

Exhibit 18.1

Tabulation of Proposed NCE-FM Allocation

Interlochen Center For The Arts											
REFERENCE		CH# 203C1 - 88.5 MHz, Pwr= 50 kW DA, HAAT= 238.6 M, COR= 471 M								DI SPLAY DATES	
45 34 07.0 N.		Average Protected F(50-50)= 60.63 km								DATA 03-09-15	
85 02 35.0 W.		Standard Directional								SEARCH 03-09-15	
CH	CALL	TYPE	ANT	AZI	DIST	LAT	PWR(kW)	INT(km)	PRO(km)	*IN*	*OUT*
CITY		STATE		<--	FILE #	LNG	HAAT(M)	COR(M)	LICENSEE	(Overlap in km)	
203C1	WIAB	CP	DCX	268.5	2.42	45 34 05.0	50.000	122.8	49.1	-183.8*	-198.9*
Mackinaw City	MI			88.5	BPED20100707EAA	85 04 27.0	250	471	Interlochen Center For The		
11/16/2010: Accepted on channel 203-C1 by Industry Canada in 10/22/2010 letter. Note: not short-spaced.											
203C2	WIAB	LIC	DEX	70.9	33.57	45 40 00.0	20.000	108.5	37.3	-133.0*	-149.2*
Mackinaw City	MI			251.2	BLEDD20030407ACF	84 38 05.0	131	338	Interlochen Center For The		
201C2	WBLW	LIC	DVX	152.7	49.83	45 10 12.0	5.000	3.6	42.3	-10.7*<	0.8
Gaylord	MI			332.9	BLEDD20060921ACV	84 45 04.0	260	586	Grace Baptist Church		
204C	WIAA	LIC	_CN	200.4	153.11	44 16 33.0	100.000	101.6	69.5	0.7	8.7
Interlochen	MI			19.9	BLEDD19900105KB	85 42 49.0	315	658	Interlochen Center For The		
202C3	WTCY	LIC	DVX	220.8	88.08	44 57 59.0	4.400	22.6	14.9	18.0	2.9
Greilickville	MI			40.3	BLEDD20111221ADX	85 46 28.0	207	410	Baraga Broadcasting, Inc.		
201B	CBON18«	OPE	_CN	26.9	128.59	46 35 50.0	1.700	3.4	35.2	114.5R	14.1M
Sault Ste Marie	ON			207.5	Proposed as Class B by Canada 951122-Accepted by Commission 951208						
203C2	WPVM	LIC	_C_	248.8	196.60	44 54 14.0	15.000	109.8	41.0	29.6	17.6
Sturgeon Bay	WI			67.1	BLEDD20141203AAB	87 22 13.0	158	354	Wrvm, Inc.		
06	VACANT«	GR	_HN	4.1	269.11	47 59 00.0	0.115	89.5	51.8	245.5R	23.6M
Wawa	ON			184.3	BPFS20081205AEZ	84 46 60.0	150	150			
205B	AL0111«	AL	_____	56.2	138.37	46 15 00.0	50.000	9.1	65.0	114.5R	23.9M
Thessalon	ON			237.3		83 33 00.0	150	347			
203C	AL4347«	AL	_____	70.2	329.61	46 30 00.0	100.000	197.8	97.0	301.5R	28.1M
Sudbury	ON			253.1		81 00 00.0	600	600			
11/1/2006: Proposed change to 203B at a different location in 10/24/2006 letter. 11/2/2006: Change to 203B accepted by IB in 11/02/2006 letter. 12/5/2006: 10/24/06 referral superceded by 11/23/06 referral to change location and class. 12/5/2006: Changed to 203B accepted by IB in 12/5/06 letter. 3/24/2014: Change to channel 203B proposed in 3/12/2014 letter. 3/25/2014: Change in location accepted by IB in 3/25/2014 letter.											
205C1	WCRR	CP	_CX	292.1	120.49	45 58 00.0	44.000	6.9	57.8	49.7	54.5
Manistique	MI			111.0	BPED20120423ACG	86 29 17.2	217	425	Christianradiobroadcasting		
5/23/2013: Accepted on channel 205-C1 (45-58-00 N, 86-29-17 W) by Industry Canada in 2/28/2013 letter as a specially negotiated, short-spaced allotment limited to the proposed parameters (44.8 kW ERP and 219.5 a nd 221.0 meters HAAT at azimuths 45 and 90 degrees, respectively) or the equivalent towards channel 205-B i n Thessalon, ON (Az. = 64 to 90 degrees).											
205C2	WCRR	LIC	_CX	292.1	120.49	45 58 00.0	24.500	5.9	52.5	50.7	59.9
Manistique	MI			111.0	BLEDD20121206ADD	86 29 17.2	217	425	Christi anradi obroadcasting		
06	VACANT«	GR	_HN	79.2	240.76	45 56 01.0	0.600	89.5	51.8	141.2R	99.5M
Little Current	ON			261.4	BPFS20081203ABJ	81 59 33.0	300	300			

Terrain database is USGS 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
 Contour distances are on direct line to and from reference station. Reference zone= - Zone 2, Co to 3rd adjacent.
 All separation margins (if shown) include rounding. Call signs with strikeout need not be protected.
 Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
 ""*""affixed to 'IN' or 'OUT' values = site inside restricted contour.
 < = Station meets FCC minimum distance spacing for its class.
 < = Contour Overlap
 Reference station has protected zone issue: Canada

Green Text denotes the WIAB(FM) - Mackinaw City, MI facility to be amended by this proposal. This facility(s) need not be protected by this Form 340 filing. (Granted WIAB(FM) Construction Permit BPED-20100707EAA will have expired by the time this Form 340 is accepted for filing.)

Blue Highlighted Text denotes §73.509 Contour Protections as included in **Exhibit(s) 18.2 to 18.4.**

Yellow Highlighted Text denotes a §73.509 Waiver for Second Adjacent Channel Received Contour Overlap from WBLW(FM) - Gaylord, MI as requested in **Exhibit 18.5.**

Exhibit 18.2

Contour Protection Studies Toward WBLW(FM) - Gaylord, MI

Interlochen Center For The Arts

FMCommander Single Allocation Study - 03-09-2015 - USGS 03 SEC
WIAB.P's Overlaps (In= -10.66 km, Out= 0.82 km)

WIAB.P CH 203 C1 DA
Lat= 45 34 07.0, Lng= 85 02 35.0
50.0 kW 238.6 M HAAT, 471 M COR
Prot.= 60 dBu, Intef.= 100 dBu

WBLW CH 201 C2 DA BLED20060921ACV
Lat= 45 10 12.0, Lng= 84 45 04.0
5.0 kW 260 M HAAT, 586 M COR
Prot.= 60 dBu, Intef.= 100 dBu

