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Contour-to-Contour Allocations Study

State Of Wisconsin - Educational Communications Board

REFERENCE CH# 215D - 90.9 MHz, Pwr= 0.026 kW, HAAT= 166.6 M, COR= 468 M
43 03 21.0 N.
89 32 06.0 W.
Average Protected F(50-50)= 9.59 km
Omni-directional

DISPLAY DATES
DATA 05-01-14
SEARCH 05-01-14

CH CITY	CALL	TYPE STATE	ANT	AZI <--	DIST FILE #	LAT LNG	PWR (kW) HAAT (M)	INT (km) COR (M)	PRO (km) LICENSEE	*OUT*
215D Madison	W215AQ	LIC WI	CN	0.0 0.0	0.00 BLFT19970618TB	43 03 21.0 89 32 06.0	0.010 169	25.5 468	7.6 State Of Wisconsin - Educa	-39.8*
216D Mcfarland	W216BL	LIC WI	C	91.7 271.9	20.56 BLFT20020114AAS	43 03 00.0 89 16 55.0	0.120 30	9.8 305	5.9 Vcy America, Inc.	0.0
217C1 Highland	WHHI	LIC WI	CX	269.6 89.1	67.74 BLED20090929AKD	43 02 55.6 90 22 07.5	100.000 170	7.8 478	61.9 State Of Wisconsin - Educa	5.4
214B Delafield	WHAD	LIC WI	CX	91.5 272.3	92.90 BLED20030129AIT	43 01 42.0 88 23 32.0	72.000 208	92.5 487	62.7 State Of Wisconsin - Educa	16.0
212B1 Marshall	WJWD	LIC WI	DEX	47.4 227.7	47.50 BLED20030213AAJ	43 20 40.0 89 06 10.0	9.900 95	1.6 380	17.1 Calvary Radio Network, Inc	27.4
216B1 Loves Park	WGSL	LIC IL	DC	152.1 332.5	92.10 BLED20010727AAW	42 19 20.0 89 00 41.0	7.000 161	55.6 408	37.5 Educational Media Foundati	41.7
06 T Chicago	WGWG-LP	CP IL	N	128.7 310.0	202.78 BDFCDVL20130114ACW	41 53 56.0 87 37 23.0	3.000 387	2.9 566	18.1 134.0R Wlfm, Llc	68.8M
06-T Chicago	WGWG-LP	LI IL	D_N	128.7 310.0	202.78 BLTVL20100111AIE	41 53 56.0 87 37 23.0	3.000 387	2.9 566	18.1 134.0R Wlfm, Llc	68.8M
06 D Dixon	1330618	AP IL	N	166.9 347.1	120.91 BNPDVL20090825BOQ	41 59 46.0 89 12 11.0	0.300 241	2.9 453	18.1 21.0R Km Communications, Inc.	99.9M

Terrain database is USGS 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= East Zone, Co to 3rd adjacent.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
Incoming contour overlap is ignored.
***affixed to 'IN' or 'OUT' values = site inside protected contour.

HOW TO READ THE FM COMPUTER PRINT-OUT

Translator Reference Station

The computer printout should be self-explanatory for the most part. The parameters of the station being checked, (reference station) are printed in the heading. The 60 dBu protected contour is predicted from the Commission's F(50-50) table. Contour distances are in kilometers and are predicted using the Commission's TVFMINT FORTRAN subroutine. When interference contour distances are less than 16 kilometers the F(50-50) tables are used. If signal contour distances are less than 1.6 km the free-space equation is used.

All distances are derived by the method detailed in Sec. 73.208 of the Rules and Regulations as amended in Docket 80-90. The column labeled "* OUT *" shows the greatest distance in kilometers of overlap (or smallest distance of clearance) between the reference station's interference contour and the database station's protected contour. Negative distance figures in this column indicate outgoing contour overlap. Since translators are able to receive interference there is no "In" or incoming column in this report.

Listed antenna heights and power are the specific antenna heights and power from the FCC database.

Under the "AZI" column, the first row of numbers indicate the True North azimuths from the reference station toward the database stations, while the numbers in the second row indicate the reverse bearings from the database stations to the reference station. Bearings are calculated using spherical trigonometry.

The columns labeled "INT" and "PRO" contain the distance in kilometers of the appropriate interference contour and the protected contour of a data base station.

For I.F. relationships the minimum spacings the "OUT" columns change its significance. The letter "R" stands for the minimum **required** distance in kilometers, while the letter "M" in the next column displays the **available clear space** separation in kilometers. Minimum separation distances when displayed are taken from Sec 73.207 of the rules as amended. Canadian and Mexican separation distances, U/D ratios and protected contour values are from the US/Mexican Working Agreement and the US/Canada Working Agreement".

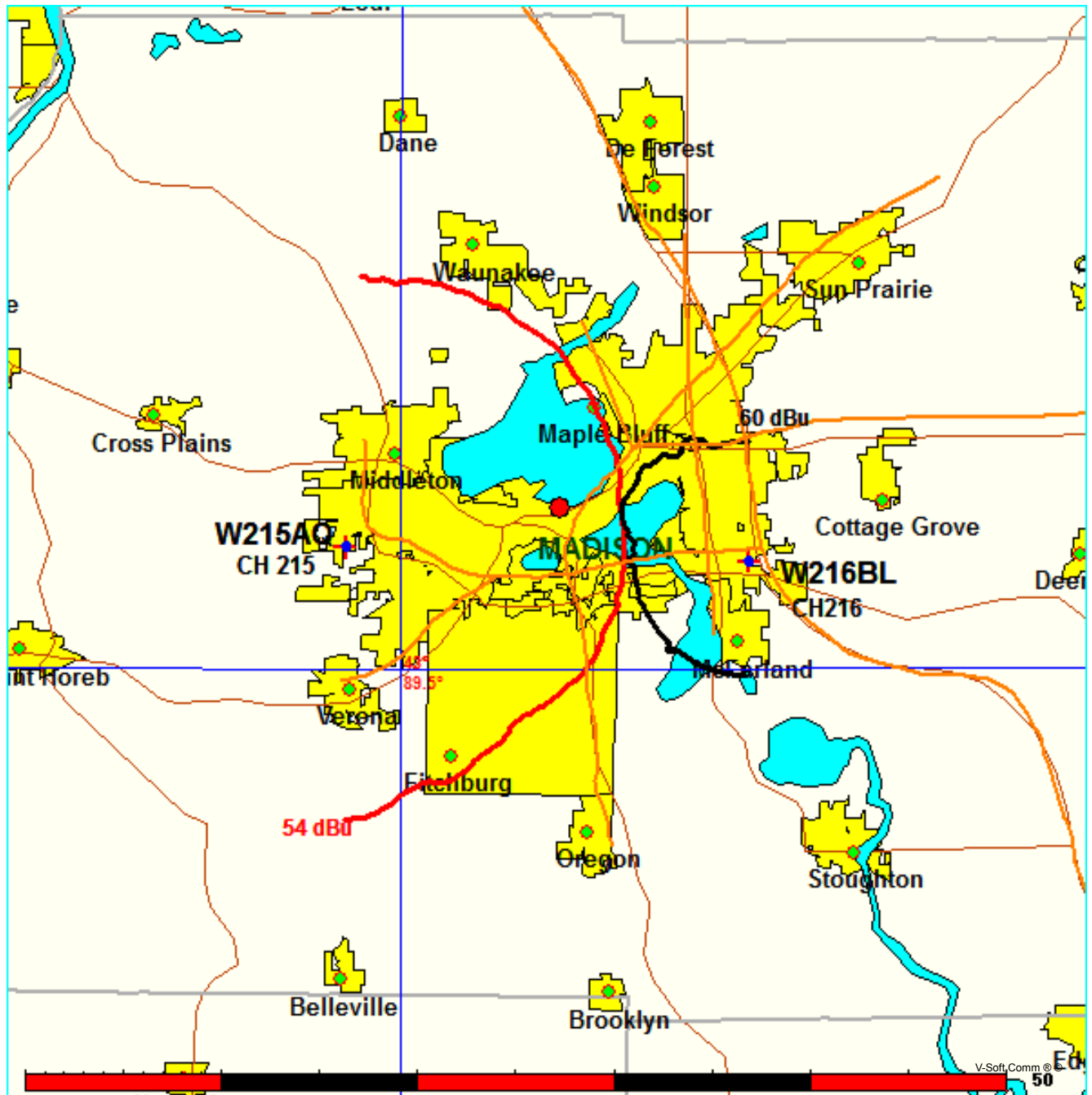
The first three letters of the "TYPE" column identify the current FCC status of the stations. The fourth letter will be a "D" if the facility is directional. "Z" indicates a 73.215 directional. An "N" indicates it is a 73.215 station that operates with an omni-directional antenna. The fifth letter will be an E, H or V depending on the type of antenna polarization. The sixth letter will be a "Y" if the antenna uses beam tilt or an "X" if the commission is not sure, otherwise it will be an "N" or left blank.

