



**EXHIBIT #1**  
**ENGINEERING STATEMENT**

**University of New Mexico**  
Modification of Minor Change Application to  
KRRE (CP)  
BMPED 20071129ABY  
Las Vegas, NM

February 2007

CH 220A

0.1 kW H & V

This engineering statement supports the application filed by the Regents of the University of New Mexico to amend its application to make a minor change to licensed NCE FM station KRRE, Las Vegas, NM.

In its original filing the applicant the applicant proposed to move the transmitter site, and change antenna height. This modification corrects the proposed antenna height above ground and above mean sea level.

The 60 dBu coverage map shown in **Exhibit #10** of this exhibit shows that the proposed facility continues to meet 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.

A total of 8 evenly spaced radials were used to determine the antenna height above average terrain. The USGS 3 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.

Page #3 of this engineering exhibit is a directional antenna azimuth pattern; page #4 s a vertical elevation field graph and page #5 is description of how the antenna pattern will be achieved. Page #6 is a statement of the preparer.

**Exhibit #16** is an Allocation Report showing that there is no prohibited contour overlap with any existing license, construction permit or application with the exception of KRAR, (CP) Espanola, file BPED-9990714MA. This construction permit is owned by the

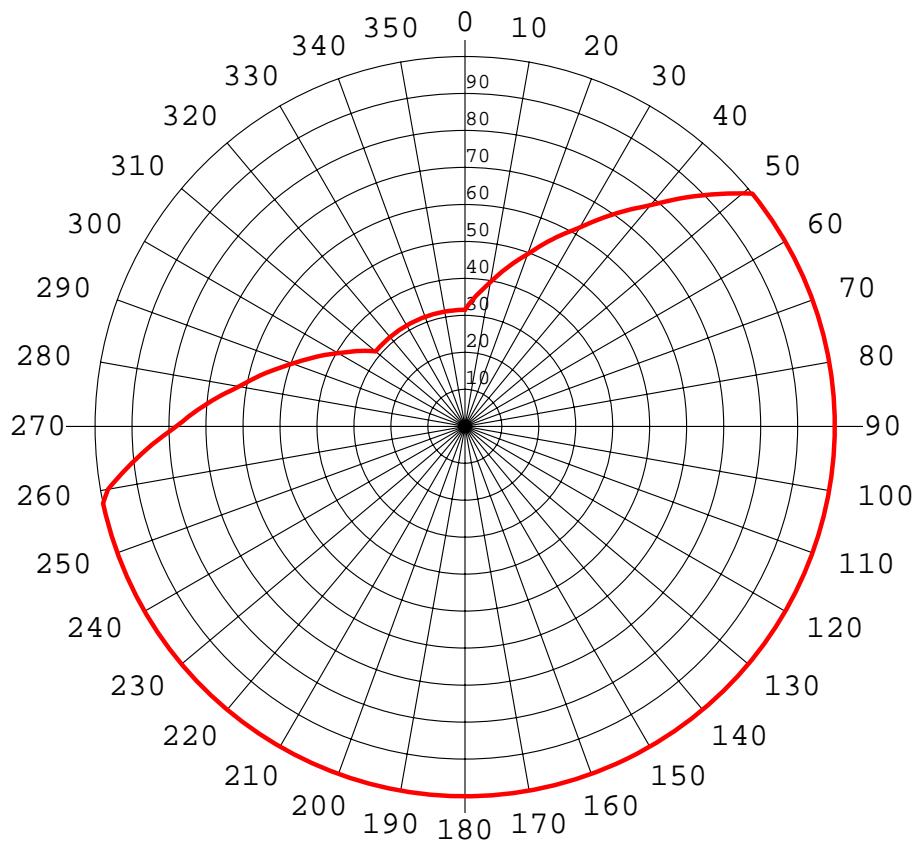
University of New Mexico which is the applicant in the instant proceeding. In order to avoid a contour overlap between this minor change proposal and its own KRAR, the University simultaneously submitted a minor change application to reduce KRAR's power from 8.7 kW 5.9 kW to eliminate the contour overlap. This change was subsequently approved by the Commission (BMPED 20071129ABO.)

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

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. 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.

Doug Vernier

# Composite Azimuth Pattern



Azi	Rel	dBk	kW	dB
0	0.315	-20.03	0.010	-10.03
10	0.395	-18.07	0.016	-8.07
20	0.495	-16.11	0.025	-6.11
30	0.620	-14.15	0.038	-4.15
40	0.780	-12.16	0.061	-2.16
50	0.980	-10.18	0.096	-0.18
60	1.000	-10.00	0.100	0.00
70	1.000	-10.00	0.100	0.00
80	1.000	-10.00	0.100	0.00
90	1.000	-10.00	0.100	0.00
100	1.000	-10.00	0.100	0.00
110	1.000	-10.00	0.100	0.00
120	1.000	-10.00	0.100	0.00
130	1.000	-10.00	0.100	0.00
140	1.000	-10.00	0.100	0.00
150	1.000	-10.00	0.100	0.00
160	1.000	-10.00	0.100	0.00
170	1.000	-10.00	0.100	0.00

