

AM RADIO 1440, INC.  
Radio Station KPTO  
Pocatello, ID  
1440 kHz, 2.5 kW-D, 0.35 kW-N, DA-2, U

### ENGINEERING STATEMENT

This engineering statement, together with the attached figures, has been prepared on behalf of AM Radio 1440, Inc., permittee of AM radio station KPTO, Pocatello, ID, in support of a minor modification of outstanding CP BNP-20001023ADR. Since the permittee has lost option to build at the CP site, this minor modification plans to move the KPTO transmitter location approximately 3.2 km eastward.

KPTO will retain the same tower orientation and spacing as well as the same daytime and nighttime directional patterns.

The proposed KPTO directional array will consist of two towers 57.9m (190') above the base insulator, which is 100.1 degrees at 1440 kHz. No top loading, sectionalizing or folded unipole construction is contemplated.

### ENVIRONMENTAL CONSIDERATIONS

The Commission's Rules implementing the Environmental Policy Act does not categorize this proposal as a major action, as it does not involve any of the facilities or actions listed under §1.305 or §1.307 of the Rules.

Regarding the non-ionizing radiofrequency emission from the proposed antenna, Table I on page 49 of O.E.T. Bulletin No. 65 lists the distance in meters at which fields from AM stations are predicted to fall below the FCC and ANSI maximum. Assuming a worst-case of 2500 watts being fed by KPTO into any of the towers, Table I requires the fence to be at least 4 meters from the tower face. The applicant proposes fencing in compliance with the 4 meter requirement.

Since the applicant proposes fencing well within agreement with O.E.T. Bulletin No. 65, this proposal will comply with both FCC and ANSI standards regarding radiofrequency exposure.

Should any maintenance worker require access to the tower, KPTO will either reduce power or cease operation until workers are outside the tower fence. Appropriate RF warning signs will be placed on all sides of the fences and it may be assumed that there will be no significant effect on the human environment with regard to exposure of the general public.

The applicant reserves the right to make measurements with a power density meter of known accuracy, with KPTO operating, to determine the actual distance from tower face to tower fence at which the FCC and ANSI standards are not exceeded, including a reasonable safety margin.

## DAYTIME ALLOCATION CONSIDERATIONS

A study has been made of stations on 1440 kHz and on channels within 30 kHz of that frequency in determining the protection requirements of the proposed KPTO operation. Those stations which were deemed to merit particular consideration are:

KLO - Ogden, UT	1430 kHz; 10 kW
KEZG - Twin Falls, ID	1450 kHz; 1 kW, U
KVSI - Montpelier, ID	1450 kHz; 1 kW, U
KIGO - St. Anthony, ID	1420 kHz; 50 kW, ND-D

The remaining stations studied were at such a distance so as not to require detailed contour protection. Figures 7A and 7B are allocation maps showing contours of particular allocation interest for this proposal and the above listed stations. Location of contours for these stations employed either notified inverse fields for non-directional operation or standard/augmented patterns for directional operation in conjunction with FCC M-3 soil conductivity, except where measured conductivity was available.

Radial measurements were made by William Traue at bearings of 288°T, 308°T and 328°T on KVSI, Montpelier, ID to show KPTO and KVSI will not experience any prohibitive contour overlap.

The daytime pattern employs both towers and has an RSS to RMS ratio of 1.18:1, which lends itself to good bandwidth and stability.

## NIGHTTIME ALLOCATION CONSIDERATIONS

Figure 14 is a nighttime limit study of the proposed KPTO operation, showing the 50% RSS to be 7.252 mv/m with contributions from CKJR, KLO and KPUR. The 25% RSS was found to be 9.387 mv/m with contributions from CKJR, KLO, KPUR, KVON, KMED, KDIF and KMAJ.

Figure 13A, Pages 1 through 4, is a very detailed tabulation of permissible AM nighttime radiation on 1430, 1440 and 1450 kHz.

Figure 13B is a polar graph of nighttime protection constraints from the proposed KPTO operation.

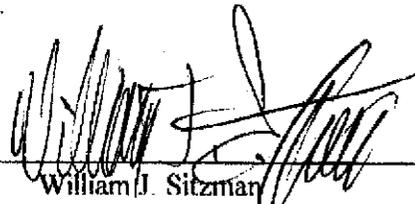
Figures 10A & 10B document the proposed KPTO 0.35 kW nighttime pattern in both tabular and polar graph form. The RSS to RMS ratio is 1.18:1 and lends itself to good bandwidth and good stability.

## PROPOSED SERVICE CONTOURS

The proposed daytime 5 mV/m contour will provide service to the community of Pocatello, ID and the proposed 2 and 0.5 mV/m contours will provide suburban and rural service to the KPTO audience.