Contour-to-Contour with W216BL
State Of Wisconsin - Educational Communications Board

FMCommander Single Allocation Study - 05-01-2014 - USGS 03 SEC
W215AQ's Overlaps (In= 1.3 km, Out= 0.0 km)

W215AQ CH 215 D
Lat= 43 03 21.0, Lng= 89 32 06.0
0.026 kW 166.6 M HAAT, 468 M COR
Prot.= 60 dBu, Intef.= 54 dBu

W216BL CH 216 D BLFT20020114AAS
Lat= 43 03 00.0, Lng= 89 16 55.0
0.12 kW 30 M HAAT, 305 M COR
Prot.= 60 dBu, Intef.= 54 dBu



05-01-2014

Terrain Data: USGS 03 SEC

FMOver Analysis

W216BL BLFT20020114AAS

W215AQ

Channel = 216D

Max ERP = 0.12 kW

RCAMSL = 305 M

N. Lat. 43 03 00.0

W. Lng. 89 16 55.0

Protected

60 dBu

Channel = 215D

Max ERP = 0.026 kW

RCAMSL = 468 M

N. Lat. 43 03 21.0

W. Lng. 89 32 06.0

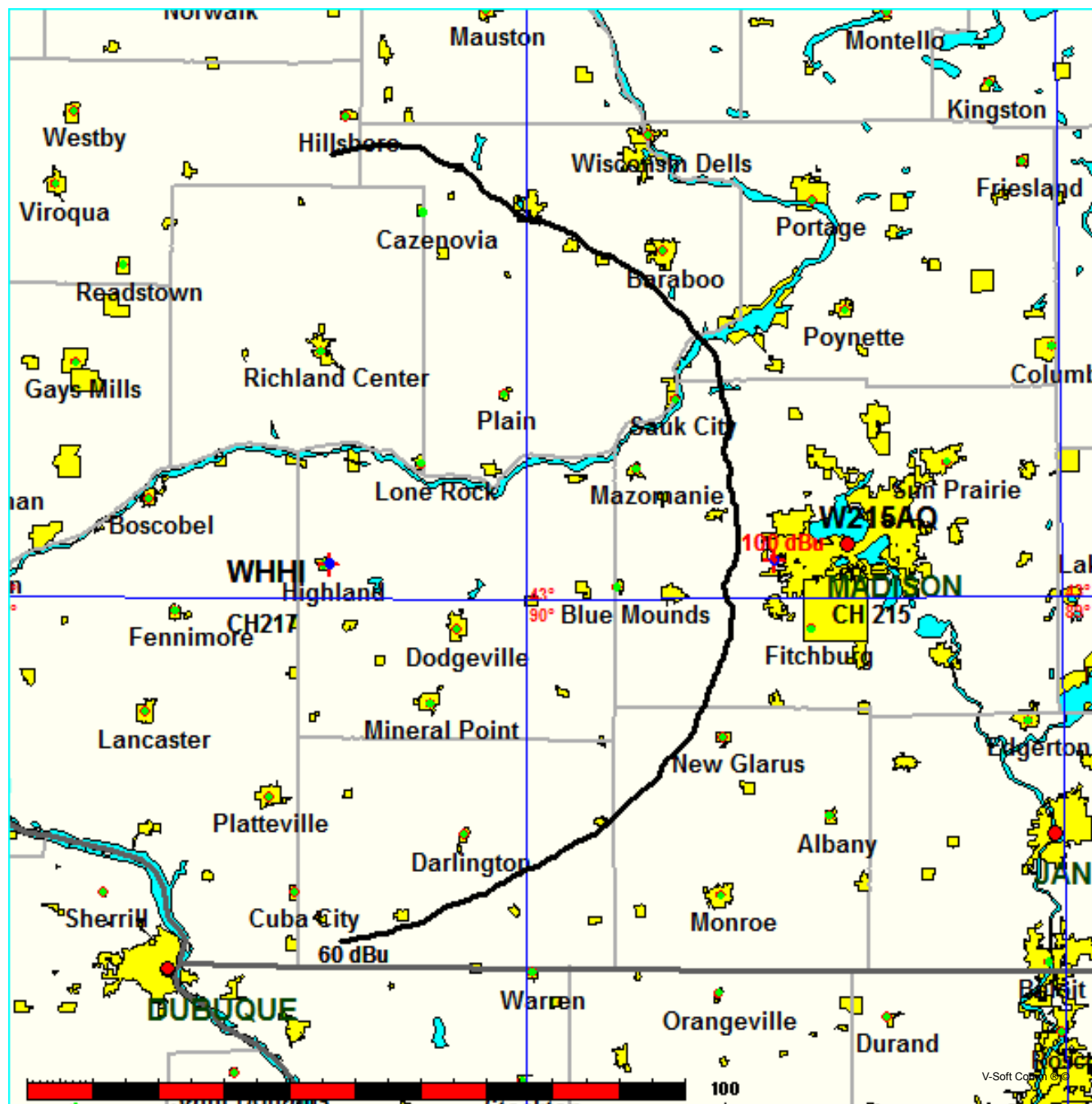
Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
212.0	000.1200	0025.2	005.9	107.9	000.0260	0176.9	018.3	50.01	
213.0	000.1200	0024.9	005.9	107.8	000.0260	0176.9	018.2	50.09	
214.0	000.1200	0025.3	005.9	107.7	000.0260	0177.0	018.1	50.17	
215.0	000.1200	0025.5	005.9	107.6	000.0260	0177.0	018.0	50.26	
216.0	000.1200	0026.4	005.9	107.5	000.0260	0177.2	017.9	50.35	
217.0	000.1200	0027.2	005.9	107.4	000.0260	0177.4	017.8	50.43	
218.0	000.1200	0027.8	005.9	107.3	000.0260	0177.5	017.7	50.52	
219.0	000.1200	0029.0	005.9	107.2	000.0260	0177.7	017.6	50.61	
220.0	000.1200	0030.7	006.0	107.2	000.0260	0177.6	017.5	50.70	
221.0	000.1200	0032.8	006.1	107.6	000.0260	0177.0	017.4	50.81	
222.0	000.1200	0033.8	006.2	107.8	000.0260	0177.0	017.2	50.92	
223.0	000.1200	0030.8	006.0	106.8	000.0260	0178.1	017.2	50.96	
224.0	000.1200	0025.3	005.9	106.5	000.0260	0178.7	017.2	51.04	
225.0	000.1200	0021.7	005.9	106.3	000.0260	0179.0	017.1	51.13	
226.0	000.1200	0019.8	005.9	106.1	000.0260	0179.3	017.0	51.22	
227.0	000.1200	0018.6	005.9	106.0	000.0260	0179.7	016.9	51.32	
228.0	000.1200	0018.9	005.9	105.8	000.0260	0180.1	016.8	51.41	
229.0	000.1200	0019.2	005.9	105.6	000.0260	0180.7	016.7	51.51	
230.0	000.1200	0019.8	005.9	105.4	000.0260	0181.2	016.7	51.61	
231.0	000.1200	0019.6	005.9	105.2	000.0260	0181.8	016.6	51.71	
232.0	000.1200	0018.0	005.9	105.0	000.0260	0182.4	016.5	51.80	
233.0	000.1200	0017.5	005.9	104.8	000.0260	0183.0	016.4	51.90	
234.0	000.1200	0017.9	005.9	104.5	000.0260	0183.6	016.3	51.99	
235.0	000.1200	0018.4	005.9	104.3	000.0260	0184.0	016.2	52.08	
236.0	000.1200	0016.9	005.9	104.1	000.0260	0184.3	016.2	52.15	
237.0	000.1200	0015.3	005.9	103.8	000.0260	0184.5	016.1	52.23	
238.0	000.1200	0014.3	005.9	103.6	000.0260	0184.8	016.0	52.30	
239.0	000.1200	0015.0	005.9	103.3	000.0260	0185.1	015.9	52.38	
240.0	000.1200	0016.3	005.9	103.0	000.0260	0185.5	015.9	52.45	
241.0	000.1200	0018.3	005.9	102.8	000.0260	0185.8	015.8	52.53	
242.0	000.1200	0018.3	005.9	102.5	000.0260	0186.0	015.7	52.59	
243.0	000.1200	0017.6	005.9	102.2	000.0260	0185.9	015.7	52.65	
244.0	000.1200	0018.7	005.9	101.9	000.0260	0185.4	015.6	52.68	
245.0	000.1200	0021.4	005.9	101.6	000.0260	0184.8	015.5	52.70	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
246.0	000.1200	0023.6	005.9	101.3	000.0260	0184.1	015.5	52.72
