

**Comprehensive Technical Statement****in support of****Music that Matters, Inc.****Application for Minor Change****WOVM (FM), Facility ID # 36786****Channel 216C2, 91.1 MHz****Appleton, WI*****Raleigh*<sup>1</sup> Waiver Requested****Introduction**

Music That Matters, Inc. proposes to modify its WOVM, facility ID 36786.

The following changes are proposed:

- Station Class
- Effective radiated power
- Directional antenna pattern

No change is proposed to the frequency, principal community, or transmitter location. Therefore, the application is for a minor change.

**Data Sources**

Distances were calculated using the FCC method defined in 73.208 of the Commission's Rules.

Except where otherwise noted, contours shown in this report were generated using antenna center above mean sea level, NAD-27 coordinates, and the FCC online HAAT calculator, which uses 30-second terrain data.

Tabulations were based on USGS03 terrain data.

<sup>1</sup> *Educational Information Corporation*, 6 FCC Rcd. 2207 (1991).

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## Allocation Study

The following table lists all conflicts that do not exceed the requirements of 73.207 by at least 25 km:

facid	adj	chan	status	call	st	city	erp	da	haat	brg	dkm	req	Δ
36786	0	216A	LIC	WOVM	WI	APPLETON	3.6	Y	127	0	0.00	166	-166.00
176342	1	215C3	CP	WXVM	WI	SHEBOYGAN	15	Y	35	132	63.84	117	-53.16
63083	1	215C0	LIC	WHRM	WI	WAUSAU	81	N	329	305	128.24	176	-47.76
90655	1	217A	LIC	WSTM	WI	KIEL	1.1	N	144	158	64.44	106	-41.56
69196	2	218A	LIC	WEMY	WI	GREEN BAY	0.71	N	226	70	32.34	55	-22.66
69196	2	218A	CP	WEMY	WI	GREEN BAY	0.71	N	226	70	32.34	55	-22.66
49537	0	216C1	LIC	WOLW	MI	CADILLAC	50	Y	213	89	211.84	224	-12.16
92563	1	217C3	LIC	WRMW	WI	PESHTIGO	5.4	N	170	47	106.82	117	-10.18
92563	1	217C3	CP	WRMW	WI	PESHTIGO	6.3	N	160	47	106.82	117	-10.18
172746	2	218A	CP	WAUP	WI	WAUPACA	3.9	Y	99	281	63.14	55	8.14
90675	3	219C3	LIC	WDKV	WI	FOND DU LAC	20	Y	108	185	66.99	56	10.99
131805	54	270L1	LIC	WOCT-LP	WI	OSHKOSH	0.1	N	26	208	30.10	12	18.10
60041	3	219A	LIC	WSHS	WI	SHEBOYGAN	0.18	N	26	136	74.89	55	19.89
11064	0	216B1	LIC	WGSL	IL	LOVES PARK	7	Y	161	194	221.58	200	21.58
23347	0	216A	LIC	WGTD	WI	KENOSHA	3.2	Y	62	167	188.20	166	22.20
175375	3	219A	CP	WQQA	WI	FORESTVILLE	4	Y	72	63	77.72	55	22.72

It will be shown in the detailed analysis below that no prohibited overlap will occur with any of these facilities.

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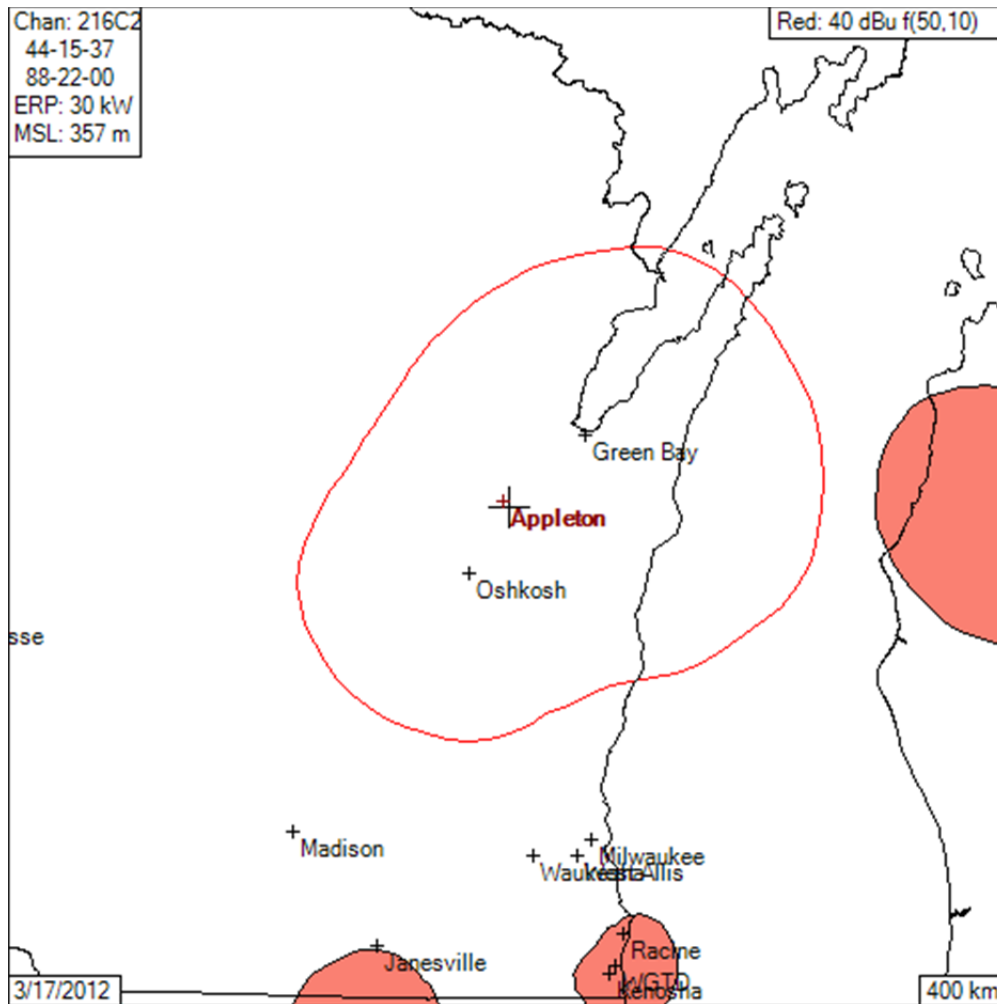
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## Detailed Interference Study

All outbound interference maps show the 60dbu f(50,50) protected contours of the conflicting records in black filled with salmon. The outbound interfering contour of the proposed facility is shown in red and labeled appropriately in the box in the upper-left corner of the map.

