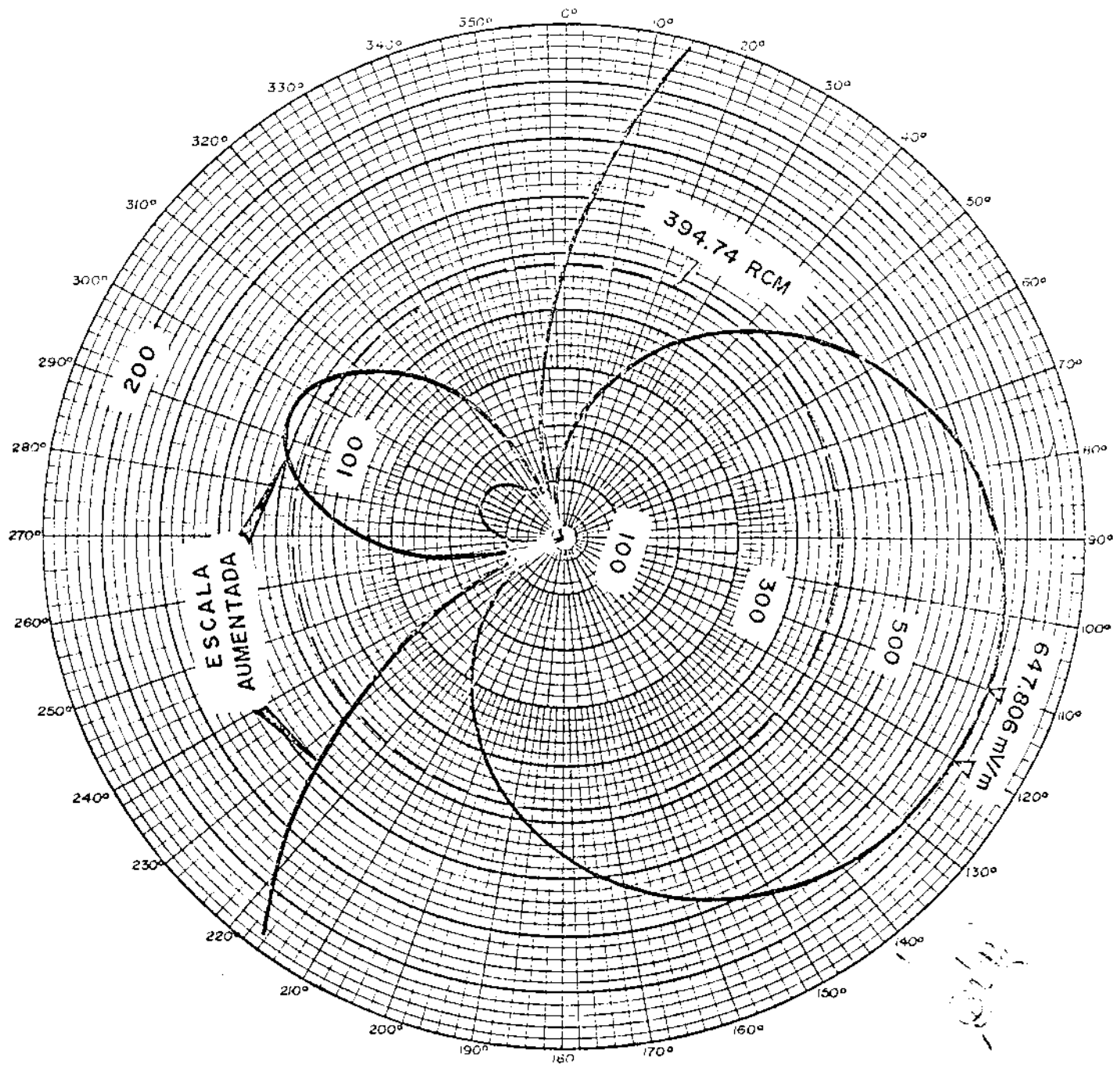
$$E_0 = 417.46$$

$$s = 60^{\circ}$$

$$\psi = 138^{\circ}$$

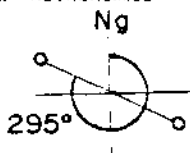
AZIMUT	A	B	C	D	F	E (mV/M)
θ	$\cos(295^{\circ} - \theta)$	$\frac{s}{2} A$	$B + \frac{\psi}{2}$	$\cos C$	$2D$	$ F $
0°	0.4226	12.6785	81.6785	0.1447	0.2894	120.8351
10°	0.2588	7.7645	76.7645	0.2289	0.4579	191.1573
20°	0.0871	2.6146	71.6146	0.3154	0.6308	263.3388
30°	0.0871	2.6146	66.3853	0.4005	0.8011	334.4550
40°	0.2588	7.7645	61.2354	0.4812	0.9624	401.7732
50°	0.4226	12.6785	56.3214	0.5545	1.1090	462.9906
60°	0.5735	17.2079	51.7927	0.6185	1.2380	516.4050
70°	0.7071	21.2132	47.7867	0.6718	1.3437	560.9754
80°	0.8191	24.5745	44.4254	0.7141	1.4283	596.2681
90°	0.9063	27.1892	41.8107	0.7453	1.4907	622.3082
100°	0.9659	28.9777	40.0222	0.7657	1.5315	639.3776
110°	0.9961	29.8858	39.1141	0.7758	1.5517	647.8065
120°	0.9961	29.8858	39.1141	0.7758	1.5517	647.8065
130°	0.9659	28.9777	40.0222	0.7657	1.5315	639.3776
140°	0.9063	27.1892	41.8107	0.7453	1.4907	622.3082
150°	0.8191	24.5745	44.4254	0.7141	1.4283	596.2681
160°	0.7071	21.2132	47.7867	0.6718	1.3437	560.9754
170°	0.5735	17.2072	51.7927	0.6185	1.2370	516.4050
180°	0.4226	12.6785	56.3214	0.5545	1.1090	462.9906
190°	0.2588	7.7645	61.2354	0.4812	0.9624	401.7732
200°	0.0871	2.6146	66.3853	0.4005	0.8011	334.4550
210°	0.0871	2.6146	71.6146	0.3154	0.6308	263.3388
220°	0.2588	7.7645	76.7645	0.2289	0.4579	191.1573
230°	0.4226	12.6785	81.6785	0.1447	0.2894	120.8351
240°	0.5735	17.2072	86.2072	0.0661	0.1322	55.2273
250°	0.7071	21.2132	90.2132	0.0037	0.0074	3.0892
260°	0.8191	24.5745	93.5745	0.0623	0.1247	52.0550
270°	0.9063	27.1892	96.1892	0.1078	0.2176	90.0148
280°	0.9659	28.9777	97.9777	0.1387	0.2775	115.8770
290°	0.9961	29.8858	98.8858	0.1544	0.3089	128.9660
300°	0.9961	29.8858	98.8858	0.1544	0.3089	128.9660
310°	0.9659	28.9777	97.9777	0.1387	0.2775	115.8770
320°	0.9063	27.1892	96.1892	0.1098	0.2156	90.0148
330°	0.8191	24.5745	93.5745	0.0623	0.1246	52.0550
340°	0.7071	21.2132	90.2132	0.0037	0.0074	3.0892
350°	0.5735	17.2072	86.2072	0.0661	0.1322	55.2273

XEVIP
1560 KHZ



PATRON DE RADIACION HORIZONTAL CALCULADO

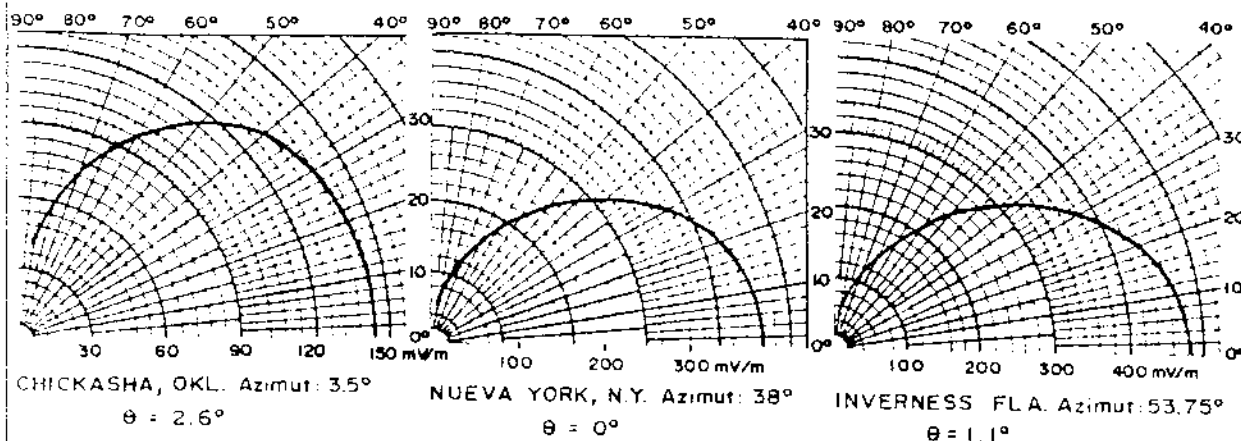
ESQUEMA DE LAS TORRES Y SU
ORIENTACION CON RESPECTO AL
NORTE ASTRONOMICO



XEVIP

1560 KHZ.
5 KW AD-N

DISEÑO
ING. ANTONIO DE AVILA



$$E = 834.92 f(\theta) \cos(30^\circ \cos \phi \cos \theta + 69^\circ)$$

θ	E mV/m
0°	145.05
10°	144.43
20°	142.21
30°	137.53
40°	129.22
50°	116.12
60°	97.28
70°	71.98
80°	39.68
90°	

θ	E mV/m
0°	388.73
10°	379.46
20°	352.84
30°	312.09
40°	260.71
50°	206.40
60°	150.21
70°	96.10
80°	45.78
90°	

θ	E mV/m
0°	484.01
10°	471.52
20°	435.78
30°	381.43
40°	314.93
50°	243.15
60°	172.08
70°	106.22
80°	48.38
90°	

PATRONES DE RADIACION EN EL PLANO VERTICAL

FRECUENCIA:

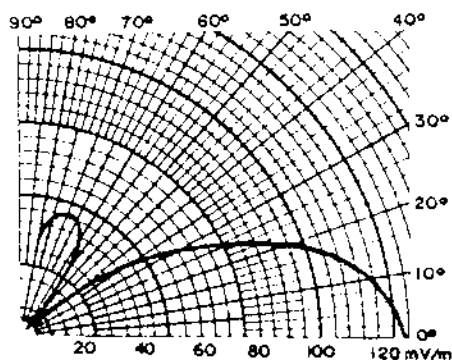
1560 KHz.
5 KW. AD-N

RADIODIFUSORA:

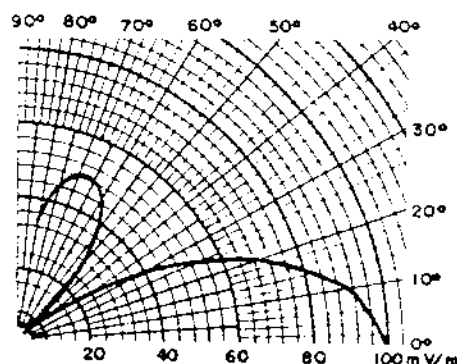
X E V I P

DISEÑO:

ING. ANTONIO
DE AVILA S.



SALAMANCA, GTO. Azimut: 301.5°
 $\theta = 40^\circ$



BAKESFIELD, CAL. Azimut: 317°
 $\theta = 2.3^\circ$

$$E = 834.92 f(\theta) \cos(30^\circ \cos \phi \cos \theta + 69^\circ)$$

θ	E mV/m
0°	-127.83
10°	-118.82
20°	-93.75
30°	-58.00
40°	-18.99
50°	15.49
60°	38.65
70°	45.53
80°	33.08
90°	

θ	E mV/m
0°	-99.08
10°	-91.06
20°	-68.79
30°	-37.24
40°	-3.18
50°	-26.25
60°	44.93
70°	48.36
80°	33.78
90°	

PATRONES DE RADIACION EN EL PLANO VERTICAL

FRECUENCIA:

1560 KHz
5 KW. AD-N

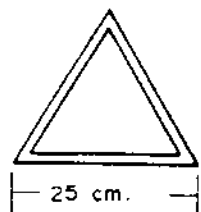
RADIODIFUSORA:

X E V I P

DISENO:

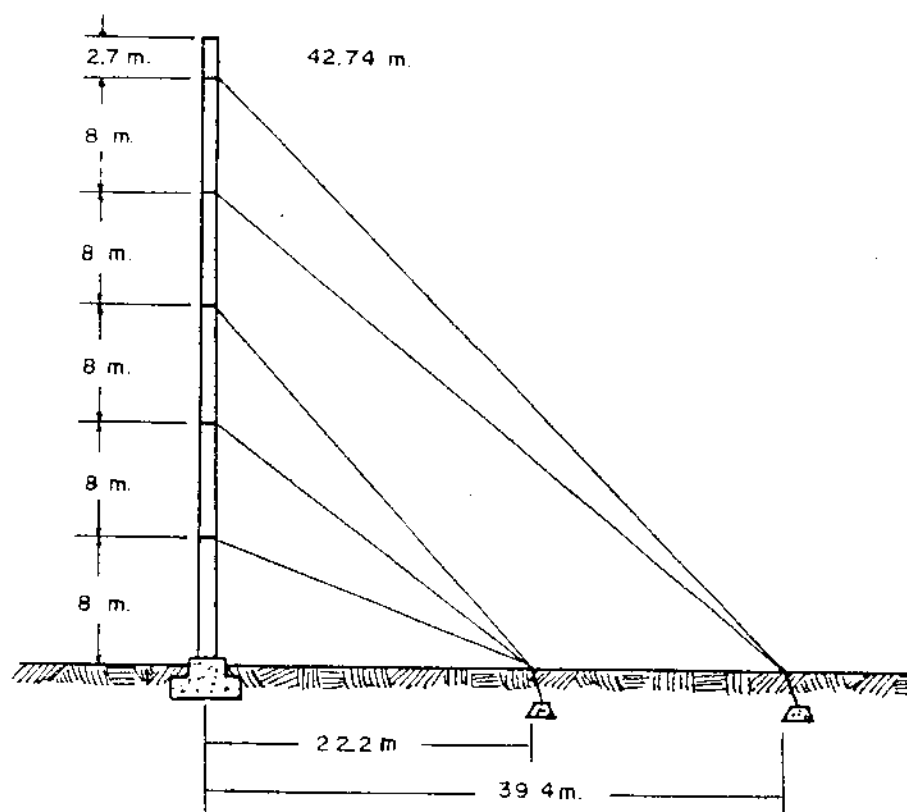
ING. ANTONIO
DE AVILA S.

XEVIP
1560 KHz



SECCION TRANSVERSAL

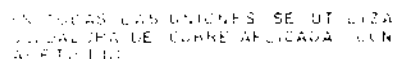
ESCALA: 1: 500



DETALLE DE LA TORRE Y RETENIDAS

XEVIP 1560 KHz
50 KW. AD.

SAN RAFAEL CHAMAPA
NAUCALPAN, MEX.

[illegible]

DISTINTIVO DE LLAMADA

CO-ORDINATES GEOGRAPHICS

Feb. 1950 10 10

i W 1990

6. In F. C. C. 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847,

RENTAL FIVE PER CENT
TAX ON FIVE PER CENT
RENTAL FIVE PER CENT

1998

SEPTEMBRE DE 1979

XEVIP

1560 KHz.

50KW. AD.

DESCRIPCION DEL SISTEMA DIRECCIONAL

SAN RAFAEL CHAMAPA
NAUCALPAN MEX.

SEPTIEMBRE DE 1979

[Handwritten signature]

DESCRIPCION DEL SISTEMA RADIADOR DIRECCIONAL

1. LISTA DE CAMBIOS 293 1.II.80
2. FECHA SEPTIEMBRE DE 1979
3. FRECUENCIA 1560 KHZ
4. DISTINTIVO XEVIP
5. POBLACION NAUCALPAN, MEX.
6. UBICACION SAN RAFAEL CHAMAPA
7. POTENCIA 50 KW. AD-D 5 KW. AD-N
8. CLASE II

LAT. 99° 13' 03" LN
LONG. 19° 30' 00" LN

CARACTERISTICAS TECNICAS DEL RADIADOR

9. TIEMPO DE OPERACION 50 KW. AD-D y 5 KW. AD-N
10. SISTEMA DEL RADIADOR AD-I
11. NUMERO DE ELEMENTOS DOS

TIPO DE ELEMENTOS RADIADORES

12. TIPO DE ALIMENTACION SERIE
13. SECCION TRANSVERSAL FORMA TRIANGULAR DIMENSIONES 25 cm. POR SECC.
14. TIPO DE ELEMENTO RADIADOR VERTICAL
15. TIPO DE SOPORTE RETENIDAS TIPO DE RETENES CABLE DE
16. LONGITUD DE TOPETE CAPACITIVO NO HAY ACERO DE 0 6.3 mm.
17. IMPEDANCIA MUTUA $Z_{12} = 29.05 - j 5.12$ IMPEDANCIA PROPIA $R_{b2} = R_{b1} = 45 + j 30$
18. NUMERO DE ELEMENTOS DOS $Z_1 = 26.84 + j 53.25$
19. ALTURA SOBRE EL AISLADOR 42.7 m. 42.7 m. $Z_2 = 19.98 + j 14.37$
20. DEFASAMIENTO 0° 138°
21. RELACION DE CAMPO I I
22. DESCRIPCION DE LA ORIENTACION DEL SISTEMA RADIADOR EL EJE DE
LAS TORRES SE ENCUENTRA A 295° RESPECTO DEL NORTE
GEOGRAFICO; LA SEPARACION ENTRE TORRES ES DE 60°; LA
FASE DE LAS CORRIENTES ES DE 138° Y SU RELACION ES LA
UNIDAD.

SISTEMA DE TIERRA

23. NUMERO DE RADIALES POR ELEMENTO 120
24. LONGITUD DE LOS RADIALES 42.74 m (80°)
25. TIPO DEL RADIAL ALAMBRE DE COBRE No 8 Awg

RADIACION DEL SISTEMA

26. INTENSIDAD DE CAMPO EFECTIVO TEORICO (OMNIDIRECCIONAL) DE LA POTENCIA RADIADA (RCM) 1,248.29
27. INTENSIDAD DE CAMPO EFECTIVO TEORICO A 1609 mts POR KW DE POTENCIA RADIADA 180 mV/m
28. NOTA PATRON NUEVO

PATRON DE RADIACION HORIZONTAL TABULADO

XE VIP

1560 KHz

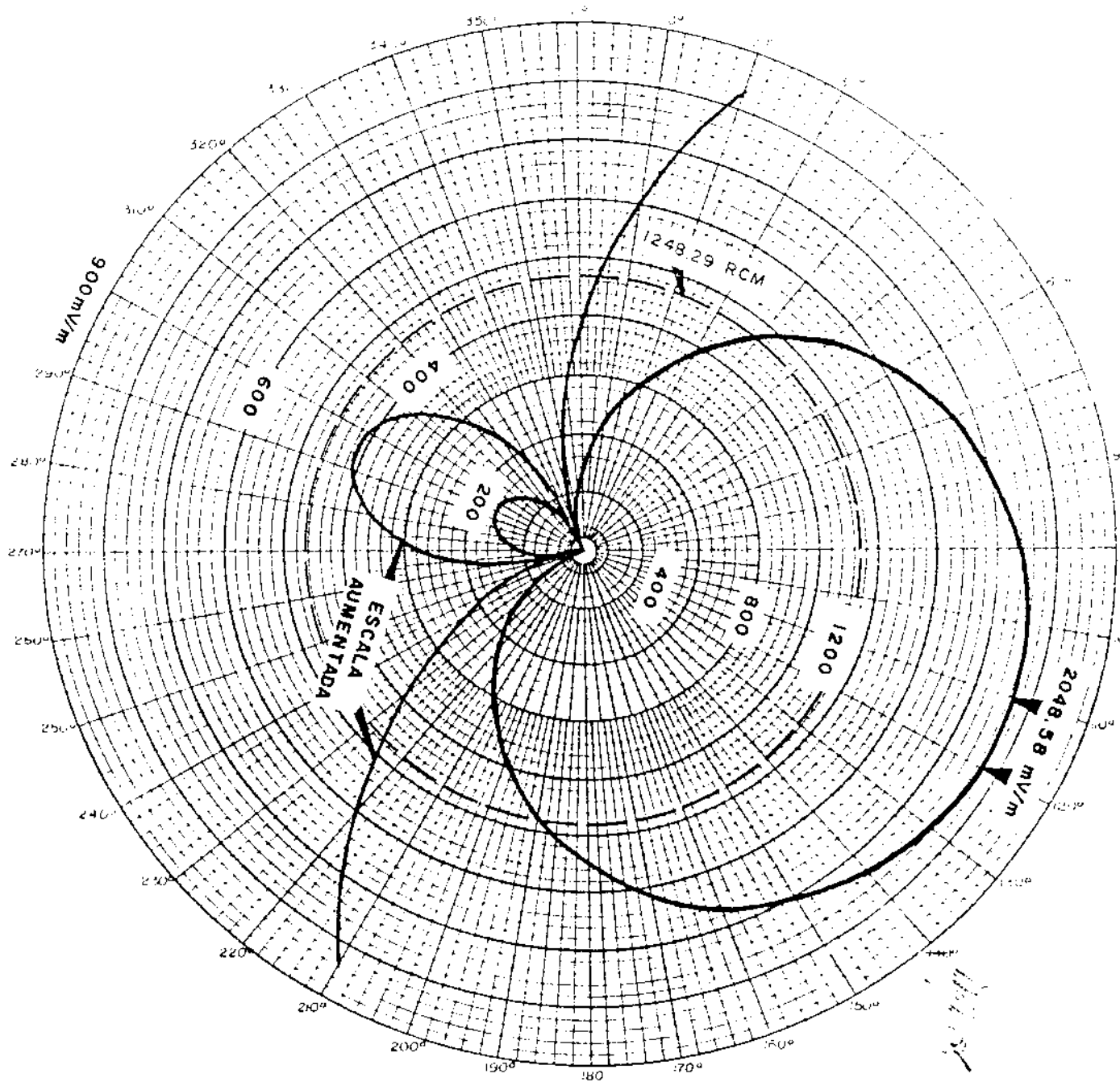
OPERACION DIURNA

$$E = \cos \left[\frac{S}{2} - \cos(295 - \Theta) + \frac{\Psi}{2} \right]$$

$\Theta = 1320$
 $S = 60^\circ$
 $\Psi = 138^\circ$

AZIMUT	A	B	C	D	F	E (mV/m)
Θ	$\cos(295 - \Theta)$	$\frac{S}{2} A$	$B + \frac{\Psi}{2}$	$\cos C$	2D	F
0	0.4226	12.6785	81.6785	0.1447	0.2894	382.1229
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80	-0.8191	-24.5745	44.4254	0.7141	1.4283	1885.6071
90	-0.9063	-27.1892	41.8107	0.7453	1.4907	1967.9551
100	-0.9659	-28.9777	40.0222	0.7657	1.5315	2021.9343
110	-0.9961	-29.8858	39.1141	0.7758	1.5517	2048.5895
120	-0.9961	-29.8858	39.1141	0.7758	1.5517	2048.5895
130	-0.9659	-28.9777	40.0222	0.7657	1.5315	2021.9343
140	-0.9063	-27.1892	41.8107	0.7453	1.4907	1967.9551
150	-0.8191	-24.5745	44.4254	0.7141	1.4283	1885.6071
160	-0.7071	-21.2132	47.7867	0.6718	1.3437	1773.9995
170	-0.5735	-17.2072	51.7927	0.6185	1.2370	1633.0524
180	-0.4226	-12.6785	56.3214	0.5545	1.1090	1464.1373
190	-0.2588	-7.7645	61.2354	0.4812	0.9624	1270.5469
200	-0.0871	-2.6146	66.3853	0.4005	0.8011	1057.6641
210	0.0871	2.6146	71.6146	0.3154	0.6308	832.7689
220	0.2588	7.7645	76.7645	0.2289	0.4579	604.5059
230	0.4226	12.6785	81.6785	0.1447	0.2894	382.1229
240	0.5735	17.2072	86.2079	0.0661	0.1322	174.6481
250	0.7071	21.2132	90.2132	-0.0037	-0.0074	-9.8248
260	0.8191	24.5745	93.5745	-0.0623	-0.1246	-164.6163
270	0.9063	27.1892	96.1892	-0.1078	-0.2156	-284.6583
280	0.9659	28.9777	97.9777	-0.1387	-0.2775	-366.4455
290	0.9961	29.8858	98.8858	-0.1544	-0.3089	-407.8383
300	0.9961	29.8858	98.8858	-0.1544	-0.3089	-407.8383
310	0.9659	28.9777	97.9777	-0.1387	-0.2775	-366.4455
320	0.9063	27.1892	96.1892	-0.1078	-0.2156	-284.6583
330	0.8191	24.5745	93.5745	-0.0623	-0.1246	-164.6163
340	0.7071	21.2132	90.2132	-0.0037	-0.0074	-9.8248
350	0.5735	17.2072	86.2079	0.0661	0.1322	174.6481

XE VIP
1560 KHz



PATRON DE RADIACION HORIZONTAL CALCULADO

ESQUEMA DE LAS TORRES Y SU ORIENTACION EN RESPECTO AL GRUPO ANTENAL

Ng
295°

XE VIP

1560 KHz
50 KW

ING. ANTONIO DE AVILA S.

PATRON DE RADIACION HORIZONTAL TABULADO

OPERACION
NOCTURNA

$$E_{\theta} = 2E \cos \left[\frac{s}{2} \cos(295^{\circ} - \theta) + \frac{\psi}{2} \right]$$

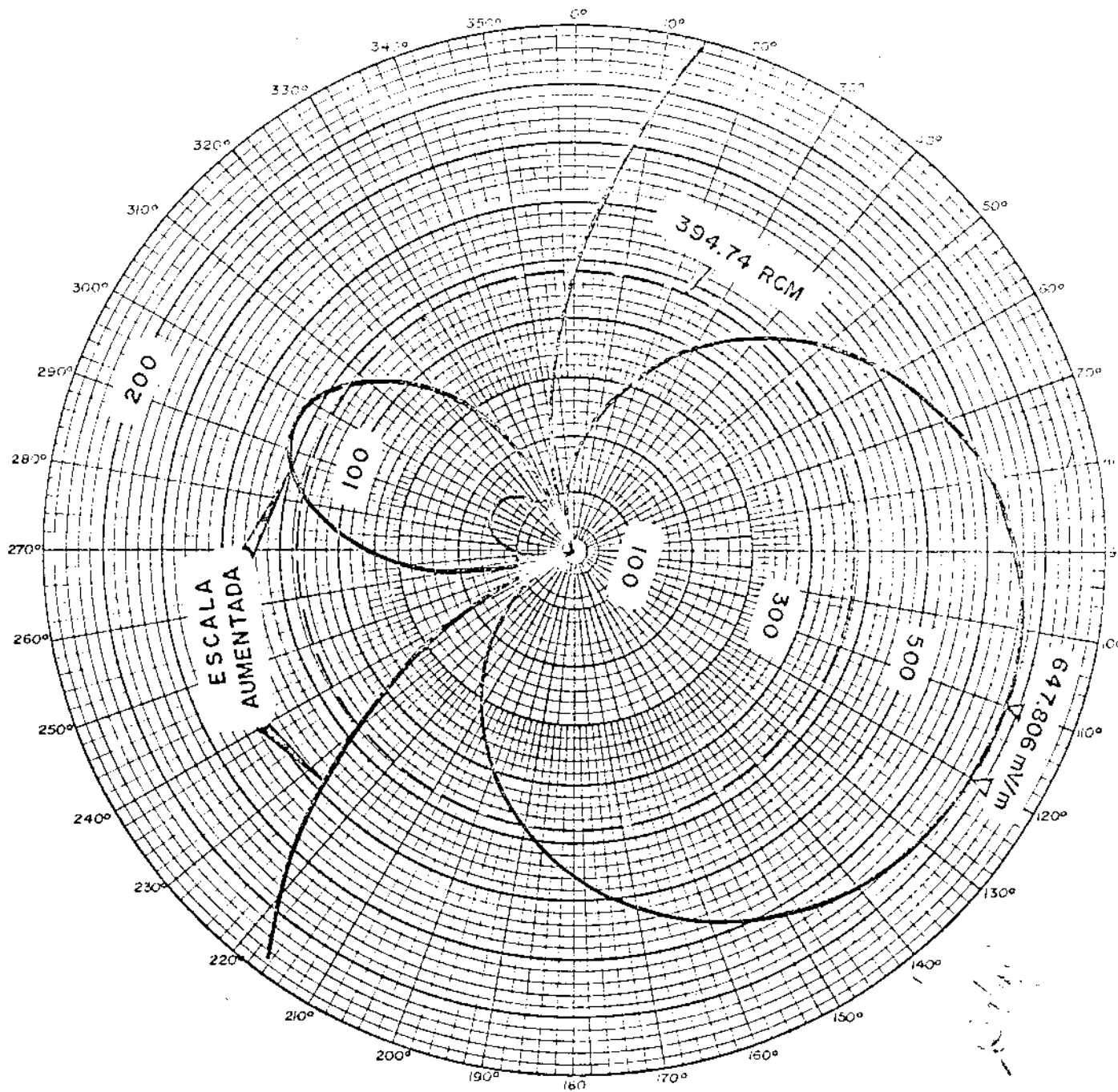
$$E_1 = 417.46$$

$$s = 60^{\circ}$$

$$\psi = 138^{\circ}$$

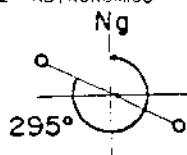
AZIMUT	A	B	C	D	F	E (mV./M)
θ	$\cos(295^{\circ} - \theta)$	$\frac{s}{2} A$	$B + \frac{\psi}{2}$	$\cos C$	2D	F
0°	0.4226	12.6785	81.6785	0.1447	0.2894	120.8351
10°	0.2588	7.7645	76.7645	0.2289	0.4579	191.1573
20°	0.0871	2.6146	71.6146	0.3154	0.6306	263.3388
30°	0.0871	2.6146	66.3853	0.4005	0.8011	334.4550
40°	0.2588	7.7645	61.2354	0.4812	0.9624	401.7732
50°	0.4226	12.6785	56.3214	0.5545	1.1090	462.9906
60°	0.5735	17.2079	51.7927	0.6185	1.2380	516.4050
70°	0.7071	21.2132	47.7867	0.6718	1.3437	560.9754
80°	0.8191	24.5745	44.4254	0.7141	1.4283	596.2681
90°	0.9063	27.1892	41.8107	0.7453	1.4907	622.3082
100°	0.9659	28.9777	40.0222	0.7657	1.5315	639.3776
110°	0.9961	29.8858	39.1141	0.7758	1.5517	647.8065
120°	0.9961	29.8858	39.1141	0.7758	1.5517	647.8065
130°	0.9659	28.9777	40.0222	0.7657	1.5315	639.3776
140°	0.9063	27.1892	41.8107	0.7453	1.4907	622.3082
150°	0.8191	24.5745	44.4254	0.7141	1.4283	596.2681
160°	0.7071	21.2132	47.7867	0.6718	1.3437	560.9754
170°	0.5735	17.2072	51.7927	0.6185	1.2370	516.4050
180°	0.4226	12.6785	56.3214	0.5545	1.1090	462.9906
190°	0.2588	7.7645	61.2354	0.4812	0.9624	401.7732
200°	0.0871	2.6146	66.3853	0.4005	0.8011	334.4550
210°	0.0871	2.6146	71.6146	0.3154	0.6306	263.3388
220°	0.2588	7.7645	76.7645	0.2289	0.4579	191.1573
230°	0.4226	12.6785	81.6785	0.1447	0.2894	120.8351
240°	0.5735	17.2072	86.2072	0.0661	0.1322	55.2273
250°	0.7071	21.2132	90.2132	0.0037	0.0074	3.0892
260°	0.8191	24.5745	93.5745	0.0623	0.1247	52.0550
270°	0.9063	27.1892	96.1892	0.1078	0.2176	90.0148
280°	0.9659	28.9777	97.9777	0.1387	0.2775	115.8770
290°	0.9961	29.8858	98.8858	0.1544	0.3089	128.9660
300°	0.9961	29.8858	98.8858	0.1544	0.3089	128.9660
310°	0.9659	28.9777	97.9777	0.1387	0.2775	115.8770
320°	0.9063	27.1892	96.1892	0.1098	0.2156	90.0148
330°	0.8191	24.5745	93.5745	0.0623	0.1246	52.0550
340°	0.7071	21.2132	90.2132	0.0037	0.0074	3.0892
350°	0.5735	17.2072	86.2072	0.0661	0.1322	55.2273

XE VIP
1560 KHZ



PATRÓN DE RADIACION HORIZONTAL CALCULADO

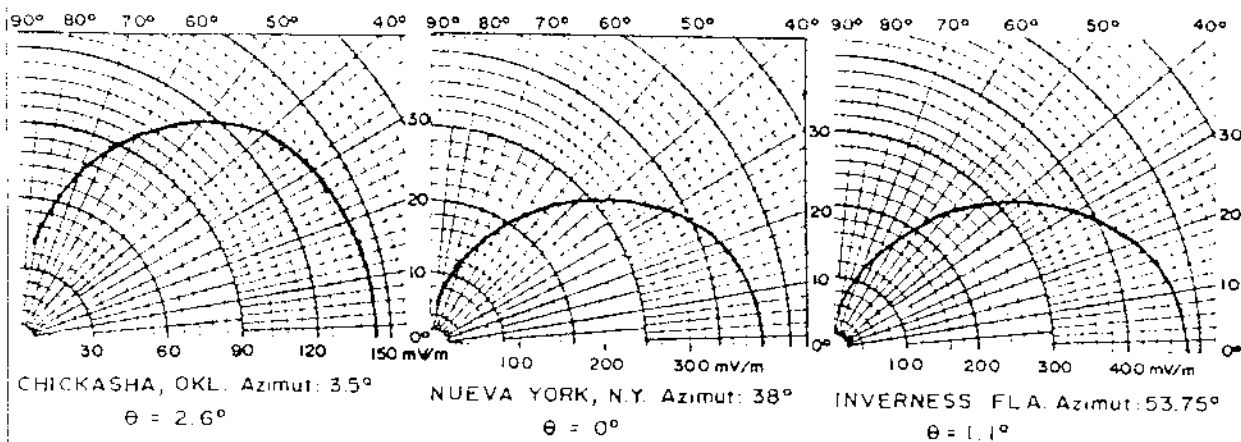
ESQUEMA DE LAS TORRES Y SU ORIENTACION CON RESPECTO AL NORTE ASTRONÓMICO



XE VIP

1560 KHZ.
5 KW AD-N

DISÑO
ING. ANTONIO DE AVILA



$$E = 834.92 f(\theta) \cos(30^\circ \cos \phi \cos \theta + 69^\circ)$$

θ	E mV/m
0°	145.05
10°	144.43
20°	142.21
30°	137.53
40°	129.22
50°	116.12
60°	97.28
70°	71.98
80°	39.68
90°	

θ	E mV/m
0°	388.73
10°	379.46
20°	352.84
30°	312.09
40°	260.71
50°	206.40
60°	150.21
70°	96.10
80°	45.78
90°	

θ	E mV/m
0°	484.01
10°	471.52
20°	435.78
30°	381.43
40°	314.93
50°	243.15
60°	172.08
70°	106.22
80°	48.38
90°	

PATRONES DE RADIACION EN EL PLANO VERTICAL

FRECUENCIA:

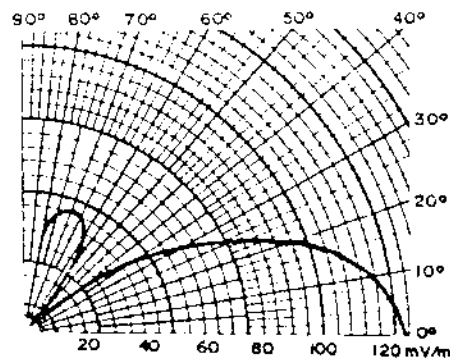
1560 KHz.
5 KW. AD-N

RADIODIFUSORA:

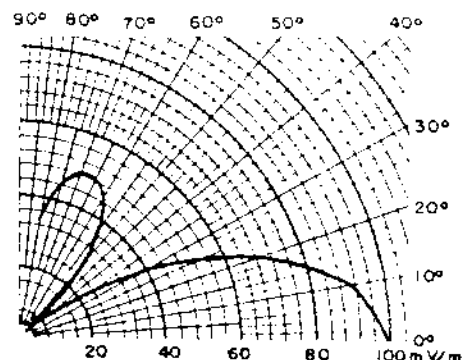
X E V I P

DISENO:

ING. ANTONIO
DE AVILA S.



