

**EXHIBIT #1**  
ENGINEERING STATEMENT

**Vermont Public Radio**  
New Station Application  
Middlebury, Vermont  
October 2007

CH 211A

1.2 kW H & V DA

This engineering statement supports application filed Vermont Public Radio for a new non-commercial educational FM station to serve Middlebury, Vermont.

A total of 36 evenly spaced radials were used to determine the antenna height above average terrain. The U.S.G.S. 03 arc-second terrain elevation database was employed to determine the elevations along the radials that were averaged using the required four-point interpolation method. The resulting averaged radial antenna heights were employed using the Commission's own TVFMINT algorithm to project the distances to signal contours.

**Exhibit #11** of Section III is a map of the 1<sup>st</sup> and 2<sup>nd</sup> NCE 60 dBu services and a tabulation of the population and percentages of the applicant's 60 dBu providing first-time services.

**Exhibit # 14** is a 60 dBu coverage map that shows that the proposed facility meets the community coverage requirements of Section 73.515. A tabular listing of the distance to the 60 dBu contour can be found on page #2 of this exhibit.

**Exhibit #16** is an Allocation Report showing that there is no prohibited contour overlap with any existing license, construction permit or application. The proposed station is not within the specific critical distances to AM broadcast towers, FCC monitoring stations, Table Mountain and the West Virginia Quiet Zone.

**Exhibit #19** concerns protection provided to television channel six. Study power for TV 6 protection is 1.23 kW (1.2 kW H + 1.2 kW V/40). The 6 dB receiver directivity credit was used.

Although the proposed transmitter location is within 320 kilometers of the US border with Canada, there are no pertinent relationships with any Canadian stations, applications or allocations. Please see Exhibit #16.

The applicant proposes the use of an existing unregistered tower, constructed in 1987. As this tower was built prior to March, 2001, no further environmental study was deemed necessary.

**Exhibit #22** is an R.F. emissions compliance statement, showing that workers and the general public are protected from excess radio frequency emissions.

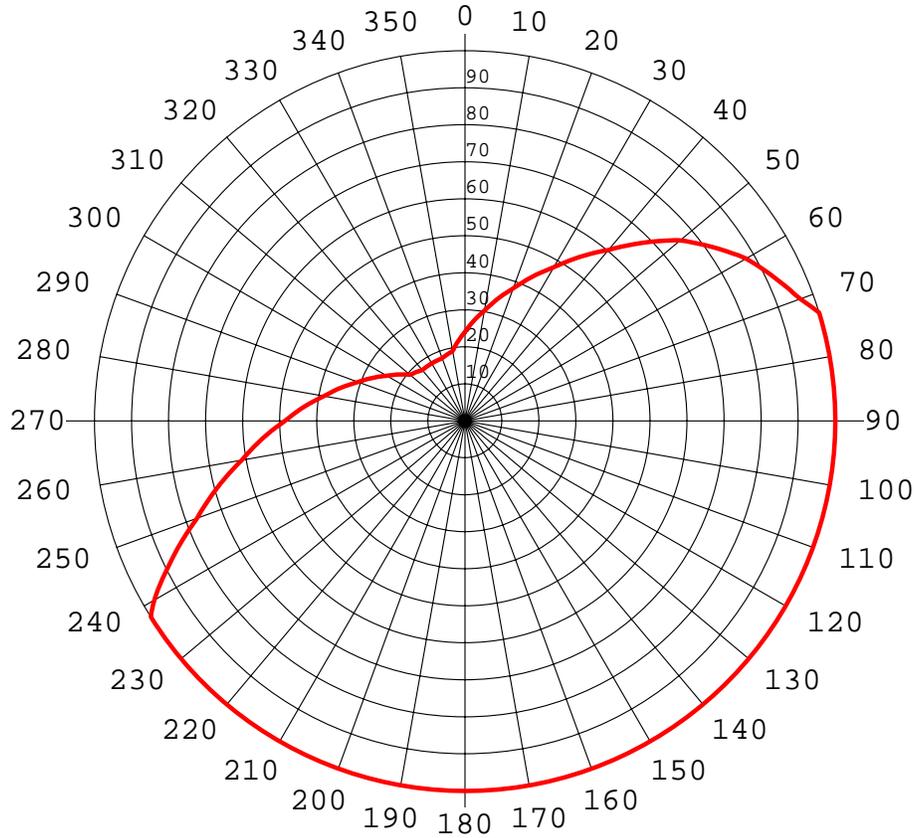
Page # 3 of this exhibit is a composite azimuth pattern with field values. Page # 4 is a vertical elevation graph of the proposed four-bay antenna. Page #5 is a description of how the directionality of the pattern will be achieved.