### Outbound co-channel



There is no overlap between the proposed 40 dBu f(50,10) contour and the 60 dBu f(50,50) contour of any conflict.

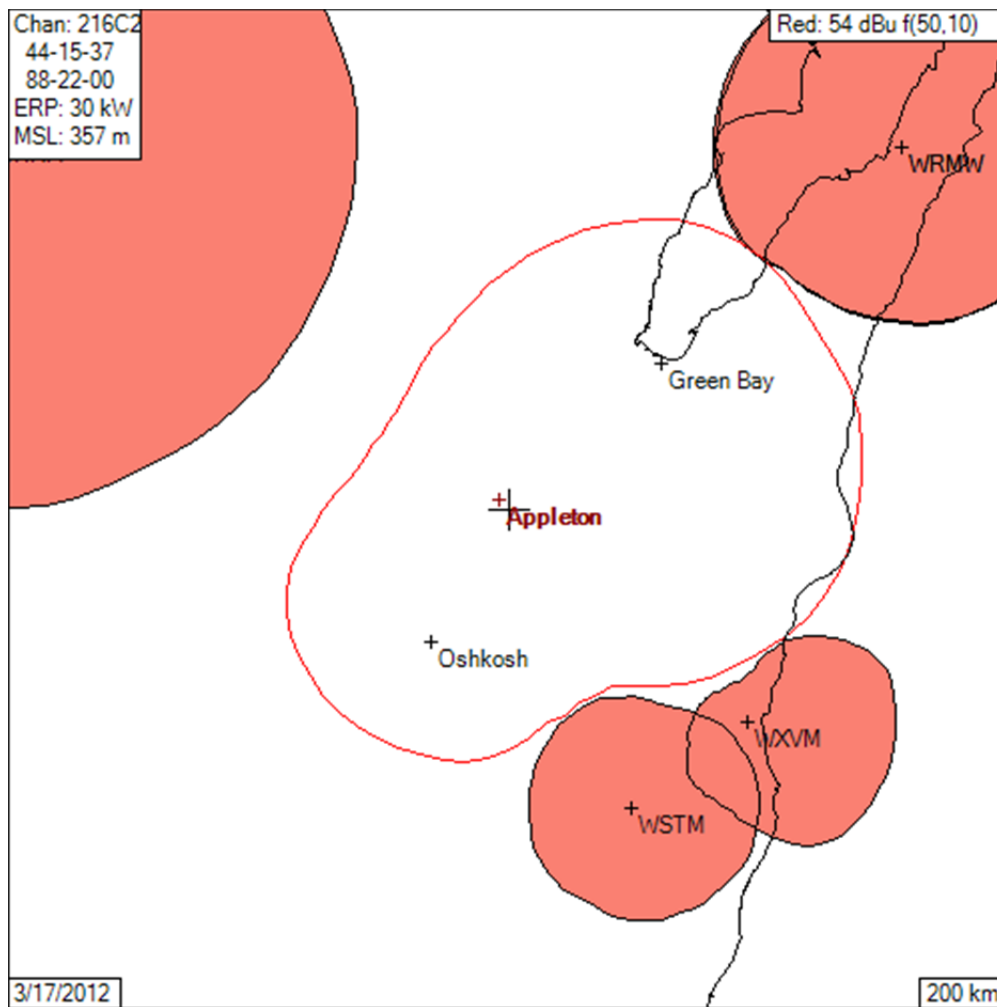
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## Outbound first adjacent



The proposed 54 dBu f(50,10) contour comes close to WRMW (LIC and CP), WXVM, and WSTM.

The tabulations on the following pages demonstrate that there is no prohibited overlap. The tabulations show the protected station's f(50,50) signal strength at each location along the contour, and the "margin" value, which is how close the protected station's signal is to 60 dBu. A positive margin indicates that the contours do not overlap. (For example, if the protected station's signal is 58 dBu, the margin is 2 dB.)

The tabulations are abbreviated to show only the regions in which the proposed 54 dBu f(50,10) contour falls nearest to the protected station's 60 dBu f(50,50) contour.

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### Outbound first adjacent interference tabulation – WRMW License:

WOVM Proposed 54 dBu f(50,10)						contour location		WRMV (LIC) f(50,50) calculations							
az	fld	erp	terht	eah	dist	lat	lon	dist	brg	fld	erp	terht	eah	f(50,50)	margin
36	0.938	26.418	211.5	145.5	68.64	44 45 31.98	87 51 19.23	41.67	246.9	1	6.3	177.3	178.7	57.82	2.18
37	0.949	27.007	211.2	145.8	68.98	44 45 17.35	87 50 26.20	40.79	245.7	1	6.3	177.4	178.6	58.27	1.73
38	0.959	27.602	211.1	145.9	69.30	44 45 01.51	87 49 33.81	39.96	244.4	1	6.3	177.3	178.7	58.71	1.29
39	0.970	28.204	210.9	146.1	69.61	44 44 44.82	87 48 41.73	39.16	243.0	1	6.3	177.8	178.2	59.10	0.90
40	0.980	28.812	210.8	146.2	69.92	44 44 27.28	87 47 49.98	38.41	241.5	1	6.3	179.1	176.9	59.43	0.57
41	0.982	28.930	210.6	146.4	70.01	44 44 03.55	87 47 05.23	37.92	239.8	1	6.3	180.7	175.3	59.61	0.39
42	0.984	29.048	209.9	147.1	70.17	44 43 40.91	87 46 18.88	37.41	238.1	1	6.3	183.0	173.0	59.76	0.24
43	0.986	29.166	209.4	147.6	70.31	44 43 17.12	87 45 33.68	36.97	236.3	1	6.3	186.3	169.7	59.82	0.18
44	0.988	29.284	208.9	148.1	70.45	44 42 52.74	87 44 48.98	36.60	234.4	1	6.3	190.1	165.9	59.81	0.19
45	0.990	29.403	208.4	148.6	70.57	44 42 27.46	87 44 05.22	36.29	232.5	1	6.3	193.6	162.4	59.77	0.23
46	0.992	29.522	208.1	148.9	70.68	44 42 01.23	87 43 22.56	36.06	230.6	1	6.3	197.4	158.6	59.68	0.32
47	0.994	29.641	207.8	149.2	70.77	44 41 34.01	87 42 41.14	35.91	228.6	1	6.3	203.1	152.9	59.41	0.59
48	0.996	29.761	207.6	149.4	70.86	44 41 06.15	87 42 00.49	35.83	226.7	1	6.3	209.5	146.5	59.06	0.94
49	0.998	29.880	208.0	149.0	70.86	44 40 35.90	87 41 23.56	35.91	224.7	1	6.3	211.4	144.6	58.90	1.10
50	1.000	30.000	208.4	148.6	70.85	44 40 05.02	87 40 47.65	36.05	222.7	1	6.3	211.0	145.0	58.85	1.15
51	1.000	30.000	208.4	148.6	70.85	44 39 33.87	87 40 12.25	36.25	220.8	1	6.3	210.1	145.9	58.80	1.20
52	1.000	30.000	208.3	148.7	70.87	44 39 02.76	87 39 36.74	36.49	218.9	1	6.3	208.8	147.2	58.75	1.25
53	1.000	30.000	208.1	148.9	70.89	44 38 31.19	87 39 02.03	36.79	217.0	1	6.3	208.0	148.0	58.64	1.36
54	1.000	30.000	208.1	148.9	70.90	44 37 58.81	87 38 28.80	37.17	215.2	1	6.3	208.2	147.8	58.43	1.57
55	1.000	30.000	208.2	148.8	70.88	44 37 25.73	87 37 57.00	37.62	213.4	1	6.3	209.0	147.0	58.14	1.86
56	1.000	30.000	208.3	148.7	70.86	44 36 52.04	87 37 26.50	38.14	211.7	1	6.3	210.2	145.8	57.79	2.21