247.0	000.1200	0025.6	005.9	101.0	000.0260	0183.6	015.4	52.75
248.0	000.1200	0028.1	005.9	100.7	000.0260	0183.3	015.4	52.79
249.0	000.1200	0030.4	005.9	100.4	000.0260	0183.2	015.3	52.85
250.0	000.1200	0031.6	006.0	100.3	000.0260	0183.1	015.1	52.97
251.0	000.1200	0031.3	006.0	099.9	000.0260	0183.2	015.1	52.99
252.0	000.1200	0030.1	005.9	099.3	000.0260	0183.8	015.1	52.99
253.0	000.1200	0028.1	005.9	099.0	000.0260	0184.3	015.1	53.05
254.0	000.1200	0027.3	005.9	098.6	000.0260	0185.1	015.1	53.12
255.0	000.1200	0025.9	005.9	098.3	000.0260	0185.6	015.0	53.18
256.0	000.1200	0024.8	005.9	097.9	000.0260	0185.8	015.0	53.02
257.0	000.1200	0026.0	005.9	097.5	000.0260	0185.6	014.9	53.06
258.0	000.1200	0027.3	005.9	097.2	000.0260	0185.6	014.9	53.10
259.0	000.1200	0027.4	005.9	096.8	000.0260	0186.1	014.9	53.16
260.0	000.1200	0025.2	005.9	096.4	000.0260	0186.4	014.8	53.21
261.0	000.1200	0023.8	005.9	096.0	000.0260	0186.6	014.8	53.25
262.0	000.1200	0024.7	005.9	095.6	000.0260	0186.6	014.8	53.28
263.0	000.1200	0025.5	005.9	095.3	000.0260	0186.6	014.8	53.30
264.0	000.1200	0025.9	005.9	094.9	000.0260	0186.4	014.7	53.32
265.0	000.1200	0027.2	005.9	094.5	000.0260	0186.6	014.7	53.35
266.0	000.1200	0028.6	005.9	094.1	000.0260	0186.9	014.7	53.38
267.0	000.1200	0031.6	006.0	093.7	000.0260	0187.2	014.6	53.56
268.0	000.1200	0032.8	006.1	093.4	000.0260	0187.2	014.5	53.70
269.0	000.1200	0033.7	006.2	093.0	000.0260	0187.2	014.4	53.81
270.0	000.1200	0032.4	006.1	092.5	000.0260	0187.3	014.5	53.68
271.0	000.1200	0030.9	006.0	092.1	000.0260	0187.2	014.6	53.53
272.0	000.1200	0030.2	005.9	091.7	000.0260	0187.1	014.7	53.46
273.0	000.1200	0030.0	005.9	091.3	000.0260	0187.0	014.7	53.43
274.0	000.1200	0030.7	006.0	090.9	000.0260	0186.9	014.6	53.49
275.0	000.1200	0030.3	005.9	090.5	000.0260	0186.7	014.7	53.44
276.0	000.1200	0030.3	005.9	090.1	000.0260	0186.6	014.7	53.42
277.0	000.1200	0030.0	005.9	089.7	000.0260	0186.6	014.7	53.38
278.0	000.1200	0030.0	005.9	089.3	000.0260	0186.5	014.7	53.36
279.0	000.1200	0030.9	006.0	088.8	000.0260	0186.4	014.7	53.42
280.0	000.1200	0033.3	006.2	088.3	000.0260	0186.1	014.5	53.62
281.0	000.1200	0034.7	006.3	087.7	000.0260	0185.8	014.4	53.73
282.0	000.1200	0034.7	006.3	087.3	000.0260	0185.8	014.4	53.69
283.0	000.1200	0035.6	006.4	086.8	000.0260	0185.8	014.4	53.75
284.0	000.1200	0037.2	006.5	086.2	000.0260	0185.8	014.3	53.85
285.0	000.1200	0038.8	006.6	085.6	000.0260	0185.5	014.2	53.97
286.0	000.1200	0038.7	006.6	085.2	000.0260	0185.4	014.2	53.91
287.0	000.1200	0040.3	006.8	084.5	000.0260	0185.2	014.1	53.99
288.0	000.1200	0041.0	006.8	084.0	000.0260	0185.0	014.1	54.00
289.0	000.1200	0041.3	006.9	083.5	000.0260	0184.9	014.2	53.96
290.0	000.1200	0042.0	006.9	083.0	000.0260	0184.7	014.2	53.96
291.0	000.1200	0042.8	007.0	082.4	000.0260	0184.4	014.2	53.94
292.0	000.1200	0043.1	007.0	081.9	000.0260	0184.2	014.2	53.89
293.0	000.1200	0043.3	007.0	081.5	000.0260	0183.9	014.2	53.81
294.0	000.1200	0043.3	007.0	081.1	000.0260	0183.8	014.3	53.73
295.0	000.1200	0043.1	007.0	080.7	000.0260	0183.9	014.4	53.64
296.0	000.1200	0042.5	007.0	080.4	000.0260	0184.2	014.5	53.52

