

[Exhibit 13]

## **Non-Interference Compliance**

Regarding Facility id 73057

Channel 218

### **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.

Pages 4 through 5 include a tabulation of the vertical radiation pattern for the proposed antenna provided by the antenna manufacturer.

Page 6 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 7 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 8 of this exhibit is an aerial photo of the vicinity surrounding the proposed translator's tower site.

**Note: The tallest building within the zone of predicted interference is 15ft (4.6m) in height. This proposal provides 5.2m (17.1ft) ground clearance so 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.**

## 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>
1209617	BMLED20071004AAC	WLBL-FM	78.2	78.2
1244777	BMLED20080430ACK	WXPW	78.2	78.2
738992	BLED20031023AAF	WHRM	110.8	109
Minimum F(50,50) Contour of Adjacent Station within Proposed Translator's Standard Interfering Contour				<b>78.2</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 **78.2 dB $\mu$** , this makes the proposed translator's worst-case interfering contour **118.2 dB $\mu$** . By the free-space equation, this contour is calculated to extend a maximum of **79.6 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 7 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 **5.2 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.

**Note: The tallest building within the zone of predicted interference is 15ft (4.6m) in height. This proposal provides 5.2m (17.1ft) ground clearance so 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  
**CORAGL:** 45 m  
**Maximum ERP:** 0.085 kW  
**Interfering Contour:** 118.2 dB $\mu$   
**Max Int. Contour Distance:** 79.6 m  
**Min Ground Clearance:** 5.2 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	.996	84.3	79.2	78.9	38.1
10	.985	82.5	78.4	77.2	31.4
15	.966	79.3	76.9	74.2	25.1
20	.940	75.1	74.8	70.3	19.4
25	.906	69.8	72.1	65.3	14.5
30	.866	63.7	68.9	59.7	10.5
35	.819	57.0	65.2	53.4	7.6
40	.766	49.9	60.9	46.7	5.8
45	.707	42.5	56.3	39.8	5.2
50	.643	35.1	51.2	32.9	5.8
55	.573	27.9	45.6	26.1	7.7
60	.500	21.3	39.8	19.9	10.5
65	.423	15.2	33.7	14.2	14.5
70	.342	9.9	27.2	9.3	19.4
75	.259	5.7	20.6	5.3	25.1
80	.174	2.6	13.8	2.4	31.4
85	.087	0.6	6.9	0.6	38.1
90	.001	0.0	0.1	0.0	44.9
Minimum Clearance above TGL:					<b>5.2 m</b>



Relative Field Elevation Pattern  
Model: PSIFML-1  
Type: 1-Bay FM Antenna  
Polarization: Circular  
Gain: .46 (-3.37 dB)