The proposed nighttime 7.252 mV/m contour will serve greater than 80% of the population of Pocatello, ID. The 5 mV/m and 2.5 mV/m contours will provide service to the area contiguous to the community, subject to some skywave interference.

December 8, 2004



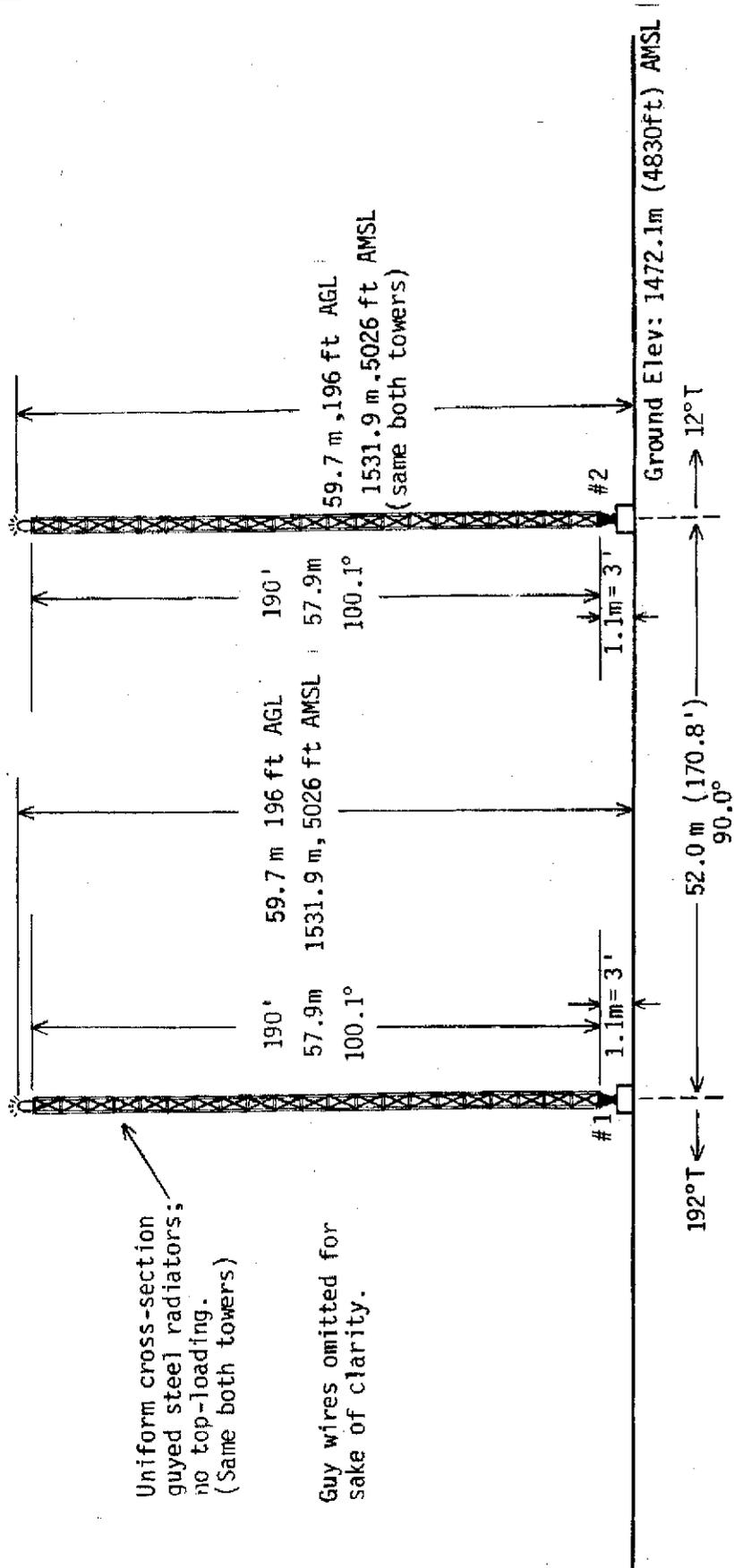
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William J. Sitzman  
Consulting Engineer

VERTICAL PLAN SKETCH OF PROPOSED ANTENNA SYSTEM

Center of Array:  
 N 42° 56' 43" |  
 W 112° 24' 57" |  
 (NAD-27)

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Uniform cross-section  
 guyed steel radiators;  
 no top-loading.  
 (Same both towers)

Guy wires omitted for  
 sake of clarity.