### Outbound first adjacent interference tabulation – WRMW CP:

WOVM Proposed 54 dBu f(50,10)						contour location		WRMV (CP) f(50,50) calculations							
az	fld	erp	terht	eah	dist	lat	lon	dist	brg	fld	erp	terht	eah	f(50,50)	margin
37	0.949	27.007	211.2	145.8	68.98	44 45 17.35	87 50 26.20	40.79	245.7	1	5.4	177.4	187.6	57.99	2.01
38	0.959	27.602	211.1	145.9	69.30	44 45 01.51	87 49 33.81	39.96	244.4	1	5.4	177.3	187.7	58.43	1.57
39	0.970	28.204	210.9	146.1	69.61	44 44 44.82	87 48 41.73	39.16	243.0	1	5.4	177.8	187.2	58.83	1.17
40	0.980	28.812	210.8	146.2	69.92	44 44 27.28	87 47 49.98	38.41	241.5	1	5.4	179.1	185.9	59.17	0.83
41	0.982	28.930	210.6	146.4	70.01	44 44 03.55	87 47 05.23	37.92	239.8	1	5.4	180.7	184.3	59.36	0.64
42	0.984	29.048	209.9	147.1	70.17	44 43 40.91	87 46 18.88	37.41	238.1	1	5.4	183.0	182.0	59.52	0.48
43	0.986	29.166	209.4	147.6	70.31	44 43 17.12	87 45 33.68	36.97	236.3	1	5.4	186.3	178.7	59.60	0.40
44	0.988	29.284	208.9	148.1	70.45	44 42 52.74	87 44 48.98	36.60	234.4	1	5.4	190.1	174.9	59.62	0.38
45	0.990	29.403	208.4	148.6	70.57	44 42 27.46	87 44 05.22	36.29	232.5	1	5.4	193.6	171.4	59.60	0.40
46	0.992	29.522	208.1	148.9	70.68	44 42 01.23	87 43 22.56	36.06	230.6	1	5.4	197.4	167.6	59.52	0.48
47	0.994	29.641	207.8	149.2	70.77	44 41 34.01	87 42 41.14	35.91	228.6	1	5.4	203.1	161.9	59.27	0.73
48	0.996	29.761	207.6	149.4	70.86	44 41 06.15	87 42 00.49	35.83	226.7	1	5.4	209.5	155.5	58.94	1.06
49	0.998	29.880	208.0	149.0	70.86	44 40 35.90	87 41 23.56	35.91	224.7	1	5.4	211.4	153.6	58.79	1.21
50	1.000	30.000	208.4	148.6	70.85	44 40 05.02	87 40 47.65	36.05	222.7	1	5.4	211.0	154.0	58.73	1.27
51	1.000	30.000	208.4	148.6	70.85	44 39 33.87	87 40 12.25	36.25	220.8	1	5.4	210.1	154.9	58.68	1.32
52	1.000	30.000	208.3	148.7	70.87	44 39 02.76	87 39 36.74	36.49	218.9	1	5.4	208.8	156.2	58.63	1.37
53	1.000	30.000	208.1	148.9	70.89	44 38 31.19	87 39 02.03	36.79	217.0	1	5.4	208.0	157.0	58.52	1.48
54	1.000	30.000	208.1	148.9	70.90	44 37 58.81	87 38 28.80	37.17	215.2	1	5.4	208.2	156.8	58.32	1.68
55	1.000	30.000	208.2	148.8	70.88	44 37 25.73	87 37 57.00	37.62	213.4	1	5.4	209.0	156.0	58.03	1.97
56	1.000	30.000	208.3	148.7	70.86	44 36 52.04	87 37 26.50	38.14	211.7	1	5.4	210.2	154.8	57.69	2.31

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### Outbound first adjacent interference tabulation – WXVM:

WOVM Proposed 54 dBu f(50,10)						contour location		WXVM f(50,50) calculations								
az	fld	erp	terht	eah	dist	lat	lon	dist	brg	fld	erp	terht	eah	f(50,50)	margin	
111	0.862	22.291	237.9	119.1	62.05	44 03 28.30	87 38 28.42	22.55	27.5	0.421	2.665	185.3	60.7	56.48	3.52	
112	0.844	21.370	238.4	118.6	61.45	44 03 03.18	87 39 11.60	21.43	26.2	0.410	2.516	186.5	59.5	57.02	2.98	
113	0.826	20.468	238.5	118.5	60.90	44 02 38.37	87 39 53.45	20.33	24.8	0.397	2.363	189.1	56.9	57.32	2.68	
114	0.808	19.586	238.7	118.3	60.32	44 02 14.62	87 40 36.48	19.27	23.2	0.382	2.187	191.4	54.6	57.56	2.44	
115	0.790	18.723	239.0	118.0	59.74	44 01 51.76	87 41 20.03	18.25	21.3	0.364	1.992	194.5	51.5	57.54	2.46	
116	0.772	17.880	239.1	117.9	59.18	44 01 29.52	87 42 03.34	17.27	19.1	0.347	1.802	196.8	49.2	57.59	2.41	
117	0.754	17.056	239.3	117.7	58.60	44 01 08.44	87 42 47.83	16.35	16.6	0.328	1.618	199.4	46.6	57.48	2.52	
118	0.736	16.251	239.5	117.5	58.00	44 00 48.43	87 43 33.18	15.49	13.7	0.307	1.418	202.9	43.1	57.03	2.97	
119	0.718	15.466	239.8	117.2	57.39	44 00 29.46	87 44 19.22	14.70	10.3	0.283	1.205	208.4	37.6	55.98	4.02	