**Propagation Systems Inc.**  
 Elevation Pattern Tabulation  
 Antenna: PSIFML-1

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-90.00	0.001	-60.000	-50.00	0.643	-3.839	-10.00	0.985	-0.134
-89.00	0.017	-35.177	-49.00	0.656	-3.663	-9.00	0.988	-0.109
-88.00	0.035	-29.156	-48.00	0.669	-3.490	-8.00	0.990	-0.086
-87.00	0.052	-25.634	-47.00	0.682	-3.325	-7.00	0.992	-0.066
-86.00	0.070	-23.136	-46.00	0.695	-3.166	-6.00	0.994	-0.049
-85.00	0.087	-21.198	-45.00	0.707	-3.012	-5.00	0.996	-0.034
-84.00	0.104	-19.626	-44.00	0.719	-2.862	-4.00	0.997	-0.022
-83.00	0.122	-18.286	-43.00	0.731	-2.719	-3.00	0.998	-0.013
-82.00	0.139	-17.134	-42.00	0.743	-2.580	-2.00	0.999	-0.007
-81.00	0.156	-16.117	-41.00	0.755	-2.445	-1.00	1.000	-0.003
-80.00	0.174	-15.207	-40.00	0.766	-2.316	0.00	1.000	0.000
-79.00	0.191	-14.390	-39.00	0.777	-2.190	1.00	1.000	-0.003
-78.00	0.208	-13.644	-38.00	0.788	-2.071	2.00	0.999	-0.007
-77.00	0.225	-12.962	-37.00	0.798	-1.955	3.00	0.998	-0.013
-76.00	0.242	-12.330	-36.00	0.809	-1.842	4.00	0.997	-0.022
-75.00	0.259	-11.741	-35.00	0.819	-1.733	5.00	0.996	-0.034
-74.00	0.276	-11.194	-34.00	0.829	-1.630	6.00	0.994	-0.049
-73.00	0.292	-10.684	-33.00	0.839	-1.529	7.00	0.992	-0.066
-72.00	0.309	-10.203	-32.00	0.848	-1.432	8.00	0.990	-0.086
-71.00	0.325	-9.750	-31.00	0.857	-1.339	9.00	0.988	-0.109
-70.00	0.342	-9.320	-30.00	0.866	-1.251	10.00	0.985	-0.134
-69.00	0.358	-8.914	-29.00	0.875	-1.164	11.00	0.982	-0.162
-68.00	0.375	-8.530	-28.00	0.883	-1.082	12.00	0.978	-0.193
-67.00	0.391	-8.165	-27.00	0.891	-1.003	13.00	0.974	-0.227
-66.00	0.407	-7.815	-26.00	0.899	-0.928	14.00	0.970	-0.263
-65.00	0.423	-7.482	-25.00	0.906	-0.855	15.00	0.966	-0.301
-64.00	0.438	-7.164	-24.00	0.913	-0.786	16.00	0.961	-0.344
-63.00	0.454	-6.860	-23.00	0.920	-0.720	17.00	0.956	-0.389
-62.00	0.469	-6.569	-22.00	0.927	-0.657	18.00	0.951	-0.436
-61.00	0.485	-6.291	-21.00	0.933	-0.598	19.00	0.945	-0.487
-60.00	0.500	-6.023	-20.00	0.940	-0.542	20.00	0.940	-0.540
-59.00	0.515	-5.764	-19.00	0.945	-0.487	21.00	0.933	-0.598
-58.00	0.530	-5.517	-18.00	0.951	-0.437	22.00	0.927	-0.657
-57.00	0.545	-5.279	-17.00	0.956	-0.389	23.00	0.920	-0.720
-56.00	0.559	-5.050	-16.00	0.961	-0.344	24.00	0.913	-0.786
-55.00	0.573	-4.830	-15.00	0.966	-0.301	25.00	0.906	-0.855
-54.00	0.588	-4.616	-14.00	0.970	-0.263	26.00	0.899	-0.927
-53.00	0.602	-4.413	-13.00	0.974	-0.227	27.00	0.891	-1.003
-52.00	0.616	-4.214	-12.00	0.978	-0.193	28.00	0.883	-1.082
-51.00	0.629	-4.024	-11.00	0.982	-0.162	29.00	0.875	-1.164
						30.00	0.866	-1.251