FIGURE 2A

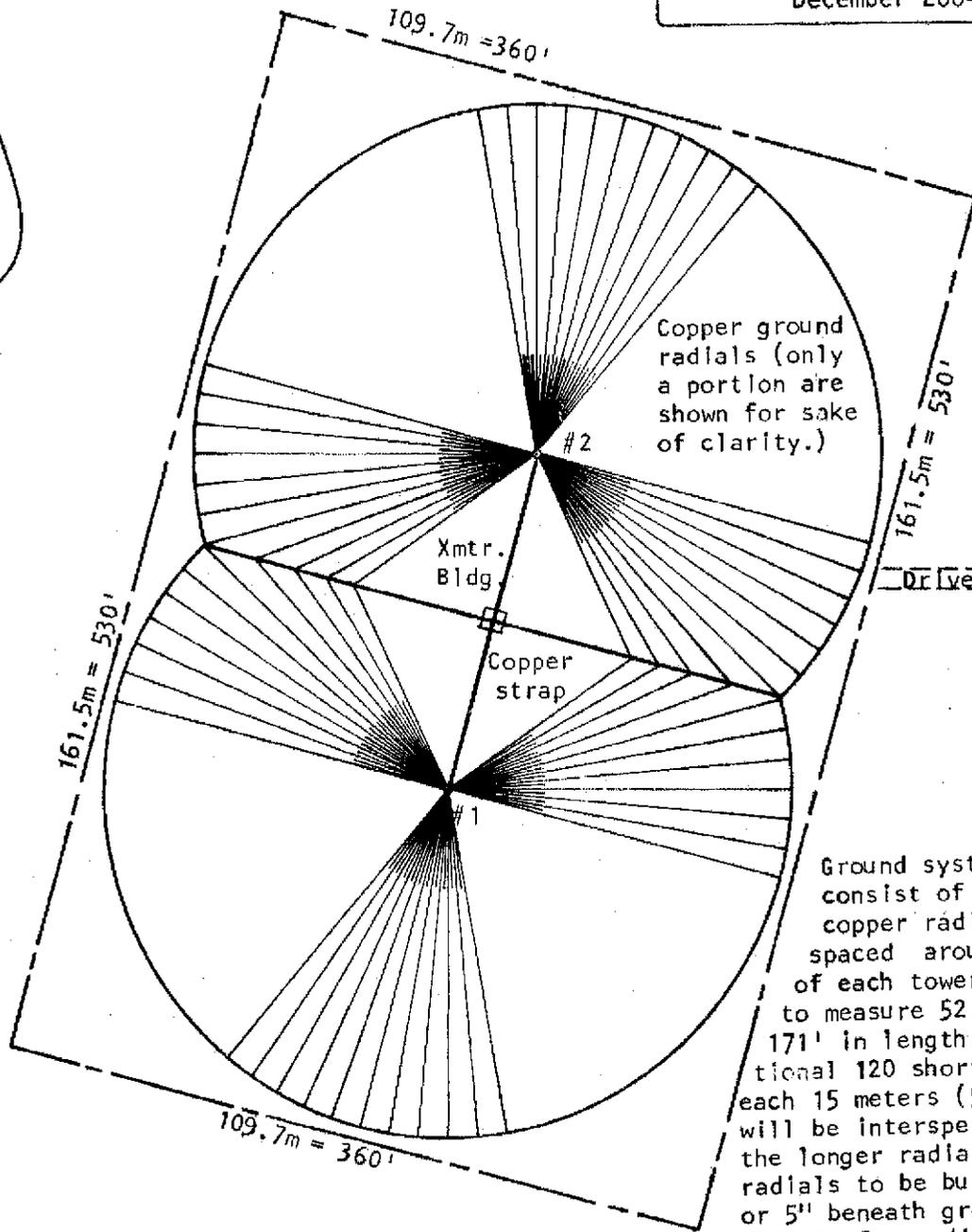
N 42° 56' 43"

W 112° 24' 57"

PLAT OF PROPERTY, TOWER LOCATION AND GROUND SYSTEM

AM Radio 1440, Inc.  
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TRUE  
NORTH



Ground system will consist of 120 #10 bare copper radials equally spaced around the base of each tower, each radial to measure 52.0 meters or 171' in length. An additional 120 shorter radials, each 15 meters (50') in length will be interspersed between the longer radials. All radials to be buried 12.7 cm. or 5" beneath ground level. Radials from adjacent towers will be connected by 4" copper strap. Similar strap will connect bases of each tower.