### Outbound first adjacent interference tabulation – WSTM:

WOVM Proposed 54 dBu f(50,10)						contour location		WSTM f(50,50) calculations								
az	fld	erp	terht	eah	dist	lat	lon	dist	brg	fld	erp	terht	eah	f(50,50)	margin	
151	0.377	4.264	257.3	99.7	40.08	43 56 40.40	88 07 25.70	25.07	349.0	1	1.1	297.8	140.2	57.82	2.18	
152	0.374	4.196	255.8	101.2	40.20	43 56 26.21	88 07 50.88	24.76	347.6	1	1.1	295.9	142.1	58.18	1.82	
153	0.371	4.129	255.2	101.8	40.16	43 56 16.83	88 08 19.67	24.63	346.0	1	1.1	295.7	142.3	58.30	1.70	
154	0.368	4.063	254.4	102.6	40.15	43 56 07.20	88 08 48.23	24.5	344.4	1	1.1	296.1	141.9	58.37	1.63	
155	0.365	3.997	253.3	103.7	40.20	43 55 56.04	88 09 15.79	24.35	342.7	1	1.1	297.5	140.5	58.41	1.59	
156	0.362	3.931	252.0	105.0	40.26	43 55 44.71	88 09 43.34	24.21	341.1	1	1.1	299.1	138.9	58.42	1.58	
157	0.359	3.866	250.5	106.5	40.37	43 55 32.50	88 10 10.49	24.06	339.5	1	1.1	300.4	137.6	58.47	1.53	
158	0.356	3.802	249.1	107.9	40.45	43 55 21.40	88 10 38.45	23.97	337.8	1	1.1	300.5	137.5	58.53	1.47	
159	0.353	3.738	247.7	109.3	40.52	43 55 10.79	88 11 06.82	23.92	336.1	1	1.1	300.2	137.8	58.59	1.41	
160	0.350	3.675	245.6	111.4	40.69	43 54 57.64	88 11 34.04	23.81	334.4	1	1.1	299.8	138.2	58.71	1.29	
161	0.350	3.675	243.9	113.1	40.98	43 54 41.25	88 12 00.02	23.61	332.6	1	1.1	301.1	136.9	58.78	1.22	
162	0.350	3.675	241.8	115.2	41.31	43 54 23.74	88 12 25.97	23.42	330.7	1	1.1	303.7	134.3	58.78	1.22	
163	0.350	3.675	239.0	118.0	41.72	43 54 03.94	88 12 51.50	23.18	328.7	1	1.1	304.6	133.4	58.92	1.08	
164	0.350	3.675	236.6	120.4	42.07	43 53 46.63	88 13 18.70	23.05	326.8	1	1.1	305.2	132.8	58.98	1.02	
165	0.350	3.675	234.9	122.1	42.30	43 53 33.09	88 13 47.86	23.08	324.8	1	1.1	303.7	134.3	59.06	0.94	
166	0.350	3.675	233.1	123.9	42.53	43 53 19.75	88 14 17.46	23.14	322.9	1	1.1	303.3	134.7	59.04	0.96	
167	0.350	3.675	232.3	124.7	42.64	43 53 10.81	88 14 48.85	23.35	321.1	1	1.1	303.7	134.3	58.83	1.17	
168	0.350	3.675	232.1	124.9	42.66	43 53 04.84	88 15 21.29	23.68	319.5	1	1.1	303.7	134.3	58.57	1.43	
169	0.350	3.675	232.0	125.0	42.67	43 52 59.71	88 15 54.00	24.04	317.9	1	1.1	304.6	133.4	58.22	1.78	
170	0.350	3.675	232.0	125.0	42.68	43 52 55.19	88 16 26.88	24.44	316.4	1	1.1	306.0	132.0	57.81	2.19	

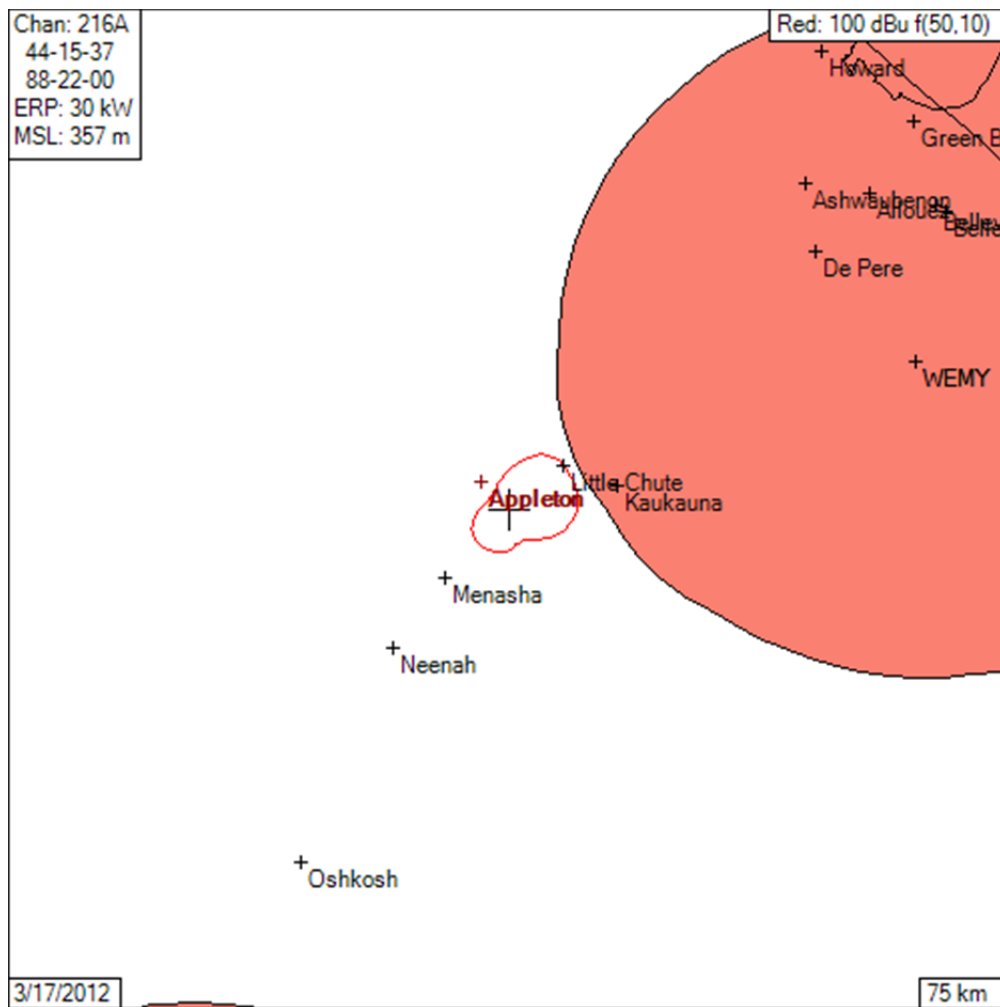
Positive margins in all cases demonstrate that there is no overlap of the proposed 54 dBu f(50,50) contour with the 60 dBu f(50,50) contour of any of the nearby conflicts.