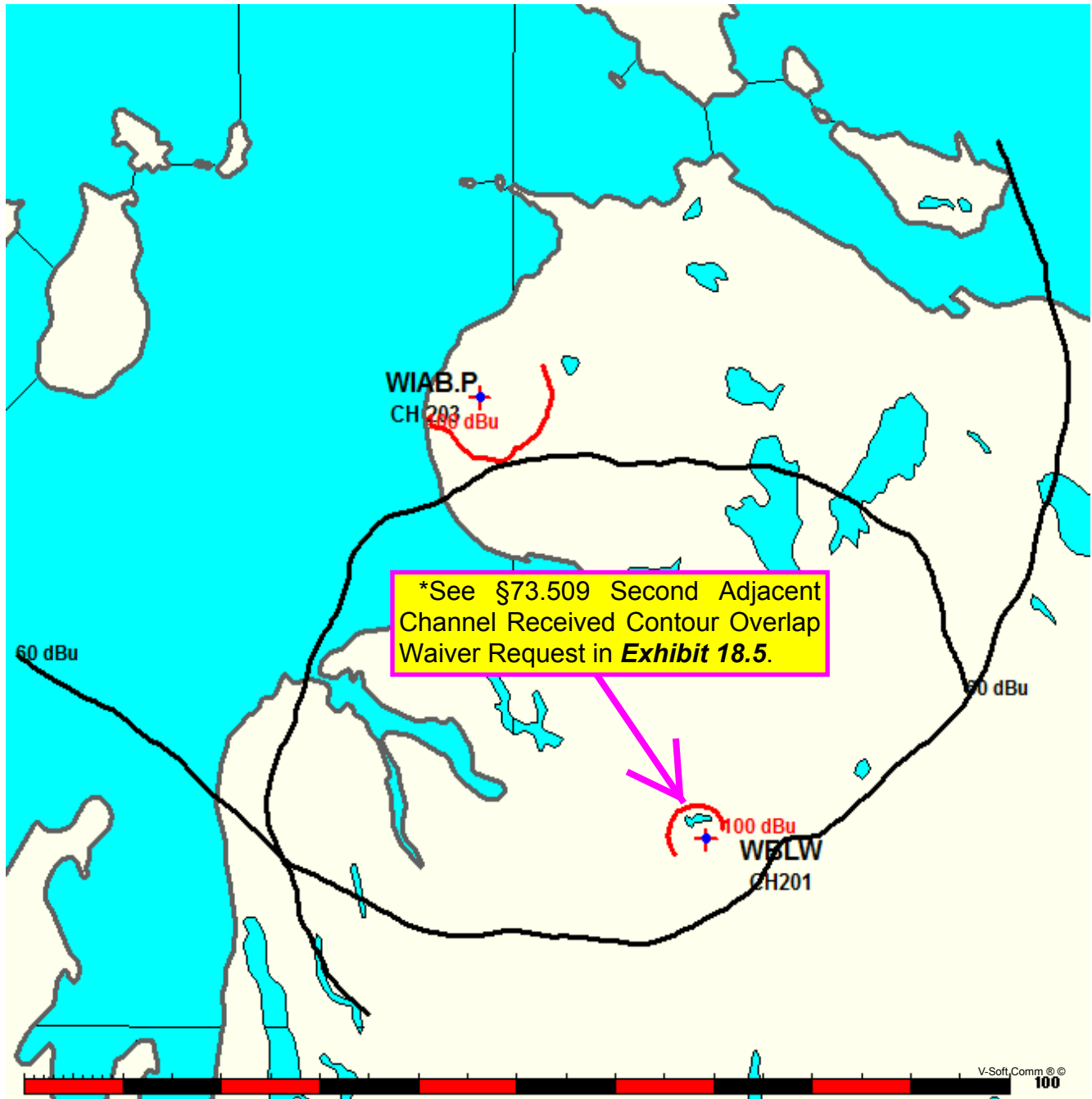


Exhibit 18.2

Contour Protection Studies Toward WBLW(FM) - Gaylord, MI

03-09-2015

Terrain Data: USGS 03 SEC

FMOver Analysis

WIAB.P

WBLW BLED20060921ACV

Channel = 203C1

Max ERP = 50 kW

RCAMSL = 471 M

N. Lat. 45 34 07.0

W. Lng. 85 02 35.0

Protected

60 dBu

Channel = 201C2

Max ERP = 5 kW

RCAMSL = 586 M

N. Lat. 45 10 12.0

W. Lng. 84 45 04.0

Interfering

100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
110.0	050.0000	0207.5	058.0	052.5	000.1721	0267.5	040.0	48.42	
111.0	050.0000	0203.9	057.7	052.9	000.1740	0267.6	038.9	48.93	
112.0	050.0000	0201.4	057.5	053.4	000.1765	0267.1	038.0	49.42	
113.0	050.0000	0200.4	057.4	054.1	000.1798	0267.1	037.1	49.93	
114.0	050.0000	0201.2	057.5	055.0	000.1842	0268.8	036.2	50.48	
115.0	050.0000	0202.8	057.6	056.0	000.1893	0270.0	035.5	51.01	
116.0	050.0000	0204.2	057.7	057.0	000.1945	0270.5	034.6	51.54	
117.0	050.0000	0206.4	057.9	058.2	000.2004	0270.3	033.9	52.03	
118.0	050.0000	0208.2	058.1	059.3	000.2063	0269.7	033.1	52.53	
119.0	050.0000	0207.7	058.0	060.1	000.2113	0269.4	032.2	53.07	
120.0	050.0000	0207.4	058.0	061.0	000.2199	0269.1	031.3	53.68	
121.0	050.0000	0206.8	057.9	061.9	000.2283	0269.5	030.4	54.36	
122.0	050.0000	0207.6	058.0	063.0	000.2393	0269.1	029.6	55.03	
123.0	050.0000	0206.4	057.9	063.8	000.2479	0269.7	028.7	55.75	
124.0	050.0000	0203.1	057.6	064.4	000.2533	0270.3	027.7	56.51	
125.0	050.0000	0201.3	057.5	065.1	000.2614	0271.0	026.7	57.29	
126.0	050.0000	0199.5	057.3	065.9	000.2698	0272.1	025.8	58.11	
127.0	050.0000	0197.7	057.1	066.7	000.2785	0273.5	024.8	58.96	
128.0	050.0000	0193.7	056.8	067.2	000.2831	0274.2	023.8	59.81	
129.0	050.0000	0189.7	056.4	067.6	000.2876	0274.7	022.7	60.67	
130.0	050.0000	0188.2	056.3	068.5	000.2976	0276.2	021.8	61.58	
131.0	050.0000	0186.0	056.1	069.3	000.3066	0277.2	020.9	62.49	
132.0	050.0000	0183.5	055.9	070.0	000.3153	0275.9	019.9	63.34	
133.0	050.0000	0184.5	056.0	071.6	000.3414	0271.8	019.1	64.23	
134.0	050.0000	0186.2	056.1	073.4	000.3736	0267.4	018.3	65.13	
135.0	050.0000	0186.1	056.1	075.0	000.4012	0260.5	017.4	65.94	
136.0	050.0000	0183.7	055.9	076.0	000.4201	0259.4	016.5	66.91	
137.0	050.0000	0183.5	055.9	077.7	000.4528	0259.3	015.6	67.95	
138.0	050.0000	0183.9	055.9	079.7	000.4930	0257.7	014.8	68.79	
139.0	050.0000	0183.6	055.9	081.7	000.5420	0261.2	014.0	70.36	
140.0	050.0000	0182.4	055.8	083.5	000.5921	0261.9	013.1	71.95	
141.0	050.0000	0183.0	055.9	086.2	000.6678	0263.4	012.3	73.65	
142.0	050.0000	0181.4	055.7	088.4	000.7338	0268.7	011.4	75.58	
143.0	050.0000	0175.4	055.2	089.0	000.7522	0269.4	010.3	77.53	

Exhibit 18.2

Contour Protection Studies Toward WBLW(FM) - Gaylord, MI

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
144.0	050.0000	0169.1	054.5	089.1	000.7553	0269.5	009.2	79.56
145.0	050.0000	0164.8	054.0	090.1	000.7874	0270.4	008.1	81.67
146.0	050.0000	0166.2	054.2	095.2	001.0023	0265.5	007.4	83.85
147.0	050.0000	0171.1	054.7	103.4	001.4469	0262.3	007.1	86.05
148.0	050.0000	0177.3	055.3	112.6	002.1698	0246.2	007.0	87.64
149.0	050.0000	0182.5	055.8	121.6	003.0319	0238.1	006.9	89.07
150.0	050.0000	0189.1	056.4	130.9	003.9631	0232.8	007.0	89.77
151.0	050.0000	0192.9	056.7	139.3	004.9208	0210.8	007.1	89.80
152.0	050.0000	0194.3	056.9	147.5	005.0000	0204.9	007.0	89.68
153.0	050.0000	0195.0	056.9	155.5	005.0000	0185.5	007.1	88.80
154.0	050.0000	0196.3	057.0	163.3	004.6069	0178.9	007.3	87.68
155.0	050.0000	0196.4	057.0	170.9	003.7816	0176.7	007.5	86.22
156.0	050.0000	0196.7	057.1	177.8	003.0899	0179.6	007.9	84.73
157.0	050.0000	0198.6	057.2	183.8	002.5092	0171.2	008.4	82.30
158.0	050.0000	0199.5	057.3	189.3	002.0019	0174.4	009.0	80.43
159.0	050.0000	0200.1	057.4	194.3	001.6137	0179.0	009.6	78.64
160.0	050.0000	0200.9	057.4	198.7	001.3081	0179.9	010.2	76.62
161.0	050.0000	0201.4	057.5	202.7	001.0948	0180.9	010.9	74.75
162.0	050.0000	0202.0	057.5	206.3	000.9366	0181.1	011.6	72.92
163.0	050.0000	0199.7	057.3	210.4	000.7729	0186.7	012.2	71.46
164.0	050.0000	0195.6	057.0	214.6	000.6439	0203.2	012.7	70.63
165.0	050.0000	0191.3	056.6	218.6	000.5345	0209.6	013.3	69.31
166.0	050.0000	0186.8	056.2	222.4	000.4516	0210.3	013.8	67.84
167.0	050.0000	0182.9	055.9	225.7	000.3896	0211.4	014.5	66.44
168.0	050.0000	0179.7	055.6	228.6	000.3390	0214.2	015.2	65.49
169.0	050.0000	0176.4	055.3	231.3	000.3003	0216.9	015.9	64.48
170.0	050.0000	0173.6	055.0	233.7	000.2738	0223.0	016.6	63.70
171.0	049.2032	0172.8	054.8	235.8	000.2515	0227.0	017.4	62.86
172.0	048.3144	0173.3	054.6	237.4	000.2351	0227.9	018.2	61.92
173.0	047.5313	0171.9	054.4	239.5	000.2153	0224.7	018.9	60.80
174.0	046.6578	0171.4	054.1	241.1	000.2041	0230.4	019.7	60.14
175.0	045.7925	0170.7	053.9	242.8	000.1952	0234.6	020.5	59.48
176.0	045.0301	0169.8	053.7	244.4	000.1873	0240.6	021.3	58.88
177.0	044.2740	0171.1	053.6	245.4	000.1824	0245.0	022.1	58.24
178.0	043.4312	0173.8	053.8	246.0	000.1793	0248.2	023.0	57.57
179.0	042.6888	0176.3	053.8	246.7	000.1761	0250.4	023.9	56.88
180.0	041.8613	0179.2	053.9	247.3	000.1730	0252.7	024.8	56.22
181.0	040.1408	0183.7	054.0	248.1	000.1692	0255.4	025.7	55.59
182.0	038.5442	0189.0	054.1	248.7	000.1662	0256.6	026.6	54.93
183.0	036.9800	0193.7	054.1	249.5	000.1626	0258.4	027.5	54.31
184.0	035.3641	0197.6	054.0	250.4	000.1602	0261.5	028.3	53.81
185.0	033.7842	0201.2	053.9	251.3	000.1602	0263.1	029.1	53.36
186.0	032.3208	0204.4	053.8	252.3	000.1602	0262.9	030.0	52.88
187.0	030.8898	0207.3	053.6	253.3	000.1602	0262.9	030.7	52.43
188.0	029.4145	0209.4	053.3	254.4	000.1602	0266.4	031.5	52.14