file: FML 1-bay elevation tabulation

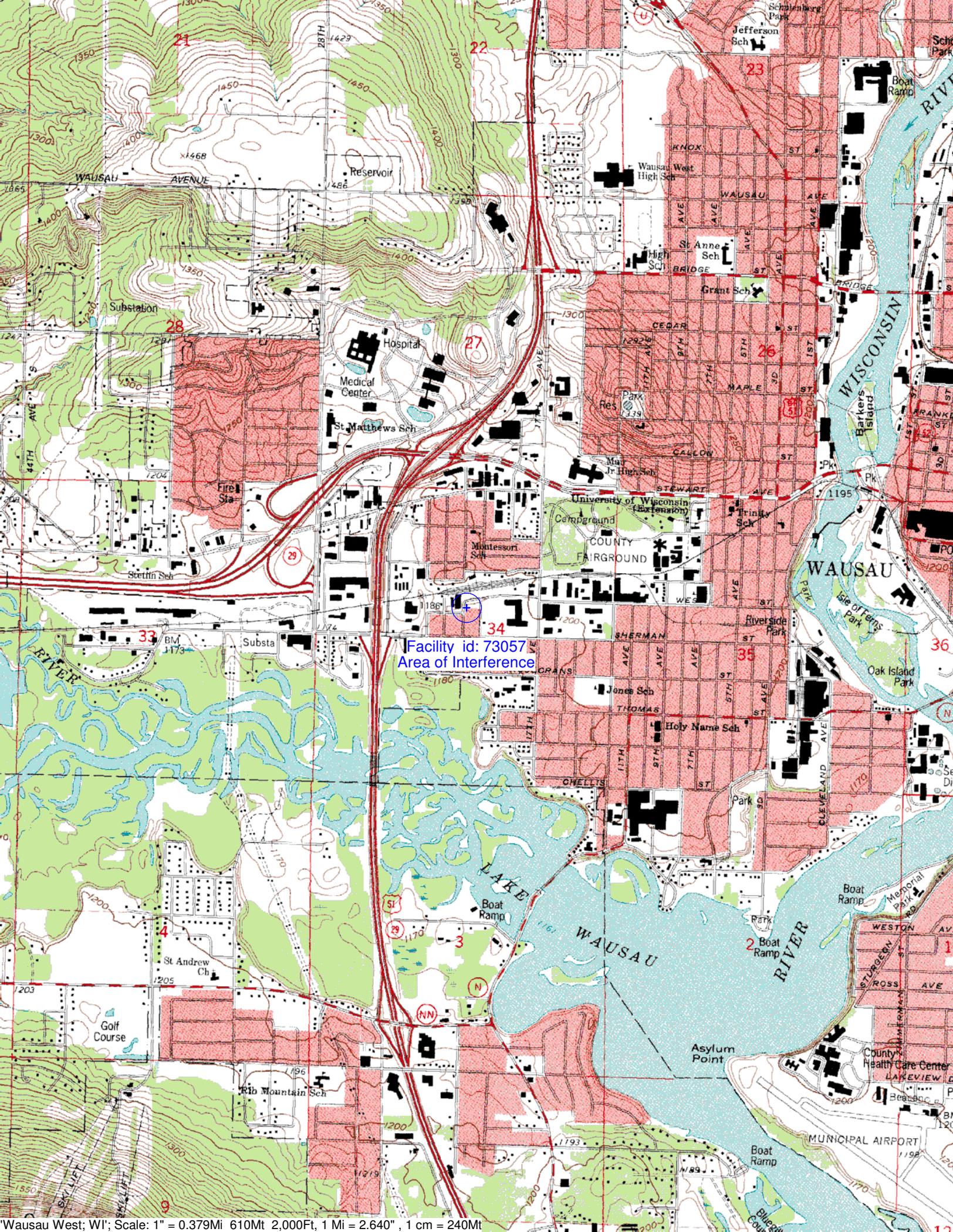
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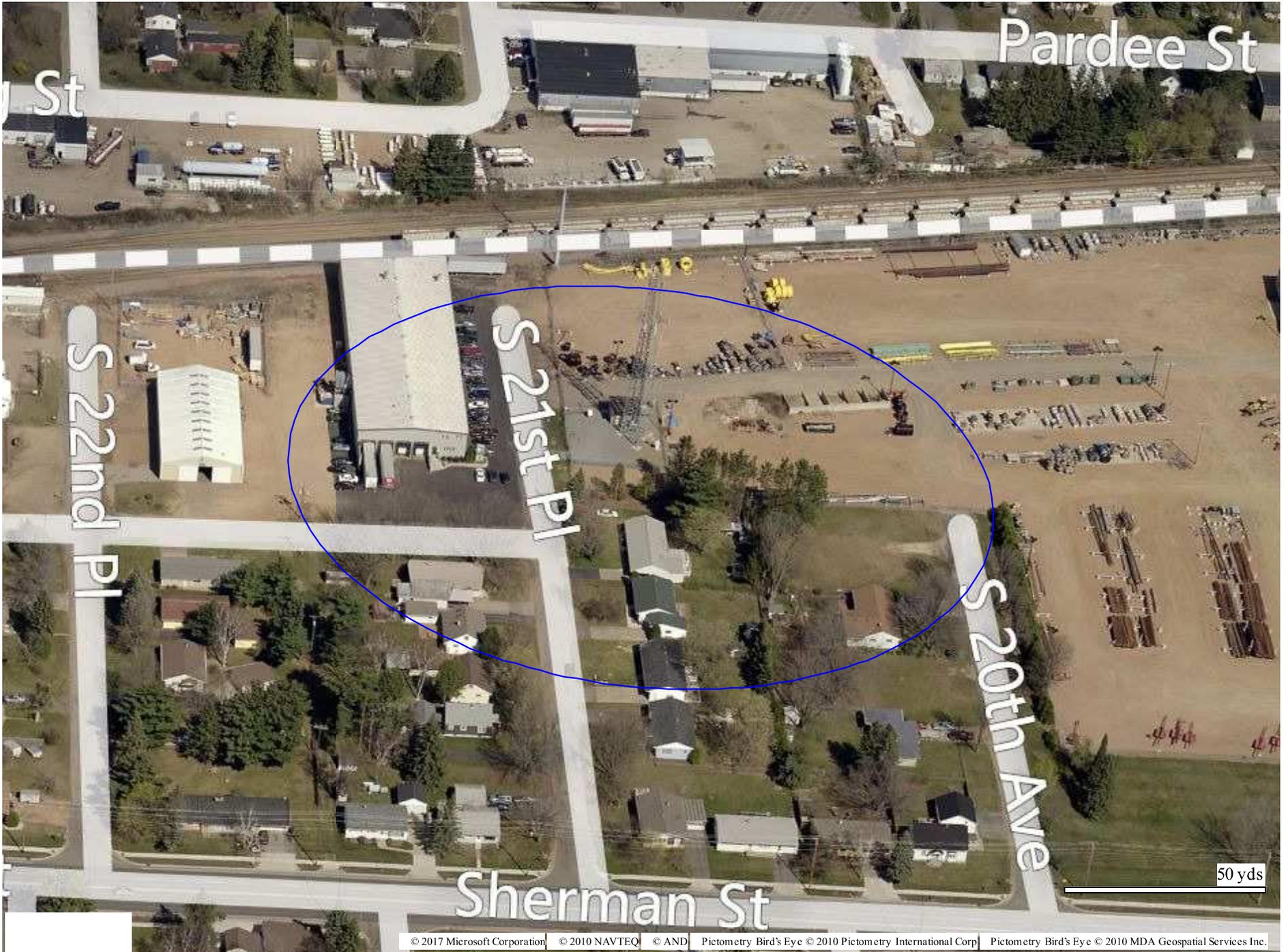
**Adjacent Channel Study  
For Station W218CC, Facility\_id: 73057**