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## Outbound second and third adjacent



The only nearby second or third adjacent conflict is WEMY. There is no overlap.

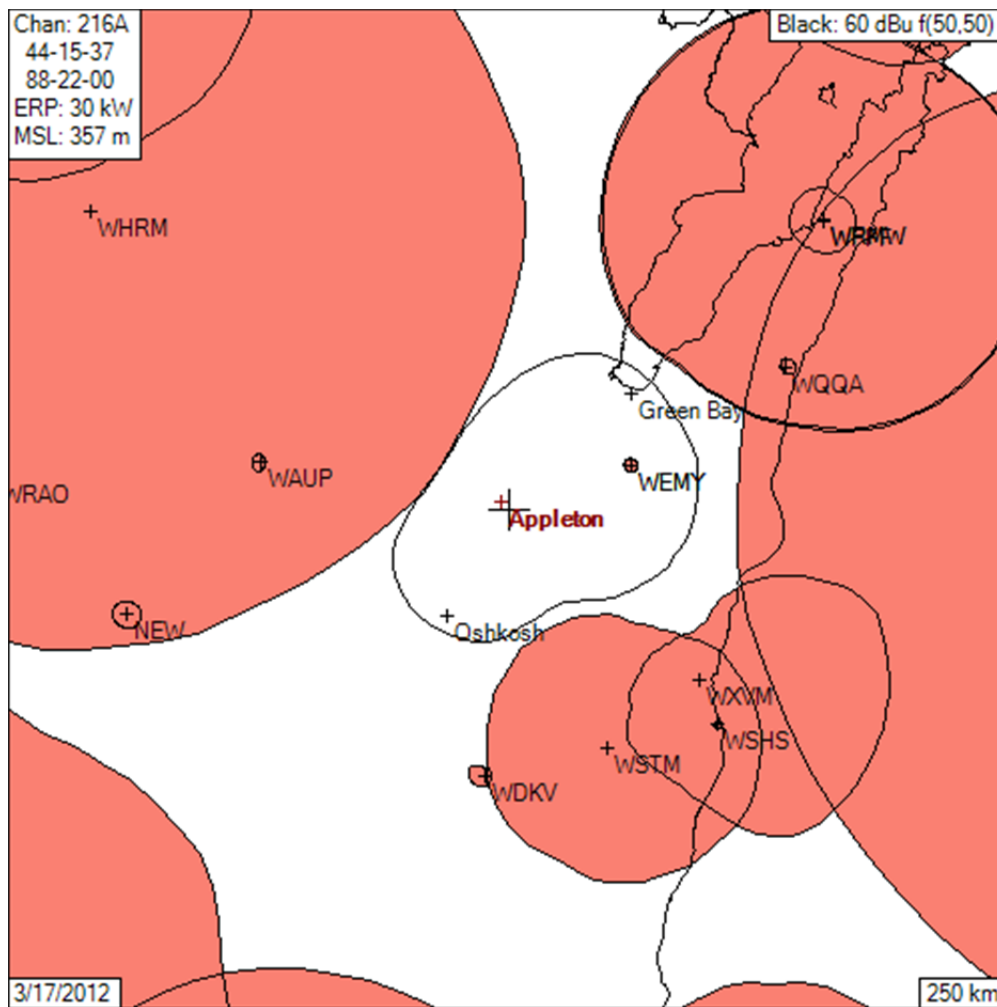
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## Inbound



The only inbound conflicts with potential prohibited contour overlap are WHRM and WEMY.

WEMY is second adjacent and within the proposed 60 dBu f(50,50) contour. A *Raleigh* waiver is requested with respect to this conflict. Full details are provided on a following page.

WHRM is first adjacent. A tabulation is provided on the next two pages to demonstrate that no overlap exists.

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## Inbound Interference Tabulation – WHRM (page 1)

In this case, the left-hand side of the tabulation reflects computations of the location of the proposed WOVN protected contour and the right-hand side the computations of inbound signal strength from WHRM. Again, a positive margin indicates that the contours clear. All margins are positive, and there is no overlap.