The applicant is aware of its responsibility under the rules to correct any blanketing interference that it may cause within the period of one year from commencement of transmissions of newly authorized facilities.

Page #6 of Exhibit #1 is a statement of the qualifications of the preparer.

Kate Michler

# Proposed Directional Antenna Pattern



Azi	Rel	dBk	kW	dB	Azi	Rel	dBk	kW	dB
0	0.240	-11.61	0.069	-12.40	180	1.000	0.79	1.200	0.00
10	0.302	-9.61	0.109	-10.40	190	1.000	0.79	1.200	0.00
20	0.380	-7.61	0.173	-8.40	200	1.000	0.79	1.200	0.00
30	0.479	-5.61	0.275	-6.40	210	1.000	0.79	1.200	0.00
40	0.603	-3.61	0.436	-4.40	220	1.000	0.79	1.200	0.00
50	0.759	-1.61	0.691	-2.40	230	1.000	0.79	1.200	0.00
60	0.877	-0.35	0.923	-1.14	240	0.969	0.52	1.126	-0.27
70	0.963	0.46	1.113	-0.33	250	0.770	-1.48	0.711	-2.27
80	1.000	0.79	1.200	0.00	260	0.611	-3.48	0.448	-4.27
90	1.000	0.79	1.200	0.00	270	0.486	-5.48	0.283	-6.27
100	1.000	0.79	1.200	0.00	280	0.386	-7.48	0.179	-8.27
110	1.000	0.79	1.200	0.00	290	0.306	-9.48	0.113	-10.27
120	1.000	0.79	1.200	0.00	300	0.243	-11.48	0.071	-12.27
130	1.000	0.79	1.200	0.00	310	0.193	-13.48	0.045	-14.27
140	1.000	0.79	1.200	0.00	320	0.179	-14.15	0.038	-14.94
150	1.000	0.79	1.200	0.00	330	0.179	-14.15	0.038	-14.94
160	1.000	0.79	1.200	0.00	340	0.180	-14.10	0.039	-14.89
170	1.000	0.79	1.200	0.00	350	0.191	-13.59	0.044	-14.38

## Additional Points

Azi	Rel	dBk	kW	dB	Azi	Rel	dBk	kW	dB
73	1.000	0.79	1.200	0.00	238	1.000	0.79	1.200	0.00