SALAMANCA, GTO. Azimut 301.5°
 $\theta = 40^\circ$



BAKESFIELD, CAL. Azimut: 317°
 $\theta = 2.3^\circ$

$$E = 834.92 f(\theta) \cos(30^\circ \cos \phi \cos \theta + 69^\circ)$$

0	E mV/m
0°	-127.83
10°	-118.82
20°	-93.75
30°	-58.00
40°	-18.99
50°	15.49
60°	38.65
70°	45.53
80°	33.08
90°	

0	E mV/m
0°	-99.08
10°	-91.06
20°	-68.79
30°	-37.24
40°	-3.18
50°	-26.25
60°	44.93
70°	48.36
80°	33.78
90°	

PATRONES DE RADIACION EN EL PLANO VERTICAL

FRECUENCIA:

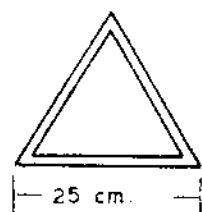
1560 KHz
5 KW. AD-N

RADIODIFUSORA:

X E V I P

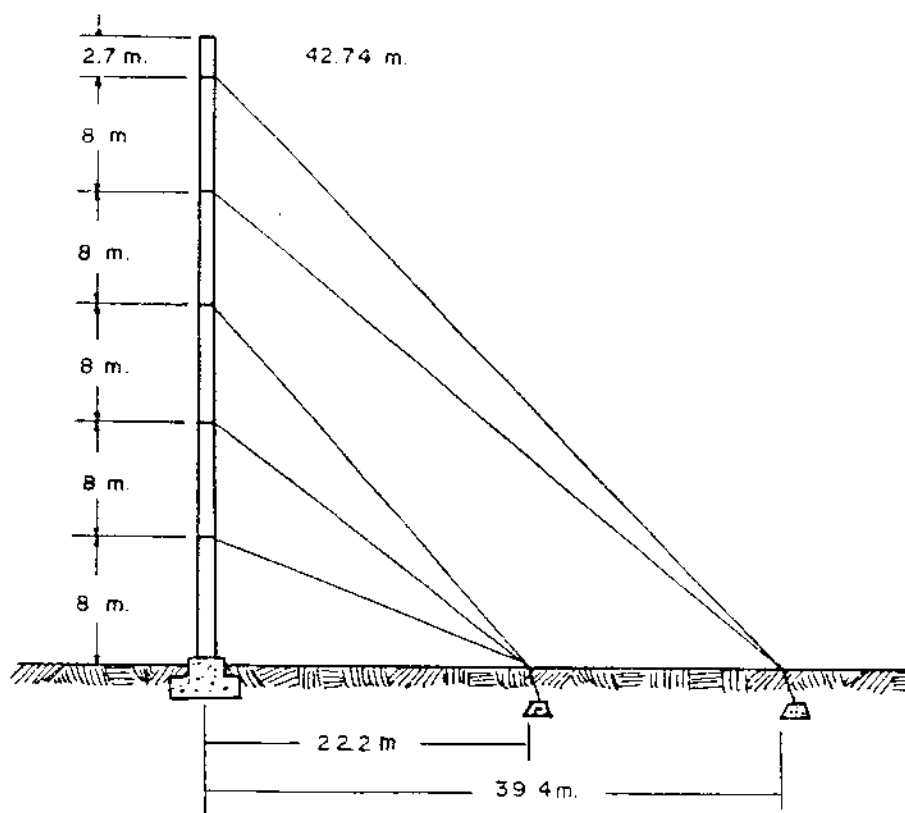
DISENO:

ING. ANTONIO
DE AVILA. S.



SECCION TRANSVERSAL

ESCALA: 1: 500



DETALLE DE LA TORRE Y RETENIDAS

XEVIP 1560 KHz
50 KW. AD.

SAN RAFAEL CHAMAPA
NAUCALPAN, MEX.

XEVIP

Description Sheet
(3-28-69ct)

Station XEVIP
Naucalpan, Mexico

10kw, DA-N, U, Class II
1560 kc

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: XEVIP

Main Studio: Naucalpan, Mexico

Frequency: 1560 kc/s

Power: 10 kw

Notification List No. 254

Date: February 28, 1969

Class: II

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:

North Latitude: 19 ° 30 ' 00 "

West Longitude: 99 ° 13 ' 03 "

ANTENNA CHARACTERISTICS

Authorized for Nighttime operation. (DA-N)

Number of elements: 2

Type of elements: Guyed, vertical steel towers.

TOWER:

North

South

HEIGHT ABOVE
INSULATORS:

164.0'

164.0' (93.7°)

PHASING:

+ 135°

0°

FIELD RATIO:

1

1

SPACING AND

ORIENTATION: Elements are spaced 105.16' (60°) on a line bearing 344° true.

GROUND SYSTEM: 120-164' equally spaced copper radials about each tower.
Radials are shortened and bonded to a transverse strap
along intersections between towers.

Predicted effective Night Field: 605.56 mv/m at rated power.

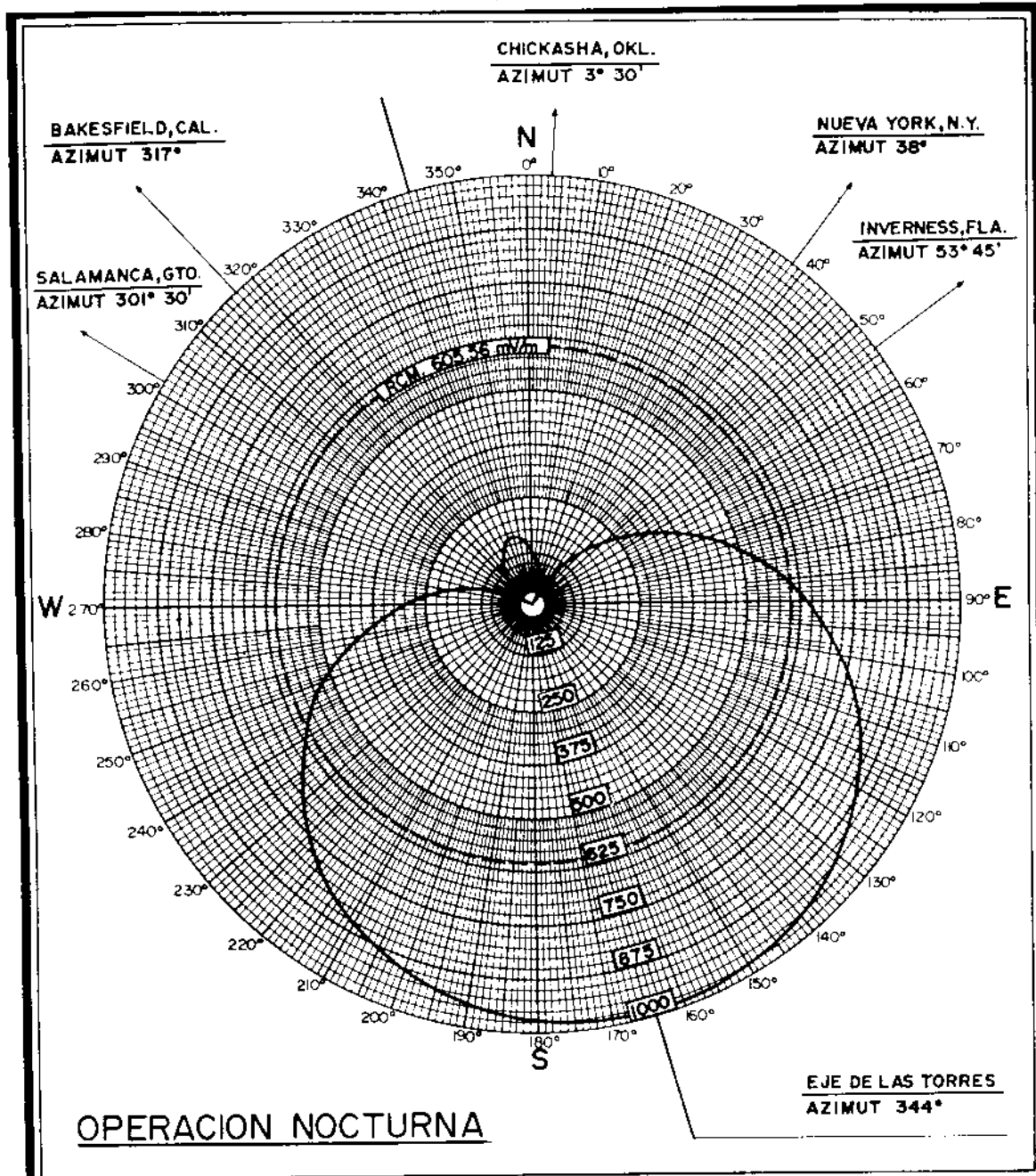
CTR NO 20281A4

XEVIP

Proposed Night
(3-28-69ct)

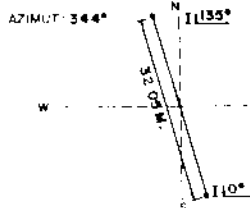
Station XEVIP
Naucalpan, Mexico

10kw, DA-N, U, Class II
1560 kc



PATRON DE RADIACION HORIZONTAL CALCULADO EN mV/m. A 1609M

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



XEVIP

SAN RAFAEL CHAMAPA
NAUCALPAN, MEX.

FRECUENCIA

1560 KC/S.
10KW. AD-N.

CRSF No:

ALBERTO PEREZ A.
JAIME ROBLEDO R.

DRIBUJO:

L.E.O.

PROJECT #100-1

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION:

LOCATION: Brandon, Manitoba

FREQUENCY: 1570 kHz

POWER: 10 kW CLASS II

NOTIFICATION LIST NO: 354

DATE: May 12, 1976

GEOGRAPHICAL LOCATION:

Latitude 49° 45' 25" North
Longitude 99° 57' 55" West

ANTENNA CHARACTERISTICS:

Mode of Operation:

DA-N

Number of Elements:

3 (Three)

Type of Elements:

Guyed steel towers, uniform
cross-section, base insulated
for series feed

TOWER	#1 (S)	#2 (C)	#3 (N)
Height above base insulator:	150' (86.1°)	150' (86.1°)	150' (86.1°)
Overall Height:	155'	155'	155'
Field Ratio			
Nighttime:	1.0	1.3	.6
Phasing			
Nighttime:	0	-105°	126°
Orientation:	Reference	20°	20°
Spacing:	Reference	80° (139.3)	160° (278.6)

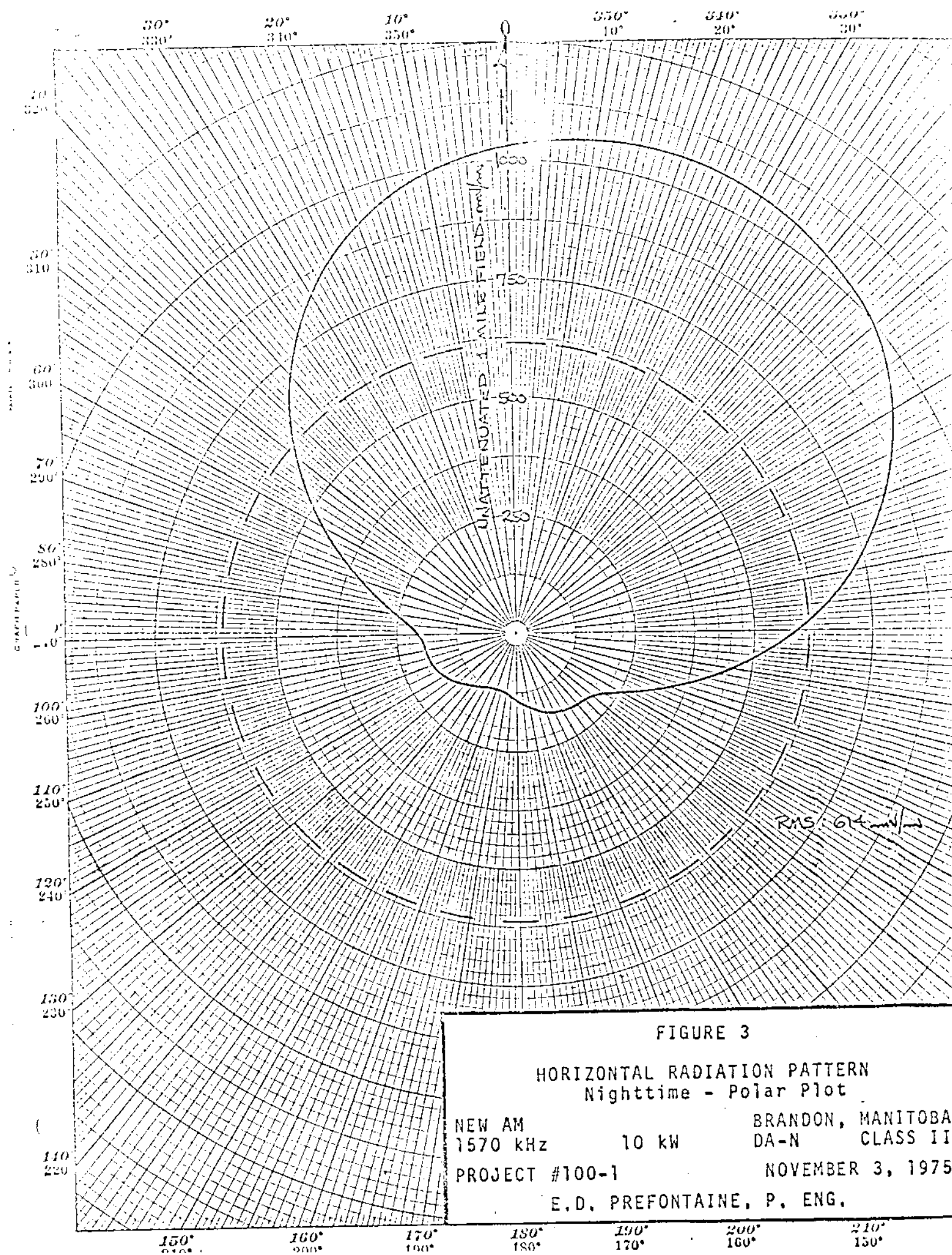
GROUND SYSTEM: 120 equally spaced radials of No.10 bare soft copper wire extend from each tower base, buried approximately 8 inches. The radials are 250.8' long, (0.4 wavelength), with the exception of those joined along the common chords.

PREDICTED EFFECTIVE FIELDS:

Nighttime: 614 mV/m at 1 mile for 10 kW
194 mV/m at 1-mile for 1 kW
Daytime: 595 mV/m at 1 mile for 10 kW
188 mV/m at 1 mile for 1 kW

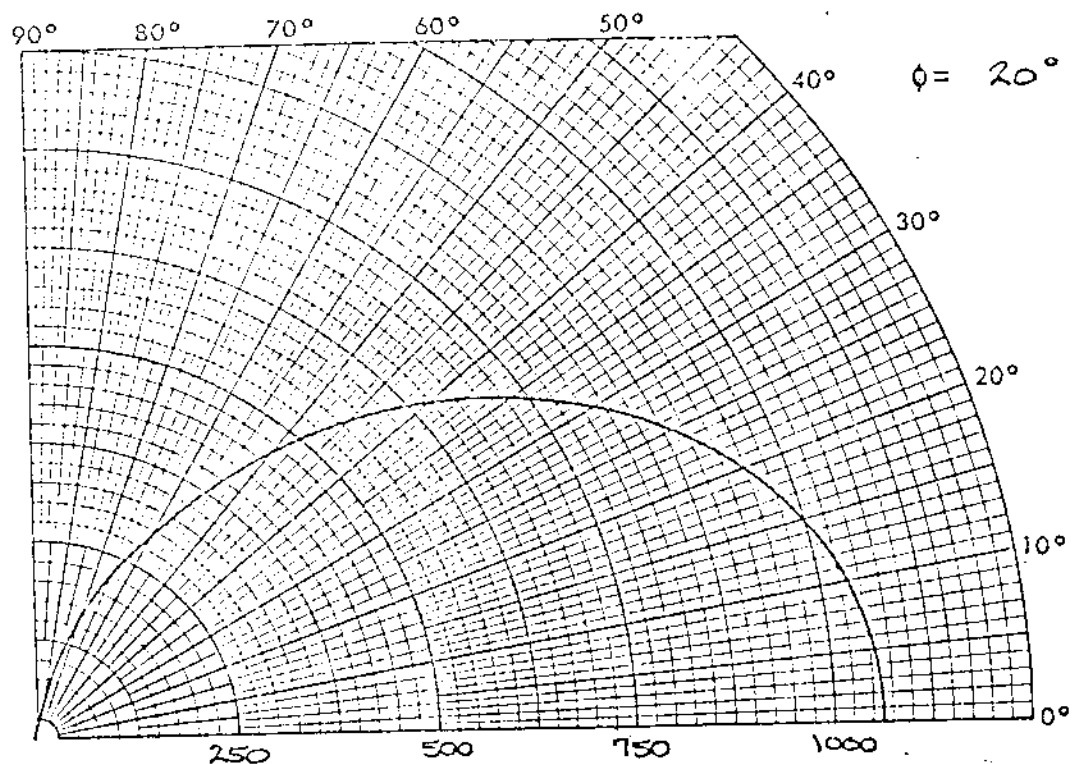
November 3, 1975

E.D. Prefontaine, P. Eng.

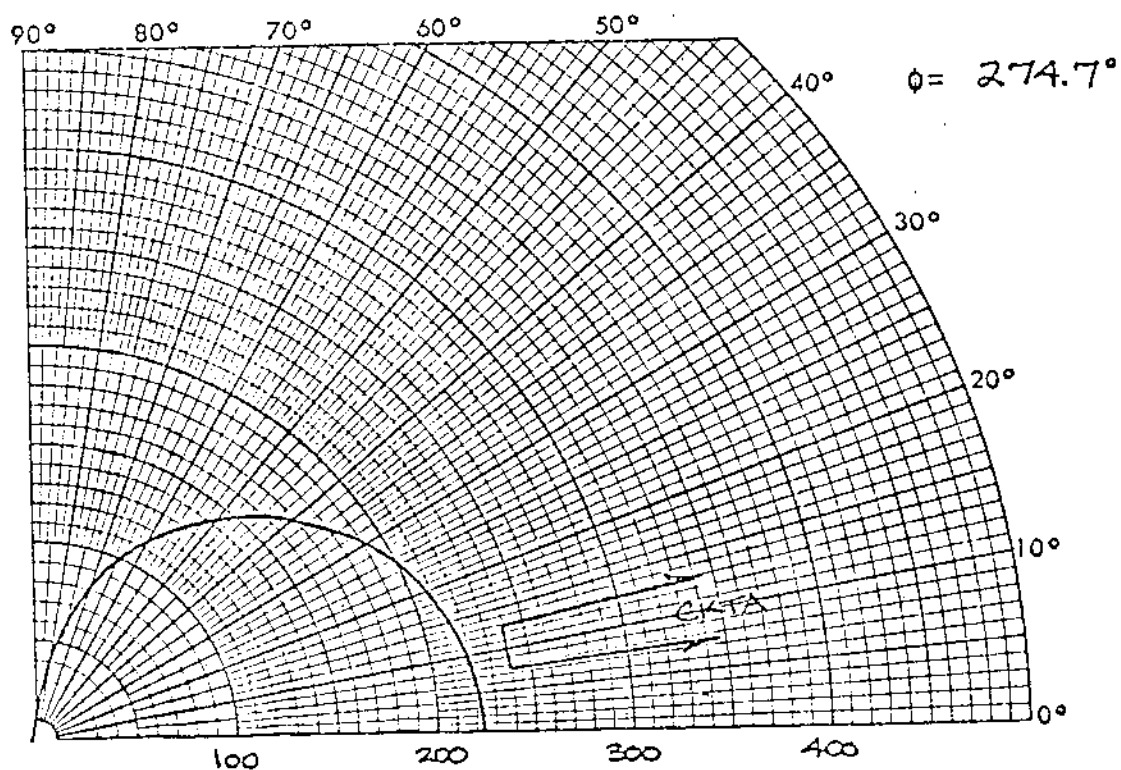


CG-10159 (NO. 101V)

CO-ORDINATE
MADE IN CANADA



UNATTENUATED (MV/M) ONE MILE FIELD



UNATTENUATED (MV/M) ONE MILE FIELD

VERTICAL RADIATION PATTERNS

NEW AM
1570 kHz

10 kW

FIGURE 4

DA-N

BRANDON, MANITOBA

CLASS II

PROJECT #100-1

NOVEMBER 3, 1975

E.D. PREFONTAINE, P. ENG.

#196
Description Sheet
(3-26-65ct)

New Station
Selkirk, Manitoba

250w, U, Class II
1570 kc

TABLE 1

ANTENNA DESCRIPTION SHEET

CALL LETTERS:

STUDIO LOCATION: Selkirk, Manitoba

FREQUENCY: 1570 kc/s

POWER: .25 kw

MODE: ND

CLASS: II

TIME: Unlimited

NOTIFICATION LIST NO.: 196

DATE: March 1, 1965.

GEOGRAPHICAL LOCATION
OF THE ANTENNA:

Latitude: 50° 07' 02" North
Longitude: 96° 55' 30" West

ANTENNA
CHARACTERISTICS:

Overall Height: 133'

Effective Height: 130' (75°)

Type of Element: guyed, uniform cross section, vertical
steel tower; base insulated, series fed.
No top loading.

Ground System: 120 equally spaced radials of #10 AWG
bare copper, of average length 250' (0.4λ);
buried approximately 8".

PREDICTED EFFICIENCY: 92.5 mV/m at 1 mile
equivalent to 185 mV/m per kW

ANTENNA DESCRIPTION SHEET

DIRECTIONAL DA-1

STATION CALL

LOCATION Thornhill, Manitoba

MAIN STUDIO Altona, Manitoba

FREQUENCY 1570 kc/s

POWER 1000 watts

CLASS II

TIME Unlimited

NOTIFICATION REFERENCE 219 December 12, 1966

GEOGRAPHICAL LOCATION Lat 49°11'30", Lon 98°13'06"

ARRAY CHARACTERISTICS

Two elements, guyed, uniform cross section, base insulated, series feed. Height 313 feet or 180 degrees. No top loading.

ELEMENT	SOUTH	NORTH
bearing	ref	010°
spacing	ref	180° (313')
ratio	1.0	0.4
phase	00°	00°

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 251 feet.

Predicted R M S 235 mv/m at 1 mile for 1 kw

Oct 1966

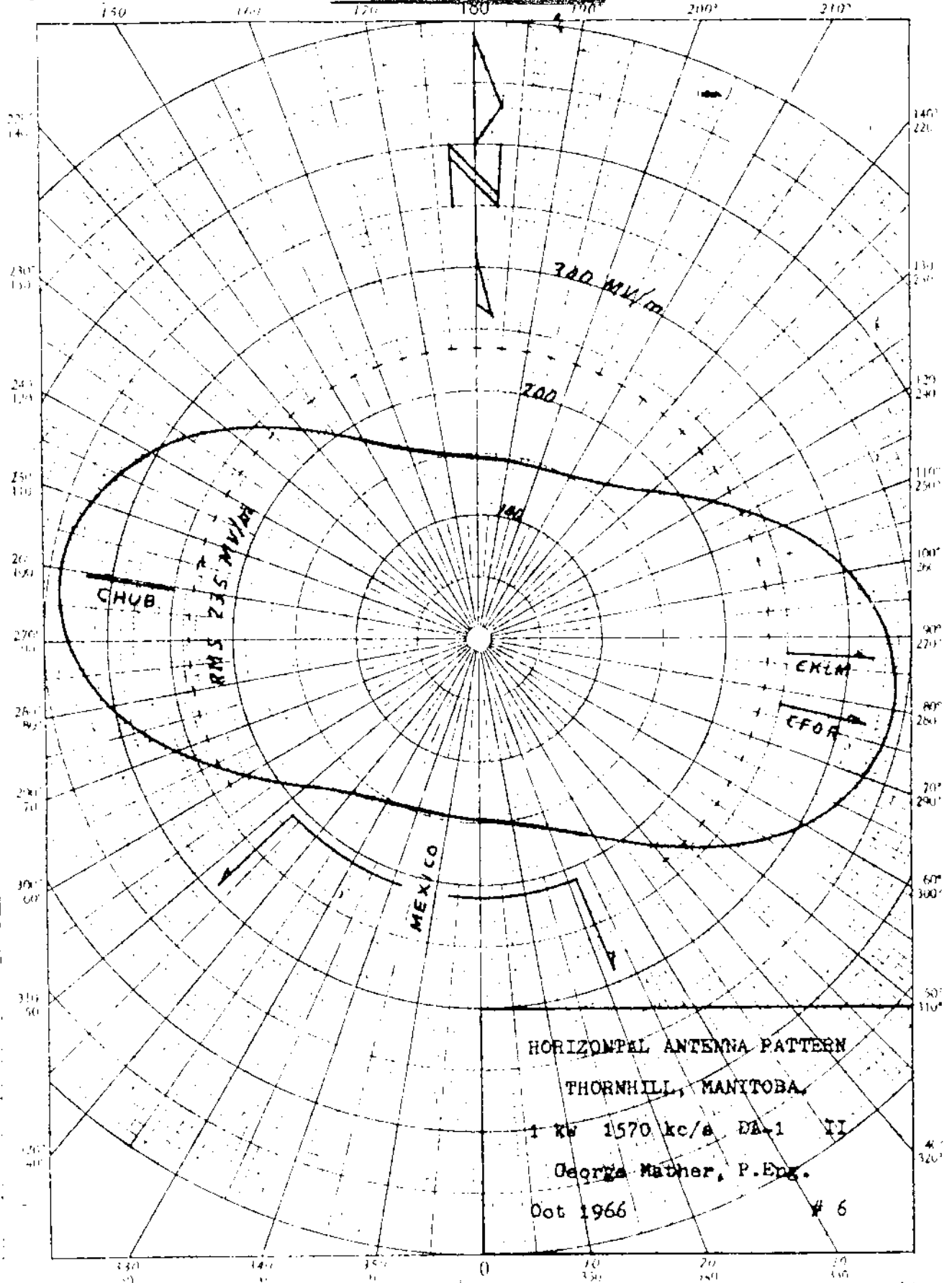
5

Proposed Day & Night
(12-29-66ct)

New Station
Thornhill, Manitoba

1kw, DA-1, U, Class II
1570 kc

40 4413
REPT: 3 EASER CO



STATION: NEW MAIN STUDIO: Burlington, Ontario

FREQUENCY: 1570 KHZ POWER: 1000 Watts

TIME: Unlimited CLASS: II

NOTIFICATION LIST: 241 DATE: March 26, 1968.

GEOGRAPHICAL
LOCATION: 43 - 20 - 01.4 North
79 - 51 - 25.7 West

ANTENNA SYSTEM: Mode DA/2

NUMBER OF ELEMENTS: 3 Uniform cross section, guyed,
steel towers, series fed.

TOWERS: 1 (S) 2 (C) 3 (N)

HEIGHT OVER 155' (90°) 155' (90°) 155' (90°)
INSULATORS:

OVERALL HEIGHT: 160' 160' 160'

ORIENTATION: Masts on a line 010° TRUE

SPACING: 0 321' (185°) 642' (370°)

PHASING: Day 24.50° 0° -24.50°
Night -46.95° 0° 46.95°

RATIOS: Day 1.0000 1.8199 1.0000
Night 1.0000 1.7812 1.0000

GROUND
SYSTEM: The ground system will consist of 120 copper
radials spaced evenly about each tower. The
radials will be shortened where the ground
system is joined by a common chord between
tower. All radials will be at least 0.25 long
and the entire system will cover an area eq-
ivalent to a 0.4 system.

PREDICTED
EFFECTIVE FIELD: 175 mv/m @ 1 mile for 1 Kw.

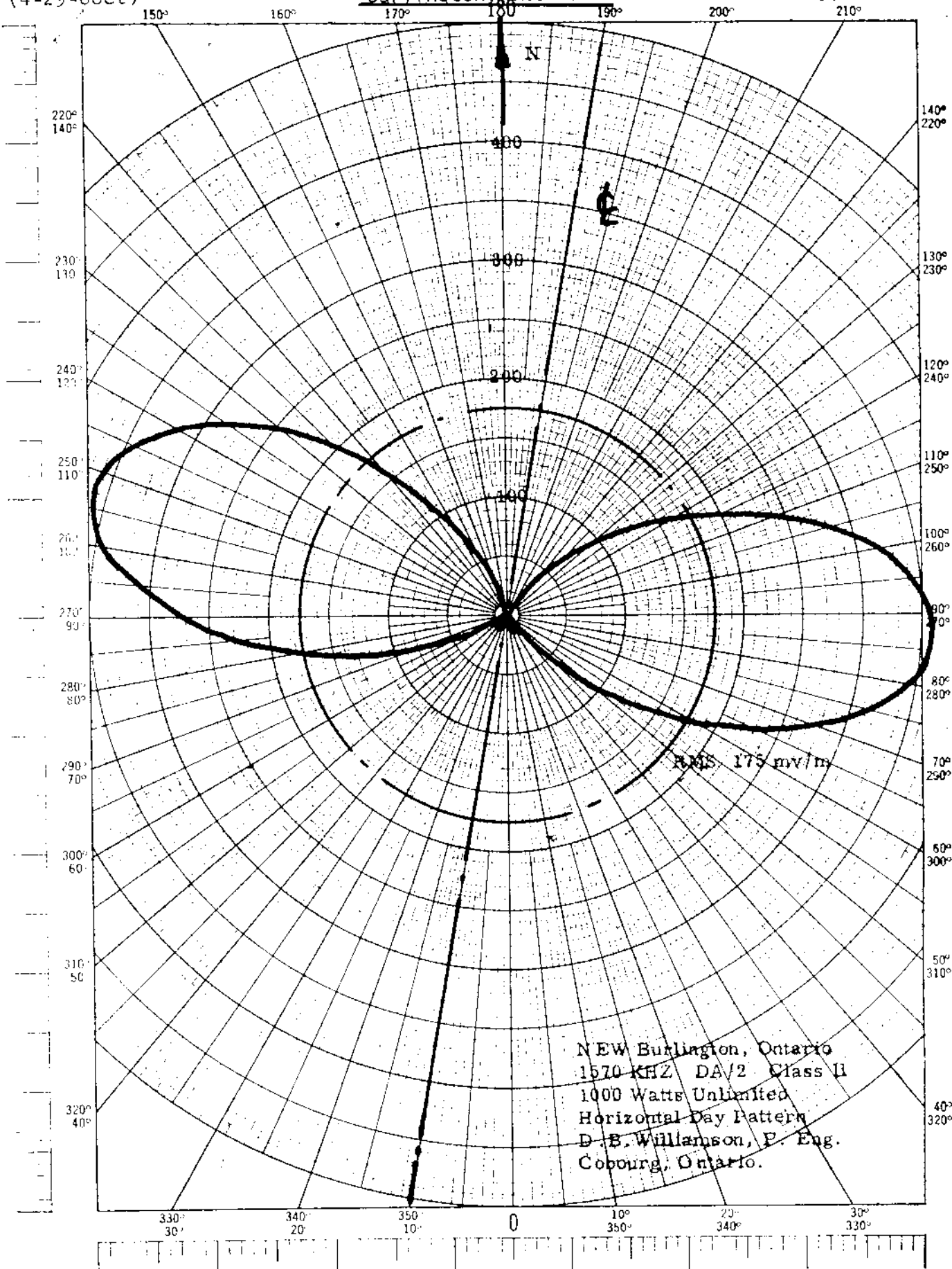
D. B. Williamson & Associates,
Consulting Engineers,
Radio CHUC Bldg.,
Cobourg, Ontario.

