

**EXHIBIT #1  
ENGINEERING STATEMENT**

Concerning the Application of  
Wichita State University  
To Make a Minor Change to  
KMUW  
Wichita, Kansas  
File No. BLED-19870914KA

January 2007

CH 206C1

100 kW H & V DA

This engineering statement supports the application of Wichita State University to make a minor change to licensed station KMUW, Wichita, Kansas to move the location of the transmitter, increase the antenna height above ground, mean sea level and average terrain and employ a directional antenna. There are no further changes at this time.

	Existing License	Proposed Facility
N. Lat.	37-45-01	37-46-26.0
W. Lng.	97-18-12	97-30-51.8
Tower ID	1031890	1244913
COR AG (M)	137	281.9
COR AMSL (M)	546	698.6
HAAT (M)	134	277.6
Power (kW)	100	100
Directional?	N	Y

Page #3 of this exhibit is a computer generated change area map of KMUW's proposed one mV/m F(50-50) contour and the same contour of the existing station, using the U.S.G.S. world map database. The city of license, Wichita, Kansas and the main studio are completely encompassed by this contour.

A total of 8 evenly spaced radials were used to determine the antenna height above average terrain. The N.G.D.C. 30 arc second 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. A tabular listing of the distance to the one mV/m contour can be found on page #4 of this exhibit.

The use of a directional antenna is being proposed. An azimuthal chart of the relative field values of the proposed pattern is found on Page #5, followed by a vertical elevation field pattern graph of the proposed antenna on Page #6. Page #7 of this exhibit is a description of how the manufacturer will attain the directionality of the antenna.

**Exhibit #15** is an Allocation Report showing that no interference will be caused to any existing licenses, construction permits or allocations. The first page is a computer channel study of all stations having a frequency and distance relationship. The exhibit gives current operating powers, HAAT's bearings and distances. (All distances were computed according to the method described under Section 73.208 of the Commission's Rules.) The second page is a narrative of the methods and conventions used in the report. Pages 3-9 are a map and FMOVER table of the proposed facility's relationship with a first adjacent station KPRD, Hays, Kansas. Pages 10-16 are a map and FMOVER table of the proposed facility's relationship with co-channel station KWRI, Bartlesville, Oklahoma.

There are no television channel 6 stations within the 211 kilometer cutoff distance for an FM station on Channel 206. There is notice for proposed rule-making for a new TV 6 station in Hutchinson (BPRM-20011009AEG), but that application was not considered as it is still pending processing.

**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 320 kilometers of the US border with either Mexico or Canada. It 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 it may cause within the period of one year from commencement of transmissions of newly authorized facilities.

Page #8 of Exhibit #1 is a statement of the qualifications of the preparer.