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)		Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
297.0	000.1200	0042.4	007.0		080.0	000.0260	0184.5	014.6	53.44
298.0	000.1200	0042.5	007.0		079.6	000.0260	0184.9	014.6	53.38
299.0	000.1200	0042.3	006.9		079.3	000.0260	0185.3	014.7	53.29
300.0	000.1200	0041.7	006.9		079.1	000.0260	0185.6	014.8	53.17
301.0	000.1200	0041.8	006.9		078.7	000.0260	0186.2	014.9	53.12
302.0	000.1200	0042.0	006.9		078.3	000.0260	0187.3	015.0	53.08
303.0	000.1200	0041.8	006.9		078.0	000.0260	0188.2	015.1	53.25
304.0	000.1200	0041.7	006.9		077.8	000.0260	0189.0	015.2	53.20
305.0	000.1200	0042.3	006.9		077.3	000.0260	0190.5	015.2	53.23
306.0	000.1200	0042.9	007.0		076.9	000.0260	0191.4	015.3	53.22
307.0	000.1200	0043.4	007.0		076.4	000.0260	0192.1	015.4	53.20
308.0	000.1200	0043.7	007.1		076.1	000.0260	0192.6	015.4	53.15
309.0	000.1200	0043.7	007.1		075.8	000.0260	0192.8	015.5	53.07
310.0	000.1200	0043.6	007.1		075.6	000.0260	0193.0	015.6	52.99
311.0	000.1200	0043.5	007.0		075.3	000.0260	0193.0	015.7	52.91
312.0	000.1200	0042.6	007.0		075.3	000.0260	0193.0	015.9	52.79
313.0	000.1200	0041.6	006.9		075.3	000.0260	0193.0	016.0	52.66
314.0	000.1200	0041.4	006.9		075.2	000.0260	0193.1	016.1	52.57
315.0	000.1200	0040.8	006.8		075.1	000.0260	0193.1	016.3	52.47
316.0	000.1200	0040.5	006.8		075.0	000.0260	0193.1	016.4	52.37
317.0	000.1200	0040.4	006.8		074.8	000.0260	0193.2	016.5	52.28
318.0	000.1200	0040.1	006.8		074.7	000.0260	0193.2	016.6	52.19
319.0	000.1200	0040.0	006.8		074.5	000.0260	0193.3	016.7	52.10
320.0	000.1200	0040.2	006.8		074.3	000.0260	0193.3	016.8	52.02
321.0	000.1200	0039.9	006.7		074.2	000.0260	0193.3	016.9	51.92
322.0	000.1200	0037.8	006.6		074.6	000.0260	0193.2	017.1	51.76
323.0	000.1200	0035.6	006.4		075.0	000.0260	0193.1	017.3	51.61
324.0	000.1200	0034.9	006.3		075.1	000.0260	0193.1	017.4	51.51
325.0	000.1200	0034.8	006.3		075.0	000.0260	0193.1	017.5	51.42
326.0	000.1200	0034.7	006.3		074.9	000.0260	0193.2	017.6	51.34
327.0	000.1200	0035.5	006.4		074.6	000.0260	0193.2	017.7	51.27
328.0	000.1200	0037.2	006.5		074.0	000.0260	0193.4	017.8	51.22
329.0	000.1200	0038.2	006.6		073.7	000.0260	0193.6	017.9	51.16
330.0	000.1200	0039.0	006.7		073.4	000.0260	0193.7	018.0	51.09
331.0	000.1200	0039.8	006.7		073.1	000.0260	0193.8	018.1	51.01