Proposed Day
(4-29-68ct)

New Station
Burlington, Ontario

1kw, DA-2, U, Class II
1570 kc

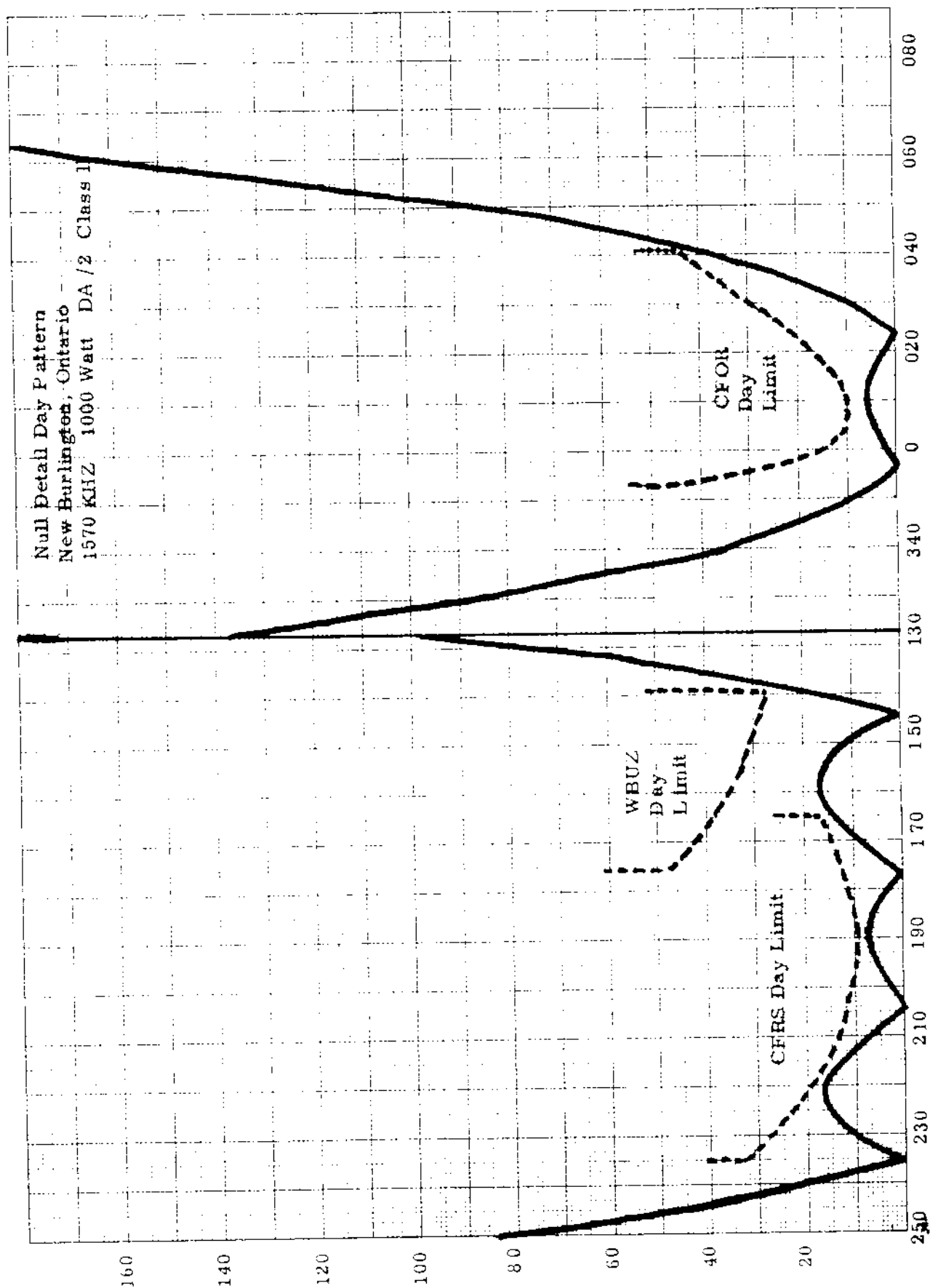
G9-31
POLAR CO-ORDINATE



1kw, DA-2, U, Class II
1570 kc

New Station
Burlington, Ontario

Proposed Day Nulls
(4-29-68ct)

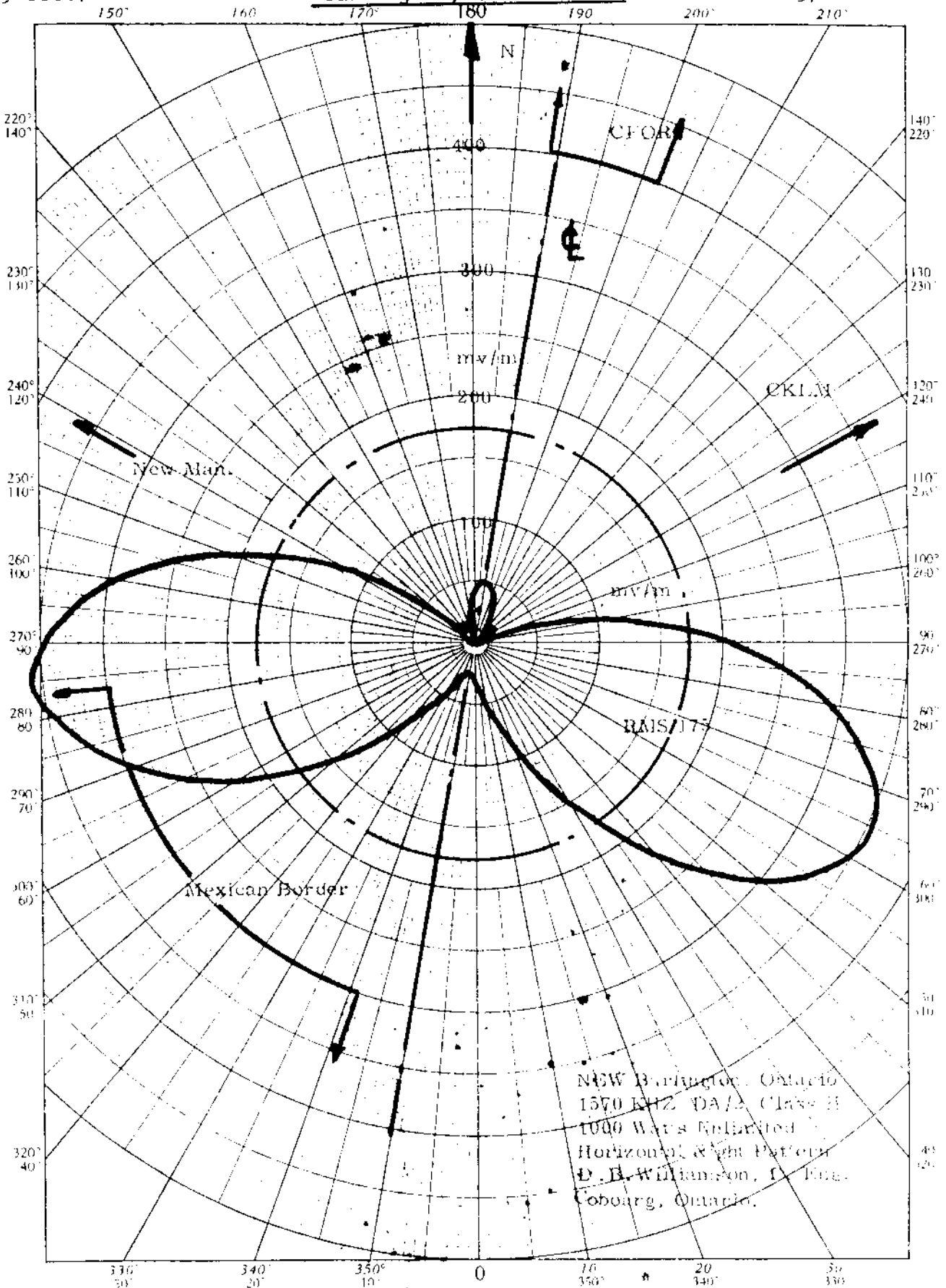


Proposed Night
(4-29-68ct)

New Station
Burlington, Ontario

1kw, DA-2, U, Class II
1570 kc

359.33
13.693
KILGESSER CO.



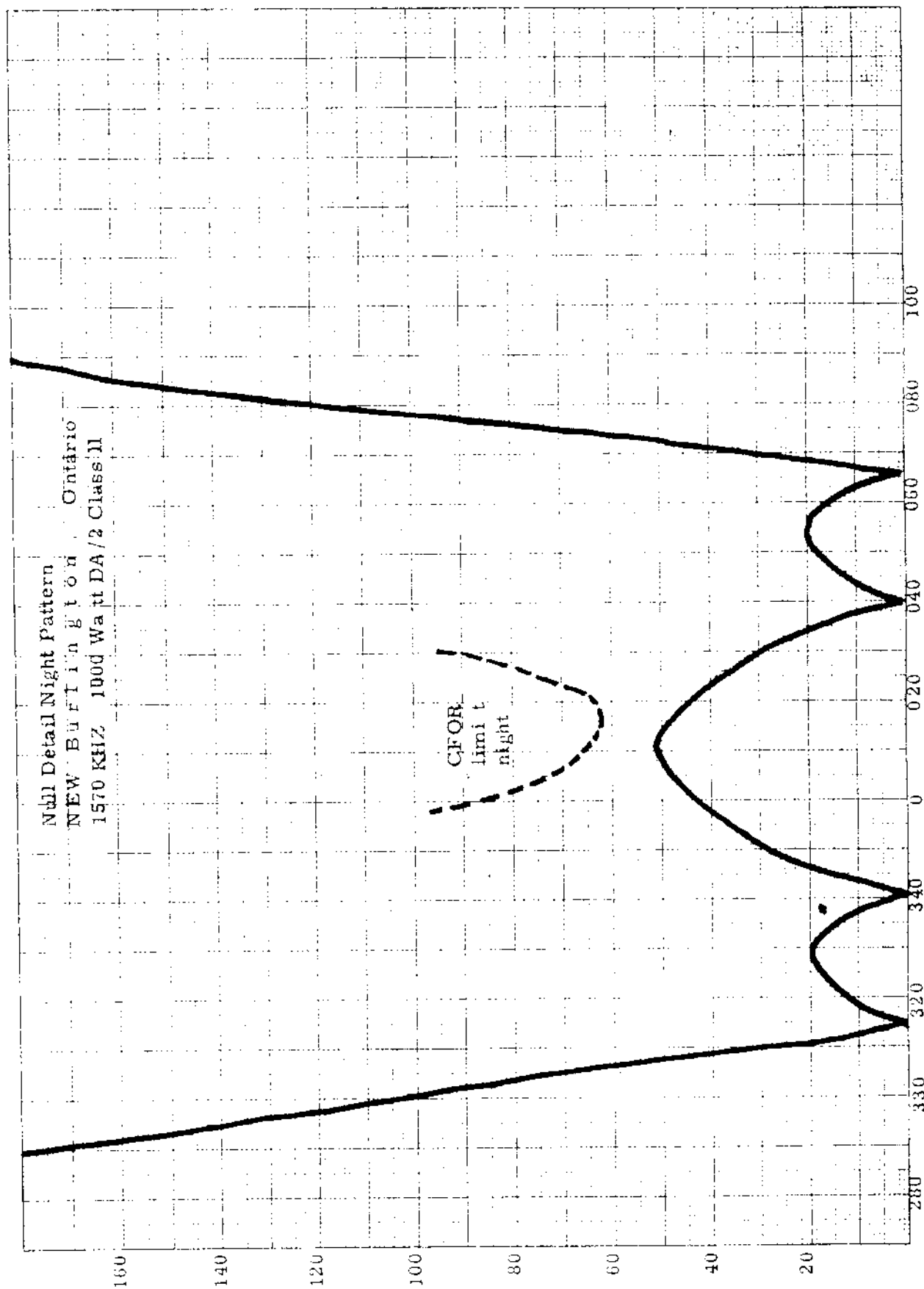
NEW

1kw, DA-2, U, Class II
1570 kc

New Station
Burlington, Ontario

Proposed Night Nulls
(4-29-68ct)

PL 101-1-55-00-00-00



CFOR - Oshana, Ontario

Directional Antenna Description Sheet

Station: CFOR
 Frequency: 1070 kHz
 Time: Unilateral
 Notification Lic. No.: 364
 Geographical Location: Lat 44° 30' 00" North
 Long 79° 50' 00" West

Main Station: Oshana, Ontario
 Power: 10 kW/Day; 5 kW/Night
 Class: 11
 Date: June 27, 2017

Antenna System: Mode of Operation: DA-M

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

<u>Tower No.</u>	<u>#1</u>	<u>#2</u>
Height above Insulators	200.2' (115°)	156.7' (90°)
Overall Height A.G.L.	205.2'	161.7'
Bearings	Ref.	327°
Spacing	Ref.	90°
Day Field Ratio	1.0	—
Day Phase	0°	—
Night Field Ratio	1.0	0.65
Night Phase	0°	-158

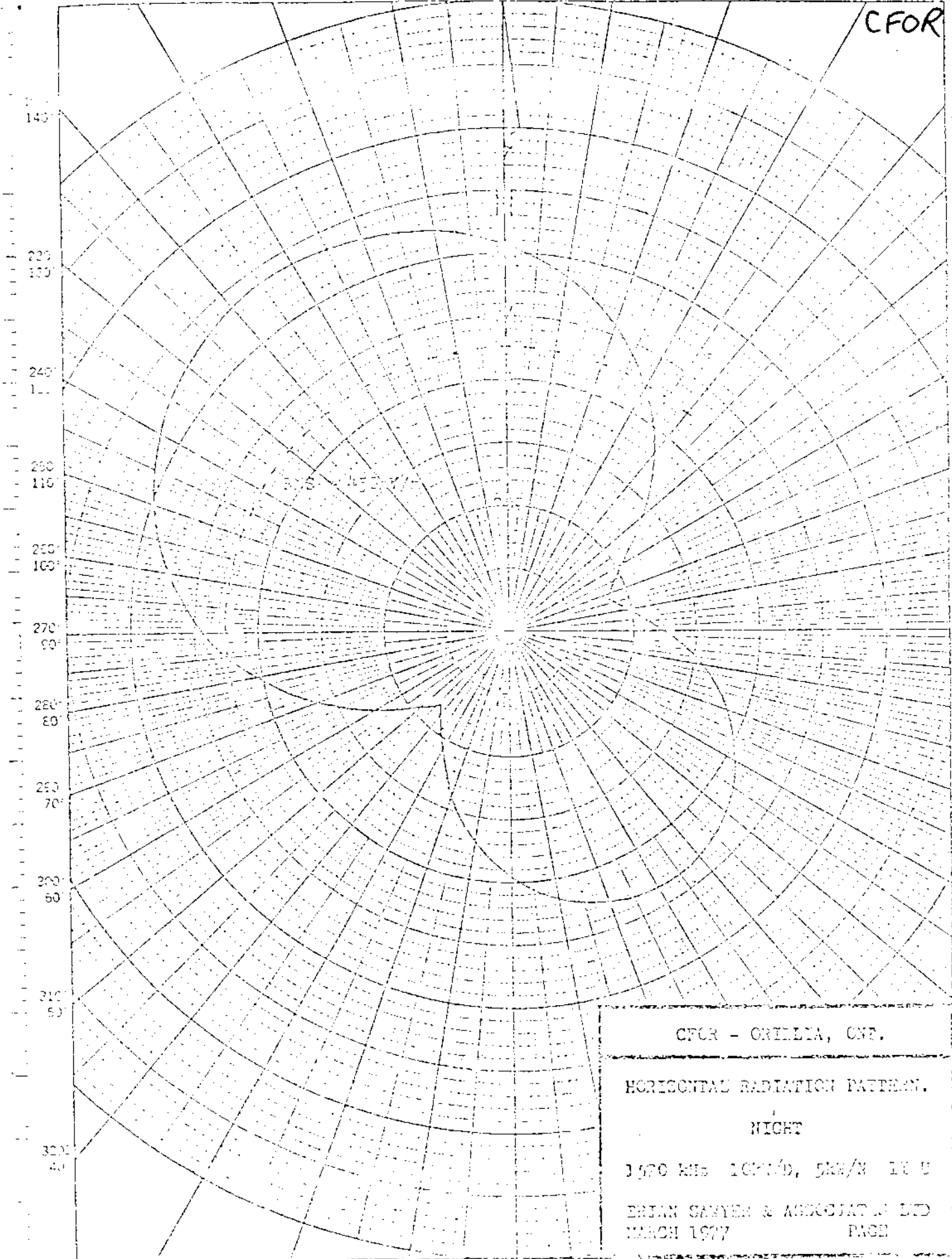
Ground System: The ground system will consist of 120 radials
 per tower, 0.4 wavelengths long, No. 10
 AWG, bare soft-drawn copper wire, uniformly
 spaced at approximately 8 inches below grade.

Predicted Effective Field: Night 450 mV/m at 1 mile for 5kW
 201.25 mV/m at 1 mile for 1kW

CFOR

45 4110

17.12 POLAR COORDINATE
SCALE 0.15/0.10 0.05/0.05



CFOR - ONTARIO, ONT.

HORIZONTAL RADIATION PATTERN.

NIGHT

1500 WKS 1000/0, 500/0 10 U

BRIAN SAWYER & ASSOCIATES LTD
MARCH 1977 PAGE

#82

CFOR
1570

TELECOMMUNICATIONS Branch



DEPARTMENT OF TRANSPORT

DESCRIPTIVE SHEET - OMNIDIRECTIONAL ANTENNA

Station Call: CFOR
Main Studio: Orillia, Ontario
Frequency: 1570 Kc/s.
Power: 1 Kw. N/5Kw. D 10/100
Class: II
Time: U

Notification List No. 82

Dated: March 24, 1954.

Geographical Location:

North Latitude: 44° 35' 53"

West Longitude: 79° 20' 22"

Antenna Characteristics:

Height: 200 ft. 115 degrees

Expected Efficiency: 448 mv/m at 1 mi. for 5 Kw.

or: 200 mv/m at 1 mi. for 1 Kw.

Ground System:

120 radials of #10 B. & S. bare copper wire,
each 251 feet long, equally spaced and buried
approximately 8 inches.

Type of Element:

One vertical radiator, square uniform steel
construction, guyed steel tower base insulated
for series feed.

November 23, 1956.

Description Sheet
(9-26-68ct)

2.8.2 Description of Array

Notification List No. 245

Station: CHLO

Frequency: 1570 KHz

Geographical North Latitude: 42° 42' 22" N
West Longitude: 81° 06' 20" W

Station CHLO
St. Thomas, Ontario
10kw, DA-2, U, Class II
1570 kc
Section 2 - TECHNICAL DETAILS

Date: August 28st, 1968.

Main Studio: St. Thomas, Ontario

Power: 10 Kw Class: 11

Mode of Operation: DA-2 No. of Elements: 8

Type of Elements: Guyed uniform cross section, series fed, no top loading.

Antenna Characteristics:

Tower:	1	2	3	4	5	6	7	8
Height above Insulators:	210' (120.90)	210'	210'	210'	210'	210'	210'	210'
Overall Height:	220'	220'	220'	220'	220'	220'	220'	220'
Spacing:	348' (200°)	348'	348'	348'	348'	348'	348'	348'
Spacing:	No.1-5	(156.6') 90°	No.2-6	156.6'	No.3-7	156.6'	No.4-8	156.6'

Day Pattern:	0°	12°	12°	12°	94°	106°	106°	106°
Phasing	1.0	3.0	3.0	1.0	1.0	3.0	3.0	1.0
Field Ratio	1.0	49.60°	96.86°	146.50°	95.00°	144.60°	191.85°	241.50°
Night Pattern:	0°	2.274	2.274	1.0	1.0	2.274	2.274	1.0
Phasing	1.0	2.274	2.274	1.0	1.0	2.274	2.274	1.0
Field Ratio	1.0	2.274	2.274	1.0	1.0	2.274	2.274	1.0

The array forms a rectangle, with a line joining towers 1, 2, 3, 4 and towers 5, 6, 7, 8 orientated on Azimuth 80°. Line joining towers 1 and 5, 2 and 6, 3 and 7, 4 and 8 fall on Azimuth 170°.

120 radials per tower of #10 AWG soft drawn copper wire, spaced at 3° intervals. Radials from each tower bonded to No.4 AWG bus wire running midway between towers. Each tower has an elevated counterpoise 30 feet in diameter. Towers interconnected by a 1 1/2" copper strap. Radials are of effective length 0.1λ and buried at 1 foot below ground.

Predicted Effective Field:

Day 395 mv/m (153.2 mv/m for 1 kw)
Night 601 mv/m (190.2 mv/m for 1 kw)

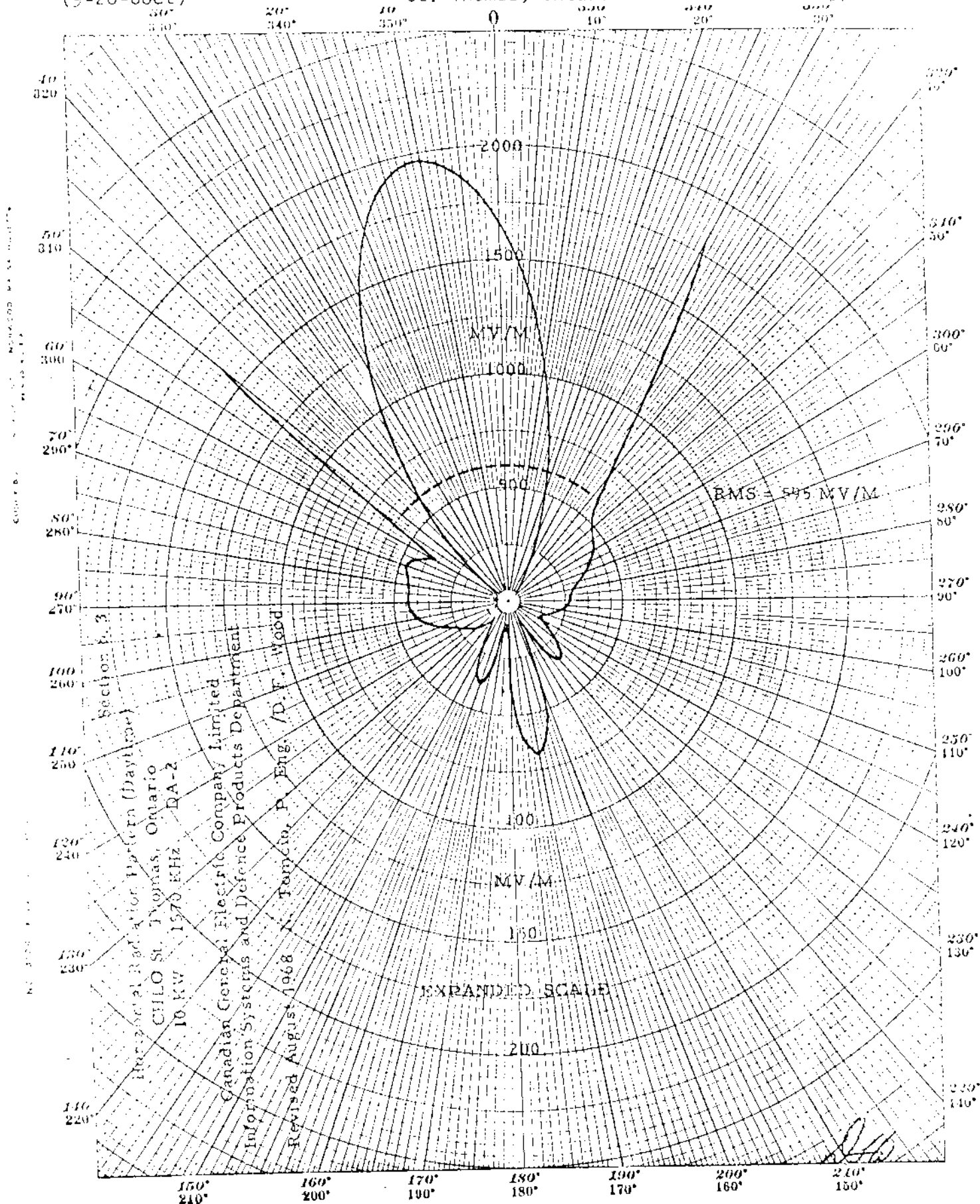
ATTN

CHLO

Proposed Day
(9-26-68ct)

Station CHLO
St. Thomas, Ontario

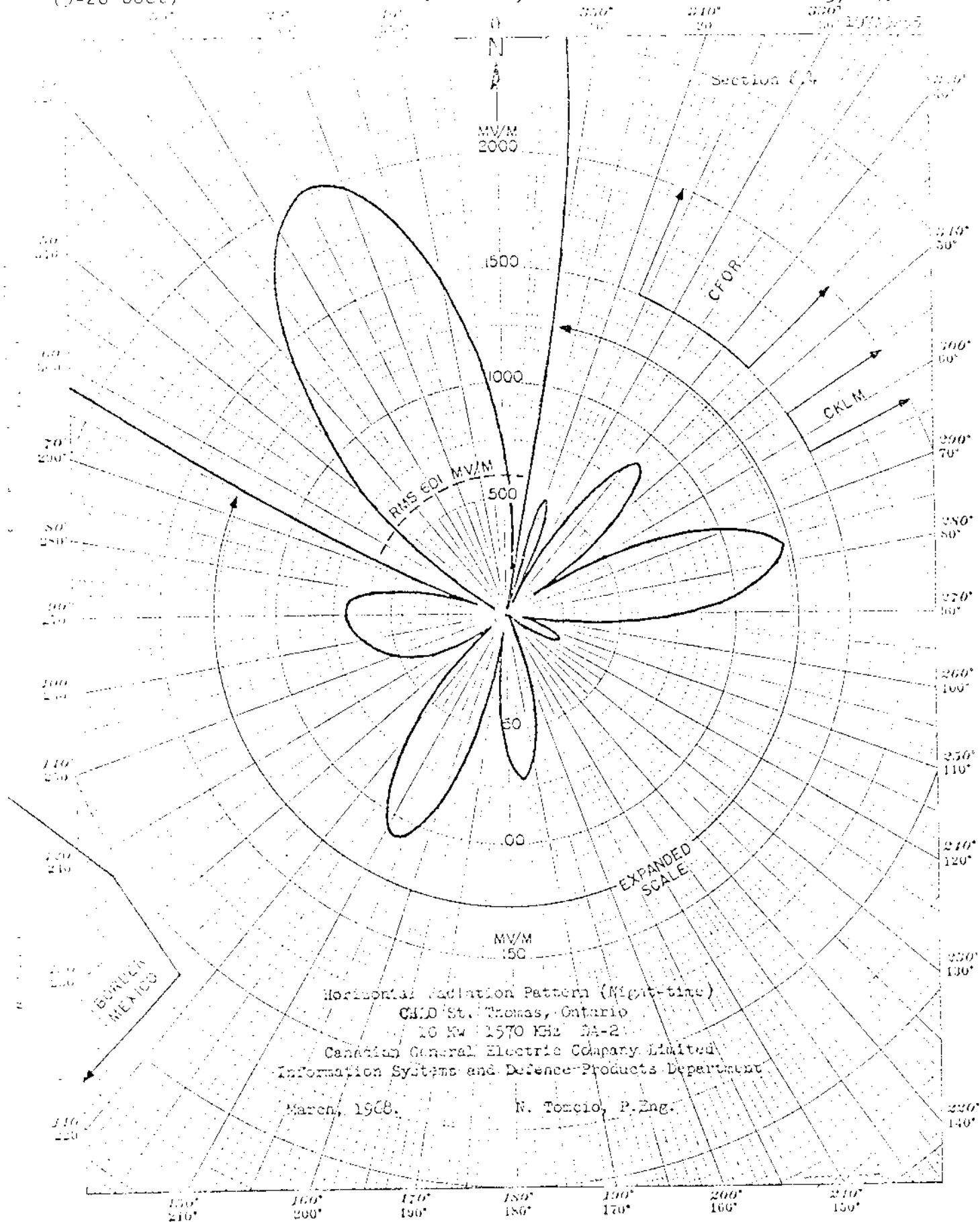
10kw, DA-2, U, Class II
1570 kc



Proposed Night
(9-26-68ct)

Station CHLO
St. Thomas, Ontario

10kw, DA-2, U, Class II
1570 kc



119
DESCRIPTION SHEET
(4-24-58g)

Station CHUB 10kw, DA-2, U, Class II
Nanaimo, British Columbia 1570 KC

DESCRIPTION SHEET

DIRECTIONAL ANTENNA SYSTEM

STATION: CHUB

MAIN STUDIO: NANAIMO, B.C.

POWER: 10 KW

FREQUENCY: 1570 KC/S CLASS: II

NOTIFICATION LIST NO. 119

February 21, 1958

GEOGRAPHICAL LOCATION OF
CENTRE OF ANTENNA SYSTEM:

NORTH LAT. 49° $07'$ $00''$

WEST LONG. 123° $50'$ $30''$

ANTENNA:

MODE OF OPERATION:

DA-2 (Different patterns day and night)

ELEMENTS:

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

TOWER:

1 SOUTH

2 NORTH

Height above insulators:

150' (86°)

150' (86°)

Spacing:

174.1' (100°) between towers.

Phasing (night:

0

-85°

(day:

0

180°

Field Ratio (Night:

1

.82

(Day:

1

.5

Ground System:

120 equiangularly spaced radials extend from the base of each tower to a distance of 251 feet (0.4 wavelength) with the exception of those radials joined along the common chord. The ground wires consist of solid copper wire #10 B & S gauge and are buried to a depth of approximately 8 inches.

PREDICTED EFFECTIVE FIELD: (Night:

600 MV/M at 1 mile (190 MV/M for 1 KW)

(Day:

590 MV/M at 1 mile (188 MV/M for 1 KW)

Orientation:

Elements on line bearing 320° East of true North.

PROPOSED DAY

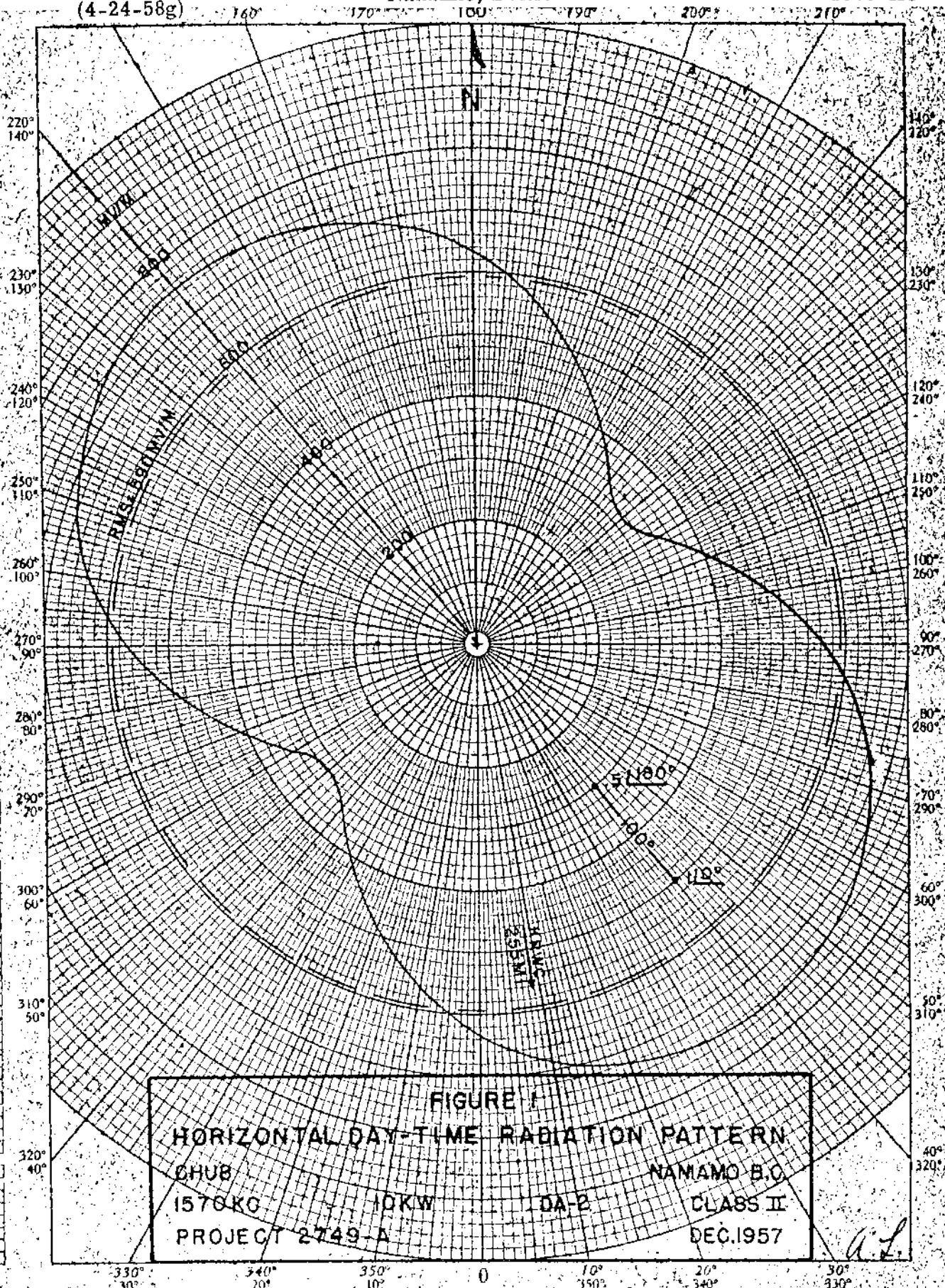
Station CHUB

10kw, DA-2,U, Class II

(4-24-58g)

Nanaimo, British Columbia

1570 KC



#119

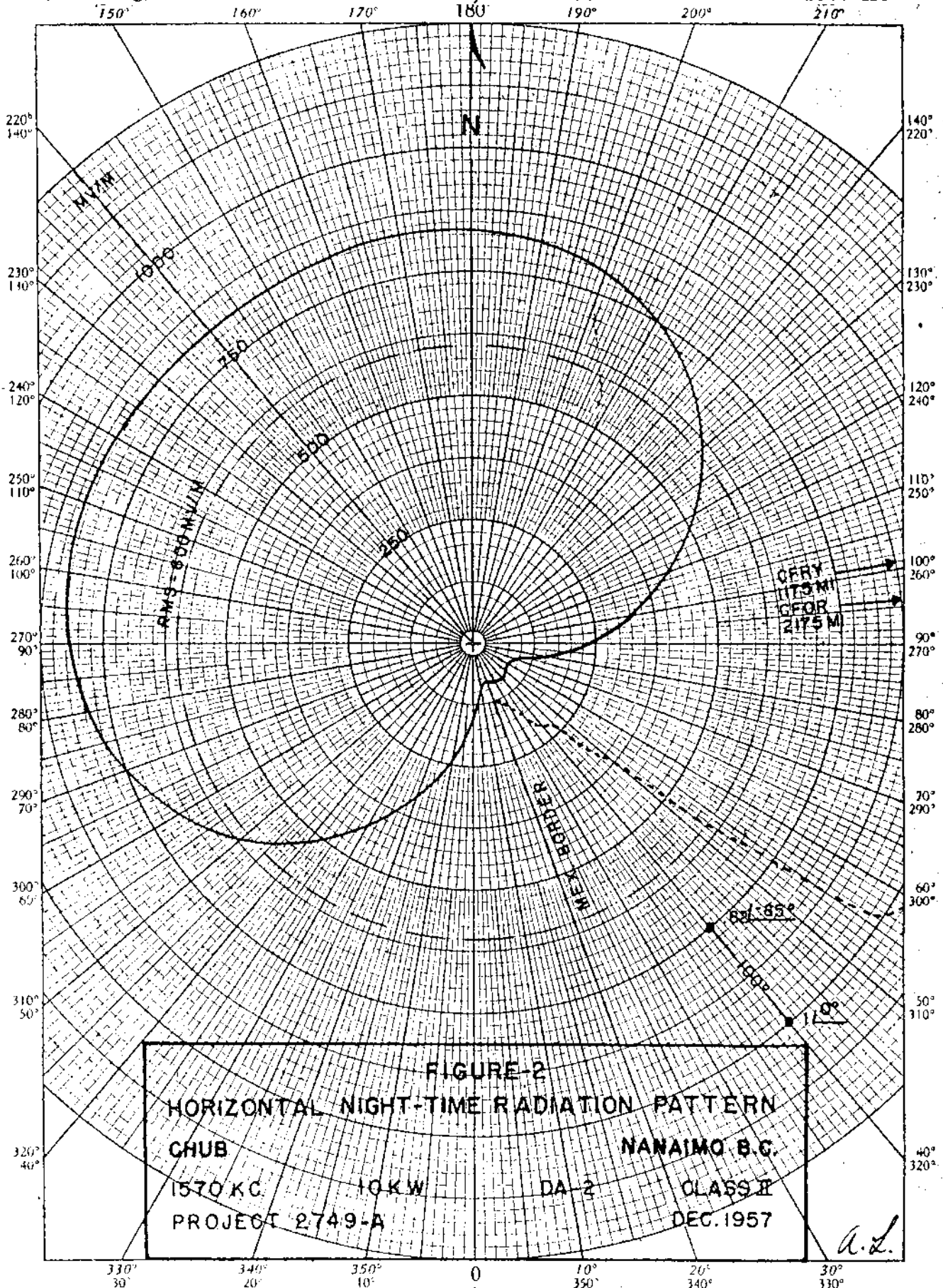
CHUB

PROPOSED NIGHT
(4-24-58g)

Station CHUB
Nanaimo, British Columbia

10kw, DA-2, U, Class II
1570 KC

12.5 POLAR CO-ORDINATE 359-31
KUPFER & ESSER CO. VANCOUVER, B.C.



a.l.