**Co-channel through third adjacent:**

App_id	Fac_id	File_Number	Call	Licensee	Class	City	State	Status	ERP	RCAMSL	Char	Adj	Dist	Overlap
1209617	63031	BMLED-20071004AA	WLBL-FM	STATE OF WISCONSIN - EDUCAT	A	WAUSAU	WI	LIC	0.054	648	220	2	4.4	0.5072
1244777	72222	BMLED-20080430AC	WXPW	WHITE PINE COMMUNITY BROAC	A	WAUSAU	WI	LIC	0.054	645	220	2	4.4	0.5072
738992	63083	BLED-20031023AAF	WHRM	STATE OF WISCONSIN - EDUCAT	C0	WAUSAU	WI	LIC	81	715	215	3	4.4	0.5072
1481656	155144	BLFT-20111228ABQ	W221CN	MUZZY BROADCAST GROUP, LLC	D	MARSHFIELD	WI	LIC	0.25	440	221	3	46.5	0
1189085	122231	BLFT-20070601AFS	W217BO	WRVM, INC.	D	MARSHFIELD	WI	LIC	0.055	422	217	1	50.6	0
1638924	176219	BLED-20140527ABA	WGBT	RADIO 74 INTERNATIONALE	C3	TOMAHAWK	WI	LIC	22	513	217	1	74.8	0
1720477	175071	BLED-20160212AAN	WRAO	WISCONSIN RAPIDS SEVENTH-D	C2	WISCONSIN RAPI	WI	LIC	30	348	219	1	76.2	0
1201726	72220	BLED-20070913ABN	WXPR	WHITE PINE COMMUNITY BROAC	C1	RHINELANDER	WI	LIC	100	623	219	1	96.8	0



Facility id: 73057  
Area of Interference



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