

FCC Form 349  
Site-Change Application for  
FM Translator W206BB, Madisonville, Kentucky,  
FCC Facility ID No. 93979  
March 2011

### TECHNICAL STATEMENT

This document is the Attachment to Exhibit 12 to the FCC Form 349 application (the *Application*) of Heartland Ministries, Inc. (*HMI*) for a Construction Permit to change the site of FM Translator W206BB, Madisonville, Kentucky, FCC Facility ID No. 93979 (the *Translator*).

This Application proposes to relocate the Translator to a tower owned by Morgan State University (the *Tower*). The Tower is on the campus of Madisonville Community College and bears the FCC Antenna Structure Registration No. 1261381. The Application also proposes to employ an ERI circularly polarized, nondirectional antenna in place of the currently licensed SCA Model FMV-1 vertically polarized antenna (see FCC File No. BLFT-20021202AAC). The Application proposes no change in operating frequency.

Annex A hereto provides the elevation data for twelve (12) radials from 0° True to 330° True. Annex A also provides antenna-height data and distances to the 60-dB $\mu_{f(50,50)}$  contour for each of those radials.

Annex B hereto is a plot of the authorized and proposed 60-dB $\mu_{f(50,50)}$  contours. As there is overlap between the two contours, this Application proposes a minor change to the licensed facilities of the Translator. See 47 C.F.R. § 74.1233(a)(1).

Annex C hereto is a study of the proposed facility's compliance with the Commission's protection requirements with respect to other FM facilities.

Annex D hereto is an analysis of the exposure of human beings to the Nonionizing Electromagnetic Radiation that the Translator will produce. As Annex C clearly demonstrates, the NIER exposure clearly complies with the applicable limits.

This Application proposes no increase in the height of the Tower. Therefore, the proposal raises no environmental concerns.

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**ANNEX A**

12-02-2010

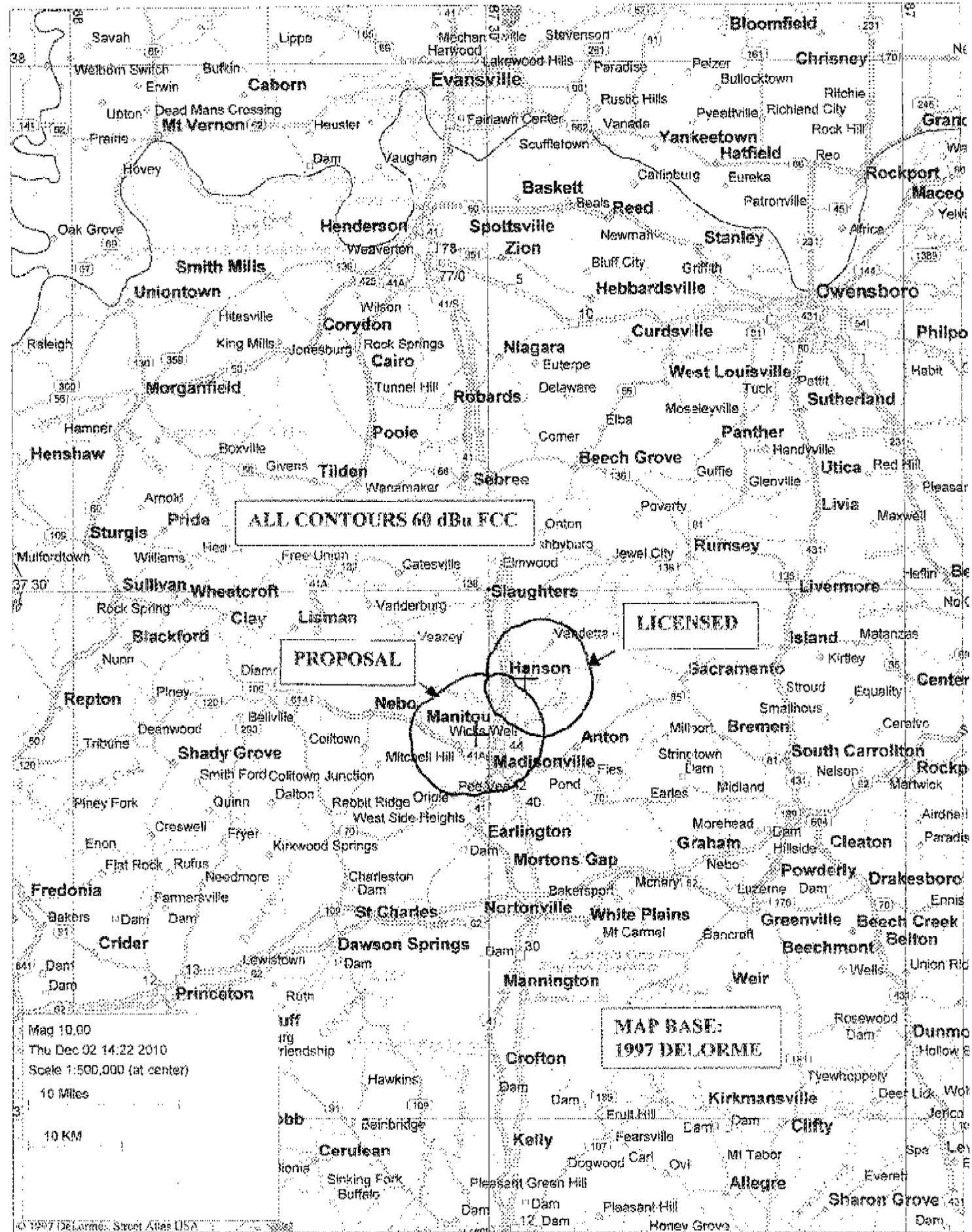
Project: W206BB PROPOSED  
Site Coordinates: 37-21-47 North 87-30-56 west  
NGDC 30-Second Database is used in Continental US  
DEM-30 Database is used in AK, HI, and PR.