Exhibit 18.2

Contour Protection Studies Toward WBLW(FM) - Gaylord, MI

03-09-2015

Terrain Data: USGS 03 SEC

FMOver Analysis

WBLW BLED20060921ACV

WIAB.P

Channel = 201C2

Max ERP = 5 kW

RCAMSL = 586 M

N. Lat. 45 10 12.0

W. Lng. 84 45 04.0

Protected

60 dBu

Channel = 203C1

Max ERP = 50 kW

RCAMSL = 471 M

N. Lat. 45 34 07.0

W. Lng. 85 02 35.0

Interfering

100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
288.0	004.7902	0298.7	043.5	210.9	012.2828	0250.2	036.1	68.18	
289.0	004.8059	0297.1	043.4	211.0	012.2437	0250.5	035.3	68.54	
290.0	004.8216	0296.7	043.4	211.3	012.1809	0250.9	034.6	68.89	
291.0	004.8393	0297.9	043.5	211.7	012.0781	0251.6	033.9	69.23	
292.0	004.8570	0299.8	043.7	212.2	011.9608	0252.3	033.2	69.57	
293.0	004.8748	0301.5	043.8	212.6	011.8471	0253.0	032.4	69.91	
294.0	004.8926	0302.5	043.9	213.0	011.7550	0253.5	031.7	70.27	
295.0	004.9104	0302.0	043.9	213.2	011.7016	0253.9	030.9	70.67	
296.0	004.9283	0302.1	043.9	213.5	011.6360	0254.4	030.2	71.08	
297.0	004.9461	0301.4	043.9	213.7	011.5965	0254.7	029.4	71.52	
298.0	004.9641	0298.9	043.8	213.6	011.6110	0254.6	028.6	71.99	
299.0	004.9820	0295.8	043.6	213.5	011.6523	0254.3	027.9	72.49	
300.0	005.0000	0296.2	043.7	213.7	011.5967	0254.7	027.1	72.97	
301.0	004.9820	0296.5	043.7	213.8	011.5796	0254.7	026.4	73.48	
302.0	004.9641	0298.0	043.7	214.0	011.5301	0255.1	025.6	74.00	
303.0	004.9461	0301.8	043.9	214.5	011.4103	0255.8	024.8	74.51	
304.0	004.9283	0306.4	044.2	215.1	011.2662	0256.4	024.1	75.03	
305.0	004.9104	0310.7	044.4	215.6	011.1296	0257.1	023.3	75.57	
306.0	004.8926	0316.6	044.7	216.5	010.9346	0258.1	022.5	76.11	
307.0	004.8748	0323.9	045.1	217.5	010.6860	0258.9	021.8	76.64	
308.0	004.8570	0331.5	045.5	218.7	010.4189	0259.2	021.0	77.16	
309.0	004.8393	0335.2	045.7	219.3	010.2919	0259.6	020.2	77.75	
310.0	004.8216	0336.1	045.8	219.3	010.2764	0259.6	019.4	78.39	
311.0	004.7951	0336.7	045.8	219.3	010.2938	0259.6	018.6	79.05	
312.0	004.7687	0338.3	045.8	219.3	010.2837	0259.6	017.8	79.71	
313.0	004.7424	0339.0	045.8	219.1	010.3197	0259.6	017.0	80.39	
314.0	004.7161	0338.7	045.7	218.7	010.4172	0259.2	016.2	81.08	
315.0	004.6900	0337.1	045.6	217.9	010.6077	0259.0	015.4	81.81	
316.0	004.6638	0333.5	045.3	216.5	010.9373	0258.1	014.7	82.43	
317.0	004.6378	0325.5	044.8	213.8	011.5681	0254.8	014.0	83.39	
318.0	004.6118	0317.7	044.3	210.9	012.2750	0250.3	013.4	84.30	
319.0	004.5859	0312.3	043.9	208.3	013.3640	0246.4	012.8	85.39	
320.0	004.5601	0306.7	043.5	205.4	014.9211	0243.4	012.2	86.59	

MUNN-REESE, INC.

Broadcast Engineering Consultants
COLDWATER, MI 49036

Exhibit 18.2

Contour Protection Studies Toward WBLW(FM) - Gaylord, MI

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
321.0	004.5401	0303.0	043.3	202.7	016.4341	0241.5	011.6	87.82
322.0	004.5201	0300.9	043.1	200.1	017.9492	0233.5	011.1	88.83
323.0	004.5002	0300.3	043.1	197.6	019.9590	0224.4	010.5	89.92
324.0	004.4803	0301.0	043.1	195.0	022.0946	0218.4	009.9	91.17
325.0	004.4604	0299.2	042.9	191.5	025.2829	0214.3	009.4	92.44
326.0	004.4406	0299.3	042.9	188.0	029.4591	0209.4	008.9	93.82
327.0	004.4208	0300.4	042.9	184.3	034.9302	0198.6	008.4	95.05
328.0	004.4011	0301.3	042.9	180.0	041.8272	0179.3	007.9	95.85
329.0	004.3814	0302.3	043.0	175.3	045.5953	0170.1	007.6	96.60
330.0	004.3618	0302.9	043.0	169.9	050.0000	0173.8	007.3	97.85
331.0	004.3319	0300.4	042.8	163.8	050.0000	0196.4	007.2	98.87
332.0	004.3022	0297.4	042.5	157.7	050.0000	0199.5	007.4	98.75
333.0	004.2726	0293.7	042.3	152.0	050.0000	0194.3	007.6	98.03
334.0	004.2430	0292.8	042.1	146.6	050.0000	0168.5	007.8	96.49
335.0	004.2136	0290.5	041.9	141.6	050.0000	0182.9	008.1	96.53
336.0	004.1843	0287.4	041.7	137.2	050.0000	0183.6	008.5	95.73
337.0	004.1551	0285.5	041.5	133.1	050.0000	0184.6	008.9	94.99
338.0	004.1260	0283.7	041.4	129.5	050.0000	0189.0	009.4	94.32
339.0	004.0969	0280.4	041.1	126.6	050.0000	0198.7	010.0	93.71
340.0	004.0680	0277.8	040.9	123.9	050.0000	0203.3	010.6	92.91
341.0	004.0383	0274.5	040.7	121.8	050.0000	0207.5	011.2	92.03
342.0	004.0087	0271.8	040.4	119.8	050.0000	0207.5	011.8	91.04
343.0	003.9792	0269.6	040.2	118.0	050.0000	0208.2	012.4	90.13
344.0	003.9498	0265.1	039.9	116.9	050.0000	0206.3	013.2	89.00
345.0	003.9206	0259.7	039.5	116.1	050.0000	0204.5	013.9	87.90
346.0	003.8914	0252.3	039.0	115.9	050.0000	0204.0	014.8	86.84
347.0	003.8623	0246.5	038.6	115.5	050.0000	0203.4	015.6	86.35
348.0	003.8334	0244.7	038.4	114.5	050.0000	0202.0	016.2	85.75
349.0	003.8045	0243.4	038.3	113.6	050.0000	0200.7	016.8	85.17
350.0	003.7758	0242.9	038.2	112.6	050.0000	0200.6	017.5	84.65
351.0	003.7351	0243.8	038.2	111.5	050.0000	0202.5	018.0	84.26
352.0	003.6946	0243.2	038.0	110.8	050.0000	0204.5	018.7	83.82
353.0	003.6543	0241.8	037.9	110.3	050.0000	0206.2	019.3	83.35
354.0	003.6142	0243.6	037.9	109.4	050.0000	0209.1	019.9	83.01
355.0	003.5744	0247.2	038.0	108.3	050.0000	0211.4	020.5	82.67
356.0	003.5347	0250.5	038.1	107.3	050.0000	0212.6	021.0	82.27
357.0	003.4953	0251.9	038.1	106.6	050.0000	0212.1	021.7	81.76
358.0	003.4561	0250.1	037.9	106.6	050.0000	0211.9	022.3	81.22
359.0	003.4172	0248.3	037.7	106.5	050.0000	0211.8	023.0	80.69
000.0	003.3784	0248.2	037.6	106.3	050.0000	0211.2	023.7	80.18
001.0	003.3407	0247.1	037.5	106.2	050.0000	0211.1	024.4	79.68
002.0	003.3032	0244.9	037.3	106.3	050.0000	0211.3	025.1	79.19
003.0	003.2659	0245.2	037.2	106.1	050.0000	0210.9	025.7	78.72
004.0	003.2289	0247.4	037.2	105.7	050.0000	0210.3	026.3	78.26
005.0	003.1920	0248.9	037.2	105.4	050.0000	0209.8	027.0	77.81

Exhibit 18.3

Contour Protection Studies Toward WTCY(FM) - Greilickville, MI

Interlochen Center For The Arts

FMCommander Single Allocation Study - 03-09-2015 - USGS 03 SEC
WIAB.P's Overlaps (In= 18.04 km, Out= 2.88 km)

WIAB.P CH 203 C1 DA
Lat= 45 34 07.0, Lng= 85 02 35.0
50.0 kW 238.6 M HAAT, 471 M COR
Prot.= 60 dBu, Intef.= 54 dBu

WTCY CH 202 C3 DA BLED20111221ADX
Lat= 44 57 59.0, Lng= 85 46 28.0
4.4 kW 207 M HAAT, 409.7 M COR
Prot.= 60 dBu, Intef.= 54 dBu