**FIGURE 3**









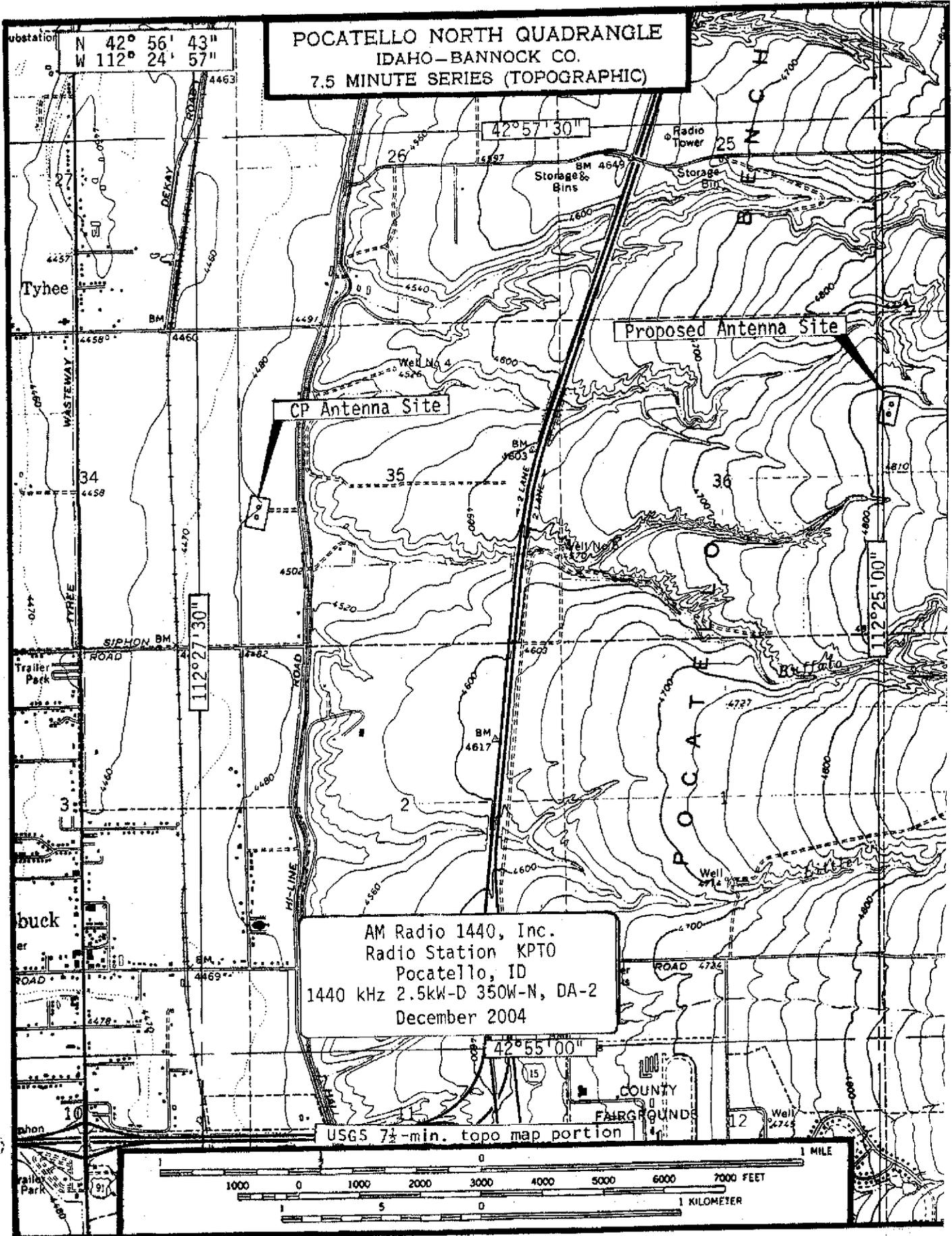




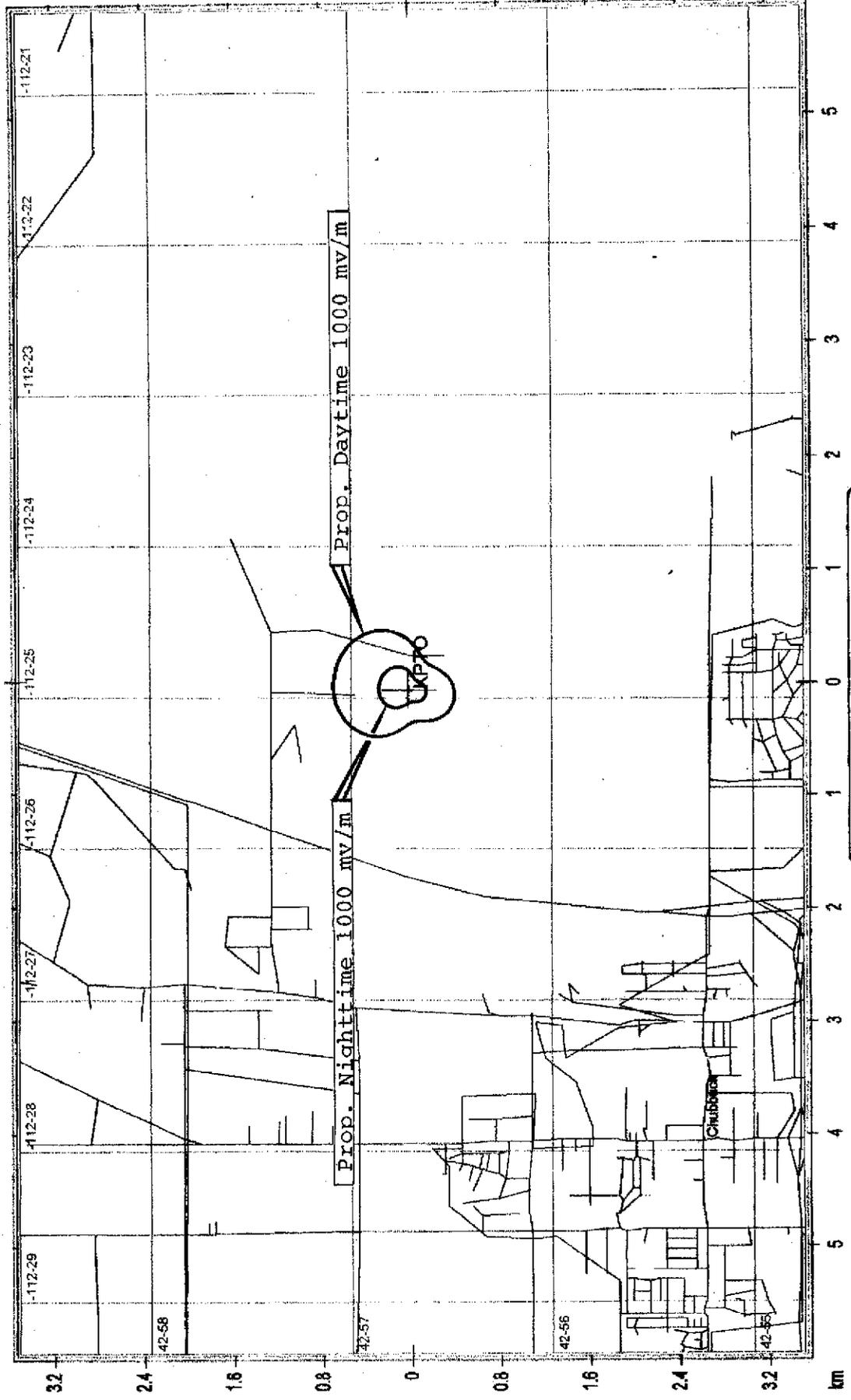




FIGURE 4

