

[Exhibit 13]

## **Non-Interference Compliance**

Regarding Facility id 140786

Channel 247

### **Description of Exhibit 13 Contents**

This exhibit demonstrates that the proposed facility complies with contour overlap and interference protection provisions in all of the applicable rule sections and that this application for a construction permit is in full compliance with 47 C.F.R. § 74.1204.

**Let it be noted that should any actual real world interference occur, the applicant acknowledges that it will promptly suspend operation of this translator in accordance with 47 C.F.R. § 74.1203.**

Page 2 of this exhibit is an explanation of the method used to demonstrate compliance with contour overlap and interference provisions based on 47 C.F.R. § 74.1204(d), which states:

*[A]n application otherwise precluded by this section will be accepted if it can be demonstrated that no actual interference will occur due to intervening terrain, lack of population or such other factors as may be applicable.*

Page 3 contains a tabulation of the vertical radiation pattern of the proposed antenna and the minimum ground clearance of the interfering contour based on this pattern.

Page 4 includes a tabulation of the vertical radiation pattern for the proposed antenna provided by the antenna manufacturer.

Page 5 of this exhibit contains the tabulated data from the interference analysis, which shows all stations whose protected contours come within 50 km of the 34 dBμ F(50,10) contour of the proposed translator. These tabulated values were calculated using data from the FCC's CDBS files and 30 arc second terrain data. The column labeled "Adj" shows the number of channels difference between the entry and the proposed translator. The column labeled "Dist" shows the distance in km. The column labeled "Overlap" shows the area of contour overlap in square kilometers.

Page 6 of this exhibit is a portion of a USGS 1:24,000 scale 7.5 minute quadrangle at full scale with the calculated area of interference overlaid. The sheet includes the quadrangle name and measurement scale at the bottom-left corner (note: "Mt" refers to meters). The area of interference was calculated using the free space equation and 120 radials.

Page 7 of this exhibit is an aerial photo of the vicinity surrounding the proposed translator's tower site.

## Compliance with 47 C.F.R. § 74.1204(d)

All authorized second and third adjacent stations with which the proposed translator has contour overlap are tabulated below. Column four show the station's signal level at the proposed translator's tower site, and column five gives the minimum value within the entire standard interfering contour of the proposed translator (100 dB $\mu$  for most classes, 94 for class B, 97 for class B1). The minimum second or third adjacent F(50,50) contour within the proposed translator's standard interfering contour was used to calculate the proposed translator's actual "worst-case" interfering contour.

<b>Application_id</b>	<b>File Number</b>	<b>Callsign</b>	<b>Contour at Tower</b>	<b>Min. Contour</b>
167551	BLH19911129KB	WWWX	69.9	69.9
	Minimum F(50,50) Contour of Adjacent Station within Proposed Translator's Standard Interfering Contour			<b>69.9</b>

FCC 02-244 at Section II.A.5 states that "when demonstrating that 'no actual interference will occur due to . . . other factors,' pursuant to Section 74.1204(d), an applicant may use the undesired-to-desired signal ratio method." The undesired-to-desired ratio for second and third adjacent stations required by § 74.1204(a) is 40 dB. Since the minimum protected contour strength within the proposed translator's standard interference contour is **69.9 dB $\mu$** , this makes the proposed translator's worst-case interfering contour **109.9 dB $\mu$** . By the free-space equation, this contour is calculated to extend a maximum of **166.4 m** from the transmit antenna.

The maximum horizontal plane of the interfering contour was calculated for 120 radials and plotted on the pertinent portion of a USGS quadrangle (page 6 of this exhibit). However, the field strength of the proposed translator's antenna varies with angle of depression from horizontal. The antenna relative fields are tabulated on the following page at 5 degree increments, starting at 5 degrees below horizontal. Antenna relative field strength data was provided and certified by the manufacturer of the proposed antenna. Using a free-space calculation that neglects any loss due to reflection, the vertical ground clearance of the proposed translator's interference contour has been tabulated. As shown on the following page, the area of interference clears the tower ground level (TGL) by **8 m** at the lowest point. The applicant has taken into account USGS quadrangles and relevant aerial photography in stating that no structures, except possibly tower support structures, puncture the area of interference. Hence, in accordance with 47 C.F.R. § 74.1204(d) and the clarification provided by the FCC in the decision *Re: Living Way Ministries* (FCC 02-244), a lack of population has been demonstrated within the area of interference and this application is therefore in full compliance with 47 C.F.R. § 74.1204.