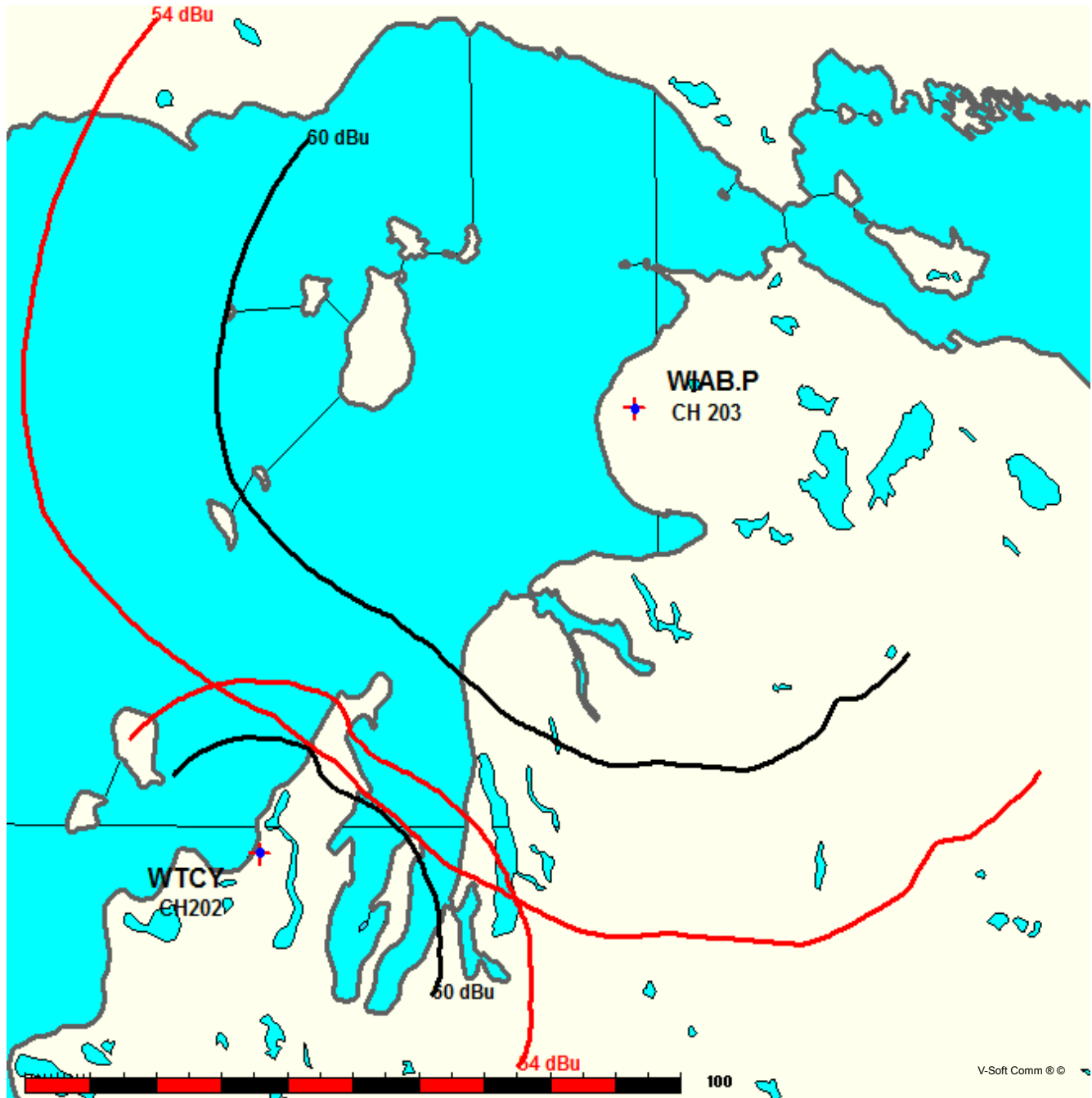


Exhibit 18.3

Contour Protection Studies Toward WTCY(FM) - Greilickville, MI

03-09-2015

Terrain Data: USGS 03 SEC

FMOver Analysis

WIAB.P

WTCY BLED20111221ADX

Channel = 203C1

Max ERP = 50 kW

RCAMSL = 471 M

N. Lat. 45 34 07.0

W. Lng. 85 02 35.0

Protected
60 dBu

Channel = 202C3

Max ERP = 4.4 kW

RCAMSL = 409.7 M

N. Lat. 44 57 59.0

W. Lng. 85 46 28.0

Interfering
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
178.0	043.4312	0173.8	053.8	077.2	000.3895	0201.3	060.8	40.94	
179.0	042.6888	0176.3	053.8	077.1	000.3881	0201.3	059.9	41.27	
180.0	041.8613	0179.2	053.9	077.0	000.3866	0201.2	058.9	41.60	
181.0	040.1408	0183.7	054.0	076.8	000.3834	0201.1	058.0	41.90	
182.0	038.5442	0189.0	054.1	076.7	000.3810	0201.0	057.1	42.23	
183.0	036.9800	0193.7	054.1	076.4	000.3771	0200.8	056.2	42.53	
184.0	035.3641	0197.6	054.0	076.1	000.3713	0200.6	055.3	42.79	
185.0	033.7842	0201.2	053.9	075.7	000.3645	0200.5	054.4	43.04	
186.0	032.3208	0204.4	053.8	075.2	000.3569	0200.7	053.6	43.29	
187.0	030.8898	0207.3	053.6	074.7	000.3484	0201.1	052.8	43.52	
188.0	029.4145	0209.4	053.3	074.0	000.3379	0201.6	052.0	43.71	
189.0	027.9752	0211.0	053.0	073.3	000.3261	0201.8	051.3	43.84	
190.0	026.6450	0212.5	052.7	072.5	000.3141	0201.3	050.6	43.93	
191.0	025.7045	0213.8	052.5	071.8	000.3033	0200.6	049.9	44.02	
192.0	024.7808	0214.7	052.2	071.0	000.2917	0200.0	049.2	44.09	
193.0	023.8740	0215.3	051.9	070.1	000.2794	0199.6	048.6	44.12	
194.0	022.9842	0216.4	051.7	069.3	000.2703	0198.4	048.0	44.17	
195.0	022.1113	0218.4	051.5	068.5	000.2622	0197.1	047.3	44.22	
196.0	021.2552	0220.2	051.3	067.6	000.2537	0195.1	046.8	44.22	
197.0	020.4160	0222.6	051.1	066.8	000.2454	0193.0	046.2	44.22	
198.0	019.5938	0225.8	051.0	065.9	000.2374	0191.8	045.6	44.26	
199.0	018.7884	0229.4	050.9	065.1	000.2295	0190.9	045.0	44.32	
200.0	018.0000	0233.2	050.8	064.2	000.2213	0190.6	044.4	44.38	
201.0	017.4050	0237.1	050.8	063.3	000.2137	0190.3	043.8	44.48	
202.0	016.8200	0240.2	050.7	062.4	000.2054	0188.6	043.3	44.46	
203.0	016.2450	0242.1	050.5	061.3	000.1963	0186.8	042.9	44.36	
204.0	015.6800	0242.9	050.2	060.2	000.1865	0186.3	042.5	44.27	
205.0	015.1250	0243.4	049.9	059.0	000.1803	0186.0	042.3	44.22	
206.0	014.5800	0243.5	049.6	057.8	000.1746	0183.6	042.1	44.06	
207.0	014.0450	0244.2	049.3	056.6	000.1691	0179.9	041.9	43.84	
208.0	013.5200	0245.9	049.1	055.4	000.1638	0178.0	041.7	43.71	
209.0	013.0050	0247.5	048.8	054.2	000.1586	0175.2	041.5	43.51	
210.0	012.5000	0249.0	048.6	053.0	000.1533	0175.5	041.4	43.44	
211.0	012.2513	0250.5	048.5	051.8	000.1486	0175.7	041.1	43.43	

MUNN-REESE, INC.

Broadcast Engineering Consultants
COLDWATER, MI 49036

Exhibit 18.3

Contour Protection Studies Toward WTCY(FM) - Greilickville, MI

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
212.0	012.0050	0252.0	048.4	050.7	000.1438	0176.6	040.9	43.43
213.0	011.7613	0253.5	048.3	049.5	000.1410	0176.3	040.7	43.42
214.0	011.5200	0255.1	048.3	048.3	000.1410	0176.3	040.6	43.49
215.0	011.2812	0256.4	048.2	047.2	000.1410	0176.2	040.5	43.53
216.0	011.0450	0257.5	048.1	046.0	000.1410	0175.3	040.4	43.52
217.0	010.8113	0258.6	047.9	044.8	000.1410	0176.6	040.4	43.58
218.0	010.5800	0259.0	047.8	043.6	000.1410	0176.2	040.4	43.54
219.0	010.3513	0259.5	047.6	042.4	000.1410	0175.5	040.5	43.46
220.0	010.1250	0259.7	047.4	041.2	000.1410	0175.5	040.7	43.39
221.0	010.2152	0259.9	047.5	040.0	000.1410	0176.6	040.6	43.49
222.0	010.3513	0260.7	047.7	038.8	000.1410	0177.2	040.4	43.59
223.0	010.4424	0261.2	047.8	037.6	000.1410	0180.8	040.4	43.79
224.0	010.5800	0261.8	048.0	036.4	000.1410	0186.6	040.3	44.09
225.0	010.6722	0262.3	048.1	035.2	000.1410	0192.6	040.3	44.37
226.0	010.8113	0262.6	048.2	034.0	000.1410	0199.3	040.3	44.68
227.0	010.9512	0262.9	048.4	032.8	000.1410	0205.7	040.3	44.97
228.0	011.0450	0263.3	048.5	031.6	000.1410	0212.4	040.5	45.22
229.0	011.1392	0264.0	048.6	030.4	000.1410	0218.2	040.6	45.43
230.0	011.2812	0264.6	048.8	029.2	000.1410	0221.8	040.7	45.54
231.0	011.8584	0265.4	049.3	027.8	000.1410	0227.3	040.5	45.85
232.0	012.4501	0265.8	049.7	026.4	000.1410	0229.7	040.5	45.99
233.0	013.0560	0266.1	050.2	025.0	000.1410	0230.2	040.4	46.03
234.0	013.6765	0266.5	050.7	023.6	000.1410	0230.6	040.5	46.03
235.0	014.3113	0266.8	051.1	022.2	000.1410	0230.9	040.5	46.01
236.0	014.9604	0267.1	051.5	020.8	000.1410	0231.2	040.7	45.96
237.0	015.6241	0267.4	052.0	019.5	000.1410	0230.9	040.9	45.86
238.0	016.3020	0267.7	052.4	018.1	000.1410	0229.7	041.1	45.70
239.0	016.9945	0268.2	052.8	016.8	000.1410	0228.1	041.4	45.51
240.0	017.7013	0268.7	053.2	015.4	000.1410	0227.5	041.7	45.34
241.0	018.6661	0269.3	053.7	014.0	000.1410	0228.8	042.0	45.26
242.0	019.5938	0270.0	054.2	012.7	000.1410	0230.3	042.4	45.16
243.0	020.5440	0270.6	054.7	011.3	000.1410	0232.1	042.8	45.06
244.0	021.5825	0271.0	055.2	010.0	000.1410	0232.4	043.2	44.87
245.0	022.6464	0271.4	055.7	008.8	000.1410	0232.3	043.7	44.64
246.0	023.6672	0271.6	056.1	007.6	000.1410	0231.9	044.3	44.37
247.0	024.7808	0271.8	056.5	006.5	000.1410	0231.2	044.9	44.08
248.0	025.8480	0272.0	056.9	005.4	000.1410	0230.3	045.6	43.76
249.0	026.9378	0272.1	057.3	004.4	000.1410	0229.2	046.3	43.42
250.0	028.1250	0272.3	057.7	003.5	000.1410	0228.3	047.1	43.07
251.0	029.6450	0272.5	058.3	002.4	000.1410	0227.2	047.8	42.73
252.0	031.1260	0272.7	058.7	001.5	000.1410	0226.2	048.6	42.37
253.0	032.6432	0272.9	059.2	000.5	000.1410	0225.9	049.4	42.03
254.0	034.2792	0273.1	059.7	359.7	000.1410	0226.4	050.2	41.71
255.0	035.8705	0273.2	060.1	358.9	000.1410	0227.8	051.1	41.41
256.0	037.5844	0273.4	060.6	358.1	000.1410	0229.4	052.1	41.11

