



**MARSAND, INC.**

Matthew A. Sanderford, Jr., P.E.

## **ENGINEERING STATEMENT**

**In support of an application for**

**Minor Modification of Construction Permit**

**BPCDT-19991101AEQ**

**For Digital Channel 45**

**WEVV Evansville, IN**

**to**

**340 kW ERP 310.7 m HAAT**

### **PURPOSE**

MARSAND, INC. has been retained by COMCORP of Indiana License Corp, permittee of WEVV, digital channel 45 of Evansville, IN, to prepare this engineering statement in support of an application for Minor Modification of Construction Permit(CP). A CP (BPCDT-19991101AEQ) was granted by the Federal Communications Commission(Commission) to WEVV to construct a digital CH45 at 288m Height Above Average Terrain(HAAT) and 500kW Effective Radiated Power(ERP) using a non-directional antenna pattern. Structural limitations of the broadcast tower required the replacement of the paired analog channel 44- antenna with a dual channel 44/45 antenna allowing a common transmission line and antenna to be utilized for both analog and digital operation. The analog service remained unchanged. In the process, there was a failure to file a modification of CP. This application seeks to address that oversight with an application to lower ERP from 500kW to 340kW and raise the radiation center from 288m to 310.7m. Due to the relatively flat terrain and the non-directional properties of the antenna, the net loss or gain in coverage due to the proposed change is zero, therefore, this application does not require a waiver of the Commission's filing freeze. The applicant has reduced power to conform to the coverage authorized in the existing CP.

**DISCUSSION**

The original application for CP was filed based on a side mount antenna system using a dedicated transmission line run on the same tower as the paired analog channel 44-. After a structural analysis was completed on the tower, the results showed the tower would not support the proposed new channel 45 antenna and transmission line. The solution was to replace the existing, non-directional analog antenna with a dual channel, non-directional antenna of identical dimensions and weight and re-use the existing transmission line. The decision was one of many made in the process of implementing digital services across a group of stations, and there was a failure to file for a modification of CP.