**Antenna Manufacturer:** PSI  
**Antenna Model:** FML-2(.75)  
**CORAGL:** 45 m  
**Maximum ERP:** 0.055 kW  
**Interfering Contour:** 109.9 dB $\mu$   
**Max Int. Contour Distance:** 166.4 m  
**Min Ground Clearance:** 8 m

Depression Angle Below Horizontal	Antenna Relative Field	ERP (watts)	Distance to Interfering Contour from Antenna (m)	Horizontal Distance of Interfering Contour from Tower (m)	Vertical Clearance of Interfering Contour above TGL (m)
5	.975	52.3	162.3	161.6	30.9
10	.903	44.8	150.3	148.0	18.9
15	.792	34.5	131.8	127.3	10.9
20	.650	23.2	108.2	101.6	8.0
25	.493	13.4	82.0	74.4	10.3
30	.331	6.0	55.1	47.7	17.5
35	.178	1.7	29.6	24.3	28.0
40	.043	0.1	7.2	5.5	40.4
45	.068	0.3	11.3	8.0	37.0
50	.149	1.2	24.8	15.9	26.0
55	.202	2.2	33.6	19.3	17.5
60	.227	2.8	37.8	18.9	12.3
65	.226	2.8	37.6	15.9	10.9
70	.205	2.3	34.1	11.7	12.9
75	.168	1.6	28.0	7.2	18.0
80	.118	0.8	19.6	3.4	25.7
85	.061	0.2	10.2	0.9	34.9
90	.001	0.0	0.2	0.0	44.8
Minimum Clearance above TGL:					<b>8 m</b>