Exhibit 18.3

Contour Protection Studies Toward WTCY(FM) - Greilickville, MI

03-09-2015

Terrain Data: USGS 03 SEC

FMOver Analysis

WTCY BLED20111221ADX

WIAB.P

Channel = 202C3
Max ERP = 4.4 kW
RCAMSL = 409.7 M
N. Lat. 44 57 59.0
W. Lng. 85 46 28.0
Protected
60 dBu

Channel = 203C1
Max ERP = 50 kW
RCAMSL = 471 M
N. Lat. 45 34 07.0
W. Lng. 85 02 35.0
Interfering
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
355.0	000.1410	0233.7	017.3	230.0	011.2760	0264.6	076.9	52.35	
356.0	000.1410	0233.3	017.3	229.8	011.2560	0264.5	076.7	52.41	
357.0	000.1410	0231.9	017.2	229.7	011.2319	0264.4	076.5	52.47	
358.0	000.1410	0229.7	017.1	229.5	011.2048	0264.3	076.3	52.52	
359.0	000.1410	0227.5	017.0	229.3	011.1775	0264.1	076.1	52.56	
000.0	000.1410	0226.1	017.0	229.1	011.1523	0264.0	075.9	52.61	
001.0	000.1410	0225.9	017.0	228.9	011.1333	0263.9	075.7	52.67	
002.0	000.1410	0226.8	017.0	228.8	011.1206	0263.8	075.5	52.74	
003.0	000.1410	0227.8	017.0	228.7	011.1077	0263.8	075.2	52.82	
004.0	000.1410	0228.8	017.1	228.5	011.0946	0263.7	075.0	52.89	
005.0	000.1410	0229.8	017.1	228.4	011.0809	0263.6	074.8	52.96	
006.0	000.1410	0230.8	017.2	228.2	011.0669	0263.5	074.5	53.03	
007.0	000.1410	0231.6	017.2	228.1	011.0519	0263.4	074.3	53.09	
008.0	000.1410	0232.1	017.2	227.9	011.0361	0263.3	074.1	53.15	
009.0	000.1410	0232.3	017.2	227.7	011.0195	0263.2	073.9	53.21	
010.0	000.1410	0232.4	017.2	227.5	011.0023	0263.1	073.7	53.26	
011.0	000.1410	0232.2	017.2	227.4	010.9844	0263.0	073.5	53.31	
012.0	000.1410	0231.5	017.2	227.2	010.9653	0263.0	073.4	53.35	
013.0	000.1410	0229.7	017.1	226.9	010.9407	0262.9	073.3	53.38	
014.0	000.1410	0228.8	017.1	226.7	010.9111	0262.9	073.2	53.41	
015.0	000.1410	0227.8	017.0	226.5	010.8810	0262.8	073.0	53.44	
016.0	000.1410	0227.5	017.0	226.3	010.8521	0262.7	072.9	53.47	
017.0	000.1410	0228.4	017.1	226.1	010.8254	0262.6	072.7	53.51	
018.0	000.1410	0229.6	017.1	225.9	010.7990	0262.5	072.5	53.56	
019.0	000.1410	0230.6	017.2	225.7	010.7714	0262.5	072.4	53.61	
020.0	000.1410	0231.1	017.2	225.5	010.7426	0262.4	072.2	53.65	
021.0	000.1410	0231.2	017.2	225.3	010.7126	0262.4	072.1	53.68	
022.0	000.1410	0230.9	017.2	225.1	010.6818	0262.3	072.0	53.70	
023.0	000.1410	0230.7	017.2	224.8	010.6579	0262.2	071.9	53.72	
024.0	000.1410	0230.5	017.2	224.6	010.6371	0262.2	071.8	53.74	
025.0	000.1410	0230.2	017.1	224.4	010.6160	0262.1	071.7	53.76	
026.0	000.1410	0229.9	017.1	224.2	010.5948	0262.0	071.6	53.78	
027.0	000.1410	0229.2	017.1	223.9	010.5697	0261.8	071.5	53.78	

Exhibit 18.3

Contour Protection Studies Toward WTCY(FM) - Greilickville, MI

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
028.0	000.1410	0226.7	017.0	223.7	010.5351	0261.7	071.6	53.76
029.0	000.1410	0222.5	016.8	223.4	010.4991	0261.5	071.6	53.71
030.0	000.1410	0219.4	016.7	223.2	010.4647	0261.3	071.7	53.67
031.0	000.1410	0215.9	016.6	222.9	010.4343	0261.1	071.8	53.62
032.0	000.1410	0210.0	016.3	222.6	010.4105	0261.0	072.0	53.54
033.0	000.1410	0204.9	016.1	222.4	010.3877	0260.9	072.1	53.47
034.0	000.1410	0199.4	015.9	222.2	010.3653	0260.7	072.3	53.40
035.0	000.1410	0193.7	015.6	221.9	010.3398	0260.6	072.5	53.32
036.0	000.1410	0188.7	015.4	221.7	010.3086	0260.5	072.7	53.24
037.0	000.1410	0183.8	015.2	221.5	010.2784	0260.2	072.9	53.16
038.0	000.1410	0179.4	015.1	221.2	010.2490	0260.1	073.0	53.09
039.0	000.1410	0176.9	015.0	221.0	010.2208	0259.9	073.1	53.04
040.0	000.1410	0176.6	014.9	220.8	010.2004	0259.8	073.1	53.03
041.0	000.1410	0175.6	014.9	220.6	010.1820	0259.8	073.2	53.00
042.0	000.1410	0175.2	014.9	220.4	010.1637	0259.7	073.2	52.98
043.0	000.1410	0175.8	014.9	220.2	010.1453	0259.7	073.2	52.98
044.0	000.1410	0176.6	014.9	220.0	010.1268	0259.7	073.2	52.98
045.0	000.1410	0176.2	014.9	219.8	010.1661	0259.7	073.2	52.98
046.0	000.1410	0175.3	014.9	219.6	010.2111	0259.7	073.3	52.98
047.0	000.1410	0176.1	014.9	219.4	010.2575	0259.6	073.3	53.00
048.0	000.1410	0176.6	014.9	219.2	010.3037	0259.6	073.3	53.01
049.0	000.1410	0176.2	014.9	219.0	010.3488	0259.5	073.4	53.00
050.0	000.1410	0176.7	015.0	218.8	010.3951	0259.3	073.4	53.01
051.0	000.1451	0176.2	015.0	218.6	010.4442	0259.2	073.4	53.03
052.0	000.1493	0175.7	015.1	218.4	010.4937	0259.1	073.3	53.06
053.0	000.1535	0175.5	015.2	218.2	010.5444	0259.1	073.3	53.09
054.0	000.1578	0175.1	015.3	217.9	010.5951	0259.0	073.3	53.11
055.0	000.1622	0176.7	015.5	217.7	010.6513	0258.9	073.2	53.17
056.0	000.1666	0179.3	015.8	217.4	010.7117	0258.8	073.0	53.23
057.0	000.1711	0180.7	015.9	217.2	010.7699	0258.7	073.0	53.28
058.0	000.1756	0184.2	016.2	216.9	010.8354	0258.5	072.8	53.35
059.0	000.1802	0186.0	016.4	216.6	010.8972	0258.3	072.7	53.39
060.0	000.1849	0186.3	016.5	216.4	010.9553	0258.0	072.7	53.41
061.0	000.1933	0186.5	016.7	216.1	011.0206	0257.7	072.7	53.45
062.0	000.2019	0187.8	017.0	215.8	011.0903	0257.3	072.6	53.50
063.0	000.2106	0189.9	017.3	215.5	011.1646	0257.0	072.4	53.55
064.0	000.2196	0190.5	017.5	215.2	011.2343	0256.6	072.4	53.59
065.0	000.2287	0190.8	017.7	214.9	011.3034	0256.3	072.4	53.61
066.0	000.2381	0191.9	017.9	214.6	011.3763	0256.0	072.3	53.64
067.0	000.2476	0193.5	018.2	214.3	011.4525	0255.5	072.3	53.67
068.0	000.2573	0195.9	018.5	213.9	011.5338	0255.0	072.2	53.71
069.0	000.2671	0198.1	018.8	213.6	011.6148	0254.5	072.2	53.73
070.0	000.2772	0199.5	019.0	213.3	011.6926	0254.0	072.2	53.74
071.0	000.2917	0200.0	019.3	212.9	011.7749	0253.4	072.2	53.76
072.0	000.3067	0200.8	019.5	212.6	011.8594	0252.9	072.2	53.77
073.0	000.3219	0201.8	019.8	212.2	011.9452	0252.3	072.2	53.78