05-01-2014

Terrain Data: USGS 03 SEC

FMOver Analysis

WHHI BLED20090929AKD

W215AQ

Channel = 217C1

Max ERP = 100 kW

RCAMSL = 478 M

N. Lat. 43 02 55.6

W. Lng. 90 22 07.5

Protected

60 dBu

Channel = 215D

Max ERP = 0.026 kW

RCAMSL = 468 M

N. Lat. 43 03 21.0

W. Lng. 89 32 06.0

Interfering

100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
029.0	100.0000	0159.4	059.7	323.3	000.0260	0143.6	064.1	25.30	
030.0	100.0000	0159.1	059.6	323.7	000.0260	0142.7	063.2	25.58	
031.0	100.0000	0162.7	060.1	324.4	000.0260	0140.9	062.4	25.76	
032.0	100.0000	0168.7	060.7	325.4	000.0260	0139.4	061.7	25.92	
033.0	100.0000	0170.0	060.9	325.9	000.0260	0139.8	060.7	26.27	
034.0	100.0000	0172.0	061.1	326.4	000.0260	0140.8	059.8	26.65	
035.0	100.0000	0175.3	061.4	327.1	000.0260	0141.5	059.0	27.00	
036.0	100.0000	0177.5	061.7	327.7	000.0260	0142.4	058.0	27.39	
037.0	100.0000	0179.3	061.8	328.3	000.0260	0143.2	057.1	27.79	
038.0	100.0000	0178.3	061.7	328.6	000.0260	0143.2	056.1	28.18	
039.0	100.0000	0177.3	061.6	328.8	000.0260	0143.0	055.0	28.56	
040.0	100.0000	0176.2	061.5	329.1	000.0260	0142.7	054.0	28.96	
041.0	100.0000	0180.0	061.9	329.8	000.0260	0142.0	053.1	29.26	
042.0	100.0000	0186.8	062.6	330.9	000.0260	0143.2	052.2	29.65	
043.0	100.0000	0191.1	063.0	331.7	000.0260	0144.6	051.3	30.08	
044.0	100.0000	0193.4	063.2	332.3	000.0260	0145.8	050.3	30.52	
045.0	100.0000	0196.9	063.5	333.0	000.0260	0144.7	049.4	30.84	
046.0	100.0000	0200.5	063.8	333.8	000.0260	0143.3	048.4	31.13	
047.0	100.0000	0204.6	064.2	334.6	000.0260	0142.9	047.5	31.48	
048.0	100.0000	0206.3	064.4	335.2	000.0260	0143.2	046.4	31.91	
049.0	100.0000	0203.9	064.2	335.3	000.0260	0143.2	045.3	32.38	
050.0	100.0000	0206.6	064.4	336.1	000.0260	0143.3	044.3	32.81	
051.0	100.0000	0207.9	064.5	336.6	000.0260	0143.8	043.2	33.29	
052.0	100.0000	0209.2	064.7	337.1	000.0260	0144.6	042.2	33.79	
053.0	100.0000	0210.0	064.7	337.6	000.0260	0144.6	041.1	34.28	
054.0	100.0000	0211.9	064.9	338.3	000.0260	0145.0	040.0	34.78	
055.0	100.0000	0216.0	065.3	339.2	000.0260	0145.3	039.0	35.26	
056.0	100.0000	0217.4	065.4	339.7	000.0260	0145.5	037.9	35.79	
057.0	100.0000	0217.3	065.4	340.1	000.0260	0145.6	036.8	36.33	
058.0	100.0000	0218.7	065.5	340.7	000.0260	0145.5	035.7	36.85	
059.0	100.0000	0222.8	065.9	341.7	000.0260	0146.7	034.7	37.44	
060.0	100.0000	0225.7	066.2	342.5	000.0260	0148.2	033.6	38.07	
061.0	100.0000	0227.5	066.3	343.2	000.0260	0148.9	032.5	38.67	
062.0	100.0000	0227.2	066.3	343.6	000.0260	0148.9	031.4	39.27	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
063.0	100.0000	0225.6	066.2	343.7	000.0260	0148.9	030.2	39.91
064.0	100.0000	0219.9	065.7	343.1	000.0260	0148.8	029.0	40.63
065.0	100.0000	0217.9	065.5	343.0	000.0260	0148.8	027.8	41.36
066.0	100.0000	0214.6	065.2	342.7	000.0260	0148.4	026.7	42.10
067.0	100.0000	0210.5	064.8	342.1	000.0260	0147.5	025.5	42.83
068.0	100.0000	0209.2	064.7	342.0	000.0260	0147.3	024.4	43.63
069.0	100.0000	0208.2	064.6	341.9	000.0260	0147.2	023.2	44.44
070.0	100.0000	0208.5	064.6	342.1	000.0260	0147.5	022.1	45.31
071.0	100.0000	0205.8	064.3	341.4	000.0260	0146.2	021.0	46.10
072.0	100.0000	0198.0	063.6	339.2	000.0260	0145.3	019.9	46.90
073.0	100.0000	0188.7	062.7	336.3	000.0260	0143.5	018.9	47.60
074.0	100.0000	0182.9	062.2	334.2	000.0260	0142.8	017.9	48.36
075.0	100.0000	0184.3	062.3	333.9	000.0260	0143.1	016.8	49.27
076.0	100.0000	0186.8	062.6	333.9	000.0260	0143.1	015.7	50.20
077.0	100.0000	0185.8	062.5	332.6	000.0260	0145.3	014.6	51.19
078.0	100.0000	0182.3	062.1	330.0	000.0260	0141.9	013.7	52.10
079.0	100.0000	0180.1	061.9	327.6	000.0260	0142.1	012.8	53.37
080.0	100.0000	0181.5	062.1	326.1	000.0260	0140.2	011.7	54.78
081.0	100.0000	0182.3	062.1	324.0	000.0260	0141.8	010.7	56.50
082.0	100.0000	0184.2	062.3	321.9	000.0260	0146.6	009.7	58.64
083.0	100.0000	0183.9	062.3	318.1	000.0260	0151.0	008.8	60.60
084.0	100.0000	0183.9	062.3	313.5	000.0260	0154.4	007.9	62.51
085.0	100.0000	0184.9	062.4	308.2	000.0260	0160.4	007.1	64.80
086.0	100.0000	0183.0	062.2	300.1	000.0260	0170.4	006.5	66.66
087.0	100.0000	0182.8	062.2	291.3	000.0260	0152.4	006.0	67.11
088.0	100.0000	0182.4	062.1	281.1	000.0260	0137.7	005.7	67.12
089.0	100.0000	0179.8	061.9	270.2	000.0260	0147.6	005.9	67.32
090.0	100.0000	0176.2	061.5	260.3	000.0260	0144.4	006.3	65.89
091.0	100.0000	0170.0	060.9	252.9	000.0260	0149.5	007.2	63.84
092.0	100.0000	0165.9	060.4	246.8	000.0260	0144.9	008.0	61.69
093.0	100.0000	0162.7	060.1	241.8	000.0260	0142.3	008.9	59.88
094.0	100.0000	0164.2	060.2	235.7	000.0260	0148.1	009.3	59.37
095.0	100.0000	0167.4	060.6	229.6	000.0260	0151.1	009.8	58.76
096.0	100.0000	0176.9	061.6	221.1	000.0260	0152.1	009.9	58.48
097.0	100.0000	0178.8	061.8	217.1	000.0260	0158.6	010.8	57.49
098.0	100.0000	0176.8	061.6	215.4	000.0260	0160.2	011.8	55.92
099.0	100.0000	0178.5	061.8	212.5	000.0260	0162.8	012.7	54.75
100.0	100.0000	0180.8	062.0	209.9	000.0260	0160.0	013.6	53.33
101.0	100.0000	0178.4	061.8	209.4	000.0260	0160.1	014.7	52.01
102.0	100.0000	0178.1	061.7	208.4	000.0260	0162.3	015.8	51.33
103.0	100.0000	0176.7	061.6	207.9	000.0260	0162.7	016.9	50.45
104.0	100.0000	0174.5	061.4	207.8	000.0260	0162.7	017.9	49.55
105.0	100.0000	0172.4	061.1	207.7	000.0260	0162.7	019.0	48.67
106.0	100.0000	0170.4	060.9	207.7	000.0260	0162.7	020.1	47.80
107.0	100.0000	0171.2	061.0	206.9	000.0260	0161.4	021.2	46.91
108.0	100.0000	0169.8	060.9	206.9	000.0260	0161.3	022.2	46.08
109.0	100.0000	0169.6	060.8	206.6	000.0260	0160.8	023.3	45.26
110.0	100.0000	0169.8	060.9	206.3	000.0260	0160.5	024.3	44.46
111.0	100.0000	0167.6	060.6	206.6	000.0260	0160.8	025.4	43.72
112.0	100.0000	0166.5	060.5	206.7	000.0260	0160.9	026.5	42.99
113.0	100.0000	0167.4	060.6	206.3	000.0260	0160.6	027.5	42.28