**Propagation Systems Inc.**  
Elevation Pattern Tabulation  
Antenna: PSIFML-2 Special  
Bay spacing: 3/4 wave

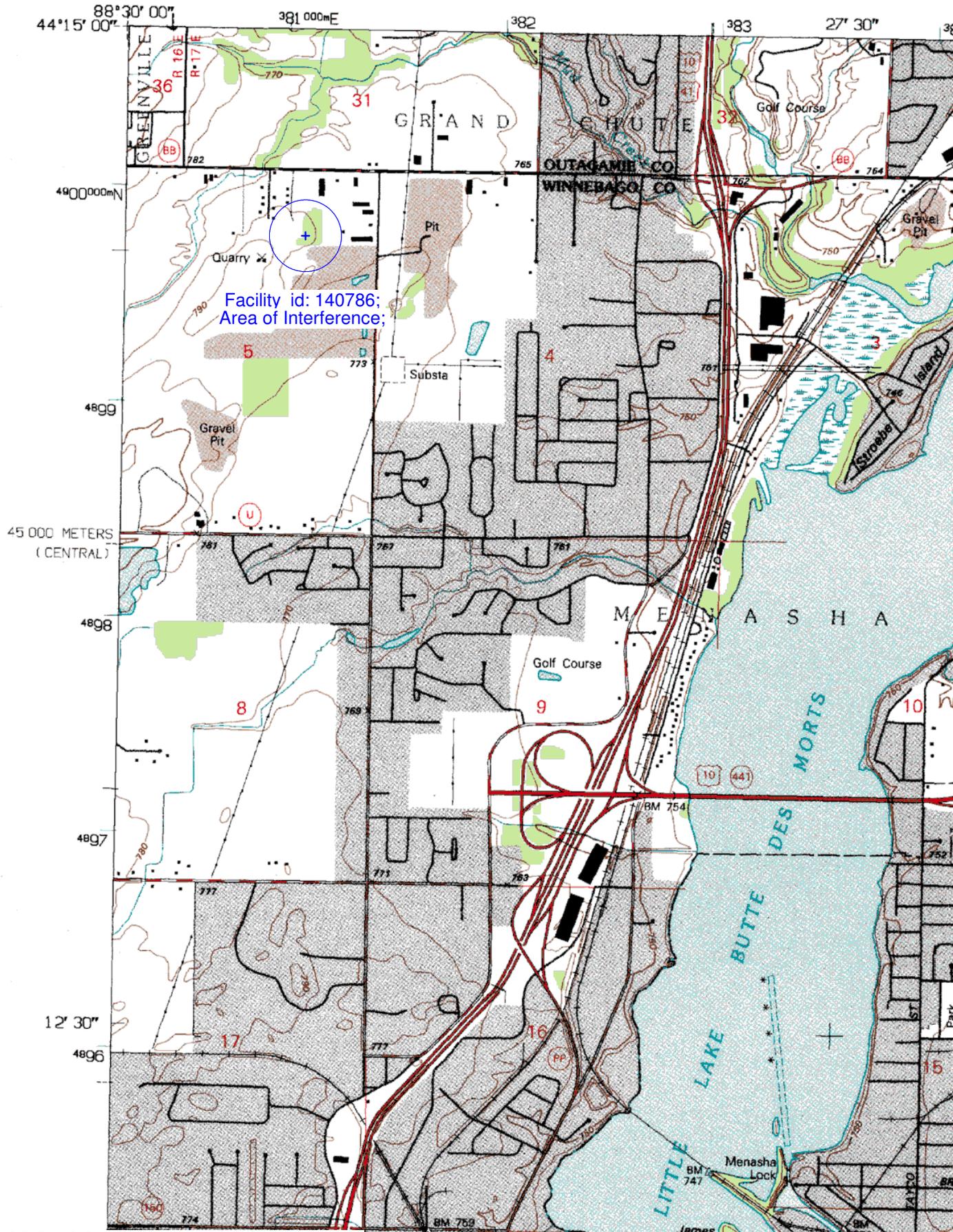
Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-90.00	0.001	-60.000	-50.00	0.149	-16.513	-10.00	0.903	-0.883
-89.00	0.012	-38.221	-49.00	0.135	-17.364	-9.00	0.921	-0.713
-88.00	0.025	-32.201	-48.00	0.120	-18.405	-8.00	0.937	-0.561
-87.00	0.037	-28.679	-47.00	0.104	-19.677	-7.00	0.952	-0.429
-86.00	0.049	-26.207	-46.00	0.086	-21.289	-6.00	0.964	-0.315
-85.00	0.061	-24.285	-45.00	0.068	-23.404	-5.00	0.975	-0.219
-84.00	0.073	-22.748	-44.00	0.048	-26.425	-4.00	0.984	-0.139
-83.00	0.085	-21.443	-43.00	0.027	-31.481	-3.00	0.991	-0.079
-82.00	0.096	-20.349	-42.00	0.005	-46.848	-2.00	0.996	-0.036
-81.00	0.107	-19.378	-41.00	0.018	-34.664	-1.00	0.999	-0.009
-80.00	0.118	-18.538	-40.00	0.043	-27.417	0.00	1.000	0.000
-79.00	0.129	-17.792	-39.00	0.068	-23.365	1.00	0.999	-0.009
-78.00	0.139	-17.125	-38.00	0.094	-20.529	2.00	0.996	-0.036
-77.00	0.149	-16.522	-37.00	0.121	-18.329	3.00	0.991	-0.079
-76.00	0.159	-15.984	-36.00	0.149	-16.531	4.00	0.984	-0.139
-75.00	0.168	-15.508	-35.00	0.178	-14.998	5.00	0.975	-0.219
-74.00	0.176	-15.072	-34.00	0.207	-13.669	6.00	0.964	-0.315
-73.00	0.184	-14.685	-33.00	0.237	-12.489	7.00	0.952	-0.429
-72.00	0.192	-14.335	-32.00	0.268	-11.431	8.00	0.937	-0.561
-71.00	0.199	-14.026	-31.00	0.299	-10.475	9.00	0.921	-0.713
-70.00	0.205	-13.752	-30.00	0.331	-9.602	10.00	0.903	-0.882
-69.00	0.211	-13.518	-29.00	0.363	-8.801	11.00	0.884	-1.072
-68.00	0.216	-13.315	-28.00	0.395	-8.061	12.00	0.863	-1.279
-67.00	0.220	-13.146	-27.00	0.428	-7.377	13.00	0.841	-1.508
-66.00	0.224	-13.009	-26.00	0.460	-6.742	14.00	0.817	-1.757
-65.00	0.226	-12.904	-25.00	0.493	-6.151	15.00	0.792	-2.029
-64.00	0.228	-12.834	-24.00	0.525	-5.599	16.00	0.765	-2.322
-63.00	0.229	-12.800	-23.00	0.557	-5.083	17.00	0.738	-2.639
-62.00	0.229	-12.794	-22.00	0.589	-4.603	18.00	0.710	-2.979
-61.00	0.228	-12.829	-21.00	0.620	-4.154	19.00	0.680	-3.344
-60.00	0.227	-12.898	-20.00	0.650	-3.736	20.00	0.650	-3.736
-59.00	0.224	-13.009	-19.00	0.680	-3.344	21.00	0.620	-4.154
-58.00	0.220	-13.158	-18.00	0.710	-2.979	22.00	0.589	-4.603
-57.00	0.215	-13.351	-17.00	0.738	-2.639	23.00	0.557	-5.083
-56.00	0.209	-13.600	-16.00	0.765	-2.323	24.00	0.525	-5.599
-55.00	0.202	-13.894	-15.00	0.792	-2.029	25.00	0.493	-6.151
-54.00	0.194	-14.260	-14.00	0.817	-1.759	26.00	0.460	-6.742
-53.00	0.184	-14.685	-13.00	0.840	-1.510	27.00	0.428	-7.377
-52.00	0.174	-15.192	-12.00	0.863	-1.281	28.00	0.395	-8.061
-51.00	0.162	-15.795	-11.00	0.884	-1.072	29.00	0.363	-8.801
						30.00	0.331	-9.602