Exhibit 18.4

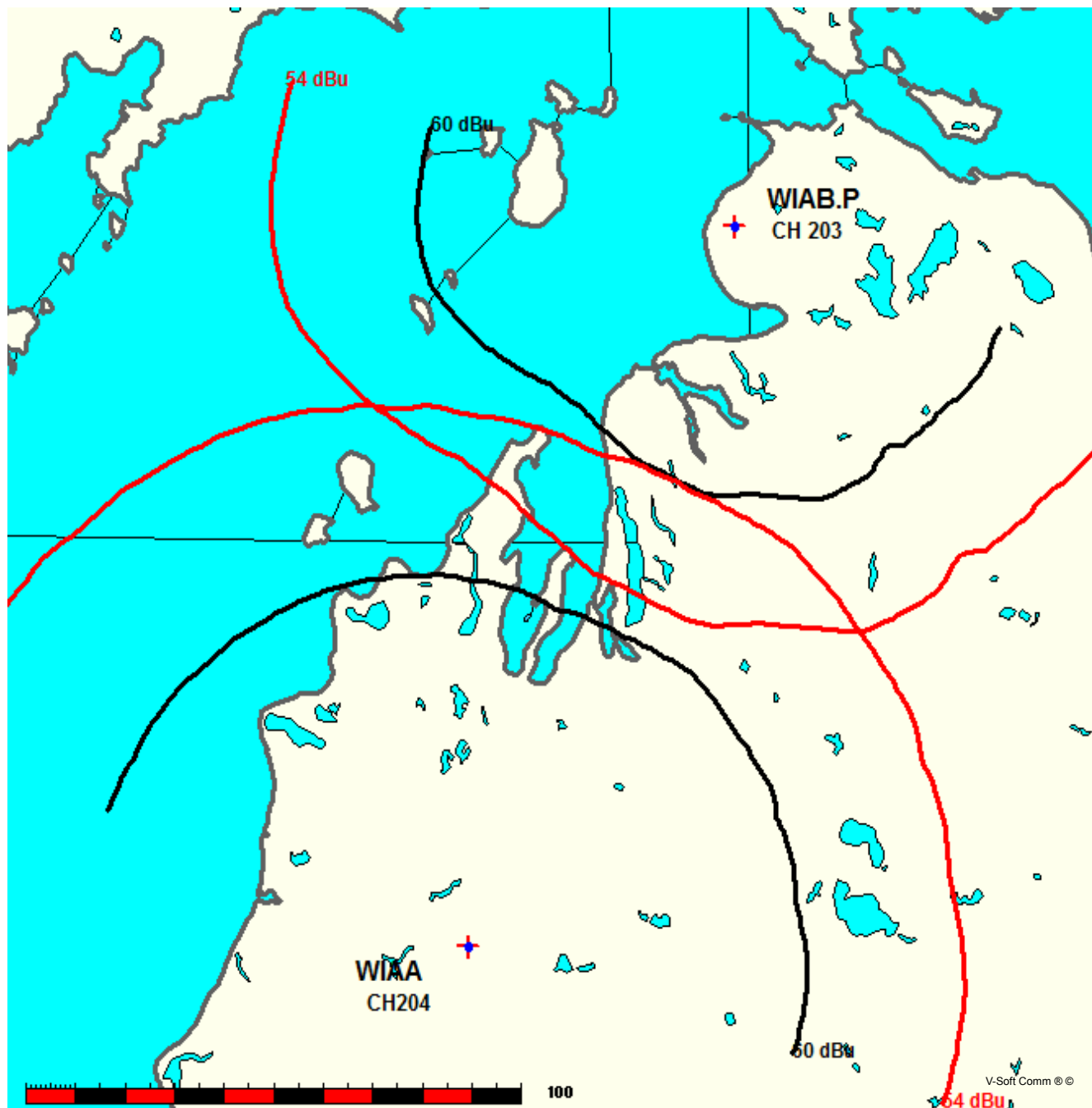
Contour Protection Studies Toward WIAA(FM) - Interlochen, MI

Interlochen Center For The Arts

FMCommander Single Allocation Study - 03-09-2015 - USGS 03 SEC
WIAB.P's Overlaps (In= 0.72 km, Out= 8.71 km)

WIAB.P CH 203 C1 DA
Lat= 45 34 07.0, Lng= 85 02 35.0
50.0 kW 238.6 M HAAT, 471 M COR
Prot.= 60 dBu, Intef.= 54 dBu

WIAA CH 204 C BLED19900105KB
Lat= 44 16 33.0, Lng= 85 42 49.0
100.0 kW 315 M HAAT, 658 M COR
Prot.= 60 dBu, Intef.= 54 dBu



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Exhibit 18.4

Contour Protection Studies Toward WIAA(FM) - Interlochen, MI

03-09-2015

Terrain Data: USGS 03 SEC

FMOver Analysis

WIAB.P

WIAA BLED19900105KB

Channel = 203C1

Max ERP = 50 kW

RCAMSL = 471 M

N. Lat. 45 34 07.0

W. Lng. 85 02 35.0

Protected

60 dBu

Channel = 204C

Max ERP = 100 kW

RCAMSL = 658 M

N. Lat. 44 16 33.0

W. Lng. 85 42 49.0

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
157.0	050.0000	0198.6	057.2	039.4	100.0000	0275.5	118.3	49.93	
158.0	050.0000	0199.5	057.3	039.2	100.0000	0275.7	117.3	50.14	
159.0	050.0000	0200.1	057.4	038.9	100.0000	0275.4	116.4	50.34	
160.0	050.0000	0200.9	057.4	038.7	100.0000	0275.1	115.5	50.53	
161.0	050.0000	0201.4	057.5	038.5	100.0000	0274.8	114.7	50.73	
162.0	050.0000	0202.0	057.5	038.2	100.0000	0274.4	113.8	50.93	
163.0	050.0000	0199.7	057.3	037.9	100.0000	0273.9	113.1	51.09	
164.0	050.0000	0195.6	057.0	037.4	100.0000	0273.3	112.5	51.22	
165.0	050.0000	0191.3	056.6	037.0	100.0000	0272.9	111.9	51.35	
166.0	050.0000	0186.8	056.2	036.5	100.0000	0271.9	111.4	51.46	
167.0	050.0000	0182.9	055.9	036.0	100.0000	0270.8	110.8	51.56	
168.0	050.0000	0179.7	055.6	035.6	100.0000	0269.6	110.3	51.67	
169.0	050.0000	0176.4	055.3	035.1	100.0000	0268.9	109.8	51.78	
170.0	050.0000	0173.6	055.0	034.7	100.0000	0268.1	109.3	51.89	
171.0	049.2032	0172.8	054.8	034.2	100.0000	0267.2	108.8	52.00	
172.0	048.3144	0173.3	054.6	033.8	100.0000	0266.7	108.2	52.15	
173.0	047.5313	0171.9	054.4	033.3	100.0000	0265.9	107.8	52.23	
174.0	046.6578	0171.4	054.1	032.9	100.0000	0265.5	107.4	52.35	
175.0	045.7925	0170.7	053.9	032.4	100.0000	0265.1	107.0	52.45	
176.0	045.0301	0169.8	053.7	031.9	100.0000	0264.7	106.6	52.54	
177.0	044.2740	0171.1	053.6	031.5	100.0000	0264.2	106.1	52.68	
178.0	043.4312	0173.8	053.8	031.1	100.0000	0263.6	105.4	52.84	
179.0	042.6888	0176.3	053.8	030.7	100.0000	0263.2	104.8	53.00	
180.0	041.8613	0179.2	053.9	030.3	100.0000	0263.0	104.3	53.16	
181.0	040.1408	0183.7	054.0	029.9	100.0000	0263.0	103.8	53.30	
182.0	038.5442	0189.0	054.1	029.4	100.0000	0262.6	103.2	53.45	
183.0	036.9800	0193.7	054.1	029.0	100.0000	0262.0	102.8	53.56	
184.0	035.3641	0197.6	054.0	028.5	100.0000	0261.6	102.4	53.66	
185.0	033.7842	0201.2	053.9	028.0	100.0000	0261.8	102.2	53.75	
186.0	032.3208	0204.4	053.8	027.5	100.0000	0261.7	101.9	53.82	
187.0	030.8898	0207.3	053.6	026.9	100.0000	0260.1	101.7	53.82	
188.0	029.4145	0209.4	053.3	026.4	100.0000	0258.1	101.7	53.78	
189.0	027.9752	0211.0	053.0	025.8	100.0000	0258.3	101.7	53.79	
190.0	026.6450	0212.5	052.7	025.3	100.0000	0259.1	101.7	53.80	

MUNN-REESE, INC.

Broadcast Engineering Consultants
COLDWATER, MI 49036

Exhibit 18.4

Contour Protection Studies Toward WIAA(FM) - Interlochen, MI

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
191.0	025.7045	0213.8	052.5	024.8	100.0000	0259.6	101.7	53.82
192.0	024.7808	0214.7	052.2	024.2	100.0000	0261.0	101.7	53.85
193.0	023.8740	0215.3	051.9	023.7	100.0000	0262.0	101.8	53.85
194.0	022.9842	0216.4	051.7	023.2	100.0000	0263.1	101.9	53.86
195.0	022.1113	0218.4	051.5	022.7	100.0000	0263.8	102.0	53.86
196.0	021.2552	0220.2	051.3	022.1	100.0000	0263.5	102.1	53.83
197.0	020.4160	0222.6	051.1	021.6	100.0000	0263.1	102.1	53.79
198.0	019.5938	0225.8	051.0	021.1	100.0000	0262.9	102.2	53.77
199.0	018.7884	0229.4	050.9	020.6	100.0000	0263.8	102.3	53.78
200.0	018.0000	0233.2	050.8	020.1	100.0000	0264.6	102.3	53.78
201.0	017.4050	0237.1	050.8	019.6	100.0000	0265.1	102.4	53.78
202.0	016.8200	0240.2	050.7	019.1	100.0000	0265.8	102.5	53.77
203.0	016.2450	0242.1	050.5	018.7	100.0000	0266.2	102.7	53.72
204.0	015.6800	0242.9	050.2	018.2	100.0000	0266.5	103.0	53.63
205.0	015.1250	0243.4	049.9	017.7	100.0000	0266.2	103.4	53.50
206.0	014.5800	0243.5	049.6	017.3	100.0000	0266.4	103.9	53.38
207.0	014.0450	0244.2	049.3	016.8	100.0000	0266.2	104.3	53.24
208.0	013.5200	0245.9	049.1	016.4	100.0000	0265.0	104.7	53.10
209.0	013.0050	0247.5	048.8	015.9	100.0000	0264.0	105.1	52.95
210.0	012.5000	0249.0	048.6	015.5	100.0000	0263.1	105.5	52.80
211.0	012.2513	0250.5	048.5	015.1	100.0000	0262.3	105.8	52.69
212.0	012.0050	0252.0	048.4	014.7	100.0000	0261.8	106.1	52.59
213.0	011.7613	0253.5	048.3	014.2	100.0000	0262.9	106.5	52.53
214.0	011.5200	0255.1	048.3	013.8	100.0000	0264.5	106.8	52.47
215.0	011.2812	0256.4	048.2	013.4	100.0000	0266.3	107.2	52.42
216.0	011.0450	0257.5	048.1	013.0	100.0000	0267.9	107.6	52.34
217.0	010.8113	0258.6	047.9	012.7	100.0000	0269.7	108.1	52.27
218.0	010.5800	0259.0	047.8	012.3	100.0000	0271.2	108.6	52.18
219.0	010.3513	0259.5	047.6	011.9	100.0000	0272.9	109.1	52.09
220.0	010.1250	0259.7	047.4	011.6	100.0000	0274.6	109.6	51.99
221.0	010.2152	0259.9	047.5	011.2	100.0000	0276.5	109.9	51.95
222.0	010.3513	0260.7	047.7	010.8	100.0000	0278.6	110.2	51.94
223.0	010.4424	0261.2	047.8	010.4	100.0000	0280.4	110.5	51.90
224.0	010.5800	0261.8	048.0	010.0	100.0000	0282.0	110.8	51.86
225.0	010.6722	0262.3	048.1	009.6	100.0000	0283.7	111.2	51.81
226.0	010.8113	0262.6	048.2	009.2	100.0000	0284.8	111.6	51.74
227.0	010.9512	0262.9	048.4	008.8	100.0000	0286.1	112.0	51.68
228.0	011.0450	0263.3	048.5	008.4	100.0000	0287.4	112.4	51.60
229.0	011.1392	0264.0	048.6	008.0	100.0000	0288.4	112.9	51.52
230.0	011.2812	0264.6	048.8	007.7	100.0000	0289.4	113.3	51.43
231.0	011.8584	0265.4	049.3	007.2	100.0000	0290.8	113.5	51.42
232.0	012.4501	0265.8	049.7	006.7	100.0000	0292.2	113.8	51.39
233.0	013.0560	0266.1	050.2	006.2	100.0000	0293.5	114.1	51.35
234.0	013.6765	0266.5	050.7	005.7	100.0000	0294.9	114.4	51.31
235.0	014.3113	0266.8	051.1	005.3	100.0000	0296.1	114.8	51.25
236.0	014.9604	0267.1	051.5	004.8	100.0000	0297.7	115.2	51.20