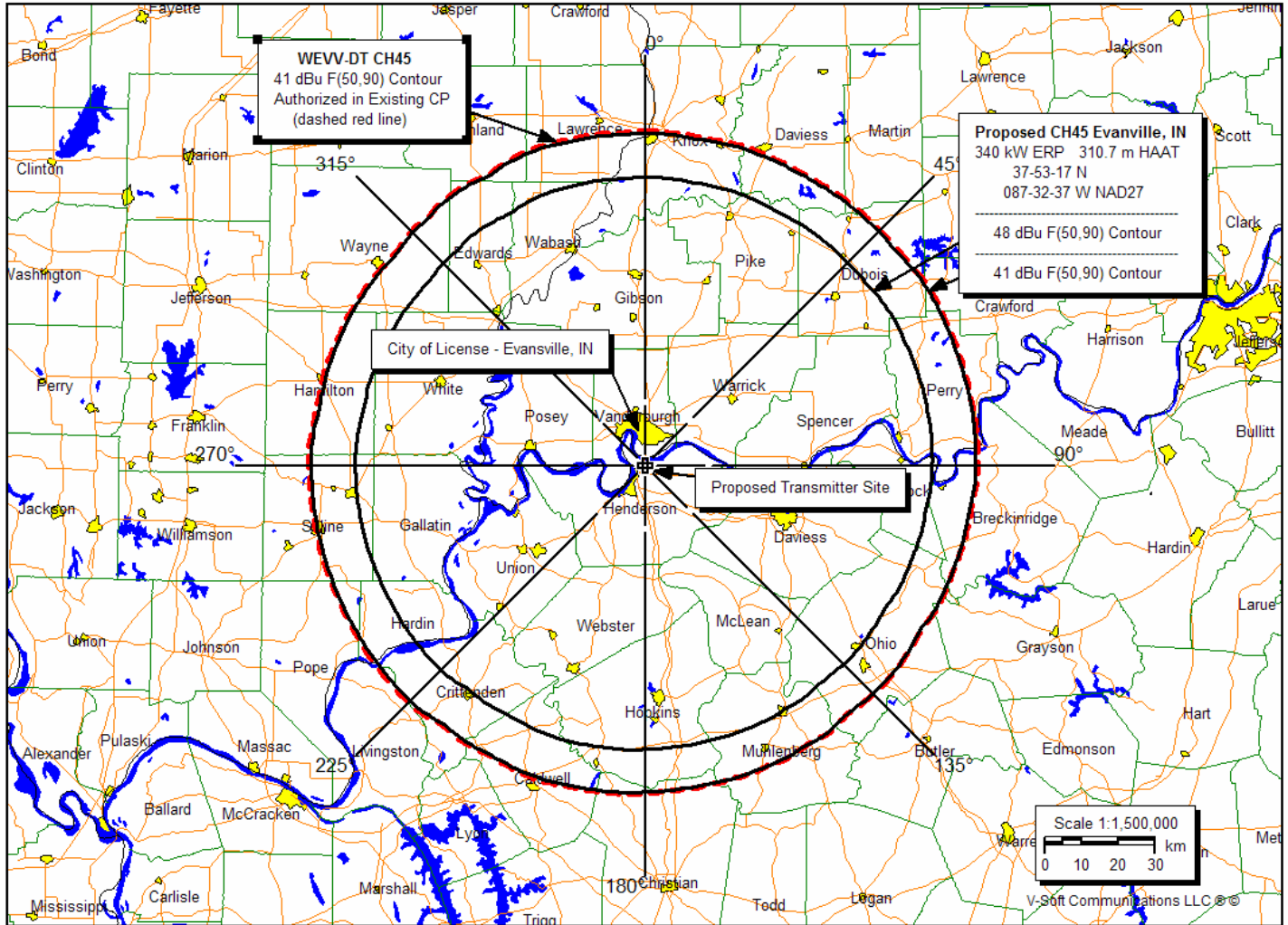
Nevertheless, as shown in **Figure 1**, by reducing the ERP to 340kW, the F (50,90) 41 dBu service grade contour remains within the coverage area authorized in the existing CP (see **Table 1**). There is no net loss or gain as the predicted service area is replicated. Also, no additional interference is anticipated other than that already authorized under the existing CP.

An application is being filed concurrently to request a Minor Change in Licensed Facility for the paired analog channel 44- service. The digital filings brought to light that the analog license and underlying CP specify heights based on survey data circa 1983 that differ from the heights specified in the more recent Antenna Structure Registration(ASR) on file. The application will correct these discrepancies.

**CONCLUSION**

Since the permittee seeks to modify authorized service with an identical service, it is respectfully requested that the Commission grant this request to modify the radiation center HAAT to 310.7m and the ERP to 340kW.

---



**Figure 1**

41 dBu FCC(50,90) Contour based on V-Soft 3 second US Terrain			
Bearing (deg)	Proposed Distance (km)	Existing CP Distance (km)	Difference (km)
0	89.2	89.7	-0.5
10	88.7	89.2	-0.5
20	88.9	89.3	-0.4
30	88.6	89.0	-0.4
40	88.8	89.2	-0.4
50	88.7	89.2	-0.5
60	89.4	89.9	-0.5
70	89.1	89.6	-0.5
80	89.1	89.5	-0.4
90	88.9	89.3	-0.4
100	87.9	88.2	-0.3
110	87.3	87.5	-0.2
120	86.2	86.2	0.0
130	86.8	87.0	-0.2
140	86.1	86.2	-0.1
150	86.7	86.8	-0.1
160	87.1	87.3	-0.2
170	87.3	87.4	-0.1
180	87.6	87.9	-0.3
190	88.1	88.4	-0.3
200	88.5	88.9	-0.4
210	88.1	88.4	-0.3
220	88.6	89.0	-0.4
230	89.4	89.9	-0.5
240	89.4	90.0	-0.6
250	89.5	90.1	-0.6
260	89.6	90.2	-0.6
270	89.7	90.2	-0.5
280	88.9	89.3	-0.4
290	88.9	89.4	-0.5
300	88.6	89.0	-0.4
310	87.7	88.0	-0.3
320	88.5	88.8	-0.3
330	88.5	88.9	-0.4
340	89.5	90.1	-0.6
350	89.3	89.8	-0.5

Note: A positive difference would indicate exceeding the limits of the existing protected contour.