#119

CHUB

PROPOSED NIGHT NULLS
(4-24-58g)

Station CHUB
Nanaimo, British Columbia

10kw, DA-2, U, Class II
1570 KC

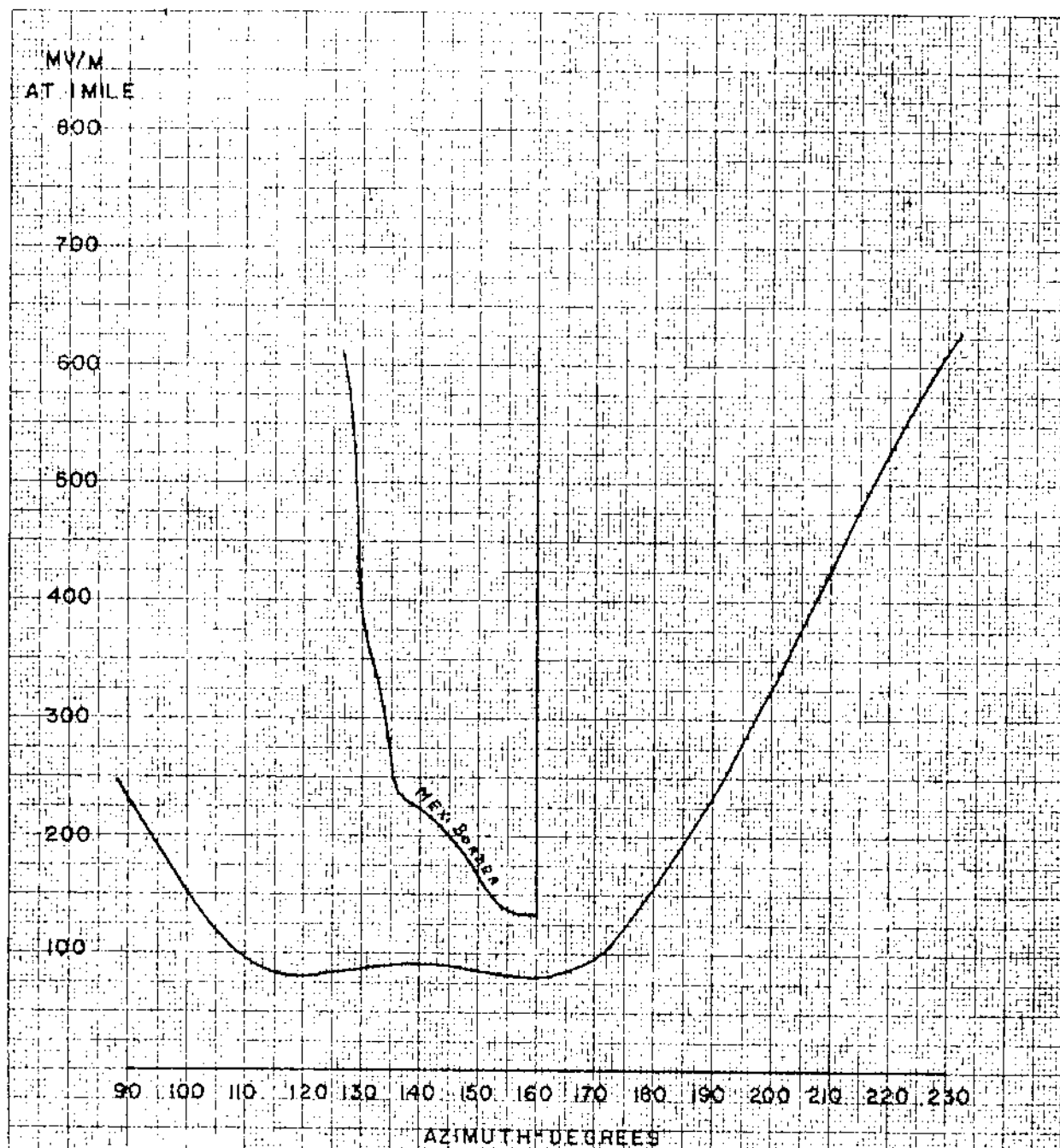


FIGURE 3

HORIZONTAL NIGHT-TIME RADIATION PATTERN DETAIL

CHUB

NANAIMO B.C.

1570 KC

10 KW

DA-2

CLASS II

PROJECT 2749-A

DEC. 1957

50kw, DA-2, U, Class 11
1570 kc



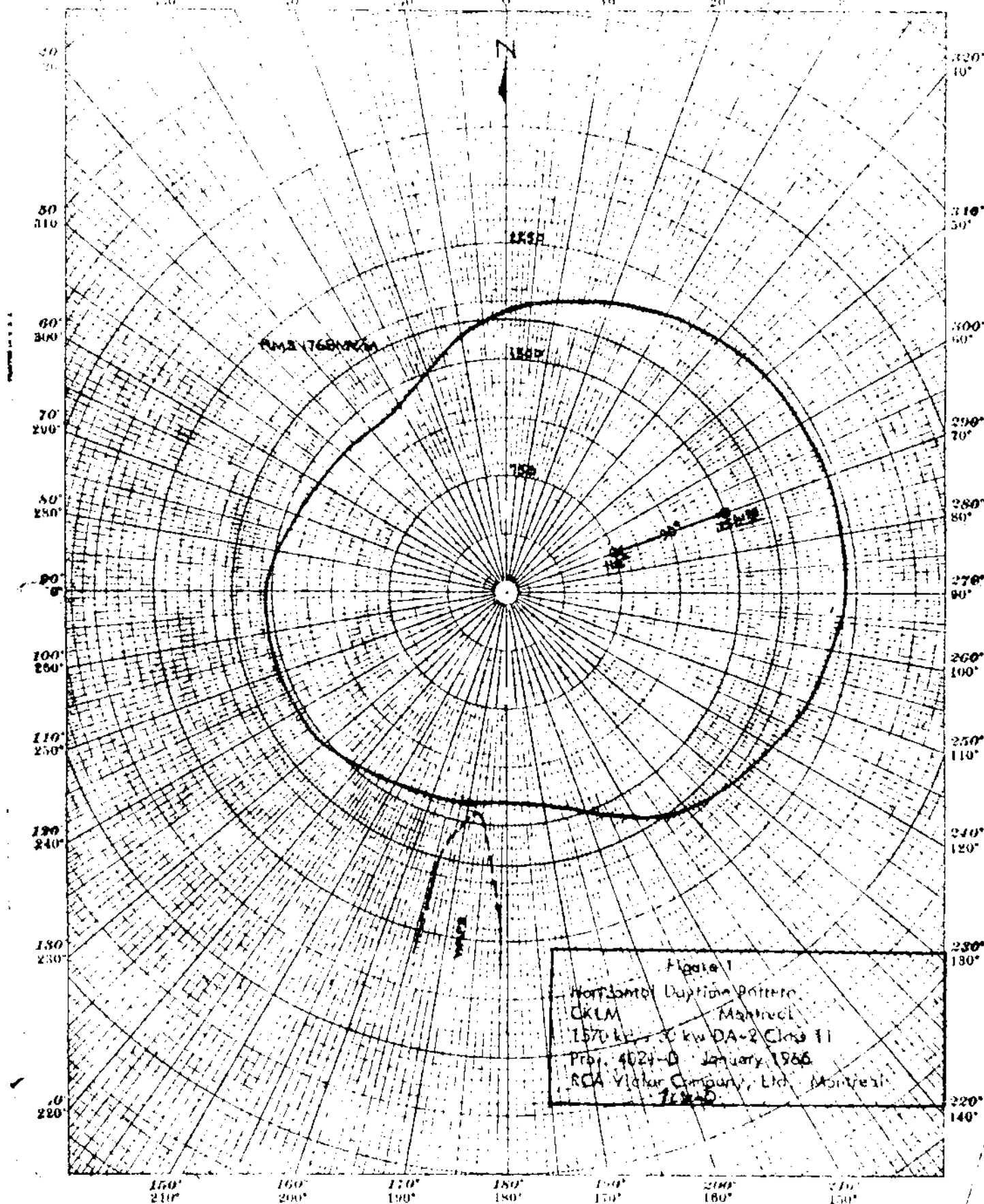
#208

CKLM

Proposed Day
(4-28-66ct)

Station CKLM
Montreal, Quebec

50kw, DA-2, U, Class 11
1570 kc



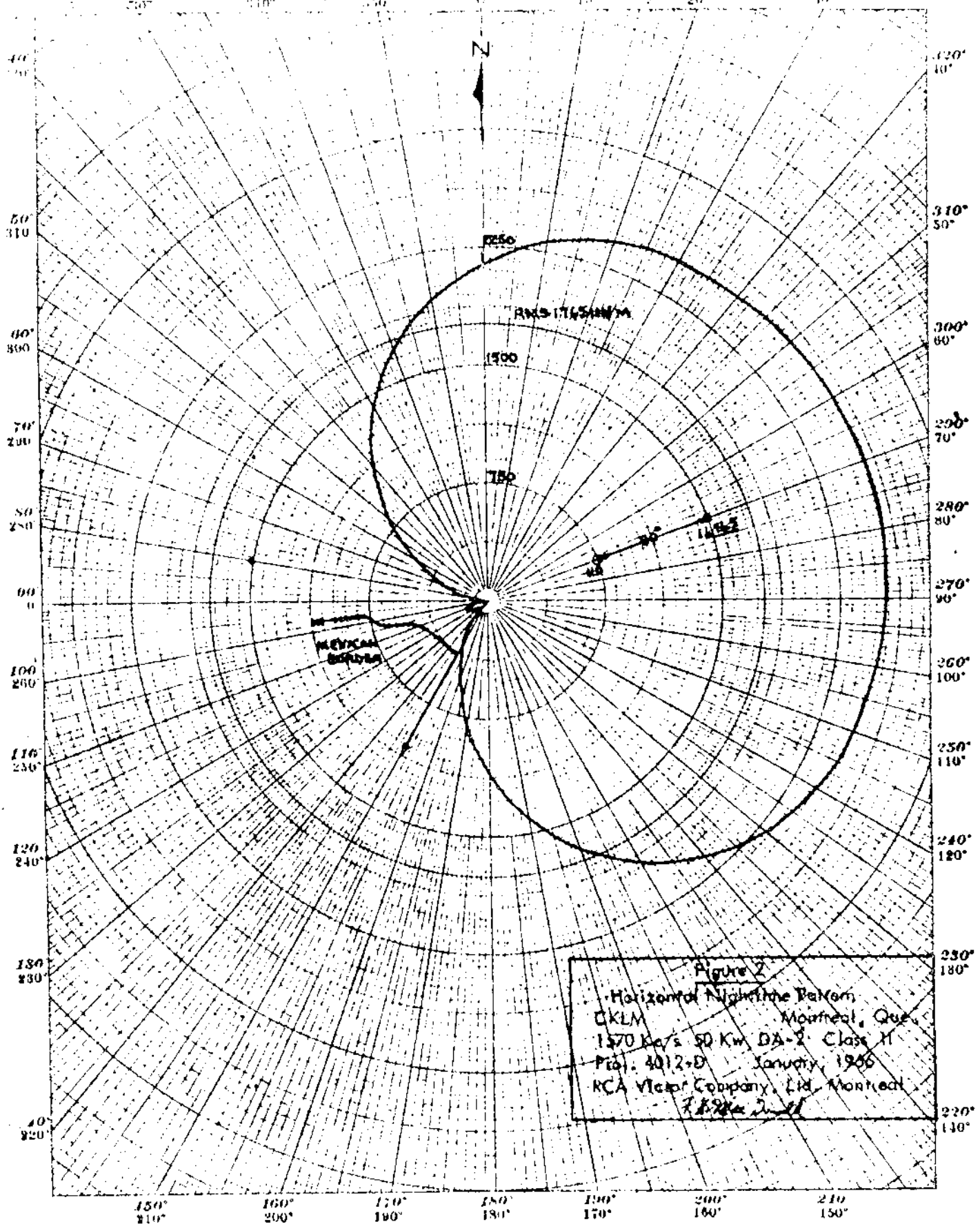
#208

CKLM

Proposed Night
(4-28-66ct)

Station CKLM
Montreal, Quebec

50kw, DA-2, U, Class 11
1570 kc



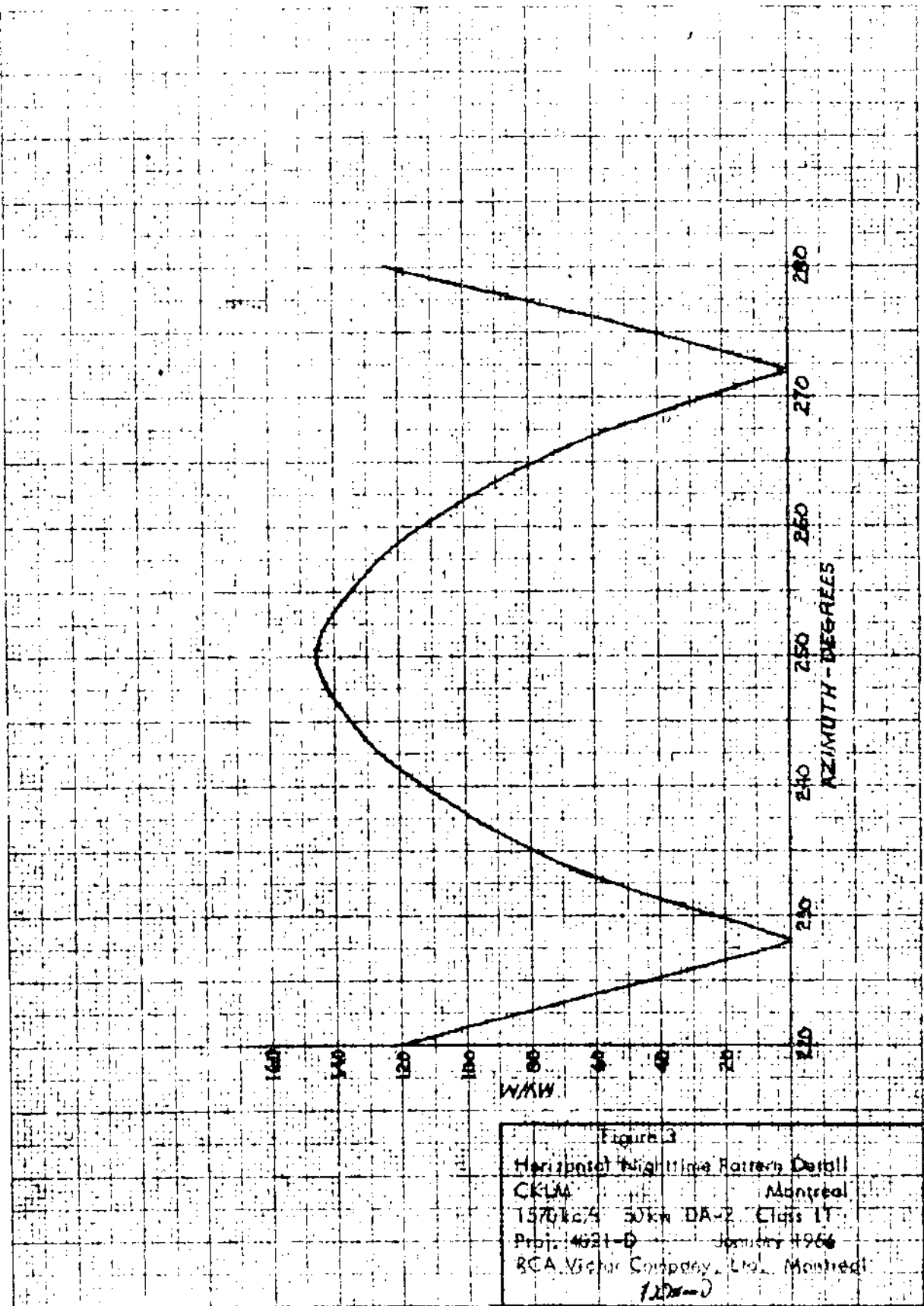
208

CKLM

50kw, DA-2, U, Class II
1570 kc

Station CKLM
Montreal, Quebec

Proposed Night Nulls
(4-28-66ct)



#195
Description Sheet
(3-26-65ct)

Station CKLM
Montreal, Quebec

CKLM
10kw, DA-N, U, Class II
1570 kc

DIRECTIONAL ANTENNA DESCRIPTION SHEET

STATION: CKLM

MAIN STUDIO: Montreal, Que.

FREQUENCY: 1570 Kc/s.

POWER: 10 Kw.

CLASS: II

Notification List No.: 195

Date: February 22, 1965.

GEOGRAPHICAL LOCATION OF THE ANTENNA SYSTEM:

NORTH LATITUDE: 45° 34' 15"

WEST LONGITUDE: 73° 44' 35"

ANTENNA CHARACTERISTICS:

Mode Of Operation: Directional night, omnidirectional day (DA-N)

Number Of Elements: Two (2)

Type Of Elements: Guyed, uniform cross-section, base insulated,
series fed, no top loading.

TOWER:

#1 (W)

#2 (E)

HEIGHT ABOVE INSULATOR:

250'

250' (144°)

OVERALL HEIGHT:

254'

254'

SPACING:

209' (120°)

PHASING:

0

-68°

FIELD RATIO:

1

0.9

ORIENTATION: Towers on a line bearing 78° East of True North.

GROUND SYSTEM: 120 radials per tower of No.10 AWG soft drawn copper wire.
Radials running between towers bonded to No.4 stranded copper
wire positioned at right angle to tower line. Radials buried
to an approximate depth of 8 inches. Effective length of ground
system: 251' (0.4 of a wavelength).

PREDICTED EFFECTIVE FIELD RMS:

Day: 559 mv/m for 10 Kw. (177 mv/m per Kw radiated)

Night: 663 mv/m for 10 Kw (210 mv/m per Kw radiated)

NOTE: Please retain patterns previously notified and attach to this
description sheet.

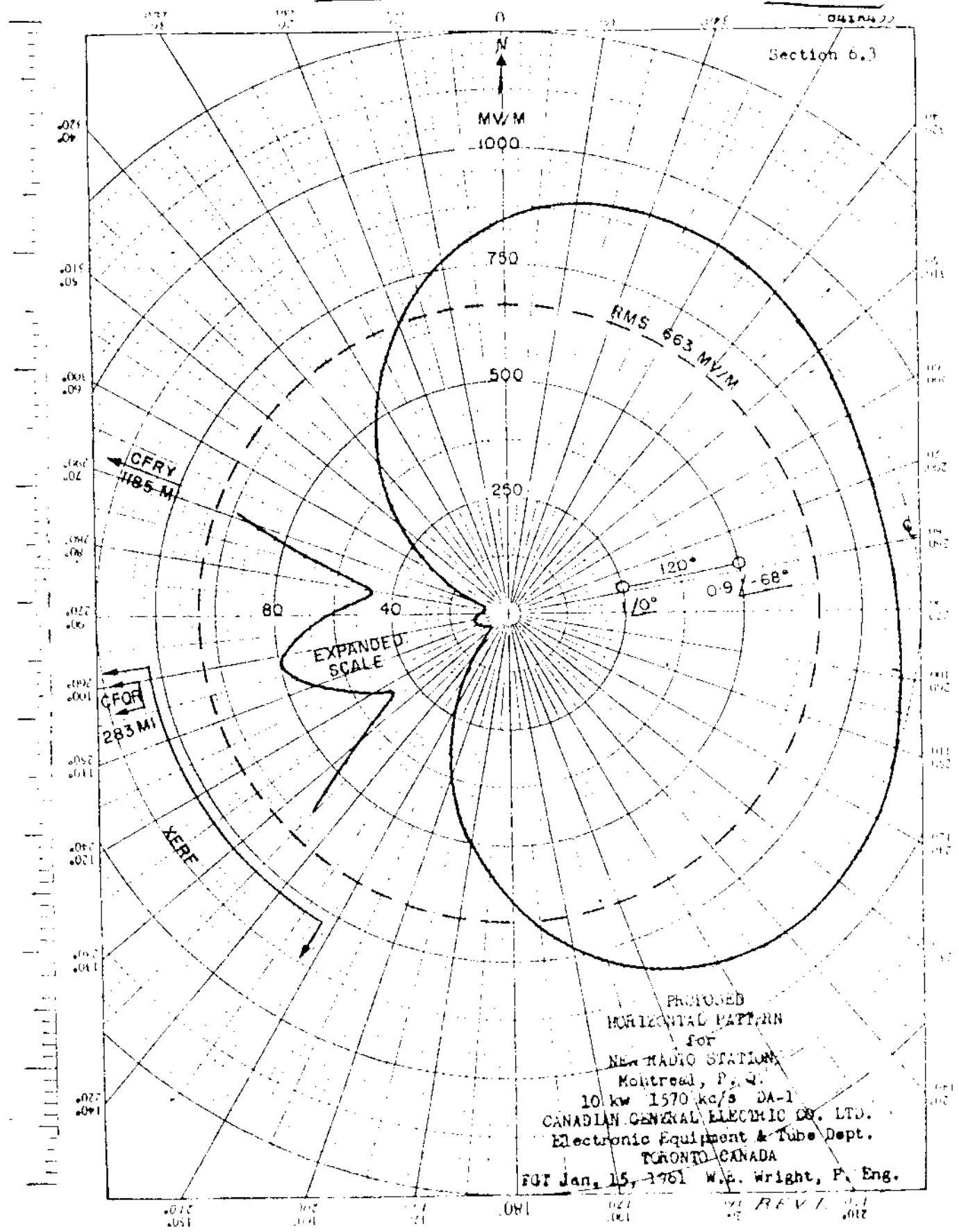
195

CKLM

Proposed Day & Night
(2-28-62ct)

New Station
Montreal, P.Q.

10kw, DA-1, U, Class II
1570 kc



[illegible]

PART I GENERAL INFORMATION

Date 821108

11) a) New assignment ☐ b) Modification of characteristic of an assignment recorded in the plan ☒ c) Cancellation of an assignment ☐

12) Modification under Section 4.2.14 Yes ☐ No ☒

13) Date of bringing into service or cessation of operation

--	--	--

Year Month Day

STATION PARAMETERS	DAYTIME OPERATION	NIGHT-TIME OPERATION
Station power (kW)	(21) 10.0	(31)
r.m.s. value of radiation for station power (mV/m at 1 km)	(25) 971.84	(35)
Antenna type	(26) A	(36)
Simple vertical antenna electrical height (degrees)	(27) 91.9	(37)

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

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: CKTA .

LOCATION: Taber, Alberta

FREQUENCY: 1570 kHz

POWER: 10 kW Day 5 kW Night

NOTIFICATION LIST: 346

DATE: October 31, 1975

GEOGRAPHICAL LOCATION:

Latitude 49° 45' 38" North

Longitude 112° 16' 17" West

ANTENNA CHARACTERISTICS:

Mode of Operation:

DA-N

Number of Elements:

2 (Two)

Type of Elements:

Guyed steel towers, uniform cross-section, base insulated for series feed

TOWER:

#1 (Southwest)

#2 (Northeast)

Height above base insulator:

160' (91.9°)

160' (91.9°)

Overall height:

165'

165'

Ratio:

1.0

.77

Phasing:

0°

-120°

GROUND SYSTEM:

120 equally spaced radials per tower of #10 B & S gauge bare soft copper wire, buried approximately 8 inches. Length of radials: 251' (0.4 wavelength) with the exception of those joined along the common chord.

SPACING AND ORIENTATION:

Tower #2 is spaced 157' (90°) along a line bearing 47° True from Tower #1.

PREDICTED EFFECTIVE FIELD:DayNight

604 mV/m at 1 mile for 10 kW

427 mV/m at 1 mile for 5 kW

191 mV/m at 1 mile for 1 kW

191 mV/m at 1 mile for 1 kW

December 11, 1974

DESCRIPTION SHEET - DIRECTIONAL ANTENNA

STATION: CKTA

MAIN STUDIO: Taber, Alberta

FREQUENCY: 1570 kHz

POWER: 5 kW

NOTIFICATION LIST: 333

DATE: November 8, 1974.

GEOGRAPHICAL LOCATION:

Latitude 49° 45' 38" North
Longitude 112° 16' 17" WestANTENNA CHARACTERISTICS:

Mode of Operation:

DA-N

Number of Elements:

2 (Two)

Type of Elements:

Guyed steel towers, uniform cross-section, base insulated for series feed

TOWER:

#1(Southwest)

#2(Northeast)

Height above base insulator:

160' (91.9°)

160' (91.9°)

Overall height:

165'

165'

Ratio:

1.0

.77

Phasing:

0°

-120°

GROUND SYSTEM:

120 equally spaced radials per tower of #10 B & S gauge bare soft copper wire, buried approximately 8 inches. Length of radials: 251' (0.4 wavelength) with the exception of those joined along the common chord.

SPACING AND ORIENTATION:

Tower #2 is spaced 157' (90°) along a line bearing 47° True from Tower #1.

PREDICTED EFFECTIVE FIELD:Day

427 mV/m at 1 mile for 5 kW

191 mV/m at 1 mile for 1 kW

Night

427 mV/m at 1 mile for 5 kW

191 mV/m at 1 mile for 1 kW

July 27, 1973

Revised January 2, 1974

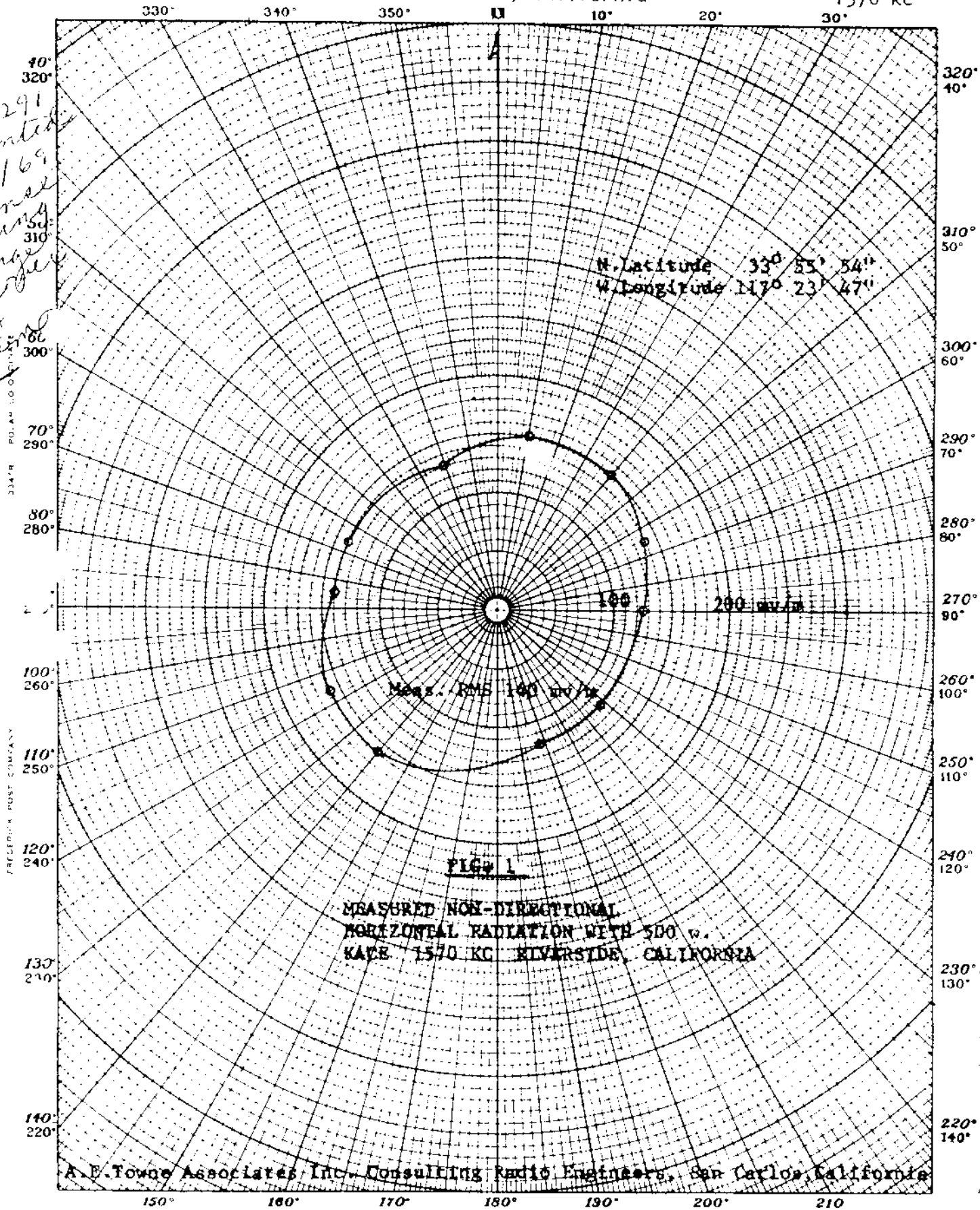
Revised October 10, 1974

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

Station KACE
Riverside, California

KACE
5kw, DA-D, D
1570 kc

3L-12291
Granted
8/18/69
license
range
report
- DA
update



FCC File No. BL-12291
Accepted 3-13-69

Station KACE
Riverside, California

1570 kc

KACE

Measured Day
(3-28-69ct)

Station KACE
Riverside, California

5kw, DA-D, D
1570 kc

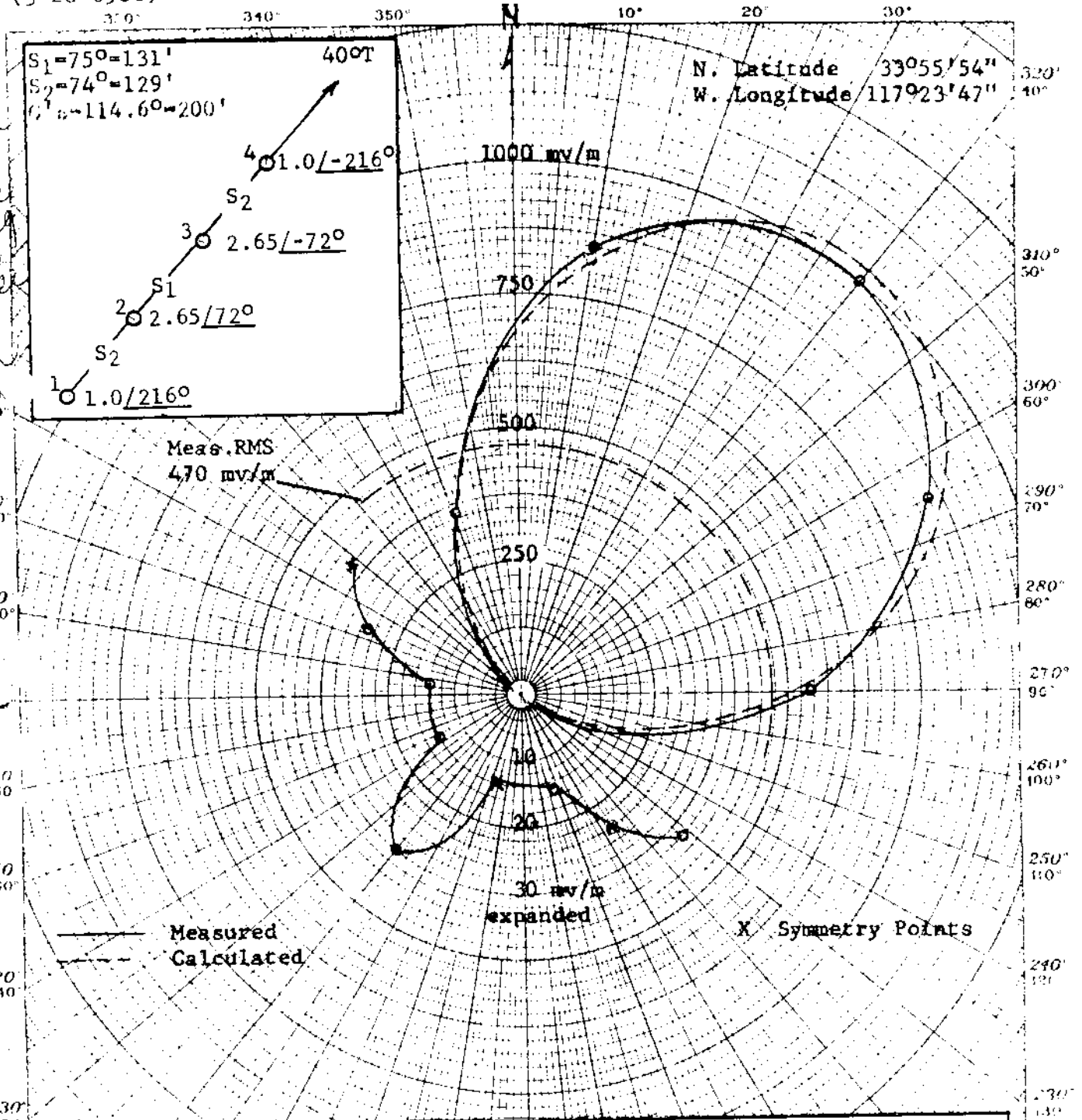


FIG. 2

MEASURED HORIZONTAL RADIATION
KACE 1570 KC 5.0 KW DA-D
RIVERSIDE, CALIFORNIA

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

FCC File No. BL-12291
Accepted 3-13-69

Station KACE
Riverside, California

1570 kc

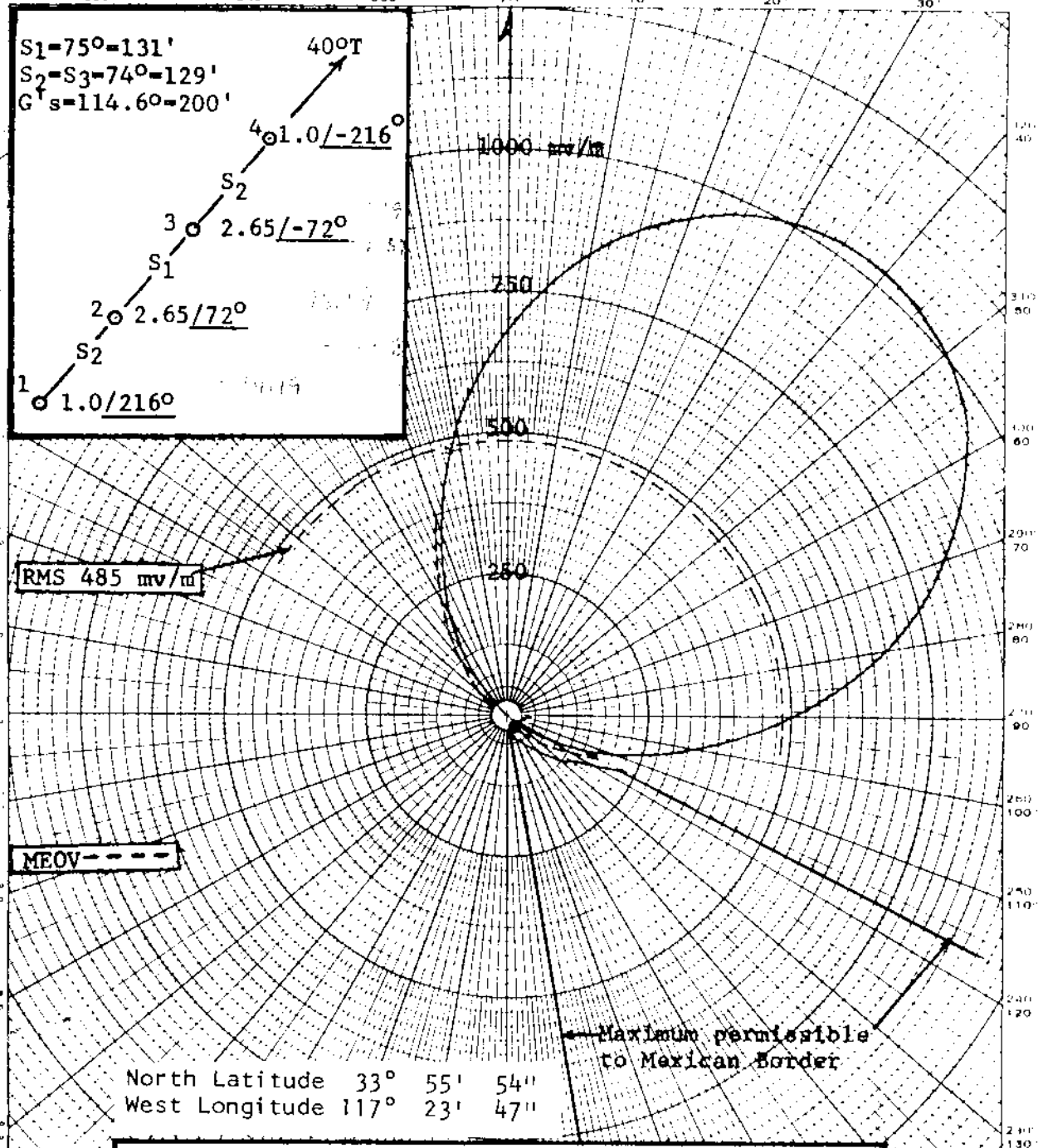
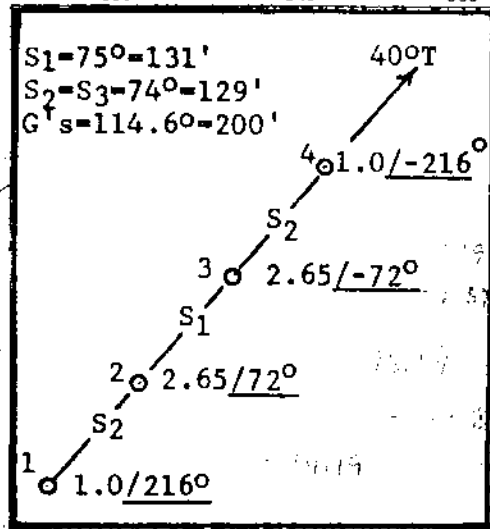
KACE