**Adjacent Channel Study  
For Station NEW, Facility\_id: 140786**

**Co-channel through third adjacent:**

App_id	Fac_id	File_Number	Call	Licensee	Class	City	State	Status	ERP	RCAMSL	Chan	Adj	Dist	Overlap
167551	50052	BLH-19911129KB	WWWX	WI RADIO, LLC, AS TRUSTEE	A	OSHKOSH	WI	LIC	6	333	245	2	16.1	0.85
629393	138738	BNPFT-20030310BCK	NEW	VCY AMERICA, INC.	D	APPLETON	WI	APP	0.075	262	249	2	8.7	0
1179824	141333	BLFT-20070402JTS	W247AS	EDUCATIONAL MEDIA FOUNDATION	D	NEW LONDON	WI	LIC	0.01	391	247	0	31.2	0
1356299	164253	BLH-20100209AAC	WTAQ-FM	MIDWEST COMMUNICATIONS, INC.	A	GLENMORE	WI	LIC	3	371	248	1	42.6	0
1358350	73056	BLFT-20100226AFF	W245BS	DEL REYNOLDS	D	GREEN BAY	WI	LIC	0.12	227	245	2	47.6	0
1268386	144663	BLFT-20080926AAA	W247AZ	HOMETOWN BROADCASTING, LLC	D	BERLIN	WI	LIC	0.055	299	247	0	51.3	0
600116	69779	BLH-20020422AAE	WFDL-FM	RADIO PLUS OF FOND DU LAC, INC.	C3	LOMIRA	WI	LIC	17.5	421	249	2	65.4	0
1063161	139381	BLFT-20050518ADE	W245AK	BETHESDA CHRISTIAN BROADCASTING	D	SHEBOYGAN	WI	LIC	0.038	259	245	2	78.4	0
234290	2104	BLH-19961015KB	WSPT	MUZZY BROADCAST GROUP, LLC	C1	STEVENS POINT	WI	LIC	100	436	250	3	93.8	0
402045	48848	BLH-19991012AAX	WBDK	NICOLET BROADCASTING, INC.	C3	ALGOMA	WI	LIC	8	360	244	3	100.3	0
1322973	60004	BLH-20090713ABV	WHTQ	NRG LICENSE SUB, LLC	C2	WHITING	WI	LIC	26.5	559	244	3	117.2	0
72777	26609	BLH-19840925DP	WRNW	CAPSTAR TX LLC	B	MILWAUKEE	WI	LIC	15.5	491	247	0	133.6	0

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY





100 yds