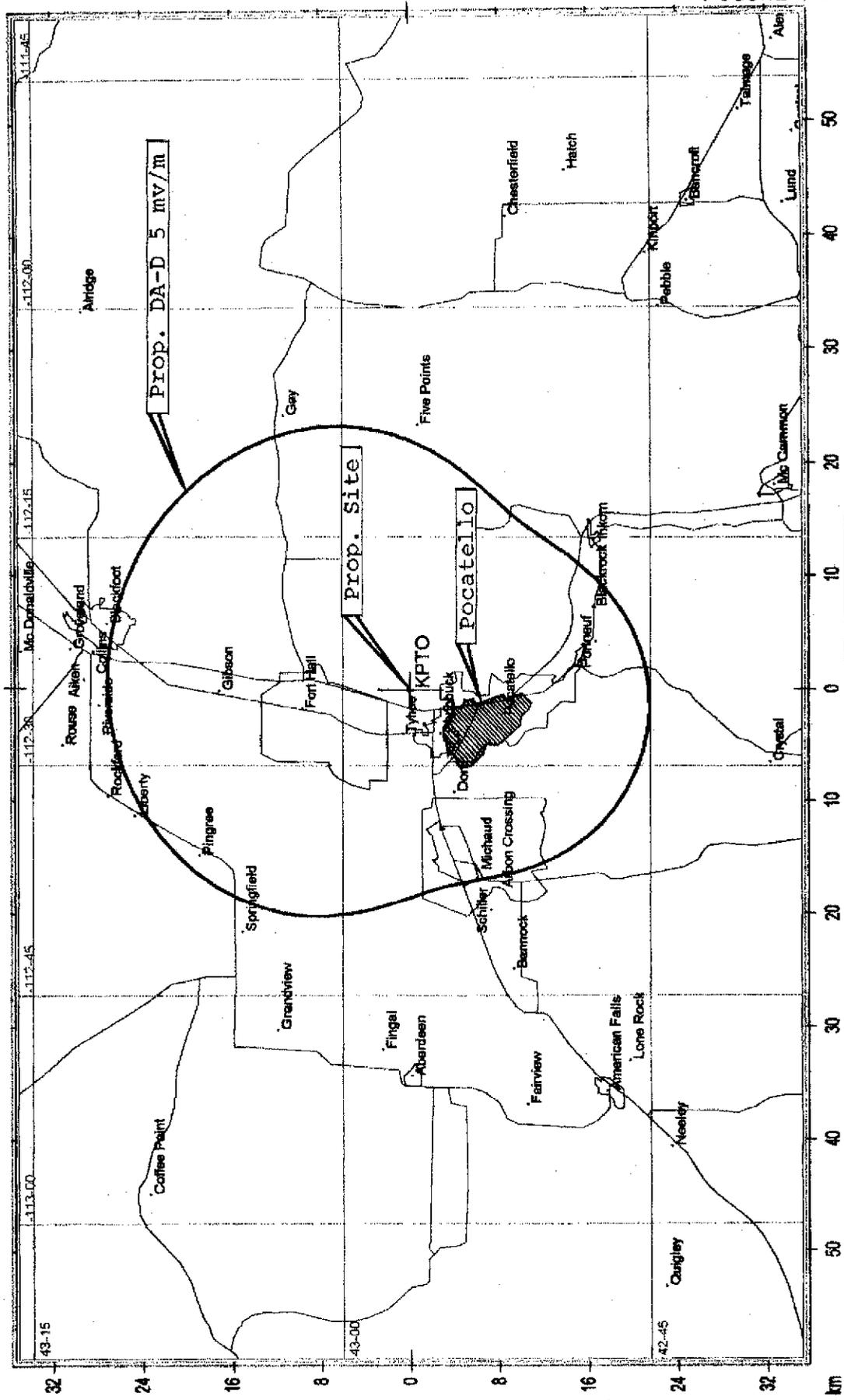


Proposed KPTO Daytime & Nighttime 1000 mV/m Contours