Proposed Day
(4-28-67ct)

Station KACE
Riverside, California

5kw, DA-D, D
1570 kc

GRANTED
CP 12-26-67
FROM 1 KW
TO 5 KW
CH. IN DA SYST



North Latitude $33^\circ 55' 54''$
 West Longitude $117^\circ 23' 47''$

Fig. 1
 PROPOSED HORIZONTAL RADIATION
 KACE 1570 KC 5.0 KW DA-D
 RIVERSIDE, CALIFORNIA
 A.E.Towne Associates Inc., Consulting Radio Engineers
 San Carlos, California

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

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

KACE

Proposed Day Nulls
(4-28-67ct)

Station KACE
Riverside, California

5kw, DA-D, D
1570 kc

GRANTED CP
12-26-67
FROM 1 KW
TO 5 KW
DA
CHANGE SYSTEM

Fig. 2

NULL DETAIL
PROPOSED HORIZONTAL RADIATION
KACE 1570 KC 5.0 KM
RIVERSIDE, CALIFORNIA

Maximum
Permissible to
Mexican Border

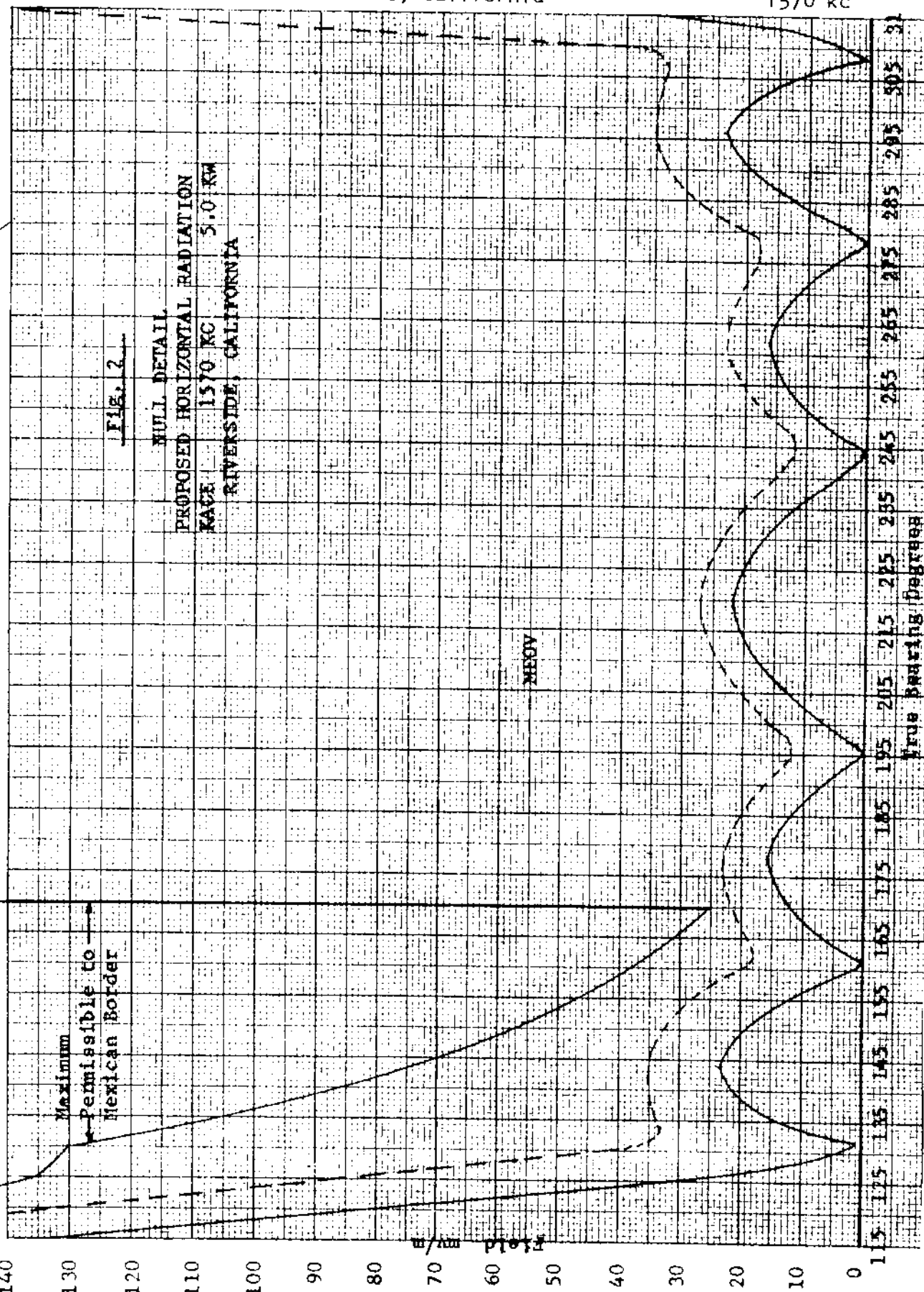
MSR

True bearing degrees

FCC File No. BP-17549
Accepted 4-7-67

Station KACE
Riverside, California

1570 kc



PROPOSED DAY
(6-14-61g)

Station KCVR
Lodi, California

5kw, DA-D,D
1570 KC

LONG. = 121° 17' 39" W
LAT. = 38° 09' 18" N

$G_1 = 107^\circ$
 $G_2 = 70^\circ$

30° true
#2° 1/-162°
#1° 1.7/0°

$s = 70^\circ$

RMS = 395 mv/m

BP-13788
Santa Rosa

BP-1319
Willows

KCVR

KWIP
Merced

KLIV
San Jose

KRKC
King City

CLYDE H. BOND
CONSULTING RADIO ENGINEER
1172 CHESTNUT STREET
MENLO PARK, CALIFORNIA

EXHIBIT NO. E-1c
DAYTIME
HORIZONTAL PLANE PATTERN
RADIO KCVR
PROPOSED
1570KC-5KW-DA-D
LODI, CALIFORNIA
Feb. 1961

FCC File No. BP-14792
Accepted 5-15-61

KCVR
Lodi, California 1570 KC

7-13-63
Antenna pattern
change to 5kw
A-D

KCVR

Measured Day
(3-30-64ct)

Station KCVR
Lodi, California

5kw, DA-D, D
1570kc

LONG. = 121° 17' 39" W
LAT. = 38° 09' 18" N

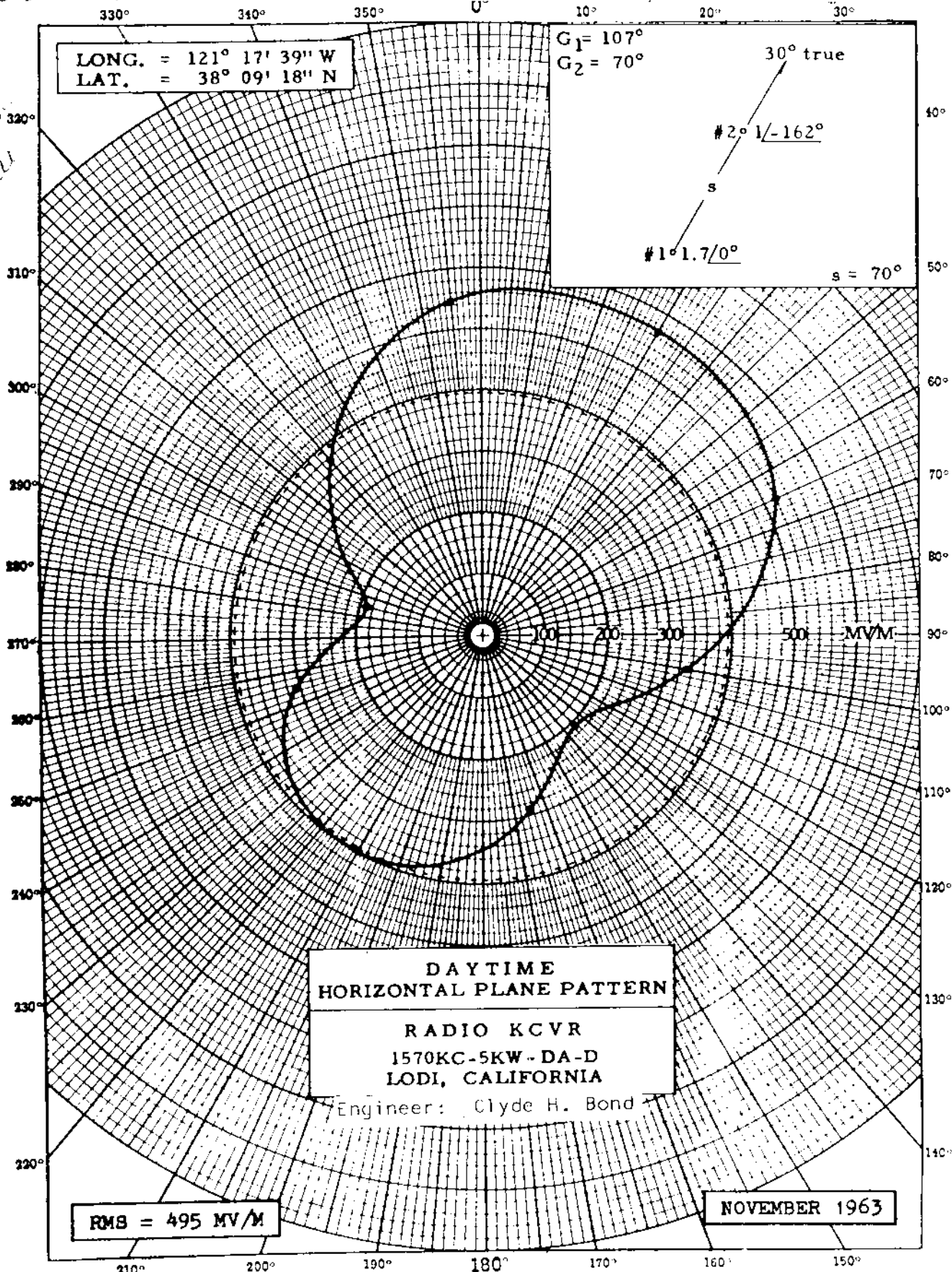
$G_1 = 107^\circ$
 $G_2 = 70^\circ$

30° true

#2° 1/-162°

#1° 1.7/0°

s = 70°



DAYTIME
HORIZONTAL PLANE PATTERN

RADIO KCVR
1570KC-5KW-DA-D
LODI, CALIFORNIA

Engineer: Clyde H. Bond

RMS = 495 MV/M

NOVEMBER 1963

FCC File No. BL-10443
Accepted 3-12-64

Station KCVR
Lodi, California

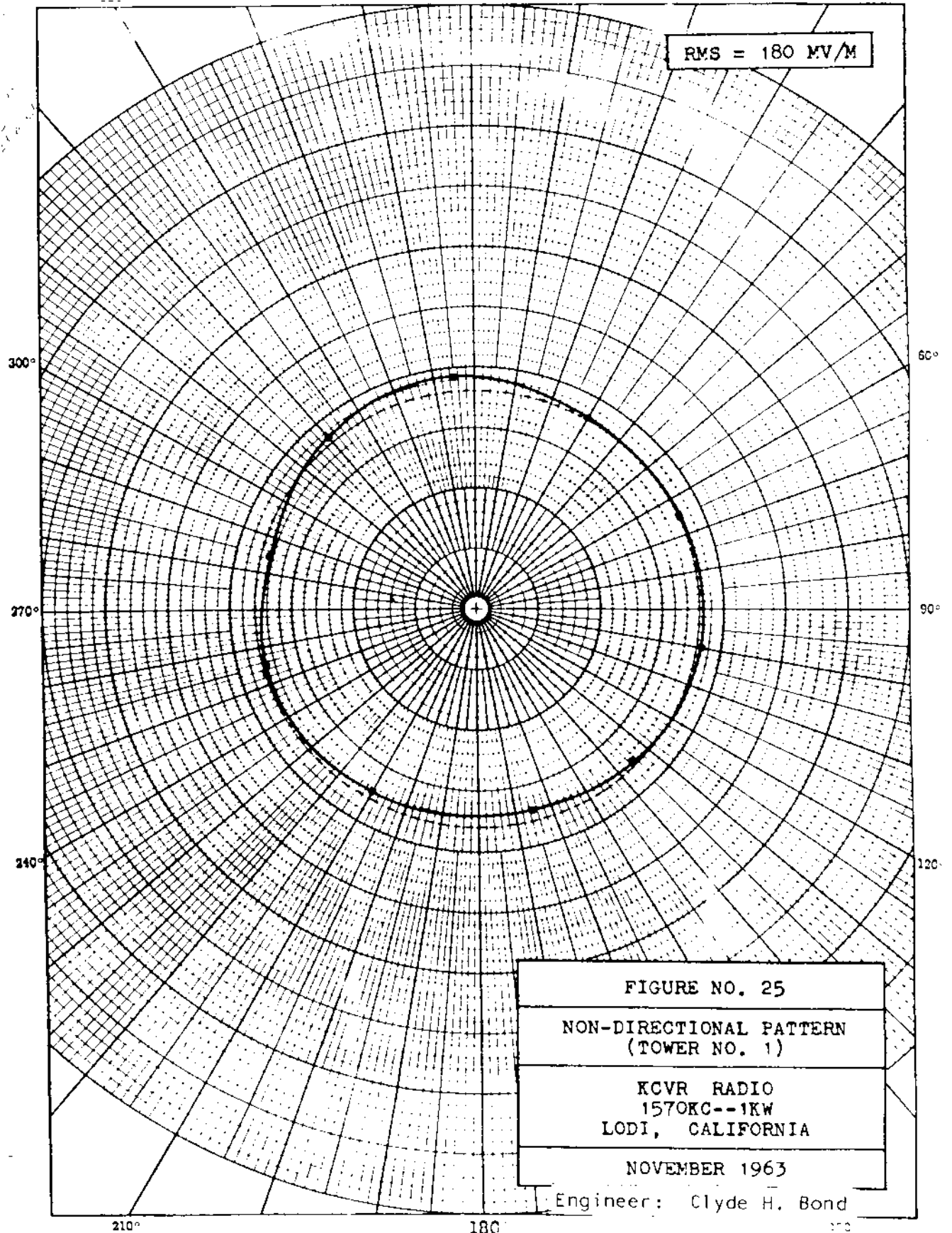
FIGURE NO. 26
1570kc

KCVR

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

Station KCVR
Lodi, California

5kw, DA-D, D
1570kc



FCC File No. BL-10443
Accepted 3-12-64

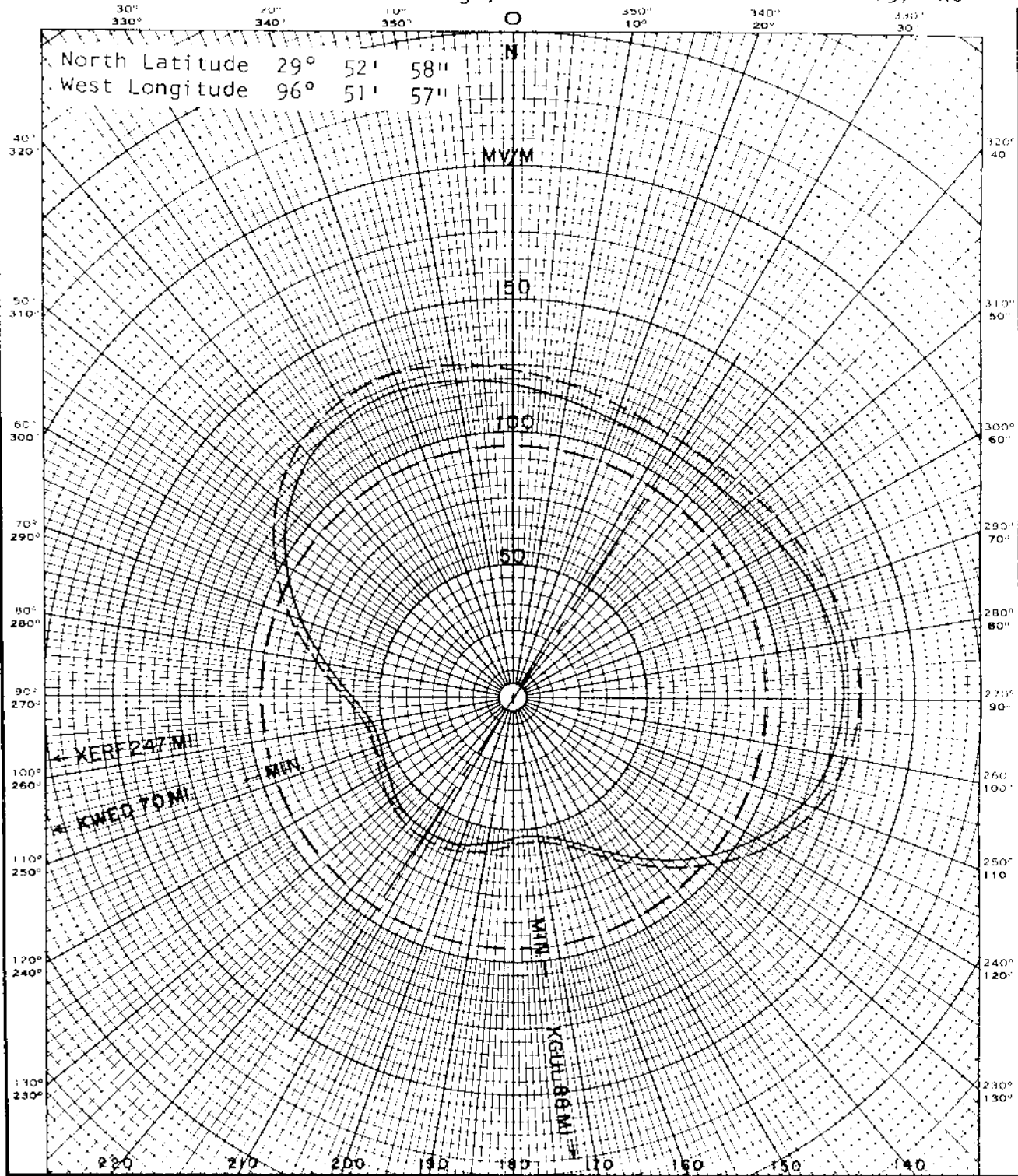
Station KCVR
Lodi, California

1570kc

Proposed Day
(11-24-70ct)

Station KVLG
LaGrange, Texas

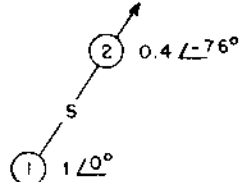
KVLG
250w, DA-D, D
1570 kc



RMS = 94.5 MV/M

033° T.

— MEDV



S = 135° = 235.09 FT.

FCC File No. BP-18908
Accepted 10-30-70

G = 86.13° = 150'

Station KVLG
LaGrange, Texas

700610

KVLG
LA GRANGE, TEXAS
PROPOSED DA-D PATTERN

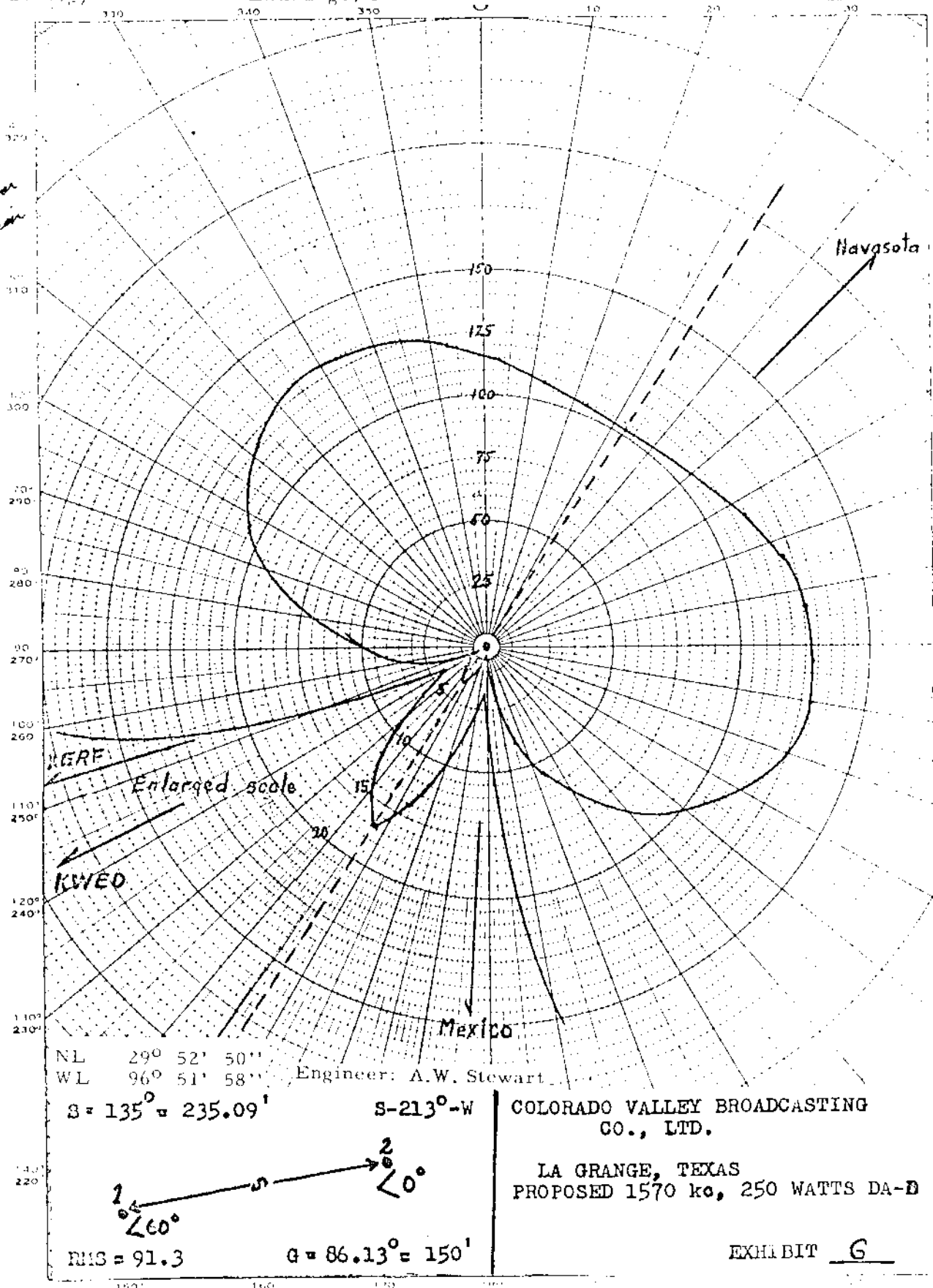
FIGURE 4A

1570 kc

KVLG

250w, DA-D,D
1570 KC

Granted
3/4/59) CP for
a new station



Colorado Valley Broadcasting Co., Ltd.
LaGrange, Texas 1570 KC

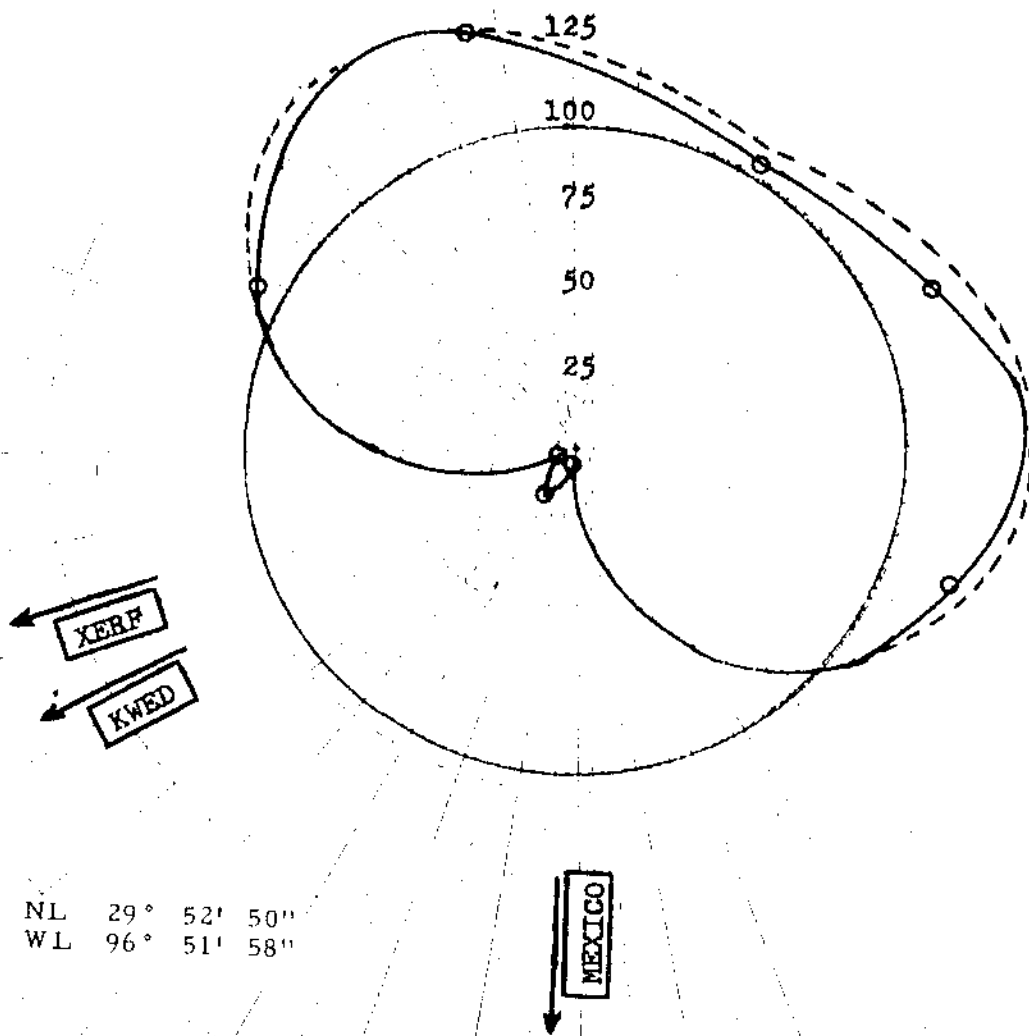
KVLG-

MEASURED DAY
(8-8-59g)

Station KVLG
La Grange, Texas

250w, DA-D, D
1570 KC

*gumma - per me on mon
11-18-59*



K V L G Horizontal Radiation Pattern Calculated - - - - - Measured <u> </u> 0 Measured Values	Frequency: 1570 kc Assignment: 0.25 kw DA-D RMS Field : 89 MV/M (Measured) Antenna: #1 #2 Phase Deg. / 45° 0° Height 150' 150'
--	--

FCC File No. BL-7550
Accepted 7-17-59

KVLG
La Grange, Texas

1570 KC

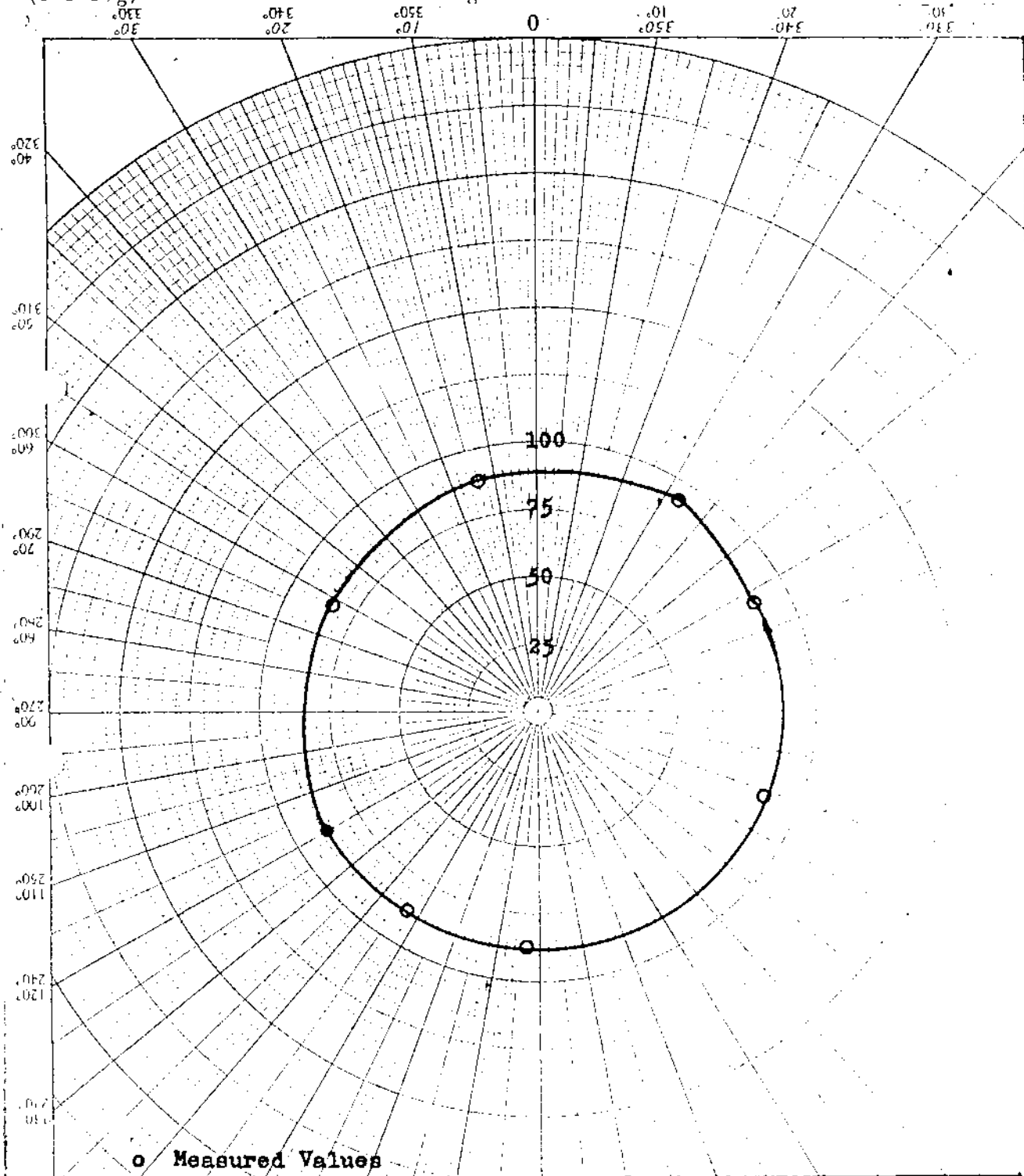
A.W. Stewart - Engineer

KVLG

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

Station KVLG
La Grange, Texas

250w, DA-D, D
1570 KC



Granted for new station
11-18-59

K V L G Horizontal Radiation Pattern Non-Directional Operation	Frequency : 1570 KC. Assignment : 0.25 KW. R. M. S. Field : 89 MV/M (Measured)
---	---

FCC File No. BL-7550
Accepted 7-17-59

KVLG
La Grange, Texas

1570 KC

WBEE

PROPOSED
DAY (6-27-56g)

STATION WBEE
HARVEY, ILLINOIS

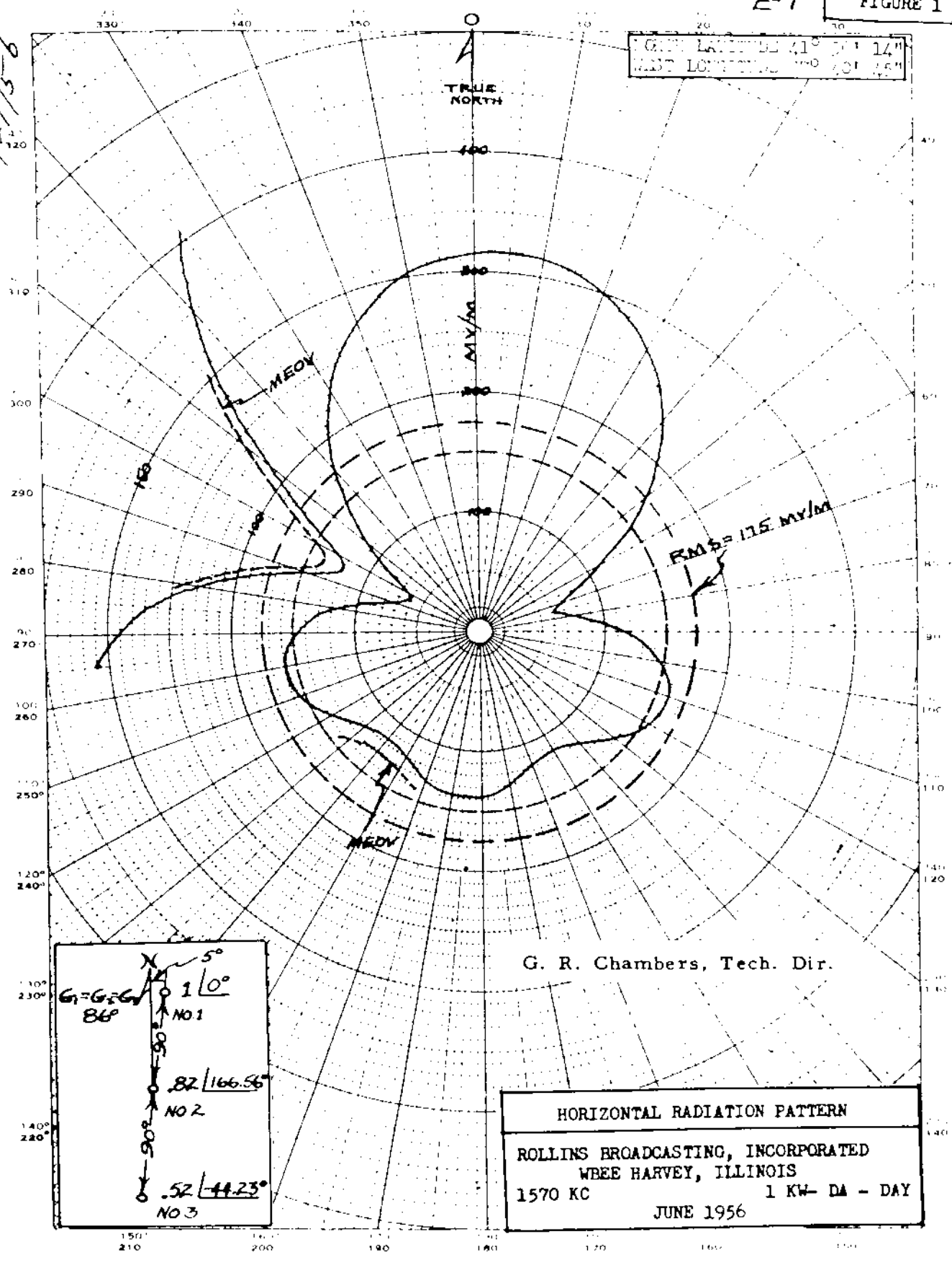
1 KW
DA-D, D

1570 KC

E-7

FIGURE 1

*Granted CP
6/27/56*



MEASURED
DAY (8-17-g56)