Exhibit 18.4

Contour Protection Studies Toward WIAA(FM) - Interlochen, MI

03-09-2015

Terrain Data: USGS 03 SEC

FMOver Analysis

WIAA BLED19900105KB

WIAB.P

Channel = 204C

Max ERP = 100 kW

RCAMSL = 658 M

N. Lat. 44 16 33.0

W. Lng. 85 42 49.0

Protected

60 dBu

Channel = 203C1

Max ERP = 50 kW

RCAMSL = 471 M

N. Lat. 45 34 07.0

W. Lng. 85 02 35.0

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
335.0	100.0000	0359.3	076.8	229.2	011.1631	0264.0	112.7	41.40	
336.0	100.0000	0358.4	076.7	228.9	011.1332	0263.9	111.4	41.70	
337.0	100.0000	0357.9	076.7	228.7	011.1112	0263.8	110.1	42.01	
338.0	100.0000	0357.3	076.6	228.4	011.0870	0263.6	108.9	42.32	
339.0	100.0000	0355.8	076.5	228.1	011.0586	0263.4	107.7	42.64	
340.0	100.0000	0354.0	076.4	227.8	011.0271	0263.2	106.5	42.95	
341.0	100.0000	0352.9	076.3	227.5	010.9967	0263.1	105.3	43.27	
342.0	100.0000	0351.4	076.2	227.1	010.9631	0263.0	104.1	43.59	
343.0	100.0000	0349.7	076.1	226.7	010.9148	0262.9	103.0	43.91	
344.0	100.0000	0346.8	075.8	226.3	010.8524	0262.7	101.9	44.20	
345.0	100.0000	0342.6	075.5	225.8	010.7808	0262.5	100.9	44.47	
346.0	100.0000	0340.5	075.4	225.3	010.7171	0262.4	099.9	44.76	
347.0	100.0000	0340.6	075.4	224.9	010.6656	0262.3	098.7	45.08	
348.0	100.0000	0340.4	075.4	224.5	010.6259	0262.1	097.7	45.40	
349.0	100.0000	0338.3	075.2	224.0	010.5775	0261.8	096.7	45.67	
350.0	100.0000	0334.4	074.9	223.4	010.4951	0261.5	095.8	45.91	
351.0	100.0000	0330.0	074.6	222.7	010.4195	0261.0	094.9	46.12	
352.0	100.0000	0327.8	074.5	222.2	010.3668	0260.7	094.0	46.37	
353.0	100.0000	0326.0	074.3	221.6	010.2952	0260.4	093.1	46.61	
354.0	100.0000	0326.3	074.3	221.1	010.2226	0259.9	092.2	46.87	
355.0	100.0000	0326.7	074.4	220.5	010.1703	0259.7	091.2	47.14	
356.0	100.0000	0323.1	074.1	219.8	010.1704	0259.7	090.5	47.36	
357.0	100.0000	0319.4	073.8	219.1	010.3337	0259.5	089.8	47.63	
358.0	100.0000	0315.0	073.5	218.3	010.5074	0259.1	089.3	47.88	
359.0	100.0000	0311.5	073.2	217.6	010.6790	0258.9	088.7	48.13	
000.0	100.0000	0307.2	072.9	216.8	010.8610	0258.4	088.1	48.36	
001.0	100.0000	0305.3	072.8	216.1	011.0316	0257.6	087.5	48.60	
002.0	100.0000	0304.1	072.7	215.3	011.2025	0256.8	086.9	48.84	
003.0	100.0000	0301.7	072.5	214.6	011.3870	0255.9	086.4	49.05	
004.0	100.0000	0299.9	072.4	213.8	011.5722	0254.8	085.9	49.25	
005.0	100.0000	0297.2	072.2	213.0	011.7676	0253.5	085.4	49.41	
006.0	100.0000	0294.1	071.9	212.1	011.9696	0252.2	085.1	49.56	
007.0	100.0000	0291.4	071.7	211.3	012.1735	0251.0	084.8	49.69	

MUNN-REESE, INC.

Broadcast Engineering Consultants

COLDWATER, MI 49036

Exhibit 18.4

Contour Protection Studies Toward WIAA(FM) - Interlochen, MI

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
008.0	100.0000	0288.6	071.5	210.5	012.3817	0249.6	084.5	49.81
009.0	100.0000	0285.3	071.2	209.6	012.6906	0248.4	084.3	49.94
010.0	100.0000	0281.9	070.9	208.8	013.1279	0247.1	084.2	50.10
011.0	100.0000	0277.5	070.5	207.9	013.5812	0245.6	084.1	50.20
012.0	100.0000	0272.5	070.1	207.0	014.0444	0244.2	084.2	50.27
013.0	100.0000	0268.0	069.8	206.1	014.5076	0243.5	084.3	50.37
014.0	100.0000	0263.8	069.4	205.3	014.9726	0243.4	084.4	50.47
015.0	100.0000	0262.0	069.2	204.5	015.4288	0243.1	084.3	50.61
016.0	100.0000	0264.2	069.4	203.7	015.8755	0242.6	084.0	50.83
017.0	100.0000	0266.5	069.6	202.8	016.3351	0241.9	083.7	51.03
018.0	100.0000	0266.3	069.6	202.0	016.8132	0240.3	083.6	51.13
019.0	100.0000	0265.9	069.6	201.2	017.2996	0237.8	083.6	51.18
020.0	100.0000	0264.8	069.5	200.3	017.7928	0234.6	083.6	51.17
021.0	100.0000	0263.0	069.3	199.5	018.3767	0231.3	083.8	51.14
022.0	100.0000	0263.4	069.4	198.7	019.0344	0228.2	083.8	51.17
023.0	100.0000	0263.4	069.4	197.9	019.7013	0225.4	083.9	51.19
024.0	100.0000	0261.4	069.2	197.1	020.3639	0222.8	084.2	51.14
025.0	100.0000	0259.4	069.0	196.3	021.0276	0220.7	084.6	51.10
026.0	100.0000	0258.0	068.9	195.5	021.6969	0219.2	084.9	51.07
027.0	100.0000	0260.3	069.1	194.7	022.4059	0217.6	085.0	51.13
028.0	100.0000	0261.8	069.2	193.9	023.1159	0216.2	085.1	51.16
029.0	100.0000	0262.0	069.2	193.1	023.8164	0215.3	085.4	51.17
030.0	100.0000	0263.0	069.3	192.3	024.5296	0214.8	085.7	51.19
031.0	100.0000	0263.5	069.4	191.5	025.2372	0214.4	086.1	51.18
032.0	100.0000	0264.7	069.5	190.7	025.9598	0213.4	086.4	51.16
033.0	100.0000	0265.6	069.5	190.0	026.6878	0212.5	086.8	51.12
034.0	100.0000	0266.9	069.7	189.2	027.6948	0211.3	087.2	51.11
035.0	100.0000	0268.7	069.8	188.4	028.7651	0210.2	087.6	51.11
036.0	100.0000	0270.7	070.0	187.7	029.8605	0208.8	088.0	51.08
037.0	100.0000	0272.9	070.2	186.9	030.9686	0207.1	088.5	51.04
038.0	100.0000	0274.1	070.3	186.2	031.9804	0205.0	089.0	50.93
039.0	100.0000	0275.5	070.4	185.5	033.0010	0202.9	089.6	50.81
040.0	100.0000	0273.3	070.2	185.0	033.8484	0201.0	090.5	50.58
041.0	100.0000	0270.7	070.0	184.4	034.6957	0199.2	091.4	50.34
042.0	100.0000	0268.6	069.8	183.9	035.5444	0197.2	092.2	50.10
043.0	100.0000	0268.0	069.8	183.3	036.4556	0194.9	093.0	49.89
044.0	100.0000	0266.7	069.6	182.8	037.2837	0193.0	093.9	49.65
045.0	100.0000	0264.2	069.4	182.3	037.9985	0190.9	094.9	49.37
046.0	100.0000	0262.1	069.3	181.9	038.7101	0188.5	095.9	49.08
047.0	100.0000	0260.1	069.1	181.5	039.3982	0186.3	096.8	48.80
048.0	100.0000	0256.6	068.8	181.1	039.9786	0184.3	097.9	48.48
049.0	100.0000	0254.2	068.6	180.7	040.6143	0182.2	098.9	48.19
050.0	100.0000	0253.1	068.5	180.3	041.3196	0180.4	099.9	47.94
051.0	100.0000	0251.6	068.4	179.9	041.9120	0179.0	100.9	47.68
052.0	100.0000	0251.4	068.4	179.5	042.2462	0177.8	101.9	47.43
053.0	100.0000	0251.9	068.4	179.1	042.5902	0176.6	102.8	47.18

Exhibit 18.5

Waiver Request of 47 C.F.R. §73.509

Regarding this WIAB(FM) - Mackinaw City, MI proposal, a Waiver of §73.509 is requested for Received Second Adjacent Channel Contour Overlap from WBLW(FM) - Gaylord, MI, License Number BLED-20060921ACV. This WIAB(FM) proposal will receive *de minimis* contour overlap from second adjacent channel station WBLW(FM) as noted here-in. The WIAB(FM) proposal will not cause interference to any other existing facility or pending application.