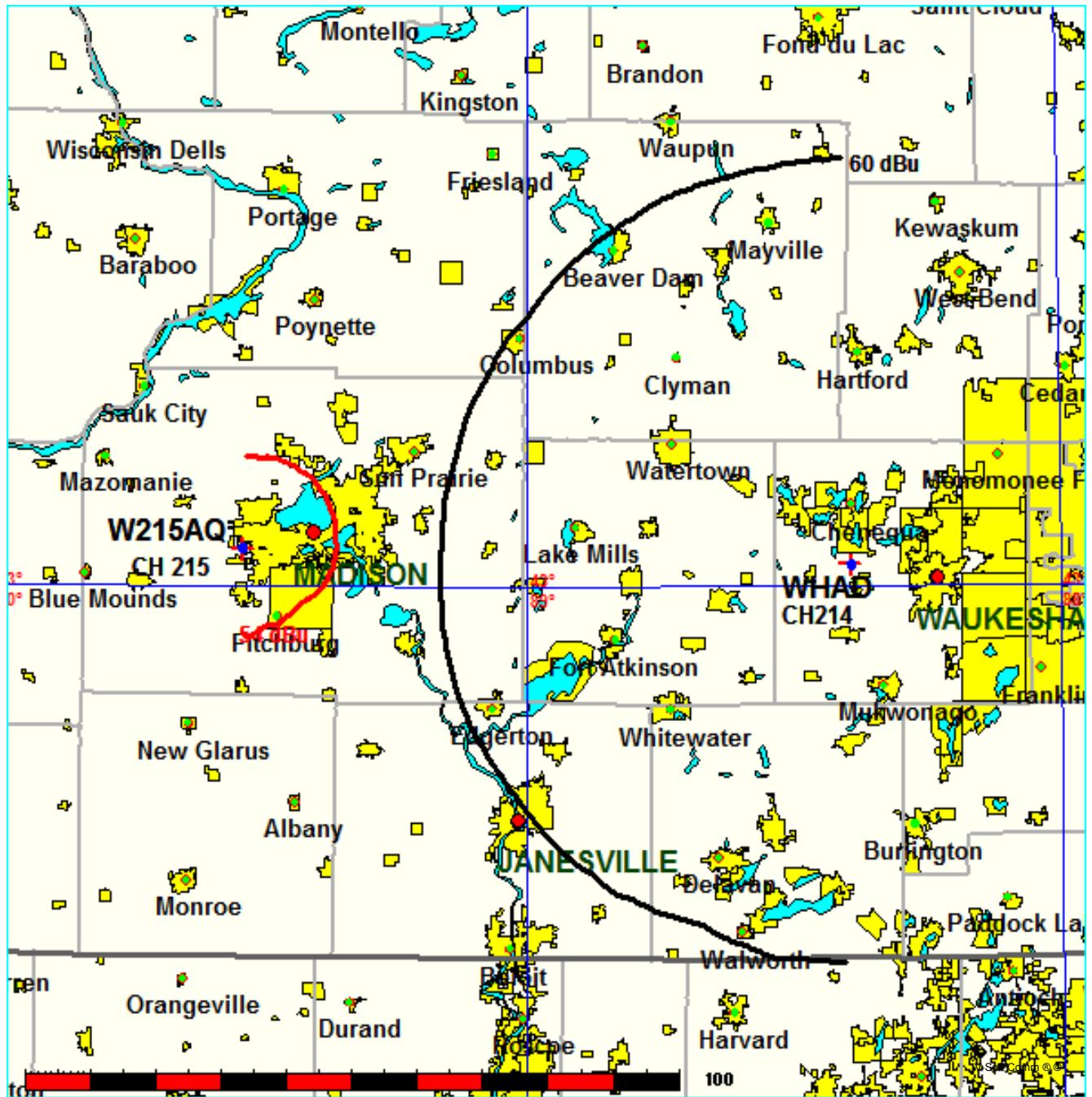
Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
114.0	100.0000	0169.3	060.8	205.8	000.0260	0159.0	028.6	41.51
115.0	100.0000	0167.7	060.6	206.1	000.0260	0160.1	029.6	40.93
116.0	100.0000	0167.7	060.6	206.1	000.0260	0160.1	030.7	40.31
117.0	100.0000	0165.0	060.3	206.7	000.0260	0160.9	031.8	39.77
118.0	100.0000	0161.9	060.0	207.4	000.0260	0162.5	032.8	39.31
119.0	100.0000	0158.2	059.5	208.2	000.0260	0162.6	033.8	38.78
120.0	100.0000	0155.9	059.2	208.7	000.0260	0161.7	034.9	38.20
121.0	100.0000	0155.8	059.2	208.8	000.0260	0161.5	035.9	37.67
122.0	100.0000	0157.3	059.4	208.6	000.0260	0161.9	036.9	37.17
123.0	100.0000	0156.7	059.3	208.8	000.0260	0161.4	038.0	36.64
124.0	100.0000	0153.8	059.0	209.5	000.0260	0160.0	039.0	36.09
125.0	100.0000	0151.3	058.6	210.1	000.0260	0160.1	039.9	35.63
126.0	100.0000	0149.5	058.4	210.6	000.0260	0160.5	040.9	35.19
127.0	100.0000	0148.1	058.2	211.0	000.0260	0161.0	041.9	34.76
128.0	100.0000	0146.7	058.0	211.4	000.0260	0162.0	042.9	34.37
129.0	100.0000	0145.0	057.8	211.9	000.0260	0163.0	043.9	34.00
130.0	100.0000	0144.3	057.7	212.2	000.0260	0163.1	044.9	33.58
131.0	100.0000	0143.9	057.7	212.4	000.0260	0162.9	045.9	33.16
132.0	100.0000	0143.9	057.6	212.7	000.0260	0162.7	046.9	32.74
133.0	100.0000	0142.6	057.5	213.1	000.0260	0161.7	047.8	32.31
134.0	100.0000	0142.5	057.5	213.3	000.0260	0161.0	048.8	31.90
135.0	100.0000	0141.2	057.3	213.8	000.0260	0160.3	049.7	31.49
136.0	100.0000	0138.1	056.8	214.5	000.0260	0159.8	050.6	31.13
137.0	100.0000	0135.9	056.5	215.1	000.0260	0159.9	051.5	30.79
138.0	100.0000	0133.8	056.2	215.6	000.0260	0160.2	052.4	30.46
139.0	100.0000	0132.4	056.0	216.1	000.0260	0159.7	053.3	30.09
140.0	100.0000	0130.9	055.8	216.6	000.0260	0159.0	054.2	29.70
141.0	100.0000	0130.5	055.8	216.9	000.0260	0158.6	055.1	29.33
142.0	100.0000	0130.3	055.7	217.1	000.0260	0158.6	056.1	28.98
143.0	100.0000	0129.3	055.6	217.5	000.0260	0158.6	057.0	28.64
144.0	100.0000	0128.5	055.5	217.9	000.0260	0158.0	057.9	28.28
145.0	100.0000	0127.9	055.4	218.3	000.0260	0157.1	058.8	27.90
146.0	100.0000	0126.2	055.1	218.8	000.0260	0155.9	059.6	27.53
147.0	100.0000	0124.7	054.9	219.3	000.0260	0154.7	060.5	27.16
148.0	100.0000	0123.8	054.8	219.7	000.0260	0154.1	061.3	26.82