**Table 1**



MARSAND, INC.

Matthew A. Sanderford, Jr., P.E.

---

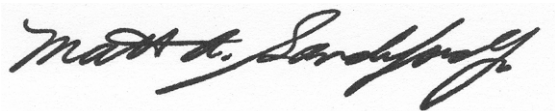
## DECLARATION

Matthew A. Sanderford, Jr., P.E., declares and states that he is a graduate Electrical Engineer with a Bachelor of Science Degree in Electrical Engineering from the University of Texas at El Paso, a Licensed Professional Engineer in the State of Texas, and his qualifications are known to the Federal Communications Commission, and that he is President of MARSAND, INC., a Registered Professional Engineering firm in the State of Texas, and that firm has been retained by COMCORP of Indiana License, Corp. (Comcorp), to perform the engineering support as contained in this report.

All facts contained herein are true of his own knowledge except where stated to be on information or belief provided by Comcorp, and as to those facts, he believes them to be true.

\_\_\_\_\_

I declare under penalty of perjury that the foregoing is true and correct.



\_\_\_\_\_  
Matthew A. Sanderford, Jr., P.E.

President - MARSAND, INC.

Executed this 19<sup>th</sup> day of March, 2008

State of Texas

**Appendix A**

Call Letters: WEVV-DT (CP)  
 File Number: BPCDT19991101AEQ  
 Latitude: 37-53-17 N  
 Longitude: 087-32-37 W  
 ERP: 500.00 kW  
 Channel: 45  
 Frequency: 659.0 MHz  
 AMSL Height: 405.0 m  
 Elevation: 126.0 m  
 HAAT: 288.0 m  
 Horiz. Antenna Pattern: Omni  
 Vert. Elevation Pattern: Yes  
 Electrical Beam Tilt: 0.75

Type of contour: FCC  
 Location Variability: 50.0 %  
 Time Variability: 90.0 %  
 # of Radials Calculated: 360  
 Field Strength: 41.00 dBuV/m  
  
 Primary Terrain: V-Soft 3 Second US Terrain

Bearing (deg)	Distance (km)	HAAT (m)
-----	-----	-----
0.0	89.7	293.2
10.0	89.2	289.4
20.0	89.3	290.4
30.0	89.0	288.4
40.0	89.2	289.8
50.0	89.2	289.5
60.0	89.9	295.0
70.0	89.6	292.6
80.0	89.5	292.1
90.0	89.3	290.5
100.0	88.2	282.5
110.0	87.5	277.6
120.0	86.2	268.8
130.0	87.0	274.0
140.0	86.2	268.8
150.0	86.8	272.7
160.0	87.3	276.1
170.0	87.4	277.3
180.0	87.9	280.2
190.0	88.4	284.2
200.0	88.9	287.3
210.0	88.4	284.2
220.0	89.0	288.2
230.0	89.9	295.0
240.0	90.0	295.4
250.0	90.1	296.1
260.0	90.2	296.9
270.0	90.2	297.4
280.0	89.3	290.7
290.0	89.4	291.0
300.0	89.0	288.0
310.0	88.0	281.0
320.0	88.8	287.0
330.0	88.9	287.3
340.0	90.1	296.1
350.0	89.8	293.8