WOVN Proposed 60 dBu f(50,50)						contour location		WHRM f (50,10) calculations							
az	fld	erp	terht	eah	dist	lat	lon	dist	brg	fld	erp	terht	eah	f(50,10)	margin
268	0.291	2.547	243.7	113.3	24.73	44 15 07.53	88 40 37.66	109.55	132.4	1	81	367.9	347.1	53.50	0.50
269	0.284	2.423	243.4	113.6	24.48	44 15 21.67	88 40 27.34	109.42	132.2	1	81	367.5	347.5	53.55	0.45
270	0.277	2.302	243.1	113.9	24.23	44 15 35.54	88 40 16.15	109.32	131.9	1	81	367.2	347.8	53.59	0.41
271	0.271	2.208	243.1	113.9	24.00	44 15 49.14	88 40 05.61	109.21	131.7	1	81	366.8	348.2	53.64	0.36
272	0.266	2.116	243.5	113.5	23.73	44 16 02.43	88 39 52.88	109.14	131.4	1	81	366.5	348.5	53.67	0.33
273	0.260	2.026	243.8	113.2	23.47	44 16 15.43	88 39 40.38	109.08	131.2	1	81	366.2	348.8	53.70	0.30
274	0.254	1.939	243.9	113.1	23.22	44 16 28.15	88 39 28.27	109.02	130.9	1	81	365.9	349.1	53.73	0.27
275	0.249	1.853	243.9	113.1	22.99	44 16 40.61	88 39 16.32	108.96	130.7	1	81	365.8	349.2	53.74	0.26
276	0.243	1.769	243.7	113.3	22.76	44 16 52.81	88 39 04.32	108.91	130.4	1	81	365.8	349.2	53.76	0.24
277	0.237	1.687	243.5	113.5	22.53	44 17 04.72	88 38 52.06	108.88	130.2	1	81	365.8	349.2	53.77	0.23
278	0.231	1.606	243.4	113.6	22.29	44 17 16.28	88 38 38.84	108.87	130.0	1	81	365.8	349.2	53.77	0.23
279	0.226	1.528	243.5	113.5	22.02	44 17 27.40	88 38 24.14	108.89	129.7	1	81	365.9	349.1	53.76	0.24
280	0.220	1.452	243.9	113.1	21.72	44 17 38.06	88 38 08.18	108.95	129.5	1	81	366.1	348.9	53.74	0.26
281	0.217	1.413	244.3	112.7	21.54	44 17 49.05	88 37 57.11	108.92	129.2	1	81	366.2	348.8	53.74	0.26
282	0.214	1.374	244.6	112.4	21.37	44 17 59.87	88 37 46.30	108.89	129.0	1	81	366.2	348.8	53.75	0.25
283	0.211	1.336	244.5	112.5	21.24	44 18 10.71	88 37 36.78	108.84	128.8	1	81	366.1	348.9	53.77	0.23
284	0.208	1.298	244.4	112.6	21.10	44 18 21.32	88 37 26.76	108.80	128.6	1	81	366.2	348.8	53.77	0.23
285	0.205	1.261	243.8	113.2	21.01	44 18 32.12	88 37 18.63	108.73	128.4	1	81	366.4	348.6	53.78	0.22
286	0.202	1.224	243.1	113.9	20.91	44 18 42.76	88 37 10.25	108.67	128.2	1	81	366.6	348.4	53.79	0.21
287	0.199	1.188	242.7	114.3	20.81	44 18 53.09	88 37 00.87	108.63	128.0	1	81	366.9	348.1	53.79	0.21
288	0.196	1.153	242.3	114.7	20.69	44 19 03.15	88 36 50.88	108.61	127.8	1	81	367.1	347.9	53.78	0.22
289	0.193	1.118	241.7	115.3	20.58	44 19 13.15	88 36 41.25	108.59	127.6	1	81	367.4	347.6	53.78	0.22
290	0.190	1.083	241.0	116.0	20.48	44 19 23.03	88 36 31.57	108.57	127.4	1	81	367.6	347.4	53.78	0.22
291	0.189	1.069	240.4	116.6	20.47	44 19 33.77	88 36 25.52	108.47	127.2	1	81	367.8	347.2	53.80	0.20
292	0.188	1.056	239.6	117.4	20.47	44 19 44.49	88 36 19.43	108.37	127.1	1	81	368.0	347.0	53.81	0.19
293	0.186	1.042	239.2	117.8	20.44	44 19 54.83	88 36 12.07	108.31	126.9	1	81	368.2	346.8	53.82	0.18
294	0.185	1.029	239.2	117.8	20.37	44 20 04.61	88 36 03.02	108.29	126.7	1	81	368.5	346.5	53.82	0.18
295	0.184	1.016	239.2	117.8	20.31	44 20 14.27	88 35 53.86	108.27	126.5	1	81	368.7	346.3	53.81	0.19
296	0.183	1.003	239.2	117.8	20.24	44 20 23.67	88 35 44.15	108.26	126.3	1	81	368.8	346.2	53.81	0.19
297	0.182	0.989	239.3	117.7	20.17	44 20 32.88	88 35 34.17	108.27	126.1	1	81	369.0	346.0	53.80	0.20
298	0.180	0.976	239.6	117.4	20.08	44 20 41.61	88 35 23.12	108.30	125.9	1	81	369.2	345.8	53.78	0.22
299	0.179	0.963	239.8	117.2	20.00	44 20 50.33	88 35 12.37	108.34	125.7	1	81	369.5	345.5	53.76	0.24
300	0.178	0.951	239.9	117.1	19.92	44 20 59.01	88 35 01.75	108.37	125.5	1	81	369.7	345.3	53.74	0.26

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## Inbound Interference Tabulation – WHRM (page 2)