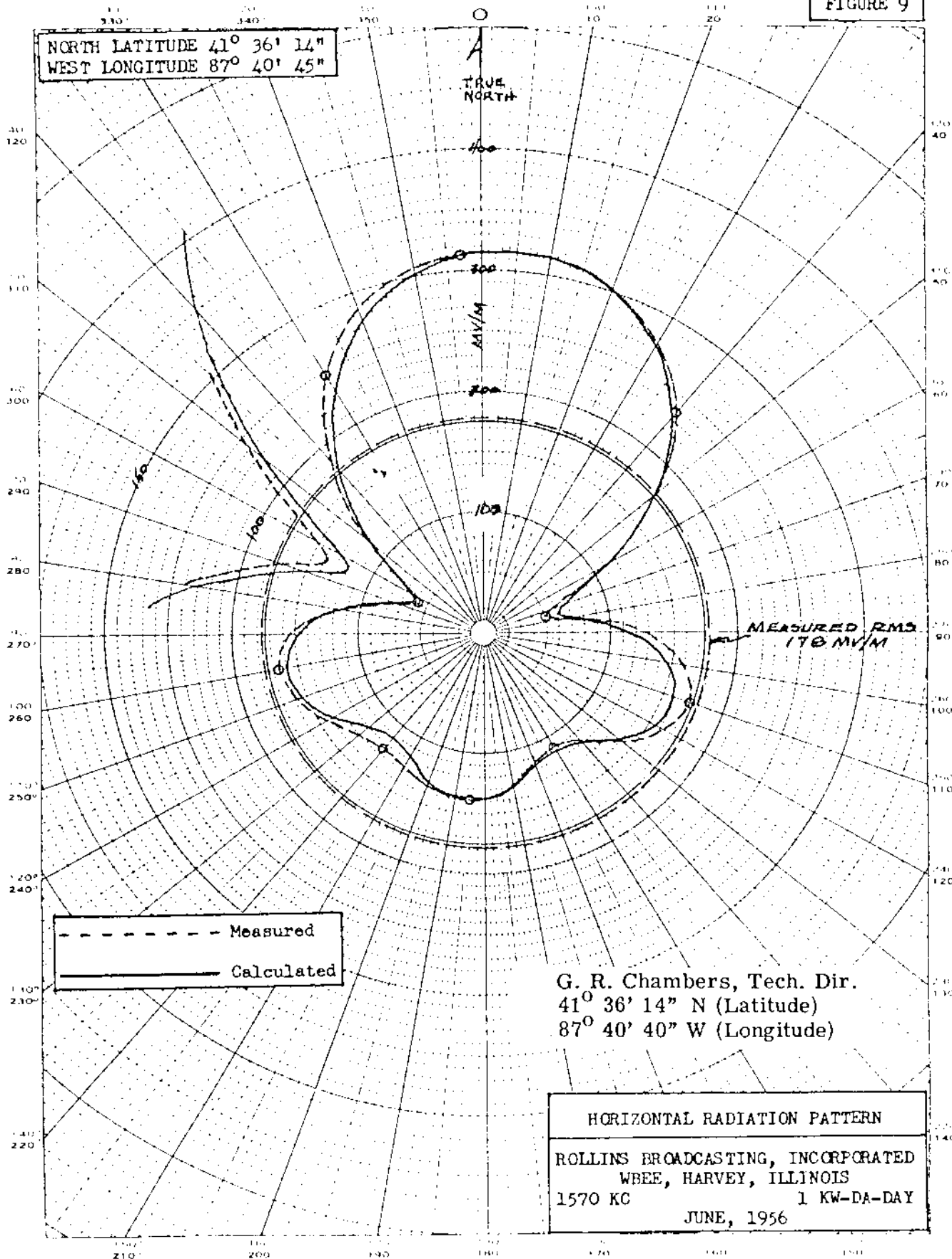
*granted license 12/11/56 for increase
in power*
STATION WBEE
HARVEY, ILLINOIS
denied 11-21-60

1 KW
DA-D, D

WBEE

1570 KC

FIGURE 9



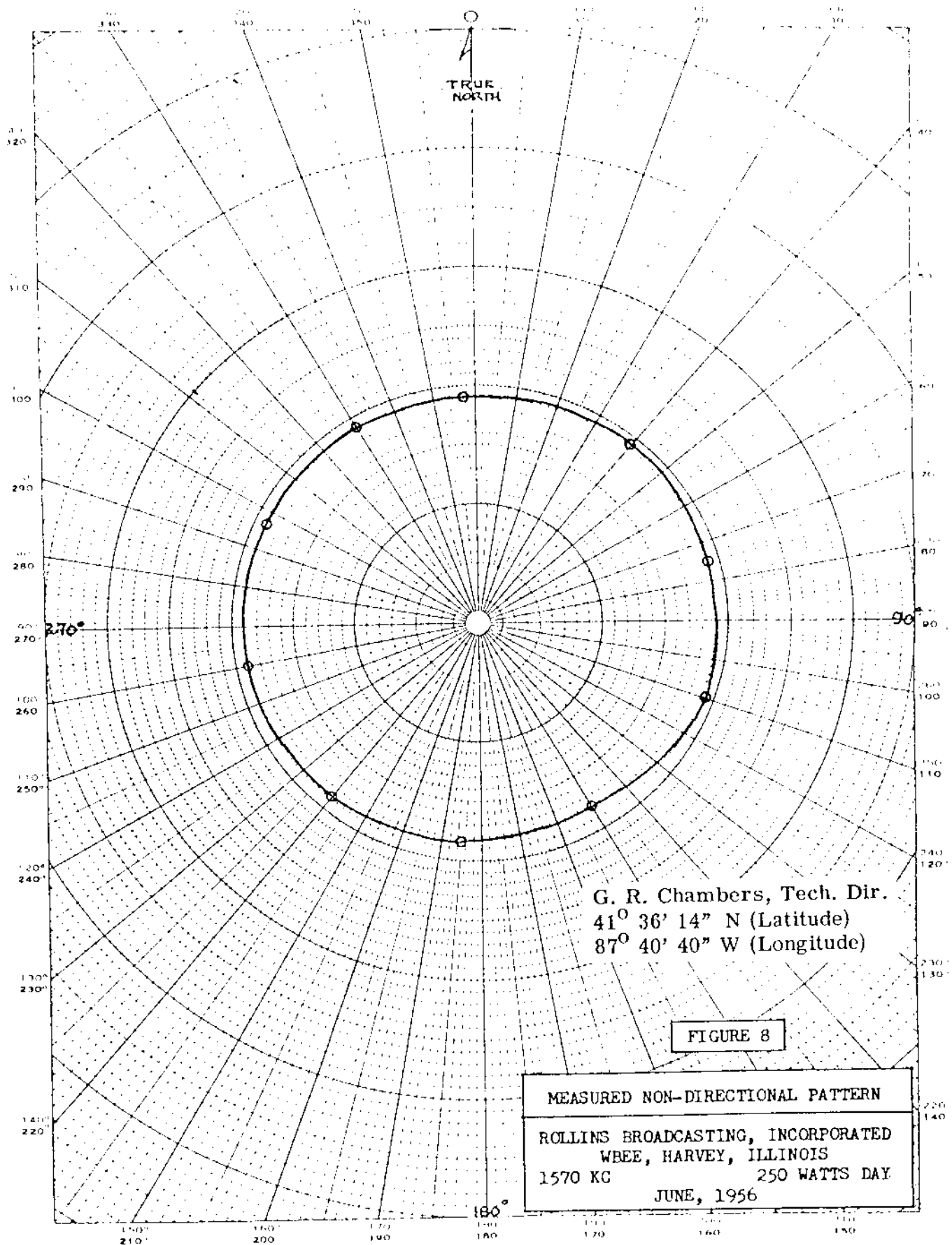
WBEE

MEASURED NON-
DIRECTION (8-17-56g)

STATION WBEE
HARVEY, ILLINOIS

1 KW
DA-D, D

1570 KC



WBUX

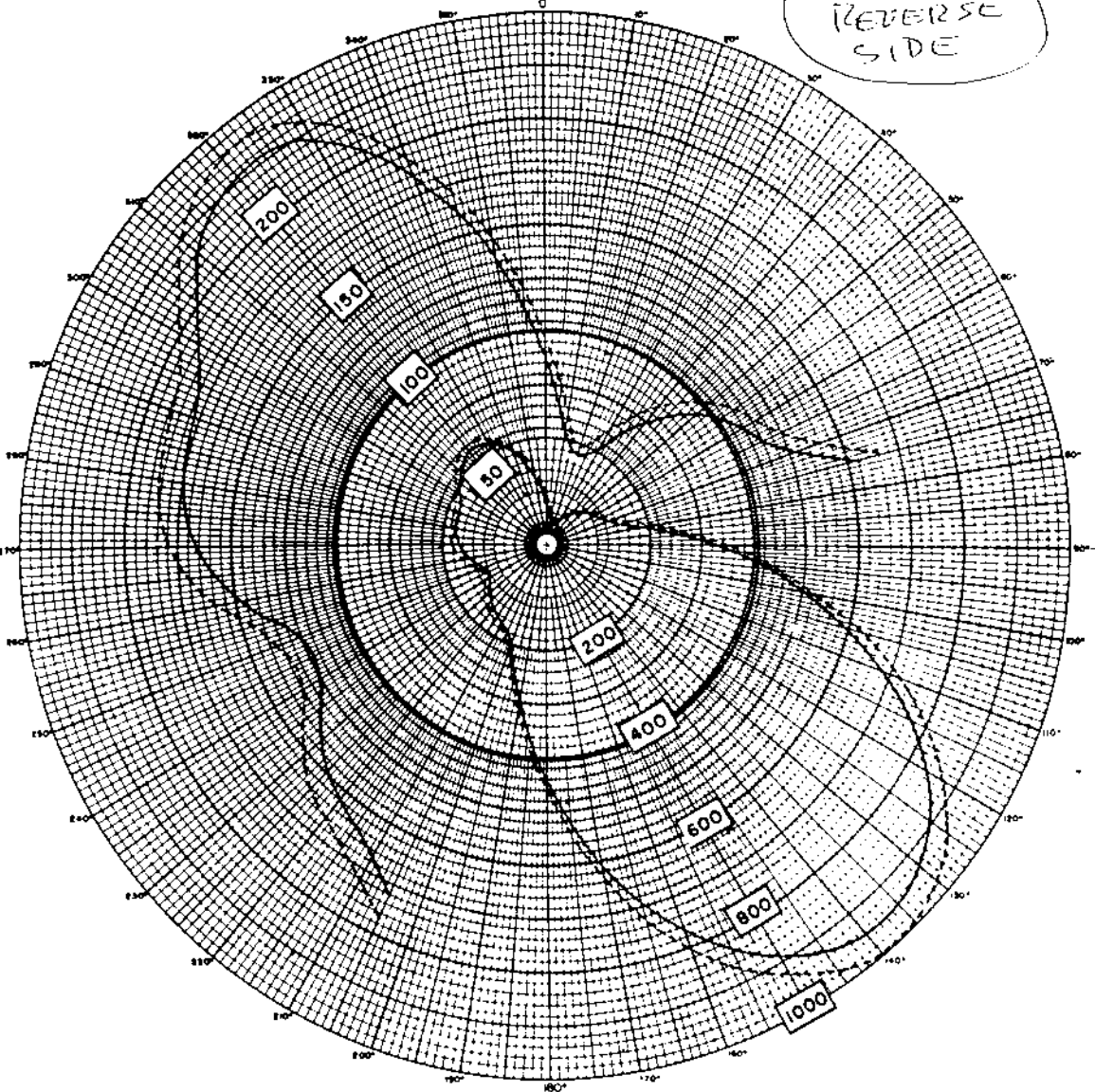
Proposed Day
(3-30-62ct)

Station WBUX
Doylestown, Pennsylvania

5kw, DA-D, D
1570 kc

2-7-64
started app
5 increase power
from 1 to 5 kw
with DA

SEE
REVERSE
SIDE



$E_{RMS} = 407 \text{ MV/M}$

----- MEOV

LATITUDE: 40° 19' 34"
LONGITUDE: 75° 09' 28"

JOHN H. MULLANEY
AND
ASSOCIATES
WASHINGTON, D. C.

ANTENNA PARAMETERS

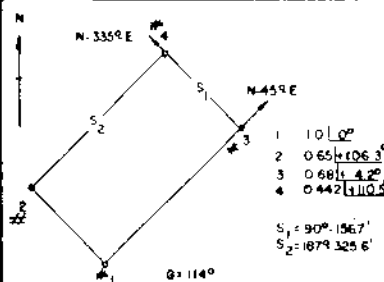


FIGURE 4

HORIZONTAL POLAR PATTERN

RADIO STATION WBUX
DOYLESTOWN, PENN.

1570 KC

5 KW, DA-D

FCC File No. BP-13893
Accepted 3-13-62

Station WBUX
Doylestown, Pennsylvania

1570 kc

WBUX

Measured Day
(4-28-65ct)

Station WBUX
Doylestown, Pennsylvania

5kw, DA-D, D
1570 kc

3L-10842
A-22-65 LIC
INCR. PWR

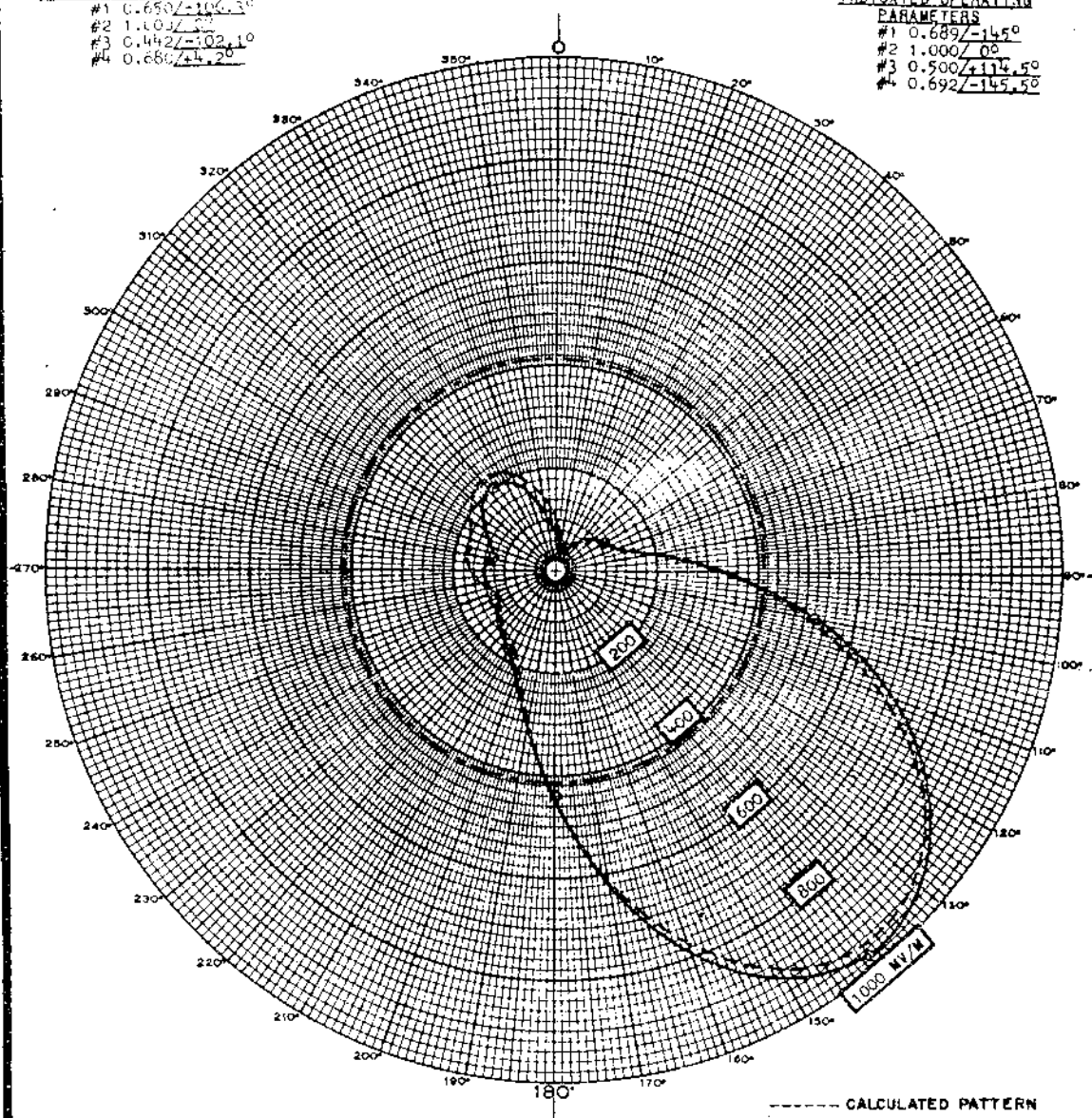
THEORETICAL PARAMETERS

- #1 0.650/-106.30
- #2 1.100/00
- #3 0.442/-102.10
- #4 0.680/44.20

INDICATED OPERATING PARAMETERS

- #1 0.689/-145.0
- #2 1.000/00
- #3 0.500/+114.50
- #4 0.692/-145.50

SEE
REVERSE
SIDE



$E_{RMS} = 412 \text{ MV/M}$

----- CALCULATED PATTERN
——— MEASURED PATTERN
O MEASURED RADIAL

LATITUDE: 40° 19' 34"
LONGITUDE: 75° 09' 28"

ANTENNA PARAMETERS

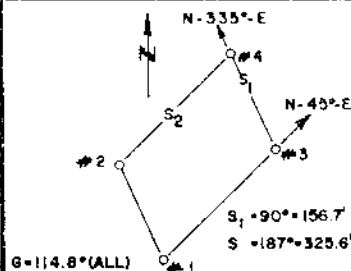


FIGURE 13

MEASURED
DAYTIME DIRECTIONAL HORIZONTAL
POLAR PATTERN

RADIO STATION WBUX
DOYLESTOWN, PENNSYLVANIA

1570 KC

5 KW, DA-D

JOHN H. MULLANEY
AND
ASSOCIATES

A DIVISION OF MULTRONICS, INC

WBUX

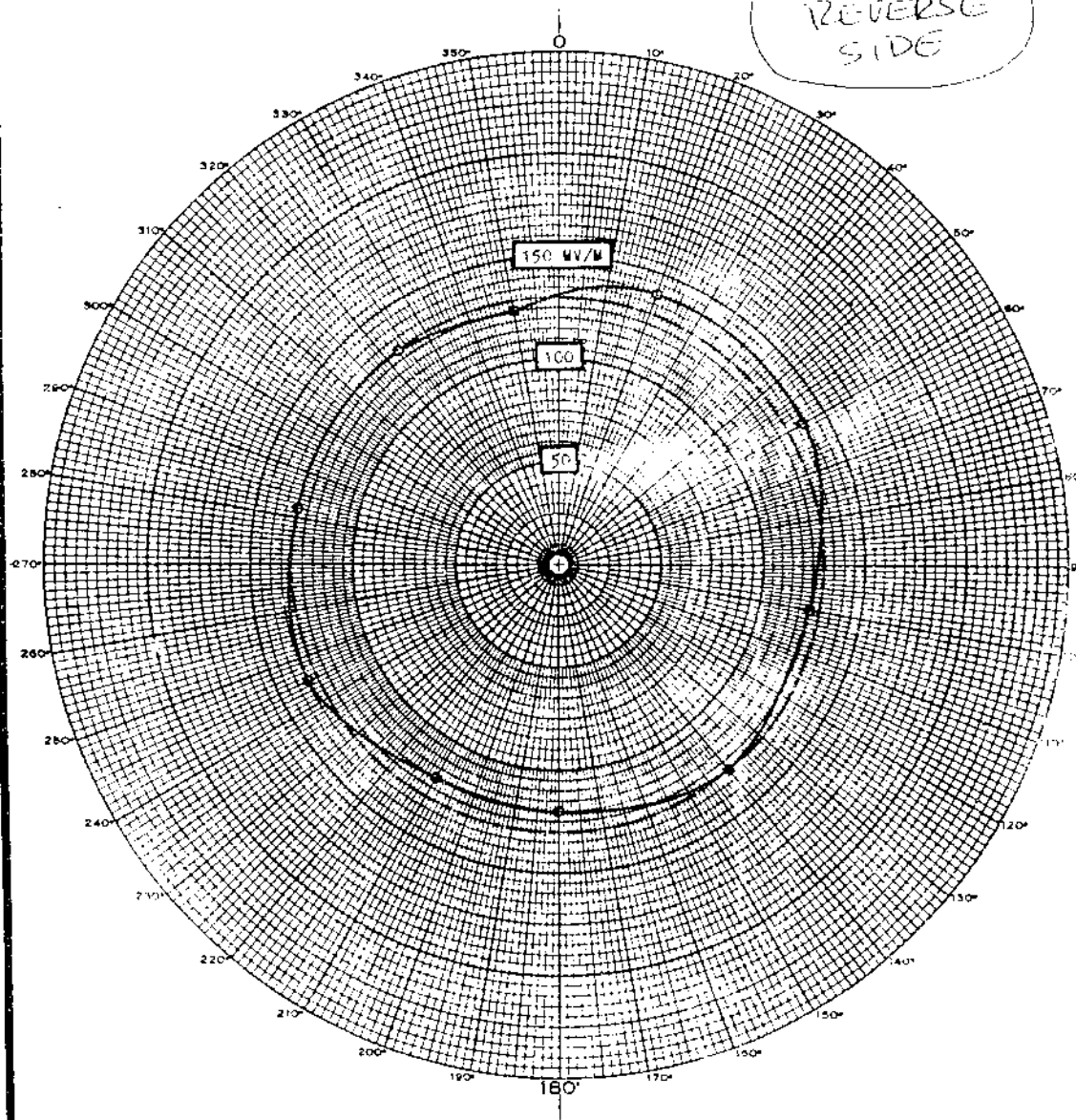
Measured Non-DA
(4-28-65ct)

Station WBUX
Doylestown, Pennsylvania

5kw, DA-D, D
1570 kc

BL-10842
4-22-65 LIE
INCR. PWR

SEE
REVERSE
SIDE



$E_{RMS} = 130 \text{ MV/M}$

o MEASURED RADIALS

LATITUDE: 40° 19' 34" LONGITUDE: 75° 09' 28"	ANTENNA PARAMETERS	FIGURE 12 MEASURED NONDIRECTIONAL HORIZONTAL POLAR PATTERN RADIO STATION WBUX DOYLESTOWN, PENNSYLVANIA 1570 KC 5 KW, DA-D
JOHN H. MULLANEY AND ASSOCIATES A DIVISION OF MULTRONICS INC	TOWER #3 $G = 114.8^\circ$	

FCC File No. BL-10842
Accepted 3-30-65

Station WBUX
Doylestown, Pennsylvania

1570 kc

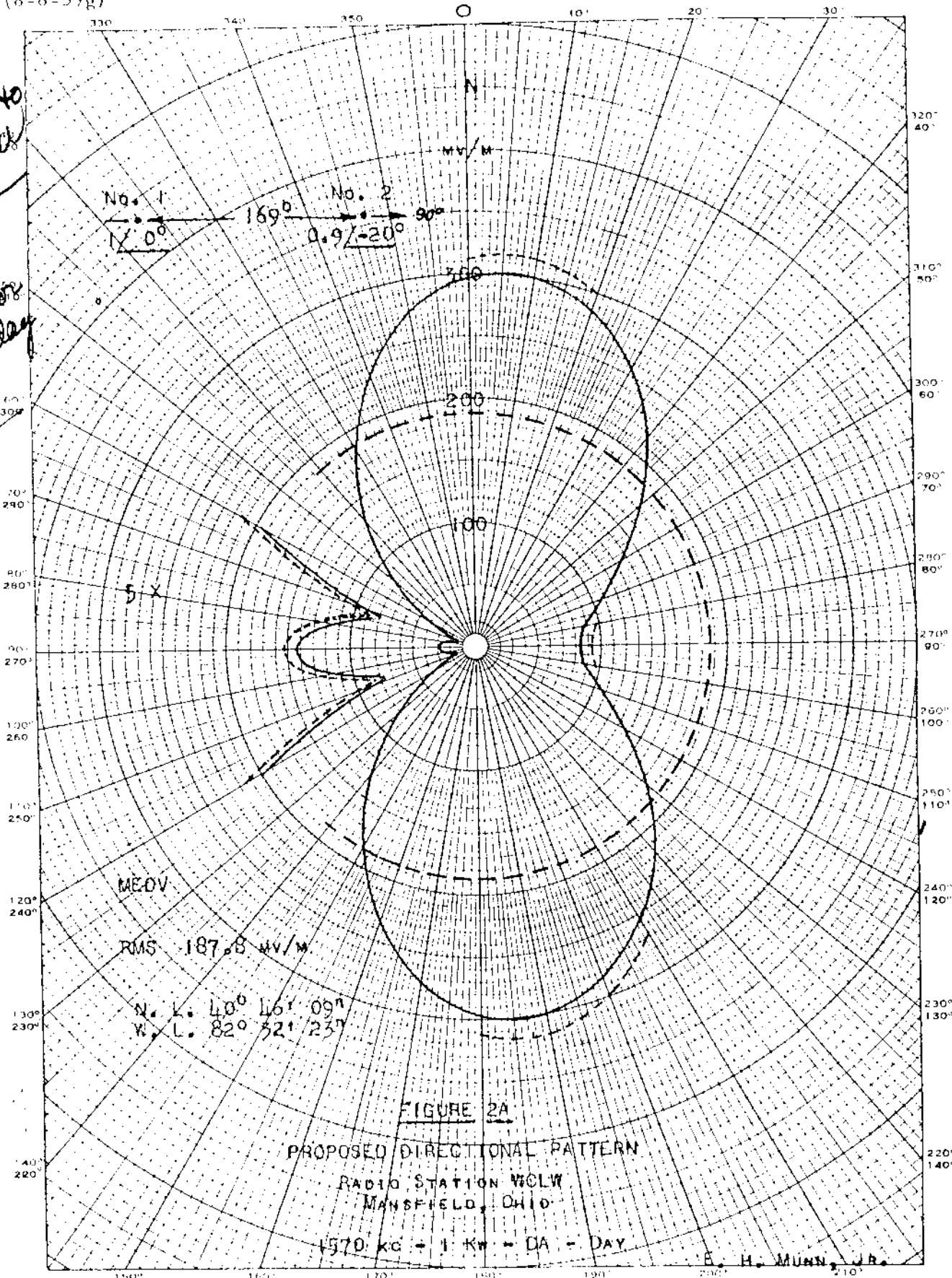
WCLW

PROPOSED DAY
(8-8-59g)

Station WCLW
Mansfield, Ohio

1kw, DA-D, D
1570 KC

11-2-60
fronted up to
increase power
SL 8749-
printed L
19-62- for
change in day
A 7

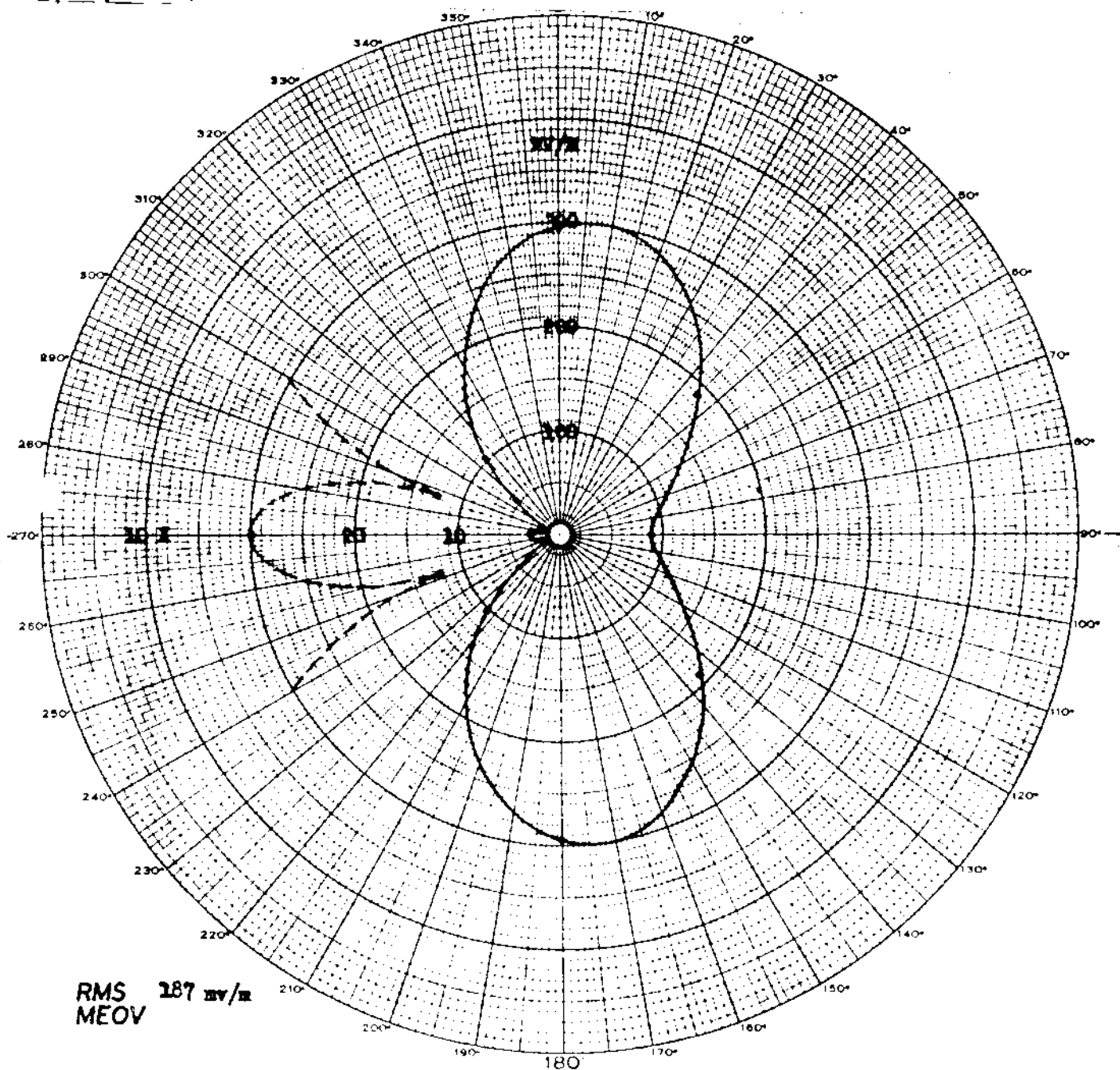


FCC File No. BP-13241
Accepted 7-15-59

WCLW
Mansfield, Ohio

1570 KC

WCLW

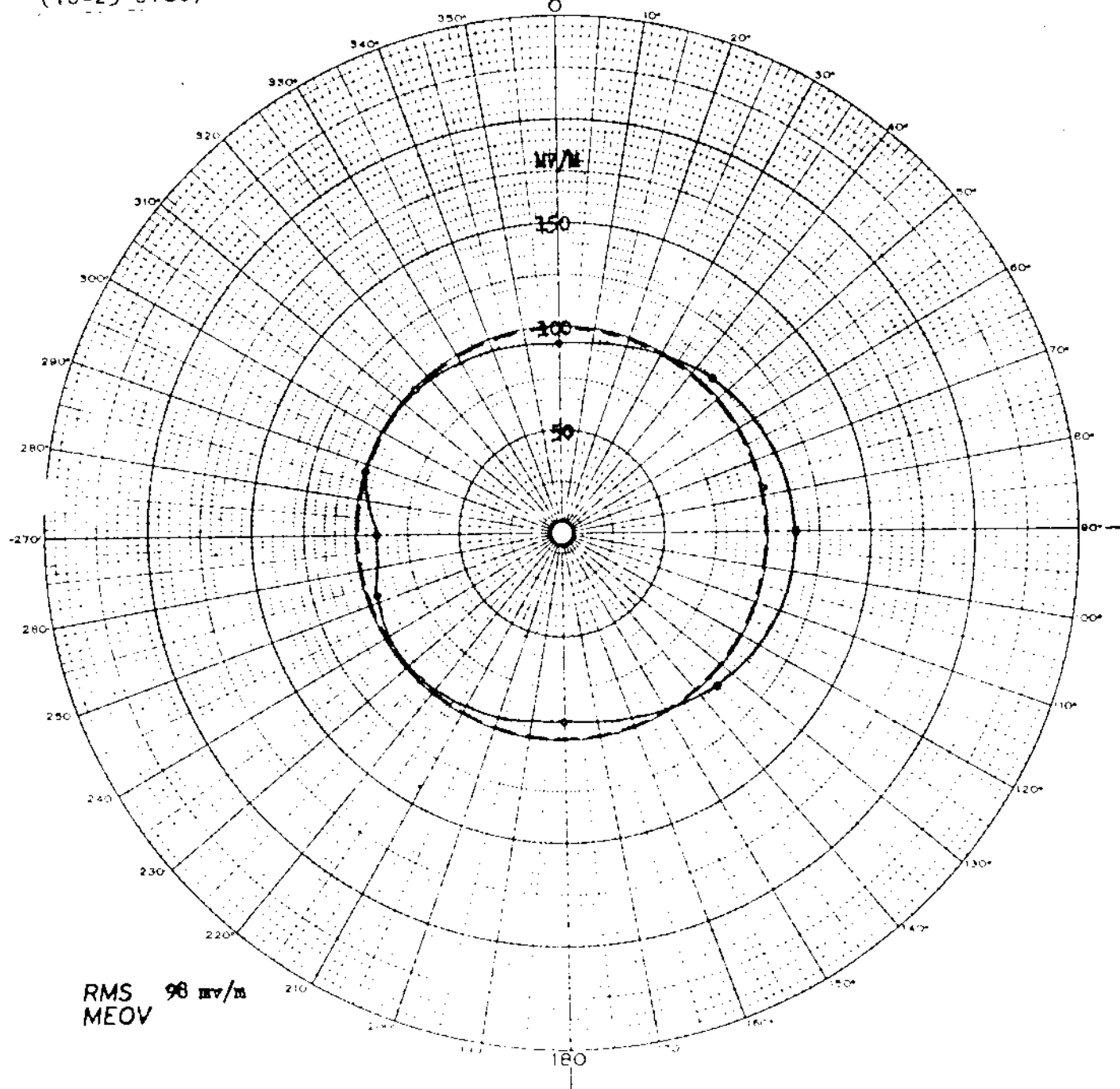
MEASURED DAY
(10-25-61ct)Station WCLW
Mansfield, Ohio1kw, DA-D, D
1570 kcRMS 187 dBμV/m
MEOV

TOWER PLACEMENT SKETCH		PATTERN PARAMETERS					FIGURE 3		STATION DATA	
No. 2 No. 1 270° ← 169° → 0° /20° /0° 0.89 1.0		TOWER	ELECTRICAL	SPACING	PHASING	FIELD	MEASURED DAYTIME DIRECTIONAL PATTERN	August - 1961	CALL WCLW FREQ 1570 kc POWER 1 Kw TYPE DA-D TIME DAYTIME LAT. N-40-46-09 LONG. W-82-32-23	
		No.	HEIGHT			RATIO				
		1	86	5'	0					
		2	86	169°	20					
		3								
		4								
		5								
		6								
		7								
		8								
		9								
		10								
									E.H.MUNN, JR. RADIO ENGINEER COLDWATER, MICH.	