Average HAAT for radials shown: 286.9 m

**Existing CH45 CP**  
**41 dBu F(50,90) Service Grade Contour Calculation Results**

Call Letters: WEVV (Proposed)	Bearing (deg)	Distance (km)	HAAT (m)
File Number: BLCT19831207KF	-----	-----	-----
Latitude: 37-53-17 N	0.0	89.2	316.0
Longitude: 087-32-37 W	10.0	88.7	312.2
ERP: 340.00 kW	20.0	88.9	313.2
Channel: 45	30.0	88.6	311.2
Frequency: 659.0 MHz	40.0	88.8	312.6
AMSL Height: 427.8 m	50.0	88.7	312.3
Elevation: 125.9 m	60.0	89.4	317.8
HAAT: 310.65 m	70.0	89.1	315.4
Horiz. Antenna Pattern: Omni	80.0	89.1	314.9
Vert. Elevation Pattern: Yes	90.0	88.9	313.3
Electrical Beam Tilt: 0.0	100.0	87.9	305.3
	110.0	87.3	300.4
Type of contour: FCC	120.0	86.2	291.6
Location Variability: 50.0 %	130.0	86.8	296.8
Time Variability: 90.0 %	140.0	86.1	291.6
# of Radials Calculated: 360	150.0	86.7	295.5
Field Strength: 41.00 dBuV/m	160.0	87.1	298.9
	170.0	87.3	300.1
Primary Terrain: V-Soft 3 Second US Terrain	180.0	87.6	303.0
	190.0	88.1	307.0
	200.0	88.5	310.1
	210.0	88.1	307.0
	220.0	88.6	311.0
	230.0	89.4	317.8
	240.0	89.4	318.2
	250.0	89.5	318.9
	260.0	89.6	319.7
	270.0	89.7	320.2
	280.0	88.9	313.5
	290.0	88.9	313.8
	300.0	88.6	310.8
	310.0	87.7	303.8
	320.0	88.5	309.8
	330.0	88.5	310.1
	340.0	89.5	318.9
	350.0	89.3	316.6

Average HAAT for radials shown: 309.7 m

**Proposed CH45**  
**41 dBu F(50,90) Service Grade Contour Calculation Results**



Matthew A. Sanderford, Jr., P.E.

Call Letters: WEVV-DT (Proposed)	Bearing (deg)	Distance (km)	HAAT (m)
File Number:	-----	-----	-----
Latitude: 37-53-17 N	0.0	77.6	316.0
Longitude: 087-32-37 W	10.0	77.2	312.2
ERP: 350.00 kW	20.0	77.3	313.2
Channel: 45	30.0	77.1	311.2
Frequency: 659.0 MHz	40.0	77.3	312.6
AMSL Height: 427.8 m	50.0	77.2	312.3
Elevation: 125.9 m	60.0	77.8	317.8
Horiz. Antenna Pattern: Omni	70.0	77.5	315.4
Vert. Elevation Pattern: Yes	80.0	77.5	314.9
Electrical Beam Tilt: 0.75	90.0	77.3	313.3
	100.0	76.6	305.3
Type of contour: FCC	110.0	76.1	300.4
Location Variability: 50.0 %	120.0	75.3	291.6
Time Variability: 90.0 %	130.0	75.8	296.8
# of Radials Calculated: 360	140.0	75.3	291.6
Field Strength: 48.00 dBuV/m	150.0	75.6	295.5
	160.0	75.9	298.9
Primary Terrain: V-Soft 3 Second US Terrain	170.0	76.1	300.1
	180.0	76.3	303.0
	190.0	76.7	307.0
	200.0	77.0	310.1
	210.0	76.7	307.0
	220.0	77.1	311.0
	230.0	77.8	317.8
	240.0	77.8	318.2
	250.0	77.9	318.9
	260.0	78.0	319.7
	270.0	78.0	320.2
	280.0	77.3	313.5
	290.0	77.4	313.8
	300.0	77.1	310.8
	310.0	76.4	303.8
	320.0	77.0	309.8
	330.0	77.0	310.1
	340.0	77.9	318.9
	350.0	77.6	316.6

Average HAAT for radials shown: 309.7 m

## Proposed CH45 48 dBu F(50,90) "City Grade" Contour Calculation Results