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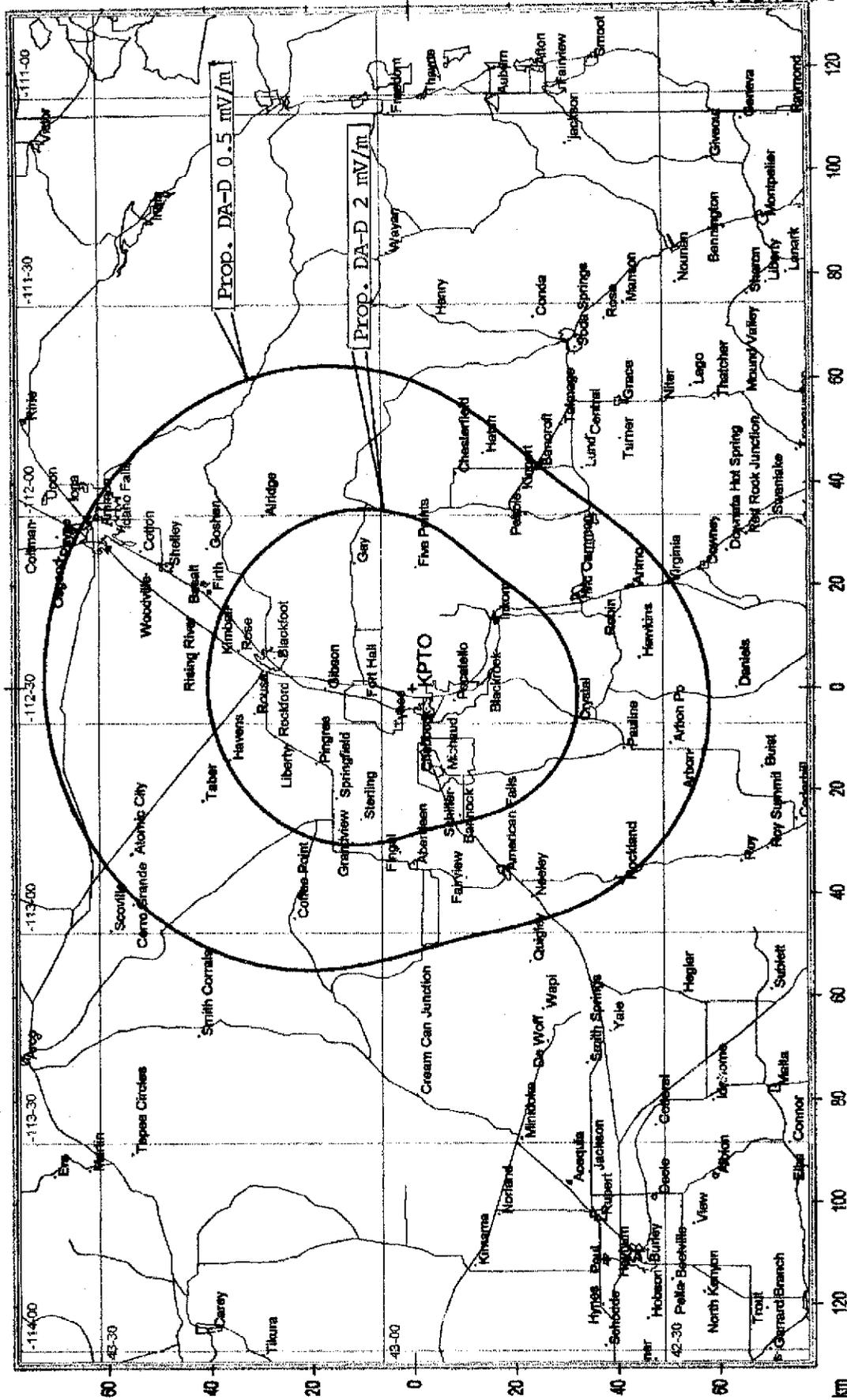
Proposed KPTO Daytime 5 mV/m Contour