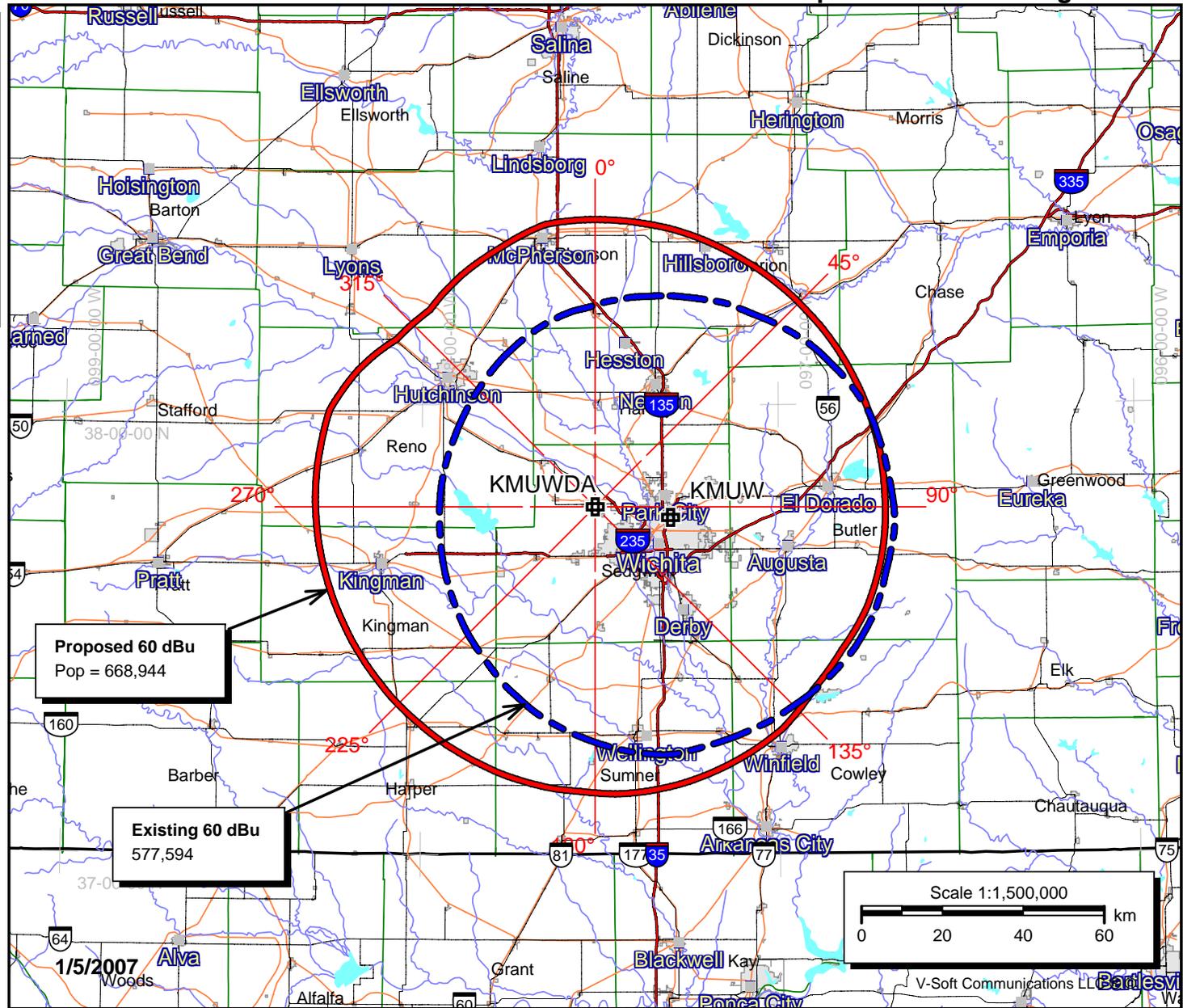
Kate Michler

### KMUW - Tower #1244913 - Directional - Proposed 60 dBu Change Area

**KMUWDA**  
#1244913  
Latitude: 37-46-26 N  
Longitude: 097-30-51.80 W  
ERP: 100.00 kW  
Channel: 206  
Frequency: 89.1 MHz  
AMSL Height: 698.6 m  
HAAT: 277.6 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Pop = 670,390

**KMUW**  
BLED19870914KA  
Latitude: 37-45-01 N  
Longitude: 097-18-12 W  
ERP: 100.00 kW  
Channel: 206  
Frequency: 89.1 MHz  
AMSL Height: 546.0 m  
HAAT: 134.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Pop = 577,594

1/5/2007



N. Lat. = 374626.0 W. Lng. = 973051.8

HAAT and Distance to Contour - FCC Method - NGDC 30 SEC

KMUW - Minor change to tower #1244913

Azi. AV EL HAAT ERP kW dBk Field 60-F5

Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	417.4	281.2	100.0000	20.00	1.000	70.86
045	413.5	285.1	100.0000	20.00	1.000	71.19
090	407.7	290.9	100.0000	20.00	1.000	71.66
135	406.5	292.1	93.1225	19.69	0.965	71.04
180	420.3	278.3	100.0000	20.00	1.000	70.61
225	441.2	257.4	100.0000	20.00	1.000	68.86
270	438.6	260.0	100.0000	20.00	1.000	69.07
315	422.9	275.7	51.4089	17.11	0.717	63.78