WOVM Proposed 60 dBu f(50,50)						contour location		WHRM f (50,10) calculations							
az	fld	erp	terht	eah	dist	lat	lon	dist	brg	fld	erp	terht	eah	f(50,10)	margin
301	0.178	0.953	240.0	117.0	19.93	44 21 08.81	88 34 53.97	108.33	125.3	1	81	370.0	345.0	53.74	0.26
302	0.178	0.955	240.1	116.9	19.93	44 21 18.43	88 34 45.76	108.30	125.2	1	81	370.2	344.8	53.74	0.26
303	0.179	0.957	240.2	116.8	19.93	44 21 27.94	88 34 37.31	108.28	125.0	1	81	370.4	344.6	53.74	0.26
304	0.179	0.959	240.4	116.6	19.93	44 21 37.33	88 34 28.60	108.27	124.8	1	81	370.6	344.4	53.74	0.26
305	0.179	0.961	240.5	116.5	19.93	44 21 46.63	88 34 19.70	108.26	124.6	1	81	370.8	344.2	53.73	0.27
306	0.179	0.963	240.4	116.6	19.95	44 21 56.27	88 34 11.46	108.24	124.4	1	81	370.9	344.1	53.73	0.27
307	0.179	0.966	240.1	116.9	19.99	44 22 06.03	88 34 03.36	108.21	124.2	1	81	371.1	343.9	53.73	0.27
308	0.180	0.968	239.6	117.4	20.03	44 22 15.99	88 33 55.53	108.18	124.1	1	81	371.3	343.7	53.73	0.27
309	0.180	0.970	239.3	117.7	20.07	44 22 25.63	88 33 47.01	108.17	123.9	1	81	371.4	343.6	53.73	0.27
310	0.180	0.972	239.5	117.5	20.07	44 22 34.34	88 33 36.82	108.20	123.7	1	81	371.5	343.5	53.71	0.29
311	0.181	0.983	239.5	117.5	20.12	44 22 44.05	88 33 28.27	108.19	123.5	1	81	371.7	343.3	53.71	0.29
312	0.182	0.994	238.9	118.1	20.23	44 22 54.91	88 33 21.37	108.13	123.3	1	81	371.7	343.3	53.73	0.27
313	0.183	1.005	237.8	119.2	20.37	44 23 06.49	88 33 15.30	108.04	123.1	1	81	371.7	343.3	53.75	0.25
314	0.184	1.016	236.9	120.1	20.49	44 23 17.62	88 33 08.25	107.98	122.9	1	81	371.8	343.2	53.77	0.23
315	0.185	1.027	236.3	120.7	20.59	44 23 28.20	88 33 00.15	107.95	122.7	1	81	372.0	343.0	53.77	0.23
316	0.186	1.038	235.7	121.3	20.69	44 23 38.65	88 32 51.63	107.93	122.5	1	81	372.2	342.8	53.76	0.24
317	0.187	1.049	235.3	121.7	20.78	44 23 48.76	88 32 42.45	107.93	122.3	1	81	372.4	342.6	53.75	0.25
318	0.188	1.060	234.8	122.2	20.87	44 23 58.89	88 32 33.10	107.93	122.1	1	81	372.7	342.3	53.74	0.26
319	0.189	1.072	234.8	122.2	20.92	44 24 08.12	88 32 22.46	107.98	121.9	1	81	373.1	341.9	53.71	0.29
320	0.190	1.083	235.0	122.0	20.96	44 24 16.65	88 32 10.88	108.05	121.7	1	81	373.5	341.5	53.68	0.32
321	0.193	1.118	235.2	121.8	21.10	44 24 27.83	88 32 02.22	108.03	121.5	1	81	373.9	341.1	53.67	0.33
322	0.196	1.153	235.1	121.9	21.26	44 24 39.43	88 31 53.73	108.00	121.3	1	81	374.2	340.8	53.66	0.34
323	0.199	1.188	234.9	122.1	21.43	44 24 51.16	88 31 45.05	107.97	121.1	1	81	374.6	340.4	53.66	0.34
324	0.202	1.224	234.7	122.3	21.60	44 25 02.80	88 31 35.94	107.95	120.9	1	81	374.8	340.2	53.65	0.35
325	0.205	1.261	234.3	122.7	21.79	44 25 14.77	88 31 26.82	107.93	120.6	1	81	375.0	340.0	53.65	0.35
326	0.208	1.298	233.8	123.2	21.97	44 25 26.73	88 31 17.33	107.92	120.4	1	81	375.2	339.8	53.64	0.36
327	0.211	1.336	233.5	123.5	22.14	44 25 38.15	88 31 06.98	107.93	120.2	1	81	375.5	339.5	53.63	0.37
328	0.214	1.374	233.4	123.6	22.29	44 25 49.10	88 30 55.92	107.97	120.0	1	81	375.8	339.2	53.60	0.40
329	0.217	1.413	233.5	123.5	22.43	44 25 59.66	88 30 44.22	108.02	119.8	1	81	376.1	338.9	53.58	0.42
330	0.220	1.452	233.5	123.5	22.57	44 26 09.98	88 30 32.07	108.09	119.5	1	81	376.4	338.6	53.54	0.46
331	0.226	1.528	233.9	123.1	22.81	44 26 23.16	88 30 21.89	108.09	119.3	1	81	376.8	338.2	53.53	0.47
332	0.231	1.606	234.2	122.8	23.05	44 26 35.97	88 30 10.98	108.10	119.0	1	81	377.1	337.9	53.51	0.49
333	0.237	1.687	234.7	122.3	23.27	44 26 48.42	88 29 59.40	108.13	118.8	1	81	377.3	337.7	53.50	0.50

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## ***Raleigh* Waiver**

The 100 dBu f(50,10) interfering contour of WEMY falls entirely within the proposed 60 dBu f(50,50) contour. WEMY is second-adjacent, and a *Raleigh* waiver is requested.

As pointed out above, the proposed 100 dBu f(50,10) contour does not overlap the WEMY 60 dBu f(50,50) contour. Therefore, the applicant does not propose interference to WEMY.

The present 60 dBu f(50,50) contour of WOVM encompasses 2,260 km<sup>2</sup>. The 2010 census population is 301,846.

The proposed 60 dBu f(50,50) contour encompasses 3,758 km<sup>2</sup>, an increase of 66%. The 2010 census population count within the contour is 576,355, an increase of 91%.

The area within the WEMY 100 dBu f(50,10) contour is 9 km<sup>2</sup>, 0.2% of the area of the proposed 60 dBu f(50,50) contour. The 2010 census population within the WEMY 100 dBu f(50,10) contour is 149, 0.03% of the total population covered.

In addition, the proposed facility would provide a second NC/E service to 3,200 persons.

The proposal therefore satisfies the requirements of the *Raleigh* waiver in that a substantial improvement in coverage will result, and the area and population in the interference area will amount to less than 10% of the total proposed coverage area.

## **Blanketing Interference**

With a 30 kW ERP, the blanketing area falls within a radius of 2.16 km. The area of the blanketing contour is 14.66 km<sup>2</sup>. The 2010 census population within this area is 15,421, or 4.4% of the total population covered. The applicant commits to resolving blanketing interference complaints in compliance with 73.318.

## **Channel 6 Interference**

There are no digital channel 6 television stations within 470 km of the transmitter site.

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## Second NC/E Service

### SKYWAVES NCE/FM POPULATION COUNT REPORT

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#### Population by current servers

0 people are currently served by 0 stations.  
3,200 people are currently served by 1 stations.  
58,732 people are currently served by 2 stations.  
33,492 people are currently served by 3 stations.  
480,931 people are currently served by four or more stations.

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#### SUMMARY

0 people would receive a FIRST NCE/FM service.  
3,200 people would receive a SECOND NCE/FM service.  
3,200 people would receive a FIRST OR SECOND NCE/FM service.

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#### SERVERS

WEMI	220	WI	APPLETON
WEMY	218	WI	GREEN BAY
WHID	201	WI	GREEN BAY
WORQ	211	WI	GREEN BAY
WOVM	216	WI	APPLETON
WPFF	213	WI	STURGEON BAY
WPNE	207	WI	GREEN BAY
WRST-FM	212	WI	OSHKOSH
WVFL	210	WI	FOND DU LAC

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#### PARAMETERS

Run Time: 3/17/2012 5:54:03 PM  
Call Omitted: < none >

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## Transmitter Location

### Tower data:

Coordinates (NAD-27) 44 15 37 N Lat  
88 22 00 W Lon

ASR 1037794

### Antenna data:

Description Two-bay custom-pattern CP directional antenna

Interbay spacing 0.5  $\lambda$

Antenna center 128 m AGL  
357 m AMSL  
127 m AAT (from FCC online HAAT calculator)

### ERP:

Horizontal 30.0 kW  
Vertical 30.0 kW

### Pattern:

brg	rel fld	brg	rel fld	brg	rel fld
0	0.439	120	0.700	240	0.500
10	0.553	130	0.590	250	0.440
20	0.696	140	0.470	260	0.349
30	0.876	150	0.380	270	0.277
40	0.980	160	0.350	280	0.220
50	1.000	170	0.350	290	0.190
60	1.000	180	0.440	300	0.178
70	1.000	190	0.500	310	0.180
80	1.000	200	0.520	320	0.190
90	1.000	210	0.540	330	0.220
100	0.980	220	0.540	340	0.277
110	0.880	230	0.520	350	0.349

This pattern meets the requirements of 73.510(b) in that the maximum directivity is 15db (300°), and no ten degree increment exceeds 2 dB.