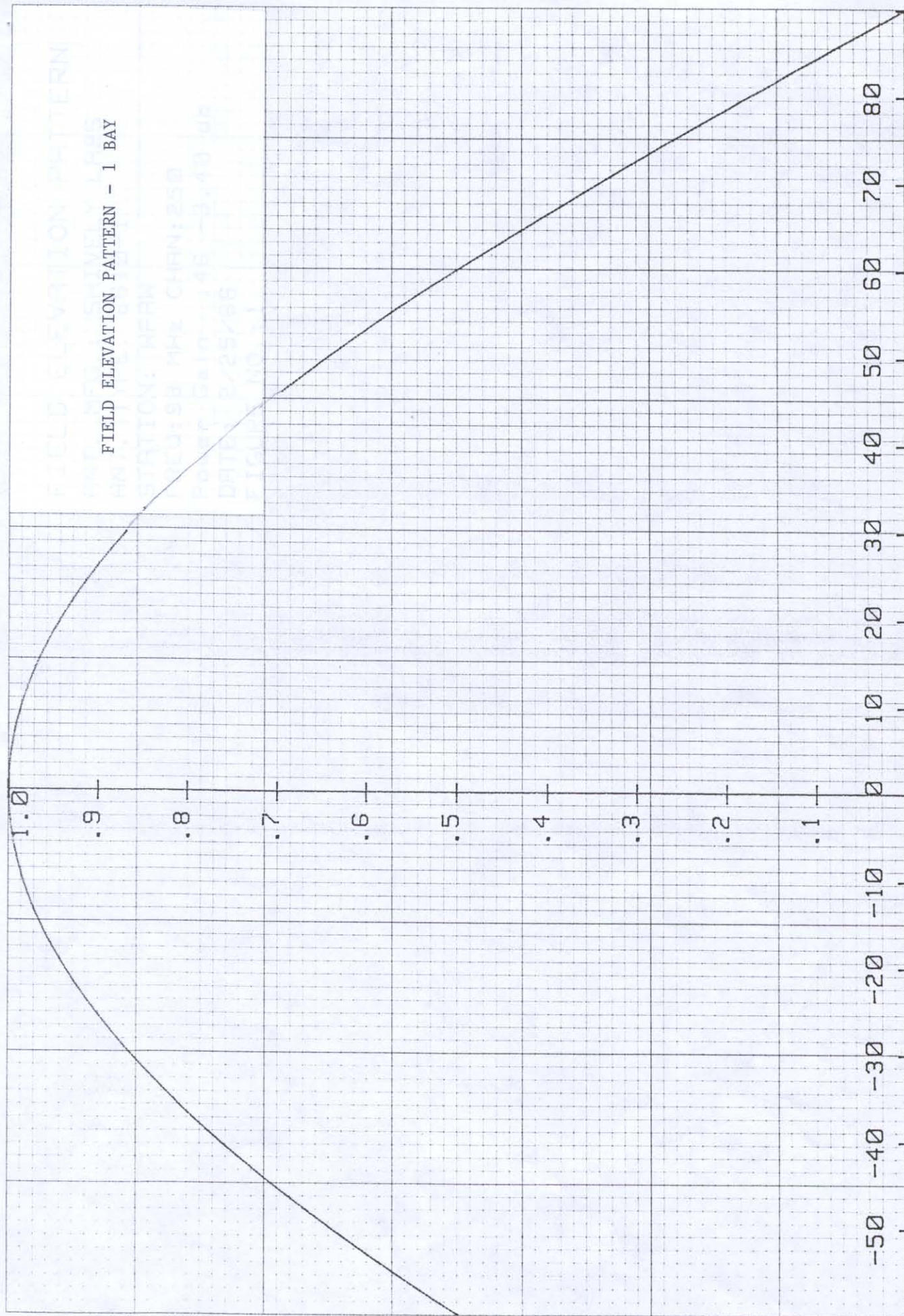
Extra points

51 1.000 -10.00 0.100 0.00

Rotation Angle = 0

Azi	Rel	dBk	kW	dB
180	1.000	-10.00	0.100	0.00
190	1.000	-10.00	0.100	0.00
200	1.000	-10.00	0.100	0.00
210	1.000	-10.00	0.100	0.00
220	1.000	-10.00	0.100	0.00
230	1.000	-10.00	0.100	0.00
240	1.000	-10.00	0.100	0.00
250	1.000	-10.00	0.100	0.00
260	0.980	-10.18	0.096	-0.18
270	0.780	-12.16	0.061	-2.16
280	0.620	-14.15	0.038	-4.15
290	0.495	-16.11	0.025	-6.11
300	0.395	-18.07	0.016	-8.07
310	0.315	-20.03	0.010	-10.03
320	0.315	-20.03	0.010	-10.03
330	0.315	-20.03	0.010	-10.03
340	0.315	-20.03	0.010	-10.03
350	0.315	-20.03	0.010	-10.03

258 1.000 -10.00 0.100 -10.03



## **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, Douglas L. Vernier, declare that I have received training as an engineer from the University of Michigan School of Engineering. That, I have received degrees from the University in the field of Broadcast Telecommunications. That, I have been active in broadcast consulting for over 30 years;

That, I have held a Federal Communications Commission First Class Radiotelephone License continually since 1964. In 1985, this license was reissued by the Commission as a lifetime General Radiotelephone license no. PG-16-16464;


That, I am certified as a Professional Broadcast Engineer (#50258) by the Society of Broadcast Engineers, Indianapolis, Indiana. (Re-certified 1/2006.)

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

That, I have been retained by the Regents of the University of New Mexico to prepare the engineering showings appended hereto:

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

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

A handwritten signature in blue ink, appearing to read "Doug Vernier", with a large, stylized initial "D" and a horizontal line extending to the right.

Douglas L. Vernier

Executed on February 19, 2008