AM Radio 1440, Inc.  
 Radio Station, KPTO  
 Pocatello, ID  
 1440 KHz 2.5kW-D 350W-N, DA-2  
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FIGURE 5B

Proposed KPTO Daytime 2 & 0.5 mV/m Contours



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FIGURE 6A

INDEPENDENT BCST CONSULTANTS, INC.  
TRUMANSBURG, NEW YORK

NO. OF TOWERS: 2  
POWER: 2500 WATTS

MODE: DAYTIME  
DATE: 10-18-00

TOWER NO.	HEIGHT {DEG}	HEIGHT {FT}	HEIGHT {M}	FIELD	SPACING {DEG}	SPACING {FT}	SPACING {M}	BEARING {DEG T}	PHASING {DEG}
1	100.1	190.0	57.9	1.000	0.0	0.0	0.0	0.0	0.0
2	100.1	190.0	57.9	0.460	90.0	170.8	52.0	12.0	+217.5

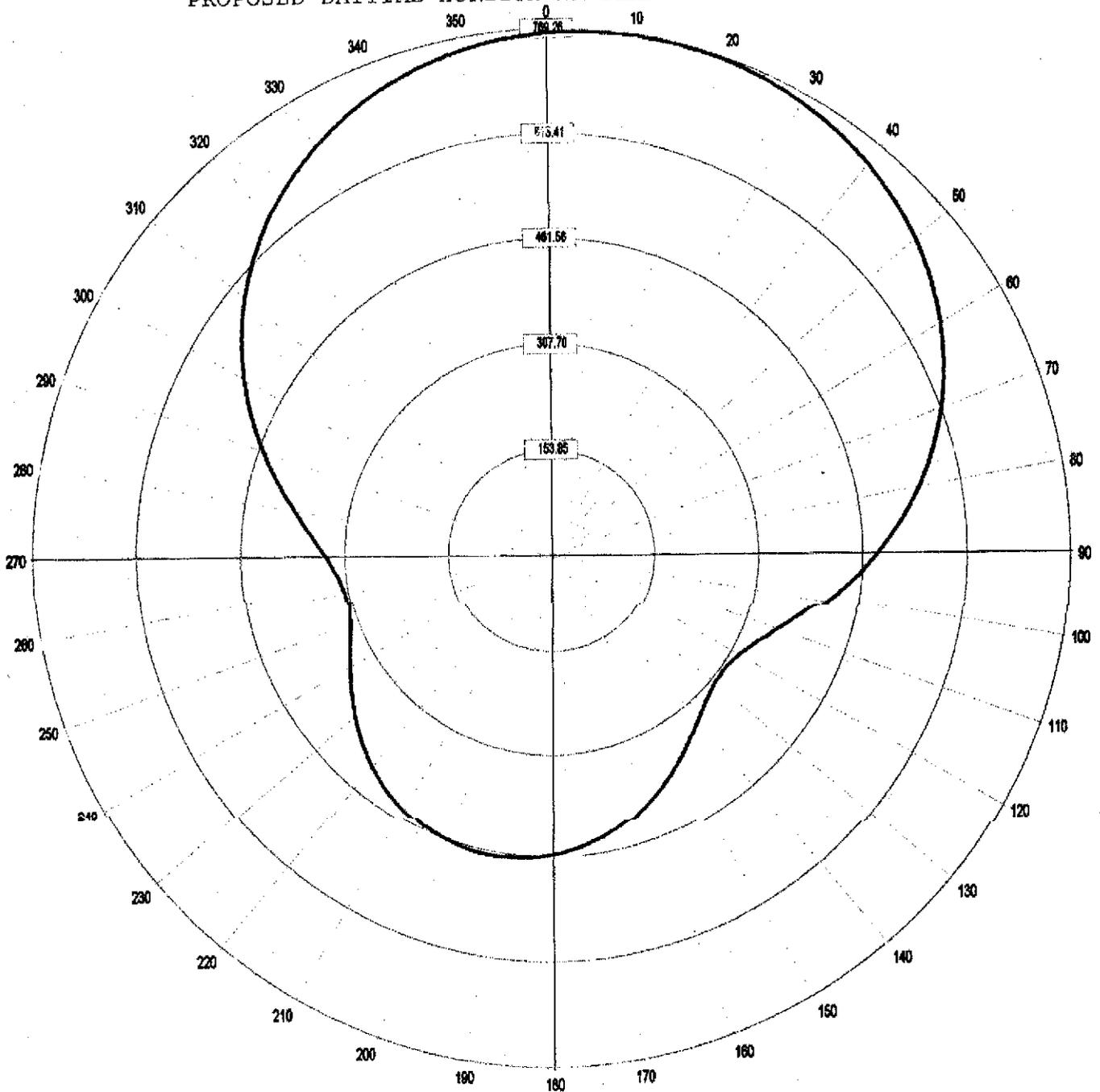
THEOR. VECTOR CONSTANT WITH 1 OHM LOSS/TOWER: 550.349 MV/M/KM  
 THEOR. HORIZ. PLANE RMS WITH 1 OHM LOSS/TOWER: 512.520 MV/M/KM  
 THEOR. RSS WITH 1 OHM LOSS/TOWER: 605.839 MV/M/KM  
 Q: 15.81  
 RMS OF STANDARD PATTERN: 538.402 MV/M/KM