Azimuth	Elevation	HAAT	60 dBu
0	143	88	6.4 km
30	122	109	7.1 km
60	124	107	7.1 km
90	121	110	7.2 km
120	128	103	6.9 km
150	135	96	6.7 km
180	143	88	6.4 km
210	128	103	6.9 km
240	122	109	7.1 km
270	123	108	7.1 km
300	137	94	6.6 km
330	155	76	5.9 km

Data in (feet) meters  
Overall Height Above Average Terrain: ( 325) 99 \*  
Site Elevation AMSL: ( 498) 152  
Antenna Height Above Ground Level: ( 260) 79  
Antenna Center Above Sea Level: ( 758) 231  
Overall Ground Average Terrain AMSL: ( 433) 132  
Effective Radiated Power: 0.0190 kW \*  
TV/FM Channel: 206

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**ANNEX B**



ALL CONTOURS 60 dBu FCC

PROPOSAL

LICENSED

MAP BASE:  
1997 DELORME

Mag 10.00  
Thu Dec 02 14:22 2010  
Scale 1:500,000 (at center)  
10 Miles  
10 KM

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**ANNEX C**

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FM Study for: W206BB PROPOSED FCC Database Date: 11/25/2010 37-21-47  
Location: MADISONVILLE, KY Channel Class: D 87-30-56

Contours calculated on direct line using 73.509(a)

[\*] by Distance indicates directional antenna used in calculation.

[\*] by HAAT indicates calculated as missing in database.

Call City, State Chan Class Freq kw Latitude Dist. Required  
Status Proponent File Number HAAT Longitude Azm. Clear (km)

>>>>>>> Study For Channel 206 89.1 MHz <<<<<<<<

WEUC	MORGANFIELD, KY	204 A	88.7	3.00	37-44-09	59.3	29	
LIC	Fac. No. 122810	BLED-20100106AAG	79		87-59-45	314.4	+30.3	CLEAR
W206BB	F(50,10)	100 dbu =	0 km,	WEUC	F(50,50)	60 dbu =	19 KM	+40 km
WKYUFM	BOWLING GREEN, KY	205 C1	88.9	98.0	37-05-23	83.9	91	
LIC	Fac. No. 71856	BMLD-20070507AFC	219		86-38-05	110.9	-7.1	SHORT
W206BB	F(50,10)	54 dbu =	10 km,	WKYUFM	F(50,50)	60 dbu =	66 KM	+9 km
W206BB	MADISONVILLE, KY	206 D	89.1	.027+	37-24-59	7.9	44	
LIC	Fac. No. 93979	BLFT-20021202AAC	77*		87-27-23	41.5	-36.1	SHORT
W206BB	F(50,10)	40 dbu =	23 km,	W206BB	F(50,50)	60 dbu =	5 KM	-20 km*
WVJC	MOUNT CARMEL, IL	206 B	89.1	50.0	38-26-29	121.6	125	
LIC	Fac. No. 28305	BMLD-20040609ABE	101		87-45-26	350.0	-3.4	SHORT
W206BB	F(50,10)	40 dbu =	23 km,	WVJC	F(50,50)	60 dbu =	46 KM	+53 km
WNKJ	HOPKINSVILLE, KY	207 C3	89.3	12.0	36-48-34	62.2	58	
LIC	Fac. No. 52223	BLED-19810813AB	101		87-24-20	170.9	+4.2	CLOSE
W206BB	F(50,10)	54 dbu =	10 km,	WNKJ	F(50,50)	60 dbu =	32 KM	+21 km
WKPB	HENDERSON, KY	208 C2	89.5	43.0	37-51-06	56.7	53	
LIC	Fac. No. 71864	BLED-19921102KB	115		87-19-43	16.9	+3.7	CLOSE
W206BB	F(50,10)	100 dbu =	0 km,	WKPB	F(50,50)	60 dbu =	44 KM	+12 km

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**ANNEX D**

W206BB Proposed:

ASRN 1261381 37-21-47/87-30-56 (NAD 27) Tower AGL = 117 m

Center of Radiation = 79 m AGL = 231 m AMSL

Ground Elevation = 152 m AMSL

Overall HAAT = 99 m (calculated on 12 radials)

Non-directional, single bay ERI

ERP = .019 kW

Worst-case RFR calculation is equal to 0.1 percent of maximum for general population/uncontrolled exposure under 47 CFR §1.130. Pursuant to 47 CFR §1.1307(b)(3), non-categorically exempt contributions of less than 5 percent of the applicable maximum do not require further study.