Contour-to-Contour with WHAD
State Of Wisconsin - Educational Communications Board

FMCommander Single Allocation Study - 05-01-2014 - USGS 03 SEC
W215AQ's Overlaps (In= -9.81 km, Out= 15.98 km)

W215AQ CH 215 D
Lat= 43 03 21.0, Lng= 89 32 06.0
0.026 kW 166.6 M HAAT, 468 M COR
Prot.= 60 dBu, Intef.= 54 dBu

WHAD CH 214 B BLED20030129AIT
Lat= 43 01 42.0, Lng= 88 23 32.0
72.0 kW 208 M HAAT, 487 M COR
Prot.= 60 dBu, Intef.= 54 dBu



05-01-2014

Terrain Data: USGS 03 SEC

FMOver Analysis

WHAD BLED20030129AIT

W215AQ

Channel = 214B

Max ERP = 72 kW

RCAMSL = 487 M

N. Lat. 43 01 42.0

W. Lng. 88 23 32.0

Protected

60 dBu

Channel = 215D

Max ERP = 0.026 kW

RCAMSL = 468 M

N. Lat. 43 03 21.0

W. Lng. 89 32 06.0

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
212.0	072.0000	0195.8	060.3	131.2	000.0260	0150.3	081.9	20.01	
213.0	072.0000	0196.3	060.4	131.4	000.0260	0150.0	080.9	20.30	
214.0	072.0000	0196.8	060.4	131.5	000.0260	0149.8	079.9	20.61	
215.0	072.0000	0200.7	060.8	131.9	000.0260	0149.2	078.9	20.89	
216.0	072.0000	0204.9	061.1	132.3	000.0260	0148.1	077.9	21.15	
217.0	072.0000	0206.7	061.3	132.5	000.0260	0147.4	076.8	21.44	
218.0	072.0000	0206.8	061.3	132.6	000.0260	0147.2	075.8	21.76	
219.0	072.0000	0205.9	061.2	132.6	000.0260	0147.2	074.7	22.10	
220.0	072.0000	0206.0	061.2	132.6	000.0260	0147.1	073.6	22.42	
221.0	072.0000	0206.5	061.3	132.7	000.0260	0146.9	072.6	22.75	
222.0	072.0000	0207.7	061.4	132.8	000.0260	0146.6	071.5	23.07	
223.0	072.0000	0209.0	061.5	133.0	000.0260	0146.3	070.4	23.40	
224.0	072.0000	0210.7	061.7	133.1	000.0260	0146.0	069.3	23.73	
225.0	072.0000	0211.9	061.8	133.2	000.0260	0145.8	068.3	24.07	
226.0	072.0000	0212.5	061.8	133.2	000.0260	0145.8	067.2	24.42	
227.0	072.0000	0212.9	061.9	133.2	000.0260	0145.8	066.1	24.77	
228.0	072.0000	0213.3	061.9	133.2	000.0260	0145.9	065.0	25.13	
229.0	072.0000	0213.9	062.0	133.1	000.0260	0145.9	063.9	25.49	
230.0	072.0000	0214.1	062.0	133.0	000.0260	0146.1	062.9	25.86	
231.0	072.0000	0214.2	062.0	132.9	000.0260	0146.3	061.8	26.25	
232.0	072.0000	0214.3	062.0	132.8	000.0260	0146.7	060.7	26.65	
233.0	072.0000	0214.3	062.0	132.6	000.0260	0147.1	059.6	27.06	
234.0	072.0000	0214.1	062.0	132.4	000.0260	0147.6	058.6	27.47	
235.0	072.0000	0213.8	062.0	132.2	000.0260	0148.3	057.5	27.90	
236.0	072.0000	0214.2	062.0	132.0	000.0260	0148.9	056.5	28.33	
237.0	072.0000	0214.9	062.1	131.8	000.0260	0149.4	055.4	28.75	
238.0	072.0000	0215.6	062.1	131.6	000.0260	0149.7	054.3	29.18	
239.0	072.0000	0216.4	062.2	131.3	000.0260	0150.2	053.3	29.61	
240.0	072.0000	0217.1	062.3	131.0	000.0260	0150.7	052.2	30.04	
241.0	072.0000	0218.1	062.3	130.7	000.0260	0150.9	051.2	30.46	
242.0	072.0000	0218.9	062.4	130.4	000.0260	0151.1	050.1	30.88	
243.0	072.0000	0220.1	062.5	130.0	000.0260	0151.3	049.1	31.30	
244.0	072.0000	0222.0	062.7	129.7	000.0260	0151.9	048.0	31.74	
245.0	072.0000	0223.5	062.8	129.3	000.0260	0153.0	046.9	32.22	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
246.0	072.0000	0224.2	062.9	128.8	000.0260	0154.1	045.9	32.69
247.0	072.0000	0224.9	062.9	128.2	000.0260	0155.7	044.9	33.19
248.0	072.0000	0225.5	063.0	127.6	000.0260	0157.2	043.9	33.68
249.0	072.0000	0226.1	063.1	126.9	000.0260	0158.0	043.0	34.15
250.0	072.0000	0226.7	063.1	126.2	000.0260	0159.2	042.0	34.64
251.0	072.0000	0227.0	063.1	125.4	000.0260	0160.4	041.1	35.12
252.0	072.0000	0227.4	063.2	124.5	000.0260	0161.6	040.1	35.61
253.0	072.0000	0228.0	063.2	123.6	000.0260	0162.9	039.2	36.10
254.0	072.0000	0227.8	063.2	122.6	000.0260	0164.2	038.4	36.57
255.0	072.0000	0227.9	063.2	121.5	000.0260	0166.3	037.6	37.08
256.0	072.0000	0227.8	063.2	120.3	000.0260	0168.5	036.8	37.59
257.0	072.0000	0227.8	063.2	119.0	000.0260	0171.3	036.0	38.11
258.0	072.0000	0227.2	063.1	117.6	000.0260	0173.5	035.3	38.57
259.0	072.0000	0226.3	063.1	116.2	000.0260	0174.5	034.7	38.94
260.0	072.0000	0226.1	063.0	114.7	000.0260	0175.7	034.0	39.34
261.0	072.0000	0226.7	063.1	113.2	000.0260	0177.7	033.4	39.78
262.0	072.0000	0226.4	063.1	111.5	000.0260	0177.8	032.8	40.07
263.0	072.0000	0225.3	063.0	109.8	000.0260	0176.8	032.4	40.26
264.0	072.0000	0224.5	062.9	108.0	000.0260	0176.9	032.0	40.49
265.0	072.0000	0223.9	062.9	106.1	000.0260	0179.4	031.6	40.82
266.0	072.0000	0223.4	062.8	104.2	000.0260	0184.1	031.2	41.23
267.0	072.0000	0222.8	062.8	102.2	000.0260	0185.9	031.0	41.46
268.0	072.0000	0222.4	062.7	100.3	000.0260	0183.1	030.7	41.48
269.0	072.0000	0222.5	062.7	098.2	000.0260	0185.6	030.5	41.72
270.0	072.0000	0222.6	062.7	096.2	000.0260	0186.5	030.3	41.86
271.0	072.0000	0222.5	062.7	094.1	000.0260	0186.9	030.2	41.93
272.0	072.0000	0222.4	062.7	092.1	000.0260	0187.2	030.2	41.96
273.0	072.0000	0221.7	062.7	090.0	000.0260	0186.6	030.3	41.90
274.0	072.0000	0221.4	062.6	087.9	000.0260	0185.9	030.4	41.81
275.0	072.0000	0221.4	062.6	085.9	000.0260	0185.7	030.5	41.72
276.0	072.0000	0221.6	062.7	083.9	000.0260	0185.0	030.7	41.59
277.0	072.0000	0222.7	062.8	081.8	000.0260	0184.1	030.8	41.47
278.0	072.0000	0223.7	062.8	079.8	000.0260	0184.7	031.0	41.37
279.0	072.0000	0223.4	062.8	078.0	000.0260	0188.4	031.4	41.32
280.0	072.0000	0222.3	062.7	076.2	000.0260	0192.5	031.9	41.23
281.0	072.0000	0221.3	062.6	074.5	000.0260	0193.3	032.4	40.98
282.0	072.0000	0220.6	062.6	072.8	000.0260	0193.9	033.0	40.72
283.0	072.0000	0220.3	062.5	071.2	000.0260	0194.6	033.5	40.46
284.0	072.0000	0220.3	062.5	069.6	000.0260	0193.4	034.1	40.10
285.0	072.0000	0220.4	062.5	068.1	000.0260	0192.0	034.7	39.72
286.0	072.0000	0220.7	062.6	066.7	000.0260	0192.5	035.4	39.41
287.0	072.0000	0220.7	062.6	065.3	000.0260	0195.7	036.1	39.21
288.0	072.0000	0220.7	062.6	064.1	000.0260	0195.8	036.8	38.85
289.0	072.0000	0221.1	062.6	062.8	000.0260	0194.5	037.6	38.43
290.0	072.0000	0222.2	062.7	061.6	000.0260	0194.5	038.3	38.07
291.0	072.0000	0223.3	062.8	060.4	000.0260	0195.6	039.0	37.76
292.0	072.0000	0223.6	062.8	059.4	000.0260	0196.9	039.9	37.43
293.0	072.0000	0223.1	062.8	058.5	000.0260	0197.2	040.8	37.03
294.0	072.0000	0222.6	062.7	057.6	000.0260	0197.5	041.7	36.62
295.0	072.0000	0221.9	062.7	056.9	000.0260	0197.4	042.6	36.19
296.0	072.0000	0221.4	062.6	056.2	000.0260	0196.7	043.6	35.74