FCC File No. BL-8749
Accepted 9-18-61Station WCLW
Mansfield, Ohio

1570 kc

WCLW

MEASURED NON-DA
(10-25-61ct)Station WCLW
Mansfield, Ohio1kw, DA-D, D
1570 kcRMS 98 mV/m
MEOV

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 4	STATION DATA	
	ANTENNA NO.	ELECTRIC HEIGHT G	SHAD. IN S	SHAD. IN M	FIELD MAY 10	MEASURED NON-DA PATTERN WITH 0.25 KW EAST TOWER OF DA-D ARRAY WEST TOWER OPEN	CALL	WCLW
	1						FREQ	1570 kc
	2						POWER	1 Kw
	3						TYPE	DA-D
	4						TIME	DAYTIME
	5						LAT.	
	6						LONG.	
	7							
	8							
	9							
TIME					0°	E.H.MUNN, JR. RADIO ENGINEER COLDWATER, MICH.		

FCC File No. BL-8749
Accepted 9-18-61Station WCLW
Mansfield, Ohio

1570 kc

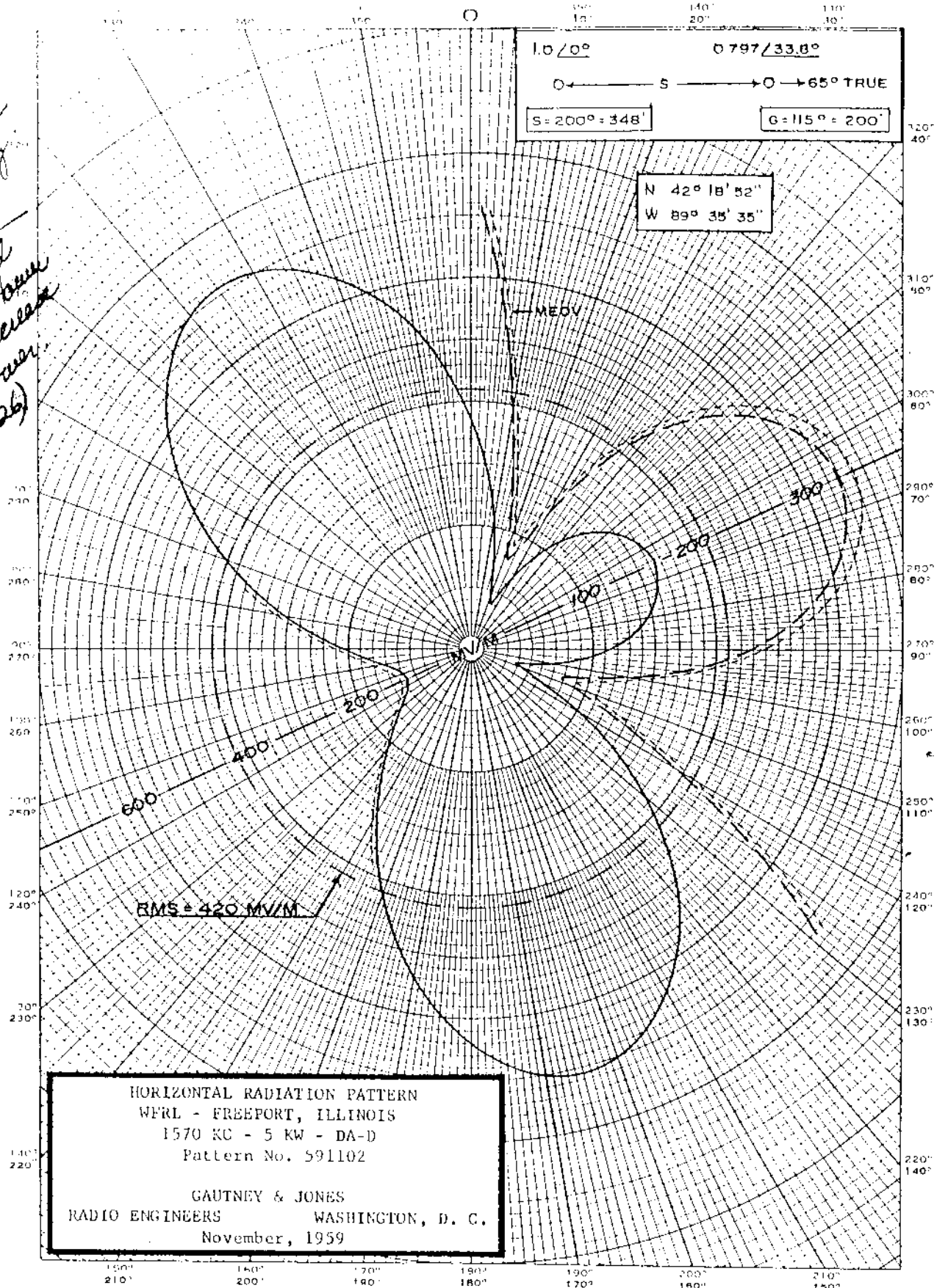
WFRL

PROPOSED DAY
(2-26-60g)

Station WFRL
Freeport, Illinois

5kw, DA-D, D
1570 KC

0-12-61
as to 4 for
new tower
to 3 feet
6-62 granted
if for one new tower
we old) and decrease
right of new tower
150' (BMP 10426)



HORIZONTAL RADIATION PATTERN
WFRL - FREEPORT, ILLINOIS
1570 KC - 5 KW - DA-D
Pattern No. 591102

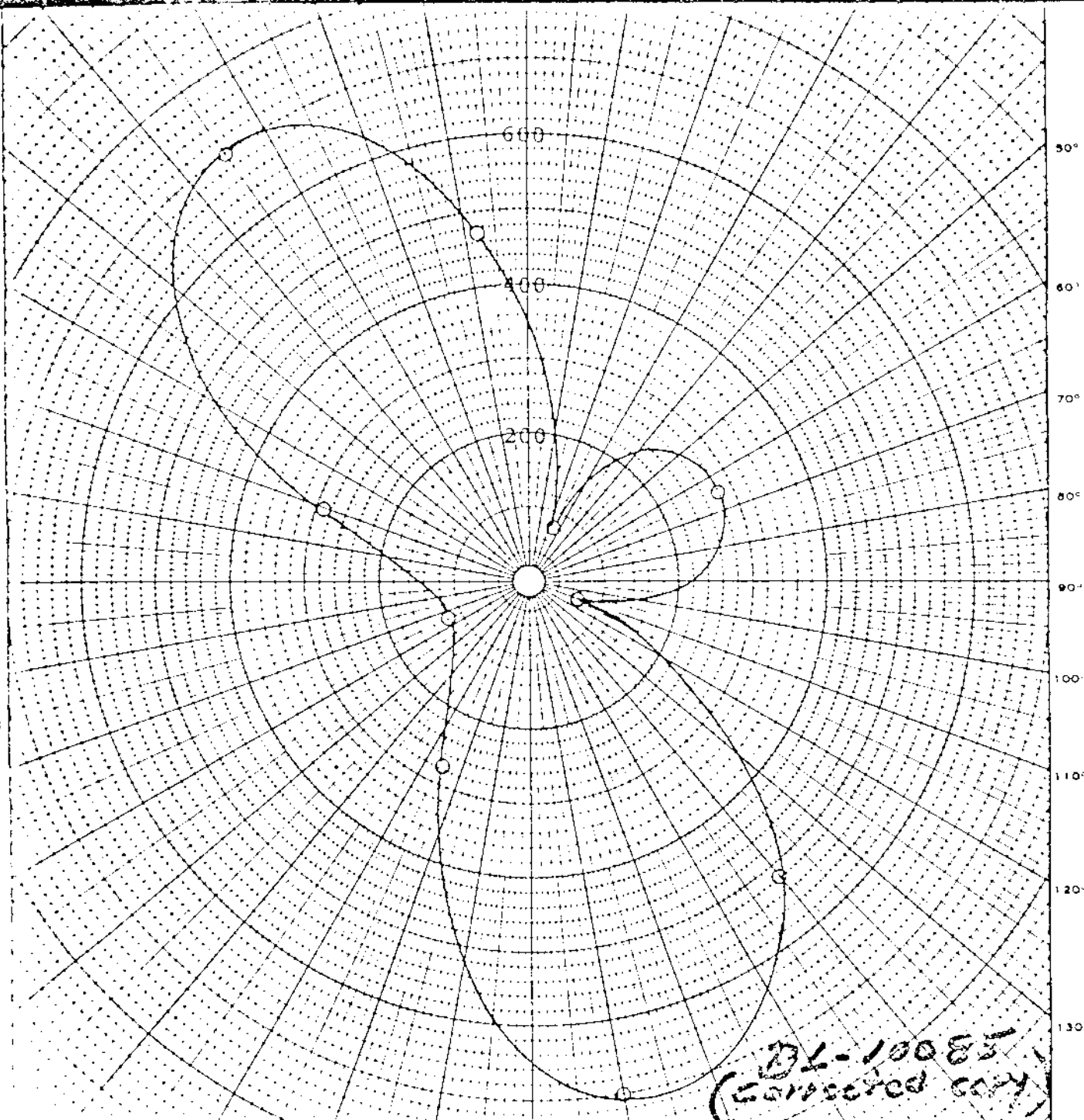
GAUTNEY & JONES
RADIO ENGINEERS WASHINGTON, D. C.
November, 1959

FCC File No. BP-13866
Accepted 2-15-60

WFRL
Freeport, Illinois

1570 KC

WFRL



R.M.S. (THEO) _____ MV/M R.M.S. (STND) 399.3 MV/M R.S.S. _____ MV/M

PATTERN PARAMETERS

$1.0/0^\circ$
 $0.797/33.8^\circ$
 65° True
 $S=200^\circ=348'$
 $H_1=115^\circ=200'$
 $H_2=115^\circ=150'+T.L.$

RADIO STATION WFRL

☒ MEASURED ☐ PROPOSED
 FREQ 1570 (KHZ) POWER 5.0 (KW) ☒ DA-D
 N LAT $42^\circ 18' 52''$ ☐ DA-N
 W LONG $89^\circ 35' 35''$ ☐ N-D

LOCATION Freeport, Illinois

DATE November, 1976

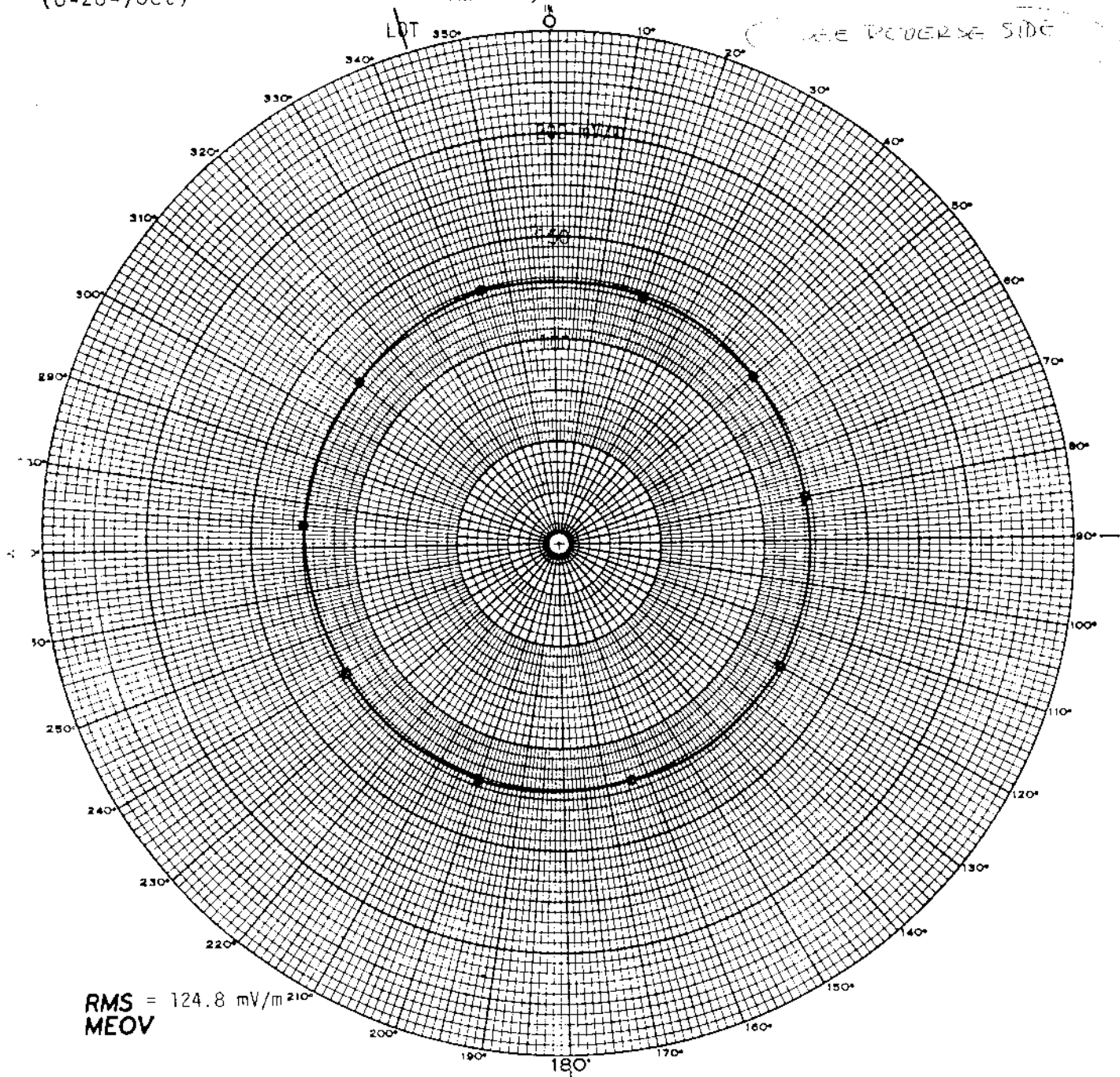
ROBERT A JONES
 CONSULTING ENGINEERS
 LA GRANGE, ILLINOIS

Measured Non-DA
(8-26-70ct)

Station WIFF
Auburn, Indiana

WIFF
500w, DA-D, D
1570 kc

SEE REVERSE SIDE



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 5	STATION DATA
No. 1  Not Used 80° No. 2  NDA	TOWER	ELECTRICAL HEIGHT	SPACING	PHASING	FIELD RATIO	MEASURED NON-DIRECTIONAL MAY, 1970 C.P. BROADCASTERS AUBURN, INDIANA θ° = 0°	CALL WIFF
	No.	6°	8°	4°	1°		FREQ 1570 kHz
	1	90°	--				POWER
	2	174.6°	80°				TYPE NON-DA
	3						TIME DAYTIME
	4						LAT. N-41-20-01
	5						LONGW-85-03-07.5
	6						E.H.MUNN, JR.
	7						RADIO ENGINEER
	8						COLDWATER, MICH.
	9						
10							
DAYTIME OPERATION ☒					NIGHTTIME OPERATION ☐		

FCC File No. BL-12689
Accepted 8-7-70

Station WIFF
Auburn, Indiana

1570 kc

WIFF

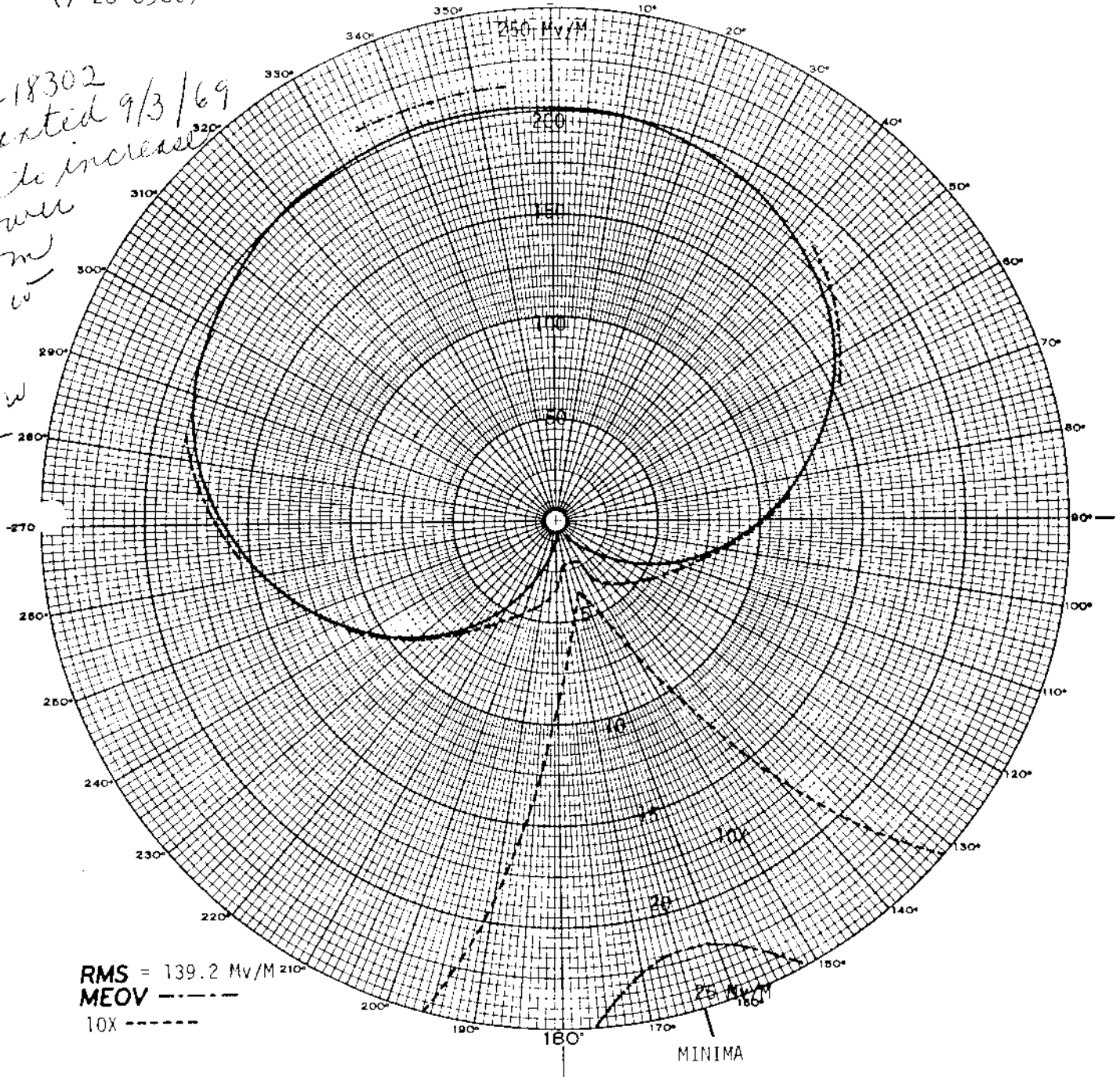
Proposed Day
(7-28-69ct)

Station WIFF
Auburn, Indiana

500w, DA-D, D
1570 kc

BP-18302
Accepted 9/3/69
CP to increase
power
from
50w

50w
500w



RMS = 139.2 Mv/M
MEOV -----
10X -----

TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 3	STATION DATA
$G_1=90^\circ$ $G_2=174.6^\circ$ No. 1 $1.0/0^\circ$ 80° No. 2 $1.0/+92^\circ$ 163.9° T.	TOWER No.	ELECTRICAL HEIGHT G'	SPACING S'	PHASING W'	FIELD RATIO F	PROPOSED DAYTIME DIRECTIONAL PATTERN ***** RADIO STATION WIFF C.P. BROADCASTERS AUBURN - INDIANA $\theta^\circ 0''$	CALL WIFF
	1						FREQ 1570 KHz.
	2						POWER 0.5 Kw
	3						TYPE DA-D
	4						TIME DAYTIME
	5						LAT. 41-20-01
	6						LONG. 85-03-07.5
	7						E.H.MUNN, JR.
	8						RADIO ENGINEER
	9						COLDWATER, MICH.
	10						
DAYTIME OPERATION ☒					NIGHTTIME OPERATION ☐		

FCC File No. BP-18302
Accepted 7-7-69 Amended

Station WIFF
Auburn, Indiana

1570 kc

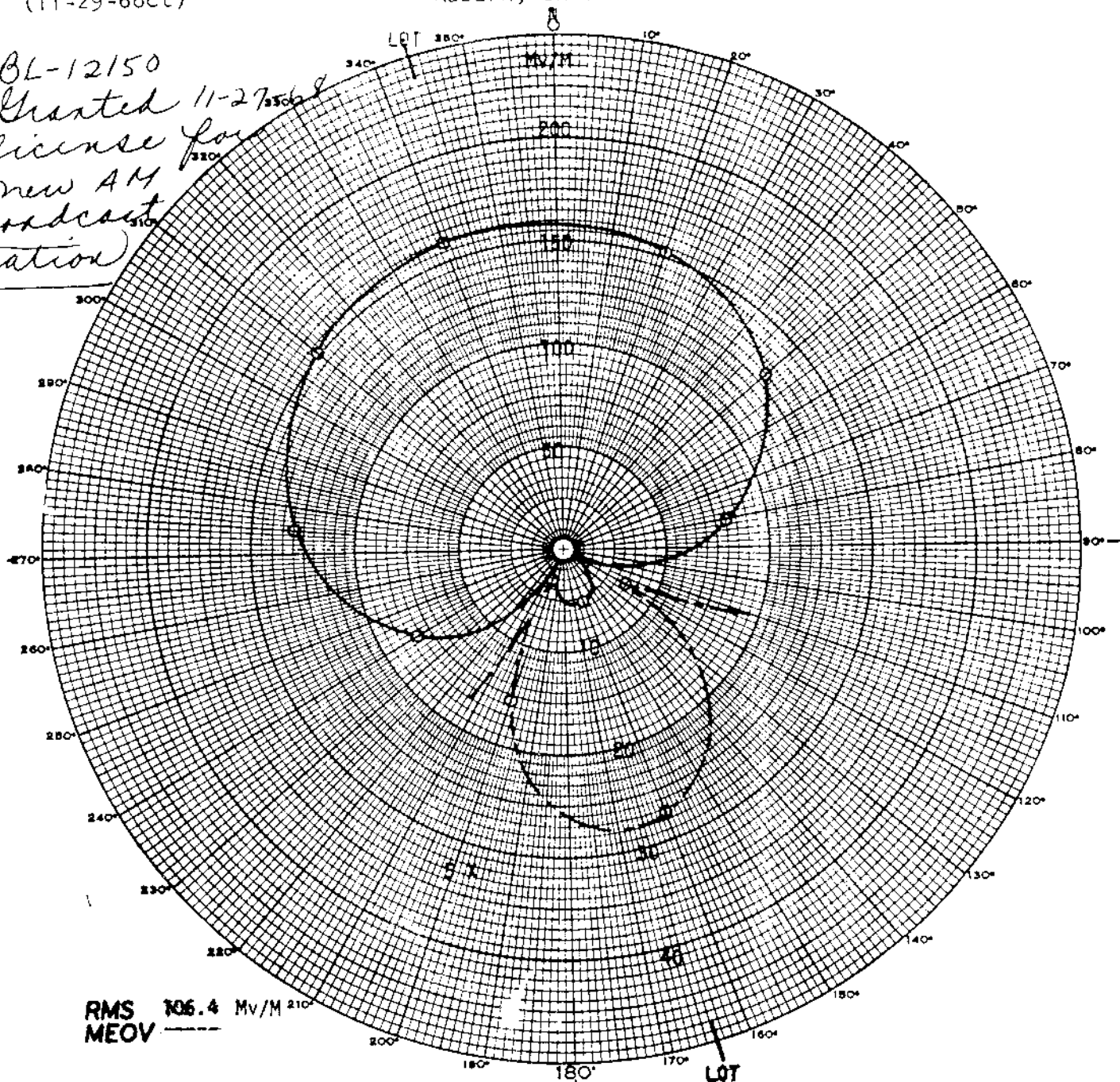
WIFF

Measured Day
(11-29-68ct)

Station WIFF
Auburn, Indiana

250w, DA-D, D
1570 kc

BL-12150
Granted 11-27-68
license for
a new AM
broadcast
station



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 6	STATION DATA
$G_1 = 90^\circ$ $G_2 = 174.6^\circ$ $N6.1 \circ 1/0^\circ$ 80° $N0.2 \circ 1/120^\circ$ $163^\circ 53'$	TOWER No	ELECTRICAL HEIGHT ft	SPACING ft	PHASING ft	FIELD RATIO F	MEASURED RADIATION PATTERN AUGUST 1968 C.P. BROADCASTERS AUBURN, INDIANA θ°	CALL WIFF FREQ 1570 kHz POWER 0.25 Kw TYPE DA TIME DAY LAT. N-41-20-01 LONG. W-85-03-07.5
	1						E.H. MUNN, JR. RADIO ENGINEER COLDWATER, MICH.
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						
DAYTIME OPERATION ☒						NIGHTTIME OPERATION ☐	

FCC File No. BL-12150
Accepted 10-31-68

Station WIFF
Auburn, Indiana

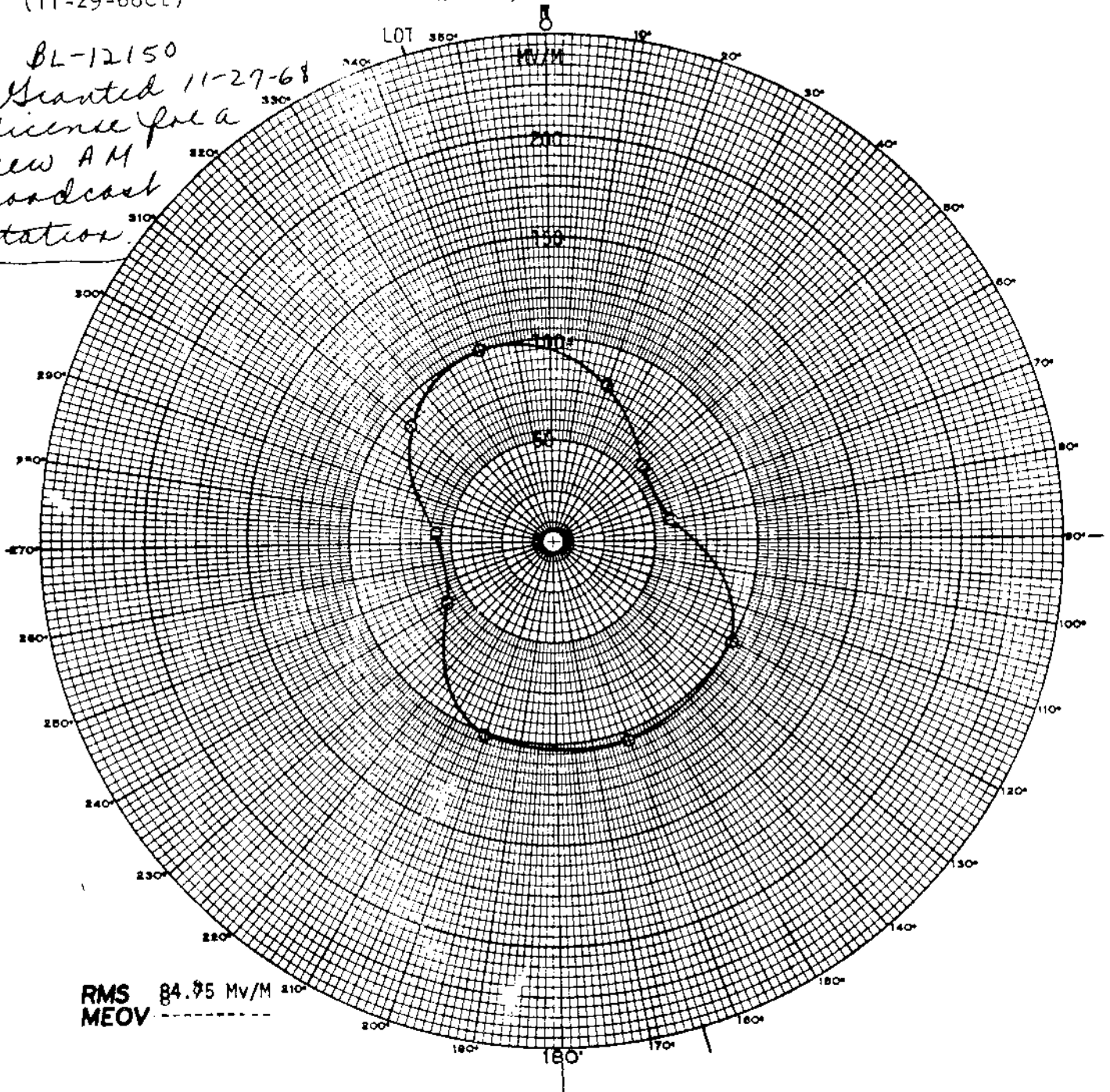
1570 kc

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

Station WIFF
Auburn, Indiana

WIFF
250w, DA-D, D
1570 kc

BL-12150
Granted 11-27-68
license for a
new AM
Broadcast
Station



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 5	STATION DATA																																																										
$G_1=90^\circ$ $G_2=174.6^\circ$ 80°	<table><tr><th>TOWER</th><th>ELECTRICAL HEIGHT</th><th>SPACING</th><th>PHASING</th><th>FIELD RATIO</th></tr><tr><td>DZ</td><td>G'</td><td>S'</td><td>P'</td><td>F'</td></tr><tr><td>1</td><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td></td><td></td><td></td><td></td></tr><tr><td>3</td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td></td><td></td><td></td><td></td></tr><tr><td>5</td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td></tr></table>	TOWER	ELECTRICAL HEIGHT	SPACING	PHASING	FIELD RATIO	DZ	G'	S'	P'	F'	1					2					3					4					5					6					7					8					9					10					MEASURED NON-DIRECTIONAL PATTERN		AUGUST 1968 C.P. BROADCASTERS AUBURN, IND.	CALL WIFF FREQ 1570 POWER 0.20 KW TYPE NON-DA TIME DAY LAT. N-41-20-01 LONG. W-85-03-07.5
TOWER	ELECTRICAL HEIGHT	SPACING	PHASING	FIELD RATIO																																																													
DZ	G'	S'	P'	F'																																																													
1																																																																	
2																																																																	
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8																																																																	
9																																																																	
10																																																																	
DAYTIME OPERATION ☒ NIGHTTIME OPERATION ☐		6°	E.H. MUNN, JR. RADIO ENGINEER COLDWATER, MICH.																																																														

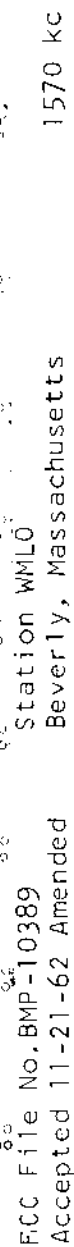
FCC File No. BL-12150
Accepted 10-31-68

Station WIFF
Auburn, Indiana

1570 kc

9-4-63
Project No.
of CP to Mr
Change in
D A system.