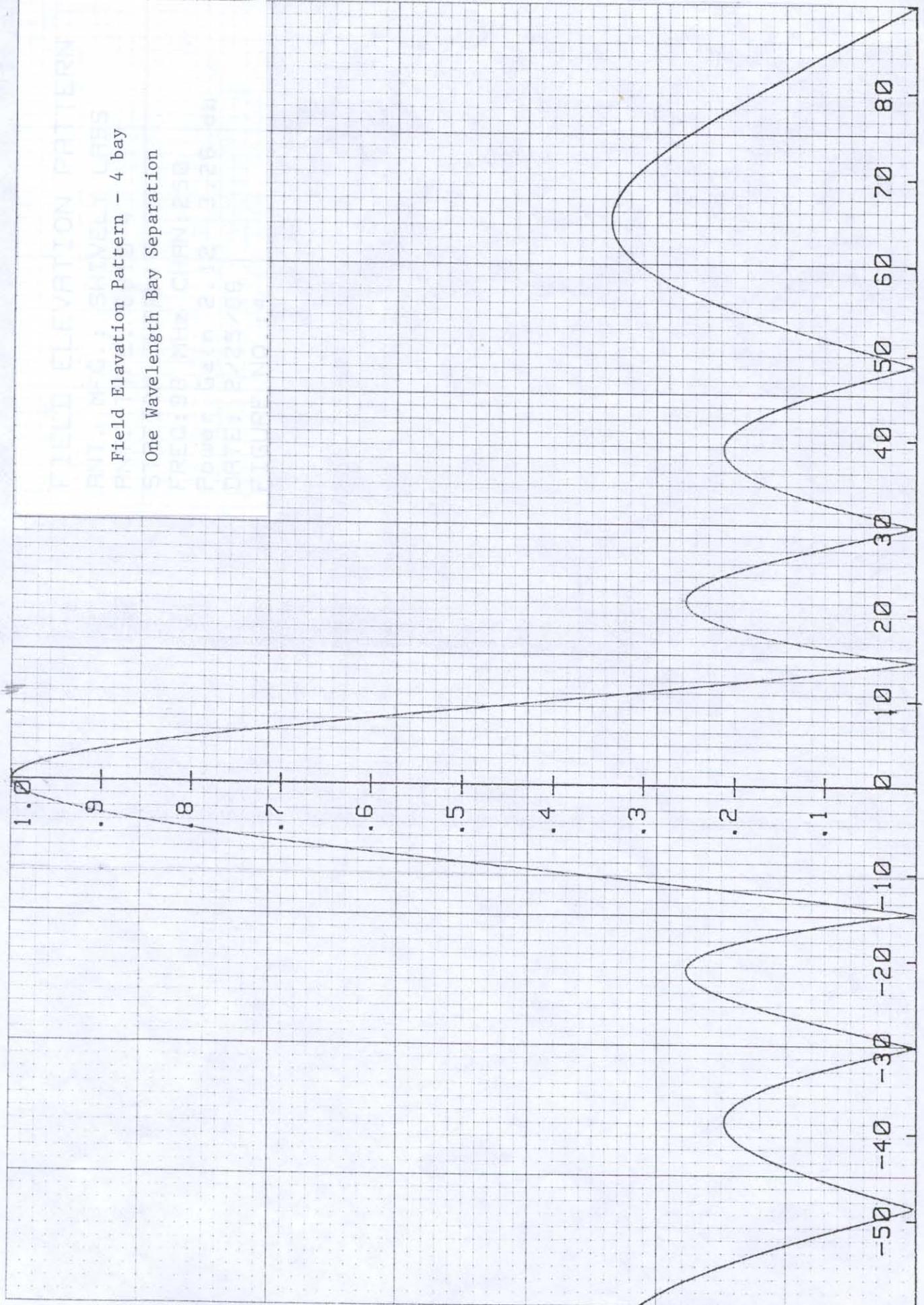
Vermont Public Radio  
Middlebury 211

10/11/07

FIELD ELEVATION PATTERN

Field Elevation Pattern - 4 bay  
One Wavelength Bay Separation

ANT. MFG. : SUTVELY LABS  
FREQ: 98 MHz CHAN: 25M  
Power Gain 2.12 3.26 db  
DATE: 2/25/66  
STRIPE NO. 14



## **Directional Antenna**

The proposed custom directional antenna pattern meets the Commission's rules in that the radio frequency emission does not change more than two dB for each ten degrees of azimuthal variation. Also, the maximum pattern attenuation in the deepest null is less than 15 dB. The pattern shown is a composite of the maximum field values in the horizontal and vertical planes.

The proposed antenna will be mounted on the sides of a post that has been specified by the antenna manufacturer in accordance with the instructions provided by the manufacturer. The antenna will not be mounted on the top of a tower that includes a top mounted platform larger than the nominal cross-sectional area of the tower in the horizontal plane. No other antennas of any type will be mounted at the same tower level as the directional antenna nor within the horizontal or vertical distance specified by the manufacturer as being necessary to maintain proper directional operation. The antenna will be designed and tested by a major manufacturer of broadcast antennas known to the Commission. The pattern will be achieved through traditional methods including power-splitting, resonators and phasing.

**Declaration:**

I, Katherine A. Michler, have received a Bachelor of Science degree from the University of Northern Iowa, and;

That, I declare that I have received training as a technical consultant as a member of the staff of Doug Vernier Telecommunications Consultants, and;

That, I have been a member of the firm for over nine years, and;

That, my qualifications are a matter of record with the Federal Communications Commission, and;

That, I am an Associate Member (#20792) of the Society of Broadcast Engineers, Indianapolis, Indiana, and;

That, the consulting firm of Doug Vernier Telecommunications Consultants has been retained by Vermont Public Radio, and;

That, I have personally prepared these engineering showings, the technical information contained in same and the facts stated within are true to my knowledge, and;

That, under penalty of perjury, I declare that the foregoing is correct.

 \_\_\_\_\_ Katherine A. Michler

Executed on October 11, 2007