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## **International**

The FM Agreements with Canada and Mexico require evaluation and potential coordination of any proposal within 320 km of the border.

The distance to the nearest point along the US/Canada border is 385 km. Coordination with Canada is not required.

The distance to the nearest point along the US/Mexico border is 1,977 km. Coordination with Mexico is not required.

## **Quiet Zone Calculations**

The proposed site is outside the National Radio Quiet Zone (National Radio Astronomy Observatory Notification Area) in West Virginia.

The proposed site is outside the Arecibo Observatory notification area in Puerto Rico.

The proposed site is not within a 100km extension of the Table Mountain Radio Receiving Zone in Colorado.

## **Protected Monitoring Stations**

The nearest Protected Monitoring Station is 268 km distant, in Allegan, MI.

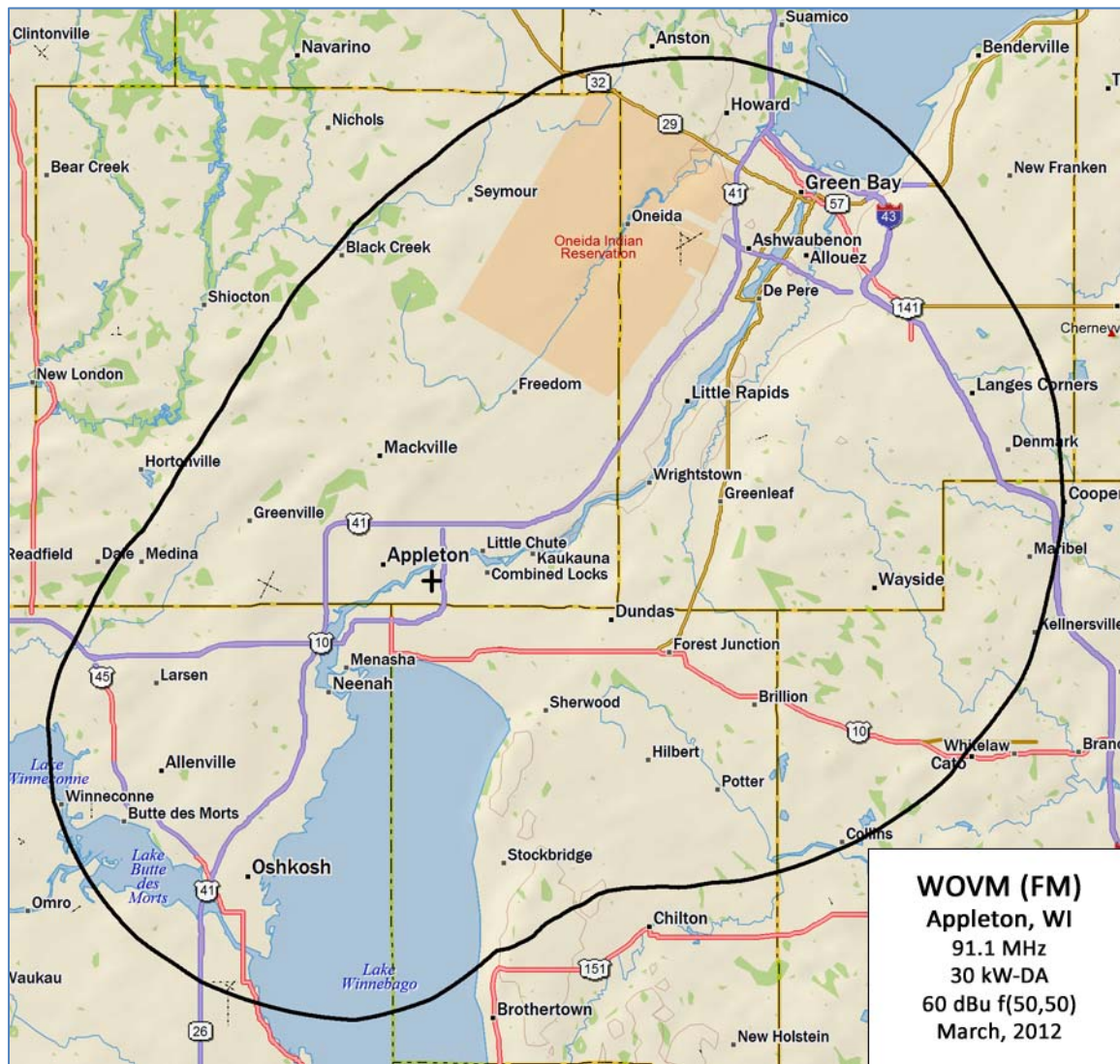
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## Coverage



Area within 60 dBu f(50,50) contour: 3,758 km<sup>2</sup>  
Population within 60 dBu f(50,50) contour: 576,355  
Second NC/E service population: 3,200

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## Principal Community Coverage

The entire principal community of Appleton is contained within the 60 dBu f(50,50) contour.

## Environmental

The proposed two-bay directional  $0.5\lambda$ -spaced antenna will replace an existing omnidirectional antenna of similar design on the same tower at the same height above ground of 127 m. No new construction is planned.

For the worst-case antenna, FMMODEL returns a maximum exposure of  $15.2 \mu\text{W}/\text{cm}^2$ .

Also on the tower is a 250 W translator, W237AA, at 119 m AGL. That contributes  $0.7 \mu\text{W}/\text{cm}^2$ .

Proposed for the tower is a new translator, facility id 155122, with 10 W at 141 m AGL. Its contribution is less than  $0.1 \mu\text{W}/\text{cm}^2$ .

The total exposure will be on the order of  $16 \mu\text{W}/\text{cm}^2$ , which is 8% of the limit for casual / uncontrolled exposure.

## Conclusion

A grant of this application and the requested *Raleigh* waiver will allow WOVM to nearly double the population it serves, and will provide a second NC/E service to 3,200 persons.

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