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)		Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
297.0	072.0000	0220.7	062.6		055.5	000.0260	0196.1	044.6	35.29
298.0	072.0000	0219.9	062.5		055.0	000.0260	0195.7	045.6	34.85
299.0	072.0000	0219.7	062.5		054.4	000.0260	0195.5	046.5	34.43
300.0	072.0000	0220.6	062.6		053.7	000.0260	0195.7	047.5	34.06
301.0	072.0000	0220.9	062.6		053.1	000.0260	0195.9	048.5	33.68
302.0	072.0000	0220.6	062.6		052.7	000.0260	0196.2	049.5	33.29
303.0	072.0000	0220.3	062.5		052.3	000.0260	0196.3	050.5	32.90
304.0	072.0000	0219.5	062.5		051.9	000.0260	0196.2	051.6	32.48
305.0	072.0000	0217.9	062.3		051.7	000.0260	0196.3	052.7	32.06
306.0	072.0000	0216.3	062.2		051.5	000.0260	0196.2	053.7	31.64
307.0	072.0000	0215.6	062.1		051.3	000.0260	0196.3	054.8	31.23
308.0	072.0000	0215.2	062.1		051.0	000.0260	0196.4	055.9	30.83
309.0	072.0000	0215.0	062.1		050.8	000.0260	0196.6	056.9	30.43
310.0	072.0000	0215.1	062.1		050.6	000.0260	0196.8	058.0	30.04
311.0	072.0000	0215.8	062.1		050.3	000.0260	0197.2	059.0	29.66
312.0	072.0000	0216.5	062.2		050.1	000.0260	0197.4	060.1	29.28
313.0	072.0000	0217.1	062.3		049.9	000.0260	0197.6	061.2	28.90
314.0	072.0000	0217.8	062.3		049.7	000.0260	0197.8	062.2	28.52
315.0	072.0000	0217.8	062.3		049.6	000.0260	0197.9	063.3	28.15
316.0	072.0000	0217.8	062.3		049.5	000.0260	0198.0	064.4	27.77
317.0	072.0000	0218.2	062.3		049.4	000.0260	0198.1	065.5	27.41
318.0	072.0000	0218.5	062.4		049.4	000.0260	0198.1	066.6	27.04
319.0	072.0000	0218.9	062.4		049.3	000.0260	0198.2	067.7	26.68
320.0	072.0000	0218.9	062.4		049.3	000.0260	0198.2	068.7	26.31
321.0	072.0000	0218.4	062.4		049.3	000.0260	0198.2	069.8	25.95
322.0	072.0000	0218.6	062.4		049.3	000.0260	0198.2	070.9	25.59
323.0	072.0000	0218.9	062.4		049.4	000.0260	0198.1	072.0	25.22
324.0	072.0000	0217.9	062.3		049.5	000.0260	0198.0	073.1	24.86
325.0	072.0000	0217.2	062.3		049.6	000.0260	0197.9	074.2	24.50
326.0	072.0000	0216.9	062.2		049.7	000.0260	0197.8	075.3	24.15
327.0	072.0000	0216.0	062.2		049.8	000.0260	0197.7	076.3	23.79
328.0	072.0000	0214.8	062.0		050.0	000.0260	0197.5	077.4	23.44
329.0	072.0000	0215.9	062.1		050.0	000.0260	0197.5	078.5	23.08
330.0	072.0000	0217.1	062.3		050.1	000.0260	0197.4	079.6	22.73
331.0	072.0000	0217.6	062.3		050.2	000.0260	0197.3	080.6	22.38