The area of received contour overlap has been calculated in terms of land area and in terms of U.S. Census 2010 population. The interference contour employed is the standard 100 dBμ F(50:10) interference contour as required in §73.509. A map showing the relevant interference contour in relation to the relevant U.S. Census 2010 population centroid datum has been provided at the end of this study. The existing and proposed WIAB(FM) service contours have been previously supplied in **Exhibit 16.4**.

Summary of Contour Relationship		
	Service Contour	
WIAB(FM).P – Mackinaw City, MI	Population	Land Area*
60 dBμ F(50:50) Service Contour	91,029	5,234 km ²
*Land Area adjusted for areas over water		
	Interference Contour	
WBLW(FM) – Gaylord, MI	Population	Land Area
100 dBμ F(50:10) Interference Contour	67 (0.074%)	24.95 km ² (0.48%)

A grant of this proposal and waiver request will allow WIAB(FM) to increase its overall coverage from 2,630 km² to 5,234 km² or an increase of 99.0% from the present licensed facilities (see **Exhibit 16.4**). Population will be increased from 45,918 to 91,029 or an increase of 98.2% from the present licensed facilities (see **Exhibit 16.4**). In addition, the actual received contour overlap from WBLW(FM) will comprise only 0.48% of the proposed WIAB(FM) 60 dBμ F(50:50) land area and 0.074% of proposed WIAB(FM) 60 dBμ F(50:50) population. These can only be defined as substantial increases (>50%) in coverage and population served in comparison to the *de minimis* contour overlap (<1%) predicted to occur.

This waiver request is similar to the request made by WCPE(FM) in *Educational Information Corporation*, 6 FCC Rcd 2207 (1991). WCPE(FM) requested a waiver in its application to permit *de minimus* overlap "received." In recognition of the importance of affording noncommercial educational stations the flexibility to expand and meet the growing demand for service, the Commission granted the waiver request. The instant request fully satisfies the criteria established by the Commission for waiver of Section 73.509 of the Commission's rules as it pertains to overlap received.

Moreover, following the precedent established in the 1991 waiver case, the Commission waived §73.509 and granted a virtually identical Construction Permit application waiver for NCE-FM Station KLTU(FM) - Mammoth, AZ (File No. BPED-20051202ABA, dated 4/5/2006); and granted an identical waiver of §73.509 for WJFP(FM) – Fort Pierce, FL for Construction Permit application File No. BPED-20101130APN (dated 3/17/2011).

Exhibit 18.5

Waiver Request of 47 C.F.R. §73.509

Alternate solutions were explored which might result in equal public benefit. After careful study, the applicant believes a waiver of the received second adjacent channel contour overlap remains the best alternative to serve the public interest. Studies were conducted and no minor change frequency exists which will allow for even a remotely equivalent operation. Alternate site searches were conducted by the applicant and even applied for as documented by now expired Construction Permit BPED-20100707EAA (however due to tower loading issues, construction of BPED-20100707EAA was no longer feasible).

The use of a directional antenna was also considered, and in fact employed as noted in this application. However, the directivity required to achieve the full protection would substantially degrade coverage along the southern arc of protection. Inspection of the **Exhibit 16.4** coverage map will indicate areas to the west and northwest are primarily water (Lake Michigan) with the substantial land area residing to the south and east. A further and more severely directionalized antenna to the south would not serve this listening public.

In conclusion, substantial increases in service and public benefit will be achieved with a grant of this proposal and waiver request. The overlap resulting will be inconsequential and well within the scope of the Commission's waiver policy. The benefit heavily outweighs the potential for interference as the relevant interference area constitutes less than 0.48% of the station's proposed land area and more importantly 0.074% of the station's proposed population. Accordingly, the applicant respectfully requests a waiver of §73.509 of the Commission's rules in this instance.

"+" Denotes U.S. Census 2010 PL Population Centroid Datum

Exhibit 18.5

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Waiver Request of 47 C.F.R. §73.509 Received Second Adjacent Channel Interference

USGS 03 SEC Terrain Database
U.S. Census 2010 PL Database

WBLW.L - 100 dBμ F(50:10) Contour

Boyer Falls

WBLW.L

Vanderbilt

WBLW.L
Gaylord, MI
BLED20060921ACV
Facility ID: 91339
Latitude: 45-10-12 N
Longitude: 084-45-04 W
ERP: 5.00 kW
Channel: 201C2 (88.1 MHz)
AMSL Height: 586.0 m
Horiz. Pattern: Directional

100 dBμ F(50:10) Contour
Total Population: 67
Coverage Area: 24.95 sq. km

Scale 1:125,000

0 2 4 6 km

V-Soft Communications LLC ©

MUNN-REESE, INC.
Broadcast Engineering Consultants
Coldwater, MI 49036
1(517)278-7339

Exhibit 18.6

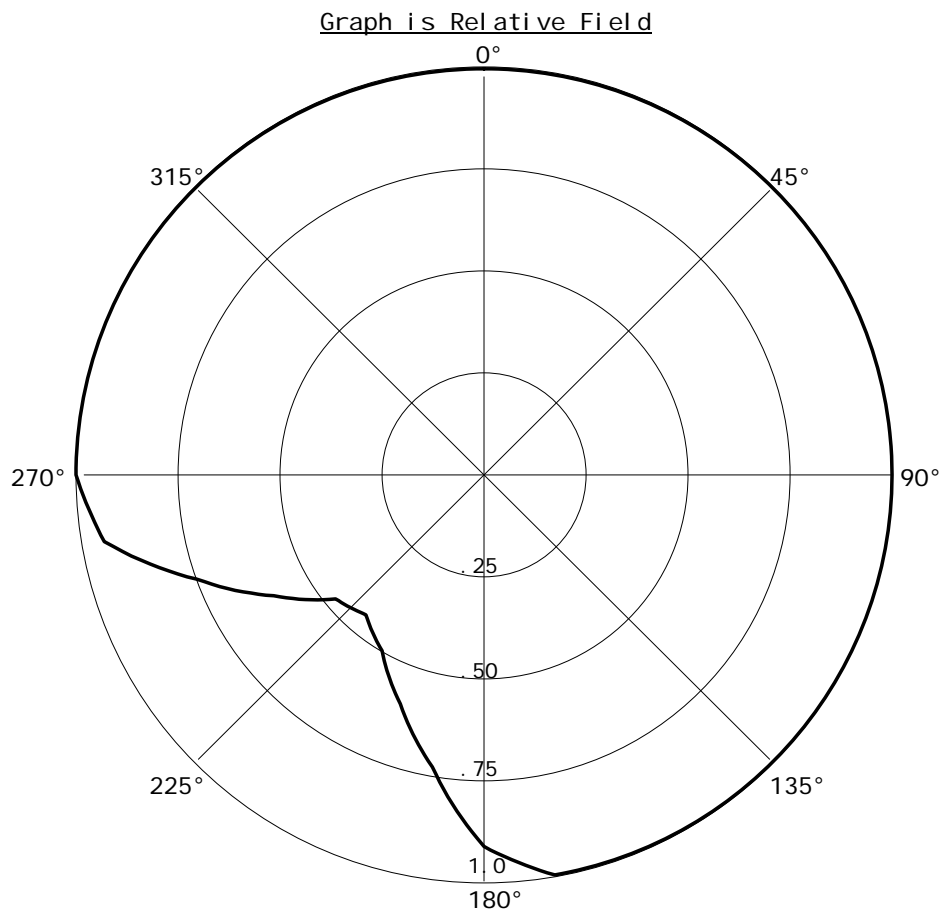
Tabulation of Proposed Directional Antenna Pattern

WI AB. P

03-09-2015

RMS(V) = .931

Azi	Field	dBk	kW
000	1.000	16.990	50.000
010	1.000	16.990	50.000
020	1.000	16.990	50.000
030	1.000	16.990	50.000
040	1.000	16.990	50.000
050	1.000	16.990	50.000
060	1.000	16.990	50.000
070	1.000	16.990	50.000
080	1.000	16.990	50.000
090	1.000	16.990	50.000
100	1.000	16.990	50.000
110	1.000	16.990	50.000
120	1.000	16.990	50.000
130	1.000	16.990	50.000
140	1.000	16.990	50.000
150	1.000	16.990	50.000
160	1.000	16.990	50.000
170	1.000	16.990	50.000
180	0.915	16.218	41.861
190	0.730	14.256	26.645
200	0.600	12.553	18.000
210	0.500	10.969	12.500
220	0.450	10.054	10.125
230	0.475	10.524	11.281
240	0.595	12.480	17.701
250	0.750	14.491	28.125
260	0.945	16.498	44.651
270	1.000	16.990	50.000
280	1.000	16.990	50.000
290	1.000	16.990	50.000
300	1.000	16.990	50.000
310	1.000	16.990	50.000
320	1.000	16.990	50.000
330	1.000	16.990	50.000
340	1.000	16.990	50.000
350	1.000	16.990	50.000



The antenna proposed in this application will be mounted in accordance with specific instructions provided by the antenna manufacturer. The antenna will be tested by the manufacturer using the type of mounting which will be employed in the field.

The directional antenna will be mounted on the tower which is of uniform cross section. No other antennas of any type are or will be mounted on the same tower level as the directional antenna.

No antenna is or will be mounted within any vertical or horizontal distance specified by the antenna manufacturer as being necessary for proper operation of the directional antenna. The antenna will be assembled under the supervision of a qualified engineer, who will provide the required certification. This statement will certify that the antenna has been installed pursuant to the manufacturer's instructions. Also upon completion of antenna construction, a statement from a licensed surveyor will be submitted with the application for license certifying the antenna has been installed in the proper orientation.

The directional antenna pattern will be produced by means of the antenna yagi element design or by means of parasitic elements, adjusted to produce the required pattern.

The antenna pattern will be measured by the manufacturer on the test range, and the measurement results will be supplied to the Commission at the time Form 302-FM is filed covering the construction.