Ave El= 421.02 M HAAT= 277.58 M AMSL= 698.6

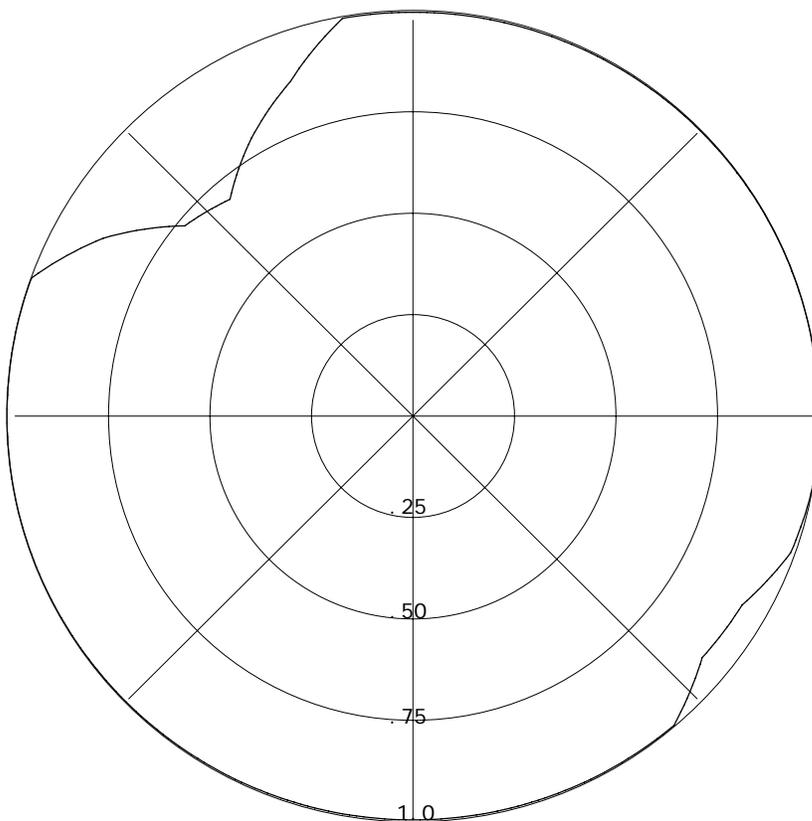
12-26-2006

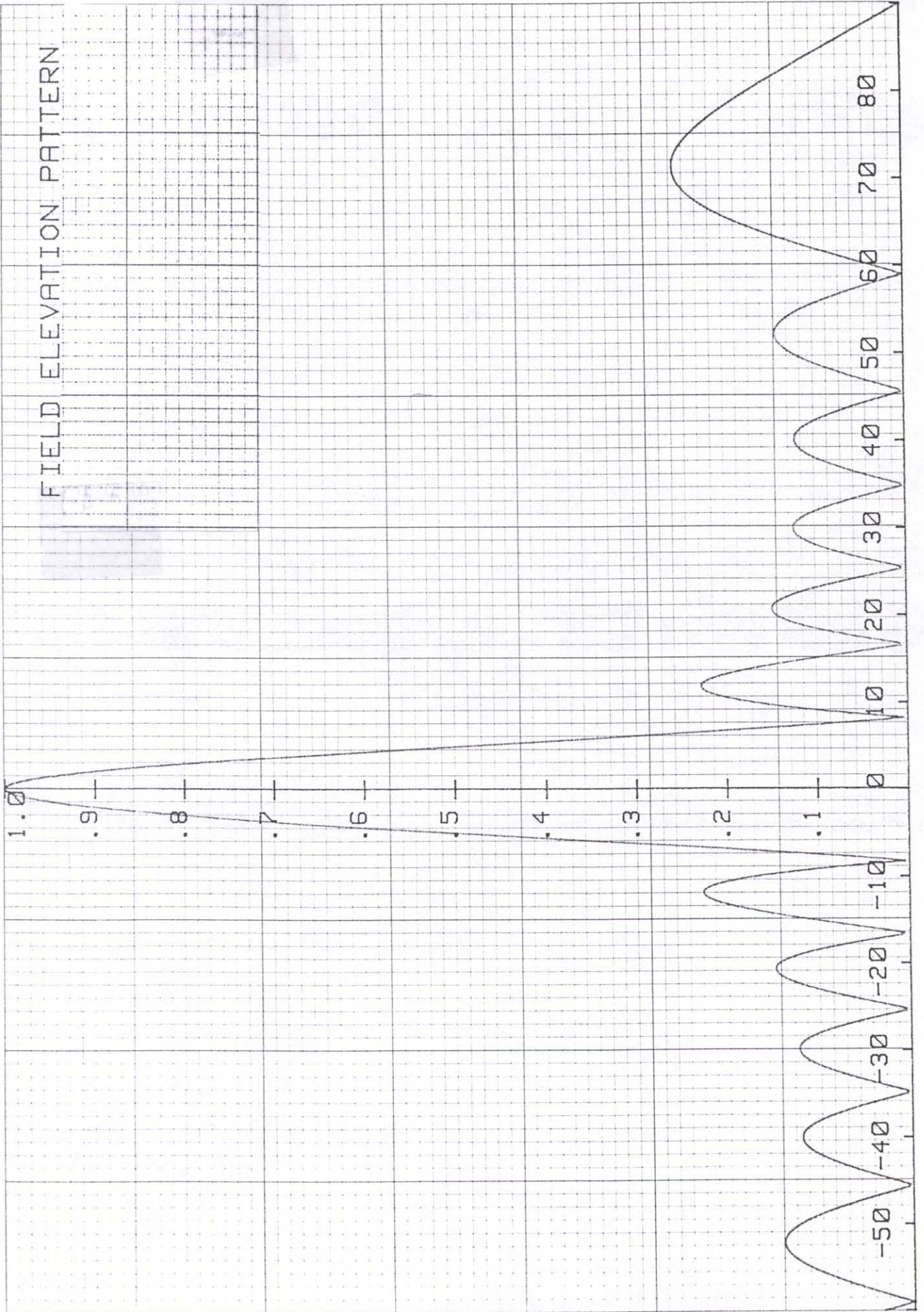
RMS(V) = .971

Bearing    Field % Voltage

Graph is Percent Relative Field Voltage

000	=	1.000
010	=	1.000
020	=	1.000
030	=	1.000
040	=	1.000
050	=	1.000
060	=	1.000
070	=	1.000
080	=	1.000
090	=	1.000
100	=	1.000
110	=	0.990
120	=	0.936
130	=	0.930
140	=	1.000
150	=	1.000
160	=	1.000
170	=	1.000
180	=	1.000
190	=	1.000
200	=	1.000
210	=	1.000
220	=	1.000
230	=	1.000
240	=	1.000
250	=	1.000
260	=	1.000
270	=	1.000
280	=	1.000
290	=	1.000
300	=	0.881
310	=	0.733
320	=	0.701
330	=	0.795
340	=	0.882
350	=	1.000





### **Directional Antenna**

The proposed custom directional antenna pattern meets the Commission's rules in that the radio frequency radiation 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 tower 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 Wichita State University, Wichita, Kansas, 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 January 5, 2007