Page 6



Proposed Day
(11-29-62ct)

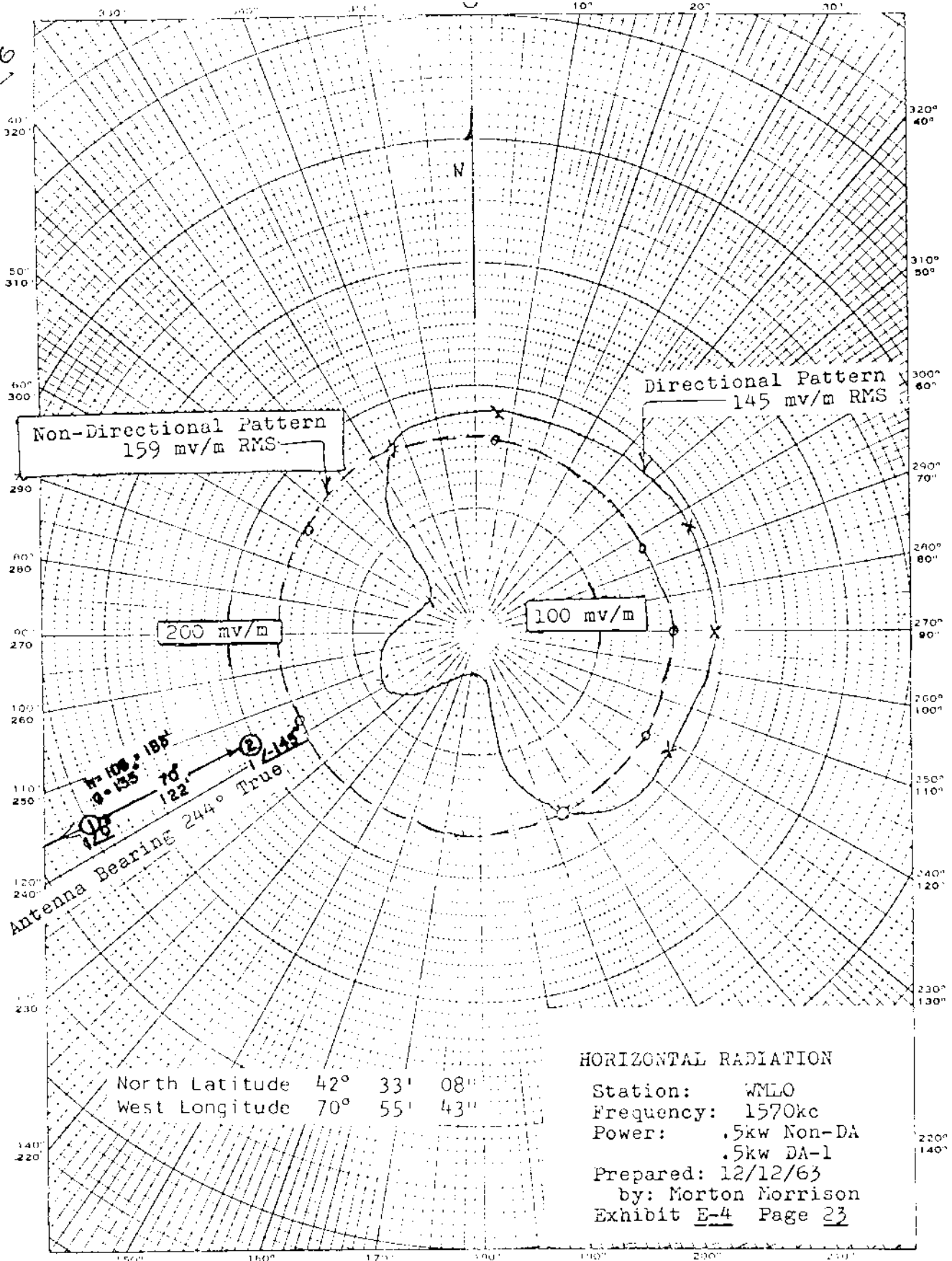
WML0

Measured Day
(4-24-64ct)

Station WML0
Beverly, Massachusetts

500w, DA-D, D
1570kc

3L10471
LC11-9-66



FCC File No. BE-10471
Accepted 3-25-64

Station WML0
Beverly, Massachusetts

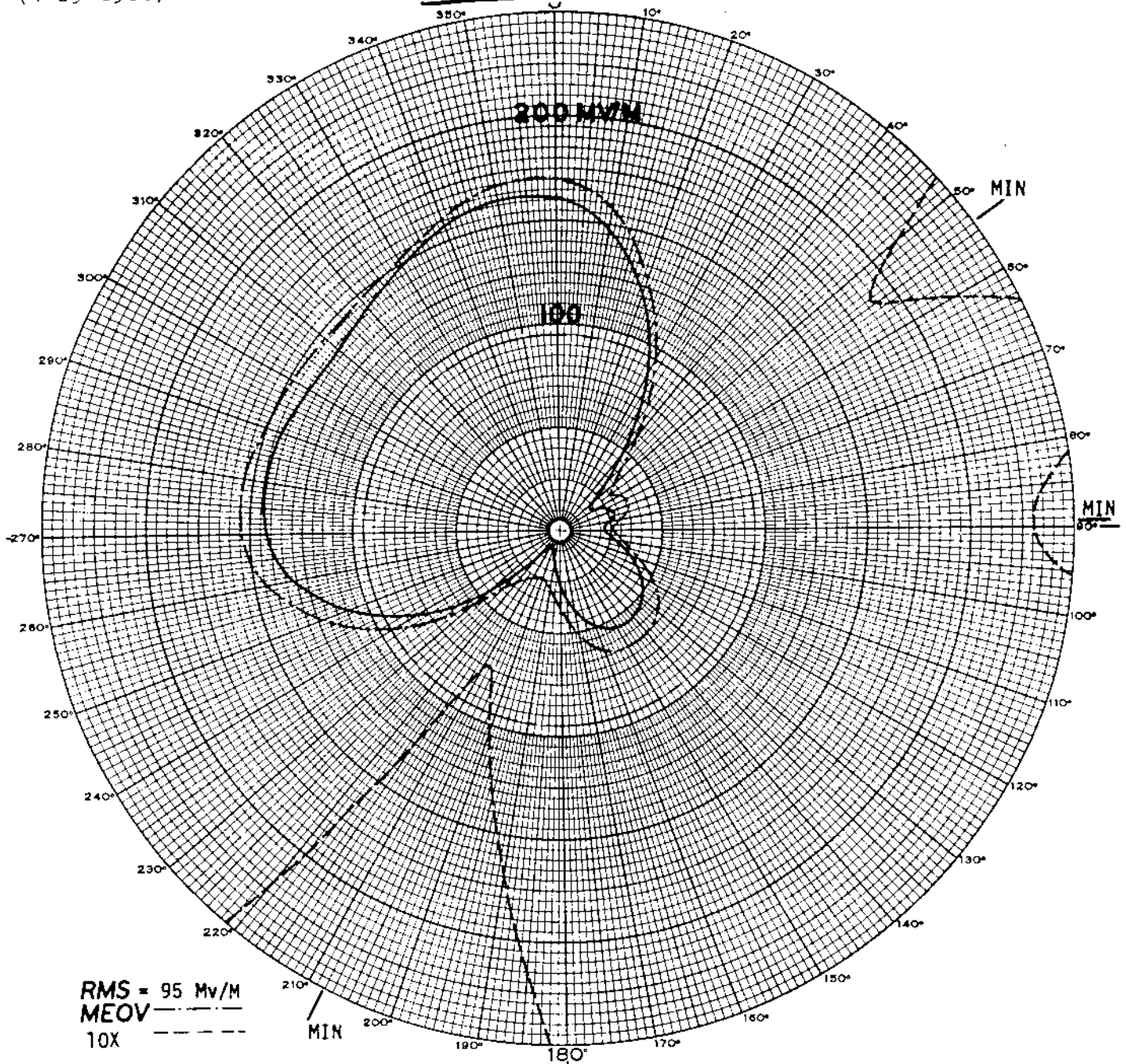
1570 kc

BP-18004
 GR(2-13-70) CP new station

Proposed Day
 (4-29-69ct)

New; Joseph P. Riccardi
Oberlin, Ohio

WOBL
 500w, DA-D, D
 1570 kc



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE 3	STATION DATA
#1 #3 #2 #4 144°T 131°T 134.3°	TOWER	ELECTRICAL HEIGHT	SPACING	PHASING	FIELD RATIO	PROPOSED DAYTIME PATTERN ***** Oberlin, Ohio $\theta^\circ = 0$	CALL NEW FREQ 1570 KHz. POWER 0.25 Kw TYPE DA-D TIME Daytime LAT. 41-16-34.5 LONG. 82-12-49.5 E.H.MUNN, JR. RADIO ENGINEER COLDWATER, MICH.
	No.	G'	S'	P'	F'		
	1	90	Ref	0°	1.000		
	2	90	210°	137°	0.650		
	3	90	80°	130°	0.750		
	4	90	288.73-93°	0.487			
	5						
	6						
	7						
	8						
	9						
DAYTIME OPERATION ☒					NIGHTTIME OPERATION ☐		

FCC File No. BP-18004
 Accepted 4-18-69 Amended

New; Joseph P. Riccardi
 Oberlin, Ohio

1570 kc

WPG+C

DIRECTIONAL ANTENNA DESCRIPTION SHEET

Station: WPGC

Main Studio: Morningside, Maryland

Frequency: 1580 kHz

Power: 10 kW

Notification List No. 1637

Date: June 18, 1975

Class: II

GEOGRAPHICAL LOCATION OF THE
CENTER OF THE ANTENNA SYSTEM:North Latitude: 38° 51' 48"
West Longitude: 76° 54' 38"

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:	W(#3)	S(#2)	E(#1)
HEIGHT ABOVE INSULATORS:	371' (215°)	328'	328' (190°)
PHASING:	-60°	-33°	0°
FIELD RATIO:	0.5	1.05	0.95

SPACING AND

ORIENTATION: From reference East tower #1; tower #2 is spaced 294' (170°) on a line bearing 215° true, and tower #3 is spaced 225' (130°) on a line bearing 260° true.

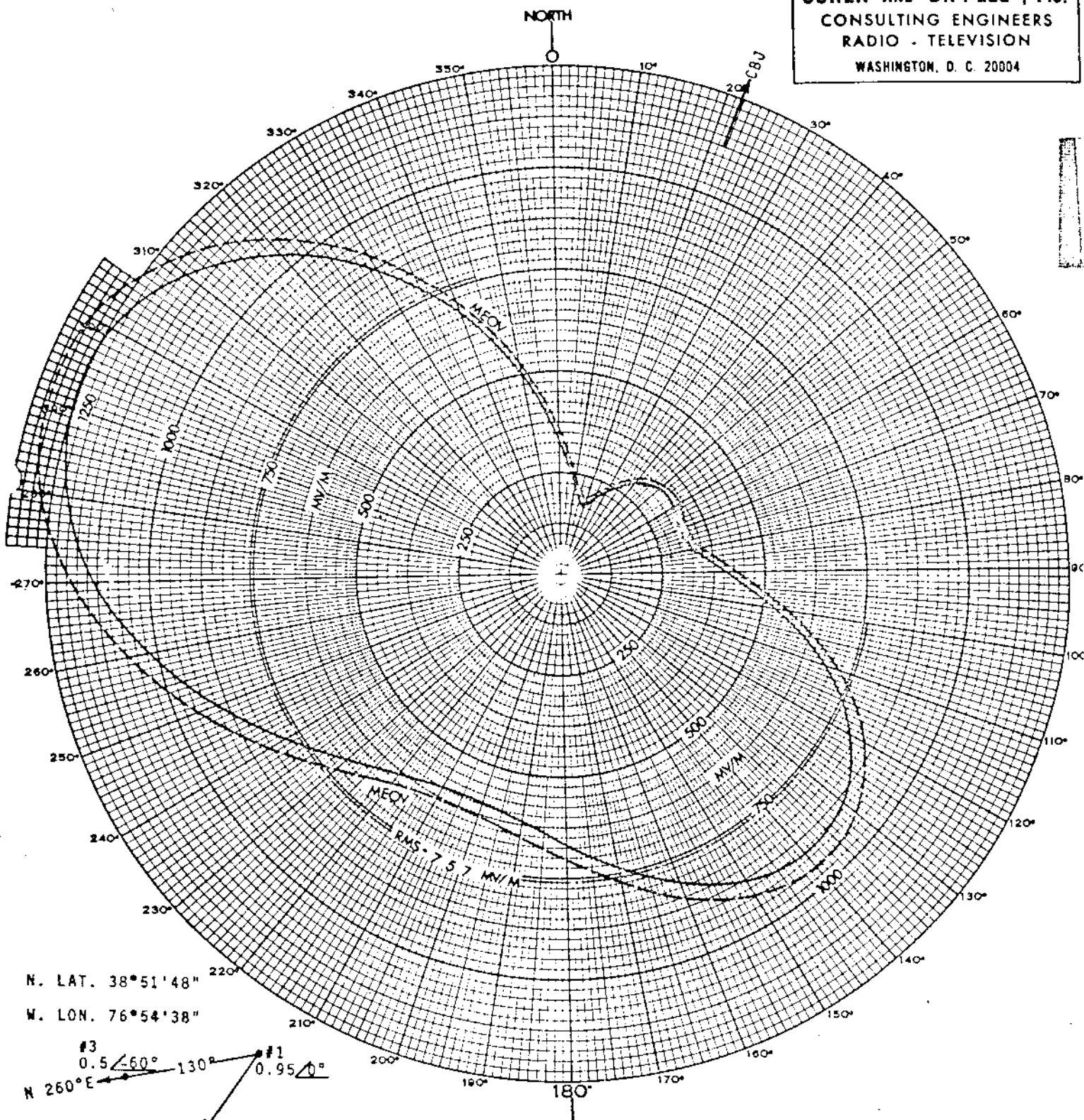
GROUND SYSTEM: 120-156' equally spaced copper radials plus a 24' square ground screen about each tower. Radials are shortened and bonded to transverse straps along intersections between towers. Centers of systems are bonded together.

Predicted effective field: 757 mv/m at rated power.

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

WPGC

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



COMPUTED HORIZONTAL PLANE RADIATION PATTERN
WPGC, MORNINGSIDE, MARYLAND
1580 KHz - 10 KW - DA-D
JUNE 1974

H = 190° = 328' (TOWERS 1,2)
H = 215° = 371' (TOWER 3)

WRCN

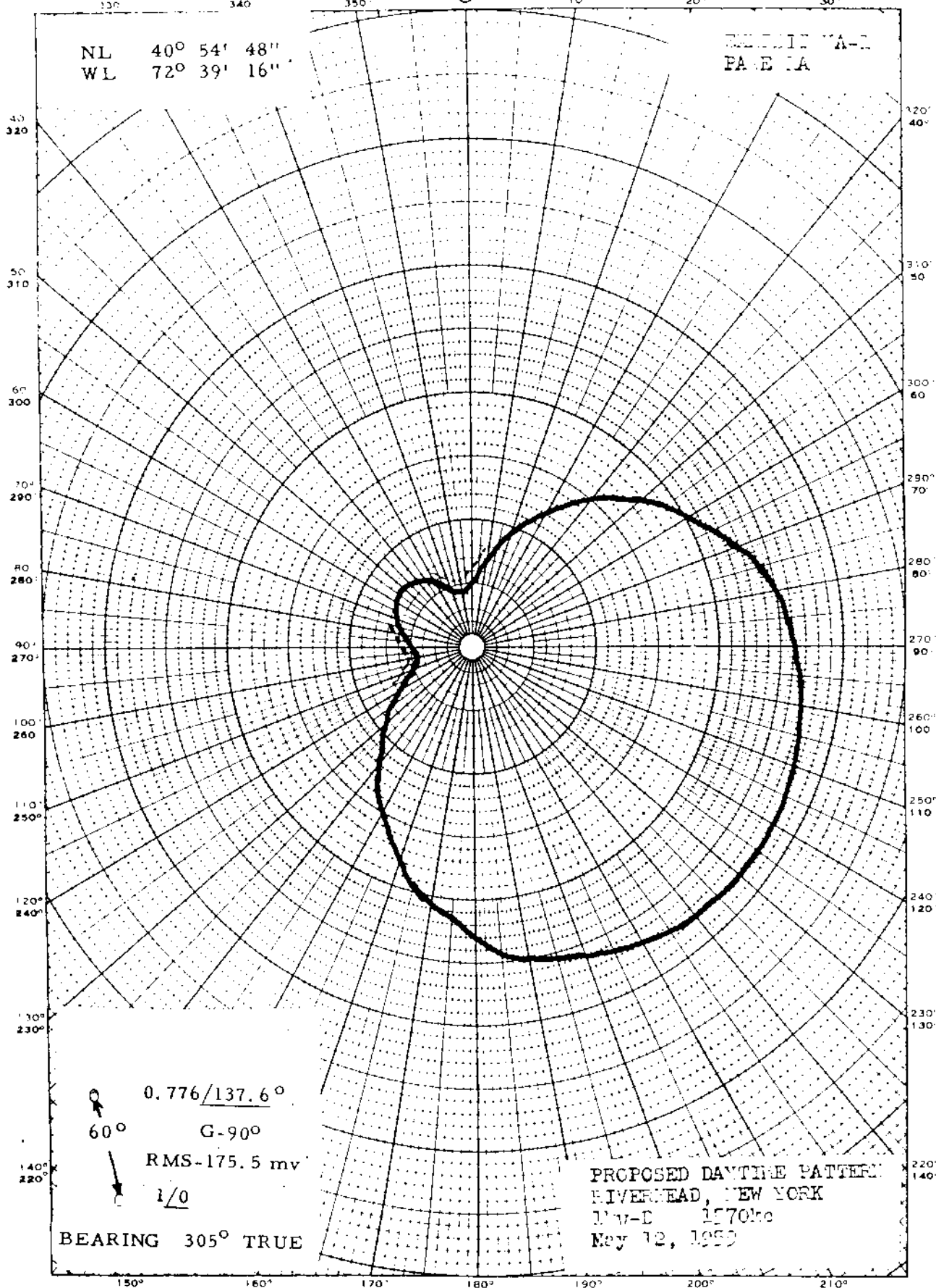
PROPOSED DAY
(6-16-59g)

New; Patchogue B/C Co., Inc.
Riverhead, New York

1kw, DA-D, D
1570 KC

NL 40° 54' 48"
WL 72° 39' 16"

RECEIVED
PAGE 1A



FCC File No. BP-11663
Accepted 5-18-59 (Amended)

Patchogue Broadcasting Company, Inc.
Riverhead, New York

1570 KC

granted for new station
7-15-59

WRCN

MEASURED DAY & NIGHT
(11-11-60g)

Station WAPC
Riverhead, New York

1kw, DA-1, 0
1570 KC

3201
9-4-64
Printed L

North Latitude 40° 54' 48"
West Longitude 72° 39' 16"

MEASURED
1000 WATT
DIRECTIONAL
RADIATION

12-135°
6-90°
305°
TRUE

R.M.S.
151 MV/M

ENGINEERING DEPARTMENT
PATCHOGUE BROADCASTING COMPANY INC.
WAPC 1570KC 1000watts DA-1
DATE 10/5/60
PREPARED BY: Morton Morrison
EXHIBIT F PAGE 30 A2

FCC File No. BL-8144
Accepted 10-19-60

WAPC
Riverhead, New York

1570 KC

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

Station WAPC
Riverhead, New York

1kw, DA

WRCN

1570 KC

MEASURED
250 WATTS
NON DIRECTIONAL
RADIATION

North Latitude 40° 54' 48"
West Longitude 72° 39' 16"

100 60 40 MV/M

RMS = 80.6
MV/M

ENGINEERING DEPARTMENT

PATCHOGUE BROADCASTING COMPANY INC.

WAPC 1570KC 1000watts DA-1

DATE 10/5/60

PREPARED BY: Morton Morrison

EXHIBIT F PAGE 30 A1

FCC File No. BL-8144
Accepted 10-19-60

WAPC
Riverhead, New York

1570 KC

WTCL

ENCLOSURE NO. 10 LP

NO. 10 LP

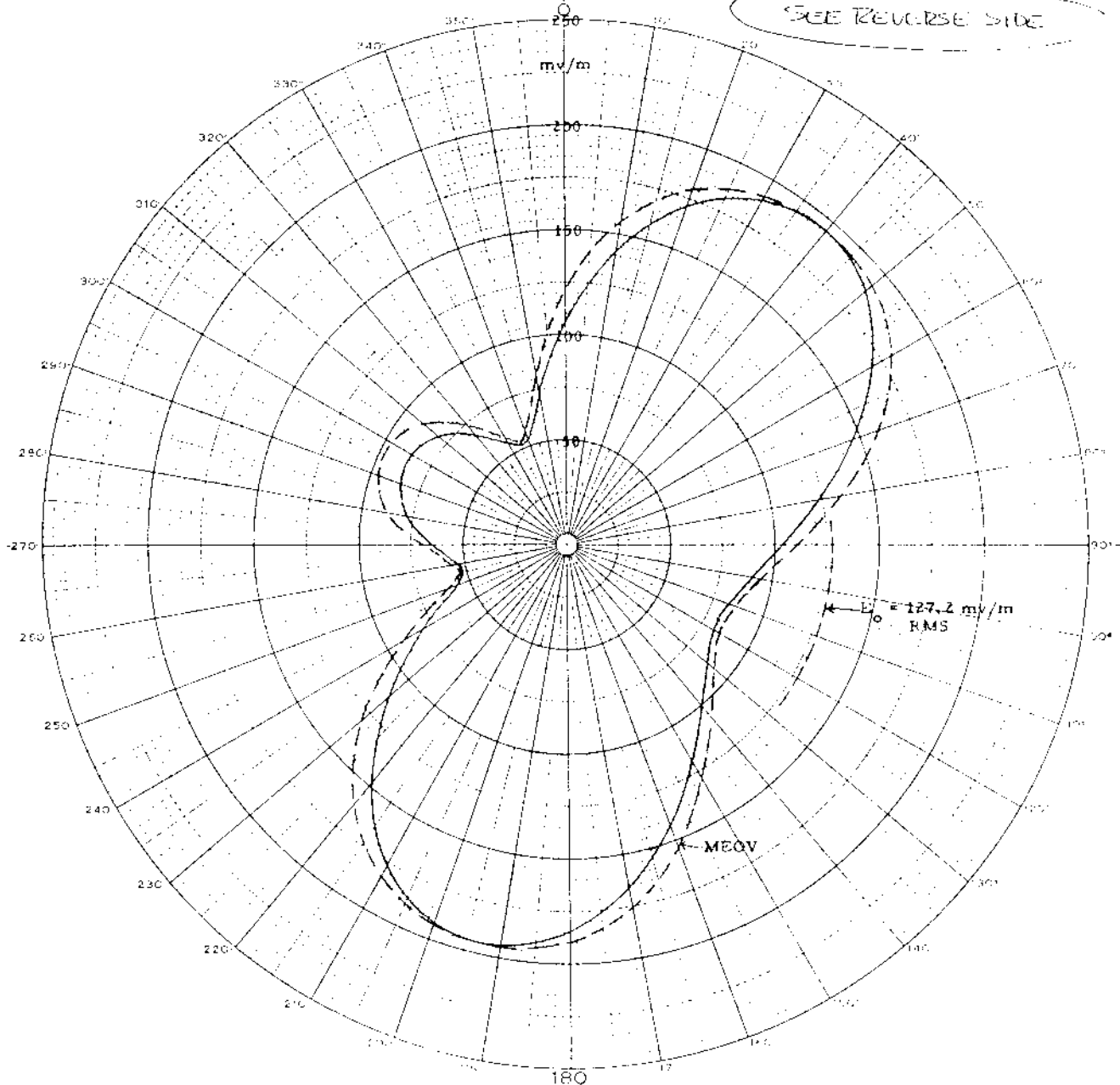
GLENN AND SONS, INC. OF RADIO ENGINEERS

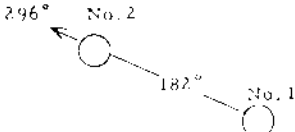
Proposed Day
(8-26-70 Oct)

Station WDNL
Warren, Ohio

500w, DA-D, D
1570 kc

SEE REVERSE SIDE



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS						STATION DATA	
	Tower No. 1		Tower No. 2		Tower No. 3		Station Data	
	Height	Power	Height	Power	Height	Power	Frequency	Power
	106	0	0	0	1.0	127.2	1570	500
	106	296	182	40.8	0.58		Day	DA-D
						Antenna Type		1, 2
						Antenna Height		125
						Antenna Width		90
						Antenna Depth		1570
						Antenna Area		24x24
						Antenna Weight		41
						Antenna Length		12
						Antenna Diameter		22
						Antenna Thickness		80
						Antenna Volume		50
						Antenna Mass		31
						Antenna Density		620830
						Antenna Temperature		700708
						Antenna Resistance		
						Antenna Inductance		
						Antenna Capacitance		
						Antenna Impedance		
						Antenna Reactance		
						Antenna Susceptance		
						Antenna Admittance		
						Antenna Loss		
						Antenna Efficiency		
						Antenna Gain		
						Antenna Directivity		
						Antenna Radiation Pattern		
						Antenna Polarization		
						Antenna Orientation		
						Antenna Alignment		
						Antenna Installation		
						Antenna Maintenance		
						Antenna Inspection		
						Antenna Repair		
						Antenna Replacement		
						Antenna Disposal		
						Antenna Recycling		
						Antenna Reuse		
						Antenna Repurpose		
						Antenna Repaint		
						Antenna Repolish		
						Antenna Repack		
						Antenna Reprogram		
						Antenna Repower		
						Antenna Reposition		
						Antenna Repoint		
						Antenna Repurpose		
						Antenna Repurpose		
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FCC File No. 8MP-13058
Accepted 8-7-80

Station WDNL
Warren, Ohio

1570 kc

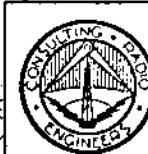
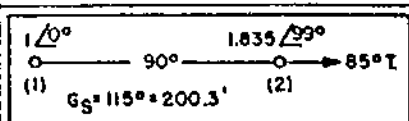
WTOW WAQE

2-16-67

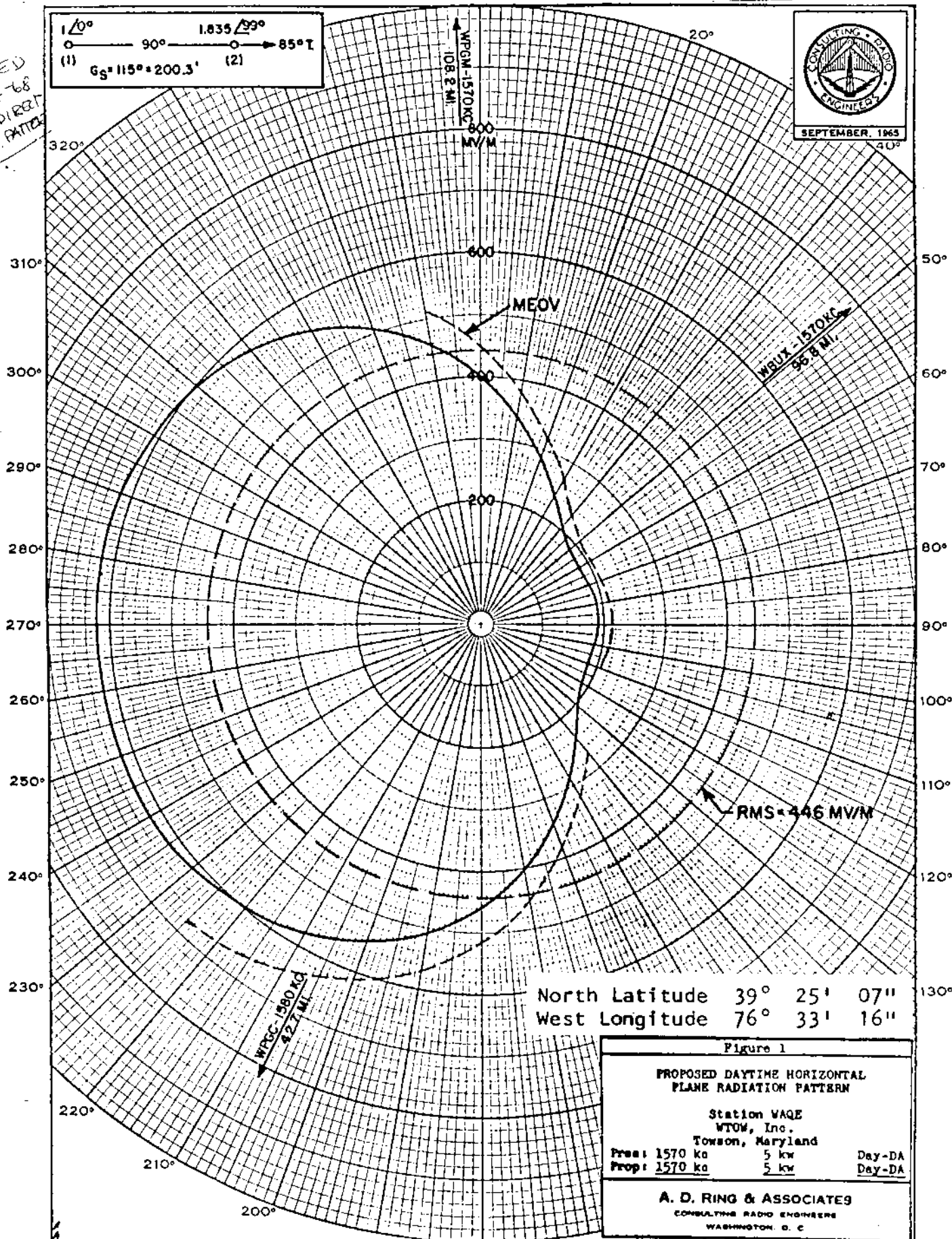
Proposed Day
(7-28-66ct)

Station WAQE
Towson, Maryland

5kw, DA-D, D
1570 kc



SEPTEMBER, 1963



North Latitude $39^\circ 25' 07''$
West Longitude $76^\circ 33' 16''$

Figure 1

PROPOSED DAYTIME HORIZONTAL
PLANE RADIATION PATTERN

Station WAQE
WTOW, Inc.
Towson, Maryland

Pres: 1570 kc	5 kw	Day-DA
Prop: 1570 kc	5 kw	Day-DA

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

FCC File No. BP-17002
Accepted 7-25-66

Station WAQE
Towson, Maryland

1570 kc

GRANTED
PPL. 1-4-68
H-INGE DIRECT
INT. RAD. PATTERN

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

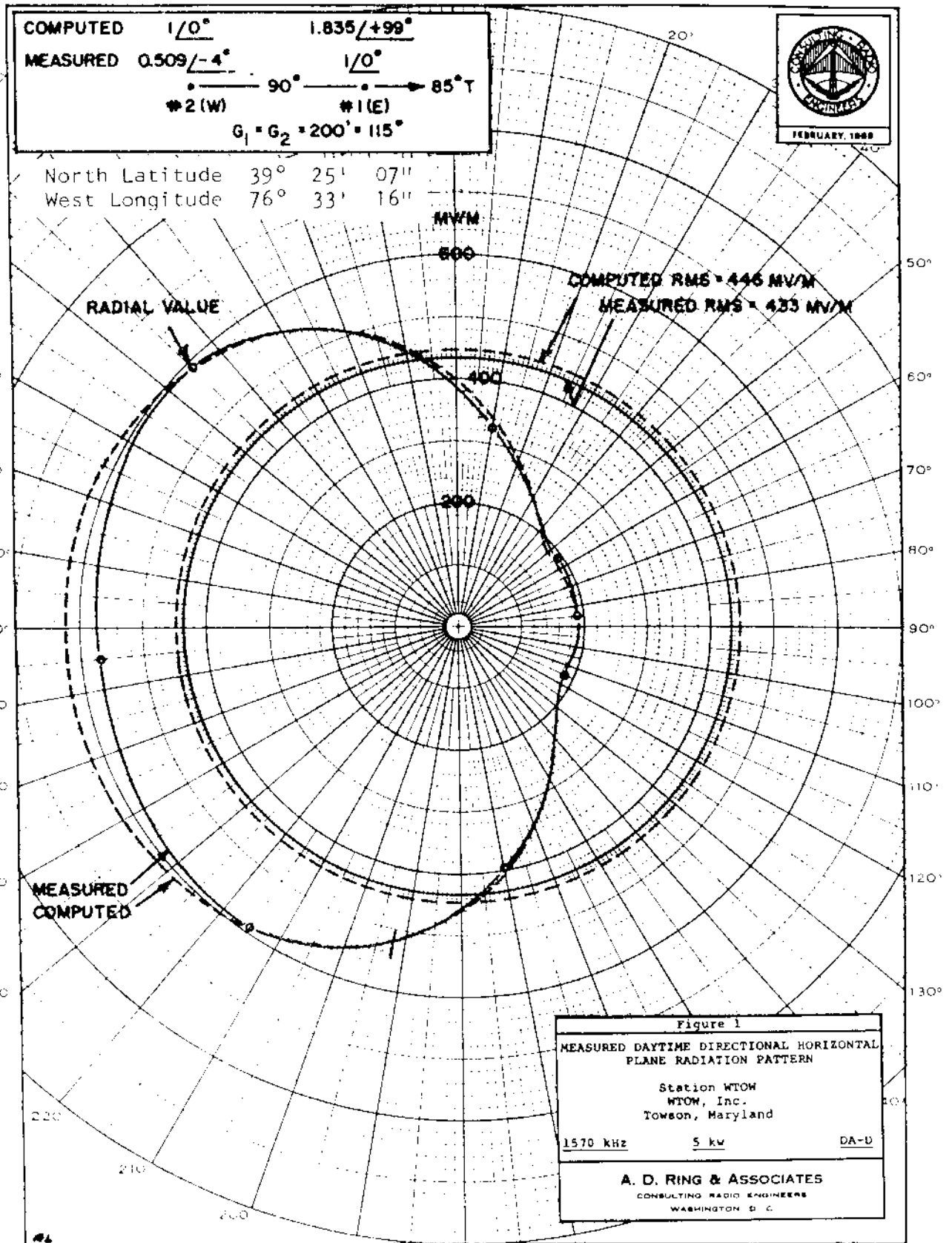
WTOW

Measured Day
(3-28-69ct)

Station WTOW
Towson, Maryland

5kw, DA-D, D
1570 kc

*measured
Daytime
3-28-69
circled
measured
horizontal
plane
radiation
pattern*



A. D. F. & ASSOCIATES - 4/64 - M

FCC File No. BL-12307
Accepted 3-24-69

Station WTOW
Towson, Maryland

1570 kc

WTOW

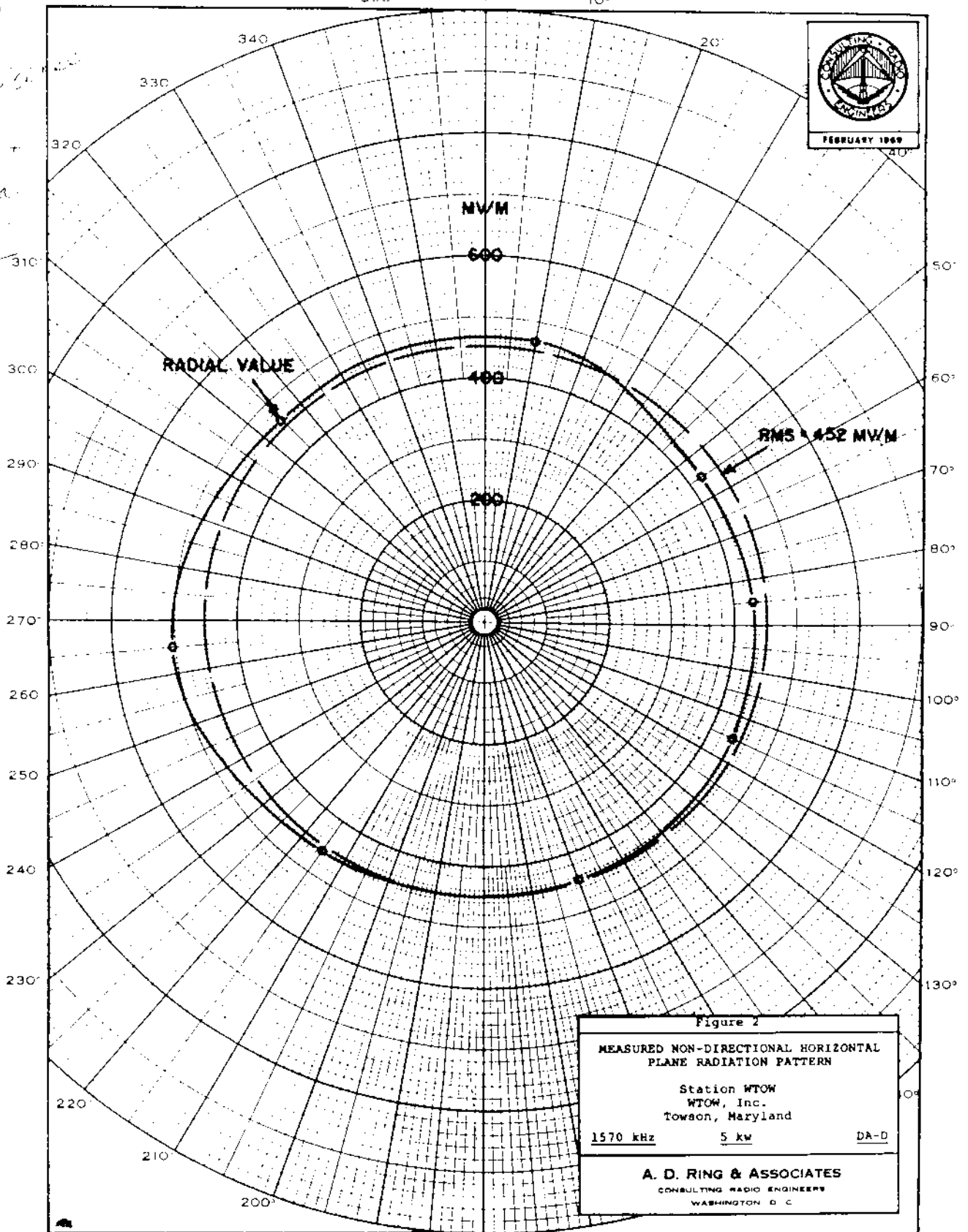
Measured Non-DA
(3-28-69ct)

Station WTOW
Towson, Maryland

5kw, DA-D, D
1570 kc

BL-12307
Revised
3-30-69
covering
change
in antenna
system

A. D. R. & ASSOCIATES - 4/64 - M



FCC File No. BL-12307
Accepted 3-24-69

Station WTOW
Towson, Maryland

1570 kc