COMPUTED RADIATION VALUES ARE IN TERMS OF MV/M AT ONE KILOMETER.

F.C.C. STANDARD HORIZONTAL PLANE RADIATION

TRUE BEARING DEGREES	FIELD MV/M	TRUE BEARING DEGREES	FIELD MV/M	TRUE BEARING DEGREES	FIELD MV/M	TRUE BEARING DEGREES	FIELD MV/M
0.0	763.883	90.0	483.796	180.0	457.851	270.0	337.697
5.0	767.546	95.0	448.561	185.0	463.726	275.0	360.592
10.0	769.259	100.0	414.463	190.0	466.530	280.0	388.948
15.0	769.070	105.0	382.919	195.0	466.218	285.0	421.126
20.0	766.971	110.0	355.525	200.0	462.795	290.0	455.558
25.0	762.909	115.0	333.909	205.0	456.315	295.0	490.871
30.0	756.781	120.0	319.452	210.0	446.893	300.0	525.924
35.0	748.449	125.0	312.925	215.0	434.717	305.0	559.811
40.0	737.747	130.0	314.203	220.0	420.080	310.0	591.840
45.0	724.501	135.0	322.265	225.0	403.411	315.0	621.509
50.0	708.544	140.0	335.495	230.0	385.325	320.0	648.487
55.0	689.739	145.0	352.095	235.0	366.672	325.0	672.584
60.0	668.000	150.0	370.398	240.0	348.589	330.0	693.733
65.0	643.318	155.0	389.019	245.0	332.522	335.0	711.960
70.0	615.782	160.0	406.881	250.0	320.182	340.0	727.362
75.0	585.609	165.0	423.186	255.0	313.361	345.0	740.085
80.0	553.163	170.0	437.360	260.0	313.588	350.0	750.299
85.0	518.981	175.0	449.005	265.0	321.722	355.0	758.178

PROPOSED DAYTIME HORIZONTAL PLANE STANDARD PATTERN



Callsign : <b>NEW</b> Frequency : 1440.00 kHz Power : 2.50 kw BRSS : <b>605.84 MV/ M/ KM</b> Q Factor at 0 degrees : <b>15.81</b> Theoretical Pattern RMS: 512.52 mV/m at 1 km Standard Pattern RMS : 538.40 mV/m at 1 km  Latitude : <b>42° 56' 43" N</b> Longitude : <b>112° 24' 57" W</b> Number Augmentations : 0	<table border="1"> <thead> <tr> <th>#</th> <th>Field</th> <th>Phase</th> <th>Spacing</th> <th>Orientation</th> <th>Height</th> <th>Top Load</th> <th>Power Ref</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1.0000</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>100.10</td> <td>0.00</td> <td>0</td> </tr> <tr> <td>2</td> <td>0.4600</td> <td>217.50</td> <td>90.00</td> <td>12.00</td> <td>100.10</td> <td>0.00</td> <td>0</td> </tr> </tbody> </table> $G = 100.1^\circ = 57.9\text{m (190')}$ 12° T #2 90° #1	#	Field	Phase	Spacing	Orientation	Height	Top Load	Power Ref	1	1.0000	0.00	0.00	0.00	100.10	0.00	0	2	0.4600	217.50	90.00	12.00	100.10	0.00	0
#	Field	Phase	Spacing	Orientation	Height	Top Load	Power Ref																		
1	1.0000	0.00	0.00	0.00	100.10	0.00	0																		
2	0.4600	217.50	90.00	12.00	100.10	0.00	0																		