Formula (7) from Section II of OET 65:

$$S = (2.56) (EIRP) / (4) (\pi) (R)^2$$

Where:

S = Highest power density (mw/cm<sup>2</sup>) at ground level

R = Distance from center antenna to ground in cm.

EIRP = 1.64 times ERP relative to dipole in mw,

Power is calculated at worst case conditions

MAX S = 1.0 mw/cm<sup>2</sup> for FM station between 88 and 108 MHz

ERP = (horizontal and vertical added times field factor<sup>2</sup>.)

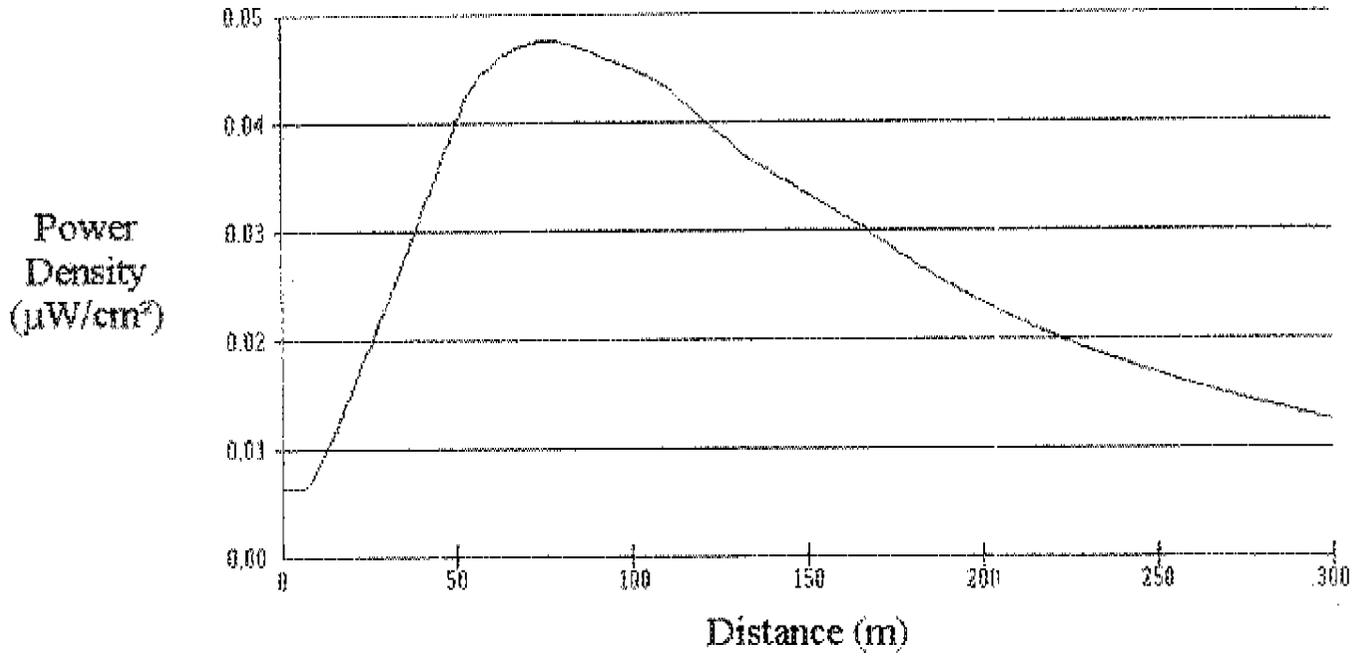
Station: W206BB Prop with antenna up 79 meters and ERP 0.019 kW

$$S = \frac{(2.56) (1.64) (1000) (38) (1.000)^2}{(4) (3.14) (7,900)^2}$$

S = 0.0002 mw/cm<sup>2</sup>, 0.02 % of Controlled Exposure allowed.

S = 0.0002 mw/cm<sup>2</sup>, 0.10 % of Uncontrolled Exposure allowed.

# Power Density vs Distance



Office of Engineering and Technology

Distance (m):	<input type="text" value="300"/>	Antenna Type:	<input type="text" value="ERI or JAMPRO JSCP 'Rototiller' (EPA)"/>
Horizontal ERP (W):	<input type="text" value="19"/>	Number of Elements:	<input type="text" value="1"/>
Vertical ERP (W):	<input type="text" value="10"/>	Element Spacing:	<input type="text" value="1"/>
Antenna Height (m):	<input type="text" value="70"/>		